Woodstock Fire Department
454 Woodstock Road
Woodstock, VT 05091

Non-Emergency Phone 802-457-2337

In Emergency Dial 9-1-1

Woodstock Fire Dept.
Invitation to Bid
Type 1 Fire Engine

Woodstock fire department is seeking bids for a New Type 1 custom fire engine. The specification package is for minimum requirements, which must be met or noted on bid sheet of a change.

1- Type 1 Engine
2- 1500 GPM pump
3- 1000-gallon water tank

Trade-in is a Type 1 engine — 1999 EONE custom with 21728.3 miles and 1702.7 hrs.as of 1/14/25

Please also include lease purchase options of 5 years with a breakdown of rates and interest if the dealer/factory has the option.

Bids are due Thursday, February 27th, 2025, at 10:00 AM at Woodstock Town Hall with opening immediately preceding at Town Hall 2nd floor conference room.
Please mail Bids to:
Town of Woodstock
Fire apparatus replacement bid E2
PO box 488
Woodstock, VT 05091

Bid Bond

A bid security in the form of a Bid Bond, cashier's check, or certified check made payable to the Purchaser in the amount of ten percent (10%) of the total bid shall be required. This shall serve as a guarantee which may be forfeited and retained by the Purchaser in lieu of its other legal remedies if a successful bidder's proposal is accepted by the Purchaser and the bidder shall fail to execute and return to the Purchaser the required contract and bonds within ten (10) days after delivery.

Certificate of Insurance

Each bidder shall furnish, with their proposal, a Certificate of Product Liability Insurance for a minimum of ten (10) million dollars. Failure to provide this documentation shall render the proposal non-responsive and the bid shall be rejected. This certificate shall be from the primary builder only. Certificates submitted from various sub-contractors in order to total the ten million dollars minimum will not be acceptable as meeting the requirements of this section.

The Certificate must be made out to the Purchaser and must be original. Submission of a nonoriginal Certificate or a Certificate provided that is not made out to the Purchaser will not meet the requirements of this section.

Delivery

The bidder shall state the time required for delivery of the completed unit on the proposal page. The completed unit shall be delivered to the purchaser with full instructions provided to Woodstock Fire Department personnel on operation, care, and maintenance of apparatus at the purchaser's location. The unit must be delivered within 39 months or less.

Exceptions

The following apparatus specifications are considered minimum design and construction standards against which the apparatus will be inspected. It is the intent to receive proposals on equipment/apparatus meeting the attached detailed specifications in their entirety. Any proposals being submitted, without "Full Compliance" with these specifications shall so state on the bid proposal page, followed by a detailed "Letter of Exceptions" listing the areas of non-compliance. The reference must include page number, paragraph, and the exact nature of the exception.

Failure to follow this format, provided for the convenience of the Purchaser, will render the vendor's proposal non-responsive and ineligible for award of contract.

The Purchaser may add the statement "No Exception" to a component or design feature in these specifications. In the interest of fleet conformity or specific performance requirements, the Purchaser will not permit exceptions taken to these item(s). The Purchaser reserves the right to

reject any or all bid proposals and purchase the equipment it deems most suitable to its needs. The Purchaser does not, in any way, obligate itself to accept the lowest or any bid. Any bidder taking total exception to the complete specification, or a major element will result in immediate rejection of the proposal.

Intent of Specifications

It is the intent of these specifications to clearly describe the furnishing and delivery to the Purchaser, a complete apparatus equipped as specified. The primary objective of these specifications is to obtain the most acceptable apparatus for service in the Woodstock Department. These specifications cover specific requirements as to the type of construction and tests the apparatus must conform, together with certain details as to finish, material preferences, equipment, and appliances with which the successful bidder must conform.

The design of the apparatus must embody the latest approved automotive design practices. The workmanship must be of the highest quality in its respective field. Special consideration shall be given to service access to areas needing periodic maintenance, ease of operation, and symmetrical proportions. Construction must be heavy-duty and ample safety factors must be provided to carry loads as specified. The construction method employed will be in such a manner as to allow ready removal of any component for service or repair.

The apparatus shall conform to the National Fire Protection Association Standard for Automotive Fire Apparatus, number 1900, in its most recent edition, unless otherwise specified in this document. Only the specified firefighting support equipment listed in these specifications shall be provided.

The apparatus shall further conform to all Federal Motor Vehicle Safety Standards. No exception.

Each bidder shall furnish satisfactory evidence of their ability to design, engineer, and construct the apparatus specified and shall state the location of the factory producing the apparatus. They shall also substantiate they are able to render prompt and proper service and to furnish replacement parts for the apparatus.

Each bid must be accompanied by a set of detailed contractor's specifications consisting of a detailed description of the apparatus and equipment proposed. All bid proposal specifications must be in the same sequence as the advertised specification for ease of comparison. These specifications shall include size, location, type, and model of all component parts being furnished. Detailed information shall be provided on the materials used to construct all facets of the apparatus body. Any bidder who fails to submit detailed construction specifications, or who photocopies and submits these specifications as their own construction details will be considered non-responsive and shall render their proposal ineligible for award. No exception.

Bids will be addressed and submitted in accordance with the instructions provided on the cover sheet. The words **"Fire Apparatus Replacement Bid"**, shall be stated on the front of the bid envelope.

It shall be the responsibility of the bidder to assure that their proposal arrives at the location and time indicated. Late proposals, telegrams, facsimile, or telephone bids will not be considered.

All bidders are required to detail the payment terms for apparatus on the bidder's proposal page. Any required prepayments or progress payments must be explained in detail.

Detailed Drawings are Required as part of the Bid (No Exception).

ISO Compliance

The manufacturer shall operate a Quality Management System meeting the requirements of ISO 9001:2000.

The International Organization for Standardization (ISO) is a recognized world leader in establishing and maintaining stringent manufacturing standards and values. The manufacturer's certificate of compliance affirms that these principles form the basis for a quality system that unswervingly controls design, manufacture, installation, and service.

The manufacturer's quality systems shall consist of, but not be limited to, all written quality procedures (aka QOP) and other procedures referenced within the pages of the manufacturer's Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts products or processes. In addition, all apparatus assembly processes shall be documented for traceability and reference. The manufacturer shall also engage the services of a certified third party for testing purposes where required.

If the manufacturer operates more than one manufacturing facility each facility must be ISO certified.

By virtue of its ISO compliance the manufacturer shall provide an apparatus that is built to exacting standards, meets the customer's expectations, and satisfies the customer's requirements.

A copy of the manufacturer's certificate of ISO compliance for each manufacturing facility shall be provided with the bid.

Proposal Price

Each bidder's proposal must include all items required in the specifications unless a specific exception is taken. ***No Prepayment Discount Shall Be Included within the Bid Price.*** The bid price must be summited in one sealed envelope and specifications, drawings, engineering information, and tuck information in a separate envelope.

Reference List

Each bid shall be accompanied by a list of at least fifteen (15) similarly constructed apparatus presently in service. Each reference must be apparatus built of the same construction style as these specifications call for. This list shall include customers' names, addresses, date apparatus was placed in service, and a current contact with phone number.

Service Requirements (No Exception)

Each bidder shall supply, with their proposal, detailed information on the bidder's ability to perform routine and emergency mobile service on the apparatus after delivery at the Customer's Location. Detailed information shall be provided on service facilities, personnel, service vehicles, and the type and nature of repair work the bidder is able to provide. Bidder shall operate a fully staffed service center within 150 road miles of the Purchaser's facility. It is the intent of the Purchaser to assure that parts and service are readily available for the equipment specified. Service capabilities will be one of the major criteria for award of this contract. Bidder must also list current service and travel rates per hour.

TESTING COMPLIANCE STANDARD

Woodstock Vehicle Fire Thread Types by Diameter:

1. 1.5" NSPH
2. 2.5" NH
3. 3" NH
4. 4" Storz

Hose Bed Capacity

The hose bed shall have the capacity to store the following hose from the driver side to the officer side: 300 feet of 2.5" DJ and 1000 Feet of 4" LDH as well as an area for the storage of a 1500 gallon folding tank to lay flat. Above he folding tank storage shall be an adjustable shelf for department equipment storage (no exception).

Overall Height Restriction

The apparatus shall have overall height restrictions 10 feet.

NFPA Compliance

The supplied components of the apparatus shall be compliant with NFPA 1900, 2024 edition.

BUMPERS

Front Bumper

The vehicle shall be equipped with a one-piece 10” high bumper made from 10 gauge (0.135” nominal) polished stainless steel for corrosion resistance, strength, and long-lasting appearance. It shall be mounted directly to the front frame extensions for maximum strength. The bumper shall incorporate two (2) stiffening ribs.

Front Bumper Extension

The bumper shall be extended approximately 20” from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16” (.375”) aluminum tread plate material.

BUMPER TRAYS

Bumper Tray - Center

A RAISED hose tray constructed of 1/8” aluminum with 4” raised damns shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 14" deep (13" to the top of the slats). One inch thick aluminum slats shall be included in the bottom of the hose tray to aid in the dissipation of water from the tray.

Bumper Tray Securing Strap

A heavy duty black nylon strap with a stainless steel quick-release buckle shall be provided for center front bumper tray. The strap shall be attached to the inboard side of the tray and shall not reduce the overall tray capacity.

FRAME ASSEMBLY

Rear Underbody Support Frame

The body shall be supported at the rear by a steel frame extension bolted to the chassis frame rails. The frame rails and frame extension shall be isolated from the aluminum body extrusions by 5/16” x 2” fiber reinforced rubber.

The frame extension shall be built with (2) 2.5” sq. x .25 wall thickness x full width cross rails welded to (2) 2.5” sq. x .25 wall thickness side rails. The frame extension assembly will be welded to steel weldments, which are secured to the chassis frame with 5/8” grade 8 bolts. The

frame extension shall have a hot-dipped galvanized zinc coating for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

The frame extension shall not interfere with N.F.P.A. minimum requirements for angle of departure.

Frame Assembly

The frame shall consist of two (2) C-channel frame rails with heavy-duty cross-members. Each frame rail shall have the following minimum specifications in order to minimize frame deflection under load and thereby improve vehicle ride and extend the life of the frame:

Dimensions: 10-1/4” x 3-1/2” x 3/8”

Material: 110,000-psi minimum yield strength, high strength, low alloy steel

Section Modulus: 16.61 cu. in.

Resistance to Bending Moment (RBM): 1,827,045 in. lbs.

If larger rails are provided, the maximum height of each frame rail shall not exceed the 10-1/4” dimension by more than 1/2” in order to ensure the lowest possible body height for ease of access as well as the lowest possible vehicle center of gravity for maximum stability.

There shall be a minimum of six (6) cross-members joining the two (2) frame rails in order to make the frame rigid and hold the rails/liners in alignment. The cross-members shall be a combination of a formed steel C-channel design along with heavy duty steel fabricated designs as required for the exact chassis configuration. The cross-members shall be attached to the frame rails with not less than four (4) bolts at each end arranged in a bolt pattern to adequately distribute the cross-member load into the rail/liner and minimize stress concentrations.

All frame fasteners shall be high-strength Grade 8, flanged-head threaded bolts and nuts for frame strength, durability, and ease of repair. The nuts shall be Stover locknuts to help prevent loosening. The frame fasteners shall be tightened to the proper torque at the time of assembly.

The frame rails shall be hot-dip galvanized and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

The frame cross-members and frame mounted components (suspensions, axles, air tanks, battery boxes, fuel tank, etc.) shall be painted black.

The custom chassis frame shall have a WHEEL ALIGNMENT in order to achieve maximum vehicle road performance and to promote long tire life. The alignment shall conform to the manufacturer`s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be

tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery upon request.

Galvanized Frame Components

The front chassis frame extensions, rear subframe (If equipped), crossmembers and battery brackets shall be hot-dip galvanized for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

Coated Fasteners

The custom chassis frame assembly shall be assembled using GEOMET 720 coated fasteners for corrosion resistance.

AXLE OPTIONS

Front Axle

The vehicle shall utilize an Meritor FL-943, 5” drop beam front axle with a rated capacity of 21,000 lbs. It shall have ”easy steer” knuckle pin bushings and 68.83” kingpin centers. The axle shall be of I-beam construction and utilize grease-lubricated wheel bearings. The vehicle shall have a nominal cramp angle of 45 degrees, plus two (+ 2) degrees to minus three (- 3) degrees including front suction applications.

The front axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels in order to improve wheel centering and extend tire life.

The front springs shall be parabolic tapered, minimum 4” wide x 54” long (flat), minimum three (3) leaf, progressive rate with a capacity of 21,000 lbs. at the ground. The springs shall have Berlin style eyes and rubber bushings on each end with an additional standard wrap at the front eye. Tapered leaf springs provide a 20% ride improvement over standard straight spring systems.

The vehicle shall be equipped with a Sheppard model M-110 integral power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 21,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

In order to achieve maximum vehicle road performance and to promote long tire life, there shall be a wheel alignment. The alignment shall conform to the manufacturer`s internal specifications. All wheel lug nuts and axle U-bolt retainer nuts shall be tightened to the proper torque at the time of alignment. The wheel alignment documentation shall be made available at delivery.

Shock Absorbers Front

Koni model 90 shock absorbers shall be provided for the front axle. The shocks shall be three way adjustable.

The shocks shall be covered by the manufacturer`s standard warranty.

Front Axle Sight Glass

The front axle shall have a Stemco sight glass on the hubs to check the lubricant level of the axle spindles.

The inboard wheel seals shall be Chicago Rawhide brand.

Rear Axle

The vehicle shall be equipped with an Meritor RS-26-185 single rear axle with single-reduction hypoid gearing and a manufacturer`s rated capacity of 27,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with Meritor oil seals.

The rear axle hubs shall be made from ductile iron and shall be designed for use with 10 hole hub-piloted wheels to improve wheel centering and extend tire life.

Driver Controlled Differential

A Rockwell driver controlled main differential lock shall be supplied. Operated from within the cab, it reduces wheel spin-outs by transferring power from the slipping wheel to the wheel with traction. An indicator shall be provided visible to the driver to show when the lock is engaged.

When used in a tandem axle application, the DCDL will be installed on the rear/rear axle only.

SUSPENSIONS

Rear Suspension

The rear suspension shall be a pair of linear-rate leaf springs with auxiliary “helper” leaf springs. The variable-rate springs with auxiliary springs ensure that the vehicle rides and handles smoothly under both loaded and unloaded conditions.

The suspension system shall have maintenance free rubber bushings at the forward end of the springs. The spring bushings shall have bar pin style mounting that allows for 4-wheel alignment.

The suspension shall be rated for the maximum axle capacity.

WHEEL OPTIONS

Front Wheels

The front wheels shall be steel hub-piloted disc sized appropriately for the tires.

Front Wheel Trim Package

The front wheels shall have stainless steel lug nut covers (for use with aluminum wheels) or chrome plated plastic (for use with steel wheels). The front axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel universal baby moons. All stainless steel baby moons shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) baby moons and twenty (20) lug nut covers.

Rear Wheels

There shall be four hub-piloted steel disc wheels sized appropriately for the tires.

Rear Wheel Trim Package, Single Axle

The rear wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable), or American made chrome plated plastic lug nut covers. The rear axle shall be covered with American made Real Wheels brand mirror finish, 304L grade, non-corrosive stainless steel, spring clip band mount high hats, DOT user friendly. All stainless steel high hats shall carry a lifetime warranty plus a 2 year re-buffing policy. There shall be two (2) high hats and twenty (20) lug nut covers.

TIRE OPTIONS

Front Tires

The front tires shall be two (2) Michelin 425/65R 22.5 tubeless type 20 PR radial tires with XZY3 Wide Base aggressive tread.

The tires with wheels shall have the following weight capacity and speed rating:

Max front rating 22,800 @ 65 mph.

Max front rating with Alco aluminum wheels - 24,400 @ 65 MPH (intermittent fire service rating if GAW is over 22,800)

The wheels and tires shall conform to the Tire and Rim Association requirements. **Rear**

Tires

The rear tires shall be Michelin 12R22.5 tubeless type radial tires with XDN2 all weather tread.

The tires with wheels shall have the following weight capacity:

27,000 lbs. (dual) @ 75 MPH

The wheels and tires shall conform to the Tire and Rim Association requirements.

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels Air Guard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure per load ratings and easily re-calibrated by simply removing and re-installing them during service.

Real Wheel Part number RWC1234 was superseded by RWC1235 as of June 2015

BRAKE SYSTEMS

Front Brakes

The front axle shall be equipped with Meritor DiscPlus EX225H 17 inch disc brakes.

The brakes shall be covered by the manufacturer`s standard warranty which is two years, unlimited mileage and parts only.

Rear Brakes

The rear axle shall be equipped with ArvinMeritor 16-1/2” x 7” S-cam brakes with cast brake drums. Q-Plus shoes shall be provided with up to 24,000 lb. axle ratings and P-Type shoes with over 24,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RS-24-160 and RS-25-160 axles, and Haldex brand shall be supplied on RS-26185 and RS-30-185 axles.

A 3 year/unlimited miles parts and 3 year labor rear brake warranty shall be provided as standard by ArvinMeritor Automotive. The warranty shall include bushings, seals, and cams.

Brake System

The vehicle shall be equipped with air-operated brakes and an anti-lock braking system (ABS). The brake system shall meet or exceed the design and performance requirements of the current Federal Motor Vehicle Safety Standard (FMVSS)-121, and the test requirements of the current NFPA 1901 Standard.

A dual-treadle brake valve shall correctly proportion the braking power between the front and rear systems. The air system shall be provided with a rapid pressure build-up feature, designed to meet current NFPA 1901 requirements, to allow the vehicle to begin its emergency response as quickly as possible.

A pressure-protection valve shall be installed to prevent use of the air horns or other air-operated devices should the air system pressure drop below 85 psi. This feature is designed to prevent inadvertent actuation of the emergency/parking brakes while the vehicle is in motion.

The braking system shall be provided with a minimum of three (3) air tank reservoirs for a total air system capacity of 5,214 cu. in. One (1) reservoir shall serve as the wet tank and a minimum of one (1) tank shall be supplied for each of the front and rear axles. The total system shall carry a sufficient volume of air to comply with FMVSS-121.

Tank Capacities in Cubic Inches:

Wet	Front	Rear	Total
1,738	1,738	1,738	5,214

Spring-actuated emergency/parking brakes shall be installed on the rear axle.

A Bendix-Westinghouse SR-1 valve, in conjunction with a double check valve system, shall provide automatic emergency brake application when the air brake system pressure falls below 40 psi in order to safely bring the vehicle to a stop in case of an accidental loss of braking system air pressure.

A four-channel Wabco ABS shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to both front and rear axles. All electrical connections shall be environmentally-sealed for protection against water, weather, and vibration.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall detect approaching wheel lockup and instantly modulate (or pump) the brake pressure up to five (5) times per second to prevent wheel lock-up. Each wheel shall be individually controlled. To improve field performance, the system shall be equipped with a dual-circuit design configured in a diagonal pattern. Should a malfunction occur in one circuit, that circuit shall revert to normal braking action. A warning light at the driver`s instrument panel shall signal a malfunction.

The system shall also be configured to work in conjunction with all auxiliary engine, exhaust, or driveline brakes to prevent wheel lock-up.

To improve maintenance troubleshooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started, and a dashmounted light shall go out once the vehicle is moving above 4 MPH.

A 3 year/300,000 mile parts and labor Anti-Locking Braking System (ABS) warranty shall be provided as standard by Meritor Automotive.

Park Brake Release

One (1) Bendix-Westinghouse PP-5 parking brake control valve shall be supplied on the lower dash panel within easy reach of the driver.

Electronic Stability Control

The apparatus shall be equipped with a G4 4S4M Electronic Stability Control (ESC) system that combines the functions of Roll Stability Control (RSC) with the added capability of yaw - or rotational – sensing.

RSC focuses on the vehicle's center of gravity and the lateral acceleration limit or rollover threshold. When critical lateral acceleration thresholds are exceeded, RSC intervenes to regulate the vehicle's deceleration functions. The added feature of ESC is to automatically intervene to reduce the risk of the vehicle rotating while in a curve or taking evasive action, prevents drift out through selective braking, and controlling and reducing vehicle speed when lateral acceleration limits are about to be exceeded.

Intervention by the system occurs in three forms - engine, retarder and brake control. The ESC system uses several sensors to monitor the vehicle. These include a steering wheel angle sensor, lateral accelerometer, and yaw position sensor. ESC constantly monitors driving conditions and intervenes if critical lateral acceleration is detected or if the vehicle begins to spin due to low friction surfaces. The system provides control of engine and retarder torque as well as automatically controlling individual wheels to counteract both over steer and under steer.

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 improve acceleration slip resistance. The system shall have a dash mounted light that shall come on when ATC is controlling drive wheel slip.

3 year/300,000 miles parts and labor warranties for ESC, RSC, and ATC shall be provided as standard by Meritor Automotive.

Brake System Fittings

All air brake system hoses on the chassis shall be connected by use of compression fittings. No Exception

AIR SYSTEM OPTIONS

Air Dryer

The chassis air system shall be equipped with a Bendix-Westinghouse AD-9 air dryer to remove moisture from the air in order to help prevent the air lines from freezing in cold weather and prolong the life of the braking system components.

Air Inlet Auto-Eject

A Kussmaul Air Auto-Eject #091-28 airline disconnect shall be installed for the air inlet connection. The airline will automatically disconnect when the vehicle is started. A Yellow weatherproof gasketed cover, which automatically closes when the airline is ejected, shall be supplied.

The Auto-Eject shall be located outside driver's door next to handrail.

Air Lines

Air brake lines shall be constructed of color coded nylon tubing routed in a manner to protect them from damage. Brass fittings shall be provided.

Air Horns

Dual Hadley e-tone air horns shall be provided, connected to the chassis air system. The horns shall be mounted through the front bumper. The front bumper shall have two (2) holes punched to accommodate the air horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

Stainless Steel Mounting Straps [Qty: 3]

Stainless steel mounting straps shall be provided for an air tank.

ENGINES & TRANSMISSIONS

Transmission Selector

A push-button transmission shift module, Allison model 29538373, shall be located to the right side of the steering column within easy reach of the driver. The shift position indicator shall be indirectly lit for after dark operation. The shift module shall have a “Do Not Shift” light and a “Service” indicator light. The shift module shall have means to enter a diagnostic mode and display diagnostic data including oil life monitor, filter life monitor, transmission health monitor and fluid level. A transmission temperature gauge with warning light and buzzer shall be installed on the cab instrument panel.

Transmission Fluid

The transmission fluid shall be TranSynd, Shell Spirax S6ATF A295, or equivalent synthetic.

Vehicle Speed

The maximum speed shall be electronic limited to 68 MPH as required by NFPA 1901.

Note: Maximum speed may be set at 65 MPH due to tire rating.

Engine/Transmission Package

Engine

A Cummins X10 6 cylinder diesel engine with 450 horsepower and 1650 foot-lbs of peak torque shall power the chassis. Emissions shall be compliant with EPA 2027 ultra-clean regulations using selective catalyst reductant and diesel particulate filter technology.

The engine shall include Acumen telematics to improve diagnostic troubleshooting.

The engine air filter intake shall be located above the radiator to minimize the risk of water ingestion during high water. The air filter shall use a replaceable dry type element designed to prevent dust and debris from being ingested into the engine.

A multilayered screen trap shall protect the air filter from embers and water.

A restriction indicator light shall activate when the air cleaner element requires replacement.

The engine exhaust piping shall be a minimum of 4” diameter welded stainless steel tubing.

Note: Until the 2027 EPA engine integration is finalized, option availability and body design relative to engine and aftertreatment are subject to change. Additional costs associated with the 2027 EPA engine will be passed on to the end user. No exceptions.

Transmission

An Allison model EVS 4000P automatic transmission shall be provided. The transmission shall include electronic controls and be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

A transmission oil temperature gauge with warning light and buzzer shall be installed on the cab instrument panel to warn the driver of high oil temperatures that may damage the transmission.

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1900 and automatically shift to neutral upon application of the parking brake.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission.

SECONDARY BRAKING

Jacobs Engine Brake

One (1) Jacobs engine brake shall be installed to assist in slowing and controlling the vehicle as required by NFPA 1901 for vehicles with gross vehicle weight ratings (GVWR) of 36,000 lbs. or greater. An on-off control switch and a high-medium-low selector switch shall be mounted in the cab accessible to the driver.

When activated, the Jacobs engine brake shall cut off the flow of fuel to the cylinders and alter the timing of the exhaust valves. This shall transform the engine into a high-pressure air compressor, driven by the wheels, and the horsepower absorbed by the engine in this mode shall slow the vehicle. The selector switch allows the driver to select the amount of retarding power.

When the on-off switch is in the “on” position, the engine brake shall be automatically applied whenever the accelerator is in the idle position and the automatic transmission is in the lock-up mode. If the accelerator is depressed or if the on-off switch is placed in the “off” position, the engine brake shall immediately release and allow the engine to return to its normal function.

The rear brake lights shall illuminate when the Jacobs engine brake is activated.

Transmission Programming

The transmission shall include the Allison 2nd gear Pre-Select feature. This option will direct the transmission to down shift to second gear when the throttle is released and the Jacobs engine brake (or Telma retarder wired to activate with release of throttle) is engaged. This will be driven upon delivery to the fire dept and we may request a different gear upon testing This feature is designed to increase brake life and aid vehicle braking.

EXHAUST OPTIONS

Exhaust End Modification

The end of the exhaust tail pipe shall be modified to accommodate a Plymovent magnetic exhaust end. The exhaust end shall protrude approximately 2" outside of the body. The tailpipe will discharge straight out from the side of the body.

Exhaust Blanket

The exhaust shall be covered with an insulation blanket specifically designed for high temperature usage. The blanket shall have a silicone impregnated fiberglass sewn outer cover with a stainless steel knitted wire mesh inner liner. The cover shall be retained with stainless steel capstan rivets and stainless steel lacing wire. The blanket shall be a 2-piece design installed from the engine turbo to the DPF and from the DPF to the SCR.

COOLING PACKAGE

Engine Cooling Package

Radiator

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations in compliance with the engine and transmission OEMs and all EPA regulations. The complete cooling system shall be mounted to isolate it from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction caused by temperature variation.

The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to monitor the level of the coolant.

All radiator tubes shall be formed from aluminized steel tubing.

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps.

Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The radiator and charge air cooler shall be removable through the bottom of the chassis.

Silicone Hoses

All radiator and heater hoses shall be silicone. Pressure compensating band clamps shall be used to eliminate hose pinching on all hoses 3/4" diameter and larger. All radiator hoses shall be routed, loomed, and secured so as to provide maximum protection from chafing, crushing, or contact with other moving parts.

Fan / Shroud

A 30 inch diameter fan shall be used to move cooling air through the radiator. It shall have eleven (11) blades to minimize noise while providing maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance.

A fan shroud and baffling shall be provided to direct air flow and minimize hot air recirculation during operation. The shroud shall be formed with curved surfaces to improve air flow and cooling.

Fan Clutch

The engine fan shall be mounted to the engine using a variable speed fan clutch. The clutch will vary the fan speed based on the need for engine and transmission cooling. If the fan clutch were to fail it shall fail in the ON condition to ensure continued cooling for the engine.

FUEL SYSTEMS

Fuel System

One (1) 50 gallon fuel tank shall be provided. The tank shall be of an all-welded, aluminizedsteel construction with anti-surge baffles and shall conform to all applicable Federal Highway Administration (FHWA) 393.65 and 393.67 standards. The tank shall be mounted below the frame rails at the rear of the chassis for maximum protection. The tank shall be secured with two (2) wrap-around T-bolt type stainless steel straps. Each strap shall be fitted with protective rubber insulation and shall be secured with grade 8 hardware. This design allows for tank removal from below the chassis.

The fuel tank shall be equipped with a 2” diameter filler neck. The filler neck shall extend to the rear of the vehicle behind the rear tires and away from the heat of the exhaust system as required by NFPA 1901 Standard for Automotive Fire Apparatus. The open end of the filler neck shall be equipped with a twist-off filler cap with a retaining chain.

The tank shall be plumbed with top-draw and top-return fuel lines in order to protect the lines from road debris. Bottom-draw and/or bottom-return fuel lines are not acceptable. A vent shall be provided at the top of the tank. The vent shall be connected to the filler neck to prevent splash-back during fueling operations. A .50” NPT drain plug shall be provided at the bottom of the tank.

The tank shall have a minimum useable capacity of 50 gallons of fuel with a sufficient additional volume to allow for thermal expansion of the fuel without overflowing the vent.

A mechanical fuel pump shall be provided and sized by the engine manufacturer as part of the engine.

Fuel Line

All fuel lines shall be rubber.

Fuel Filter/Water Separator

The fuel system shall have a Fleetguard FS20121 (or equivalent) fuel filter / water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

ALTERNATOR

360 Amp Alternator

A Niehoff model C527 360 amp SAE (J56) rated, 320 amp at 200 degrees F at 5000 RPM NFPA 1901 rated brush-less type alternator with rectifier shall be provided. It shall be self-energized and shall have a negative voltage compensating remote solid-state voltage regulator. The alternator shall be installed in accordance with the engine manufacturer`s recommendations.

BATTERIES

Battery System

The manufacturer shall supply four (4) heavy duty Group 31 12-volt maintenance-free batteries. Each battery shall be installed and positioned so as to allow easy replacement of any single battery. Each battery shall be equipped with carrying handles to facilitate ease of removal and replacement. There shall be two (2) steel frame mounted battery boxes, one (1) on the left frame rail and one (1) on the right frame rail. Each battery box shall be secured to the frame rail with Grade 8 hardware. Each battery box shall hold (2) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. There shall be two (2) plastic trays, each containing (2) batteries. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

One (1) positive and one (1) negative jumper stud shall be provided.

Batteries shall have a warranty of twelve (12) months that shall commence upon the date of delivery of the apparatus.

CHASSIS OPTIONS

Drivelines

Drivelines shall have a heavy duty metal tube and shall be equipped with Spicer 1810 series universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Rear Tow Eyes

Two (2) heavy duty tow eyes made of 3/4" (0.75") thick steel having 2-1/2" diameter holes shall be mounted below the body at the rear of the vehicle to allow towing (not lifting) of the apparatus without damage. The tow eyes will be welded to the lower end of a 5" steel channel that is bolted at the end of the chassis frame rails. The tow eyes shall be painted chassis black.

Front Tow Hooks

Two (2) heavy duty painted front tow hooks shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the apparatus without damage. They shall be mounted in the downward position. Tow hooks will be mounted inboard (horizontal) when used with a drop style frame extension.

DEF Tank

A diesel exhaust fluid (DEF) tank with a five (5) gallon capacity shall be provided.

The DEF tank shall include a heater fed by hot water directly from the engine block to prevent the DEF from becoming too cool to operate correctly per EPA requirements. The tank shall include a temperature sensor to control the heater control valve that controls the feed of hot water from the engine to the DEF tank heater.

A sender shall be provided in the DEF tank connected to a level gauge on the cab dash.

The tank shall be located left side below rear of cab.

Power Steering Cooler

A heat exchanger (cooler) shall be installed to maintain desired power steering fluid temperature. The cooler shall be a model DH-073-1-1 with air / oil design rated at 6300 BTU/HR @10 GPM. The cooler shall be mounted in front of the radiator and plumbed with #10 lines.

CAB MODEL

Cab Medium

The vehicle shall be distinguished by an all-welded aluminum and fully enclosed tilt cab. The cab shall be designed exclusively for fire/rescue service and shall be pre-engineered to ensure long life. It shall incorporate an integral welded substructure of high-strength aluminum alloy extrusions that creates an occupant compartment that is essentially a protective perimeter. The end result is a distinctive structure that is aesthetically appealing, functionally durable, and characterized by increased personnel safety.

The cab shall be constructed from 3/16” (0.188”) 3003 H14 aluminum alloy plate roof, floor, and outer skins welded to a high-strength 6063-T6 aluminum alloy extruded subframe. Wall supports and roof bows are 6061 T6 aluminum alloy. This combination of a high-strength, welded aluminum inner structure surrounded on all sides by load-bearing, welded aluminum outer skins provides a cab that is strong, lightweight, corrosion-resistant, and durable.

The inner structure shall be designed to create an interlocking internal ”roll-cage” effect by welding two (2) 3” x 3” x 0.188” wall-thickness 6063-T5 aluminum upright extrusions between the 3” x 3” x 0.375” wall-thickness 6061-T6 roof crossbeam and the 2.25” x 3” x 0.435” wallthickness 6063-T6 subframe structure in the front. An additional two (2) aluminum upright extrusions within the back-of-cab structure shall be welded between the rear roof perimeter extrusion and the subframe structure in the rear to complete the interlocking framework. The four (4) upright extrusions -- two (2) in the front and two (2) in the rear -- shall be designed to effectively transmit roof loads downward into the subframe structure to help protect the occupant compartment from crushing in a serious accident. All joints shall be electrically seam welded internally using aluminum alloy welding wire.

The subframe structure shall be constructed from high-strength 6061-T6 aluminum extrusions welded together to provide a structural base for the cab. It shall include a side-to-side 3” x 1.5” .375 thick C-channel extrusion across the front, with 3/4” x 2-3/4” (.75” x 2.75”) full-width crossmember tubes spaced at critical points between the front and rear of the cab.

The cab floor shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate welded to the subframe structure to give the cab additional strength and to help protect the occupants from penetration by road debris and under-ride collision impacts.

The cab roof shall be constructed from 3/16” (0.188”) 3003 H14 aluminum treadplate supported by a grid of fore-aft and side-to-side aluminum extrusions to help protect the occupants from penetration by falling debris and downward-projecting objects. Molded fiberglass or other molded fiber-reinforced plastic roof materials are not acceptable.

The cab roof perimeter shall be constructed from 4” x 6-5/8” (4” x 6.625”) 6063-T5 aluminum extrusions with integral drip rails. Cast aluminum corner joints shall be welded to the aluminum roof perimeter extrusions to ensure structural integrity. The roof perimeter shall be continuously welded to the cab roof plate to ensure a leak-free roof structure.

The cab rear skin shall be constructed from 3/16” (0.188”) 3003 H14 aluminum plate. Structural extrusions shall be used to reinforce the rear wall.

The left-hand and right-hand cab side skins shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate. The skins shall be welded to structural aluminum extrusions at the top, bottom, and sides for additional reinforcement.

The cab front skins shall be constructed from 3/16” (0.188”) 3003 H14 smooth aluminum plate. The upper portion shall form the windshield mask, and the lower portion shall form the cab front. Each front corner shall have a full 9” outer radius for strength and appearance. The left-hand and right-hand sides of the windshield mask shall be welded to the left-hand and right-hand front door frames, and the upper edge of the windshield mask shall be welded to the cab roof perimeter extrusion for reinforcement. The cab front shall be welded to the subframe C-channel extrusion below the line of the headlights to provide protection against frontal impact.

Cab Exterior

The exterior of the cab shall be 94” wide x 130” long to allow sufficient room in the occupant compartment for up to eight (8) fire fighters. The cab roof shall be approximately 101” above the ground with the flat roof option. The back-of-cab to front axle length shall be a minimum of 58”.

Front axle fenderette trim shall be brushed aluminum for appearance and corrosion resistance. Bolt-in front wheel well liners shall be constructed of 3/16” (0.188”) composite material to provide a maintenance-free, damage-resistant surface that helps protect the underside of the cab structure and components from stones and road debris.

A large stainless steel cooling air intake grille with an open area of no less than 81% shall be at the front of the cab.

The cab windshield shall be of a two-piece replaceable design for lowered cost of repair. The windshield shall be made from 1/4” (0.25”) thick curved, laminated safety glass with a 75% light transmittance automotive tint. A combined minimum viewing area of 2,561-sq. in. shall be provided. Forward visibility to the ground for the average (50th percentile) male sitting in the driver`s seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

Windshield Wipers

Two (2) opposed radial style windshield wipers with two (2) separate electric motors shall be provided for positive operation. The wipers shall be tested beyond the minimum SAE requirement to a total of 3.3 million cycles. The wipers shall be a wet-arm type with a one (1) gallon washer fluid reservoir, an intermittent-wipe function, and an integral wash circuit. Wiper arm length shall be approximately 20”, and the blade length approximately 21”. Each arm shall have a 90 degree sweep for full coverage of the windshield. The wipers shall be synchronized so as to wipe each windshield simultaneously.

Cab Mounts and Cab Tilt System

The cab shall be independently mounted from the body and chassis to isolate the cab structure from stresses caused by chassis twisting and body movements. Mounting points shall consist of two (2) forward-pivoting points, one (1) on each side; two (2) intermediate rubber load-bearing cushions located midway along the length of the cab, one on each side; and two (2) combination rubber shock mounts and cab latches located at the rear of the cab, one (1) on each side.

An electric-over-hydraulic cab tilt system shall be provided to provide easy access to the engine. It shall consist of two (2) large-diameter, telescoping, hydraulic lift cylinders, one (1) on each side of the cab, with a frame-mounted electric-over-hydraulic pump for cylinder actuation.

Safety flow fuses (velocity fuses) shall be provided in the hydraulic lift cylinders to prevent the raised cab from suddenly dropping in case of a burst hydraulic hose or other hydraulic failure. The safety flow fuses shall operate when the cab is in any position, not just the fully raised position.

The hydraulic pump shall have a manual override system as a backup in the event of an electrical failure. Lift controls shall be located in a compartment to the rear of the cab on the right side of the apparatus. A parking brake interlock shall be provided as a safety feature to prevent the cab from being tilted unless the parking break is set.

The entire cab shall be tilted through a 42-45 degree arc to allow for easy maintenance of the engine, transmission and engine components. A positive-engagement safety latch shall be provided to lock the cab in the full tilt position to provide additional safety for personnel working under the raised cab.

In the lowered position, the cab shall be locked down by two (2) automatic, spring-loaded cab latches at the rear of the cab. A ”cab ajar” indicator light shall be provided on the instrument panel to warn the driver when the cab is not completely locked into the lowered position.

Cab Interior

The interior of the cab shall be of the open design with an ergonomically-designed driver area that provides ready access to all controls as well as a clear view of critical instrumentation.

The engine cover between the driver and the officer shall be a low-rise contoured design to provide sufficient seating and elbow room for the driver and the officer. The engine cover shall blend in smoothly with the interior dash and flooring of the cab. An all-aluminum subframe shall be provided for the engine cover for strength. The overall height of the engine enclosure shall not exceed 23” from the floor at each side and 27” in the center section. The engine cover shall not exceed 41” in width at its widest point.

The rear portion of the forward engine cover shall be provided with a lift-up door to provide easy access for checking and filling engine oil, transmission fluid and power steering fluid without

raising the cab (a separate access panel shall be provided for the power steering when equipped with an X12 or X15 engine).

The engine cover insulation shall consist of 1/2” closed cell elastomeric compound foam with aluminum foil faced fiberglass fabric manufactured to specifically fit the engine cover. All edges and seams shall be sealed using aluminum foil faced fiberglass tape. The insulation shall meet or exceed DOT standard FMVSS 302-1 and V-0 (UI subject 94 Test).

All cab floors shall be covered with a black rubber floor mat that provides an aggressive slipresistant surface in accordance with current NFPA 1901.

The rear engine cover area shall be covered with molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black with a pebble grain finish for slip resistance.

A minimum of 57.25” of floor-to-ceiling height shall be provided in the front seating area of the cab and a minimum of 55.25” floor-to-ceiling height shall be provided in the rear seating area. A minimum of 36” of seated headroom at the "H" point shall be provided over each fenderwell.

The interior side to side dimensions shall be 87" from wall padding to wall padding and 89.5" from door to door.

The floor area in front of the front seat pedestals shall be no less than 24" side to side by up to 25” front to rear for the driver and no less than 24" side to side by up to 27” front to rear for the officer to provide adequate legroom.

Battery jumper studs shall be provided to allow jump-starting of the apparatus without having to tilt the cab.

All exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

The interior of the cab shall be insulated to ensure the sound (dbA) level for the cab interior is within the limits stated in the current edition of NFPA 1901. The insulation shall consist of 2 oz. wadding and 1/4” (0.25”) foam padding. The padding board shall be backed with 1/4” (0.25”) thick reflective insulation. The backing shall be spun-woven polyester. Interior cab padding shall consist of a rear cab headliner, a rear wall panel, and side panels between the front and rear cab doors.

The vehicle shall use a seven-position tilt and telescopic steering column to accommodate various size operators. An 18” padded steering wheel with a center horn button shall be provided.

The driver and officer seat risers shall be welded to the main cab floor structure. Depending on the make and model of the seats, a storage compartment with a hinged door shall be provided in the risers.

The lower front cab steps shall be a minimum of 11.5” deep x 24” wide. The lower rear cab steps shall be a minimum 16” deep x 21” wide. The first step at the front and rear cab doors shall be no more than 24.0” above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The front and rear steps shall incorporate full width intermediate steps for easy access to the cab interior. The intermediate step at the front doors shall be approximately 6" deep (minimum). The intermediate step at the rear doors shall be approximately 10.75" deep (minimum). The step surfaces shall be aluminum diamond plate with a multi-directional, aggressive gripping surface incorporated into the aluminum diamond plate in accordance with current NFPA 1901.

A black grip handle shall be provided on the interior of each front door below the door window to ensure proper hand holds while entering and exiting the cab. An additional black grip handle shall be provided on the left and right side windshield post for additional handholds.

Cab Doors

Four (4) side-opening cab doors shall be provided. Doors shall be constructed of a 3/16” (0.188”) aluminum plate outer material with an aluminum extruded inner framework to provide a structure that is as strong as the side skins.

Front cab door openings shall be approximately 36” wide x 72.5” high, and the rear cab door openings shall be approximately 33.75” wide x 72.5” high. The front doors shall open approximately 85 degrees, and the rear doors shall open approximately 80 degrees.

The doors shall be securely fastened to the doorframes with full-length, stainless steel piano hinges, with 3/8” (0.375”) diameter pins for proper door alignment, long life, and corrosion resistance. Mounting hardware shall be treated with corrosion-resistant material prior to installation. For effective sealing, an extruded rubber gasket shall be provided around the entire perimeter of all doors.

The front door windows shall provide a minimum viewing area of 518 sq. in. each. The rear door windows shall provide a minimum viewing area of 554 sq. in. each. All windows shall have 75% light transmittance automotive safety tint.

The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free material and have a black finish. Each exterior door handle shall have an integral keyed lock.

Recessed paddle-style door latches shall be provided on the interiors of the doors. The latches shall be designed and installed to protect against accidental or inadvertent opening as required by NFPA 1901. The rear cab door handles shall have a vertical orientation making them easily accessible from forward or rearward outboard seating positions. Each cab door shall have a manually operated door lock actuated from the interior of each respective door.

Cab Instruments and Controls

Cab controls shall be located on the cab instrument panel in the dashboard on the driver`s side where they are clearly visible and easily reachable. Chassis operation switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

- Speedometer/Odometer
- Tachometer
- Engine hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Transmission oil temperature gauge
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge with low fuel indicator light
- Voltmeter
- Master battery/ignition switch (rocker with integral guard)
- Engine start switch (rocker)
- Heater and defroster controls with illumination
- Marker light/headlight control switch (rocker)
- Panel light dimmer switch (rocker)
- Self-canceling turn signal control with indicators
- Windshield wiper switch with variable speed and washer controls
- Pump shift control with green ”pump in gear” and ”o.k. to pump” indicator lights
- Parking brake controls with red indicator light on dash
- Automatic transmission shift console
- Electric horn button at center of steering wheel
- Master warning light switch
- Cab ajar warning indicator
- Air filter restriction indicator

Controls and switches shall be identified as to their function by backlit wording adjacent to each switch, or indirect panel lighting adjacent to the controls.

Electrical System

The cab and chassis system shall have designated electrical distribution areas. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An access cover shall be provided for maintenance access to the electrical distribution area. Circuit protection shall be provided by fuses, thermal reset breakers and / or solid state controls.

A 6 place, constantly hot, and 6 place ignition switched fuse panel and ground for customer installed radios and chargers shall be provided at the electrical distribution area. Radio suppression shall be sufficient to allow radio equipment operation without interference.

All wiring shall be mounted in the chassis frame and protected from impact, abrasion, water, ice, and heat sources. The wiring shall be color-coded and functionally-labeled every 3” on the outer

surface of the insulation for ease of identification and maintenance. The wiring harness shall conform to SAE 1127 with GXL temperature properties. Any wiring connections exposed to the outside environment shall be weather-resistant. All harnesses shall be covered in a loom that is rated at 280 degrees F to protect the wiring against heat and abrasion.

Daytime Running Lights

Two (2) dual rectangular chrome plated headlight bezels shall be installed on the front of the cab. The low beam headlights shall be activated with the release of the parking brake to provide daytime running lights (DRL) for additional vehicle conspicuity and safety. The headlight switch shall automatically override the DRL for normal low beam/high beam operation.

Fast Idle System

A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output.

Cab Crashworthiness Requirement

The apparatus cab shall meet and/or exceed relevant NFPA 1901 load and impact tests required for compliance certification with the following:

Side Impact Dynamic Pre-Load per SAE J2422 (Section 5).

Testing shall meet and/or exceed defined test using 13,000 ft-lbs of force as a requirement. The cab shall be subject to a side impact representing the force seen in a roll-over. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 13,776 ft-lbs of force **exceeding** testing requirements.

Quasi-static Roof Strength (proof loads) per SAE J2422 (Section 6) / ECE R29, Annex 3, paragraph 5.

Testing shall meet and/or exceed defined test using 22,046 lbs of mass as a requirement. Testing shall be completed using platen(s) distributed uniformly over all bearing members of the cab roof structure.

Cab testing shall be completed using 23,561 lbs of mass **exceeding** testing requirements. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and doors shall remain closed.

Additional cab testing shall be conducted using 117,336 lbs of mass **exceeding** testing requirements by **over five (5) times**. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space and the doors shall remain closed.

Frontal Impact per SAE J2420.

Testing shall meet and/or exceed defined test using 32,549 ft-lbs of force as a requirement. The cab shall be subject to a frontal impact as defined by the standard. The cab shall exhibit minimal to no intrusion into the cab's occupant survival space, doors shall remain closed and cab shall remain attached to frame.

Cab testing shall be completed using 34,844 ft-lbs of force **exceeding** testing requirements.

Additional cab testing shall be conducted using 65,891 ft-lbs of force **exceeding** testing requirements by **over two (2) times**.

The cab shall meet all requirements to the above cab crash worthiness; **NO EXCEPTIONS**.

A copy of a certificate or letter verifying compliance to the above performance by an independent, licensed, professional engineer shall be provided upon request.

For any or all of the above tests, the cab manufacturer shall provide either photographs or video footage of the procedure upon request.

Seat Mounting Strength

The cab seat mounting surfaces shall be third party tested and in compliance with FMVSS 571.207.

Seat Belt Anchor Strength

The cab seat belt mounting points shall be third party tested and in compliance with FMVSS 571.210.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus cab shall be in conformance with the established ISO-compliant quality system. All written quality procedures and other procedures referenced within the pages of the manufacturer`s Quality Manual, as well as all Work Instructions, Workmanship Standards, and Calibration Administration that directly or indirectly impacts this process shall be strictly adhered to. By virtue of its ISO compliance the manufacturer shall provide an apparatus cab that is built to exacting standards, meets the customer`s expectations, and satisfies the customer`s requirements.

CAB ROOF TYPE

Raised Roof

The rear portion of the cab roof shall be raised 12". This will provide at least 5` 7" standing room. The front of the vista hood shall be sloped at 45 degrees from the vertical. The slope shall

begin slightly in front of the centerline of the front axle to leave room for warning lights and air conditioning in front of the vista. The main roof extrusion shall extend up into the vista to strengthen the roof perimeter. Windows shall be provided on front, side, and rear unless otherwise specified.

The rear door shall have an 85” vertical dimension for improved ingress/egress characteristics.

Raised Roof Front Windows

The front windows of the raised roof portion of the cab shall be deleted.

Raised Roof Side Windows

The side windows of the raised roof portion of the cab ahead of the rear doors shall be deleted.

CAB BADGE PACKAGE

Logo Package

The apparatus shall have manufacturer logos provided on the cab and body as applicable.

CAB DOOR OPTIONS

Rear Cab Door Position

The cab rear doors shall be moved to the rear of the wheel opening. This door placement facilitates easier entry and egress by reducing the rear facing seat protrusion into the door opening.

Rear door position to the 58” or (medium cab).

Cab Door Locks

The cab shall have 1250 keyed door locks provided on the exterior entry doors to secure the apparatus.

Cab Door Panels

The inner door panels shall be made from 1/8" (.125") aluminum plate painted multi-tone (to match cab interior paint) for increased durability. The cab door panels shall be split just below the handrail and incorporate an easily removable panel for access to the latching mechanism and window regulator for maintenance or service.

Cab Door Reflective Material

Reflective Red/Lemon Yellow material striping shall be provided approximately 12" high on the lower cab door panels. The stripes shall run from the top outer corner to the bottom inside corner of the lower door area, forming a "A" shape when viewed from the rear. The reflective material shall meet NFPA 1901 requirements.

Cab Door Locks

Each cab door shall have a manually operated door lock actuated from the interior of each respective door. Exterior of each cab door shall be provided with a keyed lock integrated with the cab door handle.

Cab Front Door Windows

Full roll-down windows shall be provided for the front cab doors with manually operated worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Rear Door Window(s)

Full roll-down window(s) shall be provided for the rear crew door(s) with manually operated worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Door Style

The cab doors shall be barrier style with exposed lower steps.

Door Handles

The door handles on the exterior of the cab shall be a pull type with vertical orientation. The handles shall be made with corrosion free glass reinforced nylon material and have a black finish. The handles shall have clearance for a gloved hand.

Each exterior door handle shall have an integral keyed lock.

CAB STEP OPTIONS

Cab Step

An auxiliary step below the cab door shall be provided. The step shall be constructed of .188” aluminum tread brite. The step surface shall be provided with an aggressive skid-resistant surface and have an open back. The step shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125").

Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The step shall be located driver's front door, officer's front door, driver side rear door, officer side rear door.

Steps under front cab doors shall not interfere with approach angle.

Cab Steps

The lower cab steps shall only extend 1.5" past the side of the cab to provide a reduced a vehicle width (from driver side step to officer side step). The intermediate cab steps shall be notched to improve egress. The doors shall have a filler block mounted to them to close off the notched area in the intermediate step.

MIRRORS

Mirror Extension

There shall be a 2” extension provided for each Ramco mirror.

Mirrors, Heated

Driver and officer cab mirrors to be heated. Includes all surfaces (flat and convex, as applicable).

Cab Mirrors

Two (2) Ramco model 8001FFR remote controlled aluminum mirrors shall be installed. The mirrors shall incorporate a full face main section with a convex mirror with housing model CAS750, mounted to the top. The adjustment of main sections shall be through switches accessible by the driver.

Location: mounted on front corners of cab.

Note: Option was previously for a model 6001FFR. Ramco implemented a running change from 6000 series to 8000 series in 2023.

Cab Mirrors

The cab mirrors shall have an exterior black finish. This shall include all mirror accessories, such as extensions, add-on components, and etc.

MISC EXTERIOR CAB OPTIONS

Cab Canopy Window

There shall be a fixed window provided between the front and rear doors on the driver`s side of the cab.

Window dimensions shall be as follows:

- 58" C/A cab (medium - extended): 26.69"W x 24.5"H

Front Mud Flaps

Black linear low density polyethylene (proprietary blend) mud flaps shall be installed on the rear of the cab front wheel wells. The design of the mud flaps shall have corrugated ridges to distribute water evenly.

Handrails

Cab door assist handrails shall consist of two (2) 1.25” diameter x 18” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand.

Handrails

Cab door assist handrails shall consist of two (2) 1.25” diameter x 36” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear door openings one each side of the cab. The handrails shall be machine extruded with integral ribbed surfaces to assure a good grip for personnel safety. Handrails shall be installed between chrome end stanchions and shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand.

Rear Cab Wall Construction

The rear cab wall shall be constructed with the use of 3/16" aluminum diamond plate interlocking in aluminum extrusions.

Cab Wheel Well

The cab wheel well shall be increased in size to provide additional clearance for larger tires. The fender trim shall be adjustable in and out to better accommodate various wheel / tire offsets.

Receptacle Mounting Plate

A mounting plate shall be provided for the battery charger receptacle, battery charger indicator and if applicable the air inlet, etc. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle(s) and indicator.

HVAC

Heat, Supplemental

A single 40,000 BTU water heater shall be supplied in the front area of the cab. The unit shall heat the lower section of the driver`s and officer`s footwell.

Dual 23,000 BTU water heaters shall be supplied in the rear of the cab to heat the rear cab lower section. The heaters shall have a fabricated aluminum cover (if applicable).

The heater controls shall be on the dash accessible by the driver. On units with optional multiplex display climate control, the floor heaters shall be controlled through the HVAC screen in the display.

Air Conditioning

An overhead air-conditioner / heater system with a roof mounted condenser shall be supplied.

The unit shall be mounted to the cab interior headliner in a mid-cab position, away from all seating positions. The unit shall provide fourteen (14) comfort discharge louvers, eight (8) to the back area of the cab, six (6) to the front area of the cab including one (1) each side outboard in the forward overhead console. These louvers will be used for both AC and heated air delivery. Two (2) additional large front louvers shall be damper controlled to provide defogging and defrosting capabilities to the front windshield as necessary.

The unit shall consist of a high output evaporator coil and heater core with one (1) high output dual blower for front air delivery, and two (2) high performance single wheel blowers for rear air delivery. For improved corrosion resistance the evaporator shall have a hydrophilic blue fin coating.

The air-distribution system shall use electric actuators and allow blended airflow to both the comfort air vents and defrost vents. The system shall allow for independently controlled air speed for the front and rear blowers. A separate switch shall be provided for the rear crew to control the rear fan speed.

The condenser shall be roof mounted and have a minimum capacity of 65,000 BTUs and shall include a receiver drier.

Performance Data: (Unit only, no ducting or louvers)
- AC BTU: 55,000
- Heat BTU: 65,000
- CFM: 1300 @ 13.8V (All blowers)

The compressor shall be a ten-cylinder swash plate type Seltec model TM-31HD with a capacity of 19.1 cu. in. per revolution.

The system shall be capable of cooling the interior of the cab from 100 degrees ambient to 75 degrees or less with 50% relative humidity in 30 minutes or less.

SEATS

Seating

All seats shall be Seats, Inc. 911 brand.

Seat, Driver

Seats, Inc. 911 air suspension seat shall be supplied for the driver`s position.

Features shall include:

- Universal styling
- High back seat back
- Low profile air suspension assembly with rubber accordion cover
- Weight, height and ride adjustment
- Built-in back and lumbar adjustment
- 4” fore and aft adjustment

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Officer

One (1) Seats, Inc. 911 Universal fixed SCBA seat shall be supplied for the officer`s position in front of the cab to the right of the driver`s position.

Features shall include:

- Universal styling.
- High back seat back.
- Built-in back and lumbar adjustment.
- Easy exit, flip up, and split headrest for improved exit with SCBA.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat, Rear Facing

One (1) Seats, Inc. 911 Universal SCBA seat shall be provided in the rear facing position over the driver side wheel well.

Features shall include:

- Universal styling.
- High back seat back.
- Easy exit, flip up, and split headrest for improved exit with SCBA.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

Seat Fabric Color

All seats shall be gray in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of five (5) personnel shall be provided.

Seat, Rear Wall

Two (2) Seats, Inc. 911 Universal SCBA seat backs and a two (2) person bench style seat bottom with a single cushion shall be mounted on the rear wall of the cab. Front corners of the seat riser shall be square.

Features shall include:

- Universal styling.
- Easy exit, flip-up, and split head rest for improved exit with SCBA.
- Bench cushion shall be constructed of high-density foam with a heavy duty wear resistant material.

All seat positions shall have a bright red retractable 3-point lap and shoulder harness, providing additional safety and security for personnel. Extensions shall be provided with the seat belts so the male end can be easily grasped and the female end easily located while sitting in a normal position.

SCBA Bracket SmartDock

A IMMI SmartDock Gen2 SCBA storage bracket shall be provided. The SmartDock is a strapfree docking station that offers single-motion SCBA insertion and hands-free release when the firefighter stands up to exit the seat. SmartDock has undergone extensive testing to ensure that it meets or exceeds industry standards. When evaluated to the NFPA 1901 Standard for

Automotive Fire Apparatus, SmartDock met requirements for retaining both the cylinder and the pack in dynamic testing.

Location: officer's seat, rear facing driver's side, inboard driver's side rear wall, inboard officer's side rear wall.

Seat Cover Material

All seats shall have Turnout Tuff seat cover material.

MEDICAL CABINETS

Medical Cabinet

There shall be one (1) medical storage cabinet provided at the officer`s side wheel well of the cab with interior access. The medical cabinet shall be constructed of 1/8” smooth aluminum plate.

The medical cabinet dimensions shall be based on cab style: 45” high x 21” wide x 24” deep interior with a single interior cargo net door.

Three (3) vertically adjustable shelves shall be provided and installed in the medical cabinet. The shelves shall be constructed of 1/8” smooth aluminum plate. Each shelf shall have a 1” front for added strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical cabinet. The shelves shall be mounted with extruded aluminum adjustable shelf tracking attached to the cabinet walls and the shelves to be secured with aluminum brackets to the tracks to allow for vertical height adjustment. As necessary a 3/4” x 2-3/4” aluminum extrusion shall be mounted to the underside of the shelves to provide additional reinforcement as needed.

Vista Cabinet

A storage cabinet shall be provided for the Vista roof area ahead of the rear cab doors. The cabinet shall be constructed of 1/8" (.125) smooth aluminum and shall include three (3) horizontal hinged single pan lift-up doors. The cabinet width dimensions are based on cab model as noted below. The height of the cabinet shall be approximately the same height as the Vista roof height. The cabinet shall have a sloped forward wall matching the Vista angle. The lower depth shall be approximately the same dimension as the Vista height. The cabinet interior shall be open from left to right side.

Cabinet width dimensions:

84" Overall cabinet width, 12" wide left and right side door openings, 50" wide center opening.

Medical Storage Cabinet Finish

The medical storage cabinet(s) shall have a multi-tone gray finish. The finish shall be applied to the interior, exterior, shelves (if equipped) and trays (if equipped) of the cabinet.

Medical Cabinet Doors

N/A.

MAP BOXES

Map Box

An aluminum map/storage box shall be installed in the cab. The map box shall be constructed of 1/8” (.125) inch smooth aluminum. Hinged drop-down doors with push button latches, shall be installed on the front of the box for the access to the driver and officer side storage areas. Each storage area shall have two (2) fixed shelves for storage of ring binders, map books, etc. Each latch shall have a 25 lb. rating.

The map box shall be mounted on the vertical uprights in the center of the cab between the driver and officer seating positions. The map box shall be secured and tested to meet with current NFPA requirements.

Approximate overall dimension: 34” W x 9.50” H x 12” D.

Map Box Finish

The map box(es) shall have multi-tone gray finish.

MISC INTERIOR CAB OPTIONS

Officer`s Seat Riser Door

The officer`s seat riser door shall be located on the front of the seat riser. The door hinge shall be toward the engine cover and include a glove box type thumb latch.

Rear Bench Storage

There shall be a compartment located below the rear bench seat on the rear wall of the cab capable of storing two (2) SCBA bottles.

Cab Interior Padding Color

Cab interior padding to be gray color. Includes ceiling, side and rear walls as applicable.

Sun Visors

Padded sun visors shall be provided for the driver and officer matching the interior trim of the cab and shall be flush mounted into the underside of the overhead console.

Air Horn Lanyard

There shall be a ”Y” style lanyard mounted in the center of the cab that allows the driver and officer to operate the air horns. The lanyard shall activate an electrical air switch.

Mounting Plate on Engine Cover

An equipment mounting plate shall be provided between the driver and officer on the chassis engine cover. The plate shall be mounted to the engine access door spaced approximately 1/2" up to provide clearance for equipment mounting hardware. The plate shall be constructed of 3/16" aluminum plate and have a swirl finish.

Trim, Rear Engine Cover

The rear portion of the engine cover shall have an overlay of aluminum diamond plate installed to provide additional wear resistance.

Engine Cover

The engine cover shall blend in smoothly with the interior dash and flooring of the cab. The upper left and right sides shall have a sloped transition surface running front to rear providing increased space for the driver and officer.

The engine cover and engine service access door cover shall be molded 18 lb/cu. ft. (+/-0.5) flexible integral skinned polyurethane foam at a Durometer of 60 (+/- 5.0) per ASTM F1957-99. The cover shall be approximately .5" thick with a minimum skin thickness of 0.0625 inches. The cover shall be provided to reduce the transmission of noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Rear Wall Tool Board

PAC TRAC tool mounting shall be provided on the rear wall of the cab. The PAC TRAC shall be vertical stacked with tool mounting grooves orientated horizontal each side outboard of inboard seating position full height of the rear cab wall.

Cup Holder / Storage Tray

A cup holder and tray assembly shall be provided on the cab engine cover between the driver and officer. The tray shall be approximately 14" wide x 10" long x 1.5" tall and constructed from .125" aluminum plate. The top edge of the tray sides shall have a .5" lip and the front corners of the tray shall be tapered for dash access. The two (2) cup holders shall be constructed from 3.5" diameter pipe approximately 2.5" tall and be located one

each side at the rear corners of the tray. The assembly shall be painted to match the cab interior color.

Rear Facing Storage

Recessed storage areas shall be provided in the rear face of the cab wheel well risers.

Overhead Console

An overhead console shall be provided in the front of the cab for the driver and officer. The areas in front of the driver and officer shall be removable panels that can be used for switches and other electrical items. The entire overhead console shall be hinged for service access.

The center of the overhead console shall have a lowered area for mounting of up to three (3) electrical components like siren heads, directional bar controllers, etc.

The overhead console shall be constructed of aluminum smooth plate painted to match the cab interior. The console shall be installed using stainless steel fasteners.

Rear Engine Cover

The rear engine cover shall be provided with a stepped profile for use with rear engine cover options and/or mounting of equipment on the cover.

Cab Dash - Low Profile Severe Duty

The driver side and center dash shall be constructed from cast aluminum for durability and long life.

The driver side cast aluminum dash shall enclose the instrument cluster.

The center dash area shall be a low profile design to provide optimal forward visibility. The driver and officer sides shall be angled for ergonomic access and designed for either a color display or switches. Access panels shall be provided on the top, front and officer side for easy service access.

The officer side dash shall be low profile and constructed from .125" smooth aluminum plate. A service access panel shall be provided in the top surface.

The driver, center and officer side dash shall be painted to match the cab interior.

The lower kick panels below the dash to be constructed from .125 aluminum plate painted to match the cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

Cab Insulation Package

The cab shall be insulated to mitigate noise and ensure maximum cooling/heating capacity. The insulation package shall include 1" Polyester foam with Mylar facing for the front wall, rear wall, side walls, and ceiling, Reflectex (or equal) inside each cab door and 1" closed cell foam insulation below the front and rear facing seat risers.

CAB ELECTRICAL OPTIONS

Cab Dome Lights

A TecNiq LED model E12-WB0RP-1 dome light assembly with six (6) white LED, six (6) red LED, white lens and black bezel shall be provided. The white light activates with appropriate cab door and light assembly switch, the red light activates with light assembly mounted switch only.

There shall be two (2) mounted in the front of the cab, one (1) in the driver and one (1) in the officer ceiling.

There shall be two (2) mounted in the rear of the cab, one (1) in the driver side and one (1) in the officer side ceiling.

Push-Button Switch

A heavy duty metal push-button switch shall be installed on the officer`s side switch panel to operate the Q2B siren.

Push-Button Switch

A heavy duty metal push-button switch shall be installed on the officer`s side switch panel to operate the Q2B siren brake.

Auto-Eject Inlet Receptacle

The inlet receptacle shall be a Kussmaul 20 amp NEMA 5-20 Super Auto-Eject #091-55-20-120 with a cover. The Super Auto-Eject receptacle shall be completely sealed and have an automatic power line disconnect.

The receptacle shall be located outside driver's door next to handrail and the cover color shall be Yellow.

Horn Button Switch

A three (3) position rocker switch shall be installed in the cab accessible to driver and properly labeled to enable the operator to activate the OEM traffic horn, air horn or Federal Signal Q2B siren from the steering wheel horn button.

ATC Override

An Automatic Traction Control (ATC) override switch shall be provided. The switch shall be located within reach of the driver and allow for momentary disabling of the ATC system due to mud or snow conditions.

English Dominant Gauge Cluster

The cab operational instruments shall be located in the dashboard on the driver side of the cab and shall be clearly visible. The gauges in this panel shall be English dominant and shall be the following:

- Speedometer with odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Fuel gauge with low fuel indicator light
- Voltmeter
- Air filter restriction indicator
- Transmission oil temperature gauge
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Cab ajar warning indicator

This panel shall be backlit for increased visibility during day and night time operations.

Headlights

The front of the cab shall have four LED (4) headlights. The headlights shall be mounted on the front of the cab in the upper position.

12 Volt Outlet

A plug-in type receptacle for handheld spotlights, cell phones, chargers, etc. shall be installed officer side dash, rear wall of officer side medical compartment up high. The receptacle shall be wired battery hot.

Windshield Fans

Two (2) adjustable windshield defogger fans with individual switches shall be mounted in the cab as specified. The fans shall be 12 volt and shall each be rated at 250 cfm. Location: centered below overhead console.

Antenna Base

There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style) with RG58U coax cable. The antenna shall be located driver side forward with coaxial

cable terminating at the center of the dash board, officer side forward with coaxial cable terminating below officer seat.

Battery Charger Location

The battery charger shall be located behind driver's seat.

Battery Charger

An LPC 20 battery charger with remote mounted LED display shall be installed.

A fully automatic charging system shall be installed on the apparatus. The system shall have a 120 volt, 60 hertz, 7 amp AC input with an output of 20 amps 12 volts DC. The battery charging system shall be connected directly to the shoreline to ensure the batteries remain fully charged while the vehicle is in the fire station or firehouse.

The system shall include a remote charging status indicator panel. The panel shall consist of two (2) LED lights to provide a visual signal if battery voltage is good or drops below 11.5 volts. The microprocessor shall be continuously powered from the battery to provide the charge status.

DPF Regeneration Override

A momentary override switch shall be provided for the Diesel Particulate Filter (DPF) regeneration. The switch will inhibit the regeneration process until the switch is reset or the engine is shut down and restarted. The switch shall be located within reach of the driver.

Cab Headlights

FireTech model FT-4x6-4KIT LED headlights shall be provided. The headlights shall include low beam, high beam, elliptical beam and an integrated halo ring park lamp. When not equipped with separate daytime running lights, the low beam headlights shall activate with the release of the parking brake for additional vehicle conspicuity and safety.

Cab Door Step Area Lighting

There shall be eight (8) clear TecNiq model D07 LED lights provided to illuminate the cab step well areas. Two (2) lights shall be located at each door area, one (1) above each step. The lights shall have polished stainless steel housings. The lights shall be activated by the cab door ajar circuit.

Cab Turn Signals

A pair of TecNiq LED (Light Emitting Diode) turn signal lights with clear lens shall be installed on the front of the cab. The strip type lights shall be 1.25" high x 15" long and be mounted in a polished cast aluminum housing between the quad bezels.

Dual USB Charging Receptacle in Cab [Qty: 2]

A dual port USB charger receptacle shall be provided in the cab. Includes (1) USB-C and (1) USB-A socket for charging cell phones and other portable electronics.

The receptacle shall be wired battery hot and located center of dash, officer side dash, rear wall of officer side medical compartment up high

BODY COMPT LEFT SIDE

Driver Side Assembly

The driver side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The driver side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16” (0.188”) wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16” (0.188”) wall thickness and 3/16” (0.188”) outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The driver side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Driver Side Compartments

The three (3) driver side compartments shall be constructed from 3003 H14 1/8” (.125”) smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheel. The compartment shall be approximately 42” wide x 68” high x 26” deep in the lower 30” high section and 12” deep in the upper 38” high section. The compartment shall contain approximately 30 cu. ft. of combined storage space. The door opening shall be approximately 42” wide x 68” high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56” wide x 34” high x 12” deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56” wide x 34” high.

There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56” wide x 68” high. The forward area of the compartment shall be 42” wide x

30” high x 26” deep in the lower area and 42” wide x 38” high x 12” deep in the upper area. The enhanced extended rear portion of the compartment shall be approximately 14” wide x 68” high x 24” deep in the lower 30” high section and 11” deep in the upper 38” high section. The total combined storage space shall be approximately 39.5 cu. ft. The door opening shall be approximately 56” wide x 68” high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8” (.125”) aluminum treadplate.

Storage Tunnel

The area directly behind the upper area of the driver side compartments shall be for the storage of NFPA ladders and/or equipment.

BODY COMPT RIGHT SIDE

Officer Side Assembly

The officer side assembly shall be constructed entirely of aluminum extrusions and interlocking aluminum plates. This aluminum modular design shall provide a high strength-to-weight ratio for increased equipment carrying capacity.

The officer side body corners shall be 6063-T5 extruded aluminum corner sections with a 3/16” (0.188”) wall thickness. The side body extrusions shall be 6063-T5 aluminum tubing with a 3/16” (0.188”) wall thickness and 3/16” (0.188”) outside corner radius. The corners and sides shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

The officer side body shall be completely sanded and deburred to assure a smooth finish and painted job color.

Officer Side Compartments

The three (3) officer side compartments shall be constructed from 3003 H14 1/8” (.125”) smooth aluminum plate. The compartments shall be modular in design and shall not be a part of the body support structure.

There shall be one (1) compartment located ahead of the rear wheel. The compartment shall be approximately 42” wide x 68” high x 26” deep in the lower 30” high section and 12” deep in the upper 38” high section. The compartment shall contain approximately 30 cu. ft. of combined storage space. The door opening shall be approximately 42” wide x 68” high.

There shall be one (1) compartment located over the rear wheel. The compartment shall be approximately 56” wide x 34” high x 12” deep and contain approximately 13.2 cu. ft. of storage space. The door opening shall be approximately 56” wide x 34” high.

There shall be one (1) compartment located behind the rear wheel. The compartment shall be approximately 56” wide x 68” high. The forward area of the compartment shall be 42” wide x 30” high x 26” deep in the lower area and 42” wide x 38” high x 12” deep in the upper area. The enhanced extended rear portion of the compartment shall be approximately 14” wide x 68” high x 24” deep in the lower 30” high section and 11” deep in the upper 38” high section. The total combined storage space shall be approximately 39.5 cu. ft. The door opening shall be approximately 56” wide x 68” high.

Each compartment seam shall be sealed using a permanent pliable silicone caulk. The walls of each compartment shall be machine-louvered for adequate ventilation.

An externally-mounted compartment top shall be provided and constructed of a 1/8” (.125”) aluminum treadplate.

Storage Tunnel

The area directly behind the upper area of the officer side compartments shall be for the storage of NFPA equipment.

BODY COMPT REAR

Rear Body Assembly

The rear body shall be constructed entirely of aluminum extrusions and interlocking aluminum plates and includes a full height center rear compartment.

The rear body frame shall be 6063-T5 1.5” x 4” and 1.5” x 3”aluminum extrusions with a 3/16” (0.188”) wall thickness and 3/16” (0.187”) outside corner radius and 1/8” (0.125”)

aluminum smooth plate. The rear extrusions shall be welded both internal and external at each joint using an aluminum alloy welding wire.

Rear Body Compartment

The full height center compartment shall be constructed from 3003 H14 1/8” (.125”) smooth aluminum plate. The compartment shall be modular in design and shall not be a part of the body support structure.

The compartment shall be approximately 38” wide and shall vary in height and depth dependent upon water tank capacity.

The compartment seams shall be sealed using a permanent pliable silicone caulk. Machined louvers shall be provided for adequate ventilation.

Storage Compartments

Two (2) storage compartments shall be provided at the rear body compartment. The storage compartments shall be located to the driver and officer side of the rear compartment.

The driver side storage compartment shall be approximately 13” wide x 29” high x length of side assembly. The storage compartment shall store NFPA ladder and/or equipment.

The officer side storage compartment shall be approximately 13” wide x 29” high x length of side assembly. The storage compartment shall store NFPA ladder and/or equipment.

The storage compartments shall include a vertical hinged doors to secure contents. The doors shall be constructed of 3/16” (.187”) aluminum smooth plate and shall have a push-button style latch. The compartment doors shall be securely attached with a full-length stainless steel piano type hinge with 1/4” pin. The hinges shall be ”staked” on every other knuckle to prevent the pins from sliding. The doors shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.

Tailboard Step

A tailboard step shall be provided at the rear of the body. The tailboard shall 15.5" in depth and in accordance with NFPA in both step height and stepping surface. The maximum rear step height to the tailboard shall not exceed 24".

The tailboard step shall be formed from 3/16" (0.188") aluminum treadplate and shall be reinforced with 6063-T5 1.5" x 3" aluminum extrusion. The tailboard shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertical from the diamond plate sheet a minimum of 1/8" (0.125")Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

The tailboard step shall be bolted on to the body from the underside assuring a clear surface and shall be easily removable for replacement in the case of damage.

Enhanced Extended Compartment Framework

Each side of the tailboard shall be the external compartment frame work of the enhanced extended side compartments. The compartment frame work shall be 6063-T5 1.5"x 4"and 1.5" x 3" aluminum extrusions with a 3/16"(0.188") wall thickness and 3/16" (0.188") outside corner radius. The rear extrusions shall be welded both internally and externally at each joint using an aluminum alloy welding wire.

Rear Access Handrails

Handrails shall be provided at the rear of the body to assist ground personnel accessing the tailboard step and hosebed area. Each handrail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, and shall be mounted between chrome stanchions.

The handrails shall be provided as applicable to meet NFPA 3-point contact requirements..

Enhanced Extended

Enhanced Extended Compartmentation stepped down below hosebed level. Includes embossed diamond plate compartment tops.

DOORS

Single Compartment Door

A single compartment door shall be constructed using a box pan configuration. The outer door pan shall beveled and shall be constructed from 3/16” (0.188”) aluminum plate. The inner door pan shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pan shall have a 95-degree bend to form an integral drip rail.

The compartment door shall have a 1” x 9/16” (1” x 0.43”) closed-cell ”P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the door to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the door. The 4-1/2” (4.5”) D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The compartment door shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment door with a dielectric barrier. The door shall be attached with machine screws threaded into the doorframe. The door shall have gas shock-style hold-open devices.

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L2, R2

Roll Up Compartment Door

A ROM brand roll up door with satin finish shall be provided on a compartment greater than 45” tall. The door(s) shall be installed in the following location(s): B1.

The Robinson door slats shall be double wall box frame and manufactured from anodized aluminum. The slats shall have interlocking end shoes on each slat. The slats shall have interlocking joints with a PVC/vinyl inner seal to prevent any metal to metal contact and inhibit moisture and dust penetration.

The track shall be anodized aluminum with a finishing flange incorporated to provide a finished look around the perimeter of the door without additional trim or caulking. The track shall have a replaceable side seal to prevent water and dust from entering the compartment.

The doors shall be counterbalanced for ease in operation. A full width latch bar shall be operable with one hand, even with heavy gloves. Securing method shall be a positive latch device.

A magnetic type switch integral to the door shall be supplied for door ajar indication and compartment light activation.

The door opening shall be reduced by 2” in width and approximately 8-9” in height depending on door height.

Double Compartment Door

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16” (0.188”) aluminum plate. The inner door pans shall be constructed from 3/32" (0.090”) smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

The compartment doors shall have a 1” x 9/16” (1” x 0.43”) closed-cell ”P” EPDM sponge gasket meeting ASTM D-1066 2A4 standards installed around the perimeter of the doors to provide a seal that is resistant to oil, sunlight, and ozone.

A drain hole shall be installed in the lower corner of the inside door pan to assist with drainage.

A polished stainless steel Hansen D-ring style twist-lock door handle a with #459 latch shall be provided on the primary door. The 4-1/2” (4.5”) D-ring handle shall be mounted directly to the door latching mechanism with screws that do not penetrate the door material for improved corrosion resistance.

The secondary door shall have two (2) dual stage rotary latches, each with a 750 lb rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed un-acceptable due to the potential for cable

stretch and slippage. The striker pins shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

Double door latch to have latch brackets fabricated from .125 aluminum smooth plate, installed with "PULL" tags #1032993 for left side and #1032294 for right side.

The compartment doors shall be securely attached to the apparatus body with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the body and compartment doors with a dielectric barrier. The doors shall be attached with machine screws threaded into the doorframe.

The doors shall have a gas shock-style hold-open device. The gas shocks shall have a 30 lb rating and be mounted near the top of the door (when possible).

An anodized aluminum drip rail shall be mounted over the compartment opening to assist in directing water runoff away from the compartment.

The door(s) shall be installed in the following location(s): L1, L3, R1, R3

Strap for Roll-Up Door

A bungee type strap shall be provided on the roll-up doors to assist in closing the door. The strap shall be affixed to both the door and the interior so the strap stays inside the compartment when lowering. The strap shall be provided on full height and high side (upper) compartments.

SHELVES

Permanent Shelf [Qty: 4]

There shall be a permanent mounted shelf provided for a compartment as specified. The shelf shall be at the offset (unless otherwise specified) within the compartment.

The shelf shall have a minimum 2” front lip for added strength and reinforcement and to accommodate optional plastic interlocking compartment tile systems.

The shelf shall be capable of holding 100 lbs.

Aluminum bodies: Material to be 3/16" (.188") thick aluminum smooth plate.

Stainless steel bodies: 12 ga smooth plate 304L stainless steel.

Adjustable Shelf [Qty: 5]

There shall be an aluminum adjustable shelf provided for a compartment as specified.

The shelf shall be constructed of 3/16” (.187”) smooth aluminum plate. The shelf shall have a minimum 2” front and rear lips to accommodate optional plastic interlocking compartment tile systems and shall be capable of holding 100 lbs on compartments with tracks mounted on back wall (compartments up to appoximately 12" deep) or shall be capable of holding 250 lbs with tracks mounted on forward and rearward walls.

The shelf shall be sized, width and depth, to match the size and location in the compartment.

Adjustable Tracks [Qty: 7]

Tracks shall be provided in the compartment as specified for use with adjustable shelves and/or trays in non-transverse compartments. The tracks shall be vertical mounted and attached to the side and/or rear walls of the compartments.

TRAYS / TOOLBOARDS

Roll-Out Tray [Qty: 5]

There shall be a floor mounted roll-out tray provided in a compartment as specified.

The roll-out tray shall be constructed of 3/16” (.187”) smooth aluminum plate with a sanded finish and welded corners for increased strength and rigidity. The tray shall be sized in width and depth as applicable.

For greater tray accessibility, the drawer slides shall feature one hundred percent extension. The tray shall utilize a gas spring to secure the tray in the open or closed position.

The tray shall have a total capacity of 500 lbs.

Roll-Out Tray [Qty: 4]

There shall be an adjustable roll-out tray provided in a compartment as specified.

The roll-out tray shall be constructed of 3/16” (.187) smooth aluminum with welded corners for strength and rigidity. The tray shall be sized in width and depth as applicable.

For greater tray accessibility, the drawer slides shall feature one hundred percent extension. The tray shall utilize a gas shock to hold the tray in an open or closed position.

The tray shall have a total capacity of 500 lbs.

Tool Board

PAC TRAC brand tool board (horizontally stacked) shall be provided on a compartment wall as specified.

Running Board Suction Tray

A running board suction hose storage tray approx. 35"W x 10"D (9" to slats) shall be provided and located in the driver side running board, officer side running board.

The tray shall be recessed mounted and constructed of 1/8” (.125”) aluminum diamond plate (exterior) with a smooth surface interior. The bottom of the tray shall have removable aluminum slats and drain holes to allow water drainage from hose stored in the tray.

Note: Tray width may be reduced due to other options.

COVERS

Hose Bed Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed over the apparatus hose bed. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 square inch.

The front edge of the cover shall be mechanically attached to the body. The sides of the cover shall be held in place with nylon covered elastic synthetic rubber cord with stainless steel hooks spaced approximately 12” apart running the length of the hose bed. The rear of the cover shall have an integral flap that extends down to cover the rear of the hose bed. This flap shall be secured in place with heavy duty nylon straps to comply with the latest edition of NFPA 1901.

Vinyl Crosslay Cover

A cover constructed of Black 18 oz. PVC vinyl coated polyester shall be installed on the crosslay. The base fabric shall be 1000 x 1300 Denier Polyester with a fabric count of 20 x 20 per square inch.

The cover shall be held in place across the top of the body by chrome snaps. The sides of the cover shall have integral flaps that extend down to cover the sides of the crosslay. The side flaps shall be secured in place to comply with the latest edition of NFPA 1901.

Running Board Tray Securing Strap

A heavy duty black nylon strap with an stainless steel quick-release buckle shall be provided for the running board hose tray(s). The strap shall be attached to the inboard side of the tray as low as practical to allow cinching of strap for securing tray contents and shall not reduce the overall tray capacity.

Location: driver side running board, officer side running board.

PUMP MODULE

Pump Module Width

Pump module shall be 76" wide.

Pump Module

Pump Module Frame

An extruded aluminum pump module shall be provided and located forward of the apparatus body. The pump module shall be constructed entirely of welded aluminum alloy extrusions and interlocking aluminum plates. The pump module framework shall consist of 1.5" x 3" x .188" wall, 1.5" x 3" x .375" wall with center web and 3" x 3" x .188" wall extrusions.

The pump module design and mounting shall be separate from the body to allow the pump module and body to move independently of each other in order to reduce stress from frame twisting and vibration.

The exterior surface of the pump module framework shall have a sanded finish.

Pump Module Mounting

The pump module shall be attached to the chassis using four (4) center bonded isolation mounts and a steel mounting frame. The isolation mounts shall be 2.75" diameter and mount to the chassis with two (2) 4" x 4" x .312" A36 steel angles.

Pump Access

A pump service access door shall be provided at the front of the pump module. The door shall be secured with two (2) thumb latches. (Access door not provided on fixed cab applications)

Pump Module Running Boards

The pump module shall include a running board on each side. The running boards shall be in accordance with NFPA in both step height and stepping surface. The running boards shall be formed from .125” aluminum treadplate.

Stepping Surface

Each running board shall include a multi-directional, aggressive gripping surface incorporated into the treadplate. The surface shall extend vertically from the diamond plate sheet a minimum of .125”. Gripping

surfaces shall be circular in design, a minimum of 1” diameter and on centers not to exceed 4”. Each running board shall be bolted on to the pump module and be easily removable for replacement in the case of damage.

Pump Panel Opening

The panel opening on the pump module shall be 45" wide.

Pump Module Height

The pump module height shall be 75".

PUMP PANELS

Side Mount Pump Panels

The driver and officer side pump panels shall be constructed of 14 gauge stainless steel. Each panel shall have the ability to be removed from the module for easier access and for maintenance in the pump area.

Hinged Gauge Panel

The driver side stainless steel single gauge panel shall be positioned where it can be opened downward for access to gauges and other interior pump module mounted items. The gauge panel shall include latches to secure the panel in the closed position. Two (2) cable tethers shall be provided to hold the panel in the open position.

Pump Access Door

The officer side pump module shall have a three (3) piece panel, one (1) above the discharge outlets, one (1) encompassing the discharges and intakes and one (1) low for bleeder valves.

The upper two (2) pump panel sections shall have a vertical stainless steel piano type hinge with 1/4” pins along the forward edge of the pump module. The hinges shall be ”staked” on every other knuckle to prevent the pin from sliding. The panels shall have push button style latches to secure the panels in the closed position. The upper panel shall have one (1) pneumatic shock to hold the panel in the open position.

MISC PUMP PANEL OPTIONS

Pump Panel Tags

Color coded pump panel labels shall be supplied to be in accordance with NFPA 1901 compliance.

PUMP MODULE OPTIONS

Microphone Box

A microphone box, with latching cover, shall be provided. The microphone box dimensions shall be 12" wide x 6" high x 6" deep. The microphone box shall be located: [#LOC]

Pump Compartment Heaters

Two (2) 24,000 BTU heaters shall be installed in the lower pump compartment area. The heaters shall be connected to the chassis engine coolant system. The heaters shall include manual shutoff valve, electric shut-off valves, 12 volt blowers and controls at the pump operator`s panel.

Flex Joint

The area between the pump modules and body shall include a rubber flex joint.

Spacer Plate Quartz Lights

Spacer plate for quartz lights. Requires 4" additional to cab and body gap.

Module Logos

Logos with the OEM brand name shall be provided and shall be mounted one (1) each side on pump module/pre-connect panels. Logos shall be sized as applicable to available space on panel(s).

Air Horn Switch

A heavy duty weatherproof push-button switch shall be installed at the pump operator`s panel to operate the air horns.

The switch shall be labeled ”Evacuation Alert”.

Location: driver side pump panel.

Storage Pan

A storage pan shall be provided in the upper pump module area. The pan shall be constructed of 3/16” (.188”) aluminum treadplate and be removable to service items in the pump module below. Holes shall be provided in the corners of the pan to facilitate drainage of water.

Double Crosslay Hosebed

Two (2) crosslay hosebeds shall be provided on the pump module. Each of the two (2) crosslay areas shall have a capacity for up to 200` of 2.0" double-jacket fire hose double stacked. The crosslay floor and side walls shall be constructed of 3/16" (.188) smooth aluminum plate. The floor shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. One (1) 1/4" (.25") smooth aluminum plate fixed divider with a sanded finish shall be provided to separate the two (2) hose storage areas.

WATER TANK

1030 Gallon Water Tank

A 1030 gallon (US) "R" booster tank shall be supplied. The booster tank shall be of a pinned baffle design. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure.

The booster tank top, sides, and bottom shall be constructed of 1/2" (0.50") black UV-stabilized copolymer polypropylene. The copolymer polypropylene tank material shall be welded together utilizing thermoplastic welding technology. A clean hot air temperature controlled process, shall ensure that each weld reaches its plasticized state without cold or hot spots. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The booster tank shall have a fill tower with a rearward hinged lid. The fill tower shall be located in the forward area of the tank and shall assist with tank ventilation. The fill tower shall include a removable 1/4" (0.25") thick polypropylene screen.

The booster tank shall have two (2) tank plumbing openings. One (1) for a tank-to-pump suction line with an anti-swirl plate, and one (1) for a tank fill line. A 3" cleanout plug shall be shall be provided at the bottom of the tank sump.

The booster tank shall include longitudinal and latitudinal baffles. The baffles shall be interlocking and thermo welded to the shell of the tank to minimize water surge during travel and provide enhanced road handling stability. The baffle design shall allow waterflow in accordance with NFPA during tank filling or pump operations.

A 2.5` length of black flex hose shall be installed to the bottom of the tank. This shall direct the draining of overflow water past the rear axle and fuel tank, thus reducing the possibility of freeze-up of these components in cold environments. This drain configuration shall also assure that rear axle tire traction shall not be affected when moving forward.

The booster tank shall undergo extensive testing prior to installation in the truck. The testing shall include an electronic spark and tank fill test after both the internal and external tank shell welds are completed.

A lifetime manufacture`s limited warranty shall be included.

Tank capacity is 1030 US gallon / 857 Imperial gallons / 3898 Liters.

Fill Tower Location

Fill tower(s) shall be located offset to officer side of water tank.

Tank Brand

The water tank and foam tank (if applicable) shall be UPF brand.

WATER TANK OPTIONS

Tank Clearance Notch

Water tank notched at front (overall tank capacity will be affected). Notch tank at the front as necessary to accommodate clearance for plumbing.

TANK PLUMBING

Tank Fill 2 Akron Valve

One (1) 2” pump-to-tank fill line having a 2” manually operated full flow valve. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times. The fill line shall be controlled using a chrome handle with an integral tag.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Tank Drain, 1.5 (No Exception)

One (1) 1-1/2” gated tank drain shall be installed. It shall be controlled by a manually operated Akron 1-1/2” valve at the left side running board area or under L1 compartment with a running board suction tray, slide-out platform, or a heat pan and shall be controlled at the valve and visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a chrome plated brass ball for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an

automatic friction lock design to balance the brass ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Tank To Pump

One (1) manually operated 3” Akron valve shall be installed between the pump suction and the booster tank. Includes flex hose with stainless steel hose clamps for connection to the 4" tank sump outlet . The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a selflocking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank. The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

LADDER STORAGE / RACKS

Hard Suction Racks

Two (2) hard suction hose storage racks shall be provided on the driver side of the body compartment top. The racks shall be positioned with one (1) rack located above the other.

The storage racks shall be constructed of anodized extruded aluminum and include springmounted latch handles with stainless steel scuff plates. The scuff plates shall be located on the hose bed side to protect the painted surface.

The storage racks shall be capable of storing one (1) 6” x 10` hard suction hose each.

Ladder Brand

The ladder brand capable of being carried on the unit shall be Alco-Lite.

Pike Pole

The pike pole(s) capable of being stored shall be the following length: (2) 10' pike poles.

Ladders

The length of ladders capable of being stored shall be the following: 35' 3-section and 14' roof ladder.

Storage Tunnel Contents

Storage tunnel capable of holding (3) 6" x 10' hard suction hoses (individual vertical stacked) in Driver, (1) 3-section, (1) Roof, (1) Attic, (2) pike poles in Officer.

Hard Suction Storage Racks

Two (2) adjustable hard suction hose storage racks shall be provided on the officer side of the body. The racks shall be positioned with one (1) rack located above the other.

The storage racks shall be constructed of anodized extruded aluminum and include spring mounted latch handles with stainless steel scuff plates. The scuff plates shall be located on the hose bed side to protect the painted surface.

The storage racks shall be capable of storing one (1) 6” x 10` hard suction hose each.

HANDRAILS / STEPS

Hose Bed Folding Steps

Innovative Controls dual lighted LED folding steps shall be positioned to the driver side rear of the body. The steps shall be NFPA compliant for access to the hose bed storage area and in step height and surface area. The steps shall be staggered stepped as applicable with tailboard depth, not applicable with recessed step mounting.

Innovative Controls dual lighted folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

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One (1) hand rail shall be installed (as applicable) in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Folding Steps [Qty: 4]

Innovative Controls dual lighted LED folding step(s) shall be located officer side front compartment face, driver side front compartment face. The folding step(s) shall meet current NFPA in step height and surface area.

Innovative Controls dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18” below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

One (1) hand rail shall be installed in compliance with current NFPA. The hand rail shall be constructed of 6063T5 1.25” OD anodized aluminum tube, with an integral ribbed surface to assure a good grip for personnel safety, mounted between chrome stanchions.

Hand Rails- Upgrade

The assist handrails located on the pump enclosure and rear body of the apparatus shall consist of 1.25” diameter one-piece stainless steel tubes The handrails shall be machine knurled to assure a

good grip for personnel safety. Handrails shall be positioned at least 2” from the mounting surface to allow a positive grip with a gloved hand.

MISC BODY OPTIONS

Mud Flaps

Black mud flaps with logo shall be provided for the body wheel wells.

Body Mainframe

The body mainframe shall be entirely constructed of aluminum. The complete framework shall be constructed of 6061T6 and 6063T5 aluminum alloy extrusions welded together using 5356 aluminum alloy welding wire.

The body mainframe shall include 3” x 3” 6061-T6 aluminum 3/8” (0.375”) wall crossmember extrusion or 3" x 3" I-beam section aluminum extrusion depending on the application at the front of the body . A solid 3” x 3” ”I-beam” section aluminum extrusion shall be provided the full width of the body forward and rearward of the rear wheel well. The crossmembers shall be designed to support the compartment framing and shall be welded to 1-3/16” x 3” (1.188” x 3”) solid 6063-T5 aluminum frame sill extrusions. The frame sill extrusions shall be shaped to contour with the chassis frame rails and shall be protected from contact with the chassis frame rails by 5/16” x 2” (0.31” x 2”) fiber-reinforced rubber strips to prevent wear and galvanic corrosion caused when dissimilar metals come in contact.

Body Mounting System

The main body shall be attached to the chassis frame rails with six (6) of 5/8” (0.625”) diameter steel U-bolts. This body mounting system shall be used to allow easy removal of the body for major repair or disassembly.

Water Tank Mounting System

The body design shall allow the booster tank to be completely removable without disturbing or dismounting the apparatus body structure. The water tank shall rest on top of a 3” x 3” frame assembly covered with rubber shock pads and corner braces formed from 3/16” angled plate to support the tank. The booster tank mounting system shall utilize a floating design to reduce stress from road travel and vibration. To maintain low vehicle center of gravity the water tank bottom shall be mounted within 5” of the frame rail top.

Hosebed Side Assembly

The hosebed side assemblies shall be made of 3” x 3” slotted aluminum extrusion and 3/16” (.188”) smooth plate. The hosebed side assemblies shall provide a 98” high body.

The exterior hosebed side surface shall be completely sanded and deburred to assure a smooth finish and painted job color. The interior hosebed side surface shall be completely sanded and deburred to assure a smooth sanded finish.

Hose Bed

The area above the booster tank shall have a hose storage area provided. The hose bed shall be constructed entirely from maintenance-free, 3/4” deep x 7.5” wide, extruded aluminum slats that shall be pop-riveted into a one-piece grid system. Each slat shall have all sharp edges removed and have an anodized ribbed top surface that shall prevent the accumulation of water and allow for ventilation of wet hose.

The hose bed design shall incorporate adjustable tracks in the forward area and the rearward area of the hose bed for the installation of an adjustable divider(s). The adjustable tracks shall hold an adjustable divider(s) mounting nut straight, so only a Philips head screwdriver is required to adjust a divider(s) from side to side (as is practical with other hose bed mounted equipment).

The hose bed shall be easily removable to allow access to the booster tank below.

Hose Bed Divider [Qty: 2]

There shall be a hose bed divider provided the full fore-aft length of the hose bed.

The hose bed divider shall be constructed of 1/4” (0.25”) smooth aluminum plate with an extruded aluminum base welded to the bottom. The rear end of the divider shall have a 3” radius corner to protect personnel. The divider shall be natural finish aluminum for long-lasting appearance and shall be sanded and de-burred to prevent damage to the hose.

The divider shall be adjustable from side to side in the hose bed to accommodate varying hose loads.

Hose Bed Divider Hand Hold

There shall be a hand hole cut-out(s) on the trailing edge of each hose bed divider. The cut-out(s) is specifically sized for use in adjusting of the hose bed divider.

Divider

Long hose bed divider(s) shall be held short to allow for adjustability of the divider(s) with hose bed preconnect(s) if applicable per hose loading and option locations.

Fuel Fill

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

Rub Rail

The rub rail shall be C-channel in design and constructed of 3/16” thick 6463T6 anodized aluminum extrusion. The rub rail shall be 2.75” high x 1.25” deep and shall extend beyond the body width to protect compartment doors and the body side. The rub rail depth shall allow marker and/or warning lights to be recessed inside for protection.

The top surface of the rub rail shall have minimum of five (5) raised serrations. Each serration being a minimum of .1” in height and with cross grooves to provide a slip-resistant edge for the tailboard step and pump module running board areas. The rub rail shall be mounted a minimum of 3/16” off the pump module and body with nylon spacers. The ends of each section shall be provided with a finished rounded corner piece.

Anodize Aluminum Trim

A anodize aluminum trim shall be located at the bottom edge of all body compartment openings including pump enclosure with painted edge (as applicable). The trim shall provide added protection of the painted surface of the body when equipment is removed from the compartment.

Body Wheel Well

The body wheel well frame shall be constructed from 6063-T5 aluminum extrusion with a slot the full length to permit an internal fit of 1/8” (0.125”) aluminum tread plate. The wheel well trim shall be constructed from 6063-T5 formed aluminum extrusion.

The fenderettes shall be bolt-on and shall be easily removable. The fenderette shall be constructed from .080" aluminum with a mirror finish. The fenerette shall be 2 1/2" (2.5") wide x 2 1/4" (2.25") tall with a 26 7/8" (26.875") radius. A "P" shaped rubber gasket shall be provided between the fenerette and wheel well body panel.

The wheel well liners shall be constructed of a 3/16” (.187”) composite material. The liners shall be bolt-on and shall provide a maintenance-free and damage-resistant surface.

SCBA BOTTLE STORAGE

SCBA Strap

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

APW STORAGE

Designed (1) APW storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located in the wheel well adjacent to the APW storage.

U-shaped trough made out of aluminum smooth plate with rubber insert shall be provided to store APW.

Location: driver side rear wheel well offset rearward

SCBA 3 BOTTLE STORAGE

Designed (3) SCBA bottle storage constructed with aluminum plate with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match wheel well area material and finish.

The door shall cover the recessed fuel fill if located adjacent to the SCBA storage.

U-shaped troughs made out of aluminum smooth plate with rubbert inserts shall be provided to store standard size SCBA bottles up to 6.75" in diameter and 24.5" in length. The upper two troughs can also store a standard size 20lbs ABC Extinguisher or 2.5 gal Water Extinguisher in each trough.

Location: officer side rear wheel well offset forward, officer side rear wheel well offset rearward

WHEEL CHOCK STORAGE

Designed Wheel Chock storage with hinged door and push button latch shall be provided in the body wheel well area.

The door shall match the wheel well area material and finish.

The door shall be wired to "Door Open" indicator inside cab.

The storage area shall be capable of holding (2) Zico Model SAC-44-E or comparable Wheel Chocks (not included).

Location: driver side rear wheel well offset forward

PUMPS

Pump Rating

The fire pump shall be rated at 1500 GPM.

Fire Pump System

The pump shall be a midship-mounted Hale QMAX single stage centrifugal pump. The pump shall be mounted on the chassis frame rails of commercial or custom truck chassis and have the capacity of 1,250 to 2,250 gallons per minute (U.S. GPM) NFPA 1901 rated performance, and shall be split-shaft driven from the truck transmission.

The entire pump body and related parts shall be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 psi (207 MPa). All metal moving parts in contact with water shall be of high quality bronze or stainless steel. Pump body shall be horizontally split in two sections, for easy removal of impeller assembly including wear rings and bearings from beneath the pump without disturbing pump mounting or piping.

The pump impeller shall be hard, fine grain bronze of the mixed flow design and shall be individually ground and hand balanced. Impeller clearance rings shall be bronze, easily renewable without replacing impeller or pump volute body, and of wrap-around double labyrinth design for maximum efficiency.

The pump shaft shall be heat-treated, corrosion-resistant stainless steel and shall be rigidly supported by three (3) bearings for minimum deflection. The sleeve bearing is to be lubricated by a force fed, automatic oil lubricated design, pressure-balanced to exclude foreign material. The remaining bearings shall be heavy-duty, deep groove ball bearings in the gearbox and shall be splash-lubricated. Pump shaft must be sealed with double-lip oil seal to keep road dirt and water out of the gearbox.

Two (2) 6” diameter suction ports with 6” NST male threads and removable screens shall be provided, one each side. The ports shall be mounted one (1) on each side of the midship pump and shall extend through the side pump panels. Inlets shall come equipped with long handle chrome caps.

Gearbox – G Gearbox

Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of drive through torque of the engine system. 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 heattreated 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. All gears, both drive and pump, shall be of highest quality electric furnace chrome nickel steel. Bores shall be ground to size and teeth integrated 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. (No exceptions.) The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. If the gearbox is equipped with a power shift, the shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump. For automatic transmissions, three green warning lights shall be provided to indicate to the operator(s) when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operators panel adjacent to the throttle control. For

manual transmissions, one green warning light will be provided for the driving compartment. All lights to have appropriate identification/instruction plates.

Discharge Manifold

The pump system shall utilize a stainless steel discharge manifold system that allows a direct flow of water to discharge valves. The manifold and fabricated piping systems shall be constructed of a minimum of Schedule 10 stainless steel to reduce corrosion.

Pump Shift

The pump shift shall be pneumatically controlled using a power shifting cylinder.

The power shift control shall be mounted in the cab and be labeled ”PUMP SHIFT”.

A green indicator light shall be located in the cab and be labeled ”PUMP ENGAGED”. The light shall not activate until the pump shift has completed its full travel into pump engagement position.

A second green indicator light shall be located in the cab and be labeled ”OK TO PUMP”. This light shall be energized when both the pump shift has been completed and the chassis automatic transmission has obtained converter lock-up (4th gear lock-up).

Test Ports

Two (2) test plugs shall be pump panel mounted for third party testing of vacuum and pressures of the pump.

Gearbox Cooler

A gearbox cooler shall be provided to maintain safe operating temperatures during prolonged pumping operations for pump rating 1500 GPM and over.

PUMP CERTIFICATION

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with with the edition of NFPA documented elsewhere in these specifications. The pump shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions of the pump test shall be as outlined in NFPA.

The tests shall include, at a minimum, a piping hydrostatic test, pump test, pumping engine overload test, pressure control system test, priming device tests, vacuum test, and the water tank to pump flow test as outlined in NFPA.

The pump shall deliver the percentage of rated capacities at pressures indicated below:

- 100% of rated capacity at 150 psi net pump pressure
- 100% of rated capacity at 165 psi net pump pressure
- 70% of rated capacity at 200 psi net pump pressure
- 50% of rated capacity at 250 psi net pump pressure

A test plate, installed at the pump panel, shall provide the rated discharges and pressures together with the speed of the engine as determined by the certification test, and the no-load governed speed of the engine.

A Certificate of Inspection certifying performance of the pump and all related components shall be provided at time of delivery. Additional certification documents shall include, but not limited to, Certificate of Hydrostatic Test, Electrical System Performance Test, Manufacturer`s Record of Pumper Construction, and Certificate of Pump Performance from the pump manufacturer.

PUMP OPTIONS

Steamers, Flush+1

The pump 6" steamer intake(s) shall be mounted approximately 1” from the pump panel to back of cap when installed. The "Flush+1" dimension can vary + or - 1-1/4" or as practicable depending on the pump module width and options selected. (Example 72" or 76" modules.) Location: driver's side, officer's side.

Zinc Anodes

The zinc anodes help prevent damage caused by galvanic corrosion within the fire pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One anode will be located on the suction side and one will be located on the discharge side of the pump.

Vernier Engine Throttle

One (1) vernier type throttle shall be mounted on the pump operator`s panel and shall be used to control the engine RPM. This system, specifically designed for fire apparatus, shall monitor and control the engine providing power to the fire pump. The system shall control the engine speed when the pump system has been placed into gear. The system shall monitor engine RPM and shall maintain the engines selected speed.

One (1) pump panel mounted ”GREEN” indicator light shall be positioned above the throttle control on the pump operator`s panel. The light shall be energized when the pump shift has been completed, chassis automatic transmission has obtained converter lock-up (4th gear lock-up), and the chassis parking brake is set.

An interlock system shall be provided to prevent the advancement of the engine speed until the apparatus parking brake is applied, the chassis transmission is in the proper gear, and the fire pump gearbox is properly engaged. When the above conditions have been met, the ”OK TO PUMP” light shall be illuminated. **Inlet Valve**

A Hale Master Intake Valve (MIV-E) shall be provided for the specified intake. The large diameter inlet valve shall be capable of achieving an NFPA test rating of 1500 GPM through a single 6” suction hose.

The inlet valve shall be operated by a 12 VDC electric motor with a remote switch provided at the pump operator`s position. The 12 VDC motor shall be provided with an automatic resetting, thermally-compensated over-current protection circuit breaker to protect the 12 VDC motor and apparatus electrical system. The gear actuator on the valve will cycle from full closed to full open in not less than three (3) seconds. A hand controlled pump panel mounted manual override (knob style) shall be provided.

An indicator light panel shall be located at the pump operator`s position to show valve open, closed, or traversing from open to closed.

A built-in adjustable pressure relief valve shall be provided. The pressure relief valve shall be factory set to 125 psi. The pressure relief valve shall provide overpressure protection for the suction hose even when the intake valve is closed.

A 3/4” air bleeder valve shall be provided and controlled at the pump operator`s position.

A 1/4” water bleeder shall be supplied and controlled at the pump operator`s position.

Location: 5 in. front intake.

Mechanical Pump Seal

The midship 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 consist of a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat, with a Teflon back-up seal provided.

Only one 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 (no exceptions). A continuous cooling flow of water from the pump shall be directed through the seal chamber when the pump is in operation.

Additional Hale Primer

An additional primer valve shall be provided and installed on the 5 in. front intake and controlled at the pump operator`s panel.

One (1) priming control shall open the priming valve in conjunction with the priming valve that comes with the pump and start the priming motor. The priming valve shall be electronically interlocked to the ”Park Brake” circuit to allow priming of the pump before the pump is placed in gear.

If plumbed to front or rear intakes the connection shall be at the highest point of the piping.

Hale Pressure Relief Valve

A Hale pressure relief valve shall be provided and mounted on the pump operator`s panel. The pump shall be equipped with an automatic pressure control device. A single bronze variable pressure setting relief valve shall be provided and be of ample capacity to prevent an undue pressure rise as outlined in NFPA 1901. The relief valve shall be normally closed and shall open against pump pressure. A relief valve control wheel with a control light to signal when open shall be mounted on the pump operator`s panel.

Master Drain Valve

A manual master drain valve shall be installed on the pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal. The master drain shall have a rubber seal to prevent water from running out on the running board.

The manual master drain valve shall have twelve (12) individual-sealed ports that allow quick and simultaneous draining of multiple intake and discharge lines. It shall be constructed of corrosion-resistant material and be capable of operating at a pressure of up to 600 PSI.

The master drain shall provide independent ports for low point drainage of the fire pump and auxiliary devices.

Pump Cooler

The pump shall have a 3/8” line installed from the pump discharge to the booster tank to allow a small amount of water to circulate through the pump casing in order to cool the pump during sustained periods of pump operation when water is not being discharged. The pump cooler line shall be controlled from the pump operator`s panel by a Innovative Controls 1/4 turn valve with "T" handle. Each 1/4 turn handle grip shall feature built-in color-coding labels and a verbiage tag

Priming System

An electrically-driven Hale ESP priming pump shall be provided for the water pump. The primer shall be positive displacement rotary vane type that requires no lubricant. The primer motor shall be heat-treated, anodized aluminum specially coated for wear and corrosion resistance.

One (1) priming control, located at the pump operator`s position, shall open the priming valve and start the priming motor. The priming valve shall be electronically interlocked to the ”Park Brake” circuit to allow priming of the pump before the pump is placed in gear.

INTAKES

Left Intake 2.5 Akron Valve

One (1) 2-1/2” suction inlet with a manually operated 2-1/2” Akron valve shall be provided on the left side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position and water is flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The outlet of the valve shall be connected to the suction side of the pump with the valve body located behind the pump panel. The valve shall come equipped with a brass inlet strainer, 2-1/2” NST female chrome inlet swivel, and shall be equipped with a chrome plated rockerlug plug with a retainer device.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance, and decreased friction loss.

A 3/4” bleeder valve assembly will be installed on the left side pump panel.

Front Intake 6”

A 5” stainless steel pipe shall extend from the right suction side of the pump to the front of the apparatus. The intake pipe shall include a fixed 90 degree elbow above bumper when swivel option is not selected. All fabricated piping used in the front suction shall be constructed of a minimum of Schedule 10 stainless steel pipe to reduce corrosion of the lines.

3/4” valve(s) shall be provided to allow water to be drained.

INTAKE OPTIONS

Front Intake Swivel 6

A heavy duty 6” 90 degree cast brass elbow designed and constructed specifically for fire/emergency vehicle usage shall serve as the auxiliary front suction inlet. The elbow, also referred to as the “swivel”, shall be attached to the front suction piping. This component shall have the following features:

1) The ability to rotate 180 degrees.

2) A rugged twist-lock mechanism to hold the elbow in place at the desired position.

3) A double-ball race with bronze balls.

4) A 5” NPT free swivel female inlet.

5) A 6” NST male outlet with strainer.

6) Cast brass with polished chrome finish.

The elbow/swivel shall be mounted so that it extends above the extended front bumper.

Intake Pressure Relief

A18 Series - PRESSURE RELIEF VALVE - TFT`s pressure relief valve is adjustable from 50 to 250 psi (3 to 14 bar) with easy to see 25 psi (2 bar) increments. The aluminum casting is plastic impregnated, hard coat anodized, and TFT powder coat finished inside and out for maximum corrosion protection. Works with Darley, Waterous, or Hale bolt hole patterns for direct use on pump flanges.

DISCHARGES AND PRECONNECTS

Front Jump Line 1.5 Akron Valve

One (1) 1-1/2” preconnect outlet with a manually operated Akron valve shall be supplied to the extended front bumper. The preconnect shall consist of a 2” heavy duty hose coming from the pump discharge manifold to a 2” FNPT x 1-1/2” MNST mechanical swivel hose connection to permit the use of the hose from either side of the apparatus.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

An air blow-out valve shall be installed between the chassis air reservoir and the front jump line. The control shall be installed on the pump operator`s panel.

The discharge shall be supplied with a Class 1 automatic 3/4” drain valve assembly. The automatic drain shall have an all-brass body with stainless steel check assembly. The drain shall normally be open and automatically close when the pressure is greater than 6 psi.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Left Rear 3” Discharge

One (1) 3” outlet with a manually operated Akron valve shall be supplied to the lower left of the apparatus hose bed.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Deck Gun 3" Discharge Akron Valve

One (1) 3” deck gun discharge outlet with a manually operated Akron valve and 3” stainless steel pipe shall be provided above the pump compartment.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve shall be equipped with a device that limits the opening and closing speeds to comply with the current edition of NFPA 1901.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Front Bumper Discharge Swivel, Brass In Tray

There shall be a brass swivel provided for the front bumper discharge located in hose tray center front bumper on lower back wall.

1.5 Single Crosslay Akron Valve [Qty: 2]

One (1) single crosslay discharge shall be provided at the front area of the body. The crosslay shall include one (1) 2” brass swivel with a 1-1/2” hose connection to permit the use of hose from either side of the apparatus.

The crosslay hose bed shall consist of a 2” heavy-duty hose coming from the pump discharge manifold to the 2” swivel. The hose shall be connected to a manually operated 2” Akron valve. The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator`s panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: crosslay 1 & 2.

Left Panel 2.5 Discharge Akron Valve

One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be provided at the left hand side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: left side discharge 1, left side discharge 2.

Right Panel 2.5 Discharge Akron Valve

One (1) 2-1/2” discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 2.

Right Panel 3” Discharge Akron Valve

One (1) 3” discharge outlet with a manually operated Akron valve shall be provided at the right side pump panel.

The discharge shall be equipped with a device that shall not allow the valve to open or close in less than three (3) seconds.

The valve shall be an Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valve shall have a self-locking ball feature using an automatic friction lock design to balance the stainless steel ball when in a throttle position with water flowing through it.

The valve shall be of the unique Akron swing-out design to allow the valve body to be removed for servicing without disassembling the plumbing.

The valve control shall be located at the pump operator panel and shall visually indicate the position of the valve at all times.

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss.

Location: right side discharge 1.

Deck Gun Location

Deck gun piping shall be positioned centered in deck gun channel. This location shall allow for optimal operation of a deck gun monitor once installed.

DISCHARGE OPTIONS

Monitor, Dealer Installed

Dealer/Customer installed monitor, nozzle and/or tips, make and model as specified.

IC Push/Pull Control

The apparatus pump panel shall be equipped with Innovative Controls Side Mount Valve Controls. The ergonomically designed ¼ turn push-pull T-handle shall be chrome-plated zinc with recessed labels for color-coding and verbiage. An anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated zinc panel-mounting bezel with areas for color-coding and/or FOAM and CAFS identification labels.

Bleeder Drain Valve [Qty: 9]

The bleeder/drain valves shall be Innovative Controls ¾" ball brass drain valves with a chrome-plated 1/4 turn handle. Each 1/4 turn handle grip shall feature built-in colorcoding labels and a verbiage tag identifying each valve.

Discharge/Intake Bezel

Innovative Controls intake and/or discharge swing handle bezels shall be installed to the apparatus with mounting bolts. These bezel assemblies will be used to identify intake and/or discharge ports with color and verbiage. These bezels are designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The specified assemblies feature a chrome-plated panelmount bezel with durable UV resistant polycarbonate inserts. These UV resistant polycarbonate graphic inserts shall be sub-surface screen printed to eliminate the possibility of wear and protect the inks from fading. All insert labels shall be backed with 3M permanent adhesive (200MP), which meets UL969 and NFPA standards.

GAUGES

ENFO IV System

The apparatus shall be equipped with a Class 1 ENFO IV electronic system and engine operating information display/warning system mounted on the pump operator`s panel. The gauge shall be a self-contained, weatherproof display, approximately 4.5” H x 6” W.

Features:

- Engine RPM - engine RPM shall be displayed numerically.
- System voltage display and alarm - a display shall be provided to indicate voltage and an audible alarm warning of low voltage. If the system voltage drops below 11.9 volts (12V ignition), or below 23.8 volts (24V ignition), for more than 2 seconds the audible alarm shall activate and shall cause the display to alternate between the current value and ”LO” to warn the operator.
- Engine temperature display and alarm - a display shall be provided to indicate engine temperature and an audible alarm warning of high engine temperature. If the engine temperature reaches 250 degrees F or higher the audible alarm shall activate and the display shall alternate between the current temperature and ”HI” to warn the operator.
- Engine oil pressure display and alarm - a display shall be provided to indicate oil pressure and an audible alarm warning of low oil pressure. If the oil pressure drops to 10 PSI or lower the audible alarm shall activate and the display shall alternate between the current pressure and ”LO” to warn the operator.

The connection to the apparatus shall be achieved by the use of a Deutsch four (4) position socket connector.

GAUGE IC 10 LED TANK LEVEL WATER, ADDITIONAL

An additional Innovative Controls brand water tank level gauge shall be located at the officer rear to provide a high-visibility display of the water tank water level. Ten (10) highintensity light emitting diodes (LED`s) on the display module shall have a 3 dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. Each display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an ”anti-slosh” feature.

GAUGE IC 10 LED TANK LEVEL WATER/PS2TANK

One (1) Innovative Controls brand water tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the water tank level. Ten (10) high-intensity light emitting diodes (LEDs) on the display module shall have a 3-dimensional lens allowing the full, 3/4, 1/2, 1/4, and refill levels to be easily distinguished at a glance within full 180 degree visibility.

The display module shall be protected from vibration and contamination with the components being encased in an encapsulated plastic housing. The long life and extreme durability of LED indicators eliminates light bulb replacement and maintenance. Color coded cover plates shall complete the assembly of the display module to the pump panel. System calibration shall be accomplished via supplied magnet. Display level can be set independently for maximum reliability.

The display shall provide a steady indication of fluid level despite sloshing inside of the tank when the vehicle is in motion due to an ”anti-slosh” feature.

In addition to the pump panel mounted lights there shall be one (1) set of Whelen PSTank2 series LED (Light Emitting Diode) strip light installed as specified.

The system shall be controlled by an Innovative Control tank level driver module that is integral of the NFPA required pump panel mounted tank level light assembly.

The additional tank level system shall be interlocked through the parking brake assembly so as not to be on while the vehicle is in motion.

The remote strip light shall be arranged as follows:

Full Green
3/4 Blue
1/2 Amber 1/4
Red

Location of Whelen PSTank2 Strip Lights: each side of cab rear of front doors.

Pressure Gauge [Qty: 9]

Innovative Controls TC Series 2.5" (63MM) pressure gauge(s) shall be provided. Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highly-polished stainless steel bezel.

The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.

The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40°F to +160°F.

Each gauge shall exceed (NFPA 1901 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments.

The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freezeup and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

The gauges shall display a range specified with enhanced black markings on a white dial.

Pressure Gauge

Innovative Controls TC Series 4" (100MM) Master pressure gauges with dual bezel shall be provided. Includes test ports and alarm.

Each gauge shall have a glass-filled nylon case, a clear scratch-resistant lens, and a highlypolished stainless steel bezel.

The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve-identifying verbiage and/or color labels.

The gauge shall be fully-filled with a synthetic mixture to dampen shock and vibration, lubricate the internal mechanisms, prevent lens condensation and ensure proper operation from –40°F to +160°F.

Each gauge shall exceed (NFPA 1901 16.12.3.7) ASME B40.100 Grade B requirements (3% 2% 3%) with an accuracy of +/- 1.5% full scale and include an internal thermal expansion bladder that allows the gauge fill to expand in high temperature environments.

The gauges shall also include a KEM-X Socket Saver diaphragm in the stem to eliminate freezeup and contain a low temperature instrument oil that fills and protects the socket and bourdon tube.

The gauges shall display a range specified with enhanced black markings on a white dial.

Pressure Gauge

Pump panel pressure gauges shall be 0-400 / Master Intake gauge shall be 30-0-400.

WINTERIZATION

Gasket Disc/Intake Pump Panel (No Exceptions)

All intakes and discharges shall have gasket material provided on the pump module to hold in the heat of the module plumbing.

ELECTRICAL SYSTEMS

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901 and 2024 edition of NFPA 1900 (Annex A). The following data shall be monitored:

- Vehicle speed MPH
- Acceleration (from speedometer) MPH/Sec.
- Deceleration (from speedometer) MPH/Sec.
- Engine speed RPM
- Engine throttle position % of full throttle
- ABS Event On/Off
- Seat occupied status Occupied Yes/No by position
- Seat belt status Buckled Yes/No by position
- Master Optical Warning Device Switch On/Off
- Time: 24 hour time
- Date: Year/Month/Day

Occupant Detection System

There shall be a visual and audible warning system installed in the cab that indicates the occupant buckle status of all cab seating positions that are designed to be occupied during vehicle movement.

The audible warning shall activate when the vehicle’s park brake is released and a seat position is not in a valid state. A valid state is defined as a seat that is unoccupied and the seat belt is unbuckled, or one that has the seat belt buckled after the seat has been occupied.

The visual warning shall consist of a graphical representation of each cab seat in the multiplex display screen that will continuously indicate the validity of each seat position.

The system shall include a seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

Electrical Connection Protection

The vehicle electrical system shall be made more robust by the application of a corrosion inhibiting spray coating on all exposed electrical connections on the chassis and body. If equipped with an aerial device, the exposed connections on the aerial components shall also be protected.

The coating shall use nanotechnology to penetrate at the molecular level into uneven surfaces to create a protective water repellant film. The coating shall protect electrical connections against the environmental conditions apparatus are commonly exposed to.

Multiplex Electrical System

Electrical System

The apparatus body shall incorporate a Weldon V-MUX powered by Digital Truck Designer multiplexing system. The system shall use active/standby architecture and communicate via J1939 CAN bus. The electrical system installed by the apparatus manufacturer shall conform to current SAE standards, the latest FMVSS standards, and the requirements of the applicable NFPA standards.

The electrical circuits shall be provided with low voltage over-current protective devices. Such devices shall be accessible and located in required terminal connection locations or weatherresistant enclosures. The over-current protection shall be suitable for electrical equipment and shall be automatic reset type and meet SAE standards. All electrical equipment, switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. The system shall have electro-magnetic interference suppression provided as required in applicable SAE standards.

Any electrical junction or terminal boxes shall be weather-resistant and located away from water spray conditions.

Multiplex System

For superior system integrity, the networked multiplex system shall meet the following minimum component requirements:

- The network system shall use the J1939 protocol.
- Modules shall be IP67 rated to handle the extreme operating environment found in the fire service industry.
- All modules shall be solid state circuitry utilizing MOS-FET technology and utilize Deutsch series input/output connectors.
- Load shedding power management (8 levels).
- Switch input capability for chassis functions.
- Responsible for lighting device activation.
- Self-contained diagnostic indicators.

- Wire harness as need to interface electrical devices with multiplex modules.
- The grounds from each device should return to the main ground trunk in each sub harness by the use of ultrasonic splices.

Wiring

All harnessing, wiring and connectors shall be manufactured to the following standards/guidelines. No exceptions.

- NFPA (Specific edition documented elsewhere in these specifications) • SAE J1127 and J1127

- IPC/WHMA-A-620 – Requirements and Acceptance for Cable and Wire Harness Assemblies. (Class 3 – High Performance Electronic Products)

All wiring shall be copper or copper alloys of a gauge rated to carry 125 of the maximum current for which the circuit is protected. Insulated wire and cable 8 gauge and smaller shall be SXL, GXL, or TXL per SAE J1128. Conductors 6 gauge and larger shall be SXL or SGT per SAE J1127.

All wiring shall be colored coded and imprinted with the circuits function. Minimum height of imprinted characters shall not be less than .082" plus or minus .01". The imprinted characters shall repeat at a distance not greater than 3".
A coil of wire shall be provided behind electrical appliances to allow them to be pulled away from mounting area for inspection and service work.

Wiring Protection

The overall covering of the conductors shall be loom or braid.

Braid style wiring covers shall be constructed using a woven PVC-coated nylon multifilament braiding yarn. The yarn shall have a diameter of no less than .04" and a tensile strength of 22 lbs. The yarn shall have a service temperature rating of -65 F to 194 F. The braid shall consist of 24 strands of yarn with 21 black and 3 yellow. The yellow shall be oriented the same and be next to each other.

Wiring loom shall be flame retardant black nylon. The loom shall have a service temperature of 40 F to 300 F and be secured to the wire bundle with adhesive-backed vinyl tape.

Wiring Connectors

All connectors shall be Deutsch series unless a different series of connector is needed to mate to a supplier's component. The connectors and terminals shall be assembled per the connector/terminal manufacturer's specification. Crimble/Solderless terminals shall be acceptable. Heat shrink style shall be utilized unless used within the confines of the cab.

Fast Idle System

A fast idle system shall be provided and controlled by a switch accessible by the driver. The system shall increase engine idle speed to a preset RPM for increased alternator output.

NFPA Required Testing of Electrical System

The apparatus shall be electrical tested upon completion of the vehicle and prior to delivery. The electrical testing, certifications, and test results shall be submitted with delivery documentation per requirements of NFPA. The following minimum testing shall be completed by the apparatus manufacturer:

1. Reserve capacity test:

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 ten (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 fail.

2. Alternator performance test at idle:

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.

3. Alternator performance test at full load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer`s governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test. However, an alarm sounded by excessive battery discharge, as detected by the system required in the NFPA Standard, or a system voltage of less than 11.7 volts DC for a 12-volt nominal system, for more than 120 seconds, shall be considered a test failure.

4. Low voltage alarm test:

Following the completion of the above 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 activates. The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less than 11.7 volts DC for a 12-volt nominal system shall be considered a test failure. The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

NFPA Required Documentation

The following documentation shall be provided on delivery of the apparatus:

A. Documentation of the electrical system performance tests required above.

B. A written load analysis, including:

a. The nameplate rating of the alternator.
b. The alternator rating under the conditions.
c. Each specified component load.
d. Individual intermittent loads.

Multiplex Display

The multiplex electrical system shall include a 7" UltraView color display.

The display shall have the following features:

- Bonded transmissive TFT LCD screen • Diagonal measurement of no less than 7”
- J1939 Communications protocol capable
- IP67 sealed front and rear
- Three (3) video inputs for optional back-up camera(s)
- Twelve (12) multi-function programmable tactal buttons
- Home button
- Menu button

Display screens shall be configured to include the following:

- Warning light switching
- Work and scene light switching
- Indicators for park brake, PTOs and aerial jacks down (if applicable)
- Occupant detection indication
- Specific door ajar indication
- Clock
- Access to the multiplex system diagnostics

The display shall be located driver's side engine cover.

HVAC Controls

The air conditioning and heating systems of the apparatus chassis cab shall be controlled through the multiplex electrical system`s color display(s). The system shall have the capability to provide automatic climate control.

LIGHT BARS

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the front light bar.

Front Light Bar Color(s)

The front light bar shall be provided with the following color LED modules: Red/White with clear lenses

If applicable, includes side facing light bars when colors are the same.

Light Bar

A Whelen Freedom IV Series 72” LED light bar model F4X7 with ten (10) LED modules shall be provided; two (2) front corner mounted LED modules, six (6) forward facing LED modules and two (2) side facing LED modules (with front vista windows) or two (2) rear corner LED modules (without front vista windows).

No rear facing LEDs.

The light bars shall have clear lenses.

The white LEDs (if equipped) shall be switched off in blocking right of way mode.

The light bar shall be installed centered on the front cab roof.

WARNING LIGHTS

Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons with driver BLUE, officer RED with COLORED lenses domes shall be supplied.

The lights shall be located rear upper body on aerial style brackets to meet Zone C upper requirements.

Hazard (Door Ajar) Light

There shall be a 2” red LED hazard light installed as specified.

The light shall be located center overhead.

Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons with RED with RED lenses domes shall be supplied.

The lights shall be located (1) each side of body on rearward compartment top to meet Zone C upper requirements.

Warning Lights

Two (2) Whelen model M2W Wide Angle Super LED shall be provided.

The rectangular lights shall include chrome flanges (as applicable). The lights shall be wired with weatherproof connectors.

Specifications include:

- Surface mounted
- Patented Linear LED reflector assembly
- Sealed assembly
- Mounting gasket
- Multiple Scan-Lock flash patterns available
- Chrome mounting flange

Location: (1) each side NFPA/ULC required lower zone rear side facing, color will be RED with RED lenses.

Warning Lights

Two (2) Whelen M6 series Linear Super LED RED with RED lenses, RED with RED lenses, RED with RED lenses, RED with RED lenses, RED with RED lenses shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side NFPA/ULC required lower zone front facing, (1) each side NFPA/ULC required lower zone forward side facing, (1) each side NFPA/ULC required lower zone midship side facing, (1) each side NFPA/ULC required lower zone rear facing, (1) each side in front quad inboard of NFPA warning light.

SIRENS

Electronic Siren

A Federal PA300 siren model 690010 solid state electronic siren with attached noise-canceling microphone shall be installed. The unit shall be capable of driving a single high power speaker up to 200 watts to achieve a sound output level that meets Class ”A” requirements.

Operating modes shall include Hi-Lo, yelp, wail, P.A., air horn and radio re-broadcast.

The siren shall be recessed mounted in the cab.

Electronic Siren Control Location

The electronic siren control shall be located in the center overhead.

Mechanical Siren

A chrome plated flush mounted Federal Q2B-NN coaster siren shall be installed in the front bumper. An electric siren brake switch shall be located in the cab accessible to driver.

The siren shall be located driver side front bumper.

SPEAKERS

Siren Speaker

One (1) Federal Signal model ES100 Dynamax 100 watt speaker shall be flush mounted as far forward and as low as possible on the front of the vehicle. A polished model MSFMT with grille shall be provided on the outside of the speaker to prevent road debris from entering the speaker.

Speaker dimensions shall be: 5.5 in. high x 5.9 in. wide x 2.5 in. deep. Weight = 5.5 lbs.

The speaker shall produce a minimum sound output of 120 dB at 10 feet to meet current NFPA 1901 requirements.

The speaker shall be located officer side front bumper.

DOT LIGHTING

License Plate Light

One (1) Truck-Lite model 15205 white LED license plate light mounted in a Truck-Lite model 15732 chrome plated plastic license plate housing shall be mounted at the rear of the body.

LED Marker Lights

LED clearance/marker lights shall be installed as specified.

Upper Cab:

- Five (5) amber LED clearance lights on the cab roof.

Lower Cab:

- One (1) amber LED side turn/marker each side of cab ahead of the front door hinge.

Upper Body:

- One (1) red Trucklite LED clearance light each side, rear of body to the side.

Lower Body:

- Three (3) red Trucklite LED clearance lights centered at rear, recessed in the rub rail.
- One (1) red Trucklite LED clearance light each side at the trailing edge of the apparatus body, recessed in the rub rail.

- One (1) amber Trucklite LED clearance/auxiliary turn light each side front of body/module, recessed in the rub rail.

Tail Lights

Three (3) Whelen model M6 series LED (Light Emitting Diode) lights shall be installed in a four (4) light vertical housing each side at rear and wired with weatherproof connectors.

Light functions shall be as follows:

- One (1) model M62BTT LED red running light with red brake light in upper position.
- One (1) model M62T LED amber turn signal in middle position.
- One (1) model M62BU LED clear back-up light in lower position.

A one-piece cast housing shall be mounted around the three (3) individual lights in a vertical position. The lower space will be used by the M6 or equivalent lower NFPA warning light.

Turn Signal Flash Pattern

The forward (if applicable) and rear turn signals shall have a populated full light flash pattern.

LIGHTS - COMPARTMENT, STEP & GROUND

Compartment Light Package

Two (2) Hansen compartment light strips shall be mounted in each body compartment greater than 4 cu. ft. Transverse compartments shall have four (4) lights located two (2) each side.

Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.

Compartment lights shall be wired to a master on/off rocker switch on the cab switch panel.

The wiring connection for the compartment lights shall be made with a weather-resistant plug in style connector. A single water and corrosion-resistant switch with a polycarbonate actuator and sealed contacts shall control each compartment light. The switch shall allow the light to illuminate if the compartment door is open.

Medical Cabinet Lighting [Qty: 4]

One (1) Hansen LED compartment light strip shall be mounted in the medical cabinet(s).

Each light bar shall include white LEDs mounted with a tough polycarbonate tube enclosure to protect the LED circuit board. The lights shall produce 120 lumens per foot and be waterproof up to IP66 rating.

The light shall be controlled by a compartment door switch.

Ground Lights

The apparatus shall be equipped with a sufficient quantity of lights to properly illuminate the ground areas around the apparatus in accordance with current NFPA requirements. The lights shall be TecNiq model T440 4” circular LED (Light Emitting Diode) with clear lenses mounted in a resilient shock absorbent mount for improved bulb life. The wiring connections shall be made with a weather resistant plug in style connector.

Ground area lights shall be switched from the cab dash with the work light switch.

One (1) ground light shall be supplied under each side of the front bumper extension if equipped.

Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

Cab Ground / Auxiliary Step Lights

The cab shall be equipped with a sufficient quantity of lights to properly illuminate the auxiliary steps and the ground areas below them in accordance with current NFPA requirements. The lights shall be EON LED (Light Emitting Diode) with clear lenses. The wiring connections shall be made with a weather resistant plug in style connector.

The lights shall be switched from the cab dash with the work light switch. The lights shall also be activated automatically when the exit doors are opened.

LIGHTS - DECK AND SCENE

Deck/Scene Light Wired to Back-Up Lights

The rear deck or scene lights shall be activated when the chassis is placed in reverse to provide additional lighting, in addition to the back-up lights, when backing the vehicle. **Scene Lights**

Two (2) Whelen model M9 series Linear Super LED clear scene lights shall be provided.

Each shall have Linear Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light without the use of angle brackets.

The lights shall be located (1) each side of vista forward of rear doors and be controlled by a switch in cab accessible to driver (lights on sides of apparatus to be switched separately).

Scenelights

Two (2) Whelen 900 series model 9SC0ENZR Super LED Opti-Scenelights shall be provided.

Each light head shall contain twenty-four (24) diodes producing 6,500 lumens. The lights heads shall be equipped with lenses that have gradient optics to enhance light output.

Lights shall be located (1) each side of body rear facing up high and switched in cab (side facing lights switched separately).

Hose Bed Light

One (1) Amdor H2O Luma-Bar shall be installed at the front area of the hose bed to provide hose bed lighting per current NFPA. All electrical connectors are to be enclosed in the housing providing protection against the elements.

The hose bed light shall be switched with work light switch in the cab.

Crosslay Light

An Optronics round LED light model TLL44 shall be installed at the rear area of the crosslay to provide crosslay lighting per current NFPA 1901. The light shall provide 720 lm effective output. The light shall have a black powder coated, die cast aluminum housing and stainless steel hardware with a weatherproof rating of IP69K.

The crosslay light shall be switched with the work light switch in the cab.

LIGHTS - NON-WARNING

Pump Compartment LED Light

An LED light shall be provided in the pump compartment area for NFPA compliance. The light shall be wired to operate with the work light switch in the cab.

LED Pump Panel Light Package

Three (3) TecNiq model E10 LED lights shall be mounted under a light shield directly above each side pump panel. The work light switch in the cab shall activate the lights when the park brake is set.

Engine Compartment Light

There shall be lighting provided to illuminate the engine compartment area in compliance with NFPA 1901. The light shall be an Optronics ILL22 Series LED that has a polycarbonate lense, sealed / waterproof housing and integral switch. The light wiring circuit shall activate when the cab is tilted and master power is switched on.

LED Pump Panel Light - Additional

One (1) TecNiq model E10 LED light shall be mounted under the light shield, in addition to the existing pump panel lights. The additional light shall be located at the driver side pump panel.

CONTROLS / SWITCHES

Door Ajar Alarm

An audible alarm shall be provided through the multiplex display(s) in the cab wired into the door ajar or indicator.

CAMERAS / INTERCOM

Camera Shield

A diamond plate protective shield shall be provided for the top and sides of a camera. The shield shall be designed not to impede in the operational envelope of the camera.

Back-Up Camera Speaker

One (1) Standard Horizon model MLS 310 speaker shall be provided in the cab accessible to the driver. Speaker shall feature an on/off switch and volume control.

Camera Back-Up

There shall be a Safety Vision camera model number SV-625B-KIT provided. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view with audio. The camera shall include a cable with metallic waterproof threaded o-ring seal connectors to ensure positive connection between video cable and camera to prevent unplugging due to vibration resulting in video loss to vehicle operator. The camera shall be interlocked with the chassis transmission. When the apparatus is placed in reverse the

camera shall automatically be activated and when the transmission is placed in any other gear the screen shall return to the previously displayed screen.

MISC ELECTRICAL

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a switch inside the cab.

Back-Up Alarm

An electronic back-up alarm shall be supplied. The 97 dB alarm shall be wired into the chassis back-up lights to signal when the vehicle is in reverse gear.

12 Volt DC Power Distribution Module

A Blue Sea model 5032 12 place, split bus fuse block with ground, 12 volt DC power distribution module shall be provided. The module shall provide two isolated groups of six circuits, and shall be wired through switched hot and battery hot, and include a battery ground.

Location: L1 high on forward wall, behind officer's seat.

GENERATOR

Hydraulic Generator

A Smart Power Model HR-6 top mount style 6200 watt hydraulic generator shall be provided. The generator shall be installed dunnage pan offset to driver side.

The unit shall come equipped with: modular generator unit (which includes the hydraulic motor and filter, generator, and cooler), axial piston hydraulic pump, hydraulic reservoir, and a gauge panel.

The gauge panel shall display voltage, hour meter, frequency, and amperage.

The hydraulic motor, generator, blower, cooler, and necessary hydraulic components shall be mounted in a rugged steel case.

The modular generator unit shall be 32” long x 13.50” wide x 17.00” high and weigh approximately 190 pounds.

The hydraulic pump shall be driven by a chassis transmission mounted power take off (PTO).

A generator control / PTO engage switch shall be mounted on the cab instrument panel to engage the PTO and start the generator.

Ratings and Capacity

Rating:	6200 watts continuous 7500 watts peak
Volts:	120/240 volts
Phase:	Single, 4 wire
Frequency:	60 Hz
Amperage:	46 amps @ 120 volts or 23 amps @ 240 volts
Engine speed at engagement:	Recommend below 1000 RPM
Operation range:	880 to 3120 RPM

Testing

The generator shall be tested in accordance with current NFPA 1901 standards.

Notes:
*All ratings and capacities shall be derived utilizing current NFPA 1901 test parameters.
*Extreme ambient temperatures could affect generator performance.

GENERATOR TEST

Line Voltage Power Source Testing

The line voltage power source (generator and / or inverter) shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions and testing of the power source shall be as outlined in NFPA.

The test shall include operating the power source for two hours at 100% of the rated load. Power source voltage, amps, frequency shall be monitored. The prime mover`s oil pressure, water temperature, transmission temperature (if applicable) and power source hydraulic fluid temperature (if applicable) shall be monitored during testing.

The results of the test shall be recorded and provided with delivery documentation.

BREAKER BOXES

Circuit Breaker Panel

An eight (8) place breaker box with up to six (6) appropriately sized ground-fault interrupter circuit breakers shall be supplied. The breaker box will include a master breaker sized according

to the generator output which will occupy two (2) places. The breaker box will be located in the specified compartment, not to exceed 12` run of wire.

Dimensions: 12.50” high x 8.88” wide x 3.80” deep.

Location: L1 back wall above offset forward area.

LIGHTS - AREA

120V LED Flood Light

A Whelen model PFP2AC 110V light head with Whelen 3200 series 50" tripod shall be provided. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4-5/8" high by 3" deep and have a white powder coat finish. The light fixture shall have a dual panel (4) clusters of LED lamps with molded vacuum metalized reflector that draws 1.25 amps and produce 11,000 usable lumens.

The light assembly shall be externally mounted as specified. The pole shall allow for 360-degree rotation of the light and shall have a locking knob to hold the pole at the desired height and a release latch shall be provided to allow the light to also be used as a portable free standing tripod unit. An on/off switch shall be provided on the light.

Location: officer side back of cab, driver side back of cab.

Whelen Pioneer 12V LED Flood Light

A Whelen Pioneer Plus model PFH1P 12V LED light fixture(s) shall be provided. The rectangular extruded light fixture with die cast end caps shall measure 8.35" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have eighteen (18) white Super-LEDs with a molded vacuum metalized reflector that draws 6.5 amps and produce 8,875 usable lumens.

The light shall be mounted on a Whelen 3100 series through the body top adjustment pull-up pole. The wiring shall be routed from the light head.

A hand tightened locking knob shall be provided to allow for easy adjustment of the pole height.

Location: driver side of pump module forward area, officer side of pump module forward area.

Whelen Pioneer 12V LED Flood Light [Qty: 2]

A Whelen Pioneer Plus series 160 watt 12V flood light model PFH2 dual panel LED light head shall be provided on a cab brow mount. The rectangular extruded light fixture with die cast end caps shall measure 14" wide by 4.25" high by 3" deep and have a white powder coat finish. The light fixture shall have thirty-six (36) white Super-LEDs with molded vacuum metalized reflector that draws 13 amps and produce 17,750 usable lumens.

Location(s): driver and officer side front cab brow, driver and officer side over rear cab door.

RECEPTACLES

Receptacle

A 20 amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacle with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source.

Location: In cab driver side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush), In cab officer side on 3 x 3 post rear facing just above engine cover (or seat riser if in a Hush), driver back wall of cab, officer back wall of cab, L1 high on forward wall, R1 high on forward wall, R3 high on forward wall.

Receptacle

A 20 amp, 110 volt NEMA L5-20 twist lock receptacle with a weatherproof cover plate shall be installed as specified by the department.

Location: officer side back of cab, driver side back of cab.

Receptacle

A 20 amp, 110 volt 3-prong straight blade NEMA 5-20 duplex household receptacle with stainless steel cover plate shall be installed in a non-weather exposed area as specified by the department. The receptacle shall be wired to the inlet receptacle where it will have overcurrent protection from an external source.

Location: rear wall of officer side medical compartment up high.

ELECTRIC CORD REELS

Electric Cord Reel

Hannay electric cord reel(s) shall be installed and located pump module storage pan officer side.

The reel(s) shall include 200` of black 10 gauge 3 conductor type SOWA cord. The cord shall be rated at 20 amps @ 110 volts. The end of the cord shall be terminated for the installation of a department required connector.

Rollers, Cord Reel

Rollers, stainless steel cord reel rollers shall be installed and located through a panel.

The rollers shall be located officer side pump module in line with reel.

The rollers shall facilitate smooth removal of the electric cord.

Cord Reel Rewind Switch

A heavy duty rubber covered electric reel rewind button shall be installed officer side pump panel.

GROUND LADDERS

Alco-Lite 3-Section Extension Ladder

One (1) Alco-Lite PEL3-35, 35` aluminum 3-section extension ladder shall be provided. The fly section shall be operated by a cable and shall automatically extend as the center section is raised. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

ALCO-LITE FOLDER LADDER

This unit shall be supplied with one (1) Alco-Lite FL-10, 10` 6” long aluminum folding attic ladder with safety shoes.

Alco-Lite Roof Ladder

An Alco-Lite DRL-14, 14` aluminum roof ladder shall be provided. Folding steel roof hooks and steel spikes shall be attached to each end of the ladder.

Little Giant Model 17 Ladder

A-Frame Ladder

One (1) Wing Enterprises Little Giant model 17 Defender aluminum A-frame ladder shall be supplied. The ladder shall be equipped with a heavy gauge steel locking device and ladder shoes for extra safety. It shall be capable of being used either as a 9` to 15` variable-length straight ladder or as an adjustable step ladder with the ability to be erected on stairs or other offset horizontal surfaces. Mounting Brackets included .

MISC LOOSE EQUIPMENT

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

EXTERIOR PAINT

Un-Painted Pump/Pre-Connect Module(s)

All applicable pump application modules shall have a sanded finish (not painted job color). Includes upper and lower pump modules, crosswalk module and/or speedlay/pre-connect module (as applicable). Rear mounted body/pump module shall be painted job color. **Paint Break**

A special paint break shall be provided as specified by the purchaser.

Paint Wheels

The inboard side of the front wheels shall be painted the same color as the outboard side.

Paint Wheels

The inboard side of the rear wheels shall be painted the same color as the outboard side. Includes the outboard side of the inboard wheels.

Paint Body Small

The apparatus body shall be painted a (non-metallic) color as specified.

Paint Custom Cab

The apparatus cab shall be painted a (non-metallic) color as specified.

Paint Cab Two-Tone Color

The upper section of the cab shall be painted a (non-metallic) color as specified.

Paint Wheels

The exterior outer chassis wheels shall be painted Job Color.

Undercoating

Undercoating shall consist of a heavy coating of soft seal film sprayed on the entire underside of the vehicle to repel water and road elements. Shall be applied after customer final inspection.

Paint Process/Manufacturer

The specified supplied components shall be painted with PPG Industries paint.

All applicable metal surfaces shall be mechanically etched by sanding disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once all imperfections on the exterior surfaces are removed and sanded smooth, body fillers shall be applied to the surfaces that require a critically aesthetic finish and sanded smooth.

The applicable surfaces shall then be coated with a high quality base primer that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be sanding the surfaces to a smooth finish followed by sealing the seams with an automotive seam sealer. The minimum thickness of the primer coat after sanding shall be 2.50 mils with a maximum thickness of 5.00 mils.

The applicable surfaces shall then be painted the specific color(s) designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on an emergency scene. The paint shall have a minimum thickness of 1.0 mils with a maximum of 4.0 mills, followed by a clear top coat with a minimum of 2.0 mils and a maximum of 4.0 mils. All applicable components shall then be baked to speed the curing process of the coatings.

INTERIOR PAINT

Cab Interior Paint

The interior of the cab shall be painted multi-tone gray finish. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

PROTECTIVE COATINGS

LINE-X Package.

One or more components installed on this unit shall have LINE-X coating. The LINE-X coating shall be XS-350, a two-component, 100% high performance aromatic polyurea spray elastomer system. XS-350 being an elastomeric protective coating shall provide excellent skin formation for chemical resistance and moisture protection. When used on walking surfaces, slip resistance shall meet or exceed NFPA 1901 test requirements.

Color shall be Black unless otherwise specified.

LINE-X package for custom cab steps

LINE-X package for custom cab steps: Includes cab step wells (everything below the cab floor) and all welded and bolt on steps including stirrup and swing out steps as applicable. Steps hanging below the cab shall have LINE-X coating inside and outside. DEF tank door or any other access doors are also included in this package if located in the step well area below the cab floor.

LETTERING

Scotchlite Letter [Qty: 3]

Scotchlite Letter (Each) - 12". Scotchlite letter(s) stitched to vinyl hosebed cover end flap. Per Customer request.

STRIPING

Reflective Stripe in Rubrail

The reflective stripe in the body rubrail shall be white.

CAB AND BODY STRIPE

A single straight Scotchlite stripe, up to 6 inches in width shall be installed on the cab and body.

The stripe shall be NFPA compliant and the size, color and location shall be as specified by the customer.

Scotchlite Cab Stripe

Scotchlite cab stripe shall be 3/4” in width. Stripe shall be centrally located and shall contour with the cab, following the paint break. Color of the stripe shall be as specified by the customer.

Rear Body Scotchlite Striping

Individual chevron style Scotchlite striping shall be provided on the rear of the apparatus. The stripes shall consist of 6” Red/Lemon Yellow alternating stripes in an ”A” pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

Front Bumper Scotchlite Striping

Chevron style individual Scotchlite striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Yellow/Red alternating stripes in an "A" pattern.

Designated Standing / Walking Area Indication

1" wide yellow perimeter marking consisting of individual Reflexite diamonds shall be applied to indicate the outside edge of designated standing and walking areas above 48" from the ground in compliance with NFPA 1900/1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from this requirement.

GRAPHICS

Graphics Drawing

A graphics drawing shall be provided for the apparatus. The drawing shall include striping, lettering and logos meeting NFPA guidelines. The drawing shall be presented for review and approval by the end user prior to application of the graphics.

Logo

A logo with a grey background shall be provided on each of the rear vertical M6 tail light housings.

WARRANTY / STANDARD & EXTENDED

General 1 Year Warranty

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.

Body Structural (Aluminum) Warranty

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.

Plumbing and Piping (Stainless Steel) Warranty

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.

Meritor Front Axle Warranty

A warranty shall be provided for the front axle by Meritor Automotive. The warranty period shall be as follows based on axle type:

- FL-941, FL-943 and MFS up to 21,500: 5-year / unlimited miles parts and labor
- MFS rated at 22,800: 2-year / 200,000 miles parts and labor
- Front drive axle: 2-year / unlimited miles parts and labor

Meritor Rear Axle Warranty

A 5-year/unlimited miles, 5-year parts and 5-year labor rear drive single or rear drive tandem axle warranty shall be provided by Meritor Automotive.

Custom Chassis Warranty

Purchaser shall receive a Custom Chassis One (1) Year or 18,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0101. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Electrical Warranty

Purchaser shall receive an 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.

Cab Structural Warranty

Purchaser shall receive a Cab Structure Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Paint and Finish Warranty

Purchaser shall receive a Paint and Finish Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Cab Paint and Finish Warranty

Purchaser shall receive a Cab Paint and Finish Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Frame Rail Corrosion Warranty

Purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty Five (25) Years or 150,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0316. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Frame Components Corrosion Warranty

Purchaser shall receive a Frame Components Corrosion (Zinc Plate) Twenty (20) Years or

132,000 miles limited warranty in accordance with, and subject to, warranty certificate RFW0314. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Frame Rail Warranty

Purchaser shall receive a Frame Rail Lifetime (50) Years or 250,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0305. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request

Emissions Systems Warranty

Purchaser shall receive a Regulated Emissions Systems Ten (10) Years or 450,000 Miles or 22,000 Engine Hours limited warranty in accordance with, and subject to, warranty certificate RFW0144. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request

Emissions Systems Warranty

Purchaser shall receive a Regulated Emissions Two (2) Years or 24,000 Miles limited tire warranty in accordance with, and subject to, warranty certificate RFW0145. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

Emissions Systems Warranty

Purchaser shall receive a Regulated Emissions Five (5) Years or 100,000 Miles limited AC system leak warranty in accordance with, and subject to, warranty certificate RFW0146. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

Pump Panel Approval Drawing

A detailed large scale approval drawing of the pump panel(s) shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

Approval Drawings

A general arrangement drawing depicting the vehicles appearance shall be provided. The drawing shall consist of left side, right side, front, and rear elevation views.

Vehicles requiring pump controls shall include a general arrangement view of the pump operator`s position, scaled the same as the elevation views.

Approval Drawings - Dash Panel Layout

A detailed large scale approval drawing of the dash/console panel layout shall be provided. The drawing shall be provided on an purchased unit prior to the construction process.

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in digital format -NO EXCEPTIONS! The electronic manuals shall include the following information:

- Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, aerial (if applicable), installed components, and auxiliary systems.
- Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and firefighting systems.
- Charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections.
- Instructions regarding the frequency and procedure for recommended maintenance.
- Maintenance instructions for the repair and replacement of installed components.
- Parts listing with descriptions and illustrations for identification.
- Warranty descriptions and coverage.

The electronic document shall incorporate a navigation page with electronic links to the operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The electronic document must be formatted in such a manner as to allow not only the printing of the entire manual, but to also the cutting, pasting, or copying of individual documents to other electronic media, such as electronic mail, memos, and the like.

A find feature shall be included to allow for searches by text or by part number.

These electronic manuals shall be accessible from any computer operating system capable of supporting portable document format (PDF). Permanent copies of all pertinent data shall be kept file at both the local dealership and at the manufacturer`s location.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.

DEALER ADDED EQUIPMENT

Dealer

This vehicle shall be equipped with Sensible Folding Cone Kit.

In Station Delivery and Vehicle Orientation with this Unit shall be supplied.

A 1500 gallon portable Fold-A-Tank with 22 oz HPR liner and aluminum frame shall be supplied.

A set of On-Spot Automatic Tire Chains shall be installed on truck.

Travel for 2 Members of the Fire Department to Factory for Final Inspection and Acceptance shall be supplied.

A set of Aluminum Cast Wheel Chocks and Mounting Hardware shall be included and installed in Department specified location.

This Vehicle purchase shall include a Fire Department Tool Voucher in the amount of $15,000 to cover purchases made thru the dealership.

Electrical

A Portable Electric Junction Box shall be supplied.
A box style mounting bracket to hold the cord end electrical junction box shall be supplied. The box shall be smooth aluminum powder coated white. horizontal mounting.

Radio Allowance, his vehicle shall include a $8,000 allowance for purchase, programing and installation of a Kenwood radio.

Fittings

[2] 6" 1/4 turn operated Butterfly Valve shall be included.

[2] 6 inch NST female x 4inch stortz adapter and stortz cap shall be supplied.

[3] This Vehicle shall include a 2.5" Hydrant Gate.

2-This Vehicle shall include a 3” NST Female X 4” Storz Adapter.

Graphics

Cab & Body Lettering to meet Dept. Specification shall be supplied @ $2000. **Hose**

[3] Lengths of light weight 6-inch Suction Hose, 10 feet in length shall be supplied.

Nozzles

This vehicle shall include a 8297 Storage Pedestal for an Elkhart Monitor.

An Elkhart Stinger 8297-41 with Stream Straightener, Stacked Smooth Bore Tips, Truck Mount, & 4 Inch Storz Ground Mount shall be supplied.

[2] This vehicle shall include the following applicant TFT Foam Pak with storage Mount

Tools

[3] An Akron 2442 Spanner & Hydrant Wrench Combo Kit with Mounting Bracket Shall be supplied.

Amkus Rescue Tool voucher @ $15,000.

End of Specifications