SPECIFICATIONS AND CONTRACT DOCUMENTS
FOR THE
PURCHASE OF A NEW FIRE TRUCK
PRESQUE ISLE, MAINE

DEADLINE
WEDNESDAY, JULY 31, 2013
3:00 pm

Date: June 5, 2013

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 fifteen percent (15%) 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. If a Bid Bond is provided, it shall be issued by a bonding company licensed to bond in this State.

Certificate of Insurance

Each bidder shall furnish, with their proposal, a Certificate of Product Liability Insurance for a minimum of twenty five (25) 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 prime builder only. Certificates submitted from various sub-contractors in order to total the ten million dollar minimum will not be acceptable as meeting the requirements of this section.

If one of the major portions of the apparatus (i.e. chassis, aerial, or body) is not designed, fabricated, and assembled by the prime builder, a separate Certificate of Liability Insurance for a minimum of twenty five (25) million dollars must be provided by each additional contractor.

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

Certificate of Insurance-Dealer

Each dealer bidding shall furnish, with their proposal, a Certificate of Product Liability Insurance for a minimum of four (4) 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 prime builder only. Certificates submitted from various sub-contractors in order to total the ten million dollar 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 non-original Certificate or a Certificate provided that is not made out to the Purchaser will not meet the requirements of this section.

Performance Bond

The successful bidder shall provide a Performance bond in the amount of the total contract price to the Purchaser within ten (10) days of contract award. The bond must be underwritten by the bonding company of the apparatus manufacturer. Bonds submitted by the salesperson or agent shall not be accepted. The validity of the bond will be verified by the Purchaser. The bonding company must be licensed to bond in this state. The performance bond must be submitted by the prime contractor and not a subcontractor. No exception.

Qualification of Bidders

Bids will only be considered on vehicles constructed in the continental United States, whose manufacturers have an established reputation of permanency and reliability in the field of fire apparatus construction. Each manufacturer shall furnish satisfactory evidence of their ability to construct the apparatus as specified, and shall state the location of the factory where the complete apparatus will be built. If the chassis, body, and cab are manufactured in different facilities, the location of each facility shall be stated in the bid. Experimental apparatus or apparatus using a subcontracted body, chassis, or body will not be acceptable. Bids will only be considered from sole source manufacturers who have been in business continuously, without interruption, for a minimum of 25 years.

Please complete the following (*No Exceptions*)

Please state the location where the following vehicle components will be constructed:

Chassis _____
Body _____
Cab _____

- How long has the manufacturer been building chassis at this location?

  Number of years_____

- How long has the manufacturer been building bodies at this location?

  Number of years_____

Bidders must state the location of at least 10 communities in Maine using similar all aluminum apparatus supplied by them.

Service Requirements

It is the intent of the purchaser to assure that parts and service are readily available for the apparatus specified. SERVICE CAPABILITIES WILL BE A MAJOR CRITERIA FOR AWARD OF THIS BID. To insure proper service, no bid will be accepted unless the bidder owns or offers facilities in state within 250 miles where complete parts and service are available. The facility must be staffed by full time personnel who are factory trained and EVT certified in the operation and repair of the fire apparatus, including the pump, with full authorization of the manufacturer. In addition, in order to ensure prompt service, the facility must be solely dedicated to the service/repair of emergency vehicles. Facilities that cater to construction and fleet trucks (i.e., highway dept., DPW, oil, concrete, etc..) will not be considered. The facility shall maintain a complete inventory including major pump parts, body components, electrical items, fire apparatus hardware, etc., and shall offer on-site services including pump overhaul, body fabrication, collision repair, and a paint shop complete with a cross flow booth with air makeup and bake options to insure the highest quality paint finish available. Bids from manufacturers who use third party service people or facilities, or who do not offer a service center will be given less credit for service than dealers who maintain their own local service center. Furthermore, due to a concern over having vehicles "out-of-service" for extended periods of time as a result of having to be sent back to the original manufacturer's location for repairs, any bidder who cannot guarantee that all future repairs will be handled at a local level will not be acceptable.

Emergency Vehicle Technician Qualifications

Due to the highly specialized nature of fire apparatus repair, emergency vehicle technicians employed by the bidder shall be in conformance with NFPA standards 1915 and 1071. The bidder shall employ a minimum of twenty (20) E.V.T. certified technicians including a minimum of one (1) technician certified as a "Master Mechanic" (having amassed every EVT certification). Proof of current certification shall be supplied with the bid. There shall be no exceptions to this requirement. Bids from organizations that do not meet these requirements shall be immediately rejected.

Service Questionnaire

The bidder shall include the following information with their bid. NO EXCEPTIONS!

- Number of miles from the purchaser to the nearest staffed service facility owned and operated by the bidder

  Number of miles _____

- The number of service bays and square feet of service space at the bidder's service facility.

  Number of bays _____ Square feet _____

- The length of time the service facility has been in business as an emergency vehicle dealer.

  Number of years in business _____

- How long has the dealer been selling the brand of emergency vehicle being proposed?

  Number of years _____

- Has the dealer/distributor represented other manufacturers of emergency vehicles in the past?

  Yes _____ No _____

  If yes, why was the change made? _____

- Number of emergency vehicles that have been delivered by the dealer/distributor since it has been in business representing its current “brand(s)” of emergency vehicles

  Number of vehicles delivered _____

- Is the dealership strictly dedicated to selling and servicing emergency vehicles and equipment, or do they sell and service other products?

  Strictly dedicated to emergency vehicles and equipment? Yes _____ No _____

- On-site pump test facility?

  Yes _____ No _____

- Number of EVT Certified mechanics employed? EVT "Master Mechanics"?

  EVT certified mechanics _____ EVT "Master Mechanics" ___

- Number of full-time mechanics employed by the bidder that are solely dedicated to servicing emergency vehicles?

  Number solely dedicated to emergency vehicle service _____

- Full body/collision repair, fabrication, and paint booth on-site?

  Yes _____ No _____

- Over $300,000 in parts inventory available at all times?

  Yes _____ No _____

- Does the possibility exist that the emergency vehicle may have to go back to the original manufacturer's location for warranty work?

  Yes _____ No _____

  If yes, please describe some examples _____

- Does the dealer/distributors service facility perform ALL warranty work for the products they represent?

  Yes _____ No _____

  If no, please describe where work may be performed _____

Engineering-Manufacturer

A letter shall be provided from a degreed engineer employed by the manufacturer verifying that the cab, chassis, body, pump system, water tank, and electrical system comply with all appropriate DOT and NFPA standards. The engineer shall also document that the re-install of the remanufactured motor/transmission have been properly designed for this cab and chassis.

Engineering-Dealer

Each dealer bidding shall also verify that they have at least 1 (one) degreed engineer on staff to oversee major repairs that may be needed during the life of this truck. Dealer service centers who do not meet this requirement will not be acceptable.

Single Source Manufacturing-Pumper

In order to protect the Purchaser from divided warranty responsibility between chassis and body manufacturers, proposals will only be accepted from apparatus builders who design, fabricate, and assemble the complete apparatus at their own facilities. This shall include the cab shell, chassis assembly, and complete body structure. Private labeling of another manufacturer's chassis will not meet the requirements of this section. **No exception**.

Prebuild Conference

A prebuild conference for the apparatus is required and shall be held within 1 month of awarding the contract. Three (3) members of the Presque Isle Fire Department shall be transported to the factory for meetings with engineering staff to review the contents of the specification. All expenses for the trip shall be borne by the successful bidder. If a manufacturer builds components at different locations (chassis, cab shell, body, or tank,) a trip to each facility shall be required to comply, no exceptions.

Inspection Trip

A final inspection for the apparatus is required and shall be held within 1 month of completion. Three (3) members of the Presque Isle Fire Department shall be transported to the factory for meetings with engineering staff to review the contents of the specification and the truck's compliance. All expenses for the trip shall be borne by the successful bidder. If a manufacturer builds components at different locations (chassis, cab shell, body, or tank,) a final inspection at each facility prior to shipment for final assembly shall be required, no exceptions.

Vehicle Transportation

The completed apparatus shall be transported to Presque Isle Maine at the expense of the successful bidder.

Training

3- days of training shall be provided at the Presque Isle Fire Department .in al aspects of the completed apparatus. Extra emphasis shall be made in the area of foam and pump systems. The training shall include by class room and field training. Certificates shall be provided for attendees and a copy of the vehicle specific training program shall be given to the training officer of the Presque Isle Fire Department.

Dimensions:

The completed apparatus shall have dimensions as close as possible to the following:

Overall Length- <32'

Overall Height <10'6"

Wheelbase- < 180"

Overall width 100"

TESTING COMPLIANCE STANDARD

NFPA Compliance

The fire apparatus manufacturer's supplied components of the apparatus shall be compliant with NFPA 1901, 2009 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 1/8" (.125") aluminum treadplate material.

BUMPER TRAYS

Lid, Bumper Hose Tray

The center bumper tray shall have a diamond plate lid. The lid shall be hinged and shall be secured in the closed position by a D-Ring latch and held open with a pneumatic shock.

Hose Tray Lid Notch

The front bumper hose tray lid shall be notched to allow for preconnected hose.

The notch shall be: 4" front to rear x 3" side to side centered on driver side of center tray lid.

Bumper Tray - Center

A hose tray constructed of 1/8" aluminum shall be recessed into the front bumper extension. The tray shall be located in the center of the bumper and be approximately 14" deep.

Flooring Material

Slatted Duradek fiberglass flooring shall be provided in the center bumper tray providing superior drainage and ventilation.

FRAME ASSEMBLY

Frame Rail Construction

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:

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

The apparatus manufacturer shall supply a full lifetime frame warranty including cross-members against defects in materials or workmanship. Warranties that provide a lifetime warranty for only the frame rails, but not the cross-members, are not acceptable. **NO EXCEPTIONS**.

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 Assembly

The chassis frame rails, front frame extensions, rear subframe (Urban Interface), crossmembers and battery brackets shall have a hot-dipped galvanized zinc coating in place of standard for increased corrosion resistance. The coating shall be done in compliance with the ASTM A123 Standard.

The chassis frame rails, front frame extensions, rear subframe , crossmembers and battery brackets shall have a 20 year corrosion warranty. No exceptions will be allowed to this requirement.

AXLE OPTIONS

Front Axle

The vehicle shall utilize an ArvinMeritor FL-941 front axle with a rated capacity of 18,700 lbs. It shall have ”easy steer” knuckle pin bushings and 68.5” 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.

Other brands of axle shall be acceptable so long as they meet this minimum axle rating and steering cramp angle.

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 3 leaf, progressive rate with bronze bushings and a capacity of 20,000 lbs. at the ground.

Tapered leaf springs provide a 20% ride improvement over standard straight spring systems. Supporting documentation/data shall be provided upon request.

The vehicle shall be equipped with a Sheppard model M-110 integral full power steering gear used in conjunction with a model 292 slave gear. The steering assembly shall be rated to statically steer up to a maximum front axle load of 18,700 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

A 2-year/unlimited miles parts and 2-year labor axle warranty shall be provided as standard by ArvinMeritor Automotive.

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.

Rear Axle

The vehicle shall utilize an ArvinMeritor RS-30-185, 31,000 lb. single rear axle with single reduction hypoid gearing and a manufacturer`s rated capacity of 31,000 lbs. The axle shall be equipped with oil-lubricated wheel bearings with ArvinMeritor oil seals.

Other brands of axle shall be acceptable so long as they meet this minimum axle rating.

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 use.

A 2-year/unlimited miles parts and 2-year labor rear axle warranty shall be provided as standard by ArvinMeritor Automotive.

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.

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 Reyco model 79KB. The suspension shall include linear-rate slipper type leaf springs that eliminate spring eyes and shackles. The suspension shall also include one (1) fixed torque arm, one (1) adjustable torque arm and cast spring hangers. The suspension shall be rated for the maximum axle capacity.

WHEEL OPTIONS

Front Wheel Trim Package

The front wheels shall have stainless steel lug nut covers (chrome plated steel lug nut covers not acceptable). 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 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.

Valve Stem Extensions

Each inside rear wheel on the rear axle shall have valve extensions.

Front Wheels

The vehicle shall have two (2) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

Rear Wheels

The vehicle shall have four (4) Accuride polished (on outer wheel surfaces only) aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

TIRE OPTIONS

Front Tires

The front tires shall be two (2) Michelin 385/65R22.5 tubeless type 18 PR radial tires with XZY3 Wide Base **aggressive tread**.

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

18,740 lbs. @ 65 MPH.

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

Rear Tires

The rear tires shall be Michelin 315R22.5 tubeless type radial tires with XDN2 **mud and snow tread**.

The tires with wheels shall have the following weight capacity:

33,080 lbs. (dual) @ 75 MPH.

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

All tires shall be studded prior to final delivery to Presque Isle FD. The preferred method would be to have all 6 tires studded locally to avoid excessive wear during delivery.

Tire Pressure Monitor

The apparatus shall be provided with tire pressure indicating valve stem caps. The indicators shall be installed on each tire and be a heavy duty design manufactured specifically for trucks. When tire is properly inflated, the indicator inside the cap shall be green, and when the tire is underinflated by 10%, the indicator inside the cap shall be red.

BRAKE SYSTEMS

Front Brakes

The front axle shall be equipped with ArvinMeritor 16-1/2” x 6” S-cam brakes with ArvinMeritor automatic slack adjusters.

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

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-26-185 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.

Two (2) air pressure needle gauges, one (1) each for front and rear air pressure, with a warning light and buzzer shall be installed at the driver`s instrument panel.

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 lock-up 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 dash-mounted 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.

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

A 1/4” brass quick-release air inlet with a male connection shall be provided. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging air directly into the wet tank of the air brake system. It shall be located driver door jamb.

Air Inlet Auto-Eject

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

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 TransSynd synthetic.

Vehicle Speed

The maximum speed shall be electronically 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

The vehicle shall utilize a Cummins ISL 2013 electronic engine as described below:

- 450 gross bhp at 2200 rpm
- 1250 lb.-ft. peak torque at 1400 rpm
- Six (6)-cylinder, charge air cooled, 4-cycle diesel
- 543 cu. in. displacement -- 4.49 in bore x 5.69 in stroke (8.9 liters)
- 16.6:1 compression ratio
- Interact System Controlled Viable Geometry Turbocharged
- Engine shall be equipped with Full-Authority Electronics
- Electronic Timing Control fuel system
- Fuel cooler (when equipped with a fire pump)
- Fleetguard FS1022 fuel filter with integral water separator and water-in-fuel sensor approved by Cummins for use on the ISL engine
- Fleetguard LF9009 Venturi Combo combination full-flow/by-pass oil filter approved by Cummins for use on the ISL engine
- Engine lubrication system, including filter, shall have a minimum capacity of 25 quarts
- Delco-Remy 39 MT-HD 12-volt starter
- Cummins 18.7 cubic foot per minute (cfm) air compressor
- Corrosion inhibitor additive for coolant system
- After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyist reduction system
- Ember separator compliant with 2009 NFPA 1901 standard
- The engine shall be compliant with 2013 EPA Emission standards

The engine air intake shall draw air through the front cab grill. The intake opening shall be located on the officer (right) side behind front cab face with a plenum that directs air to the air filter. The air cleaner shall be a 11” diameter dry type that is easily accessed for service. Air cleaner intake piping shall be made from aluminized steel tubing with flexible rubber hoses. Air cleaner intake piping clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

The engine exhaust piping shall be a minimum of 4” diameter welded aluminized steel tubing. The muffler shall be mounted horizontally under the right-hand frame rail in back of the cab in order to minimize heat transmission to the cab and its occupants. The exhaust shall be directed away from the vehicle on the right side ahead of the rear wheels in order to keep exhaust fumes as far away as possible from the cab and pump operator position.

A 5-year/100,000-miles parts and labor warranty shall be provided as standard by Cummins Bulletin 3381161.

A copy of the Engine Installation Review stating the engine installation meets Cummins recommendations shall be provided as requested. The engine installation shall not require the operation of any type of ”power-down” feature to meet engine installation tests.

Transmission

The vehicle shall utilize an Allison EVS3000P, electronic, 5-speed automatic transmission.

A push button shift module shall be located 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 that are clearly visible to the driver. The shift module shall have means to enter a diagnostic mode and display diagnostic data.

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.

The transmission shall have a gross input torque rating of 1250 lb.-ft. and a gross input power rating of 450 HP.

The gear ratios shall be as follows:

1 - 3.49

2 - 1.86

3 - 1.41

4 - 1.00

5 - .75

R - 5.03

The transmission shall have an oil capacity of 23 quarts and shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the driver.

A water-to-oil transmission oil cooler shall be provided to ensure proper cooling of the transmission when the vehicle is stationary (no air flow). Air-to-oil transmission oil coolers, which require constant air flow, are not acceptable.

The transmission shall be provided with two (2) engine-driven PTO openings located at the 4 o`clock and 8 o`clock positions for flexibility in installing pto-driven equipment.

The automatic transmission shall be equipped with a power lock-up device. The transmission lock-up shall prevent down shifting of the transmission when the engine speed is decreased during pump operations, thereby maintaining a constant gear ratio for safe operation of the pump. The transmission lock-up shall be automatically activated when the pump is engaged in gear. The transmission lock-up shall be automatically deactivated when the pump is disengaged for normal road operation.

A 5-year/unlimited miles parts and labor warranty shall be provided as standard by Allison 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.

EXHAUST OPTIONS

Exhaust End Modification

The end of the exhaust tail pipe shall be modified to accommodate a Plymovent in-house exhaust extraction system. The tail pipe will be at 90 degrees and straight out below the side of body. A stop ring shall be provided on the tail pipe to properly position the Plymovent nozzle.

Exhaust Heat Shield

A heat shield shall be provided on the exhaust to provide protection to the compartment floor.

Automatic Chassis Lubrication

A Vogel Automatic Lubrication System shall be installed to provide automatic grease application, with recommended dosages, per system interval cycle, to the following lubrication wear points:

- Spring Pins and Spring Hanger Pins @ 0.6 CCM
- King Pins, Upper and Lower @ 0.4 CCM
- Steering Linkage @ 0.2 CCM
- Tie Rod Ends @ 0.2 CCM

• Brake S-Cams @ 0.1 CCM (Rockwell will not warrant application to caliper slide pins)
• Steering Assist Cylinder (If applicable) @ 0.2 CCM
• Drag Link @ 0.2 CCM
• Automatic Slack Adjusters @ 0.1 CCM
• Steering Miter Box @ 0.1 CCM
• Tilt Cab Lift Assembly (If applicable) @ 0.05 CCM

The lubrication system shall utilize the post lubrication principle and shall be powered by an electrically driven, 12V gear pump. The gear pump shall be top mounted to a reservoir assembly with a capacity of 2.716 lbs. grease liters. The electronic control unit shall be connected through the ignition and park brake circuits to provide power to the pump when the engine is running and the park brake is released.

The gear pump and reservoir shall be located in an accessible location.

The electronic control module shall include system monitoring capabilities for the main line and operating cycle with a visual indicator for the vehicle operator, located in the overhead console. The control module shall have LED`s and a system reset button to initiate a lube cycle for diagnostic purposes and/or reset the control module in the event a system fault has occurred. Upon a fault, the system shall be inoperable until the fault has been corrected and a system reset has been initiated by the operator or serviceman.

COOLING PACKAGE

Engine Cooling Package

Radiator

The cooling system shall include an aluminum tube-and-fin radiator with a minimum of 1,408 total square inches of frontal area to ensure adequate cooling under all operating conditions. There shall be a drain valve in the bottom tank to allow the radiator to be serviced. A sight glass shall be included for quick fluid level assessment. The radiator shall be installed at the prescribed angle in order to achieve the maximum operational effectiveness. This shall be accomplished according to established work instructions and properly calibrated angle measurement equipment.

Other sizes of radiators will be accepted as long as they exceed this required minimum size.

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.

Coolant

The cooling system shall be filled with a 50/50 mixture of water and antifreeze/coolant conditioner to provide freezing protection to minus 40 (- 40) degrees F for operation in severe winter temperatures.

Coolant Recovery

There shall be a coolant overflow recovery system provided.

Charge Air Cooler System

The system shall include a charge air cooler to ensure adequate cooling of the turbocharged air for proper engine operation and maximum performance.

Charge Air Cooler Hoses

Charge air cooler hoses shall be made from high-temperature, wire-reinforced silicone to withstand the extremely high temperatures and pressures of the turbocharged air. The hoses shall incorporate a flexible hump section to allow motion and misalignment of the engine relative to the charge air cooler. Charge air cooler hose clamps shall be heavy-duty, constant-torque, T-bolt clamps to ensure proper sealing under all temperatures in order to keep dust and other contaminants out of the engine intake air stream and protect the engine.

Fan/Shroud

The fan shall be 30" in diameter with eleven (11) blades for maximum airflow and dynamic balance. It shall be made of nylon for strength and corrosion resistance. The fan shall be installed with grade 8 hardware which has been treated with thread locker for additional security. A fan shroud attached to the radiator shall be provided to prevent recirculation of engine compartment air around the fan in order to maximize the cooling airflow through the radiator. The fan shroud shall be constructed of fiber-reinforced high temperature plastic. The shroud shall be specifically formed with curved surfaces which improves air flow and cooling.

Transmission Cooler

The cooling system shall include a liquid-to-liquid transmission cooler capable of cooling the heat generated from the transmission. When a transmission retarder is selected, the cooler shall have an increased capacity to handle the additional heat load.

FUEL SYSTEMS

Fuel System

One (1) 65 gallon fuel tank shall be provided. The tank shall be of an all-welded, aluminized-steel construction with anti-surge baffles and shall conform to all applicable 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.

<u>To protect from corrosion tanks must be stainless, aluminized steel or equal and must have stainless straps.</u>

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 65 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.

ALTERNATOR

430 Amp Alternator

A C.E. Niehoff, model C680-1, alternator shall be provided. It shall have a rated output current of 430 amp as measured by SAE method J56. Also, it shall have a custom three (3)-set point voltage regulator, manufactured by C. E. Niehoff. The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

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.

<u>The batteries must be protected by having covers over the batteries and trays to sit in.</u>

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 below the front driver side of body/pump module.

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 1710HD universal joints to allow full-transmitted torque to the axle(s). Drive shafts shall be axially straight, concentric with axis and dynamically balanced.

Front Tow Eyes

Two (2) 3/4” thick heavy duty steel tow eyes shall be securely attached to the chassis frame rails at the front of the apparatus. They shall be mounted down below the bumper / cab.

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.

Cold Weather Cab Package

Additional insulation shall be provided on the front cab wall. The insulation shall consist of a reflective backing covered air core insulation.

Insulation shall be provided on the rear cab heater hose lines (if equipped).

Two (2) adjustable 8” windshield fans with an individual switch shall be mounted centered below the overhead console. The fans shall be 12 volt and shall be rated at 280 CFM.

A thermostatically controlled clutch type cooling fan shall be installed on the chassis engine.

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.

CAB

Cab- Aluminum Heavy Duty Model

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 listed materials and dimensions are the minimum acceptable, cabs exceeding these minimums will be considered.

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 0.375" wall-thickness 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 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, painted aluminum, 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 a minimum 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.

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 2,700-sq. in. shall be provided. Forward visibility to the ground for the average (50^{th} 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.

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 engine cover shall be provided with a lift-up section to provide easy access for checking transmission fluid, power steering fluid, and engine oil without raising the cab. The engine cover insulation shall consist of 3/4” dual density fiberglass composite panels with foil backing manufactured to specifically fit the engine cover without modification to eliminate ”sagging” as found with foam insulation. The insulation shall meet or exceed DOT standard MVSS 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 slip-resistant surface in accordance with current NFPA 1901.

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 floor area in front of the front seat pedestals shall be no less than 20.5” side to side by 25.0” front to rear for the driver and no less than 20.5” side to side by 26.0” 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 overhead console and heater cover shall be covered with thermoformed, non-metallic, non-fiber trim pieces to provide excellent scuff and abrasion resistance, as well as chemical stain resistance. The thermoformed material shall comply with Federal Motor Vehicle Safety Standard (FMVSS) 302 for flammability of interior materials.

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.

A full-width overhead console shall be mounted to the cab ceiling for placement of siren and radio heads, and for warning light switches. The console shall be made from a thermoformed, non-metallic material and shall have easily removable mounting plates.

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 19.25" x 17.75" x 5.75" high and the officer side compartment shall be approximately 18.25" x 22.5" x 11" high (19.25" x 17.75" x 5.75" w/ air ride).

The front cab steps shall be a minimum of 8" deep x 24" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear cab steps shall be a minimum 12" deep x 21" wide. The first step shall be no more than 24.0" above the ground with standard tires in the unloaded condition per NFPA 1901 standards. The rear steps shall incorporate intermediate steps for easy access to the cab. The steps are to be located inside the doorsill, where they are protected against mud, snow, ice, and weather. 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 rubber 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 rubber grip handle shall be provided on the left and right side windshield post for additional handholds.

Cab Doors

There shall be reflective signs on each cab door in compliance with all NFPA requirements.

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 71.5" high, and the rear cab door openings shall be approximately 33.75" wide x 73" high. The front doors shall open approximately 75 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.

Stainless steel 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 front door windows shall provide a minimum viewing area of 530 sq. in. each. The rear door windows shall provide a minimum viewing area of 500 sq. in. each. All windows shall have 75% light transmittance automotive safety tint. Full roll-down windows shall be provided for the front cab doors with worm gear drive cable operation for positive operation and long life. Scissors or gear-and-sector drives are not acceptable.

Cab Instruments and Controls

Two (2) pantograph-style windshield wipers with two (2) separate electric motors shall be provided for positive operation. Air-operated windshield wipers are not acceptable because of their tendency to accumulate moisture, which can lead to corrosion or to freezing in cold weather. 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 28”, and the blade length approximately 20”. Each arm shall have a 70 degree sweep for full coverage of the windshield.

An overhead mounted heater and defroster with a minimum capacity of 60,000 Btu/hr and all necessary controls shall be mounted in the cab. The airflow system shall consist of two (2) levels, defrost and cab, and shall have fresh air and defogging capabilities.

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. Emergency warning light switches shall be installed in removable panels for ease of service. The following gauges and/or controls shall be provided:

• Master battery switch/ignition switch (rocker with integral indicator)
• Starter switch/engine stop switch (rocker)
• Heater and defroster controls with illumination
• Marker light/headlight control switch with dimmer switch
• Self-canceling turn signal control with indicators
• Windshield wiper switch with intermittent control and washer control
• Master warning light switch
• Transmission oil temperature gauge
• Air filter restriction indicator
• 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
• Cab ajar warning light on the message center enunciator

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.

Fast Idle System

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

Electrical System-Multiplexed

The cab and chassis system shall have a centrally located electrical distribution area. All electrical components shall be located such that standard operations shall not interfere with or disrupt vehicle operation. An automatic thermal-reset master circuit breaker compatible with the alternator size shall be provided. Automatic-reset circuit breakers shall be used for directional lights, cab heater, battery power, ignition, and other circuits. An access cover shall be provided for maintenance access to the electrical distribution area.

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.

A Vehicle Data Computer (VDC) shall be supplied within the electrical system to process and distribute engine and transmission Electronic Control Module (ECM) information to chassis system gauges, the message center, and related pump panel gauges. Communication between the VDC and chassis system gauges shall be through a 4 wire multiplexed communication system to ensure accurate engine and transmission data is provided at the cab dash and pump. The VDC shall be protected against corrosion, excessive heat, vibration, and physical damage.

Two (2) dual rectangular sealed beam halogen headlights shall be installed on the front of the cab, one (1) on each side, mounted in a polished chrome-plated bezel. The low beam headlights shall activate 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.

Non-Multiplexed electrical systems in the cab and body will be grounds for immediate rejection.

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:

All cabs being bid must meet or exceed the listed NFPA minimum requirements. Please provide 3rd party test documents for each of the tests listed below. In addition please list, on the space provided the test results for each individual requirement.

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.

3rd party test result_____

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.

3rd party test result_____

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.

3rd party test result_____

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. The door shall be equipped with a dual striker bolt system.

Raised Roof Rear Windows

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

CAB BADGE PACKAGE

Logo Package

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

GRILLE

Cab Grille

The front cooling air intake grille shall be constructed of stainless steel mesh and supported by a 0.80” polished stainless steel frame providing no less than 81% open area for excellent cooling performance.

CAB DOOR OPTIONS

Cab Front Door Windows

Driver and officer door windows shall have the support pillar located toward the front of the window. There shall be a vent that can be opened and closed within the window itself, located towards the front.

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 barrel style keyed lock below the cab door handle.

Cab Door Locks

The cab shall have CH751 keyed door locks provided on exterior doors to secure the apparatus.

Cab Door Front Windows

The front door cab windows shall be electrically controlled. Each window shall have a switch on the door to control operation. The driver door shall have a switch panel to control each door window individually.

Cab Door Panels

The inner door panels shall be made from 14 gauge brushed finish stainless steel for increased durability. The cab door panels shall incorporate an easily removable panel for access to the latching mechanism for maintenance or service.

Exterior Cab Door Latches

All exterior cab door latches shall be paddle style.

Cab Door Area Lighting

There shall be four (4) clear LED lights provided to illuminate the cab step well area. Each light shall be located on each cab door in the inboard position. Each light shall be activated by the cab door ajar circuit.

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 an "A" shape when viewed from the rear. The reflective material shall meet NFPA 1901 requirements.

Cab Door Rear Windows

The rear cab door windows shall be electrically controlled. Each window shall have a switch on the door to control operation. The rear of the window opening shall have a fixed glass panel approximately 5" wide to allow the forward section of glass to roll down completely ahead of the door latching hardware.

Cab Cabinet Door Trim [Qty: 2]

A stainless steel trim shall be located at the bottom edge of the over cab wheel exterior compartment opening. The trim shall be made from 22 gauge stainless steel with a #4 brushed finish. The trim shall provide added protection of the painted surface of the cab when equipment is placed or removed from the compartment.

MIRRORS

Cab Mirrors

Two (2) Velvac model 2010 heated, remote controlled, stainless steel mirrors shall be installed. The west coast style mirrors shall consist of a large 7” x 16” flat and 4” x 6” wide angle convex with stainless steel break-away mounts. The adjustment of the main sections of the mirror and the heater control shall be through switches accessible to the driver.

MISC EXTERIOR CAB OPTIONS

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 18” long 6063-T5 anodized aluminum tubes mounted directly behind the driver and officer rear door openings 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 will rubber inserts of other similar material that may trap water/road salt causing additional maintenance will not be accepted.

Rear Cab Wall Construction

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

Receptacle Mounting Plate

A mounting plate shall be provided for the battery charge receptacle, indicator and air auto eject receptacle. The plate shall be constructed of 14 gauge brushed finish stainless steel and be removable for service access to the receptacle.

HVAC

Air Conditioning

The following will be the minimum acceptable HVAC output requirements; each bid must meet or exceed these minimums.

An overhead air-conditioner / heater system with a single radiator 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 ten (10) comfort discharge louvers, four (4) to the back area of the cab and six (6) to the front. These louvers will be used for AC and heat 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.

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

The condenser shall be radiator mounted and have a minimum capacity of 65,000 BTU`s 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.

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 with diamond plate covers shall be supplied in the rear of the cab to heat the rear cab lower section.

Dual climate control will be achieved via dual switches installed on a front instrument panel. On units with optional multiplex display climate control, the floor heaters shall be controlled through the HVAC screen in the display.

SEATS

Cab Seats

All cab seats shall be Bostrom brand.

Seat, Driver

One (1) H. O. Bostrom Sierra EX8/ABTS seat with high back styling shall be provided for the driver`s position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12″ of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

• Power fore/aft with 8" adjustment
• Power height with 2" adjustment
• Power front seat tilt
• Power rear seat tilt
• Power back recline
• Built in lumbar support

Seat, Officer

One (1) Bostrom Tanker 450 ABTS seat with high back SCBA storage shall be provided in the officer position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated seat belt with an additional 8-12″ of additional useable belt webbing for easy access and comfort—increasing seat belt usage amongst firefighters and rescue personnel.

Seat features shall include:

• Removable ”Store-All” side cushions
• Auto-pivot and return headrest to open for improved exit with SCBA
• 12.5” wide SCBA cavity to store leading SCBA brands
• Shoulder strap holder
• Replaceable seat, side and headrest cushions

Seat Cover Material

All seats shall have Durawear seat cover material.

Seat Fabric Color

All seats shall be black in color.

Seating Capacity Tag

A tag that is in view of the driver stating seating capacity of six (6) personnel shall be provided.

Seat, Rear Wall

Two (2) Bostrom SCBA backs and a two (2) person bench style seat with a single bottom cushion shall be mounted on an aluminum seat riser or the rear wall of the cab. Each side of the seat riser shall be angled, providing sufficient legroom when entering and exiting the cab.

Features shall include:

• Removable”Store-All” side cushions.
• Auto-pivot and return headrest to open for improved exit with SCBA.
• 12.5” wide SCBA cavity to store leading SCBA brands.
• Built-in lumbar support.
• Replaceable seat, side and headrest cushions.

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 Wall

One (1) fold down jump seat shall be provided.

The seat shall be located on the rear wall driver's side outboard, officer's side outboard.

Features to include:

• Seat bottom cushion shall be constructed of high density foam with a heavy duty, wear resistant material.
• Seat bottom automatically folds up when not in use to provide increased room in the rear of the cab.

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.

Bostrom SecureAll Locking System

The H.O. Bostrom SecureAll™ SCBA Locking System shall be one bracket model and store all U.S. and international SCBA brands and sizes while in transit or for storage on fire trucks. The bracket shall be easily adjustable; all adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the tank in-place for a safe and comfortable fit in seat cavity. Firefighters shall simply push the SCBA unit against the pivot arm to engage the patented auto-locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ bracket shall fit in all H.O. Bostrom Tanker SCBA seats including ABTS and non-ABTS seats and all flip-up ABTS and non-ABTS seats. Additional seat depth shall not be required for proper bracket fit; changes to the shroud back shall not be required for proper mounting of the bracket.

The standard release handle shall be integrated into the seat cushion for quick and easy release and shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

The H.O. Bostrom SecureAll™ system meets NFPA 1901 standards and requirements of EN 1846-2.

Location: ALL SCBA SEATS

MEDICAL CABINETS

Medical Storage Cabinet

There shall be one (1) medical storage cabinet provided over the driver side wheel well of the cab. The medical storage cabinet shall be constructed of 1/8” (.125”) smooth aluminum plate. The medical storage cabinet shall be approximately 42” high x 22” (25" Quest) wide x 28” deep.

There shall be two (2) adjustable shelves provided in the medical storage cabinet. The shelves shall be constructed of 1/8” (.125”) smooth aluminum plate. Each shelf shall have a 1” front and rear lip for strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical storage cabinet.

The medical storage cabinet shall be accessible externally of the cab by a locking double pan door and internally by a vertically hinged full height door with a locking push-button latch.

The exterior 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. Inner door pan shall be constructed from 1/8” (0.125”) 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 exterior 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 with a #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 exterior door shall be securely attached to the apparatus cab with a full-length stainless steel 1/4” (0.25”) rod piano-type hinge isolated from the cab and exterior door with a dielectric barrier. The door shall be attached with machine screws threaded into the door frame. The door shall have a gas shock style hold-open device.

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

Medical Storage Cabinet

There shall be one (1) medical storage cabinet provided over the officer side wheel well of the cab. The medical storage cabinet shall be constructed of 1/8” (.125”) smooth aluminum plate. The medical storage cabinet shall be approximately 42” high x 22” (25" Quest) wide x 28” deep.

There shall be two (2) adjustable shelves provided in the medical storage cabinet. The shelves shall be constructed of 1/8” (.125”) smooth aluminum plate. Each shelf shall have a 1” front and rear lip for strength and reinforcement. The shelves shall be sized to the interior dimensions of the medical storage cabinet.

The medical storage cabinet shall be accessible externally of the cab by a locking double pan door and internally by a vertically hinged full height door with a locking push-button latch.

The exterior 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. Inner door pan shall be constructed from 1/8” (0.125”) 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 exterior 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 with a #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 exterior door shall be securely attached to the apparatus cab with a full-length stainless steel 1/4" (0.25") rod piano-type hinge isolated from the cab and exterior door with a dielectric barrier. The door shall be attached with machine screws threaded into the door frame. The door shall have a gas shock style hold-open device.

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

Medical Storage Cabinet Finish

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

MISC INTERIOR CAB OPTIONS

Cab Interior Color

Cab instrument panel, overhead console, trim panels, headliner, and door panels shall be black.

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 BAG SYSTEM

Due to the enhanced crew protection offered by an air bag safety system no exceptions will be allowed to this requirement. Each bidder shall provide forward air bags, knee bags, and side head curtain air bags. No exceptions.

Cab Rollover Protection - Master Control Module

A RollTek rollover occupant protection system shall be installed in the apparatus cab. The system shall include an Integrated Roll Sensor (master module), Integrated Head Curtains and Integrated Seat Belt pretensioners.

The Integrated Roll Sensor (IRS) shall be a microprocessor-controlled solid-state sensing device that utilizes vehicle-specific calibrations to detect rollovers. The IRS shall be equipped with eight (8) pyrotechnic loops for connection to the protective countermeasures (Integrated Head Curtains and Integrated Seat Belt pretensioners).

The IRS shall continually monitor the truck`s acceleration and angle, and upon detection of an imminent roll-over, shall activate protective countermeasures in a pre-programmed sequence. The entire process from activation to deployment shall take less than ¼ of a second (.234).

In addition to acting as the "brain" of the RollTek system, the IRS shall also act as a "black box," recording crash events for post-crash evaluation.

Cab Rollover Protection - Slave Module for Master Control

A slave module shall be installed with the RollTek Integrated Roll Sensor (IRS) to expand the system's capabilities. The slave module shall include connections for up to eight (8) additional pyrotechnic loops for use with up to a total of sixteen (16) protective countermeasures (Integrated Head Curtains and Integrated Seat Belt pretensioners).

Cab Rollover Protection - Side Airbags [Qty: 4]

RollTek Integrated Head Curtains (IHC) shall be installed in the apparatus cab. The pillow-shaped side air bags shall be attached either to the ABTS seats or the rear cab wall. The airbags shall be optimally placed to deploy across the window and side of the vehicle interior to protect the occupants heads during impact. The airbags shall use a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

Cab Rollover Protection - Seat Belt Pretensioners [Qty: 6]

RollTek Integrated Seat Belt Pretensioners (ISB) shall be installed in the apparatus cab. The special seat belt buckles shall be designed to receive a signal from the Integrated Roll Sensor during a roll for the pretensioners on the buckles to tighten the seat belts to the occupant, better positioning the occupant in the seats.

Cab Dash - Severe Duty

The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. A hinged access panel shall be provided on top of the center dash to provide easy access to components within.

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

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 and with a minimum skin thickness of 0.0625 inches and shall be provided to reduce the transmission noise and heat from the engine. The cover shall be black and feature a pebble grain finish for slip resistance.

Cup Holders

Two (2) cup holders shall be provided on the cab engine cover. The cup holders 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 and with a minimum skin thickness of 0.0625 inches. The outer surface of the cup holders shall be black with a pebble grain finish and shall include a removable plastic liner.

The cup holders shall be located Driver and officer side of engine cover slightly ahead of access door spaced approximately 20" apart (center to center).

Front Occupant Protection

A 4Front occupant protection system shall be installed in the apparatus cab. The system shall inflate three (3) air bags in the following locations:

- Steering wheel air bag to protect the head and neck of the driver
- Knee bolster air bag to protect the driver's legs
- Knee bolster air bag to protect the officer's legs

The air bags shall use a combination of high-pressure stored argon and oxygen (and a pyrotechnic charge for initiation) to inflate the bags to a relatively cool (120° Fahrenheit) inflation temperature and remain inflated for several seconds.

The system shall be connected to the crash detection sensor that will also activate the driver and first officer Integrated Belt Pretensioners if it detects a frontal crash.

CAB ELECTRICAL OPTIONS

Cab Swivel Lights

An interior cab light unit shall be mounted in the headliner consisting of two (2) side ball-joint socket spot lamps. Each light shall be individually switched.

Cab Dome Lights

A Weldon LED dome light assembly with one (1) white lens and one (1) red lens and plastic housing shall be installed. 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.

Xenon HID Cab Headlights

Xenon HID headlight kit model XP4656 shall be provided. Xenon HID lights shall be provided in the low beam position of the head lamp assembly and halogen lights shall be provided in the high beam position of the head lamp assembly.

For increased light output Xenon HID lights or similar will be the minimum acceptable.

Auto-Eject Battery Charger Receptacle

The battery charger 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 operator to activate the OEM traffic horn, air horn or electronic 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.

DPF Regeneration Override

An 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.

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/Odometer
- Tachometer with integral hour meter
- Engine oil pressure gauge with warning light and buzzer
- Engine water temperature gauge with warning light and buzzer
- Two (2) air pressure gauges with a warning light and buzzer (front air and rear air)
- Fuel gauge
- Voltmeter
- Transmission oil temperature gauge

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

Cab Turn Signals

There shall be a pair of Whelen 600 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted upper headlight bezel and wired with weatherproof connectors.

Cab 12 Volt (or 24 Volt) Outlet

A plug-in type receptacle for hand held spotlights, cell phones, chargers, etc. shall be installed driver side dash, officer side dash. The receptacle shall be wired battery hot. (Qty 2 for officer and 1 for driver)

Battery Charger Location

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

Battery Charger

A 20 AMP 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.

The listed materials, dimensions, and options selected for the body shall be the minimum acceptable. Bodies that exceed these minimum requirements will be considered.

As an alternate to this minimum required body size configuration each bidder is encouraged to provide an alternate proposal for any enhanced or extended compartment packages available within this style rescue pumper package.

BODY COMPT LEFT SIDE

Driver Side Roof Top Compartments

Two (2) driver side roof compartments shall be provided. The compartments shall be integral to the driver side assembly.

The compartments shall be transverse front to rear and shall include flooring. The flooring shall be smooth plate and shall have drain holes to prevent the accumulation of water.

The compartment top lids shall be raised and constructed of 1/8” (.125”) aluminum treadplate. The lids shall include stainless steel hinges and shall be hinged to the outside of the compartment. Each lid shall include turn latches, grab handle(s) and be wired to the door ajar indicator in the cab.

Lighting shall be provided for each compartment. The lights shall illuminate when the compartment lid is in the open position.

Stainless Steel Rescue Pumper Body Design and Construction

The compartment floors, ceilings, front panels, vertical side sheets, rear walls, door openings, wheel wells, compartment panels, dividing walls, and reinforcements shall be constructed of 12 gauge 304L

stainless steel material. The interior of the compartments shall be provided with a machine sanded DA finish. The exterior of the body shall be prepared for job color paint finish.

The interior compartment seams shall be sealed with a silver silicone caulk. The rear walls of each compartment shall be provided with bright polished stainless steel louvered vents. The compartment tops shall be capped with embossed aluminum treadplate.

To eliminate unnecessary seams and overlapping areas, the construction of all component panels shall feature break-formed fabrication. Angle iron framing is not acceptable. Component panels shall be in single metal sections wherever possible.

The assembly of body component panels shall be with inert gas, continuous feed welders. Stick welding is not acceptable. The use of sheet metal fasteners in assembly of body components is unacceptable.

Structural supports shall be incorporated into the overall design to provide the necessary support for component panels and body modules.

The body shall be a free standing module supported only by the top of the chassis frame rails using a transverse 3/16" thick 304L stainless steel structure assembly. This structure shall be secured in a minimum of four (4) locations, using a double flex mount system and angle brackets bolted to both the body structural assembly and the sides of the chassis frame rails using Grade 8 fasteners. Mylar shall be used to isolate the structural assembly from the frame rails. This design is required to eliminate shift and stress on the body module and component panels. **Bodies that support structures made of materials other than stainless steel will not be accepted.**

The water tank shall be mounted on a 304L stainless steel tubular structure at the base of the tank, and stainless steel channels spanning the width of the hose bed across the top of the tank. Hold downs shall allow for chassis flex front and rear on the tank, without transmitting stress into the water tank. Isolating materials of hard rubber strips shall be installed at all contact points between the base of the tank and the tank mounting structure**. Bodies that have tank support structures of materials other than stainless steel will not be accepted.**

Each compartment door opening shall have at least a double break-formed door jamb for recessed door seal inboard of the exterior of the body. The break-formed door jamb is required for superior strength and body construction integrity. Doors that seal only at the exterior surface of the body or utilize only a single break-formed door jamb are not acceptable.

The compartment floor construction shall permit easy cleaning with a true sweep-out design. The outer floor area, making up the compartment door jamb, shall incorporate a triple break-formed construction for recessed door seal inboard of the exterior of the body. This shall be required to eliminate road splash and debris from entering the compartments at floor level. Angles, lips, or door moldings are not acceptable at the base of the door opening. There shall be a minimum of two (2) 3/8" drain holes in the compartment floors.

Driver Side Compartments

Compartment L1, ahead of the rear wheels, shall be 60" wide x 70" high x 27" deep. The forward area of the compartment shall be approximately 28" wide and contain the pump operator`s control panels. A vertical partition approximately 2" thick shall be installed aft of the pump panel area. This shall provide approximately 36 cu. ft. of storage space.

Compartment L2, above the rear wheels, shall be 60" wide x 38-3/4" high x 27" deep. This shall provide approximately 36.32 cu. ft. of storage space.

Compartment L3, behind the rear wheels, shall be 54" wide x 70" high x 27" deep. This shall provide approximately 54.68 cu. ft. of storage space.

Each interior compartment seam shall be sealed with a silver silicone caulk. The rear walls of each compartment shall be provided with a bright stainless steel louvered vent.

BODY COMPT RIGHT SIDE

Officer Side Roof Top Compartments

Two (2) officer side roof compartments shall be provided. The compartments shall be integral to the officer side assembly.

The compartments shall be transverse front to rear and shall include flooring. The flooring shall be smooth plate and shall have drain holes to prevent the accumulation of water.

The compartment top lids shall be raised and constructed of 1/8” (.125”) aluminum treadplate. The lids shall include stainless steel hinges and shall be hinged to the outside of the compartment. Each lid shall include turn latches, grab handle(s) and be wired to the door ajar indicator in the cab.

Lighting shall be provided for each compartment. The lights shall illuminate when the compartment lid is in the open position.

Officer Side Compartments

Compartment R1, ahead of the rear wheels, shall be 60" wide x 70" high x 27" deep in the lower section and 14" deep in upper section. This shall provide approximately 44.92 cu. ft. of combined storage space.

No plumbing shall be inside the R1 compartment, No exceptions.

Compartment R2, above the rear wheels, shall be 60" wide x 38-3/4" high x 14" deep. This shall provide approximately 18.83 cu. ft. of storage space.

Compartment R3, behind the rear wheels, shall be 54" wide x 70" high x 27" deep in the lower section and 14" deep in upper section. This shall provide approximately 40.1 cu. ft. of combined storage space.

Each interior compartment seam shall be sealed with a silver silicone caulk. The rear walls of each compartment shall be provided with a bright stainless steel louvered vent.

Storage Tunnel

The area directly behind the reduced upper depth section of the officer side compartments shall be for storage of NFPA ladders.

A vertically hinged access door of smooth aluminum shall be provided on the upper right side rear panel with stainless steel hinge and single point stainless steel bent D-ring latch.

Compartment shall include a door operated light that shall also be wired to the "door open" indicator in the cab.

BODY COMPT REAR

Rear Panel Area

The entire rear panel of the body shall be covered using smooth aluminum panels for application of the Chevron graphics. The rear panel area shall be of the flat back body design.

A 12" deep rear tailboard of 3/16" aluminum treadplate shall be provided full width of the body. The standing surface of the tailboard shall be provided with a non-skid Bustin Tread welded insert.

Vertical grab rails shall be provided one each side on the rear of the body, and a horizontal grab rail shall be provided below the hose bed.

Rear Panel Compartment

Compartment B1, located centered ahead of the rear tailboard, shall be 46" wide x 35" high x 26" deep. Solid wall dividers shall be provided on both sides of the rear compartment. This compartment shall be of 12 gauge 304L stainless steel.

An 8" deep x 46" wide non-skid aluminum treadplate step with mitered corners shall be installed above the rear panel compartment for ease of access to the upper body area.

BODY/SPEEDLAY MODULE FRONT

Forward Body Extension

The front of the body shall have an integral compartment extension with upper and lower storage areas. The extension shall have had FEA analysis completed to ensure a robust design. The extension shall be constructed from 12 gauge stainless steel. The extension shall consist of upper and lower areas. The lower area floor shall be constructed from stainless steel and be bolted in to facilitate pump system servicing. The outboard floors of the upper area shall be constructed from stainless steel. The center upper floor shall be stainless steel and removable to provide easy access to the pump manifold and valves.

Pump Access

Pump service access doors shall be provided at the front of the extension and in the front of the body at the rear of the extension. The doors shall be secured with tool-free hardware.

Preconnect Storage

The lower transverse storage area shall accommodate two 1 ¾" preconnected handlines.

The upper transverse storage area shall accommodate one 2 ½" preconnected handline offset to the rear.

Plumbing for the selected handlines shall be from the ceiling of the storage areas to facilitate use of optional removable trays.

Transverse Storage Compartment

The upper transverse storage area shall include provisions for vertical storage of backboards. The backboard storage sleeve shall be offset to the forward area of the compartment. A vertically hinged brushed stainless steel access door with trigger latch shall be provided on each end of the storage area. Each door shall include a gas tube hold open device.

DOORS

Roll Up Compartment Door

A ROM brand roll up door with satin finish shall be provided on a compartment up to 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.

Painted Roll Up Compartment Door

A ROM brand roll up door painted job color shall be provided on a compartment up to 45" tall. The door(s) shall be installed in the following location(s): L2, R2.

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 painted 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.

Painted Roll Up Compartment Door

A ROM brand roll up door painted job color shall be provided on a compartment greater than 45” tall. The door(s) shall be installed in the following location(s): L1, L3, R1, R3.

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 painted 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.

Drip Pan

A ROM drip pan shall be supplied for each roll-up door. The drip pan shall be made from a high strength aluminum alloy. The splashguard and end caps shall be made from extruded and injection molded high-impact plastic. Drip pan location(s): L1, L2, L3, R1, R2, R3, B1.

In addition to the shelves, trays, tool boars listed below each bidder shall include a $10,000 “pre-build” allowance to allow for necessary changes at the pre-construction conference.

SHELVES

Permanent Shelf

There shall be a permanent mounted aluminum shelf provided for compartment R1 at offset (above extrusion if applicable), R3 at offset (above extrusion if applicable). The shelf shall be at the offset within the compartment.

The shelf shall be constructed of 3/16” (.187”) smooth aluminum plate. 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.

Adjustable Shelf

There shall be an aluminum adjustable shelf provided for compartment L1.

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. For additional strength and reinforcement of the shelf a return break shall be provided on the outward lip. The adjustable shelf shall be capable of holding 250 lbs.

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

Adjustable Tracks

Tracks shall be provided in L1, L2 for use with adjustable shelves and/or trays in deep non-transverse compartments. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartments.

COMPARTMENT DIVIDERS

Compartment Storage Package

Compartment L3 shall have the following items provided for multiple storage requirements.

One (1) vertically mounted partition shall be mounted 20” off the forward wall and full height of the compartment. The partition shall be constructed of 3/16” (.187”) smooth aluminum plate and shall have a sanded finish.

One (1) floor mounted roll-out tray shall be provided forward of the partition. 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.

The drawer slides shall permit the tray to roll-out of the compartment approximately eighty percent of the compartment depth. The tray shall utilize a pneumatic shock to secure the tray in the open or closed position.

The tray shall have a total capacity of 500 lbs.

Two (2) adjustable shelves shall be provided forward of the partition. The shelves shall be constructed of 3/16” (.187”) smooth aluminum plate. The shelves shall have a minimum 2” front lip to accommodate optional plastic interlocking compartment tile systems. For additional strength and reinforcement of the shelves a Super J break shall be provided. The adjustable shelves shall be capable of holding 250 lbs.

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

The shelves shall be mounted on adjustable tracks. The tracks shall be vertically mounted and attached to the side and/or rear walls of the compartment.

Two (2) adjustable heavy duty roll-out aluminum tool boards shall be provided rearward of the partition. The tool board shall be constructed of 3/16" (.187") smooth aluminum plate with double reinforcing lips on the front and rear vertical edges to increase the tool boards rigidity. The first (inward) break shall be approximately .75" and the second (outer) break shall be approximately 1.5". The tool board shall have a sanded finish and be sized in height and depth as applicable.

The tool board shall be mounted on drawer slides, at the top and bottom, that will permit the board to roll out of the compartment for easier access to tools and/or equipment. The slide mechanisms shall have ball bearings for ease of extension and retraction operation and dependable service. The tool board shall be mounted at top and bottom on adjustable tracking for ease of placement.

The capacity rating shall be 500 lbs. maximum at full extension. A pneumatic shock shall be utilized to secure the tool board in the open or closed position.

TRAYS / TOOLBOARDS

Roll-Out/Tilt Down Tray

A roll-out/tilt down tray shall be adjustable mounted in compartment L2.

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

An aluminum Innovative Industries SlideMaster Tip Down frame and channel assembly shall be provided for the tray for the ease of operation and long service life. A positive twist lock shall be provided to lock the tray in the stored position. The tray shall roll out approximately 90% from its stored position and shall tip 30 degrees from horizontal.

The capacity rating of the tray in the extended position shall be 200 lbs. distributed.

Toolboard

A fixed wall mounted peg toolboard shall be provided for compartment L2, R2, L1 upper, R3 upper.

The peg toolboard shall be constructed of 3/16" (.187") smooth aluminum plate with a sanded finish and shall be sized in height and width as applicable.

The peg toolboard shall be mounted to the back wall and spaced off the wall to allow easier mounting of tools and/or equipment.

Roll-Out Tray

There shall be a floor mounted roll-out tray provided in compartment L1, R1, R3, B1.

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

There shall be an adjustable roll-out tray provided in compartment L1.

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.

COVERS

Hose Bed Cover

The hose bed area shall have a two (2) piece aluminum hose bed cover. The hose bed cover shall be provided in compliance with NFPA.

Each hose bed cover shall be constructed of an aluminum tubing frame with a 1/8” (.125”) aluminum treadplate top and a 3/32" (.094”) aluminum smooth plate bottom. Each cover door shall be securely attached to the hose bed side with a full-length stainless steel piano type hinge. The hinge shall have 1/4” pins and shall be ”staked” on every other knuckle to prevent pin slippage.

Each cover shall include two (2) hold opens per cover. The forward area of the cover shall have one (1) pneumatic shock. The rear of the cover shall have one (1) positive hold open/hold closed that shall include one (1) manually engaged securing pin.

Each cover shall include two (2) assist handles, one (1) grab handle (forward) and one (1) hand rail (rearward). The rearward hand rails shall be installed in compliance with current NFPA. The hand rails 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.

The water tank fill tower(s) shall be accessible with the covers in the closed position through a diamond plate door (or as applicable). The fill tower access door shall be constructed of 3/16” (.187”) aluminum treadplate. The door shall be hinged and shall include one (1) hold down.

The covers shall be supported in the closed position by a center mounted hose bed divider. The divider shall be constructed of 1/4" (.250”) smooth aluminum plate with a scotch-brite finish. The divider shall run the full length of the hose bed and shall include an upper ”C” channel extrusion base. The rear of the divider shall be recessed rearward to allow for looping of hose from one side of the divider to the other (as applicable).

Each cover door shall be wired to the door ajar indicator light in the cab and shall be interlocked with the parking brake per NFPA.

Rear Hose Bed Cover

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

The top of the cover shall be mechanically attached to the rear hose bed cover extrusion. The lower portion of the cover shall be secured in place with heavy duty nylon straps to comply with the latest edition of NFPA 1901.

Speedlay Covers - Sides

The side covers shall be full coverage over the intakes, discharges, speedlays, and transverse storage with a painted roll up door, both sides. No exceptions.

PUMP PANELS

Side Pump Panels

The side intake / discharge pump panels shall be 14 gauge stainless steel with a brushed finish. Each panel shall be removeable for easier maintenance access to plumbing components.

Pump Operator Control Panel

Pump operator control panel in driver side forward body compartment shall be 14 gauge stainless steel with a brushed finish. The panel sections shall be individually removeable for easier maintenance access to plumbing components.

MISC PUMP PANEL OPTIONS

Pump Panel Tags

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

Push-Pull Handle Orientation

For improved ergonomics, the push-pull handles on the pump operator`s panel shall be oriented vertically.

PUMP MODULE OPTIONS

Pump Compartment Heaters

Two (2) 25,000 BTU heaters shall be installed in the lower pump compartment area. The heaters shall be connected to the chassis engine coolant system and shall include 12 volt blowers. The heaters shall be controlled at the pump operator`s panel.

Heat Pan

The pump compartment shall have a heat pan installed under the pump area. The heat pan shall be constructed of 1/8” (.125”) smooth aluminum plate and shall be easily removable for fair weather operations.

The heat pan shall be four (4) sided with two (2) removable bottoms. The bottoms shall provide access to the lower area of the pump/pump compartment. The bottoms shall include butterfly latches to secure them in the closed position.

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.

Removable Speedlay Tray [Qty: 3]

The speedlay areas shall include storage trays. The trays shall be constructed of 3/16” (.187”) smooth aluminum plate with an exterior sanded finish. The floor of the tray shall be slotted to prevent the accumulation of water and allow for ventilation of wet hose. Protective strips of 0.375" UHMW Polyethylene shall be bolted to the bottom of outside edge speedlay tray. UHMW (Ultra High Molecular Weight) Polyethylene is a durable, easily cleaned, and high tensile strength material that is self-lubricating, long-wearing, and shatter-, abrasion-, and corrosion-resistant. This material also withstands intermittent temperatures up to 212 degrees F and has a low friction/moisture-resistant property that facilitates speedlay tray operation.

The tray shall include two (2) 1.25" extruded aluminum handles. The handles shall be welded between the tray side walls down low toward each end of the tray.

The side walls of the tray shall include slotted cut-outs to facilitate lifting of the tray.

WATER TANK

1030 Gallon Water Tank

A 1030 gallon (US) ”R” booster tank shall be supplied.

The booster tank shall be constructed of polypropylene material. The booster tank shall be completely removable without disturbing or dismounting the apparatus body structure. The top of the booster tank is fitted with removable lifting assembly designed to facilitate tank removal.

The booster tank top, sides, and bottom shall be constructed of a minimum 1/2” (0.50”) thick black UV-stabilized copolymer polypropylene. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include

technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The tank cover shall be constructed of 1/2" thick polypropylene and UV stabilized, to incorporate a multi-piece locking design, which allows for individual removal and inspection if necessary. The tank cover(s) shall be flush or recessed 3/8" from the top of the tank and shall be fused to the tank walls and longitudinal partitions for maximum integrity. Each one of the covers shall have hold downs consisting of 2" minimum polypropylene dowels spaced a maximum of 40” apart. These dowels shall extend through the covers and will assist in keeping the covers rigid under fast filling conditions.

The tank shall have a combination vent and manual fill tower with a hinged lid. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications).
The fill tower shall be blue in color indicating that it is a water-only fill tower. The tower shall have a 1/4" thick removable polypropylene screen and a polypropylene hinged cover. The capacity of the tank shall be engraved on the top of the fill tower lid.

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. All tank fill couplings shall be backed with flow deflectors to break up the stream of water entering the tank, and be capable of withstanding sustained fill rates per the tank fill inlet size.

The sump shall be constructed of a minimum of 1/2" polypropylene. The sump shall have a minimum 3" N.P.T. threaded outlet for a drain plug per NFPA. This shall be used as a combination clean-out and drain. All tanks shall have an anti-swirl plate located approximately 3” above the inside floor.

The transverse and longitudinal swash partitions shall be manufactured of a minimum of 3/8" polypropylene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments. The partitions shall be designed to provide maximum water flow. All swash partitions interlock with one another and are completely fused to each other as well as to the walls of the tank. All partitions and spacing shall comply with NFPA 1901. The walls shall be welded to the floor of the tank providing maximum strength.

Inside the fill tower there shall be a combination vent/overflow pipe. The vent overflow shall be a minimum of schedule 40 polypropylene pipe with an I.D. of 3" or larger that is designed to run through the tank. This outlet shall direct the draining of overflow water past the rear axle, 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. All water tanks shall be tested and certified as to capacity on a calibrated and certified tilting scale.

Each tank shall be weighed empty and full to provide precise fluid capacity. Each tank shall be delivered with a Certificate of Capacity delineating the weight empty and full and the resultant capacity based on weight. Engineering estimates for capacity calculations shall not be permitted for capacity certification. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

A tag shall be installed on the apparatus in a convenient location and contain pertinent information including a QR code readable by commercially available smart phones. The information contained on the tag shall include the capacity of the water and foam (s), the maximum fill and pressure rates, the

serial number of the tank, the date of manufacture, the tank manufacturer, and contact information. The QR code will allow the user to connect with the tank manufacturer for additional information and assistance.

The tank shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

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

PLUMBING

All fabricated piping shall be a minimum of Schedule 10 stainless steel for superior corrosion resistance and decreased friction loss. Any use of steel or galvanized steel plumbing shall be unacceptable.

Valves

All discharge valves shall be Akron 8800HD series with 316 stainless steel ball and dual polymer seats. All discharge valves shall operate with manual push/pull controls for ease of use, maintenance, and cost control. No exceptions.

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 To Pump 3 Akron Air Valve

One (1) air actuated 3” Akron valve shall be installed between the pump suction and the booster tank, 4” piping, with flex hose and stainless steel hose clamps connect to the 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.

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.

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.

FOAM TANK

30 Gallon Foam Tank(s)

A 30 gallon (U.S.) foam cell for Class A foam and Class B foam shall be supplied. The foam cells shall be integral to the water tank.

The integral tank top, sides, and bottom shall be constructed of black polypropylene material. Joints and seams shall be fused using nitrogen gas as required and tested for maximum strength and integrity. The tank construction shall include technology wherein a sealant shall be installed between the plastic components prior to being fusion welded. This sealing method will provide a liquid barrier offering leak protection in the event of a weld compromise. The copolymer polypropylene material shall be used for its high strength and corrosion resistance for a prolonged tank life.

The foam tanks shall have a manual fill tower. The fill tower shall be constructed of 1/2" polypropylene and shall be a typical dimension of 8" x 8" outer perimeter (subject to change for specific design applications). Foam fill tower shall be constructed of a Green, Yellow colored material indicating type of foam utilized. The capacity of the tank shall be engraved on the top of the fill tower lid. The fill tower shall be located in the forward area of the tank. The tower shall have a 1/4" thick removable polypropylene screen. Inside the fill tower, approximately 1.5” down from the top, there shall be an anti-foam fill tube that extends down to the bottom of the tank. A pressure vacuum vent shall be provided in the lid of the fill tower. The foam fill tower shall be removable to facilitate the cleaning of the foam tank.

The foam tanks shall undergo extensive testing prior to installation in the truck. All foam tanks shall be tested and certified as to capacity. The tank must be designed and fabricated by a tank manufacturer that is ISO 9001:2008 certified in each of its locations. The ISO certification must be to the current standard in effect at the time of the design and fabrication of the tank.

The tanks shall have a limited Lifetime warranty that provides warranty service for the life of the fire apparatus in which the tank is installed. Warranties are transferable if the apparatus ownership changes by requesting the transfer from the tank manufacturer.

LADDER STORAGE / RACKS

Ladder Brand

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

Ladders

The length of ladders capable of being stored shall be the following: 24' 2-section and 14' roof ladder.

Storage Tunnel Contents

Storage tunnel capable of holding (1) 2-section, (1) roof, (1) attic, (2) pike poles in Officer.

Hose Bed Storage Box

The officer side of the hose bed area shall have a storage area capable of storing two (2) 6" x 10` hard suction tubes.

The storage box shall include a vertically hinged door and push-button latch. The door shall be wired through the door ajar indicator located in the cab.

HANDRAILS / STEPS

NFPA Hose Bed Access

A Zico Quic-Ladder shall be provided for NFPA access to storage areas.

The ladder shall include a pull-out and swing down lower section. This shall allow for easier access from ground level and shall allow the ladder to be stowed parallel to the body.

The ladder shall have 10.75” wide cast aluminum rungs with a flat, non-skid surface to provide better traction during normal or wet conditions. (**The use of round rungs shall not be acceptable.**)

The outer hand rails shall be heavy walled aluminum tubing and shall have a grit type powder coating for increased gripping by personnel access or egress from the hose bed area. (**The use of smooth or rubber coated hand rails shall not be acceptable.**)

The ladder shall be positioned at the rear of body driver side. This position shall not block and/or obstruct rearward facing DOT and/or NFPA lighting. (**Lighting being blocked directly from the rear of the apparatus shall not be acceptable.**)

Pump Panel Steps

Two (2) 3/16" non-skid aluminum treadplate steps shall be bolted to the pump discharge substructure. Steps shall be a minimum of 12" deep. For slip resistance, the standing surface of the steps shall be provided with Bustin Tread non-skid inserts.

MISC BODY OPTIONS

Rear Mud Flaps

The rear tires shall have a set of black mud flaps mounted behind the rear chassis wheels with OEM logo.

Rescue Pumper Hose Body Area

The overall body height shall be 95" from the bottom of the body to the top of the upper body.

The upper hose body shall be 46" or 72" wide (based on upper body storage option selection), constructed of the same 304L stainless steel material as the compartments and shall use welded construction. The forward, top and rear edges of the hose bed side sheets shall be break-formed to ensure adequate strength.

Hose bed flooring shall be Duradek T3500 grating installed full length and full width of the hose bed for superior drainage and hose ventilation.

Hose Bed Capacity

The hose bed shall have the capacity to store the following hose from the driver side to the officer side.

200’ of 2 ½” DJ
300’ of 2 ½” DJ
1000’ of 5” LDH

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).

Transverse Front of Hose Bed Storage Area

The front of the main hose bed shall be designed as required to provide a full width of hose bed transverse storage pocket for protected and concealed installation of equipment items such as a generator, etc. The purpose of this storage area is to separate the equipment items from the main

hose load, yet allow ease of service and inspection of the stored accessories. This removable transverse divider shall be of 12 gauge 304L stainless steel with a machine sanded DA finish.

The selected hose bed dividers shall be located to the rear of the transverse divider, and attached to stainless steel Unistrut for easy side to side adjusting.

Floor Matting

This unit shall have all applicable compartment floors, shelves and trays covered with a heavy duty Turtle Tile brand Black floor matting.

Fuel Fill

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

Body Fender Panels

The construction of the wheel well assemblies shall be an integral part of the overall body design. Rear fender panels shall be formed of 12 gauge 304L stainless steel and shall be finish painted job color.

Mirror polished stainless steel fenderettes shall be installed at the outer panels and protrude a maximum of 3/4". Black closed cell foam rubber shall be installed between the flare and outer wheel well panel. Mounting hardware shall not be visible on the exterior of the body.

Bolt-on 16 gauge 304L stainless steel wheel well liners shall be installed, unpainted. A minimum of 1/4" spacing shall be provided at the lower leading and trailing mounting areas for proper drainage and ventilation.

Black rubber mud flaps shall be installed behind the rear wheels and securely fastened to the wheel well liners with stainless steel hardware.

Stainless Steel Rubrails, Sides of Body

The rubrails shall be of 16 gauge brushed stainless steel construction, reversed hat channel style. Rubrails shall be a minimum of 2-1/4" high x 1" deep with bottom drain holes and fastened to the body below the lower side compartment doors. The rubrail ends shall be enclosed using machined gray structural impact resistant non-corrosive copolymer material with 3/16" stand-off and mounting structure. This design is required for superior energy absorption and ease of replacement.

Tilt Jack Location

The cab tilt jack shall be located R1 low on forward wall.

Storage Pan

A storage pan shall be provided over the forward transverse storage area(s).

The storage pan shall be constructed of 3/16” (.188”) aluminum treadplate.

PUMPS

Pump Rating

The fire pump shall be rated at 1500 GPM.

Pump System

Fire Pump

The pump shall be a single stage fire pump, capable of a 1500 GPM rating.

Power to drive the pump shall be provided by the same engine used to propel the apparatus. The pump shall be midship mounted and designed to operate through an integral transmission, including a means for power selectivity to the driving axle or to the pump.

The pump casing shall be a fine grain cast iron alloy, vertically split, with a minimum 30,000 psi tensile strength and bronze fitted.

The pump shall contain a cored heating jacket feature that, if selected, can be connected into the vehicle antifreeze system to protect the pump from freezing in cold climates.

The impeller shall be a high strength bronze alloy of mixed flow design, accurately balanced and splined to the pump shaft for precision fit and durability. The impeller shall feature a double suction inlet design with opposed volute cutwaters to minimize radial thrust.

The seal rings shall be renewable, double labyrinth, wrap around bronze type.

The pump shaft shall be precision ground stainless steel. The shaft shall be splined to receive broached impeller hubs, for greater resistance to wear, torsional vibration, and torque imposed by the engine.

The bearings provided shall be heavy duty, deep groove, radial type ball bearings. They shall be over-sized for extended life. The bearings shall be protected at all openings from road dirt and water splash with oil seals and water slingers.

The transmission case shall be heavy duty cast iron alloy with adequate oil reserve capacity for low operating temperatures. A magnetic drain plug shall be provided. Transmission case shall include a dip stick for checking oil level.

The pump drive shaft shall be precision ground, heat treated alloy steel, with a minimum 2-1/2" x 10" spline ends. Gears shall be helical design, and shall be precision cut for quiet operation and extended life. The gears shall be cut from high strength alloy steel, carburized and ground. The gear face shall be 2-5/8” minimum width.

The gear shift shall be a heat treated alloy steel splined spur gear to engage either the pump drive gear or the truck drive shaft gear. The gear ratio of the pump shall be selected by the pump and apparatus manufacturer’s Engineering Department.

A discharge manifold, as supplied as part of the pump by the pump manufacturer, shall include a discharge check valve assembly to allow priming of the pump from draft with discharges open and caps off.

Mechanical Seal

The pump shall be furnished with a maintenance free mechanical seal. The mechanical seal shall be a non-contacting, non-wearing dual seal design.

Pump Shift

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

The power shift control valve shall be mounted in the cab and be labeled ”PUMP SHIFT”. The apparatus transmission shift control shall be furnished with a positive lever, preventing accidental shifting of the chassis transmission. 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).

Heat Exchanger & Heated Pump Core

An automatic heat exchanger system shall be provided in the pump. Antifreeze from the vehicle engine shall flow through the pump core jacket. Water flow from the fire pump shall be used to cool the engine antifreeze. This feature shall assist against the pump freezing in cold climates.

Suction Inlets

Two (2) 6” diameter suction ports with 6” NST male threads and removable screens shall be provided, one (1) 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.

Discharge Manifold

The pump system shall utilize a stainless steel discharge manifold system and flexible high pressure hose with stainless steel ends 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.

The apparatus manufacturer shall provide a full 10 year stainless steel plumbing components warranty. This warranty shall cover defects in materials or workmanship of apparatus manufacturer designed foam/water plumbing system stainless steel components for 10 years. A copy of the warranty document shall be provided with the proposal.

Test Plugs

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

Tank to Pump Check Valve

The fire pump suction inlet shall be provided with a tank to pump check valve. The check valve shall is designed to automatically open when drafting from an on-board water tank, and close if the pump suction receives water pressure from an outside source.

Pump Mounting Frame

The entire pump, side intake / discharge panels and pump operator`s panel (side mount applications) shall be supported by a modular steel framework. The framework shall consist of 3/8" formed steel angles bolted to the frame (C-frame applications) with 2" x 2" x .125" angles supporting the discharge manifold and pump operator's panel (side mount applications).

PUMP CERTIFICATION

Pump Certification

The pump, when dry, shall be capable of taking suction and discharging water in accordance with current NFPA 1901. 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 current NFPA 1901.

The tests shall include, at a minimum, the pump test, the pumping engine overload test, the pressure control system test, the priming device tests, the vacuum test, and the water tank to pump flow test as outlined in current NFPA 1901.

A piping hydrostatic test shall be performed as outlined in current NFPA 1901.

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

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 1/4” snubber valve.

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.

Pump Primer

The priming pump shall be a Trident Emergency Products compressed air powered, high efficiency, multi-stage, venturi based AirPrime™ System.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump.

The priming system shall have a five (5) year warranty.

Master Drain Manual Remote Control

A manual master drain valve shall be installed under the pump and remote operated from the driver side pump panel. The master pump drain assembly shall consist of a Class 1 bronze master drain with a rubber disc seal.

The manual Master Drain Valve shall have twelve (12) individually-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.

Anodes

The anode help prevent damage caused by galvanic corrosion within the pump. The system provides a sacrificial metal which helps to diminish or prevent pump and pump shaft galvanic corrosion. One (1) anode will be located on the suction side of the

Pump Overheat

A Pump Overheat Thermal relief valve shall be provided with a light located on pump operator`s panel. The device shall consist of a valve that opens when the water in the pump is overheating and a warning light shall be triggered by a thermal switch in the pump. The Overheat shall act as a safety device by releasing hot water from the discharge area of the pump to the ground or back to a water tank.

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.

INTAKE OPTIONS

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, hardcoat 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.

The swivel shall be located inside the front storage box.

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 Front 2.5 Hose Bed Akron Valve

One (1) 2-1/2” preconnect outlet with a manually operated Akron valve shall be supplied to the lower left of the apparatus hose bed. The preconnect shall consist of a 2-1/2” heavy-duty hose coming from the pump discharge manifold to a 2-1/2” adapter.

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 Discharge 3 Electric Akron

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

Piping shall be rigidly braced as necessary and installed securely so no movement develops when the line is charged.

The valve shall be an Akron 8630E HD series with a stainless steel ball design 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 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 9313 valve controller from Akron Brass provides reliable and accurate valve control with valve position indication through 10 LED indicators identifying the degree of Open/Close. The electric valve actuator shall have the following features:

- Technically advanced solid-state electronics
- Protected against EMI
- Programmable Auto Open
- 12 and 24 Volt
- Meets all aspects of NFPA 1901
- 4-1/4" square face
- Easy pump panel mounting
- Retrofits to existing apparatus
- 5 year warranty
- Manual override valve actuation

The discharge shall be supplied with a 3/4” bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a quarter-turn valve on the pump panel.

The valve controls and indicators shall be located at the pump operator`s panel.

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

Swivel Elbow, Polished Stainless Steel

There shall be a polished stainless steel swivel elbow provided for the front bumper discharge located on top of the bumper driver's side of center tray.

Discharge Left Panel 2.5 Akron Droop (Qty:2)

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

The discharge shall extend out beyond the pump panel with a 30 degree downward angle with 2-1/2” NST threads to help prevent kinking of the discharge hose. The 30 degree droop shall be an integral

part of the discharge valve and shall be equipped with a chrome plated rockerlug cap with a retainer chain.

The discharge shall be supplied with a 3/4” bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a quarter-turn valve on the pump panel.

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.

Discharge Right Panel 2.5 Akron Droop

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.

The discharge shall extend out beyond the pump panel with a 30 degree downward angle with chrome plated 2-1/2” NST threads to help prevent kinking of the discharge hose. The 30 degree droop shall be an integral part of the discharge valve and shall be equipped with a chrome plated rockerlug cap with a retainer chain.

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 4

One (1) 4” discharge outlet with a 3” electrically operated Akron valve shall be provided at the right side pump panel. The discharge shall consist of a 3” valve with 30 degree droop connected to a 3” FNST x 4” MNST flash chrome adapter. The adapter shall protrude through the pump panel. The end of the discharge adapter shall be equipped with a chrome plated rockerlug cap with a retainer chain.

The valve shall be an Akron 8600HD 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 9313 valve controller from Akron Brass provides reliable and accurate valve control with valve position indication through 10 LED indicators identifying the degree of Open/Close. The electric valve actuator shall have the following features:

- Technically advanced solid-state electronics
- Protected against EMI
- Programmable Auto Open
- 12 and 24 volt
- Meets all aspects of NFPA 1901
- 4-1/4" square face
- Easy pump panel mounting
- Retrofits to existing apparatus
- 5 year warranty
- Manual override valve actuation

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: right side discharge 1.

Speedlay Triple 1.5/2.5 Akron Valve

One (1) triple speedlay discharge shall be provided. The bottom (2) speedlay sections shall include one (1) 2” brass swivel with a 1-1/2” NST male and one (1) 2.5" brass swivel with a 2.5" NST male hose connection each to permit the use of the hose from either side of the apparatus. One (1) upper speedlay section shall include one (1) 2” brass swivel with a 1-1/2” NST male hose connection to permit the use of the hose from either side of the apparatus.

The discharges shall include a manually-operated Akron valve. The speedlay shall consist of heavy-duty hose from the pump discharge manifold to the swivel.

The valves shall be Akron 8800HD series with a 316 stainless steel ball and dual polymer seats for ease of operation and increased abrasion resistance. The valves 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 valves 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 controls 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.

Each discharge shall include a bleeder valve assembly. The bleeder valve shall be installed to drain water from the gauge pressure line to prevent freezing of the line. The drain shall be controlled with a valve on the pump panel.

Deck Gun Location

Deck gun piping shall be positioned driver side of hose bed storage pan. This location shall allow for optimal operation of a deck gun monitor once installed.

DISCHARGE OPTIONS

Bleeder Drain Valve

A 3/4" bleeder valve shall be provided for the noted discharge(s). The bleeder valve lever shall be stainless steel and shall be a lift style handle for ease of operation. The drain shall be located at the main pump panel.

Bleeder shall be plumbed for use with the: front bumper discharge, deck gun, driver's side hose bed preconnect, speedlay preconnect, left discharge, right discharge.

PRESSURE GOVERNORS

Pressure Governor

The apparatus shall be equipped with a Class 1 ”TOTAL PRESSURE GOVERNOR PLUS” (TPG) Integrated pump control system. The TPG Plus shall have a weatherproof color display. The TPG will operate as an engine/pump pressure governor/throttle system that is connected directly to the Electronic Control Module (ECM) mounted on the engine. The TPG is to operate as a pressure sensor (regulating) governor (PSG).

The TPG Plus shall display master intake and discharge gauge readings, engine RPM, oil pressure, engine temperature and voltage along with providing critical warnings. The warning levels for oil pressure, high engine temperature, low voltage and high voltage shall be independently programmable.

GAUGES

GAUGE IC 10 LED FOAM TANK LEVEL [Qty: 2]

One (1) Innovative Controls brand foam tank level gauge shall be located at the pump operator`s panel to provide a high-visibility display of the foam 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. 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/PSTANK

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. 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.

In addition to the pump panel mounted lights there shall be one (1) Whelen PSTank series LED (Light Emitting Diode) strip light installed each side 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 PSTank Strip Lights: each side of cab rear of front doors.

Gauge Pressure 2.5" 30-0-400

A Class 1 weatherproof 2-1/2” compound vacuum pressure gauge with a range of 30-0-400 shall be installed on the pump panel. The gauge shall be filled with a liquid solution to assure visual reading to within 1% accuracy.

Gauge shall be provided for the following discharge(s): front bumper discharge, 1.5 in. speedlay preconnect, 2.5 in. speedlay preconnect, deck gun, driver's side hose bed preconnect, left side discharge 1, left side discharge 2, right side discharge 1, right side discharge 2.

FOAM SYSTEMS

Foam System

An electronic direct injection foam system shall be provided as the means for the proportioning of foam concentrate into the water stream. An electronic, fully automatic, variable speed, direct injection, discharge side foam proportioning system shall be provided.

This system shall be a dual agent system capable of handling both Class "A" foam and Class "B" foam concentrates.

The foam system shall be plumbed to four (4) discharges. The discharges capable of dispensing foam shall be the two (2) 1.5” crosslays, 2.5” crosslay and the front bumper discharge.

The foam proportioning system operation shall be based on a direct measurement of water flows, and remain consistent within the specified flow and pressure. The system shall be equipped with a digital electronic control display on the pump panel. Incorporated within the control display shall be a microprocessor, which receives input from the system flow meter while also monitoring the foam concentrate pump output. The microprocessor shall compare the values of the water flow versus the foam flow, to ensure the proportion rate is accurate. The foam system shall supply four (4) discharges with foam.

One (1) paddle wheel shall be installed to monitor all foam discharges.

Push button control for the form proportioning rate shall allow a ratio from 0.1% to 3.0% in 0.1% increments.

The rated capacity of this system shall be 400 gpm at 3.0% and 1000 gpm at 0.5 %.

A 12 gpm positive displacement, 3 cylinder plunger type foam pump shall be powered by a hydraulic motor.

One (1) check valve shall be installed in the plumbing to prevent foam from contaminating the water pump. The check valve shall be approved by the foam system manufacturer.

A tank selector control shall be mounted at the pump operator's panel.

Foam System Certification

The foam system performance shall be tested and certified in compliance with 2009 NFPA 1901.

FOAM SYSTEM OPTIONS

Foam System Plumbing

The specified foam system shall be plumbed to 2.5 in. speedlay preconnect, driver's side hose bed preconnect, 1.5 first speedlay, 1.5 second speedlay, driver's side front jump line.

Electric A/B Selector

A electric actuated A/B selector shall be provided. The electronic dual tank system shall allow for the connection of two foam reservoirs into the proportioning system. The system shall provide an interface with the main system controller and a flush position to prevent concentrate mixing and possible jelling.

The interface with the system controller shall supply dual tank calibration and dual tank injection rates. The dual tank calibration allows accurate calibration of each foam concentrate tank separately and automatic switching of that calibration when changing tanks. The dual tank injection rate allows the presetting of the defaulted injection rate for each foam concentrate tank and will also automatically switch when changing tanks.

The electronics provide an automatic 8-second flush when switching from one tank to another. When the selector is left in the flush position (center position), water discharge pressure is open to the suction of the foam pump. Since the discharge of the foam pump is piped to the water dishcarge, flushing action will take place when the foam pump is run until it is switched to either A or B tank.

There shall be a placard, switch, lights that indicate which tank is being used and a 20 foot interface cable provided. The cable allows the usage of the dual tank calibration and defaulted injection rate features in the system controller. The placard, switch and indicator lights shall be mounted on the pump operator`s panel.

ELECTRICAL SYSTEMS

Multiplex Electrical System

Electrical System

The apparatus shall incorporate a Weldon V-MUX multiplex 12 volt electrical system. The system shall have the capability of delivering multiple signals via a 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 1901 standards.

The electrical system shall be pre-wired for optional computer modem accessibility to allow service personnel to easily plug in a modem to allow remote diagnostics.

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 weather-resistant 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 must be Peer to Peer technology based on RS485 protocol. No one module shall hold the programming for other modules. One or two modules on a network referred to as Peer to Peer, while the rest of the network consists of a one master and several slaves is not considered Peer to Peer for this application.
• 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.
• Each module that controls a device shall hold its own configuration program.
• Each module should be able to function as a standalone module. No “add-on” module will be acceptable to achieve this form of operation.
• Load shedding power management (8 levels).
• Switch input capability for chassis functions.
• Responsible for lighting device activation.
• Self-contained diagnostic indicators.
• Wire harness needed to interface electrical devices with multiplex modules.
• The grounds from each device should return to 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 1901-Standard for Automotive Fire Apparatus
• 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.

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 1901. 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 NFPA 1901 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.

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with NFPA 1901, 2009 edition. 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.

Multiplex Display- Required item or equal color display system

The V-MUX multiplex electrical system shall include a Vista IV color display.

The display shall have the following features:

- Aspect ratio of 16:9 (Wide Screen)
- Diagonal measurement of no less than 7"
- Master warning switch
- Engine high idle switch
- Five (5) tactal switches to access secondary menus
- Eight (8) multi-function programmable tactal switches
- Specific door ajar indication
- Real time clock
- Provides access to the multiplex system diagnostics
- Video capability for optional back-up camera(s) and GPS display

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

LIGHT BARS

Light Bar

A Whelen Freedom series 72” all LED light bar model FN72QLED shall be provided. The light bar shall consist of two white, six red LED modules and MKEZ7 mounts.

No rear facing LEDs.

Lens color: Clear.

The white LEDs shall be switched off in blocking right of way mode.

The light bar shall be installed in the following location: Centered on the front cab roof.

WARNING LIGHT PACKAGES

Lower Level Warning Light Package

Eight (8) Whelen Super 600 LED light heads and two (2) Whelen Super TIR3 LED light heads shall be provided.

The rectangular lights shall include chrome flanges where applicable. The lights shall be wired with weatherproof connectors and shall be mounted as close to the corner points of the apparatus as is practical as follows:

• Two (2) Whelen 600 Super LED Red lights on the front of the apparatus facing forward.
• Two (2) Whelen 600 Super LED Red lights on the rear of the apparatus facing rearward.
• Two (2) lights each side of the apparatus, one (1) Whelen 600 Super LED Red each side at the forward most point (as practical), and one (1) Whelen Super LED TIR3 Red each side at the rearward most point (as practical).
• One (1) Whelen 600 Super LED Red light each side of the apparatus centrally located to provide midship warning light.

The side facing lights shall be located at forward most position, centered in rear wheel well, and side facing at rear of body in rubrail if equipped.

All warning devices shall be surface mounted in compliance with NFPA standards.

WARNING LIGHTS

Upper Rear Warning Lights

Two (2) Whelen model L31H Super LED beacons with Red 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.

Preemption Emitter

A Tomar strobe preemption emitter with chrome plated housing shall be installed. The emitter shall be controlled by a switch in cab accessible to driver and be wired to turn off when the park brake is applied.

The emitter shall be located front of cab above grille.

DIRECTIONAL LIGHT BARS

Directional Traffic Warning Light

One (1) Whelen TAL65 LED 36” long Traffic Advisor with amber lenses shall be provided. The unit shall have a manual override of directional signal with a slide switch mounted in the chassis cab.

The light shall be installed at the rear of the body to direct traffic around the vehicle.

Directional Light Bar Control Location

The directional light bar control head shall be located in the center overhead console offset to driver side.

Directional Light Wired to Warning Lights

The rear directional light bar shall be activated when the upper level warning lights are activated to provide additional lighting, in addition to the warning lights, when the vehicle is responding to a scene.

SIRENS

Electronic Siren

A Whelen 295SLSA1 electronic siren shall be installed in the cab. The siren amplifier and control panel module shall include a rotary selector for six (6) functions, on/off switch, push button switch for manual siren or air horn tones, and noise canceling microphone.

Electronic Siren Control Location

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

Mechanical Siren

A chrome plated and pedestal mounted Federal Q2B-P coaster siren shall be installed on top of the front bumper extension. An electric siren brake switch shall be located in the cab accessible to the 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 inboard of frame.

DOT LIGHTING

Tail Lights

Two (2) Whelen model 600 series LED (Light Emitting Diode) lights with one (1) Whelen 600 series halogen light shall be installed in a Cast 3 housing in a vertical position each side at rear and wired with weatherproof connectors.

Light functions shall be as follows:

- LED red running light with red brake light in upper position.
- LED amber populated arrow pattern turn signal in middle position.
- Halogen 27 watt clear back-up light in lower position.

A one-piece polished aluminum trim casting shall be mounted around the three (3) individual lights in a vertical position.

License Plate Light

One (1) Truck-Lite model 15905 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.

Marker Lights

One (1) pair of Britax model L427.203L.12V LED amber/red marker rubber housed lights shall be provided. The lights shall be located on the rear body corners mounted in the down angle position. The red lenses shall illuminate to the rear of the apparatus and the amber shall illuminate to the front of the apparatus. The lights shall be wired to the marker light circuit.

Turn Signals

A pair of Weldon model 9186-8580-29 bubble style LED amber auxiliary turn signals with stainless steel bezels shall be installed.

Location: (1) each side in body wheel well offset forward.

LED Marker Lights

LED clearance/marker lights shall be installed as specified below.

Upper Cab:

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

Lower Cab:

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

Upper Body:

• One (1) red Truck-Lite LED upper clearance light each side, rear of body, visible to the sides and rear of the vehicle.

Lower Body:

• Three (3) red Truck-Lite LED clearance lights centered at rear, recessed in the rear tailboard area.
• One (1) red Truck-Lite LED clearance light each side at the trailing edge of the body as far rearward as practical.

LIGHTS - COMPARTMENT, STEP & GROUND

Compartment Light Package

Two (2) ROM V3 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 sixteen (16) super bright white LEDs per foot mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The lights shall be waterproof up to 1 meter (3.3 feet).

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.

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 LED (Light Emitting Diode) with clear lenses. The wiring connections shall be made with a weather resistant plug in style connector.

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

One (1) light shall be supplied to illuminate the ground below each cab door. Lights in areas under the driver and crew area exits shall be activated automatically when the exit doors are opened.

One (1) ground light shall be supplied under each side of the pump panel area (if equipped).

One (1) ground light shall be installed below each side body staircase (if equipped).

Three (3) ground lights shall be supplied under the rear of the apparatus.

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

Medical Cabinet Lighting

Two (2) ROM V3 LED compartment light strips shall be mounted in the medical cabinet(s).

The light bar shall include super bright white LEDs (16 per 12” strip) mounted to circuit boards that have acrylic conformal coating for corrosion protection. The LED circuit boards shall be mounted to an extruded aluminum base with lexan lens. The light shall be waterproof up to 1 meter (3.3 feet).

The light shall be controlled by a compartment door switch.

LIGHTS - DECK AND SCENE

Hose Bed Light

A Truck-Lite rectangular light shall be installed at the front area of the hose bed to provide illumination per current NFPA 1901. The rectangular rubber housing shall contain a 12 volt, 2700 candlepower halogen floodlight bulb. The hose bed light shall be switched with work light switch in the cab.

Cab Scene Light Switching

The cab scene lights shall be wired to activate through the appropriate side cab door ajar switch. This application allows the cab scene lights to be used as additional illumination of the ground area for personnel entering or exiting the vehicle. The switching for this application is in addition to the standard cab scene light switching.

Scene Lights

Two (2) Whelen model 60C0ENZR surface mounted 600 series Super LED clear scene lights shall be provided.

Each shall have 12 Super LED diodes with internal light deflecting optics. The internal light deflecting optics shall redirect the light from 8 - 32 degrees.

Lights shall be located (1) each side rear compartment face up high, (1) each side of cab, rearward of forward doors, up high and switched in cab (side facing lights switched separately).

LIGHTS - NON-WARNING

Engine Compartment Light

There shall be lighting provided in compliance with NFPA to illuminate the engine compartment area.

Pump Compartment Light

An incandescent 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) LED lights shall be mounted under a light shield directly above each lower intake / discharge panel. The lights shall be TecNiq EON with polished stainless steel housings. The light shields shall be formed from 14 gauge brushed finish stainless steel. The work light switch in the cab shall activate the lights when the park brake is set.

CONTROLS / SWITCHES

Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the air horns. It shall be located driver's side, officer's side.

Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the Q2B siren. It shall be located driver's side, officer's side.

Foot Switch

A heavy duty metal floor mounted foot switch shall be installed to operate the electronic siren. It shall be located driver's side, officer's side.

Rocker Switch

A 12 volt rocker switch shall be installed.

The switch shall be located officer's side switch panel for Q2B brake.

Three Way Switching [Qty: 2]

An additional momentary switch with circuitry shall be provided to allow on/off operation of specified device from remote locations. The remote switch shall be mounted officer's side switch panel for cab scene lights.

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.

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.

Intercom 4 Cab, 1 Pump Panel

A FireCom intercom package shall be installed within the cab interior. One (1) model 5200D dual radio digital intercom with touch pad adjustable volume with advanced digital noise reduction circuitry. The intercom uses a durable membrane switch plate to control volume and change radios. This intercom provides hearing loss protection that can occur from exposure to high noise levels.

The system contains:

- One (1) FireCom model 5200D dual radio monitor shall be provided in the cab (two (2) year limited warranty).
- Four (4) FireCom model HM-10 plug in modules shall be provided at each seated position.
- One (1) FireCom model PP-20 plug in module shall be provided at the pump panel.
- Four (4) NFPA compliant headset hooks, FireCom part number 108-0678-00 shall be provided at each seated position.

MISC ELECTRICAL

Alternating Headlights

The chassis high beam headlights shall alternately flash and shall be controlled by a rocker switch mounted 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

There shall be a 12 place 12 volt DC power distribution module installed as specified. The module will have six (6) circuits wired directly to the battery and have six (6) circuits wired through the master battery switch with 12 positions for grounds.

Connection to the power module circuit will be through a .250 female spade connector. Each buss will be protected with a 50 amp circuit breaker for overload protection. The module will accept ATC blade type fuses or 22X series circuit breakers.

The module shall be located behind officer's seat.

LIGHTS - QUARTZ

12V LED Flood Light [Qty: 2]

Fire Research Focus model FCA802-V15 contour roof mount light with switch in driver side overhead console shall be installed. The mounting brackets shall attach to the lamp head and attached to the roof radius. Wiring shall extend from a weatherproof strain relief at the rear of the lamp head.

The lamp head shall have ten (10) ultra-bright white LEDs. It shall operate at 12 volts DC, draw 13 amps, and generate 13,300 lumens. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamp head shall incorporate heat-dissipating fins and be no more than 4-3/4" high by 11-1/2" wide. The lamp head and mounting arm shall be powder coated white. The flood light shall be for fire service use.

Location: driver and officer side front cab brow.

12V LED Flood Light [Qty: 4]

Fire Research Evolution model FCA210-V12 recessed LED light with switch in cab shall be installed. The housing shall incorporate internal heat-dissipating fins and have cut-out dimensions not to exceed 2” deep by 4-3/4” high by 11-3/4” wide. The lamp head shall protrude no more than 1-1/2” from the housing flange. Wiring shall extend from the bottom of the recessed housing.

The lamp head shall have ten (10) ultra-bright white LEDs. It shall operate at 12/24 volts DC, draw 13/6.5 amps, and generate 15,000 lumens. The lamp head shall direct 50 percent of the light onto the action area while providing 50 percent to illuminate the working area. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall incorporate heat-dissipating fins and be no more than 4-3/4" high by 11-1/2" wide. The lamp head and mounting arm shall be powder coated white. The flood light shall be for fire service use.

Location: driver side forward area recessed into roof top compartment raise, driver side rearward area recessed into roof top compartment raise, officer side forward area recessed into roof top compartment raise, officer side rearward area recessed into roof top compartment raise.

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: driver side top of medical cabinet, officer side top of medical cabinet.

GROUND LADDERS

Alco-Lite Folding Ladder

One (1) Alco-Lite FL-10, 10` aluminum folding ladder shall be provided. Both ends shall be equipped with molded rubber feet and the ladder shall have handles for easy carrying. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

Alco-Lite Roof Ladder

An Alco-Lite PRL-14, 14` aluminum roof ladder shall be provided. Folding steel roof hooks shall be attached to one end of the ladder with steel spikes on the other.

Alco-Lite Extension Ladder

One (1) Alco-Lite PEL-24, 24` aluminum 2-section extension ladder shall be provided. The ladder shall meet or exceed the requirements of the current edition of NFPA 1931.

MISC LOOSE EQUIPMENT

DOT Required Drive Away Kit

Three (3) triangular warning reflectors with carrying case shall be supplied to satisfy the DOT requirement.

Firecom Headset [Qty: 2]

One (1) Firecom UH-10 under-helmet headset shall be provided. The headset shall feature a PTT (push to talk) switch located on the ear dome, adjustable volume, noise-canceling electret microphone, adjustable headstrap, flex style boom that rotates left or right and liquid foam ear seals.

The headset shall have a 24 dB NRR rating and be warranted for two years.

Firecom Headset [Qty: 2]

One (1) Firecom UH-20 under-helmet headset shall be provided. The headset shall feature a PTT (push to talk) switch located on the ear dome (for intercom only communication), adjustable volume, noise-canceling electret microphone, adjustable headstrap, flex style boom that rotates left or right and liquid foam ear seals.

The headset shall have a 24 dB NRR rating and be warranted for two years.

EXTERIOR PAINT

Paint Break with Dip to Grille

The cab shall have a two-tone paint break. The break line shall be approximately 31.5 inches below the cab roof drip rail. The paint break shall include a dip down to the corners of the cab grille.

Paint Spray Out

A paint sample spray out of the cab two-tone paint colors will be provided for approval prior to painting.

Undercoating

Undercoating shall consist of a heavy coating of film sprayed on the undercarriage of the entire vehicle to repel water and road elements.

Paint Custom Cab

The apparatus cab shall be painted Sikkens FLNA3225E-1 Red. The paint process shall meet or exceed current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water, and soil. Contractor shall, upon demand, provide evidence that the manufacturing facility is in compliance with State EPA rules and regulations.

The aluminum cab exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces. Cab doors and any hinged smooth-plate compartment doors shall be painted separately to assure proper paint coverage on cab, door jambs and door edges.

Paint process shall feature Sikkens high solid LV products and be performed in the following steps:

- Corrosion Prevention - all aluminum surfaces shall be pre-treated with the Alodine 5700 conversion coating to provide superior corrosion resistance and excellent adhesion of the base coat.
- Sikkens Sealer/Primer LV - acrylic urethane sealer/primer shall be applied to guarantee excellent gloss hold-out, chip resistance and a uniform base color.
- Sikkens High Solid LVBT650 (Base coat) - a lead-free, chromate-free high solid acrylic urethane base coat shall be applied, providing excellent coverage and durability. A minimum of two (2) coats shall be applied.
- Sikkens High Solid LVBT650 (Clear coat) - high solid LV clear coat shall be applied as the final step in order to ensure full gloss and color retention and durability. A minimum of two (2) coats shall be applied.

Any location where aluminum is penetrated after painting, for the purpose of mounting steps, hand rails, doors, lights, or other specified components shall be treated at the point of penetration with a corrosion inhibiting pre-treatment (ECK Corrosion Control). The pre-treatment shall be applied to the aluminum sheet metal or aluminum extrusions in all locations where the aluminum has been penetrated. All hardware used in mounting steps, hand rails, doors, lights, or other specified components shall be individually treated with the corrosion inhibiting pre-treatment.

After the paint process is complete, the gloss rating of the unit shall be tested with a 20 degree gloss meter. Coating thickness shall be measured with a digital MIL gauge and the orange peel with a digital wave scan device.

Paint Cab Two-Tone Color

The upper section of the cab shall be painted FLNA4145 Black.

The paint process of the secondary cab color shall be the same as the primary color.

Paint Stainless Steel Body, FRP

Exterior Body Surfaces

FRP (fiber reinforced) panels shall be provided to overlay the stainless steel outer side of body panels that are not covered with aluminum treadplate. The FRP panels shall be painted as detailed under "Painting Information" and then installed on the body exterior.

Polished Surfaces

The interior of the compartments shall be provided with a machine sanded DA finish that shall not be painted.

The interior of the hose bed shall be provided with a machine sanded DA finish that shall not be painted.

Polished stainless steel vertical corner trim scuff guards shall be installed on the outer front and rear body corners.

Painting Information

The final finishing of the vehicle shall be performed to the highest standards of the fire apparatus industry.

All removable components and accessories shall be fitted to the body and then removed prior to final finishing, ensuring paint has been applied under all components and accessories.

Care shall be taken during paint preparation to properly fill all surface imperfections. Welded seam areas shall be ground flush and metal finished. Bare metal surfaces shall be etched chemically to ensure proper adhesion. The primer shall be sanded to assure a smooth surface for painting.

The interior of all compartments shall have a machine sanded DA finish that shall not be painted. Compartment seams shall be sealed with a silver silicone caulk.

The body exterior shall be finish painted using Sikkens paint, color: FLNA3225 Red. Furnish one pint of touch-up paint, including hardener to match each of the exterior colors.

INTERIOR PAINT

Zolatone Interior Cab Paint Finish

The interior of the cab shall be painted with Zolatone black #20-06.

LETTERING

Sign Gold Letter [Qty: 100]

4” high Sign Gold letter(s) shall be applied as specified.

Lettering Shade and Outline [Qty: 100]

Existing letter shall be shaded and outlined in black to contrast the letters.

STRIPING

Sign Gold Cab Paint Break Stripe

Cab stripe shall be 3/4” in width total, (1/2” gold stripe with a 1/8” black outline on both sides) and a clear polyurethane coating. Stripe shall be centrally located and shall contour with the cab, following the paint break.

Chassis and Body Stripe

A straight chassis and body Scotchlite stripe, 6” with 1” above and below width shall be supplied. The stripe shall be NFPA compliant black in color and location to be specified by the purchaser.

Location: bottom of stripe flush with top of bumper and straight back.

Color: White.

Rear Body Scotchlite Striping

Printed chevron style Scotchlite striping shall be provided on the rear of the apparatus. The stripes shall consist of 6” Yellow/Red alternating stripes in an ”A” pattern. The striping shall be located on the rear facing extrusions, panels, doors and inboard/outboard of the beavertails if applicable.

WARRANTY / STANDARD & EXTENDED

Each bidder shall provide a copy of warranty documents for the following items.

Standard Warranty

Frame Warranty (Structure and Corrosion)

Structural Warranty

Plumbing Warranty

Paint and Corrosion Warranty

Pump Warranty

Electrical System Warranty

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

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.

Electronic Manuals

Two (2) copies of all operator, service, and parts manuals MUST be supplied at the time of delivery in electronic format (CD-ROMs) -NO EXCEPTIONS! The electronic manuals shall include the following information:

Operating Instructions, descriptions, specifications, and ratings of the cab, chassis, body, installed components, and auxiliary systems.

Warnings and cautions pertaining to the operation and maintenance of the fire apparatus and fire fighting 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 CD-ROM shall incorporate a navigation page with electronic links to the operators 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 CD 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.

SPECIFICATIONS AND CONTRACT DOCUMENTS
FOR THE PURCHASE OF A NEW FIRE TRUCK
PRESQUE ISLE, MAINE

ADDENDUM

Please identify in the bid as an option the additional cost for having the medium block engine replaced with a big block engine, up grading the transmission to the 4000 series, as well as any other upgrade to the vehicle or chassis that would be required by making this engine change.

Engine minimums being requested are as follows:

- Horsepower 450
- Torque:1550 lb.-ft.
- Emissions Level: EPA 2013
- Fuel: Diesel
- Cylinders: Six (6)
- Displacement: 12 liter
- 430 alternator - A C.E. Niehoff, model C680-1, alternator shall be provided. It shall have a rated output current of 430 amp as measured by SAE method J56. Also, it shall have a custom three (3)-set point voltage regulator, manufactured by C. E. Niehoff. The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output

STATEMENT OF BIDDER'S QUALIFICATIONS
(If desired, the bidder may submit additional information.)

1. Name of Bidder: _____

   Bidder is: Corporation ( ) Partnership ( ) Individual ( )

2. Permanent Main Office Address: _____

   _____

   _____

3. Federal ID Number (Employer's ID No.): _____

4. When organized: _____

4. If a corporation, where incorporated? _____

5. How many years have you been engaged in business under your present firm or trade name? _____

6. A financial statement may be required of the successful bidder prior to award.

The Undersigned hereby authorize and requests any person, firm, or corporation to furnish any information requested by the Sponsor in verification of the recitals comprising this Statement of the Bidder's Qualifications.

Name of Bidder: _____

Attest

By; _____

Title: _____

Dated: _____

Attachment A

BID FORM

Deadline: 3:00 pm Wednesday, July 31, 2013

Submit to: City Clerk
12 Second Street
Presque Isle, ME 04769-2459

Company name: _____

Address: _____

Telephone/Fax: _____

The following bid is submitted in response to the Request for Bid for the purchase of new Fire Truck

The undersigned certifies that the information provided on the Bid Form is correct and that the equipment bid meets or exceeds the specifications.

Have all specifications been met? _____yes _____no If no, have all deviations been listed on a separate page attached to this Bid Form? _____yes _____no

Latest date of delivery is 9 (nine) months after bid awarded: _____

Base Price Bid: $_____

Base Price with Engine Option $_____

Signature: _____

Printed Name: _____

Date: _____

By affixing my signature I certify that I have the authority to submit and bid and further certify that this bid meets or exceeds all requirements of the bid.

Attachment B