Proposal Details Report

10/25/2019

Customer: Farmers Branch Fire Department
Bid Number: 753
Representative Ownby, Travis
Job Number:
Requirements Manager:
Organization: Siddons-Martin Emergency Group
Description: Farmers Branch 2020 Quint
Chassis: Dash CF Chassis, Aerials, Single Axle, 75' HAL PUC (Med Block)
Body: Aerial, HD Ladder, 75' HAL PUC, Dash CF, Quint, Alum Body

OptionCode	Type	Option	ProposalText
0010012		No Boiler Plates requested	
0584456		Manufacture Location, Appleton, Wisconsin	Your apparatus will be manufactured in Appleton, Wisconsin.
0584452		RFP Location: Appleton, Wisconsin	
0588609		Vehicle Destination, US	
0018180		Single Source Compliance, Aerials	**SINGLE SOURCE MANUFACTURER** Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pump house (including the sheet metal enclosure, valve controls, piping and operators panel) body and aerial device will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.
0610784		Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions	**NFPA 2016 STANDARDS** 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.
0533351		Quint Fire Apparatus	
0588612		Vehicle Certification, Aerial w/Pump	

0681278	Agency, Apparatus Certification, Aerial w/Pump, U.L.	**NFPA COMPLIANCY** 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". **VEHICLE INSPECTION PROGRAM CERTIFICATION** To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, will be third-party, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification will include: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus. A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit. **INSPECTION CERTIFICATE** A third party inspection certificate for the aerial device will be furnished upon delivery of the aerial device. The certificate will be Underwriters Laboratories Inc. Type 1 and will indicate that the aerial device has been inspected on the production line and after final assembly. Visual structural inspections will be performed on all welds on both aluminum and steel ladders. On critical weld areas, or on any suspected defective area, the following tests will be conducted: - Magnetic particle inspection will be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets will be placed on each side of the weld while iron powder is placed on the weld itself. The powder will detect any crack that may exist. This test will conform to ASTM E709 and be performed prior to assembly of the aerial device. - A liquid penetrant test will be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test will conform to ASTM E165 and be performed prior to assembly of the aerial device. - Ultrasonic inspection will conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components. In addition to the tests above, functional tests, load tests, and stability tests will be performed on all aerials. These tests will determine any unusual deflection, noise, vibration, or instability characteristics of the unit. **PUMP TEST** The pump will be tested, approved and certified by Underwriter's Laboratory at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details will be forwarded to the Fire Department. **GENERATOR TEST** If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery. **BREATHING AIR TEST** If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection.*

0536644	Customer Service Website	**AFTERMARKET SUPPORT WEBSITE** Pierceparts.com will provide Pierce authorized dealer 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: **My Fleet Screen** 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. **Parts Screens** 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. **Warranty Screen** The Warranty screens will provide dealers the ability to submit electronically warranty claims directly to Pierce Manufacturing for reimbursement. **My Reports Screens** 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. **Technical Support Screens** 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. **Training** 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. **About Pierce** 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.
0620362	Consortium, HGAC	
0537375	Unit of Measure, US Gallons	
0529326	Bid Bond, 10%, Pierce Built Chassis	**BID BOND** 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. 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.
0540326	Performance Bond, Not Requested	**PERFORMANCE BOND NOT REQUESTED** A performance bond will not be included. If requested at a later date, one will be provided to you for an additional cost and the following will apply: The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required. Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.

0000007	Approval Drawing	**APPROVAL DRAWING** A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc. A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.
0670758	Drawing, Compartment Layout, Aerial	**COMPARTMENT LAYOUT DRAWING** A sales drawing will be provided as if the rear body compartment doors are open. This drawing will be provided for graphic representation only and will include such things as shelves, trays, reels, dividers, air control panels, air bottle storage bins, poly boxes, etc.
0002928	Electrical Diagrams	**ELECTRICAL WIRING DIAGRAMS** Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.
0682426	Dash CF Chassis, Aerials, Single Axle, 75' HAL PUC (Med Block)	**DASH CF CHASSIS** The Dash® CF is a custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type, cab-forward, custom fire apparatus. The chassis and cab will be manufactured in the apparatus body builder's facility eliminating any split warranty responsibility. To ensure years of reliable service, capacity for the intended load to be sustained, and the type of service required, the chassis will be designed and manufactured for heavy-duty service, utilizing heavy duty 13.00" frame rails, crossmembers, and cab construction as described elsewhere in this proposal.
0000110	Wheelbase	**WHEELBASE** The wheelbase of the vehicle will be 254.00.
0000070	GVW Rating	**GVW RATING** The gross vehicle weight rating will be 56300.
0000203	Frame Rails, 13.38 x 3.50 x .375, Qtm/AXT/Imp/Vel/DCF	**FRAME** 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.
0682026	Frame Liner, Internal "C" 12.50" x 3.00" x .25", Reduced "C" At RR, 57" Qval	**FRAME REINFORCEMENT** In addition, a full-length mainframe internal "C" liner will be provided. The liner will be an internal "C" design that steps to a smaller internal "C" design over the rear axle. It will be heat-treated steel measuring 12.50" x 3.00" x 0.25" through the front "C" portion of the liner, stepping to 9.38" x 3.00" x 0.25" through the rear "C" portion of the liner. Each liner will have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 857,462 in-lb. Total rbm at wheelbase center will be 4,391,869 in-lb. The frame liner will be mounted inside of the chassis frame rail and extend the full length of the frame.

0018453		Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Qtm/AXT/DCF	**FRONT NON DRIVE AXLE** The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 22,800 lb. Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000 psi yield strength 8630 steel and the lower control arm casting will be made of 55,000 psi yield ductile iron. The center cross members and side plates will be constructed out of 80,000 psi yield strength steel. Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations. There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension. 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. Camber at load will be 0 degrees for optimum tire life. The ball joint bearing shall be of low friction design and be maintenance free. Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided. The wheel ends will have little to no bump steer when the chassis encounters a hole or obstacle. The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase. The axle will have a third party certified turning angle of 45 degrees. Front discharge, front suction, or aluminum wheels will not infringe on this cramp angle.
0010427		Suspension, Front TAK-4, 22,800 lb, Qtm/AXT/Imp/Vel/DCF/Enf	**FRONT SUSPENSION** Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 lb. The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment. 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. The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms. The torsion bar 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. The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.
0087572		Shock Absorbers, KONI, TAK-4, Qtm/AXT/Imp/Vel/DCF/Enf	**FRONT SHOCK ABSORBERS** KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.
0000322		Oil Seals, Front Axle	**FRONT OIL SEALS** Oil seals with viewing window will be provided on the front axle.
0521238		Tires, Front, Michelin, XFE (wb), 425/65R22.50, 20 ply	**FRONT TIRES** Front tires will be Michelin 425/65R22.50 radials, 20 ply XFE wide base tread, rated for 22,800 lb maximum axle load and 65 mph maximum speed.
0019611		Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot	The tires will be mounted on Alcoa 22.50" x 12.25" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.
0598516		Axle, Rear, Meritor RS30-185, 33,500 lb, Imp/Vel/DCF	**REAR AXLE** The rear axle will be a Meritor™, Model RS-30-185, with a capacity of 33,500 lb.
0745388	SP	Axle Ratio, Rear Axle, (6.14), Electronically Limited Top Speed, 58 mph	**TOP SPEED OF VEHICLE** A rear axle ratio of 6.14 will be furnished. The engine will be programmed to limit the overall top speed to 58 MPH.
0122073		Suspen, Rear, Standens, Spring, 33,500 lb, Imp/Vel/Dash CF/Enf	**REAR SUSPENSION** The rear suspension will be Standens, semi-elliptical, 3.00" wide x 53.00" long, with a ground rating of 33,500 lb. The spring hangers will be castings. 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. 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.

0000485	Oil Seals, Rear Axle	**REAR OIL SEALS** Oil seals will be provided on the rear axle(s).
0788311	Tires, Rear, Michelin, X WORKS XDY 315/80R22.50, LRL, Single, Fire Serv Load	**REAR TIRES** Rear tires will be four (4) Michelin 315/80R22.50 radials, load range L, X®WORKS™XDY, rated for 35,396 lb maximum axle load and 65 mph maximum speed.
0019668	Wheels, Rear, Alcoa, 22.50" x 9.00", Aluminum, Hub Pilot, Single	The tires will be mounted on Alcoa© 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud 11.25" bolt circle.
0568081	Tire Balancing, Counteract Beads	**TIRE BALANCE** All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.
0620570	Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Single Axle	**TIRE PRESSURE MANAGEMENT** 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. 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. 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.
0003245	Axle Hub Covers w/center hole, S/S, Front Axle	**FRONT HUB COVERS** Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.
0001960	Axle Hub Covers, Rear, S/S, High Hat (Pair)	**REAR HUB COVERS** A pair of stainless steel high hat hub covers will be provided on rear axle hubs.
0002045	Mud Flaps, w/logo front & rear	**MUD FLAPS** Mud flaps with a Pierce logo will be installed behind the front and rear wheels.
0760616	Chains, Onspot Automatic Tire, Custom, Locking Switch	**AUTOMATIC TIRE CHAINS** One (1) pair of Onspot automatic tire chains will be provided at the rear. System will be electric over air operated with a locking switch on cab instrument panel. System may be engaged at speeds up to 25 mph and operated at speeds up to 35 mph.
0601010	Chocks, Wheel, SAC-44-E, Folding, Aerials	**WHEEL CHOCKS** There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.
0601009	Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal, Aerials	**WHEEL CHOCK BRACKETS** There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted forward of the left side rear tire.
0010670	ABS Wabco Brake System, Single rear axle	**ANTI-LOCK BRAKE SYSTEM** The vehicle will be equipped with a Meritor WABCO 4S4M, anti-lock braking system. The ABS will provide a 4-channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any particular wheel begins to lockup, a signal will be sent to the control unit. This control unit then will reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.
0030185	Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	**BRAKES** 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.
0000740	Brakes, Meritor, Cam, Rear, 16.50 x 8.63"	The rear brakes will be Meritor™ 16.50" x 8.63" cam operated with automatic slack adjusters. Dust shields cannot be provided.

0020784	Air Compressor, Brake, Cummins/Wabco 18.7 CFM	**BRAKE SYSTEM AIR COMPRESSOR** The air compressor will be a Cummins/WABCO with 18.7 cubic feet per minute output.
0000786	Brake Reservoirs, Four	**BRAKE SYSTEM** The brake system will include: Bendix® dual brake treadle valve Heated automatic moisture ejector on air dryer Total air system capacity of 5,198 cubic inches Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi Spring set parking brake system Parking brake operated by a push-pull style control valve A parking "brake on" indicator light on instrument panel Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa) 1/4 turn drain valve on each air tank The air tank will be primed and painted to meet a minimum 750 hour salt spray test. To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.
0568012	Air Dryer, Wabco System Saver 1200, Heater, 2010	**BRAKE SYSTEM AIR DRYER** The air dryer will be WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.
0000790	Brake Lines, Nylon	**BRAKE LINES** 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.
0000858	Inlet/Outlet, Air, w/Disconnect Fitting	**AIR INLET/OUTLET** One (1) air inlet/outlet will be installed with the female coupling located on the driver side pump panel. This system will tie into the "wet" tank of the brake system and include a check valve in the inlet line and an 85 psi pressure protection valve in the outlet line. The air outlet will be controlled by a needle valve. A mating male fitting will be provided with the loose equipment. The air inlet will allow a shoreline air hose to be connected to the vehicle. This will allow station air to be supplied to the brake system of the vehicle to insure constant air pressure.
0690889	All Wheel Lockup (Aerial/Tanker Chassis), Aerial Master Activation	**ALL WHEEL LOCK-UP** An additional all wheel lock-up system will be installed which applies air to the front brakes only. The standard spring brake control valve system will be used for the rear. The all wheel lock-up system will be activated automatically when the aerial master switch is activated.
0000845	Air Tank, Additional for Extra Capacity	**AIR TANK, ADDITIONAL** 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.
0000820	Moisture Ejector, Automatic, w/Heat	**AUTOMATIC MOISTURE EJECTOR(S)** One (1) automatic moisture ejector, Bendix®, Model DV-2, will be installed in the brake system. Each moisture ejector will be equipped with a 12-volt heater, controlled by thermostat and ignition switch. The moisture ejector(s) will be provided on the wet tank reservoirs(s).
0615609	Fittings, Compression Type, Brake System, Single Rear Axle	**COMPRESSION FITTINGS ONLY** Any nylon tube on the brake system 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.

0795311	Engine, Cummins L9, 450 hp, 1250 lb-ft, W/OBD, EPA 2017, REPTO, Dash CF	**ENGINE** The chassis will be powered by an electronically controlled engine as described below: Make: Cummins Model: L9 Power: 450 hp at 2100 rpm Torque: 1250 lb-ft at 1400 rpm Governed Speed: 2200 rpm Emissions Level: EPA 2017 Fuel: Diesel Cylinders: Six (6) Displacement: 543 cubic inches (8.9L) Starter: Delco 39MT™ Fuel Filters: Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter. The engine 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. **REPTO DRIVE** A rear engine power take off will be provided to drive the water pump. A vibration dampener will be provided between the REPTO and water pump. Transmission PTO's used to drive the water pump will not be allowed due to their lower continuous torque ratings. To ensure reliability, the rear engine power take off will be the same as used extensively throughout the construction industry. Rear engine PTO's allow for continuous 200 hp and 435 lb-ft torque ratings needed for large pump applications. The rear engine power take off will have the same warranty as the engine provided by the engine manufacturer.
0693265	Filter Location, ISL9 w/Repto Engine, Dash CF	**LOCATION OF FILTERS** For ease of serviceability, the following filters will be mounted together, on a single bracket, along the left side frame rail. The filters will be accessible while standing on the ground with the cab tilted. Engine Oil Filter Fuel Pre-Filter Fuel Final Filter PUC Pump Transmission Oil Filter Foam System Hydraulic Filter (if equipped)
0001244	High Idle w/Electronic Engine, Custom	**HIGH IDLE** A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation. The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."
0687994	Engine Brake, Jacobs Compression Brake, Cummins Engine	**ENGINE BRAKE** A Jacobs® engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver. The driver will be able to turn the engine brake system on/off and have a high, medium and low setting. The engine brake will activate when the system is on and the throttle is released. The high setting of the brake application will activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine. The engine brake will be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated. The ABS system will automatically disengage the auxiliary braking device, when required.
0693247	Fan, Hydraulic Drive, Dash CF	**HYDRAULIC FAN** To reduce fan noise, provide on-demand cooling, and maximize cab space, the cooling will be provided by a remote mounted hydraulic driven fan. The fan speed will be able to be controlled independent of the engine speed for higher cooling rates at low engine speeds when needed. The hydraulic pump will be driven from the engine's accessory drive to free up PTO's for other applications. The hydraulic fan and cooling system will be similar in design as those systems used in severe duty application such as construction, agriculture, forestry, mining, and rail industries.

0019654	Shutoff Valves, Cab & Crew Cab Heater	**HEATER SHUTOFF** The cab and crew cab heaters will be provided with a shutoff valve installed in the supply line. This valve will be in an accessible location.
0695216	Air Intake, w/Ember Separator, Dash CF	**ENGINE AIR INTAKE** To facilitate deeper fording capabilities while protecting the engine, the air intake with ember separator will be mounted on the right side of the apparatus. It will be located above the cab wheelwell yet below the window line so as not to limit sight lines and cause blistering inside the cab. The ember separator is designed to prevent road dirt and recirculating hot air from entering the engine. The ember separator will be easily accessible without tilting the cab. The air intake filter will be located above the front axle directly above the frame rail so as not to require blistering of the cab interior and to provide easy access while standing on the ground for inspection and maintenance.
0794761	Exhaust System, 4", 2017 L9 Engine, Horizontal, Right Side	**EXHAUST SYSTEM** The exhaust system will be stainless steel from the turbo to the engine's aftertreatment device, and will be 4.00" in diameter. The exhaust system will include a single module aftertreatment device to meet current EPA standards. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device . The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.
0695621	Radiator, Dash CF	**RADIATOR** The radiator and the complete cooling system will meet or exceed the engine manufacturer cooling system standards. The radiator core will have a minimum frontal area of 1755 square inches. Steel supply and return tanks will be mounted to the core headers and steel side channels to complete the radiator assembly. The radiator will be compatible with commercial antifreeze solutions. The radiator will be mounted in a location directly behind the cab and at the top of the body. This position will allow for maximum room in the cab, improved visibility through lower windshields, and unobstructed access to repair or replace the radiator should the need occur. The radiator will include an integral de-aeration tank, with a 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.
0001090	Cooling Hoses, Rubber	**COOLANT LINES** Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by Pierce Manufacturing. Hose clamps will be stainless steel constant torque type to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.
0094006	Fuel Tank, 65 Gallon, HAL	**FUEL TANK** 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 rear 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.
0001129	Lines, Fuel	All fuel lines will be provided as recommended by the engine manufacturer.
0595087	DEF Tank, 4.5 Gallon, DS Fill, Forward of Rear Axle	**DIESEL EXHAUST FLUID TANK** A 4.5 gallon diesel exhaust fluid (DEF) tank will be provided and mounted in the driver's side body forward of the rear axle. A 0.50" drain plug will be provided in a low point of the tank for drainage. A fill inlet will be located on the driver's side of the body and be covered with a hinged, spring loaded, polished stainless steel door that is marked "Diesel Exhaust Fluid Only". The tank will meet the engine manufacturers requirement for 10 percent expansion space in the event of tank freezing. The tank will include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.
0552793	Not Required, Fuel Priming Pump	

0582243	Shutoff Valves, Fuel Line @ Primary Filter, Cummins	**FUEL SHUTOFF** A fuel line shutoff valve will be installed on both the inlet and outlet of the primary fuel filter.
0699437	Cooler, Chassis Fuel, Not Req'd.	
0690880	No Selection Required From This Category	
0642572	Trans, Allison 5th Gen, 3000 EVS P, w/Prognostics, Imp/Vel/DCF/SFR/Enf	**TRANSMISSION** An Allison 5th generation, Model EVS 3000P, electronic torque converting automatic transmission will be provided. The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due. Two (2) PTO openings will be located on both sides of converter housing (positions 4 o'clock and 8 o'clock) as viewed from the rear. A transmission temperature gauge with red light and audible alarm will be installed on the cab dash.
0625329	Transmission, Shifter, 5-Spd, Push Button, 3000 EVS	**TRANSMISSION SHIFTER** A five (5)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation. The transmission ratio will be: 1st 3.49 to 1.00 2nd 1.86 to 1.00 3rd 1.41 to 1.00 4th 1.00 to 1.00 5th 0.75 to 1.00 R 5.03 to 1.00
0517604	Transmission Programming, Park to Neutral, PUC	**TRANSMISSION PROGRAMMING** The transmission will be programmed to automatically shift the transmission to neutral when the parking brake is set to simplify operation and increase operational safety.
0684459	Transmission Oil Cooler, Modine, External	**TRANSMISSION COOLER** A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.
0024895	Mode, Downshift, Aggressive downshift to 2nd, w/engine brake, 5 speed	**DOWNSHIFT MODE (w/engine brake)** The transmission will be provided with an aggressive downshift mode. This will provided earlier transmission downshifts to 2nd gear, resulting in improved engine braking performance.
0559528	Diagnostic Software, Allison DOC Package (For LapTop)	**DIAGNOSTIC SOFTWARE** Diagnostic software, Allison Transmission Diagnostic Tool (DOC) will be furnished for use with a laptop computer.
0001370	Driveline, Spicer 1710	**DRIVELINE** Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1710 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.
0669988	Steering, Sheppard M110 w/Tilt, TAK-4, Eaton Pump, w/Cooler	**STEERING** 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	**STEERING WHEEL** The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a 4-spoke design.
0690274	Logo/Emblem, on Dash	**LOGO AND CUSTOMER DESIGNATION ON DASH** 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: Farmers The second row of text will be: Branch The third row of text will be: Fire Dept.
0034671	Lube System, Vogel, 22 Point, w/TAK-4 Suspension	**AUTOMATIC CHASSIS LUBRICATION** A Vogel Automatic Lubrication System will be provided. The lubrication will be supplied while the vehicle ignition switch is active to allow a uniform application of grease to the locations listed. The electronic control unit that forms part of the system will activate the pump after an adjustable interval time. The unit will control and monitor pump operation and report any faults via an indicator light on the driver's dashboard of the cab. The lubrication system reservoir, which requires a 15.00" wide x 14.50" high x 6.25" deep mounting area, will be located near one of the PS outriggers on the apparatus. - TAK- 4 Control Arm Pivot Points - Rear Axle Slack Adjusters - Rear Axle Brake Cam Screws - Rear Suspension Spring Pins - Rear Suspension Shackle Pins
0606492	Bumper, 19" Extended, Painted, Reinforced, "Chicago" Style, Dash CF	**BUMPER** The bumper will be manufactured from .25" formed steel with a 3/8" bend radius. The bumper will be 10.00" high with a 1.5" top and bottom flange. The bumper will be one piece. With the front face of the bumper to be 81.00" with a 9.00" 45 degree corners with side plates extending back approximately 10.00". The bumper will be metal finished and painted job color. The bumper will be extended 19.00" from front face of cab. **GRAVEL PAN** A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.
0640197	Tray, Hose, Center, 19" Bumper, Outside Air Horns	**CENTER HOSE TRAY** A hose tray, constructed of aluminum, will be placed in the center of the bumper extension. The tray will have a capacity of 125' of 1.75" double jacket cotton-polyester hose. Black rubber grating will be provided at the bottom of the tray. Drain holes are also provided.
0633479	Hose Restraint, Bumper Tray, Velcro Straps, Pair	**CENTER HOSE TRAY RESTRAINT** 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	**LIFT AND TOW MOUNTS** 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.
0032932	Tow Eyes, Painted, Extended Out Front of Bumper	**TOW EYES** Two (2) tow eyes will be mounted through the front face of the bumper. The inner and outer edges of the tow eyes will have a .25" radius. The tow eyes will be mounted directly to the bumper frame. Cutouts will be provided in the front face of the stainless steel bumper to allow the tow eyes to extend out the front. The tow eyes will be designed and positioned to allow up to a 9,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow eyes will not be used for lifting of the apparatus. The tow eyes will be painted job color.
0692444	Recess, Front/Side Warning Light, In Angled Corner of Extended Bumper	**SIDE ZONE LIGHT MOUNTING** The front warning lights on each side will be recessed into the angled portion of the bumper extension to protect the light from damage. The recessed bracket will be made of painted smooth aluminum.

0532853	Recess, Side Zone Warning Light, In Side of Extended Bumper	**SIDE ZONE LIGHT MOUNTING** The front lower warning lights on each side will be recessed into the side of the bumper extension to protect the light from damage. The recessed bracket will be made of painted smooth aluminum.
0660435	Coating, Top Flange, Front Bumper, Outside Exterior, Rhino Lining, Black	**RHINO COATING - FRONT BUMPER** Protective black Rhino Linings® coating will be provided on the outside exterior of the top front bumper flange. It will not be sprayed on the underside of the flange. The lining will be properly installed by an authorized Rhino Linings® dealer.
0682394	Cab, Dash CF, 7011 Raised Roof w/ Notch, PUC	**CAB** The cab will be designed specifically for the fire service and will be manufactured by the chassis and body builder. The cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises. The cab will be a cab-forward design that positions the driver and officer ahead of the engine tunnel, providing the greatest amount of room for the front occupants. 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 post), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar will be constructed of .25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar will also be constructed from .25" heavy wall extrusions. The rear wall will be constructed of 4.00" x 2.00" aluminum extrusions. All main vertical structural members will run from the floor to 5.50" x 3.50" x .1875" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a .50" thick corner casting at each of the front corners of the roof assembly. The front of the cab will be constructed of a .25" thick firewall, covered with a .125" front skin (for a total thickness of .38"), and reinforced with a 95.00" wide x 13.00" deep x .50" thick cross-cab support located just below the windshield. The cross-cab support will run the full width of the cab and weld to each A-pillar, the .25" thick firewall, and the front skin. The cab floors will be constructed of .1875" thick aluminum plate and reinforced at the firewall with an additional .25" thick cross-floor support providing a total thickness of .44" of structural material at the front floor area. The front floor area will also be supported with 4.00" x 8.00" x 1.00" thick tubing that also provides the mounting point for the cab lift. This tubing will run from the front of the cab to the .38" thick engine tunnel, creating the structure to support the forces created when lifting the cab. The cab will be 96.00" wide (outside door skin to outside door skin) to maintain maximum maneuverability. The overall height (from the cab roof to the ground) will be approximately 99.00". The overall height listed will be calculated based on a truck configuration with a 41.00" frame height. The cab skirt height will be approximately 23.00" ahead of the front wheels and 21.00" behind the front wheels. An 11.00" raised roof will be provided. The raised portion will start at the most forward point of the B-pillar and continue rearward to the back of the cab. The raised roof section of the crew cab will have a 58.00" wide x 11.00" deep square notch in the center section of the roof. Within this notch, will be a second notch that is approximately 18.50" long x 9.00" wide x 4.00" deep, starting from the front edge of the cab. The crew cab will be of the totally enclosed design with access doors constructed in the same manner as the driver and passenger doors. The cab will be a full tilt cab style. The engine will be easily accessible and capable of being removed with the cab tilted. The cab will have a three (3)-point cab mount system with rubber isolators. **CAB ROOF DRIP RAIL** For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail will extend the full length of the cab roof. **INTERIOR CAB INSULATION** The cab will include 1.50" insulation in the ceiling and side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation. **FENDER LINERS** Full circular inner fender liners in the wheel wells will be provided. **WINDSHIELD** A curved safety glass windshield will be provided. The windshield will be bonded in place to prevent leaks and to increase safety within the cab (reference NHTSA report number DOT HS 806 693). For the greatest visibility, the windshield will be a minimum of 34.75" tall, be of one (1) piece design, and wrap approximately 8.00" around each end of the A-pillars. The bottom of the windshield will be no higher than 61.00" from the ground. All cab glass will be tinted. **WINDSHIELD WIPERS** Windshield wipers with washer will be provided that meet FMVSS and SAE requirements. The windshield wipers will sweep past the center of the windshield so as to provide maximum cover in inclement weather. The wipers will clean a minimum of 85 percent of the forward facing area of the windshield. The washer reservoir will be able to be filled while standing on the ground and without raising the cab.

0684778	Engine Tunnel, ISL, Dash CF	**ENGINE TUNNEL** Engine hood side walls are structural elements of the cab and will be constructed of .38" aluminum. The top will be constructed of .19" aluminum and will be tapered at the top for increased cab space. The engine tunnel will be no higher than 60.00" off the ground (calculated with a 41.00" frame height) and no higher than 22.00" off the crew cab floor. The forward portion of the cab will have a flat floor ahead of the engine tunnel area that will be transverse from the driver's door to the officer's door. This portion of the floor will be no greater than 36.00" from the ground. The engine hood will be insulated for protection from heat and sound. The noise insulation keeps the dBA level below the limits stated in the current NFPA series 1900 pamphlet.
0677478	Rear Wall, Exterior, Cab, Aluminum Treadplate	**CAB REAR WALL EXTERIOR COVERING** 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.
0695978	Cab Lift, Elec/Hyd, w/Manual Override, Dash CF	**CAB LIFT** 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 on the right side pump panel or front area of the body in a convenient location. The controls will include a permanently mounted raise/lower switch. The cab will be capable of tilting 35 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. 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 on the same side of the apparatus as the cab lift controls, between the chassis and cab frame when cab is in the raised position. **Cab Lift Interlock** 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.
0695930	Grille, Bright Finished, Front of Cab, Dash CF/Enforcer	**GRILLE** A bright finished aluminum mesh grille screen, inserted behind a bright finished grille surround, will be provided on the front center of the cab.
0002224	Scuffplates, S/S At Cab Door Jambs, 4-Door Cab	**DOOR JAMB SCUFFPLATES** All cab door jambs will be furnished with a polished stainless steel scuffplate, mounted on the striker side of the jamb.
0647932	Not Required, Trim, S/S Band, Across Cab Face, AXT/Dash CF/Saber/Enforcer	
0087357	Molding, Chrome on Side of Cab	**SIDE OF CAB MOLDING** Chrome molding will be provided on both sides of cab.
0521669	Mirrors, Retrac, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex	**MIRRORS** 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.

0695998	Door, Full Height, Dash CF Cab, Raised Roof	**DOORS** To enhance entry and egress to the cab, the forward cab doors will be a minimum of 37.50" wide x 74.12" high. The crew cab doors will be located on the sides of the cab and will be constructed in the same manner as the forward cab doors. The crew cab doors will measure a minimum of 34.75" wide x 83.75" high. The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins will be constructed from .090" aluminum. The forward cab door windows will include a drop area at the front to enhance visibility. A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands. The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed. A heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit. A chrome grab handle will be provided on the inside of each cab and crew cab door. The cab steps at each cab door location will be located inside the cab doors to protect the steps from weather elements.
0655593	Door Panel, Brushed Stainless Steel, Dash CF Cab	**Door Panels** There will be a full height brushed stainless steel door panel installed on the inside of all cab doors. The cab door panels will be removable.
0695425	Storage Pockets w/ Elastic Cover, Recessed, Dash CF	**RECESSED POCKET WITH ELASTIC COVER** To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior will be provided with recessed storage pockets. The pockets will be 6.50" wide x 2.12" high x 6.00" deep. The pockets will be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets will be installed in all available locations on the lower instrument panel console.
0695990	Controls, Electric Roll-Up Windows, 4dr, 4 Driver Controls, Dash CF	**ELECTRIC OPERATED CAB DOOR WINDOWS** All four (4) cab doors will be equipped with electric operated windows with one (1) flush mounted automotive style switch on each door. The driver's side door will have four (4) switches, one (1) to control each door window. 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 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.
0653574	Electric Door Locks, Cab Doors, Conceal Switch Feature, QXS/AXT/Sab/Enf/DCF	**ELECTRIC CAB DOOR LOCKS** The front driver and officer doors will have a door lock master switch that will control all front and rear crew cab door locks. Each rear crew cab door will have its own lock control. There will be one (1) concealed switch located under bumper.
0695976	Steps, 4-Door Cab, Dash CF	**CAB STEPS** The forward cab and crew cab access steps will be a full size two (2)-step design to provide the largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The front cab steps will be a minimum of 30.00" wide. The distance from the ground to the first cab step will be approximately 20.00". The crew cab steps will be 26.50" wide. The distance from the ground to the first crew cab step will be approximately 22.00". All bottom steps will have a depth of approximately 11.00". The distance from the bottom steps to the floor will be approximately 16.00" in height and be limited to two (2) steps. The leading edge of the top step will be approximately 10.00" inboard from the leading edge of the bottom step to provide a user-friendly angled (stair stepped) step.
0770194	Handrail, Exterior, Knurled, Alum, 4-Door Cab	**CAB EXTERIOR HANDRAILS** 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.
0674526	Lights, Cab & Crew Cab Access Steps, LED, Recessed, 1Lt, Per Step, Dash CF	**CAB and CREW CAB STEP LIGHTS** There will be four (4) white 12 volt DC 9.00" LED light strips provided. The lights will be installed recessed for protection into the top of the step extrusion: One (1) strip will be installed in the driver's door step well. One (1) strip will be installed in the passenger's door step well. One (1) strip will be installed in the passenger's side crew cab door step well. One (1) strip will be installed in the driver's side crew cab door step well. The lights will be activated when the battery switch is on and the adjacent door is opened.

0005772	Fenders, S/S on cab, w/Radius corner, 2.00" wide	**FENDER CROWNS** Stainless steel fender crowns will be installed at the cab wheel openings. The fender crowns will have a radius outside corner that will allow the fender crown to extend out further than the standard width crown, thus extending beyond the sidewall of the front tires and allow the crew cab doors to open fully.
0695725	Window, Side of C/C, Fixed, Dash CF	**CREW CAB WINDOWS** 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 and visibility to the exterior. The windows will be approximately 29.00" wide x 32.00" high. The top of the window will align with the top of the glass in the rear doors. The bottom of the glass will align with the bottom of the crew cab door window.
0695218	Not Required, Windows, Front of raised roof, Dash CF	
0694506	Not Required, Windows Rear of Crew Cab, Dash CF	
0786278	Window Tint, Crew Cab Door, Right Side, Medium Gray	**Window Tint** The rollup window in the right side crew cab door will be tinted medium gray.
0786283	Window Tint, Behind Cab Door, Right Side, Medium Gray	**Window Tint** The window behind the right side front cab door will be tinted medium gray.
0786285	Window Tint, Upper Crew Cab Door, Right Side, Medium Gray	**Window Tint** The upper window in the right side crew cab door will be tinted medium gray.
0786289	Window Tint, Crew Cab Door, Left Side, Medium Gray	**Window Tint** The rollup window in the left side crew cab door will be tinted medium gray.
0786293	Window Tint, Upper Crew Cab Door, Left Side, Medium Gray	**Window Tint** The upper window in the left side crew cab door will be tinted medium gray.
0786295	Window Tint, Behind Cab Door, Left Side, Medium Gray	**Window Tint** The window behind the left side front cab door will be tinted medium gray.
0695940	Compt, Storage, (1) Each Side Crew Cab, Under Floor, Dash CF	**STORAGE COMPARTMENTS** Provided on each side of the crew cab, under the floor and accessible from the step area, will be a storage compartment. The driver side compartment dimensions will be approximately 26.00" wide x 15.00" high x 10.25" deep with a clear door opening of 22.75" wide x 10.00" high. The passenger side compartment dimensions will be approximately 26.00" wide x 15.00" high x 16.00" deep with a clear door opening of 22.75" wide x 10.00" high. There will be a 8.00" x 8.00" 45 degree notch in the left rear corner of this compartment for engine exhaust clearance. The doors will be located in the stepwell area of the crew cab steps and will be made of treadplate with the compartment interior painted to match the cab interior.
0622415	Holder, Pike Pole, Vertical Mount, (2) PAC Brackets, Cup Holder, Cab Exterior	**PIKE POLE STORAGE** There will be one (1) set(s) of holders for mounting of pike pole(s). The holders will be mounted vertically one on each side of the crew cab. The middle of the pole will be held in place with a Handlelok, P/N 1004, adjustable mounting bracket. The top of the pole will be held in place with a Flexmount, P/N 1002-2, short locking mount and the bottom of the pole will be located in a cup holder.
0676399	Glove Box, Center Console, Dash CF	**GLOVE BOX** A glove box with a lift-up door will be installed on top of the front center console. The glove box will be approximately contour with the design of the console and will be approximately 17.00" wide at the rear x 11.00" deep front to back on the left side x 9.00" deep front to back on the right side x 5.00" deep. The door top will be hinged at the rear forward of the defroster unit with the standard glove box latch.
0664381	Bracket, PAC, Ironslok, PN K5003	**HALLIGAN TOOL/AXE MOUNTING BRACKET(S)** There will be one (1) PAC Ironslok, P/N 5003, mounting bracket(s) provided. They will be located ship loose.

0657893	Mounting Plate, 3/16" Aluminum, Cab Interior	**MOUNTING PLATE(S)** There will be one (1)size to fit 0.188" aluminum mounting plate(s) provided and installed dash panel surface in front of officer. The mounting surface will be brushed aluminum. The plates(s) will be mounted on 1.00" spacer stand-offs.
0749402	Cab Interior, Metal, Vinyl Headliner, Dash CF, CARE	**CAB INTERIOR** The cab interior will be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service. The officer side dash and center console will be a flat top design with an upper beveled edge to provide easy maintenance and will be constructed out of painted aluminum. The switch panel area located to the right of the driver will be constructed of painted aluminum with the switch panel being brushed stainless steel. Only the instrument cluster will be surrounded with a high impact ABS plastic contoured to the same shape of the instrument cluster. The engine tunnel will be painted aluminum. For durability and ease of maintenance, the cab interior side walls will be painted aluminum. The rear wall will be painted aluminum. The headliner will be installed in both forward and rear cab sections. Headliner material will be vinyl. A sound barrier will be part of its composition. Material will be installed on aluminum sheet and securely fastened to interior cab ceiling. All wiring will be placed in metal raceways. **CAB HEADLINER UPHOLSTERY** The cab headliner upholstery will be 36 oz dark silver gray vinyl.
0696028	Cab Interior, Paint Color, Dash CF	**CAB INTERIOR PAINT** 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 Glove box in front of the officer (if applicable) Power distribution in front of the officer Rear heater vent panels The top of the center console, officer dash, and driver instrument cluster housing will be a flat dark charcoal gray color to reduce windshield glare. The remaining cab interior metal surfaces will be painted fire smoke gray, vinyl texture paint
0509532	Floor, Rubber Padded Cab & Crew Cab, Imp/Vel, Dash CF	**CAB FLOOR** The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler. The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.
0695989	Heater/defroster, Dual Zone Control, Dash CF	**CAB DEFROSTER** To provide maximum defrost and heating performance, a 54,961 BTU heater-defroster unit with 558 SCFM of air flow will be provided inside the cab. The defroster unit will be strategically located under the forward portion of the center console. For easy access, a removable metal cover will be installed over the defroster unit. The defroster will include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the 1-piece windshield. The defroster ventilation will be built into the design of the cab dash instrument panel and will be easily removable for maintenance. The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements. **CAB/CREW CAB HEATER** Two (2) 36,702 BTU auxiliary heaters with 276 SCFM (each unit) of air flow will be provided inside the crew cab, one (1) in each outboard rear facing seat riser for easy service access. The heaters will include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters will be located below each rear facing seat riser and below the fronts of the driver and passenger seats, for efficient airflow. An extruded aluminum plenum will be incorporated in the cab structure that will transfer heat to the forward cab seating positions. The heater/defroster and crew cab heaters will be controlled by an integral electronic control panel. The heater control panel will allow the driver to control heat flow to the front and rear independently. The control panel will include variable adjustment for temperature and fan control, and be conveniently located in the center console in clear view of the driver. The control panel will include highly visible, progressive LED indicators for both fan speed and temperature.

0603350	Air Conditioning, Dual Zone Control, Dash CF	**AIR CONDITIONING** Due to the large space inside the cab, a high-performance, customized air conditioning system will be furnished. A 19.10 cubic inch compressor will be installed on the engine. The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 64 degrees Fahrenheit in the forward section of the cab, and 69 degrees Fahrenheit in the rear section of the cab, at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours. A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification will be installed on the cab roof. The condenser cover and mounting legs to be painted white as provided by the A/C manufacturer. The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab. The evaporator unit will have a 49,000 BTU (4.08 tons) rating that meets and exceeds the performance specifications. Adjustable air outlets will be strategically located on the evaporator cover per the following: Four (4) will be directed towards the drivers location Four (4) will be directed towards the officers location Eight (8) will be directed towards crew cab area The air conditioner refrigerant will be R-134A and will be installed by a certified technician. The air conditioner will be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel will be located in the center console. For ease of operation, the control panels will include variable adjustment for temperature and fan control. **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. Headliners will be constructed from a 0.20" high density polyethylene corrugated material. Each headliner will be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control. Designed for maximum sound absorption and thermal insulation, the rear cab wall will be insulated with a 1.50" thick open cell acoustical foam. The thermal protection of the foam will provide and R-value of 4 per 1.00" thickness.
0660231	Dual Condensate Drain Tubes for A/C Drip Pan, Dash CF	**SPECIAL 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.
0770954	HEPA Filter, Air-Conditioning/Defroster, Dash CF, CARE	**HEPA FILTER** The filter for both the air conditioner and the defroster will be high efficiency particulate air filters.
0511070	Air Conditioning System Protection & Diagnostic	**AIR CONDITIONING SYSTEM PROTECTION** The air conditioning system in the cab will include Red Dot Protecht system protection and diagnostics. The system will include an electronic control module with LED diagnostic indicators, high side pressure transducer, charge sensor and a warning indicator on the instrument panel. The system will provide the following control features: - Air conditioning compressor clutch cycling limited to a maximum rate of four (4) cycles/minute, to reduce wear on the clutch in the event of a system failure. - Low charge warning at 50 percent or lower refrigerant charge, for early detection of refrigerant and oil loss, to reduce repair cost associated with leaks. - Compressor clutch lockout at 30 percent or lower refrigerant to protect compressor in the event of a leak. - Low battery voltage AC lock out to prevent damage from system operating at low voltage levels. **AIR CONDITIONING WARRANTY** The manufacturer will warrant the air conditioning compressor to be free of defects in material and workmanship for a period of **three (3) years**. All conditions of our standard chassis warranty (included with bid) will apply except the warranty period on the air conditioning compressor will be for **three (3) years**. The warranty covers material and labor for the air conditioning system compressor.
0745178	A/C Unit, Danhard, 120 Volt AC, 13500 BTU, Location, Painted Cover, Pwr Fet PUC	**AUXILIARY AIR CONDITIONER** A Danhard, Inc, Model 70-2030, 120 volt AC air conditioning system will be provided in the crew cab. The air conditioning evaporator will be rated at 13,500 BTU. The system will be powered through the onboard generator to shoreline power transfer switch. The evaporator and control unit will be located within an enclosure inside the crew cab on the ceiling above the forward facing center position. The condenser and compressor will be located on the crew cab roof and enclosed with an aluminum painted cover.
0012122	Fans, Window Defrost, One (1) Fan on Each Side	**WINDOW DEFROST FANS** Two (2) window defrost fans will be mounted on the ceiling of the cab, one (1) on each side of the cab.

0639675		Sun Visor, Smoked Lexan, AXT, Dash CF, Imp/Vel, Saber FR/Enforcer	**SUN VISORS** Two (2) smoked Lexan™ sun visors provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab. There will be no retention bracket provided to help secure each sun visor in the stowed position.
0760858	SP	Grab Handles, Short Driver, Officer and Crew Cab Door Posts, Dash CF	**GRAB HANDLES** A handrail approximately 11.50" long will be installed on the upper windshield post of the driver door opening. A handrail approximately 24.00" long and contoured to follow the shape of the cab windshield post will be mounted to the forward portion of the officer door opening. A grab handle will be mounted by the driver and passenger side crew cab doors to assist in entering the cab. The grab handle will be securely mounted to the hinge side of the door frame.
0620314		Lights, Engine Compt, Dash CF, Auto & Manual Swt, Wln 3SC0CDCR, 3" LED, 2lts	**ENGINE COMPARTMENT LIGHTS** There will be two (2) Whelen®, Model 3SC0CDCR, 12 volt DC, 3.00" white LED lights with Model 3FLANGEC, chrome flange kits installed under the cab to be used as engine compartment illumination. The lights will be located in the following locations: One (1) will be installed on the underside of the cab to illuminate the top of the engine One (1) will be installed behind the engine access door to illuminate the engine fluid level dip sticks The lights will be activated with a switch located by the engine fluid level access door and automatically when the cab is raised.
0696003		Fluid Check Access, Dash CF	**ACCESS TO ENGINE DIPSTICKS** To encourage preventive maintenance, the engine oil and transmission fluid dipsticks, will be accessible through a door on the engine tunnel, inside the crew cab. The door will be on the driver's side of the engine tunnel and will be easily accessible while standing on the ground. The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling. An additional port will be provided for filling the engine oil. The door will have a rubber seal for thermal and acoustic insulation. One (1) flush latch will be provided on the access door.
0000000	STF	Center Cab Console with Cup Holders-SEMG Furnished	**CENTER CAB CONSOLE WITH CUP HOLDERS-DEALER FURNISHED** There shall be a custom console installed on the apparatus engine tunnel. This console shall be constructed of high density poly propylene. The design and layout shall be approved by the fire department.

0649172	Side Roll and Frontal Impact Protection, Dash CF	**CAB SAFETY SYSTEM** The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following: A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event. A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions. A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system. A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the three (3)-point seat belt. A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the three (3)-point seat belt. Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall. Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event. Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event. **FRONTAL IMPACT PROTECTION** The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected. The SRS system will deploy the following components in the event of a frontal or oblique impact event: Driver side front air bag. Passenger side knee bolster air bag. Air curtains mounted in the outboard bolster of outboard seat backs. Suspension seats will be retracted to the lowest travel position. Seat belts will be pre-tensioned to firmly hold the occupant in place. **SIDE ROLL PROTECTION** The SRS system will provide protection during a fast or slow 90-degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints. The SRS system will deploy the following components in the event of a side roll: Air curtains mounted in the outboard bolster of outboard seat backs. Suspension seats will be retracted to the lowest travel position. Seat belts will be pre-tensioned to firmly hold the occupant in place.
0622619	Seating Capacity, 4 Seats	**SEATING CAPACITY** The seating capacity in the cab will be four (4).
0692898	Seat, Driver, Pierce PS6, Premium, Air Ride, High Back, Safety, Dash CF	**DRIVER SEAT** 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. Providing for maximum comfort, 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. The lumbar adjustment lever will be easily located at the lower outboard position of the seat cushion. 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 include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position. The seat will be furnished with a 3-point, shoulder type seat belt. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current NFPA 1901 edition and CAN/ULC - S515 standards. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position. To provide proper shoulder, elbow, and hip room, the driver seat will be positioned such that the center line of the lower cushion is no less than 15.00" from the door pan and the edge of the cushion is approximately 4.00" away from the door pan providing more room to reach the seat belt buckle and encourage seat belt use.

0667164	Seat, Officer, Pierce PS6, Base, SCBA, Safety, Dash CF	**OFFICER SEAT** A Pierce PS6® seat will be provided in the cab for the passenger. The seat will be a fixed type with no suspension. For optimal comfort, the seat will be provided with 17.00" deep foam cushions. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style with 7.50 degree fixed recline angle and will include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity will be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. A suspension seat safety system will be included. When activated this system will pretension the seat belt and retract the seat to its lowest travel position. The seat will be furnished with a 3-point, shoulder type seat belt. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current NFPA 1901 edition and CAN/ULC - S515 standards. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position. The officer seat will have 24.00" of leg room as measured from the front of the seat cushion to the modesty panel below the officer dash. Furthermore, to provide proper shoulder, elbow, and hip room, the officer seat will be positioned such that the center line of the lower cushion is no less than 13.75" from the door pan and the edge of the cushion is approximately 4.00" away from the door pan providing more room to reach the seat belt buckle and encourage seat belt use.
0695918	Radio Compartment, Center Console, Dash CF	**RADIO COMPARTMENT** The radio amplifier will be located in the center console on shelf above battery conditioner (if equipped).
0695761	Not Required, Seat, Forward Facing Front, Center	
0102788	Not Required, Seat, Rear Facing C/C, DS Outboard	
0102790	Not Required, Seat, Rear Facing C/C, PS Outboard	
0659925	Seat, Fwd Facing C/C, DS Outbrd, Pierce PS6, Base, 17" Btm, SCBA Rec,Safety,DCF	**FORWARD FACING DRIVER SIDE OUTBOARD SEAT** There will be one (1) forward facing, Pierce PS6® 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 provided with 17.00" deep foam cushions, and the seat back will be provided with 0 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style and will be recessed into the rear wall. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll. The seat will be furnished with a 3-point, shoulder type seat belt. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current NFPA 1901 edition and CAN/ULC - S515 standards. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position. To provide proper shoulder, elbow, and hip room, the crew area seat will be positioned such that the center line of the lower cushion is no less than 13.75" from the door pan.
0103319	Not Required, Seat, Forward Facing C/C, Center	

0659923	Seat, Fwd Facing C/C, PS Outbrd, Pierce PS6, Base, SCBA Rec, 17" Btm, Safety,DCF	**FORWARD FACING PASSENGER SIDE OUTBOARD SEAT** There will be one (1) forward facing, Pierce PS6® seat provided at the passenger side outboard position in the crew cab. To provide improved ride comfort, and maximize accessibility to the crew cab, the seat will be provided with 17.00" deep foam cushions, and the seat back will be provided with 0 degree fixed recline angle. To ensure safe operation, the seat will be equipped with seat belt sensors in the seat cushion and belt receptacle, that will activate an alarm indicating a seat is occupied but not buckled. The seat back will be an SCBA back style and will be recessed into the rear wall. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location. The seat will include the following features incorporated into the side roll protection system: Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position. A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll. The seat will be furnished with a 3-point, shoulder type seat belt. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current NFPA 1901 edition and CAN/ULC - S515 standards. The seat belt will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position. To provide proper shoulder, elbow, and hip room, the crew area seat will be positioned such that the center line of the lower cushion is no less than 13.75" from the door pan.
0766467	Upholstery, Seats In Cab, All Endure Vinyl, Seats Inc, CARE	**SEAT UPHOLSTERY** All seat upholstery will be 36 ounce leather grain 36 oz dark silver gray vinyl Endure™ vinyl resistant to oil, grease and mildew. The cab will have four (4) seating positions.
0543991	Bracket, Air Bottle, Hands-Free II, Cab Seats	**AIR BOTTLE HOLDERS** All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G. There will be a quantity of three (3) SCBA brackets.
0675856	Add Arm Rest, Officer Seat, Dash CF	**ARM REST(S)** The officer seat will have a folding arm rest installed on inboard side only.
0675859	Add Arm Rest, Driver Seat, Dash CF	**ARM REST(S)** The driver seat will have a folding arm rest installed on inboard side only.
0604867	Seat Belt Height Adjustment, 4 Seats, Imp/Vel, Dash CF	**SHOULDER HARNESS HEIGHT ADJUSTMENT** All seating positions furnished with 3-point shoulder type seat belts will include a height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. A total of four (4) seating positions will have the adjustable shoulder harness.
0547294	Seat Belts, Orange	**SEAT BELTS** All seating positions in the cab and crew cab will have orange seat belts.
0564727	Bracket, Helmet Holder, On Scene Talon	**HELMET HOLDER** There will be four (4) On Scene Talon, Model 92510, helmet holder bracket(s) provided in the cab. Each bracket will provide quick access and secure storage of the helmet. The bracket location(s) will be determined at time of final inspection.
0647647	Lights, Dome, FRP Dual LED 4 Lts	**CAB DOME LIGHTS** There will be four (4) 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. The color of the LED's will be red and white. The white LED's will be controlled by the door switches and the lens switch. The color LED's will be controlled by the lens switch. In order to ensure exceptional illumination, each white LED dome light will provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.

0600599	Lights, Dome, FRP Dual LED, MUX	**ADDITIONAL DOME LIGHTS** There will be two (2) dual LED dome lights with black bezel(s) mounted in the cab and/or crew cab located in crew cab as additional. Match 27544. The color of the LED's will be red and white. The white LED(s) will be controlled by the door switches. The color LED(s) will be controlled by the lens switch. In order to ensure exceptional illumination, each white LED dome light will provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x .20.00" square seating position when mounted 40.00" above the seat. The light(s) may be load managed when the parking brake is applied.
0615448	Lights, Dome, Wln, 60C0EJCS White LED, Bat Dir and Bat Charger	**ADDITIONAL DOME LIGHTS** There will be one (1) Whelen®, Model 60C0EJCS, 6.00" round white LED dome light(s) with lens switch located centered in ceiling over the rear engine tunnel. The light(s) will have 12 volt DC power when the shoreline inlet is connected to the apparatus.
0631776	Not Required, Overhead Map Lights	
0554171	Handlts, (4) Streamlight, FireBox 45302, 12v, Orange	**HAND HELD LIGHT** There will be four (4) Streamlight FireBox Model 45302 hand held flashlights with an orange thermoplastic body provided. The location will be one under each rear seat and two in the forward area of the cab - see photo. match 31044.
0695283	Handlight, Streamlight, Survivor, 90503, C4 LED, 12v, Orange, Steady Charge	**HAND HELD SPOTLIGHT** There will be four (4) lights Streamlight, Model Survivor 90503, LED flashlights with chargers and AC/DC chords provided and installed In the ceiling above each seat position. The driver and officer light should be moved onto the AC plenum so the firefighter does not hit the light climbing in the cab. See photos of previous truck 31044.. The flashlights will be connected battery direct and will charge when the chassis batteries are charging.
0568369	Cab Instruments, Ivory Gauges, Chrome Bezels, Impel/Velocity 2010, Dash CF	**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 three (3) to five (5) seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

INDICATOR LAMP AND ALARM PROVE-OUT

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

CONTROL SWITCHES

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver.
Emergency master switch: A molded plastic push button switch with integral indicator lamp will be provided. Pressing the switch will activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.
Headlight / Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking lights and the headlights. The second switch position will activate the parking lights. The third switch position will activate the headlights.
Panel backlighting intensity control switch: A three (3)-position momentary rocker switch will be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.
The following standard controls will be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.
High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp will be provided. The first switch position is the default switch position. The second switch position will activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.
"Ok To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.
The following standard controls will be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches will have backlit labels for low light applications.
Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will deactivate vehicle ignition. The second switch position will activate vehicle ignition. The third momentary position will disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp will be activated with vehicle ignition.
Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.
4-way hazard switch: A two (2)-position maintained rocker switch will be provided. The first switch position will deactivate the 4-way hazard switch function. The second switch position will activate the 4-way hazard function. The switch actuator will be red and

		includes the international 4-way hazard symbol. **Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches will be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar will indicate the relative temperature and fan speed settings.** **Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls will be provided. The windshield wiper control will have high, low, and intermittent modes.** **Parking brake control: An air actuated push/pull park brake control valve will be provided.** **Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.** **CUSTOM SWITCH PANELS** **The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches will have backlit labels for low light applications.** **DIAGNOSTIC PANEL** **A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.** **The diagnostic panel will include the following:** **- Engine diagnostic port** **- Transmission diagnostic port** **- ABS diagnostic port** **- SRS diagnostic port (where applicable)** **- Command Zone USB diagnostic port** **- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)** **- Diesel particulate filter regeneration switch (where applicable)** **- Diesel particulate filter regeneration inhibit switch (where applicable)** **CAB LCD DISPLAY** **A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function.** **The upper left section will display the outside ambient temperature.** **The upper right section will display, along with other configuration specific information:** **- Odometer** **- Trip mileage** **- PTO hours** **- Fuel consumption** **- Engine hours** **The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.**
0509511	Air Restriction Indicator, Imp/Vel, AXT, Dash CF, Enf MUX	**AIR RESTRICTION INDICATOR** A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.
0673123	Light, Do Not Move Apparatus, Wln 3SR00FRR LED	**"DO NOT MOVE APPARATUS" INDICATOR** A Whelen Model 3SR00FRR flashing red LED indicator light with a Whelen, Model 3FLANGEC chrome surface mount flange 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 not activate any alarm when the parking brake is released.

0509042	Messages, Open Door/Do Not Move Truck, MUX w/Color Display	**DO NOT MOVE TRUCK MESSAGES** 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.
0551600	Switching, Cab, Rocker MUX, Impel/Velocity, AXT MUX, Dash CF	**SWITCH PANELS** 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 up to six (6) rocker-type switches each rated for two hundred thousand (200,000) cycles. Panels with less than six (6) switches will include indicators or blanks. The switch panel(s) will be located in the "overhead" position above the windshield on the driver side overhead to allow for easy access. The switches will be rocker-type and include an integral indicator light. For quick, visual indication the switch will be illuminated whenever the switch is active. A 2-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed below the switches. The label will allow light to pass through the letters for improved visibility in low light conditions. Switches and light source are integral to the switch panel assembly.
0617961	Wiper Control, 2-Speed with Intermittent, MUX, AXT/Dash CF	**WIPER CONTROL** 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.
0669028	Hourmeter, Aerial Inside Cab, Deadman Switch	**HOURMETER - AERIAL DEVICE** An hour meter for the aerial device will be provided and located within the cab display or instrument panel. The hour meter will be activated only while the dead man switch is applied.
0002615	Switch, Aerial 12V Master	**AERIAL MASTER** There will be a master switch for the aerial operating electrical system provided.
0002617	PTO switch, w/light - aerial	**AERIAL PTO SWITCH** A PTO switch for the aerial with indicator light will be provided.
0548004	Wiring, Spare, 15 A 12V DC 1st	**SPARE CIRCUIT** 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 officer side dash area 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.
0548009	Wiring, Spare, 20 A 12V DC 1st	**SPARE CIRCUIT** 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 behind officer seat 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.

0548013	Wiring, Spare, 20 A 12V DC 2nd	**SPARE CIRCUIT** 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 under front center seat area for future MDT install. 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.
0660395	Recess, Dash Panel, Officer Side, Dash CF	**RECESS IN OFFICER DASH PANEL** The dash in front of the officer will be recessed to accommodate the mounting of miscellaneous items. The recess will be a painted sheet metal mounting platform/shelf, 3.00" down x 7.125" back and 17.50" wide.
0643196	Radio, AM/FM/CD/WB, Jensen, Front Aux In / USB / Bluetooth	**STEREO RADIO** A Jensen, heavy duty AM/FM/CD/Weatherband stereo radio, with front auxiliary input will be installed per switch panel layout . There will be 5.25" speakers installed one (1) pair of 5.25" speakers in the rear of the crew cab. The antenna will be a roof-mounted rubber antenna located in an open space, on the cab roof . The following features will be included: CD Player with Electronic Skip Protection (ESP) Full 7-Channel NOAA Weatherband Tuner with SAME technology Built-in Clock Audio CD, CD-R, R/W, MP3 CD compatible Radio Broadcast Data System Text Display Front panel USB input Front and Rear Auxiliary Audio Input Receives audio (A2DP/AVRCP) from Bluetooth enabled device Supports Bluetooth HFP to receive phone calls from BT-enabled phones Low battery alert (<10.8Vdc) Heavy Duty design with Conformal Coated Circuit Boards for maximum durability under all conditions
0615386	Vehicle Information Center, 7" Color Display, Touchscreen, MUX	**INFORMATION CENTER** An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing. The information center will have the following specifications: Operate in temperatures from -40 to 185 degrees Fahrenheit An Optical Gel will be placed between the LCD and protective lens Five weather resistant user interface switches Grey with black accents Sunlight Readable Linux operating system Minimum of 1000nits rated display Display can be changed to an available foreign language A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area. Programmed to read US Customary **GENERAL SCREEN DESIGN** Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used. If a caution or warning situation arises the following will occur: An amber background/text color will indicate a caution condition A red background/text color will indicate a warning condition The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages. A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol. **HOME/TRANSIT SCREEN** This screen will display the following: Vehicle Mitigation (if equipped) Water Level (if the water level system includes compatible communications to the information center) Foam Level (if the foam level system includes compatible communications to the information center) Seat Belt Monitoring Screen Seat Belt Monitoring Screen Tire Pressure Monitoring (if equipped) Digital Speedometer Active Alarms **ON SCENE SCREEN** This screen will display the following and will be auto activated with pump engaged (if equipped): Battery Voltage Fuel Oil Pressure

Coolant Temperature
RPM
Water Level (if equipped)
Foam Level (if equipped)
Foam Concentration (if equipped)
Water Flow Rate (if equipped)
Water Used (if equipped)
Active Alarms

VIRTUAL BUTTONS

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

PAGE SCREEN

The page screen will display the following and allow the user to progress into other screens for further functionality:
Diagnostics
Faults
Listed by order of occurrence
Allows to sort by system
Interlock
Throttle Interlocks
Pump Interlocks (if equipped)
Aerial Interlocks (if equipped)
PTO Interlocks (if equipped)
Load Manager
A list of items to be load managed will be provided. The list will provide a description of the load. The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
The screen will indicate if a load has been shed (disabled) or not shed.
"At a glance" color features are utilized on this screen.
Systems
Command Zone
Module type and ID number
Module Version
Input or output number
Circuit number connected to that input or output
Status of the input or output
Power and Constant Current module diagnostic information
Foam (if equipped)
Pressure Controller (if equipped)
Generator Frequency (if equipped)
Live Data
General Truck Data
Maintenance
Engine oil and filter
Transmission oil and filter
Pump oil (if equipped)
Foam (if equipped)
Aerial (if equipped)
Setup
Clock Setup
Date & Time
12 or 24 hour format
Set time and date
Backlight
Daytime
Night time
Sensitivity
Unit Selection
Home Screen
Virtual Button Setup
On Scene Screen Setup
Configure Video Mode
Set Video Contrast
Set Video Color
Set Video Tint
Do Not Move
The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicate
Driver Side Cab Door
Passenger's Side Cab Door
Driver Side Crew Cab Door
Passenger's Side Crew Cab Door
Driver Side Body Doors
Passenger's Side Body Doors
Rear Body Door(s)
Ladder Rack (if applicable)
Deck Gun (if applicable)
Light Tower (if applicable)
Hatch Door (if applicable)
Stabilizers (if applicable)
Steps (if applicable)
Notifications
View Active Alarms
Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
Silence Alarms - All alarms are silenced
Timer Screen
HVAC (if equipped)

			Tire Information (if equipped) Ascendant Set Up Confirmation (if equipped) Button functions and button labels may change with each screen.
0606247		Vehicle Data Recorder w/CZ Display Seat Belt Monitor	**VEHICLE DATA RECORDER** There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided. The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line. The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs: Vehicle Speed - MPH Acceleration - MPH/sec Deceleration - MPH/sec Engine Speed - RPM Engine Throttle Position - % of Full Throttle ABS Event - On/Off Seat Occupied Status - Yes/No by Position Seat Belt Buckled Status - Yes/No by Position Master Optical Warning Device Switch - On/Off Time - 24 Hour Time Date - Year/Month/Day **Seat Belt Monitoring System** A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following: Seat Occupied & Buckled = Green LED indicator illuminated Seat Occupied & Unbuckled = Red LED indicator with audible alarm No Occupant & Buckled = Red LED indicator with audible alarm No Occupant & Unbuckled = No indicator and no alarm The seat belt monitoring screen will become active on the Command Zone color display when: The home screen is active: and there is any occupant seated but not buckled or any belt buckled with an occupant. and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated. The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.
0000000	STF	Intercom, Firecom 5100D Single Radio, 1 Wireless Base Station, 5 wireless GPFD	**INTERCOM SYSTEM** There will be digital, single radio interface, intercom located match previous, dealer to install in the cab. The front panel will have master volume, and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices. There will be one (1) radio listen only / transmit control with select, monitor, receive, and transmit indicators. There will be one (1) auxiliary audio input with select, and receive indicators. There will be one (1) wireless base station for up to five (1-5) headset users provided. The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range. The following Firecom components will be provided: One (1) 5100D Intercom One (1) WB505R wireless base station (1-5 wireless positions) All necessary power and station cabling
0000000	STF	Install Customer Provided Key Storage, Knox Box, in Cab	**KNOX-BOX®** There will be one (1) Knox-Box(s) sent to the apparatus manufacturers preferred installer and installed at as determined at final. Specific shipping requirements will be followed. A "technician's key" will be provided by the customer for each Knox Box. The box cannot be installed without a compatible technician's key.
0000000	STF	Install Customer Provided Two-Way Radio-SMEG	**TWO WAY RADIO INSTALLATION** There shall be one (1) customer supplied two way radio(s) installed as determined at final match 31044 by Siddons-Martin Emergency Group.
0696443		Antenna Mount, Custom Chassis, Cable Routed to Overhead Switch Area	**RADIO ANTENNA MOUNT** There will be two (2) standard 1.125", 18 thread antenna-mounting base(s) installed overhead panel #6 area on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the overhead switch area. A weatherproof cap will be installed on the mount.

0755515	Camera, Pierce, Drivers Mux Display, R, RS Cameras	**VEHICLE CAMERA SYSTEM** There will be a color vehicle camera system provided with the following: One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse One (1) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal The camera images will be displayed on the driver's vehicle information center display. Audio from the microphone on the rear camera will be not provided. The following components will be included: One (1) SV-CW134639CAI Camera One (1) CS134404CI Side camera One (1) Amplified speaker (if applicable) All necessary cables
0511071	Guard, 4-Way, Rear Vision Camera	**VEHICLE CAMERA GUARD** There will be one (1) aluminum treadplate guard(s) fastened over the vehicle camera(s) located above R1 .
0615110	Pierce Command Zone, Advanced Electronics & Control System, Dash CF, WiFi	**ELECTRICAL POWER CONTROL SYSTEM** The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible. Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership. Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA. **SOLID-STATE CONTROL SYSTEM** A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices. The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership. For increased reliability and simplified use the control system modules will include the following attributes: Green LED indicator light for module power Red LED indicator light for network communication stability status Control system self test at activation and continually throughout vehicle operation No moving parts due to transistor logic Software logic control for NFPA mandated safety interlocks and indicators Integrated electrical system load management without additional components Integrated electrical load sequencing system without additional components Customized control software to the vehicle's configuration Factory and field re programmable to accommodate changes to the vehicle's operating parameters Complete operating and troubleshooting manuals USB connection to the main control module for advanced troubleshooting To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications: Module circuit board will meet SAE J771 specifications Operating temperature from -40C to +70C Storage temperature from -40C to +70C Vibration to 50g IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter) Operating voltage from eight (8) volts to 16 volts DC The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical. **CIRCUIT PROTECTION AND CONTROL DIAGRAM** Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information. **ON-BOARD ELECTRICAL SYSTEM DIAGNOSTICS** Advanced on-board diagnostic messages will be provided to support rapid troubleshooting of the electrical power and control system. The diagnostic messages will be displayed on the information center located at the driver's position. The on-board information center will include the following diagnostic information: Text description of active warning or caution alarms Simplified warning indicators Amber caution indication with intermittent alarm Red warning indication with steady tone alarm **TECH MODULE WITH WIFI**

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.
The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.
The data logging capability will record faults from the engine, transmission, ABS and Command Zone, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data logger will provide up to 2 Gigabytes of data storage.
A USB connection will be provided on the Tech Module. It will provide a means to download data logger information and update software in the device.

PROGNOSTICS

A software based vehicle tool will be provided to predict remaining life of the vehicles critical fluid and events.
The system will send automatic indications to the Command Zone, color display and/or wireless enabled device to proactively alert of upcoming service intervals.
Prognostics will include:
Engine oil and filter
Transmission oil and filter
Pump oil (if equipped)
Foam oil (if equipped)
Aerial oil and filter (if equipped)

ADVANCED DIAGNOSTICS

An advanced, Windows-based, diagnostic software program will be provided for this control system. The software will provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.
The service and maintenance software will be easy to understand and use and have the ability to view system input/output (I/O) information.

INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM

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

VOLTAGE MONITOR SYSTEM

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.
The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

DEDICATED RADIO EQUIPMENT CONNECTION POINTS

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.
The studs will consist of the following:
12-volt 40-amp battery switched power
12-volt 60-amp ignition switched power
12-volt 60-amp direct battery power
There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

ENHANCED SOFTWARE

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

EMI/RFI PROTECTION

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.
The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter requirements.
EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

0624263	Electrical System, Dash CF	**ELECTRICAL** All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment will be installed utilizing the following guidelines: All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug). All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area. All electrical terminals in exposed areas will have silicon (1890) applied completely over the metal portion of the terminal. All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments. An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests will be recorded and provided to the purchaser at time of delivery.
0665713	Batteries, (4) Interstate Grp 31, 950 CCA ea, Threaded Stud	**BATTERY SYSTEM** There will be four (4) 12 volt, Interstate, group 31 batteries that include the following features provided: 950 CCA (cold cranking amps) 170 reserve capacity High cycle Maintenance free Rating of 4750 CCA at 0 degrees Fahrenheit 195 minutes of reserve capacity Threaded stud
0008621	Battery System, Single Start, All Custom Chassis	**BATTERY SYSTEM** There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel. **MASTER BATTERY SWITCH** 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.
0696026	Battery Compartment, Dash CF	**BATTERY COMPARTMENTS** Batteries will be stored in a well-ventilated location under the cab, between the chassis frame rails, ahead of the front wheels. The battery compartments will be constructed of 3/16" steel plate and be designed to accommodate a maximum of six (6) group 31 batteries in each compartment. The battery hold-downs will be of a non-corrosive material. All bolts and nuts will be stainless steel. Heavy-duty battery cables will be used to provide maximum power to the electrical system. Cables will be color-coded. Battery terminal connections will be coated with anti-corrosion compound. Battery solenoid terminal connections will be encapsulated with semi-permanent rubberized compound. **JUMPER STUDS** One (1) set of battery jumper studs with plastic color-coded covers will be remotely located at the front left side corner of the cab for easy jumper cable access.
0531338	Charger, Sngl Sys, Kussmaul, Pump Plus 1200, 52-21-1100	**BATTERY CHARGER/ AIR COMPRESSOR** There will be a Kussmaul™ Pump Plus 1200, Model # 52-21-1100, single output battery charger/air compressor system will be provided. A display bar graph indicating the state of charge will be included. The automatic charger will maintain one (1) set of batteries with a maximum output current of 40 amps. The 12-volt air compressor will be installed to maintain the air system pressure when the vehicle is not in use. There will be an auto pump timer installed between the pressure switch and the pump that will allow the pump to run for one hour than shut down for one hour. The battery charger will be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

0650473		Location, Charger/Compr, Behind Driver's Seat, w/Cover AXT, Dash PUC	Battery charger/compressor will be located behind the driver's seat, with a cover painted to match the cab interior. The battery charger and air compressor will include quick disconnects for the wire and air hose. The disconnects will help to remove the items to gain access to the electrical distribution compartment.
0536099		Location, Bat Chrg Ind, Driver's Step Area	The battery charger indicator will be located in the driver's step area.
0771730	SP	Shoreline, 20A 120V, Blue Sea Sure Eject, w/Cover Color Feature	**SHORELINE INLET** There will be one (1) Blue Sea Sure Eject™, 20 amp 120 volt AC shoreline inlet, provided to operate the dedicated 120 volt AC circuits on the apparatus. The shoreline will be connected to battery charger. The shoreline inlet cover color to be red. The connector body will be released from the inlet when the apparatus engine start button is activated. There will be a mating connector body supplied with the loose equipment. There will be a label installed near the inlet(s) that state the following: Line Voltage Current Ratting (amps) Phase Frequency
0026800		Shoreline Location	The shoreline receptacle will be located on the driver side of cab, above wheel.
0760950	SP	Shoreline Inlet, 20A 120V Blue Sea Sure Eject 7851	**SHORELINE INLET** There will be one (1) Blue Sea Sure Eject™ part number 7851, 20 amp 120 volt AC shoreline inlet provided to operate the dedicated 120 volt AC circuits on the apparatus. The shoreline will be next to other shoreline inlet. The shoreline will be connected to Aux AC. The shoreline inlet cover color to be blue. The connector body will be released from the inlet when the apparatus engine start button is activated. There will be a mating connector body supplied with the loose equipment. There will be a label installed near the inlet(s) that state the following: Line Voltage Current Ratting (amps) Phase Frequency
0036802		Sub Feed Breaker Box Cutler Hammer, For Shoreline	**SUB FEED CIRCUIT BREAKER BOX (shoreline)** 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 with CB panel . 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.
0783395		Transfer Switch, Generator to Shoreline 30 Amp and Under	**GENERATOR TO SHORELINE TRANSFER SWITCH** There will be an automatic transfer switch between the onboard generator and the shoreline inlet. The loads connected to the transfer switch will be power from the onboard generator when the generator is running.
0590797		Cover, Protection Over Air Compressor, Painted Smooth Aluminum	**BATTERY CHARGER AIR COMPRESSOR COVER** A removable cover will be fabricated and installed over the air compressor for protection. The cover will be made out of smooth aluminum and painted to match the cab interior.
0566294		Alternator, 430 amp, Niehoff C680-1	**ALTERNATOR** A C.E. Niehoff, model C680-1, alternator will be provided. It will have a rated output current of 430 amp as measured by SAE method J56. It will also have a custom three (3)-set point voltage regulator, manufactured by C. E. Niehoff. The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.
0682292		Windshield Wipers, Interlock To Park Brake	**WINDSHIELD WIPER CONTROL** The windshield wipers will cease operation when the parking brake is set.

0092582	Load Manager/Sequencer, MUX	**ELECTRONIC LOAD MANAGER** 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 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 **SEQUENCER** 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 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)
0783153	Headlights, Rect LED, JW Spkr Evo 2, AXT/DCF/Enf/Imp/Sab/Vel	**HEADLIGHTS** 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 headlight 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.
0648425	Light, Directional, Wln 600 Cmb, Cab Crn, Imp/Vel/AXT/Qtm/DCF	**DIRECTIONAL LIGHTS** 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 clear.
0648074	Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts	**CAB CLEARANCE/MARKER/ID LIGHTS** There will be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations: Three (3) amber LED identification lights will be installed in the center of the cab above the windshield. Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield. Two (2) amber LED marker lights will be installed, one (1) on each side above the cab doors.
0620054	Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	**INTERMEDIATE LIGHT** 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.

0511569	Lights, Clearance/Marker/ID, Rear, P25 LED 7Lts	**REAR CLEARANCE/MARKER/ID LIGHTING** There will be three (3) LED identification lights located at the rear installed 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) LED lights installed 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) LED lights installed on the side of the apparatus used 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 The lights will be mounted with no guard. There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground. There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground. Per FMVSS 108 and CMVSS 108 requirements.
0647929	Lights, Directional/Marker, Cab Front Side, Truck-Lite 19036YLED,AXT/EnfMUX/DCF	**FRONT CAB SIDE DIRECTIONAL/MARKER LIGHTS** There will be two (2) Truck-Lite®, Model 19036Y, amber LED lights installed to the outside of the chrome wrap around bezel, one (1) on each side of the cab. The lights will activate as marker lights with the headlight switch and directional lights with the corresponding directional circuit.
0514453	Light, Marker End Outline, Rubber Arm, LED Marker Lamp	**MARKER LIGHTS** There will be one (1) pair of amber and red LED marker lights with rubber arm, located rear corner. The amber lens will face the front and the red lens will face the rear of the truck. These lights will be activated with the running lights of the vehicle.
0564683	Lights, Tail, Wln M6BTT* Red LED Stop/Tail & M6T* Amber LED Dir Arw For Hsg	**REAR FMVSS LIGHTING** The rear stop/tail and directional LED lighting will consist of the following: Two (2) Whelen®, Model M6BTT, red LED stop/tail lights Two (2) Whelen, Model M6T, amber LED arrow turn lights The lights shall be provided with color lenses. The lights will be mounted in a polished combination housing.
0561471	Lights, Backup, Wln M6BUW, LED, For Tail Lt Housing	There will be two (2) Whelen Model M6BUW, LED backup lights provided in the tail light housing.
0664481	Bracket, License Plate & Light, P25 LED	**LICENSE PLATE BRACKET** There will be one (1) license plate bracket mounted on the rear of the body. A white LED light will illuminate the license plate. A polished stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.
0556842	Bezels, Wln, (2) M6 Chrome Pierce, For mtg (4) Wln M6 lights	**LIGHTING BEZEL** There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.
0081564	Alarm, Back-Up Warning, ECCO 505, 87db Constant	**BACK-UP ALARM** An ECCO model 505, solid state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute at a constant 87db.
0769569	Lights, Perimeter Cab, Amdor AY-LB-12HW012 LED 4Dr	**CAB PERIMETER SCENE LIGHTS** There will be four (4) Amdor, Model AY-LB-12HW012, 190 lumens each, 12.00" white LED strip lights provided. One (1) under the driver's side cab access step. One (1) under the passenger's side cab access step. One (1) under the passenger's side crew cab access step. One (1) under the driver's side crew cab access step. The lights will be activated when the battery switch is on and the respective door is open and whenever control has been selected for the body perimeter lights.

0769559	Lights, Perimeter Pump House, Amdor AY-LB-12HW012 LED 2lts	**PUMP HOUSE PERIMETER LIGHTS** There will be two (2) Amdor, Model AY-LB-12HW012, 190 lumens each, 12.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, centered front to rear as much as possible, one (1) each side. The lights will be activated when the battery switch is on, and controlled by the same means as the body perimeter lights.
0769560	Lights, Perimeter Body, Amdor AY-LB-12HW012 LED 2lts, Rear Step	**BODY PERIMETER SCENE LIGHTS** There will be two (2) Amdor, Model AY-LB-12HW012, 190 lumens each, 12.00" 12 volt DC LED strip lights provided at the rear step area of the body, one (1) each side shining to the rear. The perimeter scene lights will be activated when the parking brake is applied.
0554185	Lights, Step, P25 LED, Aerial With Pump, Aerial Master	**STEP LIGHTS** Two (2) white LED step lights will be provided on the aerial body. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light. The step lights will be actuated by the aerial master switch in the cab. All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.
0598967	Lights, Side Scene, FRC SPA900-Q70 Surface Mt, 1st	**SCENE LIGHTS** There will be two (2) Fire Research, Model SPA900-Q70 scene light(s) with chrome flange(s) installed on the side of the apparatus, one each side rear of truck as high as possible. 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 rear of apparatus on the passenger's side no additional switch location no additional switch location These lights may be load managed when the parking brake is set.
0586888	Bracket, Alum. Trdplate, 12V Recessed Flood Lights, Compt Top, Each	**12 VOLT LIGHT BRACKET** There will be two (2) aluminum treadplate bracket(s) installed one each side on top of body compartment, forward for the recessed flood light. The bracket(s) will have all wiring totally enclosed.
0629191	Light, FRC, 12V SPA260-Q20* LED MAX, Surface Mount 2nd	**12 VOLT LIGHTING** There will be one (1) Fire Research Spectra Max, Model SPA260-Q20, 12 volt LED surface mounted scene light(s) with chrome bezel(s) provided One forward on body PS as shown on drawing. The light(s) will be controlled in the following way: a switch at the driver's side switch panel a switch at the pump operator's panel a switch at the passenger's side switch panel no additional switch location The light(s) may be load managed when the parking brake is applied.
0629192	Light, FRC, 12V SPA260-Q20* LED MAX, Surface Mount 1st	**12 VOLT LIGHTING** There will be one (1) Fire Research Spectra Max, Model SPA260-Q20, 12 volt LED surface mounted scene light(s) with chrome bezel(s) provided One forward on body as on drawing DS. The light(s) will be controlled in the following way: a switch at the driver's side switch panel a switch at the pump operator's panel a switch at the passenger's side switch panel no additional switch location The light(s) may be load managed when the parking brake is applied.
0629418	Light, FRC, 12V SPA570-Q28* LED MAX, Fixed Top Mount 2nd	**12 VOLT LIGHTING** There will be one (1) Fire Research Spectra Max, Model SPA570-Q28, 12 volt DC LED floodlight (s) with a fixed top mount pedestals provided and located, PS turntable. The painted parts of this light assembly to be white with a chrome bezel. The light(s) will be controlled in the following way: from the passenger's side body scene light option control no additional switch location no additional switch location no additional switch location These lights may be load managed when the parking brake is applied.

0629421	Light, FRC, 12V SPA570-Q28* LED MAX, Fixed Top Mount 1st	**12 VOLT LIGHTING** There will be one (1) Fire Research Spectra Max, Model SPA570-Q28, 12 volt DC LED floodlight (s) with a fixed top mount pedestals provided and located, DS turntable. The painted parts of this light assembly to be white with a chrome bezel. The light(s) will be controlled in the following way: from the driver's side body scene light option control no additional switch location no additional switch location no additional switch location These lights may be load managed when the parking brake is applied.
0618256	Light, Visor, FRC, 12V SPA851-A28-*, LED MAX-S 1st	**12 VOLT LIGHTING** There will be two (2) Fire Research Spectra MAX-S, Model SPA851-A28-*, 12 volt DC LED combination spot/flood light(s) provided on the front visor, one (1) on the driver's side and one (1) on the passenger's side with 15 degree outward bracket. The housing(s) painted parts of this light assembly to be black with a chrome bezel. The light(s) will be steady burning with the selected switch features. The light(s) will be controlled by the following: a switch at the driver's side switch panel a switch at the passenger's side switch panel no additional switch location no additional switch location These light(s) may be load managed when the parking brake is applied.
0645639	Lights, Rear Scene, Wln, PELCC LED, 45 Deg Flange	**REAR SCENE LIGHTS** There will be two (2) Whelen, Model PELCC, white 12 volt DC LED scene lights with 45 degree chrome housing installed at the rear of the apparatus, one each side under the FRC rear lights. The lights will be controlled by a switch in a stainless steel cup located at the rear of the apparatus no more than 72.00" from the ground.
0565198	Not Required, Deck Lights, Other Hose Bed & Rear Lighting, Aerial	
0645868	Lights, Hose Bed, Sides, FRC LED115-Q01 LED, 2" Light, 4lts	**HOSE BED LIGHTS** There will be four (4) Fire Research, Model LED115-Q01, 2.00" white 12 volt DC LED lights provided to illuminate the hose bed area. One (1) light will be installed on the driver's side of the hose bed 24.00" from the front and as high as practical. One (1) light will be installed on the passenger's side of the hose bed, as high as practical and evenly spaced between both lights installed on the driver's side of the hose bed. One (1) light will be installed on the driver's side of the hose bed, as high as practical and evenly spaced between both lights installed on the passenger's side of the hose bed. One (1) light will be installed on the passenger's side of the hose bed 36.00" from the end and as high as practical. This light will also be angled into the hose bed 30 degrees to keep much of the light from shining into ground personals eyes. The lights will be activated by a cup switch at the rear of the apparatus no more than 72.00" from the ground.
0795854	Lights, Walk Surf, P25 LED, Cargo Area, Overall Height Restrictions	**WALKING SURFACE LIGHT** There will be three (3) Model P25 12 volt DC LED lights provided, in lieu of the standard lights, to illuminate the entire cargo area. These LED lights will be located on the surface of the front body side sheet to illuminate the cargo area. These lights will be activated when the body step lights are on. **NOTE:** These lights are used in lieu of the standard lights, due to an overall height restriction, with the body side sheets being the highest point of the apparatus.
0638667	Aerial, HD Ladder, 75' HAL PUC, Dash CF, Quint, Alum Body	
0554271	Body Skirt Height, 20"	

0527465		Tank, Water, 500 Gallon, Poly, 75' HAL, PUC	**WATER TANK** The water tank will have a capacity of 500 gallons and shall be constructed of polypropylene plastic in a rectangular shape. The joints and seams will be nitrogen welded inside and out. The tank will be baffled in accordance with the current edition of NFPA 1901 requirements. The baffles will have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments. The longitudinal partitions will be constructed of .38" polypropylene plastic and extend from the bottom of the tank through the top cover to allow positive welding. The transverse partitions extend from 4" off the bottom to the underside of the top cover. All partitions interlock and will be welded to the tank bottom and sides. The 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. It will be supported to keep it rigid during fast filling conditions. Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes. A sump will be provided at the bottom of the water tank. The sump will include a drain plug and the tank outlet. Tank will be installed in a fabricated "cradle" assembly constructed of aluminum. Sufficient crossmembers are provided to properly support bottom of tank. Crossmembers are constructed of aluminum channel. Tank "floats" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on. Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle. Tank mounting system is approved by the manufacturer.
0003405		Overflow, 4.00" Water Tank, Poly	Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long. Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover. An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.
0028107		Not Required, Foam Cell Modification	
0553729		Not Required, Restraint, Water Tank, Heavy Duty	
0003429		Not Required, Direct Tank Fill	
0631999	SP	Hose Bed, Alum, LS/RS Raised, 75' HAL	**HOSE BED** The hose bed will be fabricated of .125" 5052-H32 aluminum with a tensile strength range of 31,000 to 38,000 psi. The sides of the hose bed will not form any portion of the fender compartments. The upper and rear edges of the hose bed side panels will have a double break for rigidity. The hose bed will be located ahead of the ladder turntable. There will be two (2) hose chutes to the rear of the hose bed, on the left and right sides, to allow for payout/removal of the hose. The hose bed flooring will consist of removable aluminum grating with a top surface that is perforated to aid in hose aeration.
0003492		Hose Bed Capacity, Special Amount, Ascendant, 100' AAT, PAP, PAL	Hose capacity will be a minimum of 800' of 5" on RS, 300' of 3" on LS inboard and 250' of 2.5" on LS outboard for preconnect through hosebed.
0073494		Not Required, Divider, Hose Bed	
0009898		Divider, Adjustable, In Hose Bed, PAL/PAP	**ADDITIONAL HOSE BED DIVIDER** An additional adjustable divider will be provided in the hose bed. The divider will be fastened to the tracks at the front and rear of the hose bed.
0604069		Hose Restraint, Two (2) Hose Beds, Aerial, Front Strap, 1" Heavy Nylon Web Rear	**AERIAL HOSE BED HOSE RESTRAINT** The hose in the hose beds will be restrained by black nylon Velcro® straps at the top of the hose bed and 1.00" black nylon web design with a 2.00" box pattern at the rear of the hose beds. The Velcro strap will be installed to the top of the hose bed side sheets. The rear webbing will have 1.00" web straps that loop through footman loops and fasten with spring clip and hook fasteners.
0591017		Hose Restraint, Hose Bed, Aerial, Front Velcro Strap, Top	**AERIAL HOSE BED HOSE RESTRAINT** The hose in the hose bed will be restrained by one (1) black nylon Velcro® strap at the top of the hose bed. The strap will be installed to the top of the hose bed side sheets.

0582727	Divider, Adj., Hose Bed, Unpainted, .25", 75' HAL	There will be one (1) hose bed divider(s) will be furnished for separating hose. Partition construction will consist of a .25" aluminum sheet. The divider will be unpainted. The partition will be fully adjustable by sliding in tracks. The divider will be held in place by tightening four (2) bolts, one (1) at each end. Acorn nuts will be installed on all bolts in the hose bed which have exposed threads.
0670766	Running Boards, Flip Out, PUC, Aerial	**RUNNING BOARDS** A running board will be provided on each side of the front body to allow access to the backboard/crosslay storage area. The running boards will be designed with a grip pattern punched into .125" bright aluminum treadplate material providing support, slip resistance, and drainage. The runningboard will have a flip out section design that allows easier access to the full width equipment area above. The flip out section will be tied to the "do not move truck indicator" with a sensor when it is flipped out. There will be a latch provided that secures the flip out section when not in use. **HANDRAILS** The handrails will be 1.25" diameter anodized aluminum extrusion, with a ribbed design, 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. - Two (2) handrails will be provided, one above each running board.
0545671	Turntable Steps-Morton Cass, Swing-Down & Pull Out, Narrow, Rear Only, 75' HAL	**TURNTABLE STEPS** Access to the turntable will be provided by a set of steps. The access steps will be located at the center rear of the unit. All steps will have a height no greater than 17.00" from top surface to top surface. The steps will be constructed of bright aluminum treadplate with Morton Cass inserts. The bottom step will be a camper style pull out and have a step height not exceeding 24.00" from the ground to the top surface of the step at any time. Handrails will be provided for the access steps. The step in front of the rear compartment will swing up for access to the compartment and be able to be locked in an up or down position. This step will be connected to the "Do Not Move Truck" indicator.
0553980	Lights, Step (7), P25 LED, 75' HAL w/ Rear Access Steps	**STEP LIGHTS** There will be seven (7) white LED step lights provided for the aerial turntable access steps. One (1) light will be provided on either side of the steps leading to the aerial turntable, and one (1) light will be provided for the top flip up step. In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light. The step lights will be actuated by the aerial master switch in the cab.
0690022	Wall, Rear, Body Material, 75' HAL	**75' HAL QUINT REAR WALL - BODY MATERIAL** The rear wall will be smooth and the same material as the body. The center section as well as any inboard facing surfaces of the rear wall will be aluminum treadplate.
0074515	Tow Eyes (2), Ascendant 100' Aerial Tower, Ascendant Single Axle, 75' HAL	**TOW EYES** Two (2) rear painted tow eyes will be located at the rear of the apparatus and will be mounted directly to the frame rails. The inner and outer edges of the tow eyes will be radiused.

0064523		Construction, Compt, Alum, 3rd Gen, 75' HAL	**COMPARTMENTATION** Compartmentation will be fabricated of .125" 5052 aluminum. Side compartments will be an integral assembly with the rear fenders. Circular fender liners will be provided. For prevention of rust pockets and ease of maintenance, the fender liners will be formed from aluminum and removable for maintenance. Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip. Drip protection will be provided above the doors by means of bright aluminum extrusion, formed bright aluminum treadplate or polished stainless steel. The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, rear and outward side. These covers will have the corners welded. Side compartment covers will be separate from the compartment tops. All screws and bolts, which are not Grade 8, will be stainless steel and where they protrude into a compartment will have acorn nuts on the ends to prevent injury. **UNDERBODY SUPPORT SYSTEM** Due to the severe loading requirements of this aerial, a method of body and compartment support suitable for the intended load will be provided. The backbone of the body support system will begin with the chassis frame rails, which is the strongest component of the chassis and is designed for sustaining maximum loads. The support system will include lateral frame rail extensions that are formed from .25" 80k steel and bolted to the chassis frame rails with .625" diameter Grade 8 bolts. The vertical and horizontal members of the frame rail extensions are to be reinforced with welded gussets and extend to the outside edge of the body. An aluminum body structure will be mounted on the top of these supports to create a floating substructure which will result in an 800 lb equipment support rating per lower compartment and provide up to .31" accumulative floor thickness. The floating substructure will be separated from the lateral frame extensions with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body. The isolators will have a broad load range, proven viability in vehicular applications, be of a fail-safe design and allow for all necessary movement in three (3) transitional and rotational modes. **AGGRESSIVE WALKING SURFACE** All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards. **LOUVERS** All body compartments will be vented to provide one (1) way airflow out of the compartment that prevents water and dirt from gaining access to the compartment. **TESTING OF BODY DESIGN** Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, and strain gauging have been performed with special attention given to fatigue, life and structural integrity of the body and substructure. The body will be tested while loaded to its greatest in-service weight. The criteria used during the testing procedure will include: - Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb. - Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions. - Driving the vehicle on at 35 mph on a washboard road. - Driving the vehicle at 55 mph on a smooth road. - Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement. Evidence of the actual testing techniques will be made available upon request.
0745084	SP	Compt, LS F/H, One (1) Compt, Roll Drs, High Hose Bed, 75' HAL	**LEFT SIDE COMPARTMENTATION** The full height roll-up door compartment ahead of the rear wheels will be 61.50" wide x 64.00" high x 26.00" deep inside the lower 24.37" and 12.00" deep inside the upper portion with a clear door opening of 58.75" wide x 57.00" high. There will be one (1) roll-up door compartment above the wheelwell and stabilizer. The compartment will be 81.00" wide x 25.25" high x 12.00" deep inside with a clear door opening of 72.00" wide x 19.75" high. All compartments will include a drip pan below the roll of the door.
0686606	SP	Compt, LS Turntable, F/H, Roll Dr, High Hosebed DS, 75' HAL	The full height roll-up door compartment behind the stabilizer will be approximately 47.00" wide x 57.00" high x 26.00" deep inside the lower 25.50" and 12.00" deep in the upper portion with a clear door opening of approximately 44.25" wide x 50.00" high. The compartment will include a drip pan below the roll of the door.
0095090		Compt, RS F/H, Roll Drs, 75' HAL	**RIGHT SIDE COMPARTMENTATION** The full height roll-up door compartment ahead of the rear wheels will be 61.50" wide x 64.00" high x 26.00" deep inside the lower 25.50" and 12.00" deep inside the upper portion with a clear door opening of 58.75" wide x 57.00" high. There will be two (2) roll-up door compartments above the wheelwell and stabilizer. Each compartment will be 40.50" wide x 25.25" high x 12.00" deep inside with a clear door opening of 37.75" wide x 19.75" high. There will be no partition between these compartments. All compartments will include a drip pan below the roll of the door.
0095093		Compt, RS Turntable, F/H, Roll Dr, 75' HAL	The full height roll-up door compartment behind the stabilizer will be 47.00" wide x 57.00" high x 26.00" deep inside the lower 25.50" and 12.00" deep in the upper portion with a clear door opening of 44.25" wide x 50.00" high. The compartment will include a drip pan below the roll of the door.

0592243	Compt, Rear, Amdor Rollup Door, Narrow, 75' HAL	**REAR COMPARTMENT** A compartment will be provided at the rear of the unit. Compartment will be 30.00" wide x 26.75" high x 14.00" deep with a clear door opening of 24.00" wide x 25.75" high. The compartment will be furnished with a roll-up door that is satin aluminum.
0594012	Doors, Amdor, Rollup, Side Compartments	**SIDE COMPARTMENT ROLL-UP DOORS** There will be eight (8) compartment doors installed on the side compartments, double faced, aluminum construction, satin aluminum and manufactured by AMDOR™ brand roll-up doors. Door(s) will be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats will be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain will be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement. Each slat will incorporate weather tight recessed dual durometer seals. One (1) fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingression. The doors will be mounted in a one (1)-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials. Bottom panel flange of roll-up door will be equipped with two (2) cut-outs to allow for easier access with gloved hands. A stainless steel lift bar to be provided for opening the door and located at the bottom of each door with latches on the outer extrusion of the door frame. A ledge to be supplied over lift bar for additional area to aid in closing the door. The lift bar will be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals. All injection molded roll-up door wear components will be constructed of Type 6 nylon. Each roll-up door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door. The header for the roll-up door assembly will not exceed 4.00". A heavy-duty magnetic switch will be used for control of open compartment door warning lights.
0502277	Bumper, Rear, Aluminum Rub Rail, 75' HAL	**REAR BUMPER** An aluminum rubrail will be provided at the rear of the unit. It will extend the full width of the compartments.
0689549	Lights, Compt, Pierce LED, Dual Light Strips, Each Side of Door	**COMPARTMENT LIGHTING** There will be eight (8) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in compartment(s): all side compartment doors. 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. Opening the compartment door will automatically turn the compartment lighting on.
0655467	Lights, Compt, Pierce, LED Light Strip, 9" IPOS	**ADDITIONAL COMPARTMENT LIGHTING** There will be two (2) 9.00" white 12 volt DC LED strip light(s) provided in the in the crosslay compartments across the top horizontal compartment(s). Opening the compartment door(s) will automatically turn the compartment lighting on.
0562348	Fasteners, Mechanical, Strip Lighting In Compartments	**COMPARTMENT LIGHTING** Metal clamps will be used to retain the strip lighting in all body compartments.
0687145	Shelf Tracks, Recessed, PUC/3rd Generation	**MOUNTING TRACKS** There will be recessed tracks installed vertically to support the adjustable shelf(s). Tracks will not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible. The tracks will be provided in each compartment except for the one that contains the pump operator's panel.
0600289	Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations, Aerial	**ADJUSTABLE SHELVES** There will be seven (7) shelves with a capacity of 500 lb provided. The shelf construction will consist of .188" aluminum with a brushed finish with 2.00" sides. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track. The shelves will be held in place by .12" thick stamped plated brackets and bolts. The location(s) will be in LS1 at the depth transition point, in RS1 at the transition point, in RS3 at the transition point, in RS4 in the upper third, in RS1 in the upper third, in LS2 centered between the floor and ceiling to right of the partition and in LS3 at the depth transition point.

0619512		Shelves, Adjustable, Full Width/Depth, Low/Special Side Height, 3G	**ADJUSTABLE SHELVES** There will be one (1) shelf provided in RS 4 centered between floor and ceiling. The shelf construction will consist of .188" aluminum with a brushed finish. A capacity rating will not be available on this tray due to a reduced side height being less than 2.00". Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track. The shelves will be held in place by .12" thick stamped plated brackets and bolts. The side height of the shelf/shelves will be as follows: Front: 1.00" down-turned flange Rear: 2.00" high Left & Right Sides: 2.00" high
0709690		Tray, 250 lb Slide-out, 2" Sides - Adj. Height, Predefined Locations	**SLIDE-OUT ADJUSTABLE HEIGHT TRAY** There will be one (1) slide-out tray provided. Each tray will have 2.00" high sides and a minimum capacity rating of 250 lb in the extended position. Each tray will be constructed of aluminum with a brushed finish. Each tray will be mounted on a pair of side mounted slides. The slide mechanisms will have ball bearings for ease of operation and years of dependable service. The slides will be mounted to shelf tracks to allow the tray to be adjustable up and down within the designated mounting location. An automatic lock will be provided for both the in and out tray positions. The lock trip mechanism will be located at the front of the tray and will be easily operated with a gloved hand. The location(s) will be in RS3 in the lower third
0647043		Tray, Floor Mounted, Slide-Out, Full Width/Full Depth, 500lb, 2.00" Sides, 3G	**SLIDE-OUT FLOOR MOUNTED TRAY** There will be four (4) floor mounted slide-out tray(s) with 2.00" sides provided RS1, RS4, LS1, LS3. Each tray will be rated for up to 500lb in the extended position. The tray(s) will be constructed of .19" aluminum with non-welded corners. The finish will be with a brushed finish. The trays will be designed for maximum compartment width and depth. There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2. To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117. To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request. Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.
0650435		Toolboard, Swing-Out, Alum, .188", No Holes, 3G	**SWING OUT TOOLBOARD** A swing out aluminum toolboard will be provided. It will be a minimum of .188" thick with a 1.00" x 1.00" aluminum tube frame welded around the edge. The board will be mounted on a pivoting device at the front 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. The board will have positive lock in the stowed and extended position. The board will be mounted on adjustable tracks from front to back within the compartment. There will be One (1) toolboard(s) provided. The toolboard(s) will be with a dual action finish and installed RS2 forward of partition, 46" long tool board.
0635915		Mounting Plate, 3/16" Alum	**MOUNTING PLATE** A quantity of three (3) 3/16" thick aluminum mounting plate(s) will be provided. The aluminum plate(s) will be brushed. The plate(s) will be to fit the entire area listed n the back walls of the compartments in size and mounted the entire back wall of RS2 and the upper portion of RS3 and LS3 .
0670653		Little Giant Ladder Storage, Model 17', In Compt, Horizontal, Location	**LITTLE GIANT LADDER STORAGE** Storage will be provided in RS3 compartment for a 17' Little Giant ladder. The ladder will be horizontal on the floor. There will be two (2) "L" brackets one (1) each end of the ladder, dura surf slides under the ladder, and a velcro strap to aid in restraint and removal of the Little Giant ladder. A shelf will be provided directly above the ladder.
0000000	STF	tool holder, Plastic, Siddons-Martin	**COMPARTMENT GRATING** UPF non-recycled plastic grating will be provided in ten (10) compartments. The locations are, TBD. Grating slats will have spacing provided for aeration.
0768345	SP	Holder, Plastic Sheeting, 1.25" Dia S/S Rod, Pin Lock	**PLASTIC SHEETING HOLDER** A 1.25" diameter stainless steel tube connected on each end to a stanchion will be provided for a roll of plastic sheeting. The holder will be mounted in compartment D2. The stanchions will be set up so that the rod will be removable by pulling a pin. A quantity of one (1) will be provided.

0744965	SP	Hopper, Oil Dry, Compartment, Special Configuration, Door Hinge Location, Aerial	**OIL DRY HOPPER** There will be an oil dry hopper installed in the RS front compartment compartment and be configured vertical. A door will be provided on the top of the oil dry bin to allow refilling of the bin. The hinge for the door will be located on the top. The bin will be sized for storage of 100 lbs or 16.9 gallons (3900 cu in.) of clay-based oil dry absorbent material. The hopper will have a hand valve on the bottom to control the release of the material. The absorbent material will be discharged through a flip down chute below the valve in the compartment.
0096116		Partition, Vertical Compartment, Special Height	**VERTICAL COMPARTMENT PARTITION** One (1) partition will be bolted in RS2 mounted so that the 46" swing out tool board can close with the proper hardware. Each partition will be the 14" tall to allow for a long handled tool to pass above it when mounted off the back wall vertical height of the compartment. Each partition will be brushed.
0600281		Partition, Vertical Compartment, Predefined Locations	**VERTICAL COMPARTMENT PARTITION** One (1) partition will be provided. The partition construction will consist of .125" aluminum with a brushed finish. Each partition will be the full vertical height of the compartment. The location(s) will be in LS2, 46.00" from the forward door frame.
0050308		Rear of Body, Smooth Aluminum Sheet	**REAR WALL** The entire rear surface of the apparatus and all the doors will be covered with smooth aluminum.
0061917		Rub Rail, Aluminum Extruded, 3.12", Side of Body	**RUB RAIL** Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail. Trim will be 3.12" high with 1.50" 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.
0565606		Fender Crowns, Rear, S/S, w/Removable Fender Liner, Aerial, 3rd Gen	**BODY FENDER CROWNS** Polished stainless steel fender crowns will be provided around the rear wheel openings. An unpainted fender liner will be provided to avoid paint chipping. The liners will be removable to aid in the maintenance of rear suspension components. A dielectric barrier will be provided between the fender crown fasteners (screws) 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.
0519849		Not Required, Hose, Hard Suction	**HARD SUCTION HOSE** Hard suction hose will not be required.
0527021		Handrails Located @ Front Body	**HANDRAILS** The handrails will be 1.25" diameter anodized aluminum extrusion, with a ribbed design, 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 located on the front of the body in positions needed to meet NFPA requirements.
0790215		Compt, Air Bottle, Dbl, in Fender Panel, Alum, 75' HAL, Non-TCO Body	**AIR BOTTLE STORAGE** A total of three (3) air bottle compartments will be provided and located on the left side behind the rear wheel, on the right side ahead of the rear wheel and on the right side behind the rear wheel. The air bottle compartment will be 14.00" wide x 7.50" tall x 26.00" deep. A polished stainless steel door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal. Inside the compartment, black rubber matting will be provided.
0004220		Ladder, 35' Duo-Safety 1225-A 3-Sect	**EXTENSION LADDER** There will be a 35' three (3) section aluminum Duo-Safety Series 1225-A extension ladder provided.
0602920		Extension Ladder, Provided by Fire Department, Quint NFPA 2016 Classification	**AERIAL EXTENSION LADDERS PROVIDED BY FIRE DEPARTMENT** NFPA 1901, 2016 edition, section 9.8.1.1 requires one (1) extension ladder. The extension ladder is not on the apparatus as manufactured. There will be one (1) extension ladder(s) provided and installed by the fire department. The ladder(s) will be a 28' Duo-Safety 1200-A, two (2)-section.

0595251		Ladder, 16' Duo-Safety 875-DR Roof, Hooks Both Ends	**ROOF LADDER** There will be one (1) 16' aluminum, Duo-Safety, Series 875-DR roof ladder(s) provided. The ladder(s) will have hooks on both ends.
0645444		Ladder, 12' Duo-Safety 775-DR Roof	**ADDED ROOF LADDER** There will be one (1) 12' aluminum roof ladder, Series 775-DR provided.
0013558		Ladder, 12' Duo-Safety Fresno 701	**AERIAL ATTIC EXTENSION LADDER** There will be one (1) 12' Fresno, aluminum, Duo-Safety, Series 701 extension ladder(s) provided and located LS ladder storage.
0600819		Ladder, 10' Duo-Safety Folding, 585A, Ascendant Single Axle, 75' HAL	**AERIAL FOLDING LADDER** There will be one (1) 10' aluminum Duo-Safety Series 585-A folding ladder(s) provided and located in the ladder storage compartment.
0621754	SP	Ladders Stored at Rear, 75' HAL, Special Increased LS Height, Smooth Aluminum Dr	**GROUND LADDER STORAGE** Ladder tunnels will be provided at the rear of the apparatus on either side of the turntable. The left side ladder tunnel will be increased in height to hold one (1) 28' 2-section ladder and two (2) roof ladders. The right side will hold one (1) 35' 3-section ladder and one (1) folding ladder. The ladders will be held captive top and bottom by stainless steel tracks. A polyethylene wear plate will be provided to prevent ladders from being scuffed by contacting metal parts. The plate will be mounted to the bottom of the entrance area of the ladder tunnel. All ladders will be removable individually without having to remove any other ladder. A Velcro® strap will be provided to help contain the ladders. A smooth aluminum door will be provided on each ladder tunnel.
0600674		Lights, Torque Box Ladder Storage, Not Required, Ascendant Single, 75' HAL	
0793652		Ladder, Little Giant, Velocity - Model 13, 15413-001	**ADDITIONAL FOLDING LADDER** One (1) aluminum Little Giant Velocity - Model 13 folding ladder will be provided. The stored dimensions will be 42.00" high x 24.00" wide x 8.00" deep. The weight will be 25 lb. The ladder will be located on the floor of RS3
0024245		Trough, Mounting Folding Ladder	**FOLDING LADDER TROUGH** A stainless steel trough will be provided for mounting the folding ladder.
0008911		Pike Pole, 12' Fire Hooks Unlimited, Fiberglass, APH-12, Gas Shut Off	**PIKE POLES** There will be one (1) Fire Hooks Unlimited, Model APH-12, 12' pike pole(s) with fiberglass handles provided. The pike pole(s) will be located in LS ladder storage.
0567897		Pike Pole, 8' Fire Hooks Unlimited, New York Roof Hook, Steel, Pry End, RH-8	**8' PIKE POLE** There will be two (2) Fire Hooks Unlimited, New York Hook , 8' long roof hook with steel shaft and chisel (pry) end provided. The poles will be located in ladder storage area LS.
0552649		Pike Pole, 6' Fire Hooks Unlimited, New York Roof Hook, Steel, Pry End, RH-6	**6 FT PIKE POLE** There will be two (2) Fire Hooks Unlimited NY roof hook RH-6, 6 foot pike pole(s) with steel handles and pry end provided one each side of crew cab.
0014343		Not Required, Pike Pole, 3'	
0024891		Pike Pole, 10' Fire Hooks Unlimited, New Yorker, Fiberglass, NYFG-10, Ram Knob	**10' PIKE POLE** There will be one (1) 10' long pike pole(s), Fire Hooks Unlimited NYFG-10, with fiberglass handles provided.
0770578		Pike Pole Tubes, in Torque Box/Ladder Storage, ABS	**PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE** There will be ABS tubing provided in the torque box/ladder storage area for a total of four (4) pike poles. If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.

0530099	Notch, Pike Pole Tube, Specify Size (Pike Pole(s) Not Included)	**PIKE POLE TUBE** There will be four (4) pike pole tube(s) mounted the four tubes in the ladder storage notched at the end. The notch will be 4.
0024388	No Steps Required, Front Of Body	
0692213	Pump, Pierce, 1500 GPM, Single Stage, Dash CF PUC	**PUMP** Pump will be a Pierce, low profile, 1500 gpm single stage midship mounted centrifugal type, mounted below the cab. The pump will have a 15 percent reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio will not be less than 1.5:1. The pump casing will consist of three (3) discharge outlets, one (1) to each side in line with the impeller and one (1) to the rear. The pump casing will incorporate two (2) water strippers to maintain radial balance. Pump will be the Class A type. Pump will be certified to deliver the percentage of rated discharge from draft at pressure indicated below: - 100 percent of rated capacity at 150 psi net pump pressure - 70 percent of rated capacity at 200 psi net pump pressure - 50 percent of rated capacity at 250 psi net pump pressure The pump will have the capacity to deliver the percentage of rated discharge from a pressurized source as indicated below: - 135 percent of rated capacity at 100 psi net pump pressure from a 5 psi source Pump body will be fine-grained gray iron. Pump will incorporate a heater/cooling jacket integral to the pump housing. The impeller will be high strength vacuum cast bronze alloy accurately machine balanced and splined to a 10 spline stainless steel pump shaft for precision fit, exceptional durability, and efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design will help to minimize end thrust. The impeller will be a twisted vane design to create higher lift. The pump will include o-ring gaskets throughout the pump. Deep groove radial type oversize ball bearings will be provided. The bearings will be protected at the openings from road dirt and water with an oil seal and a water slinger. The pump will have a flat, patterned area on the top of the pump intake wye to allow standing for plumbing maintenance. The main inlet manifold will be 6.00" in diameter and will have a low profile design to facilitate low crosslays and high flows. For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case will be accessible from above the chassis frame by tilting the cab. The intake wyes will be removable without having to remove the main intake casting. Removal of the main inlet wyes will provide access to the impeller, mechanical seal, and wear ring. **PUMP MOUNTING** Pump will be mounted to the chassis frame rails directly below the crew cab, to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include two (2) central mounted isolators located between the frame rails, and one (1) on each side outside the frame rails. The mounting will allow chassis frame rails to flex independently without damage to the fire pump. Each isolator will be 2.55" in total outside diameter and will be rated at 490 lb. The pump will be completely accessible by tilting the cab with no piping located directly above the pump.
0515822	Seal, Mechanical, Silicon Carbide, PUC Pump	**MECHANICAL SEALS** Silicon carbide mechanical seals will be provided. The seals will be spring loaded and self-adjusting. The seals will have a minimum thermal conductivity of 126 W/m*K to run cooler. Seals will have a minimum hardness of 2800 kg/mm2 to be more resistant to wear, and have thermal expansion characteristics of no more than 4.0 X106mm/mm*K to be more resistant to thermal shock.
0515705	Gear Case, Pierce Pump, REPTO-Clutch Drive	**PUMP GEAR CASE** The pump gear case will be a pressure-lubricated to cool, lubricate, and filter the oil. The gear case will include an auxiliary PTO opening. The gear case will be constructed of lightweight aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A dipstick, accessible by tilting the cab, will be provided for easy fluid level checks. A filter screen will be provided for long life. The gear case will consist of two (2) gears to drive the pump impeller and one (1) for the auxiliary PTO. The auxiliary PTO opening will provide for the addition of PTO driven accessories. The pump will be driven through the rear engine power take-off and clutch. The rear engine power take-off drive will be live at all times to allow for pump and roll applications. Rear engine power take-off's allow for high horsepower and torque ratings needed for large pump applications, and is a proven drive system throughout the rugged construction industry. **CLUTCH** There will be a heavy-duty electric clutch mounted directly to the front of the pump to engage and disengage the pump without gear clash. The clutch will be a multiple disc design for maximum torque. The clutch will be fully self-adjusting to provide automatic wear compensation, and consistent torque throughout the life of the clutch. Positive engagement and disengagement will be provided through a high efficient and dependable magnetic system to assure superior performance. The clutch will have a 500 lb-ft rating. Clutch will be of a time-tested design used in critical military applications.

0521309	Pumping Mode, Pump and Roll/Stationary, Basic, PUC	**PUMPING MODE** Pump will provide for both pump and roll mode and stationary pumping mode. Stationary pumping mode will be accomplished by stopping the vehicle, setting the parking brake and engaging the water pump switch on the cab switch panel. The transmission will shift to "Neutral" range automatically when the parking brake is set. The "OK to Stationary Pump" indicator will also illuminate when the parking brake is set. If the vehicle is equipped with a foam system or CAFS system, these systems will be engaged from the cab switch panel as well. Pump and roll mode will be accomplished by the use of the main pump and will not require the use of a secondary pump. Pump and roll mode will use the same operation sequence as stationary pumping mode with a few additional steps. After the vehicle is setup for stationary pumping, the operator will leave the cab and set-up the pump panel to discharge at the desired outlet(s). Upon returning to the cab, the operator will disengage the parking brake. An "OK to Pump & Roll" indicator will illuminate on the cab switch panel. First gear on the transmission gear selector will be selected by the operator for pump and roll operations. The operator as needed will apply the foot throttle. Pump and roll mode will be maintained unless the transmission shifts out of first gear. Stopping either stationary pumping mode or pump and roll mode will be accomplished by pressing the "Water Pump" switch down to disengage the pump.
0515829	Pump Shift, Sure-Shift	**PUMP SHIFT** Pump will be engaged in not more than two steps, by simply setting the parking brake, which will automatically put the transmission into neutral, and activating a rocker switch in the cab. Switches in the cab will also allow for water, foam, or CAFS if equipped, and activate the appropriate system to preset parameters. The engagement will provide simple two-step operation, enhance reliability, and completely eliminate gear clash. The shift will include the indicator lights as mandated by NFPA. A direct override switch will be located behind a door in the lower pump operator's panel. The switch will automatically disengage when the door is closed. As the parking brake is applied, the pump panel throttle will be activated and deactivate the chassis foot throttle for stationary operation. Pump and roll operation will be available by releasing the parking brake with the pump in the pumping mode. Releasing the parking brake will activate the chassis foot throttle, and deactivate the pump panel throttle. To protect from accidental pump overheating, the pump will automatically disengage when the truck transmission shifts into second gear.
0515833	Transmission Lock-up, Not Req'd, Park to Neutral, Pump, PUC	**TRANSMISSION LOCK UP** Transmission lock up is not required as transmission will automatically shift to neutral as soon as the parking brake is set.
0515835	Auxiliary Cooling System, PUC	**AUXILIARY COOLING SYSTEM** 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. A water-to-coolant heat exchanger will be used.
0014486	Not Required, Transfer Valve, Stage Pump	
0746508	Valve(s), Relief Intake, Trident Air Max, Control Location	**INTAKE RELIEF VALVE** There will be One (1) Trident Air Max intake relief valve(s) installed on the suction side of the pump preset at 125 psig . The relief valve will have a working range of 50 PSI to 350 PSI. 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. One adjustable air regulator and pressure indicating gauge will be located on a common bezel on the left side pump panel to control the intake valve(s).

0515838	Controller, Pressure, Pierce, PUC	**PRESSURE CONTROLLER** A Pierce Pressure Governor will be provided. An electric pressure governor will be provided which is capable of automatically maintaining a desired preset discharge pressure in the water pump. When operating in the pressure control mode, the system will automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow, within the discharge capacities of the water pump and water supply. A pressure transducer will be installed in the water discharge of the pump. The transducer continuously monitors pump pressure sending a signal to the Electronic Control Module (ECM). The governor can be used in two (2) modes of operation, RPM mode and pressure modes. In the RPM mode, the governor can be activated after vehicle parking brake has been set. When in this mode, the governor will maintain the set engine speed, regardless of engine load (within engine operation capabilities). In the pressure mode, the governor system can only operate after the fire pump has been engaged and the vehicle parking brake has been set. When in the pressure mode, the pressure controller monitors the pump pressure and varies engine speed to maintain a precise pump pressure. The pressure controller will use a quicker reacting J1939 database for engine control. A preset feature allows a predetermined pressure or rpm to be set. A pump cavitation protection feature is also provided which will return the engine to idle should the pump cavitate. Cavitation is sensed by the combination of pump pressure below 30 psi and engine speed above 2000 rpm for more than five (5) seconds. The throttle will be a vernier style control, with a large control knob for use with a gloved hand. A throttle ready light will be provided adjacent to the throttle control. A large 0.75" RPM display will be provided to be visible at a glance. Check engine, and stop engine indicator lights will be provided for easy viewing. Large 0.75" push buttons will be provided for menu, mode, preset, and silence selections. The water tank level indicator will be incorporated in the pressure governor. A fuel level indicator will be incorporated in the pressure controller. A pump hour meter will be incorporated in the pressure controller. The pressure controller will incorporate monitoring for engine temperature, oil pressure, fuel level alarm, and voltage. Pump monitoring will include, pump gearcase temperature, error codes, diagnostic data, pump service reminders, and time stamped data logging, to allow for fast accurate trouble shooting. It will also notify the driver/engineer of any problems with the engine and the apparatus. Complete understandable messages will be provided in a 20-character display, providing for fewer abbreviations in the messages. An automatic dim feature will be included for night operations. The pressure controller will include a USB port for easy software upgrades, which can be downloaded through a USB memory stick, eliminating the need for a laptop for software installations. A complete interactive manual will be provided with the pressure controller.
0072153	Primer, Trident, Air Prime, Air Operated	**PRIMING PUMP** The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. One (1) priming control will open the priming valve and start the pump primer.
0799807	Direct Tank Fill, 0.75" Garden Hose, Swing Handle Vlv, Loc Panel	**GARDEN HOSE DIRECT TANK FILL** There shall be a 0.75" direct tank fill terminating at the at pump panel pump panel with a female garden hose swivel thread adapter and plug. A 0.75" swing handle valve and plumbing shall be provided. The direct tank fill shall be plumbed to the water tank dome just above the height of the overflow pipe to eliminate head pressure while in use. A stainless steel elbow shall be installed in the water tank dome, pointing down to prevent water from entering the over flow tube.
0044552	Line, 0.50" Recirculating w/Check Valve	**RECIRCULATING LINE WITH CHECK VALVE** A 0.50" diameter recirculating line, from the pump to the water tank, will be furnished with a control installed at the pump operator's control panel. A check valve will be provided in this line to prevent the back flow of water from the tank to the pump if the valve is left in the open position.
0658266	Thermal Relief Valve, w/Amber Warning Light and Alarm, PUC Pump	**THERMAL RELIEF VALVE** A Pierce thermal relief valve will be included on the pump that monitors pump water temperature and opens to relieve water to cool the pump when the temperature of the pump water exceeds 120 Degrees F (49 C). The thermal protection system will include a amber warning light and audible alarm mounted on the pump operator panel. The discharge line will be 3/8 inch diameter tubing plumbed to ground.
0780359	Manuals, Pump, (2) Total, Electronic Copies, Pierce PUC Pump	**PUMP MANUALS** 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.

0602496		Plumbing, Stainless Steel and Hose, Single Stage Pump, PUC	**PLUMBING, STAINLESS STEEL AND HOSE** All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness. Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings. Plumbing manifold bodies will be ductile cast iron or stainless steel. All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame. All water carrying gauge lines will be of flexible polypropylene tubing. All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.
0089437		Plumbing Without Foam System	
0517852		Inlets, 6.00" - 1500 GPM, Pierce PUC Pump	**MAIN PUMP INLETS** 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. Main pump inlets will not be located on the main operator's panel and will maintain a low connection height by terminating below the top of the chassis frame rail.
0004646		Cap, Main Pump Inlet, Long Handle, NST, VLH	**MAIN PUMP INLET CAP** The main pump inlets will have National Standard Threads with a long handle chrome cap. The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.
9999999	SCC	TFT Jumbo Ball Intake Valve 6" FNH to 5" Storz - Manual Control	**TFT JUMBO BALL INTAKE VALVES** TFT Jumbo Ball Intake Valves with 6"NH to 5" Rigid Storz connections will be provided along with a cap and chain. Two (2) valves will be provided.
0084610		Valves, Akron 8000 series- All	**VALVES** 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. Valves will have a **ten (10) year** warranty.
0004660		Inlet, Left Side, 2.50"	**LEFT SIDE INLET** 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. The auxiliary inlet will be provided with a strainer, chrome swivel and plug.
0029147		Not Required, Inlet, Right Side	
0520002		Valve, Inlet(s) Recessed, Side Cntrl, PUC	The location of the valve for the one (1) inlet will be recessed behind the pump panel.
0004700		Control, Inlet, at Valve	**INLET CONTROL** 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.
0092569		No Rear Inlet (Large Dia) Requested	
0092696		Not Required, Cap, Rear Inlet	
0064116		No Rear Inlet Actuation Required	
0009648		No Rear Intake Relief Valve Required on Rear Inlet	
0092568		No Rear Auxiliary Inlet Requested	

0563738	Valve, .75" Bleeder, Aux. Side Inlet, Swing Handle	**INLET BLEEDER VALVE** A 0.75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.
0520277	Tank to Pump, (1) 3.00" Valve, 4.00" Plumbing, PUC	**TANK TO PUMP** The booster tank will be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" full flow line valve with the control located at the operator's panel. 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.
0595508	Outlet, Tank Fill, 1.50", PUC	**TANK REFILL** 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.
0516755	Outlet, Left Side, 2.50" (2), PUC	**LEFT SIDE DISCHARGE OUTLETS** There will be two (2) discharges with a 2.50" valves on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter. Discharges will be located below the cab, and will be no higher than the top of the chassis frame rail. Discharges will not be located on the pump operator's panel. Lever controls will be provided at the valve.
0092570	Not Required, Outlets, Left Side Additional	
0766761	Outlet, Right Side, 2.50", (1), Electric Akron 9335 Controller, PUC	**RIGHT SIDE DISCHARGE OUTLETS** There will be one (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" MNST adapter. The discharge(s) will be located below the crew cab and will be no higher than the top of the chassis frame rail. There will be Akron 9335 electric valve controller(s) provided on the pump operators panel. The electric control(s) must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit(s) must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller(s) will provide position indication on a full color, backlit LCD display. They will have manual adjustment of the brightness as well as an auto dimming option. In addition to valve position, each controller will include a pressure display.
0766992	Outlet, Right Side, 4" w/4" Valve, Akron 9335 Elec Controller, PUC	**LARGE DIAMETER DISCHARGE OUTLET** There will be a 4.00" discharge outlet with a 4.00" valve installed on the right side of the apparatus, terminating with 4.00" MNST threads. The discharge will be located below the crew cab and will be no higher than the top of the chassis frame rail. There will be an Akron 9335 electric valve controller provided on the pump operators panel. The electric control must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller will provide position indication on a full color, backlit LCD display. It will have manual adjustment of the brightness as well as an auto dimming option. In addition to valve position, the controller will include a pressure display.
0648906	Outlet, Front, 2.50" w/2.50" Plumbing	**FRONT DISCHARGE OUTLET** There will be one (1) 2.50" discharge outlet piped to the front of the apparatus and located on the top of the right side of the front bumper. Plumbing will consist of 2.50" piping and flexible hose with a 2.50" full flow 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 2.50" NST with 90 degree stainless steel swivel. There will be automatic drains provided at all low points of the piping.
0092575	Not Required, Outlet, Rear	
0092574	Not Required, Outlet, Rear, Additional	
0588480	Outlet, Front HB, 2.50" w/2.50" Plumbing, HAL	**FRONT OF HOSE BED DISCHARGE OUTLET** There will be one (1) discharge outlet discharge(s) piped to the front of the hose bed and located left side outboard for 2.5" hosebed. 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.

0752078	Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, S/S Cable	**DISCHARGECAPS/ INLET PLUGS** Chrome plated, rocker lug, caps with S/S cables will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets. Chrome plated, rocker lug, plugs with S/S cables 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 (no exception).
0563739	Valve, 0.75" Bleeder, Discharges, Swing Handle	**OUTLET BLEEDER VALVE** 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 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 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.
0055095	Not Required, Elbow, Left Side Outlets, 2.50"	
0035094	Not Required, Elbow, Left Side Outlets, Additional	
0021134	Not Required, Elbow, Right Side Outlets	
0045099	Not Required, Elbow, Rear Outlets	
0085695	Not Required, Elbow, Rear Outlets, Large, Additional	
0681048	Elbow, Large Dia Outlet, 30 Deg, 4.00" FNST x 5.00" Storz, S/S Cable	**LARGE DIAMETER OUTLET ELBOWS** The 4.00" outlet will be furnished with a 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap and stainless steel tie cable.
0766941	Control, Outlets, Swing Handle, Elec Right Outlets Akron 9335 w/Press Disp, PUC	**DISCHARGE OUTLET CONTROLS** The right side discharges will incorporate a quarter-turn ball valve and be controlled by Akron 9335 electric valve controllers provided on the pump operators panel. The electric controls must be of a true position feedback design, requiring no clutches in the motor or current limiting. The units must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate their corresponding valve actuator. The controllers will provide position indication on a full color, backlit LCD display. They will have manual adjustment of the brightness as well as an auto dimming option. In addition to the valve controls, the electric valve controllers will include a pressure display All other outlets will have manual swing handles that operate in a vertical up and down motion. These handles will be able to lock in place to prevent valve creep under pressure.
0029106	Not Required, Deluge Outlet	
0029302	No Monitor Requested	
0029304	No Nozzle Req'd	
0029107	No Deluge Mount	
0527482	Waterway Outlet & Control, PUC	**AERIAL OUTLET** The aerial waterway will be plumbed from the pump to the water tower line with 4.00" pipe and a 4.00" valve. The control for the waterway valve will be located at the pump operator's panel. An indicator will be provided to show when the valve is in the open or closed position.

0645092		Crosslays, (2) 1.50", FW, Std. Cap, w/Poly Trays, PUC, DCF Aerial	**CROSSLAY HOSE BEDS** Two (2) crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying 200 feet of 1.75" double jacketed hose and will be plumbed with 2.00" i.d. schedule 10 304L welded or formed stainless steel pipe and gated with a 2.00" quarter turn ball valve. Crosslays will be low mounted with the bottom of both crosslay trays no more than 19.25" above the frame rails for simple, safe reloading and deployment. The hose beds will be full width of the body compartments. 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. A removable tray will be provided for the crosslay hosebed. The crosslay tray will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying. Trays will be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.
0029196		Not Required, 2.50" Crosslay	
0759927	SP	Hose Restraint, Crosslay/Speedlay, Lift Door, Dash CF Aerial	**SPEEDLAY/CROSSLAY HOSE RESTRAINT** There will be a lift up painted aluminum door provided to secure the crosslay/speedlays at each side of the hosebed opening. Each door will have a stay arm to hold the door up when open. Each door will be secured by a Southco M1 push to close flush mounted stainless steel handle latch in the lower front corner of the door.
0029260		Not Required, Speedlays	
0750536		Hose Restr, Spdly, Not Required, No Spdly	
0796203	SP	Doors, Crosslay, Smooth Alum, Painted, Top Hinge, PUC w/Latch Feature	**CROSSLAY END DOORS** A top horizontally hinged smooth aluminum door, with a positive mechanical mechanism to hold the door in the open position, will be supplied for the crosslays. A pair of Southco C2 chrome raised trigger lever latch will be provided to hold doors closed. The door will be a single pan with the tray tab toggle that allows the trays to be pulled out, removed. The doors will be painted to match the body compartments.
0044333		Not Required, Foam System	**FOAM SYSTEM** A foam system will not be required on this apparatus.
0012126		Not Required, CAF Compressor	
0552517		Not Required, Refill, Foam Tank	
0042573		Not Required, Foam System Demonstration	
0045465		Not Required, Foam Tanks	
0091110		Not Required, Foam Tank Drain	
0091079		Not Required, Foam Tank #2	
0091112		Not Required, Foam Tank #2 Drain	

0649055	Pump Operators Panel & Module, Aluminum, Control Zone, 75' HAL Dash CF PUC	**PUC MODULE** The pump module will be separate from the hose body and compartments so that each may flex independently of the other. It will be a fabricated assembly of aluminum tubing, angles and channels which supports both the plumbing and the side running boards. The pump module will be mounted on the chassis frame rails with standard body angles in four places to allow for chassis frame twist. Pump module, plumbing and gauge panels will be removable from the chassis in a single assembly. **PUMP CONTROL PANELS (Left Side Control)** Pump controls and gauges will be located midship at the left (driver's) side of the apparatus and properly identified. The main pump operator's control panel will be completely enclosed and located in the forward section of the body compartment. There will be a roll up door to protect against road debris and weather elements. The pump operator's panels will be no more than 34.50" wide, and made in four (4) sections with the center section easily removable with simple hand tools. For the safety of the pump operator, there will be no discharge outlets or pump inlets located on the main pump operators panel. Layout of the pump control panel will be ergonomically efficient and systematically organized. The upper section will contain the master gauges. This section will be angled down for easy visibility. The center section will contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) will be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section will contain the outlet drains. Manual controls will be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles will have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels will encompass the opening, be securely mounted to the pump operator's panel, and will incorporate the discharge gauge bezel. Bezels will be bolted to the panel for easy removal and gauge service. The driver's side discharges will be controlled directly at the valve. There will be no push-pull style control handles. Identification tags for the discharge controls will be recessed within the same bezel. The discharge identification tags will be color coded, with each discharge having its own unique color. All remaining identification tags will be mounted on the pump panel in chrome-plated bezels. All discharge outlets will be color coded and labeled to correspond with the discharge identification tag. The pump panels for the discharge and intake ports will be located ahead of the pump module with no side discharge or intake higher than the frame rail. The pump panels will be easily removable with simple hand tools. **PASSENGER SIDE PUC MODULE COMPARTMENT** A full height compartment with a roll-up door ahead of the front body will be provided, as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment will be approximately 33.75" wide x 51.50" high x 26.12" deep in the lower 43.00" of the compartment and approximately 12.00" deep in the remaining upper portion. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be approximately 31.50" wide x 51.50" high. Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.
0032479	Pump Panel Configuration, Control Zone	**PUMP PANEL CONFIGURATION** The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.
0579545	Step, Slide-Out/Fold-Out, Pump Operator Platform, Aerial PUC	**PUMP OPERATOR'S PLATFORM** A pull out, flip down platform will be provided at the pump operator's control panel. The front edge and the top surface of the platform will be made of DA finished aluminum with a Morton Cass insert. The platform will be approximately 13.75" deep when in the stowed position and approximately 22.00" deep when extended. The platform will be as wide as possible. The platform will lock in the retracted and the extended position. The platform will be wired to the "step not stowed" indicator in the cab.
0667186	Light, Slide-Out Pump Operator Step, On Scene Solutions Access LED, Short Step	**PUMP OPERATOR'S PLATFORM PERIMETER LIGHT** There will be an On Scene Solutions, Model Night Stick Access, 20.00" white 12 volt DC LED strip light provided to illuminate the ground area.
0516975	Material, Pump Panels, Operators Brushed Stainless, Sides Brushed Stainless, PUC	**PUMP AND GAUGE PANEL** The pump operator's panel and gauge panels will be constructed of stainless steel with a brushed finish. The side control panels will be constructed of stainless steel with a brushed finish for durability and ease of maintenance.

0516978	Pump and Plumbing Access, Simple Tilt Service, PUC	**PUMP AND PLUMBING ACCESS** Simple access to the plumbing will be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves will not require removal of operator panels or pump panels. Access for rebuilding of the pump will not require removal of more than the tank to pump line and a single discharge line. This access will allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps will be provided for access to the top of the pump. Access to the pump will be provided by raising the cab. The pump will be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump will not require the removal of operator panels or pump panels. Complete pump casing and gear case removal will require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case will be able to be removed by lifting upward without interference from piping and be removable in less than 3 hours.
0520016	Not Required, Pumphouse Structure, PUC	
0618458	Light, Pump Compt, Wln 3SC0CDCR LED White, PUC	**PUMP COMPARTMENT LIGHT** There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the plumbing area. The light(s) will be activated by a toggle switch located in the pump compartment area.
0516983	Gauges, Engine, Included With Pierce Pressure Controller, PUC	Engine monitoring graduated LED indicators will be incorporated with the pressure controller.
0005601	Throttle Included w/ Pressure Controller	
0549333	Indicators, Engine, Included with Pressure Controller	
0553643	Control, Air Horn at Pump Panel w/Red Switch	**AIR HORN SWITCH** An air horn control switch will be provided at the pump operator's control panel. This switch will be red and properly labeled. The switch will be located within easy reach of the operator in the electrical switch panel.
0534385	Flowmeter, FRC, Model DF430, Aerial Waterway @ Pump Panel (IATS)	**FLOW METER GAUGE** A Fire Research Corporation (FRC), Model DF430, digital flow indicator with a four (4) digit LED display will be provided at the pump panel for the aerial waterway. The display will have a flow totalizer, programmable high and low flow warnings, and automatically adjust LED brightness for day/night viewing.
0511078	Gauges, 4.00" Master, Class 1, 30"-0 -600psi	**VACUUM AND PRESSURE GAUGES** The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©. The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#. Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut. The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel. Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label. This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.
0511100	Gauge, 2.00" Pressure, Class 1, 30"-0-400psi	**PRESSURE GAUGES** 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. Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut. Gauges will have a pressure range of 30"-0-400#. The individual pressure gauge will be installed as close to the outlet control as practical. This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

0517009	Gauge, Water Level, Pierce, In pressure Controller, w/Mini Slave, PUC	**WATER LEVEL GAUGE** An electric water level gauge will be incorporated in the pressure controller that registers water level by means of nine (9) LEDs. They will be at 1/8 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing. To further alert the pump operator, the gauge will have a warning flash when the tank volume is less than 25 percent. The gauge will have down chasing LEDs when the tank is almost empty. The level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell. **MINI SLAVE UNIT** An electric water level gauge will be provided in the cab that registers water level by means of five (5) LEDs. They will be at 1/4 level increments with a tank empty LED. The LEDs will be a bright type that are readable in sunlight and have a full 180-degree of clear viewing. The water level gauge in the cab will be activated when the pump is in gear.
0604028	Water Level Gauge, FRC, MaxVision WLA280-A00 Programmable Remote Display	**ADDITIONAL WATER LEVEL GAUGE** There will be two (2) additional Fire Research MaxVision model WLA280-A00 water tank remote indicators provided and installed one each side of crew cab. The indicators will show the volume of water in the tank on Ninety six (96) easy to see super bright Tri-color LEDs. The indicator case will be waterproof, manufactured of Polycarbonate material with an integrated lens. The remote indicator will indicate the level as a single color in Red for 25% or less, Amber color for up to 50% volume, Blue color for up to 75% volume and Green color for up to 100% volume. When the level reaches 25%, the red LEDs will begin flashing. When the level is empty, the red LEDs will scroll in a down-chasing motion and then flash three times. The flash rate will be determined by the main water tank sensor. It will have the program capability to adjust the brightness level for day time and night time viewing. The LEDs can also be programmed for different colors. This module will be activated when the pump is in gear.
0006774	Not Required, Foam Level Gauge	
0653081	Light, Pump Operator & Panel, Side Ctrl, PUC, 60354C LED Cab & LED OH Chr Cvr	**SIDE CONTROL PUMP OPERATOR'S/PUMP PANEL LIGHTING** Illumination will be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. External illumination will be a minimum of five (5) foot-candles on the face of the device. Internal illumination will be a minimum of four (4) footlamberts. The pump panels will be illuminated by two (2) Truck-Lite, Model 60354C, 6.00" x 2.00" oval white LED lights with Model 60700, grommets and chrome covers installed on the back of the cab, one (1) on the driver's side and one (1) on the passenger's side. The pump operator's panel will utilize the same LED strip lighting at the forward doorframe as all other compartment lighting. There will be a small white LED pump engaged indicator light installed overhead.
0606696	Air Horns, (2) Grover, Stutter Tone, In Bumper	**AIR HORN SYSTEM** Two (2) Grover, Stutter Tone, air horns will be recessed in the front bumper. The horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed in-line to prevent loss of air in the air brake system.
0606835	Location, Air Horns, Bumper, Each Side, Outside Frame, Outboard (Pos #1 & #7)	**Air Horn Location** The air horns will be located on each side of the bumper, towards the outside.
0006063	Control, Air Horn, Horn Ring, PS Foot Sw	**AIR HORN CONTROL** The air horns will be actuated by a foot switch on the officer's side and by the horn button in the steering wheel. The driver will have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.
0525667	Siren, Wln 295SLSA1, 100 or 200 Watt	**ELECTRONIC SIREN** A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone will be provided. This siren to be active when the battery switch is on and that emergency master switch is on.
0047779	Location, Elect Siren, Recessed In Switch Panel	Siren head will be recessed in a switch panel, panel 11, as required by the customer.
0076156	Control, Elec Siren, Head Only	The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.
0601304	Speaker, (2) Wln, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt	**SPEAKERS** There will be two (2) Whelen®, Model SA315P, black nylon composite, 100-watt, speakers with through bumper mounting brackets and polished stainless steel grille provided. Each speaker will be connected to the siren amplifier.

0601558		Location, Speaker, Frt Bumper, Recessed, Ea Side, Outside Frame, Inbrd (Pos 2/6)	The speakers will be recessed in each side of the front bumper, just outside of the frame rails.
0675701		Siren, Federal Q2B, Park Brake Interlock	**AUXILIARY MECHANICAL SIREN** There will be one (1) Federal, Model Q2B, mechanical siren furnished. A siren brake button will be installed on the switch panel. The control solenoid will be powered up after the emergency master switch is activated and will be interlocked to the parking brake so that the siren cannot be accidentally activated when the parking brake is applied.
0006095		Siren, Mechanical, Mounted Above Deckplate	The mechanical siren will be mounted on the bumper deck plate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.
0026163		Control, Mech Siren, DS & PS Foot Sw	The mechanical siren will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.
0006142		Cut-out, Elect Siren interlock to Parking Brake	**INTERLOCK, ELECTRONIC SIREN** The electronic siren will be interlocked to shut off when the parking brake is set.
0606715		Lightbar, Wln, Freedom IV-Q, 2-21.5", RRRRR RRRRR	**FRONT ZONE UPPER WARNING LIGHTS** There will be two (2) 21.50" Whelen Freedom IV LED lightbars mounted on the cab roof, one (1) on each side, above the driver's and passenger's door, facing forward. The driver's side lightbar will include the following: One (1) red flashing LED module in the outside end position. One (1) red flashing LED module in the outside front corner position. One (1) red flashing LED module in the outside front position. One (1) red flashing LED module in the inside front position. One (1) red flashing LED module in the inside front corner position. The passenger's side lightbar will include the following: One (1) red flashing LED module in the inside front corner position. One (1) red flashing LED module in the inside front position. One (1) red flashing LED module in the outside front position. One (1) red flashing LED module in the outside front corner position. One (1) red flashing LED module in the outside end position. There will be clear lenses included on the lightbar. There will be a switch in the cab on the switch panel to control the lightbars.
0778506	SP	Light, GTT, 794* LED Opticom Emitter, Remote Mounted on Cab Roof, On/Off Sw	**TRAFFIC LIGHT CONTROLLER** There will be a GTT, Model 794* LED Opticom traffic light controller with national standard high priority remote mounted on the front edge of the cab left side of cab roof. The Opticom traffic light controller will be activated by a cab switch with emergency master control. A separate switch will be provided to turn the Opticom traffic light controller "On/Off when the emergency master switch is not on. This switch will be labeled "Silent Run/Normal. This switch will default to off each time the ignition switch is cycled. The Opticom traffic light controller will be disabled when the parking brake is applied.
0605741		Lightbars, Wln, Freedom IV, 2-21.5", RRRR RRRR	**SIDE WARNING LIGHTS** There will be two (2) 21.50" Whelen Freedom IV LED lightbars mounted on the roof, one (1) on each side, over the side crew cab windows. Each lightbar will include the following: One (1) red flashing LED module in the outside rear corner position. One (1) red flashing LED module in the rear outside position. One (1) red flashing LED module in the front outside position. One (1) red flashing LED module in the outside front corner position. There will be clear lenses included on the lightbar. There will be a switch in the cab on the switch panel to control the lightbars. These lights may be load managed when the parking brake is applied.
0016380		No Additional Lights Req'd, Side Zone Upper	

0624466	SP	Light, Front Zone, Wln M6# Split, 6RB* LED, 4lts Q Bezel	**CAB FACE WARNING LIGHTS** There will be four (4) Whelen, LED flashing warning lights installed on the cab face, above the headlights, mounted in a common bezel. One (1) Model M6#, 4.32" high x 6.75" long x 1.38" deep light installed in the driver's side outside position. The driver's side outside light to be red to the outside and blue to the inside. One (1) Model 6RB*, 4.19" high x 9.57" long x 3.44" deep light flashing in a semi circle flash pattern installed in the driver's side inside position. The driver's side front inside warning light to be red. One (1) Model 6RB*, 4.19" high x 9.57" long x 3.44" deep light flashing in a semi circle flash pattern installed in the passenger's side inside position. The passenger's side front inside warning light to be red. One (1) Model M6#, 4.32" high x 6.75" long x 1.38" deep light installed in the passenger's side outside position. The passenger's side outside light to be red to the outside and blue to the inside. The lights will include a lens that is clear. There will be a switch in the cab on the switch panel to control the lights. White LED's will be deactivated when the parking brake is applied. Red or Blue LED's in the inside positions be load managed when the parking brake is applied.
0540692		Lights, Side Zone Lower, Wln M6*C LED, Clear Lens, 3pr, Ovr 25	**SIDE ZONE LOWER LIGHTING** There will be six (6) Whelen®, Model M6*C, flashing LED warning lights with chrome trim installed per the following: Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red. Two (2) lights, one (1) each side of cab rearward of crew cab doors. The side middle lights to be red. Two (2) lights, one (1) each side above rear wheels. The side rear lights to be red. The lights will include clear lenses. There will be a switch in the cab on the switch panel to control the lights.
0679341		Lights, Side, Wln M6*C LED, Clear Lens	**SIDE WARNING LIGHTS** There will be two (2) Whelen, Model M6*C LED flashing warning light(s) with bezel(s) provided one at each corner of bumper in recess. The color of the lights will be red. All of these lights will include a clear lens. These lights will be activated with the Side Zone Lower warning lights.
0672937		Lights, Side, Wln WIONSMC* LED, Chrome Flange, Mounted In Rub Rail, 1st	**SIDE WARNING LIGHTS** There will be six (6) Whelen, Model WIONSMC* LED light(s) provided and located in the body rub rails one in each side rub rail.. The lights will NOT be mounted with the rubber gasket behind the light which will allow the light(s) to fit in the rub rails. The color of each light will be red LED with a clear lens. Each light will be provided with a chrome plated ABS flange. The light(s) will be activated with the side warning switch.
0540783		Lights, Rear Zone Lower, Wln M6*C LED	**REAR ZONE LOWER LIGHTING** 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.
0754220		Lights, Rear, Wln M6** LED, Features 1st	**REAR WARNING LIGHTS** There will be two (2) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning light(s) with chrome trim provided at the rear of the apparatus, on each side rear of body above tail lights. The light(s) to include red flashing LEDs. The warning light lens color(s) to be clear. These light(s) will be controlled with the rear upper warning switch. The light(s) may be load managed when the parking brake is applied.
0795616		Lights, Rear, Wln WIONSMC* LED, Chrome Flange, 1st	**REAR WARNING LIGHTS** There will be four (4) Whelen®, Model WIONSMC*, 1.68" high x 5.93" long x 1.12" deep flashing LED warning light(s) with chrome trim provided recessed in rear bumper. The color of the LEDs will be red. The lens color(s) will be clear. The light(s) will be activated with the rear lower warning switch.
0088745		Light, Rear Zone Upper, Wln L31HRFN LED Beacon, Red LED	**REAR/SIDE ZONE UPPER WARNING LIGHTS** 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 clear.
0006551		Not Required, Lights, Rear Upper Zone Blocking	

0791457	Light, Traffic Directing, Wln TANF85, 45.12" Long LED	**TRAFFIC DIRECTING LIGHT** There will be one (1) Whelen®, Model TANF85, 45.12" long x 2.37" high x 2.37" deep, amber LED traffic directing light installed at the rear of the apparatus. The Whelen, Model TACTL5, control head will be included with this installation. The controller will be energized when the battery switch is on. The auxiliary flash to be activated when the emergency master switch is on.
0530072	Location, Traf Dir Lt, Surface Mounted Between Handrails Trdplt Wedge Bracket	This traffic directing light will be surface mounted between the handrails on a treadplate wedge bracket at the rear of the apparatus.
0530281	Location, Traf Dir Lt Controller, Center Console in Sw Pnl	The traffic directing light controller will be located within the switch panel on the center console. The controller will be within easy reach of the driver.
0006646	Electrical System, 120/240VAC, General Design	**ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT** The following guidelines will apply to the 120/240 VAC system installation: **General** Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles. Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC). Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed. **Grounding** Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding. An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC. The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC. In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used. All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source. **Operation** Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place. Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position. A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information: Rated voltage(s) and type (ac or dc) Phase Rated frequency Rated amperage Continuous rated watts Power source engine speed Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC. **Overcurrent protection** The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length. For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius). For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius). ## Wiring Methods Fixed wiring systems will be limited to the following: Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius) or Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius) Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows. Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping Separated from fuel lines by a minimum of 6.00" (152 mm) distance Electrical cord or conduit will be supported within 6.00" (152 mm) of any junction box and at a

minimum of every 24.00" (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

Wiring Identification

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.
All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground.
The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

Dry Locations

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height.
All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.

Listing

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

Electrical System Testing

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.
The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.
Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Operational Test per Current NFPA 1901 Standard

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by an independent third-party certification organization.
The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.
The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.
Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard will be applied to the low voltage electrical system during the operational test.

0602101	Generator, Harrison 3.6 kW Hydraulic, 30A 120VAC Hotshift PTO	**GENERATOR** There will be one (1) Harrison 3.6 kW hydraulic generator provided. This generator will be 31.00" long x 15.00" wide x 14.13" high and weigh 168 lbs. This generator will have a 3,600 watt continuous duty rating @ 120 volts AC. The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor. The generator will include an electrical control inside the cab. The hydraulic engagement supply will be operational at any time (no interlocks). The generator hydraulic circuit will include a soft start valve to protect the generator components during PTO engagement. There will be an AC volt meter furnished next to the circuit breaker panel to monitor the generator.
0564289	Location, Hydraulic, Top of Water Tank, Front of Body	**GENERATOR LOCATION** The generator will be mounted on top of the water tank, at the front of the body, at the as fits best. The water tank in this area will be either reinforced, or constructed, in such a manner, that it will handle the additional weight of the generator.
0016752	Starting Sw, Truck Engine Powered Gen, Cab Sw Pnl	**GENERATOR START** There will be a switch provided on the cab instrument panel to engage the generator.
0651899	Remote Start, Hydraulic Generator, 2 Location	**GENERATOR REMOTE START** There will be a generator remote start/stop switch with indicator light located in the following positions: cab switch panel. pump panel.
0016740	Not Required, Fuel System	

0016767	Not Required, Oil Drain Extension, Generator	
0016771	Not Required, Routing Exhaust, Generator	
0672957	Circuit Breaker Panel, PTO Gen, As Small As Practical	**CIRCUIT BREAKER PANEL** The smallest size practical circuit breaker panel will be located forward wall of LS3 out of the way. .
0066606	Hourmeter, Generator	**GENERATOR HOURMETER** An electric hourmeter will be provided with circuit panel.
0745228	Pump, Thru-Pump, For Hydraulic Driven Devices	
0780309	Receptacle, 15/20A 120V 3-Pr 3-Wr SB Dup, 4 place, Interior Cab	**120 VOLT RECEPTACLE** There will be two (2), 4-place receptacle box(es) with four (4) 15/20 amp 120 volt AC three (3) wire straight blade receptacles with interior stainless steel wall plate(s) installed behind the driver and officer seat on each exterior wall. The NEMA configuration for the receptacles will be 5-15R. The receptacle(s) will be powered from the shoreline inlet. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Ratting (amps) Phase Frequency Power Source
0779722	Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 1st, Interior Body	**120 VOLT RECEPTACLE** There will be three (3), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed 2 in RS4 for top and middle shelf at no less than 36" from floor and up near top of notched area in upper compartment, back wall, rearward. RS1 just below transition forward against back wall. The NEMA configuration for the receptacle(s) will be 5-20R. The receptacle(s) will be powered from the shoreline inlet. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Ratting (amps) Phase Frequency Power Source
0780244	Receptacle, 15/20A 120V 3-Pr 3-Wr SB Dup, GFCI	**120 VOLT RECEPTACLE** There will be two (2), 15/20 amp 120 volt AC three (3) wire straight blade duplex GFCI receptacle (s) with exterior flip up cover(s) installed one each side of body fender forward of wheels . The NEMA configuration for the receptacles will be 5-20R. The receptacle(s) will be powered from the on board generator. There will be a label installed near the receptacle(s) that state the following: Line Voltage Current Ratting (amps) Phase Frequency Power Source
0519934	Not Required, Brand, Hydraulic Tool System	
0649753	Not Required, PTO Driven Hydraulic Tool System	
0649736	Not Required, Hydraulic Tools	
0592917	Aerial, 75' HAL, Single Axle, 750# Tip Load	**THREE (3)-SECTION 75 FOOT AERIAL LADDER** **CONSTRUCTION STANDARDS** The ladder will be constructed to meet the requirements as described in the current NFPA 1901 standard. Some portions of this specification exceed minimum NFPA recommendations and will be considered a minimum requirement to be met. **LADDER CONSTRUCTION** To insure a high strength to weight ratio and an inherent corrosion resistance, the aerial ladder will be completely constructed of high strength aluminum. The aerial ladder will consist of three (3) welded extruded aluminum telescopic ladder sections, which will extend to a minimum height of 75' above the ground at full extension and elevation. The measurement of height will be consistent with the current NFPA 1901 standard. The operating range of the ladder will be -8 degrees to +76 degrees. The ladder will be designed to provide continuous egress for firefighters and civilians from an

elevated position to the ground. The egress section will be designed to maintain the rated load of the aerial device. It will be bolted on for easy replacement.
The rated horizontal reach will be 67' 9".
The measurement of horizontal reach will be consistent with the current NFPA 1901 standard.
The measurement will be from the outermost rung at full extension to the centerline of turntable rotation.
The ladder will have the capability to support a minimum of 750 pounds at the tip and 100 pound equipment allowance in the unsupported configuration, based upon 360-degree rotation, up to full extension and from -8 degrees to +76 degrees.
All side rails, rungs, handrails, uprights and K-braces will be made of structural 6061T6 alloy aluminum extrusions.
All material will be tested and certified by the material supplier.
All ladder sections will be semi-automatically welded by shielded arc welding methods using 5356 aluminum alloy welding wire.
Structural rivets or bolts will not be utilized in the ladder weldment sections.
Due to the unpredictable nature of fire ground operations, a minimum safety factor of 2.5 to 1 is desired without .25" of ice build-up.
A safety factor of 2.0 to 1 is desired for environmental loading (wind plus .25" of ice build-up).
This structural safety factor will apply to all structural aerial components including turntable and torque box stabilizer components.
Definition of the structural safety factor will be as outlined in the current NFPA 1901 standard:
DL = Dead load stress. Stress produced by the weight of the aerial device and all permanently attached components.
RL = Rated capacity stress. Stress produced by the rated capacity load of the ladder.
WL = Water load stress. Stress produced by nozzle reaction force and the weight of water in the water delivery system.
FY = Material yield strength. The stress at which material exhibits permanent deformation.
2.5 x DL + 2.5 x RL + 2.5 x WL equal to/less than FY
2.0 x DL + 2.0 x RL + 2.0 x WL + 2.0 x Ice Loading equal to/less than FY
The minimum NFPA specification is exceeded by providing a safety factor above 2 to 1 while flowing water, and a safety factor of 2 to 1 with ice build-up.
The stability factor or tip over safety margin will be a minimum of 1.5 to 1 as defined by the current NFPA 1901 standard.
An independent engineering firm will verify the aerial safety factor.
Design verification will include computer modeling and analysis, and extensive strain gauge testing witnessed by an independent registered professional engineer.
Verification will include written certification from the independent engineering firm made available by the manufacturer upon request from the purchaser.
All welding of aerial components, including the aerial ladder sections, turntable, pedestal and outriggers will be performed by welders who are certified to American Welding Society Standards Dl.l, Dl.2 and Dl.3 as outlined in the current NFPA 1901 standard.
The weldment assemblies of each production unit will be tested visually and mechanically by an ASNT certified level II non-destructive test technician to comply with the current NFPA 1901 standard.
Testing procedures will conform to the American Welding Society Standard B 1.1 0 Guide for non-destructive testing. Test methods may include dye penetrant, ultrasound and magnetic particle where applicable.
Each ladder section will consist of two (2) extruded aluminum side rails and a combination of aluminum rungs, tubular diagonals, verticals and two (2) full-length handrails.
The rungs on all sections will be K-braced for maximum lateral stability.
This K-bracing will extend to the center of each rung to minimize ladder side deflection.
The ladder rungs will be designed to eliminate the need to replace rubber-rung covers.
The rungs will be spaced on 14" centers and have an integral skid-resistant surface as outlined in the current NFPA 1901 standard.
An oval shaped rung will be utilized to provide a larger step surface at low angles and more comfortable grip at elevated positions.
The minimum design load will be 500 pounds distributed over a 3.50" wide area as outlined in the current NFPA 1901 standard.
Each aerial ladder section will have heat sensor labels that are preset to 300 degrees F with expiration year. The heat labels will meet the current NFPA 1901 standard.
The aerial ladder will exceed the current NFPA 1901 standard governing the minimum ladder section width and handrail height.

Section	Width	Height
Base Section	34.38"	26.13"
Second Section	27.38"	22.63"
Fly Section	21.38"	19.50"

TURNTABLE
The upper turntable assembly will connect the aerial ladder to the turntable bearing.
The steel structure will have a mounting position for the aerial elevation cylinders, ladder connecting pins and upper turntable operator's position.
A 39.41" diameter turntable bearing with a 3.50" drive gear face will be bolted to the top of the bearing mounting plate with 3/4" diameter Grade 8 plated bolts.
Gear teeth will be stub tooth form.
The rated overturning moment of the turntable bearing will be a minimum of 441,400 ft lbs.
The operator's turntable platform will be constructed of .50" aluminum deck plate with non-skid aluminum oxide surface.
The platform will extend 23" from the turntable control station base, with a width of approximately 18".
The rear of the platform will extend approximately 26" back from the turntable and will be approximately 38" wide at the rear.

The turntable will be modified at the passenger side to allow for easier access to the hose bed for hose loading. The portion of the turntable outboard of the rotational motor will be omitted, and the handrails will be modified as required.
The platform will be fastened by grade 8 bolts.
The turntable handrails will be a minimum 42" high and will not increase the overall travel height of the vehicle. The handrails will be constructed from 1.62" diameter extruded 6061-T6 aluminum with a slip resistant knurled surface. The handrails will be anodized to resist corrosion.

ELEVATION SYSTEM

Dual 5" diameter elevating cylinders will be mounted on the underside of the base section of the ladder.
Two (2) 2.00" diameter stainless steel pins will fasten the cylinder to the turntable and also fasten to the ladder.
The pins will have 125000 psi minimum yield strength and will be secured with .50" GR 8 bolt with lock nuts.
The bolts are to ensure that the pins do not walk out of the mounting brackets on the turntable and base section.
The elevating cylinders will be mounted utilizing maintenance free spherical bearings on both ends of the cylinders.
The aerial base pivot bearings will be maintenance free type bearings (no external lubrication required).
The cylinders will function only to elevate the ladder and not as a structural member to stabilize the ladder side movement.
The elevating cylinders will be provided with pilot operated check valves on the barrel and rod side of the piston to prevent movement of the ladder in case of a loss of hydraulic pressure.
Operation envelope will be -8 to 76 degrees.
The elevation system will be designed following the current NFPA 1901 standard.
The elevation hydraulic cylinders will incorporate cushions on the upper limit of travel.
The hydraulic system will have a hydraulic circuit to reduce the elevation raising speed of the aerial.
When the aerial reaches approximately 65 degrees, the circuit will be activated and the elevation speed will be reduced.
The reduce speed will minimize the whipping action of the aerial at maximum elevation.
This circuit will only be for the raise function of the aerial.
The hydraulic elevation cylinders will also serve as a locking device to hold the aerial in the stored position for road travel.
The lowering circuit for the hydraulic cylinders will have a relief valve to prevent damage to the aerial base section or boom support when the aerial is being stored.

EXTENSION/RETRACTION SYSTEM

Both power extension and retraction will be furnished and meet the requirements of the current NFPA 1901 standard.
Extension will be by way of two (2) extending cylinders mounted on the side of the base section of the ladder.
The cylinders will be supplied with dual pilot operated check valves on each stabilizer cylinder to hold the cylinder in position should a charged line be severed at any point in the hydraulic system.
No hoses will be permitted between a holding valves and cylinder.

CYLINDER SIZE

Bore
2.50"
Stroke
112.00"
The cylinders will operate through a block and tackle wire rope arrangement to extend and retract the ladder.
Maximum extension of the ladder is to be automatically limited by the stroke of the cylinders.
The normal operating wire rope safety factor will be 5: 1 and the stall safety factor will be 2:1 based on the breaking strength of the wire ropes.
The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1 to 12.
Wire ropes will be constructed of seven (7) strands over an inner wire core for increased flexibility. The wire rope will be galvanized to reduce corrosion.
All cylinder and sheave pivot pins will be made of 125,000 psi yield stainless steel material.
The cylinder and sheaved bearing are designed as not to require external lubrication (maintenance free).

LADDER CABLE SIZE

1st Section (4, 2 extend and 2 retract)
1/2" 7 x 19 galvanized cable
2nd Section (4, 2 extend and 2 retract)
5/16" 7 x 19 galvanized cable
The ladder assembly will consist of three (3) separate weldments that will extend and retract within each other.
Nylatron PAG + OIL slide pads will be utilized between each section to minimize friction.
Four (4) T type interlocking load transfer stations will enclose the slide pads.
The transfer stations will be located at the upper portion of the base and second ladder sections.
Additional guide pad are located along the aerial section to guide the ladder during retraction and extension.

ROTATION SYSTEM

The aerial will be supplied with a powered rotation system as outlined in the current NFPA 1901 standard.
The hydraulic rotation motor will provide continuous rotation under all rated conditions and be supplied with a brake to prevent unintentional rotation.
The swing drive brake will meet the side pull test as stated in the current NFPA 1901 standard.
A high torque hydraulic motor driven through a spring applied hydraulically released multiple disk brakes into a planetary gearbox will accomplish rotation.
The gearbox will have a minimum continuous torque rating of 60,000 in. lbs. and a minimum intermittent rating of 130,000 in. lbs.
The turntable bearing, ring gear teeth, pinion gear, planetary gearbox*and output shaft will be certified by the manufacturer of the components for the application.*

ROTATION INTERLOCK
A permanently installed prevention mechanism will be provided as part of the rotation system to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked).
The mechanism will allow full and unrestricted use of the aerial in the 180 degree area on the side(s) where the stabilizers have been fully deployed.
The system will also have a manual override to comply with the current NFPA 1901 standard.
AERIAL PEDESTAL
The pedestal assembly will be a welded assembly made of structural steel channel with 1.5" thick top plate and .75" bottom plates, and .375" thick integral bulkheads. The vertical member will be a .375" wall cylinder with a 28" outside diameter and will connect the rotation bearing mounting plate to the lower substructure.
The pedestal assembly will be bolted to the chassis frame with .88" diameter Grade 8 bolts, and will be utilized to mount the outrigger jacks and reservoir for the aerial hydraulic system.
LOAD CAPACITIES
The following load capacities will be established, with the stabilizers at full horizontal extension and placed in the down position, to level the truck and to relieve the weight from the tires and axles. Capacities will be based upon full extension and 360 degree rotation.
A load chart will be visible at the operator's station. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension. The ratings in an unsupported, fully extended configuration will maintain a 2.5 to 1 safety factor. A safety factor of 2.0 to 1 will be maintained with a 35 mph wind.
The aerial device will have a rated capacity of 750 lbs. consistent with the current NFPA 1901 standard.
The rated capacity will include 750 lbs. in personnel allowance and 100 lbs. for equipment mounted at the tip of the ladder.
The aerial device will be rated in multiple configurations as outlined in the current NFPA 1901 standard.
The loads in each configuration are in addition to 100 lbs of equipment mounted at the tip.
Condition #1- Tip load only, no water flowing
Elevation
Capacity in personnel (Maximum)
Pounds (Maximum)
-8 to 29 degrees
3 on Fly
750 lbs
30 to 39 degrees
3 on Fly, 1 on Mid, 1 on Base
750 lbs, 250 lbs, 250 lbs
40 to 49 degrees
3 on Fly, 2 on Mid, 2 on Base
750 lbs, 500 lbs, 500 lbs
50 to 59 degrees
4 on Fly, 2 on Mid, 3 on Base
1000 lbs, 500 lbs, 750 lbs
60 to 76 degrees
4 on Fly, 3 on Mid, 3 on Base
1000 lbs, 750 lbs, 750 lbs
Condition #2 Ladder Tip loads while flowing 1000 GPM
Elevation
Capacity in Personnel (Maximum)
Pounds (Maximum)
-8 to 29 degrees
2 on Fly
500 lbs
30 to 39 degrees
2 on Fly, 1 on Base
500 lbs, 250 lbs
40 to 49 degrees
2 on Fly, 1 on Mid, 1 on Base
500 lbs, 250 lbs, 250 lbs
50 to 59 degrees
3 on Fly, 2 on Mid, 2 on Base
750 lbs, 500 lbs, 500 lbs
60 to 76 degrees
4 on Fly, 2 on Mid, 3 on Base
1000 lbs, 500 lbs, 750 lbs
Reduced loads at the fly can be redistributed to the mid or base sections as needed.
The tip capacity will be reduced to zero when flowing water with the nozzle above the waterway centerline.
BOOM SUPPORT
A heavy-duty boom support will be provided for support of the ladder in the travel position.
On the base section of the ladder, a stainless steel scuffplate will be provided where the ladder comes into contact with the boom support.

0000042	Boom Support, Rear of the Chassis Cab	The boom support will be located just to the rear of the chassis cab.
0762413	Light, Boom Support, Amdor AY-LB-12HW012, 12" LED	**AERIAL BOOM SUPPORT LIGHT** There will be one (1) Amdor®, Model AY-LB-12HW012, 190 lumen, 12" long, white LED strip light mounted on the boom support cradle. This light will be activated when the aerial master switch is activated.

0799586	Boom Support Compartment, w/Full Width RS Xlay Compt, Painted, Dash CF, PUC	**BOOM SUPPORT COMPARTMENT DIRECTLY BEHIND THE CAB** A compartment will be provided on each side of the apparatus directly behind the cab. The interior dimensions of the left side compartment will be approximately 8.00" wide x 13.75" deep x 23.75" high. The clear door opening will be approximately 7.00" wide x 21.88" high. The interior dimensions of the right side compartment will be approximately 8.00" wide x 13.75" deep x 21.88" high. The clear door opening will be approximately 7.00" wide x 21.88" high. There will also be a compartment located above the crosslays and boom support compartment on the right side. This compartment will be approximately 24.63" wide x 12.88" deep x 14.63" high. All compartments will be made of aluminum with single pan doors that are made from smooth aluminum and painted job color. Boom support compartments will have two (2) lift and turn latches that are spaced as evenly as possible, yet both latches will remain accessible from the ground. The crosslay compartment door will have a single lift and turn latch.
0680820	Boom Panel, One, Sized to Match Opposite Side Box	**AERIAL BOOM PANEL** There will be one boom panel provided on the base section on the right side of the aerial device while viewed from the turntable. This boom panel will be sized to match the storage box on the opposite side. The boom panel will be painted #268 red. The boom panel will be designed so no mounting bolts are in the face of the panel. This will keep the lettering surface free of holes.
0526885	Indicator, Extension, Inside and Outside Handrails, Every 10'	**EXTENSION INDICATOR** Extension markings and corresponding numerical indicators will be provided along each inside and outside top rail of the base section of the aerial every 10'. They will indicate various positions of extension up to full. Markings and indicators will be clearly visible to the console operator. To aid in visibility during hours of darkness, the markings and numerical indicators will be black reflective material.
0591645	Steps, Folding, Four, Aerial Device, Trident	**FOLDING STEPS** One (1) set of folding steps will be provided at the tip of the ladder. An additional set of folding steps will be provided at the base of the fly section. The steps will be bright finished, non-skid with a black coating.
0680785	Limited Retraction, Aerial	**LIMITED RETRACTION** The aerial device will have limited retraction.
0674963	Scabbard, Temporary Vent Saw Storage, Aerial Ladder	**TEMPORARY SCABBARD AT END OF AERIAL** There will be a total of one (1) vent saw scabbard(s) provided. The scabbard(s) will be mounted on the right side of the aerial egress. The scabbard(s) will be DA finished.
0678896	Box, Stokes/Backboard Storage, w/Cover, Base Section, In Place of Boom Panel	**STOKES AND BACKBOARD STORAGE BOX** There will be one (1) aluminum storage box(es) provided at the base section of the aerial ladder on the right side of the aerial device while viewed from the turntable. The box will be painted to match the aerial device with the face of the box painted to match the boom sign color. The box (es) will be located in place of the aerial boom panel and have a hinged cover with butterfly latch to secure the equipment. The cover will have the same finish as the box. A divider will be provided to separate the stokes basket and the backboard. The box(es) will have no louvers. The size of the stokes basket and backboard will be 120” Long x 14” Wide x 24” Tall (13.5"W x 88" L x 24" tall inside clear dimensions in stokes area)- Also they want a divider in the box forward of where the stokes would store at approximately 90” to store ropes forward of the stokes box. The maximum capacity of each box will be 75 lb.
0663209	Inclinometer, Additional, Aerial Device	**ADDITIONAL INCLINOMETER** There will be one (1) additional inclinometer(s) provided to indicate the degree of elevation of the aerial device. The inclinometer(s) will be located on the outside of the base section on the opposite side of the standard location. A light will be provided to illuminate the inclinometer.
0786841	Brackets Only, Roof Ladder, Base Section, Inboard of Boom Panel	**LADDER STORAGE MOUNTING BRACKETS** Mounting will be provided on the left side of the aerial device while viewed from the turntable for storage of one (1) roof ladder(s). The bracket(s) will be located inboard of the boom panel at the base section. The bracket(s) will hold the boom panel as close to the base section as possible and include straps to secure the ladder. The mounting brackets will accommodate a 12' Duo-Safety 775-A-DR roof ladder as determined by the type of aerial device and the available space.
0601972	Lights, Turntable Walkway, P25, LED	**LIGHTS FOR TURNTABLE WALKWAY** There will be white LED lights provided at the aerial turntable. The lights will be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights will be activated by the aerial master switch.

0601949	Light, Turntable Console, TecNiq T-10, LED Strip Light	**TURNTABLE CONSOLE LIGHTING** There will be one (1), TecNiq Model T10, white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights will be activated by the aerial master switch.
0057644	Control Stations, 75' HAL	**CONTROL STATION** A control station will be located at the rear of the apparatus in an easily accessible area. Controls and indicator lights are clearly identified and conveniently located for ease of operation and viewing. - Right stabilizer fully extended indicator light - Right stabilizer planted indicator light - Left stabilizer fully extended indicator light - Left stabilizer planted indicator light - Hydraulic emergency power switch - Override switch for stabilizers not fully extended - Manual overrides for aerial and stabilizers - Main hydraulic pressure test port - High idle switch A water tight compartment will be provided in the left rear stabilizer body opening and contains the aerial circuit breakers, interlock components and control circuit distribution terminals. **TURNTABLE CONTROL STATION** An aerial ladder operators position will be supplied as outlined in the current edition of NFPA 1901. The operator's position will be located on the left side of the aerial turntable. The apparatus will be supplied with labels to warn of electrocution hazard. The control console will provide a service access door on the front and side of the console to access hydraulic and electrical connections. The control console will be angled to face the operator with an etched panel for long service life. The console will be labeled and supplied with lights for night operation. **AERIAL LADDER CONTROL LEVERS** The control levers will be arranged as outlined in the current edition of NFPA 1901. They will be capable of being operated independently or simultaneously. The starting or stopping of any one control will not affect the movement speed of the other controls when they are being used simultaneously. The first lever from the left will be the extension control (forward for extend and back for retract). The second lever will be for rotation (forward for clockwise and back for counter clockwise). The third handle will control elevation (forward for down and back for up). The aerial will employ direct hydraulic controls for precise control and dependable service with minimal electrical functions. A foot-operated deadman switch will be provided to prevent unintentional movement as outlined in the current edition of NFPA 1901. Operator's control console will be provided with a hinged aluminum cover. Controls and indicator lights are clearly identified and conveniently located for ease of operation and viewing. Operator's turntable control panel will include: - Elevation, Extension and Rotation controls - Fast idle switch - Panel light mounted in cover - Rung alignment indicator light - Tip/Tracking lights - System pressure gauge - Indicator/Alarm test switch - EPU switch - Load rating tag/decal -"STABILIZER NOT FULLY EXTENDED" indicator light

0593495		Stabilizers, One Set, 75' HAL Single Axle	**STABILIZATION** The vehicle will come equipped with an underslung out and down stabilization system. The system will consist of two (2) hydraulically operated out and down style stabilizers mounted under the frame for a low center of gravity. The stabilizers will have a maximum spread of 16' from the centerline of the footpads when fully extended. The internal tubes will be 8.00" x 10.00" with 1/2" thick top and bottom plates and 3/8" thick sides of 100,000 psi minimum yield strength steel and will be extended out by hydraulic cylinders. The cylinders will have pilot-operated check valves with thermal relief. This will insure that the beams will be in the stowed during travel. The external tubes will be 9-3/4" x 11-3/4" with 3/8" wall thickness. The internal jack tubes will slide on permanently attached wear pads. The extension cylinders will be totally enclosed within the extension beams. The horizontal extension cylinders will be of the trombone type to eliminate wear and potential failure of hydraulic hoses. The stabilizers will have a tip over safety margin of 1 1/2 times its rated load in any position the aerial device can be placed as outlined in the current edition of NFPA 1901. The aerial will be able to sustain a 1 1/3 to 1 rated load on a 5 degree slope downward in the position most likely to cause overturning. The maximum ground slope the apparatus can be set up on is 10 percent. On the 10 percent slope, the apparatus can be leveled within a 5 percent operating range with the apparatus cab facing uphill. The cylinders will be supplied with dual pilot operated check valves on each stabilizer cylinder to hold the cylinder in the stowed or working position should a charged line be severed at any point in the hydraulic system. Stabilizers will contain safety lock valves and will require no mechanical pins to assure there will be no "leak down" of stabilizer legs. Each stabilizer leg will have attached to the end of the leg a 1/8" thick polished stainless steel shield. The stainless steel shield will be of the split-pan design and will be a maximum 13.00" wide to allow the extension of the stabilizer between parked cars. This plate will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back for added strength. The stabilizer cylinders will be sized to maximize ground penetration. The lift cylinders will be mounted on the end of the stabilizer tube and will have the following dimensions: 4.00" bore 3.00" rod 21.00" stroke The stabilizer extension cylinders will have the following dimensions 2.25" bore 1.38" rod 54.00" stroke Each stabilizer that can be extended from the body will be supplied with a red warning light as outlined in the current edition of NFPA 1901. The stabilizers will be connected to a warning light in the cab to warn the operator if the stabilizers are deployed. The ground contact area for each stabilizer will be a 12.00" diameter circular stainless steel disc without the auxiliary pads and 24.00" x 24.00" with lightweight composite material pads deployed. The ground pressure will not exceed 75 psi when the apparatus is fully loaded and the aerial device is carrying its rated capacity in every position. This will be accomplished with the stabilizer pads deployed, as outlined in the current edition of NFPA 1901. There will be one (1) pad located on each side of the apparatus, behind the stabilizers. **STABILIZER CONTROLS** One (1) electric solenoid valve will control the stabilizers. The control switches will be located at the rear of the apparatus, so the operator may observe the stabilizers during deployment. An audible alarm with a minimum 87 dba will also sound while the stabilizers are in motion as required by the current edition of NFPA 1901. Stabilizer deployment will be completed in less than 90 seconds. There will be an interlock that prevents the operation of the ladder until the stabilizers are down and properly set. The interlock system will be designed to prevent aerial movement until the stabilizers are set. Additionally, the system will not permit stabilizer movement when the aerial is out of the cradle. This requirement is outlined in the current edition of NFPA 1901. One (1) switch on each stabilizer leg, will sense when each respective leg is in firm contact with the ground. This condition will be indicated when one green indicator light for each stabilizer is on. The interlock system will have a manual override with access through a door at the turntable access stepwell of the truck. To simplify leveling the apparatus, two color-coded level indicators will be supplied at the rear of the apparatus. One indicator will be for front to rear level and one for side-to-side level.
0548907		Doors, Stabilizer Control Box, Hinged Inboard, Smooth Aluminum	**STABILIZER CONTROL BOX SMOOTH ALUMINUM DOOR** Vertically hinged smooth aluminum doors will be provided over each stabilizer control box. The doors will be hinged inboard.
0743734	SP	Stabilizer Placement, Cameras w/Command Zone Color Display, 1 Set, PB	**STABILIZER PLACEMENT** There will be two (2) cameras provided and installed on the body, one (1) directly above each stabilizer. The cameras will be activated with a switch in the cab that is parking brake controlled and will provide a picture to specify the fully extended stabilizer position allowing the driver the ability to position the vehicle with the proper clearance for stabilizer deployment.

0057647	Hydraulic System, 75' HAL, Single Axle	**POWER TAKEOFF / HYDRAULIC PUMP** The apparatus will be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump will meet all the requirements for the aerial unit operations. The hydraulic system will operate at a nominal 26 gallons per minute flows at pressure up to 2800 pounds per square inch. An amber indicator light will be installed on the cab instrument panel to notify the operator that the power takeoff is engaged. An interlock will be provided that allows operation of the aerial power takeoff shift only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle. **HYDRAULIC CYLINDERS** All hydraulic cylinders used on the aerial device will be produced by a manufacturer that specializes in the production of hydraulic cylinders. **Each hydraulic cylinder will have a structural warranty of not less than five (5) years, and a seal warranty of not less than two and one-half (2.5) years.** **HYDRAULIC SYSTEM** The hydraulic system will have a five year warranty. The hydraulic plumbing will consist of hydraulic rated hoses. The hoses transmitting hydraulic pressure will have abrasion resistant covers. All hydraulic fittings will be plated to minimize corrosion. The fitting will use an "O" ring seal where possible to minimize hydraulic leaks. All pressure carrying hydraulic hoses will have a 4:1 safety rating based on burst pressure. An interlock will be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake set as outlined in the current NFPA 1901 standard. The hydraulic system will be of the load sense design and incorporate features to minimize heat build up and provide smooth control of the aerial ladder. The system will meet the performance requirement in the current NFPA 1901 standard, which requires adequate cooling less than 2 l/2 hours of operations. All hydraulic components that are non-sealing whose failure could result in the movement of the aerial will comply with the current NFPA 1901 standard and have burst strength of 4:1. Dynamic sealing components whose failure could cause aerial movement will have a margin of 2 to 1 on maximum operating pressure per the current NFPA 1901 standard. All hydraulic hoses, tubes and connections will have minimum burst strength of 3:1 per the current NFPA 1901 standard. A hydraulic oil pressure gauge will be supplied at the base control location per the current NFPA 1901 standard. A hydraulic oil dipstick gauge with 100-mesh fill strainer will be supplied at the rear of the unit for easy fluid level verification. A chassis-mounted positive displacement piston pump for consistent pressure and rapid response will supply hydraulic power for all aerial operations. The positive displacement piston pump will be able to supply 26 gallons per minute at a maximum pressure of 2800 psi. The system will operate between 500 and 2800 psi with flow controls to protect hydraulic components and incorporate a relief valve set at 2950 psi to prevent over pressurization. The hydraulic pump will be solely dedicated to aerial operations. The hydraulic system will consist of a 40-gallon reservoir mounted to the pedestal and plumbed to the hydraulic pump. The tank will be supplied with a removable top clean-out cover to access the inside of the tank. There will be plumbing for a supply and return line and a tank drain on the reservoir. The hydraulic pump suction line will have a shut off valve for pump servicing. The hydraulic oil reservoir will be labeled per the current NFPA 1901 standard. The hydraulic system will use multi-weight, SAE grade oil. ISO grade will be based on geographical location. The oil will be pre-filtered before it is installed into the reservoir. Oil samples taken from the oil diagnostic test ports must meet or exceed the hydraulic rating of 18/15/13 per ISO 4406:1999 before delivery. The oil filters will be mounted above the hydraulic reservoir oil level to eliminate oil loss during filter change. The system will incorporate the following filters to provide dependable service: - Separate magnet (not on strainer) - Reservoir suction strainer: 125 mesh - Pressure filter with by-pass indicator: 2/3/5 micron, Beta rating of 2/20/75 or better - Return filter with by-pass indicator: 2/3/5 micron, Beta rating of 2/20/75 or better - Desiccant breather filter: Water capacity 13 fluid oz, 2 micron rating The aerial hydraulic system will be designed in such a manner that a hydraulic pump failure or line rupture will not allow the aerial or outriggers to lose position. Hydraulic holding valves will be mounted directly on cylinders. To insure reliable performance of holding valves, no hoses will be permitted between a holding valve and cylinder. The aerial will incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks. Hydraulic power to the ladder will be transferred from the pedestal by a hydraulic swivel. **EMERGENCY PUMP** The hydraulic system will be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard. The auxiliary power unit will be a 12-volt pump connected to the chassis electrical system. The pump will provide operation at reduced speeds to store the aerial device and outriggers for road transportation. Self-centering switches will be provided at the turntable and each stabilizer control station to activate the system. The system will be designed to provide a minimum of 30 minutes of hydraulic power to operate functions.

0588471	Swivels, w/Encoder, 75' HAL, (32 Collector Rings)	**HYDRAULIC SWIVEL** The aerial ladder will be equipped with a five (5) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel will allow for 360 degree continuous rotation of the aerial. **ELECTRIC SWIVEL** The ladder will be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 32 collector rings will be provided that are capable of supplying 20 amp continuous service. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone will be used. **13-BIT ABSOLUTE ENCODER** The aerial ladder will be equipped with a 13-Bit Absolute Encoder. The 13-Bit Absolute Encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation. If the power is interrupted for any reason, the 13-Bit Absolute Encoder will allow power to be returned to the system without having to re-zero the settings. The 13-Bit Absolute Encoder will be an integral part of a micro-processor based control system.

0072198 Electrical System, 75' HAL

ELECTRICAL SYSTEM
The aerial electrical system will be designed and manufactured in such a way that the power and signal protection and control compartments will contain circuit protection devices and power control devices.
The power and signal protection and control components will be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.
The electrical system will be designed and manufactured in such a way that all of the serviceable components will be readily accessible.
The electrical system will be designed and manufactured so that circuit protection devices will be utilized to protect each circuit.
All circuit protection devices will be sized to prevent wire and component damage when subjected to extreme current overload.
The electrical system will be designed and manufactured so that general protection circuit breakers will be Type-I automatic reset (continuously resetting) or Type-II (manual resetting) and conform to SAE J553 or J258. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 will be utilized to protect electronic equipment.
The electrical system will be designed and manufactured so that power control relays and solenoids, when utilized, will have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.
The aerial electrical system will be designed and manufactured utilizing toggle switches that are certified for the outside conditions that fire apparatus experience and meet military specifications. No rocker style switches are allowed for outside applications.
The aerial electrical system will be designed and manufactured in such a way that all wiring is protected through conduit or loom.
The aerial electrical system will be designed and manufactured in such a way that all wiring harnesses are properly supported to eliminate harness damage through rubbing.
The aerial electrical system will be designed and manufactured in such a way that all connectors utilized in the system will be of a waterproof design.
The aerial electrical system will be designed and manufactured in such a way that all connectors, except for connections to vendor supplied components, will incorporate solid, plated connecting pins.
The aerial electrical system will be designed and manufactured in such a way that a mechanical rocker proximity switch and light are incorporated into the boom support.
The aerial electrical system will be designed and manufactured so that the aerial master and aerial PTO can be engaged after the water pump has been engaged, without having to bring the RPM back to idle.
All switches will meet MIL-SPEC MIL-S-3950 specifications and will have the following features:
Toggle switches with flush screw terminals.
Environmentally sealed
Positive detent action
The aerial electrical system will be designed with standard cabling to the tip of the aerial consisting of the following:
One 12/8 cable.
One 16/20 cable.

LEFT SIDE STABILIZER PANEL
A fuse and relay panel located behind the left side stabilizer.
NEMA 6x rated weatherproof enclosure.
Relays and fuses for aerial and stabilizer interlocks and control switches.

TURNTABLE
The turntable will be lighted for nighttime operation with 2 work lights activated by the aerial master switch.
A footswitch will be located at the turntable console to allow hydraulic flow to the aerial device. A cover to prevent accidental activation of the switch will protect the footswitch. Activation of the footswitch is necessary for aerial device operation.

TURNTABLE CONSOLE
The following switches and indicator lights will be standard on the turntable console:
High Idle On/Off Switch
Tip/Tracking Lights Switch
Indicator And Alarm Test Switch
Emergency Hydraulic Power Switch
Stabilizers Not Fully Extended Amber Indicator Light
Rung Alignment Green Indicator Light
A turntable console will be lighted for nighttime operation with 1 work light activated by the aerial master switch.
A fuse panel located in the turntable console with the following features:
Splash proof enclosure.

TURNTABLE OVERRIDE CONTROLS
Illumination will be provided for the override controls located within the compartment on the turntable console. The light will activate when the aerial master switch is active and the switch on the light is activated.

MASTER OVERRIDE CONTROLS
An emergency power switch will be located in the driver side turntable step well. The switch will activate the emergency power unit and allow control of the aerial or stabilizers based on the direction the switch is toggled.
A work light will be provided to illuminate the master override controls when the battery switch is active and the master override door is open.

BOOM SUPPORT
A Turck relay proximity sensor will be provided on the boom support to detect if the aerial device is fully stowed within the boom support.

0607850		Lights, FRC SRA110-07A* LED Spot, Trk & Tip, 6lts (PAL/HAL)	**SPOTLIGHTS** There will be six (6) Fire Research Model SRA110-07A*, 7,000 lumens 12 volt DC LED lights with polished fixed mounts furnished per the following: One (1) will be mounted on the driver's side of the base section of the ladder One (1) will be mounted on the passenger's side of the base section of the ladder One (1) will be mounted high on the driver's side tip of aerial One (1) will be mounted high on the passenger's side tip of aerial One (1) will be mounted low on the driver's side tip of the aerial One (1) will be mounted low on the passenger's side tip of the aerial The painted parts of this light assembly to be white. Power to the "tracking lights" will be controlled by an on/off switch at the turntable control operator's position. The lights at the tip will be controlled by platform/tip and turntable.
0653737		Lighting, Rung, LED, TecNiq, 3 Section, Base, Mid, Fly	**LIGHTING ON AERIAL LADDER** There will be TecNiq, Model D02, LED rung lighting provided on both sides of the aerial ladder base, mid, and fly sections. The lighting will be located adjacent to the ladder rungs along the lower rail of the ladder sections and will run the length of the ladder section. The color of the sections will be: The base section of the ladder to be blue. The mid section of the ladder to be blue. The fly section of the ladder to be blue and the last three (3) rungs to be red. The LED rung lighting will be activated when the aerial master switch is activated. The lights may be load managed when the parking brake is applied.
0653817		Light, Locator, Wln VTX609*, LED, at Tip, PAL/PAP, 2lts	**AERIAL LOCATOR LIGHT** There will be two (2) Whelen Model VTX609*, 1.00" high x 2.25" in diameter LED modules with chrome flanges installed at the aerial tip for the purpose of locating the aerial device while in operation. Both modules will be activated whenever the aerial is raised from the cradle. The color of the locator light will be blue. The lens color will be clear.
0540737		Lights, Stabilizer Warn (1) Set, Wln M6*C LED, Clear Lens	**STABILIZER WARNING LIGHTS** There will be two (2) Whelen®, Model M6*, LED flashing warning lights with clear lenses and Whelen, Model M6FC, chrome flanges installed on the stabilizer cover panels, one (1) each side. The LED lights will be red. These warning lights will be activated by the same switch as the side warning lights.
0068703		Lights, Grote Supernova LED, Stabilizer Beam, (1) Set	**STABILIZER BEAM WARNING LIGHTS** Two (2) 4.00" diameter red LED flashing lights will be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward. The lights will be Grote Supernova 40 series LED lights. The lights will be recessed in the horizontal beam of the stabilizer. These warning lights will be activated with the aerial master switch.
0762390		Lights, Stabilizer Scene, (1) set, Amdor AY-LB-12HW012, LED	**STABILIZER SCENE LIGHTS** There will be one (1) Amdor®, Model AY-LB-12HW012, 190 lumen, 12" long, white LED strip light installed under each stabilizer beam to illuminate the surrounding area. A total of two (2) lights will be installed. These lights will be activated by the aerial master switch.
0632231	SP	DC Power To Aerial Tip, (HAL) 14.4A @ 12 Volt DC	**PLATFORM 12 VOLT DC CABLE** There will be a cable installed in the aerial device to provide 14.4 amps @ 12 volts DC to the tip of the aerial device.
0594648		Intercom, 2-Way Fire Research ICA900 Hands Free	**2-WAY AERIAL COMMUNICATION SYSTEM** There will be a Fire Research model ICA900-112 two-way intercom system provided. The control module will be located on the turntable operator console, provided there is room, and have an LED volume display and push-button volume control. A hands free module will be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed. Each intercom unit will be weatherproof.
0540895		Not Required, Breathing Air to Tip, Aerial Ladder	
0024742		Not Required, Mask, Breathing Air To Tip	
0056918		Not Required, Raised Aerial Pedestal	

0597280	Lifting Eye Assembly, Rope Rescue Attachment, HDL	**LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT** A lifting eye assembly will be provided that is designed to evenly distribute load at the tip of the aerial. The egress will include attachment points for the lifting eye assembly. The lift eye assembly is retained by two (2) locking pins, one (1) at each end outboard side of the egress. Leveling is maintained by the lifting eye assembly rotating within the egress mounting.
0582168	Collision Avoidance, Align For Stowing, Including Monitor	**COLLISION AVOIDANCE** The aerial device will be supplied with a collision avoidance control system. The collision avoidance control system will be calibrated so that the aerial device does not make contact with any part of the fire apparatus during normal operation. The collision avoidance system will also prevent the aerial device from being lowered into the cradle if the aerial monitor is not in the stowed position. The collision avoidance control system will consist of the following sensors: Single axis sensor to determine aerial device elevation. Angle sensors to determine turntable angle with reference to aerial device position. 13-bit absolute encoder integral to the swivel to determine aerial device rotation. The aerial ladder will be equipped with a 13-bit absolute encoder, which provides 8192 counts per shaft turn for position and direction reference. The 13-bit absolute encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation. If the power is interrupted for any reason, the 13-bit absolute encoder will allow power to be returned to the system without having to re-zero the settings. The 13-bit absolute encoder will be an integral part of a microprocessor based control system The collision avoidance control system will be divided up to a maximum of nine (9) control zones. Each zone will have its own independent rotation and elevation parameters. The collision avoidance control system will be equipped with a warning system that alerts the operator when the aerial device has reached the limits of each control zone. The warning system will sound when either the rotation or elevation movements reach the limits of the control zone. The warning system alarm and red light will be active whenever the ladder is in a restricted area and will then prevent aerial device movement. A green indicator light will activate when the aerial is in a position to be safely stowed. **COMMAND ZONE WARRANTY** The Command Zone components will be warranted against defective materials or workmanship for a period of **five (5) years** from the date of delivery to the original purchaser. The warranty will also include a standard repair time for covered components. A copy of the fire apparatus manufacturer's warranty will be included with the bid.
0530826	Turntable Access, ManSaver Bars, Yellow	**AERIAL TURNTABLE MANSAVER™ BARS** ManSaver™ bars will be installed at the aerial turntable.
0057610	Waterway, High Flow, 1500 GPM, 75' HAL	**WATER SYSTEM** A waterway system will be provided consisting of the following components and features: A 5.00" pipe will be connected to the water supply on one end and to a 4.00" internal diameter water swivel at the rotation point of the turntable. The water swivel will permit 360 degree continuous rotation of the aerial device. The 4.00" waterway swivel is to be routed through the rotation point swivel up to the heel pin swivel. The heel pin swivel will allow the water to flow to the ladder pipe while elevating the aerial ladder from -5 degrees to 75 degrees. The heel pivot pin is not integral with the waterway swivel at any point. The design of the waterway will allow complete servicing of the waterway swivel without disturbing the heel pivot pin. The integral telescopic water system will consist of a 4.50" diameter tube in the base section, a 4.00" diameter tube in the mid-section and a 3.50" diameter tube in the fly section. The telescopic waterway will be constructed of anodized aluminum pipe. The rotational torque will have adequate power to rotate the ladder into a full 1500 gallon per minute water stream directed at 90 degrees to the side while maintaining the 500 pound tip load. The aerial will be capable of discharging up to 1500 gallons per minute at 100 pounds per square inch parallel to the ladder and 90 degrees to each side of center while maintaining the 500 pound tip load. The safety factor will be 2.5:1 while flowing up to 1000 gallons per minute at 100 pounds per square inch and 2:1 while flowing between 1000 and 1500 gallons per minute at 100 pounds per square inch. An adjustable pressure relief valve will be furnished to protect the aerial waterway from a pressure surge. A 1.50" drain valve will be located at the lowest point of the waterway system. **WATERWAY SEALS** The waterway seals will be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals will be internally lubricated. The waterway seals will have automatic centering guides constructed of synthetic thermalpolymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.
0659015	Monitor, TFT Monsoon Y4-E21A-L Electric	**AERIAL MONITOR** A Task Force Tips Model Y4-E21A-L monitor with stow will be provided at the tip with a TFT 1500 gpm model. The monitor's functions will be controlled electrically from two (2) separate locations. One (1) control will be located at the control console and the other at the ladder tip. There will be a courtesy light at the tip of the aerial to illuminate the controls.

0534379	Flowmeter, FRC, Waterway, PAL	**AERIAL WATERWAY FLOW METER** A Fire Research Corporation Model DF430, digital flow indicator with a four (4) digit LED display will be provided for the aerial waterway at the turntable control station. The display will have a flow totalizer, programmable high and low flow warnings, and automatically adjust LED brightness for day/night viewing.
0074317	Inlet, 5.00" w/5.00" Aluminum, Plumbing at Rear, 75' HAL Single Axle	**REAR INLET** A 5.00" NST inlet to the aerial waterway will be provided at the rear of the apparatus. The inlet will have 5.00" aluminum plumbing. It will be furnished with a 5.00" chrome plated adapter and a 5.00" chrome plated, long handle cap.
0011742	Quick-Lock Waterway Locking System, PAL	**WATERWAY LOCKING SYSTEM** The aerial ladder waterway monitor will be capable of being positioned at either the fly section or at the next lower section of the ladder. The monitor location will be changeable by the use of a single handle, located at the side of the ladder. The handle, attached to a cam bracket, will simply be moved forward to lock the monitor at the fly section and back to lock it to the previous section. There will be no pins to remove and reinstall. The monitor will be operational at all times, regardless of its position, without connecting or disconnecting electrical lines.
0013164	Elbow, Aerial Inlet, 5" FNST x 5" Storz w/Cap	**ADAPTER, STORZ INLET** There will be one (1) Storz 5.00" FNST x 5.00" Storz 30 degree elbow(s) with blind cap provided rear inlet.
0047901	Not Required, Tools, Aerial, PAL/PAP	
0559494	Manuals and Training, 3 Consecutive Days, Ascendant Ladder, PAL	**MANUALS** Two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device will be provided with the apparatus at time of pick-up. **INITIAL INSTRUCTION** On initial delivery of the fire apparatus, the contractor will supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of three (3) consecutive days.
0007150	Bag of Nuts and Bolts	**LOOSE EQUIPMENT** 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.

0602497	NFPA Required Loose Equipment, Quint, NFPA 2016, Provided by Fire Department	**NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT** The following loose equipment as outlined in NFPA 1901, 2016 edition, section 9.9.3 and 9.9.4 will be provided by the fire department. 800 ft (240 m) of 2.50" (65 mm) or larger fire hose, in any combination. 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose, in any combination. One (1) handline nozzle, 200 gpm (750 L/min) minimum. Two (2) handline nozzles, 95 gpm (360 L/min) minimum. One (1) playpipe with shutoff and 1.00" (25 mm), 1.125" (29 mm), and 1.25" (32 mm) tips. 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) salvage covers, each a minimum size of 12 ft × 14 ft (3.6 m × 5.5 m). 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. Four (4) ladder belts meeting the requirements of NFPA 1983. One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983. One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983. One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, 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). 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.
0602397	Soft Suction Hose, Provided by Fire Department, Quint NFPA 2016 Classification	**SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT** NFPA 1901, 2016 edition, section 9.8.2.1 requires a minimum of 20' of suction hose or 15' of supply hose will be carried. Hose is not on the apparatus as manufactured. The fire department will provide suction or supply hose.
0027023	No Strainer Required	
0602534	Extinguisher, Dry Chemical, Quint NFPA 2016, Provided by Fire Department	**DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT** NFPA 1901, 2016 edition, section 9.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus. The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.
0602352	Extinguisher, 2.5 Gal. Pressurized Water, Quint, NFPA 2016,Provided by Fire Dept	**WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT** NFPA 1901, 2016 edition, section 9.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus. The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.
0007482	Not Required, Crowbars	
0007484	Not Required, Claw Tools	

0602883	Axe, Flathead, Quint NFPA 2016, Provided by Fire Department	**FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT** NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus. The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.
0602670	Axe, Pickhead, Quint NFPA 2016, Provided by Fire Department	**PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT** NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus. The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.
0007494	Not Required, Sledgehammers	

0559682	Paint, Two Tone, Cab, w/Shield, Custom Cab	**PAINT** 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. A final pure water rinse will be applied to all metal surfaces. 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 manufacture. Each batch of basecoat color is checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color is verified again to make sure that it matches the color standard. Electronic color measuring equipment is used to compare the color sample to the color standard entered into the computer. Color specifications are used to determine the color match. A Delta E reading is used to determine a good color match within each family color. All removable items such as brackets, compartment doors, door hinges, and trim will be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly. Pierce Manufacturing paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) meet or exceed the Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels meet or exceed the #6 A.C.T.standard in critical areas. These requirements are met in order for the exterior paint finish to be considered acceptable. The Pierce Manufacturing written paint standards will be available upon request. The cab will be two-tone, with the upper section painted #267 white along with a shield design on the cab face and lower section of the cab and body painted Red 268 lower. **PAINT - 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% efficiency factor. Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean. Paint wastes are disposed of in an environmentally safe manner. Empty metal paint containers will be to recover the metal. Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse. Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

0646901	Paint Chassis Frame Assy, With Liner, 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 that are included with the chassis frame assembly that will be painted are: Frame rails Frame liners 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 Components treated with epoxy E-coat protection prior to paint: Two (2) C-channel frame rails Two (2) frame liners The E-coat process will meet the technical properties shown.
0693797	No Paint Required, Aluminum Front Wheels	
0693792	No Paint Required, Aluminum Rear Wheels	
0007234	Compartment, Unpainted, D/A Finished	**COMPARTMENT INTERIOR FINISH** The interior of the compartments will be dual action finished and not painted.
0764048	Aerial Ladder Swirl Finish, 75' HAL	**AERIAL TURNTABLE PAINT COLOR** All aerial device ladder sections will have a natural swirl finish. The aerial device paint procedure will consist of a seven (7) step finishing process as follows: 1. Manual Surface Preparation - All exposed metal surfaces on the aerial device structural components above the rotation point will be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting. 2. Zinc Rich Primer - Zinc rich primer will be applied to the torque box and stabilizers. 3. Primer/Surfacer Coats - A two (2) component epoxy primer/surfacer will be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams will be caulked with a two (2) component epoxy caulk before painting. 4. Hand Sanding - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish. 5. Primer Coat - A two (2) component epoxy primer coat will be applied over the sanded primer. 6. Topcoat Paint - Urethane base coat will be applied to opacity for correct color matching. 7. Clear Coat - Two (2) coats of an automotive grade two (2) component urethane will be applied. Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate. All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor. Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items. The aerial device components will be painted as follows using the aforementioned seven (7) step finishing process: Aerial turntable: white 10 Aerial control console: white 10 Aerial lift and extension cylinders: white 10 Aerial torque box, support structure and components below the rotation point: gloss black primer Aerial stabilizers: black 101 Aerial egress: #50 red Aerial boom support: black 101
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.
0007356	Reflective across Cab Face	The reflective band provided on the cab face will be at the headlight level.

0543091		Stripe, Chevron, Rear, Diamond Grade, Aerial, 75' HAL, Standard Quint	**REAR CHEVRON STRIPING** There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the rear wall and aluminum doors. Roll up doors, stainless steel access doors, and the center rear wall behind the access steps will not be covered in chevron. The colors will be red and fluorescent yellow green diamond grade. Each stripe will be 6.00" in width. This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.
0598754		Stripe, Reflective/Diamond Grade, 4.00" on Stabilizers	**REFLECTIVE STRIPE ON STABILIZERS** There will be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.
0087342		Jog, "Z"-Shaped, In Reflective Stripe	**"Z" JOG IN REFLECTIVE STRIPE** There will be one (1) "Z"-shaped jog(s) provided in the reflective stripe design.
0696574		Stripe, Black Outline each Chevron Stripe on Front Bumper	**OUTLINE, REFLECTIVE STRIPE** A black vinyl outline will be provided for each chevron stripe on the front bumper of the truck.
0628685	SP	Stripe, .25" Reflective Outline on Reflective Band (Rollups Only)	**REFLECTIVE OUTLINE STRIPE** A .25" ruby red reflective outline will be applied to the top and the bottom of the reflective band on the rollup doors only. There will be three (3) set of outline stripes required.
0671876		Stripe, Diamond Grade Chevron, Slide Out Tray, Front and Sides	**SLIDE OUT TRAY DIAMOND GRADE CHEVRON STRIPING** A series of alternating red diamond grade and fluorescent yellow green diamond grade reflective stripes will be applied to the front and sides of six (6) slide out tray(s) located All trays D1, D3, P4, P6.
0670035		Stripe, Diamond Grade Chevron, Toolboard	**TOOLBOARD DIAMOND GRADE CHEVRON STRIPING** A series of alternating red diamond grade and fluorescent yellow green diamond grade reflective stripes will be applied to the one (1) toolboard(s) located D3 toolboard.
0671595		Stripe, Diamond Grade Chevron, Swing Down Turntable Access Steps, Front and Rear	**DIAMOND GRADE CHEVRON STRIPE ON TURNTABLE ACCESS STEPS** A red diamond grade and fluorescent yellow green diamond grade stripe will be provided on the front and rear sides of the swing down turn table access steps. one (1) step(s) will be striped.
0638073	SP	Stripe, Slanted, on Rear Body Fenders, Diamond Grade	**REFLECTIVE STRIPE ON REAR FENDERS** There will be a 6.00"fluorescent yellow green and a red Diamond Grade reflective stripe provided on the rear body fender panels. The striping will consist of a series of rearward slanted stripes on each side fender panel. There will be no striping installed on any air bottle or fuel fill doors.
0545179		Stripe, Diamond Grade, Chevron, Front Bumper	**CHEVRON STRIPING ON THE FRONT BUMPER** 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".
0552453		Stripe, Reflective, Chevron, Cab and Crew Cab Doors Interior, Diamond Grade	**INVERTED "V" CHEVRON STRIPING ON CAB AND CREW CAB DOORS** There will be alternating chevron striping located on the inside of each cab and crew cab door. The striping will consist of the following colors: The first color will be fluorescent yellow green diamond grade The second color will be red diamond grade The size of the striping will be 4.00".
0027372		Lettering Specifications, (GOLD STAR Process)	**LETTERING** The lettering will be totally encapsulated between two (2) layers of clear vinyl.
0686432		Lettering, Gold Leaf, 3.00", Each	**LETTERING** There will be genuine gold leaf lettering, 3.00" high, with outline and shade provided. There will be eight (8) letters provided.
0685985		Lettering, Reflective, 12.00", Each	**LETTERING** There will be reflective lettering, 12.00" high, with outline and shade provided. There will be three (3) letters provided.

0685993	Lettering, Reflective, 10.00", Each	**LETTERING** There will be reflective lettering, 10.00" high, with outline and shade provided. There will be six (6) letters provided.
0686000	Lettering, Reflective, 8.00", (21-40)	**LETTERING** Twenty-one (21) to forty (40) reflective lettering, 8.00" high, with outline and shade will be provided.
0686027	Lettering, Reflective, 4.00", (21-40)	**LETTERING** Twenty-one (21) to forty (40) reflective lettering, 4.00" high, with outline and shade will be provided.
0686084	Lettering, Reflective, 3.00", Each	**LETTERING** There will be reflective lettering, 3.00" high, with outline and shade provided. There will be ten (10) letters provided.
0056505	Emblem, "Honoring America's Bravest" w/Helmet, Color Image, Std, Pair	**EMBLEM** There will be one (1) pair of emblems with the words "HONORING AMERICA'S BRAVEST 9-11-01" and a firefighter's helmet will be mounted crew cab window.crew cab window The emblems will be color imaged.
0017273	Emblem, Maltese Cross, Gold Leaf, 12"-14", Pair	**MALTESE CROSS INSTALLATION** There will be one (1) pair of maltese crosses, comprised of genuine gold leaf material, provided and installed cab door.
0769755	Emblem, Texas Flag Painted on Cab Grille, All Custom Chassis	**CAB GRILLE DESIGN** A Texas flag design will be painted on the cab grille.
0772003	Manual, Fire Apparatus Parts, USB Flash Drive, Custom	**FIRE APPARATUS PARTS MANUAL** There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided. The manual(s) will contain the following: Job number Part numbers with full descriptions Table of contents Parts section sorted in functional groups reflecting a major system, component, or assembly Parts section sorted in alphabetical order Instructions on how to locate parts 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. **SERVICE PARTS INTERNET SITE** 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.
0772037	Manual, Chassis Service, USB Flash Drive, Custom	**CHASSIS SERVICE MANUALS** There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit. The manual will contain the following sections: Job number Table of contents Troubleshooting Front Axle/Suspension Brakes EngineTires Wheels Cab Electrical, DC Air Systems Plumbing Appendix The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.
0772065	Manual, Chassis Operation, (2) USB Flash Drives, Custom	**CHASSIS OPERATION MANUAL** The chassis operation manual will be provided on two (2) USB flash drives.
0030008	Warranty, Basic, 1 Year, Apparatus, WA0008	**ONE (1) YEAR MATERIAL AND WORKMANSHIP** A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

0691148	Warranty, 2010 Engine, Cummins ISL9, 5 Years Std + 5 years Major Comp, WA0192	**ENGINE EXTENDED WARRANTY** Cummins will provide a seven (10) year/200,000 mile, whichever occurs first, Major Components Coverage warranty on the ISL9 engine. This warranty will cover 100% parts and labor. The warranty will be subject to a $100.00 deductible for all service visits after expiration of the base warranty of five (5) years/100,000 miles, whichever occurs first. The extended warranty coverage, beyond the base warranty, will be limited to the following major components. Engine cylinder block casting Engine cylinder head castings and cap screws Engine crankshaft forging Engine camshaft forging Engine connecting rods Flywheel housing Intake manifold castings Valve covers Oil cooler cover/filter heads Oil pan Gear cover and housing (excluding front gear) Gear train gears Crankshaft gear Camshaft idler gear Accessory drive gear Fuel pump drive gear
0696698	Warranty, Engine, Cummins, 5 Year, WA0181	**ENGINE WARRANTY** A Cummins **five (5) year** limited engine warranty will be provided. A limited warranty certificate, WA0181, is included with this proposal.
0684953	Warranty, Steering Gear, Sheppard M110, 3 Year WA0201	**STEERING GEAR WARRANTY** A Sheppard **three (3) year** limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.
0595767	Warranty, Frame, 50 Year, Velocity/Impel, Dash CF, WA0038	**FIFTY (50) YEAR STRUCTURAL INTEGRITY** The Pierce custom chassis frame and crossmembers limited warranty certificate, WA0038, is included with this proposal.
0595698	Warranty, Axle, 3 Year, TAK-4, WA0050	**FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY** The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.
0777368	Warranty, Axle, 2 Year, Meritor, General Service, WA0328	**REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY** A Meritor axle limited warranty certificate, WA0046, is included with this proposal.
0652758	Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	**ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY** A Meritor Wabco™ABS brake system limited warranty certificate, WA0232, is included with this proposal.
0019914	Warranty, Structure, 10 Year, Custom Cab, WA0012	**TEN (10) YEAR STRUCTURAL INTEGRITY** The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.
0595813	Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	**TEN (10) YEAR PRO-RATED PAINT AND CORROSION** A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.
0524627	Warranty, Electronics, 5 Year, MUX, WA0014	**FIVE (5) YEAR MATERIAL AND WORKMANSHIP** The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.
0695416	Warranty, Pierce Camera System, WA0188	**CAMERA SYSTEM WARRANTY** A Pierce fifty four (54) month**warranty will be provided for the camera system.**
0647720	Warranty, Pierce LED Strip Lights, WA0203	**COMPARTMENT LIGHT WARRANTY** 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	**TRANSMISSION WARRANTY** The transmission will have a **five (5) year/unlimited mileage** 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	**TRANSMISSION COOLER WARRANTY** 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	**WATER TANK WARRANTY** A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.
0596025	Warranty, Structure, 10 Year, Body, WA0009	**TEN (10) YEAR STRUCTURAL INTEGRITY** The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.
0693126	Warranty, AMDOR, Roll-up Door, 10 Year/5 Year Painted, WA0185	**ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY** An AMDOR roll-up door limited warranty will be provided. The roll-up door will be warranted against manufacturing defects for a period of **ten (10) years**. A **five (5) year** limited warranty will be provided on painted roll up doors. The limited warranty certificate, WA0185, is included with this proposal.
0524521	Warranty, Pump, Pierce, PUC, 10 Year Parts, 1 Year Labor, WA0049	**TEN (10) YEAR PARTS, ONE (1) YEAR LABOR** The pump and its components will be provided with a ten (10) year parts and one (1) year labor limited warranty. The manufacturer's warranty will provide that the pump and its components will be free from failures caused by defects in material and workmanship that would arise under normal use and service. A copy of the warranty certificate will be submitted with the bid package.
0648675	Warranty, 10 Year S/S Pumbing, WA0035	**TEN (10) YEAR PUMP PLUMBING WARRANTY** The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.
0641372	Warranty, Foam System, Not Available	
0006999	Warranty, Structure, 20 Year, Aerial Device, WA0052	**TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY** The Pierce device limited warranty certificate, WA0052, is included with this proposal.
0687388	Warranty, Swivels, 5 Year, Aerial Device, WA0197	**AERIAL SWIVEL WARRANTY** An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.
0685727	Warranty, Hydraulic System and Components, 3 Year/5 Year, WA0200	**HYDRAULIC SYSTEM COMPONENTS WARRANTY** Aerial hydraulic system components will be provided with a five (5) year material and workmanship limited warranty. **HYDRAULIC SEAL WARRANTY** Aerial hydraulic seals will be provided with a three (3) year material and workmanship limited warranty. A copy of the warranty certificates will be submitted with the bid package.
0687327	Warranty, Waterway, 10 Year, Aerial Device, WA0198	**AERIAL WATERWAY WARRANTY** An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.
0595860	Warranty, Paint, 4 Year, Aerial Device, Pro-Rated, WA0047	**FOUR (4) YEAR PRO-RATED PAINT AND CORROSION** A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal.
0595820	Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	**TEN (10) YEAR PRO-RATED PAINT AND CORROSION** A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

0595421	Warranty, Goldstar, 3 Year, Apparatus, WA0018	**THREE (3) YEAR MATERIAL AND WORKMANSHIP** The Pierce Goldstar gold leaf lamination limited warranty limited warranty certificate, WA0018, is included with this proposal.
0596326	Warranty, Extended, 2 Year, Custom Chassis, Class H, WA0069	**TWO (2) YEAR EXTENDED** The Pierce custom chassis warranty certificate, WA0069, is included with this proposal.
0683627	Certification, Vehicle Stability, CD0156	**VEHICLE STABILITY CERTIFICATION** 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.
0794807	Certification, Engine Installation, Dash CF, Cummins L9, 2017, CD0154	**ENGINE INSTALLATION CERTIFICATION** The fire apparatus manufacturer will make available 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 available at the time of bid.
0686786	Certification, Power Steering, CD0098	**POWER STEERING CERTIFICATION** 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.
0696029	Certification, Cab Integrity, Dash CF, CD0099	**CAB INTEGRITY CERTIFICATION** The fire apparatus manufacturer will provide a cab integrity certification with this proposal. The certification will state that the cab has been tested and certified by an independent third-party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The certification must state that the cab must meet or exceed the requirements below: European Occupant Protection Standard ECE Regulation No.29 SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks Roof Crush The 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 10 metric tons. Additional Roof Crush The same cab will be subjected to a roof crush force of 120,000 lbs. This value exceeds the ECE 29 criteria by nearly 5.4 times. Side Impact The same cab will be subjected to dynamic preload where a 13,275 lb moving barrier slams into the side of the cab at 5.5 mph at a force of 13,000 ft-lbs. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident. Frontal Impact The same cab will withstand a frontal impact of 32,600 ft-lbs of force using a moving barrier in accordance with SAE J2420. The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.
0695966	Certification, Cab Door Durability, Dash CF, CD0118	**CAB DOOR DURABILITY CERTIFICATION** 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.
0695932	Certification, Windshield Wiper Durability, Dash CF, CD0120	**WINDSHIELD WIPER DURABILITY CERTIFICATION** 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 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles.* The successful bidder will certify prior to delivery that the wiper system design has been tested and that the wiper system has met these criteria.
0695965	Certification, Electric Window Durability, Dash CF, CD0121	**ELECTRIC WINDOW DURABILITY CERTIFICATION** 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.

0695933	Certification, Seat Belt Anchors and Mounting, Dash CF, CD0122	**SEAT BELT ANCHOR STRENGTH** 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. **SEAT MOUNTING STRENGTH** 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.
0695964	Certification, Cab Heater and Defroster, Dash CF, CD0119	**CAB DEFROSTER CERTIFICATION** 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*. The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria. **CAB HEATER CERTIFICATION** Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters will warm the cab 75 F from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify that a substantially similar heater has been tested and has met these criteria.
0695971	Certification, Cab Air Conditioning Performance, Dash CF, CD0108	**CAB AIR CONDITIONING PERFORMANCE CERTIFICATION** Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 67 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar air conditioning system has been tested and has met these criteria. The certification will be available at the time of bid.
0545073	Amp Draw Report, NFPA Current Edition	**AMP DRAW REPORT** 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).
0002758	Amp Draw, NFPA/ULC Radio Allowance	
0799248	Appleton/Florida BTO	
0000047	AERIAL 3RD GEN	
0000012	PIERCE CHASSIS	
0004713	ENGINE, OTHER	
0046395	EVS 3000 Series TRANSMISSION	
0780025	PIERCE PUMP, PUC, DASH CF	
0020009	POLY TANK	
0028047	NO FOAM SYSTEM	

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