Salinas Fire Department
Command
Build Specification

INTERNET IN-PROCESS SITE

The Manufacturer shall post and maintain a website where the Salinas Fire Department will be able to view digital images of their apparatus as its being manufactured. 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 the apparatus.

CONSTRUCTION DOCUMENTATION

The Manufacturer shall supply, at the time of delivery, at least one copy of the following documents:

1. The manufacturers record of apparatus construction details, including the following information:

    a. Owners name and address
    b. Apparatus manufacturer, model, and serial number
    c. Chassis make, model, and serial number
    d. GAWR of front and rear axles
    e. Front tire size and total rated capacity in pounds (kg)
    f. Rear tire size and total rated capacity in pounds (kg)
    g. Chassis weight distribution in pounds with manufacturer mounted equipment (front and rear)
    h. Engine make, model, serial number, rated horsepower and related speed, and governed speed
    i. Type of fuel and fuel tank capacity
    j. Electrical system voltage and alternator output in amps
    k. Battery make, model, and capacity in cold cranking amps (CCA)
    l. Chassis transmission make, model, and serial number; and if so equipped, chassis transmission PTO(s) make, model, and gear ratio
    m. Paint manufacturer and paint number(s)
    n. Company name and signature of responsible company representative

2. Certification of slip resistance of all stepping, standing, and walking surfaces
3. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
4. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (without personnel and equipment)
5. Written load analysis and results of the electrical system performance tests

OPERATION AND SERVICE DOCUMENTATION

The Manufacturer shall supply, at time of delivery, at least two sets of complete operation and service documentation covering the completed apparatus as delivered and accepted.

The documentation shall address at least the inspection, service, and operations of the apparatus and all major components thereof.

The Manufacturer shall also provide documentation of the following items for the entire apparatus and each major operating system or major component of the apparatus:

1. Manufacturers name and address
2. Country of manufacture
3. Source of service and technical information
4. Parts and replacement information
5. Descriptions, specifications, and ratings of the chassis, and pump
6. Wiring diagrams for low voltage and line voltage systems to include the following information: 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, and input/output assignment sheets or equivalent circuit logic implemented in multiplexing systems
7. Lubrication charts
8. Operating instructions for the chassis and any major components or auxiliary systems
9. Instructions regarding the frequency and procedure for recommended maintenance
10. Overall apparatus operating instructions
11. Safety considerations
12. Limitations of use
13. Inspection procedures
14. Recommended service procedures
15. Troubleshooting guide
16. Apparatus body, chassis, and other component manufacturers warranties
17. Special data required by this standard
18. Copies of required manufacturer test data or reports, manufacturer certifications, and independent third-party certifications of test results
19. A material safety data sheet (MSDS) for any fluid that is specified for use on the apparatus

The Manufacturer shall deliver with the apparatus all manufacturers operations and service documents supplied with components and equipment that are installed or supplied by the Manufacturer.

NFPA REQUIRED MANUALS

The construction, operation, and service documentation shall be provided on a CD-ROM. These manuals shall be written in a "step by step" format for ease of reference. There shall be two (2) copies of the CD provided with the apparatus as standard.

GENERAL WARRANTY - ONE (1) YEAR

The entire body and all Manufacturer installed components shall be warranted, including parts and labor for a period of at least ***One (1) Year*** commencing upon the placing of the unit in-service by the Salinas Fire Department (except that warranty on the tires and tubes, batteries, electrical lamps, and other devices subject to deterioration is limited to the warranty of the manufacturer thereof and adjustments for same are to be made directly with the manufacturer). Extended warranties on the engine, transmission, or other major components shall be detailed in the proposal.

This warranty shall not apply to those items which are usually considered normal maintenance and repair; including but not limited to normal lubrication or proper adjustment of main functional operating components. All manufacturers' warranties (apparatus & equipment) shall be furnished and indicated in the manufacturer's bid. Any standard warranties, including, but not limited to engine, transmission, tires and axles furnished by the original equipment manufacturer (OEM) or the prime contractor will be passed on to the Salinas Fire Department. Also include any available extended warranties that will start after the initial warranty period. Goods or property shall be as represented by these specifications as well as additional agreements as a result of discussions regarding these specifications and shall be as promised with implied liability on the manufacturer.

The Body Manufacturer must be the "single source" coordinator of all warranties on the vehicle.

STRUCTURAL WARRANTY - TEN (10) YEARS

The Manufacturer shall warrant that each new rescue body (exclusive of paint, finish, hardware, moldings, windows, and other appointments and accessories) is structurally sound and free of all structural defects of both material and workmanship and further warrants that it will maintain such structural integrity for a period of ***Ten (10) Years*** from the completion date listed on the Manufacturer's data plate attached to the vehicle inside the cab.

The Manufacturer further warrants that this structural integrity warranty may be transferred to a second Purchaser providing the vehicle is inspected by the Original Manufacturer or their authorized representative within thirty (30) days of ownership transfer. To maintain warranty coverage, the proper ownership transfer papers shall be kept on file at Manufacturer's facility.

In the event of a chassis remount, this structural warranty shall remain in effect providing that the re-chassis work is completed by the Manufacturer or a facility which obtains written authorization from the Manufacturer.

Should repairs become necessary under the terms of this warranty, the extent of the repair shall be determined solely by the Manufacturer and shall be repaired by the Manufacturer or an Authorized Service Center designated by the Manufacturer. The expense of any transportation to or from the ASC shall be the responsibility of the Salinas Fire Department and is not an item covered by this warranty.

There shall be a Warranty Certificate supplied with the completed apparatus to detail the warranty configuration.

OVERALL HEIGHT

The overall height of the vehicle shall not exceed 156" from the ground. This measurement shall be taken with the tires properly inflated with the apparatus in the unloaded condition. The actual measurement shall be taken that highest point of the apparatus.

OVERALL LENGTH

The overall length of the vehicle shall be approximately 499".

TESTING

12 VOLT DC - NFPA TEST

The apparatus low voltage electrical system shall be tested and certified by the manufacturer per NFPA 1901. The test shall be performed with the air temperature between 0 degrees F and 110 degrees F.

TEST SEQUENCE

The following three (3) tests shall be performed in the order indicated below. Before each test, the batteries shall be fully charged. A full charge condition shall be when the charge 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.

RESERVE CAPACITY TEST

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged. The engine shall be shut off and the minimum continuous electrical loads shall be activated for ten (10) minutes. All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure.

ALTERNATOR PERFORMANCE TESTS:

TEST AT IDLE

The minimum continuous electrical load shall be activated with the engine running at idle speed. The engine temperature shall be stabilized at normal operating temperature. The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

TEST AT FULL LOAD

The total continuous electrical load shall be activated with the engine running up to the Engine Manufacturer's governed speed. The test duration shall be a minimum of two (2) hours. Activation of the load management system shall be permitted during the test. However, an alarm sounded by excessive battery discharge, as detected by the system required to notify apparatus personnel of electrical system failure, or a system voltage of less that 11.7 volts DC for a 12 volt nominal system for more that 120 seconds, shall be considered a test failure.

LOW VOLTAGE ALARM TEST

Following completion of the above tests, the engine shall be shut off. The total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

The battery voltage shall be measured at the battery terminals. With the load still applied, a reading of less that 11.7 volts DC for a 12 volt nominal system shall be considered a test failure.

The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered test failure.

DOCUMENTATION

Documentation of the electrical system performance test shall be provided with delivered apparatus. In addition a written load analysis, including the following;

- Nameplate rating of alternator.
- Alternator rating under the conditions specified in NFPA 1901.
- Each component load specified in NFPA 1901, comprising the minimum continuous load.
- Additional loads that when added to the minimum continuous load determine the total connected load.
- Each individual intermittent load.

120/240 VOLT AC NFPA TEST - BY UNDERWRITERS LABORATORIES

The apparatus 120/240 volt electrical system shall be tested and certified Underwriters Laboratories. The certification shall be delivered to the customer with the apparatus.

The test shall be performed with the air temperature between 0 degrees F and 110 degrees F.

TEST SEQUENCE

The following test shall be performed in the order indicated below.

The wiring and permanently connected devices (excluding utilization devices) are subjected to 900 VAC for one (1) minute. The test is conducted between live parts and the neutral conductor, as well as between the live parts and the vehicle frame with any switches in the circuit closed. The test is accomplished with a Biddle HiPot tester model 230315.

The generator output is tested at 100% of its nameplate rating for a minimum of two (2) hours, into a resistive load. The following information is recorded of the generator and its power supply at 30 minute intervals during the test: voltage, amperage and frequency output of the generator, as well as the oil pressure, water temperature, transmission temperature, hydraulic temperature, and the battery charge rate, as applicable.

INSPECTION TRIPS

There will be three (3) inspection trips to the factory with three (3) department representatives on each trips. The three trips will be for the following events:

- Pre-Construction meeting (three days/two nights)
- Pre-Paint inspection (two days/one night)
- Final Inspection (three days/two nights)

The cost of travel, food and lodging will be the responsibility of SVI trucks.

DELIVERY AND DEMONSTRATION

The Manufacturer shall be responsible for the delivery of the completed unit to the Salinas Fire Departments location. On initial delivery of the apparatus, the Manufacturer shall supply a qualified representative to demonstrate the apparatus and provide initial instruction to representatives of the Salinas Fire Department regarding the operation, care, and maintenance of the apparatus and equipment supplied at the Salinas Fire Departments location.

The delivery engineer shall set delivery and instruction schedule with the person appointed by Salinas Fire Department.

After delivery of the apparatus, the Salinas 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 as defined in NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, and NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

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MODEL

The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. This chassis shall be manufactured for heavy duty service with strength and capacity for a duty rating of one hundred (100) percent loaded full time.

MODEL YEAR

The chassis shall have a vehicle identification number that reflects a 2008 model year.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

APPARATUS TYPE

The apparatus shall be created for the Emergency Services Industry and include the functions of a Rescue which shall include the functions of a multipurpose vehicle which primarily provides support services at emergency scenes.

TRUCK TYPE

The chassis shall be manufactured as a truck style and designed to include permanently mounted compartments behind the cab, known as the body. The body of the truck shall be supplied and installed by the apparatus manufacturer.

AXLE CONFIGURATION

The axle configuration shall offer a tandem rear drive axle with a front steer axle configuration (6 X 4).

GROSS AXLE WEIGHT RATINGS FRONT

The gross apparatus weight rating and the gross capacity weight rating shall be adequate to carry the weight of equipment and the apparatus, with water tanks full and other tanks at full capacity, miscellaneous equipment and all personnel weights considered as recommended by the most current edition of NFPA 1901.

The chassis front gross axle weight rating (GAWR) shall be 22,000 pounds.

GROSS AXLE WEIGHT RATINGS REAR

The chassis rear gross axle weight rating (GAWR) shall be 40,000 pounds.

CAB STYLE

The cab shall be a custom, enclosed model, built specifically for the fire service by a company specializing in cab and chassis design for all fire service applications.

The cab shall be manufactured for heavy-duty service utilizing adequate strength and capacity for the application of protecting firefighters. The cab shall be of a modular design offering improved strength, durability and reduced weight. The modular design shall allow for faster, less costly replacement of components. Per pound, sheet panel aluminum extrusions offer a higher tensile strength, 45,000 PSI, and yield strength, 40,000 PSI, than that of lower grade sheet such as 3003-H13. For this reason, the cab shall be of aluminum extrusion construction, which shall offer superior strength and the truest, flattest surface ensuring less expensive paint repairs if needed.

The method of cab construction shall use a process incorporating techniques outlined in accordance with the American Welding Society D1.1-96 requirements for structural steel welding. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side panels shall be assembled using proven industrial adhesives, designed specifically for aluminum fabrication, which exceed the strength of a weld, for construction.

All interior and exterior seams shall be sealed for optimum noise reduction in addition to the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 Marine Grade, one hundred percent primary aluminum plate. A single formed, one (1) piece extrusion, manufactured from 6061-T6 100 percent primary one- quarter inch thick aluminum shall be used for the “A” pillar adding strength and rigidity to the cab as well as additional roll-over protection. The cab side wall skins and shall be 0.125 inch thick, the rear wall and roof skin shall be 0.19 inch thick, the front skin shall be 0.125 inch thick.

The cab shall incorporate tongue and groove fitted 6061-T6 0.25 inch thick aluminum extrusions for extreme duty situations. The cab shall include multi-layer composite insulation for improved cab heating and cooling in addition to noise reduction.

Proposals offering products built with anything less than the alloy-temper mentioned or from any other material, other than aluminum, shall not be considered. Additionally, any cabs utilizing recycled or recovered aluminum plate or extrusion products shall not be considered due impurities in the composition leading to a lack of strength.

The cab shall incorporate a fully enclosed design, allowing for a spacious cab area with no partition between the front and rear sections of the cab. The walls of the vehicle shall include roof supports allowing for an open design. The outside dimension of the cab shall be 96 inches wide with a minimum interior width of 90 inches.

The cab overall length shall be 150.38 inches in length with 74.00 inches from the centerline of the front of the axle to the back of the cab. The cab shall offer an interior height of 58.00 inches from the front floor to the headliner and a rear floor to headliner height of 79.00 inches in the crew area, at a minimum. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

In order to offer the optimum amount of cab space to occupants, there shall be no consideration given for any cab unable to comply with the minimum measurements for interior cab space as listed.

The cab shall include a driver and officer area with two (2) cab door openings. The front door opening shall offer a clear door opening of 43.00 inches wide X 56.00 inches high. The rear door opening shall offer a clear door opening of 38.00 inches wide X 88.00 inches high. This style of cab shall also include a crew area offering up to ten (10) seating positions.

The cab shall incorporate a (2) step configuration from the ground to the cab floor for each door opening. The lower step shall be constructed of heavy duty safety grating which meets or exceeds Federal Specification RRG-1602-latest revision and performs under dry, greasy, muddy, soapy and icy conditions and offers open drainage.

The first step for the driver and officer area shall measure 11.44 inches deep X 31.13 inches wide. The intermediate step shall measure 8.75 inches deep X 33.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure 12.13 inches deep X 20.44 inches wide. The intermediate step shall measure 10.50 inches deep X 23.00 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.50 inches.

CAB FRONT FASCIA

The front cab fascia shall be constructed of lightweight, impact resistant fiberglass reinforced plastic which shall be attached to the front cab skin to offer an appealing exterior. The cab fascia will encompass the front of the aluminum cab structure at the bottom of the windshield to the lower section of the cab and include an Evolution style design.

The Evolution style cab fascia shall include module provisions for two (2) single Hi/Low beam headlight assemblies. The module shall offer an integrated side or turn marker light assembly and shall be hinged permitting easy maintenance of the headlight and turn and marker light assemblies. The hinged headlight module shall offer access to the ember separator, the electrical bulkhead connections, the transmission electronic communications module and the multiplex V-MUX control (if applicable).

The Evolution style fascia shall also offer four (4) additional blank modules below those specified for the head lights for the provision of up to four (4) warning lights.

FRONT GRILLE

The fascia shall include a (2) piece hinged, stainless steel raised front grille 40.00 inches wide x 31.95 inches height X .88 inches deep. The grille shall include a minimum free air intake of 519.30 square inches shall be installed on the front of the cab fascia. The upper portion of the grille will be hinged and will have (2) flush push button latches that allow access to the front fluid fills of the cab.

CAB ENGINE TUNNEL

The cab interior shall include a fixed type engine tunnel cover sized to accommodate an engine with a smaller block or an engine which has a large block. The engine tunnel shall be an integral part of the cab constructed of 5052-H32 Marine Grade, .090 of an inch thick, one hundred percent primary aluminum plate. The tunnel shall be a maximum of 41.50 inches wide X 29.00 inches high.

The engine tunnel shall be insulated with multi-layer insulating material, consisting of foam, a sound barrier of 1.0 pounds per square foot with a facing which resists heat transfer. This insulation shall be held in place by adhesive, aluminum stick pins and retention caps. Any exposed insulation seams and edges shall be sealed reducing moisture and debris.

CAB ENTRY DOORS

The doors shall be full height and constructed of extruded aluminum with a nominal thickness of .125 inch. The exterior skins shall be constructed of .125 inch aluminum plate. The cab shall include three (3) entry doors, two (2) front doors and one (1) crew on the officer side of the cab as high as possible for ease of entering and egress when outfitted with an SCBA. The driver and officer door openings shall offer a clear door opening of 40.75 inches wide. The crew door opening shall offer a clear door opening of 32.50 inches wide.

All cab and crew doors shall be of substantial weight for the optimum strength and rigidity for the best performance in all cab crash testing. Any cab with front and crew doors manufactured of less than the material thickness of .125 inch in both the extrusion and exterior skin shall not be considered.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each hinge shall be .375 inch piano style and be constructed of stainless steel.

The piano style hinge and hidden flush mounted door is the most favorable construction keeping dirt and debris out of the hinge allowing for optimum operation throughout the lifetime of the door.

Proposals offering door hinge thickness any less than stated shall not be considered.

Proposals including doors that do not comply with the flush mounting as described or those including exposed hinges shall not be considered.

CAB ENTRY DOOR TYPE

All entry doors shall be of a flush, full height design and shall be located on the sides of the cab.

LH EXTERIOR REAR COMPARTMENT

The cab shall contain an exterior compartment on the left side of the cab behind the rear door. The compartment opening shall be 16.25 inches wide X 21.19 inches high. The compartment size shall be 17.84 inches wide X 21.19 inches high X 21.19 inches deep. The compartment shall include a 17.13 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a locking bent D-ring slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

LH EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) SoundOff Signal brand LED strip light installed to illuminate the exterior rear compartment on the left side of the cab. The strip light shall be 10” long and shall include three (3) bright white Gen3 LEDs for long life and low amp draw.

RH EXTERIOR REAR COMPARTMENT

The cab shall contain an exterior compartment on the right side of the cab behind the rear door. The compartment opening shall be 16.25 inches wide X 21.19 inches high. The compartment size shall be 17.84 inches wide X 21.19 inches high X 21.19 inches deep. The compartment shall include a 17.13 inch wide, 32.00 inch high and 1.50 inch thick hinged box pan style flush mount door with a locking bent D-ring slam latch. There shall be a switch to activate the open compartment warning light in the cab in the event the door is left ajar.

RH EXTERIOR REAR COMPARTMENT LIGHTING

There shall be one (1) SoundOff Signal brand LED strip light installed to illuminate the exterior rear compartment on the right side of the cab. The strip light shall be 10” long and shall include three (3) bright white Gen3 LEDs for long life and low amp draw.

REAR CAB WALL CUTOUT

The rear wall of the cab shall include a cut out which includes 24.00 inches wide X 76.50 inches tall to accommodate a walk through application.

CAB WARRANTY

The cab structure shall be warranted for a period of ten (10) years. Warranty conditions may apply and shall be listed in the detailed warranty document that shall be provided upon request.

CAB TEST INFORMATION

The cab shall have successfully achieved survival of the International crash test ECE-29, Addendum 28, Revision 1 as indicated below.

As part of the ECE regulation 29 test, the frontal area of the cab is struck by a 3,700 pound pendulum weight. The weight is brought back to a sixty degree angle and then the weight is released and allowed to swing forward, imparting some 32,600 pounds foot of force to the cab front face. The cab shall be so constructed that after the test, there will be minimal intrusion of the cab structure into the passenger area. The doors shall remain usable for both entry and exit. Also, as part of the test the cab roof must withstand a static load bearing test. The cab shall withstand a weight of over 60,000 pounds without permanent damage or collapse. The above tests shall be witnessed by and attested to by an independent third party. The test results shall be recorded on/by cameras, high speed imagers, accelerometers and strain gauges, with notarized copies of the letters verifying the test results and videos of said test shall be available upon request.

CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper, the seams shall be sealed with SEM brand seam sealer and painted with two (2) to four (4) coats of an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene.

The cab shall then be painted with the upper and lower colors specifically designated by the customer with a minimum thickness of two 2.00 mils of paint, followed by a clear top coat not to exceed 2.00 mils.

CAB PAINT MANUFACTURER

The cab shall be painted with PPG Industries paint.

CAB PAINT PRIMARY/ LOWER CAB COLOR

The primary/lower paint color shall be PPG FBCH 911659 Red.

CAB PAINT SECONDARY/UPPER CAB COLOR

The upper paint color shall be PPG FBCH 2185 White.

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet at a break line on the cab which shall fall approximately 1.00 inch below the cab door windows and above the exterior door handles on the sides of the cab. On the front of the cab the break line shall parallel the body line on the cab fascia below the windshield wipers and above the headlamps until the breakline meets the cab grille at the corners of the grille just above the access hinge.

CAB PAINT PINSTRIPE

Where the upper and lower paint colors meet a temporary 0.50 inch black pinstripe shall be applied over this break line to offer a more finished look prior to the final pinstripe being installed by the OEM.

CAB PAINT WARRANTY

The cab and chassis shall be covered by a limited manufacturer paint warranty which shall be in effect for 10 years from the first owners date of purchase or in service or the first 100,000 actual miles, whichever occurs first.

LOW VOLTAGE ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current Weldon brand of multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

APPARATUS WIRING PROVISION

An apparatus wiring panel shall be installed on the officer side bulkhead below the dash which shall include (8) each open circuits with three (3) each 20.00 amp, (1) each 30.00 amp, (3) each 10 amp and (1) each 15 amp relay and breaker with trigger wires which shall be connected to the rocker switch panel.

MULTIPLEX DISPLAY

The multiplexing electrical system shall include (2) Weldon Vista III displays which shall be located (1) within the driver side instrument panel ahead of the engine tunnel and (1) in the officer panel. The Vista III displays shall feature full color LCD display screens which include a message bar displaying the time of day, the current ambient outside temperature and important messages requiring acknowledgement by the user which shall all be displayed on the top of the screen in the order they are received. There shall be virtual controls for the auto climate control, on-board diagnostics, and video ready for back- up cameras, thermal cameras and DVD.

The Vista III displays shall measure approximately 10.38 inches wide X 7.50 inches overall. The displays shall offer varying fonts and background colors. The displays shall also be fully programmable to the needs of the customer which offers an infinite amount of flexibility for viewable options.

POWER & GROUND STUD

A 40 amp battery direct power and ground stud shall be provided and installed in the electrical distribution panel. The stud shall be size #10 and protected with a 40 amp circuit breaker.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a yellow protective rubberized coating to prevent corrosion.

ENGINE

The power plant for the vehicle shall offer a high pressure performance, turbo charged engine which shall feature a high pressure common rail fuel system. This system shall be coupled a turbo which shall deliver performance at ratings up to 485 HP.

The engine shall be EPA certified to meet the very latest emissions standards without compromising performance, reliability or durability. The Caterpillar C13 engine shall feature an air charge cooled engine which consists of an in line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 485 horse power at 1800 RPM which shall be governed at 2100 RPM. The torque rating shall feature 1650 foot pounds of torque at 1500 RPM with 763 cubic inches of displacement. The Caterpillar C13 engine shall feature an electronic governor.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CJ4 low ash engine oil which shall be utilized for proper engine lubrication.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with an automatic high-idle speed control. It shall be pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the master switch is activated and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indication on the Vista screen for the high idle speed control.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A Caterpillar engine compression brake, for the six (6) cylinder engine, with brake light actuation and cutout relay for when in pump mode or when an ABS event occurs shall be installed. The engine brake shall activate upon 0% accelerator when in operation mode.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected: a valid gear ratio is detected; the driver has requested or enabled engine compression brake operation; the throttle is at a minimum engine speed position; and the electronic controller is not presently attempting to execute an electronically controlled final drive gear shift. The compression brake shall be controlled via an off/low/medium/high virtual button on the Vista display.

FLUID FILLS

The front of the chassis shall accommodate fluid fills for the engine oil, the windshield washer fluid and the power steering fluid though the grille. This area shall also accommodate checks for the engine oil, and power steering fluid.

ENGINE WARRANTY

The Caterpillar C13 engine shall be warranted, in accordance for a fire apparatus, for a period of five (5) years or 200,000 miles, whichever occurs first.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton clutched type fan drive.

When the clutched fan is disengaged it shall facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the fire industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall utilize heavy-duty welds and be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a stacked, single depth package that provides the maximum cooling capacity for the specified engine as well as offers excellent serviceability. The main components shall include a surge tank, charge air cooler, recirculation shield, radiator and transmission cooler.

There shall be a single depth core that allows greater efficiency, enhanced serviceability, and lighter weight with a higher ambient capability.

The cooling package core shall be protected by a radiator skid plate and not protrude below the frame of the vehicle by more that 3.5 inches. This feature shall provide an improved angle of approach thereby reducing possible damage.

The radiator shall be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator shall include a minimum of a 910 square inch core and shall be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded Polymer fan blade designed to provide long life in harsh environments. Polymer fans provide a significant weight reduction over metal fans providing longer life for fan clutch linings and bearings along with increased fan belt life.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and sight glass to monitor the level of the coolant. The surge tank shall have a cap that meets the engine manufactures pressure requirements as well as the system design requirements.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance. When a center bumper compartment is installed an additional shield may be required to redirect the airflow into the coolers.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with welded side tanks. The charge air cooler shall have a minimum of a 473 square inch core and be bolted to the top of the radiator to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufactures requirements.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees F.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

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ENGINE AIR INTAKE

The engine air intake system shall include an ember separator air intake filter which shall be located in the front of the cab behind the officer side fascia. This filter shall protect the downstream air filter from embers using a combination of unique flat and crimped metal screens constructed into a galvanized steel frame. This multilayered screen shall be designed to trap embers or allow them to burn out before passing through the pack, while creating only minimal air flow restriction through the system. Periodic cleaning or replacement of the screen shall be all that is required after installation.

The engine shall also include an air intake filter which shall be bolted to the frame and located under the front of the cab on the officer side. The completely disposable dry type filter shall ensure containment of dust and debris safely contained inside the disposable housing, eliminating the chance of contaminating the air intake system during air filter service via a leak-tight seal.

The air flow distribution and dust loading shall be uniform throughout the high-performance filter cone pack, which shall result in increased capacity and lower pressure differential for improved horsepower and fuel economy. The air intake shall be mounted within easy access via a hinged panel behind the headlight module. The air intake system shall include a restriction indicator light in the warning light cluster which shall activate when the air cleaner element requires replacement.

The charge air cooler hose shall be formed from aluminized steel tubing and include silicone hump hose with stainless expansion rings and stainless steel “constant torque” style clamps meeting the engine manufactures requirements.

Proposals shall include an indication light representative of the need for replacement of the air intake filter and shall be located at the front of the vehicle.

ENIGINE EXHAUST SYSTEM

The exhaust system shall include a diesel particulate filter and a diesel oxidation catalyst to meet current EPA standards. The system shall be designed and installed using 0.065 inch aluminized steel plumbing from the diesel particulate filter to the discharge which shall terminate horizontally on the officer side of the vehicle ahead of the rear tires. The exhaust system shall be mounted below the frame in the inboard position maximizing space for the body compartments. All joints following the diesel particulate filter shall be connected with lapping band style clamps.

The system shall include 5.00 inch diameter plumbing which shall be 0.065 inch thick stainless steel exhaust tubing between the engine turbo and the diesel particulate filter. The tubing shall include a thermal cover in order to retain heat between the engine turbo and diesel particulate filter. The entire exhaust system shall be bolted to the frame and include system joints connected with zero leak clamps between the turbo and diesel particulate filter.

ENGINE EXHAUST ACCESSORIES

The exhaust system shall be modified to accept a Neiderman 45 degree exhaust extraction system.

TRANSMISSION

The drive train shall include an Allison Gen IV-E model EVS 4000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters which shall offer Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level sensor shall be included with the readout located in the shift selector.

The Gen IV-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

The transmission gear ratios shall be:
1st - 3.51:1
2nd - 1.91:1
3rd - 1.43:1
4th - 1.00:1
5th - 0.74:1
6th - 0.64:1 (if applicable)
Rev- 4.80:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select five (5) speeds of operation. The sixth speed over drive shall be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

The EVS group package number 127 shall contain the 199 vocational package in consideration of the duty of this apparatus for rescue. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.
An 8 pin Delphi connector will be provided next to the steering column connector. This will contain the following input/output circuits to the transmission tcm.

Function ID	Description	Wire assignment
C	PTO Request	143
F	Aux. Function Range Inhibit (Special)	101/142
G	PTO Enable Output (See Input Function C)	130
S	Neutral Indicator for PTO	145
	Signal Return	103

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector will provide a prognostic indicator (wrench symbol) between the selected and attained indicators.

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a light in the instrument panel when levels fall below normal.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically seek shifting to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle speed.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

TRANSMISSION COOLING SYSTEM

The transmission shall include an air to oil cooler integrated into the lower portion of cooling package. The transmission cooling system shall meet all transmission manufacturer requirements. The cooling system shall feature a circuit provision located within the hydraulic transmission oil which shall provide for rapid warm up to the optimum transmission operating temperature.

Proposals offering water to oil style transmission cooling systems shall not be accepted.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with Spicer 1810 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. A splined slip joint shall be provided in each driveshaft and shall be coated with Glide coat®.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a fuel filter/water separator as a primary filter as approved by the engine manufacturer.

A secondary fuel filter with manual fuel primer capabilities shall be included as approved by the engine manufacturer.

FUEL LINES

The fuel system lines shall be black textile braid covered high tensile steel reinforced wire braided supply and return hoses with steel reusable fittings installed from the tank to engine.

FUEL SHUTOFF VALVE

There shall be (2) fuel shutoff valves which shall be installed, (1) in the fuel draw line at the primary fuel filter and (1) in the fuel draw line at the secondary fuel filter to allow the fuel filter to be changed without loss of fuel to the fuel pump.

A third fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

FUEL COOLER

An aluminum cross flow air to fuel cooler shall be provided to lower fuel temperature allowing the vehicle to operate at higher ambient temperatures. The fuel cooler shall be located rear of the fuel tank.

FUEL TANK

The fuel tank shall have a minimum capacity of one hundred (100) gallons and measure 35.00 inches wide X 15.00 inches high X 48.00 inches long. The baffled tank shall be made of 14 gauge aluminized steel. The tank exterior is painted with a PRP Corsol™ black anti-corrosive exterior metal treatment finish. This results in a tank which offers the internal and external corrosion resistance.

The fuel tank shall be mounted 2.00 inch below the frame, behind the rear axle. The tank can be easily lowered and removed for service purposes.

The tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

Dual draw tubes and dual sender ports shall be installed. A 2.00 inch NPT fill ports shall be available for right or left hand fill. A 0.5 inch NPT drain plug shall be centered in the bottom of the tank.

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the forward position extending across to the middle of the tank and the right fill port also located in the rearward position on the fuel tank.

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-23. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 23,000 pounds. This rating shall require special approvals from the wheel manufacturers.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with clear oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

FRONT SUSPENSION

The front suspension shall include nine (9) leaf, 53.38 inch long and 4.00 inches wide taper leaf springs with a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 23,000 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column shall be a seven (7) position tilt and 2.25 inch telescopic type with an 18.00 inch steering wheel located on the left side of the cab designating the drivers position. The steering wheel shall be covered with black absorbite padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

POWER STEERING PUMP

The hydraulic power steering pump shall be a Vickers 20V and shall be gear driven from the engine. The pump shall be a fixed displacement vane type.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate a light in the instrument panel when levels fall below normal.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48 degrees to the left and 44 degrees to the right.

CHASSIS ALIGNMENT

The chassis frame rails shall be cross checked to insure the length and to make sure each is square. The front and rear axles shall be laser aligned, additionally the tires and wheels shall be aligned and toe-in set on the front tires. The completed apparatus shall be rechecked for proper alignment once the chassis has been fully loaded.

REAR AXLE

The rear axle shall be a Meritor model number RT-40-145 tandem drive axle. The axle shall offer the widest range of ratios available in an efficient single reduction axle design. The axle shall feature a robust housing design with a standard 0.5 inch wall thickness, a shot-peened hypoid Generoid gearing with bolted ring gear to differential case attachment backed by a thrust screw. The axle shall feature precision forged differential gears, one-piece forward carrier design, large diameter input shaft and a rigid differential case.

The axle shall feature precision forged differential gears and shall have a rated capacity of 40,000 pounds.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

REAR AXLE DIFFERENTIAL CONTROL

The tandem axle chassis shall include an inter-axle differential lock, which will allow both axles to be engaged as drive axles. The differential lock shall be controlled by a locking rocker switch on the switch panel. The light on the switch shall illuminate with positive engagement of the inter-axle differential control.

A driver controlled differential lock shall be installed on one of the tandem rear axles. This feature shall allow the main differential to be locked and unlocked when the vehicle is stationary to provide maximum wheel end traction. The driver controlled differential lock shall be controlled by a separate locking rocker switch on the switch panel. The light on the switch shall illuminate with positive engagement of the differential control.

VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 75 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The tandem rear axle shall feature a Neway AD-254 air suspension. Each axle shall be independently suspended for optimum performance. The suspension shall include optimized air springs mounted to the equalizing beams and integral transverse beams. Adjustable torque rods and adjustable track bars shall also be included. The rear tandem suspension shall include 54.00 inch axle centers.

Dual air height control valves shall be installed to ensure equal frame height on both sides of the vehicle regardless of the load.

The rear suspension is run flat compatible at reduced speeds.

The rear suspension capacity shall be rated at 40,000 to 44,000 pounds.

REAR SHOCK ABSORBERS

Shock absorbers shall be supplied by the suspension manufacturer and installed on the rear axle suspension.

FRONT TIRE

The front tires shall be Michelin 425/65R22.5 “L” tubeless radial XFE regional tread.

The front tire stamped load capacity shall be 22,800 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

The front tire US Fire Service Intermittent Usage load capacity shall be 22,800 pounds per axle with a speed capacity of up to 75 miles per hour when properly inflated to 120 pounds per square inch.

REAR TIRE

The rear tires shall be Michelin 11R-22.5 16PR "H" tubeless radial XZE regional tread.

The rear tire stamped load capacity shall be 24,020 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

The rear tire US Fire Service Intermittent Usage load capacity shall be 24,820 pounds per axle with a speed capacity of 75 miles per hour when properly inflated to 120 pounds per square inch.

FRONT WHEEL

The front wheels shall be Alcoa hub piloted, 12.25 inches X 22.50 inches polished aluminum wheels. The wheels shall feature one- piece hot forged strength, more payload capacity and brilliant good looks which last.

REAR WHEEL

The rear wheels shall be Alcoa hub piloted, 8.25 inch X 22.50 inch polished aluminum wheels. The wheels shall feature one- piece hot forged strength, more payload capacity and brilliant good looks which last.

BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall be dynamically balanced.

WHEEL TRIM

The front wheels shall include stainless steel lug nut covers and stainless steel baby moons with cutouts for oil seal viewing (there shall be no cutout on front drive, IFS axles, or when the front wheel bearing lubrication is grease). The covers and baby moons shall feature a mirror shine finish and shall be shipped loose with the chassis for installation by the apparatus builder.

The rear wheels shall include stainless steel lug nut covers and band mounted spring clip stainless steel high hats, also in a mirror shine finish, which shall be shipped loose with the chassis for installation by the apparatus builder.

The lug nut covers, baby moons, and high hats shall be RealWheels® brand, and constructed of 304L grade, non-corrosive stainless steel meeting D.O.T. certification standards.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include a three (3) air tank, four (4) reservoir system with a total of 6220 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide controlled service brake application during an unlikely event including primary air supply loss.

The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A Meritor-Wabco six (6) sensor, four (4) modulator anti-lock braking system (ABS) shall be installed on the front and tandem rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17" vented rotors.

REAR BRAKES

The rear brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake system. The control shall be yellow in color.

The parking brake actuation valve shall be mounted on the drivers dash within easy access.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right frame rail behind the officer step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 24 long stroke brake chambers.

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REAR BRAKE CHAMBERS

The rear axle shall include MGM 24/30 brake chambers shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake pads against the brake rotor.

AIR COMPRESSOR

The air compressor provided for the engine shall be a two (2) cylinder reciprocating Caterpillar® 270 compressor which shall be capable of producing a minimum of 16.1 CFM. The compressor shall shall consist of a water cooled cylinder head, a cooling plate, valve plate assembly and an integral air cooled crankcase and cylinder block.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air cleaner bracket on the right frame rail behind the officer step.

MOISTURE EJECTORS

Manual drain valves shall be installed on all reservoirs of the air supply system. The drain valves shall have pull cables attached. The actuation pull cable shall be coiled and tied at the drain valve on the tank. The supplied lengths shall be sufficient to be extended to the frame rail to allow drains to be activated from the side of the chassis.

AIR SUPPLY LINES

A dual air system plumbed with color coded reinforced nylon tubing air lines shall be installed on the chassis. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Brass compression type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

WHEELBASE

The chassis wheelbase shall be 265.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 126.00 inches.

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FRAME

The frame shall consist of double channel side rails and cross members forming a ladder style frame. The sides of the rails shall be constructed of "C" channel, 10.25 inches high X 3.5 inches deep X .38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and .38 inches thick, 110,000 psi minimum yield high strength low alloy steel. Each rail shall be considered on the following key items: Each rail shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches calculated by the radius method. The frame shall measure 35.00 inches in width.

RBM refers to the measure of stiffness of a cross section relative to the yield stress of the material the frame is manufactured from.

Every cross sectional profile of an object has a measure of its mechanical properties based on its shape. These properties of its shape can be broken down relative to the horizontal and vertical direction, represented as Ixx and Iyy. These act as a measure of the shapes resistance to bending.

The section modulus of mass of this profile takes into consideration the stresses imposed on this profile when a load is applied, by considering the maximum distance from the center of the profile to its outer most extremity. Section modulus is a method of measurement for the relative stiffness of a beam section and is based on the horizontal and vertical directional value plus the distance from the center of mass to the extremities of the cross section from the coordinate axis, such that Zyy = Iyy/Y and Zxx = Ixx/X.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the engine mounting, body mounting, pump mounting or bumpers shall not be considered as a cross member. The cross members shall be attached using grade 8 flanged head bolts and flanged lock nuts. Each cross member shall be mounted to the frame rails a minimum of utilizing 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.

All holes for bolts shall be drilled into the frame rails, preventing fracture or fatigue. Each hole shall be custom placed relative to its component preventing unnecessary holes that present fatigue along each frame rail.

The frames proposed shall be custom drilled for each component and shall not include any unnecessary holes.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

The frame and cross members shall carry a lifetime warranty to the original purchaser. A copy of the frame warranty shall accompany the bid.

FRAME WARRANTY

The frame and cross members shall carry a lifetime warranty to the original purchaser.

FRAME PAINT

The frame shall be powder coated black prior to any attachment of components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance, per ASTM D2794, shall have a direct impact resistance of 120.00 inches per pound at 2 mils. The salt spray resistance per ASTM B-117-97 shall pass 500 hours of salt spray test. The applied process shall allow the application of other products over it and still maintain or exceed the 500 hours salt spray test.

Any proposals offering painted frame with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FRONT BUMPER

A one piece, two (2) rib wrap-around style, polished stainless steel front bumper shall be provided. The material shall be 10 gauge 304 stainless steel, 12" high and 101" wide.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended 6.00 inches ahead of the cab.

FRONT BUMPER EXTENSION WIDTH

The front bumper extension splayed frame rails shall include an overall width of 44.75 inches.

FRONT BUMPER APRON

The bumper extension shall include a bumper apron which consists of 0.19 inch thick aluminum tread plate constructed for an exact fit within the 6.00 inch bumper extension. The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the bumper flange.

AIR HORN

The front bumper shall include two (2) Grover brand air horns which shall measure 21.00 inches long with a 6.00 inch round flare. The air horn shall be a trumpet style and shall include a chrome finish.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper face, one (1) on the driver side of the bumper in the inboard position relative to the left hand frame rail and one (1) on the officer side of the bumper in the inboard position relative to the right hand frame rail.

AIR HORN RESERVOIR

One (1) air tank, with a 1200 cubic inch reservoir, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

The bumper shall include two (2) Cast Products Inc. model SA4301, 100 watt speaker which shall be recess mounted within the bumper fascia. The speaker shall include a flat mounting flange and be chrome in color.

ELECTRONIC SIREN SPEAKER LOCATION

The speakers shall be located one (1) on the drivers side and one (1) on the officers side of the bumper fascia, outboard of the frame rails.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted black shall be installed below the front bumper, rearward position and bolted directly to the side of the chassis frame with grade 8.00 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting 45 degrees to allow for easy maintenance of the engine and transmission.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the “Down” button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90" ball and be anchored to frame brackets with 1.25" diameter studs.

A steel safety channel assembly shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT CONTROL RECEPTACLE

A 25.00 foot harness shall be provided on the right side of frame just behind the cab and include a 6 pin Deutsch connector with cap for mounting in a compartment in the body, which shall include a 17.00 foot extension harness which shall be provided between the connector on the harness from the tilt pump and the connector on the remote control pendant. The remote control pendant shall also include 20.00 feet of cable which includes a mating connector to a mating connector to mate with the 25.00 foot harness.

CAB WINDSHIELD

The cab windshield shall have a maximum of 2808 sq. in. area and be of the wraparound design, 52.00 inches wide X 27.00 inches high for maximum visibility. The distance from the Driver or Officer to the front windshield shall be a minimum of 42.00 inches at the furthest seated position. This distance shall ensure the safety of the Driver and Officer from intruding objects in the unlikely event of a head on collision. All glass utilized for the windshield or windows shall include an automotive tint. The left and right windshield shall use the same interchangeable glass.

Each proposal shall include the left and right windshield shall be fully interchangeable thereby minimizing maintenance costs. All proposals offering windshields not in compliance with the minimum measurement of viewing area stated above and are not fully interchangeable shall not be considered.

GLASS FRONT DOOR

The cab glass within the front doors shall each include a window which is 31.00 inches wide X 26.00 inches high. Both the driver and officer windows shall have the capability to roll down into the door housing via electric actuation. The power windows shall be controlled via switching on the driver door and by a switch on each respective door. There shall also be a fixed window which shall measure 2.50 inches wide at the top, 8.00 inches wide at the bottom X 26.00 inches high, more commonly known as “cozy glass” ahead of the front cab door windows.

The glass utilized for these windows shall include a standard green automotive tint unless otherwise noted.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR RH

The rear right hand side crew door shall include a window which is 31.00 inches wide X 26.00 inches high. The window shall be a powered type and shall be controlled by a switch on the inner door panel and the drivers door panel. The glass utilized for this window shall include a standard green automotive tint unless otherwise noted.

GLASS TINT REAR DOOR RH

The window located in the right hand side rear window shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR LH

The left hand side of the cab where the middle side window and rear door would normally be shall include a window which is 50.00 inches wide X 26.00 inches high. The window shall be a fixed type window. The window shall be mounted using self-locking window rubber. The glass utilized for this window shall include an automotive tint unless otherwise noted.

GLASS TINT REAR DOOR LH

The window located in the left hand side rear door shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS SIDE MID RH

The cab shall include a window on the officers side behind the front and ahead of the crew doors which shall measure 16.00 inches wide X 26.00 inches high. This window shall be fixed within this space and shall be rectangular in shape. The window shall be mounted using self locking window rubber. The glass utilized for this window shall include a green automotive tint unless otherwise noted.

GLASS TINT SIDE MID RH

The window located on the right hand side of the cab between the front and rear doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS UPPER SIDE FRONT

The raised roof on the driver and officer sides of the cab shall include a window which is 6.00 inches wide X 14.00 inches high. These windows shall be fixed within this space. These windows shall be in the shape of a right angle and be mounted in a black rubberized frame.

GLASS TINT UPPER SIDE FRONT

The windows located in the upper section on the left and right side towards the front of the cab shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS UPPER SIDE MID

The middle section of the raised roof on the driver and officer sides of the cab shall include a window in the middle of the cab which is 16.00 inches wide X 14.00 inches high. These windows shall be fixed within this space. These windows shall be in the shape of a right angle and be mounted in a black rubberized frame.

GLASS TINT UPPER SIDE MID

The windows located in the upper section on each side in the middle of the cab shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS UPPER SIDE REAR DOOR

The middle section of the raised roof on the driver and officer sides of the cab shall include a window which is 31.00 inches wide X 14.00 inches high. These windows shall be fixed within this space. These windows shall be rectangular in shape and be mounted in a black rubberized frame.

GLASS TINT UPPER SIDE REAR DOOR

The window located in the upper section on the crew doors of the cab shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

CLIMATE CONTROL

The cab shall be equipped with a ceiling mounted combination defrost / heating and air-conditioning system mounted above the engine tunnel in a central location.

The system shall offer sixteen (16) adjustable louvers. Six (6) of the louvers shall face forward towards the windshield, offering 45,000 BTU of heat at 320 CFM for defrosting. The system shall include six (6) rearward facing louvers to direct air for the crew area and four (4) for driver and officer comfort. When in "Cabin Mode" the system shall be designed to produce 60,000 BTU of heat and 32,000 BTU of cooling. The HVAC cover shall be made of ABS plastic.

All auxiliary heating units (if optionally equipped) shall be plumbed in series independent of the heater/defroster system with one (1) seasonal shut-off valve at the front corner on the officer side of the cab.

The air conditioning system shall be capable of lowering the cab interior temperature from 100 degrees to 70 degrees within thirty minutes, with a relative humidity of sixty percent.

The air conditioner lines shall be a mixture of custom bent zinc coated steel fittings and Aero-quip GH 134 flexible hose with Aero-Quip EZ-Clip fittings.

CLIMATE CONTROL ACTIVATION

The heating controls, and air conditioning if included, shall be located on the Vista screen.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on cab forward of raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted, open type compressor that shall be capable of producing a minimum of 32000 BTU at 1500 engine RPMs. The compressor shall utilize R-134A refrigerant and PAG oil.

UNDER CAB INSULATION

The exterior of the cab tunnel surrounding the engine shall include reinforced closed cell foam insulation. The insulation shall measure 1.00 inch thick and shall include a foil backing and grid reinforcement. The foam shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation under the tunnel shall act as a noise barrier absorbing noise from the engine as well as assisting in sustaining the desired climate within the cab interior.

Additionally, the entire underside of the cab shall include reinforced closed cell foam insulation. The insulation shall measure 1.00 inch thick and shall include a foil backing and grid reinforcement. The foam shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation under the cab floor shall act as a noise barrier absorbing noise from the road as well as assisting in sustaining the desired climate within the cab interior. An expanded aluminum overlay shall be installed to hold the insulation tight against the underside of the cab.

INTERIOR TRIM FLOOR MAT

The floor of the cab shall be covered with a multi-layer mat consisting of .25 inch sound absorbing closed cell foam and a .06 inch non-slip vinyl surface with a pebble grain finish. The covering shall be held in place by a pressure sensitive adhesive with aluminum cornering trim. All exposed seam shall be sealed to reduce moisture and debris.

INTERIOR TRIM VINYL

The cab interior shall include trim on the front and rear crew ceiling, the cab walls and the rear wall of the cab. The trim shall be constructed of insulated vinyl over a hard board backing. The material shall be securely fastened to the interior of the cab utilizing snap style fasteners with a decorative fastener for a more appealing appearance.

HEADER TRIM

The cab interior shall include a header over the driver and officer dash which shall be vacuum formed ABS composite panel with robust styling grooves providing structural integrity. The header shall include (2) vents within the header which are directed at the windshield. Also included will be a drop down panel for access behind the header for service of electronic components, if necessary. The header shall include (2) cut outs, (1) over the driver and (1) over the officer to accommodate speakers and molded areas to accommodate the sun visors.

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

TRIM LH DASH

The left hand dash shall be a one (1) piece durable vacuum formed ABS composite housing which shall be custom molded for a perfect fit around the instrument panel and the lower control panels to the left and right of the steering column.

TRIM CENTER DASH

The main center dash area shall be constructed of 5052-H32 Marine Grade, .090 of an inch thick, one hundred percent primary aluminum plate.

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick, one hundred percent primary aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.63 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment, recessed 3.00 inches below the surface of the dash and measure 16.00 inches wide X 14.00 inches deep.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with .44 of an inch thick multi-layer mat consisting of .25 inch closed cell foam, .13 of an inch thick rubber and .06 inch thick non-slip pebble grain.

POWER POINT DASH MOUNT

The cab dash panel shall include two (2) 12 volt cigarette lighter type receptacles as a power source for additional portable or mobile items. The receptacles shall be wired to be hot when the battery master switch is on.

STEP TRIM

The cab steps shall include a 14 gauge 304 perforated stainless steel construction on the first step, the step closest to the ground. The stainless steel finish shall be a number 7 mirror. The step shall include a frame which is integral with the construction of the cab for rigidity and strength. The perforation shall allow water and other debris to flow through rather than becoming packed under the step. The middle step shall be integral with the cab in construction and shall be trimmed in 3003-H22 embossed aluminum tread plate which is 0.084 inches thick.

INTERIOR DOOR TRIM

The doors of the cab shall include an aluminum plate the same weight and grade as the cab on the interior of the door. The aluminum shall be then painted.

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

A reflective chevron sign shall be installed on the lowest portion of the inner door panel, one (1) on each door. A stripe of reflective tape shall be installed at the outer edge of each door.

INTERIOR GRAB HANDLE 'A' PILLAR

A rubber covered 11.00 inch grab handle shall be provided on the inside of the cab on the hinge post at the driver and officer doors. The handle shall assist personnel in exiting and entering the cab.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish and provide ease of access and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door the full width of the door below the window glass and shall measure 30 inches in length. The handle shall assist personnel in exiting and entering the cab.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be black in color.

INTERIOR TRIM VINYL COLOR

The cab interior vinyl trim surfaces shall be black in color.

INTERIOR ABS TRIM COLOR

The cab interior vacuum formed ABS composite trim surfaces shall be gray in color.

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CAB PAINT INTERIOR

The interior metal surfaces of the cab shall be finish painted the same color as the exterior color or the lower exterior color with a two-tone.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with a Zolatone #20-06 black on black texture finish.

DASH PANEL GROUP

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel shall include six (6) switch positions in the upper left portion of the panel.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES LEFT PANEL

The left dash panel shall include one (1) wiper switch which shall be located in the left hand side of the panel.

SWITCHES RIGHT PANEL

The right dash panel shall include no rocker switches or legends.

SWITCH PANEL IGNITION

The vehicle shall be equipped with a keyless ignition and master, with an “Off/ On” and a two switch for “Off/ Start”.

SEATBELT WARNING

A seatbelt warning system shall be installed for each seat within the chassis. The system shall provide visual and audible warning when any seat is occupied (sixty pounds minimum), the corresponding seat belt remains unfastened, and the park brake is released.

Once activated, the visual and audible indicators shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The seats shall include a covering of high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids.

SEAT COLOR

All seats supplied on the chassis shall be black in color. This material shall be semi- resistant to UV rays and from being saturated or contaminated by fluids.

SEAT BACK LOGO

The seat back shall include a black and gray diamond logo which features a capital S in red located in the middle of the diamond. The logo shall be centered on the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom Firefighter Sierra model seat. The seat shall feature eight (8) way electric positioning. The eight (8) positions shall include up and down, fore and aft and front and rear tilt. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 37.00 inches measured with the seat height adjustment raised to the upper limit of its travel.

This model of seat shall have successfully completed the static load tests by FMVSS 207, 209, 210 and 302 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The drivers seat shall include a standard seat back incorporating the all belts to seat feature (ABTS) as described above. The seat back shall feature a contoured, adjustable head rest.

SEAT OFFICER

The officer's seat shall be an H.O. Botrom Firefighter model seat. The seat shall feature eight (8) way electric positioning. The eight (8) positions shall include up and down, fore and aft and front and rear tilt. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a red, three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 37.00 inches measured with the seat height adjustment raised to the upper limit of its travel.

This model of seat shall have successfully completed the static load tests by FMVSS 207, 209, 210 and 302 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officers seat shall include a standard seat back incorporating the all belts to seat feature (ABTS) as described above. The seat back shall feature a contoured, adjustable head rest.

POWER SEAT WIRING

The power seat or seats installed in the cab shall be wired directly to battery power.

SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

SEAT QUANTITY FORWARD FACING OUTER

The crew area shall include one (1) forward facing outboard seat located directly behind the engine tunnel on the officer side of the cab.

SEAT CREW FORWARD FACING OUTER

The crew area shall include a seat in the forward facing outer position which shall be a theatre style series. The seat shall feature a padded seat, and cushion which shall be hinged and attached to the wall providing optimum space savings. The seat shall remain in the stored position until occupied.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 37.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING OUTER

The crew area shall include a seat back in the forward facing outer position which shall be a theatre style series. The seat back shall feature a padded cushion which shall be attached to the rear wall of the cab providing optimum space savings.

There shall be a red, three-point shoulder harness with lap belt and an automatic retractor attached to the cab and available to the seat. 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. The seat belt assembly anchorages shall conform to the Federal Safety Standard (FMVSS) No. 210, “Seat belt assembly anchorages”.

SEAT MOUNTING FORWARD FACING OUTER

The forward facing outer seat shall be mounted in the furthest outboard position facing the front of the cab.

CAB FRONT UNDERSEAT STORAGE ACCESS DOOR

The driver and officer under seat storage area shall have a solid aluminum painted, hinged door with latch.

WINDSHIELD WIPER SYSTEM

The cab shall include a parallel arm wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers, one (1) for the driver and one (1) for the officer, which shall be affixed to a rod style arm. The system shall include a single motor which shall initiate the arm in which both the driver and officer windshield wipers are attached, initiating a back and forth motion for each wiper. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the drivers position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically and shall send a signal to activate a light in the instrument panel when levels fall below normal.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be aluminum with a polished chrome plated finish. The exterior pull handles shall include a scuff plate behind the handle constructed of polished stainless steel. All doors shall be keyed alike and designed to prevent accidental lockout.

The interior latches shall be black flush paddle type, which are incorporated into an upper door panel.

DOOR LOCKS

The doors shall include a CAN based electronic door lock system which shall include two (2) keypads, one (1) located on the drivers side next to the front grab handle and one (1) on the officers side next to the front grab handle. The electronic door locks shall feature four (4) key fobs for activation with buttons for entry door lock and unlock, compartment door lock and unlock shall be provided. There shall be two (2) rocker switches provided, one (1) located on the inside of the drivers side front door and one (1) located on the officers side front door. The power door locks shall control all three (3) entry doors of the cab.

POWER DOOR LOCK COMPARTMENT PROVISION

The power door lock feature shall include up to eight (8) compartment doors featuring controls through the key fob and through a virtual switch on the multiplex display.

DOOR LOCK LH REAR CAB COMPARTMENT

The driver side rear compartment shall feature a power door lock actuator.

DOOR LOCK RH REAR CAB COMPARTMENT

The officer side rear compartment shall feature a power door lock actuator.

GRAB HANDLES

The cab shall include one (1) each 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The assist handle shall be made of 14 gauge 304- stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

REARVIEW MIRRORS

Retrac West Coast style single vision mirrors, model 1171H 980-4 shall be provided and installed on each side of the cab. The mirrors shall measure 7.00 inches wide X 16.00 inches high. The mirrors shall be mounted to the cab doors with tubular stainless steel, swing away arms. The mirror glass shall be held in a plastic housing with a stainless steel back. The mirrors shall be heated, and remotely adjustable vertically and horizontally via four way actuation switches. The switches shall be mounted in the cab with in easy reach of the driver. A manually adjusted 8" convex mirror is provided below the main mirror head for wider field of vision.

REARVIEW MIRROR HEAT SWITCH

The heated rearview mirrors shall be controlled through a virtual button on the multiplex display.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. The two-piece liners shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 3.50 inches wide made of 14 gauge 304 polished stainless steel.

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them.

CAB EXTERIOR MODEL NAMEPLATE

The cab shall include custom “Gladiator” nameplates on the front driver and officer side doors.

CAB EXTERIOR FRONT & SIDE EMBLEMS

Each cab side shall include one (1) Spartan emblem installed on the outside of the cab above each front wheel well.

IGNITION

The master starting system, ignition system shall include chrome thumb turn switch which shall be mounted on the driver side of the cab to the left of the steering wheel on the dash. Each switch will be accompanied by (1) green LED indication light which shall light when the ignition is in the “ON” position and (1) for the master battery switch when in the “ON” position. The thumb turn switches shall also be accompanied by a chrome push button which shall only operate when both the master battery and ignition thumb switches are in the “ON” position.

BATTERY

The single start electrical system shall include (6) Harris BCI 31 950 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541. The cables shall have encapsulated ends with heat shrink and sealant.

BATTERY BOX

The batteries shall be contained within two (2) black powder coated steel battery boxes which shall be located on the driver and officer side of the chassis, securely bolted to the frame rails. The boxes shall include drain holes in the bottom for sufficient drainage of water and shall include phenolic board battery hold downs and a durable, Dry-Deck in the bottom of the tray under each battery to allow for air flow and drainage.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed and encapsulated at the ends with heat shrink and sealant.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The starting system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator.

ELECTRICAL INLET CONNECTION

A Kussmaul 30 amp super auto-eject electrical receptacle shall be installed on the drivers side of the cab above the wheel well. It shall automatically eject the plug when the starter button is depressed.

The U.L. maximum allowable amperage draw on receptacles is generally 80% of their listed rating, for example, the 30 amp receptacle should not carry more than 24 amp continuous load. When adding the different amperage draws of the components being installed on the chassis be sure to factor in whether the components will draw a continuous load or intermittent load.

Amp Draw Reference List:
Kussmaul 1000 Charger - 3.5 Amps
Kussmaul 1200 Charger - 10 Amps
Kussmaul 35/10 Charger - 10 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps
120V Air Compressor - 4.2 Amps

ELECTRICAL INLET CONNECTION COLOR

The Kussmaul Auto- Eject electrical inlet connection shall include a grey cover.

AUXILIARY ELECTRICAL INLET CONNECTION

An auxiliary Kussmaul 30 amp super auto-eject electrical receptacle shall be connected to the block heater and installed on the drivers side of the cab above the wheel well. It shall automatically eject the plug when the starter button is depressed.

AUXILIARY ELECTRICAL INLET CONNECTION COLOR

The additional Kussmaul Auto- Eject electrical inlet connection shall include a red cover.

HEADLIGHTS

A hinged headlamp and combination side marker/turn lamp module shall be part of the front cab fascia. This combination shall include (2) rectangular halogen High/Low beam headlamps with integrated side marker/turn signal lamps. The headlamps shall be equipped with a "Daytime Running" light feature, which will illuminate the headlights to 80% brilliance when the ignition switch is in the "On" position and the parking brake is released.

The headlights shall be controlled via a virtual button on the Vista display.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly above the front warning lights.

FRONT TURN SIGNALS

The headlamp assembly shall include a turn signal and side marker lamp combination within the same module. This light assembly shall be amber in color and shall have a visibility radius of 125 degrees.

SIDE MARKER/TURN SIGNALS

The headlight module shall include two (2) side turn and marker lights which shall be integral with the headlights.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) cab LED marker lamps designating identification, center and clearance provided. These lights shall be installed on the face of the cab within full view of other vehicles from ground level.

GROUND LIGHTS

Each door shall include incandescent NFPA compliant light heads mounted to the under side of the cab. The lights shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The ground lighting shall be activated by the opening of either door on the respective side of the cab as well as through the Vista screen.

ENGINE COMPARTMENT LIGHTS

There shall be an incandescent NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life.

SIDE SCENE LIGHT MODEL

The side of the cab shall include two (2) Whelen model 810 scene lights, one (1) each side which shall be surface mounted. The Whelen lights shall offer halogen lighting with 8 to 32 degree internal optics.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the driver and officer sides of the cab shall be mounted in the upper forward portion of the 20.00 inch raised roof of the cab between the front and rear crew doors.

SIDE SCENE ACTIVATION

The left and right side scene lights shall be activated by opening the respective side door and by individual virtual buttons on the MUX display(s) in the cab.

INTERIOR OVERHEAD LIGHTING

The cab shall include an incandescent dome lamp with a red and white lens located over each door. The dome lamps shall be rectangular in shape and shall measure 9.50 inches in length and approximately 5.00 inches wide including a black colored bezel. The white lamp shall be activated by its respective door when opened and via the multiplex display and both the red and white lamp shall be activated by an individual switch on the light.

A fifth red and clear lamp shall be located in the headliner, over the engine tunnel.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a red flashing light, located in the center for greatest visibility. The light shall be 6.00 inches long X 2.50 inches wide X 1.75 inches high and shall be clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be programmed into the MUX system which shall sound when a door is open and the parking brake is released.

The light and alarm shall be interlocked for activation when a cab door is not firmly closed, an apparatus cabinet door is not closed and the parking brake is released.

MASTER WARNING SWITCH

The optical warning system shall be controlled by a master switch which shall include all “ON” and all “OFF” capability via a virtual button within the MUX display. All warning lights which are “ON” when the master switch is activated shall also activate. This switch shall be clearly labeled for identification.

INBOARD FRONT WARNING LIGHTS MODEL

The cab front fascia shall include dual Whelen series 600 Super LED warning lights which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be surface mounted to the front fascia of the cab within a chrome bezel in the inboard position.

INBOARD FRONT WARNING LIGHTS COLOR

The front warning lights mounted on the fascia for the inboard position shall be red.

OUTBOARD FRONT WARNING LIGHTS MODEL

The cab front fascia shall include dual Whelen series 600 Super LED warning lights which shall offer 14 flash patterns plus a steady burn for solid colors and 20 flash patters plus a steady burn for split colors. The lights shall be surface mounted to the front fascia of the cab within a chrome bezel in the outboard position.

OUTBOARD FRONT WARNING LIGHTS COLOR

The front warning lights mounted on the fascia for the outboard position shall be red.

FRONT WARNING SWITCH

The front warning lights shall be controlled through a virtual control on the MUX display. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS MODEL

The chassis shall include two (2) Whelen series 600 Super LED intersection warning lights, one (1) each side, which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

INTERSECTOR WARNING LIGHTS COLOR

The intersection lights shall be red.

INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted in the rear position on the side of the bumper.

SIDE WARNING LIGHTS MODEL

The cab sides shall include a Whelen series 600 Super LED 4”x6” warning light, one (1) each side, which shall offer multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the chassis shall be red.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle.

SIDE AND INTERSECTION WARNING SWITCH

The side warning lights shall be controlled through a virtual control on the MUX display. This switch shall be clearly labeled for identification.

ELECTRONIC SIREN CONTROL HEAD

A Whelen 295HFS2 200 watt “hands free” remote siren amplifier control head shall be provided and flush mounted in the switch panel with a location specific to the customers needs. The siren shall feature hands free mode and will be in “standby” mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp or pierer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring.

HORN RING SELECTOR SWITCH

A virtual button on the MUX display shall allow control to either the air horn or the electric horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position which is in accordance with FMVSS requirements.

AIR HORN ACTIVATION

The air horn actuation shall be accomplished by the steering wheel horn button and a black push button on the switch panel. An air horn activation circuit shall be provided to the chassis harness pump panel harness connector.

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of not less than 107 dB. The alarm will automatically activate when the transmission is placed in reverse. A virtual switch shall be provided on the MUX display to disable of the backup alarm.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. The gauges shall be backlit with red LED lamps. All gauges shall be driven by stepper motor movements. The instrumentation system shall be multiplexed and shall receive engine and transmission information over the J1939 data bus to reduce redundant sensors.

The instrument panel shall contain the following gauges:

One (1) electronic tachometer shall be included. The scale on the tachometer shall read from 0 to 3000 RPM.

One (1) electronic speedometer with an integral LCD odometer/ trip odometer and hour meter shall be included. The speedometer shall have a dual scale with miles per hour (MPH) as the dominant scale and kilometers per hour (KPH) on the minor scale. The speedometer scale shall read from 0 to 90 MPH (0 to 140 KPH). The odometer shall display up to 9,999,999.9 miles. The trip odometer shall display up to 9,999.9 miles. The LCD screen shall also be capable of displaying certain diagnostic functions. The hour meter shall display engine hours of operation.

One (1) three function gauge with primary system, secondary system and fuel level shall be included. The scale on the air pressure gauges shall read from 0 to 140 pounds per square inch (PSI). The air pressure scales shall be non-linear to expand the scales in the region of normal operation. A red indictor light in the gauge shall indicate a low air pressure. The scale on the fuel level gauge shall read from empty to full. A yellow indicator light shall indicate low fuel at the quarter tank level.

One (1) four function gauge with engine oil pressure, coolant temperature, transmission oil temperature and a voltmeter shall be included. The scale on the engine oil pressure gauge shall read from 0 to 140 pounds per square inch (PSI). The engine oil pressure scale shall be non-linear to expand the scale in the region of normal operation. A red indicator light in the gauge shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 160 to 250 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high coolant temperature. The scale on the transmission oil temperature gauge shall read from 100 to 300 degrees Fahrenheit (F). A red indicator light in the gauge shall indicate high transmission oil temperature. The scale on the voltmeter shall read from 8 to 16 volts. A red indicator light shall indicate high or low system voltage.

The instrument panel shall contain an Enunciator Module that contains the following indicator lights. All indicator lights shall contain LED lamps.

RED LAMPS
Stop Engine - indicates critical engine fault. *(5)*
Park Brake - indicates park brake is set.
Volts - indicates high or low system voltage. *(4)*
Low Oil Press - indicates low engine oil pressure. *(4)*
High Coolant Temp - indicates excessive engine coolant temperature. *(4)*
High Trans Temp - indicates excessive transmission oil temperature. *(4)*
Low Air - indicates low air pressure in either system one or system two. *(4)*
Low Coolant Level - indicates low engine coolant level. *(1) (5)*
Air Filter - indicates excessive engine air intake restriction. *(5)*
Brake System Fault indicates a failure in the brake system (hydraulic brake systems only). *(5)*
Seat Belt Indicator indicates when a seat is occupied and corresponding seat belt remains unfastened.

YELLOW LAMPS
Check Engine - indicates engine fault. *(5)*
Check Trans - indicates transmission fault. *(5)*
Wait to Start - indicates active engine air preheat cycle. *(2) (5)*
ABS - indicates anti-lock brake system fault. *(5)*
Water in Fuel - indicates presence of water in fuel filter. *(1) (5)*
Check Message Center indicates there is a fault message present in the LCD digital display.
SRS indicates a problem in the RollTek supplemental restraint system. *(1) (5)*
DPF indicates a restriction of the diesel particulate filter. *(3) (5)*
HEST indicates a high exhaust system temperature. *(3) (5)*
MIL indicates an engine emission control system fault. *(3) (5)*
Low Fuel indicates low fuel. *(4)*

GREEN LAMPS
Left and Right turn signal indicators.
Aux Brake Active - indicates secondary braking device is active. *(1)*
High Idle - indicates engine high idle is active. *(1)*
ATC indicates low wheel traction for automatic tractions control equipped vehicles, also indicates mud/snow mode is active for ATC system. *(1) (5)*
OK to Pump indicates the pump engage conditions have been met. *(1)*
Pump Engaged indicates the pump is currently in use. *(1)*

BLUE LAMPS
High beam indicator.

The instrumentation system shall provide a constant audible alarm for the following situations:
Low air pressure.
Low engine oil pressure.
High engine coolant temperature.
High transmission oil temperature.
Low coolant level. *(1)*
High or low system voltage
Critical engine fault (Stop Engine).

The Check Message Center icon will illuminate and a message will be displayed in the LCD screen for the following situations:

Cab Ajar
Low Oil Level
Door Ajar
Engine Communication Error
Transmission Communication Error
ABS Communication Error
High Coolant Temp
Turn Signal Reminder (turn signal left on for more than one (1) mile)
Low Fuel
Low Oil Pressure
Low Coolant Level
Low Battery Voltage
High Battery Voltage
Low Primary Air Pressure
Low Secondary Air Pressure
High Trans Temp

The instrumentation system will provide a continuous alarm for the following situations:

Stop Engine
Low Coolant Level *(1)*
Brake System Fault
Check Trans
Check Engine
ABS
Engine Communications Error
Transmission Communications Error
ABS Communications Error
Low Fuel
Low Primary Air Pressure
Low Secondary Air Pressure
Low or High Battery Voltage
High Trans Temp
Low Oil Pressure
High Coolant Temp

The instrumentation system will provide a 160 millisecond second alarm every 880 milliseconds for the following situations:

Seat Belt
Air Filter
Water in Fuel *(1)*
Cab Ajar
Low Oil Level
Door Ajar

The instrumentation system will provide a 160 millisecond second alarm every 5 seconds for the following situation: Turn Signal Reminder (turn signal left on for more than one (1) mile)

(1) Feature only available when optionally equipped.
(2) Feature only available on engines with pre-heat capability.
(3) Feature only on vehicles with diesel particulate filter (DPF).
(4) Warning light is present in gauge.
(5) A message in the LCD screen will also be displayed.

COMPACT DISC RECEIVER

A Panasonic compact disc player with AM/FM stereo receiver, weather band and four (4) speakers shall be installed in the cab. The receiver shall be installed above the driver position. The speakers shall also be installed inside the cab with two (2) speakers recessed within the headliner of the front of the cab just behind the windshield and two (2) speakers in the upper rear corners of the cab.

ANTENNAS AM/FM RADIO

A small antenna shall be located on the driver side of the cab roof for AM/FM and weather band reception.

CAMERA SYSTEMS

An Audiovox Voyager heavy duty rearview camera system shall be supplied. The system shall include one (1) camera with a teardrop shaped chrome plated housing shall be shipped loose for OEM installation in the body to afford the driver a clear view of the rear of the vehicle and one (1) shall be mounted on the officer side of the cab below windshield ahead of the front door at approximately the same level as the cab door handle. The cameras shall be wired to dual Weldon Vista displays which shall be located on the driver and officer sides of the dash. The rear camera shall activate when the transmission is placed in reverse and the right camera shall activate with the right side turn signal. Each camera shall also be activated by a button on the Vista displays.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound BC D.O.T approved fire extinguisher shall be shipped loose with the cab.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

AS-BUILT WIRING DIAGRAMS

The cab and chassis shall include one (1) complete set of wiring schematics and option wiring diagrams.

WARRANTY - CAB AND CHASSIS

The chassis manufacturer shall warrant to the original purchaser the custom fire truck chassis for a period of twelve (12) months. The warranty period shall commence on the date the vehicle is delivered to the original purchaser and continue

for twelve (12) months thereafter. The warranty shall include conditional items listed in the detailed warranty document which may be provided upon request.

OPERATORS AND PARTS LIST MANUAL

There shall be one (1) chassis operator's manual which includes a parts list including wiring and air plumbing diagrams provided and shipped loose with the vehicle. All standard wiring and plumbing diagrams shall be created specifically to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

There shall be one (1) set of engine operation and maintenance manuals and one (1) set of transmission operation manuals specific to the models ordered included with the final vehicle in the ship loose items.

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CHASSIS MODIFICATIONS

LUBRICATION PLATE

A permanent plate shall be installed in the Driver's compartment which indicates the type and quantity of the following fluids in the vehicle:

- Engine Oil
- Engine Coolant
- Transmission Fluid
- Drive Axle Fluid
- Air Conditioning Refrigerant, Air Conditioner Oil (if applicable)
- Power Steering Fluid
- Cab Tilt Fluid (if applicable)
- Generator, etc. . . . (If applicable)

VEHICLE DATA PLATE

A permanent plate shall be installed in the Driver's compartment which indicates the following:

- Filter Part Numbers for the Engine, Transmission, air and fuel systems
- Serial Number for the Engine and Transmission
- Delivered Weights of the Front and Rear Axles
- Paint Code Brand and Code(s)
- Body Builder Project Number

OVERALL HEIGHT PLATE

There shall be a placard located in direct view of the Driver which shall indicate the overall height of the vehicle.

ACCIDENT PREVENTION

There shall be a placard in the cab seating area which reads, "ALL OCCUPANTS MUST BE SEATED AND BELTED WHEN THE APPARATUS IS IN MOTION".

PERSONNEL CAPACITY

There shall be a placard mounted in the Driver's compartment which specifies the maximum number of personnel the vehicle is design to carry per NFPA standards. The placard shall be located in clear view of the Driver.

ACCIDENT PREVENTION

If there is a rear bumper extension of 8" or more, there shall be a placard on the rear face of the body, in clear sight from the ground, which reads, "WARNING - DO NOT RIDE ON STEPS OR DECK AREAS WHILE THE APPARATUS IS IN MOTION. DEATH OR SERIOUS INJURY MAY RESULT".

FIVE (5) ANTENNAS - RAIL MOUNTED CAB ROOF

There shall be a one (1) radio antenna rail provided and installed on the roof of the cab/chassis. The rail shall be constructed of aluminum, forming a two piece box design. The top section shall be removable for easy access to the individual antenna wiring. A total of five (5) antenna bases shall be provided and installed in each rail. The bases shall include a minimum of 20' of LMR195 cable. The antenna wiring shall enter the cab roof at a single point under the end of the rail. The end of each radio antenna shall be routed to the area behind the center dash panel in the cab.

Due to multiple configurations of antenna whips, the Manufacturer shall provide the antenna base, and Salinas Fire Department shall provide the whip.

MUDFLAPS

There shall be rubber mudflaps furnished and installed behind each set of tires.

AUTOMATIC VEHICLE LEVELING SYSTEM

An HWH Corporation AP series automatic leveling system shall be installed on the unit designed for large heavy duty vehicles with a GVWR over 23,000 pounds. The system shall have four (4) mounting brackets bolted to the chassis frame rails, two (2) front and two (2) rear. Each jack shall bolt to the bracket attached to the chassis frame.

Each jack has its own hydraulic reservoir and 12 volt DC motor wired to the chassis electrical system. Jack pads shall have a 100 square inches surface to prevent sinking in soft ground. Jacks shall be rated for lifting 17,000 pounds minimum (each).

The system shall have a drive-off safety feature. If the vehicle ignition switch is on and any legs are not fully retracted, a warning alarm shall sound with the Deluxe-Touch Pad, fully automatic panel with sensor.

The system shall be provided with a 1 year limited warranty from HWH Corporation.

ROAD EMERGENCY SAFETY KIT

One (1) set of three dual faced triangular warning flares with fold away base complete with storage case per DOT requirements shall be provided with the completed apparatus.

One (1) 2.5 lb. ABC type vehicle fire extinguisher with bracket shall be provided and mounted in the cab or the front streetside compartment.

CAB COMMAND AREA

CAB COMMAND DESK - "L" SHAPED

The rear portion of cab shall be provided with an "L" shaped desk extending from the curbside to streetside directly behind the driver and officer and extending to the rear wall of the cab on the streetside. The desk shall be approximately 26" deep and located 30" from the floor. The front edge of desk top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum with a 2" vertical downward edge along the front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommets provided at each rear corner for wiring of future equipment located on the desk top. The desk top shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

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DESKTOP COMPONENT CONSOLE

There shall be two (2) component console(s) attached to the top of each cab command desk leg for component mounting. The console(s) shall be approximately 6" tall with a forward sloping face. The depth shall be determined by components selected for mounting. The surface shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

The sloped surface as well as the top surface will be one piece, hinged 1" above the surface of the desk for access to components.

- There shall be data port(s) provided in the front face of the component console per the technical specifications
- There shall be two (2) 12V outlet(s) provided in the front face of the component console.
- There shall be four (4) 120 volt, 20 amp, duplex straight-blade receptacle (NEMA 5-20R) outlet(s) provided in the front face of the component consoles. The outlets shall be located two (2) per console, one (1) at each end.

PRINTER PROVISIONS

There shall be provisions provided on the streetside front corner of the cab command desk for mounting of a Salinas Fire Department supplied printer/fax/copier. The provisions shall include wiring for network connectivity and power.

CAB INTERIOR CABINET - OVERHEAD

There shall be two (2) overhead cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a dark gray hammer tone powder coat paint finish for a hard durable surface. Each cabinet shall be approximately 14" high x 14" deep x 26" wide and located one (1) on each side of the cab overhead HVAC unit.

The above cabinet(s) shall have sliding Clear Lexan doors.

CAB COMMAND 120V INTERIOR LIGHT(S)

There shall be two (2) 120 volt, interior light fixture(s) installed above the desk/deck area under the overhead cabinet(s). Fixture shall be provided with single bulb and switch on fixture.

CAB INTERIOR CABINET - OVERHEAD SHELF

There shall be one (1) shelf provided between the overhead cabinets below the cab overhead HVAC unit. The shelf shall be approximately 14" deep x 35" long and include a 2" upturned lip.

CAB INTERIOR CABINET - OVERHEAD

There shall be one (1) overhead cabinet(s) provided on the streetside interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a dark gray hammer tone powder coat paint finish for a hard durable surface. Each cabinet shall be approximately 14" high x 14" deep x 42" long.

The above cabinet(s) shall have sliding Clear Lexan doors.

CAB COMMAND 120V INTERIOR LIGHT(S)

There shall be one (1) 120 volt, interior light fixture(s) installed above the desk/deck area under the overhead cabinet(s). Fixture shall be provided with single bulb and switch on fixture.

3-DRAWER FILING CABINET

There shall be one (1) 3-drawer cabinet(s) installed in the cab command area. Each cabinet shall have a keyed lock and painted charcoal. Each filing cabinet shall be 15" wide x 27" high x 20" deep. The bottom drawer of the cabinet shall be capable of storing 8-1/2" x 11" file folders.

INTERIOR PEDESTAL SEAT

One (1) Bostrom Sierra high back Duraware fabric pedestal type seat(s) with 6" fore/aft adjustment shall be provided on the completed apparatus. Each seat shall be mounted on a swivel style pedestal base and securely bolted to the reinforced floor structure. The seat shall closely match the driver and officer seat colors.

The seat(s) shall be provided with an automotive type lap seat belt. The seat belt(s) shall be secured to the attachment point provided on the seat and shall be red.

INTERIOR ROLL-AROUND CHAIR

There shall be one (1) roll-around office chair provided at the streetside command desk area. The seat shall have provisions to fully secure the seat under the desk when not in use and the apparatus is in motion.

MAGNETIC WHITEBOARD

There shall be two (2) magnetic whiteboard surface(s), approximately 30" wide x 36" tall located in the cab command area, one (1) on each side of the rear wall cab cutout.

INTERIOR CAB WINDOW COVERS

An interior window cover shall be provided on five (5) windows in the cab.

The window covers shall be of Cover Lite Select, 22 oz material. Snap type fasteners shall be installed around each window in the cab to allow each window to be covered.

INTERIOR CAB COMMAND CURTAIN

An interior curtain shall be provided between the command center and the front of the cab.

The curtain shall be of Cover Lite Select, 22 oz material. Straps shall be installed to hold the curtain rolled in the up postion when not in use.

AIR CONDITIONER - HEATER

One (1) Dometic Penguin low profile, 120 VAC, 60 cycle, single phase air conditioner(s) shall be provided and installed on the cab roof. The unit shall be a roof top contemporary contoured integral evaporator/condenser type with buit-in heating elements.

Each unit shall be rated at minimum of 13,500 BTU cooling capacity with a heating element rated at 5,600 BTU.

A three-speed fan shall supply a maximum/minimum of 335/250 cfm air flow capacity.

The roof mounted air conditioner shall be approximately 9.5" high x 29" wide x 40" long and weigh approximately 96 pounds. The opening in roof shall be properly reinforced to support the air conditioner and shall be supplied with a 1" rise to minimize moisture condensation under the unit.

FUEL FILL

There shall be one (1) Cast Products fuel fill door located in the streetside exterior wheel well panel, behind the rear axle. The fill door shall have a spring-loaded hinged door and a permanent label with the text "DIESEL FUEL ONLY".

BODY DESIGN

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.

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.

The sheet metal material requirements, including alloy and material thickness, throughout the specifications are considered to be a minimum.

The fabrication of the body shall be formed sheet metal. Formed components shall allow the Salinas Fire Department to have the body repaired locally in the case where any object has struck the body and caused damage.

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.

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 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.

EXTERIOR ALUMINUM BODY

The fabrication of the rescue 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.

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.

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.

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 preformed, then positioned in body and welded into final position.

Compartment floors shall have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. One-way rubber drain valves shall be provided in compartment floors so that a water hose may be used to flush-out compartment area.

All seams in sheet metal below frame, and around the rear wheel well area shall be welded continuous to prevent moisture from entering compartments. All other interior seams and corners shall be sealed with silicone based caulk prior to painting.

Only stainless steel bolts, nuts, and sheet metal screws shall be used in mounting exterior trim, hardware and equipment.

Exterior compartments shall have louvers in lower back wall of compartment for ventilation.

ROOF CONSTRUCTION

The roof shall be integral with the body and shall be all welded construction. The roof of the body shall not be less than 3/16" aluminum 3003H-14 alloy NFPA nonskid compliant tread plate, fully and continuously welded. The roof shall be reinforced with 2" x 2" x 1/4" aluminum tubing running the full width of the body. A 2" rounded radius shall be provided along the body sides.

BODY SUBFRAME

To assure proper body alignment and clearance, the body subframe shall be constructed directly on the chassis.

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.

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. Welded to this tubing shall be crossmembers of 2" x 6" x 1/4" aluminum. These crossmembers shall extend the full width of the body to support the compartments. Crossmembers 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 crossmembers shall be located as necessary to support walkway or heavy equipment.

To form the frame, the tubing shall be beveled and welded at each joint using 5356 aluminum alloy welding wire.

BODY MOUNTING

The body subframe shall be fastened to the chassis frame with a minimum of eight (8) 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) 5/8" 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.

18" REAR STEP BUMPER

The full width rear bumper shall be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" aluminum tread plate. Any stepping surface shall have a grip surface material to meet NFPA requirements. The bumper shall extend from the rear vertical body panel 18" and provide a rear step with a minimum of 1/2" space at body for water drainage.

REAR TOW EYES

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 steel plate and shall have a black powder coat finish.

GROUND LIGHTS

Two (2) OnScene Solutions 9" LED Nightstik ground lights shall be mounted below the rear bumper. The ground lights shall be activated when the parking brake is set. There shall be 6 LEDs per 9” light. The light stick shall be rated at 100,000 hours of service. Each light stick shall be provided with a 5 year free replacement warranty.

WHEEL WELL EXTERIOR PANEL

The exterior panel of the body wheel well enclosure shall be constructed from 1/8" aluminum smooth plate.

DIEFORMED BEADED EDGE BODY FENDERS

A die formed beaded edge shall be provided along the radius of the wheel well opening for a finished appearance.

WHEEL WELL LINERS

The wheel wells shall be provided with an easily removable polymer, full depth 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.

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PAINT FINISH

The apparatus body shall be painted single color with Akzo Nobel Inc. - Sikkens "Autocryl" Acrylic Urethane Finish paint for a high gloss, hard finish.

- Color: Red
- Paint Number: Match Pierce #90 (PPG 911659)

The painted body shall be finished with a clear coat of acrylic urethane for paint protection and maximum quality finish.

PAINT WARRANTY

The apparatus shall be provided with a seven (7) year warranty to the original Owner. Warranty is provided by "Sikkens" sponsored by AKZO Nobel. A "Sikkens Warranty" sheet with all conditions shall be provided with the delivered apparatus.

BODY UNDERCOATING

The entire underside of apparatus body shall be sprayed with black automotive undercoating. Undercoating shall cover all areas to retard corrosion under the apparatus.

UNDERCOAT WARRANTY

The undercoating shall be provided with a warranty by its manufacturer for the lifetime of the vehicle. The re-spray warranty shall be transferable between vehicle owners. Should the coating 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.

COMPARTMENT INTERIOR FINISH

The interior of all exterior body compartments shall be a "Maintenance Free" smooth unpainted finish. All body seams shall be finished with a caulk sealant for both appearance and moisture protection.

REFLECTIVE STRIPE

The stripe shall conform to ASTM 4965, *Standard Specifications for Retroreflective Sheeting for Traffic Control,* Type III, Class 1 or Class 3.

REFLECTIVE STRIPE - CAB SIDE

A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side.

The stripe or combination of stripes shall be a minimum of 4 in. (100 mm) in total width.

The 10 in. (254 mm) wide stripe or combination of stripes shallbe 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.

- The stripe material shall be 3M Scotchcal 680.
- The stripe shall have custom lettering included on the rear area of the cab stating '##' (exact numbers/letters to be determined).
- This reflective stripe shall be white in color.

REFLECTIVE STRIPE - CAB FRONT

A reflective stripe shallbe affixed to the front of cab. The stripe or combination of stripes shall shall be a minimum of 4 in. (100 mm) in total width.

A retroreflective stripe(s) shall be affixed to at least 25 percent of the width of the front of the apparatus.

- The stripe material shall be 3M Scotchcal 680.
- The stripe shall have cutom lettering included on the streetside of the stripe stating '##' (exact numbers/letters to be determined).
- This reflective stripe shall be white in color.

REFLECTIVE STRIPE - BODY SIDES

A 10" minimum reflective stripe shall be affixed to the sides of the body.

- The stripe material shall be 3M Scotchcal 680.
- The stripe shall have custom lettering included on the rear body panels stating 'EMERGENCY MANAGEMENT'.
- This reflective stripe shall be white in color.

The stripe shall extend from the chassis to the body where it will angle up and then extend straight back to the rear of the body.

REFLECTIVE STRIPE - REAR OF BODY

A 10" minimum reflective stripe shall be affixed to the rear face of the body.

- The stripe material shall be 3M Scotchcal 680.
- The stripe shall have custom lettering included on the streetside of the body stating 'SLS' and on the curbside of the body stating '##' (exact numbers/letters to be determined).
- This reflective stripe shall be white in color.

LETTERING

The following lettering shall be furnished and installed on the completed unit:

SIDE CAB DOOR LETTERING

There shall be thirty two (32) 2-3/4" high reflective letters furnished and installed on the vehicle.

- The lettering shall state: 'SALINAS FIRE DEPT.' in a straight layout on the front cab door areas.
- This reflective lettering shall be gold in color.

There shall be thirty eight (38) 2" high reflective letters furnished and installed on the vehicle.

- The lettering shall state: 'MOBILE COMMUNICATIONS' in a straight layout on the rear cab door areas.
- This reflective lettering shall be gold in color.

UPPER BODY SIDE LETTERING

There shall be fifty five (55) 6" high reflective letters furnished and installed on the vehicle.

- The lettering shall state: 'MONTEREY COUNTY COMMAND UNIT' in a straight layout on the front body slide-out areas.
- This reflective lettering shall be gold in color.

FRONT OF CAB LETTERING

There shall be eleven (11) 5" high reflective letters furnished and installed on the vehicle.

- The lettering shall state: 'SALINAS FIRE' in a straight layout on the front upper cab raised roof area.
- This reflective lettering shall be gold in color.

CAB ROOF LETTERING

There shall be two (2) 20" high reflective letters furnished and installed on the vehicle.

- The lettering shall state: '##' (exact letters/numbers to be determined) in a straight layout on the cab roof area.
- This reflective lettering shall be red in color.

CUSTOM DECAL LOGO

Six (6) custom designed Scotchcal type retroreflective logo(s) shall be provided on the completed vehicle. Four (4) Malteese Cross type logos shall be located on the front body slide-out areas, two (2) per side, and two (2) 911 decals shall be located on the rear upper body panels, one (1) per side. Exact decal/logo content and placement shall be determined from the approved graphics layout proof as provided to the Salinas Fire Department.

EXTERIOR COMPARTMENT DOORS

HINGED DOOR CONSTRUCTION

The exterior compartment doors shall be custom manufactured and built for each compartment. The compartment doors must be able to withstand years of rugged service and wear. For this reason, the compartment door design, metal thickness, and attachments must be strictly adhered to.

The compartment doors shall be all aluminum 3003H-14 alloy construction. The exterior panel shall be of 1/8" thickness smooth plate aluminum and the interior panel shall be of 1/8" thickness smooth plate aluminum. The double panel doors shall be 1-3/4" thick to completely enclose the door latching assembly. Doors shall have drain hole openings for drainage and ventilation.

The doors shall be flush mounted so that the outer surface is in line with the side body surface.

Compartment door openings shall be sealed with closed cell automotive type rubber molding to provide a weather resistant seal around door. In addition, rubber molding shall be provided along hinge to prevent moisture entry.

Hinged compartment doors shall have 14 gauge stainless steel hinge, with 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws. A polyester barrier film gasket shall be placed between stainless steel hinge and any dissimilar metals as necessary.

Drip rails shall be installed above all compartment door openings. Drip rails shall be completely removable for easy replacement if necessary.

The latching mechanism of hinged compartment doors shall include stainless steel 6" Hansen offset bent D-ring keyed handles. A gasket shall be placed between stainless steel handle and door. Door latches shall be a double catching two-point rotary slam latch, recessed inside the double panel door with striker plate.

All vertically hinged compartment doors shall have a pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the upper compartment door header and the box pan of the door.

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BODY HEIGHT MEASUREMENTS

The vertical body dimensions shall be as follows:

AHEAD OF REAR AXLE

	Description	Dimension
A	Bottom of Subframe to Top of Body	89.0"
B	Bottom of Subframe to Bottom of Body	25.0"
C	Vertical Door Opening - (Full Height Compartment)	
	-with roll-up door	67.5"
	-with hinged door	71.5"
	Vertical Door Opening - (Short Compartment)	
	-with hinged door	20.0"

ABOVE REAR AXLE

	Description	Dimension
D	Vertical Door Opening - Above Rear Wheel	
	-with roll-up door	34.0"
	-with hinged door	37.0"

BEHIND REAR AXLE

	Description	Dimension
E	Bottom of Subframe to Bottom of Body	22.5"
F	Vertical Door Opening - (Full Height Compartment)	
	-with roll-up door	62.0"
	-with hinged door	66.0"
	Vertical Door Opening - (Short Compartment)	
	-with hinged door	17.5"

GENERAL

	Description	Dimension
G	Bottom of Drip Rail to Top of Body	38.5"
H	Walk-in Interior Height	78.0" (min)

(dimensions are generic and subject to change during the actual design process)

BODY WIDTH DIMENSIONS

The body shall be 100.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions shall be:

Area Description	Dimension
Transverse Area:	95.5"
- Above Top of Subframe	
Compartment Depth:	24.5"
- Below Top of Subframe	
- Ahead of Rear Axle	
Compartment Depth:	23.5"
- Below Top of Subframe	(Eng. Note)
- Behind the Rear Axle	

(dimensions are generic and subject to change during the actual design process)

STREETSIDE COMPARTMENT - FRONT (S1)

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" Hansen offset bent D-ring handle. A manual key lock and electric lock shall be provided. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point (top and bottom) rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

COMPARTMENT COMPONENTS

- One (1) tech component exterior patch panel. The patch panel will allow for the following connections:
  - Four (4) data jacks for accessing the interior network
  - Two (2) phone extensions
  - Two (2) audio / video connections
  - Eight (8) landline telephone inputs
- One (1) vertically mounted OnScene Solutions LED Nightstik.
- The controls for the specified light tower(s).
- The 12 volt electrical distribution panel shall be located in the streetside front lower compartment.

STREETSIDE COMPARTMENT - INTERMEDIATE (S2)

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" Hansen offset bent D-ring handle. A manual key lock and electric lock shall be provided. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point (top and bottom) rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

COMPARTMENT COMPONENTS

- One (1) vertically mounted OnScene Solutions LED Nightstik.
- One (1) 100A shore power plug.
- One (1) Xantrac power inverter and batteries.
- A hinged hatch shall be provided in compartment floor to access the 100A shore power connection.

STREETSIDE COMPARTMENT - BEHIND REAR WHEEL (S3)

The interior useable compartment space shall be approximately 70.0" wide.

The compartment door opening shall be approximately 63.0" wide.

This compartment shall have vertically hinged box pan style doors fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" Hansen offset bent D-ring handle. A manual key lock and electric lock shall be provided. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point (top and bottom) rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pneumatic cylinder to hold door in the open and closed positions. Each door shall be capable of being closed without unlatching. Door checks shall be bolted to the upper compartment door header and the box pan of the door.

Compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT COMPONENTS

- One (1) vertically mounted OnScene Solutions LED Nightstik.
- One (1) diesel engine driven generator as specified in the 120/240V section.

CURBSIDE COMPARTMENT - FRONT (C1)

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" Hansen offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point (top and bottom) rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

COMPARTMENT COMPONENTS

- One (1) air conditioning system compressor as detailed in interior specifications.
- One (1) vertically mounted OnScene Solutions LED Nightstik.

CURBSIDE COMPARTMENT - INTERMEDIATE (C2)

The interior useable compartment width shall be approximately 64.0" wide.

The compartment door opening shall be approximately 57.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" Hansen offset bent D-ring locking handle. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point (top and bottom) rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

COMPARTMENT COMPONENTS

- One (1) Hannay ECR1616-17-18 cable reel(s) capable of storing 100' of 8/3 electric cable. The rewind switch for each reel shall be located adjacent to the reel it controls.
  - The above reel shall be wired to the PTO generator only and used to supply power to external equipment.
  - The cable reel shall equipped with 100' of 8/3 SEOOW black cable, a molded plastic ball clamp, and a single heavy duty CS6364/65 twist-lock female plug at the end.
- One (1) air conditioning system compressor as detailed in interior specifications.
- One (1) vertically mounted OnScene Solutions LED Nightstik.

CURBSIDE COMPARTMENT - ABOVE REAR WHEEL (C3)

The interior useable compartment width shall be approximately 46.0" wide.

The compartment door opening shall be approximately 44.0" wide.

This compartment shall have a horizantally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" Hansen offset bent D-ring handle. A manual key lock and electric lock shall be provided. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point (top and bottom) rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door shall have a pneumatic cylinder to hold door in the open and closed positions. The door shall be capable of being closed without unlatching. Door checks shall be bolted to the side compartment door structure and the box pan of the door.

Compartment threshold protection plate shall be installed on the bottom edge of the compartment door opening. The threshold protection shall be fabricated from an aluminum extrusion with an anodized exterior finish.

COMPARTMENT COMPONENTS

- This compartment shall include a patch panel to supply data feeds to the following equipment:
  - One (1) 30" monitor
  - One (1) Panasonic Phone
  - One (1) AMX Controller
- One (1) vertically mounted OnScene Solutions LED Nightstik.
- One (1) 120 volt, 20 amp, duplex, straight-blade receptacle (NEMA 5-20R).

SIDE ENTRY DOOR

Access to the interior body compartment shall be provided through a side entry door. The door opening shall be approximately 31" wide x 94" high.

Construction of the side entry door shall be with 1/8" aluminum exterior smooth plate, the interior door pan being constructed from 1/8" aluminum tread plate.

The door shall be hung on full height 14 gauge stainless steel hinge, with a 1/4" stainless steel pin. The hinge shall be bolted to the door and body with stainless steel machine screws at offset 5" centers. The hinge shall be slotted horizontally and vertically for ease of adjustment. A polyester barrier film gasket shall be placed between the stainless steel hinge and door.

The latch mechanism shall include a paddle handle on inside and a locking Hansen offset bent "D"-ring handle on exterior. **A manual key lock and electric lock shall be provided.** A polyester barrier film gasket shall be placed between the stainless steel handles and the aluminum door panels. The door latch shall be a double catch two-point safety slam latch recessed inside the double panel door with strike plate mounted top and bottom of door frame.

ENTRY HANDRAILS

There shall be two (2) handrails provided at entry door, one (1) vertical on exterior of body on door handle side, and one (1) on inside of door. The interior handrail shall be angled for optimum use when entering or exiting the walk-in portion of the body.

Handrails shall be NFPA compliant 1-1/4" extruded aluminum tubing with chrome plated end stanchions.

WINDOW(S)

There shall be one (1) 18" wide x 22" high non-sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

WINDOW(S)

There shall be one (1) 18" wide x 22" vertical sliding window(s) installed in the entrance door. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

ELECTRIC STEP

There shall be one (1) 12 volt, electric folding step(s) furnished and installed under the apparatus. The step shall be located at the side entry door. The step shall be 24" wide and shall fold up under the body to improve ground clearance during travel. Upon activation, the step shall drop out and down using electric actuators. The distance from the ground to the first step shall be no more than 24" per in accordance with NFPA 1901 guideline. The top surface of each step shall be covered with an NFPA 1901 nonskid compliant aluminum tread plate.

CURBSIDE COMPARTMENT - BEHIND REAR WHEEL (C4)

The interior useable compartment width shall be approximately 31.0" wide.

The compartment door opening shall be approximately 24.0" wide.

This compartment shall have a horizontally hinged box pan style door fabricated of 1/8" thick smooth aluminum. The inner liner of the door shall be 1/8" thick smooth aluminum with an unpainted finish. The door exterior shall be painted job color.

The hinged door(s) shall have a stainless steel 6" Hansen offset bent D-ring handle. A manual key lock and electric lock shall be provided. A gasket shall be placed between stainless steel handle and door. Door latches shall be a two-point (top and bottom) rotary slam, double-catch latch, recessed inside the double panel door with striker plate.

The hinged door(s) shall have a pair of tailgate style mechanisms to stop the door at 90 degrees. Each door shall be capable of being closed without unlatching.

COMPARTMENT COMPONENTS

ROLL-OUT AWNING STREETSIDE

A heavy duty canopy awning shall be installed on the apparatus body. The awning shall be approximately 14' long with approximately 8' of extension length.

The awning shall be manufactured with satin finish extruded aluminum arms and braces. The arm channels shall utilize nylon bearings for a smooth operation. Awning shall lock while in stored position to prevent any rattling during travel. Awning shall lock and unlock with a remote brake control located on awning arm, not requiring the use of a wand.

Features of the awning are:

- Awning hangers
- Built-in awning tie downs to hold awning steady in a breeze
- Durable multi-layer laminated vinyl fabric that resists scratches, stains, fading and mildew

- The vinyl awning color shall be Crimson Red.

ROLL-OUT AWNING CURBSIDE

A heavy duty canopy awning shall be installed on the apparatus body. The awning shall be approximately 14' long with approximately 8' of extension length.

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Features of the awning are:

- Awning hangers
- Built-in awning tie downs to hold awning steady in a breeze
- Durable multi-layer laminated vinyl fabric that resists scratches, stains, fading and mildew

- The vinyl awning color shall be Crimson Red.

LADDER / STAIRWAY

ROOF ACCESS LADDER

There shall be one (1) ladder installed on the streetside rear of the apparatus body for access to the roof area. The ladder shall be constructed with vertical aluminum extrusion tubing and aluminum grip surface ladder rungs with slip resistant tread grip pattern. Ladder shall be set off from the body by 8". Ladder shall be of all welded construction and mounted to body with chrome plated end stanchions bolted to body with stainless steel bolts. The ladder shall extend above the body roof to assist in accessing the roof area.

COMPARTMENT COMPONENTS DESCRIPTIONS

All interior compartment components shall be fabricated as follows:

COMPARTMENT LIGHTING

OnScene Solutions LED Nightstik shall be provided with 12 LEDs per 18” light section. The following are minimum lighting requirements:

- Full Height Compartments 54” Section (36 LEDs)
- Wheel well Compartments 36” Section (24 LEDs)
- Rear Rescue Compartment 54” Section (36 LEDs)
- Low Compartments 18" Section (12 LEDs)
- Low Compartments - Horizontal 36" Section (24 LEDs)

The light stick shall be rated at 100,000 hours of service and shall be provided with a 5 year free replacement warranty.

STEP / GROUND LIGHTS

OnScene Solutions 9" LED Nightstik light(s) shall be placed at each entry door and step where personnel climb on or descend from the apparatus to ground level. All of the ground lights shall be activated when the parking brake is set. There shall be 15 LEDs per 9” light. The light stick shall be rated at 100,000 hours of service. Each light stick shall be provided with a 5 year free replacement warranty.

WALK-IN INTERIOR FEATURES:

CAB/BODY WALK-THROUGH CONNECTION

The front center of the rescue body shall be interconnected with the rear crew area of custom cab through a weather tight walk-through opening. The opening shall be designed to allow the custom cab to tilt forward without disconnecting an attached type seal between the cab and body. The opening shall be approximately 24" wide x 70" high (sized to match the cutout in the rear wall of the cab).

The front of the body shall be cut out to match the cab opening. Additional reinforcements with metal angle or tubing shall be provided to back of cab or front of body, if necessary so that the walk-through opening weakens neither the cab nor body integrity.

The connection shall be weather resistant, yet provide the cab and body to move independent of each other. A flexible 3” rubber weather strip shall be attached to a stainless steel sheet metal frame around the perimeter of the opening in the back wall of the cab. A drip rail shall be provided on front of body above the opening to channel water to both sides of opening. Stainless steel scuff panels shall be provided on back of cab were the rubber seal on body comes in contact with cab.

A formed metal frame shall be bolted to the front of the body. The body-mounted frame shall be provided where the rubber seal comes into contact with the body. The framework shall be painted to match the body color.

The base of the opening shall be covered with a 3/16" aluminum tread plate full width panel, which will overlap from the cab to body so that the rubber seal can not be damaged.

Full width padded foam cushion head bumpers shall be provided on both sides of opening. Head bumpers shall be covered with matching interior vinyl and bolted to each side of walk-through.

CUT OUT IN REAR CAB WALL

The rear wall of the custom cab shall be cut out 24" wide for walk-thru application. The height of the cutout shall be determined by the cab structure in the rear wall and the roof. The opening shall be completed by the custom cab/chassis manufacturer to assure proper cab structural integrity and completed final interior finish.

SLIDING POCKET DOOR

There shall be one (1) sliding pocket door(s) provided on interior of walk-in body area. Pocket door shall be fabricated from 1/8" smooth aluminum and be approximately 1-1/2" thick and hang on adjustable pocket door hardware. The door shall be painted to match the interior wall color. A stainless steel handle shall be provided on each side of door. The door shall be equipped with a pneumatic cylinder which will "over-center" to hold the door in open and closed positions.

INTERIOR SPECIFICATIONS

INTERIOR INSULATION

Following the sheet metal fabrication the roof area, upper exterior walls and the entry door of the apparatus body shall be insulated with 1-1/2" rigid polyurethane foam insulation. This insulation shall be the type that will not absorb moisture, move once in place or deteriorate. Mat type fiberglass or spray in foam insulation are not acceptable.

INTERIOR FINISH

The interior of the apparatus body shall have a fully maintenance free and durable finish. The interior finish shall be installed on the ceiling, front wall, and interior side walls from top of exterior compartments to ceiling height.

The interior panels shall be installed with sheet metal screws with white plastic plugs covering the screws. The seams between FRP panels, interior corners, and exterior corners shall be trimmed with white plastic molding.

The interior finish shall be bright white pebble grain FRP.

INTERIOR WALKWAY FLOOR

There shall be Lonseal, Loncoin-II Flecks installed on the floor substrate. Loncoin II Flecks is a heterogeneous resilient sheet vinyl with a decorative raised coin texture, breathtaking color, and intriguing style. The fleck coloration provides camouflage for simpler maintenance while the raised coin embossing provides enhanced traction. Excellent for interior, retail, commercial, or institutional use where design parameters call for a high performance, sophisticated flooring solution.

Loncoin II Flecks is composed of polyvinyl chloride (PVC) resin, plasticizers, fillers, and pigments. The co-calendared wear layer is formulated to provide maximum resistance to foot traffic and most commercial and healthcare chemicals.

The middle layer provides dimensional stability, sound-absorbing properties, and resiliency under foot. The backing layer provides strength and stability of the flooring and enhances the bonding strength of the adhesive.

The material shall be black in color (Loncoin-II Flecks - Onyx).

Lonseal, Inc. warrants that Lonseal flooring products shall be free from manufacturing defects for a period of one (1) year from the date of purchase and that, when properly installed and maintained, shall not wear through as a result of normal foot traffic for a period of 7 years from the date of installation.

INTERIOR SUB-FLOOR

Above the body subframe shall be an isolation sheet that shall prevent outside elements from permeating the full length sound and thermal barrier of 3/4" thick grade plywood. The sheet shall be fabricated from the same type of material as is used in the subframe. The isolation sheet shall be flanged on both sides with a 1" high vertical break.

AIR CONDITIONER SYSTEM

The apparatus body shall be provided with an "off roof" Dometic Cruisair air conditioning system. The system shall consist of a three (3) remote mount Type EBO, 230 volt AC cooling units mounted in the interior rooms, one (1) 14,000 Btu/hr, 530 cfm, 1.6 amp, and two (2) 7,000 Btu/hr, 300 cfm, 1.5 amp each. Each cooling unit is a compact ductable unit with a rotatable variable speed blower, insulated condensate drip pan with anti-slosh, antifungal foam lining, with an air filter. Interior air temperature will be controlled by a wall mounted SMX Series computerized control.

The individual cooling units shall be connected to two (2) undercarriage mounted Type ACA, 230 volt AC, 23/9 amps start/full-load, 14,000 Btu/hr each condensing units. (Size: 26" L x 18" D x 15" H, Weight: 44 lbs.) Each condensing unit features refrigerant condenser, compressor and associated electrical and mechanical components in an aluminum enclosure. Refrigerant connections are located on the front of unit. Blower type unit pull air in through the coil in back and discharge in back through the bottom or front of unit.

The system will be completely tested prior to delivery for cooling capabilities and refrigerant line leaks. The entire system shall be designed and installed per Dometic Cruisair installation requirements for air flow, refrigerant line length and sizing, and condenser cooling and air flow.

STREETSIDE INTERIOR AREA (IS1/IS2)

MAGNETIC WHITEBOARD

There shall be two (2) magnetic whiteboard surface(s), approximately 30" wide x 36" tall located in the streetside forward interior area. The whiteboards shall be located one (1) on the forward wall of the interior area, adjacent to the cab cutout opening, and one (1) on the rear wall between the IS1/IS2 area and the IS3 area, on the rear compartment wall.

SLIDE-OUT EXTENSION

FLAT FLOOR SLIDE-OUT EXTENSION

There shall be one (1) "slide-out" section(s) which shall extend approximately 30" as measured from the outside of the body. The extendable module shall be approximately 124.5" in length (108" interior) and the interior height shall be approximately 10" less that the interior height of the body walkway. The installed module shall provide a water tight seal in both the fully extended and the retracted positions.

The slide-out section shall utilize HWH Manufacturing Company hydraulic drive mechanism that shall positively control both sides of each slide-out simultaneously. An easily operated manual override system shall be provided in the event of drive mechanism failure.

The slide-out section shall be framed with 2" x 2" x 1/4" 6061-T6 alloy aluminum. The frame structure shall be covered with no less than 1/8" thick 3003-H14 smooth aluminum.

There shall be two (2) flashing LED warning lights with red lenses, one at each end of the slide-out section. The lights shall activate and be visible when the unit is extended.

All electrical wiring installed in the slide-out wall shall run through a boxed type conduit at the lower corner of the system. All wiring shall be enclosed in a flexible, moisture resistant, reinforced conduit, with proper seal tight connectors and hardware. Access shall be provided for inspection of all wiring and the gear and rack mechanism.

WINDOW(S)

There shall be two (2) 18" wide x 22" vertical sliding window(s) installed on the completed apparatus. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

INTERIOR BODY WINDOW COVERS

An interior window cover shall be provided on two (2) windows in the apparatus body.

The window covers shall be of Cover Lite Select, 22 oz material. Snap type fasteners shall be installed around each window in the body to allow each window to be covered.

SLIDE-OUT COMMAND DESK

The slide-out command area shall be provided with a full width desk top which shall be 24" deep and located approximately 30" from floor. The front edge of the desk top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk top shall be painted either gray or black with a hammer tone powder coat paint finish for a hard and durable surface.

DESKTOP COMPONENT CONSOLE

There shall be a console at top rear of the desk for optional component mounting. The console shall be fabricated from 1/8" aluminum approximately 6" high x 9" deep with a 6" sloping component mounting face. The console shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

The sloped component mounting surface shall be a one-piece hinged cover to allow access to optional components, and wiring and held closed with knurled thumb type latch in each corner.

- There shall be data port(s) provided in the front face of the component console per the technical specifications.

3-DRAWER FILING CABINET

Two (2) Hon 3-drawer Efficiency Pedestal cabinet(s) with "K" type pull handle shall be provided and installed. Each cabinet shall have a keyed lock and shall be painted charcoal. Each filing cabinet shall be 15" wide x 27" high x 20" deep. The bottom drawer of the cabinet shall be capable of storing 8-1/2" x 11" file folders.

CONFERENCE TABLE

The interior of the apparatus shall be provided with a conference table between the two forward slide-outs. The side the desk will be hinged to fold down to allow for the slide-out work areas to be retracted.

The desktop surface shall be fabricated of 3/16" smooth aluminum and the structure shall be 2" x 2" aluminum tubing powdercoated to match the interior. The tables shall be reinforced with aluminum tubing to support personnel sitting on edge of the desk. The corners of the desk top shall be radiused.

There shall be a 3" diameter hole in the center of each conference table to allow access to below desk power and network connections.

The desk will be approximately 44" x 48" (front to back).

STREETSIDE INTERIOR AREA (IS3)

INTERIOR CABINET - OVERHEAD

There shall be two (2) overhead cabinet(s) provided on interior. Cabinet(s) shall be constructed of 1/8" smooth finish aluminum, and painted with a hammer tone powder coat paint finish for a hard durable surface. Paint color shall be gray . Each cabinet shall be approximately 48" long by 14" high by 14" deep..

- The above cabinet(s) shall have sliding Clear Lexan doors.

INTERIOR LIGHT FIXTURE(S)

There shall be two (2) 120 volt interior, over counter, light fixture(s) installed above the desk/deck area, centered under the overhead cabinet(s). Fixture(s) shall be provided with single bulb and switch on fixture.

INTERIOR DESK

The interior of apparatus shall be provided with a desk top which shall be 24" deep and located approximately 30" from floor. The front edge of the desk top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk top shall be painted either gray or black with a hammer tone powder coat paint finish for a hard and durable surface.

DESKTOP COMPONENT CONSOLE

There shall be a console at top rear of the desk for optional component mounting. The console shall be fabricated from 1/8" aluminum approximately 6" high x 9" deep with a 6" sloping component mounting face. The console shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

The sloped component mounting surface shall be a one-piece hinged cover to allow access to optional components, and wiring and held closed with knurled thumb type latch in each corner.

- There shall be data port(s) provided in the front face of the component console per the technical specifications.
- There shall be provsions provided under the desk on top of the HVAC enclosure for the mounting of a Salinas Fire Department supplied printer/fax/copier unit. The mounting shall include a slide out tray approximately 15" long by 9-3/4" wide and wiring for network connectivity and power.

STREETSIDE INTERIOR AREA (IS4)

MAGNETIC WHITEBOARD

There shall be two (2) magnetic whiteboard surface(s), approximately 30" wide x 36" tall located on either side of the command area bench seat. The whiteboards shall be located one (1) on the forward wall of the area, adjacent to the interior hallway, and one (1) on the rear compartment wall.

WINDOW(S)

There shall be one (1) 42" wide x 22" high horizontal sliding window(s) installed. The window shall slide open towards the front of the vehicle such that wind pressure would tend to shut the window. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish. Sliding style windows shall be complete with a sliding screen.

INTERIOR BODY WINDOW COVERS

An interior window cover shall be provided on one (1) windows in the apparatus body.

The window covers shall be of Cover Lite Select, 22 oz material. Snap type fasteners shall be installed around each window in the body to allow each window to be covered.

INTERIOR CONFERENCE TABLE

The interior of apparatus shall be provided with a conference table which shall be approimately 44" wide 51" long and located approximately 30" from floor. The front edge of the table top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the table.

The table top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the table top. The table top shall be painted with a white dry erase board finish.

DESKTOP COMPONENT CONSOLE

There shall be a console at the rear of the table top for optional component mounting. The console shall be fabricated from 1/8" aluminum approximately 6" high x 9" deep with a 6" sloping component mounting face. The console shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

The sloped component mounting surface shall be a one-piece hinged cover to allow access to optional components, and wiring and held closed with knurled thumb type latch in each corner.

- There shall be data port(s) provided in the front face of the component console per the technical specifications

INTERIOR BENCH SEAT

The interior area shall be provided with a bench seat along the streetside side wall. The bench seat base shall be fabricated of 1/8" aluminum tread plate and form a cover over the external body compartment. The seat shall be fabricated of 3/4" exterior grade plywood with 3" thick foam and Duraware heavy duty fabric covering. The seat backrest shall be approximately 12" high x 2" thick and constructed the same as the seat.

CURBSIDE INTERIOR AREA (IC1/IC2)

MAGNETIC WHITEBOARD

There shall be one (1) magnetic whiteboard surface(s), approximately 30" wide x 36" tall located in the curbside forward interior area. The whiteboard shall be located on the forward wall of the interior area, adjacent to the cab cutout opening.

SLIDE-OUT EXTENSION

FLAT FLOOR SLIDE-OUT EXTENSION

There shall be one (1) "slide-out" section(s) which shall extend approximately 30" as measured from the outside of the body. The extendable module shall be approximately 124.5" in length (108" interior) and the interior height shall be approximately 10" less that the interior height of the body walkway. The installed module shall provide a water tight seal in both the fully extended and the retracted positions.

The slide-out section shall utilize HWH Manufacturing Company hydraulic drive mechanism will positively control both sides of each slide-out simultaneously. An easily operated manual override system will be provided in the event of drive mechanism failure.

The slide-out section shall be framed with 2" x 2" x 1/4" 6061-T6 alloy aluminum. The frame structure shall be covered with no less than 1/8" thick 3003-H14 smooth aluminum.

There shall be two (2) flashing LED warning lights with red lenses, one at each end of the slide-out section. The lights shall activate and be visible when the unit is extended.

All electrical wiring installed in the slide-out wall shall run through a boxed type conduit at the lower corner of the system. All wiring shall be enclosed in a flexible, moisture resistant, reinforced conduit, with proper seal tight connectors and hardware. Access shall be provided for inspection of all wiring and the gear and rack mechanism.

The Command Center "Slide-out" must be able to withstand years of rugged service and wear. For this reason, this design, metal thickness and attachments must be strictly adhered to. RV type slide-outs or slide-outs using light weight metal or fiberglass shall not be acceptable.

WINDOW(S)

There shall be two (2) 18" wide x 22" high non-sliding window(s) installed on the completed apparatus. Each window shall have tinted automotive type safety glass mounted in an extruded aluminum frame. The frame shall have a black anodized finish.

INTERIOR BODY WINDOW COVERS

An interior window cover shall be provided on one (1) windows in the apparatus body.

The window covers shall be of Cover Lite Select, 22 oz material. Snap type fasteners shall be installed around each window in the body to allow each window to be covered.

SLIDE-OUT COMMAND DESK

The slide-out command area shall be provided with a full width desk top which shall be 24" deep and located approximately 30" from floor. The front edge of the desk top shall be reinforced with 2" x 2" tubing in order to support a person sitting on the edge of the desk.

The desk top surface shall be fabricated of 3/16" smooth finish aluminum. It shall have a 2" vertical downward edge along front to cover the 2" x 2" reinforcement. There shall be 2-1/2" diameter holes with plastic edge grommet provided at each rear corner for wiring of future equipment located on the desk top. The desk top shall be painted either gray or black with a hammer tone powder coat paint finish for a hard and durable surface.

DESKTOP COMPONENT CONSOLE

There shall be a console at top rear of the desk for optional component mounting. The console shall be fabricated from 1/8" aluminum approximately 6" high x 9" deep with a 6" sloping component mounting face. The console shall be painted dark gray with a hammer tone powder coat paint finish for a hard and durable surface.

The sloped component mounting surface shall be a one-piece hinged cover to allow access to optional components, and wiring and held closed with knurled thumb type latch in each corner.

- There shall be data port(s) provided in the front face of the component console per the technical specifications.

3-DRAWER FILING CABINET

Two (2) Hon 3-drawer Efficiency Pedestal cabinet(s) with "K" type pull handle shall be provided and installed. Each cabinet shall have a keyed lock and shall be painted charcoal. Each filing cabinet shall be 15" wide x 27" high x 20" deep. The bottom drawer of the cabinet shall be capable of storing 8-1/2" x 11" file folders.

CURBSIDE INTERIOR AREA (IC3)

DATA RACK CLOSET

There shall be a data rack closet located along the curbside wall directly above the wheel well area. There shall be a locking hinged entry door to allow service access to the backside of the data rack(s).

There shall be a 120V light fixture located in the ceiling of the closet. The switch for the light will be located just inside of the entry door.

There shall be a separate A/C system plumbed into the closet to provide cooling for the data racks.

There shall be two (2) fold out doors provided on the aisle way wall of the data rack closet to allow the center section (IS3/IC3) to be closed off from the forward and aft sections of the apparatus. Exact locations for the doors shall be determined from the sales drawing.

CURBSIDE INTERIOR AREA (IC4)

MAGNETIC WHITEBOARD

There shall be one (1) magnetic whiteboard surface(s), approximately 30" wide x 36" tall located on the rear wall of the compartment above the command area bench seat.

MAP STORAGE

There shall be one (1) map storage unit furnished and installed in the rear command area. The unit shall be designed to hold twelve (12) rolled maps and be approximately 20" long by 20" tall, constructed of 1/8" smooth aluminum with 1-1/2" PVC tubing to hold rolled maps, and painted with a dark gray hammertone paint finish. The map storage unit shall be located on the rear wall of the compartment, adjacent to the curbside bench seat.

INTERIOR BENCH SEAT

There shall be a bench seat along the curbside wall of the rear interior area. The bench seat base shall be fabricated of 1/8" aluminum tread plate to form an under seat storage compartment. A hinged door shall be provided under the seat cushion to allow access to the underseat storage.

The seat shall be fabricated of 3/4" exterior grade plywood with 3" thick foam and Duraware heavy duty fabric covering. The seat backrest shall be approximately 12" high x 2" thick and constructed the same as the seat.

STAIRWELL COVER

There shall be a slide-out stairwell cover mounted underneath the curbside bench seat riser. The cover shall be designed to store under the seat and extend forward to completely and securely cover the stairwell opening.

12 VOLT ELECTRICAL SYSTEM

The apparatus shall be equipped with a heavy duty 12 volt wiring system installed with proper devices for the fire service. The system shall include all components necessary for complete operation. The low voltage electrical system shall meet or exceed current NFPA 1901 Standards and SAE J1292 requirements.

System wiring shall be stranded copper conductors of a gauge rated to carry 125% of the maximum current for which the circuit is protected. All wiring shall be Type GXL, XLP Cross-Linked Polyethylene, conductors with function identification at least every 3" by color coding and permanent marking with circuit identification. Identification shall correspond with schematics provided with the vehicle. Wiring shall be mounted in high temperature protective loom secured to body with bolted on clips with nylon wire ties. The XLP wiring shall have an operating temperature range of -60°F/-51°C to 257°F/125° C. Cross-linking changes thermoplastic polyethylene to a thermosetting material which has greater resistance to environmental stress cracking, cut-through, ozone, solvents and soldering than either low or high density polyethylene.

Where wire passes through sheet metal, grommets shall be used to protect wire and wire looms. Wiring shall be protected against heat, liquid contamination and damage. Electrical connections shall be with double crimp water-tight heat shrink connectors.

All 12 volt wiring running from front to back of apparatus body shall be run in full length electrical wiring raceway down each side of body.

All 12 volt circuits shall be protected with properly rated low voltage over current devices. Such devices shall be readily accessible and protected against overheating, mechanical damage, and water spray. All switches, relays, terminals and connectors shall have a rating of 125% of maximum current for which the circuit is protected.

A complete electrical wiring schematic of actual system shall be provided with finished apparatus.

A low voltage final test certification shall be provided with delivered apparatus.

12 VOLT MULTIPLEX CONTROL CENTER

The apparatus shall have a multiplexed 12 volt electrical system that will provide complete diagnostic capability. 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.

MULTIPLEX DOWNLOADER AND DIAGNOSTIC KIT

Provided with the completed apparatus shall be one (1) multiplex downloader and diagnostic kit. The diagnostic software and all necessary connections will allow the operator to easily troubleshoot components of the multiplex system. The downloader portion will allow the operator to download changes from Weldon or the Body Builders electrical department as necessary for troubleshooting and repairs. The kit shall be contained in a small waterproof carry case.

BATTERY SYSTEM

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. The cables shall be shielded from exhaust tubing and the muffler. Large rubber grommets shall be provided where cables enter the battery compartment.

BATTERY SWITCH

One (1) battery "On/Off" switch with green "BATTERY ON" indicator shall be installed in cab within easy reach of Driver to activate the battery system. The switch and switch solenoid shall be supplied and installed by the cab/chassis manufacturer.

BATTERY SOLENOID

Battery switch shall consist of a minimum 200 ampere, constant duty solenoid to feed from positive side of battery.

BATTERY CHARGER

One (1) Xantrex model XC5012 battery charger, with 120 VAC input and 50 amp, 12 volt output shall be provided. This system shall have a multiplex charging mode which employs the 3-stage charging algorithm: Bulk, Absorption, and Float. During the Bulk stage the battery is accepting high current. In the Absorption stage the battery voltage is held constant and the current declines. Finally, in the Float stage, the charger continues to provide voltage at a lower level to maintain the battery in a fully charged state. If there is no load on the battery, it will typically draw very little current. The charger, however, is able to provide current to its full rating to power DC loads on the battery. In float, if batteries are very new or a battery is on the low end of the size range and if it is fully charged to the point where it will not accept any more current, then the charger will enter an adaptive float/no float behavior where it shall alternate between float charging (flo) and resting the battery (rdy).

A remote bar graph type indicator panel shall be provided for showing status of battery charger.

The charger shall have a EMC FCC Class B Approval.

ENGINE COMPARTMENT LIGHT

Engine compartment light(s) shall be supplied and installed by the cab/chassis manufacturer for illumination during service and maintenance.

CAB HAZARD WARNING LIGHT

A red "HAZARD" warning light shall be supplied and installed by the cab/chassis manufacturer. Light shall illuminate automatically to warn the Driver of the following when the apparatus parking brake is not fully engaged:

- Any passenger or compartment door is open
- Equipment rack is not in stowed position
- Light tower is extended

The light shall be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

BACK-UP ALARM

An electronic back-up alarm shall be supplied and installed by the cab/chassis manufacturer. The back-up alarm shall actuate automatically when the transmission gear selector is placed in reverse.

REAR VIEW CAMERA

The Body Manufacturer shall install the camera from the back-up camera / monitor system on the rear face of the body. The system shall be supplied with the chassis.

WALK-IN INTERIOR LIGHTS

There shall be eight (8) 7" diameter recessed interior dome light(s) with clear lens provided with a switch at the entry door for body 12 volt interior lighting. The light(s) shall be located per the sales drawing.

TAIL LIGHTS

Rear body tail lights shall be vertically mounted per Federal Motor Vehicle Safety Standards. The following lights shall be furnished:

- Two (2) Whelen amber LED 600 Series 60A00TAR turn signal lights
- Two (2) Whelen red LED 600 Series 60R00XRR stop/tail lights
- Two (2) Whelen halogen 600 Series 60J000CR back-up lights with clear lens
- Two (2) Whelen warning lights as detailed in the warning light section

Two (2) Whelen CAST-4V, 4-light polished aluminum bezels shall be provided, one (1) each side vertically mounted on the rear of the apparatus body for the above tail lights.

MIDSHIP MARKER/TURN SIGNAL

Two (2) Whelen LED midship body clearance marker/turn signal lights (T0A00MAR) shall be installed. There shall be one (1) light on each side of the body, in the wheel well, ahead of the rear axle. Both lights shall have an amber lens and operate with the chassis clearance marker and turn signals.

MARKER LIGHTS

The apparatus body shall be equipped with all necessary clearance lights and reflectors in accordance with Federal Motor Vehicle Safety Standards (FMVSS) regulations. All body clearance lights shall be LED to reduce the need for maintenance and lower the amp draw. Clearance lights shall be wired to the headlight circuit of the chassis.

LICENSE PLATE MOUNTING BRACKET

There shall be one (1) Cast Products aluminum license plate mounting with chrome shielded license plate light mounted on the rear of the body.

ELECTRONIC SIREN

The siren control head shall be supplied and installed by the cab/chassis manufacturer.

SIREN SPEAKER

The siren speaker(s) shall be supplied and installed by the cab/chassis manufacturer.

SIDE SCENE LIGHTS

There shall be six (6) Whelen 900 series (9" x 7") recess mounted Opti-Scene lights (90E000ZR) provided on the upper body. Each light will have a 8-32 degree gradient lens and chrome flange. They will be equally divided between the curbside and streetside.

Two (2) virtual switches shall be provided in the Vista display, one (1) for the streetside scene lights, and one (1) for the curbside scene lights.

REAR SCENE LIGHTS

Two (2) Whelen 900 series (9" x 7") recess mounted Opti-Scene lights (90E000ZR) shall be provided on the upper rear body. Each light will have a 8-32 degree gradient lens and chrome flange.

The lights shall be virtually switched at the Vista display in the cab.

The rear scene lights shall also be activated when the apparatus is in reverse.

COMMAND STROBE

There shall be one (1) green strobe light on Zico Qwik Raze telescopic pole furnished and installed on the rear streetside of the apparatus.

Salinas Fire Department
Command
Build Specification

WARNING LIGHT PACKAGE

The following lighting package includes all of the minimum warning light requirements to comply with the most recent NFPA 1901 Fire Apparatus Standard.

UPPER WARNING LIGHT SYSTEM

ZONE A - FRONT WARNING LIGHTS

There shall be one (1) Whelen Edge FN72QLED LED 72" lightbar permanently mounted to the cab roof.

The lightbar configuration (streetside to curbside) shall be:

SECTION	INTERNAL COMPONENTS	LENS COLOR
1	Red Linear LED - Side Facing	Clear
2	Red Corner LED	Clear
3	Blank	Clear
4	Clear Linear LED	Clear
5	Blank	Clear
6	Red Linear LED	Clear
7	Blank	Clear
8	Blank	Clear
9	Red Linear LED	Clear
10	Blank	Clear
11	Clear Linear LED	Clear
12	Blank	Clear
13	Red Corner LED	Clear
14	Red Linear LED - Side Facing	Clear

The lightbar shall be separately switched at the 12 volt control panel.

All clear lights shall shut down when the parking brake is set to comply with "Blocking" mode requirements as outlined in NFPA 1901.

The lightbar shall be supplied with one (1) steady burn red light to comply with California DOT requirements.

3M OPTICOM

One (1) 3M Opticom emitter light shall be installed in the center position of the specified light bar. The Opticom shall be activated with light bar and de-activated when the park brake is set and the vehicle is in blocking mode.

ZONES B AND D - SIDE WARNING LIGHTS

UPPER REAR CORNER WARNING LIGHTS

There shall be two (2) Whelen 900 series (9" x 7") Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light shall have a red lens and chrome finished flange. The lights shall be switched at the Vista display in the cab.

UPPER FORWARD CORNER WARNING LIGHTS

There shall be two (2) Whelen 900 series (9" x 7") Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light shall have a red lens and chrome finished flange. The lights shall be switched at the Vista display in the cab.

ZONE C - REAR WARNING LIGHTS

There shall be two (2) Whelen 900 series (9" x 7") Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light shall have a red lens and chrome finished flange. The lights shall be switched at the Vista display in the cab.

LOWER LEVEL WARNING LIGHTS

ZONE A - FRONT WARNING LIGHTS

The warning lights shall be supplied and installed by the cab/chassis manufacturer. They shall be Whelen lights to complete an NFPA compliant lower level warning light system.

ZONES B AND D - CAB INTERSECTOR LIGHT (CAB FRONT CORNERS)

The warning lights shall be supplied and installed by the cab/chassis manufacturer. They shall be Whelen lights to complete an NFPA compliant lower level warning light system.

ZONES B AND D - BODY INTERSECTOR LIGHT (BODY WHEELWELL AREA)

There shall be two (2) Whelen 600 series (6" x 4") Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome finished flange. The lights shall be switched at the Vista display in the cab.

ZONES B AND D - BODY INTERSECTOR LIGHT (BODY REAR CORNERS)

There shall be two (2) Whelen 600 series (6" x 4") Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome finished flange. The lights shall be switched at the Vista display in the cab.

ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There shall be two (2) Whelen 600 series (6" x 4") Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light shall have a red lens and chrome finished flange. The lights shall be switched at the Vista display in the cab.

LINE VOLTAGE SYSTEM

DIESEL GENERATOR

An Kohler model 20EORD, diesel driven generator shall be installed on the apparatus. The generator shall be rated at 20,000 watts at 120/240 volts. Current frequency shall be stable at 60 hertz.

Generator features shall include:

- Heavy-duty construction
- Water-cooled design
- Diesel fueled
- Four cylinders, turbocharged design
- Four cycle
- Frequency regulation of ±2.5%
- High engine temperature shutdown
- Heavy-duty, dry-type air cleaner
- Battery charging alternator
- Low oil pressure shutdown
- High engine temperature shutdown
- Water-cooled turbocharger
- Belt guard
- Outstanding motor-starting capability
- Electric fuel lift pump
- Voltage regulation of ±1.5%

Overall size of generator shall 47" L x 23" W x 27" H and weigh 790 lbs.

GENERATOR MOUNTING

The generator shall be mounted on rubber vibration isolators. The compartment shall be reinforced where necessary to hold weight of generator. A valve shall be provided on the generator oil drain outlet and piped to underside of generator compartment with flexible hose and plug. The drain shall be located where easily accessible for generator service.

FUEL SYSTEM

The generator fuel system shall be plumbed to the chassis main fuel tank. A separate fuel line shall be installed directly from the tank, not connected to the truck engine fuel line system. The generator fuel line shall be properly protected and secured inside of chassis frame. A shut-off valve shall be provided between the generator and fuel line as it enters the compartment.

STARTING SYSTEM

The generator starting system shall be powered by chassis battery system with heavy duty stranded copper cables. The starter line shall by-pass the chassis master switch to permit generator operation when the apparatus engine is not running. This starter line shall be of sufficient size for the generator, adequately protected and supported inside the chassis frame area.

COOLING

Since the generator is radiator cooled, the ventilation of the generator is crucial. The installation shall permit operation of the unit both while the apparatus is stationary or while it is in motion.

The incoming air flow shall be though stamped louvers in compartment walls and/or doors, or though a hooded vent opening in the compartment roof. The louvers or hooded opening shall provide adequate air flow for operation of the generator in stationary or moving position, with the compartment doors closed for only a short period of time. For prolonged operation the compartment doors must be open.

EXHAUST SYSTEM

The generator exhaust system shall be equipped with a residential type muffler for maximum quieting, and black iron rigid pipe to link the generator to the muffler. The exhaust pipe shall be securely supported and shall be shielded or insulated to prevent excessive heating of the compartment.

MANUALS AND SCHEMATICS

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.

GENERATOR COMPARTMENT INSULATION

The generator compartment shall be provided with heavy duty sound insulation applied to walls and ceiling. Insulation shall have a high temperatures rating with a foil facing and attached to walls with a positive type fasteners, glue type adhesive shall not be acceptable.

GENERATOR CONTROLS

In addition to generator controls provided at the generator, there shall be controls provided in the Vista display in the cab. The following controls shall be provided:

- One (1) virtual pre-heat switch
- One (1) virtual start/stop switch
- One (1) generator running indicator

CIRCUIT BREAKER BOX

There shall be one (1) Paneltronics 120/240 line voltage distribution/breaker panel provided. All circuit breakers shall be rated to the wire size and load demand.

There shall be color coded LED indicator lights provided to indicate the status of each branch breaker.

Each individual switch and all meters shall be back lit for identification in low light situations.

The panel shall have four (4) meters: one (1) to monitor frequency, one (1) to monitor line voltage, one (1) to monitor load current (amps), and one (1) hour meter to register genset run time.

Each circuit breaker shall be hydraulic/magnetic trip free style with a manual reset.

The Paneltronics panel shall also control the manual switch over from shore to generator power.

The entire panel shall be mounted via a piano style hinge that allows the front panel to open for access to the breakers.

The Paneltronics circuit breaker box shall be located in the curbside data rack closet over the wheel well, centered on the exterior wall above the HVAC unit.

ONAN PTO GENERATOR

The apparatus shall be equipped with a Onan "Protec AC" PTO generator system with a capacity of 25,000 watts at 120/240 volt, 208/104 amps., single phase, 60 cycles.

GENERATOR SPLASH GUARD

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 contaminates reaching the generator front seals.

GENERATOR MOUNTING

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.

MANUALS AND SCHEMATICS

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.

POWER-TAKE-OFF GENERATOR DRIVE

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 virtual switch and visual indicator to note engagement of the PTO.

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.

ENGINE GOVERNOR - ELECTRONIC SPEED CONTROL

The apparatus shall be equipped with Electronic Speed Controls to maintain a stable cycle output from generator. The governor system shall be activated after the vehicle parking brake is applied and the transmission selector is placed in neutral.

SHORE POWER INLET - 100 AMP

A 100 ampere, 240 volt, single phase shore power inlet shall be provided on the apparatus to provide an external power source for apparatus electrical circuits. A matching 100 ampere plug shall be shipped with the apparatus for Salinas Fire Department supplied external power source wiring.

Shore power shall be wired to apparatus main circuit breaker in the circuit breaker distribution panel and feed all 120/240 electrical circuits on apparatus.

To protect both the generator and external power source from back feed, a manual switch shall be installed at the generator control panel, to cut off the connection between the apparatus circuits and the generator when the external power source plug is in use.

OUTLETS AND CIRCUITS

The generator shall supply the electrical equipment and outlets outlined below. Proper circuit protection shall be installed as noted:

There shall be eight (8) 120 volt outlet(s) located in the walk-in area of the body.

- The receptacle shall be 15 amp, straight-blade (NEMA 5-15R).

- The receptacle(s) shall be located in the following areas:

  - One (1) under each leg of 'L' shapped desk in cab command area for a total of two (2)
  - One (1) under each slide out desk in IS1/IS2 and IC1/IC2 locations for a total of two (2)
  - One (1) under desk in IS3 location over wheel well
  - Two (2) adjacent to each data rack in IC3 data rack closet for total of two (2)
  - One (1) on rear wall of apparatus under Command table

OUTLET STRIP

There shall be one (1) 120 volt outlet strip(s) approximately 2' long with straight blade household type outlets provided on the interior of apparatus body. 15 ampere circuit breaker protection shall be provided for each strip. The outlet strip(s) shall be located in the following area(s):

- One (1) on rear wall of apparatus under Command table

OUTLET STRIP

There shall be five (5) 120 volt outlet strip(s) approximately 4' long with straight blade household type outlets provided on the interior of apparatus body. 15 ampere circuit breaker protection shall be provided for each strip. The outlet strip(s) shall be located in the following area(s):

- One (1) under each slide out desk in IS1/IS2 and IC1/IC2 locations for a total of two (2)
- One (1) under desk in IS3 location over wheel well
- Two (2) adjacent to each data rack in IC3 data rack closet for total of two (2)

INTERIOR BODY 120 VOLT LIGHTING

There shall be fourteen (14) 120 volt light(s) installed in the walk-in area of the body. The fixtures shall be single bulb, 22 watt fluorescent lights with fully enclosed protective lens covers, and flush aluminum trim. Each light shall be recessed down the center of the walkway.

The operation of the lights shall be at the entry doorway area. The interior lights shall be wired to the generator system with a 15 amp circuit breaker protection.

The light(s) shall be located as shown in the approved sales drawing.

INVERTER

The apparatus shall be equipped with one (1) Xantrex, model Prosine 3.0 Inverter that provides 120 VAC, 60 cycle, 3000 watt output from 12 VDC.

PROsine 3.0 Protection Features:

- Over-temperature shutdown
- Auto overload protection
- Battery reverse polarity (fuse)
- Short-circuit protection
- Inverter output

PROsine 3.0 Product Features:

True Sine Wave Output (<5%THD): A smooth, step-free waveform delivering dependable and reliable electrical power for even the most demanding and sensitive of loads

Super-Quick Transfer: A maximum detect and transfer time of 20 milliseconds (16 ms typically) ensures critical loads stay powered up when AC power drops away.

Multi-Stage Charger: Can be set for either gel or flooded batteries and delivers 120 amps of charging current for quick, accurate battery charging.

99% Charger Power Factor Rating: Allows operation from smaller generators, as the full 120 amps of charging current requires only 17 Amps of AC input power.

Full Range Operation: Battery banks are often well below the ideal "normal" 12 Volts. To compensate for that fact, the PROsine 3.0 Inverter/Charger delivers its rated 3000 Watts continuous right down to 10.5 Volts input.

High Frequency Switching Technology: Results in a lighter weight and compact design for ease of installation. Actual product weight - 32 lbs.

Functions of the PROsine 3.0 Inverter/Charger:

Inverter Function: When the PROsine 3.0 Inverter/ Charger is in inverter mode, it draws power from a battery and delivers a true sine wave AC output that is the same as or better than the waveform supplied by your local electric utility. In some cases, the PROsine 3.0 Inverter/Charger can deliver an even more stable waveform than your utility-supplied power due to the extensive control circuitry incorporated in the design of the unit.

Charger Function: The “smart" charging capability of the PROsine 3.0 Inverter/Charger provides a multi-stage charge to quickly bring back deep-cycle batteries to their full charge. Using microprocessor control, the PROsine 3.0 Inverter/Charger precisely regulates the voltage and current delivered to the battery, accurately charging the battery without risk of overcharging and battery damage. Depleted batteries are taken through the recommended "Bulk", "Absorption", and "Float" stages and a manually set "Equalize" stage is available to bring flooded batteries up to their peak capacity. The charging algorithm used in the PROsine 3.0 Inverter/Charger is based on the same charge cycle algorithm used in our proven TRUECHARGE battery charger line.

Automatic Transfer Switch: An integral 30 amp rated relay has two functions. When utility AC power fails or is disconnected from the unit, a quick 20 millisecond (maximum) transfer takes place (16 ms typically) and the PROsine 3.0 Inverter/Charger begins inverting, delivering AC power to the loads. When utility AC becomes present again, the control circuit waits for 8 seconds, during which time the unit verifies the stability of the AC source and synchronizes the inverter to the AC source for a smooth, seamless transfer. Battery charging will begin and AC is also fed through the unit to power the AC loads.

Advanced Control System (ACS) panel included with the PROsine 3.0: The ACS Control Panel provides system control and display information via a menu driven, 6-level, multi-functional LCD panel. Detailed information and control is available for: AC information, battery status, inverter mode, charger mode, system info, and Xantrex info. The deluxe ACS Remote Control Panel is included with the PROsine 3.0 Inverter Charger unit. There's no need to pay extra for remote monitoring and control.

INVERTER BATTERY SUPPLY

There shall be four (4) deep cycle batteries provided as the 12volt power source for the onboard inverter. The batteries shall incorporate Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance. The batteries shall be mounted in a stainless steel pan with hold down provisions for mobile application.

INVERTER BATTERY SUPPLY - VSR

There shall be one (1) Voltage Sensitive Relay (VSR) provided with the deep cycle batteries. The VSR allows two batteries to be charged at the same time. When the engine is started and the start battery reaches 13.7 volts, the VSR engages, allowing two battery banks (start and inverter supply) to be charged simultaneously. When the voltage drops below 12.8 volts (e.g. the engine is stopped), the VSR disengages, separating the batteries. This system eliminates the possibility of draining the wrong battery and protects sensitive electronic equipment powered from the house battery from harmful engine start up spikes.

ELECTRICAL SYSTEM GENERAL DESIGN 120/240 VAC SYSTEM

General

Any fixed line voltage power source producing alternating current (ac) line voltage shall produce electric power at 60 cycles plus or minus 5 cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures shall conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus shall be listed and installed in accordance with the manufacturer's instructions. All products shall be used only in the manner for which they have been listed.

Grounding

Grounding shall be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC.

Ungrounded systems shall not be used.

Only stranded or braided copper conductors shall be used for grounding and bonding.

An equipment grounding means shall be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) shall be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor shall be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure shall be bonded to the vehicle frame by a copper conductor. This conductor shall have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements shall be permitted to be used.

All power source system mechanical and electrical components shall be sized to support the continuous duty nameplate rating of the power source.

Operation

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, shall be permanently attached to the apparatus at any point where such operations can take place.

Provisions shall be made for quickly and easily placing the power source into operation.

The control shall be marked to indicate when it is correctly positioned for power source operation.

A power source specification label shall be permanently attached to the apparatus near the operators control station.

Portable generator installations shall comply with Article 445 (Generators) of the NEC.

Overcurrent Protection

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device shall not exceed 144 inches in length.

For fixed power supplies, all conductors in the power supply assembly shall be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit.

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device shall be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit.

Wiring Methods

Fixed wiring systems shall be limited to either Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit or Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit.

Electrical cord or conduit shall be supported within six (6) inches of any junction box and at a minimum of every 24 inches of continuous run.

Supports shall be made of nonmetallic materials or corrosion protected metal.

All supports shall be of a design that does not cut or abrade the conduit or cable and shall be mechanically fastened to the vehicle.

Wiring Identification

All line voltage conductors located in the main panel board shall be individually and permanently identified.

The identification shall reference the wiring schematic or indicate the final termination point.

When pre-wiring for future power sources or devices, the non-terminated ends shall be labeled showing function and wire size.

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, shall be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location shall be not less than 24 inches from the ground. Receptacles on off-road vehicles shall be a minimum of 30 inches from the ground.

The face of any wet location receptacle shall be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle shall be installed in a face up position.

Dry Locations

All receptacles located in a dry location shall be of the grounding type. Receptacles shall be not less than 30 inches above the interior floor height.

All receptacles shall be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps.

If the receptacles are direct current, or other than single phase, they shall be so marked.

Listing

All receptacles and electrical inlet devices shall be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards.

Receptacles used for direct current voltages shall be rated for the appropriate service.

120/240 VOLT WIRING SYSTEM

The complete wiring and electrical installation shall conform to present National Electrical Code and the National Fire Protection Association standards.

The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture, and severe continuous usage. The following electrical components and wire shall be the minimum acceptable standard for this type of apparatus.

Wiring: All electrical wiring shall be fine stranded copper type THHN. The wire shall be sized to load and circuit breaker rating. Wiring shall be color coded and printed with function every 3" for easy identification.

Conduit: All 120/240 volt wiring in the apparatus body shall be through flexible moisture resistant reinforced conduit, with proper seal tight connectors and hardware.

Labeling of Equipment: All circuit breakers shall be labeled to indicate purpose. Metal engraved or plastic coded labels shall be provided for all exterior and interior outlets indicating output amperage.

Schematic: An "As-Built" electrical wiring diagram schematic will be supplied with the completed apparatus.

COMMAND LIGHT TOWER WITH METAL HALIDE BULB OPTION AND LOWER BANK BACKLIGHT

The apparatus shall be equipped with one (1) all-electric Command Light(s). The unit shall not require tapping into vehicle braking system to be operated, eliminating the chance for vehicle brake problems. Hydraulic or pneumatic type floodlights are not acceptable alternatives to the all-electric light tower specified.

The light bank shall have four (4) weatherproof, 1,500 watt, 240-volt quartz halogen lights and (2) two 1,000 watt metal halide lights. Light heads shall be mounted in three (3) pairs, giving two (2) vertical lines of three (3) when the lights are in the upright position. Power for light bank shall be transmitted through power collecting rings thus allowing 360+ degree continuous rotation in either direction

The lower pair of light heads shall be capable of being rotated about a horizontal axis to provide light down on the vehicle or to the opposite side of the vehicle.

Positioning of the light bank shall be accomplished with maintenance free, heavy-duty 12-volt linear actuators.

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

Light tower shall be controlled with a hand-held umbilical line remote control. Command Light to be equipped with "Auto-Park" automatic nesting feature.

Command Light controls shall feature:

- Three (3) switches, one (1) for each light bank
- One (1) light bank rotation switch
- One (1) switch for elevating lower stage
- One (1) switch for elevating upper stage
- One (1) light to indicate when light bank is out of roof nest position
- One (1) light to indicate when light bank is rotated to proper nest position

Command Light controls shall be located per itemized compartment list.

The light tower shall have a full extension of 10' - 6" from mounted position and shall extend from nested position to full upright in 20 seconds.

The overall size of the nested light tower shall be approximately 48" wide x 73" long x 15.1/4" high, and weigh approximately 350 lbs.

A flashing warning light signal shall be provided indicating when a light tower is not in nested position as required by NFPA 1901.

The operational envelope of the mast shall be automatically illuminated whenever the mast assembly is being raised, lowered, or rotated as required by NFPA 1901.

The Command Light shall be covered by a One Year limited warranty from defects in materials and workmanship.

The specified light tower(s) shall be mounted on the roof of the apparatus body.

SEVEN (7) ANTENNAS - RAIL MOUNTED CAB ROOF

There shall be six (6), radio antenna rail(s) provided and installed on the roof of the body. The rails shall be constructed of aluminum, forming a two piece box design. The top section shall be removable for easy access to the individual antenna wiring. Total of seven (7), antenna bases shall be provided and installed in each rail. The bases shall include a minimum of 20' of LMR195 cable. The antenna wiring shall enter the cab roof at a single point under the end of the rail. The end of each radio antenna shall be routed to the data rack closet above the wheel well area on the curbside of the apparatus.

Due to multiple configurations of antenna whips, the Manufacturer shall provide the antenna base, and Salinas Fire Department shall provide the whip.

21" LCD MONITOR PROVSIONS

There shall be provisions for ten (10) future customer supplied monitors. The locations for the future monitors will be as follows:

- Two (2) in the rear cab work area
- Three (3) in the street side slide-out work area (IS1/IS2)
- Three (3) in the curbside slide-out work area (IC1/IC2)
- Two (2) in the over wheel well work area (IS3)

All input feeds will terminate inside one of the data racks as determined by the customer.

17" LCD MONITOR PROVISIONS

There shall be provisions for forty two (42) future customer supplied monitors. The locations for the future monitors will be as follows:

- Eight (8) in the rear cab work area
- Twelve (12) in the street side slide-out work area (IS1/IS2)
- Twelve (12) in the curbside slide-out work area (IC1/IC2)
- Eight (8) in the over wheel well work area (IS3)
- Two (2) in the rear command area at the command table (IS4)

All input feeds will terminate inside one of the data racks as determined by the customer.

AUDIO SYSTEM

There shall be one (1) Kenwood KDC-MP238 AM/FM/CD receiver withKenwood KCA-XM100V satellite radio tuner and four (4) Kenwood model KFC-1361S three way speakers furnished and installed in the body walk-in area. The radio unit shall be mounted in the desktop radio console on the command table in the rear command area, the speakers shall be mounted two (2) in front walk in area, one (1) in the walkway area over the wheel wells, and one (1) in the rear command area.

TECH NETWORK AND PHONE WIRING

The pre-wiring for a data network shall be provided and installed. All cables shall be stranded CAT6 located in wire raceways to each location identified below and terminated in RJ45 receptacles. All external receptacles shall be waterproof outdoor type. All cable runs shall home run to the a customer determined data rack RJ45 patch panel. A wireless 802.11B/G router shall be provided in lower portion of data rack, and external antennas provided on roof of the vehicle.

There shall be CAT 6 wiring and appropriate data plates at the following locations for future data and phone network components supplied and installed by the customer:

- Each rear cab work desk will have one (1) phone connection and four (4) data connections
- Each streetside slide-out position will have one (1) phone connection and four (4) data connections
- Each streetside work desk position over the rear axle will have one (1) phone connection and four (4) data connections
- Each curbside slide-out position will have one (1) phone connection and four (4) data connections
- Center forward conference desk will have two (2) phone connections and four (4) data connections
- Rear command work table will have one (1) phone connection and four (4) data connections

All wiring shall terminate inside one of the data racks as determined by the customer.

SATELLITE PRE-WIRE

There shall be wiring provisions made for the future installation of a customer supplied data satellite and a RV style satellite TV dish. The wiring shall terminate inside one of the data racks as directed by the customer.

ELECTRONIC PATCH PANEL

An electronic patch panel shall be provided centered on the rear of the apparatus below the level of the interior command table in a Cast Products recess mounted enclosure. The Panel shall contain the following audio, video, etc. input/outputs:

1. One (1) "BNC" type composite video inputs
2. One (1) "BNC" type composite video outputs
3. Two (2) pair RCA audio inputs
4. One (1) pair RCA audio outputs
5. Two (2) RCA video inputs
6. One (1) RCA video outputs
7. One (1) CAT 6 inputs
8. Up to four (4) CAT 5 outputs (TBD by switch capacity)
9. Six (6) RJ-11 phone jacks

All wiring shall terminate inside the curbside data rack closet.

Salinas Fire Department
Command
Build Specification

DATA RACK

Two (2) Middle Atlantic Products MRK-4026, 19" data rack(s), with 40 rackspaces, shall be provided and located in the curbisde data rack closet. The data rack shall be UL/ULC certified. Overall dimensions of rack shall be 76.1” H x 22” W x 26.5” D. Useable height shall be 70” rack height, useable depth shall be 24”. Rack shall be fully welded construction and provide a 2,500 lb. weight capacity with proper distribution.

Rack shall be constructed of steel and finished in a durable black powder coat paint. The MRK shall have a removable rear electrical knockout panel installed in base, and removable rear electrical knockouts with BNC knockouts for UHF/VHF antennas installed in top. A 1/4-20 threaded grounding and bonding stud shall be installed in base of enclosure.

Rack shall be warranted to be free from defects in material or workmanship under normal use and conditions for the lifetime of the product.

In addition the MRK shall be provided with model #FD-40 reinforced 16-gauge solid steel front door, four (4) Integrated fans with proportional speed thermostatic control, and three (3) 1U8 outlet power strips.

COMMAND CAMERA SYSTEM

There shall be one (1) Pelco ES31C22-5N camera system(s) complete with pan & tilt drive system, enclosure with shield wiper, high quality camera and lens. The camera system shall be a high resolution unit with Lowlight™ color technology and a 176X zoom lens (22X optical, 8X electronic).

The camera control system shall contain one (1) KBD300A keyboard with joystick, and one (1) KDBKIT keyboard kit.

TELESCOPING PNEUMATIC MAST

The apparatus shall be equipped with one (1) Will-Burt 7-42 heavy duty pneumatic powered telescoping mast(s). The mast shall utilize air from the chassis brake system. Air to operate the telescoping mast must be drawn from a drier system and be regulated to 20 psig and shall have a back pressure protection valve.

A red flashing warning light will be visible to the driver to warn when a light tower is out of roof nested position.

A pneumatic kit to raise and lower the mast shall include air control valve, 0-160 psig air gauge, regulator, 0-30 psig air gauge.

The mast shall be of a free standing design (non-guyed) and use high strength, heat treated aluminum alloy tubes and collars. Each mast section (tube) shall have two full length external keys and nominal .095" wall thickness collars with matching keyways to maintain directional azimuth.

Each mast section and collar shall be of the low friction synthetic bearings for smooth operation and longer life. Bumpers shall be supplied to reduce shock on extension and retraction. All exterior aluminum surfaces shall be anodized and sealed. Fasteners and fittings shall be plated steel or stainless steel for corrosion resistance.

One (1) maintenance and instruction manual will be provided for the towers on delivery. Wiring schematic, air piping schematic and installation diagrams shall be provided with the manual. Manufacturer's blueprint of tower, complete parts list and bill of materials for towers provided with manuals.

MODEL 7-42 SPECIFICATIONS

Nested height tower only:	7'-1"
Extended height tower only:	41'-2"
Normal payload capacity:	150 lbs.
Number of sections:	9
Mast Diameter:	9" - 3"
Mast Volume:	7.2 cu. ft.
Collar type:	Non-locking
Maximum operating pressure:	35 psi

The operational envelope of the mast shall be automatically illuminated by a lookup light whenever the mast assembly is being raised as required by NFPA .

NYCOIL WIRING (7-42)

A 70' Nycoil conduit measuring 1" ID x 16-1/2" OD coil shall be provided for the 7-42 telescopic mast.

MAST MOUNTING - EXTERNAL

The above telescoping mast shall be mounted using an external mounting kit. The mast shall be located on the rear of the body mounted to the rear bumper.

MAST COVER

There shall be a custom designed, 1/8" smooth aluminum cover (painted body color) provided to store control cables, air hoses, and to protect the mast from the elements. The cover shall be easily removed to allow access to mast for maintenance.

MAST SAFETY SYSTEM

Provide and install Will-Burt D_TEC mast safety system. System shall consist of the following features:

- High voltage sensor aides operator in detecting overhead power lines
- Anti-collision sensor automatically stops mast extension, assisting operator in detecting overhead obstructions
- Tilt sensor that will ensure vehicle is level and D-TEC is pointing directly upward prior to mast extension
- 35 watt quartz halogen look-up spot light. Look-up light illuminates area directly above the telescoping mast

EXTERIOR 360 DEGREE SURVEILLANCE CAMERAS

There shall be three (3) Bosch model LTC1421 2mm wide angle analog cameras recess mounted into the surface of the apparatus. Two (2) cameras shall be mounted on each side of the cab to provide surveillance around the cab door areas, and one (1) camera mounted on the curbside body rearward of the slide-out to provide surveillance around the rear entry door. The camera feeds shall be routed to the curbside data rack closet.

EXTERIOR 360 DEGREE SURVEILLANCE CAMERAS

There will be two (2) Bosch 2mm wide angle cameras, one (1) mounted on each side of the truck to provide 360 degree surveillance around apparatus. One (1) camera will be located on the upper front corner of the streetside, forward slide-out. The second camera will be located directly above the curbside body entrance door. Cameras shall be IP accessible.

EQUIPMENT

The following equipment shall be furnished with the completed apparatus:

ASSORTED FASTENERS

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.