

City of Scottsbluff, Nebraska

Monday, September 19, 2016

Regular Meeting

Item Consent5

Council to approve bid specifications for a new or demonstrator medium duty rescue apparatus and authorize the city clerk to advertise for bids to be received by October 28, 2016 at 2:00 p.m.

Staff Contact: Dana Miller, Fire Chief

**CITY OF SCOTTSBLUFF
NOTICE TO BIDDERS
FIRE RESCUE TRUCK**

Sealed bids will be received by the City of Scottsbluff, Nebraska at the office of the City Clerk, 2525 Circle Drive, Scottsbluff, NE 69361 until 2:00 p.m. on October 28, 2016 for one, new or demonstrator medium duty rescue apparatus. Specifications and instructions to bidders are available at the office of the city clerk and can be obtained by calling the clerk's office at (308)630-6221 or emailing cdickins@scottsbluff.org.

The Scottsbluff City Council reserves the right to reject any and all bids and to waive irregularities.

Dated this 19th day of September, 2016.

/s/ Cindy Dickinson
City Clerk

Publish three times
9/23/16; 9/30/16; and 10/7/16
One Affidavit of Publication Requested

Scottsbluff Fire Department Bid Specifications For One New or Demonstrator Medium Duty Rescue Apparatus

Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p><u>LIABILITY INSURANCE</u></p> <p>The contractor shall furnish with the bid a certificate of insurance for;</p> <p>Workman's Compensation and Employer's Liability Insurance covering for all employees.</p> <p>General Liability (each occurrence) of \$1,000,000.00. General Aggregate coverage of \$2,000,000.00. Products Completed / Operations Aggregate coverage of \$2,000,000.00. Medical Expense coverage of \$5,000 (any one person). Personal Injury of \$1,000,000.00.</p> <p>Automobile liability of \$1,000,000.00 combined single limit (each accident), including any auto, all owned autos, scheduled autos, hired autos, non-owned autos, and garage liability.</p> <p>Excess Umbrella Liability coverage of \$4,000,000.00 each occurrence, Aggregate of \$4,000,000.00. Garage Keepers Liability coverage of \$4,000,000.00 combined limit.</p> <p>All insurance policies must be;</p> <ul style="list-style-type: none"> • Maintained for the life of the contract, • Must provide ten (10) days notice before cancellation, • Must cover all operations of the contractor, or anyone employed by them. <p><u>INTERNET IN-PROCESS SITE</u></p> <p>The contractor shall post and maintain a website where the Scottsbluff Fire Department will be able to view digital images of their apparatus as its being built. The digital images shall be posted once a week starting when the body begins production or when the cab/chassis arrives and shall continue until the final completion of unit.</p> <p><u>VEHICLE STABILITY SUPPLIED WITH CAB/CHASSIS</u></p> <p>The cab/chassis shall be equipped with a stability control system. The system shall have, at a minimum, a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer and individual wheel brake controls.</p> <p><u>FIRE APPARATUS PERFORMANCE</u></p> <p>The fire apparatus shall meet the requirements of this standard at elevations of 2000 ft (600 m) above sea level.</p> <p>The fire apparatus shall meet all the requirements of this standard while stationary on a grade of 6 percent in any direction.</p> <p>The fire apparatus shall meet the requirements of this standard in ambient temperature conditions between 32°F (0°C) and 110°F (43°C).</p> <p><u>HIGHWAY PERFORMANCE</u></p> <p>The apparatus, when loaded to its estimated in-service weight, shall be capable of the following performance while on dry, paved roads that are in good condition:</p> <ul style="list-style-type: none"> ○ Accelerating from 0 to 35 mph (55 km/hr) within 25 seconds on a 0 percent grade ○ Attaining a speed of 50 mph (80 km/hr) on a 0 percent grade ○ Maintaining a speed of at least 20 mph (32 km/hr) on any grade up to and including 6 percent 		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p>The maximum top speed of fire apparatus with a GVWR over 26,000 lb (11,800 kg) shall not exceed either 68 mph (109 km/hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.</p> <p>If the combined water tank and foam agent tank capacities on the fire apparatus exceed 1250 gal (4732 L), or the GVWR of the vehicle is over 50,000 lb (22,680 kg), the maximum top speed of the apparatus shall not exceed either 60 mph (95 km/ hr) or the manufacturer's maximum fire service speed rating for the tires installed on the apparatus, whichever is lower.</p> <p><u>SERVICEABILITY</u></p> <p>The fire apparatus shall be designed to allow the contractor recommended routine maintenance checks of lubricant and fluid levels to be performed by the operator without lifting the cab of a tilt-cab apparatus or without the need for hand tools.</p> <p>Where special tools are required for routine service on any component of the apparatus, such tools shall be provided with the apparatus.</p> <p>Apparatus components that interfere with repair or removal of other major components shall be attached with fasteners, such as cap screws and nuts, so that the components can be removed and installed with ordinary hand tools. These components shall not be welded or otherwise permanently secured into place.</p> <p><u>FIRE APPARATUS DOCUMENTATION</u></p> <p>The contractor shall supply, at the time of delivery, at least one (1) copy of the following documents:</p> <p>The contractor record of apparatus construction details, including the following documents:</p> <ul style="list-style-type: none"> ○ Owner's name and address ○ Apparatus manufacturer, model, and serial number ○ Chassis make, model, and serial number ○ GAWR of front and rear axles and GVWR ○ Front tire size and total rated capacity in pounds (kilograms) ○ Rear tire size and total rated capacity in pounds (kilograms) ○ Chassis weight distribution in pounds (kilograms) with water and manufacturer-mounted equipment (front and rear) ○ Engine make, model, serial number, rated horsepower and related speed, and governed speed; and if so equipped, engine transmission PTO(s) make, model, and gear ratio ○ Type of fuel and fuel tank capacity ○ Electrical system voltage and alternator output in amps ○ Battery make, model, and capacity in cold cranking amps (CCA) ○ Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio ○ Ratios of all driving axles ○ Maximum governed road speed ○ Paint manufacturer and paint number(s) ○ Company name and signature of responsible company representative ○ Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose) ○ Certification of compliance of the optical warning system (see 13.8.16) ○ Siren manufacturer's certification of the siren (see 13.9.1.1) ○ Written load analysis and results of the electrical system performance tests (see 13.14.1 and Section 13.15) ○ Certification of slip resistance of all stepping, standing, and walking surfaces (see 15.7.4.5) ○ If the apparatus has a line voltage power source, the certification of the test for the power source (see 22.15.7.2) 		
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	Yes	No
<ul style="list-style-type: none"> ○ If the apparatus is equipped with an air system, air tank certificates (see 24.5.1.2), the SCBA fill station certification (see 24.9.6), and the results of the testing of the air system installation (see 24.14.5 and 24.15.4) ○ Any other required manufacturer test data or reports <p><u>OPERATIONS AND SERVICE DOCUMENTATION</u></p> <p>The contractor shall deliver with the fire apparatus complete operation and service documentation covering the completed apparatus as delivered and accepted.</p> <p>The documentation shall address at least the inspection, service, and operations of the fire apparatus and all major components thereof.</p> <p>The contractor shall also deliver with the fire apparatus the following documentation for the entire apparatus and each major operating system or major component of the apparatus:</p> <ul style="list-style-type: none"> ○ Manufacturer's name and address ○ Country of manufacture ○ Source for service and technical information ○ Parts replacement information ○ Descriptions, specifications, and ratings of the chassis, pump (if applicable), and aerial device (if applicable) ○ Wiring diagrams for low voltage and line voltage systems to include the following information: <ul style="list-style-type: none"> ○ Pictorial representations of circuit logic for all electrical components and wiring ○ Circuit identification ○ Connector pin identification ○ Zone location of electrical components ○ Safety interlocks ○ Alternator–battery power distribution circuits ○ Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems ○ Lubrication charts ○ Operating instructions for the chassis, any major components such as a pump or aerial device, and any auxiliary systems ○ Precautions related to multiple configurations of aerial devices, if applicable ○ Instructions regarding the frequency and procedure for recommended maintenance ○ Overall apparatus operating instructions ○ Safety considerations ○ Limitations of use ○ Inspection procedures ○ Recommended service procedures ○ Troubleshooting guide ○ Apparatus body, chassis and other component manufacturer's warranties ○ Special data required by this standard ○ A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus ○ One copy of the latest edition of FAMA's Fire Apparatus Safety Guide <p>The contractor shall deliver with the apparatus all manufacturer's operations and service documents supplied with components and equipment that are installed or supplied by the contractor.</p> <p><u>NFPA REQUIRED DOCUMENTATION FORMAT - USB FLASH DRIVE</u></p> <p>The vehicle construction details and the operations and service documentation as required per NFPA 1901 latest edition shall be provided on a USB Flash Drive. These manuals shall be divided into sections for ease of reference. There shall be two (2) USB flash drives provided with the completed vehicle.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p><u>STATEMENT OF EXCEPTIONS</u></p> <p>The contractor shall deliver with the fire apparatus either a certification that the apparatus fully complies with all requirements of this standard or alternatively, a Statement of Exceptions specifically describing each aspect of the completed apparatus that is not fully compliant with the requirements of this standard at the time of delivery.</p> <p>The Statement of Exceptions shall contain, for each noncompliant aspect of the apparatus or missing required item, the following information:</p> <ul style="list-style-type: none"> ○ A separate specification of the section of the applicable standard for which compliance is lacking ○ A description of the particular aspect of the apparatus that is not in compliance therewith or required equipment that is missing ○ A description of the further changes or modifications to the delivered apparatus that must be completed to achieve full compliance ○ Identification of the entity that will be responsible for making the necessary post-delivery changes or modifications or for supplying and installing any missing required equipment to the apparatus to achieve full compliance with this standard <p>Prior to or at the time of delivery of the apparatus, the Statement of Exceptions shall be signed by an authorized agent of the entity responsible for final assembly of the apparatus and by an authorized agent of the purchasing entity, indicating mutual understanding and agreement between the parties regarding the substance thereof.</p> <p><u>CARRYING CAPACITY</u></p> <p>The GAWR and the GCWR or GVWR of the chassis shall be adequate to carry the weight of the completed vehicle when loaded to its estimated in-service weight. The Body Manufacturer shall establish the estimated in service weight during the design of the vehicle</p> <p>The estimated in-service weight shall include the following:</p> <ul style="list-style-type: none"> ○ The chassis, body and tank(s) ○ Full fuel, lubricant, and other chassis or component fluid tanks or reservoirs ○ Full water and other agent tanks ○ *250 lb (114 kg) in each seating position ○ Fixed equipment such as pumps, aerial devices, generators, reels and air systems as installed ○ Ground ladders, suction hose, designed hose load in their hose beds and on their reels ○ An allowance for miscellaneous equipment that is the greatest of the following: ○ The values shown in Table 12.1.2 ○ A purchaser-provided list of equipment to be carried with weights ○ A purchaser-specified miscellaneous equipment allowance <p>The contractor shall engineer and design the fire apparatus such that the completed apparatus, when loaded to its estimated in-service weight, with all movable weights distributed as close as is practical to their intended in-service configuration, does not exceed the GVWR.</p> <p>A contractor's certification of the GVWR or GCWR, along with a certification of each GAWR, shall be supplied on a label affixed to the vehicle.</p> <p>The fire apparatus manufacturer shall permanently affix a high-visibility label in a location visible to the driver while seated.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification					Bidder Complies	
					Yes	No
<p>The label shall show the height of the completed unequipped fire apparatus in feet and inches (meters), the length of the completed fire apparatus in feet and inches (meters), and the GVWR in tons (metric tons).</p> <p>Wording on the label shall indicate that the information shown was current when the apparatus was manufactured and that, if the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate.</p>						
Equipment Allowance						
Apparatus Type	Equip. Storage Area	Apparatus Size	Equip. Allowance (lb.)	Equip. Allowance (kg.)		
Special Service Fire Apparatus	Minimum of 120 cu ft. (3.4 cu mt) of enclosed Compartmentation	10,000 lb to 15,000 lb (4,500 kg to 7,000 kg) GVWR	2,000	910		
		15,001 lb to 20,000 lb (7,001 kg to 9,000 kg) GVWR	2,500	1,135		
		20,001 lb to 30,000 lb (9,001 kg to 14,000 kg) GVWR	3,000	1,350		
		30,001 lb to 40,000 lb (14,001 kg to 18,000 kg) GVWR	4,000	1,800		
		40,001 lb to 50,000 lb (18,001 kg to 23,000 kg) GVWR	6,000	2,700		
		50,001 lb to 60,000 lb (23,001 kg to 27,000 kg) GVWR	8,000	3,600		
		60,001 lb to and up (27,001 kg) GVWR	10,000	4,500		

Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p><u>TESTING</u></p> <p>ROAD TEST</p> <p>Road test shall be conducted in accordance with this section to verify that the completed apparatus is capable of compliance with Readability Section.</p> <p>The tests shall be conducted at a location and in a manner that does not violate local, state or provincial or federal traffic laws.</p> <p>The tests shall be conducted on dry, level, paved roads that are in good condition. The apparatus shall be loaded to its estimated in service weight.</p> <p>The engine shall not operate in excess of the maximum governed speed. Acceleration tests shall consist of two runs in opposite directions over the same route. The fire apparatus shall attain a speed of 35 mph (55 km/hr) from a standing start within 25 seconds. The fire apparatus shall attain a minimum top speed of 50 mph (80 km/hr).</p> <p>If the apparatus is equipped with an auxiliary braking system, the Body Manufacturer shall road test the system to confirm that the system is functioning as intended by the auxiliary braking system manufacturer.</p> <p>If the apparatus is equipped with an air brake system, the service brakes shall bring the apparatus, when loaded to its GVWR, to a complete stop from an initial speed of 20 mph (32.2 km/hr) in a distance not exceeding 35 ft (10.7 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil or grease.</p> <p>If the apparatus is equipped with a hydraulic brake system, the service brakes shall bring the apparatus, when loaded to its GVWR, to a complete stop from an initial speed of 30 mph (48.2 km/hr) in a distance not exceeding 88 ft (26.8 m) by actual measurement on a paved, level, dry surface road that is free of loose material, oil or grease.</p> <p><u>LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST</u></p> <p>The vehicles low voltage electrical system shall be tested and certified by the manufacturer. The certified test results shall be delivered with the completed vehicle. Tests shall be performed when the air temperature is between 0°F and 110°F (-18°C and 43°C).</p> <p>TEST SEQUENCE</p> <p>The following three (3) tests shall be performed in the order in which they appear below. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for ten (10) minutes. Failure of any of these tests shall require a repeat of the sequence.</p> <p>1. RESERVE CAPACITY TEST</p> <p>The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical load shall be activated for ten (10) minutes.</p> <p>All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p>2. ALTERNATOR PERFORMANCE TEST</p> <p>TEST AT IDLE</p> <p>The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.</p> <p>TEST AT FULL LOAD</p> <p>The total continuous electrical load shall be activated with the engine running up to the engine manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during this test.</p> <p>An alarm sounded by excessive battery discharge, as detected by the warning system required in 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system, 23.6 V dc for a 24 V nominal system, or 35.4 V dc for a 42 V nominal system for more than 120 seconds shall be considered a test failure.</p> <p>3. LOW VOLTAGE ALARM TEST</p> <p>The following test shall be started with the engine off and the battery voltage at or above 12 V for a 12 V nominal system, 24 V for a 24 V nominal system or 36 V for a 42 V nominal system.</p> <p>With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates. The battery voltage shall be measured at the battery terminals.</p> <p>The test shall be considered a failure if the alarm does not sound in less than 140 seconds after the voltage drops to 11.70 V for a 12 V nominal system, 23.4 V dc for a 24 V nominal system, or 35.1 V for a 42 V nominal system.</p> <p>The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.</p> <p><u>LOW VOLTAGE - ELECTRICAL SYSTEM PERFORMANCE TEST</u></p> <p>DOCUMENTATION</p> <p>The contractor shall deliver the following with the fire apparatus:</p> <ul style="list-style-type: none"> ○ Documentation of the electrical system performance tests ○ A written electrical load analysis, including the following: <ul style="list-style-type: none"> ○ The nameplate rating of the alternator ○ The alternator rating ○ Each of the component loads specified that make up the minimum continuous electrical load ○ Additional electrical loads that, when added to the minimum continuous electrical load, determine the total continuous electrical load ○ Each individual intermittent electrical load <p><u>UL 120/240 VAC CERTIFICATION</u></p> <p>The 120/240 volt electrical system shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) to the current edition of NFPA 1901 to perform as listed below;</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p>The prime mover shall be started from a cold start condition, and the unloaded voltage and frequency shall be recorded.</p> <p>The line voltage electrical system shall be loaded to at least 100% of the continuous rated wattage stated on the power source specification label. Testing with a resistive load bank shall be permitted.</p> <p>The power source shall be operated in the manner specified by the apparatus manufacturer as documented on instruction plates or in operation manuals. The power source shall be operated at a minimum of 100% of the continuous rated wattage as stated on the power source specification label for a minimum of two (2) hours.</p> <p>The load shall be adjusted to maintain the output wattage at or above the continuous rated wattage during the entire 2-hour test.</p> <p>The following conditions shall be recorded at least every 1/2 hour during the test:</p> <ul style="list-style-type: none"> ○ The power source output voltage, frequency and amperes ○ The prime mover's oil pressure, water temperature and transmission temperature, if applicable ○ The power source hydraulic fluid temperature, if applicable ○ The ambient temperature and power source air inlet temperature <p>The following conditions shall be recorded once during the test for power sources driven by dedicated auxiliary internal combustion engines:</p> <ul style="list-style-type: none"> ○ Altitude ○ Barometric pressure ○ Relative humidity <p>If the generator is driven by the chassis engine and the generator allows for operation at variable speeds, the chassis engine speed shall be reduced to the lowest rpm allowed for generator operation and the voltage and frequency shall be recorded.</p> <p>The load shall be removed and the unloaded voltage and frequency shall be recorded.</p> <p>Voltage shall be maintained within $\pm 10\%$ of the voltage stated on the power source specification label during the entire test. Frequency shall be maintained within ± 3 Hz of the frequency stated on the power source specification label during the entire test.</p> <p>The total continuous electrical loads, excluding those loads associated with the equipment defined in NFPA 22.15.7.3.11.2, shall be applied during the testing unless an auxiliary engine drives the power source.</p> <p>If the apparatus is equipped with a fire pump, the 2-hour certification test of the power source shall be completed with the fire pump pumping at 100% capacity at 150 psi (1000 kPa) net pump pressure. The test shall be permitted to be run concurrently with the pump certification test.</p> <p><u>DOCUMENTATION</u></p> <p>The contractor shall deliver the following with the fire apparatus:</p> <p>The results of each test shall be recorded on an appropriate form and provided with the delivery of the fire apparatus.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p><u>DIELECTRIC VOLTAGE WITHSTAND TEST</u></p> <p>The line voltage wiring and permanently connected devices and equipment shall be subjected to a dielectric voltage withstand test of 900 volts for one (1) minute. The testing shall be performed after all body work has been completed.</p> <p>The test shall be conducted as follows:</p> <ul style="list-style-type: none"> ○ Isolate the power source from the panel board and disconnect any solid state low voltage components ○ Connect one lead of the dielectric tester to all the hot and neutral buses tied together ○ Connect the other lead to the fire apparatus frame or body ○ Close any switches and circuit breakers in the circuit(s) ○ Apply the dielectric voltage for one (1) minute in accordance with the testing equipment manufacturer's instructions <p>The electrical polarity of all permanently wired equipment, cord reels and receptacles shall be tested to verify that wiring connections have been properly made.</p> <p>Electrical continuity shall be verified from the chassis or body to all line voltage electrical enclosures, light housings, motor housings, light poles, switch boxes and receptacle ground connections that are accessible to fire fighters in normal operations.</p> <p>If the apparatus is equipped with a transfer switch, it shall be tested to verify operation and that all non grounded conductors are switched.</p> <p>Electrical light towers, floodlights, motors, fixed appliances and portable generators shall be operated at their full rating or capacity for 30 minutes to ensure proper operation.</p> <p><u>WARRANTY</u></p> <p>A full statement shall be provided of the warranties for the vehicle(s) being bid. Warranties should clearly describe the terms under which the vehicle manufacturer accepts responsibility for the cost to repair defects caused by faulty design, quality of work or material and for the applicable period of time after delivery.</p> <p>Cost of repairs refers to all costs related thereto including, but not limited to, the cost of materials and the cost of labor.</p> <p>The contractor shall warrant all materials and accessories used on the vehicle(s), whether fabricated by manufacturer or purchased from an outside source and will deal directly with the Scottsbluff Fire Department on all warranty work.</p> <p><u>GENERAL LIMITED WARRANTY - TWO (2) YEARS</u></p> <p>The vehicle shall be free of defects in material and workmanship for a period of two (2) years or 36,000 miles (or 57,936 kilometers), whichever occurs first starting thirty (30) days after the original invoice date.</p> <p>The Contractor must be the "single source" coordinator of all warranties on the vehicle.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p><u>LOW VOLTAGE ELECTRICAL WARRANTY - FIVE (5) YEARS</u></p> <p>The vehicle low voltage electrical system shall be free of defects in material and workmanship for a period of five (5) years or 60,000 miles (or 96,561 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.</p> <p><u>STRUCTURAL WARRANTY - TEN (10) YEARS</u></p> <p>The body shall be free of structural or design failure or workmanship for a period of ten (10) years, or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date.</p> <p><u>UNDERCOAT WARRANTY</u></p> <p>The body undercoating shall have a warranty provided by the manufacturer for the lifetime of the vehicle or twenty (20) years, whichever occurs first. The warranty shall be transferable between vehicle owners. Should the undercoating material applied to the underside of the body and wheel wells of the vehicle ever flake off, peel, chip or crack due to drying out, the damaged area shall be re-sprayed without charge to the vehicle owner.</p> <p><u>PAINT LIMITED WARRANTY - TEN (10) YEARS</u></p> <p>The body shall be free of bubbling or peeling as a result of a defect in the method of manufacture for a period of ten (10) years or 100,000 miles (or 160,934 kilometers), whichever occurs first, starting thirty (30) days after the original invoice date. Pro-rated warranties will not be acceptable.</p> <p><u>GRAPHICS LIMITED WARRANTY</u></p> <p>The 3M graphics installation shall be warranted for a period of two (2) years. The 3M materials installed on completed vehicle shall be warranted for seven (7) years. The 3M Diamond grade film (if specified) shall be warranted for ten (10) years.</p> <p><u>CONSTRUCTION PERIOD</u></p> <p>The completed vehicle shall be delivered within three hundred sixty five (365) days after receipt of a purchase order or contract.</p> <p>Contractor shall not be held liable for delays of chassis delivery due to accidents, strikes, floods or other events not subject to their control. Contractor shall provide immediate written notice to Scottsbluff Fire Department as to delays and to what extent these delays have in completing vehicle within the stated construction time period.</p> <p><u>OVERALL HEIGHT</u></p> <p>The overall height (OAH) of the vehicle shall be approximately 118" (9' - 10") from the ground. This measurement shall be taken on flat ground with the tires properly inflated, in the unloaded condition, at that highest point of the vehicle.</p> <p>The overall height (OAH) shall not exceed 128" (10' 8") from the ground.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p><u>OVERALL LENGTH</u></p> <p>The overall length (OAL) of the vehicle shall be approximately 395" (32' 9")</p> <p><u>OVERALL WIDTH</u></p> <p>The overall width (OAW) of the body at drip rails shall be 102" (8' - 6"), and body shall be 100" (8' - 4").</p> <p><u>ANGLE OF APPROACH</u></p> <p>The angle of approach for this vehicle shall not be less than eight (8) degrees when it is loaded to the estimated in-service weight as specified by the current edition of NFPA 1901.</p> <p><u>ANGLE OF DEPARTURE</u></p> <p>The angle of departure for this vehicle shall not be less than eight (8) degrees when it is loaded to the estimated in-service weight as specified by the current edition of NFPA 1901.</p> <p><u>PRE-CONSTRUCTION CONFERENCE</u></p> <p>A pre-construction conference shall be required, at the contractor's factory for two staff members and the Fire Chief from the Scottsbluff Fire Department to finalize all construction details prior to manufacturing if applicable. The contractor shall at his/her expense, provide transportation, lodging, rental car and meal expenses during the pre-construction conference.</p> <p><u>FINAL INSPECTION CONFERENCE</u></p> <p>A final inspection conference shall be required, at the contractor's factory for two staff members and the Fire Chief from the Scottsbluff Fire Department to inspect the vehicle and construction details prior to shipment of the completed vehicle if applicable. This inspection shall take place after NFPA required striping and lettering is installed. The contractor shall at his/her expense, provide transportation, lodging, rental car and meal expenses during the final inspection conference.</p> <p><u>DELIVERY AND DEMONSTRATION</u></p> <p>The Contractor shall be responsible for the delivery of the completed unit to the Scottsbluff Fire Department's location. On initial delivery of the apparatus, the Contractor shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to representatives of the Scottsbluff Fire Department regarding the operation, care and maintenance of the apparatus and equipment supplied at Scottsbluff Fire Department location.</p> <p>The Delivery Engineer shall set delivery and instruction schedule with the person appointed by Scottsbluff Fire Department.</p> <p>After delivery of the apparatus, the Scottsbluff Fire Department shall be responsible for ongoing training of its personnel to proficiency regarding the proper and safe use of the apparatus and associated equipment.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification					Bidder Complies	
					Yes	No
<u>CAB CHASSIS SPECIFICATIONS</u>						
<u>FREIGHTLINER CAB CHASSIS SPECIFICATIONS</u>						
<ul style="list-style-type: none"> <u>Preferred - 2017 Freightliner M2 106, 2-Door, 4 x 2, H.Exhaust, Red/White</u> 						
Vehicle Configuration						
		M2 106 CONVENTIONAL CHASSIS				
		SET BACK AXLE - TRUCK				
General Service						
		RESCUE AND EMERGENCY SERVICE				
		MEDIUM TRUCK 2 YEAR WARRANTY				
		EXPECTED FRONT AXLE LOAD: 14000 lbs				
		EXPECTED REAR DRIVE AXLE LOAD: 23000 lbs				
		EXPECTED GROSS VEHICLE CAPACITY: 37000 lbs				
Engine						
		CUM ISL 350 HP @ 2000 RPM, 2200 GOV RPM, 1000 LB/FT @ 1400 RPM				
Engine Equipment						
		2016 ONBOARD DIAGNOSTICS/2010 EPA/CARB/GHG17				
		NFPA COMPLIANT EMBER SCREEN AND FIRE RETARDANT DONALDSON AIR CLEANER				
		DR 12V 275 AMP 40-SI BRUSHLESS PAD ALTERNATOR WITH REMOTE BATTERY VOLTAGE SENSE				
		(2) ALLIANCE MODEL 1231, GROUP 31, 12 VOLT M/FREE 2250 CCA THREADED STUD BATTERIES				
		BATTERY BOX FRAME MOUNTED				
		WIRE GROUND RETURN FOR BATTERY CABLES WITH ADDITIONAL FRAME GROUND RETURN				
		POSITIVE LOAD DISCONNECT WITH CAB MOUNTED CONTROL SWITCH MOUNTED OUTBOARD DRIVER SEAT				
		CUMMINS TURBOCHARGED 18.7 CFM AIR COMPRESSOR WITH INTERNAL SAFETY VALVE				
		CUMMINS EXHAUST BRAKE INTEGRAL WITH VARIABLE GEOMETRY TURBO WITH ON/OFF DASH SWITCH				
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Scottsbluff Fire Medium Rescue Bid Specification						Bidder Complies	
						Yes	No
		RH MTD HORIZONTAL AFTERTREATMENT WITH RH TAILPIPE EXITING FORWARD OF REAR TIRES					
		HORTON DRIVEMASTER ON/OFF FAN DRIVE					
		AUTOMATIC FAN CONTROL WITHOUT DASH SWITCH					
		CUMMINS SPIN ON FUEL FILTER					
		COMBINATION FULL FLOW/BYPASS OIL FILTER					
		1100 SQUARE INCH ALUMINUM RADIATOR					
		ANTIFREEZE TO -34F, OAT (NITRITE AND SILICATE FREE) EXTENDED LIFE COOLANT					
		GATES BLUE STRIPE COOLANT HOSES OR EQUIVALENT					
		CONSTANT TENSION HOSE CLAMPS FOR COOLANT HOSES					
		ELECTRIC GRID AIR INTAKE WARMER					
		DELCO 12V 38MT HD STARTER WITH INTEGRATED MAGNETIC SWITCH					
Transmission							
		ALLISON 3000 EVS 6 SPD AUTOMATIC TRANSMISSION WITH PTO PROVISION					
Transmission Equipment							
		MAGNETIC PLUGS, ENGINE DRAIN, TRANSMISSION DRAIN, AXLE(S) FILL AND DRAIN					
		PUSH BUTTON ELECTRONIC SHIFT CONTROL, DASH MOUNTED					
		TRANSMISSION PROGNOSTICS - ENABLED 2013					
		WATER TO OIL TRANSMISSION COOLER					
		TRANSMISSION OIL CHECK AND FILL WITH ELECTRONIC OIL LEVEL CHECK					
		SYNTHETIC TRANSMISSION FLUID (TES- 295 COMPLIANT)					
Front Axle and Equipment							
		DETROIT DA-F-14.7-3 14,700# FF1 71.5 KPI/3.74 DROP SINGLE FRONT AXLE					
		MERITOR 16.5X5 Q+ CAST SPIDER CAM FRONT BRAKES, DOUBLE ANCHOR, FABRICATED SHOES					
		FIRE AND EMERGENCY SEVERE SERVICE, NON-ASBESTOS FRONT LINING					
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Scottsbluff Fire Medium Rescue Bid Specification						Bidder Complies	
						Yes	No
		FRONT BRAKE DUST SHIELDS					
		MERITOR AUTOMATIC FRONT SLACK ADJUSTERS					
		TRW TAS-85 POWER STEERING					
		2 QUART SEE THROUGH POWER STEERING RESERVOIR					
		SYNTHETIC 75W-90 FRONT AXLE LUBE					
Front Suspension							
		14,600# TAPERLEAF FRONT SUSPENSION					
		MAINTENANCE FREE RUBBER BUSHINGS					
		FRONT SHOCK ABSORBERS					
Rear Axle and Equipment							
		23,000 LB FIRE/EMERGENCY SERIES SINGLE REAR AXLE					
		IRON REAR AXLE CARRIER WITH STANDARD AXLE HOUSING					
		MXL 17T MERITOR EXTENDED LUBE MAIN DRIVELINE WITH HALF ROUND YOKES					
		MERITOR 16.5X7 Q+ CAST SPIDER CAM REAR BRAKES, DOUBLE ANCHOR, FABRICATED SHOES					
		FIRE AND EMERGENCY SEVERE SERVICE NON-ASBESTOS REAR BRAKE LINING					
		REAR BRAKE DUST SHIELDS					
		HALDEX GOLDSEAL LONGSTROKE 1- DRIVE AXLE SPRING PARKING CHAMBERS					
		MERITOR AUTOMATIC REAR SLACK ADJUSTERS					
		SYNTHETIC 75W-90 REAR AXLE LUBE					
Rear Suspension							
		AIRLINER 23,000# REAR SUSPENSION WITH CHAIN CLEARANCE					
		DUAL AIR REAR SUSPENSION LEVELING VALVES					
		TRANSVERSE CONTROL RODS					
		REAR SHOCK ABSORBERS - (AIR RIDE SUSPENSION)					
Brake System							
		AIR BRAKE PACKAGE					
		WABCO 4S/4M ABS WITH TRACTION CONTROL & ESC					
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Scottsbluff Fire Medium Rescue Bid Specification						Bidder Complies	
						Yes	No
		STANDARD AIR SYSTEM PRESSURE PROTECTION					
		BW AD-9 BRAKE LINE AIR DRYER WITH HEATER					
		CUSTOM STEEL AIR BRAKE RESERVOIRS					
		BW DV-2 AUTO DRAIN VALVE WITHOUT HEATER - WET TANK					
Electrical Connections							
		UPGRADED CHASSIS MULTIPLEXING UNIT					
		UPGRADED BULKHEAD MULTIPLEXING UNIT					
Wheelbase & Frame							
		(184 INCH) WHEELBASE / (118 INCH) CA					
		11/32X3-1/2X10-15/16 INCH STEEL FRAME 120KSI					
		(63 INCH) REAR FRAME OVERHANG					
Chassis Equipment							
		THREE-PIECE 14 INCH CHROME STEEL BUMPER WITH COLLAPSIBLE ENDS					
		FRONT TOW HOOKS - FRAME MOUNTED					
		FENDER & FRONT OF HOOD MTD FRONT MUDFLAPS					
		GRADE 8 THREADED HEX HEADED FRAME FASTENERS					
Fuel Tanks							
		50 GALLON RECTANGULAR ALUMINUM FUEL TANK					
		6 GALLON DIESEL EXHAUST FLUID TANK					
		ALLIANCE FUEL FILTER/WATER SEPARATOR					
		EQUIFLO INBOARD FUEL SYSTEM					
Tires							
		MICHELIN XZE 12R22.5 16 PLY RADIAL FRONT TIRES					
		MICHELIN XDE M/S 11R22.5 16 PLY RADIAL REAR TIRES					
Hubs							
		CONMET PRESET PLUS IRON FRONT HUBS					
		CONMET PRE-SET BEARING IRON REAR HUBS					
Wheels							
		22.5X8.25 10-HUB PILOT POLISHED					
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Scottsbluff Fire Medium Rescue Bid Specification						Bidder Complies	
						Yes	No
		ALUMINUM DISC FRONT WHEELS					
		22.5X8.25 10-HUB PILOT POLISHED ALUMINUM DISC REAR OUTER WHEELS					
Cab Exterior							
		106 INCH BBC FLAT ROOF ALUMINUM CONVENTIONAL AIR RIDE CAB WITH EXTERIOR SUN VISOR					
		NFPA COMPLIANT EXTERIOR GRAB HANDLES					
		HOOD MOUNTED CHROMED PLASTIC GRILLES					
		FIBERGLASS HOOD WITH FIREWALL INSULATION					
		DUAL 25 INCH ROUND STUTTER TONE HOOD MOUNTED AIR HORNS					
		DUAL ELECTRIC HORNS					
		DOOR LOCKS AND IGNITION SWITCH KEYED THE SAME					
		INTEGRAL HEADLIGHT/MARKER ASSEMBLY WITH CHROME BEZELS AND DAYTIME RUNNING LIGHTS					
		LED AERODYNAMIC MARKER LIGHTS					
		DUAL 102" WEST COAST BRIGHT FINISH HEATED MIRRORS WITH LH AND RH REMOTE					
		LH AND RH 8 INCH BRIGHT FINISH CONVEX MIRRORS MOUNTED UNDER PRIMARY MIRRORS					
		63X14 INCH TINTED REAR WINDOW					
		TINTED DOOR GLASS LH AND RH WITH TINTED NON-OPERATING WING WINDOWS					
		RH AND LH ELECTRIC POWERED WINDOWS					
		TINTED WINDSHIELD					
		2 GALLON WINDSHIELD WASHER RESERVOIR WITHOUT FLUID LEVEL INDICATOR, FRAME MOUNTED					
Cab Interior							
		OPAL GRAY VINYL INTERIOR					
		MOLDED PLASTIC DOOR PANELS WITH ALUMINUM KICKPLATES LOWER DOORS					
		BLACK MATS WITH PREMIUM INSULATION					
		WOODGRAIN INSTRUMENT PANELS					
		IN DASH STORAGE BIN					
		AM/FM/WB DASH MTD RADIO WITH					
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Scottsbluff Fire Medium Rescue Bid Specification						Bidder Complies	
						Yes	No
		BLUETOOTH AND MICROPHONE, USB PORT, AUXILIARY INPUTS					
		(2) CUP HOLDERS LH AND RH DASH					
		HEATER, DEFROSTER AND AIR CONDITIONER					
		MAIN HVAC CONTROLS W/ RECIRCULATION SWITCH					
		SOLID-STATE CIRCUIT PROTECTION AND FUSES					
		12V NEGATIVE GROUND ELECTRICAL SYSTEM					
		OVERHEAD INSTRUMENT PANEL					
		DOOR ACTIVATED DOME/RED MAP LIGHTS, FORWARD LH AND RH AND REAR LH, RH AND CENTER					
		CAB DOOR LATCHES WITH MANUAL DOOR LOCKS					
		(1) 12 VOLT POWER SUPPLY IN DASH					
		SEATS INC 911 UNIVERSAL SERIES HIGH BACK AIR SUSPENSION DRIVER SEAT NFPA COMPLIANT					
		SEATS INC 911 UNIVERSAL SERIES HIGH BACK NON SUSPENSION PASSENGER SEAT WITH UNDERSEAT STORAGE NFPA COMPLIANT					
		LH AND RH INTEGRAL DOOR PANEL ARMRESTS					
		GRAY VINYL SEAT COVERS WITH GRAY CORDURA CLOTH BOLSTERS AND HEADRESTS					
		3 POINT HIGH VISIBILITY ORANGE RETRACTOR DRIVER & RH FRT PASSENGER SEAT BELTS NFPA COMPLIANT					
		ADJUSTABLE TILT AND TELESCOPING STEERING COLUMN					
		4-SPOKE 18 INCH STEERING WHEEL					
		DRIVER AND PASSENGER INTERIOR SUN VISORS					
Instruments & Controls							
		BLACK GAUGE BEZELS					
		LOW AIR PRESSURE LIGHT AND BUZZER					
		2 INCH PRIMARY AND SECONDARY AIR PRESSURE GAUGES					
		ENGINE COMPARTMENT MOUNTED AIR RESTRICTION INDICATOR WITH GRADUATIONS					
		ELECTRONIC CRUISE CONTROL WITH					
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Scottsbluff Fire Medium Rescue Bid Specification						Bidder Complies	
						Yes	No
		SWITCHES IN LH SWITCH PANEL					
		ICU3S, 132X48 DISPLAY WITH DIAGNOSTICS, 28 LED WARNING LAMPS AND DATA LINKED					
		FIRE AND EMERGENCY SERVICE VEHICLES ENGINE WARNING					
		2 INCH ELECTRIC FUEL GAUGE					
		ELECTRICAL ENGINE COOLANT TEMPERATURE GAUGE					
		2 INCH TRANSMISSION OIL TEMPERATURE GAUGE					
		ENGINE AND TRIP HOUR METERS INTEGRAL WITHIN DRIVER DISPLAY					
		ELECTRIC ENGINE OIL PRESSURE GAUGE					
		ELECTRONIC MPH SPEEDOMETER WITH SECONDARY KPH SCALE					
		ELECTRONIC 3000 RPM TACHOMETER					
		PRE-FLIGHT, ALL OUTPUTS FLASH WITH SMART SWITCH					
		DIGITAL VOLTAGE DISPLAY INTEGRAL WITH DRIVER DISPLAY					
		SINGLE ELECTRIC WINDSHIELD WIPER MOTOR WITH DELAY					
		MARKER LIGHT SWITCH INTEGRAL WITH HEADLIGHT SWITCH					
		ONE VALVE PARK BRAKE SYSTEM WITH DASH VALVE					
		SELF CANCELING TURN SIGNAL SWITCH WITH DIMMER, WASHER/WIPER AND HAZARD IN HANDLE					
		INTEGRAL ELECTRONIC TURN SIGNAL FLASHER WITH HAZARD LAMPS OVERRIDING STOP LAMPS					
Paint Design							
		TWO COLOR CUSTOM WHITE/RED PAINT BASE/CLEAR					
		BLACK, HIGH SOLIDS POLYURETHANE CHASSIS PAINT					
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies									
	Yes	No								
<p><u>Weight Summary</u></p> <table><tr><td></td><td>Weight Front</td><td>Weight Rear</td><td>Total Weight</td></tr><tr><td>Factory Weight+</td><td>7948 lbs</td><td>4518 lbs</td><td>12466 lbs</td></tr></table> <p>(+) Weights shown are estimates only.</p> <p><u>CAB TO AXLE DIMESION</u></p> <p>Cab to axle will be approximately 118".</p> <p><u>LUBRICATION AND TIRE DATA PLATE</u></p> <p>A permanent label in the driving compartment shall specify the quantity and type of the following fluids used in the vehicle and tire information:</p> <ul style="list-style-type: none">▪ Engine oil▪ Engine coolant▪ Chassis transmission fluid▪ Pump transmission lubrication fluid . . (if applicable)▪ Pump priming system fluid, if applicable . . (if applicable)▪ Drive axle(s) lubrication fluid▪ Air conditioning refrigerant . . (if applicable)▪ Air conditioning lubrication oil . . (if applicable)▪ Power steering fluid▪ Cab tilt mechanism fluid . . (if applicable)▪ Transfer case fluid . . (if applicable)▪ Equipment rack fluid (if applicable)▪ CAFS air compressor system lubricant . . (if applicable)▪ Generator system lubricant . . (if applicable)▪ Front tire cold pressure▪ Rear tire cold pressure▪ Maximum tire speed ratings <p><u>VEHICLE DATA PLATE</u></p> <p>A permanent label in the driving compartment which indicates the following:</p> <ul style="list-style-type: none">▪ Filter part numbers for the;▪ Engine▪ Transmission▪ Air▪ Fuel▪ Serial numbers for the;▪ Engine▪ Transmission▪ Delivered Weights of the Front and Rear Axles▪ Paint Brand and Code(s)▪ Sales Order Number <p><u>OVERALL HEIGHT, LENGTH DATA PLATE (US)</u></p> <p>The contractor shall permanently affix a high-visibility label in a location visible to the driver while seated.</p> <p>The label shall show the height of the completed fire apparatus in feet and inches, the length of the completed fire apparatus in feet and inches, and the GVWR in pounds.</p>		Weight Front	Weight Rear	Total Weight	Factory Weight+	7948 lbs	4518 lbs	12466 lbs		
	Weight Front	Weight Rear	Total Weight							
Factory Weight+	7948 lbs	4518 lbs	12466 lbs							
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p>Wording on the label shall indicate that the information shown was current when the apparatus was manufactured and that, if the overall height changes while the vehicle is in service, the fire department must revise that dimension on the plate.</p> <p><u>PERSONNEL CAPACITY</u></p> <p>A label that states the number of personnel the vehicle is designed to carry shall be located in an area visible to the driver.</p> <p><u>SEAT BELT WARNING - FAMA06/07</u></p> <p>A safety sign FAMA06 shall be visible from each seat that is not equipped with occupant restraint and therefore not intended to be occupied while the vehicle is in motion.</p> <p>A safety sign FAMA07, which warns of the importance of seat belt use, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.</p> <p><u>EQUIPMENT MOUNTING FAMA10</u></p> <p>A safety sign FAMA10, which warns of the need to secure items in the cab, shall be visible inside the cab.</p> <p><u>FIRE SERVICE TIRES - FAMA12</u></p> <p>A safety sign FAMA12, which warns of the special requirements for fire service-rated tires, shall be visible to the driver entering the cab of any apparatus so equipped.</p> <p><u>HELMET WARNING - FAMA15</u></p> <p>A safety sign FAMA15, which warns not to wear helmets while the vehicle is in motion, shall be visible from each seat that is intended to be occupied while the vehicle is in motion.</p> <p><u>CLIMBING METHOD - FAMA23</u></p> <p>A safety sign FAMA23, which warns of the proper climbing method, shall be visible to personnel entering the cab and at each designated climbing location on the body.</p> <p><u>REAR STEP CROSSWALK WARNING - FAMA24</u></p> <p>A safety sign FAMA24, which warns personnel not to ride on the vehicle, shall be located at the rear step areas and at any cross walkways.</p> <p><u>FINAL STAGE MANUFACTURER VEHICLE CERTIFICATION</u></p> <p>A final stage manufacturer vehicle certification label shall be provided and installed in the driver cab door jamb area.</p> <p><u>FRONT BUMPER</u></p> <p>The front bumper shall be as provided by the cab/chassis manufacturer. No other alteration or modifications are required to extension length.</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<p><u>BUMPER GRAVELSHIELD</u></p> <p>The bumper extension gravel shield shall be provided by the cab/chassis manufacturer.</p> <p><u>AIR HORN(S)</u></p> <p>The air horn(s) shall be supplied and installed by the cab/chassis manufacturer. The air horn(s) shall be operated by lanyard at the cab ceiling between the driver and officer positions</p> <p><u>MOTOR DRIVEN SIREN</u></p> <p>There shall be a Federal model Q2B motor driven rotary siren with chrome plated grill and housing, recess in the extended front bumper. The siren shall be wired through the master warning light switch, and properly wired with heavy copper cable for minimum voltage drop.</p> <p>Siren Location</p> <p>The siren shall be located on the streetside of the front bumper.</p> <p>Mechanical Siren Guards</p> <p>Mechanical siren recessed into front bumper shall be provided with two (2) metal bar straps bolted to front bumper to assist in protecting exposed siren housing.</p> <p>Siren Brake</p> <p>There shall be a siren brake installed in the rocker switch control panel to activate the siren brake.</p> <p><u>SIREN ACTIVATION</u></p> <p>There shall be two (2) foot switches provided to activate the siren; one (1) for the driver, and one (1) for the officer. The switches shall be mounted on the floor in a location to prevent accidental activation.</p> <p><u>FRONT TOW PROVISIONS</u></p> <p>The front tow provisions shall be supplied and installed by the cab/chassis manufacturer.</p> <p><u>EXHAUST - As Provided by Cab/Chassis</u></p> <p>The exhaust system shall be as provided by cab/chassis manufacturer. The tailpipe may require some modifications for proper ground clearances and fit with body.</p> <p>The exhaust piping and discharge outlet shall be located or shielded so as not to expose any portion of the vehicle or equipment to excessive heating.</p> <p>Exhaust pipe discharge shall be directed away from any operator's position or entry doors on body.</p> <p>Where parts of the exhaust system are exposed so that they are likely to cause injury to operating personnel, protective guards shall be provided.</p> <p>A Plymovent 5" exhaust adapter flange for a Plymovent systems shall be provided and installed on the chassis engine exhaust tailpipe.</p>		
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	Yes	No
<p><u>RADIO ANTENNA INSTALLATION</u></p> <p>There shall be two (2) radio antenna mounts provided and installed on the roof of the cab/chassis. The end of each radio antenna shall be routed to a location determined by the Scottsbluff Fire Department.</p> <p>Due to multiple configurations of antenna whips, the Body Manufacturer shall provide the antenna base, and Scottsbluff Fire Department shall provide the whip.</p> <p>Manufacture will install one (1) Fire Department provided Mobile Data Antenna on cab/chassis roof with it routed to a location to be determined by Scottsbluff Fire during pre-construction meeting.</p> <p><u>12 VDC ACCESSORY PLUG</u></p> <p>There shall be one (1) 12 volt accessory plug(s) provided and installed in the compartment, wired battery direct. The location of accessory plugs shall be determined by the Scottsbluff Fire Department at the pre-construction meeting.</p> <p><u>SEAT SCBA BRACKETS</u></p> <p>There shall be one (1) Zico ULLH walkaway type SCBA air pack bracket(s) provided with strap assembly mounted in specified SCBA seats.</p> <p><u>SEAT BELT COLOR</u></p> <p>Section 14.1.3.4 of the NFPA 1901 Standards, requires all seat belt webbing in cab to be bright red or bright orange in color, and the buckle portion of the seat belt shall be mounted on a rigid or semi rigid stalk such that the buckle remains positioned in an accessible location.</p> <p>Seat Belt: Web Length, Commercial, NFPA Compliant</p> <p><u>SEAT BELT WEB LENGTH - COMMERCIAL CAB</u></p> <p>Sections 14.1.3.2 and 14.1.3.3 of the NFPA 1901 standards, require the effective seat belt web length for a Type 1 lap belt for pelvic restraint to be a minimum of 60", and a Type 2 pelvic and upper torso restraint-style seat belt assembly to be a minimum of 110".</p> <p>The chassis seat belt web length as supplied by the commercial chassis manufacturer shall be compliant to NFPA Standards 14.1.3.2 and 14.1.3.3.</p> <p><u>SEAT BELT MONITORING</u></p> <p>A Weldon 6204 series system with Vista IV display shall be provided and installed to allow the driver to know if all persons seated in the vehicle are secured with seat belts before moving the vehicle. Built-in smart seating logic shall detect if the correct sit and buckle sequence is not followed for all seats. System shall also provide an output for an external alarm. Weldon diagnostic port will be located under dash on driver side. System shall include the following features;</p> <p><u>VEHICLE DATA RECORDER (VDR)</u></p> <p>The vehicle data recorder shall have the following features;</p> <ul style="list-style-type: none"> ○ Recorded Data Includes: 		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> ○ Vehicle Speed, Acceleration, Deceleration, Engine Speed, Engine Throttle Position, ABS Event, Seat Occupied Status, Seat Belt Status, Master Optical Warning Switch, Park Brake, Service Brake, Time, Date and Engine Hours. ○ Password Protected by the customer ○ Six (6) seat position inputs for occupied and belts buckled. Additional six (6) seat expansion module available. ○ Easily interfaces with V-MUX™ or other multiplexing systems ○ Data is extracted by a standard, mini USB cable <p><u>OCCUPANT RESTRAINT INDICATOR</u></p> <p>The occupant restraint indicator shall have the following features;</p> <ul style="list-style-type: none"> ▪ Will be displayed on Vista IV panel. ▪ Supports commercial and custom cab seating layouts; up to 12 seats ▪ Built-in audible alarm ▪ Use in conjunction with Vehicle Data Recorder (VDR) <p><u>SIX (6) – LED TIRE PRESSURE VISUAL INDICATORS</u></p> <p>Each tire shall be equipped with a VECSAFE heavy duty valve cap (or equal) LED indicator that indicates proper tire pressure. The VECSAFE valve cap is self-calibrating. When the cap is mounted on the valve stem the first time, it will memorize that tire pressure, and can be set to recognize a drop in pressure as little as 4 psi. It can be checked for functionality and battery condition by simply unscrewing the cap. If it is in working condition, it will immediately start blinking</p> <p><u>HELMET STORAGE</u></p> <p>No helmet storage is required in the cab crew area.</p> <p><u>CAB CRASH TEST CERTIFICATION</u></p> <p>A cab crash test certification from the fire apparatus manufacturer shall be provided with the equipment. A copy of this certification shall be included with the bid.</p> <p>NOTE: There shall be no exception to any portion of the cab integrity certification requirements. Nonconformance shall lead to immediate rejection of bid.</p> <p>The certification shall state that the cab does meet or exceed the requirements below:</p> <ul style="list-style-type: none"> ▪ European Occupant Protection Standard ECE Regulation No. 29. ▪ SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks. <p><u>CAB MIRRORS, DRIVER ADJUSTABLE</u></p> <p>Section 14.3.5 of the NFPA 1901 Standards, 2009 edition, requires all primary rear view mirrors used by the driver to be adjustable from the driver's position.</p> <p><u>CAB STEP OVERLAY</u></p> <p>Two (2) of the cab/chassis supplied entry steps will be overlaid with 1/8" NFPA compliant aluminum treadplate non-skid stepping surface.</p>		
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	Yes	No
<p>The maximum stepping height shall not exceed 18", with the exception of the ground to first step, which shall not exceed 24" when the vehicle is loaded to its estimated in-service weight. All steps shall have a minimum area of 35 sq in and shall be of such a shape that a 5" diameter disk does not overlap any side when placed on the step, and shall be arranged to provide at least 8" of clearance between the leading edge of the step and any obstruction. All platforms shall have a minimum depth of 8" from the leading edge of the platform to any obstruction.</p> <p><u>HUB AND NUT COVERS</u></p> <p>Front and rear wheels shall be provided with stainless steel hub caps and wheel nut covers.</p> <p><u>MUDFLAPS</u></p> <p>There shall be 1/4" rubber mudflaps provided and installed behind each set of tires to prevent throwing road debris and lower road spray.</p> <p><u>AIR BRAKE SYSTEM QUICK BUILD-UP</u></p> <p>The air brake quick build-up system shall be supplied from the specified automatic electric compressor in order to maintain full operating air pressure while the vehicle is not running.</p> <p>The quick buildup system shall provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time.</p> <p><u>ROAD EMERGENCY SAFETY KIT</u></p> <p>One (1) set of three (3) dual faced triangular warning flares with fold away base complete with storage case per DOT requirements shall be provided with the completed apparatus.</p> <p>One (1) 2.5 lb. ABC type vehicle fire extinguisher with bracket per DOT requirements shall be provided and mounted inside cab area.</p> <p><u>BODY DESIGN</u> - 16' Walk Around Rescue, 4 Side Compartments per side</p> <p>The importance of public safety associated with emergency vehicles requires that the construction of this vehicle meet the following specifications. These specifications are written to establish the minimum level of quality and design. All Bidders shall be required to meet these minimum requirements.</p> <p>It is the intent of these specifications to fully describe the requirements for a custom built emergency type vehicle. In order to extend the expected service life of this vehicle, the body module shall be removable from the chassis frame and be capable of being installed on a new chassis.</p> <p>The sheet metal material requirements, including alloy and material thickness, throughout the specifications are considered to be a minimum. Since such materials are available to all Manufacturers, the material specifications shall be strictly adhered to.</p> <p>The fabrication of the body shall be formed sheet metal. Formed components shall allow the Scottsbluff Fire Department to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Scottsbluff Fire Department from such repair and shall NOT be used.</p> <p>Following construction of the subframe, which supports the apparatus body, the sheet metal portion of the body shall be built directly on the subframe. The joining of the subframe and body shall be of a welded integral construction.</p> <p>The sheet metal fabrication of the body shall be performed using inert gas continuous feed welders only. The entire body shall be welded construction. The use of pop rivets in any portion of structural construction may allow premature failure of the</p>		
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	Yes	No
<p>body structure. Therefore, pop rivets shall NOT be used in the construction of the structural portions of the body. This includes side body sheets, inner panels of compartment doors, and any other structural portions of the body.</p> <p><u>EXTERIOR ALUMINUM BODY</u></p> <p>The fabrication of the body shall be constructed from aluminum 3003H-14 alloy smooth plate. This shall include compartment front panel, vertical side sheets, side upper rollover panels, rear panels and compartment door frames.</p> <p>The body compartment floors and exterior panels shall be constructed with not less than 3/16" (.187) aluminum 3003H-14 smooth plate. Interior compartment dividing walls shall be constructed with not less than 1/8" (.125) aluminum 3003H-14 smooth plate. Lighter gauge sheet metal will not be acceptable in these areas, No Exceptions.</p> <p>The front and rear corners of body shall be formed as part of the front or rear body panels. This provides a stronger body corner and finished appearance. The use of extruded corners, or caps will not be acceptable, No Exceptions.</p> <p>The door side frame openings shall be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments shall be provided. This raceway shall contain all 12 volt wiring running to the rear of the apparatus, permitting easy accessibility to wiring.</p> <p>Individual compartment modules, with dead air space voids between compartments, will not be an acceptable method of compartment construction.</p> <p>The compartments shall be an integral part of the body construction. Compartment floors from front of body to ahead of rear axle, also from rear axle to rear of body shall be single one-piece sections. Compartment floors shall be performed, then positioned in body and welded into final position.</p> <p>Compartment floors shall have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. Angles, lips, or door moldings are not acceptable in the base of compartment door opening. One-way rubber drain valves shall be provided in compartment floors so that a water hose may be used to flush-out compartment area.</p> <p>All exterior seams in sheet metal below frame, and around the rear wheel well area shall be welded and caulked to prevent moisture from entering the compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.</p> <p>Only stainless steel bolts, nuts, and sheet metal screws shall be used in mounting exterior trim, hardware and equipment.</p> <p><u>DRIP RAILS</u></p> <p>The body shall have drip rails over the side full height compartments. The drip rails shall be formed into the upper body panels providing a ridged lower panel and a flat upper body panel surface. The use of mechanically fastened, taped or glued on drip rails will not be acceptable, No Exceptions.</p> <p><u>ROOF CONSTRUCTION WITH COMPARTMENTS</u></p> <p>The roof structure shall be integral with the body sheet metal construction and shall be an all welded assembly. All seams in roof material shall be fully and continuously welded to prevent entry of moisture.</p> <p>There shall be a total of four (4) 2" x 2" x 1/4" 6061-T6 alloy aluminum "C" channels running the length of body, two (2) on each outboard side. These "C" channels shall be used for roof support and in addition shall be used for mounting of any</p>		
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<p>specified reels. This open "C" channel design along with special reel mounting clips allows for a universal location of any specified reels within each compartment.</p> <p>In between the two (2) center "C" channels running the length of body shall be 2" x 2" x 1/4" 6061-T6 alloy aluminum tubing running in between and welded in place on approximate 16" centers to support roof and/or walkway structure if specified.</p> <p>A 2" formed radius shall be provided along the body sides and utilized as a wiring trough. The use of aluminum extrusions in this area shall not be acceptable.</p> <p><u>BODY SUBFRAME</u></p> <p>The chassis frame rails shall be fitted with 1/4" custom extruded UHMW polyethylene rail cap to isolate the body frame members from direct contact with chassis frame rails.</p> <p>The body subframe shall be constructed from 6061T6 aluminum alloy tubing. Subframe shall consist of two (2) 2" x 6" x 1/4" aluminum tubes, the same width as the chassis frame rails, NO EXCEPTION. Welded to this tubing shall be cross members of 2" x 6" x 1/4" aluminum. These cross members shall extend the full width of the body to support the compartments. Cross members shall be located at front and rear of the body, below compartment divider walls, and in front and rear of wheel well opening. Additional aluminum cross members shall be located on 16" centers, or as necessary to support walkway or heavy equipment.</p> <p>To form the frame, the tubing shall be beveled and welded at each joint using 5356 aluminum alloy welding wire.</p> <p><u>BODY MOUNTING</u></p> <p>The body subframe shall be fastened to the chassis frame with a minimum of six (6) spring loaded body mounts. Each mount shall be configured using a two-piece encapsulated slide bracket. The two (2) brackets shall be fabricated of heavy duty 1/4" thick steel and shall have a powder coat finish to prevent any corrosion. Each mounting assembly shall utilizing two (2) 3/4" diameter x 6" long grade 8 bolts and two (2) heavy duty springs. The assembly design shall allow the body and subframe to act as one (1) component, separate from the chassis. As the chassis frame twists under driving conditions, the spring mounting system shall eliminate any stress from being transferred into the body. The spring loaded body mounts shall also prevent frame side rail or body damage caused by unevenly distributed stress and strains due to load and chassis movement.</p> <p>Body mountings that do not allow relief from chassis movement will not be acceptable.</p> <p><u>12" REAR STEP BUMPER</u></p> <p>The full width rear bumper shall be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" NFPA compliant aluminum tread plate. The bumper shall extend from the rear vertical body panel 12" and provide a rear step with a minimum of 1/2" space at body for water drainage.</p> <p><u>REAR TOW EYES</u></p> <p>There shall be two (2) heavy duty rear mounted tow eyes securely attached to the body subframe, below the apparatus body. The tow eyes shall be fabricated from 3/4" thick steel plate and shall have a black powder coat finish.</p>		
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<p><u>GROUND LIGHTS</u></p> <p>There shall be two (2) 8" Access LED lights installed below bumper capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level. Lighting shall be switchable but activated automatically when the vehicle park brake is set.</p> <p><u>WHEEL WELL EXTERIOR PANEL</u></p> <p>The exterior panel of the body wheel well enclosure shall be constructed from 3/16" smooth aluminum panels.</p> <p><u>DIEFORMED BEADED EDGE BODY FENDERS</u></p> <p>A die formed beaded edge shall be provided along the radius of the wheel well opening for a finished appearance.</p> <p><u>WHEEL WELL LINERS</u></p> <p>The wheel wells shall be provided with an easily removable polymer, circular inner fender liner. The inner liner shall be bolted to the wheel well with stainless steel bolts and spaced away from the wheel well so the liner will not accumulate dirt or water.</p> <p><u>EXTERIOR COMPARTMENT DOORS</u></p> <p>ROLL-UP DOOR CONSTRUCTION - ROBINSON (ROM)</p> <p>The vehicle shall be equipped with R•O•M Series IV roll-up exterior compartment doors or equivalent on all compartments. The R•O•M roll-up doors shall be complete with the following features;</p> <p>Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum. Shutter slats shall feature a double wall extrusion 0.315" thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slat must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design will be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.</p> <p>Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.</p> <p>Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double "V" seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece "D" shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125". Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.</p> <p>Shutter door shall have an enclosed counter balance system. Counter balance system shall be 4" in diameter and held in place by two (2) heavy duty 18 gauge zinc plated plates. Counter balance system shall have two (2) over-</p>		
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<p>molded rubber guide wheels to provide a smooth transition from vertical track to counter balance system; no foam material of any kind shall be permitted or used in this area.</p> <p>All exterior compartment doors shall have the standard 3.0" tall bottom rail extrusion for easy one (1) hand opening and closing.</p> <p><u>BODY HEIGHT MEASUREMENTS-</u> Body Height: 10" Raised Roof w/ Upper Body Compartments</p> <p>The vertical body dimensions shall be as follows:</p> <p><u>AHEAD OF REAR AXLE</u></p> <table><thead><tr><th><u>Description</u></th><th><u>Dimension</u></th></tr></thead><tbody><tr><td>Bottom of Subframe to Top of Body</td><td>74.0"</td></tr><tr><td>Bottom of Subframe to Bottom of Body</td><td>22.5"</td></tr><tr><td>Vertical Door Opening</td><td></td></tr><tr><td>-with roll-up door</td><td>67.5"</td></tr><tr><td>-with hinged door</td><td>71.5"</td></tr></tbody></table> <p><u>ABOVE REAR AXLE</u></p> <table><thead><tr><th><u>Description</u></th><th><u>Dimension</u></th></tr></thead><tbody><tr><td>Vertical Door Opening - Above Rear Wheel</td><td></td></tr><tr><td>-with roll-up door</td><td>34.0"</td></tr><tr><td>-with hinged door</td><td>37.0"</td></tr></tbody></table> <p><u>BEHIND REAR AXLE</u></p> <table><thead><tr><th><u>Description</u></th><th><u>Dimension</u></th></tr></thead><tbody><tr><td>Bottom of Subframe to Bottom of Body</td><td>20.0"</td></tr><tr><td>Vertical Door Opening</td><td></td></tr><tr><td>-with roll-up door</td><td>62.0"</td></tr><tr><td>-with hinged door</td><td>66.0"</td></tr></tbody></table> <p><u>GENERAL</u></p> <table><thead><tr><th><u>Description</u></th><th><u>Dimension</u></th></tr></thead><tbody><tr><td>Bottom of Drip Rail to Top of Body</td><td>23.5"</td></tr></tbody></table> <p>(Dimensions are approximate and subject to change during construction or design process.)</p> <p><u>BODY WIDTH DIMENSIONS</u></p> <p>The body shall be 100.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be approximately and subject to change during construction or design process.</p> <table><thead><tr><th><u>Area Description</u></th><th><u>Dimension</u></th></tr></thead><tbody><tr><td>Transverse Area above Subframe</td><td>95.0"</td></tr><tr><td>Compartment Depth below Subframe</td><td>24.5"</td></tr></tbody></table>		<u>Description</u>	<u>Dimension</u>	Bottom of Subframe to Top of Body	74.0"	Bottom of Subframe to Bottom of Body	22.5"	Vertical Door Opening		-with roll-up door	67.5"	-with hinged door	71.5"	<u>Description</u>	<u>Dimension</u>	Vertical Door Opening - Above Rear Wheel		-with roll-up door	34.0"	-with hinged door	37.0"	<u>Description</u>	<u>Dimension</u>	Bottom of Subframe to Bottom of Body	20.0"	Vertical Door Opening		-with roll-up door	62.0"	-with hinged door	66.0"	<u>Description</u>	<u>Dimension</u>	Bottom of Drip Rail to Top of Body	23.5"	<u>Area Description</u>	<u>Dimension</u>	Transverse Area above Subframe	95.0"	Compartment Depth below Subframe	24.5"		
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<p><u>STREETSIDE COMPARTMENT - FRONT (S1)</u></p> <ul style="list-style-type: none"> • There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. • There shall be one (1) aluminum tray(s) with 100% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 46" deep and as wide as the compartment layout or door opening permits located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3". • Vertical partition(s) shall be provided on slide-out tray base at the forward (left) edge of tray. The vertical partition(s) shall be 3/16" 3003H-14 alloy smooth aluminum sheet. Height of tool board shall be determined at pre-construction meeting by Scottsbluff Fire. • There shall be one {1} aluminum tray base with 70% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed, 40% extended and 70% extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3" • The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength. <p><u>STREETSIDE COMPARTMENT - AHEAD OF REAR WHEELS (S2)</u></p> <ul style="list-style-type: none"> • There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. • There shall be one {1} aluminum tray base with 70% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed, 40% extended and 70% extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3" • There shall be one (1) transverse module for one (1) Scottsbluff Fire Department supplied stokes basket. Manufacturer, model number and dimensions of the stokes basket shall be provided during the pre-construction meeting. • There shall be one (1) transverse module for two (2) Scottsbluff Fire Department supplied backboard(s). Manufacturer, model number and dimensions of the backboard(s) shall be provided during the pre-construction meeting. • The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength 		
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<p><u>STREETSIDE COMPARTMENT - ABOVE REAR WHEELS (S3)</u></p> <ul style="list-style-type: none"> • There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. • There shall be a transverse plywood storage module for full 4' x 8' x $\frac{3}{4}$" sheets of plywood without altering the size. The module shall be fabricated from 3/16" 3003H-14 aluminum alloy sheet and shall have hinged retainer doors at each end to hold plywood in place. Module shall hold Six (6) Scottsbluff Fire provided sheets of Plywood. • There shall be one {1} aluminum tray base with 70% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed, 40% extended and 70% extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3" <p><u>STREETSIDE COMPARTMENT - REAR (S4)</u></p> <ul style="list-style-type: none"> • There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. • There shall be one (1) air bag storage module(s). The module shall be fabricated from 1/8" 3003H-14 aluminum alloy sheet. Circular notches shall be provided along the front edge to ease the access to the air bags. Each bay shall be sized to hold the air bag and a matching piece of 1/2" plywood (plywood not provided). The make, model, qty and exact dimensions of the air bags shall be provided by the Scottsbluff Fire Department prior during the pre-construction meeting. ▪ There shall be one (1) pull-out & tilt-down aluminum tray(s) with 100% extension, rated at maximum allowable for tilt-down tray(s). Slide-out tray(s) base shall be approximately 24" deep and as wide as the compartment layout or door opening permits located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3". ▪ There shall be one (1) pull-out aluminum tray(s) with 100% extension, and rating of 400lbs. Slide-out tray(s) base shall be approximately 24" deep and as wide as the compartment layout or door opening permits located below the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3". 		
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<ul style="list-style-type: none"> There shall be one (1) SCBA cylinder storage module for 8" OD (maximum) SCBA bottles. The maximum length of the SCBA cylinder shall be 24.5". The module shall have an exterior shell fabricated from 1/8" (.125) 3003H-14 aluminum alloy sheet. The module shall have a 2" slope, front to back to prevent cylinders from sliding out. The SCBA cylinder storage tubing shall be fabricated from PVC pipe to prevent damage or abrasion to cylinders. In addition there shall be rubber matting provided in the base of each storage tube for bottle protection and to prevent slipping. <p>Three (3) cylinders lower right of compartment.</p> <p>Brand: Drager</p> <p>Diameter: Must be able to accommodate up to 7.5"</p> <p>Length: 25.5" (with valve)</p> <ul style="list-style-type: none"> There shall be three (3) removable plastic tool box(s) with hand holes for carrying. Each tool box shall be fabricated from 1/2" (.50) textured finish polypropylene sheet. Tool box(s) must be sized equally to all fit on pull-out & tilt-down tray located above the frame rails. There shall be two (2) removable plastic tool box(s) with hand holes for carrying. Each tool box shall be fabricated from 1/2" (.50) textured finish polypropylene sheet. The tool box(s) must be sized equally to fit on pull-out tray located below the frame rails. The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor). <p><u>CURBSIDE COMPARTMENT - FRONT (C1)</u></p> <ul style="list-style-type: none"> There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. There shall be one (1) aluminum tray(s) with 100% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 46" deep and as wide as the compartment layout or door opening permits located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed and full extension positions. Each tray shall be fabricated from 3/16" 3003 aluminum sheet and shall have welded corners to form a box type tray surface with an internal depth of approximately 3". Vertical partition(s) shall be provided on slide-out tray base at the forward (right) edge of tray. The vertical partition(s) shall be 3/16" 3003H-14 alloy smooth aluminum sheet. Height of tool board shall be determined at pre-construction meeting by Scottsbluff Fire. There shall be one {1} aluminum tray base with 70% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed, 40% extended and 70% extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an 		
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<p>internal depth of approximately 3" (Transverse Tray Specified in opposite side compartment)</p> <ul style="list-style-type: none"> ○ The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength. <p><u>CURBSIDE COMPARTMENT - AHEAD OF REAR WHEEL (C2)</u></p> <ul style="list-style-type: none"> • There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. • There shall be one {1} aluminum tray base with 70% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed, 40% extended and 70% extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3" (Transverse Tray Specified in opposite side compartment) • There shall be one (1) transverse module for one (1) Scottsbluff Fire Department supplied stokes basket. Manufacturer, model number and dimensions of the stokes basket shall be provided during the pre-construction meeting.(Specified in opposite side compartment) • There shall be one (1) transverse module for two (2) Scottsbluff Fire Department supplied backboard(s). Manufacturer, model number and dimensions of the backboard(s) shall be provided during the pre-construction meeting.(Specified in opposite side compartment) • The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength • There shall be one (1) aluminum tray base with 100% extension, and rating of 400 lbs. Slide-out tray(s) base shall be approximate 24" deep and as wide as the compartment layout or door opening permits. The tray shall be located below the chassis frame rails. Slide bas shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed or extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3". • The floor of the compartment above the frame rails shall be extended to the interior edge of the door. The floor shall have a 2" vertical lip and a 1" return to increase strength <p><u>CURBSIDE COMPARTMENT - ABOVE REAR WHEEL (C3)</u></p> <ul style="list-style-type: none"> • There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. • There shall be a transverse plywood storage module for full 4' x 8' sheets of plywood without altering the size. The module shall be fabricated from 3/16" 3003H-14 aluminum alloy sheet and shall have hinged retainer doors at each end to hold plywood in place. (Specified in Opposite Compartment) 		
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<ul style="list-style-type: none"> There shall be one {1} aluminum tray base with 70% extension, and rating of 1,000 lbs. Slide-out tray(s) base shall be approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails. Each slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed, 40% extended and 70% extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3". (Specified in Opposite Compartment) <p><u>CURBSIDE COMPARTMENT - REAR (C4)</u></p> <ul style="list-style-type: none"> There shall be two (2) slide-out smooth aluminum vertical tool boards approximately 24" deep. Each tool boards vertical exterior edge shall have a double 90 degree formed edge to provide an easy grip handle. Each board shall be rated for a maximum 200 lbs. evenly distributed load. Each tool board shall utilize a pneumatic cylinder to hold the tool board in both the opened and closed positions. The vertical tool board(s) material shall be 3/16" (.188) 3003H-14 aluminum alloy sheet. Sheet shall be perforated with 1/4" (.25) holes on 1" centers. Tool Board: Mounting, Horizontally Adjustable <ul style="list-style-type: none"> (1) Each tool board shall be horizontally adjustable; mounted on aluminum shelf Trac on compartment floor. A clay absorbent (or similar weight material) storage hopper shall be provided in this compartment. The storage hopper shall be located and filled from an upper body compartment and funneled to a manual 3" PVC 1/4-turn ball valve with flexible hose in lower compartment. The floor of the compartment above the frame rails shall cover the area directly above the frame rails ONLY (non-extended floor). <p><u>REAR COMPARTMENT - CENTER (RC1)</u></p> <ul style="list-style-type: none"> The rear center compartment shall be closed to both side rear compartments. There shall be vertically mounted aluminum Shelf-Trac for specified component installation. Shelf-Trac extrusion shall have side extruded channels for use in mounting or securing special ancillary items, without need for drilling into body. The rear center compartment shall start at the bottom of the body and shall be as high as the body permits. The frame shall extend at least 20" into the Rear Center Compartment to allow for the spring mounts. Compartment shall be as deep as possible below sub-frame to maximize storage. There shall be one (1) aluminum tray base with 100% extension, and rating of 400 lbs. Slide-out tray(s) base shall be approximate 24" deep and as wide as the compartment layout or door opening permits. The tray shall be located at the bottom of the compartment. Slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed or extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3". 		
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<ul style="list-style-type: none"> ○ There shall be one (1) aluminum tray base with 100% extension and rating of 1000 lbs. Slide-out tray(s) base shall be as deep and as wide as the compartment layout or door opening permits. The tray shall be located at least 25" above the bottom of the compartment. Slide base shall have a cable operated, spring loaded latch complimented by a large hand opening and pull handle (Pull to Release) which will lock the tray in the closed or extended positions. Each tray top shall be fabricated from 3/16" 3003 aluminum sheet shall have welded corners to form a box type tray surface with an internal depth of approximately 3". The tray shall have a Vertical partition. Vertical partition shall be provided on slide-out tray base dividing the tray into left and right sides. Vertical partition shall be horizontally adjustable; mounted on aluminum Shelf Trac on tray floor. The vertical partition shall be 3/16" 3003H-14 alloy smooth aluminum sheet. Brackets for Department provided Hydraulic extrication tools will be mounted to partitions. Locations, Size, and Model of Tools will be provided by Scottsbluff Fire during pre-construction. ○ One (1) Hannay ECR1616-17-18 electric cable reel(s) capable of storing 150' of 10/3 electric cable. Reel(s) shall be designed to hold 110% of the capacity of cord length, with fully enclosed 45 amp, three (3) conductor collector rings. Reel(s) shall be mounted to channel structure that allows for side-to-side adjustment of reel position. ○ Power rewind control(s) shall be in a position where the operator can observe the rewinding operation and not be more than 72 in. (1830 mm) above the operator's standing position, and shall be marked with a label indicating its function. ○ A label shall be provided in a visible location adjacent to reel with following information: Current rating, Current type, Phase, Voltage, and Total cord length. ● Electrical Cable: Black, 150' of 10/3 <ul style="list-style-type: none"> ○ The cable reel shall equipped with 150' of 10/3 SEOW black cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end. ● Power Distribution Box: Akron Brass EJB, Aluminum, Yellow <ul style="list-style-type: none"> ○ One (1) Akron model EJB series, cast aluminum electrical power distribution box with yellow powder coat painted finish shall be provided. The power distribution box shall meet all requirements described in NFPA 1901. The power distribution box shall include the following outlets mounted on a backlit face plate; ● Power Distribution Box: 12" Pigtail with L5-30 Plug <ul style="list-style-type: none"> ○ A 12" pigtail that terminates in an L5-30 configuration to match the cable on the cord reel. The outlet configuration shall include: <ul style="list-style-type: none"> ○ 120 VAC, L5-20 Single Twist Lock [Opt #9] <ul style="list-style-type: none"> ▪ One (1) 20 AMP 125 VAC, L5-20 single twist lock receptacles ○ 120 VAC, L5-20 Single Twist Lock [Opt #9] <ul style="list-style-type: none"> ▪ One (1) 20 AMP 125 VAC, L5-20 single twist lock receptacles ○ 120 VAC, 5-20 GFCI Duplex [Opt #4] <ul style="list-style-type: none"> ▪ One (1) 20 AMP 125 VAC Straight Blade Receptacle ○ 120 VAC, 5-20 GFCI Duplex [Opt #4] 		
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<ul style="list-style-type: none"> ▪ One (1) 20 AMP 125 VAC Straight Blade Receptacle <ul style="list-style-type: none"> • Power Distribution Box: Vertical Mount, Tread plate <ul style="list-style-type: none"> ○ One (1) Akron formed aluminum tread plate vertical mounting bracket shall be provided for specified power distribution box. • Reel Fairlead: Stationary Mount <ul style="list-style-type: none"> ○ The fairlead roller shall be mounted directly to the reel. <p><u>Compartment Ventilation Louvers, Plastic</u></p> <ul style="list-style-type: none"> ○ Two (2) 3-1/2" x 3-1/2" black plastic louvered vents shall be provided in all lower compartments. <p><u>12 VDC Distribution Panel: Streetside S1 Front Lower</u></p> <ul style="list-style-type: none"> ○ The 12 volt electrical distribution panel shall be located in the front lower compartment. <p><u>Compartment Lights: (2) LED</u></p> <ul style="list-style-type: none"> ○ There shall be two (2) LED Stip compartment lights, vertically mounted in all compartments. <p><u>Load Center: 120/240 VAC (Location Only)</u></p> <ul style="list-style-type: none"> ○ One (1) 120/240 VAC load center shall be located in front lower compartment Curbside 1. <p><u>Generator Gauge Panel: (Location Only)</u></p> <ul style="list-style-type: none"> ○ The generator gauge panel. Location to be determined at pre-construction. <p><u>FIVE (5) UPPER BODY COMPARTMENTS (OPEN)</u></p> <ul style="list-style-type: none"> ○ The forward transverse compartment shall be 90.0" long x 27.0" wide x 18.5" deep. There shall be four (4) compartments parallel to the sides of the body, two (2) on each side. Each of these compartments shall be 52.0" long x 28.0" wide x 18.5" deep. The side compartments shall be open under each door sill to allow for long equipment. Each compartment shall be integral with the body construction, and will not be bolted or add-on modules. The outside walls of each compartment will be double walled to prevent equipment from denting the outside painted surface. ○ Each compartment shall have a lift-up type compartment door hinged on the outboard side. Each door shall be fabricated from 3/16" aluminum tread plate. Each door shall have two (2) pneumatic type cylinders, one (1) at each end, attached to cast aluminum brackets mounted to the interior surface of the door to hold the door in both the opened and closed positions. Each door shall be mounted using multiple 16" long, equally spaced, 14 gauge stainless steel hinges, with 1/4" stainless steel pin. A polyester barrier film gasket shall be placed between stainless steel hinge and the body mounting surface as necessary to prevent corrosion caused by dissimilar metals. ○ Each compartment door shall overlap a 2" vertical lip on the body roof to prevent entry of moisture and sealed with automotive type rubber molding to provide a weather resistant seal. ○ Each roof compartment door shall have a chrome 7" handle bolted to center of each door. 		
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<ul style="list-style-type: none"> Each compartment shall have a 13/16" drain hole located in floor of compartment with a 1" flexible drain tube that terminates below body. Each compartment shall have a horizontally mounted LED light on the underside of the door. The light and NFPA door ajar system shall be automatically activated by an individual switch per compartment. <p><u>UPPER BODY WALKWAY</u></p> <ul style="list-style-type: none"> A 34" wide, upper body walkway shall be provided at the center of body and recessed into the roof structure. The walkway shall be fabricated from NFPA compliant 3/16" aluminum tread plate with continuously welded cross seams to prevent moisture penetration into apparatus body, No Exceptions. The walkway shall be supported with 2" x 2" tubing on 14" - 22" centers. 13/16" drains shall be installed at front of walkway connected to 1" flexible drain tubes that will terminate below the body. <p><u>WALKWAY/STEP LIGHTS</u></p> <ul style="list-style-type: none"> There shall be four (4) 9" LED lights provided to illuminate the walkway or step area. The lights shall be activated when the parking brake is set. The lights shall be split evenly along both sides of walkway Each light shall be mounted in an extruded aluminum housing to protect against damage from personnel or equipment. Lighting shall provide illumination at a minimum level of 2 fc (20 lx) on all work surfaces, steps, and walkways. Lighting shall be switchable but activated automatically when the vehicle park brake is set. <p><u>PLASTIC FLOOR AND SHELF TILE</u></p> <ul style="list-style-type: none"> All compartment floors, shelves, and trays shall be covered with Dri-Dek plastic interlocking grating. <ul style="list-style-type: none"> The plastic edge trim and floor tile shall be red. <p><u>ROPE ANCHOR OR PORTABLE WINCH RECEIVERS</u></p> <p>The completed unit shall have an integrated receiver or anchor system for use with removable rope anchor point and/or a portable electric winch, when specified.</p> <p>Receivers or anchors installed at any location on the apparatus for use as removable winch anchors shall be designed and affixed to provide at least a 2.0 to 1 straight line pull no-yield safety factor over the load rating of the removable winch.</p> <p>Receivers or anchors installed at any location on the apparatus for use with rope operations shall be designed and affixed to the apparatus to provide at least a 9,000 lbs. (40,000 N) no-yield condition with a straight line pull.</p> <p>A safety sign FAMA28 shall be located on or near each receiver or anchor stating the maximum straight line pull rating.</p>		
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<p>Side receiver(s) (if specified) shall have the following load rating:</p> <table> <tr> <td></td><td><u>STRAIGHT PULL</u></td><td><u>SAFETY FACTOR</u></td></tr> <tr> <td>Rope Tie Off:</td><td>600 Lbs.</td><td>15:1</td></tr> <tr> <td>Winch:</td><td>5,000 Lbs</td><td>2:1</td></tr> </table> <p>Front and/or rear receiver(s) (if specified) shall have the following load rating:</p> <table> <tr> <td></td><td><u>STRAIGHT PULL</u></td><td><u>SAFETY FACTOR</u></td></tr> <tr> <td>Rope Tie Off:</td><td>600 Lbs.</td><td>15:1</td></tr> <tr> <td>Winch:</td><td>Winch Load Rating (9,000 Lbs. Max)</td><td>2:1</td></tr> </table> <p>The following items shall be provided to accomplish rope rescue and/or portable winch operation;</p> <p>Receiver: Rope Anchor Point, 3/4" Steel, Lower Body</p> <p>Two (2) removable rope anchor(s) shall be provided with completed vehicle. Each rope anchor shall be fabricated from 3/4" steel, 2" high x 11.5" long with a 3" OD/2" ID eyelet. Eyelet end shall have radiused edge to prevent damage to rope or carabineer. Each rope anchor shall have a powder coat paint finish and a steel 5/8" hitch pin to lock it in place. An aluminum mounting bracket shall be provided to store rope anchor(s) inside a body compartment as close to receiver location as possible.</p> <p>Portable Winch: Warn, 9,000 lbs.</p> <p>One (1) Warn model XD9000i, 9,000 lb. 12 volt electric winch shall be furnished with the completed unit. It shall be capable of being stored in a compartment and mounted to the apparatus by inserting the mounting point into a properly rated receiver. A minimum of 125' of 5/16" stranded galvanized steel cable with pinned utility hook shall be installed on the drum. A 12' remote control shall be provided with the assembly that permits the operator to stand at a safe operating distance from the cable and winch.</p> <p>Portable Winch: Mount</p> <p>The specified portable winch shall be mounted in compartment using a heavy duty "U" shaped channel. Winch receiver tube and mounting pin shall be utilized to hold in place during travel.</p> <p>Receiver: Rope Anchor Point and/or Portable Winch, Front Bumper</p> <p>There shall be one (1) 2" x 2" x 1/4" wall steel receiver tube(s) with powder coat paint finish located at the front bumper for use with removable rope anchor point and/or a portable electric winch (if specified).</p> <p>Receiver: Rope Anchor Point and/or Portable Winch, Rear Bumper</p> <p>There shall be one (1) 2" x 2" x 1/4" wall steel receiver tube(s) located at the rear bumper for use with removable rope anchor point and/or a portable electric winch (when specified).</p>		<u>STRAIGHT PULL</u>	<u>SAFETY FACTOR</u>	Rope Tie Off:	600 Lbs.	15:1	Winch:	5,000 Lbs	2:1		<u>STRAIGHT PULL</u>	<u>SAFETY FACTOR</u>	Rope Tie Off:	600 Lbs.	15:1	Winch:	Winch Load Rating (9,000 Lbs. Max)	2:1		
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<p>Portable Winch: 12 VDC Powerport, Warn</p> <p>There shall be one (1) 12 VDC plug(s) with quick connect provided to power a Warn portable winch. All 12 VDC cables to be sized according to Warn and installation for intended use at each Receiver location (Front Bumper & Rear Bumper)</p> <p><u>Receiver: Rubber Cover</u></p> <p>The receivers shall have rubber covers provided. (Front and Rear)</p> <p><u>FRONT GRAVEL GUARDS</u></p> <ul style="list-style-type: none"> Gravel guards shall be provided on front lower body corners. Guards shall be 12" high, extend from behind cab or step and wrap around to the front compartment door opening fabricated from 20 gauge brushed stainless steel. <p><u>ACCESS LADDER</u></p> <ul style="list-style-type: none"> The top of the body shall be accessible from the ground by a folding ladder. The ladder design shall have a main ladder section, bolt on upper hand rail section and a folding lower step section for better angle of departure. Ladder stores in a folded position and then pulls out to a comfortable climbing angle. The ladder shall be parallel to the body when in the stored position. Each cast aluminum step shall be 4-1/2" deep x 16" wide. Hand railing shall be 2-1/8" oval shaped aluminum tubing with a ribbed gripping surface. The ladder shall be wired to the door ajar warning light in cab to warn the driver that the ladder is in the down position. Ladder shall be mounted to body with stainless steel bolts. Ladder shall be located on rear curbside of the body. <p><u>WALKWAY EXTENSION STEP</u></p> <ul style="list-style-type: none"> A full walkway width x 8.5" deep, bolt-on type extension step shall be provided for safe transition from specified ladder to center walkway area. Step shall be fabricated from 3/16" NFPA compliant treadplate aluminum with side gusset supports to body. The specified center rear marker lights shall be located on rear facing edge. The underside of step shall have an 28" LED light to light the bumper or compartment area below. <p><u>LOW VOLTAGE ELECTRICAL SYSTEM- 12 VDC</u></p> <ul style="list-style-type: none"> General <ul style="list-style-type: none"> Any low voltage electrical systems or warning devices installed on the fire apparatus shall be appropriate for the mounting location and intended electrical load. Where wire passes through sheet metal, grommets shall be used to protect wire and wire looms. Electrical connections shall be with double crimp water-tight heat shrink connectors. All 12 VDC wiring running from front to back of vehicle body shall be run in full length electrical wiring raceway down each side of body. Wiring 		
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<ul style="list-style-type: none"> All electrical circuit feeder wiring supplied and installed by the fire apparatus manufacturer shall meet the requirements of NFPA Chapter 13. The circuit feeder wire shall be stranded copper or copper alloy conductors of a gauge rated to carry 125% of the maximum current for which the circuit is protected. Voltage drops in all wiring from the power source to the using device shall not exceed 10%. The use of star washers for circuit ground connections shall not be permitted. All circuits shall otherwise be wired in conformance with SAE J1292, Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring. Wiring and Wire Harness Construction <ul style="list-style-type: none"> All insulated wire and cable shall conform to SAE J1127, Low Voltage Battery Cable, or SAE J1128, Low Voltage Primary Cable, type SXL, GXL, or TXL. All conductors shall be constructed in accordance with SAE J1127 or SAE J1128, except where good engineering practice dictates special strand construction. Conductor materials and stranding, other than copper, shall be permitted if all applicable requirements for physical, electrical, and environmental conditions are met as dictated by the end application. Physical and dimensional values of conductor insulation shall be in conformance with the requirements of SAE J1127 or SAE J1128, except where good engineering practice dictates special conductor insulation. The overall covering of conductors shall be moisture-resistant loom or braid that has a minimum continuous rating of 194°F (90°C) except where good engineering practice dictates special consideration for loom installations exposed to higher temperatures. The overall covering of jacketed cables shall be moisture resistant and have a minimum continuous temperature rating of 194°F (90°C), except where good engineering practice dictates special consideration for cable installations exposed to higher temperatures. All wiring connections and terminations shall use a method that provides a positive mechanical and electrical connection. The wiring connections and terminations shall be installed in accordance with the device manufacturer's instructions. All ungrounded electrical terminals shall have protective covers or be in enclosures. Wire nut, insulation displacement, and insulation piercing connections shall not be used. Wiring shall be restrained to prevent damage caused by chafing or ice buildup and protected against heat, liquid contaminants, or other environmental factors. Wiring shall be uniquely identified at least every 2 ft (0.6 m) by color coding or permanent marking with a circuit function code. The identification shall reference a wiring diagram. Circuits shall be provided with properly rated low voltage over current protective devices. Such devices shall be readily accessible and protected against heat in excess of the over current device's design range, mechanical damage, and water spray. Circuit protection shall be accomplished by utilizing fuses, circuit breakers, fusible links, or solid state equivalent devices. If a mechanical-type device is used, it shall conform to one of the following SAE standards: <ul style="list-style-type: none"> SAE J156, Fusible Links SAE J553, Circuit Breakers SAE J554, Electric Fuses (Cartridge Type) SAE J1888, High Current Time Lag Electric Fuses SAE J2077, Miniature Blade Type Electrical Fuses Switches, relays, terminals, and connectors shall have a direct current (dc) rating of 125% of maximum current for which the circuit is protected. 		
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<ul style="list-style-type: none"> • Power Supply <ul style="list-style-type: none"> • A 12 V or greater electrical alternator shall be provided. The alternator shall have a minimum output at idle to meet the minimum continuous electrical load of the vehicle, at 200°F (93°C) ambient temperature within the engine compartment, and shall be provided with full automatic regulation. • Minimum Continuous Electrical Load <ul style="list-style-type: none"> • The minimum continuous electrical load shall consist of the total amperage required to simultaneously operate the following in a stationary mode during emergency operations: • The propulsion engine and transmission • All legally required clearance and marker lights, headlights, and other electrical devices except windshield wipers and four-way hazard flashers • The radio(s) at a duty cycle of 10 percent transmit and 90% receive (for calculation and testing purposes, a default value of 5 A continuous) • The lighting necessary to produce 2 fc (20 lx) of illumination on all walking surfaces on the apparatus and on the ground at all egress points onto and off the apparatus, 5 fc (50 lx) of illumination on all control and instrument panels, and 50 percent of the total compartment lighting loads • The minimum optical warning system, where the apparatus is blocking the right-of way • The continuous electrical current required to simultaneously operate any fire pumps, aerial devices, and hydraulic pumps • Other warning devices and electrical loads defined by the purchaser as critical to the mission of the apparatus • If the apparatus is equipped to tow a trailer, an additional 45 A shall be added to the minimum continuous electrical load to provide electrical power for the federally required clearance and marker lighting and the optical warning devices mounted on the trailer. • The condition of the low voltage electrical system shall be monitored by a warning system that provides both an audible and a visual signal to persons on, in, or near the apparatus of an impending electrical system failure caused by the excessive discharge of the battery set. • The charge status of the battery shall be determined either by direct measurement of the battery charge or indirectly by monitoring the electrical system voltage. • If electrical system voltage is monitored, the alarm shall sound if the system voltage at the battery or at the master load disconnect switch drops below 11.8 V for 12 V nominal systems, 23.6 V for 24 V nominal systems, or 35.4 V for 42 V nominal systems for more than 120 seconds. • A voltmeter shall be mounted on the driver's instrument panel to allow direct observation of the system voltage. • Electromagnetic Interference 		
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<ul style="list-style-type: none"> Electromagnetic interference suppression shall be provided, as required, to satisfy the radiation limits specified in SAE J551/1, Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles, Boats (up to 15 m), and Machines (16.6 Hz to 18 GHz). <p><u>Wiring Diagram</u></p> <ul style="list-style-type: none"> A complete electrical wiring schematic of actual system shall be provided with finished apparatus. Similar or generic type electrical schematics shall NOT BE ACCEPTABLE. <p><u>Low Voltage Electrical System Performance Test</u></p> <ul style="list-style-type: none"> A low voltage electrical system test certification shall be provided with delivered apparatus. <p><u>12 VOLT MULTIPLEX CONTROL CENTER</u></p> <ul style="list-style-type: none"> The apparatus shall be equipped with a Weldon V-MUX multiplexed 12 volt electrical system that will provide complete diagnostic capability, No Exception. The system shall have the capability of delivering multiple signals via a CAN bus, utilizing specifications set forth by SAE J1939. The system shall be node based to maximize stability so that failure of one node does not affect the operation of the other nodes. The system shall use shielded twisted-pair wire for transmission of system function signals. The shielded wire shall provide protection against EMI and RFI noise interruptions. The multiplex system shall be responsible for providing power management functions as well as load shedding. The warning light system shall be controlled by the multiplex system. The system shall be capable of displaying text and/or graphic messages on a display module. The system shall be based on solid-state technology and shall include self-contained diagnostic indicators. <p><u>Outputs:</u></p> <ul style="list-style-type: none"> The outputs shall perform all the following items without added modules to perform any of the tasks; <ul style="list-style-type: none"> Load Shedding: The system shall have the capability to load shed with 8 levels any output. This means you can specify which outputs (barring NFPA restrictions) you would like load shed. Level 1 12.9v, Level 2 12.5V, Level 3 - 12.1V, Level 4 - 11.7V, Level 5 11.3V, Level 6 10.9V, Level 7 10.5, Level 8 10.1. Unlike conventional load shedding devices you can assign a level to any or all outputs. Load Sequencing: The system shall be able to sequence from 0 8 levels any output. With 0 being no delay and 1 being a 1 second delay, 2 being a 2 second delay and so on. Sequencing reduces the amount of voltage spikes and drops on your vehicle, and can help limit damage to your charging system. Output Device: The system shall have solid-state output devices. Each solid-state output shall be a MOS-FET (Metal Oxide Semiconductor - Field Effect Transistors); MOS-FETs are solid-state devices with no moving parts to wear out. A typical relay when loaded to spec has a life of 100,000 cycles. The life of a FET is more than 100 times that of a relay. Flashing Outputs: The system shall be able to flash any output in either A or B phase, and logic is used to shut down needed outputs in park, or any one of several combined interlocks. The flash rate can be selected at either 80, 160 or 200 FPM. This means any light can be specified with a multiplex truck with 		
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<p>no need to add flashers. Flashing outputs can also be used to warn of problems or other unique idea you may come up with.</p> <ul style="list-style-type: none"> ○ PWM: The modules shall have the ability to PWM at some outputs so that a headlight PWM module is not needed. ○ Diagnostics: An output should be able to detect either a short or open circuit. The system should be able report in "real time" a text based message that points the maintenance person to a specific output. ○ The inputs shall have the ability to switch by a ground or vbatt signal. ○ The inputs shall be filtered for noise suppression via hardware and software so that RF or dirty power will not trick an input into changing its status. <p><u>Auto-Throttle:</u></p> <ul style="list-style-type: none"> • The multiplex system shall be able to perform automatic high idle via a network gateway or by using an existing output on a module to provide the proper signals to an OEM Engine ECU. This task should be handled with existing inputs and outputs. <p><u>Displays:</u></p> <ul style="list-style-type: none"> • Displays shall be able to provide real time information regarding load shedding and system status, such as network traffic/errors or shorts and open circuits. <p><u>System Network:</u></p> <ul style="list-style-type: none"> • The multiplex system shall contain a Peer-to-Peer network. A Master Slave Type network is not suitable for this type of unit. A Peer-to-Peer network means that all the modules are equal on the network; a Master is not needed to tell other nodes when to talk, No Exceptions. <p><u>System Reliability:</u></p> <ul style="list-style-type: none"> • The multiplex system shall be able to perform in extreme temperature conditions, from 40° to +85° C (-40° to +185° F.) The system shall be sealed against the environment, moisture, humidity, salt or fluids such as diesel fuel, motor oil or brake fluid. The enclosures shall be rugged to withstand being mounted in various locations or compartments around the vehicle. The modules shall be protected from over voltage and reverse polarity. <p><u>WELDON CERTIFICATION</u></p> <ul style="list-style-type: none"> • A letter shall be provided with bid submittal that the Contractor has successfully completed the Weldon training requirements for Level 1 of the V-MUX Certified Supplier Program and is authorized to design, build, and service V-MUX electrical systems. <p><u>MULTIPLEX SYSTEM INTERFACE DISPLAY</u></p> <ul style="list-style-type: none"> • One (1) Weldon V-MUX Vista IV multiplex system interface display(s) with push-button control shall be provided in cab easily accessible to driver and/or passenger. The full-color Vista interface display allows the user to control warning and scene lighting, HVAC controls (when specified), and view on-board diagnostics including service information. This display has a wide operating temperature range, automatic screen switching in response to current conditions, and a sleep mode option to eliminate night glare. The following features shall be included; <ul style="list-style-type: none"> ○ 800 x 480 resolution ○ Four video ports 		
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	Yes	No
<ul style="list-style-type: none"> ○ Flash updates with USB memory stick ○ Display inside and outside temperature (when specified) ○ Automatic climate control (when specified) ○ 100% Configurable (OEM Level) ○ Field re-programmable ○ Peer to peer network ○ On-board diagnostics / service information ○ Colors change to indicate button status ○ Video Ready for: Backup camera, Thermal camera, DVD, GPS... <p><u>Center Console, V-Mux Electrical Control</u></p> <ul style="list-style-type: none"> • The V-Mux display shall be located in the cab center console for control of all master and emergency lights. <p><u>CAB CONSOLE</u></p> <ul style="list-style-type: none"> • A center cab console shall be provided between the Driver's and Officer's seats. Console shall be as large as possible and fabricated of 1/8" smooth aluminum. A textured powder coat paint finish shall be provided for durability and finished appearance. • The rear portion of the console shall be provided with open top storage for notebooks or maps. Two (2) adjustable dividers shall be provided in the storage area. The forward portion of console shall be slanted for easy viewing of the V-Mux display screen, and any siren or radio equipment. The area shall be within easy access to both Driver and Officer. • There shall be two (2) portable radios chargers on front, model of charger to be specified by Scottsbluff Fire at pre-construction and 12 volt and 110 volt receptacles, location to be determined at pre-construction. • The final design of console shall be determined by Scottsbluff Fire Department at the pre-construction meeting. <p><u>BATTERY SYSTEM</u></p> <ul style="list-style-type: none"> • Battery System: Commercial • The battery connectors shall be heavy duty type with cables terminating in heat shrink loom. Heavy duty battery cables shall provide maximum power to the electrical system. Where required, the cables shall be shielded from exhaust tubing and the muffler. Large rubber grommets shall be provided where cables enter the battery compartment. • Batteries shall be of the high-cycle type. With the engine off, the battery system shall be able to provide the minimum continuous electrical load for 10 minutes without discharging more than 50 percent of the reserve capacity and then to restart the engine. The battery system cold cranking amps (CCA) rating shall meet or exceed the minimum CCA recommendations of the engine manufacturer. The batteries shall be mounted to prevent movement during fire apparatus operation and shall be protected against accumulations of road spray, snow, and road debris. The batteries shall be readily accessible for examination, testing, and maintenance. • A means shall be provided for jump-starting the engine if the batteries are not accessible without lifting the cab of a tilt-cab apparatus. • Where an enclosed battery compartment is provided, it shall be ventilated to the exterior to prevent the buildup of heat and explosive fumes. The batteries shall be protected against vibration and temperatures that exceed the battery manufacturer's recommendation. 		
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	Yes	No
<ul style="list-style-type: none"> An onboard battery conditioner or charger or a polarized inlet shall be provided for charging all batteries. Where an onboard conditioner or charger is supplied, the associated line voltage electrical power system shall be installed in accordance with Chapter 22. One of the following master disconnect switches shall be provided: <ul style="list-style-type: none"> A master body disconnect switch that disconnects all electrical loads not provided by the chassis manufacturer A master load disconnect switch that disconnects all electrical loads on the apparatus except the starter Electronic control systems and similar devices shall be permitted to be otherwise connected if so specified by their manufacturer. The alternator shall be wired directly to the batteries through the ammeter shunt(s), if one is provided, and not through the master load disconnect switch. A green "battery disconnect on" indicator light that is visible from the driver's position shall be provided. Rechargeable hand lights, radios, and other similar devices shall be permitted to be connected to the electrical system ahead of the master disconnect switch. A sequential switching device shall be permitted to energize the optical warning devices and other high current devices required in minimum continuous electrical load, provided the switching device shall first energize the electrical devices required in minimum continuous electrical load within 5 seconds. <p><u>BATTERY SWITCH</u></p> <ul style="list-style-type: none"> The chassis ignition key shall activate a heavy duty relay to provide 12 volt battery power to the vehicle. There shall be a green "BATTERY ON" pilot light that is visible from the driver's position. <p><u>BATTERY SOLENOID</u></p> <ul style="list-style-type: none"> Battery switch shall consist of a minimum 200 ampere, constant duty solenoid to feed from positive side of battery. <p><u>BATTERY CONDITIONER</u></p> <ul style="list-style-type: none"> One (1) Kussmaul (model 091-9-1000) "Pump-Plus 1000" single battery charger/air compressor, with 120 VAC input and 12 VDC, 15 amp output battery conditioner and a 12 volt, 80 psi air compressor shall be provided. This system shall monitor the condition of battery(s) and provide an electrical current at variable rates to overcome battery failure. The air compressor shall maintain air pressure in the chassis air brake system. A Kussmaul bar graph type indicator panel shall be provided for showing status of battery conditioner. <p><u>SHORE POWER INLET</u></p> <ul style="list-style-type: none"> One (1) Kussmaul 120 VAC, 20 amp Super Auto-Eject shore power inlet(s) shall be provided. The shore power connection shall automatically disengage from vehicle when chassis ignition is engaged. 		
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<ul style="list-style-type: none"> The protective ground from the shoreline inlet shall be bonded to the vehicle frame. The outlet cover shall be yellow. <ul style="list-style-type: none"> Shore Power Inlet Location: Driver Door <ul style="list-style-type: none"> The shore power plug shall be located near the Driver door area. <p><u>ENGINE COMPARTMENT LIGHT</u></p> <ul style="list-style-type: none"> There shall be one (1) light(s) mounted in the engine compartment with integral switch with a light output of at least 20 candlepower (250 lumens). The engine compartment light(s) shall operate only when the master battery switch is turned "On". <p><u>CAB HAZARD WARNING LIGHT</u></p> <ul style="list-style-type: none"> A red flashing or rotating light, located in the driving compartment, shall be illuminated automatically whenever the vehicles parking brake is not fully engaged and any of the following conditions exist: <ul style="list-style-type: none"> Any passenger or equipment compartment door is not closed. Any ladder or equipment rack is not in the stowed position. Stabilizer system is not in its stowed position. Powered light tower is not stowed. Any other device permanently attached to the apparatus is open, extended, or deployed in a manner that is likely to cause damage to the apparatus if the apparatus is moved. Compartments and equipment meeting all of the following conditions shall be permitted to be exempt from being wired to the hazard light: <ul style="list-style-type: none"> The volume is less than or equal to 4 ft3 (0.1 m3). The compartment has an opening less than or equal to 144 in.2 (92,900 mm2). The open door does not extend sideways beyond the mirrors or up above the top of the fire apparatus. All equipment in the compartment is restrained so that nothing can fall out if the door is open while the apparatus is moving. Manually raised pole lights with an extension of less than 5 ft (1.5 m). The hazard light shall be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON". <p><u>Door Ajar Audible Alarm</u></p> <ul style="list-style-type: none"> An audible alarm shall be provided for the door ajar light. <p><u>BACK-UP ALARM</u></p> <ul style="list-style-type: none"> The body manufacturer shall furnish and install one (1) 107 dB(A) electronic back-up alarm. Back-up alarm to actuate automatically when the transmission gear selector is placed in reverse. 		
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<p><u>TAIL LIGHTS</u></p> <ul style="list-style-type: none"> Rear body tail lights shall be vertically mounted and located per Federal Motor Vehicle Safety Standards, FMVSS and Canadian Motor Vehicle Safety Standards CMVSS. The following lights shall be furnished; <ul style="list-style-type: none"> Two (2) Whelen amber LED 600 Series 60A00TAR turn signal lights Two (2) Whelen red LED 600 Series 60BTT stop/tail lights Two (2) Whelen LED 600 Series 60C00WCR maximum intensity back-up lights with clear lens Each of the lights above shall be mounted in a 6EFLANGE, chrome finish bezel. <p><u>MIDSHIP MARKER/TURN SIGNAL</u></p> <ul style="list-style-type: none"> Two (2) Whelen model T0A00MAR 2" round amber LED midship body clearance marker/turn signal lights shall be provided and installed, one (1) light on each side of the body, in forward wheel well of rear axle. Midship marker/turn lights shall be wired to the headlight circuit of the chassis. <p><u>MARKER LIGHTS</u></p> <ul style="list-style-type: none"> The body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) and Canadian Motor Vehicle Safety Standards (CMVSS) regulations. All body clearance lights shall be Truck-Lite Model 18 LED to reduce the need for maintenance and lower the amp draw. Clearance lights shall be wired to the headlight circuit of the chassis. <p><u>CAB STEP LIGHTS / GROUND LIGHTS</u></p> <ul style="list-style-type: none"> There shall be two (2) 8" Access LED light(s) installed on the vehicle capable of providing illumination at a minimum level of 2 fc (20 lx) on ground areas within 30 in. (800 mm) of the edge of the vehicle in areas designed for personnel to climb onto or descend from the vehicle to the ground level. Lighting designed to provide illumination on areas under the driver and crew riding area exits shall be switchable but activated automatically when the exit doors are opened. <p><u>LICENSE PLATE LIGHT</u></p> <ul style="list-style-type: none"> One (1) chrome plated LED license plate light shall be installed on the rear of the body. License plate light shall be wired to the headlight circuit of chassis. A fastener system shall be provided for license plate installation. <p><u>ELECTRONIC SIREN</u></p> <ul style="list-style-type: none"> One (1) Whelen model 295SLSA1 electronic siren control with selectable 100 or 200 watt output, hands-free operation, user selectable siren tones, park kill, and standard hard wired microphone shall be provided and installed in cab within easy reach of Driver. Siren power shall be wired through the master warning light switch. <p><u>SIREN SPEAKER</u></p>		
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<ul style="list-style-type: none"> One (1) Cast Products Inc. model SA4311, 100 watt siren speaker shall be provided recessed in the front bumper on the curbside. <p><u>Light Control: Vista Display</u></p> <ul style="list-style-type: none"> The lights shall be switched at the Vista display in the cab. <p><u>Lightbar Control: Vista Display</u></p> <ul style="list-style-type: none"> The lightbar shall be separately switched at the vista display in the cab. <p><u>SIDE SCENE LIGHTS</u></p> <ul style="list-style-type: none"> There shall be four (4) Whelen Super LED 900 series (9" x 7") recess mounted scene lights (9SC0ENZR) provided on the upper body. Light quantity shall be divided equally per side. Each light will have twenty-four LED diodes that draw a total of 4.0 amps, with 3,000 lumens. The light shall be an 8-32 degree gradient lens and chrome flange. Two (2) switches shall be provided, one (1) for the streetside scene lights, and one (1) for the curbside scene lights. <p><u>REAR SCENE LIGHTS</u></p> <ul style="list-style-type: none"> Two (2) Whelen Super LED 900 series (9" x 7") recess mounted scene lights (9SC0ENZR) shall be provided on the upper rear body to light the work area immediately behind the vehicle. Each light will have twenty-four LED diodes that draw a total of 4.0 amps, with 3000 Lumens. The light shall be an 8-32 degree gradient lens and chrome flange. The above scene lights shall light to a level of at least 3 fc (30 lx), measured at 25 equally spaced points on a 2.5 ft (750 mm) grid with in a 10 ft x 10 ft (3 m x 3m) square to the rear of vehicle. <u>Rear Scene Light Activation in Reverse</u> The rear scene lights shall also be activated when the apparatus is in reverse. <p><u>WARNING LIGHT PACKAGE</u></p> <p><i>NFPA Warning Light Package</i></p> <ul style="list-style-type: none"> Each apparatus shall have a system of optical warning devices that meets or exceeds the requirements of this section. The optical warning system shall consist of an upper and a lower warning level. The requirements for each level shall be met by the warning devices in that particular level without consideration of the warning devices in the other level. For the purposes of defining and measuring the required optical performance, the upper and lower warning levels shall be divided into four (4) warning zones. The four zones shall be determined by lines drawn through the geometric center of the apparatus at 45 degrees to a line drawn lengthwise through the geometric center of the apparatus. The four (4) zones shall be designated A, B, C, and D in a clockwise direction, with zone A to the front of the apparatus. 		
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	Yes	No																											
<ul style="list-style-type: none"> Each optical warning device shall be installed on the apparatus and connected to the apparatus's electrical system in accordance with the requirements of this standard and the requirements of the manufacturer of the device. A master optical warning system switch that energizes all the optical warning devices shall be provided. The optical warning system on the fire apparatus shall be capable of two (2) separate signaling modes during emergency operations. One (1) mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way. One (1) mode shall signal that the apparatus is stopped and is blocking the right-of-way. The use of some or all of the same warning lights shall be permitted for both modes provided the other requirements of this chapter are met. A switching system shall be provided that senses the position of the parking brake or the park position of an automatic transmission. When the master optical warning system switch is closed and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for the right-of-way shall be energized. When the master optical warning system switch is closed and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of the right-of-way shall be energized. The system shall be permitted to have a method of modifying the two (2) signaling modes. The optical warning devices shall be constructed or arranged so as to avoid the projection of light, either directly or through mirrors, into any driving or crew compartment(s). The front optical warning devices shall be placed so as to maintain the maximum possible separation from the headlights. Steadily burning, non-flashing optical sources shall be permitted to be used. <p>UPPER LEVEL OPTICAL WARNING DEVICES</p> <p><u>Upper Level: Whelen</u></p> <ul style="list-style-type: none"> The upper-level optical warning devices shall be mounted as high and as close to the corner points of the apparatus as is practical to define the clearance lines of the apparatus. The upper-level optical warning devices shall not be mounted above the maximum height, specified by the device manufacturer. <p><u>Zone A - Front</u></p> <ul style="list-style-type: none"> ZONE A - FRONT WARNING LIGHTS <ul style="list-style-type: none"> There shall be one (1) Whelen Edge FN60QLED LED 60" lightbar permanently mounted to the cab roof <ul style="list-style-type: none"> The lightbar configuration (streetside to curbside) shall be: <table> <tr> <th>SECTION</th><th>INTERNAL COMPONENTS</th><th>LENS COLOR</th></tr> <tr> <td>1</td><td>Red Side Linear LED</td><td>Clear</td></tr> <tr> <td>2</td><td>Red Front Corner Linear LED</td><td>Clear</td></tr> <tr> <td>3</td><td>Clear Linear LED</td><td>Clear</td></tr> <tr> <td>4</td><td>Blank</td><td>Clear</td></tr> <tr> <td>5</td><td>Red Linear LED</td><td>Clear</td></tr> <tr> <td>6</td><td>Blank (Opticom if specified)</td><td>Clear</td></tr> <tr> <td>7</td><td>Blank (Opticom if specified)</td><td>Clear</td></tr> <tr> <td>8</td><td>Red Linear LED</td><td>Clear</td></tr> </table> 	SECTION	INTERNAL COMPONENTS	LENS COLOR	1	Red Side Linear LED	Clear	2	Red Front Corner Linear LED	Clear	3	Clear Linear LED	Clear	4	Blank	Clear	5	Red Linear LED	Clear	6	Blank (Opticom if specified)	Clear	7	Blank (Opticom if specified)	Clear	8	Red Linear LED	Clear		
SECTION	INTERNAL COMPONENTS	LENS COLOR																											
1	Red Side Linear LED	Clear																											
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4	Blank	Clear																											
5	Red Linear LED	Clear																											
6	Blank (Opticom if specified)	Clear																											
7	Blank (Opticom if specified)	Clear																											
8	Red Linear LED	Clear																											
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	Yes	No
<ul style="list-style-type: none"> • 9 Blank Clear • 10 Clear Linear LED Clear • 11 Red Front Corner Linear LED Clear • 12 Red Side Linear LED Clear <ul style="list-style-type: none"> ▪ Configurations subject to change at Pre-Construction by Scottsbluff Fire. ▪ All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901. <p>ZONES B AND D - SIDE WARNING LIGHTS</p> <p><u>UPPER REAR CORNER WARNING LIGHTS</u></p> <ul style="list-style-type: none"> • Warning Lights: (2) Whelen 900 Series LED, Red / Red <ul style="list-style-type: none"> ○ There shall be two (2) Whelen 900 series (9" x 7") Red Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p><u>UPPER FORWARD CORNER WARNING LIGHTS</u></p> <ul style="list-style-type: none"> • Warning Lights: (2) Whelen 900 Series LED, Red / Red <ul style="list-style-type: none"> ○ There shall be two (2) Whelen 900 series (9" x 7") Red Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p><u>ZONE C - REAR WARNING LIGHTS</u></p> <ul style="list-style-type: none"> • Warning Lights: (2) Whelen 900 Series LED, Red / Red <ul style="list-style-type: none"> ○ There shall be two (2) Whelen 900 series (9" x 7") Red Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p><u>LOWER LEVEL OPTICAL WARNING DEVICES</u></p> <ul style="list-style-type: none"> • To define the clearance lines of the apparatus, the optical center of the lower-level optical warning devices in the front of the vehicle shall be mounted on or forward of the front axle centerline and as close to the front corner points of the apparatus as is practical. • The optical center of the lower-level optical warning devices at the rear of the vehicle shall be mounted on or behind the rear axle centerline and as close to the rear corners of the apparatus as is practical. The optical center of any lower-level device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground for large apparatus, and 18 in. and 48 in. (460 mm and 1600 mm) above level ground. • A midship optical warning device shall be mounted right and the left sides of the apparatus if the distance between the front and rear lower-level optical devices exceeds 25 ft (7.6 m) at the optical center. Additional midship optical warning devices shall be required, where necessary, to maintain a horizontal distance between the centers of adjacent lower-level optical warning devices of 25 ft (7.6 m) or less. The optical center of any midship mounted optical warning device shall be between 18 in. and 62 in. (460 mm and 1600 mm) above level ground. 		
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<p><u>ZONE A - FRONT WARNING LIGHTS</u></p> <ul style="list-style-type: none"> Warning Lights: (2) Whelen 600 Series LED, Red / Red <ul style="list-style-type: none"> There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p>ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)</p> <ul style="list-style-type: none"> Warning Lights: (2) Whelen M7 Series LED, Red / Red <ul style="list-style-type: none"> There shall be two (2) Whelen M7 series Red Linear Super-LED lights (M7R) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p>ZONES B AND D - BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)</p> <ul style="list-style-type: none"> Warning Lights: (2) Whelen 600 Series LED, Red / Red <ul style="list-style-type: none"> There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p>ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)</p> <ul style="list-style-type: none"> Warning Lights: (2) Whelen 600 Series LED, Red / Red <ul style="list-style-type: none"> There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p>ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)</p> <ul style="list-style-type: none"> Warning Lights: (2) Whelen 600 Series LED, Red / Red <ul style="list-style-type: none"> There shall be two (2) Whelen 600 series (6" x 4") red Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a clear lens and chrome flange. <p><u>FIRECOM INTERCOM SYSTEM</u></p> <ul style="list-style-type: none"> The following Firecom intercom system shall be provided and installed to improve the safety of firefighters and rescue professionals through enhanced communication and hearing protection. System shall have the following major components as minimum; <ul style="list-style-type: none"> 5000D digital intercom UH-51S headset with slotted dome, intercom/ptt, driver UH-51 headset, intercom/ptt, officer Radio interface cable Headset hangers Radio specific wiring harness to tie FireCom system in to main radio. Manufacture and Model information will be provided by Scottsbluff Fire at pre-construction. <p><u>INTERCOM SYSTEM INSTALLATION</u></p> <p>The above listed intercom system shall be installed in the cab locations as follows;</p>		
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<ul style="list-style-type: none"> • Front of Cab <ul style="list-style-type: none"> ○ Drivers – Mounted above the right shoulder position on ceiling. ○ Officers – Mounted above the left shoulder position on ceiling. <p><u>BODY PAINT PREPARATION</u></p> <p>During the body and components fabrication they are to be disassembled so when vehicle is complete there shall be finish paint beneath the removable components. The body shall be removed from chassis during the paint process to insure proper paint coverage. The body and components shall be metal finished as follows to provide a superior substrate for painting.</p> <p>The exterior (and interior, if painted) body shall undergo a thorough cleaning process starting with a biodegradable phosphoric acid solution to begin the etching process followed by a complete clear water rinse. The next step shall consist of a chemical conversion coating applied to seal the metal substrate and become part of the metal surface for greater film adhesion.</p> <p>All bright metal fittings, if unavailable in stainless steel or polished aluminum, shall be chrome plated. Iron fittings shall be copper under plated prior to chrome plating.</p> <p><u>PAINT PROCESS</u></p> <ul style="list-style-type: none"> • The paint process shall follow the strict standards set forth by PPG Industries guidelines. Painters applying PPG products will be PPG Certified Commercial Technicians, and re-certified every two (2) years. The body shall go through the following paint process; <ol style="list-style-type: none"> 1. Clean bare metal with a wax and grease remover using low lint rags. 2. Inspect, straighten, and hammer high points, grind all seams, sharp edges, and welds. DA sand entire paintable surfaces using 24-180 grit dry paper. Plastic fill all low spots and DA sand fill areas using 36-180 grit dry paper. Apply pinhole filler and DA sand areas using 80-180 grit dry paper. 3. Re-clean bare metal using a wax and grease remover and low lint rags. 4. Within 24 hours, a PPG Delfleet® epoxy color primer with proper hardener for corrosion resistance using a pressure pot spray gun and applying 2-5 full wet coats or 1.5-8.0 dry mils max. achieving full hiding and allow to air dry 60 minutes @ 70°F or bake for 45 minutes @ 140°F degree. 5. Inspect, putty fill, and dry guild coat entire body surface and DA sand using 180-400 grit dry paper. 6. Re-clean bare metal using a wax and grease remover using low lint rags. 7. A PPG Delfleet® primer sealer with proper hardener and thinner shall be sprayed using a pressure pot spray gun and applying 1 full wet coat or 1.0-2.0 dry mils achieving full hiding and allow to flash off in spray booth for minimum of 60 minutes @ 70°F. 8. A PPG Delfleet® FBCH basecoat (color) with proper hardener and dry additive shall then be sprayed using a pressure pot set @ 45-60 PSI and achieving full hiding or 1.5-2.0 wet mils and allow to flash off in spray booth 45-60 minutes before applying clearcoat. 9. A PPG Delfleet® clearcoat with proper hardener and thinner shall be sprayed using a pressure pot spray gun and applying 2-3 full wet coats or 5.0 wet mils for a uniform gloss and allow to flash off in spray booth 10 minutes and bake for 120-140 minutes @ 125°F (surface temp.). 10. After cooling, DA sand heavy orange peel or runs using 1000 grit dry sand paper and final DA sand using 1500-2000 grit dry sand paper. Wipe off all surfaces to remove dust and debris. Buff unit as needed using 3M rubbing compound and a white wool pad and inspect until all sand scratches are removed. 11. Polish as needed using 3M Perfect-It-Polish and a black foam pad, repeat as necessary and inspect until all sand scratches are removed. <p><u>PAINT - ENVIRONMENTAL IMPACT</u></p> <ul style="list-style-type: none"> • The contractor shall meet or exceed all current State (his) regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. PPG Delfleet® Evolution paint shall 		
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<p>be free of all heavy metal (lead & chromate) components. Paint emissions from sanding and painting shall be filtered and collected. All paint wastes shall be disposed of in an environmentally safe manner. Solvents used in cleanup operations shall be collected, sent off-site for distillation and returned for reuse.</p> <p><u>FASTENERS</u></p> <ul style="list-style-type: none"> Prior to the assembly and reinstallation of exterior components; i.e. warning and DOT lights, handrails, steps, door hardware, and miscellaneous items, a Mylar isolation tape, or gasket shall be used to prevent damage to the finish painted surface. These components shall be fastened to body using either a plastic insert into body metal with stainless steel screws or zinc coated nut-surts into body surface using stainless steel bolts to prevent corrosion from dissimilar metals. <p><u>ELECTROLYSIS CORROSION CONTROL</u></p> <ul style="list-style-type: none"> The vehicle shall be assembled using ECK brand or similar corrosion control compound on all high corrosion potential areas. ECK protects aluminum and stainless steel against electrolytic reaction, isolates dissimilar metals and gives bedding protection for hardware and fasteners. ECK contains anti-seizing lubricant for threads. ECK is dielectric and perfect for use with electrical connectors. <p><u>PAINT FINISH - SINGLE COLOR</u></p> <ul style="list-style-type: none"> The body shall be painted with a single color of PPG Delfleet® Evolution per Scottsbluff Fire Department approved paint spray out provided. A small touch-up bottle of paint shall be provided with completed vehicle. <ul style="list-style-type: none"> Paint Color: Match Cab Chassis Provided Paint Color Paint Color: Match cab/chassis supplied paint color. Interior Finish: PPG, White/Gray (WA) <p><u>COMPARTMENT INTERIOR FINISH</u></p> <ul style="list-style-type: none"> The compartment interior paintable surfaces shall be prepared and DA sanded using 80-120 grit dry paper and cleaned with a wax and grease remover. A PPG Delfleet® primer topcoat of either a solids epoxy primer or an etch primer shall be applied. A PPG Delfleet® color primer with proper hardener and thinner mix shall then be sprayed using a pressure pot spray gun and applying 2 wet coats achieving full hiding on entire compartment surface and allow to air dry for 30 minutes @ 70°F before applying texture coat. A PPG Delfleet® F3985 White/F3986 Gray top coat/texture coat with proper hardener and dry additive shall then be sprayed using a pressure pot and reducing the atomizing air pressure and turn fan pattern all the way in on the gun. Apply the first color texture coat as needed and allow to air dry @ 70°F over night before assembly and 7 days before putting into full service. <p><u>BODY UNDERCOATING</u></p>		
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<ul style="list-style-type: none"> The entire underside of body shall be sprayed with black automotive undercoating. Undercoating shall cover all areas underside of body and wheel well area to help prevent corrosion under the vehicle. <p><u>PAINT WARRANTY</u></p> <ul style="list-style-type: none"> The vehicle shall be provided with a ten (10) year non-prorated warranty to the original owner. Warranty is provided by PPG Inc. A warranty sheet with all conditions and maintenance procedures shall be provided with the delivered vehicle. Pro-rated warranties will not be acceptable. <p><u>REFLECTIVE STRIPE REQUIREMENTS</u></p> <ul style="list-style-type: none"> Material <ul style="list-style-type: none"> All retroreflective materials shall conform to the requirements of ASTM D 4956, Standard Specification for Retroreflective Sheeting for Traffic Control, Section 6.1.1 for Type I Sheeting. All retroreflective materials used that are colors not listed in ASTM D 4956, Section 6.1.1, shall have a minimum coefficient of retro-reflection of 10 with observation angle of 0.2 degrees and entrance angle of -4 degrees. Any printed or processed retroreflective film construction used shall conform to the standards required of an integral colored film as specified in ASTM D 4956, Section 6.1.1. <p><u>Minimum Requirements</u></p> <ul style="list-style-type: none"> A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus. The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width. The 4 in. (100 mm) wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, cracks between slats in roll up doors) provided the full stripe is seen as conspicuous when approaching the apparatus. <p><u>GRAPHICS PROOF</u></p> <ul style="list-style-type: none"> A color graphics proof of the reflective striping layout shall be provided for approval by Scottsbluff Fire Department prior to installation. The graphics proof shall be submitted to Scottsbluff Fire Department on 8.5" x 11" sheets with front, sides, rear and plan views, each on one (1) sheet. In addition if there is any special art work an additional sheet shall be provided showing all details. <ul style="list-style-type: none"> Stripe Color: White This reflective stripe shall be white in color. Reflective Stripe: Cab Side, 4" Scotchcal - 2 Door Comm. <p><u>REFLECTIVE STRIPE - CAB SIDE</u></p> <ul style="list-style-type: none"> The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series. 		
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<p><u>REFLECTIVE STRIPE - CAB FRONT</u></p> <ul style="list-style-type: none"> The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series. <p><u>REFLECTIVE STRIPE - CAB DOOR INTERIOR</u></p> <ul style="list-style-type: none"> Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 in.2 (62,000 mm2) of retroreflective material affixed to the inside of the door. The stripe material shall be 3M Scotchlite 680. <p><u>REFLECTIVE STRIPE - BODY SIDES</u></p> <ul style="list-style-type: none"> The reflective stripe material shall be 4" wide, 3M Scotchcal 680 series. <ul style="list-style-type: none"> Chevron Rear Body: Diamond Grade, Sides <p><u>CHEVRON REFLECTIVE STRIPE - REAR SIDES PANELS</u></p> <ul style="list-style-type: none"> At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe shall be 6" width. The rear side panels of the body on each side of a rear stairway or compartment shall have a chevron style reflective stripe, extending from bumper height up to side compartment drip rail height. Each chevron panel shall be a full sheet and shall have a 3M UV over laminate to protect from UV rays, scene damage, and everyday use. Chevron panel shall have a minimum 10 year warranty for material failure, and colorfastness. The stripe material shall be 3M Diamond Grade. <ul style="list-style-type: none"> Stripe Color: Red and FL Yellow-Green <ul style="list-style-type: none"> This reflective chevron stripe shall alternate red and fluorescent yellow-green in color. Reflective Stripe: Body Side 1" Scotchcal, Above/Below Main Stripe <ul style="list-style-type: none"> There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe. Reflective Stripe: Cab Front 1" Scotchcal, Above/Below Main Stripe <ul style="list-style-type: none"> There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe. Reflective Stripe: Cab Side 1" Scotchcal, Above/Below Main Stripe <ul style="list-style-type: none"> There shall be a 1" Scotchcal reflective stripe located 1" above and a second 1" Scotchcal reflective stripe located 1" below the main stripe. Stripe Layout: Angle-Up 		
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<ul style="list-style-type: none"> ○ The stripe shall extend from the front of cab in a straight line, then just ahead of the rear wheels the stripe shall angle up and extend straight back to the rear of the body. • Reflective Stripe with Roll-up Doors <ul style="list-style-type: none"> ○ The specified retroreflective stripe material shall be applied on the roll-up compartment doors. The stripe shall be precision machine cut for each door slat of the roll-up doors. Under no circumstance will the stripe material be cut on roll-up door surface. <p><u>Graphics Lettering</u></p> <ul style="list-style-type: none"> • Lettering to be done by Scottsbluff Fire <p><u>LINE VOLTAGE ELECTRICAL SYSTEM</u></p> <p><u>ONAN PTO GENERATOR</u></p> <ul style="list-style-type: none"> • Generator: Onan 15 kW, PTO, 1 Phase • The vehicle shall be equipped with an Onan Protec PTO generator system with a capacity of 15,000 watts at 120/240 VAC, 125/62 amps, single phase. Current frequency shall be stable at 60 hertz. • The transmission's PTO port and PTO, or the split shaft PTO, and all associated drive shaft components shall be rated to support the continuous duty torque requirements of the generator's continuous duty rating as stated on the power source nameplate. • Where the generator is driven by the chassis engine and transmission through a split shaft PTO, the driving compartment speedometer shall register when the generator drive system is engaged. • Where the generator is driven by the chassis engine and transmission through a split shaft PTO and a chassis transmission retarder is furnished, it shall be automatically disengaged for generator operations. • The direct drive generator shall be mounted so that it does not change the ramp break-over angle, angle of departure, or angle of approach as defined by other components, and it shall not extend into the ground clearance area. • The direct drive generator shall be mounted away from exhaust and muffler areas or provided with a heat shield to reduce operating temperatures in the generator area. <p><u>GENERATOR BONDING</u></p> <ul style="list-style-type: none"> • A minimum of four (4) 16" x 2 gauge copper ground straps shall be bolted to body sub-frame and chassis sub-frame for proper bonding of high voltage system. The conductor shall have a minimum amperage rating, as defined in 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of NFPA 70, of 115 percent of the rated amperage on the power source specification label. <p><u>GENERATOR ENGAGEMENT</u></p> <ul style="list-style-type: none"> • A "Generator Engaged" indicator shall be provided in the driving compartment to indicate that the generator shift has been successfully completed. 		
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<ul style="list-style-type: none"> An "OK to Operate Generator" indicator shall be provided in the driving compartment to indicate that the generator is engaged (if not always engaged), the transmission is in the proper gear (if required, automatic transmissions only), and the parking brake is engaged (if applicable). An interlock system shall be provided to prevent advancement of the engine speed in the driving compartment or at any operator's panel unless the parking brake is engaged, and the transmission is in neutral or the output of the transmission is correctly connected to a pump or generator instead of the drive wheels. <p><u>WARRANTY PERIOD</u></p> <ul style="list-style-type: none"> Provided such goods are operated and maintained in accordance with Onan's written instructions, Onan warrants that the Protec YDCR series PTO generators shall be free from defects in material and workmanship for a period of five (5) years or one thousand (1,000) hours, whichever comes first, from the date of delivery to the first purchaser. <p><u>GENERATOR SPLASH GUARD</u></p> <ul style="list-style-type: none"> A powder coat painted splash cover shall be installed to reduce the amount of road spray on the frame mounted PTO generator. A V-ring seal shall also be installed in the cover to provide additional protection against contaminants reaching the generator front seals. Generator Control: Vista Display <ul style="list-style-type: none"> The generator shall be engaged at the driver's Vista display in the cab. <p><u>GENERATOR MOUNTING</u></p> <ul style="list-style-type: none"> The generator shall be mounted between the chassis frame rails. The generator mounting brackets shall be fabricated using heavy duty steel tubing, or structural channel. The generator mounting shall be bolted and removable so that the generator can be lowered from under apparatus for service, if necessary. The generator case shall not extend below the bottom edge of the apparatus body. <p><u>MANUALS AND SCHEMATICS</u></p> <ul style="list-style-type: none"> Two (2) complete manuals on parts list, maintenance, wiring schematics, hydraulic schematics, circuit boards, voltage regulator board and other components shall be provided on delivery. <p><u>POWER-TAKE-OFF GENERATOR DRIVE</u></p> <p><i>Generator Drive: PTO, 3000EVS, Onan/Lima</i></p> <ul style="list-style-type: none"> There shall be a "Hot Shift" power-take-off (PTO) installed on the transmission PTO opening of the chassis. The "Hot Shift" PTO is provided to allow the engagement of the PTO at higher engine RPM speeds. The PTO output shall be connected to the generator through hollow tube type driveline with heavy duty universals. The engagement of the PTO shall be in the chassis cab with a rocker switch and red pilot light to note engagement of the PTO or via the V-Mux screen if so equipped. 		
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<ul style="list-style-type: none"> The power supply to the PTO engagement control shall be wired to the parking brake and a neutral position transmission switch to prevent engagement unless the vehicle is stopped and transmission has been placed in neutral. The installation of the engine, transmission, driven accessories (power takeoffs (PTO), etc.) shall meet the engine and transmission manufacturers' installation recommendations for the service intended. PTO, Allison 3000EVS, 4/8 O'Clock, Chelsea 280GKFJP-B5XV, 164% Model part number shall be Chelsea 280GKFJP-B5XV, 164% Ratio. <p><u>ENGINE SPEED CONTROL</u></p> <ul style="list-style-type: none"> An engine speed auxiliary control device (high idle switch or throttle) shall be installed to maintain a stable cycle output from generator when the apparatus is parked. An interlock shall prevent the operation of the engine speed auxiliary control device unless the parking brake is engaged and the transmission is in neutral or park, or the parking brake is engaged and the engine is disengaged from the drive wheels. The engine shall be prevented from regulating its own engine speed during times when engine rpm control is critical for consistent apparatus functions such as generator, water pump, or aerial operation. <p><u>GENERATOR MONITORING PANEL</u></p> <ul style="list-style-type: none"> To properly monitor the generator performance and load demand during operation, the generator installation shall be equipped with a full instrument monitor panel. <ul style="list-style-type: none"> Generator frequency in hertz Line 1 current in amperes Line 2 current in amperes Generator voltage in volts The program shall support the accumulation of elapsed generator hours. Generator hours shall be displayed. <p><u>LINE VOLTAGE ELECTRICAL SYSTEM</u></p> <p><u>GENERAL REQUIREMENTS</u></p> <p><u>Stability</u></p> <ul style="list-style-type: none"> Any fixed line voltage power source producing alternating current (ac) shall produce electric power at 60 Hz, ± 3 Hz when producing power at all levels between no load and full rated power. Any fixed line voltage power source shall produce electric power at the rated voltage ± 10 percent when producing power at all levels between no load and full rated power. 		
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<ul style="list-style-type: none"> The maximum voltage supplied to portable equipment shall not exceed 275 volts to ground. Higher voltage shall be permitted only when used to operate fixed wired, permanently mounted equipment on the apparatus. <p><u>Conformance with National Electrical Code</u></p> <ul style="list-style-type: none"> All components, equipment, and installation procedures shall conform to NFPA 70, National Electrical Code, except where superseded by the requirements of this chapter. Where the requirements of this chapter differ from those in NFPA 70, the requirements in this chapter shall apply. Where available, line voltage electrical system equipment and materials included on the apparatus shall be listed and used only in the manner for which they have been listed. All equipment and materials shall be installed in accordance with the manufacturer's instructions. <p><u>Location Ratings</u></p> <ul style="list-style-type: none"> Any equipment used in a dry location shall be listed for dry locations. Any equipment used in a wet location shall be listed for wet locations. Any equipment, except a PTO-driven generator, used in an underbody or under chassis location that is subject to road spray shall be either listed as Type 4 or mounted in an enclosure that is listed as Type 4. If a PTO-driven generator is located in an underbody or under chassis location, the installation shall include a shield to prevent road spray from splashing directly on the generator. <p><u>Grounding</u></p> <ul style="list-style-type: none"> Grounding shall be in accordance with 250.34(A) and 250.34(B) of NFPA 70. Ungrounded systems shall not be used. Only stranded or braided copper conductors shall be used for grounding and bonding. 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 200.6, "Means of Identifying Grounded Conductors," of NFPA 70. Any bonding screws, straps, or buses in the distribution panel board or in other system components between the neutral and equipment-grounding conductor shall be removed and discarded. <p><u>Bonding</u></p> <ul style="list-style-type: none"> The neutral conductor of the power source shall be bonded to the vehicle frame. The neutral bonding connection shall occur only at the power source. In addition to the bonding required for the low voltage return current, each body and each driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. The conductor shall have a minimum ampere rating, as defined in 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of NFPA 70, of 115 percent of the rated ampere on the power source specification label. 		
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<ul style="list-style-type: none"> A single conductor that is sized to meet the low voltage and line voltage requirements shall be permitted to be used. <p><u>Ground Fault Circuit Interrupters</u></p> <ul style="list-style-type: none"> In special service vehicles incorporating a lavatory, sink, toilet, shower, or tub, 120 V, 15 or 20 A receptacles within 6 ft (1.8 m) of these fixtures shall have ground fault circuit interrupter (GFCI) protection. GFCIs integrated into outlets or circuit breakers or as stand-alone devices shall be permitted to be used in situations. <p><u>Power Source General Requirements</u></p> <ul style="list-style-type: none"> All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source. The power source shall be shielded from contamination that would prevent the power source from operating within its design specifications. <p><u>Power Source Rating</u></p> <ul style="list-style-type: none"> For power sources of 8 kW or larger, the power source manufacturer shall declare the continuous duty rating that the power source can provide when installed on fire apparatus according to the manufacturer's instructions and run at 120°F (49°C) air intake temperature at 2000 ft (600 m) above sea level. The rating on the power source specification label shall not exceed the declared rating from the power source manufacturer. Access shall be provided to permit both routine maintenance and removal of the power source for major servicing. The power source shall be located such that neither it nor its mounting brackets interfere with the routine maintenance of the fire apparatus. <p><u>Instrumentation</u></p> <ul style="list-style-type: none"> If the power source is rated at less than 3 kW, a "Power On" indicator shall be provided. If the power source is rated at 3 kW or more but less than 8 kW, a voltmeter shall be provided. If the power source is rated at 8 kW or more, the following instrumentation shall be provided at an operator's panel: <ul style="list-style-type: none"> Voltmeter Current meters for each ungrounded leg Frequency (Hz) meter Power source hour meter The instrumentation shall be permanently mounted at an operator's panel. The instruments shall be located in a plane facing the operator. Gauges, switches, or other instruments on this panel shall each have a label to indicate their function. The instruments and other line voltage equipment and controls shall be protected from mechanical damage and not obstructed by tool mounting or equipment storage. An instruction plate(s) that provides 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. 		
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<p><u>Operation</u></p> <ul style="list-style-type: none"> Provisions shall be made for placing the generator drive system in operation using controls and switches that are identified and within convenient reach of the operator. Where the generator is driven by the chassis engine and engine compression brakes or engine exhaust brakes are furnished, they shall be automatically disengaged for generator operations. Any control device used in the generator system power train between the engine and the generator shall be equipped with a means to prevent unintentional movement of the control device from its set position in the power generation mode. If there is permanent wiring on the apparatus that is designed to be connected to the power source, a power source specification label that is permanently attached to the apparatus at the operator's control station shall provide the operator with the information required. The power source, at any load, shall not produce a noise level that exceeds 90 dBA in any driving compartment, crew compartment, or onboard command area with windows and doors closed or at any operator's station on the apparatus. <p><u>Power Supply Assembly</u></p> <ul style="list-style-type: none"> 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 12 ft (4 m) in length. All power supply assembly conductors, including neutral and grounding conductors, shall have an equivalent amperage rating and shall be sized to carry not less than 115 percent of the amperage of the nameplate current rating of the power source. If the power supply assembly connects to the vibrating part of a generator (not a connection on the base), the conductors shall be flexible cord or other fine-stranded conductors enclosed in metallic or nonmetallic liquid tight flexible conduit rated for wet locations and temperatures not less than 194°F (90°C). <p><u>Over-current Protection</u></p> <ul style="list-style-type: none"> Manually re-settable over current devices shall be installed to protect the line voltage electrical system components. <p><u>Power Source Protection</u></p> <ul style="list-style-type: none"> A main over current protection device shall be provided that is either incorporated in the power source or connected to the power source by a power supply assembly. The size of the main over current protection device shall not exceed 100 percent of the rated amperage stated on the power source specification label or the rating of the next larger available size over current protection device, where so recommended by the power source manufacturer. If the main over current protection device is subject to road spray, the unit shall be housed in a Type 4-rated enclosure. <p><u>Branch Circuit Over-current Protection</u></p> <ul style="list-style-type: none"> Over current protection devices shall be provided for each individual circuit and shall be sized at not less than 15 amps in accordance with 240.4, "Protection of Conductors," of NFPA 70. 		
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<ul style="list-style-type: none"> Any panel board shall have a main breaker where the panel has six or more individual branch circuits or the power source is rated 8 kW or larger. Each over current protection device shall be marked with a label to identify the function of the circuit it protects. Dedicated circuits shall be provided for any large appliance or device (air conditioning units, large motors, etc.) that requires 60 percent or more of the rated capacity of the circuit to which it is connected, and that circuit shall serve no other purpose. <p><u>Panelboards</u></p> <ul style="list-style-type: none"> All fixed power sources shall be hardwired to a permanently mounted panel board unless one of the following conditions exists: <ul style="list-style-type: none"> All line voltage power connections are made through receptacles on the power source and the receptacles are protected by integrated over current devices. Only one circuit is hardwired to the power source, which is protected by an integrated over current device. The panel shall be visible and located so that there is unimpeded access to the panel board controls. All panel boards shall be designed for use in their intended location. The panel(s) shall be protected from mechanical damage, tool mounting, and equipment storage. Where the power source is 120/240 V and 120 V loads are connected, the apparatus manufacturer or line voltage system installer shall consider load balancing to the extent that it is possible. <p><u>Wiring Methods</u></p> <ul style="list-style-type: none"> Fixed wiring systems shall be limited to the following: <ul style="list-style-type: none"> Metallic or nonmetallic liquid tight flexible conduit rated at temperatures not less than 194°F (90°C) with stranded copper wire rated for wet locations and temperatures not less than 194°F (90°C) Type SOW, SOOW, SEOW, or SEOOW flexible cord rated at 600 V and at temperatures not less than 194°F (90°C) 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 and shall be arranged as follows: <ul style="list-style-type: none"> Separated by a minimum distance of 12 in. (300 mm) from exhaust piping or shielded from such piping Separated from fuel lines by a minimum distance of 6 in. (150 mm) A means shall be provided to allow "flexing" between the driving and crew compartment, the body, and other areas or equipment whose movement would stress the wiring. Electrical cord or conduit shall be supported within 6 in. (150 mm) of any junction box and at a minimum of every 24 in. (600 mm) of run. Supports shall be made of nonmetallic materials or of corrosion-resistant or corrosion-protected metal. All supports shall be of a design that does not cut or abrade the conduit or cord and shall be mechanically fastened to the apparatus. Only fittings and components listed for the type of cord or conduit being installed shall be used. 		
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<ul style="list-style-type: none"> • Splices shall be made only in a listed junction box. • Additional Requirements for Flexible Cord Installations • Where flexible cord is used in any location where it could be damaged, it shall be protected by installation in conduit, enclosures, or guards. • Where flexible cord penetrates a metal surface, rubber or plastic grommets or bushings shall be installed. 			
<u>Wiring Identification</u> <ul style="list-style-type: none"> • Each line voltage circuit originating from the main panel board shall be identified. • The wire or circuit identification either shall reference a wiring diagram or wire list or shall indicate the final termination point of the circuit. • Where pre-wiring for future power sources or devices exists, the un-terminated ends shall be marked with a label showing their wire size and intended function. 			
<u>Wiring System Components</u> <ul style="list-style-type: none"> • Only stranded copper conductors with an insulation rated for temperatures of at least 194°F (90°C) and wet locations shall be used. Conductors in flexible cord shall be sized in accordance with Table 400.5(A) of NFPA 70. Conductors used in conduit shall be sized in accordance with 310.15, "Ampacities for Conductors Rated 0–2000 Volts," of NFPA 70. Aluminum or copper-clad aluminum conductors shall not be used. • All boxes shall conform to and be mounted in accordance with Article 314, "Outlet, Device, Pull, and Junction Boxes; Conduit Bodies; Fittings; and Manholes," of NFPA 70. All boxes shall be accessible using ordinary hand tools. Boxes shall not be permitted behind welded or pop-riveted panels. • The maximum number of conductors permitted in any box shall be in accordance with 314.16, "Number of Conductors in Outlet, Device, and Junction Boxes, and Conduit Bodies," of NFPA 70. • All wiring connections and terminations shall provide a positive mechanical and electrical connection. Connectors shall be installed in accordance with the manufacturer's instructions. Wire nuts or insulation displacement and insulation piercing connectors shall not be used. • Each switch shall indicate the position of its contact points (i.e., open or closed) and shall be rated for the continuous operation of the load being controlled. All switches shall be marked with a label indicating the function of the switch. Circuit breakers used as switches shall be "switch rated" (SWD) or better. Switches shall simultaneously open all associated line voltage conductors. Switching of the neutral conductor alone shall not be permitted. • Line voltage circuits controlled by low voltage circuits shall be wired through properly rated relays in listed enclosures that control all non-grounded current-carrying conductors. 			
<u>Wet and Dry Locations</u> <ul style="list-style-type: none"> • 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 406.8, "Receptacles in Damp or Wet Locations," of NFPA 70. 			
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<ul style="list-style-type: none"> All receptacles located in a wet location shall be not less than 24 in. (600 mm) from the ground. Receptacles on off road fire apparatus shall be a minimum of 30 in. (750 mm) from the ground. All receptacles located in a dry location shall be of the grounding type and shall be at least 12 in. (300 mm) above the interior floor height. No receptacle shall be installed in a face-up position. The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. <p><u>Receptacle Label</u></p> <ul style="list-style-type: none"> Each receptacle shall be marked with a label indicating the nominal line voltage (120 volts or 240 volts) and the current rating in amps of the circuit. If the receptacle is DC or other than single phase, that information shall also be marked on the label. All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other recognized performance standards. Receptacles used for DC voltages shall be rated for DC service. <p><u>Wiring Schematics</u></p> <ul style="list-style-type: none"> An "As-Built" Wiring diagrams for line voltage systems shall be provided to include the following information; <ul style="list-style-type: none"> Pictorial representations of circuit logic for all electrical components and wiring Circuit identification Connector pin identification Zone location of electrical components Safety interlocks Alternator–battery power distribution circuits Input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems Load Center: 120/240 VAC, 70 A, 1 Phase <p><u>LOADCENTER</u></p> <ul style="list-style-type: none"> The load center shall be a Cutler Hammer, BR Series, specifically designed for protection and distribution of 120/240 volt AC, such as lighting and small motor branch circuits. The load center enclosure shall be made of 16 gauge galvanized sheet steel. The galvanized coating provides corrosion protection and as such does not require paint. All trims used on the BR Load center shall be chromate sealed and finished with electro disposition epoxy paint (ASA61) which exceeds requirements for outdoor and indoor applications. A combination surface/flush cover with integral door shall be supplied. The load center shall be UL/CSA listed, NO EXCEPTIONS will be allowed. <p><u>SHORE POWER INLET - BATTERY CHARGER</u></p> <ul style="list-style-type: none"> Reference 12V Section for Inlet Size / Type The above mentioned shore power inlet, and battery conditioner shall be specified in the 12 volt section. <ul style="list-style-type: none"> Exterior Outlet: 120 VAC, (2) Body Fenders 		
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	Yes	No
<ul style="list-style-type: none"> ▪ Two (2) 120 volt exterior outlets, one (1) each side near rear wheel well area. <ul style="list-style-type: none"> • Interior Outlet: 120 VAC, Compartment <ul style="list-style-type: none"> ▪ There shall be one (1) 120 VAC outlet(s) located in compartment on the forward wall. • Interior Outlet: 240 VAC, Compartment <ul style="list-style-type: none"> ▪ There shall be one (1) 240 VAC outlet(s) located in compartment mounted on the forward wall. • Straight-Blade: 120V/20A, Exterior <ul style="list-style-type: none"> ▪ The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R). • Straight-Blade: 120V/20A, Interior <ul style="list-style-type: none"> ▪ The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R). • Straight-Blade: 120V/20A, Interior <ul style="list-style-type: none"> ▪ The outlet receptacle(s) shall be 20 amp, straight-blade (NEMA 5-20R). • Twist-Lock: 240V/20A, Interior <ul style="list-style-type: none"> ▪ The outlet receptacle(s) shall be 20 amp, twist-lock (NEMA L6-20R). • Outlet Powered By: Generator <ul style="list-style-type: none"> ▪ Outlet(s) shall be powered through the on-board generator system. • Outlet Powered By: Generator and Shore Power <ul style="list-style-type: none"> ▪ Outlet(s) shall be powered by both the on-board generator and shore power system through a relay system. <p>120/240 VAC SCENE LIGHTING</p> <ul style="list-style-type: none"> • Special Service Equip: 30,001-40,000 GVWR. - 4,000 Lbs. <p>EQUIPMENT PAYLOAD WEIGHT ALLOWANCE</p> <ul style="list-style-type: none"> • In compliance with NFPA 1901 standards, the special service vehicle shall be designed for an equipment loading allowance of 4,000 lbs. of Scottsbluff Fire Department provided equipment based on a 30,001 - 40,000 pound gross vehicle weight rating. <p><u>Special Service Minor Equipment List: NFPA 1901</u></p> <ul style="list-style-type: none"> • The following equipment shall be furnished with the completed special service vehicle; <ul style="list-style-type: none"> ○ One (1) container of assorted stainless steel nuts, bolts, screws and washers used in the construction of the apparatus shall be provided with the completed apparatus. <p>Wheel Chocks: (2) Zico SAC-44-E, Folding, 44" Tires</p>		
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Scottsbluff Fire Medium Rescue Bid Specification	Bidder Complies	
	Yes	No
<ul style="list-style-type: none"> There shall be two (2) Zico SAC-44-E NFPA approved folding aluminum wheel chocks provided for 44" diameter tires that together will hold the vehicle when loaded to its GVWR or GCWR, on a hard surface with a 20 % grade, with the transmission in neutral, and the parking brake released. The wheel chock(s) shall be mounted behind rear wheels, below body on streetside. <p>Ladder: Little Giant 1AA-17, 15' "A" Frame, Aluminum</p> <ul style="list-style-type: none"> One (1) Little Giant model 1AA-17, 15' "A" frame type aluminum combination ladder shall be provided with the completed unit. Folded size is 55" x 25" x 9", and weigh 45 pounds. The ladder shall be located in specified ladder compartment as specified by Scottsbluff Fire Department. <p>Flashlight: Streamlight Survivor, C4 LED</p> <ul style="list-style-type: none"> Two (2) Streamlight Fire Vulcan C4 LED flashlight(s) with shoulder strap shall be provided with 80,000 candela and 3 hour run time. Each flashlight shall be orange in color and have a 12 volt DC charger and vehicle mount kit. Each flashlight {will/shall} have an LED spotlight style bulbs and reflectors. The flashlight(s) shall be wired to battery direct unless otherwise specified by Scottsbluff Fire. The flashlight(s) shall be mounted on the completed unit in the lower area of compartment S1 below bottom of extended floor. <p>REMAINING NFPA MINOR EQUIPMENT BY PURCHASER</p> <ul style="list-style-type: none"> All other minor equipment not specified above, but required by NFPA 1901 for special service vehicles, section 10.9.3 shall be supplied and mounted by Scottsbluff Fire Department before the unit is placed in emergency service. 		
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