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E-One Heavy-duty Stainless Steel Walk-in Rescue

SPECIFICATIONS

E-ONE HEAVY-DUTY WALK-IN RESCUE

Prepared for:

LEXINGTON FIRE DEPARTMENT
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KY

--- GENERAL ---

Apparatus Description

The apparatus herein specified is an E-One Heavy-Duty Walk-in Rescue Truck with a 304L Stainless Steel Body mounted on an E-One Cyclone Custom Chassis.

Payment

Base bid as quoted assumes a single payment for the full amount quoted at delivery and acceptance.

E-One offers a 100% prepayment discount based on truck configuration and final contract amount with discount applied up front.

For partial payments, E-One offers a discount of 3% annual simple interest, calculated from date of receipt at E-One until apparatus is complete and ready for inspection at the plant and applied as a deduction on final invoice. See Prepay Option Quote in Section 2 of the Bid Proposal Book.

Delivery

The bid price includes delivery of the completed fire apparatus to the purchaser's location, serviced and ready for use, except for purchaser's installation of purchaser provided tools and equipment. Delivery from the manufacturer to the dealer shall be over-the-road under the

vehicle's own power. Any mechanical problems discovered during the delivery from manufacturer to the dealer shall be corrected by the dealer prior to delivery to the purchaser.

Delivery Date

The completed fire apparatus shall be delivered between 360 and 390 calendar days after signing of contract.

Any delay in scheduling a mutually agreeable pre-construction conference date (if needed); any changes to the apparatus components or configuration after execution of a contract (including any changes resulting from a pre-construction conference); failure of the Buyer to act on change requests and approvals in a timely manner; or inability of the purchaser to schedule and conduct any applicable mid-point or final inspections in a timely manner in accordance with the apparatus build schedule; may result in an extension of the maximum delivery days.

Delivery Penalty

If the completed apparatus is not delivered within 390 calendar days after receipt of signed contract or purchase order at E-One, a penalty of $500 per day for each day over 390 days may be deducted from the invoice.

Any delivery delays resulting from the occurrence of conditions as listed in the DELIVERY DATE paragraph above, or occurrence of conditions as listed under PENALTY DISCLAIMER paragraph below, will invalidate the agreed delivery penalty date which will be renegotiated in good faith between the purchaser, dealer, and manufacturer.

Penalty Disclaimer

Neither the dealer nor the manufacturer will be held liable for any delivery delays due to acts of nature, fire, civil unrest, labor disputes, governmental regulations, supplier delivery delays, or other delays beyond their control.

Vehicle Familiarization

E-One will provide three (3) days of vehicle familiarization conducted at the Fire Department by an E-One factory representative.

Manufacturer Training

E-One will provide a training course for (2) Fire Department mechanical bureau personnel at the E-One factory. Course will be for (4) days. Includes transportation, lodging, meals, and course materials.

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, aerial (if applicable), 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 operator`s manual, service manual, parts manual, and warranty information, as well as instructions on how to use the manual. Each copy shall include a table of contents with links to the specified documents or illustrations.

The 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.

NOTE: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Manuals Printed Set

Two sets of printed operation, service, and parts manuals shall be provided. Each manual shall be presented with a table of contents. Manuals shall contain the following:

Operating instructions, descriptions, specifications, and ratings for the chassis, 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.

Note: Engine overhaul, engine parts, transmission overhaul, and transmission parts manuals are not included.

Information and Warning Labels

Information and warning labels as required under NFPA 1901 will be provided with the completed apparatus.

Exceptions

Exceptions and clarifications are provided on a separate schedule in Section 2 of the Bid Proposal Book.

Bid Bond

Vogelpohl Fire Equipment has furnished a bid surety in the amount of 5% with our bid.

Performance Bond

If this bid is accepted and awarded, Vogelpohl Fire Equipment will furnish a 100% performance bond within fifteen (15) working days after the order is received.

Insurance

An Insurance Certificate is provided in Section 1 of the Bid Proposal Book.

ISO Compliance

The manufacturer shall ensure that the construction of the apparatus 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.

Manufacturer Profile

E-ONE is a worldwide designer, manufacturer and marketer of fire rescue vehicles with more than 23,000 vehicles in operation around the world. Headquartered in Ocala, Florida, E-ONE is the industry leader in product innovations, new technologies and exceeding customer expectations.

E-ONE manufactures custom and commercial pumpers and tankers, aerial ladders and platforms, rescues of all sizes, quick attack units, industrial trucks, and aircraft rescue firefighting vehicles to meet the needs of fire departments, rescue/EMS squads, airports and Homeland Security agencies.

Just as important as the full product line is the fact that E-ONE engineers and builds the complete vehicle - chassis, cab, body, and aerial device. And because E-ONE is a single source manufacturer, the customer's after sale needs are satisfied with just one call to their dealer or E-ONE for parts, service, warranty, training and manuals.

Established in 1974, E-ONE has grown to become an industry leader, and today employs more than 800 people in five plants totaling more than 420,000 square feet. E-ONE pioneered the use of aluminum in fire rescue vehicles and continues to lead the industry today with innovative uses of this material. Innovation has been the company's driving force and continues to be the impetus behind its pursuit of new technologies. The result is state-of-the-art fire rescue vehicles recognized for superior firefighting and rescue capabilities.

Quality is the number one priority throughout E-ONE, and we consider it to be critical for continued business success. We define quality as conformance to requirements and charge all employees, from top management down, to dedicate their abilities and direct their energies towards complying with our quality policy.

Delivery of products and services that conform to customer and regulatory/legal requirements is a company-wide mandate. We will not knowingly accept a contract with quality requirements that cannot be met or surpassed, nor will we deliver any product that does not meet contractual requirements.

At E-ONE, quality applies to every department and everything we do. Each employee, by producing quality work, individually contributes to the fulfillment of our policy. Every employee is empowered with the authority and responsibility to ensure that their work process operates in conformance to requirements. All levels of management are responsible to continually stress our position on quality and are required to discontinue work and institute corrective action if conformance to requirements cannot be maintained. We will not waiver or alter this position.

E-ONE has one of the best warranty packages in the industry. E-ONE vehicles have a 10-year body structural warranty, a 10-year stainless steel plumbing warranty, a 10-year paint warranty, a 20-year aerial device structural warranty, a lifetime corrosion perforation warranty and a lifetime water tank warranty.

E-ONE dealers are supported by a Customer Support Group, which includes a computerized parts warehouse that can ship E-ONE parts worldwide within 72-hours. This skilled group provides a single-point contact for all service needs, warranty and parts requirements, and is ready to provide technical assistance. Since E-ONE builds the complete apparatus, most parts are in stock and ready to ship.

E-ONE is wholly American owned by American Industrial Partners (AIP), and operates as a division of the REV Group, Inc., a market leader in the manufacture of fire and emergency vehicles, recreational vehicles, and bus and industrial vehicles with an annual revenue of approximately $2 billion. Other REV brands include Horton, Wheeled Coach, AEV, Road Rescue, McCoy-Miller, Marque, and Leader ambulances, the Fleetwood line of recreational vehicles, and Collins buses.

NFPA Compliance

The E-ONE supplied components of the apparatus shall be compliant with NFPA 1901, 2016 edition.

3rd Party Generator Testing

The generator shall be tested at the manufacturer`s facility by an independent, third-party testing service. The conditions and testing of the generator shall be as outlined in current NFPA 1901.

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

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

Testing

The apparatus shall be tested by a certified, independent Third Party Testing Organization in accordance with the appropriate requirements of the latest edition of NFPA, Standard for Automotive Fire Apparatus.

Pre-Contract Meeting

A meeting shall be held at the Purchasers Fire Headquarters prior to the contract signing for a thorough review of the Purchaser's bid specifications and the Bidder's detailed response, to ensure that all aspects of Purchaser's requirements have been addressed by the Bidder.

Pre-build Meeting

As requested by the fire department a meeting will be held at the manufacturer's facility after the order has been submitted to review the specifications, details, and drawings, answer any outstanding questions or issues, and obtain final approvals of the purchaser.

This meeting will be in accordance with the engineering and build schedule of E-ONE so as not to delay the construction of the apparatus beyond the delivery commitment of the bid. The

meeting shall be held prior to the commencement of any work being done on the chassis or the apparatus. The responsible representative(s) of the purchaser shall be in attendance at the conference to authorize decisions to be made in the behalf of the purchaser.

It is understood that any delays in scheduling a pre-construction conference, changes to the apparatus made after execution of the contract including any changes resulting from a pre-construction conference, or delays in obtaining approval signatures of the purchaser, may delay construction of the apparatus and increase the proposed delivery time and penalty date.

Inspection Trips

Vogelpohl Fire Equipment has included in their bid three (3) inspection trips for five (5) members of the fire department and one (1) dealer representative to the E-One manufacturing facility in Hamburg NY, where the body fabrication and apparatus assembly will take place. The trips will be for the pre-build conference, mid-point inspection and final inspection of the completed apparatus prior to delivery to the Dealer's facility. All expenses for transportation, meals and lodging will be paid for by E-ONE and it's authorized dealer/agent. Travel would be via commercial airline.

Trips shall be scheduled in accordance with the production schedule. Any delays caused by changes ordered by the purchaser shall affect the delivery schedule.

Dealer Profile

The fire apparatus specified will be sold and serviced by Vogelpohl Fire Equipment, Inc., Erlanger KY. Vogelpohl Fire Equipment has been in business for 26 years. Vogelpohl Fire Equipment provides experienced personal dedicated to fire apparatus and emergency vehicle sales and service, and also sells and services a broad line of fire department equipment and supplies.

Vogelpohl representatives, in conjunction with the manufacturer, prepared this proposal, and will attend all contract and/or specification review meetings, pre-construction meetings, inspection trips, and will deliver the completed unit to the purchaser and provide the training as proposed, to ensure the success of your apparatus purchase.

Vogelpohl technicians will perform or coordinate all warranty and repair. Service and repair will be accomplished in your station whenever possible, or when necessary at our sales and service facility located near the Greater Cincinnati Airport.

--- APPARATUS SPECIFICATIONS ---

Corrosion Protection

See E-One corrosion protection policy in Section 6 of the Bid Proposal Book

Seating Capacity

Seating capacity of the completed apparatus will be (2) in the cab and (6) in the crew section of the rescue body.

Overall Height Restriction

Overall height of the completed apparatus will be 123.5".

Overall Length Restriction

Overall length of the completed apparatus will be 38' 8".

Wheelbase

Wheelbase of the completed apparatus will be 227".

GVW Rating

GVW rating of the completed apparatus will be 70,500#.

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.

Final Drawing

A revised drawing showing the apparatus as delivered will be provided at delivery.

Electrical Drawings

Three (3) sets of "AS BUILT" electrical drawings shall be provided.

Frame Assembly

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

Dimensions: 10-1/4" x 3-1/2" x 3/8"

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

Section Modulus: 16.61 cu. in.

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

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

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

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

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

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

The 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.

Frame Liner

A 9-3/8" x 3-1/8" x 3/8" channel frame liner shall be bolted to each frame rail for added strength and rigidity. Frame liners shall be made of 110,000 psi minimum yield, high strength, low alloy steel. The frame rails shall be zinc plated (galvanized) and powder coated for improved corrosion resistance. The galvanization shall be a minimum of 4 mils thick and done in accordance with ASTM A123. The powder coat shall be 6.5 mils thick (+/- 1.5 mils) and pass ASTM D3359 testing.

Each frame rail with liner shall have the following minimum characteristics:

Section Modulus: 28.74 cu. in.

RBM: 3,161,400 in. lbs.

The frame liners shall be inserted inside the open portion of the frame rails and shall run continuously from the rear of the frame to the centerline of the front axle to provide maximum frame strength at all critical load points.

Galvanized Frame Components

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

Front Axle

The vehicle shall utilize a Dana I220W drop beam front axle with a rated capacity of 22,800 lbs. It shall have 71" 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 42 degrees including front suction applications.

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

The front springs shall be parabolic tapered, minimum 4" wide x 54" long (flat), minimum three (3) leaf, progressive rate. The springs shall have Berlin style eyes and rubber bushings on each end with an additional standard wrap at the front eye. The capacity shall be 23,000 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.

Shock Absorbers Front

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

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

Front Axle Oil Seals

The front axle shall have Stemco oil seals with sight glass to check the lubricant level of the axle spindles.

Front Wheels

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

Front Tires

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

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

Max front rating 22,800 @ 65 mph.

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

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

Rear Axle

The vehicle shall utilize an ArvinMeritor RT-46-160, 48,000 lb. capacity rear tandem axle with single reduction hypoid gearing.

The axle shall be equipped with oil-lubricated wheel bearings with ArvinMeritor oil seals.

Rear Suspension

The vehicle shall be equipped with a Hendrickson FIREMAAX EX model FMX-482 air ride suspension for tandem drive axles. The suspension shall include dual height control valves that allow uneven, side heavy loads to be balanced, Quik-Align for easy axle alignment and four (4) hydraulic shock absorbers. The suspension shall be rated for the maximum axle capacity.

Driver Controlled Differential

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

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

Rear Suspension Kneeling System

The rear air suspension on the chassis shall be equipped with a system to allow the rear of the apparatus to be lowered by deflating the air bags.

The system shall include a solenoid valve for each air bag as well as a solenoid on the air supply line to prevent re-inflation with the power switched off.

The system shall be interlocked through the park brake control and be activated from the driver`s switch panel.

Rear Wheels

The vehicle shall have eight (8) polished (on outer wheel surfaces only) Alcoa aluminum disc wheels. They shall be forged from one-piece corrosion-resistant aluminum alloy and sized appropriately for the tires.

Rear Tires

The rear tires shall be Michelin 11R22.5 tubeless type radial tires with XDN2 mud and snow tread.

The tires with wheels shall have the following weight capacity:

48,000 lbs. (tandem duals) @ 75 MPH

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

Vehicle Speed

Electronic speed limiting set at 60 MPH as required by NFPA 1901.

Front Wheel Trim Package

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

Rear Wheel Trim Package, Tandem 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 rebuffing policy. There shall be four (4) high hats and forty (40) lug nut covers.

Valve Stem Extensions

Each inside rear wheel on the rear axles shall have valve stem extensions.

Tire Balance

Equal brand wheel balance beads will be provided in all wheels. Bead installation will be provided by Dealer prior to delivery.

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.

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

Mud Flap And Lettering

A full width mudflap with anti-splash backing shall be provided on the of rear body. The mudflap shall be approximately 16" high X 90" long.

16 gauge polished stainless steel cut-out lettering shall be provided and installed on the rear full width mud flap (splash guard). The 6" letters RES & CUE are to be centered with the oversized 8" number 1 mounted in the center. Letters shall be secured to the flap with stainless steel fasteners.

Wheel Chocks

Two (2), Ziamatic #SAC-44 folding chocks with underbody mounting brackets, installed under the compartment forward of the driver's side rear axle. Chocks will be installed by Dealer prior to delivery.

Anti-Lock Brake System

A Wabco ABS system shall be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system shall be fitted to axles and all electrical connections shall be environmentally-sealed, water-, weather-, and vibration-resistant.

The system shall constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which shall sense approaching wheel lock and instantly modulate 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. The system circuits shall be configured in a diagonal pattern. Should a malfunction occur, that circuit shall revert to normal braking action. A warning light at the driver`s instrument panel shall indicate malfunction to the operator.

The system shall consist of a sensor clip, sensor, electronic control unit, and solenoid control valve. The sensor clip shall hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil shall produce an alternating current with a frequency proportional to wheel speed. The unit shall be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit shall monitor the speed of each wheel sensor and a microcomputer shall evaluate in milliseconds wheel slip. A deviation shall be corrected by cyclical brake application and release. If a malfunction occurs, the circuit shall signal the operator and the malfunctioning half of the system shall shut down. The system is installed in a diagonal pattern for side to side control. The system shall ensure that each wheel is braked in optimum efficiency up to five (5) times a second.

The system shall also interface with the application of the auxiliary engine, exhaust, or driveline brakes to prevent wheel lock.

To improve service trouble-shooting, provisions in the system for an optional diagnostic tester shall be provided. The system shall test itself each time the vehicle is started and a dash-mounted light shall go out once the vehicle is moving above 4 MPH.

Electronic Stability Control/Automatic Traction Control

The apparatus shall be equipped with a G4 6S6M 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.

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.

Front Brakes

The front axle shall be equipped with Dana ADB22X 17 inch disc brakes.

A 3 year/unlimited miles parts and 3 year labor brake warranty shall be provided as standard by Dana. The warranty shall include bushings and seals.

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 48,000 lb. axle ratings and P-Type shoes with over 48,000 lb. axle ratings.

The rear axle brakes shall be furnished with automatic slack adjusters. ArvinMeritor brand shall be supplied on RT-40-145, RT-46-160 and RT-50-160 axles, and Haldex brand shall be supplied on RT-58-185 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.

Air Compressor

Air compressor will be 18.7 cubic foot per minute supplied with engine package.

Brake System

The vehicle shall be equipped with air operated brake system. The system shall meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 Standard.

Each wheel shall have a separate integral brake chamber. A dual treadle valve shall split the braking power between the front and rear systems.

The air system shall be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. A 1/4" brass quick-release air inlet with male connection shall be located inside the driver door on the left side of the cab. The inlet shall allow a shoreline air hose to be connected to the vehicle, discharging into the wet tank.

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

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

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.

The following tank sizes shall be installed:

Tank Sizes in Cubic Inches

Suspension	Wet	Front Rear	Rear Extension	Total
34-54K	1738	1738 2988	0	6464

An automatic drain valve shall be installed on the wet tank. All other tanks shall be equipped with manual drain valves.

Park Brake Release

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

Air Dryer

The chassis air system shall be equipped with a Meritor/Wabco System Saver 1200 air dryer located under the cab. The air dryer shall utilize a single spin-on desiccant cartridge.

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 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 Red 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 Outlet

A 1/4" female quick-disconnect air hose outlet shall be mounted and will be connected to the air reservoir tank. A 1/4" inline check valve will be installed in the line. It shall be located driver's step well.

Parking Brake Front Axle

A front axle parking brake system shall be provided. Utilizing a separate dash mounted activation switch, the system shall apply the front axle service brake. The system shall be interlocked to the main axle rear axle parking brake system control, so as to be operational only when the main system brakes are applied. A dash mounted warning tag shall be provided, stating; "Low air system pressure reduces or eliminates braking force."

Air Reservoir - Isolated

The air system shall have an additional 1738 cu. in. isolated reservoir. The supply side of the reservoir shall be equipped with a check valve and an 85 psi pressure protection valve.

Specified options shall be plumbed to the isolated air tank.

The auxiliary air tank shall be plumbed to the following optional accessories, if equipped: Chassis air horns, brake system air outlet, air reel, light tower, air primer and or customer/dealer supplied pneumatic add-on(s).

Air Reservoir - Additional

The brake air system shall have an additional 1738 cu. in. reservoir providing a total system capacity of 8,202 cu.in, not including the auxiliary tank.

Air Tank Drain Pull Cords

Manual drain valves with pull cords routed to side of cab/body shall be provided for all air brake system tanks. Labels shall be provided at the side of the cab/body that read "Air Tank Drain".

Brake System Fittings

All air brake system hoses on the chassis shall be connected by use of compression fittings. Includes air lines in the chassis cab (if equipped).

Engine

The vehicle shall utilize a Cummins ISX15 engine as described below:

- 550 Horsepower
- Six (6) cylinder
- Variable Geometry Turbocharged
- Charge Air Cooled (CAC) 4-cycle diesel
- Cummins XPI high pressure fuel injection system
- Fuel cooler (when equipped with a fire pump)
- 912 cu.in. displacement
- 550 gross BHP at 1800 RPM and a peak torque of 1850 lb.ft. at 1200 RPM with a governed RPM of 2000
- Bore and stroke shall be 5.39 x 6.65
- Compression ratio shall be 17.2:1
- Engine lubrication system shall have a minimum capacity, to include filter, of 56 quarts
- Cooled Exhaust Gas Recirculation (EGR)
- Delco-Remy 39 MD-HD 12 volt starter
- Coolant filter with shut-off and corrosion inhibiting additive
- 18.7 cubic foot per minute air compressor
- After treatment system consisting of a oxidation catalyst and diesel particulate filter and selective catalyst reduction system
- Ember separator compliant with current NFPA 1901 standard
- The engine shall be compliant with 2016 EPA Emission standards

The engine installation shall not require the operation of any type of "power-down" feature to meet engine installation tests.

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.

Telma Retarder

A Telma Focal retarder shall be mounted directly to the driveline to aid in slowing the vehicle by providing up to 85% of the braking requirements.

The retarder is a self air cooled, frictionless, electromagnetic retarder that develops a magnetic field that applies a resistant torque to a set of rotors that are connected to the drive shaft. The retarder begins to slow the vehicle down before the foundation brakes are activated. As a result, the foundation brakes remain cool and capable of operating at their maximum efficiency.

The Telma has four (4) stages of retardation. Stage 1 & 2 shall be activated when throttle is released; stage 3 & 4 shall be activated when brake pedal is applied. Four (4) lights mounted on the instrument panel indicate to the driver the stage at which the retarder is applied. An electronic speed switch is used to deactivate the retarder when the vehicle comes to a stop.

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.

Retarder Programming

The Jacobs engine brake and transmission hydraulic retarders shall be able to operate simultaneously.

Note: This feature is contingent on receiving formal approval from driveline component suppliers based on final configuration.

Engine Fan Clutch

The engine shall be equipped with a thermostatically controlled engine cooling fan. The fan shall be belt driven and utilize a clutch to engage when the engine reaches a specified temperature and / or the water pump is engaged (if equipped).

When disengaged, the fan clutch shall allow for improved performance from optional floor heaters, reduced cab interior noise, increased acceleration and improved fuel economy.

The fan shall be equipped with a fail-safe engagement so that if the clutch fails the fan shall engage to prevent engine overheating.

Engine/Transmission Dipsticks

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.

Engine Air Intake

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 an 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.

Exhaust

The engine exhaust piping shall be a minimum of 5" diameter welded aluminized steel tubing up to and including the particulate filter and the catalyst canisters. 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.

Exhaust Wrap

The exhaust shall be wrapped with a silica-based woven textile material designed for high temperature usage. The material shall be installed in a spiraled configuration from the engine turbo to the exhaust flex pipe. A stainless steel wire mesh shall then be installed over the material for additional protection. The stainless steel wire mesh shall be collared at both ends with a stainless steel band which shall in turn be welded to the exhaust pipe for additional security.

Exhaust Heat Shield

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

Exhaust End Modification

The end of the exhaust tail pipe shall be provided with a Plymovent Magnetic Grabber exhaust end for an in-house exhaust extraction system. The tail pipe will be at 90 degrees and straight out below the side of body. The bolt-on end shall be installed on the tail pipe to properly position the Plymovent nozzle.

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.

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.

Radiator Brush Guard

A brush guard shall be provided below the cab to protect the lower radiator from damage. The guard shall be constructed of 1/4" (.25") steel plate and painted black.

Fuel System

One (1) 75 gallon fuel tank shall be provided. The tank shall be of stainless 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.

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 75 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 Service Loop

A 4` service loop shall be provided a secured above the fuel tank(s).

Fuel Line Hose

Wire braided fuel hose meeting SAE J-1402 shall be provided for the chassis fuel system. The hose shall have a working temperature rating of -55 degree F to 300 degree F.

The ends of the hose shall have connections that shall allow the hose to be reattached if removed.

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.

Fuel Re-Prime

An auxiliary 12 volt fuel pump shall be included in the fuel system. The electric pump shall permit re-priming of the fuel lines and engine. The pump may be manually operated with a switch located accessible to driver. The electric pump shall also automatically operate in conjunction with the mechanical fuel pump as long as engine oil pressure is present. The system shall be plumbed to allow full flow to by-pass the pump.

Fuel Shut-Off

A shut-off valve shall be supplied to prevent drain back of fuel into the main supply line during filter changes. The valve(s) shall be located: one (1) at fuel tank.

Fuel/Water Separator

A Racor fuel/water separator shall be installed in place of the Cummins fuel/water separator with drain. The unit shall utilize a three-step separate process: centrifuge for primary contaminant separation, conical baffles for water coalescing, and a replaceable filter for final particulate removal. The separator shall have a bottom drain for removing contaminants, shall be heated and shall have a rated maximum flow of 3.16 GPM. A sensor with indicator light and audible alarm shall be provided for the Racor fuel/water separator. The indicator light shall be mounted in the cab visible to the driver with the unit located inside the frame rails. The unit will alert the driver of high water content in the separator bowl.

Transmission

The vehicle shall utilize an Allison EVS4500P, electronic, 5-speed automatic transmission.

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 1770 lb. ft. (1850 with torque limiting) and a gross input power rating of 600 HP.

The gear ratios shall be as follows:

1 - 4.70

2 - 2.21

3 - 1.53

4 - 1.00

5 - .76

R - 5.55

The transmission shall be equipped with a fluid level sensor (FLS) system, providing direct feedback of transmission oil level information to the operator.

The transmission shall have a lubricant capacity of 51 quarts.

A transmission oil cooler shall be provided in the lower tank of the radiator.

The transmission shall contain two engine driven PTO openings located at the 1 and 8 o`clock positions.

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

Transmission Fluid

The transmission fluid shall be TransSynd synthetic.

Automatic Shift to Neutral

The transmission shall be programmed to comply with NFPA 1901 and automatically shift to neutral upon application of the parking brake.

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 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.

Drivelines

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

Steering

The vehicle shall be equipped with a Sheppard integral model M-110 power steering gear, used in conjunction with a power assist cylinder. The steering assembly shall be rated to statically steer up to a maximum front axle load of 23,000 lbs. Relief stops shall be provided to reduce system pressure upon full wheel cut. The system shall operate mechanically should the hydraulic system fail.

Power Steering Cooler

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

On-Spot Tire Chains

The chassis shall be provided with On-Spot automatic tire chain system.

A switch shall be provided in the cab for activation of the tire chains.

Tire Pressure Indicators

The apparatus shall be provided with Real Wheels AirGuard LED tire pressure indicating valve stem caps. When the tire is under inflated by 5-10 PSI, the LED indicator on the cap shall flash red. The indicator housings shall be shock resistant and constructed from polished stainless steel. The indicators shall be calibrated by attaching to valve stem of a tire at proper air pressure

per load ratings and easily re-calibrated by simply removing and re-installing them during service.

Steering Wheel

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

The steering wheel shall be supplied with two (2) switch pods. Each switch pod shall include five (5) switches. The pods shall include switching for wipers, master warning, air horns and auxiliary engine brake (on/off). In addition there shall be three (3) auxiliary switches that can be programmed to meet department specified functions.

Switch Pod Removal

Switch pods shall be removed from the 4Front steering wheel and standard switches installed for relevant functions.

Winch, Portable

A Warn Zeon 10S-Multimount, 10,000lb 12VDC assembly designed for use with Class III receivers and controlled by a hand held remote with a 12 foot lead will be provided. Includes 100' of 3/8" synthetic rope with clevis hook. Optional 12 Meter (39') Control Cable for Warn Portable Winch, #13447 will also be provided.

Portable winch will be Dealer supplied.

Winch

A Warn Series 15, 15000 lb. electric reversible winch with 100` of 7/16" synthetic rope and a replaceable clevis hook shall be mounted to the chassis frame extension centered at the front bumper area. The winch shall be controlled with a 33` remote control switch. An access door with a quarter turn latch and spring hold open shall be provided in the front bumper extension gravel shield to allow for maintenance of the winch components.

A fairlead hawse for synthetic rope shall be supplied on the front of the bumper.

Winch Control Receptacle Location

The winch control receptacle shall be located in the gravel shield officer's side.

Bumper

A heavy duty 10" high steel channel type front bumper shall be provided. The front corners of the bumper shall be angled at 45 degrees to reduce swing clearance. The bumper shall be painted job color.

Bumper Extension

The bumper extension shall be approximately 24" from the face of the cab as required.

Bumper Gravel Shield

The extended front bumper gravel shield shall be made of 3/16" (.375") aluminum treadplate material.

Bumper Tray – Driver Side

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. The tray shall be mounted 1" above bumper gravel shield.

Lid, Bumper Hose Tray

The driver side bumper tray shall have a diamond plate lid with four (4) sides. The lid shall be hinged and shall be secured in the closed position by a latch and held open with a pneumatic shock

Flooring Material

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

Bumper Tray – Officer Side

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. The tray shall be mounted 1" above bumper gravel shield.

Lid, Bumper Hose Tray

The officer side bumper tray shall have a diamond plate lid with four (4) sides. The lid shall be hinged and shall be secured in the closed position by a latch and held open with a pneumatic shock.

Flooring Material

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

Front Tow Eyes – Below Bumper

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.

Tow Blocks

One (1) pair of towing blocks shall be provided under the front frame extensions. The tow blocks shall allow for proper alignment of towing attachments.

Front Tow Eyes – Above Bumper

Two (2) heavy duty stainless steel front tow eyes shall be securely bolted to the front chassis frame rail extensions to allow towing (not lifting) of the apparatus without damage. They shall be installed in the upward position.

Bevel Tow Eyes

The interior hole of each front and rear tow eye shall be beveled to decrease risk of damaging materials for anchoring

Lighted Bumper Guides

One (1) pair of Bores Manufacturing model 848211 lighted bumper guides shall be provided. The guides shall be installed one (1) each side of front bumper extension.

Cyclone II Short Cab - 2 Dr

The vehicle shall have an all-welded aluminum, fully enclosed tilt cab designed exclusively for the fire service to ensure long life. It shall incorporate a welded substructure of high-strength aluminum alloy extrusions that surrounds and protects the perimeter of the occupant compartment for increased safety.

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

The inner structure shall be designed to create an interlocking internal "roll-cage" effect by welding two (2) 3" x 3" x 0.188" wall-thickness 6063-T5 aluminum upright extrusions between the 3" x 3" x 0.375" wall-thickness 6061-T6 roof crossbeam and the 2.25" x 3" x 0.375" 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 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.

The exterior of the cab shall be 94" wide x 112" long. The cab roof shall be approximately 101" above the ground. The back-of-cab to front axle length shall be a minimum of 40".

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

Cab Crashworthiness Requirement

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

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

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

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

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

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

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

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

Frontal Impact per SAE J2420.

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

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

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

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

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

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

Cab Roof

The cab shall have a flat roof.

Cab Transverse Compartment

A transverse compartment shall be provided to the rear of the front cab doors above the wheel wells. The compartment shall be constructed of 1/8" (.25") 3003 H14 aluminum alloy plate and finished with the same color as the cab interior. The compartment shall be approximately 48.5" wide x 47.25" high x 94" deep (transverse) and contain approximately 124.66 cubic feet of storage space.

The cab transverse compartment shall have a finished interior including 1/8" panels with insulation on ceiling and walls, painted to match the cab interior.

Double Compartment Door [Qty: 2]

Double compartment doors shall be constructed using a box pan configuration. The outer door pans shall beveled and shall be constructed from 3/16" (0.188") aluminum plate. The inner door pans shall be constructed from 1/8" (0.125") smooth aluminum plate and shall have nutsert fittings to attach hold-open hardware. The inner pans shall have a 95-degree bend to form an integral drip rail.

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

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

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

The secondary door shall have two (2) dual stage rotary latches, each with a 750 lb. rating to hold the door in the closed position. The latches shall be mounted at the top and bottom of the door. A stainless steel paddle style handle shall be mounted on the interior pan of the door to actuate the rotary latches. The paddle handle shall be connected to the rotary latches by 5/32" (.156") diameter rods. Cable actuation shall not be deemed un-acceptable due to the potential for cable stretch and slippage. The striker pins shall be 3/8" (.38") diameter with slotted mounting holes for adjustment.

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

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

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

The door(s) shall be installed in the following location(s): driver side cab wheel well external cabinet door, officer side cab wheel well external cabinet door.

Keyed Latch

A locking D-ring with two (2) #1250 keys shall be installed on a box pan compartment door.

A locking D-ring shall be located on the following door(s): driver side cab wheel well external cabinet door, officer side cab wheel well external cabinet door.

Compartment Light – Transverse Compartment

Four (4) Amdor Luma-Bar blue LED compartment light strips shall be mounted in the medical cabinet, (2) each side.

The light shall be wired to the compartment light rocker switch in the cab.

Radio Cabinet

A radio compartment shall be provided in the rear cab transverse compartment mounted on aluminum partition to rear of driver seat. Cabinet to of .125 aluminum Zolatone painted to match cab, approx. 8" W x 22" D x 28" H. Panel facing the transverse compartment door to be louvered and held in place with 1/4 turn latches. Cover facing rearward to be held in place with machine screws for full access and mounting radios to forward wall. Enclosure to have a 5" 12v exhaust fan through rear panel into rear cab area.

12 Volt DC Power Distribution Module

There shall be a 12 place 12 volt DC power distribution module installed in the radio cabinet.

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.

Cab Transverse Compartment Insert

Transverse compartment removable insert to accommodate (1) stokes basket, (3) backboards, (2) Little Giant ladders and (1) tripod light. Includes straps with buckles to hold contents. Equipment to be accessible from driver or officer side. The compartment is constructed with .125 aluminum plate. Final design to be discussed at pre-construction.

Cab Folding Steps [Qty: 2]

Innovative Controls dual lighted LED folding step(s) shall be located below the transverse compartment (1) each side of cab. The step(s) shall meet current NFPA requirements.

Innovative Controls dual lighted LED folding step with LED lights integral to the step on the top to provide NFPA requirements of 2 fc (20 lx) on the stepping surface. Folding step shall also have a LED light integral to the bottom of the step to meet NFPA requirements of a stepping surface up to 18" below the step. The folding step shall sustain a minimum static load of 500 lb with a 3 to 1 safety factor. The folding step shall also meet NFPA slip resistance

qualifications. Corrosion resistance shall be demonstrated by a 1000 hr salt spray test with no visible signs of deterioration of the step body or hardware.

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

Cab Insulation

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 front cab headliner.

Engine Enclosure

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 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).

Engine Cover

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

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

Cup Holder / Storage Tray

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

from 3.5" diameter pipe approximately 2.5" tall and be located one each side at the rear corners of the tray. The assembly shall be painted to match the cab interior color.

Fender Liners

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.

Receptacle Mounting Plate

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

Windshield

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 (50th percentile) male sitting in the driver's seat shall be no more than 11 feet 7 inches from the front of the cab to ensure good visibility in congested areas.

Sun Visors

Lexan 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.

Sun Visor Strap

Straps shall be provided on the cab sun visors to hold the visors in the up position. The straps shall be attached with snaps.

Windshield Wipers

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.

Rear Cab Wall Construction

The rear cab wall shall be constructed using formed 3/16" (.188") aluminum smooth plate interlocking in aluminum extrusions. A rear cab wall overlay constructed of 3/32" (.090") diamond plate shall be provided over the smooth plate.

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 Door Stainless Steel Trim

Each cab door shall have a stainless steel trim on the trailing edge of the door opening. Rear doors shall have full vertical height trim; front cab doors shall be 50" tall on rear vertical edge above floor level.

Cab Cabinet Door Trim

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.

Cab Mirrors

A pair of Retrac Aerodynamic model 612010 mirror set with 613423 mirror heads shall be provided on the cab. The west coast style mirrors shall have chrome housings with flat and convex sections. Both the upper and lower mirror sections shall be remote controlled and heated. The mirror heads shall include amber LED marker lights.

10in Convex Mirror

Retrac stainless steel 10" 3-Arm Convex mirror. (3) piece adjustable telescoping arm assembly (model 604671) and a 10" stainless steel center mounted convex head (model 604953). Mirror shall be mounted horizontally above the officer`s position to permit rapid viewing of the rear cab area.

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Cab Doors – Barrier Style

Two (2) 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 63" high. The front doors shall open approximately 75 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. 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.

Exterior Cab Door Latches

All exterior cab door latches shall be paddle style.

Cab Door Locks

Each cab door shall have a manual 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.

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

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.

Cab Door Map Pockets

A mechanically fastened stainless steel map pocket shall be mounted on the front cab doors, centered on the kick plates. The map pockets shall be constructed of 14 gauge (.070) stainless steel.

The dimensions of the map pocket shall be approximately 10" high x 14" wide x 3" deep.

Cab Front Door Windows

Driver and officer door windows shall have the support pillar located toward the rear of the window to improve visibility of mirrors. There shall be no vent within the window itself.

Driver and Officer door windows. Includes electric roll-down actuation. Each door to have individual control at door position and the driver door is to have master control for all power window locations.

Auxiliary Cab Steps

An auxiliary step below the cab door shall be provided. The step shall be constructed of .188" aluminum treadbrite. The step surface shall be provided with an aggressive skid-resistant surface and have an open back. The step shall be in accordance with current NFPA requirements and shall include a multi-directional aggressive gripping surface incorporated into the diamond plate. The surface shall extend vertically from the diamond plate sheet a minimum of 1/8" (0.125"). Gripping surfaces shall be circular in design, a minimum of 1" diameter and on centers not to exceed 4".

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

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

Cab Door Area Lighting

There shall be two (2) clear TecNiq model T440 4" circular LED lights provided to illuminate the cab step well area. Each light shall be mounted in a resilient shock absorbent grommet and be located in the cab step well area. Each light shall be activated by the cab door ajar circuit.

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.

Rubber Fenderette

A rubber fenderette shall be provided in place of the standard fenderette. The rubber fenderette shall extend 2.75" out from the mounting point.

Cab Roof Surface

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

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.

A minimum of 57.25" of floor-to-ceiling height shall be provided in the front seating area of the cab.

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.

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

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.

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.

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 first step shall be no more than 24.0" above the ground with standard tires in the

unloaded condition per NFPA 1901 standards. 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.

Cab Dash - Severe Duty

The center and officer side dash shall be constructed from .125" smooth aluminum plate painted to match the cab interior. The officer side dash panel shall be lowered to provide increased visibility. 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 smooth plate painted to match cab interior. The panels shall be removable to allow for servicing components that may be located behind the panels.

Cab Interior Color

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

Cab Interior Paint

The interior of the cab shall be painted Zolatone gray #20-64. Prior to painting, all exposed interior metal surfaces shall be pretreated using a corrosion prevention system.

Cab Floor Covering

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.

Air Conditioning

An overhead air-conditioner / heater system with a single roof mounted condenser shall be supplied. The airflow system shall consist of two (2) levels, defrost and cab, and shall have fresh air and defogging capabilities.

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.

A serviceable filter shall be installed on the A/C evaporator. The filter shall consist of a steel perimeter frame with a foam filter.

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 roof mounted and have a minimum capacity of 65,000 BTU`s and have dual fans with a built in 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 foot well.

Climate control will be achieved via switch installed on a front instrument panel.

HVAC Control Location

Heating and air conditioning controls shall be located in the center dash area upper tier offset to driver side.

Windshield Fans

Two (2) adjustable windshield defogger fans with individual switches shall be mounted in the cab centered below the overhead console. The fans shall be 12 volt and shall each be rated at 250 cfm. Location: rear facing mounted up high on vertical 3 x 3 posts.

Grab Handle

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.

Engine Compartment Light

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

Map Box

An aluminum map/storage box shall be installed in the cab. The map box shall be constructed of 1/8" (.125) smooth aluminum. Hinged drop-down doors with push-button latches shall be installed on the front of the box for access to two (2) storage areas. Each storage area shall have three (3) fixed shelves for storage of ring binders, map books, etc. Each latch shall have a 25 lb. rating.

The map box shall be mounted on the vertical uprights in the center of the cab between the driver and officer seating positions (between the vertical 3X3 extrusions). The box shall be offset to the rear of the cab to provide maximum top of engine cover space and clearance for the engine inspection door. The map box shall be secured and tested to meet current NFPA requirements.

Approximate dimensions:

Divided storage area - 34" W x 12.50" H x 12" D.

Map Box Finish

The map box(es) shall have Zolatone gray 20-64 finish.

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 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 Air Bags [Qty: 2]

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 air bags shall be optimally placed to deploy across the window and side of the vehicle interior to protect the occupants heads during impact. 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.

Cab Rollover Protection - Seat Belt Pretensioners [Qty: 2]

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 Seats

All cab seats shall be Bostrom brand.

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 eight (8) personnel shall be provided.

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 dual retractor 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 550 ABTS seat with high back SCBA storage shall be provided in the officer's position.

The ABTS (All-Belts-To-Seat) design shall include a bright red 3-point integrated dual retractor 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

Bostrom SecureAll Locking System

An H.O. Bostrom SecureAll™ SCBA Locking System will be provided for the officer's SCBA seat.

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 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.

Seat Cavity Cover

A cavity cover shall be provided for a SCBA seat. The cover shall match the seat in brand, color and material.

Underseat Storage

Storage areas, with hinged access doors, shall be provided below the driver and officer seats. The driver side compartment shall be approximately 20" x 12" x 3.5" high and the officer side compartment shall be approximately 20.25" x 22.75" x 11" high (20" x 12" x 3.5" high w/ air ride).

Department Patch on Seat [Qty: 2]

One (1) customer supplied department patch shall be sewn on to Bostrom seat back headrest.

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 display that will continuously indicate the validity of each seat position.

The system shall include a display panel with LED back-lit ISO indicators for each seating position, seat sensor and safety belt latch switch for each cab seating position, audible alarm and braided wiring harness.

The display panel shall be located officer's overhead.

Additional Wiring Instructions

Additional wiring instructions: Wire the rear walk-in crew area seats to the cab mounted occupant display and data recorder

Cab Dome Lights

A Whelen model 60CREGCS LED dome light shall be installed. The light shall have twelve (12) high intensity Super LEDs; six (6) white and six (6) red. Two (2) switches shall be provided on the face of the light to activate the red or white lights. The white light shall activate 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

Map Light [Qty: 2]

A Sunnex SL9-200B10L LED map light shall be supplied.

The map light shall have a 2.36" x 2.36" base with a matte black finish.

Location: driver and officer overhead console inboard.

Hand Held Spotlight

A Specialty #2150 hand held spotlight with mounting bracket shall be provided. It shall be located officer`s side with a 12 volt receptacle.

Cab Instruments and Controls

Cab controls shall be located on the cab instrument panel in the dashboard on the driver`s side where they are clearly visible and easily reachable. 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.

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.

Horn Button Switch

A two (2) position rocker switch shall be installed in the cab accessible to the driver and properly labeled to enable operator to activate the OEM traffic horn or air horn from the steering wheel horn button.

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.

Switches shall be located: officer's side switch panel for driver side 12V cab/body scene lights, officer's side switch panel for officer side 12V cab/body scene lights.

Alarm Over-ride

A momentary switch shall be provided to override any audible alarm in the cab and reset once the transmission is placed in park.

DPF Regeneration Override

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

Multiplex Display

The V-MUX multiplex electrical system shall include a text display.

The display shall have the following features:

- Rugged vacuum fluorescent technology
- Two twenty character lines
- Programmed to show door ajar status and diagnostic information

The display shall be located center of dash, center of center dash upper tier (recessed).

Air Restriction Gauge

An air restriction indicator gauge with a 2" black bezel will be mounted in the dash panel. It shall provide a color coded warning indication of a clogged air filter.

The air restriction warning shall include an audible alarm.

Hazard (Door Ajar) Light

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

The light shall be located center overhead.

Door Ajar Alarm

An audible alarm shall be mounted in the cab interior and wired into the door ajar or indicator.

Wiper Control

Windshield wipers will be controlled by switch on dash.

Windshield wipers shall be interlocked through park brake.

A 12 volt momentary rocker switch shall be installed for driver for windshield wiper override.

Officer Speedometer

An electronic speedometer shall be mounted on the passenger`s side of the cab, mounted on the switch panel.

Officer Side Dash

The officer side dash panel shall be lowered to provide increased visibility with use of MDT.

Access Panel

A recessed access panel shall be provided on the floor of the MDT notch on the officer side of the cab dash. The panel shall be approximately 8" x 8".

Vehicle Data Recorder

A vehicle data recorder system shall be provided to comply with the 2009 and 2016 editions of NFPA 1901. 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

Antenna Base [Qty: 3]

There shall be a Tessco P/N 90942 universal antenna base mounted on the cab roof with a weatherproof connector. The antenna base shall be NMO Motorola Style (equivalent to a MATM style). Antenna mounting locations and coax termination points to be determined at prebuild meeting.

Antenna Access [Qty: 3]

An access panel shall be provided on the interior of the cab for the cab roof mounted antenna.

Location: driver side forward, driver side rearward, officer side forward and officer side rearward.

Flexible Conduit [Qty: 2]

A one inch (1") flexible conduit shall be provided from the center cab dash to the radio cabinet.

Radio/Intercom Interface Cable

A Firecom radio interface cable will be supplied and installed from the Firecom intercom control to the radio cabinet. Cable to have plug-in intercom fitting on one end and unterminated cable at radio cabinet. Dealer provided and installed.

12 Volt Power Lead [Qty: 7]

One (1) 12 volt 12 gauge constant hot lead shall be provided. The lead shall be 24" long and include a ground wire and circuit breaker.

The lead locations shall be determined at prebuild meeting.

12 Volt DC Power Distribution Module [Qty: 2]

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, in rescue body with location determined at prebuild meeting.

Dual USB/12V Receptacle [Qty: 8]

One (1) WayTek model #11014 dual USB / 12V power outlet shall be provided. Location of receptacles shall be determined at prebuild meeting.

Electrical System

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.

Cab Intercom - Wireless

A FireCom wireless intercom package shall be installed within the cab interior. One (1) model 5100D 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 5100D single radio monitor shall be provided in the cab (two (2) year limited warranty).
- Two (2) base transmit unit with radio/intercom only transmission, FireCom part number WB505R shall be included.
- Up to ten (10) NFPA compliant headset hooks, FireCom part number 108-0678-00 shall be provided at each seated position.

(2) UHW507 and (4) USH503 headsets will be provided by Dealer.

Radio Speakers

Two (2) radio speakers with volume control will be provided in the rescue body crew interior. Speaker wiring will be run to the radio cabinet in the cab.

Back-Up Camera System

A Safety Vision back-up camera system consisting of Safety Vision model SV-625B-Kit camera with Safety Vision SV-LCD70A split screen color monitor shall be installed. The monitor shall be installed on the front console area visible at night and in bright sunlight to the driver. The monitor shall be capable of displaying images from up to four (4) individual cameras. The camera shall be mounted up high at the rear of the vehicle to provide a wide angle rear view with audio. The system 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.

Camera, Driver Side

A Safety Vision side vision camera consisting of Safety Vision model SV-622LS camera will be located on the driver side cab, up high behind front door. This camera will be interlocked with the turn indicator. The system 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.

Requires the option for the Safety Vision back-up camera system which consists of the colored monitor, back-up camera and control box.

Camera, Officer Side

A Safety Vision model SV-622RS camera will be located on the officer side front corner of the cab. This camera will be interlocked with the turn indicator. The system 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.

Requires the option for the Safety Vision back-up camera system which consists of the colored monitor, back-up camera and control box.

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.

Crew Compartment Camera

A Safety Vision camera model SV-625B-Kit with a color monitor model SV-CLCD70BA shall be installed. The monitor shall be installed at the front of the cab on the officer overhead visible at night and in bright sunlight. The camera shall be mounted up high on the front wall of the crew compartment to provide a wide angle view. The system 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.

Monitor Locations

Locations of Safety Vision monitors shall be determined at prebuild meeting.

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.

Special Programming Instructions

The following special programming shall be provided:

All 12V scene lights to de-activate when park brake is released.

The dome lights will dim after 10 seconds or immediately if the vehicle is put into gear.

Ground lights will activate when apparatus is in reverse.

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. The left side battery box shall hold one (1) battery and the right side shall hold three (3) batteries. The batteries shall have a minimum combined rating of 4,000 (4 x 1000) cold cranking amps (CCA) @ 0 degrees Fahrenheit and 820 (4 x 205) minutes of reserve capacity for extended operation. The batteries shall have 3/8-16 threaded stud terminals to ensure tight cable connections. The battery stud terminals shall each be treated with concentrated industrial soft-seal after cable installation to promote corrosion prevention. The positive and negative battery stud terminals and the respective cables shall be clearly marked to ensure quick and mistake-proof identification.

Batteries shall be placed on non-corrosive rubber matting and secured with hold-down brackets to prevent movement, vibration, and road shock. The hold-down bracket J-hooks shall be cut to

fit and shall have all sharp edges removed. The batteries shall be placed in plastic trays to provide preliminary containment should there be leakage of hazardous battery fluids. Each battery tray shall be equipped with a rubber vent hose to facilitate drainage. The rubber vent hose shall be routed to drain beneath the battery box. The batteries shall be positioned in well-ventilated areas.

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

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

Isolated Battery

An additional heavy-duty Group 31 12-volt maintenance free battery shall be provided. This battery shall be isolated for use with 12V accessory system only. Battery to be located in rear of cab or forward area of body, location to be determined at prebuild meeting.

Jumper Studs

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

Battery Charger

A Kussmaul Auto Charge 4000 model 091-89-12 45 amp battery charger shall be wired to the 12 volt battery system. The charger unit shall be mounted in a clean dry area and will be accessible for service and/or maintenance.

Battery Charger Location

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

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 Red.

Auto Transfer Switch

An automatic transfer switch shall be installed to allow all interior household type receptacles to be powered either by the shore power receptacle or the on-board generator.

The system shall include an eight (8) place breaker box for the interior receptacles.

Receptacle(s) Portable Winch

Two (2) Anderson 12 volt electrical receptacles shall be installed for a portable winch system. The power cables shall be color coded "red" for positive and "black" for neutral and rated at 125% of winch power requirement.

The receptacles shall include a dust cover.

The cables shall be run in protective loom for mechanical protection and equipped with circuit breaker protection at battery area.

Location: One (1) at each side body wheel well compartment.

Receptacle Portable Winch

One (1) Anderson 12 volt electrical receptacle shall be installed for a portable winch system. The power cables shall be color coded "red" for positive and "black" for neutral and rated at 125% of winch power requirement.

The receptacle shall include a dust cover.

The cables shall be run in protective conduit for mechanical protection and equipped with circuit breaker protection at battery area.

Location: One (1) at rear tailboard receiver.

Trailer Hitch Pre-Wire Harness

There shall be a pre-wire assembly provided under the rear of the apparatus for future installation of a trailer hitch pin connector. The coiled wire harness shall include wires from the stop light circuit, marker light circuit, turn signal circuit and a ground. It shall be rated at 3 amps.

360 Amp Alternator

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

Electronic Load Manager and Sequencer

Load manager and sequencer are integral with Weldon Multiplex system.

Headlights

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.

Tail Lights

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

Light functions shall be as follows:

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

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

Cab Turn Signals

There shall be a pair of Whelen M6 LED (Light Emitting Diode) turn signal light heads with populated arrow pattern and amber lens mounted above headlight bezel and wired with weatherproof connectors.

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 clearance light each side, rear of body to the side.
- One (1) red Truck-Lite LED clearance light each side, rear of body to the rear.
- One (1) amber Truck-Lite LED clearance light each side, front of body to the side.
- One (1) amber Truck-Lite LED clearance light each side, front of body to the front (if applicable).

Lower Body:

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

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.

License Plate Bracket

There shall be bracket fabricated from aluminum diamond plate, secured to rear of the body to accommodate a license plate.

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.

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.

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 center of rear tandem wheel well.

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 below the bumper (if applicable), body and cab doors shall be 20" long Amdor Luma-Bar H2O LED with clear lenses. The lights shall be water resistant and mounted in an extruded under truck bracket. The wiring connections shall be made with a weather resistant plug in style connector.

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

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

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

Step Lights

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

The step lights shall be switched from the cab dash with the work light switch.

Entrance Door Lighting

Two (2) TecNiq clear LED (model T440) shall be provided on the rear of the body. The lights shall measure approximately 4 inches in diameter and be of the flush mounting type. The lights shall be activated when the rear doors are opened. Otherwise, the lights shall normally stay off.

The lights shall be located in the canopy area that is above the rear entry doors.

12V LED Cab Roof Scene Light [Qty: 2]

One (1) FireTech 12V LED mini brow flood light model FT-MB-18-TR-FT 25" long shall be provided. The light shall feature 18 LEDs` producing 9,504 usable lumens. The 90W 12V light shall draw 7.5 amps. A switch shall be provided, accessible to driver, for activation of light.

The light assembly shall be located driver and officer side above rear cab doors.

12V LED Cab Brow Light

One (1) FireTech 12V LED model FT-B-72-ML-W 72" job color housing brow light with integral marker lights shall be provided. The light shall be installed on the front cab brow in place of the standard DOT marker lights. the light shall feature 54 LEDs` producing 19,665 usable lumens and five (5) DOT approved marker lights. The 285W 12V light shall draw 23.75 amps.

12V LED Flood Light [Qty: 6]

A Whelen Pioneer Plus series 12V floodlight model PFP1 single panel light head shall be provided on a PBA103 recess mount. The rectangular extruded light fixture with die cast end caps shall measure 8-3/16" wide by 4-1/4" high by 3" deep and have a white powder coat finish. The light fixture shall have a single panel (2) clusters of LED lamps with molded vacuum metalized reflector that draws 6 amps and produce 7,000 usable lumens.

The light shall be located Forward upper body panel officer side (inboard of warning lights if equipped), Forward upper body panel driver side (inboard of warning lights if equipped), Rearward upper body panel officer side (inboard of warning lights if equipped), Rearward upper

body panel driver side (inboard of warning lights if equipped), driver side rear of body up high, officer side rear of body up high.

Deck/Scene Light Wired to Back-Up Lights

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

Additional Switch

A 12 volt switch shall be provided.

The switch shall be located driver rear of body for rear work lights.

Light Tower CL602A

A Command Light model CL602A light tower shall be provided. The light tower shall be a two-stage articulating device with a lighting bank on top of a second stage capable of 360 degrees continuous rotation. The light shall be elevated by electric linear actuators, one (1) actuator shall elevate the light bank, and one (1) actuator shall adjust the light bank angle from 0 to 110 degrees. The overall extended height from the base to the top pair of lights shall be 120".

The light bank shall have six (6) FRC Spectra 220 watt output 120V, LED lights. Light heads shall be mounted in three (3) pairs, giving two (2) vertical lines of three (3) when the lights are in the upright position. Power for light bank shall be transmitted through power collecting rings thus allowing 360+ degrees rotation in either direction, NO EXCEPTIONS.

Light tower shall be controlled with a hand-held umbilical line remote control. The storage station for the remote control unit shall be equipped with a button to activate the "Auto-Park" automatic nesting feature. The controls on the remote box shall be:

1. Three (3) switches, one (1) for each light bank.
2. One (1) light bank rotation switch.
3. One (1) switch for elevating lower stage.
4. One (1) switch for elevating upper stage.
5. One (1) indicator light to indicate when light bank is out of roof nest position.
6. One (1) indicator light to indicate when light bank is rotated to proper nest position.
7. One (1) on/off switch for the top mounted strobe.

The controls shall be located next to the break box.

The tower base shall have a light the illuminates the envelope of motion during any movements of the light tower mast.

The Command Light assembly shall be all aluminum construction, with stainless steel shafts and bronze bushings for long life and low maintenance.

The overall size of nested light tower shall be approximately 42 3/8" wide x 73-1/4" long x 12" high and weigh approximately 310 lbs.

The light tower shall be located rear cab roof mounted side to side and hinged to driver.

Back Light Option

A back light option shall be provided on the Command Light brand light tower. The option shall allow the lower two (2) lights to rotate for down lighting or additional lighting to the rear of the light tower.

Cab/Crew Area Signal System

A signal system shall be provided for communication between the cab and body.

An audible alarm with visual indicator shall be located in the cab wired to a push button switch located in the body interior. An audible alarm with visual indicator shall be located in the interior of the body wired to a push button switch accessible to the driver.

Two-Way Intercom

A Fire Research ACT two-way intercom system shall be installed to provide communications between the cab and the crew compartment. The intercom system shall include one (1) push-to-talk button control module in the crew compartment and one (1) hands free speaker in the cab.

The control module shall have push-button volume control and a LED volume display. The hands free module shall constantly transmit to the other module unless the push-to-talk button is pressed.

The intercom shall have active noise cancellation and be designed for exterior use.

Stainless Steel Walk-In Rescue 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.

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 7 gauge 304L stainless steel structure assembly consisting of 2" x 3" tubes and 3/16" mounting plates. This structure shall be secured in a minimum of eight (8) locations, using a double flex mount system with 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. A body substructure using carbon steel, outrigger arms or any other mounting method is not acceptable. This design is required to eliminate shift and stress on the body module and component panels.

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 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 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 in the base of the door opening. There shall be a minimum of two (2) 3/8" drain holes in each of the compartment floors.

The interior of all compartments shall have a machine sanded DA finish that shall not be painted. 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.

Walk-In Rescue Body Roof

A flat embossed aluminum diamond plate roof shall be provided.

The apparatus roof construction shall be integral to the body, reinforced and designed so that the entire roof area may be used as an observation and work platform. Vertical exterior and interior walls shall support the roof members. The roof supports shall be specially designed to provide a flat interior walkway ceiling. Lower flange shall be of break-formed design for ceiling installation.

Roof members shall be 12 gauge stainless steel, bolted or welded in place running the full length of the body. The upper roof panel shall be .188" (3/16") aluminum non-slip treadplate attached directly to the roof supports. These exterior panels shall have continuously welded seams to prevent entry of moisture.

Front Body Trim

The front head board of the body shall be 1/8" aluminum diamond plate.

Body Fender Panels

The construction of the tandem axle 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. Brushed stainless steel shall be installed to overlay the stainless panels and shall not be painted.

Bolt on rubber fenderettes shall be installed at the outer panels and protrude a maximum of 2". Stainless steel mounting strip shall be provided and the mounting hardware shall not be visible on the exterior of the body.

Bolt-on 16 gauge 304L stainless steel tandem axle 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.

Side Mounted Receiver Access Doors

Bottom hinged, flat latching brushed stainless steel doors with lift and turn latches shall be provided on each side the forward body wheel well panels for access to the side mounted portable winch receiver assembly and electrical connection.

Fuel Fill

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

Black U.H.M.W. Body Rubrails

Rub rail assemblies constructed of 2.5 inch x 2 inches black U.H.M.W. plastic shall be installed on each side of the apparatus body below the compartment doors. The rub rails shall extend 2.0 inches from the compartment doors, with a 2.5 inch vertical scuff surface.

Body Dimensions

Body length will be 306". Body width will be 100". Interior walkway height will be approx. 72". Overall height of vehicle will be 123.5".

Stainless Steel Double Compartment Doors - Tall

Double vertically hinged compartment doors shall be lap style and feature a 12 gauge 304L stainless steel outer skin with an 1-1/2" deep 16 gauge 304L stainless steel full inner box pan. The compartment door box pans shall be spot welded to the exterior sheet to reduce warpage. Visible exterior side compartment door hinge mounting hardware is not acceptable. Attachment of the panel to angle iron or tubular framework with screws or pop rivets shall not be acceptable. The exterior of the doors shall be painted job color.

Each compartment door shall have a full length 14 gauge polished stainless steel continuous hinge with a 1/4" stainless steel center pin. Hinge pins shall be tack welded at the end to eliminate hinge pin drift, and to prevent the entry of moisture. The hinges shall be bolted to the body and to the door for easy replacement and adjustment. A minimum of three (3) 5/16" diameter holes shall be provided in the bottom of each inner door panel for drainage and ventilation.

Each door shall be provided with extruded closed cell automotive type rubber moldings. This molding shall protect the compartment door framing, yet provide a weather resistant seal around the door. Each door shall be double sealed with seals installed around the perimeter of the inside face of the outer door skin and full perimeter of the body door jamb.

The door latching mechanisms shall be slam type Eberhard 206 bent D-ring with cast post strikers. The latch mechanisms shall not extend beyond the inner box pan of the compartment doors. Cleveland style double spring overhead door checks shall be installed on all vertically hinged compartment doors.

The first door closed shall be equipped with an Eberhard 206 latch with cast post striker mounted directly to the upper door jamb. A vinyl covered braided stainless steel cable shall be provided from this upper door jamb striker downward to the lower middle of the inner door pan for easy access to release the latch and open the door.

The second door closed shall have an upper and lower Eberhard 206 latching mechanism with cast post strikers mounted directly to the upper and lower door jambs and actuated by a single exterior bent D-ring latch. Second closed doors that latch on the first closed door are not acceptable.

Rubber bumpers shall be provided where open doors may strike each other.

The door jamb mounted automatic compartment light switch bracket shall be stainless steel and located at the hinged side of the first open compartment door.

Highly polished extruded aluminum "J" channel drip moldings shall be permanently installed above the side body doors where break-formed treadplate drip rail protection is not provided.

The doors shall be installed in the following location(s): L1, L2, L3, L5, R1, R2, R5.

Stainless Steel Double Compartment Doors - Short

Double vertically hinged compartment doors shall be lap style and feature a 12 gauge 304L stainless steel outer skin with an 1-1/2" deep 16 gauge 304L stainless steel full inner box pan. The compartment door box pans shall be spot welded to the exterior sheet to reduce warpage. Visible exterior side compartment door hinge mounting hardware is not acceptable. Attachment of the panel to angle iron or tubular framework with screws or pop rivets shall not be acceptable. The exterior of the doors shall be painted job color.

Each compartment door shall have a full length 14 gauge polished stainless steel continuous hinge with a 1/4" stainless steel center pin. Hinge pins shall be tack welded at the end to eliminate hinge pin drift, and to prevent the entry of moisture. The hinges shall be bolted to the body and to the door for easy replacement and adjustment. A minimum of three (3) 5/16" diameter holes shall be provided in the bottom of each inner door panel for drainage and ventilation.

Each door shall be provided with extruded closed cell automotive type rubber moldings. This molding shall protect the compartment door framing, yet provide a weather resistant seal around

the door. Each door shall be double sealed with seals installed around the perimeter of the inside face of the outer door skin and full perimeter of the body door jamb.

The door latching mechanisms shall be slam type Eberhard 206 bent D-ring with cast post strikers. The latch mechanisms shall not extend beyond the inner box pan of the compartment doors. Cleveland style double spring overhead door checks shall be installed on all vertically hinged compartment doors.

The first door closed shall be equipped with an Eberhard 206 latch with cast post striker mounted directly to the upper door jamb. A vinyl covered braided stainless steel cable shall be provided from this upper door jamb striker downward to the lower middle of the inner door pan for easy access to release the latch and open the door.

The second door closed shall have an upper and lower Eberhard 206 latching mechanism with cast post strikers mounted directly to the upper and lower door jambs and actuated by a single exterior bent D-ring. Second closed doors that latch on the first closed door are not acceptable.

Rubber bumpers shall be provided where open doors may strike each other.

The door jamb mounted automatic compartment light switch bracket shall be stainless steel and located at the hinged side of the first open compartment door.

Highly polished extruded aluminum "J" channel drip moldings shall be permanently installed above the side body doors where break-formed treadplate drip rail protection is not provided.

The doors shall be installed in the following location: L3, L4, R3, R4.

Stainless Steel Single Compartment Door

A single vertically hinged compartment door shall be lap style and feature a 12 gauge 304L stainless steel outer skin with an 1-1/2" deep 16 gauge 304L stainless steel full inner box pan. The compartment door box pan shall be spot welded to the exterior sheet to reduce warpage. Visible exterior side compartment door hinge mounting hardware is not acceptable. Attachment of the panel to angle iron or tubular framework with screws or pop rivets shall not be acceptable. The exterior of the door shall be painted job color.

The compartment door shall have a full length 14 gauge polished stainless steel continuous hinge with a 1/4" stainless steel center pin. Hinge pins shall be tack welded at the end to eliminate hinge pin drift, and to prevent the entry of moisture. The hinge shall be bolted to the body and to the door for easy replacement and adjustment. A minimum of three (3) 5/16" diameter holes shall be provided in the bottom of the inner door panel for drainage and ventilation.

The door shall be provided with extruded closed cell automotive type rubber moldings. This molding shall protect the compartment door framing, yet provide a weather resistant seal around the door. The door shall be double sealed with seals installed around the perimeter of the inside face of the outer door skin and full perimeter of the body door jamb.

The door latching mechanism shall be slam type Eberhard 206 bent D-ring with cast post strikers. The latch mechanism shall not extend beyond the inner box pan of the compartment door. Cleveland style double spring overhead door checks shall be installed on all vertically hinged compartment doors.

Rubber bumpers shall be provided where open doors may strike each other.

The door jamb mounted automatic compartment light switch bracket shall be stainless steel and located at the hinged side of the compartment door.

Highly polished extruded aluminum "J" channel drip moldings shall be permanently installed above the side body doors where break-formed treadplate drip rail protection is not provided.

The door shall be installed in the following location(s): B1, B3.

Compartment Door Set, Upper Rear Outboard

The upper rear of body outboard compartments shall be provided with two (2) doors each:

One (1) full width rear facing top hinged door at the lower half of the compartment.

One (1) side facing vertically hinged access door in the walk-in entrance area as large as practical for the space available.

The lift-up compartment doors shall match the construction of the lower rear of body compartment doors and be painted job color. The access doors shall have an outer panel that matches the finished surface of the walk-in entrance area.

Keyed Latches [Qty: 17]

Locks with two (2) #1250 keys shall be provided on all rear body doors.

Double Door Bracket w//Pull Tag

Double door latch to have latch brackets fabricated from E-One part# 371008 aluminum smooth plate, similar to (541955) and (541956) installed with "PULL" tags (546525).

Location(s): L1, L2, L3, L4, L5, R1, R2, R3, R5

Left Side Body Compartments

Compartment L1, front, behind the cab, shall be 60.0" wide x 70.0" high x 27.0" deep with a solid rear wall and one (1) rollup door. The lower forward 40" of the compartment shall transverse over the frame rails to R1.

Compartment L2, directly ahead of the rear wheels, shall be 60.0" wide x 70.0" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Compartment L3, above the rear wheels, shall be 60.0" wide x 38.7" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Compartment L4, above the rear wheels, shall be 60.0" wide x 38.7" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Compartment L5, behind the rear wheels, shall be 48.0" wide x 70.0" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Trailing panel behind L5 shall be 18.0" wide x full height of the body to provide additional storage accessible from the rear of the apparatus.

Right Side Body Compartments

Compartment R1, front, behind the cab, shall be 60.0" wide x 70.0" high x 27.0" deep with a solid rear wall and one (1) rollup door. The lower forward 40" of the compartment shall transverse over the frame rails to L1.

Compartment R2, directly ahead of the rear wheels, shall be 60.0" wide x 70.0" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Compartment R3, above the rear wheels, shall be 60.0" wide x 38.7" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Compartment R4, above the rear wheels, shall be 60.0" wide x 38.7" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Compartment R5, behind the rear wheels, shall be 48.0" wide x 70.0" high x 27.0" deep with a solid rear wall and one (1) rollup door.

Trailing panel behind R5 shall be 18.0" wide x full height of the body to provide additional storage accessible from the rear of the apparatus.

Transverse Compartment Floor Extension

Extend the transverse floors in these compartments to the door opening. The floors are made from 12 gauge 304L stainless steel. Floor extensions are welded in place.

Location is L1, R1.

Rear Body Entry Doors

Access to the walk-in area shall be through rear of body entry doors. Doors shall be constructed of lap style 304L stainless steel and have a brushed stainless steel inside door skin. There shall be two (2) approximately 27" high x 13" wide sliding windows with screens and dark gray tint in the upper section of the doors and no windows in the lower section of the doors. The doors shall have an FMVSS approved slam type paddle latch with Cleveland style double spring

overhead door check. The exterior latch shall be located on the rear door so that it can be easily reached from ground level.

The inside of the doors shall have a 24" grab rail mounted across the door below the window to assist entry and egress. Chrome plated plunger and socket assemblies shall be provided to hold the doors in the full open position and to prevent the doors from freely swinging.

A black vinyl padded head protector shall be installed at the top of the interior door frame.

Two (2) clear lens step lights shall illuminate the entrance to the interior area, and lights shall be automatically activated when the entry door is opened or closed.

Walk-in Entrance

The walk-in entrance recess at the rear of the the body shall have a brushed stainless steel overlay on the side walls and ceiling.

Center Entrance Step/Tailboard Arrangement

A three (3) step arrangement shall be provided for the crew entrance at the rear of the rescue body consisting of the following:

1) A full width of body 8" deep aluminum treaplate bolt-on tailboard with three (3) Bustin tread inserts. The center section of the tailboard shall extend into the crew entrance area recess to provide addition step surface.

2) An aluminum treadplate fold down step with a Bustin tread insert as wide as the center entrance area. The step will nest in the center entrance recess when not is use. Includes a mechanical hold close device.

3) An aluminum treadplate crew entrance step above the tailboard with a Bustin tread insert.

Two (2) black rubber dock bumpers shall be installed on the trailing edge of the tailboard.

Rear of Body Outboard Compartments

Two (2) compartments shall be provided at the rear of the rescue body center entrance on each side:

Driver B1 (lower); 70" tall x 27" wide x 18" deep with one full height vertically outboard hinged door.

Driver B2 (upper); 35" tall x 27" wide x 18" deep with one half height lift-up door facing rearward. An additional vertically hinged side access door, as large as practical for the space available, shall be located in the recessed walk-in area.

Officer B3 (lower); 70" tall x 27" wide x 18" deep with one full height vertically outboard hinged door.

Officer B4 (upper); 35" tall x 27" wide x 18" deep with one half height lift-up door facing rearward. An additional vertically hinged side access door, as large as practical for the space available, shall be located in the recessed walk-in area.

Interior Walkway

The forward 250" of the rescue body, ahead of the rear entry doors, shall be designed as a walk-in command area. The walkway shall be 46" wide.

Counter Tops

The counter tops shall stand approximately 48" off the floor of the walkway. All open counter tops shall be covered with an overlay of 14 gauge brushed stainless steel. 1/4" aluminum pegboard with holes on 1" centers spaced 1" shall be installed above the brushed stainless steel overlay. A 1" lip shall be added to the edge outer edge of the counter tops.

Driver side counter top 1, L-shape; 73" wide x 40" deep at the front transverse area and 27" deep x 32" long at center walkway section.

Driver side counter top 2, straight; 27" deep x 63" long.

Officer side counter top 1, straight; 27" deep x 167" long.

There shall be an open transverse storage area below the counter top at the front of the walkway.

Floor Construction

The interior body walkway floor area shall be covered with 3/16" embossed aluminum treadplate. The floor shall be installed over 1" thick poly material for a noise barrier to isolate the interior. The floor shall be designed to provide a waterproof walking and standing surface. The aluminum treadplate sheets installed onto the floor area shall be made to be bolted down and be easily removable. Floor sections shall be designed in manageable size sections.

Two drains shall be piped underneath the body.

Ceiling And Side Walls

The lower side walls shall be 12 gauge DA finsh stainless steel (no-overlay). The horizontal work surface areas and all upper sidewalls of the crew/cargo interior above the counter tops shall be covered with 14 gauge brushed stainless steel. The ceiling shall be white gelcoat panels.

The material on the ceiling and sidewalls shall be secured with screws and therefore shall be removable for access to wiring should the need arise. All panels shall be screwed into place and be easily removable for maintenance.

Body Insulation

The upper exterior side walls where practical and underside of the roof shall be covered with foil faced thermal insulation providing both a thermal and acoustic barrier in these areas.

Walk-In Compartment Ceiling Lights

There will be six (6) ROM Duro Lumen blue/white LED lights provided. The lights shall be located rear body ceiling evenly spaced. A momentary switch shall be provided in the interior rear and forward body. Switch shall activate blue lights, white lights and turn off lights. Blue lights shall be activated when the rear entry door is opened.

Walk-In Rescue Body Lighting Controls

A switch plate for interior lighting controls shall be located officer's side interior walkway wall adjacent to door opening. It shall accommodate a quantity of six (6) rocker switches. It will be illuminated and labeled per each switch`s function.

If lighting controls do not meet rocker switch quantity, the unused remaining spaces will be filled with spare switches.

Bench Seat Base

A bench seat with underseat storage shall be supplied in the crew compartment on the officer side wall. It shall be constructed of brushed stainless steel and measure approximately 19" W x 21" H and as long as necessary to accommodate desired seating and storage. The rear 6" of the storage compartment along the entire length shall be raised 3" to accommodate roof ladder storage. A brushed stainless steel hinged door with d-ring latch shall be provided at the rear of the bench. The ladder storage area interior vertical corner may be angled front to rear to clear the rear entrance door if necessary.

Bench Seats Cushions and SCBA Mounting Stanchions

Seats shall be provided for six (6) firefighters. Seat positions from front to back will be (1) single, (1) double, (1) double, (1) single. Single shall consist of a 22" W x 15" D bottom cushion. Double shall consist of a 44" W x 15" D bottom cushion. Back rest to be 18" high with width to match bottom. Upholstery material to match cab seats. 2-point red seat belt with Ready-Reach to be provided at each seat location.

The seat sections shall be separated by a triangular stanchion constructed of aluminum (total of 3) protruding from the back wall. Brackets to accommodate one (1) Mechanical SCBA bracket (for (1) Scott 45 min SCBA) and one (1) Interspiro DACB-5 (for Interspiro Divator twin cylinder unit).

(3) Zico QLM-U SCBA brackets will be supplied and installed by Dealer.

(3) SCUBA brackets shall be customer supplied and installed.

Air Conditioning and Heating in Rescue Body

The interior of the enclosed body shall be equipped with a heavy-duty 46,000 BTU hot water heater/33,000 BTU cooling system. Red Dot Model #R5045 back wall unit shall be used. The unit shall be piped to the chassis radiator/cooling system with silicone heater hose. The hose shall be properly clamped and secured in place, properly protected from engine exhaust or mechanical damage. The system shall plumbed into the roof top cab roof mounted condenser. This condenser is to be mounted on the roof of the cab on an aluminum diamond plate panel which is to be bolted to the cab roof. The heating system shall be equipped with shut-off valves at the engine area connection. This shall permit shut-off of the heating system for summer operation or servicing of the system. The heater/AC unit shall be equipped with a 12 volt three-speed blower fan. Controls of the fan shall be on the unit.

The heater/AC unit shall be surface mounted on the front wall of the walk-in rescue body below the counter top with a heavy duty grill guard for protection of the heater/AC.

Fans

Two (2) adjustable fans with individual switches shall be provided. The fans shall be 12 volt and shall each be rated at 250 cfm. Location: ceiling mounted in rescue interior. (1) at entrance and (1) forward.

Service Access Plates

Provide (2) service access plates in the walkway floor. One (1) shall be located over the generator and one (1) over the fuel tank sending unit. Access plates to be bolted in place with stainless steel hardware.

Peg Board

1/4" aluminum pegboard with holes on 1" centers spaced 1" shall be installed above the brushed stainless steel overlay on counter tops. A 1" lip shall be added to the edge outer edge of the counter tops.

Cabinets and Shelving Upper Body Driver and Officer Side

Provide four (4) upper storage cabinets on the inside the rescue body, two (2) each side. Cabinets shall be made out of 14 gauge stainless steel without doors. The cabinets shall have a DA finish and located rearward of the counter top. Each cabinet shall have four (4) Unistrut channels installed.

Cabinet DS1: Shall be approximately 26" deep x 23" high x 72" front to rear.

Cabinet DS2: Shall be approximately 26" deep x 23" high x 72" front to rear.

Cabinet OS1: Shall be approximately 26" deep x 23" high x 40" front to rear.

Cabinet OS2: Specified separately.

Cabinet OS3: Shall be approximately 26" deep x 23" high x 36" front to rear.

Interior Cabinet Equipment Retainers

All open interior storage compartments shall have drop down, black grid style cargo netting with 3-inch squares installed to secure equipment in place. Seat belt style retaining buckles shall not be used but a custom designed one-piece bar assembly with cargo netting attached shall be constructed. This shall allow netting to be removed in one step instead of unlatching each individual buckle. A one step Velcro attachment process with footman loops shall be used opposite the bar end.

Installed across the compartment opening of cabinet DS1, DS2, OS1, OS3.

Full Height Cabinet

The body interior shall be furnished with a full height wall cabinet (OS2) approximately 36" wide located forward of the bench seat. The upper portion of the cabinet shall be approximately 45.00" deep, extending from the countertop to the ceiling. The lower portion shall match the depth of the bench seat base, extending from the floor to the top of the countertop. The cabinet shall be constructed of 0.75" poly material and covered with brushed stainless steel on the sides, bottom and back wall. There shall be no door provided on the cabinet. The cabinet shall be provided with a floor drain discharging outside the rescue body and compartmentation

A stainless steel tube connected on each end to a cast stanchion shall be provided for hanging dive/swift water suits. The stanchions shall be mounted to supports capable of holding 300 pounds of weight.

Unistrut Tracking

Unistrut will be installed in all body interior walkway compartments unless inapplicable.

All interior walkway compartments will have aluminum Unistrut locations on front and rear side walls. These compartments (single depth) will have up to a total of four (4) pieces in each, two (2) each side. All storage items, adjustable trays and/or shelves in compartments will be attached to the Unistrut.

Indicator Lights

The interior of the rescue body shall be provided with twp (2) Weldon model 9186-2300 indicator lights. One (1) red and one (1) green shall be provided at the rearward area above the walkway visible for seated personnel. Green light shall be wired though park brake to indicate brake is engaged with "OK TO EXIT" label; red light shall be wired through park brake to indicate brake is dis-engaged with "DO NOT EXIT" label.

Escape Hatch [Qty: 2]

A 24" x 24" escape hatch shall be installed in the roof of the walk-in rescue body. It will be made of a heavy duty aluminum frame. It will have an acrylic lens and be capable of opening in the vented position. It will have an above deck height of approximately 1" and can be used as a

skylight, escape hatch and non-powered vent all-in-one. It shall be located in a manner best suited on the roof of truck.

Cabinet Shelving

There shall be two (2) aluminum adjustable shelves provided per compartment. The shelves shall be constructed of 3/16" (.187") smooth aluminum plate. The shelves shall have a minimum 2" lip to accommodate optional plastic interlocking compartment tile systems. For additional strength and reinforcement of the shelves a 2" lip shall be provided around the perimeter with the corners welded. The shelves shall have a 250 lb. capacity.

Storage Under Bench Seat

The interior of the bench shall be partitioned and accommodate: (1) 16' roof ladder, (4) 16' 4 x 4 timbers, (6) 16' 2 x 4's, (4) 16' 2 x 12's.

Body Windows

The sliding window shall be 18`` high x 40`` long. Window glass shall be tinted automotive safety glass and mounted in an extruded aluminum frame. The window will be locate on the above R3, above L3/L4, above R4/R5, above L1.

Rear Wheelwell Panel Overlay

Brushed stainless steel shall be installed to overlay the stainless panels and shall not be painted.

Angled Tailboard Corners

The corners of the rear tailboard shall be angled inward for increased clearance around the rear of the apparatus.

Rear Bumper/Rubber Bumpers/Pull-out Rear Step

See Center Entrance/Tailboard Arrangement, above.

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 shall be beveled and painted chassis black.

Rear Trailer Hitch/Winch Receiver

A rear mounted Class IV trailer hitch shall be provided. The hitch shall be securely attached to the chassis frame and painted black. The hitch shall be supplied without a ball and pin.

Side Winch Receivers

Receivers, side body 9K winch receivers - frame rail height shall be provided. Two (2) winch receivers, one (1) each side, shall be located in line with the top of the frame rail between rear tandem wheels. Each receiver position shall have its own pin. Winch receiver(s) shall be rated for a maximum of 9,000 line pull pounds with a 2.0 to 1 straight line pull no-yield safety factor.

Hitch Receiver Tow Eyes [Qty: 2]

Shipped loose shall be two (2) receiver mount tow eyes. These shall be constructed of forged steel, 2-1/2 inch ID, 5 inch OD on the ring with black powder coat finish. Two (2) 3/4" hitch pin assemblies shall also be provided.

Underbody Storage Compartments [Qty: 2]

Fabricate and install two (2) stainless steel underbody compartments with drawers. The compartments shall be 84" wide with the compartment depth maximized for the available space. Useable interior height shall be approximately 8" without floor matting. The compartment and drawer shall be constructed of stainless steel with minimum 500 lb. capacity Jonathan brand ball bearing slides. The door face shall be constructed of brushed stainless steel and a bent D-ring style latching mechanism shall be installed. The door shall have a section of black UHMW rub rail to match the lower body rub rail.

The compartment shall be lighted and include a door activated switch. Due to the location of the compartments, vents shall not be installed.

Locations: Below compartments L1 and R1.

Sloped Compartment Floors [Qty: 2]

An insert of the same size of the floor in compartments L2 and R2 shall be installed to provide a 5 degree pitch toward the rear to help retain cribbing during transport.

Air Bag Storage

An air bag module for nine (9) purchaser supplied Paratech air bags and (2) controllers shall be provided and located in the transverse compartment L1/R1.

The module shall hold Paratech G2 series air bags and controls: KPI-1 1.5T, KPI-28 34T, (2) KPI-3 3.5T, (2) KPI-35L 39.5T, (2) KPI-10 12.0T, KPI-55 69.7T, Master Control ALB Kit G2 series, Dual Deadman Safety Relief ALB Controller G2 series.

Module shall be constructed of .125" smooth aluminum sheet with internal dividers. Each bag storage slot shall include a half-moon style cut-out for ease of identification and removal access. Air bags shall be installed horizontally and straps will be installed across the openings to keep items securely stowed inside.

Unistrut Tracking

Unistrut will be installed in all body exterior compartments unless inapplicable.

All transverse compartments will have up to 6 pieces of Unistrut locations on front and rear wall. All rescue style compartments (single depth) will have up to a total of 4 pieces in each, and compartment B1 (if applicable) will have up to 6 pieces, 3 each side. All storage items, trays and/or shelves in compartments will be attached to the Unistrut.

Adjustable Shelf [Qty: 12]

There shall be a an aluminum adjustable shelf provided. The shelf shall be constructed of 3/16" (.187") smooth aluminum plate. For additional strength and reinforcement of the shelf a 2" lip shall be provided around the perimeter with the corners welded. The adjustable shelf shall be capable of holding 500 lbs. The shelf shall be sized to match the location in the compartment.

Shelf location(s) to be determined at the preconstruction conference.

Slide Out Peg Tool Board [Qty: 6]

An adjustable roll-out aluminum peg style tool board shall be provided. The tool board shall be constructed of 3/16" (.187") smooth aluminum plate with 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 lb. maximum at full extension. A latch shall be utilized to secure the tool board in the open or closed position.

Tool board location(s) to be determined at the preconstruction conference.

Roll-Out Tray [Qty: 5]

There shall be an adjustable roll-out tray provided. 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. 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 gas shock to hold the tray in an open or closed position. The tray shall have a total capacity of 250 lb.

Tray location(s) to be determined at the preconstruction conference.

Roll-Out Tilt Down Tray [Qty: 5]

An adjustable roll-out/tilt-down tray shall be provided. The tray shall have 3" high sides around the perimeter. 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 tilt 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.

Tray location(s) shall be determined at the preconstruction conference.

Compartment Door Requirements

All exterior compartment doors shall be provided with the capability to be opened past 90 degrees by releasing the hold-open device. Rubber bumpers shall be provided on exterior of all compartment doors for protection when the devices are released. The bumpers shall be mechanically fastened with stainless steel screws.

Door Sill Scuff Plates [Qty: 14]

All rear body exterior compartment door sills shall have brushed stainless steel scuff plates with 1/2" lip over the body paint.

Compartment Light Package

Two (2) Amdor Luma-Bar blue LED 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 of truck.

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

Track with J-Hooks

Aluminum track(s), quantity (1) with (6) aluminum "J" hooks that slide along the track for hanging body harnesses shall be provided. Locate on the driver side below the counter opposite the full height cabinet.

Body Fenderettes

Included. See Body Fender Panels, above.

SCBA Storage

The body tandem axle wheel well area shall store up to eleven (11) SCBA bottles; Six (6) on the officer side (3 forward, 3 rearward) and five (5) on the driver side (3 forward, 2 rearward) with the fuel fill uncovered. The bottles shall be secured in each storage area by a vertical hinged door which shall be secured in the closed position by a push button latch. The doors shall match the wheel well area material and finish.

Maximum bottle diameter shall be 7.25 inches.

Straps shall be provided in each exterior storage compartment to provide secondary means to hold each SCBA bottle in the compartment. The straps shall be constructed from 1" nylon

webbing formed in a loop. The strap(s) shall be mounted to the storage compartment ceiling directly inside the door opening at each bottle location.

Air Horns

Dual Grover 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 horns. A pressure protection valve shall be installed to prevent the air brake system from being depleted of air pressure.

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.

Air Horn Lanyard

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

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.

Foot Switch [Qty: 2]

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.

Light Bar

A Whelen Freedom IV Series 72" LED light bar model F4X7 with sixteen (16) LED modules shall be provided; two (2) front corner mounted LED modules, twelve (12) forward facing LED modules and two (2) side facing LED modules (with vista windows) or two (2) rear corner LED modules.

No rear facing LEDs.

The light bars shall have clear lenses.

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

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

Light Bar Mount

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

Light Bars

A pair of side facing Whelen Mini Freedom IV Series 21.5" LED light bars shall be provided. Each light bar shall contain four (4) LED modules. Each side facing light bar shall contain one (1) corner LED module forward facing, two (2) side facing LED modules and one (1) corner LED module rearward facing.

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

The light bars shall be installed in the following location: centered above canopy windows.

Light Bar Mount

One (1) pair of Whelen 1.5" tall (model MKEZ7) mounts shall be provided on the side facing mini light bars.

Light Bar Color(s)

Light Bar shall be provided with the following color LED modules: Red/White with clear lenses

Light Bar Layout

The forward and side (if equipped) light bars shall have a layout per customer specification(s).

Alternating Headlights

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

Lower Level Warning Light Package

Six (6) Whelen M6RC Super LED red light heads with clear lens, two (2) Whelen M6D split red/clear LED light heads with clear lenses and two (2) Whelen ION-T series Super LED red light heads shall be provided.

The 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 M6RC Super LED red lights on the front of the apparatus facing forward.
- Two (2) Whelen M6RC Super LED red lights on the rear of the apparatus facing rearward.
- Two (2) lights each side of the apparatus, one (1) Whelen M6D split red/clear Super LED each side at the forward most point (as practical), and one (1) Whelen ION-T Super LED red each

side at the rearward most point (as practical).
• One (1) Whelen M6RC 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

Two (2) Whelen M6 Series Linear Super LED white light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

Lights shall be wired through park brake per current version of NFPA 1901.

Location: (1) each side in front quad inboard of NFPA warning light.

Warning Lights

Two (2) Whelen M6D split red/clear Linear Super LED light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side of cab rearward of forward doors down low.

Warning Lights

Two (2) Whelen M6D split red/clear Linear Super LED light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side of cab rearward of wheel well same height as forward wheel well light (2DR custom cab only).

Warning Lights [Qty: 2]

Two (2) Whelen ION-T series Super LED red light heads with chrome housing shall be provided.

Location: (1) each side below L1/R1 offset forward in rubrail if equipped, (1) each side ahead of rear wheels in rubrail if equipped.

Door Mounted Flashing Lights

There shall be two (2) Whelen model M2R door mounted red super LED flashing lights with red lenses (one per door) provided.

The lights shall be located on each cab door in the outboard position.

Each individual light shall be activated by the corresponding cab door ajar circuit.

Upper Level Warning Lights - Side

Four (4) Whelen M-Series Super LED model M9RC red light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

The light heads shall be mounted as close to the corner points of the apparatus (as practical) as follows: Two (2) lights each side of upper body facing sides (1) forward most point practical and (1) rearward most point as practical.

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

Upper Level Warning Lights - Rear

Two (2) Whelen M-Series Super LED model M9RC red light heads with clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

One (1) light each side rear of body facing rearward at highest most rearward point as practical.

Mid-Level Warning Lights - Rear

Two (2) Whelen M9RC Series Linear Super LED light heads with red LED and clear lens shall be provided. The rectangular lights shall include chrome flanges where applicable.

Location: (1) each side rear of body facing rearward above DOT lighting approximately midway up the body.

Line Voltage Wiring

Line voltage wiring will comply with NFPA 1901 Chapter 22.

30 KW Direct Drive Generator

The apparatus shall be equipped with an ONAN YD two (2) bearing direct drive power take off driven generator. The generator shall be mounted on a heavily reinforced steel frame in the chassis frame rail area providing adequate road clearance, and service accessibility. The generator shall be protected from direct road spray with underside 1/8" aluminum bolt-on protection guard.

Rating and Capacity

Rating: 30,000 watt continuous duty rating: 100% of nameplate rating
Volts: 120/240 (with voltage control of +3%)
Amps: 250/125
RPM: 1800
Cycles: 60 (with frequency control of + 1%)
Phase: Single

Data Plate: shall be installed on the generator instrument panel with the above electrical generator information, including engine speed and all information noted above on generator performance.

Driveline

The generator shall be driven from a 10 bolt power-take-off from the automatic transmission. A "PTO control" shall be located at driver`s position. Generator shall be equipped with a means to prevent the unintended movement of the control device from its set position. An interlock shall prevent PTO engagement unless the parking brake is engaged. An interlock shall be installed to prevent engine speed control from any other source while the generator is operating. A nameplate indicating the chassis transmission shift selector position to be used for generator operation shall be provided in the driving compartment and located so that it can easily be read from the driver`s position.

Generator Controls

A green indicator light shall be located in the driving compartment. The light shall be energized when the PTO drive has been engaged and shall be marked "GENERATOR PTO ENGAGED." A second green light shall be energized when generator is engaged, transmission is in neutral, and parking brake is set and marked "OK TO OPERATE GENERATOR". A green indicator light shall be located on the operator`s panel. The green light shall be energized when both the PTO drive has been engaged, chassis transmission is in neutral, and parking brake engaged. The green light shall be marked "GENERATOR PTO ENGAGED."

Gauge Panel

A generator gauge panel shall be provided that displays the following information:

A) Amp meter for each leg
B) Volt meter
C) Frequency meter
D) Generator hour meter

Three Way Switching

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 next to generator gauge panel for generator control

Breaker Panel

A twenty (20) place breaker box with up to twenty (20) appropriately sized ground-fault interrupter circuit breakers shall be supplied. The breaker box will include a master breaker sized according to the generator output. The breaker box will be located in the specified compartment, not to exceed 12` run of wire.

Dimensions: 20.92" high x 14.25" wide x 3.75" deep.

Location: L1 forward wall.

Generator Guard

There shall be a 7 gauge stainless steel cover surrounding the generator. Cover shall be similar to current and most recent Mack ESU rescues. Cover shall be easily removable for generator servicing. The cover shall also have an expanded metal insert for ventilation of the generator.

Generator Governor

Fire Research FROG generator governor and display kit shall be installed. The kit shall include a display module, sensor signal decoder, two (2) current transformers, and cables. The display module shall consolidate five (5) generator monitoring instruments into one device. The display case shall be waterproof and have dimensions not to exceed 4 1/2" high by 4 1/2" wide by 4 1/2" deep.

The following continuous displays shall be provided with super bright LED digits more than 1/2" high:

- Generator frequency in hertz
- Line 1 current in amperes
- Line 2 current in amperes
- Generator AC voltage in volts.

The governor shall display the accumulated generator hours when power is applied to the display module.

The program shall support automatic regulation of generator frequency and the tracking of elapsed generator run time. Safety features shall include PTO disengage and engine over speed protection.

The governor shall be located next to the breaker box.

Electric Cord Reel [Qty: 2]

Hannay electric rewind cord reel(s) (ECR 1618-17-18) shall be installed and located B2, B4.

The reel(s) shall include 200` of yellow 10 gauge 4 conductor type SOWA cord. The cord shall be rated at 20 amps @ 220 volts. The end of the cord shall be terminated for the installation of a department required connector.

Cord Connector [Qty: 2]

A Daniel Woodhead 30 amp, 220 volt (NEMA #L14-30) twist lock female cord connector shall be installed as specified.

Location: B2, B4.

Cord Reel Rewind Switch [Qty: 2]

A heavy duty rubber covered electric reel rewind button shall be installed rear of body below cord reel compt.

Slide-out Roller Assembly [Qty: 2]

A slide-out roller assembly for a reel shall be provided. The assembly shall be constructed using 3/16" (.188") aluminum smooth plate with a sanded finish. The assembly shall be located for reel in B2, B4.

Mount located for box with reel in or on B2, B4.

Akron Junction Box [Qty: 2]

An Akron model EJB-Custom junction box shall be provided. The electrical junction box shall be a heavy-duty, cast aluminum with a 1/4" thick walls and the four corner edges shall be at least 1/2" thick to withstand the roughest of handling. A carrying handle shall be an integral part of the junction box`s casting and be large enough to fit a fully gloved hand. The junction box must be internally lite. Each side of the electrical junction box shall be fitted with polypropylene faceplates. The faceplates shall be back lit so that plug orientation to the receptacle is quick and easy to align.

The electrical junction box shall be equipped with one (1) NEMA 5-20 125 volt GFCI duplex receptacle, two (2) NEMA L5-20 125 volt GFCI twist lock electrical receptacles and one (1) NEMA L6-20 220V twist lock receptacle. Each receptacle shall be equipped with a spring-loaded snap cover and marked in white lettering with that receptacles voltage and ampere rating. All electrical receptacles, plugs and snap type weatherproof covers shall be UL Listed components.

Individual circuit breakers shall be provided for each receptacle.

An ISO 9001 certified company must manufacture the electrical junction box.

The junction box shall be provided with a 12" pigtail and an L14-30 twistlock receptacle. Junction box shall be shipped loose.

Akron Mounting Box [Qty: 2]

An Akron model EJB-VMT-TP diamond plate mounting box shall be installed as specified for the Akron junction box.

Receptacle [Qty: 6]

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: To be determined at prebuild meeting.

Receptacle

A 20 amp, 220 volt twist lock receptacle NEMA L6-20 with a weatherproof cover plate shall be installed as specified by the department.

Location: R2 low on forward wall.

Breathing Air Cascade System, ASME 6000 PSI

Codes and Standards

All tubing shall meet NFPA, SAE, JIC and ANSI Standards. All valves shall meet the applicable National Codes such as those of the Bureau of Explosives, DOT and CGA. The entire air system shall meet all requirements established by the Occupational Safety and Health Act, otherwise known as OSHA. Air receivers shall have a four to one safety factor and shall be constructed in accordance with Section VIII of the ASME Code for Unfired Pressure Vessels. All equipment supplied shall be new.

Identification

All major components and accessories are to be clearly identified with permanently affixed nameplates stating the make, model and serial number. Other pertinent information such as capacities, pressures, voltages, currents, etc., are to be indicated in the proper manner.

Instructions

Appropriate tags and warning labels shall be affixed where necessary for safety and ease in the operation and adjustment of the valves, switches and controls. A manual shall be delivered with the system containing information on operation, maintenance, troubleshooting and replacement parts.

Testing and Warranty

All equipment shall be factory assembled, thoroughly tested and backed by a one-year limited warranty covering parts and labor.

All panel mounted gauges shall have a working pressure that does not exceed 2/3 of the gauge pressure, with a 4:1 safety factor. All gauges seeing 6000 psi shall read at least 10,000 psi with a 4:1 safety factor.

All high pressure hoses shall be rated at 6000 psi working pressure with a 4:1 safety factor.

All high-pressure valves with exception of 3-way valve shall be soft seat for safety and easy operation. They shall have replaceable seats and be rated at 6000 psi working pressure with a 4:1 safety factor.

All high pressure tubing shall be as follows:

3/8" O.D. x .065 wall stainless steel 1/4" O.D. x .049 wall stainless steel 1/8" O.D. x .035 wall stainless steel (NOTE: may be used on gauges only) All tubing shall be fully annealed and suitable for bending.

Storage System

The storage system shall consist of three (3) storage receivers designed and constructed to conform to Department of Transportation codes and standards and in accordance with current OSHA requirements.

Each receiver shall contain a minimum of 509 CF of air at 6000 psig with a safety factor of not less than 2.25:1 at 6000 psig working pressure.

Receivers shall be mounted securely in a horizontal position in a rack designed for that purpose. Each receiver to have its own isolation valve with safety burst disc.

Rack and bottles to be mounted horizontally in L1/R1 transverse area.

Control Panel

Each bank shall have individual pressure gauge and multi-turn control valve located on control panel.

Panel shall have a 0-10,000 psi master gauge displaying the master pressure of the system.

Panel shall have CGA inlet fitting and control valve.

Air Bottle Enclosure

There shall be a removable 12 gauge stainless steel smooth plate enclosure for the horizontally stored ASME bottle racks in between the L1/R1 compartments.

Air Reel - High Pressure Breathing Air

A Hannay brand EFH1520-17-18 LT H6M electric rewind reel with 300` of Parker 526BA 3/8" 6000 PSI breathing air hose shall be supplied. Hose shall be gray in color. The reel shall be plumbed to the cascade air system. The reel shall be painted graphite. A panel with a control valve, supply air gauge, regulator, relief valve, and a regulated air pressure gauge shall be located near the reel. The reel shall be wired directly to the truck 12 volt battery system, with remote mounted finger push-button rewind switch. Captive rollers and a ball stop shall be provided.

Locate the reel in compartment R1 transverse ceiling offset forward. Labeled "Breathing Air".

Air Reel - Low Pressure Utility Air [Qty: 2]

Two (2) Hannay brand EF1520-17-18 LT electric rewind reels with 200` of Contitech 3/8" 300 PSI utility air hose shall be supplied. Hose shall be red in color. The reels shall be plumbed to the cascade air system. The reels shall be painted graphite. A panel with a control valve, supply air gauge, regulator, relief valve, and a regulated air pressure gauge shall be located near each reel. The reels shall be wired directly to the truck 12 volt battery system, with remote mounted finger push-button rewind switch. Captive rollers and a ball stop shall be provided.

Locations:

Compartment R1 transverse ceiling offset rearward. Labeled "Utility Air".

Compartment L1 transverse ceiling offset rearward. Labeled "Utility Air".

Swing Out Roller Bracket [Qty: 3]

A swing out roller assembly shall be installed for the air reels. The roller shall be a Hannay Reels model EH-714 assembly with 2.5" opening. The top roller shall be removed if necessary to facilitate placement of the cable in the rollers. The roller shall be mounted to a pivoting arm that will allow the cable to pull out around the compartment door.

The rollers shall be located: Locations: L1 rearward, R1 forward, R1 rearward.

Holmatro Bulkhead Fittings

Four (4) Holmatro CORE bulkhead fittings (model 158.182.047) with covers and two (2) Holmatro diverter valves (model 158.182.054) shall be provided. Each bulkhead fitting shall be provided with up to a 30' CORE lead line and each diverter shall be provided with a 6' CORE lead line.

Bulkhead fittings shall be located one (1) each side front bumper rearward of warning lights and one (1) each side rear facing on body.

Diverter valves shall be located in R2 for customer supplied and installed DUO pump.

DOT Required Drive Away Kit

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

Paint Custom Cab

The apparatus cab shall be painted Sikkens FLNA3047 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.

Air Conditioning Condenser(s)

The air conditioning condenser cover(s) mounted on the roof of the cab shall be painted color: Job Color.

Paint Stainless Steel Body

The final finishing of the body 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. Interior compartment seams shall be sealed with a silver silicone caulk.

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

The body exterior shall be finish painted using Sikkens paint, color: FLNA3047 Red. Furnish one pint of touch-up paint including hardener to match each of the exterior colors.

Undercoating

Undercoating shall consist of a heavy coating of CRC SP400 soft seal film sprayed on the undercarriage of the entire vehicle to repel water and road elements.

Grille Painted letters

The front cab grille mesh shall be painted FLNA 4145 black. The upper and/or lower mesh areas shall be provide with FLNA92772 Concord Blue painted letters as specified.

Outline Painted Letter(s)

The cab grille shall be provide with an outline for the 18" painted letter(s) as specified. Color: FLNA4006 White.

Scotchlite Stripe

A "Hockey Stick" Scotchlite reflective stripe, 6" minimum in width, shall be applied horizontally across the front of cab and shall contour as it transitions from cab to body to comply with NFPA 1901. The color and location of the stripe to be specified by the purchaser.

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

Color: White.

Trim Stripes

A 1" Scotchlite stripe shall be applied above and below the existing stripe. The stripes shall be spaced 1" away from the main stripe.

The stripe shall be Blue.

Rear Body 3M Diamond Grade Striping

Chevron style 3M Diamond Grade striping shall be provided on the rear of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern. The striping shall be located on the rear facing extrusions, panels and doors inboard and outboard of the beavertails if applicable.

Front Bumper 3M Diamond Grade Striping

Chevron style 3M Diamond Grade striping shall be provided on the front bumper of the apparatus. The stripes shall consist of 6" Red/Fluorescent Yellow Green alternating stripes in an "A" pattern.

Cab Door Reflective Material

Reflective Red/Fluorescent Yellow Green 3M Diamond Grade material striping shall be supplied on each of the cab doors. The stripes shall run from the lower outer corner to the upper inside corner of the panel, forming an "A" shape when viewed from the rear. The material shall meet NFPA 1901 requirements for size (96 square inches) and reflectivity.

Stop Sign, Reflective, Cab Door

A 12" x 12" Scotchlite reflective stop sign will be provided and installed by Dealer on the front cab doors.

Sign Gold Letter 3" [Qty: 45]

3" high Sign Gold letter(s) shall be applied as specified.

Sign Gold Letter 6" [Qty: 12]

Letters shall be 6" high and applied as specified.

Sign Gold Letter 8" [Qty: 36]

Letters shall be 8" high and applied as specified.

Lettering Shade and Outline [Qty: 93]

Existing letter shall be shaded and outlined to contrast the letters. Blue shade and white outline.

Dealer Supplied Logo [Qty: 4]

A logo shall be supplied by the Dealer and installed as specified.

Location: (1) each side front cab doors.

Reflective Striping - Rear Doors

Scotchlite 6" x 16" white reflective striping shall be provided on the bottom inside of the rear entry doors.

Designated Standing / Walking Area Indication

A 1" wide yellow line shall be applied to indicate the outside perimeter of designated standing and walking areas above 48" from the ground in compliance with 2016 NFPA 1901. Steps, ladders and areas with a railing or structure at least 12" high are excluded from requiring the line.

Logo Package

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

WARRANTIES

Warranty documents are provided in Section 6 of the Bid Book.

Standard 1 Year Warranty

The apparatus manufacturer shall provide a full 1-year standard warranty. All components manufactured by the apparatus manufacturer shall be covered against defects in materials or workmanship for a 1-year period. All components covered by separate suppliers such as engines, transmissions, tires, and batteries shall maintain the warranty as provided by the component supplier. A copy of the warranty document shall be provided with the proposal.

Engine Warranty

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

Steering Gear Warranty

A 1-year/100,000 mile warranty will be provided as standard by Sheppard.

Lifetime Frame Warranty

The apparatus manufacturer shall provide a full lifetime frame warranty. This warranty shall cover all apparatus manufacturer designed frame, frame members, and cross-members against defects in materials or workmanship for the lifetime of the covered apparatus. A copy of the warranty document shall be provided with the proposal. Frame warranties that do not cover cross-members for the life of the vehicle shall not be acceptable.

25 Year Frame Rail Corrosion Warranty

The chassis manufacturer shall provide a 25 year corrosion warranty on the chassis frame rails. This warranty shall cover the chassis frame rails, including frame rail liners (if equipped), for a period of 25 years after the date on which the vehicle is delivered to the original purchaser. A

copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

20 Year Frame Components Corrosion Warranty

The chassis manufacturer shall provide a 20 year corrosion warranty on the galvanized chassis frame components. This warranty shall cover the front frame extensions, chassis crossmembers (from engine rearward), battery tray brackets and rear underbody support (if applicable) for a period of 20 years after the date on which the vehicle is delivered to the original purchaser. A copy of the warranty document shall be provided with the proposal. Please refer to warranty document for complete details and exclusions.

Front Axle Warranty

A 3 year/unlimited miles parts and 3 year labor axle warranty shall be provided as standard by Dana.

Rear Axle Warranty

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

ABS Brake System Warranty

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

10 Year 100,000 Mile Structural Warranty – Aluminum Cab

The apparatus manufacturer shall provide a comprehensive 10 year/100,000 mile structural warranty. This warranty shall cover all structural components of the cab and/or body manufactured by the apparatus manufacturer against defects in materials or workmanship for 10 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

Electronic Module Warranty

Components of the Weldon Multiplex system are warranted per the chart provided in Warranty documents included in Section 6 of the Bid Book.

Camera System Warranty

Safety Vision product warranty on monitor and camera is three years.

Compartment Light Warranty

Amdor LED compartment lights are warranted for 36 months.

Transmission Warranty

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

Warranty 20 Year Structural

The apparatus manufacturer shall provide a comprehensive 20 year/100,000 mile structural warranty. This warranty shall cover all structural components of the stainless steel body manufactured by the apparatus manufacturer against defects in materials or workmanship for 20 years or 100,000 miles, whichever occurs first. Excluded from this warranty are all hardware, mechanical items, electrical items, or paint finishes. A copy of the warranty document shall be provided with the proposal.

10 Year Paint and Corrosion Warranty

The apparatus manufacturer shall provide a 10-year limited paint and corrosion perforation warranty. This warranty shall cover paint peeling, cracking, blistering, and corrosion provided the vehicle is used in a normal and reasonable manner.

The paint shall be prorated for 10 years as follows:

Topcoat & Appearance: Gloss, Color Retention, Cracking		Coating System, Adhesion & Corrosion: Includes Dissimilar metal corrosion, Flaking, Blistering, Bubbling	
0 to 72 months	100%	0 to 36 months	100%
73 to 120 months	50%	37 to 84 months	50%
		85 to 120 months	25%

Corrosion perforation shall be covered 100% for 10 years. Corrosion perforation is defined as complete penetration through the exterior metal of the apparatus.

The warranty period shall begin upon delivery of the apparatus to the original user-purchaser. A copy of the warranty document shall be provided with the proposal.

UV paint fade shall be covered in a separate warranty supplied by Akzo Nobel (Sikkens) and shall be for a minimum of 10 years.

Gold Leaf Warranty

Gold Leaf is covered under the apparatus manufacturers one (1) year standard warranty.

SUPPORT, DELIVERY, INSPECTIONS AND MANUALS

Fire Apparatus Safety Guide

Fire Apparatus Safety Guide published by FAMA, latest edition. This safety manual is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of a fire apparatus and to suggest possible ways of dealing with these situations. This manual is NOT a substitute for the E-ONE`s fire apparatus operator and maintenance manuals or commercial chassis manufacturer`s operator and maintenance manuals.

Pre-delivery Inspection

After transportation from the factory and immediately prior to delivery to the fire department, the local dealer shall provide the following service: complete inspection and operational check including chassis, cab, body, pump and aerial (as applicable), and all electrical and mechanical devices; correction of any issues and leaks; fluid level checks and top off; and complete cleaning and detailing of the apparatus.

Options

The following options are priced in the Options quote in Section 2 of the E-One Bid Proposal Book.

Detroit Diesel Engine

This engine is available to only one US fire apparatus manufacturer. It is not available to E-One. No bid.

3-Year Extended Standard Warranty

E-One standard warranty extended to 3 years in place of 1 year. Coverages per certificate in Section 5 of Bid Proposal Book.

Officer Seat

Electric adjustable Bostrom 550 Officer seat in place of fixed seat.

Familiarization

Base bid includes a 3-day familiarization led by an E-One factory specialist. Because the proposed unit has few operational systems, we propose to conduct the 3-day familiarization with the VFE Service Manager at a significant savings as shown on the Options quote.

Mechanics Training

Base bid includes a 4-day factory mechanics training for (2) mechanics. Due to prior mechanics training on E-One systems, at your option you may delete training for this apparatus and deduct the amount shown on the Options quote.

Factory Visits

Base bid includes three (3) factory visits as requested to the E-One manufacturing facility in Hamburg NY where the body will be fabricated and the apparatus will be assembled. Per the specifications, travel would be via air.

Because there are no direct flights from Lexington or Cincinnati, travel via dealer supplied vehicle would take approximately the same time as air travel. For travel by dealer supplied vehicle in place of air travel, you may deduct the amount shown on the Options quote.

Lexington-Fayette Urban County Government

Lexington, Kentucky
Horse Capital of the World

Division of Central Purchasing | Date of Issue: June 20, 2016

INVITATION TO BID #91-2016
Heavy Duty Walk-in Rescue Vehicle

Bid Opening Date: **July 27, 2016** **Bid Opening Time: 2:00 PM**
Address: 200 East Main Street, 3rd Floor, Room 338, Lexington, Kentucky 40507

Type of Bid: Firm Bid

Pre Bid Meeting: June 29, 2016 Pre Bid Time: 10:00am
Address: 200 East Main Street, 3rd Floor Purchasing Conference Room

Sealed bids will be received in the office of the Division of Central Purchasing, 200 East Main Street, Lexington, Kentucky, until **2:00 PM**, prevailing local time on **7/27/2016**. Bids must be received by the above-mentioned date and time. Mailed bids should be sent to:

Division of Central Purchasing
200 East Main Street, Room 338
Lexington, KY 40507, (859) 258-3320

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. **Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.** All bids must be signed and have the company name and address, bid invitation number, and the name of the bid on the outside of the envelope.

Bids are to include all shipping costs to the point of delivery located at: 219 East Third Street, Lexington KY 40508

Bid Security Required: X Yes ___No *Cashier Check, Certified Check, Bid Bond (Personal checks and company checks will not be acceptable).*

Performance Bond Required: X Yes ___No

Check One:	Proposed Delivery:
___Bid Specifications Met ✓ Exceptions to Bid Specifications. *Exceptions shall be itemized and attached to bid proposal submitted.*	360 - 390 days after acceptance of bid.

Procurement Card Usage—The Lexington-Fayette Urban County Government may be using Procurement Cards to purchase goods and services and also to make payments. Will you accept Procurement Cards? ✓ Yes ___ No

Submitted by: Vogelpohl Fire Equipment
Firm Name

2770 Circleport Dr.
Address

Erlanger KY 41018
City, State & Zip

Bid must be signed:
(original signature)

Signature of Authorized Company Representative – Title

Todd Vogelpohl
Representative's Name (Typed or printed)

859-282-1000 859-282-1550
Area Code - Phone – Extension *Fax #*

toddv@vogelpohlfire.com
E-Mail Address

The Affidavit in this bid must be completed before your firm can be considered for award of this contract.

AFFIDAVIT

Comes the Affiant, Todd Vogelpohl, and after being first duly sworn under penalty of perjury as follows:

1. His/her name is Todd Vogelpohl and he/she is the individual submitting the bid or is the authorized representative of Vogelpohl Fire Equipment Inc, the entity submitting the bid (hereinafter referred to as "Bidder")
2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.
3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.
4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.
6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."
7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught. T Vogelpohl

STATE OF KENTUCKY

COUNTY OF Boone

The foregoing instrument was subscribed, sworn to and acknowledged before me by Todd Vogelpohl on this the 27 day of July, 2016.

My Commission expires: 1/24/19

DAVID MCCLANAHAN
NOTARY PUBLIC
ID # 526549
Commonwealth of Kentucky
My Commission Expires January 24, 2019

NOTARY PUBLIC, STATE AT LARGE

Please refer to Section II. Bid Conditions, Item "U" prior to completing this form.

I. GREEN PROCUREMENT

A. ENERGY

The Lexington-Fayette Urban County Government is committed to protecting our environment and being fiscally responsible to our citizens.

The Lexington-Fayette Urban County Government mandates the use of Energy Star compliant products if they are available in the marketplace (go to **www.Energystar.gov**). If these products are available, but not submitted in your pricing, your bid will be rejected as non-compliant.

ENERGY STAR is a government program that offers businesses and consumers energy-efficient solutions, making it easy to save money while protecting the environment for future generations.

Key Benefits

These products use 25 to 50% less energy
Reduced energy costs without compromising quality or performance
Reduced air pollution because fewer fossil fuels are burned
Significant return on investment
Extended product life and decreased maintenance

B. GREEN SEAL CERTIFIED PRODUCTS

The Lexington-Fayette Urban County Government is also committed to using other environmentally friendly products that do not negatively impact our environment. Green Seal is a non-profit organization devoted to environmental standard setting, product certification, and public education.

Go to **www.Greenseal.org** to find available certified products. These products will have a reduced impact on the environment and on human health. The products to be used must be pre-approved by the LFUCG prior to commencement of any work in any LFUCG facility. If a Green Seal product is not available, the LFUCG must provide a signed waiver to use an alternate product. Please provide information on the Green Seal products being used with your bid response.

C. GREEN COMMUNITY

The Lexington-Fayette Urban County Government (LFUCG) serves as a principal, along with the University of Kentucky and Fayette County Public Schools, in the Bluegrass Partnership for a Green Community. The Purchasing Team component of the Partnership collaborates on economy of scale purchasing that promotes and enhances environmental initiatives. Specifically, when applicable, each principal is interested in obtaining best value products and/or services which promote environment initiatives via solicitations and awards from the other principals.

If your company is the successful bidder on this Invitation For Bid, do you agree to extend the same product/service pricing to the other principals of the Bluegrass Partnership for a Green Community (i.e. University of Kentucky and Fayette County Schools) if requested?

Yes ✓ **No**_____

II. Bid Conditions

A. No bid may be withdrawn for a period of sixty (60) days after the date and time set for opening.

B. No bid may be altered after the date and time set for opening. In the case of obvious errors, the Division of Central Purchasing may permit the withdrawal of a bid. The decision as to whether a bid may be withdrawn shall be that of the Division of Central Purchasing.

C. Acceptance of this proposal shall be enactment of an Ordinance by the Urban County Council.

D. The bidder agrees that the Urban County Government reserves the right to reject any and all bids for either fiscal or technical reasons, and to award each part of the bid separately or all parts to one vendor.

E. Minor exceptions may not eliminate the bidder. The decision as to whether any exception is minor shall be entirely that of the head of the requisitioning Department or Division and the Director of the Division of Central Purchasing. The Urban County Government may waive technicalities and informalities where such waiver would best serve the interests of the Urban County Government.

F. Manufacturer's catalogue numbers, trade names, etc., where shown herein are for descriptive purposes and are to guide the bidder in interpreting the standard of quality, design, and performance desired, and shall not be construed to exclude proposals based on furnishing other types of materials and/or services. However, any substitution or departure proposed by the bidder must be clearly noted and described; otherwise, it will be assumed that the bidder intends to supply items specifically mentioned in this Invitation for Bids.

G. The Urban County Government may require demonstrations of the materials proposed herein prior to acceptance of this proposal.

H. Bids must be submitted on this form and must be signed by the bidder or his authorized representative. Unsigned bids will not be considered.

I. Bids must be submitted prior to the date and time indicated for opening. Bids submitted after this time will not be considered.

J. All bids mailed must be marked on the face of the envelope:

"Bid on #91-2016 Heavy Duty Walk-in Rescue Vehicle"

and addressed to: Division of Central Purchasing
200 East Main Street, Room 338
Lexington, Kentucky 40507

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

K. Bidder is requested to show both unit prices and lot prices. In the event of error, the unit price shall prevail.

L. A certified check or Bid Bond in the amount of 5 percent of the bid price must be attached hereto. This check must be made payable to the Lexington-Fayette Urban County Government, and will be returned when the material and/or services specified herein have been delivered in accordance with specifications. In the event of failure to perform within the time period set forth in this bid, it is agreed the certified check may be cashed and the funds retained by the Lexington-Fayette Urban County Government as liquidated damages. Checks of unsuccessful bidders will be returned when the bid has been awarded.

M. The delivery dates specified by bidder may be a factor in the determination of the successful bidder.

N. Tabulations of bids received may be mailed to bidders. Bidders requesting tabulations must enclose a stamped, self-addressed envelope with the bid.

O. The Lexington-Fayette Urban County Government is exempt from Kentucky Sales Tax and Federal Excise Tax on materials purchased from this bid invitation. Materials purchased by the bidder for construction projects are not tax exempt and are the sole responsibility of the bidder.

P. All material furnished hereunder must be in full compliance with OSHA regulations.

Q. If more than one bid is offered by one party, or by any person or persons representing a party, all such bids shall be rejected.

R. Signature on the face of this bid by the Bidder or his authorized representative shall be construed as acceptance of and compliance with all terms and conditions contained herein.

S. The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

T. The Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any county, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;

(2) The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;

(3) The contractor will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and

(4) The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.

The Act further provides:

KRS 45.610. Hiring minorities - Information required

(1) For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.

(2) Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.

KRS 45.620. Action against contractor - Hiring of minority contractor or subcontractor

(1) If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.

(2) If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 to 45.640.

(3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.

KRS 45.640 Minimum skills

Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

It is recommended that all of the provisions above quoted to be included as special conditions in each contract. In the case of a contract exceeding $250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

U. Any party, firm or individual submitting a proposal pursuant to this invitation must be in compliance with the requirements of the Lexington-Fayette Urban County Government regarding taxes and fees before they can be considered for award of this invitation and must maintain a "current" status with regard to those taxes and fees throughout the term of the contract. The contractor must be in compliance with Chapter 13 from the Code of Ordinances of the Lexington-Fayette Urban County Government. The contractor must be in compliance with Ordinance 35-2000 pursuant to contractor registration with the Division of Building Inspection. If applicable, said business must have a Fayette County business license.

Pursuant to KRS 45A.343 and KRS 45A.345, the contractor shall

(1) *Reveal any final determination of a violation by the contractor within the previous five year period pursuant to KRS Chapters 136 (corporation and utility taxes), 139 (sales and use taxes), 141 (income taxes), 337 (wages and hours), 338 (occupational safety and health of employees), 341 (unemployment and compensation) and 342 (labor and human rights) that apply to the contractor; and*

(2) *Be in continuous compliance with the above-mentioned KRS provisions that apply to the contractor for the duration of the contract.*

A contractor's failure to reveal the above or to comply with such provisions for the duration of the contract shall be grounds for cancellation of the contract and disqualification of the contractor from eligibility for future contracts for a period of two (2) years.

V. Vendors who respond to this invitation have the right to file a notice of contention associated with the bid process or to file a notice of appeal of the recommendation made by the Director of Central Purchasing resulting from this invitation.

Notice of contention with the bid process must be filed within 3 business days of the bid/proposal opening by (1) sending a written notice, including sufficient documentation to support contention, to the Director of the Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his/her contention with the bid process. After consulting with the Commissioner of Finance the Chief Administrative Officer and reviewing the documentation and/or hearing the vendor, the Director of Central Purchasing shall promptly respond in writing findings as to the compliance with bid processes. If, based on this review, a bid process irregularity is deemed to have occurred the Director of Central Purchasing will consult with the Commissioner of Finance, the Chief Administrative Officer and the Department of Law as to the appropriate remedy.

Notice of appeal of a bid recommendation must be filed within 3 business days of the bid recommendation by (1) sending a written notice, including sufficient documentation to support appeal, to the Director, Division of Central Purchasing or (2) submitting a written request for a meeting with the Director of Central Purchasing to explain his appeal. After reviewing the documentation and/or hearing the vendor and consulting with the Commissioner of Finance and the Chief Administrative Officer, the Director of Central Purchasing shall in writing, affirm or withdraw the recommendation.

LFUCG Non-Appropriation Clause

Contractor acknowledges that the LFUCG is a governmental entity, and the contract validity is based upon the availability of public funding under the authority of its statutory mandate.

In the event that public funds are unavailable and not appropriated for the performance of the LFUCG's obligations under this contract, then this contract shall automatically expire without penalty to the LFUCG thirty (30) days after written notice to Contractor of the unavailability and non-appropriation of public funds. It is expressly agreed that the LFUCG shall not activate this non-appropriation provision for its convenience or to circumvent the requirements of this contract, but only as an emergency fiscal measure during a substantial fiscal crisis, which affects generally its governmental operations.

In the event of a change in the LFUCG's statutory authority, mandate and mandated functions, by state and federal legislative or regulatory action, which adversely affects the LFUCG's authority to continue its obligations under this contract, then this contract shall automatically terminate without penalty to the LFUCG upon written notice to Contractor of such limitation or change in the LFUCG's legal authority.

SPECIAL INSTRUCTIONS TO THE BIDDER

(DO NOT SUBMIT PERFORMANCE SECURITY WITH BID)

Performance Security: The APPARENT LOW BIDDER shall furnish, before recommendation by the Division of Central Purchasing to the Urban County Council that the BIDDER'S bid be accepted, a Performance Bond, Certified Check or Cashier's Check, payable to the Lexington-Fayette Urban County Government, in the penal sum of 100% of the price of the materials and/or services proposed in the bid.

The performance bond will not be returned to the bidder after delivery of the materials/services specified herein unless the bidder requests that the performance bond be returned.

The certified / cashier's check will be returned when the materials and/or services specified herein have been delivered.

In the event of bidder's failure to perform as specified herein, it is agreed that the monies represented by the performance bond or certified / cashier's check shall be retained by the Lexington-Fayette Urban County Government as liquidated damages.

Contracts that are less than $50,000 will not require a 5% bid security or a performance and payment bond.

EQUAL **OPPORTUNITY AGREEMENT**

The Law

- Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.

- Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.

- Section 503 of the Rehabilitation Act of 1973 states:

  The Contractor will not discriminate against any employee or applicant for employment because of physical or mental disability.

- Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.

- Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

  The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, veteran status, disability and age.

Signature

Vogelpohl Fire Equipment
Name of Business

GENERAL PROVISIONS OF BID CONTRACT

By signing the below, bidder acknowledges that it understands and agrees with the following provisions related to its bid response and the provision of any goods or services to LFUCG upon selection by LFUCG pursuant to the bid request:

1. Bidder shall comply with all Federal, State & Local regulations concerning this type of service or good.

2. Failure to submit ALL forms and information required by LFUCG may be grounds for disqualification.

3. Addenda: All addenda, if any, must be considered by the bidder in making its response, and such addenda shall be made a part of the requirements of the bid contract. Before submitting a bid response, it is incumbent upon bidder to be informed as to whether any addenda have been issued, and the failure of the bidder to cover any such addenda may result in disqualification of that response.

4. Bid Reservations: LFUCG reserves the right to reject any or all bid responses, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.

5. Liability: LFUCG is not responsible for any cost incurred by bidder in the preparation of its response.

6. Changes/Alterations: Bidder may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the bid response, and received by LFUCG prior to the scheduled closing time for receipt of bids, will be accepted. The bid response when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of bid response".

7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from any bidder.

8. Bribery Clause: By his/her signature on its response, bidder certifies that no employee of his/hers, any affiliate or subcontractor, has bribed or attempted to bribe an officer or employee of the LFUCG.

9. Additional Information: While not necessary, the bidder may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and evaluating the bid response. Additional documentation shall not serve as a substitute for other documentation which is required by the LFUCG to be submitted with the bid response.

10. Ambiguity, Conflict or other Errors: If a bidder discovers any ambiguity, conflict, discrepancy, omission or other error in the bid request of LFUCG, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.

11. Agreement to Bid Terms: In submitting its bid response, the bidder agrees that it has carefully examined the specifications and all provisions relating to LFUCG's bid request, including but not limited to the bid contract. By submission of its bid response, bidder states that it understands the meaning, intent and requirements of LFUCG's bid request and agrees to the same. The successful bidder shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to bidder shall be authorized for services, expenses, or goods reasonably covered under these provisions that the bidder omits from its bid response.

12. Cancellation: LFUCG may unilaterally terminate the bid contract with the selected bidder(s) at any time, with or without cause, by providing at least thirty (30) days advance written notice unless a different advance written notice period is negotiated prior to contract approval. Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the

LFUCG. Payment for those goods and services shall not be unreasonably withheld.

13. Assignment of Contract: The selected bidder(s) shall not assign or subcontract any portion of the bid contract with LFUCG without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.

14. No Waiver: No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this bid proposal or bid contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.

15. Authority to do Business: Each bidder must be authorized to do business under the laws of the Commonwealth of Kentucky and must be in good standing and have full legal capacity to provide the goods or services specified in the bid proposal. Each bidder must have all necessary right and lawful authority to submit the bid response and enter into the bid contract for the full term hereof including any necessary corporate or other action authorizing the bidder to submit the bid response and enter into this bid contract. If requested, the bidder will provide LFUCG with a copy of a corporate resolution authorizing this action and/or a letter from an attorney confirming that the proposer is authorized to do business in the Commonwealth of Kentucky. All bid responses must be signed by a duly authorized officer, agent or employee of the bidder.

16. Governing Law: This bid request and bid contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this matter, the bidder agrees that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division and that the bidder expressly consents to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to these matters or any rights or obligations arising thereunder.

17. Ability to Meet Obligations: Bidder affirmatively states that there are no actions, suits or proceedings of any kind pending against bidder or, to the knowledge of the bidder, threatened against the bidder before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of bidder to perform its obligations under this bid response or bid contract, or which question the legality, validity or enforceability hereof or thereof.

18. Bidder understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any purpose whatsoever. Bidder is an independent contractor at all times related to the bid response or bid contract.

19. If any term or provision of this bid contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.

7-27-16

Lexington, Ky Fire Dept.
SPECIFICATIONS FOR A HEAVY DUTY WALK-IN RESCUE

Provide one original and one copy of your bid.

INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of one (1) complete apparatus equipped as hereinafter specified. These specifications cover only the general requirements as to the type of construction and test to which the apparatus shall conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the contractor, who shall be solely responsible for the design and construction of all features. Apparatus and loose equipment proposed by the bidder shall meet the applicable requirements of the National Fire Protection Association (NFPA) and current Industry best practices, as stated in current editions at time of contract execution. Loose equipment shall be provided only as stated in the following pages.

Bids shall only be considered from wholly American owned companies/manufacturers that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of thirty (30) years, building apparatus in the United States. Further, bidder shall maintain dedicated service facilities for the repair and service of products. Evidence of such a facility shall be included in bidder proposal.

Each bidder shall furnish satisfactory evidence of their ability to construct the apparatus specified and shall state the location of the factory where the apparatus is to be built. The bidder shall also show that the company is in position to render prompt service and to furnish replacement parts for said apparatus. The bidder shall provide a list of customers with apparatus of similar design and construction that has been in service for a minimum of five (5) years.

Each bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract shall conform. These specifications shall indicate size, type, model and make of all component parts and equipment. Each bidder shall provide two hard copies and one electronic copy of their complete bid proposal.

A drawing of the proposed apparatus along with turn radius analysis report (including both curb to curb and wall to wall measurements) shall be provided with each bid.

Manufacturers shall provide specifics of construction, construction methods, components and operational data with bid.

PROJECT FUNDING

Fulfillment of this project will be contingent on funding avenues yet to be determined and committed. Final Project funding may potentially be dependent upon bid pricing. Once the bid is submitted and opened at a time, date and location provided by the Lexington Fayette Urban County Government, the bid may not be withdrawn and will stand for ninety (90) calendar days.

Fifty percent (50%) of bid price will be issued upon completion of the chassis; final payment will be issued upon apparatus delivery and satisfactory inspection by the Division of Fire. A percentage (%) of discount will be included in bid price for chassis pre-pay.

Bidders shall provide an option to negotiate a 100% pre-payment for the apparatus.

QUALITY AND WORKMANSHIP

The design of the apparatus shall embody the latest approved automotive engineering best practices. The workmanship shall be of the highest quality in its respective field. Special consideration shall be given to the following points: Accessibility of the various units that require periodic maintenance, ease of operation (including both PTO driven accessories and driving) and symmetrical proportions. Construction shall be rugged and ample safety factors shall be provided to carry the loads specified and to meet both on and off road requirements and speed conditions as set forth under "Performance Tests and Requirements". Welding shall not be employed in the assembly of the apparatus in a manner that shall prevent the ready removal of any component part for service or repair. All steel welding shall follow American Welding Society recommendations for structural steel welding. All aluminum welding shall be done to American Welding Society and ANSI recommendations for structural welding of aluminum. The manufacturer is required to have an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

DELIVERY SCHEDULE

The apparatus shall be delivered to the Lexington Fire Department within 300 days of bid acceptance or the bidder shall be penalized $500.00 per day for each day over the number of days specified in the bid the apparatus is not delivered.

DELIVERY

Apparatus, to ensure proper break in of all components while still under warranty, **shall be delivered under its own power** - rail or truck freight shall not be acceptable. A qualified

delivery engineer representing the contractor shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in the proper operation, care and maintenance of the equipment delivered.

TRAINING

There shall be three (3) single day training classes for different groups provided at a Fire Department designated location to cover the operation, use and maintenance of the vehicle. A lesson plan shall be provided and left with each group. The manufacturer's representative shall be well versed in the systems of the apparatus. The target audience to be the service and operational personnel.

MANUFACTURER SPONSORED TRAINING

The manufacturer will provide to the Lexington KY Division of Fire's Mechanical Bureau, factory level or equivalent repair and or maintenance related training on fire apparatus and or apparatus components within one year of delivery. This training will be the equivalent of eight (8) man days.

All expenses associated with providing this training including registration, travel, lodging, meals course materials, etc. shall be the sole responsibility of the manufacturer.

INFORMATION REQUIRED

MANUAL, FIRE APPARATUS PARTS

Two (2) custom parts manuals for the complete fire apparatus shall be provided in hard copy with the completed unit. One (1) compact disc (CD) shall also be provided that shall include all of the information from the above manual.

The manual shall contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in Alphabetical order
- Instructions on how to locate parts

The manual shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

CHASSIS SERVICE CD MANUALS

There shall be one (1) CD format chassis service manuals and two (2) hard copies containing parts and service information on major components provided with the completed unit.

The manual shall contain the following sections:

Job number

Table of contents

Troubleshooting

Front Axle/Suspension

Brakes

Engine Tires

Wheels

Cab

Electrical, DC

Air Systems

Plumbing

Appendix

The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

CHASSIS OPERATION CD MANUALS

There shall be two (2) hard copy and one (1) CD format chassis operation manuals provided.

FLUID CAPACITY PLATE

A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluids required including engine oil, engine coolant, transmission, pump

transmission lubrication and drive axle.

SPECIFICATION PLATE

A plate that is highly visible to the driver while seated shall be provided. This plate shall show the overall height, length, and gross vehicle weight rating.

SAFETY VIDEO

Documentation provided at the time of delivery shall also include an apparatus safety video, in DVD format. This video shall address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus. Safety procedures for the following shall be included: vehicle pre-trip inspection, chassis operation, pump operation, and maintenance.

ACCEPTANCE TEST

At final inspection, a road test shall be conducted with the apparatus fully loaded and a continuous run of ten (10) miles or more shall be made under all driving conditions, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles shall run quietly and be free from abnormal vibration or noise throughout the operating range of the apparatus. Vehicle shall adhere to the following parameters:

A) The apparatus, when fully equipped and loaded, shall have not less than 25% or more than 50% of the weight on the front axle, and not less than 50% nor more than 75% on the rear axles.

B) The apparatus shall be capable of accelerating to 35 mph from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed rpm of the engine.

C) The service brakes shall be capable of stopping a fully loaded vehicle in 35 feet at 20 mph on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.

D) The apparatus, fully loaded, shall be capable of obtaining a speed in compliance with NFPA standards on a level concrete highway with the engine not exceeding its governed rpm (full load).

E) The apparatus shall be tested and approved in accordance with NFPA Standard Practices and Federal Motor Vehicle Safety Standards (FMVSS).

The manufacturer shall provide a complete demonstration of all vehicle systems during the final inspection of the completed apparatus. Final acceptance of apparatus is subject to passing all required third party tests.

FAILURE TO MEET TEST

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, second trials may be made at the option of the bidder within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the bidder of such changes, shall also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the purchaser during the above-specified period with the permission of the bidder shall not constitute acceptance.

LIABILITY

The successful bidder shall defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

SPECIFICATION BID REQUIREMENTS

Proposals taking total exception to specifications shall not be acceptable.

Bidders shall submit a detailed proposal. Bid proposals shall be submitted in the same sequence as specifications for ease of evaluation, comparison and checking of compliance. A letter only, even though written on a company letterhead, shall not be sufficient.

Any bid indicating that the manufacturer's proposal shall supersede the purchaser's specifications will be immediately rejected

EXCEPTIONS

All exceptions shall be stated no matter how seemingly minor. Any exceptions not taken shall be assumed by the purchaser to be included in the proposal, regardless of the cost to the bidder.

The bidder shall indicate on the attached compliance sheet whether or not their proposal

meets the specification. **An exception to these requirements shall not be acceptable.**

Exceptions shall be clearly identified and fully explained on a separate page. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. **The decision as to whether any exception is approved as being equivalent shall be entirely that of the Chief of the Division of Fire.**

BID BOND

All bidders shall provide a bid bond as security for the bid in the amount of 5% to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language, which assures that the bidder/principal shall give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.

PERFORMANCE BOND

The successful bidder shall provide, within thirty (30) days after award of contract, and along with a signed copy of the contract, a performance bond, which guarantees performance of all terms and conditions of the contract and warranty agreement. The performance bond will specifically cover the performance of the contract according to its terms and conditions, as well as payment of all related bills and encumbrances. This performance bond shall be issued by a surety company who is listed by the U.S. Treasury Department's list of approved sureties, as published in Circular 570, as of the bid date. The performance bond shall be issued in an amount equal to 100% of the contract amount and shall be dated concurrent to, or subsequent to, the date of the contract.

COMMERCIAL GENERAL LIABILITY INSURANCE

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Products/Completed Operations Aggregate	$2,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence	$1,000,000

Coverage shall be written on a Commercial General Liability form. The policy shall be written on an occurrence form and shall include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy shall include owner as an additional insured when required by written contract.

The policy shall include owner as an additional insured as their interest may appear.

The required limits can be provided by one or more policies provided all other insurance requirements are met.

A carrier(s) rated "Excellent" by A.M. Bests shall provide coverage

COMMERCIAL AUTOMOBILE INSURANCE

The successful bidder shall, during the performance of the contract keep in force at least the following minimum limits of commercial automobile insurance:

Combined Single Limit: $1,000,000

Coverage shall be written on a Commercial Automobile form.

UMBRELLA/EXCESS LIABILITY INSURANCE

The successful bidder shall, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate:	$25,000,000
Each Occurrence:	$25,000,000

The policy shall be written on an occurrence basis and at a minimum provide the same

coverage's as Bidder's General Liability, Automobile Liability and Employer's Liability policies. Owner shall be included as an additional insured on the General Liability and Automobile Liability policies as their interest may appear. The required limits can be provided by one or more policies provided all other insurance requirements are met.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverage's listed above along with its bid. The certificate shall be made out to the purchaser and be an original, no photocopies shall be accepted. The Certificate of Insurance shall provide that owner be given 30 days advance notice of cancellation, nonrenewal or material change in coverage.

ISO COMPLIANCE

The manufacturer shall operate a Quality Management System under the requirements of ISO 9001. These standards specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance shall be included with the bid.

SINGLE SOURCE MANUFACTURER

Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab and body being fabricated and assembled on the bidder's premises. The warranties relative to the chassis and body design (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body and chassis). The bidder shall provide evidence that they comply with this requirement.

NFPA STANDARDS

This unit shall comply with the current NFPA standards in effect at the time of bid.

Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.

The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company shall designate, in writing, who is qualified to witness and certify test results.

GENERATOR TEST

The generator shall be tested, approved, and certified by a third party, approved by the Fire Department, at the manufacturer's expense.

The test results shall be provided to the Fire Department at the time of delivery.

VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through a party acceptable to the buyer, that it is built and complies with all applicable standards in the current edition of NFPA 1901. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus. (No exception)

A placard shall be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

INSPECTION TRIPS

The bidder shall provide three (3) factory inspection trips. The inspection trip(s) shall be scheduled at times mutually agreed upon between the manufacturer's representative and the customer, typically pre-construction, post paint and final inspection. All costs such as travel, lodging and meals shall be the responsibility of the bidder. Transportation is to be commercial air from Lexington, Kentucky, (or locale acceptable to the fire department) to the nearest commercial airport and ground transportation from the time of arrival until departure.

Pre-construction

The bidder shall plan on five (5) LFD personnel traveling for the pre-construction conference.
There should be adequate time provided to meet with engineers, project managers and conduct facility tours.

Mid-Point

Five (5) LFD members will travel for the in - process inspection. Purchaser requires that the body should be loaded on the apparatus.

Final

Five (5) LFD members will travel for the final inspection.

Adequate time shall be provided for demonstration of systems and designated electrical options as specified.

AFTERMARKET SUPPORT

WEBSITE

A Customer Service website shall provide authorized dealers access to comprehensive information pertaining to the maintenance and service of their customer's apparatus. This tool shall provide the authorized dealer the ability to service and support their customers to the best of their ability with factory support at their fingertips.

This website shall also be accessible to the end user through the guest login. Limited access is available and vehicle specific parts information accessible by entering a specific VIN number. All end users should see their local authorized dealer for additional support and service.

The website shall provide the following to the designated individuals:

Ability to access truck detail information on the major components of the vehicle, warranty information, available vehicle photographs, vehicle drawings, sales options, applicable vehicle software downloads, etc.

Parts look-up capability, with the aid of digital photographs, part drawings assembly drawings.

Ability to electronically submit warranty claims directly to the factory for reimbursement.

Accessibility to multiple dealer reports that allow the dealership to maintain communication with the customer on the status of orders, claims, and phone contacts.

Access to all currently published Operation and Maintenance and Service publications.

Access to manufacturer Service Bulletins and Work Instructions containing information on current service topics and recommendations provided.

Access to upcoming training classes offered by the manufacturer.

Access to interactive electronic learning modules (Operators Guides) covering the operation of major vehicle components.

Access to customer service articles, corporate news, quarterly newsletters, and key contacts.

SERVICE CENTER

In order to maintain this complex piece of apparatus, the experience and reliability of the factory authorized service center is of major concern to purchaser. The service facility must comply with the following criteria in order to be considered:

Must have a minimum of five (5) years' experience repairing and maintaining fire apparatus of the make and type of apparatus being bid.

Must have adequate indoor heated facilities and factory-trained technicians to perform repairs, including power train, chassis, generator and controls must be provided.

Must have a fully equipped mobile shop vehicle to be available for warranty work in Lexington, KY.

The bidder shall submit the location and recent photos of the service center and mobile service unit(s) along with the bid. Purchaser reserves the right to visit and inspect the service center prior to awarding bid.

The contractor is required to provide all warranty service at the Lexington fire vehicle maintenance facility whenever major shop work is not involved. For warranty service involving transportation to the shop, the apparatus shall be picked up in Lexington, KY and returned from the contractor's facility by his personnel.

While under warranty, if towing or flat bedding of the apparatus to the repair facility is required, it shall be the responsibility of the bidder to provide such service at his cost.

The contractor agrees to keep the apparatus in a secure, indoor heated area at all times while in their possession. It shall be understood that the contractor is responsible for the apparatus and all articles of equipment from the time the apparatus is picked up until it is returned to Lexington, KY.

The contractor shall provide proof of insurance coverage of the apparatus to LFD before the apparatus is transported.

GENERAL CONSTRUCTION

The apparatus shall be designed for extreme duty use with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association. All piping, lighting and other vehicle accessories shall be mounted in a manner that provides the

maximum ground clearance.

CORROSION PROTECTION
There shall be a system to prevent corrosion of all underbody components. The builder shall provide a detailed description of the corrosion protection process.

SEATING CAPACITY
The seating capacity in the cab shall be two (2).
The minimum seating capacity in the rescue body shall be six (6)

MAXIMUM OVERALL HEIGHT
The maximum overall height of the apparatus shall not exceed 123.5 inches.

MAXIMUM OVERALL LENGTH
The maximum overall length of the apparatus shall be no more than 39 feet.

WHEEL BASE
The wheel base of the vehicle shall be no greater than 230.00 inches and shall be stated in the proposal.

GVW RATING
The gross vehicle weight rating shall be shall be a minimum of 65,000 pounds. The GVW will be based on a tandem axle apparatus built for severe duty.

APPROVAL DRAWING
A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, custom switch panels, instrument panel and dash layouts, compartments, major components, etc.

A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.

FINAL DRAWING
There shall be a revised drawing of the truck with all the changes made during production provided at pickup.

ELECTRICAL WIRING DIAGRAMS
There shall one (1) compact discs and one hard copy containing "As-Built" electrical wiring diagrams specifically prepared for the apparatus provided.

CHASSIS
Chassis provided shall be a new, tilt-cab type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The chassis shall be the manufacturer's heavy-duty line tilt cab.

FRAME
Apparatus shall have continuous frame rails that are sturdy enough to support the apparatus for the intended use. Frame rails shall be of one continuous piece without splices, formed from a minimum 110,000 psi yield heat treated steel. A frame rail liner may be utilized to meet he strength requirements specified.

RBM: Shall be no less than 2,800,000 inch-pounds as measured at wheel base center.

The frame rails shall have corrosion protection process applied. The builder shall provide a detailed description of the corrosion protection process.

FRAME REINFORCEMENT
In addition, a mainframe inverted "L" liner shall be provided. It shall be heat-treated steel, designed to fit inside the frame rail. Each liner shall have a section modulus of 7.795 cubic inches, yield strength of 110,000 psi, and rbm of 857,462 in-pounds. Total rbm at wheel base center shall be a minimum of 3,600,000 pounds per rail.

The frame liner shall be mounted inside of the chassis frame rail and extend the full length of the frame.

FRONT NON DRIVE AXLE
The front axle shall be a Meritor. It shall be equipped with oil seals and transparent cover for oil level inspection. It shall be the responsibility of the builder to propose the specific model and weight rating to accommodate the front axle load as built. The builder shall provide detailed description in the proposal as to the weight rating and model number of the axle.

FRONT SUSPENSION
The front suspension shall be parabolic (taper leaf) spring type, rated to accommodate the front axle load as built. The builder shall provide detailed description as to the construction,

weight rating, and details of the front suspension.

Axle stops with energy absorbing jounce bumpers shall be supplied on the spring top pad.

SHOCK ABSORBERS
Heavy-duty telescoping shock absorbers shall be provided on the front suspension.

FRONT TIRES
Front tires shall be Michelin radials sized for the front axle load with all position XZY tread. The tires shall be mounted on Alcoa polished aluminum disc-type wheels.

REAR AXLE
The rear axle shall be a Meritor. It shall be the responsibility of the builder to propose the specific model and weight rating to accommodate the rear axle load as built. The builder shall provide detailed description in the proposal as to the weight rating and model number of the axle.

It shall be equipped with oil seals.

Axles shall have a gear reduction appropriate for rating.

A driver controlled inter-axle lock, with indicator light, shall be located within easy reach of the driver.

REAR SUSPENSION
Rear suspension shall be a Hendrickson FIREMAXX EX rated to accommodate the rear axle load as built.

DRIVER CONTROL DIFFERENTIAL LOCK (DCDL)
The rear tandem axle shall be equipped with a driver controlled differential lock (DCDL).

The control shall be located within easy reach of the driver and controlled with a locking switch.

DUMP VALVES (REAR AIR RIDE SUSPENSION)
The rear air ride suspension shall be supplied with a dump valve system provided by the custom chassis manufacturer.

The control shall be located inside the cab.

To prevent accidental activation of the valves, a five (5) second timed delay shall be built into the control circuit. The chassis back-up alarm shall sound when the control is active.

The parking brake must be applied before the control shall be active. Release of the parking brake shall automatically inflate the suspension.

REAR TIRES
Rear tires shall be eight (8) Michelin radials sized for the rear axle load with XDN-2 all position tread.
The tires shall be mounted on Alcoa polished aluminum disc wheels with a ten (10)-stud 11.25" bolt circle.

TOP SPEED OF VEHICLE
The speed of the apparatus, in order to conform with current NFPA guidelines, shall be controlled electronically, and not by mechanical limitations (i.e. rear axle ratios)

HUB COVERS (FRONT)
Stainless steel hub covers shall be provided on the front axle. An oil level viewing window shall be provided.

HUB COVERS (REAR)
Stainless steel covers shall be provided over the rear axle hubs.

LUG NUT COVERS
Chrome plated lug nut covers shall be installed on all lug nuts.

TIRE BALANCE
All tires shall be balanced with Counteract balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.

MUD FLAP
Mud flaps shall be installed behind the front and rear wheels of the apparatus.

ADDITIONAL MUD FLAP
A full width mud flap below the rear step made from Symplastics anti-splash material shall be provided. Flap should Read RES1CUE.

WHEEL CHOCKS
There shall be one (1) pair of folding Ziamatic SAC-44-E, aluminum alloy, Quick-Choc wheel blocks with easy-grip handle provided.

WHEEL CHOCK BRACKETS

There shall be one (1) pair of Ziamatic SQCH-44-H style horizontal mounting wheel chock brackets provided for the Ziamatic SAC-44-E folding wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted rear of the tandem axle on the driver side.

ANTI-LOCK BRAKE SYSTEM

The vehicle shall be equipped with a Wabco 6S6M, anti-lock braking system. The ABS shall provide a six (6) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any wheel begins to lockup, a signal shall be sent to the control unit. This control unit shall then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

ELECTRONIC STABILITY CONTROL

A vehicle control system shall be provided as an integral part of the ABS brake system from Meritor Wabco.

The system shall monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system shall automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system shall monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system shall selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.

AUTOMATIC TRACTION CONTROL

An anti-slip feature shall be included with the ABS. The Automatic Traction Control shall be used for traction in poor road and weather conditions. The Automatic Traction Control shall act as an electronic differential lock that shall not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) shall work with the engine ECU, sharing information concerning wheel slip. Engine ECU shall use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for.

A "mud/snow" switch shall be provided on the instrument panel. Activation of the switch shall allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

BRAKES
The service brake system shall be full air type.

The front brakes shall be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.

The rear brakes shall be Meritor 16.50" x 7.0" cam operated with automatic slack adjusters.

The brake system shall be certified, third party inspected, for improved stopping distance.

AIR COMPRESSOR, BRAKE SYSTEM
The air compressor shall be a Bendix BA-921 with 15.80 cubic feet per minute output at 1,250 RPM.

BRAKE SYSTEM
The brake system shall include:

- Bendix dual brake treadle valve with vinyl covered foot surface
- Heated automatic moisture ejector on air dryer
- Total air system capacity of 6,653 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve accessible by both the driver and the officer.
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, shall be provided with an automatic spring brake application at 40 psi

The air tank shall be primed and painted to meet a minimum 750 hour salt spray test.

To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets. (no exception).

- Wabco System Saver 1200 air dryer with spin-on coalescing filter cartridge
- 100 Watt Heater

BRAKE LINES
Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

AIR INLET WITH AUTOMATIC EJECT
One (1) air inlet with Kussmaul Air Eject shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall automatically disconnect the air line when the truck is started. It shall be equipped with a male Type "A" coupling. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female coupling shall also be provided with the loose equipment.

The location shall be determined at the pre-construction conference.

AIR OUTLET
One (1) female Type "A" coupling shall be provided adjacent to the Air Inlet. Air supply shall be dried and filtered.

The location shall be determined at the pre-construction conference.

ALL WHEEL LOCK-UP
An all-wheel lock-up system shall be installed which applies air to the front brakes and uses the spring brake at the rear.

Front brakes shall apply with the standard parking brake control.

The all wheel lock-up system shall be operational only when the parking brake is applied, the truck transmission is in neutral and engine is running.

AIR TANK, ADDITIONAL – AIR HORN
An additional air tank with 1,454 cubic inch displacement shall be provided to increase the capacity of the air system. This tank shall be dedicated for air horn use.

The air tank shall be primed and painted to meet a minimum 750 hour salt spray test. To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets. (No Exceptions.)

AIR TANK, ADDITIONAL – BRAKING SYSTEM
An additional air tank with 1,454 cubic inch displacement shall be provided to increase the capacity of the main air brake system. This tank shall be plumbed into the rear half of the brake system.

The air tank shall be primed and painted to meet a minimum 750 hour spray test. To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets. (No exception)

REMOTE AIR TANK DRAIN
There shall be a remote cable controlled drain valve installed on the "wet" tank. The drain valve shall be actuated from the side of the vehicle and be a vinyl covered stainless steel cable, firmly attached to the underside of the vehicle. A loop shall be provided at the cable end for ease of pulling the drain.

AIR SYSTEM FITTINGS
All air system connection fittings shall be of the compression type for all air applications (brakes or accessories).

ENGINE
The chassis shall be powered by an electronically controlled engine as described below:

The Engine shall be compliant with 2016 EPA Emission Standards. The engine shall deliver sufficient horsepower and torque with reserve, for a tandem axle HDR designed for severe duty.

Engine shall be a Cummins, Model ISX15, diesel, turbo-charged, per the following specifications (or equivalent).

Max. Horsepower	550 HP @ 1,800 RPM
Governed Speed	2,000 RPM
Peak Torque	1,850 ft/pounds @ 1,200 RPM
Cylinders	Six (6)
Bore & Stroke	5.39 x 6.65
Displacement	912 cu. in.
Compression Ratio	17.2:1
Governor Type	Limiting Speed

Engine oil filters shall be engine manufacturers branded or approved equal. Engine oil filters shall be accessible for ease of service and replacement.

Coolant Filter: Spin-on style with shut off valves on the supply and return line.

*****Optional******

Make:Detroit Diesel

Model: DD13

Power: 525 hp at 1,625 rpm

Torque: 1,850 ft / pounds at 975 rpm

Governed Speed: 2,080 rpm

Emissions Level : EPA 2016

Fuel:Diesel

Cylinders: Six (6)

Displacement: 781 cubic inches (12.8L)

The engine shall include On-board diagnostics (OBD), which provides self-diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.

HIGH IDLE

A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm.

The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."

ELECTROMAGNETIC BRAKE

A Telma Axial electromagnetic, driveline retarder shall be furnished and mounted within the driveline system. This system shall automatically activate in four-stages to achieve 100% capacity when the brake pedal is applied.

The system shall have an on/off switch and a four-stage indicator to show retarder activation stages mounted on the dash.

The magnetic retarder control shall be through a switch on the dash, with activation of the retarder in conjunction with the brake pedal. The application shall be in progressive stages, (1/4, 1/2, 3/4 & 100 percent).

System shall disengage with the activation of ABS.

ENGINE BRAKE

A Jacobs's engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.

The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.

The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.

The ABS system shall automatically disengage the auxiliary braking device when required.

CLUTCH FAN

A Horton fan clutch shall be provided. The fan clutch shall be automatic when the parking brake is off and engaged when the parking brake is set.

DIPSTICKS(COLOR CODED)

The engine oil, transmission fluid, and power steering fluid dipstick exterior ends and last 2.00" of the dipstick tubes shall be color coded. These shall be located in a space that is easily accessed without needing to raise the cab.

The color coding shall consist of:

1) Engine oil - Yellow

2) Transmission Fluid - Red

3) Power Steering Fluid - Blue

ENGINE AIR INTAKE

The air intake with an ember separator shall be mounted that is easily accessible. The ember separator is designed to prevent road dirt and recirculation hot air from entering the engine.

The ember separator shall be easily accessible through a hinged stainless steel grille, with one (1) flush quarter turn latch.

EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter (DPF) and a selective catalytic reduction (SCR) device to meet current EPA standards. The exhaust system shall be stainless steel from the turbo to the inlet of the SCR device and shall be 5.00" in diameter. An insulation wrap shall be provided on all exhaust pipe between the turbo and SCR to minimize the transfer of heat to the cab. The exhaust shall terminate horizontally ahead of the passenger side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

The exhaust system shall be designed to connect to a magnetic Plymovent exhaust removal system

RADIATOR

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

For maximum cooling performance, the radiator core shall be made of copper fins having a serpentine design, soldered to brass tubes. The tubes shall be welded to brass headers using the patented Beta-Weld process for increased strength, longer road life and solder-bloom corrosion protection. The radiator core shall have a minimum frontal area of 1396 square inches. Steel supply and return tanks shall be bolted to the core headers and steel side channels to complete the radiator assembly. The radiator shall be compatible with commercial antifreeze solutions.

The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.

The radiator shall include an integral deaeration tank, with a remote-mounted overflow tank. For visual coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15 psi pressure relief cap.

A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.

COOLANT LINES

Silicon hose shall be used for all engine coolant lines installed by the chassis manufacturer.

Hose clamps shall be stainless steel constant torque type to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

RADIATOR SKID PLATE

A lower radiator skid plate shall be supplied for protection. The skid plate shall be constructed of .25" steel plate.

FUEL TANK

A 75-gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be constructed of stainless steel. It shall be equipped with swash partitions and a vent. To reduce the effects of corrosion, the fuel tank shall be mounted with stainless steel straps. (No exception).

A .75" drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be located on the left hand side of the body and be covered with a hinged, spring loaded door painted job color that is marked "Ultra Low Sulfur - Diesel Fuel Only".

A .50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.

The tank shall meet all FHWA 393.67 requirements, including a fill capacity of 95 percent of tank volume.

A minimum four (4) foot service loop of fuel line shall be coiled and secured to the top of the fuel tank.

All fuel lines shall be provided as recommended by the engine manufacturer.

DIESEL EXHAUST FLUID TANK

A 4.5 gallon diesel exhaust fluid (DEF) tank shall be provided.

A .50" drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be provided and marked "Diesel Exhaust Fluid Only".

The location of the fill inlet and tank shall be determined at the pre-construction conference.

The tank shall meet the engine manufacturer's requirement for 10 percent expansion space in the event of tank freezing.

The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

AUXILIARY FUEL PUMP
An auxiliary electric fuel pump shall be added to the fuel line for priming the engine. A switch located on the cab instrument panel shall be provided to operate the pump.

FUEL SHUTOFF
A shutoff valve shall be installed in the fuel line, at the fuel tank.

FUEL COOLER
An air to fuel cooler shall be installed in the engine fuel return line.

The fuel filler cap shall have a retaining chain and holder provided on the fuel fill door.

TRANSMISSION

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

Max. Gross HP Input Power	600
Max. Gross Input Torque	1850 pounds. ft.
Input Speed (Range)	1700- 2300 RPM

Transmission installation shall be in accordance with the transmission manufacturer's specification. The transmission shall be readily and easily removable for repairs or replacement.

Two (2) PTO opening shall be provided, one on the left and one on the right side of the converter housing (position per manufacturer recommendations)

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

The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.

TRANSMISSION FLUID
The transmission shall be provided with TranSynd, or other Allison approved TES-295 heavy duty synthetic transmission fluid.

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

The sensor display shall provide the following checks, correct fluid level, low fluid level and high fluid level.
A transmission temperature gauge with red light and buzzer shall be installed on the cab instrument panel.

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

TRANSMISSION SHIFTER
A six (6)-speed push button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation.

TRANSMISSION COOLER
A transmission oil cooler shall be provided that is integral to the radiator and located at the bottom of the radiator. The cooler shall use engine coolant to control the transmission oil temperature.

DOWNSHIFT MODE (W/ENGINE BRAKE)
The transmission shall be programmed with an aggressive downshift mode to improve the efficiency of the engine brake.

DRIVELINE
Drivelines shall be a heavy-duty metal tube and be equipped with Spicer universal joints designed to meet or exceed the power train of the apparatus

The shafts shall be dynamically balanced before installation.

A splined slip joint shall be provided in each driveshaft, slip joint shall be coated with Glide coat or equivalent.

STEERING
The apparatus shall be equipped with an integral power steering unit which is rated to steer the front axle capacity.

The system will operate mechanically should the hydraulic system fail.

The steering wheel shall be capable of tilting and telescoping.

POWER STEERING COOLER

A power steering cooler shall be provided. Power steering oil temperature shall not exceed 225°F with an ambient air temperature of 115°F under any operating conditions.

The cooler shall be of an oil to air type.

TIRE CHAINS

An On-Spot automatic tire chain system shall be installed on the rear axle by the manufacturer.

A locking style switch shall be installed on the instrument panel in easy reach of the driver. An indicator light shall be installed in a convenient location for the driver.

TIRE PRESSURE MANAGEMENT

There shall be a LED tire alert pressure management system provided that shall monitor each tire's pressure. A chrome plated brass sensor shall be provided on the valve stem of each tire for a total of ten (10) tires.

The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 20 and 120 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 8 psi.

Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start blinking.

STEERING WHEEL

The steering wheel shall be 18.00" in diameter have tilting and telescoping capabilities, and a four (4)-spoke design.

With the exception of the activating the chassis or air horn, there shall be no electric controls in the steering wheel.

LOGO AND CUSTOMER DESIGNATION ON DASH

The steering wheel panel shall have an emblem containing the fire apparatus manufacturer's logo and customer name. The emblem shall have three (3) rows of text for the customer's department name. There shall be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text shall be: RES1CUE

The second row of text shall be: Lexington

The third row of text shall be: Fire Dept.

MULTI-MOUNT WINCH

A Warn, model XD9000i multi-mount, 9,000 pound portable 12V electric winch shall be provided.

The winch shall mount to the vehicle receiver hitches and be held in place with a locking hardened pin. A heavy gauge wire and electrical plug shall be provided for quick connection to the vehicle electrical system.

The winch shall be provided with 100 feet of Warn nylon reinforced synthetic rope with a replaceable clevis hook.

Winch shall have a minimum of a 30' remote control cable.

FRONT WINCH

A Warn Series 15, 15,000 pounds. electric winch shall nest below the top aluminum tread plate gravel pan of the front bumper. A door shall be provided for maintenance and access to the winch.

Direction control lever and remote control plug shall be provided. The cover shall be provided with a pneumatic stay arm on each side hold open device.

Winch shall be mounted on a surface that shall not flex when the winch is in use, since it could bind working parts of the winch.

Details of the winch mounting shall be determined at the pre-construction conference.

Winch shall be braced by a three (3) point mount, as recommended by the winch manufacturer.

Winch shall have a maximum of 100 feet of .50" synthetic rope with hook, pre spooled on drum.

Wire cables to battery shall be two (2) gauge or larger. Speed and amperage draw of winch shall be variable depending on winch load.

Winch shall have a minimum of a 30 foot remote control cable.

A polished fairlead for use with synthetic rope shall be supplied of sufficient strength to accommodate the winch capacity.

A label shall be placed on or near the mount that states the maximum winch load rating and the maximum rope load rating that the mount can support.

BUMPER

A one (1)-piece bumper manufactured from 10 gauge formed steel with a .38" bend radius shall be provided. The bumper shall be a minimum of 10.00" high with a 1.50" top and bottom flange, and shall extend 22.00" from the face of the cab.

The bumper shall have 45 degree corners and side plates. The bumper shall be metal finished and painted job color.

To provide adequate support strength, the bumper shall be mounted directly to the front of the C channel frame. The frame shall be a bolted modular extension frame constructed of 50,000 psi tensile steel.

The winch fairlead shall be in the center of the bumper.

GRAVEL PAN

A gravel pan, constructed of bright aluminum tread plate, shall be furnished between the bumper and the cab face. The gravel pan shall extend over the top of the front bumper and extend down the face 0.25 (1/4) inch. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum tread plate.

TOOL BOX

The front bumper extension shall have two aluminum tool boxes, one installed on the left side and one on the right side of the bumper. The box shall be raised 1.50" above the gravel pan.

TOOL BOX COVER

A bright aluminum tread plate cover shall be provided for each tool box.

The cover shall be attached with a stainless steel hinge.

A lift and turn latch shall secure the cover in the closed position and a pneumatic stay arm on each side shall hold the cover in the open position.

LIFT AND TOW MOUNTS

Mounted to the frame extension shall be lift and tow mounts. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems.

The lift and tow mounts with eyes shall be painted the same color as the frame.

TOW EYES

Two (2) chromed steel top mounted tow eyes shall be installed on the bumper and attached to the front frame members. The inner and outer edges of the tow eyes shall have a .25" radius.

The tow eyes shall be designed and positioned to allow up to a 9,000 pound straight horizontal pull in line with the centerline of the vehicle. The tow eyes shall not be used for lifting of the apparatus.

SIGHT RODS

Two (2) Bores, Model 848-211, lighted sight rods shall be mounted to the outside corners of the front bumper extension. The rods shall be polished stainless steel with amber lens and LED bulbs.

CAB

The cab shall be designed specifically for the fire service and shall be manufactured by the chassis builder and built for severe service.

Construction of the cab shall consist of 0.125" aluminum welded to extruded aluminum framing.

The cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exception).

The cab shall be a minimum of 94" wide (outside door skin to outside door skin) to maintain maximum maneuverability (no exception).

The overall height (from the cab roof to the ground) shall be approximately 103.00". The overall height listed shall be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no loose

equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed.

The cab shall be a two (2) door, full tilt style.

A three (3)-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.

TRANSVERSE COMPARTMENTS

There shall be one transverse compartment provided to utilizing the space between the driver/officer seats and the front bulkhead of the Rear Cab Transverse compartment. The compartment shall be accessed from the outside. Exact measurements to be determined at the pre-construction conference.

The doors shall be painted aluminum, double pan construction with a D-ring latch.

The compartment doors shall have a polished stainless steel continuous hinge, with a pin diameter of .25", which is bolted or screwed on with stainless steel fasteners. A strip of isolation tape shall be furnished between the hinge and the door jamb.

Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel.

All door lock mechanisms shall be fully enclosed within the door panels.

Doors shall be latched with recessed, polished stainless steel D-ring handles and Eberhard 106 locks.

A rubber gasket shall be provided between the D-ring handle and the door.

There shall be four (4) blue Amdor LED strip lights, two (2) each side of exterior compartment door opening. Automatic door switches shall control the lights.

RADIO EQUIPMENT ENCLOSURE

The lower, non-transverse portion of this compartment on the driver side shall be the Radio Equipment Enclosure where all antenna cables, radio interface cables, etc. shall terminate.

The Radio Equipment Enclosure shall have a panel to protect the electronic components when the compartment door is open. The panel shall be secured by quarter turn latches to ease in access.

The enclosure shall have louvers and a 12v fan to provide air circulation to cool the electronic components. The louvers shall vent to the inside of the cab, not to the outside environment.

Details of the Radio Equipment Enclosure shall be discussed at the pre-construction conference.

DEDICATED RADIO EQUIPMENT POWER SUPPLY

There shall be four (4) studs provided in the primary power distribution center located in the Radio Equipment Enclosure.

12-volt 40-amp battery switched power
12-volt 100-amp ground
12-volt 60-amp ignition switched power
12-volt 60-amp direct battery power

These circuits shall not be load managed.

TRANSVERSE COMPARTMENT

There shall be a second transverse compartment provided from behind the front wheel well to the rear of the cab. The transverse compartment shall be designed to maximize the compartment space available. Exact measurements shall be determined at the pre-construction conference.

The doors shall be painted aluminum, double pan construction with a D-ring latch.

The compartment doors shall have a polished stainless steel continuous hinge, with a pin diameter of .25" (6 mm), which is bolted or screwed on with stainless steel fasteners. A strip of isolation tape shall be furnished between the hinge and the door jamb.

Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel.

All door lock mechanisms shall be fully enclosed within the door panels.

Doors shall be latched with recessed, polished stainless steel D-ring handles and Eberhard 106 locks.

A rubber gasket shall be provided between the D-ring handle and the door.

There shall be four (4) blue Amdor LED strip lights, two (2) each side of exterior compartment door opening. Automatic door switches shall control the lights.

TRANSVERSE COMPARTMENT EQUIPMENT RACK

A storage rack shall be provided for one (1) stokes basket, (2) Little Giant Ladder, three (3) backboards and one (1) tripod.

The rack shall be installed in the cab transverse compartment. The equipment shall be accessible and removable from either the drivers or officers' side of the truck.

The rack shall be fabricated of 0.125" aluminum with the exterior finished to match the compartment interior. The interior of the troughs shall not be finished.

There shall be a 2.00" nylon strap with mechanical buckles provided to hold the equipment in place.

The rack shall be removable for ease of maintenance.

The make and model of the items to be stored within the rack shall be provided to the manufacturer at the pre-construction meeting.

STEPS, FOLDING

Two (2) Eberhard folding steps, shall be located (1) each side of cab at lowest level below transverse compartments. Each step shall be illuminated by a integral LED.

The additional step lights shall be activated by the same means as the standard step lights.

The exact location of the folding steps shall be determined at the pre-construction conference.

SCUFFPLATES

There shall be two (2) scuff plate(s) made of brushed stainless steel furnished behind the folding steps added to rear of cab below transverse compartment.

HAND RAILS (ADDITIONAL)

There shall be two (2) handrail(s) provided one on each side of the rear of the cab to assist in gaining entry to the rear transverse compartment. The handrail shall be an anodized aluminum extrusion with a ribbed design to provide a positive gripping surface.

INTERIOR CAB INSULATION

The cab shall include 1.50" insulation in the ceiling and side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.

ENGINE TUNNEL
Engine hood side walls shall be constructed of .50" aluminum. The top shall be constructed of .19" aluminum and shall be tapered at the top to allow for more driver and passenger elbow room.

The engine hood shall be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current NFPA series 1900 pamphlet.

On top of and mounted to the engine cowling shall be a small rail along the officer's side to prevent sliding of material on engine cowl.

FENDER LINERS
Full circular inner fender liners in the wheel wells shall be provided.

WINDSHIELD
The cab windshield shall have bright trim inserts in the rubber molding holding the glass in place.

Economical windshield replacement glass shall be readily available from local auto glass suppliers.

All cab glass shall be tinted.

SUN VISORS
Two (2) smoked Lexan sun visors, 8.75" x 28.00" long, shall be provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.

There shall be a positive latching mechanism to hold the sun visor in the stowed position.

WINDSHIELD WIPERS
Two (2) electric windshield wipers with washer shall be provided that meet FMVSS and SAE requirements. The washer reservoir shall be able to be filled without raising the cab.

CAB REAR WALL EXTERIOR COVERING
The exterior surface of the rear wall of the cab shall be overlaid with bright polished aluminum diamond plate except for areas that are not typically visible when the cab is lowered.

CAB LIFT
A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

The hydraulic pump shall have a manual override for backup in the event of electrical failure.

Lift controls shall be on a panel located on the pump panel or front area of the body in a convenient location.

The engine shall be easily accessible and capable of being removed with the cab tilted. The cab shall be capable of tilting 45 degrees and 90 degrees with crane assist.

Cab shall be locked down by a two (2)-point automatic spring-loaded hook mechanism that actuates after the cab has been lowered.

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

For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.

Cab Lift Interlock
The cab lift system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.

DOOR JAM SCUFFPLATES
All cab door jambs shall be furnished with a brushed stainless steel scuff plate, mounted on the striker side of the jam.

SCUFFPLATES, BOTTOM CREWCAB COMPARTMENTS
All crew cab exterior compartments shall be furnished with a lower door frame stainless steel scuff plate. Each scuff plate shall be brushed stainless steel with a .38" lip down.

MOLDING (ON SIDES OF CAB)
Chrome molding shall be provided on both sides of cab.

MIRRORS
A Retrac Model 613423 dual vision, motorized, west coast style mirror, with chrome finish, shall be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver.

Two (2) 8" spot mirror "eyeball" mirror that is attached to the corner, top of the cab on the Officers and Drivers side

BARRIER DOORS

To enhance entry and egress to the cab, the cab doors shall be a minimum of 37.50" wide x 61.75" high.

The cab doors shall be constructed of extruded aluminum with a nominal material thickness of .125". The exterior door skins shall be constructed from .090" aluminum.

A flush mounted, chrome plated paddle type door handle shall be provided on the exterior of each cab door. Each door shall also be provided with an interior flush paddle handle.

The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks as required by FMVSS 206. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.

A full length, heavy duty, stainless steel, piano-type hinge with a .38" pin and 11 gauge leaf shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome handrail shall be provided on the inside each cab door, for ease of entry.

The cab steps at each door location shall be located below the cab doors and shall be exposed to the exterior of the cab.

DOOR PANELS

There shall be a full height brushed stainless steel door panel installed on the inside of all cab doors. The cab door panels shall be removable without disconnecting door and window mechanisms.

ELECTRIC OPERATED CAB DOOR WINDOWS

Each cab entry door shall be equipped with an electrically operated window, if offered as a standard package. If not in the standard cab package, the controls for the windows shall be hand crank style.

CAB STEPS

The cab access steps shall be a full size, two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps shall be designed with Grip

Strut bright aluminum tread plate material to provide support, slip resistance and drainage. The bottom steps shall be a bolt-in design to minimize repair costs should they need to be replaced. The cab steps shall be a minimum 24.75" wide with an 8.00" minimum depth. The inside cab steps shall not exceed 18.00" in height and be limited to two (2) steps. Three (3) step entrance designs shall not be acceptable due to safety concerns.

HAND RAILS

A slip-resistant hand rail shall be provided adjacent to each cab door opening to assist during cab ingress and egress.

FENDER CROWNS

Rubber fender crowns shall be installed at the cab wheel openings.

The fender crowns shall have a radius outside corner that allows the fender crown to extend beyond the side wall of the front tires and also allow the crew cab doors to open fully.

CAB ROOF COVERING

Horizontal cab roof surfaces shall be covered with bright aluminum tread plate. Edges and fastening screws shall be properly caulked to prevent water from leaking under aluminum. Front and side warning lights shall not be mounted on top of tread plate. The tread plate shall extend and terminate next to the warning lights.

CAB INTERIOR

The interior of the cab shall be designed and finished as a Severe Service Cab. The design shall make minimal use of upholstery and/or plastics (including ABS) for dash, door panels, headliner, upper engine enclosure and rear interior wall. The cab interior shall be constructed to create an ergonomically designed interior to be user friendly and functional for the driver and officer.

The forward overhead panel shall be a fabricated module, which shall have a minimum of four (4), adjustable, windshield defroster/heat vents and four (4) comfort vents. There shall be provisions for "heat to the feet" of the driver and officer seating positions.

All interior upholstery panels shall be Black in color. The upholstered cab overhead and side wall portions shall utilize Durawear upholstery with padding underneath to provide additional insulation.

The headliner shall be installed in both forward and rear cab sections. Headliner material shall be vinyl. A sound barrier shall be part of its composition. Material shall be installed on aluminum sheet and securely fastened to interior cab ceiling.

Forward portion of cab headliner shall provide easy access for servicing electrical wiring or for other maintenance needs without removing the entire unit.

CAB INTERIOR UPHOLSTERY
The cab interior vinyl material shall be dark silver gray.

INTERIOR PAINT (CAB)
The cab interior metal surfaces shall be painted gray, vinyl texture paint.

CAB FLOOR
The cab and crew cab floor areas shall be covered with an acoustical floor mat.

CAB DEFROSTER
There shall be a 41,000 BTU/hr defroster in the cab located under the engine tunnel.

The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance.

The defroster shall have a three (3) speed blower, and temperature controls accessible to the driver and officer.

The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows.

CAB HEATER
Two (2) auxiliary heaters with 32,000 BTU/hr. each shall be provided in the cab. The heaters shall have a three (3) speed blower, and temperature controls accessible to the driver and officer. There shall be louvers located below the driver and officer positions.

AIR CONDITIONING
A high-performance, customized air conditioning system shall be furnished inside the cab and. A 19.10 cubic inch compressor shall be installed on the engine.

The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30

minutes. The cooling performance test shall be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of four (4) hours.

An evaporator unit that meets and exceeds the performance specification shall be installed in the cab, located in the center of the cab ceiling over the engine tunnel. The evaporator shall include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.

The evaporator unit shall be provided with adjustable air outlets strategically located to direct air flow to the driver, officer area.

The A/C shall drain manually without the use of pumps **(No Exceptions)**. Draining condensation into the interior of the cab or onto the occupants, headliner, roof or windshield will not be acceptable under any conditions. A detailed description of how builder proposes to drain A/C is required.

All hose used shall be class 1 type to reduce moisture ingression into the air conditioning system.

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

The air conditioner shall be controlled by a single control panel. For ease of operation, the control panel shall include variable adjustment for temperature and fan control and be conveniently located on the center lower dash on the engine tunnel in clear view of the driver and officer. The control panel shall include robust knobs for both fan speed and temperature adjustment.

WINDOW DEFROST FANS

Two (2) window defrost fans shall be mounted on the ceiling of the cab, one (1) on each side of the cab.

GRAB HANDLE

A black rubber covered grab handle shall be mounted on the door post of the driver and officer's side cab door to assist in entering the cab.

The grab handle shall be securely mounted to the A post area between the door and windshield.

The grab handles shall be located at low on the A post as possible.

ENGINE COMPARTMENT LIGHTS

Two (2) LED engine compartment lights shall be installed under the engine hood. The lights shall be provided one (1) each left and right side of the cab.

Both of these lights shall be activated when the cab is raised.

MAP BOX

A map box with five (5) bins, open at the top, each bin being 12.50" wide x 2.25" high x 12.00" deep. Each bin shall slant 30 degrees from horizontal. The map box shall be constructed of .125" aluminum and shall be painted to match the cab interior.

All placements will be determined at pre-construction conference.

CAB SAFETY SYSTEM

The cab shall be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and shall include the following:

A supplemental restraint system (SRS) sensor shall be installed on a structural cab member behind the instrument panel. The SRS sensor shall perform real time diagnostics of all critical subsystems and shall record sensory inputs immediately before and during a side roll or frontal impact event.

A slave SRS sensor shall be installed in the cab to provide capacity for two (2) crew cab seating positions.

A fault-indicating light shall be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.

A driver side front air bag shall be mounted in the steering wheel and shall be designed to protect the head and upper torso of the occupant, when used in combination with the three (3)-point seat belt.

A passenger side knee bolster air bag shall be mounted in the modesty panel below the dash panel and shall be designed to protect the legs of the occupant, when used in combination with the three (3)-point seat belt.

Air curtains shall be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.

Suspension seats shall be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.

Seat belts shall be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

FRONTAL IMPACT PROTECTION

The SRS system shall provide protection during a frontal or oblique impact event. The system shall activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis shall have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor shall activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected. (no exception).

The SRS system shall deploy the following components in the event of a frontal or oblique impact event:

Driver side front air bag.

Passenger side knee bolster air bag.

Air curtains mounted in the outboard bolster of outboard seat backs.

Suspension seats shall be retracted to the lowest travel position.

Seat belts shall be pre-tensioned to firmly hold the occupant in place.

SIDE ROLL PROTECTION

The SRS system shall provide protection during a fast or slow 90-degree roll to the side, in which the vehicle comes to rest on its side. The system shall analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system shall deploy the following components in the event of a side roll:

Air curtains mounted in the outboard bolster of outboard seat backs.

Suspension seats shall be retracted to the lowest travel position.

Seat belts shall be pre-tensioned to firmly hold the occupant in place.

SEATING CAPACITY
The seating capacity in the cab shall be two (2).

SEAT UPHOLSTERY
The seats shall be covered with Turnout TUF material.

A department provided patch shall be fixed to center head rest on all seats.

DRIVER SEAT
A seat shall be provided in the cab for the driver. The seat design shall be a cam action type, with air suspension. For increased convenience, the seat shall include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control shall be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat shall have an adjustable reclining back. The seat back shall be a high back style with side bolster pads for maximum support. For optimal comfort, the seat shall be provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat shall include the following features incorporated into the side roll protection system.

Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.

A suspension seat safety system shall be included. When activated in the event of a side roll, this system shall pretension the seat belt, then retract the seat to its lowest travel position.

The seat shall be furnished with a three (3)-point, shoulder type seat belt. The seat belt tongue shall be stored at waist position for quick application by the seat occupant. The seat belt receptacle shall be provided on a cable conveniently nested next to the seat cushion, providing easy accessibility. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.

OFFICER SEAT
The officer's seat shall be a Bostrom model Tanker 550 with air suspension. The seat back shall include a spring loaded flip up head rest and Secure/All bracket designed to accommodate a Scott 45 minute @ 4,500 psi cylinder.

To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled.

The seat shall include the following features incorporated into the side roll protection system.

Side air curtain shall be mounted integral to the outboard bolster of the seat back. The air curtain shall be covered by a decorative panel when in the stowed position.

A seat safety system shall be included. When activated, this system shall pretension the seat belt.

The seat shall be furnished with a three (3)-point, shoulder type seat belt. The seat belt tongue shall be stored at waist position for quick application by the seat occupant. The seat belt receptacle shall be provided on a cable conveniently nested next to the seat cushion, providing easy accessibility. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.

UNDER SEAT COMPARTMENT
A compartment shall be provided under the officer's seat.

The inside compartment dimensions shall be 14.50" deep x 14.00" across x 7.50" high.

A drop-down door with a chrome plated lift and turn latch shall be provided for access.

The compartment shall be constructed of smooth aluminum and painted to match the cab interior.

OFFICER'S SEAT, SPECIAL LOCATION
The officer's seat shall be installed 2.00" rearward allowing maximum leg room.

SEAT BELTS
All seating positions in the cab and body shall have red seat belts.

SEAT BELT MONITORING
A seat belt monitoring screen shall be provided in the center overhead of the cab instrument panel. The system shall be capable of monitoring up to ten (10) seating positions in the cab with green and red seating icons illuminated as follows:

Seat Occupied Buckled Green Icon

Seat Occupied Unbuckled Red Icon

Seat Not Occupied Buckled Red Icon

Seat Not Occupied Unbuckled No Icon

The seat belt monitoring screen shall become active when:

The park brake is released:

and there is any occupant seated but not buckled or any belt buckled without an occupant:

and there are no other Do Not Move Truck conditions present. As soon as all Do Not Move Truck conditions are cleared, the seat belt monitoring screen shall be activated.

The seat belt monitoring display shall be accompanied by an audible alarm that will activate when a red seat icon condition exists and the parking brake is released.

CAB DOME LIGHTS

There shall be two (2) dual LED dome lights with black bezels installed in the cab. The lights shall be mounted above the inside shoulder of the driver and officer.

The color of the LED's shall be red and white.

The white LED's shall be controlled by the door switches and the lens switch.

The color LED's shall be controlled by the lens switch.

In order to ensure exceptional illumination, each white LED dome light shall provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.

OVERHEAD MAP LIGHTS

There shall be two (2) Sunnex model SL9-200B10L adjustable map lights installed in the cab:

One (1) overhead in front of the driving position.

One (1) overhead in front of the passenger's position.

Each light shall include a switch on the light housing.

The light switches shall be connected directly to the battery switched power.

HAND HELD SPOTLIGHT

There shall be one (1) Specialty Lighting Inc. Mobile Patrol Light, series 2150, hand held spotlight installed on the officer's side cab dash panel. The light shall be furnished with a 2-foot coil cord (12-foot extended) and a momentary switch. The housing shall be made from one piece unibody UV treated black neoprene.

The mounting bracket shall be fabricated from stainless steel.

CAB INSTRUMENTATION

The cab instrument panel shall consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels shall be designed to be removable for ease of service and low cost of ownership.

GAUGES

The gauge panel shall include the following ten (10) black gauges with black bezels to monitor vehicle performance:

Voltmeter Gauge (Volts)

Low volts (11.8 VDC)

Amber indicator on gauge assembly with alarm

High volts (15 VDC)

Amber indicator on gauge assembly with alarm

Very low volts (11.3 VDC)

Amber indicator on gauge assembly with alarm

Very high volts (16 VDC)

Amber indicator on gauge assembly with alarm

Tachometer (RPM)

Speedometer (Primary (outside) MPH, Secondary (inside) Km/H)

Fuel Level Gauge (Empty - Full in fractions)

Low fuel (1/8 full)

Amber indicator on gauge assembly with alarm

Very low fuel (1/32) fuel

Amber indicator on gauge assembly with alarm

Engine Oil Pressure Gauge (PSI)

Low oil pressure to activate engine warning lights and alarms

Red indicator on gauge assembly with alarm

Front Air Pressure Gauge (PSI)

Low air pressure to activate warning lights and alarm

Red indicator on gauge assembly with alarm

Rear Air Pressure Gauge (PSI)

Low air pressure to activate warning lights and alarm

Red indicator on gauge assembly with alarm

Transmission Oil Temperature Gauge (Fahrenheit)

High transmission oil temperature activates warning lights and alarm

Amber indicator on gauge assembly with alarm

Engine Coolant Temperature Gauge (Fahrenheit)

High engine temperature activates an engine warning light and alarm

Red indicator on gauge assembly with alarm

Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions)

Low fluid (1/8 full)

Amber indicator on gauge assembly with alarm

All gauges and gauge indicators shall perform prove out at initial power-up to ensure proper performance.

INDICATOR LAMPS

To promote safety, the following telltale indicator lamps shall be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.

The following amber telltale lamps shall be present:

Low coolant

Trac cntl (traction control) (where applicable)

Check engine

Check trans (check transmission)

Aux brake overheat (Auxiliary brake overheat)

Air rest (air restriction)

Caution (triangle symbol)

Water in fuel

DPF (engine diesel particulate filter regeneration)

Trailer ABS (where applicable)

Wait to start (where applicable)

HET (engine high exhaust temperature) (where applicable)

ABS (antilock brake system)

MIL (engine emissions system malfunction indicator lamp) (where applicable)

SRS (supplemental restraint system) fault (where applicable)

DEF (low diesel exhaust fluid level)

The following red telltale lamps shall be present:

Warning (stop sign symbol)

Seat belt

Parking brake

Stop engine

The following green telltale lamps shall be provided:

Left turn

Right turn

Battery on

The following blue telltale lamp shall be provided:

High beam

ALARMS

Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning message is present.

Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) shall be provided whenever a caution message is present without a warning message being present.

Alarm silence: An override switch to silence an audible alarm in case of malfunction shall be provided.

INDICATOR LAMP AND ALARM PROVE-OUT

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

CONTROL SWITCHES

For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver.

Headlight / Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking lights and the headlights. The second switch position shall activate the parking lights. The third switch position shall activate the headlights.

Panel backlighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.

The following standard controls shall be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches shall have backlit labels for low light applications.

Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall deactivate vehicle ignition. The second switch position shall activate vehicle ignition. A green indicator lamp shall be activated with vehicle ignition. The third (momentary) position shall engage the starter.

Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls shall be provided.

Parking brake control: An air actuated push/pull park brake control valve shall be provided. The brake control shall be accessible to both the officer and the driver.

Chassis horn control: Activation of the chassis and/or air horn control shall be provided through the center of the steering wheel.

CUSTOM SWITCH PANELS

Custom switch panels shall be designed to allow for controls of emergency and auxiliary components to be placed within reach of either the driver or the officer, depending on function, to improve safety. Using redundant switches on both the officer and driver side shall be avoided whenever possible and a single switch placed in a center position accessible by both the driver and officer provided.

Switches may be located in the overhead dash, lower dash and the engine tunnel.

The manufacturer shall provide a proposed layout of all switches and controls in the cab.

A final approval drawing will be created and the layout discussed at the pre-construction conference.

DIAGNOSTIC PANEL

A diagnostic panel shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow engine and ABS

systems to provide blink codes should a problem exist. The diagnostic panel shall include the following:

Engine diagnostic port

Transmission diagnostic port

ABS diagnostic port

SRS diagnostic port (where applicable)

Engine diagnostic switch (blink codes flashed on check engine telltale indicator)

ABS diagnostic switch (blink codes flashed on ABS telltale indicator)

Diesel particulate filter regeneration switch (where applicable)

Diesel particulate filter regeneration inhibit switch (where applicable)

CAB LCD DISPLAY

A digital four (4)-row by 20-character dot matrix display shall be integral to the gauge panel. The display shall be capable of showing simple graphical images as well as text. The display shall be split into three (3) sections. Each section shall have a dedicated function. The upper left section shall display the outside ambient temperature. The upper right section shall display odometer, trip mileage, PTO hours, fuel consumption, engine hours, and other configuration specific information. The bottom section shall display INFO, CAUTION, and WARNING messages. Text messages shall automatically activate to describe the cause of an audible caution or warning alarm. The LCD shall be capable of displaying multiple text messages should more than one caution or warning condition exist.

AIR RESTRICTION INDICATOR

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.

DO NOT MOVE TRUCK MESSAGES
Messages shall be displayed on the gauge panel LCD located in clear view of the driver whenever the Do Not Move Truck light is active. The messages shall designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages shall be displayed (where applicable):

Do Not Move Truck

DS Cab Door Open (Driver Side Cab Door Open)

PS Cab Door Open (Passenger's Side Cab Door Open)

DS Body Door Open (Driver Side Body Door Open)

PS Body Door Open (Passenger's Side Body Door Open)

Rear Body Door Open

Lt Tower Not Stowed (Light Tower Not Stowed)

Steps Not Stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved shall be displayed as a caution message after the parking brake is disengaged.

WIPER CONTROL
For simple operation and easy reach, the windshield wiper control shall be an integral part of the turn signal lever located on the steering column.

The wiper control shall include high and low wiper speed settings, a one (1)-speed intermittent wiper control with six (6)-second interval and windshield washer switch.

The control shall have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

When apparatus is in Neutral with Parking Brake applied, wipers should not activate and be in the "Park" position. A manual override function when in park shall be applied.

OFFICER SPEEDOMETER - A Class I digital display speedometer shall be provided on the officer side overhead position.

MDC Notch

Provision for the installation of a mobile data computer shall be provided in front of officer seat.

The required wiring (12 volt power GPS / data antenna wiring) for the installation of the MDT Computer on the right side of the cab dash shall be provided. The exact details of the wiring for the MDT shall be determined at the pre-construction conference.

The MDC should be mounted that it does not interfere with visibility of the Officer side mirror.

The location of this power and antenna wiring shall be demonstrated at the final inspection.

VEHICLE DATA RECORDER

A vehicle data recorder (VDR) shall be provided. The VDR shall be capable of reading and storing vehicle information. The VDR shall be capable of operating in a voltage range from 8VDC to 16VDC. The VDR shall not interfere with, suspend, or delay any communications that may exist on the CAN data link during the power up, initialization, runtime, or power down sequence. The VDR shall continue operation upon termination of power or at voltages below 8VDC for a minimum of 10ms.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A CD provided with the apparatus shall include the programming to download the information from the VDR. A USB cable can be used to connect the VDR to a laptop to retrieve required information.

The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:

Vehicle Speed - MPH

Acceleration - MPH/sec

Deceleration - MPH/sec

Engine Speed - RPM

Engine Throttle Position - % of Full Throttle

ABS Event - On/Off

Seat Occupied Status - Yes/No by Position (7-12 Seating Capacity)

Seat Belt Buckled Status - Yes/No by Position (7-12 Seating Capacity)

Master Optical Warning Device Switch - On/Off

Time - 24 Hour Time

Date - Year/Month/Day

RADIO ANTENNA MOUNT

The apparatus will require three (3) communications antennas mounted on the roof of the apparatus.

The antenna mounting base shall be NMO type mounts designed for use with the thickness of the material used for the roof of the apparatus (Model MATM). The antenna mounts shall be provided with twenty-five (25) feet of coaxial RG58/U with 95% braided shield cable. The coaxial cable shall have a solid cooper center conductor with a Polyethylene or Teflon dielectric.

The location of the antennas on the roof of the apparatus shall be determined in consultation with the Radio Communications Section of the Lexington Division of Fire and Emergency Services (Radio Communications Section). The manufacturer shall provide the Radio Communications Section a detailed diagram on the apparatus cab area including the layout of the roof area, the interior consoles, seats and interior compartments. The diagram of the roof shall include the location of the structural members, light fixtures and interior head liners.

A means of access shall be provided to the inside location of each antenna mounting location selected by the radio communications personnel. Head liner removal shall not be required to service the underside of antenna mounts. Removal of dome lights is an acceptable means to access the antenna mounting location.

All factory installed antenna mounts shall have an antenna or an antenna mount rain cap installed to protect the antenna mount from damage.

The final terminal location of the antenna cables shall be determined at the pre-construction conference.

RADIO EQUIPMENT WIRING

Wiring of appropriate size shall be provided from this primary power distribution center to the locations in the apparatus cab that are selected by the Radio Communications Section for the mounting of the radios and radio controls. The power required at each location will be provided by the Division's Radio Communications personnel.

A raceway, with a minimum of 2 inch tall and 2 ½ inches wide, or a 2.0" flexible conduit shall be provided running from the dedicated radio connection enclosure behind the driver seat to the switch panel area above the windshield. The raceway shall not be visible from inside the cab.

A second raceway, with a minimum of 2 inch tall and 2 ½ inches wide, or a 2.0" flexible conduit shall be provided running from the dedicated radio connection enclosure behind the driver seat to the switch panel area on the engine tunnel. The raceway shall not be visible from inside the cab.

Five (5) pull cords for each raceway or conduit listed above shall be run at the time of construction. Bends and changes of direction of the raceway shall be minimal to allow channeling of wire.

The exact location of the raceway or conduit shall be demonstrated at the final inspection.

RADIO INTERFACE CABLE

A 9 conductor 160A serial cable shall be provided between the dedicated radio equipment compartment and the upper dash for the location of the Fire-Com unit.

The exact location of the raceway or conduit shall be demonstrated at the final inspection.

SPARE CIRCUITS

There shall be a total of seven (7) spare circuits, three (3) labeled spare circuits installed in the cab and four (4) labeled spare circuits in the body as described below. The location of each circuit shall be determined in the pre-construction conference. These three (3) circuits shall not be load managed.

The location of each spare circuit shall be demonstrated at final inspection.

FIRST SPARE CIRCUIT

There shall be two (2) pair of wires installed in officer dash area.

The above wires shall have the following features:

Wires shall be connected directly to the battery switched power.

Wires are fused at 20 amps.
Power and ground will end at a location to be designated at the pre-construction conference.
Termination is with water resistant male and female plugs.
Wires shall be sized to 125% of the protection.

SECOND SPARE CIRCUIT

There shall be two (2) pair of wires installed.

The above wires shall have the following features:

Wires shall be connected directly to the battery power.
Wires shall be fused at 20 amps.
Power and ground shall end at a location to be designated at the pre-construction conference.
Termination shall be with water resistant male and female plugs.
Wires shall be sized to 125% of the protection.

THIRD SPARE CIRCUIT

There shall be two (2) pair of wires installed.

The above wires shall have the following features:

Wires shall be connected directly to the battery power.
Wires shall be fused at 20 amps.
Power and ground shall end at a location specified by the fire department at Pre-construction conference.
Termination shall be with water resistant male and female plugs.
Wires shall be sized to 125% of the protection.

FOURTH, FIFTH, SIXTH AND SEVENTH SPARE CIRCUIT

These circuits shall be installed in the body.

There shall be two (2) pair of wires installed.

The above wires shall have the following features:

Wires shall be connected directly to the battery power.
Wires shall be fused at 20 amps.
Power and ground shall end at a location specified by the fire department at Pre-construction conference.
Termination shall be with water resistant male and female plugs.

Wires shall be sized to 125% of the protection.

VOLTAGE MONITOR SYSTEM

A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.

POWER DISTRIBUTION POINTS

There shall be two power distribution points provided.

There shall be four (4) studs provided in the primary power distribution center, one located behind the officer seat and one located in the body, determined at the pre-construction conference.

The studs shall consist of the following:

12-volt 40-amp battery switched power

12-volt 60-amp ignition switched power

12-volt 60-amp direct battery power

12-volt 100-amp ground stud.

12 VOLT POWER PORTS

There shall be eight (8) 12 volt power ports provided. Two in the cab and four in the rescue body.

Wires shall be protected to 15 amps at 12 volts DC.

Each port shall be with 15 amp, combination power point plug with rubber cover and dual USB connection.

The location of the power pointes to be determined at pre-construction conference.

Wires shall be sized to 125% of the protection.

This circuit(s) may be load managed when the parking brake is set.

ELECTRICAL POWER CONTROL SYSTEM

The primary power distribution shall be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers shall be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers shall be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers shall be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays shall be easily accessible.

Distribution centers located throughout the vehicle shall contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, shall be utilized to protect electrical circuits. All circuit protection devices shall be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect electronic equipment. Control relays and solenoid shall have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

EMI/RFI PROTECTION

The electrical system proposed shall include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components shall be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.

The apparatus proposed shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.

EMI/RFI susceptibility shall be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering. The electrical system shall be designed for full compatibility with low level control signals and high powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.

INTERCOM SYSTEM

A Fire-Com, Model 5100 D single radio interface intercom system shall be provided. Headset charging cords shall be provided for the driver, officer, and four (4) crew positions, those in the walk-in body area shall have radio listen / intercom only capability.

All headsets shall be wireless and should be wired directly to the battery so there is no delay when starting up the vehicle.

The following components shall be supplied with this system:

One (1) 5100D Intercom Unit

One (1) WB505R Base Station

Two (2) UHW-507 Bluetooth Radio Transmit Wireless Headsets

Four (4) UHW-503 Bluetooth intercom only Headsets

All necessary wiring and headset charging drops

Noise cancelling electric microphone

Flexible microphone boom rotates 200 degrees for left or right dress

Microphone on/off button

Comfort Gel Ear seals

23 dB noise reduction

HEADSET HANGERS

There shall be five (5) headset hanger(s) installed at the headset locations. The hanger(s) shall meet NFPA 1901, Section 14.1.11, requirement for equipment mounting.

TWO WAY RADIO SPEAKERS WIRING ONLY

There shall be wiring provided for two remote radio speakers to be recessed into the ceiling of the HDR body. This speaker wiring shall run to the radio equipment enclosure in the cab.

A volume control shall be installed in the body the location to be determined at the pre-construction conference.

CAMERA SYSTEM (EXTERIOR)

There shall be a Safety Vision camera system provided. The camera system shall be configured to allow views to both sides and the rear of the apparatus to facilitate safe backing, lane changes and turns.

A monitor shall be provided on the driver side of the cab to display the image from the camera. There shall be necessary cabling provided to allow the monitor to display the video feed from the Mobile Date Computer.

The location of the monitor (and speaker, if applicable) for the driver shall be determined at the pre-construction conference.

The camera at the rear of the apparatus shall activate upon the transmission being shifted into reverse and pre-empt the MDC video feed.

The camera on the passenger side of the apparatus shall activate with the right turn signal, and pre-empt the MDC video feed.

The camera on the driver side of the apparatus shall activate with the left turn signal and pre-empt the MDC video feed.

The rear facing camera shall be mounted above the rear entrance door, centered.

An aluminum 4-way tread plate shield shall be provided to protect the camera.

CAMERA SYSTEM (INTERIOR)

There shall be a Safety Vision camera system provided. The camera system shall be configured to allow views of the interior of the apparatus walk in body interior.

A monitor shall be provided on the officer side of the cab to display the image from the camera.

The image shall be automatically displayed with chassis battery activation.

The camera shall be mounted at the forward ceiling of the pointing rearward.

The location of the monitor shall be determined at the pre-construction conference.

CIRCUIT PROTECTION AND CONTROL DIAGRAM

Copies of all job-specific, computer network input and output (I/O) connections shall be provided with each chassis. The sheets shall indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

ON-BOARD ADVANCED/VISUAL ELECTRICAL SYSTEM DIAGNOSTICS
The on-board information center shall include the following diagnostic information:

Text description of active warning or caution alarms

Simplified warning indicators

Amber caution light with intermittent alarm

Red warning light with steady tone alarm

All control system modules, with the exception of the main control module, shall contain on-board visual diagnostic LEDs that assist in troubleshooting. The LEDs shall be enclosed within the sealed, transparent module housing near the face of the module. One LED for each input or output shall be provided and shall illuminate whenever the respective input or output is active. Color-coded labels within the modules shall encompass the LEDs for ease of identification. The LED indicator lights shall provide point of use information for reduced troubleshooting time without the need for an additional computer.

ADVANCED DIAGNOSTICS
An advanced, Windows-based, diagnostic software program shall be provided for this control system. The software shall provide troubleshooting tools to service technicians equipped with an IBM compatible computer.

The service and maintenance software shall be easy to understand and use and have the ability to view system input/output (I/O) information.

ENHANCED SOFTWARE
The solid-state control system shall include the following software enhancements:

All perimeter lights and scene lights (where applicable) shall be deactivated when the parking brake is released.

Cab and crew cab perimeter lights shall remain on for ten (10) seconds for improved visibility after the doors close. The dome lights shall dim after ten (10) seconds or immediately if the vehicle is put into gear.

VOLTAGE MONITOR SYSTEM
A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.

ELECTRICAL HARNESSING INSTALLATION

To ensure rugged dependability, all 12-volt wiring harnesses installed by the apparatus manufacturer shall conform to the following specifications:

SAE J1128 - Low tension primary cable

SAE J1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring

SAE J163 - Low tension wiring and cable terminals and splice clips

SAE J2202 - Heavy duty wiring systems for on-highway trucks

NFPA 1901 - Standard for automotive fire apparatus

FMVSS 302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses

SAE J1939 - Serial communications protocol

SAE J2030 - Heavy-duty electrical connector performance standard

SAE J2223 - Connections for on board vehicle electrical wiring harnesses

NEC - National Electrical Code

SAE J561 - Electrical terminals - Eyelet and spade type

SAE J928 - Electrical terminals - Pin and receptacle type A

Wiring shall be run in loom where exposed, and have grommets or other edge protection where wires pass through metal. Wiring shall be color, function and number coded. Wire colors shall be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires and uses a single wire color for all wires shall not be allowed. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. All wiring installed between the cab and into doors shall be enclosed within an expandable rubber boot to protect the wiring. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment shall be installed utilizing the following guidelines:

1. All wire ends not placed into connectors shall be sealed with a heat shrink end cap. Wires without a terminating connector or sealed end cap shall not be allowed. All holes made in the roof shall be caulked with silicon. (no exception). Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body. For low cost of ownership, electrical components designed to be removed for maintenance shall be quickly accessible. For ease of use, a coil of wire shall be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work. Corrosion preventative compound shall be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation of the plug. Any lights containing non-waterproof sockets in a weather-exposed area shall have corrosion preventative compound added to the socket terminal area. All electrical terminals in exposed areas shall have DOW 1890 protective Coating applied completely over the metal portion of the terminal. Rubber coated metal clamps shall be used to support wire harnessing and battery cables routed along the chassis frame rails. Heat shields shall be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust shall be protected by a heat shield.

All braided wire harnesses shall have a permanent label attached for easy identification of the harness part number and fabrication date.

BATTERY CABLE INSTALLATION

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer shall conform to the following requirements:

SAE J1127 - Battery Cable

SAE J561 - Electrical terminals, eyelets and spade type

SAE J562 - Nonmetallic loom

SAE J836A - Automotive metallurgical joining

SAE J1292 - Automotive truck, truck-tractor, trailer and motor coach wiring

NFPA 1901 - Standard for automotive fire apparatus

Battery cables and battery cable harnessing shall be installed utilizing the following guidelines:

1. All battery cables and battery harnesses shall have a permanent label attached for easy identification of the harness part number and fabrication date. Splices shall not be allowed on battery cables or battery cable harnesses. For ease of identification and simplified use, battery cables shall be color coded. All positive battery cables shall be red in color or wrapped in red loom the entire length of the cable. All negative battery cables shall be black in color. For ease of identification, all positive battery cable isolated studs throughout the cab and chassis shall be red in color.

For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus shall be coated to prevent corrosion.

ELECTRICAL COMPONENT INSTALLATION

All lighting used on the apparatus shall be, at a minimum, a two (2) wire light grounded through a wired connection to the battery system. Lights using an apparatus metal structure for grounding shall not be allowed.

An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests shall be recorded and provided to the purchaser at time of delivery.

BATTERY SYSTEM

Five (5) 12 volt Interstate batteries that include the following features shall be provided:

- 950 CCA (cold cranking amps)

- 195 reserve capacity

- High cycle

- Maintenance free

- Group 31

- Rating of 5700 CCA at 0 degrees Fahrenheit

- 1170 minutes of reserve capacity

- Threaded posts

-One battery shall be isolated for sensitive electronic components

BATTERY SYSTEM
A single starting system shall be provided.

An ignition switch and starter button shall be located on the instrument panel.

MASTER BATTERY SWITCH
A master battery switch, to activate the battery system, shall be provided inside the cab within easy reach of the driver.

An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.

BATTERY COMPARTMENTS
Batteries shall be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments shall be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The battery hold-downs shall be of a non-corrosive material. All bolts and nuts shall be stainless steel.

Heavy-duty battery cables shall be used to provide maximum power to the electrical system. Cables shall be color-coded.

Battery terminal connections shall be coated with anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.

JUMPER STUDS
One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the bottom of the driver's side battery box. This shall provide for easy jumper cable access.

BATTERY CHARGER
A Kussmaul AutoCharge 1200, 40 amp battery charger shall be provided. A bar graph display indicating the state of charge shall be provided.

The charger shall have a maximum output of 40 amps and a fully automatic regulation.

The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

Battery charger shall be located in the cab behind the driver seat.

The battery charger indicator shall be located in the driver's step area.

SHORELINE RECEPTACLE

There shall be one (1) shoreline receptacle provided to operate the dedicated 120 volt circuits on the truck without the use of a generator.

The shoreline receptacle(s) shall be provided with a NEMA 5-20, 120 volt, 20 amp, straight blade Kussmaul Super auto eject plug with a red weatherproof cover. The unit is completely sealed to prevent road dirt contamination.

The shoreline charging system shall be designed so it does not cycle batteries and other electronic equipment when batteries are turned on and the system alternates between the vehicle charging system and the shoreline system.

An internal switch arrangement shall be provided to disconnect the load prior to ejection to eliminate arcing of the connector contacts.

The shoreline shall be connected to Battery charger and shoreline powered receptacles.

A mating connector body shall be supplied with the loose equipment.

The shoreline receptacle shall be located in the driver side lower step well of cab.

SUB FEED CIRCUIT BREAKER BOX (SHORELINE)

A sub feed box shall be supplied to protect the on board circuits when an auxiliary power source is used.

The box shall be installed in the driver side forward compartment.

The sub feed box shall distribute power to specific circuits in the vehicle.

A directory for each breaker shall be provided adjacent to the circuit breaker panel.

Identification of circuits shall be done in a durable manner that provides years of service.

SWITCH, AUTO TRANSFER

To protect either the generator or external power source from back feed, an automatic relay system shall be installed to switch the on line device between the generator and the external power source when it is connected for use.

The transfer switch shall power all duplex receptacles.

ELECTRIC POWER FOR WINCH

Electric power provisions shall be furnished for the portable winch from the chassis battery system.

A total quantity of three (3) receptacles shall be provided.

The receiver plug shall be located one each side, between the rear axles and one at rear the rear bumper.

ALTERNATOR

A C.E. Niehoff, alternator shall be provided. It shall have a rated output current based on the projected load of the equipment on apparatus 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.

ELECTRONIC LOAD MANAGER

An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components shall not be allowed.

The system shall include the following features:

System voltage monitoring.

A shed load shall remain inactive for a minimum of five minutes to prevent the load from cycling on and off.

Sixteen available electronic load shedding levels.

Priority levels can be set for individual outputs.

High Idle to activate before any electric loads are shed and deactivate with the service brake.

If enabled:

"Load Man Hi-Idle On" shall display on the information center.

Hi-Idle shall not activate until 30 seconds after engine start up.

Individual switch "on" indicator to flash when the particular load has been shed.

The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

Load managed items list, with priority levels and item condition.

Individual load managed item condition:

ON = not shed

SHED = shed

SEQUENCER

A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components shall not be allowed.

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

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

Sequencing of the following items shall also occur, in conjunction with the ignition switch, at half-second intervals:

Cab Heater and Air Conditioning

Crew Cab Heater (if applicable)

Crew Cab Air Conditioning (if applicable)

Exhaust Fans (if applicable)

Third Evaporator (if applicable)

EXTERIOR LIGHTING

Exterior lighting shall comply with federal department of transportation, federal motor vehicle safety standards and national fire protection association requirements in effect at time of proposal.

-one (1) led combination directional/marker light shall be located in the outside corners of the headlamp trim housing on each side.

-front facing cab clearance lamps shall be included in the HIVIZ forward facing brow light.

-the remainder cab and body clearance, marker, and id lighting shall meet all applicable standards. All lamps shall be LED.

Headlights

Front headlights shall be rectangular shaped, quad style halogen lights mounted in the front trim housing. Headlights shall consist of two (2) lights mounted in the front trim on each side of the cab grill. The outside light on each side shall contain a low and high beam. The inside light on each side shall contain a high beam light only.

Daytime running lights (headlights)

The high-beam headlights used as daytime running lights shall be activated with the following measures:

Ignition switch is turned on.
Parking brake is released.

These lights shall be deactivated with any one of the following measures:

Headlight switch is turned on.
High-beam flash is turned on.
Parking brake is set.

REAR FMVSS LIGHTING

Two (2) Whelen, Model CAST4V, four (4) light aluminum housings shall be provided for mounting the rear lights.

The rear stop/tail and directional lighting shall consist of the following:

Two (2) Whelen M6 red LED combination stop/tail lights.
Two (2) Whelen M6 amber LED populated arrow turn signal lights.
Two (2) Whelen, M6 LED backup lights shall be provided.
Two (2) Whelen M6RC Super LED (as specified in Rear Zone Lower section)

A Weldon, Model 23882-2600-00, license plate bracket shall be mounted on the driver's side above the warning lights.

A Weldon, Model 9186-23882-30, step lamp shall illuminate the license plate.

MARKER LIGHTS

There shall be one (1) pair of amber and red LED marker lights with rubber arms; located one (1) each side at the rear of the apparatus body.
The amber lens shall face the front and the red lens shall face the rear of the truck.
These lights shall be activated with the running lights of the vehicle.

BACK-UP ALARM

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided.
The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) DBA above surrounding environmental noise levels.

LIGHT, INTERMEDIATE

There shall be one (1) pair, of Truck-Lite, Model: 60115Y, amber, LED, lights furnished, one (1) each side of the rear fender panel, horizontal, in place of the directional/marker intermediate light.
This light shall double as a turn signal and marker light.

PERIMETER SCENE LIGHTS, CAB

One (1) Amdor Luma Bar H2O LED 20" ground light shall be provided under each side cab door entrance step, behind the front fender opening and under the front bumper, five (5) total.
The ground lights at the cab doors shall turn on automatically with each respective door jamb switch, and all lights shall turn on when the parking brake is set, when the transmission is placed in reverse, and all lights to be controlled by a master ground light switch in the cab.
The perimeter scene lights shall be wired through the load management system.
Each light shall illuminate an area at a minimum 30" outward from the edge of the vehicle.

PERIMETER SCENE LIGHTS, BODY

Amdor Luma Bar H2O LED 20" ground lights shall be provided under each side of

the body per NFPA compliance.
All perimeter lights shall turn on when the parking brake is set, when the transmission is placed in reverse, and all lights to be controlled by a master ground light switch in the cab.
The perimeter scene lights shall be wired through the load management system.
Each light shall illuminate an area at a minimum 30" outward from the edge of the vehicle.

GROUND LIGHTS – REAR

Two (2) Amdor Luma Bar H2O LED 25" ground light shall be placed under the rear step.
All perimeter lights shall turn on when the parking brake is set, when the transmission is placed in reverse, and all lights to be controlled by a master ground light switch in the cab.
The perimeter scene lights shall be wired through the load management system.
Each light shall illuminate an area at a minimum 30" outward from the edge of the vehicle.

STEP LIGHTS

Chrome plated Whelen model # T0C0ACCR; 2" diameter, LED chassis step lights shall be provided and controlled with marker light actuation.
The lights shall be surface mounted using Whelen # TFLANGEC, chrome plated flange.
These lights to be controlled by a master ground light switch in the cab.
The step lights shall be wired through the load management system.

REAR ENTRANCE LIGHTS

Two (2) Whelen, Model 2FC00ZCR, 4.00" round LED lights with Whelen, Model 2GROMMET provided.
The lights shall be recessed into the ceiling of the rear entrance on the exterior of the body.
The lights shall be activated when the rear entry doors open.

SCENE LIGHTS (Cab)

Two (2) LEX HIVIZ, FireTech Model FT-MB-18-TR-60 shall be provided, one on each side of the cab, under the side emergency light bar.
These lights shall be mounted to lessen the impact on the overall width of the cab.
These lights shall be painted job color.

The lights shall be controlled by a switch in the cab.
These lights may be load managed when the parking brake is set.
In addition to the cab mounted switch for the cab scene lights, the driver and officer cab doors shall activate the respective light when a cab door is opened.

12 VOLT BROW LIGHTING

One (1) 72" LED HIVIZ, FireTech model FT-B-72-ML-W floodlight, with integrated marker lights, centered on the front visor
This light shall be painted job color
The lights shall be controlled by a switch in the cab
These lights may be load managed when the parking brake is applied.

RECESSED 75W PIONEER LED FLOODLIGHTS

Six (6) Whelen Pioneer model # PFP1 recessed lights shall be installed
Two (2) on rear face of the body, one (1) each side
Two (2) on each side of the body, at the front and rear corner
Whelen # PBA103 recessed bracket shall be used.
Lights shall be painted job color
The lights shall be controlled by switches in the cab, assessable by both the officer and the driver.
The rear lights shall also activate with the reverse lights and a separate switch mounted at the rear of the body.
These lights may be load managed when the parking brake is applied.

COMMAND LIGHT TOWER

A Command Light model CL602A light tower shall be provided.
The light bank shall have six (6) FRC Spectra 220 watt output 120V, LED lights. Light heads shall be mounted in three (3) pairs, giving two (2) vertical lines of three (3) when the lights are in the upright position. Power for light bank shall be transmitted through power collecting rings thus allowing 360+ degrees rotation in either direction, NO EXCEPTIONS.
Light tower shall be controlled with a hand-held umbilical line remote control. The storage station for the remote control unit shall be equipped with a button to activate an "Auto-Park" automatic nesting feature.
The controls on the remote box shall be:

1. Three (3) switches, one (1) for each light bank.
2. One (1) light bank rotation switch.
3. One (1) switch for elevating lower stage.
4. One (1) switch for elevating upper stage.
5. One (1) indicator light to indicate when light bank is out of roof nest position.
6. One (1) indicator light to indicate when light bank is rotated to proper nest position.
7. One (1) on/off switch for the top mounted strobe.

Backlighting option shall be provided allowing the bottom row of lights to rotate up to 180 degrees.
The controls shall be located next to the circuit breaker box.
The tower base shall have a light the illuminates the envelope of motion during any movements of the light tower mast.
The light tower shall be located on the custom cab roof.

CAB TO BODY COMMUNICATION

A switch and buzzer for two-way signaling shall be provided at the driver position and inside the body crew compartment.
There shall be a Fire Research, Model ICA900-112, two-way intercom system installed between the cab and body.
There shall be a control module with LED volume display and push-button volume control installed in the rescue body near the bench seating.
A hands free module shall be located in the cab and constantly transmit to the other module unless the control module push-to-talk button is pressed.
The location of the intercom shall be determined at the pre-construction conference.

HEAVY DUTY RESCUE BODY CONSTRUCTION

The body shall be built as a separate module prior to being mounted onto the substructure.
The rescue body shall be fabricated of corrosion resistant, low carbon austenitic, brushed and painted 12 gauge 304L stainless steel.

The body shall be properly welded into a unitized construction. Proper reinforcing and supports shall be utilized throughout the entire construction process to ensure strength

and rigidity.

The body shall be supported by stainless steel tubing. The cross sill tubes shall be spaced and shall be interconnected to the body from front to rear.

A stainless steel bar shall be used as a stringer and shall be welded to the cross sills. The stringer shall be used to mount the body to the chassis frame rails.

The bidder's proposal shall detail the construction of the body.

ROOF CONSTRUCTION
The roof shall be integral with the body construction. The roof shall be constructed of 12 gauge 304L stainless steel.

The bidder's proposal shall detail the construction of the roof.

WHEEL WELLS
The rear fenders shall be an integral part of the body sides and compartments. The inside of the fender shall be fitted with a full circular inner fender liner.

All screws and bolts, which protrude into a compartment, shall have acorn nuts at the ends.

BODY AND COMPARTMENT SUPPORT
The bottom of each lower compartment floor shall be supported by an under slung grid of 304L stainless steel that shall be bolted to the chassis frame rails with grade 8 bolts in order to transfer major stress to the chassis frame and not through the body.

A rubber liner shall be placed on top of the chassis frame rails. The liner shall be used to prevent metal to metal contact where the body stringer rests on the chassis frame rails.

The bidder's proposal shall detail the construction of the body and compartment support.

BODY LENGTH
The length of the body shall be 306.00".

100" WIDE RESCUE BODY

The rescue body shall be 100" wide to provide the maximum amount of usable compartment space and to extend the body fenderettes outward for better tire tread coverage.

COMPARTMENT DEPTH

STANDARD DEPTH
All standard depth side body compartments shall measure a minimum of 27 inches deep from the outside of the body to the rear compartment wall. The usable depth inside each side body compartment shall be a minimum of 27 inches.

TRANSVERSE
All transverse side body compartments shall have a usable depth of 27 inches at the floor level. These compartments shall extend over the frame rails through to the other side of the body.

BODY HEIGHT
The interior walkway height shall be a minimum 78.00 inches high.

OVERALL HEIGHT

This overall height of vehicle shall be **123.50 inches. NO EXCEPTIONS**

ROOF CONFIGURATION
The roof shall be continuous flat.

EXTERIOR COMPARTMENTS
The exterior compartment layout, dimensions and requirements shall be minimum specifications. The compartments shall be constructed of 12-gauge, corrosion resistant, low carbon austenitic, brushed and painted 304L including all interior panels, floor and sides.

Compartment flooring shall be of the sweep out design with the floor higher than the compartment door frame. Compartment door openings shall be framed by flanges, the edges in 1.75" and bending out again 0.75", to form an angle. The doors shall fit into the openings and come in contact with a rubber door seal.

All compartments shall be supported on top, rear and bottom. The rear wall of each exterior compartment shall be welded to the cross sills.

Drip protection shall be provided over all door openings with a bright finished aluminum extrusion over each door opening.

COMPARTMENT DOORS
All hinged compartment doors shall be double panel construction and shall be a minimum of 1.50" thick. Doors shall be fabricated of 304L stainless steel.

Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel.

All compartment doors shall have a polished/brushed stainless steel continuous hinge, with a pin diameter of 0.25", which is bolted or screwed on with stainless steel fasteners. A strip of isolation tape shall be furnished between the hinge and the door jamb.

All door lock mechanisms shall be fully enclosed within the door panels.

Doors shall be latched with recessed, polished/brushed stainless steel "D" ring handles and Eberhard 106 locks.

Double doors to have latch handle extension installed on secondary door's interior latch with "PULL" tags.

A rubber gasket shall be provided between the "D" ring handle and the door.

LEFT FORWARD COMPARTMENTS

First Compartment

Located behind the cab shall be the first compartment. The compartment dimensions shall be approximately 62.50" wide x 66.88" high. The compartment shall be transverse over the frame rails, extending through to the other side of the body. The area over the frame rails shall be approximately 62.50" wide x 49.25" high. The compartment door frame opening shall be approximately 60.00" wide x 64.75" high.

Second Compartment

Located behind the first compartment, and ahead of the rear wheels, shall be the second compartment. The compartment dimensions shall be approximately 62.88" wide x 66.88" high. The compartment door frame opening shall be approximately 60.00" wide x 64.75" high..

LEFT OVER WHEEL COMPARTMENTS

Forward Compartment

Located above the rear wheels shall be a compartment with a lap style vertically hinged double door.

The compartment dimensions shall be approximately 54.38" wide x 34.13" high. The compartment door frame opening shall be approximately 51.50" wide x 32.00" high.

Rear Compartment
Located above the rear wheels shall be a compartment with a lap style vertically hinged double door.

The compartment dimensions shall be approximately 57.00" wide x 34.13" high. The compartment door frame opening shall be approximately 51.50" wide x 32.00" high.

LEFT REAR SIDE COMPARTMENT
Located behind the rear wheels shall be the rear side compartment. The compartment dimensions shall be approximately 62.50" wide x 66.88" high. The compartment door frame opening shall be approximately 60.00" wide x 64.75" high.

RIGHT FORWARD COMPARTMENTS
First Compartment
Located behind the cab shall be the first compartment. The compartment dimensions shall be approximately 62.50" wide x 66.88" high. The compartment shall be transverse over the frame rails, extending through to the other side of the body. The area over the frame rails shall be approximately 62.50" wide x 49.25" high. The compartment door frame opening shall be approximately 60.00" wide x 64.75" high.

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Located behind the first compartment, and ahead of the rear wheels, shall be the second compartment. The compartment dimensions shall be approximately 62.88" wide x 66.88" high. The compartment door frame opening shall be approximately 60.00" wide x 64.75" high.

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RIGHT REAR SIDE COMPARTMENT

Located behind the rear wheels shall be the rear side compartment. The compartment dimensions shall be approximately 62.50" wide x 66.88" high. The compartment door frame opening shall be approximately 60.00" wide x 64.75" high.

REAR ENTRANCE TO BODY INTERIOR

Access to the interior area shall be through vertically hinged lap door. The rear door opening shall be at least 32.25" wide x 74.25" high.

The rear doors shall be lap style vertically hinged double door.

Doors shall be fabricated of 304L stainless steel. The interior of the rear door are to be D/A finished.

Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

The door hinge shall be full length polished stainless steel with a 0.25" stainless steel pin. The hinge shall be attached to the body and door with stainless steel screws or bolts (hinges that are welded on shall not be accepted.) Isolation tape shall be furnished between the hinge and the door jam.

Both the interior and exterior door handles shall be flush mounted, chrome plated, paddle type door handles.

The outside handle shall be located near the bottom of the door, approximately 55.00" from the ground, allowing a person of average height to open the door while standing on the ground. The inside door handle shall be located approximately half way up the door in the center.

The rear door shall be furnished with chrome plated socket and plunger hold open devices to hold the door in an open position.

A 15.00" long aluminum extruded 1.25" diameter handrail shall be horizontally mounted on the inside of the access door to aid in closing.

Drip protection shall be provided over the door opening with a bright finished aluminum extrusion.

Each door shall have a single sliding window at least 9.00" wide x 13.00" high with a sliding screen located at the top of the door.

Both windows shall have tinted automotive safety glass.

REAR ENTRANCE MODIFICATION
The top and sides of the rear entrance shall be covered with aluminum four-way.

Full Stainless Steel scuff plates shall be added to the entire interior surface of the two (2) rear entry doors.

INTERMEDIATE STEPS
Three (3) steps shall be provided at the rear of the body for stepping into and out of the body interior in an easy manner.

1) The tail board step shall be constructed of bright aluminum tread plate and shall be full width of the walkway by 20.00" deep.

2) The intermediate step shall be constructed of bright aluminum tread plate. The step shall be full width of the walkway and 10.00" deep.

REAR BULKHEAD COMPARTMENTS
There will be a total of four (4) rear facing compartments provided in the rear body bulkhead adjacent to the walk-in body entrance doors.
There will be two (2) upper compartments and two (2) lower compartments.

Lower Compartments

There will be one (1) lower compartment on each side of the rear entrance. Each compartment will extend into the rear side compartment.

Each compartment will be separated from the respective rear side compartment via a dividing wall. The dividing wall will be properly reinforced and will be an integral part of the body.

The interior compartment dimensions will be approximately 68.13" high x 23.13" wide x 17.00" deep. The compartment door frame opening will be 66.00" high x 20.25" wide.

Each compartment will be equipped with a vertically hinged, lap style door with a D-ring handle and stainless steel continuous hinge on the outboard side.

Upper Compartments

There will be one (1) upper compartment located directly above each lower compartment.

The upper compartments will utilize the section of the interior on each side of the apparatus walk-in body above the rear side compartments. These sections will be partitioned off to separate the compartments from the rest of the walk-in body interior.

Each compartment will be approximately 23.13" wide x 32.00" deep and will extend from the countertop to the ceiling. The compartment door frame opening will be approximately 13.00" high x 20.25" wide.

Each compartment will be equipped with a lift-up, lap style door with a D-ring handle and stainless steel spring assisted hinge on the top of the door.

INTERIOR WALKWAY

Ceiling and Walls
The upper side walls (above the countertop) shall be covered with 14 gauge brushed stainless steel.

The ceiling shall be insulated with 2.00" polystyrene insulation and covered with 16 gauge brushed stainless steel.

The material on the ceiling and walls shall be secured with screws in order to make them removable for maintenance.

Countertops
The interior counter height shall be approximately 52.88" high over the exterior compartmentation.

The interior horizontal surfaces (counter top) over the exterior compartments shall be covered with 0.75" black poly and covered with 12 gauge brushed stainless steel.

The countertop shall be free of any bolts or screws in order to provide a smooth surface.

Interior Walkway and Floor
The interior walkway sides (from the counter top down) shall be covered with 14 gauge brushed stainless steel. The material on the walkway sides shall extend up over the

countertop creating a 1.00" high lip at the edge of the countertop to prevent objects from sliding off the surface

The floor shall be constructed of a plate welded to the cross sills of the substructure with a 0.75" thick black poly sheet overlay. NO WOOD IS ACCEPTABLE.

The final floor material shall be 0.18" bright aluminum tread plate installed on top of the poly subfloor. The aluminum tread plate floor shall be designed in four (4) sections. Each section shall be bolted down so that it can be removed if necessary. The floor shall be installed so that a total seal is provided that shall allow a complete wash down without any moisture penetrating the subfloor.

The floor will have at minimum 2 floor drains designed to allow water out of the walkway floor to the outside underneath but not to allow water, dirt, mud, etc. to come up from the underbody.

INTERIOR LIGHTING

There shall be six (6) ROM 12v DC ceiling lights, approximately 15.50" long x 5.80" wide x 0.80" deep located HDR BODY, with blue and white LEDs.

The blue LEDs shall be activated when the battery switch is on.

The blue LEDs shall be deactivated when the white LED's are activated with a separate switch.

These lights may be load managed when the parking brake is applied.

SWITCH FOR CEILING LIGHTS

Switching shall be provided for each colored portion of the ROM LED light(s). There shall be two (2) provided for the blue portion and two (2) provided for the clear portion of the lights. Each of these shall be configured in a three-way switch configuration.

The first set of switches shall be located rear wall of interior rescue body DS.

The second set of switches shall be located DS Interior side wall forward end of rescue body.

In addition to the rocker switches, the blue portion of the ceiling lights shall also be activated when the rescue body access door.

BENCH SEAT WITH BACKREST

A bench seat assembly shall be provided on the interior. The seat assembly shall consist of six (6) separate seating positions.

The seats shall be provided on top of a brushed stainless steel storage compartment. The bench seat assembly shall be located passenger side of the rescue body, in the interior.

The storage compartment shall measure approximately 19.00" wide x 21.00" high and as long as necessary to accommodate the six (6) seating sections. The rear 6.00" of the storage compartment shall be raised approximately 3.00" higher than the rest of the compartment along the entire length of the seat assembly.

Seating

Seat one (1) will be a single seat consisting of a 22.00" wide x 15.00" deep cushion with a backrest constructed of the same material as the cushion.

Seats two (2) and three (3) will be a dual seat consisting of a 44.00" wide x 15.00" deep cushion with a backrest constructed of the same material as the cushion.

Seats four (4) and five (5) will be a dual seat consisting of a 44.00" wide x 15.00" deep cushion with a backrest constructed of the same material as the cushion.

Seat six (6) will be a single seat consisting of a 22.00" wide x 15.00" deep cushion with a backrest constructed of the same material as the cushion.

The seats will be positioned as follows:

Seats one (1) and six (6) will be provided on opposite ends of the bench seat. The two dual seats consisting of seats two (2) through five (5) will be positioned in the center of the bench assembly between seats one (1) and six (6).

The seat upholstery shall be made of light gray Tuff-Tex Turnout Tuff material.

An 18" high backrest shall be provided for each seat location. Each backrest shall be constructed of the same material as the seat cushion.

SCBA / SCUBA Mounting

A triangular SCBA mounting stanchion constructed of aluminum shall be provided between each seating section. The stanchion shall be designed to support three (3) Scott 45 min SCBA and three (3) Dive Cylinder holders model# DACB-5 for Interspiro Divator twin cylinder systems, SCBA mounting shall be Secure/All brand.

The layout of the SCBA and SCUBA mounting brackets shall be determined at the pre-construction conference.

Seat Belts

An automatic retractor 3 point shoulder type seat belt shall be furnished with each seat. An extension shall be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position.

BODY DEFROSTER FANS
There shall be a total of two (2), 6.00" 12 volt, pedestal fan(s) with high/low/off switch, provided HDR BODY.

The location to be determined at the pre-construction conference.

AIR CONDITIONER/HEATER
A wall mounted air conditioner, with heating capability, shall be provided in the walk-in apparatus body. The location shall be determined at the pre-construction conference.

The unit will be manufactured by Red Dot.

The air conditioner will have cooling capacity of 33,000 BTUH. The heater will have heating capacity of 46,000 BTUH. A thermostat shall be provided.

The unit will be piped to the chassis radiator/cooling system with silicone heater hoses.

ACCESS PLATES IN FLOOR
Access plates shall be provided in the floor to service equipment mounted on the frame rails. This plates shall be located one (1) above generator and one (1) above the fuel sending unit of the fuel tank.

PEGBOARD ON COUNTERTOP
Aluminum pegboard shall be mounted on top of all countertop space in the interior of the body.

The pegboard shall be 0.25" aluminum with 0.20" diameter holes punched 1.00" on center in a pegboard pattern.

The pegboard shall be spaced a minimum of 1.00" off the top of the countertop, and mounted to allow for the attachment of tool mounting hardware by the purchaser.

UPPER WALL CABINETS

The body interior shall be furnished with upper wall cabinet(s). The cabinet(s) shall be approximately 26.00" deep, extending from the counter top to the ceiling, with an approximate width of 48.00". The cabinet(s) shall be constructed of 0.75" poly material and covered with brushed stainless steel on both sides, bottom and back wall.

Heavy black nylon webbing made of 1.00" nylon strap with a 2.00" box pattern shall be provided at the cabinet door opening. The nylon webbing shall be permanently mounted at the bottom of the cabinet. The top and sides shall be secured with mechanical buckles allowing the webbing to be completely removed from the cabinet storage area.

There shall be two (2) cabinet(s) located at the forward section of the body over the transverse compartment on each side of the interior.

UPPER WALL CABINET Driver Side

The body interior shall be furnished with an upper wall cabinet. The cabinet shall be approximately 26.00" deep, extending from the counter top to the ceiling, with an approximate width of 72.00". The cabinet shall be constructed of 0.75" poly material and covered with brushed stainless steel on both sides, bottom and back wall.

Heavy black nylon webbing made of 1.00" nylon strap with a 2.00" box pattern shall be provided at the cabinet door opening. The nylon webbing shall be permanently mounted at the bottom of the cabinet. The top and sides shall be secured with mechanical buckles allowing the webbing to be completely removed from the cabinet storage area.

The cabinet shall be centered between the two (2) body windows. The final width of the cabinet shall be as wide as possible in the space between the windows.

UPPER WALL CABINET Passenger Side

The body interior shall be furnished with an upper wall cabinet. The cabinet shall be approximately 26.00" deep, extending from the counter top to the ceiling, with an approximate width of 36.00". The cabinet shall be constructed of 0.75" poly material and covered with brushed stainless steel on both sides, bottom and back wall.

Heavy black nylon webbing made of 1.00" nylon strap with a 2.00" box pattern shall be provided at the cabinet door opening. The nylon webbing shall be permanently mounted at

the bottom of the cabinet. The top and sides shall be secured with mechanical buckles allowing the webbing to be completely removed from the cabinet storage area.

The cabinet shall be located between the two (2) body windows, as far forward as possible.

FULL HEIGHT CABINET

The body interior shall be furnished with a full height wall cabinet. The upper portion of the cabinet shall be approximately 45.00" deep, extending from the countertop to the ceiling, with a maximum width of approximately 36.00". The depth of the lower portion shall be approximately 19" deep, from the floor to the top of the countertop. The lower portion depth shall match the depth of the bench. The lower portion of the cabinet shall be approximately 36" wide.

The cabinet(s) shall be constructed of 0.75" poly material and covered with brushed stainless steel on sides, bottom and back wall.

There shall be no door provided on the cabinet.

A stainless steel tube connected on each end to a cast stanchion shall be provided for hanging dive/swift water suits. The stanchions shall be mounted to supports capable of holding 300 pounds of weight.

The cabinet shall be provided with a floor drain discharging outside the rescue body and compartmentation

The cabinet shall be located immediately forward of the bench seat in the interior of the rescue body.

EXIT INDICATORS

There shall be one (1) 12 volt DC red LED light with chrome flange included in the body interior:

> This light shall be activated when the battery switch is on, the ignition switch is on and the parking brake is released.
>
> This light shall be labeled "Do Not Exit".

There shall be one (1) 12 volt DC green LED light with chrome flange included in the body interior:

> This light shall be activated when the battery switch is on, the ignition switch is on and the parking brake is applied.

This light shall be labeled "OK To Exit".

This pair of lights shall be located Above the Rescue Body Exit doors.

ESCAPE HATCH WITH SKY LIGHT

Escape hatch with skylight shall be provided in the body roof.

Skylight shall contain of automotive safety glass.

Hatch opening shall meet requirements of any standard for use as a second means of escape.

Window shall measure 15.00" x 15.00".

Hatch and hatch frame shall be constructed from 304L stainless steel and finished to match the roof of the body.

Hatch should be flush with the roof and shall not extend higher than the highpoint of roof.

Hatch shall be fully welded in place on the body roof.

Hatch cover shall have a rubber gasket inside to prevent leakage.

Hatch cover shall be secured with two butterfly - style latches and shall have two pneumatic cylinders to hold it fully open (90 degrees). The hatch shall also have the ability to be held open at a 25 degree angle to serve as a roof vent.

A "hatch open" indicator light shall be provided in the cab.

There shall be two (2) provided, equally spaced.

CABINET SHELVING

Interior cabinet shelving shall be provided.

Construction shall consist of approximately 0.188" thick aluminum formed to provide a 2.00" high wall around the perimeter.

Corners shall be welded to provide a rigid unit.

Shelving shall be secured within the cabinet by means of adjustable threaded fasteners. These fasteners shall slide in an extruded aluminum track to provide height adjustment.

There shall be eight shelves provided, 2 per interior compartment.

STORAGE UNDER BENCH SEAT
Located inside the box through an access door, the compartment under the bench seat shall contain individual troughs to store the following equipment:

One (1) 16' straight roof ladder

(4) 16' 4x4 timbers

(6) Six 2x4's

(4) Four 2x12's

Exact dividers TBA

SIDE WINDOW
There shall be four (4) slides-by style windows provided, two (2) on each side of the rescue body.

The windows shall measure approximately 34.00" wide x 20.00" high and shall include screens.

The window shall be a sliding window only. No escape feature shall be provided on the window.

WINDOW TINT FILM
A 25% window tint film shall be applied to all windows in the body and doors.

BRUSHED STAINLESS ON REAR FENDER PANELS
The rear fender panel on each side of the truck shall be covered with brushed stainless steel.

REAR BUMPER
A rear bumper shall be provided that is a an integral part of the rear body substructure.

The bumper shall be approximately 8.00" deep x 90.00" wide

The bumper shall have an aluminum tread plate deck with the ends tapered at approximately a 45 degree angle on each outside corner.

RUBBER BUMPERS
Two (2) dock style rubber bumpers shall be installed, evenly spaced, on the rear bumper.

REAR PULL OUT STEP

A pull-out and down (camper style) step shall be installed below the tail board step. The step surface when extended shall lower five (5) inches from its nested position under the tailboard, reducing the stepping distance from the ground to the top of the tail board step.

The stepping surface shall be Grip Strut.

HITCH RECEIVERS

A total of three (3) hitch receivers shall be provided on the apparatus. The hitch receivers shall be constructed of heavy steel tubing and reinforced to the apparatus framework.

Rear Receiver

There shall be one (1) hitch receiver installed under the body at the rear. The hitch receiver shall have a Class IV rating of 10,000 pounds towing and 1000 pounds tongue weight when used with a weight distributing hitch assembly. The rear hitch receiver shall be capable of retaining a portable winch with a rating of no more than 9,500 pounds.

NFPA 2009 Section 13.3.3.2 requires that if the apparatus is equipped to tow a trailer, an additional 45 amps shall be added to the minimum continuous electrical load to provide electrical power for the federally required clearance and marker lighting and the optical warning devices mounted on the trailer.

Side hitch receivers

There shall be one (1) hitch receiver installed through the body fender panel between the tandem rear wheels on each side of the body. The hitch receivers shall be constructed of heavy steel tubing and reinforced to the apparatus framework. The side hitch receivers shall each be capable of retaining a portable winch with a rating of no more than 9,500 pounds.

There shall be stainless steel doors provide on the exterior of the body covering the ends of receivers in the fender area. The spring loaded hinged doors shall have a flush latch provided to prevent them from opening while not in use.

Access to the side receiver pins shall be provided through a cutout in the adjacent wheel well opening. A hinged stainless steel door shall be provided to cover the cutout.

TIE DOWN

Two (2) removable chrome plated tie down eyes, rated at 9,000 pound straight pull, shall be provided for use with any equally rated 2.00" receiver tube on the vehicle.

The tie down shall be pinned to the receiver tube, allowing the tie down to be used in multiple locations.

ROPE ANCHOR PINS

Eight (8) recessed, stainless steel pin shall be installed at the sides of the apparatus. The pins shall serve as anchor points for equipment tie off. The pins shall be 0.50" in diameter and be recessed into a stainless steel cup mount.

The maximum pull of each pin location shall be 9,000 pounds.

Two (2) anchor pins shall be located in the body fender panel between the tandem axles

Six (6) recessed pins shall be located along the sides, at the top of the body.

The location of the six (6) pins at the top of the body shall be determined at the pre-construction conference.

ROPE ANCHORS

There shall be one (1) pair of chrome plated steel eyebolts installed on the rear of the body to serve as anchor points for rope tie offs. There shall be one (1) eyebolt mounted through the body at the outside corners of the body facing the rear just above the tops of the compartments.

Each eyebolt shall have an inside diameter of 2.00".

Each eyebolt shall be supported to provide a maximum of 9,000 pound, no-yield condition with a straight line pull.

Stainless steel scuff plates shall be provided behind each eyebolt.

UNDER BODY COMPARTMENT

A compartment shall be provided under the body on the driver's side ahead of the rear wheels. The compartment shall be constructed of aluminum.

There shall be two (2) safety straps installed as additional support to hold the compartment in place. A 0.50" x 2.00" flat bar shall be provided. The bar shall be attached to the body substructure and shall wrap around the under sides of the compartment to help support the compartment in the event of an impact.

The compartment shall be provided with a slide out drawer capable of holding 500 pounds. The drawer front shall be constructed of aluminum four-way and shall be provided with a "D" ring handle for opening the drawer. Weather stripping shall be installed around all opening surfaces to provide a weather resistant seal. The drawer shall extend approximately 22.00" from the stowed position. The slide mechanisms shall have ball bearings for ease of operation and years of dependable service.

The inside dimensions of the compartment shall be approximately 8.00" high x 84.00" wide. The depth of the compartment shall be as large as the underbody exhaust components will allow.

A black plastic rub rail that matches the lower body rub rail shall be provided on the drawer front. The rub rail shall be tapered on both ends and shall be flush with the lower body rub rail when the drawer is in the closed position.

UNDER BODY COMPARTMENT

A compartment with a slide-out drawer shall be provided under the body on the passenger's side ahead of the rear wheels. The compartment shall be constructed of aluminum.

There shall be two (2) safety straps installed as additional support to hold the compartment in place. A 0.50" x 2.00" flat bar shall be provided. The bar be attached to the body substructure and shall wrap around the under sides of the compartment to help support the compartment in the event of an impact.

The compartment shall be provided with a slide out drawer capable of holding 500 pounds. The drawer front shall be constructed of brushed aluminum four-way and shall be provided with a "D" ring handle for opening the drawer. Weather stripping shall be installed around all opening surfaces to provide a weather resistant seal. The drawer shall extend approximately 22.00" from the stowed position. The slide mechanisms shall have ball bearings for ease of operation and years of dependable service.

The inside dimensions of the drawer shall be approximately 8.00" high and 84.00" wide. The depth of the compartment shall be as large as the underbody exhaust components will allow.

A black plastic rub rail that matches the lower body rub rail shall be provided on the drawer front. The rub rail shall be tapered on both ends and shall be flush with the lower body rub rail when the drawer is in the closed position.

FLOOR EXTENSION

The compartment floor shall have an additional sheet of 0.18" aluminum formed to provide a 5 degree pitch to the rear. The formed sheet shall allow cribbing material to be stored in the compartment without sliding against the door.

The pitched floor shall be provided in the compartments located just forward of the tandem axle on both sides.

AIR BAG RACK

The driver's side front inside warning light to be white.

The passenger's side front inside warning light to be white.

The passenger's side front outside warning light to be red.

All four (4) lights shall include a clear lens.

There shall be a switch located in the cab, on the switch panel, to control the four (4) lights.

The inside lights may be load managed if colored or disabled if white, when the parking brake is set.

HEADLIGHT FLASHER

The high beam headlights shall flash alternately between the left and right side.

There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.

The flashing shall automatically cancel when the headlight (high or low beam) switch is activated or when the parking brake is set.

SIDE ZONE LOWER LIGHTING

There shall be six (6) Whelen, Model M6# split LED flashing warning lights with Whelen, Model M6FC chrome flanges located in the following positions:

Two (2) lights, one (1) each side on the bumper extension.

The side front light to be red to the front and white to the rear.

Two (2) lights, behind cab storage area.

The side middle light to be white to the front and red to the rear.

Two (2) lights, fender wells.

The side rear lights to be white to the front and red to the rear.

All six (6) lights shall include a clear lens.

There shall be a switch located in the cab on the switch panel to control the lights.

Any white warning lights shall be disabled when the parking brake is set.

There shall be an additional (6) six Whelen Super LED ION T Series surface Mounted Lights recessed in the bottom rub rail on each side. The lights will be red in color with clear lenses and shall operate as warning lights. There shall be a switch located in the cab on the switch panel to control the lights and they shall not be disabled when the parking brake is set.

INTERIOR CAB DOOR WARNING LIGHTS
Two (2) Whelen Model M2*, LED flashing warning lights shall be provided, one (1) on each cab door pan.

The color shall be red.

Each light shall include a lens that is the same color as the LED's.

Each light shall be activated by the door jam switch of the associated door.

SIDE WARNING LIGHTS
There shall be two (2) Whelen, Model M6*C LED flashing warning light(s) with bezel(s) provided in the reward rear fender panel.

The color of the lights shall be red.

All of these lights shall include a clear lens.

These lights shall be activated with the Side Zone Lower warning lights.

SIDE WARNING LIGHTS (FRONT UPPER SIDE ZONE)
There shall be two (2) Whelen, Model M9*C LED flashing warning light(s) with bezel(s) provided on the upper forward body side.

The color of the lights shall be red.

All of these lights shall include a clear lens.

These lights shall be activated with the Side Zone Lower warning lights.

REAR ZONE LOWER LIGHTING
Two (2) Whelen, Model M6*C LED flashing warning lights in the stop/tail light bezels shall be located at the rear of the apparatus.

The driver's side rear light to be red.

The passenger's side rear light to be red.

Both lights shall include a lens that is clear.

There shall be a switch located in the cab on the switch panel to control the lights.

SIDE WARNING LIGHTS (REAR UPPER SIDE ZONE)
There shall be two (2) Whelen Model M9*C LED flashing warning light(s) with bezel(s) provided on the upper rearward body side.

The color of these light(s) shall be red.

These light(s) shall be controlled with the rear upper warning switch.

These light(s) shall include a lens that is clear.

WARNING LIGHTS (REAR UPPER ZONES)
Four (4) Whelen, model M9*C LED flashing warning lights shall be provided at the rear of the apparatus.

The side rear upper light on the driver's side to be red.

The rear upper light on the driver's side to be red.

The rear upper light on the passenger's side to be red.

The side rear upper light on the passenger's side to be red.

These lights shall include a lens that is clear.

There shall be a switch located in the cab on the switch panel to control the lights.

ELECTRICAL SYSTEM GENERAL DESIGN FOR ALTERNATING CURRENT
The following guidelines shall apply to the 120/240 VAC system installation:

General

Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 5 cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.

Grounding

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding.

An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

Operation

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

Provisions shall be made for quickly and easily placing the power source into operation. The control shall be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train shall be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label shall be permanently attached to the apparatus near the operator's control station. The label shall provide the operator with the information detailed in Figure 19-4.10.

Direct drive (PTO) and portable generator installations shall comply with Article 445 (Generators) of the NEC.

Overcurrent protection

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144 inches. (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main over current protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

Wiring Methods

Fixed wiring systems shall be limited to the following:

- Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)

or

- Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring shall be run as follows.

- Separated by a minimum of 12 inches (305 mm), or properly shielded, from exhaust piping

- Separated from fuel lines by a minimum of six (6) inches (152 mm) distance.

Electrical cord or conduit shall be supported within six (6) inches (152 mm) of any junction box and at a minimum of every 24 inches (610 mm) of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

A rack for 12 air bags will be installed in the rescue body transverse compartment in a horizontal orientation. The rack shall be designed for Paratech high pressure airbags. The rack shall be fabricated of 0.125" aluminum. Access to each air bag shall be provided through a semi-circle contour in the leading edge off each slot.

The rack shall be designed to hold the following airbags:

QTY	Model	QTY	Model	QTY	Model
1	KPI-1 G2, 1.5T	2	KPI-3 G2, 3.5T	2	KPI-10 G2, 12.9T
1	KPI-28 G2, 34.0T	2	KPI-35L G2, 39.5T	1	KPI-55 G2, 69.7T
1	Master Control ALB Kit G2 series			1	Dual Deadman Safety Relief ALB Controller G2 series

ADJUSTABLE SHELVES

An adjustable shelf with a capacity of 500 pounds shall be provided. The shelf construction shall be constructed of aluminum with 2.00" high sides along the entire perimeter of the shelf.

The shelf shall be as deep as possible for a standard depth compartment and shall be built to fit the width of the area where the shelf is installed.

The shelf shall be infinitely adjustable by means of threaded fasteners that slide in an aluminum track.

A total of twelve (12) shelves shall be provided.

The location of the shelves shall be determined at the pre-construction conference.

SLIDE-OUT TOOL BOARD, STANDARD DEPTH

An aluminum tool board shall be provided, with 0.20" diameter holes in a pegboard pattern, on 1.00" centers. A 1.00" x 1.00" aluminum square tube frame shall be welded around the perimeter of the board for additional strength.

The tool board shall span the full depth of a standard depth compartment and shall be designed to be as tall as possible to fit in the specified mounting location.

The board shall be mounted on an under mount-roller bearing type slide rated at 250 pounds with a factor of safety of two (2).

The slide shall be mounted to a shelf type track to allow side adjustment of the tool board.

The board shall have positive lock in the stowed and extended position.

A total of six (6) tool board(s) shall be provided in compartments to be determined at the pre-construction conference.

SLIDE-OUT, ADJUSTABLE TRAY, STANDARD DEPTH

A slide-out, adjustable height tray shall be provided, constructed of aluminum, formed to provide 2.00" high sides around the entire perimeter of the tray.

The tray shall be as deep as possible for a standard depth compartment and shall be built to fit the width of the area where the tray is installed.

The tray shall be mounted on a pair of side mounted slides. The slide mechanisms shall have ball bearings for ease of operation and years of dependable service. The slides shall be mounted to shelf tracks to allow the tray to be adjustable up and down within the compartment.

An automatic lock shall be provided for both the in and out tray positions. The lock trip mechanism shall be located at the front of the tray and shall be easily operated with a gloved hand.

The capacity rating of the tray shall be 250 pounds in the extended position.

A total of five (5) tray(s) shall be provided, the location to be determined at the pre-construction conference.

SLIDE-OUT/TILT-DOWN TRAY, STANDARD DEPTH

A slide-out, tilt-down tray shall be provided. The bottom of the tray shall be constructed of aluminum. The corners shall be welded to form a rigid unit.

The interior of the tray shall be 3.00" high and as deep as possible for a standard depth compartment. The tray shall be built to fit the width of the area where the tray is installed.

A spring loaded lock shall be provided on each side at the front of the tray. Activating the locks shall allow the tray to slide out approximately two-thirds of its length from the stowed

position and tip 30 degrees down from horizontal. The tray shall be equipped with ball bearing rollers for smooth operation.

Rubber padded stops shall be provided for the tray in both the stowed and extended positions.

The capacity rating of the tray shall be a minimum of 200 pounds in the extended position.

The vertical position of the tray within the compartment shall be adjustable.

There shall be five (5) tray(s) provided, the location to be determined at the pre-construction conference..

COMPARTMENT DOOR MODIFICATION

All compartment doors that shall be provided with the capability to open past 90 degrees by releasing the open limiting devices.

Rubber bumpers shall be provided on the exterior of the compartment doors for protection when the limiting devices are released. These bumpers shall be affixed with a stainless steel fastener. Attachment by adhesive is not acceptable.

DOOR FRAME SCUFFPLATE

Scuff plates shall be provided for the lower door frame(s) off all side body compartment doors. Each scuff plate shall be brushed stainless steel with a .38" lip down.

COMPARTMENT LIGHTING

There shall be AMDOR LED compartment light strips, blue in color, two at each compartment door.

The strips shall be centered vertically along each side of the door framing.

Metal clamps or other suitable means of securing the LED lighting shall be used to retain the strip lighting in all body compartments.

Opening the compartment door shall automatically turn the compartment lighting on.

ADJUSTABLE "J" HOOKS

An aluminum track shall be provided on the front bulkhead of the rescue body transverse compartment, on the driver side. The track shall be provided with six "J" hooks. The hooks shall be moveable along the track.

The hooks shall be made of aluminum.

ISOLATION TAPE
Isolation tape, 10,000 volt dielectric type shall be installed in all areas when different metals are in contact. This shall also include the hinges, door latches, trim and body to frame.

BODY FENDER CROWNS
Rubber fender crowns shall be provided around the rear wheel openings.

SCBA CYLINDER STORAGE

It is the desire of the purchaser to carry as many SCBA cylinders in the rear fender / axle area of the truck. The bidder's proposal shall detail the location and design of SCBA cylinder storage in the rear fender area. The storage shall be for 45 minute @ 4,500 psi cylinders.

SCBA cylinder storage shall not share a door opening with DEF or the fuel fill.

EMERGENCY WARNING EQUIPMENT

AIR HORN SYSTEM
Two (2) Grover Stuttertone air horns shall be provided and located in the front bumper, recessed one each side. The horn system shall be piped to the air brake system wet tank utilizing .38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.

AIR HORN CONTROL
The air horns shall be actuated by a dual pull rope located within reach of both the officer and driver side and a floor switch on the driver side floor.

MECHANICAL SIREN
A Federal Q2B siren shall be furnished. A siren brake button shall be installed on the switch panel.

The control solenoid shall be powered up after the emergency master switch is activated.

The mechanical siren shall be pedestal mount on top of the front bumper, driver's side.

The mechanical siren shall be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.

CAB ROOF LIGHTBAR
There shall be a 72.00" Whelen Freedom, Model FN**QLED light bar mounted on the cab roof.

The light bar shall include the following:

Eight (8) red flashing forward facing LED modules.

Four (4) white flashing forward facing LED modules.

Two (2) red flashing front corner LED modules.

One (1) red flashing driver end LED module.

One (1) red flashing pass end LED module.

All the lenses shall clear

There shall be a switch located in the cab on the switch panel to control the light bars.

The white warning lights shall be disabled when the parking brake is set.

CAB ROOF SIDE LIGHTBARS

There shall be two (2) 24.00" Whelen, Freedom Mini LED light bars mounted on the roof, one (1) on each side, over the cab doors.

Each light bar shall include the following:

Two (2) red flashing corner LED modules.

One (1) white flashing forward facing LED light.

One (1) red flashing LED light centered, shining to the side.

There shall be a switch located in the cab on the switch panel to control the light bars.

Each light bar shall be furnished with a clear lens.

The white flashing warning lights shall be disabled when the parking brake is set.

The red flashing warning lights may be load managed when the parking brake is set.

WARNING LIGHTS (CAB FACE)

Four (4) Whelen Model M6*C LED flashing warning lights shall be installed on the cab face, above the headlights, mounted in a common bezel.

The driver's side front outside warning light to be red.

Wiring Identification

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

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location shall be not less than 24 inches (610 mm) from the ground. Receptacles on off-road vehicles shall be a minimum of 30 inches (762 mm) from the ground.

The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.

Dry Locations

All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30 inches (762 mm) above the interior floor height.

All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they shall be so marked.

Listing

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

Electrical System Testing

The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test shall be conducted

between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test shall be conducted after all body work has been completed.

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

Operational Test per Current NFPA 1901 Standard

The apparatus manufacturer shall perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test shall be witnessed and the results certified by an independent third-party certification organization.

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

The power source shall be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard shall be applied to the low voltage electrical system during the operational test.

ONAN 30KW SINGLE PHASE GENERATOR

The apparatus shall be equipped with a complete electrical power system. The wiring and generator installation shall conform to the present National Electrical Code Standards of the National Fire Protection Association. The installation shall be designed for continuous operation without overheating and undue stress on components.

The generator shall be a single phase, four (4)-wire, Onan 30kW driven by a transmission "power takeoff" attached to the side of the transmission.

Generator performance shall meet the American National Standards Institute (ANSI) C84.1-1982 voltage requirement as utilized from the receptacle.

Generator shall have a built in automatic voltage control.

Generator shall have a NEMA MG21 rating.

- Continuous Duty Rating: 30,000 watts

- Phase: Single

- Nominal Cycles: 60 hertz

- Nominal Amp Rating: 125 at 240-volts

- Engine Speed at Engagement: Idle

- Engine Speed Engaged: 1100/1400 rpm range

- Generator RPM: 1800 rpm

The output of the generator shall be controlled by an electronic governor. The truck engine shall be programmed so the generator's output is at 60 hertz.

The main chassis transmission PTO shall power the generator. A stainless steel splash guard shall be installed to reduce the amount of road spray on this frame-mounted generator.

The generator shall be operable in the stationary mode with a shift control located inside the cab with an indicator light to note engagement. For safety, the automatic high idle shall be activated through interlocks only after the chassis parking brake control is in the park position, the generator PTO transmission has made a complete shift and the truck transmission is in neutral.

An electric/hydraulic valve shall supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

To properly monitor the generator performance and load demands during operation, the generator shall be equipped with a full instrument and control package. This panel shall be mounted adjacent to the load center. The following instruments shall be installed in the panel:

- One (1) Voltmeter

- Two (2) Ammeters

- One (1) Frequency Meter

- One (1) Hour Meter

- One (1) "Power On" Green Indicator Light

- One (1) PTO Engagement Indicator Light

- Two (2) Fuse Holders: With two (2) amp fuses for gauge protection

The meter and indicators shall be installed near eye level in the compartment. Instruments shall be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used shall be accurate within +/- two (2) percent.

The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type designed for mobile installations subject to vibration, moisture and severe continuous usage.

All electrical wiring from the load center shall be fine stranded copper S.O. type with a 600 volt jacket. The wire shall be sized to the load and circuit breaker rating. The wire size shall be ten (10)-gauge on 30 amp circuits, 12-gauge on 20 amp circuits and 14-gauge on 15 amp circuits. The S.O. cable shall be run in corner areas and extruded aluminum pathways built into the body for easy access. Any S.O. cord not run in an enclosed raceway or cable tray shall have an additional abrasion resistant covering.

The main load center shall have circuit breakers rated to load demand.

Individual breakers shall be provided for all receptacles to isolate a tripped breaker from affecting any other on-line equipment.

GENERATOR LOCATION
The generator shall be mounted under the body between the frame rails.

GENERATOR START
A switch shall be located on the cab instrument panel to engage the generator.

GENERATOR REMOTE START
There shall be a generator remote start/stop switch with indicator light located in the following positions:

1. Cab.

2. Body Compartment to be determined at pre-construction conference.

CIRCUIT BREAKER PANEL

The circuit breaker panel location to be determined at pre-construction conference.

SUB FEED CIRCUIT BREAKER BOX

A sub feed box shall be supplied with current limiting circuit breakers to protect the on board circuits when an auxiliary power source is used. The sub feed box shall distribute power to specific circuits in the vehicle.

Location shall be determined at the pre-construction conference.

GENERATOR SPLASH GUARD

A stainless steel splash guard shall be installed to reduce the amount of road spray on a frame mounted PTO generator.

"POWER ON" INDICATOR LIGHT

A green "power-on" indicator light shall be provided. The light shall indicate when the generator is producing power to the load center. The light shall be installed near the load center.

GENERATOR INTERLOCK

Special programming shall be provided to not allow the generator PTO to engage if the engine is above 900 RPM.

LOAD GOVERNOR

A Fire Research F.R.O.G. load sensing governor shall be provided and wired to regulate the generator output to maintain a 60-cycle frequency. The engine rpm shall be adjusted automatically to correspond with the increased load. The load governor shall turn on and off automatically with the PTO switch.

ELECTRIC CORD REEL

Furnished with the AC electrical system shall be two (2) Hannay, series 1600, cord reel wired for a four (4) conductor cord. The reel shall be provided with a 12-volt electric rewind switch, that is guarded to prevent accidental operation and labeled for its intended use. The push button switch shall be protected with a fuse and installed at a height not to exceed 72 inches above the operators standing position.

A captive roller assembly shall be provided to aid in the payout and loading of the reel. A ball stop shall be provided to prevent the cord from being wound on the reel.

A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate current rating, current type, phase, voltage and total cable length.

A total of two (2) cord reels shall be provided, one each in the rearmost rear upper bulkhead compartments. The reels shall be oriented reels so the rewind motors can be removed without removing the reel assembly.

An extendable 4-way roller guide shall be provided to allow the cord to be directed as needed without damage to the cord or body.

CORD

Provided for electric distribution shall be two (2) lengths, one (1) for each reel, of 200 feet of yellow 10/4 electrical cord. A Hubbell L14-30, 30 amp, 120/240 volt, twist lock connector body shall be installed on the end of the cord.

PORTABLE JUNCTION BOX

There shall be two (2) yellow Akron, weatherproof portable junction box(es) provided with flip up lids lined with soft neoprene rubber at each outlet opening and shall include the following:

One (1) 120 volt AC, 20 amp straight blade receptacle

Two (2) 120 volt AC, 20 amp L5-20 twist-lock receptacles

One (1) 240 volt AC, 30 amp L6-20 twist-lock receptacle

A 20 amp circuit breaker shall be supplied in the portable junction box for each 120 volt receptacles

A Hubbell L14-30, 30 amp, 120/240 volt, twist lock connector body shall be included.

JUNCTION BOX HOLDER

There shall be an aluminum junction box holder installed adjacent to the cord reel, to be located on the inboard compartment wall. A total of two (2) shall be installed, one on each side.

120 VOLT INTERIOR RECEPTACLE

Receptacle shall be a NEMA 5-15, 120 volt, 15 amp, three (3) wire duplex household type with a non-weather resistant cover.

There shall be six (6) receptacles provided, five (5) in the rescue body and one (1) in the cab. The location to be determined at the pre-construction conference.

All 120 volt receptacles shall be powered by the shore line when connected or the generator when operating.

20 AMP 240 VOLT RECEPTACLE

Wired to the generator shall be two (2) receptacles that are 240 volt 20 amp three wire twist-lock NEMA L6-20R type with a weather resisting cover. These receptacles shall be located on the forward bulkhead wall of the compartment in front of the rear axle on the passenger side.

This receptacle shall be designed to power a Holmatro SR40 HC2 Electric Duo pump.

CASCADE AIR SYSTEM

The cascade system shall be provided with an air storage system consisting of:

Three (3) **MANUFACTURER FURNISHED** 6,000 psi UN / ISO ASME air storage cylinders shall be provided. Each cylinder shall be permanently stamped or identified in accordance with applicable regulations.

Each cylinder shall have a working pressure of 6,000 psi with a 2.4:1 safety factor. The nominal capacity of each cylinder shall be 509 cu.ft. at 6,000 psi, 70 degrees F.

Each cylinder shall have a shutoff valve. There shall be a label, external of the cylinder which reads, "HIGH PRESSURE 6,000 psi BREATHING AIR".

The air cylinders shall be securely mounted at both ends. The mounting system shall be designed to withstand severe service to be expected of this type of apparatus.

The manufacturer provided 6,000 psi air storage cylinders shall be mounted in transverse compartment in the rescue body, side by side.

**THE SPECIFIED CASCADE SYSTEM HAS NO CONTAINMENT FILL STATION AND IS NOT INTENDED TO FILL SCBA CYLINDERS. **

THREE BANK FILL CONTROL PANEL

The cascade air fill control system shall include a control panel with all components, devices and piping necessary to provide air from the storage cylinders to air control boxes. The control panel shall be custom fabricated from stainless steel.

The fill control system shall be designed for the number of storage cylinders listed above. The system shall permit filling or drawing down each air storage cylinder, independently of each other. The system shall allow regulating the fill pressure into any device to prevent

over-pressurization. A regulated air outlet gauge shall be provided downstream of the regulator to view the regulated pressure.

All gauges provided shall all be liquid filled, 2 ½", 0-7,500 psi. Valves shall be 6,000 psi working pressure, soft seat type. The adjustable pressure regulator shall be a one handed, self-relieving, 6,000 psi type.

At a minimum, the fill control panel shall include the following:

Air storage fill, CGA inlet fitting and control valve
Storage cylinder gauge(s) and control valve(s)
Adjustable, self-relieving regulator
Regulator outlet pressure gauge
Air Box control valve
Air Box fill pressure gauge

All panel components shall be clearly marked with permanently affixed, engraved nameplates.

BREATHING AIR UTILITY REEL

Installed in the rescue body transverse compartment shall be one (1) Hannay high pressure utility reel with electric rewind and roller assembly.

The reel shall be plumbed to the onboard storage system. The reel shall be suitable for breathing air use.

Maximum working pressure shall be 6,000 PSI.

The specification for the hose is as follows:

Length of hose:	300'
Inside diameter:	3/8"
Outside diameter:	13/32"
Minimum bend radius:	1-1/2"
Working pressure:	6,000 PSI
Burst pressure:	24,000 PSI
Color:	Gray

A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate utility air, the operating pressure, the total hose length and the hose size (inside dimension).

The air reel shall be controlled at the cascade panel. Provided on the panel shall be a shut off valve, an inlet gauge, adjustable regulator and an outlet gauge. The regulator shall be capable of controlling the pressure between 0-6,000 psi.

A 4-way roller guide shall be provided, attached to the compartment doors to allow the hose to be directed as needed out either side of the apparatus without damage to the cord or body.

AIR REEL FOR TOOLS

Installed in the rescue body transverse compartment shall be two (2) Hannay utility air reels with electric rewind and roller assembly.

The reel shall be plumbed to the onboard storage system.

Maximum working pressure shall be 300 PSI.

The reels shall be loaded with 200 feet of Goodyear Instagrip Heavy Duty air hose, red in color. The hose shall be continuous with no unions. The hose end shall have a female NPT quick disconnect. To monitor the pressure in the supply line, a gauge and valve shall be provided at the air control panel.

A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate utility air, the operating pressure, the total hose length and hose size (inside dimension).

The air reel shall be controlled at the cascade panel. Provided on the panel shall be a shut off valve, an inlet gauge, adjustable regulator and an outlet gauge. The regulator shall be capable of controlling the pressure between 0-6000 psi.

4-way roller guides for each reel shall be provided, attached to the compartment doors to allow the hose to be directed as needed out either side of the apparatus without damage to the cord or body.

HOLMATRO HYDRAULIC BULKHEAD CONNECTION POINTS

A total of (4) bulkhead connection points for the Holmatro Core Technology system are to be located on the apparatus.

Two (2) connections shall be located on the outward side of the front bumper extension, (1) on the driver's side and (1) on the passenger side.

Two (2) connections shall be located on each side of the exit door on the body, (1) on the driver's side and (1) on the passenger side.

The bulkhead hydraulic supply will be provided by Holmatro Core Hose with a diverter valve to either supply the front or rear bulkheads with fluid.

All connections from the pump to the bulkhead will be permanent

NFPA REQUIRED LOOSE EQUIPMENT
Any loose equipment as outlined in NFPA 1901, 2009 edition, section 10.5.1 shall be provided by the fire department.

PAINT
The chassis and all other components under the cab and body shall have a protective undercoating applied to inhibit deterioration.

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

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Surfaces that shall not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate. Each imperfection on the exterior metal surface shall be removed or filled and then sanded smooth for a smooth appearance. All seams shall be sealed before painting.

2. Chemical Cleaning and Treatment - The metal surfaces shall be properly cleaned using a high pressure and high temperature cleaning system. Surfaces are chemically cleaned to remove all dirt, oil, grease and metal oxides to ensure the subsequent coatings bond well. An ultra-pure water final rinse shall be applied to all metal surfaces, excluding undercarriage components, at the conclusion of the metal treatment process.

3. Primer/Surfacer Coats - A two (2) component urethane primer/surfacer shall be hand applied to the chemically treated metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface.

4. Hand Sanding - The primer/surfacer coat shall be lightly sanded to an ultra-smooth finish.

5. Sealer Primer Coat - A two (2) component sealer primer coat shall be applied over the sanded primer.

6. Topcoat Paint - Urethane base coat shall be applied to opacity for correct color matching.

7. Clearcoat - Two (2) coats of an automotive grade two (2) component urethane shall be applied. Lap style doors shall be clear coated to match the body. All removable items such as brackets, compartment doors, door hinges, trim, etc. shall be removed and painted separately to insure paint behind all mounted items. Body assemblies that can not be finish painted after assembly shall be finish painted before assembly.

The cab and body shall be painted Red (Sikkens Autocoat BTLV Basecoat FLNA 3042) approved at the pre-construction conference.

PAINT - ENVIRONMENTAL IMPACT

Contractor shall meet or exceed all current State (his) regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:

- Topcoats and primers shall be chrome and lead free.

- Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals.

- Particulate emission collection from sanding operations shall have a 99.99 percent efficiency factor.

- Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter means is used, it shall have an efficiency rating of 98 percent. Water wash systems shall be 99.97 percent efficient.

- Water from water wash booths shall be reused. Solids shall be removed mechanically on a continual basis to keep the water clean.

- Paint wastes are disposed of in an environmentally safe manner. They are used as fuel in kilns used in the cement manufacturing process - thereby extracting energy from a waste material.

- Empty metal paint containers shall be cleaned, crushed and recycled to recover the metal.

- Solvents used in cleanup operations shall be collected, recycled on-site, or sent off-site for distillation and returned for reuse. Residue from the distillation operation shall be used as fuel in off-site cement kilns.

Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that his manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that shall be painted are:

Frame rails

Frame liners

Cross members

Axles

Suspensions

Steering gear

Battery boxes

Bumper extension weldment

Frame extensions

Body mounting angles

Rear Body support substructure (front and rear)

Pump house substructure

Air tanks

Fuel tank

Castings

Individual piece parts used in chassis and body assembly

GRILLE NUMBERS

The grille shall be chrome with a black painted background with "RES 1 CUE" painted in blue letters outlined in white

UNPAINTED DOOR PANS

The door pans on the body shall be unpainted and D/A finished.

COMPARTMENT INTERIOR FINISH

The interior of the compartments shall be sanded to a uniform finish and not painted.

GRAPHICS

Detailed description of all graphics to be determined at pre-construction conference.

REFLECTIVE STRIPES

Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the chassis cab and apparatus body. The reflective band shall consist of a 1.00" blue stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" blue stripe on the bottom.

The reflective band provided on the cab face shall be at the headlight level.

JOG, IN REFLECTIVE STRIPE

A jog in the reflective stripe shall be located each side of the vehicle at the rear. The stripe shall be angled upward at approximately a 45 degree angle.

CHEVRON STRIPING, REAR

There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The entire rear surface, excluding the rear compartment door, shall be covered.

The colors shall be red and fluorescent yellow green diamond grade.

Each stripe shall be 6.00" in width.

This shall meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface shall be covered with chevron striping.

CHEVRON STRIPING, FRONT BUMPER

There shall be alternating chevron striping located on the front-facing vertical surface of the front bumper.

The colors shall be red and fluorescent yellow green diamond grade.

Each stripe shall be 6.00" in width.

STOP SIGN, REFLECTIVE, CAB DOORS

A 12.00" x 12.00" 3M reflective stop sign shall be provided on the interior of each cab door. The stop sign shall be located on the stainless steel door panel.

This sign shall meet the NFPA 1901 requirement.

LETTERING 3"

The lettering shall be totally encapsulated between two (2) layers of clear vinyl.

Forty-one (41) to sixty (60) genuine gold leaf letters, 3.00" high, with outlining and shading shall be provided.

LETTERING ADDITIONAL

8.00" white reflective letters/numbers with black shading shall be installed on the passenger cab front (R-1)

16.00" white reflective letters/numbers with black shading shall be installed on the rear side compartment doors and rear tail board compartment (R-1) and roof of the cab.

Seventeen (17) genuine gold leaf letters, 8" high, with outlining and shading shall be provided for upper part of body on Both sides.

REFLECTIVE STRIPE, HDR BODY DOOR(S)

A 6.00" x 16.00" white reflective stripe shall be provided across the interior of each body entry door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.

The stripe shall be provided on one (1) entry door.

This stripe shall meet the NFPA 1901 requirement.

LETTERING 6"

One (1) to twenty (82) genuine gold leaf lettering, 6.00" high, with outline and shade shall be provided.

EMBLEM, RESCUE 1 INSIGNIA
A pair 14" circle emblems shall feature a LFD R-1 insignia. They shall be placed on TBD.

EMBLEM, LEXINGTON FIRE INSIGNIA
A pair 14" circle emblem shall feature a Lexington Fire Dept. Patch insignia. They shall be placed on TBD

ONE (1) YEAR MATERIAL AND WORKMANSHIP
Each new piece of apparatus shall be provided with a minimum one (1) year basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the Proposal package. (no exception).

*****Optional*****

THREE (3) YEAR MATERIAL AND WORKMANSHIP
Each new piece of apparatus shall be provided with a minimum three (3) year basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the Proposal package. (no exception).

ENGINE WARRANTY
A (5) year limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the Proposal package.

STEERING GEAR WARRANTY
A warranty shall be provided extending the maximum protection against defects in workmanship and materials

FIFTY (50) YEAR STRUCTURAL INTEGRITY
The chassis frame shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the Proposal package (no exception).

FRONT AXLE MATERIAL AND WORKMANSHIP WARRANTY
A warranty shall be provided extending the maximum protection against defects in workmanship and materials.

REAR AXLE MATERIAL AND WORKMANSHIP WARRANTY
A warranty shall be provided extending the maximum protection against defects in workmanship and materials

ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY
A Meritor Wabco™ ABS brake system three (3) year limited warranty shall be provided.

TEN (10) YEAR STRUCTURAL INTEGRITY
The new cab shall be provided with a ten (10) year material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the Proposal package (No Exception).

FIVE (5) YEAR MATERIAL AND WORKMANSHIP
The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship.

A copy of the warranty certificate shall be submitted with the Proposal package (No Exception).

CAMERA SYSTEM WARRANTY
A fifty four (54) month warranty shall be provided for the camera system.

COMPARTMENT LIGHT WARRANTY
The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use.

A copy of the warranty certificate shall be submitted with the Proposal package (No Exception).

TRANSMISSION WARRANTY
The transmission shall have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty is to be provided by Allison Transmission and not the apparatus builder.

FIFTEEN (15) YEAR STRUCTURAL INTEGRITY
Each new piece of apparatus shall be provided with a fifteen (15) year material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the Proposal package (No Exception).

FIVE (5) YEAR GENERATOR WARRANTY
There shall be a 5 year limited warranty provided for generators.

TWELVE (12) YEAR PAINT AND CORROSION
Each new piece of apparatus shall be provided with a twelve (12) year paint and corrosion limited warranty on the apparatus body. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the Proposal package (No Exception).

THREE (3) YEAR MATERIAL AND WORKMANSHIP (GOLD LEAF)
The gold leaf lamination shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover the gold leaf lamination as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the Proposal package (No Exception).

VEHICLE STABILITY CERTIFICATION
The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at the time of Proposal.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the Manufacturer's chassis. The certification shall be provided at the time of Proposal.

POWER STEERING CERTIFICATION

The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of Proposal.

CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer shall provide a cab crash test certification with this proposal. The certification states that the cab must meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks

- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks

- Roof Crush

The cab shall be subjected to a roof crush force of 22,500 pounds. This value meets the ECE 29 criteria, and is equivalent to the front axle rating up to a maximum of 10 metric tons.

- Side Impact

The cab shall be subjected to dynamic preload with a 13,275 pounds moving barrier is slammed into the side of the cab at 5.5 mph, striking with an impact of 13,000 ft-pounds of energy. This test shall closely represent the forces a cab shall see in a rollover incident.

- Frontal Impact

The cab shall withstand a frontal force produced from 65,200 ft-pounds of energy using a swing-bob type platen.

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area.

There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of Proposal.

Lexington, Ky Fire Dept.
SPECIFICATIONS FOR A HEAVY DUTY WALK-IN RESCUE

MANUFACTURER	DEALER	SERVICE CENTER
E-ONE, Inc.	Vogelpohl Fire Equipment Inc.	Vogelpohl Fire Equipment Inc.
Address 1601 SW 37th Ave	Address 2770 Circleport Dr.	Address 2770 Circleport Dr.
City/State/Zip Ocala, FL 34474	City/State/Zip Erlanger KY 41018	City/State/Zip Erlanger KY 41018
Phone 352-237-1122	Phone 859-282-1000	Phone 859-282-1000
APPARATUS MODEL NAME Cyclone II Stainless WI Rescue	NUMBER OF DAYS: CONTRACT AWARD TO DELIVERY 360-390	Driving miles from LFD to Service Center 75
OVERALL LENGTH 38'8"	TRANSMISSION MAKE AND MODEL Allison EVS 4500	Service Center Sq. Ft. 15,000
OVERALL HEIGHT 10'3½"	GENERATOR MAKE AND MODEL Onan 30 kW PTO	Number of Factory Trained Technicians 4
OVERALL WIDTH 8'4"	FRONT AXLE CAPACITY 22,800 lbs.	Number of Mobile Service Units 4
WHEELBASE 227"	FRONT AXLE LOADED WEIGHT (EST) 22,613 lbs.	Number of Indoor Service Bays 5
CURB-TO-CURB TURNING RADIUS 32'6"	REAR AXLE CAPACITY 48,000 lbs	FRAME DIMENSION 10.25 x 3.5 x .375 Galvanized 9.375 x 3.125 x .375 Galvanized Liner
ENGINE MAKE & MODEL Cummins ISX 15	REAR AXLE LOADED WEIGHT (EST) 40,893 lbs	FRAME SECTION MODULUS 16.61 cu in / 28.74 Liner
ENGINE HORSEPOWER 550 HP	FULLY LOADED WEIGHT (EST) 63,506 lbs.	FRAME RESISTANCE TO BENDING MOMENT 3,160,400
ENGINE TORQUE RATING 1050 lb.ft. @ 1200 RPM		
BIDDER Vogelpohl Fire Equipment	DEALER SIGNATURE T Vog	DATE 7-27-16

- Applicable NFPA 1901 or 1906 (Current Edition).

- The minimum continuous load of each component that is specified per:
  - Applicable NFPA 1901 or 1906 (Current Edition).
- Additional loads that, when added to the minimum continuous load, determine the total connected load.
- Each individual intermittent load.

All of the above listed items shall be provided by the Manufacturer per the applicable NFPA 1901 or 1906 (Current Edition).

Heavy Duty Walk-in Rescue Vehicle

Pricing Page

$ 853,979.00

Lexington, Ky Fire Dept.
SPECIFICATIONS FOR A HEAVY DUTY WALK-IN RESCUE