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Bidder Complies	
Yes	No

**SINGLE SOURCE MANUFACTURER**

Bids shall only be accepted from a single source apparatus manufacturer. The definition of single source is a manufacturer that designs and manufactures their products using an integrated approach, including the chassis, cab weldment, cab, pumphouse (including the sheet metal enclosure, valve controls, piping and operator’s panel) and body being designed, fabricated and assembled on the bidder's premises. The electrical system (hardwire or multiplex) shall be both designed and integrated by the same apparatus manufacturer. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) must be from a single source manufacturer and not split between manufacturers (i.e. body, pumphouse, cab weldment and chassis). The bidder shall provide evidence that they comply with this requirement.

The bidder shall state the location of the factory where the apparatus is to be built.

**SPECIAL INSTRUCTIONS**

The apparatus being proposed shall be designed and built to match the Unit very similar to job 29041 with some changes run magic report for changes.. However, some variation may be necessary due to changes in our manufacturing processes or our product offering. Revisions in NFPA guidelines and/or other regulations may also affect our ability to match the previous unit.

**NFPA 2016 STANDARDS**

This unit shall comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions shall be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing and walking surfaces shall be supplied with delivery of the apparatus.

All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and designated access paths to destination points shall be identified on the customer approval print and are shown as approximate. Actual location(s) shall be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

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

The manufacturer shall have programs in place for training, proficiency testing and performance for any staff involved with certifications.

	Bidder Complies	
	Yes	No
<p>An official of the company shall designate, in writing, who is qualified to witness and certify test results.</p> <p><b><u>ULC COMPLIANCY</u></b>  Apparatus proposed by the bidder shall meet the applicable requirements of the CAN/ULC-S515 standard as stated in the current edition at the time of contract execution. Fire department's specifications that differ from ULC specifications shall be indicated in the proposal as "non-ULC" compliant. The apparatus shall be in service at an elevation of ULC.</p> <p><b><u>VEHICLE INSPECTION PROGRAM CERTIFICATION</u></b>  To assure the vehicle is built to current CAN/ULC-S515 standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of CAN/ULC-S515. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus (no exception).</p> <p>A placard shall be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.</p> <p><b><u>PUMP TEST</u></b>  The pump shall be tested, approved and certified by Underwriter's Laboratory. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Department.</p> <p><b><u>GENERATOR TEST</u></b>  If the unit has a generator, the generator shall be tested, approved, and certified by Underwriters Laboratories. The test results shall be provided to the Fire Department at the time of delivery.</p> <p><b><u>BREATHING AIR TEST</u></b>  If the unit has breathing air, the apparatus manufacturer shall draw an air sample from the air system and certify that the air quality meets the requirements of CSA Z180.1-13, <i>Compressed Breathing Air and Systems</i>.</p> <p><b><u>BID BOND</u></b>  All bidders shall provide a bid bond as security for the bid in the form of a 10% bid bond to accompany their bid. This bid bond shall be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond shall be issued by an authorized representative of the Surety Company and shall be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond shall include language, which assures that the bidder/principal shall give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful</p>		

	Bidder Complies	
	Yes	No
<p>performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.</p> <p>Proposals received from bidders who do not manufacture the chassis shall provide a warranty that shall be issued jointly and severally by, and signed by, both the bidder and the chassis manufacturer.</p> <p>If the successful bidder does not manufacture the chassis, the bidder shall supply a warranty bond, in addition to their performance bond, along with their signed contract. This warranty bond shall guarantee all terms and conditions of the Basic One (1) Year Limited Warranty and names both the bidder and chassis manufacturer as co-principals. This warranty bond shall be issued for the contract amount and shall remain in force for a term which is consistent with the term of the Basic One (1) Year Limited Warranty.</p> <p>Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle shall apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle shall not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision shall prevail.</p> <p><b><u>PERFORMANCE BOND NOT REQUESTED</u></b></p> <p>A performance bond shall not be included. If requested at a later date, one shall be provided to you for an additional cost and the following shall apply:</p> <p>The successful bidder shall furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond shall be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.</p> <p>Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond shall be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type shall not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>APPROVAL DRAWING</u></b></p> <p>A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.</p> <p>A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.</p> <p><b><u>ELECTRICAL WIRING DIAGRAMS</u></b></p> <p>Two (2) electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.</p> <p><b><u>CHASSIS</u></b></p> <p>The chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be manufactured in the apparatus body builder's facility, eliminating any split responsibility. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required.</p> <p><b><u>WHEELBASE</u></b></p> <p>The wheelbase of the vehicle shall be no greater than 192" INCHES.</p> <p><b><u>GVW RATING</u></b></p> <p>The gross vehicle weight rating shall be a minimum of 46,500#.</p> <p><b><u>FRAME</u></b></p> <p>The chassis frame shall be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus.</p> <p>The side rails shall have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle.</p> <p>Each rail shall have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle.</p> <p>The frame rails shall be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.</p> <p><b><u>FRONT NON DRIVE AXLE</u></b></p> <p>The front axle shall be of the independent suspension design with a ground rating of 19,500 lb.</p> <p>The turning angle shall be 45 degrees.</p>		



	Bidder Complies	
	Yes	No
<p><b><u>FRONT SUSPENSION</u></b> A front independent suspension shall be provided with a minimum ground rating of 19,500 lb.</p> <p><b><u>FRONT SHOCK ABSORBERS</u></b> Heavy-duty telescoping shock absorbers shall be provided on the front suspension.</p> <p><b><u>FRONT OIL SEALS</u></b> Oil seals with viewing window shall be provided on the front axle.</p> <p><b><u>FRONT TIRES</u></b> Front tires shall be 425/65R22.50 radials, 20 ply highway tread, rated for 22,800 lb maximum axle load and 68 mph maximum speed.</p> <p>The tires shall be mounted on 22.50" x 12.25" polished aluminum disc type wheels with a ten (10) stud, 11.25" bolt circle.</p> <p><b><u>REAR AXLE</u></b> The rear axle shall have a capacity of 27,000 lb.</p> <p><b><u>TOP SPEED OF VEHICLE</u></b> A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of 68 mph.</p> <p><b><u>REAR SUSPENSION</u></b> The rear suspension shall be semi-elliptical, 3.00" wide x 53.00" long, 12-leaf pack with a ground rating of 27,000 lb. The spring hangers shall be castings.</p> <p>The two (2) top leaves shall wrap the forward spring hanger pin, and the rear of the spring shall be a slipper style end that shall ride in a rear slipper hanger. To reduce bending stress due to acceleration and braking, the front eye shall be a berlin eye that shall place the front spring pin in the horizontal plane within the main leaf.</p> <p>A steel encased rubber bushing shall be used in the spring eye. The steel encased rubber bushing shall be maintenance free and require no lubrication.</p> <p><b><u>REAR OIL SEALS</u></b> Oil seals shall be provided on the rear axle(s).</p> <p><b><u>REAR TIRES</u></b> Rear tires shall be four (4) 12R22.50 radials, 16 ply all season, rated for 27,120 lb maximum axle load and 75 mph maximum speed.</p> <p>The outside tires shall be mounted on 22.50" x 8.25" polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.</p>		

	Bidder Complies	
	Yes	No
<p>The inside tires shall be mounted on 22.50" x 8.25" steel disc wheels with a ten (10) stud, 11.25" bolt circle.</p> <p>An isolator shall be provided between the steel and aluminum rims.</p> <p><b><u>TIRE BALANCE</u></b></p> <p>All tires shall be balanced with balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.</p> <p><b><u>TIRE PRESSURE MANAGEMENT</u></b></p> <p>There shall be a LED tire alert pressure management system provided, that shall monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total of six (6) tires.</p> <p>The sensor shall calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor shall activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.</p> <p>Removing the cap from the sensor shall indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED shall immediately start to flash.</p> <p><b><u>FRONT HUB COVERS</u></b></p> <p>Stainless steel hub covers shall be provided on the front axle. An oil level viewing window shall be provided.</p> <p><b><u>REAR HUB COVERS</u></b></p> <p>A pair of stainless steel high hat hub covers shall be provided on rear axle hubs.</p> <p><b><u>MUD FLAPS</u></b></p> <p>Mud flaps shall be installed behind the front and rear wheels of the apparatus.</p> <p><b><u>WHEEL CHOCKS</u></b></p> <p>There shall be one (1) pair of folding aluminum alloy wheel blocks, with easy-grip handle provided.</p> <p><b><u>WHEEL CHOCK BRACKETS</u></b></p> <p>There shall be one (1) pair of horizontal mounting wheel chock brackets provided for the folding wheel chocks. The brackets shall be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets shall be mounted below the left side rear compartment.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>ANTI-LOCK BRAKE SYSTEM</u></b></p> <p>The vehicle shall be equipped with an anti-lock braking system. The ABS shall provide a 4-channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any particular wheel begins to lockup, a signal to be sent to the control unit. This control unit shall then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.</p> <p><b><u>BRAKES</u></b></p> <p>The service brake system shall be full air type. The front brakes shall be 17.00" disc type.</p> <p>The rear brakes shall be 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields shall be provided.</p> <p><b><u>BRAKE SYSTEM AIR COMPRESSOR</u></b></p> <p>The air compressor shall have 18.7 cubic feet per minute output.</p> <p><b><u>BRAKE SYSTEM</u></b></p> <p>The brake system shall include:</p> <ul style="list-style-type: none"> <li>• Dual brake treadle valve</li> <li>• Heated automatic moisture ejector on air dryer</li> <li>• Total air system capacity of 4,362 cubic inches</li> <li>• Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi</li> <li>• Spring set parking brake system</li> <li>• Parking brake operated by a push-pull style control valve</li> <li>• A parking "brake on" indicator light on instrument panel</li> <li>• Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi</li> <li>• A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)</li> <li>• 1/4 turn drain valve on each air tank</li> </ul> <p>The air tank shall be primed and painted to meet a minimum 750 hour salt spray test.</p> <p>To reduce the effects of corrosion, the air tank shall be mounted with stainless steel brackets (no exception).</p>		

Bidder Complies	
Yes	No

**BRAKE SYSTEM AIR DRYER**

The air dryer shall be properly sized for the brake system with spin-on coalescing filter cartridge and 100 watt heater.

**BRAKE LINES**

Color-coded nylon brake lines shall be provided. The lines shall be wrapped in a heat protective loom where necessary in the chassis.

**AIR INLET**

One (1) air inlet with 3D series male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located in the driver side lower step well of cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.

**RECESSED BOX FOR AIR FITTING**

One (1) air inlet shall have an aluminum treadplate recessed box provided. The box(es) shall allow the air fitting to be recessed inside the stepwell to prevent damage. Driver side step well per print.

**ENGINE**

The chassis shall be powered by an electronically controlled engine as described below:

Power:	450 hp at 2100 rpm
Torque:	1250 lb-ft at 1400 rpm
Governed Speed:	2200 rpm
Emissions Level:	EPA 2016
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	543 cubic inches (8.9L)
Starter:	Heavy duty
Fuel Filters:	Spin-on style primary filter with water separator and water-in-fuel sensor. Secondary spin-on style filter.

The engine shall include On-board diagnostics (OBD), which provides self-diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine

	Bidder Complies	
	Yes	No
<p>and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.</p> <p><b><u>REPTO DRIVE</u></b>  A rear engine power take off shall be provided to drive the water pump. A vibration dampener shall be provided between the REPTO and water pump. Transmission PTO's used to drive the water pump shall not be allowed due to their lower torque ratings. The rear engine power take off shall be the same as used extensively throughout the construction industry. Rear engine PTO's allow for continuous 200 hp and 435 lb-ft torque ratings needed for large pump applications. The rear engine power take off shall have the same warranty as the engine provided by the engine manufacturer.</p> <p><b><u>HIGH IDLE</u></b>  A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A switch shall be installed, at the cab instrument panel, for activation/deactivation.</p> <p>The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled "OK to Engage High Idle."</p> <p><b><u>ENGINE BRAKE</u></b>  An engine brake is to be installed with the controls located on the instrument panel within easy reach of the driver.</p> <p>The driver shall be able to turn the engine brake system on/off and have a high, medium and low setting.</p> <p>The engine brake shall activate when the system is on and the throttle is released.</p> <p>The high setting of the brake application shall activate and work simultaneously with the variable geometry turbo (VGT) provided on the engine.</p> <p>The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated.</p> <p>The ABS system shall automatically disengage the auxiliary braking device, when required.</p> <p><b><u>CLUTCH FAN</u></b>  A fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and fully engaged in "Pump" position.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>ENGINE AIR INTAKE</u></b></p> <p>An air intake with an ember separator (to prevent road dirt, burning embers, and recirculating hot air from entering the engine) shall be mounted at the front of the apparatus, on the passenger side of the engine.</p> <p>The ember separator shall be mounted in the air intake with flame retardant, roto-molded polyethylene housing. It shall be easily accessible by the hinged access panel at the front of the vehicle.</p> <p><b><u>EXHAUST SYSTEM</u></b></p> <p>The exhaust system shall be stainless steel from the turbo to the inlet of the selective catalytic reduction (SCR) device, and shall be 5.00" in diameter. The exhaust system shall include a diesel particulate filter (DPF) and an SCR device to meet current EPA standards. An insulation wrap shall be provided on all exhaust pipes between the turbo and DPF to minimize the transfer of heat to the cab. The exhaust shall terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.</p> <p><b><u>RADIATOR</u></b></p> <p>The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.</p> <p>For maximum corrosion resistance and cooling performance, the entire radiator core shall be constructed using long life aluminum alloy. The core shall be made of aluminum fins, having a serpentine design, brazed to aluminum tubes. The tubes shall be brazed to aluminum headers. No solder joints or leaded material of any kind shall be acceptable in the core assembly. The radiator core shall have a minimum frontal area of 1434 square inches. Supply tank made of glass-reinforced nylon and a return tank of cast aluminum alloy shall be crimped on to the core assembly using header tabs and a compression gasket to complete the radiator core assembly. The radiator shall be compatible with commercial antifreeze solutions.</p> <p>There shall be a full steel frame around the entire radiator core assembly. The radiator core assembly shall be isolated within the steel frame by rubber inserts to enhance cooling system durability and reliability. The radiator shall be mounted in such a manner as to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. The radiator assembly shall be isolated from the chassis frame rails with rubber isolators.</p> <p>The radiator assembly shall include an integral deaeration tank permanently mounted to the top of the radiator framework, with a readily accessible remote-mounted overflow tank. For visual</p>		

	Bidder Complies	
	Yes	No
<p>coolant level inspection, the radiator shall have a built-in sight glass. The radiator shall be equipped with a 15 psi pressure relief cap.</p> <p>A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.</p> <p>A heavy-duty fan shall draw in fresh, cool air through the radiator. Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.</p> <p><b><u>COOLANT LINES</u></b></p> <p>Rubber hose shall be used for all engine coolant lines installed by the chassis manufacturer.</p> <p>Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.</p> <p><b><u>FUEL TANK</u></b></p> <p>A 65 gallon fuel tank shall be provided and mounted at the rear of the chassis. The tank shall be constructed of 12-gauge, hot rolled steel. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps (no exception).</p> <p>A 0.75" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the left hand side of the body and be covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."</p> <p>A 0.50" diameter vent shall be provided running from top of tank to just below fuel fill inlet.</p> <p>The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.</p> <p>All fuel lines shall be provided as recommended by the engine manufacturer.</p> <p><b><u>DIESEL EXHAUST FLUID TANK</u></b></p> <p>A 4.5 gallon diesel exhaust fluid (DEF) tank shall be provided and mounted in the driver's side body forward of the rear axle.</p> <p>A 0.50" drain plug shall be provided in a low point of the tank for drainage.</p> <p>A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded, polished stainless steel door that is marked "Diesel Exhaust Fluid Only".</p>		

Bidder Complies	
Yes	No

The tank shall meet the engine manufacturer’s requirement for 10 percent expansion space in the event of tank freezing.

The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

**FUEL SHUTOFF**

A fuel line shutoff valve shall be installed on both the inlet and outlet of the primary fuel filter.

**TRANSMISSION**

An electronic torque converting automatic transmission shall be provided.

The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display shall indicate when service is due.

Two (2) PTO openings shall be located on both sides of converter housing (positions 4 o'clock and 8 o'clock) as viewed from the rear.

A transmission temperature gauge with red light and audible alarm shall be installed on the cab dash.

**TRANSMISSION SHIFTER**

A five (5)-speed push button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation.

The transmission ratio shall be:

1st	3.49 to 1.00
2nd	1.86 to 1.00
3rd	1.41 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
R	5.03 to 1.00

**TRANSMISSION PROGRAMMING**

The transmission shall be programmed to automatically shift the transmission to neutral when the parking brake is set to simplify operation and increase operational safety (no exception).

**TRANSMISSION COOLER**

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



	Bidder Complies	
	Yes	No
<p><b><u>DRIVELINE</u></b>            Drivelines shall be a heavy-duty metal tube and be equipped with universal joints.</p> <p>The shafts shall be dynamically balanced before installation.</p> <p>A splined slip joint shall be provided in each driveshaft.</p> <p><b><u>STEERING</u></b>            Dual steering gears, with integral heavy-duty power steering, shall be provided. For reduced system temperatures, the power steering shall incorporate an air to oil cooler and a hydraulic pump with integral pressure and flow control. All power steering lines shall have wire braded lines with crimped fittings.</p> <p>A tilt and telescopic steering column shall be provided to improve fit for a broader range of driver configurations.</p> <p><b><u>STEERING WHEEL</u></b>            The steering wheel shall be 18.00" in diameter, have tilting and telescoping capabilities, and a 2-spoke design.</p> <p><b><u>BUMPER</u></b>            A one (1) piece, stainless steel bumper shall be attached to the front of the frame.</p> <p>A 9.00" channel shall be mounted directly behind the bumper for additional strength.</p> <p>The bumper shall be extended 19.00" from front face of cab.</p> <p><b><u>GRAVEL PAN</u></b>            A gravel pan, constructed of bright aluminum treadplate, shall be furnished between the bumper and cab face. The gravel pan shall be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.</p> <p><b><u>CENTER HOSE TRAY</u></b>            A hose tray, constructed of aluminum, shall be placed in the center of the bumper extension.</p> <p>The tray shall have a capacity of 150' of 1.75" double jacket cotton-polyester hose.</p> <p>Black rubber grating shall be provided at the bottom of the tray. Drain holes are also provided.</p> <p><b><u>CENTER HOSE TRAY COVER</u></b>            A bright aluminum treadplate cover shall be provided over the center hose tray.</p> <p>The cover shall be attached with a stainless steel hinge.</p>		

	Bidder Complies	
	Yes	No
<p>One (1) D-ring latch shall secure the cover in the closed position and a pneumatic stay arm shall hold the cover in the open position.</p> <p><b><u>LIFT AND TOW MOUNTS</u></b></p> <p>Mounted to the frame extension shall be lift and tow mounts. The lift and tow mounts shall be designed and positioned to adapt to certain tow truck lift systems.</p> <p>The lift and tow mounts with eyes shall be painted the same color as the frame.</p> <p><b><u>TOW HOOKS</u></b></p> <p>No tow hooks are to be provided. This truck shall be equipped with a lift and tow package with integral tow eyes.</p> <p><b><u>CAB</u></b></p> <p>The cab shall be designed specifically for the fire service and shall be manufactured by the chassis builder.</p> <p>To provide quality at the source and single source customer support, the cab shall be built by the apparatus manufacturer in a facility located on the manufacturer's premises (no exception).</p> <p>For reasons of structural integrity and enhanced occupant protection, the cab shall be of heavy duty design, constructed to the following minimal standards.</p> <p>The cab shall have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts) and rear wall areas. The A-pillar shall be constructed of 0.25" heavy wall extrusions joined by a solid A356-T6 aluminum joint casting. The B-pillar and C-pillar shall also be constructed from 0.25" heavy wall extrusions. The rear wall shall be constructed of two (2) 4.00" x 2.00" outer aluminum extrusions and two (2) 3.00" x 2.00" inner aluminum extrusions. All main vertical structural members shall run from the floor to 7.50" x 3.50" x 0.125" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.75" thick corner casting at each of the front corners of the roof assembly.</p> <p>The front of the cab shall be constructed of a 0.25" thick firewall, covered with a 0.125" front skin (for a total thickness of 0.38"), and reinforced with 24.50" wide x 10.00" deep x 0.50" thick supports on each side of the engine tunnel. The cross-cab support shall be welded to the A-pillar, 0.25" firewall, and engine tunnel, on the left and right sides.</p> <p>The cab floors shall be constructed of 0.1875" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.44" of structural material at the front floor area. The front floor area shall also be supported with three (3) 0.50" plates bolted together that also provides the mounting point for the cab lift. This tubing</p>		

	Bidder Complies	
	Yes	No
<p>shall run from the front of the cab to the 0.1875" thick engine tunnel, creating the structure to support the forces created when lifting the cab.</p> <p>The cab shall be a full-tilt style. A 3-point cab mount system with rubber isolators shall improve ride quality by isolating chassis vibrations from the cab.</p> <p>The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.</p> <p>The forward cab section shall have an overall height (from the cab roof to the ground) of approximately 102.00". The crew cab section shall have a 10.00" raised roof, with an overall cab height of approximately 112.00". The raised portion shall start at the most forward point of the B-pillar and continue rearward to the back of the cab. The overall height listed shall be calculated based on a truck configuration with the lowest suspension weight ratings, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed.</p> <p>The cab shall have an interior width of not less than 93.50". The driver and passenger seating positions shall have a minimum 24.00" clear width at knee level.</p> <p>To reduce injuries to occupants in the seated positions, proper head clearance shall be provided. The floor-to-ceiling height inside the forward cab shall be no less than 60.25". The floor-to-ceiling height inside the crew cab shall be no less than 62.95" in the center position and 68.75" in the outboard positions.</p> <p>The crew cab shall measure a minimum of 57.50" from the rear wall to the backside of the engine tunnel (knee level) for optimal occupant legroom.</p> <p><b><u>CAB PUMP ENCLOSURE</u></b></p> <p>The rear of the cab shall be made to house the fire pump below the forward facing crew cab seats. The cab side panels shall be notched to accommodate the pump panel.</p> <p><b><u>INTERIOR CAB INSULATION</u></b></p> <p>The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling.</p> <p><b><u>FENDER LINERS</u></b></p> <p>Full-circular, aluminum inner fender liners in the wheel wells shall be provided.</p> <p><b><u>PANORAMIC WINDSHIELD</u></b></p> <p>A one (1)-piece, safety glass windshield with more than 2,802 square inches of clear viewing area shall be provided. The windshield shall be full width and shall provide the occupants with a</p>		

	Bidder Complies	
	Yes	No
<p>panoramic view. The windshield shall consist of three (3) layers: the outer light, the middle safety laminate, and the inner light. The 0.114" thick outer light layer shall provide superior chip resistance. The middle safety laminate layer shall prevent the windshield glass pieces from detaching in the event of breakage. The inner light shall provide yet another chip resistant layer. The cab windshield shall be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern shall be applied on the outside perimeter of the windshield for a finished automotive appearance.</p> <p><b><u>SUNVISORS</u></b> Two (2) smoked sunvisors, 7.75" x 28.12" long, shall be provided. The sunvisors shall be located above the windshield with one (1) mounted on each side of the cab.</p> <p><b><u>WINDSHIELD WIPERS</u></b> Three (3) electric windshield wipers with a washer, in conformance with FMVSS and SAE requirements, shall be provided. The wiper blades shall be 21.65" long and together shall clear a minimum of 1,783 square inches of the windshield for maximum visibility in inclement weather.</p> <p>The windshield washer fluid reservoir shall be located at the front of the vehicle and be accessible through the access hood for simple maintenance.</p> <p><b><u>FAST SERVICE ACCESS FRONT TILT HOOD</u></b> A full-width access hood shall be provided for convenient access to engine coolant, steering fluid, wiper fluid, cab lift controls, headlight power modules, and ember separator. The hood shall also provide complete access to the windshield wiper motor and components. The hood shall be contoured to provide a sleek, automotive appearance. The hood shall be constructed of two (2) fiberglass panels bonded together and shall include reinforcing ribs for structural integrity. The hood shall include air cylinders to hold the hood in open and closed positions, and a heavy duty latch system that shall meet FMVSS 113 (Hood Latch System). The spring-loaded hood latch shall be located at the center of the hood with a double-action release lever located behind the upper grille. The two (2)-step release requires the lever first be pulled to the driver side until the hood releases from the first latch (primary latch) then to the passenger side to fully release the hood (secondary latch).</p> <p><b><u>ENGINE TUNNEL</u></b> To provide structural strength, the engine tunnel sidewalls shall be constructed of 0.50" aluminum plate that is welded to both the 0.25" firewall and 0.38" heavy wall extrusion under the crew cab floor. To maximize occupant space, the top edges shall be tapered.</p> <p>The back of the engine tunnel shall be no higher than 16.25" off the crew cab floor (no exception).</p>		

	Bidder Complies	
	Yes	No
<p>The engine tunnel shall be insulated on both sides for thermal and acoustic absorption. The underside of the tunnel shall be covered with 1.00" thick polyether foam that is reinforced with an aluminized face. Thermal rating for this insulation shall be -40 degrees Fahrenheit to 300 degrees Fahrenheit. The insulation shall keep noise (dBA) levels at or lower than the specifications in the current edition of the NFPA 1901 standards.</p> <p><b><u>CAB REAR WALL EXTERIOR COVERING</u></b></p> <p>The exterior surface of the rear wall of the cab shall be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.</p> <p><b><u>CAB LIFT</u></b></p> <p>A hydraulic cab lift system shall be provided, consisting of an electric-powered hydraulic pump, fluid reservoir, dual lift cylinders, remote cab lift controls and all necessary hoses and valves. The hydraulic pump shall have a backup manual override, for use in the event of an electrical failure.</p> <p>The cab lift controls shall be located at the driver side front of the cab, easily accessible under the full width front access hood. The controls shall include a permanently mounted raise/lower switch. For enhanced visibility during cab tilt operations, a remote control tether with on/off switch shall be supplied on a coiled cord that shall extend from 2.00' (coiled) to 6.00' (extended).</p> <p>The cab shall be capable of tilting 42 degrees and 80 degrees with crane assist to accommodate engine maintenance and removal. The cab pivots shall be located 46.00" apart to provide stability while tilting the cab.</p> <p>The rear of the cab shall be locked down by a two (2)-point, automatic, hydraulic, double hook mechanism that fully engages after the cab has been lowered (self-locking). The dual 2.25" diameter hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the cab is in the tilt position.</p> <p>For increased safety, a redundant mechanical stay arm shall be provided that must be manually put in place on the driver side between the chassis and cab frame when cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.</p> <p><b><u>Cab Lift Interlock</u></b></p> <p>The cab lift safety system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>GRILLE</u></b>  A bright finished aluminum mesh grille screen, inserted behind a formed bright finished grille surround, shall be provided on the front center of the cab, and shall serve as an air intake to the radiator.</p> <p><b><u>FRONT CAB TRIM</u></b>  A 10.00" band of 22 gauge patterned stainless steel trim shall be installed across the front of the cab, from door hinge to door hinge. The trim band shall be centered on the head lights and applied with two (2)-sided tape. A 0.625" self-adhesive trim strip shall be applied around the perimeter of the trim band.</p> <p>There shall be polished stainless steel corner covers provided over the painted cab corner where the cab turn signals are located.</p> <p><b><u>SIDE OF CAB MOLDING</u></b>  Chrome molding shall be provided on both sides of cab.</p> <p><b><u>MIRRORS</u></b>  A dual vision, motorized, west coast style mirror, with chrome finish, shall be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver.</p> <p><b><u>CAB DOORS</u></b>  The forward cab and crew cab doors shall be the half-height style door. To enhance entry and egress to the cab, the forward cab doors shall be a minimum of 43.59" wide x 64.71" high. The crew cab doors shall measure a minimum of 37.87" wide x 73.75" high.</p> <p>The forward cab and crew cab doors shall be constructed of extruded aluminum with a nominal material thickness of 0.125". The exterior door skins shall be constructed from 0.090" aluminum.</p> <p>The forward cab door windows shall include a 7.50" high x 10.00" wide drop area at the front to enhance visibility.</p> <p>A customized, vertical, pull-down type door handle shall be provided on the exterior of each cab door. The exterior handle shall be designed specifically for the fire service to prevent accidental activation, and shall provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands. Each door shall also be provided with an interior flush, open style paddle handle that shall be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles shall provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.</p>		

	Bidder Complies	
	Yes	No
<p>The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed.</p> <p>A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.</p> <p>A chrome grab handle shall be provided on the inside of each cab and crew cab door.</p> <p>The cab steps at each cab door location shall be located below the cab doors and shall be exposed to the exterior of the cab.</p> <p><b><u>CAB DOOR PANELS</u></b></p> <p>The inner cab door panels shall be constructed out of brushed stainless steel. The cab door panels shall be removable.</p> <p><b><u>RECESSED POCKET WITH ELASTIC COVER</u></b></p> <p>To provide organized storage (clutter control) in the cab for miscellaneous equipment, the cab interior shall be provided with recessed storage pockets. The pockets shall be 5.63" wide x 2.00" high x 4.00" deep. The pockets shall be provided with a perforated elastic material cover to secure the equipment in the pocket. The pockets shall be installed in all available mounting locations of the overhead console.</p> <p><b><u>ELECTRIC WINDOW CONTROLS</u></b></p> <p>Each cab entry door shall be equipped with an electrically operated tempered glass window. A window control panel shall be located on the door panel within easy reach of the respective occupant. Each switch shall allow intermittent or auto down operation for ease of use. Auto down operation shall be actuated by holding the window down switch for approximately 1 second. The driver control panel shall contain a control switch for each cab door's window. All other door control panels shall contain a single switch to operate the window within that door.</p> <p>The window switches shall be connected directly to the battery power. This allows the windows to be raised and lowered when the battery switch is in the off position.</p> <p><b><u>DUAL STEPS</u></b></p> <p>A dual step shall be provided below each cab and crew cab door. The steps shall be designed with Grip Strut inserts to provide support, slip resistance, and drainage. The steps shall be a bolt-on design and provide a 24.00" wide x 7.00" deep stepping surface. The step design raises the middle step higher and closer to the cab floor, resulting in a 12.00" distance from the step to cab floor in the cab and a 13.50" distance from the step to cab floor in the crew cab. Stepping</p>		

	Bidder Complies	
	Yes	No
<p>distances from the ground to first step shall be 16.50" and from first step to middle step shall be 12.00".</p> <p>The first step shall be lit by a 12 volt DC LED light provided on the step.</p> <p><b><u>STEP LIGHTS</u></b></p> <p>For reduced overall maintenance costs compared to incandescent lighting, there shall be four (4) white LED step lights provided. The lights shall be installed at each cab and crew cab door, one (1) per step. The lights shall be located in the driver side front doorstep, driver side crew cab doorstep, passenger side front doorstep and passenger side crew cab doorstep.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15.00" x 15.00" square placed 10.00" below the light and a minimum of 1.5 fc covering an entire 30.00" x 30.00" square at the same 10.00" distance below the light.</p> <p>The lights shall be activated when the adjacent door is opened.</p> <p><b><u>FENDER CROWNS</u></b></p> <p>Stainless steel fender crowns shall be installed at the cab wheel openings.</p> <p><b><u>CREW CAB WINDOWS</u></b></p> <p>One (1) fixed window with tinted glass shall be provided on each side of the cab, to the rear of the front cab door. The windows shall be sized to enhance light penetration into the cab interior. The windows shall measure 20.00" wide x 20.50" high.</p> <p><b><u>WINDOWS INTERIOR TRIM</u></b></p> <p>For improved aesthetics, the cab side windows shall include a vacuum formed ABS interior trim panel.</p> <p><b><u>CAB ROOF DRIP RAIL</u></b></p> <p>For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall be constructed of bright polished extruded aluminum, and be bonded to the sides of the cab. The drip rail shall extend the full length of the cab roof.</p> <p><b><u>CAB INTERIOR</u></b></p> <p>With safety as the primary objective, the wrap-around style cab instrument panel shall be designed with unobstructed visibility to instrumentation. The dash layout shall provide the driver with a quick reference to gauges that allows more time to focus on the road.</p> <p>The center console shall be a high impact ABS polymer and shall be easily removable for access to the defroster. The center console shall include louvers strategically located for optimal air flow and defrost capability to the windshield.</p>		



	Bidder Complies	
	Yes	No
<p>The passenger side dashboard shall be constructed of painted aluminum for durability and low maintenance. For enhanced versatility, the passenger side dash shall include a flat working surface.</p> <p>To provide optional (service friendly) control panels, switches and storage modules, a painted aluminum overhead console shall also be provided.</p> <p>To complete the cab front interior design, painted aluminum modesty panels shall be provided under the dash on both sides of the cab. The driver side modesty panel shall provide mounting for the battery switch and diagnostic connectors, while the passenger side modesty panel provides a glove box, and ground access to the main electrical distribution panel via quick quarter turn fasteners.</p> <p>To provide a deluxe automotive interior, the engine tunnel, side walls and rear wall shall be covered by vinyl coated polyester.</p> <p>The headliner shall be installed in both forward and rear cab sections. The headliner panel shall be a composition of an aluminum panel covered with a sound barrier and upholstery.</p> <p>The cab structure shall include designated raceways for electrical harness routing from the front of the cab to the rear upper portion of the cab. Raceways shall be extruded in the forward door frame, floor, walls and overhead in the area where the walls meet the ceiling. The raceways located in the floor shall be covered by aluminum extrusion, while the vertical and overhead raceways shall be covered by painted aluminum covers. The raceways shall improve harness integrity by providing a continuous harness path that eliminates wire chafing and abrasion associated with exposed wiring or routing through drilled metal holes. Harnesses shall be laid in place. Routing through holes in tubing shall not be accepted due to chaffing that installation causes.</p> <p><b><u>CAB INTERIOR UPHOLSTERY</u></b></p> <p>The cab interior upholstery shall be gray woven with black. All cab interior materials shall meet FMVSS 302 (flammability of interior materials).</p> <p><b><u>CAB INTERIOR PAINT</u></b></p> <p>The cab interior metal surfaces shall be painted fire smoke gray, vinyl texture paint.</p> <p><b><u>CAB FLOOR</u></b></p> <p>The cab and crew cab floor areas shall be covered with floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.</p> <p>The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.</p>		

Bidder Complies	
Yes	No

**CAB DEFROSTER**

To provide maximum defrost and heating performance, a 54,961 BTU heater-defroster unit with 558 SCFM of air flow shall be provided inside the cab. The defroster unit shall be strategically located under the center forward portion of the instrument panel. For easy access, a removable metal cover shall be installed over the defroster unit. The defroster shall include an integral aluminum frame air filter, high performance dual scroll blowers, and ducts designed to provide maximum defrosting capabilities for the 1-piece windshield. The defroster ventilation shall be built into the design of the cab dash instrument panel and shall be easily removable for maintenance. The defroster shall be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system shall meet or exceed SAE J382 requirements.

**CAB/CREW CAB HEATER**

Two (2) 36,702 BTU auxiliary heaters with 276 SCFM (each unit) of air flow shall be provided inside the crew cab, one (1) in each outboard rear facing seat riser. The heaters shall include high performance dual scroll blowers, one (1) for each unit. Outlets for the heaters shall be located below each rear facing seat riser and below the fronts of the driver and passenger seats, for efficient airflow. An extruded aluminum plenum shall be incorporated in the cab structure that shall transfer heat to the forward cab seating positions.

The heater/defroster and crew cab heaters shall be controlled by an integral electronic control panel. The heater control panel shall allow the driver to control heat flow to the front and rear independently. The control panel shall include variable adjustment for temperature and fan control, and be conveniently located on the dash in clear view of the driver. The control panel shall include highly visible, progressive LED indicators for both fan speed and temperature.

**AIR CONDITIONING**

Due to the large space inside the cab, a high-performance, customized air conditioning system shall be furnished. A 19.10 cubic inch compressor shall be installed on the engine.

The air conditioning system shall be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 64 degrees Fahrenheit in the forward section of the cab, and 69 degrees Fahrenheit in the rear section of the cab, at 50 percent relative humidity within 30 minutes. The cooling performance test shall be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

A roof-mounted condenser with a 63,000 BTU output that meets and exceeds the performance specification shall be installed on the cab roof. Mounting the condenser below the cab or body would reduce the performance of the system and shall not be acceptable. The condenser cover and mounting legs to be painted white as provided by manufacturer.

	Bidder Complies	
	Yes	No
<p>The evaporator unit shall be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator shall include two (2) high performance cores and plenums with multiple outlets, one (1) plenum directed to the front and one (1) plenum directed to the rear of the cab.</p> <p>The evaporator unit shall have a 49,000 BTU (4.08 tons) rating that meets and exceeds the performance specifications.</p> <p>Adjustable air outlets shall be strategically located on the evaporator cover per the following:</p> <ul style="list-style-type: none"> <li>• Four (4) shall be directed towards the drivers location</li> <li>• Four (4) shall be directed towards the officers location</li> <li>• Eight (8) shall be directed towards crew cab area</li> </ul> <p>The air conditioner refrigerant shall be R-134A and shall be installed by a certified technician.</p> <p>The air conditioner shall be controlled by dual zone integral electronic control panels for the heater, defroster and air conditioner. The cab control panel shall be located in the center console. For ease of operation, the control panels shall include variable adjustment for temperature and fan control.</p> <p><b><u>INTERIOR CAB INSULATION</u></b></p> <p>The cab walls, ceiling and engine tunnel shall be insulated in all strategic locations to maximize acoustic absorption and thermal insulation. The cab shall be insulated with 2.00" insulation in the rear wall, 3.00" insulation in the side walls, and 1.50" insulation in the ceiling. Headliners shall be constructed from a 0.20" high density polyethylene corrugated material. Each headliner shall be wrapped with a 0.25" thick foil faced poly damp low emissivity foam insulation barrier for acoustic and thermal control.</p> <p>Designed for maximum sound absorption and thermal insulation, the rear cab wall shall be insulated with a 1.50" thick open cell acoustical foam. The thermal protection of the foam shall provide and R-value of 4 per 1.00" thickness.</p> <p><b><u>SUN VISORS</u></b></p> <p>Two (2) smoked polycarbonate sun visors provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.</p> <p>There shall be no retention bracket provided to help secure each sun visor in the stowed position.</p> <p><b><u>GRAB HANDLE</u></b></p> <p>A black rubber covered grab handle shall be mounted on the door post of the driver side cab door to assist in entering the cab. The grab handle shall be securely mounted to the post area between the door and windshield.</p>		

	Bidder Complies	
	Yes	No
<p>A long rubber grab handle shall be mounted on the dash board in front of the officer.</p> <p><b><u>ENGINE COMPARTMENT LIGHTS</u></b></p> <p>There shall be one (1) 12 volt DC, 3.00" white LED light(s) with chrome flange kit(s) installed under the cab to be used as engine compartment illumination.</p> <p>These light(s) shall be activated automatically when the cab is raised.</p> <p><b><u>ACCESS TO ENGINE DIPSTICKS</u></b></p> <p>For access to the engine oil and transmission fluid dipsticks, there shall be a door on the engine tunnel, inside the crew cab. The door shall be on the rear wall of the engine tunnel, on the vertical surface. The door shall be 17.75" wide x 12.75" high and be flush with the wall of the engine tunnel.</p> <p>The engine oil dipstick shall allow for checking only. The transmission dipstick shall allow for both checking and filling. An additional port shall be provided for filling the engine oil.</p> <p>The door shall have a rubber seal for thermal and acoustic insulation. One (1) flush latch shall be provided on the access door.</p> <p><b><u>SEATING CAPACITY</u></b></p> <p>The seating capacity in the cab shall be six (6).</p> <p><b><u>DRIVER SEAT</u></b></p> <p>A cam action seat with air suspension shall be provided in the cab for the driver. For increased convenience, the seat shall include electric controls to adjust the rake, height and horizontal position. Electric controls shall be located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat shall be furnished with an adjustable reclining back. The seat back shall be a high back style with manual lumbar adjustment lever, for lower back support, and shall include minimum 7.50" deep side bolster pads for maximum support. For optimal comfort, the seat shall be provided with dual density foam cushions designed with EVC (elastomeric vibration control).</p> <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>OFFICER SEAT</u></b></p> <p>A cam action seat with air suspension shall be provided in the cab for the officer. For increased convenience, the seat shall include a manual control to adjust the horizontal position. The manual horizontal control shall be a towel-bar style located below the forward part of the seat cushion. For optimal comfort, the seat shall be provided with dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be</p>		

	Bidder Complies	
	Yes	No
<p>equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat back shall be an SCBA back style with 7.50 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>REAR FACING DRIVER SIDE OUTBOARD SEAT</u></b></p> <p>There shall be one (1) rear facing seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled. The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>REAR FACING PASSENGER SIDE OUTBOARD SEAT</u></b></p> <p>There shall be one (1) rear facing seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled. The seat back shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p>		

	Bidder Complies	
	Yes	No
<p>The seat shall be furnished with a 3-point, shoulder type seat belt. The seat belt shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>FORWARD FACING CENTER SEATS</u></b></p> <p>There shall be two (2) forward facing seats provided at the center position in the crew cab. For optimal comfort, the seats shall be provided with 17.00" deep dual density foam cushions designed with EVC (elastomeric vibration control). To ensure safe operation, the seats shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled.</p> <p>The seat backs shall be an SCBA back style with 7.5 degree fixed recline angle, and shall include minimum 4.50" wide x 7.50" deep side bolster pads for maximum support. The SCBA cavity shall be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity shall be accomplished by unbolting, relocating, and re-bolting it in the desired location.</p> <p>The seats shall be furnished with 3-point, shoulder type seat belts. The seat belts shall be furnished with dual automatic retractors that shall provide ease of operation in the normal seating position.</p> <p><b><u>SEAT UPHOLSTERY</u></b></p> <p>All seat upholstery shall be gray woven with black water resistant material.</p> <p><b><u>AIR BOTTLE HOLDERS</u></b></p> <p>All SCBA type seats in the cab shall have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket shall include an automatic spring clamp that allows the occupant to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp shall constrain the SCBA bottle in the seat and shall exceed the NFPA standard of 9G. Bracket designs with manual restraints (belts, straps, buckles) that could be inadvertently left unlocked and allow the SCBA to move freely within the cab during an accident, shall not be acceptable.</p> <p>There shall be a quantity of five (5) SCBA brackets.</p> <p><b><u>SEAT BELTS</u></b></p> <p>All seating positions in the cab, crew cab and tiller cab (if applicable) shall have red seat belts.</p> <p>To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.</p>		

	Bidder Complies	
	Yes	No
<p>The 3-point shoulder type seat belts shall also include a D-loop assembly to the shoulder belt system. This feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.</p> <p><b><u>SHOULDER HARNESS HEIGHT ADJUSTMENT</u></b></p> <p>All seating positions furnished with 3-point shoulder type seat belts shall include a height adjustment. This adjustment shall optimize the belts effectiveness and comfort for the seated firefighter.</p> <p>A total of six (6) seating positions shall have the adjustable shoulder harness.</p> <p><b><u>HELMET STORAGE PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.</p> <p>There is no helmet storage on the apparatus as manufactured. The fire department shall provide a location for storage of helmets.</p> <p><b><u>CAB DOME LIGHTS</u></b></p> <p>There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed and located, one (1) on each side of the crew cab.</p> <p>The color of the LED's shall be red and white.</p> <p>The white LED's shall be controlled by the door switches and the lens switch.</p> <p>The color LED's shall be controlled by the lens switch.</p> <p>In order to ensure exceptional illumination, each white LED dome light shall provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.</p> <p><b><u>OVERHEAD MAP LIGHTS</u></b></p> <p>There shall be two (2) white halogen, round adjustable map lights installed in the cab:</p> <ul style="list-style-type: none"> <li>• One (1) overhead in front of the driving position.</li> <li>• One (1) overhead in front of the passenger's position.</li> </ul> <p>Each light shall include a switch on the light housing.</p> <p>The light switches shall be connected directly to the battery switched power.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>NFPA 1901, 2016 edition, section 5.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.</p> <p>The hand lights are not on the apparatus as manufactured. The fire department shall provide and mount these hand lights.</p> <p><b><u>CAB INSTRUMENTATION</u></b></p> <p>The cab instrument panel shall consist of gauges, an LCD display, telltale indicator lights, alarms, control switches, and a diagnostic panel. The function of instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section directly forward of the driver. Gauge and switch panels shall be designed to be removable for ease of service and low cost of ownership.</p> <p><b><u>GAUGES</u></b></p> <p>The gauge panel shall include the following ten (10) ivory gauges with chrome bezels to monitor vehicle performance:</p> <ul style="list-style-type: none"> <li>- Voltmeter gauge (Volts): <ul style="list-style-type: none"> <li>Low volts (11.8 VDC) <ul style="list-style-type: none"> <li>Amber indicator on gauge assembly with alarm</li> </ul> </li> <li>High volts (15 VDC) <ul style="list-style-type: none"> <li>Amber indicator on gauge assembly with alarm</li> </ul> </li> <li>Very low volts (11.3 VDC) <ul style="list-style-type: none"> <li>Amber indicator on gauge assembly with alarm</li> </ul> </li> <li>Very high volts (16 VDC) <ul style="list-style-type: none"> <li>Amber indicator on gauge assembly with alarm</li> </ul> </li> </ul> </li> <li>- Tachometer (RPM)</li> <li>- Speedometer (Primary (outside) km/H, Secondary (inside) MPH)</li> <li>- Fuel level gauge (Empty - Full in fractions): <ul style="list-style-type: none"> <li>Low fuel (1/8 full)</li> </ul> </li> </ul>		



	Bidder Complies	
	Yes	No
<p>Amber indicator on gauge assembly with alarm</p> <p>Very low fuel (1/32) fuel</p> <p>Amber indicator on gauge assembly with alarm</p> <p>- Engine oil pressure gauge (kPa):</p> <p>Low oil pressure to activate engine warning lights and alarms</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Front air pressure gauge (kPa):</p> <p>Low air pressure to activate warning lights and alarm</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Rear air pressure gauge (kPa):</p> <p>Low air pressure to activate warning lights and alarm</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Transmission oil temperature gauge (Celsius):</p> <p>High transmission oil temperature activates warning lights and alarm</p> <p>Amber indicator on gauge assembly with alarm</p> <p>- Engine coolant temperature gauge (Celsius):</p> <p>High engine temperature activates an engine warning light and alarm</p> <p>Red indicator on gauge assembly with alarm</p> <p>- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):</p> <p>Low fluid (1/8 full)</p> <p>Amber indicator on gauge assembly with alarm</p> <p>All gauges shall perform prove out at initial power-up to ensure proper performance.</p> <p><b><u>INDICATOR LAMPS</u></b></p> <p>To promote safety, the following telltale indicator lamps shall be integral to the gauge assembly and are located above and below the center gauges. The indicator lamps shall be "dead-front"</p>		

	Bidder Complies	
	Yes	No
<p>design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.</p> <p>The following amber telltale lamps shall be present:</p> <ul style="list-style-type: none"> <li>- Low coolant</li> <li>- Trac cntl (traction control) (where applicable)</li> <li>- Check engine</li> <li>- Check trans (check transmission)</li> <li>- Aux brake overheat (Auxiliary brake overheat)</li> <li>- Air rest (air restriction)</li> <li>- Caution (triangle symbol)</li> <li>- Water in fuel</li> <li>- DPF (engine diesel particulate filter regeneration)</li> <li>- Trailer ABS (where applicable)</li> <li>- Wait to start (where applicable)</li> <li>- HET (engine high exhaust temperature) (where applicable)</li> <li>- ABS (antilock brake system)</li> <li>- MIL (engine emissions system malfunction indicator lamp) (where applicable)</li> <li>- SRS (supplemental restraint system) fault (where applicable)</li> <li>- DEF (low diesel exhaust fluid level)</li> </ul> <p>The following red telltale lamps shall be present:</p> <ul style="list-style-type: none"> <li>- Warning (stop sign symbol)</li> <li>- Seat belt</li> <li>- Parking brake</li> <li>- Stop engine</li> <li>- Rack down</li> </ul>		

	Bidder Complies	
	Yes	No
<p>The following green telltale lamps shall be provided:</p> <ul style="list-style-type: none"> <li>- Left turn</li> <li>- Right turn</li> <li>- Battery on</li> </ul> <p>The following blue telltale lamp shall be provided:</p> <ul style="list-style-type: none"> <li>- High beam</li> </ul> <p><b><u>ALARMS</u></b></p> <p>Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning message is present.</p> <p>Audible pulsing tone caution alarm: A pulsing audible tone alarm (chime/chirp) shall be provided whenever a caution message is present without a warning message being present.</p> <p>Alarm silence: Any active audible alarm shall be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms shall intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp shall act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition shall enable the steady or pulsing tones respectively.</p> <p><b><u>INDICATOR LAMP AND ALARM PROVE-OUT</u></b></p> <p>Telltale indicators and alarms shall perform prove-out at initial power-up to ensure proper performance.</p> <p><b><u>CONTROL SWITCHES</u></b></p> <p>For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver.</p> <p>Emergency master switch: A molded plastic push button switch with integral indicator lamp shall be provided. Pressing the switch shall activate emergency response lights and siren control. A green lamp on the switch provides indication that the emergency master mode is active. Pressing the switch again disables the emergency master mode.</p> <p>Headlight / Parking light switch: A three (3)-position maintained rocker switch shall be provided. The first switch position shall deactivate all parking lights and the headlights. The second switch position shall activate the parking lights. The third switch position shall activate the headlights.</p>		

	Bidder Complies	
	Yes	No
<p>Panel backlighting intensity control switch: A three (3)-position momentary rocker switch shall be provided. The first switch position decreases the panel backlighting intensity to a minimum level as the switch is held. The second switch position is the default position that does not affect the backlighting intensity. The third switch position increases the panel backlighting intensity to a maximum level as the switch is held.</p> <p>The following standard controls shall be integral to the gauge assembly and are located below the right hand gauges. All switches have backlit labels for low light applications.</p> <p>High idle engagement switch: A two (2)-position momentary rocker switch with integral indicator lamp shall be provided. The first switch position is the default switch position. The second switch position shall activate and deactivate the high idle function when pressed and released. The "Ok To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch shall indicate when the high idle function is engaged.</p> <p>"Ok To Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.</p> <p>The following standard controls shall be provided adjacent to the cab gauge assembly within easy reach of the driver. All switches shall have backlit labels for low light applications.</p> <p>Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided. The first switch position shall deactivate vehicle ignition. The second switch position shall activate vehicle ignition. The third momentary position shall disable the Command Zone audible alarm if held for three (3) to five (5) seconds. A green indicator lamp shall be activated with vehicle ignition.</p> <p>Engine start switch: A two (2)-position momentary rocker switch shall be provided. The first switch position is the default switch position. The second switch position shall activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.</p> <p>4-way hazard switch: A two (2)-position maintained rocker switch shall be provided. The first switch position shall deactivate the 4-way hazard switch function. The second switch position shall activate the 4-way hazard function. The switch actuator shall be red and includes the international 4-way hazard symbol.</p> <p>Heater, defroster, and optional air conditioning control panel: A control panel with membrane switches shall be provided to control heater/defroster temperature and heater, defroster, and air conditioning fan speeds. A green LED status bar shall indicate the relative temperature and fan speed settings.</p>		

	Bidder Complies	
	Yes	No
<p>Turn signal arm: A self-canceling turn signal with high beam headlight and windshield wiper/washer controls shall be provided. The windshield wiper control shall have high, low, and intermittent modes.</p> <p>Parking brake control: An air actuated push/pull park brake control valve shall be provided.</p> <p>Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.</p> <p><b><u>CUSTOM SWITCH PANELS</u></b></p> <p>The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There shall be positions for up to four (4) switch panels in the overhead console on the driver's side, up to four (4) switch panels in the engine tunnel console facing the driver, up to four (4) switch panels in the overhead console on the officer's side and up to two (2) switch panels in the engine tunnel console facing the officer. All switches shall have backlit labels for low light applications.</p> <p><b><u>DIAGNOSTIC PANEL</u></b></p> <p>A diagnostic panel shall be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches shall allow ABS systems to provide blink codes should a problem exist.</p> <p>The diagnostic panel shall include the following:</p> <ul style="list-style-type: none"> <li>- Engine diagnostic port</li> <li>- Transmission diagnostic port</li> <li>- ABS diagnostic port</li> <li>- SRS diagnostic port (where applicable)</li> <li>- Command Zone USB diagnostic port</li> <li>- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)</li> <li>- Diesel particulate filter regeneration switch (where applicable)</li> <li>- Diesel particulate filter regeneration inhibit switch (where applicable)</li> </ul>		

	Bidder Complies	
	Yes	No
<p><b><u>CAB LCD DISPLAY</u></b></p> <p>A digital four (4)-row by 20-character dot matrix display shall be integral to the gauge panel. The display shall be capable of showing simple graphical images as well as text. The display shall be split into three (3) sections. Each section shall have a dedicated function. The upper left section shall display the outside ambient temperature.</p> <p>The upper right section shall display, along with other configuration specific information:</p> <ul style="list-style-type: none"> <li>- Odometer</li> <li>- Trip mileage</li> <li>- PTO hours</li> <li>- Fuel consumption</li> <li>- Engine hours</li> </ul> <p>The bottom section shall display INFO, CAUTION, and WARNING messages. Text messages shall automatically activate to describe the cause of an audible caution or warning alarm. The LCD shall be capable of displaying multiple text messages should more than one caution or warning condition exist.</p> <p><b><u>AIR RESTRICTION INDICATOR</u></b></p> <p>A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm shall be provided.</p> <p><b><u>"DO NOT MOVE APPARATUS" INDICATOR</u></b></p> <p>A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled "Do Not Move Apparatus If Light Is On."</p> <p>The same circuit that activates the Do Not Move Apparatus indicator shall activate a pulsing alarm when the parking brake is released.</p> <p><b><u>DO NOT MOVE TRUCK MESSAGES</u></b></p> <p>Messages shall be displayed on the gauge panel LCD located forward of the steering wheel directly in front of the driver whenever the Do Not Move Truck light is active. The messages shall designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).</p> <p>The following messages shall be displayed (where applicable):</p> <ul style="list-style-type: none"> <li>• Do Not Move Truck</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• DS Cab Door Open (Driver's Side Cab Door Open)</li> <li>• PS Cab Door Open (Passenger's Side Cab Door Open)</li> <li>• DS Crew Cab Door Open (Driver's Side Crew Cab Door Open)</li> <li>• PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)</li> <li>• DS Body Door Open (Driver's Side Body Door Open)</li> <li>• PS Body Door Open (Passenger's Side Body Door Open)</li> <li>• Rear Body Door Open</li> <li>• DS Ladder Rack Down (Driver's Side Ladder Rack Down)</li> <li>• PS Ladder Rack Down (Passenger's Side Ladder Rack Down)</li> <li>• Deck Gun Not Stowed</li> <li>• Lt Tower Not Stowed (Light Tower Not Stowed)</li> <li>• Hatch Door Open</li> <li>• Fold Tank Not Stowed (Fold-A-Tank Not Stowed)</li> <li>• Aerial Not Stowed (Aerial Device Not Stowed)</li> <li>• Stabilizer Not Stowed</li> <li>• Steps Not Stowed</li> <li>• Handrail(s) Not Stowed</li> </ul> <p>Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved shall be displayed as a caution message after the parking brake is disengaged.</p> <p><b><u>SWITCH PANELS</u></b></p> <p>The emergency light switch panel shall have a master switch for ease of use plus individual switches for selective control. Each switch panel shall contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments shall include non-functioning black appliques. Documentation shall be provided by the manufacturer indicating the rated cycle life of the switches. The switch panel(s) shall be located in the overhead position above the windshield on the driver side overhead to allow for easy access.</p> <p>Additional switch panel(s) shall be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.</p> <p>The switches shall be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch shall be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch shall flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved label indicating the use</p>		

Bidder Complies	
Yes	No

of each switch shall be placed in the center of the switch. The label shall allow light to pass through the letters for ease of use in low light conditions.

**WIPER CONTROL**

For simple operation and easy reach, the windshield wiper control shall be an integral part of the directional light lever located on the steering column. The wiper control shall include high and low wiper speed settings, a one (1)-speed intermittent wiper control and windshield washer switch. The control shall have a "return to park" provision, which allows the wipers to return to the stored position when the wipers are not in use.

**SPARE CIRCUIT**

There shall be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power
- The negative wire shall be connected to ground
- Wires shall be protected to 15 amps at 12 volts DC
- Power and ground shall terminate officer side dash area
- Termination shall be with 15 amp, power point plug with rubber cover
- Wires shall be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

**INFORMATION CENTER**

A LCD display integral to the cab gauge panel shall be included as outlined in the cab instrumentation area. The LCD display shall be programmed to read US Customary.

**VEHICLE DATA RECORDER**

There shall be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec



	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Deceleration - MPH/sec</li> <li>• Engine Speed - RPM</li> <li>• Engine Throttle Position - % of Full Throttle</li> <li>• ABS Event - On/Off</li> <li>• Seat Occupied Status - Yes/No by Position</li> <li>• Seat Belt Buckled Status - Yes/No by Position</li> <li>• Master Optical Warning Device Switch - On/Off</li> <li>• Time - 24 Hour Time</li> <li>• Date - Year/Month/Day</li> </ul> <p><b><u>Seat Belt Monitoring System</u></b></p> <p>A seat belt monitoring system (SBMS) shall be provided. The SBMS shall be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:</p> <ul style="list-style-type: none"> <li>• Seat Occupied &amp; Buckled = Green LED indicator illuminated</li> <li>• Seat Occupied &amp; Unbuckled = Red LED indicator with audible alarm</li> <li>• No Occupant &amp; Buckled = Red LED indicator with audible alarm</li> <li>• No Occupant &amp; Unbuckled = No indicator and no alarm</li> </ul> <p>The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.</p> <p><b><u>VEHICLE CAMERA SYSTEM</u></b></p> <p>There shall be a color vehicle camera system provided with the following:</p> <ul style="list-style-type: none"> <li>• One (1) camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.</li> </ul> <p>The camera image shall be displayed on a 7.00" LCD display located in view of the driver on the dash. The display shall include manual camera activation capability and audio from the active camera.</p> <p>The following components shall be included:</p> <ul style="list-style-type: none"> <li>• One (1) display</li> <li>• One (1) camera</li> <li>• All necessary cables</li> </ul> <p><b><u>RECESS REAR CAMERA</u></b></p> <p>A rear camera recess shall be provided to the driver side rear.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>ELECTRICAL POWER CONTROL SYSTEM</u></b></p> <p>The primary power distribution shall be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers shall be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers shall be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers shall be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays shall be easily accessible.</p> <p>Distribution centers located throughout the vehicle shall contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.</p> <p>Circuit protection devices, which conform to SAE standards, shall be utilized to protect electrical circuits. All circuit protection devices shall be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting). When required, automotive type fuses shall be utilized to protect electronic equipment. Control relays and solenoid shall have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.</p> <p><b><u>SOLID-STATE CONTROL SYSTEM</u></b></p> <p>A solid-state electronics based control system shall be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network shall consist of electronic modules located near their point of use to reduce harness lengths and improve reliability. The control system shall comply with SAE J1939-11 recommended practices.</p> <p>The control system shall operate as a master-slave system whereas the main control module instructs all other system components. The system shall contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system shall utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.</p> <p>For increased reliability and simplified use the control system modules shall include the following attributes:</p> <ul style="list-style-type: none"> <li>• Green LED indicator light for module power</li> <li>• Red LED indicator light for network communication stability status</li> <li>• Control system self test at activation and continually throughout vehicle operation</li> <li>• No moving parts due to transistor logic</li> <li>• Software logic control for NFPA mandated safety interlocks and indicators</li> <li>• Integrated electrical system load management without additional components</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Integrated electrical load sequencing system without additional components</li> <li>• Customized control software to the vehicle's configuration</li> <li>• Factory and field re programmable to accommodate changes to the vehicle's operating parameters</li> <li>• Complete operating and troubleshooting manuals</li> <li>• USB connection to the main control module for advanced troubleshooting</li> </ul> <p>To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules shall meet the following specifications:</p> <ul style="list-style-type: none"> <li>• Module circuit board shall meet SAE J771 specifications</li> <li>• Operating temperature from -40C to +70C</li> <li>• Storage temperature from -40C to +70C</li> <li>• Vibration to 50g</li> </ul> <p>IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)</p> <p>Operating voltage from eight (8) volts to 16 volts DC</p> <p>The main controller shall activate status indicators and audible alarms designed to provide warning of problems before they become critical.</p> <p><b><u>CIRCUIT PROTECTION AND CONTROL DIAGRAM</u></b></p> <p>Copies of all job-specific, computer network input and output (I/O) connections shall be provided with each chassis. The sheets shall indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.</p> <p><b><u>ON-BOARD ELECTRICAL SYSTEM DIAGNOSTICS</u></b></p> <p>Advanced on-board diagnostic messages shall be provided to support rapid troubleshooting of the electrical power and control system. The diagnostic messages shall be displayed on the information center located at the driver's position.</p> <p>The on-board information center shall include the following diagnostic information:</p> <ul style="list-style-type: none"> <li>• Text description of active warning or caution alarms</li> <li>• Simplified warning indicators</li> <li>• Amber caution indication with intermittent alarm</li> <li>• Red warning indication with steady tone alarm</li> </ul>		

	Bidder Complies	
	Yes	No
<p><b><u>TECH MODULE WITH WIFI</u></b></p> <p>An in cab module shall provide WiFi wireless interface and data logging capability (no exception). The WiFi interface shall comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module shall provide an external antenna connection allowing a line of site communication range of up to 300 feet with a roof mounted antenna.</p> <p>The module shall transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level shall allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level shall allow diagnostic access to inputs and outputs installed on the control and information system.</p> <p>The data logging capability shall record faults from the engine, transmission, ABS and control and information systems as they occur. No other data shall be recorded at the time the fault occurs. The data logger shall provide up to 2 Gigabytes of data storage.</p> <p>A USB connection shall be provided on the Tech Module. It shall provide a means to download data logger information and update software in the device.</p> <p><b><u>PROGNOSTICS</u></b></p> <p>A software based vehicle tool shall be provided to predict remaining life of the vehicles critical fluid and events (no exception).</p> <p>The system shall send automatic indications to the color display and/or wireless enabled device to proactively alert of upcoming service intervals.</p> <p>Prognostics shall include:</p> <ul style="list-style-type: none"> <li>• Engine oil and filter</li> <li>• Transmission oil and filter</li> <li>• Pump oil (if equipped)</li> <li>• Foam oil (if equipped)</li> <li>• Aerial oil and filter (if equipped)</li> </ul> <p><b><u>ADVANCED DIAGNOSTICS</u></b></p> <p>An advanced, Windows-based, diagnostic software program shall be provided for this control system. The software shall provide troubleshooting tools to service technicians equipped with a Windows-based computer or wireless enabled device.</p> <p>The service and maintenance software shall be easy to understand and use and have the ability to view system input/output (I/O) information.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>INDICATOR LIGHT AND ALARM PROVE-OUT SYSTEM</u></b></p> <p>A system shall be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.</p> <p><b><u>VOLTAGE MONITOR SYSTEM</u></b></p> <p>A voltage monitoring system shall be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system shall provide visual and audible warning when the system voltage is below or above optimum levels.</p> <p>The alarm shall activate if the system falls below 11.8 volts DC for more than two (2) minutes.</p> <p><b><u>DEDICATED RADIO EQUIPMENT CONNECTION POINTS</u></b></p> <p>There shall be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment.</p> <p>The studs shall consist of the following:</p> <ul style="list-style-type: none"> <li>• 12-volt 40-amp battery switched power</li> <li>• 12-volt 60-amp ignition switched power</li> <li>• 12-volt 60-amp direct battery power</li> </ul> <p>There shall also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.</p> <p><b><u>ENHANCED SOFTWARE</u></b></p> <p>The solid-state control system shall include the following software enhancements:</p> <p>All perimeter lights and scene lights (where applicable) shall be deactivated when the parking brake is released.</p> <p>Cab and crew cab dome lights shall remain on for ten (10) seconds for improved visibility after the doors close. The dome lights shall dim after ten (10) seconds or immediately if the vehicle is put into gear.</p> <p>Cab and crew cab perimeter lights shall remain on for ten (10) seconds for improved visibility after the doors close. The dome lights shall dim after ten (10) seconds or immediately if the vehicle is put into gear.</p> <p><b><u>EMI/RFI PROTECTION</u></b></p> <p>To prevent erroneous signals from crosstalk contamination and interference, the electrical system shall meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system shall be used to ensure radiated and</p>		

	Bidder Complies	
	Yes	No
<p>conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.</p> <p>The apparatus shall have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system shall meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, shall provide EMC testing reports from testing conducted on an entire apparatus and shall certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10Khz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.</p> <p>EMI/RFI susceptibility shall be controlled by applying appropriate circuit designs and shielding. The electrical system shall be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.</p> <p><b><u>ELECTRICAL</u></b></p> <p>All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.</p> <p>Electrical wiring and equipment shall be installed utilizing the following guidelines:</p> <ol style="list-style-type: none"> <li>1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.</li> <li>2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.</li> <li>3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.</li> </ol>		

	Bidder Complies	
	Yes	No
<p>4. 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>5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.</p> <p>6. All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal.</p> <p>All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights 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>The results of the tests shall be recorded and provided to the purchaser at time of delivery.</p> <p><b><u>BATTERY SYSTEM</u></b></p> <p>There shall be four (4) 12 volt batteries that include the following features shall be provided:</p> <ul style="list-style-type: none"> <li>• 950 CCA, cold cranking amps</li> <li>• 190 amp reserve capacity</li> <li>• High cycle</li> <li>• Group 31</li> <li>• Rating of 3800 CCA at 0 degrees Fahrenheit</li> <li>• 760 minutes of reserve capacity</li> <li>• Threaded stainless steel studs</li> </ul> <p>Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45 degree tilt capacity.</p> <p>The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.</p> <p><b><u>BATTERY SYSTEM</u></b></p> <p>There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>MASTER BATTERY SWITCH</u></b></p> <p>There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.</p> <p>An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.</p> <p><b><u>BATTERY COMPARTMENTS</u></b></p> <p>The batteries shall be stored in well-ventilated compartments that are located under the cab and bolted directly to the chassis frame. The battery compartments shall be constructed of 3/16" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The compartments shall include formed fit heavy-duty roto-molded polyethylene battery tray inserts with drains on each side of the frame rails. The batteries shall be mounted inside of the roto-molded trays.</p> <p><b><u>JUMPER STUDS</u></b></p> <p>One (1) set of battery jumper studs with plastic color-coded covers shall be installed on the battery box on the driver's side. This shall allow enough room for easy jumper cable access.</p> <p><b><u>BATTERY CHARGER</u></b></p> <p>There shall be a battery charger with controller provided.</p> <p>The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.</p> <p>There shall be a remote indicator included.</p> <p>The battery charger shall be located in the left body compartment mounted on the left wall as high as possible.</p> <p>The battery charger indicator shall be located behind the driver's door on the outside of the cab.</p> <p><b><u>AUTO EJECT FOR SHORELINE</u></b></p> <p>There shall be one (1) 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.</p> <p>The shoreline inlet(s) shall include red weatherproof flip up cover(s).</p> <p>There shall be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.</p> <p>The shoreline(s) shall be connected to the battery charger.</p> <p>There shall be a mating connector body supplied with the loose equipment.</p>		



	Bidder Complies	
	Yes	No
<p>There shall be a label installed near the inlet(s) that state the following:</p> <ul style="list-style-type: none"> <li>• Line Voltage</li> <li>• Current Rating (amps)</li> <li>• Phase</li> <li>• Frequency</li> </ul> <p>The shoreline receptacle shall be located on the driver side of cab, above wheel.</p> <p><b><u>ALTERNATOR</u></b></p> <p>An alternator shall be provided that has a rated output current of 430 amps, as measured by SAE method J56. The alternator shall feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.</p> <p><b><u>ELECTRONIC LOAD MANAGER</u></b></p> <p>An electronic load management (ELM) system shall be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.</p> <p>For improved reliability and ease of use, the load manager system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components shall not be allowed.</p> <p>The system shall include the following features:</p> <ul style="list-style-type: none"> <li>• System voltage monitoring.</li> <li>• A shed load shall remain inactive for a minimum of five minutes to prevent the load from cycling on and off.</li> <li>• Sixteen available electronic load shedding levels.</li> <li>• Priority levels can be set for individual outputs.</li> <li>• High Idle to activate before any electric loads are shed and deactivate with the service brake. <ul style="list-style-type: none"> <li>○ If enabled: <ul style="list-style-type: none"> <li>▪ "Load Man Hi-Idle On" shall display on the information center.</li> <li>▪ Hi-Idle shall not activate until 30 seconds after engine start up.</li> </ul> </li> </ul> </li> <li>• Individual switch "on" indicator to flash when the particular load has been shed.</li> <li>• The information center indicates system voltage.</li> </ul>		

	Bidder Complies	
	Yes	No
<p>The information center, where applicable, includes a "Load Manager" screen indicating the following:</p> <ul style="list-style-type: none"> <li>• Load managed items list, with priority levels and item condition.</li> <li>• Individual load managed item condition: <ul style="list-style-type: none"> <li>○ ON = not shed</li> <li>○ SHED = shed</li> </ul> </li> </ul> <p><b><u>SEQUENCER</u></b></p> <p>A sequencer shall be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation shall allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.</p> <p>For improved reliability and ease of use, the load sequencing system shall be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components shall not be allowed.</p> <p>Emergency light sequencing shall operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights shall be activated one by one at half-second intervals. Sequenced emergency light switch indicators shall flash while waiting for activation.</p> <p>When the emergency master switch is deactivated, the sequencer shall deactivate the warning light loads in the reverse order.</p> <p>Sequencing of the following items shall also occur, in conjunction with the ignition switch, at half-second intervals:</p> <ul style="list-style-type: none"> <li>• Cab Heater and Air Conditioning</li> <li>• Crew Cab Heater (if applicable)</li> <li>• Crew Cab Air Conditioning (if applicable)</li> <li>• Exhaust Fans (if applicable)</li> <li>• Third Evaporator (if applicable)</li> </ul> <p><b><u>HEADLIGHTS</u></b></p> <p>There shall be four (4) rectangular LED lights mounted in the front quad style, chrome trim housing on each side of the cab grille:</p> <ul style="list-style-type: none"> <li>• The outside light on each side shall contain an LED low beam module.</li> <li>• The inside light on each side shall contain an LED high beam module.</li> </ul>		

Bidder Complies	
Yes	No

**DIRECTIONAL LIGHTS**

There shall be two (2) LED combination directional/marker lights provided. The lights shall be located on the outside cab corners, next to the headlights.

The color of the lenses shall be clear.

**INTERMEDIATE LIGHT**

There shall be two (2) amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light shall double as a turn signal and marker light.

**REAR CLEARANCE/MARKER/ID LIGHTING**

There shall be three (3) LED lights used as identification lights located at the rear of the apparatus per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There shall be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There shall be two (2) LED lights installed on the side of the apparatus as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

	Bidder Complies	
	Yes	No
<p>There shall be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>There shall be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.</p> <p>Per FMVSS 108 and CMVSS 108 requirements.</p> <p><b><u>CAB CLEARANCE/MARKER/ID LIGHTS</u></b></p> <p>There shall be seven (7) amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:</p> <ul style="list-style-type: none"> <li>• Three (3) amber LED identification lights shall be installed in the center of the cab above the windshield.</li> <li>• Two (2) amber LED clearance lights shall be installed, one (1) on each outboard side of the cab above the windshield.</li> <li>• Two (2) amber LED marker lights shall be installed, one (1) on each side above the cab doors.</li> </ul> <p><b><u>REAR FMVSS LIGHTING</u></b></p> <p>There shall be two (2) wrap around tri-cluster LED modules provided on the face of the rear body compartments.</p> <p>Each tri-cluster shall include the following:</p> <ul style="list-style-type: none"> <li>• One (1) LED stop/tail light</li> <li>• One (1) LED directional light</li> <li>• One (1) LED backup light</li> </ul> <p><b><u>LICENSE PLATE BRACKET</u></b></p> <p>There shall be one (1) license plate bracket mounted on the rear of the body.</p> <p>A white LED light shall illuminate the license plate. A polished stainless steel light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.</p> <p><b><u>BACK-UP ALARM</u></b></p> <p>A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided. The device shall sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>CAB PERIMETER SCENE LIGHTS</u></b></p> <p>There shall be four (4) 20.00" white LED strip lights provided, one (1) for each cab door.</p> <p>These lights shall be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.</p> <p><b><u>PUMP HOUSE PERIMETER LIGHTS</u></b></p> <p>There shall be two (2) 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.</p> <p>The lights shall be controlled by the same means as the body perimeter lights.</p> <p><b><u>BODY PERIMETER SCENE LIGHTS</u></b></p> <p>There shall be two (2) 20.00" 12 volt DC LED strip lights provided at the rear step area of the body, one (1) each side shining to the rear.</p> <p>The perimeter scene lights shall be activated when the parking brake is applied.</p> <p><b><u>STEP LIGHTS</u></b></p> <p>There shall be two (2) LED step lights shall be provided at the rear to illuminate the tailboard/step area.</p> <p>In order to ensure exceptional illumination, each light shall provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.</p> <p>These step lights shall be actuated with the perimeter scene lights.</p> <p>All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.</p> <p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be two (2) 12 volt LED surface mounted scene light(s) with white bezel(s) provided one (1) each side high and rearward of cab doors.</p> <p>The light(s) shall be controlled in the following way:</p> <ul style="list-style-type: none"> <li>• a switch at the driver's side switch panel</li> <li>• a switch at the pump operator's panel</li> <li>• no additional switch location</li> <li>• no additional switch location</li> </ul> <p>The light(s) may be load managed when the parking brake is applied.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be two (2) 12 volt LED surface mounted scene light(s) with white bezel(s) provided one (1) high and rearward on driver's side body and one (1) high and rearward on passenger's side body.</p> <p>The light(s) shall be controlled in the following way:</p> <ul style="list-style-type: none"> <li>• a switch at the driver's side switch panel</li> <li>• a switch at the pump operator's panel</li> <li>• no additional switch location</li> <li>• no additional switch location</li> </ul> <p>The light(s) may be load managed when the parking brake is applied.</p> <p><b><u>12 VOLT LIGHTING</u></b></p> <p>There shall be one (1) 12 volt LED floodlight(s) provided on the front visor, centered.</p> <p>The painted parts of this light assembly to be white with a chrome bezel.</p> <p>The light(s) shall be controlled in the following way:</p> <ul style="list-style-type: none"> <li>• a switch at the driver's side switch panel</li> <li>• a switch at the pump operator's panel</li> <li>• no additional switch location</li> </ul> <p>These lights may be load managed when the parking brake is applied.</p> <p><b><u>REAR WORK LIGHTS</u></b></p> <p>There shall be one (1) pair of white 12 volt DC LED scene lights installed at the rear of the body to the outside of the rear compartment. The lights shall be directed down ward by a 40 degree angle and mounted with a chrome flange.</p> <p>The lights shall be controlled by a activated when the parking brake is activated.</p> <p><b><u>HOSE BED LIGHTS</u></b></p> <p>There shall be four (4) 2.63" white 12 volt DC LED lights provided to illuminate the hose bed area.</p> <ul style="list-style-type: none"> <li>• One (1) light shall be installed on the driver's side of the hose bed 24.00" from the front and as high as practical.</li> <li>• One (1) light shall be installed on the passenger's side of the hose bed, as high as practical and evenly spaced between both lights installed on the driver's side of the hose bed.</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• One (1) light shall be installed on the driver's side of the hose bed, as high as practical and evenly spaced between both lights installed on the passenger's side of the hose bed.</li> <li>• One (1) light shall be installed on the passenger's side of the hose bed 36.00" from the end and as high as practical. This light shall also be angled into the hose bed 30 degrees to keep much of the light from shining into ground personals eyes.</li> </ul> <p>The lights shall be activated by a cup switch at the rear of the apparatus no more than 62.00" from the ground.</p> <p><b><u>REAR SCENE LIGHT(S)</u></b></p> <p>There shall be two (2) LED scene light(s) with chrome trim bezel(s) installed at the rear of the apparatus, one (1) each side mid height on rear body bulkhead.</p> <p>The light(s) shall be controlled by a switch at the driver's side switch panel and by a switch at the driver's side pump panel.</p> <p>The light(s) may be load managed when the parking brake is applied.</p> <p><b><u>WALKING SURFACE LIGHT</u></b></p> <p>There shall be 4" round black 12 volt DC LED floodlight with bolt mount provided to illuminate the entire designated walking surface on top of the body.</p> <p>The light shall be activated when the body step lights are on.</p> <p><b><u>WATER TANK</u></b></p> <p>Booster tank shall have a capacity of 750 gallons and be constructed of UV stabilized ultra-high impact polypropylene plastic by a manufacturer with a minimum of 20 years' experience building tanks, is ISO 9001:2000 certified in all its manufacturing facilities, and has over 50,000 tanks in service.</p> <p>The booster tank shall be a form-fitting design that serves to keep the tank height as low as possible. The tank shall be no wider than 39.00" at the base to allow for greater compartment depth and no wider than 53.00" at the top.</p> <p>Tank joints and seams shall be nitrogen welded inside and out.</p> <p>Tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.</p> <p>Baffles shall have vent openings at both the top and bottom to permit movement of air and water between compartments.</p> <p>Longitudinal partitions shall extend from 4.00" off the bottom of the tank to the underside of the top cover.</p>		

	Bidder Complies	
	Yes	No
<p>All partitions shall interlock and shall be welded to the tank bottom and sides.</p> <p>Tank top shall be constructed of .50" polypropylene. It shall be recessed .38" and shall be welded to the tank sides and the longitudinal partitions.</p> <p>Tank top shall be sufficiently supported to keep it rigid during fast filling conditions.</p> <p>Construction shall include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two (2) of the dowels shall be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes.</p> <p>A sump that is 8.00" long x 8.00" wide x 6.00" deep shall be provided at the bottom of the water tank.</p> <p>Sump shall include a drain plug and the tank outlet.</p> <p>Tank shall be installed in a fabricated cradle assembly constructed of structural steel.</p> <p>Sufficient crossmembers shall be provided to properly support bottom of tank. Crossmembers shall be constructed of steel bar channel or rectangular tubing.</p> <p>Tank shall "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on.</p> <p>Stops or other provision shall be provided to prevent an empty tank from bouncing excessively while moving vehicle.</p> <p>Mounting system shall be approved by the tank manufacturer.</p> <p>Fill tower shall be constructed of .50" polypropylene and shall be a minimum of 8.00" wide x 14.00" long.</p> <p>Fill tower shall be furnished with a .25" thick polypropylene screen and a hinged cover.</p> <p>An overflow pipe, constructed of 4.00" schedule 40 polypropylene, shall be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.</p> <p>One (1) sleeve shall be provided in the water tank for a 3.00" pipe to the rear.</p> <p><b><u>BODY HEIGHT</u></b></p> <p>The height of the body shall be 89.00" from the bottom of the body to the top of the body.</p>		



	Bidder Complies	
	Yes	No
<p><b><u>HOSE BED</u></b></p> <p>The hose bed shall be fabricated of .125"-5052 aluminum with a nominal 38,000 psi tensile strength.</p> <p>Flooring of the hose bed shall be removable aluminum grating with the top surface corrugated to aid in hose aeration. The grating slats shall be a minimum of 0.50" x 4.50" with spacing between slats for hose ventilation.</p> <p>Hose bed shall accommodate 1000' of 5.00" and 1000' of 2.50" Hose.</p> <p><b><u>HOSE BED DIVIDER</u></b></p> <p>Two (2) adjustable hosebed dividers shall be furnished for separating hose.</p> <p>Each divider shall be constructed of a .125" brushed aluminum sheet fitted and fastened into a slotted, 1.50" diameter radiuses extrusion along the top, bottom, and rear edge.</p> <p>Divider shall be fully adjustable by sliding in tracks, located at the front and rear of the hose bed.</p> <p>Divider shall be held in place by tightening bolts, at each end.</p> <p>Acorn nuts shall be installed on all bolts in the hose bed which have exposed threads.</p> <p><b><u>HOSE BED HOSE RESTRAINT</u></b></p> <p>The hose in the hose bed shall be restrained by a black nylon hook and loop strap at the top of the hose bed. At the rear of the hose bed, 2.00" black nylon webbing with a 1.50" x 4.00" box pattern shall attach at the top rear outside corners with seat belt buckle fasteners. The webbing shall have straps connected with seat belt buckle fasteners located at the rear body sheet below the hose bed.</p> <p><b><u>RUNNING BOARDS</u></b></p> <p>A running board shall be provided on each side of the front body to allow access to the backboard/crosslay storage area. The running boards shall be designed with a grip pattern punched into .125" bright aluminum treadplate material providing support, slip resistance, and drainage.</p> <p>The running board shall have a flip out section design that allows easier access to the full width equipment area above. The flip out section shall be tied to the "do not move truck indicator" with a sensor when it is flipped out. There shall be a latch provided that secures the flip out section when not in use.</p> <p><b><u>TAILBOARD</u></b></p> <p>The tailboard shall be constructed of .125" bright aluminum treadplate and spaced .50" from the body, as well as supported by a structural steel assembly.</p>		

	Bidder Complies	
	Yes	No
<p>The tailboard area shall be 12.00" deep and full width of the body.</p> <p>The exterior side shall be flanged down and in for increased rigidity of tailboard structure.</p> <p><b><u>REAR WALL, BODY MATERIAL, PUC</u></b></p> <p>The rear wall shall be smooth and the same material as the body.</p> <p>The rear wall body material shall be painted. Unpainted aluminum overlays shall be provided to allow for chevron application and to provide continuously smooth rear wall panels.</p> <p>The outboard edges of the rear wall shall be trimmed in polished stainless steel.</p> <p><b><u>TOW BAR</u></b></p> <p>A tow bar shall be installed under the tailboard at center of truck.</p> <p>Tow bar shall be fabricated of 1.00" CRS bar rolled into a 3.00" radius.</p> <p>Tow bar assembly shall be constructed of .38" structural angle. When force is applied to the bar, it shall be transmitted to the frame rail.</p> <p>Tow bar assembly shall be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 lb, or a 20,000 lb straight horizontal pull in line with the centerline of the vehicle.</p> <p>Tow bar design shall have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.</p> <p><b><u>COMPARTMENTATION</u></b></p> <p>The apparatus body shall be built of aluminum construction using a minimum of .125" thick, 5052-H32 aluminum.</p> <p>The body panel assembly shall be constructed in a fixture and consist of formed sheet metal for the front and rear bulkheads, door frames, floors, ceilings, and back walls. These parts shall be welded together to ensure greatest longevity with no visible welds in compartment interior.</p> <p>Welded construction shall consist of 1.00" x .38" engineered plug weld holes that control the size, location, and the amount of weld required. The bodies shall be assembled and welded from engineered prints that call out the size, location, and type of weld required.</p> <p>In structural areas the sheet metal components shall have flanges for welding. No butt joints shall be allowed. Gussets and support posts shall be provided for additional strength where needed.</p> <p>The fender panel shall be an integral part of the complete welded body assembly. All light and compartment holes are pre punched prior to construction to provide accuracy and rounded corners to prevent stress risers in the material.</p>		

	Bidder Complies	
	Yes	No
<p>Circular fender liners shall be provided. For prevention of paint chips and ease of suspension maintenance the fender liners shall be formed from brush finished 304L stainless steel, be unpainted, and removable for suspension maintenance (no exception).</p> <p>Compartment flooring shall be of the sweep out design with the floor minimum of 1.00" higher than the compartment door lip.</p> <p>Drip protection shall be provided above the doors by means of aluminum extrusion, or formed bright aluminum treadplate.</p> <p>The top of the compartment shall be sheet metal and covered with bright aluminum treadplate rolled over the edges on the front, and rear. These covers shall have the corners welded.</p> <p>The aluminum treadplate covers shall not make up the ceiling of the compartment (no exception).</p> <p>All screws and bolts, which are not Grade 8, shall be stainless steel and where they protrude into a compartment shall have acorn nuts on the ends to prevent injury.</p> <p><b><u>UNDERBODY SUPPORT SYSTEM</u></b></p> <p>Due to the severe loading requirements of this pumper a method of body and compartment support suitable for the intended load shall be provided.</p> <p>The backbone of the body support system shall begin with the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads. The support system shall include lateral frame rail extensions that are formed from .375" 80k high strength steel and bolted to the chassis frame rails with .625" diameter Grade 8 bolts.</p> <p>The vertical and horizontal members of the frame rail extensions are to be reinforced with welded gussets and extend to the outside edge of the body. The lateral frame extensions shall be electro-coated for superior corrosion resistance.</p> <p>The floating substructure shall be separated from the lateral frame extensions with neoprene elastomer isolators. These isolators shall reduce the natural flex stress of the chassis from being transmitted to the body, and absorb road shock and vibration.</p> <p>The isolators shall have a broad load range, proven viability in vehicular applications, be of a failsafe design and allow for all necessary movement in three (3) transitional and rotational modes.</p> <p>The neoprene isolators shall be installed in a modified V three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body. Two (2) 3.50" diameter isolators are provided at the front of the body near the centerline of the vehicle above the chassis</p>		

	Bidder Complies	
	Yes	No
<p>frame. A minimum of eight (8) - 2.55" diameter isolators shall be provided, two (2) under each front compartment and two (2) under each rear side compartment. A minimum of four (4) 3.50" diameter isolators shall be provided under the rear compartment.</p> <p>A design with body compartments simply hanging/sitting on the chassis in an unsupported (cantilever) fashion shall not be acceptable.</p> <p><b><u>AGGRESSIVE WALKING SURFACE</u></b></p> <p>All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards. Documentation of the material meeting the standard shall be provided at time of delivery.</p> <p><b><u>LOUVERS</u></b></p> <p>All body compartments shall have a minimum of one (1) set of automotive style, dust resistant louvers pressed into a wall. The louvers shall incorporate a one (1)-way rubber valve that provides airflow out of the compartment and prevents water and dirt from gaining access to the compartment. Compartments over the wheel shall not have louvers.</p> <p><b><u>TESTING OF BODY DESIGN</u></b></p> <p>Body structural analysis shall be fully tested. Proven engineering and test techniques such as finite element analysis and strain gauging have been performed with special attention given to fatigue life and structural integrity of the body and substructure.</p> <p>The body shall be tested while loaded to its greatest in-service weight.</p> <p>The criteria used during the testing procedure shall include:</p> <ul style="list-style-type: none"> <li>- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.</li> <li>- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.</li> <li>- Driving the vehicle on at 35 mph on a washboard road.</li> <li>- Driving the vehicle at 55 mph on a smooth road.</li> <li>- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.</li> </ul> <p>Evidence of the actual testing techniques shall be made available upon request.</p> <p>FEA shall have been performed on all substructure components.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>COMPARTMENTATION, DRIVER'S SIDE</u></b></p> <p>A full height, roll-up door compartment ahead of the rear wheels shall be provided. The pump operator's panel shall be located in this compartment. The interior dimensions of this compartment shall be 62.00" wide x 53.50" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment shall be 59.00" wide x 53.50" high.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>A roll-up door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be 60.00" wide x 22.75" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The clear door opening of this compartment shall be 57.00" wide x 22.75" high.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>A full height, roll-up door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be 52.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment shall be 49.00" wide x 54.50" high.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>All compartments shall include a drip pan below the roll of the door.</p> <p><b><u>COMPARTMENTATION, PASSENGER'S SIDE</u></b></p> <p>A full height, jump off compartment with a roll-up door ahead of the rear wheels shall be provided, as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment shall be 62.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The compartment interior shall be fully open from the compartment ceiling to the compartment</p>		

	Bidder Complies	
	Yes	No
<p>floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment shall be 59.00" wide x 54.50 high.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>A roll-up door compartment over the rear wheels shall be provided. The interior dimensions of this compartment shall be 60.00" wide x 23.00" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The clear door opening of this compartment shall be 57.00" wide x 23.00" high.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>A full height, roll-up door compartment behind the rear wheels shall be provided. The interior dimensions of this compartment shall be 52.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool shall be notched for exterior storage or larger capacity water tank tee. The depth of the compartment shall be calculated with the compartment door closed. The compartment interior shall be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment shall be 49.00" wide x 54.50" high.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p>All compartments shall include a drip pan below the roll of the door.</p> <p><b><u>ROLLUP DOOR, SIDE COMPARTMENTS</u></b></p> <p>There shall be six (6) compartment doors installed on the side compartments. The doors shall be double faced aluminum construction and painted one (1) color to match the lower portion of the body.</p> <p>Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door.</p> <p>Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene.</p> <p>All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic shall not be acceptable.</p>		

	Bidder Complies	
	Yes	No
<p>A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.</p> <p>Doors shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surfaces shall be concave to provide strength and prevent loose equipment from jamming the door from inside.</p> <p>To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be acceptable.</p> <p>The header for the rollup door assembly shall not exceed 4.00".</p> <p>A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.</p> <p><b><u>COMPARTMENTATION, REAR</u></b></p> <p>A roll-up door compartment above the rear tailboard shall be provided.</p> <p>Interior dimensions of this compartment shall be approximately 36.75" wide x 42.38" high x 25.88" deep in the lower 33.75" of height and 15.75" deep in the remaining upper portion. Depth of the compartment shall be calculated with the compartment door closed.</p> <p>A removable access panel shall be furnished on the back wall of the compartment.</p> <p>Rear compartment shall be open to the rear side compartments. The transverse opening shall be a minimum of approximately 22.00" wide x 28.75" high.</p> <p>Clear door opening of this compartment shall be 33.50" wide x 33.75" high.</p> <p>Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one hand.</p> <p><b><u>ROLLUP DOOR, REAR COMPARTMENT</u></b></p> <p>The rear compartment shall have a rollup door. The door shall be double faced aluminum construction and an anodized satin finish.</p> <p>Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door.</p> <p>Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene.</p>		

	Bidder Complies	
	Yes	No
<p>All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic shall not be acceptable.</p> <p>A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.</p> <p>Door shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surface shall be concave to provide strength and prevent loose equipment from jamming the door from inside.</p> <p>To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be acceptable.</p> <p>The header for the rollup door assembly shall not exceed 4.00".</p> <p>A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.</p> <p><b><u>COMPARTMENT LIGHTING</u></b></p> <p>There shall be seven (7) compartment(s) with two (2) LED compartment light strips. The dual light strips shall be centered vertically along each side of the door framing. There shall be two (2) light strips per compartment. The dual light strips shall be in compartment(s): all body compartments.</p> <p>Any remaining compartments without light strips shall have a 6.00" diameter light.</p> <p>Opening the compartment door shall automatically turn the compartment lighting on.</p> <p><b><u>HATCH COMPARTMENTS</u></b></p> <p>Hatch compartments with two (2) lift-up, top opening hatch doors shall be provided above the driver and passenger side body compartments. Each hatch compartment shall extend the full length of the side body compartmentation x 21.00" wide x 19.00" maximum depth. The compartments shall extend the full length of the side body compartmentation except for a 20.00" recessed step area at the rear of the compartment on the access ladder side.</p> <p>Sides of the compartments shall be constructed of the same material as the body and painted job color on the outside panels.</p> <p>Top of the compartments shall be constructed of bright aluminum treadplate.</p> <p>Two (2) lift-up, bright aluminum treadplate doors shall be provided on the top of each hatch compartment. Each door shall have a lever handle with a slam style latch to hold the doors in the closed position.</p>		



	Bidder Complies	
	Yes	No
<p>These double pan doors shall have lipped edges with a rubber seal for weather resistance.</p> <p>Doors shall be hinged on the outboard side and shall be held open with pneumatic stay arms.</p> <p>The compartments shall have a 3/4" drain that extends to below the body.</p> <p>Ribbed rubber matting shall be provided on the compartment floor to stop wet equipment from sitting in water pools.</p> <p><b><u>HATCH COMPARTMENT LIGHTING</u></b></p> <p>There shall be LED strip lights mounted full length on the interior, hinged side of each compartment.</p> <p>Opening the hatch compartment door shall automatically turn the hatch compartment lighting on.</p> <p><b><u>MOUNTING TRACKS</u></b></p> <p>There shall be recessed tracks installed vertically to support the adjustable shelf(s).</p> <p>Tracks shall not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.</p> <p>The tracks shall be provided in each compartment except for the one that contains the pump operator's panel.</p> <p><b><u>ADJUSTABLE SHELVES</u></b></p> <p>There shall be four (4) shelves with a capacity of 500 lb provided.</p> <p>The shelf construction shall consist of .188" aluminum painted spatter gray with 2.00" sides.</p> <p>Each shelf shall be infinitely adjustable by means of a threaded fastener, which slides in a track.</p> <p>The shelves shall be held in place by .12" thick stamped plated brackets and bolts.</p> <p>The location(s) shall be in D1 in the upper third, in D3 in the upper third, in P1 in the upper third and in P3 in the upper third.</p> <p><b><u>SLIDE-OUT FLOOR MOUNTED TRAY</u></b></p> <p>There shall be four (4) floor mounted slide-out tray(s) with 2.00" sides provided D1, D3, P1, P3. Each tray shall be rated for up to 500lb in the extended position. The tray(s) shall be constructed of .19" aluminum with non-welded corners. The finish shall be painted to match compartment interior.</p> <p>There shall be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides shall have a safety factor rating of 2.</p>		

	Bidder Complies	
	Yes	No
<p>To ensure years of dependable service, the slides shall be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.</p> <p>To ensure years of easy operation, the slides shall require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file shall have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance shall be provided upon request.</p> <p>Automatic locks shall be provided for both the "in" and "out" positions. The trip mechanism for the locks shall be located at the front of the tray for ease of use with a gloved hand.</p> <p><b><u>SWING OUT TOOLBOARD</u></b></p> <p>A swing out aluminum toolboard shall be provided.</p> <p>It shall be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.</p> <p>A 1.00" x 1.00" aluminum tube frame shall be welded to the edge of the pegboard.</p> <p>The board shall be mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load shall be 400 lb.</p> <p>The board shall have positive lock in the stowed and extended position.</p> <p>The board shall be mounted on adjustable tracks from front to back within the compartment.</p> <p>There shall be Two (2) toolboard(s) provided. The toolboard(s) shall be spatter gray painted and installed in P2 and D2.</p> <p><b><u>BACKBOARD STORAGE</u></b></p> <p>Mounting shall be provide for two (2) backboard(s) located above the crosslays. The backboard(s) shall be enclosed and removable from either side of the truck. The backboard(s) shall be 72" Long x 18" Wide x 2" Deep.</p> <p><b><u>RUB RAIL</u></b></p> <p>Bottom edge of the side compartments shall be trimmed with a bright aluminum extruded rub rail.</p> <p>Trim shall be 3.12" high with 1.50" flanges turned outward for rigidity.</p> <p>The rub rails shall not be an integral part of the body construction, which allows replacement in the event of damage.</p>		

	Bidder Complies	
	Yes	No
<p>Rub rails shall be attached with bolts and spaced from the body with isolators that shall help to absorb any moderate impact without damaging the body.</p> <p><b><u>BODY FENDER CROWNS</u></b></p> <p>Polished stainless steel fender crowns shall be provided around the rear wheel openings.</p> <p>A brushed stainless steel unpainted fender liner shall be provided to avoid paint chipping. The liners shall be removable to aid in the maintenance of rear suspension components.</p> <p>A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.</p> <p>The fender crowns shall be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion.</p> <p><b><u>HARD SUCTION HOSE</u></b></p> <p>Hard suction hose shall not be required.</p> <p><b><u>HANDRAILS</u></b></p> <p>The handrails shall be 1.25" diameter anodized aluminum extrusion, with a ribbed design, to provide a positive gripping surface.</p> <p>Chrome plated end stanchions shall support the handrail. Plastic gaskets shall be used between end stanchions and any painted surfaces.</p> <p>Drain holes shall be provided in the bottom of all vertically mounted handrails..</p> <p>Handrails shall be located on the front of the body in positions needed to meet NFPA requirements.</p> <ul style="list-style-type: none"> <li>• Two (2) vertical handrails shall be located at the rear, one on each side of the rear compartment.</li> </ul> <p><b><u>AIR BOTTLE STORAGE (DOUBLE)</u></b></p> <p>A quantity of four (4) air bottle compartments, 15.25" wide x 7.75" tall x 26.00" deep, shall be provided on the driver side forward of the rear wheels, on the driver side rearward of the rear wheels, on the passenger side forward of the rear wheels and on the passenger side rearward of the rear wheels . A polished stainless steel door with a chrome plated flush lift &amp; turn latch shall be provided to contain the air bottle. A dielectric barrier shall be provided between the door hinge, hinge fasteners and the body sheet metal.</p> <p>Inside the compartment, "W" shaped insert formed of composite materials shall be provided.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>EXTENSION LADDER</u></b> There shall be a 24' two-section aluminum extension ladder provided.</p> <p><b><u>ROOF LADDER</u></b> There shall be a 14' aluminum roof ladder provided.</p> <p><b><u>LADDER STORAGE</u></b> The ladders shall be stored inside the upper section of the driver's side compartments. This ladder rack shall reduce the depth of the upper section in the side compartments.</p> <p>A partition shall be installed inside the compartment on the side of the rack to allow for equipment storage and to conceal the ladders.</p> <p>The ladders shall be banked in separate storage troughs.</p> <p>The ladder storage assembly shall be fabricated of stainless steel track channels to aid in loading and removal of ladders.</p> <p>Rear of the ladder storage area shall have a vertically hinged smooth aluminum door with a D-handle latch to contain the ladders.</p> <p><b><u>FOLDING LADDER</u></b> One (1) 10.00' aluminum folding ladder shall be installed in the pike pole/folding ladder compartment.</p> <p><b><u>PIKE POLE, 8'</u></b> One (1) pike pole, 8' long with a fiberglass handle, shall be provided and located in the long tool storage compartment on the driver side.</p> <p><b><u>PIKE POLE, 6'</u></b> One (1) pike pole, 6' long with a fiberglass handle, shall be provided and located in the long tool storage compartment on the driver side</p> <p><b><u>PIKE POLE/FOLDING LADDER COMPARTMENT</u></b> One (1) pike pole compartment shall be provided, recessed in the upper, inside part of body compartment on the driver's side. The compartment shall be equipped with two (2) aluminum tubes to hold two (2) pike poles and a stainless steel trough for the folding ladder. The door shall be made of smooth aluminum and have a lift and turn latch.</p> <p>One (1) compartment shall be provided, recessed in the upper, inside part of body compartment on the passenger's side for storage of long handle tools. The door shall be made of smooth aluminum and have a lift and turn latch.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>LADDER, TOP ACCESS</u></b></p> <p>A wide easy climbing access ladder, constructed of aluminum rungs and extruded aluminum rails, shall be provided on the right side at the rear of the apparatus. The inside climbing area of the ladder shall be 13.75" wide.</p> <p>The lower section of the ladder shall be retractable into the upper section to eliminate interference with the rear FMVSS lights. When lowered the bottom rung shall be lower than the body, approximately 16.00" to 20.00" from the ground to allow a lower first step height.</p> <p>The ladder shall be slanted when in use for easy access, and fold against the body for storage to reduce the overall length. Corrosion resistant, stainless steel spring-loaded locks shall hold the ladder in place.</p> <p><b><u>PUMP</u></b></p> <p>Pump shall be a low profile, 1500 gpm single stage midship mounted centrifugal type, mounted below the cab. The pump shall have a 15 percent reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio shall not be less than 1.5:1.</p> <p>The pump casing shall consist of three (3) discharge outlets, one (1) to each side in line with the impeller and one (1) to the rear. The pump casing shall incorporate two (2) water strippers to maintain radial balance.</p> <p>Pump shall be the Cass A type.</p> <p>Pump shall be certified to deliver the percentage of rated discharge from draft at pressure indicated below:</p> <ul style="list-style-type: none"> <li>- 100 percent of rated capacity at 150 psi net pump pressure</li> <li>-70 percent of rated capacity at 200 psi net pump pressure</li> <li>-50 percent of rated capacity at 250 psi net pump pressure</li> </ul> <p>The pump shall have the capacity to deliver the percentage of rated discharge from a pressurized source as indicated below:</p> <ul style="list-style-type: none"> <li>- 135 percent of rated capacity at 100 psi net pump pressure from a 5 psi source</li> </ul> <p>Pump body shall be fine-grained gray iron. Pump shall incorporate a heater/cooling jacket integral to the pump housing.</p> <p>The impeller shall be high strength vacuum cast bronze alloy accurately machine balanced and splined to a ten (10) spline stainless steel pump shaft for precision fit, exceptional durability, and</p>		

	Bidder Complies	
	Yes	No
<p>efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design shall help to minimize end thrust. The impeller shall be a twisted vane design to create higher lift. No keyed shafts shall be acceptable.</p> <p>The pump shall include o-ring gaskets throughout the pump.</p> <p>Deep groove radial type oversize ball bearings shall be provided. The bearings shall be protected at the openings from road dirt and water with an oil seal and water slinger.</p> <p>The pump shall have a flat, patterned area on the top of the pump intake wye to allow standing for plumbing maintenance. The main inlet manifold shall be 6.00" in diameter and shall have a low profile design to facilitate low crosslays and high flows.</p> <p>For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case shall be accessible from above the chassis frame by tilting the cab. The intake wyes shall be removable without having to remove the main intake casting. Removal of the main inlet wyes shall provide access to the impeller, mechanical seal, and wear ring. (no exception).</p> <p>The tank to pump line and the primary discharge line shall be the only piping required to be removed for overhaul.</p> <p>For ease of service and overhaul there shall be no piping or manifolding located directly over the pump. (no exception).</p> <p><b><u>PUMP MOUNTING</u></b></p> <p>Pump shall be mounted to the chassis frame rails directly below the crew cab, to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include two (2) central mounted isolators located between the frame rails, and one (1) on each side outside the frame rails. The mounting shall allow chassis frame rails to flex independently without damage to the fire pump. Each isolator shall be 2.55" in total outside diameter and shall be rated at 490 lb. The pump shall be completely accessible by tilting the cab with no piping located directly above the pump.</p> <p><b><u>MECHANICAL SEALS</u></b></p> <p>Silicon carbide mechanical seals shall be provided. The seals shall be spring loaded and self-adjusting. The seals shall have a minimum thermal conductivity of 126 W/m*K to run cooler. Seals shall have a minimum hardness of 2800 kg/mm<sup>2</sup> to be more resistant to wear, and have thermal expansion characteristics of no more than 4.0 X10<sup>6</sup>mm/mm*K to be more resistant to thermal shock.</p> <p><b><u>PUMP GEAR CASE</u></b></p> <p>The pump gear case shall be a pressure-lubricated to cool, lubricate, and filter the oil. The gear case shall include an auxiliary PTO opening. The gear case shall be constructed of lightweight</p>		

	Bidder Complies	
	Yes	No
<p>aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A dipstick, accessible by tilting the cab, shall be provided for easy fluid level checks. A filter screen shall be provided for long life.</p> <p>The gear case shall consist of two (2) gears to drive the pump impeller and one (1) for the auxiliary PTO.</p> <p>The auxiliary PTO opening shall provide for the addition of PTO driven accessories.</p> <p>The pump shall be driven through the rear engine power take-off and clutch. The rear engine power take-off drive shall be live at all times to allow for pump and roll applications. Rear engine power take-off allow for high horsepower and torque ratings needed for large pump applications, and is a proven drive system throughout the rugged construction industry (no exception).</p> <p><b><u>CLUTCH</u></b></p> <p>There shall be a heavy-duty electric clutch mounted directly to the front of the pump to engage and disengage the pump without gear clash. The clutch shall be a multiple disc design for maximum torque. The clutch shall be fully self-adjusting to provide automatic wear compensation, and consistent torque throughout the life of the clutch. Positive engagement and disengagement shall be provided through a high efficient and dependable magnetic system to assure superior performance. The clutch shall have a 500 lb-ft rating. Clutch shall be of a time-tested design used in critical military applications (no exception).</p> <p><b><u>PUMPING MODE</u></b></p> <p>Pump shall provide for both pump and roll mode and stationary pumping mode.</p> <p>Stationary pumping mode shall be accomplished by stopping the vehicle, setting the parking brake and engaging the water pump switch on the cab switch panel. The transmission shall shift to "Neutral" range automatically when the parking brake is set. The "OK to Stationary Pump" indicator shall also illuminate when the parking brake is set. If the vehicle is equipped with a foam system or CAFS system, these systems shall be engaged from the cab switch panel as well.</p> <p>Pump and roll mode shall be accomplished by the use of the main pump and shall not require the use of a secondary pump. Pump and roll mode shall use the same operation sequence as stationary pumping mode with a few additional steps. After the vehicle is setup for stationary pumping, the operator shall leave the cab and set-up the pump panel to discharge at the desired outlet(s). Upon returning to the cab, the operator shall disengage the parking brake. An "OK to Pump &amp; Roll" indicator shall illuminate on the cab switch panel. First gear on the transmission gear selector shall be selected by the operator for pump and roll operations. The operator as needed shall apply the foot throttle. Pump and roll mode shall be maintained unless the transmission shifts out of first gear.</p>		

	Bidder Complies	
	Yes	No
<p>Stopping either stationary pumping mode or pump and roll mode shall be accomplished by pressing the "Water Pump" switch down to disengage the pump.</p> <p><b><u>PUMP SHIFT</u></b></p> <p>Pump shall be engaged in not more than two steps, by simply setting the parking brake, which shall automatically put the transmission into neutral, and activating a rocker switch in the cab. Switches in the cab shall also allow for water, foam, or CAFS if equipped, and activate the appropriate system to preset parameters. The engagement shall provide simple two-step operation, enhance reliability, and completely eliminate gear clash. The shift shall include the indicator lights as mandated by NFPA. A direct override switch shall be located behind a door in the lower pump operator's panel. The switch shall automatically disengage when the door is closed.</p> <p>As the parking brake is applied, the pump panel throttle shall be activated and deactivate the chassis foot throttle for stationary operation.</p> <p>Pump and roll operation shall be available by releasing the parking brake with the pump in the pumping mode. Releasing the parking brake shall activate the chassis foot throttle, and deactivate the pump panel throttle. To protect from accidental pump overheating, the pump shall automatically disengage when the truck transmission shifts into second gear.</p> <p><b><u>TRANSMISSION LOCK UP</u></b></p> <p>Transmission lock up is not required as transmission shall automatically shift to neutral as soon as the parking brake is set.</p> <p><b><u>AUXILIARY COOLING SYSTEM</u></b></p> <p>A supplementary heat exchange cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water. A water-to-coolant heat exchanger shall be used.</p> <p><b><u>INTAKE RELIEF VALVE</u></b></p> <p>A relief valve shall be installed on the suction side of the pump preset at 125 psig.</p> <p>Relief valve shall have a working range of 75 psig to 200 psig.</p> <p>Outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.</p> <p>Control shall be located behind an access door at the right (passenger's) side pump panel.</p> <p><b><u>PRESSURE CONTROLLER</u></b></p> <p>A Pressure Governor shall be provided. An electric pressure governor shall be provided which is capable of automatically maintaining a desired preset discharge pressure in the water pump.</p>		



	Bidder Complies	
	Yes	No
<p>When operating in the pressure control mode, the system shall automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow, within the discharge capacities of the water pump and water supply.</p> <p>A pressure transducer shall be installed in the water discharge of the pump. The transducer continuously monitors pump pressure sending a signal to the Electronic Control Module (ECM).</p> <p>The governor can be used in two (2) modes of operation, RPM mode and pressure modes.</p> <p>In the RPM mode, the governor can be activated after vehicle parking brake has been set. When in this mode, the governor shall maintain the set engine speed, regardless of engine load (within engine operation capabilities).</p> <p>In the pressure mode, the governor system can only operate after the fire pump has been engaged and the vehicle parking brake has been set. When in the pressure mode, the pressure controller monitors the pump pressure and varies engine speed to maintain a precise pump pressure. The pressure controller shall use a quicker reacting J1939 database for engine control.</p> <p>A preset feature allows a predetermined pressure or rpm to be set.</p> <p>A pump cavitation protection feature is also provided which shall return the engine to idle should the pump cavitate. Cavitation is sensed by the combination of pump pressure below 30 psi and engine speed above 2000 rpm for more than five (5) seconds.</p> <p>The throttle shall be a vernier style control, with a large control knob for use with a gloved hand. A throttle ready light shall be provided adjacent to the throttle control. A large 0.75" RPM display shall be provided to be visible at a glance.</p> <p>Check engine, and stop engine indicator lights shall be provided for easy viewing.</p> <p>Large 0.75" push buttons shall be provided for menu, mode, preset, and silence selections.</p> <p>The water tank level indicator shall be incorporated in the pressure governor.</p> <p>A fuel level indicator shall be incorporated in the pressure controller.</p> <p>A pump hour meter shall be incorporated in the pressure controller.</p> <p>The pressure controller shall incorporate monitoring for engine temperature, oil pressure, fuel level alarm, and voltage. Pump monitoring shall include, pump gear case temperature, error codes, diagnostic data, pump service reminders, and time stamped data logging, to allow for fast accurate trouble shooting. It shall also notify the driver/engineer of any problems with the engine and the apparatus. Complete understandable messages shall be provided in a 20-character</p>		

	Bidder Complies	
	Yes	No
<p>display, providing for fewer abbreviations in the messages. An automatic dim feature shall be included for night operations.</p> <p>The pressure controller shall include a USB port for easy software upgrades, which can be downloaded through a USB memory stick, eliminating the need for a laptop for software installations.</p> <p>A complete interactive manual shall be provided with the pressure controller.</p> <p><b><u>PRIMING PUMP</u></b></p> <p>The priming pump shall be a compressed air powered, high efficiency, multistage venturi based priming system, conforming to standards outlined in the current edition of NFPA 1901.</p> <p>All wetted metallic parts of the priming system are to be of brass and stainless steel construction.</p> <p>One (1) priming control shall open the priming valve and start the pump primer.</p> <p><b><u>PUMP MANUALS</u></b></p> <p>There shall be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals shall be provided by the pump manufacturer in the form of two (2) CDs. Each manual shall cover pump operation, maintenance, and parts.</p> <p><b><u>PLUMBING, STAINLESS STEEL AND HOSE</u></b></p> <p>All inlet and outlet lines shall be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's shall be equipped with brass or stainless steel couplings. All stainless steel hard plumbing shall be a minimum of a schedule 10 wall thickness.</p> <p>Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with victaulic or rubber couplings.</p> <p>Plumbing manifold bodies shall be ductile cast iron or stainless steel.</p> <p>All piping lines are to be drained through a master drain valve or shall be equipped with individual drain valves. All drain lines shall be extended with a hose to drain below the chassis frame.</p> <p>All water carrying gauge lines shall be of flexible polypropylene tubing.</p> <p>All piping, hose and fittings shall have a minimum of a 500 PSI hydrodynamic pressure rating.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>MAIN PUMP INLETS</u></b></p> <p>A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.</p> <p>Main pump inlets shall not be located on the main operator's panel and shall maintain a low connection height by terminating below the top of the chassis frame rail.</p> <p><b><u>MAIN PUMP INLET CAP</u></b></p> <p>The main pump inlets shall have National Standard Threads with a long handle chrome cap.</p> <p>The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><b><u>VALVES</u></b></p> <p>All discharges shall use in-line ball valves.</p> <p><b><u>LEFT SIDE INLET</u></b></p> <p>There shall be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.</p> <p>The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.</p> <p>The location of the valve for the one (1) inlet shall be recessed behind the pump panel.</p> <p><b><u>ANODE, INLET</u></b></p> <p>A pair of sacrificial zinc anodes shall be provided in the water pump inlets to protect the pump from corrosion.</p> <p><b><u>INLET CONTROL</u></b></p> <p>The side auxiliary inlet(s) shall incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism shall indicate the position of the valve.</p> <p><b><u>INLET BLEEDER VALVE</u></b></p> <p>A 0.75" bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a swing style handle control extended to the outside of the panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>TANK TO PUMP</u></b></p> <p>The booster tank shall be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" full flow line valve with the control located at the operator's panel. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing.</p> <p>A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.</p> <p><b><u>TANK REFILL</u></b></p> <p>A 1.50" combination tank refill and pump re-circulation line shall be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.</p> <p><b><u>LEFT SIDE DISCHARGE OUTLETS</u></b></p> <p>There shall be two (2) discharges with a 2.50" valves on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter. Discharges shall be located below the cab, and shall be no higher than the top of the chassis frame rail. Discharges shall not be located on the pump operator's panel. Lever controls shall be provided at the valve.</p> <p><b><u>RIGHT SIDE DISCHARGE OUTLETS</u></b></p> <p>There shall be one (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a male 2.50" National Standard hose thread adapter. The discharge shall be located below the crew cab, and shall be no higher than the top of the chassis frame rail.</p> <p>There shall be an electric valve controller provided at the pump panel. The controller unit shall be of true position feedback design, requiring no clutches in the motor or current limiting. The controller shall be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight. In addition to valve position, each controller shall include a pressure display.</p> <p><b><u>LARGE DIAMETER DISCHARGE OUTLET</u></b></p> <p>There shall be a 4.00" discharge outlet with a 4.00" valve body installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread. The discharge shall be located below the crew cab, and shall be no higher than the top of the chassis frame rail.</p> <p>There shall be an electric valve controller provided at the pump panel. The controller unit shall be of true position feedback design, requiring no clutches in the motor or current limiting. The controller shall be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight. In addition to valve position, each controller shall include a pressure display.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>FRONT DISCHARGE OUTLET</u></b></p> <p>There shall be one (1) 1.50" discharge outlet piped to the front of the apparatus and located in the center bumper tray.</p> <p>Plumbing shall consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe shall be used in the plumbing where appropriate. The piping shall terminate with a 1.50" NST with 90 degree stainless steel swivel.</p> <p>There shall be Class 1 automatic drains provided at all low points of the piping.</p> <p><b><u>REAR DISCHARGE OUTLET</u></b></p> <p>There shall be one (1) discharge outlet piped to the rear of the hose bed, on passenger's side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing shall consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel. Discharge shall terminate with 2.50" NST thread. Discharge piping shall be schedule 10 304L welded or formed stainless steel and routed through the water tank.</p> <p><b><u>DISCHARGE CAPS</u></b></p> <p>Chrome plated, rocker lug, caps with vinyl covered cables shall be furnished for all discharge outlets.</p> <p>The auxiliary inlet plugs shall have vinyl covered cables.</p> <p><b><u>OUTLET BLEEDER VALVE</u></b></p> <p>A 0.75" bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.</p> <p>The valves shall be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles shall be chrome plated and provide a visual indication of valve position. The swing handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel. They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.</p> <p><b><u>LEFT SIDE OUTLET ELBOWS</u></b></p> <p>The one (1) discharge outlet, located on the left side pump panel, shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) CSA, chrome plated, 30 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p>		

	Bidder Complies	
	Yes	No
<p><b><u>RIGHT SIDE OUTLET ELBOWS</u></b></p> <p>The one (1) discharge outlet, located on the right side pump panel, shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) CSA, chrome plated, 30 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p><b><u>REAR OUTLET ELBOWS</u></b></p> <p>The 2.50" discharge outlets, located at the rear of the apparatus, shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) CSA, chrome plated, 30 degree elbow.</p> <p>The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).</p> <p>Elbows shall be provided for one (1) discharge outlet.</p> <p><b><u>LARGE DIAMETER OUTLET CAP</u></b></p> <p>The large diameter outlet shall have a National Standard hose thread adapter with a 4.00" rocker lug chrome plated cap and chain.</p> <p>The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.</p> <p><b><u>ADAPTER</u></b></p> <p>There shall be three (3) adapters with 1.50" FNST X NPSH. These adapters shall be installed on 2 Crosslays and 1 Front Bumper.</p> <p><b><u>DISCHARGE OUTLET CONTROLS</u></b></p> <p>The discharge outlets shall incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve or an indicator shall be provided to show when the valve is closed.</p> <p>The passenger side discharges shall be controlled by an electric valve controllers with the manual override located on the passenger side pump panel. The controller unit shall be of true position feedback design, requiring no clutches in the motor or current limiting. The controller shall be completely sealed with two (2) button open and close valve position capability and a full color LCD display with backlight. In addition to valve position, each controller shall include a pressure display.</p> <p>All other outlets shall have manual swing handles that operate in a vertical up and down motion. These handles shall be able to lock in place to prevent valve creep under pressure.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>DELUGE RISER</u></b></p> <p>A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. 3.00" piping shall be installed securely so no movement develops when the line is charged. A 2.50" gated valve shall be installed and controlled at the pump operator's panel. The deluge outlet shall flow a minimum 1000 GPM.</p> <p>The deluge riser shall have male National Pipe Threads for mounting the monitor.</p> <p><b><u>CROSSLAY HOSE BEDS</u></b></p> <p>Two (2) crosslays with 1.50" outlets shall be provided. Each bed to be capable of carrying 200 feet of 1.75" double jacketed hose and shall be plumbed with 2.00" i.d. schedule 10 304L welded or formed stainless steel pipe and gated with a 2.00" quarter turn ball valve. Threaded pipe shall not be acceptable. Crosslays shall be low mounted with the bottom of both crosslay trays no more than 11.00" above the frame rails for simple, safe reloading and deployment. (no exception)</p> <p>Outlets to be equipped with a 1.50" National Standard hose thread 90-degree swivel located in the hose bed so that hose may be removed from either side of apparatus.</p> <p>The crosslay controls shall be at the pump operator's panel.</p> <p>A removable tray shall be provided for the crosslay hosebed. The crosslay tray shall be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes shall be in the floor and additional hand holes shall be provided in the sides for easy removal and installation from the compartment. The floor of the trays shall be perforated to allow for drainage and hose drying. Trays shall be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.</p> <p><b><u>CROSSLAY HOSE BED, 2.50"</u></b></p> <p>One (1) crosslay with a 2.50" outlet shall be provided. The bed to be capable of carrying Calculated at 170' Due to the recessed floor in the cargo area hose and shall be plumbed with 2.50" i.d. schedule 10 304L welded or formed stainless steel pipe and gated with a 2.50" quarter turn ball valve. Threaded pipe shall not be acceptable.</p> <p>The outlet to be equipped with a 2.50" National Standard hose thread 90 degree swivel located above the hose bed so that hose may be removed from either side of apparatus.</p> <p>The crosslay shall be mounted above the lower crosslays. The crosslay controls shall be at the pump operator's panel.</p> <p>A removable tray shall be provided for the crosslay hosebed. The crosslay tray shall be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes shall be in the floor and additional hand holes shall be provided in the sides for easy removal and installation</p>		

	Bidder Complies	
	Yes	No
<p>from the compartment. The floor of the trays shall be perforated to allow for drainage and hose drying. Tray shall be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the tray to hold the trays in place during transit.</p> <p><b><u>ROLLUP DOOR, CROSSLAY ENDS</u></b></p> <p>The compartment doors shall be rollup style, double faced aluminum construction painted one (1) color to match the lower portion of the body.</p> <p>Lath sections shall be an interlocking rib design and shall be individually replaceable without complete disassembly of door.</p> <p>Between each slat at the pivoting joint shall be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals shall allow door to operate in extreme temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals shall be provided to resist ingress of dirt and weather and be made of Santoprene.</p> <p>All hinges, barrel clips and end pieces shall be nylon 66. All nylon components shall withstand temperatures from 300 to -40 degrees Fahrenheit. Hardened plastic shall not be acceptable.</p> <p>A polished stainless steel lift bar to be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.</p> <p>Doors shall be constructed from an aluminum box section. The exterior surface of each slat shall be flat. The interior surfaces shall be concave to provide strength and prevent loose equipment from jamming the door from inside.</p> <p>To conserve space in the compartments, the spring roller assembly shall not exceed 3.00" in diameter. A garage style roll door shall not be acceptable.</p> <p>The header for the rollup door assembly shall not exceed 4.00".</p> <p>A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.</p> <p><b><u>FOAM CONCENTRATE PROPORTIONING SYSTEM PLUMBING (FUTURE INSTALL)</u></b></p> <p>A foam manifold shall be provided for the future installation of a foam system. The foam system shall be plumbed to Class A Foam (Chemguard) discharges. The discharges capable of dispensing foam shall be three crosslays and front bumper outlet..</p>		



	Bidder Complies	
	Yes	No
<p>A manifold shall be provided for the foam ready discharges. The plumbing from the water pump to the foam manifold shall be designed to allow the foam system to be added without unnecessary rework.</p> <p>Space shall be provided on the pump panel for the possible addition of the foam system controls.</p> <p><b><u>FOAM TANK</u></b></p> <p>The foam tank shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 20 gallons of foam with the intended use of Class A foam. The foam cell shall not reduce the capacity of the water tank. The foam cell shall have a screen in the fill dome and a breather in the lid.</p> <p><b><u>FOAM TANK DRAIN</u></b></p> <p>The foam tank drain shall be a 1.00" drain valve located inside the pump compartment accessible through a door on the passenger's side pump panel.</p> <p><b><u>PUMP CONTROL PANELS (LEFT SIDE CONTROL)</u></b></p> <p>Pump controls and gauges shall be located midship at the left (driver's) side of the apparatus and properly identified.</p> <p>The main pump operator's control panel shall be completely enclosed and located in the forward section of the body compartment, to protect against road debris and weather elements. The pump operator's panels shall be no more than 31.00" wide, and made in four (4) sections with the center section easily removable with simple hand tools. For the safety of the pump operator, there shall be no discharge outlets or pump inlets located on the main pump operators panel.</p> <p>Layout of the pump control panel shall be ergonomically efficient and systematically organized. The upper section shall contain the master gauges. This section shall be angled down for easy visibility. The center section shall contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) shall be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section shall contain the outlet drains.</p> <p>Manual controls shall be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles shall have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels shall encompass the opening, be securely mounted to the pump operator's panel, and shall incorporate the discharge gauge bezel. Bezels shall be bolted to the panel for easy removal and gauge service. The driver's side discharges shall be controlled directly at the valve. There shall be no push-pull style control handles. (no exception)</p>		

	Bidder Complies	
	Yes	No
<p>Identification tags for the discharge controls shall be recessed within the same bezel. The discharge identification tags shall be color coded, with each discharge having its own unique color.</p> <p>All remaining identification tags shall be mounted on the pump panel in chrome-plated bezels.</p> <p>All discharge outlets shall be color coded and labeled to correspond with the discharge identification tag.</p> <p>The pump panels for the midship discharge and intake ports shall be located ahead of the body compartments with no side discharge or intake higher than the frame rail. The pump panels shall be easily removable with simple hand tools.</p> <p>A recessed cargo area shall be provided at the front of the body, ahead of the water tank above the plumbing.</p> <p><b><u>PUMP PANEL CONFIGURATION</u></b></p> <p>The pump panel configuration shall be arranged and installed in an organized manner that shall provide user-friendly operation.</p> <p><b><u>PUMP AND GAUGE PANEL</u></b></p> <p>The pump operator's panel and gauge panels shall be constructed of stainless steel with a brushed finish.</p> <p>The side control panels shall be constructed of stainless steel with a brushed finish for durability and ease of maintenance.</p> <p><b><u>PUMP AND PLUMBING ACCESS</u></b></p> <p>Simple access to the plumbing shall be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves shall not require removal of operator panels or pump panels. Access for rebuilding of the pump shall not require removal of more than the tank to pump line and a single discharge line. This access shall allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps shall be provided for access to the top of the pump.</p> <p>Access to the pump shall be provided by raising the cab. The pump shall be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump shall not require the removal of operator panels or pump panels. Complete pump casing and gear case removal shall require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case shall be able to be removed by lifting upward without interference from piping and be removable in less than 3 hours.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>PUMP COMPARTMENT LIGHT</u></b></p> <p>There shall be one (1) 3.00" white 12 volt DC LED light(s) with flange(s) installed in the plumbing area.</p> <p>The light(s) shall be activated by a toggle switch located in the pump compartment area.</p> <p>Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.</p> <p><b><u>VACUUM AND PRESSURE GAUGES</u></b></p> <p>The pump vacuum and pressure gauges shall be liquid filled.</p> <p>The gauges shall be a minimum of 4.00" in diameter and shall have white faces with black markings, with a pressure range of 30.00" 0-400 psi/kpa.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.</p> <p>Test port connections shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They shall have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They shall be marked with a label.</p> <p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p> <p><b><u>PRESSURE GAUGES</u></b></p> <p>The individual "line" pressure gauges for the discharges shall be fluid filled.</p> <p>They shall be a minimum of 2.00" in diameter and the dial shall have white faces with black markings.</p> <p>Gauge construction shall include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.</p> <p>Gauges shall have a pressure rating of 30.00" 0-400 psi/kpa.</p> <p>The individual pressure gauge shall be installed as close to the outlet control as practical.</p> <p>This gauge shall include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>WATER LEVEL GAUGE</u></b></p> <p>An electric water level gauge shall be incorporated in the pressure controller that registers water level by means of nine (9) LEDs. They shall be at 1/8 level increments with a tank empty LED. The LEDs shall be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing.</p> <p>To further alert the pump operator, the gauge shall have a warning flash when the tank volume is less than 25 percent. The gauge shall have down chasing LEDs when the tank is almost empty.</p> <p>The level measurement shall be ascertained by sensing the head pressure of the fluid in the tank or cell.</p> <p><b><u>MINI SLAVE UNIT</u></b></p> <p>An electric water level gauge shall be provided in the cab that registers water level by means of five (5) LEDs. They shall be at 1/4 level increments with a tank empty LED. The LEDs shall be a bright type that are readable in sunlight and have a full 180-degree of clear viewing.</p> <p>The water level gauge in the cab shall be activated when the pump is in gear.</p> <p><b><u>FUTURE FOAM LEVEL GAUGE</u></b></p> <p>Provision shall be provided in the foam cell for the future addition of a foam system and level gauge.</p> <p><b><u>SIDE CONTROL PUMP OPERATOR'S/PUMP PANEL LIGHTING</u></b></p> <p>Illumination shall be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. External illumination shall be a minimum of five (5) foot-candles on the face of the device. Internal illumination shall be a minimum of four (4) footlamberts.</p> <p>The pump panels shall be illuminated by two (2) 6.00" x 2.00" oval white LED lights with grommets and chrome covers installed on the back of the cab, one (1) on the driver's side and one (1) on the passenger's side.</p> <p>The pump operator's panel shall utilize the same LED strip lighting at the forward doorframe as all other compartment lighting.</p> <p>There shall be a small white LED pump engaged indicator light installed overhead.</p> <p><b><u>AIR HORN SYSTEM</u></b></p> <p>There shall be two (2) air horns recessed in the front bumper. The horn system shall be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>Air Horn Location</u></b> The air horns shall be located on each side of the bumper, towards the outside.</p> <p><b><u>AIR HORN CONTROL</u></b> The air horns shall be actuated by a chrome push button located on the officer's side of the engine tunnel and by the horn button in the steering wheel. The driver shall have the option to control the air horns or the chassis horns from the horn button by means of a selector switch located on the instrument panel.</p> <p><b><u>ELECTRONIC SIREN</u></b> There shall be a 100 or 200 watt electronic siren with a plug-in noise canceling microphone shall be provided.  This siren to be active when the battery switch is on and that emergency master switch is on.  Electronic siren head shall be recessed in the overhead console above the engine tunnel on the driver side.  Siren to be actuated by one (1) foot switch located on the officer's side.</p> <p><b><u>SPEAKER</u></b> There shall be one (1) speaker provided. Each speaker shall be a black nylon composite, 100-watt, with through bumper mounting brackets and polished stainless steel grille. Each speaker shall be connected to the siren amplifier.  The speaker(s) shall be recessed in the center of the front bumper.</p> <p><b><u>AUXILIARY MECHANICAL SIREN</u></b> A mechanical siren shall be furnished. A siren brake button shall be installed on the switch panel.  The control solenoid shall be powered up after the emergency master switch is activated.  The mechanical siren shall be mounted on the bumper deck plate. It shall be mounted on the left side. A reinforcement plate shall be furnished to support the siren.</p> <p><b><u>MECHANICAL SIREN CONTROL</u></b> The mechanical siren shall be actuated by a push button located on the officer's side instrument panel and by a foot switch on the driver's side.</p> <p><b><u>FRONT ZONE UPPER WARNING LIGHTS</u></b> There shall be one (1) 72.00" LED lightbar mounted on the cab roof.  The lightbar shall include the following:</p>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• One (1) red flashing LED module in the driver's side end position.</li> <li>• One (1) red flashing LED module in the driver's side front corner position.</li> <li>• Open in the driver's side first front position.</li> <li>• One (1) red flashing LED module in the driver's side second front position.</li> <li>• Open in the driver's side third front position.</li> <li>• One (1) white LED module in the driver's side fourth front position.</li> <li>• Open in the driver's side fifth front position.</li> <li>• Open in the driver's side sixth front position.</li> <li>• Open in the passenger's side sixth front position.</li> <li>• Open in the passenger's side fifth front position.</li> <li>• One (1) white flashing LED module in the passenger's side fourth front position.</li> <li>• Open in the passenger's side third front position.</li> <li>• One (1) red flashing LED module in the passenger's side second front position.</li> <li>• Open in the passenger's side first front position.</li> <li>• One (1) red flashing LED module in the passenger's side front corner position.</li> <li>• One (1) red flashing LED module in the passenger's side end position.</li> </ul> <p>There shall be clear lenses included on the lightbar.</p> <p>There shall be a switch installed in the cab on the switch panel to control this lightbar.</p> <p>The two (2) white flashing LED modules shall be disabled when the parking brake is applied.</p> <p>The two (2) red flashing LED modules in the front positions may be load managed when the parking brake is applied.</p> <p><b><u>CAB FACE WARNING LIGHTS</u></b></p> <p>There shall be four (4) LED flashing warning lights installed on the cab face, above the headlights, mounted in a common bezel.</p> <ul style="list-style-type: none"> <li>• The driver's side front outside warning light to be red</li> <li>• The driver's side front inside warning light to be red</li> <li>• The passenger's side front inside warning light to be red</li> <li>• The passenger's side front outside warning light to be red</li> </ul> <p>All four (4) lights shall include a clear lens.</p> <p>There shall be a switch located in the cab, on the switch panel, to control the four (4) lights.</p> <p>The inside lights may be load managed if colored or disabled if white, when the parking brake is set.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>HEADLIGHT FLASHER</u></b></p> <p>The high beam headlights shall flash alternately between the left and right side.</p> <p>There shall be a switch installed in the cab on the switch panel to control the high beam flash. This switch shall be live when the battery switch and the emergency master switches are on.</p> <p>The flashing shall automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.</p> <p><b><u>SIDE ZONE LOWER LIGHTING</u></b></p> <p>There shall be six (6) flashing LED warning lights with chrome trim installed per the following:</p> <ul style="list-style-type: none"> <li>• Two (2) lights, one (1) each side on the bumper extension. The side front lights to be red.</li> <li>• Two (2) lights, one (1) each side above the front wheels. The side middle lights to be red.</li> <li>• Two (2) lights, one (1) each side above rear wheels. The side rear lights to be red.</li> <li>• The lights shall include clear lenses.</li> </ul> <p>There shall be a switch in the cab on the switch panel to control the lights.</p> <p><b><u>SIDE WARNING LIGHTS</u></b></p> <p>There shall be two (2) LED flashing warning light(s) with bezel(s) provided front upper corner of body, one each side..</p> <p>The color of the lights shall be red.</p> <p>All of these lights shall include a clear lens.</p> <p>These lights shall be activated with the Side Zone Lower warning lights.</p> <p><b><u>REAR ZONE LOWER LIGHTING</u></b></p> <p>Two (2) LED flashing warning lights with bezels shall be located at the rear of the apparatus.</p> <p>The driver's side rear light to be red.</p> <p>The passenger's side rear light to be red.</p> <p>Both lights shall include a lens that is clear.</p> <p>There shall be a switch located in the cab on the switch panel to control the lights.</p> <p><b><u>WARNING LIGHTS (REAR AND SIDE UPPER ZONES)</u></b></p> <p>Four (4) LED flashing warning lights shall be provided at the rear of the apparatus.</p> <p>The side rear upper light(s) on the driver's side to be red.</p>		

	Bidder Complies	
	Yes	No
<p>The rear upper light(s) on the driver's side to be red.</p> <p>The rear upper light(s) on the passenger's side to be red.</p> <p>The side rear upper light(s) on the passenger's side to be red.</p> <p>These lights shall include a lens that is clear.</p> <p>There shall be a switch located in the cab on the switch panel to control the lights.</p> <p><b><u>TRAFFIC DIRECTING LIGHT</u></b></p> <p>There shall be one (1) 36.01" long x 2.84" high x 2.24" deep, amber LED traffic directing light installed at the rear of the apparatus.</p> <p>The control head shall be included with this installation.</p> <p>The auxiliary warning mode shall be activated with the control head only.</p> <p>This traffic directing light shall be recessed with a stainless steel trim plate at the rear of the apparatus as high as practical.</p> <p>The traffic directing light controller shall be located within the switch panel in the dashboard. The controller shall be within easy reach of the driver.</p> <p><b><u>ELECTRICAL SYSTEM GENERAL DESIGN FOR ALTERNATING CURRENT</u></b></p> <p>The following guidelines shall apply to the 120/240 VAC system installation:</p> <p><b><u>General</u></b></p> <p>Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 3 cycles.</p> <p>Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).</p> <p>Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.</p> <p><b><u>Grounding</u></b></p> <p>Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding.</p>		



	Bidder Complies	
	Yes	No
<p>An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.</p> <p>The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.</p> <p>In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.</p> <p>All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.</p> <p><b><u>Operation</u></b></p> <p>Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.</p> <p>Provisions shall be made for quickly and easily placing the power source into operation. The control shall be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train shall be equipped with a means to prevent the unintentional movement of the control device from its set position.</p> <p>A power source specification label shall be permanently attached to the apparatus near the operator's control station. The label shall provide the operator with the following information:</p> <ul style="list-style-type: none"> <li>• Rated voltage(s) and type (ac or dc)</li> <li>• Phase</li> <li>• Rated frequency</li> <li>• Rated amperage</li> <li>• Continuous rated watts</li> <li>• Power source engine speed</li> </ul> <p>Direct drive (PTO) and portable generator installations shall comply with Article 445 (Generators) of the NEC.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>Overcurrent protection</u></b></p> <p>The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144.00" (3658 mm) in length.</p> <p>For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).</p> <p>For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).</p> <p><b><u>Wiring Methods</u></b></p> <p>Fixed wiring systems shall be limited to the following:</p> <ul style="list-style-type: none"> <li>• Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)</li> <li>• or</li> <li>• Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)</li> </ul> <p>Electrical cord or conduit shall not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring shall be run as follows.</p> <ul style="list-style-type: none"> <li>• Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping</li> <li>• Separated from fuel lines by a minimum of 6.00" (152 mm) distance</li> </ul> <p>Electrical cord or conduit shall be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports shall be made of nonmetallic materials or corrosion protected metal. All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.</p> <p><b><u>Wiring Identification</u></b></p> <p>All line voltage conductors located in the main panel board shall be individually and permanently identified. The identification shall reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends shall be labeled showing function and wire size.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>Wet Locations</u></b></p> <p>All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.</p> <p>All receptacles located in a wet location shall be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles shall be a minimum of 30.00" (762 mm) from the ground.</p> <p>The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.</p> <p><b><u>Dry Locations</u></b></p> <p>All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30.00" (762 mm) above the interior floor height.</p> <p>All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they shall be so marked.</p> <p><b><u>Listing</u></b></p> <p>All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages shall be rated for the appropriate service.</p> <p><b><u>Electrical System Testing</u></b></p> <p>The wiring and associated equipment shall be tested by the apparatus manufacturer or the installer of the line voltage system.</p> <p>The wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test shall be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test shall be conducted after all body work has been completed.</p> <p>Electrical polarity verification shall be made of all permanently wired equipment and receptacles to determine that connections have been properly made.</p> <p><b><u>Operational Test per Current NFPA 1901 Standard</u></b></p> <p>The apparatus manufacturer shall perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test shall be witnessed and the results certified by an independent third-party certification organization.</p>		

	Bidder Complies	
	Yes	No
<p>The prime mover shall be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.</p> <p>The power source shall be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.</p> <p>Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard shall be applied to the low voltage electrical system during the operational test.</p> <p><b><u>GENERATOR</u></b></p> <p>The apparatus shall be equipped with a complete AC (alternating current) electrical power system. The generator shall be a hydraulic driven unit.</p> <p>The generator shall be driven by a transmission power take off unit, through a hydraulic pump and motor.</p> <p>The hydraulic engagement supply shall be operational at any time (no interlocks).</p> <p>An electric/hydraulic valve shall supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.</p> <p><b><u>Generator Instruments and Controls</u></b></p> <p>To properly monitor the generator performance, a voltmeter shall be furnished near the breaker box.</p> <p><b><u>GENERATOR LOCATION</u></b></p> <p>The generator shall be mounted in the cargo area at the front of the body in driver side of cargo compartment. The flooring in this area shall be either reinforced or constructed, in such a manner, that it shall handle the additional weight of the generator.</p> <p><b><u>GENERATOR START</u></b></p> <p>There shall be a switch provided on the cab instrument panel to engage the generator.</p> <p><b><u>CIRCUIT BREAKER PANEL</u></b></p> <p>The circuit breaker panel shall be located recessed in forward false wall of D3 in the drivers side forward brass compartment.</p> <p><b><u>GENERATOR SPLASH GUARD</u></b></p> <p>A stainless steel splash guard shall be installed over the electrical controls for the generator. The guard shall protect this area from large amounts of water dumping from the deluge gun.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>LIGHT TOWER CAB ROOF REINFORCEMENTS</u></b></p> <p>Aluminum reinforcements shall be installed in the crew cab for the future addition of a Will-Burt Night Scan Powerlite Model NS 3.0 light tower. The base of the Night Scan light shall be mounted to the passenger side of the crew cab roof. The reinforcements shall be mounted so that the future unit can centered on the crew cab roof.</p> <p><b><u>ELECTRIC CORD REEL</u></b></p> <p>Furnished with the 120/240 volt AC electrical system shall be cord reel. The reel shall be provided with a 12 volt electric rewind switch that is guarded to prevent accidental operation and labeled for its intended use. The switch shall be protected with a fuse and installed at a height not to exceed 72.00" above the operators standing position.</p> <p>The reel shall be capable holding 200' of 10/4, 600 volt cable.</p> <p>The exterior finish of the reel(s) shall be powder coated silver from the reel manufacturer.</p> <p>A Nylatron guide to be provided to aid in the payout and loading of the reel. A ball stop shall be provided to prevent the cord from being wound on the reel.</p> <p>A label shall be provided in a readily visible location adjacent to the reel. The label shall indicate current rating, current type, phase, voltage and total cable length.</p> <p>A total of one (1) cord reel shall be provided one (1) forward in the passenger's side hatch compartment.</p> <p>The cord reel should be configured with four (4) conductors.</p> <p><b><u>CORD</u></b></p> <p>Provided for electric distribution shall be one (1) length installed on the reel of 200 feet of yellow 10/4 electrical cord. No connector shall be installed on the end of the cord.</p> <p><b><u>REEL FEED THROUGH HATCH FLOOR</u></b></p> <p>A captive roller assembly shall be provided through the floor of the hatch compartment, into the compartment below, to assist with the pay out of the cord. A flange shall be provided around the roller assembly to assist in keeping water from running into the compartment. A ball stop shall be provided on the cord to stop the cord at the roller assembly.</p> <p>A total of one (1) shall be installed.</p> <p><b><u>LOOSE EQUIPMENT</u></b></p> <p>The following equipment shall be furnished with the completed unit:</p> <ul style="list-style-type: none"> <li>- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit</li> </ul>		

	Bidder Complies	
	Yes	No
<p>One (1) set of reflective emergency triangles shall be provided.</p> <p><b><u>NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT</u></b></p> <p>The following loose equipment as outlined in NFPA 1901, 2016 edition, section 5.9.3 and 5.9.4 shall be provided by the fire department.</p> <ul style="list-style-type: none"> <li>• 800 ft (60 m) of 2.50" (65 mm) or larger fire hose.</li> <li>• 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.</li> <li>• One (1) handline nozzle, 200 gpm (750 L/min) minimum.</li> <li>• Two (2) handline nozzles, 95 gpm (360 L/min) minimum.</li> <li>• One (1) smoothbore or combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm.</li> <li>• One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.</li> <li>• One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).</li> <li>• One (1) first aid kit.</li> <li>• Four (4) combination spanner wrenches.</li> <li>• Two (2) hydrant wrenches.</li> <li>• One (1) double female 2.50" (65 mm) adapter with National Hose threads.</li> <li>• One (1) double male 2.50" (65 mm) adapter with National Hose threads.</li> <li>• One (1) rubber mallet, for use on suction hose connections.</li> <li>• Two (2) salvage covers each a minimum size of 12 ft x 14 ft (3.7 m x 4.3 m).</li> <li>• One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, <i>Standard for High Visibility Public Safety Vests</i>, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.</li> <li>• Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.</li> <li>• Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.</li> <li>• One (1) automatic external defibrillator (AED).</li> <li>• Four (4) ladder belts meeting the requirements of NFPA 1983, <i>Standard on Fire Service Life Safety Rope and System Components</i> (if equipped with an aerial device).</li> <li>• If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3.00" (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.</li> <li>• If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.</li> <li>• If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters shall be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.</li> </ul> <p><b><u>SOFT SUCTION HOSE PROVIDED BY FIRE DEPARTMENT</u></b>  NFPA 1901, 2016 edition, section 5.8.2.1 requires a minimum of 20' of suction hose or 15' of supply hose shall be carried.</p> <p>Hose is not on the apparatus as manufactured. The fire department shall provide suction or supply hose.</p> <p><b><u>DRY CHEMICAL EXTINGUISHER</u></b>  There shall be One (1) extinguisher, 20 lb dry chemical extinguisher(s) provided.</p> <p><b><u>WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT</u></b>  NFPA 1901, 2016 edition, section 5.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.</p> <p>The extinguisher is not on the apparatus as manufactured. The fire department shall provide and mount the extinguisher.</p> <p><b><u>FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT</u></b>  NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.</p> <p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><b><u>PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT</u></b>  NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.</p>		

	Bidder Complies	
	Yes	No
<p>The axe is not on the apparatus as manufactured. The fire department shall provide and mount the axe.</p> <p><b><u>PAINT</u></b></p> <p>The exterior custom cab and body painting procedure shall consist of a seven (7) step finishing process as follows:</p> <ol style="list-style-type: none"> <li>1. <u>Manual Surface Preparation</u> - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.</li> <li>2. <u>Chemical Cleaning and Pretreatment</u> - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion. A final pure water rinse shall be applied to all metal surfaces.</li> <li>3. <u>Surfacer Primer</u> - The Surfacer Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.</li> <li>4. <u>Finish Sanding</u> - The Surfacer Primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.</li> <li>5. <u>Sealer Primer</u> - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.</li> <li>6. <u>Basecoat Paint</u> - Two coats of a high performance, two component high solids polyurethane basecoat shall be applied. The Basecoat shall be applied to a thickness that shall achieve the proper color match. The Basecoat shall be used in conjunction with a urethane clear coat to provide protection from the environment.</li> <li>7. <u>Clear Coat</u> - Two (2) coats of Clear Coat shall be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors shall be Clear Coated to match the body. Paint warranty for the roll-up doors shall be provided by the roll-up door manufacture.</li> </ol>		



	Bidder Complies	
	Yes	No
<p>Each batch of basecoat color shall be checked for a proper match before painting of the cab and the body. After the cab and body are painted, the color shall verified again to make sure that it matches the color standard. Electronic color measuring equipment shall be used to compare the color sample to the color standard entered into the computer. Color specifications shall be used to determine the color match. A Delta E reading shall be used to determine a good color match within each family color.</p> <p>All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.</p> <p>The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T.standard in critical areas. These requirements must be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards shall be available upon request.</p> <p>The cab shall be two-tone, with the upper section painted #10 white along with a shield design on the cab face and lower section of the cab and body painted #90 red.</p> <p><b><u>PAINT - ENVIRONMENTAL IMPACT</u></b></p> <p>Contractor shall meet or exceed all current State regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:</p> <ul style="list-style-type: none"> <li>• Topcoats and primers shall be chrome and lead free.</li> <li>• Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals.</li> <li>• Particulate emission collection from sanding operations shall have a 99.99% efficiency factor.</li> <li>• Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98.00%. Water wash systems shall be 99.97% efficient</li> <li>• Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean.</li> <li>• Paint wastes are disposed of in an environmentally safe manner.</li> <li>• Empty metal paint containers shall be to recover the metal.</li> <li>• Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse.</li> </ul>		

	Bidder Complies	
	Yes	No
<p>Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.</p> <p><b><u>PAINT CHASSIS FRAME ASSEMBLY</u></b></p> <p>The chassis frame assembly shall be painted black before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.</p> <p>Components treated with epoxy E-coat protection prior to paint:</p> <ul style="list-style-type: none"> <li>• Two (2) C-channel frame rails</li> </ul> <p>Components that are included with the chassis frame assembly that shall be painted not e-coated are:</p> <ul style="list-style-type: none"> <li>• Cross members</li> <li>• Axles</li> <li>• Suspensions</li> <li>• Steering gear</li> <li>• Battery boxes</li> <li>• Bumper extension weldment</li> <li>• Frame extensions</li> <li>• Body mounting angles</li> <li>• Rear Body support substructure (front and rear)</li> <li>• Pump house substructure</li> <li>• Air tanks</li> <li>• Fuel tank</li> <li>• Castings</li> <li>• Individual piece parts used in chassis and body assembly</li> </ul> <p>The E-coat process shall meet the technical properties shown.</p> <p><b><u>PAINT, REAR WHEELS</u></b></p> <p>All wheel surfaces, inside and outside of inboard steel wheels only, shall be provided with powder coat paint #90 red.</p> <p><b><u>COMPARTMENT INTERIOR PAINT</u></b></p> <p>The interior of compartmentation shall be painted with a gray spatter type paint.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>REFLECTIVE STRIPES</u></b></p> <p>Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the body. The reflective band shall consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.</p> <p>The reflective band provided on the cab face shall be below the headlights on the fiberglass.</p> <p><b><u>REAR CHEVRON STRIPING</u></b></p> <p>There shall be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear roll up door, shall be covered.</p> <p>The colors shall be red and fluorescent yellow green diamond grade.</p> <p>Each stripe shall be 6.00" in width.</p> <p>This shall meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface shall be covered with chevron striping.</p> <p><b><u>"Z" JOG IN REFLECTIVE STRIPE</u></b></p> <p>There shall be one (1) "Z"-shaped jog(s) provided in the reflective stripe design.</p> <p><b><u>REFLECTIVE STRIPE OUTLINE</u></b></p> <p>A black outline shall be applied on the top and the bottom of the reflective band. There shall be three (3) set of outline stripes required.</p> <p><b><u>CAB DOOR REFLECTIVE STRIPE</u></b></p> <p>A 6.00" x 16.00" fluorescent yellow green diamond grade reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.</p> <p>This stripe shall meet the NFPA 1901 requirement.</p> <p><b><u>UNDERCOATING, CAB &amp; BODY</u></b></p> <p>The apparatus shall be properly treated by an authorized dealer.</p> <p>The underside of the apparatus shall be undercoated with an asphalt petroleum based material, dark in color.</p> <p>The undercoating material utilized on the apparatus shall be formulated to resist corrosion and deaden unwanted sound or road noise.</p> <p>Coating texture shall appear firm, flexible, and resistant to abrasion. Minimum dry film thickness shall be in the range of 8.00 to 12.00 mils.</p>		

	Bidder Complies	
	Yes	No
<p>The material shall be applied to the following areas:</p> <ul style="list-style-type: none"> <li>-Body and cab wheel well fender liners, on the back side only.</li> <li>-Underside of body and cab sheet metal, and structural components.</li> <li>-Underside and vertical sides of all sheet metal compartmentation, including support angles.</li> <li>-Structural support members under running boards, rear platforms, battery boxes, walkways, etc.</li> <li>-Inside surfaces of the pump heat enclosure. (when installed)</li> <li>-Suspension mounts.</li> <li>-Transmission cooler fittings.</li> <li>-Engine mounts.</li> <li>-Bottom and outside of frame rails behind the forward edge of the water pump.</li> </ul> <p>Exclusions shall be:</p> <ul style="list-style-type: none"> <li>-Engine</li> <li>-Transmission</li> <li>-Drive lines</li> <li>-PTO's</li> <li>-Valves and tank drains</li> <li>-Intake valves</li> <li>-Air Horns, sirens and back-up alarms</li> <li>-Frame rails forward of the forward edge of the water pump.</li> </ul> <p><b><u>FIRE APPARATUS PARTS CD MANUAL</u></b></p> <p>There shall be two (2) custom parts manuals for the complete fire apparatus provided in CD format with the completed unit.</p> <p>The manuals shall contain the following:</p> <ul style="list-style-type: none"> <li>• Job number</li> <li>• Part numbers with full descriptions</li> <li>• Table of contents</li> </ul>		

	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> <li>• Parts section sorted in functional groups reflecting a major system, component, or assembly</li> <li>• Parts section sorted in alphabetical order</li> <li>• Instructions on how to locate parts</li> </ul> <p>The manuals shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p> <p><b><u>SERVICE PARTS INTERNET SITE</u></b></p> <p>The service parts information included in these manuals are also available on the factory website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.</p> <p><b><u>CHASSIS SERVICE CD MANUALS</u></b></p> <p>There shall be two (2) CD format chassis service manuals containing parts and service information on major components provided with the completed unit.</p> <p>The manual shall contain the following sections:</p> <ul style="list-style-type: none"> <li>• Job number</li> <li>• Table of contents</li> <li>• Troubleshooting</li> <li>• Front Axle/Suspension</li> <li>• Brakes</li> <li>• Engine Tires</li> <li>• Wheels</li> <li>• Cab</li> <li>• Electrical, DC</li> <li>• Air Systems</li> <li>• Plumbing</li> <li>• Appendix</li> </ul> <p>The manual shall be specifically written for the chassis model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.</p> <p><b><u>CHASSIS OPERATION CD MANUALS</u></b></p> <p>There shall be two (2) CD format chassis operation manuals provided.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>ONE (1) YEAR MATERIAL AND WORKMANSHIP</u></b></p> <p>Each new piece of apparatus shall be provided with a minimum <b>one (1) year</b> basic apparatus material and workmanship limited warranty. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>THREE (3) YEAR MATERIAL AND WORKMANSHIP</u></b></p> <p>The new chassis shall be provided with a three (3) year material and workmanship limited warranty. The warranty shall cover such portions of the chassis built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>ENGINE WARRANTY</u></b></p> <p>A <b>five (5) year</b> limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>STEERING GEAR WARRANTY</u></b></p> <p>A <b>three (3) year</b> limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>FIFTY (50) YEAR STRUCTURAL INTEGRITY</u></b></p> <p>The chassis frame and crossmembers shall be provided with a fifty (50) year material and workmanship limited warranty. The warranty shall cover the chassis frame and crossmembers as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>Independent front suspension shall be provided with a <b>three (3) year</b> material and workmanship limited warranty. The manufacturer's warranty shall provide that the independent front suspension and steering gears be free from any defect related to material and workmanship on the portion of the apparatus built by the manufacturer that would arise under normal use and service. A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>REAR AXLE TWO (2) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>A <b>two (2) year</b> axle limited warranty shall be provided.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY</u></b>  A <b>three (3) year</b> brake system limited warranty shall be provided.</p> <p><b><u>TEN (10) YEAR STRUCTURAL INTEGRITY</u></b>  The new cab shall be provided with a <b>ten (10) year</b> material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</u></b>  Each new piece of apparatus shall be provided with a <b>ten (10) year</b> pro-rated paint and corrosion limited warranty on the apparatus cab. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>FIVE (5) YEAR MATERIAL AND WORKMANSHIP</u></b>  The electronic modules and display(s) shall be provided with a five (5) year material and workmanship limited warranty. The warranty shall cover electronic modules to be free from failures caused by defects in material and workmanship.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>CAMERA SYSTEM WARRANTY</u></b>  A fifty four (54) month warranty shall be provided for the camera system.</p> <p><b><u>COMPARTMENT LIGHT WARRANTY</u></b>  A ten (10) year material and workmanship limited warranty shall be provided for the Pierce 12 volt DC LED strip lights. The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>TRANSMISSION WARRANTY</u></b>  The transmission shall have a <b>five (5) year/unlimited mileage</b> warranty covering 100 percent parts and labor. The warranty is to be provided by transmission supplier and not the apparatus builder.</p>		

	Bidder Complies	
	Yes	No
<p><b><u>TRANSMISSION COOLER WARRANTY</u></b></p> <p>The transmission cooler shall carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty shall also be in effect for the first three (3) years of the warranty coverage and shall not exceed \$10,000 per occurrence. A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>WATER TANK WARRANTY</u></b></p> <p>The poly water tank shall be provided with a lifetime material and workmanship limited warranty.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>TEN (10) YEAR STRUCTURAL INTEGRITY</u></b></p> <p>Each new piece of apparatus shall be provided with a <b>ten (10) year</b> material and workmanship limited warranty on the apparatus body. The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY</u></b></p> <p>A roll-up door limited warranty shall be provided. The mechanical components of the roll-up door shall be warranted against defects in material and workmanship for the lifetime of the vehicle. A <b>six (6) year</b> limited warranty shall be provided on painted and satin roll up doors.</p> <p>A copy of the warranty certificate shall be submitted with the bid package.</p> <p><b><u>SIX (6) YEAR PARTS, ONE (1) YEAR LABOR</u></b></p> <p>The pump and its components shall be provided with a six (6) year parts and one (1) year labor limited warranty. The manufacturer's warranty shall provide that the pump and its components shall be free from failures caused by defects in material and workmanship that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>TEN (10) YEAR PUMP PLUMBING WARRANTY</u></b></p> <p>The stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted for a period of <b>ten (10) years or 100,000 miles</b>. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser for a period of ten years from the date of delivery.</p>		



	Bidder Complies	
	Yes	No
<p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>SIX (6) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY</u></b>  A six (6) year generator limited warranty shall be provided.</p> <p><b><u>TEN (10) YEAR PRO-RATED PAINT AND CORROSION</u></b>  Each new piece of apparatus shall be provided with a ten (10) year pro-rated paint and corrosion limited warranty on the apparatus body. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.</p> <p>A copy of the warranty certificate shall be submitted with the bid package (no exception).</p> <p><b><u>VEHICLE STABILITY CERTIFICATION</u></b>  The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at the time of bid.</p> <p><b><u>ENGINE INSTALLATION CERTIFICATION</u></b>  The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification shall be provided at the time of bid.</p> <p><b><u>POWER STEERING CERTIFICATION</u></b>  The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of bid.</p> <p><b><u>CAB INTEGRITY CERTIFICATION</u></b>  The fire apparatus manufacturer shall provide, at the time of bid, a cab integrity certification. Testing shall meet or exceed the requirements below:</p> <ul style="list-style-type: none"> <li>• European Occupant Protection Standard ECE Regulation No.29.</li> <li>• SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.</li> <li>• SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.</li> </ul> <p>There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.</p> <p><b><u>CAB DOOR DURABILITY CERTIFICATION</u></b>  Robust cab doors help protect occupants. Cab doors shall survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder shall certify that the</p>		

	Bidder Complies	
	Yes	No
<p>sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.</p> <p><b><u>WINDSHIELD WIPER DURABILITY CERTIFICATION</u></b></p> <p>Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 <i>Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles</i>. The bidder shall certify that the wiper system design has been tested and that the wiper system has met these criteria.</p> <p><b><u>ELECTRIC WINDOW DURABILITY CERTIFICATION</u></b></p> <p>Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design shall complete 30,000 complete up-down cycles and still function normally when finished. The bidder shall certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.</p> <p><b><u>SEAT BELT ANCHOR STRENGTH</u></b></p> <p>Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.</p> <p><b><u>SEAT MOUNTING STRENGTH</u></b></p> <p>Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder shall certify that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.</p> <p><b><u>CAB DEFROSTER CERTIFICATION</u></b></p> <p>Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and multipurpose Vehicles. The bidder shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.</p> <p><b><u>CAB HEATER CERTIFICATION</u></b></p> <p>Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. The cab heaters shall warm the cab 75 F from a cold-</p>		

Bidder Complies	
Yes	No

soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder shall certify that a substantially similar cab has been tested and has met these criteria.

**CAB AIR CONDITIONING PERFORMANCE CERTIFICATION**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system shall cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 67 degrees Fahrenheit in 30 minutes. The bidder shall certify that a substantially similar air conditioning system has been tested and has met these criteria. The certification shall be available at the time of delivery.

**AMP DRAW REPORT**

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

The manufacturer of the apparatus shall provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which shall include the following:
  - The nameplate rating of the alternator.
  - The alternator rating under the conditions specified per:
    - Applicable NFPA 1901 or 1906 (Current Edition).
  - The minimum continuous load of each component that is specified per:
    - Applicable NFPA 1901 or 1906 (Current Edition).
  - Additional loads that, when added to the minimum continuous load, determine the total connected load.
  - Each individual intermittent load.

All of the above listed items shall be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).