KME FIRE APPARATUS

103’ Rearmount Quint

Corona Fire Department

May 26, 2024

DESIGN CLAUSE - PRICE SLOT 42

QTY: 1

These specifications outline the components, installation methods, and operational characteristics KME is agreeing to provide in order to meet the purchaser's requirements. Subject to the terms of the purchase agreement, other construction details not explicitly listed in these specifications will be determined at the discretion of the builder. In the event the purchaser desires a different construction or installation not already described in these specifications, additional charges may apply, and quoted lead time commitments will be adjusted.

ENGINE CLAUSE

If an L9 engine is **NOT** available or cannot be provided for that specific quote or build slot at time of production, you will **automatically be upgraded and charged for an X12 (or the X10 engine) with all costs associated with the upgrade being passed on to the end user. No exceptions.**

PROPOSED BY - KME FIRE APPARATUS - CALIFORNIA

QTY: 1

KME Fire Apparatus is pleased to offer the proposed vehicle to meet the intent of the fire department specifications.

KME Fire Apparatus is a leading manufacturer in custom and commercial fire fighting vehicles.

Questions or concerns pertaining to this proposal can be answered by contacting the following KME personnel:

KME Fire Apparatus
4725 Troy Ct.
Jurupa Valley, CA 91761

Phone: (800) 328-1033 / (909) 937-3326

Fax: (909) 937-1762

E-mail: kmeca@kovatch.com

PROPOSED SERVICE BY - KME FIRE APPARATUS - CA

QTY: 1

SERVICE CENTER AND PARTS DEPOT

KME Fire Apparatus
FACTORY BRANCH - CALIFORNIA

KME APPARATUS SERVICE STATEMENT

The proposed KME Fire Apparatus vehicle is offered with complete single-source service performed by the regional KME factory service center.

Service is provided by:
KME Fire Apparatus
4725 Troy Ct.
Jurupa Valley, CA 91761
Phone: (800) 328-1033 / (909) 937-3326
Fax: (909) 937-1762
Email: kmeca@kovatch.com

John Whitney - Service Manager

Service Center Capabilities:
KME Fire Apparatus in Ontario, CA. celebrates fourteen (14) years of operation and employs twenty (20) people. The factory owned operation employs nine (9) full-time service mechanics two (2) certified paint and body technicians and two (2) fabrication technicians to handle any service-related issues or operational improvements that you may desire.

KME Fire Apparatus employees EVTCC and ASE certified technicians, along with PPG and DuPont certified body shop technicians.
KME Fire Apparatus operates five (5) mobile service trucks that offer In-Station Service repairs to your apparatus when needed. We also have towing available should your unit need to travel to our service facility.
KME Fire Apparatus offers a twenty-four (24) hour service plan in which assigned service personnel carry pagers; one (1) man is always on call to handle any truck that is down and out of service.

KME Fire Apparatus offers:
Sheet metal repair and fabrication
Pump and electrical repair
Aerial ladder service and repair
Booster tank repair and replacement
Minor or major refurbishment capabilities
Mobile pump testing at your facility

KME Fire Apparatus offers factory authorized service and repairs to all makes of fire apparatus equipped with Hale, Waterous and Darley Pumps.

KME Fire Apparatus has the largest inventory of apparatus parts in Southern California and offers quick turn-around parts delivery when your unit is down. We also offer a large loose goods line and apparel to service the fire industry.

KME Fire Apparatus contact information, of proud service professionals.

Service Contacts - (951) 685-1237
John Whitney - Service Manager
Alfred Dominuez - Warranty

Parts and Loose Goods Sales - (951) 685-1237
Matthew Groth – Parts Manager

KME Fire Apparatus employees are protected by Workman's Compensation Insurance.

A 1 Million Dollar Garage Keepers Liability Insurance Coverage and a 25 Million Dollar Product Liability Insurance Policy protect your fire department and your fire department equipment.

FAIR ETHICAL & LEGAL COMPETITION

QTY: 1

In order to ensure fair, ethical, and legal competition, neither original equipment manufacturer (OEM) nor parent company of the OEM shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

There will be no exceptions.

MATERIAL & WORKMANSHIP

QTY: 1

All equipment furnished shall be guaranteed to be new and of current manufacture, to meet all requirements of these specifications.

All workmanship shall be of high quality and accomplished in a professional manner so as to insure a functional apparatus with a pleasing, aesthetic appearance.

APPROVAL DRAWING

QTY: 1

A detailed drawing of the apparatus shall be provided to the purchaser for approval before construction begins. A copy of this drawing shall also be provided to the manufacturer's representative. Upon purchaser's approval, the finalized drawing shall become a part of the total contract.

The drawing shall show, but is not limited to, such items as the chassis make and model, major components, location of lights, sirens, all compartment locations and dimensions, special suctions, discharges, etc. The drawing shall be a visual interpretation of the apparatus as it is to be supplied.

DELIVERY

QTY: 1

Delivery of the apparatus to the customer shall remain the bidder's responsibility.

On initial delivery of the fire apparatus, a qualified and responsible representative of the contractor shall demonstrate the apparatus and provide initial instruction to representatives of the customer regarding the operation, care, and maintenance of the apparatus and equipment supplied.

VEHICLE FLUID PLATE

QTY: 1

As required by NFPA-1900, the contractor shall affix a permanent plate in the driver's compartment specifying the quantity and type of the following fluids used in the vehicle:

A permanent plate in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle:

- Engine oil
- Engine coolant
- Chassis transmission fluid
- Pump transmission lubrication fluid
- Pump primer fluid
- Drive axle(s) lubrication fluid
- Air-conditioning refrigerant
- Air-conditioning lubrication oil
- Power steering fluid
- Cab tilt mechanism
- Transfer case fluid
- Equipment rack fluid
- Air compressor system lubricant
- Generator system lubricant
- Aerial systems

PRE-DELIVERY SERVICE

QTY: 1

After transportation from the factory and immediately prior to delivery to the fire department, the apparatus shall receive a pre-delivery service consisting of: engine oil filter change, chassis lubrication,

fuel filter(s) changed, adjustment of engine to manufacturers specifications, complete inspection including all electrical and mechanical devices, for proper operation and correction of leaks or obvious problems.

AMP DRAW REPORT

QTY: 1

The bidder shall provide with their bid proposal and at the time of delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

A written load analysis, which shall include the following:

- The rating of the alternator.
- The minimum continuous load of each component that is specified per: Applicable NFPA-1900.
- 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 shall be provided by the bidder per the applicable NFPA-1900.

PRODUCTION LEVEL ELECTRICAL DRAWINGS

QTY: 1

KME shall provide production level harness drawings for the specific unit to be built.

AS-BUILT PLUMBING SCHEMATICS

QTY: 1

In accordance with standard commercial practices, the manufacturer shall supply two (2) copies of "AS BUILT" plumbing schematics/diagrams for the pumping system at the time of delivery.

AS-BUILT AIR SYSTEM SCHEMATICS

QTY: 1

In accordance with standard commercial practices, KME will supply two (2) copies of "AS BUILT" air schematics/diagrams for the air system at the time of delivery.

INSPECTION TRIPS (3)

QTY: 1

The successful bidder shall provide three (3) factory inspection trips to the apparatus manufacturer's facility.

Transportation, meals, lodging, and other requisite expenses shall be the bidder's responsibility.

ACCOMMODATIONS FOR FOUR (4)

QTY: 1

Accommodations shall be for four (4) Fire Department representatives per trip.

The factory visits shall occur at the following stages of production of the apparatus:

TRIP ONE (1) AT PRE CONSTRUCTION

QTY: 1

Pre-construction / blueprint review.

TRIP TWO (2) AT MID-POINT COMPLETION

QTY: 1

Midpoint completion of entire apparatus.

TRIP THREE (3) AT FINAL COMPLETION

QTY: 1

Final inspection upon completion.

COMPLETION INFORMATION

QTY: 1

The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents.

- Owners name and address Apparatus manufacturer, model and serial number
- Chassis make, model and serial number
- Front tire size and total rated capacity in pounds
- Rear tire size and total rated capacity in pounds
- Chassis weight distribution in pounds with water and manufacturer mounted equipment, front and rear
- Engine make, model, serial number, rated horsepower, rated speed and governed speed
- Type of fuels and fuel tank capacity
- Electrical system voltage and alternator output in amps.
- Battery make, model and total capacity in cold crank amps (CCA)
- Transmission make, model, and serial number. If so equipped chassis transmission PTO(s) make, model and gear ratio
- Pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Pump transmission make, model, serial number and gear ratio
- Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable) and serial number
- Water tank certified capacity in gallons or liters
- Paint manufacturer and paint number(s)
- Company name and signature of responsible company representative
- Certification of slip resistance of all stepping, standing and walking surfaces.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturer's certification of suction capability.

If the apparatus has a fire pump or an industrial supply pump, a copy of the apparatus manufacturer's approval for stationary pumping applications.

If the apparatus has a fire pump or an industrial supply pump, the engine manufacturers certified brake horsepower curve for the engine furnished, showing the maximum governed speed.

If the apparatus has a fire pump or an industrial supply pump, the pump manufacturers certification of hydrostatic test.

If the apparatus has a fire pump or an industrial supply pump, the third party certification of inspection and test for the fire pump (if applicable).

If the apparatus has an aerial device the third party certification of inspection and test for the aerial device.

If the apparatus has an aerial device, all the technical information required for inspections to comply with NFPA 1911, Standards for Testing Fire Department Aerial Devices.

If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source (if applicable).

If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation.

Weight documents from certified scale - showing actual loading on the front axle, rear axle(s) and overall vehicle (with the water tank full but without personnel, equipment and hose) shall be supplied with the complete vehicle to determine compliance with NFPA-1900.

Written load analysis and results of electrical performance tests.

If the apparatus is equipped with a water tank, the certification of water tank capacity by the tank manufacturer.

FMVSS REQUIREMENT

QTY: 1

The chassis shall be certified by the apparatus manufacturer as conforming to all applicable Federal Motor Vehicle Safety Standards in effect at the date of contract.

This shall be attested to by the attachment of a FMVSS certification label on the vehicle by the contractor who shall be recognized as the responsible final manufacturer.

GENERAL CONSTRUCTION

QTY: 1

The complete apparatus, assemblies, subassemblies, component parts, etc., shall be designed and constructed with the due consideration to the nature and distribution of the load to be sustained and to the general character of the service to which the apparatus is to be subject.

All parts of the apparatus shall be designed with a factor of safety, which is equal to or greater than that which is considered standard and acceptable for this class of equipment in fire fighting service.

All parts of the apparatus shall be strong enough to withstand general service under full load.

The apparatus shall be so designed that the various parts and readily accessible for lubrication, inspection, adjustment and repair.

Bidder's specifications must meet minimum requirements of N.F.P.A. Pamphlet #1900 and all State and Federal Department of Transportation vehicle regulations at time of sale of unit.

The apparatus shall be designed and constructed, and the equipment so mounted, with due consideration to distribution of the load between front and rear axles that all specified equipment, including a full complement of specified ground ladders, full water tank, loose equipment, and firefighters shall be carried without overloading or injuring the apparatus.

PRODUCT LIABILITY

QTY: 1

Each bidder shall supply proof of product liability and facility insurance equal to or exceeding $30,000,000.00.

This shall be provided as part of the proposal. There will be no exceptions.

PAINT CERTIFICATION

QTY: 1

The finish paint shall be certified by the apparatus manufacturer as conforming to all applicable Commercial Vehicle Paint Standards in effect at the date of contract.

This shall be attested to by the attachment of a Sikkens certification.

DELIVERY TIMELINE FROM CONTRACT DATE - 390-420 DAYS AFTER PRE-CONSTRUCTION MEETING

QTY: 1

KME is proposing to complete the apparatus delivery time based on the number of calendar days, starting from the date the sales contract is signed and accepted by KME Fire Apparatus.

MINIMUM FRONT G.A.W.R. - 24,000 LBS

QTY: 1

MINIMUM REAR G.A.W.R. - 48,000 LBS

QTY: 1

MINIMUM TOTAL G.A.W.R. - 72,000 LBS

QTY: 1

VEHICLE TRANSPORTATION - KME PROVIDED

QTY: 1

Transportation of the completed vehicle from the final manufacturing facility to the end user shall be provided by the manufacturer.

INSTRUCTION MANUALS - TWO (2) SETS - USB

QTY: 1

In accordance with standard commercial practices, applicable to each vehicle (including body and special equipment) furnished under the contract, the following listed manuals and schematics, in the quantity specified, shall be provided at time of delivery of each vehicle.

The contractor shall supply at time of delivery, two (2) USB THUMB DRIVE copies of a complete operation and service manual covering the complete apparatus as delivered and accepted.

The manual shall contain the following:

- Descriptions, specifications, and ratings of chassis, pump (if applicable), and aerial device.
- Wiring diagrams.
- Lubrication charts.
- Operating instructions for the chassis, any major components such as a pump and any auxiliary systems.
- Instructions regarding the frequency and procedures recommended for maintenance.
- Parts replacement information.

ALL KME LOGOS MUST BE MECHANICALLY FASTENED

QTY: 1

All KME logos need to be mechanically fastened.

CONTINGENCY FUND

QTY: 1

The tuff truck contingency fund is $35,000.00.

!!! CRITICAL OVERALL HEIGHT REQUIREMENT !!! - "YES - 138"

QTY: 1

This vehicle has a critical overall height restriction requirement due to fire station door height or obstruction within the fire department/district.

Maximum overall height of vehicle in the unloaded configuration cannot exceed: _____" (inches).

!!! CRITICAL OVERALL LENGTH REQUIREMENT !!! - "NO

QTY: 1

GENERAL INFORMATION - NFPA 1900

QTY: 1

The proposed apparatus will be constructed to withstand the severe and continuous use encountered during emergency fire fighting services. The apparatus will be of the latest type, carefully designed and constructed with due consideration to the nature and distribution of the load to be sustained.

This proposal details the general design criteria of cab and chassis components, aerial device (if applicable), fire pump and related components (if applicable), water tank (if applicable), fire body, electrical components, painting, and equipment.

All items of these proposal specifications will conform to the fullest extent possible with the National Fire Protection Association Pamphlet No. 1900, latest edition, except as noted in the Statement-of-Exceptions.

KME will furnish satisfactory evidence of our ability to construct, supply service parts and technical assistance for the apparatus specified.

NFPA TREADPLATE CERTIFICATION

QTY: 1

All stepping, standing, and walking surfaces on the body shall meet NFPA 1900 anti-slip standards.

Aluminum tread plate utilized for stepping, standing, and walking surfaces shall be NFPA embossed compliant.

Upon request by the purchaser, the manufacturer shall supply proof of compliance with this requirement.

VERTICAL TREAD PLATE - NON-EMBOSSED

QTY: 1

The following vertical surfaces on the vehicle (if applicable) shall have non-embossed tread plate:

To include but not limited to:

- Rear of cab overlay
- Rear body overlay
- Front of body overlay
- Front pump house panel
- Custom cab step well
- Fender overlay
- Fender compartment doors
- Interior cab trim
- Upper body walkway walls

- Rescue body interior (walk-In/walk through)

NFPA-AERIAL APPARATUS

QTY: 1

The unit shall be designed to conform fully to the "Aerial Fire Apparatus" requirements as stated in the NFPA 1900 Standard (2024 Revision), which shall include the following required chapters as stated in this revision:

- Chapter 1 Administration
- Chapter 2 Referenced Publications
- Chapter 3 Definitions
- Chapter 4 General Requirements
- Chapter 8 Aerial Fire Apparatus
- Chapter 12 Chassis and Vehicle Components
- Chapter 13 Low Voltage Electrical Systems and Warning Devices
- Chapter 14 Driving and Crew Areas
- Chapter 15 Body, Compartments and Equipment Mounting
- Chapter 19 Aerial Devices

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- Chapter 19 Aerial Devices

NFPA "CHAPTER 16" FIRE PUMP REQUIREMENTS

QTY: 1

Chapter 16 Fire Pump and Associated Equipment

NFPA "CHAPTER 18" WATER TANKS REQUIREMENTS

QTY: 1

Chapter 18 Water Tanks

NFPA "CHAPTER 20" FOAM SYSTEM REQUIREMENTS

QTY: 1

Chapter 20 Foam Proportioning Systems

NFPA "CHAPTER 22" 110 VOLT SYSTEM REQUIREMENTS

QTY: 1

Chapter 22 Line Voltage Electrical Systems

THIRD PARTY TESTING

QTY: 1

If required by the specific chapters of NFPA-1900, the proposed unit shall be tested and certified by independent third party inspectors.

All test work for fire pumps outlined in NFPA 1900, Edition shall be conducted.

The third party inspectors shall provide the manufacturer a complete written examination and test report for each inspection performed at the manufacturer's facility.

This report specifies the points of inspection and results of such examinations and tests.

The inspectors performing the test work on the units are certified to Level II in the required NDT methods, under the requirements outlined in ASNT document CP-189.

The actual person(s) performing the inspection shall present for review proof of Level II Certification in the required NDT methods.

The apparatus manufacturer shall designate, in writing, who is qualified to witness and certify these test results.

Prior to submittal to the automotive fire apparatus manufacturer, the final Report shall be reviewed by the Supervisor of Fire Equipment Services and a Registered Professional Engineer, both of whom are directly involved with the aerial device certification program.

When the unit successfully meets all the requirements outlined in NFPA 1900, current edition, the third party inspector shall issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with NFPA- 1900.

120/240 VOLT ELECTRICAL SYSTEM TESTING

QTY: 1

All line voltage wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for one minute. The test shall be conducted between live parts and the neutral conductor and between live parts and the vehicle frame with any switches in the circuits closed. The test shall be conducted after all bodywork has been completed. The dielectric tester shall have a minimum 500 VA transformer with a sinusoidal output voltage that can be verified.

Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

The apparatus manufacturer shall perform the following operation test and shall certify that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order.

The generator shall be started from a cold start condition and the line voltage electrical system shall be loaded to 100 percent of the nameplate voltage rating.

The following items shall be monitored and documented every 15 minutes:

- The cranking time until the generator starts and runs.
- The voltage, frequency, and amperes at continuous full rated load.
- The generator oil pressure, water temperature, transmission temperature, hydraulic temperature, and the battery rate charge, as applicable.

- The ambient temperature and altitude.

The generator shall operate at 100 percent of its nameplate wattage for a minimum of two (2) hours.

UL LINE VOLTAGE TESTING

QTY: 1

When the unit successfully meets all the requirements outlined in NFPA 1901, 2016 Edition, third party inspectors shall issue a Certificate of Automotive Fire Apparatus Examination and Test stating the unit's compliance with the required line voltage section of NFPA.

SEVERE SERVICE CAB - BASE, 100" - S2020

QTY: 1

The cab shall be a custom tilt style, built specifically for fire service.

The cab shall be a cab over engine design, with integral tilt mechanism and engine access from inside the cab.

The cab interior shall be the "Open-Space" design with no wall, window or vertical support posts between the front and rear crew areas to allow direct communication, better visibility and air circulation in the cab.

CAB MATERIAL

QTY: 1

The cab shall be fabricated from 5052-H 32 aluminum alloy, utilizing the minimum material thickness as follows:

- Cab side panels 0.125 thick (1/8")
- Cab roof 0.125 thick (1/8")
- Forward cab front sheet 0.125 thick (1/8")
- Interior cab panels 0.125 thick (1/8")
- Other panels 0.125 thick (1/8")
- Cab doors 0.1875 thick (3/16")
- Engine enclosure side panels 0.250 thick (1/4")

Cab, sub-frame shall be a welded assembly, fabricated of 6063 structural aluminum alloy. This frame shall extend the full length and width of the cab and be secured to the chassis frame through two (2) rear, urethane, self centering load cushions, two (2) forward pivot brackets, and two (2) cab locks. The cab shall be of entirely welded construction.

The front cab wall shall be of double wall type construction, featuring an inner and outer panel. {No Exceptions}

CRASH TESTING

QTY: 1

To ensure the safety of the cab occupants and cab integrity, proof of third party testing shall be provided.

The cab shall be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength.

Furthermore, proof of testing and certification shall be provided that the cab, in accordance to SAE J2420 was front impact tested at 2.1 times the standard energy required in SAE J2420, thus exceeding the NFPA requirement.

This test shall be performed with no support immediately behind the cab, thus providing an authentic test result.

CAB LENGTH

QTY: 1

Minimum Cab Dimensions:

- Overall width 100"
- Inside width across ceiling 92"
- Front area floor to ceiling 61-3/4"
- Top of front seat to ceiling 44" (depending upon seat type)
- Seat back to steering wheel 21-1/4" (depending upon seat type)
- Inside width (door to engine enclosure) 24" (driver's side, at floor)
- Inside width (door to engine enclosure) 20-1/2" (officer's side, at floor)
- Crew seat area width 92"
- Outer crew seat risers to rear wall 41-1/2"
- Centerline axle to rear wall 59-1/2"

Glass Area Dimensions:

- Windshield (Contour) 3,422 sq. in.
- Side door window, retractable 625 sq. in. each
- Side fixed crew windows 550 sq. in. each

CAB ROOF

QTY: 1

Cab Entry Door Dimensions:

Forward door opening 73" high x 37" wide
Forward door recessed step 30" wide x 8-1/2" deep
Rear door opening 73-3/4" high x 31" wide
Rear door recessed step 20" wide x 8-1/2" deep

The roof shall be a flat design with radius edges for an aesthetic, streamline appearance. The roof shall be constructed of aluminum skin and shall be internally reinforced using extruded aluminum framing which shall span the entire width and length of the cab for maximum structural integrity. This shall allow the roof to support personnel and roof mounted equipment without the need for additional reinforcement.

Approximate dimensions:

Crew area floor to ceiling 53 1/2"
Top of crew seat to ceiling 35" (depending upon seat type)

TREAD PLATE OVERLAY ON CAB ROOF

QTY: 1

A bright finish tread plate overlay shall be placed on the cab roof.

This overlay shall be placed on the raised roof section, or if a flat roof cab is being utilized, from the area of the “B” post area-rearward, and extending back to the end of the cab roof.

This tread plate overlay shall be sealed with caulking around the edges to prevent moisture from entering the area between the cab roof and the overlay.

CAB ROOF DRIP RAIL

QTY: 1

For enhanced protection from inclement weather, an integral drip rail shall be furnished on each side of the cab roof. The drip rail shall extend the full length of the cab roof.

SEAL DRIP RAIL

QTY: 1

Provide caulking along drip rail to prevent leaking.

CAB ROOF DRIP RAIL 100" PREDATOR SS

QTY: 1

For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall be constructed of bright polished extruded aluminum, and be fastened to the sides of the cab rood edge.

Note: The cab drip rail will be sealed the entire length of the drip rail to prevent water from dripping into the cab. The drip rail will be extended forward to the front radius of the cab.

CAST ANTI-SLIP ENTRY STEPS

QTY: 1

The front entrance steps shall be a minimum of 9" deep.

Each step shall be a cast aluminum, open grate style step fabricated by Cast Products Inc. with a polished aluminum outer surface.

The cab step risers shall be overlaid with.063" tread plate plate.

The rear entrance steps shall be a minimum of 9" deep.

Each step shall be a cast aluminum, open grate style step fabricated by Cast Products Inc. with a polished aluminum outer surface.

The cab step risers shall be overlaid with.063" tread plate plate.

BARRIER HEIGHT CAB DOORS, 100" PREDATOR SS "X-MFD,

QTY: 1

Four (4) side-opening doors will be provided. The cab doors will be shortened to the floorboard level, thus leaving an exposed step well area at each cab entrance. The cab doors will be totally aluminum construction with an extruded aluminum frame and an aluminum outer door skin.

The forward cab door opening will be a minimum of 37" wide, and the rear cab door opening will be a minimum of 37" wide. The rearward cab doors will have a radius cutout allowing the door opening to protrude forward over the cab wheel well, while providing full access to the rear crew area.

There will be a heavy duty piano type stainless steel hinge on each door of a minimum pin diameter of 5/16". Hinges will be slotted for ease of horizontal and vertical adjustment. There will be a cab door seal and the doors will close flush with the side of the cab. A heavy-duty 6" wide belting material will be utilized to prevent the cab doors from opening greater than 90 degrees.

The forward cab doors will open to a full 90 degrees. The limiting strap for the two forward cab doors will be raised to six (6) inches above the cab floor height to provide clearance for the use of siren floor switches.

BATTERY ACCESS DOORS - REAR STEP WELLS, EACH SIDE

QTY: 1

The battery access door(s) shall be1/8" aluminum tread plate, drop down doors with thumb latches at each side rear cab step well.

Doors will have nylon coated stainless steel cable provided that prevent the lower zone B/D mid-ship warning lights (mounted to the access doors) from coming in contact with the cab step.

PREDATOR SS DOOR LATCHES, HD CASTED LATCH - BARRIE

QTY: 1

Heavy-duty, bright finish cast paddle latches shall be provided on the interior and exterior of each cab door. Door latch mechanisms which utilize spring steel clamps shall not be considered due to their tendency to both rust and break. The interior door latch cables are to be designed to reduce adjustment or possible wear at the adjustment turnbuckles.

Note: The paddle latches on the inside of the rear crew doors will be installed so that the latch hinges toward the rear cab seats and will be much easier for a firefighter seated in the rear forward facing seats to operate.

CAB DOOR INSULATION

QTY: 1

A 1/4" insulation panel shall be installed in each cab door. This insulation panel shall provide an additional acoustical barrier as well as help with heating/cooling properties of the apparatus.

HIDDEN WEATHER STRIP

QTY: 1

The cab doors shall be equipped with a weather strip seal track on the lower portion of the door. Bolt-on tracks shall be provided to allow for a snap-on replaceable weather stripping to be changed easily and shall be fastened in place with nutserts to ensure longevity.

KEY MODEL #751

QTY: 1

The specified door lock cylinder/s shall be equipped with #751 key/s.

ELECTRIC WINDOWS, FOUR (4) DOORS, MFD, X-MFD, LFD

QTY: 1

Each side cab door shall have a tinted retractable window. The window track shall be designed into the door frame extrusion, which shall be extruded with a track groove to house a window track and seal. The window shall be capable of being removed from an access slot designed in the bottom of the door frame.

All side cab doors shall be equipped with electrically operated windows.

The driver shall have a control to operate the officer’s side window and the rear cab windows, located on the driver's door panel. The officer side window control shall be on the officer's door panel.

The control for each rear door shall be a rocker type automotive style switch located on the inside door panel within easy reach.
For Clarification: The electric window controls shall match GSO 10588.

DOOR LOCKS

QTY: 1

Each exterior cab door shall be equipped with keyed locks.

The cab doors shall be capable of being locked from the outside with a key and manually from the inside or with a momentary switch that shall either lock or unlock the doors.

A switch shall be provided on both the driver and officer side of the cab dash.

KEYLESS ENTRY

QTY: 1

A Trimark brand, keyless entry system shall be provided on all cab doors.

This system shall lock the doors by use of the key fob and shall unlock the doors by either the key fob or the touch pads.

The system shall include two (2) "e-PAD", five number lighted touch pads mounted one (1) each side to the rear of each front cab door.

The system shall also incorporate two (2) "e-FOB", 2 button RF transmitters, one (1) RF receiver module and a total of four (4) power door lock actuators.

The driver door shall have a traditional key - lock installed.

DOOR WINDOW TRIM EXTRUSION

QTY: 1

Each side cab door window shall be designed with a custom extruded trim plate, which shall conform to the perimeter of the window opening in each door.

The trim plate shall extend from the edge of the door skin to the window and shall have a silver anodized finish.

CAB DOOR WINDOW SILL PROTECTION

QTY: 1

Brushed stainless steel protection caps shall be provided on each door interior window sill.

The caps shall be fabricated from 18-gauge brushed stainless steel and cover from the window edge down over the sill and meet the inner door panel top edge.

DOOR PANELS

QTY: 1

The cab door interior panels shall be covered with a brushed stainless steel panel, at full height.

The panel shall be 16 gauge stainless steel with a brushed finish and shall be designed to allow easy access to the inner door.

CHEVRONS ON INTERIOR OF CAB DOOR PANELS MATCH REAR

QTY: 1

Four (4) chevron reflective signs shall be installed on the lowest portion of the inner door panels. The material and color shall match the material provided on the rear of the body.

There will be one (1) on each door. These chevrons shall cover at least 96^2 in.

INNER DOOR PANEL TO BE THREE (3) PIECE DESIGN

QTY: 1

The inner door panel shall be designed as a three (3) piece panel to allow easy access to the door latching mechanism, electrical components or the window mechanism without disassembling the entire door.

WINDSHIELD

QTY: 1

A two piece, symmetrical, safety glass windshield shall be provided on the cab for the driver and officer providing a clear viewing area.

The windshields shall be full width to the center of the front cab support for each side and provide the occupants with a panoramic view.

To provide enhanced peripheral vision on each side of the cab, the windshield and cab structure shall be designed with radius corners, which provide a minimum of 8" of glass area, measured from the glass face to the side edge near the door post.

The windshield shall consist of three (3) layers; the outer light, the middle safety laminate and the inner light.

The thick outer light layer shall provide superior chip resistance, the middle safety laminate layer shall prevent the windshield glass pieces from detaching in the event of breakage and the inner light shall provide yet another chip resistant layer.

The windshield will be a contour design with 3244 sq. in. of area for improved visibility and style.

The windshield glass shall be designed so it can be used on either the driver or officer side.

Single piece windshields that utilize epoxy or that are bonded to the cab structure shall not be acceptable.

WINDSHIELD WIPERS & WASHERS

QTY: 1

Dual, electric operated, pantographic type windshield wipers shall be provided.

One (1) electric drive motor shall be provided for each wiper.

Wipers shall have "HI/LO" and "INTERMITTENT" operating speeds. "HI/LO" speeds shall be controlled by a steering column control, within the turn signal control stem.

"INTERMITTENT" operation shall be controlled by a twist switch within the control on the steering column.

The wipers shall be of the self-parking type.

Windshield washers shall be electric operated wet-arm type with a 1/2 gallon washer fluid reservoir, mounted behind a hinged access door in the officer side front cab step well area. The fluid level shall be visible through a cutout in the access door. This door shall be secured with two thumb latches.

The washer control shall be integral with the intermittent wiper control switch.

There shall be individual removable panels on the front face of the cab for access to the wiper motor assemblies.

Windshield wipers shall survive testing in excess of 3 million cycles in accordance with section 6.2 of SAE J198 “Windshield Wiper Systems – Trucks, Buses and Multipurpose Vehicles”.

The bidder shall certify that the wiper system design has been “Third party tested” and that the wiper system has met this criteria.

WINDSHIELD WIPERS & WASHERS - 100"

QTY: 1

Dual, electric operated, pantographic type windshield wipers shall be provided.

One (1) electric drive motor shall be provided for each wiper. Wipers shall have "HI/LO" and "INTERMITTENT" operating speeds.

"HI/LO" speeds shall be controlled by a steering column control, within the turn signal control stem.

"INTERMITTENT" operation shall be controlled by a twist switch within the control on the steering column.

The wipers shall be of the self-parking type.

Windshield washers shall be electric operated wet-arm type with a 3/4 gallon washer fluid reservoir, mounted inside the engine enclosure and readily accessible through the engine hatch at the rear of the engine enclosure.

The washer control shall be integral with the intermittent wiper control switch.

There shall be individual removable panels on the front face of the cab for access to the wiper motor assemblies.

Windshield wipers shall survive testing in excess of 3 million cycles in accordance with section 6.2 of SAE J198 “Windshield Wiper Systems – Trucks, Buses and Multipurpose Vehicles”.

The bidder shall certify that the wiper system design has been “Third party tested” and that the wiper system has met this criteria.

The washer fluid reservoir plumbing/electrical wiring at the bottom of the reservoir will be wrapped with heat resistant tape. This will shield the components from the heat in the engine enclosure.

SIDE VIEWING WINDOWS

QTY: 1

A fixed, tinted window with 620 sq. in of glass area shall be provided on each side of the cab behind the forward cab doors.

This window will be the same height as the window in the rear cab door for maximum visibility.

OFFICER SIDE CAB STEP COMPARTMENT

QTY: 1

A watertight removable storage compartment shall be provided in the officer's side cab step well.

The compartment shall be designed with minimum dimensions of 25" wide x 14" deep x 14" high. A drop down door shall have a stainless steel recessed large **locking** "D" handle **keyed 1250** with twist-type single point cam locks, easily operable with a gloved hand.

A horizontally hinged, 1/8" aluminum tread plate door shall be provided with a full length, heavy-duty, stainless steel, piano-type hinge and stainless steel pin. The hinge pin shall be secured to prevent creeping. The compartment shall not be louvered for ventilation.

Black poly floor covering with 1/4" rubber spacers will be provided that matches body compartment floor covering

DARK TINT WINDOWS

QTY: 1

The windshield and the forward cab door glass shall be provided with standard DOT, green automotive tint.

If provided, the side cab windows to the rear of the front doors, the rear cab door windows, and any rear viewing windows shall be equipped with a dark, automotive tint.

CAB GRAB RAILS EXTERIOR

QTY: 1

1-1/4" diameter x 28" long, knurled bright anodized aluminum handrails shall be provided.

There will be one (1) at each cab door entrance.

Grab rail stanchions shall be chrome plated and offset when necessary to prevent "hand-pinching" when opening or closing the doors.

Formed rubber gaskets shall be provided between each stanchion base and the cab surface.

CAB GRAB HANDLES, INTERIOR

QTY: 1

Grab rails shall be provided to assist in entry and exiting of the cab. Each grab rail shall be a cast aluminum "D" style handle that shall have a wheelabrated finish and shall be located in the following locations:

- One (1) 11" long, horizontally mounted on each front cab door on the interior door panel
- One (1) 11" long, horizontally mounted on each rear cab door on the interior door panel

PREDATOR SS INTERIOR GRAB HANDLES - WHEELABRATED

QTY: 1

Grab rails shall be provided to assist in entry and exiting of the cab. Each grab rail shall be a cast aluminum "D" style handle that shall have a wheelabrated finish and shall be located in the following locations:

- One (1) 11" long, vertical mounted on each front cab door on the interior door panel

Note: FD to supply photos for exact mounting location.

GRAB HANDLES-REAR CAB DOOR INTERIOR

QTY: 1

One (1) vertical grab rail will be provided on the interior of each rear cab crew door. The grab rail will extend the full height of the window opening toward the forward portion of the door.

INTERIOR A & C POST GRAB HANDLES-BALL-BURNISHED

QTY: 1

Four (4) 12" long, vertically mounted, one (1) each side cab interior on the “A” post, and one (1) each side of the cab interior on the “C” post in the crew area.

Note: The officer's side "A" post grab handle shall match the driver's side "A" post grab handle location. The handle needs to clear the MDC.

FRONT CAB GRILLE - SQUARE POLISHED STAINLESS STEEL

QTY: 1

A square mirror finished stainless steel grille shall be installed to allow for maximum air flow to the charge air cooler and the radiator.

Due to issues with previous units, the bottom screw on each side of the grill will be through-bolted to the cab structure. Nut-serts will not be used.

SIDE CAB GRILLES -SQUARE POLISHED STAINLESS STEEL

QTY: 1

Two (2) Square shaped, mirror finished stainless steel air inlets/outlets shall be provided horizontally above the wheel well opening, one on each side of the cab.

The grilles shall be equipped with a mesh screen to serve as a secondary ember separator.

The design shall permit proper ducting of air through the engine compartment and cooling system.

The left side inlet, used for the air intake to the air cleaner, shall be equipped with dual ember separators for separating burning embers from the air intake system.

This system shall be such that particles larger than.039 inches (1 mm) in diameter cannot reach the air filter element.

No part of the air intake system for the engine shall be lower than the top of the frame rails to ensure the vehicle can navigate pooled water without any part of the air intake system being exposed to water when the vehicle is stopped or in motion.

Chassis designs, which the engine air intake system is lower than the frame rails shall not be acceptable!

FRONT CAB GRILLE

QTY: 1

A square mirror finished stainless steel grille shall be installed to allow for maximum air flow to the charge air cooler and the radiator. The top of the grille will have a flat area for the manufacturers emblem.

A four (4) inch wide solid band shall extend across the middle of the grill for lettering or lighting options.

SIDE CAB GRILLES

QTY: 1

Two (2) rectangle, mirror finished stainless steel air inlets/outlets shall be provided horizontally above the wheel well opening, one on each side of the cab.

The grilles shall be equipped with a mesh screen to serve as a secondary ember separator.

The design shall permit proper ducting of air through the engine compartment and cooling system.

This system shall be such that particles larger than .039 inches (1 mm) in diameter cannot reach the air filter element.

CAB EXTERIOR REAR WALL

QTY: 1

A bright finish tread plate overlay shall be provided over the entire exterior rear cab wall.

The tread plate overlay shall be sealed with caulking around the edges to prevent moisture from getting between the cab and the overlay.

CAB WHEEL WELL LINERS - ALUMINUM

QTY: 1

The front cab, wheel wells shall be equipped with fully removable bolt-in aluminum inner wheel well liners.

The liners shall extend full depth into the truck frame.

The completely washable wheel well liners shall be designed to protect the cab substructure, inner panels, and other miscellaneous installed components from road salts, debris, dirt accumulation and corrosion.

ALUMINUM CAB FENDERETTES

QTY: 1

The cab wheel well openings shall be trimmed with replaceable, bolt-in, polished aluminum fenderettes.

The fenderettes shall be secured to the cab with stainless steel, threaded fasteners along the internal perimeter of the wheel well.

Dissimilar metal tape and black vinyl trim molding shall be used where the cab and fender meet.

FRONT MUD FLAPS

QTY: 1

Heavy duty, black rubber type mud flaps with no logo shall be provided behind the front wheels.

CAB MIRRORS

QTY: 1

Two (2) Lang-Mekra 300 Series Aero style mirror assemblies shall be furnished, one on each front cab door.

Each mirror assembly shall have a 14-3/8 x 7-1/4 shatterproof,flat, glass head mounted in a 15 x 8 chrome plated housing and a 7-3/4 x 5-7/8 shatterproof, convex head mounted in its own 8-1/2 x 6-5/8 chrome plated housing.

Each head will be electrically heated and motorized with controls on the driver's lower wing panel.

The upper, flat glass portion shall be electrically controlled from the drivers seating position and the lower, convex sections shall be manually adjustable.

Each mirror housing will have a field, replaceable back cover and shall be installed on a one piece, break away style, stainless steel loop mounted to the forward portion of the door with two (2) brackets, forward of the windows.

Each convex mirror shall have an arrow type, turn signal indicator in the outboard area of the glass.

These indicators will work in conjunction with the turn signals.

MIRROR CONTROL

QTY: 1

The mirror position and heat (if applicable) controls shall be programmed into the multiplex control screen only, no dash panel switches.

DOOR WIDTH, X-MFD, LFD & X-LFD - 100" SS

QTY: 1

Cab Entry Door Width Dimensions:

- Forward door opening 37" wide
- Rear door opening 37" wide

Cab Entry Step Dimensions:

- Forward door recessed step 29 3/4" wide x 8-1/2" deep
- Rear door recessed step 25 3/4" wide x 8-1/2" deep

INTERIOR TRIM- DARK GRAY VINYL

QTY: 1

The cab interior shall be constructed to create an ergonomically designed interior to be user friendly and functional for the driver and officer.

The forward overhead panel shall be a fabricated module, which shall have six (6), 3" diameter, adjustable, windshield defroster/heat vents and four (4) comfort vents.

All interior upholstery panels shall be dark gray in color.

The upholstered cab overhead and side wall portions shall utilize vinyl upholstery with padding underneath to provide additional insulation.

INTERIOR CAB WALL DARK GRAY VINYL

QTY: 1

The interior rear wall of the cab shall be covered with dark gray vinyl for durability and shall match the other upholstered areas of the cab.

CAB FLOORING

QTY: 1

The floor of the driver’s compartment and the floor of the crew area shall be lined with Baryfol vinyl composite flooring to comply with NFPA noise and heat requirements.

ACOUSTICAL INSULATION

QTY: 1

One (1) inch thick acoustical insulation shall be provided on the cab roof, rear and side walls of the cab.

This material shall be fitted between the cab structural members and secured with adhesive to provide an insulation barrier for noise and heat.

ENGINE ENCLOSURE OVERLAY MATERIAL

QTY: 1

The forward portion of the engine enclosure shall be covered with DARK GRAY vinyl material formed overlay to match the balance of the cab interior. To allow maximum "elbow room" for the driver and officer, the forward portion of the engine enclosure shall feature a contour shape. The engine enclosure shall not significantly obstruct the driver's vision in any direction. The enclosure shall be an integral part of the cab structure, which shall be constructed from material providing adequate strength to support radio, map boxes, etc. The engine enclosure shall be insulated to protect from heat and sound. The noise insulation shall keep the DBA level within the limits stated in the current NFPA series 1901 pamphlet.

Note: The Engine Enclosure Protection Panels shall be sprayed Dark Gray Line-X.

A padded, hinged access door shall be provided in the top rearward portion of the engine enclosure. The door shall allow access to the engine oil, transmission fluid, power steering fluid level dipsticks and the windshield washer fluid reservoir. The access door shall be provided with two (2) flush mounted latches and gas shock holders. There shall be a DARK GRAY vinyl material cover over the access door to give a cleaner look to the top of the engine enclosure and doghouse area.

DARK GRAY vinyl arm pads shall be proivded on the top of the engine enclusure, one (1) each side for the officer and the driver. They shall be approximately 5" wide and 10" long. These pads shall snap into place for ease of recovering in the future.

HD SOUNDPROOFING/ INSULATION PACKAGE UNDER ENGINE

QTY: 1

Premium soundproofing/insulation material, Barymat BTRLAX3-14BY will be installed in the engine enclosure.
To ensure a clean, smooth surface, this material will be retained by flat aluminum panels fastened to studs that are welded to cab as needed.
These panels will be removable. Any gaps in this insulation barrier will be sealed with 3M #425 aluminized high temperature tape.
The soundproofing/insulation material and aluminum panels will be extended the full length of the cab underside including the crew area.

BRUSHED S/S SCUFF PLATES FOR SHOULDER BELT RETRACT

QTY: 1

A brushed stainless steel scuff plate shall be provided on the "B" and "C" posts, in the area of the shoulder belt retractors.

ENGINE ENCLOSURE ACCESS

QTY: 1

A composite, hinged access door shall be provided in the top rearward portion of the engine enclosure. The door shall allow access to the engine oil, transmission fluid, power steering fluid level dipsticks. The access door shall be provided with a flush mounted latch. The underside of the access door shall be insulated.

HD SOUNDPROOFING/ INSULATION PACKAGE UNDER ENGINE

QTY: 1

The underside of the engine enclosure shall be overlaid with Milcut, MilShield insulation. MilShield can withstand temperatures up to 1300°F. To ensure a clean, smooth surface, this material shall have a heavy aluminum foil covering and shall be retained by aluminum panels fastened to the cab structure as needed. Any gaps in this insulation barrier shall be sealed with 3M #425 aluminized high temperature tape.

HD SOUNDPROOFING/INSULATION BETWEEN UPHOLSTERY

QTY: 1

To further reduce the noise and heat levels inside the cab, 1/4" foam upholstery material shall be installed on all interior surfaces of the engine enclosure, below the upholstery material.

DIAMONDETTE SCUFF PLATES ON ENGINE ENCLOSURE - REA

QTY: 1

An aluminum diamondette scuff plate shall be provided on the vertical surface of the rear engine enclosure. The scuff plate will "roll over" the top edge of the horizontal portion of the engine enclosure to protect the corner. The scuff plate will have a 2” return on the top horizontal surface.

DASH & CENTER CONSOLE - 100" PREDATOR SS

QTY: 1

The dash shall be a custom formed, aluminum housing to create an ergonomically designed interior that will be user friendly and functional for the driver and officer.

The dash shall be overlaid with Dark Gray Vinyl.

All warning lights and indicators shall be located in either the gauge itself or in the lower center portion.

Each gauge shall be equipped with an international symbol that is easily recognizable; denoting the system being monitored.

Instrumentation shall be backlit for easy identification when activated.

PREDATOR GLOVE BOX

QTY: 1

A storage compartment will be provided in front of the officer below the upper flat dash.
The compartment will be formed using aluminum and have a horizontally hinged drop down door.
The door will be held closed by a paddle latch. Approximate size of this compartment is maximum width x 4" high x 6" deep.

SUN VISORS

QTY: 1

To provide maximum protection for the driver and officer, two (2) padded vinyl sun visors shall be mounted in the cab overhead on each side.

OVERHEAD PANEL, FABRICATED CENTER THREE WING PANEL

QTY: 1

An overhead console with a center three piece removeable panel assembly shall be provided on the cab roof between the driver and officer to permit installation of the multiplex smaller sized control screens and other components as space allows.

The overhead console shall be painted to match the interior of the cab.

The overhead console shall not obstruct the driver's vision through the officer's side window.

OVERHEAD PANEL, FABRICATED CENTER THREE WING PANEL

QTY: 1

An overhead console with a center three piece removeable panel assembly shall be provided on the cab roof between the driver and officer to permit installation of the multiplex smaller sized control screens and other components as space allows.

The overhead console shall be painted to match the interior of the cab.

The overhead console shall not obstruct the driver's vision through the officer's side window.

SEAT AND SEAT BELT ANCHOR TESTING

QTY: 1

Each seat belt anchor shall be tested to withstand 3,000lbs of pull on both the lap and shoulder belt in accordance with FMVSS 210 section 4.2.

Each seat mounting position shall be tested to withstand 20G's of force in accordance with FMVSS 207 section 4.2(c).

Both tests shall be performed and verified at a third party testing and evaluation center.

STORAGE COMPARTMENT UNDER FRONT SEATS

QTY: 1

There shall be a compartment provided under each front seat with a latched access door.
The door will be secured with a single thumb-latch.

STORAGE COMPARTMENTS UNDER FRONT SEATS

QTY: 1

There shall be a compartment provided under each front seat.

Each compartment shall be accessible from the front of the seat riser when the door is opened.

DRIVERS SEAT, VALOR AIR SUSPENSION, ABTS

QTY: 1

The driver's seat shall be a Valor, air suspension, race back bucket ABTS LH seat.

The seat shall have a contoured and padded seat cushion with adjustable lumbar support.

The seat shall have a horizontal, slide adjustment and a vertical height adjustment with an adjustable back recline.

The seat air suspension shall be pneumatically controlled from a switch on the forward, lower edge of the seat.

The seat shall be equipped with a red, integrated, 3-point shoulder harness with a lap belt, and a dual retractor belt configuration.

It should have ready reach built into the seat assembly.

OFFICERS SEAT, VALOR - AIR SUSPENSION, ABTS

QTY: 1

The officer's seat shall be a Valor air suspension, ABTS RH, bucket seat.

The seat shall have a contoured and padded seat cushion with adjustable lumbar support.

The seat shall have a horizontal slide adjustment and a vertical height adjustment with adjustable back recline.

The seat air suspension shall be pneumatically controlled from a switch on the forward, lower edge of the seat.

The seat shall be equipped with a red, integrated, 3-point shoulder harness with lap belt, and a dual retractor belt configuration with ready reach built into the seat assembly.

USSC BUCKET, ABTS, FWD FACING, OUTBOARD, DS

QTY: 1

The driver's side outboard forward facing crew seat shall be a USSC ABTS LH fixed base bucket seat.

The seat shall have a contoured and padded seat cushion.

The seat shall be mounted 6" inboard of the side cab wall.

The seat shall be equipped with a red, integrated, 3-point shoulder harness with lap belt and a dual retractor belt configuration with ready reach built into the seat assembly.

This seat shall be the same as what was installed on GSO 10588.

USSC BUCKET ABTS - FORWARD FACING, OUTBOARD, OS

QTY: 1

The officer's side outboard, forward facing, crew seat shall be a USSC ABTS RH fixed base bucket seat.

The seat shall have a contoured and padded seat cushion.

The seat shall be mounted 6" inboard of the side cab wall.

The seat shall be equipped with a red, integrated, 3-point shoulder harness with lap belt and a dual retractor belt configuration with ready reach built into the seat assembly.

This seat shall be the same as what was installed on GSO 10588.

(1) - USSC BUCKET ABTS FORWARD FACING, CENTER

QTY: 1

One (1) center inboard forward facing crew seat shall be a USSC ABTS bucket seat. The seat shall have a contoured and padded seat cushion.

The seat shall be equipped with a red integrated 3-point shoulder harness with lap belt, and a dual retractor belt configuration with ready reach built into the seat assembly.

Note: This center seat shall be centered between the two outboard forward facing seats. The seat shall be the same as what was installed on GSO 10588.

FORWARD FACING SEAT/S, CENTER

QTY: 1

The three (3) forward facing crew seats shall have a flip-up style seat.

FORWARD FACING CREW SEATS RISERS

QTY: 1

The three (3) forward facing seats, shall each be mounted on a aluminum riser that shall be mounted on the driver, center and officer positions of the cab. The risers shall match the interior of the cab and shall be open on all sides. **Match GSO 10588.**

REAR SEAT RECLINING LEVER

QTY: 1

The levers/handles to allow the recline feature of the rear crew seats so they can be adjusted. Confirm that stops are installed to keep the seatbelt retractors from making contact with the rear cab face windows.

SEAT ADJUSTMENT NOTICE

QTY: 1

If equipped, adjustable seats may be limited by outside factors such as optional installed equipment (ie. ems compartments, battery chargers, SCBA cylinder brackets) and seat placement.

VALOR SEATING MATERIAL - BLACK CORDURA

QTY: 1

The seats shall be upholstered with Black Cordura material with black stitching as provided by Valor.

VEHICLE DATA RECORDER

QTY: 1

A Class 1 Vehicle Data Recorder (VDR) system shall be provided.

The system shall include an NFPA compliant, "Black Box" with reporting software that shall be capable of data storage to coincide with the NFPA requirements.

Data storage capabilities shall include interfaces with the following systems:

- Display module (Master Optical Warning Device)
- VDR, date time stamp
- Max Vehicle speed (MPH)
- Vehicle acceleration / deceleration (MPH/Sec.)
- Engine Speed (RPM)
- ABS event
- Data password protected
- Data sampled once per second, in 48-hour loop
- Data sampled min by min for 100 engine hours
- Throttle position (% of Throttle)
- Data software
- PC / Mac Compatible
- Data summary reports

The VDR data shall be downloadable by USB cable to a computer using either Microsoft or Apple operating systems.

SEAT BELT WARNING SYSTEM

QTY: 1

The apparatus shall be equipped with a Class 1, seat belt warning system.

The system shall consist of a seat belt module and shall display the seating positions through the main, UltraView screen.

CLASS ONE SEAT BELT WARNING SYSTEM - UP TO 6 POSIT

QTY: 1

The apparatus shall be equipped with a Class 1, seat belt warning system.

The system shall consist of a seat belt module and shall display the seating positions through the main, UltraView screen.

The seat belt warning system will have a 5-second delay programmed into the system.

FIVE (5) SEATING POSITIONS

QTY: 1

Seat belt and seat cushion sensors shall be provided on the five (5) specified seating positions.

SEAT BELT EXTENDERS

QTY: 1

Seat belt extenders shall be provided for all seating positions.

DELETE - 4FRONT - FRONTAL AIR BAG SYSTEM

QTY: 1

AIR PACK STORAGE DS REAR FACING SEAT AREA

QTY: 1

In lieu of the rear facing driver side seat there will be a storage area for gear and one (1) complete SCBA. One (1) Zico EZ-LOC Mechanical Bracket-Fixed Top Clamp, Model QM-EZL-F, bracket will be provided and mounted. The seat base riser will be covered in tread-plate.

A two-sided vertical divider will be provided between the bracket and the engine enclosure that continues behind the driver's seat. The outboard wall (below the fixed side window) will have a Pac-Trac panel installed for the mounting of equipment by the fire department after delivery. The Pac-Trac panel will

extend from the door opening to the rear of the front seat and from the top of the seat riser to the bottom edge of the fixed window.

The dimensions for the SCBA mounting will be 13.50” on the short leg, 23.75” on the long leg and 26.13” across the front. The overall height will be 23” on the short leg and across the front. The panel height will reduce to 14" in the outer corner and the long leg. The inside panel rear edge will be mounted flush with the rear edge of the engine enclosure. The material will be ¼” aluminum with a lip along the top edge to provide additional rigidity. The angle for the SCBA bracket will be attached to the floor and the side wall of storage enclosure as high as possible.

For Clarification: The SCBA storage area to the rear of the driver and officers seating area will be adjusted to match the 100" wide cab. The design of this area to match previous GSO #10588

AIR PACK STORAGE OS REAR FACING SEAT AREA

QTY: 1

In lieu of the rear facing officer side seat there will be a storage area for gear and one (1) complete SCBA. One (1) Zico EZ-LOC Mechanical Bracket-Fixed Top Clamp, Model QM-EZL-F, bracket will be provided and mounted. The seat base riser will be covered in tread-plate.

A two-sided vertical divider will be provided between the bracket and the engine enclosure that continues behind the driver's seat. The outboard wall (below the fixed side window) will have a Pac-Trac panel installed for the mounting of equipment by the fire department after delivery. The Pac-Trac panel will extend from the door opening to the rear of the front seat and from the top of the seat riser to the bottom edge of the fixed window.

The dimensions for the SCBA mounting will be 13.50” on the short leg, 23.75” on the long leg and 22.88” across the front. The overall height will be 23” on the short leg and across the front. The panel height will reduce to 14" in the outer corner and the long leg. The inside panel rear edge will be mounted flush with the rear edge of the engine enclosure. The material will be ¼” aluminum with a lip along the top edge to provide additional rigidity. The angle for the SCBA bracket will be attached to the floor and the side wall of storage enclosure as high as possible.

INTERIOR CAB COMPARTMENTS BETWEEN SEATS

QTY: 1

Two (2) storage modules located between the three forward facing crew seats will be provided. There will be one (1) fixed shelf sixteen (16) inches from the floor with a one (1) inch upward return (lip) at the front. The lower section will also have a one (1) inch upward return (lip) to prevent items from sliding out while driving.

The module will fabricated from 1/8" smooth aluminum and painted to match the cab interior color. Approximate dimensions: 25.75"H x 8"W x 20"D.

LAPTOP COMPUTER SLIDE OUT TRAY - OFFICER SIDE DASH

QTY: 1

A slide out tray shall be installed for the officer to provide an area for laptop computer usage. In the closed position this area will be nest forward to allow access in and out of the vehicle.
A custom slide out computer tray will be provided. The tray will mount flat on top of the officer side dash. The laptop area will be 14” wide with 2” side lips.
The front and back will be open. A gas shock will be provided on the underside to hold the tray in the open and closed position.
The grab handle on the A-Post shall not interfere with MDC slide out movement.

DRINK HOLDER - CREW AREA

QTY: 1

Two (2) single drink holders shall be installed on the top, rear of the crew seat storage modules, one each side. The cutout for the drink will match the cut-out for the drink holder in the engine enclosure map box. The cup holders will be painted to match the cab interior.

OFFICER FOLD DOWN FOOT REST ON FIREWALL

QTY: 1

A fold down foot rest shall be provided on the firewall electrical access panel, in front of the officer's seating position.

The foot rest shall be designed with a 14" wide x 3" deep foot rest plate.

GEAR HOOKS

QTY: 1

Six (6) gear hooks will be provided and mounted in the cab above the fixed cab windows, three (3) each side. The outer gear hooks will be mounted above the outer edge of the window, the middle hook will be centered between the outer hooks. The hooks will be mounted to an aluminum panel to accommodate both mounting holes in the hook to keep the hooks from twisting. The panel will be finish painted to match the interior of the cab. The panel with the three (3) hooks will be mounted to the cab interior above the fixed window. The upholstered panel will be mounted on top of the panel with the hooks attached to provide a finished look. Both mounting holes will be used to prevent the hooks from swinging back and forth.

Note: The customer is to provide photos of exact mounting locations.

CAB DOGHOUSE STORAGE MODULE

QTY: 1

A storage module shall be installed on the center doghouse area between the driver and officer.

The module shall be constructed of 1/8" aluminum and shall be painted to match the cab interior.

The module shall include two (2) cup holders, a flat open storage area for notebooks, six (6) divided storage area's for 3-ring binders, and two (2) slide in storage area's one (1) accessible from each side of the cab.

The module will be designed to mount in the S2020 cab, their will be a drawing sent for approval on the module before manufacturing.

GLOVE BOX

QTY: 1

There shall be a keyed locking glove box with a hinged door on the right side of the main dash with approximate dimensions of 17"W x 8"H.

A light shall be provided in the glove box with an integral push button switch controlled by the door.

HEATER/ DEFROSTER & ACCESS, PREDATOR SS 100"

QTY: 1

An SGM HVAC System shall utilize one (1) International Components Engineering #TM-31 HD compressor, mounted as close to level as practicable. The compressor shall have a serpentine Poly "V" drive belt system installed in accordance with the compressor and belt manufacturer's requirements.

Air conditioning hoses and fittings shall be appropriately sized to the compressor and other specified air conditioning components. Minimum hose size, shall be #10 hose for discharge and #12 hose for suction.

Steel hose end fittings shall be provided at the compressor. The air conditioner hose shall be the Aeroquip “Easy Clip” style hoses as recommended by Aeroquip. The A/C hoses shall utilize FC802 Aeroquip hose with re-usable JIC 37 degree fittings.
One (1) "Extreme Duty" air conditioning/heating system rated at a minimum of 63,200 BTU cooling (actual output) and 104,000 BTU heating shall be provided on the cab roof. Both the front and rear overhead units shall include the heating units. To achieve this higher BTU cooling output, additional coils will be provided in the evaporator. These additional coils will result in a minimum of four (4) inches of additional height to the evaporator.

The evaporator louvers and controls shall penetrate the cab roof into occupant compartments to the least extent practicable. Fourteen (14) 3" diameter adjustable louvers shall be furnished, six (6) in the front crew area and eight (8) in the rear crew area of the cab. The A/C drain lines shall be routed to the inside of the cab wheel well area. Draining condensation into the interior of the cab or onto the occupants, roof or windshield will not be acceptable under any conditions.

The dual evaporator shall be roof mounted to allow service and maintenance without the need to remove interior components or upholstery.

System shall be compatible with R134A refrigerant.

The 12-volt system for the air conditioners shall have first priority to be load managed.

System shall utilize clearly labeled automatic reset-type circuit breakers.

The controls panel shall actuate the air-distribution system with air cylinders, which are to be separated from the brake system by an 85-90 psi pressure protection valve.

The air conditioning system shall be configured to only operate when the vehicle's engine is running.

The blowers, in both evaporators, shall be in operation whenever the air conditioning system is activated. If either the front or rear evaporator fan speed switches is in the "off" position, then the evaporator blower in the "off" position shall default to low speed.

Heater-defroster shall have a three-speed electric fan with a minimum output of 720 CFM through the louvers. Six (6) 3" diameter adjustable defroster outlets shall be provided for directing warm air to the windshields. Heater-defroster unit controls shall be illuminated. Water lines from the engine to heater-defroster shall be 5/8" heater hose with readily accessible flexible connections at each end. The water lines to the heater shall have brass shut-off valves mounted on the engine to isolate the heater-defroster unit. The heater hose installation shall not incorporate a copper tube manifold.

The heater/defroster unit shall clear the windshield in half-the-time required by SAE Standards.

A serviceable foam intake filter shall be installed on the rear of the evaporator.

ROOF MOUNT CONDENSER
A 12-volt roof top dual condenser will be strategically positioned on the cab roof so as not to interfere with any emergency lighting systems. The condenser will be designed with high performance, long life fan assemblies. The fan motors are to be equipped with sealed housings and shaft.

The condenser and coil design {will/shall} include rifled tubing for maximum efficiency. Each coil will be painted black. The condenser unit must include a receiver drier with a high and low pressure switch. The wire harness will include necessary wiring for the clutch circuit as well as a separate power relay circuit.

Mounting design will enable easy servicing of all components and unit replacement if necessary.

A union will be provided in the A/C hoses where they pass next to the brake treadle valve under the cab floor.

The roof mounted condenser shall be painted job color to match the cab roof.

HEATER/DEFROSTER & ACCESSORIES

QTY: 1

A climate-control system shall be provided for total cab environmental comfort as well as provide heat, cooling and defrost capabilities to various areas in the cab.
The system shall consist of a single evaporator unit, mounted in the center overhead of the cab.

The ceiling mounted external evaporator/heater unit shall include the following:

- Heavy-duty, high output blower.
- High efficiency coil that includes "rifled" tubing and oversized header tubes for maximum refrigerant distribution.
- Four (4) 2" diameter, adjustable louvers; two (2) each side of the cab overhead, facing the driver and officer seat positions.
- Six (6) larger louvers evenly spaced, forward of the overhead assembly, facing the windshield.
- Multi-vent defroster louvers positioned above the windshield will provide adequate airflow for windshield defrost.
- Four (4) lower vents shall be provided, one (1) below the driver and officer seat positions and one (1) under each outboard rear facing crew seat.
- Twelve (12) vents shall be provided on the HVAC unit for crew comfort.
- Damper controls shall be pneumatically operated to provide air discharge to the windshield, front overhead air discharge louvers as required.
- An adjustable electric water valve to control the amount of heat.
- Housing shall be fully insulated and enclosed.
- BTU: 55,300 A/C
- BTU: 78,000 Heat
- CFM: 680 Heat as mounted in the cab
- CFM: 680 A/C as mounted in the cab

The ceiling mounted evaporator unit/s shall be designed with an ergonomically designed cover to provide maximum headroom and a pleasing appearance with a crinkle coat texture and include a deep well condensate collection pan, • which shall be drained by a gravity system into the rear corners of the engine compartment utilizing stainless steel drain poles.

Evaporator units shall be mounted on the cab roof, enclosed by aluminum panels painted white. The evaporator louvers and controls shall penetrate the cab roof into occupant compartments to the least extent practicable. Evaporator units shall be mounted on the cab ceiling, enclosed by a black painted aluminum cover.

A serviceable foam intake filter shall be installed on the rear of the evaporator.

All defrost/heating systems will be plumbed with one (1) seasonal shut-off valve mounted in the officer side wheel well area.

A 12-volt roof top dual condenser shall be mounted on the cab roof. The condenser shall be designed with high performance, long life fan assemblies with sealed housings and shaft. The condenser and coil design shall include rifled tubing for maximum efficiency. Each coil shall be painted black. The condenser

unit must include a receiver drier with a high and low pressure switch. The wire harness shall include necessary wiring for the clutch circuit as well as a separate power relay circuit.

Mounting design shall enable easy servicing of all components and unit replacement if necessary.

The system shall utilize one (1) Valeo TM-31 HD engine mounted compressor driven by a Poly “V” serpentine belt installed in accordance with the manufacturer's requirements. The system shall use R134a refrigerant. The air conditioner lines shall be EATON GH001 EverCool SAE J2064 Type E hose secured using EATON E-Z Clip system components.

Air conditioning hoses shall be #10 hose for discharge and #12 hose for suction with steel hose and end fittings provided at the compressor. The heater hose installation shall not incorporate a copper tube manifold.
The air conditioning system shall be configured to only operate when the vehicle's engine is running. The blowers, in both evaporators, shall be in operation whenever the air conditioning system is activated.

Heater-defroster shall have a three-speed electric fan with illuminated controls. The controls system shall actuate the air-distribution system with air cylinders, which are to be separated from the air brake system by an 85-90 psi pressure protection valve.

The 12-volt system for the air conditioners shall have first priority to be load managed.

The heater/defroster unit shall clear the windshield in half-the-time required by SAE standards.

PAINT ROOF MOUNTED CONDENSOR

QTY: 1

The roof mounted, air conditioning, condenser housing(s) shall be painted to match the cab roof color.

HVAC CONTROLS

QTY: 1

HVAC controls shall be provided on the driver's overhead wing panel, consisting of a mode selector control, front fan speed, rear fan speed, air conditioning on/off and temperature range selection.

The controls shall be clearly labeled, adequately backlit.

The multiplex system control screen shall also contain all controls for the cab HVAC control system.

ACTIVE AIR PURIFICATION SYSTEM

QTY: 1

An Active Air Purification system shall be provided. The system utilizes RGF’s Photohydroionization® Cell (PHI-Cell®) technology which produces hydro-peroxides, and hydroxide ions. The resulting Advanced Oxidation Process reduces airborne mold, bacteria, viruses and odors up to 99%.
The unit shall have a stainless steel housing and contain a fan to move air across the PHI cell and out of the housing.
The system shall be wired to the vehicle 12 volt system. The unit shall be powered on either when the shore power is connected or the apparatus ignition power is switched on. The air purification system shall be installed in the crew area as specified.

CAB TILT SYSTEM

QTY: 1

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 cab tilt mechanism will be custom designed for ease of maintenance and consist of two (2) hydraulic cylinders. Hydraulic lines will be rated at 20,000 PSI burst pressure.

The hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.

Hydraulic cylinders will be detachable to allow removal of the engine for major service.

A remote cable operated mechanical cylinder stay bar and release will be provided to insure a positive lock in the tilted position.

The remote cable will be routed in such a manner as to prevent binding of the cable.

The two (2) rear outboard cab latches will be of the hydraulic pressure release, automatic re-latching type, and provide an automatic positive lock when the cab is lowered. The latch will not disengage or experience any damage when subjected to a pull apart tensile load of 6,000 lbs. The hydraulic pressure required to unlock the latch will not exceed 550 PSI. The latch will withstand 5,000 PSI without leaks or damage and withstand 1,000 continuous cycles of operation under a load of 1,000 lbs at liftoff. The tilt pump will be electric over hydraulic type, with a pressure rating of not less than 4,000 PSI. Additionally, the cab tilt device will be both electrically and hydraulically interlocked to prevent inadvertent activation of the cab tilt system.

A "CAB NOT LATCHED" indicator will be provided in the cab dash-warning cluster.

A dual switch control system will be provided for the cab tilt, located on the passenger side of the vehicle or on the optional tether control.

System will consist of a three (3) position toggle switch along with a rubber covered push button switch.

A fluid data label will be provided and located in the area of the cab tilt hydraulic fluid reservoir. The label will indicate the total amount of fluid held in the reservoir.

AUXILIARY - MANUAL CAB TILT LIFT BACKUP SYSTEM

QTY: 1

An auxiliary, manual cab, lift backup system shall be furnished inside the passenger side of the pump enclosure or front compartment for use in the event of total electrical shutdown.

The jack will be located to allow full operation of the jack with only the upper panel on the officer side pump enclosure open.

SECONDARY SAFETY LOCK

QTY: 1

A secondary, swing down, safety bar shall be applied to the driver side cab tilt cylinder with a manual lock to engage the lock, as required for extended service operations.

MANUAL CAB TILT JACK

QTY: 1

The manual cab jack handle will be mounted within the officers side of the pump module.

CAB LIFTING EYELETS

QTY: 1

The cab shall be capable of tilting to a 90-degree angle, with the assistance of an overhead hoist, to facilitate unobstructed removal of the engine and/or radiator.

The manufacturer shall provide attachment points to safely facilitate, tilting the cab to a 90-degree angle.

The rear cab, lifting eyelets shall be located at the upper portion of the rear cab sheet metal and attached to the upper cab, cross brace.

PARKING BRAKE/CAB TILT INTERLOCK

QTY: 1

The cab tilt control shall be equipped with an interlock.

This shall disable the cab tilt system in the event the parking brake is not applied.

FRAME ASSEMBLY

QTY: 1

The chassis frame shall be assembled in its entirety at the manufacturer's facility. This will prevent any split responsibility for warranty or service.

The frame shall consist of two (2) channels fastened together by cross members. All structural fasteners used in the frame shall be Grade 8 hardware. Hardened steel washers shall be used under all bolt heads and nuts to avoid stress concentrations. Top flange shall be free of bolt heads. All spring hangers shall be machined steel castings. Frame assemblies that are welded or assembled with “Huck” type fasteners are not acceptable.

Each main frame rail shall be 10-1/4" x 4" x 3/8", fabricated from Domex™ 110,000 PSI minimum yield steel, with a minimum section modulus of 18.396 cu in and a resisting bending moment (RBM) of 2,023,560 inch pounds. Frames are built for the specific apparatus under construction so that no unnecessary holes or modifications are made to the frame assembly.

A full length inner frame liner shall be installed. Total section modulus of each rail, with liner, shall be 33.555 cu in and the total resisting bending moment (RBM) shall be a minimum of 3,691,050 in-lbs, per rail.

A third inner frame liner shall be provided between the front and rear axle spring hangers. Total section modulus of each rail, with both liners, shall be 42.180 cu in and the total resisting bending moment (RBM) shall be 4,639,800 in-lbs, per rail.

The chassis frame assembly, consisting of frame rails, cross members, axles and steering gear(s), shall be finish painted before installation of any electrical wiring, fuel system components, or air system components. All components or brackets fastened to the frame rails shall be cleaned, primed and painted prior to being attached to the frame rails.

AERIAL TRAVEL SUPPORT

QTY: 1

An aerial travel support for the aerial device shall be provided and located as close to the front axle as possible.

FRONT BUMPER

QTY: 1

A 12" high, 101" wide, two (2) ribbed, bright finish, stainless steel, front bumper shall be provided.

The bumper shall be a wrapped design to match the contour of the front cab sheet.

14" FRONT BUMPER EXTENSION WITH TREAD PLATE GRAVEL

QTY: 1

The bumper shall be extended 14" with a polished aluminum, tread plate, gravel shield enclosing the top and ends.

CENTER WELL

QTY: 1

One (1) storage well constructed of 1/8" aluminum shall be installed in the gravel shield. This storage well shall be center mounted between the chassis frame rails. The bottom of the storage well shall have a minimum of four (4) drain holes.
The cover will be designed with a raised "hat" design allowing additional storage space.

ONE (1) HINGED, LATCHED, TREAD PLATE COVE

QTY: 1

One (1) hinged, latched, aluminum, tread plate cover shall be installed on the storage well located in the center of the bumper extension.

CENTER WELL - HOSE CAPACITY

QTY: 1

The center storage well shall have the desired capacity of:

CENTER WELL - 100 FEET OF 1-3/4" HOSE

QTY: 1

100' of 1 3/4" hose

TOW EYES

QTY: 1

Two (2) front chrome plate steel tow eyes shall be fastened directly to the bumper support structure that extends above the bumper through the tread plate gravel shield.

The tow eyes shall be fastened with grade 8 bolts and nuts.

FRONT AXLE

QTY: 1

The Steertek NXT front axle beam shall be rated to carry 24,000 lbs. and consist of a fabricated box cross section construction with 100ksi plate and a continuous beam architecture to minimize stress points for added durability.

The axle shall incorporate a removable kingpin feature for ease of kingpin serviceability. The knuckles shall allow for compatibility with disc brakes mounted at the 12 o'clock position and with drum brakes, and allow for wheel cut up to 45 degrees. They shall also utilize premium kingpin bushings and seals to provide enhanced protection from the elements to improve bushing life. Oil seals with viewing window shall be provided.

The suspension shall consist of multi-leaf parabolic springs rated at 24,000 lbs with double wrapped front eye that are packaged within an integrated clamp group that allows for ease of OEM assembly on to the axle beam and reduced part count. The clamp group bolts are tightened on the top of the clamp group opposed to the traditional U-bolt on the bottom making it easier to access with a torque wrench for servicing. The spring shall also include a lower shock attachment with an upturned eye. The springs will contain threaded pin bushings to allow simplification of spring alignment as well as long service life and improved ride quality. The suspension and spring geometry will be optimized to provide improved bump steer and Ackermann. Two ZF Sachs twin-tube shocks shall be provided with the front suspension assembly. The shocks shall be specially developed for parabolic leaf springs with a digressive characteristic curve using a patented piston system. The shocks shall feature multi-stage piston and base valves. The combination of valves shall achieve the desired damping characteristics that are ideal for the application.

Meritor EX-225 H, 17" disc brakes shall be provided for the front axle.

The front brakes shall be full air actuated with automatic, slack adjustment.

STEERING SYSTEM

QTY: 1

A dual power steering system shall be provided utilizing a Sheppard model #M110 main steering gear on the driver side of the chassis and a Sheppard model #M90 steering gear on the officer side of the chassis.

The power steering gear on the officer side of the chassis shall increase performance in turning the officer side wheel assembly, reducing loads and forces on the main gear and components.

The steering system shall be designed to maximize the turning capabilities of the front axle no matter the rating and tire size.

The use of a power assist cylinder on the officer side of the chassis is NOT ACCEPTABLE on front axles of this capacity.

The system shall be designed utilizing an engine driven hydraulic pump, with a maximum operating pressure of 2000 PSI.

Steering system components shall be mounted in accordance with the steering gear manufacturer's instructions.

STEERING COLUMN

QTY: 1

The steering column shall be a “Douglas Autotech” tilt and telescope column.

A lever mounted on the side of the column shall control the tilt and telescope features.

The steering shaft from the column to the miter box shall have a rubber boot to cover the shaft slip and a second rubber boot to seal the passage hole in the floor.

There shall be a ergonomically designed, self-canceling lever, that shall control the following functions:

- Left and right turn signals
- High beam activation
- Two speed with intermittent windshield wiper control
- Windshield washer control

18" STEERING WHEEL

QTY: 1

The steering wheel shall be a four (4) spoke, vinyl padded, minimum 18" diameter, with a center hub mounted horn button.

REAR AXLE

QTY: 1

Rear axle assembly shall be a tandem, Meritor RT-46-160 single reduction with a capacity of 48,000 lbs.

Axles shall have a gear reduction as required.

A driver controlled, Inter-Axle Differential Lock (IAD), shall allow drive shaft torque to be split equally between both rear axles.

The IAD can be used at all speeds and for long periods depending on weather conditions such as rain or snow.

This feature shall be disengaged during normal driving.

An electric over air-operated switch and an indicator light shall be provided in the cab dash.

Oil seals shall be provided as standard equipment.

REAR BRAKES

QTY: 1

Brakes shall be "S" Cam, 16-1/2" x 8 5/8" size and shall be full air actuated with automatic, slack adjusters.

VEHICLE TOP SPEED NFPA STATEMENT

QTY: 1

The rear axle/s (will/shall) be geared for a vehicle top speed in accordance with NFPA sections 4.15.2 and 4.15.3.

Units with GVWR over 26,000 pounds (will/shall) be limited to 68 mph. If the combined tank capacity is over 1250 gallons of foam and water or the GVWR is over 50,000 pounds, the vehicle top speed (will/shall) be limited to 60 mph or the fire service rating of the tires, whichever is lower.

REAR SUSPENSION

QTY: 1

A Hendrickson, "FIREMAAX" model #FMX-482, air ride suspension shall be provided for the tandem rear axle.

The suspension shall have a weight rating equal to the rear axle weight rating up to 48,000 pounds.

FRONT WHEELS

QTY: 1

The front wheels shall be 22.5" x 12.25" ten stud, hub piloted, polished aluminum disc type.

FRONT WHEELS, LUG AND HUB TRIM (ALUMINUM WHEELS)

QTY: 1

The front wheels shall be provided with bright, nut covers and hub caps.

FRONT TIRES

QTY: 1

The front tires shall be Michelin 425/65R22.5, "20 Ply", tubeless, radial XFE, wide base highway tread. The tires shall be fire service rated up to 24,396 lbs and shall have a top speed of 65 mph when inflated to 120 psi.

REAR WHEELS

QTY: 1

The tandem, rear axle wheels shall be 22.5" x 9" ten stud, hub piloted, polished aluminum, disc type.

REAR WHEELS

QTY: 1

The tandem, rear aluminum disc wheels shall be provided with bright, nut covers and hub caps.

REAR TIRES

QTY: 1

The rear tires shall be Michelin 12R22.5, "16 Ply", tubeless, radial, XZE, highway tread.

The tires shall be fire service rated up to 58,040 lbs and shall have a top speed of 75 mph when inflated to 120 psi.

TIRE PRESSURE MONITORING

QTY: 1

A Doran model 360 HD 10 tire pressure monitoring system shall be provided.

The system shall monitor the pressure on all ten (10) vehicle tires.

PRESSURE PROTECTION VALVE

QTY: 1

A pressure protection valve will be provided between the primary air tank and the rest of the air tanks to prevent the primary air tank from loosing air pressure in the event that any other air tanks experience a loss of air pressure.
For ease of daily maintenance, each air system reservoir shall be equipped with a brass 1/4 turn drain valve located under the front body compartments.

AIR BRAKE SYSTEM

QTY: 1

A dual circuit, air operated braking system, meeting the design and performance requirements of FMVSS -121 and the operating test requirements of NFPA 1900 current edition shall be installed.

It shall be direct air type with dual air treadle in the cab. The system shall be powered by an engine mounted, gear driven air compressor protected by a heated air dryer.

The compressor discharge shall be plumbed with stainless steel braided hose lines with a Teflon lining.

All air lines shall be secured with non-conductive, corrosion resistant strapping mounted with standoff fasteners.

Cord reinforced rubber hose lines shall be installed from a bulkhead in the the frame rails to brake chambers.

The air system shall provide a rapid air build-up feature and low-pressure protection valve with light and buzzer, designed to meet the requirements of NFPA 1900, current edition.

ABS SYSTEM

QTY: 1

An Anti-Skid Braking System (ABS) shall be provided to improve braking control and reduce stopping distance. This braking system shall be fitted to all of the axles. All electrical connections shall be environmentally sealed, water, weatherproof, and vibration resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel shall transmit wheel speed data to an electronic processor which shall sense approaching wheel lock causing instant brake pressure modulation up to 5 times per second in order to prevent wheel lockup. Each wheel shall be individually controlled.

To improve service trouble shooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started. A dash-mounted light shall go out once the vehicle has attained 4 mph after successful ABS start-up. A warning light shall signal malfunction to the operator. The system shall consist of a wheel mounted toothed ring, sensor, sensor clip, electronic control unit and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the toothed ring.

The system shall also control application of the auxiliary engine exhaust or drive line brakes to prevent wheel lock.

ELECTRONIC STABILITY CONTROL

QTY: 1

An Electronic Stability Control (4 or 6 Channel) shall be provided as part of the Standard ABS system. The Electronic Stability Control system is capable of recognizing and assisting in both rollover and vehicle-under and over-steer situations through advanced monitoring of vehicle parameters and automatic and selective application of the chassis brakes. The ESC system monitors the vehicle response to turning and braking and adjusts or modulates the brake pressure at the wheel end to slow the vehicle in roll control, stabilize the vehicle when under or over steering, and modulate brake pressure when excessive wheel slip, or wheel lockup is detected. By these actions, the ESC system helps to maintain the vehicle's lateral and roll stability at all times, and improves braking and steer ability during heavy brake applications and during braking on slippery surfaces.

To further improve vehicle drive characteristics the unit shall be fitted with automatic traction control (ATC). This system shall control drive wheel slip during acceleration from a resting point. An extra, solenoid valve shall be added to the ABS system.

The system shall control the engine and brakes to ensure efficient acceleration.

The system shall be equipped with a dash-mounted light that shall come on when ATC is controlling drive wheel slip.

The system shall also include an "off road traction" dash mounted switch that will allow the operator to momentarily allow for more wheel slip when the unit is in deep mud or snow.

AIR RESERVOIRS

QTY: 1

There shall be a minimum of four (4) air reservoirs and be installed in conformance with best automotive practices.

An additional 1127 cu. in. air reservoir shall be provided for an air manifold.

Reservoir capacity total shall be a minimum of 8200 cu. in.

A pressure protection valve shall be installed to prevent the use of air horns or other air operated devices should the air system pressure drop below 80 psi (552 kPa).

The air reservoirs shall be color coded to match the air lines for easy identification, maintenance, and troubleshooting.

The reservoirs shall be painted the following colors:

- Wet Tank Black
- Primary Tank Green
- Secondary Tank Blue
- Auxiliary Tank(s) Yellow
- Secondary Tandem Green 2400 cu. in.

AUTOMATIC MOISTURE EJECTORS - ALL TANKS

QTY: 1

There shall be Haldex automatic moisture ejectors on all air tanks.

1/4 TURN DRAIN VALVES SIDE OF BODY

QTY: 1

For ease of daily maintenance, each air system reservoir shall be equipped with a brass 1/4 turn drain valve.

The brass, quarter turn, air tank drains shall be remotely mounted to the side of the body on a labeled panel just forward of rear wheel for ease of maintenance.

HEATED AIR DRYER

QTY: 1

A Bendix AD-IS heated air dryer system shall be furnished. The function of the AD-IS dryer reservoir module (DRM) is to provide an integrated vehicle air dryer, secondary reservoir, purge reservoir, governor, and a number of the charging valve components in a module. The DRM dryer module includes an integrated solution air dryer (AD-IS), a reservoir including a separate purge reservoir section, a governor, and four pressure protection valves which have been designed as an integrated, air supply system.

The function of the AD-IS air dryer is to collect and remove air system contaminants in solid, liquid and vapor form before they enter the brake system. It provides clean, dry air to the components of the brake system which increases the life of the system and reduces maintenance costs. Daily, manual, draining of the reservoirs is eliminated. The function of the pressure protection valves is to both control the order in which the components receive air from the AD-IS air dryer, as well as to protect each reservoir from a pressure loss in the other reservoir or a pressure loss in an air accessory.

An automatic, moisture ejector on the primary or wet tank shall also be furnished.

COLOR CODED BRAKE LINES

QTY: 1

The entire chassis air system shall be plumbed utilizing reinforced, Synflex air lines, which shall be equipped with quick release type fittings.

All of the airlines shall be color coded to correspond with an air system schematic and shall be adequately protected from heat and chafing.

WABCO AIR COMPRESSOR

QTY: 1

Air compressor shall be a Wabco brand, with a minimum of 18.7 cubic feet per minute capacity on L9 X15 models and 25.9 cubic feet per minute on X12 models.

Air brake system shall be the quick build up type.

The air compressor discharge line shall be stainless steel braid reinforced Teflon hose.

The chassis air system shall meet NFPA 1900, latest edition for rapid air pressure build-up within sixty (60) seconds from a completely discharged air system.

This system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the sixty (60) seconds build-up time.

BRAKE TREADLE VALVE

QTY: 1

A Bendix dual brake treadle valve shall be mounted on the floor in front of the driver.

The brake control shall be positioned to provide unobstructed access and comfort for the driver.

PARKING BRAKE CONTROL

QTY: 1

Parking brake shall be of the spring-actuated type, mounted on the rear axle brake chambers. A red, indicator light shall be provided in the driver dash panel that shall illuminate when the parking brake is applied.

The parking brake will be equipped with all-wheel lock-up.

The parking brake control shall be mounted on the driver lower wing panel.

AUX. AIR INLET IN LH DOOR AREA

QTY: 1

One (1) air inlet with male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female coupling shall also be provided with the loose equipment.

This inlet shall allow a purchaser furnished external air supply to be connected to the chassis air system.

ENGINE

QTY: 1

Engine shall be a Cummins, Model X15 605, diesel, turbo-charged, per the following specifications:

- Max. Horsepower 605 HP @ 1600 RPM
- Governed Speed 2100 RPM
- Peak Torque 1850 lb. ft. @ 1150 RPM
- Cylinders Six (6)
- Operating Cycles Four (4)
- Bore Stroke 5.39 x 6.65 in.
- Displacement 912 cu. in.
- Compression Ratio 17.2:1
- Governor Type Limiting Speed

Engine oil filters shall be engine manufacturers branded or approved equal.

Engine oil filters shall be accessible for ease of service and replacement.

If a pre-2027 emission engine is **NOT** available at the time of build ***(starting production on January 1, 2026)*** your order will **automatically be upgraded and charged for either the 2027 engine compliant Cummins X-10 or X-15, with all associated costs being passed on to the end user. No exceptions.**

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QTY: 1

ENGINE IQA CERTIFICATION - X15

QTY: 1

The Cummins X15 engine shall be certified by Cummins Power Systems for installation in the manufacturers custom chassis.

SECONDARY BRAKING

QTY: 1

An engine compression brake shall be furnished for increased braking capabilities.

Controls shall be as provided by the engine manufacturer and shall be activated by releasing the throttle pedal to the idle position.

The engine compression brake shall have dash mounted control switches to turn the brake on or off as well as to control the operational level of the brake.

The engine brake shall be wired in such a manner so as to illuminate the chassis brake lights when the engine brake is engaged and operating.

The engine brake shall be interlocked with the PTO operation and shall automatically disengage any time the apparatus is operating with the PTO active.

ENGINE AIR CLEANER

QTY: 1

An engine air cleaner shall be provided. The air cleaner shall include a dry type element and shall be installed in accordance with the engine manufacturer's recommendations. The air cleaner shall be located to the rear of the engine, with streamline air pipes and hump hose connections from the inlet to the air cleaner and from the air cleaner to the turbo.

The air cleaner shall be easily accessible when the cab is tilted.

The air cleaner shall be plumbed to the air intake system that shall include a self sealing connection between the cab and air cleaner assembly to allow the cab to be tilted.

To draw fresh clean air, the intake for the air cleaner shall be on the side of the cab on the driver's side.

The inlet shall be a minimum of 41" above the ground to allow the vehicle to navigate through water without any part of the air intake system being below the frame rail, preventing any type of water intake. There will be no exceptions. Per NFPA 1900, the height on the lowest point of the air intake shall be displayed in the cab.

EMBER SEPARATOR

QTY: 1

An ember separator shall be installed in the chassis air intake system.

The ember separator housing must be easily accessible when the cab is tilted.

ACCELERATOR PEDAL - FLOOR MOUNT

QTY: 1

A floor mount accelerator pedal shall be installed on the floor in front of the driver.

The pedal shall be positioned for comfort with ample space for fire boots and adequate clearance from the brake pedal control.

The brake and accelerator pedal will be spaced apart as much as possible.

The brake and accelerator pedals will have a minimum 3.5” separation at the narrowest point between the pedals.

The brake and accelerator pedal will be spaced apart as much as possible; accelerator pedal moved inboard as much as possible.

REMOTE THROTTLE & INTERLOCK HARNESS

QTY: 1

An apparatus interface wiring harness for the engine shall be supplied with the chassis. If applicable, separate circuits shall be included for pump controls, “Pump Engaged” and “OK to Pump” indicator lights,

open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light.

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

CUMMINS INSITE PRO, ENGINE DIAGNOSTIC SOFTWARE

QTY: 1

Cummins Insite Pro - Engine Diagnostics

COOLING SYSTEM

QTY: 1

The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.

To provide maximum corrosion resistance and cooling performance, the entire radiator core shall be constructed using long life aluminum alloy.

The core shall be made of aluminum fins, having a serpentine design, brazed to aluminum tubes.

The tubes shall be brazed to aluminum headers.

No solder joints or leaded material of any kind shall be acceptable in the core assembly.

The radiator core shall have a height of 35.92" x a width of 37.62".

Supply and return tanks made of glass-reinforced nylon shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly.

The radiator shall be compatible with commercial antifreeze solutions.

There shall be a full steel frame around the entire radiator core assembly.

The radiator core assembly shall be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability.

The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground.

The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.

The cooling system shall include a surge tank mounted to the top of the radiator framework that shall remove air in the system.

The surge tank shall be equipped with a sight glass to monitor the level of coolant.

The radiator shall be equipped with a dual seal cap that shall allow for expansion and recovery of coolant into a separate integral chamber.

The cooling system shall be designed for a maximum of fifteen (15) PSI operation.

A drain port shall 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.

Extended life engine coolant shall provide anti-freeze protection to -30° F.

The mixture shall be per the engine manufacture's specifications.

COOLING SYSTEM CRITERIA

QTY: 1

The engine cooling system shall be certified by the engine manufacturer to meet cooling index requirements for a minimum ambient temperature or 110-degrees Fahrenheit.

TRANSMISSION COOLER

QTY: 1

A shell and tube transmission oil cooler shall be provided using engine coolant to control the transmission oil temperature.

The cooler shall have an aluminum shell and copper tubes.

The cooler shall be assembled using pressed in rubber tube sheets to mechanically create a reliable seal between the coolant and the oil.

No brazed, soldered, or welded connections shall be used to separate the coolant from the oil.

RADIATOR CROSS MEMBER

QTY: 1

The radiator installation shall include a radiator cross member for additional strength and durability.

This cross member shall be designed so the angle of approach is not affected.

HEAVY DUTY RADIATOR SKID PLATE

QTY: 1

The radiator installation shall include a heavy-duty radiator skid plate to protect the radiator from debris or obstructions under the chassis.

The skid plate shall be designed so the angle of approach is not effected.

This skid plate design shall include wire cover wing plates for additional protection to wires and hoses on each side of the radiator assembly.

The skid plate shall be painted to match the chassis.

CHARGED AIR COOLER (FRONT MOUNT)

QTY: 1

The charge air cooler shall be constructed of aluminum with cast aluminum side tanks.

The cooler shall have a frontal core size of 957 square inches, seven (7) fins per inch, and forty eight (48) core tubes.

The charge air cooler shall be mounted directly ahead of the radiator and to the radiator headers.

Rubber isolators shall be used at the mounting points to reduce transmission of vibrations.

The connections between the engine and charged air cooler, shall be made using high temperature silicone hoses rated for use in temperature up to 500°F, and heavy duty constant tension T-Bolt spring hose clamps.

ENGINE FAN

QTY: 1

The engine cooling system shall incorporate a heavy duty fan, installed on the engine and include a shroud.

The fan shall be equipped with an air operated clutch fan, which shall activate at a pre-determined temperature range.

Recirculation shields shall be installed to ensure that air which has passed through the radiator is not drawn through it again.

COOLANT RECOVERY

QTY: 1

A coolant recovery system shall be provided and located near the battery box.

HEATER AND COOLANT HOSES/PIPING

QTY: 1

All coolant piping shall be constructed of appropriate sized, powder coated, steel tubing with 0.06 wall thickness and formed hose barbs. All connections between coolant pipes and chassis components shall be made using appropriately sized silicone hoses or elbows, rated for use in temperatures ranging from -60F to +350F. The connections will use appropriately sized, constant torque, hose clamps.

These connections shall be minimal in number to reduce the number potential leak points and shall adequately allow for movement of the engine relative to chassis mounted components. All integral hoses supplied with the engine shall be as supplied by the engine manufacturer.

Continental Blue Xtreme blue heater hoses shall be furnished for the heater system. The Blue Xtreme hose shall have a core of black (EPDM) with 2-Spiral Aramid reinforcement and Blue EPDM cover. All heater hoses shall be equipped with constant torque type hose clamps. All integral hoses supplied with the engine shall be as supplied by the engine manufacturer.

Two (2) mechanical shut off valves shall be installed in the area of the right front of the engine to shut down the flow of coolant to the cab heating system.

The hoses running from the engine to the roof will have unions installed near the underside of the cab for future maintenance.

HEATER AND COOLANT SHUT OFF VALVE

QTY: 1

A mechanical shut off valve shall be installed on the engine to shut down the flow of coolant to the cab heating system.

LOW COOLANT INDICATOR

QTY: 1

A low engine coolant indicator light located in the dash instrument panel shall be provided. An audible alarm shall be provided to warn of the low coolant condition.

TRANSMISSION

QTY: 1

An Allison World Transmission, Model 4500EVSR, (Wide Ratio), electronically controlled, automatic transmission shall be provided. Transmission specifications shall be as follows:

- Max. Gross Input Power 600 HP
- Max. Gross Input Torque 1770 lb. ft.
- Input Speed (Range) 1700- 2300 RPM

- Direct Gear (Pumping) 4th (Lock-up)

Transmission installation shall be in accordance with the transmission manufacturer's specification.

The transmission shall be readily and easily removable for repairs or replacement.

The transmission shall contain a built-in output retarder, controlled by an on/off switch on the dash, and actuated by utilizing the brake pedal.

One (1) PTO opening shall be provided on both the left and right side of the converter housing (positions one(1) o'clock and eight (8) o'clock).

SIX (6) SPEED AUTOMATIC TRANSMISSION - 4500 SERIES

QTY: 1

The transmission shall be calibrated for six (6) forward gears and one (1) reverse gear.

Each gear shall have the following ratios:

- First 4.70:1
- Second 2.21:1
- Third 1.53:1
- Fourth 1.00:1
- Fifth 0.76:1
- Sixth 0.67:1
- Reverse -5.55:1

ALLISON TRANSMISSIONS ELECTRONIC TOUCH PAD SHIFTER

QTY: 1

An illuminated, touch-pad type, shift control shall be mounted in the cab, convenient to the driver.

Shift control shall be approved by the transmission manufacturer.

The transmission, upon startup, shall select six (6) speed operation.

TRANSMISSION OIL LEVEL SENSOR

QTY: 1

The transmission shall be equipped with the oil level sensor (OLS); this sensor shall allow the operator to obtain an indication of the fluid level from the shift selector.

The sensor display shall provide the following checks, correct fluid level, low fluid level and high fluid level.

ALLISON PARK TO NEUTRAL

QTY: 1

The transmission, upon application of the parking brake, shall automatically shift into neutral.

ALLISON PRESELECT PROGRAMMING

QTY: 1

The transmission shall have Allison Pre select enabled to automatically downshift when the secondary engine brake is active.

PRESELECT PROGRAMMED FOR 4TH GEAR

QTY: 1

The transmission shall be programmed to automatically downshift to 4th gear.

This feature shall be enabled/disabled with the main on/off switch for the engine brake.

RETARDER OPERATION W/DASH CONTROL & BRAKE PEDAL

QTY: 1

A retarder control lever (Allison Model 29521372) shall be provided to vary the output retarder's level of retarder intensity in conjunction with the brakes via the brake pedal.
The 7-position lever shall have a graduated control, ranging from the “OFF” position at the top to the “FULL ON” position at the bottom. *
The lever shall be mounted to the right of the driver, on the upper dash panel.
A temperature gauge with indicator light and alarm shall be provided for retarder monitoring.
Rear brake lights shall illuminate when the transmission retarder is active.

TES 295 SYNTHETIC TRANS FLUID 4000 EVS

QTY: 1

TES 295 transmission fluid shall be utilized to fill the 4000 EVS transmission.

TRANSMISSION LOCK-UP

QTY: 1

The automatic transmission furnished in the chassis shall have a lock-up assembly which brings the transmission to direct drive and prevents the transmission from shifting gears while in the pumping mode.

A positive braking system shall be provided to prevent vehicle movement during pumping operations.

The air brakes furnished must satisfy this requirement.

DRIVE LINES

QTY: 1

Drive lines shallbe Dana (Spicer) 1810 heavy duty series or equal, with "glide coat" splines on all slip shafts.

The manufacturer shall utilize an electronic type balancing machine to statically and dynamically balance all drive shafts.

The manufacturer shall provide proof of compliance with all drive shaft manufacturer's standards and specifications. {No Exceptions}

Where applicable, the universal joints shall be the half loop style joints.

DRIVE LINE GUARDS

QTY: 1

The drive lines shall be equipped with guard loop(s) to prevent the drive shaft(s) from dropping in the event of a universal joint failure.

10 GALLON DEF TANK

QTY: 1

ten (10) gallon diesel exhaust fluid (DEF) tank will be provided and installed. The tank will be mounted in the area of the passenger side pumphouse.
The tank will include an internal heater that will be fed by engine coolant directly from the engine block to ensure it is always kept at the proper temperature per EPA requirements. The tank will include a temperature sensor to control the flow of the engine coolant from the heater valve to the DEF tank.
A DEF fluid level senor will be provided with the DEF tank and connected to the level gauge on the dashboard.

DIESEL EXHAUST FLUID LEVEL GAUGE

QTY: 1

Diesel Exhaust Fluid level (E-1/2-F); low fuel level warning @ 1/8 tank

EXHAUST SYSTEM

QTY: 1

The exhaust system shall be installed in accordance with the engine manufacturer's requirements and meet all Environmental Protection Agency and State noise level requirements.

Exhaust system components shall be securely mounted and easily removable.

The diesel particulate filter/muffler shall be fabricated from stainless steel and of a size compatible with the engine exhaust discharge.

Exhaust tubing shall be a minimum of 16 gauge stainless steel from the turbocharger on the engine to the inlet of the diesel particulate filter. Any flexible exhaust tubing shall be HDT stainless steel type.

To minimize heat build-up, exhaust tubing within the engine compartment shall be wrapped with an insulating material. Exhaust shall be wrapped from the turbocharger to the entrance of the muffler. Material shall be held in place with worm gear type clamps.

An exhaust diffuser shall be provided to reduce the temperature of the exhaust as it exits the tailpipe.

If the electrical system is hardwired or V-Mux multiplex, separate "regeneration" enable and prohibit switches shall be provided under the dash board on the driver's side. Each switch shall be provided with a spring loaded protective cover and shall be clearly marked as to function. If the electrical system is Class-1 ES-key, the regeneration switches shall be incorporated into the ultra-view screen.

The vehicle shall be equipped with SCR technology that uses a urea based diesel exhaust fluid (DEF) and a catalytic converter to significantly reduce oxides of nitrogen (NOx) emissions.

The SCR system shall reduce levels of NOx (oxides of nitrogen emitted from engines) by injecting small quantities of diesel exhaust fluid (DEF) into the exhaust upstream of a catalyst, where it vaporizes and decomposes to form ammonia and carbon dioxide.

TAILPIPE

QTY: 1

The exhaust tailpipe extending from the SCR catalyst to the side of the vehicle shall be constructed from 16-gauge stainless steel tubing.

The exhaust discharge shall be on the officer side of the apparatus forward of the rear axle.

HEAT SHIELD

QTY: 1

A heat shield to protect the multi-plex node on the O/S inner frame rail above the exhaust system will be provided.

EXHAUST SYSTEM CLARIFICATIONS

QTY: 1

Exhaust shall be wrapped from the turbocharger to the entrance of the muffler. Additional insulation will be provided where the exhaust passes by the officer side locker compartment.

Material shall be held in place with worm gear type clamps.

An exhaust diffuser shall be provided to reduce the temperature of the exhaust as it exits the tailpipe.

Separate "regeneration" enable and prohibit switches shall be provided and controlled through the Class 1 UltraView display.
Each switch shall be provided with a spring loaded protective cover and shall be clearly marked as to function.

PLYMOVENT EXHAUST EXTRACTION SYSTEM TAILPIPE ADAPT

QTY: 1

The exhaust outlet shall be a straight pipe, forward of the rear axle. It shall be terminating minimum 6" forward of rear tire, minimum 2.5" below rub rail/body, and flush with outboard of rub rail/body to connect with a Plymovent, ventilation system.

Clarification; The purchased Plymo-vent exhaust system connection will be the boot style.

FUEL TANK

QTY: 1

Fuel tank shall be a minimum of sixty-five (65) gallon capacity. It shall have a minimum, fuel filler neck of 2" ID and 1/4 turn fill cap. A 1/2" minimum diameter drain plug shall be provided. The tank shall be fabricated from hot rolled, pickled and oiled steel. Provisions for an additional feed line and fuel level float shall be provided for future use. The fuel tank shall be installed behind the rear wheels, between the frame rails. The fuel tank shall meet all FHWA 393.67 requirements including a fill capacity of 95% of tank volume. The fuel tank shall be able to withstand a longitudinal acceleration of -23.0g at 0.166 seconds in accordance to SAE J211 standards using a channel frequency class 600 filter. Testing shall be performed at and verified by a third party testing and evaluation center.

STAINLESS STEEL FUEL TANK STRAPS

QTY: 1

The straps supporting the diesel fuel tank shall be made of Type 304L stainless steel with grade 8, zinc coated steel hardware.

There will be no exceptions.

FUEL TANK MOUNTING STRAP ISOLATION MATERIAL

QTY: 1

The fuel tank mounting straps shall utilize dense rubber between the straps and the fuel tank to prevent chaffing.

FUEL LINES

QTY: 1

Fuel lines shall be an Aeroquip FC332 AQP Series fiber reinforced hose. The lines shall be sized to meet engine manufacture's requirements, and shall be carefully routed and secured along the inside of the frame rails.

DUAL FUEL LINE SHUT-OFF VALVES

QTY: 1

A fuel line shut-off valve shall be provided on both the inlet and outlet side of the primary fuel filter to allow for easy removal of the filter.

The valves shall be labeled "Fuel Shut-Off".

No reserve feature shall be included in the tank.

FUEL TANK SERVICEABILITY PROVISIONS

QTY: 1

An additional eight feet of fuel line shall be provided.

The line shall be coiled and secured above the fuel tank to improve serviceability of the tank.

HEATED FUEL- WATER SEPARATOR

QTY: 1

A Racor 400 series heated fuel filter/water separator shall be provided in the fuel system.

A "water in fuel" indicator shall be provided on the dash.

FUEL PUMP ELECTRIC, REQ. ON 210" W-B OR

QTY: 1

An electric fuel pump for re-priming shall be furnished in the main fuel line.

A labeled control switch shall be provided on the main dash panel.

FUEL POCKET

QTY: 1

A fuel fill shall be provided in the driver side rear wheel well area.

A Cast Products heavy duty cast aluminum spring loaded hinged fill door shall be provided.

A label indicating "Ultra Low Sulfur Diesel Fuel Only" shall be provided adjacent to the fuel fill.

FUEL POCKET

QTY: 1

A fuel fill shall be provided in the driver side rear wheel well area.

A Signature 4 composite fuel pocket with a brushed stainless steel door shall be provided.

A tethered cap shall be provided as part of the assembly.

A label indicating "Ultra Low Sulfur Diesel Fuel Only" shall be provided adjacent to the fuel fill.

FUEL POCKET, DRIVER SIDE REAR WHEEL WELL PANEL

QTY: 1

A fuel fill shall be provided in the driver side rear wheel well area.

The fuel fill will be enclosed within the driver's side rear fender SCBA storage compartment.

A label indicating "Ultra Low Sulfur Diesel Fuel Only" shall be provided adjacent to the fuel fill. **The fuel fill label will be located on the inside of the fuel access door.**

PUMPER BODY ELECTRICAL

QTY: 1

CHASSIS ELECTRICAL SYSTEM

QTY: 1

All electrical wiring in the chassis shall be GXL cross link insulated type. Wiring is to be color coded and include function codes every three (3) inches on both sides. Wiring harnesses shall be routed in protective, heat resistant loom, securely and neatly installed. Two (2) power distribution centers shall be provided in central locations for greater accessibility. The power distribution centers shall contain thermal automatic reset breakers, power control relays, flashers, diode modules, daytime driving light module,

and engine and transmission data links. All breakers and relays shall have a capacity substantially greater than the expected load on the related circuit, thus ensuring long component life. Power distribution centers shall be composed of a system of interlocking plastic modules for ease in custom construction.

The power distribution centers are function oriented. The first is to control major truck function. The second shall control center to overhead switching and interior operations. Each module is single function coded and labeled to aid in troubleshooting. The centers will also have accessory breakers and relays for future installations. All harnesses and power distribution centers shall be electrically tested prior to installation to ensure the highest system reliability.

All external harness interfaces shall be of a triple seal type connection to ensure a proper connection. The cab/chassis and the chassis/body connection points shall be mounted in accessible locations. Complete chassis wiring schematics shall be supplied with the apparatus.

12 VOLT ELECTRICAL SYSTEM TESTING

QTY: 1

The apparatus low voltage electrical system shall be tested and certified by the manufacturer. The certification shall be provided with the apparatus. All tests shall be performed with the air temperature between 0°F and 100°F.

The following three (3) tests shall be performed in order. Before each test, the batteries shall be fully charged.

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure.

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

The total continuous electrical load shall be activated with the engine running up to the engine manufacturers governed speed. The test duration shall be a minimum of 2 hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded due to excessive battery discharge, as detected by the system, or a system voltage of fewer than 11.7 volts DC for a 12-volt system, for more than 120 seconds, shall be considered a test failure.

Following completion of the preceding tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm is activated.

The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of fewer than 11.7 volts shall be considered a test failure. The battery system shall then be able to restart the engine.

At the time of delivery, documentation shall be provided with the following information:

- Documentation of the electrical system performance test
- A written load analysis of the following;
- Nameplate rating of the alternator
- Alternator rating at idle while meeting the minimum continuous electrical load

- Each component load comprising the minimum continuous electrical load.
- Additional loads that, when added to the minimum continuous load, determine the total connected load.
- Each individual intermittent load.

CHASSIS WIRING INSTALLATION

QTY: 1

The wiring harness contained on the chassis shall be designed to utilize wires of stranded copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. Wiring shall be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring shall be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable).

The covering of harnesses shall be moisture resistant loom with a minimum rating of 289° Fahrenheit and a flammability rating of VW-1 as defined in UL62. The covering of jacketed cable shall have a minimum rating of 289° Fahrenheit.

All circuits shall conform to SAEJ2202. All circuits must be provided with low voltage over current protective devices.

All exposed electrical connections will be coated with “Z-Guard” to prevent corrosion.

DIRECT BATTERY GROUNDING STRAP

QTY: 1

If the electrical system requires, direct grounding straps shall be mounted to the following areas; frame to cab, frame to body and frame to pump enclosure.

All exposed electrical connections shall be coated with "Z-Guard 8000" to prevent corrosion.

EMI/RFI PROTECTION

QTY: 1

The apparatus shall incorporate the latest designs in the electrical system with state of the art components to insure that radiated and conducted electromagnetic interference (EMI) and radio frequency interference (RFI) emissions are suppressed at the source.

EMI/RFI susceptibility is controlled by utilizing components that are fully protected and wiring that utilizes shielding and loop back grounds where required. The apparatus shall be bonded through wire braided ground straps. Relays and solenoids that are suspect to generating spurious electromagnetic radiation are diode protected to prevent transient voltage spikes.

In order to fully prevent the radio frequency interference the purchaser may be requested to provide a listing of the type, power output, and frequencies of all radio and bio medical equipment that is proposed to be used on the apparatus.

SEQUENCER

QTY: 1

A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall 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.

Emergency light sequencing shall operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights shall be activated one by one at half second intervals. Sequenced emergency light switch indicators shall flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer shall deactivate the warning light loads in the reverse order.

MULTIPLEX CONTROL PUMP SHIFT SWITCH - MULTIPLEX

QTY: 1

The pump shift control shall be a Mil Spec toggle switch with mechanical detents mounted in a fully backlit panel that shall have indicators for “Pump Engage” and “Ok To Pump”.

The mode of the transfer case shall be controlled by remotely mounted air solenoids which shall be activated and monitored through the chassis control logic of the multiplex system.

MULTIPLEX ELECTRICAL SYSTEM

QTY: 1

A multiplex electrical management system shall be utilized on the chassis for all functions applicable.

The system shall consist of the following components:

A computer interface used to not only program the multiplex system but also serve as a factory direct gateway into the vehicle from any authorized service facility.

A Universal System Manager (USM), which acts as the main controlling component of the multiplexing system shall be provided and factory programmed to DOT, NFPA, SAE, the manufacturer and {Company} specifications. The programming shall be done by the manufacturer's engineering department.

The ES-Key system installation shall comply with SAE J551 requirements regarding Electromagnetic and Radio Frequency interference (EMI, RFI), as well as utilize components and wiring practices that insure the system is protected against corrosion, excessive temperatures, water, excessive physical, and vibration damage by any equipment installed on the vehicle at the time of delivery.

A series of Multiplexing Input/Output Modules shall be installed. The Input/Output modules shall permit the multiplexing system to reduce the amount of wiring and components used as compared to non-multiplexed apparatus. These modules shall vary in I/O configuration, be waterproof allowing installation outside of enclosed areas and shall possess individual output internal circuit protection. The modules shall also have three status indicators visible from a service persons vantage point that shall indicate the status of the module. In the event a load requires more than 7.5 AMPS of operating current, the module shall activate a simple relay circuit integral to any of the 3 dillblox assemblies installed in the cab.

Diagnostic software shall be provided to download data from the on board ES-KEY system. This software shall have the ability to view system input/output (I/O) information, and include a connection from a computer to the vehicle.

ADDITIONAL CLASS-1 ES-KEY ULTRAVIEW 450 DISPLAY, O

QTY: 1

An additional Class 1, UltraView, 450 display shall be provided and installed on the officer side of the cab.

The second display shall have the ability to perform and display all the same functions and information of the main display; located on the driver side of the cab.

For Clarification: The officer's side 450 screen shall display the apparatus speed.

INTER-LOCK MODULE FOR MULTIPLEX SYSTEM

QTY: 1

A multiplex module, which is the interface between the multiplexing system and the pump system shall be provided.

This module shall serve as the interface between the operator, engine, transmission and pumping system.

The module shall be installed in the driver's side dash. There shall be a pump diagnostic view in the UltraView screen that shall indicate to service personnel the interlock state of the apparatus.

In the event of a multiplexing error involving pump operation, an override can be activated to ensure reliable pumping operations at ALL times.

The multiplex system shall be able to provide automatic and/or manual activation of engine “Fast Idle”, to maintain adequate alternator output and thus, chassis voltage.

There will be no exceptions.

MULTIPLEX SCREEN LOCATION - DS/OS OF OVERHEAD

QTY: 1

The ES-KEY 450 screens shall be mounted on each side of the overhead dash.

ALTERNATOR

QTY: 1

There shall be a Delco Remy Model 55SI, 430 amp brushless, serpentine belt, driven alternator.

The brushless design of the 55SI transfers magnetic fields between the rotor and stator air-gap without brushes.

The alternator installation shall be designed to provide maximum output at engine idle speed, by using Remote Sense in order to meet the minimum continuous electrical load of the apparatus as required.

The alternator shall carry a 3 Year/Unlimited Mile warranty.

BATTERIES

QTY: 1

Six (6) Exide #SX31XHD, anchor bonded maintenance free batteries shall be provided.

These batteries shall be wired in parallel to the master disconnect switch.

Each battery shall be rated at 950 CCA at 0 F and shall have a reserve capacity of 180 minutes.

Wiring for the batteries shall be 4/0 welding type, dual path starting cables per SAEJ541.

BATTERIES

QTY: 1

A Blue Sea battery isolator will be provided. The isolated battery will provide power for the MDC *Match previous unit.

BATTERY STORAGE, STEEL

QTY: 1

Batteries shall be securely mounted in fixed 3/16” GR50 steel trays located on each side of the chassis frame.

Complete access shall be provided when the cab is fully tilted.

Batteries shall be mounted on non-corrosive matting material.

The battery tray shall be able to withstand a longitudinal acceleration of -46.5g at 0.246 seconds in accordance to SAE J211 standards using a channel frequency class 600 filter.

Testing shall be performed at and verified by a third party testing and evaluation center.

COLE HERSEE BATTERY JUMPER STUDS

QTY: 1

A set of Cole Hersee battery jumper studs, model #46210-02 (red) and #46210-03 (black) shall be provided to allow the battery system to be jump started or charged from an external source.

The studs shall be located on the bottom of the battery box on the driver's side of the chassis.

Each stud shall be equipped with both a rubber protector cap and a 2” square non-conductive plate to prevent accidental shorting.

BATTERY DISCONNECT SWITCH

QTY: 1

The chassis batteries shall be wired in parallel to a single 12 volt electrical system, controlled through a heavy duty master disconnect switch.

The master disconnect switch shall be located within easy access of the driver upon entering or exiting the cab.

SHORELINE LOCATION - ADJACENT TO DRIVER'S DOOR

QTY: 1

The top of the shoreline receptacle cover will be even with the bottom of the side of cab fixed window on the driver side of the cab.

120V AUTOMATIC TRANSFER SWITCH

QTY: 1

An automatic power relay shall be installed to allow interior 120 volt accessories to be powered by the 120 volt shoreline or the generator.

The interior accessories to be powered by the shoreline shall be wired through a separate sub-panel breaker box.

This shall allow for a continuous power supply to the interior accessories while the apparatus is parked in the station.

The maximum load for the transfer / relay shall be 20 amps at 120 volts.

The transfer switch shall provide constant power to all 120-volt receptacles and/or power strips.

SHORELINE INLET

QTY: 1

One (1) Kussmaul "Super 30" Auto Eject model 091-159-30-120, automatic, 120 volt, 30 amp shoreline disconnect shall be provided for the on board, 110 volt battery charging systems.

The disconnect shall be equipped with a three pin female receptacle, which shall automatically eject the shoreline when the vehicle starter is energized.

The mating connector shall be included with the auto eject and shall be provided as loose equipment.

A label shall be provided indicating voltage and amperage ratings.

SHORELINE INLET COVER

QTY: 1

The Kussmaul auto-eject connection shall be equipped with a Yellow weatherproof cover.

SHORELINE INLET LABEL

QTY: 1

A shoreline power receptacle information plate shall be permanently affixed at or near the power inlet. The plate shall indicate the following:

- Type of Line Voltage
- Current Rating in Amps Power Inlet Type (DC or AC).

BATTERY CHARGER

QTY: 1

A Kussmaul model # 445-5265-0, EV-40, fully automatic, battery charger shall be provided for maintaining the vehicle battery system.

The charger shall feature Smart circuitry to provide three stages of charging: bulk, absorption, and float.

The charger shall have a battery type selector switch that regulates the proper charge/float voltage.

In addition to the main battery output, the charger shall also have auxiliary, 15 amp, output terminal with a battery saver selector switch to power accessory loads.

Output current of the charger shall be 40 amperes @ 12 volt DC.

BATTERY CHARGER STATUS CENTER

QTY: 1

A Kussmaul # 091-94-12 single bar-graph voltage indicator shall be installed to monitor the battery voltage.

The status center shall be located near the shoreline disconnect receptacle unless otherwise specified.

BLUE SEA #4365 ACCESSORY PANEL

QTY: 1

A Blue Sea model 4365 accessory panel wired to direct battery power will be provided. The accessory panel shall include one (1) 12-volt power port, Two (2) dual USB charging ports, along with a power switch with built in circuit breaker.

The accessory panel shall be mounted in the center dash panel.

12 VOLT POWER PORT LOCATED IN BODY COMPARTMENT

QTY: 1

The circuits will be located as follows:
One (1) circuit will be located in the officer side upper forward body compartment as high and as forward as possible. The circuit shall be for future installation of a customer supplied and installed TIC charging base.

One (1) circuit will be located in the officer side rearward lower compartment next to the specified 12 volt power port.

12 VOLT POWER PORTS IN BODY COMPARTMENT

QTY: 1

A dedicated 12 volt power accessory port shall be provided in a body compartment (TBD). This receptacle will be hot at ALL times. The port shall be rated at 15-amps and have a have a Mechanical Products #1680-037-200-0K4 manual resetable breaker installed. A Rubber protector boot shall be provided for each circuit breaker.
Each outlet shall be clearly identified as a “12-volt - 15 amp” outlet with a permanent identification

REAR CREW AREA POWER SUPPLY

QTY: 1

USB CHARGING PORTS - REAR CREW AREA - **MATCH GSO 10588**
Two (2) Blue Sea (1045) fast charge – dual USB socket mount charging port {will/shall} be installed in the cab of the truck for the fire departments accessory devices. Each charger will have two (2) USB connections and will have a 5 volt, 4.8 amp max output. The USB and specified outer side wall mounted 12 volt power ports will be mounted in a common box, one USB and one (1) power port in each box. The boxes will be located on the outer side of the rear wall custom cabinet. The forward edge of the surface mounted box will be even with the forward edge of the outer forward facing open seat riser. The box will be 1.25” above the cab floor.
The USB charges located above the 12 volt power port in the side of the common box and will be wired battery direct.

USB CHARGING PORTS - REAR OF ENGINE ENCLOSURE - **MATCH GSO 10588**
Two (2) Blue Sea (1045) fast charge – dual USB socket mount charging port will be installed in the cab of the truck for the fire departments accessory devices. Each charger will have two (2) USB connections and will have a 5 volt, 4.8 amp max output. The USB and specified rear of engine enclosure 12 volt power ports will be mounted in a common box, one USB and one (1) power port in each box. The power ports will be installed on the upper vertical surface of the rear of the engine enclosure and centered in a surface mounted box separated by the center bottom upholstery button. One (1) USB and one (1) power port will be installed in the side of each surface mounted box. The ports in each box will face outboard.
The USB charging ports will be located below the 12 volt power ports in the side of the common box and will be wired battery direct.
** A total of four (2) surface mounted boxes will be located in the rear crew area for the above power ports. Each box will contain one (1) 12 volt power port and one dual USB charging port **

12 VOLT POWER AND GROUND CIRCUIT, IN BODY COMPARTM

QTY: 1

One (1) dedicated 12 volt, 20 amp power and ground circuits on 3/8" studs and fuse at the batteries shall be provided. The circuit will be located in the R-1 compartment for the customer's TIC.

12 VOLT POWER AND GROUND CIRCUIT, IN BODY COMPARTM

QTY: 1

One (1) dedicated 12 volt, 20 amp power and ground circuits on 3/8" studs and fuse at the batteries shall be provided. The circuit will be located in the R-4 compartment for the customer's suction unit.

POWER AND GROUND STUD FOR ACCESSORIES IN DASH

QTY: 1

One (1) dedicated circuit; 12 volt, 40 Amp, power and ground on 3/8 stud and fused at battery shall be provided in the cab dash.

The circuit shall be for future installation of radios or accessories.

12 VOLT POWER AND GROUND CIRCUIT W/ IGNITION, BEHI

QTY: 1

One (1) dedicated circuit; 12 volt, 40 amp, power and ground on 3/8 stud and fused at battery shall be provided behind the officer seat.

An additional 12 volt, 20 amp, power stud shall be installed next to the studs above and shall be switched with the ignition circuit.

The circuit shall be for future installation of radios or accessories.

BLUE SEA FUSE BLOCK - 6 CIRCUIT IN REAR CREW AREA

QTY: 2

A Blue Sea 5025B, 6 circuit fuse block, shall be installed. This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

Clarification; There should be a total of 2 Blue Sea 6 circuit fuse blocks located in the rear of the cab, one (1) below each of the outboard seats as per photos provided.

BLUE SEA FUSE BLOCK - 12 CIRCUIT BEHIND OFFICER SE

QTY: 1

A Blue Sea 5026B, 12 circuit fuse block, shall be installed behind the officers seat.

This block has a maximum amperage of 60 amps per block and 30 amps per circuit and shall be connected to battery direct power.

USB POWER POINT - REAR FACING SEATING AREA

QTY: 1

Two (2) Blue Sea 1045 power points with two (2) USB ports each shall be installed in the rear of the cab on the back of the engine enclosure in a housing designed to surface mount the power point.

One power point shall be installed on each side of the rear side of the engine enclosure near the rear facing seat base.

Each power point shall be rated for 4.8 amps total and shall be connected to battery power.

BLUE SEA #4363 ACCESSORY PANELS - PER DASH DRAWING

QTY: 1

Two (2) Blue Sea model 4363 accessory panels shall be provided and located per the dash drawing Each accessory panel shall include (1) 12-volt power port, (1) dual USB charging ports along with a circuit breaker switch.

BLUE SEA #4365 ACCESSORY PANEL

QTY: 1

One (1) Blue Sea model 4365 accessory panel will be provided. The accessory panel shall include (1) 12-volt power port, (2) dual USB charging ports, along with a circuit breaker switch.

The accessory panel shall be installed at the center of the rear doghouse area.

IGNITION STUD - REAR OF THE OFFICER'S SEAT

QTY: 1

Ignition stud(s) shall be installed to the rear of the officer's seat for items needing an ignition circuit (ie. mobile radio).

***Note, there will be a total of three studs located to the rear of the officer's seat to be used for two-way radio power.**

- **Stud #1; 100-amp battery direct**
- **Stud #2; 30-amp switched with ignition**
- **Stud #3; 100-amp direct from battery**

THREE (3) 3' LONG OUTLET STRIPS IN BODY COMP.

QTY: 1

Three (3) 3' long plug mold outlet strip shall be installed as follows:

- One (1) in the L-1 compartment
- One (1) in the L-2 compartment
- One (1) in the L-4 compartment
- One (1) in the R-1 compartment
- One (1) in the R-2 compartment
- One (1) in the R-4 compartment

Each outlet strip shall have four (4) duplex household receptacles.

The outlet strips shall require 120 volt circuit breakers to be installed in the load center to properly protect the circuit.

WHELEN 6" ROUND WHITE/RED LED INTERIOR LIGHTS (4)

QTY: 1

Four (4) Whelen # 60CREGCS, 6" round, interior LED combination red/white dome lights shall be furnished in the cab, with two (2) in the forward section and two (2) in the rear crew section. Each dome light shall have individual switches to control the red or white LEDs. Each dome light shall also activate when the respective, adjacent cab door is opened.

The cab dome lights will be programmed to dimmest setting possible. Red will be the default color.

SUNNEX MODEL #SL-9-200,LED MAP LIGHT

QTY: 1

One (1) Sunnex model # SL9-200 B10L, 12 volt LED light designed for direct connection will be furnished and located on the driver side of the center overhead just forward of the angled panel. The light will have a rectangular base with an on/off rocker switch and feature a swivel joint with 360 degree axial rotation and 90 degree angular adjustment.

SUNNEX MODEL #SL-9-200,LED MAP LIGHT

QTY: 1

One (1) Sunnex model # SL9-200 B10L, 12 volt LED light designed for direct connection will be furnished and located at the officer side overhead. The light will have a rectangular base with an on/off rocker switch and feature a swivel joint with 360 degree axial rotation and 90 degree angular adjustment.

ENGINE COMPARTMENT WORK LIGHTS - TECNIQ LED

QTY: 1

Two (2) Tecniq model #E18 LED lights shall be provided inside the engine enclosure that will provide 800 lumens each.

Each light shall have their own independent switch incorporated into the light head.

CAB DASH PANELS

QTY: 1

The apparatus cab shall be outfitted with backlit gradient dash and overhead panels. These gradient panels shall be utilized across the entire front of the cab dash and include the instrument cluster and brow panels. The panels shall be constructed from 3mm aluminum composite panels with second surface screen printed 15 mil Bayfol UV-1 polycarbonate graphic overlays, to provide scratch and UV protection. A carbon-graphite shaded graphic overlay shall be provided.

STANDARD #MATM RADIO ANTENNA INSTALLED

QTY: 1

Four (4) antenna mounting bases model #MATM with 17' of coaxial cable shall be provided and installed on the lower cab roof, behind the light bar. **Note: A drawing will be provided which will allow the customer to indicate the exact mounting location for the two-way radio antennas.**

Two (2) antenna wires shall be run to the right side cab dash area and two (2) antenna wires shall be run to the area behind the officer side front seat.

The Fire Department is responsible to have the correct antenna whip installed once the apparatus is delivered.

All roof mounted antennas shall be caulked and sealed to prevent water entering the cab.

Johnson Equipment shall be responsible for all antenna installation after delivery.

SWITCHING - MULTIPLEX SWITCHES - 6 PUMP PANEL

QTY: 1

Six (6) switches shall be located on the pump panel for auxiliary controls.

CONTROL SWITCHING - EATON MULTIPLEX SWITCHES - 9

QTY: 1

The cab shall be designed with multiple areas for component switching within easy reach of the driver and or officer.

This switch package shall separate the emergency/auxiliary electrical functions from the regular chassis functions.

A minimum of twenty one (21) programmable CAN Bus Eaton model #E33 switches with integral indicator lights shall be provided.

Nine (9) switches shall be located on a sloped panel above the above the driver's position for warning lights and auxiliary controls. **Note: One of the switches shall be a spare and not be utilized.**

A master warning switch shall be provided, which shall allow pre-setting of emergency light switches and shall have a red integral indicator light.

CONTROL SWITCHING - EATON MULTIPLEX SWITCHES - 12

QTY: 1

Twelve (12) additional switches shall be located on the lower switch panel/s between the driver and officer for auxiliary controls.

CONTROL SWITCHING THROUGH MULTIPLEX TOU

QTY: 1

Switching for the emergency and auxiliary systems shall be performed through the multiplex control screen.

Switching shall programmed through various menus that are accessible from the display buttons.

HOSE BED WORK LIGHT - SWITCH

QTY: 1

The hose bed work light shall have a protected 12-volt switch at the rear body panel.

The switch will be labeled "HOSE BED WORK LIGHTS."

CONTROL SWITCHES IN CAB FOR LIGHT ABOVE WINDSHIELD

QTY: 1

Controls shall be provided in the cab control system (or optional mechanical switch) to activate the HiViz, FireTech, LED brow light.

CONTROL SWITCH IN CAB FOR LIGHT ABOVE WINDSHIELD -

QTY: 1

One (1) switch shall be provided in the cab warning light switch console to control all of the lighting circuits of the HiViz, FireTech, LED brow light.

CONTROL SWITCHES MOUNTED ON THE PUMP PANEL

QTY: 1

The pump panel switches are to match GSO #10588

CONTROL SWITCHES IN CAB FOR BEHIND FRONT CAB DOOR

QTY: 1

Controls shall be provided in the cab control system (or option mechanical switch) to turn the lights at the cab doors on and off.

CONTROL SWITCHES ON PUMP PANEL FOR BEHIND FRONT CA

QTY: 1

Two (2) switches shall be provided on the pump panel to turn the lights at the cab doors on and off.

One (1) switch shall control the driver side light and one (1) switch shall control the officer side light.

CONTROL SWITCH IN CAB FOR REAR OF BODY LIGHTS

QTY: 1

Controls shall be provided in the cab control system (or optional mechanical switch) to turn the rear of body lights on and off.

CONTROL SWITCH ON PUMP PANEL FOR REAR OF BODY LIGH

QTY: 1

A switch shall be provided on the pump panel to turn the rear of body lights on and off.

CONTROL SWITCH ON REAR BODY FOR REAR OF BODY LIGH

QTY: 1

A switch shall be provided on the rear body panel to turn the rear of body lights on and off.

HULL LIGHTS TO ACTIVATE WITH TURN SIGNAL

QTY: 1

The hull auxiliary wheel well lights shall be activated with the turn signal circuit.

DRIVER'S DASHBOARD PANEL, 100" PREDATOR SS

QTY: 1

The main instrument panel shall be centered in front of the driver and shall be mechanically fastened to the main dash assembly. The panel shall contain the primary gauges, an instrument warning light cluster and the ignition and engine start switches.

Each gauge shall be designed with an integral red warning light with a pre-programmed warning point. Gauges monitoring drive-train component status shall be of the direct data bus type capable of displaying information broadcast on the J 1939 data-link.

Each gauge warning indicator shall be capable of activating an audible alarm inside the dashboard.

Additional auxiliary control switches and instruments (if applicable) shall be located within the center or overhead panel located near the driver's position.

DRIVER DASH LCD VIRTUAL DISPLAY

QTY: 1

The main instrument panel shall be centered in front of the driver and shall have a hinged bottom with two ¼ turn latches at the top. The driver panel and all other cab interior dash and overhead panels will be an anti-glare surface.
Contained within this panel will be virtual driver display via a 12.3” LCD screen including but not limited to displaying all gauges and instrument warning light cluster functions The upper left side of the driver dash panel shall also include an ignition-on switch, fast idle switch and a round engine start button which shall include a lighted indicator on the perimeter to light up when engine is ready to start and turning off when the engine is started.
The driver LCD virtual display shall include:

- 12.3” Color TFT Display
- Stand Alone Architecture
- Automatic Adjustment for Light Conditions
- 3 x BNC Analog Video Input
- Fully Programmable Features w/Graphical HMI:CGI Studio
- Two Year Warranty

The primary gauge display shall consist of:

- Vehicle speedometer, (0-80 mph)
- Engine tachometer, (0-3000 rpm)
- Engine oil pressure, (0-100 psi); low oil warning
- Engine coolant temperature (100-250 °F); high engine temp warning
- Transmission oil temperature (100-350 °F); high transmission fluid temp warning
- Vehicle battery voltage (0-18 VDC); low voltage warning
- Front air system gauge (0-150 psi); low air pressure warning at 65 psi
- Rear air system gauge (0-150 psi); low air pressure warning at 65 psi
- Fuel level (E - 1/2 - F); low fuel level warning
- Diesel Exhaust Fluid (DEF) Level (E-1/2-F)
- Air cleaner restriction gauge (0-40), warning at 25"
- Engine hours as maintained by the engine ECU

Additional auxiliary control switches and instruments (if applicable) shall be located within the dash panel and overhead panel located near the driver's position.

INDICATOR CLUSTER

This display, also contained in the Driver Dash Virtual Display Module, includes the system control unit that collects data from the vehicle data bus (J1939), analog sensors, and switches throughout the vehicle. This data shall be presented using simulated gauges and telltales.

On the Road displays include:

- Odometer, trip information, fuel economy information; all gauge data, and virtually any other data available on the vehicle that the display has access to, either through the data bus or via analog inputs.

The displays that can be accessed when the parking brake is set include:

- "Right And Left Directional" arrows (green in color)
- "Hi Beam" indicator (blue in color)
- "Battery ON" indicator (green in color)
- "Parking Brake ON" indicator (red in color)
- "Check Transmission" indicator (amber in color)
- "Cab Not Latched" indicator (red in color)
- "Stop Engine" indicator (red in color)
- "Check Engine" indicator (amber in color)
- "ABS Warning" indicator (yellow in color)
- "Low Coolant Level" (yellow in color)
- "Water In Fuel" indicator (amber in color)
- "DPF Regeneration" (amber in color)
- "Exhaust High Temperature" (amber in color)
- "Engine Diagnostic Fault" (amber in color)
- "Retarder On" (green in color)

Listed below are indicators that may be included, depending upon the vehicle configuration:

- "Wait To Start" indicator (amber in color)
- "Exhaust System Fault" (amber in color)
- "Topps System Fault" (amber in color)
- "PTO Engaged" (green in color)
- "Ok to Pump" (green in color)
- "Auto Traction Control" (amber in color)

FAST IDLE

QTY: 1

A fast idle for the electronic controlled engine shall be provided.

The fast idle shall be controlled by an ON/OFF switch on the left side of the main gauge panel.

An electronic interlock system shall prevent the fast idle from operating unless the transmission is in "Neutral" and the parking brake is fully engaged.

If the fast idle control is used in conjunction with a specified engine/transmission driven component or accessory, the fast idle control shall be properly interlocked with the engagement of the specified component or accessory.

ENGINE COMPRESSION BRAKE CONTROLS

QTY: 1

Engine brake controls shall be provided on the dash within easy reach of the driver.

CLASS-1 ES-KEY ULTRAVIEW 780 DISPLAY

QTY: 1

A 7 inch full color display shall located on the driver's lower wing panel. The display shall provide key information and control within easy sight and reach.

The screen shall be programmed with the following features:

- Chassis Instrument Display
- Back-up camera
- Seat Occupant Display
- Compartment open display
- HVAC Controls
- Power Mirror Controls
- DPF Filter Regeneration Controls
- Warning light controls
- Scene light controls
- Horn selector switch options
- Gauge back-light dimming
- Rocker switch back-light dimming
- Display screen dimming with day/night feature
- Multiplex system diagnostics
- Generator Controls

PUMP SHIFT CONTROL

QTY: 1

The pump shift control and pump engaged indicator light shall be mounted in the driver's lower left knee panel.

CAMERA SYSTEM

QTY: 1

An FRC model SNB100-C00 inView™ 360 Video system shall be provided. This system shall provide the driver with a 360 degree birds-eye style view of the apparatus, along with individual camera views based on determined conditions.

The inView™ 360 system shall include (4) four camera’s standard, an Electronic Control Unit (ECU), required harnesses and a manual camera switch. The kit shall provide split video feeds with bird’s-eye view and individual camera views. It shall be capable of integrating with an existing vehicle system for an automatic camera view, which seamlessly switches from front/left/right/rear views based on turn signal and reverse activation.

The ECU shall feature built-in recording to record each camera input separately and support (4) four 256GB SD cards (SD card sold separately).

An HD monitor shall be provided mounted on the center cab overhead console near the driver’s position.

CAMERA SYSTEM

QTY: 1

One (1) formed aluminum diamond plate shield shall be provided and mounted over the rear view camera to protect it from being damaged.

CUST CHASSIS LED MARKER LIGHTS

QTY: 1

DOT MARKER LIGHTS AND REFLECTORS

INTERMEDIATE MARKER LIGHTS

QTY: 1

Provide two Optronics model #A7TRSSBP polished stainless steel trim rings for the intermediate marker/turnsignal light.

CAB STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES

QTY: 4

Polished, stainless steel, TecNiq Eon, 3-LED, horizontal surface mounted chassis step lights shall be provided and controlled with marker light actuation and park brake application.

Step lights shall be located to properly illuminate all chassis access steps and walkway areas and shall include a mounting gasket to provide a watertight seal.

HEADLIGHT AND MARKER LIGHT CONTROLS

QTY: 1

The headlight and marker light “auto on” feature from the ignition switch will not be provided. The activation of these lights will be controlled by the head and marker light switches ONLY.

DUAL MODULE W/ CODE 3 65STA LED TURN SIGNAL & REQ

QTY: 1

Two (2) Code 3 65STA arrow shaped, amber LED turn signals shall be provided, one (1) in each side of the dual light module above the headlights.

The NFPA required, Zone "A" lower warning lights shall be incorporated into each side dual light module noted above.

ALTERNATE FLASHING HEADLIGHT SYSTEM (WIG-WAGS)

QTY: 1

An alternating flashing wig-wag system, wired to the apparatus headlights, shall be installed.

The alternating flashing headlights will come on with the primary warning lights and will be shed with the parking brake. An individual switch will not be provided.

The alternating flashing system shall be automatically disabled during the "Blocking Right of Way" mode.

DUAL HEADLIGHTS LED FIRETECH HIVIZ

QTY: 1

Two (2) dual, Firetech HiViz LED headlight modules with a bright finish bezel shall be furnished, one (1) each side, on the front of the cab. Each head light module shall incorporate an individual LED low beam and a LED high beam headlight. High beam actuation shall be controlled on the turn signal lever.

GOLIGHT #20214 REMOTE LED SPOT LIGHT, DS SIDE CAB

QTY: 1

A Golight model #20214 remote controlled spotlight shall be provided and mounted on the driver side of the cab roof. The Golight spotlight shall be equipped with a LED light and shall be controlled from the cab. The remote control shall be mounted within easy reach of the driver and officers or as directed by the fire department.

The Golight shall have a BLACK housing.

SPOT LIGHT CAB RISER FOR DS SIDE LIGHT

QTY: 1

The driver side cab roof spotlight shall be mounted on an aluminum riser that shall be painted to match the cab color and mounted on the cab roof.

GOLIGHT NOTE

QTY: 1

No riser will be provided for the Golights. The lights will be utilized to illuminate off to the side of the apparatus. The lights will not be utilized to illuminate forward of the apparatus.

GOLIGHT #20214 REMOTE LED SPOT LIGHT, OS SIDE CAB

QTY: 1

A Golight model # 20214 LED remote controlled spotlight shall be provided and mounted on the officer side of the cab roof. The Golight spotlight shall be equipped with a LED light and shall be controlled from the cab. The remote control shall be mounted within easy reach of the driver and officers or as directed by the fire department.
The Golight shall have a BLACK housing.

SPOT LIGHT CAB RISER FOR OS SIDE LIGHT

QTY: 1

The officer side cab roof spotlight shall be mounted on an aluminum riser that shall be painted to match the cab color and mounted on the cab roof.

HIVIZ FIRETECH 72" BROW LIGHT W/ IML, 285W12V LED,

QTY: 1

One (1) HiViz LEDs "FireTech" Scene light, model FT-B-72-ML-B shall be provided.

The light instrument shall be low in profile with a mounting bracket allowing installation at the top edge of the windshield.

The housing shall be made of a extruded 6061 aluminum; 72" wide and less than 3" tall.

The scene light shall have 57 LEDs divided amongst 3 independent circuits; circuit one featuring 9x 5w LEDs passing light through a 10 degree optic, circuit two featuring 18x 5w LEDs passing light through a 25-40 degree "flood" range, and circuit three featuring 30x 5w LEDs passing light through a 60-90 degree "scene" optic.

Circuit four shall consist of 5 amber colored diodes that act as SAE-J2042 compliant clearance marker and identification lamps.

The circuitry shall feature a PWM LED driver with an onboard electronic thermal manager. Additionally, the bar shall meet CISPR25 EMI requirements.

The light shall operate on 12v DC, generate 28,101 lumens and draw 24 amps. The light shall be adjustable vertically up to 15 degrees.

Mounting shall be possible in any direction while still meeting NFPA 1901 compliance requirements. The housing color shall be Black.

SINGLE SWITCH FOR BROWLIGHT

QTY: 1

A single switch shall control all three circuits within the HiViz brow light.

WIRE UPGRADE FOR 12V HIGH AMP LIGHT - (1) BROW LIG

QTY: 1

NFPA COMPLIANT WARNING LIGHT PACKAGE

QTY: 1

The following warning light package shall include all of the minimum warning light and actuation requirements for the current revision of the NFPA 1900 Fire Apparatus Standard.

The lighting as specified shall meet the requirements for both "Clearing Right of Way" and "Blocking Right of Way" which includes disabling all white warning lights when the apparatus is in "Blocking Right of Way" mode.

WARNING LIGHT FLASH PATTERN - NFPA FLASH PATTERN

QTY: 1

All of the perimeter warning lights shall be set to a default NFPA compliant flash pattern as provided by the light manufacturer.

LIGHT PACKAGE ACTUATION/CONTROLS

QTY: 1

The entire warning light package shall be actuated with a single warning light switch located on the cab switch panel. The wiring for the warning light package shall engage all of the lights required for "Clearing Right of Way" mode when the vehicle parking brake is not engaged. An automatic control system shall be provided to switch the warning lights to the "Blocking Right of Way" mode when the vehicle parking brake is engaged.

LIGHT PACKAGE NFPA CERTIFICATION

QTY: 1

The warning light system(s) specified above shall not exceed a combined total amperage draw of 45 AMPS with all lights activated in either the "Clearing Right of Way" or the "Blocking Right of Way"

The warning light system(s) shall be certified by the light system manufacturer(s), to meet all of the requirements in the current revision of the NFPA 1900 Fire Apparatus Standard as noted in the General Requirements section of these specifications.

The NFPA required "Certificate of Compliance" shall be provided with the completed apparatus.

Any large truck as defined by NFPA shall have the lower zone warning lights mounted no higher than 62" to the optical center of the warning light from ground level. {No Exceptions}

LIGHTS BARS

QTY: 1

A pair of Code 3, 21TR22NFPA1 "21TR Series", 22.5" LED cab roof, warning light bars shall be furnished and rigidly mounted on top of the cab roof at no more than a 30 degree angle.

Each light bar shall be equipped with the following:

- Clear Lenses
- One Forward Facing - TRS4 Red LED Modules
- Three Corner Facing - TRS6 Red LED Modules
- One Side Facing - TRS3 Red LED Modules

If equipped, the forward facing white lights shall be automatically disabled for the "Blocking Right of Way" mode.

ZONE A WARNING LIGHTS - STEADY BURN IN LIGHTBAR

QTY: 1

C-UPPER, CODE 3 65 SERIES LED (4 - LIGHTS)

QTY: 1

Four (4) Code 3, 65BZ* LED lights shall be furnished and mounted with two (2) on each side at the rear, upper portion of the apparatus.

Each light head shall be equipped with red LEDs and a colored lens.

The lights shall be installed with a chrome plated mounting flange.

UPPER ZONE C WARNING LIGHT LENS - RED

QTY: 1

The upper zone C warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

UPPER ZONE C WARNING LIGHT BEZEL - CHROME

QTY: 1

The upper zone C warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

B/D-UPPER FRONT, COVERED BY LIGHTS IN ZONE A-UPPER

QTY: 1

The lighting requirement for this area is covered by the lights noted in Zone "A" - Upper.

B/D-UPPER REAR, CODE 3 TREX SERIES LED

QTY: 1

Two (2) surface mounted Code 3 TRX6X LED light heads shall be furnished and mounted with one (1) on each side on the upper side face, towards the rear of the body, facing to each side of the unit.

Each light head shall be equipped with red LEDs and a clear lens.

The lights shall be installed with a chrome plated mounting flange.

UPPER ZONE B/D REAR WARNING LIGHT LENS - RED

QTY: 1

The upper zone B/D rear warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

UPPER ZONE B/D REAR WARNING LIGHT BEZEL - CHROME

QTY: 1

The upper zone B/D rear warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

A-LOWER FRONT MOUNTING, CUSTOM CHASSIS

QTY: 1

The lower Zone A warning lights shall be mounted in the custom chassis headlight bezels.

A-LOWER FRONT, CODE 3 65 SERIES LED

QTY: 1

Two (2) Code 3, 65BZ* LED light heads shall be provided and installed with one (1) on each side.

LOWER ZONE A WARNING LIGHT LENS - RED

QTY: 1

The lower zone A warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

LOWER ZONE A WARNING LIGHT BEZEL - CHROME

QTY: 1

The lower zone A warning lights shall include red leds and a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

C-LOWER REAR, CODE 3 65 SERIES LED

QTY: 1

Two (2) Code 3, 65BZ* LED light heads shall be provided and installed with one (1) on each side directly below the DOT stop, tail, turn and backup lights.

LOWER ZONE C WARNING LIGHT LENS - RED

QTY: 1

The lower zone C warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

B/D-LOWER FRONT MOUNTING, CUSTOM CHASSIS

QTY: 1

The lower Zone B D warning lights shall be mounted on the sides of the custom chassis front bumper.

B/D-LOWER FRONT, CODE 3 45 SERIES LED

QTY: 1

Two (2) Code 3, 45BZ* LED light heads shall be provided and installed with one (1) on each side.

LOWER ZONE B/D FRONT WARNING LIGHT LENS - RED

QTY: 1

The lower zone B/D front warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

LOWER ZONE B/D FRONT WARNING LIGHT BEZEL - CHROME

QTY: 1

The lower zone B/D front warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

B/D-LOWER MID, CODE 3 65 SERIES LED

QTY: 1

Two (2) Code 3, 65BZ* LED light heads shall be provided and installed with one (1) on each side.

LOWER ZONE B/D MID WARNING LIGHT LENS - RED

QTY: 1

The lower zone B/D mid warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

LOWER ZONE B/D MID WARNING LIGHT BEZEL - CHROME

QTY: 1

The lower zone B/D mid warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

B/D-LOWER SECONDARY MID, CODE 3 65 SERIES LED

QTY: 1

Two (2) Code 3, 65BZ* LED light heads shall be provided and installed with one (1) on each side.

LOWER ZONE B/D MID SEC WARNING LIGHT LENS - RED

QTY: 1

The lower zone B/D mid secondary warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

LOWER ZONE B/D MID SEC WARNING LT BEZEL - CHROME

QTY: 1

The lower zone B/D mid secondary warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

B/D-LOWER REAR, CODE 3 65 SERIES LED

QTY: 1

Two (2) Code 3 65BZ* LED light heads shall be provided and installed with one (1) on each side.

LOWER ZONE B/D REAR WARNING LIGHT LENS - RED

QTY: 1

The lower zone B/D rear warning lights shall include red LEDs and a red lens if available from the manufacturer. If a red lens is unavailable, a clear lens shall be included.

LOWER ZONE B/D REAR WARNING LIGHT BEZEL - CHROME

QTY: 1

The lower zone B/D rear warning lights shall include a chrome bezel if available from the manufacturer. If a chrome bezel is unavailable, a black bezel shall be included.

3M OPTICOM - MOUNTED IN CAB ROOF LIGHT BAR

QTY: 1

One (1) 3M Opticom system, which produces a flashing optical signal when in operation, shall be provided and mounted inside the cab roof light bar, replacing the center mounted clear warning light and situated so as not to interfere with the required light patterns of the NFPA Optical Warning Light System.

The wiring run through the Load Management System at the lowest available priority.

Additional circuitry shall be provided to automatically disable the Opticom System when the parking brake is engaged.

For Clarification: The Opticom will not have a separate switch. It will shed whenever the park brake is set.

OUTRIGGER WARNING LIGHTS

QTY: 1

One (1) Code 3 65BZ*, LED light shall be mounted on each of the outrigger cover panels, for a total of four (4).

Each light head shall be equipped with red LEDs and a colored lens.

The lights shall be installed with a chrome plated mounting flange.

LIGHT ACTIVATION, PRIMARY WARNING

QTY: 1

The outrigger warning lights shall be energized by the ladder power circuit.

The outrigger warning lights shall also be energized by the primary warning light switch.

GROUND LIGHTS ACTIVATION CLARIFICATION

QTY: 1

All ground lights shall automatically activate whenever the truck is placed in reverse and also when the parking brake is engaged.

GROUND LIGHTS

QTY: 1

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each side cab door entrance step, four (4) total.

The ground lights shall turn on automatically with each respective door jamb switch and also by a master ground light switch in the warning light switch console.

Each light shall illuminate an area at a minimum 30" outward from the edge of the vehicle.

GROUND LIGHTS BELOW LOCKER COMPARTMENT

QTY: 1

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each locker compartment, two (2) total.

GROUND LIGHTS BELOW PUMP PANEL RUNNING BOARD

QTY: 1

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each side pump panel running board, two (2) total.

GROUND LIGHTS BELOW MID-SHIP COMPARTMENT

QTY: 1

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each mid ship compartment, two (2) total.

GROUND LIGHTS BELOW FRONT BODY CORNER

QTY: 1

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each front body corner, two (2) total.

GROUND LIGHTS REAR BODY CORNERS

QTY: 1

One (1) TecNiq LED, 6" long ground light with stainless steel mounting bracket, shall be provided under each rear body corner, two (2) total.

CAB AND BODY GROUND LIGHTS ACTIVATE WITH MASTER SW

QTY: 1

The ground lights shall be activated by a master ground light switch in the cab and shall be wired through the load management system.

CAB AND BODY GROUND LIGHTS - SWITCH @ PUMP

QTY: 1

The cab and body ground lights shall be equipped with an activation switch on the pump operator's panel.

CAB AND BODY GROUND LIGHTS - SWITCH @ IN CAB

QTY: 1

The cab and body ground lights shall be equipped with an activation switch in the cab.

POWER DISTRIBUTION MODULES FOR CLASS ONE ES-KEY

QTY: 1

Class 1 Power distribution modules shall be provided in strategic areas of the chassis to allow body harnesses to interface to multiplex system.

The Remote Power Modules (RPM) provide a method of controlling loads on the vehicle, outside the cab, without running individual wires from each switch to the load.

This electronic module distributes and controls power to various devices on the vehicle as commanded by the control system inside the cab.

The RPM is connected to the Electrical System Controller via the J1939 datalink.

Each module receives power from a power cable, protected by a fusible link to the main battery circuit.

The power distribution modules shall be mounted in a location to provide complete access for service or trouble shooting.

FOR CLARIFICATION: If there is a Class-1 ES-Key module mounted near the exhaust system it shall have a protective cover, or relocate it away from the heat.

AERIAL LADDER, LADDER POWER SWITCH IN CAB

QTY: 1

There shall be an aerial device power engagement switch located in the cab switch console. An aerial device PTO/hour meter shall be furnished. See ladder description for details.

CHASSIS DIAGNOSTICS SYSTEM

QTY: 1

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

The diagnostic system shall include the following:

- A single port to monitor the engine, transmission and ABS system and diagnostics of the roll sensor (if applicable)
- Engine diagnostic switch (blink codes)
- ABS diagnostic switch (blink codes)
- Allison Transmission Codes (through touch pad shifter)

ADVANCED CHASSIS DIAGNOSTICS

QTY: 1

A Nexiq USB Link Adapter shall be provided to interface between the chassis and a computer.

The following software shall be provided to allow technicians to view diagnostic data from the chassis components:

VOLTAGE MONITORING SYSTEM - 12 VOLT

QTY: 1

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

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

INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM

QTY: 1

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

ELECTRICAL HARNESS INSTALLATION - 12 VOLT

QTY: 1

To ensure dependability, all 12-volt wiring harnesses installed by the manufacturer shall conform to the following specifications:

- SAE J 1128 - Low tension primary cable
- SAE J 1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring
- SAE J 163 - Low tension wiring and cable terminals and splice clips
- SAE J 2202 - Heavy duty wiring systems for on-highway trucks
- NFPA 1900 - Standard for automotive fire apparatus
- FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses
- SAE J 1939 - Serial communications protocol
- SAE J 2030 - Heavy-duty electrical connector performance standard
- SAE J 2223 - Connections for on board vehicle electrical wiring harnesses
- NEC - National Electrical Code
- SAE J 561 - Electrical terminals - Eyelet and spade type
- SAE J 928 - Electrical terminals - Pin and receptacle type A.

For increased reliability and harness integrity, harnesses shall be routed throughout the cab and chassis in a manner which allows the harnessing to be laid into its mounting location. Routing of harnessing which requires pulling of wires through tubes is never allowed at the manufacturer.

Wiring shall be run in loom or conduit where exposed, and have grommets or other edge protection where wires pass through metal. Wire colors shall be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires and uses a single wire color for all wires shall not be allowed. Function and number codes shall be continuously imprinted on all wiring harness conductors at 3.00" intervals. All wiring installed between the cab and into doors shall be protected by a wire conduit to protect the wiring. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment shall be installed utilizing the following guidelines:

- All holes made in the roof shall be caulked with silicon. {No Exceptions} Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
- Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.
- For low cost of ownership, electrical components designed to be removed for maintenance shall be quickly accessible. For ease of use, a coil of wire shall be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.
- Corrosion preventative compound shall be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation of the plug.
- Any lights containing non-waterproof sockets in a weather-exposed area shall have corrosion preventative compound added to the socket terminal area.
- All electrical terminals in exposed areas shall have protective coating applied completely over the metal portion of the terminal.
- Rubber coated metal clamps shall be used to support wire harnessing and battery cables routed along the chassis frame rails.
- Heat shields shall be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust shall be protected by a heat shield.

- Cab and crew cab harnessing shall not be routed through enclosed metal tubing. Dedicated wire routing channels shall be used to protect harnessing therefore improving the overall integrity of the vehicle electrical system. The design of the cab shall allow for easy routing of additional wiring and easy access to existing wiring.
- All standard wiring entering or exiting the cab shall be routed through sealed bulkhead connectors to protect against water intrusion into the cab.

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer shall conform to the following requirements:

- SAE J 1127 - Battery Cable
- SAE J 561 - Electrical terminals, eyelets and spade type
- SAE J 562 - Nonmetallic loom
- SAE J 836 A - Automotive metallurgical joining
- SAE J 1292 - Automotive truck, truck-tractor, trailer and motor coach wiring
- NFPA 1900 - Standard for automotive fire apparatus.

Battery cables and battery cable harnessing shall be installed utilizing the following guidelines:

- Splices shall not be allowed on battery cables or battery cable harnesses.
- For ease of identification and simplified use, battery cables shall be color coded. All positive battery cables shall be marked red in color. All negative battery cables shall be black in color.
- For ease of identification, all positive battery cable isolated studs throughout the cab and chassis shall be red in color.
- For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus shall be coated to prevent corrosion.
- An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

AERIAL BODY ELECTRICAL SYSTEM

QTY: 1

All electrical lines in the body shall be protected by automatic circuit breakers, conveniently located to permit ease of service.

Flashers, heavy-duty solenoids and other major electrical controls shall be located in a central area near the circuit breakers.

All lines shall be color and function coded every 3", easy to identify, oversized for the intended loads and installed in accordance with a detailed diagram.

A complete wiring diagram shall be supplied with the apparatus.

Wiring shall be carefully protected from weather elements and snagging.

Heavy duty loom shall be used for the entire length.

Grommets shall be utilized where wiring passes through panels.

In order to minimize the risk of heat damage, wires run in the engine compartment area shall be carefully installed and suitably protected by the installation of heat resistant shielded loom.

All electrical equipment shall be installed to conform to the latest federal standards as outlined in NFPA-1900.

BODY ELECTRICAL HARNESS - ES-KEY

QTY: 1

BLUE SEA FUSE BLOCK IN BODY COMPARTMENT

QTY: 1

The Blue Sea fuse block(s) installed in the body shall have the power source switched by the chassis disconnect.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL L1

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body L1 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL L2

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body L2 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL L3

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body L3 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL R1

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body R1 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL R1

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body R1 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL R3

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body R3 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL R4

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body LR4 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

BLUE SEA FUSE BLOCK - 6 CIRCUIT FORWARD WALL R4

QTY: 1

A Blue Sea 5025B, 6 circuit fuse block, shall be installed on the upper forward wall of the body LR4 compartment interior. The unit will be connected to battery direct power.

This block has a maximum amperage of 60 Amps per block and 30 Amps per circuit.

DOOR OPEN INDICATOR W/ INTEGRAL AUDIBLE ALARM

QTY: 1

An indicator light with an audible alarm, shall be functionally located in the cab to signal when an unsafe condition is present such as an open cab door or body compartment door, an extended ladder rack, a deployed stabilizer, an extended light tower or any other device which is opened, extended or deployed which may cause damage to the apparatus if it is moved.

This light shall be activated through the parking brake switch to signal when the parking brake is released.

DUNNAGE AREA LIGHTING

QTY: 1

Two (2) stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights shall be provided in the dunnage area to provide adequate illumination of this area.

These lights shall be switched in the same manner as the step lights.

COMPARTMENT LIGHT ACTIVATION

QTY: 1

Compartment lighting shall be switched either from an integral switch as provided by the roll up door manufacturer or a magnetic proximity switch if it is a KME manufactured door.

COMPARTMENT LIGHTS

QTY: 12

Each individual, equipment storage compartment shall be equipped with the AMDOR, Luma Bar, LED light fixture, mounted on each side of the forward (and rear) vertical door frame.

CUT OFF SWITCH IN CAB FOR ALL COMPARTMENT LIGHTS

QTY: 1

A control switch shall be provided in the cab to allow all of the compartment lights to be shut off.

CUST BODY LED MARKER LIGHTS

QTY: 1

DOT MARKER LIGHTS FORWARD OF CAB DOOR

QTY: 1

Amber LED DOT marker lights with reflector shall be provided and mounted forward of the front cab door, one (1) each side.

MARKER/TURN LIGHTS @ EA SIDE OF BODY

QTY: 1

Red, LED marker lights with integral reflectors shall be provided at the lower side rear, having one (1) on each side.

Yellow, LED side marker and turn lights shall be provided on the apparatus lower side, forward of rear axle that puts one (1) on each side, if the apparatus is 30' long or longer.

CHROME PLATED FLANGE FOR SIDE MARKER/TURN LIGHTS

QTY: 1

One (1) Truck-Lite #60703 chrome cover shall be provided for each intermediate turn light.

DOT MARKER LIGHTS @ REAR OF BODY

QTY: 1

Red, LED clearance lights shall be provided on the apparatus rear upper having one (1) on each side at the outermost practical location.

Red, LED, 3-lamp identification bar will be provided on the apparatus rear center.

DOT AMBER REFLECTORS @ SIDE OF BODY

QTY: 1

Yellow reflectors shall be provided on the apparatus body lower side, as far forward and low as practical with one (1) on each side if the apparatus is 30' long or longer.

DOT RED REFLECTORS @ REAR OF BODY

QTY: 1

Red reflectors shall be provided on the apparatus rear with one (1) on each side at the outermost practical location.

TECNIQ #L10 LED LICENSE PLATE LIGHT

QTY: 1

One (1) Tecniq model #L10 LED license plate light shall be provided above the mounting position of the license plate. The license plate shall be located on the driver's side rear of body.

The light shall be clear in color and shall have a chrome finish.

BRITAX, 6" ANGLED RUBBER LED LIGHT @ REAR BODY COR

QTY: 1

Two (2) rubber, angled LED marker lights shall be mounted on the rear most corner of the body, one (1) each side.

The lights shall be mounted in a molded flexible rubber shaft that extends away from the body approximately 6".

The lights shall be equipped with an amber lens facing forward and a red lens facing to the rear of the vehicle.

The lights shall be wired to the parking light circuit.

CODE 3, #65 LED BRAKE, REVERSE, & TURN W/ QUAD HOU

QTY: 1

Two (2) Code 3, 65STR 4" x 6", red LED combination tail and stop lights, shall be mounted one each side at the rear of the body.

Two (2) Code 3, 65STA 4" x 6", amber LED arrow turn signal lights, shall be mounted one each side, on a vertical plane with the tail/stop lights.

Two (2) Code 3, 65RV 4" x 6", white LED backup lights, shall be mounted one each side, on a vertical plane with the turn/tail/stop signals.

These lights shall activate when the transmission is placed in reverse gear.

Two (2) Code 3 65STK4 mounting flanges, installed one (1) on each side, shall be provided to mount the lights described above in one common mounting flange.

The fourth opening shall be for the lower rear warning lights.

The lights shall be mounted in order, from top to bottom, as described above.

CODE 3 #45 LED THIRD BRAKE LIGHT

QTY: 1

One (1) Code 3 #45 series, 3" x 7" size, red stop light shall be mounted, centered on the rear of the body as high as practical.

The light shall be mounted with a chrome flange.

BODY STEP LIGHTS, TECNIQ EON 3 LED, ALL DEVICES

QTY: 2

Polished, stainless steel, TecNiq Eon 3-LED, horizontal surface, mounted body step lights shall be provided and controlled with marker light actuation and park brake application.

Step lights shall be located to properly illuminate all body access steps and walkway areas and shall include a mounting gasket to provide a watertight seal.

PUMP ENCLOSURE WORK LIGHTS - TECNIQ LED

QTY: 1

Two (2) Tecniq, model #E18 lights shall be provided inside the pump enclosure, providing 800 lumens each.

Each light shall have their own independent switch incorporated into the light head.

GROTE WHITELIGHT LED, HOSE BED LIGHT, ALL DEVICES

QTY: 1

One (1) Grote WhiteLight 63611, LED flood light shall be mounted at the front of the hosebed.

The light shall illuminate the hosebed area.

AERIAL ACCESS LADDER ILLUMINATION - WHELEN 3" LED

QTY: 1

Two (2) Whelen LED lights, #3SC0CDCR, with chrome housings, # 3FLANGEC, provided for each aerial turntable access ladder.
The step lights shall be actuated when the aerial access ladder is deployed.

HIVIZ GUARDIAN JUNIOR SCENE LIGHTS BEHIND CAB DOOR

QTY: 1

Two (2) Firetech Hiviz Guardian Junior FT-GSMJR, LED scene lights shall be provided, (1) one on each side of the cab, directly behind the front cab entrance door in a chrome plated flange.

Each light shall be 7.5 wide by 5 high by 1.5 deep, draw 3.33 amps, and produce 3,000 lumens.

The scene lights shall be wired through the load management system.

FRC SPECTRA 900 LED SCENE LIGHTS ON REAR OF BODY

QTY: 1

Two (2) Fire Research Spectra 900, LED scene lights shall be provided, (1) one on each side of the rear body panel in a chrome plated flange. Each light shall be 9 wide by 6 high by 1 deep, draw 6 amps, and produce 7,000 lumens. The scene lights shall be wired through the load management system.

These lights shall be mounted directly below the upper zone-C warning lights.

DOCKING LIGHTS IN REAR WHEELWELL

QTY: 1

Two (2) Tecniq E96 LED docking lights shall be provided in the rear wheel well panels, one (1) each side.

The lights shall be surface mounted on the wheel well panel and shall be equipped with a stainless steel housing.

The lights shall be activated by the reverse light circuit when the apparatus is operating as an emergency vehicle (Primary Warning Switch On).

HI VIZ LIGHTS - RECESSED

QTY: 1

The Hi-Viz lights on the sides of the body will be RECESSED at the bottom of the coffin storage boxes so as to limit the amount of storage space eliminated by the notch for the Hi-Viz lights. REFERENCE PREVIOUS UNIT GSO 11147

72" HIVIZ LIGHT ON DRIVER'S SIDE OF BODY

QTY: 1

One (1) HiViz LEDs "FireTech" Scene light, model FT-B-72-B with BLACK HOUSING shall be provided on the Driver's Side of the body, mounted above the L1 and L2 compartments. An aluminum treadplate enclosure shall be provided in order to protect the light.

72" HIVIZ LIGHT ON OFFICER'S SIDE OF BODY

QTY: 1

One (1) HiViz LEDs "FireTech" Scene light, model FT-B-72-B with BLACK HOUSING shall be provided on the Officer's Side of the body, mounted above the R1 and R2 compartments. An aluminum treadplate enclosure shall be provided in order to protect the light.

REAR TRAFFIC WARNING LIGHT

QTY: 1

One (1) Code 3 Torus, "Narrow Stik" Model # NASLTS539, 40.5" rear directional light shall be installed on the rear of the body.

The light shall be equipped with five (5) lamps.

The light shall be controlled from the cab.

The control module shall be conveniently located near the driver's position.

The rear directional light shall be wired through the load management system of the unit.

TRAFFIC ADVISOR - MOUNTING ON THE REAR SHEET

QTY: 1

The traffic advisor shall be mounted on the rear sheet.

GENERATOR

QTY: 1

Smart Power 6 kW Heavy Rescue Series Hydraulic Generator

A Smart Power, model HR-6, 6200 watt hydraulic generator shall be provided.

The generator system shall come with a standard 5 year/1,000 hour fully transferable warranty from the manufacturer.

The unit shall come equipped with: generator tray assembly (which includes the generator, hydraulic motor, cooler, fan, electronics package, 10 micron spin-on fluid filter and reservoir), axial piston hydraulic pump with pressure compensated control, and Command and Control Center (CCC) display with all required wiring harnesses.

The CCC shall be an interactive operator control center, equipped with smart touch solid state buttons, with displays for voltage, frequency, amperage, hour meter, service reminders, operator warnings, system faults and diagnostics.

Standard electronics package shall include smart start engagement to reduce mechanical stress, precise voltage and frequency control, cold start system, automatic load and temperature compensation, integrated diagnostics system, and other automated control features to protect system, vehicle and operator.

The generator tray assembly shall be delivered with the cooler/fan assembly mounted such that the hot air is exhausted straight up, through an NFPA approved walking grate.

The body of the generator tray assembly (including reservoir) shall be 32" long x 13.5" wide x 17" high, weighing approximately 255 pounds.

The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).

The wiring from the generator to the breaker box shall be type SO with suffix WA flexible cable.

Ratings and Capacity*
Rating: 7500 watts peak - 6200 watts continuous
Volts: 120/240 volts
Phase: Single, 4 wire
Frequency: 60 Hz
Amperage: 52 amps @ 120 volts or 26 amps @ 240 volts
Engine speed at engagement:Standard soft start feature allows for any speed engagement
Operation range: 880 to 3120 RPM

The generator shall be tested in accordance with all current NFPA 1901 standards.

*All ratings and capacities shall be derived utilizing current NFPA 1901 test parameters.

120 & 240 VOLT WIRING METHODS

QTY: 1

Wiring/conduit shall not be attached to any chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components or low voltage wiring.

All wiring shall be installed at a minimum of 12 inches away from any exhaust piping and a minimum of 6 inches from any fuel lines.

All wiring shall be securely clamped within 6 inches of any junction box and at a minimum of every 24 inches of run. All supports shall be of nonmetallic material or corrosion protected metal. All supports shall not cut or abrade conduit or cable and shall be mechanically fastened to the vehicle.

All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115% of the main breaker rating.

All Type SO or Type SEO cable not installed in a compartment shall be installed in wire loom. Where Type SO or Type SEO cable penetrates a metal surface, a rubber or plastic grommet or bushing shall be provided.

The installation of all 120/240 wiring shall meet the current NFPA-1900 Standards {No Exceptions}.

120/240 VOLT WIRING IDENTIFICATION

All line voltage conductors located inside the main breaker panel box shall be individually and permanently identified. When pre-wiring for future power wiring installations, the non-terminated ends shall be labeled showing function and wire size.

120/240 VOLT GROUNDING

The neutral conductor of the power source shall be bonded to the vehicle fame only at the power source.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray.

In addition to the bonding required for the lower voltage return current, each body and driving/crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. The conductor shall have a minimum amperage rating of 115 percent of the name plate current rating of the power source specification label.

120/240 VOLT CIRCUIT BREAKER / RECEPTACLE INSTALLATION

The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. When multiple circuit are required, the circuits shall be wired to the breaker panel in a staggered configuration to minimize electrical loads on each breaker or generator (leg) circuit. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage.

GEN LOCATION TO THE REAR OF THE WATER TANK

QTY: 1

The generator shall be located to the rear fo the water tank.

Locating the generator greater than 144" from the main breaker panel may require the installation of an additional power disconnecting means.

GENERATOR RUNNING LIGHT

QTY: 1

A 120 volt generator running light shall be installed on the cab dash.

SMART POWER HOT SHIFT PTO

QTY: 1

A hot shift PTO shall be provided on the transmission for the Smart Power generator.

The PTO shall be controlled from the cab. The control shall include a PTO engagement switch and a PTO engaged indicator light.

BREAKER PANEL

QTY: 1

The generator output line conductors shall be wired from the generator output connections to a Square D, model #QO112L125G breaker panel.

The breaker panel shall be equipped with a properly sized main breaker, using two (2) of the twelve (12) spaces which leaves a total of ten (10) available spaces.

The generator output conductors shall be sized to 115% of the main breaker rating and shall be installed as indicated in the wiring section.

LINE VOLTAGE BREAKER TYPE

QTY: 1

All line voltage breakers for use with the AC load center shall be non-GFCI and non-AFCI breakers. The included breakers shall be standard thermal-magnetic overcurrent protection devices.

LOCATE BREAKER PANEL REAR WALL OF L-4 COMPARTMENT

QTY: 1

The breaker panel shall be located on the rear wall of the L4 compartment.

LIGHTS DS OF BODY SWITCHED NEAR BREAKER P

QTY: 1

Near breaker panel, with 12 volt switch

LIGHTS RIGHT SIDE OF BODY SWITCHED NEAR BREAKER PA

QTY: 1

Near breaker panel, with 12 volt switch

RECEPTACLE/S

QTY: 1

One (1) 120 volt, NEMA 5-20, 20 amp, duplex straight blade receptacle with a grey thermoplastic, corrosion resistant, weatherproof cover shall be installed adjacent to the circuit breaker panel.

This receptacle shall require one (1) 20 amp, 120 volt circuit breaker to be installed in the load center.

CORD REEL LOCATION REAR WALL MOUNT L-2 COMPARTMENT

QTY: 1

The cord reel shall be mounted on the rear wall near the ceiling of the L-2 compartment.

ELECTRIC CORD REEL #1

QTY: 1

One (1) Hannay Model #ECR-1620-17-18, 120 volt, electric rewind cord reel shall be provided and wired to the breaker panel.

The reel shall be securely mounted and equipped with a rewind control adjacent to the reel.

ELECTRIC CORD REEL #1 ROLLER

QTY: 1

A Hannay 4-way stainless steel roller assembly shall be provided. The roller assembly opening shall be the full width of the reel drum.

ELECTRIC CORD REEL #1 REWIND

QTY: 1

A reel rewind switch(s) shall be provided on the compartment wall

ELECTRIC CORD REEL #1 CABLE

QTY: 1

Two hundred fifty (250) feet of Type SO yellow 10/3 heavy duty electric cable shall be provided on the reel.

ELECTRIC CORD REEL #1 TERMINATION

QTY: 1

One (1) NEMA 5-20R, 20 amp, three prong household receptacle shall be provided on the end of the cable.

ELECTRIC CORD REEL #1 CIRCUIT BREAKER

QTY: 1

The circuit breaker used to protect any device attached to the cord reel shall be sized to the smallest electrical connection used.

ELECTRIC CORD REEL #1 BALL STOP

QTY: 1

A cable ball stop(s) shall be installed on the cable to keep the end from passing through the roller assembly.

DOT HORN

QTY: 1

A single electric horn activated by the steering wheel horn button shall be furnished.

BACK-UP ALARM

QTY: 1

A Code 3, model # CA360C, 107dBA back-up alarm, shall be provided and installed at the rear of the apparatus under the tailboard.

The back-up alarm shall activate automatically when the transmission is placed in reverse gear and the ignition is "on."

SINGLE CHROME AIR HORN

QTY: 1

A single, Hadley, chrome plated air horn shall be at the front of the vehicle.

The air horn shall be mounted in full compliance with NFPA-1901.

The supply line shall be a minimum of 1/4".

SINGLE AIR HORN

QTY: 1

The air horn shall be recessed in the officer side of the front bumper.

AIR HORN CONTROL

QTY: 1

The air horn(s) shall be controlled by a floor mounted, foot switch on the officer's side.

AIR HORN CONTROL

QTY: 1

The air horn(s) shall be controlled by the steering wheel horn button for the driver.

ELECTRONIC SIREN

QTY: 1

One (1) Whelen # 295HFS2, 100 watt electronic siren shall be provided featuring: flush mount remote control head recessed in center dash panel as space allows, "Si-Test" self diagnostic feature, six (6) function siren, radio repeat, and public address.

The electronic siren and speaker shall meet the NFPA required SAE certification to ensure compatibility between the siren and speaker.

WHELEN SA315P SPEAKER

QTY: 1

One (1) Whelen, model # SA315P composite black siren speaker, shall be provided, recessed in the front bumper and wired to the electronic siren.

POLISHED STEEL ELECTRONIC SIREN SPEAKER GRILL

QTY: 1

A custom electric siren speaker grill shall be provided. This grill shall include the KME company logo cut into the center.

MECHANICAL SIREN

QTY: 1

One (1) Federal Model #Q2B mechanical siren shall be provided to provide audible warning.

SIREN LOCATION

QTY: 1

The Q2B siren shall be semi-recessed into the bumper on the driver's side.

The siren shall be recessed so the front grille portion of the siren is exposed and protruding beyond the bumper.

SIREN CONTROL

QTY: 1

Two (2) floor mounted foot switches shall be provided, one (1) for the officer and one (1) for the driver.

A siren brake button shall be provided near the driver's position.

ELECTRO/MECHANICAL SIREN BRAKE CONTROL

QTY: 1

A dash mounted push button switch shall be provided for the officer to control the brake on the electro/mechanical siren.

ELECTRO/MECHANICAL SIREN BRAKE CONTROL

QTY: 1

A dash mounted push button switch shall be provided for the driver to control the brake on the electro/mechanical siren.

ELECTRO/MECHANICAL SIREN CONTROL

QTY: 1

A floor mounted foot switch shall be provided for the driver to activate the electro/mechanical siren.

ELECTRO/MECHANICAL SIREN CONTROL

QTY: 1

A floor mounted foot switch shall be provided for the officer to activate the electro/mechanical siren.

SIREN BRAKE

QTY: 1

A second push button siren brake switch shall be provided on the cab dash near the officers seating position.

SIGTRONICS #US-67D INTERCOM W/2 RADIO INTERFACE

QTY: 1

A Sigtronics model # US-67D intercom system shall be provided at the forward cab area.

The system shall be capable of interfacing with dual two-way radio systems (note: an authorized two-way radio installer shall be responsible for interfacing the intercom system with the two-way radio).

The master station shall be capable of accepting up to six positions (plus exterior positions), and utilize a 12 volt nominal power supply.

The intercom system shall include:

Five (5) # SE-8 single plug, behind the head, radio transmit headsets shall be furnished.

The headsets shall have adjustable volume, noise canceling electric microphone, adjustable head strap, and a reversible, flex-style boom which rotates for left or right dress.

A total of **five (5)** # 800120 head set jacks shall be provided at the required seating positions in the cab.

No exterior head set jack shall be provided.

A head set mounting hook shall be provided, adjacent to each interior head set jack location.

Three (3) # 800122 radio transmit switches shall be provided at the required locations in the cab or at the exterior area of the unit.

The system as specified shall be completely installed during the manufacturing process, to properly conceal accessories of the intercom system.

Sigtronics intercom system details;

***Provide a total of 5 headsets**

***There will not be any external intercom jacks**

***this is the LA County system for dual two way radio. Two push to transmit buttons on each side of the cab in the front.**

SIGTRONICS INTERCOM SYSTEM

QTY: 5

One (1) set of gel type ear seals shall be provided for the specified head set(s).

WEATHER BAND AM/FM/WX/CD STEREO

QTY: 1

A Weather Band/AM/FM, CD, MP3, Satellite ready player with a wireless remote shall be installed in the cab overhead panel as space allows.

The speakers shall be located as follows:

(2) 6 inch mounted in the Front of the cab
(2) 6 inch mounted in the Rear of the cab

A heavy duty flexible base antenna shall be provided on the cab.

HALE DSD-150,1500 GPM SINGLE STAGE PUMP

QTY: 1

- HALE DSD-150
- 1500 G.P.M.
- SINGLE STAGE

The pump must deliver the percentage of rated capacity at the pressure listed below:

- 100% of rated capacity at 150 P.S.I. net pump pressure
- 100% of rated capacity at 165 P.S.I. net pump pressure
- 70% of rated capacity at 200 P.S.I. net pump pressure
- 50% of rated capacity at 250 P.S.I. net pump pressure.

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis and have the capacity of 1500 gallons per minute (U.S. GPM), NFPA-1900 rated performance.

The entire pump shall be manufactured and tested at the pump manufacturer's factory. The pump shall be driven by a drive line from the truck transmission. The engine shall provide sufficient horsepower and RPM to enable pump to meet and exceed its rated performance. The entire pump, both suction and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI (41.3 BAR). The pump shall be fully tested at the pump manufacturer's factory to the performance spots as outlined by the latest NFPA Standard 1901. Pump shall be free from objectionable pulsation and vibration. This DSD 150 model shall include the Custom Rams Horn suction manifold. The pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI (2069 BAR). All moving parts in contact with water shall be of high quality bronze or stainless steel. Pumps utilizing castings made of lower tensile strength cast iron are not acceptable. Pump body shall be vertically split, on a single plane, for easy removal of impeller assembly, including clearance rings.

Pump shaft to be rigidly supported by two bearings for minimum deflection. The bearings shall be heavy-duty, deep groove ball bearings in the gearbox and they shall be splash lubricated. The pump shaft shall be heat-treated, electric furnace, corrosion resistant, stainless steel. Pump shaft must be sealed with double lip oil seal to keep road dirt and water out of gearbox.

Pump impeller shall be hard, fine grain bronze of the mixed flow design; accurately machined, hand-ground and individually balanced. The vanes of the impeller intake eye shall be hand-ground and polished to a sharp edge, and be of sufficient size and design to provide ample reserve capacity utilizing minimum horsepower. Impeller clearance rings shall be bronze, easily renewable without replacing impellers or pump volute body.

PUMP RATIO

QTY: 1

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

The manufacturer shall supply at time of delivery copies of the pump manufacturer's certification of hydrostatic testing, the engine manufacturer's current certified brake horsepower curve.

PUMP MOUNTS - MID-SHIP PUMPS

QTY: 1

Extra heavy duty pump mounting brackets shall be furnished.

These shall be bolted to the frame rails in such a position to perfectly align the pump so that the angular velocity of the drive line joints shall be the same on each end of the drive shaft.

This shall assure full capacity performance with a minimum of vibration. Mounting hardware shall utilize Grade 8 bolts.

HALE MECHANICAL PUMP SEAL

QTY: 1

The mid ship pump shall be equipped with a high quality, spring loaded, self-adjusting mechanical seal capable of providing a positive seal to atmosphere under all pumping conditions.

This positive seal to atmosphere must be achievable under vacuum conditions up to 26 Hg (draft) or positive suction pressures up to 250 PSI.

The mechanical seal assembly shall be 2 inches in diameter and consists of a carbon sealing ring, stainless steel coil spring,

Viton rubber boot, and a tungsten carbide seat with a Teflon backup seal provided.

Only one (1) mechanical seal shall be required, located on the first stage suction (inboard) side of the pump and be designed to be compatible with a one piece pump shaft.

A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.

HALE DSD PUMP DRIVE UNIT - SPLIT SHAFT

QTY: 1

The drive unit shall be completely assembled and tested at the pump manufacturer's factory.

The drive unit shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque of the engine in both road and pump operating conditions.

The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.

The gearbox drive shafts shall be of heat treated chrome nickel steel and at least 2-3/4 inches in diameter on both the input and output drive shafts.

They shall withstand the full torque of the engine in both road and pump operating conditions.

All gears, drive and pump shall be of the highest quality electric furnace chrome nickel steel.

Bores shall be ground to size and teeth integrated, crown-shaved and hardened, to give an extremely accurate gear for long life, smooth, quiet running and higher load carrying capability.

An accurately cut spur design shall be provided to eliminate all possible end thrust.

PUMP SHIFT MANUAL OVERRIDE

QTY: 1

An emergency manual pump shift control shall be furnished on the left side pump panel which may be utilized if the air shift control does not operate. A transmission, manual lock-up switch shall be furnished in the cab to ensure positive lock-up of the transmission.

HALE PUMP SHIFT INDICATOR LIGHTS

QTY: 1

For automatic transmissions, three (3) green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift for Road to Pump position.

Two (2) green lights to be located in the truck driving compartment and one (1) green light on pump operator's panel adjacent to the throttle control.

For manual transmissions, one (1) green warning light shall be provided for the driving compartment.

All lights to have appropriate identification/instruction plates.

MANIFOLD - DISCHARGE & SUCTION

QTY: 1

A custom made suction and discharge manifold shall be constructed from stainless steel and/or flexible tubing. The manifold shall be designed to provide maximum efficiency for the suction inlets and the discharges. {No Exceptions}.

HALE ANODE BLOCKS - ALLOY - 2 TOTAL

QTY: 1

Two (2) Hale Alloy Anode blocks shall be provided and located one (1) on the suction side and one (1) on the discharge side of the pump to protect the pump from corrosion.

The Anodes shall be painted Safety Yellow for identification purposes.

HALE THERMAL RELIEF VALVE - LIGHT AND BUZZER

QTY: 1

A Hale Model TRV-L120 Thermal Relief Valve shall be provided on the pump.

If water temperature in the pump exceeds 170 degrees Fahrenheit, the thermal relief valve shall automatically open and discharge pump water to the ground, through a 3/8" discharge line, routed below the pump module. The TRV shall include a warning lamp and buzzer.

The thermal relief valve shall automatically close when the water temperature is lowered.

AUXILIARY ENGINE COOLER

QTY: 1

An auxiliary cooler or heat exchanger shall be installed in the engine compartment between the engine and the chassis radiator.

The cooler shall permit the use of water from the pump for cooling the engine. The water supply line will be equipped with a strainer.

The cooling shall be done without mixing engine and pump water.

FIRE RESEARCH "PUMP BOSS" PBA400 PRESSURE GOVERNOR

QTY: 1

The apparatus shall be equipped with a Fire Research PumpBoss model# PBA400 pressure governor and monitoring display kit. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8" wide by 1 1/2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring. Inputs to the control module from the pump discharge and intake pressure sensors shall be electrical. The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs * Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display
- Pressure and RPM operating mode LEDs
- Pressure / RPM setting; shown on a dot matrix message display
- Throttle ready LED

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation. The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

- High Battery Voltage
- Low Battery Voltage (Engine Off)
- Low Battery Voltage (Engine Running)
- High Transmission Temperature
- Low Engine Oil Pressure
- High Engine Coolant Temperature
- Out of Water (visual alarm only)
- No Engine Response (visual alarm only)

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements. The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready, LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle. The pressure governor and monitoring pressure display shall be programmed to interface with a specific engine.

ELKHART STYLE #40 INTAKE RELIEF VALVE

QTY: 1

An Elkhart Model 40 intake relief valve system shall be plumbed on the suction side of the pump to comply fully with NFPA-1901 requirements. It shall have an adjustable pressure relief setting from 75 psi

to 250 psi and **SHALL BE PRESET AT 150 psi**. Excess pressures shall be plumbed to discharge water under the pump enclosure away from the pump operator.

ELKHART STYLE #40 INTAKE RELIEF VALVE

QTY: 1

An Elkhart Model 40 intake relief valve system shall be plumbed on the suction side of the pump to comply fully with NFPA-1901 requirements.

It shall have an adjustable pressure relief setting from 75 psi to 250 psi and shall be at 200 psi.

Excess pressures shall be plumbed to discharge water under the pump enclosure away from the pump operator.

TRIDENT "MANUAL" AIR PRIMING SYSTEM

QTY: 1

The priming pump will be a Trident air primer system.

A push in primer handle will open the priming valve and prime the pump.

ROTARY MASTER DRAIN VALVE

QTY: 1

A rotary type, 12 port, master drain valve shall be provided and controlled at the lower portion of the side pump panel.

The valve shall be located in pump compartment lower than the main body and connected in such a manner as to allow complete water drainage of the pump body and all required accessories.

Water shall be drained below the apparatus body and away from the pump operator.

DRAINS/BLEEDER "INNOVATIVE CONTROLS" LIFT UP @ ALL

QTY: 1

All lines shall drain through the master drain valve or shall be equipped with individual drain valves, easily accessible, and labeled.

One (1) individual "Innovative Control" lift up drain valve shall be furnished for each 1-1/2" or larger discharge port and each 2-1/2" gated auxiliary suction.

Drain/bleeder valves shall be located at the bottom of the side pump module panels. All drains and bleeders shall discharge below the running boards.

AEROQUIP SUCTION, DISCHARGE, PRESSURE AND CONTROL

QTY: 1

Small lines within the pump enclosure shall be constructed from wire braided Aeroquip FC-300 hose with re-useable brass or stainless steel JIC fittings.

Uses include but are not limited to such lines as priming control, gauge lines, drain lines, air control valves, pump shift, supplemental cooling, foam flush, and air bleeder valves.

SUCTION INLETS - 6” INLETS

QTY: 1

Two (2) 6" N.S.T. suction inlets shall be provided, one on the driver side and one on the officer side pump panel.

A removable strainer shall be installed on each inlet.

SHORT NECK MAIN PUMP SUCTION INLETS

QTY: 1

The main pump suction inlets shall be furnished with a short suction end, terminating with only the suction threads protruding through the side panel to minimize the distance an exterior appliance protrudes beyond the pump panel.

BEHIND PANEL MOUNT

QTY: 1

All side gated inlet valves shall be recess mounted behind the side pump panels or body panels. There will be no exceptions.

DELETE SUCTION INLET CAP DRIVER SIDE

QTY: 1

The suction cap provided as standard equipment shall be deleted.

INTAKE VALVE DRIVER SIDE

QTY: 1

A Task Force Tip (TFT) Model # AB8NP-NX-PS Ball Intake Valve shall be provided on the driver's side main pump inlet.

Valve shall be configured as follows:
6” NSF (long handles) connection on pump side
4” NSM connection on the hydrant side
One (1) non-plated, Pyrolite 4” cap with rocker lugs shall be provided.
Valve body to be standard gray from TFT. Do not paint any color.
Flexible hose shall be installed to the manual drain/bleeder valve of the supplied TFT intake valves. The hose shall be routed through an opening in the pump panel and secured to direct the water discharge under the apparatus. Rubber edge protection will be provided on the panels where the bleeder hose passes through.
NOTE: A hose will not be installed on the pressure relief discharge.

DELETE SUCTION INLET CAP OFFICER SIDE

QTY: 1

The suction cap provided as standard equipment shall be deleted.

INTAKE VALVE OFFICER SIDE

QTY: 1

A Task Force Tip (TFT) Model # AB8NP-NX-PS Ball Intake Valve shall be provided on the officer's side main pump inlet.

Valve shall be configured as follows:
6” NSF (long handles) connection on pump side
4” NSM connection on the hydrant side

One (1) non-plated, Pyrolite 4” cap with rocker lugs shall be provided.

Valve body to be standard gray from TFT. Do not paint any color.
Flexible hose shall be installed to the manual drain/bleeder valve of the supplied TFT intake valves. The hose shall be routed through an opening in the pump panel and secured to direct the water discharge under the apparatus. Rubber edge protection will be provided on the panels where the bleeder hose passes through.

NOTE: A hose will not be installed on the pressure relief discharge.

NOTE: image attached below.

2-1/2" DS AUX PRIMARY SUCTION INLET FORWARD OF MA

QTY: 1

One (1) 2-1/2" auxiliary suction shall be provided at the driver side pump panel, to the front of the main inlet.

The 2-1/2" auxiliary suction shall terminate with a removable strainer, chrome plated 2-1/2" NST female swivel with a chrome plated plug and retaining chain.

2-1/2" AKRON #8800 S.S. BALL VALVE, DS FRONT AUX S

QTY: 1

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side front auxiliary suction.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

SWING CONTROL @ VALVE, DS FRONT AUX SUCTION

QTY: 1

A 1/4 turn swing control handle shall be provided on the driver side, front auxiliary suction valve.

TANK TO PUMP 3” VALVE

QTY: 1

One (1) 4" tank to pump line shall be piped into the tank sump. This line shall be plumbed directly into the rear of the pump suction manifold for maximum efficiency.

A check valve shall be provided to prevent accidental pressurization of the water tank through the pump connection. Connection from the valve to the tank shall be made by using a non-collapsible flexible rubber hose.

3" AKRON #8800 SERIES - S.S. BALL, VALVE , TANK TO

QTY: 1

An Akron Brass 3" Generation II Swing-Out Valve shall be provided between the pump suction manifold and the water tank.

The valve shall have an all brass body with flow optimizing, stainless steel ball and dual polymer seats.

3" PUSH/PULL CONTROL FOR TANK TO PUMP

QTY: 1

A push/pull control handle shall be located on the operator's panel with function plate.

3" PUSH/PULL CONTROL F/TANK TO PUMP, IN IS OPEN

QTY: 1

A push/pull control handle shall be located on the operator's panel with function plate.

Note: The tank to pump control linkage to be plumbed so that "in is open" and “out is closed".

TANK FILL LINE 2" FROM PUMP - SIDE MOUNT

QTY: 1

One (1) 2" gated full flow pump to tank refill line controlled at the pump panel shall be provided. A deflector shield inside the tank shall be furnished. Tank fill plumbing shall utilize 2" high pressure hose for tank connection to accommodate flexing between components. There will be no exceptions.

2" AKRON #8800 SERIES - S.S. BALL TANK FILL, SIDE

QTY: 1

An Akron Brass 2" Generation II Swing-Out Valve shall be provided between the pump discharge manifold and the water tank.

The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.

PUSH/PULL CONTROL FOR TANK FILL

QTY: 1

A push/pull control handle shall be located on the operator's panel with function plate.

DS MAIN DISCHARGE #1

QTY: 1

A discharge shall be provided and located at the driver's side pump panel.

The driver's side discharges # 1 shall terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

2-1/2" AKRON #8800 SERIES - S.S. BALL, DS #1

QTY: 1

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side #1 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

2-1/2" NSTF X 1-1/2" NSTM REDUCER WITH CAP DS DISC

QTY: 1

A 2-1/2" NSTF X 1-1/2" NSTM reducer with cap shall be provided on the driver's side # 1 discharge.

DS #1 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST

QTY: 1

The discharge valve shall be equipped with a straight 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

SWING 1/4 TURN CONTROL FOR DS DISCHARGE #1 -SIDE M

QTY: 1

The driver's side # 1 discharge valve shall be controlled by a 1/4 turn swing control handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - DS DI

QTY: 1

The driver's side # 1 discharge shall be equipped with a Class One Sub-Z II, 2.5", interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem, and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

DS MAIN DISCHARGE #2

QTY: 1

A discharge shall be provided and located at the driver's side pump panel.

The driver's side discharges # 2 shall terminate with NST threads, through the left panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

2-1/2" AKRON #8800 SERIES - S.S. BALL, DS #2

QTY: 1

An Akron Brass 2 1/2" Generation II Swing-Out Valve shall be provided for the driver's side #2 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

DS #2 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST

QTY: 1

The discharge valve shall be equipped with a straight 2 1/2" NST adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

2-1/2" NSTF X 1-1/2" NSTM REDUCER WITH CAP DS DISC

QTY: 1

A 2-1/2" NSTF X 1-1/2" NSTM reducer with cap shall be provided on the driver's side # 2 discharge.

SWING 1/4 TURN CONTROL FOR DS DISCHARGE #2 -SIDE M

QTY: 1

The driver's side # 2 discharge valve shall be controlled by a 1/4 turn swing control handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - DS DI

QTY: 1

The driver's side # 2 discharge shall be equipped with a Class One, Sub-Z II, 2.5", interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

OS MAIN DISCHARGE #1

QTY: 1

A discharge shall be provided and located at the officer's side pump panel.

The officer's side discharges #1 shall terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

4" AKRON #8840 VALVE, OS #1, SIDE MOUNT

QTY: 1

An Akron Brass, 4" Heavy Duty, Swing-Out Valve shall be provided for the officer's side #1 discharge.

The valve shall have an all brass body with flow optimizing, flat ball, and dual polymer seats

OS #1 DISCH - 4" STRAIGHT NST & 30-DEGREE NST ELBO

QTY: 1

The discharge valve shall be equipped with a straight, 4" NST adapter that shall be equipped with a 4" NST, 30-degree, chrome plated elbow.

4" NSTF X 2.5" NSTM REDUCER WITH CAP OS DISCH # 1

QTY: 1

A 4" NSTF X 2.5" NSTM reducer with cap shall be provided on the officer's side # 1 discharge.

4" AKRON #9333 ELECTRIC VALVE CONTROL FOR OS DISCH

QTY: 1

The officer's side, # 1 discharge Akron ball valve shall be equipped with an Akron Brass Style 9333 Valve Controller.

The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting.

The unit shall be completely sealed with momentary open, close as well as an optional one touch, full open feature to operate the actuator.

Two additional buttons shall be available to be used for preset selection, preset activation, and menu navigation.

The controller shall have up to three preset locations that can be user set and easily recalled upon each use.

The unit shall be capable of being used in conjunction with at least two additional displays to control one valve.

The unit shall provide position indication through a full color, backlit, LCD display.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OS DI

QTY: 1

The officer's side, # 1 discharge shall be equipped with a Class One, Sub-Z II, 2.5", interlube filled, pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating, diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals
.

OS MAIN DISCHARGE #2

QTY: 1

A discharge shall be provided and located at the officer's side pump panel.

The officer's side discharges #2 shall terminate with NST threads, through the officer's side panel above the main pump intake.

The main pump discharge shall be plumbed directly from the pump discharge manifold utilizing direct connect discharge valve flanges.

2-1/2" AKRON #8800 SERIES - S.S. BALL, OS #2, SIDE

QTY: 1

An Akron Brass, 2 1/2" Generation II, Swing-Out Valve shall be provided for the officer's side #2 discharge.

The valve shall have an all brass body with flow optimizing, stainless steel ball, and dual polymer seats.

OS #2 DISCH - 2-1/2" STRAIGHT NST & 30-DEGREE NST

QTY: 1

The discharge valve shall be equipped with a straight, 2 1/2" NST, adapter that shall be equipped with a 2 1/2" NST, 30-degree, chrome plated elbow.

2-1/2" NSTF X 1-1/2" NSTM REDUCER W/CAP OS DISCH #

QTY: 1

A 2-1/2" NSTF X 1-1/2" NSTM reducer w/ cap shall be provided on the officer's side #2 discharge.

SWING 1/4 TURN CONTROL FOR OS DISCHARGE #2 -SIDE M

QTY: 1

The officer's side, #2 discharge valve shall be controlled by a 1/4 turn swing control handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - OS DI

QTY: 1

The officer's side, #2 discharge shall be equipped with a Class One, Sub-Z II, 2.5", interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright, metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

#1 FRONT DISCHARGE 1-1/2"

QTY: 1

A 1 1/2" front #1 discharge shall be plumbed to the front bumper of the vehicle.

1-1/2" NST CHICKSAN SWIVEL #1 DISCHARGE- HOSE WELL

QTY: 1

The front #1 discharge shall terminate with a brass 1 1/2" NST chicksan swivel adapter in the hose well on the front bumper.

#1 FRONT DISCHARGE, PLUMBING, 2-1/2" STAINLESS STE

QTY: 1

The front #1 discharge shall be plumbed utilizing 2 1/2" schedule 10 stainless steel piping, flexible hosing, 45 degree elbows, and a limited number of 90 degree sweep elbows in an assembly from the pump to the front of the vehicle.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly to allow for flex and serviceability.

There shall NOT be any automatic drains within the front discharge plumbing.

2" AKRON #8800 SERIES - S.S. BALL, VALVE FRONT#1 D

QTY: 1

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the front #1 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

PUSH/PULL CONTROL FOR FRONT #1 DISCHARGE

QTY: 1

The front #1 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - FRONT

QTY: 1

The front #1 discharge shall be equipped with a Class One Sub-Z II, 2.5" interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

CROSSLAY #1

QTY: 1

A crosslay hose bed shall be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment. The crosslay hose bed flooring shall be designed to be removable and constructed from brushed finish, perforated aluminum material.

CROSSLAY #1 CAPACITY

QTY: 1

Crosslay #1 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA - 1900 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

CROSSLAY #1 DESIGN

QTY: 1

Crosslay #1 hose bed shall be designed to accommodate the fire hose in a double stack configuration.

1-1/2" NST CHICKSAN SWIVEL - CROSSLAY #1

QTY: 1

The crosslay discharge shall terminate below the hosebed floor with a 1 1/2" NSTM chicksan swivel adapter.

The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

CROSSLAY #1, PLUMBING, 2" STAINLESS STEEL PIPING

QTY: 1

The crosslay #1 discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly, if necessary, to allow for flex and serviceability.

2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY

QTY: 1

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the crosslay #1 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

PUSH/PULL CONTROL CROSSLAY #1

QTY: 1

The crosslay #1 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - CROSS

QTY: 1

The crosslay #1 discharge shall be equipped with a Class One Sub-Z II, 2.5" interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

CROSSLAY #2 1-3/4"

QTY: 1

A crosslay hose bed shall be provided and plumbed from the pump in a transverse design, located above the pump enclosure for quick attack deployment.

The crosslay hose bed flooring shall be designed to be removable, constructed from brushed finish, perforated aluminum material.

CROSSLAY #2 CAPACITY - 200 FEET OF 1-3/4" HOSE

QTY: 1

Crosslay #2 shall be designed to have a minimum total capacity of 3.5 cubic feet as required by NFPA - 1900 to accommodate a minimum of 200 feet of 1-3/4" fire hose.

CROSSLAY #2 - DOUBLE STACK HOSE DESIGN

QTY: 1

Crosslay #2 hose bed shall be designed to accommodate the fire hose in a double stack configuration.

1-1/2" NST CHICKSAN SWIVEL - CROSSLAY #2

QTY: 1

The crosslay discharge shall terminate below the hose bed floor with a 1 1/2" NSTM chicksan swivel adapter. The crosslay hose bed floor shall be slotted to allow the swivel to extend up through the floor, allowing the pre-connected hose to be pulled off either side of the apparatus without kinking the hose at the coupling connection.

CROSSLAY #2, PLUMBING, 2" STAINLESS STEEL PIPING

QTY: 1

The crosslay #2 discharge shall be plumbed utilizing 2" schedule 10 stainless steel piping and/or flexible hose, 45 degree elbows and a limited number of 90 degree sweep elbows in an assembly from the pump to crosslay hose bed.

A minimum of one (1) grooved pipe coupling shall be furnished in this assembly, if necessary, to allow for flex and serviceability.

2" AKRON #8800 SERIES - S.S. BALL, VALVE CROSSLAY

QTY: 1

An Akron Brass 2" Generation II Swing-Out Valve shall be provided for the crosslay #2 discharge.

The valve shall have an all brass body with flow optimizing stainless steel ball and dual polymer seats.

PUSH/PULL CONTROL CROSSLAY #2

QTY: 1

The crosslay #2 discharge valve shall be controlled by a push/pull handle located on the operator's panel.

CLASS ONE LIQUID FILLED 2-1/2" PRESS GAUGE - CROSS

QTY: 1

The crosslay #2 discharge shall be equipped with a Class One Sub-Z II, 2.5" interlube filled pressure gauge with pulse and vibration dampening.

To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

The gauge face shall be white with black numerals.

DEADLAY HOSE STORAGE ABOVE PUMP

QTY: 1

A deadlay storage area shall be provided on the top of the pump enclosure to accommodate as follows:

- One (1) 11" wide storage area for 300' of 1-3/4" hose.
- One (1) 15" wide storage area for 200' of 2-1/2" hose.

The hose storage area shall have a floor of perforated aluminum material and the sides shall be lined with brushed aluminum material.

VINYL END FLAPS FOR ALUMINUM TRDPLT X-LAY CO

QTY: 1

Vinyl flaps shall be provided at each side of the transverse cross lay compartment secured to the tread plate cross lay coverwith small seat belt buckles. The female portion of the buckle is fastened to the cover, while the male is fastened to the truck.

END FLAP COVER BLACK IN COLOR

QTY: 1

The crosslay end flap shall be black in color.

END FLAP CLARIFICATION

QTY: 1

The Crosslay vinyl end flaps need to be as follows. The section of the flap that connects to the tread plate cover shall be quarter turn snaps. The seat belt buckles secure the bottom end of the flaps

BI-FOLDING TRIPLE OR QUADRUPLE CRSLY COVER, TR

QTY: 1

A bi-folding 3/16" tread plate plate cross lay cover shall be provided.

One (1) full length stainless steel hinge at the front of the cover and one (1) at the center located to rest on top of a cross lay partition for support.

AERIAL WATERWAY DISCHARGE - TA-HD AERIAL

QTY: 1

The 4" aerial waterway discharge shall be gated at the pump by a full flow ball valve.

WATERWAY DISCHARGE, PLUMBING, 4" STAINLESS STEEL -

QTY: 1

The piping from the pump to the rear of the vehicle shall be 4" minimum schedule 10 stainless steel pipe.

The pipe shall connect to the turntable waterway swivel and shall also extend through the rear panel of the vehicle and terminate in (NST) thread with a long handle chrome plated cap at the rear of the body.

This connection shall serve as the rear waterway inlet.

The piping shall be a minimum of heavy duty, schedule 10 piping which shall incorporate a minimum of two (2) grooved pipe clamps for easy removal.

4" AKRON #8940 SERIES VALVE, WATERWAY

QTY: 1

An Akron Brass 4" Heavy Duty Swing-Out™ Valve shall be provided for the waterway The valve shall have an all brass body.

4" AKRON #9333 ELECTRIC VALVE CONTROL FOR WATERWAY

QTY: 1

The waterway discharge Akron ball valve shall be equipped with an Akron Brass Style 9333 Valve Controller.

The electric controls shall be of true position feedback design, requiring no clutches in the motor or current limiting.

The unit shall be completely sealed with momentary open, close as well as an optional one touch full open feature to operate the actuator.

Two additional buttons shall be available to be used for preset selection, preset activation and menu navigation.

The controller shall have up to three preset locations that can be user set and easily recalled upon each use.

The unit shall be capable of being used in conjunction with at least two additional displays to control one valve.

The unit shall provide position indication through a full color backlit LCD display.

FIRE RESEARCH FLOW/PRESS METER, INSIGHT ULTIMATE L

QTY: 1

The waterway discharge shall be equipped with a Fire Research "Insight" Ultimate Flow/Pressure Meter, which shall give the operator or engineer an indication of the actual volume of water (in gallons) being discharged through the specified line. The display shall also be capable of showing discharge pressure without the need of pushing any buttons.

An analog/digital display shall be mounted on the pump panel in place of a standard pressure gauge. The waterproof display case shall be constructed of aluminum, with bright red LCD digits to indicate flow, and a bright analog pointer to indicate pressure.
A flow sensor paddle wheel shall be installed on the discharge piping with a machined housing or clamp.
A pressure transmitter (transducer) shall be mounted in the discharge piping to indicate pressure only when the valve is open.

FOAM SYSTEM STAINLESS PIPING - 1 INCH FROM FOAM SO

QTY: 1

All foam concentrate plumbing from the tank or auxiliary foam inlet to the foam system components shall be stainless steel and nonferrous material.

The foam system piping shall incorporate a check valve to prevent water from entering the foam tank; the discharge piping shall also include a check valve to prevent foam solution from back feeding into the discharge side of the pump.

Individual discharge piping shall be as specified for each discharge.

The complete foam system shall be tested in accordance with NFPA-1901.

FOAMPRO 2001 CLASS "A AND/OR B" FOAM SYSTEM

QTY: 1

A FoamPro model 2001, electronic, fully automatic, variable speed, direct injection, discharge side foam proportioning system shall be installed in the pumping system.

The system shall be capable of handling Class "A" foam concentrates and most Class "B" foam concentrates.

The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures.

System must be capable of delivering accuracy to within 3% of calibrated settings over the advertised operation range when installed according to factory standards.

The system shall be equipped with a digital electronic control display suitable for installation on the pump panel.

Incorporated within the control display shall be a microprocessor that receives input from the system flow meter, while also monitoring foam concentrate pump output, comparing values to ensure that the operator preset proportional amount of foam concentrate is injected into the discharge side of the fire pump.

A paddlewheel-type flow meter shall be installed in the discharge or manifold system specified to be foam capable.

A Full flow check valve shall be provided to prevent foam contamination of fire pump and water tank or water contamination of foam tank.

A 12 or 24-volt electric motor drive positive displacement foam concentrate pump, rated up to 2.5 GPM (9.5 L/min) @ 150 psi with operating pressures up to 400 psi (27.6 BAR), shall be installed in a suitable, accessible location.

The system shall draw a maximum of 40 amps @ 12 VDC or 21 amps @ 24 VDC.

A pump motor electronic driver (mounted to the base of the pump) shall receive signals from the computer control display and power the 1/2 hp (0.40 Kw) electric motor directly coupled to the

concentrate pump in a variable speed duty cycle to ensure that the correct proportion of concentrate preset by the pump operator is injected into the water stream.

The digital computer control display located on the pump operator's panel shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:

- Provide push-button control of foam proportioning rates from 0.1% to 9.9%, in 0.1% increments
- Show current flow-per-minute of water
- Show total volume of water discharged during and after foam operations are completed
- Show total amount of foam concentrate consumed
- Simulate flow rates for manual operation
- Perform setup and diagnostic functions for the computer control microprocessor
- Flash a low concentrate warning when the foam concentrate tank(s) runs low
- Flash a no concentrate warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty

The digital computer control display shall interface with the options listed; provide dual foam calibration, and display separate totals for each foam concentrate used.

If two foam tanks are required and piped to the foam concentrate pump, either an electric dual tank valve or the manual dual tank valve shall be provided.

Components of the complete proportioning system shall include:

- Operator control and display
- Paddlewheel flow meter
- Pump and electric motor/motor driver
- Wiring harnesses
- Low-level tank switch (Switches)
- Electronic dual tank valve or manual dual tank valve (if more than one tank)
- Foam injection check valve
- Main waterway check valve

Accurate concentration proportioning can be achieved, based on the following water flows:

- 85 GPM water 3.0% concentration
- 260 GPM water 1.0% concentration
- 520 GPM water 0.5% concentration
- 1300 GPM water 0.2% concentration

Note: Multiple discharges plumbed to this system may affect performance if the flow rates are exceeded by any one discharge or the totality of multiple discharges at one time!

INJECTION SYSTEM DISCHARGE PLUMBING

QTY: 1

The discharge piping shall be equipped with a properly sized flow meter sensor, based on the systems capabilities.

The foam system shall be plumbed to the following discharge/s through the discharge piping or manifold system:

INJECTION FOAM SYSTEM INSTALLED ON CROSSLAY #1

QTY: 1

Crosslay #1 discharge.

INJECTION FOAM SYSTEM INSTALLED ON CROSSLAY #2

QTY: 1

Crosslay #2 discharge.

FOAM SYSTEM INSTALLED ON FRONT DISCHARGE

QTY: 1

Front discharge.

ABOVE PUMP ENCLOSURE FLOORING

QTY: 1

The pump house floor will be fabricated from **Bustin aluminum grip strut** where applicable this design will provide adequate ventilation to help prevent the buildup of heat from the pump, exhaust, and PTO generator.

PUMP INSTALLATION

QTY: 1

SIDE MOUNT PUMP MODULE, MD, RM AERIAL

QTY: 1

The pump module shall be a self-supported structure mounted independently from the body and chassis cab.

The design must allow normal frame deflection without imposing stress on the pump module structure or side running boards.

The pump module shall be securely mounted to the chassis frame rails.

PUMP MODULE MATERIAL

QTY: 1

The pump module shall be a welded frame work utilizing structural aluminum components properly braced to withstand the rigors of chassis frame flex.

TWO (2) SEAT BELT STRAPS ON OFFICER'S SIDE STORAGE

QTY: 1

The officer's side running board hose well shall be furnished with two (2) seat belt style straps to secure the hose stored in the well.

OFFICER'S SIDE - BLACK POLY MATERIAL IN WELL

QTY: 1

The officers side storage well shall be equipped with BLACK POLY material in the bottom of the well.

Note: This material shall match the material specified for the compartment floors, shelves, trays.

SLIDE-OUT STEP @ DRIVER'S PUMP OPERATOR'S PANEL

QTY: 1

A slide-out platform shall be located below the driver's side running board step.

The platform shall be constructed from 2" aluminum tubing with Grip-Strut material inserts the step shall have a minimum weight rating of 500 pounds.

Deployment of this platform shall be connected to the DO NOT MOVE TRUCK warning circuit.

The step shall slide on stainless steel pins fitted in a machined frame which shall mount to the pump house frame.

Drawer slides are not acceptable.

RUNNING BOARD STEPS (AERIALS ONLY)

QTY: 1

The driver and officer running board steps shall be fabricated of 3/16" tread plate plate. The outside edge on each step shall be fabricated with a double break, return flange. The steps shall be rigidly reinforced with a heavy duty support structure. The running boards shall not form any part of the compartment design, and shall be bolted into place with a minimum 1/2" clearance gap between any panel to facilitate water runoff.

STORAGE WELL IN OFFICERS SIDE RUNNING BOARD (FLOAT

QTY: 1

A floating storage well, constructed of 1/8" aluminum, shall be recessed into the officer’s side running board.

The storage well shall measure 9" deep x 9" wide x as long as possible between the running board support members.

Drain holes shall be located in the bottom corners to allow water to drain from the storage well.

The front and rear bottom corners of the well shall have an angled face to help the well slide up if it strikes an object.

The entire well shall be a "floating" style that can easily shift up if an object is struck.

OFFICER'S SIDE WELL - HOSE CAPACITY

QTY: 1

The officer's side storage well shall have the desired capacity of:

OFFICER'S SIDE WELL - 25 FEET OF 4" LDH HOSE

QTY: 1

25' of 4" LDH hose

IDENTIFICATION PLATES

QTY: 1

Color coded identification tags shall be provided for all gauges, controls, connections, switches, inlets and outlets.

Color codes discharges;

Front bumper Orange

Front crosslay Blue
Rear crosslay Red

SIDE MOUNT PUMP PANEL - RM AERIAL

QTY: 1

The pump operator's control panel shall be located on the driver side of the apparatus.

The pump enclosure side panels shall be completely removable and designed for easy access and servicing.

SIDE MOUNT PANELS - 12 GAUGE BRUSHED STAINLESS STE

QTY: 1

The left side operator's panel, gauge panel, right side pump panel and right side access door shall be fabricated from 12-gauge 304L stainless steel with a #4 (150/180 grit) standard brushed finish.

VERTICALLY HINGED GAUGE PANEL - SIDE MOUNT

QTY: 1

A full width, vertically hinged gauge access panel shall be provided at the operator's position.

Chrome plated positive locks shall be provided along with chain holders to prevent the front of the gauge panel from coming in contact with other panels when open.

OFFICER SIDE VERTICALLY HINGED PUMP ACCESS DOOR -

QTY: 1

The officer's side pump panel shall be split and vertically hinged to provide complete access to the pump and plumbing on the officer's side of the pump enclosure.

The panels shall be equipped with stainless steel hinges and secured with push type locks to hold the panels closed.

The drains located on the officer's side panel shall be fastened to the lower panel, which shall be stationary.

PANEL FASTENERS

QTY: 1

Stainless steel machine screws and lock washers shall be used to hold these panels in position.

The panels shall be easily removable to provide complete access to the pump for major service.

CAPS AND ADAPTERS SAFETY TETHER - CABLES

QTY: 1

All applicable discharge and suction caps, plugs and adapters shall be equipped with tether cables and secured to the vehicle.

PUMP PANEL DISCH./SUCTION TRIM PLATES

QTY: 1

A high polished trim plate shall be provided around each discharge port and suction inlet opening to allow accessibility to the respective valve for service and repairs.

DISCHARGE GAUGE TRIM BEZELS

QTY: 1

Each individual discharge gauge shall be installed into a decorative chrome-plated mounting bezel that incorporates valve-identifying verbiage and color labels, unless manufacturer supplied otherwise.

PUMP PANEL LANGUAGE

QTY: 1

"The pump panel will be color coded as follows:- Pump panel ID plates are to be as follows: Discharge Label Discharge Location Discharge Color Discharge 1 Driver Side Main - #1 Gray w/ Black Lettering Discharge 2 Driver Side Main - #2 Gray w/ Black Lettering LDH Officer Side Main - #1 (LDH) Gray w/ Black Lettering Discharge 3

Officer Side Main - #2 Gray w/ Black Lettering D/S Rear Discharge Driver Side Rear Discharge Green Deck Gun Deck Gun Gray w/ Black Lettering Front Discharge Front Bumper Orange Preconnect 1 Crosslay #1 (Forward) Blue Preconnect 2 Crosslay #2 (Rearward) Red Deadload Deadlay Black Hose Reel Booster Reel White Tank to Pump Tank to Pump White Tank Fill Tank Fill White"

PUMP OPERATOR'S PANEL LIGHT SHIELD

QTY: 1

The pump operator's panel shall be equipped with a light shield that shall be the full available width of the control panel, and shall be positioned to cover the lights and prevent glare. (Note: On apparatus with lowered style crosslays, the light shield shall be from the back of the crosslays to the rear of the pump house).

The light shield shall be equipped with the following lights:

TECNIQ 6" LED LIGHTS - LIGHT SHIELD

QTY: 1

Four (4) TecNiq 6" long LED lights.

One (1) light under the operator's panel light shield shall be actuated when fire pump is engaged in addition to the pump engaged light.

OS PUMP PANEL LIGHT SHIELD

QTY: 1

The officer side pump panel shall be equipped with a light shield that shall be full width of the control panel, and shall be positioned to cover the lights and prevent glare.

The light shield shall be equipped with the following lights:

TECNIQ 6" LED LIGHTS - LIGHT SHIELD

QTY: 1

Four (4) TecNiq 6" long LED lights.

The lights shall be switched with the operator panel lights.

FUEL GAUGE ON PUMP PANEL (DO NOT USE ON COMMERCIAL

QTY: 1

Fuel Gauge with integral DEF level gauge (if applicable)

AIR HORN CONTROL BUTTON ON PUMP PANEL

QTY: 1

Pump panel air horn actuation button labeled "EVACUATION" in white letters with a red background.

PUMP PRESSURE & VACUUM TEST PORTS @ PANEL

QTY: 1

The pump panel shall be equipped with Vacuum Pressure test plugs to allow for test equipment to monitor pump pressure and vacuum levels.

Chrome plugs and labels shall be provided for the test ports.

4-1/2" CLASS ONE MASTER PRESSURE AND COMPOUND GAUG

QTY: 1

One (1) 4-1/2" diameter pressure gauge (labeled: "PRESSURE") and one (1) 4-1/2" diameter compound vacuum gauge (labeled: "INTAKE") shall be provided.

The master gauges shall be Class One Sub-Z II, interlube filled.

The gauge faces shall be white with black numerals.

PRESSURE & COMPOUND GAUGE RANGES - SINGLE STAGE

QTY: 1

All applicable pressure gauges shall have a range of 0 - 400 P.S.I., and the compound gauge shall have a range of -30" - 0 - 400 P.S.I.

PUMP CERTIFICATION - 750 GPM & UP

QTY: 1

The pump shall be third party performance tested to meet the requirements of NFPA-1900. There will be no exceptions.

TANK DESCRIPTION AND MOUNT

QTY: 1

The Poly water tank shall be constructed of PT3 polypropylene material. This material shall be a non-corrosive stress relieved thermoplastic and UV stabilized for maximum protection. Tank shell thickness may vary depending on the application and may range from 1/2" to 1" as required. Internal baffles are generally 3/8" in thickness.

The tank shall be of a specific configuration and is so designed to be completely independent of the body and compartments. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include PolyProSeal technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The top of the booster tank is fitted with a removable lifting assembly designed to facilitate tank removal. The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" PT3 polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength as part of the tank's unique full floor design.

Tolerances in design allow for a maximum variation of 1/8" on all dimensions.

The tank cover shall be constructed of 1/2" thick PT3 polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40" apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions. A minimum of two lifting dowers shall accommodate the necessary lifting hardware.

The tank shall have a combination vent and manual fill tower. The fill tower shall be constructed of 1/2" PT3 polypropylene and shall be a minimum dimension of 8" x 8" outer perimeter. The fill tower shall be blue in color indicating that it is a water-only fill tower. **The tower shall be located ON THE OFFICER'S SIDE of the tank**. The tower shall have a 1/4" thick removable polypropylene screen and a PT3 polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid. Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with a minimum I.D. of that is designed to run through the tank, and shall be piped to discharge water behind the rear wheels as required in NFPA 1901 so as to not interfere with rear tire traction.

The fill tower shall be fitted with an integral 4" I.D. schedule 40 P.V.C. combination overflow/vent pipe running from the fill tower through the tank to the exterior to allow water to overflow below the aerial body.

There shall be one (1) sump standard per tank. The sump is a minimum of 8" wide and 8" long with a 3/4" bottom, unless specified otherwise in special provisions. The sump shall have a threaded plug located at the bottom for a tank drain. An anti-swirl plate shall be mounted inside the sump approximately 1" off the floor of the sump.

There shall be two (2) standard tank outlets; one for tank-to-pump suction line and one for a tank fill line. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank.

All tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale. Each tank shall be weighed empty and full to provide precise fluid capacity. Each Poly-Tank III is delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight.

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam(s), the maximum fill and pressure rates, the serial number of the tank, the date of manufacture, the tank manufacturer and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The tank shall be mounted within the body per NFPA and the manufacturers requirements. The tank mounting surface shall be insulated with a minimum of 3/8" nylon webbing or 1/2" rubber, 2-1/2" wide. The tank shall sit cradle-mounted using four (4) corner angles of 6 x 6 x 4 x 0.250 welded directly to the tank mounting surface. The angles shall keep the tank from shifting left to right or front to rear. The tank is designed on the free-floating suspension principle and shall not require the use of hold downs. The tank shall be completely removable without disturbing or dismantling the apparatus body structure. A tread plate enclosure on top of the tank shall secure the tank in the mounts.

UPF POLYIIE TANK, 400 GAL. - AERIAL

QTY: 1

The water tank shall have a capacity of 400 gallons, constructed from UPF PolyIIE.

Clarification; The water tank will be 400 gallons water plus 20 gallons foam.

WATER TANK

QTY: 1

Water tank capacity may be reduced due to weight restrictions.

INTEGRAL FOAM TANK, 20 GAL. TANK "A"

QTY: 1

A 20 gallon integral foam storage area shall be built into the water tank.

Clarification; The water tank will be 400 gallons water plus 20 gallons foam.

The foam tank shall have a latched fill tower, properly labeled as the foam fill point. **The tower shall be located ON THE OFFICER'S SIDE of the tank**.

A valved drain shall be provided.

WATER TANK LEVEL GAUGE

QTY: 1

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank shall be provided on the pump operator's panel. The "TANKVISION" gauge is designed for both ease of operation and installation. The "TANKVISION" gauge utilizes ultra bright multi color LEDs for

sunlight readability and also uses 2 specially designed wide-viewing lens for 180° of clear viewing. The "TANKVISION" gauge utilizes a pressure sender to measure the liquid volume. The gauge shall be equipped with a self-calibration feature that allows the LEDs TANKVISION gauge to be used on tanks of different shapes and sizes.

Features:

- Flashes warning when the volume is less than 25%. Rapid down scrolling LEDs alert the operator when the tank is almost empty. Remote audio warning available.
- One size fits all'. The self-calibration feature allows for easy calibration of any shape or size tank.
- Multiple displays are possible with a single sender through the FRC data bus.
- Rugged waterproof cast aluminum housing.
- No fitting needed for poly tank.
- Special fittings available for other tank materials.
- Connector disconnects at back of display.

FIRE RES - TANK VISION #WLA300-A00 LED WATER TANK

QTY: 1

A Fire Research, model #WLA300-A00, "TANKVISION" gauge that shows the actual volume of water in the tank shall be provided on the officers side pump panel. The "TANKVISION" gauge is designed for both ease of operation and installation. The "TANKVISION" gauge utilizes ultra bright multi color LEDs for sunlight readability and also uses 2 specially designed wide-viewing lens for 180° of clear viewing. The "TANKVISION" gauge utilizes a pressure sender to measure the liquid volume. The gauge shall be equipped with a self-calibration feature that allows the LEDs TANKVISION gauge to be used on tanks of different shapes and sizes.

Features:

- Flashes warning when the volume is less than 25%. Rapid down scrolling LEDs alert the operator when the tank is almost empty. Remote audio warning available.
- One size fits all'. The self-calibration feature allows for easy calibration of any shape or size tank.
- Multiple displays are possible with a single sender through the FRC data bus.
- Rugged waterproof cast aluminum housing.
- No fitting needed for poly tank.
- Special fittings available for other tank materials.
- Connector disconnects at back of display.

WATER TANK LEVEL GAUGE

QTY: 1

The gauge shall use a pressure transducer installed near the bottom of the water tank to determine the correct volume in the tank.

FOAM TANK "A" LEVEL GAUGE

QTY: 1

A Fire Research, model #WLA360-A00, "TANKVISION" gauge that shows the actual volume of foam in the tank shall be provided on the pump operator's panel.

The "TANKVISION" gauge is designed for both ease of operation and installation.

The "TANKVISION" gauge utilizes ultra bright multi color LEDs for sunlight readability and also uses 2 specially designed wide-viewing lens for 180 of clear viewing.

The "TANKVISION" gauge utilizes a pressure sender to measure the liquid volume.

The gauge shall be equipped self-calibration feature allows the TANKVISION gauge to be used on tanks of different shapes and sizes.

GAUGE TRANSDUCER

QTY: 1

The gauge shall use a pressure transducer installed near the bottom of the foam tank to determine the correct volume in the tank.

BODY AND COMPARTMENT HEADER

QTY: 1

GENERAL COMPARTMENT

QTY: 1

Compartment tops shall be covered with tread plate plate on both sides of the body. The tread plate shall have a flange downward, over the top of compartments to serve as a drip rail above the compartment doors.

ACCESS PANELS

Removable access panels shall be provided in the lower running board compartments to access hydraulic components, electrical harnesses, and the rear body mounts. All access panels shall be equipped with the same finish as the compartment interiors.

COMPARTMENT VENTILATION

Ventilation between compartments to atmosphere shall be provided and located in a position that avoids water entry into compartments.

COMPARTMENT DRIP MOLDING

Compartment tops overall side compartments shall be equipped with a flanged edge to provide protection against water run-off. A secondary polished extruded aluminum drip molding shall be provided between lower compartments and auxiliary high side compartments.

BODY TRIM

The body shall be protected and covered with bright finished tread plate plate. The tread plate shall be fastened with stainless steel hardware and shall be coated with rubber type undercoating between the body panel and tread plate to protect from moisture. All edges shall be sealed with silver, rubber caulking.

Tread plate shall be provided in the following areas:

- All surfaces of the compartments or on top of the body where personnel may walk or mount equipment
- Front of body
- Below aerial turntable decking
- Top of the pump enclosure (if applicable)
- Cover over the water tank (if applicable)
- Cover over hydraulic tank
- Top of mid-ship compartment (if applicable)

LOUVER FILTERS

QTY: 1

To minimize dust and dirt from drafting into the compartments through the compartment louver, each louver shall equipped with a filter material mounted on the exterior of the louver.

GEN. 3/16" ALUM BODY REAR MOUNT LADDERS, HD

QTY: 1

It is the intention of the fire department to purchase a completely modular body consisting of independent body modules or sub-assemblies bolted to an independent heavy duty support framework. The following body portions of these specifications outline the minimum standards of construction required by the fire department to meet this need. Bidders shall supply satisfactory evidence of their ability to build such a unit, including proof of the necessary tooling and fixtures required to produce parts in quantity to exacting tolerances and evidence of a comprehensive body parts stocking program.

To ensure the customer of soul source manufacturing, the body must be built by the same manufacturer of the entire chassis and aerial device. {No Exceptions}

COMPARTMENT FABRICATION 3/16" ALUMINUM

All compartment panels and body side sheets shall be entirely 3/16" aluminum 5052-H32 alloy. Each side compartment assembly shall be both plug welded and stitch welded to ensure proper weld penetration on all panels while avoiding the distortion caused by a full seam weld. The side compartments shall be welded on a fixture to ensure true door and body dimensions. All compartments shall be of a modular design with sweep-out style floors.

The bottoms of each running board compartment shall be adequately braced to provide maximum loading without undue deflection. All seams shall be caulked prior to finish paint to ensure proper compartment seal.

Due to the ladder storage area and sweep out floors, the running board compartments of this style vehicle are of a split height, split depth, full width configuration. The referenced compartment sizes approximate the extreme outside compartment dimensions without deductions for the floor material thicknesses, flanges or ladder storage compartment headers. To assure proper vehicle weight distribution, the compartment dimensions may change in width with the final body shift and wheelbase.

The body side and compartment assemblies shall be designed and assembled to provide maximum strength and durability under all operating conditions.

Special attention shall be taken to minimize corrosion on all fabricated parts and structural members of the body. All bolt-on components shall be provided with a dissimilar metals isolation barrier to prevent electric corrosion.

The body shall be completely isolated from the cab and pump module structure.

QUADRANT BODY SUPPORT SYSTEM

Due to the severe loading requirements of this aerial, a “quadrant” method of compartment body support suitable for the intended load will be provided. The structural component of the support system shall be the chassis frame rail, which is the strongest component of the chassis and is designed for supporting imposed loads.

A support system shall be used which will incorporate quadrant, under body support structures. This proven viability in vehicular applications, be of a failsafe design, and allow for all necessary movement in three (3) transitional and rotational modes. This shall result in a 500 pound equipment rating for each compartment of the body.

The compartments in front of the rear axle shall include a minimum of 3.00" steel support assemblies

which are bolted to the chassis frame rails. A steel framework shall be mounted to the body above these support assemblies connected to the support assemblies with isolators. There shall be one support assembly mounted to each chassis frame rail.

The compartmentation behind the rear axle shall include a minimum of 3.00" steel support assemblies which are bolted to the chassis frame rails and extend underneath to the outside edge of the body. The support assembly shall be coated and a barrier tape installed to isolate the dissimilar metals before it is bolted to the body. There shall be one support assembly mounted to each chassis frame rail.

The body and support structure shall be created utilizing 3D modeling and be fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue life and structural integrity of the compartment body and substructure.

The body compartments are an integral assembly with the rear fenders. Fully enclosed rear wheel housings will be provided to prevent rust pockets and for ease of maintenance.

COATED FASTENERS - (NO EXCEPTIONS)
All exterior fasteners shall be coated stainless steel screws. Screw threads shall be coated with reusable, self-locking, sealing material to provide vibration resistance. Screw heads shall be coated with a sealing element to prevent galvanic corrosion between dissimilar metals. Non-coated screws shall only be provided as part of vendor supplied component installations.

NOTE: The use of aluminum pop rivets or self tapping screws as a trim fastener shall not be acceptable.

FENDER STORAGE OPTIONS

QTY: 1

The interior of the fender storage compartments shall be finish painted with black speedy liner.
Straps will be provided in the fender storage compartments to secure the SCBA cylinders and prevent them from sliding out of the compartment.

FENDER STORAGE COMPARTMENTS TANDEM

QTY: 1

A storage area for one (1) complete SCBA shall be provided between the tandem fenders, one on each side of the body.
The compartment shall be equipped with a polished stainless steel hinged door that shall be tied into the "do not move appartus" circuit.

ONE (1) CYLINDER, OPEN,LOWER FUEL DRIVER REAR

QTY: 1

A storage compartment shall be inserted into the rear driver side body fender. The compartment shall be sized large enough to store one (1) SCBA cylinder or fire extinguisher with a maximum length of 26" in the upper portion of the compartment. The remaining available space shall be utilized for open storage in the upper portion of the compartment. The compartment shall have a non-abrasive floor. **The fuel fill shall be incorporated into the lower portion of the compartment. The compartment shall be enclosed by a 'triple storage style' door** painted to match the primary body color, with a single point latch and hinge. The back side of the door shall have a section of Nylatron installed to protect the door surface from the items stored in the compartment. This compartment shall be tied into the compartment door ajar/do not move apparatus warning system.

FENDER WITH STORAGE OPTIONS (CUSTOM)

QTY: 1

FENDER STORAGE NOTCH

QTY: 1

Rear fender storage both sides need to be notched around the pedestal.

FENDER STORAGE RUBBER MAT LINED

QTY: 1

The fender storage area(s) floors shall be lined with black matting

FENDER STORAGE COMPARTMENTS - POLISHED DOORS

QTY: 1

The fender storage area(s) shall be enclosed by a hinged door fabricated from mirror finish stainless steel.

Each door shall be tied into the compartment door ajar/do not move apparatus warning system.

Each fender storage compartment door will be equipped with 3M model #1333 rubber “D” style door seal.

There will be no exceptions.

THREE (3) CYLINDER SLOTS, DRIVER FRONT FENDER

QTY: 1

A storage compartment shall be inserted into the front driver side body fender. The compartment shall be sized large enough to store three (3) SCBA cylinders or fire extinguishers, with a maximum length of 26". The compartment shall have a non-abrasive lined floor area for the three (3) devices. The compartment shall be enclosed by a door painted to match the primary body color, with a single point latch and hinge. The back side of the door shall have a section of Nylatron installed to protect the door surface from the items stored in the compartment. This compartment shall be tied into the "Do Not Move Apparatus" warning system.

THREE (3) CYLINDER STORAGE DRIVER REAR

QTY: 1

A storage compartment shall be inserted into the rear driver side body fender. The compartment shall be sized large enough to store three (3) SCBA cylinders or fire extinguishers, with a maximum length of 26". The compartment shall have a non-abrasive floor area for the three (3) devices. The compartment shall be enclosed by a door painted to match the primary body color, with a single point latch and hinge.

This compartment shall be tied into the compartment door ajar/do not move apparatus warning system.

THREE (3) CYLINDER SLOTS, OFFICER FRONT FENDER

QTY: 1

A storage compartment shall be inserted into the front officer side body fender. The compartment shall be sized large enough to store three (3) SCBA cylinders or fire extinguishers, with a maximum length of 26". The compartment shall have a non-abrasive floor area for the three (3) devices. The compartment shall be enclosed by a door painted to match the primary body color, with a single point latch and hinge. The back side of the door shall have a section of Nylatron installed to protect the door surface from the items stored in the compartment. This compartment shall be tied into the compartment door ajar/do not move apparatus warning system.

THREE (3) CYLINDER SLOTS, OFFICER REAR FENDER

QTY: 1

A storage compartment shall be inserted into the rear officer side body fender. The compartment shall be sized large enough to store three (3) SCBA cylinders or fire extinguishers, with a maximum length of 26". The compartment shall have a non-abrasive floor area for the three (3) devices. The compartment shall be enclosed by a door painted to match the primary body color, with a single point latch and hinge. The back side of the door shall have a section of Nylatron installed to protect the door surface from the items

stored in the compartment. This compartment shall be tied into the compartment door ajar/do not move apparatus warning system.

COMPARTMENTATION, 103 TA RML STRAIGHT SHOT

QTY: 1

DRIVER SIDE COMPARTMENTATION

One full height/full depth compartment shall be provided at the front of the body. The compartment dimensions shall be 42" wide x 72" tall x 26" deep.

One high side compartment shall be provided above the tandems. The compartment dimensions shall be 72" wide x 41" tall x 26" deep.

One high side compartment shall be provided below the turntable. The compartment dimensions shall be 68" wide x 30" high x 23" deep.

One full height/full depth compartment shall be provided to the rear of the stabilizer. The compartment dimensions shall be 37" wide x 61" tall x 23" deep.

OFFICER SIDE COMPARTMENTATION

One full height/full depth compartment shall be provided at the front of the body. The compartment dimensions shall be 42" wide x 72" tall x 26" deep.

One high side compartment shall be provided above the tandems. The compartment dimensions shall be 72" wide x 41" tall x 26" deep.

One high side compartment shall be provided below the turntable. The compartment dimensions shall be 74" wide x 30" high x 14" deep.

One full height/full depth compartment shall be provided to the rear of the stabilizer. The compartment dimensions shall be 56" wide x 61" tall x 23" deep in the lower 30" tall area, and 14" deep in the upper 31" tall area.

REAR COMPARTMENT

One full height/full depth compartment shall be provided on the driver’s side of the rear body. The compartment dimensions shall be 15" wide x 55" tall x 21" deep.

LOCKER ABOVE DOWNRIGGER

QTY: 1

A locker compartment shall be provided, one (1) each side, to the rear of the cab above the front downrigger, measuring approximately 12" wide x 40" high x 26" deep with a door opening of 10" wide x 36" high. The compartment shall be equipped with an tread plate door, which shall be equipped with an Eberhard "D" ring handle.

KEYED DOOR LOCKS, HINGED OR ROLL-UP DOORS - 1250

QTY: 12

All body compartment doors (hinged and roll-up), and the locker compartments, shall be equipped with **keyed #1250** locking door latches.

Two keys shall be furnished for each lock and shall be labeled to indicate the correct match.

ELECTRIC DOOR LOCK

QTY: 1

The R4 shall be equipped with an electric lock. The lock shall be wired directly to the battery. A switch shall be provided on the officer's side rear forward facing seat riser. The remote lock switch shall automatically re-lock whenever the compartment door is closed.

A toggle switch below officers side rear forward facing base shall be installed to activate the locking doors on EMS compartment in body.

In the event of loss of power, a manual override is available. A hole shall be provided under the compartment door lock to manually unlock the door in the event of a electric lock failure.

PULL STRAPS FOR L-1,L-2,R-1,R-2 COMPARTMENTS

QTY: 4

Pull straps shall be provided for the roll-up doors on the L-1, R-1, L-2, R-2 compartments.

2" THICK COMPARTMENT DOORS - FLAT DOORS

QTY: 1

The compartment doors shall be flat type having the outer skin fabricated from 3/16" (5052 H32) aluminum. The door skin shall have a formed a mounting flange on one (1) side as a hinge. The door skin shall have reinforcing channels welded internally to accommodate the inner door pan mounting. The 2" thick compartment doors shall reduce the overall specified compartment depth by 2-1/2”. All horizontally hinged doors shall be 1" thick to provide additional compartment storage area. The 1" thick horizontal hinged doors shall reduce the overall specified compartment depth by 1-1/4".

REAR COMPARRTMENTS

QTY: 1

The rear body hinged doors will be a flat overlapping, 1" think, D-ring handle with keyed door lock, rotary, and an Eberhard gas shock. *this does not include the ladder storage area.

ROLL-UP DOORS

QTY: 1

Roll-up doors shall be provided on all compartments.

The roll-up doors shall be constructed from aluminum extruded slats which shall have a flexible seal between each slat for proper sealing of the door.

A synthetic rubber seal shall be provided at each side, top and bottom edge of the door to prevent entry of dirt into the compartment.

The door shall be equipped with a lift bar style latch mechanism which shall latch at the bottom of the door mounting extrusion.

The roll-up door assembly shall be furnished with a spring-loaded, counter balance assembly to assist in door actuation.

All running board and high side compartments shall be equipped with roll-up doors.

AMDOR ROLL-UP DOORS, PAINTED FINISH

QTY: 8

The roll-up doors shall be made of Amdor brand. The doors shall be painted to match the required color of the fire department.

PROTECTION PANELS FOR ROLL-UP DOORS

QTY: 8

A protection panels shall be provided at the top of the body exterior compartments fitted with roll-up doors.

The panels shall be installed below the roll-up area to prevent possible damage to the roll-up door by misplaced equipment.

Each protection panel shall be as offered from the door manufacturer.

COMPARTMENT FLOORS

QTY: 1

Compartment floors shall be welded to the compartment walls and have a sweep out design for easy cleaning.

14" WIDE COFFIN COMP'TS, SPLIT DEPTH 100" BODY, DR

QTY: 1

Roof hatch style compartments shall be provided the full length of the upper body, on the driver's side of the body and shall be designed as an integral extension of the lower side compartments with a painted exterior finish. Drain tubes shall be provided at each end of each side compartment which shall extend down through the lower compartments.

Each side roof compartment shall extend the length of the upper body, which shall be evenly divided into two (2) individually accessed areas, which shall be open through from the front to the rear. The compartment depth shall extend from the ceiling area of the upper side compartments to the top of the body. The interior compartment width of each side roof compartment shall be a minimum of 14" inside width with a 10" wide access door at the top.

Each roof compartment shall be equipped with an overlapping, hinged lift up tread plate door. These doors shall be constructed of 3/16" aluminum tread plate with a 15 degree break on all sides. Each door shall have two (2) gas shock style stay open devices which shall also retain the door in the closed position.

Protective panels shall be applied inside the compartments to cover any exposed wiring or recessed side body lighting, provided on the unit. These panels shall reduce the overall usable compartment area in the compartments.

14" WIDE COFFIN COMPARTMENTS, 100" AERIAL BODY, OF

QTY: 1

Roof hatch style compartments shall be provided the full length of the upper body, on the officer's side of the body and shall be designed as an integral extension of the lower side compartments with a painted exterior finish. Drain tubes shall be provided at each end of each side compartment which shall extend down through the lower compartments.

Each side roof compartment shall extend the length of the upper body, which shall be evenly divided into two (2) individually accessed areas, which shall be open through from the front to the rear. The compartment depth shall extend from the ceiling area of the upper side compartments to the top of the body. The interior compartment width of each side roof compartment shall be a minimum of 14" inside width with a 10" wide access door at the top.

Each roof compartment shall be equipped with an overlapping, hinged lift up tread plate door. These doors shall be constructed of 3/16" aluminum tread plate with a 15 degree break on all sides. Each door shall have two (2) gas shock style stay open devices which shall also retain the door in the closed position.

Protective panels shall be applied inside the compartments to cover any exposed wiring or recessed side body lighting, provided on the unit. These panels shall reduce the overall usable compartment area in the compartments.

REAR MUD FLAPS - NO LOGO

QTY: 1

Heavy duty mud flaps with NO logo shall be provided behind the rear wheels.

STAINLESS STEEL SILL PROTECTORS

QTY: 10

Stainless steel scuff plates shall be installed on the floor of each compartment near the edge of the door opening to protect the compartment floor when accessing equipment from the compartment.

TREAD PLATE OVERLAY, FRONT OF SIDE COMP'TS (WRAP A

QTY: 1

The front face of the side compartments, next to the driver and officer side pump panels shall be overlaid with tread plate full height protection.

The protection panel shall cover the entire front face of the compartment and shall wrap around the corner to the door opening.

POLISHED S.S. SCUFF PLATES, FULL HEIGHT OF REAR BO

QTY: 1

A polished stainless steel scuff plate shall be installed on the rear body corners.

The scuff plate shall extend the full height of the body corner panel.

PAINTED REAR BODY PANEL, RM

QTY: 1

The entire rear of the body shall be overlaid with smooth aluminum painted job color, which shall extend the full width between body side compartments. The rear panel shall have an opening to access the ground ladder storage area. Each opening shall be equipped with roll-up or hinged doors as specified in the ground ladder storage section.

BODY RUB RAILS, C-CHANNEL - ALUMINUM EXTRUSION

QTY: 1

Sacrificial extruded aluminum C-Channel style, rub rails shall be mounted at the base of the body, extending outward from the body. The rub rails shall extend the full length of the main body.

REAR MOUNT, TURNTABLE PULL/DROP STEPS, DS REAR (HD

QTY: 1

One (1) turntable access ladder, on the driver's side, shall be provided at the rear of the apparatus. The access ladders shall be bolted to the rear body module. A pull out drop down access ladder with a minimum of three (3) steps shall be provided and shall be fabricated from cast open grate material providing a non-slip surface on each step. The steps shall provide access or egress to and from the aerial device turntable.

A drop down step shall be provided at the bottom of the access ladder to keep stepping area to a minimum when the vehicle's outriggers are in operation. The step shall drop down into position and shall be fabricated from cast open grate material, which shall be bolted to framework fabricated from 1/2" aluminum. A safety latch shall be provided to secure the step in the stowed position. The drop down steps shall be incorporated in the “DO NOT MOVE TRUCK” warning circuit.

ALUMINUM WHEEL WELL LINERS

QTY: 1

The body wheel wells shall be provided with fully removable bolt-in aluminum fender liners. The wheel well liners shall extend from the outer wheel well body panel into the truck frame. The completely washable wheel well liners shall be designed to protect the front and rear compartments and main body supports from road salts, dirt accumulation and corrosion.

POLISHED ALUMINUM FENDERETTES, TANDEM AXLE BODIES

QTY: 1

The rear fenders shall be equipped with easily replaceable, polished extruded aluminum fenderettes.

The fenderettes shall be equipped with a rubber gasket molding between the body panel and the fenderette.

REAR-MOUNTS, BODY HANDRAILS, EXTRUDED ALUMINUM, A-

QTY: 1

All non-aerial device handrails are to be 1-1/4" diameter knurled bright anodized aluminum with chrome plated end brackets.

INNOVATIVE CONTROLS LIGHTED STEP(S), BODY FRONT, D

QTY: 1

Innovative Controls large lighted folding step(s), with a textured chrome plate finish, shall be provided on driver side body front to provide NFPA compliant access (maximum 18” height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

INNOVATIVE CONTROLS LIGHTED STEP(S), BODY FRONT, O

QTY: 1

Innovative Controls large lighted folding step(s), with a textured chrome plate finish, shall be provided on officer side body front to provide NFPA compliant access (maximum 18” height between steps) to an upper horizontal walking surface (compartment cap, dunnage area, fabricated step, or upper body compartments).

PAINTED REAR TOW EYES, BELOW BODY - REARMOUNT AERI

QTY: 1

Two (2) painted tow eyes shall be furnished on the rear of the vehicle. The tow eyes shall be made from plate steel and shall be bolted or welded directly to the aerial torque box and shall extend below the body. The tow eyes shall be smooth and free from sharp edges, and have a minimum eyelet hole of 2-1/2".

VINYL WITH VELCRO

QTY: 1

A top hose bed cover shall be provided and installed. The cover shall be made from 22 ounce; heavy-duty vinyl coated polyester fabric (TXN 226). The cover shall be sewn with ultraviolet-resistant thread and shall have 2" wide nylon webbing sewn around the perimeter to provide additional strength.
The cover shall be secured to the top front body flange with Velcro and shall be secured to the top side body flanges with Velcro.

REAR HOSE BED DOOR

QTY: 1

The rear hose bed opening shall have a vertically hinged solid aluminum door. The door shall be hinged towards the outside of the body. A stainless d-ring handle shall hold the door in the closed position.

HOSE BED, REAR MOUNT AERIALS, 75-100 LOW BODY

QTY: 1

A hose bed shall be provided in the upper section of the body forward of the turntable. All surfaces of the hose bed shall be free from all sharp objects such as bolts, nuts, etc., to avoid damage to fire hose.

ALUMINUM HOSE BED FLOORING - AERIAL

QTY: 1

Flooring to be constructed from formed or extruded aluminum and be properly spaced for ventilation. The flooring shall be smooth and free from sharp edges to avoid hose damage. The hose bed floor shall be removable to provide access to inner body framework.

VINYL WITH VELCRO

QTY: 1

A hose bed cover shall be provided and installed. The cover shall be made from heavy-duty vinyl coated polyester fabric. The cover shall be sewn with ultraviolet-resistant thread and shall have 2" wide nylon webbing sewn around the perimeter to provide additional strength.
The cover shall be secured to the top front body flange with Velcro and quarter turn fasteners and shall be secured to the top side body flanges with Velcro. A weighted flap shall be furnished on the rear of the cover with two (2) bungee cords.

BLACK

QTY: 1

he Hypalon material shall be black in color.

CENTER LADDER STORAGE, 103 TA REAR MOUNT

QTY: 1

All ground ladders (except as noted) shall be stored in the center of the aerial body. The ladders stored in the center of the body shall be fully enclosed.

ROLL-UP DOOR - PAINTED LADDER COMPARTMENT, REAR MO

QTY: 1

A painted roll-up door shall be provided for the ladders at the rear of the vehicle. If the body compartments are equipped with roll-up doors, the ladder storage door shall be the same brand. The color of the painted door shall match the color of the body or body doors.

STAINLESS STEEL LADDER LOCK SYSTEM

QTY: 1

A stainless plate with a two bend flange and a stainless steel hinge shall be provided to secure the aerial ladder complement. The plate assembly shall be mounted to the bottom of the entrance of the torque box ladder storage area. The plate shall be equipped with a spring loaded release to allow it to be hinged open.

When the plate is vertical, it shall secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the roll-up door can not close, which shall activate the "Open Door Indicator Light" within the cab. The roll-up door together with hinge friction shall secure the plate in place during driving operations.

STOKES BASKET STORAGE SLOT WITHIN LADDER STORAGE A

QTY: 1

The ladder storage area shall be designed to accommodate a stokes basket, the storage slot shall designed with a clear storage area of 25" wide x 8" high x 87" long.

The storage area shall have nylon material on the bottom surface to protect the stokes basket.

DUO-SAFETY 1200-A 35' 2-SECTION EXTENSION LADDER (

QTY: 1

A Duo-Safety series 1200-A, 35', aluminum, two (2) section extension ladder shall be provided.

DUO-SAFETY 900-A 24' 2-SECTION EXTENSION LADDER (A

QTY: 1

A Duo-Safety series 900-A, 24', aluminum, two (2) section extension ladder shall be provided.

DUO-SAFETY 875-A 16' ROOF LADDER W/ FOLDING HOOKS

QTY: 2

A Duo-Safety series 875-A, 16', aluminum, straight roof ladder with folding hooks shall be provided.

DUO-SAFETY 701 10' ATTIC EXTENSION LADDER (ALUM)

QTY: 1

A Duo-Safety series 701, 10', extending, aluminum, attic ladder shall be provided.

LITTLE GIANT LADDER MODEL 17 (9'-15')

QTY: 1

A Little Giant model 17 ladder system with mounting hardware shall be provided. This ladder has an extension height ranging from 9'-0" to 15'-0"

The little giant ladder will be stored within the rear ladder storage area, Ladder will be stored in the open or unfolded position.

STORAGE TUBE(S) AERIALS

QTY: 1

Provide a total of 11 pike pole storage tubes *This number does not include the (2) D-handle trash hooks. Each shall be an individual tube type holder, mounted in the ladder storage area (if space allows). Each holder shall be labeled to indicate the pole length.

The storage tubes in the rear of the ladder storage will be designed for the following:
(1) 12' standard pike pole Nupla brand
(1) 10' standard pike pole Nupla brand
(2) Aluminum D-handle rubbish hooks 6' fiberglass pole Nupla brand
(1) broom handle 5'
(1) squeegee handle 5' 3"
(1) 5' pry bar
(2) 4' New York roof hook with pry end steel shaft
(2) 6' New York roof hook with pry end steel shaft
(1) McLeod tool

All of the pike poles will be Fire Hooks Unlimited brand. The rubbish hooks will have the D-handle oriented parallel with the tines on the rubbish hook.

LADDER BOX APPROVAL DRAWING

QTY: 1

A ladder box approval drawing shall be provided to the customer prior to installation.

6' NUPLA DRY WALL HOOK

QTY: 1

Two (2) 6' Nupla RH-6DA fiberglass handled dry wall hook will be provided.

1/2 DEPTH ADJUSTABLE SHELF DESCRIPTION - RESCUE

QTY: 1

Compartment shelving shall be constructed of 3/16” brush finish aluminum with a 2” upward bend at front and rear, and side supports. Shelving shall be vertically adjustable with spring nuts in aluminum strut channel.
Half depth adjustable shelves shall be located as indicated at each compartment description.

1/2 DEPTH ADJUSTABLE SHELF(S) LOCATED R-4

QTY: 2

Located in the right side compartment #4

ADJUSTABLE SHELF DESCRIPTION - RESCUE

QTY: 1

Compartment shelving shall be constructed of 3/16” brush finish aluminum with a 2” upward bend at front and rear, and side supports. Shelving shall be vertically adjustable with spring nuts in aluminum strut channel.

Adjustable shelves shall be located as indicated at each compartment description.

ADJUSTABLE SHELF(S) LOCATED L-1

QTY: 1

Located in the left side compartment #1

ADJUSTABLE SHELF(S) LOCATED L-4

QTY: 2

Located in the left side compartment #4

ADJUSTABLE SHELF(S) LOCATED R-1

QTY: 1

Located in the right side compartment #1

600#, FLOOR MOUNTED, ROLLOUT TRAY DESC. 100%

QTY: 1

Floor mounted roll-out trays shall consist of heavy duty, roller bearing slide tracks with a load rating of 600 pounds, securely fastened to the compartment floor. The slide shall have a pull type latch to secure the slide in the desired position. The slide tracks shall have a 100% extension.

The tray shall be fabricated from 3/16" brushed aluminum with a minimum 2" high flange on each of the four sides to assist in retaining the equipment stored on each tray.

The 600 pound floor mounted roll out trays shall be as indicated at each compartment description.

600# SLIDEMASTER ROLLOUT TRAY, LOCATED L-1 - 100%

QTY: 1

Located in the left side compartment #1

600# SLIDEMASTER ROLLOUT TRAY, LOCATED L-4 - 100%

QTY: 1

Located in the left side compartment #4

600# SLIDEMASTER ROLLOUT TRAY, LOCATED R-1 - 100%

QTY: 1

Located in the right side compartment #1

600# SLIDEMASTER ROLLOUT TRAY, LOCATED R-4 - 100%

QTY: 1

Located in the right side compartment #4

POLY MATERIAL ON ALL COMPARTMENT FLOORS

QTY: 1

COMPARTMENT FLOOR COVERING
Polyethylene 3/8" flooring material shall be installed on all compartment floors including the officer side step well compartment. The Polyethylene flooring material shall be custom installed to provide full floor coverage. Rubber bumpers will be provided on the bottom of the poly material to space the material off the compartment floor.

COMPARTMENT TRAY / SHELVING COVERING
Polyethylene 3/8" flooring material shall be installed on all compartment trays and shelves. The Polyethylene flooring material shall be custom installed to provide full coverage. Rubber bumpers will be provided on the bottom of the poly material to space the material off the compartment floor.

COMPARTMENT FLOOR / TRAY / SHELVING COVERING COLOR
The polyethylene 3/8" material shall be provided black in color.

NOTE: Allow spacing for material expansion and removal. The material needs to be easily removable.

ROLL-OUT/ DROP DOWN ADJUSTABLE TRAY

QTY: 1

The roll out/tilt tray shall consist of a 3/16” brushed aluminum finished aluminum tray with a minimum 2” lip on all four sides. Heavy duty aluminum Unistrut "C" channel tracking material shall be utilized to securely fasten the slide tracks to the compartment walls, while allowing height adjustment.

The rear of the tip down tray shall be mounted on a slider with an integral pivot plate. This slider and pivot plate shall be mounted inside an aluminum rail for maximum strength. The tray shall be released from the stowed position with the use of a push button and shall be capable of auto latching to the stowed position. The front handle/latch shall be designed with a double hand hold to control the tray when deployed or stowed.

Roll out/Tilt trays be as indicated at each compartment description.

ROLLOUT DROP DOWN TRAY, LOCATED L-1

QTY: 1

Located in the left side compartment #1

ROLLOUT DROP DOWN TRAY, LOCATED L-2

QTY: 1

Located in the left side compartment #2

ROLLOUT DROP DOWN TRAY, LOCATED R-1

QTY: 1

Located in the right side compartment #1

ROLLOUT DROP DOWN TRAY, LOCATED R-2

QTY: 1

Located in the right side compartment #2

VERTICAL PULL OUT TOOL BOARD, 3/16" ALUM W/PAC

QTY: 1

Vertical pull out tool boards shall be provided. Each tool board shall be constructed of 3/16" smooth aluminum **WITH SINGLE SIDED PAC TRAC ON ONE SIDE.** Each tool board shall be attached to #250 rated slides, one at the top and one at the bottom of the tool board. 3/16" aluminum angles shall attach the slides to tracking to allow horizontal adjustments. A gas shock shall be used to secure the tool board in the stored and deployed position.
Vertical pull out tool boards shall be as indicated at each compartment description.

VERTICAL PULL OUT TOOL BOARD(S) LOCATED L-0

QTY: 1

Located in the left side compartment #0

VERTICAL PULL OUT TOOL BOARD(S) LOCATED R-0

QTY: 1

Located in the right side compartment #0

SINGLE SIDED PAC TRAC -7000

QTY: 1

Aluminum Pac Trac #7000 channel material for tool and equipment mounting shall be provided in the L-3 compartment. **The Pac Trac shall be provided on the floor, rear wall, and both side walls.** All installation hardware shall be stainless steel.

ALUMINUM MOUNTING PANEL IN RB COMPARTMENT

QTY: 1

A 3/16" aluminum mounting panel shall be provided on the right side of the RB compartment, spaced 3/8" away from the ompartment wall.

138" SS 103' & TUFF TRUCK RML

QTY: 1

140" PRED 103' RML

QTY: 1

103' H.D. 4-SECTION AERIAL LADDER, TANDEM AXLE

QTY: 1

INTENT & DESIGN STANDARDS

QTY: 1

The aerial ladder assembly shall be a four (4) section telescoping ladder constructed from high strength steel alloy, pre-piped waterway, steel turntable, torque box and outriggers.

The intent of these specifications is to describe a telescoping elevating ladder. It shall consist of the true steel truss ladder type.

The aerial ladder consists of four (4) steel ladder sections, a steel turntable, torque box and four outriggers.

The height of the unit is 103' and the horizontal reach is 94'.

The device will meet all the requirements of the National Fire Protection Association's (NFPA) 1900 standard, in effect at time of purchase. This is a fire service proven piece of apparatus that shall be manufactured in the U.S.A.

It is not the intent of the {Company} to deviate from this requirement; therefore, ladders attached to booms, whether solid or lattice, or articulating arms shall not be considered as meeting these specifications or the intent of these specifications.

The design criteria of the unit shall be to create a structure and system that emphasizes safety, product reliability, and ease of operation.

These criteria are:

The hydraulic system shall be designed so that if a failure of any component or assembly within the system occurs, a single point failure of the entire system shall not occur.

The minimum ultimate design condition at the ladder base shall be 6.8 million inch pounds.

All structure load supporting elements of the aerial ladder that are made of a ductile material, shall have a design stress of not more than 50 % of the minimum yield strength of the material based on the combination of the live load and the dead load.

This 2.5:1 structural safety factor meets the current National Fire Protection Association (NFPA) 1900 standard. Design verification shall be accomplished with comprehensive Finite Element Analysis (FEA) and verified with extensive strain gage testing. An independent engineering firm employing a Registered Professional Engineer shall verify the aerial safety factor.

The aerial device shall be capable of sustaining a static load one and one-half times it's rated tip load capacity (live load), in every position in which the aerial device can be placed when the vehicle is on a firm and level surface.

The aerial device shall be capable of sustaining a static load one and one-third times it's rated tip load capacity (live load) in every position in which the aerial devices can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

All welds in the aerial device shall be designed per the static and fatigue criteria of the American Welding Society No. D1.1. All aluminum welds shall be designed per the static and fatigue criteria of the American Welding Society Standard No. D1.2.

To optimize strength versus weight, high strength steel shall be utilized for the construction of the aerial device

The aerial device shall be capable of operating with a rated tip load in the following conditions:

- Conditions of high wind up to 50 mph.
- Conditions of icing, up to a coating of .25" over the entire aerial structure.

All of the design criteria will be supported by the following information:

- Strain gauge testing of the complete aerial device.
- Analysis of deflection data taken while the aerial device was under test load.
- Accelerometer test to determine dynamic response during ladder operation.
- Accelerometer test to determine dynamic response during road travel.

- Hydraulic component operating and burst strength testing.

MOUNTING OF AERIAL

QTY: 1

The elevating aerial ladder turntable shall be rear mounted thus providing the following vehicle benefits:

- Improved mobility vs. Mid ship mounted units.
- Greater position ability of the turntable for optimum reach at fire ground operations.
- Increased compartmentation, hose load, water capacity in body, resulting from ladder being raised to clear the cab.
- Shorter vehicle wheelbase.
- Shorter overall length of vehicle.

HEIGHT AND REACH

QTY: 1

The height of the unit shall be a minimum of 103' as measured by NFPA-1901 requirements, Section 19.2.2, which states, "The rated vertical height of an aerial ladder shall be at least 50 ft and shall be measured in a vertical plane with the ladder at maximum elevation and extension from the outermost rung of the outermost fly section to the ground."

The horizontal reach of the unit shall be a minimum of 94' as measured by NFPA-1901 requirements, Section 19.2.3, which states, "The rated horizontal reach of an aerial ladder shall be measured in a horizontal plane from the centerline of the turntable rotation to the outermost rung on the outermost fly section with the aerial ladder extended to its maximum horizontal reach."

MATERIAL STANDARDS, ALL DEVICES

QTY: 1

The following standards for materials are to be used in the design of the aerial device. Materials are to be certified by the mill that manufactured the material. Materials that are certified or recertified by vendors other than the mill shall not be accepted. Material testing that is performed after the mill test shall be only for verification and not with the intent of "paper changing" the material classification.

HYDRAULIC SYSTEM

QTY: 1

The hydraulic system shall provide power to the entire aerial device as efficiently as possible without the use of a hydraulic cooler. There will be no exceptions. A hydraulic system relief valve as well as individual circuit relief valves shall be provided to prevent damage to any function or circuit.

The relief valve shall have a stainless steel relief spring to ensure proper function and product reliability.

PARKER HOSE KIT

QTY: 1

All hydraulic steel tubing, hydraulic rubber covered wire braided hoses, and hydraulic fittings/adapters shall have a minimum burst pressure rating of four times the operating pressure. Hoses and tubing shall be properly sized to minimize heat buildup during extended periods of operation. Hoses and tubing shall be properly sized to minimize flow restrictions.

All hydraulic hose shall have a tube and cover constructed of synthetic rubber and shall have a braided/spiral wire reinforcement capable of maintaining a 4:1 safety factor in all areas of the hydraulic system. The hose shall meet the appropriate SAE performance specifications: 100R2, 100R19, J517, J1942, ISO 3862-1, USCG HF, DNV,ABS or 100R12.

The connector system was jointly designed by engineers from both the manufacturer and Parker Hannifin and incorporate the following design upgrades and advantages:

- All hydraulic ports (manifolds, pumps, tank, etc) to elastomeric sealing technology.
- No pipe threads in the hydraulic system.
- Sealing to be done by O-rings with the mechanical holding power of straight threads.
- All tube and hose connections to Parker Seal-Lok, O-ring face seal technology.
- Sealing to be done by o-ring with the mechanical holding power of straight thread.
- Fittings rated up to 6000 psi.
- Drop-in design of Seal-Lok connectors to allow easier maintenance and assembly.
- Fitting resist 200% over torque, with optimum vibration resistance.
- Shaped fittings machined from forged bodies for compact design and strength.
- Fittings meet/exceed the performance and dimensional requirements of SAE J1453 and J1926.
- Minimized unnecessary fittings and adapters, streamlining the system.
- Increased connector accessibility, making assembly and maintenance easier.
- Standardized the connector system on the aerial unit.
- Incorporated pressure diagnostic system with Parker PD diagnostic test points into the connector design.
- All fluid connector assemblers have been trained and certified in Dry Technology.

HYDRAULIC PUMP

QTY: 1

A load sense pressure compensated hydraulic axial piston pump shall be provided which shall be capable of operating under any rated aerial load condition and aerial device position at normal engine idle or governor controlled fast idle. The hydraulic pump shall be capable of generating sufficient flows to allow multiple aerial functions without significant loss of speed.

HYDRAULIC RESERVOIR

QTY: 1

A 40 gallon hydraulic oil reservoir shall be provided to supply the needs of the hydraulic system. A 2" gated suction line shall be provided between the oil reservoir and the hydraulic pump. The tank fill shall be provided with a strainer screen and vent cap. Located near the fill cap shall be a dip-stick for checking fluid levels. The tank shall be mounted within the aerial travel support. The tank shall be constructed from aluminum, which shall be welded at all interior and exterior seams.Before adding fluid the tank must be cleaned and free from all contaminants. Suction and return ports will be designed to SAE Straight Thread O-ring Specifications. These ports will incorporate an o-ring seal rather than pipe threads.

HYDRAULIC OIL

QTY: 1

The hydraulic oil reservoir shall be filled with A/W 46 grade Hydraulic Oil.

This oil provides superior anti wear properties, and is specially formulated with improved thermally stable additives.

These oils offer outstanding resistance to sludge formation, are chemically stable and exhibit excellent anti wear protection.

MAGNETIC DISC IN BOTTOM OF HYDRAULIC RESERVOIR

QTY: 1

A six (6) disc type magnetic drains shall also be provided to collect any ferrous contaminants.

DIVERTER VALVE

QTY: 1

There shall be an automatic electric over hydraulic three (3) position diverter valve located at the center rear of the apparatus. This diverter valve shall divert hydraulic fluid to either the aerial ladder controls or the outrigger controls.

To prevent accidental operation of the ladder prior to the outriggers being properly set, the diverter valve shall only allow hydraulic fluid to the outriggers until the outriggers are set properly. To prevent accidental operation of the outrigger system during the aerial ladder operation the diverter valve shall only allow hydraulic fluid to the ladder controls, when the aerial device is raised from the aerial travel support. In the event of electrical failure the operator shall be able to manually move the diverter valve to the ladder or outrigger position for continuous uninterrupted operation.

NOTE: All safety controls are displaced when vehicle is in manual mode of operation.

OUTRIGGER HYDRAULIC CONTROL VALVE

QTY: 1

The outrigger system shall be controlled by a three position directional control valve that is designed for parallel hydraulic circuit operations.

His valve shall be modular in design so that individual sections can be replaced in the field, rather than complete valve assemblies, thus reducing maintenance costs.

The valve housings shall be made of high tensile cast iron for durability and the individual spools shall be hard, chrome plated for long life and resistance to corrosion.

Each valve shall be equipped with a heavy-duty electric solenoid for electric control of the outrigger from the remote operator's station and manual push button for override operations.

TURNTABLE HYDRAULIC CONTROL VALVE

QTY: 1

Three (3) ladder directional controllers shall be mounted on the turntable control console. They shall control extend/retract, rotation, and elevation. These controllers are part of the computer operated IQAN motion control system allowing safe operation of the ladder.

The main control valve shall be positioned at the turntable control console for direct manual override control of each aerial function.

The controllers shall incorporate ICB; J-1939 can bus signaling, transmitted through two (2) J-1939 communication wires to reduce the chance of electrical failures since fewer wires and terminals shall be utilized. Additionally, voltage sensitivity is eliminated thus providing superior motion control. Adjustments and troubleshooting shall be accessible from the display at the turntable control station.

HYDRAULIC SYSTEM FILTRATION

QTY: 1

The pressure filter shall be made of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The pressure filter shall have a bypass circuit protected by a check valve, which shall be installed around the pressure filter.

The pressure line filter shall be required even if a suction line filter is provided in the reservoir due to the suction line filter's inability to trap contaminates entering the system. The pressure filter cartridge shall have a sensor, which shall indicate the condition of the filter and provide an output for a warning light or message if the pressure filter is blocked or in the bypass mode. The pressure filter shall have an absolute rating of five (5) microns.

The return filter shall be made of a micro glass medium, which has the highest capture efficiency, dirt holding capacity and life expectancy over other media such as cellulose and synthetic. The return filter shall have a bypass circuit protected by a check valve, which shall be installed around the return filter.

The return filter shall have a bypass circuit protected by a check valve, which shall be installed around the return filter. The return filter cartridge shall have a sensor, which shall indicate the condition of the filter and provide an output for a warning light or message if the return filter is blocked or in the bypass mode. The return filter shall have an absolute rating of five (5) microns.

EMERGENCY HYDRAULIC PUMP

QTY: 1

In the event of failure of the main hydraulic pump or vehicle engine, the unit shall be equipped with an emergency hydraulic pump which shall be plumbed into the hydraulic system and be electrically driven from the chassis batteries. The emergency pump system shall be capable of limited functions of the ladder and outriggers to stow the unit. The pump shall be controlled from both the outrigger control box and turntable control stations with spring loaded momentary contact switches.

The pump shall have a separate hydraulic oil supply line, from the main supply line attached directly to the hydraulic oil reservoir. A shutoff valve for each line shall be provided and check valve shall be incorporated on the pressure side of the pump to ensure that one shall continue to operate the ladder in the event the other fails.

The pump shall have high tensile steel shafts and gears with the shafts supported by needle bearings. The cylinder plate and gears shall be ground as a set to ensure exacting tolerances. Clearance shall be maintained by a Mylar shim.

HOT SHIFT PTO W/CONTROLS IN CAB

QTY: 1

The apparatus shall be equipped with a power shift PTO driven by the chassis transmission. An indicator light shall be located in the cab next to the PTO switch to show when the PTO is engaged. The PTO shall only engage with the parking brake applied and the transmission in neutral. If the unit is equipped with a pump, the PTO shall be active if the transmission is in "Drive", only if the fire pump is engaged. The PTO shall be a heavy duty pressure lubricated and cooled unit for extended operations.

A master 12 volt "Ladder Power" switch shall be provided adjacent to the PTO switch for control of all ladder 12 volt power, with the exception of the emergency pump circuits.

An aerial hour meter shall be installed in the cab adjacent to the ladder power and PTO control switches. The hour meter shall be wired to the aerial PTO circuit to record hours of operation for the aerial. The hour meter shall aid in scheduling preventative maintenance as outlined in the operator's manual.

FAST IDLE CONTROL

QTY: 1

The fast idle actuator shall be used to raise the engine RPM to a preset level for proper aerial operation.

The fast idle switches shall be located at the main outrigger control station and the aerial control station/s.

For the safety of personnel and equipment, the fast idle system shall not activate unless the transmission is in neutral. There will be no exceptions.

MOTION CONTROL SYSTEM

QTY: 1

The ladder, outrigger system and interlock systems shall be controlled with the computer operated and monitored hydraulic motion control system. The motion control system shall provide state of the art controls for the ladder, outriggers, auto-level and interlock systems as required. The motion control system must be an electro-hydraulic management system that monitors operator inputs from the control station(s) and converts this data to a usable electronic signal that controls hydraulic valve functions.

The turntable control station shall be equipped with a Master Display Module. The Master Display shall be a completely weather proof and shock resistant microprocessor which includes an LCD screen. The display shall contain programmed parameters for each aerial device function, which provide for proper machine operation and reduce the possibility of abusive operation. The CAN-bus modules shall be attached to each other using just two communication wires.

Each component of the IQAN motion control system shall be proven, off the shelf modules and parts, which are available throughout the world. Proprietary hardware designs are not acceptable at KME due to the lack of parts availability and support.

The display will have built-in troubleshooting and shall allow troubleshooting and function history monitoring for the entire motion control system. The memory function will allow a service technician to identify if these warnings were ignored or overridden.

The IQAN motion control system shall receive rotation information from an absolute encoder located on the rotation swivel. The encoder shall provide absolute position of the turntable at any given position from 0 degrees to 360 degrees of rotation.

An information center shall be provided at the turntable. The display shall allow the system to be diagnosed and calibrated without the need for separate controllers or computers.

The turntable display shall indicate the following information from on-demand screen:

HYDRAULIC PUMP PRESSURE - DISPLAY

QTY: 1

Hydraulic pump pressure.

ELEVATION ANGLE OF LADDER - DISPLAY

QTY: 1

Elevation angle of the ladder.

VERTICAL HEIGHT OF LADDER - DISPLAY

QTY: 1

Continuous ladder extension in feet.

DEGREE OF ROTATION FROM VEHICLE CENTERLINE - DISPL

QTY: 1

Degree of rotation from centerline of vehicle.

E-ZONE CAB & BODY AVOIDANCE WARNING - DISPLAY

QTY: 1

E-Zone™ cab and body avoidance warning.

E-ZONE SHORT JACK WARNING - DISPLAY

QTY: 1

E-Zone™ short jack warning.

CRADLE ALIGNMENT MESSAGE - DISPLAY

QTY: 1

Cradle alignment message.

WARNING MESSAGES - TURNTABLE ONLY

QTY: 1

The screen will also display warning/message screens to alert the operator to a potentially unsafe condition of the aerial device.

OUTRIGGER CONTROLS

QTY: 1

Two (2) illuminated electronic outrigger control stations shall be provided on the rear of the apparatus, one on each side of the body.

The controls shall be located such that the operator can see the outrigger he is operating.

The controls shall designed with vibrant LED switches with integral indicator light within the control switches.

The control stations will include the following:

Two (2) outrigger fully extended indicator lights integral to control switch
Two (2) outrigger set indicator lights integral to control switch
Two (2) downrigger set indicator lights integral to control switch
Four (4) outrigger control switches
One (1) Fast idle control
One (1) Ladder Operation indicator light

Out and down outrigger control functions for each outrigger shall be operated independently, so that vehicle may be set up in restricted areas or on uneven terrain.

The diverter valve override control shall be mounted at the center rear hydraulic area behind the hinged outrigger control panel.

The diverter valve override control shall be mounted at the center rear hydraulic area behind the hinged outrigger control panel along with the override and EPU actuator switch.

A hinged panel shall be provided at the rear center of the body and shall allow the operator to access the diverter valve manual override control, outrigger manual override controls, the electrical system back-up switch, override switch and EPU controls and hydraulic filter indicator lights.

IQAN - INCLINOMETER

QTY: 1

An inclinometer shall be provided on the base section of the aerial device to measure the relative angle of the ladder.

IQAN - MOMENT LOAD INDICATOR

QTY: 1

A pressure switch shall be installed on the lift cylinder to indicate the amount of lifting force being imparted onto the aerial device.

IQAN - "E-ZONE" ROTATION SAFETY SYSTEM, 2-OUTRIGGE

QTY: 1

The E-Zone™ Rotation Safety System has been designed to aid the aerial device operator who has primary operational responsibility in preventing the rotation of the aerial device into an over turning mode.

Controlled by the IQAN system, the E-Zone™ Rotation Safety System senses outrigger extension and outrigger jack positioning in conjunction with the aerial device movement.

If the aerial device operator attempts to move the aerial device off vehicle center, and the outriggers are not fully extended on the direction of the rotation side, and all jacks in firm ground contact, the E-Zone™ Rotation Safety System shall sense this fault and shall audibly and visually warn the operator to return the aerial device to the center line position.

If the operator continues rotation into the short-jacked zone, the aerial device rotation shall stop.

When rotation is stopped, the E-Zone™ Rotation Safety System shall allow the operator to only rotate back to the fully jacked side of the vehicle.

IQAN - "E-ZONE" CAB & BODY PROXIMITY SYSTEM - LAD

QTY: 1

Controlled by the IQAN system, a cab proximity system shall be provided utilizing E-Zone™ technology on the rotation and elevation systems to alert the aerial device operator when rotating left or right at low angles and or lowering the ladder, toward the vehicle cab.

The E-Zone™ system shall also automatically stop rotation or lowering functions when the device is in the defined zone regardless of the ladder rotation degree or elevation degree. When the E-Zone™ system stops rotation towards the cab, the operator shall only be capable of rotating in the opposite direction or elevate the ladder above the defined zone.

If the E-Zone™ system stops the lowering function when the ladder is in the defined zone over the cab, the operator shall only be capable of raising or rotating the ladder away from the cab. The E-Zone™ system shall sound an audible alarm and display a warning message in the display located at the control stations. The audible and visual warning message shall stay activated until the operator moves the device from the defined zone.

Controlled by the IQAN system, a body proximity system shall be provided utilizing E-Zone™ technology on the rotation and elevation systems to alert the aerial device operator when rotating left or right at low angles and or lowering the ladder, toward the body.

The E-Zone™ system shall also automatically stop rotation or lowering functions when the device is in the defined zone regardless of the ladder rotation degree or elevation degree. When the E-Zone™ system stops rotation towards the body, the operator shall only be capable of rotating in the opposite direction or elevate the ladder above the defined zone.

If the E-Zone™ system stops the lowering function when the ladder is in the defined zone over the body, the operator shall only be capable of raising or rotating the ladder away from the body. The E-Zone™ system shall sound an audible alarm and display a warning message in the display located at the control stations. The audible and visual warning message shall stay activated until the operator moves the device from the defined zone.

IQAN - EXTENSION SYSTEM STRING POTENTIOMETER

QTY: 1

An extension string potentiometer shall be provided on the aerial device to measure the relative extension of the aerial device.

TORQUE BOX

QTY: 1

The torque box shall connect the turntable to the outriggers and shall provide the rigidity needed for the aerial to be operated in any position.

The torque box is 44" inside width, 27" inside height with the back open for ground ladder storage.

The torque box shall be constructed a steel plates which shall be welded together.

The torque box assembly shall be equipped with two (2) integral "H" type, out and down outriggers, which shall be under slung below the chassis frame rail.

There shall be a welded structural steel pedestal plate to support the turntable, secure the outriggers and torque box as one integral unit.

The torque box structure shall transfer all aerial loads into the outriggers, thus preventing damage to the chassis frame and body.

The torque box shall be bolted to the chassis frame rails with twenty six (26) 3/4" SAE Grade 8 bolts and nuts. The mounting hardware is to be black milled or non-coated washer-head type bolts and nuts.

IQAN - OUTRIGGER STRING POTENTIOMETER

QTY: 1

An extension string potentiometer shall be provided on each outrigger to measure the relative extension of the outrigger

The potentiometer shall sense and provide a signal for full outrigger extension.

AERIAL TRAVEL SUPPORT

QTY: 1

A heavy duty rest shall be provided to support the aerial in the travel position.

Stainless steel bedding plates shall be attached to the aerial base section to protect the aerial when the unit is in the travel position.

OUTRIGGERS NOT STOWED INDICATOR ON DASH

QTY: 1

"Outrigger(s) Extended" indicator light

1/2 WIDTH S. S. OUTRIGGER COVER PANELS, FOUR RIGGE

QTY: 1

Each outrigger opening shall be covered by a panel mounted to the outrigger beam. The panels shall be fabricated from 14 gauge #8 finished stainless steel material. Each panel shall be adjustable up and down to help match the panel to the body lines.
The outrigger covers shall be fabricated only as wide as the outrigger beam, to allow positioning of the outriggers between parked cars or in tight areas.

OUTRIGGERS

QTY: 1

The chassis shall be equipped with front downrigger's for improved stability.

OUTRIGGERS

QTY: 1

Two (2) double box beam "H" type out and down outriggers shall be located behind the rear wheels to provide vehicle stability during aerial tower operation.

The rear outrigger shall be equipped with an 18' jack spread.

Each outrigger assembly shall have 2 Nylatron slide pads with a total area of 24 sq. in. to provide smooth operation and to extend the life of the outrigger.

The horizontal outrigger beam shall be fabricated from steel tube and 1" steel top and bottom plates.

Two (2) additional downriggers shall be provided to the rear of the cab to minimize the loads on the front axle and front suspension when the aerial device is in operation over the front of the vehicle.

The front downriggers shall also serve as a fore to aft leveling device when the apparatus is set-up on an incline.

The vertical jack cylinder rods shall be fully enclosed by a telescopic inner steel jack box that shall do the following:

- Protect the cylinder rods against damage which may occur while on the fire ground.
- Add lateral stability to the outrigger structure.

OUTRIGGER ORALITE - V98, RED/LIME

QTY: 1

Red/Lime Oralite V98 material in a Chevron pattern shall be furnished on both sides of the horizontal and vertical beams of the rear outriggers. This material/colors should match the rear of body chevron.

OUTRIGGERS HORIZONTAL CYLINDERS

QTY: 1

The extension of the rear horizontal outrigger beam shall be accomplished by a hydraulic cylinder which shall have a 3" bore and 2" rod and 62" stroke.

This cylinder shall have cushion porting to reduce shocks in stopping the cylinder at full extension and retraction.

OUTRIGGERS VERTICAL CYLINDERS

QTY: 1

Each downrigger cylinder shall have a 5" bore with a 3-3/4" rod and a 24" stroke.

The cylinders shall be equipped with integral (on the cylinder) holding valves, which shall hold the cylinder in either the stowed position or the deployed position should a hydraulic line be severed at any point within the hydraulic system.

Each cylinder shall also have a thermal relief system that shall prevent the cylinder fluid pressure from rising due to fluid temperature increase.

OUTRIGGERS VERTICAL CYLINDERS

QTY: 1

Each jack cylinder shall have a 5" bore with a 3-3/4" rod and a 24" stroke.

The jack cylinders shall be equipped with integral (on the cylinder) holding valves, which shall hold the jack cylinder in either the stowed position or the deployed position should a hydraulic line be severed at any point within the hydraulic system.

Each jack cylinder shall also have a thermal relief system that shall prevent the cylinder fluid pressure from rising due to fluid temperature increase.

OUTRIGGER/JACK FOOT PADS

QTY: 1

A permanently attached self-centering steel foot pad, 1/2" x 20.5" x 22.5" shall be provided on each vertical jack beam.

Each foot pad shall swivel longitudinal and require no adjustment during outrigger set-up.

The outrigger pad shall be attached without the use of a bearing type swivel due to maintenance required on this design.

OUTRIGGER INTERLOCK SYSTEM & ALARM

QTY: 1

An interlock system shall be provided between the outriggers and ladder that prevents the operation of the ladder until the operator places all jacks in the load supporting configuration. Each outrigger shall be equipped with a pressure sensitive switch that closes only when the jack is firmly in contact with the ground. Until all jack switches close, electrical power shall not be transmitted to the turntable (hence preventing ladder operation).

A momentary override switch shall be provided at the central outrigger control station for emergency override of the interlock system. A green indicator light shall be provided on the outrigger control panel to indicate the position of the foot pad. Illumination of the indicator light indicates firm ground contact.

An outrigger deployment warning device shall be provided to warn personnel in the vicinity of the apparatus that the outriggers are in motion. Whenever an outrigger control is utilized, the device shall produce a pulsing tone, separate and distinctive from that of other audible warning systems provided on the apparatus. When the outrigger control is released to its neutral position, the signal shall cease.

OUTRIGGER LEVEL SIDE TO SIDE

QTY: 1

One (1) bubble type side to side leveling device shall be provided at the rear of the apparatus to assist in the aerial device setup.

This device shall be mounted in the center of the rear body panel and shall be at eye level to the operator.

The leveling device shall be color coded indicating the following conditions:

- Green Safe operating zone.
- Yellow Caution operating zone.

OUTRIGGER LEVEL FORE & AFT

QTY: 1

In addition to the side to side level, a bubble type leveling device shall be provided at the rear of the apparatus to assist in fore and aft leveling of the device.

This device shall be mounted on the side of the turntable access ladder at the rear of the body and shall be at eye level to the operator.

OUTRIGGER LEVEL FORE & AFT

QTY: 1

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This device shall be mounted on the side of the turntable access ladder at the rear of the body and shall be at eye level to the operator.

AKRON LED OUTRIGGER LAMPS, 2-OUTRIGGERS

QTY: 1

One (1) Akron model #9186-2366-10 double faced, 4" diameter, red flashing LED light mounted on the inside surface of each outrigger.

LED OUTRIGGER GROUND LIGHTS - GROTE WHITELIGHT, 2-

QTY: 1

One (1) adjustable, Grote 63611 WhiteLight, LED ground flood light mounted under the body, to illuminate each outrigger foot pad area.

Both the flashing lights and the foot pad illumination lights shall be energized by the ladder power circuit.

TURNTABLE

QTY: 1

The turntable shall be a fabricated steel weldment designed for the rotation and elevation of the ladder sections.

It shall consist of the following:

A 44.25" x 48.00" x 1" machined steel bearing plate and matching top plate that shall be machined to insure proper fit to the rotation bearing. There will be no exceptions.

TURNTABLE DECK

QTY: 1

The turntable deck shall cover the entire turntable frame, providing a safe walking surface around the ladder.

It shall have a 1.5" downward flange on all sides.

The deck shall be constructed from tread plate to provide an anti-slip walking surface.

HEEL PIN STEP

QTY: 1

A two (2) step tread plate access step shall be mounted near the heel of the ladder to provide easy access to the ladder from the turntable deck. The step shall cover the rotation motor and brake assembly and shall easily removable for access to the drive assembly.

TURNTABLE HANDRAILS

QTY: 1

Turntable safety handrails shall be mounted at the rear and sides of the turntable.

The handrails shall be formed or welded 1.25" steel pipe. The assembly shall be coated with black Line-X material.

All rails shall be a minimum of 42" high.

HEEL PINS

QTY: 1

The turntable and ladder shall be designed with dual heel pins at the turntable/ladder pivot point.

The pins shall be solid steel extending the full width of the turntable vertical supports.

The heel pins shall be a minimum of 3" in diameter and is to be equipped with large pin journals in the ladder and turntable supports, which will reduce wear and distribute loads.

Due to the high load and wear on the ladder pivot points, the pin journals in the ladder base rail shall be designed to provide bearing surfaces utilizing ToughMet® 3 AT110 Temper Plate high strength alloy bearing material.

The journals shall have minimum yield strength of 110,000 psi.

Grease fittings shall be provided in bearing at the rear of the ladder section.

CRADLE ALIGNMENT ARROWS

QTY: 1

An alignment arrows and wond shall be provided on the turntable surface in view of the operator when standing at the turntable control station.

The indicator shall assist the operator in indicating the alignment of the aerial ladder with the ladder travel cradle.

The indicators shall be overlaid with ScotchLite material.

SAFETY CHAINS BETWEEN TURNTABLE HANDRAIL

QTY: 1

Each turntable handrail opening shall be equipped with safety chains at the rear of the turntable.

TURNTABLE SWIVEL

QTY: 1

Hydraulic power to the turntable hydraulic circuits shall be provided through a multi-port, high pressure, hydraulic swivel that permits 360 degrees of continuous turntable rotation.

Electrical power to the turntable electric circuits shall be provided by a collector ring assembly.

The collector rings shall be used for electrical ground, ladder control functions, and a 120 volt A.C. system during 360 degrees of continuous turntable rotation.

The collector ring assembly shall have a minimum of 32 circuits.

Water shall be transferred to the aerial waterway by means of a four (4) inch water swivel enabling 360 degree continuous rotation of the turntable (if applicable).

IQAN - SWIVEL ROTATION ENCODER

QTY: 1

The swivel shall be designed with an integral absolute encoder to provide a continuous output indicating the position of the turntable at any given time.

The encoder shall be designed to indicate position of the turntable even if power interruption occurs.

The number of degrees of rotation shall be shown in a digital readout on the MD4 display.

LADDER CONSTRUCTION

QTY: 1

The elevating ladder shall consist of four (4) steel ladder sections referred to as the base section, lower mid section, upper mid section and fly section.

Each section will be fabricated from 100,000 psi yield ultra high strength steel.

- The design and construction criteria for these ladder sections shall be:
- Each section shall be fabricated using high strength steel, welded together to form a structural unit.
- All welding shall be done by welders that have been certified in accordance with the American Welding Society Standard specifications #D1.1.
- Each ladder section shall be constructed in an assembly fixture to ensure uniformity and interchangeability.
- K-bracing at each rung shall be utilized to minimize side deflection of the ladder.
- All rungs shall be 1-1/8" in diameter, spaced at 14" centers. Rungs will be round. {No Exceptions}

- All rungs, K-braces, and diagonals shall be positioned so that they are continuously welded to the ladder section.
- All side rails shall be protected from interior corrosion by coating the interior of the rail with a corrosion preventative film.
- Ladder handrails and diagonal material are to be constructed from square or rectangular tubing, which provide a larger welding surface area where the materials are attached to each other.

LADDER DIMENSIONS

QTY: 1

The aerial device shall be constructed with the following section dimensions:

Base Section
Handrail Height 28-3/8"
Handrail Width 41"

Lower Mid Section
Handrail Height 25-5/8"
Handrail Width 34-1/2"

Upper Mid Section
Handrail Height 23-7/16"
Handrail Width 29"

Fly Section
Handrail Height 21-5/16"
Handrail Width 23-1/2"

Overlap surfaces between sections:

Base to Mid Section 78"
Lower Mid to Upper Mid Section 78"
Upper Mid to Fly Section 78"

RUNG COVERS - PHOTOLUMINESCENT

QTY: 1

Each rung shall be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, non-slip coating. The rung covers shall be secured to each rung utilizing a Silyl Modified Polymer (SMP) based adhesive and shall be easily replaceable should the rung cover become damaged.

Each rung shall have a minimum of 4" of photo luminescent coating in the center of the rung, two (2) 5” black sections on each side of the center photo luminescent and additional photo luminescent sections on the outside edge of each cover. The covers shall provide an aggressive, non-slip coating and assist in providing a light source for each rung during low light conditions. The photo luminescent coating shall remain visible for up to 20 hours after exposure to light.

The rung covers shall be covered by a ten (10) year warranty. A copy of the written warranty shall be provided. There will be no exceptions.

LADDER, CABLE/HOSE/WIRE ROUTING

QTY: 1

All lines to the ladder tip shall be enclosed and protected from the turntable to the ladder tip.

All lines shall be routed through extrusions and high flex energy chain systems.

CHAIN SAW HOLDER

QTY: 1

Two (2) chain saw bar holsters will me manufactured of aluminum treadplate measuring 18" long x 5" wide x 1" deep and mounted on a angle at the top of the aerial device.

The chain saw holsters shall be mounted on the driver's side of the aerial device with one on the outboard side of the egress and one in the fly section of the aerial approximately eight feet from the tip.

The mounts will be angled in a way to prevent the saws from falling out at full elevation. Provide a hat style stainless steel scuff protection where the saw’s engine contacts the aerial device. Mount with 3M VHB tape.

6' NUPLA RUBBISH HOOK MOUNTED ON FLY S

QTY: 1

There will be two (2) 6' Nupla rubbish hook model: RH-6DA furnished and mounted in the ladder fly section. The mount will include PacTrac mounting bracket to secure the handle side of the hook in place.
Note: The rubbish hooks shall be mounted the same as GSO 10399 Ontario, CA.

STAINLESS STEEL EGRESS W/TIP SKID GUARDS

QTY: 1

The tip of the fly section be equipped with a bolt-on egress section. The egress shall extend from the end of the fly and be constructed of 1.25" round knurled stainless steel. The knurled construction shall allow for easy grip during exit and entry off and on the ladder tip. The egress shall be designed to fully support the rated capacity of the ladder. Each end of the egress base rail shall be designed with rounded “Ladder Tip Skid Guard” to prevent ladder tip hang up if the ladder slides on a building surface.

10' FIRE HOOKS UNLIMITED PIKE POLE MOUNT IN FLY

QTY: 1

There shall be a 10' Fire Hooks Unlimited pike pole with fiberglass handle furnished and mounted in the ladder fly section.

The mounts shall include an aluminum tube for the pole and a mechanical pin to secure the hook end of the pole.

PIKE POLE MOUNTED ON LEFT SIDE OF FLY SECTION

QTY: 1

The specified pike pole shall be mounted on the the left side of the fly section.

ROOF LADDER MOUNT WITHIN FLY SECTION

QTY: 1

There shall be a mount furnished in the fly section of the aerial ladder.

The mounts shall include an aluminum receptacle box for the heel end of the ladder and a mechanical pin lock for the roof hook end of the ladder.

10' DUO-SAFETY 775DR-10 ROOF LADDER PROVIDED - FLY

QTY: 1

One (1) Duo-Safety model 775DR-10; 10', aluminum, straight roof ladder WITH HOOKS ON BOTH ENDS shall be provided to be mounted in the roof ladder mount in the fly section.

SPECIFIED ROOF LADDER MOUNTED ON RIGHT SIDE OF FLY

QTY: 1

The specified roof ladder shall be mounted on the right side of the fly section.

RESCUE EYELET ON LAST RUNG OF LADDER TIP

QTY: 1

A lifting eye shall be provided at the end of the ladder fly section. The lifting eye shall give the fire department the capabilities to tie off or lift from the ladder fly section.

The lifting eye shall be third party tested and certified with the device for a minimum capacity of 250 pounds. The rating shall include a 2:1 safety factor.

LADDER LEVEL INDICATOR (BASE SECTION) - LIGHTED

QTY: 1

One (1) Rieker 12 volt lighted, ladder angle indicator shall be provided on the base section of the ladder, near the turntable control console. The integrated light shall be activated with ladder power.

SINGLE PAIR FOLDING STEPS @ LADDER TIP

QTY: 1

A set of Innovative Controls large lighted folding steps, with a textured chrome plate finish, shall be provided, and conveniently located at the end portion of the fly section.

These shall be used for one person to place his feet so that he is positioned parallel to the ladder.

The steps shall fold into proper position for usage and fold toward the sides of the ladder when not in use to provide adequate clearance when the ladder is being climbed.

The steps shall be placed approximately 56" from the center of the last rung toward the base of the aerial.

The folding steps shall be provided with a cut out to allow the 3" hose for the clamp on master stream device to extend past the steps when they are flipped down

ELEVATION SYSTEM

QTY: 1

Two (2) double acting lift cylinders shall be attached between the turntable and the base section near the midpoint of the base section thus creating a better lifting geometry resulting in lower hydraulic operating pressures and improved load distribution on the base ladder section.

The cylinders shall function only to elevate the aerial device and not as a structural member to stabilize the ladder sideways.

The lift cylinder rods shall be attached to the base section with self aligning swivel bearings which prevent side loading on the lift cylinders resulting in longer cylinder seal life.

They shall provide smooth precise elevation from -7 degrees below horizontal to +80 degrees above horizontal.

The lift cylinders shall have a 5-1/2" internal bore, a 3" diameter rod and 29-13/16" stroke.

The lift cylinders shall be equipped with integral (on the cylinder) holding valves which prevents the ladder from lowering should a hydraulic line be ruptured at any point within the hydraulic system.

They shall also have a manifold line with velocity fuses between the cylinders to prevent uneven cylinder lift.

They shall have both rod and piston hydraulic cushions. These cushions shall decelerate the cylinder near the end of its stroke creating a smooth stop at full stroke.

A limit switch at the aerial travel support shall be provided to prevent operation of the outriggers once the aerial has been elevated from the nested position.

This system will prevent operation of the outriggers once the ladder has been elevated from the nested position.

LADDER TIP STEPS

QTY: 1

The folding steps at the tip of the fly section will be the KME standard CPI steps. MOUNT STEPS SO THAT THE FIREMAN DOES NOT HAVE TO BEND TO REACH TIP CONTROLS

ROTATION SYSTEM

QTY: 1

A 41" diameter external tooth monorace bearing shall be provided for 360 degree continuous rotation of the aerial device.

The bearing shall be bolted to the turntable and bolted to the pedestal bearing plate using forty (40) 3/4" diameter SAE Grade 8 bolts to secure the bearing to the turntable and thirty three (33) 3/4" diameter SAE Grade 8 bolts to secure the bearing to the pedestal bearing plate.

Both upper and lower bearing surfaces shall be milled to ensure a true mounting surface for the rotation bearing.

ROTATION MOTOR AND BRAKE

QTY: 1

A hydraulic driven planetary swing drive system shall provide smooth and precise rotation. A spring applied, hydraulically released, disc type brake shall be furnished on each gear box to provide positive braking of the turntable assembly against reactionary forces such as water and gravity.

SWING DRIVE ADJUSTMENT

QTY: 1

The swing drive shall be designed with an adjustable mount. This shall allow the back lash to be set at assembly and provide the ability to re-adjust as components wear. This shall prevent the need to replace rotation components that may exceed manufacturer’s allowable back lash in later aerial inspections. Units that do not allow adjustment shall not be acceptable.

EXTENSION/RETRACTION SYSTEM

QTY: 1

A full hydraulic powered extension and retraction system of the ladder shall be provided through dual hydraulic cylinders and cables, each capable of operating the ladder in the event of failure of one of the systems.

The extension cylinders shall have a 3.00" internal bore with a 2.00" rod. Both cylinders shall be equipped with two integral holding valves to protect both extension and retraction movement during water tower operations or to prevent the ladder from falling should a line be severed at any point within the hydraulic system.

Cables attached to the base and mid ladder sections shall be routed over sheave wheels on the base section and cylinder sheave mount. This cable arrangement shall act as a stroke multiplier to provide full ladder extension and retraction. The sheave wheel bearings shall be maintenance free and not require external lubrication.

Extension and retraction cables shall have a minimum safety factor of 5 :1 and shall be .50" diameter from the base to mid section cable and be .375" from the base to the fly section.. The minimum ratio of the diameter of wire rope to the sheave used shall be 1:12.

EXTENSION CYLINDERS PAINTED LADDER PAINT COLOR

QTY: 1

The extension cylinders shall be painted to match the color of the ladder.

LADDER SLIDE PADS

QTY: 1

Nylatron slide pads with a sliding coefficient of friction of .15 shall be used between the telescoping ladder sections.

Slides are required because of greater surface area for load transfer between the telescoping sections.

Slide pads shall also be used to control side play between the ladder sections.

The rear slide pads shall be held into place by a machined receiver, which is welded into the base rail of the extending sections.

Each slide pad shall be held in place with an easily removable keeper, allowing the pad to be removed from the rear of the ladder section.

To control movement side to side the receiver shall allow for adjustment of each pad.

LADDER, 120 VOLT ELECTRICAL SYSTEM

QTY: 1

Two (2) 120 volt 20 amp electrical circuits utilizing 12 gauge five strand electrical cable shall be provided to the tip.

Circuits shall be wired from the tip to the turntable through the collector ring assembly.

LADDER, 120 VOLT NEMA L5-15R AMP RECEPTACLE @ LADDE

QTY: 1

One (1) 120 volt weatherproof outlet, Nema L5-15R, twist lock type and an environmental cover shall be furnished near the end of the fly section.

LIGHT SWITCHING

QTY: 1

The FRC light recessed in the last rung of the ladder tip shall not have a switch at the tip. It shall be switched from the pedestal. The tip working lights and this light shall be on the same switch if possible

ONE (1) FIRE RESEARCH, 155 W, RECESSED INTO LAST R

QTY: 1

One (1) Fire Research "Spectra" model #SPA260-K15, 155 watt, 120 volt LED light shall be recessed into a cast aluminum housing that shall be attached to an integral bracket between the ladder base rails and the last rung of the ladder. **The light housings shall be black.**

The light shall be switched near the ladder tip.

The lighting circuit for one (1) 155 watt LED light shall require one (1) 120V, 10 amp circuit breaker.

TWO (2) FIRETECH, 12V LED WORKLIGHTS @ TIP

QTY: 1

Two (2) Firetech model #FT-WL-X-9-FT-B 12volt LED worklights with a black housing shall be mounted at the tip of the ladder, one on each side.

Both lights will be controlled by a single switch located on the operator's pedestal marked "TIP LIGHTS".

CRADLE ILLUMINATION LIGHTS - FIRETECH

QTY: 1

Two (2) 12 volt Firetech FT-WL-X-4-F-W LED flood lights shall be mounted near the ladder travel support to illuminate this area during night time operation.
The lights shall be wired and activated by the ladder power circuit.

TWO (2) FIRETECH WORK LIGHTS LADDER BASE SECTION

QTY: 1

Two (2) Firetech FT-WLX-9-S-B LED work lights with a black housing shall be mounted on the outside at the rear of the base ladder section, one on each handrail. Lights will be controlled by a single switch on the operator's pedestal marked "TRACKING LIGHTS".

HEEL PIN STEP LIGHTS

QTY: 1

Seven (7) polished stainless steel, TecNiq Eon 3-LED horizontal surface mounted lights shall be provided and installed with a gasket at the base of the ladder in the turntable heel pin step area.

TURNTABLE CONSOLE LIGHT

QTY: 1

A sealed LED light shall be used to illuminate the turntable control console.

The light shall be mounted across the top of the control panel to assure proper illumination of all controls.

The light shall be wired to the ladder power circuit.

LOAD CHART

QTY: 1

The load chart decal will be placed inside the console.

TURNTABLE CONSOLE STEP LIGHT

QTY: 1

One (1) LED horizontal surface mounted lights shall be provided and installed with a gasket at the front face of the turntable console facing the operator, to illuminate the step area in front of the control console.

LADDER WORK LIGHTING

QTY: 1

A switch shall be provided at the lower control console for the 12 volt light(s) located at the ladder tip.

The switch shall be wired to the light circuit to give the operator the capability to shut down the lights if the switch on the light head is in the on position.

CUT-OFF SWITCH FOR LADDER TIP LED FLOOD LIGHT, ONE

QTY: 1

One (1) switch shall be provided at the lower control console for the LED Flood light at the ladder tip.

The switch shall be wired to the light circuit to give the operator the capability to shut down the quartz light near the ladder tip if the switch on the light head is in the on position.

WHELEN VERTEX BLUE LED ON BOTH SIDES OF LADDER TIP

QTY: 1

One (1) Whelen Vertex LED light shall be provided on both sides of the ladder tip. (Total of 2)

The lights shall give the operator at the turntable a visual indication of the ladder tip location, when the ladder is in smoke or steam and shall be activated by the ladder power circuit.

The lights shall have blue LEDs and a colored lens.

LADDER WALKWAY ILLUMINATION LIGHTS

QTY: 1

The ladder sections shall be equipped with the Luma Bar Pathfinder™ aerial illumination system.

This system shall illuminate the rungs of the ladder to support night time operations.

The Luma Bar Pathfinder™ system shall consist of a continuous path of SMD LED lights spaced every ¾" which shall offer a minimum viewing angle of 120 degrees.

The assembly shall be encapsulated within an enclosure which is resistant to UV and ozone and shall be terminated using sealed end caps with RTV silicone.

The complete assembly shall offer a minimum water proof rating of IP68.

This sealed enclosure shall be mounted within a clear anodized aluminum C-channel on the inside of the rung base rail, on each ladder section.

The Luma Bar Pathfinder™ assembly shall incorporate a UV stabilized high impact polycarbonate shield which is integral to the supplied aluminum C-channel.

The Luma Bar Pathfinder™ system shall be wired to the ladder power circuit with a disabling switch at the turntable control console.

RUNG LIGHTS

QTY: 1

The Pathfinder lights will be mounted so that the light shines across the rungs.

RED - LADDER ILLUMINATION LIGHTS

QTY: 1

The color of the ladder illumination light shall be RED.

LADDER, CONTROL STATION

QTY: 1

There shall be a control station at the turntable.

All elevation, extension and rotation operational controls shall operate from this position.

These controls shall be arranged to permit the operator to regulate the speed of these operations within the safe limits as determined by the manufacturer.

Load instruction plates shall be located at the control station to show the recommended safe load of the ladder.

The control devices shall be clearly marked and suitably lighted.

CONSOLE LOCATION

QTY: 1

The turntable control station shall be located on the right side of the turntable such that the operator can easily observe the ladder tip while operating the controls.

PAINTED ALUMINUM TURNTABLE CONSOLE - MATCH LADDER

QTY: 1

The control console shall be manufactured from aluminum material and designed to support the components mounted in and on the console.

The console shall be painted to match the ladder structure.

IQAN MD4-7 DISPLAY TURNTABLE CONSOLE

QTY: 1

The turntable console will be equipped with an IQAN-MD4 7" master display with touchscreen capability and video inputs.

The IQAN-MD4 master display has a rugged mechanical design with no moving parts and are completely sealed.The IQAN-MD4 7" display has full graphical, diagnostic and CAN gateway capability and is used with the easy-to-use IQAN programing tools.

TURNTABLE CONTROL STATION

QTY: 1

The lower part of the console shall be angled away from the operator, to provide as much foot room as possible for the operator.

An access door shall be provided on the front of the console to provide complete access to the electrical and hydraulic components mounted inside the console.

The console shall be illuminated for night operations, and shall have the following controls/indicators:

The following items shall be clearly marked:

- Three (3) ladder control levers
- A foot operated "dead man switch"
- Master electrical power switch with emergency shutdown capabilities
- Rung alignment indicator light for ladder climbing operations
- Cradle alignment indicator light
- Engine fast idle control switch
- Emergency pump power switch
- 5,000 psi hydraulic oil pressure gauge (Liquid filled)
- Intercom controls
- Illuminated load chart on front of console
- Electric Monitor Controls

AIRHORN CONTROL BUTTON @ TURNTABLE CONTROL CONSOLE

QTY: 1

Air Horn Control Button

AERIAL HOURMETER @ TURNTABLE CONTROL CONSOLE

QTY: 1

Aerial Hours will be registered for the aerial device.

FIRE RESEARCH INSIGHT ULTIMATE @ TURNTABLE CONSOLE

QTY: 1

The apparatus shall be equipped with a Fire Research flow and pressure meter "FPA400", at the turntable console which shall give the operator or engineer an indication of actual volume of water (in gallons) being discharged through the aerial waterway.
The display shall also be capable of showing discharge pressure without the need of pushing any buttons.
The display case shall be constructed on non-glare black anodized aluminum, with bright red LCD digits to indicate flow, and a bright analog pointer to indicate pressure.
A calibration slot shall be provided on the rear face of the display to make field calibration easy.

A flow sensor paddle wheel shall be installed on the discharge piping with a machined housing or clamp.

A pressure transmitter (transducer) mounted in the discharge piping.
The pressure transducer shall be installed downstream from the discharge valve to indicate pressure only when the valve is open.

TURNTABLE CONSOLE COVER - PAINTED

QTY: 1

The turntable control console shall be designed with an aluminum cover to match the console.

The cover shall be designed with a rectangular shape that pivots over the top of the control panel and does not obstruct viability for the operator when the ladder is operated at low angles.

COMMUNICATION SYSTEM

QTY: 1

A Fire Research "ACT" communication system shall be furnished between the ladder tip and the rear operator's position.

A master control at the turntable operator's console shall be provided, with a push-to-talk button and a volume control.

COMMUNICATION SYSTEM

QTY: 1

A self-contained, hands-free speaker microphone shall be located at the ladder tip.

No operator action shall be required to transmit or receive messages at this speaker microphone.

103' H.D. AERIAL LADDER, LADDER WATERWAY SYSTEM

QTY: 1

The aerial waterway system shall be capable of being supplied by both a mid ship mounted pump (if required) and an external water source with the inlet on the officers side pump panel.

The piping from the aerial discharge valve and the aerial inlet to the turntable swivel shall be 4" stainless steel pipe.

A 4" water swivel shall be located in the riser pipe from the tee permitting 360 degree continuous rotation of the ladder.

WATERWAY INLET LOCATED AT OFFICERS PUMP PANEL

QTY: 1

The aerial waterway inlet will be located on the officer's side pump panel.

INLET PLUMBING

QTY: 1

4” plumbing will be used from the pump and the officer side inlet to the aerial swivel.

WATERWAY INLET AND COMPONENTS

QTY: 1

The waterway inlet and all associated components will be located on the officer side pump panel.

WATERWAY

QTY: 1

An anodized aluminum telescopic waterway shall be mounted beneath the center of the aerial ladder.

The waterway shall have a 5" base section tube, 4 1/2" lower mid section tube, 4" upper mid section tube and a 3 1/2" fly section tube.

The waterway shall be secured to the ladder sections with cradle type mounts to provide a minimum of 2" of up and down movement in the waterway.

This design shall protect the waterway from bending if the ladder comes in contact with a building or a water hammer is imposed to the waterway discharge.

HEEL PIN SWIVEL

QTY: 1

A 4" heel pin swivel connection between the ladder waterway and the turntable swivel permitting water tower operations from -7 to +80 degrees shall be provided.

AUTOMATIC WATER DRAIN/VENT

QTY: 1

An automatic drain shall be provided in aerial water way to automatically drain the system for freezing conditions.

This valve shall also act as a vacuum relief valve for the waterway when extending the aerial device with the discharges in the closed position.

WATERWAY DRAIN

QTY: 1

The aerial waterway drain will be 1.5" The drain will be installed and operated at a location near the inlet on the officers side pump panel. The specified aerial inlet pressure gauge will also be located in this area. Change Order #1 GSO 11147

WATERWAY RELIEF VALVE

QTY: 1

A relief valve preset at 225 psi shall be located beneath the turntable to protect the water system from excessive pressures.

WATERWAY RELIEF VALVE

QTY: 1

The aerial waterway relief valve will be located within the pump house.

REAR MOUNT AERIAL WATERWAY DRAIN, 1-1/2" VALVE

QTY: 1

A 1-1/2"Akron drain valve shall be installed near the aerial inlet.

AERIAL WATERWAY DRAIN CONTROL

QTY: 1

The waterway drain shall be controlled from a manual control near the aerial inlet on the officer's side of the vehicle.

4" NST REAR AERIAL WATERWAY INLET ADAPTER, REAR MO

QTY: 1

The rear aerial inlet shall be equipped with a 4" NST adapter with long handle cap.

INLET GAUGE

QTY: 1

NOTE: A 2.5" Class One pressure gauge shall be provided near the inlet to indicate waterway pressure.

The gauge shall be silicone filled pressure gauge to help with pulse and vibration dampening. To prevent internal freezing, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.

A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage. The gauge face shall be white with black numerals.

AERIAL MONITOR

QTY: 1

An Akron model #3480 "StreamMaster II" electrically controlled monitor shall be installed on the outer end of the telescoping aerial waterway.

The CAN based control system shall be attached to the monitor, and shall be easily accessible for service.

Vertical travel 45° below and 120° above horizontal

The monitor shall be equipped with a 3-1/2" outlet and a 4" inlet.

The monitor shall have a vertical sweep of 165°, and a horizontal sweep of 355°.

NOZZLE

QTY: 1

An Akron model #5178 "Akromatic" electrically controlled master stream nozzle shall be installed on the end of the monitor.

The model #5178 shall allow a maximum flow rate of 2000 gpm @ 80 psi.

LADDER, AKRON MONITOR CONTROLS W/ AUTO STOW

QTY: 1

The monitor and nozzle functions shall be controlled from the tip of the fly section and from the aerial control console.

The monitor and nozzle controls at the tip and turntable shall consist of three (3) individual weather resistant switches.

The monitor shall be capable of wireless remote operation.

The monitor and nozzle control functions shall be as follows:

UP / DOWN
LEFT / RIGHT
STRAIGHT STREAM / FOG

The monitor shall be equipped with an "Auto Stow" feature that shall automatically deploy the monitor and shall also place the monitor into its stowed position when actuated.

LADDER, SELECTABLE WATERWAY TROLLEY, ALL LADDER DE

QTY: 1

The waterway monitor shall be "retractable", allowing the monitor to be secured at the tip of the fly section for water tower operations, or at the end of the upper section for rescue operations. An aluminum sliding monitor support assembly shall be installed at the end of the fly section waterway tube. This support assembly shall guide the monitor along the base rails of the aerial fly section. An electric actuator shall move the trolley lock to position the monitor to either the fly section or mid-section. A control switch shall be located on the turntable control console. The "monitor lock" shall be movable when the ladder is fully retracted. The lock assembly shall be constructed from stainless steel that is electropolished for smooth operation and to keep from corroding.

In "rescue mode", this feature shall allow the tip of the fly section to be placed very close to the edge of a building or window, minimizing the working and access heights "on" and "off" the ladder tip, without worrying about the monitor being damaged. Permanent monitor guards installed below the tip of the aerial are unacceptable.

To accommodate the movement of the "retractable" electric remote monitor, the monitor power/control cable for the electric monitor shall be equipped with a slide track to eliminate the need for plugs or reels.

Movable monitor designs that require a spring-rewind cord reel for the monitor power/control cord are unacceptable due to the additional cost, maintenance, weight and unattractive appearance associated with a cord reel permanently installed on the outside of the aerial base section.

LADDER MANUAL TFT VALVE UNDER MONITOR

QTY: 1

Task Force Tips VUM, model # AKM13 _ 111D manually controlled monitor valve shall be provided under the monitor.

The valve shall be controlled with an NFPA compliant slow-close hand wheel gear operator which can be configured for left or right hand operation.

A position indicator shall be provided to allow for quick visualization of the status of the valve in the open, closed or partial positions.

For maximum corrosion protection the aluminum casting shall be hardcoat anodized, with a silver powder coat internal and external finish.

The valve ball shall be stainless steel and have an automatic drain for draining waterway when valve is closed and unpressurized.

The manifold of the valve shall be equipped with the following hardware:

Port C2, C3, C4 shall be terminated with a blind plug, Port C1 as stated below.

"STORE FRONT BLITZ" DESCRIPTION

QTY: 1

The ladder waterway system shall be designed to provide “Store Front Blitz” feature. This feature shall allow the fire department to position the truck in front of a low structure and sweep the front of the building with a 1500-GPM master stream upward for initial interior attack.

Features shall include:

- High tip load while flowing water
- Waterway flow rate of 1500-GPM in any position
- High 1500-GPM flow in an upward direction
- 30-degrees above horizontal nozzle position
- 135-degrees below horizontal nozzle position
- 180-degree nozzle sweep.

The position of the aerial nozzle shall be monitored electronically at all times. Since the nozzle can be elevated to 35 degrees above horizontal when affixed to the tip of the fly section, the nozzle position monitor shall automatically prevent the nozzle from being raised above horizontal when the nozzle is affixed to the top of the outer mid section of the aerial in order to prevent damage to the nozzle or the device during extension and retraction operations.

LADDER CAPACITIES,

QTY: 1

The following ladder tip load capacities shall be established with the truck level, the outriggers fully extended and lowered to relieve the chassis weight from the axles. Capacities are based upon full extension and 360 degree rotation.

LADDER CAPACITIES IN POUNDS
(50 MPH WIND and 1/4" ICE BUILD UP CONDITIONS / UNCHARGED WATERWAY)
DEGREES OF ELEVATION

	-7 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80
Base Section	250	250	500	500	500	500	500	500
Lower Mid	250	250	250	250	250	500	500	500
Upper Mid	---	---	---	---	250	250	500	500
Fly Section	---	---	---	---	---	---	250	500
Fly Tip	500	500	500	500	500	500	500	500

WATER TOWER OPERATION

The ladder and water system shall be designed to permit the following flows:
- 1500 GPM at 90 degrees to ladder centerline either side.
- 1500 GPM parallel to ladder centerline and as far below horizontal as nozzle design allows.
- 1500 GPM above ladder centerline as far as deck gun design allows.

Note: Tip capacity is reduced to 250 lbs when flowing water with the nozzle above the waterway centerline.

LADDER CAPACITIES IN POUNDS

(50 MPH WIND and 1/4" ICE BUILD UP CONDITIONS / CHARGED WATERWAY)

DEGREES OF ELEVATION

	-7 to 10	11 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80
Base Section	---	---	250	250	500	500	500	500
Lower Mid	---	---	---	---	250	250	500	500
Upper Mid	---	---	---	---	---	250	250	500
Fly Section	---	---	---	---	---	---	250	250
Fly Tip	500	500	500	500	500	500	500	500

The aerial unit can be operated in any plane up to 3.5 degrees out of level at full capacities.

Operation beyond this limit shall be at operator's discretion.

AERIAL LADDER, MANUALS, TWO (2) SETS

QTY: 1

The aerial manufacturer shall provide the following manuals pertaining to the aerial device:

- Two (2) Operator's manuals
- Two (2) Parts manuals
- Two (2) Complete Electrical and Hydraulic Diagrams

F D AERIAL FAMILIARIZATION - PROVIDED BY FACTORY

QTY: 1

An on-site program for familiarization of Fire Department personnel shall be provided.

This program shall be designed to assure complete understanding of all aspects of the aerial device in the operating environment.

The familiarization shall cover all applicable required items in NFPA 1900 code, and be performed by a qualified person per the code.

The familiarization program shall be designed to instruct the individual who has never utilized an aerial device of this type before.

The individual shall receive thorough instructions on operation of the device including hands-on operations for personnel.

The training shall include at a minimum:

Location and operation of all gauges and indicators, as well as fluid level checks.

How to tilt the cab (if a tilt cab is provided), or how to locate all required maintenance areas.

Explanation of all cab controls, instruments, mirrors, safety devices or alarms, brake operations, transmission control, pump controls (if equipped), exhaust regeneration (if provided), seat adjustments, warning light engagement, and other operational equipment.

Familiarization of the aerial device engagement, operations, emergency overrides, safety devices, and maintenance systems.

If the unit is equipped with a fire pump, familiarization of the complete pumping system components, engagement, operations, etc.

If the unit is equipped with a generator, familiarization of the generator system engagement and operations.

If the unit is equipped with a foam system, familiarization of the foam system engagement and operations.

FACTORY FAMILIARIZATION - ONE (1) DAY

QTY: 1

After the unit has been accepted, a factory qualified person shall be provided for one (1) day of familiarization.

AERIAL SERVICE, ALL DEVICES

QTY: 1

Due to the importance of keeping this vital piece of firefighting apparatus in service with a minimum of downtime, the bidder maintains a network of service centers with factory trained personnel.

The bidder shall have a separate facility for service of units so they do not conflict with production units.

The service facility carries an inventory of parts, separate from production parts.

WARNING DECALS, ALL DEVICES

QTY: 1

Warning decals shall be provided in appropriate locations to alert the operator of potential hazards and operating instructions.

All warning labels shall be in general compliance with ANSI Z34.1 recommendations.

CERTIFICATION & TESTING

QTY: 1

The aerial device shall be tested in compliance with the National Fire Protection Association's Standard #1911 (latest edition).

Ongoing structural and physical property testing during construction shall also be done.

The following tests shall be conducted by personnel holding a Level II certification to detect defects and improperly secured components:

Three (3) random samples of each lot or shipment of raw material (plate, tubing, bar, etc.) and fabricated parts from outside vendors shall have a mechanical (tensile, yield, and elongation) and chemical (material content) analysis performed

Magnetic particle inspection shall be conducted on all ferrous welds to assure the integrity of the weldments and also detect any flaws or weaknesses. These tests shall be performed prior to paint or assembly.

Dye penetrant testing be conducted on all structural aluminum welds.

Ultrasonic inspection shall be used to detect any flaws in pins, bolts and other critical mounting components.

The bolts shall be tested after any torqueing to ensure the bolt was not damaged.

All extension/retraction cables shall be proof load tested, serialized, and certified by the cable vendor.

All cable ends shall be dye penetrant tested to find any cracks, imperfections, etc.

Functional tests, load tests, stability tests and visual structural examination shall be performed.

These tests shall determine any unusual deflection, vibration, or instability characteristic of the unit.

Hydraulic oil sample test prior to delivery.

Additionally, a waterway pressure test shall be performed.

Upon completion of the preceding inspections, the independent testing company shall issue a Certificate of Inspection indicating that all specified standards have been satisfied.

Aerial manufacturers not utilizing third party, independent testing companies shall not be acceptable.

The following test shall be conducted to the aerial device prior to delivery.

All listed tests shall be witnessed and certified to ensure the device meets all requirements of NFPA-1901.

The manufacturer of the aerial device is required to provide a written statement signed by the Chief Engineer certifying the aerial's ability to perform the following tests:

1-1/2:1 DYNAMIC STABILITY AND LIFT TEST -A test of the apparatus shall be performed that the ladder sections are so designed and powered to support a load representing 150% of the manufacturer's rated tip load capacity at maximum horizontal reach on level ground. Since this is a dynamic test, the load will be raised, lowered and rotated without evidence of instability. Specifically, 750 pounds at the ladder tip with the ladder fully extended at zero degrees shall be rotated 360°.

1-1/3:1 DYNAMIC STABILITY AND LIFT TEST -A test of the apparatus shall be performed that the tip and ladder sections are so designed and powered to support a load representing 133% of the manufacturer's rated tip load capacity at maximum horizontal reach on a five (5) degree slope. Since this is a dynamic test, the load will be raised, lowered and rotated without evidence of instability. Specifically, 666 pounds at the ladder tip with the ladder fully extended at zero degrees shall be rotated 360°.

TIME TEST - A test of the apparatus shall be performed to raise the ladder from a bedded position extended to full height and rotated through a 90° turn smoothly and without undue vibration in not over 120 seconds.

WATER TOWER TEST #1 -A test of the apparatus shall be performed to test its ability to discharge 1000 gallons per minute parallel to the ladder with the unit at full extension and zero degree elevation and through a 360° rotation. The unit shall be capable of performing this test with a rated tip load of 250 pounds at the ladder tip.

WATER TOWER TEST #2 -A test of the apparatus shall be performed to test the ability to discharge 1000 gallons per minute, 90° to the ladder with the ladder at full extension, zero degree elevation and through 360° of rotation. The unit shall be capable of performing this test with a rated tip load of 250 pounds at the ladder tip.

WATER TEST #3 -A test of the apparatus shall be performed to test the ability to discharge 1000 GPM above the ladder centerline and as many degrees above 0° as the deck gun design allows. This test shall also be performed with the ladder fully extended at 0° elevation and through 360° of rotation with a rated tip load of 250 pounds.

Bidders must state their ability to comply with all of the above tests.

Failure to do so shall be grounds for rejection of their bid.

GENERAL PAINT DESCRIPTION

QTY: 1

The apparatus body shall be painted with Sikkens paint product. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the body. Any vertically or horizontally hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on body, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where the material is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

GENERAL PRIMER & PREP DESCRIPTION

QTY: 1

All exposed welds shall be ground smooth for final finishing of areas to be painted. The compartments and doors are totally degreased and phosphatized. After final body work is completed, grinding (36 and 80 grit), and finish sanding shall be used in preparation for priming.

GENERAL PRIMER & PREP DESCRIPTION

QTY: 1

The body shall be finish sanded and prepared for final paint. Upon completion of final preparation, the body shall be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint. Finish paint shall be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

FINISH PAINT & PREP

QTY: 1

The applicable areas of the cab shall be finish sanded and prepared for final paint.

Upon completion of final preparation, the cab shall be painted utilizing the highest quality, state of the art, low V.O.C., polyurethane base paint.

Finish paint shall be applied in multiple coats to ensure proper paint coverage with a high gloss finish.

CAB PRIMER & PREP

QTY: 1

The cab primer shall be a two (2) stage process.

First stage shall be a coating with a two part component, self etching, and corrosion resistant primer to chemically bond the surface of the metal for increased adhesion.

Second stage shall be multiple coats of a catalyzed, two component, polyurethane primer applied for leveling of small imperfections and top coat sealing.

CAB UNDERSIDE PAINT - JOB COLOR

QTY: 1

The exposed areas under the cab shall be painted job color to match the exterior cab.

On two tone cabs, this shall match the primary color.

CAB BUFFING & FINISH

QTY: 1

The exposed exterior finish of the cab shall be buffed and detailed.

CUSTOM CAB INTERIOR PAINT - TEXTURED DARK GRAY

QTY: 1

The interior metal surfaces of the cab shall be finish painted with a textured DARK GRAY paint.

BODY BUFFING & FINISH

QTY: 1

The visable and exposed areas of the body shall be buffed and detailed.

INSIDE/UNDERSIDE BODY PAINT

QTY: 1

The inside and underside of the complete body assembly shall be painted job color using a Sikkens paint system, prior to installation of the body on the chassis or torque box.

COMPARTMENT INTERIOR FINISH

QTY: 1

The interior of the body compartments shall be painted with Line-X material.

COMPARTMENT INTERIOR FINISH

QTY: 1

The interior of the body compartments shall be painted with Line-X material.

COMPARTMENT INTERIOR FINISH

QTY: 1

The Line-X coating shall be light gray in color.

COMPARTMENT INTERIOR FINISH

QTY: 1

The Line-X coating shall be dark gray in color.

FENDER COMPARTMENT INTERIOR

QTY: 1

The interior of the fender storage compartments (if fender compartments are specified) shall be finish painted job color.

CAB PAINT SCHEME - FLNA 32073

QTY: 1

The cab exterior shall be finish painted with Sikkens paint system, single color, to match purchaser's furnished paint code.

PUMPHOUSE & PLUMBING PAINT

QTY: 1

The pump enclosure and pump/plumbing within the pump enclosure shall be painted job color to match the primary color of the body.

SINGLE COLOR BODY PAINT SCHEME - FLNA 32073

QTY: 1

The body paint finish shall be Sikkens paint system in a single color, to match customer furnished paint codes and requirements.

LADDER RUST INHIBITOR

QTY: 1

All internal surfaces of the ladder exposed to the atmosphere, i.e., inside base, mid and fly section side rails shall be undercoated prior to ladder assembly using Procyon Corrosion Inhibitor to prevent internal corrosion. The corrosion inhibitor will meet the Boeing BMS-3-29 specification and meet a 1500-hour salt spray test. Manufacturers that do not rustproof the interiors of the ladder sections shall not be considered. (No Exceptions)

PINT OF TOUCH-UP PAINT

QTY: 1

One (1) pint of each exterior color paint for touch-up purposes shall be supplied when the apparatus is delivered to the end user.

FINALIZATION & DETAILING

QTY: 1

Prior to delivery of the vehicle, the interior and exterior be cleaned and detailed. The finalization process detailing shall include installation of NFPA required labels, checking fluid levels, sealing and caulking required areas of the cab and body, rust proofing, paint touch-up, etc.

FRAME RAIL FINISH

QTY: 1

The chassis frame rails, suspension, axles, and drivelines (with the exception of any PTO drivelines which shall be safety yellow) shall be painted with polyurethane paint to match the body color code prior to the installation of any air lines or electrical system to ensure serviceability.

LADDER, PAINTING, ALL DEVICES, DARK GRAY, FRD09;UJ

QTY: 1

Prior to any painting, all weldment's such as the outrigger beams, torque box, turntable, and ladder sections shall be sand blasted, cleaned and inspected to insure the removal of any surface imperfections and to insure superior paint adhesion to the metal.

The entire painting system shall utilize a single manufacturer's paint for compatibility between primers and finished coats. All painting shall be done in atmosphere controlled spray booths. The weldments shall

then be primed with Sikkens primer. All seams between adjoining pieces that are not continuously welded shall be caulked to inhibit corrosion.

Before assembly, in preparation for final painting, the aerial unit shall be thoroughly cleaned, conforming to good painting practices.

The aerial components shall then be sprayed with Sikkens primer sealer. Finished paint used on the turntable, lift cylinder, and ladder sections shall be **painted FRD09;UJ**

EXTENSION CYLINDERS PAINT

QTY: 1

The extension cylinders shall be painted to match the color of the ladder.

TORQUEBOX PAINT

QTY: 1

The torque box shall be painted to match job color or the base color of the body, allowing easy touch-up after extended use.

OUTRIGGER PAINT

QTY: 1

The outrigger beams shall be painted job color, allowing easy touch-up after extended use.

TURNTABLE PAINT

QTY: 1

The turntable shall be painted to match the base color of the ladder, allowing easy touch-up after extended use.

TURNTABLE CONSOLE PAINT

QTY: 1

The turntable console shall be painted to match the base color of the ladder, allowing easy touch-up after extended use.

LIFT CYLINDERS PAINT

QTY: 1

The aerial lift cylinders shall be painted to match the base color of the ladder, allowing easy touch-up after extended use.

STRIPING CLARIFICATION

QTY: 1

The scotch-lite striping shall match the customers existing trucks.

This truck will be known as 'Truck 3'

SCOTCH-LITE STRIPE

QTY: 1

A four (4) inch high "Scotch-Lite" stripe shall be provided. The stripe shall be applied on a minimum of 60 percent of each side of the unit, 60 percent on the rear of the unit and 40 percent on the front of the unit. The Scotch-Lite stripe layout shall be determined by the Fire Department.

WHITE SCOTCH-LITE

QTY: 1

The Scotch-Lite shall be white in color.

GOLD SCOTCH LITE

QTY: 1

The Scotch-Lite shall be gold in color.

4" SCOTCH-LITE "Z" IN STRIPE

QTY: 1

A four (4) inch simple "Z" effect shall be incorporated into the Scotch-Lite scheme on the body.

Final layout of this configuration shall be determined by the Fire Department.

BLACK PIN STRIPE ON TOP & BOTTOM OF MAIN STRIPE

QTY: 1

Two (2) 1/4" black vinyl pin stripes shall be incorporated into the Scotch-Lite scheme to border the primary Scotch-Lite stripe on the top and bottom edges.

Final layout of this configuration shall be determined by the Fire Department.

REAR CHEVRON STRIPING

QTY: 1

REAR CHEVRON STRIPING

6" REAR ORALITE CHEVRON STRIPING

QTY: 1

The entire rear of body with the exception of the rear roll-up door shall be chevron striped.

The striping shall be 6" Oralite reflective striping.

RED & YELLOW ORALITE V98

QTY: 1

The Oralite V98 reflective tape shall be #12 red and #18 yellow in color.

LETTERING PANELS ON BASE SECTION

QTY: 1

Painted aluminum panels shall be furnished on each side of the aerial device base section. The panels shall be approximately 19" high X 144" long.

SIGN PANELS PAINTED TO MATCH BODY COLOR

QTY: 1

The sign panels shall be painted to match the body paint color.

MISCELLANEOUS EQUIPMENT

QTY: 1

The following equipment shall be mounted as specified or as loose equipment provided with the completed apparatus at the time of delivery:

ROAD SAFETY KITS

QTY: 1

A road safety kit shall be furnished with the following equipment:

- 2 1/2 lb. B-C fire extinguisher
- Triangle safety reflectors.

NY ROOF HOOK

QTY: 4

A Six (6) foot NY roof hooks with mounting brackets.

FOUR (4) FOOT - NY ROOF HOOK

QTY: 2

A Four (4) foot NY roof hooks with mounting brackets.

STREAMLITE "VULCAN 180" C4LED HANDLIGHT

QTY: 2

A Streamlight model 44315 orange "Vulcan 180" C4 LED rechargeable hand light(s) and 12 volt charger shall be provided. The charger shall be wired to the chassis battery system. The hand light(s) shall be mounted as follows:

- One (1) Mounted outboard of the driver side rear forward facing outboard seat. (See power point presentation)
- One (1) Mounted outboard of the officer side rear forward facing outboard seat. (See power point presentation)

STREAMLIGHT STINGER HANDLIGHTS

QTY: 1

Four (4) Streamlight "Stinger" LED part #75430 with 12-volt charging base will be provided. Charger bases will be wired to the chassis electrical system and mounted in the following locations:

- One (1) forward of officer seat, to the left side of the glove box (See power point presentation)
- One (1) forward of driver seat, to the left of the steering column, above the door strap (see power point presentation)
- One (1) Mounted below the officer’s side rear forward facing outboard seat. (See power point presentation)
- One (1) Mounted below the drivers side forward facing outboard seat as shown on Power Point photos.

KME WARRANTY, STARTING ON IN-SERVICE DATE

QTY: 1

Warranty coverage by KME will begin when the customer places the unit in service. This date may not exceed 60 days from the date of delivery to the customer.

The Customer must email kmeservice@kmefire.com within 60 days of delivery, or the warranty start date will default to the original delivery date.

GENERAL ONE (1) YEAR WARRANTY

QTY: 1

Purchaser shall receive a General One (1) Year or 24,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0001. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

REGULATED EMISSIONS SYSTEMS FIVE (5) YEARS OR CARB

QTY: 1

Purchaser shall receive a Regulated Emissions Systems Five (5) Years or CARB Mileage limited warranty in accordance with, and subject to, warranty certificate RFW0140. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

ELECTRICAL ONE (1) YEAR WARRANTY

QTY: 1

Purchaser shall receive a Electrical One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0201. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

3 YEAR WARRANTY - BASE WITH CUSTOM CHAS

QTY: 1

The proposed vehicle includes a three (3) year new vehicle warranty, upon delivery and acceptance of the vehicle. The warranty will ensure that the vehicle has been manufactured to the proposed contract specifications and will be free from defects in material and workmanship that may appear under normal use and service within the warranty period. The warranty may be subject to different time and mileage limitations for specific components and parts. This warranty is issued to the original purchaser of the vehicle.
The warranty will not apply to tires, batteries, or other parts or components that are warranted directly by their manufacturers. The warranty will not apply to routine maintenance requirements as described in the service and operators manual. No warranty whether express, implied, statutory or otherwise including, but not limited to any warranty of merchantability or fitness for purpose will be imposed.
OVERALL UNIT AND CUSTOM CHASSIS
All components and parts of the vehicle are warranted for a period of three (3) years from acceptance of the vehicle unless excluded elsewhere in this warranty or described as having longer time limitations.

FRAME ASSEMBLY STRUCTURAL TWENTY (20) YEAR WTY

QTY: 1

Purchaser shall receive a Frame Assembly Structural Twenty (20) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0304. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

FRAME RAIL CORROSION (PAINTED) THREE (3) YEAR WTY

QTY: 1

Purchaser shall receive a Frame Rail Corrosion (Painted) Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0310. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL LADDER STRUCTURE

QTY: 1

Purchaser shall receive a Aerial Ladder Structure Twenty (20) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0403. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL TORQUE BOX STRUCTURE FIFTEEN (15) YEAR WTY

QTY: 1

Purchaser shall receive a Aerial Torque Box Structure Fifteen (15) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0412. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL LEAK-FREE HYDRAULICS THREE (3) YEAR WARRANT

QTY: 1

Purchaser shall receive a Aerial Leak-Free Hydraulics Three (3) Years or 48,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0421. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

BODY STRUCTURE (ALUMINUM) TEN (10) YEAR WARRANTY

QTY: 1

Purchaser shall receive a Body Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0502. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

PAINT AND FINISH (EXTERIOR CLEAR COATED) WARRANTY

QTY: 1

Purchaser shall receive a Paint and Finish (Exterior Clear coated) Seven (7) Years limited warranty in accordance with, and subject to, warranty certificate RFW0707. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

PLUMBING AND PIPING (STAINLESS STEEL) WARRANTY

QTY: 1

Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

AERIAL WATERWAY TEN (10) YEAR WARRANTY

QTY: 1

Purchaser shall receive a Aerial Waterway Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0810. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

5 YEAR CUMMINS BASE WARRANTY

QTY: 1

The proposed unit will be equipped with a Fire Service rated engine, which will come furnished with a five (5) year Engine Manufacturer's warranty. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.

5 YEAR ALLISON EVS TRANSMISSION WARRANTY

QTY: 1

The proposed Allison transmission will be provided with a five (5) year warranty. A copy of the Allison transmission warranty will be supplied to the purchaser to define additional details of the warranty provisions.

3 YEAR COOLING SYSTEM WARRANTY - CUSTOM

QTY: 1

Kovatch Mobile Equipment (KME) warrants all Cooling System Equipment components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of three (3) years from the date of delivery/acceptance to the original user-purchaser, whichever occurs first.

This warranty applies to both purchased and fabricated, manufacturer supplied coolant system components and is not provided in lieu of any Vendor provided warranties. All coolant system components provided by the engine manufacturer are covered by the engine manufacturer’s warranty only.

SHEPPARD STEERING GEAR STANDARD - WARRANTY

QTY: 1

The proposed Sheppard steering gear will be warranted for a period of three (3) years from the first date of service or 150,000 miles (241,401 kilometers), whichever occurs first. The product will be free from defects in material and workmanship under normal use in applications approved in advance by Sheppard.

5 YEAR MERITOR 160 SERIES TANDEM AXLE REAR

QTY: 1

The Meritor axle/s shall be provided with a five (5) year warranty. The first two (2) years shall be parts and labor; the remaining three (3) years shall be parts only. Wheel seals, gaskets and wheel bearings shall be covered for one year. A copy of Meritor's warranty shall be supplied to define additional details of the warranty provisions. Vehicles that operate full or part-time outside the United States and Canada shall have a one (1) year, parts only warranty.

PAINT FINISH WARRANTY, TEN (10) YEAR

QTY: 1

The proposed paint finish will be warranted for a period of ten (10) years from the date of acceptance of the unit. Details of warranty coverage, limitations and exclusions are included in the specific warranty document.

5 YEAR LETTERING WARRANTY

QTY: 1

The apparatus manufacturer will provide a five (5) year warranty against defects in material and workmanship for all graphics processes. Any valid claims must be made in writing within 15 days of the determination of any defects to the manufacturer's fire apparatus. The manufacturer will at its option make any necessary repairs either at a local authorized service center or at the factory if required. The manufacturer will make the final decision as to where the repairs are to be made and any transportation cost is the owner's responsibility. The manufacturer will at its option, repair or replace any verified defects in workmanship or materials at no cost to the owner provided all the requirements of this warranty have been met.

The manufacturer will not be liable to the original purchaser or anyone else for consequential, incidental, special or direct damages, including, but not limited to, any claims for loss of profits, downtime, loss of use or inconvenience. THE COMPANY MAKES NO OTHER WARRANTY, EXPRESSED OF IMPLIED, AND SPECIFICALLY, DISCLAIMS ANY IMPLIED WARRANTY INCLUDING THE WARRANTY OF MERCHANTABILITY.

The manufacturer continually strives to improve its products and therefore, reserves the right to make improvements or changes without incurring any obligations to make such changes or additions to equipment previously sold.

1 YEAR BRIGHTWORK WARRANTY

QTY: 1

KME Fire Apparatus (KME) warrants all bright finish components used in the construction of KME Fire Apparatus against defects and workmanship provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original user-purchaser for a period of one (1) year from the date of delivery/acceptance to the original user-purchaser, whichever occurs first.

The expressed warranty excludes corrosion or degradation of bright finished components caused by damage to the component.

FRONT SUSPENSION - STEERTEK - 5 YEAR WARRANTY

QTY: 1

The Hendrickson Steertek NXT front axle shall be provided with a five (5) year parts and labor warranty and shall include the axle and kingpin assembly, the steering arm assembly, and the upper and lower steering knuckle assembly.

The warranty for the integrated suspension components shall be two (2) years or two hundred fifty thousand (250,000) miles, whichever occurs first.

The integrated suspension components covered under this two year warranty are limited to:

- Front Frame Hanger Assemblies

- Rear Shackle Assemblies
- Jounce Stop Assemblies
- Rear Frame Hanger Assemblies
- Shock Absorbers
- Shock Absorber Brackets
- Leaf Spring Assemblies

A copy of the Hendrickson Steertek NXT Warranty shall be provided to define additional details of the warranty provisions.

HENDRICKSON AIR RIDE - TANDEM AXLE -THREE YEAR

QTY: 1

Hendrickson warrants suspension products manufactured by it to be free from defects in material and workmanship which occur under normal use and service for a period of three(3) years(base year + 2 years).

This warranty will not apply and no warranty of any kind will exist as to any product which has been subject to abuse, misuse, neglect, misapplication or accident of any type or cause or which has been repaired, replaced, substituted or used with parts other than genuine Hendrickson parts or altered by anyone.

LIFETIME POLY TANK WARRANTY - ALL TANKS

QTY: 1

The proposed water tank will be warranted by the water tank manufacturer for the "Lifetime" of the unit. A copy of the manufacturer's warranty will be supplied to define additional details of the warranty provisions.

HALE FIRE PUMP WARRANTY FULL 5 YEAR LABOR

QTY: 1

Hale Products, Incorporated ("Hale") hereby warrants to the original buyer that products manufactured by Hale shall be free of defects in material and workmanship for a period of five (5) years from the date product is first placed into service or five and one-half (5 1/2) years from date of shipment by Hale, whichever period shall be first to expire. Within this warranty, Hale will cover parts and labor for the entire warranty period.

FOAM PRO 2000 SERIES STANDARD WARRANTY

QTY: 1

The liability of FoamPro under the foregoing warranty will be limited to the repair or replacement at FoamPro’s option without charge for labor or materials of any parts upon return of the entire pump, system or other product or of the particular part to the FoamPro factory within the warranty period, at the sole expense of the purchaser, which part will upon examination appear to FoamPro’s satisfaction to have been defective in material and workmanship.

AKRON - 5 YEAR LIMITED WARRANTY

QTY: 1

The limited warranty set forth here against defective materials or workmanship for a period of five (5) years will be given by Akron Brass Co. with respect to Akron Brass Co. products purchased and used in the United States and Canada respectively. All Akron valves are warranted for 10 years.

CLASS 1 - ELECTRICAL PRODUCT WARRANTY

QTY: 1

Class 1 warrants that any equipment of our own manufacture (or manufactured for us pursuant to our specifications) found to have defects in material or workmanship during normal use and service, will be repaired or replaced (at our option) free of charge, provided that written notice of such defect is received by us within two years (three for liquid-filled gauges) after initial shipment.

All equipment requiring repair or replacement under this warranty will be returned prepaid to Class 1. Such returned equipment will be examined by us and, if found to be defective as a result of materials failure or workmanship, will be repaired or replaced at no charge.

VALOR SEATING 6 YEAR WARRANTY

QTY: 1

Valor will warrant each new seat manufactured, to be free from defects in materials and workmanship when delivered to the original purchaser for a period of six (6) years.

Labor to remove or reinstall defective items will not be covered under this warranty. All warranty claims shall have prior approval from Valor warranty department.

CORROSION TREATMENT

QTY: 1

Upon apparatus completion, underside of the apparatus, from the pump enclosure-back, shall have anti corrosion film applied to help inhibit rust and the corrosion process. The semi-firm wax film shall be applied by air spray method. The film shall be applied as a minimum to the following areas: body substructure, underside of all body compartments, running board supports and rear step supports. No film shall be applied directly to the exhaust system or wheel wells.

NOTE: The film shall remain semi-firm to promote self-sealing. The film may leave a light tinted color to those areas treated.

SMART POWER HYDRAULIC GENERATORS - 5 YEAR

QTY: 1

The specified generator shall have a five (5) year or one thousand (1,000) hour warranty, all parts and labor, as provided by the generator manufacturer. A copy of the generator warranty shall be provided at the time of delivery.

ADDITIONAL ITEMS SHIPPED WITH VEHICLE

QTY: 1

- 1 - Bag of assorted stainless steel nuts and bolts
- 1 - Complete set of hydraulic filters for the pressure filter and the return line filter

VEHICLE CLASS TIER 0

QTY: 1