



**PROPOSAL PREPARED FOR**

**Contra Costa County Fire District**

Pierce Manufacturing, Inc.

Velocity 1500 GPM Pumpers

HGAC FS12-17, Product Code TC06

107' Velocity Tractor Drawn Aerial

HGAC FS12-17, Product Code TA12

October 16, 2019

**SALES CONSULTANT**

*Ryan Wright*

**Golden State Fire Apparatus, Inc.**

7400 Reese Road

Sacramento, CA 95828

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**PARTS, SERVICE & SUPPORT**

**Golden State Emergency Vehicle Service, Inc.**

7400 Reese Road

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## FIRE APPARATUS

[www.goldenstatefire.com](http://www.goldenstatefire.com)





Submitted Date:

October 16, 2019

### EXHIBIT A – PURCHASE DETAIL FORM

#### CUSTOMER NAME

Contra Costa County Fire District  
2467 Waterbird Way  
Martinez, CA 94553

#	Description	Price	
A	Two (2) Pierce Manufacturing, Inc. Velocity 1500 GPM Pumpers	1,482,531.06	
B	Discount for HGAC FS12-17, Product Code TC06 ( <u>Velocity Pumpers</u> )	(56,700.00)	
C	Discount For 100% Pre-Payment at Time of Order ( <u>Velocity Pumpers</u> )	(60,070.14)	
D	One (1) Pierce Manufacturing, Inc. 107' Velocity Tractor Drawn Aerial	1,469,300.99	
E	Discount for HGAC FS12-17, Product Code TA12 ( <u>107' Velocity Tractor Drawn Aerial</u> )	(31,298.00)	
F	Discount For 100% Pre-Payment at Time of Order ( <u>107' Velocity Tractor Drawn Aerial</u> )	(57,022.84)	
 		<b>SUBTOTAL</b>	<b>2,746,741.07</b>
		State Sales Tax @ 9.25%	254,073.54
		<b>GRAND TOTAL</b>	<b>3,000,814.61</b>



The Products include the following items in accordance with the specifications hereto attached:

- Fire apparatus and equipment
- 100% performance bond
- Pre-delivery inspection/services by GSFA
- Delivery to GSFA service center in Sacramento
- Final delivery from service center to Customer
- Demonstration and familiarization of the Product

#### TERMS AND CONDITIONS

- Payment Terms, 100% Pre-Payment at Time of Order** – Customer shall pay the Grand Total within fifteen (15) calendar days of date on invoice to GSFA. Proposed delivery timeframe for the Product shall not begin until full payment is received. If payment is late, a daily finance charge of \$250.00 may be added to the final invoice until such payment is received. If payment is not made, \$117,092.98 plus state sales tax shall be added to the final invoice and due GSFA at time of delivery. Due to insurance liability, the Product(s) will not be left at the Customer's location without full acceptance and payment or prior written agreement between the Customer and GSFA.
- State Sales Tax** – A sale occurs when the Customer takes title to or possession of an item (not when payment is received by GSFA). Consequently, this proposal is subject to the applicable state sales tax rate in effect when the Product is delivered to the Customer per the delivery terms. Customer is responsible for payment of any additional taxes required, likewise Customer is entitled to a refund if the tax rate is lowered!
- Purchase Orders** – If the Customer elects to issue a Purchase Order (PO) it shall be made out to: Golden State Fire Apparatus, Inc. – 7400 Reese Road – Sacramento, CA 95828.



## **PUMPER INFORMATION**



# Proposal Details Report

10/16/2019

**Customer:** Contra Costa County Fire Protection District  
**Representative:** Wright, Ryan  
**Requirements Manager:**  
**Description:** Velocity Pumpers (DUPLICATE)  
**Chassis:** Velocity Chassis (Big Block), 2010  
**Body:** Pumper, Short, Galvanneal, 2nd Gen  
**Bid Number:** 621  
**Job Number:**  
**Organization:** Golden State Fire Apparatus, Inc

OptionCode	Type	Option	ProposalText
0766611		Boiler Plates, Pumper	<p>Golden State Fire Apparatus Inc. is pleased to submit a proposal to Contra Costa County Fire District for a <b>Pierce® triple combination pumper</b> per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.</p> <p>PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.</p> <p>Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.</p> <p>Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.</p> <p>In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment. Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.</p> <p><b>GENERAL DESIGN AND CONSTRUCTION</b></p> <p>To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.</p> <p><b>QUALITY AND WORKMANSHIP</b></p> <p>Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.</p> <p>Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal. In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.</p> <p>To demonstrate the quality of our products and services, a list of at least fifteen (15) fire departments/municipalities that have purchased vehicles for a second time is provided.</p> <p><b>DELIVERY</b></p> <p>The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.</p> <p><b>MANUAL AND SERVICE INFORMATION</b></p> <p>At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.</p> <p><b>SAFETY VIDEO</b></p> <p>At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.</p> <p><b>PERFORMANCE TESTS</b></p> <p>A road test will be conducted with the apparatus fully loaded and a continuous run of no less than</p>

ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

#### **SERVICE AND WARRANTY SUPPORT**

Pierce dealership support will be provided by Golden State Emergency Vehicle Service Inc. by operating in conjunction with a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within seventy five (75) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

#### **LIABILITY**

**The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.**

#### **INSURANCE PROVIDED BY BIDDER**

##### **COMMERCIAL GENERAL LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Personal and Advertising Injury \$1,000,000**

**General Aggregate \$2,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.**

##### **COMMERCIAL AUTOMOBILE LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:**

**Each Accident Combined Single Limit: \$1,000,000**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:**

**Aggregate: \$3,000,000**

**Each Occurrence: \$3,000,000**

**The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.**

**The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.**

**Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.**

**All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.**

**Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.**

#### **INSURANCE PROVIDED BY MANUFACTURER**

##### **PRODUCT LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum**

**limits of umbrella liability insurance:**

**Each Occurrence: \$25,000,000**

**Aggregate: \$25,000,000**

**The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.**

**The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.**

**Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.**

**All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.**

**Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.**

0661794	Single Source Compliance	<p><b>SINGLE SOURCE MANUFACTURER</b></p> <p>Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operators panel) and body will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.</p>
0584456	Manufacture Location, Appleton, Wisconsin	Your apparatus will be manufactured in Appleton, Wisconsin.
0584452	RFP Location: Appleton, Wisconsin	
0588609	Vehicle Destination, US	
0670275	Unit to be Similar in some Aspects, Excluding Pump Panel	<p><b>SPECIAL INSTRUCTIONS</b></p> <p>The apparatus being proposed will be designed and built to match the match pump panel on job 32428 01-04 as much as possible. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.</p>
0610784	Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions	<p><b>NFPA 2016 STANDARDS</b></p> <p>This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.</p> <p>Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.</p> <p>All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.</p> <p>A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.</p> <p>The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.</p> <p>An official of the company will designate, in writing, who is qualified to witness and certify test results.</p>
0533347	Pumper/Pumper with Aerial Device Fire Apparatus	
0588611	Vehicle Certification, Pumper	

0661778	Agency, Apparatus Certification, Pumper/Tanker, U.L.	<p><b>NFPA COMPLIANCY</b> Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".</p> <p><b>VEHICLE INSPECTION PROGRAM CERTIFICATION</b> To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus. A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.</p> <p><b>PUMP TEST</b> Underwriters Laboratory (UL) will test, approved, and certify the pump. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the pump manufacturer's record of pump construction details will be forwarded to the Fire Department.</p> <p><b>GENERATOR TEST</b> If the unit has a generator, Underwriters Laboratory (UL) will test, approved, and certify the generator. The test results will be provided to the Fire Department at the time of delivery.</p> <p><b>BREATHING AIR TEST</b> If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and have the sample certified that the air quality meets the requirements of NFPA 1989, <i>Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection</i>.</p>
0000000	STF GSFA, Final Insp, ATW Factory, Major Airport, 4 Days and 3 nights	<p><b>FINAL INSPECTION FACTORY TRIP</b> A final inspection trip to the manufacturing facility will be provided for five (5) Customer representative(s). The intent of this trip is to ensure that the apparatus is built to specification and to detect any deficiencies that require correction. The final inspection trip will have a duration of four (4) days and three (3) nights and be scheduled at times mutually agreed upon between Golden State Fire Apparatus (GSFA), and the Customer. Costs for airfare, lodging, meals and ground transportation while at the manufacturers location will be the responsibility of GSFA. Air travel will be from one of the following airports: Sacramento, San Francisco or San Jose. Costs such as Customer ground transportation in California, Customer airport parking, Customer luggage fees and Customer incidentals while traveling to the factory will be the responsibility of the Customer. Flight reservations are non-refundable and in the event of a cancellation after booking, the Customer will be responsible for all costs associated with this cancellation, which may include not only the original ticket cost but also any change or cancellation fees imposed by the airline and/ or travel agency. Flight reservations are also non-transferable.</p>
0007289	Delivery	<p><b>DELIVERY</b> Said apparatus and equipment will be built and shipped in accordance with the specifications hereto. Delays due to strikes, war or international conflict, failures to obtain chassis, materials, or other causes beyond our control not preventing, within about Martinez, California working days after receipt of this order and the acceptance thereof at our office at Appleton, Wisconsin, and to be delivered to you at no later than 365 days from the date that the order is placed. ORDERED ON 1/25/18 WHICH RESULTS IN DELIVERY NO LATER THAN 1/25/19 IN MARTINEZ (GSFA NEEDS FOR A MINIMUM OF 30 CALENDAR DAYS FOR EQUIPMENT MOUNTING SO RFP NEEDS TO BE NO LATER THAN 12/26/18. The specifications herein contained will form a part of the final contract and are subject to changes desired by the purchaser, provided such alterations are interlined prior to the acceptance by the company of the order to purchase, and provided such alterations do not materially affect the cost of the construction of the apparatus. The proposal for fire apparatus conforms with all Federal Department of Transportation (DOT) rules and regulations in effect at the time of bid and with all National Fire Protection Association (NFPA) Guidelines for Automotive Fire Apparatus as published at the time of bid, except as modified by customer specifications. Any increased costs incurred by first party because of future changes in or additions to said DOT or NFPA standards will be passed along to the customers as an addition to the price set forth above. Unless accepted within 30 days from date, the right is reserved to withdraw this proposition.</p>
0093797	PENALTY CLAUSE IN CONTRACT	
0799172	FLEET CUSTOMER	

0536644	Customer Service Website	<p><b>AFTERMARKET SUPPORT WEBSITE</b></p> <p>Pierceparts.com will provide <u>Pierce authorized dealer</u> access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the Pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.</p> <p>Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service.</p> <p>The website will consist of the following screens at the dealer level:</p> <p><b>My Fleet Screen</b></p> <p>The My Fleet screen will provide access to truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.</p> <p><b>Parts Screens</b></p> <p>The Parts screens will provide parts look-up capability of Pierce Manufacturing sourced items, with the aid of digital photographs, part drawings and assembly drawings. The parts search application will permit the searching of parts by item description or function group (major system category). The parts application will provide the ability to submit electronically a parts order, parts quote, or parts return request directly to Pierce Manufacturing for processing.</p> <p><b>Warranty Screen</b></p> <p>The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement.</p> <p><b>My Reports Screens</b></p> <p>The My Reports screens will provide access to multiple dealer reports to allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.</p> <p><b>Technical Support Screens</b></p> <p>The Technical Support screens will provide access to all currently published Operation and Maintenance and Service Publications. Access to Pierce Manufacturing Service Bulletins and Work Instructions, containing information on current service topics and recommendations will be provided.</p> <p><b>Training</b></p> <p>The Training screens will provide access to upcoming training classes offered by Pierce Manufacturing along with interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components will be provided. Access to training manuals used in Pierce Manufacturing training classes will be provided.</p> <p><b>About Pierce</b></p> <p>Access to customer service articles, corporate news, quarterly newsletters, and key contacts within the Customer Service Department will be provided. The current Customer Service Policy and Procedure Manual, detailing the operation of the Customer Service group will also be accessible.</p>
0620362	Consortium, HGAC	
0537375	Unit of Measure, US Gallons	
0030006	Bid Bond Not Requested	<p><b>BID BOND NOT REQUESTED</b></p> <p>A bid bond will not be included. If requested, the following will apply:</p> <p>All bidders will provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.</p> <p>Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.</p>
0582800	Performance Bond, 100 Percent w/25 Percent Warranty Bond, 1 Yr, and Payment Bond	<p><b>PERFORMANCE BOND, 1 YEAR</b></p> <p>The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.</p> <p>Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.</p>



0000007	Approval Drawing	<p><b>APPROVAL DRAWING</b></p> <p>A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.</p> <p>A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.</p>
0544889	Drawing, Pump Operators Panel, 1 Drawing, 2 Unit Order	<p><b>PUMP OPERATOR'S PANEL DRAWING</b></p> <p>A detailed drawing to scale of the pump operator's panel will be provided for approval prior to construction. This drawing will include all of the gauges and controls located on the pump operator's panel.</p> <p>This is a multiple unit order, and the customer will receive one (1) hard copy drawing total for all the units.</p>
0622219	SP Drawing, Cab, Top View, Seating and EMS Cabinets, Reference Only, Multi Unit (2)	<p><b>DRAWING, CAB TOP VIEW</b></p> <p>On the sales drawing a top view of the cab seating and EMS cabinets will be provided. The top view will be a reference only of the seating and EMS cabinets in the order.</p> <p>This is a multiple unit order. The customer will receive one (1) drawing total for the two (2) truck order.</p>
0774174	SP Drawing, Right Pump Panel, Non-Control Zone, Multiple Unit Order (2)	<p><b>DRAWING, RIGHT PUMP PANEL</b></p> <p>A detailed drawing to scale of the right pump panel will be provided for approval prior to construction. This drawing will include all of the items located on the right pump panel.</p> <p>This is a multiple unit order, and the customer will receive one (1) hard copy drawing total for (2) units.</p>
0002928	Electrical Diagrams	<p><b>ELECTRICAL WIRING DIAGRAMS</b></p> <p>Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.</p>
0564202	Velocity Chassis (Big Block), 2010	<p><b>VELOCITY CHASSIS</b></p> <p>The Pierce Velocity® is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required. The chassis will be the manufacturer's first line tilt cab.</p>
0021007	Maximum Overall Height	<p><b>MAXIMUM OVERALL HEIGHT</b></p> <p>The maximum overall height of the apparatus will be 9' - 8.00".</p>
0021010	Maximum Overall Length	<p><b>MAXIMUM OVERALL LENGTH</b></p> <p>The maximum overall length of the apparatus will be 30' - 6.00".</p>
0000110	Wheelbase	<p><b>WHEELBASE</b></p> <p>The wheelbase of the vehicle will be 184.50".</p>
0000070	GVW Rating	<p><b>GVW RATING</b></p> <p>The gross vehicle weight rating will be 43,500 lbs&amp;#x0D; .</p>
0000203	Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel/DCF	<p><b>FRAME</b></p> <p>The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.</p>
0020018	Frame Liner Not Req'd	

0508848	Axle, Front, Oshkosh TAK-4, Non Drive, 19,500 lb, Imp/Vel	<p><b>FRONT NON DRIVE AXLE</b></p> <p>The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 19,500 lb.</p> <p>Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron.</p> <p>The center cross members and side plates will be constructed out of 80,000-psi yield strength steel.</p> <p>Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations.</p> <p>There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension.</p> <p>The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load.</p> <p>Camber at load will be 0 degrees for optimum tire life.</p> <p>The ball joint bearing will be of low friction design and be maintenance free.</p> <p>Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided.</p> <p>The wheel ends must have little to no bump steer when the chassis encounters a hole or obstacle.</p> <p>The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase.</p> <p>The axle will have a third party certified turning angle of 45 degrees. Front discharge, front suction, or aluminum wheels will not infringe on this crank angle.</p>
0664942	SP Suspension, Front TAK-4, 19,500 lb, 5" Jounce Qtm/AXT/Imp/Vel/DCF/Enf	<p><b>FRONT SUSPENSION</b></p> <p>Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 19,500 lb.</p> <p>The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.</p> <p>Each wheel will have torsion bar type spring. In addition, each front wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension.</p> <p>The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms.</p> <p>The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within fifteen minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side.</p> <p>The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.</p>
0087572	Shock Absorbers, KONI, TAK-4, Qtm/AXT/Imp/Vel/DCF/Enf	<p><b>FRONT SHOCK ABSORBERS</b></p> <p>KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.</p>
0000322	Oil Seals, Front Axle	<p><b>FRONT OIL SEALS</b></p> <p>Oil seals with viewing window will be provided on the front axle.</p>
0582936	Tires, Front, Goodyear, G289 WHA, 315/80R22.50, 20 ply	<p><b>FRONT TIRES</b></p> <p>Front tires will be Goodyear® 315/80R22.50 radials, 20 ply G289 WHA tread, rated for 20,400 lb maximum axle load and 68 mph maximum speed.</p>
0019575	Wheels, Front, Alcoa, 22.50" x 9.00", Aluminum, Hub Pilot	<p>The tires will be mounted on Alcoa 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.</p>
0530464	Axle, Rear, Meritor RS24-160, 24,000 lb, Imp/Vel/Dash CF	<p><b>REAR AXLE</b></p> <p>The rear axle will be a Meritor™, Model RS-24-160, with a capacity of 24,000 lb.</p>
0544253	Top Speed of Vehicle, 68 MPH	<p><b>TOP SPEED OF VEHICLE</b></p> <p>A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 68 mph.</p>
0555350	Suspen, Rear, Hendrickson FMX 242 EX, Air Ride, 24,000 lb	<p><b>REAR SUSPENSION</b></p> <p>Rear suspension will be a Hendrickson FMX 242 EX, air ride with a ground rating of 24,000 lb.</p> <p>The suspension will have the following features:</p> <ul style="list-style-type: none"> <li>- Heavy-duty shock absorbers to protect air springs from overextension</li> <li>- Heavy-duty torque rods and bushings</li> <li>- Premium, heavy-duty rubber bushings require no lubrication</li> <li>- Integrated stabilizer design results in greater stability</li> <li>- Low spring rate air springs for excellent ride quality</li> <li>- Dual height control valves to maintain level vehicle from side to side</li> </ul>

0000485	Oil Seals, Rear Axle	<b>REAR OIL SEALS</b> Oil seals will be provided on the rear axle(s).
0539392	Plug, Rear Axle Drain, Magnetic	<b>REAR AXLE DRAIN PLUG</b> The rear axle drain plug will be magnetic.
0629346	Valves, Dump, Air Ride, Rear Axle, Park Brake Interlock	<b>REAR AIR RIDE SUSPENSION DUMP VALVES</b> The rear air ride suspension will be supplied with a dump valve system provided by the custom chassis manufacturer. The control will be located inside the cab and at the pump panel. To prevent accidental activation of the valves, a 5 second timed delay will be built into the control circuit. The chassis back-up alarm will sound when the control is active. The parking brake must be applied before the control will be active. Release of the parking brake will automatically inflate the suspension.
0782552	Tires, Rear, Goodyear, Endurance RSA, 12R22.50, LRH, Single	<b>REAR TIRES</b> Rear tires will be four (4) Goodyear 12R22.50 radials, load range H, Endurance RSA highway tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed.
0019625	Wheels, Rear, Alcoa, 22.50" x 8.25", Aluminum, Hub Pilot, Single	The tires will be mounted on Alcoa 22.50" x 8.25" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.
0568081	Tire Balancing, Counteract Beads	<b>TIRE BALANCE</b> All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.
0602747	No Tire Pressure Indicator, Fire Department Omits, Non-NFPA 2016 Compliant	<b>TIRE PRESSURE INDICATOR</b> NFPA 1901, 2016 edition, section 4.13.4 requires each tire be equipped with a visual indicator or monitoring system that indicates tire pressure. Per Fire Department specification, a tire pressure indicator is not on the apparatus as manufactured. This apparatus will be non-compliant to NFPA 1901 standards effective at time of contract execution.
0003245	Axle Hub Covers w/center hole, S/S, Front Axle	<b>FRONT HUB COVERS</b> Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.
0001960	Axle Hub Covers, Rear, S/S, High Hat (Pair)	<b>REAR HUB COVERS</b> A pair of stainless steel high hat hub covers will be provided on rear axle hubs.
0052332	Covers, Lug Nut, Stainless Steel	<b>LUG NUT COVERS</b> Stainless steel lug nut covers will be installed on all lug nuts.
0002045	Mud Flaps, w/logo front & rear	<b>MUD FLAPS</b> Mud flaps with a Pierce logo will be installed behind the front and rear wheels.
0031931	Valve, Extension Stabilizer System, Rear Duals	<b>STABILIZER SYSTEM (Rear Valve Stems)</b> A valve stem stabilizer system will be provided on the rear duals.
0544802	Chocks, Wheel, SAC-44-E, Folding	<b>WHEEL CHOCKS</b> There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.
0544806	Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal	<b>WHEEL CHOCK BRACKETS</b> There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted forward of the left side rear tire and rearward of the left side rear tire.

0010670	ABS Wabco Brake System, Single rear axle	<b>ANTI-LOCK BRAKE SYSTEM</b> The vehicle will be equipped with a Meritor WABCO 4S4M, anti-lock braking system. The ABS will provide a 4-channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.
0030185	Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	<b>BRAKES</b> The service brake system will be full air type. The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance. The brake system will be certified, third party inspected, for improved stopping distance.
0509206	Brakes, Meritor, EX225, Disc Plus, Rear, Single Axle	The rear brakes will be Meritor™, Disc Plus, Model EX225, disc operated with automatic slack adjusters and a 17.00" ventilated rotor for improved stopping distance.
0020784	Air Compressor, Brake, Cummins/Wabco 18.7 CFM	<b>BRAKE SYSTEM AIR COMPRESSOR</b> The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.
0000785	Brake Reservoirs, Three	<b>BRAKE SYSTEM</b> The brake system will include: Bendix® dual brake treadle valve Heated automatic moisture ejector on air dryer Total air system capacity of 4,362 cubic inches Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi Spring set parking brake system Parking brake operated by a push-pull style control valve A parking "brake on" indicator light on instrument panel Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa) 1/4 turn drain valve on each air tank The air tank will be primed and painted to meet a minimum 750 hour salt spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.
0587033	Air Dryer, Brake, AD-9 w/heat, 2010	- Bendix AD-9 air dryer, with heater and coalescing filter
0000790	Brake Lines, Nylon	<b>BRAKE LINES</b> Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.
0020851	Not Required, Air Inlet	
0643363	Outlet, Air, with Shut Off Valve, Location	<b>AIR OUTLET</b> One (1) air outlet will be installed with a female coupling located in the driver side lower step well of cab. This system will tie into the "wet" tank of the brake system, include an 85 psi pressure protection valve in the outlet line to prevent the brake system from losing all air, and include a quarter turn shut off valve mounted at the tank. The valve and hoses will be mounted to the tank as high as possible to ensure maximum clearance and protect the lines from being damaged by brush and rocks during off-road operations.
0586772	Box, Recessed, Alum Treadplate, for Air Fitting	<b>RECESSED BOX FOR AIR FITTING</b> One (1) air outlet will have an aluminum treadplate recessed box provided. The box(es) will allow the air fitting to be recessed inside the stepwell to prevent damage. in the driver side lower step well of cab per job 32428 01-04.
0589828	SP Air Tanks, Mount High, Maximize Ground Clearance	<b>AIR TANK MOUNTING</b> Air tanks will be installed to maximize ground clearance. Smaller tanks may be required to allow for them to be mounted higher for increased ground clearance.

0000845	Air Tank, Additional for Extra Capacity	<b>AIR TANK, ADDITIONAL</b> An additional air tank with 1454 cubic inch displacement will be provided to increase the capacity of the main air brake system. This tank will be plumbed into the rear half of the brake system. The air tank will be primed and painted to meet a minimum 750 hour spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets. The output flow of the engine air compressor will vary with engine rpm. Full compressor output will only be achieved at governed engine speed. Engine speed will be limited by generators, pumps and other PTO driven options.
0758414	SP Air Tanks, Special Location	<b>AIR TANK, SPECIAL LOCATION</b> Due to space constraints, two (2) air tanks will be located one tank inside the PS frame rail under the water tank and one located inside the pump house high.
0000810	All Wheel Lock-up	<b>ALL WHEEL LOCK-UP</b> An all wheel lock-up system will be installed which will apply air to the front brakes and use the spring brake at the rear. A control switch will be provided for the driver on the instrument panel. The all wheel lock-up system will be operational only when the parking brake is applied, the truck transmission is in neutral and engine is running.
0642617	Air Line, S/S Braid, Air Governor To Air Dryer	<b>AIR LINE</b> The air line from the air compressor governor to the air dryer will be stainless steel braid.
0764546	Engine, Cummins X12, 500 hp, 1695 lb-ft, W/OBD, EPA 2018, Velocity	<b>ENGINE</b> The chassis shall be powered by an electronically controlled engine as described below: Make: Cummins Model: X12 Power: 500 hp at 1900 rpm Torque: 1695 lb-ft at 1000 rpm Governed Speed: 2000 rpm Emissions Level: EPA 2018 Fuel: Diesel Cylinders: Six (6) Displacement: 720 cubic inches (11.8L) Starter: Delco 39MT™ Fuel Filters: Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter. The engine shall include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.
0001244	High Idle w/Electronic Engine, Custom	<b>HIGH IDLE</b> A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation. The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."
0687994	Engine Brake, Jacobs Compression Brake, Cummins Engine	<b>ENGINE BRAKE</b> A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver. The driver will be able to turn the engine brake system on/off and have a high, medium and low setting. The engine brake will activate when the system is on and the throttle is released. The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine. The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated. The ABS system will automatically disengage the auxiliary braking device, when required.
0552334	Clutch, Fan, Air Actuated, Horton Drive Master	<b>CLUTCH FAN</b> A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.

0636640	Filters, Remote Mounted, Oil, Fuel, ISX12/ISX15, VEL/AXT	<b>REMOTE MOUNTED ENGINE FILTERS</b> The engine fuel and oil filters will be remote mounted for ease of maintenance.
0123135	Air Intake, w/Ember separator, Imp/Vel	<b>ENGINE AIR INTAKE</b> An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, rotomolded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.
0794743	Exhaust System, 5", X12/X15 Engine, Horizontal, Right Side	<b>EXHAUST SYSTEM</b> The exhaust system will include a Single Module™ aftertreatment device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the aftertreatment device, and will be 5.00" in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.
0769434	SP Exhaust, Modified 20 Degree - Flush With Rubrail, Approval Req'd	<b>EXHAUST MODIFICATION</b> The exhaust pipe will be brought out from under the body at a 20 degree angle to the rear. The diffuser will not be cut straight to the body, and the outer edge shall be flush with the body rubrail. There will be a minimum of 2.50" from the exhaust pipe to the under side of the body heat shield. The last 7.00" of the exhaust will be free of hangers and/or clamps.
0683310	Diffuser, Exhaust, Modified For Extraction, 5"x7"x5", Flush With Rub Rail, CARE	<b>EXHAUST MODIFICATION</b> The exhaust pipe will be 90 degrees to the body. The diffuser will be reduced to 5.00" in the center to accommodate the fire department's air recovery system. The 5.00" extension pipe coming out of the end of the diffuser will be flush with the body rub rail. There will be a minimum of 4.00" clearance between the top of the 5.00" extension and the bottom of the body. There will be a minimum of 2.50" from the exhaust pipe to the under side of the body heat shield. The last 7.00" of the exhaust will be free of hangers and/or clamps.
0787999	Radiator, Impel/Velocity	<b>RADIATOR</b> The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards. For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions. There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators. The radiator assembly will include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap. A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system. A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.
0616439	Cooling Hoses, Gates Silicone	<b>COOLANT LINES</b> Gates® silicone hoses will be used for all engine/heater coolant lines installed by the chassis manufacturer. The chassis manufacturer will also use Gates brand hose on other heater, defroster and auxiliary coolant circuits. There will be some areas in which an appropriate Gates product is not available. In those instances, a comparable silicone hose from another manufacturer will be used. Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

0041669	Fuel Tank, 50 Gallon, Dual Fills	<b>FUEL TANK</b> A 50 gallon fuel tank will be provided and mounted at rear of chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps. A .75" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be located on the left hand and right hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only". A .50" diameter vent will be provided running from top of tank to just below fuel fill inlets. The tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume. Servicing the fuel tank pick-up tubes and fuel gauge sending unit will be capable of being accomplished by draining fuel and dropping tank.
0001129	Lines, Fuel	All fuel lines will be provided as recommended by the engine manufacturer.
0618791	DEF Tank, 4.5 Gallon, DS Fill, Forward of Axle, Common Air Bottle Door	<b>DIESEL EXHAUST FLUID TANK</b> A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body forward of the rear axle. A 0.50" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be provided and marked "Diesel Exhaust Fluid Only". The fill inlet will be located below the air bottle storage behind a common door on the driver side of the vehicle. The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing. The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.
0552862	Fuel Pump for Repriming, Special Switch Location	<b>AUXILIARY FUEL PUMP</b> An auxiliary electric fuel pump will be added to the fuel line for re priming the engine. A switch to operate the pump will be located in the engine compartment, on the dip stick bracket and accessible through access door - add a half moon protective guard for this switch. The switch shall be properly labeled.
0582243	Shutoff Valves, Fuel Line @ Primary Filter, Cummins	<b>FUEL SHUTOFF</b> A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.
0553019	Cooler, Engine Fuel, Imp/Vel, AXT/Qtm/Sab/DCF/SFR/Enf	<b>FUEL COOLER</b> An air to fuel cooler will be installed in the engine fuel return line.
0604578	SP Label, "DEF Fluid Only", Mounted Next to Fill Cap	<b>LABEL, DEF DOOR</b> A label, reading "DEF Fluid Only" will be provided next to the fill cap on the inside of the door.
0627382	SP Label, "Ultra Low Sulfur Diesel Fuel Only", Mounted On Inside Of Door Only, Qty	<b>FUEL DOOR LABEL</b> two (2) fuel fill label(s), "Ultra Low Sulfur Diesel Fuel Only" will be provided on the inside of the fuel fill door.
0783194	SP Fuel/Water Separator, Racor FG1000 Inline, 10 Micron Element, LA City	<b>FUEL FILTER/WATER SEPARATOR</b> The engine will be equipped with a Racor, model FG1000 in-line fuel filter/water separator in addition to the engine fuel filters. The filter will include a ten (10) micron filter element. The filter will be installed near the inlet on the water pump (SEE PHOTOS).
0642582	Trans, Allison 5th Gen, 4000 EVS P, w/Prognostics, Imp/Vel/DCF/SFR/Enf	<b>TRANSMISSION</b> An Allison 5th generation, Model EVS 4000P, electronic, torque converting, automatic transmission will be provided. The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due. Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock). A transmission temperature gauge with red light and buzzer will be installed on the cab instrument panel.

0625330	Transmission, Shifter, 5-Spd, Push Button, 4000 EVS	<b>TRANSMISSION SHIFTER</b> A five (5)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation. The transmission ratio will be: 1st 3.51 to 1.00 2nd 1.91 to 1.00 3rd 1.43 to 1.00 4th 1.00 to 1.00 5th 0.74 to 1.00 R 4.80 to 1.00
0684459	Transmission Oil Cooler, Modine, External	<b>TRANSMISSION COOLER</b> A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.
0024895	Mode, Downshift, Aggressive downshift to 2nd, w/engine brake, 5 speed	<b>DOWNSHIFT MODE (w/engine brake)</b> The transmission will be provided with an aggressive downshift mode. This will provided earlier transmission downshifts to 2nd gear, resulting in improved engine braking performance.
0565656	Fluid, 4000/4500 Series Transmission, TranSynd synthetic, IPOS, Custom	<b>TRANSMISSION FLUID</b> The transmission will be provided with TranSynd heavy duty synthetic transmission fluid.
0001375	Driveline, Spicer 1810	<b>DRIVELINE</b> Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints. The shafts will be dynamically balanced before installation. A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.
0614061	Chassis Cross Member w/Arch Facing Upward, Pumphouse	<b>CHASSIS CROSS MEMBER</b> The chassis cross member within the pumphouse will be installed with the arch facing up to allow for additional clearance above.
0669988	Steering, Sheppard M110 w/Tilt, TAK-4, Eaton Pump, w/Cooler	<b>STEERING</b> Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings. A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.
0001544	Not Required, Steering Assist Cylinder on Front Axle	
0509230	Steering Wheel, 4 Spoke without Controls	<b>STEERING WHEEL</b> The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.
0690274	Logo/Emblem, on Dash	<b>LOGO AND CUSTOMER DESIGNATION ON DASH</b> The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row. The first row of text will be: CONTRA The second row of text will be: COSTA The third row of text will be: FIRE-RESCUE
0513728	Tag/Label, On Chassis, In Cab	<b>TAG/LABEL</b> The following three (3) tags or labels will be provided on keyrings, near the fill point of the following: Engine oil, Transmission fluid, Power Steering on the chassis or cab. The tag/label will be configured and read fluid specification : type and weight of fluid.



0654471	Cover, Rubber, Driveshaft Grease, DS Frameraill	<b>GUARD, WIRES IN FRAME RAIL</b> A rubber flap guard will be provided to protect the wires and relays around the u-joints of the driveshaft from grease build-up on the driver's side of the frame.
0569141	Bumper, 13" Extended, Steel Painted, Imp/Vel	<b>BUMPER</b> A one piece bumper manufactured from .25" formed steel with a .38" bend radius will be provided. The bumper will be a minimum of 10.00" high with a 1.50" top and bottom flange, and will extend 13.00 " from the face of the cab. The bumper will be 102.00" wide with 45 degree corners and side plates. The bumper will be metal finished and painted job color. To provide adequate support strength, the bumper will be mounted directly to the front of the C channel frame. The frame will be a bolted modular extension frame constructed of 50,000 psi tensile steel. <b>GRAVEL PAN</b> A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and the cab face. The pan will be properly supported from the underside to prevent flexing and vibration. Documentation will be provided, upon request to show that the options selected have been engineered for fit up and approval for this modular bumper extension. A chart will be provided to indicate the option locations and will include but not be limited to the following options: air horns, mechanical sirens, speakers, hose trays with hose capacities, winches, lights, discharge and suction connections.
0616511	Tray, Hose, Center, 13" Bumper, Outside Air Horns, Imp/Vel	<b>CENTER HOSE TRAY</b> A hose tray, constructed of aluminum, will be placed in the center of the bumper extension. The tray will have a capacity of 75' of 1.75" double jacket cotton-polyester hose. Black rubber grating will be provided at the bottom of the tray. Drain holes are also provided.
0630809	Cover, Aluminum Treadplate, One (1) D-Ring Latch, Hose Tray, Notched	<b>CENTER HOSE TRAY COVER</b> A bright aluminum treadplate cover will be provided over the center hose tray. The cover will be "notched" allowing the hose to be pre connected to hose connection. The cover will be attached with a stainless steel hinge. A D-ring latch will secure the cover in the closed position and a pneumatic stay arm will hold the cover in the open position. The arm will be match job 32428 01-04
0510226	Lift & Tow Package, Imp/Vel, AXT, Dash CF	<b>LIFT AND TOW MOUNTS</b> Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems. The lift and tow mounts with eyes will be painted the same color as the frame.
0049963	Tow Eyes, Painted Black, Below Deck	<b>TOW EYES</b> Two (2) painted steel tow eyes will be installed under the bumper and attached to the front frame members. The tow eyes will be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus. The inner and outer edges of the tow eyes will have a .25" radius. The tow eyes will be painted black.
0613843	SP Mounting Holes, For License Plate, Frt Bumper	<b>LICENSE PLATE (Mounting Holes)</b> Four (4) mounting holes will be provided passenger's side of the front bumper for the customer to mount a license plate.
0030312	Trim, Hose Tray, Bumper, S/S Under Front Angle	<b>HOSE TRAY TRIM</b> There will be stainless steel 45 degree shaped trim installed under the front angle(s) of the bumper hose tray(s) to keep hose from catching on the angle for the cover. The trim will be provided on one (1) bumper hose tray(s).
0030434	Travel Stops, Front Inlet/Outlet Swivel, Qty & Location	<b>SWIVEL STOPS</b> Installed on the front bumper extension will be one (1) sets of stainless steel rods to limit the travel of a front outlet or inlet swivel. Two (2) stainless steel rods, for each application, will be threaded into the bumper deck and mounted behind the front discharge .
0660435	Coating, Top Flange, Front Bumper, Outside Exterior, Rhino Lining, Black	<b>RHINO COATING - FRONT BUMPER</b> Protective black Rhino Linings® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange. The lining will be properly installed by an authorized Rhino Linings® dealer.

**CAB**

The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area will also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab will be a full-tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The overall height (from the cab roof to the ground) will be approximately 102.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided.

The floor-to-ceiling height inside the forward cab will be no less than 60.25". The floor-to-ceiling height inside the crew cab will be no less than 52.95" in the center position and 58.75" in the outboard positions.

The crew cab will measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

**INTERIOR CAB INSULATION**

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

**FENDER LINERS**

Full-circular, aluminum inner fender liners in the wheel wells will be provided.

**PANORAMIC WINDSHIELD**

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

**WINDSHIELD WIPERS**

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather. The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

**FAST SERVICE ACCESS FRONT TILT HOOD**

A full-width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood with a double-action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).

0667982		Engine Tunnel, ISX, Impel/Velocity FR	<b>ENGINE TUNNEL</b> To provide structural strength, the engine tunnel sidewalls will be constructed of .50" aluminum plate that is welded to both the .25" firewall and .38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered. The engine tunnel will be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel will be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The insulation will keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.
0677478		Rear Wall, Exterior, Cab, Aluminum Treadplate	<b>CAB REAR WALL EXTERIOR COVERING</b> The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.
0122466		Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel	<b>CAB LIFT</b> A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure. The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended). The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab. The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position. For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered. <b>Cab Lift Interlock</b> The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.
0550343		Special Circuit, Cab Tilt w/o Ignition Switch	<b>CAB TILT CIRCUIT</b> The cab tilt mechanism will be operational with the battery switch on and with parking brake set.
0691738	SP	Indicator, Cab Not Engaged Into Lockdown Latches, Tied to Do Not Move Truck Lt	<b>LOCKDOWN INDICATOR</b> The "Do Not Move Truck" light and alarm will activate when the cab is not fully engaged into the lockdown latches.
0123176		Grille, Bright Finished, Front of Cab, Impel/Velocity	<b>GRILLE</b> A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.
0745806	SP	Scuffplate, S/S, Right Side, Lift Up/Drp Dwn Cabinet Door(s), Each	<b>DOOR FRAME SCUFFPLATE</b> There will be two (2) brushed stainless steel scuffplate(s) provided for the right side of the door frame located DS cab exterior access compartment (LS5) and PS cab exterior access compartment (RS5). Each scuffplate will be stainless steel with a .38" lip down.
0745807	SP	Scuffplate, S/S, Left Side, Lift Up/Drp Dwn Cabinet Door(s), Each	<b>DOOR FRAME SCUFFPLATE</b> There will be two (2) brushed stainless steel scuffplate(s) provided for the left side of the door frame located DS cab exterior access compartment (LS5) and PS cab exterior access compartment (RS5). Each scuffplate will be stainless steel with a .38" lip down.
0002224		Scuffplates, S/S At Cab Door Jambs, 4-Door Cab	<b>DOOR JAMB SCUFFPLATES</b> All cab door jambs will be furnished with a brushed stainless steel scuffplate, mounted on the striker side of the jamb.
0529034		Scuffplates, S/S Corner Guard, Brushed, Rear Cab Corners	<b>SCUFFPLATES, REAR CAB CORNER GUARDS</b> Both rear cab corners will be furnished with a full height, brushed stainless steel corner guard scuffplate. The guard will extend 1.00" from the corner to protect paint from damage when pulling items (such as booster hose) around the cab.

0527032	Trim, S/S Band, Across Cab Face, Rect Lights, Velocity	<b>FRONT CAB TRIM</b> A band of 22 gauge brushed stainless steel trim will be installed across the front of the cab, from door hinge to door hinge. The trim band will be centered on the head lights and applied with two (2)-sided tape. A 0.625" self adhesive trim strip will be applied around the perimeter of the trim band. There will be brushed stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.
0015440	No Chrome Molding, On side of cab	
0569263	Mirrors, Retractable, West Coast Style, Remote, w/Remote Convex	<b>MIRRORS</b> A Retractable Aerodynamic, Model 613295, dual vision, motorized, west coast style mirror with chrome finish will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be adjustable with a remote control within reach of the driver.
0651313	Door, Half-Height, Velocity FR 4-Door Cab, Level Roof	<b>CAB DOORS</b> The forward cab and crew cab doors will be the half-height style door. To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 64.71" high. The crew cab doors will measure a minimum of 37.87" wide x 64.71" high. The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum. The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility. A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands. The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed. A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit. A chrome grab handle will be provided on the inside of each cab and crew cab door. A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted. The cab steps at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.
0655511	Door Panel, Brushed Stainless Steel, Impel/Velocite 4-Door Cab	<b>Door Panels</b> The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.
0671014	Face Plate/s, Blank, Overhead, Imp/Vel, Dash CF	<b>BLANK FACE PLATE</b> Blank face plate/s will be provided, in place of standard storage pockets, within the overhead console.
0643831	Controls, Electric Windows, All Cab Doors, Bat Sw, Impel/Velocite FR	<b>ELECTRIC WINDOW CONTROLS</b> Each cab entry door will be equipped with an electrically operated tempered glass window. A window control panel will be located on the door panel within easy reach of the respective occupant. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door. The window switches will be connected to the battery switch. The windows will only raise and lower when the battery switch is in the on position.
0555485	Steps, 4-Door Full Tilt Cab, Imp/Vel	<b>CAB STEPS</b> The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00" wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps.

0770200		Handrail, Exterior, Hansen, Knurled, Alum, LED Backlit, 4-Door Cab	<b>CAB EXTERIOR HANDRAILS</b> A Hansen knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Each handrail will be provided with blue LED lights. The lights will be activated when the headlight switch is activated and the parking brake is applied. The LED lights may be load managed.
0509649		Lights, Cab and Crew Cab Access Steps, P25, LED w/Bezel, 1Lt Per Step	<b>STEP LIGHTS</b> For reduced overall maintenance costs compared to incandescent lighting, there will be four (4) white LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. The lights will be activated when the adjacent door is opened.
0002140		Fenders, S/S on Cab	<b>FENDER CROWNS</b> Stainless steel fender crowns will be installed at the cab wheel openings.
0673394		Handrail, Extra - 15-20" Long	<b>HANDRAILS (ADDITIONAL)</b> There will be two (2) handrail(s) provided rear surface of the DS and PS rear facing compartments. Handrail is 16" long, mounted 5.50" up off of defroster and on far outboard edge of compartment (SEE PHOTOS FOR DETAILS). The handrail will be an anodized aluminum extrusion with a ribbed design to provide a positive gripping surface.
0592071		No Windows, Side of Crew Cab, Vel/Imp	
0568605		Not Required, Interior Trim, No Cab Side Windows	
0509286		Not Required, Windows Rear of Crew Cab, Imp/Vel	
0558334		Not Required, Trim, Cab Rear Windows, No Rear Windows	
0786279		Window Tint, Crew Cab Door, Right Side, Privacy Dark Gray	<b>Window Tint</b> The rollup window in the right side crew cab door will be tinted privacy dark gray.
0786290		Window Tint, Crew Cab Door, Left Side, Privacy Dark Gray	<b>Window Tint</b> The rollup window in the left side crew cab door will be tinted privacy dark gray.
0797556	SP	Compt, Storage, Upper and Lower, (1) Ea Side C/C, 70/90" Vel/Imp	<b>STORAGE COMPARTMENT</b> Provided on each side of the cab, to the rear of the crew cab access doors, will be a storage compartment. The compartment will be divided into upper and lower sections by the cab floor. The upper section will be 9.50" wide x 13.12" high x 26.25" deep (driver side) and 24.00" deep (passenger side). The lower section on both sides will be 9.50" wide x 17.30" high x 22.00" deep. The compartment will extend from the bottom of the cab to top of the seat riser. The compartment interior will be painted spatter gray. The doors will be a painted single pan construction with mini D-ring latches. A rubber covered bumper will be used as a door stop. <b>Compartment Light</b> There will be four (4) white LED strip lights, one (1) horizontally mounted in each lower and upper exterior compartment. The lights will be controlled by an automatic door switch. The automatic door switch will be installed in a bracket mounted at the cab floor divider in order for the switch to reach the single pan door.
0745808		Scuffplate, Inner Door Pan, Aux Cab Compts, Pair	<b>SCUFFPLATE</b> A full-height brushed stainless steel scuffplate shall be installed on the inside of each of the auxiliary cab compartment door pans.
0745285	SP	Roof, Safe-Stride Coating, Gray	<b>CAB ROOF COVERING</b> The horizontal surface of the cab roof will be coated with gray Safe-Stride® material. The coating will extend from rear of the lightbar to the rear of the crew cab.

0123686		Drip Rail, Cab Roof, Impel/Velosity/Velosity SLT	<b>CAB ROOF DRIP RAIL</b> For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.
0199285		Visor, Exterior, Vel/Imp	<b>EXTERIOR VISOR</b> The exterior sun visor will be a painted composite to match the job color. The five (5) forward facing marker lights will be mounted to the visor.
0629017		Work Surface, 3/16" Alum, Full Engine Tunnel, Lower Rear, Rear Lip, Vel/Imp FR	<b>WORK SURFACE</b> There will be a work surface provided on the engine tunnel. The work surface will be cover the entire engine tunnel and will be constructed of .19" aluminum to allow the mounting of equipment. The work surface will be approximately 37.00" wide x 48.00" long, with a cutout for the driver side instrument panel. The work surface will start to the rear of the defroster inlet and continue horizontally to the flat portion at the rear of the engine tunnel. The work surface will drop to the lower flat portion of the engine tunnel and finish at the end of the engine tunnel. The lower portion of the work surface will be provided with a 3.00" lip. The work surface will be painted to match the cab interior.
0632381	SP	Bracket, PAC, Pickhead Axe Hanger/Pocket and Handlelok Kit, PN 5012	<b>TOOL MOUNT(S)</b> There will be one (1) PAC Pickhead axe hanger/pocket kit(s), P/N K5012, provided which includes a Handlelok, P/N 1004, tool mounting bracket. The bracket(s) will be located in the cab. on the lower section of the false floor of the center forward facing EMS compartment (SEE PHOTO) for the axe included in option #7054.
0658289		Mounting Provisions, Computer, Tray, S/S, Straps, Slides, Sides	<b>COMPUTER MOUNTING</b> There will be one (1) computer installation provision(s) installed in the recess area in front of the officer. The enclosure will be constructed of stainless steel. The enclosure will be three (3) sided with two (2) straps over the top, connected to footman loops. The three (3) sides will hold the computer in place when a front or side force is applied. The straps will secure the computer in place. The slides will be mounted vertically and will lock in the in and out positions.
0748671		Cab Interior, Vinyl, Velocity FR, CARE	<b>CAB INTERIOR</b> With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road. The center console will be a high impact ABS polymer and will be easily removable for access to the defroster. The center console will include louvers strategically located for optimal air flow and defrost capability to the windshield. The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface. To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided. To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners. To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew. The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery. The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place. <b>CAB INTERIOR UPHOLSTERY</b> The cab interior upholstery will be 36 oz dark silver gray vinyl. All cab interior materials will meet FMVSS 302 (flammability of interior materials).
0667943		Cab Interior, Paint Color, Impel/Velosity FR	<b>CAB INTERIOR PAINT</b> The following metal surfaces will be painted black, vinyl textured paint: Modesty panel in front of driver Vertical surface of dash in front of the officer (not applicable for recessed dash) Glove box in front of the officer (if applicable) Power distribution in front of the officer Rear heater vent panels The remaining cab interior metal surfaces will be painted fire smoke gray, vinyl texture paint.

0696871	Floor, Alum Cab & Rubber Crew Cab - AXT/Imp/Vel	<p><b>CAB FLOOR</b></p> <p>The driver and passenger cab flooring will be constructed with bright aluminum treadplate. The crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler. The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a .25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.</p>
0667936	Heater/defroster, Dual Zone Control, Impel/Veloccity FR	<p><b>CAB DEFROSTER</b></p> <p>To provide maximum defrost and heating performance, a 54,961 BTU heater-defroster unit with 558 SCFM of air flow will be provided inside the cab. The defroster unit will be strategically located under the center forward portion of the instrument panel. For easy access, a removable metal cover will be installed over the defroster unit. The defroster will include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the 1-piece windshield. The defroster ventilation will be built into the design of the cab dash instrument panel and will be easily removable for maintenance. The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.</p> <p><b>CAB/CREW CAB HEATER</b></p> <p>Two (2) 36,702 BTU auxiliary heaters with 276 SCFM (each unit) of air flow will be provided inside the crew cab, one (1) in each outboard rear facing seat riser. The heaters will include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters will be located below each rear facing seat riser and below the fronts of the driver and passenger seats, for efficient airflow. An extruded aluminum plenum will be incorporated in the cab structure that will transfer heat to the forward cab seating positions.</p> <p>The heater/defroster and crew cab heaters will be controlled by an integral electronic control panel. The heater control panel will allow the driver to control heat flow to the front and rear independently. The control panel will include variable adjustment for temperature and fan control, and be conveniently located on the dash in clear view of the driver. The control panel will include highly visible, progressive LED indicators for both fan speed and temperature.</p>
0603346	Air Conditioning, Dual Zone Control, Hinge Acc Panel, Impel/Veloccity FR	<p><b>AIR CONDITIONING</b></p> <p>Due to the large space inside the cab, a high-performance, customized air conditioning system will be furnished. A 19.10 cubic inch compressor will be installed on the engine. The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 64 degrees Fahrenheit in the forward section of the cab, and 69 degrees Fahrenheit in the rear section of the cab, at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.</p> <p>A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover and mounting legs to be painted to match the cab roof.</p> <p>The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab. There will be a hinge on the forward edge of the filter cover and two (2) quarter turn fasteners with a knob on the rear edge to allow easy access.</p> <p>The evaporator unit will have a 49,000 BTU (4.08 tons) rating that meets and exceeds the performance specifications.</p> <p>Adjustable air outlets will be strategically located on the evaporator cover per the following:  Four (4) will be directed towards the drivers location  Four (4) will be directed towards the officers location  Eight (8) will be directed towards crew cab area</p> <p>The air conditioner refrigerant will be R-134A and will be installed by a certified technician. The air conditioner will be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel will be located in the center console. For ease of operation, the control panels will include variable adjustment for temperature and fan control.</p> <p><b>INTERIOR CAB INSULATION</b></p> <p>The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling. Headliners will be constructed from a 0.20" high density polyethylene corrugated material. Each headliner will be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control.</p> <p>Designed for maximum sound absorption and thermal insulation, the rear cab wall will be insulated with a 1.50" thick open cell acoustical foam. The thermal protection of the foam will provide and R-value of 4 per 1.00" thickness.</p>
0627910	Sun Visor, Vinyl/Fabric, Imp/Vel	<p><b>SUN VISORS</b></p> <p>There will be two (2) vinyl covered sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab. There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.</p>

0548173	Grab Handles, Driver and Passenger Door Post, Imp/Vel	<b>GRAB HANDLE</b> A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.
0693439	Lights, Engine Compt, Custom, Auto Sw, w/Fld Chk Dr Wln 3SC0CDCR, 3" LED Trim	<b>ENGINE COMPARTMENT LIGHTS</b> There will be one (1) Whelen®, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination. These light(s) will be activated automatically when the cab is raised or when the dip stick door is opened.
0122516	Fluid Check Access, Imp/Vel	<b>ACCESS TO ENGINE DIPSTICKS</b> For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel. The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil. The door will have a rubber seal for thermal and acoustic insulation. One (1) flush latch will be provided on the access door.
0537329	SP Map box, 3 bin/30 deg slant, W/ Velcro Straps Custom Chassis	<b>MAP BOX</b> There will be one (1) map box/es with three (3) bins, open from top. The location required will be mount at pickup. The map box/es will be divided into three (3) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin will slant 30 degrees from horizontal and will include a velcro strap to secure binders. The map box/es will be constructed of .125" aluminum and will be painted to match the cab interior.
0583039	Not Required, Side Roll and Frontal Impact Protection	
0622619	Seating Capacity, 4 Seats	<b>SEATING CAPACITY</b> The seating capacity in the cab will be four (4).
0697007	Seat, Driver, Pierce PS6, Premium, Air Ride, High Back	<b>DRIVER SEAT</b> A Pierce PS6® seat will be provided in the cab for the driver. The seat design will be a cam action type, with air suspension. For increased convenience, the seat will include electric controls to adjust the rake (15 degrees), height (1.75" travel) and horizontal (7.00" travel) position. Electric controls will be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 20 degrees back to 45 degrees forward. The seat back will be a high back style with manual lumbar adjustment lever, for lower back support, and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.
0696997	Seat, Officer, Pierce PS6, Premium, Air Ride, High Back	<b>OFFICER SEAT</b> A Pierce PS6® seat will be provided in the cab for the officer. The seat will be a cam action type with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple passenger configurations, the seat will have a reclining back adjustable from 20 degrees back to 0 degrees forward. The seat back will be a high back style with manual lumbar adjustment lever and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.
0002517	Not Required, Radio Compartment	



0745384	SP	Cabinet, Rear Facing, LS, 25 W x 36 H x 24 D, Sp H Liftup Ext Only, Sp Mtg, Imp/Vel	<p><b>REAR FACING LEFT SIDE CABINET</b></p> <p>A rear facing cabinet will be provided in the crew cab at the left side outboard position. The cabinet will be mounted off the edge of the seat riser.</p> <p>The cabinet will be 25.00" wide x 36.00" high x 24.00" deep.</p> <p>The cabinet will include one (1) infinitely adjustable shelf with a 0.75" flanged down lippainted to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will provide access from outside the cab only with one (1) lift up double pan door painted to match the cab exterior with a non-locking D-Ring latch. The clear door opening will be 19.75" wide x 27.50" high. The door will be located on the side of the cab over the wheelwell and include a pneumatic stay arm to hold the door open.</p> <p>The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.</p> <p>The cabinet will be constructed of smooth aluminum, and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the left side of the exterior cabinet door opening and one (1) white LED strip light installed on the right side of the exterior cabinet door opening. The lighting will be controlled by an automatic door switch.</p>
0102783		Not Required, Seat, Rr Facing C/C, Center	
0745382	SP	Cabinet, Rear Facing, RS, 25 W x 36 H x 22 D, Sp H Liftup Ext Only, Sp Mtg, Imp/Vel	<p><b>REAR FACING RIGHT SIDE CABINET</b></p> <p>A rear facing cabinet will be provided in the crew cab at the right side outboard position. The cabinet will be mounted off the edge of the seat riser.</p> <p>The cabinet will be 25.00" wide x 36.00" high x 22.00" deep.</p> <p>The cabinet will include one (1) infinitely adjustable shelf with a 0.75" flanged down lippainted to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will provide access from outside the cab only with one (1) lift up double pan door painted to match the cab exterior with a non-locking D-Ring latch. The clear door opening will be 19.75" wide x 27.50" high. The door will be located on the side of the cab over the wheelwell and include a pneumatic stay arm to hold the door open.</p> <p>The exterior access will be provided with a polished stainless steel scuffplate on the lower door frame.</p> <p>The cabinet will be constructed of smooth aluminum, and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the left side of the exterior cabinet door opening and one (1) white LED strip light installed on the right side of the exterior cabinet door opening. The lighting will be controlled by an automatic door switch.</p>
0660826		Seat, Forward Facing C/C, DS Outboard, Pierce PS6, Hi-Back, Foldup, 9 Deg, 17" Btm	<p><b>FORWARD FACING DRIVER SIDE OUTBOARD SEAT</b></p> <p>There will be one (1) forward facing, Pierce PS6® foldup seat provided at the driver side outboard position in the crew cab. To provide improved ride comfort, and maximize accessibility to the crew cab, the seat will be a minimum of 17.00" from the front of the cushion to the face of the seat back and the seat back will be provided with 9 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat back will be high back style.</p> <p>The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p>
0783719		Cabinet, Forward Facing, Center, 42 W x 48 H x 14 D, Roll, Imp/Vel	<p><b>FORWARD FACING CENTER CABINET</b></p> <p>A forward facing cabinet will be provided in the crew cab at the center position.</p> <p>The cabinet will be 42.00" wide x 48.00" high x 14.00" deep with one (1) Amdor rollup door with white finish, non-locking. The cabinet will be provided with a false floor storage area at the bottom of the compartment. This decreases the clear door opening by 12.00", providing a secure and ventilated mounting location for customer installed and chassis components. The door begins at the false floor.. The frame to frame opening of the cabinet will be 39.50" wide x 42.75" high. The minimum clear door opening will be 36.75" wide x 36.87" high.</p> <p>The cabinet will include two (2) infinitely adjustable shelves with a 1.25" up-turned lippainted to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will be constructed of smooth aluminum and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the right side of the interior cabinet door opening and one (1) white LED strip light installed on the left side of the interior cabinet door opening. The lighting will be controlled by an automatic door switch.</p>

0649959		Seat, Forward Facing C/C, PS Outboard, Pierce PS6, Base, SCBA, Foldup, 17" Btm	<b>FORWARD FACING PASSENGER SIDE OUTBOARD SEAT</b> There will be one (1) forward facing, foldup, Pierce PS6® seat provided at the passenger side outboard position in the crew cab. To provide improved ride comfort, and maximize accessibility to the crew cab, the seat will be a minimum of 17.00" from the front of the cushion to the face of the seat back and the seat back will be provided with 0 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.
0651182		Scuffplate, Cabinet, Interior Door Pan, Cab	<b>DOOR PAN SCUFFPLATE</b> There will be a brushed stainless steel scuffplate on the interior door pan of two (2) cabinet door (s) located DS cab exterior access compartment (LS5) and PS cab exterior access compartment (RS5).
0661086	SP	Pull Strap, Cabinet Door	<b>DOOR PULL STRAP</b> There will be two (2) door(s), located DS cab exterior access compartment (LS5) and PS cab exterior access compartment (RS5), provided with a pull strap.
0617407		Matting, Turtle Tile, EMS Compt, 0.75" Thick	<b>MATTING IN EMS COMPARTMENT</b> Turtle Tile vinyl grating will be provided in two (2) EMS compartments, DS cab exterior access compartment (LS5) and PS cab exterior access compartment (RS5) on the interior floor. Tile color will be red.
0752005		Lip, Top of Interior Cabinet, 4 Sides	<b>LIP ON CABINET</b> There will be a 1.00" lip provided around the top perimeter of the cabinet. There will NOT be anything stored on the top portion without restraints There will be two (2) cabinets(s) provided with the lip one each on top of the DS and PS rear facing EMS compartments.
0511300		Upholstery, Seats In Cab, All Imperial 1200, Pierce PS6	<b>SEAT UPHOLSTERY</b> All Pierce PS6 seat upholstery will be gray woven with black Imperial 1200 material.
0543991		Bracket, Air Bottle, Hands-Free II, Cab Seats	<b>AIR BOTTLE HOLDERS</b> All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G. There will be a quantity of one (1) SCBA brackets.
0603867		Seat Belt, ReadyReach	<b>SEAT BELTS</b> All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards. The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.
0604867		Seat Belt Height Adjustment, 4 Seats, Imp/Vel, Dash CF	<b>SHOULDER HARNESS HEIGHT ADJUSTMENT</b> All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. A total of four (4) seating positions will have the adjustable shoulder harness.
0627014		Pick Not Required, Seat Belt Color Selected in Seat Belt Option 627339	
0566156		Helmet Storage, In Cab Compartment	<b>HELMET STORAGE</b> Helmet storage will be located in a fully enclosed and latched cab compartment.

0647638	Lights, Dome, Weldon Dual LED 4 Lts	<b>CAB DOME LIGHTS</b> There will be four (4) Weldon 808* series, dual LED dome lights with grey bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab. The color of the LED's will be red and white . The white LED's will be controlled by the door switches and the lens switch. The color LED's will be controlled by the lens switch.
0628472	Light, Map, Overhead, Peterson M371S LED, Rectangular w/Switch 2lts	<b>OVERHEAD MAP LIGHTS</b> There will be two (2) Peterson, Model M371S, rectangular LED adjustable map lights installed in the cab: One (1) overhead in front of the driving position. One (1) overhead in front of the passenger's position. Each light will include a switch on the light housing. The light switches will be connected directly to the battery switched power.
0602637	Portable Hand Light, Provided by Fire Dept, Pumper NFPA 2016 Classification	<b>PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT</b> NFPA 1901, 2016 edition, section 5.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus. The hand lights are not on the apparatus as manufactured. The fire department will provide and mount these hand lights.
0695283	Handlight, Streamlight, Survivor, 90503, C4 LED, 12v, Orange, Steady Charge	<b>HAND HELD SPOTLIGHT</b> There will be three (3) lights Streamlight, Model Survivor 90503, LED flashlights with chargers and AC/DC chords provided and installed (1) in LS5 (DS cab exterior access compartment), (1) inside the cab on top of the PS rear facing compartment and (1) in RS3 on the underside of the hydraulic ladder rack actuator box (SEE PHOTOS). The flashlights will be connected battery direct and will charge when the chassis batteries are charging.
0568369	Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010, Dash CF	<b>CAB INSTRUMENTATION</b> The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership. <b>GAUGES</b> The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance: - Voltmeter gauge (Volts) Low volts (11.8 VDC) Amber indicator on gauge assembly with alarm High volts (15 VDC) Amber indicator on gauge assembly with alarm Very low volts (11.3 VDC) Amber indicator on gauge assembly with alarm Very high volts (16 VDC) Amber indicator on gauge assembly with alarm - Tachometer (RPM) - Speedometer (Primary (outside) MPH, Secondary (inside) Km/H) - Fuel level gauge (Empty - Full in fractions) Low fuel (1/8 full) Amber indicator on gauge assembly with alarm Very low fuel (1/32) fuel Amber indicator on gauge assembly with alarm - Engine oil pressure gauge (PSI) Low oil pressure to activate engine warning lights and alarms Red indicator on gauge assembly with alarm - Front air pressure gauge (PSI) Low air pressure to activate warning lights and alarm Red indicator on gauge assembly with alarm - Rear air pressure gauge (PSI) Low air pressure to activate warning lights and alarm Red indicator on gauge assembly with alarm - Transmission oil temperature gauge (Fahrenheit) High transmission oil temperature activates warning lights and alarm Amber indicator on gauge assembly with alarm - Engine coolant temperature gauge (Fahrenheit) High engine temperature activates an engine warning light and alarm Red indicator on gauge assembly with alarm - Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions) Low fluid (1/8 full) Amber indicator on gauge assembly with alarm All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance. <b>INDICATOR LAMPS</b> To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have

descriptive text or symbols.

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- SRS (supplemental restraint system) fault (where applicable)
- DEF (low diesel exhaust fluid level)

The following red telltale lamps will be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

#### **ALARMS**

**Audible steady tone warning alarm:** A steady audible tone alarm will be provided whenever a warning message is present.

**Audible pulsing tone caution alarm:** A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

**Alarm silence:** Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

#### **INDICATOR LAMP AND ALARM PROVE-OUT**

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

#### **CONTROL SWITCHES**

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

**Emergency master switch:** A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

**Headlight / Parking light switch:** A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

**Panel backlighting intensity control switch:** A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

**High idle engagement switch:** A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

**"Ok To Engage High Idle" indicator lamp:** A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

**Ignition switch:** A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp will be activated with vehicle ignition.

**Engine start switch:** A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

**4-way hazard switch:** A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

**Heater, defroster, and optional air conditioning control panel:** A control panel with

membrane switches will be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar will indicate the relative temperature and fan speed settings.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control valve will be provided. Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

#### **CUSTOM SWITCH PANELS**

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

#### **DIAGNOSTIC PANEL**

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- SRS diagnostic port (where applicable)
- Command Zone USB diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch (where applicable)
- Diesel particulate filter regeneration inhibit switch (where applicable)

#### **CAB LCD DISPLAY**

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.

The upper right section will display, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm.

The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

0509511	Air Restriction Indicator, Imp/Vel, AXT, Dash CF, Enf MUX	<b>AIR RESTRICTION INDICATOR</b> A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.
0032551	Light, Indicator, Cab Lock Downs,"Not Engaged"	- Red indicator light on the cab dash that indicates whenever the cab locks are not fully engaged.
0562772	SP Speedometer, Class 1 w/LED, Per Instrument Panel Layout	- Officer Speedometer, A Class I digital display speedometer will be provided per the instrument panel layout.
0668061	Light, Do Not Move Apparatus, W/in VTX609R Red LED	<b>"DO NOT MOVE APPARATUS" INDICATOR</b> There will be a Whelen, Model VTX609R, red LED indicator light with chrome trim located in the driving compartment. This light will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On." The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.

0509042	Messages, Open Door/Do Not Move Truck, MUX w/Color Display	<p><b>DO NOT MOVE TRUCK MESSAGES</b></p> <p>Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged). The following messages will be displayed (where applicable):</p> <p>Do Not Move Truck  DS Cab Door Open (Driver Side Cab Door Open)  PS Cab Door Open (Passenger's Side Cab Door Open)  DS Crew Cab Door Open (Driver Side Crew Cab Door Open)  PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)  DS Body Door Open (Driver Side Body Door Open)  PS Body Door Open (Passenger's Side Body Door Open)  Rear Body Door Open  DS Ladder Rack Down (Driver Side Ladder Rack Down)  PS Ladder Rack Down (Passenger Side Ladder Rack Down)  Deck Gun Not Stowed  Lt Tower Not Stowed (Light Tower Not Stowed)  Fold Tank Not Stowed (Fold-A-Tank Not Stowed)  Aerial Not Stowed (Aerial Device Not Stowed)  Stabilizer Not Stowed  Steps Not Stowed  Handrail Not Stowed</p> <p>Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged.</p>
0611681	Switching, Cab, Membrane, Impel/Velocity/Quantum, Dash CF, AXT WiFi MUX	<p><b>SWITCH PANELS</b></p> <p>The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliques. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access. Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.</p> <p>The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.</p>
0555915	Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocity	<p><b>WIPER CONTROL</b></p> <p>For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.</p>
0560535	Wiring, Spare, 15 A 12V DC 4th	<p><b>SPARE CIRCUIT</b></p> <p>There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus.</p> <p>The above wires will have the following features:  The positive wire will be connected directly to the battery power.  The negative wire will be connected to ground.  Wires will be protected to 15 amps at 12 volts DC.  Power and ground will terminate (3) in P1 side by side in the lower portion, on rear wall as far forward as possible (SEE PHOTO).  Termination will be with 15 amp, power point plug with rubber cover.  Wires will be sized to 125 percent of the protection.  This circuit(s) may be load managed when the parking brake is set.</p>
0547505	Wiring, Spare, 10 A 12V DC 1st	<p><b>SPARE CIRCUIT</b></p> <p>There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus.</p> <p>The above wires will have the following features:  The positive wire will be connected directly to the battery switched power.  The negative wire will be connected to ground.  Wires will be protected to 10 amps at 12 volts DC.  Power and ground will terminate underneath the passenger's side forward facing outboard crew cab seat. Label wire "DRUG BOX".  Termination will be with heat shrinkable butt splicing.  Wires will be sized to 125% of the protection.  This circuit(s) may be load managed when the parking brake is applied.</p>

0548006	Wiring, Spare, 15 A 12V DC 2nd	<b>SPARE CIRCUIT</b> There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate in the cab on the end of the instrument console (see instrument panel drawing for specific locations) and one on the PS EMS cabinet, above the dual USB (645619). Termination will be with 15 amp, power point plug with rubber cover. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0548007	Wiring, Spare, 15 A 12V DC 3rd	<b>SPARE CIRCUIT</b> There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate RUN WIRES ONLY one (1) EACH in D4 and P4 (aux compts) Locate these in the rear upper inside corner, in the way back of upper area. In P4 this'll be upper left hand corner. D4 upper right corner. These are to charge the Pelican model 9490 LED light. Termination will be with 15 amp, power point plug with rubber cover. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0548009	Wiring, Spare, 20 A 12V DC 1st	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery saver The negative wire will be connected to ground Wires will be protected to 20 amps at 12 volts DC Power and ground will terminate in the recess area in front of the officer (on the left vertical wall through a grommet) Termination will be with heat shrinkable butt splicing Wires will be sized to 125% of the protection This circuit(s) may be load managed when the parking brake is set.
0583917	Wiring, Spare, 15 A 12V DC 5th	<b>SPARE CIRCUIT</b> There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate lower driver's side corner of the forward facing EMS cabinet on the side wall (SEE PHOTO). Termination will be with 15 amp, power point plug with rubber cover. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0585913	Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 2nd	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 20 amps at 12 volts DC. Power and ground will terminate back of officer side rear facing EMS cabinet in the outboard lower corner (SEE PHOTOS). Termination will be to a Blue Sea System, Model 5025, 6 circuit with negative bus bar. The terminal block will include a cover with circuit labels. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0699928	Wiring, Spare, 40 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 1st	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 40 amps at 12 volts DC. Power and ground will terminate back of officer side rear facing EMS cabinet in the outboard lower corner (SEE PHOTOS). Termination will be to a Blue Sea System, Model 5025, 6 circuit with negative bus bar. The terminal block will include a cover with circuit labels. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.

0708660	SP Wiring, Spare, 37.5 A 12V DC, Cust Install Radio, 30A Bat Dir, 7.5A Sw & Grnd	<b>CUSTOMER SUPPLIED RADIO WIRING</b> There will be one (1) 12 volt combination wiring leads of which each will include one (1) direct battery, one (1) master battery switched and one (1) negative for use with radio equipment. Each lead will be 18.00" long and be provided this circuit to be used for two-way radio installation only. The leads will be clearly marked in a coil and terminate with butt splices. A breaker rated for 30 amps will be provided for circuit protection of the direct battery lead with a minimum of 10 gauge wire. A breaker rated for 7.5 amps will be provided for circuit protection of the master battery switched lead. The wires will be colored coded as follows: <b>red for direct battery</b> <b>yellow for master battery switched</b> <b>black for ground</b>
0767635	Wiring, Spare, 4.8 A 12V DC, USB Termination, Kussmaul 091-219-5 Sw Pnl 1st	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 6 amps at 12 volts DC. Power and ground will terminate in the switch panel one (1) at the end of the instrument console per job 32428 01-04. Termination will be a Kussmaul part number 091-219-5, switch panel dual USB charger socket. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is applied.
0787001	Wiring, Spare, 4.8 A 12V DC, USB Termination Blue Sea 1045 2nd	<b>SPARE CIRCUIT</b> There will be two (2) dual USB fast charge socket mounts installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 4.8 amps at 12 volts DC. The USB socket mount will be one (1) below the edge in front of the officer to the left of their knee per job 32428 01-04. One (1) on the PS rear facing compartment inboard side of cabinet on the outside of cabinet, rear upper corner below power point plug. Termination will be a Blue Sea Systems part number 1045 dual USB charger socket. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is applied.
0797189	Wiring, Spare, 4.8 A 12V DC, USB Termination Blue Sea 1045 1st	<b>SPARE CIRCUIT</b> There will be one (1) dual USB fast charge socket mounts installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 4.8 amps at 12 volts DC. The USB socket mount will be in the cab, one (1) to left of officer and aft of VDR plug per job 32428 01-04. Termination will be a Blue Sea Systems part number 1045 dual USB charger socket. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is applied.
0566101	Recess, Dash Panel, Officer Side, Vel/Imp	<b>RECESS, DASH PANEL</b> The dash panel across from the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be 8.25" down x 7.81" back and 20.88" wide.
0643196	Radio, AM/FM/CD/WB, Jensen, Front Aux In / USB / Bluetooth	<b>STEREO RADIO</b> A Jensen, heavy duty AM/FM/CD/Weatherband stereo radio, with front auxiliary input will be installed per switch panel layout . There will be 5.25" speakers installed one (1) pair of 5.25" speakers in the cab and one (1) pair of 5.25" speakers in the crew cab. The antenna will be a roof-mounted rubber antenna located in an open space, on the cab roof . The following features will be included: CD Player with Electronic Skip Protection (ESP) Full 7-Channel NOAA Weatherband Tuner with SAME technology Built-in Clock Audio CD, CD-R, R/W, MP3 CD compatible Radio Broadcast Data System Text Display Front panel USB input Front and Rear Auxiliary Audio Input Receives audio (A2DP/AVRCP) from Bluetooth enabled device Supports Bluetooth HFP to receive phone calls from BT-enabled phones Low battery alert (&lt;10.8Vdc) Heavy Duty design with Conformal Coated Circuit Boards for maximum durability under all conditions



0537251	Bracket, Mounting, For Push Buttons, Officer Side, VEL/IMP	<p><b>MOUNTING BRACKET FOR PUSH BUTTON CONTROLS</b></p> <p>There will be a mounting bracket provided within easy reach of the officer next to the defrost air intake for the mounting of push button controls. The mounting bracket will be large enough to mount (4) four buttons from top to bottom: siren brake, air horn, mechanical siren, radio PTT) controls vertically, one in front of the other. The bracket will be fabricated from smooth aluminum and will be painted to match the cab interior.</p>
0615386	Vehicle Information Center, 7" Color Display, Touchscreen, MUX	<p><b>INFORMATION CENTER</b></p> <p>An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.</p> <p>The information center will have the following specifications:</p> <ul style="list-style-type: none"> <li>Operate in temperatures from -40 to 185 degrees Fahrenheit</li> <li>An Optical Gel will be placed between the LCD and protective lens</li> <li>Five weather resistant user interface switches</li> <li>Grey with black accents</li> <li>Sunlight Readable</li> <li>Linux operating system</li> <li>Minimum of 1000nits rated display</li> <li>Display can be changed to an available foreign language</li> <li>A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.</li> <li>Programmed to read US Customary</li> </ul> <p><b>GENERAL SCREEN DESIGN</b></p> <p>Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur:</p> <ul style="list-style-type: none"> <li>An amber background/text color will indicate a caution condition</li> <li>A red background/text color will indicate a warning condition</li> </ul> <p>The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.</p> <p>A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.</p> <p><b>HOME/TRANSIT SCREEN</b></p> <p>This screen will display the following:</p> <ul style="list-style-type: none"> <li>Vehicle Mitigation (if equipped)</li> <li>Water Level (if the water level system includes compatible communications to the information center)</li> <li>Foam Level (if the foam level system includes compatible communications to the information center)</li> <li>Seat Belt Monitoring Screen</li> <li>Tire Pressure Monitoring (if equipped)</li> <li>Digital Speedometer</li> <li>Active Alarms</li> </ul> <p><b>ON SCENE SCREEN</b></p> <p>This screen will display the following and will be auto activated with pump engaged (if equipped):</p> <ul style="list-style-type: none"> <li>Battery Voltage</li> <li>Fuel</li> <li>Oil Pressure</li> <li>Coolant Temperature</li> <li>RPM</li> <li>Water Level (if equipped)</li> <li>Foam Level (if equipped)</li> <li>Foam Concentration (if equipped)</li> <li>Water Flow Rate (if equipped)</li> <li>Water Used (if equipped)</li> <li>Active Alarms</li> </ul> <p><b>VIRTUAL BUTTONS</b></p> <p>There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.</p> <p><b>PAGE SCREEN</b></p> <p>The page screen will display the following and allow the user to progress into other screens for further functionality:</p> <ul style="list-style-type: none"> <li>Diagnostics</li> <li>Faults</li> <li>Listed by order of occurrence</li> <li>Allows to sort by system</li> <li>Interlock</li> <li>Throttle Interlocks</li> <li>Pump Interlocks (if equipped)</li> <li>Aerial Interlocks (if equipped)</li> <li>PTO Interlocks (if equipped)</li> <li>Load Manager</li> </ul> <p>A list of items to be load managed will be provided. The list will provide a description of the load. The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.</p> <p>The screen will indicate if a load has been shed (disabled) or not shed.</p> <p>"At a glance" color features are utilized on this screen.</p> <ul style="list-style-type: none"> <li>Systems</li> <li>Command Zone</li> <li>Module type and ID number</li> <li>Module Version</li> </ul>

Input or output number  
 Circuit number connected to that input or output  
 Status of the input or output  
 Power and Constant Current module diagnostic information  
 Foam (if equipped)  
 Pressure Controller (if equipped)  
 Generator Frequency (if equipped)  
 Live Data  
 General Truck Data  
 Maintenance  
 Engine oil and filter  
 Transmission oil and filter  
 Pump oil (if equipped)  
 Foam (if equipped)  
 Aerial (if equipped)  
 Setup  
 Clock Setup  
 Date & Time  
 12 or 24 hour format  
 Set time and date  
 Backlight  
 Daytime  
 Night time  
 Sensitivity  
 Unit Selection  
 Home Screen  
 Virtual Button Setup  
 On Scene Screen Setup  
 Configure Video Mode  
 Set Video Contrast  
 Set Video Color  
 Set Video Tint  
 Do Not Move  
 The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicate  
 Driver Side Cab Door  
 Passenger's Side Cab Door  
 Driver Side Crew Cab Door  
 Passenger's Side Crew Cab Door  
 Driver Side Body Doors  
 Passenger's Side Body Doors  
 Rear Body Door(s)  
 Ladder Rack (if applicable)  
 Deck Gun (if applicable)  
 Light Tower (if applicable)  
 Hatch Door (if applicable)  
 Stabilizers (if applicable)  
 Steps (if applicable)  
 Notifications  
 View Active Alarms  
 Shows a list of all active alarms including date and time of the occurrence is shown with each alarm  
 Silence Alarms - All alarms are silenced  
 Timer Screen  
 HVAC (if equipped)  
 Tire Information (if equipped)  
 Ascendant Set Up Confirmation (if equipped)  
 Button functions and button labels may change with each screen.

0606247	Vehicle Data Recorder w/CZ Display Seat Belt Monitor	<p><b>VEHICLE DATA RECORDER</b></p> <p>There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.</p> <p>The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.</p> <p>The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:</p> <ul style="list-style-type: none"> <li>Vehicle Speed - MPH</li> <li>Acceleration - MPH/sec</li> <li>Deceleration - MPH/sec</li> <li>Engine Speed - RPM</li> <li>Engine Throttle Position - % of Full Throttle</li> <li>ABS Event - On/Off</li> <li>Seat Occupied Status - Yes/No by Position</li> <li>Seat Belt Buckled Status - Yes/No by Position</li> <li>Master Optical Warning Device Switch - On/Off</li> <li>Time - 24 Hour Time</li> <li>Date - Year/Month/Day</li> </ul> <p><b>Seat Belt Monitoring System</b></p> <p>A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:</p> <ul style="list-style-type: none"> <li>Seat Occupied &amp; Buckled = Green LED indicator illuminated</li> <li>Seat Occupied &amp; Unbuckled = Red LED indicator with audible alarm</li> <li>No Occupant &amp; Buckled = Red LED indicator with audible alarm</li> <li>No Occupant &amp; Unbuckled = No indicator and no alarm</li> </ul> <p>The seat belt monitoring screen will become active on the Command Zone color display when:</p> <ul style="list-style-type: none"> <li>The home screen is active:</li> <li>and there is any occupant seated but not buckled or any belt buckled with an occupant.</li> <li>and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.</li> </ul> <p>The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.</p>
0662029	Intercom, Firecom 5200D Dual Radio, 4-Pos, D,O,2C	<p><b>INTERCOM SYSTEM</b></p> <p>There will be digital, dual radio interface, intercom located AS DIRECTED AT PRE-CONSTRUCTION in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices. There will be two (2) radio listen only / transmit controls, allowing for simulcast interoperability with select, monitor, receive, and transmit indicators. There will be two (2) auxiliary audio inputs with select, and receive indicators.</p> <p>Headset jacks will be provided for the driver, officer, and two (2) crew positions located at both forward facing seats.</p> <p>The following Firecom components will be provided:</p> <ul style="list-style-type: none"> <li>One (1) 5200D Intercom</li> <li>Four (4) HM-10 Interior headset jacks</li> <li>All necessary power and station cabling</li> </ul>
0006240	Cable, Radio to Intercom Interface, Firecom, 1 Radio	<p><b>RADIO / INTERCOM INTERFACE CABLE</b></p> <p>The apparatus manufacturer will supply and install one (1) radio interface cable before delivery of the vehicle.</p> <p>The radio equipment to be used by the customer will be:</p> <p>Motorola High Power , Model number APX8500 ALL BAND MP MOBILE (M37TSS9PW1AN).</p>
0681393	Headset, Firecom, FH-54 Over Head, Intercom Only, Mic On/Off	<p><b>OVER THE HEAD HEADSET, INTERCOM ONLY</b></p> <p>There will be four (4) Firecom, Model FH-54 over the head, intercom only headset(s) provided driver's seat, officer seat, passenger's side outboard forward facing seat and passenger's side outboard rear facing seat.</p> <p>Each headset will feature:</p> <ul style="list-style-type: none"> <li>Coiled cord with rugged angled plug</li> <li>Noise cancelling electric microphone</li> <li>Flex boom rotates for left or right dress</li> <li>Adjustable volume control</li> <li>ComLeather ear seals with 24 dB noise reduction</li> <li>Microphone on/off button</li> </ul>

0000000	STF	Radio, Mobile, Bendix King KNGM150 (DTF - GSFA APPROVED)	<b>BENDIX KING RADIO</b> One (1) Bendix King model KNGM150 radio will be provided with the following options: Relm Mobile Radio 5000 CH  Digital P25/Analog, 50 Watts  Dash Mount w/ Ext Speaker & Install Kit  KAA0290 Relm KNG Mobile Microphone Allows Control of KNG Radio
0000000	STF	Radio, Mobile, Motorola APX8500 (DTF - GSFA APPROVED)	<b>MOTOROLA RADIO</b> One (1) Motorola APX8500 model M37TSS9PW1AN all band mobile radio will be provided with the following options: GA00580AA, ADD: TDMA OPERATION APX G51AT, ENH: SMARTZONE GA09001AA, ADD: WI-FI CAPABILITY G361AH, ENH: P25 TRUNKING SOFTWARE APX GA00268AB, ADD: RFID LABEL APX W432AG, ENH: SPKR INCREASED AUDIO POWER APX G444AH, ADD: APX CONTROL HEAD SOFTWARE G442AJ, ADD: APX O5 CONTROL HEAD G806BL, ENH: ASTRO DIGITAL CAI OP APX GA05509AA, DEL: DELETE UHF BAND GA01517AA, DEL: NO J600 ADAPTER CABLE NEEDED G66BC, ADD: DASH MOUNT 05 GA00318AF, ADD: 5Y ESSENTIAL SERVICE GA00250AA, ADD: WIFI/GNSS FLEXIBLE CABLE LMR195 GA01513AA, ADD: ALL BAND MOBILE ANTENNA (7/8/V/U) W22BA, ADD: STD PALM MICROPHONE APX
0681408		Hangers For Headsets, NFPA, Each	<b>HEADSET HANGERS</b> There will be four (4) headset hanger(s) installed driver's seat, officer's seat, driver's side outboard forward facing seat and passenger's side outboard forward facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.
0660403		Remote Intercom Head, Firecom 5200	<b>INTERCOM SYSTEM REMOTE HEAD</b> A Firecom, Model 5200DRH remote intercom head will be provided and mounted overhead of the officer in switch panel #5.
0685177		Remote Mount Two-way Radio Mic Per Customer Drawing	<b>REMOTE MICROPHONE LOCATION</b> The two way radio microphone will be remote mounted on the cab switch panel on the end of the instrument console (SEE PHOTO IMG_6170) per customer layout.
0793529	SP	Dash Switch, Firecom, Push-To-Talk	<b>PUSH-TO-TALK DASH SWITCH</b> There will be two (2) FireCom, DM-1, Push-To-Talk dash mounted switch(s) provided and located (1) near driver left of information center (PHOTO IMG_6174) and (1) left of officer on the button mounting bracket option #537251 (PHOTO IMG_6152).
0559156		Install Customer Provided Two-Way Radio(s)	<b>TWO WAY RADIO INSTALLATION</b> There will be one (1) customer supplied two way radio(s) sent to the apparatus manufacturers preferred radio installer to be installed remote head in switch assembly #4 above the officer, with the transceiver mounted behind the officer's seat on the vertical rear facing compartment wall. RADIO SHALL BE POWERED BY THE SPARE CIRCUIT DETAILED IN OPTION #0708660 per the shipping document. No antenna mount or whip will be included in this option. Specific radio shipping requirements will be followed.
0597940		Install Customer Provided Two-Way Radio Speaker(s)	<b>TWO WAY RADIO SPEAKER INSTALLATION</b> There will be two (2) customer supplied two way radio speakers sent to the apparatus manufacturers preferred third party installer to be installed (1) in the cab centered on the front portion of the headliner and (1) external speaker to be mounted on pump panel (behind gauge panel) and terminate wiring in cab behind officer's seat job 32428 01-04 (SEE PHOTOS). Specific shipping requirements will be followed.

0776385	SP	Install Customer Provided Cat5 Ethernet Cable	<b>CAT 5 CABLE INSTALLATION</b> There will be one (1) customer supplied Cat5 Ethernet cable sent to the apparatus manufacturers preferred radio installer for installation. The cable will start at behind the officer's seat and terminate at below the PS forward facing fold-up seat base. No other components will be installed with this option. Specific shipping requirements will be followed.
0640003		Install Customer Provided Modem	<b>MOBILE RADIO MODEM INSTALLATION</b> There will be one (1) customer supplied modem(s) sent to the apparatus manufacturers preferred installer to be installed as directed at pre-construction. Specific shipping requirements will be followed.
0660489		Antenna Mount, Custom Chassis, Fill in Blank Mounting and Cable Locations	<b>RADIO ANTENNA MOUNT</b> There will be three (3) standard 1.125", 18 thread, NMO type antenna mounting base(s) installed all stubs are to be 18" behind A/C CONDENSOR, 18" between each other and 18" inboard from sides of cab per job 32428 01-04 on the cab roof with high efficiency, low loss, coaxial cable(s) routed within the cab / crew area to all antenna cables are to run down the PS of cab and terminate behind the officer's seat . A weatherproof cap will be installed on the mount.
0616417	SP	Antenna, PCTel, GPSHPDLTEMIMO-SF, LTE MIMO/Dual WiFi/GPS Multiband	<b>GPS MULTIBAND ANTENNA</b> There will be one (1) PCTel, Model GPSHPDLTEMIMO-SF, stud mount, low profile, multi-band antenna installed on the cab roof. The antenna will feature: Two (2) 4G LTE elements for 698-960MHz and 1710-2700MHz with 17.00' of Pro-Flex Plus 195 coaxial cable, each with SMA male connectors, routed to the mobile data terminal (MDT) Dual (MIMO 802.11n) broadband WiFi elements, 2.4-2.5GHz and 4.9-5.9GHz, with 17.00' of Pro-Flex Plus 195 coaxial cable, each with RP-SMA male connectors installed, routed to the WiFi device One (1) GPS element with 17.00' of RG-174/U coaxial cable with SMA male connector, routed to the mobile data terminal (MDT)
0653526		Camera, Pierce, Driver Mux, Rear Camera Only	<b>VEHICLE CAMERA SYSTEM</b> There will be a color vehicle camera system provided with the following: One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse The camera images will be displayed on the driver's vehicle information center display. Audio from the microphone on the active camera will be emitted by an amplified speaker with volume control in the blank panel to the right of the steering column. The following components will be included: One (1) SV-CW134639CAI, camera One (1) amplified speaker (if applicable) All necessary cables
0523921		Recess, Rear Vision Camera	<b>RECESS REAR CAMERA</b> A rear camera recess will be provided in the center at the rear .
0615100		Pierce Command Zone, Advanced Electronics & Control System, Diag LEDs, Vel, WiFi	<b>ELECTRICAL POWER CONTROL SYSTEM</b> The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible. Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership. Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA. <b>SOLID-STATE CONTROL SYSTEM</b> A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices. The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership. For increased reliability and simplified use the control system modules will include the following attributes: Green LED indicator light for module power Red LED indicator light for network communication stability status Control system self test at activation and continually throughout vehicle operation No moving parts due to transistor logic

Software logic control for NFPA mandated safety interlocks and indicators  
Integrated electrical system load management without additional components  
Integrated electrical load sequencing system without additional components  
Customized control software to the vehicle's configuration  
Factory and field re programmable to accommodate changes to the vehicle's operating parameters  
Complete operating and troubleshooting manuals  
USB connection to the main control module for advanced troubleshooting  
To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:  
Module circuit board will meet SAE J771 specifications  
Operating temperature from -40C to +70C  
Storage temperature from -40C to +70C  
Vibration to 50g  
IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)  
Operating voltage from eight (8) volts to 16 volts DC  
The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

#### **CIRCUIT PROTECTION AND CONTROL DIAGRAM**

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

#### **ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS**

The on-board information center will include the following diagnostic information:

Text description of active warning or caution alarms

Simplified warning indicators

Amber caution indication with intermittent alarm

Red warning indication with steady tone alarm

All control system modules, with the exception of the main control module, will contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs will be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output will be provided and will illuminate whenever the respective input or output is active. Color-coded labels within the modules will encompass the LEDs for ease of identification. The LED indicator lights will provide point of use information for reduced troubleshooting time without the need for an additional computer.

#### **TECH MODULE WITH WIFI**

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The data logging capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.

A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.

#### **PROGNOSTICS**

A software based vehicle tool will be provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone, color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics will include:

Engine oil and filter

Transmission oil and filter

Pump oil (if equipped)

Foam oil (if equipped)

Aerial oil and filter (if equipped)

#### **ADVANCED DIAGNOSTICS**

An advanced, Windows-based, diagnostic software program will be provided for this control system. The software will provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software will be easy to understand and use and have the ability to view system input/output (I/O) information.

#### **INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM**

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

#### **VOLTAGE MONITOR SYSTEM**

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

#### **DEDICATED RADIO EQUIPMENT CONNECTION POINTS**

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

The studs will consist of the following:

12-volt 40-amp battery switched power

12-volt 60-amp ignition switched power

12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

#### **ENHANCED SOFTWARE**

The solid-state control system will include the following software enhancements:  
 All perimeter lights and scene lights (where applicable) will be deactivated when the parking brake is released.  
 Cab and crew cab dome lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear.  
 Cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear.

#### **EMI/RFI PROTECTION**

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

0624254 Electrical System, Velocity

#### **ELECTRICAL**

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal.

Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.

Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.

Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.

Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).

All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.

All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

0597472 SP Batteries, (6) AC Delco Grp 31, 950 CCA each, Threaded Studs

#### **BATTERY SYSTEM**

Six (6) 12 volt, AC Delco, group 31 batteries that include the following features will be provided:

950 CCA, cold cranking amps

190 amp reserve capacity

High cycle

Rating of 5700 CCA at 0 degrees Fahrenheit

1140 minutes of reserve capacity

Threaded Studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

0008621	Battery System, Single Start, All Custom Chassis	<p><b>BATTERY SYSTEM</b> There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p> <p><b>MASTER BATTERY SWITCH</b> There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system. An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.</p>
0123174	Battery Compartment, Imp/Vel	<p><b>BATTERY COMPARTMENTS</b> The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.</p> <p><b>JUMPER STUDS</b> One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.</p>
0637577	Charger, Sngl Sys, Kussmaul, Pump Plus 1200, 091-9-12V-1200-194-WT-**	<p><b>BATTERY CHARGER/ AIR COMPRESSOR</b> There will be a Kussmaul Pump Plus 1200, Model 091-9-12V-1200194-WT-XX, 40 amp single output battery charger/air compressor with Model 091-194-IND-WT-XX watertight digital display provided. The color of the charge indicator will be red. The 12-volt air compressor will be installed to maintain the air system pressure when the vehicle is not in use. There will be an auto pump timer installed between the pressure switch and the pump that will allow the pump to run for one hour than shut down for one hour. The battery charger will be wired to the AC shoreline inlet.</p>
0022776	Location, Charger/Compr, w/Location Feature	Battery charger/compressor will be under center forward facing ems compt, to match previous.
0536099	Location, Bat Chrg Ind, Driver's Step Area	The battery charger indicator will be located in the driver's step area.
0016856	Shoreline, 15A 120V, Kussmaul Auto Eject, 091-55-15-120, Super	<p><b>KUSSMAUL AUTO EJECT FOR SHORELINE</b> There will be one (1) Kussmaul Model 091-55-15-120, 15 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus without the use of the generator. The shoreline inlet(s) will include red weatherproof flip up cover(s). There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting. The shoreline(s) will be connected to Kussmaul 1200 battery charger AND Kussmaul model 091-92-12 "battery saver - low ripple. Receptacle to be a dual gang receptacle per thread number 553-EP300377-16 . There will be a mating connector body supplied with the loose equipment. There will be a label installed near the inlet(s) that state the following: Line Voltage Current Rating (amps) Phase Frequency</p>
0026800	Shoreline Location	The shoreline receptacle will be located on the driver side of cab, to the front of cab door.
0793788	SP Receptacle, For Shoreline, Dual Gang	<p><b>SHORELINE RECEPTACLE</b> There will be a dual gang receptacle box as a connection installed for the shoreline receptacle.</p>
0673241	Saver, Battery, Kussmaul 091-195-12, 20 Amp	<p><b>BATTERY SAVER</b> There will be one (1) Kussmaul, Model 091-195-12, 20 amp battery saver will be provided. The battery saver will be located in the cab next to the battery charger/air compressor (which is in the false floor area of option #199533, center forward facing EMS cabinet). The Kussmaul model 091-92-12 low ripple battery saver is wired to the positive "+" side of the battery charger. The items to be connected to this device are 20 amp, 12 volt spare wiring in front of officer for tablet wiring. This device will be connected to the 120 volt AC shoreline inlet. This device will be connected to the chassis batteries to charge items when the shoreline is not plugged in.</p>



0647729		Alternator, 320 amp, Delco Remy 40SI	<b>ALTERNATOR</b> A Delco Remy®, Model 40SI, alternator will be provided. It will have a rated output current of 320 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.
0580123	SP	Fan, Electrical Component Cooling 120 Volt, In EMS Cabinet, Qty Feature	<b>FAN, ELECTRICAL COOLING</b> There will be one (1) 120v electrical cooling fan(s) with guard to exhaust the heat buildup due to the battery chargers stored in the EMS cabinet, located in the center forward facing EMS cabinet, DS of cabinet - MAKE SURE THIS IS WIRED TO THE SHORELINE PER JOB 32428 01-04. The fan(s) will vent the heat outward from the compartment. Fan(s) to be wired to the auto transfer switch so they will run at all times, either off the shoreline, or off the generator.
0686615		Set Command Zone Clock To Pacific Standard Time	
0048324		Load Manager/Sequencer, MUX, With Out Switch	<b>ELECTRONIC LOAD MANAGER</b> An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reduces the electrical load in the event of a low voltage condition, and automatically restores the shed electrical loads when the low voltage condition expires. This ensures the integrity of the electrical system. The ELM will monitor the vehicle's voltage while at the scene (parking brake applied). The system will include the following features: System voltage monitoring. Load Managing will not start for 30 seconds after engine start up. Five (5) minute cycle time, to prevent load activation and quick deactivation. Automatic High Idle Activation, to activate before any electric loads are shed and deactivate with the service brake. If enabled, Load Man Hi-Idle On will display on the information center. Sixteen available electronic load shedding levels. Priority levels can be set for individual outputs. Individual switch "on" indicator to flash when the particular load has been shed. The information center shows system voltage. Green indicator in the Indicator Light display, Load Manager is active. The information center includes a "Load Manager" screen indicating the following: Load managed items list, with priority levels and item condition. Individual load managed item condition: ON = not shed SHED = shed OVRD = overridden <b>SEQUENCER</b> A warning light sequencer will be provided that automatically turns the emergency lights on and off in a preset sequence. The sequencer will be wired in conjunction with the emergency master light switch. When the switch is activated the lights will be turned on in sequence one by one at 1/2 second intervals thereby protecting the alternator from power surges. Sequenced light switch LED's will flash while waiting for activation. When turned off, the same process will deactivate the warning lights in sequence to allow a gradual decrease in alternator output, rather than dumping the load. The on/off switch for this system will be removed.
0780484		Headlights, Rect LED, HiViz FT-4X6-4KIT, AXT/DCF/Enf/Imp/Sab/Vel	<b>HEADLIGHTS</b> There will be a HiViz part number FT-4X6-4KIT, that includes four (4) 4.00" high x 6.00" long rectangular LED lights with parking lamp illumination around the outside of the lamps mounted in the front quad style, chrome housing on each side of the cab grille: the outside lamp on each side will contain a part number FT-4X6-HL with low beam LEDs the inside lamp on each side will contain a part number FT-4X6-H with high beam LEDs the lights will be controlled through the headlight switch
0648425		Light, Directional, WIn 600 Cmb, Cab Crn, Imp/Vel/AXT/Qtm/DCF	<b>DIRECTIONAL LIGHTS</b> There will be two (2) Whelen 600® series, LED combination directional/marker lights provided. The lights will be located on the outside cab corners, next to the headlights. The color of the lenses will be the same color as the LED's.
0648074		Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts	<b>CAB CLEARANCE/MARKER/ID LIGHTS</b> There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations: Three (3) amber LED identification lights will be installed in the center of the cab above the windshield. Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield. Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.

0620054	Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	<b>INTERMEDIATE LIGHT</b> There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.
0563675	Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts	<b>REAR CLEARANCE/MARKER/ID LIGHTING</b> There will be three (3) Truck-Lite®, Model 33050R, LED lights used as identification lights recessed and located at the rear of the apparatus per the following: As close as practical to the vertical centerline Centers spaced not less than 6.00" or more than 12.00" apart Red in color All at the same height There will be two (2) Truck-Lite, Model 33050R, LED lights recessed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following: To indicate the overall width of the vehicle One (1) each side of the vertical centerline As near the top as practical Red in color To be visible from the rear All at the same height There will be two (2) Truck-Lite, Model 33050R, LED lights recessed on the side of the apparatus as marker lights as close to the rear as practical per the following: To indicate the overall length of the vehicle One (1) each side of the vertical centerline As near the top as practical Red in color To be visible from the side All at the same height There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground. There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.  Per FMVSS 108 and CMVSS 108 requirements.
0551870	Lights, Tail, WIn M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir w/Flange	<b>REAR FMVSS LIGHTING</b> The rear stop/tail and directional LED lighting will consist of the following: Two (2) Whelen®, Model M6BTT, red LED stop/tail lights Two (2) Whelen, Model M6T, amber LED arrow turn lights The lights shall be provided with color lenses. Each light will be installed separately at the rear with Whelen, Model M6FC, chrome flanges.
0551758	Lights, Backup, WIn M6BUW, LED, Flange Feature	Two (2) Whelen Model M6BUW, LED backup lights, will be provided with a flange.
0664481	Bracket, License Plate & Light, P25 LED	<b>LICENSE PLATE BRACKET</b> There will be one (1) license plate bracket mounted on the rear of the body. A white LED light will illuminate the license plate. A polished stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.
0589905	Alarm, Back-up Warning, PRECO 1040	<b>BACK-UP ALARM</b> A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.
0578264	Flash Pattern, California Title13, LED Warning Lights	<b>WARNING LIGHT FLASH PATTERN</b> The flash pattern of all the exterior warning lights will be set to meet the certified California, Title XIII flash pattern by either the light manufacturer's default flash pattern or by a conversion change to the certified flash pattern.
0090531	Light, Marker, Truck-Lite, 35200, LED, Recessed, Qty Feature, Feature Location	<b>MARKER LIGHTS</b> There will be two (2) lights of Truck-Lite, model 35200, LED, marker lights installed on this apparatus. The marker lights will be wired to the running lights of the vehicle. The lights will be located at the rear lower body corners, one each side in the rubrail . These lights will be installed either recessed or with metal flanges to protect them from most damage. Yellow lights will be installed in any location forward of the rear most point of the vehicle. A single red light will be installed at the rear most point only.

0769420	Lights, Perimeter Cab, Amdor AY-LB-12HW020 LED 4Dr	<b>CAB PERIMETER SCENE LIGHTS</b> There will be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one (1) for each cab door. These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.
0769572	Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 2lts	<b>PUMP HOUSE PERIMETER LIGHTS</b> There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side. If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the Amdor light will be installed. The lights will be controlled by the same means as the body perimeter lights.
0770056	Lights, Perimeter Body, Amdor AY-LB-12HW020 LED 2lts, Rear Step	<b>BODY PERIMETER SCENE LIGHTS</b> There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens, 20.00" long, white LED's, 12 volt DC lights provided at the rear step area of the body, one (1) each side shining to the rear. The perimeter scene lights will be activated when a switch within reach of the driver is activated and the parking brake is applied.
0556360	Lights, Step, P25 LED 4lts, Pump Pnl Sw	<b>STEP LIGHTS</b> Four (4) white LED step lights will be provided. One (1) step light will be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. These step lights will be actuated with the pump panel light switch. All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.
0511749	Light, Step, Additional, P25 LED	<b>ADDITIONAL STEP LIGHT</b> Additional lighting will be provided by white LED step lights. The step lights will be installed one in the cargo compartment and one on the front sheet above the crosslays.. The quantity of additional step lights will be two (2) lights. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light. The additional step lights will be activated by the same means as the standard step lights.
0550452	Lights, Side Scene, Zico ZQL-SS-LED, Stainless 1st	<b>SCENE LIGHTS</b> There will be two (2) Ziamatic, Model Model ZQL-SS-LED, LED scene light(s) with stainless steel housing, installed on the side of the apparatus, in the rear wheel well panels, one (1) each side. Lights should be at a 45 degree angle to light the ground behind the rear wheels. . A control for the light(s) selected above will be the following: a switch at the driver's side switch panel no additional switch location no additional switch location no additional switch location These lights may be load managed when the parking brake is set.
0565827	Special Switching, 12V Side Scene Lights, Reverse Activation Emerg Master ON	<b>SPECIAL SWITCHING FOR SCENE LIGHTS</b> There will be one (1) 12V white lights located on the sides of the apparatus the Zico fender lights (option 550452) on each side of the body that will be activated when the emergency master switch is on and the vehicle is shifted into reverse. Both conditions will be required for the 12V white lights to turn on. The lights will be deactivated if the emergency master switch is off, or if the vehicle is shifted out of reverse.
0649319	Special Switching, 12V Rear Scene Lights, Reverse Activation, Emerg Master ON	<b>SPECIAL SWITCHING FOR SCENE LIGHTS</b> The 12 volt scene lights located at the rear of the apparatus the scene light portion of the Whelen 9V2 lights on the rear bulkheads (option 619975) will be controlled by the features that have been selected. These lights will also be activated when the battery switch is on, the emergency master switch is on and the transmission is shifted into reverse.
0601288	SP Bracket, Lights, 2" Mounts	2" brackets will be used for mounting the Pole Mounted Fld/Spt lights on the back of the cab

0640627	Light, WIn, 12V PCPSM1* Pioneer LED Fld/Spt, Surface Mount 2nd	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen, Model PCPSM1*, 12 volt surface mounted LED combination spot/flood light(s) located one (1) on the passenger's side of cab centered above the exterior access door (P5). The lights will be mounted with black flange(s). The light(s) selected above will be controlled by the following: a switch at the driver's side switch panel no additional switch location a switch at the driver's side pump panel a switch at the passenger's side switch panel These light(s) may be load managed when the parking brake is set.
0640629	Light, WIn, 12V PCPSM1* Pioneer LED Fld/Spt, Surface Mount 1st	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen, Model PCPSM1*, 12 volt surface mounted LED combination spot/flood light(s) located one (1) on the driver's side of cab centered above the exterior access door (D5). The lights will be mounted with black flange(s). The light(s) selected above will be controlled by the following: a switch at the driver's side switch panel a switch at the passenger's side switch panel a switch at the driver's side pump panel no additional switch location These light(s) may be load managed when the parking brake is set.
0618234	Light, Visor, WIn, 12V PSL2* Pioneer LED Spottl 1st	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen® Pioneer™, Model PSL2*, 12 volt DC LED floodlight(s) provided on the front visor, centered. The housing(s) painted parts of this light assembly to be black. The lights will be steady burning with the selected switch features. The light will be controlled by the following: a switch at the driver's side switch panel a switch at the pump operator's panel a switch at the passenger's side switch panel no additional switch location These light(s) may be load managed when the parking brake is applied.
0532358	Not Required, Deck Lights, Other Hose Bed & Rear Lighting	
0645677	Lights, Not Required, Rear Work, Alt. 12 Volt Lights At Rear Body	
0774308	Lights, WIn, P*H2* Pioneer, 12 VDC, 2nd	<b>12 VOLT DC SCENE LIGHTS</b> There will be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC powered lights with white LEDs and a combination of flood and spot optics installed on the apparatus located, PS back of cab with the lighthouse positioned so that it stows just above the cab roof. In addition, assuming that the light stows facing out towards the side - the lighthouse shall not stick out any further than the cab side. The light(s) to be installed on push up side mount, outside pole length to be 12.00" long with handle holder and sensor connecting the pole to the Do Not Move Truck Indicator circuit. The painted parts of this light assembly to be black. The lights will be activated by a switch at the driver's side switch panel and by a switch at the driver's side pump panel. The light(s) may be load managed when the parking brake is applied.
0774309	Lights, WIn, P*H2* Pioneer, 12 VDC, 1st	<b>12 VOLT DC SCENE LIGHTS</b> There will be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC powered lights with white LEDs and a combination of flood and spot optics installed on the apparatus located, DS back of cab with the lighthouse positioned so that it stows just above the cab roof. In addition, assuming that the light stows facing out towards the side - the lighthouse shall not stick out any further than the cab side. The light(s) to be installed on push up side mount, outside pole length to be 12.00" long with handle holder and sensor connecting the pole to the Do Not Move Truck Indicator circuit. The painted parts of this light assembly to be black. The lights will be activated by a switch at the driver's side switch panel and by a switch at the driver's side pump panel. The light(s) may be load managed when the parking brake is applied.

0645873	Lights, Hose Bed, Sides, Dual LED Light Strips, Amdor XX9951 4lts	<b>HOSE BED LIGHTS</b> There will be four (4) Amdor LumaBar SuperBright, Model XX9951, 20.00" long white 12 volt DC LED light strips provided to light the hose bed area. These lights will be installed under a full length stainless steel shield to protect the lights and wiring. One (1) will be installed on the driver's side, side of the hose bed three (3) feet from the front of the hose bed. One (1) will be installed on the driver's side, side of the hose bed three (3) feet from the rear of the hose bed. One (1) will be installed on the passenger's side, side of the hose bed three feet from the rear of the hose bed. One (1) will be installed on the passenger's side, side of the hose bed three (3) feet from the front of the hose bed. The lights will be controlled when the hosebed cover is raised.
0763248	Lights, Walk Surf, Amdor AY-LB-12HW0**, LED, Cargo Areas	<b>WALKING SURFACE LIGHTS</b> There will be Two (2) Amdor®, Model AY-LB-12HW0**, white 12 volt DC LED strip light(s) provided in the cargo area(s) to illuminate the interior surface of the cargo area(s). Light(s) will be match job 32428 01-04. The light will be activated when the body step lights are on.
0007883	Switch, Master, Pump Panel Lights	<b>SWITCH, MASTER FOR PUMP PANEL LIGHTS</b> A master on/off switch will be provided for the pump panel lights. The switch will be located inside the cab within easy reach of the driver.
0060100	Pumper, Short, Galvanneal, 2nd Gen	
0554271	Body Skirt Height, 20"	
0028294	Tank, Water, 500 Gallon, Poly, Short	<b>WATER TANK</b> Booster tank will have a capacity of 500 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated. Tank joints and seams will be nitrogen welded inside and out. Tank will be baffled in accordance with NFPA bulletin 1901 requirements. Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments. Longitudinal partitions will be constructed of .38" polypropylene plastic and will extend from the bottom of the tank through the top cover to allow for positive welding. Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover. All partitions will interlock and will be welded to the tank bottom and sides. Tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions. Tank top will be sufficiently supported to keep it rigid during fast filling conditions. Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes. A sump that will be sized dependent on the tank to pump plumbing will be provided at the bottom of the water tank. Sump will include a drain plug and the tank outlet. Tank will be installed in a fabricated cradle assembly constructed of structural steel. Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel bar channel or rectangular tubing. Tank will "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on. Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle. Mounting system will be approved by the tank manufacturer.
0003405	Overflow, 4.00" Water Tank, Poly	Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long. Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover. An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.
0028104	Foam Cell Required	
0010011	Fill Dome Special Location	The water tank fill dome will be located as close to the DS wall as possible to maximize storage up top.
0093423	SP Fill Dome Special Location (Foam Tank)	The foam tank fill dome will be located as close to the DS wall as possible to maximize storage up top.

0084432		Modified Poly Tank, Ext'd Over Rear Compt	The water tank will be extended to the rear of the truck, over the rear compartment.
0024432		Modified Poly Tank for Single Full Depth Compt	
0633066		Sleeve, Through Tank	<b>SLEEVE, PLUMBING, THROUGH TANK</b> One (1) sleeve will be provided in the water tank for a 3.00" pipe to the rear.
0553729		Not Required, Restraint, Water Tank, Heavy Duty	
0003429		Not Required, Direct Tank Fill	
0003424		Not Required, Dump Valve	
0048710		Not Required, Jet Assist	
0030007		Not Required, Dump Valve Chute	
0514778		Not Required, Switch, Tank Dump Master	
0126632		Hose Bed, Galv, Pumper	<b>HOSE BED</b> The hose bed will be fabricated of 12-gauge galvanized steel. The sides will not form any portion of the fender compartments. Upper and rear edges of side panels will have a double break for rigidity. The upper inside area of the beavertails will be covered with brushed stainless steel to prevent damage to painted surface when hose is removed. Flooring of the hose bed will be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats will be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.
0003481		Hose Bed Capacity, Special	Hose bed will accommodate (DS to PS) 800' x 5.00" / 800' x 2.50" / 200' x 1.75" single stacked / 200' x 2.50" pre-connect.
0680455		Divider, Hose Bed, .25" Unpainted, (6) Bolts	<b>HOSE BED DIVIDER</b> Three (3) adjustable hosebed dividers will be furnished for separating hose. Each divider will be constructed of a .25" brushed aluminum sheet. Partition will be fully adjustable by sliding in tracks, located at the front and rear of the hose bed. Divider will be held in place by tightening six (6) bolts in (3) locations. Two (2) bolts at the front of the divider, two (2) bolts at the back of the divider and two (2) bolts in the middle of the divider. Acorn nuts will be installed on all bolts in the hose bed which have exposed threads. Flat surfaces will be sanded for uniform appearance, or constructed of brushed aluminum.
0604577	SP	Compt, Backboard, Bottom of 4-Way Hose Bed Cover, Fully Enclosed, Deflector	<b>BACKBOARD COMPARTMENT</b> One (1) backboard compartment will be fabricated of bright aluminum treadplate and mounted to the underside of the bright aluminum treadplate hose bed cover, on the passenger's side. Compartment(s) size will be make compartment with CLEAR INSIDE dimensions as follows: 74"L x 18"W x 4"D (note actual size of backboard is 72"L x 16.5"W x 2.5"D) and will have a bright aluminum treadplate drop-down door at the rear. Compartment(s) will be fully sealed all the way around. A Deflector will be at the front of the backboard compartment(s) to prevent hose from getting hung up when off-loading.
0010133		Cross-Divider, Hose Bed	A cross-divider will be provided just behind the fill tower. The divider will be bolted to the side sheet.
0568827	SP	Tool Storage, Alum Cover Split, Front of Hose Bed, Fill Dome Access, Amdor Lights	<b>TRANSVERSE TOOL COMPARTMENT, FRONT OF HOSE BED</b> A storage area will be provided at the front portion of the hose bed. A cross-divider will be installed approximately 24.00" behind the front sheet of the hose bed. The compartment will be the full width and height of the hosebed. Two (2) bright aluminum treadplate covers will be provided above the entire storage compartment. These covers will be properly reinforced to support the weight of firefighters. If access to water tank fill tower is blocked by the hose bed cover, then a hinged door will be provided in it so that tank may be filled without raising cover doors. A chrome plated handle and two (2) recessed lift and turn latches will be provided for each cover. Two (2) Amdor LED light strips will be provided on each side of the compartment door opening.

0530804		Cover, Hose Bed, Alum Treadplate	<b>HOSE BED COVER</b> A two (2) section hose bed cover, constructed of .125" bright aluminum treadplate will be furnished. The cover will be hinged with full length stainless steel piano hinge. The sides will be slanted down. The cover will be reinforced so that it can support the weight of a man walking on the cover. The cover is designed with the left cover opening first. If access to the water tank fill tower is blocked by the hose bed cover, then a hinged door will be provided in it so that the tank may be filled without raising cover doors. Chrome grab handles and four (4) gas filled cylinders will be provided to assist in opening and closing the cover. A handrail is to be provided at the rear, in the center of the support, to assist in opening the cover.
0699946		Safety Cable(s), Hose Bed Cover	<b>SAFETY CABLE FOR HOSE BED COVER</b> There will be two (2) safety cable(s) provided for the hosebed cover to provide additional support.
0649080		Gas Cylinders, 180 lb, Aluminum Hose Bed Cover	<b>HOSE BED COVER CYLINDERS</b> The gas filled cylinders will be 180 lb to assist in opening and closing the cover.
0592478	SP	Flap, Rear of Alum Hose Bed Cover, Vinyl, Paddle Seat Belt Buckles, Split	A pair of black vinyl flaps will be installed on the rear of the bright aluminum treadplate hose bed cover, with a chain weight and paddle seat belt buckles will be provided at the rear of the cover. The two flaps will overlap at the center with velcro.
0695399		Running Boards, 14.75" Deep, Front and Rear 45 Degree Corners	<b>RUNNING BOARDS</b> Running boards will be fabricated of .125" bright aluminum treadplate. Each running board will be supported by a welded 2.00" square tubing and channel assembly, which will be bolted to the pump compartment substructure. Running boards will be 14.75" deep and spaced .50" away from the pump panel. The front and rear outside corner of the running board will be finished with a 45 degree corner where it lines up with the body. A splash guard will be provided above the running board treadplate.
0689410		Tailboard, 20" Deep, Extended Substructure, Angled Corners	<b>TAILBOARD</b> The tailboard will also be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly. The tailboard area will be 20.00" deep. The outboard sides of the tailboard will be angled at 45 degrees beginning at the point where the body meets the tailboard at the forward outboard edge angling rearward to the rear edge of the tailboard. The exterior side will be flanged down and in for increased rigidity of tailboard structure.
0690037		Wall, Rear, Smooth Aluminum/Body Material	<b>REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL</b> The rear facing surfaces of the center rear wall will be smooth aluminum. The bulkheads, the surface to the rear of the side body compartments, will be smooth and the same material as the body. Any inboard facing surfaces below the height of the hosebed will be aluminum diamondplate .
0599409	SP	Tow Bar, Under Tailboard, Spaced Forward From Edge of Tailboard, 4"	<b>TOW BAR</b> A tow bar shall be installed under the tailboard at center of truck 4.00" in from the rear of the tailboard. Tow bar shall be fabricated of 1.00" CRS bar rolled into a 3.00" radius. Tow bar assembly shall be constructed of .38" structural angle. When force is applied to the bar, it shall be transmitted to the frame rail. Tow bar assembly shall be designed and positioned to allow up to a 30 degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle. Tow bar design shall have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.
0744350	SP	Mounting Tube, Hydrant Wrench	<b>MOUNTING TUBE</b> A mounting tube will be provided at the rear tailboard for storing a hydrant wrench. The mounting tube will be located on the inboard surface of the RS rear beavertail below the fixed step (SEE PHOTO).

**COMPARTMENTATION**

Body and compartments will be fabricated of galvanized steel.

Side compartments will be an integral assembly with the rear fenders.

Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.

Side compartment flooring will be 12 gauge and of the sweep out design, with the floor higher than the compartment door lip.

The side compartment door opening will be framed by flanging the edges in 1.75" and bending out again .75" to form an angle.

Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate, or polished stainless steel.

The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear, and outward side. These covers will have the corners TIG welded.

Side compartment covers will be separate from the compartment tops.

Front facing compartment walls will be covered with bright aluminum treadplate.

All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.

**UNDERBODY SUPPORT SYSTEM**

Due to the severe loading requirements of this pumper, a method of body and compartment support suitable for the intended load will be provided.

The backbone of the support system will be the chassis frame rails, which is the strongest component of the chassis and designed for sustaining maximum loads.

The support system will include .375" thick steel vertical angle supports bolted to the chassis frame rails with .625" diameter bolts.

Attached to the bottom of the steel vertical angles will be horizontal angles, with gussets welded to the vertical members, which extend to the outside edge of the body.

A steel frame will be mounted on the top of these supports to create a floating substructure, which results in a 500 lb equipment support rating per lower compartment.

The floating substructure will be separated from the horizontal members with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body.

The isolators will have a broad load range, proven viability in vehicular applications, be of a fail safe design and allow for all necessary movement in three (3) transitional and rotational modes.

The neoprene isolators will be installed in a modified V three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body.

**AGGRESSIVE WALKING SURFACE**

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

**LOUVERS**

Louvers will be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment. Where these louvers are provided, they will be formed into the metal and not added to the compartment as a separate plate.

**TESTING OF BODY DESIGN**

Body structural analysis has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.

The body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will include:

- Raising opposite corners of the vehicle tires 9.00", simulating the twisting a truck may experience when driving over a curb.
- Making a 90 degree turn while at 20 mph, simulating aggressive driving conditions.
- Driving the vehicle at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph, on rough pavement.

Evidence of actual testing techniques will be made available upon request.

LS 145" Rollup, Full Height Front & Rear, 5" Longer than Std Short Body

**LEFT SIDE COMPARTMENTATION**

The left side compartmentation will consist of three rollup door compartments.

A full height, rollup door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 27.50" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 21.75" wide x 56.88" high.

A rollup door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 32.88" high x 12.00" deep. The clear door opening will be a minimum of 58.25" wide x 23.13" high.

A full height, rollup door compartment behind the rear wheels will be provided. **The interior dimensions of this compartment will be 47.75" wide x 67.63" high x 12.00" deep. A section of this compartment will be 25.88" deep for the first 31.50" width x 26.00" height directly behind the rear wheels. The clear door opening will be a minimum of 44.75" wide x 57.88" high.**

**The interior height of the compartments will be measured from the compartment floor to the ceiling. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartments will be measured from the back wall to the inside of the door frame.**

**Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.**



0613773	SP RS 145" Rollup, Full Height Front & Rear, 5" Longer than Std Short	<p><b>RIGHT SIDE COMPARTMENTATION</b></p> <p>The right side compartmentation will consist of three rollup door compartments.</p> <p>A full height, rollup door compartment ahead of the rear wheels will be provided. The interior dimensions of this compartment will be 27.50" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 12.00" deep in the remaining upper portion. The clear door opening will be a minimum of 21.75" wide x 56.88" high.</p> <p>A rollup door compartment over the rear wheels will be provided. The interior dimensions of this compartment will be 66.50" wide x 32.88" high x 12.00" deep. The clear door opening will be a minimum of 58.25" wide x 23.13" high.</p> <p>A full height, rollup door compartment behind the rear wheels will be provided. <b>The interior dimensions of this compartment will be 47.75" wide x 67.63" high x 12.00" deep. A section of this compartment will be 25.88" deep for the first 31.50" width x 26.00" height directly behind the rear wheels. The clear door opening will be a minimum of 44.75" wide x 57.88" high.</b></p> <p><b>The interior height of the compartments will be measured from the compartment floor to the ceiling. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartments will be measured from the back wall to the inside of the door frame.</b></p> <p><b>Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand</b></p>
0594005	Doors, Rollup, Amdor, Side Compartments	<p><b>SIDE COMPARTMENT ROLLUP DOOR(S)</b></p> <p>There will be six (6) compartment doors installed on the side compartments, double faced, aluminum construction, painted one (1) color to match the lower portion of the body and manufactured by AMDOR™ brand rollup doors.</p> <p>Door(s) will be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats will be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain will be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement.</p> <p>Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingress.</p> <p>The doors will be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.</p> <p>Bottom panel flange of rollup door will be equipped with two (2) cut-outs to allow for easier access with gloved hands.</p> <p>A polished stainless steel lift bar to be provided for each roll-up door. The lift bar will be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.</p> <p>All injection molded rollup door wear components will be constructed of Type 6 nylon.</p> <p>Each rollup door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door.</p> <p>The header for the rollup door assembly will not exceed 4.00".</p> <p>A heavy-duty magnetic switch will be used for control of open compartment door warning lights.</p>
0013671	Compt, Rear, Rollup, 30.75" FF, 25.88" D	<p><b>REAR COMPARTMENTATION</b></p> <p>A roll-up door compartment above the rear tailboard will be provided.</p> <p>The interior dimensions of this compartment will be 40.00" wide x 33.63" high x 25.88" deep. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartment will be calculated with the compartment door closed.</p> <p>A louvered, removable access panel will be furnished on the back wall of the compartment.</p> <p>The rear compartment will be open into the rear side compartments.</p> <p>The clear door opening of this compartment will be a minimum of 33.25" wide x 23.88" high.</p> <p>Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.</p>

0594003		Door, Amdor, Rollup, Rear Compartment	<p><b>ROLLUP REAR COMPARTMENT DOOR</b></p> <p>The rear compartment will have a rollup door.</p> <p>The door will be double faced, aluminum construction, satin aluminum and manufactured by AMDOR™ brand rollup doors.</p> <p>The door will be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats will be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain will be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement.</p> <p>Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingress.</p> <p>The door will be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.</p> <p>Bottom panel flange of rollup door will be equipped with two (2) cut-outs to allow for easier access with gloved hands.</p> <p>A polished stainless steel lift bar to be provided for each roll-up door. The lift bar will be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.</p> <p>All injection molded rollup door wear components will be constructed of Type 6 Nylon.</p> <p>The door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door.</p> <p>The header for the rollup door assembly will not exceed 4.00".</p> <p>A heavy-duty magnetic switch will be used for control of open compartment door warning lights.</p>
0554992		Body Modification, 5" Reduced Depth Rear Compt	<p><b>BODY MODIFICATION FROM STANDARD</b></p> <p>The following body modifications will be required for the installation of a single axle air ride suspension:</p> <ul style="list-style-type: none"> <li>- Rear compartment will be 5.00" shorter in depth.</li> <li>- Special water tank mounting required if applicable.</li> </ul>
0026023		Scuffplate, S/S Around Air Bottle Fender Compt Openings	<p><b>SCUFFPLATE</b></p> <p>A polished stainless steel scuffplate will be furnished around the opening for all of the air bottle fender compartments.</p>
0622067	SP	Scuffplate, S/S On Rear Outside Edge of Body	<p><b>SCUFFPLATE</b></p> <p>A pair of brushed stainless steel scuffplates will be furnished full height each side of the rear outer corners of the body.</p>
0019845		Guard, Drip Pan, S/S, Rollup Door	<p><b>DOOR GUARD</b></p> <p>There will be seven (7) compartment doors that will include a guard/drip pan designed to protect the roll-up door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed all compartments with rollup doors.</p>
0518559		Keyed Locks for Roll-Up Doors, Key Style 751	<p><b>KEYED LOCK(S)</b></p> <p>A keyed lock will be furnished for one (1) compartment door. The compartmentation, to have a keyed lock, will be compartment P1 .</p>
0636819		Trim, Rollup Door, Painted Job Color, by Amdor	<p><b>ROLL-UP DOOR TRIM</b></p> <p>The exterior of the aluminum trim around the door opening will be painted to match job color. There will be six (6) compartments with the trim painted.</p>
0616670		Lights, Compt, Pierce LED, Dual Light Strips, Each Side of Door, Pumper/Tanker	<p><b>COMPARTMENT LIGHTING</b></p> <p>There will be seven (7) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment (s).</p> <p>Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.</p> <p>Opening the compartment door will automatically turn the compartment lighting on.</p>
0551978	SP	Notch, Cargo Compt, Top Flange, RS	<p><b>NOTCH CARGO COMPARTMENT SIDESHEET</b></p> <p>The cargo compartment sidesheet on the right side of the unit will be notched for access to the reel.</p> <p>A hose reel style roller assembly will be provided on the bottem of the notch.</p>
0663066	SP	Stay Arm, Pneumatic, Add to Cargo Compt Doors	<p><b>STAY ARM</b></p> <p>A pneumatic stay arm will be added to the tool storage doors (option #568827) at the front of the hose bed</p> <p>two (2)</p>

0569021	SP	Cover, Alum 4-Way, for Husky Hyd. Hoses	<b>ALUMINUM COVER IN CARGO AREA</b> An aluminum treadplate cover will be installed over the exposed hydraulic hoses in the cargo area for the foam system fluid reservoir.
0018700		Floor, Split for Access, Aluminum Treadplate	<b>CARGO FLOOR, SPLIT</b> The bright aluminum treadplate flooring in the cargo compartment will be split into two (2) or more pieces for easier access to the pump and plumbing without removing any other items and will support the weight of a fire fighter.
0638392	SP	Punch Pattern, Cargo Floor	<b>CARGO FLOOR, PUNCHED</b> The bright aluminum treadplate flooring in the cargo compartment will incorporate the star punching design to create an aggressive tread.
0687135		Shelf Tracks, Unpainted	<b>MOUNTING TRACKS</b> There will be four (4) sets of tracks for mounting shelf(s) in LS1, LS2, RS1 and RS3. These tracks will be installed vertically to support the adjustable shelf(s), and will be full height of the compartment. The tracks will be unpainted with a natural finish.
0600350		Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations	<b>ADJUSTABLE SHELVES</b> There will be five (5) shelves with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track. The shelves will be held in place by .12" thick stamped plated brackets and bolts. The location(s) will be in LS1 at the depth transition point to the left of the partition, in RS1 in the lower third, in RS3 in the upper third, in RS1 in the upper third and in LS2 centered between the floor and ceiling.
0622945		Shelves, Adjustable, Full Width/Depth, Low/Special Side Height	<b>ADJUSTABLE SHELVES</b> There will be one (1) shelf provided D1 upper portion. The shelf construction will consist of .188" aluminum painted spatter gray. A capacity rating will not be available on this item due to a reduced side height being less than 2.00". Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track. Each shelf will as wide and as deep as the compartment space shall allow. The shelves will be held in place by .12" thick stamped plated brackets and bolts. The side height of the shelf/shelves will be as follows: Front: 1.00" high Rear: 2.00" high Left & Right Sides: 2.00" high
0638569		Shelves, Fixed, 500 lb Capacity, Full Width/Depth, Painted Spatter Gray	<b>FIXED SHELVES</b> There will be one (1) shelf with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum with 2.00" sides. Each shelf will be painted spatter gray to match the compartment interior. Each shelf will be fixed in its location in the compartment The shelves will be held in place by .12" thick stamped plated brackets and bolts or angles bolted to the compartment as the engineer or shop floor see fit. The location will be in D3 directly on top of the CTEACH cabinet.
0647045		Tray, Floor Mounted, Slide-Out, Full Width/Full Depth, 500lb, 2.00" Sides, 2G	<b>SLIDE-OUT FLOOR MOUNTED TRAY</b> There will be one (1) floor mounted slide-out tray(s) with 2.00" sides provided P3. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of a minimum .13" aluminum. The finish will be painted spatter gray. The trays will be designed for maximum compartment width and depth. There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2. To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117. To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request. Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

0613608	SP	Toolboard, Slide-out, Alum, .188", Peg Board, Notch, Slide-Out Tray Mounted	<p><b>TOOLBOARD</b></p> <p>An aluminum toolboard will be provided. It will be a minimum of 0.188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.</p> <p>A cut out/notch will be provided in the toolboard 8.00" high (from the top of the Turtle Tile) X as wide as feasible possible as to not compromise the structural integrity of the toolboard.</p> <p>A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.</p> <p>The board will be installed on centered on the tray. The board will not be adjustable. The tray is not included in this option.</p> <p>There will be One (1) toolboard(s) provided. The toolboard(s) will be with a dual action finish and installed P3 running side to side on the rear most edge of the tray (SEE PHOTO).</p>
0529812		Access Panel, Compartment Wall, 1/4 Turn Fasteners	<p><b>ACCESS PANEL</b></p> <p>A removable access panel will be provided P3 on the back (water tank) wall . This panel will be start access panel directly above the frame rail and extend it up 30.00" x full width and will be held in place with 1/4 turn fasteners. It will provide access to water tank components that require maintenance and calibration .</p>
0004005		Alum Treadplate on Compt Floor	<p><b>COMPARTMENT FLOOR SCUFFPLATE</b></p> <p>Aluminum treadplate will be provided on the floor of two (2) compartments. The locations will be, D1 and R1.</p> <p>The edges of the treadplate will be completely caulked before installation to prevent corrosion.</p>
0558497		Drawer Assembly, CTECH, Three Drawers, Up To 24" Wide	<p><b>DRAWER ASSEMBLY</b></p> <p>A slideout drawer assembly will be installed D3 as far forward as possible, so the drawers still open.</p> <p>The clear dimensions of the first drawer starting at the top will be 3.25" with a face plate that is 4.00" high x 21.00" deep. The clear dimensions of the second drawer will be 7.75" with a face plate that is 8.00" high x 21.00" deep. The clear dimensions of the third drawer will be 7.75" with a face plate that is 8.00" high x 21.00" deep. Each drawer will be the same width and not exceed 24.00".</p> <p>The drawers will have a capacity of 250 pounds.</p> <p>The drawers will be mounted in a cabinet housing constructed of light gray powder coated aluminum with anodized aluminum frames. The housing will be 24.00" deep, and completely enclose the drawer.</p> <p>A full-length aluminum extruded rail will be provided at the top edge of each drawer. This rail will act as the latching mechanism as well as the handle for each drawer.</p> <p>There will be a total of one (1) provided.</p>
0625794		Cable, Door Stop	<p><b>DOOR STOP CABLE</b></p> <p>two (2) door stop cable will be provided on the one (1) on the DS air bottle compartment forward of the rear axle (option 648325) and one (1) on the PS air bottle compartment forward of the rear axle (option 622393) match job 32428 01-04 door to prevent the door from contacting other options.</p>
0003934		Dust Filter, Compt Louvers	<p><b>COMPARTMENT DUST FILTERS</b></p> <p>A total of five (5) body compartment louvers will have a removable dust filter installed to restrict road dirt from easily entering the compartment and will be installed D1, D3, P1, P3 and R1.</p>
0028026		Matting, Turtle Tile, Compt Shelving only	<p><b>MATTING, COMPARTMENT SHELIVING</b></p> <p>Turtle Tile compartment matting will be provided in eight (8) shelves. The locations are, each shelf and tray .</p> <p>The color of the Turtle Tile will be red.</p>
0659383		Matting, Turtle Tile w/Ramp, Compt Floors	<p><b>MATTING, COMPARTMENT FLOOR</b></p> <p>Turtle Tile compartment matting will be provided in three (3) compartments on the compartment floor. The locations are, D2, P1 and P2.</p> <p>The Turtle Tile will be red and the leading edge of the matting will include the beveled edge. The beveled edge will be red .</p>
0003908		Partition, Trans Rear Compt	<p><b>PARTITION, TRANSVERSE REAR COMPARTMENT</b></p> <p>One (1) partition will be bolted in place to separate right side rear compartment from the rear tailboard compartment.</p>
0600281		Partition, Vertical Compartment, Predefined Locations	<p><b>VERTICAL COMPARTMENT PARTITION</b></p> <p>One (1) partition will be provided.</p> <p>The partition construction will consist of .125" aluminum painted spatter gray. Each partition will be the full vertical height of the compartment.</p> <p>The location(s) will be in LS1, 32.00" from the forward door frame.</p>

0755528		Toolboard, Back Wall Mounted, 3/16" Alum, Special	<b>TOOLBOARD</b> There will be 3/16" thick aluminum toolboard (no holes) with a dual action finish installed on the back wall of one (1) compartment(s). The toolboard will be mounted using two (2) horizontal tracks. Retainers will be used to mount the toolboard to the tracks. The toolboard will be located in the LS3 and mounted upper portion only, full height/depth.
0758542	SP	Pull Strap, 1", Color	<b>RESTRAINT PULL STRAP</b> one (1) 1.00" wide black nylon straps will be attached to the seat belt buckles located under cab hood, attached under the bolts used for the hood latch. The strap(s) will be used to pull open the restraint.
0775959	SP	Strap, Nylon w/Velcro Hook & Loop, 2" wide	<b>STRAP</b> There will be one (1) black 2.00" wide nylon strap(s) that will provide positive restraint by hooking through a footman loop, similar to what is used with a hose bed flap. The strap(s) will be located in RS1 on the hydraulic ladder rack box to hold two (2) Customer Furnished oxygen cylinders (SEE PHOTO). The strap(s) will have a Velcro® fastener.
0024016		Rub Rail, Aluminum Extruded, Side & Rear of Body	<b>RUB RAIL</b> Bottom edge of the side and rear of the body compartments will be trimmed with a bright aluminum extruded rub rail. Trim will be 2.12" high with 1.38" flanges turned outward for rigidity. The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.
0784811		Fender Crowns, Rear, Stainless, w/Removable Liner	<b>BODY FENDER CROWNS</b> Polished stainless steel fender crowns will be provided around the rear wheel openings with a dielectric barrier will be provided between the fender crown and the fender sheet metal to prevent corrosion. The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting will be provided between the body and crown. <b>BODY FENDER LINER</b> A painted fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.
0602222		Hose, Hard Suction, 6.0", 10.0', Clear Corrugated, Kochek	<b>HARD SUCTION HOSE</b> Two (2) lengths of 6.00" Kochek Fire Grade clear corrugated hard suction hose, reinforced with a black spiral helix, 10' in length, will be provided. The hose will be equipped with a long handle female coupling on one (1) end and a rocker lug male coupling on the other end. Couplings will be black anodized hard coated aluminum.
0035476		Troughs, H.S.H., LS, Aluminum, Double	<b>HOSE TROUGHs</b> Troughs for hard suction hose will be provided on top of the left side body compartments. Troughs will be V-shaped and located side by side. The hose will be held in place by chrome plated, quarter turn, spring loaded clamps. Troughs will be constructed of aluminum and painted job color.
0621021		Handrails, Side Pump Panels, Per Print, Hansen Knurled Alum LED Backlit	<b>HANDRAILS</b> The handrails will be Hansen LED backlit knurled aluminum. The handrails will be lit with a blue LED light. The handrails will be activated with the headlight switch activated and the parking brake applied. Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces. Drain holes will be provided in the bottom of all vertically mounted handrails. Handrails will be provided to meet NFPA 1901 section 15.8 requirements. The handrails will be installed as noted on the sales drawing.
0786434	SP	Handrails, Beavertail, Hansen, Knurled Aluminum, LED Backlit, Left Side Only	<b>HANDRAILS</b> One (1) Hansen, LED lit, knurled aluminum vertical handrail will be located on the left side rear beavertail. The handrail will be lit with a blue LED light. The hand rail will be activated with the headlight switch activated and the parking brake applied.
0625966		Handrail, Rear, Below Hose Bed, Full Width, Hansen, Knurled Aluminum LED Backlit	One (1) full width horizontal handrail will be provided below the hose bed at the rear of the apparatus. The handrail will be Hansen LED backlit knurled aluminum. The handrail will be lit with a blue LED light. The handrail will be activated with the headlight switch activated and the parking brake applied.

0609286		Handrail, Extra - 15-20" Long, Hansen Knurled Alum LED Backlit	<p>- One (1) handrail, will be provided mounted on top of the left side sheet forward. The handrails will be Hansen LED backlit knurled aluminum. The handrails will be lit with a blue LED light. The handrails will be activated with the headlight switch activated and the parking brake applied.</p> <p>Chrome plated end stanchions will support the handrail. Plastic gaskets will be used between end stanchions and any painted surfaces.</p> <p>Drain holes will be provided in the bottom of all vertically mounted handrails.</p>
0622393		Compt, Air Pack in Fender Panel	<p><b>AIR PACK STORAGE</b></p> <p>A total of one (1) air pack compartment(s) will be provided and located The full Air Pack compartment shall be located on the passenger's side of the body forward of the rear axle. The air pack compartment(s) will be tapered to match the profile of the space available in the fender. The compartment(s) will be approximately 15.50" wide at the top and 5.00" wide at the bottom for the wheel cutout. The compartment(s) will be 15.50" tall at the body side compartment and 6.00" tall at the wheel cutout. The compartment(s) will be 26.00" deep and have a drain hole. Inside the compartment, black rubber matting will be provided.</p> <p>A painted stainless steel hinged door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air pack. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.</p>
0648325		Compt, Air Bottle, Double, Common Triple Door, Fender Panel	<p><b>AIR BOTTLE STORAGE (Double)</b></p> <p>A quantity of three (3) air bottle compartments, 15.25" wide x 7.75" tall x 26.00" deep, will be provided on the left side forward of the rear wheels. The triangular door shall cover the double air bottle opening and the DEF tank access., on the right side forward of the rear wheels and on the right side rearward of the rear wheels. The triangular door shall cover the double air bottle opening and the fuel tank access. . A painted stainless steel door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p>Inside the compartment, "W" shaped insert formed of composite materials will be provided.</p> <p><b>AIR BOTTLE COMPARTMENT STRAP</b></p> <p>A strap shall be provided in the air bottle compartment to help contain the air bottle when the vehicle is parked on an incline. The strap shall wrap around the neck and attach to the wall of the compartment.</p>
0744503	SP	Holder, Air Bottle, Zico Model UN-6-30-2-SFPHS, Mounted in Compt w/Tracks	<p><b>AIR BOTTLE HOLDERS</b></p> <p>Two (2) brackets will be provided for mounting air bottles. Each bracket will be a Ziamatic, model UH-6-30-2-SFPHS, be mounted on tracks, and be used for adjusting the location of the bracket within the compartment. Install one (1) in LS3 and one (1) in RS3 on the toolboard (SEE PHOTOS).</p>
0602940		Ladder, Extension, Provided by Fire Dept, Pumper/Pumper w/Aerial, NFPA 2016	<p><b>EXTENSION LADDERS PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, section 5.8.1.2 requires an extension ladder.</p> <p>The extension ladder is not on the apparatus as manufactured. There will be one (1) extension ladder(s) provided and installed by the fire department. The ladder(s) will be a 24' Duo-Safety 900-A, two (2)-section.</p>
0602718		Ladder, Roof,Provided by Fire Department,Pumper/Pumper w/Aerial Device,NFPA 2016	<p><b>ROOF LADDER PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, section 5.8.1.2 requires a minimum of one (1) roof ladder.</p> <p>The roof ladder is not on the apparatus as manufactured. There will be one (1) roof ladder(s) provided and installed by the fire department. The ladder(s) will be a 14' Duo-Safety 775-A.</p>

0015036	Rack, Ladders, Hydraulic, Right Side, Air Clamps	<p><b>HYDRAULIC LADDER RACK</b></p> <p>Ground ladders will be mounted above the right side of the hose body in a specially designed swing-down cradle. This cradle will be electric/hydraulic operated. The system design will have been life cycle tested for at least 14 years of dependable service.</p> <p>An independent hydraulic pump powered by a 12-volt electric motor will operate the hydraulics. The hydraulic pump and reservoir will be accessible from the ground through a stainless steel inspection door.</p> <p>The ladder rack will incorporate two hydraulic rotary actuators, one each located inside the front compartment and the rear compartment. The actuators will be completely enclosed within each compartment to eliminate any pinch points while operating the ladder rack. Lifting arms will be attached outside the compartment body to the front and rear actuator.</p> <p>The rack can be designed in certain situations to provide lifting capabilities up to 500 lb. The maximum height of the rack from the ground in the lowered position will be no more than 47.00".</p> <p>The electric control panel will have a master switch on/off switch, an actuation switch, an operation indicator light and operation instructions. The electric controls will be located in such a manner to allow the operator full view of the area into which the ladders will be lowered.</p> <p>Two (2) air operated safety locks will be furnished to securely maintain the ladder bracket assembly in the travel position. These air operated safety locks will be controlled from the ladder rack control panel.</p> <p>An enclosure is not required here, as an enclosure is provided in the "Bracket, Rear Warning, Hose Bed Lts Location Category" for the mounting of the rear warning lights.</p> <p>Ladders will be secured to the brackets with two (2) locks retaining the roof ladder and the extension ladder. The locks will be such that when the roof ladder is removed, the clamps can be moved a half turn to hold the extension ladder in place.</p> <p><b>LADDER RACK INTERLOCK AND NOT STOWED INDICATOR LIGHT</b></p> <p>An interlock will be provided to prevent operation of the ladder rack unless the apparatus parking brake has been activated.</p> <p>A steady red indicator light will be located on the cab instrument panel and illuminated when the hydraulic ladder rack is not in the stowed position. The light will be labeled "Ladder Rack". In addition, the "Do Not Move Apparatus" light located in the cab will be activated when the hydraulic ladder rack is not in the stowed position.</p>
0748596	SP Lights, Hyd Lad Rack Deployed, Wln 2FA00ZAR	<p><b>HYDRAULIC LADDER RACK DEPLOYED LIGHTS</b></p> <p>There will be two (2) Whelen® Model 2FA00ZAR, 4" diameter lights with amber LED's and amber lenses installed on the ladder rack. These lights will be mounted with Whelen Model 2GROMMET black rubber grommets, and installed in polished aluminum boxes, provided per the following:</p> <p>One (1) light installed on the front of the hydraulic ladder rack</p> <p>One (1) light installed on the rear of the hydraulic ladder rack</p> <p>The lights will be activated when the battery switch is on and the hydraulic ladder rack is not in the stowed position.</p>
0602903	Ladder, 10' Duo-Safety 585A, w/Mtg, Provided by Fire Dept, Pumper NFPA 2016	<p><b>FOLDING LADDER PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, section 5.8.1.2 requires a folding ladder.</p> <p>The folding ladder is not on the apparatus as manufactured. There will be one (1) 10' aluminum Series 585-A Duo-Safety folding ladder provided by the fire department. The ladder will be installed in the pike pole/folding ladder compartment.</p>
0024499	Arm, Rear, Offset, Hydraulic Rack 2000, Recess Light	The rear hydraulic rack arm will have an offset to not block the rear upper zone warning lights.
0024798	Arms, Raise Pivot Point, 6", Hydraulic Ladder Rack	The ladder rack pivot point will be raised 6.00" on the passenger's side to change the lifting capacity of the rack.
0092058	Cover, Alum Treadplate, Over Ladder Rack Air Lock	<p><b>LADDER LOCK COVER</b></p> <p>There will be two (2) aluminum treadplate cover(s) provided over the one over each lock on the PS hydraulic ladder rack air lock(s).</p>
0564381	Hydraulic Pump, Ladder Rack, Special Location	<p><b>HYDRAULIC LADDER RACK PUMP LOCATION</b></p> <p>The hydraulic pump for the ladder rack will be located in the pumphouse. An access door will be provided to fill the pump.</p>
0602877	Pike Pole, Pumper, Provided by Fire Department, NFPA 2016	<p><b>PIKE POLE PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 8 ft or longer pike pole mounted in a bracket fastened to the apparatus.</p> <p>The pike pole is not on the apparatus as manufactured. The fire department will provide and mount the pike pole.</p> <p>The pike pole(s) will be a Nupla 10' pike pole.</p>
0602875	Pike Pole, 6', Pumper, Provided by Fire Department, NFPA 2016	<p><b>6' PIKE POLE PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 6' pike pole or plaster hook mounted in a bracket fastened to the apparatus.</p> <p>The pike pole is not on the apparatus as manufactured. The fire department will provide and mount the pike pole.</p> <p>The pike pole(s) will be a Nupla 6' pike pole.</p>

0605424	SP	Compt, (3) Pike & (1) Foldg Ladder, Below Tee, Alum Treadplate Door, LS	<b>PIKE POLE/FOLDING LADDER COMPARTMENT</b> One (1) pike pole compartment will be provided, recessed below the water tank tee at the rear of body, on the left side. The compartment will be equipped with three (3) pvc tubes to hold three (3) pike poles and a stainless steel trough for the folding ladder. The door will be made of aluminum treadplate and have a lift and turn latch.
0593083		Step, Folding, Front of Body, Left Side Only, w/LED, Trident	<b>STEP</b> A folding step will be provided on the left side front bulkhead. The step will be a bright finished, non-skid step with a luminescent coating that is rechargeable from any light source and can hold a charge for up to 24 hours. The step will incorporate an LED light to illuminate the stepping surface. The step can be used as a hand hold with two openings wide enough for a gloved hand.
0581886		Steps, Folding, Rear of Body, w/LED, Trident, LS Only	<b>REAR FOLDING STEPS</b> Bright finished, non-skid folding steps with a luminescent coating that is rechargeable from any light source and can hold a charge for up to 24 hours will be provided at the rear on the left side. Each step will incorporate an LED light to illuminate the stepping surface. The steps can be used as a hand hold with two openings wide enough for a gloved hand.
0592990		Step, Folding - Extra, Body Only, Luminescent w/LED, Trident	Three (3) additional folding steps will be located two (2) on the driver's side front bulkhead and one (1) on the DS rear 18" off the top of the intermediate step . The step(s) will be bright finished, non-skid, with a luminescent coating. The luminescent coating is rechargeable from any light source and can hold a charge for up to 24 hours. Each step will incorporate an LED light to illuminate the stepping surface. The step(s) can be used as a hand hold with two openings wide enough for a gloved hand.
0598951	SP	Step, Full Width, Rear Of Body, 8", TAN Light Recessed W/Compt Access "Contra Costa	An 8.00" deep, full width bright aluminum tread plate step will be provided at the rear of the body. The step will be located per job 32428 01-04. A recess will be supplied for a TAN Traffic light, within the rear facing flange of the step. The pike pole compartment on the left side will be accessible through the step.
0014441		Pump, Hale, QMAX-150, 1500 GPM, Single Stage	<b>MIDSHIP FIRE PUMP</b> Midship fire pump will be a Hale QMAX-150, 1500 gpm single (1) stage midship mounted centrifugal type. Pump will be the class "A" type. Pump will deliver the percentage of rated discharges at the pressures indicated below: - 100% of rated capacity at 150 psi net pump pressure. - 100% of rated capacity at 165 psi net pump pressure. - 70% of rated capacity at 200 psi net pump pressure. - 50% of rated capacity at 250 psi net pump pressure. Entire pump and both suction and discharge passages will be hydrostatically tested to a pressure of 500 psi. Pump will be fully tested at the pump manufacturer's factory to the performance requirements as outlined by the current NFPA 1901 standards and will be free from objectionable pulsation and vibration. Pump body and related parts will be of fine grain, alloy cast iron with a minimum tensile strength of 30,000 psi (2041.2 bar). All moving parts in contact with water will be of high quality bronze or stainless steel. Pump body will be horizontally split, on a single plane in two (2) sections, for easy removal of entire impeller assembly, including wear rings and bearings from beneath the pump, without disturbing pump piping or the mounting of the pump in the chassis. Pump will have one (1) double suction impeller. The pump body will have two (2) opposed discharge volute cutwaters to eliminate radial unbalance. Pump impeller will be hard, fine grain bronze of the mixed flow design, accurately machined, hand-ground, and individually balanced. The vanes of the impeller intake eyes will be hand-ground and polished to a sharp edge. They will be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. Impeller clearance rings will be bronze and easily renewable without replacing impeller or pump volute body. They will be of the wrap-around double labyrinth design for maximum efficiency. Pump shaft will be electric furnace heat-treated, corrosion resistant stainless steel. It will be super-finished under packing with galvanic corrosion (zinc separators in packing) protection for longer shaft life. Pump shaft will be sealed with double oil seal to keep road dirt and water out of drive unit. Pump shaft will be rigidly supported by three (3) bearings for minimum deflection. A high lead bronze sleeve bearing will be located immediately adjacent to the impeller (on the side opposite of the drive unit). The sleeve bearing will be automatically oil lubricated and pressure balanced to exclude foreign material. The remaining bearings will be heavy-duty, deep groove ball bearings in the gearbox and will be splash lubricated.



0014481	Seal, Graphite Packing Glands, Hale	<p><b>PUMP PACKING</b></p> <p>The pump shaft will have one (1) packing gland located on inlet side of the pump and will be of the split design for ease of repacking.</p> <p>The packing gland will be a full-circle threaded design to exert uniform pressure on packing and prevent "cocking" and uneven packing load when it is tightened.</p> <p>The packing gland will be easily adjusted by hand (with a rod or screwdriver, no special tools or wrenches required).</p> <p>The packing rings will be of a unique, permanently lubricated, long-life graphite composition and have sacrificial zinc foil separators to protect the pump shaft from galvanic corrosion.</p>
0014477	Trans, Pump, Hale, Gear	<p><b>PUMP TRANSMISSION</b></p> <p>The drive unit will be cast and completely manufactured and tested at the Hale Products, Inc. factory. The pump drive unit will be of sufficient size to withstand up to 16,000 foot/ pounds of torque from the engine in both the road and pump operating conditions. The drive unit is will be designed with ample lubrication reserve to maintain the proper operating temperature.</p> <p>The gearbox drive shafts will be of heat treated chrome nickel steel and 2.75" in diameter on both the input and output drive shafts. They will be designed to withstand the full torque of the engine in both road and pump operating conditions.</p> <p>All gears, both drive and pump, will be of the highest quality, electric furnace, chrome nickel steel. Bores will be ground to size and teeth integrated, crown-shaved and hardened, to give an extremely accurate gear for long life, smooth, quiet running and higher load carrying capability. An accurately cut spur design will be provided to eliminate all possible end thrust.</p> <p>Pierce Manufacturing will select the pump ratio to provide the maximum performance with the engine and transmission selected. Three (3) green warning lights will be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two (2) lights will be located in the truck driving compartment and one (1) light on pump operator's panel adjacent to the throttle control.</p>
0635600	Pumping Mode, Stationary Only	<p><b>PUMPING MODE</b></p> <p>An interlock system will be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system will be designed to allow stationary pumping only.</p>
0604324	Pump Shift, Air w/Manual Override, Split Shaft, Interlocked, Hale	<p><b>AIR PUMP SHIFT</b></p> <p>Pump shift engagement will be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab. A manual back-up shift control will also be located on the left side pump panel.</p> <p>Two (2) indicator lights will be provided adjacent to the pump shift inside the cab. One (1) green light will indicate the pump shift has been completed and be labeled "pump engaged". The second green light will indicate when the pump has been engaged and the chassis transmission is in pump gear. This indicator light will be labeled "OK to pump".</p> <p>Another green indicator light will be installed adjacent to the hand throttle on the pump panel and indicate either the pump is engaged and the road transmission is in pump gear, or the road transmission is in neutral and the pump is not engaged. This light will be labeled "Warning: Do not open throttle unless light is on".</p> <p>The pump shift will be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.</p> <p>The pump shift control in the cab will be illuminated to meet NFPA requirements.</p>
0003148	Transmission Lock-up, EVS	<p><b>TRANSMISSION LOCK-UP</b></p> <p>The direct gear transmission lock-up for the fire pump operation will engage automatically when the pump shift control in the cab is activated.</p>
0004547	Auxiliary Cooling System	<p><b>AUXILIARY COOLING SYSTEM</b></p> <p>A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. The heat exchanger will be cylindrical type and will be a separate unit. The heat exchanger will be installed in the pump or engine compartment with the control located on the pump operator's control panel. Exchanger will be plumbed to the master drain valve.</p>
0014486	Not Required, Transfer Valve, Stage Pump	
0746501	Valve(s), Relief Intake, Elkhart	<p><b>INTAKE RELIEF VALVE - PUMP</b></p> <p>There will be One (1) Elkhart Style 40 relief valve(s) installed on the suction side of the pump preset at 125 psig.</p> <p>The relief valve(s) will have a working range of 75 psi to 250 psi.</p> <p>The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.</p> <p>The relief valve pressure control will be located behind an access door at the right side pump panel.</p>

0569020	SP	Controller, Pressure, FRC, Pump Boss, PBA200, Audible Alarm	<b>PRESSURE CONTROLLER</b> A Fire Research Pump Boss Model PBA200 pressure governor will be provided. A pressure transducer will be installed in the water discharge manifold on the pump. The display panel will be located at the pump operator's panel. An audible alarm will be provided.
0072153		Primer, Trident, Air Prime, Air Operated	<b>PRIMING PUMP</b> The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. One (1) priming control will open the priming valve and start the pump primer.
0044552		Line, 0.50" Recirculating w/Check Valve	<b>RECIRCULATING LINE WITH CHECK VALVE</b> A 0.50" diameter recirculating line, from the pump to the water tank, will be furnished with a control installed at the pump operator's control panel. A check valve will be provided in this line to prevent the back flow of water from the tank to the pump if the valve is left in the open position.
0604521	SP	Foam/Pump Drains, Location	<b>PUMP DRAIN LOCATION</b> The foam/pump drains will be located DS, as far back under the front step as possible per job 32428 01-04.
0658552		Thermal Relief Valve, TRV120-L w/Red Warning Light, Hale Pump	<b>THERMAL RELIEF VALVE</b> A Hale TRV120-L thermal protection device will be included on the pump that monitors pump water temperature and opens to relieve water to cool the pump when the temperature of the pump water exceeds 120 Degrees F (49 C). The thermal protection device will include a red warning light. The warning light with a test switch will be mounted on the pump operator panel. The discharge line will be 3/8 inch diameter tubing plumbed to ground.
0780364		Manuals, Pump, (2) Total, Electronic Copies	<b>PUMP MANUALS</b> There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.
0603129		Plumbing, Stainless Steel and Hose, Single Stage Pump	<b>PLUMBING, STAINLESS STEEL AND HOSE</b> All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness. Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings. Plumbing manifold bodies will be ductile cast iron or stainless steel. All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame. All water carrying gauge lines will be of flexible polypropylene tubing. All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.
0795135		Plumbing, Stainless Steel, w/Foam System	<b>FOAM SYSTEM PLUMBING</b> All piping that is in contact with the foam concentrate or foam/water solution will be stainless steel. The fittings will be stainless steel or brass. Cast iron pump manifolds will be allowed.
0004645		Inlets, 6.00" - 1250 GPM or Larger Pump	<b>MAIN PUMP INLETS</b> A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.
0519389		Cap, Main Pump Inlet, Long Handle, NST, (1) Fire Department, (1) Pierce	<b>MAIN PUMP INLET CAP</b> Fire Department will provide one (1) cap for the main pump inlet. The contractor will provide one (1) cap for the main pump inlet. The cap will have National Standard Threads and be chrome plated. This cap will be the Pierce VLH, which incorporates a patent pending thread design to automatically relieve stored pressure in the line when disconnected.

0755923	Valve, Ball Intake Relief, Akron Revolution	<p><b>INLET VALVES WITH INTAKE RELIEF VALVE</b></p> <p>There will be One (1) Akron Brass Revolution 7982 (30 degree swivel inlet) manually operated aluminum ball intake valve(s) provided driver's side .</p> <p>The inlet connection will be 4.50" FNST and the outlet connection will be 6.0" FNST swivel long handle .</p> <p>A 12.5" diameter handwheel will be included to operate valve open and close functions. A position indicator will be included to indicate position of the ball.</p> <p>The ball intake valve will be equipped with an adjustable pressure relief valve. The relief valve will have a working range of 50 PSI to 250 PSI.</p> <p>A 3/4" bleeder/drain valve will be provided on the ball intake valve to exhaust excess air or water from the valve.</p> <p>The Intake Valve will be constructed of lightweight, corrosion-resistant, hard-anodized aluminum and stainless steel. To protect against corrosion, the casting will be coated with a powder coat finish and all components on the wet side of the valve will be constructed from stainless steel.</p>
0084610	Valves, Akron 8000 series- All	<p><b>VALVES</b></p> <p>All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.</p> <p>Valves will have a <b>ten (10) year</b> warranty.</p>
0004660	Inlet, Left Side, 2.50"	<p><b>LEFT SIDE INLET</b></p> <p>There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</p>
0004680	Inlet, Right Side, 2.50"	<p><b>RIGHT SIDE INLET</b></p> <p>There will be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet will be provided with a strainer, chrome swivel and plug.</p>
0004686	Valve, Inlet(s) Recess Behind Panel, Side Cntrl	<p>The location of the valve for the two (2) inlets will be behind the pump panel.</p>
0562953	SP Hale Anode, Zinc, Inlet/Outlet, Pump, Painted, Drilled	<p><b>ANODE, INLET</b></p> <p>Two (2) sacrificial zinc anodes will be provided in the water pump to protect the pump from corrosion. One (1) will be install on the suction side and one (1) on the discharge side of the pump.</p> <p>The anodes will be painted yellow for easy identification.</p> <p>A small hole will be drilled in each anode to indicate that the anode should be replaced when it starts to leak.</p>
0004700	Control, Inlet, at Valve	<p><b>INLET CONTROL</b></p> <p>The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.</p>
0092569	No Rear Inlet (Large Dia) Requested	
0092696	Not Required, Cap, Rear Inlet	
0064116	No Rear Inlet Actuation Required	
0009648	No Rear Intake Relief Valve Required on Rear Inlet	
0092568	No Rear Auxiliary Inlet Requested	
0563738	Valve, .75" Bleeder, Aux. Side Inlet, Swing Handle	<p><b>INLET BLEEDER VALVE</b></p> <p>A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.</p>

0014751		Tank to Pump, (1) 3.00" Valve, 3.00" Plumbing, Reverse Linkage	<p><b>TANK TO PUMP</b></p> <p>The booster tank will be connected to the intake side of the pump with heavy duty piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. The tank to pump line will run straight (no elbows) from the pump into the front face of the water tank and down into the tank sump. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.</p> <p>The control on the pump panel will be "in" when the valve is open and "out" when the valve is closed.</p> <p>A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p>
0004905		Outlet, Tank Fill, 1.50"	<p><b>TANK REFILL</b></p> <p>A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p>
0004940		Outlet, Left Side, 2.50"	<p><b>LEFT SIDE DISCHARGE OUTLETS</b></p> <p>There will be two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p>
0092570		Not Required, Outlets, Left Side Additional	
0004945		Outlet, Right Side, 2.50"	<p><b>RIGHT SIDE DISCHARGE OUTLETS</b></p> <p>There will be two (2) discharge outlets with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.</p>
0092571		Not Required, Outlets, Right Side Additional	
0613744	SP	Outlet, 4" w/4" Right	<p><b>LARGE DIAMETER DISCHARGE OUTLET</b></p> <p>There will be a 4.00" discharge outlet with a 4.00" Akron valve installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread adapter.</p>
0649939		Outlet, Front, 1.50" w/2" Plumbing	<p><b>FRONT DISCHARGE OUTLET</b></p> <p>There will be one (1) 1.50" discharge outlet piped to the front of the apparatus and located on the top of the left side of the front bumper.</p> <p>Plumbing will consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe will be used in the plumbing where appropriate. The piping will terminate with a 1.50" NST with 90 degree stainless steel swivel.</p> <p>There will be Petcock quarter turn drains provided at all low points of the piping.</p>
0708956	SP	Outlet, Rear, 2.50", Special, Lengthen 3"	<p><b>REAR DISCHARGE OUTLET</b></p> <p>There will be one (1) discharge outlet piped to the rear of the hose bed, left side, installed so that proper clearance is provided for spanner wrenches and elbows/adapters will be allowed to rotate 360 degrees without interference. The pipe shall be 3" longer than standard, from the rear wall. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.</p>
0092574		Not Required, Outlet, Rear, Additional	
0004990		Outlet, Front HB, 2.50" w/2.50" Plumbing	<p><b>FRONT OF HOSE BED DISCHARGE OUTLET</b></p> <p>There will be one (1) discharge outlet discharge(s) piped to the front of the hose bed and located in the 200' x 2.50" pre-connect bed down low. Plumbing will consist of 2.50" piping with a 2.50" full-flow ball valve controlled at the pump operator's panel. The discharge(s) will terminate with a 2.50" (M) National Standard hose thread adapter.</p>
0752078		Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, S/S Cable	<p><b>DISCHARGE CAPS/ INLET PLUGS</b></p> <p>Chrome plated, rocker lug, caps with S/S cables will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.</p> <p>Chrome plated, rocker lug, plugs with S/S cables will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.</p> <p>The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p>

0514979		Valve, .75 Bleeder, Discharges, Swing Handle, Including Deluge Discharge	<b>OUTLET BLEEDERS</b> A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. The valves will be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles will be chrome plated with visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.
0005091		Elbow, Left Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	<b>LEFT SIDE OUTLET ELBOWS</b> The 2.50" discharge outlets located on the left side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow. The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.
0035094		Not Required, Elbow, Left Side Outlets, Additional	
0025091		Elbow, Right Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	<b>RIGHT SIDE OUTLET ELBOWS</b> The 2.50" discharge outlets located on the right side pump panel will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow. The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.
0089584		Not Required, Elbow, Right Side Outlets, Additional	
0045091		Elbow, Rear Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	<b>REAR OUTLET ELBOWS</b> The 2.50" discharge outlets located at the rear of the apparatus will be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow. The elbow will be Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.
0085695		Not Required, Elbow, Rear Outlets, Large, Additional	
0566073		Elbow, Large Dia Outlet, 30 Deg, 4.00" FNST x 4.50" MNST	<b>LARGE DIAMETER OUTLET ELBOWS</b> The 4.00" outlet will be furnished with a 4.00" (F) National Standard hose thread swivel x 4.50" (M) National Standard hose thread elbow adapter with cap.
0005080		Reducer, 2.50" FNST x 1.50" MNST, w/Cap	<b>REDUCER</b> There will be five (5) adapters with 2.50" FNST x 1.50" MNST threads and a 1.50" chrome plated cap installed on two on the driver side, two on the passenger side and one on the PS rear discharge .
0031732	SP	Control, Outlets, Horizontal Swing Control, Akron, Hale Pumps	<b>DISCHARGE OUTLET CONTROLS</b> The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve or an indicator will be provided to show when the valve is closed. <b>SWING CONTROLS</b> There will be four (4) discharge outlets controlled by an Akron locking horizontal swing style control. The controls will be Akron SZ handles or the Akron 7592 remote control. These controls will be located on the following discharges: the two (2) 2.50" on the DS, one (1) 2.50" on the PS and the passenger side 4" discharge (option #0613744).
0095958		Deluge Outlet, Special Height/Location	The deluge gun outlet will be located off center towards the PS.

0767002		Outlet, 3.00" Deluge, Elec, Dual Akron 9333 Controllers, w/TFT XG18	<p><b>DELUGE RISER</b></p> <p>A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be installed securely so no movement develops when the line is charged. This outlet will be located in the cargo area.</p> <p>The riser will be gated with an electrically actuated 3.00" valve. The valve will be controlled by two (2) Akron 9333 electric valve controllers. One (1) will be provided on the pump operators panel and one (1) will be located near the deluge riser in the cargo area. The electric controls must be of a true position feedback design, requiring no clutches in the motor or current limiting. The units must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controllers will provide position indication on a full color, backlit LCD display. They will have manual adjustment of the brightness as well as an auto dimming option.</p> <p><b>TELESCOPIC PIPING</b></p> <p>The deluge riser piping will include a manual Task Force Tips XG18 extend-a-gun extension. This extension will be telescopic to allow the deluge gun to be raised 18.00" increasing the range of operation.</p> <p>A position sensor will be provided on the telescopic piping that will activate the "do not move vehicle" light inside the cab when the monitor is in the raised position.</p>
0744522	SP	Monitor, TFT Crossfire XFC-42, 4.50" NST Portable Base, Shaper, Quad Stack Tips	<p><b>MONITOR</b></p> <p>A monitor package will be properly installed on the deluge riser.</p> <p>The monitor package will include a 1250 GPM monitor with a 10.00" stream shaper and quad stack tips.</p> <p>A SAFE-TAK portable base unit with a single 4.50" NST inlet will be provided.</p> <p>The monitor will be painted painted as provided by monitor manufacturer.</p>
0047175		No Additional Nozzle Req'd	
0046857		Deluge Mount, For TFT Crossfire Monitor, TFT Manual Extend-A-Gun Only	The deluge riser Extend-a-Gun will have provisions for direct mounting a Task Force Tips CrossFire monitor.
0790531	SP	Crosslay, 1.50", Spl Cap, 68" From Ground, Spl Config, 25" Deep, Bent Floor	<p><b>CROSSLAY HOSE BEDS</b></p> <p>Two (2) crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying While the crosslays are 25" high, the center divider should only be 22" high. Crosslay #1 = 5.00"W clear inside to hold 200' x 1.75". Crosslay #2 = 5.00"W clear inside to hold 200' x 1.75" but will have a special depth of 25". Each bed will be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.</p> <p>Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel located in the hose bed so that hose may be removed from either side of apparatus. The swivels will be located a maximum of 10 inches in from the side of the pump house.</p> <p>The crosslay controls will be at the pump operator's panel.</p> <p>The center crosslay dividers will be fabricated of .25" aluminum and will provide adjustment from side to side. The divider will be unpainted with a DA finish. The remainder of the crosslay bed will be painted job color.</p> <p>Stainless steel vertical scuffplates will be provided at hose bed ends (each side of vehicle). Bottom of hose bed ends (each side) will also be equipped with a stainless steel scuffplate.</p> <p>Crosslay bed flooring will consist of removable perforated brushed aluminum.</p> <p>Crosslay bed flooring will not exceed 68.00" from ground.</p> <p>The crosslay bed flooring will be cut in 5" and bent to create a ramp just outboard of the swivels. The ramp in bed one will be bent down 1.75". The ramp in bed two will be bent down to the channel.</p> <p>Durasurf will be added to the ramps.</p>
0029196		Not Required, 2.50" Crosslay	
0029260		Not Required, Speedlays	
0500535		Not Required, Hose Restraint, Crosslay	
0750536		Hose Restr, Spdly, Not Required, No Spdly	
0562453	SP	Cover, Crosslay, Alum Treadplate, (2) Hold Open Devices	<p><b>CROSSLAY COVER</b></p> <p>A hinged aluminum treadplate cover will be installed over the crosslay hose beds. It will include a latch at each end of the cover to hold it securely in place, a chrome grab handle at each end for opening and closing the cover and a foam rubber gasket where the cover comes into contact to a painted surface.</p> <p>Two (2) hold open devices will be provided with the cover, one device at each end.</p>

0665910	SP	Crosslays Outlets, Swivel Locations	<b>CROSSLAY SWIVEL LOCATION</b> The location of the swivels per crosslay will be forward crosslay swivel is 18" in from drivers side. Rear crosslay bed swivel is 18" in from passenger side.
0500415	SP	Flap, Crosslay Ends, Strap W/ Footman Loops, Velcro Bottom and Quarter Turn Top	<b>CROSSLAY COVER</b> A black vinyl cover with two web straps with velcro and footman loops along the bottom edge and quarter turn fasteners at the top corners will be provided over the ends of the crosslay hose beds.
0709855	SP	Crosslay Swivel, Enlarged Holes	<b>CROSSLAY SWIVEL</b> The crosslay swivel holes will be enlarged as much as possible to allow for easier access to disconnect the crosslay hose.
0005216		Reel, Booster, Aluminum - Over Pump, Left Side	<b>BOOSTER HOSE REEL</b> A Hannay electric rewind booster hose reel will be installed over the pump in a recessed open compartment on the left side of the apparatus. Reel will be fabricated of aluminum and have highly polished end discs. A polished stainless steel roller and guide assembly will be mounted on the reel side of the apparatus. Discharge control will be provided at the pump operator's panel. Plumbing to the reel will consist of 1.50" Aeroquip hose and a 1.50" valve.
0005280		Switches, Reel Rewind - (1) Each Pump Panel	Reel motor will be protected from overload with a circuit breaker rated to match the motor. Two (2) electric rewind control switches will be provided, one (1) installed on each pump panel.
0015300		No booster Hose Required (1) Reel	
0073876		Capacity, Hose Reel 200' of .75"	Capacity of the hose reel will be 200 feet of .75" booster hose.
0007428		Nozzle for Booster Reel Not Req'd	
0638511	SP	Cutout for Reel Access, (2), w/ S/S Trim	<b>HOSEREEL ACCESS</b> Two (2) cutouts will be provided in the side sheet next to each booster hose reel. Each cutout will allow access to the hose and provide a window to view the reel. Stainless steel trim will be mounted horizontally and vertically around each cutout.
0622237		Roller Assembly, Additional	There will be two (2) additional polished stainless steel roller and guide assembly mounted one (1) on the PS side sheet and one (1) towards the center of the vehicle in the cargo area just on the other side of the reel.
0592429	SP	Linkage, Reverse, Hose Reel	The control on the pump panel will be "in" when the valve is open and "out" when the valve is closed. This style control will be provided on one (1) hose reel(s).
0047283		Cover, Reel Motor Solenoid & Wiring	<b>Cover</b> An aluminum 4-way cover shall be installed over the hose reel motor solenoid and wiring. The cover will protect the solenoid and wiring from damage.
0095358		Foam Sys, Husky 12, Single Agent	<b>FOAM PROPORTIONER</b> A Pierce Husky™ 12 foam proportioning system will be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class A and B foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The system will automatically balance and proportion foam solution at rates from .1 percent to 9.9 percent regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump. The design of the system will allow operation from draft, hydrant, or relay operation. This will provide a versatile system to meet the demands at a fire scene. <b>System Capacity</b> The system will have the ability to deliver the following minimum foam solution flow rates that meet or exceed NFPA requirements at a pump rating of 250 psi. 200 gpm @ 6 percent 400 gpm @ 3 percent 1200 gpm @ 1 percent The foam concentrate setting may be adjusted in .1 percent increments from .1 percent to 9.9 percent. Typical settings are .3 percent, .5 percent and 1.0 percent (The maximum capacity will be limited to the plumbing and water pump capacity). <b>Control System</b> The system will be equipped with a digital electronic control display located on the pump operators panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, direct which foam to use on a multi-tank system, and to set the

operation modes (automatic, manual, draft, calibration, or flush).

The percent of injection will have presets for Class A or Class B foam. These presets can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

In order to minimize the use of abbreviations and interpretations, system information will be displayed on the panel by way of .50 tall LEDs that total 14 characters (two (2) lines of seven (7) each). System on and foam pump on indicator lights will also be included. Information displayed will include mode of operation (automatic, manual, draft, calibration, or flush), foam supply selected (Class A or Class B), water total, foam total, foam percentage, remaining gallons, and time remaining.

The control display will direct a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor will compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve will be installed in the plumbing to prevent foam from contaminating the water pump.

#### **Low Level Foam Tank**

The control head will display a warning message when the foam tank in use is below a quarter tank.

#### **Hydraulic Drive System**

The foam concentrate pump will be powered by a hydraulic drive system, which is automatically activated, whenever the vehicle water pump is engaged. A large parasitic electric load used to power the foam pump can cause an overload of the chassis electrical system.

Hydraulic oil cooler will be provided to automatically prevent overheating of the hydraulic oil, which is detrimental to system components. The oil/water cooler will be designed to allow continuous system operation without allowing hydraulic oil temperature to exceed the oil specifications.

The hydraulic oil reservoir will be of four (4) gallons minimum capacity and will also be of sufficient size to minimize foaming and be located to facilitate checking oil level or adding oil without spillage or the need to remove access panels.

#### **Foam Concentrate Pump**

The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic motor. The pump will be constructed of brass body; chrome plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum will be present in its construction.

A relief system will be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump will have minimum capacity for 12 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system will deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

#### **External Foam Concentrate Connection**

An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty. The external foam pick-up will be designed to allow use with training foam or colored water for training purposes.

#### **Panel Mounted Strainer / External Pick-Up Connection**

A bronze body strainer / connector unit will be provided. The unit will be mounted to the pump panel. The external foam pick-up will be one (1) 1.00" male connection with chrome-plated cap integrated to a 2.00" strainer cleanout cap. A check valve will be installed in the pick-up portion of the cleanout cap. A basket style stainless steel screen will be installed in the body of the strainer / connector unit. Removal of the 2.00" cleanout cap will be all that is required to gain access to and remove the stainless steel basket screen. The strainer / connector unit will be ahead of the foam concentrate pump inlet port to insure that all agents reaching the foam pump has been strained.

#### **Pick-Up Hose**

A 1.00" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 1.00" female swivel NST thread swivel connector. The hose will be shipped loose.

#### **Discharges**

The foam system will be plumbed to six (6) discharges. The discharges capable of dispensing foam will be #1 crosslay (orange), #2 crosslay (red), booster reel (beige), front discharge (green), PS No. 2 discharge (white), and PS rear discharge (purple).

#### **System Electrical Load**

The foam proportioning will not impose an electrical load on the vehicle electrical system any greater than five (5) amps at 12VDC.

#### **Foam Supply Valve**

An electric valve will be used for the foam supply valve. The foam supply valve will be controlled at the foam system control head for ease of operation. The supply valve will be electric, remote controlled, to eliminate air pockets in the foam tank supply hose.

#### **Maintenance Message**

A message will be displayed on the control head to advise when system maintenance needs to be performed. The message will display interval for cleaning the foam strainer, cleaning for the water strainers, and changing the hydraulic oil.

#### **Flush System**

The system will be designed such that a flush mode will be provided to allow the system to flush all foam concentrate with clear water. The flush circuit control logic will ensure the foam tank supply valve is closed prior to opening the flush valve. The flush valve will be operated at the foam system control head for ease of operation. The valve will be electrically controlled and located as close to the foam tank supply valve as possible. A manual flush drain valve will be labeled and located under the left side running board.



0552481		Refill, Foam Tank, Single Tank, Husky 12, Class A Foam	<b>SINGLE FOAM TANK REFILL</b> The foam system's proportioning pump will be used to fill the Class A foam tank. This will allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller stating TANK FILL. While the proportioner pump is filling the tank, the controller will display FILL TANK. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will display TANK FULL.
0592428	SP	Foam Tank Shut Off Valve, 1.50" "Contra Costa"	<b>FOAM TANK DRAIN</b> The foam tank shut off will be a 1.50" 1/4 turn valve located inside the pump compartment accessible through a door on the passenger's side pump panel .
0031896		Demonstration, Foam System, Dealer Provided	
0708816	SP	Foam Cell, 20 Gallon, Not Reduce Water, Left Hinged Cover, Latch	<b>FOAM TANK</b> The foam tank will be an integral portion of the polypropylene water tank. The cell will have a capacity of 20 gallons of foam with the intended use of Class A foam. The foam cell will not reduce the capacity of the water tank. The foam cell will have a screen in the fill dome and a breather in the lid. The lid shall be hinged at the left side, it shall also have a latch to hold the lid down.
0505016		Drain, 1.00", Foam Tank #1, Husky 12 Foam System	<b>FOAM TANK DRAIN</b> A system of 1.00" foam tank drains will be provided, integrated into the foam systems strainer and tank to foam pump valve management system. The tank to pump hoses running from the tank(s) to the panel mounted strainer will 1.00" diameter. The foam system controller will have a mode that allows for a given foam valve to be opened at will. Flow of foam from the tank valve to the strainer will be usable as a tank drain mode. An adaptor will be supplied, that allows the 1.00" foam intake screen to assembly to be used as a drain outlet. The standard supplied 1.00" foam pick up hose will be attached to the screen assembly by way of the adapter. The drain mode will allow the operator to open and close the tank valve as required from the control head, to drain foam and re-fill foam containers through the connected hose, without foam spillage beneath the vehicle.
0091079		Not Required, Foam Tank #2	
0091112		Not Required, Foam Tank #2 Drain	
0005498		Pump House, Side Control, 52"	<b>PUMP COMPARTMENT</b> The pump compartment will be separate from the hose body and compartments so that each may flex independently of the other. It will be a fabricated assembly of steel tubing, angles and channels which supports both the fire pump and the side running boards. The pump compartment will be mounted on the chassis frame rails with rubber biscuits in a four point pattern to allow for chassis frame twist. Pump compartment, pump, plumbing and gauge panels will be removable from the chassis in a single assembly. <b>PUMP MOUNTING</b> Pump will be mounted to a substructure which will be mounted to the chassis frame rail using rubber isolators. The mounting will allow chassis frame rails to flex independently without damage to the fire pump. <b>PUMP CONTROL PANELS (Side Control)</b> All pump controls and gauges will be located at the left side of the apparatus and properly marked. The pump panel on the right side will be removable with lift and turn type fasteners. The left side will be fastened with screws. The control panels will be 52.00" wide. The gauge and control panels will be two (2) separate panels for ease of maintenance. The side gauge panel will be hinged at the bottom with a full length stainless steel hinge. The fasteners used to hold the panel in the upright position will be quarter turn type. Vinyl covered cable or chains will be used to hold the gauge panel in the dropped position. Polished stainless steel trim collars will be installed around all inlets and outlets. All push/pull valve controls will have 1/4 turn locking control rods with polished chrome plated zinc tee handles. Guides for the push/pull control rods will be chrome plated zinc castings securely mounted to the pump panel. Push/pull valve controls will be capable of locking in any position. The control rods will pull straight out of the panel and will be equipped with universal joints to eliminate binding. The identification tag for each valve control will be recessed in the face of the tee handle. All discharge outlets will have color coded identification tags, with each discharge having its own unique color. Color coding will include the labeling of the outlet and the drain for each corresponding discharge. All line pressure gauges will be mounted in individual chrome plated castings with the identification tag recessed in the casting below the gauge. All remaining identification tags will be mounted on the pump panel in chrome plated bezels. Mounting of the castings and identification bezels will be done with a threaded peg cast on the back side of the bezel or screws.

0594577		Pump Panel Configuration, Match Previous Unit, as Close as Possible	<b>PUMP PANEL CONFIGURATION</b> The left side and right side pump panel configurations will match those on match job 32428 01-04 . Option differences may be evident and an identical match is not possible. An as close as possible similarity will be the intent.
0005525		Material, Pump Panels, Side Control Brushed Stainless	<b>PUMP AND GAUGE PANEL</b> The pump and gauge panels will be constructed of stainless steel with a brushed finish. A polished aluminum trim molding will be provided on both sides of the pump panel.
0708935	SP	Panel, Pump Access - Right Side and Front, Extra Latches	The right side pump panel shall be removable and fastened with swell type fasteners. There shall be a sufficient amount of swell type fasteners provided to prevent any type of rattling or movement of the right side pump panel. On the front of the pump house structure, provisions shall be provided for access to the pump.
0035500		Raised Pump House Structure, Side Control	
0583824		Light, Pump Compt, WIn 3SC0CDCR LED White	<b>PUMP COMPARTMENT LIGHT</b> There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the pump compartment. There will be a switch accessible through a door on the pump panel included with this installation.
0586382		Gauges, Engine, Included With Pressure Controller	Engine monitoring graduated LED indicators will be incorporated with the pressure controller. Also provided at the pump panel will be the following: - Master Pump Drain Control
0005601		Throttle Included w/ Pressure Controller	
0549333		Indicators, Engine, Included with Pressure Controller	
0745568		Indicator Light, Pump Panel, Ok To Pump, Green	<b>OK TO PUMP INDICATOR LIGHT</b> There will be a green indicator light installed on the pump operators panel that is activated when the pump is in Ok To Pump mode.
0568684		Access, Drain Valves, Grouped Together, Located on a Removable Panel	<b>PUMP PANEL ACCESS DRAIN VALVES</b> All the drain valves will be installed and grouped together. The drain valves will be located on a removable panel. match job 32428 01-04.
0087818		Compartment, Equipment Rack, Lift Control, Pump Panel, S/S Spring-Loaded Door	<b>COMPARTMENT, HYDRAULIC LADDER RACK CONTROL PANEL</b> A compartment shall be provided at the pump panel, right side. This compartment shall be large enough to house the control panel for the hydraulic ladder rack . A stainless steel spring-loaded door shall be provided.
0708954	SP	Garnish Rings, Pump Panel, Brushed S/S IPOS	<b>GARNISH RINGS</b> All of the garnish rings on the pump panels shall be brushed stainless steel in place of the standard polished stainless steel.
0708979	SP	Access Doors, Pump Panel, Brushed S/S IPOS	<b>PUMP PANEL, ACCESS DOOR</b> All of the access doors on the pump panels shall be brushed stainless steel in place of the standard polished stainless steel.
0080713		Control, Air Horn At Pump Panel w/Red Button, Labeled "Evacuation"	<b>AIR HORN BUTTON</b> An air horn control button will be provided at the pump operator's control panel. This button will be red in color and properly labeled "Evacuation".
0081262		Drains, RS, Keep Area Under Main Inlet Clear	<b>RIGHT SIDE DRAINS</b> The drains on the right side pump panel will be located to keep the area under the main pump inlet clear for customer installed piston intake valve.

0007518		Drains, Above Running Boards, LS & RS	<b>DRAINS, ABOVE RUNNING BOARDS, LS &amp; RS</b> Both the left side and right side drains will be installed above the running boards, on the pump panels.
0066121		Drains, LS, Keep Area Under Main Inlet Clear	<b>DRAINS, LEFT SIDE</b> The drains on the left side pump panel will be located to keep the area under the main pump inlet clear for customer installed piston intake valve.
0708953	SP	Gauge Panel, Vertically Hinged, Special, Contra Costa	<b>HINGED GAUGE PANEL/SPEAKER GRILLE</b> The pump gauge panel shall be vertically hinged with quarter turn lift and turn latches for access. The hinged gauge panel shall have a louvered radio speaker grille integrated part of the gauge panel. All trim pieces that attach to this panel must be attached with screws or bolts/nuts. No glue on trim pieces are allowed.
0708936	SP	Cover, 4-way, Elec Valve Controller In Cargo Area	<b>COVER</b> An aluminum 4-way cover with hinge shall be provided over the electric valve controller in the cargo area for the deluge outlet.
0604561	SP	Pump Panel Control Handle Orientation, LS, Special	<b>HANDLE ORIENTATION</b> The swing control handles on the left side pump panel will be installed so that the closed positions are outward. Handles on the left will be to the left when closed. Handles on the right will be on the right when closed. See attached photo.
0514231		Pump Panel Trim Rings, Oversized for Valve Removal, LS, Only	<b>OUTLET TRIM RINGS</b> The left side discharges and auxiliary inlet valves will be recessed behind the panel and have larger holes provided in the pump panel to facilitate removal of the valves without removing the complete pump panel. Stainless steel trim plates will be provided to trim the holes.
0708849	SP	Wiring Information, RS Pmp Pnl, As Few Plugs As Practical	<b>WIRING INFORMATION FOR THE RIGHT SIDE PUMP PANEL</b> The wiring installed on the right side removable panel(s) will be consolidated into as few weather resistant quick disconnect plug(s) as practical.
0556650	SP	Switch Panel, Pump Panel, Layout Info	LEFT SIDE: #1 Light, #2 Panel light switch, #3 Reel Rewind, #4 DS Tele-light, #5 PS Tele-light, #6 Front Floodlight. RIGHT SIDE: #1 DS Scene, #2 PS Scene, #3 Rear Scene, #4 Pump Engaged Light, #5 Air Suspension, #6 Evacuation Horn..
0001493		Tag, Special Wording, Discharge	<b>SPECIAL LABEL</b> There will be three (3) special label/s provided and installed Passengers side large dia discharge, the Passenger Side Rear Discharge Water-Foam, Passenger side 2 1/2 Pre-Connect. Each label will be worded as follows, Passengers side large dia discharge will read "NO.5 LDH DISCHARGE" (blue). The Passenger Side Rear Discharge will read "NO.6 REAR DISCHARGE" (purple) Passenger side 2 1/2 Pre-Connect will read "REAR 1 3/4" PRE-CONNECT"..
0001750		Tag, Special Colors	<b>COLOR CODED NAME TAGS</b> There will be six (6) outlet discharges with special color coded name tags. These tags will be used for labeling the discharge pressure gauges, controls, outlets and drains. #1 crosslay (orange), #2 crosslay (red), booster reel (beige), front discharge (green), PS No. 2 discharge (white), and No.6 rear discharge (purple).
0604559	SP	Tag, Warning Labels, Location	<b>TAG</b> The labels on the DS PP will be together on the bottom of the panel.
0080580		Test Port, Pump, Mechanical RPM Counter, Hale Pump	- A pump RPM test port
0005690		Gauges, 6.00" Master, Class 1, 30"-0-600psi	<b>VACUUM AND PRESSURE GAUGES</b> The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©. The gauges will be a minimum of 6.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#. The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel. Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and polished stainless steel plugs. They will be marked with a label.

0027896	Gauge, 3.50" Pressure, Class 1, Special	<p><b>PRESSURE GAUGES</b></p> <p>The individual "line" pressure gauges for the discharges will be interlube filled and manufactured by Class 1©.</p> <p>The gauges will be a minimum of 3.50" in diameter and will have white faces with black markings. Gauges will be compound type with a vacuum/pressure range of 30.00" 0-400 psi.</p> <p>The individual pressure gauge will be installed as close to the outlet control as practical.</p>
0604123	Gauge, Water Level, FRC, WLA 300-A00, TankVision Pro, w/Remote Light Driver	<p><b>WATER LEVEL GAUGE</b></p> <p>A Fire Research TankVision Pro model WLA300-A00 water tank indicator gauge shall be installed on the pump operators panel. The gauge kit shall include an electronic indicator module, a pressure sensor, and a 10' sensor cable. The gauge shall show the volume of water in the tank on nine (9) easy to see super bright RGB LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The gauge case shall be waterproof, manufactured of Polycarbonate/Nylon material, and have a distinctive blue label.</p> <p>The program features shall be accessed from the front of the indicator module. The program shall support self-diagnostics capabilities, self-calibration, six (6) programmable colored light patterns to display tank volume, adjustable brightness control levels and a data link to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank and down chasing LEDs when the tank is almost empty.</p> <p>The gauge shall receive an input signal from an electronic pressure sensor. The sensor shall be mounted from the outside of the water tank near the bottom. No probe shall be placed on the interior of the tank. Wiring shall be weather resistant and have automotive type plug-in connectors.</p> <p><b>REMOTE LIGHT DRIVER</b></p> <p>A Fire Research TankVision model WLA290-A00 remote light driver shall be installed. The driver shall provide four (4) separate outputs to control additional water level lights around the apparatus. The lights shall show 1/4, 1/2, 3/4, and full tank. When power is applied the driver shall run a test and cycle each remote light on and off. When the tank is less than 1/4 full the 1/4 tank light shall blink.</p>
0750438	Water Level Gauge, WIn PSTANK2, LED 1-Light, 4-Level	<p><b>WATER LEVEL GAUGE</b></p> <p>There will be two (2) additional water level indicator(s), Whelen®, Model PSTANK2, LED module with black trim, installed one (1) each side rearward of crew cab doors.</p> <p>This light module(s) will include four (4) colored levels, and function similar to the water level indicator located at the operators panel:</p> <p>First green module indicates a full water level</p> <p>Second blue module indicates a water level above 3/4 full</p> <p>Third amber module indicates a water level above 1/2 full</p> <p>Last red module indicates a water level above 1/4 full and empty</p> <p>Above 1/4 this light will be steady burning</p> <p>At empty this light will be flashing</p> <p>The flash rate will be determined by the main water level tank sensor.</p> <p>This module will be activated when the pump is in gear.</p>
0021212	Light, Low Level Foam	<p><b>FOAM LEVEL LIGHT</b></p> <p>A low level tank indicator will be installed on the pump operator's panel. One (1) light will be provided to indicate when the foam concentrate drops to low level.</p>
0682503	Light Shield/Step 8" LED, P25 LED Step Light	<p><b>STEP/LIGHT SHIELD</b></p> <p>There will be an aluminum treadplate stepping surface no less than 8.00" deep and properly reinforced to support a man's weight, installed over the pump operators panel.</p> <p>There will be 12 volt DC white LED lights installed under the step to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights will be activated by the pump panel light switch. Additional lights will be included every 18.00" depending on the size of the pump house.</p> <p>One (1) pump panel light will come on when the pump is in ok to pump mode.</p> <p>There will be a light activated above the pump panel light switch when the parking brake is applied. This is to afford the operator some illumination when first approaching the control panel.</p> <p>There will be one (1) white LED, step light provided above this step. In order to ensure exceptional illumination, each step light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. The step light will be activated by the pump panel light switch.</p>
0757269	SP Light Shield, S/S, DS LED, Under Crosslay, Narrow	<p><b>ADDITIONAL LIGHT SHIELD</b></p> <p>An additional polished, 16 gauge stainless steel light shield as narrow as practical will be provided below the driver's side cross lays.</p> <p>There will be white LED light(s) as needed installed under the light shield to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. The lights will be operated from a switch on the pump panel.</p>
0546331	Air Horn, (1) Grover, Stutter Tone, 24.50" Long, In Bumper	<p><b>AIR HORN SYSTEM</b></p> <p>One (1) chrome finish, stutter tone, Grover, Model 1510, air horn approximately 24.50" long will be provided and recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.</p>

0606839		Location, Air Horn, Bumper, Left Side, Outside Frame, Inboard (Pos #6)	<b>Air Horn Location</b> The air horn will be located on the left side of the bumper, just outside of the frame rail.
0016065		Control, Air Horn, Horn Ring, PS Chrome Push Button	<b>AIR HORN CONTROL</b> The air horns will be actuated by a chrome push button located on the officer's side of the engine tunnel and by the horn button in the steering wheel. The driver will have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.
0797192	SP	Siren, WIn 295SLSC1, w/Detachable Mic Cord, Switched Battery	<b>ELECTRONIC SIREN</b> A Whelen, Model: 295SLSC1, electronic siren with detachable noise canceling microphone will be provided. This siren to be active when the battery switch is on.
0510206		Location, Elect Siren, Recessed Overhead In Console	Electronic siren head will be recessed in the overhead console above the engine tunnel on the officer side.
0076156		Control, Elec Siren, Head Only	The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.
0601306		Speaker, (1) WIn, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt	<b>SPEAKER</b> There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.
0601555		Location, Speaker, Frt Bumper, Recessed, Left Side, Outside Frame, Outbrd (Pos 7)	The speaker will be recessed in the left side of the front bumper, towards the outside.
0778347	SP	Siren, Federal Q2B, Bat Dir, Chrome Push Button Siren Brake IPOS, Location	<b>AUXILIARY MECHANICAL SIREN</b> There will be a Federal Signal Model Q2B mechanical siren furnished on the front of the apparatus. The siren will be energized from a battery direct circuit through a 2-gauge cable to a solenoid that is energized from the emergency master switch. Additional customer selectable controls will be included for the momentary activation of this siren. The siren brake button will be a chrome push button located overhead of the driver and outboard of switch panel #1 per 32428 01-04.
0578974		Siren, Mechanical, Recessed In Grille, Imp/Vel	The mechanical siren will be mounted recessed in the front grille. The siren mounting will include a reinforcement plate.
0681882	SP	Control, Mech Siren, DS Foot Sw Location, PS Push Button	<b>MECHANICAL SIREN CONTROLS</b> The mechanical siren will be actuated by one (1) foot switch located on the driver's side as far to the left (close to the door) as possible and a push button switch on the officer's side.
0693597		Microphone Extension, WIn Model CCMICX20, 20'	<b>SIREN MICROPHONE EXTENSION</b> There will be a Whelen®, Model CCMICX20, 20 foot microphone extension provided.
0022899		Switch, Second Siren Brake, Chrome Push Button	A second siren brake switch will be installed on the officer side dash of cab. The switch will be a chrome push button style.

0607632	Lightbar, Wln, Freedom IV-Q, 81", RRRRWRRROptRRRWRRRR	<p><b>FRONT ZONE UPPER WARNING LIGHTS</b></p> <p>There will be one (1) 81.00" Whelen Freedom IV LED lightbar mounted on the cab roof. The lightbar will include the following:</p> <p>One (1) red flashing LED module in the driver's side end position.  One (1) red flashing LED module in the driver's side front corner position.  One (1) red flashing LED module in the driver's side first front position.  One (1) red flashing LED module in the driver's side second front position.  One (1) white flashing LED module in the driver's side third front position.  One (1) red flashing LED module in the driver's side fourth front position.  One (1) red flashing LED module in the driver's side fifth front position.  One (1) red flashing LED module in the driver's side sixth front position.  One (1) 795 LED traffic light controller set to national standard high priority in the center positions.</p> <p>One (1) red flashing LED module in the passenger's side sixth front position.  One (1) red flashing LED module in the passenger's side fifth front position.  One (1) red flashing LED module in the passenger's side fourth front position.  One (1) white flashing LED module in the passenger's side third front position.  One (1) red flashing LED module in the passenger's side second front position.  One (1) red flashing LED module in the passenger's side first front position.  One (1) red flashing LED module in the passenger's side front corner position.  One (1) red flashing LED module in the passenger's side end position.</p> <p>There will be clear lenses and colored filters included on the lightbar.  The following switches may be installed in the cab on the switch panel to control the lightbar:  a switch to control the flashing LED modules.  the traffic light controller by a cab switch with emergency master control.  no momentary switch to activate the traffic light controller.  The white flashing LED modules and the traffic light controller will be disabled when the parking brake is applied.  The ten (10) red flashing LED modules in the front positions may be load managed when the parking brake is applied.</p>
0595396	Light, Front Zone, Wln M6* & M6R Sdy Burn 2 Lts, Colored Lens, 4lts Q Bezel	<p><b>FRONT ZONE LOWER WARNING LIGHTS</b></p> <p>There will be two (2) Whelen, Model M6* LED flashing warning lights and two (2) Whelen, Model M6R LED steady burning warning lights installed on the cab face, above the headlights, mounted in a common bezel.</p> <p>The driver's side front outside warning light to be red.  The driver's side front inside steady burning warning light to be red.  The passenger's side front inside steady burning warning light to be red.  The passenger's side front outside warning light to be red.  All four (4) lights will include a lens color that is the same as the LED's.  There will be a switch located in the cab, on the switch panel, to control the four (4) lights.  The driver's side inside lights may be load managed if colored or disabled if white, when the parking brake is set.</p>
0558676	Daytime Running Lights, Headlights, Qtm, Vel/Imp, Enf/AXT-MUX, DCF (Low Beam)	<p><b>DAYTIME RUNNING LIGHTS (HEADLIGHTS)</b></p> <p>The low-beam headlights used as daytime running lights will be activated with the following measures:  Ignition switch is turned on.  Parking brake is released.  These lights will be deactivated with any one of the following measures:  Headlight switch is turned on.  High-beam flash is turned on.  Parking brake is set.</p>
0653937	Flasher, Headlight Alternating	<p><b>HEADLIGHT FLASHER</b></p> <p>The high beam headlights will flash alternately between the left and right side.  There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.  The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p>
0747228	Lights, Side Zone Lower, Wln M6**, M6**, M6**, 6Lts	<p><b>SIDE ZONE LOWER LIGHTING</b></p> <p>There will be six (6) Whelen®, Model M6**, 4.31" high x 6.75" long x 1.37" deep flashing LED warning lights with chrome trim installed per the following:  Two (2) lights located, one (1) each side on the bumper extension. The driver's side, side front light to include red warning LEDs and the passenger's side, side front light to include red warning LEDs.  Two (2) lights located, one (1) each side of cab rearward of crew cab doors. The driver's side, side middle light to include red warning LEDs and the passenger's side, side middle light to include red warning LEDs.  Two (2) lights located, one (1) each side above rear wheels. The driver's side, side rear light to include red warning LEDs and the passenger's side, side rear light to include red warning LEDs.  The warning light lens colors to be the same as the LEDs.  There will be a switch in the cab on the switch panel to control the lights.</p>

0698466	Lights, Door Interior Flash, 4 Dr Cab, WIn 0S*00FCR LED	<b>INTERIOR CAB DOOR WARNING LIGHTS</b> There will be four (4) Whelen®, Model 0S*00FCR, amber LED flashing lights provided, one (1) light located inside of each cab and crew cab door pan, as far to the outside as practical. Each light will be activated by the door jam switch of the associated door. The lights will flash whenever the corresponding door is open.
0653165	Lights, Side, WIn WION* LED, Recessed in Cab Steps, 4lts, AXT/DCF/Enf/Imp/Vel	<b>SIDE WARNING LIGHTS</b> There will be four (4) Whelen, Model WION* wide angle flashing LED warning lights with Whelen, Model IONK1B black bail mounts provided: One (1) recessed in the driver's side cab step on the front, vertical surface, below bottom of door. One (1) recessed in the driver's side crew cab step on the front, vertical surface, below bottom of door. One (1) recessed in the passenger's side crew cab on the front, vertical surface, below bottom of door. One (1) recessed in the passenger's side cab step on the front, vertical surface, below bottom of door. The color of the lights will be red. These lights will be activated with the emergency master. These lights may be load managed when the parking brake is applied.
0672936	Lights, Side, WIn WIONSMC* LED, Chrome Flange, Mounted In Rub Rail, 2nd	<b>SIDE WARNING LIGHTS</b> There will be two (2) Whelen, Model WIONSMC* LED light(s) provided and located in the body rub rails In the rubrail at the rear of the body, centered one (1) each side under the stop/tail/turn lights.. The lights will NOT be mounted with the rubber gasket behind the light which will allow the light(s) to fit in the rub rails. The color of each light will be red LED with a clear lens. Each light will be provided with a chrome plated ABS flange. The light(s) will be activated with the emergency master.
0672937	Lights, Side, WIn WIONSMC* LED, Chrome Flange, Mounted In Rub Rail, 1st	<b>SIDE WARNING LIGHTS</b> There will be four (4) Whelen, Model WIONSMC* LED light(s) provided and located in the body rub rails In the rubrail, centered under compartments D1, D3, P1 and P3.. The lights will NOT be mounted with the rubber gasket behind the light which will allow the light(s) to fit in the rub rails. The color of each light will be red LED with a clear lens. Each light will be provided with a chrome plated ABS flange. The light(s) will be activated with the emergency master.
0540777	Lights, Rear Zone Lower, WIn M6* LED, Colored Lens	<b>REAR ZONE LOWER LIGHTING</b> Two (2) Whelen, Model M6* LED flashing warning lights with bezels will be located at the rear of the apparatus. The driver's side rear light to be amber. The passenger's side rear light to be red. Both lights will include a lens that is the same color as the LED's. There will be a switch located in the cab on the switch panel to control the lights.
0006700	Mounting, Lights, Recess In Rear Bulkhead (pair)	<b>MOUNTING, RECESS LIGHT</b> There will be one (1) pair of upper rear warning lights, on the rear bulkheads, recessed into the body. The lights will be flush to the compartment sheet and will be installed on each rear bulkhead. The recess shall accomodate the Whelen M9V2R light on each side.
0619975	SP Lights, Rear/Side Up Zone, WIn M6** Side, M9V2** Rear, Scene Swts 4lts	<b>REAR AND SIDE ZONE UPPER WARNING LIGHTS</b> There will be four (4) Whelen®, LED flashing warning lights with LED scene lights and chrome flange provided at the rear of the apparatus. One (1) Model M6**, 4.31" high x 6.75" long x 1.38" deep light installed on the driver's side, side of the apparatus as high and close to the rear as practical. The side rear upper light(s) on the driver's side to be red. One (1) Model M9V2**, 6.50" high x 10.38" long x 2.63" deep combination warning and scene light installed on the driver's side, rear of the apparatus as high and close to the outside as practical. The rear upper light(s) on the driver's side to be red. One (1) Model M9V2**, 6.50" high x 10.38" long x 2.63" deep combination warning and scene light installed on the passenger's side, rear of the apparatus as high and close to the outside as practical. The rear upper light(s) on the passenger's side to be red. One (1) Model M6**, 4.31" high x 6.75" long x 1.38" deep light installed on the passenger's side, side of the apparatus as high and close to the rear as practical. The side rear upper light(s) on the passenger's side to be red. The flashing warning lights will include a lens that is the same color as the LED's. The scene lights will include a clear lens. There will be a switch in the cab on the switch panel to control the flashing warning lights. The rear scene lights will be controlled by a switch at the driver's side switch panel and driver's side pump panel. The scene lights may be load managed when the parking brake is applied.
0006551	Not Required, Lights, Rear Upper Zone Blocking	

0537807		Mtg, Rear Warn Lts, Side Sheets & Rear of Body Bulkheads	<b>REAR LIGHT MOUNTING</b> The rear warning lights will be mounted on the rear side sheet flange and rear bulkhead of the body as high as possible with all wiring totally enclosed.
0791528		Light, Traffic Directing, W/in TAL65, 36.00" Long, TACTL5	<b>TRAFFIC DIRECTING LIGHT</b> There will be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus. The Whelen, Model TACTL5, control head will be included with this installation. The controller will be energized when the battery switch is on. The auxiliary flash to be activated when the emergency master switch is on.
0529858		Location, Traf Dir Lt, Recessed Within Trdplt Step	This traffic directing light will be recessed within a treadplate step at the rear of the apparatus.
0530282		Location, Traf Dir Lt Controller, Overhead Switch Panel DS Right End	The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.
0519934		Not Required, Brand, Hydraulic Tool System	
0649753		Not Required, PTO Driven Hydraulic Tool System	
0750454	SP	Holder Assembly, Triple, w/(1) Hydrant and (2) Spanner Wrenches, Red Head 148-3	one (1) triple holder assembly, Red Head #148-3, with two (2) 101 spanner wrenches and one (1) 105 hydrant wrench shall be provided as directed at pre-construction.
0007150		Bag of Nuts and Bolts	<b>LOOSE EQUIPMENT</b> The following equipment will be furnished with the completed unit: - One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.
0744351	SP	Wrench, Hydrant, Kochek K09	<b>HYDRANT WRENCH</b> <u>Qty.</u> Kochek model K09 adjustable hydrant wrench(s) will be provided.
0591285	SP	Bracket, Mounting, Akron 373 E-Z - LOK, Location Feature	<b>AKRON EZ-LOK BRACKET</b> one (1) Akron model 373 E-Z - LOK mount bracket(s) will be mounted on the inboard surface of the RS rear beavertail below the fixed step (SEE PHOTO) .



0602516		NFPA Required Loose Equipment, Pumper, NFPA 2016, Provided by Fire Department	<p><b>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</b></p> <p>The following loose equipment as outlined in NFPA 1901, 2016 edition, section 5.9.3 and 5.9.4 will be provided by the fire department.</p> <p>800 ft (60 m) of 2.50" (65 mm) or larger fire hose.</p> <p>400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.</p> <p>One (1) handline nozzle, 200 gpm (750 L/min) minimum.</p> <p>Two (2) handline nozzles, 95 gpm (360 L/min) minimum.</p> <p>One (1) smoothbore of combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm.</p> <p>One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.</p> <p>One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).</p> <p>One (1) first aid kit.</p> <p>Four (4) combination spanner wrenches.</p> <p>Two (2) hydrant wrenches.</p> <p>One (1) double female 2.50" (65 mm) adapter with National Hose threads.</p> <p>One (1) double male 2.50" (65 mm) adapter with National Hose threads.</p> <p>One (1) rubber mallet, for use on suction hose connections.</p> <p>Two (2) salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m).</p> <p>One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.</p> <p>Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.</p> <p>Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.</p> <p>One (1) automatic external defibrillator (AED).</p> <p>Four (4) ladder belts meeting the requirements of NFPA 1983, <i>Standard on Fire Service Life Safety Rope and System Components</i> (if equipped with an aerial device).</p> <p>If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus.</p> <p>If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6.</p> <p>If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.</p> <p>If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.</p>
0602407		Soft Suction Hose, Provided by Fire Department, Pumper NFPA 2016 Classification	<p><b>SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, section 5.8.2.1 requires a minimum of 20' of suction hose or 15' of supply hose will be carried.</p> <p>Hose is not on the apparatus as manufactured. The fire department will provide suction or supply hose.</p>
0760277	SP	Strainer, 6.00" Kochek, Barrel Strainer 6.00 inch Chrome	<p><b>STRAINER</b></p> <p>There will be one (1) chrome 6.00" Kochek Model BS60C barrel strainer provided.</p>
0007054		Axe(s), Flathead w/Fiberglass Handle	<p><b>AXE(S)</b></p> <p>There will be a total of One (1) axe provided. Each axe will be a flathead axe with a fiberglass handle and blade shield.</p>
0602531		Extinguisher, Dry Chemical, Pumper, NFPA 2016, Provided by Dealer	<p><b>DRY CHEMICAL EXTINGUISHER PROVIDED BY DEALER</b></p> <p>NFPA 1901, 2016 edition, section 5.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.</p> <p>The extinguisher is not on the apparatus as manufactured. The dealer will provide and mount the extinguisher.</p>
0602359		Extinguisher, 2.5 Gal. Pressurized Water, Pumper, NFPA 2016, Provided by Dealer	<p><b>WATER EXTINGUISHER PROVIDED BY DEALER</b></p> <p>NFPA 1901, 2016 edition, section 5.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.</p> <p>The extinguisher is not on the apparatus as manufactured. The dealer will provide and mount the extinguisher.</p>

0602679	Axe, Flathead, Pumper NFPA 2016 Classification, Provided by Fire Department	<b>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</b> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus. The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.
0602668	Axe, Pickhead, Pumper, Provided by Dealer, NFPA 2016	<b>PICKHEAD AXE PROVIDED BY DEALER</b> NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus. The axe is not on the apparatus as manufactured. The dealer will provide and mount the axe.
0774247	SP Paint, Two Tone, Cab, Metallic Upper Only, w/Special Shield	<b>PAINT</b> The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows: <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate. <u>Chemical Cleaning and Pretreatment</u> - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse will be applied to all metal surfaces. <u>Surfacer Primer</u> - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded. <u>Finish Sanding</u> - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat. <u>Sealer Primer</u> - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated. <u>Basecoat Paint</u> - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment. <u>Clear Coat</u> - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacture. Specifications are written to define cyclic corrosion testing, physical strengths, durability and minimum appearance requirements must be met in order for an exterior paint finish to be considered acceptable as a Pierce quality finish. Each batch of basecoat color is checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment is used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading is used to determine a good color match within each family color. All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly. The cab will be two-tone, with the upper section and a special shield design painted metallic Grey #479 with the lower section of the cab and body painted Red #644. Paint break and shield design to be clarified on the lettering and striping print. <b>PAINT - ENVIRONMENTAL IMPACT</b> Contractor will meet or exceed all current State regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions: Topcoats and primers will be chrome and lead free. Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals. Particulate emission collection from sanding operations will have a 99.99% efficiency factor. Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean. Paint wastes are disposed of in an environmentally safe manner. Empty metal paint containers will be to recover the metal. Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse. Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

0646897		Paint Chassis Frame Assy, E-Coat, Standard	<p><b>PAINT CHASSIS FRAME ASSEMBLY</b></p> <p>The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.</p> <p>Components treated with epoxy E-coat protection prior to paint:</p> <p>Two (2) C-channel frame rails</p> <p>Components that are included with the chassis frame assembly that will be painted not e-coated are:</p> <p>Cross members</p> <p>Axles</p> <p>Suspensions</p> <p>Steering gear</p> <p>Battery boxes</p> <p>Bumper extension weldment</p> <p>Frame extensions</p> <p>Body mounting angles</p> <p>Rear Body support substructure (front and rear)</p> <p>Pump house substructure</p> <p>Air tanks</p> <p>Steel fuel tank</p> <p>Castings</p> <p>Individual piece parts used in chassis and body assembly</p> <p>The E-coat process will meet the technical properties shown.</p>
0693797		No Paint Required, Aluminum Front Wheels	
0693792		No Paint Required, Aluminum Rear Wheels	
0007230		Compartment, Painted, Spatter Gray	<p><b>COMPARTMENT INTERIOR PAINT</b></p> <p>The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.</p>
0612909	SP	Reflective Band, 2" Vinyl- 6" Reflective, w/1.0" Gap	<p><b>VINYL &amp; REFLECTIVE STRIPES</b></p> <p>Two (2) stripes will be provided across the front of the vehicle and along the sides of the body. The band will consist of a 2.00" Dark Charcoal Metallic vinyl stripe at the top, with a 1" gap, then a 6.00" Black reflective stripe on the bottom.</p>
0510041		Reflective across Cab Face, Imp/Vel	The reflective band provided on the cab face will be below the headlights on the fiberglass.
0536954		Stripe, Chevron, Rear, Diamond Grade, Pumper	<p><b>REAR CHEVRON STRIPING</b></p> <p>There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, will be covered.</p> <p>The colors will be red and fluorescent yellow green diamond grade.</p> <p>Each stripe will be 6.00" in width.</p> <p>This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.</p>
0027341		Jog, In Reflective Stripe, Single or Multiple	<p><b>JOG(S) IN REFLECTIVE BAND</b></p> <p>The reflective band located on each side of the apparatus body will contain one (1) jog(s) and will be angled at approximately a 45 degrees when installed.</p>
0017359		Stripe, Black Outline, Vinyl on Reflective Band	<p><b>REFLECTIVE STRIPE OUTLINE</b></p> <p>A black outline will be applied on the top and the bottom of the reflective band. There will be one (1) set of outline stripes required.</p>
0087355		Stripe, Reflective, 6" Inside Compt Door	<p><b>REFLECTIVE STRIPE INSIDE COMPARTMENT DOOR</b></p> <p>A 6.00" black reflective stripe will be provided inside two (2) compartment doors. inside each exterior EMS access door on the cab (D5 and P5).</p>
0065687		Stripe, Reflective, Cab Doors Interior	<p><b>CAB DOOR REFLECTIVE STRIPE</b></p> <p>A 6.00" x 16.00" black reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel.</p> <p>This stripe will meet the NFPA 1901 requirement.</p>
0680371		Stripe, Gold Leaf, Two-Tone Paint Break with Shield, IPO Chrome Molding	<p><b>CAB STRIPE</b></p> <p>There will be a genuine gold leaf stripe provided on both sides of the cab in place of the chrome molding and on the cab face with shield.</p>

0027372	Lettering Specifications, (GOLD STAR Process)	<b>LETTERING</b> The lettering will be totally encapsulated between two (2) layers of clear vinyl.
0686414	Lettering, Gold Leaf, 2.00", (21-40)	<b>LETTERING</b> Twenty-one (21) to forty (40) genuine gold leaf lettering, 2.00" high, with outline and shade will be provided.
0685985	Lettering, Reflective, 12.00", Each	<b>LETTERING</b> There will be reflective lettering, 12.00" high, with outline and shade provided. There will be six (6) letters provided.
0686013	Lettering, Reflective, 6.00", Each	<b>LETTERING</b> There will be reflective lettering, 6.00" high, with outline and shade provided. There will be three (3) letters provided.
0686018	Lettering, Reflective, 5.00", Each	<b>LETTERING</b> There will be reflective lettering, 5.00" high, with outline and shade provided. There will be 12 letters provided.
0686042	Lettering, Reflective, 2.00", Each	<b>LETTERING</b> There will be reflective lettering, 2.00" high, with outline and shade provided. There will be 17 letters provided.
0686084	Lettering, Reflective, 3.00", Each	<b>LETTERING</b> There will be reflective lettering, 3.00" high, with outline and shade provided. There will be 11 letters provided.
0686256	Lettering, Gold Leaf, 4.00", Each	<b>LETTERING</b> There will be genuine gold leaf lettering, 4.00" high, with outline and shade provided. There will be eight (8) letters provided.
0686288	Lettering, Gold Leaf, 3.00", Each	<b>LETTERING</b> There will be genuine gold leaf lettering, 3.00" high, with outline and shade provided. There will be 22 letters provided.
0037227	Lettering, Reflective, Reverse Cut Into Reflective Band	<b>REFLECTIVE LETTERING</b> 18 letters, 5.00" high will be cut into the reflective stripe to allow the painted surface to form the letter. The letters will be one (1) each side of body on the D1 and P1 doors.
0020216	Lettering, Reverse Cut Into Reflective Band, Additional	<b>REFLECTIVE LETTERING</b> three (3) letters, 4.00" high will be cut into the reflective stripe to allow the painted surface to form the letter.
0645076	Plate, Painted Alum. for Lettering/Numerals	<b>PAINTED PLATE(S) FOR LETTERING/NUMERALS</b> There will be one (1) painted aluminum plate(s) provided for department lettering. They will be mounted on top of cab roof per LSP print and will be 36"H x 38"W in size.
0655896	Sign Kit, Painted, Holder and Insert, Each	<b>SIGN KIT FOR LETTERING/NUMERALS</b> four (4) painted stainless steel plate(s) and holder(s) will be provided for department lettering. They will be mounted one (1) front bumper, one (1) each side of cab on exterior access door and one (1) at the rear. Reference approved LSP print for specific locations and approximately 8.00"H x 14.00"W in size.
0594393	SP Emblem, "Waiving American Flag With Pole, Pair (mirror images)	<b>"AMERICAN FLAG" EMBLEMS</b> There will be one (1) pair of color imaged emblems, 10.00" wide, featuring a "Waiving American Flag" with pole and 9-11-01, installed one each side of cab on the upper portion of the exterior access door for the EMS compartment. The pair will be mirror images of each other.
0695610	Emblem, Reflective, Per Dept. Submittal, Each	<b>EMBLEM</b> There will be two (2) reflective emblem(s), approximately 14.00" - 16.00" in size, installed one each side front cab door. the emblem will be modeled after the department submitted information (art, patch, etc).

0771998	Manual, Fire Apparatus Parts, (1) Hard Copy & (1) USB, Multi Unit Order, Custom	<p><b>FIRE APPARATUS PARTS MANUAL</b></p> <p>One (1) custom parts manuals for the complete fire apparatus will be provided in hard copy with the completed unit.</p> <p>One (1) USB flash drive will also be provided that will include all of the information from the above manual.</p> <p>The manual will contain the following:</p> <ul style="list-style-type: none"> <li>Job number</li> <li>Part numbers with full descriptions</li> <li>Table of contents</li> <li>Parts section sorted in functional groups reflecting a major system, component, or assembly</li> <li>Parts section sorted in Alphabetical order</li> <li>Instructions on how to locate parts</li> </ul> <p>The manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.</p> <p>This is a multiple unit order. The customer will receive one (1) hard copy manual and one (1) USB total for the two (2) truck order.</p> <p><b>SERVICE PARTS INTERNET SITE</b></p> <p>The service parts information included in this manual is also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.</p>
0771950	Manual, Chassis Service, (1) Hard Copy, (1) USB, Multi Unit Order, Custom	<p><b>CHASSIS SERVICE MANUALS</b></p> <p>There will be two (2) chassis service manuals containing parts and service information on major components provided. There will be one (1) hard copy and one (1) USB flash drive copy provided with the completed unit.</p> <p>The manual will contain the following sections:</p> <ul style="list-style-type: none"> <li>Job number</li> <li>Table of contents</li> <li>Troubleshooting</li> <li>Front Axle/Suspension</li> <li>Brakes</li> <li>Engine</li> <li>Tires</li> <li>Wheels</li> <li>Cab</li> <li>Electrical, DC</li> <li>Air Systems</li> <li>Plumbing</li> <li>Appendix</li> </ul> <p>The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.</p> <p>This is a multiple unit order. The customer will receive one (1) hard copy and one (1) USB flash drive total for the two (2) truck order.</p>
0771977	Manual, Chassis Operation, (2) Hard Copy & (1) USB, Multi Unit Order, Custom	<p><b>CHASSIS OPERATION MANUALS</b></p> <p>There will be two (2) hard copies and one (1) USB flash drive provided that will include all of the same information.</p> <p>This is a multiple unit order. Two (2) hard copy manuals and one (1) manual on USB flash drive total will be supplied for the two (2) truck order.</p>
0030008	Warranty, Basic, 1 Year, Apparatus, WA0008	<p><b>ONE (1) YEAR MATERIAL AND WORKMANSHIP</b></p> <p>A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.</p>
0595239	(No Pick Required)	
0696698	Warranty, Engine, Cummins, 5 Year, WA0181	<p><b>ENGINE WARRANTY</b></p> <p>A Cummins <b>five (5) year</b> limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal.</p>
0684953	Warranty, Steering Gear, Sheppard M110, 3 Year WA0201	<p><b>STEERING GEAR WARRANTY</b></p> <p>A Sheppard <b>three (3) year</b> limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.</p>
0595767	Warranty, Frame, 50 Year, Velocity/Impel, Dash CF, WA0038	<p><b>FIFTY (50) YEAR STRUCTURAL INTEGRITY</b></p> <p>The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.</p>
0595698	Warranty, Axle, 3 Year, TAK-4, WA0050	<p><b>FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b></p> <p>The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.</p>

0777368	Warranty, Axle, 2 Year, Meritor, General Service, WA0328	<b>REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> A Meritor axle limited warranty certificate, WA0046, is included with this proposal.
0652758	Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	<b>ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.
0019914	Warranty, Structure, 10 Year, Custom Cab, WA0012	<b>TEN (10) YEAR STRUCTURAL INTEGRITY</b> The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.
0595813	Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	<b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.
0524627	Warranty, Electronics, 5 Year, MUX, WA0014	<b>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</b> The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.
0695416	Warranty, Pierce Camera System, WA0188	<b>CAMERA SYSTEM WARRANTY</b> A Pierce fifty four (54) month <b>warranty will be provided for the camera system.</b>
0647720	Warranty, Pierce LED Strip Lights, WA0203	<b>COMPARTMENT LIGHT WARRANTY</b> The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.
0046369	Warranty, 5-year EVS Transmission, Standard Custom, WA0187	<b>TRANSMISSION WARRANTY</b> The transmission will have a <b>five (5) year/unlimited mileage</b> warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission. Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.
0685945	Warranty, Transmission Cooler, WA0216	<b>TRANSMISSION COOLER WARRANTY</b> The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.
0688798	Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195	<b>WATER TANK WARRANTY</b> A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.
0596025	Warranty, Structure, 10 Year, Body, WA0009	<b>TEN (10) YEAR STRUCTURAL INTEGRITY</b> The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.
0693126	Warranty, AMDOR, Roll-up Door, 10 Year/5 Year Painted, WA0185	<b>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</b> An AMDOR roll-up door limited warranty will be provided. The roll-up door will be warranted against manufacturing defects for a period of <b>ten (10) years</b> . A <b>five (5) year</b> limited warranty will be provided on painted roll up doors. The limited warranty certificate, WA0185, is included with this proposal.
0639211	Warranty, Pump, Hale, 5 Year Parts, 2 Year Labor, WA0248	<b>PUMP WARRANTY</b> A Hale pump limited warranty certificate, WA0248, is included with this proposal. .
0648675	Warranty, 10 Year S/S Pumping, WA0035	<b>TEN (10) YEAR PUMP PLUMBING WARRANTY</b> The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.
0657846	Warranty, Foam System, Husky 12, WA0231	<b>FOAM SYSTEM WARRANTY</b> The Husky 12 foam system limited warranty certificate, WA0231, is included with this proposal.
0595820	Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	<b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

0595421	Warranty, Goldstar, 3 Year, Apparatus, WA0018	<b>THREE (3) YEAR MATERIAL AND WORKMANSHIP</b> The Pierce Goldstar gold leaf lamination limited warranty limited warranty certificate, WA0018, is included with this proposal.
0683627	Certification, Vehicle Stability, CD0156	<b>VEHICLE STABILITY CERTIFICATION</b> The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.
0764540	Certification, Engine Installation, Velocity, Cummins X12, 2018	<b>ENGINE INSTALLATION CERTIFICATION</b> The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of delivery.
0686786	Certification, Power Steering, CD0098	<b>POWER STEERING CERTIFICATION</b> The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.
0667417	Certification, Cab Integrity, Velocity FR, CD0009	<b>CAB INTEGRITY CERTIFICATION</b> The fire apparatus manufacturer will provide a cab integrity certification with this proposal. The certification will state that the cab has been tested and certified by an independent third-party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state-licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below: European Occupant Protection Standard ECE Regulation No.29. SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks. SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks. <b>Roof Crush</b> The cab will be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons. <b>Additional Roof Crush</b> The same cab will be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times. <b>Side Impact</b> The same cab will be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident. <b>Frontal Impact</b> The same cab will withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420. <b>Additional Frontal Impact</b> The same cab will withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420). The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.
0548950	Certification, Cab Door Durability, Velocity/Impel, CD0001	<b>CAB DOOR DURABILITY CERTIFICATION</b> Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.
0548967	Certification, Windshield Wiper Durability, Impel/Velocity, CD0005	<b>WINDSHIELD WIPER DURABILITY CERTIFICATION</b> Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i> . The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.
0667411	Certification, Electric Window Durability, Velocity/Impel FR, CD0004	<b>ELECTRIC WINDOW DURABILITY CERTIFICATION</b> Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

0549273	Certification, Seat Belt Anchors and Mounting, Imp/Vel/Vel SLT, CD0018	<p><b>SEAT BELT ANCHOR STRENGTH</b> Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.</p> <p><b>SEAT MOUNTING STRENGTH</b> Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.</p>
0667416	Certification, Cab Heater and Defroster, Velocity/Impel FR, CD0015	<p><b>CAB DEFROSTER CERTIFICATION</b> Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. <i>The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</i></p> <p><b>CAB HEATER CERTIFICATION</b> <i>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters will warm the cab 75 F from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify that a substantially similar cab has been tested and has met these criteria.</i></p>
0667415	Certification, Cab Air Conditioning Performance, Velocity/Impel FR, CD0016	<p><b>CAB AIR CONDITIONING PERFORMANCE CERTIFICATION</b> Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 67 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar air conditioning system has been tested and has met these criteria. The certification will be available at the time of delivery.</p>
0545073	Amp Draw Report, NFPA Current Edition	<p><b>AMP DRAW REPORT</b> The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system. The manufacturer of the apparatus will provide the following: Documentation of the electrical system performance tests. A written load analysis, which will include the following: The nameplate rating of the alternator. The alternator rating under the conditions specified per: Applicable NFPA 1901 or 1906 (Current Edition). The minimum continuous load of each component that is specified per: Applicable NFPA 1901 or 1906 (Current Edition). Additional loads that, when added to the minimum continuous load, determine the total connected load. Each individual intermittent load. All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).</p>
0002758	Amp Draw, NFPA/ULC Radio Allowance	
0799248	Appleton/Florida BTO	
0000018	PUMPER, 2ND GEN	
0000012	PIERCE CHASSIS	
0004713	ENGINE, OTHER	
0046396	EVS 4000 Series TRANSMISSION	
0020012	HALE PUMP	
0020009	POLY TANK	
0028048	FOAM SYSTEM	



0020006	SIDE CONTROL
0020007	AKRON VALVES
0020015	ABS SYSTEM
0658751	PUMPER BASE



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity

### Custom Cab

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Pierce Custom Cab shall be free from structural failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years - or - 100,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty applies only to the cab tubular support and mounting structures and other structural components of the cab of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship

## Basic Apparatus

# Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.
Warranty Period Ends After:	Twelve (12) months.
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	No specific exclusions apply

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

## NEW PRODUCT WARRANTY



### PARTICIPATING OEM SALES DISTRIBUTOR SALES

### LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Emergency Vehicle in accordance with the following terms, conditions, and limitations.

#### WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Emergency Vehicle and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission's option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section "APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE."
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

**Demonstration Service** - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

#### APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

APPLICABLE MODELS	WARRANTY LIMITATIONS (Whichever occurs first)		ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER	
	Months	Transmission Miles Or Kilometers	Parts	Labor
MT, MD 3000, 3200, 3500, 3700	0-24	No Limit	No Charge	No Charge
HT with Hydraulic Controls	0-24	No Limit	No Charge	No Charge
AT, 1000 Series™, 2000 Series™, 2400 Series™	0-36	No Limit	No Charge	No Charge
HT with Electronic Controls	0-60	No Limit	No Charge	No Charge
HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700, 4700 EVS, 4800, 4800 EVS	0-60	No Limit	No Charge	No Charge

## WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
  - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
  - Misuse of the vehicle;
  - Installation into unapproved applications and installations;
  - Alterations or modification of the transmission or the vehicle, and
  - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
  - Anything other than defects in Allison Transmission material or workmanship

**NOTE:** This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
  - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
  - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

## OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions.

**ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.\*\***

\*\* Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

## OTHER TERMS APPLICABLE TO OTHER END-USERS

**THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.**

## QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission, Inc.  
P.O. Box 894  
Indianapolis, IN 46206-0894  
Attention: Warranty Administration PF-9



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship

### Command Zone Electronics

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Command Zone control modules shall be free from failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Five (5) Years
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty applies to all of the control modules for the Command Zone system, including the full color graphic displays. Related wire harnesses, cables and connectors are not covered under this limited warranty and are instead covered under the Pierce One Year Basic Apparatus Limited Warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship

### Goldstar® Gold Leaf Lamination

#### Limited Warranty

##### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Each Goldstar® gold leaf lamination shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This warranty does not cover damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

##### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

##### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

##### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*





# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship TAK-4 Independent Front Suspension

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The TAK-4 Front Independent Suspension and Steering Gears shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years -or- 30,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty excludes brake pads, brake rotors, seal boots and shock absorbers.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*





# Fire and Rescue Apparatus

## Lifetime Fifty (50) Year Structural Integrity

### Chassis Frame & Crossmembers

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Custom chassis frame rail and cross members manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Fifty (50) Years (Expected Life of Apparatus)
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This warranty does not apply to damage caused by corrosion.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Cab

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Exterior surfaces of the cab painted by Pierce shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years
Conditions and Exclusions:	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b> 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b> 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b> 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p><b>Corrosion Perforation</b> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Custom Body

## Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Exterior surfaces of the body shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years
Conditions and Exclusions:	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b> 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b> 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b> 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p><b>Corrosion Perforation</b> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity Apparatus Body Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The apparatus body shall be free from structural failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years - or - 100,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty applies only to the body tubular support and mounting structures and other structural components of the body of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



Hale, Inc.  
607 N.W. 27th Ave.  
Ocala, FL 34475-5623

1-800-220-HALE  
[www.haleproducts.com](http://www.haleproducts.com)  
[www.class1.com](http://www.class1.com)

## Warranty Statement

Subject to the following general and specific terms and conditions, Hale, Inc. ("Hale") hereby warrants to the original Purchaser\* that Products sold under Hale and Class 1 brands will be free of defects in material and workmanship for the applicable Warranty Period. General terms and conditions applicable for all Products are set forth under the heading **General Terms and Conditions** below. Product specific terms and conditions, including Warranty Periods and Warranty Coverages, are set forth in the Tables following the **General Terms and Conditions**.

### General Terms and Conditions

The following limitations, exclusions, procedures and other terms and conditions shall apply for all Products:

Warranty is voided if:

- Product is used for an application, with products or in a manner other than the application, products and manner for which such Product is designed and intended
- Product is subjected to a use, service, condition or environment other than a use, service, condition or environment for which such Product is designed and intended
- Product is not properly installed
- Product is not properly maintained in accordance with Hale's instruction manual and industry standards
- Product is altered, modified, serviced (except routine maintenance performed in accordance with Hale's instruction manual for Product and Industry accepted standards and guidelines), or repaired by a person other than Hale or a person authorized by Hale to make such alteration or modification or perform such service or repair
- Hale is not paid the full amount of the purchase price for Product when due

No Warranty covers:

- Ordinary wear and tear
- Failure due to compliance with a specification or design provide or required by Purchaser
- Failure due to improper operation, excess pressure, excess voltage or other similar cause
- Failure due to operator error
- Damage during or after shipment and failure attributable thereto or resulting there from
- Failure attributable to or resulting from the failure or substandard, inadequate or improper performance of any part, component or equipment not supplied by Hale
- Failure attributable to or resulting from the failure or substandard, inadequate or improper performance of any third party (e.g., not Hale or Class 1 brand) part, component, product or equipment, whether or not combined, packaged, incorporated, installed or used with a Hale or Class 1 brand part, component, product or equipment.

Hale shall have no obligation under any Warranty unless Purchaser or its customer promptly notifies Hale of the failure giving rise to the Warranty claim, such notice is received by Hale within the applicable Warranty Period, and Hale is provided with such information, data and records (including, but not limited to, in service date, run hours, and service and repair records) as Hale may reasonable request in evaluating the Warranty claim. The notice of failure must be given in writing, identify the Product claimed to be defective (including serial number, if any), and describe in reasonable detail the circumstances surrounding the failure.

Repaired Product and replacement Product shall be warranted only for the remainder of the original Warranty Period.

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\* The "Purchaser" is the original purchaser from Hale, whether the original purchaser is a distributor, dealer or other reseller, an OEM, or an end user.



Hale reserves the right to use reconditioned parts for Warranty repairs and to use reconditioned Products for Warranty replacements.

Hale shall have the right to physically inspect Product claimed to be defective. If requested by Hale, Purchaser shall deliver the Product claimed to be defective to Hale at its manufacturing facility or to another party or location designated by Hale. In such event, Hale shall issue to Purchaser a Return Materials Authorization (RMA) for the Product to be delivered. The Product must be delivered to Hale within 30 days of issuance of the RMA. The RMA number must be included with the Product when delivered to Hale. Failure to make timely delivery to Hale of the Product claimed to be defective shall void any Warranty.

Purchaser or its customer shall be responsible for all freight and shipping charges in connection with the delivery of Product claimed to be defective to Hale at its manufacturing facility or to another party or location designated by Hale and the delivery of repaired or replacement Product or parts to Purchaser. Product claimed to be defective must be shipped by Purchaser freight prepaid. Repaired and replacement Product and parts therefore will be shipped to Purchaser freight collect. Purchaser shall bear all risk of loss or damage during shipment.

If requested to do so by Purchaser, Hale may, at its sole option and in its sole discretion, supply a replacement Product or part to Purchaser prior to making a final determination as to whether Warranty Coverage is available. If Hale ultimately determines that no Warranty Coverage is available for the Product claimed to be defective, whether the determination is based on the Warranty being voided, the Product failure being due to a cause not covered by the Warranty, the failure to make a timely and proper Warranty claim, or otherwise, Purchaser or its customer will be required to purchase the replacement Product or part that has been supplied to it by Hale at the price at which Purchaser is then entitled to purchase such Product or part under the Supply Agreement.

If Hale ultimately determines that no Warranty Coverage is available for a Product claimed to be defective, whether the determination is based on the Warranty being voided, the Product failure being due to a cause not covered by the Warranty, the failure to make a timely and proper Warranty claim, or otherwise, Purchaser shall have the option of either (i) having the Product returned to it freight collect, without repair or replacement, or (ii) if Hale determines that the Product is repairable, have the Product repaired by Hale or another party designated by it on a time and materials basis at Hale's then current standard charges for non-warranty repairs and then returned to Purchaser freight collect.

HALE'S WARRANTY AS SET FORTH HEREIN IS HALE'S SOLE AND EXCLUSIVE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT ALL OF WHICH OTHER WARRANTIES ARE EXPRESSLY EXCLUDED.

THE RIGHTS AND REMEDIES SET FORTH HEREIN ARE THE SOLE AND EXCLUSIVE RIGHTS AND REMEDIES AGAINST HALE. EXCEPT FOR THE SPECIFIC LIABILITIES AND OBLIGATIONS PROVIDED HEREIN, HALE SHALL HAVE NO LIABILITY OR OBLIGATION WITH RESPECT TO ANY PRODUCT CLAIMED TO BE DEFECTIVE IN ANY MANNER.

UNDER NO CIRCUMSTANCES SHALL HALE BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOST OR UNREALIZED SALES, REVENUES, PROFITS, INCOME, COST SAVINGS OR BUSINESS, LOST OR UNREALIZED CONTRACTS, LOSS OF GOODWILL, DAMAGE TO REPUTATION, LOSS OF PROPERTY, LOSS OF INFORMATION OR DATA, LOSS OF PRODUCTION, DOWNTIME, OR INCREASED COSTS, IN CONNECTION WITH ANY PRODUCT, EVEN IF HALE IS ADVISED OR PLACED ON NOTICE OF THE POSSIBILITY OF SUCH DAMAGES AND NOTWITHSTANDING THE FAILURE OF ANY ESSENTIAL PURPOSE OF ANY PRODUCT.

HALE, INC.			
Product Specific Warranty Terms and Conditions			
(January 1, 2013)			
Product *		Warranty Period	Warranty Coverage **
<b>Pumps</b> Mid-Ship, Rear Mount, and Booster (Excludes all Engine Driven Units)	Fire Service Applications (non-Marine)	Earlier of (i) 5 years from in service date of vehicle or equipment in which Product is initially installed, or (ii) 5-1/2 years from date of shipment of Product to original Purchaser.	<p>Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship.</p> <p>At time pump is ordered, original Purchaser may take Standard Warranty at no charge or purchase Extended Warranty for an additional charge which will be quoted by Hale at original purchaser's request at time of order.</p> <p>Under Standard Warranty, Hale will cover parts and labor for first 2 years of Warranty Period and parts only (no labor) for remainder of the Warranty Period .</p> <p>Under Extended Warranty (if purchased by original Purchaser), Hale will cover parts and labor for the full Warranty Period.</p> <p>When labor is covered, Service Provider will be reimbursed at Hale's then current standard labor hours and rates for labor to make repair (if not repaired by Hale) and to remove defective Product and re-install repaired or replacement Product. Hale's approval of repair estimate is required prior to performance of repair work. If applicable, actual mileage will be reimbursed at Hale's then current mileage reimbursement rate.</p>
	Marine, Refueller and Other Applications	Earlier of (i) 2 years from the date of shipment of Product to original Purchaser, or (ii) 2,000 run hours .	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
<b>Engine Driven Units ***</b>	Pump Ends Backpacks Floats	If not used for rental or contracting, 2 years from the date of shipment of Product to original Purchaser.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. Repair labor is included, but any other labor (including removal and re-installation) and mileage are excluded. Service Provider will be reimbursed at Hale's then current standard labor hours and rates for labor to make repair (if not repaired by Hale). Hale's written authorization of repair estimate is required prior to performance of repair work.
		If used for rental or contracting, earlier of (i) 6 months from date of shipment to original Purchaser, or (ii) 1,000 run hours.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
	HP Portables	If not used for rental or contracting, 3 years from the date of shipment of Product to original Purchaser.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
		If used for rental or contracting, earlier of (i) 6 months from date of shipment to original Purchaser, or (ii) 1,000 run hours.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
	Cross-Chassis Skids Trailer Units	Earlier of (i) 12 months from date of shipment to original Purchaser, or (ii) 1,000 run hours.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.

HALE, INC.			
Product Specific Warranty Terms and Conditions			
(January 1, 2013)			
Product *		Warranty Period	Warranty Coverage **
<b>Pump Modules</b> Pump Body Weldments, Stainless Manifolds, and Fabricated Panels		10 years from the date of shipment of Product to original Purchaser	Repair or replacement of Product that Hale determines failed (including cracks resulting from stress and rust through of panels) during Warranty Period due to a defect in material or workmanship. No labor is included.  Pump modules are built to original Purchaser's specification or design. Although individual Hale and Class 1 components used for pump modules comply with NFPA standards, pump modules are not NFPA compliant. Original Purchaser is solely responsible for (i) ensuring finished pump houses are NFPA complaint and adhere to industry accepted standards and guidelines, and (ii) supplying manuals that include appropriate directions, instructions and warnings concerning pump house operation.
<b>Foam</b> CAFS Systems, FoamLogix Proportioners, and EZ Fill		1 year from the date of shipment to original Purchaser.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
<b>Pump Repair &amp; Replacement Parts</b>		90 days from date of shipment of Product to original Purchaser.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
<b>Pressure Gauges</b>		3 years from date of shipment of Product to the original Purchaser.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
<b>Plumbing</b>		2 years from date of shipment of Product to original Purchaser.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
<b>Valves</b>	SVS "Torrent" Valves	10 years from date of shipment of Product to original Purchaser on everything except seal. 2 years from date of shipment of Product to original Purchaser on seal.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
	Class 1 Valves	10 years from date of shipment of Product to original Purchaser on everything except seal. No warranty on seal.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.
<b>Electronics</b>		2 years from date of shipment of Product to original Purchaser.	Repair or replacement of Product that Hale determines failed during Warranty Period due to a defect in material or workmanship. No labor is included.

\* When Products are combined to form a module or package, each Product will have its own separate Warranty Period and Warranty Coverage.

\*\* For each Product, Hale will have the option to refund to Purchaser (in cash or by credit) the purchase price Hale was paid for such Product, less depreciation determined on a straight line basis over the Warranty Period, in lieu of repair or replacement (including, when applicable, labor). The decision whether to repair, replace or refund (and, if there is a refund, whether to refund in cash or by credit) shall be made by Hale in its sole discretion.

\*\*\* All engine related service, performance and warranty issues will be handled by the engine OEM or their local distributor.





# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship

### Pierce 12V LED Strip Light

#### Limited Warranty

##### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	This limited warranty covers repairs to correct any defect related to materials or workmanship of the Pierce 12V LED strip lights installed on the apparatus occurring during the warranty period.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

##### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

##### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

##### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship Stainless Steel Piping Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Stainless steel piping shall be free from structural failures caused by defects in material and workmanship, or perforation caused by corrosion.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years - or - 100,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the stainless steel piping or components which Pierce determines to have failed due to defective material and workmanship, or perforation caused by corrosion.</p> <p>This warranty does not cover the use of fluoroprotein (FP) type foam. The sodium chloride within FP foam can cause long-term damage to system components if not thoroughly flushed immediately after use.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Meritor Wabco ABS Brake System Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Meritor Wabco ABS brake system shall be covered by Meritor Wabco as indicated in the attached Meritor Wabco warranty coverage description
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	The exclusions listed in the attached Meritor Wabco warranty description shall apply.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# **MERITOR WABCO**

*Safety Strong. Efficiency Smart.*

**Warranty**  
**Model Year 2018 Vehicles**



## SIMPLER IS BETTER

Warranty coverage is essential to protecting your investment. But understanding the full details of your coverage can be challenging. This straightforward approach allows you, our valued customer, to better understand how your specific vehicle applications will be covered in your region. Our component warranty coverage is provided according to vocation/usage categories listed below.

- Linehaul covers high mileage operation (over 60,000 miles/year) on well maintained major highways of concrete or asphalt construction.
- General Service covers moderate mileage operations (less than 60,000 miles/year) on well maintained public roads (less than 10 percent off-road) typically with less than three (3) stops per mile.
- Heavy Service (Vocational) covers vehicles with more than 10 percent off-road OR moderate to frequent starts/stops typically with more than three (3) stops per mile.
- Off-Highway Service covers lower mileage operations. Vehicles are not typically licensed for highway use.

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## How to Read Warranty Coverage (Example)

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
3	300	P

## HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

### Heavy Service Vehicles

- Airport Rescue Fire (ARF)
- Airport Shuttle
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- City Bus
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Crash Fire Rescue (CFR)
- Mixer
- Demolition
- Drill Rig
- Dump
- Emergency Service
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Newspaper Delivery
- Package Delivery
- Pick-up and Delivery
- Rapid Intervention Vehicle (RIV)
- Rear Loader
- Recycling Truck
- Residential Pick-Up/Waste
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Transit Bus
- Trolley
- Utility Truck
- Winch Truck

### Heavy Service Typically Is

- On/Off road vocations (10% or more off-road) OR
- Moderate to frequent starts/stops typically more than three (3) stops per mile

### Meritor WABCO Components<sup>1</sup>

ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	2/200/P&L
Electronic Braking System (EBS)	3/300/P&L
Electronic Stability Control (ESC)	3/300/P&L
Roll Stability Control (RSC)	3/300/P&L
Air Dryers (ALL)	1/100/P&L
Leveling Valves	1/100/P&L
Air Brake Valves	1/100/P&L
Emission Valves (SCR)	2/200/P&L
Clutch Controls	2/200/P&L
Air Compressors (ALL) <sup>2</sup>	1/100/P&L
OnGuard™	3/300/P&L
OnGuardACTIVE™	3/300/P&L
OnLane™ Lane Departure Warning	3/300/P&L
Blind Spot Detection	3/300/P&L
OptiRide™	2/200/P&L
Trailer Roll Stability Support (RSS)	3/300/P&L
Trailer Control Line Filter <sup>3</sup>	1/100/P&L
Trailer ABS Valve <sup>3</sup>	3/300/P&L

<sup>1</sup> WABCO and Meritor WABCO branded components.

<sup>2</sup> WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

<sup>3</sup> An extended warranty of 4/400/P will be applied when a Meritor WABCO Trailer Control Line Filter is used in combination with a Meritor WABCO Trailer ABS valve.



## TERMS AND CONDITIONS

### Coverage Exclusions

#### Product Description

##### All

The cost of any repairs, replacements or adjustments to a covered product due to the following: (1) damage to the product or its component parts caused by incorrect use, installation, maintenance or repair, including without limitation (a) improper fit of mating components or brackets, (b) damaged threads, (c) cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (d) damaged sensors from removal when seized in block, or associated with sensor adjustments/alignments, and (e) damage resulting from the use or installation of non-genuine Meritor WABCO components or materials; (2) damage to the product, its component parts, or diminished product or component part performance due to incorrect operation, deviation from approved conditions or misapplication; (3) any unauthorized disassembly of the product or its component parts including without limitation (a) obliterated, defaced or missing WABCO or Meritor WABCO name plate, serial numbers or label identifying the device as a Meritor WABCO product or WABCO component, (b) changes to sealed adjusting screws, and (c) opening or attempted repair of non-serviceable components; (4) malfunction of the component due to internal contamination out of the vehicle system including without limitation (a) water and other contamination damage that is due to the use of a non-genuine air dryer cartridge or (b) valve failures due to contamination in air system, (5) complaints associated with noise, (6) damage resulting from corrosion (including oxidation of electrical devices and connections).

##### Air Dryers

Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.

##### Air System Components

Normal wear items; Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals.

#### ABS, Electronic Stability Control (ESC), Roll Stability Control (RSC), OptiRide™, OnGuard™ and OnLane™, collectively “Electronics”

Failure of electronic components due to overvoltage condition, improper grounding, electrostatic discharge (ESD), improper shielding, electromagnetic interference (EMI), or other wiring or installation issues.

Malfunctions and failure codes caused by other electronic subsystem failures (data bus, engine, transmission, dashboard, etc.)

#### Hydraulic Components

For certain components, brake fluid DOT3 or DOT4 is used as the operating medium. Use of any other fluid will void all warranties associated with that component. For hydraulic braking applications the brake fluid is considered a maintenance item. Maintenance intervals are listed in TB-1367.

### Coverage Limitations

#### Product Description

##### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.

Products purchased on an incomplete vehicle (glider) are limited to one year, 1/Unl/P.

For vehicles that operate full- or part-time outside of the United States and Canada, a 1-Year/Unlimited Miles parts only (1/Unl/P) will apply.

#### TOOLBOX™ Software

Proper diagnostics of Meritor WABCO Electronics may require the latest version of TOOLBOX™. Additional labor due to use of an outdated version of TOOLBOX™. TOOLBOX™ software, and/or the time to purchase or install latest version of TOOLBOX™ are not covered under product warranty.



## TERMS AND CONDITIONS

### (1) What is Covered by this Commercial Warranty?

Meritor WABCO Vehicle Control Systems warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment will be free from defects in material and workmanship. This warranty coverage begins from the original in-service date to the limits provided and runs concurrently with any warranties provided by OEMs and/or any service contracts that cover the components listed in this publication, if any. If the components listed in this publication are covered by an OEM warranty and/or service contract, then the OEM's warranty and/or service contract shall supersede Meritor WABCO's warranty and Owner shall comply with all OEM's warranty and/or service contract requirements for claims under such OEM's warranty and/or service contract until those agreements expire. Once those agreements expire and provided the Meritor WABCO warranty has not expired under the terms stated above, the Meritor WABCO warranty would be in effect until its expiration date.

Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed previously in this publication. Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Additional diagnostic time due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are the responsibility of the authorized Meritor WABCO service location and are not covered under product warranty. Components installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

### (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor WABCO through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor WABCO components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor WABCO directly. Failure to notify Meritor WABCO of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor WABCO as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor WABCO or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor WABCO's warranty requires that the application of products be properly approved pursuant to OEM and Meritor WABCO, approvals.

### (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

### (4) What is not Covered by this Warranty?

In addition to the items listed on page 7, this warranty does not cover normal wear and tear, or service items; nor does it cover a component that fails, malfunctions or is damaged as a result of

(a) improper handling, storage, installation, adjustment, repair or modification including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor WABCO, (b) accident, fire or other casualty, natural disaster, road debris, negligence, misuse, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the brake system capacity), or (c) improper or insufficient maintenance (including deviation from maintenance intervals, approved lubricants, or lube levels). This warranty does not cover any component or part that is not sold by Meritor WABCO.

### (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor WABCO's option. Meritor WABCO reserves the right to require that all applicable covered components are available and/or returned to Meritor WABCO for review and evaluation.

### (6) DISCLAIMER OF WARRANTY.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. SOME STATES LIMIT OR DO NOT ALLOW THE DISCLAIMER OF IMPLIED OR OTHER WARRANTIES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (7) LIMITATION OF REMEDIES.

IN NO EVENT SHALL MERITOR WABCO BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES OF ANY KIND OR UNDER ANY LEGAL THEORY, INCLUDING, BUT NOT LIMITED TO, TOWING, DOWNTIME, LOST PRODUCTIVITY, CARGO DAMAGE, TAXES, LOST PROFITS, COSTS OF PROCUREMENT OF A SUBSTITUTE COMPONENT OR ANY OTHER LOSSES OR COSTS RESULTING FROM A COVERED COMPONENT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (8) TIME LIMIT ON COMMENCING LEGAL ACTION.


ANY LEGAL ACTION OR CLAIM ARISING FROM OR RELATED TO THIS WARRANTY, IN CONTRACT OR OTHERWISE, MUST BE COMMENCED WITHIN ONE YEAR FROM THE ACCRUAL OF THAT CAUSE OF ACTION, OR BE BARRED FOREVER.

### (9) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor WABCO or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor WABCO service location. The dealer will inspect the vehicle and contact Meritor WABCO for an evaluation of the claim. When authorized by Meritor WABCO, the dealer will repair or replace during the term of this warranty any defective Meritor WABCO component covered by this warranty.

### (10) Entire Agreement.

This is the entire agreement between Meritor WABCO and the Owner about warranty and no Meritor, Meritor WABCO employee, or dealer is authorized to make any additional warranty on behalf of Meritor WABCO unless in writing and signed by an authorized representative of Meritor WABCO.



For more information on  
Meritor WABCO Warranty, call  
our OnTrac Customer Service team  
at 866-OnTrac1 (866-668-7221)  
or visit [meritorwabco.com](http://meritorwabco.com).



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship Foam System & Five (5) Year Material and Workmanship Control Head Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Limited warranty 1 year parts and labor for the foam system and 5 years parts and labor for the control head.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	One (1) Year & Five (5) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

**R. H. SHEPPARD CO., INC.**  
101 Philadelphia St.  
Hanover, PA 17331  
**Pierce Manufacturing Inc.**  
2600 American Drive  
Appleton, WI 54912

**LIMITED WARRANTY:** The R. H. Sheppard Co. Inc., ("Sheppard") warrants all M110PKG1 and M110SAU1 steering gears manufactured and sold to Pierce Manufacturing Inc. ("Pierce") for application on Pierce TAK-4 equipped vehicles to be free from defects of workmanship and material under normal use and service for a period of thirty six months from the in service date of the vehicle to its original owner.

Vehicle applications where Sheppard product is used require an application approval before production build. If Pierce uses Sheppard product for any purpose or application which has not been approved by Sheppard in advance, including aftermarket devices (defined as a device added to the steering system directly or indirectly affecting the performance or operation of the Sheppard product in its approved application) not tested and approved by Sheppard this limited warranty SHALL NOT APPLY AND SHALL BE VOID. SHEPPARD MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED. SHEPPARD EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

**SHEPPARD SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES OR FOR LOSS OR DAMAGE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF A PRODUCT.** Pierce expressly acknowledges its obligation to inform all users (customers) of the above disclaimer.

**CONDITIONS:** Claims under this Limited Warranty may only be made by Pierce. In no event shall Sheppard be held liable for warranty charges by unauthorized persons. No allowance will be made for repairs or alterations, unless made with the written consent of Sheppard. Authorized Pierce dealers shall be the only authorized repair facility for Sheppard products applied to Pierce vehicles. Any warrantable repair made under this Limited Warranty must be made on or before 36 months of the in-service date for the Product to which the claim relates. Sheppard shall not be liable for claims made after such date. Sheppard product fitted to Pierce vehicles that are repaired at a repair facility other than an authorized Pierce dealer within the warranty period will be considered for payment under the guidelines of this agreement only by joint written consideration of Sheppard and Pierce warranty departments. It shall be the responsibility of the Pierce warranty department to notify Sheppard if and when this situation occurs. Sheppard will not be held responsible for damage to other steering components such as but not limited to pumps and reservoirs due to improper adjustment of steering gear relief plungers. Vehicle downtime and towing will not be considered under warranty.

**REMEDIES:** The sole and exclusive remedy of Pierce for Sheppard's breach of the foregoing warranty is limited to the return and repair or reimbursement as follows:

**R. H. SHEPPARD CO., INC. WARRANTY**  
**Pierce Manufacturing Inc.**  
**Page 2**

**Warranty Support:** In support of the Pierce dealer network, Sheppard will provide a toll-free "Hotline" service to assist in the diagnosis and troubleshooting of steering problems. The R. H. Sheppard Co., Inc. Field Service Department can be reached at 1-800-274-7437 for assistance. Sheppard will require that Pierce dealers contact this toll-free "Hotline" for approval before product is removed from a vehicle in a warranty situation. When contacted regarding a warranty situation, the Sheppard representative will provide an authorization number for removal of the product. This Returned Goods Authorization (RGA) number must be included in all warranty correspondence and attached to all returned goods.

**Procedure:** In the event of a warranty situation, the servicing dealer shall contact the Sheppard Hotline and receive an RGA number before replacing any steering gear. For M110PKG1 and M110SAU1 steering gear models, the dealer will first obtain an RGA number from Sheppard, and then order the replacement gear from Pierce. Replacement M110PKG1 and M110SAU1 steering gears shall be shipped from Pierce once those models are in full production. A warranty claim for both parts and labor will then be generated by the dealer and sent to Pierce. After reviewing the claim, Pierce will submit it to Sheppard for reimbursement.

**Parts Reimbursement:** Sheppard agrees to reimburse Pierce at Pierce's purchase price plus 30% mark-up for parts found to be defective within the warranty period. Parts being returned for warranty consideration shall be sent to the R. H. Sheppard Company, 447 E. Middle St., Hanover, PA 17331 ATTN: Warranty Dept. Sheppard's determination as to whether the part is covered by the foregoing warranty is final and conclusive. Sheppard requires the return of complete steering gears only. Individual seals replaced under warranty **should not** be returned unless specifically requested by Sheppard. All parts being returned for warranty consideration must be clearly tagged with all pertinent warranty information including, but not limited to (1) Returned Goods Authorization number (RGA); (2) claim number; (3) date in service; (4) date of failure; (5) mileage; (6) part number; (7) labor hours; (8) dealer labor rate and; (9) dollar amount claimed. Claims submitted without prior authorization are subject to rejection under this agreement.

**Labor:** Labor to repair Sheppard product found to be defective within the warranty period will be reimbursed at not more than 10 hours per vehicle. Labor shall be reimbursed at the rate of \$85.00 USD per hour for M110PGK1 and M110SAU1 steering gears.

**Freight:** Pierce will collect M110PGK1 and M110SAU1 warranty material at a designated collection point. Inbound freight to the Pierce collection point will be the responsibility of Pierce. All warranty material should be returned from the Pierce collection point to R. H. Sheppard Co. Freight Collect by a Sheppard-specified common carrier based on location of the Pierce collection point. Sheppard does not require the return of failed seals. Any freight charges incurred for the return of seals will be the responsibility of Pierce. Parts returned for warranty consideration without prior authorization are subject to rejection under this agreement and may be subject to a charge back of inbound freight charges. Parts rejected under this warranty will be returned to Pierce Freight Collect or scrapped by Sheppard at Pierce's discretion.

**R. H. SHEPPARD CO., INC. WARRANTY**  
**Pierce Manufacturing Inc.**  
**Page 3**

**Outside Purchases:** Pierce authorized dealers shall be the only outlet for repair, warranty service and parts for Sheppard products applied to Pierce vehicles. Sheppard will not be responsible for consumables such as hoses, belts, fluids, fittings or miscellaneous shop material that may be required for the repair of the product.

**Warranty Documentation:** Warranty credit memos will be issued monthly to the Pierce Warranty Department. Monthly credit memos will include (1) claim number; (2) part number; (3) parts reimbursement; (4) labor reimbursement; (5) any applicable Pierce reference number and; (6) reason for rejection or acceptance of the claim. Credit memos will be issued in U.S. funds. Debits for warranty claims will not be accepted under this agreement. Claim disposition will constitute the final and conclusive resolution of warranty claims.

**Parts Retention:** Sheppard will retain parts submitted for warranty consideration for a period of sixty (60) days for any material found to be rejected for warranty. Sheppard will notify Pierce within sixty (60) days of receipt of Sheppard's determination as to whether any such part is covered by this warranty. Warranty reimbursement will be issued within thirty days of receipt of material at Sheppard.

**Good-Will Requests:** Good-Will requests will be considered jointly between Sheppard and Pierce for equitable compensation.

**RECALLS:** Sheppard retains the right to review information regarding federal motor vehicle recall and /or product repair programs if Sheppard products fitted to Pierce vehicles are alleged to be non-compliant with federal motor vehicle safety standards. Sheppard retains the right to review any claims of product defect or non-compliance before participating in reimbursement of expenses incurred as a result of alleged non-compliance or defect of its products. Sheppard agrees to negotiate in good faith for the reimbursement of expenses incurred by Pierce for all administrative, material and labor cost and expense associated with any recall where Sheppard product is found to be defective or non-compliant with federal motor vehicle standards.

**MISCELLANEOUS:** This writing constitutes the full complete and final statement of Sheppard's limited warranty for M110PKG1 and M110SAU1 products sold to Pierce. All prior oral or written correspondence, test data, negotiations, representations, understandings and the like regarding products are merged in this writing and extinguished by it. This limited warranty may not be altered, amended extended or modified except by a writing signed by the President or Vice President of Sheppard. No employee, vendor, dealer, distributor or other representative of Sheppard has authority to make statements to extend, expand, alter or amend the terms of this Limited Warranty. Sheppard expressly disclaims any statements contrary to the Limited Warranty. Sheppard's failure at any time to enforce any of the terms and conditions stated herein shall not constitute a waiver of any provisions herein. This Limited Warranty shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

**R. H. SHEPPARD CO., INC. WARRANTY**  
**Pierce Manufacturing Inc.**  
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Any legal actions which may arise as a result of disputes, controversies or claims arising out of or related to this limited warranty shall be in such forum as Sheppard and Pierce shall agree, or, in the absence of agreement, in a court of appropriate jurisdiction other than in the county in which either party is located. This Limited Warranty shall not be assigned by Pierce.

**COOPERATIVE EFFORT:** Sheppard and Pierce agree to work cooperatively toward expanding this warranty coverage to a period of sixty months from the in service date. These cooperative efforts shall focus on examining the effects of increased heat generated by 2007 model engines and its impact on the entire power steering system.

**AGREEMENT:** This agreement is effective April 3, 2006 and may be modified by mutual agreement between Sheppard and Pierce of a signed amendment to be attached to the original Limited Warranty. There are no third party beneficiaries to this Limited Warranty. This warranty agreement applies to Pierce authorized dealers only. It does not encompass any special arrangements that Pierce may now have or that Pierce may enter into, with any other segments of the trucking industry. This warranty agreement does not apply to non-conforming product removed at Pierce assembly plants.

This Limited Warranty agreement between the R. H. Sheppard Co., Inc and Pierce Manufacturing Inc. may be terminated by either party with thirty days written notice prior to termination.

Signed at Pierce Manufacturing Inc., Appleton, WI this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

**R. H. SHEPPARD CO., INC.**

**PIERCE MANUFACTURING INC.**

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title





# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship - Transmission Oil Cooler Three (3) Year Collateral Damage Coverage

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The transmission cooler shall be free from component or structural failures caused by defects in material and/or workmanship. Collateral damage up to \$10,000 per occurrence is available for the first three (3) years.
Warranty Begins:	The date of delivery to the first retail purchaser.
Warranty Period Ends After:	Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> <p>Towing is covered to the nearest distributor or authorized dealer only when necessary to prevent further damage to your transmission.</p> <p>Labor costs for the removal and reinstallation of goods may be covered when necessary to make repairs. Please contact your OEM for authorization.</p> <p>Replacement of cooler during the warranty period is limited to 100% of reasonable labor costs up to a maximum of \$700 to remove, replace, or repair the oil cooler.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# UNITED PLASTIC FABRICATING, INC. **WARRANTY** FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

## LIFETIME SERVICE WARRANTY

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines. Failure to do so can void the warranty.

Every UPF Tank is inspected and tested before leaving our facility. Should your UPF Tank require service, please notify UPF via email, fax, in writing or by calling UPF at 1-978-975-4520. Please provide the serial number, a description of the service request, the location along with the phone number and name of the contact person. Our goal is to have scheduled work completed within a reasonable time period.

Under a valid warranty claim, UPF will cover the cost to repair the UPF Tank including the customary and reasonable costs to make the tank accessible such as the removal and reinstallation of the tank if authorized in advance (pre-approved) by UPF. The warranty will not cover tanks that have been improperly installed, operated, misused, abused, or modified from its intended or designed use. Serial number must not have been altered, defaced or removed. Tanks that are not stored or installed properly which results in the tank suffering UV damage will not be covered by this agreement.

Should UPF determine that the service claim is valid under this warranty for a tank located outside of the United States and Canada, UPF will assume the costs for labor and material for the warranty repair as described above plus all travel costs to the U.S. port of embarkation. Costs for airline travel outside of the U.S. and Canada will not be the responsibility of UPF.

In the event the tank shall become stationed in an area of the world that is considered to be a war zone or where unsafe conditions exist for the safe passage of United States Nationals, as reported by the United States Department of State, (<http://www.state.gov>), and a request to perform service or warranty repairs, UPF reserves the right to refuse to honor such requests. It is the purchaser's responsibility to relocate the tank to an area where such repairs can be performed without undue risk to UPF employees or their designee. UPF will make every reasonable effort to support our products through alternative means.

For Ellipse™ elliptical tanks, a separate five year warranty provided by the subcontractor is applied to the sub-frames, chute linings (rubber isolation strips) and metal components. The stainless steel wrap provided by UPF shall be warranted by the subcontractor performing the wrap installation in accordance with their warranty in place at the time of the installation. UPF will not be liable for any warranty costs associated with the wrap, sub-frames, chute linings (rubber isolation strips) and metal components but will assist with all claims on behalf of its customer.

For PolySide® wetsided tanks and Integrator™ Tank/Body units, all polypropylene components related to the tank shall carry the standard UPF lifetime



# UNITED PLASTIC FABRICATING, INC.

# WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

service warranty. Other polypropylene components, including but not limited to compartments, wheel wells, fenders and other body related components shall be warranted by UPF for a period of ten years. The warranty for the PolySide® and Integrator™ units excludes paint or hardware, which shall be covered by the manufacturer of the paint/hardware.

All UPF tanks 50 gallons or less utilized for non-fire applications and installed on specialty vehicles such as ATVs, trailers, boats, etc. are covered under a separate warranty policy available from UPF. Further, UPF Protector™ foam and water trailers are warranted under a separate warranty policy available from UPF.

This UPF warranty is transferable within the United States only with prior written approval by UPF (except an original apparatus manufacturer may assign this warranty to the first titled owner/lessee of the apparatus).

**UPF will NOT reimburse any unnecessary work and/or work that has not been pre-approved. Any and all third party charges must be pre-authorized and approved in writing by UPF prior to commencing the work. Any unauthorized third party repairs, alterations, actions or modifications will not be covered and can void the warranty. UPF will be the sole determining authority as to whether a service claim will be valid and covered under this warranty.**

In no event will UPF be liable for an amount in excess of the purchase price of the booster/foam tank at the time of manufacture or for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of failure of its product. Loss of contents (water, foam, etc.) shall not be the responsibility of UPF. Further, UPF is not responsible for costs associated with service repairs to chassis, sub-frames, bodies, valves, dumps, hoses, pressure vacuum vents, and other components (i.e. liquid level transducers, etc.). Further, UPF will not cover the cost for travel of the vehicle to and from a repair facility.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly cancelled. UPF neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation or incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.

**THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATION OR LIABILITIES ON THE PART OF UPF.**



# BULLETIN



**TO: All Dealer Service Representatives**

**From: Kevin Hanegraaf**

**DATE: January 4, 2010**

**RE: UPF Tank Warranty Policy – Truck in Accident**

**Service Topic #292**

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To keep the UPF tank warranty valid on trucks that have been involved in a vehicular accident, it is UPF's policy that the customer must remove the tank from the truck and send it back to one of UPF's facilities for inspection. In the event that this does not take place, the warranty will be considered null and void.

The customer must remove and send the tank back to UPF for inspection in order to maintain the original warranty coverage, at which time it will be:

- *Filled with water*
- *Visually inspected*
- *Ultraviolet spark tested on articulating test stand in the dark*
- *Recommendation for repairs if necessary provided by UPF*
- *Fully evaluated and repaired by UPF*

If your customer chooses to leave the tank on the truck and wants a technician to inspect and/or repair the tank in the field, then **the warranty is no longer in effect.** This direction is upheld by UPF because the technician cannot inspect the entire tank when it is still installed on the truck.

**Note:** This memo is intended to relay the information Pierce has received on UPF's tank warranty for trucks that are in a vehicular accident. In the event of an actual claim, we direct you to consult with UPF's service Manager Maura Watts (800-638-8265 x253)



## **AMDOR Inc. TERMS OF BUSINESS AND GENERAL INFORMATION**

### **Warranty:**

All AMDOR Inc. roll-up door products are warranted for a period of 10 years from the date of delivery (with the exception of wet paint adhesion - please see below). AMDOR Inc. liability covers the replacement or repair of any component that fails due to defects in material and / or workmanship during the coverage period. We accept no liability for claims made for damages to any part (or parts) of a vehicle and / or machine (of any type) or injury claims by a person or persons assumed or alleged to have been brought about by the use or misuse of any product supplied by AMDOR Inc. Warranty coverage does not extend to door attachments including (but not limited to) decals, emblems, stripes and adhesives.

In order to initiate the claims process please contact your authorized representative of AMDOR Inc. Warranty claims must be accompanied by a written description providing full and reasonable details as to the nature of the defect. Upon receipt of your claim arrangements will be made to inspect the defective product (if necessary). Justified warranty claims will be repaired, exchanged, or credited to the customer's account at AMDOR Inc.'s discretion. All warranty claims must be approved in writing by the Customer Service Manager for AMDOR Inc. There are no exceptions to this clause.

Limited warranty coverage includes the labor associated with the disassembly and assembly of products deemed to be defective by AMDOR Inc. Labor allowances are based on a set time schedule as determined by AMDOR Inc. The maximum allowable hourly labor rate is \$ 50. All warranty labor claims must be approved in writing by an authorized representative of AMDOR Inc. prior to commencement of work. Allowances for removal and installation:

Curtain replacement:	3/4 hour
Balancer replacement:	1 hour
Door ajar switch	3/4 hour
Bottom Panel Assembly:	1/2 hour
Slat replacement:	3/4 hour
Door removal and replacement	1 1/2 hours

Items authorized for return must be accompanied by a Return Goods Authorization (RGA) number. We will accept collect shipments of items deemed to be defective provided that they are returned via the most economical carrier. Should items be

returned by means other than the most economical carrier the difference will be charged back to the sender.

AMDOR Inc. reserves the right to reject any claim when a product has been opened, interfered with or modified. Claims may also be rejected when damage to the product (or any sub-assembly) has been brought about by accident, misuse, abuse, vandalism, incorrect installation, temperature extremes, chemical exposure or any factor other than regular operating conditions.

### **Limited Wet Paint Match Adhesion Warranty**

AMDOR Inc. warrants wet paint finishes applied by AMDOR utilizing our approved factory paint specification. All wet paint match colors must be approved in writing by an authorized OEM representative. AMDOR Inc. will provide a color spray out for this purpose. The time required for shipping and consideration of initial color spray outs will be considered over and above stated lead times. Warranty coverage will extend for a period of not less than 5 years from the date of delivery as determined by AMDOR Inc.'s Packing Slip. AMDOR reserves the right to determine whether individual units will be replaced and / or repaired by an AMDOR approved vendor. An allowance will be made for labor associated with the disassembly and assembly of individual units at the prescribed hourly rate of \$ 50 per hour. Compensation for labor will not exceed the maximum time allowance permitted for door removal and replacement. Written approval including specified allowance for time must be obtained from AMDOR prior to initiating work. Warranty coverage will extend to the following visible paint system defects:

- 1./ Loss of mechanical adhesion as evidenced by peeling, cracking or blistering which exposes the substrate material.
- 2./ Corrosion of the substrate due to paint system failure.
- 3./ Fading which results in a substantial departure from the primary AMDOR approved body color.

Wet paint adhesion limited warranty coverage will be excluded when damages to the system are determined by AMDOR Inc. to be a result of the following:

- 1./ Damage caused through the use of attachments including (but not limited to) decals, labels, adhesives, non factory approved coatings.
- 2./ Loss of gloss, discoloration or damage due to improper maintenance (including but not limited to) mechanical wash systems, pressure washers, steam cleaners, non approved wash or polishing agents.
- 3./ Abuse, acts of nature, excessive heat / cold, chemical exposure, vandalism and / or accidents.
- 4./ Scratches, chips, abrasions, or dents from any source.

**This document supercedes all previous written and / or verbal warranties provided by AMDOR Inc. and / or it's affiliates.**



# Fire and Rescue Apparatus

## 54 Months Material and Workmanship

### Camera System

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	This limited warranty covers repairs to correct any defect related to materials or workmanship of the Sharpvision camera system installed on the apparatus occurring during the warranty period.
Warranty Begins:	The date of delivery.
Warranty Period Ends After:	Fifty - Four (54) months
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*





# Cummins Warranty

Worldwide

Fire Apparatus/Crash Trucks



# Coverage

## Products Warranted

This Warranty applies to new diesel Engines sold by Cummins and delivered to the first user on or after April 1, 2007, that are used in fire apparatus truck and crash truck\* applications Worldwide.

## Base Engine Warranty

The Base Engine Warranty covers any failures of the Engine which result, under normal use and service, from a defect in material or factory workmanship (Warrantable Failure). This Coverage begins with the sale of the Engine by Cummins and ends five years or 100,000 miles (160,935 kilometers), whichever occurs first, after the date of delivery of the Engine to the first user.

Engine aftertreatment components included in the Cummins Critical Parts List (CPL) and marked with a Cummins part number are covered under Base Engine Warranty.

Additional Coverage is outlined in the Emission Warranty section.

**These Warranties are made to all Owners in the chain of distribution and Coverage continues to all subsequent Owners until the end of the periods of Coverage.**

# Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair the damage to the Engine resulting from a Warrantable Failure.

Cummins will pay for the lubricating oil, antifreeze, filter elements, belts, hoses and other maintenance items that are not reusable due to the Warrantable Failure.

Cummins will pay for reasonable labor costs for Engine removal and reinstallation when necessary to repair a Warrantable Failure.

Cummins will pay reasonable costs for towing a vehicle disabled by a Warrantable Failure to the nearest authorized repair location. In lieu of the towing expense, Cummins will pay reasonable costs for mechanics to travel to and from the location of the vehicle, including meals, mileage and lodging when the repair is performed at the site of the failure.

# Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in Cummins Operation and Maintenance Manuals. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of the applicable Warranty, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Warrantable Failure and make the Engine available for repair by such facility. Except for Engines disabled by a Warrantable Failure, Owner must also deliver the Engine to the repair facility.

Service locations are listed on the Cummins Worldwide Service Locator at [cummins.com](http://cummins.com).

Owner is responsible for the cost of lubricating oil, antifreeze, filter elements and other maintenance items provided during Warranty repairs unless such items are not reusable due to the Warrantable Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Warrantable Failure.

Owner is responsible for non-Engine repairs and for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs and other losses resulting from a Warrantable Failure.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this plan in the 3rd, 4th and 5th years of Base Engine Warranty. The deductible will not be charged during the first 2 years of the Base Engine Warranty.

# Limitations

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel





exhaust fluid.

This Warranty does not apply to accessories supplied by Cummins which bear the name of another company. Such non-warranted accessories include, but are not limited to: alternators, starters, fans, air conditioning compressors, clutches, filters, transmissions, torque converters, vacuum pumps, power steering pumps, fan drives and air compressors. Cummins branded alternators and starters are covered for the first two years from the date of delivery of the Engine to the first user, or the expiration of the Base Engine Warranty, whichever occurs first.

Failures resulting in excessive oil consumption are not covered beyond the duration of the Coverage or 100,000 miles (160,935 kilometers) or 7,000 hours from the date of delivery of the Engine to the first user, whichever of the three occurs first. Before a claim for excessive oil consumption will be considered, Owner must submit adequate documentation to show that consumption exceeds Cummins published standards.

Failures of belts and hoses supplied by Cummins are not covered beyond the first year from the date of delivery of the Engine to the first user or the duration of the Warranty, whichever occurs first.

Parts used to repair a Warrantable Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not approved by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Warrantable Failure assumes the identity of the part it replaced and is entitled to the remaining Coverage hereunder.

Cummins Inc. reserves the right to interrogate Electronic Control Module (ECM) data for purposes of failure analysis.

**CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.**

**CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**THIS WARRANTY AND THE EMISSION WARRANTY SET FORTH HEREINAFTER ARE THE SOLE WARRANTIES MADE BY CUMMINS IN REGARD TO THESE ENGINES. CUMMINS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

# Emission Warranty

## Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins that are used in the United States\*\* in vehicles designed for transporting persons or property on a street or highway. This Warranty applies to Engines delivered to the first user on or after September 1, 1992.

## Coverage

Cummins warrants to the first user and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. federal emission regulations applicable at the time of manufacture and that it is free from defects in material or factory workmanship which would cause it not to meet these regulations within the longer of the following periods: (A) Five years or 100,000 miles (160,935 kilometers) of operation, whichever occurs first, as measured from the date of delivery of the Engine to the first user or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

## Limitations

Failures, other than those resulting from defects in material or factory workmanship, are not covered by this Warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs or other losses resulting from a Warrantable Failure.

**CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL  
OR CONSEQUENTIAL DAMAGES.**

\* Airport operated crash trucks and fire department  
operated trucks employed to respond to fires,  
hazardous material releases, rescue and other  
emergency-type situations.

\*\* United States includes American Samoa, the  
Commonwealth of Northern Mariana Islands, Guam,  
Puerto Rico and the U.S. Virgin Islands.



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# Fire and Rescue Apparatus

## Two (2) Year Material and Workmanship

### Meritor Axles

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Two (2) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	The exclusions listed in the attached Meritor warranty description shall apply.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2018 VEHICLES



**MERITOR**





# WARRANTY INFORMATION CONTENTS

Effective Model Year 2018 Vehicles

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## How to Read Warranty Coverage

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
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**Notice:**

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

## Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).



# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- |                        |                   |                    |                        |
|------------------------|-------------------|--------------------|------------------------|
| ■ Auto Hauler          | ■ Flatbed         | ■ Livestock Hauler | ■ Refrigerated Freight |
| ■ Bulk Hauler          | ■ General Freight | ■ Moving Van       | ■ Tanker               |
| ■ Chip Hauler (Truck)* | ■ Grain Hauler    | ■ Pipe Hauler      | ■ Triples              |
| ■ Doubles              |                   |                    |                        |

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/750/P&L

FD-965	FF-966	MFS-10-144A-N	MFS-12-132C-N	MFS-13-122C-N	MFS-14-143A-N
FF-941	FF-967	MFS-12-122A-N	MFS-12-143A-N	MFS-13-132B-N	
FF-942	FG-941	MFS-12-122B-N	MFS-12E-143A-N	MFS-13-132C-N	
FF-943	FG-943	MFS-12-122C-N	MFS-12-144A-N	MFS-13-143A-N	
FF-944	MFS-10-122A	MFS-12E-122A-N	MFS-13-122A-N	MFS-13-144A-N	
FF-961	MFS-10-143A-N	MFS-12-132B-N	MFS-13-122B-N	MFS-14-122A-N	

## Rear Drive Single Axles – 5/750/P&L

RS-19-144/145/A	RS-21-160
MS-19-14X	RS-23-160
MS-21-144	RS-23-161
RS-21-145	RS-23-186

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

RT-34-144/P/A	MA-40-165	MT-40-943
RT-40-145/A	MA-40-175	MT-40-943-SP
RT-40-160/P <sup>1,2</sup>	MT-34-14X/P	RZ-166 <sup>2</sup>
RT-46-160/P <sup>1,2</sup>	MT-40-14X/P	RZ-188
RT-46-164EH/P <sup>1,2</sup>	MT-40-14X/P	
RT-50-160/P <sup>1,2</sup>	MT-40-144/P	

## Drivelines

RPL	5/500/P, 1/Unl/P&L
MXL	3/350/P, 1/Unl/P&L
155N	1/Unl/P
92N	1/Unl/P

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.





# LINEHAUL WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	5/500/P, 1/100/L
LX500 Feature <sup>1</sup>	5/750/P&L
Q+ Drum Brake™	5/500/P, 1/Unl/P&L
ASA	5/500/P, 1/Unl/P&L
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	5/500/P, 1/Unl/L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

## Trailer Axles

Beam and Brackets	5/500/P, 1/100/L
Wheel End Systems <sup>1</sup>	
Standard System <sup>2</sup>	1/100/P&L
PreSet by Meritor <sup>3</sup>	5/500/P&L
AxlePak5 <sup>4</sup>	5P/L
AxlePak7 <sup>5</sup>	7P/L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/500P, 3/500L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/750P, 3/500L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

TQ, TQD, TR, TRD Beam and Brackets	5/750/P&L
------------------------------------	-----------

<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
-----------------	-----------

## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/500/P, 1/100/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/700/P, 5/500/L
PinLoc Air Controls	1/100/P&L
PinLoc Actuator	3/300/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/700/P, 5/500/L
MTA (Trailing Arm)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs & Rebound Straps	2/200/P, 1/100/L
Bushings	5/500/P, 3/300/L

<sup>1</sup> Fastener torque coverage is limited to 2/Unl P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.



# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

■ Aerial Ladder Truck	■ Front Engine Commercial Chassis	■ Municipal Truck	■ Refrigerated Freight
■ Aerial Platform	■ Front Engine Integral Coach	■ Newspaper Delivery	■ School Bus
■ Ambulance	■ General Freight	■ Pick-Up and Delivery	■ Stake Truck
■ Auto Hauler	■ Intercity Coach	■ Pipe Hauler	■ Tanker
■ Beverage Truck	■ Intermodal Chassis	■ Platform Auto Hauler	■ Tanker Truck
■ Chip Hauler	■ Livestock Hauler	■ Pumper	■ Tour Bus
■ Cross Country Coach	■ Meat Packer	■ Rear Engine Integral Coach	■ Wrecker
■ Flatbed	■ Moving Van	■ Recreational Vehicles	

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FH-941	MFS-7-153C-N	MFS-12E-122A-N	MFS-13-122C-N	MFS-18-135A-N
FF-941	FH-946 <sup>1</sup>	MFS-7-163C-N	MFS-12-122B-N	MFS-13-132B-N	MFS-18-193A-N
FF-942	FL-941	MFS-8-113B-N	MFS-12-122C-N	MFS-13-132C-N	MFS-20-133A-N
FF-943	FL-943	MFS-8-143A-N	MFS-12-132B-N	MFS-13-143A-N	MFS-20-135A-N
FF-944	MFS-6-151A-N	MFS-8-153B-N	MFS-12-132C-N	MFS-13-144A-N	MFS-20H-193A-N
FF-946	MFS-6-153B-N	MFS-8-163B-N	MFS-12-143A-N	MFS-14-122A-N	MFS-22H-135A-N
FF-961	MFS-6-162B-N	MFS-10-122A	MFS-12-144A-N	MFS-14-143A-N	MFS-22H-193A-N
FF-966	MFS-6-153C-N	MFS-10-143A-N	MFS-12E-143A-N	MFS-16-122A-N	
FF-967	MFS-6-162C-N	MFS-10-144A-N	MFS-13-122A-N	MFS-16-143A-N	
FG-941	MFS-7-113C-N	MFS-12-122A-N	MFS-13-122B-N	MFS-18-133A-N	

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Rear Drive Single Axles – 2/Unl/P&L

MS-17-13X	MS-21-144	RC-23-162 <sup>1</sup>	MS-26-616	79163
MS-17-14X	MS-23-17X	RC-23-165 <sup>1</sup>	MS-26-616-SP	
MS-19-13X	RS-21-145/A	RS-23-160	RS-30-185	
MS-19-14X	RS-21-160	RS-23-161	MS-30-616	
RS-17-144/145/A	RC-22-145	RS-23-186	MS-30-616-SP	
RS-19-144/145/A	RC-22-145/A	RS-24-160	RS-35-380	
MS-21-13X	RC-23-160	RC-25-160	71162	
MS-21-14X	RC-23-161	RS-26-185	71163	

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem – 3/Unl/P&L

RT-40-160/P	RT-46-164EH/P
RT-46-160/P	RT-50-160/P

## Drivelines

RPL	4/400/P, 1/Unl/P&L
MXL	3/350/P, 1/Unl/P&L
155N	1/Unl/P
92N	1/Unl/P

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	MT-44-14X/P	MT-58-616
RT-34-144/P/A	RT-44-145/P	RT-58-185 <sup>1</sup>
MT-40-14X/P	RT-46-169	MT-70-380
MT-40-144/P	MT-52-616	RZ-166
RT-40-145/A	RT-52-185 <sup>1</sup>	RZ-188

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.





# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	3/Unl/P, 1/Unl/L
LX500 Feature <sup>1</sup>	3/Unl/P&L
Cam P <sup>3</sup>	2/200/P
Cam	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>3</sup>	2/200/P&L
ASA	3/Unl/P
ASA <sup>3</sup>	2/200/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	2/Unl/P&L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L
AxlePak5 <sup>4</sup>	5P/L
AxlePak7 <sup>5</sup>	7P/L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/500P, 3/500L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/750P, 3/500L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

Beam & Brackets	6/Unl/P, 1/Unl/L
Wheel End Systems <sup>1</sup>	
Standard System	1/Unl/P&L
AxlePak7	7P/L
Beam and Brackets	7P/1L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/Unl/P, 1/Unl/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/700/P, 5/500/L
PinLoc Air Controls	1/Unl/P&L
PinLoc Air Actuator	3/Unl/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/700/P, 5/500/L
MTA (Trailing Arm)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs and Rebound Straps	2/Unl/P, 1/Unl/L
Bushings <sup>3</sup>	5/Unl/P, 3/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup>	3/Unl/P, 1/Unl/L
MC12002, MC14002, MC16003, FH946	2/Unl/P&L

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/UNL/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System by PSI

MTIS Components	3/500/P&L
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# HEAVY SERVICE WARRANTY INFORMATION

## Heavy Service Vehicles

■ Airport Rescue Fire (ARF)	■ Drill Rig	■ Michigan Special Gravel Trains	■ Shuttle Bus
■ Airport Shuttle	■ Dump	■ Michigan Special Log Hauler	■ Side Loader
■ Asphalt Truck	■ Emergency Service	■ Michigan Special Steel Hauler	■ Snowplow/Snowblower
■ Block Truck	■ Equipment Hauling	■ Michigan Special Waste Vehicle	■ Steel Hauling
■ Bottom Dump Trailer	■ Flatbed Trailer Hauler	■ Municipal Dump	■ Tanker
■ Combination	■ Flatbed Truck	■ Rapid Intervention Vehicle (RIV)	■ Tank Truck
■ Cementing Vehicle	■ Fracturing Truck	■ Rear Loader (Refuse)	■ Tractors with Pole Trailers
■ City Bus	■ Front Loader	■ Recycling Truck	■ Tractor/Trailer with Jeeps
■ Commercial Pick-Up	■ Geophysical Exploration	■ Residential Pick-Up (Refuse)	■ Transfer Dump
■ Concrete Pumper	■ Hopper Trailer Combinations	■ Rigging Truck	■ Transfer Vehicle
■ Construction Material Hauler	■ Landscaping Truck	■ Roll-Off	■ Transit Bus
■ Crash Fire Rescue (CFR)	■ Liquid Waste Hauler	■ Scrap Truck	■ Trolley
■ Mixer	■ Log Hauling	■ Semi-End Dump	■ Utility Truck
■ Demolition	■ Lowboy	■ Sewer/Septic Vacuum	■ Winch Truck

## Heavy Service Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FH-941	MFS-8-113B-N	MFS-12-132C-N	MFS-13-155	MFS-22H-135A-N	MX-17-140
FF-941	FH-946	MFS-8-153B-N	MFS-12-143A-N	MFS-14-122	MFS-22H-193A-N	MX-19-140
FF-942	FL-941	MFS-8-163B-N	MFS-12-144A-N	MFS-14-143A-N	RF-16-145	MX-21-140
FF-943	FL-943	MFS-10-122A	MFS-12-155	MFS-16-122A-N	RF-21-160	MX-21-160
FF-944	MFS-6-151A-N	MFS-10-143A-N	MFS-13-122	MFS-16-143A-N	MX-10-120	MX-23-160
FF-946	MFS-6-153B	MFS-10-144A-N	MFS-13-122B-N	MFS-18-133A-N	MX-10-120 EVO	MX-810
FF-961	MFS-6-162B	MFS-12-122	MFS-13-122C-N	MFS-18-135A-N	MX-12-120	
FF-966	MFS-6-162C	MFS-12-122B-N	MFS-13-132B-N	MFS-18-193A-N	MX-12-120 EVO	
FF-967	MFS-7-113C-N	MFS-12-122C-N	MFS-13-132C-N	MFS-20-133A-N	MX-14-120	
FG-941	MFS-7-153C-N	MFS-12E-122	MFS-13-143A-N	MFS-20-135A-N	MX-16-120	
FG-943	MFS-7-163C-N	MFS-12-132B-N	MFS-13-144A-N	MFS-20H-193A-N	MX-18-120	

## Drivelines

RPL	3/Unl/P, 1/Unl/P&L
92N	1/Unl/P&L
MXL	1/Unl/P&L

## Rear Drive Single Axles – 2/Unl/P&L

MS-17-14X	RS-23-160	MS-30-616-SP
RS-17-144/145/A	RC-23-161	RS-30-185/380
MS-19-14X	RS-23-161	MS-35-380
RS-19-144	RS-23-186/380	RS-38-380
MS-21-114	RC-23-162	RC-25-160
MS-21-14X	RC-23-165	RC-26-633
RS-21-145	RS-24-160	MT-58-616
RS-21-145/A	RS-25-160	MT-58-616-SP
RS-21-160	MS-26-616	71162
RC-22-145	MS-26-616-SP	71163
RC-23-160	RS-26-185/380	79163
RH-23-160	MS-30-616	



# HEAVY SERVICE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	RT-44-145/P	MT-58-616	RZ-166
RT-34-144/P/A	RT-46-169	MT-58-616-SP	RZ-188
MT-40-14X/P	MT-52-616	RT-58-185/380 <sup>1,2</sup>	
RT-40-145/A	MT-52-616-SP	RT-70-380	
MT-44-14X/P	RT-52-185/380 <sup>1,2</sup>	MT-70-380	

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

Cam P	3/Unl/P
Cam P <sup>3</sup>	2/100/P
Cam Cast Plus™	2/100/P&L
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>2</sup>	2/100/P&L
ASA	3/Unl/P
ASA <sup>2</sup>	2/100/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
EX+ Air Disc Brake	2/100/P&L

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Transfer Cases – 1/Unl/P

MTC-4208	MTC-4213	T-2119
MTC-4210	T-2111	

## Rear Drive Tandem – 3/Unl/P&L

RT-40-160/P/A<sup>3</sup>  
RT-46-160/P/A<sup>1,3</sup>  
RT-46-164EH/P/A<sup>2,3</sup>  
RT-50-160/P/A<sup>3</sup>

<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
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## Trailer Air Suspension Systems

MTA (Trailing Arm)	
Major Structural Components <sup>1</sup>	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings <sup>1</sup>	5/Unl/P, 3/Unl/L

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Center Non-drive Axles – 2/Unl/P&L

MC26000
71063
79063

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)



# OFF-HIGHWAY SERVICE WARRANTY INFORMATION

## Industrial And Off-Highway Service Vehicles

- |                       |                          |                       |                    |
|-----------------------|--------------------------|-----------------------|--------------------|
| ■ Load-On/Load-Off    | ■ Yard Jockey            | ■ Specialized Mining  | ■ Rail Car Mover   |
| ■ Port Tractor        | ■ All-Terrain Crane      | ■ Excavator           | ■ Loader           |
| ■ Rail Yard Spotter   | ■ Rough Terrain Crane    | ■ Compactor           | ■ Tow Tractor      |
| ■ Roll-On/Roll-Off    | ■ Forestry               | ■ Fertilizer Spreader | ■ Pushback Tractor |
| ■ Stevedoring Tractor | ■ Material Handling      | ■ Snow Blower         |                    |
| ■ Trailer Spotter     | ■ Specialized Heavy Haul | ■ Mining              |                    |

## Industrial And Off-Highway Service Typically Is

- Low mileage operation
- Low speed vehicle speed restriction
- Vehicles are **not** typically licensed for highway use
- Six (6) starts/stops per mile (typical)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Drive Steer Axles – 1/Unl/P

MOR	MOX	MOC
-----	-----	-----

## Front Non-Drive Steer Axles – 1/Unl/P

FF - 941	MFS-12-143A-N	MFS-18-135A-N
FF - 943	MFS-12-144A-N	MFS-18-193A-N
FF - 961	MFS-13-143A-N	MFS-20-133A-N
FF - 966	MFS-13-144A-N	MFS-20-135A-N
FG - 941	MFS-14-143A-N	MFS-20H-193A-N
FG - 943	MFS-16-122A-N	MFS-22H-135A-N
FL - 941	MFS-16-143A-N	MFS-22H-193A-N
FL - 943	MFS-18-133A-N	MON-ZO FAMILY

## Planetary Axles – 1/Unl/P

MOR	MOX	MOC	MOT
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## Rear Drive Single Axles – 1/Unl/P

RS-23-186	RS-24-160-SP	RS-30-185
RS-23-380	MS-30-616	RS-30-380
RS-24-160	MS-30-616-SP	MS-35-380

## Drivelines – 1/Unl/P

RPL	MXL
-----	-----

## Rear Drive Tandem Axles – 2/Unl/P

MT-44-14X/P	MT-58-616	RT-44-145/P	RT-50-160/P
MT-52-616	MT-58-616-SP	RT-46-160/P	RZ-166
MT-52-616-SP	MT-70-380	RT-46-164EH/P	

## Brake Components

Cam P	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
ASA	3/Unl/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P



# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Inc. warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number I and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not sold by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Vehicle models, brands and names depicted herein are the property of their respective owners, and are not in any way associated with Meritor, Inc., or its affiliates.



Meritor Heavy Vehicle Systems, LLC  
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Troy, Michigan 48084 USA

For more information:  
call Ontrac at 866-668-7221  
or visit [meritor.com](http://meritor.com)

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## **TILLER INFORMATION**





# Proposal Details Report

10/16/2019

**Customer:** Contra Costa County Fire  
Protection District  
**Representative** Wright, Ryan

**Bid Number:** 620

**Requirements Manager:**

**Job Number:**  
**Organization:** Golden State Fire Apparatus, Inc

**Description:** 107' Velocity Tiller (SIMILAR TO  
**Chassis:** Velocity Tractor Chassis (Tiller), (Big Block), 2010

**Body:** Aerial, Tiller, Alum Body

OptionCode	Type	Option	ProposalText
0766599		Boiler Plates, Tiller	<p>Golden State Fire Apparatus Inc. is pleased to submit a proposal to Contra Costa County Fire District for a <b>Pierce® Tractor-Drawn Aerial Ladder</b> per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.</p> <p>PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.</p> <p>Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.</p> <p>Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.</p> <p>In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment. Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.</p> <p><b>GENERAL DESIGN AND CONSTRUCTION</b></p> <p>To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.</p> <p><b>QUALITY AND WORKMANSHIP</b></p> <p>Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs and American Welding Society certified welding inspector in plant during working hours to monitor weld quality.</p> <p>Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal.</p> <p>In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.</p> <p>To demonstrate the quality of our products and services, a list of at least fifteen (15) fire departments/municipalities that have purchased vehicles for a second time is provided.</p> <p><b>DELIVERY</b></p> <p>The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.</p> <p><b>MANUAL AND SERVICE INFORMATION</b></p> <p>At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.</p> <p><b>SAFETY VIDEO</b></p> <p>At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.</p> <p><b>PERFORMANCE TESTS</b></p> <p>A road test will be conducted with the apparatus fully loaded and a continuous run of no less than</p>



ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

#### **SERVICE AND WARRANTY SUPPORT**

Pierce dealership support will be provided by Golden State Emergency Vehicle Service Inc. by operating in conjunction with a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within seventy five (75) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

#### **LIABILITY**

**The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.**

#### **INSURANCE PROVIDED BY BIDDER**

##### **COMMERCIAL GENERAL LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Personal and Advertising Injury \$1,000,000**

**General Aggregate \$2,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.**

##### **COMMERCIAL AUTOMOBILE LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:**

**Each Accident Combined Single Limit: \$1,000,000**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:**

**Aggregate: \$3,000,000**

**Each Occurrence: \$3,000,000**

**The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.**

**The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.**

**Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.**

**All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.**

**Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.**

#### **INSURANCE PROVIDED BY MANUFACTURER**

##### **PRODUCT LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:**

**Each Occurrence \$1,000,000**

**Products/Completed Operations Aggregate \$1,000,000**

**Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.**

##### **UMBRELLA/EXCESS LIABILITY INSURANCE**

**The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum**

limits of umbrella liability insurance:

Each Occurrence: \$25,000,000

Aggregate: \$25,000,000

The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.

0584456	Manufacture Location, Appleton, Wisconsin	Your apparatus will be manufactured in Appleton, Wisconsin.
0584452	RFP Location: Appleton, Wisconsin	
0588609	Vehicle Destination, US	
0018180	Single Source Compliance, Aerials	<b>SINGLE SOURCE MANUFACTURER</b> Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pump house (including the sheet metal enclosure, valve controls, piping and operators panel) body and aerial device will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.
0670275	Unit to be Similar in some Aspects, Excluding Pump Panel	<b>SPECIAL INSTRUCTIONS</b> The apparatus being proposed will be designed and built to match the 28750. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.
0610784	Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions	<b>NFPA 2016 STANDARDS</b> This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions. Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus. All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack. A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating. The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications. An official of the company will designate, in writing, who is qualified to witness and certify test results.
0533349	Aerial Fire Apparatus	
0588613	Vehicle Certification, Aerial w/o Pump	

0681279		Agency, Apparatus Certification, Aerial w/o Pump, U.L.	<p><b>NFPA COMPLIANCY</b> Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".</p> <p><b>VEHICLE INSPECTION PROGRAM CERTIFICATION</b> To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus. A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.</p> <p><b>INSPECTION CERTIFICATE</b> A third party inspection certificate for the aerial device will be furnished upon delivery of the aerial device. The certificate will be Underwriters Laboratories Inc. Type 1 and will indicate that the aerial device has been inspected on the production line and after final assembly. Visual structural inspections will be performed on all welds on both aluminum and steel ladders. On critical weld areas, or on any suspected defective area, the following tests will be conducted: - Magnetic particle inspection will be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets will be placed on each side of the weld while iron powder is placed on the weld itself. The powder will detect any crack that may exist. This test will conform to ASTM E709 and be performed prior to assembly of the aerial device. - A liquid penetrant test will be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test will conform to ASTM E165 and be performed prior to assembly of the aerial device. - Ultrasonic inspection will be conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components. In addition to the tests above, functional tests, load tests, and stability tests will be performed on all aerials. These tests will determine any unusual deflection, noise, vibration, or instability characteristics of the unit.</p> <p><b>GENERATOR TEST</b> If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.</p> <p><b>BREATHING AIR TEST</b> If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, <i>Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection</i>.</p>
0000000	STF	GSFA, Midpoint, ATW Factory, Major Airport, 3 Days and 2 nights	<p><b>MIDPOINT, FACTORY TRIP</b> A midpoint inspection trip to the manufacturing facility will be provided for six (6) Customer representative(s). The intent of this trip is to monitor the progress of construction. The midpoint inspection trip will have a duration of three (3) days and two (2) nights and be scheduled at times mutually agreed upon between Golden State Fire Apparatus (GSFA) and the Customer. Costs for airfare, lodging, meals and ground transportation while at the manufacturers location will be the responsibility of GSFA. Air travel will be from one of the following airports: Sacramento, San Francisco or San Jose. Costs such as Customer ground transportation in California, Customer airport parking, Customer luggage fees and Customer incidentals while traveling to the factory will be the responsibility of the Customer. Flight reservations are non-refundable and in the event of a cancellation after booking, the Customer will be responsible for all costs associated with this cancellation, which may include not only the original ticket cost but also any change or cancellation fees imposed by the airline and/ or travel agency. Flight reservations are also non-transferable.</p>
0000000	STF	GSFA, Final Insp, ATW Factory, Premium Airport, 4 Days and 3 nights	<p><b>FINAL INSPECTION FACTORY TRIP</b> A final inspection trip to the manufacturing facility will be provided for seven (7) Customer representative(s). The intent of this trip is to ensure that the apparatus is built to specification and to detect any deficiencies that require correction. The final inspection trip will have a duration of four (4) days and three (3) nights and be scheduled at times mutually agreed upon between Golden State Fire Apparatus (GSFA) and the Customer. Costs for airfare, lodging, meals and ground transportation while at the manufacturers location will be the responsibility of GSFA. Air travel will be from one of the following airports: Oakland, Redding, Eureka, Fresno or Reno. Costs such as Customer ground transportation in California, Customer airport parking, Customer luggage fees and Customer incidentals while traveling to the factory will be the responsibility of the Customer. Flight reservations are non-refundable and in the event of a cancellation after booking, the Customer will be responsible for all costs associated with this cancellation, which may include not only the original ticket cost but also any change or cancellation fees imposed by the airline and/ or travel agency. Flight reservations are also non-transferable.</p>
0645881	SP	Drawing, Display Shelves/Trays/Etc for Transverse Compartment	<p>A door open view on the AD drawing will be provided of the LS5/RS6, we also want to LS4/RS5&lt; LS2 and RS3 to be shown on the drawing with the amount of detail in those compartments compartment along with all the drawers, shelves, trays, partitions, and misc. equipment that is provided in the compartment.</p>
0093797		PENALTY CLAUSE IN CONTRACT	

0799172	FLEET CUSTOMER	
0536644	Customer Service Website	<p><b>AFTERMARKET SUPPORT WEBSITE</b></p> <p>Pierceparts.com will provide <u>Pierce authorized dealer</u> access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool will provide the Pierce authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.</p> <p>Pierceparts.com is also accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized Pierce dealer for additional support and service.</p> <p>The website will consist of the following screens at the dealer level:</p> <p><b>My Fleet Screen</b></p> <p>The My Fleet screen will provide access to truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.</p> <p><b>Parts Screens</b></p> <p>The Parts screens will provide parts look-up capability of Pierce Manufacturing sourced items, with the aid of digital photographs, part drawings and assembly drawings. The parts search application will permit the searching of parts by item description or function group (major system category). The parts application will provide the ability to submit electronically a parts order, parts quote, or parts return request directly to Pierce Manufacturing for processing.</p> <p><b>Warranty Screen</b></p> <p>The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement.</p> <p><b>My Reports Screens</b></p> <p>The My Reports screens will provide access to multiple dealer reports to allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.</p> <p><b>Technical Support Screens</b></p> <p>The Technical Support screens will provide access to all currently published Operation and Maintenance and Service Publications. Access to Pierce Manufacturing Service Bulletins and Work Instructions, containing information on current service topics and recommendations will be provided.</p> <p><b>Training</b></p> <p>The Training screens will provide access to upcoming training classes offered by Pierce Manufacturing along with interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components will be provided. Access to training manuals used in Pierce Manufacturing training classes will be provided.</p> <p><b>About Pierce</b></p> <p>Access to customer service articles, corporate news, quarterly newsletters, and key contacts within the Customer Service Department will be provided. The current Customer Service Policy and Procedure Manual, detailing the operation of the Customer Service group will also be accessible.</p>
0620362	Consortium, HGAC	
0535579	Not Required, Unit of Measure, (no pump, no tank)	
0030006	Bid Bond Not Requested	<p><b>BID BOND NOT REQUESTED</b></p> <p>A bid bond will not be included. If requested, the following will apply:</p> <p>All bidders will provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.</p> <p>Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.</p>

0582800	Performance Bond, 100 Percent w/25 Percent Warranty Bond, 1 Yr, and Payment Bond	<b>PERFORMANCE BOND, 1 YEAR</b> The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required. Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Basic One (1) Year Limited Warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed one (1) year from the date of such satisfactory acceptance and delivery, or the actual Basic One (1) Year Limited Warranty period, whichever is shorter.
0000007	Approval Drawing	<b>APPROVAL DRAWING</b> A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc. A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.
0672031	Drawing, Cab, Top View, Seating and EMS Cabinets, Reference Only	<b>DRAWING, CAB TOP VIEW</b> On the sales drawing a top view of the cab seating and EMS cabinets will be provided. The top view will be a reference only of the seating and EMS cabinets in the order.
0002928	Electrical Diagrams	<b>ELECTRICAL WIRING DIAGRAMS</b> Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.
0564218	Velocity Tractor Chassis (Tiller), (Big Block), 2010	<b>VELOCITY CHASSIS</b> The Pierce Velocity® chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility, eliminating any split responsibility. The chassis will be designed and manufactured for heavy duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.
0021007	Maximum Overall Height	<b>MAXIMUM OVERALL HEIGHT</b> The maximum overall height of the apparatus will be 134.00" (11'-2.00").
0021010	Maximum Overall Length	<b>MAXIMUM OVERALL LENGTH</b> The maximum overall length of the apparatus will be 695.75" (57' - 11.75") NEW.
0523786	Angle of Approach	<b>ANGLE OF APPROACH</b> The angle of approach will be 14 degrees. This will be effective with the truck in a unloaded state.
0523787	Angle of Departure	<b>ANGLE OF DEPARTURE</b> The angle of departure will be 13.50 degrees. This will be effective with the truck in a unloaded state.
0000110	Wheelbase	<b>WHEELBASE</b> The wheelbase of the vehicle will be 153.00".
0000070	GVW Rating	<b>GVW RATING</b> The gross vehicle weight rating will be 75,300 pounds.
0000203	Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel/DCF	<b>FRAME</b> The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.
0020018	Frame Liner Not Req'd	

0542905	Axle, Front, Meritor FL-943, 21,500#, w/assist	<b>FRONT AXLE</b> The front axle will be a reverse "I" beam type with inclined king pins. It will be a Meritor™ axle, Model FL-943, with a rated capacity of 21,500 lb. The turning angle will be 39 degrees to the right and 45 degrees to the left. A viewing window will be provided on each side of the axle for checking the oil level. <b>STEERING CRAMP ANGLE CERTIFICATION</b> The fire apparatus manufacturer will provide, at time of bid, a letter from an independent third party testing agency stating they approve the steering cramp angle. Highly specialized options may limit the cramp.
0199681	Suspension, Front, Standens, Taper Leaf, 21,500 lb, Imp/Vel/Enf	<b>FRONT SUSPENSION</b> The front springs will be a Standens, three (3)-leaf, taper leaf design, 54.00" long x 4.00" wide, with a ground rating of 21,500 lb. The two (2) top leaves will wrap the forward spring hanger pin. The top leaf will also wrap the rear spring hanger pin. Both the front and rear eyes will be Berlin style wraps that will place the eyes in the horizontal plane within the main leaf. This will reduce bending stress from acceleration and braking. A steel encased rubber bushing will be used in the spring eye. The steel encased rubber bushing will be maintenance free and require no lubrication.
0000319	Shock Absorbers on Front Axle, Qtm/AXT/Imp/Vel	<b>SHOCK ABSORBERS</b> To provide a smoother ride, the front axle will be furnished with Monroe® Gas-Magnum® 65 heavy-duty telescoping shock absorbers.
0000322	Oil Seals, Front Axle	<b>FRONT OIL SEALS</b> Oil seals with viewing window will be provided on the front axle.
0594821	Tires, Front, Goodyear, G296 MSA, 425/65R22.50, 20 ply	<b>FRONT TIRES</b> Front tires will be Goodyear® 425/65R22.50 radials, 20 ply G296 MSA tread, rated for 22,800 lb maximum axle load and 68 mph maximum speed.
0019611	Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot	The tires will be mounted on Alcoa 22.50" x 12.25" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.
0530467	Axle, Rear, Meritor RS30-185, 31,000 lb, Imp/Vel/Dash CF	<b>REAR AXLE</b> The rear axle will be a Meritor™, Model RS-30-185, with a capacity of 31,000 lb.
0602744	Top Speed of Vehicle, Non-NFPA 2016 Compliant	<b>TOP SPEED OF VEHICLE</b> NFPA 1901, 2016 edition requires limits on the top speed of vehicles. NFPA 4.15.2 requires that the maximum top speed of fire apparatus with a GVWR over 26,000 lb will not exceed either 68 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. NFPA 4.15.3 requires that if the combined water tank and foam agent tank on the fire apparatus exceed 1250 gallons or the GVWR of the vehicle is over 50,000 lb, the maximum top speed of the apparatus will not exceed either 60 mph or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower. It is the intention of the standard to improve safety by limiting the speed of all apparatus to 68 mph, and tankers or heavy apparatus to 60 mph. By requesting an exception to this requirement, the purchasing authority is consciously choosing to operate their apparatus at speeds above the limits designated as safe speeds by the NFPA Technical Committee on Fire Department Apparatus. The top speed of the apparatus as manufactured exceeds the NFPA requirements. Per fire department specification of a top speed that exceeds NFPA requirements, the apparatus will be non-compliant to NFPA 1901 standards at time of contract execution. A rear axle ratio will be furnished to allow the vehicle to reach an approximate top speed of 65 MPH.
0555352	Suspen, Rear, Hendrickson FMX 312 EX, Air Ride, 31,000 lb	<b>REAR SUSPENSION</b> Rear suspension will be a Hendrickson FMX 312 EX, air ride with a ground rating of 31,000 lb. The suspension will have the following features: - Heavy-duty shock absorbers to protect air springs from overextension - Heavy-duty torque rods and bushings - Premium, heavy-duty rubber bushings require no lubrication - Integrated stabilizer design results in greater stability - Low spring rate air springs for excellent ride quality - Dual height control valves to maintain level vehicle from side to side
0000485	Oil Seals, Rear Axle	<b>REAR OIL SEALS</b> Oil seals will be provided on the rear axle(s).

0000482		Driver Controlled Differential Lock, Single Axle	<b>DRIVER CONTROL DIFFERENTIAL LOCK (DCDL)</b> A rear axle will be equipped with a driver controlled differential lock (DCDL). The control will be located within easy reach of the driver. An indicator light will be provided next to the control switch.
0539392		Plug, Rear Axle Drain, Magnetic	<b>REAR AXLE DRAIN PLUG</b> The rear axle drain plug will be magnetic.
0582088		Tires, Rear, Goodyear, G291, 315/80R22.50, 20 ply, Single	<b>REAR TIRES</b> Rear tires will be four (4) Goodyear 315/80R22.50 radials, 20 ply G291, rated for 33,080 lb maximum axle load and 68 mph maximum speed.
0019668		Wheels, Rear, Alcoa, 22.50" x 9.00", Aluminum, Hub Pilot, Single	The tires will be mounted on Alcoa® 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.
0568081		Tire Balancing, Counteract Beads	<b>TIRE BALANCE</b> All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.
0602747		No Tire Pressure Indicator, Fire Department Omits, Non-NFPA 2016 Compliant	<b>TIRE PRESSURE INDICATOR</b> NFPA 1901, 2016 edition, section 4.13.4 requires each tire be equipped with a visual indicator or monitoring system that indicates tire pressure. Per Fire Department specification, a tire pressure indicator is not on the apparatus as manufactured. This apparatus will be non-compliant to NFPA 1901 standards effective at time of contract execution.
0003245		Axle Hub Covers w/center hole, S/S, Front Axle	<b>FRONT HUB COVERS</b> Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.
0003246		Axle Hub Covers w/center hole, S/S, Tiller Axle	<b>HUB COVERS (Tiller Axle)</b> Stainless steel hub covers will be provided on the tiller trailer axle. An oil level viewing window will be provided.
0001960		Axle Hub Covers, Rear, S/S, High Hat (Pair)	<b>REAR HUB COVERS</b> A pair of stainless steel high hat hub covers will be provided on rear axle hubs.
0052332		Covers, Lug Nut, Stainless Steel	<b>LUG NUT COVERS</b> Stainless steel lug nut covers will be installed on all lug nuts.
0602141	SP	Extender, Valve Stem, 180 Degree, Single Axle, Pair, Tiller Tractor	<b>EXTENDER, VALVE STEM</b> A pair of 180 degree valve stem extenders will be installed on the valve stems of the tractor's rear outside tires. The extender will allow the tire pressure monitor cap to face the outside.
0002045		Mud Flaps, w/logo front & rear	<b>MUD FLAPS</b> Mud flaps with a Pierce logo will be installed behind the front and rear wheels.
0020257		Mud flaps, w/Logo, Tiller Trailer	<b>MUD FLAPS</b> Mud flaps will be installed behind the tiller trailer wheels of the apparatus.
0031931		Valve, Extension Stabilizer System, Rear Duals	<b>STABILIZER SYSTEM (Rear Valve Stems)</b> A valve stem stabilizer system will be provided on the rear duals.
0646362		Chocks, Wheel, Worden HWGY- SB, Super Gripper	<b>WHEEL CHOCKS</b> There will be two (2) pairs of Worden Safety Products, Model HWGY-SB, wheel chocks provided. Heavy Duty, large molded aluminum wheel chock with solid bottom, yellow powder coat finish.

0602326	SP Mounting, Chocks, Treadplate Pocket, Open Top, Fender Panel, Tiller, Together	<b>WHEEL CHOCK STORAGE</b> The wheel chocks will be stored in an open top storage box. The storage box will be fabricated from bright aluminum treadplate. The storage box will be located to the rear of the tractor drive axle on the fender panel. One (1) storage box will be provided one (1) pair on the LS and one (1) pair on the RS, both chocks in 1 box. The wheel chocks will drop in from the top and be held in place with a retaining strap. A rubber matting will be provided to help reduce movement and noise. Drain holes will be provided.
0020670	ABS Wabco Brake System, Single Axle, Tiller	<b>ANTI-LOCK BRAKE SYSTEM</b> The vehicle will be equipped with a Wabco tractor 4S4M and tiller tractor 2S2M anti-lock braking system. The chassis ABS will provide four (4) channel anti-lock braking control on the front and rear axle. The trailer ABS will provide two (2) channel anti-lock braking control on the tiller axle. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control. A tiller trailer ABS fault lamp will be provided in the tiller cab and the chassis cab. Two (2) connectors are provided to read the diagnostics for each ABS system. The two (2) diagnostic systems communicate on different protocols requiring different diagnostics - SAEJ1587 versus J1939.
0508676	Brakes, Meritor, EX225, 17", Disc Plus, Front	<b>BRAKES</b> The service brake system will be full air type by Meritor™. Front brakes will be Model EX225 Disc Plus, disc type with automatic pad wear adjustment and 17.00" ventilated rotors for improved stopping distance.
0000740	Brakes, Meritor, Cam, Rear, 16.50 x 8.63"	The rear brakes will be Meritor™ 16.50" x 8.63" cam operated with automatic slack adjusters. Dust shields cannot be provided.
0020784	Air Compressor, Brake, Cummins/Wabco 18.7 CFM	<b>BRAKE SYSTEM AIR COMPRESSOR</b> The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.
0000786	Brake Reservoirs, Four	<b>BRAKE SYSTEM</b> The brake system will include: Bendix® dual brake treadle valve Heated automatic moisture ejector on air dryer Total air system capacity of 5,198 cubic inches Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi Spring set parking brake system Parking brake operated by a push-pull style control valve A parking "brake on" indicator light on instrument panel Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa) 1/4 turn drain valve on each air tank The air tank will be primed and painted to meet a minimum 750 hour salt spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.
0587033	Air Dryer, Brake, AD-9 w/heat, 2010	- Bendix AD-9 air dryer, with heater and coalescing filter
0000790	Brake Lines, Nylon	<b>BRAKE LINES</b> Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.
0020851	Not Required, Air Inlet	
0643363	Outlet, Air, with Shut Off Valve, Location	<b>AIR OUTLET</b> Two (2) air outlets will be installed with a female coupling located one (1) below compartment LS3 and one (1) below compartment RS4 (specific locations to be determined at pre-construction). This system will tie into the "wet" tank of the brake system, include an 85 psi pressure protection valve in the outlet line to prevent the brake system from losing all air, and include a quarter turn shut off valve mounted at the tank. The valve and hoses will be mounted to the tank as high as possible to ensure maximum clearance and protect the lines from being damaged by brush and rocks during off-road operations.



0614491	SP	Outlet, Air, with shut off valve Recessed, Location Feature	<b>AIR OUTLET</b> Two (2) air outlets will be installed with a female coupling and shut off valve, located recessed in the driver side and passenger side lower step well of cab . This system will tie into the "wet" tank of the brake system and include an 85 psi pressure protection valve in the outlet line to prevent the brake system from losing all air. A mating male fitting will be provided with the loose equipment.
0070810		All Wheel Lockup (Aerial/Tanker Chassis)	<b>ALL WHEEL LOCK-UP</b> An additional all wheel lock-up system will be installed which applies air to the front brakes only. The standard spring brake control valve system will be used for the rear.
0797636	SP	Air Tanks, Special Location, Tiller	<b>AIR TANK, SPECIAL LOCATION</b> Due to space constraints, four (4) air tanks will be located mounted vertically next to the steering reservoir (leaving transverse area of reservoir compartment open) per job 32966.
0589828	SP	Air Tanks, Mount High, Maximize Ground Clearance	<b>AIR TANK MOUNTING</b> Air tanks will be installed to maximize ground clearance. Smaller tanks may be required to allow for them to be mounted higher for increased ground clearance.
0642617		Air Line, S/S Braid, Air Governor To Air Dryer	<b>AIR LINE</b> The air line from the air compressor governor to the air dryer will be stainless steel braid.
0795318		Engine, Cummins X15, 600 hp, 1850 lb-ft, W/OBD, EPA 2017, Velocity	<b>ENGINE</b> The chassis will be powered by an electronically controlled engine as described below: Make: Cummins® Model: X15 Power: 600 hp at 1800 rpm Torque: 1850 lb-ft at 1200 rpm Governed Speed: 2100 rpm Emissions Level: EPA 2017 Fuel: Diesel Cylinders: Six (6) Displacement: 912 cubic inches (14.9L) Starter: Delco 39MT+™ Fuel Filters: Frame mounted spin-on style primary filter with water separator and water-in-fuel sensor The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.
0001244		High Idle w/Electronic Engine, Custom	<b>HIGH IDLE</b> A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation. The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."
0687994		Engine Brake, Jacobs Compression Brake, Cummins Engine	<b>ENGINE BRAKE</b> A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver. The driver will be able to turn the engine brake system on/off and have a high, medium and low setting. The engine brake will activate when the system is on and the throttle is released. The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine. The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated. The ABS system will automatically disengage the auxiliary braking device, when required.

0552334	Clutch, Fan, Air Actuated, Horton Drive Master	<b>CLUTCH FAN</b> A Horton® fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.
0636640	Filters, Remote Mounted, Oil, Fuel, ISX12/ISX15, VEL/AXT	<b>REMOTE MOUNTED ENGINE FILTERS</b> The engine fuel and oil filters will be remote mounted for ease of maintenance.
0123135	Air Intake, w/Ember separator, Imp/Vel	<b>ENGINE AIR INTAKE</b> An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) will be mounted at the front of the apparatus, on the passenger side of the engine. The ember separator will be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It will be easily accessible by the hinged access panel at the front of the vehicle.
0794743	Exhaust System, 5", X12/X15 Engine, Horizontal, Right Side	<b>EXHAUST SYSTEM</b> The exhaust system will include a Single Module™ aftertreatment device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the aftertreatment device, and will be 5.00" in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.
0683310	Diffuser, Exhaust, Modified For Extraction, 5"x7"x5", Flush With Rub Rail, CARE	<b>EXHAUST MODIFICATION</b> The exhaust pipe will be 90 degrees to the body. The diffuser will be reduced to 5.00" in the center to accommodate the fire department's air recovery system. The 5.00" extension pipe coming out of the end of the diffuser will be flush with the body rub rail. There will be a minimum of 4.00" clearance between the top of the 5.00" extension and the bottom of the body. There will be a minimum of 2.50" from the exhaust pipe to the under side of the body heat shield. The last 7.00" of the exhaust will be free of hangers and/or clamps.
0787999	Radiator, Impel/Velocity	<b>RADIATOR</b> The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards. For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The core will be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes will be brazed to aluminum headers. The radiator core will have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator will be compatible with commercial antifreeze solutions. There will be a full steel frame around the entire radiator core assembly. The radiator core assembly will be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator will be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly will be isolated from the chassis frame rails with rubber isolators. The radiator assembly will include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap. A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system. A heavy-duty fan will draw in fresh, cool air through the radiator. Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.
0616439	Cooling Hoses, Gates Silicone	<b>COOLANT LINES</b> Gates® silicone hoses will be used for all engine/heater coolant lines installed by the chassis manufacturer. The chassis manufacturer will also use Gates brand hose on other heater, defroster and auxiliary coolant circuits. There will be some areas in which an appropriate Gates product is not available. In those instances, a comparable silicone hose from another manufacturer will be used. Hose clamps will be stainless steel "constant torque type" to prevent coolant leakage. They will react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

0041669		Fuel Tank, 50 Gallon, Dual Fills	<p><b>FUEL TANK</b></p> <p>A 50 gallon fuel tank will be provided and mounted at rear of chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps. A .75" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be located on the left hand and right hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only". A .50" diameter vent will be provided running from top of tank to just below fuel fill inlets. The tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume. Servicing the fuel tank pick-up tubes and fuel gauge sending unit will be capable of being accomplished by draining fuel and dropping tank.</p>
0001129		Lines, Fuel	<p>All fuel lines will be provided as recommended by the engine manufacturer.</p>
0763582		DEF Tank, 4.5 Gallon, DS Fill, Forward of Rear Axle, Tiller	<p><b>DIESEL EXHAUST FLUID TANK</b></p> <p>A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body forward of the rear axle. A 0.50" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be located on the driver's side of the body and be covered with a hinged polished stainless steel door that is marked "Diesel Exhaust Fluid Only". The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing. The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.</p>
0552862		Fuel Pump for Repriming, Special Switch Location	<p><b>AUXILIARY FUEL PUMP</b></p> <p>An auxiliary electric fuel pump will be added to the fuel line for re priming the engine. A switch to operate the pump will be located in the engine compartment, on the dip stick bracket and accessible through access door - add a half moon protective guard for this switch. The switch shall be properly labeled.</p>
0582243		Shutoff Valves, Fuel Line @ Primary Filter, Cummins	<p><b>FUEL SHUTOFF</b></p> <p>A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.</p>
0553019		Cooler, Engine Fuel, Imp/Vel, AXT/Qtm/Sab/DCF/SFR/Enf	<p><b>FUEL COOLER</b></p> <p>An air to fuel cooler will be installed in the engine fuel return line.</p>
0627382	SP	Label, "Ultra Low Sulfur Diesel Fuel Only", Mounted On Inside Of Door Only, Qty	<p><b>FUEL DOOR LABEL</b></p> <p>two (2) fuel fill label(s), "Ultra Low Sulfur Diesel Fuel Only" will be provided on the inside of the fuel fill door.</p>
0604578	SP	Label, "DEF Fluid Only", Mounted Next to Fill Cap	<p><b>LABEL, DEF DOOR</b></p> <p>A label, reading "DEF Fluid Only" will be provided next to the fill cap on the inside of the door.</p>
0567427		Fuel Lines, Extended, PAL/Tiller	<p><b>FUEL LINES</b></p> <p>The fuel lines for the fuel tank will be approximately 4' longer than standard. This will allow the lines to be coiled above the fuel tank and aid in an easier removal of the fuel tank if necessary.</p>
0783194	SP	Fuel/Water Separator, Racor FG1000 Inline, 10 Micron Element, LA City	<p><b>FUEL FILTER/WATER SEPARATOR</b></p> <p>The engine will be equipped with a Racor, model FG1000 in-line fuel filter/water separator in addition to the engine fuel filters. The filter will include a ten (10) micron filter element. The filter will be installed near the inlet on the water pump (SEE PHOTOS).</p>
0642533		Trans, Allison 5th Gen, 4500 EVS P, w/Prognostics, Imp/Vel/DCF/Enf	<p><b>TRANSMISSION</b></p> <p>An Allison 5th generation, Model EVS 4500P, electronic, torque converting, automatic transmission will be provided. The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due. Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock). A transmission temperature gauge with red light and buzzer will be installed on the cab instrument panel.</p>
0693570		Transmission, Shifter, 6-Spd, Push Button, 4500 EVS, AXT, Qtm, Dash CF	<p><b>TRANSMISSION SHIFTER</b></p> <p>A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation. The transmission ratio will be 1st - 4.70 to 1.00, 2nd - 2.21 to 1.00, 3rd - 1.53 to 1.00, 4th - 1.00 to 1.00, 5th - 0.76 to 1.00, 6th - 0.67 to 1.00, R - 5.55 to 1.00.</p>

0684459	Transmission Oil Cooler, Modine, External	<b>TRANSMISSION COOLER</b> A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.
0522824	Mode, Downshift, Aggressive downshift to 3rd, w/engine brake, 6 speed	<b>DOWNSHIFT MODE (w/engine brake)</b> The transmission will be provided with an aggressive downshift mode. This will provide earlier transmission downshifts to 3rd gear from 6th gear, resulting in improved engine braking performance.
0565656	Fluid, 4000/4500 Series Transmission, TranSynd synthetic, IPOS, Custom	<b>TRANSMISSION FLUID</b> The transmission will be provided with TranSynd heavy duty synthetic transmission fluid.
0001375	Driveline, Spicer 1810	<b>DRIVELINE</b> Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints. The shafts will be dynamically balanced before installation. A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.
0669989	Steering, Ross TAS-85 w/tilt, Eaton Pump, w/ Cooler	<b>STEERING</b> A Ross, Model TAS-85, steering gear, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and an Eaton, Model VN20, hydraulic pump with integral pressure and flow control. All power steering lines will have wire braided lines with crimped fittings. A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.
0001545	Steering Assist Cylinder on Front Axle	<b>STEERING ASSIST CYLINDER ON FRONT AXLE</b> To aid in the steering of the apparatus, the front axle will be equipped with a Ross power assist cylinder.
0509230	Steering Wheel, 4 Spoke without Controls	<b>STEERING WHEEL</b> The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.
0690274	Logo/Emblem, on Dash	<b>LOGO AND CUSTOMER DESIGNATION ON DASH</b> The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row. The first row of text will be: CONTRA The second row of text will be: COSTA The third row of text will be: FIRE-RESCUE
0513728	Tag/Label, On Chassis, In Cab	<b>TAG/LABEL</b> The following three (3) tags or labels will be provided on keyrings, near the fill point of the following: Engine oil, Transmission fluid, Power Steering on the chassis or cab. The tag/label will be configured and read Fluid specification : Type and weight of fluid.
0654471	Cover, Rubber, Driveshaft Grease, DS Frameraill	<b>GUARD, WIRES IN FRAME RAIL</b> A rubber flap guard will be provided to protect the wires and relays around the u-joints of the driveshaft from grease build-up on the driver's side of the frame.
0791425	SP Hitch, Receiver, Front, (2) Tubes, Thru Bumper Face, Custom Chassis	<b>HITCH RECEIVERS</b> Two (2) hitch receivers will be provided at the front of the vehicle. Both receivers will be located inboard of the frame extension, one (1) each side, through the bumper face. The hitch receivers will be designed for use with a portable winch, maximum straight pull rating of 10,000 pounds.

0633464	Bumper, Non-Extended, Steel, Painted, Imp/Vel	<p><b>BUMPER</b></p> <p>A one (1) piece bumper manufactured from .25" formed steel with a .38" bend radius will be provided. The bumper will be a minimum of 10.00" high with a 1.50" top and bottom flange. The bumper will be 95.28" wide with 45 degree corners. The bumper will be metal finished and painted job color. To provide adequate support strength, the bumper will be mounted directly to the front of the C channel frame. The frame will be a bolted modular extension frame constructed of 50,000 psi tensile steel.</p> <p><b>GRAVEL PAN</b></p> <p>A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and the cab face. The pan will be properly supported from the underside to prevent flexing and vibration.</p> <p>Documentation will be provided, upon request, to show that the options selected have been engineered for fit-up and approval for this modular bumper extension. A chart will be provided to indicate the option locations and will include but not be limited to the following options: air horns, mechanical sirens, speakers, hose trays (with hose capacities), winches, lights, discharge and suction connections.</p>
0510226	Lift & Tow Package, Imp/Vel, AXT, Dash CF	<p><b>LIFT AND TOW MOUNTS</b></p> <p>Mounted to the frame extension will be lift and tow mounts. The lift and tow mounts will be designed and positioned to adapt to certain tow truck lift systems.</p> <p>The lift and tow mounts with eyes will be painted the same color as the frame.</p>
0522573	Tow Hooks Not Required, Due to Lift and Tow Package	<p><b>TOW HOOKS</b></p> <p>No tow hooks are to be provided. This truck will be equipped with a lift and tow package with integral tow eyes.</p>
0613843	SP Mounting Holes, For License Plate, Frt Bumper	<p><b>LICENSE PLATE (Mounting Holes)</b></p> <p>Four (4) mounting holes will be provided passenger's side of the front bumper for the customer to mount a license plate.</p>
0660435	Coating, Top Flange, Front Bumper, Outside Exterior, Rhino Lining, Black	<p><b>RHINO COATING - FRONT BUMPER</b></p> <p>Protective black Rhino Linings® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange.</p> <p>The lining will be properly installed by an authorized Rhino Linings® dealer.</p>

**CAB**

The Velocity cab will be designed specifically for the fire service and will be manufactured by Pierce Manufacturing.

To provide quality at the source and single source customer support, the cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be of heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from 0.25" heavy wall extrusions. The rear wall will be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support will be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.

The cab floors will be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area will also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.

The cab will be a full-tilt style. A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The overall height (from the cab roof to the ground) will be approximately 102.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The cab will have an interior width of not less than 93.50". The driver and passenger seating positions will have a minimum 24.00" clear width at knee level.

To reduce injuries to occupants in the seated positions, proper head clearance will be provided. The floor-to-ceiling height inside the forward cab will be no less than 60.25". The floor-to-ceiling height inside the crew cab will be no less than 52.95" in the center position and 58.75" in the outboard positions.

The crew cab will measure a minimum of 47.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.

**INTERIOR CAB INSULATION**

The cab walls, ceiling and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.

**FENDER LINERS**

Full-circular, aluminum inner fender liners in the wheel wells will be provided.

**PANORAMIC WINDSHIELD**

A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area will be provided. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

**WINDSHIELD WIPERS**

Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, will be provided. The wiper blades will be 21.65" long and together will clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather. The windshield washer fluid reservoir will be located at the front of the vehicle and be accessible through the access hood for simple maintenance.

**FAST SERVICE ACCESS FRONT TILT HOOD**

A full-width access hood will be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood will also provide complete access to the windshield wiper motor and components. The hood will be contoured to provide a sleek, automotive appearance. The hood will be constructed of two (2) fiberglass panels bonded together and will include reinforcing ribs for structural integrity. The hood will include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that will meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch will be located at the center of the hood with a double-action release lever located behind the Pierce logo. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).

0667982		Engine Tunnel, ISX, Impel/Veloc FR	<p><b>ENGINE TUNNEL</b></p> <p>To provide structural strength, the engine tunnel sidewalls will be constructed of .50" aluminum plate that is welded to both the .25" firewall and .38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges will be tapered.</p> <p>The engine tunnel will be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel will be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The insulation will keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.</p>
0677478		Rear Wall, Exterior, Cab, Aluminum Treadplate	<p><b>CAB REAR WALL EXTERIOR COVERING</b></p> <p>The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p>
0122466		Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel	<p><b>CAB LIFT</b></p> <p>A hydraulic cab lift system will be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump will have a backup manual override, for use in the event of an electrical failure.</p> <p>The cab lift controls will be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls will include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch will be supplied on a coiled cord that will extend from 2.00' (coiled) to 6.00' (extended).</p> <p>The cab will be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots will be located 46.00" apart to provide stability while tilting the cab.</p> <p>The rear of the cab will be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.</p> <p>For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.</p> <p><b>Cab Lift Interlock</b></p> <p>The cab lift safety system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.</p>
0691738	SP	Indicator, Cab Not Engaged Into Lockdown Latches, Tied to Do Not Move Truck Lt	<p><b>LOCKDOWN INDICATOR</b></p> <p>The "Do Not Move Truck" light and alarm will activate when the cab is not fully engaged into the lockdown latches.</p>
0550343		Special Circuit, Cab Tilt w/o Ignition Switch	<p><b>CAB TILT CIRCUIT</b></p> <p>The cab tilt mechanism will be operational with the battery switch on and with parking brake set.</p>
0123176		Grille, Bright Finished, Front of Cab, Impel/Veloc	<p><b>GRILLE</b></p> <p>A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, will be provided on the front center of the cab, and will serve as an air intake to the radiator.</p>
0745806	SP	Scuffplate, S/S, Right Side, Lift Up/Drp Dwn Cabinet Door(s), Each	<p><b>DOOR FRAME SCUFFPLATE</b></p> <p>There will be two (2) brushed stainless steel scuffplate(s) provided for the right side of the door frame located LS7 and RS7. Each scuffplate will be stainless steel with a .38" lip down.</p>
0745807	SP	Scuffplate, S/S, Left Side, Lift Up/Drp Dwn Cabinet Door(s), Each	<p><b>DOOR FRAME SCUFFPLATE</b></p> <p>There will be two (2) brushed stainless steel scuffplate(s) provided for the left side of the door frame located LS7 and RS7. Each scuffplate will be stainless steel with a .38" lip down.</p>
0002224		Scuffplates, S/S At Cab Door Jambs, 4-Door Cab	<p><b>DOOR JAMB SCUFFPLATES</b></p> <p>All cab door jambs will be furnished with a brushed stainless steel scuffplate, mounted on the striker side of the jamb.</p>
0529034		Scuffplates, S/S Corner Guard, Brushed, Rear Cab Corners	<p><b>SCUFFPLATES, REAR CAB CORNER GUARDS</b></p> <p>Both rear cab corners will be furnished with a full height, brushed stainless steel corner guard scuffplate. The guard will extend 1.00" from the corner to protect paint from damage when pulling items (such as booster hose) around the cab.</p>

0527032	Trim, S/S Band, Across Cab Face, Rect Lights, Velocity	<b>FRONT CAB TRIM</b> A band of 22 gauge brushed stainless steel trim will be installed across the front of the cab, from door hinge to door hinge. The trim band will be centered on the head lights and applied with two (2)-sided tape. A 0.625" self adhesive trim strip will be applied around the perimeter of the trim band. There will be brushed stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.
0015440	No Chrome Molding, On side of cab	
0569263	Mirrors, Retractable, West Coast Style, Remote, w/Remote Convex	<b>MIRRORS</b> A Retractable Aerodynamic, Model 613295, dual vision, motorized, west coast style mirror with chrome finish will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be adjustable with a remote control within reach of the driver.
0651313	Door, Half-Height, Velocity FR 4-Door Cab, Level Roof	<b>CAB DOORS</b> The forward cab and crew cab doors will be the half-height style door. To enhance entry and egress to the cab, the forward cab doors will be a minimum of 43.59" wide x 64.71" high. The crew cab doors will measure a minimum of 37.87" wide x 64.71" high. The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from 0.090" aluminum. The forward cab door windows will include a 7.50" high x 10.00" wide drop area at the front to enhance visibility. A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands. The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed. A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit. A chrome grab handle will be provided on the inside of each cab and crew cab door. A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted. The cab steps at each cab door location will be located below the cab doors and will be exposed to the exterior of the cab.
0655511	Door Panel, Brushed Stainless Steel, Impel/Velocity 4-Door Cab	<b>Door Panels</b> The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.
0671014	Face Plate/s, Blank, Overhead, Imp/Vel, Dash CF	<b>BLANK FACE PLATE</b> Blank face plate/s will be provided, in place of standard storage pockets, within the overhead console.
0643831	Controls, Electric Windows, All Cab Doors, Bat Sw, Impel/Velocity FR	<b>ELECTRIC WINDOW CONTROLS</b> Each cab entry door will be equipped with an electrically operated tempered glass window. A window control panel will be located on the door panel within easy reach of the respective occupant. Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second. The driver control panel will contain a control switch for each cab door's window. All other door control panels will contain a single switch to operate the window within that door. The window switches will be connected to the battery switch. The windows will only raise and lower when the battery switch is in the on position.
0555485	Steps, 4-Door Full Tilt Cab, Imp/Vel	<b>CAB STEPS</b> The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 31.00" wide, and the crew cab steps will be 24.25" wide with an 8.00" minimum depth. The inside cab steps will not exceed 18.00" in height and be limited to two (2) steps.



0770200	Handrail, Exterior, Hansen, Knurled, Alum, LED Backlit, 4-Door Cab	<b>CAB EXTERIOR HANDRAILS</b> A Hansen knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress. Each handrail will be provided with blue LED lights. The lights will be activated when the headlight switch is activated and the parking brake is applied. The LED lights may be load managed.
0509649	Lights, Cab and Crew Cab Access Steps, P25, LED w/Bezel, 1Lt Per Step	<b>STEP LIGHTS</b> For reduced overall maintenance costs compared to incandescent lighting, there will be four (4) white LED step lights provided. The lights will be installed at each cab and crew cab door, one (1) per step. The lights will be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light. The lights will be activated when the adjacent door is opened.
0002140	Fenders, S/S on Cab	<b>FENDER CROWNS</b> Stainless steel fender crowns will be installed at the cab wheel openings.
0032086	Tractor 5th Wheel and Fender Skirts, Single, Tiller, No Tire Chains	<b>FIFTH WHEEL</b> The fifth wheel will be designed to allow the tiller trailer to pivot fore & aft and be rotated. The fifth wheel will also be capable of full operation up to a 14 degree break over angle. A fifth wheel lockout system will be provided to limit motion during aerial operations. The fifth wheel lockout system, when activated, will prevent movement between the upper and lower plates of the fifth wheel assembly. In the normal road travel condition the cylinder mounted solenoid valves will be open and will allow transfer of oil between the front and rear pair of cylinders. When the stabilizers are in their proper supporting position and as the aerial leaves the boom support, the solenoid valves will close. The closed valves will allow no oil to be transferred and the fifth wheel assembly will become rigid. A fill and a gauge port will be provided on the top of the trailer goose neck for maintenance. <b>FENDER PANELS</b> The chassis behind the cab will be assembled with fender panels over the wheels, running boards and steps for access to the turntable and decking over the frame rails. The fender panels will be fabricated of .125"-5052 aluminum with a 38,000 psi tensile strength. Fender design will be provided for prevention of rust pockets and ease of maintenance. Stainless steel fender crowns will be provided around the rear wheel openings. A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion. The area over the frame rails between the cab and fifth wheel will be covered with aluminum treadplate to serve as a walkway area. The walkway area will be properly reinforced with a steel substructure attached to the frame rails. Running boards will be installed on each side directly behind the cab for access to the walkway area behind the cab and the turntable. The running boards will be covered with aluminum treadplate.
0673394	Handrail, Extra - 15-20" Long	<b>HANDRAILS (ADDITIONAL)</b> There will be two (2) handrail(s) provided rear surface of the DS and PS rear facing compartments. Handrail is 16" long, mounted 5.50" up off of defroster and on far outboard edge of compartment (SEE PHOTOS FOR DETAILS). The handrail will be an anodized aluminum extrusion with a ribbed design to provide a positive gripping surface.
0592071	No Windows, Side of Crew Cab, Vel/Imp	
0568605	Not Required, Interior Trim, No Cab Side Windows	
0509286	Not Required, Windows Rear of Crew Cab, Imp/Vel	
0558334	Not Required, Trim, Cab Rear Windows, No Rear Windows	
0786279	Window Tint, Crew Cab Door, Right Side, Privacy Dark Gray	<b>Window Tint</b> The rollup window in the right side crew cab door will be tinted privacy dark gray.
0786290	Window Tint, Crew Cab Door, Left Side, Privacy Dark Gray	<b>Window Tint</b> The rollup window in the left side crew cab door will be tinted privacy dark gray.

0745285	SP	Roof, Safe-Stride Coating, Gray	<b>CAB ROOF COVERING</b> The horizontal surface of the cab roof will be coated with gray Safe-Stride® material. The coating will extend from rear of the lightbar to the rear of the crew cab.
0123686		Drip Rail, Cab Roof, Impel/Velocity/Velocity SLT	<b>CAB ROOF DRIP RAIL</b> For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.
0199285		Visor, Exterior, Vel/Imp	<b>EXTERIOR VISOR</b> The exterior sun visor will be a painted composite to match the job color. The five (5) forward facing marker lights will be mounted to the visor.
0629017		Work Surface, 3/16" Alum, Full Engine Tunnel, Lower Rear, Rear Lip, Vel/Imp FR	<b>WORK SURFACE</b> There will be a work surface provided on the engine tunnel. The work surface will be cover the entire engine tunnel and will be constructed of .19" aluminum to allow the mounting of equipment. The work surface will be approximately 37.00" wide x 48.00" long, with a cutout for the driver side instrument panel. The work surface will start to the rear of the defroster inlet and continue horizontally to the flat portion at the rear of the engine tunnel. The work surface will drop to the lower flat portion of the engine tunnel and finish at the end of the engine tunnel. The lower portion of the work surface will be provided with a 3.00" lip. The work surface will be painted to match the cab interior.
0658289		Mounting Provisions, Computer, Tray, S/S, Straps, Slides, Sides	<b>COMPUTER MOUNTING</b> There will be one (1) computer installation provision(s) installed in the recess area in front of the officer. The enclosure will be constructed of stainless steel. The enclosure will be three (3) sided with two (2) straps over the top, connected to footman loops. The three (3) sides will hold the computer in place when a front or side force is applied. The straps will secure the computer in place. The slides will be mounted vertically and will lock in the in and out positions.
0748671		Cab Interior, Vinyl, Velocity FR, CARE	<b>CAB INTERIOR</b> With safety as the primary objective, the wrap-around style cab instrument panel will be designed with unobstructed visibility to instrumentation. The dash layout will provide the driver with a quick reference to gauges that allows more time to focus on the road. The center console will be a high impact ABS polymer and will be easily removable for access to the defroster. The center console will include louvers strategically located for optimal air flow and defrost capability to the windshield. The passenger side dashboard will be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash will include a flat working surface. To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console will also be provided. To complete the cab front interior design, painted aluminum modesty panels will be provided under the dash on both sides of the cab. The driver side modesty panel will provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners. To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall will be covered by a leather grain vinyl that is resistant to oil, grease, and mildew. The headliner will be installed in both forward and rear cab sections. The headliner panel will be a composition of an aluminum panel covered with a sound barrier and upholstery. The cab structure will include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways will be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor will be covered by aluminum extrusion, while the vertical and overhead raceways will be covered by painted aluminum covers. The raceways will improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses will be laid in place. <b>CAB INTERIOR UPHOLSTERY</b> The cab interior upholstery will be 36 oz dark silver gray vinyl. All cab interior materials will meet FMVSS 302 (flammability of interior materials).
0667943		Cab Interior, Paint Color, Impel/Velocity FR	<b>CAB INTERIOR PAINT</b> The following metal surfaces will be painted black, vinyl textured paint: Modesty panel in front of driver Vertical surface of dash in front of the officer (not applicable for recessed dash) Glove box in front of the officer (if applicable) Power distribution in front of the officer Rear heater vent panels The remaining cab interior metal surfaces will be painted fire smoke gray, vinyl texture paint.

0696871	Floor, Alum Cab & Rubber Crew Cab - AXT/Imp/Vel	<p><b>CAB FLOOR</b></p> <p>The driver and passenger cab flooring will be constructed with bright aluminum treadplate. The crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler. The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a .25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.</p>
0667936	Heater/defroster, Dual Zone Control, Impel/Velocit FR	<p><b>CAB DEFROSTER</b></p> <p>To provide maximum defrost and heating performance, a 54,961 BTU heater-defroster unit with 558 SCFM of air flow will be provided inside the cab. The defroster unit will be strategically located under the center forward portion of the instrument panel. For easy access, a removable metal cover will be installed over the defroster unit. The defroster will include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the 1-piece windshield. The defroster ventilation will be built into the design of the cab dash instrument panel and will be easily removable for maintenance. The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.</p> <p><b>CAB/CREW CAB HEATER</b></p> <p>Two (2) 36,702 BTU auxiliary heaters with 276 SCFM (each unit) of air flow will be provided inside the crew cab, one (1) in each outboard rear facing seat riser. The heaters will include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters will be located below each rear facing seat riser and below the fronts of the driver and passenger seats, for efficient airflow. An extruded aluminum plenum will be incorporated in the cab structure that will transfer heat to the forward cab seating positions.</p> <p>The heater/defroster and crew cab heaters will be controlled by an integral electronic control panel. The heater control panel will allow the driver to control heat flow to the front and rear independently. The control panel will include variable adjustment for temperature and fan control, and be conveniently located on the dash in clear view of the driver. The control panel will include highly visible, progressive LED indicators for both fan speed and temperature.</p>
0601514	Air Conditioning, Dual Zone Control, Hinge Acc Pnl, Velocity FR w/ ISX15 Engine	<p><b>AIR CONDITIONING</b></p> <p>A high-performance, customized air conditioning system will be furnished inside the cab and crew cab. A 13.10 cubic inch compressor will be installed on the engine. A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover and mounting legs to be painted to match the cab roof.</p> <p>The evaporator unit will be installed in the cab, located in the center of the cab ceiling over the engine tunnel. The evaporator will include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.</p> <p>There will be a hinge on the forward edge of the filter cover and two (2) quarter turn fasteners with a knob on the rear edge to allow easy access.</p> <p>The evaporator unit will have a 49,000 BTU rating that meets and exceeds the performance specifications.</p> <p>Adjustable air outlets will be strategically located on the evaporator cover per the following: Four (4) will be directed towards the drivers location Four (4) will be directed towards the officers location Eight (8) will be directed towards crew cab area</p> <p>The air conditioner refrigerant will be R-134A and will be installed by a certified technician.</p> <p>The air conditioner will be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel will be located in the center console. For ease of operation, the control panels will include variable adjustment for temperature and fan control.</p> <p><b>INTERIOR CAB INSULATION</b></p> <p>The cab walls, ceiling, and engine tunnel will be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab will be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling. Headliners will be constructed from a 0.20" high density polyethylene corrugated material. Each headliner will be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control. For ease of installation and removal, all headliners will be held in place by a dual lock fastening system.</p> <p>Designed for maximum sound absorption and thermal insulation, the rear cab wall will be insulated with 1.50" thick open cell acoustical foam. The thermal protection of the foam will provide an R-value of four (4) per 1.00" thickness.</p>
0627910	Sun Visor, Vinyl/Fabric, Imp/Vel	<p><b>SUN VISORS</b></p> <p>There will be two (2) vinyl covered sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.</p> <p>There will be a black plastic thumb latch provided to help secure each sun visor in the stowed position.</p>
0548173	Grab Handles, Driver and Passenger Door Post, Imp/Vel	<p><b>GRAB HANDLE</b></p> <p>A black rubber covered grab handle will be mounted on the door post of the driver side and passenger side cab door to assist in entering the cab. The grab handle will be securely mounted to the post area between the door and windshield.</p>

0693439		Lights, Engine Compt, Custom, Auto Sw, w/Fld Chk Dr WIn 3SC0CDCR, 3" LED Trim	<b>ENGINE COMPARTMENT LIGHTS</b> There will be one (1) Whelen®, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Model 3FLANGEC, chrome flange kit(s) installed under the cab to be used as engine compartment illumination. These light(s) will be activated automatically when the cab is raised or when the dip stick door is opened.
0122516		Fluid Check Access, Imp/Vel	<b>ACCESS TO ENGINE DIPSTICKS</b> For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface. The door will be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel. The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil. The door will have a rubber seal for thermal and acoustic insulation. One (1) flush latch will be provided on the access door.
0537329	SP	Map box, 3 bin/30 deg slant, W/ Velcro Straps Custom Chassis	<b>MAP BOX</b> There will be one (1) map box/es with three (3) bins, open from top. The location required will be rear edge of upper portion of work surface 9.50" from driver side with opening facing towards the officer seat. The map box/es will be divided into three (3) bins, each being 12.50" wide x 3.00" high x 12.00" deep. Each bin will slant 30 degrees from horizontal and will include a velcro strap to secure binders. The map box/es will be constructed of .125" aluminum and will be painted to match the cab interior.
0583039		Not Required, Side Roll and Frontal Impact Protection	
0699999		Not Required, Frontal Impact Protection, 2010	
0699998		Not Required, Side Roll Protection Package, 2010	
0622617		Seating Capacity, 6 Seats	<b>SEATING CAPACITY</b> The seating capacity in the cab will be six (6).
0697007		Seat, Driver, Pierce PS6, Premium, Air Ride, High Back	<b>DRIVER SEAT</b> A Pierce PS6® seat will be provided in the cab for the driver. The seat design will be a cam action type, with air suspension. For increased convenience, the seat will include electric controls to adjust the rake (15 degrees), height (1.75" travel) and horizontal (7.00" travel) position. Electric controls will be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have a reclining back, adjustable from 20 degrees back to 45 degrees forward. The seat back will be a high back style with manual lumbar adjustment lever, for lower back support, and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.
0696997		Seat, Officer, Pierce PS6, Premium, Air Ride, High Back	<b>OFFICER SEAT</b> A Pierce PS6® seat will be provided in the cab for the officer. The seat will be a cam action type with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple passenger configurations, the seat will have a reclining back adjustable from 20 degrees back to 0 degrees forward. The seat back will be a high back style with manual lumbar adjustment lever and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.
0002517		Not Required, Radio Compartment	

0745384	SP	Cabinet, Rear Facing, LS, 25 W x 36 H x 24 D, Sp H Liftup Ext Only, Sp Mtg, Imp/Vel	<p><b>REAR FACING LEFT SIDE CABINET</b></p> <p>A rear facing cabinet will be provided in the crew cab at the left side outboard position. The cabinet will be mounted off the edge of the seat riser.</p> <p>The cabinet will be 25.00" wide x 36.00" high x 24.00" deep.</p> <p>The cabinet will include one (1) infinitely adjustable shelf with a 1.25" flanged down lippainted to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will provide access from outside the cab only with one (1) lift up double pan door painted to match the cab exterior with a non-locking D-Ring latch. The clear door opening will be 19.75" wide x 27.50" high. The door will be located on the side of the cab over the wheelwell and include a pneumatic stay arm to hold the door open.</p> <p>The exterior access will be provided with a brushed stainless steel scuffplate on the lower door frame.</p> <p>The cabinet will be constructed of smooth aluminum, and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the left side of the exterior cabinet door opening and one (1) white LED strip light installed on the right side of the exterior cabinet door opening. The lighting will be controlled by an automatic door switch.</p>
0102783		Not Required, Seat, Rr Facing C/C, Center	
0745382	SP	Cabinet, Rear Facing, RS, 25 W x 36 H x 22 D, Sp H Liftup Ext Only, Sp Mtg, Imp/Vel	<p><b>REAR FACING RIGHT SIDE CABINET</b></p> <p>A rear facing cabinet will be provided in the crew cab at the right side outboard position. The cabinet will be mounted off the edge of the seat riser.</p> <p>The cabinet will be 25.00" wide x 36.00" high x 22.00" deep.</p> <p>The cabinet will include one (1) infinitely adjustable shelf with a 1.25" flanged down lippainted to match the cab interior.</p> <p>The cabinet will include no louvers.</p> <p>The cabinet will provide access from outside the cab only with one (1) lift up double pan door painted to match the cab exterior with a non-locking D-Ring latch. The clear door opening will be 19.75" wide x 27.50" high. The door will be located on the side of the cab over the wheelwell and include a pneumatic stay arm to hold the door open.</p> <p>The exterior access will be provided with a brushed stainless steel scuffplate on the lower door frame.</p> <p>The cabinet will be constructed of smooth aluminum, and painted to match the cab interior.</p> <p><b>Cabinet Light</b></p> <p>There will be one (1) white LED strip light installed on the left side of the exterior cabinet door opening and one (1) white LED strip light installed on the right side of the exterior cabinet door opening. The lighting will be controlled by an automatic door switch.</p>
0122718		Seat, Forward Facing C/C, DS Outboard, Flip Up Cushion, Imp/Vel	<p><b>FORWARD FACING DRIVER SIDE OUTBOARD SEAT</b></p> <p>There will be one (1) forward facing flip-up seat provided at the driver side outboard position in the crew cab. The seat back will have a plywood backing covered with foam padded upholstery. The seat bottom will be constructed of a piece of plywood covered with foam rubber and upholstery. The bottom cushion will have its bottom covered with brushed stainless steel for a pleasant appearance when the seat bottom is in the up position. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat will be furnished with a 3-point, shoulder type seat belt.</p>
0123165		Seat, Forward Facing C/C, Center, (2) Pierce PS6, Premium, Hi-Back	<p><b>FORWARD FACING CENTER SEATS</b></p> <p>There will be two (2) forward facing, Pierce PS6® seats provided at the center position in the crew cab. The seat backs will be a high back style with 7.5 degree fixed recline angle, and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seats will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seats will be furnished with 3-point, shoulder type seat belts. The seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.</p>
0122731		Seat, Forward Facing C/C, PS Outboard, Flip Up Cushion, Imp/Vel	<p><b>FORWARD FACING PASSENGER SIDE OUTBOARD SEAT</b></p> <p>There will be one (1) forward facing flip-up seat provided at the passenger side outboard position in the crew cab.</p> <p>The seat back will have a plywood backing, covered with foam padded upholstery. The seat bottom will be constructed of a piece of plywood covered with foam rubber and upholstery. The bottom cushion will have its bottom covered with brushed stainless steel, for a pleasant appearance when the seat bottom is in the up position. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat will be furnished with a 3-point, shoulder type seat belt.</p>
0651182		Scuffplate, Cabinet, Interior Door Pan, Cab	<p><b>DOOR PAN SCUFFPLATE</b></p> <p>There will be a brushed stainless steel scuffplate on the interior door pan of two (2) cabinet door (s) located LS7 and RS7.</p>

0661086	SP Pull Strap, Cabinet Door	<b>DOOR PULL STRAP</b> There will be two (2) door(s), located LS7 and RS7, provided with a pull strap.
0752005	Lip, Top of Interior Cabinet, 4 Sides	<b>LIP ON CABINET</b> There will be a 1.00" lip provided around the top perimeter of the cabinet. There will NOT be anything stored on the top portion without restraints There will be two (2) cabinets(s) provided with the lip one each on top of the LS and RS rear facing EMS compartments .
0617407	Matting, Turtle Tile, EMS Compt, 0.75" Thick	<b>MATTING IN EMS COMPARTMENT</b> Turtle Tile vinyl grating will be provided in two (2) EMS compartments, LS7 and RS7 on the interior floor. Tile color will be red.
0511300	Upholstery, Seats In Cab, All Imperial 1200, Pierce PS6	<b>SEAT UPHOLSTERY</b> All Pierce PS6 seat upholstery will be gray woven with black Imperial 1200 material.
0511471	No SCBA Brackets Required In Cab Seats, Imp/Vel, AXT 2010, Qtm 2010, Dash CF	
0603867	Seat Belt, ReadyReach	<b>SEAT BELTS</b> All seating positions in the cab, crew cab and tiller cab (if applicable) will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards. The 3-point shoulder type seat belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.
0604863	Seat Belt Height Adjustment, 6 Seats, Imp/Vel, Dash CF	<b>SHOULDER HARNESS HEIGHT ADJUSTMENT</b> All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. A total of six (6) seating positions will have the adjustable shoulder harness.
0627014	Pick Not Required, Seat Belt Color Selected in Seat Belt Option 627339	
0602464	Helmet Storage, Provided by Fire Department, NFPA 2016	<b>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</b> NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided. There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.
0647638	Lights, Dome, Weldon Dual LED 4 Lts	<b>CAB DOME LIGHTS</b> There will be four (4) Weldon 808* series, dual LED dome lights with grey bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and two (2) lights will be installed and located, one (1) on each side of the crew cab. The color of the LED's will be red and white . The white LED's will be controlled by the door switches and the lens switch. The color LED's will be controlled by the lens switch.
0628472	Light, Map, Overhead, Peterson M371S LED, Rectangular w/Switch 2lts	<b>OVERHEAD MAP LIGHTS</b> There will be two (2) Peterson, Model M371S, rectangular LED adjustable map lights installed in the cab: One (1) overhead in front of the driving position. One (1) overhead in front of the passenger's position. Each light will include a switch on the light housing. The light switches will be connected directly to the battery switched power.
0625194	Handlts, (4) Koehler, BrightStar, Responder 510318, light & charger, 12vdc	<b>HAND HELD SPOTLIGHT</b> There will be four (4) Koehler, Model 510318, hand held lights with orange bodies and 12 volt charger units mounted as directed at pre-construction. The chargers will be hard wired to the chassis battery system.

0554191	Handlight, Streamlight, Fire Vulcan, 44451, C4 LED, Tail Lights, 12v, Orange	<p><b>ADDITIONAL HAND HELD LIGHT</b></p> <p>There will be three (3) lights additional 12v Streamlight, Model #44451, Fire Vulcan LED light(s) will be provided and mounted two (2) in crew cab and one (1) in D3 with specific location to be determined at pre-construction. Each light will be provided with a 12 volt direct wire vehicle mounting rack.</p> <p>Each light housing will be orange in color and be provided with a single C4 LED bulb and two (2) "ultra bright blue tail-light LEDs". The tail-light LEDs will have a dual mode of blinking or steady.</p>
0568369	Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010, Dash CF	<p><b>CAB INSTRUMENTATION</b></p> <p>The cab instrument panel will consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels will be designed to be removable for ease of service and low cost of ownership.</p> <p><b>GAUGES</b></p> <p>The gauge panel will include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:</p> <ul style="list-style-type: none"> <li>- Voltmeter gauge (Volts)</li> <li>Low volts (11.8 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>High volts (15 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>Very low volts (11.3 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>Very high volts (16 VDC)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>- Tachometer (RPM)</li> <li>- Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)</li> <li>- Fuel level gauge (Empty - Full in fractions)</li> <li>Low fuel (1/8 full)</li> <li>Amber indicator on gauge assembly with alarm</li> <li>Very low fuel (1/32) fuel</li> <li>Amber indicator on gauge assembly with alarm</li> <li>- Engine oil pressure gauge (PSI)</li> <li>Low oil pressure to activate engine warning lights and alarms</li> <li>Red indicator on gauge assembly with alarm</li> <li>- Front air pressure gauge (PSI)</li> <li>Low air pressure to activate warning lights and alarm</li> <li>Red indicator on gauge assembly with alarm</li> <li>- Rear air pressure gauge (PSI)</li> <li>Low air pressure to activate warning lights and alarm</li> <li>Red indicator on gauge assembly with alarm</li> <li>- Transmission oil temperature gauge (Fahrenheit)</li> <li>High transmission oil temperature activates warning lights and alarm</li> <li>Amber indicator on gauge assembly with alarm</li> <li>- Engine coolant temperature gauge (Fahrenheit)</li> <li>High engine temperature activates an engine warning light and alarm</li> <li>Red indicator on gauge assembly with alarm</li> <li>- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)</li> <li>Low fluid (1/8 full)</li> <li>Amber indicator on gauge assembly with alarm</li> </ul> <p>All gauges and gauge indicators will perform prove out at initial power-up to ensure proper performance.</p> <p><b>INDICATOR LAMPS</b></p> <p>To promote safety, the following telltale indicator lamps will be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.</p> <p>The following amber telltale lamps will be present:</p> <ul style="list-style-type: none"> <li>- Low coolant</li> <li>- Trac cntl (traction control) (where applicable)</li> <li>- Check engine</li> <li>- Check trans (check transmission)</li> <li>- Aux brake overheat (Auxiliary brake overheat)</li> <li>- Air rest (air restriction)</li> <li>- Caution (triangle symbol)</li> <li>- Water in fuel</li> <li>- DPF (engine diesel particulate filter regeneration)</li> <li>- Trailer ABS (where applicable)</li> <li>- Wait to start (where applicable)</li> <li>- HET (engine high exhaust temperature) (where applicable)</li> <li>- ABS (antilock brake system)</li> <li>- MIL (engine emissions system malfunction indicator lamp) (where applicable)</li> <li>- SRS (supplemental restraint system) fault (where applicable)</li> <li>- DEF (low diesel exhaust fluid level)</li> </ul> <p>The following red telltale lamps will be present:</p> <ul style="list-style-type: none"> <li>- Warning (stop sign symbol)</li> <li>- Seat belt</li> <li>- Parking brake</li> <li>- Stop engine</li> <li>- Rack down</li> </ul> <p>The following green telltale lamps will be provided:</p> <ul style="list-style-type: none"> <li>- Left turn</li> <li>- Right turn</li> </ul>

- Battery on

The following blue telltale lamp will be provided:

- High beam

#### **ALARMS**

**Audible steady tone warning alarm:** A steady audible tone alarm will be provided whenever a warning message is present.

**Audible pulsing tone caution alarm:** A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

**Alarm silence:** Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

#### **INDICATOR LAMP AND ALARM PROVE-OUT**

Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

#### **CONTROL SWITCHES**

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

**Emergency master switch:** A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.

**Headlight / Parking light switch:** A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.

**Panel backlighting intensity control switch:** A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.

**High idle engagement switch:** A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

**"Ok To Engage High Idle" indicator lamp:** A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.

**Ignition switch:** A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp will be activated with vehicle ignition.

**Engine start switch:** A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

**4-way hazard switch:** A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and includes the international 4-way hazard symbol.

**Heater, defroster, and optional air conditioning control panel:** A control panel with membrane switches will be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar will indicate the relative temperature and fan speed settings.

**Turn signal arm:** A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.

**Parking brake control:** An air actuated push/pull park brake control valve will be provided.

**Chassis horn control:** Activation of the chassis horn control will be provided through the center of the steering wheel.

#### **CUSTOM SWITCH PANELS**

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.

#### **DIAGNOSTIC PANEL**

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port



		<ul style="list-style-type: none"> <li>- SRS diagnostic port (where applicable)</li> <li>- Command Zone USB diagnostic port</li> <li>- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)</li> <li>- Diesel particulate filter regeneration switch (where applicable)</li> <li>- Diesel particulate filter regeneration inhibit switch (where applicable)</li> </ul> <b>CAB LCD DISPLAY</b> A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature. The upper right section will display, along with other configuration specific information: <ul style="list-style-type: none"> <li>- Odometer</li> <li>- Trip mileage</li> <li>- PTO hours</li> <li>- Fuel consumption</li> <li>- Engine hours</li> </ul> The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.
0509511	Air Restriction Indicator, Imp/Vel, AXT, Dash CF, Enf MUX	<b>AIR RESTRICTION INDICATOR</b> A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.
0032551	Light, Indicator, Cab Lock Downs,"Not Engaged"	- Red indicator light on the cab dash that indicates whenever the cab locks are not fully engaged.
0668061	Light, Do Not Move Apparatus, Wln VTX609R Red LED	<b>"DO NOT MOVE APPARATUS" INDICATOR</b> There will be a Whelen, Model VTX609R, red LED indicator light with chrome trim located in the driving compartment. This light will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On." The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.
0509042	Messages, Open Door/Do Not Move Truck, MUX w/Color Display	<b>DO NOT MOVE TRUCK MESSAGES</b> Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged). The following messages will be displayed (where applicable): <ul style="list-style-type: none"> <li>Do Not Move Truck</li> <li>DS Cab Door Open (Driver Side Cab Door Open)</li> <li>PS Cab Door Open (Passenger's Side Cab Door Open)</li> <li>DS Crew Cab Door Open (Driver Side Crew Cab Door Open)</li> <li>PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)</li> <li>DS Body Door Open (Driver Side Body Door Open)</li> <li>PS Body Door Open (Passenger's Side Body Door Open)</li> <li>Rear Body Door Open</li> <li>DS Ladder Rack Down (Driver Side Ladder Rack Down)</li> <li>PS Ladder Rack Down (Passenger Side Ladder Rack Down)</li> <li>Deck Gun Not Stowed</li> <li>Lt Tower Not Stowed (Light Tower Not Stowed)</li> <li>Fold Tank Not Stowed (Fold-A-Tank Not Stowed)</li> <li>Aerial Not Stowed (Aerial Device Not Stowed)</li> <li>Stabilizer Not Stowed</li> <li>Steps Not Stowed</li> <li>Handrail Not Stowed</li> </ul> Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged.
0611681	Switching, Cab, Membrane, Impel/Velocity/Quantum, Dash CF, AXT WiFi MUX	<b>SWITCH PANELS</b> The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliques. Documentation will be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) will be located in the overhead position above the windshield on the driver side overhead to allow for easy access. Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout. The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.

0555915		Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocity	<b>WIPER CONTROL</b> For simple operation and easy reach, the windshield wiper control will be an integral part of the directional light lever located on the steering column. The wiper control will include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control will have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.
0680638		Hourmeter, Aerial Inside Cab, Removed from Cradle	<b>HOURLMETER - AERIAL DEVICE</b> An hourmeter for the aerial device will be provided and located within the cab display or instrument panel. The hourmeter will be activated when the aerial device is removed from the cradle, not when the aerial PTO is engaged.
0002615		Switch, Aerial 12V Master	<b>AERIAL MASTER</b> There will be a master switch for the aerial operating electrical system provided.
0032828		No PTO switch req'd - w/aerial piggyback	
0629279		Wiring, Spare, 20 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 3rd	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery switched power. The negative wire will be connected to ground. Wires will be protected to 20 amps at 12 volts DC. Power and ground will terminate back of officer side rear facing EMS cabinet in the outboard lower corner (SEE PHOTOS). Termination will be to a Blue Sea System, Model 5025, 6 circuit with negative bus bar. The terminal block will include a cover with circuit labels. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0767635		Wiring, Spare, 4.8 A 12V DC, USB Termination, Kussmaul 091-219-5 Sw Pnl 1st	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 6 amps at 12 volts DC. Power and ground will terminate in the switch panel one (1) at the end of the instrument console per job 32428 01-04. Termination will be a Kussmaul part number 091-219-5, switch panel dual USB charger socket. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is applied.
0699928		Wiring, Spare, 40 A 12V DC, 6 Circuit Fuse Block, Blue Sea 5025 1st	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 40 amps at 12 volts DC. Power and ground will terminate back of officer side rear facing EMS cabinet in the outboard lower corner (SEE PHOTOS). Termination will be to a Blue Sea System, Model 5025, 6 circuit with negative bus bar. The terminal block will include a cover with circuit labels. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0708660	SP	Wiring, Spare, 37.5 A 12V DC, Cust Install Radio, 30A Bat Dir, 7.5A Sw & Grnd	<b>CUSTOMER SUPPLIED RADIO WIRING</b> There will be one (1) 12 volt combination wiring leads of which each will include one (1) direct battery, one (1) master battery switched and one (1) negative for use with radio equipment. Each lead will be 18.00" long and be provided this circuit to be used for two-way radio installation only. The leads will be clearly marked in a coil and terminate with butt splices. A breaker rated for 30 amps will be provided for circuit protection of the direct battery lead with a minimum of 10 gauge wire. A breaker rated for 7.5 amps will be provided for circuit protection of the master battery switched lead. The wires will be colored coded as follows: <b>red for direct battery</b> <b>yellow for master battery switched</b> <b>black for ground</b>

0547322	Wiring, Spare, 15 A 12V DC, Switch Feature 1st	<b>SPARE CIRCUIT</b> There will be four (4) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate one (1) each in the following compartments: LS3, LS6, LS7 and RS7 (specific location to be determined at pre-construction). Termination will be with heat shrinkable butt splicing. The circuits selected above will be controlled by a switch in the following locations: no switch location no additional switch location Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0547505	Wiring, Spare, 10 A 12V DC 1st	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery switched power. The negative wire will be connected to ground. Wires will be protected to 10 amps at 12 volts DC. Power and ground will terminate underneath the passenger's side forward facing outboard crew cab seat. Label wire "DRUG BOX". Termination will be with heat shrinkable butt splicing. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is applied.
0548004	Wiring, Spare, 15 A 12V DC 1st	<b>SPARE CIRCUIT</b> There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power The negative wire will be connected to ground Wires will be protected to 15 amps at 12 volts DC Power and ground will terminate inside the tiller cab to the right of the tillerman as directed at pre-construction Termination will be with 15 amp, power point plug with rubber cover Wires will be sized to 125 percent of the protection The circuit(s) may be load managed when the parking brake is set.
0548006	Wiring, Spare, 15 A 12V DC 2nd	<b>SPARE CIRCUIT</b> There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate in the cab, one (1) to left of officer and aft of VDR plug and one (1) on the end of the instrument console (see instrument panel drawing for specific locations) and (1) in RS8 (mounted to rear back corner of PS EMS). Termination will be with 15 amp, power point plug with rubber cover. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0548007	Wiring, Spare, 15 A 12V DC 3rd	<b>SPARE CIRCUIT</b> There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate RS4 left inside wall back corner (SEE PHOTO IMG_5651). Termination will be with 15 amp, power point plug with rubber cover. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0548009	Wiring, Spare, 20 A 12V DC 1st	<b>SPARE CIRCUIT</b> There will be one (1) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery saver The negative wire will be connected to ground Wires will be protected to 20 amps at 12 volts DC Power and ground will terminate in the recess area in front of the officer (on the left vertical wall through a grommet) Termination will be with heat shrinkable butt splicing Wires will be sized to 125% of the protection This circuit(s) may be load managed when the parking brake is set.

0560535	Wiring, Spare, 15 A 12V DC 4th	<b>SPARE CIRCUIT</b> There will be three (3) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate RS3 inboard of forward most vertical partition up as high as possible (SEE PHOTO). Termination will be with heat shrinkable butt splicing. Wires will be sized to 125 percent of the protection. This circuit(s) may be load managed when the parking brake is set.
0583917	Wiring, Spare, 15 A 12V DC 5th	<b>SPARE CIRCUIT</b> There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus. The above wires will have the following features: The positive wire will be connected directly to the battery power. The negative wire will be connected to ground. Wires will be protected to 15 amps at 12 volts DC. Power and ground will terminate (1) LS4 left inside wall down low outboard of circuit breaker box (SEE PHOTO) and (1) RS5 right inside wall down low (SEE PHOTO). Termination will be with 15 amp, power point plug with rubber cover. Wires will be sized to 125% of the protection. This circuit(s) may be load managed when the parking brake is set.
0566101	Recess, Dash Panel, Officer Side, Vel/Imp	<b>RECESS, DASH PANEL</b> The dash panel across from the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be 8.25" down x 7.81" back and 20.88" wide.
0643196	Radio, AM/FM/CD/WB, Jensen, Front Aux In / USB / Bluetooth	<b>STEREO RADIO</b> A Jensen, heavy duty AM/FM/CD/Weatherband stereo radio, with front auxiliary input will be installed per switch panel layout . There will be 5.25" speakers installed one (1) pair of 5.25" speakers in the cab and one (1) pair of 5.25" speakers in the crew cab. The antenna will be a roof-mounted rubber antenna located in an open space, on the cab roof . The following features will be included: CD Player with Electronic Skip Protection (ESP) Full 7-Channel NOAA Weatherband Tuner with SAME technology Built-in Clock Audio CD, CD-R, R/W, MP3 CD compatible Radio Broadcast Data System Text Display Front panel USB input Front and Rear Auxiliary Audio Input Receives audio (A2DP/AVRCP) from Bluetooth enabled device Supports Bluetooth HFP to receive phone calls from BT-enabled phones Low battery alert (<10.8Vdc) Heavy Duty design with Conformal Coated Circuit Boards for maximum durability under all conditions
0537251	Bracket, Mounting, For Push Buttons, Officer Side, VEL/IMP	<b>MOUNTING BRACKET FOR PUSH BUTTON CONTROLS</b> There will be a mounting bracket provided within easy reach of the officer next to the defrost air intake for the mounting of push button controls. The mounting bracket will be large enough to mount (4) four buttons from top to bottom: siren brake, air horn, mechanical siren, radio PTT) controls vertically, one in front of the other. The bracket will be fabricated from smooth aluminum and will be painted to match the cab interior.
0615386	Vehicle Information Center, 7" Color Display, Touchscreen, MUX	<b>INFORMATION CENTER</b> An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing. The information center will have the following specifications: Operate in temperatures from -40 to 185 degrees Fahrenheit An Optical Gel will be placed between the LCD and protective lens Five weather resistant user interface switches Grey with black accents Sunlight Readable Linux operating system Minimum of 1000nits rated display Display can be changed to an available foreign language A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area. Programmed to read US Customary <b>GENERAL SCREEN DESIGN</b> Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur: An amber background/text color will indicate a caution condition A red background/text color will indicate a warning condition The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to

indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages. A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

#### **HOME/TRANSIT SCREEN**

This screen will display the following:

Vehicle Mitigation (if equipped)

Water Level (if the water level system includes compatible communications to the information center)

Foam Level (if the foam level system includes compatible communications to the information center)

Seat Belt Monitoring Screen Seat Belt Monitoring Screen

Tire Pressure Monitoring (if equipped)

Digital Speedometer

Active Alarms

#### **ON SCENE SCREEN**

This screen will display the following and will be auto activated with pump engaged (if equipped):

Battery Voltage

Fuel

Oil Pressure

Coolant Temperature

RPM

Water Level (if equipped)

Foam Level (if equipped)

Foam Concentration (if equipped)

Water Flow Rate (if equipped)

Water Used (if equipped)

Active Alarms

#### **VIRTUAL BUTTONS**

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

#### **PAGE SCREEN**

The page screen will display the following and allow the user to progress into other screens for further functionality:

Diagnostics

Faults

Listed by order of occurrence

Allows to sort by system

Interlock

Throttle Interlocks

Pump Interlocks (if equipped)

Aerial Interlocks (if equipped)

PTO Interlocks (if equipped)

Load Manager

A list of items to be load managed will be provided. The list will provide a description of the load. The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.

The screen will indicate if a load has been shed (disabled) or not shed.

"At a glance" color features are utilized on this screen.

Systems

Command Zone

Module type and ID number

Module Version

Input or output number

Circuit number connected to that input or output

Status of the input or output

Power and Constant Current module diagnostic information

Foam (if equipped)

Pressure Controller (if equipped)

Generator Frequency (if equipped)

Live Data

General Truck Data

Maintenance

Engine oil and filter

Transmission oil and filter

Pump oil (if equipped)

Foam (if equipped)

Aerial (if equipped)

Setup

Clock Setup

Date & Time

12 or 24 hour format

Set time and date

Backlight

Daytime

Night time

Sensitivity

Unit Selection

Home Screen

Virtual Button Setup

On Scene Screen Setup

Configure Video Mode

Set Video Contrast

Set Video Color

Set Video Tint

Do Not Move

The screen will indicate the approximate location and type of item that is open or is not stowed for

travel. The actual status of the following devices will be indicate

Driver Side Cab Door  
Passenger's Side Cab Door  
Driver Side Crew Cab Door  
Passenger's Side Crew Cab Door  
Driver Side Body Doors  
Passenger's Side Body Doors  
Rear Body Door(s)  
Ladder Rack (if applicable)  
Deck Gun (if applicable)  
Light Tower (if applicable)  
Hatch Door (if applicable)  
Stabilizers (if applicable)  
Steps (if applicable)  
Notifications

View Active Alarms

Shows a list of all active alarms including date and time of the occurrence is shown with each alarm

Silence Alarms - All alarms are silenced

Timer Screen

HVAC (if equipped)

Tire Information (if equipped)

Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

0606247

Vehicle Data Recorder w/CZ Display  
Seat Belt Monitor

#### **VEHICLE DATA RECORDER**

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

Vehicle Speed - MPH  
Acceleration - MPH/sec  
Deceleration - MPH/sec  
Engine Speed - RPM  
Engine Throttle Position - % of Full Throttle  
ABS Event - On/Off  
Seat Occupied Status - Yes/No by Position  
Seat Belt Buckled Status - Yes/No by Position  
Master Optical Warning Device Switch - On/Off  
Time - 24 Hour Time  
Date - Year/Month/Day

#### **Seat Belt Monitoring System**

A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

Seat Occupied & Buckled = Green LED indicator illuminated  
Seat Occupied & Unbuckled = Red LED indicator with audible alarm  
No Occupant & Buckled = Red LED indicator with audible alarm  
No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen will become active on the Command Zone color display when:

The home screen is active:

and there is any occupant seated but not buckled or any belt buckled with an occupant.

and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

0744547

SP Intercom, Firecom 5200D Dual  
Radio, 1 Wireless Base, (D,O,RPTT)  
,2C,Til,Wired

#### **INTERCOM SYSTEM**

There will be digital, dual radio interface, intercom located to be determined at pre-construction in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be two (2) radio listen only / transmit controls, allowing for simulcast interoperability with select, monitor, receive, and transmit indicators. There will be two (2) auxiliary audio inputs with select, and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided. Wired headset jacks will be provided for the driver, officer two 2 crew cab at two (2) inboard forward facing seats and tillerman positions. The driver will have a remote to talk button located near driver left of information center (PHOTO IMG\_6174) and the officer will have a remote to talk button located left of officer on the button mounting bracket option #537251 (PHOTO IMG\_6152).

The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

One (1) 5200D Intercom  
Two (2) DM-1 Switch box assembly, dash mount  
One (1) WB505R wireless base station (1-5 wireless positions)  
Five (5) HM-10 Interior headset jacks  
All necessary power and station cabling

0657152		Cable, Radio to Intercom Interface, Firecom, 2 Radios	<b>RADIO / INTERCOM INTERFACE CABLE</b> The apparatus manufacturer will supply and install two (2) radio interface cables before delivery of the vehicle. The radio equipment to be used by the customer will be: Make of First Radio: Motorola High Power, Model Number: APX8500 ALL BAND MP MOBILE (M37TSS9PW1AN). Make of Second Radio: Bendix King, Model Number: to be determined at pre-construction.
0681393		Headset, Firecom, FH-54 Over Head, Intercom Only, Mic On/Off	<b>OVER THE HEAD HEADSET, INTERCOM ONLY</b> There will be five (5) Firecom, Model FH-54 over the head, intercom only headset(s) provided driver's seat, officer seat, driver's side outboard forward facing seat and passenger's side outboard forward facing seat. Each headset will feature: Coiled cord with rugged angled plug Noise cancelling electric microphone Flex boom rotates for left or right dress Adjustable volume control ComLeather ear seals with 24 dB noise reduction Microphone on/off button
0794480	SP	Headset, Firecom, Wireless, UHW-507 Under Helmet, Radio Transmit, Bluetooth	<b>WIRELESS CONVERTIBLE, RADIO TRANSMIT ONLY HEADSET</b> There will be five (5) Firecom™, Model UHW-507 , wireless under helmet style, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided to be determined at pre-construction. Each headset will feature: Noise cancelling electric microphone Flexible microphone boom Ear seals with 20 dB noise reduction Radio Push To Transmit button (Left or Right Side) Wireless Bluetooth technology Rechargeable battery operates for 24 hours on a full charge IP-65 when worn
0681408		Hangers For Headsets, NFPA, Each	<b>HEADSET HANGERS</b> There will be five (5) headset hanger(s) installed driver's seat, officer's seat, driver's side outboard forward facing seat, passenger's side outboard forward facing seat and tiller operator seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.
0660403		Remote Intercom Head, Firecom 5200	<b>INTERCOM SYSTEM REMOTE HEAD</b> A Firecom, Model 5200DRH remote intercom head will be provided and mounted overhead of the officer in switch panel #5 .
0000000	STF	Radio, Mobile, Bendix King KNGM150 (DTF - GSFA APPROVED)	<b>BENDIX KING RADIO</b> One (1) Bendix King model KNGM150 radio will be provided with the following options: ReIm Mobile Radio 5000 CH  Digital P25/Analog, 50 Watts  Dash Mount w/ Ext Speaker & Install Kit  KAA0290 ReIm KNG Mobile Microphone Allows Control of KNG Radio

0000000	STF	Radio, Mobile, Motorola APX8500 (DTF - GSFA APPROVED)	<b>MOTOROLA RADIO</b> One (1) Motorola APX8500 model M37TSS9PW1AN all band mobile radio will be provided with the following options: GA00580AA, ADD: TDMA OPERATION APX G51AT, ENH: SMARTZONE GA09001AA, ADD: WI-FI CAPABILITY G361AH, ENH: P25 TRUNKING SOFTWARE APX GA00268AB, ADD: RFID LABEL APX W432AG, ENH: SPKR INCREASED AUDIO POWER APX G444AH, ADD: APX CONTROL HEAD SOFTWARE G442AJ, ADD: APX O5 CONTROL HEAD G806BL, ENH: ASTRO DIGITAL CAI OP APX GA05509AA, DEL: DELETE UHF BAND GA01517AA, DEL: NO J600 ADAPTER CABLE NEEDED G66BC, ADD: DASH MOUNT 05 GA00318AF, ADD: 5Y ESSENTIAL SERVICE GA00250AA, ADD: WIFI/GNSS FLEXIBLE CABLE LMR195 GA01513AA, ADD: ALL BAND MOBILE ANTENNA (7/8/V/U) W22BA, ADD: STD PALM MICROPHONE APX
0685177		Remote Mount Two-way Radio Mic Per Customer Drawing	<b>REMOTE MICROPHONE LOCATION</b> The two way radio microphone will be remote mounted on the cab switch panel on the end of the instrument console (SEE PHOTO IMG_6170) per customer layout.
0780592	SP	Speaker, Motorola, Model #HSN4040, (2) with On/Off Switch	<b>RADIO SPEAKER</b> There will be Two (2) Motorola, Model #HSN4040, water resistant radio speakers one on the back of the cab, one on wall under the aerial device between LS2/RS3 with one (1) on/off switch provided and mounted as directed at pre-construction. Cables will terminate behind the officer's seat.
0640003		Install Customer Provided Modem	<b>MOBILE RADIO MODEM INSTALLATION</b> There will be one (1) customer supplied modem(s) sent to the apparatus manufacturers preferred installer to be installed as directed at pre-construction. Specific shipping requirements will be followed.
0776385	SP	Install Customer Provided Cat5 Ethernet Cable	<b>CAT 5 CABLE INSTALLATION</b> There will be one (1) customer supplied Cat5 Ethernet cable sent to the apparatus manufacturers preferred radio installer for installation. The cable will start at behind the officer's seat and terminate at below the PS forward facing fold-up seat base. No other components will be installed with this option. Specific shipping requirements will be followed.
0559503		Install Customer Provided Portable Radio Charger(s)	<b>PORTABLE RADIO CHARGER INSTALLATION</b> There will be four (4) customer supplied portable two-way radio chargers(s) sent to the apparatus manufacturers preferred radio installer to be installed (1) near driver seat, (1) near officer seat, (1) in LS6 and (1) in RS7 - specific location TBD @ pre-construction. Specific shipping requirements will be followed.
0559156		Install Customer Provided Two-Way Radio(s)	<b>TWO WAY RADIO INSTALLATION</b> There will be one (1) customer supplied two way radio(s) sent to the apparatus manufacturers preferred radio installer to be installed remote head in switch assembly #4 above the officer, with the transceiver mounted behind the officer's seat on the vertical rear facing compartment wall. RADIO SHALL BE POWERED BY THE SPARE CIRCUIT DETAILED IN OPTION #0708660 per the shipping document. No antenna mount or whip will be included in this option. Specific radio shipping requirements will be followed.
0660489		Antenna Mount, Custom Chassis, Fill in Blank Mounting and Cable Locations	<b>RADIO ANTENNA MOUNT</b> There will be three (3) standard 1.125", 18 thread, NMO type antenna mounting base(s) installed all stubs are to be 18" behind A/C CONDENSOR, 18" between each other and 18" inboard from sides of cab per job 32428 01-04 on the cab roof with high efficiency, low loss, coaxial cable(s) routed within the cab / crew area to all antenna cables are to run down the PS of cab and terminate behind the officer's seat . A weatherproof cap will be installed on the mount.



0616417	SP	Antenna, PCTel, GPSHPDLTEMIMO-SF, LTE MIMO/Dual WiFi/GPS Multiband	<b>GPS MULTIBAND ANTENNA</b> There will be one (1) PCTel, Model GPSHPDLTEMIMO-SF, stud mount, low profile, multi-band antenna installed on the cab roof. The antenna will feature: Two (2) 4G LTE elements for 698-960MHz and 1710-2700MHz with 17.00' of Pro-Flex Plus 195 coaxial cable, each with SMA male connectors, routed to the mobile data terminal (MDT) Dual (MIMO 802.11n) broadband WiFi elements, 2.4-2.5GHz and 4.9-5.9GHz, with 17.00' of Pro-Flex Plus 195 coaxial cable, each with RP-SMA male connectors installed, routed to the WiFi device One (1) GPS element with 17.00' of RG-174/U coaxial cable with SMA male connector, routed to the mobile data terminal (MDT)
0564138		Camera System, Zone Defense, Rear Camera & 7" LCD Display	<b>VIDEO SYSTEM, REAR CAMERA &amp; 7" LCD DISPLAY</b> A Zone Defense 323-1-4 video system with wide angle color rear view video camera and 7" color LCD display monitor with swivel mount will be provided. The weatherproof, IP67 rated, camera will feature a built in microphone and 18 infrared emitters for 0 lux operation. The camera will be activated with the reverse signal or manually from the monitor. Images will be displayed in the cab on a 7" color LCD flat panel display with integral camera switcher and integrated speaker permitting audio from the active camera and located centered between the sunvisors on a panavise mount
0658499	SP	Camera System, Tiller, Zone Defense, 5" RS/LS Adj Monitors, Forward Facing	<b>TILLER CAMERA SYSTEM</b> There will be two (2) Zone Defense SYS.322.1.MS.NML camera systems provided. Each system will have a side mount video camera and 5.00" LCD display. The cameras will be located one (1) on the right and one (1) on the left side of the tiller body, located above the marker light that is forward of the wheel well, facing forward. The displays will be attached to adjustable height brackets, one (1) each side of the tiller cab and connected to that side camera to display whenever the ignition switch is on.
0653350		Guards, Vehicle Camera(s), Painted Smooth Aluminum	<b>VEHICLE CAMERA GUARDS</b> There will be two (2) smooth, tapered aluminum guard(s) fastened over the cab / body camera(s) located over the cameras on each side of the tiller trailer. The guards will be painted to match the surface they are attached to.
0523921		Recess, Rear Vision Camera	<b>RECESS REAR CAMERA</b> A rear camera recess will be provided in the center at the rear .
0615100		Pierce Command Zone, Advanced Electronics & Control System, Diag LEDs, Vel, WiFi	<b>ELECTRICAL POWER CONTROL SYSTEM</b> The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible. Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership. Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA. <b>SOLID-STATE CONTROL SYSTEM</b> A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices. The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership. For increased reliability and simplified use the control system modules will include the following attributes: Green LED indicator light for module power Red LED indicator light for network communication stability status Control system self test at activation and continually throughout vehicle operation No moving parts due to transistor logic Software logic control for NFPA mandated safety interlocks and indicators Integrated electrical system load management without additional components Integrated electrical load sequencing system without additional components Customized control software to the vehicle's configuration Factory and field re programmable to accommodate changes to the vehicle's operating parameters Complete operating and troubleshooting manuals USB connection to the main control module for advanced troubleshooting To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

Module circuit board will meet SAE J771 specifications

Operating temperature from -40C to +70C

Storage temperature from -40C to +70C

Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 16 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

#### **CIRCUIT PROTECTION AND CONTROL DIAGRAM**

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

#### **ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS**

The on-board information center will include the following diagnostic information:

Text description of active warning or caution alarms

Simplified warning indicators

Amber caution indication with intermittent alarm

Red warning indication with steady tone alarm

All control system modules, with the exception of the main control module, will contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs will be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output will be provided and will illuminate whenever the respective input or output is active. Color-coded labels within the modules will encompass the LEDs for ease of identification. The LED indicator lights will provide point of use information for reduced troubleshooting time without the need for an additional computer.

#### **TECH MODULE WITH WIFI**

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz.

The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The data logging capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.

A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.

#### **PROGNOSTICS**

A software based vehicle tool will be provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone, color display and/or wireless enabled device to proactively alert of upcoming service intervals.

Prognostics will include:

Engine oil and filter

Transmission oil and filter

Pump oil (if equipped)

Foam oil (if equipped)

Aerial oil and filter (if equipped)

#### **ADVANCED DIAGNOSTICS**

An advanced, Windows-based, diagnostic software program will be provided for this control system. The software will provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.

The service and maintenance software will be easy to understand and use and have the ability to view system input/output (I/O) information.

#### **INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM**

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

#### **VOLTAGE MONITOR SYSTEM**

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

#### **DEDICATED RADIO EQUIPMENT CONNECTION POINTS**

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.

The studs will consist of the following:

12-volt 40-amp battery switched power

12-volt 60-amp ignition switched power

12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

#### **ENHANCED SOFTWARE**

The solid-state control system will include the following software enhancements:

All perimeter lights and scene lights (where applicable) will be deactivated when the parking brake is released.

Cab and crew cab dome lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear.

Cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors close. The dome lights will dim after ten (10) seconds or immediately if the vehicle is put into gear.

#### **EMI/RFI PROTECTION**

			<p>To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.</p> <p>The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements.</p> <p>EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.</p>
0624254		Electrical System, Velocity	<p><b>ELECTRICAL</b></p> <p>All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.</p> <p>Electrical wiring and equipment will be installed utilizing the following guidelines:</p> <p>All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.</p> <p>Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.</p> <p>Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.</p> <p>Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).</p> <p>All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.</p> <p>All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal.</p> <p>All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.</p> <p>An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.</p> <p>The results of the tests will be recorded and provided to the purchaser at time of delivery.</p>
0597472	SP	Batteries, (6) AC Delco Grp 31, 950 CCA each, Threaded Studs	<p><b>BATTERY SYSTEM</b></p> <p>Six (6) 12 volt, AC Delco, group 31 batteries that include the following features will be provided:</p> <p>950 CCA, cold cranking amps</p> <p>190 amp reserve capacity</p> <p>High cycle</p> <p>Rating of 5700 CCA at 0 degrees Fahrenheit</p> <p>1140 minutes of reserve capacity</p> <p>Threaded Studs</p> <p>Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.</p> <p>The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.</p>
0008621		Battery System, Single Start, All Custom Chassis	<p><b>BATTERY SYSTEM</b></p> <p>There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p> <p><b>MASTER BATTERY SWITCH</b></p> <p>There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.</p> <p>An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.</p>

0123174	Battery Compartment, Imp/Vel	<p><b>BATTERY COMPARTMENTS</b></p> <p>The batteries will be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments will include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries will be mounted inside of the roto-molded trays.</p> <p><b>JUMPER STUDS</b></p> <p>One (1) set of battery jumper studs with plastic color-coded covers will be installed on the battery box on the driver's side. This will allow enough room for easy jumper cable access.</p>
0637577	Charger, Sngl Sys, Kussmaul, Pump Plus 1200, 091-9-12V-1200-194-WT-**	<p><b>BATTERY CHARGER/ AIR COMPRESSOR</b></p> <p>There will be a Kussmaul Pump Plus 1200, Model 091-9-12V-1200194-WT-XX, 40 amp single output battery charger/air compressor with Model 091-194-IND-WT-XX watertight digital display provided. The color of the charge indicator will be red.</p> <p>The 12-volt air compressor will be installed to maintain the air system pressure when the vehicle is not in use.</p> <p>There will be an auto pump timer installed between the pressure switch and the pump that will allow the pump to run for one hour than shut down for one hour.</p> <p>The battery charger will be wired to the AC shoreline inlet.</p>
0531349	Location, Charger/Compr, w/location feature	Battery charger/compressor will be located in the forward facing center seatbase.
0536099	Location, Bat Chrg Ind, Driver's Step Area	The battery charger indicator will be located in the driver's step area.
0016856	Shoreline, 15A 120V, Kussmaul Auto Eject, 091-55-15-120, Super	<p><b>KUSSMAUL AUTO EJECT FOR SHORELINE</b></p> <p>There will be one (1) Kussmaul Model 091-55-15-120, 15 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus without the use of the generator.</p> <p>The shoreline inlet(s) will include red weatherproof flip up cover(s).</p> <p>There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.</p> <p>The shoreline(s) will be connected to Kussmaul 1200 battery charger AND Kussmaul model 091-92-12 "battery saver - low ripple".</p> <p>There will be a mating connector body supplied with the loose equipment.</p> <p>There will be a label installed near the inlet(s) that state the following:</p> <p>Line Voltage Current Rating (amps) Phase Frequency</p>
0026800	Shoreline Location	The shoreline receptacle will be located on the driver side of cab, to the front of cab door.
0673241	Saver, Battery, Kussmaul 091-195-12, 20 Amp	<p><b>BATTERY SAVER</b></p> <p>There will be one (1) Kussmaul, Model 091-195-12, 20 amp battery saver will be provided.</p> <p>The battery saver will be located next to the battery charger/air compressor. Battery saver is wired to the positive "+" side of the battery charger. .</p> <p>The items to be connected to this device are 20 A 12V spare wiring in front of officer for TABLET WIRING.</p> <p>This device will be connected to the 120 volt AC shoreline inlet.</p> <p>This device will be connected to the chassis batteries to charge items when the shoreline is not plugged in.</p>
0647728	Alternator, 430 amp, Delco Remy 55SI	<p><b>ALTERNATOR</b></p> <p>A Delco Remy®, Model 55SI, alternator will be provided. It will have a rated output current of 430 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p>
0686615	Set Command Zone Clock To Pacific Standard Time	
0580123	SP Fan, Electrical Component Cooling 120 Volt, In EMS Cabinet, Qty Feature	<p><b>FAN, ELECTRICAL COOLING</b></p> <p>There will be one (1) 120v electrical cooling fan(s) with guard to exhaust the heat buildup due to the battery chargers stored in the EMS cabinet, located center forward facing crew cab seat riser - MAKE SURE THIS IS WIRED TO THE SHORELINE PER JOB 32428 01-04. The fan(s) will vent the heat outward from the compartment.</p> <p>Fan(s) to be wired to the auto transfer switch so they will run at all times, either off the shoreline, or off the generator.</p>

0048324	Load Manager/Sequencer, MUX, With Out Switch	<p><b>ELECTRONIC LOAD MANAGER</b></p> <p>An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reduces the electrical load in the event of a low voltage condition, and automatically restores the shed electrical loads when the low voltage condition expires. This ensures the integrity of the electrical system. The ELM will monitor the vehicle's voltage while at the scene (parking brake applied).</p> <p>The system will include the following features:</p> <p>System voltage monitoring.</p> <p>Load Managing will not start for 30 seconds after engine start up.</p> <p>Five (5) minute cycle time, to prevent load activation and quick deactivation.</p> <p>Automatic High Idle Activation, to activate before any electric loads are shed and deactivate with the service brake.</p> <p>If enabled, Load Man Hi-Idle On will display on the information center. Sixteen available electronic load shedding levels.</p> <p>Priority levels can be set for individual outputs.</p> <p>Individual switch "on" indicator to flash when the particular load has been shed.</p> <p>The information center shows system voltage.</p> <p>Green indicator in the Indicator Light display, Load Manager is active.</p> <p>The information center includes a "Load Manager" screen indicating the following:</p> <p>Load managed items list, with priority levels and item condition.</p> <p>Individual load managed item condition:</p> <p>ON = not shed</p> <p>SHED = shed</p> <p>OVRD = overridden</p> <p><b>SEQUENCER</b></p> <p>A warning light sequencer will be provided that automatically turns the emergency lights on and off in a preset sequence.</p> <p>The sequencer will be wired in conjunction with the emergency master light switch.</p> <p>When the switch is activated the lights will be turned on in sequence one by one at 1/2 second intervals thereby protecting the alternator from power surges. Sequenced light switch LED's will flash while waiting for activation.</p> <p>When turned off, the same process will deactivate the warning lights in sequence to allow a gradual decrease in alternator output, rather than dumping the load.</p> <p>The on/off switch for this system will be removed.</p>
0780484	Headlights, Rect LED, HiViz FT-4X6-4KIT, AXT/DCF/Enf/Imp/Sab/Vel	<p><b>HEADLIGHTS</b></p> <p>There will be a HiViz part number FT-4X6-4KIT, that includes four (4) 4.00" high x 6.00" long rectangular LED lights with parking lamp illumination around the outside of the lamps mounted in the front quad style, chrome housing on each side of the cab grille:</p> <p>the outside lamp on each side will contain a part number FT-4X6-HL with low beam LEDs</p> <p>the inside lamp on each side will contain a part number FT-4X6-H with high beam LEDs</p> <p>the lights will be controlled through the headlight switch</p>
0648425	Light, Directional, WIn 600 Cmb, Cab Crn, Imp/Vel/AXT/Qtm/DCF	<p><b>DIRECTIONAL LIGHTS</b></p> <p>There will be two (2) Whelen 600® series, LED combination directional/marker lights provided.</p> <p>The lights will be located on the outside cab corners, next to the headlights.</p> <p>The color of the lenses will be the same color as the LED's.</p>
0648074	Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts	<p><b>CAB CLEARANCE/MARKER/ID LIGHTS</b></p> <p>There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:</p> <p>Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.</p> <p>Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield.</p> <p>Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.</p>
0620054	Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	<p><b>INTERMEDIATE LIGHT</b></p> <p>There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.</p>

0534987	Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts, Aerial	<p><b>REAR CLEARANCE/MARKER/ID LIGHTING</b></p> <p>There will be three (3) Truck-Lite®, Model 33050R, LED lights used as identification lights recessed and located at the rear of the apparatus per the following:  As close as practical to the vertical centerline  Centers spaced not less than 6.00" or more than 12.00" apart  Red in color  All at the same height</p> <p>There will be two (2) Truck-Lite, Model 33050R, LED lights recessed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:  To indicate the overall width of the vehicle  One (1) each side of the vertical centerline  As near the top as practical  Red in color  To be visible from the rear  All at the same height</p> <p>There will be two (2) Truck-Lite, Model 33050R, LED lights recessed on the side of the apparatus as marker lights as close to the rear as practical per the following:  To indicate the overall length of the vehicle  One (1) each side of the vertical centerline  As near the top as practical  Red in color  To be visible from the side  All at the same height</p> <p>There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>Per FMVSS 108 and CMVSS 108 requirements.</p>
0524895	Not Required, Light, Marker End Outline	
0551870	Lights, Tail, WIn M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir w/Flange	<p><b>REAR FMVSS LIGHTING</b></p> <p>The rear stop/tail and directional LED lighting will consist of the following:  Two (2) Whelen®, Model M6BTT, red LED stop/tail lights  Two (2) Whelen, Model M6T, amber LED arrow turn lights  The lights shall be provided with color lenses.  Each light will be installed separately at the rear with Whelen, Model M6FC, chrome flanges.</p>
0551758	Lights, Backup, WIn M6BUW, LED, Flange Feature	Two (2) Whelen Model M6BUW, LED backup lights, will be provided with a flange.
0664481	Bracket, License Plate & Light, P25 LED	<p><b>LICENSE PLATE BRACKET</b></p> <p>There will be one (1) license plate bracket mounted on the rear of the body.  A white LED light will illuminate the license plate. A polished stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.</p>
0589905	Alarm, Back-up Warning, PRECO 1040	<p><b>BACK-UP ALARM</b></p> <p>A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</p>
0614309	Synchronize, WIn Warning Lights, 1st	<p><b>SYNCHRONIZE WARNING LIGHTS</b></p> <p>The sync wires to the following two (2) lights located rear upper zone Rota Beam lights (option 0621947) on the apparatus will be connected together to maintain the flash patterns of the lights.  The lights located right side light sweeps "outside" and faster as compared to job 32429 will remain on phase 1 or flash together.  The lights located left side light sweeps "outside" and faster as compared to job 32429 will be changed to phase 2 or flash opposite the lights selected above.</p>
0578264	Flash Pattern, California Title13, LED Warning Lights	<p><b>WARNING LIGHT FLASH PATTERN</b></p> <p>The flash pattern of all the exterior warning lights will be set to meet the certified California, Title XIII flash pattern by either the light manufacturer's default flash pattern or by a conversion change to the certified flash pattern.</p>

0659005		Lights, Cornering/Scene, WIn M6BUW LED, White, Switches 2nd	<b>CORNERING/SCENE LIGHTS</b> There will be one (1) pair of Whelen®, Model M6BUW, white 12 volt DC LED lights with chrome trim provided on the apparatus, no higher than the low beam headlights, one (1) each side of trailer below the body and directly in front of the tiller axle and slightly angled toward front. The LED lights will be wired so they activate and cancel when the battery switch is on, the headlight switch is on and with the directional light activation. The lights will also be activated by the following: no additional switch location no additional switch location no additional switch location a switch in the tiller cab
0659009		Lights, Cornering/Scene, WIn M6BUW LED, White, Switches 1st	<b>CORNERING/SCENE LIGHTS</b> There will be one (1) pair of Whelen®, Model M6BUW, white 12 volt DC LED lights with chrome trim provided on the apparatus, no higher than the low beam headlights, one (1) each side of cab below bumper and directly in front of cab door . The LED lights will be wired so they activate and cancel when the battery switch is on, the headlight switch is on and with the directional light activation. The lights will also be activated by the following: a switch at the driver's side switch panel no additional switch location no additional switch location no additional switch location
0797682	SP	Lights, Cornering/Scene, WIn PELCC LED	<b>CORNERING/SCENE LIGHTS</b> There will be two (2) Whelen®, Model PELCC, 79.6 candle power 2.18" high x 8.00" long x 1.50" deep 12 volt DC LED lights with 45 degree chrome trim provided one (1) each side far outside on angled step rear of tractor. The lights will be wired so they activate and cancel when the battery switch is on, the headlight switch is on and with the directional light activation.
0777784	SP	Light, Indicator, Jackknife Angle, Green 0-30, Amb 30-60 and Red 60+	<b>JACKKNIFE INDICATOR LIGHT</b> There will be three (3) tricolor 0.54" LED Indicator light(s) with Jackknife Angle label(s) provided on the apparatus, as directed at pre-construction. The color of the LEDs will be activated per the following the green LED will be activated when the angle between the tractor cab and the trailer is less than 30 degrees the amber LED will be activated when the angle between the tractor cab and the trailer is between 30 and 60 degrees the red LED will be activated when the angle between the tractor cab and the trailer is greater than 60 degrees
0059809		Light, Marker, Weldon, 9186-1500 LED, Location	<b>MARKER LIGHTS</b> There will be one (1) pair of Weldon, Model: 9186-1500-10 or 9186-1500-20, LED marker lights installed on this apparatus, one (1) light each side per the quantity selected. These lights will be activated with the headlight switch. These lights will be located on top of the trailer catwalk directly above the tiller trailer axle on each side mounted directly on the deck (see photos). These lights will be installed into the rub rail or with metal flanges to protect them from most damage. Amber lights will be used except for the rear most light at the rear of the apparatus which will be red.
0090531		Light, Marker, Truck-Lite, 35200, LED, Recessed, Qty Feature, Feature Location	<b>MARKER LIGHTS</b> There will be two (2) lights of Truck-Lite, model 35200, LED, marker lights installed on this apparatus. The marker lights will be wired to the running lights of the vehicle. The lights will be located at the rear lower body corners, one each side in the rubrail. These lights will be installed either recessed or with metal flanges to protect them from most damage. Yellow lights will be installed in any location forward of the rear most point of the vehicle. A single red light will be installed at the rear most point only.
0770923		Lights, Cornering, Tiller, WIn, 70J000CR Halogen, 2 Its	<b>TILLER CORNERING LIGHTS</b> There will be two (2) Whelen® Model 70J000CR, 3.00" high x 7.00" long 27 watt halogen lights installed per the following: one (1) light will be installed on the left side in front of the trailer axle one (1) light will be installed on the right side in front of the trailer axle The lights will be activated by the directional switch on the tiller cab steering column and the chassis directional light circuit.
0769420		Lights, Perimeter Cab, Amdor AY-LB- 12HW020 LED 4Dr	<b>CAB PERIMETER SCENE LIGHTS</b> There will be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one (1) for each cab door. These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

0616293	Not Required, Lights Perimeter Pump House, No Pump	
0763173	Lights, Perimeter Body, Amdor AY-LB-12HW012 LED 4lts, Turntbl/Rr Stp, Tiller	<b>BODY PERIMETER SCENE LIGHTS</b> There will be four (4) Amdor®, Model AY-LB-12HW012, 190 lumen, 12.00" long, white 12 volt DC LED strip lights provided. The lights will be mounted in the following locations: One (1) light will be provided under the driver's side turntable access steps. One (1) light will be provided under the driver's side tiller cab access steps. One (1) light will be provided under the passenger's side tiller cab access steps. One (1) light will be provided under the passenger's side turntable access steps. The perimeter scene lights will be activated when a switch within reach of the driver is activated and the parking brake is applied.
0769570	Lights, Perimeter, Amdor AY-LB-12HW020 20" LED, Brkt	<b>ADDITIONAL PERIMETER LIGHTS</b> There will be six (6) lights - Amdor® Model AY-LB-12HW020, 350 lumens, 20.00" long, with white LED's installed with one (1) light under compartment P3, one (1) light under compartment D4, one (1) light under compartment D5, one (1) light under compartment P5, one (1) light under compartment P6 and one (1) light under compartment D2. With the chassis battery switch energized, the lights will be activated by the same means as the body perimeter lights.
0644535	Lights, Step, P25 LED, Tiller 2002, Park Brk	<b>STEP LIGHTS</b> There will be a total of sixteen (16) white LED step lights provided for access to the tiller cab and turntable. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light. The step lights will be activated with the battery switch is on and the parking brake is applied. All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.
0565827	Special Switching, 12V Side Scene Lights, Reverse Activation Emerg Master ON	<b>SPECIAL SWITCHING FOR SCENE LIGHTS</b> There will be two (2) 12V white lights located on the sides of the apparatus the scene light portion of the Whelen 6V2 lights on the FRONT OF THE CAB FORWARD OF DRIVER/OFFICER DOORS AND THE REAR FENDER OF THE TRAILER ON THE DRIVER/OFFICER SIDE that will be activated when the emergency master switch is on and the vehicle is shifted into reverse. Both conditions will be required for the 12V white lights to turn on. The lights will be deactivated if the emergency master switch is off, or if the vehicle is shifted out of reverse.
0693551	Lights, Tractor Scene, WIn M9LZC LED, pair	<b>SCENE LIGHTS</b> There will be one (1) pair of Whelen, Model M9LZC, LED scene lights installed on the rear exterior wall of the tractor cab with chrome flanges. The lights will be controlled by the aerial master switch.
0639388	Light, WIn, 12V PSL2B* Pioneer SlimLine LED, Bail Brkt, Tiller Cab Side 2nd	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen Pioneer SlimLine, Model PSL2B, 12 volt LED floodlight(s) installed in bail bracket(s) located above the side window on the tiller cab, one (1) on passenger's side of tiller cab per 28750. The painted parts of this light assembly to be black. The light(s) selected above will be controlled by the following: a switch at the driver's side switch panel. a switch in a stainless steel cup located at the rear no more than 62.00" from the ground. no additional switch location. a switch in the tiller cab. These light(s) may be load managed when the parking brake is set.
0640627	Light, WIn, 12V PCPSM1* Pioneer LED Fld/Spt, Surface Mount 2nd	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen, Model PCPSM1*, 12 volt surface mounted LED combination spot/flood light(s) located one (1) on the passenger's side of cab centered above the exterior access door (RS8). The lights will be mounted with black flange(s). The light(s) selected above will be controlled by the following: a switch at the driver's side switch panel no additional switch location panel 9, row 2, pos 1 no additional switch location These light(s) may be load managed when the parking brake is set.



0640629		Light, WIn, 12V PCPSM1* Pioneer LED Fld/Spt, Surface Mount 1st	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen, Model PCPSM1*, 12 volt surface mounted LED combination spot/flood light(s) located one (1) on the driver's side of cab centered above the exterior access door (LS7). The lights will be mounted with black flange(s). The light(s) selected above will be controlled by the following: a switch at the driver's side switch panel no additional switch location no additional switch location no additional switch location These light(s) may be load managed when the parking brake is set.
0653189		Light, WIn, 12V PSL2B* Pioneer SlimLine LED, Bail Brkt, Tiller Cab Side 1st	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen Pioneer SlimLine, Model PSL2B, 12 volt LED floodlight(s) installed in bail bracket(s) located above the side window on the tiller cab, one (1) on driver's side of tiller cab per 28750. The painted parts of this light assembly to be black. The light(s) selected above will be controlled by the following: a switch at the driver's side switch panel. a switch in a stainless steel cup located at the rear no more than 62.00" from the ground. no additional switch location. a switch in the tiller cab. These light(s) may be load managed when the parking brake is set
0628885		Light, Centering, On Cab Roof, Tiller, Collapsible, Attwood 3520-7, Red/Grn LED	<b>CENTERING LIGHT</b> There will be an Attwood, Model 3520-7, split red/green LED light installed with a 12.00" tall collapsible mast, centered on the crew cab roof. The light will be used by the tillerman to center the tiller trailer to the chassis tractor. The light will be wired to the headlight switch.
0618234		Light, Visor, WIn, 12V PSL2* Pioneer LED Spottl 1st	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen® Pioneer™, Model PSL2*, 12 volt DC LED floodlight(s) provided on the front visor, centered. The housing(s) painted parts of this light assembly to be black. The lights will be steady burning with the selected switch features. The light will be controlled by the following: a switch at the driver's side switch panel a switch at the passenger's side switch panel no additional switch location no additional switch location These light(s) may be load managed when the parking brake is applied.
0532322		Not Required, Hose Bed Lights, Alt. Rear Scene Lights, Aerials	
0645677		Lights, Not Required, Rear Work, Alt. 12 Volt Lights At Rear Body	
0606487	SP	Light, WIn, 12V PSL2B* Pioneer SlimLine LED, Bail Brkt, Tiller Cab 3rd	<b>12 VOLT LIGHTING</b> There will be one (1) Whelen Pioneer SlimLine, Model PSL2B, 12 volt LED floodlight(s) installed in bail bracket(s) located on the tiller cab, at the rear of the tiller cab above the windshield and below the marker lights. The painted parts of this light assembly to be black. The light(s) selected above will be controlled by the following: a switch at the driver's side switch panel. a switch in a stainless steel cup located at the rear no more than 62.00" from the ground. no additional switch location. a switch in the tiller cab. These light(s) may be load managed when the parking brake is set.
0762420	SP	Light, Walking Surf, Amdor AY-LB-12HW0** LED, and P25 LED	<b>WALKING SURFACE LIGHTS</b> There will be an Amdor®, Model AY-LB-12HW0**, white 12 volt DC LED light strip provided to illuminate the cargo area. The light will be activated when the body step lights are on. There will be Model P25 LED lights to illuminate the top of the hose bed cover. The lights will be activated when the body step lights are on.
0744860	SP	Switch, 12VDC, Connect to Fill in Blank, Sw Type	<b>SWITCH, ADDITIONAL</b> Additional 12V switch(es) will be provided. There will be two (2) switches located near beauty trim near stabilizers OR under bubble levels - one (1) each side to control turntable lights included in option #0758120. The switch will be a cup style.
0090655		Aerial, Tiller, Alum Body	

0554269	Body Skirt Height, 18"	
0045810	Not Required, Water Tank, Tiller	
0023410	Not Required, Overflow	
0043076	Not Required, Hose Bed, Tiller	
0013481	Not Required, Hose Bed Capacity	
0013534	Not Required, Running Boards	
0690023	Wall, Rear, Smooth Aluminum	<b>SMOOTH ALUMINUM REAR WALL</b> The rear wall will be smooth aluminum.
0029503	Tow Eyes (2), Painted, Aerial	<b>TOW EYES</b> Two (2) rear painted tow eyes will be located at the rear of the apparatus and will be mounted directly to the torque box. The inner and outer edges of the tow eyes will be radiused.
0090670	Construction, Compt, Alum, Tiller	<b>COMPARTMENTATION</b> Body and compartments will be fabricated of .125", 5052-H32 aluminum. Side compartments will be an integral assembly with the rear fenders. Circular fender liners will be provided for prevention of rust pockets and ease of maintenance. Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip. The compartment door opening will be framed by flanging the edges in 1.75" and bending out again .75" to form an angle. Drip protection will be provided above the doors by means of bright aluminum extrusion or formed bright aluminum treadplate. The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers will have the corners welded. Side compartment covers will be separate from the compartment tops. All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury. A support system will be used which will incorporate a floating substructure by using Neoprene Elastomer isolators to allow the body to remain rigid while the chassis goes through its natural flex. The isolators will have a broad range of proven viability in vehicular applications, be of a fail safe design, and allow for all necessary movement in three (3) transitional and rotational modes. This will result in a 500 lb equipment rating for each lower compartment of the body. The compartmentation will include a 3.00" steel support assemblies which are bolted to the chassis frame rails. A steel framework will be mounted to the body above these support assemblies connected to the support assemblies with isolators. There will be one (1) support assembly mounted to each chassis frame rail. <b>AGGRESSIVE WALKING SURFACE</b> All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards. <b>LOUVERS</b> All body compartments will have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers will be formed into the metal and not added to the compartment as a separate plate.
0613805	SP Compt, Single Tractor Reservoir, F/D, Single Double Door Compt, 44"WB	<b>TRACTOR RESERVOIR COMPARTMENT</b> A compartment will be provided ahead of the tractor fifth wheel. The compartment on the driver's side will be approximately 41.00" wide x 37.75" high x 24.00" deep with a door opening of 36.50" wide x 31.25" high. The compartment on the passenger's side will be approximately 41.00" wide x 36.75" high x 16.00" deep. The door opening will be 36.50" wide x 30.25" high. The floor of this compartment will be raised 1.00" to allow for proper clearance from exhaust components. The transverse section will be approximately 30.38" wide x 15.50" high. The compartment will be fabricated out of smooth aluminum painted job color. Bright aluminum treadplate will be provided on the top of the compartment. The compartment will be furnished with a double door compartment on each side that has a D handle latch and positive door hold open device.

0613813	SP	Compt, F/H, Trans Roll, Shortened, Single Comp, 79.00" Wide, 6.00" Raised	<b>DRIVER SIDE COMPARTMENTATION</b> Driver side compartmentation will consist of one large compartment. The compartment will be approximately 78.63" wide x 61.63" high x 24.50" deep, with a door opening of approximately 70.25" wide x 53.75" high. The upper 44.75" of each compartment will be transverse to the passenger side front compartmentation. This compartment will have a roll-up door.
0608171	SP	Compt, F/H, Trans Front, Roll, 6.00" Raised, Special, DS Center, Tiller	Two (2) compartments will be provided in the center body section on the driver side. Each compartment will be full-height. The forward compartment will be approximately 47.13" wide x 61.63" high x 24.50" deep with a door opening of approximately 39.00" wide x 53.75" high. The upper 44.75" of the forward compartment will be transverse to the passenger side front compartmentation. The rear compartment will be approximately 44.50" wide x 61.63" high with a door opening of approximately 39.00" wide x 53.75" high. The upper 44.75" of the rearward compartment will be 48.00" deep. The remaining lower section of the rearward compartment will be 24.50" deep. Both compartments will have roll-up doors.
0611686	SP	Compt, Low, Front/Rear, Roll, 4" Raised Floor, DS Rear, Tiller	Two (2) compartments will be provided in the rear body section on the passenger side. The forward compartment will be 69.00" wide x 26.63" high x 24.50" deep with a door opening of 63.50" wide x 18.75" high. This compartment will be located ahead of the rear wheels. The rearward compartment will be 49.00" wide x 20.00" high x 12.00" deep with a door opening of 43.50" wide x 16.25" high. The floor of this compartment will be raised approximately 4.00" from standard to increase the rear angle of departure. This compartment will be located behind the rear wheels. Both compartments will have roll-up doors.
0613808	SP	Compt, F/H, Trans Roll, Shortened, Single Comp, 79.00" Wide, 6.00" Raised	<b>PASSENGER SIDE COMPARTMENTATION</b> Passenger side compartmentation will consist of one large compartment. The compartment will be approximately 78.63" wide x 61.63" high x 24.50" deep, with a door opening of approximately 70.25" wide x 53.75" high. The upper 44.75" of each compartment will be transverse to the passenger side front compartmentation. This compartment will have a roll-up door.
0683224		Compt, F/H, Trans Front, Roll, 6.00" Raised, RS Center, Tiller	Two (2) compartments will be provided in the center body section on the right side. Each compartment will be full-height. The forward compartment will be approximately 47.13" wide x 61.63" high x 24.50" deep with a door opening of approximately 39.00" wide x 53.75" high. The upper 44.75" of the forward compartment will be transverse to the left side front compartmentation. The rear compartment will be approximately 44.50" wide x 61.63" high x 24.50" deep with a door opening of approximately 39.00" wide x 53.75" high. Both compartments will have roll-up doors.
0796469		Compt, F/H F/D Front Roll, Center Lift Past 90, F/H Rear Roll, 4" Raised Floor	Three (3) compartments will be provided in the rear body section on the right side. The forward compartment will be approximately 69.00" wide x 49.63" high x 24.50" deep in the lower 24.13" of the compartment with the remaining upper portion being approximately 22.50" deep. The clear door opening will be approximately 63.25" wide x 41.00" high. This compartment will be located ahead of the rear wheels and will have a roll-up door. The compartment directly above the rear wheels will be approximately 59.88" wide x 19.75" high x 12.00" deep with a clear door opening of approximately 54.00" wide x 13.75" high. This compartment will be provided with a lift-up door. The lift-up door will be provided with a cylinder that allows it to open approximately 120 degrees. The rearward compartment will be approximately 49.00" wide x 45.63" high x 12.00" deep with a clear door opening of approximately 43.25" wide x 37.00" high. The floor of this compartment will be raised approximately 4.00" from standard to increase the rear angle of departure. This compartment will be located behind the rear wheels and will have roll-up a door.

0594014		Doors, Amdor, Rollup, Side Compartments	<p><b>ROLL-UP DOOR, SIDE COMPARTMENTS</b></p> <p>There will be ten (10) compartment doors installed on the side compartments, double faced, aluminum construction, painted one (1) color to match the lower portion of the body and manufactured by AMDOR™ brand roll-up doors.</p> <p>Door(s) will be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats will be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain will be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement.</p> <p>Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingress.</p> <p>The doors will be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.</p> <p>Bottom panel flange of roll-up door will be equipped with two (2) cut-outs to allow for easier access with gloved hands.</p> <p>A stainless steel lift bar to be provided for opening the door and located at the bottom of each door with latches on the outer extrusion of the door frame. A ledge to be supplied over lift bar for additional area to aid in closing the door. The lift bar will be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.</p> <p>All injection molded roll-up door wear components will be constructed of Type 6 nylon.</p> <p>Each roll-up door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door.</p> <p>The header for the roll-up door assembly will not exceed 4.00".</p> <p>A heavy-duty magnetic switch will be used for control of open compartment door warning lights.</p>
0067768		Not Required, Bumper, Tiller	
0524589		Scuffplate, Alum 4-Way, Top/Rear of Tractor Reservoir Compt, Tiller	<p><b>SCUFFPLATES</b></p> <p>The entire top and rear portion of the tractor reservoir compartment will be completely covered with bright aluminum treadplate scuffplates. These scuffplates will be fastened with self-tapping screws.</p>
0026023		Scuffplate, S/S Around Air Bottle Fender Compt Openings	<p><b>SCUFFPLATE</b></p> <p>A polished stainless steel scuffplate will be furnished around the opening for all of the air bottle fender compartments.</p>
0562375		Scuffplate, S/S, On Rear Outside, Corner of Body, Full-Height	<p><b>SCUFFPLATE</b></p> <p>A brushed stainless steel scuffplate will be furnished on the rear outside corners of the body. The stainless steel will have a 90 degree angle and will overlap the sides of the body approximately 1.00". The scuffplate will be full height and/or cover the available amount of vertical surface.</p>
0019845		Guard, Drip Pan, S/S, Rollup Door	<p><b>DOOR GUARD</b></p> <p>There will be ten (10) compartment doors that will include a guard/drip pan designed to protect the roll-up door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed on each roll-up door.</p>
0788393	SP	Door Stop, Reduced in Height, Amdor Rollup Door	<p><b>REDUCED HEIGHT RUBBER DOOR STOP</b></p> <p>The black rubber stops provided above the horizontal door ledge on the roll up doors located LS1, LS2, LS3, LS4, LS5, RS1, RS3, RS4, RS5 and RS6 will be trimmed so that the door can be opened as much as possible.</p>
0004010		Scuffplate, Polished S/S Bottom of Door Frame	<p><b>DOOR FRAME SCUFFPLATE</b></p> <p>Three (3) scuffplates will be provided for the lower door frame of LS6, RS2 and RS7. Each scuffplate will be polished stainless steel with a .38" lip down.</p>
0004012		Scuffplate, S/S, Inside Each Compt Door	<p><b>SCUFFPLATE ON INTERIOR OF COMPARTMENT DOOR(S)</b></p> <p>The seven (7) compartment doors will include a polished stainless steel scuffplate to cover the entire width and height on the inside panel of each door pan.</p> <p>Scuffplate will be located LS6, RS2, RS7 and the ladder storage compartment door.</p>
0636819		Trim, Rollup Door, Painted Job Color, by Amdor	<p><b>ROLL-UP DOOR TRIM</b></p> <p>The exterior of the aluminum trim around the door opening will be painted to match job color. There will be ten (10) compartments with the trim painted.</p>

0689549		Lights, Compt, Pierce LED, Dual Light Strips, Each Side of Door	<p><b>COMPARTMENT LIGHTING</b></p> <p>There will be 13 compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in compartment(s): LS1, LS2, LS3, LS4, LS5, LS6, RS1, RS2, RS3, RS4, RS5, RS6 and RS7.</p> <p>Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.</p> <p>Opening the compartment door will automatically turn the compartment lighting on.</p>
0657239		Lights, Compt, Pierce, LED Light Strip, 82.5", Additional	<p><b>ADDITIONAL COMPARTMENT LIGHTING</b></p> <p>There will be three (3) 12 volt DC LED strip light(s) provided in the compartment(s) located (1) LS4/RS5 aft of partition and (2) LS5/RS6 aft of each partition. NOTE THESE LIGHTS ARE TO ACTIVATE WHEN EITHER THE "LEFT" SIDE OR "RIGHT" SIDE APPLICABLE ROLL UP DOORS ARE OPEN. Each light will be 82.50" in length.</p> <p>Opening the compartment door(s) will automatically turn the compartment lighting on.</p>
0687135		Shelf Tracks, Unpainted	<p><b>MOUNTING TRACKS</b></p> <p>There will be one (1) set of tracks for mounting shelf(s) in RS4. These tracks will be installed vertically to support the adjustable shelf(s), and will be full height of the compartment. The tracks will be unpainted with a natural finish.</p>
0618184	SP	Shelves, Fixed, Low/Special Side Height	<p><b>FIXED SHELVES</b></p> <p>There will be one (1) shelf provided (1) in RS3 in between partitions up high (SEE PHOTO). The shelf construction will consist of .188" aluminum with a dual action finish. A capacity rating will not be available on this tray due to a reduced side height being less than 2.00". Each shelf will be fixed in its location in the compartment.</p> <p>The shelves will be held in place by .12" thick stamped plated brackets and bolts.</p> <p>The side height of the shelf/shelves will be as follows:</p> <p>Front: 2.00" high</p> <p>Rear: 2.00" high</p> <p>Left &amp; Right Sides: 2.00" high</p>
0687079		Shelves, Adjustable, 500 lb Capacity, Full Width/Depth, Brushed Aluminum	<p><b>ADJUSTABLE SHELF</b></p> <p>There will be one (1) shelf provided. Each shelf will be constructed of 0.188" aluminum with 2.00" high sides. Each shelf will as wide and as deep as the compartment space will allow.</p> <p>Each shelf will have a brushed finish.</p> <p>Each shelf will have a load capacity of 500 lb.</p> <p>Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.</p> <p>The shelves will be held in place by 0.12" thick stamped plated brackets and bolts.</p> <p>The location will be (1) in RS4.</p>
0606749		Tray, 500 lb, Slide-out, 2-Way, Utility, Adj Height, 3" Sides, Full Trans, D/A	<p><b>TWO (2) WAY SLIDE-OUT UTILITY TRAY</b></p> <p>There will be one (1) slide-out tray provided.</p> <p>Each tray will be rated for up to 500 lb in the extended position. The tray(s) will be constructed of .19" thick dual action finished aluminum for the tray bottom and special aluminum extrusions for the tray sides, ends and tracks. The corners will be welded.</p> <p>The tray will have 3.00" high sides, will span the full depth of the transverse compartment and will be as wide as possible for the compartment.</p> <p>The tray will be supported with a minimum of six (6) ball bearing rollers. The tray will slide out two thirds (2/3) of its length to either side of the apparatus.</p> <p>Automatic locks will be provided for both the in and out positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.</p> <p>The vertical location of the tray within the compartment will be adjustable.</p> <p>The tray(s) will be located (1) in LS4/RS5 aft of partition.</p>
0020924	SP	D/A Finish, All Shelves and Trays	<p><b>FINISH, TRAYS AND SHELVES</b></p> <p>All trays and shelves will be unpainted aluminum with a DA finish.</p>
0709760	SP	Tray, 250 lb Slide-out, 2" Sides, Adj. Height, Large as Possible, 30" Slides	<p><b>SLIDE-OUT ADJUSTABLE HEIGHT TRAY</b></p> <p>There will be one (1) slide-out tray provided.</p> <p>Each tray will have 2.00" high sides and a minimum capacity rating of 250 lb in the extended position.</p> <p>Each tray will be sized as large as possible to fit the compartment. The tray will be constructed of aluminum DA finished .</p> <p>Each tray will be mounted on a pair of 30" side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location.</p> <p>An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand.</p> <p>The tray(s) will be located LS3.</p>

0765472	SP	Cable, 1/8" Gauge Cable/Connect w/Stop,Single Hand Oper,Tilt/Slide Out/Utility	<b>SINGLE HANDED CABLE LATCH</b> A red cable will be provided to tie together the two (2) spring loaded locks that are provided as standard at the front of a slide-out/tilt tray in order to provide single hand operation of the tray. The single hand operation cable will be provided on a total of 11 slide-out trays located slideout/tilt down trays: (4) @ 510777, (1) @ 519004, (1) @ 83986. Two way trays: (2) @ 606749 (one each side) and (2) @ 646005 (one each side). Toolboards: (2) @ 610451 (one each side). The cable will be 1/8" diameter. There will be a screw located through the vertical surface of the front of the tray, above the cable, to help prevent the cable from being pulled down too far.
0765612	SP	Hand Protection Block, Slide-Out Trays	<b>SLIDE OUT TRAY HAND PROTECTION BLOCK</b> An aluminum 1.00" x 1.00" tube spaced 1.00" in from the front of the tray to prevent the possibility of stored equipment sliding forward into someone's fingers will be provided. This will be provided on a total of ten (10) slide-out trays located slideout/tilt down trays: (4) @ 510777, (1) @ 519004, (1) @ 83986. Two way trays: (2) @ 606749 (one each side) and (2) @ 646005 (one each side).
0519004	SP	Tray, 215 lb, Tilt/Slide-Out, 30 Deg, Adj, Max Width/Depth	<b>SLIDE-OUT/TILT-DOWN TRAY</b> There will be one (1) slide-out tray provided. The bottom of each tray will constructed of 0.188" thick aluminum while special aluminum extrusions will be utilized for the tray sides, ends, and tracks. The corners will be welded to form a rigid unit. Each tray will be as wide and as deep as the compartment space will allow. A spring loaded lock will be provided on each side at the front of the tray. Releasing the locks will allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray will be equipped with ball bearing rollers for smooth operation. Rubber padded stops will be provided for the tray in the extended positions. The capacity rating of the tray will be a minimum of 215 lb in the extended position. The vertical position of the tray within the compartment will be adjustable. The tray(s) will be located LS3 upper .
0510777		Tray, 215 lb, Tilt/Slide-Out, 30 Deg, Adj, 1/2 Trans	<b>SLIDE-OUT/TILT-DOWN TRAY</b> There will be four (4) slide-out trays provided. The bottom of each tray will constructed of 0.188" thick aluminum while special aluminum extrusions will be utilized for the tray sides, ends, and tracks. The corners will be welded to form a rigid unit. The tray will be half depth of the transverse compartment. A spring loaded lock will be provided on each side at the front of the tray. Releasing the locks will allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray will be equipped with ball bearing rollers for smooth operation. Rubber padded stops will be provided for the tray in the extended positions. The capacity rating of the tray will be a minimum of 215 lb in the extended position. The vertical position of the tray within the compartment will be adjustable. The tray(s) will be located (1) in LS4 aft of partition and (1) in RS5 aft of partition, (1) in LS5 in between the partitions and (1) in RS6 in between the partitions..
0083986		Tray, 215 lb, Tilt/Slide-Out, 30 Deg, Adj	<b>SLIDE-OUT/TILT-DOWN TRAY</b> There will be one (1) slide-out tray provided. The bottom of each tray will constructed of 0.188" thick aluminum while special aluminum extrusions will be utilized for the tray sides, ends, and tracks. The corners will be welded to form a rigid unit. A spring loaded lock will be provided on each side at the front of the tray. Releasing the locks will allow the tray to slide out approximately two-thirds (2/3) of its length from the stowed position and tip 30 degrees down from horizontal. The tray will be equipped with ball bearing rollers for smooth operation. Rubber padded stops will be provided for the tray in the extended positions. The capacity rating of the tray will be a minimum of 215 lb in the extended position. The vertical position of the tray within the compartment will be adjustable. The tray(s) will be located in RS4.

0627885	Tray, Floor Mounted, Slide-Out, Low/Special Side Height, 2G	<p><b>SLIDE-OUT FLOOR MOUNTED TRAY</b></p> <p>There will be one (1) floor mounted slide-out tray(s) provided (1) in RS4. A capacity rating will not be available on this tray due to a reduced side height being less than 2.00". The tray(s) will be constructed of a minimum .13" aluminum with welded corners. The finish will be unpainted aluminum with a DA finish.</p> <p>The side height of the tray(s) will be as follows:</p> <p>Front: no lip</p> <p>Rear: 2.00" high</p> <p>Left and Right Sides: 2.00" high</p> <p>There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.</p> <p>To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.</p> <p>To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.</p> <p>Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.</p>
0647045	Tray, Floor Mounted, Slide-Out, Full Width/Full Depth, 500lb, 2.00" Sides, 2G	<p><b>SLIDE-OUT FLOOR MOUNTED TRAY</b></p> <p>There will be one (1) floor mounted slide-out tray(s) with 2.00" sides provided (1) in LS3. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of a minimum .13" aluminum. The finish will be unpainted aluminum with a DA finish.</p> <p>The trays will be designed for maximum compartment width and depth.</p> <p>There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.</p> <p>To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.</p> <p>To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.</p> <p>Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.</p>
0647472	Tray, Floor Mounted, Slide-Out, w/ Side Slides, FW/FD, 500lb, 2.00" Sides, 2G	<p><b>SLIDE-OUT FLOOR MOUNTED TRAY</b></p> <p>There will be six (6) floor mounted slide-out tray(s) with 2.00" sides provided (1) in LS4 aft of partition, (1) in LS5 forward of the partition below Hercules, (1) in LS5 aft of partition, (1) in RS5 aft of partition, (1) in RS6 aft of partition and (1) in RS6 forward of the partition and below Hercules. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of a minimum .13" aluminum. The finish will be unpainted aluminum with a DA finish.</p> <p>The tray(s) will be designed for maximum compartment width and depth.</p> <p>Slides will be equipped with ball bearings for ease of operation and years of dependable service.</p> <p>The slides will be located on the sides of the tray so that the tray can be located as close to the compartment floor as possible.</p> <p>Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.</p>
0646005	Tray, Floor Mounted, Utility, Two Way Slide-Out, 500lb, 3" Sides, Full Trans	<p><b>TWO (2) WAY UTILITY SLIDE-OUT FLOOR MOUNTED TRAY</b></p> <p>There will be one (1) floor mounted utility slide-out tray(s) provided (1) in LS5/RS6 in between the partitions. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" thick aluminum for the tray bottom and special aluminum extrusions for the tray sides, ends and tracks. The corners will be welded. The finish will be unpainted aluminum with a DA finish.</p> <p>The tray will be 3.00" high x full depth of the transverse compartment x as wide as possible for the compartment.</p> <p>The tray will be supported with a minimum of six (6) ball bearing rollers. The tray will slide out two thirds (2/3) of its length to either side of the apparatus.</p> <p>Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.</p>
0610451	SP Toolboard, Slide-out, 2-Way, Alum, .188", Peg Board, w/Tray, Full Trans	<p><b>TRANSVERSE TWO (2) WAY SLIDE-OUT TOOLBOARD</b></p> <p>An aluminum toolboard will be provided for use in a transverse side body compartment. The toolboard will be constructed of 0.19" thick aluminum that is DA finished. The toolboard will be provided with 0.20" diameter holes in a pegboard pattern with 1.00" centers between holes. A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.</p> <p>The toolboard will span the full depth of the transverse compartment and will be designed to be as tall as possible to fit in the specified mounting location.</p> <p>The toolboard will be mounted inside a 6.00" wide x 3.00" high, utility style slide-out tray. The bottom of the tray will be constructed of 0.19" thick aluminum while special aluminum extrusions will be utilized for the tray sides, ends and tracks. The corners will be welded.</p> <p>The tray will be supported with a minimum of six (6) ball bearing rollers. The toolboard and tray will slide out two thirds (2/3) of its length to either side of the apparatus. Positive locks will be provided for toolboard in both the stowed and extended positions.</p> <p>The toolboard will be rated for a maximum of 500 lb in the extended position.</p> <p>A total of One (1) toolboard(s) will be provided. The toolboard(s) will be located in LS5/RS6 aft of the rear most partition.</p>

0674891	Lip, 1.00" Retaining, Each	<b>1.00" RETAINING LIP</b> A 1.00" lip will be provided one (1) in LS1 to contain the equipment. The lip will be finished to match the compartment interior.
0558488	Drawer Assembly, CTECH, One Drawer, Up To 36" Wide	<b>DRAWER ASSEMBLY</b> A slideout drawer assembly will be installed One (1) CTECH drawer 28" wide in RS3, two (2) side by side drawers in LS2 each 29" wide. layouts in stage 6 job e-folder. The clear dimensions of the drawer will be 7.25" with a face plate that is 8.00" high x 21.00" deep and a maximum width of 36.00". The drawer will be capable of holding 250 pounds. The drawer will be mounted in a cabinet housing constructed of light gray powder coated aluminum with anodized aluminum frames. The housing will be 24.00" deep, and completely enclose the drawer. A full-length aluminum extruded rail will be provided at the top edge of each drawer. This rail will act as the latching mechanism as well as the handle for each drawer. There will be a total of three (3) provided.
0602325	SP Slide Out Work Surface, With Tool Storage, Adj. Height,	<b>SLIDE-OUT ADJUSTABLE HEIGHT WORK SURFACE</b> There will be a total of two (2) slide-out work surface(s) provided. Each tray will include a two (2) section hinged, work surface that covers the entire top of the tray. Each section of the work surface will be hinged at the rear of the tray with a single continuous hinge. The work surface will open to 90 degrees. The tray will have 3.00" high sides, providing a storage area below the work surface. The tray will have a capacity of up to 500 lb in the extended position. Each tray will be as deep as possible for a standard depth compartment and as wide as possible for the specified mounting location. Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location. An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand. The slide-out work surface(s) will be located (1) in LS2 as high as possible (SEE PHOTO) and (1) in RS3 above drawers in between partitions (SEE PHOTO).
0662679	Partition, Horizontal, In Compt, Bolted	Three (3) partitions horizontally mounted and bolted in place, will be installed in (3) in RS3. One each side outboard of full height partitions to act as a shelf, 12.25" clear from compartment floor to underside of shelf. The third will be directly above the work surface (SEE PHOTOS / LAYOUT FOR CORRECT POSITIONING)
0528058	Partition, Horizontal, In Compt	<b>HORIZONTAL PARTITION</b> One (1) partition horizontally mounted and bolted or welded in place, will be installed in (1) in LS4/RS5 forward of the vertical partition to act as a floor for stokes storage. Locate the partition so there is 24.5" clear inside between the top of the partition and the bottom of the roll-up door protective guard
0003934	Dust Filter, Compt Louvers	<b>COMPARTMENT DUST FILTERS</b> A total of 16 body compartment louvers will have a removable dust filter installed to restrict road dirt from easily entering the compartment and will be installed (2) LS1, (4) LS4, (1) LS5, (2) RS1, (4) RS5, (4) RS6 and (1) RS7 .
0004002	Matting, .13" Rubber in Compt	<b>COMPARTMENT MATTING</b> Black rubber matting will be provided in two (2) compartments. The locations are LS2, RS3 on top of work surfaces (cover for trays). The matting will be .13" thick with corrugated top ribs.
0659383	Matting, Turtle Tile w/Ramp, Compt Floors	<b>MATTING, COMPARTMENT FLOOR</b> Turtle Tile compartment matting will be provided in five (5) compartments on the compartment floor. The locations are, LS1, LS6, RS1, RS2 and RS7. The Turtle Tile will be red and the leading edge of the matting will include the beveled edge. The beveled edge will be red .
0028026	Matting, Turtle Tile, Compt Shelving only	<b>MATTING, COMPARTMENT SHELVING</b> Turtle Tile compartment matting will be provided in 19 shelves. The locations are, each shelf and tray. The color of the Turtle Tile will be red.
0013908	Partition, Vertical Compartment	<b>PARTITION, VERTICAL COMPARTMENT</b> Two (2) partitions shall be bolted in (2) full height in RS3 (SEE PHOTOS / LAYOUT FOR CORRECT POSITIONING). Each partition shall be the full vertical height of the compartment.



0524826		Partition, Vertical Compt, Transverse Compt, Aerials/HDRs	<b>PARTITION IN TRANSVERSE COMPARTMENT</b> Three (3) partitions will be bolted in (1) in LS4/RS5, (2) in LS5/RS6 (the forward one runs down to the floor, the rear one is above the floor extension. Each partition will be the full vertical height of the compartment.
0096116		Partition, Vertical Compartment, Special Height	<b>VERTICAL COMPARTMENT PARTITION</b> One (1) partition will be bolted in RS3 above work surface extending upwards to the fixed shelf (SEE PHOTOS / LAYOUT FOR CORRECT POSITIONING). Each partition will be the 13.25" clear inside vertical height of the compartment. Each partition will be DA finished.
0659095		Pegboard, 3/16" Alum, Back Wall Compt, w/Track	<b>ALUMINUM PEGBOARD</b> Two (2) horizontally installed tracks, with 0.19" aluminum pegboard will be installed on the back wall of one (1) compartments. The holes will be .203" diameter , punched 1.00" on center. The pegboard will be with a brushed finish. The pegboard(s) will be located in RS3. Retainers will be used to mount the pegboard to the tracks.
0062238		Pegboard, Side Wall Mounted, 3/16" Alum	<b>PEGBOARD</b> There will be 3/16" thick aluminum pegboard installed on the side wall(s) of two (2) compartments. The pegboard will be mounted using two (2) horizontal tracks. Retainers will be used to mount the pegboard to the tracks. The holes will be .203" diameter, punched 1.00" on center. The pegboard will be with a brushed finish. Pegboard will be provided in the RS3 (both side walls) compartments. The pegboard will be mounted TBD within the compartment(s).
0796216		Floor Extension, Compartment, 1.00" Downturned Lip	<b>FLOOR EXTENSION</b> There will be a compartment floor extension provided. The floor extension will extend from the area over the frame rails to within an inch of the compartment door. The floor extension will have a 1.00" vertical downturned lip and no return flange. A total of two (2) will be provided and located (1) in LS5 leading up to the partition and (1) in RS6 leading up to the partition .
0569283	SP	Access Panel, Removable, Qty, Location	<b>REMOVABLE ACCESS PANEL</b> There will be a removable access panel provided. A total of two (2) will be provided and located in LS6 / RS7 full height/width each end of opening.
0024016		Rub Rail, Aluminum Extruded, Side & Rear of Body	<b>RUB RAIL</b> Bottom edge of the side and rear of the body compartments will be trimmed with a bright aluminum extruded rub rail. Trim will be 2.12" high with 1.38" flanges turned outward for rigidity. The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.
0510626		Fender Crowns, Rear, S/S, Wider Than Std.	<b>BODY FENDER CROWNS</b> Stainless steel fender crowns will be provided around the rear wheel openings. These fender crowns must be wide enough to prevent splashing onto the body from the specified tires. A rubber welting will be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.
0745265	SP	Compt w/Rack, Air Bottle, 8"/9.50"/8" Square, Rear of Tiller, Smooth Alum Door	<b>AIR BOTTLE STORAGE COMPARTMENT WITH RACK</b> An air bottle compartment will be provided at the rear of the tiller trailer under the tiller cab. The compartment will be located between the frame rails. The compartment will contain a rack to store three (3) air bottles horizontally. A smooth aluminum drop down door with two (2) lift and turn latches will be provided. The bottle storage bins will be approximately 27.00" deep x 8.50" high. Dividers will be located such to allow 8.00", 9.50" and 8.00" clear inside storage areas. The flooring of each bin will be rubber lined. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.
0657524		Compt, Air Bottle, Single, Round, Fender Panel	<b>AIR BOTTLE STORAGE (Single)</b> A quantity of four (4) air bottle compartments, 7.75" in diameter x 26.00" deep, will be provided on the left side forward of the rear wheels, on the left side rearward of the rear wheels, on the right side forward of the rear wheels and on the right side rearward of the rear wheels. A painted stainless steel door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal. Inside the compartment, black rubber matting will be provided.

0744503	SP	Holder, Air Bottle, Zico Model UN-6-30-2-SFPHS, Mounted in Compt w/Tracks	<b>AIR BOTTLE HOLDERS</b> Two (2) brackets will be provided for mounting air bottles. Each bracket will be a Ziamatic, model UH-6-30-2-SFPHS, be mounted on tracks, and be used for adjusting the location of the bracket within the compartment. Install (1) in LS6 and (1) in RS7 on the 45 degree bracket (SEE PHOTOS).
0045527		Horizontal Mounting Tracks for Air Bottle Holders	<b>MOUNTING TRACKS</b> There will be one (1) pair of horizontal mounting tracks provided for mounting air bottle brackets in LS5/RS6 compartment as high as possible above agent tank in easily removable position.. Each pair of mounting tracks will be provided with three (3) pair of mounting studs.
0628001	SP	Bracket, 45 Degrees, To Mount Air Bottle Bracket, Compt Mount	<b>BRACKET TO MOUNT SCBA HOLDERAIR BOTTLE STORAGE BIN</b> There will be two (2) bracket(s) provided for mounting air bottle brackets. Each bracket will be mounted on a 45 degree angle mounting plate located in compartment (1) in LS6 and (1) in RS7 (SEE PHOTOS). Each bracket will be designed to hold one (1) Ziamatic SCBA holder.
0004218		Ladder, 35' Duo-Safety 1200A 2-Sect	<b>EXTENSION LADDER</b> There will be two (2) 35' two (2) section aluminum Duo-Safety Series 1200-A extension ladder(s) provided.
0004222		Ladder, 24' Duo-Safety 900A 2-Section	<b>AERIAL EXTENSION LADDER</b> There will be two (2) 24' two (2) section aluminum Series 900-A extension ladder(s) provided and located in the ladder storage compartment.
0074230		Ladder, 20' Duo-Safety 875A Roof	<b>ROOF LADDER</b> There will be one (1) 20' aluminum Duo-Safety Series 875-A roof ladder(s) provided.
0643252	SP	Ladder, 12' Duo-Safety 775-DR Roof, 16.00" Width, Non-NFPA	<b>ADDED ROOF LADDER</b> There will be one (1) 12' roof, aluminum, Series 775-DR, special 16.00" width provided. This ladder will have roof hooks at each end. This ladder is non compliant to NFPA 1931, Chapter 4.2.2, " <i>Standard on Design of and Design Verification Tests for Fire Department Roof Ladders</i> ". Per Fire Department specification request of this ladder, the apparatus will be non compliant to NFPA 1901 standards at time of contract execution.
0049235		Ladder, 10' Duo-Safety 775A Roof	<b>ADDED ROOF LADDER</b> There will be one (1) 10' roof, aluminum, Series 775-A provided.
0044235		Ladder, 16' Duo-Safety 875A Roof	<b>ADDED ROOF LADDER</b> There will be two (2) 16' roof, aluminum, Series 875-A provided.
0004233		Ladder, 14' Duo-Safety Fresno 701	<b>AERIAL ATTIC EXTENSION LADDER</b> There will be one (1) 14' Fresno aluminum Duo-Safety Series 701 attic extension ladder(s) provided.
0004246		Ladder, 10' Duo-Safety Folding, 585A	<b>AERIAL FOLDING LADDER</b> There will be one (1) 10' aluminum Duo-Safety Series 585-A folding ladder(s) provided and located in the ladder storage compartment.
0680193		Ladder Storage, Vertically Hinged Doors, Smooth Alum, Grabber Door Brkt, Tiller	<b>GROUND LADDER STORAGE</b> The ground ladders will be removable from the center rear of the apparatus. The ladders will be individually stored in stainless steel slides and will be arranged in such a manner that any one (1) ladder can be removed without having to move or remove any other ladder. Black Dura-Surf friction reducing material will be added to the stainless steel slides, on the bottom horizontal surfaces, of the ladder storage rack. Vertically hinged double lap doors will be provided at the rear to close the ladder compartment. Doors will be of double pan aluminum construction. Single sheet aluminum doors will not be considered. The lock door will be latched with Eberhard latches with "D" ring handles. There will be a Cast Products grabber door stay bracket provided on the outside of each door to hold it in the open position.

0652342		Ladder Brackets, Adjustable, Left Side, Tiller	<b>LADDER BRACKETS</b> There will be two (2) side stacked ladder(s) provided on the left side of the rear body in lined brackets and held in place by chrome plated, quarter turn spring loaded clamps. If there is more than one (1) ladder stored here, the clamps will be such that when a ladder is removed, the clamps can be moved a half-turn to hold the remaining ladder in place. The ladder brackets will be adjustable side to side. There will be a 14' Duo-Safety 775-A roof and a 24' Duo-Safety 900-A, two (2) - section extension ladder(s) located in the bracket.
0761257		Lights, Torque Box Ladder Storage, Truck-Lite 44308C 2lts, LED Grommet Mt, Round 4"	<b>LADDER STORAGE LIGHTING</b> There will be two (2) Truck Lite Model 44308C, 4.00" round LED lights with Model 40700, grommets used to illuminate the torque box ladder storage compartment. One (1) each side will be located on the side wall of the torque box near the ladder storage entry area. The lights will be activated when the ladder storage compartment door is opened.
0064245		Ladder, 12' Duo-Safety Folding, 585A	<b>ADDITIONAL FOLDING LADDER</b> One (1) 12' aluminum, Series 585-A Duo-Safety folding ladder will be installed in a U-shaped trough inside the ladder storage compartment.
0653608		Ladder, Little Giant, Revolution XE - Model 17, 12017	<b>ADDITIONAL FOLDING LADDER</b> One (1) Revolution XE Model 12017 Little Giant folding ladder will be provided. The stored dimensions will be 55.50" high x 23.75" wide x 9.25" deep. The weight will be 31.50lb. The ladder will be located in the torque box per approved ladder layout print.
0670839	SP	Anti-Migration Plate, Ladder, Ladder Storage	<b>LADDER PLATE</b> A stainless plate with a two bend flange and a stainless steel hinge will be provided to secure the ladder complement. The plate assembly will be mounted to the bottom of the entrance of the ladder storage area. When the plate is vertical, it will secure the ladders and prevent them from migrating to the rear of the apparatus.
0786971	SP	Slides, Dura-Surf, Ground Ladder Storage, All Horizontal and Vertical Surfaces	<b>DURA-SURF LADDER SLIDES</b> Black Dura-Surf friction reducing material will be added to all vertical and horizontal surfaces of the stainless steel, where the ladder could come in contact with the ladder storage rack.
0658170		Ladders, Nested, Right Side Ground Ladder Storage	<b>NESTED LADDER STORAGE</b> There will be nested ladders on the right side of the ladder storage compartment.
0628670	SP	Trough, Special Size, Folding Ladder, Torque Box	<b>SPECIAL SIZE LADDER TROUGH</b> The folding ladder trough in the torque box will be slightly more narrow than standard. This is to allow for all required ladders to fit in the ladder storage area.
0604208	SP	Pike Pole, 12' Fire Hooks Unlimited, Fiberglass, APH-12, w/ Pry/Chisel End	<b>PIKE POLES</b> There will be one (1) Fire Hooks Unlimited, Model APH-12, 12' pike pole(s) with fiberglass handles and chisel end provided. The pike pole(s) will be located torque box.
0567897		Pike Pole, 8' Fire Hooks Unlimited, New York Roof Hook, Steel, Pry End, RH-8	<b>8' PIKE POLE</b> There will be two (2) Fire Hooks Unlimited, New York Hook , 8' long roof hook with steel shaft and chisel (pry) end provided. The poles will be located torque box.
0552649		Pike Pole, 6' Fire Hooks Unlimited, New York Roof Hook, Steel, Pry End, RH-6	<b>6 FT PIKE POLE</b> There will be three (3) Fire Hooks Unlimited NY roof hook RH-6, 6 foot pike pole(s) with steel handles and pry end provided (2) in torque box and (1) in tractor reservoir compartment LS6/RS7.
0548410		Not Required, Pole, Pike, 3'	
0634573	SP	Pike Pole, 8' Nupla, Fiberglass Round, Ceiling/Wall Hook, CWH-8YD, D-Handle	<b>8' CEILING/WALL HOOK POLES</b> There will be one (1) Nupla 8' ceiling/wall hook(s) with fiberglass, classic round pole and D handle provided. The hook pole(s) will be located torque box.
0589730		Pike Pole, 6' Nupla, Fiberglass Round, Ceiling/Wall Hook, CWH-6YDA, Alum D-Handle	- one (1) 6 foot Nupla CWH-6YDA pike pole(s) with drywall hook and aluminum D-handle.
0089414		Pike Pole, 6' Nupla, Vent Hook RH-6D, w/D Handle	- two (2) 6 foot Nupla RH-6D Ventilation Hook(s): Fiberglass w/"D" handle

0063392		Pike Pole, 10' Fire Hooks Unlimited, New York Roof Hook, Steel, RH-10, Pry End	<b>ADDITIONAL PIKE POLE</b> There will be three (3) Fire Hooks Unlimited, Model RH-10, 10' long pike pole(s) with steel handle and pry end provided.
0089413		Pike Pole, 8' Nupla, Vent Hook, RH-8D, w/D Handle	- two (2) 8 foot Nupla RH-8D Ventilation Hook(s): Fiberglass w/"D" handle
0744797	SP	Pike Pole, 12' Fire Hooks Unlimited, Fiberglass, APH-12, w/D-Handle End	<b>12' PIKE POLE</b> There will be one (1) 12' Fire Hooks Unlimited pike pole(s), model APH with fiberglass handle and D-handle end provided. The pike pole(s) will be located torque box
0054795		Pike Pole, 16' Nupla, Featherlight, YPD-16	<b>ADDITIONAL PIKE POLE(S)</b> There will be two (2) 16 foot Nupla YPD-16 "Featherlight" pike pole(s) with fiberglass handles provided.
0770577		Pike Pole Tubes, in Torque Box/Ladder Storage, Aluminum	<b>PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE</b> There will be aluminum tubing provided in the torque box/ladder storage area for a total of two (2) pike poles. If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.
0657484		Trough for D-Handled Pike Pole, Aluminum	<b>PIKE POLE STORAGE</b> Smooth aluminum U-shaped trough(s) for the storage of one (1) pike pole, with D-handle style grip, will be provided and installed see ER approval drawing.
0680933	SP	Trough for D-Handled, Pike Pole, Nupla Drywall Hook	<b>PIKE POLE STORAGE</b> Stainless steel U-shaped trough(s) will be provided and installed torque box for the storage of four (4) pike poles, a with D-handle style grip and a drywall hook. The trough will be modified at the rear for the drywall hook to fit.
0058193		Tubes, Alum, Pike Pole Storage, Spcl Notch, NY PP Head	<b>PIKE POLE STORAGE</b> Aluminum tubing will be used for the storage of seven (7) pike poles and will be located see ER approval drawing. If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate will be provided. The pike pole tube will be notched to allow a New York style pike pole to fit into the tube.
0673579		Mounting Bracket, Pike Pole, PAC Handlelok #1004, Ea	<b>PIKE POLE STORAGE</b> There will be four (4) PAC, Handlelok Model 1004, pike pole mounting bracket(s) used for pike pole storage and located (4) in the tractor reservoir compartment (one set for 6' Nupla Vent Hook w/ D handle and one 6' New York Hook w/ chisel end).
0045867		Not Required, Pump	
0012216		No Seal/Packing Required	
0012690		Not Required, Trans, Pump	
0669703		Not Required, Pumping Mode	
0024484		Not Required, Pump Shift	
0046295		Transmission Lock-up, Not Req'd, NO PUMP	
0046296		Not Required, Auxiliary Cooling System, NO PUMP	
0046283		Not Required, Transfer Valve, NO PUMP	
0024513		Not Required, Intake Relief Valve	

0046403		No Relief Valve Req'd, No Pump	
0012336		No Pump Primer Req'd	
0012816		Not Required, Pump Manuals	
0785387		Pump Test, Hercules Self Contained Foam System	<b>HERCULES SELF CONTAINED FOAM SYSTEM TEST</b> A complete functional test of the Hercules self contained foam system and its associated components will be conducted to ensure the system works as intended.
0090789		Not Required, Plumbing, No Pump	
0014625		No Main Inlet Required	
0584002		Not Required, Cap, Main Pump Inlet, No Side Inlet Caps Required, No Pump	
0000000	STF	Valve, Ball Intake Relief, Akron Revolution	<b>INLET VALVES WITH INTAKE RELIEF VALVE</b> There will be Two (2) Akron Brass Revolution 7983 (straight inlet) manually operated aluminum ball intake valve(s) provided one (1) each side aerial inlet . The inlet connection will be 4.50" MNST with a cap and the outlet connection will be 5.0" FNST swivel rocker lug . A 12.5" diameter handwheel will be included to operate valve open and close functions. A position indicator will be included to indicate position of the ball. The ball intake valve will be equipped with an adjustable pressure relief valve. The relief valve will have a working range of 50 PSI to 250 PSI. A 3/4" bleeder/drain valve will be provided on the ball intake valve to exhaust excess air or water from the valve. The Intake Valve will be constructed of lightweight, corrosion-resistant, hard-anodized aluminum and stainless steel. To protect against corrosion, the casting will be coated with a powder coat finish and all components on the wet side of the valve will be constructed from stainless steel.
0089389		No Valves, (No Pump)	
0055600		Not Required, Auxiliary Inlet, Left Side	
0029147		Not Required, Inlet, Right Side	
0681723		No Bleeder Valve, No Pump	
0681730		Not Required, Tank to Pump, No Pump	
0074900		Not Required, Tank Fill	
0092570		Not Required, Outlets, Left Side Additional	
0092571		Not Required, Outlets, Right Side Additional	
0092572		Not Required, Outlet, Front	
0092573		Not Required, Outlet, Hose Bed/Running Board Tray	
0089391		Valve, Bleeder - None Req'd, (No Pump)	

0035094	Not Required, Elbow, Left Side Outlets, Additional
0089584	Not Required, Elbow, Right Side Outlets, Additional
0089394	Not Required, Outlet Control, No Pump

# 30 GALLON SELF CONTAINED FOAM/CAFS SYSTEM

A 30 gallon Hercules self contained foam/CAFS system will be installed [Location, Hercules Self Cont Agent Tank].

## AGENT TANK

The agent tank will be constructed of steel and hold 70 gallons of pre-mix foam agent. The tank will be manufactured in accordance with ASME standards. The inside and outside of the tank will be painted with a red, epoxy based paint to prevent corrosion.

### FOAM FILL

The foam fill will be located [Location, Hercules Self Cont Foam Fill]. The foam fill will terminate with 0.75" FGHT-S threads and a 0.75" MGHT plug with cable.

### FOAM FILL FUNNEL

A foam fill funnel and storage bracket will be shipped with loose equipment to allow filling of the system without spilling foam. The storage bracket will be finished the same color as the area around the agent tank.

### WATER FILL

The water fill will be located under the [Location, Hercules Self Cont Water Fill] compartment and installed as close to the bottom of the compartment as possible. It will terminate with 1.50" FNST-S threads and a 1.50" MNST plug with chain. A check valve will be installed as close as possible to the water fill connection so that water does not run back out the water tank fill when the hose is disconnected. A 40 mesh water strainer will be installed as close as possible to the water fill connection to allow easy maintenance and prevent debris from entering the tank.

One (1) 1.50" MNST x 0.75" FGHT-S adapter & one (1) 0.75" MGHT plug will be shipped with loose equipment for the customer to use garden hose connections on the water fill connection if needed.

Swing style of check valves will be installed to isolate the water and foam tank fills if necessary.

### WATER OVERFLOW/BLEEDER VALVE

One (1) 0.75" water overflow/bleeder valve will be located under the compartment next to the water fill connection.

### AGENT TANK DRAIN VALVE

One (1) 0.75" agent tank drain valve will be located [Location, Hercules Self Cont Tank Drain (s)] within easy reach of the end user. This will allow the end user to completely drain the entire tank if needed.

## AIR SUPPLY

The system will be powered by one (1) 6000 psi, 510cu ft breathing air bottle. The air bottle will be located [Location, Hercules Self Cont Air Bottle(s)]. The air bottle will be easily removable for hydro testing. All of the air bottle hose and connections will be rated for 6000 psi working pressure.

The air pressurization/charging of the agent tank will be done by a electrically controlled valve installed on the high pressure side of the air regulator. This will allow the system to be stored and transported without pressure in the agent tank until needed for fire fighting.

## DISCHARGE SYSTEM

One (1), 1.00" Akron 8800 series of manual valve with outlet will be located [Location, Hercules Self Cont Outlet(s)] for discharging the foam/CAFS system.

## FOAM SYSTEM CONTROLS

The foam system will have one (1) operator control panels for operating this system. The control panel will be located [Location, Hercules Self Cont Control Panel(s)]. The body compartment lighting will illuminate the controls on the operators panel.

The control panel will have the following items installed on it.

- One (1) pressure gauge for the 6000psi air bottle
- One (1) pressure gauge for the main agent tank pressure
- One (1) pressure gauge for the regulator pressure
- One (1) remote activation switch (this switch will open the air bottle to charge the water/foam tank with air)
- One (1) high flow, adjustable pressure regulator (0-400PSI)
- One (1) needle valve for bleeding down the air bottle pressure when performing maintenance on the breathing air tank

## PERFORMANCE

The system will be capable of discharging foam/CAFS up to distances of 75 feet or more depending upon the wind conditions.

## TAGS

Tags will be provided near the control panel and the near agent tank with instructions on how to operate the system. Tags for suggested foam mixing/percentage rates along with system schematic tags will also be provided.

### LOOSE EQUIPMENT

One (1) breathing air bottle refill adapter fitting rated at 5000psi (CGA347) will be shipped in loose equipment for the end user to use in this system in place of the 6000psi (CGA677) fitting if needed.

0779803	Demonstration, Hercules Self Contained Foam System, At Pierce	<b>HERCULES SELF CONTAINED FOAM SYSTEM TRAINING</b> The fire department will order one (1) vehicle with this self contained foam system. A demonstration will be provided at the apparatus manufacturers facility on the operation of the system. This demonstration will include: - A review of the self contained foam system emphasizing key areas - A walk around review of the system components on the finished truck - A hands-on the self contained system start-up and discharge session
0043115	Not Required, Pump House, Tiller	
0067658	Not Required, Step, Slide-Out Pump Op. Platform	
0665700	Light, Slide-Out Pump Operator Step, Not Required	
0046495	Not Required, Pump Access, No Pump	
0092531	Not Required, Pump House Structure	
0001836	No Light, No Pump Compartment	
0046400	Throttle, Engine Not Req'd, No Pump / Skid Pump	
0035650	Not Required, Water Level Gauge	
0546331	Air Horn, (1) Grover, Stutter Tone, 24.50" Long, In Bumper	<b>AIR HORN SYSTEM</b> One (1) chrome finish, stutter tone, Grover, Model 1510, air horn approximately 24.50" long will be provided and recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.
0606839	Location, Air Horn, Bumper, Left Side, Outside Frame, Inboard (Pos #6)	<b>Air Horn Location</b> The air horn will be located on the left side of the bumper, just outside of the frame rail.
0016065	Control, Air Horn, Horn Ring, PS Chrome Push Button	<b>AIR HORN CONTROL</b> The air horns will be actuated by a chrome push button located on the officer's side of the engine tunnel and by the horn button in the steering wheel. The driver will have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.
0797192	SP Siren, Wln 295SLSC1, w/Detachable Mic Cord, Switched Battery	<b>ELECTRONIC SIREN</b> A Whelen, Model: 295SLSC1, electronic siren with detachable noise canceling microphone will be provided. This siren to be active when the battery switch is on.
0510206	Location, Elect Siren, Recessed Overhead In Console	Electronic siren head will be recessed in the overhead console above the engine tunnel on the officer side.
0076156	Control, Elec Siren, Head Only	The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.
0601306	Speaker, (1) Wln, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt	<b>SPEAKER</b> There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.
0601555	Location, Speaker, Frt Bumper, Recessed, Left Side, Outside Frame, Outbrd (Pos 7)	The speaker will be recessed in the left side of the front bumper, towards the outside.



0778347	SP	Siren, Federal Q2B, Bat Dir, Chrome Push Button Siren Brake IPOS, Location	<b>AUXILIARY MECHANICAL SIREN</b> There will be a Federal Signal Model Q2B mechanical siren furnished on the front of the apparatus. The siren will be energized from a battery direct circuit through a 2-gauge cable to a solenoid that is energized from the emergency master switch. Additional customer selectable controls will be included for the momentary activation of this siren. The siren brake button will be a chrome push button located overhead of the driver and outboard of switch panel #1 per 32428 01-04.
0578974		Siren, Mechanical, Recessed In Grille, Imp/Vel	The mechanical siren will be mounted recessed in the front grille. The siren mounting will include a reinforcement plate.
0681882	SP	Control, Mech Siren, DS Foot Sw Location, PS Push Button	<b>MECHANICAL SIREN CONTROLS</b> The mechanical siren will be actuated by one (1) foot switch located on the driver's side as far to the left (close to the door) as possible and a push button switch on the officer's side.
0693597		Microphone Extension, Wln Model CCMICX20, 20'	<b>SIREN MICROPHONE EXTENSION</b> There will be a Whelen®, Model CCMICX20, 20 foot microphone extension provided.
0022899		Switch, Second Siren Brake, Chrome Push Button	A second siren brake switch will be installed on the officer side dash of cab. The switch will be a chrome push button style.
0607632		Lightbar, Wln, Freedom IV-Q, 81", RRRRWRRROptRRRWRRRR	<b>FRONT ZONE UPPER WARNING LIGHTS</b> There will be one (1) 81.00" Whelen Freedom IV LED lightbar mounted on the cab roof. The lightbar will include the following: One (1) red flashing LED module in the driver's side end position. One (1) red flashing LED module in the driver's side front corner position. One (1) red flashing LED module in the driver's side first front position. One (1) red flashing LED module in the driver's side second front position. One (1) white flashing LED module in the driver's side third front position. One (1) red flashing LED module in the driver's side fourth front position. One (1) red flashing LED module in the driver's side fifth front position. One (1) red flashing LED module in the driver's side sixth front position. One (1) 795 LED traffic light controller set to national standard high priority in the center positions.  One (1) red flashing LED module in the passenger's side sixth front position. One (1) red flashing LED module in the passenger's side fifth front position. One (1) red flashing LED module in the passenger's side fourth front position. One (1) white flashing LED module in the passenger's side third front position. One (1) red flashing LED module in the passenger's side second front position. One (1) red flashing LED module in the passenger's side first front position. One (1) red flashing LED module in the passenger's side front corner position. One (1) red flashing LED module in the passenger's side end position. There will be clear lenses and colored filters included on the lightbar. The following switches may be installed in the cab on the switch panel to control the lightbar: a switch to control the flashing LED modules. the traffic light controller by a cab switch with emergency master control. no momentary switch to activate the traffic light controller. The white flashing LED modules and the traffic light controller will be disabled when the parking brake is applied. The ten (10) red flashing LED modules in the front positions may be load managed when the parking brake is applied.
0595396		Light, Front Zone, Wln M6* & M6R Sdy Burn 2 Lts, Colored Lens, 4lts Q Bezel	<b>FRONT ZONE LOWER WARNING LIGHTS</b> There will be two (2) Whelen, Model M6* LED flashing warning lights and two (2) Whelen, Model M6R LED steady burning warning lights installed on the cab face, above the headlights, mounted in a common bezel. The driver's side front outside warning light to be red. The driver's side front inside steady burning warning light to be red. The passenger's side front inside steady burning warning light to be red. The passenger's side front outside warning light to be red. All four (4) lights will include a lens color that is the same as the LED's. There will be a switch located in the cab, on the switch panel, to control the four (4) lights. The driver's side inside lights may be load managed if colored or disabled if white, when the parking brake is set.
0558676		Daytime Running Lights, Headlights, Qtm, Vel/Imp, Enf/AXT-MUX, DCF (Low Beam)	<b>DAYTIME RUNNING LIGHTS (HEADLIGHTS)</b> The low-beam headlights used as daytime running lights will be activated with the following measures: Ignition switch is turned on. Parking brake is released. These lights will be deactivated with any one of the following measures: Headlight switch is turned on. High-beam flash is turned on. Parking brake is set.

0653937	Flasher, Headlight Alternating	<b>HEADLIGHT FLASHER</b> The high beam headlights will flash alternately between the left and right side. There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on. The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.
0795855	Lights, Side Zone Lower, WIn M6V2** M6**, M6V2** 6lts Crnr/Scene Lt Sw's	<b>SIDE ZONE LOWER LIGHTING</b> There will be six (6) Whelen®, flashing LED warning lights with Model M6FC, chrome flanges located in the following positions: Two (2) Model M6V2**, combination warning and scene lights located, one (1) each side on the front cab corner The side front lights to be red. The white LED scene light will be provided as a cornering/scene light and mounted no higher than the low beam headlights. Two (2) Model M6**, lights located one (1) each side behind the tiller turntable access steps. The side middle lights to be red. Two (2) Model M6V2**, combination warning and scene lights located one (1) each side on the rear fender panel. The side rear lights to be red. The color of the lenses for the warning lights will be the same color as the LED's. There will be a switch located in the cab on the switch panel to control the warning lights. The white LED cornering/scene lights will be wired so they activate and cancel when the battery switch is on, the headlight switch is on and with the directional light is activated. There will be a switch to control the driver's scene and a switch to control the passenger's scene lights. These LED cornering/scene lights will not be activated when the 4-way flashers are activated. The LED cornering/scene lights may be load managed when the parking brake is applied.
0698466	Lights, Door Interior Flash, 4 Dr Cab, WIn 0S*00FCR LED	<b>INTERIOR CAB DOOR WARNING LIGHTS</b> There will be four (4) Whelen®, Model 0S*00FCR, amber LED flashing lights provided, one (1) light located inside of each cab and crew cab door pan, as far to the outside as practical. Each light will be activated by the door jam switch of the associated door. The lights will flash whenever the corresponding door is open.
0653165	Lights, Side, WIn WION* LED, Recessed in Cab Steps, 4lts, AXT/DCF/Enf/Imp/Vel	<b>SIDE WARNING LIGHTS</b> There will be four (4) Whelen, Model WION* wide angle flashing LED warning lights with Whelen, Model IONK1B black bail mounts provided: One (1) recessed in the driver's side cab step on the front, vertical surface, below bottom of door. One (1) recessed in the driver's side crew cab step on the front, vertical surface, below bottom of door. One (1) recessed in the passenger's side crew cab on the front, vertical surface, below bottom of door. One (1) recessed in the passenger's side cab step on the front, vertical surface, below bottom of door. The color of the lights will be red. These lights will be activated with the side warning switch. These lights may be load managed when the parking brake is applied.
0672937	Lights, Side, WIn WIONSMC* LED, Chrome Flange, Mounted In Rub Rail, 1st	<b>SIDE WARNING LIGHTS</b> There will be eight (8) Whelen, Model WIONSMC* LED light(s) provided and located in the body rub rails (1) centered below LS1, (1) centered below LS2, (1) centered below LS3/LS4, (1) centered below LS5, (1) centered below RS1, (1) centered below RS3, (1) centered below RS4/RS5 and (1) centered below RS6. The lights will NOT be mounted with the rubber gasket behind the light which will allow the light(s) to fit in the rub rails. The color of each light will be red LED with a clear lens. Each light will be provided with a chrome plated ABS flange. The light(s) will be activated with the side warning switch.
0745848	Lights, Side, WIn WIONSM** LED, Trim Fet, 3rd	<b>SIDE WARNING LIGHTS</b> There will be two (2) Whelen®, Model WIONSM**, 1.69" high x 5.94" long x 1.13" deep flashing LED warning light(s) with chrome trim light(s) located, one (1) each side far outside on angled step rear of tractor. The light(s) to include red LEDs with a clear lens. The light(s) will be activated with the side warning switch. White LEDs will be deactivated when the parking brake is applied. Amber, blue, green or red LEDs may be load managed when the parking brake is applied.
0745869	Lights, Side, WIn WIONSM** LED, Trim Fet, 2nd	<b>SIDE WARNING LIGHTS</b> There will be two (2) Whelen®, Model WIONSM**, 1.69" high x 5.94" long x 1.13" deep flashing LED warning light(s) with chrome trim light(s) located, rear of the tiller cab, one (1) each side outboard of the scene light. The light(s) to include red LEDs with a clear lens. The light(s) will be activated with the rear upper warning switch. White LEDs will be deactivated when the parking brake is applied. Amber, blue, green or red LEDs may be load managed when the parking brake is applied.

0745871	Lights, Side, WIn WIONSM** LED, Trim Fet, 1st	<p><b>SIDE WARNING LIGHTS</b></p> <p>There will be two (2) Whelen®, Model WIONSM**, 1.69" high x 5.94" long x 1.13" deep flashing LED warning light(s) with chrome trim light(s) located, (1) centered between LS3/LS4 on upper portion of body and (1) centered between RS4/RS5 on upper portion of body.</p> <p>The light(s) to include red LEDs with a clear lens.</p> <p>The light(s) will be activated with the side warning switch.</p> <p>White LEDs will be deactivated when the parking brake is applied.</p> <p>Amber, blue, green or red LEDs may be load managed when the parking brake is applied.</p>
0540777	Lights, Rear Zone Lower, WIn M6* LED, Colored Lens	<p><b>REAR ZONE LOWER LIGHTING</b></p> <p>Two (2) Whelen, Model M6* LED flashing warning lights with bezels will be located at the rear of the apparatus.</p> <p>The driver's side rear light to be amber.</p> <p>The passenger's side rear light to be red.</p> <p>Both lights will include a lens that is the same color as the LED's.</p> <p>There will be a switch located in the cab on the switch panel to control the lights.</p>
0621947	SP Light, Rear Zone Upper, WIn Rota-Beam R316*F LED Beacon, Color Lens	<p><b>REAR OF HOSE BED WARNING LIGHTS</b></p> <p>There will be two (2) Whelen® Rota-Beam™, Model R316*F, 4.00" high x 7.19" wide beacons with the same color domes as the LEDs provided.</p> <p>The rear zone upper lights to be red on the driver side and amber on the officer side.</p> <p>There will be a switch located in the cab on the switch panel to control the beacons.</p>
0006551	Not Required, Lights, Rear Upper Zone Blocking	
0791493	Light, Traffic Directing, WIn TAM65 36" Long LED	<p><b>TRAFFIC DIRECTING LIGHT</b></p> <p>There will be one (1) Whelen® Model TAM65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.</p> <p>The Whelen Model TACTL5 control head will be included with this installation.</p> <p>The control head will be energized when the battery switch is on.</p> <p>The auxiliary flash to be activated when the emergency master switch is on.</p>
0529278	Location, Traf Dir Lt, Surface Mount	This traffic directing light will be surface mounted at the rear of the apparatus as high as practical.
0530282	Location, Traf Dir Lt Controller, Overhead Switch Panel DS Right End	The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.
0006646	Electrical System, 120/240VAC, General Design	<p><b>ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT</b></p> <p>The following guidelines will apply to the 120/240 VAC system installation:</p> <p><b>General</b></p> <p>Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles.</p> <p>Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</p> <p>Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.</p> <p><b>Grounding</b></p> <p>Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.</p> <p>An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.</p> <p>The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.</p> <p>In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used.</p> <p>All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.</p> <p><b>Operation</b></p> <p>Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.</p> <p>Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.</p> <p>A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information:</p>

Rated voltage(s) and type (ac or dc)

Phase

Rated frequency

Rated amperage

Continuous rated watts

Power source engine speed

Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.

#### **Overcurrent protection**

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length. For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

#### **Wiring Methods**

Fixed wiring systems will be limited to the following:

Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)

or

Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows.

Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping

Separated from fuel lines by a minimum of 6.00" (152 mm) distance

Electrical cord or conduit will be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

#### **Wiring Identification**

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

#### **Wet Locations**

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground.

Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

#### **Dry Locations**

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height.

All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.

#### **Listing**

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

#### **Electrical System Testing**

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

#### **Operational Test per Current NFPA 1901 Standard**

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by an independent third-party certification organization.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard will be applied to the low voltage electrical system during the operational test.

0529551		Generator, Harrison 10kW 10.0MAS-16R/D-11011/15/1, Hydraulic, Hotshift PTO	<p><b>GENERATOR</b></p> <p>The apparatus will be equipped with a complete AC (alternating current) electrical power system. The generator will be a Harrison, Model 10.0MAS-16R/D-11011/15/1, 10,000 watt hydraulic driven unit.</p> <p>The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.</p> <p>The hydraulic engagement supply will be operational at any time (no interlocks).</p> <p>An electric/hydraulic valve will supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.</p> <p><b>Generator Instruments and Controls</b></p> <p>To properly monitor the generator performance a digital meter panel will be furnished and mounted near the circuit breaker panel.</p>
0505796		Location, Hydraulic Generator Above Gooseneck of Tiller	<p><b>GENERATOR LOCATION</b></p> <p>The generator will be mounted in the area above the goose neck of the tiller trailer. The flooring in this area will be either reinforced or constructed, in such a manner, that it will handle the additional weight of the generator.</p>
0016752		Starting Sw, Truck Engine Powered Gen, Cab Sw Pnl	<p><b>GENERATOR START</b></p> <p>There will be a switch provided on the cab instrument panel to engage the generator.</p>
0592586		Remote Start, Hydraulic Generator, PTO and Field - SAME SWITCH, Location Feature	<p><b>GENERATOR REMOTE START</b></p> <p>There will be one (1) remote start switch(s) provided tiller cab panel #1 per instrument panel layout to engage the hydraulic generator PTO and field. A light at each switch location will be provided to indicate that the generator is running.</p>
0016740		Not Required, Fuel System	
0016767		Not Required, Oil Drain Extension, Generator	
0016771		Not Required, Routing Exhaust, Generator	
0036738		Circuit Breaker Panel, Included With PTO Generator	<p><b>CIRCUIT BREAKER PANEL</b></p> <p>The circuit breaker panel will be located below the horizontal partition, as high as possible on the left wall of LS4.</p>
0652963		Light, Wln P*P2AP1 LED, Ground Tripod 1st	<p><b>AC POWERED TRIPOD LIGHTING</b></p> <p>There will be two (2) Whelen, ground tripod light assemblies installed on the apparatus. The light head(s) will be Whelen, Model PCP2AP1, 150 watt 120 volt AC light(s) with switches on the light heads.</p> <p>The painted parts of this light assembly to be black.</p> <p>The light(s) will be installed on ground portable tripods, located on top of the trailer one (1) each above LS2 and RS3 as far FORWARD as possible and as FAR OUTBOARD to the sides of the body as possible.</p> <p>The light(s) selected above will include a 20 amp, 120 volt twist lock receptacle and plug.</p>
0753027	SP	Control for Tripod Recpt from Light Control, 1st	<p><b>CONTROL FOR RECEPTACLE</b></p> <p>The one (1) receptacles for the tripod lights located above LS2 will be controlled by the scene light controls selected for the scene lights located on DS of tiller cab. Both DS lights will be on one switch labeled "left trailer scene". Switch will be overhead in both tractor and tiller cabs. .</p>
0753028	SP	Control for Tripod Recpt from Light Control, 2nd	<p><b>CONTROL FOR RECEPTACLE</b></p> <p>The one (1) receptacles for the tripod lights located above RS3 will be controlled by the scene light controls selected for the scene lights located on PS of tiller cab. Both PS lights will be on one switch labeled "right trailer scene". Switch will be overhead in both tractor and tiller cabs..</p>
0788933		Box, Junc, Akron, 3Wire, 2-15/20A 120V Dup SB, 2-20A 120V TL	<p><b>PORTABLE JUNCTION BOX</b></p> <p>There will be two (2) Akron EJBX electric junction box(es) provided.</p> <p>There will be a cable strain relief and a 1.00' pigtail with black plastic ribbed grip, NEMA L5-20, 20 amp, 120 volt twist lock plug provided for each box.</p> <p>Each box will be provided with the following:</p> <p>two (2) 15/20 amp 120 volt AC duplex straight blade receptacle with flip up covers</p> <p>two (2) 20 amp 120 volt AC twist lock single receptacles with flip up covers</p> <p>a 120 volt AC light inside the box</p>
0006824		Holder, Junction Box, Tread Plate Aluminum	<p><b>JUNCTION BOX HOLDER</b></p> <p>There will be an aluminum junction box holder installed adjacent to the cord reel. A total of two (2) will be mounted at pick-up.</p>

0781579	Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 1st, Interior Cab	<b>120 VOLT RECEPTACLE</b> There will be one (1), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed in the cab as directed at pre-construction. The NEMA configuration for the receptacle(s) will be 5-20R. The receptacle(s) will be powered from the shoreline inlet. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Rating (amps) Phase Frequency Power Source
0779701	Receptacle, 15/20A 120V 3-Pr 3-Wr SB Dup, 4 place, Interior Body	<b>120 VOLT RECEPTACLE</b> There will be one (1), 4-place receptacle box(es) with four (4) 15/20 amp 120 volt AC three (3) wire straight blade receptacles with an interior stainless steel wall plate installed LS5 right inside wall down low (SEE PHOTO). The NEMA configuration for the receptacles will be 5-20R. The receptacle(s) will be powered from the on board generator. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Rating (amps) Phase Frequency Power Source
0779718	Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 2nd, Interior Body	<b>120 VOLT RECEPTACLE</b> There will be two (2), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with an interior stainless steel wall plate, installed one (1) each in the following compartments: LS3 and RS4 (specific location to be determined at pre-construction). The NEMA configuration for the receptacle(s) will be 5-20R. The receptacle(s) will be powered from the shoreline inlet. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Rating (amps) Phase Frequency Power Source
0779722	Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 1st, Interior Body	<b>120 VOLT RECEPTACLE</b> There will be two (2), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed (1) in LS4 right inside wall down low (SEE PHOTO) and (1) in RS5 left inside wall down low (SEE PHOTO). The NEMA configuration for the receptacle(s) will be 5-20R. The receptacle(s) will be powered from the shoreline inlet. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Rating (amps) Phase Frequency Power Source
0519546	Brand, Hydraulic Tool System, Holmatro	
0755072	Aerial, 107' ASL, 750/500 Tip, 50 MPH Wind, Tiller	<b>FOUR (4)-SECTION 107 FOOT TRACTOR-DRAWN AERIAL LADDER CONSTRUCTION STANDARDS</b> The ladder will be constructed to meet all of the requirements as described in the current NFPA 1901 standards. The aerial device will be a true ladder type device; therefore ladders attached to booms will not be considered. These capabilities will be established in an unsupported configuration. All structural load supporting elements of the aerial device that are made of a ductile material will have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard. All structural load supporting elements of the aerial device that are made of non-ductile material will have a design stress of not more than 20% of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current NFPA 1901 standard. Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope will be galvanized to reduce corrosion. The aerial base pivot bearings will be maintenance free type bearings and require no external lubrication. The aerial device will be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.

The aerial device will be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

With the aerial device out of the cradle and in the fully extended position at zero degrees elevation, a test load will be applied in a horizontal direction normal to the centerline of the ladder. The turntable will not rotate and the ladder will not deflect beyond what the product specification allows.

All welding of aerial components, including the aerial ladder sections, turntable, pedestal, and outriggers, will be in compliance with the American Welding Society standards. All welding personnel will be certified, as qualified under AWS welding codes.

The aerial device will be capable of operating in conditions of wind up to 50 mph and icing conditions of up to a .25" coating over the aerial structure.

All of the design criteria must be supported by the following test data:

- Strain gage testing of the complete aerial device
- Analysis of deflection data taken while the aerial device was under test load

The following standards for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Material testing that is performed after the mill test will be for verification only and not with the intent of changing the classification
- All welded structural components for the ladder will be traceable to their mill lots.

#### **LADDER CONSTRUCTION**

The ladder is comprised of four (4) sections.

The ladder will have the capability to support a minimum of 750 pounds at the tip in the unsupported configuration, based upon 360 degree rotation, up to full extension and from -10 degrees to +77 degrees.

The ladder (handrails, baserails, trusses, K-braces and rungs) will be constructed of high strength low alloy steel, minimum 100,000 pounds per square inch yield, with full traceability on all structural members.

Each section will be trussed diagonally, vertically and horizontally using welded steel tubing.

All ladder rungs are round and welded to each section utilizing "K" bracing for lateral and torsional rigidity.

The inside width dimensions of the ladder will be:

- Base Section 41.87"
- Lower Mid Section 34.88"
- Upper Mid Section 27.87"
- Fly Section 21.63"

The height of the handrails above the centerline of the rungs will be:

- Base Section 26.28"
- Lower Mid Section 22.68"
- Upper Mid Section 20.06"
- Fly Section 17.32"

The ladder will be designed to provide continuous egress for firefighters and civilians from an elevated position to the ground.

The egress section will be designed to maintain the rated load of the aerial device. It will be bolted on for easy replacement. There will be a tow eye welded on to each side of the egress.

#### **VERTICAL HEIGHT**

The ladder will extend to a minimum height of 107' above the ground at full extension and elevation. The measurement of height will be consistent with NFPA standards.

#### **HORIZONTAL REACH**

The rated horizontal reach will be 100'. The measurement of horizontal reach will be consistent with NFPA standards.

#### **TURNTABLE**

The upper turntable assembly will connect the aerial ladder to the turntable bearing. The steel structure will have a mounting position for the aerial elevation cylinders, ladder connecting pins, and upper turntable operator's position.

The turntable will be a 0.375" thick steel deck, coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces will meet the skid-resistance requirements of the current NFPA 1901 standard.

The turntable handrails will be a minimum 42.00" high and will not increase the overall travel height of the vehicle. The handrails will be constructed from aluminum and have a slip resistant knurled surface. The turntable vertical handrail spacing will be designed with a 44.00" wide x 27.00" high opening to allow for equipment to pass through from the ground to the aerial ladder. The opening will be located at the center, rear of the turntable.

#### **ELEVATION SYSTEM**

Dual 5.50" diameter elevating cylinders will be mounted on the underside of the base section of the ladder, one (1) on each side. One (1) 2.25" diameter stainless steel pin will fasten each cylinder to the ladder and one (1) 2.50" diameter stainless steel pin will fasten each cylinder to the turntable. The pins will have 125,000 psi minimum yield strength and will be secured with 0.50" Grade 8 bolts with castle nut and cotter pin. The bolts are to ensure that the pins do not walk out of the mounting brackets on the turntable and base section.

The elevating cylinders will be mounted utilizing maintenance-free spherical bearings on both ends of the cylinders. The aerial base pivot bearings will be maintenance-free type bearings with no external lubrication required. **The cylinders will function only to elevate the ladder and not as a structural member to stabilize the ladder side movement. The elevating cylinders will be provided with pilot-operated check valves on the barrel and rod side of the piston to prevent movement of the ladder in case of a loss of hydraulic pressure.**

**The operation envelope will be 10 degrees below horizontal to 77 degrees above horizontal.**

**The elevation system will be designed following NFPA standards. The elevation hydraulic cylinders will incorporate cushions on the upper limit of travel.**

**The lift cylinders will be equipped with integral holding valves located in the cylinder to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves will NOT be located in the transfer tubes.**

**The elevation system will be controlled by the microprocessor. Linear transducers will measure the extension of the elevation cylinder. The microprocessor will provide the following features:**

- Collision avoidance of the elevation system to prevent accidental body damage

- Automatic deceleration when the aerial device is lowered into the cradle
- Automatic deceleration at the end of stroke, in maximum raise and lower positions
- Deceleration of the aerial device at the limits of travel.

#### **EXTENSION/RETRACTION SYSTEM**

A hydraulically powered, extension and retraction system will be provided through dual hydraulic cylinders and wire ropes. Each set will be capable of operating the ladder in the event of a failure, of the other. The extension cylinder rod will be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders will be equipped, with integral holding valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves will NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The extension/retraction system will be controlled by the microprocessor. Linear transducers will measure the ladder extension. The microprocessor will provide the following features:

- Automatic deceleration at the end of stroke, in maximum extend and retract positions
- All sheaves will require lubrication. They will have bronze bushings and grease zerks.

#### **MANUAL OVERRIDE CONTROLS**

Manual override controls will be provided for all aerial and stabilizer functions.

#### **LADDER SLIDE MECHANISM**

UHMW polyethylene wear pads will be used between the telescoping ladder sections, to provide greater bearing surface area for load transfer. Adjustable slide pads will be used to control side play between the ladder sections.

#### **ROTATION SYSTEM**

The aerial will be supplied with a powered rotation system as outlined in NFPA standards. The hydraulic rotation motor will provide continuous rotation under all rated conditions and be supplied with a brake to prevent unintentional rotation. One (1) hydraulically driven, planetary gear box with drive speed reducers will be used to provide infinite and minute rotation control throughout the entire rotational travel. One (1) spring applied, hydraulically released disc type swing brake will be furnished to provide positive braking of the turntable assembly. Provisions will be made for emergency operation of the rotation system should complete loss of normal hydraulic power occur. The hydraulic system will be equipped with pressure relief valves which will limit the rotational torque to a nondestructive power. The gearbox will have a minimum continuous torque rating of 80,000 in. lbs. and a minimum intermittent rating of 160,000 in. lbs. The turntable bearing, ring gear teeth, pinion gear, planetary gearbox, and output shaft will be certified by the manufacturer of the components for the application.

The rotation system will be controlled by the microprocessor. The microprocessor will provide the following features:

- Collision avoidance to prevent accidental body damage
- Prevent the aerial from being rotated into an unstable condition.

#### **ROTATION INTERLOCK**

The microprocessor will be used to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor will allow full and unrestricted use of the aerial, in the 180 degree area, on the side(s) where the stabilizers have been fully deployed. The system will also have a manual override, to comply with NFPA 1901. SYSTEMS THAT PERMIT THE AERIAL TO ROTATE TO THE "SHORT JACK" SIDE, WITHOUT AUTOMATICALLY STOPPING THE ROTATION AND/OR WITHOUT ACTUATION OF THE "MANUAL OVERRIDE", will NOT BE ACCEPTED. SYSTEMS THAT ONLY INCLUDE AN ALARM ARE NOT CONSIDERED AN INTERLOCK AND will NOT BE ACCEPTED.

#### **LADDER CRADLE INTERLOCK SYSTEM**

A ladder cradle interlock system will be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch will be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position..

#### **AERIAL TORQUE BOX/PEDESTAL**

The pedestal assembly will be a welded assembly made of high strength 0.25" plate. The vertical member will be a 0.375" reinforced wall cylinder with a 28.00" outside diameter and will connect the rotation bearing mounting plate to the lower substructure. The pedestal assembly will be bolted to the chassis frame with 0.88" diameter Grade 8 bolts, and will be utilized to mount the outrigger jacks and reservoir for the aerial hydraulic system.

#### **LOAD CAPACITIES**

The following load capacities will be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities will be based upon full extension and 360 degree rotation. A load chart, visible at the operator's station, will be provided. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension.

#### **50 MPH WIND CONDITIONS/WATERWAY DRY**

Degrees of

Elevation

-10 to 9

10 to 19

20 to 29

30 to 39

40 to 49

50 to 59

60 to 69

70 to 77

Egress



750  
 750  
 750  
 750  
 750  
 750  
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 Fly  
 -  
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 -  
 250  
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 50 MPH WIND CONDITIONS/WATERWAY CHARGED  
 Degrees of  
 Elevation  
 -10 to 9  
 10 to 19  
 20 to 29  
 30 to 39  
 40 to 49  
 50 to 59  
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		<p>750 1000 1000 Base - - 250 500 750 1000 1000 1000</p> <p><i>Reduced loads at the tip can be redistributed in 250 lb. increments to the fly, mid, or base sections as needed.</i></p> <p><i>The tip capacity will be reduced to zero when flowing water with the nozzle above the waterway centerline.</i></p> <p><b>BOOM SUPPORT</b></p> <p><i>A heavy-duty boom support will be provided for support of the ladder in the travel position. On the base section of the ladder, a stainless steel scuffplate will be provided where the ladder comes into contact with the boom support.</i></p>
0663833	Boom Support, Raised, Tiller	<p><b>SPECIAL HEIGHT BOOM SUPPORT</b></p> <p>A special height boom support will be provided to raise the aerial device to clear the compartment on top of the body.</p>
0799362	Light, Boom Support, Wln 50C03ZCR, LED	<p><b>AERIAL BOOM SUPPORT LIGHT</b></p> <p>There will be one (1) Whelen, Model 50C03ZCR, white LED light mounted on the boom support cradle. This light will be activated when the aerial master switch is activated.</p>
0755127	Tie Down, Rope, Per Pair, 9000lb Rating, Trailer Gooseneck, Tiller	<p><b>ROPE TIE DOWN AT GOOSENECK</b></p> <p>There will be two (2) pairs of rope tie downs provided each side of the tiller gooseneck in the forward and rearward locations. Equal quantities will be provided on each side. The tie downs will be rated for a straight line pull of 9000 lb and will be nickel plated.</p>
0745396	SP Skid Plate, Steel, Under Tiller Trailer Rear Wall Substructure	<p><b>SKID PLATE AT REAR OF TRAILER BODY</b></p> <p>There will be a full width stainless steel skid plate bolted under the very rear of the tiller trailer.</p>
0680821	Boom Panel, Pair	<p><b>AERIAL BOOM PANEL</b></p> <p>There will be one boom panel provided on each side of the aerial ladder base section. The boom panel will be painted Red #644. Customer requests that NO bolts show on the exterior of the panel per job 27235.</p> <p>The boom panels will be designed so no mounting bolts are in the face of the panel. This will keep the lettering surface free of holes.</p>
0526885	Indicator, Extension, Inside and Outside Handrails, Every 10'	<p><b>EXTENSION INDICATOR</b></p> <p>Extension markings and corresponding numerical indicators will be provided along each inside and outside top rail of the base section of the aerial every 10'. They will indicate various positions of extension up to full. Markings and indicators will be clearly visible to the console operator. To aid in visibility during hours of darkness, the markings and numerical indicators will be red reflective material.</p>
0591645	Steps, Folding, Four, Aerial Device, Trident	<p><b>FOLDING STEPS</b></p> <p>One (1) set of folding steps will be provided at the tip of the ladder. An additional set of folding steps will be provided at the base of the fly section. The steps will be bright finished, non-skid with a luminescent coating that is rechargeable from any light source and can hold a charge for up to 24 hours.</p>
0688232	Rung Covers, Aerial Device	<p><b>AERIAL DEVICE RUNG COVERS</b></p> <p>Each rung will be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.</p> <p>The rung covers will be glued to each rung, and will be easily replaceable should the rung cover become damaged.</p> <p>The center portion of each rung cover will be black and the outside 2.00" edge at each side will be safety yellow.</p> <p>Under no circumstances will the rung covers be fastened to the rungs using screws or rivets.</p> <p>The rung covers will have a 10-year, limited warranty.</p>
0674963	Scabbard, Temporary Vent Saw Storage, Aerial Ladder	<p><b>TEMPORARY SCABBARD AT END OF AERIAL</b></p> <p>There will be a total of two (2) vent saw scabbard(s) provided. The scabbard(s) will be mounted on the right side of the aerial tip. The scabbard(s) will be DA finished.</p>

0676785		Bracket Only, Rubbish Hook, Aerial Fly Section	<b>RUBBISH HOOK MOUNTING BRACKET</b> Mounting will be provided near the end of the fly section of the aerial ladder for a rubbish hook. The bracket will be sized to hold a Nupla 8' roof vent rubbish hook with D handle.
0678539		Brackets Only, Roof Ladder, Aerial Fly Section	<b>LADDER STORAGE MOUNTING BRACKETS</b> There will be brackets that are painted to match the aerial device provided near the end of the fly section of the aerial for mounting a roof ladder. The mounting brackets will accommodate a 12' Duo-Safety 775-A, 16.00" wide roof ladder as determined by the type of aerial device and the available space.
0678641		Brackets Only, Pike Pole, Aerial Fly Section	<b>PIKE POLE MOUNTING BRACKETS</b> Mounting will be provided near the end of the fly section of the aerial ladder for one (1) pike pole (s). The bracket will be sized to hold a Fire Hooks Unlimited 10' pike pole.
0605565		Inclinometer, Large Style, Rieker Model, Backlit, Additional, Aerial Device	<b>INCLINOMETER</b> There will be a Rieker Model 4120WW-12V inclinometer provided at the base section of the aerial device. The inclinometer will be white in color with larger numbers and have a black ball to indicate the angle of the aerial device.
0601972		Lights, Turntable Walkway, P25, LED	<b>LIGHTS FOR TURNTABLE WALKWAY</b> There will be white LED lights provided at the aerial turntable. The lights will be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights will be activated by the aerial master switch.
0601949		Light, Turntable Console, TecNiq T-10, LED Strip Light	<b>TURNTABLE CONSOLE LIGHTING</b> There will be one (1), TecNiq Model T10, white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights will be activated by the aerial master switch.
0771409	SP	Hoist Rings, S/S, Forward Area of Turntable, Ascendant	<b>HOIST RINGS</b> There will be two (2) stainless steel hoist rings located on the turntable. One (1) to be mounted on each side of the vertical surface of the lift cylinder ear at the front of the turntable (aerial side). The rating of each hoist ring will be a maximum of 1000 lb. There will be a label indicating this rating provided next to the hoist rings.
0771410	SP	Eyes, (2) At Rear Of Turntable, 6.00" Off Center, Rope Tie Off	<b>EYELETS FOR ROPE TIE OFF POINTS</b> Two (2) eyelets will be mounted near the edge at the rear edge of the turntable to be used in as a rope tie off point. Eyelets will be provided that are approximately 6.00" off the center on each side. They will be spaced as not to interfere with handrail mounting. The rating on each of these eyelets will be no more than 750 lbs.
0679974	SP	Turntable Handrails, Offset Rear - MDL Style for ASL Tiller	<b>TURNTABLE HANDRAIL</b> The turntable handrail will be the offset rear style. This will provide approximately 24.00" clearance between the handrails at the turntable entrance.
0682164		Cover, Treadplate, Around Aerial Rotation Bearing	<b>ROTATION BEARING COVER</b> An aluminum treadplate cover will be fitted over the aerial rotation bearing and drive pinion gear (s). The cover will be attached to the underside of the turntable deck.
0619248	SP	Cover, Raised, Control Station	<b>CONTROL STATION COVER</b> The cover provided at the turntable control station will be made taller than standard to allow the intercom controls, speaker, 120 volt tip light switch (if applicable), and/or waterway shutoff valve control (if applicable) to be installed under the console cover.
0790401		Control Stations, ASL Tiller, MUX, Color Display	<b>INFORMATION CENTER</b> There will be an information center provided at the aerial turntable control station. The information center will operate in temperatures from -40 to 185 degrees Fahrenheit. The information center will employ a Linux operating system and a 7.00" (diagonal measurement) LCD display. The LCD will have a minimum 400nits rated, color display. The LCD will be sunlight readable. The LCD display will be encased in an ABS, black plastic housing with a gray decal. There will be five (5), weather-resistant user interface switches provided. The LCD display can be changed to an available foreign language. <b>OPERATION</b> The information center will be designed for easy operation in everyday use. There will be a page button to cycle from one screen to the next screen in a rotating fashion. A video button will allow an NTSC signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center will return to the vehicle information screens. There will be a menu button to provide access to maintenance, setup, and diagnostic screens. All

other button labels will be specific to the information being viewed.

#### **GENERAL SCREEN DESIGN**

Where possible, background colors will be used to provide vehicle information *At A Glance*. If the information provided on a screen is within acceptable limits, a green background color will be used. If the information provided on a screen is not within acceptable limits, an amber background color will indicate a caution condition and a red background color will indicate a warning condition.

Every screen in the information center will include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time will be synchronized between all Command Zone color displays located on the vehicle. The Alert Center will display text messages for audible alarms. The text messages will identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message for each alarm will cycle every second until the problems have been resolved. The background for the Alert Center will change to indicate the severity of the warning message. Amber will indicate a caution condition and red will indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color will be shown for all Alert Center messages.

A label will be provided for each button. The label will indicate the function for each active button for each screen. If the button is not utilized on specific screens, it will have a button label with no text.

Symbols will accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.

#### **PAGE SCREENS**

The Information center will include the following pages:

The Aerial Main and Load Chart page will indicate the following information:

- Rungs Aligned and Rungs Not Aligned will be indicated with text and respective green or red colored ladder symbols.
- Ladder Elevation will be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder.
- Water Flow (if applicable) will be indicated via a water nozzle symbol and text indicating flow / time.
- Breathing Air Levels will be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graphs shown inside the bottle will indicate oxygen levels above 20%. A red bar graph will indicate oxygen levels at or below 20%. When oxygen levels are at or below 10% the red bar graph will flash.
- The Aerial Load Chart will indicate the load limit on each section of the ladder based on actual ladder position and water flow (if applicable).
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Aerial Reach and Hydraulic Systems page will indicate the following information:

- Aerial Hydraulic Oil Temperature will be indicated with symbol and text. At a glance features will be utilized.
- Aerial Hydraulic Oil Pressure will be indicated with a symbol and text. At a glance features will be utilized.
- The following calculations will be indicated on a representative vehicle symbol:
  - Aerial Device Extension length.
  - Aerial Device Height indicating the height of the aerial device tip from the ground.
  - Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable.
  - Aerial Device Angle indicating the angle from the vehicle which the device is at.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Level Vehicle page will indicate the following information:

- The grade of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol will tilt dependent on the vehicle grade.
- The slope of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol will tilt dependent on the vehicle slope.
- Outriggers status will be indicated via a colored symbol for each outrigger present. Each outrigger status will be defined as one of the following:
  - Outrigger stowed indicated with a silver pan located close to the vehicle
  - Outrigger fully extended indicated with a fully deployed green outrigger
  - Outrigger short-jacked indicated by a yellow outrigger partially deployed
  - Outrigger not set indicated by a red outrigger that is not set on the ground
- A text box located on the vehicle symbol will be utilized to identify the overall status of the outrigger leveling system. The following status will be indicated in the text box:
  - Deployed status will indicate all outriggers are properly set on the ground at full extension
  - Shortjacked status will indicate one or more outriggers are set on the ground but not fully extended.
  - Not Set status will indicate one or more outriggers is not properly set on the ground.
  - Stowed status will indicate all outriggers are stowed for vehicle travel.
- A bedding assist alert will indicate that the aerial device is being aligned by the Command Zone system as the operator lowers the aerial device into the cradle with the joystick.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

#### **MENU SCREENS**

The following screens will be available through the Menu button:

The View System Information screen will display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

The Set Display Brightness screen will allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen will allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that will be active at vehicle power-up.

The Set Date and Time screen has a 12- or 24-hour format, and allows setting of the time and

date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and its respective inputs and outputs. Viewable data will include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.

Button functions and button labels may change with each screen.

#### **STABILIZER CONTROL STATION**

There will be an easily accessible control station located on the trailer gooseneck, one (1) each side of the apparatus. The following controls and indicator lights will be clearly identified and conveniently located for ease of operation and viewing at each control station.

- Driver Side/Passenger Side In/Out control switches
- Driver Side/Passenger Side Up/Down control switches
- Driver Side/Passenger Side Fully Extended indicator lights
- Driver Side/Passenger Side Firm On Ground indicator lights
- Stabilizer Emergency Power control switch
- Trailer Level Assist control toggle switch
- Global Safety Interlock Override red guarded switch
- Aerial system Emergency Stop switch
- Aerial system Emergency Stop Activated indicator light

#### **TURNTABLE CONTROL STATION**

There will be one (1) device control station located on the right side of the turntable so the operator may easily observe the ladder tip while operating the controls. All elevation, extension and rotation controls will operate from this location. The controls will permit the operator to regulate the speed of the aerial functions, within the safe limits, as determined by the manufacturer and NFPA standards. Each control will be equipped, with a positive lock to hold the control in a neutral position, preventing accidental activation. In addition to the neutral lock, a console cover will be provided at the turntable control station.

The following items will also be provided at the turntable control station, clearly identified and lighted for nighttime operation and conveniently located for ease of operation and viewing:

- Intercom controls
- Tip tracking light switch
- Emergency stop switch
- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed

#### **HIGH IDLE**

The high idle will be controlled by the microprocessor. The microprocessor will automatically adjust the engine rpm to compensate for the amount of load placed upon the system. The system will include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

0789602	Stabilizers, ASL Tractor Drawn Steel Aerial, Split Pan, 17' Spread	<p><b>STABILIZERS</b></p> <p>The vehicle will come equipped with a stabilization system consisting of two (2) hydraulically operated out and down style stabilizers. This system will meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.</p> <p>The stabilizer/leveling jacks will have a maximum spread of 17' measured from the centerline of the jack footpads when the beams are fully extended. The beams will be 6.81" wide x 8.88" high with 3/4" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders will have pilot-operated check valves with thermal relief designed to insure that the beams will not drift out of the stowed position during travel. Wear pads will guide the stabilizers.</p> <p>The horizontal extension cylinders will be totally enclosed within the beams and will incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer hydraulic hoses will remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders will be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted and extended positions. The stabilizer extension hydraulic cylinders will have the following dimensions: 2.25" bore, 1.38" rod, and 57.25" stroke.</p> <p>The vertical jack cylinders will be capable of 12.00" ground penetration. The cylinders will be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves will be located in the cylinder base end, NOT in the transfer tube. Vertical jack cylinder rods will be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders will have the following dimensions: 4.25" bore, 3.00" rod, and 28.88" stroke.</p> <p>Each stabilizer jack will have a polished stainless steel shield. The stainless steel shield will be of the split-pan design and will be a maximum 12.50" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This plate will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back 90 degrees for added strength.</p> <p><b>STABILIZER PADS</b></p> <p>The stabilizer footpad will be 12.00" in diameter. The footpad will be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad will have the ability to pivot 20 degrees from horizontal in any direction to allow setup on uneven terrain.</p> <p><b>AUXILIARY STABILIZER PADS</b></p> <p>An auxiliary ground pad will be supplied for each stabilizer to provide additional load distribution on soft surfaces. The pads will be 24.00" square and made from lightweight composite material. The ground pressure will not exceed 75 pounds per square inch when the ground pads are used and the apparatus is fully loaded and the aerial device is carrying its rated capacity in any position. There will be one (1) pad located on each side of the apparatus, behind the stabilizers.</p> <p><b>STABILIZER CONTROLS</b></p> <p>An electrically controlled hydraulic valve will power stabilizer movement. The valve can also be manually controlled in the event of electrical malfunction. Hydraulic power override controls will be incorporated into the valve. The manual override mechanism will be completely sealed within the valve assembly to prevent any possibility of corrosion.</p> <p>The stabilizer controls will be located on the trailer gooseneck, one (1) each side of the apparatus, to provide the operator with a full view of each stabilizer being positioned. Each stabilizer control panel will include the following:</p> <ul style="list-style-type: none"> <li>- Driver Side/Passenger Side In/Out control toggle switches</li> <li>- Driver Side/Passenger Side Up/Down control toggle switches</li> <li>- Driver Side/Passenger Side Fully Extended indicator lights</li> <li>- Driver Side/Passenger Side Firm On Ground indicator lights</li> <li>- Stabilizer Emergency Power control toggle switch</li> <li>- Trailer Level Assist control toggle switch</li> <li>- Global Safety Interlock Override red guarded toggle switch</li> <li>- Aerial system Emergency Stop mushroom switch</li> <li>- Aerial system Emergency Stop Activated indicator light</li> </ul> <p>As a safety device, an electrically actuated diverter valve will be provided. The hydraulic power will be diverted to the aerial ladder controls automatically the instant all stabilizer jacks are firmly planted on the ground. Once the aerial ladder is raised from the bedded position, the stabilizer hydraulic power is cut off so the stabilizers will not accidentally be moved while the aerial is being operated.</p> <p>To aid in leveling the unit, two bubble type angle indicators will be located near the stabilizer controls. One indicator will show the angle of the truck from the front to rear and the other will show the side to side angle of the truck. The indicators will be color coded green to show when the truck has been properly leveled allowing the aerial device to be operated at full capacity.</p> <p>A stabilizer deployment audible warning alarm will be provided at each side of the body, activated by the stabilizer movement.</p> <p>A "Stabilizers Not Stowed" indicator light will be provided in the cab within view of the driver. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the vehicle if it is moved. The stabilizer system will also be wired to the "Do Not Move Truck" indicator light. This light will flash whenever the apparatus parking brake is not engaged and the stabilizers are not fully stowed.</p>
0530819	Not Required, Aerial Stabilizer Pins	<p><b>STABILIZER PINS</b></p> <p>The stabilizer jacks will not have holes for the stabilizer pins.</p>
0779621	Doors, Stabilizer Control Box, Valve/Electrical Distribution Box, Tiller	<p><b>STABILIZER CONTROL BOX DOORS</b></p> <p>There will be aluminum treadplate doors hinged on the bottom with a flush lift and turn latch provided over each stabilizer control box.</p> <p><b>VALVE/POWER DISTRIBUTION BOX ACCESS DOOR</b></p> <p>There will be aluminum treadplate doors with a flush lift and turn latch provided over the valve and power distribution box doors. These doors will be bottom hinged.</p>

0615058	Stabilizer Placement, Cameras w/Command Zone Color Display, 1 Set	<p><b>STABILIZER PLACEMENT</b></p> <p>There will be two (2) cameras provided and installed on the body, one (1) directly above each stabilizer. The cameras will be activated with a switch in the cab and will provide a picture to specify the fully extended stabilizer position allowing the driver the ability to position the vehicle with the proper clearance for stabilizer deployment.</p>
0796833	Inclinometer, Mechanical, Rieker 1023 12VT, Backlit, Tiller, IPOS, Special Locat	<p><b>INCLINOMETER</b></p> <p>There will be four (4) inclinometers provided near the stabilizer control stations to assist with leveling the truck. The inclinometers will be located as directed at pre-construction. Each inclinometer will be a backlit Rieker Model 1023.</p>
0786011	Hydraulic System, ASL Tiller	<p><b>HYDRAULIC SYSTEM</b></p> <p>All hose assemblies will be assembled and crimped by the hose manufacturers certified technician.</p> <p>All manufacturing employees responsible for the installation of hydraulic components will be properly trained. Training will include: proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.</p> <p>Hoses used in the aerial hydraulic system will be of a premium quality hose with a high abrasion resistant cover. All pressure hoses will have a working pressure of 4000 psi and a burst pressure rating of 16,000 psi.</p> <p>All hydraulic fittings and tubing will be plated to minimize corrosion.</p> <p>The fitting will use an O-ring seal where possible to minimize hydraulic leaks.</p> <p>An interlock will be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard. The system will meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.</p> <p>All hydraulic components that are non-sealing whose failure could result in the movement of the aerial will comply with current NFPA 1901 standards and have burst strength of 4:1.</p> <p>Dynamic sealing components whose failure could cause aerial movement will have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.</p> <p>All hydraulic hoses, tubes, and connections will have a minimum burst strength of 4:1 per the current NFPA 1901 standard.</p> <p>A chassis mounted positive displacement piston pump for consistent pressure and rapid responses will supply hydraulic power for all aerial operations. The positive displacement pump will provide 3,150psi. The hydraulic pump will be solely dedicated to aerial operations.</p> <p>The hydraulic oil will be a premium Multi-Vis product having a leading edge additive package, provide oxidation stability, be extremely shear stable and maximum anti-wear properties. All oil delivered to the manufacturing site will have a minimum ISO cleanliness level of 18/15/13.</p> <p>Each aerial will be evaluated as to the region and climate where it will be used to determine the optimum viscosity and proper oil grade. Oil viscosity will be based on an optimum range of 80 to 1000 SUS during normal aerial use. Before shipment of the unit, an oil sample will be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.</p> <p>The aerial hydraulic system will have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer will receive a certificate of actual cleanliness test results and an explanation of the rating system.</p> <p>Each aerial will include an oil sample port, identified with a yellow dust cap and a label, for subsequent customer testing.</p> <p>Ball valves will be provided in the hydraulic suction lines to permit component servicing without draining the oil reservoir.</p> <p>The aerial will incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.</p> <p>Hydraulic power to the ladder will be transferred from the pedestal by a hydraulic swivel.</p> <p>The system hydraulic pressure will be displayed on the turntable display.</p> <p>The hydraulic system will be additionally protected from excessive pressure by a secondary pressure relief valve set at 3,150 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief will prevent system damage.</p> <p><b>HYDRAULIC CYLINDERS</b></p> <p>All cylinders used on the aerial device will be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.</p> <p>Each cylinder will include integral safety holding cartridges.</p> <p>Each cylinder will be designed to a minimum safety factor of 4:1 to failure.</p> <p>All safety holding cartridges will be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.</p> <p><b>POWER TAKEOFF/HYDRAULIC PUMP</b></p> <p>The apparatus will be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump will meet all the requirements for the aerial unit operations.</p> <p>An amber indicator light will be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.</p> <p>An interlock will be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.</p> <p>The hydraulic system will be supplied by a variable displacement load and pressure compensating piston pump. The pump will meet the demands of all three simultaneous aerial functions. The pump will provide proper flow for single aerial function with the engine at idle speed. A switch will be provided on the control console to increase the engine speed for multiple function operation.</p> <p><b>EMERGENCY PUMP</b></p> <p>The hydraulic system will be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.</p> <p>The aerial will be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump will be capable of running for 30 minutes for limited aerial functions to stow the unit in case of a main pump or truck system failure. A momentary switch will be located at the stabilizer and aerial control locations to activate the emergency pump.</p>

#### **AERIAL CONTROL VALVE**

The aerial hydraulic control valve will be designed with special spool flows, limiting the oil flow for the designed function speed. The valve will be electrically controlled and be located in the control console with the handles oriented downward for manual operation. The activation handles will be spaced a minimum of 3.50" for ease of operation. The valve spools will be designed to bleed off downstream pressure, in the neutral position and allow proper sealing of any cylinder holding cartridge.

#### **OIL RESERVOIR**

The oil reservoir will have a minimum capacity of 40 gallons. The oil fill location will be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. The fill cap will have a 40 micron filter to provide protection from contamination. A drain hose will be included and will terminate with a quarter turn ball valve.

Two suction ports will be provided, one for the main hydraulic pump and one for the emergency pump. The main suction will be slightly elevated off the bottom of the reservoir and include a 100 mesh suction strainer. The emergency suction port will be closer to the bottom of the reservoir to provide some reserve oil for emergency operation.

A six (6) disc type magnetic drain will also be provided to collect any ferrous contaminants.

A combination sight glass and thermometer will be mounted to the reservoir in an easily viewable location.

The hydraulic oil reservoir will be labeled per the current edition of NFPA 1901 standard.

#### **RETURN FILTER**

The low pressure oil return filter will be remote mounted and designed to prevent oil loss during filter change. A 50 psi bypass will be included to protect the element and hydraulic system during lower than normal operating temperatures. The system will incorporate the following filter to provide dependable service:

return filter: beta 200 at 6 micron

0786880

Swivels, D-Series w/Encoder, ASL-Tandem/Tiller, MUX (32 Collector Rings)

#### **HYDRAULIC SWIVEL**

The aerial ladder will be equipped with a three (3) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel will allow for 360 degree continuous rotation of the aerial.

#### **ELECTRIC SWIVEL**

The ladder will be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 32 collector rings will be provided that are capable of supplying 20 amp continuous service. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone will be used.

#### **12-BIT ABSOLUTE ENCODER**

The aerial ladder will be equipped with a 12-Bit Absolute Encoder which provides 4096 counts per shaft turn for position and direction reference.

The 12-Bit Absolute Encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation.

If the power is interrupted for any reason, the 12-Bit Absolute Encoder will allow power to be returned to the system without having to re-zero the settings.

The 12-Bit Absolute Encoder will be an integral part of a micro-processor based control system.



0709718	Electrical System, ASL Tiller	<p><b>ELECTRICAL SYSTEM</b></p> <p>The aerial device will utilize a microprocessor-based control system. The system will consist of the following components:</p> <p>Control System Modules</p> <p>Each of the control system modules will be configured as follows:</p> <p>Sealed to a NEMA 4X rating</p> <p>Operating range from -40 degrees F to 156 degrees F (-40 degrees C to 70 degrees C)</p> <p>Communicate using J1939 data link</p> <p>Two (2) diagnostic LED lights</p> <p>One (1) green light that illuminates when module has power (B+) and ground</p> <p>One (1) red light that flashes to indicate the module is capable of communicating via the data link</p> <p>Up to 16 diagnostic LEDs on each module</p> <p>Ground matrix identification system</p> <p>The following control system modules will be used:</p> <p>Control Module</p> <p>Main controller for the system</p> <p>USB connection allows for computer diagnostics</p> <p>Power Module</p> <p>Built-in fault sensing</p> <p>Eight (8) digital outputs</p> <p>Pulse width modulating (PWM) capable</p> <p>10A continuous per output</p> <p>Circuit protection based on actual current draw (not affected by heat)</p> <p>Current Control Module</p> <p>Built-in fault sensing</p> <p>Three (3) analog inputs</p> <p>Eight (8) digital outputs</p> <p>Pulse width modulating (PWM) capable</p> <p>3A continuous per output</p> <p>Closed Loop System</p> <p>Circuit protection based on actual current draw (not affected by heat)</p> <p>Input Module</p> <p>16 software selectable (digital or analog) inputs</p> <p>Output Module</p> <p>16 digital outputs</p> <p>Input/Output Module</p> <p>Eight (8) software selectable (digital or analog) inputs</p> <p>Eight (8) digital outputs</p>
0750827	SP Lights, Wln MPB* Micro LED, Trk & Tip, 6lts 102 or 107ASL	<p><b>SPOTLIGHTS</b></p> <p>There will be six (6) Whelen® Micro Pioneer, Model MPB*, 12 volt DC LED bail mount lights furnished.</p> <p>One (1) will be mounted on the driver's side of the base section of the ladder</p> <p>One (1) will be mounted on the passenger's side of the base section of the ladder</p> <p>One (1) will be mounted high on the driver's side tip of aerial</p> <p>One (1) will be mounted high on the passenger's side tip of aerial</p> <p>One (1) will be mounted low on the driver's side tip of the aerial</p> <p>One (1) will be mounted low on the passenger's side tip of the aerial</p> <p>The painted parts of this light assembly to be black.</p> <p>Power to the "tracking lights" will be controlled by an on/off switch at the turntable control operator's position.</p> <p>The lights at the tip will be controlled by platform/tip and turntable.</p>
0653677	Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid, Fly	<p><b>LIGHTING ON AERIAL LADDER</b></p> <p>There will be TecNiq, Model D02 LED rung lighting provided on both sides of the aerial ladder base, lower and upper mid, and fly sections. The lighting will be located adjacent to the ladder rungs along the lower rail of the ladder sections and will run the length of the ladder section.</p> <p>The color of the sections will be:</p> <p>The base section of the ladder to be blue.</p> <p>The lower mid section of the ladder to be blue.</p> <p>The upper mid section of the ladder to be blue.</p> <p>The fly section of the ladder to be blue.</p> <p>The LED rung lighting will be activated when a switch at the turntable operator's panel is activated through the master battery switch.</p> <p>The lights may be load managed when the parking brake is applied.</p>
0653817	Light, Locator, Wln VTX609*, LED, at Tip, PAL/PAP, 2lts	<p><b>AERIAL LOCATOR LIGHT</b></p> <p>There will be two (2) Whelen Model VTX609*, 1.00" high x 2.25" in diameter LED modules with chrome flanges installed at the aerial tip for the purpose of locating the aerial device while in operation.</p> <p>Both modules will be activated whenever the aerial is raised from the cradle.</p> <p>The color of the locator light will be amber.</p> <p>The lens color will be clear.</p>
0540725	Lights, Stabilizer Warn (1) Set, Wln M6* LED, Rear Colored Lens	<p><b>STABILIZER WARNING LIGHTS</b></p> <p>There will be two (2) LED flashing warning lights with chrome flanges installed on the stabilizer cover panels, one (1) each side.</p> <p>The rear stabilizer pan lights will be red LED with a lens the same color as the LEDs.</p> <p>These warning lights will be activated by the same switch as the side warning lights.</p>

0068703		Lights, Grote Supernova LED, Stabilizer Beam, (1) Set	<b>STABILIZER BEAM WARNING LIGHTS</b> Two (2) 4.00" diameter red LED flashing lights will be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward. The lights will be Grote Supernova 40 series LED lights. The lights will be recessed in the horizontal beam of the stabilizer. These warning lights will be activated with the aerial master switch.
0771147	SP	Lights, Stabilizer Scene, (1) set, HiViz FT-WL-3500-*, LED	<b>STABILIZER SCENE LIGHTS</b> There will be two (2) HiViz Model FT-WL-3500-*, 1,981 effective lumens lights with white LEDs, adjustable mounts, spot optics, and the painted parts of the light housing and brackets to be black installed under the stabilizer beams to illuminate the surrounding area per the following: one (1) light installed under the left side stabilizer one (1) light installed under the right side stabilizer The lights will be activated when the aerial master switch is activated.
0006929		Not Required, 120v To Tip	
0758120	SP	Light, Wln P*H1*1, 12 Volt LED @ Turntable	<b>12 VOLT LIGHTING AT TURNTABLE</b> There will be two (2) Whelen®, Model P*H1*1, 9,260 lumens 12 volt DC light(s) with white LEDs, switch and flood optics provided at the aerial device turntable per the following: One (1) light installed behind the turntable control console One (1) light installed on the turntable hand rail location on the opposite side of the turntable control panel The light(s) to be installed on pull up through mount outside pole length to be 12.00" long with sensor connecting the pole to the Do Not Move Truck Indicator circuit The painted parts of this light assembly to be black Light(s) will be activated when the battery switch is on and the switch on the light head(s) are on. The light(s) may be load managed when the parking brake is applied.
0652167	SP	Intercom, 2-Way Fire Research ICA900 Hands Free (Special Location)	<b>2-WAY AERIAL COMMUNICATION SYSTEM</b> There will be a Fire Research, Model ICA900-112, two-way intercom system provided. The control module with LED volume display and push-button volume control and speaker will be located in the turntable operator console, provided there is room. A hands free module will be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed. Each intercom unit will be weatherproof.
0540895		Not Required, Breathing Air to Tip, Aerial Ladder	
0024742		Not Required, Mask, Breathing Air To Tip	
0066919		Not Required, Raised Pedestal, Tiller	
0645472		Rope Tie Bar At Base Section, Lyfe Pulley, Painted Box, Ascendant, 105', Tiller	<b>ROPE TIE BAR AT BASE SECTION, RESCUE LIFTING SYSTEM</b> A removable bracket shall be supplied at the rear of the base section, attached between the left hand and right hand rear hand rails. The bracket shall provide Lyfe Pulley rope tie off and/or guide points spaced 5.75" apart, centered between the rear hand rails. The bracket shall be designed to be easily removable and not interfere with a fully retracted ladder assembly when attached to the base section. A storage box for the bracket shall be provided on the outside rear of the base section. The storage box will be painted to match the aerial device.
0604457		Lifting Eye Assembly, Rope Rescue Attachment, ASL	<b>LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT</b> A lifting eye assembly will be provided that is designed to evenly distribute load at the tip of the aerial. The lift eye assembly is retained by two (2) locking pins, one (1) at each end outboard side of the egress. Leveling is maintained by the lifting eye assembly rotating within the egress mounting.
0565615		LyfePulley, Rescue System	<b>RESCUE LIFTING SYSTEM</b> A rescue lifting attachment will be provided. The lifting attachment will mount to the aerial egress and will consist of a pair of nylatron pulleys mounted to a stainless steel shaft. The pulleys will be adjustable from side to side and will have a total lifting capacity of 500lb, regardless of whether one (1) or both pulleys are being utilized.
0544198		Control, Air Horn, Red, at Turntable	<b>AIR HORN CONTROL AT AERIAL TURNTABLE</b> An air horn control button will be provided at the aerial turntable. This button will be red in color and properly labeled. Collector ring space must be available for this option to be utilized.

0618625	SP	Aerial Hourmeter to Activate w/Aerial Master and Aerial PTO Input	<b>AERIAL HOURMETER</b> This unit has a generator and an aerial pump off the same PTO, so the hourmeter will be activated when the aerial master and aerial PTO are activated. This will prevent generator hours from adding to the aerial hours.
0536374		Turntable Access, ManSaver Bars, Red	<b>MANSAVER™ BARS, AERIAL TURNTABLE</b> ManSaver™ bars will be red in color and installed at the aerial turntable.
0763138	SP	Waterway, High Flow, ASL-Tiller, w/Shortened Egress	<b>WATER SYSTEM</b> A waterway system will be provided consisting of the following components and features: A 5.00" pipe will be connected to the water supply on one end and to a 5.00" internal diameter water swivel at the rotation point of the turntable. The water swivel will permit 360 degree continuous rotation of the aerial device. The 5.00" waterway swivel is to be routed through the rotation point up to the heel pin swivel. The heel pin swivel will allow the water to flow to the ladder pipe while elevating the aerial ladder from -10 degrees to 77 degrees. The heel pivot pin is not integral with the waterway swivel at any point. The design of the waterway will allow complete servicing of the waterway swivel without disturbing the heel pivot pin. The integral telescopic water system will consist of a 4.50" diameter tube in the base section, a 4.00" diameter tube in the mid-section and a 3.50" diameter tube in the fly section. The telescopic waterway will be constructed of anodized aluminum pipe. The aerial will be capable of discharging up to 1000 gpm at 100 psi parallel to the ladder and 90 degrees to each side of center while maintaining the rated tip load. The aerial will be capable of discharging between 1001 and up to 1500 gallons per minute at 100 psi parallel to the ladder and 40 degrees to each side of center while maintaining the rated tip load. The master stream will be capable of flow up to 30 degrees above horizontal. The monitor mounting bracket will be modified to move the monitor 8.00" rearward to accommodate a shortened trailer and egress. An adjustable pressure relief valve will be furnished to protect the aerial waterway from a pressure surge. Two (2) 1.50" drain valves will be located at the lowest points of the waterway system and will be routed to drain through the center of the 5th wheel. <b>WATERWAY SEALS</b> The waterway seals will be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals will be internally lubricated. The waterway seals will have automatic centering guides constructed of synthetic thermalpolymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.
0632855		Monitor, Akron 3480 StreamMaster II Electric w/Extended Vertical Travel	<b>AERIAL MONITOR</b> An Akron Model 3480 monitor with stow and deploy will be provided at the tip with a Akron 1250 gpm Model 1578. This monitor will allow for an additional 30 degrees of travel above horizontal at the aerial tip. The monitor's functions will be controlled electrically from two (2) separate locations. One (1) control will be located at the control console and the other at the ladder tip. There will be a courtesy light at the tip of the aerial to illuminate the controls. If the aerial has a quick-lock waterway, a limit switch will be provided to disable the extended vertical travel when the monitor is locked to the lower ladder section.
0010758		Flow Meter, Waterway, PAL, 110' Ascendant, MUX	<b>AERIAL WATERWAY FLOW METER</b> Waterway flow, including total water flowed, will be monitored by the microprocessor. An LCD display will be located at the turntable control station.
0512000		Inlet, Aerial Waterway, 4.00" Plumbing with 5.00" Inlet, Tiller	<b>AERIAL WATERWAY INLET</b> The aerial waterway will be plumbed from the fifth wheel area to the waterway swivel with 4.00" pipe. A 5.00" inlet will be located on each side of the apparatus complete with a chrome plated cap. The individual "line" pressure gauges for the inlets will be manufactured by Class 1. They will be a minimum of 3.50" in diameter and will have white faces with black lettering. Gauges will be compound type with a vacuum/pressure range of 30.00"-0-600#. The individual pressure gauge will be installed as close to the inlet as practical.
0673128		Quick-Lock Waterway Locking System, 100' HDL, 105' HDL, ASL	<b>WATERWAY LOCKING SYSTEM</b> The aerial ladder waterway monitor will be capable of being positioned at either the fly section or at the next lower section of the ladder. The monitor location will be changeable by the use of a single handle, located at the side of the ladder. The handle, attached to a cam bracket, will simply be moved forward to lock the monitor at the fly section and back to lock it to the previous section. There will be no pins to remove and reinstall. The monitor will be operational at all times, regardless of its position, without connecting or disconnecting electrical lines.

0059513	Label, Pinnable Waterway Lock	<p><b>QUICK-LOCK WATER WAY LOCK LABELING</b></p> <p>The Quick-Lock waterway locking mechanism will be labeled "LOWER FLY" "RELEASE" "UPPER FLY". Three (3) labels will be installed on the side and three (3) on the top of the pinnable waterway release lever mounting bracket.</p>
0047901	Not Required, Tools, Aerial, PAL/PAP	
0559494	Manuals and Training, 3 Consecutive Days, Ascendant Ladder, PAL	<p><b>MANUALS</b></p> <p>Two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device will be provided with the apparatus at time of pick-up.</p> <p><b>INITIAL INSTRUCTION</b></p> <p>On initial delivery of the fire apparatus, the contractor will supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of three (3) consecutive days.</p>
0593168	Cab, Tiller, Sliding Doors	<p><b>TILLER CAB</b></p> <p>A permanently mounted tiller cab will be located on top of the tiller trailer, to the rear of the aerial ladder. The maximum overall height of the tiller cab will not exceed 134.00". The tiller cab will be totally enclosed.</p> <p>The cab windshield will be automotive approved tinted safety glass and will provide a minimum of 1,513 square inches of clear viewing area. A smoked Lexan™ sun visor will be provided in the tiller cab above the windshield. There will be a black plastic thumb latch provided to help secure the sun visor in the stowed position. Each side window, directly rearward of the windshield, will be more than 536 square inches. The side windows, combined with the windshield, will provide a minimum of 2,585 square inches of unobstructed viewing area. In order to provide maximum visibility for the tillerman, there will be no corner posts at the forward corners of the windshield. Two (2) slide back doors, one each side of cab shall be provided. Doors will be mounted on top and bottom slides which will be lockable in either open or closed position. A minimum door opening of 21.50" shall be provided when entering and exiting the tiller cab. The tiller cab doors shall be equipped with drop-down windows. The windows shall be 18.00" wide x 31.00" high. The rear wall of the tiller cab shall have a vertically-split sliding window. The window shall be 33.50" wide x 27.75" high.</p> <p>The tiller cab floor will be constructed of aluminum treadplate.</p> <p>A two (2) speed electric windshield wiper with washer will be provided for the front windshield. The windshield washer reservoir will have a capacity of two (2) quarts and will be located forward of the tiller cab.</p> <p>An adjustable, telescopic steering column will be provided.</p> <p>The diagnostic plug for the trailer ABS system will be provided in the driver side tiller access stepwell, behind the fuel fill door.</p> <p>The following controls/alarms will be provided inside the tiller cab:</p> <ul style="list-style-type: none"> <li>- Buzzer signaling system with push button in tiller cab steering wheel as well as a labeled push button in the tractor cab, within reach of the driver.</li> <li>- Jackknife alarm</li> </ul> <p>The following will be provided on the steering column support pedestal:</p> <ul style="list-style-type: none"> <li>- Two (2) heater/defroster outlets</li> <li>- Heater/defroster control switch</li> </ul> <p>The following controls/gauges will be located in the upper control panel:</p> <ul style="list-style-type: none"> <li>- Step light switch</li> <li>- Tiller wheel position indicator gauge. (L-C-R)</li> <li>- Two (2) 2.00" diameter amber turn signal</li> <li>- Windshield wiper/washer control switch</li> </ul>
0636262	Light, Dome, Weldon Dual LED 1lt	<p><b>TILLER CAB DOME LIGHT</b></p> <p>There will be one (1) P1006, dual LED dome light with grey bezel installed in the tiller cab. The color of the LED will be red and white.</p> <p>The white LED will be controlled by the door switches and the lens switch.</p> <p>The color LED will be controlled by the lens switch.</p>
0601871	SP Heater/Defroster, Tiller Cab, Tiller 2002, Electric, Dual 12V	<p><b>TILLER CAB HEATER/DEFROSTER</b></p> <p>There will be two (2) DC Thermal, Model SA12-4000, combination heater/defroster provided in the tiller cab. The system will be 12 volt and will be powered through the tractor ignition circuit. A thermostat integral to the unit will be provided.</p>
0555790	Air Conditioner, Tiller Cab, Tiller 2002	<p><b>TILLER CAB AIR CONDITIONING</b></p> <p>Air conditioning will be provided for the tiller cab.</p> <p>The unit will be manufactured by Danhard Inc.</p> <p>The air conditioner will have cooling capacity of 13,500 BTU.</p> <p>The unit will be 120 volt AC and will be run off of the onboard generator. The full load amperage draw will be 12.00 amps in the cooling mode.</p> <p>The condenser will be located ahead of the tiller cab on the top deck of the tiller trailer. The air conditioning unit will not increase the overall height of the tiller cab.</p>

0695671		Seat, Tiller, Pierce PS6, Premium, Air Ride Hi-Back	<b>TILLER CAB SEAT</b> A seat will be provided in the tiller cab. The seat will be a cam action type, with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. The seat will have a reclining back adjustable from 20 degrees back to 0 degrees forward. The seat back will be a high back style with manual lumbar adjustment lever, and will include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat will be furnished with a 3-point, shoulder type seat belt. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.
0744341	SP	Steps,Narrow Rear,Small Top Step w/Side Stacked Ladders,Fwd Steps w/Sliding Dr	<b>TILLER CAB STEPS</b> For access to the tiller cab, two (2) sets of steps will be furnished at the rear of the apparatus, one set each side. The bottom three (3) access steps will be 21.00" wide, and located just behind the tiller axle. The top step will be sized to accommodate side stacked ladders. The steps will be securely reinforced and constructed of aluminum treadplate. The outside corners at the rear edges of the steps will be mitered at 45 degrees. Handrails will be provided on each side of the step assemblies for maximum safety. The steps will be illuminated for nighttime operation.
0636285	SP	Ind Warn, Cab Seatbelt Warn, Jackknife Warn WIn VTX609B, Floyd Bell Alm, Dual	<b>JACKKNIFE ALARM</b> There will be two (2) Floyd Bell, Model UT-09-515-S, staccato tone audible alarms and two (2) Whelen, Model VTX609B, blue flashing LED lights activated when the jackknife position approaches the maximum allowable angle which is 60 degrees. There will also be two (2) Floyd Bell, Model UO-09-515-S, whoop tone audible alarms activated when the jackknife position approaches actual collision which is 80 degrees. One (1) of each alarm and light will be installed in the tractor cab within view of the tractor driver. One (1) of each alarm and light will be installed in the tiller cab within view of the tiller driver. At 80 degrees jackknife position both alarms will sound, the staccato alarm will not deactivate at 80 degrees jackknife position. <b>TILLER WARNING INDICATOR</b> A warning indicator in the tractor cab will be activated if the parking brake is released and the tiller driver is not seated and buckled in the tiller cab.
0644604	SP	Mirror, 6" Round Convex, Interior of Tiller Cab	<b>CONVEX MIRRORS IN TILLER CAB</b> There will be a 6.00" diameter round convex mirror with adjustable arm installed on the interior of each side of the tiller cab. The mirrors will be located in the upper corner portion.
0746216	SP	Insulation, Tiller Cab	<b>TILLER CAB INSULATION</b> There will be insulation added to the inside of the tiller cab as applicable.
0600100	SP	Bracket, Wedge, 30 Degree, HVAC Controls	<b>HVAC CONTROL BRACKET</b> There will be one 30 degree wedge bracket for mounting the A/C/heater/defroster controls onto. This will allow the Tillerman to view the control screens from where he is seated.
0081819	SP	Air Conditioning Tag, Tiller Cab	<b>TAG, AIR CONDITIONER, TILLER CAB</b> A tag will be located next to the power control for the tiller cab air conditioning. The tag will indicate that the generator will be on in order for the air conditioning to operate.
0099824		Footswitch, Engine Start in Tiller Cab, W/Master Override Switch In Tractor Cab	<b>ENGINE START IN TILLER CAB</b> A foot switch will be provided in the tiller cab on the passenger side to allow the truck to be started. If the switch is not pressed the truck will not start. There will be a master override switch located in the cab which will allow the truck to be started in the unlikely event that the switch at the tiller cab would fail. The switch in the cab will be a covered momentary switch.
0661114		Tinted Glass, 14%, Tiller Cab Rear Wall Window	<b>WINDOW TINT</b> The tiller cab rear wall sliding window will be tinted with 14% light transmission tint.
0051052		Window Defrost Fans (2)	<b>WINDOW DEFROST FANS</b> Two (2) window defrost fans will be mounted one each side of the tiller steering column .
0753037	SP	Handrails, 10.00" Additional on Tiller Cab, Hansen, Knurled, Alum, LED	<b>TILLER CAB HANDRAILS</b> A total of two (2) Hansen knurled aluminum handrail(s) will be provided on the tiller cab extending all the way to the top, on both PS and DS. Each handrail will be provided with blue LED lights. The lights will be activated when the headlight switch is activated and the parking brake is applied. The LED lights may be load managed.

0503743		Door Stop, Rubber Bumper, Tiller Cab Doors	<b>DOOR STOP</b> Rubber material will be provided on an angled bracket to stop the open travel for each of the tiller cab doors.
0600082	SP	Scufftape, at Bottom of Tiller Cab Doors	<b>TILLER CAB DOOR PROTECTIVE TAPE</b> A strip of vinyl scuff tape will be provided on the bottom surface of the tiller cab doors.
0626264		Trailer, 3.00" Extended Gooseneck, Shorter Trailer, Single Axle, Tiller	<b>TILLER TRAILER</b> The gooseneck area of the tiller trailer will be constructed of 100,000 psi minimum yield strength steel. The gooseneck area will have a section modulus of 289.00 cu. in. and a resistance to bending moment of 28,900,000 inch pounds. The gooseneck area will be 46.00" wide x 13.50" deep. The tiller trailer frame will be box type construction to effectively resist trailer twist. The side rails will have a 13.38" tall web over the front and mid sections of the trailer, with a continuous smooth taper to a 10.75" over the tiller axle. The frame rails will be constructed of 80,000 psi minimum yield strength heat treated .38" thick steel, with 3.50" wide flanges and covered by top and bottom plates to form a ridged box structure. Cover plates will be 50,000 psi minimum yield strength steel. The tiller trailer frame will have a section modulus of 257.70 cu. in., and a resisting bending moment (rbm) of 12,880,000 inch pounds over the critical regions of the frame assembly, with a section modulus of 18.96 cu. in. with an rbm of 2,085,803 inch pounds over the rear axle. The overall length of the tiller trailer will be 458.00". This will be shorter than standard, but will include a 3.00" extended gooseneck area of the trailer.
0090681		Walkway, Turntable to Body, Tiller	<b>WALKWAY, TURNTABLE TO BODY</b> A walkway will be provided from the aerial turntable to the tiller body.
0052481		Axle, Tiller Trailer, Oshkosh TAK-4, Non Drive, 22,800#	<b>TILLER TRAILER NON DRIVE AXLE</b> The tiller trailer axle will be of the independent suspension design with a ground rating of 22,800 lb. Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron. The center cross members and side plates will be constructed out of 80,000-psi yield strength steel. Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations. The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative chamber above rated load. Camber at load will be zero degrees for optimum tire life. The kingpin bearing will be of low friction design and be sealed for life. Toe links that are adjustable for alignment of the wheel to the center of the trailer will be provided. The wheel ends must have little to no bump steer when the chassis encounters a hole or obstacle. The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase. The turning angle will be 24 degrees or greater. <b>TILLER TRAILER NON DRIVE AXLE WARRANTY</b> The non drive axle system will have a <b>three (3) year parts</b> and labor warranty.
0032125		Steering, Sheppard M110 w/tilt, TAK-4, Tiller Trailer	<b>TILLER TRAILER STEERING</b> Dual Sheppard M110 steering gears, with integral heavy-duty power steering, will be provided. The steering wheel will be 18.00" in diameter, and capable of tilting and telescoping.
0032170		Brakes, Knorr/Bendix 17", Disc, TAK-4, Tiller, Non-NFPA Compliant	<b>BRAKES</b> The tiller trailer brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance. NFPA 1901, 2016 Edition, Section 12.3.2.4 states that clearance for tire chains will be provided in accordance with SAE J683, <i>Tire Chain Clearance - Trucks, Buses, and Combinations of Vehicles</i> . This brake system does not allow adequate clearance for tire chains, therefore, the apparatus will be non-NFPA compliant at time of delivery.

0052483		Suspension, Tiller 2002, 22,800#	<p><b>SUSPENSION</b></p> <p>Independent suspension will be provided with a minimum ground rating of 22,800 lb. The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces, and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.</p> <p>Each wheel will have torsion bar type spring. In addition, each wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension. The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms. The torsion bar type spring and anchor lock system will allow for simple lean adjustments without the use of shims. Adjustment for a lean will be accomplished within 15 minutes. Anchor adjustment design is such that it allows 4.00" of ride height adjustment per side. The independent suspension will have been put through a durability test that simulated a minimum of 140,000 miles of inner city driving.</p>
0037018		Tires, Goodyear, G296 MSA, 425/65R22.5 20 Ply (tiller)	<p><b>TIRES</b></p> <p>Tiller trailer tires will be Goodyear 425/65R22.50 radials, 20 ply G296 tread, rated for 22,800 lb maximum axle load and 68 mph maximum speed.</p>
0037030		Wheels, Alum. Alcoa, 22.50" x 12.25" (385/425), Tiller	<p><b>WHEELS, TILLER</b></p> <p>The tires will be mounted on Alcoa® 22.50" x 12.25" polished aluminum disc type wheels with a ten (10)-stud 11.25" bolt circle.</p>
0037050		Oil Seals, Tiller Axle	<p><b>OIL SEALS</b></p> <p>Oil seals with viewing window will be provided on the tiller axle.</p>
0086981		No Tiller Trailer Accessories Req'd	
0752595	SP	Nozzle, Elkhart Chief, 1.50" w/Blue Pistol Grip, 7/8" Smooth Bore Tip	<p><b>SHIP LOOSE NOZZLE</b></p> <p>One (1) 1.50" Elkhart ball shut off valve with Blue pistol grips with 7/8" tip smooth bore nozzle will be provided for the end of the attack hose.</p>
0007150		Bag of Nuts and Bolts	<p><b>LOOSE EQUIPMENT</b></p> <p>The following equipment will be furnished with the completed unit:</p> <ul style="list-style-type: none"> <li>- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.</li> </ul>
0752598	SP	Hose Assembly, Ultima, Blue, 1.5 W/ 1.5" Coupling, 50' Length, 10' Whip	<p><b>HOSE</b></p> <p><u>Qty.</u> length(s) of 1.50" ID double jacket, pressure rated @ 400 psi service pressure, w/ 1-1/2" NST couplings, 50 ft long, color blue. A 10' whip will be provided to easily connect the hose from outside the truck.</p>
0757326		Hose, 50', 1.50", Mercedes Kraken EXO, Blue, DJ, w/1.5"NST Couplings	<p><b>HOSE</b></p> <p>four (4) length(s) of 50' of 1.50", Mercedes Kraken EXO, Blue, double jacket polyester hose with 1.50" NST couplings will be provided in loose equipment.</p>

0602507		NFPA Required Loose Equipment, Aerial, NFPA 2016, Provided by Fire Department	<p><b>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</b></p> <p>The following loose equipment as outlined in NFPA 1901, 2016 edition, section 8.9.3 will be provided by the fire department.</p> <p>Two (2) 3 ft - 4 ft plaster hooks with D handles mounted in brackets fastened to the apparatus.</p> <p>Two (2) crowbars.</p> <p>Two (2) claw tools.</p> <p>Two (2) 12 lb (5 kg) sledgehammers.</p> <p>One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.</p> <p>One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).</p> <p>One (1) first aid kit.</p> <p>Six (6) salvage covers, each a minimum size of 12 ft × 18 ft (3.6 m × 5.5 m).</p> <p>Four (4) combination spanner wrenches.</p> <p>Two (2) scoop shovels.</p> <p>One (1) pair of bolt cutters, 24" (0.6 m) minimum.</p> <p>Four (4) ladder belts meeting the requirements of NFPA 1983.</p> <p>One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983.</p> <p>One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983.</p> <p>Two (2) 150 ft (45 m) utility ropes having a breaking strength of at least 5000 lb (2300 kg).</p> <p>One (1) box of tools to include the following:</p> <ul style="list-style-type: none"> <li>- one (1) hacksaw with three (3) blades</li> <li>- one (1) keyhole saw</li> <li>- one (1) 12" (.3 m) pipe wrench</li> <li>- one (1) 24" (.6 m) pipe wrench</li> <li>- one (1) ballpeen hammer</li> <li>- one (1) pair of tin snips</li> <li>- one (1) pair of pliers</li> <li>- one (1) pair of lineman's pliers</li> <li>- assorted types and sizes of screwdrivers</li> <li>- assorted adjustable wrenches</li> <li>- assorted combination wrenches</li> </ul> <p>One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.</p> <p>Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.</p> <p>Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.</p> <p>One (1) automatic external defibrillator (AED).</p> <p>One (1) double female 2.50" adapter with National Hose Threads (if equipped with a fire pump).</p> <p>One (1) double male 2.50" adapter with National Hose Threads (if equipped with a fire pump).</p> <p>One (1) rubber mallet, for use on suction hose connections (if equipped with a fire pump).</p> <p>Two (2) hydrant wrenches (if equipped with a fire pump).</p> <p>If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus (if equipped with a fire pump).</p> <p>If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6 (if equipped with a fire pump).</p> <p>If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake (if equipped with a fire pump).</p> <p>If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake (if equipped with a fire pump).</p>
0744804	SP	Extinguisher, Ansul Red Line 20lb High Flow B:C Extinguisher	<p><b>ANSUL EXTINGUISHER</b></p> <p>One (1) extinguisher,, Ansul, Red Line 20lb high flow B:C fire extinguisher will be provided. There will be no mounting bracket supplied.</p>
0602535		Extinguisher, Dry Chemical, Aerial NFPA 2016, Provided by Fire Department	<p><b>DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, section 8.9.3 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus. The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.</p>
0674558	SP	Extinguisher, 2.5 Gal. Pressurized Water, Amerex 240	<p><b>WATER EXTINGUISHER</b></p> <p>Two (2) extinguishers, will be provided. Amerex model 240 2.50 gallon pressurized water extinguishers will be provided.</p>
0007482		Not Required, Crowbars	



0007484	Not Required, Claw Tools	
0602675	Axes, (2) Flathead, Aerial NFPA 2016, Provided by Fire Department	<b>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</b> NFPA 1901, 2016 edition, Section 8.9.3 requires two (2) flathead axes mounted in brackets fastened to the apparatus. The axes are not on the apparatus as manufactured. The fire department will provide and mount the axes.
0602673	Axes, (3) Pickhead, Provided by Fire Department, Aerial NFPA 2016	<b>PICKHEAD AXES PROVIDED BY FIRE DEPARTMENT</b> NFPA 1901, 2016 edition, Section 8.9.3 requires three (3) pickhead axes mounted in brackets fastened to the apparatus. The axes are not on the apparatus as manufactured. The fire department will provide and mount the axes.
0007494	Not Required, Sledgehammers	

0774247	SP	Paint, Two Tone, Cab, Metallic Upper Only, w/Special Shield	<p><b>PAINT</b></p> <p>The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:</p> <p><u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.</p> <p><u>Chemical Cleaning and Pretreatment</u> - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse will be applied to all metal surfaces.</p> <p><u>Surfacer Primer</u> - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.</p> <p><u>Finish Sanding</u> - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.</p> <p><u>Sealer Primer</u> - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.</p> <p><u>Basecoat Paint</u> - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.</p> <p><u>Clear Coat</u> - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacture.</p> <p>Specifications are written to define cyclic corrosion testing, physical strengths, durability and minimum appearance requirements must be met in order for an exterior paint finish to be considered acceptable as a Pierce quality finish.</p> <p>Each batch of basecoat color is checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment is used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading is used to determine a good color match within each family color.</p> <p>All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.</p> <p>The cab will be two-tone, with the upper section and a special shield design painted metallic Grey #479 with the lower section of the cab and body painted Red #644. Paint break and shield design to be clarified on the lettering and striping print.</p> <p><b>PAINT - ENVIRONMENTAL IMPACT</b></p> <p>Contractor will meet or exceed all current State regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:</p> <p>Topcoats and primers will be chrome and lead free.</p> <p>Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.</p> <p>Particulate emission collection from sanding operations will have a 99.99% efficiency factor.</p> <p>Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient</p> <p>Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.</p> <p>Paint wastes are disposed of in an environmentally safe manner.</p> <p>Empty metal paint containers will be to recover the metal.</p> <p>Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.</p> <p>Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.</p>
0612782	SP	Paint, Two Tone, Upper Metallic, Tiller Cab	<p><b>PAINT</b></p> <p>The cab will be two-tone, with the upper section painted metallic Grey #479 and the lower section of the cab painted Red #644.</p> <p>The paint break will be located per LSP drawing.</p>

0646897	Paint Chassis Frame Assy, E-Coat, Standard	<p><b>PAINT CHASSIS FRAME ASSEMBLY</b></p> <p>The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.</p> <p>Components treated with epoxy E-coat protection prior to paint:</p> <p>Two (2) C-channel frame rails</p> <p>Components that are included with the chassis frame assembly that will be painted not e-coated are:</p> <p>Cross members Axles Suspensions Steering gear Battery boxes Bumper extension weldment Frame extensions Body mounting angles Rear Body support substructure (front and rear) Pump house substructure Air tanks Steel fuel tank Castings</p> <p>Individual piece parts used in chassis and body assembly</p> <p>The E-coat process will meet the technical properties shown.</p>
0693797	No Paint Required, Aluminum Front Wheels	
0693792	No Paint Required, Aluminum Rear Wheels	
0778854	SP Safe-Stride, Top Horizontal Surface of Tiller Rear Trailer Body, Incl Catwalks	<p><b>REAR BODY MODULE HORIZONTAL COATING</b></p> <p>The top, horizontal surface of the front, center, and rear body modules will be coated with black Safe-Stride® anti-slip coating. The top surfaces will be coated, including any low side catwalks (over the rear wheels).</p>
0581434	Transit Coating, Carwell, Corrosion Protection, Including Underside	<p><b>TRANSIT COATING</b></p> <p>All non-painted metal surfaces on the exterior of the vehicle will be sprayed with a corrosion protective coating provided by Carwell. The coating can be removed with soap and water. The coating is made of a linseed oil base and is biodegradable.</p> <p>The underside non-painted metal surfaces will also be coated with a corrosion protective coating.</p>
0007234	Compartment, Unpainted, D/A Finished	<p><b>COMPARTMENT INTERIOR FINISH</b></p> <p>The interior of the compartments will be dual action finished and not painted.</p>
0790913	Aerial Ladder Paint, Tiller	<p><b>AERIAL DEVICE PAINT COLOR</b></p> <p>The aerial device paint procedure will consist of a seven (7) step finishing process as follows:</p> <ol style="list-style-type: none"> <li>1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the aerial device structural components above the rotation point will be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.</li> <li>2. <u>Zinc Rich Primer</u> - Zinc rich primer will be applied to the torque box and stabilizers.</li> <li>3. <u>Primer/Surfacer Coats</u> - A two (2) component epoxy primer/surfacer will be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams will be caulked with a two (2) component epoxy caulk before painting.</li> <li>4. <u>Hand Sanding</u> - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish.</li> <li>5. <u>Primer Coat</u> - A two (2) component epoxy primer coat will be applied over the sanded primer.</li> <li>6. <u>Topcoat Paint</u> - Urethane base coat will be applied to opacity for correct color matching.</li> <li>7. <u>Clear Coat</u> - Two (2) coats of an automotive grade two (2) component urethane will be applied. Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.</li> </ol> <p>All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor.</p> <p>Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items.</p> <p>The aerial device components will be painted as follows using the aforementioned seven (7) step finishing process:</p> <p>Aerial device ladder sections and extension cylinders: charcoal metallic 479</p> <p>Aerial turntable: charcoal metallic 479</p> <p>Aerial control console: charcoal metallic 479</p> <p>Aerial lift cylinders: charcoal metallic 479</p> <p>Aerial rotation motor (if applicable): charcoal metallic 479</p> <p>Aerial torque box, support structure, components below the rotation point, tiller axle and suspension: red 644</p> <p>Aerial stabilizers: red 644</p> <p>Aerial egress: #444 orange day glow (will be contrasting color to the aerial device ladder sections)</p> <p>Aerial boom support: red 644</p>

0612909	SP Reflective Band, 2" Vinyl- 6" Reflective, w/1.0" Gap	<b>VINYL &amp; REFLECTIVE STRIPES</b> Two (2) stripes will be provided across the front of the vehicle and along the sides of the body. The band will consist of a 2.00" Dark Charcoal Metallic vinyl stripe at the top, with a 1" gap, then a 6.00" Black reflective stripe on the bottom.
0510041	Reflective across Cab Face, Imp/Vel	The reflective band provided on the cab face will be below the headlights on the fiberglass.
0583446	Stripe, Chevron, Rear, Diamond Grade, Tiller	<b>REAR CHEVRON STRIPING</b> There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus including the rear door. The tillerman cab and rear bumper will not be covered. The colors will be red and fluorescent yellow green diamond grade. Each stripe will be 6.00" in width. This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.
0598754	Stripe, Reflective/Diamond Grade, 4.00" on Stabilizers	<b>REFLECTIVE STRIPE ON STABILIZERS</b> There will be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.
0017359	Stripe, Black Outline, Vinyl on Reflective Band	<b>REFLECTIVE STRIPE OUTLINE</b> A black outline will be applied on the top and the bottom of the reflective band. There will be one (1) set of outline stripes required.
0087355	Stripe, Reflective, 6" Inside Comp Door	<b>REFLECTIVE STRIPE INSIDE COMPARTMENT DOOR</b> A 6.00" black reflective stripe will be provided inside six (6) compartment doors. D6, D7(double doors), P7 and P8.
0065687	Stripe, Reflective, Cab Doors Interior	<b>CAB DOOR REFLECTIVE STRIPE</b> A 6.00" x 16.00" black reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel. This stripe will meet the NFPA 1901 requirement.
0543998	Stripe, Reflective, Tillerman Doors Interior	<b>REFLECTIVE STRIPE, TILLERMAN DOORS</b> A 6.00" x 16.00" black reflective stripe will be provided across the interior of each tillerman's entry door. The stripe will be located approximately 1.00" up from the bottom, on the door panel. This stripe will meet the NFPA 1901 requirement.
0680368	Stripe, Gold Leaf, Two-Tone Paint Break, Tiller Cab	<b>TILLER CAB STRIPE</b> There will be a genuine gold leaf stripe provided on the paint break located at the tiller cab.
0680371	Stripe, Gold Leaf, Two-Tone Paint Break with Shield, IPO Chrome Molding	<b>CAB STRIPE</b> There will be a genuine gold leaf stripe provided on both sides of the cab in place of the chrome molding and on the cab face with shield.
0027372	Lettering Specifications, (GOLD STAR Process)	<b>LETTERING</b> The lettering will be totally encapsulated between two (2) layers of clear vinyl.
0686394	Lettering, Gold Leaf, 4.00", Each	<b>LETTERING</b> There will be genuine gold leaf lettering, 4.00" high, with outline and shade provided. There will be 17 letters provided.
0685985	Lettering, Reflective, 12.00", Each	<b>LETTERING</b> There will be reflective lettering, 12.00" high, with no outline or shade provided. There will be six (6) letters provided.
0686013	Lettering, Reflective, 6.00", Each	<b>LETTERING</b> There will be reflective lettering, 6.00" high, with outline and shade provided. There will be three (3) letters provided.
0686018	Lettering, Reflective, 5.00", Each	<b>LETTERING</b> There will be reflective lettering, 5.00" high, with no outline or shade provided. There will be 18 letters provided.

0686217	Lettering, Gold Leaf, 7.00", (21-40)	<b>LETTERING</b> Twenty-one (21) to forty (40) genuine gold leaf lettering, 7.00" high, with outline and shade will be provided.
0686236	Lettering, Gold Leaf, 5.00", Each	<b>LETTERING</b> There will be genuine gold leaf lettering, 5.00" high, with outline and shade provided. There will be 20 letters provided.
0686259	Lettering, Gold Leaf, 2.00", (41-60)	<b>LETTERING</b> Forty-one (41) to sixty (60) genuine gold leaf lettering, 2.00" high, with outline and shade will be provided.
0686285	Lettering, Gold Leaf, 3.00", (1-20)	<b>LETTERING</b> One (1) to twenty (20) genuine gold leaf lettering, 3.00" high, with outline and shade will be provided.
0037227	Lettering, Reflective, Reverse Cut Into Reflective Band	<b>REFLECTIVE LETTERING</b> 18 letters, 5.00" high will be cut into the reflective stripe to allow the painted surface to form the letter. The letters will be one (1) each side of body on the D1 and P1 doors.
0020216	Lettering, Reverse Cut Into Reflective Band, Additional	<b>REFLECTIVE LETTERING</b> three (3) letters, 4.00" high will be cut into the reflective stripe to allow the painted surface to form the letter.
0645076	Plate, Painted Alum. for Lettering/Numerals	<b>PAINTED PLATE(S) FOR LETTERING/NUMERALS</b> There will be one (1) painted aluminum plate(s) provided for department lettering. They will be mounted on top of cab roof per LSP print and will be 36"H x 38"W in size.
0655896	Sign Kit, Painted, Holder and Insert, Each	<b>SIGN KIT FOR LETTERING/NUMERALS</b> six (6) painted stainless steel plate(s) and holder(s) will be provided for department lettering. They will be mounted Located on front bumper, cab sides, rear & boom panels and 8"H x 14"W in size.
0674199	SP      Emblem, Per Quote, Stabilizer Extention, Per Quote, Contra Costa	
0594393	SP      Emblem, "Waiving American Flag With Pole, Pair (mirror images)	<b>"AMERICAN FLAG" EMBLEMS</b> There will be one (1) pair of color imaged emblems, 10.00" wide, featuring a "Waiving American Flag" with pole and 9-11-01, installed one each side of cab on the upper portion of the exterior access door for the EMS compartment. The pair will be mirror images of each other.
0695610	Emblem, Reflective, Per Dept. Submittal, Each	<b>EMBLEM</b> There will be two (2) reflective emblem(s), approximately 14.00" - 16.00" in size, installed one each side front cab door. the emblem will be modeled after the department submitted information (art, patch, etc).
0624039	Manual, Fire Apparatus Parts, (1) Hard Coy, (1) USB Flash Drive, Custom	<b>FIRE APPARATUS PARTS MANUALS</b> There will be two (2) custom parts manuals for the complete fire apparatus provided. There shall be one (1) hard copy and one (1) USB flash drive copy provided. The manuals will contain the following: Job number Part numbers with full descriptions Table of contents Parts section sorted in functional groups reflecting a major system, component, or assembly Parts section sorted in alphabetical order Instructions on how to locate parts The manuals will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies. <b>SERVICE PARTS INTERNET SITE</b> The service parts information included in these manuals are also available on the factory website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

0624037	Manual, Chassis Service, (1) Hard Copy, One (1) USB Flash Drive, Custom	<b>CHASSIS SERVICE MANUALS</b> There will be two (2) chassis service manuals containing parts and service information on major components provided. There will be one (1) hard copy and one (1) USB flash drive copy provided with the completed unit. The manual will contain the following sections: Job number Table of contents Troubleshooting Front Axle/Suspension Brakes Engine/Tires Wheels Cab Electrical, DC Air Systems Plumbing Appendix The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.
0605803	Manual, Chassis Operation, (2) Hard Copy, (1) USB Flash Drive, Custom	<b>CHASSIS OPERATION MANUALS</b> There will be two (2) hard copies and one (1) USB flash drive provided that will include all of the same information.
0030008	Warranty, Basic, 1 Year, Apparatus, WA0008	<b>ONE (1) YEAR MATERIAL AND WORKMANSHIP</b> A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.
0611136	Warranty, Chassis, 3 Year, Velocity/Impel, WA0284	<b>THREE (3) YEAR MATERIAL AND WORKMANSHIP</b> The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.
0696698	Warranty, Engine, Cummins, 5 Year, WA0181	<b>ENGINE WARRANTY</b> A Cummins <b>five (5) year</b> limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal.
0684952	Warranty, Steering Gear, TRW Ross TAS, 1 Year WA0202	<b>STEERING GEAR WARRANTY</b> A TRW <b>one (1) year</b> limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.
0595767	Warranty, Frame, 50 Year, Velocity/Impel, Dash CF, WA0038	<b>FIFTY (50) YEAR STRUCTURAL INTEGRITY</b> The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.
0777373	Warranty, Axle, 2 Year, Meritor, General Service, WA0328	<b>FRONT AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> A Meritor axle limited warranty certificate, WA0046, is included with this proposal.
0777368	Warranty, Axle, 2 Year, Meritor, General Service, WA0328	<b>REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> A Meritor axle limited warranty certificate, WA0046, is included with this proposal.
0652758	Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	<b>ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b> A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.
0019914	Warranty, Structure, 10 Year, Custom Cab, WA0012	<b>TEN (10) YEAR STRUCTURAL INTEGRITY</b> The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.
0595813	Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	<b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.
0524627	Warranty, Electronics, 5 Year, MUX, WA0014	<b>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</b> The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.
0647720	Warranty, Pierce LED Strip Lights, WA0203	<b>COMPARTMENT LIGHT WARRANTY</b> The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.

0046369	Warranty, 5-year EVS Transmission, Standard Custom, WA0187	<b>TRANSMISSION WARRANTY</b> The transmission will have a <b>five (5) year/unlimited mileage</b> warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission. Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.
0685945	Warranty, Transmission Cooler, WA0216	<b>TRANSMISSION COOLER WARRANTY</b> The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.
0033401	Not Required, Tank Warranty	
0596025	Warranty, Structure, 10 Year, Body, WA0009	<b>TEN (10) YEAR STRUCTURAL INTEGRITY</b> The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.
0693126	Warranty, AMDOR, Roll-up Door, 10 Year/5 Year Painted, WA0185	<b>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</b> An AMDOR roll-up door limited warranty will be provided. The roll-up door will be warranted against manufacturing defects for a period of <b>ten (10) years</b> . A <b>five (5) year</b> limited warranty will be provided on painted roll up doors. The limited warranty certificate, WA0185, is included with this proposal.
0012599	Warranty, Pump, Not Required	
0046370	Not Required, Warranty, No Plumbing	
0006999	Warranty, Structure, 20 Year, Aerial Device, WA0052	<b>TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY</b> The Pierce device limited warranty certificate, WA0052, is included with this proposal.
0687388	Warranty, Swivels, 5 Year, Aerial Device, WA0197	<b>AERIAL SWIVEL WARRANTY</b> An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.
0088889	Not Required, Additional Aerial Warranty	
0687327	Warranty, Waterway, 10 Year, Aerial Device, WA0198	<b>AERIAL WATERWAY WARRANTY</b> An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.
0595860	Warranty, Paint, 4 Year, Aerial Device, Pro-Rated, WA0047	<b>FOUR (4) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal.
0609981	Warranty, Harrison Generator, 6 Year, WA0285	<b>SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY</b> A Harrison Hydra-Gen limited warranty certificate, WA0285, is included with this proposal.
0595820	Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	<b>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</b> A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.
0595421	Warranty, Goldstar, 3 Year, Apparatus, WA0018	<b>THREE (3) YEAR MATERIAL AND WORKMANSHIP</b> The Pierce Goldstar gold leaf lamination limited warranty limited warranty certificate, WA0018, is included with this proposal.
0683627	Certification, Vehicle Stability, CD0156	<b>VEHICLE STABILITY CERTIFICATION</b> The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

0794805	Certification, Engine Installation, Velocity, Cummins X15, 2017, CD0153	<b>ENGINE INSTALLATION CERTIFICATION</b> The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of bid.
0686786	Certification, Power Steering, CD0098	<b>POWER STEERING CERTIFICATION</b> The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.
0667417	Certification, Cab Integrity, Velocity FR, CD0009	<b>CAB INTEGRITY CERTIFICATION</b> The fire apparatus manufacturer will provide a cab integrity certification with this proposal. The certification will state that the cab has been tested and certified by an independent third-party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state-licensed professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below: European Occupant Protection Standard ECE Regulation No.29. SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks. SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks. <b>Roof Crush</b> The cab will be subjected to a roof crush force of 22,050 lb. This value meets the ECE 29 criteria and is equivalent to the front axle rating up to a maximum of 10 metric tons. <b>Additional Roof Crush</b> The same cab will be subjected to a roof crush force of 100,000 lbs. This value exceeds the ECE 29 criteria by nearly 4.5 times. <b>Side Impact</b> The same cab will be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident. <b>Frontal Impact</b> The same cab will withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420. <b>Additional Frontal Impact</b> The same cab will withstand a frontal impact of 65,200 ft-lbs of force using a moving barrier, (twice the force required by SAE J2420). The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.
0548950	Certification, Cab Door Durability, Velocity/Impel, CD0001	<b>CAB DOOR DURABILITY CERTIFICATION</b> Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.
0548967	Certification, Windshield Wiper Durability, Impel/Veloccity, CD0005	<b>WINDSHIELD WIPER DURABILITY CERTIFICATION</b> Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i> . The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.
0667411	Certification, Electric Window Durability, Velocity/Impel FR, CD0004	<b>ELECTRIC WINDOW DURABILITY CERTIFICATION</b> Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.
0549273	Certification, Seat Belt Anchors and Mounting, Imp/Vel/Vel SLT, CD0018	<b>SEAT BELT ANCHOR STRENGTH</b> Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria. <b>SEAT MOUNTING STRENGTH</b> Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.



0667416	Certification, Cab Heater and Defroster, Velocity/Impel FR, CD0015	<p><b>CAB DEFROSTER CERTIFICATION</b></p> <p>Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. <i>The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</i></p> <p><b>CAB HEATER CERTIFICATION</b></p> <p><i>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters will warm the cab 75 F from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify that a substantially similar cab has been tested and has met these criteria.</i></p>
0674479	Certification, Not Available, Cab Air Conditioning Performance	
0545073	Amp Draw Report, NFPA Current Edition	<p><b>AMP DRAW REPORT</b></p> <p>The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.</p> <p>The manufacturer of the apparatus will provide the following:</p> <ul style="list-style-type: none"> <li>Documentation of the electrical system performance tests.</li> <li>A written load analysis, which will include the following: <ul style="list-style-type: none"> <li>The nameplate rating of the alternator.</li> <li>The alternator rating under the conditions specified per: <ul style="list-style-type: none"> <li>Applicable NFPA 1901 or 1906 (Current Edition).</li> </ul> </li> <li>The minimum continuous load of each component that is specified per: <ul style="list-style-type: none"> <li>Applicable NFPA 1901 or 1906 (Current Edition).</li> </ul> </li> </ul> </li> <li>Additional loads that, when added to the minimum continuous load, determine the total connected load.</li> <li>Each individual intermittent load.</li> </ul> <p>All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).</p>
0002758	Amp Draw, NFPA/ULC Radio Allowance	
0799248	Appleton/Florida BTO	
0000029	TILLER BODY	
0000012	PIERCE CHASSIS	
0004713	ENGINE, OTHER	
0046396	EVS 4000 Series TRANSMISSION	
0020037	NO PUMP	
0020013	NO WATER TANK	
0020007	AKRON VALVES	
0020015	ABS SYSTEM	
0658751	PUMPER BASE	



# Fire and Rescue Apparatus

## Twenty (20) Year Structural Integrity

### Pierce Aerial Device

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Each new Pierce Aerial Device shall be free from defects in material and workmanship.  Aerial Device Models Covered by this warranty include: Aerial Platforms Aerial Ladders SkyBoom
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Twenty (20) Years - or - 100,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty applies only to the torque box, turntable, aerial sections and other structural components of the aerial device, as identified in the Pierce specifications for the aerial device. This warranty shall be void if, or to the extent that the aerial device is not maintained in strict compliance with NFPA Standard 1911 in effect at time of sale, including such periodic inspections and testing by qualified third parties as are required by that Standard as it may be in effect from time to time. Proof of such compliance shall accompany any claims under this warranty. Third party testing agencies known to Pierce to be qualified for such purposes may be obtained from the Pierce Customer Service Department</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity Custom Cab Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Pierce Custom Cab shall be free from structural failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years - or - 100,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty applies only to the cab tubular support and mounting structures and other structural components of the cab of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship

### Basic Apparatus

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.
Warranty Period Ends After:	Twelve (12) months.
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	No specific exclusions apply

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

## NEW PRODUCT WARRANTY



### PARTICIPATING OEM SALES DISTRIBUTOR SALES

#### LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Emergency Vehicle in accordance with the following terms, conditions, and limitations.

##### WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Emergency Vehicle and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission's option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section "APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE."
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

**Demonstration Service** - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

##### APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

APPLICABLE MODELS	WARRANTY LIMITATIONS (Whichever occurs first)		ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER	
	Months	Transmission Miles Or Kilometers	Parts	Labor
MT, MD 3000, 3200, 3500, 3700	0-24	No Limit	No Charge	No Charge
HT with Hydraulic Controls	0-24	No Limit	No Charge	No Charge
AT, 1000 Series™, 2000 Series™, 2400 Series™	0-36	No Limit	No Charge	No Charge
HT with Electronic Controls	0-60	No Limit	No Charge	No Charge
HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700, 4700 EVS, 4800, 4800 EVS	0-60	No Limit	No Charge	No Charge

## WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
  - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
  - Misuse of the vehicle;
  - Installation into unapproved applications and installations;
  - Alterations or modification of the transmission or the vehicle, and
  - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
  - Anything other than defects in Allison Transmission material or workmanship

**NOTE:** This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
  - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
  - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

## OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions.

**ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.\*\***

\*\* Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

## OTHER TERMS APPLICABLE TO OTHER END-USERS

**THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.**

## QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission, Inc.  
P.O. Box 894  
Indianapolis, IN 46206-0894  
Attention: Warranty Administration PF-9



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship

### Command Zone Electronics

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Command Zone control modules shall be free from failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Five (5) Years
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty applies to all of the control modules for the Command Zone system, including the full color graphic displays. Related wire harnesses, cables and connectors are not covered under this limited warranty and are instead covered under the Pierce One Year Basic Apparatus Limited Warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*





# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship

### Goldstar® Gold Leaf Lamination

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Each Goldstar® gold leaf lamination shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This warranty does not cover damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*





# Fire and Rescue Apparatus

## Lifetime Fifty (50) Year Structural Integrity

### Chassis Frame & Crossmembers

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Custom chassis frame rail and cross members manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Fifty (50) Years (Expected Life of Apparatus)
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This warranty does not apply to damage caused by corrosion.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Cab

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Exterior surfaces of the cab painted by Pierce shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years
Conditions and Exclusions:	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b> 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b> 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b> 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p><b>Corrosion Perforation</b> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Custom Body

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Exterior surfaces of the body shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years
Conditions and Exclusions:	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b> 0-72 months 100% 73-96 months 50% 97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b> 0-36 months 100% 37-84 months 50% 85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b> 0-36 months 100% 37-48 months 50% 49-72 months 25% 73-120 months 10%</p> <p><b>Corrosion Perforation</b> 0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade. (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Four (4) Year Pro-Rated Paint and Corrosion

### Aerial Device

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Aerial device shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection for exterior surfaces.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Four (4) Years
Conditions and Exclusions:	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking 0-24 months 100% 25-48 months 50%</p> <p>Integrity of Coating System: Adhesion, Blistering/Bubbling 0-24 months 100% 25-48 months 50%</p> <p>Corrosion: Dissimilar Metal and Crevice 0-24 months 100% 25-48 months 50%</p> <p>Corrosion Perforation 0-24 months 100% 25-48 months 50%</p> <p>This limited warranty applies only to exterior paint.</p> <p>Items not covered by this warranty include: (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual). (b) UV paint fade.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity Apparatus Body Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The apparatus body shall be free from structural failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years - or - 100,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty applies only to the body tubular support and mounting structures and other structural components of the body of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</p> <p>This warranty does not apply to damage caused by corrosion.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*





## **MANUFACTURER'S LIMITED WARRANTY - HYDRAULIC GENERATORS**

### **FIRE & EMERGENCY VOCATION**

Harrison Hydra-Gen® (Seller) extends to the original purchaser (Buyer) of goods for use (whether it be an OEM, dealer, re-seller, or end-user) the following warranty covering the Harrison Hydra-Gen® Generator System, subject to the qualifications indicated. Harrison Hydra-Gen® Generator Systems shall consist of a Harrison generator tray assembly and its' components, a Harrison hydraulic pump assembly, and a Harrison supplied meter assembly; unless otherwise specified in below guidelines.

Harrison Hydra-Gen® warrants the original purchaser that the Generator System manufactured or supplied by Harrison Hydra-Gen® will be free from defects in materials and workmanship, provided such goods are:

1. Installed, operated and maintained in accordance with the Harrison Hydra-Gen® owner's manual, and/or written installation addendums.
2. Each new application has been reviewed and approved by the Harrison Hydra-Gen® Application Engineering Group.

### **PERIOD OF WARRANTY**

\*Six (6) years or 1000 hours of usage, whichever comes first, from the date the product is shipped from Harrison to the Installer.

**\*The END USER must complete and return to Harrison Hydra-Gen® the Harrison Hydra-Gen® Warranty Registration Card, Form WR-1, provided in the generator manual and provided online @ [www.harrisonhydragen.com](http://www.harrisonhydragen.com), within 45 days of delivery.**

**Warranty includes all parts and labor.** In addition, maintenance items that are contaminated or damaged by a proven warrantable failure are covered in years 1-2, and Labor time up to 4 hours, travel time up to 2.5 hours, and mileage up to 100 miles for warranty related repairs are covered in years 1-2.

Repair or replacement parts are warranted for ninety (90) days from date of purchase, excluding labor and travel expenses. Any part repaired or replaced during the warranty period assumes the remainder of the warranty or ninety (90) days, whichever is greater.

Only components supplied by Harrison Hydra-Gen® are covered under this warranty.



There is no other express warranty. Implied warranties, including merchantability and fitness for a particular purpose, are limited to periods set forth above and to the extent permitted by law. Any and all implied warranties are excluded. In no event is Harrison Hydra-Gen® liable for incidental or consequential damages.

The Buyer (OEM, dealer, re-seller, or end-user) must notify Harrison Hydra-Gen®, an Authorized Distributor, or a designated Harrison Hydra-Gen® Service Representative, **in writing**, within thirty (30) calendar days after goods or parts failed to meet this warranty.

The sole liability of Harrison Hydra-Gen® and the Buyer's sole remedy for a failure of goods under this warranty and for any and all other claims arising out of the purchase and use of the goods, including negligence on the part of the manufacturer, shall be limited to the repair or replacement of the product, at the option of Harrison Hydra-Gen®, of the parts that do not conform to this warranty, provided that the product or parts are returned to the Harrison Hydra-Gen® manufacturing facility.

A Returned Goods Authorization (RGA) is required for all products and parts being returned, and may be requested by phone, fax, email, or mail.

Failure to make timely delivery to Harrison Hydra-Gen® of the goods claimed to be defective shall void any warranty.

Unless previous written agreements have been made between the Buyer and Harrison Hydra-Gen®, the Buyer shall be responsible for all freight and shipping charges in connection with the delivery of the goods claimed to be defective, to Harrison Hydra-Gen® at its manufacturing facility, and the return of repaired or replacement goods to the Buyer.

If Harrison Hydra-Gen® determines that no warranty coverage is available for goods claimed to be defective, whether determination is based on the warranty being voided, the product failure being due to a cause not covered by the warranty, the failure to make a timely and proper warranty claim, or otherwise, the Buyer shall have the option of either:

1. Having the goods not repaired and returned to the Buyer, freight collect.
2. Having the goods repaired, If Harrison Hydra-Gen® determines that the product is repairable, and returned to the Buyer, freight collect. The Buyer will be responsible for all costs associated with the repair and testing of the goods and shall authorize Harrison Hydra-Gen®, in writing, to have the goods repaired and tested by Harrison Hydra-Gen®.

The owner is obligated to operate and maintain the goods in accordance with the recommendations published by Harrison Hydra-Gen® in the owner's manual. The owner is



responsible for the costs associated with such maintenance and any adjustments that may be required.

This warranty shall not apply to:

1. Damages or defects caused by normal wear, accident, misuse, abuse, abnormal operating conditions, negligence, corrosion, accident causes, or attributable to written specifications or instructions furnished by the installer.
2. Damages or defects caused by improper maintenance in accordance with the Harrison Hydra-Gen® product manuals and operating guidelines.
3. Damages caused by operator error.
4. Damages or defects caused by improper installation.
5. Damages or defects caused by inadequate water drainage provided by the installer in the area where the generator is installed or stored.
6. Damages or defects caused by inadequate air flow space or ventilation provided by the installer in the area where the generator is installed.
7. Any product or part altered or modified by the installer or service facility without written prior consent by Harrison Hydra-Gen®.
8. Cost of normal maintenance, adjustments, installation or start-up.
9. Normal wear items and components needing periodic maintenance such as rubber hoses and filters.
10. Excessive labor due to components being concealed in vehicle as a result of installation.
11. Water, road debris, excessive dirt, salt, abrasive particles, or large foreign objects found in the generator.
12. Telephone or other communications expense.
13. Paint, hydraulic fluid, and interconnecting hoses (internal or external to system assemblies).

This warranty gives you specific legal rights, and you may also have other rights that may vary from state to state or province to province.

No person is authorized to give any other warranties or to assume any other liabilities behalf of Harrison Hydra-Gen®, unless made or assumed in writing by an officer of Harrison Hydra-Gen®.

Contact Harrison Hydra-Gen® for questions regarding your warranty rights and responsibilities at (281) 807-4420; or visit our website at [www.harrisonhydragen.com](http://www.harrisonhydragen.com).

NOTE: Please refer to the **MANUFACTURER'S LIMITED WARRANTY; IHT SYSTEMS** for warranty guidelines specific to the IHT system.





# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Velocity and Impel Custom Chassis

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.
Warranty Period Ends After:	Three (3) Years, or 30,000 Miles, or 5000 Engine Hours
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty applies, where applicable, to Goldstar lamination, defroster heater coil and motor blower assembly (excluding the FET PWM module), heater, air conditioning condenser coil and fan/motor assembly, air conditioning evaporator coil and motor blower assembly (excluding the drain pan pump and thermostat), under seat heaters coil and motor blower assembly (excluding the FET PWM module), HVAC electronic switches, HVAC hoses and hard lines, heater water valve, Pierce PS6 seat frames and hardware, Pierce One-Eleven mirrors, Pierce hands-free scba holder, cracking or color loss of roto-molded components, Meritor rear axle, Wabco ABS system, cab door handles, Standen spring suspension components, and the gauge instrument cluster.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship

### Pierce 12V LED Strip Light

#### Limited Warranty

##### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	This limited warranty covers repairs to correct any defect related to materials or workmanship of the Pierce 12V LED strip lights installed on the apparatus occurring during the warranty period.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

##### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

##### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

##### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Meritor Wabco ABS Brake System Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Meritor Wabco ABS brake system shall be covered by Meritor Wabco as indicated in the attached Meritor Wabco warranty coverage description
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	The exclusions listed in the attached Meritor Wabco warranty description shall apply.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# **MERITOR WABCO**

*Safety Strong. Efficiency Smart.*

**Warranty**  
**Model Year 2018 Vehicles**



## SIMPLER IS BETTER

Warranty coverage is essential to protecting your investment. But understanding the full details of your coverage can be challenging. This straightforward approach allows you, our valued customer, to better understand how your specific vehicle applications will be covered in your region. Our component warranty coverage is provided according to vocation/usage categories listed below.

- Linehaul covers high mileage operation (over 60,000 miles/year) on well maintained major highways of concrete or asphalt construction.
- General Service covers moderate mileage operations (less than 60,000 miles/year) on well maintained public roads (less than 10 percent off-road) typically with less than three (3) stops per mile.
- Heavy Service (Vocational) covers vehicles with more than 10 percent off-road OR moderate to frequent starts/stops typically with more than three (3) stops per mile.
- Off-Highway Service covers lower mileage operations. Vehicles are not typically licensed for highway use.

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## How to Read Warranty Coverage (Example)

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
3	300	P

## HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

### Heavy Service Vehicles

- Airport Rescue Fire (ARF)
- Airport Shuttle
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- City Bus
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Crash Fire Rescue (CFR)
- Mixer
- Demolition
- Drill Rig
- Dump
- Emergency Service
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Newspaper Delivery
- Package Delivery
- Pick-up and Delivery
- Rapid Intervention Vehicle (RIV)
- Rear Loader
- Recycling Truck
- Residential Pick-Up/Waste
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Transit Bus
- Trolley
- Utility Truck
- Winch Truck

### Heavy Service Typically Is

- On/Off road vocations (10% or more off-road) OR
- Moderate to frequent starts/stops typically more than three (3) stops per mile

### Meritor WABCO Components<sup>1</sup>

ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	2/200/P&L
Electronic Braking System (EBS)	3/300/P&L
Electronic Stability Control (ESC)	3/300/P&L
Roll Stability Control (RSC)	3/300/P&L
Air Dryers (ALL)	1/100/P&L
Leveling Valves	1/100/P&L
Air Brake Valves	1/100/P&L
Emission Valves (SCR)	2/200/P&L
Clutch Controls	2/200/P&L
Air Compressors (ALL) <sup>2</sup>	1/100/P&L
OnGuard™	3/300/P&L
OnGuardACTIVE™	3/300/P&L
OnLane™ Lane Departure Warning	3/300/P&L
Blind Spot Detection	3/300/P&L
OptiRide™	2/200/P&L
Trailer Roll Stability Support (RSS)	3/300/P&L
Trailer Control Line Filter <sup>3</sup>	1/100/P&L
Trailer ABS Valve <sup>3</sup>	3/300/P&L

<sup>1</sup> WABCO and Meritor WABCO branded components.

<sup>2</sup> WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by Meritor WABCO. Please contact your respective dealer/distributor of those engines for warranty and servicing.

<sup>3</sup> An extended warranty of 4/400/P will be applied when a Meritor WABCO Trailer Control Line Filter is used in combination with a Meritor WABCO Trailer ABS valve.



## TERMS AND CONDITIONS

### Coverage Exclusions

#### Product Description

##### All

The cost of any repairs, replacements or adjustments to a covered product due to the following: (1) damage to the product or its component parts caused by incorrect use, installation, maintenance or repair, including without limitation (a) improper fit of mating components or brackets, (b) damaged threads, (c) cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (d) damaged sensors from removal when seized in block, or associated with sensor adjustments/alignments, and (e) damage resulting from the use or installation of non-genuine Meritor WABCO components or materials; (2) damage to the product, its component parts, or diminished product or component part performance due to incorrect operation, deviation from approved conditions or misapplication; (3) any unauthorized disassembly of the product or its component parts including without limitation (a) obliterated, defaced or missing WABCO or Meritor WABCO name plate, serial numbers or label identifying the device as a Meritor WABCO product or WABCO component, (b) changes to sealed adjusting screws, and (c) opening or attempted repair of non-serviceable components; (4) malfunction of the component due to internal contamination out of the vehicle system including without limitation (a) water and other contamination damage that is due to the use of a non-genuine air dryer cartridge or (b) valve failures due to contamination in air system, (5) complaints associated with noise, (6) damage resulting from corrosion (including oxidation of electrical devices and connections).

##### Air Dryers

Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.

##### Air System Components

Normal wear items; Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals.

#### ABS, Electronic Stability Control (ESC), Roll Stability Control (RSC), OptiRide™, OnGuard™ and OnLane™, collectively “Electronics”

Failure of electronic components due to overvoltage condition, improper grounding, electrostatic discharge (ESD), improper shielding, electromagnetic interference (EMI), or other wiring or installation issues.

Malfunctions and failure codes caused by other electronic subsystem failures (data bus, engine, transmission, dashboard, etc.)

#### Hydraulic Components

For certain components, brake fluid DOT3 or DOT4 is used as the operating medium. Use of any other fluid will void all warranties associated with that component. For hydraulic braking applications the brake fluid is considered a maintenance item. Maintenance intervals are listed in TB-1367.

### Coverage Limitations

#### Product Description

##### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.

Products purchased on an incomplete vehicle (glider) are limited to one year, 1/Unl/P.

For vehicles that operate full- or part-time outside of the United States and Canada, a 1-Year/Unlimited Miles parts only (1/Unl/P) will apply.

#### TOOLBOX™ Software

Proper diagnostics of Meritor WABCO Electronics may require the latest version of TOOLBOX™. Additional labor due to use of an outdated version of TOOLBOX™. TOOLBOX™ software, and/or the time to purchase or install latest version of TOOLBOX™ are not covered under product warranty.



## TERMS AND CONDITIONS

### (1) What is Covered by this Commercial Warranty?

Meritor WABCO Vehicle Control Systems warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment will be free from defects in material and workmanship. This warranty coverage begins from the original in-service date to the limits provided and runs concurrently with any warranties provided by OEMs and/or any service contracts that cover the components listed in this publication, if any. If the components listed in this publication are covered by an OEM warranty and/or service contract, then the OEM's warranty and/or service contract shall supersede Meritor WABCO's warranty and Owner shall comply with all OEM's warranty and/or service contract requirements for claims under such OEM's warranty and/or service contract until those agreements expire. Once those agreements expire and provided the Meritor WABCO warranty has not expired under the terms stated above, the Meritor WABCO warranty would be in effect until its expiration date.

Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed previously in this publication. Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Additional diagnostic time due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are the responsibility of the authorized Meritor WABCO service location and are not covered under product warranty. Components installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

### (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor WABCO through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor WABCO components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor WABCO directly. Failure to notify Meritor WABCO of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor WABCO as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor WABCO or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor WABCO's warranty requires that the application of products be properly approved pursuant to OEM and Meritor WABCO, approvals.

### (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

### (4) What is not Covered by this Warranty?

In addition to the items listed on page 7, this warranty does not cover normal wear and tear, or service items; nor does it cover a component that fails, malfunctions or is damaged as a result of

(a) improper handling, storage, installation, adjustment, repair or modification including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor WABCO, (b) accident, fire or other casualty, natural disaster, road debris, negligence, misuse, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the brake system capacity), or (c) improper or insufficient maintenance (including deviation from maintenance intervals, approved lubricants, or lube levels). This warranty does not cover any component or part that is not sold by Meritor WABCO.

### (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor WABCO's option. Meritor WABCO reserves the right to require that all applicable covered components are available and/or returned to Meritor WABCO for review and evaluation.

### (6) DISCLAIMER OF WARRANTY.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. SOME STATES LIMIT OR DO NOT ALLOW THE DISCLAIMER OF IMPLIED OR OTHER WARRANTIES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (7) LIMITATION OF REMEDIES.

IN NO EVENT SHALL MERITOR WABCO BE LIABLE FOR SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES OF ANY KIND OR UNDER ANY LEGAL THEORY, INCLUDING, BUT NOT LIMITED TO, TOWING, DOWNTIME, LOST PRODUCTIVITY, CARGO DAMAGE, TAXES, LOST PROFITS, COSTS OF PROCUREMENT OF A SUBSTITUTE COMPONENT OR ANY OTHER LOSSES OR COSTS RESULTING FROM A COVERED COMPONENT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO THE EXTENT SUCH STATE'S LAW IS APPLICABLE TO THESE TERMS.

### (8) TIME LIMIT ON COMMENCING LEGAL ACTION.


ANY LEGAL ACTION OR CLAIM ARISING FROM OR RELATED TO THIS WARRANTY, IN CONTRACT OR OTHERWISE, MUST BE COMMENCED WITHIN ONE YEAR FROM THE ACCRUAL OF THAT CAUSE OF ACTION, OR BE BARRED FOREVER.

### (9) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor WABCO or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor WABCO service location. The dealer will inspect the vehicle and contact Meritor WABCO for an evaluation of the claim. When authorized by Meritor WABCO, the dealer will repair or replace during the term of this warranty any defective Meritor WABCO component covered by this warranty.

### (10) Entire Agreement.

This is the entire agreement between Meritor WABCO and the Owner about warranty and no Meritor, Meritor WABCO employee, or dealer is authorized to make any additional warranty on behalf of Meritor WABCO unless in writing and signed by an authorized representative of Meritor WABCO.



For more information on  
Meritor WABCO Warranty, call  
our OnTrac Customer Service team  
at 866-OnTrac1 (866-668-7221)  
or visit [meritorwabco.com](http://meritorwabco.com).

**TRW COMMERCIAL STEERING SYSTEMS**  
**800 HEATH STREET**  
**LAFAYETTE, INDIANA 47904**



## **PRODUCT WARRANTY**

- I. WARRANTY:** The Commercial Steering Systems group of TRW, Inc., hereinafter referred to as "CSS", warrants that each new product supplied by CSS to its customer, when properly installed, used and maintained, shall be free from defect in material and workmanship for the period specified below:
- (A) CSS Product installed in **New On-highway Motor Vehicle:**
- Within twelve (12) months after date of delivery of such vehicle to the original retail purchaser, or before such vehicle has been driven one hundred thousand (100,000) miles, whichever event shall first occur.
- (B) CSS Product installed in **New Agricultural, Turf, Industrial, or Construction Vehicles and Related Equipment**
- Within twelve (12) months after date of delivery of such vehicle/equipment to the original retail purchaser or before such vehicle/equipment has been operated for two thousand (2000) hours or fifty thousand (50,000) miles, whichever occurs first.
- (C) CSS Product installed in **New End Product, Not Specifically Mentioned in Classifications (A) or (B) Above and All Other Off-Highway/Severe Applications:**
- Within six (6) months after date of delivery of the original equipment manufacturer's end product to the original retail purchaser.
- II. REMEDY:** Customer's sole remedy under the foregoing warranty is limited to correction by means of repair, replacement or issuance of credit, at the option of CSS, of any product which is:
- (A) Returned to CSS within the specified warranty time period, with prior notice to, and the written consent of, CSS, with transportation and handling charges prepaid, together with a statement describing the alleged defect, the part number, model number and application, and mileage or hours of use of such product; and
- (B) Upon examination, determined by CSS not to conform to the warranty.
- III.** Any product which is repaired or replaced under this warranty will be returned to customer prepaid. Disposition of any product determined not to be covered by this warranty will be at the customer's expense.
- IV.** CSS will not be liable for any repairs, replacements, or adjustments to any product or any cost of labor performed by or at the request of customer without the express prior written consent of CSS.
- V. EXCEPTIONS:** The provision of this warranty shall not apply to any CSS product which is used for a purpose for which it is not designed, or which shall have been repaired or altered in any way, or which has been subject to misuse, negligence or accident, neglect of normal maintenance services, so as, in the judgement of CSS to adversely affect its performance and reliability. In no case will the CSS warranty exceed the standard published warranty of its customer in terms of time and/or distance. In all events, the CSS warranty will expire thirty (30) months after the date of manufacture as stamped on the Product. In the case of hydraulic equipment, operation with unapproved fluid or temperatures voids this warranty.
- VI. EXCLUSION OF ALL OTHER REMEDIES AND LIMITATION OF LIABILITY:** Customer's sole and exclusive remedy under the foregoing warranty shall be for the repair, replacement or issuance of credit with respect to a defective product, as set forth and described above. Other provisions hereof notwithstanding, CSS shall not be liable to Customer, or any successor in interest, beneficiary or assignee of Customer, based upon any claim against CSS, whether in contract, warranty, negligence, strict liability, indemnity or otherwise, for any special, consequential, incidental or other damages relating in any way to the design, manufacture, sale, installation or other use of any product purchased from CSS.
- VII. EXCLUSION OF ALL OTHER WARRANTIES: THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY BY CSS AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES AND REPRESENTATIONS, WHETHER ORAL, WRITTEN, EXPRESSED, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship - Transmission Oil Cooler Three (3) Year Collateral Damage Coverage

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The transmission cooler shall be free from component or structural failures caused by defects in material and/or workmanship. Collateral damage up to \$10,000 per occurrence is available for the first three (3) years.
Warranty Begins:	The date of delivery to the first retail purchaser.
Warranty Period Ends After:	Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> <p>Towing is covered to the nearest distributor or authorized dealer only when necessary to prevent further damage to your transmission.</p> <p>Labor costs for the removal and reinstallation of goods may be covered when necessary to make repairs. Please contact your OEM for authorization.</p> <p>Replacement of cooler during the warranty period is limited to 100% of reasonable labor costs up to a maximum of \$700 to remove, replace, or repair the oil cooler.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



## AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD  
ALBURTIS, PA 18011-0451  
Phone: 610-966-3115  
Fax: 610-965-6313

### \* STANDARD TEN YEAR WARRANTY \*

(standard warranty is in effect for parts shipped after 4/15/10)

#### Telescopic Waterways

**A. PRESHIPMENT TESTING** All waterways fabricated by Amity are final inspected using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.

#### **B. COMPONENTS DESCRIPTION AND MAINTENANCE**

1. All components are thoroughly greased at assembly. Since internally lubricated seals are used, regular greasing is not required. We recommend components not be greased at installation.
2. Slip Tube Assemblies may be greased at the Amity's regularly scheduled Aerial Inspections. The seals in the Slip Tube Assemblies are self-lubricating, so greasing is not mandatory. We do recommend a visual inspection of the Slip Tube Assembly while it is fully extended after initial installation, from that point on we recommend inspection every ten hours of aerial operation. If any deposits of aluminum appear, they are to be rubbed off using a Teflon scouring pad. Slip Tube Assemblies are designed to give long maintenance free service; however, like any product, problems may occur and periodic visual inspections will aid in determining if a potential problem exists and warrants a call to us. Care must be taken to keep debris off of extended tubes. We recommend wiping tubes with light oil (10 weight) or hydraulic oil after use, if tubes appear to have contamination on them. Under no circumstance are tubes to be cleaned with lacquer thinner, or any other solvent.

#### **C. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.**

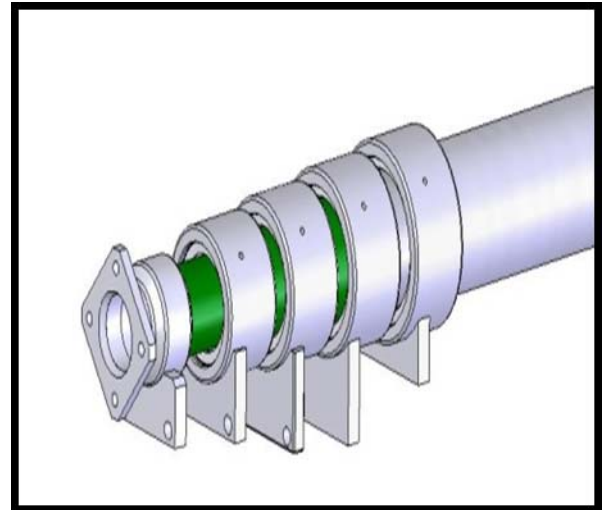
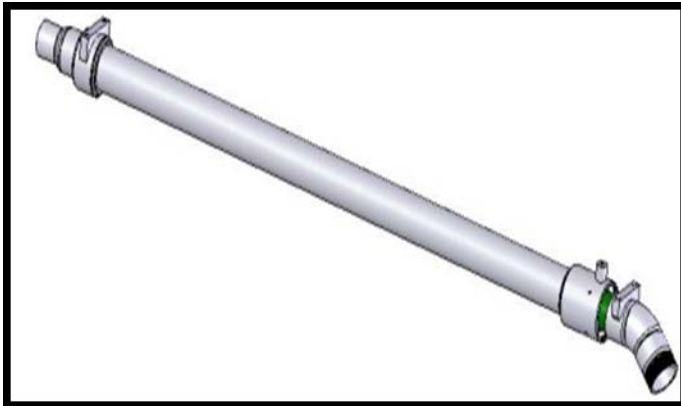
1. Products are warranted to be free of defects in labor and/or materials for a period of ten years from the date of purchase from the Amity and shall be repaired or replaced at the sole option and expense of the Amity provided the products alleged to be defective was used for its intended normal use operation and subject to the following qualifications and limitations.
2. Any alteration of product without consent from Amity is strictly forbidden and shall void warranty.
3. No welding shall be performed on finished product.
4. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water system such as, but not limited to stones, sand or metal chips.
5. Amity assumes responsibility for our product, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our product unless it agrees in writing to assume such responsibility.
6. Unless otherwise approved in writing by the Amity all returns of defective (or allegedly defective products) are at Purchaser's expense and must include a RGA number issued by the Amity.
7. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
8. Amity will not be held liable for damage incurred during shipment.
9. No responsibility shall be assumed for misuse or improper mounting, unreasonable use or abuse of the Product and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

**THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR**

**FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF TEN YEARS COMMENCES UPON INSTALLATION INTO FINAL ASSEMBLY WITH THE UNDERSTANDING IT IS INSTALLED WITHIN SIX MONTHS OF PURCHASE.**

Dated: \_\_\_\_\_, 20\_\_\_\_







## AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD  
ALBURTIS, PA 18011-0451  
Phone: 610-966-3115  
Fax: 610-965-6313

### \* STANDARD FIVE YEAR WARRANTY \*

(standard warranty is in effect for parts shipped after 4/15/10)

#### Three Function Swivel

**A. PRESHIPMENT TESTING** The Three Function Swivel fabricated by Amity which is exposed to pressure during normal use is subject to final inspection using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.
2. Hydraulic applications will be tested to 4000 PSI. System operating pressure in application to be 3000 PSI maximum.
3. Dielectric and Continuity Test all circuits. 30 Amp max current loading.

**B. THREE FUNCTION SWIVEL MAINTENANCE** – Our Three Function Swivel has been fully tested at assembly. Under no circumstances is there to be any maintenance performed internally or externally to the Three Function Swivel by Purchaser or any other third party other than an authorized representative of or Amity itself. The Three Function Swivel is sealed and must remain so. The Three Function Swivel is designed for a long maintenance free life. Should any problems occur or replacement be necessary, first contact Amity. There is to be no field maintenance performed on the Three Function Swivel .

**C. MOUNTING REQUIREMENTS** – The following are the mounting requirements for the Three Function Swivel:

1. Mounting points and methods are to be determined at the initial design stage. All drawings and applicable documentation must be signed off by both parties and filed for future reference. No deviation to the approved mounting is allowed without approval from Amity.
2. The Three Function Swivel is to be mounted concentric to the center of the turntable bearing.
3. All inlet and outlet plumbing to conform to swivel mounting, under no circumstances is the Three Function Swivel to be positioned to match connections. This will avoid putting excessive loads on the Three Function Swivel. All tubing or piping to be supported by means other than the Three Function Swivel.

#### **D. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.**

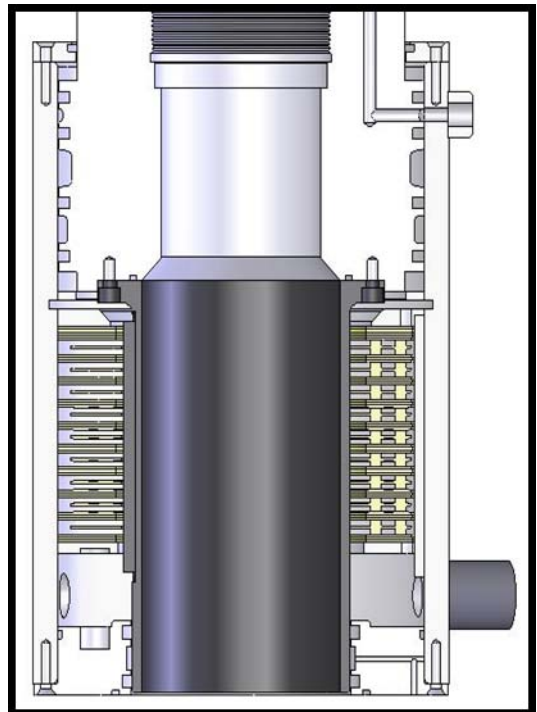
1. The Three Function Swivel is warranted to be free of defects in labor and/or materials for a period of five (5) years from the Date of Service. For purposes here, "Date of Service" shall mean the date when the Three Function Swivel, or the unit to which the Three Function Swivel is incorporated, passes final Underwriters Laboratory testing, or similarly compliant testing, and is certified for service. Evidence of such Date of Service shall be required in connection with any warranty claim by Purchaser.
2. The Three Function Swivel shall be repaired or replaced at the sole option and expense of the Amity provided the Three Function Swivel alleged to be defective was used for its intended normal use of operation and subject to the following qualifications and limitations.
3. Any alteration of the Three Function Swivel without consent from Amity is strictly forbidden and shall void warranty.
4. No welding shall be performed on finished Three Function Swivel.
5. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water or hydraulic systems such as, but not limited to stones, sand or metal chips.
6. Amity assumes responsibility for our Three Function Swivel, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our Three Function Swivel unless it agrees in writing to assume such responsibility.
7. Unless otherwise approved in writing by the Amity all returns of defective Three Function Swivels (or allegedly defective Three Function Swivels) are at Purchaser's expense and must include a RGA number issued by the Amity.

8. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
9. Amity will not be held liable for damage incurred during shipment.
10. No responsibility shall be assumed for misuse or improper mounting, unreasonably use or abuse of the Three Function Swivel and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

**THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF FIVE YEARS IS FROM THE DATE OF SERVICE WITH THE UNDERSTANDING IT IS INSTALLED WITHIN A REASONABLE TIME PERIOD.**

Dated: \_\_\_\_\_, 20\_\_







## **AMDOR Inc. TERMS OF BUSINESS AND GENERAL INFORMATION**

### **Warranty:**

All AMDOR Inc. roll-up door products are warranted for a period of 10 years from the date of delivery (with the exception of wet paint adhesion - please see below). AMDOR Inc. liability covers the replacement or repair of any component that fails due to defects in material and / or workmanship during the coverage period. We accept no liability for claims made for damages to any part (or parts) of a vehicle and / or machine (of any type) or injury claims by a person or persons assumed or alleged to have been brought about by the use or misuse of any product supplied by AMDOR Inc. Warranty coverage does not extend to door attachments including (but not limited to) decals, emblems, stripes and adhesives.

In order to initiate the claims process please contact your authorized representative of AMDOR Inc. Warranty claims must be accompanied by a written description providing full and reasonable details as to the nature of the defect. Upon receipt of your claim arrangements will be made to inspect the defective product (if necessary). Justified warranty claims will be repaired, exchanged, or credited to the customer's account at AMDOR Inc.'s discretion. All warranty claims must be approved in writing by the Customer Service Manager for AMDOR Inc. There are no exceptions to this clause.

Limited warranty coverage includes the labor associated with the disassembly and assembly of products deemed to be defective by AMDOR Inc. Labor allowances are based on a set time schedule as determined by AMDOR Inc. The maximum allowable hourly labor rate is \$ 50. All warranty labor claims must be approved in writing by an authorized representative of AMDOR Inc. prior to commencement of work. Allowances for removal and installation:

Curtain replacement:	3/4 hour
Balancer replacement:	1 hour
Door ajar switch	3/4 hour
Bottom Panel Assembly:	1/2 hour
Slat replacement:	3/4 hour
Door removal and replacement	1 1/2 hours

Items authorized for return must be accompanied by a Return Goods Authorization (RGA) number. We will accept collect shipments of items deemed to be defective provided that they are returned via the most economical carrier. Should items be

returned by means other than the most economical carrier the difference will be charged back to the sender.

AMDOR Inc. reserves the right to reject any claim when a product has been opened, interfered with or modified. Claims may also be rejected when damage to the product (or any sub-assembly) has been brought about by accident, misuse, abuse, vandalism, incorrect installation, temperature extremes, chemical exposure or any factor other than regular operating conditions.

### **Limited Wet Paint Match Adhesion Warranty**

AMDOR Inc. warrants wet paint finishes applied by AMDOR utilizing our approved factory paint specification. All wet paint match colors must be approved in writing by an authorized OEM representative. AMDOR Inc. will provide a color spray out for this purpose. The time required for shipping and consideration of initial color spray outs will be considered over and above stated lead times. Warranty coverage will extend for a period of not less than 5 years from the date of delivery as determined by AMDOR Inc.'s Packing Slip. AMDOR reserves the right to determine whether individual units will be replaced and / or repaired by an AMDOR approved vendor. An allowance will be made for labor associated with the disassembly and assembly of individual units at the prescribed hourly rate of \$ 50 per hour. Compensation for labor will not exceed the maximum time allowance permitted for door removal and replacement. Written approval including specified allowance for time must be obtained from AMDOR prior to initiating work. Warranty coverage will extend to the following visible paint system defects:

- 1./ Loss of mechanical adhesion as evidenced by peeling, cracking or blistering which exposes the substrate material.
- 2./ Corrosion of the substrate due to paint system failure.
- 3./ Fading which results in a substantial departure from the primary AMDOR approved body color.

Wet paint adhesion limited warranty coverage will be excluded when damages to the system are determined by AMDOR Inc. to be a result of the following:

- 1./ Damage caused through the use of attachments including (but not limited to) decals, labels, adhesives, non factory approved coatings.
- 2./ Loss of gloss, discoloration or damage due to improper maintenance (including but not limited to) mechanical wash systems, pressure washers, steam cleaners, non approved wash or polishing agents.
- 3./ Abuse, acts of nature, excessive heat / cold, chemical exposure, vandalism and / or accidents.
- 4./ Scratches, chips, abrasions, or dents from any source.

**This document supercedes all previous written and / or verbal warranties provided by AMDOR Inc. and / or it's affiliates.**



# Cummins Warranty

Worldwide

Fire Apparatus/Crash Trucks



# Coverage

## Products Warranted

This Warranty applies to new diesel Engines sold by Cummins and delivered to the first user on or after April 1, 2007, that are used in fire apparatus truck and crash truck\* applications Worldwide.

## Base Engine Warranty

The Base Engine Warranty covers any failures of the Engine which result, under normal use and service, from a defect in material or factory workmanship (Warrantable Failure). This Coverage begins with the sale of the Engine by Cummins and ends five years or 100,000 miles (160,935 kilometers), whichever occurs first, after the date of delivery of the Engine to the first user.

Engine aftertreatment components included in the Cummins Critical Parts List (CPL) and marked with a Cummins part number are covered under Base Engine Warranty.

Additional Coverage is outlined in the Emission Warranty section.

**These Warranties are made to all Owners in the chain of distribution and Coverage continues to all subsequent Owners until the end of the periods of Coverage.**

# Cummins Responsibilities

Cummins will pay for all parts and labor needed to repair the damage to the Engine resulting from a Warrantable Failure.

Cummins will pay for the lubricating oil, antifreeze, filter elements, belts, hoses and other maintenance items that are not reusable due to the Warrantable Failure.

Cummins will pay for reasonable labor costs for Engine removal and reinstallation when necessary to repair a Warrantable Failure.

Cummins will pay reasonable costs for towing a vehicle disabled by a Warrantable Failure to the nearest authorized repair location. In lieu of the towing expense, Cummins will pay reasonable costs for mechanics to travel to and from the location of the vehicle, including meals, mileage and lodging when the repair is performed at the site of the failure.

# Owner Responsibilities

Owner is responsible for the operation and maintenance of the Engine as specified in Cummins Operation and Maintenance Manuals. Owner is also responsible for providing proof that all recommended maintenance has been performed.

Before the expiration of the applicable Warranty, Owner must notify a Cummins distributor, authorized dealer or other repair location approved by Cummins of any Warrantable Failure and make the Engine available for repair by such facility. Except for Engines disabled by a Warrantable Failure, Owner must also deliver the Engine to the repair facility.

Service locations are listed on the Cummins Worldwide Service Locator at [cummins.com](http://cummins.com).

Owner is responsible for the cost of lubricating oil, antifreeze, filter elements and other maintenance items provided during Warranty repairs unless such items are not reusable due to the Warrantable Failure.

Owner is responsible for communication expenses, meals, lodging and similar costs incurred as a result of a Warrantable Failure.

Owner is responsible for non-Engine repairs and for "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs and other losses resulting from a Warrantable Failure.

Owner is responsible for a \$100 (U.S. Dollars) deductible per each service visit under this plan in the 3rd, 4th and 5th years of Base Engine Warranty. The deductible will not be charged during the first 2 years of the Base Engine Warranty.

# Limitations

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel



exhaust fluid.

This Warranty does not apply to accessories supplied by Cummins which bear the name of another company. Such non-warranted accessories include, but are not limited to: alternators, starters, fans, air conditioning compressors, clutches, filters, transmissions, torque converters, vacuum pumps, power steering pumps, fan drives and air compressors. Cummins branded alternators and starters are covered for the first two years from the date of delivery of the Engine to the first user, or the expiration of the Base Engine Warranty, whichever occurs first.

Failures resulting in excessive oil consumption are not covered beyond the duration of the Coverage or 100,000 miles (160,935 kilometers) or 7,000 hours from the date of delivery of the Engine to the first user, whichever of the three occurs first. Before a claim for excessive oil consumption will be considered, Owner must submit adequate documentation to show that consumption exceeds Cummins published standards.

Failures of belts and hoses supplied by Cummins are not covered beyond the first year from the date of delivery of the Engine to the first user or the duration of the Warranty, whichever occurs first.

Parts used to repair a Warrantable Failure may be new Cummins parts, Cummins approved rebuilt parts or repaired parts. Cummins is not responsible for failures resulting from the use of parts not approved by Cummins.

A new Cummins or Cummins approved rebuilt part used to repair a Warrantable Failure assumes the identity of the part it replaced and is entitled to the remaining Coverage hereunder.

Cummins Inc. reserves the right to interrogate Electronic Control Module (ECM) data for purposes of failure analysis.

**CUMMINS DOES NOT COVER WEAR OR WEAROUT OF COVERED PARTS.**

**CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**THIS WARRANTY AND THE EMISSION WARRANTY SET FORTH HEREINAFTER ARE THE SOLE WARRANTIES MADE BY CUMMINS IN REGARD TO THESE ENGINES. CUMMINS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

# Emission Warranty

## Products Warranted

This Emission Warranty applies to new Engines marketed by Cummins that are used in the United States\*\* in vehicles designed for transporting persons or property on a street or highway. This Warranty applies to Engines delivered to the first user on or after September 1, 1992.

## Coverage

Cummins warrants to the first user and each subsequent purchaser that the Engine is designed, built and equipped so as to conform at the time of sale by Cummins with all U.S. federal emission regulations applicable at the time of manufacture and that it is free from defects in material or factory workmanship which would cause it not to meet these regulations within the longer of the following periods: (A) Five years or 100,000 miles (160,935 kilometers) of operation, whichever occurs first, as measured from the date of delivery of the Engine to the first user or (B) The Base Engine Warranty.

If the vehicle in which the Engine is installed is registered in the state of California, a separate California Emission Warranty also applies.

## Limitations

Failures, other than those resulting from defects in material or factory workmanship, are not covered by this Warranty.

Cummins is not responsible for failures or damage resulting from what Cummins determines to be abuse or neglect, including, but not limited to: operation without adequate coolants or lubricants; overfueling; overspeeding; lack of maintenance of lubricating, cooling or intake systems; improper storage, starting, warm-up, run-in or shutdown practices; unauthorized modifications of the Engine.

Any unauthorized modifications to the aftertreatment could negatively effect emissions certification and void Warranty.

Cummins is also not responsible for failures caused by incorrect oil, fuel or diesel exhaust fluid or by water, dirt or other contaminants in the fuel, oil or diesel exhaust fluid.

Cummins is not responsible for non-Engine repairs, "downtime" expenses, cargo damage, fines, all applicable taxes, all business costs or other losses resulting from a Warrantable Failure.

**CUMMINS IS NOT RESPONSIBLE FOR INCIDENTAL  
OR CONSEQUENTIAL DAMAGES.**

\* Airport operated crash trucks and fire department  
operated trucks employed to respond to fires,  
hazardous material releases, rescue and other  
emergency-type situations.

\*\* United States includes American Samoa, the  
Commonwealth of Northern Mariana Islands, Guam,  
Puerto Rico and the U.S. Virgin Islands.



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# Fire and Rescue Apparatus

## Two (2) Year Material and Workmanship

### Meritor Axles

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Two (2) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	The exclusions listed in the attached Meritor warranty description shall apply.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2018 VEHICLES



**MERITOR**







# WARRANTY INFORMATION CONTENTS

Effective Model Year 2018 Vehicles

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## How to Read Warranty Coverage

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
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**Notice:**

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

## Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).



# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- |                        |                   |                    |                        |
|------------------------|-------------------|--------------------|------------------------|
| ■ Auto Hauler          | ■ Flatbed         | ■ Livestock Hauler | ■ Refrigerated Freight |
| ■ Bulk Hauler          | ■ General Freight | ■ Moving Van       | ■ Tanker               |
| ■ Chip Hauler (Truck)* | ■ Grain Hauler    | ■ Pipe Hauler      | ■ Triples              |
| ■ Doubles              |                   |                    |                        |

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/750/P&L

FD-965	FF-966	MFS-10-144A-N	MFS-12-132C-N	MFS-13-122C-N	MFS-14-143A-N
FF-941	FF-967	MFS-12-122A-N	MFS-12-143A-N	MFS-13-132B-N	
FF-942	FG-941	MFS-12-122B-N	MFS-12E-143A-N	MFS-13-132C-N	
FF-943	FG-943	MFS-12-122C-N	MFS-12-144A-N	MFS-13-143A-N	
FF-944	MFS-10-122A	MFS-12E-122A-N	MFS-13-122A-N	MFS-13-144A-N	
FF-961	MFS-10-143A-N	MFS-12-132B-N	MFS-13-122B-N	MFS-14-122A-N	

## Rear Drive Single Axles – 5/750/P&L

RS-19-144/145/A	RS-21-160
MS-19-14X	RS-23-160
MS-21-144	RS-23-161
RS-21-145	RS-23-186

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

RT-34-144/P/A	MA-40-165	MT-40-943
RT-40-145/A	MA-40-175	MT-40-943-SP
RT-40-160/P <sup>1,2</sup>	MT-34-14X/P	RZ-166 <sup>2</sup>
RT-46-160/P <sup>1,2</sup>	MT-40-14X/P	RZ-188
RT-46-164EH/P <sup>1,2</sup>	MT-40-14X/P	
RT-50-160/P <sup>1,2</sup>	MT-40-144/P	

## Drivelines

RPL	5/500/P, 1/Unl/P&L
MXL	3/350/P, 1/Unl/P&L
155N	1/Unl/P
92N	1/Unl/P

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# LINEHAUL WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	5/500/P, 1/100/L
LX500 Feature <sup>1</sup>	5/750/P&L
Q+ Drum Brake™	5/500/P, 1/Unl/P&L
ASA	5/500/P, 1/Unl/P&L
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	5/500/P, 1/Unl/L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

## Trailer Axles

Beam and Brackets	5/500/P, 1/100/L
Wheel End Systems <sup>1</sup>	
Standard System <sup>2</sup>	1/100/P&L
PreSet by Meritor <sup>3</sup>	5/500/P&L
AxlePak5 <sup>4</sup>	5P/L
AxlePak7 <sup>5</sup>	7P/L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/500P, 3/500L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/750P, 3/500L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

TQ, TQD, TR, TRD Beam and Brackets	5/750/P&L
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<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
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## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/500/P, 1/100/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/700/P, 5/500/L
PinLoc Air Controls	1/100/P&L
PinLoc Actuator	3/300/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/700/P, 5/500/L
MTA (Trailing Arm)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs & Rebound Straps	2/200/P, 1/100/L
Bushings	5/500/P, 3/300/L

<sup>1</sup> Fastener torque coverage is limited to 2/Unl P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.



# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

■ Aerial Ladder Truck	■ Front Engine Commercial Chassis	■ Municipal Truck	■ Refrigerated Freight
■ Aerial Platform	■ Front Engine Integral Coach	■ Newspaper Delivery	■ School Bus
■ Ambulance	■ General Freight	■ Pick-Up and Delivery	■ Stake Truck
■ Auto Hauler	■ Intercity Coach	■ Pipe Hauler	■ Tanker
■ Beverage Truck	■ Intermodal Chassis	■ Platform Auto Hauler	■ Tanker Truck
■ Chip Hauler	■ Livestock Hauler	■ Pumper	■ Tour Bus
■ Cross Country Coach	■ Meat Packer	■ Rear Engine Integral Coach	■ Wrecker
■ Flatbed	■ Moving Van	■ Recreational Vehicles	

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FH-941	MFS-7-153C-N	MFS-12E-122A-N	MFS-13-122C-N	MFS-18-135A-N
FF-941	FH-946 <sup>1</sup>	MFS-7-163C-N	MFS-12-122B-N	MFS-13-132B-N	MFS-18-193A-N
FF-942	FL-941	MFS-8-113B-N	MFS-12-122C-N	MFS-13-132C-N	MFS-20-133A-N
FF-943	FL-943	MFS-8-143A-N	MFS-12-132B-N	MFS-13-143A-N	MFS-20-135A-N
FF-944	MFS-6-151A-N	MFS-8-153B-N	MFS-12-132C-N	MFS-13-144A-N	MFS-20H-193A-N
FF-946	MFS-6-153B-N	MFS-8-163B-N	MFS-12-143A-N	MFS-14-122A-N	MFS-22H-135A-N
FF-961	MFS-6-162B-N	MFS-10-122A	MFS-12-144A-N	MFS-14-143A-N	MFS-22H-193A-N
FF-966	MFS-6-153C-N	MFS-10-143A-N	MFS-12E-143A-N	MFS-16-122A-N	
FF-967	MFS-6-162C-N	MFS-10-144A-N	MFS-13-122A-N	MFS-16-143A-N	
FG-941	MFS-7-113C-N	MFS-12-122A-N	MFS-13-122B-N	MFS-18-133A-N	

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Rear Drive Single Axles – 2/Unl/P&L

MS-17-13X	MS-21-144	RC-23-162 <sup>1</sup>	MS-26-616	79163
MS-17-14X	MS-23-17X	RC-23-165 <sup>1</sup>	MS-26-616-SP	
MS-19-13X	RS-21-145/A	RS-23-160	RS-30-185	
MS-19-14X	RS-21-160	RS-23-161	MS-30-616	
RS-17-144/145/A	RC-22-145	RS-23-186	MS-30-616-SP	
RS-19-144/145/A	RC-22-145/A	RS-24-160	RS-35-380	
MS-21-13X	RC-23-160	RC-25-160	71162	
MS-21-14X	RC-23-161	RS-26-185	71163	

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem – 3/Unl/P&L

RT-40-160/P	RT-46-164EH/P
RT-46-160/P	RT-50-160/P

## Drivelines

RPL	4/400/P, 1/Unl/P&L
MXL	3/350/P, 1/Unl/P&L
155N	1/Unl/P
92N	1/Unl/P

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	MT-44-14X/P	MT-58-616
RT-34-144/P/A	RT-44-145/P	RT-58-185 <sup>1</sup>
MT-40-14X/P	RT-46-169	MT-70-380
MT-40-144/P	MT-52-616	RZ-166
RT-40-145/A	RT-52-185 <sup>1</sup>	RZ-188

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	3/Unl/P, 1/Unl/L
LX500 Feature <sup>1</sup>	3/Unl/P&L
Cam P <sup>3</sup>	2/200/P
Cam	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>3</sup>	2/200/P&L
ASA	3/Unl/P
ASA <sup>3</sup>	2/200/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	2/Unl/P&L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L
AxlePak5 <sup>4</sup>	5P/L
AxlePak7 <sup>5</sup>	7P/L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/500P, 3/500L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/750P, 3/500L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

Beam & Brackets	6/Unl/P, 1/Unl/L
Wheel End Systems <sup>1</sup>	
Standard System	1/Unl/P&L
AxlePak7	7P/L
Beam and Brackets	7P/1L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/Unl/P, 1/Unl/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/700/P, 5/500/L
PinLoc Air Controls	1/Unl/P&L
PinLoc Air Actuator	3/Unl/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/700/P, 5/500/L
MTA (Trailing Arm)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs and Rebound Straps	2/Unl/P, 1/Unl/L
Bushings <sup>3</sup>	5/Unl/P, 3/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup>	3/Unl/P, 1/Unl/L
MC12002, MC14002, MC16003, FH946	2/Unl/P&L

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/UNL/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System by PSI

MTIS Components	3/500/P&L
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# HEAVY SERVICE WARRANTY INFORMATION

## Heavy Service Vehicles

■ Airport Rescue Fire (ARF)	■ Drill Rig	■ Michigan Special Gravel Trains	■ Shuttle Bus
■ Airport Shuttle	■ Dump	■ Michigan Special Log Hauler	■ Side Loader
■ Asphalt Truck	■ Emergency Service	■ Michigan Special Steel Hauler	■ Snowplow/Snowblower
■ Block Truck	■ Equipment Hauling	■ Michigan Special Waste Vehicle	■ Steel Hauling
■ Bottom Dump Trailer	■ Flatbed Trailer Hauler	■ Municipal Dump	■ Tanker
■ Combination	■ Flatbed Truck	■ Rapid Intervention Vehicle (RIV)	■ Tank Truck
■ Cementing Vehicle	■ Fracturing Truck	■ Rear Loader (Refuse)	■ Tractors with Pole Trailers
■ City Bus	■ Front Loader	■ Recycling Truck	■ Tractor/Trailer with Jeeps
■ Commercial Pick-Up	■ Geophysical Exploration	■ Residential Pick-Up (Refuse)	■ Transfer Dump
■ Concrete Pumper	■ Hopper Trailer Combinations	■ Rigging Truck	■ Transfer Vehicle
■ Construction Material Hauler	■ Landscaping Truck	■ Roll-Off	■ Transit Bus
■ Crash Fire Rescue (CFR)	■ Liquid Waste Hauler	■ Scrap Truck	■ Trolley
■ Mixer	■ Log Hauling	■ Semi-End Dump	■ Utility Truck
■ Demolition	■ Lowboy	■ Sewer/Septic Vacuum	■ Winch Truck

## Heavy Service Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FH-941	MFS-8-113B-N	MFS-12-132C-N	MFS-13-155	MFS-22H-135A-N	MX-17-140
FF-941	FH-946	MFS-8-153B-N	MFS-12-143A-N	MFS-14-122	MFS-22H-193A-N	MX-19-140
FF-942	FL-941	MFS-8-163B-N	MFS-12-144A-N	MFS-14-143A-N	RF-16-145	MX-21-140
FF-943	FL-943	MFS-10-122A	MFS-12-155	MFS-16-122A-N	RF-21-160	MX-21-160
FF-944	MFS-6-151A-N	MFS-10-143A-N	MFS-13-122	MFS-16-143A-N	MX-10-120	MX-23-160
FF-946	MFS-6-153B	MFS-10-144A-N	MFS-13-122B-N	MFS-18-133A-N	MX-10-120 EVO	MX-810
FF-961	MFS-6-162B	MFS-12-122	MFS-13-122C-N	MFS-18-135A-N	MX-12-120	
FF-966	MFS-6-162C	MFS-12-122B-N	MFS-13-132B-N	MFS-18-193A-N	MX-12-120 EVO	
FF-967	MFS-7-113C-N	MFS-12-122C-N	MFS-13-132C-N	MFS-20-133A-N	MX-14-120	
FG-941	MFS-7-153C-N	MFS-12E-122	MFS-13-143A-N	MFS-20-135A-N	MX-16-120	
FG-943	MFS-7-163C-N	MFS-12-132B-N	MFS-13-144A-N	MFS-20H-193A-N	MX-18-120	

## Drivelines

RPL	3/Unl/P, 1/Unl/P&L
92N	1/Unl/P&L
MXL	1/Unl/P&L

## Rear Drive Single Axles – 2/Unl/P&L

MS-17-14X	RS-23-160	MS-30-616-SP
RS-17-144/145/A	RC-23-161	RS-30-185/380
MS-19-14X	RS-23-161	MS-35-380
RS-19-144	RS-23-186/380	RS-38-380
MS-21-114	RC-23-162	RC-25-160
MS-21-14X	RC-23-165	RC-26-633
RS-21-145	RS-24-160	MT-58-616
RS-21-145/A	RS-25-160	MT-58-616-SP
RS-21-160	MS-26-616	71162
RC-22-145	MS-26-616-SP	71163
RC-23-160	RS-26-185/380	79163
RH-23-160	MS-30-616	



# HEAVY SERVICE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	RT-44-145/P	MT-58-616	RZ-166
RT-34-144/P/A	RT-46-169	MT-58-616-SP	RZ-188
MT-40-14X/P	MT-52-616	RT-58-185/380 <sup>1,2</sup>	
RT-40-145/A	MT-52-616-SP	RT-70-380	
MT-44-14X/P	RT-52-185/380 <sup>1,2</sup>	MT-70-380	

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

Cam P	3/Unl/P
Cam P <sup>3</sup>	2/100/P
Cam Cast Plus™	2/100/P&L
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>2</sup>	2/100/P&L
ASA	3/Unl/P
ASA <sup>2</sup>	2/100/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
EX+ Air Disc Brake	2/100/P&L

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Transfer Cases – 1/Unl/P

MTC-4208	MTC-4213	T-2119
MTC-4210	T-2111	

## Rear Drive Tandem – 3/Unl/P&L

RT-40-160/P/A <sup>3</sup>
RT-46-160/P/A <sup>1,3</sup>
RT-46-164EH/P/A <sup>2,3</sup>
RT-50-160/P/A <sup>3</sup>
<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.
<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.
<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
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## Trailer Air Suspension Systems

MTA (Trailing Arm)	
Major Structural Components <sup>1</sup>	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings <sup>1</sup>	5/Unl/P, 3/Unl/L

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Center Non-drive Axles – 2/Unl/P&L

MC26000
71063
79063

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)



# OFF-HIGHWAY SERVICE WARRANTY INFORMATION

## Industrial And Off-Highway Service Vehicles

■ Load-On/Load-Off	■ Yard Jockey	■ Specialized Mining	■ Rail Car Mover
■ Port Tractor	■ All-Terrain Crane	■ Excavator	■ Loader
■ Rail Yard Spotter	■ Rough Terrain Crane	■ Compactor	■ Tow Tractor
■ Roll-On/Roll-Off	■ Forestry	■ Fertilizer Spreader	■ Pushback Tractor
■ Stevedoring Tractor	■ Material Handling	■ Snow Blower	
■ Trailer Spotter	■ Specialized Heavy Haul	■ Mining	

## Industrial And Off-Highway Service Typically Is

- Low mileage operation
- Low speed vehicle speed restriction
- Vehicles are **not** typically licensed for highway use
- Six (6) starts/stops per mile (typical)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Drive Steer Axles – 1/Unl/P

MOR                      MOX                      MOC

## Front Non-Drive Steer Axles – 1/Unl/P

FF - 941	MFS-12-143A-N	MFS-18-135A-N
FF - 943	MFS-12-144A-N	MFS-18-193A-N
FF - 961	MFS-13-143A-N	MFS-20-133A-N
FF - 966	MFS-13-144A-N	MFS-20-135A-N
FG - 941	MFS-14-143A-N	MFS-20H-193A-N
FG - 943	MFS-16-122A-N	MFS-22H-135A-N
FL - 941	MFS-16-143A-N	MFS-22H-193A-N
FL - 943	MFS-18-133A-N	MON-ZO FAMILY

## Planetary Axles – 1/Unl/P

MOR                      MOX                      MOC                      MOT

## Rear Drive Single Axles – 1/Unl/P

RS-23-186	RS-24-160-SP	RS-30-185
RS-23-380	MS-30-616	RS-30-380
RS-24-160	MS-30-616-SP	MS-35-380

## Drivelines – 1/Unl/P

RPL                      MXL

## Rear Drive Tandem Axles – 2/Unl/P

MT-44-14X/P	MT-58-616	RT-44-145/P	RT-50-160/P
MT-52-616	MT-58-616-SP	RT-46-160/P	RZ-166
MT-52-616-SP	MT-70-380	RT-46-164EH/P	

## Brake Components

Cam P	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
ASA	3/Unl/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P





# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Inc. warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number I and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not sold by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Vehicle models, brands and names depicted herein are the property of their respective owners, and are not in any way associated with Meritor, Inc., or its affiliates.



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or visit [meritor.com](http://meritor.com)

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# Fire and Rescue Apparatus

## Two (2) Year Material and Workmanship

### Meritor Axles

## Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Two (2) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	The exclusions listed in the attached Meritor warranty description shall apply.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*

# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2018 VEHICLES



**MERITOR**





# WARRANTY INFORMATION CONTENTS

Effective Model Year 2018 Vehicles

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## How to Read Warranty Coverage

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
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**Notice:**

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

## Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).





# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- |                        |                   |                    |                        |
|------------------------|-------------------|--------------------|------------------------|
| ■ Auto Hauler          | ■ Flatbed         | ■ Livestock Hauler | ■ Refrigerated Freight |
| ■ Bulk Hauler          | ■ General Freight | ■ Moving Van       | ■ Tanker               |
| ■ Chip Hauler (Truck)* | ■ Grain Hauler    | ■ Pipe Hauler      | ■ Triples              |
| ■ Doubles              |                   |                    |                        |

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/750/P&L

FD-965	FF-966	MFS-10-144A-N	MFS-12-132C-N	MFS-13-122C-N	MFS-14-143A-N
FF-941	FF-967	MFS-12-122A-N	MFS-12-143A-N	MFS-13-132B-N	
FF-942	FG-941	MFS-12-122B-N	MFS-12E-143A-N	MFS-13-132C-N	
FF-943	FG-943	MFS-12-122C-N	MFS-12-144A-N	MFS-13-143A-N	
FF-944	MFS-10-122A	MFS-12E-122A-N	MFS-13-122A-N	MFS-13-144A-N	
FF-961	MFS-10-143A-N	MFS-12-132B-N	MFS-13-122B-N	MFS-14-122A-N	

## Rear Drive Single Axles – 5/750/P&L

RS-19-144/145/A	RS-21-160
MS-19-14X	RS-23-160
MS-21-144	RS-23-161
RS-21-145	RS-23-186

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

RT-34-144/P/A	MA-40-165	MT-40-943
RT-40-145/A	MA-40-175	MT-40-943-SP
RT-40-160/P <sup>1,2</sup>	MT-34-14X/P	RZ-166 <sup>2</sup>
RT-46-160/P <sup>1,2</sup>	MT-40-14X/P	RZ-188
RT-46-164EH/P <sup>1,2</sup>	MT-40-14X/P	
RT-50-160/P <sup>1,2</sup>	MT-40-144/P	

## Drivelines

RPL	5/500/P, 1/Unl/P&L
MXL	3/350/P, 1/Unl/P&L
155N	1/Unl/P
92N	1/Unl/P

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# LINEHAUL WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	5/500/P, 1/100/L
LX500 Feature <sup>1</sup>	5/750/P&L
Q+ Drum Brake™	5/500/P, 1/Unl/P&L
ASA	5/500/P, 1/Unl/P&L
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	5/500/P, 1/Unl/L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

## Trailer Axles

Beam and Brackets	5/500/P, 1/100/L
Wheel End Systems <sup>1</sup>	
Standard System <sup>2</sup>	1/100/P&L
PreSet by Meritor <sup>3</sup>	5/500/P&L
AxlePak5 <sup>4</sup>	5P/L
AxlePak7 <sup>5</sup>	7P/L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/500P, 3/500L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/750P, 3/500L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

TQ, TQD, TR, TRD Beam and Brackets	5/750/P&L
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<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
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## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/500/P, 1/100/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/700/P, 5/500/L
PinLoc Air Controls	1/100/P&L
PinLoc Actuator	3/300/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	7/700/P, 5/500/L
MTA (Trailing Arm)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs & Rebound Straps	2/200/P, 1/100/L
Bushings	5/500/P, 3/300/L

<sup>1</sup> Fastener torque coverage is limited to 2/Unl P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.



# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

■ Aerial Ladder Truck	■ Front Engine Commercial Chassis	■ Municipal Truck	■ Refrigerated Freight
■ Aerial Platform	■ Front Engine Integral Coach	■ Newspaper Delivery	■ School Bus
■ Ambulance	■ General Freight	■ Pick-Up and Delivery	■ Stake Truck
■ Auto Hauler	■ Intercity Coach	■ Pipe Hauler	■ Tanker
■ Beverage Truck	■ Intermodal Chassis	■ Platform Auto Hauler	■ Tanker Truck
■ Chip Hauler	■ Livestock Hauler	■ Pumper	■ Tour Bus
■ Cross Country Coach	■ Meat Packer	■ Rear Engine Integral Coach	■ Wrecker
■ Flatbed	■ Moving Van	■ Recreational Vehicles	

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FH-941	MFS-7-153C-N	MFS-12E-122A-N	MFS-13-122C-N	MFS-18-135A-N
FF-941	FH-946 <sup>1</sup>	MFS-7-163C-N	MFS-12-122B-N	MFS-13-132B-N	MFS-18-193A-N
FF-942	FL-941	MFS-8-113B-N	MFS-12-122C-N	MFS-13-132C-N	MFS-20-133A-N
FF-943	FL-943	MFS-8-143A-N	MFS-12-132B-N	MFS-13-143A-N	MFS-20-135A-N
FF-944	MFS-6-151A-N	MFS-8-153B-N	MFS-12-132C-N	MFS-13-144A-N	MFS-20H-193A-N
FF-946	MFS-6-153B-N	MFS-8-163B-N	MFS-12-143A-N	MFS-14-122A-N	MFS-22H-135A-N
FF-961	MFS-6-162B-N	MFS-10-122A	MFS-12-144A-N	MFS-14-143A-N	MFS-22H-193A-N
FF-966	MFS-6-153C-N	MFS-10-143A-N	MFS-12E-143A-N	MFS-16-122A-N	
FF-967	MFS-6-162C-N	MFS-10-144A-N	MFS-13-122A-N	MFS-16-143A-N	
FG-941	MFS-7-113C-N	MFS-12-122A-N	MFS-13-122B-N	MFS-18-133A-N	

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Rear Drive Single Axles – 2/Unl/P&L

MS-17-13X	MS-21-144	RC-23-162 <sup>1</sup>	MS-26-616	79163
MS-17-14X	MS-23-17X	RC-23-165 <sup>1</sup>	MS-26-616-SP	
MS-19-13X	RS-21-145/A	RS-23-160	RS-30-185	
MS-19-14X	RS-21-160	RS-23-161	MS-30-616	
RS-17-144/145/A	RC-22-145	RS-23-186	MS-30-616-SP	
RS-19-144/145/A	RC-22-145/A	RS-24-160	RS-35-380	
MS-21-13X	RC-23-160	RC-25-160	71162	
MS-21-14X	RC-23-161	RS-26-185	71163	

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem – 3/Unl/P&L

RT-40-160/P	RT-46-164EH/P
RT-46-160/P	RT-50-160/P

## Drivelines

RPL	4/400/P, 1/Unl/P&L
MXL	3/350/P, 1/Unl/P&L
155N	1/Unl/P
92N	1/Unl/P

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	MT-44-14X/P	MT-58-616
RT-34-144/P/A	RT-44-145/P	RT-58-185 <sup>1</sup>
MT-40-14X/P	RT-46-169	MT-70-380
MT-40-144/P	MT-52-616	RZ-166
RT-40-145/A	RT-52-185 <sup>1</sup>	RZ-188

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.





# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	3/Unl/P, 1/Unl/L
LX500 Feature <sup>1</sup>	3/Unl/P&L
Cam P <sup>3</sup>	2/200/P
Cam	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>3</sup>	2/200/P&L
ASA	3/Unl/P
ASA <sup>3</sup>	2/200/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	2/Unl/P&L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L
AxlePak5 <sup>4</sup>	5P/L
AxlePak7 <sup>5</sup>	7P/L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/500P, 3/500L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/750P, 3/500L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

Beam & Brackets	6/Unl/P, 1/Unl/L
Wheel End Systems <sup>1</sup>	
Standard System	1/Unl/P&L
AxlePak7	7P/L
Beam and Brackets	7P/1L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/Unl/P, 1/Unl/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/700/P, 5/500/L
PinLoc Air Controls	1/Unl/P&L
PinLoc Air Actuator	3/Unl/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	7/700/P, 5/500/L
MTA (Trailing Arm)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs and Rebound Straps	2/Unl/P, 1/Unl/L
Bushings <sup>3</sup>	5/Unl/P, 3/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup>	3/Unl/P, 1/Unl/L
MC12002, MC14002, MC16003, FH946	2/Unl/P&L

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/UNL/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System by PSI

MTIS Components	3/500/P&L
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# HEAVY SERVICE WARRANTY INFORMATION

## Heavy Service Vehicles

■ Airport Rescue Fire (ARF)	■ Drill Rig	■ Michigan Special Gravel Trains	■ Shuttle Bus
■ Airport Shuttle	■ Dump	■ Michigan Special Log Hauler	■ Side Loader
■ Asphalt Truck	■ Emergency Service	■ Michigan Special Steel Hauler	■ Snowplow/Snowblower
■ Block Truck	■ Equipment Hauling	■ Michigan Special Waste Vehicle	■ Steel Hauling
■ Bottom Dump Trailer	■ Flatbed Trailer Hauler	■ Municipal Dump	■ Tanker
■ Combination	■ Flatbed Truck	■ Rapid Intervention Vehicle (RIV)	■ Tank Truck
■ Cementing Vehicle	■ Fracturing Truck	■ Rear Loader (Refuse)	■ Tractors with Pole Trailers
■ City Bus	■ Front Loader	■ Recycling Truck	■ Tractor/Trailer with Jeeps
■ Commercial Pick-Up	■ Geophysical Exploration	■ Residential Pick-Up (Refuse)	■ Transfer Dump
■ Concrete Pumper	■ Hopper Trailer Combinations	■ Rigging Truck	■ Transfer Vehicle
■ Construction Material Hauler	■ Landscaping Truck	■ Roll-Off	■ Transit Bus
■ Crash Fire Rescue (CFR)	■ Liquid Waste Hauler	■ Scrap Truck	■ Trolley
■ Mixer	■ Log Hauling	■ Semi-End Dump	■ Utility Truck
■ Demolition	■ Lowboy	■ Sewer/Septic Vacuum	■ Winch Truck

## Heavy Service Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 2/Unl/P&L

FD-965	FH-941	MFS-8-113B-N	MFS-12-132C-N	MFS-13-155	MFS-22H-135A-N	MX-17-140
FF-941	FH-946	MFS-8-153B-N	MFS-12-143A-N	MFS-14-122	MFS-22H-193A-N	MX-19-140
FF-942	FL-941	MFS-8-163B-N	MFS-12-144A-N	MFS-14-143A-N	RF-16-145	MX-21-140
FF-943	FL-943	MFS-10-122A	MFS-12-155	MFS-16-122A-N	RF-21-160	MX-21-160
FF-944	MFS-6-151A-N	MFS-10-143A-N	MFS-13-122	MFS-16-143A-N	MX-10-120	MX-23-160
FF-946	MFS-6-153B	MFS-10-144A-N	MFS-13-122B-N	MFS-18-133A-N	MX-10-120 EVO	MX-810
FF-961	MFS-6-162B	MFS-12-122	MFS-13-122C-N	MFS-18-135A-N	MX-12-120	
FF-966	MFS-6-162C	MFS-12-122B-N	MFS-13-132B-N	MFS-18-193A-N	MX-12-120 EVO	
FF-967	MFS-7-113C-N	MFS-12-122C-N	MFS-13-132C-N	MFS-20-133A-N	MX-14-120	
FG-941	MFS-7-153C-N	MFS-12E-122	MFS-13-143A-N	MFS-20-135A-N	MX-16-120	
FG-943	MFS-7-163C-N	MFS-12-132B-N	MFS-13-144A-N	MFS-20H-193A-N	MX-18-120	

## Drivelines

RPL	3/Unl/P, 1/Unl/P&L
92N	1/Unl/P&L
MXL	1/Unl/P&L

## Rear Drive Single Axles – 2/Unl/P&L

MS-17-14X	RS-23-160	MS-30-616-SP
RS-17-144/145/A	RC-23-161	RS-30-185/380
MS-19-14X	RS-23-161	MS-35-380
RS-19-144	RS-23-186/380	RS-38-380
MS-21-114	RC-23-162	RC-25-160
MS-21-14X	RC-23-165	RC-26-633
RS-21-145	RS-24-160	MT-58-616
RS-21-145/A	RS-25-160	MT-58-616-SP
RS-21-160	MS-26-616	71162
RC-22-145	MS-26-616-SP	71163
RC-23-160	RS-26-185/380	79163
RH-23-160	MS-30-616	



# HEAVY SERVICE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	RT-44-145/P	MT-58-616	RZ-166
RT-34-144/P/A	RT-46-169	MT-58-616-SP	RZ-188
MT-40-14X/P	MT-52-616	RT-58-185/380 <sup>1,2</sup>	
RT-40-145/A	MT-52-616-SP	RT-70-380	
MT-44-14X/P	RT-52-185/380 <sup>1,2</sup>	MT-70-380	

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

Cam P	3/Unl/P
Cam P <sup>3</sup>	2/100/P
Cam Cast Plus™	2/100/P&L
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>2</sup>	2/100/P&L
ASA	3/Unl/P
ASA <sup>2</sup>	2/100/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
EX+ Air Disc Brake	2/100/P&L

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Transfer Cases – 1/Unl/P

MTC-4208	MTC-4213	T-2119
MTC-4210	T-2111	

## Rear Drive Tandem – 3/Unl/P&L

RT-40-160/P/A<sup>3</sup>

RT-46-160/P/A<sup>1,3</sup>

RT-46-164EH/P/A<sup>2,3</sup>

RT-50-160/P/A<sup>3</sup>

<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System by PSI

MTIS Components	3/500/P&L
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## Trailer Air Suspension Systems

MTA (Trailing Arm)	
Major Structural Components <sup>1</sup>	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings <sup>1</sup>	5/Unl/P, 3/Unl/L

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Center Non-drive Axles – 2/Unl/P&L

MC26000
71063
79063

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)



# OFF-HIGHWAY SERVICE WARRANTY INFORMATION

## Industrial And Off-Highway Service Vehicles

- |                       |                          |                       |                    |
|-----------------------|--------------------------|-----------------------|--------------------|
| ■ Load-On/Load-Off    | ■ Yard Jockey            | ■ Specialized Mining  | ■ Rail Car Mover   |
| ■ Port Tractor        | ■ All-Terrain Crane      | ■ Excavator           | ■ Loader           |
| ■ Rail Yard Spotter   | ■ Rough Terrain Crane    | ■ Compactor           | ■ Tow Tractor      |
| ■ Roll-On/Roll-Off    | ■ Forestry               | ■ Fertilizer Spreader | ■ Pushback Tractor |
| ■ Stevedoring Tractor | ■ Material Handling      | ■ Snow Blower         |                    |
| ■ Trailer Spotter     | ■ Specialized Heavy Haul | ■ Mining              |                    |

## Industrial And Off-Highway Service Typically Is

- Low mileage operation
- Low speed vehicle speed restriction
- Vehicles are **not** typically licensed for highway use
- Six (6) starts/stops per mile (typical)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Drive Steer Axles – 1/Unl/P

MOR                      MOX                      MOC

## Front Non-Drive Steer Axles – 1/Unl/P

FF - 941	MFS-12-143A-N	MFS-18-135A-N
FF - 943	MFS-12-144A-N	MFS-18-193A-N
FF - 961	MFS-13-143A-N	MFS-20-133A-N
FF - 966	MFS-13-144A-N	MFS-20-135A-N
FG - 941	MFS-14-143A-N	MFS-20H-193A-N
FG - 943	MFS-16-122A-N	MFS-22H-135A-N
FL - 941	MFS-16-143A-N	MFS-22H-193A-N
FL - 943	MFS-18-133A-N	MON-ZO FAMILY

## Planetary Axles – 1/Unl/P

MOR                      MOX                      MOC                      MOT

## Rear Drive Single Axles – 1/Unl/P

RS-23-186	RS-24-160-SP	RS-30-185
RS-23-380	MS-30-616	RS-30-380
RS-24-160	MS-30-616-SP	MS-35-380

## Drivelines – 1/Unl/P

RPL                      MXL

## Rear Drive Tandem Axles – 2/Unl/P

MT-44-14X/P	MT-58-616	RT-44-145/P	RT-50-160/P
MT-52-616	MT-58-616-SP	RT-46-160/P	RZ-166
MT-52-616-SP	MT-70-380	RT-46-164EH/P	

## Brake Components

Cam P	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
ASA	3/Unl/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P



# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Inc. warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number I and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not sold by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Vehicle models, brands and names depicted herein are the property of their respective owners, and are not in any way associated with Meritor, Inc., or its affiliates.



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