



# Proposal Details Report

9/15/2023

**Customer:** FLAGSTAFF FIRE DEPARTMENT  
**Representative** McDonald, Ed

**Bid Number:** 764

**Requirements Manager:**

**Job Number:**

**Description:** Flagstaff Velocity Pumper-Dupe  
**Chassis:** Velocity Chassis (Big Block), 2010

**Organization:** Hughes Fire Equipment, Inc

**Body:** Pumper, Medium, Galvanneal, 2nd Gen

OptionCode	Type	Option
0766611		Boiler Plates, Pumper

## ProposalText

Hughes Fire Equipment is pleased to submit a proposal to City of Flagstaff for a **Pierce® triple combination pumper** 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. 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.

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.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of applicable NFPA 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.

### GENERAL DESIGN AND CONSTRUCTION

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.

### QUALITY AND WORKMANSHIP

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. 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.

To demonstrate the quality of our products and services, a list of at least twenty five (25) fire departments/municipalities that have purchased vehicles for a second time is provided.

### DELIVERY

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.

### MANUAL AND SERVICE INFORMATION

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.

### SAFETY VIDEO

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.

### PERFORMANCE TESTS

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than

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 the current edition of applicable NFPA standards acceleration and braking requirements.

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

Pierce dealership support will be provided by Hughes Fire Equipment by operating 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 twenty five (25) 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>          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>          The apparatus being proposed will be designed and built to match the Unit to match as close as possible to previous unit Job # 37138. 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>          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.</p>
0533347	Pumper/Pumper with Aerial Device Fire Apparatus	
0588611	Vehicle Certification, Pumper	

0661778	Agency, Apparatus Certification, Pumper/Tanker, U.L.	<p><b>NFPA COMPLIANCE</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>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>
0891947	Certification, Vehicle Inspection Program, NFPA 1901	<p><b>VEHICLE INSPECTION PROGRAM CERTIFICATION</b> To assure the vehicle is built to current NFPA 1901 standards, the apparatus, in its entirety, will be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. The certification includes: 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>
0000114	Inspection Trip(s)	<p><b>INSPECTION TRIP(S)</b> The bidder will provide two (2) factory inspection trip(s) for four (4) customer representative(s). The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.</p>
0536644	Customer Service Website	<p><b>AFTERMARKET SUPPORT WEBSITE</b> 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. 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. The website will consist of the following screens at the dealer level:</p> <p><b>My Fleet Screen</b> 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> 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> 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> 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> 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> 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> 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>
0766110	Consortium, Sourcewell	
0537375	Unit of Measure, US Gallons	

0529326	Bid Bond, 10%, Pierce Built Chassis	<p><b>BID BOND</b></p> <p>A bid bond as security for the bid in the form of a 10% bid bond will be provided with the proposal. 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>
0816574	Performance Bond, 100% with Warranty Bond, 1 Yr, and Payment Bond, PPI Terms	<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 100 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> <p>Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.</p> <p>If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] ("PPI") has increased at a compounded annual growth rate of 5.0% or more between the month Pierce accepts the order ("Order Month") and a month 14 months prior to the then predicted Ready For Pickup date ("Evaluation Month"), then pricing may be updated in an amount equal to the increase in PPI over 5.0% for each year or fractional year between the Order Month and the Evaluation Month.</p> <p>The seller will document any such updated price for the customer's approval before proceeding and provide an option to cancel the order.</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>
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>
0000110	Wheelbase	<p><b>WHEELBASE</b></p> <p>The wheelbase of the vehicle will be 187.50 inches.</p>
0000070	GVW Rating	<p><b>GVW RATING</b></p> <p>The gross vehicle weight rating will be 49,800.</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	
0508849	Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 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 22,800 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 will 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 turning angle of up to 45 degrees.</p>
0010427	Suspension, Front TAK-4, 22,800 lb, Qtm/AXT/Imp/Vel/Enf/SFR	<p><b>FRONT SUSPENSION</b></p> <p>Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 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 15 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>
0804562	Tires, Front, Michelin, XZE (wb), 425/65R22.50, 20 ply, Fire Service Speed Rtnng	<p><b>FRONT TIRES</b></p> <p>Front tires will be Michelin 425/65R22.50 radials, 20 ply XZE wide base tread, rated for 22,800 lb maximum axle load and 75 mph maximum speed.</p>
0604672	Wheels, Front, Accuride, 22.50" x 12.25", Steel, Hub Pilot	<p>The tires will be mounted on Accuride® 22.50" x 12.25" steel disc type wheels with a ten (10) stud, 11.25" bolt circle.</p>
0530466	Axle, Rear, Meritor RS26-185, 27,000 lb, Imp/Vel	<p><b>REAR AXLE</b></p> <p>The rear axle will be a Meritor™, Model RS-26-185, with a capacity of 27,000 lb.</p>

0814721	Top Speed of Vehicle, 75 MPH/120 KPH, Non-NFPA 2016	<p><b>TOP SPEED OF VEHICLE</b></p> <p>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 / 109 kph 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 / 96 kph 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 / 109 kph , and tankers or heavy apparatus to 60 mph / 96 kph. 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.</p> <p>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.</p> <p>The rear tires being specified have a top speed limit of 75 mph / 120 kph from the tire manufacturer.</p>
0122075	Suspen, Rear, Standens, Spring, 27,000 lb, Imp/Vel	<p><b>REAR SUSPENSION</b></p> <p>The rear suspension will be Standens, semi-elliptical, 3.00" wide x 53.00" long, 12-leaf pack with a ground rating of 27,000 lb. The spring hangers will be castings.</p> <p>The two (2) top leaves will wrap the forward spring hanger pin, and the rear of the spring will be a slipper style end that will ride in a rear slipper hanger. To reduce bending stress due to acceleration and braking, the front eye will be a berlin eye that will place the front spring pin in the horizontal plane within the main leaf.</p> <p>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.</p>
0000485	Oil Seals, Rear Axle	<p><b>REAR OIL SEALS</b></p> <p>Oil seals will be provided on the rear axle(s).</p>
0070728	Tires, Rear, Michelin, XDN2, 12R22.50, 16 ply, Single	<p><b>REAR TIRES</b></p> <p>Rear tires will be four (4) Michelin 12R22.50 radials, 16 ply all season XDN2 tread, rated for 27,120 lb maximum axle load and 75 mph maximum speed.</p>
0654806	Wheels, Rear, Accuride, 22.50" x 8.25", Steel, Hub Pilot, Single	<p>The tires will be mounted on Accuride® 22.50" x 8.25" steel disc type wheels with a ten (10) stud, 11.25" bolt circle.</p>
0568081	Tire Balancing, Counteract Beads	<p><b>TIRE BALANCE</b></p> <p>All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.</p>
0620570	Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Single Axle	<p><b>TIRE PRESSURE MANAGEMENT</b></p> <p>There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of six (6) tires.</p> <p>The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.</p> <p>Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.</p>
0759842	Chains, Rud automatic tire, 6 strand	<p><b>AUTOMATIC TIRE CHAINS</b></p> <p>One (1) pair of Rud 6-strand automatic tire chains will be provided at the rear axle. The system will be an electric-over-air type. A switch to engage/disengage the chains will be provided on the cab instrument panel. This system will be operable at speeds up to 35 mph.</p>
0544802	Chocks, Wheel, SAC-44-E, Folding	<p><b>WHEEL CHOCKS</b></p> <p>There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.</p>
0544806	Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal	<p><b>Wheel Chock Brackets</b></p> <p>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 one (1) forward and one (1) rearward of the left side rear tire.</p>

0010670	ABS Wabco Brake System, Single rear axle	<p><b>ANTI-LOCK BRAKE SYSTEM</b></p> <p>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.</p>
0030185	Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	<p><b>BRAKES</b></p> <p>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.</p>
0000730	Brakes, Meritor, Cam, Rear, 16.50 x 7.00"	<p>The rear brakes will be Meritor™ 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields will be provided.</p>
0020784	Air Compressor, Brake, Cummins/Wabco 18.7 CFM	<p><b>BRAKE SYSTEM AIR COMPRESSOR</b></p> <p>The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.</p>
0000785	Brake Reservoirs, Three	<p><b>BRAKE SYSTEM</b></p> <p>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.</p>
0568012	Air Dryer, Wabco System Saver 1200, Heater, 2010	<p><b>BRAKE SYSTEM AIR DRYER</b></p> <p>The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.</p>
0000790	Brake Lines, Nylon	<p><b>BRAKE LINES</b></p> <p>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.</p>
0000854	Air Inlet, w/Disconnect Coupling	<p><b>AIR INLET</b></p> <p>One (1) air inlet with 3D series male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located on the driver side pump panel. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female fitting will also be provided with the loose equipment.</p>
0509837	Adjustable Brake & Throttle Pedals	<p><b>ADJUSTABLE BRAKE &amp; THROTTLE PEDALS</b></p> <p>Brake and throttle pedals will be capable of stroking approximately 1.50" forward and 1.50" rearward of standard pedals location for a total stroke of 3.00" on both brake and accelerator pedals. Both pedals will stroke in unison at the touch of a rocker switch located on a lower switch panel within easy reach of the driver.</p>
0000845	Air Tank, Additional for Extra Capacity	<p><b>ADDITIONAL AIR TANK</b></p> <p>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.</p>

0615609	Fittings, Compression Type, Entire Apparatus, Single Rear Axle	<b>COMPRESSION FITTINGS ONLY</b> Any nylon tube on the apparatus that is pneumatic will be plumbed with compression type fittings where applicable. Push lock fittings will not be acceptable for any pneumatic nylon tube plumbing.
0808504	Engine, Cummins X15, 605 hp, 1850 lb-ft, W/OBD, EPA 2027, Velocity	<b>ENGINE</b> The chassis will be powered by an electronically controlled engine as described below: Make: Cummins® Model: X15 Power: 605 hp at 1800 rpm Torque: 1850 lb-ft at 1000 rpm Governed Speed: 2100 rpm Emissions Level: EPA 2027 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. The engine will be filled with FA-4 10W30 oil as required by Cummins.
0811409	Not Required, Engine Contingency Adjustment	
0730808	Filters, Remote Mounted, Oil, Fuel, X15, VEL/AXT/Enf	<b>REMOTE MOUNTED ENGINE FILTERS</b> The engine fuel and oil filters will be remote mounted for ease of maintenance.
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."
0001236	Not Required, Auxiliary Brake, Alt. Aux. Brake Selected	
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.
0001302	Heater, 1500 Watt Immersion, Thermostatically Controlled	<b>ENGINE HEATER</b> A 1,500 watt, 120 volt, immersion type engine heater will be installed with the AC power inlet located to the rear of the driver's door. The heater is thermostatically controlled.
0813730	SP Adj, EPA 2024, DO NOT SEND	
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.

0814375	Exhaust System, Horizontal, Right Side	<p><b>EXHAUST SYSTEM</b>  The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device. The exhaust system will include an aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipe between the turbo and the aftertreatment device to minimize the transfer of heat to the cab.  The exhaust will terminate horizontally ahead of the right side rear wheels and will be flush with the side of the body . The exhaust pipes will be aluminized steel.</p> <p>There will be an aluminized steel exhaust diffuser with a standard straight tip on the end 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.</p>
0787999	Radiator, Impel/Velocity	<p><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 will 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 de-aeration 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.</p>
0511425	Cooling Hoses, Rubber	<p><b>COOLANT LINES</b>  Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by the chassis manufacturer.  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.</p>
0001125	Fuel Tank, 65 Gallon, Left Side Fill	<p><b>FUEL TANK</b>  A 65 gallon fuel tank will be provided and mounted at the rear of the 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 0.75" drain plug will be located in a low point of the tank for drainage.  A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."  A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet.  The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p>
0001129	Lines, Fuel	All fuel lines will be provided as recommended by the engine manufacturer.
0662965	DEF Tank, 4.5 Gallon, DS Fill, Rear of Axle, Common Air Bottle Door	<p><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 rearward 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 adjacent to 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.</p>
0723716	Fuel Priming Pump, Electronic, Automatic, Cummins, No Swt Req'd	<p><b>FUEL PRIMING PUMP</b>  A Cummins automatic electronic fuel priming pump will be integrated as part of the engine.</p>
0582243	Shutoff Valves, Fuel Line @ Primary Filter, Cummins	<p><b>FUEL SHUTOFF</b>  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	<b>FUEL COOLER</b> An air to fuel cooler will be installed in the engine fuel return line.
0578959	Fuel/Water Separator, Racor Inline	<b>FUEL SEPARATOR</b> The engine will be equipped with a Racor in-line spin-on fuel and water separator in addition to the engine fuel filters.
0801882	Trans, Allison 6th Gen, 4000 EVS PR, w/Prognostics, Imp/Vel/Enf	<b>TRANSMISSION</b> An Allison 6th generation, Model EVS 4000PR, electronic, torque converting, automatic transmission with retarder 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 eight (8) o'clock and one (1) o'clock). A transmission temperature gauge, with amber light and audible alarm, will be installed on the cab instrument panel. The transmission retarder control will be activated 33 percent by release of the accelerator pedal or 66 percent by slight application of the brake pedal, or 100 percent by heavy application of brake pedal. A second on/off switch is provided to activate and deactivate the auto apply portion. The transmission will have the 1600 ft. lb. torque (medium) spring setting for retardation force. The transmission retarder will have a master "on/off" switch on the instrument panel. A red indicator light will be provided to warn that the transmission is being overworked. The retarder will be wired to the brake lights so they are energized when the retarder is slowing the vehicle down. The ABS system will automatically disengage the auxiliary braking device when required.
0625331	Transmission, Shifter, 6-Spd, Push Button, 4000 EVS	<b>TRANSMISSION SHIFTER</b> 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 3.51 to 1.00 2nd 1.91 to 1.00 3rd 1.43 to 1.00 4th 1.00 to 1.00 5th 0.75 to 1.00 6th 0.64 to 1.00 R 4.80 to 1.00
0797408	Transmission Oil Cooler, Modine, External, w/Modine External Sump	<b>TRANSMISSION COOLER</b> An externally mounted Modine bar plate transmission oil cooler will be provided using engine coolant to control the transmission oil temperature. The internal bar plates will be constructed of stainless steel. The cooler's housing will be constructed of 1020 steel, coated to protect from corrosion. The cooler will be tagged with information including OEM part number, vendor serial number and date / lot code. An externally mounted Modine bar plate transmission oil cooler will be provided using engine coolant to control the transmission retarder oil temperature. The internal bar plates will be constructed of stainless steel. The cooler's housing will be constructed of 1020 steel, coated to protect from corrosion. The cooler will be tagged with information including OEM part number, vendor serial number and date / lot code.
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.
0651288	SP Shield, Grease for Drive Shaft U Joints	<b>GREASE SHIELD</b> The drive shaft universal joints require a grease shield to prevent grease from being thrown against the underside of the apparatus. This will include the joint on the output of the pump transmission and the differential.
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: Flagstaff The second row of text will be: Fire The third row of text will be: Dept.
0654471	Cover, Rubber, Driveshaft Grease, DS Framerrail	<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.
0530385	Bumper, 16" Extended, Steel Painted, Imp/Vel	<b>BUMPER</b> A one (1)-piece bumper manufactured from 0.25" formed steel with a 0.38" 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 16.00" 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.
0610315	Tray, Hose, Center, 16" Bumper, Outside AH, 13" Deep, 10" Below/3" Above, 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 100' of 1.75" double jacket cotton-polyester hose. Aluminum grating will be provided at the bottom of the tray. Drain holes are also provided.
0633479	Hose Restraint, Bumper Tray, Velcro Straps, Pair	<b>Center Hose Tray Restraint</b> There will be one (1) pair of hose tray restraint straps located over the center mounted tray. The restraints will be a pair of 2.00" wide black nylon straps with Velcro® fasteners provided. The strap(s) will be used to secure the hose in the tray.
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.
0002270	Tow Hooks, Chrome	<b>TOW HOOKS</b> Two (2) chromed steel tow hooks will be installed under the bumper and attached to the front frame members. The tow hooks 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 hooks will not be used for lifting of the apparatus.
0698960	Coating, Top Flange, Front Bumper, Outside Exterior, UL-LX Coating, Black	<b>FRONT BUMPER UL-LX COATING</b> Protective black UL-LX® 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 UL-LX dealer.

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 forward cab section will have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. 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 62.95" in the center position and 68.75" 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).

0724207	Engine Tunnel, X12-15, MX13, Mech Fasteners, Velocity FR	<p><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 for protection from heat and sound. Perforated foil faced insulation will be over a 1.00" thick closed cell foam affixed with pressure sensitive adhesive and further secured with mechanical fasteners. Thermal rating for this insulation will be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.</p>
0677478	Rear Wall, Exterior, Cab, Aluminum Treadplate	<p><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.</p>
0122466	Cab Lift, Elec/Hyd, w/Manual Override, Imp/Vel	<p><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.</p> <p><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.</p>
0123176	Grille, Bright Finished, Front of Cab, Velocity	<p><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.</p>
0002224	Scuffplates, S/S At Cab Door Jambs, 4-Door Cab	<p><b>DOOR JAMB SCUFFPLATES</b> All cab door jambs will be furnished with a 1.00" polished stainless steel scuffplate, mounted on the striker side of the jamb.</p>
0527032	Trim, S/S Band, Across Cab Face, Rect Lights, Velocity	<p><b>FRONT CAB TRIM</b> A band of 22 gauge polished 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 polished stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.</p>
0087357	Molding, Chrome on Side of Cab	<p><b>SIDE OF CAB MOLDING</b> Chrome molding will be provided on both sides of cab.</p>
0521669	Mirrors, Retrac, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex	<p><b>MIRRORS</b> A Retrac, Model 613423, 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 heated and adjustable with remote control within reach of the driver.</p>

0667921	Door, Half-Height, Velocity FR 4-Door Cab, Raised Roof	<p><b>CAB DOORS</b></p> <p>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 73.75" high.</p> <p>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.</p> <p>A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. 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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>A chrome grab handle will be provided on the inside of each cab and crew cab door.</p> <p>A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.</p> <p>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.</p>
0665511	Door Panel, Brushed Stainless Steel, Impel/Velocity 4-Door Cab	<p><b>Door Panels</b></p> <p>The inner cab door panels will be constructed out of brushed stainless steel. The cab door panels will be removable.</p>
0671014	Face Plate/s, Blank, Overhead, Imp/Vel, Dash CF	<p><b>BLANK FACE PLATE</b></p> <p>Blank face plate/s will be provided, in place of standard storage pockets, within the overhead console.</p>
0667902	Controls, Electric Windows, All Cab Doors, Impel/Velocity FR	<p><b>ELECTRIC WINDOW CONTROLS</b></p> <p>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.</p> <p>The window switches will be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.</p>
0606691	Steps, 4-Door Cab, Dual, 2" Larger Middle and Bottom Steps, Imp/Vel	<p><b>DUAL STEPS</b></p> <p>A dual step will be provided below each cab and crew cab door. The steps will be designed with a grip pattern punched into bright aluminum treadplate material providing support, slip resistance, and drainage. The steps will be a bolt-on design and provide a 24.00" wide x 9.00" deep stepping surface. The step design raises the middle step higher and closer to the cab floor, resulting in a 12.00" distance from the step to cab floor in the cab and a 13.50" distance from the step to cab floor in the crew cab. Stepping distances from the ground to first step will be 16.50" and from first step to middle step will be 12.00".</p> <p>The first step will be lit by a white 12 volt DC LED light provided on the step.</p>
0770194	Handrail, Exterior, Knurled, Alum, 4-Door Cab	<p><b>CAB EXTERIOR HANDRAILS</b></p> <p>A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.</p>
0892637	Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 1Lt Per Step	<p><b>STEP LIGHTS</b></p> <p>There will be four (4) white P25 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.</p> <p>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.</p> <p>The light(s) will have a chrome housing.</p> <p>The lights will be activated when the adjacent door is opened.</p>
0002140	Fenders, S/S on Cab	<p><b>FENDER CROWNS</b></p> <p>Stainless steel fender crowns will be installed at the cab wheel openings.</p>

0586564	Window, Side of C/C, Fixed, w/EMS Cabinet, Imp/Vel	<p><b>CREW CAB WINDOWS</b> One (1) fixed window with tinted glass will be provided on each side of the cab, to the rear of the front cab door. The windows will be sized to enhance light penetration into the cab interior. The windows will measure 20.00" wide x 20.50" high.</p>
0552935	Trim, Cab Side Windows, Velocity	<p><b>WINDOWS INTERIOR TRIM</b> For improved aesthetics, the cab side windows will include a vacuum formed ABS interior trim panel.</p>
0012090	Not Required, Windows, Front/Side of raised roof	
0509286	Not Required, Windows Rear of Crew Cab, Imp/Vel	
0558334	Not Required, Trim, Cab Rear Windows, No Rear Windows	
0663375	Mounting Provisions, 1/4" Alum, Full Engine Tunnel, Vel/Imp	<p><b>MOUNTING PLATE ON ENGINE TUNNEL</b> Equipment installation provisions will be installed on the engine tunnel. A 0.25" smooth aluminum plate will be bolted to the top surface of the engine tunnel. The plate will be located to the left of the officer and on the rear of the tunnel. It will follow the contour of the engine tunnel and will run the entire length of the engine tunnel. The plate will be spaced off the engine tunnel .50" to allow for wire routing below the plate. The mounting surface will be painted to match the cab interior.</p>
0748671	Cab Interior, Vinyl, Velocity FR, CARE	<p><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. 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.</p> <p><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).</p>
0667943	Cab Interior, Paint Color, Impel/Velocity FR	<p><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.</p>
0682140	Floor, Alum Cab & Crew Cab, Include Vertical Floor Surfaces, AXT/Imp/Vel, CARE	<p><b>CAB FLOOR</b> The cab and crew cab flooring will be constructed with bright aluminum treadplate. The vertical surfaces where the center floor rises will be covered with aluminum treadplate.</p>

**DEFROST/AIR CONDITIONING SYSTEM**

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

**Cab Defroster**

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

One (1) adjustable will be directed towards the left side cab window

One (1) adjustable will be directed towards the right side cab window

Six (6) fixed outlets will be directed at the windshield

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.

**Cab/Crew Auxiliary Heater**

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.

**Air Conditioning**

A 19.10 cubic inch compressor will be installed on the engine.

A roof-mounted condenser with a 78,000 BTU output at 2,400 SCFM that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover to be painted to match the cab roof.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit 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.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel.

The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

Four (4) will be directed towards the seating position on the left side of the cab

Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the evaporator cover per the following:

Five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

**Climate Control**

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.

The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

**Gravity Drain Tubes**

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

The drain tubes will terminate under the cab, on the inboard side of the front wheelwells.

0639675

Sun Visor, Smoked Lexan, AXT, Imp/Vel, Saber FR/Enforcer

**SUN VISORS**

Two (2) smoked Lexan™ sun visors will be 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.

0548173

Grab Handles, Driver and Passenger Door Post, Imp/Vel

**GRAB HANDLE**

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.

0002526

Light, Engine Compt, All Custom Chassis

**ENGINE COMPARTMENT LIGHT**

An engine compartment light will be installed under the engine hood, of which the switch is an integral part. Light will have a .125" diameter hole in its lens to prevent moisture retention.

0122516

Fluid Check Access, Imp/Vel

**ACCESS TO ENGINE DIPSTICKS**

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 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 lift and turn latch will be provided on the access door.

0002508	Map Box, 3 Bin/30 deg Slant, Custom Chassis	<p><b>MAP BOX</b></p> <p>There will be one (1) map box(es) with three (3) bins, open at top. The map box(es) will be installed at final inspection. 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. The map box(es) will be constructed of 0.125" aluminum and will be painted to match the cab interior.</p>
0583039	Not Required, Side Roll and Frontal Impact Protection	
0622618	Seating Capacity, 5 Seats	<p><b>SEATING CAPACITY</b></p> <p>The seating capacity of the vehicle (including tiller cab and belted seat positions in the rescue body) will be five (5).</p>
0697007	Seat, Driver, Pierce PS6, Premium, Air Ride, High Back	<p><b>DRIVER SEAT</b></p> <p>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.</p>
0696997	Seat, Officer, Pierce PS6, Premium, Air Ride, High Back	<p><b>OFFICER SEAT</b></p> <p>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.</p>
0540561	Radio Compartment, Behind Officer Seat, Vented, Imp/Vel	<p><b>RADIO COMPARTMENT</b></p> <p>A compartment for the radio amplifier will be located on the floor of the cab behind the front passenger seat. A lift-up door with a chrome plated lift and turn latch will be provided for access. The compartment will be constructed of smooth aluminum and painted to match the cab interior. Louvers will be provided to allow for ventilation.</p>
0888158	SP Cabinet, Rear Facing, LS, 26.87 W x 28 H x 30.5 D, Roll, 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 26.87" wide x 28.00" high x 30.50" deep with one (1) Amdor rollup door with white finish, locking with #751 key. The door opening will be square and extend in front of the engine tunnel and the right side of the cabinet will blister to accommodate the angle of the engine tunnel. The area between the cabinet floor and the cab floor at the engine tunnel will be left open. The frame to frame opening will be 24.375" wide x 22.75" high. The minimum clear door opening will be 21.625" wide x 16.87" high. The cabinet will include two (2) infinitely adjustable shelves with a 0.75" up-turned lipped to match the cab interior. The cabinet will include no louvers. 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 lights will be controlled by an automatic door switch.</p>

CLEAR DOOR OPENINGS (F-F = Frame to Frame)					
AMDOR		GORTITE		ROM	
HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
Subtract 2.00"	Subtract 5.88"	Subtract 2.75"	Subtract 4.75"	Subtract 2.56"	Subtract 4.50"
from F-F	from F-F	from F-F	from F-F	from F-F	from F-F

0102783 Not Required, Seat, Rr Facing C/C, Center

0102790 Not Required, Seat, Rear Facing C/C, PS Outboard

0660826 Seat, Forward Facing C/C, DS Outboard, Pierce PS6, Hi-Back, Foldup, 9 Deg, 17" Btm

**FORWARD FACING DRIVER SIDE OUTBOARD SEAT**

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. The seat back will be high back style. 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.

0777454 SP Seat, Forward Facing C/C, Center, (1) Pierce PS6, Premium, Hi-Back, Foldup

**FORWARD FACING CENTER SEAT**

There will be one (1) forward facing, Pierce PS6® foldup seat provided at the center position in the crew cab. The seat back will be a high back style with 9 degree fixed recline angle, 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.

0660820 Seat, Forward Facing C/C, PS Outboard, Pierce PS6, Hi-Back, Foldup, 9 Deg, 17" Btm

**FORWARD FACING PASSENGER SIDE OUTBOARD SEAT**

There will be one (1) forward facing, Pierce PS6® foldup 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 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. The seat back will be high back style. 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.

0740632 SP Cabinet, Rr Fcng, Top Eng Tnl, 34 W x 16 H x 17.5 D, Drop Dr, Hasp, Prtn, Imp/Vel FR

**REAR FACING CENTER CABINET**

A rear facing cabinet will be provided on the top rear of the engine tunnel. The cabinet will be 34.00" wide x 16.00" high x 17.50" deep. A horizontally hinged drop down door with a pair of Southco C2 chrome raised trigger lever latches will be provided on the rear of the cabinet, facing the crew cab. A male end hasp will be provided to allow the customer to use a padlock to secure the drop down door. A pair of rubber bumper stops will be provided on the door hinge. The clear door opening of the cabinet will be 31.50" wide x 13.50" high. A vertical partition will be provided separating the cabinet into two (2) equal sections. The cabinet will include no louvers. The cabinet will be constructed of smooth aluminum, and painted to match the cab interior. **Cabinet Light** 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.

0888156	SP	Box, Adj, Inside EMS Cabinet, w/Locking Hasp	<p><b>ADJUSTABLE BOX</b></p> <p>One (1) box will be provided within the cab cabinet located - In the cabinet (option 888158) needs to be as wide as the clear door opening width 24.125". The box will be adjustable within the EMS cabinet on standard adjustable shelf tracks. Adjustment will be obtained from the inside. Outside dimensions of the box will be 22.50" wide x 11.25" high x 25.88" deep. The inside will be large enough to store a pelican case that is 21.50" wide x 8.50" high x 17.00" deep. An aluminum treadplate drop down door with two (2) non locking flush mounted lift and turn pawl latches will be provided. Three (3) round vent holes will be provided in the drop down door. A male end hasp will be provided to allow our customer to use a padlock to secure the drop down door.</p>
0766467		Upholstery, Seats In Cab, All Vinyl, Seats Inc, CARE	<p><b>SEAT UPHOLSTERY</b></p> <p>All seat upholstery will be leather grain 36 oz dark silver gray vinyl resistant to oil, grease and mildew. The cab will have five (5) seating positions.</p>
0511471		No SCBA Brackets Required In Cab Seats, Imp/Vel, AXT 2010, Qtm 2010,Saber FR/Enf	
0603867		Seat Belt, ReadyReach	<p><b>SEAT BELTS</b></p> <p>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.</p> <p>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.</p> <p>Any flip up seats will include a 3-point shoulder type belts only.</p>
0604864		Seat Belt Height Adjustment, 5 Seats, Imp/Vel, Dash CF	<p><b>SHOULDER HARNESS HEIGHT ADJUSTMENT</b></p> <p>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.</p> <p>A total of five (5) seating positions will have the adjustable shoulder harness.</p>
0602464		Helmet Storage, Provided by Fire Department, NFPA 2016	<p><b>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</b></p> <p>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.</p>
0647638		Lights, Dome, Weldon Dual LED 4 Lts	<p><b>CAB DOME LIGHTS</b></p> <p>There will be four (4) Weldon 808* series, dual LED dome lights with black 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.</p> <p>The color of the LED's will be red and white .</p> <p>The white LED's will be controlled by the door switches and the lens switch.</p> <p>The color LED's will be controlled by the lens switch.</p>
0896451		Enhanced Software for Cab and Crew Cab Dome Lts	<p><b>ENHANCED SOFTWARE FOR CAB AND CREW CAB DOME LIGHTS</b></p> <p>The cab and crew cab dome lights will remain on for 10 seconds for improved visibility after the doors are closed.</p> <p>The dome lights will dim after 10 seconds or immediately if the vehicle's transmission is put into gear.</p>
0631776		Not Required, Overhead Map Lights	
0727540		Spotlight, Golight/RadioRay, Model 20**4GT, LED, 1 Lt	<p><b>CAB SPOTLIGHT</b></p> <p>There will be one (1) Golight/RadioRay®, Model 20**4GT, white LED spotlight located on the cab roof, behind lightbar centered. The spotlight will be mounted on a painted Z bracket. This light may be load managed when the parking brake is applied.</p>
0650074		Controller, Spotlight, Golight, Wired Dash Mount, 1 Lt	<p><b>SPOTLIGHT CONTROLLER</b></p> <p>There will be one (1) wired dash mounted remote provided for the spotlight.</p>
0649965		Location, Spotlight Controller, Driver's Side	<p><b>SPOTLIGHT CONTROLLER LOCATION</b></p> <p>The remote to control each spotlight will be located within reach of the driver.</p>

0602637

Portable Hand Light, Provided by Fire Dept, Pumper NFPA 2016 Classification

**PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT**

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.

0568369

Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010

**CAB INSTRUMENTATION**

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.

**Gauges**

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.**

**Indicator Lamps**

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 3 to 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 3 to 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 air conditioning control panel.**

**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)

		<p><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:  <b>Odometer</b>  <b>Trip mileage</b>  <b>PTO hours</b>  <b>Fuel consumption</b>  <b>Engine hours</b>  The bottom section will display <b>INFO, CAUTION, and WARNING</b> 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.</p>
0509511	Air Restriction Indicator, Imp/Vel, AXT, Dash CF, Enf MUX	<p><b>AIR RESTRICTION INDICATOR</b>  A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm will be provided.</p>
0543751	Light, Do Not Move Apparatus	<p><b>"DO NOT MOVE APPARATUS" INDICATOR</b>  A flashing red indicator light, located in the driving compartment, 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.</p>
0509042	Messages, Open Dr/DNMT, Color Dsply,	<p><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):  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  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>  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.</p>
0555915	Wiper Control, 2-Speed with Intermittent, MUX, Impel/Velocity	<p><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.</p>

0548004	Wiring, Spare, 15 A 12V DC 1st	<p><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 Both on panel LOC#9 back side of instrument panel.  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.</p>
0548006	Wiring, Spare, 15 A 12V DC 2nd	<p><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 15 amps at 12 volts DC.  Power and ground will terminate RS1 above shelf on front wall, recessed. .  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>
0548007	Wiring, Spare, 15 A 12V DC 3rd	<p><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 15 amps at 12 volts DC.  Power and ground will terminate Mounted on top of engine tunnel near LOC#9 with 2' coil of wire..  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.</p>
0548009	Wiring, Spare, 20 A 12V DC 1st	<p><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 In the ems box mounted on top of rear of engine tunnel w/ 2' coil wire, power strip bar to to be mounted at pick up.  Termination will be with a 10-place bus bar with screws and removable cover  Wires will be sized to 125% of the protection  This circuit(s) may be load managed when the parking brake is set.</p>
0560535	Wiring, Spare, 15 A 12V DC 4th	<p><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 15 amps at 12 volts DC.  Power and ground will terminate Mounted on top of engine tunnel near LOC#9 with 2' coil of wire..  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.</p>
0691301	Wiring, Spare, 30 A 12V DC, Set, Red & Yellow Power w/Ground, 18" Pigtail	<p><b>SPARE CIRCUIT</b>  There will be one (1) set of wires, including a positive (red), a positive (yellow) and a negative (black) installed on the apparatus.  The above wires will have the following features:  The positive red wire will be connected to directly to the battery power .  The positive yellow wire will be connected to directly to the battery switched power  The negative wire will be connected to ground.  The red wire will be protected to 15 amps @ 12 volts DC.  The yellow wire will be protected to 15 amps @ 12 volts DC.  Power and ground will terminate To terminate in the radio box located behind the officer seat with an 18" pigtail.  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.</p>

0797189	Wiring, Spare, 4.8 A 12V DC, USB Termination Blue Sea 1045 1st	<p><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 LOC#9 panel with the two Power points..  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.</p>
0566101	Recess, Dash Panel, Officer Side, Vel/Imp	<p><b>DASH PANEL RECESS</b>  The dash panel across from the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be 7.25" down x 7.81" back and 20.88" wide.</p>
0803875	Radio, AM/FM/WB, Jensen, Frt,Rear Aux In/Frt,Rear USB/Bluetooth	<p><b>STEREO RADIO</b>  A Jensen, heavy duty AM/FM / Bluetooth / Weatherband stereo radio, with front and rear 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:  - 180 watts max power output (45W x 4)  - Bluetooth® streaming audio and controls (A2DP/AVRCP) with hands-free calling (HFP)  - Electronic AM/FM tuner (US/Euro)  - iPod®/iPhone® ready via USB  - SiriusXM-Ready®  - Seven-channel NOAA weatherband with S.A.M.E. technology  - USB 2.0 for playback of MP3 &amp; WMA audio files  - RBDS with PTY search  - Front and rear USB input  - Front and rear AUX input</p>
0814201	Vehicle Information Center, 7" Color Display, Touchscreen, MUX, CL714	<p><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 158 degrees Fahrenheit  LCD optically bonded to hardened AR glass 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</p> <p><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.</p> <p><b>Home/Transit Screen</b>  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  Tire Pressure Monitoring (if equipped)  Digital Speedometer  Active Alarms</p> <p><b>On Scene Screen</b>  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)</p>

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 indicated

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.

0816633	Collision Mitigation, HAAS Alert (R2V), HA7	<p><b>COLLISION MITIGATION</b></p> <p>There will be a HAAS Alert®, Model HA7 Responder-to-Vehicle (R2V) collision avoidance system provided on the apparatus. The HA7 cellular transponder module will be installed behind the cab windshield, as high and near to the center as practical, to allow clear visibility to the sky. The module dimensions are 5.40" long x 2.70" wide x 1.30" high, and operating temperature range is -40 degree C to 85 degree C.</p> <p>The transponder will be connected to the vehicle's emergency master circuit and battery direct power and ground.</p> <p>While responding with emergency lights on, the HA7 transponder sends alert messages via cellular network to motorists in the vicinity of the responding truck that are equipped with the WAZE app.</p> <p>While on scene with emergency lights on, the HA7 transponder sends road hazard alerts to motorists in the vicinity of the truck that are equipped with the WAZE app.</p> <p>The HA7 Responder-to-Vehicle (R2V) collision avoidance system will include the transponder and a 5 year cellular plan subscription.</p> <p>Activation of the HAAS Alert system requires a representative of the customer to accept the End User License Agreement (EULA) via an on-line portal.</p>
0606248	Vehicle Data Recorder w/CZ Display Seat Belt Monitor, Unique Alarm	<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> <p>The home screen is active:</p> <ul style="list-style-type: none"> <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. The alarm will have a unique sound that will be different than all other alarm sounds on the vehicle. A "Seat Belt Alarm" label will be provided above this buzzer.</p>
0735006	Intercom, David Clark, 4-Pos, 2-Radio, (D,O,RPTT), 2obC, U3805	<p><b>INTERCOM SYSTEM</b></p> <p>There will be a four (4) position David Clark, Model U3800, intercom system with single radio interface capability at the driver and officer positions and remote radio push to talk buttons located Driver, Officer, &amp; two forward facing rear crew cab . Two (2) crew cab outboard seats will have intercom only capability.</p> <p>The following components will be provided:</p> <ul style="list-style-type: none"> <li>One (1) U3805 Radio Cord Junction Module</li> <li>Two (2) U3815 Radio interface modules (Driver, Officer)</li> <li>Two (2) Remote Push To Talk Button Kits</li> <li>One (1) U3800 Master station (1 Crew)</li> <li>One (1) U3801 Remote headset intercom station (1 Crew)</li> <li>One (1) C3820 Power cord</li> </ul> <p>All necessary station cables and connectors</p>
0637058	David Clark Universal Radio Interfaces Included with Single/Dual System	<p><b>RADIO / INTERCOM INTERFACE INCLUDED</b></p> <p>All radio interfaced stations will have universal radio interfaces installed. The interface wiring will be routed within the cab to Behind officer seat in radio compartment. .</p>

0589947 Headset, David Clark, H3432 Over The Head, Flex Mic, Push On Push Off

**OVER THE HEAD HEADSET**  
 There will be four (4) over the head, headset(s) provided Driver, Officer & two rear crew cab.. Each David Clark, Model H3432, headset will feature:  
 5' Coiled cord  
 Noise cancelling electric microphone  
 Flexible microphone boom rotates 200 degrees for left or right dress  
 Microphone on/off button  
 Comfort Gel Earseals  
 23 dB noise reduction



0681408 Hangers For Headsets, NFPA, Each

**HEADSET HANGERS**  
 There will be four (4) headset hanger(s) installed driver's seat, officer's seat and rear, center, forward facing seat. The hanger(s) will meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

0640003 Install Customer Provided Modem

**MOBILE RADIO MODEM INSTALLATION**  
 There will be one (1) customer supplied modem(s) sent to the apparatus manufacturers preferred installer to be installed Cradle get mounted on top of engine tunnel per signed instrument panel drawing.. Specific shipping requirements will be followed.

0559156 Install Customer Provided Two-Way Radio(s)

**TWO WAY RADIO INSTALLATION**  
 There will be one (1) customer supplied two way radio(s) sent to the apparatus manufacturers preferred radio installer to be installed The remote head goes in the LOC#6 position & the radio gets mounted in the radio compartment behind officer. per the shipping document. No antenna mount or whip will be included in this option. Specific radio shipping requirements will be followed.

0616382 Install Customer Provided GPS/Multimode Antenna(s)

**GPS / MULTIMODE ANTENNA INSTALLATION**  
 There will be one (1) customer supplied GPS / Multimode antenna(s) with stud mount for thick roof material to be installed on the roof. The antenna coax cable(s) will be run per the packing list / instructions provided to the third party installer. Specific shipping requirements will be followed. The GPS / Multimode antenna will be sent to the apparatus manufacturers preferred installer prior to cab fabrication.

0687904 Antenna Mount, Custom Chassis, Cable Routed to Behind Officer Seat

**RADIO ANTENNA MOUNT**  
 There will be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed On the cab roof. on the cab roof with high efficiency, low loss, coaxial cable(s) routed to behind the officer seat. A weatherproof cap will be installed on the mount.



0816486	Camera, Pierce, LS Mux, RS, R, SD Cameras, CL714	<b>VEHICLE CAMERA SYSTEM</b>
		<p>There will be a color vehicle camera system provided with the following:</p> <p>One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse</p> <p>One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal</p> <p>The camera images will be displayed on the left side vehicle information center display. Audio from the microphone on the rear camera will be emitted by an amplified speaker with volume control located behind the driver seat.</p> <p>The following components will be included:</p> <p>One (1) SV-CW134639CAI SD Camera</p> <p>One (1) CS134404CI Side SD Camera</p> <p>All necessary cables</p>
0814831	Not Required, Camera Switcher	<b>CAMERA SWITCHER</b>
		A camera switcher is not required.
0511071	Guard, 4-Way, Rear Vision Camera	<b>VEHICLE CAMERA GUARD</b>
		There will be one (1) aluminum treadplate guard(s) fastened over the vehicle camera(s) located rear camera .
0896458	Pierce Command Zone, Advanced Electronics & Control System, Vel WiFi CZT	<b>ELECTRICAL POWER CONTROL SYSTEM</b>
		<p>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.</p> <p>Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.</p> <p>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.</p> <p><b>Solid-State Control System</b></p> <p>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, electronic control modules to include black housings, a power indicator and status indicator located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.</p> <p>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.</p> <p>For increased reliability and simplified use the control system modules will include the following attributes:</p> <ul style="list-style-type: none"> <li>Green LED indicator light for module power</li> <li>Red LED indicator light for network communication stability status</li> <li>Control system self test at activation and continually throughout vehicle operation</li> <li>No moving parts due to transistor logic</li> <li>Software logic control for NFPA mandated safety interlocks and indicators</li> <li>Integrated electrical system load management without additional components</li> <li>Integrated electrical load sequencing system without additional components</li> <li>Customized control software to the vehicle's configuration</li> <li>Factory and field programmable to accommodate changes to the vehicle's operating parameters</li> <li>To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:</li> <li>Module circuit board will meet SAE J771 specifications</li> <li>Operating temperature from -40C to +70C</li> <li>Storage temperature from -40C to +70C</li> <li>Vibration to 50g</li> <li>IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)</li> <li>Operating voltage from eight (8) volts to 32 volts DC</li> </ul> <p>The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.</p> <p><b>Circuit Protection and Control Diagram</b></p> <p>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.</p> <p><b>On-Board Electrical System Diagnostics</b></p> <p>The on-board information center will include the following diagnostic information:</p> <ul style="list-style-type: none"> <li>Text description of active warning or caution alarms</li> <li>Simplified warning indicators</li> <li>Amber caution indication with intermittent alarm</li> <li>Red warning indication with steady tone alarm</li> </ul> <p>Advanced diagnostic feature will be provided in this control system. From the Command Zone display or connected wireless device, these features allow the user to monitor the real-time status</p>

of every input or output on the vehicle. It also allows users logged in as an administrator to force on inputs or outputs to assist the troubleshooting process.

#### **TCU 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 communicate through a white WiFi antenna 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 TCU 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 TCU will provide up to 2 Gigabytes of data storage.

The TCU will provide a means to download the TCU information and update software in the device.

#### **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.

#### **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. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

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.

0896456

Prognostics, Electrical System

#### **ELECTRICAL SYSTEM PROGNOSTICS**

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

The system will send automatic indications to the Command Zone™ information center and/or wireless enabled devices to proactively alert of upcoming service intervals.

Prognostics will include the following:

Engine oil and filter

Transmission oil and filter

0730603	Electrical System, Velocity ESP, Cummins, Paccar	<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:  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 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.</p>
0089703	Batteries, (6) Interstate Grp 31, 950 CCA each, Threaded Stud	<p><b>BATTERY SYSTEM</b></p> <p>Six (6) 12 volt group 31 Interstate batteries that include the following features will be provided:  950 CCA (cold cranking amps)  195 reserve capacity  High cycle  Maintenance free  Rating of 5700 CCA at 0 degrees Fahrenheit  1170 minutes of reserve capacity  Threaded studs</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.  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>
0813848	Charger, Sngl Sys, IOTA, DLS-75, 75 amp, IQ4 Controller	<p><b>BATTERY CHARGER</b></p> <p>There will be an IOTA, Model DLS 75, 75 amp battery charger with IQ4 controller provided. The battery charger will be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.</p>
0814935	Location, Cab, Charger, EMS Compt, Vertical Wall, LS	<p>Battery charger will be located in the cab, on the vertical wall of the left side EMS compartment.</p>
0814872	Location, Cab, Ind/Remote, Display Through Window Behind Driver Seat	<p>The battery charger indicator/remote panel will be displayed through the window behind the driver seat. The display will be mounted on a bracket so that it is visible from outside the apparatus in the lower corner of the window.</p>

0691933	Shoreline, 30A 120V, Twist lock, Hubbell HBL303NM	<p><b>SHORELINE</b>  There will be one (1) Hubbell, Model HBL303NM, 30 amp 120 volt AC twist-lock shoreline inlet with flip up cover provided.  The shoreline will be connected to Directly to the charger..</p>
0026800	Shoreline Location	The shoreline receptacle will be located on the driver side seat riser.
0036802	Sub Feed Breaker Box Cutler Hammer, For Shoreline	<p><b>SUB FEED CIRCUIT BREAKER BOX (shoreline)</b>  A Cutler Hammer sub feed box will be supplied to protect the on board circuits when an auxiliary power source is used.  The box will be installed in the D3.  The sub feed box will distribute power to specific circuits in the vehicle.  A directory for each breaker will be provided adjacent to the circuit breaker panel.  Identification of circuits will be done in a durable manner that provides years of service.</p>
0647728	Alternator, 430 amp, Delco Remy 55SI	<p><b>ALTERNATOR</b>  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>
0610111	SP Cover, Inverter, Vented	<p><b>POWER INVERTER COVER</b>  A cover will be provided over the power inverter. The cover will be properly vented to meet the inverter manufacturer's specifications.</p>
0092582	Load Manager/Sequencer, MUX	<p><b>ELECTRONIC LOAD MANAGER</b>  An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.  For improved reliability and ease of use, the load manager system will be an integral part of the vehicle's solid state control load system requiring no additional components to perform load management tasks. Load management systems which require additional components will not be allowed.  The system will include the following features:  System voltage monitoring.  A shed load will remain inactive for a minimum of five minutes to prevent the load from cycling on and off.  Sixteen available electronic load shedding levels.  Priority levels can be set for individual outputs.  High Idle 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.  Hi-Idle will not activate until 30 seconds after engine start up.  Individual switch "on" indicator to flash when the particular load has been shed.  The information center indicates system voltage.  The information center, where applicable, 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</p> <p><b>SEQUENCER</b>  A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.  For improved reliability and ease of use, the load sequencing system will be an integral part of the vehicle's solid state control load system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components will not be allowed.  Emergency light sequencing will operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights will be activated one by one at half-second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.  When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.  Sequencing of the following items will also occur, in conjunction with the ignition switch, at half-second intervals:  Cab Heater and Air Conditioning  Crew Cab Heater (if applicable)  Crew Cab Air Conditioning (if applicable)  Exhaust Fans (if applicable)  Third Evaporator (if applicable)</p>

0720839	Switch, CZ Display Only, Load Manager	<p><b>SWITCH, COMMAND ZONE DISPLAY</b> A virtual switch will be provided for the load manager in the Command Zone display on cab instrument panel.</p>
0783153	Headlights, Rect LED, JW Spkr Evo 2, AXT/DCF/Enf/Imp/Sab/Vel	<p><b>HEADLIGHTS</b> There will be four (4) JW Speaker®, Model 8800, 4" x 6" rectangular LED lights mounted in the front quad style, chrome housing on each side of the cab grille: the outside light on each side will contain a part number 055****1 low beam module the inside light on each side will contain a part number 055****1 high beam module the headlights to include chrome bezels The low beam lights will be activated when the headlight switch is on. The high beam and low beam lights will be activated when the headlight switch and the high beam switch is activated.</p>
0648425	Light, Directional, WIn 600 Cmb, Cab Crn, Imp/Vel/AXT/Qtm/DCF	<p><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.</p>
0620054	Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	<p><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.</p>
0648074	Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts	<p><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.</p>
0563675	Lights, Clearance/Marker/ID, Rear, Truck-Lite 33050R LED 7Lts	<p><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.</p> <p>Per FMVSS 108 and CMVSS 108 requirements.</p>
0804761	Lights, Tail, WIn 604BTT* Red LED Stop/Tail & 604T Amb LED Dir For Housing	<p><b>REAR FMVSS LIGHTING</b> There will be the following stop/tail and directional lighting provided at the rear of the truck: Two (2) Whelen®, Model 604BTT*, red LED stop/tail lights Two (2) Whelen, Model 604T, amber LED directional lights The light heads will have clear lenses The lights will be mounted in a polished combination housing.</p>
0804764	Lights, Backup, WIn 604BU, LED for WIn 3 & 4 housing	<p>Two (2) Whelen®, Model 604BU, LED backup lights will be provided.</p>

0889577	Bracket, License Plate & Light, P25 LED, Stainless Brkt	<p><b>LICENSE PLATE BRACKET</b>  One (1) license plate bracket constructed of stainless steel will be provided at the rear of the apparatus.  One (1) white LED light with chrome housing will be provided to illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.</p>
0736667	Bezels, Wln, (2) CAST3, For Mtg (3) Wln 600 Lts Each, 6Lts Total	<p><b>LIGHTING BEZEL</b>  Two (2) Whelen®, Model CAST3, three (3) light aluminum housings will be provided for the rear tail, directional and scene lights.</p>
0589905	Alarm, Back-up Warning, PRECO 1040	<p><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.</p>
0769566	Lights, Perimeter Cab, Amdor AY-LB-12HW020 & AY-LB-12HW012 LED 4Dr	<p><b>CAB PERIMETER SCENE LIGHTS</b>  There will be four (4) Amdor white LED strip lights provided, one (1) for each cab door and crew cab door.  Two (2) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" LED strip lights, one (1) for each cab door.  Two (2) Amdor, Model AY-LB-12HW012, 190 lumens each, 12.00" LED strip lights, one (1) for each crew 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.</p>
0617869	Lights, Perimeter Pump House, Truck-Lite 60354C LED 2lts	<p><b>PUMP HOUSE PERIMETER LIGHTS</b>  There will be two (2) Truck-Lite, Model 60354C, 6.00" oval LED 12 volt DC weatherproof lights with grommets provided under the pump panel running boards, one (1) each side.  The lights will be controlled by the same means as the body perimeter lights.</p>
0653942	Lights, Perimeter Body, Truck-Lite 60354C LED 2lts, Rear Step	<p><b>BODY PERIMETER SCENE LIGHTS</b>  There will be two (2) Truck-Lite, Model 60354C, 6.00" x 2.00" oval LED lights with Model 60700, grommets provided at the rear step area on the body, one (1) each side shining to the rear.  The perimeter scene lights will be activated when the battery switch is on and the parking brake is applied.</p>
0896454	Enhanced Software for Perimeter Lts	<p><b>ENHANCED SOFTWARE FOR PERIMETER LIGHTS</b>  All perimeter lights will be deactivated when the parking brake is released unless alternate control is selected.  The cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors closed.</p>
0556360	Lights, Step, P25 LED 4lts, Pump Pnl Sw	<p><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.</p>
0581784	Lights, Side Scene, Wln 9SC0ENZR LED, 2nd	<p><b>SIDE SCENE LIGHTS</b>  There will be two (2) Whelen, Model 9SC0ENZR LED scene light(s) with chrome flange installed on the side of the apparatus, One each side of the RS crew cab above the rear facing seat location and one on the RS rear body ( around center of rear axle) centered, per AD print..  A control for the light(s) selected above will be 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 lights may be load managed when the parking brake is set.</p>

0582055	Lights, Side Scene, Wln 9SC0ENZR LED, 1st	<p><b>SIDE SCENE LIGHTS</b></p> <p>There will be two (2) Whelen, Model 9SC0ENZR LED scene light(s) with chrome flange installed on the side of the apparatus, One each side of the LS crew cab above the rear facing seat location and one on the LS rear body ( around center of rear axle) centered per AD print...  A control for the light(s) selected above will be 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 lights may be load managed when the parking brake is set.</p>
0776357	Light, Visor, Wln, 12V P*H2* Pioneer, Cnt Feature, 1st	<p><b>12 VOLT LIGHTING</b></p> <p>There will be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC light(s) with a combination of flood and spot optics provided on the front visor, centered.  The housing(s) painted parts of this light assembly to be black.  The light(s) will be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.  These light(s) may be load managed when the parking brake is applied.</p>
0773172	Lights, Wln, P*H2* Pioneer, 12 VDC, 2nd	<p><b>12 VOLT DC SCENE LIGHTS</b></p> <p>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 located on the pump house Passenger side dunage area.  The light(s) to be installed on pull up side mount outside pole length to be 20.00" 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, by a switch at the left side pump panel, by a switch at the passenger's side switch panel and by a switch at the right side pump panel.  The light(s) may be load managed when the parking brake is applied.</p>
0773179	Lights, Wln, P*H2* Pioneer, 12 VDC, 1st	<p><b>12 VOLT DC SCENE LIGHTS</b></p> <p>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 located on the pump house On the driver side dunage area..  The light(s) to be installed on pull up side mount outside pole length to be 20.00" 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 left side pump panel.  The light(s) may be load managed when the parking brake is applied.</p>
0532358	Not Required, Deck Lights, Other Hose Bed & Rear Lighting	
0645672	Lights, Not Required, Hose Bed, Alt. Pole Lights on Front/Rear Of Body	
0645690	Lights, Rear Scene, Wln, 9SC0ENZR LED, 30" - 102" High	<p><b>REAR SCENE LIGHTS</b></p> <p>There will be two (2) Whelen, Model 9SC0ENZR, LED scene lights with chrome flanges installed on the rear of the apparatus. These lights will be installed between 30.00" and 102.00" above the ground.  The lights will be controlled by a switch at the driver's side switch panel, by a switch at the passenger's side switch panel and by a cup switch at the driver's side rear bulkhead.</p>
0709438	Lights, Walk Surf, FRP Flood, LED	<p><b>WALKING SURFACE LIGHT</b></p> <p>There will be Model FRP, 4" round black 12 volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body.  The light(s) will be activated when the body step lights are on.</p>
0060111	Pumper, Medium, Galvanneal, 2nd Gen	
0554271	Body Skirt Height, 20"	

0028244	Tank, Water, 500 Gallon, Poly, Med	<p><b>WATER TANK</b></p> <p>Booster tank will have a capacity of 500 gallons and be constructed of polypropylene plastic by United Plastic Fabricating, Incorporated.</p> <p>Tank joints and seams will be nitrogen welded inside and out.</p> <p>Tank will be baffled in accordance with the current edition of applicable NFPA standards.</p> <p>Baffles will have vent openings at both the top and bottom to permit movement of air and water between compartments.</p> <p>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.</p> <p>Transverse partitions will extend from 4.00" off the bottom of the tank to the underside of the top cover.</p> <p>All partitions will interlock and will be welded to the tank bottom and sides.</p> <p>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.</p> <p>Tank top will be sufficiently supported to keep it rigid during fast filling conditions.</p> <p>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.</p> <p>A sump that will be sized dependent on the tank to pump plumbing will be provided at the bottom of the water tank.</p> <p>Sump will include a drain plug and the tank outlet.</p> <p>Tank will be installed in a fabricated cradle assembly constructed of structural steel.</p> <p>Sufficient crossmembers will be provided to properly support bottom of tank. Crossmembers will be constructed of steel bar channel or rectangular tubing.</p> <p>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.</p> <p>Stops or other provision will be provided to prevent an empty tank from bouncing excessively while moving vehicle.</p> <p>Mounting system will be approved by the tank manufacturer.</p>
0003405	Overflow, 4.00" Water Tank, Poly	<p>Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.</p> <p>Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.</p> <p>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.</p>
0028104	Foam Cell Required	
0775667	SP Equipment Storage, Below Hose Bed, HDRP Style, Special Config/Layout, Gasket	<p><b>EQUIPMENT STORAGE</b></p> <p>An equipment storage deck will be provided below the hose bed floor.</p> <p>Storage area will be configured to accommodate a minimum of:</p> <ul style="list-style-type: none"> <li>- two backboards on the left side each board is 16"W x 72"L x 2"T.</li> <li>- Customer provided stair chair on the right 40"L x 20"W x 8"H</li> </ul> <p>The items to be stored within the compartment will be configured as follows within the compartment:</p> <ul style="list-style-type: none"> <li>- Center rear of body above the B1 compartment.</li> </ul> <p>The storage deck will be designed to allow any trapped water to drain toward the front or the rear of the storage area. A gasket will be provided at the rear of the compartment to enclose the area from rear of the storage area to the door at the rear.</p> <p>A lift up door constructed of smooth aluminum with a D-handle latch will be provided at the rear to contain the equipment. A gas strut will be provided at each end of the door to hold it open past 90 degrees.</p>
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	<p><b>HOSE BED</b></p> <p>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.</p>
0723549	Painted Hose Bed	The hose bed interior walls will be painted to match the lower body color.
0003481	Hose Bed Capacity, Special	Hose bed will accommodate 500' of 1.5" Single Jacket wildland hose, 800' of 2.5" DJP, 1000' of 4" DJP, 200' of 2.5" DJP.
0003488	Divider, Hose Bed, Unpainted	<p><b>HOSE BED DIVIDER</b></p> <p>Two (2) hosebed dividers will be furnished for separating hose. Each divider will be constructed of a .125" brushed aluminum sheet fitted and fastened into a slotted, 1.50" diameter radius extrusion along the top, bottom, and rear edge. Divider 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 bolts, at each end. Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.</p>
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.
0080233	Divider, .25", Unpainted	<p>There will be one (1) additional hose bed dividers furnished. 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 two (2) bolts, one (1) at each end and located between beds 3 and 4 right next to the ladder compartment. 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.</p>
0740440	SP Hose Restraint, Hose Bed, Vinyl, Top and Rear, Special Bungee, Cam Buckle & Hook	<p><b>HOSEBED HOSE RESTRAINT</b></p> <p>A red hosebed cover will be provided. It will attach at the front with metal cam buckles and j-hook attachments in the center. Bungee cord and hook attachments at each corner. A bungee cord will be installed down the sides of the vinyl cover to be held with hooks. There will be footman loops and velcro fasteners at the bottom of the rear body sheet below the hosebed. The flap at the rear will be chain weighted.</p>
0013512	Running Boards, 12.75" Deep	<p><b>RUNNING BOARDS</b></p> <p>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 12.75" deep and spaced .50" away from the pump panel. A splash guard will be provided above the running board treadplate.</p>
0689497	Tailboard, 24" & 8" Deep, T-Shaped, Angled Corners	<p><b>TAILBOARD</b></p> <p>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 24.00" deep in the center area and 8.00" deep to the rear of the side compartments. The tailboard will be T-shaped. The outboard sides of the tailboard will be angled at 45 degrees beginning at the point where the body meets the tailboard at the 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.</p>
0690037	Wall, Rear, Smooth Aluminum/Body Material	<p><b>REAR WALL, SMOOTH ALUMINUM/BODY MATERIAL</b></p> <p>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.</p>
0889713	Tow Eyes, 2G Pumper	<p><b>REAR TOW EYES</b></p> <p>Two (2) tow eyes, which are an integral part of the body mounting substructure, will be installed below the rear of the truck. The tow eyes will be of adequate strength to allow the truck to be pulled from the eyes.</p>

0888242	SP Hose Restraint, Running Board, Aluminum Treadplate Cover, Reinforced	<p><b>RUNNING BOARD HOSE RESTRAINT</b></p> <p>A hinged, bright aluminum treadplate cover will be provided over each hose tray. The cover will have a two (2) Southco C2 lever latches. A stiffener will be provided to reinforce the cover. The latch will secure the cover in the closed position and a mechanical stay arm will hold the cover in the open position.</p> <p>There will be Two (2) hose trays located one (1) in each side running board.</p>
0024110	Tray, Hose, Running Board, 20' of 5.00" Soft Suction Hose	<p><b>HOSE TRAY</b></p> <p>Two (2) hose trays will be recessed one (1) in each side running board.</p> <p>Capacity of the tray will be 20.00' of 5.00" soft suction hose.</p> <p>Rubber matting will be installed on the floor of the tray to provide proper ventilation. Drain holes will be provided.</p>
0895816	Construction, Compt, Galv, 2G Pumper	<p><b>COMPARTMENTATION</b></p> <p>Body and compartments will be fabricated of galvaneal steel.</p> <p>Side compartments will be an integral assembly with the rear fenders.</p> <p>Circular fender liners will be provided for prevention of rust pockets and ease of maintenance.</p> <p>Side compartment flooring will be 12-gauge and of the sweep out design, with the floor higher than the compartment door lip.</p> <p>The side compartment door opening will be framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle.</p> <p>Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate, or polished stainless steel.</p> <p>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.</p> <p>Side compartment covers will be separate from the compartment tops.</p> <p>Front facing compartment walls will be covered with bright aluminum treadplate.</p> <p>All screws and bolts which protrude into a compartment will have acorn nuts on the ends to prevent injury.</p> <p><b>UNDERBODY SUPPORT SYSTEM</b></p> <p>Due to the severe loading requirements of this pumper, a method of body and compartment support suitable for the intended load will be provided.</p> <p>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.</p> <p>The support system will include 0.375" thick steel vertical angle supports bolted to the chassis frame rails with 0.625" diameter bolts.</p> <p>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.</p> <p>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.</p> <p>The steel frames as well as the steel vertical angles will be treated with an epoxy E-coat to provide resistance to corrosion and chemicals as standard.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>A design with body compartments hanging on the chassis, unsupported, will not be acceptable.</p> <p><b>AGGRESSIVE WALKING SURFACE</b></p> <p>All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.</p> <p><b>LOUVERS</b></p> <p>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.</p> <p><b>TESTING OF BODY DESIGN</b></p> <p>Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, strain gauging, and model analysis will be performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.</p> <p>The body will be tested while loaded to its greatest in-service weight.</p> <p>The criteria used during the testing procedure will include:</p> <ul style="list-style-type: none"> <li>Raising opposite corners of the vehicle tires 9.00", simulating the twisting a truck may experience when driving over a curb.</li> <li>Making a 90 degree turn while at 20 mph, simulating aggressive driving conditions.</li> <li>Driving the vehicle at 35 mph on a washboard road.</li> <li>Driving the vehicle at 55 mph on a smooth road.</li> <li>Accelerating the vehicle fully, until reaching the approximate speed of 45 mph, on rough pavement.</li> </ul> <p>Evidence of actual testing techniques will be made available upon request.</p>

0720760	SP LS 152" Rollup, Full Height Front & Rear, FDLER, Special 14" Depth Upper Deep	<p><b>LEFT SIDE COMPARTMENTATION</b></p> <p>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 34.50" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 14.00" deep in the remaining upper portion. The clear door opening will be a minimum of 28.75" 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 14.00" 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. <b>The interior dimensions of this compartment will be 47.75" wide x 67.63" high x 25.88" deep in the lower 26.00" of height and 14.00" deep in the remaining upper section of the compartment. 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.</b></p>
0693721	SP RS 152" Rollup, Full Height Frt & Rr, FDLER, Spcl 14" Depth Upper Interior	<p><b>RIGHT SIDE COMPARTMENTATION</b></p> <p>The right 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 34.50" wide x 66.63" high x 25.88" deep in the lower 25.00" of the compartment and 14.00" deep in the remaining upper portion. The clear door opening will be a minimum of 28.75" 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 14.00" 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 25.88" deep in the lower 26.00" of height and 14.00" deep in the remaining upper section of the compartment. 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.</p>
0692733	Doors, Rollup, Gortite, Side Compartments	<p><b>SIDE COMPARTMENT ROLLUP DOOR(S)</b></p> <p>There will be six (6) compartment doors installed on the side compartments. The doors will be double faced aluminum construction, painted one (1) color to match the lower portion of the body and manufactured by Gortite®. Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door. Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene. All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit. A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door. Doors will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surfaces will be concave to provide strength and prevent loose equipment from jamming the door from inside. To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter. The header for the rollup door assembly will not exceed 4.00". A heavy-duty magnetic switch will be used for control of open compartment door warning lights.</p>
0083700	Compt, Rear, Rollup, 37.75" FF, 25.88" D	<p><b>REAR COMPARTMENTATION</b></p> <p>A roll-up door compartment above the rear tailboard will be provided. The interior dimensions of this compartment will be 40.00" wide x 40.63" 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. A louvered, removable access panel will be furnished on the back wall of the compartment. The rear compartment will be open into the rear side compartments. The clear door opening of this compartment will be a minimum of 33.25" wide x 30.88" high. Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.</p>

0692746	Door, Gortite, Rollup, Rear Compartment	<p><b>ROLLUP REAR COMPARTMENT DOOR</b></p> <p>There will be a rear rollup door. The door will be double faced aluminum construction, an anodized satin finish and manufactured by Gortite®.</p> <p>Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.</p> <p>Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.</p> <p>All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.</p> <p>A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.</p> <p>Door will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surface will be concave to provide strength and prevent loose equipment from jamming the door from inside.</p> <p>To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.</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>
0554995	No Body Modification Required	
0776727	SP Scuffplate, Brushed S/S Under Fuel Fill Door, Qty	<p><b>SCUFFPLATE(S)</b></p> <p>One (1) scuffplate stainless steel scuffplate(s) will be furnished located directly under the fuel fill door(s). The scuffplate will be approximately 6.00" wide x full length to fender crown.</p>
0625184	Guard, Drip Pan, S/S, Rollup Door, Pumper	<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 rollup door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed left side rearward compartment, left side over the wheel compartment, left side forward compartment, right side rearward compartment, right side over the wheel compartment, right side forward compartment and rear compartment.</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 LS1, LS2, LS3, RS1, RS2, RS3, B1.</p>
0535355	Pull Strap for Rollup Doors, Special Location, w/ Footman loop	<p><b>DOOR PULL STRAPS</b></p> <p>six (6) compartment doors will be provided with orange pull straps. LS1, LS2, LS3, RS1, RS2, RS3..</p> <p>The straps will be located approximately one third high on each compartment. A footman loop will be provided to secure the strap in place.</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>
0562348	Fasteners, Mechanical, Strip Lighting In Compartments	<p><b>COMPARTMENT LIGHTING</b></p> <p>Metal clamps will be used to retain the strip lighting in all body compartments.</p>
0691876	Brackets/Clamps, For Strip Lighting In Compartments, IPO Velcro	<p><b>BRACKETS/CLAMPS, COMPARTMENT LIGHTS</b></p> <p>All LED light strips, in all locations will be mounted with brackets, part #64-0766-0063, in place of the standard Velcro®.</p>
0687146	Shelf Tracks, Painted	<p><b>MOUNTING TRACKS</b></p> <p>There will be seven (7) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1, RS2, RS3 and B1. These tracks will be installed vertically to support the adjustable shelf(s). The tracks will be painted to match the compartment interior.</p>

0625835	Shelves, Adjustable, 500 lb Capacity, Full Width/Depth, Special Side Height	<p><b>ADJUSTABLE SHELVES</b></p> <p>There will be nine (9) shelves with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum painted spatter gray. 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 .12" thick stamped plated brackets and bolts.</p> <p>The location will be LS3-1 Upper &amp; 1 Lower, LS2-1, LS1-1 upper &amp; 1-Lower, RS1 1-Upper &amp; 1-Lower, RS3 1-Upper &amp; 1-Lower.</p> <p>The side height of the shelf/shelves will be as follows:  Front: 2.00" high  Rear: 2.00" high  Left &amp; Right Sides: 2.00" high</p>
0647091	Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides	<p><b>SLIDE-OUT FLOOR MOUNTED TRAY</b></p> <p>There will be one (1) floor mounted slide-out tray(s) provided.</p> <p>Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.</p> <p>Each tray will be constructed of aluminum painted spatter gray</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.</p> <p>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> <p>The location(s) will be B1.</p>
0540317	Toolboard, Swing-out, Alum, .188", Peg Board	<p><b>SWING OUT TOOLBOARD</b></p> <p>A swing out aluminum toolboard will be provided.</p> <p>It will be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.</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 mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load will be 400 pounds.</p> <p>The board will have positive lock in the stowed and extended position.</p> <p>The board will have a D-ring handle to secure it in the stowed position.</p> <p>The board will be mounted on adjustable tracks from front to back within the compartment.</p> <p>There will be One (1) toolboard(s) provided. The toolboard(s) will be spatter gray painted and installed RS2 full height and width.</p>
0726441	Partition, Trans Rear Compt	<p><b>PARTITION, TRANSVERSE REAR COMPARTMENT</b></p> <p>Two (2) partitions will be bolted in place to separate the left and right side rear compartments from the rear tailboard compartment. The partition will be body material painted spatter gray.</p>
0659383	Matting, Turtle Tile w/Ramp, Compartment Floors	<p><b>MATTING, COMPARTMENT FLOOR</b></p> <p>Turtle Tile compartment matting will be provided in six (6) compartments on the compartment floor. The locations are, LS1, LS2, LS3, RS1, RS2 &amp; RS3.</p> <p>The Turtle Tile will be black and the leading edge of the matting will include the beveled edge. The beveled edge will be black .</p>
0028026	Matting, Turtle Tile, Compartment Shelving Only	<p><b>MATTING, COMPARTMENT SHELVING</b></p> <p>Turtle Tile compartment matting will be provided in ten (10) shelves. The locations are, LS1, LS2, LS3, B1, RS1, RS2 &amp; RS3.</p> <p>The color of the Turtle Tile will be black.</p>
0755638	Pegboard, Back Wall Mounted, 3/16" Alum, Full Height Compt	<p><b>PEGBOARD</b></p> <p>There will be 0.188" thick aluminum pegboard spatter gray painted will be installed on the back wall of two (2) compartments. It will be mounted using two (2) horizontal tracks. Retainers will be used to mount the pegboard to the tracks. The pegboard will be installed on the back wall. The holes will be .203" diameter, punched 1.00" on center. Pegboard will be provided in the following compartments: LS3 and RS3.</p>
0777853	SP Cover Plate, Toolboard Mounting Bracket, Pair, Painted	<p><b>TOOLBOARD MOUNTING BRACKET COVERS</b></p> <p>one (1) pair of toolboard mounting bracket cover plates will be provide, one each side, to cover mounting bracket opening. Each cover will be fabricated out of aluminum and painted to match the compartment interior.</p> <p>The covers will be mounted to the toolboard mounting bracket located in RS2.</p>

0027090	Tracks, Equipment Mounting, Horizontal	<p><b>MOUNTING TRACKS</b></p> <p>There will be two (2) sets of tracks for mounting equipment. These tracks will be installed horizontally on the back wall of the compartment(s). The compartment(s) with mounting tracks will be To be mounted at pick up. for SCBA brackets.</p>
0004016	Rub Rail, Aluminum Extruded, Side of Body	<p><b>RUB RAIL</b></p> <p>Bottom edge of the side 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.</p>
0784811	Fender Crowns, Rear, Stainless, w/Removable Liner	<p><b>BODY FENDER CROWNS</b></p> <p>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.</p> <p><b>BODY FENDER LINER</b></p> <p>A painted to match the lower body color fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.</p>
0519849	Not Required, Hose, Hard Suction	<p><b>HARD SUCTION HOSE</b></p> <p>Hard suction hose will not be required.</p>
0626229	Handrails, Side Pump Panels, Per Print	<p><b>HANDRAILS</b></p> <p>The handrails will be 1.25" diameter knurled aluminum to provide a positive gripping surface. 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 current edition of applicable NFPA standards. The handrails will be installed as noted on the sales drawing.</p>
0004126	Handrails, Beavertail, Standard	<p><b>HANDRAILS</b></p> <p>One (1) vertical handrail will be located on each rear beavertail.</p>
0011212	Handrail, Not Required, Rear Hose Bed, Pumper	
0004154	Handrail, Extra - 10" Long	<p><b>ADDITIONAL HANDRAIL</b></p> <p>Two (2) handrails, 10.00" long, will be mounted on top of DS Stanchion to meet NFPA stepping requirements. The handrail will be constructed out of knurled aluminum.</p>
0004150	Handrail, Extra - 15-20" Long	<p><b>ADDITIONAL HANDRAIL</b></p> <p>Two (2) handrails will be mounted Mounted at a 45 degree angle on the interior of the rear crew cab doors.. The handrail(s) will be constructed of knurled aluminum.</p>
0636301	Compt, Extinguisher (2) Fender Panel, Triangular Door, 8" Dia	<p><b>EXTINGUISHER/AIR BOTTLE/ STORAGE (Triangular)</b></p> <p>A total of one (1) extinguisher/air bottle/storage compartments will be provided RS rear of axle.. The triangular shaped compartment will be sized to fit a 8.00" diameter extinguisher in the lower area and a 8.00" diameter extinguisher in the upper area. The compartment will be approximately 25.50" deep. A partition will be provided to separate the compartment. Also inside the compartment, black rubber matting will be provided. The compartment will be furnished with a drain hole. A polished stainless steel, triangular shaped door with a D-Ring latch will be provided to contain the air bottles. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p><b>AIR BOTTLE COMPARTMENT STRAP</b></p> <p>A strap will be provided in the air bottle compartment(s) to help contain the bottles when the vehicle is parked on an incline. The strap will wrap around the neck and attach to the wall of the compartment.</p>

0654143		Compt, Air Bottle, Single, Tri Door (DEF/Fuel), Fender Panel	<p><b>AIR BOTTLE STORAGE (Single)</b> A quantity of one air bottle compartment, approximately 7.50" wide x 7.50" tall x 26.00" deep, will be provided on the driver side rearward of the rear wheels. The triangular door will cover the air bottle opening, the DEF tank access, and fuel fill. The compartment will be square with angled corners. A polished stainless steel door with a D-Ring 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.</p> <p><b>AIR BOTTLE COMPARTMENT STRAP</b> A strap will be provided in the air bottle compartment to help contain the air bottle when the vehicle is parked on an incline. The strap will wrap around the neck and attach to the wall of the compartment.</p>
0657522		Compt, Air Bottle, Triple, Fender Panel	<p><b>AIR BOTTLE STORAGE (Triple)</b> A quantity of two (2) air bottle compartments designed to hold (3) air bottles up to 7.25" in diameter x 26.00" deep will be provided on the left side forward of the rear wheels and on the right side forward of the rear wheels. A polished stainless steel door with a D-Ring 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.</p> <p><b>AIR BOTTLE COMPARTMENT STRAP</b> A strap will be provided in the air bottle compartment(s) to help contain the air bottles when the vehicle is parked on an incline. The strap will wrap around the neck and attach to the wall of the compartment.</p>
0045261	SP	Scufftape, Full Circle Around Air Bottle Compt	<p><b>SCUFFTAPE AROUND AIR BOTTLE OPENINGS</b> Vinyl scuff tape will be provided around the entire opening of each air bottle compartment in the fender panels.</p>
0784798	SP	Caulk, Drain, Air Bottle Compt	<p><b>CAULK, DRAIN, AIR BOTTLE COMPARTMENT</b> four (4) air bottle compartment(s) will have all the seams caulked to resist road debris. Drain hole/s will be provided in lowest area of air bottle compartment to allow excess moisture to drain out of compartment.</p>
0004225		Ladder, 24' Duo-Safety 900A 2-Section	<p><b>EXTENSION LADDER</b> There will be a 24' two-section aluminum Duo-Safety Series 900-A extension ladder provided.</p>
0004230		Ladder, 14' Duo-Safety 775A Roof	<p><b>ROOF LADDER</b> There will be a 14' aluminum Duo-Safety Series 775-A roof ladder provided.</p>
0545945		Ladders Btwn Tank & S.Sht, LS, Ext'd Rr, Encl'd Complete, RPH	<p><b>LADDER STORAGE</b> The ladders will be stored between the water tank and the left side compartments. The ladders will extend into the pump compartment just to the rear of the water pump discharges. The ladder storage area will be enclosed as practical by means of sheet metal to protect the ladders from road dirt. The ladders that extend into the pump house will also be enclosed. A black rubber boot will be provided to enclosed the ladders in the gap between the pump house and the body. Each ladder will be stored vertically in a separate stainless steel storage trough. Each stainless steel trough will be lined with Dura-Surf nylon slides. A bright aluminum treadplate enclosure will be provided at the rear of the body to properly contain the ladders This enclosure will extend to the rear of the side body compartments. The enclosure will also include a vertically hinged aluminum treadplate door with a D-handle latch to access the ladders.</p>
0733387		Ladder, 10' Duo-Safety Folding 585A	<p><b>FOLDING LADDER</b> One (1) 10.00' aluminum, Series 585-A, Duo-Safety folding ladder will be installed.</p>
0733796		Trough, Folding Ladder, Ladder Storage Btwn Tank & S.Sht	<p><b>FOLDING LADDER STORAGE</b> There will be storage designated right side for folding ladders stored between the side sheet in a stainless steel trough in the ladder storage compartment.</p>
0606134	SP	Drain, Enclosed Ladder Storage Between Tank and Side Sheet	<p><b>LADDER STORAGE DRAIN</b> A drain hole will be provided just inside the ladder storage door. An AVK will be installed in the bottom of the enclosure. A vinyl drain tube will then be secured to an AVK with a hose clamp to allow any excess water to drain down below the body.</p>
0554060		Pike Pole, 10' Nupla, Fiberglass, YPD-10, Pumper NFPA Classification	<p><b>10' PIKE POLE</b> One (1) pike pole, 10' long with a Nupla Featherlight fiberglass handle will be provided.</p>

0733370	Pike Pole, 6' DUO Safety, Fiberglass	<p><b>PIKE POLE, 6'</b> One (1) pike pole, 6' long Duo Safety with a fiberglass handle, will be provided.</p>
0004361	Tubes, Alum, Pike Pole Storage	<p><b>PIKE POLE STORAGE</b> Aluminum tubing will be used for the storage of two (2) pike poles and will be located in ladder storage compartment. If the head of a pike pole can come in contact with a painted surface, a stainless steel scuffplate will be provided.</p>
0616766	SP Additional Rub Rail Supports/Spacers	<p><b>ADDITIONAL RUB RAIL SUPPORTS</b> There will be a quantity of two (2) additional rubber spacer supports installed RS1 and LS1 .</p>
0785102	Steps, Folding, Front of Body, Cargo Bed Access, w/LED, Trident	<p><b>FOLDING STEPS FRONT OF BODY</b> Folding steps will be provided full height on the left side and right side body compartments to provide access to the cargo bed. Steps will be spaced evenly on the sales drawing. Actual quantity may vary due to pump panel interferences but will meet the NFPA required maximum stepping height. The Trident steps will be bright finished, non-skid with a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours, on the stepping surface. The 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.</p>
0592995	Steps, Combo Folding Trident w/LED & Corner, Rear Body	<p><b>REAR STEPS</b> Aluminum treadplate corner steps and bright finished, non-skid folding steps will be provided at the rear. The folding steps will have a luminescent tread coating, that is rechargeable from any light source and can hold a charge for up to 24 hours,. Each folding step will incorporate an LED light to illuminate the stepping surface. The folding steps can be used as a hand hold with two openings wide enough for a gloved hand. All steps will provide adequate surface for stepping.</p>
0687579	SP Program, Activate LED Step Lights w/ P.Brake	<p><b>PROGRAM</b> The LED step lights will be wired to activate with the parking brake. The step lights that should be wired to activate with parking brake are located Step lights at the DS front bulkhead and rear of body.</p>
0007575	Pump House, Side Control, 48", Control Zone	<p><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. The pump compartment will be constructed of the same material as the body compartmentation. The pump compartment substructure 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.</p> <p><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.</p> <p><b>LEFT SIDE PUMP CONTROL PANEL</b> All pump controls and gauges will be located at the left (driver's) side of the apparatus and properly identified. Layout of the pump control panel will be ergonomically efficient and systematically organized. The pump operator's control panel will be removable in two (2) main sections for ease of maintenance: The upper section will contain sub panels for the mounting of the pump pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable). Sub panels will be removable from the face of the pump panel for ease of maintenance. Below the sub panels will be located all valve controls and line pressure gauges. The lower section of the panel will contain all inlets, outlets, and drains. 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.</p> <p><b>IDENTIFICATION TAGS</b> 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 directly above the corresponding discharge control tee handles and recessed within the same chrome plated casting as the rod guide for quick identification. The gauge and rod guide casting will be removable from the face of the pump panel for ease of maintenance. The casting will be color coded to correspond with the discharge identification tag. All remaining identification tags will be mounted on the pump panel in chrome plated bezels. The pump panel on the right (passenger's) side will be removable with lift and turn type fasteners. Trim rings will be installed around all inlets and outlets.</p>

0037731	Pump House Structure, Raised, Included with Ladder Storage	
0004425	Pump, Waterous, CSU, 1500 GPM, Single Stage	<p><b>PUMP</b></p> <p>Pump will be a Waterous CSU, 1500 gpm single (1) stage midship mounted centrifugal type. Pump will be the class "A" type.</p> <p>Pump will deliver the percentage of rated discharge at pressures indicated below:</p> <ul style="list-style-type: none"> <li>- 100% of rated capacity at 150 psi net pump pressure.</li> <li>- 70% of rated capacity at 200 psi net pump pressure.</li> <li>- 50% of rated capacity at 250 psi net pump pressure.</li> </ul> <p>Pump body will be close-grained gray iron, bronze fitted, and horizontally split in two (2) sections for easy removal of the entire impeller shaft assembly (including wear rings).</p> <p>Pump will be designed for complete servicing from the bottom of the truck, without disturbing the pump setting or apparatus piping.</p> <p>Pump case halves will be bolted together on a single horizontal face to minimize chance of leakage and facilitate ease of reassembly. No end flanges will be used.</p> <p>Discharge manifold of the pump will be cast as an integral part of the pump body assembly and will provide a minimum of three (3) 3.50" openings for flexibility in providing various discharge outlets for maximum efficiency.</p> <p>The three (3) 3.50" openings will be located as follows: one (1) outlet to the right of the pump, one (1) outlet to the left of the pump, and one (1) outlet directly on top of the discharge manifold.</p> <p>Impeller shaft will be stainless steel, accurately ground to size. It will be supported at each end by sealed, anti-friction ball bearings for rigid precise support. Impeller will have flame plated hubs assuring maximum pump life and efficiency despite any presence of abrasive matter in the water supply.</p> <p>Bearings will be protected from water and sediment by suitable stuffing boxes, flinger rings, and oil seals. No special or sleeve type bearings will be used.</p>
0004481	Seal, Grafoil, Waterous	<p><b>PUMP PACKING</b></p> <p>Stuffing boxes will be of the conventional two (2) piece, split-gland type, to permit adjustment or replacement of Grafoil packing without disturbing the pump. Water will be fed into stuffing box lantern rings for proper lubrication and cooling when the pump is operating.</p> <p>Lantern rings will be located at the inner ends of the stuffing boxes, to avoid having to remove them when replacing pump packing.</p> <p>Wear rings will be bronze and easily replaceable to restore original pump efficiency and eliminate the need to replace the entire pump casing due to wear.</p>
0816447	Trans, Pump, Waterous C22 Series	<p><b>PUMP TRANSMISSION</b></p> <p>The pump transmission will be made of a three (3) piece, aluminum, horizontally split casing. Power transfer to pump will be through a high strength Morse HY-VO silent drive chain. By the use of a chain rather than gears, 50% of the sprocket will be accepting or transmitting torque, compared to two (2) or three (3) teeth doing all the work.</p> <p>Drive shafts will be 2.35" diameter hardened and ground alloy steel and supported by ball bearings. The case will be designed to eliminate the need for water cooling.</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>
0605126	Pump Shift, Air Mnl Override, Split Shaft, Interlocked, Waterous	<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 that the chassis transmission is in pump gear. This indicator light will be labeled "OK to pump".</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 a separate unit. It will be installed in the pump or engine compartment with the control located on the pump operator's control panel. The exchanger will be plumbed to the master drain valve.</p>

0014486	Not Required, Transfer Valve, Single Stage Pump	
0746501	Valve, 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 behind the right side pump panel with a stainless steel access door .</p>
0692045	Controller, Pressure, FRC, Pump Boss, PBA400	<p><b>PRESSURE CONTROLLER</b></p> <p>A Fire Research Pump Boss Model PBA400 pressure governor will be provided.</p> <p>A pressure transducer will be installed in the water discharge manifold on the pump.</p> <p>A pressure transducer will be installed in the inlet manifold on the pump</p> <p>The display panel will be located at the pump operator's panel.</p>
0072153	Primer, Trident, Air Prime, Air Operated	<p><b>PRIMING PUMP</b></p> <p>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.</p> <p>All wetted metallic parts of the priming system are to be of brass and stainless steel construction.</p> <p>One (1) priming control will open the priming valve and start the pump primer.</p>
0780364	Manuals, Pump, (2) Total, Electronic Copies	<p><b>PUMP MANUALS</b></p> <p>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.</p>
0602512	Plumbing, Stainless Steel and Hose, Single Stage Pump, Control Zone	<p><b>PLUMBING, STAINLESS STEEL AND HOSE</b></p> <p>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.</p> <p>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.</p> <p>Plumbing manifold bodies will be ductile cast iron or stainless steel.</p> <p>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.</p> <p>All water carrying gauge lines will be of flexible polypropylene tubing.</p> <p>All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.</p>
0795135	Plumbing, Stainless Steel, w/Foam System	<p><b>FOAM SYSTEM PLUMBING</b></p> <p>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.</p>
0004645	Inlets, 6.00" - 1250 GPM or Larger Pump	<p><b>MAIN PUMP INLETS</b></p> <p>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.</p>
0550696	Valve, Waterous Monarch w/Relief, LS Side Inlet, 6", Waterous Handwheel Control	<p><b>INLET BUTTERFLY VALVE</b></p> <p>One (1) Waterous Monarch inline butterfly valve will be provided on the left side main pump inlet. The 6.00" inlet valve will be partially recessed behind the pump panel with a "key hole" shaped stainless steel trim ring around the opening.</p> <p>A built-in, adjustable pressure relief valve and a bleeder valve will be provided on the inlet side of the valve.</p> <p>A chrome plated handwheel control will be provided on the side pump panel adjacent to the inlet valve.</p> <p>A valve position indicator will be provided, next to the valve control.</p>

0730368	Valve, Ball Intake, TFT, AX Series	<p><b>INLET VALVES WITH INTAKE RELIEF VALVE</b></p> <p>There will be One (1) Task Force Tips (TFT) AX Series aluminum ball intake valve(s) provided at Passenger side intake. .</p> <p>The inlet connection will be 8NR (4.5" Male Threaded Rigid) with a cap with a matching cap and the outlet connection will be NX (6.0" Threaded Swivel) . There will be an eight-position adjustable 30 degree swiveling detent elbow on the inlet side of the ball intake valve.</p> <p>The ball intake valve will be controlled with a(n) standard crank on the left side .</p> <p>If ball intake valve is to be controlled with a manual handwheel, the handwheel will be controlled with a NFPA compliant slow-close hand wheel. A position indicator will be provided to allow for a quick visualization of the status of the valve in the open, closed or transition position.</p> <p>If the ball intake valve is to be electrically controlled, the ball intake valve will be controlled by a remote panel-mounted push-button switch with LED lights for a quick visualization of the status of the valve in the open, closed or transition position. The push button switch will be mounted on the pump operator's panel.</p> <p>The ball intake valve will be equipped with a standard adjustable pressure relief valve. The relief valve will have a working range of 90 PSI to 300 PSI.</p> <p>A 3/4" TFT bleeder/drain valve will be provided on the ball intake valve to exhaust excess air or water from the valve.</p> <p>For corrosion protection the aluminum casting will have a hard coat anodized finish, with a powder coated internal and external finish. All the components facing the wet side of the valve will be constructed from stainless steel.</p>
0602448	Cap, Main Pump Inlet, Provided by Fire Department, NFPA 2016	<p><b>MAIN PUMP INLET CAP PROVIDED BY FIRE DEPARTMENT</b></p> <p>NFPA 1901, 2016 edition, section 16.6.8 requires all intakes to be provided with caps or closures capable of withstanding a hydrostatic gauge pressure of 500 psi.</p> <p>The caps are not on the apparatus as manufactured. The fire department will provide both caps for the main pump inlets.</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>
0016158	Valve, Inlet(s) Recessed, Side Cntrl, "Control Zone"	<p>The location of the valve for the one (1) inlet will be recessed behind the pump panel.</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>
0004660	Inlet (1), 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>
0092569	No Rear Inlet (Large Dia) Requested	
0064116	No Rear Inlet Actuation Required	
0092696	Not Required, Cap, Rear Inlet	
0009648	No Rear Intake Relief Valve Required on Rear Inlet	
0092568	No Rear Auxiliary Inlet Requested	

0723049	Valve, .75" Bleeder, Aux. Side Inlet, "T" Swing Handle	<p><b>INLET BLEEDER VALVE</b>  A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a "T" 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>
0029043	Tank to Pump, (1) 3.00" Valve, 3.00" Plumbing	<p><b>TANK TO PUMP</b>  The booster tank will be connected to the intake side of the pump with stainless steel piping and a quarter turn 3.00" full flow line valve with the control remotely located at the operator's panel. Tank to pump line will run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.  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>  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>
0062133	Control, Outlets, Manual, Pierce HW if applicable	<p><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. If a handwheel control valve is used, the control will be a minimum of a 3.9" diameter stainless steel handwheel with a dial position indicator built in to the center of the handwheel.  Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 16.7.5.3.</p>
0004940	Outlet, Left Side, 2.50"	<p><b>LEFT SIDE DISCHARGE OUTLETS</b>  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>
0005091	Elbow, Left Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	<p><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.</p>
0092570	Not Required, Outlets, Left Side Additional	
0035094	Not Required, Elbow, Left Side Outlets, Additional	
0004945	Outlet, Right Side, 2.50"	<p><b>RIGHT SIDE DISCHARGE OUTLETS</b>  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>
0025091	Elbow, Right Side Outlets, 45 Degree, 2.50" FNST x 2.50" MNST, VLH	<p><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.</p>
0092571	Not Required, Outlets, Right Side Additional	
0089584	Not Required, Elbow, Right Side Outlets, Additional	
0005047	Outlet, 4" w/4" Right, Handwheel	<p><b>LARGE DIAMETER DISCHARGE OUTLET</b>  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. This discharge outlet will be actuated with a handwheel control at the pump operator's control panel.  An indicator will be provided to show when the valve is in the closed position.</p>

0649166	Elbow, Large Dia Outlet, 45 Deg, 4.00" FNST x 4.00" MNST, VLH Elbow w/Cap	<p><b>LARGE DIAMETER OUTLET ELBOWS</b>  The 4.00" outlet will be furnished with a 4.00" (F) National Standard hose thread x 4.00" (M) National Standard hose thread adapter with a cap and cable.  The elbow will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.</p>
0649939	Outlet, Front, 1.50" w/2" Plumbing	<p><b>FRONT DISCHARGE OUTLET</b>  There will be one (1) 1.50" discharge outlet piped to the front of the apparatus and located in the center bumper tray.  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.  There will be automatic drains provided at all low points of the piping.</p>
0092575	Not Required, Outlet, Rear	
0045099	Not Required, Elbow, Rear Outlets	
0092574	Not Required, Outlet, Rear, Additional	
0085695	Not Required, Elbow, Rear Outlets, Large, Additional	
0004990	Outlet, Front HB, 2.50" w/2.50" Plumbing	<p><b>FRONT OF HOSE BED DISCHARGE OUTLET</b>  There will be One (1) discharge outlet discharge(s) piped to the front of the hose bed and located passenger side. 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>
0752097	Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Chain	<p><b>DISCHARGE CAPS/ INLET PLUGS</b>  Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.  Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.  The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p>
0723042	Valve, 0.75" Bleeder, Discharges, "T" Swing Handle	<p><b>OUTLET BLEEDER VALVE</b>  A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.  The valves will be located behind the panel with a T swing style handle control extended to the outside of the side pump panel.  The handles will be chrome plated and provide a visual indication of valve position.  The T 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.</p>
0549164	Outlet, 3.00" Deluge w/Akron Model 3406 Electric Riser	<p><b>DELUGE RISER</b>  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 rigidly braced and installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel.  Any 3.00 inch or larger discharge valve will be a slow-operating valve in accordance with NFPA 16.7.5.3.  <b>TELESCOPIC PIPING</b>  The deluge riser piping will include a 12.00" Akron electrically actuated extender.  This extension will be telescopic to allow the deluge gun to be raised 12.00" increasing the range of operation.  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>
0095958	Deluge Outlet, Special Height/Location	<p><b>DELUGE OUTLET SPECIAL INSTRUCTIONS</b>  The deluge gun outlet will be located To enable the deck gun to be rotated 360 degree- mounted `3.00" above cargo wall, as shown on AD.</p>

0072930	Monitor, Akron 3416, 4" FNST Inlet	<p><b>MONITOR</b>  An Akron Model 3416 monitor will be properly installed on the deluge riser. The monitor will include both a fixed mounting base and a portable base with one 4.00" FNST inlet.  The monitor will be painted to match the body.</p>
0501504	Nozzle, Akron 2499, Quad Tips, 3488 and 5160 Manual Fog	<p><b>NOZZLE, DELUGE</b>  Akron model 5160 Akromatic manual pattern, control fog nozzle will be provided. The nozzle will be rated for 250 to 1250 gallons per minute of flow.  Also included is an Akron model 2499 quad stacked pyrolite, deluge tips and an Akron 3488 pyrolite stream shaper .  The tip sizes will be 1.375", 1.50", 1.75", and 2.00".</p>
0626591	Deluge Mount, 3" ANSI 4 Bolt Flange, Use w/ Akron 3406 Riser	<p>The deluge riser will have a 3.00" four (4)-bolt flange for mounting the monitor.</p>
0723726	Speedlay Module Not Required	
0722432	Hose Restraint Not Required, No Speedlay Module	
0723395	Speedlays, Not Required	
0723394	Speedlays, Not Required	
0029167	Crosslays Sngl Sheet Unpainted, (2+) 1.50", Std. Cap	<p><b>CROSSLAY HOSE BEDS</b>  Two (2) crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying 200' of 1.75" double jacketed hose and will be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.  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 crosslay controls will be at the pump operator's panel.  The center crosslay dividers will be fabricated of 0.25" aluminum and will provide adjustment from side to side. The divider will be unpainted with a brushed finish.  Vertical scuffplates constructed of stainless steel will be provided at the front and rear ends of the bed on each side of vehicle.  Crosslay bed flooring will consist of removable perforated brushed aluminum.</p>
0029196	Not Required, 2.50" Crosslay	
0591145	Hose Restraint, Crosslay/Deadlay, Top/Ends, Elastic Netting	<p><b>CROSSLAY/DEADLAY HOSE RESTRAINT</b>  Elastic netting will be provided across the top and ends of two (2) crosslay/deadlay opening(s) to secure the hose during travel. The netting will be permanently attached at the top center of the crosslay/deadlay bed and removable on each end.</p>
0029260	Not Required, Speedlays	
0750536	Hose Restr, Spdly, Not Required, No Spdly	
0019853	Crosslays, 8.00" Lower Than Standard - Control Zone w/9.00" Raised PH	<p><b>CROSSLAY 8.00" LOWER THAN STANDARD</b>  The crosslays will be lowered 8.00" from standard.</p>

**HUSKY 3 FOAM PROPORTIONER**

A Pierce Husky® 3 foam proportioning system will be provided. The Husky 3 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 proportion foam solution at rates from .1 percent to 3 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.

**System Capacity**

The system will have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 150 psi.

100 gpm @ 3 percent

300 gpm @ 1 percent

600 gpm @ 0.5 percent

Class A foam setting in .1 percent increments from .1 percent to 1 percent. Typical settings of 1 percent, .5 percent and .3 percent (maximum capacity will be limited to the plumbing and water pump capacity).

**Control System**

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, and to set the operation modes.

The percent of injection will have a preset. This preset 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.

Three (3) .50 tall LEDs will display the foam percentage in numeric characters. Three (3) indicator LEDs will also be included, one (1) green, one (1) red, and one (1) yellow. The LEDs will indicate various system operation or error states.

The indications will be:

Solid Green - System On

Solid Red - Valve Position Error

Solid Yellow - Priming System

Flashing Green - Injecting Foam

Flashing Red - Low Tank Level

Flashing Yellow - Refilling Tank

The control display will house 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.

**Hydraulic Drive System**

The foam concentrate pump will be powered by an electric over hydraulic drive system. The hydraulic system and motor will be integrated into one (1) unit.

**Foam Concentrate Pump**

The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic system. 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 3 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, or the use of foam different than the foam in the foam tank.

**Panel Mounted External Pick-Up Connection / Valve**

A bronze three (3)-way valve will be provided. The unit will be mounted to the pump panel. The valve unit will function as the foam system tank to pump valve and external suction valve. The external foam pick-up will be one (1) 0.75" male connection GHT (garden hose thread) with a cap.

**Pick-Up Hose**

A 0.75" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 0.75" female swivel GHT (garden hose thread) swivel connector. The hose will be shipped loose.

**Discharges**

The foam system will be plumbed to the center of front bumper, right rear outlet, front crosslay and rear crosslay.

**System Electrical Load**

The maximum current draw of the electric motor and system will be no more than 55 amperes at 12 VDC.

0592527	Refill, Foam Tank, Integral, Husky 3	<b>SINGLE FOAM TANK REFILL</b>	The foam system's proportioning pump will be used to fill the 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. While the proportioner pump is filling the tank, the controller will display a flashing yellow LED to indicate that the tank is filling. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will shut the yellow LED off. If it attempted to use tank fill and the refill valve and suction valve are in the wrong position(s), then a red LED will illuminate to indicate the improper valve position(s). When the valves are positioned properly, then filling will commence.
0031896	Demonstration, Foam System, Dealer Provided		
0005446	Foam Cell, 20 Gallon, Not Reduce Water	<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.
0697589	Drain, 1.00", Foam Tank #1, Husky 3 Foam System, Quarter Turn	<b>FOAM TANK DRAIN</b>	The foam tank drain will be a 1.00" quarter turn drain valve located inside the pump/plumbing compartment.
0091079	Not Required, Foam Tank #2		
0091112	Not Required, Foam Tank #2 Drain		
0746447	Approval Dwg, All Pump Panel(s), Includes Color And Label Tags		<p>The following drawing(s) will be provided for approval by the customer. The drawing(s) will be made for up One (01) Truck apparatus and/or similar Pierce job number.</p> <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 the customer to review. The drawing will include all of the gauges, controls, switching, etc., located on the pump operator's panel. The customer will be allowed to make changes and/or mark-ups to this approval drawing. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.</p> <p>The finalized and signed customer approved pump operator's panel drawing will become part of the contract documents.</p> <p>Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.</p> <p><b>REMAINING PUMP PANEL(S)</b></p> <p>Detailed drawing(s) to scale of the remaining pump panel(s) will be provided for the customer to review. The drawing(s) will include all of the gauges, controls, switching, etc., located on the pump panel(s). The customer will be allowed to make changes and/or mark-ups to these approval drawing(s). The fire apparatus manufacturer will make revisions (If needed) to the drawing(s) per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.</p> <p>The finalized and signed customer approved pump panel drawing(s) will become part of the contract documents.</p> <p>Due to the way drain(s), bleeder(s), operational/maintenance tag(s) and NFPA required warning tag(s) are placed on pump panel(s), these items will NOT be shown on any pump panel approval drawing(s). These item(s) will be placed on pump panel(s) at the fire apparatus manufacturer discretion.</p> <p><b>COLOR CODED TAGS</b></p> <p>A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.</p> <p>The finalized and signed customer approved drawing/chart of the colors will become part of the contract documents.</p> <p><b>SPECIAL TEXT/VERBIAGE TAGS</b></p> <p>A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) will be provided for the customer to review. The customer will be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer will make revisions (If needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.</p> <p>The finalized and signed customer approved drawing/chart of the text/verbiage will become part of the contract documents.</p>

0032479	Pump Panel Configuration, Control Zone	<b>PUMP PANEL CONFIGURATION</b> The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.
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.
0721765	Panel, Pump Access - Right Side Only, Side Control	<b>PUMP ACCESS</b> <b>Right Side Panel</b> The right side upper pump panel will be removable. <b>Panel Fastener</b> The removable panels will be secured with chrome swell latch . The left side pump panels will be attached with screws. The right side lower pump panel (drain bank) will be attached with screws.
0005945	Light, Pump Compt	<b>PUMP COMPARTMENT LIGHT</b> A pump compartment light will be provided inside the right side pump enclosure and accessible through a door on the pump panel. A .125" weep hole will be provided in each light lens, preventing moisture retention.
0586438	Gauges, Engine - Pump Panel, IAT Pressure Controller	<b>PUMP PANEL GAUGES AND CONTROLS</b> The following will be provided on the pump and gauge panels in a neat and orderly fashion. These gauges will be in addition to what is provided with the pressure controller. - Engine Oil Pressure Gauge: With visual and audible warning - Engine Water Temperature Gauge: With visual and audible warning - Tachometer: Electric - Master Pump Drain Control - Voltmeter - Fuel
0005601	Throttle, Engine, Incl'd w/Press Controller	
0739224	Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle,Green	<b>THROTTLE READY GREEN INDICATOR LIGHT</b> There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.
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.
0005780	Control, Air Horn At Pmp Pnl, Button	<b>AIR HORN BUTTON</b> An air horn control button will be provided at the pump operator's control panel. This button will be properly labeled and put within easy reach of the operator.
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.
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.
0888193	SP Drains, Above Runningboards, LS & RS, Except for Both Foam Pump Drains, Special	<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, with the exception of the two (2) foam pump drains, which are located next to one another beneath the left side running board and just forward of the hose box.

0005690	Gauges, 6.00" Master, Class 1, 30"-0-600psi	<p><b>VACUUM AND PRESSURE GAUGES</b></p> <p>The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.</p> <p>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#.</p> <p>The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.</p> <p>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.</p>
0511100	Gauge, 2.00" Pressure, Class 1, 30"-0-400psi	<p><b>PRESSURE GAUGES</b></p> <p>The individual "line" pressure gauges for the discharges will be Class 1© interlube filled. They will be a minimum of 2.00" in diameter and have white faces with black lettering.</p> <p>Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>Gauges will have a pressure range of 30"-0-400#.</p> <p>The individual pressure gauge will be installed as close to the outlet control as practical.</p> <p>This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p>
0738602	Gauge, Water Level, Class 1, w/ (1) Large Slave & (1) Mini, Remote Module Driver	<p><b>WATER LEVEL GAUGE</b></p> <p>An electronic master water level gauge will be provided on the operator's panel, mini level gauge inside the cab and an additional level gauge will be located on the left side pump panel. Water levels will be indicated by means of five (5) durable, ultra-bright five LED lights. The standard size (not the mini) level gauges will have a lens design that will be viewable through 180 degrees. The water level indicators will be as follows:</p> <ul style="list-style-type: none"> <li>- 100% = Green</li> <li>- 75% = Yellow</li> <li>- 50% = Yellow</li> <li>- 25% = Yellow</li> <li>- Refill = Red</li> </ul> <p>The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the water tank is empty.</p> <p>The level measurement will be based on the sensing of head pressure of the fluid in the tank. The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from water and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The field calibratable display measures head pressure to accurately show the tank level.</p> <p>There will be a light driver module included with this installation to power additional water level gauge(s) included on the apparatus.</p> <p>The system(s) will be energized when pump is in gear.</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 chrome trim, installed one (1) each side rearward of crew cab doors, locate appropriately off of the rear wall.</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> <ul style="list-style-type: none"> <li>First green module indicates a full water level</li> <li>Second blue module indicates a water level above 3/4 full</li> <li>Third amber module indicates a water level above 1/2 full</li> <li>Last red module indicates a water level above 1/4 full and empty</li> </ul> <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 when either the pump is in gear, or the parking brake is applied.</p>
0062992	Gauge, Foam Level, (1) Tank, Class 1, GAAAR 5It	<p><b>FOAM LEVEL GAUGE</b></p> <p>An electronic foam level gauge will be provided on the operator's panel that registers foam level by means of five (5) colored LED lights. The lights will be durable, ultra-bright five (5) LED design viewable through 180 degrees. The foam level indicators will be as follows:</p> <ul style="list-style-type: none"> <li>100 percent = Green</li> <li>75 percent = Yellow</li> <li>50 percent = Yellow</li> <li>25 percent = Yellow</li> <li>Refill = Red</li> </ul> <p>The light will flash when the level drops below the given level indicator to provide an eighth of a tank indication. To further alert the pump operator, the lights will flash sequentially when the foam tank is empty.</p> <p>The level measurement will be based on the sensing of head pressure of the fluid in the tank. The display will be constructed of a solid plastic material with a chrome plated die cast bezel to reduce vibrations that can cause broken wires and loose electronic components. The encapsulated design will provide complete protection from foam and environmental elements. An industrial pressure transducer will be mounted to the outside of the tank. The display will be able to be calibrated in the field and will measure head pressure to accurately show the tank level.</p>

0593143	Light Shield/Step 8", LED w/Weldon 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. 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. One (1) pump panel light will come on when the pump is in ok to pump mode. There will be a light activated above the pump panel light switch when the parking brake is set. This is to afford the operator some illumination when first approaching the control panel. There will be one (1) Weldon, Model 9186-23882-30 step light provided. The step light will be installed as to illuminate the top of the step. The step light will be activated by the pump panel light switch.</p>
0682499	Light Shield/Step 8", PS LED, Weldon Step Light	<p><b>ADDITIONAL STEP/LIGHT SHIELD</b></p> <p>There will be an additional aluminum treadplate stepping surface no less than 8.00" deep and properly reinforced to support a man's weight, installed over the passenger's side pump panel. 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. There will be one (1) Weldon, Model 9186-23882-30 step light provided. The step light will be installed as to illuminate the top of the step. The step light will be activated by the pump panel light switch.</p>
0606694	Air Horns, (2) Hadley, 6" Round, eTone, In Bumper	<p><b>AIR HORN SYSTEM</b></p> <p>Two (2) Hadley®, eTone, chrome air horns will be 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>
0606835	Location, Air Horns, Bumper, Each Side, Outside Frame, Outboard (Pos #1 & #7)	<p><b>Air Horn Location</b></p> <p>The air horns will be located on each side of the bumper, towards the outside.</p>
0036064	Control, Air Horn, Foot Sw	<p><b>AIR HORN CONTROL</b></p> <p>The air horns will be actuated by one (1) foot switch, located on the driver side of apparatus.</p>
0006133	Siren, Code 3 3692 100W or 200W	<p><b>ELECTRONIC SIREN</b></p> <p>A Code 3®, Model 3692, electronic siren with noise canceling microphone will be provided. This siren to be active when the battery switch is on and the emergency master switch is on.</p>
0510206	Location, Elect Siren, Recessed Overhead In Console	Electronic siren head will be recessed in the driver side inside switch panel.
0748306	Control, Elec Siren, Multi Select	<p><b>ELECTRONIC SIREN CONTROL</b></p> <p>The electronic siren will be activated by the following:</p>
0748294	Control, Elec Siren, Ft Sw, LS	The left side foot switch.
0805709	Control, Elec Siren, Horn Ring, Interlock	The steering wheel horn ring with siren/horn selector switch. The control to be available when the emergency master switch is on.
0601374	Speaker, (2) Code 3, PB100C, Chrome	<p><b>SPEAKERS</b></p> <p>There will be two (2) Code 3®, Model PB100C, speakers with chrome finish provided. Each speaker will be connected to the siren amplifier.</p>
0678617	Location, Speaker, Frt Bumper, Recessed, Right and Left Side Corners	There will be one (1) speaker recessed in the passenger side and one (1) speaker recessed in the driver side of the front bumper. The speakers will be located in the angled corner area of the bumper.
0746353	Not Required, Warning Lights Intensity	

0738567	SP Lights, WIn, M4*C, RwbWRBWR RWBRWbwR 14Its	<p><b>FRONT ZONE UPPER WARNING LIGHTS</b></p> <p>There will be 14 Whelen®, Model M4*C, 3.38" high x 5.50" long x 1.38" deep LED flashing warning lights with chrome trim provided on the cab roof. There will be a driver's side and passenger's side housing installed to hold the lights perpendicular to the cab roof and conceal all the wiring. A removable cover will be installed for maintenance. The brackets will be painted the same color as the cab roof.</p> <p>The lights will be installed per the following:</p> <p>One (1) light with red LED's will be installed on the driver's side, side position.  One (1) light with blue and white LED's will be installed on the driver's side front corner position.  One (1) light with white LED's will be installed on the driver's side first front position.  One (1) light with red LED's will be installed on the driver's side second front position.  One (1) light with blue LED's will be installed on the driver's side third front position.  One (1) light with white LED's will be installed on the driver's side fourth front position.  One (1) light with red LED's will be installed on the driver's side fifth front position.  One (1) light with red LED's will be installed on the passenger's side fifth front position.  One (1) light with white LED's will be installed on the passenger's side fourth front position.  One (1) light with blue LED's will be installed on the passenger's side third front position.  One (1) light with red LED's will be installed on the passenger's side second front position.  One (1) light with white LED's will be installed on the passenger's side first front position.  One (1) light with blue and white LED's will be installed on the driver's side front corner position.  One (1) light with red LED's will be installed on the passenger's side, side position.</p> <p>The color of the lenses will be clear.</p> <p>There will be a switch in the cab on the switch panel to control the lights.</p> <p>The center four (4) forward facing LED lights may be load managed when the parking brake is applied.</p> <p>The white LED's will be disabled when the parking brake is applied.</p>
0561394	Light, Front Zone, WIn M6*C LED, Clear Lens, 4Its Q Bez, Inside Split Color	<p><b>WARNING LIGHTS (Cab Face)</b></p> <p>Four (4) Whelen Model M6* LED flashing warning lights will be 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.</p> <p>The driver's side light to be red to the outside and blue to the inside.</p> <p>The passenger's side light to be blue to the outside and red to the inside.</p> <p>The passenger's side front outside warning light to be blue.</p> <p>All four (4) lights will include a clear lens.</p> <p>There will be a switch located in the cab, on the switch panel, to control the four (4) lights.</p> <p>The inside lights may be load managed if colored or disabled if white, when the parking brake is set.</p> <p>If amber is the color feature selected for the inside lights, they will be disabled when the parking brake is released.</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.</p> <p>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.</p> <p>The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p>
0898752	Lights, Side Zone Lower, WIn M6#, M6#, M6# Split Color 6Lts	<p><b>SIDE ZONE LOWER LIGHTING</b></p> <p>There will be six (6) Whelen®, Model M6#, 4.31" high x 6.75" wide x 1.37" deep split color flashing LED warning lights with clear lenses and chrome trim installed per the following:</p> <p>Two (2) lights, one (1) each side on the bumper extension. The left side front light to include blue LEDs to the front with red LEDs to the rear and the right side front light to include blue LEDs to the front with red LEDs to the rear.</p> <p>Two (2) lights, On crew cab to the rear of the crew cab doors.. The left side middle light to include blue LEDs to the front with red LEDs to the rear and the right side middle light to include blue LEDs to the front with red LEDs to the rear.</p> <p>Two (2) lights, centered over the rear axle.. The left side rear light to include red LEDs to the front with blue LEDs to the rear and the right side rear light to include red LEDs to the front with blue LEDs to the rear.</p> <p>There will be a switch in the cab on the switch panel to control the lights.</p> <p>White LEDs will be deactivated when the parking brake is applied.</p>
0895974	Lights, Door Interior Flash, 4 Dr Cab, WIn 3S*00F*R, 3" Round	<p><b>INTERIOR CAB DOOR WARNING LIGHTS</b></p> <p>There will be four (4) Whelen® Model 3S*00F*R, 3.00" round deep flashing LED warning lights with black trim.</p> <p>One (1) light(s) to include amber flashing LED's on the left side cab door</p> <p>One (1) light(s) to include amber flashing LED's on the right side cab door.</p> <p>One (1) light(s) to include amber flashing LED's on the right side crew cab door.</p> <p>One (1) light(s) to include amber flashing LED's on the left side crew cab door.</p> <p>The lens color(s) to be the same as the LEDs.</p> <p>Each light will be located in the door pan as low and far to the outside as practical..</p> <p>Each light will be activated when the battery switch is on, respective door is opened and the ignition switch is on.</p>
0815847	Connectors, Door Interior Flash, All Cabs, Weatherproof	<p><b>ELECTRICAL CONNECTORS FOR WARNING LIGHTS</b></p> <p>The lights shall be installed with a weatherproof insulated crimped connectors in order to provide ease of connection/disconnection of the circuit applied to.</p>

0540783	Lights, Rear Zn Lwr, Wln M6°C LED	<b>REAR ZONE LOWER LIGHTING</b> There will be two (2) Whelen®, Model M6°C LED flashing warning lights with chrome trim located at the rear of the apparatus. The driver's side rear light to be red The passenger's side rear light to be red The lenses will be clear. There will be a switch located in the cab on the switch panel to control the lights.
0088745	Light, Rear Zone Up, Wln L31HRFN LED Beacon, Red LED	<b>REAR/SIDE ZONE UPPER WARNING LIGHTS</b> There will be two (2) Whelen®, Model L31H*FN, LED warning beacons provided at the rear of the truck, located one (1) each side. There will be a switch located in the cab on the switch panel to control the beacons. The color of the lights will be red LEDs with both domes red.
0006551	Not Required, Lights, Rear Upper Zone Blocking	
0016610	Mounting, Rear Warn Lights, Std Mount, S/S Brackets	The rear warning lights will be mounted on polished stainless steel brackets with all wiring totally enclosed. These brackets will also support the clearance/marker lights.
0791493	Light, Traffic Directing, Wln TAM65 36" Long LED	<b>TRAFFIC DIRECTING LIGHT</b> 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. The Whelen Model TACTL5 control head will be included with this installation. The control head will be energized when the battery switch is on. The auxiliary flash to be activated when the emergency master switch is on.
0529680	Location, Traf Dir Lt, Surface Mounted with Treadplate Box	This traffic directing light will be surface mounted with a treadplate box at the rear of the apparatus.
0530288	Location, Traf Dir Lt Controller, Overhead Recessed Console, above Eng Tnl DS	The traffic directing light controller will be located within the overhead recessed console above the engine tunnel on the driver's side.
0809558	Inverter, Xantrex XPower 450, Rated @ 337W	<b>INVERTER</b> There will be a Xantrex Model XPower 450, 12 volt DC to 120 volt AC inverter with an external transfer relay provided. There will be battery switched power, through proper fusing, to 12 volt DC threaded studs installed adjacent to the inverter for the power input connection. The inverter 120 volt AC output will be connected to an external transfer relay. The transfer relay will be actuated whenever the 120 volt AC shoreline is connected. When the shoreline is connected to the truck, the external transfer relay will allow AC shoreline power to pass to the VAC loads connected to the inverter. The inverter connected VAC loads will be energized under the following conditions: When the battery switch is on. When the battery switch is on and the 120V AC shoreline is connected. When the battery switch is off and the 120V AC shoreline is connected. The inverter will be de-energized when the battery switch is off. This inverter will be rated at 337 watts to meet NFPA requirements.
0814953	Location, Body, Inverter, LS Forward Compartment	<b>INVERTER LOCATION</b> The Inverter will be located in the left side forward body compartment located on the left wall as high as practical.
0889570	SP Approved, Inverter	
0780244	Receptacle, 15/20A 120V 3-Pr 3-Wr SB Dup, GFCI	<b>120 VOLT RECEPTACLE</b> There will be one (1), 15/20 amp 120 volt AC three (3) wire straight blade duplex GFCI receptacle (s) with exterior flip up cover(s) installed recessed on the cabinet on the rear engine tunnel on officer side . The NEMA configuration for the receptacles will be 5-20R. The receptacle(s) will be powered from the on board 12 volt DC to 120 volt AC power inverter. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Rating (amps) Phase Frequency
0519934	Not Required, Brand, Hydraulic Tool System	

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.
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.  400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.  One (1) handline nozzle, 200 gpm (750 L/min) minimum.  Two (2) handline nozzles, 95 gpm (360 L/min) minimum.  One (1) smoothbore of combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm.  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.  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).  One (1) first aid kit.  Four (4) combination spanner wrenches.  Two (2) hydrant wrenches.  One (1) double female 2.50" (65 mm) adapter with National Hose threads.  One (1) double male 2.50" (65 mm) adapter with National Hose threads.  One (1) rubber mallet, for use on suction hose connections.  Two (2) salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m).  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.  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.  Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.  One (1) automatic external defibrillator (AED).  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).  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 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 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 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>
0077022	Hose, 5" Soft Suction-w/4.5" Coupling 15ft lng	<p><b>SOFT SUCTION HOSE</b></p> <p>There will be a 15 foot length of 5.00" soft suction hose provided with a 4.50" long handle swivel coupling on one (1) end and a 4.50" long handle swivel coupling on the other.</p>
0027023	No Strainer Required	
0584119	Extinguisher, 20 lb Dry Chemical, 80-B:C Rating	<p><b>DRY CHEMICAL EXTINGUISHER</b></p> <p>There will be One (1) extinguisher, 20 lb, dry chemical extinguisher(s) with a 80-B:C rating provided.</p>
0533277	Extinguisher, 2.5 Gal. Pressurized Water	<p><b>WATER EXTINGUISHER</b></p> <p>One (1) extinguisher,, 2.50 gallon pressurized water, will be provided.</p>
0007125	Axes, (2) Flathead w/Fiberglass Handle	<p><b>FLATHEAD AXES</b></p> <p>There will be two (2) axes provided. Each axe will be a flathead axe with a fiberglass handle and blade shield.</p>
0591378	Axe, (1) Pickhead w/Fiberglass Handle	<p><b>PICKHEAD AXE</b></p> <p>There will be one (1) axe provided. The axe will be a pickhead axe with a fiberglass handle and pick cover.</p>

**PAINT PROCESS**

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

Manual Surface Preparation - 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.

Chemical Cleaning and Pretreatment - 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.

Surfacer Primer - 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.

Finish Sanding - 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.

Sealer Primer - 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.

Basecoat Paint - 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.

Clear Coat - 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 manufacturer.

After the cab and body are painted, the color will be verified to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications will be used to determine the color match. A Delta E reading will be 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 painted 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 paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. The manufacture's written paint standards will be available upon request.

**Environmental Impact**

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 percent 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 percent. Water wash systems will be 99.97 percent 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 recycled 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.

0709846

Paint, Two-Tone Color,  
Velocity/Impel**CAB TWO-TONE PAINT**

The cab will be painted two-tone, with the upper section painted #20 white and the lower section painted #117 RED, same as previous job 37138.. There will be a standard two-tone cab paint break provided.

There will be no cab shield provided.

0709845

Paint, Single Color, Body

**BODY PAINT**

The body will be painted to match the lower section of the cab.

0646897 Paint Chassis Frame Assy, E-Coat, Standard

**PAINT CHASSIS FRAME ASSEMBLY**  
 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.  
 Components treated with epoxy E-coat protection prior to paint:  
 Two (2) C-channel frame rails  
 Components that are included with the chassis frame assembly that will be painted not e-coated are:  
 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  
 Individual piece parts used in chassis and body assembly  
 The E-coat process will meet the technical properties shown.

0693798 Paint, Front Wheels

**PAINT, FRONT WHEELS**  
 All wheel surfaces, inside and outside, will be provided with paint red #117.

0693793 Paint, Rear Wheels, Single Axle

**PAINT, REAR WHEELS**  
 All wheel surfaces, inside and outside, will be provided with paint red #117.



Powder Coat Aluminum Paint Color

0733739 Paint, Axle Hubs

**AXLE HUB PAINT**  
 All axle hubs will be painted to match lower job color.

0007230 Compartment, Painted, Spatter Gray

**COMPARTMENT INTERIOR PAINT**  
 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.

0544129 Reflective Band, 1"-6"-1"

**REFLECTIVE STRIPES**  
 Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white 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.

0536954 Stripe, Chevron, Rear, Diamond Grade, Pumper

**REAR CHEVRON STRIPING**  
 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. 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.

0027341 Jog, In Reflective Stripe, Single or Multiple

**JOG(S) IN REFLECTIVE BAND**  
 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.

0545179	Stripe, Diamond Grade, Chevron, Front Bumper	<b>CHEVRON STRIPING ON THE FRONT BUMPER</b> There will be alternating chevron striping located on the front bumper. The colors will be fluorescent yellow green and red diamond grade. The size of the striping will be 6.00".
0065687	Stripe, Reflective, Cab Doors Interior	<b>CAB DOOR REFLECTIVE STRIPE</b> A 6.00" x 16.00" white 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.
0027372	Lettering Specifications, (GOLD STAR Process)	<b>LETTERING</b> The lettering will be totally encapsulated between two (2) layers of clear vinyl.
0686434	Lettering, Gold Leaf, 3.00", (21-40)	<b>LETTERING</b> Twenty-one (21) to forty (40) genuine gold leaf lettering, 3.00" high, with outline and shade will be provided.
0685978	Lettering, Reflective, 18.00", Each	<b>LETTERING</b> There will be reflective lettering, 18.00" high, with outline and shade provided. There will be one (1) letter provided.
0685981	Lettering, Reflective, 14.00", Each	<b>LETTERING</b> There will be reflective lettering, 14.00" high, with outline and shade provided. There will be two (2) letters provided.
0686002	Lettering, Reflective, 8.00", Each	<b>LETTERING</b> There will be reflective lettering, 8.00" high, with outline and shade provided. There will be one (1) letter provided.
0686018	Lettering, Reflective, 5.00", Each	<b>LETTERING</b> There will be reflective lettering, 5.00" high, with outline provided. There will be six (6) letters provided.
0686033	Lettering, Reflective, 4.00", Each	<b>LETTERING</b> There will be reflective lettering, 4.00" high, with outline 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 provided. There will be 14 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.
0026526	Lettering, Reflective, "Emergency Dial 911", Pair	<b>REFLECTIVE LETTERING, "EMERGENCY DIAL 911"</b> A pair of 5.00" high white, reflective decal "EMERGENCY Dial 911" will be installed at Inset into the scl/s on D1/P1.
0660881	SP Emblem, Monogram, Goldleaf, City of Flagstaff, pair	<b>EMBLEMS</b> one (1) pair of gold leaf monogram emblem(s) will be installed Located on cab doors. The emblems will contain up to three (3) letters and match those made for previous units.

0772003	Manual, Fire Apparatus Parts, USB Flash Drive, Custom	<p><b>FIRE APPARATUS PARTS MANUAL</b></p> <p>There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.</p> <p>The manual(s) 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>Each 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><b>Service Parts Internet Site</b></p> <p>The service parts information included in these manuals are 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>
0002905	Manuals, (2) Chassis Service, Custom	<p><b>MANUALS, CHASSIS SERVICE</b></p> <p>Two (2) chassis service manuals containing parts and service information on major components will be provided with the completed unit.</p> <p>The manuals 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>
0773381	Manual, Chassis Operation, (1) USB Flash Drive, Custom	<p><b>CHASSIS OPERATION MANUAL</b></p> <p>The chassis operation manual will be provided on one (1) USB flash drive.</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>
0611136	Warranty, Chassis, 3 Year, Velocity/Impel, WA0284	<p><b>THREE (3) YEAR MATERIAL AND WORKMANSHIP</b></p> <p>The Pierce custom chassis limited warranty certificate, WA0284, is included with this proposal.</p>
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 will be provided. A copy of the warranty certificate will be submitted with the bid package.</p>
0595767	Warranty, Frame, 50 Year, Velocity/Impel, 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>
0733306	Warranty, Single Axle, 5 Year, Meritor, General Service, WA0384	<p><b>SINGLE REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b></p> <p>A Meritor™ Axle 5 year limited warranty will be provided.</p>
0652758	Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	<p><b>ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</b></p> <p>A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.</p>

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.
0744240	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) monthwarranty will be provided for the camera system.
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.
0693127	Warranty, Gortite, Roll-up Door, 6 Year, WA0190	<b>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</b> A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A <b>six (6) year</b> limited warranty will be provided on painted and satin roll up doors. The limited warranty certificate, WA0190, is included with this proposal.
0734463	Warranty, Pump, Waterous, 7 Year Parts, WA0382	<b>PUMP WARRANTY</b> The Waterous pump will be provided with a Seven (7) year <b>material and workmanship limited warranty.</b> <b>A copy of the warranty certificate will be submitted with the bid package (no exception).</b>
0648675	Warranty, 10 Year S/S Pumbing, WA0035	<b>TEN (10) YEAR PUMP PLUMBING WARRANTY</b> The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.
0657990	Warranty, Foam System, Husky 3, WA0231	<b>FOAM SYSTEM WARRANTY</b> The Husky 3 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	<p><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.</p>
0808577	Certification, Engine Installation, Velocity, Cummins X15, 2027	<p><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.</p>
0686786	Certification, Power Steering, CD0098	<p><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.</p>
0892701	Certification, Cab Integrity, Impel/Velocity FR, CD0190	<p><b>CAB INTEGRITY CERTIFICATION</b> The fire apparatus manufacturer will provide a cab crash test certification with this proposal. The certification will state that a specimen representing the substantial structural configuration of 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: SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks. European Occupant Protection Standard ECE Regulation No.29. SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.</p> <p><b>Side Impact</b> The cab will be subjected to dynamic preload where a 14,320-lbs moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lbs of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.</p> <p><b>Roof Crush</b> The same cab will be subjected to a roof crush force of 22,050 lbs. This value meets the ECE 29 criteria, and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.</p> <p><b>Additional Roof Crush</b> The same cab will be subjected to a roof crush force of 100,000 lbs. (Four and a half times the load criteria of ECE 29)</p> <p><b>Frontal Impact</b> The same cab will withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.</p> <p><b>Additional Frontal Impact</b> The same cab will withstand a frontal impact of 65,200 ft-lb 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. There will be no exception to any portion of the cab integrity certification. Nonconformance will lead to immediate rejection of bid.</p>
0548950	Certification, Cab Door Durability, Velocity/Impel, CD0001	<p><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.</p>
0548967	Certification, Windshield Wiper Durability, Impel/Velocity, CD0005	<p><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.</p>
0667411	Certification, Electric Window Durability, Velocity/Impel FR, CD0004	<p><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.</p>

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>
0735950	Certification, Cab HVAC System Perf, Vel/Imp FR, CD0166/CD0168/CD0176/CD0177	<p><b>PERFORMANCE CERTIFICATIONS</b></p> <p><b>Cab Air Conditioning</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 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.</p> <p><b>Cab Defroster</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 Auxiliary Heater</b> <i>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.</i></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	
0020011	WATEROUS PUMP	
0020009	POLY TANK	
0028048	FOAM SYSTEM	

0020006 SIDE CONTROL

0020007 AKRON VALVES

0020015 ABS SYSTEM

0658751 PUMPER BASE