



INVITATION TO TENDER

T-2017-03

June 2, 2017

Fire Pumper Truck

City of Duncan, Volunteer Fire Department
Attention: Mike McKinlay, Chief
c/o City Hall, 200 Craig Street
Duncan, BC

Submission Deadline: July 7, 2017 at 3:00 pm

Contact: Chief Mike McKinlay – Duncan Volunteer Fire Department
250-746-5211; 250-701-1799 or email chiefdvfd@shaw.ca

Tenders are requested for the supply and delivery of one (1) Fire Pumper Truck. Tenders are to be received no later than **3:00 p.m. on Friday, July 7, 2017**, and can be submitted at City Hall, 200 Craig Street, Duncan, BC. Prices quoted are to be F.O.B. City of Duncan, and are to be valid for 30 days from date of Tender closing.

Deviations from the specifications must be detailed by the Tenderer. The expected time of delivery from date of purchase order is to be stated.

Tenders are to be signed and submitted in a sealed envelope marked **“T-2017-03 – Fire Pumper Truck”** and shall be addressed to Mr. Mike McKinlay, Fire Chief.

The lowest, or any other tender, may not be accepted and the awarding of the tender will be based on a full review and analysis of features, delivery, references, warranty, conformity to specifications, operator acceptance, performance, parts and service availability, dealer/truck reputation and overall net price.

Tenders will be opened immediately following the stated closing time. All Bidders will be notified after the review of all Tenders.

Comments and questions can be directed to Mike McKinlay – Fire Chief at 250-746-5211 or 250-701-1799 or by email to chiefdvfd@shaw.ca

Performance Criteria:

It is the intent of these specifications to secure an apparatus built to withstand the severe and continuous use encountered in emergency firefighting and rescue service. The specifications as written represent the minimum acceptable specifications, any exceptions taken or alternatives offered must meet or exceed this specification in order to be given consideration.

The apparatus shall be of the latest type, symmetrically proportioned, constructed with due consideration of the load to be carried on each axle and not a prototype or demonstration unit.

All parts not specifically mentioned herein, but which are necessary in order to furnish a complete apparatus, shall conform to the best practices known to date in fire apparatus design.

Notwithstanding any other requirements, the vehicle shall meet the requirements contained in the Canadian Motor Vehicle Safety Standards and applicable Province of British Columbia requirements.

The completed apparatus must be tested at the manufacturer’s facility, listed and labeled by a ULC representative as meeting CAN/ULC-S515-13. A plate engraved with the ULC mark, pump

test results, water tank volume, test date, and ULC certification number affixed to the completed apparatus prior to delivery.

Bidders shall include with their response evidence of their ability to construct apparatus of the type specified. This will include but is not limited to:

- length of time in business
- relevant CWB welding certificates
- insurance coverage certificate
- letter from ULC confirming successful completion of compliance auditing to CAN/ULC S515-13 Standard for Automobile Fire Fighting Apparatus and eligibility for UL Certificates of Inspection
- evidence of good standing with WorkSafe BC or equivalent occupational health and safety authority

The successful bidder must as part of this contract, maintain a minimum of \$2,000,000 of insurance per occurrence to fully cover the total replacement value of the entire apparatus or any part thereof, while the apparatus is in their possession and until the apparatus has been delivered and accepted by the Duncan Volunteer Fire Department.

A minimum of five fire department references within British Columbia will be provided with the proposal to verify manufacturer and, if applicable, dealer performance before, during, and after completion of the apparatus.

Demonstration of Truck:

The City of Duncan reserves the right to require demonstration of a truck similar to that being bid, either prior to closing, or subsequent to closing and before Council award. Costs associated with transportation of either the truck, or the City of Duncan's operators, are to be covered by the bidder.

A preconstruction meeting will be held at the Duncan Fire Hall. Final inspection before delivery will be conducted at the manufacturers' plant. Costs associated with the attendance of three (3) department members will be borne by the bidder.

Parts and Service:

Tenderers must provide information about service capabilities including nearest service center with contact information.

All items and materials used in the construction of the apparatus shall be new.

Thread specifications:

- Main Suction Threads - NST
- 5" Connections - Storz
- 4" Connections - Storz
- 2.5" Connections - BCT
- 1.5" Connections - NPSH

A complete D-Sized, five (5) view, scaled drawing, illustrating the proposed apparatus including all major components is to accompany the bidder's proposal. The drawings are extremely important, as they can easily resolve any questions as to items that are unclear in the specifications. Drawings of similar apparatus are not acceptable.

The Fire Chief and/or their representatives shall be permitted to examine all apparatus upon request from the Fire Chief during the construction period at the cost of the Fire Department.

Availability Guarantees:

Each bidder shall commit as part of its written bid proposal to a delivery date to the Duncan Volunteer Fire Department hall.

EQUIPMENT TENDER - Fire Pumper Truck	
<p>Any deviations from the specifications which, in the opinion of the Duncan Volunteer Fire Department, do not affect the overall requirements of the unit may be considered.</p> <p>Tenderers shall respond in the captioned sections next to each request or instruction. Compliance with the entirety of each paragraph will be indicated with a 'YES'. Non-compliance with the entire or portion of a paragraph with no alternate proposed will be indicated with a 'NO'. If an alternate is being proposed, indicate 'EXCEPTION' and provide details of the alternate specification. The alternate proposed must be equivalent to or exceeds the specification. If more space is required attached additional pages referencing the page number and item.</p>	
<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>MODEL</u> The chassis shall be a Metro Star model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to</p>	

Specifications	Yes/No/Exception
support a fully laden apparatus, one hundred (100) percent of the time.	
<p><u>MODEL YEAR</u> The chassis shall have a vehicle identification number that reflects a 2018 model year.</p>	
<p><u>COUNTRY OF SERVICE</u> The chassis shall be put in service in the country of Canada (CAN).</p> <p>The chassis will meet applicable Canadian Technical Standards Document per Canadian Motor Vehicle Safety Regulations as clarified in the incomplete vehicle document which accompanies each chassis. Spartan Chassis is not responsible for compliance to provincial, regional, or local regulations. Dealers should identify those regulations and order any necessary optional equipment from Spartan Chassis or their OEM needed to be in compliance with those regulations.</p>	
<p><u>ADDITIONAL VOCATIONAL STANDARD</u> The cab, chassis, and components shall be audited to Underwriter's Laboratories of Canada (ULC) current published apparatus specification ULCS-515. The global chassis compliance certification shall be provided to the manufacturer. The chassis as specified shall meet applicable criteria of ULCS-515 and shall include the ULC marking.</p>	
<p><u>CAB AND CHASSIS LABELING LANGUAGE</u> The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in both English and French.</p>	
<p><u>APPARATUS TYPE</u> The apparatus shall be a pumper vehicle designed for emergency service use which shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.</p>	
<p><u>VEHICLE TYPE</u> The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.</p>	
<p><u>AXLE CONFIGURATION</u> The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>GROSS AXLE WEIGHT RATINGS FRONT</u> The front gross axle weight rating (GAWR) of the chassis shall be 21,500 pounds.</p> <p>This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.</p>	
<p><u>GROSS AXLE WEIGHT RATINGS REAR</u> The rear gross axle weight rating (GAWR) of the chassis shall be 27,000 pounds.</p> <p>This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.</p>	
<p><u>CAB STYLE</u> The cab shall be a custom, fully enclosed, LFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to ten (10) seating positions.</p> <p>The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.</p> <p>The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.</p> <p>All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.</p> <p>The cab shall be constructed of 5052-H32 corrosion resistant aluminum</p>	

Specifications	Yes/No/Exception
<p>plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the “A” pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.</p> <p>The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 144.60 inches with 67.50 inches from the centerline of the front of the axle to the back of the cab.</p> <p>The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.</p> <p>The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 65.38 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.</p> <p>The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.</p> <p>The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.</p> <p>The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The</p>	

Specifications	Yes/No/Exception
<p>height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.</p> <p>The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.</p>	
<p><u>CAB FRONT FASCIA</u></p> <p>The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate which shall be an integral part of the cab.</p> <p>The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the “Classic” design.</p> <p>The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. A chrome plated molded plastic bezel shall be provided on each side around each set of four lamps.</p>	
<p><u>FRONT GRILLE</u></p> <p>The front fascia shall include a box style, 304 stainless steel front grille 44.45 inches wide X 33.50 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 732.00 square inches. The upper portion of the grille shall be hinged to provide service access behind the grille.</p>	
<p><u>CAB UNDERCOAT</u></p> <p>There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.</p>	
<p><u>CAB SIDE DRIP RAIL</u></p> <p>There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.</p>	
<p><u>CAB PAINT EXTERIOR</u></p> <p>The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum</p>	

Specifications	Yes/No/Exception
<p>corrosion protection of all metal surfaces.</p> <p>All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.</p> <p>The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper followed by sealing the seams with SEM brand seam sealer.</p> <p>The cab shall then be painted the specific color designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The paint shall have a minimum thickness of 2.00 mils, followed by a clear top coat not to exceed 2.00 mils. The entire cab shall then be baked at 180 degrees for one (1) hour to speed the curing process of the coatings.</p>	
<p><u>CAB PAINT MANUFACTURER</u></p> <p>The cab shall be painted with PPG Industries paint.</p> <p>The primary/lower and secondary/upper paint colors shall be provided at the pre-build meeting.</p>	
<p><u>CAB PAINT EXTERIOR BREAKLINE</u></p> <p>The upper and lower paint shall meet at a break-line on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The break-line shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.</p>	
<p><u>CAB PAINT PINSTRIPE</u></p> <p>A 0.50 inch wide gold reflective tape with black borders shall be applied on the break line between the two different colored surfaces.</p>	
<p><u>CAB PAINT WARRANTY</u></p> <p>The cab and chassis shall be covered by a limited manufacturer paint</p>	

Specifications	Yes/No/Exception
warranty which shall be in effect for ten (10) years from the first owner's date of purchase or in service or the first 100,000 actual miles, whichever occurs first.	
<p><u>CAB PAINT INTERIOR</u> The visible interior cab structure surfaces shall be painted with a multi-tone onyx black texture finish.</p>	
<p><u>CAB ENTRY DOORS</u> The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.</p> <p>The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.</p> <p>All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.</p>	
<p><u>CAB ENTRY DOOR TYPE</u> All cab entry doors shall be full length in design to fully enclose the lower cab steps. Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.</p>	
<p><u>CAB INSULATION</u> The cab ceiling and walls shall include 1.00 inch thick foam insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.</p>	
<p><u>LEFT HAND EXTERIOR REAR COMPARTMENT</u> The cab shall offer an exterior compartment on the left side of the cab behind the rear door. The compartment opening shall be 10.00 inches wide X 31.19 inches high. The compartment size shall be 11.34 inches wide X 31.19 inches high X 21.19 inches deep. The compartment shall have a 10.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a bent D-ring slam latch. There shall be a switch to activate a light inside the compartment and the open compartment warning light</p>	

Specifications	Yes/No/Exception
<p>in the cab in the event the door is left ajar.</p> <p>There shall be one (1) Amdor Luma-Bar™ LED strip light installed to illuminate the exterior rear compartment on the left side of the cab. The strip light shall be approximately 11.00 inches long.</p> <p>The interior of the left hand exterior compartment shall have a multi-tone onyx black texture finish.</p>	
<p><u>RIGHT HAND EXTERIOR REAR COMPARTMENT</u></p> <p>The cab shall offer an exterior compartment on the right side of the cab behind the rear door. The compartment opening shall be 10.00 inches wide X 31.19 inches high. The compartment size shall be 11.34 inches wide X 31.19 inches high X 21.19 inches deep. The compartment shall have a 10.63 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a bright aluminum tread plate inner panel and a bent D-ring slam latch. There shall be a switch to activate a light inside the compartment and the open compartment warning light in the cab in the event the door is left ajar.</p> <p>There shall be one (1) Amdor Luma-Bar™ LED strip light installed to illuminate the exterior rear compartment on the right side of the cab. The strip light shall be approximately 11.00 inches long.</p> <p>The interior of the right hand exterior compartment shall have a multi-tone onyx black texture finish.</p>	
<p><u>CAB STRUCTURAL WARRANTY</u></p> <p>The cab structure shall be warranted for a period of ten (10) years or one hundred thousand (100,000) miles which ever may occur first. The warranty period shall commence on the date the vehicle is delivered to the first end user.</p>	
<p><u>CAB TEST INFORMATION</u></p> <p>The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi – Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.</p> <p>The above tests have been witnessed by and attested to by an</p>	

Specifications	Yes/No/Exception
<p>independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.</p>	
<p><u>ELECTRICAL SYSTEM</u> The chassis shall include a single starting electrical system which shall include a 12 volt direct current Weldon brand of multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.</p>	
<p><u>APPARATUS WIRING PROVISION</u> An apparatus wiring panel shall be installed in the center dash area behind the rocker switch panel which shall include eight (8) open circuits consisting of three (3) 20 amp, one (1) 30 amp, three (3) 10 amp, and one (1) 15 amp circuit, with relays and breakers with trigger wires which shall be routed to the rocker switch panel.</p>	
<p><u>MULTIPLEX DISPLAY</u> The multiplex electrical system shall include (2) Weldon Vista IV displays which shall be located one (1) on the right side of the dash in the switch panel and one (1) on the left side of the dash in the switch panel. The Vista IV displays shall feature full color LCD display screens which include a message bar displaying the time of day and important messages requiring acknowledgement by the user which shall all be displayed on the top of the screen in the order they are received. There shall be eight (8) push button virtual controls, four (4) on each side of the display for the on-board diagnostics. The display screens shall be video ready for back-up cameras, thermal cameras, and DVD. The Vista IV displays shall offer varying fonts and background colors. The displays shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.</p>	
<p><u>LOAD MANAGEMENT SYSTEM</u> The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.</p>	

Specifications	Yes/No/Exception
<p><u>DATA RECORDING SYSTEM</u></p> <p>The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:</p> <ul style="list-style-type: none"> • Vehicle Speed • Acceleration • Deceleration • Engine Speed • Engine Throttle Position • ABS Event • Seat Occupied Status • Seat Belt Status • Master Optical Warning Device Switch Position • Time • Date <p>Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system.</p>	
<p><u>ACCESSORY POWER</u></p> <p>The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud. A 225 amp battery direct power and ground stud shall be provided and installed on the chassis near the left hand battery box for OEM body connections.</p>	
<p><u>AUXILIARY ACCESSORY POWER</u></p> <p>An auxiliary set of power and ground studs shall be provided and installed behind the electrical center cover with a 40 amp breaker. The studs shall be 0.38 inch diameter and capable of carrying up to a 40 amp load switched with the master power switch.</p>	
<p><u>ADDITIONAL ACCESSORY POWER</u></p> <p>An additional set of power and ground studs shall be provided and installed behind the electrical center cover with a 40 amp breaker. The studs shall be 0.38 inch diameter and capable of carrying up to a 40 amp</p>	

Specifications	Yes/No/Exception
battery direct load.	
<p><u>EXTERIOR ELECTRICAL TERMINAL COATING</u> All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.</p>	
<p><u>ENGINE</u> The chassis engine shall be a Cummins L9 engine. The L9 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 450 horse power at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250 foot pounds of torque at 1400 RPM with 543 cubic inches (8.9 liters) of displacement.</p> <p>The L9 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2017 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.</p> <p>The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.</p> <p>A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.</p>	
<p><u>CAB ENGINE TUNNEL</u> The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.</p>	
<p><u>DIESEL PARTICULATE FILTER CONTROLS</u> There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.</p>	

Specifications	Yes/No/Exception
<p><u>ENGINE HIGH IDLE CONTROL</u></p> <p>The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indicator on the Vista display and control screen for the high idle speed control.</p> <p>The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.</p>	
<p><u>ENGINE PROGRAMMING ROAD SPEED GOVERNOR</u></p> <p>The engine shall include programming which will govern the top speed of the vehicle.</p>	
<p><u>AUXILIARY ENGINE BRAKE</u></p> <p>A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.</p> <p>The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.</p> <p>An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:</p> <ul style="list-style-type: none"> • A valid gear ratio is detected. • The driver has requested or enabled engine compression brake operation. • The throttle is at a minimum engine speed position. • The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift. <p>The compression brake shall be controlled through an on/off rocker switch and a low/medium/high selector switch.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>ELECTRONIC ENGINE OIL LEVEL INDICATOR</u> The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the master battery and ignition switches without the engine running.</p>	
<p><u>FLUID FILLS</u> The front of the chassis shall accommodate fluid fill for the engine oil through the grille. This area shall also accommodate a check for the engine oil. The transmission, power steering, and coolant fluid fills and checks shall be under the cab. The windshield washer fill shall be accessible through the front left side mid step.</p>	
<p><u>ENGINE DRAIN PLUG</u> The engine shall include an original equipment manufacturer installed oil drain plug.</p>	
<p><u>ENGINE WARRANTY</u> The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.</p>	
<p><u>ENGINE PROGRAMMING REMOTE THROTTLE</u> The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.</p>	
<p><u>ENGINE PROGRAMMING IDLE SPEED</u> The engine low idle speed will be programmed at 700 rpm.</p>	
<p><u>ENGINE FAN DRIVE</u> The engine cooling system fan shall incorporate a thermostatically controlled, Horton clutched type fan drive. The clutch fan shall automatically engage in pump mode.</p> <p>When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure.</p>	

Specifications	Yes/No/Exception
<p><u>ENGINE COOLING SYSTEM</u></p> <p>There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.</p> <p>The cooling system shall utilize a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall include a surge tank, an air to air charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.</p> <p>The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.</p> <p>The cooling system shall include a one piece injection molded polymer eleven (11) blade fan with a fiberglass three (3) piece fan shroud.</p> <p>The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements, and allows for expansion and recovery of coolant into a separate integral expansion chamber.</p> <p>All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.</p> <p>The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel "constant torque" style clamps meeting the engine manufacturer's requirements.</p> <p>The radiator and charge air cooler shall be removable through the bottom of the chassis.</p>	

Specifications	Yes/No/Exception
<p><u>ENGINE COOLING SYSTEM PROTECTION</u> The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame color.</p>	
<p><u>ENGINE COOLANT</u> The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit. Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.</p>	
<p><u>ELECTRONIC COOLANT LEVEL INDICATOR</u> The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.</p>	
<p><u>ENGINE PUMP HEAT EXCHANGER</u> A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.</p>	
<p><u>COOLANT HOSES</u> The cooling system hoses shall be silicone heater hose with rubber hoses in the cab interior. The radiator hoses shall be formed silicone coolant hoses with formed aluminized steel tubing. All heater hose, silicone coolant hose, and tubing shall be secured with stainless steel constant torque band clamps.</p>	
<p><u>ENGINE AIR INTAKE</u> The engine air intake system shall include an ember separator air intake filter which shall be located behind the right hand side headlamp. This filter ember separator shall be designed to protect the downstream air filter from embers, using a combination of unique flat and crimped metal screens packaged in a corrosion resistant heavy duty galvanized steel frame. This multilayered screen shall be design traps embers and allows them to burn out before passing through the pack.</p>	

Specifications	Yes/No/Exception
<p>The engine air intake system shall also include a stainless steel air cleaner mounted to the frame and located beneath the cab on the right side of the vehicle. The air cleaner shall utilize a replaceable filter element designed to prevent dust and debris from being ingested into the engine. The air cleaner housing and connections in the air intake system shall be designed to mitigate water intrusion into the system during severe weather conditions.</p> <p>The air intake system shall also include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.</p>	
<p><u>AIR INTAKE PROTECTION</u></p> <p>A light duty skid plate shall be supplied for the engine air intake system below the right front side of the cab. The skid plate shall provide protection for the air intake system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame color.</p>	
<p><u>ENGINE EXHAUST SYSTEM</u></p> <p>The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the between the DPF and SCR.</p> <p>The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.</p> <p>The single module after treatment through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.</p> <p>The exhaust system after treatment module shall be mounted below the frame in the outboard position.</p>	

Specifications	Yes/No/Exception
<p><u>DIESEL EXHAUST FLUID TANK</u></p> <p>The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.</p> <p>The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.</p> <p>The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.</p>	
<p><u>ENGINE EXHAUST ACCESSORIES</u></p> <p>An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.</p>	
<p><u>ENGINE EXHAUST WRAP</u></p> <p>The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.</p>	
<p><u>TRANSMISSION</u></p> <p>The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.</p> <p>The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>TRANSMISSION MODE PROGRAMMING</u></p> <p>The transmission, upon start-up, will select five (5) speeds of operation. The sixth speed over drive shall be available with the activation of the mode button on the shifting pad.</p>	
<p><u>ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR</u></p> <p>The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.</p>	
<p><u>TRANSMISSION SHIFT SELECTOR</u></p> <p>An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.</p>	
<p><u>TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE</u></p> <p>When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.</p>	
<p><u>TRANSMISSION COOLING SYSTEM</u></p> <p>The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.</p>	
<p><u>TRANSMISSION DRAIN PLUG</u></p> <p>The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.</p>	
<p><u>TRANSMISSION WARRANTY</u></p> <p>The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>LEFT HAND PTO MODEL</u></p> <p>A ten (10) bolt Chelsea model 280-GMFJP-B5XD heavy duty transmission driven PTO shall be installed. The clutched shifted PTO is designed specifically for the Allison world transmission and provides continuous and intermittent torque rating of 318 lb. ft.</p>	
<p><u>LEFT HAND PTO CONTROL</u></p> <p>The power take off shall be activated by a locking on/off rocker switch which contains an integral light which shall illuminate upon a positive engagement of the power take off. This switch shall be located on the integrated shifter pod, adjacent to the pump shift control.</p> <p>Required operating conditions for enabling this function are:</p> <ul style="list-style-type: none"> • Throttle position is low • Engine speed is within customer modifiable constant limits • Output speed is within customer modifiable constant limits • Park brake set 	
<p><u>DRIVELINE</u></p> <p>All drivelines shall be heavy duty metal tube and equipped with Spicer 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®.</p>	
<p><u>FUEL FILTER/WATER SEPARATOR</u></p> <p>The fuel system shall have a Fleetguard FS1098 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.</p> <p>A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.</p> <p>A secondary fuel filter shall be included as approved by the engine manufacturer.</p>	
<p><u>FUEL LINES</u></p> <p>The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.</p>	

Specifications	Yes/No/Exception
<p><u>FUEL SHUTOFF VALVE</u></p> <p>A fuel shutoff valve shall be installed in the fuel draw line at the primary fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.</p> <p>A second fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.</p>	
<p><u>ELECTRIC FUEL PRIMER</u></p> <p>Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.</p>	
<p><u>FUEL TANK</u></p> <p>The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length.</p> <p>The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.</p> <p>The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.</p> <p>The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with "U" straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.</p>	
<p><u>FUEL TANK MATERIAL AND FINISH</u></p> <p>The fuel tank shall be constructed of 12 gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame color.</p> <p>All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p>hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.</p> <p>Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.</p>	
<p><u>FUEL TANK STRAP MATERIAL</u></p> <p>The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame color if applicable.</p>	
<p><u>FUEL TANK FILL PORT</u></p> <p>The fuel tank fill ports shall be offset with the left fill port located in the middle position and the right fill port located in the forward position of the fuel tank.</p> <p>A 1.50 inch diameter hole shall be provided in the left and right frame rails for vent hose routing provisions. The holes shall be located adjacent to the fuel tank and 5.13 inches up from the bottom of each rail.</p>	
<p><u>FUEL TANK SERVICEABILITY PROVISIONS</u></p> <p>The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8.00 feet of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.</p>	
<p><u>FUEL TANK DRAIN PLUG</u></p> <p>A 0.5 inch NPT drain plug shall be centered in the bottom of the fuel tank.</p>	
<p><u>FRONT AXLE</u></p> <p>The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 21,500 pounds.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>FRONT AXLE WARRANTY</u></p> <p>The front axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application.</p>	
<p><u>FRONT WHEEL BEARING LUBRICATION</u></p> <p>The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.</p>	
<p><u>FRONT SHOCK ABSORBERS</u></p> <p>Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.</p> <p>The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.</p> <p>The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.</p> <p>Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.</p>	
<p><u>FRONT SUSPENSION</u></p> <p>The front suspension shall include a nine (9) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 21,500 pounds.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>STEERING COLUMN/ WHEEL</u></p> <p>The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.</p> <p>The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.</p>	
<p><u>ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR</u></p> <p>The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.</p>	
<p><u>POWER STEERING PUMP</u></p> <p>The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type. The power steering system shall include an oil to air passive cooler.</p>	
<p><u>FRONT AXLE CRAMP ANGLE</u></p> <p>The chassis shall have a front axle cramp angle of 48-degrees to the left and 44-degrees to the right.</p>	
<p><u>POWER STEERING GEAR</u></p> <p>The power steering gear shall be a TRW model TAS 65 with an assist cylinder.</p>	
<p><u>CHASSIS ALIGNMENT</u></p> <p>The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>REAR AXLE</u></p> <p>The rear axle shall be a Meritor model RS-26-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 27,000 pounds.</p> <p>The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.56 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.</p> <p>The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.</p>	
<p><u>REAR AXLE DIFFERENTIAL LUBRICATION</u></p> <p>The rear axle differential shall be lubricated with oil.</p>	
<p><u>REAR AXLE WARRANTY</u></p> <p>The rear axle shall be warranted by Meritor for two (2) years with unlimited miles under the general service application.</p>	
<p><u>REAR WHEEL BEARING LUBRICATION</u></p> <p>The rear axle wheel bearings shall be lubricated with oil.</p>	
<p><u>REAR AXLE DIFFERENTIAL CONTROL</u></p> <p>A driver controlled differential lock shall be installed on the rear axle. This feature shall allow the main differential to be locked and unlocked when encountering poor road or highway conditions, where maximum traction is needed, for use at speeds no greater than 25 MPH. The differential lock shall be controlled by a virtual button on the Vista display and control screen. The Vista display shall also indicate when positive engagement of the differential control has occurred.</p>	
<p><u>VEHICLE TOP SPEED</u></p> <p>The top speed of the vehicle shall be approximately 68 MPH +/-2 MPH at governed engine RPM.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>REAR SUSPENSION</u></p> <p>The single rear axle shall feature a Reyco 79KB vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension, with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.</p> <p>The rear suspension capacity shall be rated from 21,000 to 31,500 pounds.</p>	
<p><u>FRONT TIRE</u></p> <p>The front tires shall be Michelin 425/65R22.5 "L" tubeless radial XFE regional tread.</p>	
<p><u>REAR TIRE</u></p> <p>The rear tires shall be Michelin 12R-22.5 16PR "H" tubeless radial XDN2 all-weather tread.</p>	
<p><u>TIRE PRESSURE INDICATOR</u></p> <p>There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to the pressure of the tire upon installation.</p>	
<p><u>FRONT WHEEL</u></p> <p>The front wheels shall be Alcoa hub piloted, 22.50 inch X 12.25 inch LvL One™ polished aluminum wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts. The wheels shall feature one-piece forged strength and a polished finish that lasts.</p>	
<p><u>REAR WHEEL</u></p> <p>The outer rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch LvL One™ aluminum wheels with a polished outer surface. The inner rear wheels shall be Alcoa hub piloted, 22.50 inch X 8.25 inch aluminum wheels with LvL One™ bright machine finish. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.</p>	

Specifications	Yes/No/Exception
<p><u>WHEEL TRIM</u></p> <p>The front wheels shall include stainless steel lug nut covers and stainless steel baby moons shipped loose with the chassis for installation by the apparatus builder. The baby moons shall have cutouts for oil seal viewing when applicable.</p> <p>The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats.</p> <p>The lug nut covers, baby moons, and high hats shall be RealWheels® brand constructed of 304L grade, non-corrosive stainless steel with a mirror finish. Each wheel trim component shall meet D.O.T. certification.</p>	
<p><u>TIRE CHAINS</u></p> <p>Onspot brand six (6) strand automatic ice chains shall be installed on the rear axle of the chassis to provide instant traction while traveling on ice and snow at speeds below 35 MPH.</p> <p>The tire chain system shall be activated by a virtual button on the Vista display and control screen. The virtual button shall display “Active” when the tire chains are engaged. The tire chains shall be interlocked with the transmission and shall engage only if the vehicle is traveling 30 MPH or less. After traveling over 30 MPH, the vehicle must be reduced to a speed below 5 MPH for the tire chains to be engaged or re-engaged. The virtual button, once the vehicle reaches 35 MPH shall be reset to “Inactive”. The vehicle must then reduce to a speed below 5 MPH to enable the tire chains virtual button.</p>	
<p><u>BRAKE SYSTEM</u></p> <p>A rapid build-up air brake system shall be provided. The air brakes shall include a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a controlled service brake application during the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.</p> <p>The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm</p>	

Specifications	Yes/No/Exception
<p>shall designate when the system air pressure is below 60 PSI.</p> <p>A four (4) sensor, four (4) modulator Anti-lock Braking System (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.</p> <p>Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces. The ATC light shall illuminate during excessive wheel slip and ATC is operational.</p> <p>A virtual style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.</p>	
<p><u>FRONT BRAKES</u></p> <p>The front brakes shall be Meritor 16.50 inch x 6.00 inch S-cam drum type.</p>	
<p><u>REAR BRAKES</u></p> <p>The rear brakes shall be Meritor 16.50 inch X 7.00 inch S-cam drum type. The brakes shall feature a cast iron shoe.</p>	
<p><u>PARK BRAKE</u></p> <p>Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p>A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.</p> <p>The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.</p>	
<p><u>BRAKE SLACK ADJUSTERS</u></p> <p>Haldex front brake automatic slack adjusters shall be installed on the chassis.</p> <p>Haldex rear brake automatic slack adjusters shall be installed on the axle.</p>	
<p><u>BRAKE DUST SHIELDS</u></p> <p>The front axle shall be equipped with brake dust shields.</p> <p>The rear brakes shall be equipped with brake dust shields.</p>	
<p><u>AIR DRYER</u></p> <p>The brake system shall include a Wabco System Saver 1200 air dryer with an integral heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be mounted behind the battery box on the left hand side.</p>	
<p><u>BRAKE CHAMBERS</u></p> <p>The front brakes shall be provided with MGM type 30 brake chambers.</p> <p>The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>AIR COMPRESSOR</u></p> <p>The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly increasing the system component life.</p>	
<p><u>AIR GOVERNOR</u></p> <p>An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket on the left frame rail behind the battery box.</p>	
<p><u>MOISTURE EJECTORS</u></p> <p>An automatic moisture ejector with a manual drain provision shall be installed on the wet tank of the air supply system. Manual pet-cock type drain valves shall be installed on all remaining reservoirs of the air supply system.</p>	
<p><u>AIR SUPPLY LINES</u></p> <p>The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.</p> <p>Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.</p>	
<p><u>WHEELBASE</u></p> <p>The chassis wheelbase shall be approximately 213.50 inches.</p>	
<p><u>FRAME</u></p> <p>The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall</p>	

Specifications	Yes/No/Exception
<p>be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.</p> <p>Proposals calculating the frame strength using the "box method" shall not be considered.</p> <p>Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.</p> <p>A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.</p> <p>Any proposals not including additional reinforcement for each cross member shall not be considered.</p> <p>All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.</p> <p>The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall be made available upon request.</p> <p>Proposals offering warranties for frames not including cross members shall not be considered.</p>	
<p><u>FRAME WARRANTY</u></p> <p>The frame and cross members shall carry a limited lifetime warranty to the original purchaser. The warranty period shall commence on the date the vehicle is delivered to the first end user.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>FRAME PAINT</u></p> <p>The frame shall be powder coated black prior to any attachment of components.</p> <p>All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.</p> <p>Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.</p>	
<p><u>FRONT BUMPER</u></p> <p>A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12.00 inches high and 99.00 inches wide.</p> <p>The front bumper shall be extended approximately 21.00 inches ahead of the cab.</p> <p>The extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.</p> <p>The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.</p>	
<p><u>MECHANICAL SIREN</u></p> <p>An electro mechanical Federal Q2B™ siren will be supplied by the Fire Department.</p> <p>The siren shall be pedestal mounted on the bumper apron on the furthest outboard section of the bumper on the officer side.</p>	

Specifications	Yes/No/Exception
<p><u>AIR HORN</u></p> <p>The chassis shall include two (2) Hadley brand E-Tone air horns which shall measure 24.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.</p> <p>The air horns shall be recess mounted in the front bumper face, one (1) on the right side of the bumper in the inboard position relative to the right hand frame rail and one (1) on the left side of the bumper in the inboard position relative to the left hand frame rail.</p> <p>One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.</p>	
<p><u>ELECTRONIC SIREN SPEAKER</u></p> <p>There shall be two (2) Cast Products Inc. model SA4301, 100 watt speakers provided. Each speaker shall measure 6.20 inches tall X 7.36 inches wide X 3.06 inches deep. Each speaker shall include a flat mounting flange which shall be polished aluminum.</p> <p>The two (2) electronic siren speakers shall be located on the front bumper face outboard of the frame rails with one (1) on the right side and one (1) on the left side in the outboard positions.</p>	
<p><u>FRONT BUMPER TOW EYES</u></p> <p>The bumper shall include two (2) painted tow eyes which shall be installed below the front bumper. The tow eyes shall be fabricated from 0.75 inch thick #1020 ASTM-36 hot rolled steel. The inside diameter of the eye shall be 2.00 inches and include a chamfered edge. The tow eyes shall be painted to match the frame.</p>	
<p><u>CAB TILT SYSTEM</u></p> <p>The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.</p> <p>The electric-over-hydraulic lift system shall include an ignition interlock</p>	

Specifications	Yes/No/Exception
<p>and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the “Down” button to indicate safe road operation.</p> <p>It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.</p> <p>Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.</p> <p>Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.</p> <p>A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.</p> <p>A six (6) pin Deutsch receptacle that includes a cap shall be installed in the front bumper tail on the right hand side to provide a place to plug in the cab tilt remote control pendant.</p> <p>The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.</p>	
<p><u>CAB TILT LOCK DOWN INDICATOR</u></p> <p>The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.</p> <p>In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.</p>	
<p><u>CAB WINDSHIELD</u></p>	

Specifications	Yes/No/Exception
<p>The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.</p> <p>The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.</p> <p>Each windshield shall be installed using black self locking window rubber.</p>	
<p><u>GLASS FRONT DOORS</u></p> <p>The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.</p> <p>There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows.</p> <p>The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.</p> <p>The windows located in the left and right front doors shall have a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.</p>	
<p><u>GLASS REAR DOORS</u></p> <p>The rear cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.</p> <p>The windows shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.</p>	
<p><u>GLASS TINT REAR DOOR LEFT HAND</u></p> <p>The window located in the left hand side rear door shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.</p>	

Specifications	Yes/No/Exception
<p><u>GLASS SIDE MID</u></p> <p>The cab shall include a window on the left and right side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 26.00 inches high. Each window shall be fixed within this space and shall be rectangular in shape. The windows shall be mounted using self locking window rubber. The glass utilized for these windows shall include a green automotive tint unless otherwise noted.</p> <p>The windows shall include a standard green automotive tint which shall allow seventy-five percent (75%) light transmittance.</p>	
<p><u>CLIMATE CONTROL</u></p> <p>A ceiling mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of sever duty design made of aluminum which shall be coated with a customer specified interior paint. The design of the system’s covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items.</p> <p>The air delivery plenums provide targeted airflow directly to the vehicle occupants. Six (6) adjustable louvers will provide comfort for the front seat occupants and ten (10) adjustable louvers will provide comfort for the rear crew occupants.</p> <p>The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122° F (+/- 3° F) to 80° F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.</p> <p>The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.</p> <p>A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.</p> <p>The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aero-quip GH134 flexible hose with</p>	

Specifications	Yes/No/Exception
<p>Aeroquip EZ-Clip fittings.</p> <p>The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.</p> <p>Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools.</p> <p>The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.</p> <p>The heating, defrosting and air conditioning controls shall be located on the center dash panel in the lower left hand side, in a position which is easily accessible to the driver. The climate control shall be activated by a rotary switch.</p>	
<p><u>CLIMATE CONTROL ACTIVATION</u></p> <p>The heating, defrosting and air conditioning controls shall be located on the center dash panel in the lower left hand side, in a position which is easily accessible to the driver. The climate control shall be activated by a rotary switch.</p>	
<p><u>HVAC OVERHEAD COVER PAINT</u></p> <p>The overhead HVAC cover shall be painted with a multi-tone onyx black texture finish.</p>	
<p><u>HEATER HOSE INSULATION</u></p> <p>The heater hoses leading from the engine to the cab shall include a foam insulation wrap which runs the length of the hose improving heating in extreme cold climates. The heater hoses which shall be routed inside the cab shall not be insulated.</p>	
<p><u>A/C CONDENSER LOCATION</u></p> <p>A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>A/C COMPRESSOR</u></p> <p>The air-conditioning compressor shall be a belt driven, engine mounted compressor. The compressor shall be compatible with R134-a refrigerant.</p>	
<p><u>CAB CIRCULATION FANS FRONT</u></p> <p>The cab shall include two (2) all metal 6.00 inch air circulation fans installed in the outer front cab corners. Each fan shall be controlled by an individual toggle switch on each fan. The fans can be used to help defog the windshield or to increase air circulation for passenger comfort.</p>	
<p><u>UNDER CAB INSULATION</u></p> <p>The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.</p> <p>The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.</p> <p>The engine tunnel insulation shall measure approximately 0.75 inch thick including a vertically lapped polyester fiber layer, a 1.0 lb/ft² PVC barrier layer, an open cell foam layer, and a moisture and heat reflective foil facing reinforced with a woven fiberglass layer. The foil surface acts as protection against moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.</p> <p>The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by 3 mils of acrylic pressure sensitive adhesive and aluminum pins with hard hat, hold in place fastening heads.</p>	
<p><u>INTERIOR TRIM FLOOR</u></p> <p>The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.</p>	

Specifications	Yes/No/Exception
<p><u>INTERIOR TRIM</u></p> <p>The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.</p>	
<p><u>REAR WALL INTERIOR TRIM</u></p> <p>The rear wall of the cab shall be trimmed with vinyl.</p>	
<p><u>HEADER TRIM</u></p> <p>The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum.</p>	
<p><u>TRIM DASH</u></p> <p>The main center dash area shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation.</p> <p>The left hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.</p> <p>The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.</p>	
<p><u>ENGINE TUNNEL TRIM</u></p> <p>The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>POWER POINT DASH MOUNT</u></p> <p>The cab shall include one (1) 12 volt cigarette lighter type receptacles in the switch panel to provide a power source for 12 volt electrical equipment. The cab shall also include two (2) Blue Sea dual universal serial bus (USB) charging receptacles in the cab dash to provide a power source for USB chargeable electrical equipment. The USB ports shall be capable of a 5 Volt-2.1 amp total output. The receptacles shall be wired battery direct.</p>	
<p><u>STEP TRIM</u></p> <p>Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with indented perforations. The perforations shall allow water and other debris to flow through rather than becoming trapped within the stepping surface. The stainless steel material shall have a number 7 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed in 0.08 inch thick 3003-H22 embossed aluminum tread plate.</p>	
<p><u>UNDER CAB ACCESS DOOR</u></p> <p>The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.</p>	
<p><u>INTERIOR DOOR TRIM</u></p> <p>The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.</p>	
<p><u>DOOR TRIM CUSTOMER NAMEPLATE</u></p> <p>The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.</p>	
<p><u>CAB DOOR TRIM REFLECTIVE</u></p> <p>The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a</p>	

Specifications	Yes/No/Exception
reflective tape chevron with red and white stripes and a waving Canadian Flag logo. The chevron tape shall measure 6.00 inches in height.	
<p><u>INTERIOR GRAB HANDLE "A" PILLAR</u></p> <p>There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each "A" post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.</p>	
<p><u>INTERIOR GRAB HANDLE FRONT DOOR</u></p> <p>Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.</p>	
<p><u>INTERIOR GRAB HANDLE REAR DOOR</u></p> <p>A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.</p>	
<p><u>INTERIOR SOFT TRIM COLOR</u></p> <p>The cab interior soft trim surfaces shall be black in color.</p>	
<p><u>INTERIOR TRIM SUNVISOR</u></p> <p>The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.</p>	
<p><u>INTERIOR FLOOR MAT COLOR</u></p> <p>The cab interior floor mat shall be black in color.</p>	
<p><u>DASH PANEL GROUP</u></p> <p>The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.</p>	

Specifications	Yes/No/Exception
<p><u>SWITCHES LEFT PANEL</u></p> <p>The left dash panel shall include five (5) switches. There shall be three (3) across the top of the panel with two (2) below. Two (2) of the top row of switches shall be rocker type and the left one (1) shall be the windshield wiper/washer control switch. The lower switches shall be a headlight switch left and a rocker type switch right.</p> <p>A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.</p>	
<p><u>SEAT BELT WARNING</u></p> <p>A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the Vista display and control screens, an indicator light in the instrument panel, and an audible alarm.</p> <p>The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and audible alarm shall remain active until all occupied seats have the seat belts fastened.</p>	
<p><u>SEAT MATERIAL</u></p> <p>The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.</p>	
<p><u>SEAT COLOR</u></p> <p>All seats supplied with the chassis shall be black in color. All seats shall include red seat belts.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>SEAT BACK LOGO</u></p> <p>The seat back shall include the “Spartan” logo. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.</p>	
<p><u>SEAT DRIVER</u></p> <p>The driver's seat shall be an H.O. Bostrom 400 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.</p> <p>The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.</p> <p>The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.</p> <p>This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.</p> <p>The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.</p> <p>The driver’s seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.</p> <p>The driver’s seat shall be installed in an ergonomic position in relation to the cab dash.</p> <p>The power seat or seats installed in the cab shall be wired directly to battery power.</p>	

Specifications	Yes/No/Exception
<p><u>SEAT OFFICER</u></p> <p>The officer's seat shall be an H.O. Bostrom 400 Series Firefighter model seat. The seat shall feature two-way manual adjustment and shall include a tapered and padded seat cushion. The seat shall also feature integral springs to isolate shock.</p> <p>The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.</p> <p>The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches.</p> <p>This model of seat shall have successfully completed the static load tests by FMVSS 207, 209, 210 and 302 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.</p> <p>The officer's seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.</p> <p>The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically.</p> <p>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 SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed 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.</p>	

Specifications	Yes/No/Exception
<p>The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.</p> <p>The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.</p> <p>The officer's seat shall be installed in an ergonomic position in relation to the cab dash.</p>	
<p><u>SEAT BELT ORIENTATION CREW</u></p> <p>The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.</p>	
<p><u>SEAT REAR FACING OUTER LOCATION</u></p> <p>The crew area shall include two (2) rear facing crew seats, which include one (1) located directly behind the left side front seat and one (1) located directly behind the right side front seat.</p>	
<p><u>SEAT CREW REAR FACING OUTER</u></p> <p>The crew area shall include a seat in the rear facing outboard position which shall be a H.O. Bostrom 400 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be spring load hinged and compact in design for additional room and shall remain in the stored position until occupied.</p> <p>The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.</p> <p>The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.</p> <p>This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted</p>	

Specifications	Yes/No/Exception
<p>firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.</p> <p>The rear facing outboard seat shall feature a Bostrom SecureAll™ self contained breathing apparatus (SCBA) locking system which shall store most U.S. and International SCBA brands and bottle sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.</p> <p>The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically.</p> <p>The bracket system shall be free of straps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed 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.</p> <p>The SecureAll™ shall include a release handle which shall be integrated into the center of the bottom seat cushion for easy access and to eliminate hooking the release handle with clothing or other equipment.</p> <p>The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.</p>	
<p><u>SEAT FORWARD FACING CENTER LOCATION</u></p> <p>The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.</p>	
<p><u>SEAT CREW FORWARD FACING CENTER</u></p> <p>The crew area shall include a seat in the forward facing center position which shall be a H.O. Bostrom 400 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat and cushion shall be hinged and compact in design for additional room and</p>	

Specifications	Yes/No/Exception
<p>shall remain in the stored position until occupied.</p> <p>The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant.</p> <p>The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.</p> <p>This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.</p> <p>The forward facing center seat shall feature a SecureAll™ self contained breathing apparatus (SCBA) locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.</p> <p>The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically.</p> <p>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 SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed 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.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p>The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.</p> <p>The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.</p>	
<p><u>SEAT FRAME FORWARD FACING</u></p> <p>The forward facing center seating positions shall include a full width seat frame located and installed at the rear wall. The seat frame shall span the available space on the rear wall. The seat frame shall be 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted with the same color as the remaining interior.</p> <p>There shall be one (1) access point to the storage area in the center of the front of the seat frame. The access point shall be covered by a hinged door which measures 41.75 inches wide X 8.63 inches high to allow access for storage in the seat box.</p> <p>The seat frame shall be open to the exterior rear compartment on both the right hand side and the left hand side. This shall allow interior access to the left and right exterior rear compartments.</p>	
<p><u>CAB FRONT UNDERSEAT STORAGE ACCESS</u></p> <p>The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch.</p>	
<p><u>SEAT COMPARTMENT DOOR FINISH</u></p> <p>All underseat storage compartment access doors shall have a multi-tone onyx black texture finish.</p>	
<p><u>HELMET STORAGE</u></p> <p>The cab area shall utilize OnScene Solutions Talon helmet brackets designed to meet current NFPA regulations. The Talon shall be constructed of aluminum and stainless steel. Located as follows:</p> <p>Two (2) helmet storage brackets located overhead at the front on the right and left hand sides of the cab.</p> <p>Two (2) helmet storage brackets located on the outboard section of the right side rear wall.</p>	

Specifications	Yes/No/Exception
<p><u>WINDSHIELD WIPER SYSTEM</u></p> <p>The cab shall include a dual arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers which shall be affixed to a radial wet arm. The system shall include a single motor which shall initiate the arm in which both the left hand and right hand windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.</p>	
<p><u>ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR</u></p> <p>The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.</p>	
<p><u>CAB DOOR HARDWARE</u></p> <p>The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of aluminum with a chrome plated finish.</p> <p>The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.</p> <p>All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.</p> <p>The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel to help protect the cab finish.</p>	
<p><u>DOOR LOCKS</u></p> <p>Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>DOOR LOCK REAR CAB COMPARTMENTS</u></p> <p>The left and right hand side rear compartments shall feature a manual door lock.</p>	
<p><u>GRAB HANDLES</u></p> <p>The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.</p>	
<p><u>REARVIEW MIRRORS</u></p> <p>Retrac Aerodynamic West Coast style dual vision mirror heads model 613305 shall be provided and installed on each of the front cab doors.</p> <p>The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.</p> <p>The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.</p> <p>The mirrors shall be constructed of a vacuum formed chrome plated ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.</p> <p>The heat for the rearview mirrors shall be controlled through a rocker switch in the mirror control panel on the left side dash.</p>	
<p><u>TRIM LOWER SIDE</u></p> <p>A stainless steel trim band, 10.00 inches high, with upper and lower black and chrome trim moldings, shall be installed on the lower exterior sides of the cab and doors. The trim shall be installed so that the top edge approximately 1.00 inch below the top of the front bumper, and shall be affixed without holes and fasteners.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>TRIM LOWER SIDE FRONT</u></p> <p>A stainless steel trim band, 10.00 inches high, with upper and lower black and chrome trim moldings, shall be installed on the lower exterior sides of the cab between the front bumper and the front doors. The trim shall be installed so that the top edge is approximately 1.00 inch below the top of the front bumper, and shall be affixed without holes and fasteners.</p>	
<p><u>CAB FENDER</u></p> <p>Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 5.00 inches wide made of polished aluminum.</p>	
<p><u>MUD FLAPS FRONT</u></p> <p>The front wheel wells shall have mud flaps installed on them.</p>	
<p><u>CAB EXTERIOR FRONT & SIDE EMBLEMS</u></p> <p>The cab shall include three (3) Spartan emblems. There shall be one (1) installed on the front air intake grille and one (1) emblem on each of the cab sides.</p>	
<p><u>IGNITION</u></p> <p>A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.</p> <p>Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the “ON” position.</p> <p>The starter button shall only operate when both the master battery and ignition switches are in the “ON” position.</p>	
<p><u>BATTERY</u></p> <p>The single start electrical system shall include six (6) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>BATTERY TRAY</u></p> <p>The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.</p> <p>The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.</p> <p>Each battery box shall include a steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.</p>	
<p><u>BATTERY CABLE</u></p> <p>The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.</p>	
<p><u>BATTERY JUMPER STUD</u></p> <p>The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.</p>	
<p><u>ALTERNATOR</u></p> <p>The charging system shall include a 270 amp Leece Neville 12 volt alternator. The alternator shall include a self-excited integral regulator.</p>	
<p><u>BATTERY CONDITIONER</u></p> <p>A Kussmaul 1200 battery conditioner shall be supplied. The battery conditioner shall be mounted in the cab at the left hand rear facing outer seating position.</p> <p>A Kussmaul battery conditioner display shall be supplied. The battery conditioner display shall be mounted in the cab, viewable through the cab mid side window behind the left front door.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>AUXILIARY AIR COMPRESSOR</u></p> <p>A Kussmaul Auto Pump 120V air compressor shall be supplied. The air compressor shall be installed behind the officer's seat. The air compressor shall be plumbed to the air brake system to maintain air pressure.</p>	
<p><u>ELECTRICAL INLET</u></p> <p>A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.</p> <p>An electrical inlet shall be installed on the left hand side of cab over the wheel well.</p> <p>The electrical inlet shall be connected to the battery conditioner and the air pump.</p> <p>The electrical inlet connection shall include a yellow cover.</p>	
<p><u>HEADLIGHTS</u></p> <p>The cab front shall include four (4) rectangular halogen headlamps with separate high and low beams mounted in bright chrome bezels.</p> <p>The headlights shall be located on the front fascia of the cab directly below the front warning lights.</p>	
<p><u>FRONT TURN SIGNALS</u></p> <p>The front fascia shall include two (2) Whelen model M6 4.00 inch X 6.00 inch amber LED turn signals which shall be installed in a chrome bezel outboard of the front warning and above the headlamps.</p>	
<p><u>SIDE TURN/MARKER LIGHTS</u></p> <p>The sides of the cab shall include two (2) LED round side marker lights which shall be provided just behind the front cab radius corners.</p>	
<p><u>MARKER AND ICC LIGHTS</u></p> <p>In accordance with FMVSS, there shall be five (5) LED cab marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>HEADLIGHT AND MARKER LIGHT ACTIVATION</u></p> <p>The headlights and marker lights shall be controlled through a rocker switch within easy reach of the driver. There shall be a dimmer switch within easy reach of the driver to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights to 80% brilliance when the battery master switch is in the "On" position and the parking brake is released.</p>	
<p><u>GROUND LIGHTS</u></p> <p>Each door shall include Amdor H2O LED model AY-9500-012 ground lighting mounted to the underside of the cab step below each door. The lights shall be 12.00 inches in length. The ground lighting shall be activated by the opening of the door on the respective cab side, when the parking brake is set as well as when the truck is placed in reverse and through a virtual button on the Vista display and control screen</p>	
<p><u>LOWER CAB STEP LIGHTS</u></p> <p>The middle step located at each door shall include an Amdor brand Luma Bar™ H2O 12.00 inch long LED strip light which shall activate with the opening of the respective door.</p>	
<p><u>INTERMEDIATE STEP LIGHTS</u></p> <p>The intermediate step well area at each door shall include an LED light within a chrome housing. The Egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with Entry step lighting.</p>	
<p><u>ENGINE COMPARTMENT LIGHT</u></p> <p>There shall be an LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.</p>	
<p><u>CAB FRONT LIGHTBAR</u></p> <p>The lightbar shall be one (1) Whelen brand Freedom IV LED lightbar mounted centered on the front of the cab roof. The lightbar shall be 81.00 inches in length. The lightbar shall feature six (6) red LED light</p>	

Specifications	Yes/No/Exception
<p>modules and two (2) clear LED light modules. The entire lightbar shall feature a clear lens. The clear lights shall be disabled with park brake engaged. The cable shall exit the lightbar on the right side of the cab.</p> <p>The light bar shall be controlled by a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.</p>	
<p><u>FRONT SCENE LIGHTS</u></p> <p>The front of the cab shall include one (1) Fire Research Spectra MAX-S model, contour roof mount scene light installed on the brow of the cab.</p> <p>The lamp head shall have seventy-two (72) ultra-bright white LEDs, seventy-two (72) for flood lighting or thirty-six (36) to provide a spot light beam pattern. The lamp head shall draw 20.8 amps and generate 28,000 lumens. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamp head shall incorporate heat-dissipating fins and be no more than 6.00 inches high by 14.00 inches wide. The lamp head shall be powder coated white.</p> <p>The front scene lighting shall be activated by a virtual button on the Vista display and control screen.</p> <p>The light shall be mounted center on the front brow of the cab.</p>	
<p><u>SIDE SCENE LIGHTS</u></p> <p>The side of the cab shall include two (2) Whelen M9 V-Series LED scene lights, one (1) each side which shall be surface mounted. Each light head shall measure approximately 6.50 inches high X 10.38 inches wide X 2.70 inches deep. Each scene light shall consist of 18 white Super-LEDs, a clear optic collimator, and a metalized angled reflector.</p> <p>The scene lighting located on the left and right sides of the cab shall be mounted rearward of the cab "B" pillar in the 10.00 inch raised roof portion of the cab between the front and rear crew doors.</p> <p>The scene lights shall be activated by two (2) virtual buttons on the Vista display and control screen(s), one (1) for each light, and by opening the respective side cab doors.</p>	
<p><u>INTERIOR OVERHEAD LIGHTS</u></p> <p>The cab shall include a Whelen brand 60CREGCS 6.00 inch diameter red/clear type round shaped LED dome lamp located over each door.</p>	

Specifications	Yes/No/Exception
<p>The clear portion of each lamp shall be activated by opening the respective door and both the red and clear portion can be activated by individual switches on each lamp.</p> <p>An additional Whelen brand 60CREGCS 6.00 inch diameter red/clear type round shaped LED dome lamp shall be provided over the engine tunnel which can be activated by individual switches on the lamp.</p>	
<p><u>DO NOT MOVE APPARATUS LIGHT</u></p> <p>The front headliner of the cab shall include a flashing red Whelen Ion LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.</p> <p>The flashing red light shall be located centered left to right for greatest visibility.</p> <p>The light and alarm shall be interlocked for activation when either a cab door is not firmly closed or an apparatus compartment door is not closed, and the parking brake is released.</p>	
<p><u>MASTER WARNING SWITCH</u></p> <p>A master switch shall be included, as a virtual button on the Vista display and control screen which shall be labeled "E Master" for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the "ON" position when the master switch is activated shall automatically power up.</p>	
<p><u>HEADLIGHT FLASHER</u></p> <p>An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.</p> <p>Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled "On Scene" when the park brake is applied.</p> <p>The flashing headlights shall be activated through a virtual button on the Vista display and control screen.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>INBOARD FRONT WARNING LIGHTS</u></p> <p>The cab front fascia shall include two (2) Whelen M6 Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a chrome bezel.</p> <p>The warning lights mounted on the cab front fascia in the inboard positions shall be red with a clear lens.</p> <p>The front warning lights shall be controlled through a virtual control on the Vista display and control screen. This switch shall be clearly labeled for identification.</p>	
<p><u>INTERSECTION WARNING LIGHTS</u></p> <p>The chassis shall include two (2) Whelen M6 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn.</p> <p>The intersection lights shall be red with a clear lens.</p> <p>The intersection lights shall be mounted on the side of the bumper in the rearward position.</p>	
<p><u>SIDE WARNING LIGHTS</u></p> <p>The cab sides shall include two (2) Whelen M6 Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a chrome bezel.</p> <p>The warning lights located on the side of the cab shall be red with clear lens.</p> <p>The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle.</p>	
<p><u>SIDE AND INTERSECTION WARNING SWITCH</u></p> <p>The side warning lights shall be controlled through a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>TANK LEVEL LIGHTS</u></p> <p>There shall be two (2) Whelen PSTANK water level light strips surface mounted vertically, one (1) on each side of the cab behind the rear cab doors.</p> <p>The light strips shall feature four (4) colors of LED lights to indicate the fluid level of a tank. The colors from top to bottom shall be green, blue, amber, and red.</p> <p>The light activation shall be interlocked with the park brake.</p>	
<p><u>SIREN CONTROL HEAD</u></p> <p>A Whelen 295HFSA7 electronic siren control head with remote dual amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer’s needs. The siren shall feature 200-watt output, radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.</p>	
<p><u>AIR HORN ACTIVATION</u></p> <p>The air horn activation shall be accomplished by two (2) lanyard cables, one (1) on the left hand side accessible to the driver and one (1) on the right hand side accessible to the officer. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.</p>	
<p><u>MECHANICAL SIREN ACTIVATION</u></p> <p>The mechanical siren shall be actuated by two (2) Linemaster model SP491-S81 foot switches mounted on angled brackets in the front section of the cab for use by the driver and officer. The right hand foot switch shall be located so the mounting holes are 5.00 inches away from the firewall. A siren brake shall be provided on the Vista display.</p> <p>The siren shall only be active when master warning switch is on to prevent accidental engagement.</p>	
<p><u>BACK-UP ALARM</u></p> <p>An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.</p>	

Specifications	Yes/No/Exception
<p><u>INSTRUMENTATION</u></p> <p>An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.</p> <p>A twenty eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 kilometers. The trip odometer shall display 9,999.9 kilometers. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.</p> <p>The instrument panel shall contain the following gauges:</p> <p>One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 160 KM/H, and the secondary scale on the speedometer shall read from 0 to 100 MPH. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or low DEF at 1/8th tank level.</p> <p>One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.</p> <p>One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 40 to 120 degrees Celsius (C) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm shall indicate high coolant temperature. The scale on the voltmeter shall read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage.</p>	

Specifications	Yes/No/Exception
<p>The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 40 to 150 degrees Celsius (C) with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.</p> <p>The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:</p> <p><u>RED INDICATORS</u></p> <p>Stop Engine - indicates critical engine fault</p> <p>Air Filter Restricted - indicates excessive engine air intake restriction</p> <p>Park Brake - indicates parking brake is set</p> <p>Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened</p> <p>Low Coolant - indicates critically low engine coolant</p> <p>Cab Tilt Lock - indicates the cab tilt system locks are not engaged.</p> <p><u>AMBER INDICATORS</u></p> <p>Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault</p> <p>Check Engine - indicates engine fault</p> <p>Check Transmission - indicates transmission fault</p> <p>Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault</p> <p>High exhaust system temperature – indicates elevated exhaust temperatures</p> <p>Water in Fuel - indicates presence of water in fuel filter</p> <p>Wait to Start - indicates active engine air preheat cycle</p>	

Specifications	Yes/No/Exception
<p>Windshield Washer Fluid – indicates washer fluid is low</p> <p>DPF restriction - indicates a restriction of the diesel particulate filter</p> <p>Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator</p> <p>Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur.</p> <p>Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention.</p> <p><u>GREEN INDICATORS</u></p> <p>Left and Right turn signal indicators</p> <p>ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system</p> <p>High Idle - indicates engine high idle is active.</p> <p>Cruise Control - indicates cruise control is enabled</p> <p>OK to Pump - indicates the pump is engaged and conditions have been met for pump operations</p> <p>Pump Engaged - indicates the pump transmission is currently in pump gear</p> <p>Auxiliary Brake - indicates secondary braking device is active</p> <p><u>BLUE INDICATORS</u></p> <p>High Beam indicator</p> <p><u>AUDIBLE ALARMS</u></p> <p>Air Filter Restriction</p> <p>Cab Tilt Lock</p> <p>Check Engine</p> <p>Check Transmission</p> <p>Open Door/Compartment</p> <p>High Coolant Temperature</p> <p>High or Low System Voltage</p> <p>High Transmission Temperature</p>	

Specifications	Yes/No/Exception
<p>Low Air Pressure Low Coolant Level Low DEF Level Low Engine Oil Pressure</p> <p>Low Fuel Seatbelt Indicator Stop Engine Water in Fuel Extended Left/Right Turn Signal On ABS System Fault</p> <p>The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.</p>	
<p><u>COMMUNICATION ANTENNA</u></p> <p>An antenna base, for use with an NMO type antenna, shall be mounted on the left hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by Spartan Chassis. The antenna base shall be an Antenex model MABVT8 made for either a 0.38 inch or 0.75 inch receiving hole in the antenna and shall include 17 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base design provides the most corrosion resistance and best power transfer available from a high temper all brass construction and gold plated contact design. The antenna base shall be provided by Spartan.</p>	
<p><u>DOOR KEYS</u></p> <p>The cab and chassis shall include a total of four (4) door keys for the manual door locks.</p>	
<p><u>DIAGNOSTIC SOFTWARE WELDON V-MUX</u></p> <p>The cab and chassis shall include diagnostic software for the Weldon VMUX system shipped loose with the vehicle. The software kit shall include the following:</p> <ul style="list-style-type: none"> • One (1) carrying case • One (1) USB Transceiver • One (1) on one (1) cable for mini node • One (1) on one (1) cable for Hercules node • One (1) Deutsch wire removal tool, 14.00 to 16.00 gauge wire 	

Specifications	Yes/No/Exception
<p>(blue)</p> <ul style="list-style-type: none"> • One (1) Deutsch wire removal tool, 18.00 to 20.00 gauge wire (red) • One (1) cable, RS232 9 pin serial PC to transceiver • One (1) cable, RS485 transceiver to VMUX • One (1) cable which shall troubleshoot Hercules outputs • One (1) cable which shall trouble shoot mini node outputs • One (1) downloader manual • One (1) diagnostics manual <p>The system shall support PDF and USB diagnostic kits for Windows 2000, XP, Vista, and Windows 7.</p>	
<p><u>WARRANTY</u></p> <p>The chassis manufacturer shall provide a limited parts and labor warranty to the original purchaser of the custom built cab and chassis for a period of twenty-four (24) months, or the first 36,000 miles, whichever occurs first. The warranty period shall commence on the date the vehicle is delivered to the first end user.</p>	
<p><u>CHASSIS OPERATION MANUAL</u></p> <p>There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.</p>	
<p><u>ENGINE AND TRANSMISSION OPERATION MANUALS</u></p> <p>The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:</p> <p>(2) Hard copies of the Engine Operation and Maintenance manual with CD</p> <p>(2) Digital copies of the Transmission Operator’s manual</p> <p>(2) Digital copies of the Engine Owner’s manual</p>	
<p><u>ENGINE SERVICE MANUALS</u></p> <p>There shall be two (2) printed hard copy sets of Cummins ISC/ISL engine service reference manuals which shall be provided with the chassis.</p>	
<p><u>TRANSMISSION SERVICE MANUALS</u></p> <p>There shall be two (2) printed hard copy sets of Allison 3000 transmission service manuals included with the chassis.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>CAB/CHASSIS AS BUILT WIRING DIAGRAMS</u></p> <p>The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.</p>	
<p><u>CHASSIS - COMPONENTS MODIFICATION</u></p> <p>To meet the design required and to ensure compatibility with the chassis manufacturer's requirements, some of the chassis components may be relocated.</p>	
<p><u>CHASSIS - EXHAUST AND HEAT SHIELDS</u></p> <p>The exhaust will be extended to edge of the body near the rear wheels. Fabricated stainless steel exhaust heat shields will be provided to eliminate excessive heat to the body. The shields will be installed to where the exhaust runs beneath the body to the point where the exhaust exits below the body side.</p>	
<p><u>CHASSIS - FUEL TANK FILLER - CAST DOOR</u></p> <p>A cast aluminum fuel tank filler complete with hinged cover will be mounted on the body fender.</p>	
<p><u>CHASSIS - MUD FLAPS - REAR (PAIR)</u></p> <p>Heavy duty rear mud flaps will be supplied.</p>	
<p><u>CHASSIS - FRONT BUMPER EXTENSION - HOSE COMPARTMENT - RECESSED WITH RAISED LID</u></p> <p>The front bumper extension shall have a hose well compartment recessed into the bumper apron, centered between the frame rails, and sized to accommodate 150' of 1 3/4" hose. The compartment will be fabricated from aluminum complete with drain holes in the corners to prevent moisture from building up and a raised lip to create a weather seal.</p> <p>A raised cover will be fabricated from hi-shine checkerplate and hinge along the rear edge of the compartment and close against weather striping. The cover will include a gas cylinder to hold the cover in the open position and a latch to hold it in the closed position.</p>	
<p><u>CHASSIS - RECEIVER - SIDE (EACH)</u></p> <p>Two side facing receivers will be fabricated from steel complete with reinforced 2" square opening and finished with a black epoxy coating.</p>	

Specifications	Yes/No/Exception
<p>The receiver assemblies will be attached to both chassis frame rails, after the rear axle, using 1" grade 8 bolts and extend below the body sides with the opening near the body edge. Each receiver will be rated for 10,000 pounds based on a 2:1 safety and is to be used for rescue winches or for a rescue tie off.</p>	
<p><u>CHASSIS - RECEIVER - REAR</u></p> <p>A rear facing receiver will be fabricated from steel complete with reinforced 2" square opening and finished with a black epoxy coating. The receiver assembly will be attached to the chassis frame using 1" grade 8 bolts and extend below the body with the opening near the tailboard edge. The receiver will be rated for 10,000 pounds based on a 2:1 safety and can be used for rescue winches, as a rescue tie off or for towing.</p>	
<p><u>CHASSIS - ENGINE TUNNEL - MOUNTING PLATE</u></p> <p>A 3/16" aluminum plate will be provided on the engine tunnel to allow for equipment mounting. The plate will be mounted to the engine tunnel by means of aluminum channels under the plate. This allows for the removal of the plate if adjustments or changes are made to the layout. The plate will be powder coated.</p>	
<p><u>CHASSIS - EMS CABINET - CARGO NETTING</u></p> <p>One (1) custom designed and fabricated emergency medical supply cabinet will be installed on the floor of the cab, centered between the rear facing crew seats. The cabinet will span the full width between the seats with the opening facing the rear cab wall. The height of the cabinet will be discussed at the pre-build meeting. Each cabinet will have a wrinkle powder coat finish and include an Amdor Luma Bar LED light mounted adjacent to the door opening with a switch to activate. The cabinet floors will be lined with black rubber tile that will allow for air flow beneath as well as reduce wear on the equipment being stored.</p> <p>Nylon cargo netting with minimum 1" webbing and snap hooks will be supplied to cover the opening for the cabinet.</p>	
<p><u>CHASSIS - EMS CABINET - LEXAN HINGED DOOR</u></p> <p>One (1) custom designed and fabricated emergency medical supply cabinet will be installed in the space available on the driver side of the full width rear cab seat frame. The cabinet will utilize the majority of the space available between the interior side wall and the forward facing seat. An aluminum framed Lexan door with a thumb style latch will be</p>	

Specifications	Yes/No/Exception
<p>supplied on the forward face of the cabinet.</p> <p>Each cabinet will have a wrinkle powder coat finish and include an Amdor Luma Bar LED light mounted adjacent to the door opening and activated when the door opens. Cabinet floors will be lined with black rubber tile that will allow for air flow beneath as well as reduce wear on the equipment being stored.</p>	
<p><u>CHASSIS - EMS CABINET - ADJUSTABLE SHELF - 1/8" (EACH)</u></p> <p>Three (3) adjustable shelves will be supplied in the specified EMS cabinet. Each shelf will be formed from 1/8" aluminum complete with a 1 1/2" return lip around the perimeter with welded corners to provide rigidity.</p> <p>Each shelf will have a wrinkle powder coat finish to match the cabinet.</p> <p>Mounted at the following locations:</p> <p>One (1) in the rear facing EMS cabinet Two (2) in the forward facing EMS cabinet</p>	
<p><u>CHASSIS - EMS CABINET - BRACKET - O2 BOTTLE STORAGE WITH (2) CUP HOLDERS</u></p> <p>One (1) set of custom fabricated brackets will be provided that allows for storage a D-Sized oxygen bottle in a horizontal orientation. The bracket set will consist of two pieces, the first a slip in support for the bottom of the bottle and the second a semi-circular support left open to the top utilizing a Velcro strap to secure valve side of the bottle.</p> <p>Each piece of the bracket will be fabricated complete with a cup holder that includes a removable plastic liner.</p> <p>The brackets will be mounted to the top of the rear facing EMS cabinet.</p>	
<p><u>PUMPHOUSE - MID MOUNT - SIDE CONTROL</u></p> <p>The frame of the pump house will be constructed using natural finish aluminum extrusions with the access panels and storage flooring being constructed of NFPA aluminum checker plate. The side discharge and suction panels will be constructed from 16 gauge stainless steel and secured with truss head stainless steel bolts. The pump house shall consist of a reinforced aluminum sub frame bolted to the chassis. The frame will be insulated from the chassis frame to reduce electrolytic corrosion.</p>	

Specifications	Yes/No/Exception
<p>The entire pump house is to be separate from the body.</p> <p>The upper portion of the driver side of the pump house shall contain the gauge panel and the valve control panel. The lower section will contain the one piece suction and discharge panel. The passenger side of the pump house shall contain the hinged pump access panel and the lower section will contain the one piece suction and discharge panel.</p> <p>The entire top of the pump compartment not utilized as preconnect hose storage will be finished as an open storage area complete with hi-shine NFPA checkerplate flooring.</p> <p>The forward face of the pump compartment will be completely closed in out board of and above the chassis frame rails. A fully removable pump service door will be provided.</p> <p>The entire panel in which the gauges and instruments are located will be formed from 3/16" aluminum and hinged vertically at the front edge to allow for ease of servicing. The area for the internal valve controls will be formed from 3/16" aluminum and located directly below the gauge and instrument panel. Both panels will have a wrinkle powder coat finish.</p> <p>The right side pump access panel will be constructed of 1/8" hi-shine aluminum checker plate and is to be as large as possible to provide the maximum opening for ease of pump service. The panel will be horizontally hinged along the top edge and will come complete with a stainless steel paddle latch. A gas shock will be provided to assist in keeping the panel open while in use. A minimum of one Amdor Luma Bar LED light will be provided in the pump compartment.</p> <p>The control panel as well as the left and right hand side discharge/suction panels is fully illuminated by indirect Amdor Luma Bar LED lighting located at the top of each panel. The control handles are to be arranged in a simple and logical order with a corresponding gauge above each handle. All functions are to be identified by a permanent engraved nameplate and all control handles with their corresponding discharge or suction will be provided with colour coded identification labels. Handles, unless otherwise specified, are to be "Pull to Open" 'T' style with a positive "Twist to Lock" feature to ensure that valves do not open under pressure or due to vibration. The operating handles are to be connected to the valves via a formed rod, which feature either a clevis or knuckle retainer. All rods shall have adjustment threads to compensate for wear.</p> <p>Along the lower sides of the pump house will be checker plate running</p>	

Specifications	Yes/No/Exception
<p>boards capable of supporting the weight of two fire fighters. Each step will be framed with a 3" x 1 7/8" fluted aluminum extrusion to provide protection and rigidity along the edges of the running boards.</p>	
<p><u>PUMPHOUSE - ROLL UP DOOR ENCLOSURE (EACH)</u></p> <p>A formed aluminum enclosure will be provided around the driver side of the pump house to seal out the elements during travel. The enclosure will cover the speedlay storage access opening, gauge panel, control panel and discharge/suction panel behind a roll up door.</p> <p>The enclosure will be sized and fabricated to align with the body side creating a uniform appearance. The enclosure will be sanded, cleaned, primed and painted to match the apparatus body. Hi-shine aluminum checker plate will be mounted on top to match the body compartments.</p> <p>Interior lighting will be achieved through full height Amdor Luma Bar LED lights mounted in the corners adjacent to the roll up door opening.</p>	
<p><u>PUMPHOUSE - SPEEDLAY PRE-CONNECT - ENCLOSURE</u></p> <p>A pre-connect storage area will be provided forward of the pump, integral to the pump house. The enclosure will allow for a single pre-connect storage area located at frame height. Each storage area will be large enough to accommodate the specified pull-out hose storage trays, side by side for each pre-connected speedlay with access at both sides of the apparatus.</p> <p>Each storage area floor will be lined with Teflon to maximize ease of loading and unloading the specified hose trays with minimal maintenance.</p> <p>Each storage area opening will be provided with a bump stop to eliminate the opportunity for the trays to move during transport.</p>	
<p><u>PUMPHOUSE - SPEEDLAY PRE-CONNECT - HOSE TRAY (EACH)</u></p> <p>Two (2) pre-connect hose storage trays will be supplied. Each tray will be fabricated from 1/8" aluminum and capable of storing 150' of 1 3/4" hose in a single stack. A handle will be provided on each end of the tray with a minimum diameter of 1 1/4".</p> <p>Additional hand holds will be cut on both ends of the tray to assist in the lifting and reloading of the tray in the apparatus.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>PUMPHOUSE - PRE-CONNECT - COVER - CHECKERPLATE</u></p> <p>A single aluminum checker plate cover will be installed over top of the pre-connect hose beds located above the pump. The cover will be hinged at the front edge and will be supported to withstand the weight of at least two fire fighters.</p>	
<p><u>PUMPHOUSE - PRE-CONNECT - END COVER - VINYL WITH VELCRO STRAPS</u></p> <p>Two (2) covers will be provided with Velcro straps each with a loop large enough to grasp with a gloved hand.</p> <p>The covers will be attached to the passenger side of the pump compartment, one to the top preconnect hose bed end and the other to the transverse speedlay pre-connect hose bed end.</p> <p>The covers will be black in colour.</p>	
<p><u>PUMPHOUSE - HANDRAIL - KNURLED (EACH)</u></p> <p>One (1) handrail will be installed at the passenger side of the pump house. Each handrail will be extruded aluminum with an aggressive knurled finish, and not less than 1 1/4" outside diameter.</p>	
<p><u>PUMPHOUSE - HOOD STEP WITH LED LIGHT (EACH)</u></p> <p>One (1) 8" wide hood steps will be installed above the passenger side suction/discharge panel. Each step will be constructed from 1/8" aluminum checker plate and extrusion.</p> <p>An Amdor Luma Bar H2O LED light will be mounted underneath to illuminate the panel area below.</p>	
<p><u>PUMP - MIDSHIP - HALE QMAX XS - 1,500 IGPM</u></p> <p>A Hale QMax-XS pump will be utilized complete with a body that extends side to side, across the truck chassis frame rails.</p> <p>The pump shall be assembled and performance tested at the pump manufacturer's factory as outlined in the current edition of NFPA 1901 and have a rated capacity of 1,500 imperial gallons per minute. The entire pump, both suction, and discharge passages, shall be hydrostatically tested to a pressure of 600 PSI.</p> <p>The pump shaft shall have only one packing gland located on the inlet</p>	

Specifications	Yes/No/Exception
<p>side of the pump. It shall be of split design for ease of repacking. The packing gland must be a full-circle threaded design to exert uniform pressure on packing and to prevent "cocking" and uneven packing load when it is tightened.</p> <p>It shall be easily adjusted by hand with rod or screwdriver without special tools or wrenches required. The packing rings shall be of a unique, permanently lubricated, long-life graphic composition and have sacrificial zinc foil separators to protect the pump shaft from galvanic corrosion.</p> <p>Pump gearbox shall be of sufficient size to withstand up to 16,000 lbs. ft. of drive through torque of the engine system. The drive unit shall be designed of ample capacity for lubrication reserve and to maintain the proper operating temperature.</p> <p>The gearbox drive shafts shall be of heat-treated chrome nickel steel and at least 2-3/4 inches in diameter, on both the input and output drive shafts. They shall withstand the full torque of the engine.</p> <p>The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.</p> <p>The gearbox will be equipped with a power shift. The shifting mechanism shall be a heat treated, hard anodized aluminum power cylinder, with stainless steel shaft.</p> <p>One (1) pump shift control panel shall be mounted on the driver's dash panel. The following shall be provided on the panel:</p> <ul style="list-style-type: none"> • a three (3) position locking toggle switch • an engraved PUMP ENGAGED identification light • an engraved OK TO PUMP identification light <p>The pump shift control panel shall be black with a yellow border outline. One (1) label indicating pump instructions and the transmission shift selector position used for pumping shall be provided and located so it can be read from the driver's position per NFPA 16.10.1.3. The road mode shall be selected when the switch is in the up position and pump mode shall be selected when the switch is in the down position.</p> <p>The center switch position shall exhaust air from both pump and road sides of the pump gear box shift cylinder.</p>	

Specifications	Yes/No/Exception
<p>A Hale ESP priming pump will be provided. The primer shall be positive displacement, oil-less rotary vane electric motor driven pump conforming to the requirements of NFPA 1901. The pump body shall be manufactured of heat treated anodized aluminum for wear and corrosion resistance.</p> <p>The priming pump shall be operated by a single push-pull control valve mounted on the pump operator panel. The priming pump shall not require lubrication.</p> <p>A single ¼ turn drain valve will be supplied for the pump while the remaining discharges will have independent ¼ turn drains. For difficult to reach plumbing auto drains may be used.</p>	
<p><u>PUMP PANEL - PRESSURE GOVERNOR - FRC - PUMP BOSS</u></p> <p>A Fire Research InControl TGA400 series pressure governor and monitoring display kit shall be installed on the pump operator's panel. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 5 1/2" high by 10 1/2" wide by 2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring.</p> <p>The following continuous displays shall be provided:</p> <ul style="list-style-type: none"> • Pump discharge; shown with four daylight bright LED digits more than 1/2" high • Pump Intake; shown with four daylight bright LED digits more than 1/2" high • Pressure / RPM setting; shown on a dot matrix message display • Pressure and RPM operating mode LEDs • Throttle ready LED • Engine RPM; shown with four daylight bright LED digits more than 1/2"high • Check engine and stop engine warning LEDs • Oil pressure; shown on a dual color (green/red) LED bar graph display • Engine coolant temperature; shown on a dual color (green/red) LED bar graph display • Transmission Temperature: shown on a dual color (green/red) 	

Specifications	Yes/No/Exception
<p>LED bar graph display</p> <ul style="list-style-type: none"> • Battery voltage; shown on a dual color (green/red) LED bar graph display <p>The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and night time operation.</p> <p>The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:</p> <ul style="list-style-type: none"> • High Battery Voltage • Low Battery Voltage (Engine Off) • Low Battery Voltage (Engine Running) • High Transmission Temperature • Low Engine Oil Pressure • High Engine Coolant Temperature • Out of Water (visual alarm only) • No Engine Response (visual alarm only). <p>The program features shall be accessed via push buttons and a control knob located on the front of the control panel. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.</p> <p>Inputs to the control panel from the pump discharge and intake pressure sensors shall be electrical. The discharge pressure display shall show pressures from 0 to 600 psi. The intake pressure display shall show pressures from -30 in. Hg to 600 psi.</p> <p>The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.</p>	

Specifications	Yes/No/Exception
<p><u>PUMP PANEL - WATER LEVEL GAUGE - FRC - TANKVISION</u></p> <p>One (1) Fire Research TankVision water tank level indicator will be supplied and installed on the pump operator panel. Each indicator will include an electronic indicator module and a pressure sensor. The TankVision will show the volume of water in the tank on nine (9) easy to see, super bright LEDs, with a wide view lens over the LEDs. The lens will provide a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive blue label.</p> <p>The program features shall be accessed from the front of the indicator module which will support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty.</p> <p>The indicator will receive an input signal from an electronic pressure sensor mounted from the outside of the water tank near the bottom.</p>	
<p><u>PUMP PANEL - WATER LEVEL GAUGE - FRC - REMOTE DRIVER</u></p> <p>A Fire Research TankVision remote light driver shall be installed. The driver shall provide four (4) separate outputs to control remote lights. The lights shall show 1/4, 1/2, 3/4, and full tank. When power is applied, the driver shall run a test and cycle each remote light on and off. When the tank is less than 1/4 full the 1/4 tank light shall blink.</p> <p>The remote light driver shall receive input information over a single wire from a Fire Research TankVision primary indicator.</p>	
<p><u>PUMP PANEL - FOAM LEVEL GAUGE - FRC - TANKVISION</u></p> <p>One (1) Fire Research TankVision foam tank level indicator will be supplied and installed on the pump operator panel. Each indicator will include an electronic indicator module, a pressure sensor, and a tank vent. The TankVision will show the volume of foam in the tank on nine (9) easy to see, super bright LEDs, with a wide view lens over the LEDs. The lens will provide a viewing angle of 180 degrees. The indicator case shall be waterproof, manufactured of aluminum, and have a distinctive label.</p> <p>The program features shall be accessed from the front of the indicator module which will support self-diagnostics capabilities, self-calibration, and a datalink to connect remote indicators. Low water warnings shall</p>	

Specifications	Yes/No/Exception
<p>include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty.</p> <p>The indicator will receive an input signal from an electronic pressure sensor mounted from the outside of the water tank near the bottom.</p>	
<p><u>PUMP PANEL - HEAT EXCHANGER WITH FITTINGS - CHASSIS SUPPLIED</u></p> <p>A closed circuit auxiliary heat exchange will be supplied with the chassis and installed in the engine cooling line by the chassis manufacturer. A control valve will be located at the pump panel. The cooler will provide additional cooling capacity without loss of any antifreeze.</p>	
<p><u>PUMP PANEL - GAUGE - 2 1/2" DISCHARGE PRESSURE</u></p> <p>Unless otherwise specified, individual 2½" line gauges for each 1½" or larger discharges shall be supplied and mounted adjacent to the discharge valve control handle. A removable bright metal trim ring shall be supplied for each gauge. The face of each gauge will be black with contrasting white lettering showing the gauge range of 30" of mercury through to 400 psi and -100 through to 2800 kPa.</p> <p>All pressure gauges for the water pumping system shall be manufactured by Thuemling Instruments. They shall be fully filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to minus 40°F. The Zytel nylon cases shall be temperature compensated with an internal breathing diaphragm to permit fully filled cases and to allow a rigid lens with a distortion free viewing area.</p> <p>To prevent internal freezing and to keep contaminants from entering the gauge, the stem and Bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem.</p>	
<p><u>PUMP PANEL - ALARM - HIGH TEMPERATURE/LOW OIL PRESSURE</u></p> <p>An alarm system consisting of a red light and audible buzzer will be installed at the pump panel to indicate when the engine water temperature is too high or that the oil is too low.</p>	
<p><u>PLUMBING - 6" MAIN SUCTION - LEFT</u></p> <p>One (1) 6" main suction will be provided from the pump with a Hale Master Intake Valve (MIV) and extend through the left side pump panel complete with trim around the opening. The suction end will terminate</p>	

Specifications	Yes/No/Exception
<p>with NH threads and a screen.</p> <p>The valve will have an electric actuator designed such that it meets the opening and closing speed requirements of NFPA. The valve will be supplied with a manual override hand wheel that permits operation of the valve during abnormal conditions. The electric control will be mounted in a location convenient to the operator, with an open/closed switch.</p> <p>The M.I.V. will have a built in, NFPA compliant, adjustable pressure relief valve.</p> <p>A Northline 5" storz to 6" female swivel adapter with 30 degree elbow and storz cap will be supplied on the inlet.</p>	
<p><u>PLUMBING - 6" MAIN SUCTION - RIGHT</u></p> <p>One (1) 6" main suction will be provided from the pump with a Hale Master Intake Valve (MIV) and extend through the right side pump panel complete with trim around the opening. The suction end will terminate with NH threads and a screen.</p> <p>The valve will have an electric actuator designed such that it meets the opening and closing speed requirements of NFPA. The valve will be supplied with a manual override hand wheel that permits operation of the valve during abnormal conditions. The electric control will be mounted in a location convenient to the operator, with an open/closed switch.</p> <p>The M.I.V. will have a built in, NFPA compliant, adjustable pressure relief valve.</p> <p>A Northline 5" storz to 6" female swivel adapter with 30 degree elbow and storz cap will be supplied on the inlet.</p>	
<p><u>PLUMBING - SUCTION RELIEF VALVE (MRV) - ELKHART</u></p> <p>One (1) Elkhart suction relief valve, preset for 125psi will be supplied and installed on the pump with the discharge side of the valve plumbed below the pump house.</p> <p>No threads will be provided on the discharge end to prevent a cap from being installed.</p>	

Specifications	Yes/No/Exception
<p><u>PLUMBING - TANK SUCTION - 4" WITH 3" VALVE</u></p> <p>A 4" flexible supply line is to be provided from the tank to the pump with a 3" valve. A 1/4 turn Akron valve will be supplied with the control handle will be located on the operators control panel.</p>	
<p><u>PLUMBING - 2 1/2" INTERNAL SUCTION WITH HANDLE - LEFT</u></p> <p>One (1) 2 1/2" left suction inlet will be supplied. Full 2 1/2" galvanized plumbing will be provided from the fire pump to the left side of the pump panel, and will terminate in a 1/4 turn Akron valve with chrome plated port and cap with plastic coated cord. The valve will be controlled at the valve.</p> <p>A steel removable inspection plate will be provided for each of the inlets to allow service of the valve.</p>	
<p><u>PLUMBING - 2 1/2" INTERNAL SUCTION WITH HANDLE - RIGHT</u></p> <p>One (1) 2 1/2" right suction inlet will be supplied. Full 2 1/2" galvanized plumbing will be provided from the fire pump to the right side of the pump panel, and will terminate in a 1/4 turn Akron valve with chrome plated port and cap with plastic coated cord. The valve will be controlled at the valve.</p> <p>A steel removable inspection plate will be provided for each of the inlets to allow service of the valve.</p>	
<p><u>PLUMBING - TANK FILL - 2" VALVE</u></p> <p>A 2" flexible fill line is to be provided from the pump to the tank with 1/4 turn Akron ball valve. The control handle will be located on the operators control panel.</p>	
<p><u>PLUMBING - 1 1/2" PRE-CONNECT</u></p> <p>One (1) 1 1/2" pre-connected outlet will be supplied ovetop of the fire pump forward of the open storage area complete with a 2" valve. Each outlet will be plumbed directly from the pump by 2" galvanized pipe and will connect to the hose lay through an opening in the hose storage area floor via full time swivel allowing the connection to pivot.</p> <p>The hose lay storage area provided will accommodate 200' of 1 3/4" double jacket fire hose and designed to deploy off the passenger side of the apparatus only.</p>	

Specifications	Yes/No/Exception
<p>This hose lay will be separated from any other transverse hose lays by a fixed aluminum divider.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p>	
<p><u>PLUMBING - 1 1/2" SPEEDLAY PRE-CONNECT</u></p> <p>Two (2) 1 1/2" pre-connect outlets will be supplied forward of the fire pump with a 2" valve, one plumbed to each of the speedlay hose tray storage areas. Each outlet will be plumbed directly from the pump by 2" galvanized pipe and will connect to the hose lay via full time swivel located over top of the hose storage, allowing the connection to pivot to either side of the body. The hose fitting will be located within arms reach of the hose storage area opening.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p>	
<p><u>PLUMBING - 2 1/2" PRE-CONNECT</u></p> <p>One (1) 2 1/2" pre-connect outlet will be supplied overtop of the fire pump forward of the open storage area complete with a 2 1/2" valve. This outlet will be plumbed directly from the pump by 2 1/2" galvanized pipe and will connect to the hose lay through an opening in the hose storage area floor via full time swivel allowing the connection to pivot. The hose lay storage area provided will accommodate 200' of 2 1/2" double jacket fire hose.</p> <p>This hose lay will be separated from any other transverse hose lays by a fixed aluminum divider and designed to deploy off the passenger side of the apparatus only.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p>	
<p><u>PLUMBING - 2 1/2" DISCHARGE - LEFT</u></p> <p>Two (2) 2 1/2" left discharge outlets will be supplied. Full 2 1/2" galvanized plumbing will be provided from the fire pump to the left side of the pump panel and will terminate in a chrome plated 30 degree droop port and cap with plastic coated cord.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p>	

Specifications	Yes/No/Exception
<p><u>PLUMBING - 2 1/2" DISCHARGE - RIGHT</u></p> <p>One (1) 2 1/2" right discharge outlet will be supplied. Full 2 1/2" galvanized plumbing will be provided from the fire pump to the right side of the pump panel and will terminate in a chrome plated 30 degree droop port and cap with plastic coated cord.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p>	
<p><u>PLUMBING - 2 1/2" DISCHARGE - FRONT LEFT</u></p> <p>One (1) 2 1/2" front left discharge outlet will be supplied. Full 2 1/2" galvanized plumbing will be provided from the fire pump to the front of the truck and will terminate above the front bumper apron with a chrome plated swivelling port.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p> <p>A chrome 2 1/2" to 1 1/2" reducer will be supplied.</p>	
<p><u>PLUMBING - 2 1/2" HOSE BED PRECONNECT - REAR RIGHT</u></p> <p>One (1) 2 1/2" right side hose bed discharge outlet will be supplied, each with a 2 1/2" valve. Full 2 1/2" galvanized plumbing will be provided from the fire pump to the rear of the body terminating immediately below the hose bed in a male threaded opening with 30 degree droop. The plumbing will not pass through the tank and will be supported on both ends of the body.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p>	
<p><u>PLUMBING - 5" DISCHARGE WITH 4" ELECTRIC VALVE - RIGHT</u></p> <p>One (1) 5" discharge with 4" valve will be supplied and plumbed directly from the fire pump with 4" galvanized pipe and will terminate at the right side of the pump panel. This outlet will be supplied with a 5" storz fitting with 30 degree droop.</p> <p>The valves will be supplied with an electric actuator with built-in electrical stops and a position feedback signal. The unit is water tight, corrosion resistant, and equipped with an emergency override. The opening and closing speed of the valve is pre-set to comply with NFPA</p>	

Specifications	Yes/No/Exception
<p>recommendations.</p> <p>A pressure sensor will be provided and calibrated for the waterway.</p> <p>An Akron 9325 electric valve controller will be supplied on the operator's panel. The controller will have a 10 LED valve position indicator, digital pressure gauge, open/closed switches, and a preset button. The valve position indicator will automatically dim during night time operation. The preset button is programmable in the field.</p> <p>A 4" storz to 2 1/2" reducer with a cap will be supplied.</p>	
<p><u>PLUMBING - 3" MONITOR PLUMBING WITH FLANGE</u></p> <p>One (1) 3" monitor discharge will be supplied with a 3" valve and plumbed directly from the fire pump with 3" galvanized pipe, terminating overtop of the fire pump. This outlet will terminate with an ANSI flange for use with the specified monitor.</p> <p>Each will be supplied with a 1/4 turn Akron valve with the control handle located on the operators control panel.</p> <p>The valve will have a Slo-Cloz installed to control the opening and closing speed of the valve.</p>	
<p><u>PLUMBING - MONITOR - ELECTRIC - AKRON DECK MASTER - 1250 GPM</u></p> <p>An Akron Deck Master electric monitor will be supplied and installed. The 1,050 IGPM (1,250 gpm) rated monitor with automated elevating capability, 3" inlet, 2 1/2" NH threaded outlet, cast-in turning vanes in each elbow, constructed of lightweight Pyrolite.</p> <p>The monitor will be supplied with an Akron Sabermaster nozzle and operated off of the pump panel utilizing a tethered remote control complete with automatic stow.</p>	
<p><u>WATER TANK - STANDARD - 800 IMPERIAL GALLON COPOLY</u></p> <p>The tank will be constructed from U.V. stabilized, stress relieved copolymer polypropylene and is manufactured to the highest of industry standards. The outer shell, the lid, and the center baffles will be fabricated using a minimum 1/2" thick material, with the cross baffles and gussets a minimum of 3/8". All baffles and gussets extend from the floor of the tank to the lid. All tanks will incorporate thermoformed edges wherever possible to ensure maximum strength. The booster tank fill tower and sump box are constructed of 1/2" thick material and</p>	

Specifications	Yes/No/Exception
<p>located as specified or as required. The fill tower is fitted with a removable screen and hinged lid, while the sump box will be fitted with a screen and 3" NPT drain. All booster tanks are fitted with a minimum of 2 1/2" suction outlet that draws directly from the sump box. All suction and fill fittings are machined with a minimum schedule 80 rating. All materials and components incorporated inside the tank are FDA approved allowing the tank to be used for potable water.</p> <p>The longitudinal and horizontal baffles will be continuously welded in an interlocking design that allows proper venting during filling and suction. The lid is completely removable via countersunk stainless steel hardware and sits flush inside the outer wall of the tank. The lid will be fully supported by a minimum of 1 1/2" by 1" inside flange. All hardware used on the top of the lid, including the lifting lugs, will sit flush with the surface of the lid.</p> <p>A vent pipe with a minimum inside diameter of 4" will be fabricated and installed from the fill tower through the baffles and exits out the bottom at a location specified by the customer. A secondary vent of 3/4" vent pipe is installed around the top of the inside perimeter of the tank and is vented out the fill tower. This allows for maximum filling when the tank is on a slope. All welds are injection or nitrogen gas welded using state of the art welding equipment.</p> <p>All booster tanks will have a serial number, model number and date of manufacture engraved on the tank. A lifetime warranty certificate supplied with the tank.</p>	
<p><u>DIRECT TANK FILL - 2 1/2" ELKHART AUTO FILL</u></p> <p>An Elkhart electric 2 1/2" direct tank fill valve shall be plumbed directly to the water tank from the right side main pump inlet. This valve is to be used in conjunction with an automatic level control to maintain the water supply on the truck without operator intervention. The Auto Tank valve will include an "Auto/Manual" switch on the pump panel and will be integrated with the water level gauge.</p>	
<p><u>COMPRESSED AIR FOAM - WATEROUS 140-SP</u></p> <p>A Waterous "Silver Series" Model 140-SP compressed air foam system shall be installed to provide compressed air foam to the specified discharges. It shall be capable of providing foam solution or compressed air foam from any of the specified CAFS discharges simultaneously. In addition, the consistency of the compressed air foam shall be individually adjustable to each discharge outlet.</p>	

Specifications	Yes/No/Exception
<p>Each compressed air foam discharge shall be equipped with individual corrosion resistant check valves on both the water and compressed air lines that prevent back-flow of foam solution, air and/or compressed air foam into the pump, air lines or foam proportioning system.</p> <p>All components of the piping system exposed to pressurized air from the CAFS shall be designed for at least 500 PSIG burst pressure.</p> <p>The following CAFS controls and instruments shall be provided on the pump operator's panel, arranged in a logical operator friendly manner:</p> <ul style="list-style-type: none"> • Air compressor PTO engagement switch • Auto Sync compressor controls (Auto/Manual, Run/Unload) with engraved instruction plate • Air compressor temperature gauge with warning light and audible alarm • CAF system air pressure gauge • An electrically operated air valve for each compressed air foam discharge each with toggle switch and red cover; switch to be adjacent to water valves control <p>Two (2) copies of operation and maintenance manuals shall be provided to the purchaser with the unit. Manuals shall include detailed instructions in the operation and maintenance of the overall unit, water pump and air compressor system.</p>	
<p><u>FOAM SYSTEM - FOAMPRO 2001 - SINGLE</u></p> <p>The apparatus shall be equipped with an electronic, fully automatic, variable speed, direct injection, discharge side foam proportioning system. The system shall be capable of handling either Class A foam concentrates or most Class B foam concentrates. The foam proportioning operation shall be based on direct measurement of water flows, and remain consistent within the specified flows and pressures. System must be capable of delivering accuracy to within 3% of calibrated settings over the advertised operation range when installed according to factory standards. The system shall be equipped with a digital electronic control display suitable for installation on the pump panel. Incorporated within the control display shall be a microprocessor that receives input from the system flowmeter, while also monitoring foam concentrate pump output, comparing values to ensure that the operator preset proportional amount of foam concentrate is injected</p>	

Specifications	Yes/No/Exception
<p>into the discharge side of the fire pump.</p> <p>Paddlewheel-type flowmeter shall be installed in inline with the manifold feeding discharges specified to be “foam capable.”</p> <p>The digital computer control display shall enable the pump operator to perform the following control and operation functions for the foam proportioning system:</p> <ul style="list-style-type: none"> • Provide push-button control of foam proportioning rates from 0.1% to 9.9%, in 0.1% increments • Show current flow-per-minute of water • Show total volume of water discharged during and after foam operations are completed • Show total amount of foam concentrate consumed • Simulate flow rates for manual operation • Perform setup and diagnostic functions for the computer control microprocessor • Flash a “low concentrate” warning when the foam concentrate tank runs low • Flash a “no concentrate” warning and shut the foam concentrate pump off, preventing damage to the pump, should the foam tank(s) empty <p>A 12-volt electric motor drive positive displacement foam concentrate pump, rated up to 2.5 gpm (9.5 L/min) @ 150 psi with operating pressures up to 400 psi (27.6 BAR), shall be installed in a suitable, accessible location. The system will draw a maximum of 40 amps @ 12 VDC. A pump motor electronic driver (mounted to the base of the pump) shall receive signals from the computer control display and power the 1/2 hp (0.40 Kw) electric motor directly coupled to the concentrate pump in a variable speed duty cycle to ensure that the correct proportion of concentrate preset by the pump operator is injected into the water stream.</p> <p>Full flow check valve shall be provided to prevent foam contamination of fire pump and water tank or water contamination of foam tank.</p> <p>Components of the complete proportioning system shall include:</p> <ul style="list-style-type: none"> • Operator control and display • Paddlewheel flowmeter • Pump and electric motor/motor driver • Wiring harnesses 	

Specifications	Yes/No/Exception
<ul style="list-style-type: none"> • Low level tank switch • Foam injection check valve • Main waterway check valve <p>An installation and operation manual shall be provided for the unit, along with a one-year limited warranty by the manufacturer. The system must be installed and calibrated by a Certified FoamPro Dealer.</p> <p>The system design shall have passed environmental testing which simulates heavy use on off-road mobile apparatus.</p> <p>Testing shall have been conducted in accordance to SAE standards.</p>	
<p><u>FOAM SYSTEM - MANIFOLD FOR 3 FOAM OUTLETS</u></p> <p>A three outlet foam discharge manifold shall be installed to distribute foam solution to the designated foam discharges. A check valve is provided at the inlet end of the foam manifold to prevent foam solution back-flow into the pump.</p> <p>The foam manifold will be plumbed to provide foam capability to the following discharges:</p> <p>One (1) 1 1/2" Speedlay Pre-Connect, Forward Most</p> <p>One (1) 2 1/2" Front Discharge</p> <p>One (1) 2 1/2" Rear Right Hose Bed Pre-Connect</p>	
<p><u>FOAM TANK - REFILL SYSTEM - WATEROUS - ONBOARD</u></p> <p>The Waterous FoamFill Foam Tank Refill System, operating independently from the foam injection system, will be supplied and installed on the apparatus. The system consisting of a 12 or 24-volt electric motor driven concentrate pump, delivers a minimum flow of 10 GPM (37.8 L/min), the FoamFill Foam Tank Refill System can handle Class A or Class B foam concentrates, emulsifiers, gels and econtamination concentrates.</p> <p>A microprocessor that receives input from the tank level sensors and controls the foam concentrate pump output is housed within the control unit. When the green "AUTO" push button on the Operator Panel is selected, the microprocessor begins to receive readings from the tank sensors. When the tank is filling, a yellow LED on the panel will flash. When the tank is full, a signal is sent to the foam concentrate pump to stop, preventing the tank from being overfilled. A steady yellow LED on the panel will indicate that the tank is full. A timer programmed into the</p>	

Specifications	Yes/No/Exception
<p>microprocessor shuts down the pump motor after six minutes of non-stop operation. The operator panel includes color coded stainless steel push button switches, LED indicator lights and a polycarbonate overlay.</p> <p>Operational functions and LED indicator lights:</p> <ul style="list-style-type: none"> • Red “POWER” push button ON/OFF switch • Red “POWER” system operational LED • Green “AUTO” push button Auto Mode switch • Green “AUTO” Auto Mode LED • Yellow “MANUAL” push button override of Full Tank switch • Steady yellow “FULL” LED indicates full tank • Flashing yellow “FULL” LED indicates tank filling <p>Non-drip, hydraulic quick-connect type constructed of brass or optional stainless steel with a spring-loaded release collar.</p> <p>Included in the internal plumbing to prevent backflow will be the appropriate check valves.</p> <p>A bronze three-way valve is provided to allow the operator to easily flush the system after each use.</p> <p>The FoamFill system includes a 12 or 24-volt electric motor driven, self-priming concentrate pump, delivering a minimum flow of 10 GPM (37.8 l/min) with all concentrates currently utilized in fire apparatus. Pump body is constructed of bronze. Other components that come in contact with chemicals are constructed of non-corrosive materials.</p> <p>An 85-amp continuous-duty solenoid, mounted to the base of the pump, receives signals from the microprocessor and powers the electric motor directly coupled to the concentrate pump.</p> <p>A stainless steel pick-up wand and 6 feet of reinforced hose with 3/4” ID is standard for Class A foam. For Class B foam, 1” ID hose is standard.</p> <p>Two tank level sensors provide information to the microprocessor to control the concentrate pump output.</p>	
<p><u>FOAM TANK - INTERNAL - 30 IMPERIAL GALLON COPOLY</u></p> <p>One (1) 30 imperial gallon foam concentrate tank will be supplied integral with the poly water tank. The tank shall be constructed of materials compatible with foam concentrates.</p> <p>The foam tank will not impact or affect the water tank volume.</p>	

Specifications	Yes/No/Exception
<p><u>BODY - 144" PUMPER/RESCUE - DOUBLE HIGH SIDE</u></p> <p>The body is engineered to provide correct weight distribution on the chassis and is built in accordance with the current requirements published by Underwriters' Laboratory of Canada.</p> <p>The aluminum body will be separate from the cab body to allow for natural frame flex and will have the capability of being removed from the vehicle by unbolting the module from the chassis frame. The body will be fabricated from 1/8" H5052 H32 aluminum sheet and 6061-T6 extrusions utilizing long sheet forming techniques. The top and ends of the body sides will be reinforced with 2" x 2 7/8" extrusion to provide rigidity.</p> <p>Full width aluminum wheel well liners will be provided to keep water and road salt away from the body. The liners will be bolted in using stainless steel bolts and the liner will be completely removable to provide access to the rear spring shackles.</p> <p>Hi-Shine 1/8" NFPA aluminum checker plate will be used on the compartment tops as standard.</p> <p>The body will be mounted to the chassis on a steel, 1/4" wall, tubular sub-frame. The sub-frame will also be attached to the chassis by four flanged mounts, using 1" diameter grade eight bolts and nuts.</p> <p>The sub-frame will consist of two longitudinal 4" x 4" tubes laid on the chassis frame and four transverse body support members. The forward body mount will be an 80" long x 4" x 2" cross member, the two center supports will measure 86" x 4" x 2" and the rear support will measure 46" x 4" x 2". Two additional 4" x 2" cross members will be provided mid-way between the longitudinal tubes. The sub-frame will be completely sealed in epoxy prior to installation on the body.</p> <p>Extruded aluminum handrails fitted with inlaid rubber strips for improved grip, and not less than 1 1/4" outside diameter are provided where necessary on the body with a minimum of two vertical and one horizontal on the rear body face.</p> <p>Where possible each handrail will have an LED light strip inset on the back side to assist with illuminating the rear body area. These lights will be activated with the park brake.</p> <p>The side compartments shall be formed from individual compartment assemblies welded together into a unitized structure. The structure shall</p>	

Specifications	Yes/No/Exception
<p>be designed with minimal parts to reduce the amount of welding required and minimize stress concentrators. The corner compartments front, rear outside and full depth inside wall shall be constructed from a single sheet of material. The formed forward, rearward compartments and wheel well assembly shall then be welded with a single compartment ceiling across all compartments. Each of the compartments will be sealed to prevent moisture from entering the structure. The roof will be capped with checker plate complete with an integral formed drip rail. Stainless steel overlays with a brushed finish will be provided on the front face of each body side face. Each overlay will extend the full height of the compartment exterior face and will wrap around the corner 1" to provide a finished appearance while protecting the body and paint from damage.</p> <p>The rear face spanning between the body sides will be flush with the body side ends. A rear facing compartment will be formed in the same fashion as the side compartments and welded into an opening cut into the rear face.</p> <p>The body side compartment tops will be level with the top of the main hose bed with the inner face smooth and free from protrusions.</p> <p>Within each compartment, whether ahead of or behind the rear wheels shall be of double wall construction. This shall provide a protected mounting area for electrical nodes and other recessed components if applicable. Easily removable access panels shall be provided for maintenance purposes.</p> <p>A large sweep out leading edge will be formed integral with each compartment floor. This sweep out shall create a sealing surface at the bottom of the door and shall prevent any water at the door from running back into the compartment. Compartments without sweep outs may form water traps and are therefore not acceptable.</p> <p>Seven (7) compartments will be provided, three on left side, three on the right side and one rear facing. For the purpose of clarity, the side facing compartments will be labeled L1, L2, and L3 for the driver side; R1, R2, and R3 for the passenger side. The rear compartment will be labeled RR. The compartments will have the following approximate width x height x depth dimensions:</p> <p style="text-align: center;"><u>Door Opening: Compartment Interior:</u></p> <p>Left Side - L1 31" X 60½" 36" X 69" X 18"/27"</p>	

Specifications					Yes/No/Exception
		L2	58" X 30½"	60" X 39" X 18"	
		L3	35" X 60½"	40" X 69" X 27"	
Right Side	-	R1	31" X 60½"	36" X 69" X 18"/27"	
		R2	40" X 30½"	42" X 39" X 18"	
		R3	35" X 60½"	40" X 69" X 27"	
Rear	-	RR	36" X 43"	46" X 53" X 31"	
<p>All compartments where no permanently fixed trays or heavy equipment are located, removable plastic interlocking tiles will be supplied to allow air to circulate and to protect the compartment floor.</p> <p>The bottom of all lower compartment floors will be reinforced, to prevent "oil canning".</p> <p>Each compartment will be supplied with an air vent, recessed into the wall, to allow air to circulate and to allow moisture to escape.</p> <p>Each side and rear facing compartment will be provided with Amdor Luma Bar LED compartment lights. They will be installed in each corner adjacent to the door opening to provide lighting the full height of the compartment.</p> <p>The hose bed will be located above the water tank and will as a minimum meet with U.L.C. requirements for hose bed volume. The floor of the bed will be provided with removable, interlocking plastic Versatile grating to allow air flow to the hose. A formed aluminum open storage area will be provided at the front of the hose bed allowing separation between the water tank fill towers and the main hose bed area. The storage will be easily removable.</p> <p>Two sets of tracking will be provided along the forward face and a single track along the rear edge of the hose bed to allow the installation of fully adjustable dividers.</p> <p>The complete tailboard assembly will be bolted to the body using 1/2" spacers to allow for drainage and removal if damaged. Heavy-duty aluminum 3" x 3" x 3/16" angle and 3" x 2" x 3/16" edge extrusion will form the framework and substructure to provide a very rigid and strong standing platform for firefighters. The sub frame will be covered with 1/8" high shine NFPA aluminum tread plate.</p>					

Specifications	Yes/No/Exception
<p><u>BODY - DOORS - ROLL UP - AMDOR</u></p> <p>Amdor brand roll-up doors complete with 1" aluminum double wall slats, each with continuous ball & socket hinge joints and recessed dual durometer slat seals will be supplied for the main side and rear compartments. Each door will have double wall reinforced bottom panels with stainless steel lift bar latching systems. The bottom panel flange will be supplied with cut-outs for ease of accessing the lift bar with gloved hands.</p> <p>Each door will have reusable slat shoes with positive snap-in securement, a smooth interior door curtain to prevent equipment hang-ups, one-piece aluminum door track/side frame, a top gutter with non-marring seal, as well as non-marring side and bottom seals. All wear component material will be type 6 nylon.</p> <p>A proprietary reader module will be mounted along a lower door frame in for each compartment with a door slat equipped with a magnetic red end-shoe. The switch will be used to trigger the door ajar system.</p>	
<p><u>BODY - HOSE BED DIVIDER - 1/8" ALUMINUM</u></p> <p>Two (2) hose bed dividers will be supplied to provide division of the hose to suit the customer's requirements. Each divider will be constructed of 1/8" aluminum sheet and will be located on three adjustable tracks. Aluminum tubing will be welded along the top and end of the divider, for extra strength and to avoid any sharp edges.</p> <p>A handhold shall be cut in the end of the hose bed divider.</p>	
<p><u>BODY - HOSE BED COVER - VINYL WITH SNAPS - LARGE</u></p> <p>A cover will be provided and mounted over the main hose bed area. The cover will be black vinyl complete with shock-cord down the sides of the hose bed area with Velcro straps at the rear. The strap will be complete with a loop large enough to grasp with a gloved hand.</p>	
<p><u>BODY - REAR THROUGH COMPARTMENT</u></p> <p>The L3 and R3 compartments will have an opening provided through into the RR compartment. Each opening will be provided at floor level and measure approximately 24" by 24".</p>	

Specifications	Yes/No/Exception
<p><u>BODY - ROOF COMPARTMENT - INTEGRAL (EACH)</u></p> <p>On the roof of the apparatus will be three separate compartments built integral with the body sides, two (2) compartments on the driver side, and one (1) on the passenger side.</p> <p>Bolt-on or add-on modules will not be acceptable.</p> <p>Each compartment will be supplied with a checker plate hinged door that will close around a water barrier to help prevent water from entering the compartment when the door is closed. Each door will be supplied with gas shocks to hold the door in the open and closed positions.</p> <p>The floor of each compartment will be provided with drains that are routed below the body with flexible drain tubes. All compartments will be supplied with removable plastic interlocking tiles to allow air to circulate and to protect the compartment floor from possible damage and Amdor Luma Bar H2O LED compartment lights. Each will be recessed into the compartment lid to provide lighting the full length of the compartment.</p> <p>Each compartment will be approximately 18" deep with an opening of approximately 13" x 64".</p>	
<p><u>BODY - SCBA STORAGE - 8 IN SIDE COMPARTMENT</u></p> <p>The floor section of the L3 compartment over the left body side fender will be used for the storage of eight (8) SCBA cylinders. The complete storage area for the cylinders will be semi recessed into the floor, side by side, at an angle, depth wise into the body to prevent the bottles from shifting or sliding. A formed divider will be provided between each individual bottle storage spot to keep the bottles from rolling side to side. Carpet will be installed to protect the cylinders from any damage.</p>	
<p><u>BODY - SCBA STORAGE - BRACKET - MOUNTED (EACH)</u></p> <p>Three (3) Ziamatic brand self contained breathing apparatus (SCBA) brackets will be supplied and mounted in the R2 compartments. The bracket shall consist of a back plate and a short foot plate, both of which shall be thermoplastic coated for trouble free service. The bracket shall feature two (2) high cycle double coated clips which shall not mar the cylinders.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>BODY - HANDRAIL - KNURLED (EACH)</u></p> <p>Two (2) handrails will be installed to the left side body, adjacent to of the main hose bed area, one handrail forward, one rearward. Each handrail will be extruded aluminum with an aggressive knurled finish, and not less than 1 1/4" outside diameter.</p>	
<p><u>BODY - STEP - FULL WIDTH (EACH)</u></p> <p>An aluminum checkerplate full width hood step will be located above the tailboard to assist with the loading of hose. This step will be in addition to any other steps provided and will have an Amdor Luma Bar H2O LED light mounted along the underside to assist with illuminating the area below.</p> <p>The light will activate when the park brake is applied.</p>	
<p><u>BODY - STEP - FOLDING - NFPA APPROVED (EACH)</u></p> <p>Four (4) folding steps will be installed on the front passenger side face of the body to aid in ascending to the top of the body. Each step will conform to NFPA 1901.</p>	
<p><u>BODY - STEP - ACCESS LADDER - ZICO QUIC LADDER - 3096</u></p> <p>A Zico 3096 Quic Ladder will be supplied and installed on the left rear body face of the apparatus to allow access to the main hose bed area. The Quick ladder is stored parallel to the body when in the folded position with the use of a locking handle. The Quic Ladder allows a more comfortable climbing angle by releasing the locking handle and pulling the folded section down. The ladder automatically latches and will not retract until the scissor lock is raised. The configuration will be specific to the design and requirements of the apparatus. Cast aluminum rungs with a flat, non-skid surface measuring 3" deep x 15-1/2" wide will be used for the length of the ladder. The handrails will be 1-1/4" heavy walled aluminum tubing, covered between rungs by ribbed black neoprene tubing that provides a firm gripping surface.</p>	
<p><u>BODY - TRAY - SLIDE OUT - 70% EXTENSION - 250LB (EACH)</u></p> <p>Four (4) roll out trays will be installed in the specified compartments. Each tray will be constructed from 3/16" aluminum and will be attached to a pair of Grant rollout sliders rated for 250lb. The tray will be able to extend 70% of the sliders length and will have a 2" return lip around the perimeter with welded corners to give additional strength. A single gas</p>	

Specifications	Yes/No/Exception
<p>shock will be installed below the tray to hold it in the stowed and extended positions.</p> <p>Each tray will be lined with removable rubber tile to allow for air circulation. Reflective red and white conspicuity striping will be applied to as much of the outward exposed faces of each tray as possible.</p> <p>Mounted in the following compartments:</p> <p>One (1) in compartment L1 One (1) in compartment L3 One (1) in compartment R1 One (1) in compartment R3</p>	
<p><u>BODY - TRAY - SLIDE OUT - 100% EXTENSION - 600LB, MEDIUM (EACH)</u></p> <p>One (1) roll out tray will be installed in the specified compartment. Each tray will be constructed from 3/16" aluminum and will be attached to a set of aluminum Slide Master rollout sliders rated for 600lb. distributed weight capacity. The tray will be able to extend 100% of the sliders length and will have a 2" return lip around the perimeter with welded corners to give additional strength. A single spring lock will be installed below the tray to hold it in the stowed and extended positions.</p> <p>Each tray will be lined with removable rubber tile to allow for air circulation. Reflective red and white conspicuity striping will be applied to as much of the outward exposed faces of each tray as possible.</p> <p>Mounted in the following compartments: One (1) in compartment RR</p>	
<p><u>BODY - SHELF - ADJUSTABLE - 3/16" - SMALL (EACH)</u></p> <p>Four (4) adjustable shelves will be supplied and installed in the specified compartments complete with tracking. Each shelf will be constructed from 3/16" aluminum plate with a 2" return lip around the perimeter with welded corners to give additional strength.</p> <p>Each tray will be lined with removable rubber tile to allow for air circulation. Reflective red and white conspicuity striping will be applied to as much of the outward exposed face of each tray as possible.</p> <p>Mounted in the following compartments: One (1) in compartment L1</p>	

Specifications	Yes/No/Exception
<p>One (1) in compartment L2 One (1) in compartment L3 One (1) in compartment R3</p>	
<p><u>BODY - DIVIDER - SWING OUT - MEDIUM (EACH)</u></p> <p>One (1) swing out dividers will be fabricated and installed in the specified compartment. Each divider will utilize 3/16" aluminum for the main mounting surface. A single gas shock will be installed at the top of each divider to hold it in the extended positions. Thumb style latches will be utilized to hold the divider in the closed position.</p> <p>Each divider will be mounted to tracking allowing for adjustment between the compartment door opening and the back wall.</p> <p>Reflective red and white conspicuity striping will be applied to the leading edge, front and back, of each divider.</p> <p>Mounted in the following compartments:</p> <p>One (1) in compartment L3</p>	
<p><u>BODY - MOUNTING SURFACE - 3/16" PLATE - MEDIUM (EACH)</u></p> <p>One (1) removable 3/16" aluminum mounting plate will be provided across the back wall of the L2 compartment. Each plate will be mounted to the compartment wall using tracking to allow for ease of removal.</p>	
<p><u>BODY - RUB RAIL - 3" BOLT ON</u></p> <p>Extruded aluminum 'C' channel extruded rub rail, measuring 3" high by 1 1/2" deep will be fastened to each body side below the compartment openings to protect against minor abrasions. The rub rail will be spaced 3/4" away from the body using nylon spacers to help prevent damage to the main body side from impact and prevent dirt from building up.</p>	
<p><u>BODY - FENDERETTES - POLISHED ALUMINUM</u></p> <p>The rear body fenders will be trimmed with polished aluminum fenderettes.</p>	
<p><u>BODY - TOW LOOPS - REAR - INSIDE COMPARTMENT (PAIR)</u></p> <p>A pair of chrome plated tow eyes will be attach directly to the chassis frame using 1" grade 8 bolts and extend through the RR compartment wall. The tow eyes will be fabricated from 3/4" thick ASTM-A36 steel and will have a minimum inside eye measurement 3".</p>	

Specifications	Yes/No/Exception
<p><u>BODY - BRACKET - 2 PIKE POLES (EACH)</u></p> <p>One (1) set of chrome brackets will be provided and mounted on the Zico HLAS. Each set of brackets will allow the storage of two pike poles.</p>	
<p><u>BODY - BRACKET - ATTIC LADDER (EACH)</u></p> <p>One (1) set of brackets will be provided and mounted on the Zico HLAS. Each set of brackets will allow the storage of one 10' folding attic ladder.</p>	
<p><u>BODY - BRACKET - WHEEL CHOCKS (EACH)</u></p> <p>One (1) bracket will be constructed and installed below the L1 compartment body edge for the storage of one (1) pair of wheel chocks.</p>	
<p><u>LADDER - OVERHEAD - ZICO ELECTRIC / HYDRAULIC HLAS</u></p> <p>A Zico model HLAS electric-hydraulic ladder rack will be installed on the right body side fender forward of the R2 compartment. The system will be driven by a 12 volt motor and will have the capability of operating from being in the horizontal over the top to the vertical position on the side, to allow easy access to the ladders. Controls for the rack will be located at the rear.</p> <p>Flashing lights will be provided on the front and rear face of the rack. The lights will activate when the rack is out of the stowed position.</p> <p>The ladder rack base, motor, and vertical arms will have a cover fabricated from smooth aluminum formed in a double pan style complete with checkerplate cap formed in the same fashion as the compartment tops. The panel will sit flush with the body side when the ladder is in the stowed position and will be painted to match the body colour to provide a uniform, aesthetically pleasing appearance.</p> <p>The rack will be configured to store the following ladders:</p> <p>One (1) 14' roof ladder One (1) 35' three section ladder (Customer supplied)</p> <p>The ajar switch included with the ladder rack will be wired to the existing door ajar warning system and supplied with a light in the cab. The light is to warn the operator when the equipment is not stowed properly and the park brake has been released. The system will include a visual indicator on the Vista display.</p>	

Specifications	Yes/No/Exception
<p><u>SUCTION HOSE STORAGE - COMPARTMENT IN MAIN HOSE BED</u></p> <p>A custom storage chute opening to the rear will be fabricated and installed in the main hose bed. The compartment will be installed on the passenger side of the hose bed and extend above the water tank. The compartment will be sized to contain three 10' lengths of 5" hard suction hoses with storz fittings.</p> <p>The compartment floor will be lined with Teflon to assist with loading and unloading the hoses.</p> <p>The roof of the compartment will act as an extension of the main hose bed floor complete with adjustable tracking along the leading edge for use with a hose bed divider. The roof will be lined similarly to the hose bed with matching floor tile.</p>	
<p><u>ELECTRICAL - WIRING DIAGRAM</u></p> <p>The completed apparatus will be delivered with an "as built" wiring diagram which will show individual wire colors, wire gauges, and describe all major components and accessories supplied.</p>	
<p><u>ELECTRICAL - BASE WIRING - PUMPER - MULTIPLEX - SPARTAN</u></p> <p>A Weldon multiplex electrical system shall be supplied. The system shall be a single starting type, installed per NFPA 1901 and the current requirements published by Underwriters' Laboratory of Canada. The Multiplexed wiring system will utilize solid state switching, complete 'Peer to Peer' network architecture, weatherproof nodes and sealed deutsch connectors. The system will be capable of sequencing and shedding electrical loads.</p> <p>The 'Peer to Peer' multiplexed system will incorporate Weldon input/output nodes strategically located around the body. The system will communicate with the Vista Display Node supplied and installed in the cab by the chassis manufacturer.</p> <p>The Vista display node supplied with the chassis will have programming added to control the emergency warning lights and various other functions of the apparatus, within the limitations of the system, as discussed during pre-production.</p> <p>All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. Particular attention will be paid to the design of the vehicle electrical system to ensure that it will perform in high moisture and road salt environments normally</p>	

Specifications	Yes/No/Exception
<p>encountered in Canada. All wiring, including that run to and from multiplex nodes, shall be stranded copper or copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for the protected circuit. Voltage drops in all wiring from the power source to the device shall not exceed 10 percent. The wiring, wiring harness and insulation shall be in conformance to applicable SAE and ULC standards with SXL and GXL temperature properties. Any exposed wiring shall be protected in a loom with a minimum 285°F rating. All wiring looms shall be properly supported and attached to body members. The electrical conductors shall be constructed in accordance with applicable SAE standards, except when good engineering practice requires special construction.</p> <p>The wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection and shall be installed in accordance with the device manufacturer’s instructions. Electrical connections shall be with mechanical type fasteners and large rubber grommets where wiring passes through metal panels. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color coded. Exterior exposed wire connectors shall be environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. There shall be no exposed electrical cabling, harnesses, or terminal connections located in compartments, unless they are enclosed in a junction box, covered with a removable electrical panel or wrapped in a protective loom. The wiring shall be secured in place and protected against heat, liquid contaminants and damage.</p> <p>Any holes made in the roof shall be caulked with silicon. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof. When an electrical component 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. Electrical components designed to be removed for maintenance shall have a coil of wire provided behind the appliance allowing them to be pulled away from mounting area for inspection and service work. Corrosion preventative compound shall be applied to all terminal plugs 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).</p> <p>All reflectors, directional and clearance lights required to comply with Transportation Canada Standards, shall be furnished. Rear identification</p>	

Specifications	Yes/No/Exception
<p>lights at the tailboard level shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.</p> <p>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.</p> <p>As standard for traditional wiring, all terminals exposed to the environment will be crimped and sealed with heat shrink tubing.</p> <p>All body electrical circuits will have a load test applied to ensure that no components/accessory will draw more than 80% of the circuit breaker rating.</p> <p>Any clear flashing warning lights will be interlocked with the chassis park brake system to provide two separate modes of operation. Mode one will call for right-of-way with any clear warning lights flashing with the coloured warning lights. The second mode will indicate blocking right-of way where the flashing clear lights will deactivate when the park brake is applied.</p> <p>A buzzer system will be provided from the rear of the vehicle to the cab to assist the driver when starting, stopping or backing up the vehicle. A buzzer will be located in the cab and a push button will be located at the rear of the vehicle.</p>	
<p><u>ELECTRICAL - MOBILE RADIO - CUSTOMER SUPPLIED RADIO</u></p> <p>The customer supplied mobile radio will be installed in the center cab dash panel complete with roof mounted antenna.</p> <p>Exact location will be discussed at the pre-build meeting.</p>	
<p><u>ELECTRICAL - INTERCOM - FIRECOM SYSTEM - 6 POSITIONS</u></p> <p>A six (6) position Firecom 5100D intercom system will be supplied and installed in the cab. Wiring will be provided between the intercom and the specified mobile radio. The system will include two (2) UHW-505 wireless headsets complete with charger base stations mounted one near the driver and one near the officer positions. Each headset will have a PTT button integral to the ear cup. Four (4) UH-54 headsets complete with wired jacks will be supplied, one for each of the rear cab crew positions.</p> <p>Hooks will be provided for each of the headsets near the respective seating position.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>ELECTRICAL - PORTABLE RADIO - CUSTOMER SUPPLIED BANK CHARGER</u></p> <p>One (1) customer supplied portable radio charger will be installed. The location and wiring system will be as directed by the customer.</p>	
<p><u>ELECTRICAL - FLASHLIGHT - STREAMLIGHT - FIRE VULCAN LED (EACH)</u></p> <p>Four (4) Streamlight Vulcan LED flashlights complete with 12V charger bases will be supplied and installed in the cab.</p> <p>Exact locations will be discussed at the pre-build meeting.</p>	
<p><u>ELECTRICAL - TRAFFIC CLEARING - WHELEN M6 - SUPER LED (EACH)</u></p> <p>One (1) Whelen M4 super LED surface mounted warning light will be installed to the front grille of the cab. Each light shall be mounted with two screws to the front of the cab with a chrome flange and rubber grommet. The height will be set at a level that will be seen through most front and rear windows. The light shall be 3 3/8" high by 5 1/2" wide and have a profile of 1 3/8" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the lamp head.</p> <p>Each light shall have 12 clear super LEDs and shall operate at 12 volts DC, drawing 2 amps. The lens shall be clear in colour. The lights flash will be set to alternately flash the top and bottom LED's in an attention grabbing pattern to assist in clearing traffic from in front of the apparatus.</p>	
<p><u>ELECTRICAL - DOOR AJAR WARNING SYSTEM - SIDE BODY</u></p> <p>An automatic door ajar system will be supplied, which will activate the compartment light when the door is open. A door ajar light and buzzer will be mounted in the cab. The light will be in clear view of the driver and will come on with the buzzer when any side compartment door is open and the park brake is disabled. The system will be disabled when the parking brake is applied.</p> <p>The multiplexed Vista display will provide visual confirmation of which specific door is ajar.</p>	
<p><u>ELECTRICAL - DOOR AJAR WARNING SYSTEM - ROOF COMPARTMENTS</u></p> <p>An automatic door ajar system will be supplied, which will activate the compartment light when the door is open. A door ajar light and buzzer will be mounted in the cab. The light will be in clear view of the driver and will come on with the buzzer when any roof compartment door is</p>	

Specifications	Yes/No/Exception
<p>open and the park brake is disabled. The system will be disabled when the parking brake is applied.</p> <p>The multiplexed Vista display will provide visual confirmation of which specific door is ajar.</p>	
<p><u>ELECTRICAL - GROUND LIGHT - AMDOR LUMA BAR - 20" LED (EACH)</u></p> <p>Two (2) Amdor Luma Bar H2O 20" LED ground lights will be installed under the tail board, one each side, for extra ground lighting for those vehicles that will be operating in dark areas.</p> <p>The lights will be activated with the park brake only.</p>	
<p><u>ELECTRICAL - GROUND LIGHT - AMDOR LUMA BAR - 40" LED (EACH)</u></p> <p>Two (2) Amdor Luma Bar H2O 40" LED ground lights will be installed under the pump house running boards, one each side, for extra ground lighting for those vehicles that will be operating in dark areas.</p> <p>The lights will be activated with the park brake only.</p>	
<p><u>ELECTRICAL - SIDE BODY - WHELEN M6 - SUPER LED (PAIR)</u></p> <p>One (1) pair of Whelen M6 super LED surface mounted warning lights will be installed. Each light shall be mounted with two screws to the side of the body with a chrome flange and rubber grommet. The light shall be 4 5/16" high by 6 3/4" wide and have a profile of 1 3/8" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the lamp head.</p> <p>Each light shall have 18 red super LEDs and shall operate at 12 volts DC, drawing 2 amps. The lens shall be red in colour.</p>	
<p><u>ELECTRICAL - SIDE BODY - WHELEN M9V2 - SUPER LED (PAIR)</u></p> <p>Two (2) pairs of Whelen M9V2 combination 180° warning/perimeter lights shall be provided. Each light shall be mounted with two screws to the side of the body, above the compartments in the forward and rearmost corners, with a chrome flange and rubber grommet. The M9V2R shall incorporate Linear Super-LED® and Smart LED® technology. The configuration of the M9V2R shall be a M9 V-series red warning light and a perimeter light with a split red/clear non-optic polycarbonate lens. The warning light shall consist of four PC boards containing three red Super-LEDs on each PC board installed on a V-shaped mounting bracket. Clear V-shaped optic collimator and metalized reflector will be</p>	

Specifications	Yes/No/Exception
<p>installed over the PC boards for maximum illumination.</p> <p>The scene light will be located immediately below the V-shaped warning lights and shall consist of 18 white Super-LEDs installed on the main PC board. The scene light will be furnished with a clear optic collimator and metalized angled reflector for supreme radiance.</p> <p>The scene lights will be independently switched based on their respective apparatus side.</p>	
<p><u>ELECTRICAL - SIDE BODY - WHELEN IONV1 - SUPER LED (PAIR)</u></p> <p>One (1) pair of Whelen IONV super LED surface mounted warning lights will be installed. Each light shall be mounted with two screws to the side of the body with a chrome flange and rubber grommet. The light shall be 1 11/16" high by 5 15/16" wide and have a profile of 2" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the lamp head.</p> <p>Each light shall have red super LEDs in a V-shaped configuration and shall operate at 12 volts DC, drawing .76 amps. The lens shall be red in colour.</p>	
<p><u>ELECTRICAL - REAR BODY - WHELEN M6 - SUPER LED (PAIR)</u></p> <p>One (1) pair of Whelen M6 super LED surface mounted warning lights will be installed. Each light shall be mounted with two screws to the warning light opening provided in the tail light bezel. The light shall be 4 5/16" high by 6 3/4" wide and have a profile of 1 3/8" beyond the mounting surface. Wiring shall extend from a weatherproof strain relief at the rear of the lamp head.</p> <p>Each light shall have 18 red super LEDs and shall operate at 12 volts DC, drawing 2 amps. The lens shall be red in colour.</p>	
<p><u>ELECTRICAL - REAR BODY - WHELEN M9V2 - SUPER LED (PAIR)</u></p> <p>One (1) pair of Whelen M9V2 combination 180° warning/perimeter lights shall be provided. Each light shall be mounted with two screws to the rear of the body, above the compartment in the left and right most corners, with a chrome flange and rubber grommet. The M9V2R shall incorporate Linear Super-LED® and Smart LED® technology. The configuration of the M9V2R shall be a M9 V-series red warning light and a perimeter light with a split red/clear non-optic polycarbonate lens. The warning light shall consist of four PC boards containing three red Super-</p>	

Specifications	Yes/No/Exception
<p>LEDs on each PC board installed on a V-shaped mounting bracket. Clear V-shaped optic collimator and metalized reflector will be installed over the PC boards for maximum illumination.</p> <p>The scene light will be located immediately below the V-shaped warning lights and shall consist of 18 white Super-LEDs installed on the main PC board. The scene light will be furnished with a clear optic collimator and metalized angled reflector for supreme radiance.</p> <p>The scene lights will be switched independent of any other scene lights. An additional switch will be provided on the left side rear body face. Additionally, the scene lights will activate when the chassis transmission is placed in reverse.</p>	
<p><u>ELECTRICAL - TRAFFIC ADVISOR - WHELEN TANF85 - 500 SUPER LED</u></p> <p>A Whelen TANF85 Traffic Advisor with eight (8) amber 500 series super LEDs will be recessed into the rear face of the body using a polished aluminum trim to help protect it from damage. The traffic advisor will measure 2 7/8" high by 45 1/8" wide by 2 1/4" deep and draw 5.6 amps at 12 volts DC.</p> <p>Control of the traffic advisor will be through the supplied TACTLD1 control head allowing a choice of four different flash patterns. A Center-Off rocker switch is used to turn the unit On and Off, in either High or Low power mode. The control head has an LED status display that provides a visual indication of the current light pattern.</p> <p>The control head will be mounted on or near the center dash area as mounting space allows but still within reach of either the driver or officer positions.</p>	
<p><u>ELECTRICAL - TAIL LIGHTS - WHELEN M6 - LED (PAIR)</u></p> <p>A pair of Whelen M6 series tail lights will be supplied mounted in a chrome bezel for four (4) lights. Each assembly will include Whelen LED stop lights, LED turn lights, LED backup lights and a mounting location for an M6 series warning light.</p>	
<p><u>ELECTRICAL - HOSE BED - AMDOR LUMABAR - 40" LED (EACH)</u></p> <p>One (1) Amdor Luma Bar H2O LED light will be mounted to an aluminum angle along the front edge of the main hose bed in order to illuminate the length of the main hose bed.</p> <p>A switch will be provided on the rear body face.</p>	

Specifications	Yes/No/Exception
<p><u>ELECTRICAL - CLEARANCE LIGHT - WELDON - LED (EACH)</u></p> <p>Weldon LED clearance/marker indicator lights will be provided as required by Canadian Motor Vehicle Safety Standards. The lower clearance lights mounted at the rear of the body will be recessed into the edge of the tailboard extrusion to reduce the chance of damage to the lights.</p>	
<p><u>ELECTRICAL - CLEARANCE LIGHT - WELDON - LED (EACH)</u></p> <p>Two Weldon combination LED clearance and indicator lights will be provided as required by Canadian Motor Vehicle Safety Standards.</p>	
<p><u>ELECTRICAL - SURFACE MOUNT STEP LIGHTS - LED (EACH)</u></p> <p>Four (4) surface mounted LED lights will be installed complete with a chrome bezel to illuminate the stepping/walking surfaces.</p> <p>The lights will be activated with the park brake.</p> <p>Mounted at the following locations:</p> <p>One (1) on the rearward wall of pump house storage area One (1) on the right side of the pump house Two (2) on the upper rear body face, one left, one right.</p>	
<p><u>ELECTRICAL - WIRING FOR GENERATOR</u></p> <p>Wiring for the specified generator will be provided to the specified location of the outlets or power distribution panel.</p>	
<p><u>ELECTRICAL - GENERATOR - HONDA EM5000S - 5KW</u></p> <p>A Honda EM5000S series generator will be supplied in the open storage area above the pump compartment. The generator will feature a Honda iGX390T2, 389cc OHV gasoline engine, with electric start, AC/DC circuit breakers, auto throttle, auto choke and low oil level alert. The generator will be capable of a maximum peak output of 5,000 watts, and a continuous output of 4,500 watts. Continuous amperage output of 37.5/18.8 amps at 120/240 VAC.</p> <p>The generator will be supplied with a 23.5 liter fuel tank.</p> <p>A metal wrap around carrying cradle will be supplied to allow the generator to be removed if required.</p>	

Specifications	Yes/No/Exception
<p><u>ELECTRICAL - BREAKER BOX - 4 SWITCH</u></p> <p>One (1) Blue Sea Systems 120 volt breaker panel be supplied and recessed into the L1 compartment side wall complete with trim plate surround. Up to four rocker style A1 breakers that are CSA and UL approved will be supplied. Back lit labels will be provided adjacent to each switch.</p>	
<p><u>ELECTRICAL - OUTLET - WEATHERPROOF - 110V (EACH)</u></p> <p>Four (4) 110 volt outlets will be installed at the locations specified. Each of the outlets will include dual NEMA 5-15 receptacles. A spring loaded weatherproof cover will be provided over both of the receptacles.</p> <p>Mounted in the following locations:</p> <p>One (1) at the left side pump panel One (1) at the right side pump panel Two (2) at the rear body face, one each side</p>	
<p><u>ELECTRICAL - POWER BAR - 6 OUTLET - 110V (EACH)</u></p> <p>Three (3) 110 volt power bars, each with 6 NEMA 5-15 outlets, will be supplied and installed at the locations specified. Each power bar will be wired to the shoreline connection utilized by the chassis battery charger.</p> <p>Mounted at the following locations:</p> <p>One (1) in cab (precise location to be determined at pre-build meeting) One (1) in compartment L3 One (1) in compartment R3</p>	
<p><u>ELECTRICAL - TRIPOD LIGHT - FRC – SPECTRA MAX-S 336W (EACH)</u></p> <p>One (1) Fire Research Spectra LED tripod telescopic light shall be provided on the right side of the rear body face. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall extend 40" and rotate 360 degrees. An internal brake shall slow the extension pole during lowering. The outer pole shall be a grooved aluminum extrusion. The Kwik-Raze tripod folding legs shall be anodized aluminum and when collapsed for storage form a 3" diameter tube for a minimal mounting footprint. The fully extended tripod system shall exceed a height of 11'. Wiring shall extend from the pole bottom with a 4' retractile cord.</p>	

Specifications	Yes/No/Exception
<p>The lamp head shall have seventy-two 72 white LEDs. It shall operate at 120 volts AC, draw 2.8 amps, and generate 28,000 lumens of light. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. It shall have the ability to select 36 LEDs to provide a spot light beam, 36 LEDs for flood lighting, or 72 LEDs for a flood/spot pattern. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall be no more than 5 3/8" high by 14" wide by 3 3/4" deep and have a heat resistant handle. The lamp head and mounting arm shall be powder coated. The LED scene light shall be for fire service use.</p> <p>Fire Research tripod truck mount bracket set shall be installed. The set shall include a lower base plate and an upper lock with a quick release spring loaded locking pin.</p> <p>A weatherproof on-off toggle switch shall be mounted in a switch box below each lamp head.</p>	
<p><u>PAINT - BODY - UNDERCOATING</u></p> <p>The complete underside of the body will be coated using Core-Tek VPCI-368, a time proven coating that provides excellent protection. The coating will include the entire under portion of the body, the rear fender wells, and the inside of the body up to the level of the water tank. The coating meets ASTM B-117, G-85, D-1748 for salt spray, prohesion, and humidity.</p>	
<p><u>PAINT - BODY - SINGLE AXLE - ONE TONE - PUMPER/RESCUE</u></p> <p>Only the highest quality polyurethane paint will be used, to provide a high lustre and long lasting paint finish. The structure to be painted will have all hardware removed to ensure that all areas are protected by paint. The body will be thoroughly cleaned and sanded, before the base coat of epoxy is applied. Next, a coat of high build primer is applied and completely sanded to a smooth finish. A three step final finish provides a non-porous, chemical resistant surface giving a high sheen, acid resistant, long lasting finish.</p> <p>The body will be painted and finished in one tone matching the lower cab colour.</p>	
<p><u>PAINT - ROLL UP DOOR FINISH - SATIN</u></p> <p>The roll up doors will be supplied by the door manufacturer with a satin finish.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>PAINT - COMPARTMENT INTERIOR FINISH - YELLOW EPOXY</u></p> <p>The interior of all compartments will be prepared and painted with an epoxy trunk splatter finish. The color will be yellow.</p>	
<p><u>STRIPING - DECAL - DEPARTMENT CREST - CUSTOMER SUPPLIED (PAIR)</u></p> <p>A pair of Fire Department crests will be provided and applied to the apparatus cab doors. The design file will be supplied by the Fire Department in a format suitable for digital printing.</p>	
<p><u>STRIPING - DECAL - CANADIAN FLAG (PAIR)</u></p> <p>One (1) pair of waving Canadian Flag decals will be supplied and applied to the cab of the completed apparatus. Each decal will measure approximately 12" in width and 8" in height.</p>	
<p><u>STRIPING - DECAL - CALL 911 (PAIR)</u></p> <p>One (1) set of decals/lettering with the specified variation of the '911' graphic will be applied to the side body in-line with the main body stripe.</p>	
<p><u>STRIPING - LETTERING - CAB FACE</u></p> <p>Lettering will be applied to the front face of the apparatus as directed by the Fire Department. Font, colours, design and placement will be discussed with the department prior to application, as the apparatus nears completion.</p>	
<p><u>STRIPING - LETTERING - CAB DOORS</u></p> <p>Lettering 2" to 6" in height identifying the Fire Department name, and if required truck identification, will be applied to the cab doors. Font, colours, design and placement will be discussed with the department prior to application, as the apparatus nears completion.</p>	
<p><u>STRIPING - LETTERING - BODY SIDES</u></p> <p>Lettering 8" to 12" in height, will be applied to both sides of the body. Font, colours, design and placement will be discussed with the department prior to application, as the apparatus nears completion.</p>	
<p><u>STRIPING - LETTERING - REAR BODY</u></p> <p>Lettering 6" to 12" in height, will be applied to both sides of the body. Font, colours, design and placement will be discussed with the department prior to application, as the apparatus nears completion.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>STRIPING - REFLECTIVE 6" SIDE - ROLL UP DOORS</u></p> <p>One (1) 6" wide reflective stripe shall be applied the full length of the body and cab sides, including the roll up doors. This stripe shall continue to the front face of the cab where space allows and to the rear face of the body if applicable.</p> <p>Colour: Gold</p>	
<p><u>STRIPING - REFLECTIVE 1/4" SIDE - OUTLINE STRIPES</u></p> <p>Outline stripes measuring 1/4" shall be applied the full length of the main reflective striping, both the top and bottom edges.</p> <p>Colour: Black</p>	
<p><u>STRIPING - REFLECTIVE CHEVRON - BODY REAR COMPLETE</u></p> <p>Chevron striping will be applied to the entire rear face of the body with the exception of items fixed to the rear of the body such as warning lights, handrails, beavertails etc. The striping will consist of a series of 6" reflective stripes angled towards the ground on the respective side of the vehicle.</p> <p>Colours: Red/Yellow (Amber)</p>	
<p><u>LABEL - CAN/ULC-S515-13 TESTING AND LABEL - IMPERIAL</u></p> <p>The completed apparatus will undergo testing and inspection at the manufacturer's facility by a ULC representative to ensure compliance with the requirements of CAN/ULC-S515-13. Upon successful completion of the testing a plate engraved with the ULC mark, pump test results, water tank volume, test date, and ULC certification number will be affixed to the completed apparatus.</p>	
<p><u>LABEL - FLUID TYPE AND CAPACITY</u></p> <p>A permanent label plate for the vehicle fluid type and capacity will be supplied. The plate will be mounted in the driver's compartment.</p>	
<p><u>LABEL - WARNING AND SAFETY LABEL PACKAGE</u></p> <p>The apparatus will be fitted with all the safety and warning labels required in the current standards publication by Underwriters' Laboratory of Canada.</p>	
<p><u>VEHICLE INSPECTION</u></p> <p>The vehicle will be inspected at an authorized Provincial motor vehicle inspection station prior to delivery. The safety inspection decal will be affixed to the window.</p>	

<i>Specifications</i>	<i>Yes/No/Exception</i>
<p><u>VEHICLE CLEAN UP AND DETAILING</u></p> <p>Prior to the final delivery, the vehicle will be professionally cleaned and detailed.</p>	
<p><u>QUALITY CONTROL CHECK</u></p> <p>The apparatus will undergo a full quality control inspection once the apparatus is completed.</p>	
<p><u>TRANSPORTATION SAFETY KIT</u></p> <p>Transportation safety kit will be supplied, and will include:</p> <p>One (1) first aid kit.</p> <p>One (1) 2.5 lb. ABC fire extinguisher.</p> <p>One (1) set of dual faced triangular warning flares.</p> <p>One (1) reflective safety vest</p>	
<p><u>EQUIPMENT - CAN/ULC-S515-13</u></p> <p>All loose equipment that is required for this apparatus as specified in CAN/ULC-S515-13 section 4.9 and not listed in this proposal will be the responsibility of the fire department to provide. A letter signed and dated by the appropriate representative of the department stating that this equipment is being provided by the fire department will be supplied prior to scheduling a ULC test date for the proposed apparatus.</p> <p>The following equipment will be supplied:</p> <p>Three (3) 10' length of 5" lightweight hard suction hoses with storz fittings</p> <p>One (1) Northline 5" low level strainer with storz fitting and Siphon Jet</p> <p>One (1) Duo-Safety 10 foot folding attic ladder</p> <p>One (1) Duo-Safety 14 foot ladder with folding hooks</p> <p>One (1) Duo-Safety 45 foot three section ladder (for use on another apparatus)</p> <p>One (1) Duo-Safety 8 foot fiberglass handled pike pole</p> <p>One (1) Duo-Safety 10 foot fiberglass handled pike pole</p> <p>One (1) pair of 12" x 8" aluminum wheel chocks</p> <p>Two (2) Hastings Brass HB-10 wrench set, location to be determined</p> <p>Two (2) Northline SWB-2 wrench set, mounted location to be determined</p>	