Salinas Police Department

ENGINEERING DRAWINGS

The evaluation of bids will also be based on design, engineering reliability, and completeness of drawings. No bidder's proposal will be considered unless complete engineering drawings to these specifications are submitted with the request for proposal package. Failure to submit factory prepared blueprints with bid will result in automatic rejection. Submission of "bid drawings" are in addition to "production drawings" which must be submitted for Salinas Police Department approval prior to construction. Bid drawings will allow the Salinas Police Department the ability to fully evaluate required product.

The engineering drawings will be produced on computer aided design (CAD) equipment to assure critical tolerance and detail only available with CAD equipment. The drawings will be on "B" size paper, 17" x 11" in size, and views must be 1/4" = 1' - 0" scale. This will allow the Salinas Police Department the ability to compare drawings of all manufacturers on an "equal" basis. The drawings will be completed only by the body manufacturer, and must be exactly to Salinas Police Department specifications. Submission of "similar to" drawings or "statements referring to later submission of drawings after award of contract" will be automatically rejected.

Since the request for proposal package will require extensive evaluation by Salinas Police Department, all Bidders must submit exactly the same engineering drawings at the same scale, on the same size paper. For easy comparison of drawings, they must be on a 17" x 11" sheet as follows:

- All bid drawings will be stamped BID DRAWING
- All items shown on the drawing will be pre-designed with regards to layout and functionality prior to the completion of the BID DRAWING
- Two (2) 11” x 17” color drawings will be supplied with the bid proposal, black and white or blue line drawings will not be accepted
- There shall be five (5) views of the truck with the doors closed (Top, Left, Right, Front, Rear), four (4) views of the truck with the doors open (Top, Left, Right, Rear) and four (4) views of any walk-in area (Top, Left, Right, Rear)
- All compartment door openings and usable space shall be clearly shown in inches
- The trucks overall length, height, width, wheelbase and cab-to-axle dimensions shall be clearly shown
- The angles of approach and departure shall be shown in the maximum loaded condition to the nearest degree
- All lighting packages will be clearly shown on the drawing and verified accurate per the most current NFPA standards (when applicable)
- The exterior view shall show all scene lights, marker lights, speakers, horns, exhaust, tow points, exterior outlets, windows, winch receivers, tow hitches, exterior ladders and any other item important to the function of the vehicle
- The open view shall show all trays, shelves, air system components, hydraulic components, toolboards, storage modules and any other items important to the function of the vehicle
- The interior view for all walk-in areas shall show all seating positions, desks, cabinets, windows, tech equipment, radio locations and any other item important to the function of the vehicle
- Any changes to the BID drawing will require a revision which will be clearly annotated in the upper right hand side of the drawing showing the revision number, reason for the revision, date and who made the changes

Text Block Items

- Customer name
- Body size and material type
- Chassis manufacturer and model number
- Unit description
- Wheelbase
- Cab-to-axle distance
- Overall length
- Overall width
- Overall height
- Scale, date, drawn by, drawing number and sheet number

SAMPLES

On request, sheet metal or other samples will be submitted for evaluation purposes.

INTERNET IN-PROCESS SITE

The Bidder will post and maintain a website where the Salinas Police Department will be able to view digital images of their apparatus as its being manufactured. The digital images will be posted once a week starting when the body begins production or when the cab/chassis arrives and will continue until the final completion of the apparatus.

CONSTRUCTION DOCUMENTATION

The contractor will 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 water and 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. Pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
    n. Pump transmission make, model, serial number, and gear ratio
    o. Auxiliary pump make, model, rated capacity in gallons per minute (liters per minute where applicable), and serial number
    p. Water tank certified capacity in gallons or liters
    q. Paint manufacturer and paint number(s)
    r. 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 fire pump, a copy of the following shall be provided: pump manufacturers certification of suction capability, apparatus manufacturers approval for stationary pumping applications, engine manufacturers certified brake horsepower curve showing the maximum governed speed, pump manufacturers certification of the hydrostatic test, and the certification of inspection and test for the fire pump
4. If the apparatus has a fixed line voltage power source, the certification of the test for the fixed power source
5. If the apparatus is equipped with an air system, test results of the air quality, the SCBA fill station, and the air system installation
6. Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall fire apparatus (with the water tank full but without personnel, equipment, and hose)
7. Written load analysis and results of the electrical system performance tests
8. When the apparatus is equipped with a water tank, the certification of water tank capacity

OPERATION AND SERVICE DOCUMENTATION

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

The contractor will 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, any major components such as a pump or any 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 contractor will deliver with the apparatus all manufacturers operations and service documents supplied with components and equipment that are installed or supplied by the contractor.

NFPA REQUIRED MANUALS

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

§ There will be one (1) printed copies of the manual provided with the apparatus.

WARRANTY

The Bidder will provide a full statement of the warranty provided for the vehicle(s) being bid. This warranty should clearly describe the terms under which the vehicle's Manufacturer accepts responsibility for the cost to repair defects caused by faulty design, quality of work or material, and for the applicable period of time after delivery.

Cost of repairs refers to all costs related thereto including, but not limited to, the cost of materials, the cost of labor.

The Manufacturer will warrant all materials and accessories used in the vehicle(s), whether fabricated by the Manufacturer or purchased from an outside source and will deal directly with the Salinas Police Department on all warranty work.

The warranty will commence upon acceptance of the vehicle.

GENERAL WARRANTY - ONE (1) YEAR

The entire body and all SVI installed components will 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 Police 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 will be detailed by Bidder in proposal.

This warranty will 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) will 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 Police Department. Also include any available extended warranties that will start after the initial warranty period. Goods or property will be as represented by these specifications as well as additional agreements as a result of discussions regarding these specifications and will 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 will 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 will be kept on file at Manufacturer's facility.

In the event of a chassis remount, this structural warranty will 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 will be determined solely by the Manufacturer and will be repaired by the Manufacturer or an Authorized Service Center designated by the Manufacturer. The expense of any transportation to or from the ASC will be the responsibility of the Salinas Police Department and is not an item covered by this warranty.

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

TESTING

12 VOLT DC - NFPA TEST

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

TEST SEQUENCE

The following three (3) tests will be performed in the order indicated below. Before each test, the batteries will be fully charged. A full charge condition will 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 will require a repeat of the sequence.

RESERVE CAPACITY TEST

The engine will 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 will be shut off and the minimum continuous electrical loads will be activated for ten (10) minutes. All electrical loads will be turned off prior to attempting to restart the engine. The battery system will then be capable of restarting the engine. Failure to restart the engine will be considered a test failure.

ALTERNATOR PERFORMANCE TESTS:

TEST AT IDLE

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

TEST AT FULL LOAD

The total continuous electrical load will be activated with the engine running up to the Engine Manufacturer's governed speed. The test duration will be a minimum of two (2) hours. Activation of the load management system will 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, will be considered a test failure.

LOW VOLTAGE ALARM TEST

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

The battery voltage will 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 will be considered a test failure.

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

DOCUMENTATION

Documentation of the electrical system performance test will 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

The Manufacturer shall provide four (4) individual inspection trip(s) to the factory. The quantity of people and number of trips can be configured to meet the needs of the Salinas Police Department. The cost of transportation, food, and lodging shall be borne by the Manufacturer.

If the Salinas Police Department is more than 250 miles from factory than the transportation shall be by commercial airline.

The description of these factory trips must be included in Bid. If nothing is described or mentioned in the Bid pertaining to inspection trips, then it is assumed that the Bidder is taking exception to inspection trips required, and bid shall be rejected.

DELIVERY AND DEMONSTRATION

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

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

After delivery of the fire apparatus, the Salinas Police 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*.

CAB CHASSIS SPECIFICATIONS

MANUFACTURER: Ford

Model: 2007 F550 Super Duty, 4-Door, 4 x 2 (Ambulance Prep Package)

G.V.W.R.: 17,950 lbs.

Wheelbase: 200" Cab to axle: 84"

FRONT AXLE:

Rating: 7,000 lbs.

Shocks: Heavy duty

Front Springs: Single stage, Constant rate, 6,500 lb. capacity

Steering: Power

REAR AXLE:

Rating: 13,660 lbs.

Type: Dana or equal full floating with 4.88 ratio, Limited-slip, and Stabilizer bar

Rear Springs: Two-stage, 13,660 lb. capacity

Shocks: Heavy duty

BRAKES:

Type: Four-wheel power disc brakes with ABS system

Parking Brake: Cable actuation, foot operated, hand release

TIRES AND WHEELS:

Front Tires: (2) LT225/70R 19.5, max traction

Rear Tires: (4) LT225/70R 19.5, max traction

Wheels: 19.5", 10-hole steel disc

Spare: (1) LT225/70R 19.5, all terrain tread, (1) steel disc wheel

CHASSIS SPECIFICATIONS

FRAME:

Type: Single channel

Rating: 36,000 PSI steel, 10.1 section modulus

ENGINE:

Manufacturer: Navistar

Model: 6.0 L Power Stroke Turbo Diesel

Rating: 325 GHP @ 3,300 RPM, 560 GT @ 2,000 RPM

Engine Equipment: Heavy duty dry type air cleaner, fuel filter, horizontal muffler and exhaust, block heater.

TRANSMISSION:

Manufacturer: Ford Torque Shift

Type: Automatic

Speeds: 5-speed forward with overdrive
1-speed reverse

ELECTRICAL:

Alternator: Dual 115 amp

Battery: Dual maintenance free 78 amp/hr, 750 CCA each

FUEL TANK:

Size: 40 total gallons

Location: Mid ship mounted aft of rear axle

CAB SPECIFICATIONS

Cab Type: Standard cab with Ambulance Prep Package, XL trim interior

Cab Equipment: Heater and defroster, air conditioning, dome light, sun visor, electric horn, all clearance lights and identification lights required by State and Federal Department of Transportation and all standard equipment, Speed control, Tilt steering wheel, Power door locks, Power windows, AM/FM stereo/clock, Driver/passenger air bag SRS system.

Cab Instruments and Gauge: Fuel, Odometer, Tachometer, Engine oil pressure, Engine water temperature, Volt meter, Auxiliary idle control.

Seats: Front high back cloth bucket seats with 3-point seat belts,

Cab Mirrors: Door mounted powered adjustable black plastic camper tow mirrors

Cab Glass: Tinted solar glass

Bumper: Chrome plated

Windshield Wipers: 2-speed electric with washers

Cab Color: Ford White

Cab Interior Color: Medium Flint

Floor Mats: Rubber floor mats in lieu of carpet

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)
- Transfer Case Fluid (if applicable)
- Pump Transmission Fluid (if applicable)
- Pump Primer Fluid (if applicable)
- Equipment Rack, Air Compressor, 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".

FRONT BUMPER

The front bumper will be as provided by the cab/chassis manufacturer. No other alternation or modifications are required.

WARN TRANS4MER WINCH MOUNTING SYSTEM

There will be one (1) Warn grille guard assembly; which comes with two uprights and two crossbars, and bolts directly to the vehicle frame. The winch will mount on the Winch Carrier. The Trans4mer system will be powder-coated black.

FRONT MOUNTED WINCH

The Trans4mer system will be equipped with a Warn M1200, 12 volt electric, 12,000 lb. capacity winch.

The control of the winch will be with a plug-in remote control unit. The unit will have 12 feet of control cable, with forward, neutral, and reverse dead man type hand control.

The winch will be equipped with 125 feet of 3/8" galvanized cable. The cable will end with a clamped type loop and a drop forged heavy duty hook. The cable will feed through a full captive type 4-way roller and guide assembly.

EXHAUST

The exhaust system shall be as provided by cab/chassis manufacturer. No other alternation or modifications are required.

RADIO ANTENNA INSTALLATION

There will be one (1) radio antenna mounts provided and installed on the roof of the cab/chassis. The end of each radio antenna will be routed to a location determined by the Salinas Police Department.

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

RADIO INSTALLATION

There will be one (1) Salinas Police Department supplied radio(s) installed in the cab/chassis. Each radio will be wired for with 12 volt power.

12 VOLT ACCESSORY PLUG

There will be one (1) 12 volt accessory plug(s) furnished and installed in the cab area. Exact location will be determined at the pre-construction meeting.

DESK MODULE WITH DOORS

A desk storage module shall be provided in the rear cab area. The module shall be as large as possible and fabricated of 1/8" smooth aluminum. There shall be sliding clear Lexan doors to prevent the stored equipment from falling out of the cabinet. The doors shall have full height handles and mounted in felt lined slides to prevent the doors from rattling during travel. A textured powder coat paint finish shall be provided for durability and finished appearance. The paint shall match interior cab color.

The final design and location of console shall be determined by Salinas Police Department at the pre-construction meeting.

PAINT CAB DOOR AND ROOF

The cab shall be provided with specified cab/chassis manufacturer paint as the finish paint. The cab front doors and roof will be painted a second color by the Body Manufacturer.

All necessary chassis exterior components shall be removed prior to painting. The exterior shall be sanded to assure a smooth surface for final paint coat.

The added chassis exterior colors shall be:

Front Doors and Roof Color: White

Lower Paint Number: TBD

The painted body shall be finished with a high gloss single stage type finish.

CHASSIS PAINT WARRANTY

The portion of the chassis painted by the Body Manufacturer shall be provided with a five (5) year paint warranty to the original Owner. The warranty shall be provided by Akzo Nobel Inc. A "Sikkens Warranty" sheet with all conditions and maintenance procedures shall be provided with the delivered apparatus.

CAB RUNNING BOARDS

The chassis will be provided with running boards each side, below the cab doors. The running boards will constructed of aluminum 3003H-14 alloy NFPA nonskid compliant tread plate.

Inlay and weld in grip strut under all four (4) cab doors so that grip strut is flush mounted with the top of the diamond plate running board.

MUDFLAPS

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

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.

INTERIOR PEDESTAL SEAT

One (1) Bostrom Sierra high back Duraware fabric located in the rear cab area street side. The seat shall be mounted on a swivel style pedestal base and securely bolted to the reinforced floor structure.

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

§ There shall be two (2) 12V outlet(s) provided in the front face of the component console.

FUEL FILL

There will be a Cast Products aluminum fuel fill with hinged door located on the rear panel of the body, on the rear of the body. The fuel fill casting will be connected to the chassis fuel tank.

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. All Bidders will be required to meet these minimum requirements.

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 will 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. Since such materials are available to all Manufacturers, the material specifications will be strictly adhered to.

The fabrication of the body will be formed sheet metal. Formed components will allow the Salinas Police Department to have the body repaired locally in the case where any object has struck the body and caused damage. The use of proprietary extrusions will prevent the Salinas Police Department from such repair and will NOT be used.

Following construction of the subframe, which supports the apparatus body, the sheet metal portion of the body will be built directly on the subframe. The joining of the subframe and body will be of a welded integral construction.

The sheet metal fabrication of the body will be performed using inert gas continuous feed welders only. The entire body will 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 will 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 will be constructed from aluminum 3003H-14 alloy smooth plate. This will include compartment front panel, vertical side sheets, side upper rollover panels, rear panels and compartment door frames.

The body compartment floors and exterior panels will be constructed with not less than 3/16" (.187) aluminum 3003H-14 smooth plate. Interior compartment dividing walls will be constructed with not less than 1/8" (.125) aluminum 3003H-14 smooth plate. Lighter gauge sheet metal will not be acceptable in these areas.

The door side frame openings will be formed "C" channel design. An electrical wiring conduit raceway running the full length of exterior compartments will be provided. This raceway will contain all 12 volt wiring running to the rear of the apparatus, permitting easy accessibility to wiring.

Individual compartment modules, with dead air space voids between compartments, will not be an acceptable method of compartment construction.

The compartments will 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 will be single one-piece sections. Compartment floors will be preformed, then positioned in body and welded into final position.

Compartment floors will have a "sweep-out" design with door opening threshold positioned lower than compartment floor, permitting easy cleaning of compartments. Angles, lips, or door moldings are not acceptable in the base of compartment door opening. One-way rubber drain valves will 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 will be welded continuous to prevent moisture from entering compartments. All other interior seams and corners will be sealed with silicone based caulk prior to painting.

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

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

ROOF CONSTRUCTION

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

BODY SUBFRAME

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

The chassis frame rails will 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 will be constructed from 6061T6 aluminum alloy tubing. Subframe will consist of two (2) 2" x 4" x 1/4" aluminum tubes minimum, the same width as the chassis frame rails. Welded to this tubing will be crossmembers of 2" x 4" x 1/4" aluminum. Smaller dimension, lighter gauge tubing or angle material subframe will not be accepted.

These crossmembers will extend the full width of the body to support the compartments. Crossmembers will 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 will be located as necessary to support walkways or heavy equipment.

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

BODY MOUNTING

For optimum chassis frame and body life, the body subframe will be fastened to the chassis frame with a minimum of six (6) 1/2" x 2" strap mounts, welded to the body subframe. The straps will be bolted to the chassis frame work utilizing 1/2" Grade 8 bolts.

10" REAR STEP BUMPER

The full width rear bumper will be constructed from 2" x 2" x 1/4" aluminum tubing frame and covered with 3/16" aluminum tread plate. Any stepping surface will have a grip surface insert to meet NFPA requirements. The bumper will extend from the rear vertical body panel 10" and provide a rear step with a minimum of 1/2" space at body for water drainage.

REAR TOW EYES

There will be two (2) heavy duty rear mounted tow eyes securely attached to the body subframe, below the apparatus body. The tow eyes will be fabricated from steel plate and will have a black powder coat finish.

TRAILER HITCH INSTALLATION

A Class III, 7,500 lbs. weight carrying capacity (gross trailer weight) rear hitch receiver will be provided below the rear bumper. The receiver will be attached to the apparatus body frame.

The hitch will be complete with a 2" square receiver. Safety chain attachment and a 7-pin trailer wiring plug receptacle will be provided at the rear bumper.

Without the use of a "weight distribution" ball hitch the Class III receiver will have a capacity of 5,000 lbs. gross trailer weight.

WHEEL WELL EXTERIOR PANEL

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

DIEFORMED BEADED EDGE BODY FENDERS

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

WHEEL WELL LINERS

The wheel wells will be constructed by the compartment walls that surround the wheel well area. The interior wheel well area will be designed so that it does not accumulate dirt or water.

PAINT FINISH

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

- Upper Color: White
- Upper Paint Number: FLNA 40128
- Lower Color: Black
- Lower Paint Number: FLNA40260

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 will be sprayed with black automotive undercoating. Undercoating will 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.

REFLECTIVE STRIPE

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

REFLECTIVE STRIPE - CAB

A 4" minimum reflective stripe will be affixed to the cab.

§ The stripe material will be 3M Scotchlite 680.

§ This reflective stripe color will be black.

REFLECTIVE STRIPE - BODY SIDES

A 4" minimum reflective stripe will be affixed to the sides of the body.

§ The stripe material will be 3M Scotchlite 680.

§ This reflective stripe color will be black.

The stripe shall remain in a straight line from the front of the vehicle to the rear.

REFLECTIVE STRIPE - REAR OF BODY

A 4" minimum reflective stripe will be affixed to the rear face of the body.

§ The stripe material will be 3M Scotchlite 680.

§ This reflective stripe color will be black.

LETTERING

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

UPPER BODY SIDE LETTERING

There shall be fifty (50) 4" high reflective letters furnished and installed on the vehicle.

§ This reflective lettering color will be black.

COMPARTMENT INTERIOR FINISH

The interior of compartments will be painted with an epoxy primer then painted with a textured Zolotone paint finish. Paint color will be gray.

EXTERIOR COMPARTMENT DOORS

ROLL-UP DOOR CONSTRUCTION

The apparatus will be equipped with Robinson Series III shutter exterior compartment doors. The doors will be constructed of satin finished anodized aluminum slats. The slats exterior surface is flat, while the rear surface is concave to prevent loose equipment from interfering with door operation.

The aluminum extrusions will be equipped with nylon end shoes that slide in extruded aluminum tracks for easy operation.

The shutter door will have a pretension operator in a sealed alloy drum and positioned at the upper front portion of compartment to afford maximum clearances and head room for mounting equipment to ceiling of compartment.

Each shutter door will be completely weather resistant assembly. Neoprene seals will be provided on sides, bottom upper portion of the door and in between each slat.

Latching of the exterior compartment shutter door will be with an aluminum, spring loaded full width lift bar. The lift bar will latch itself under two (2) cam shaped strike blocks mounted on the outer door frame of the compartment. A magnetic door ajar switch system will be provided and built into the striker blocks and the end caps of the lift bars. An extra wide finger pull will be provided above each lift handle to assist in closing compartment doors.

Each shutter door will decrease the compartment door frame opening approximately 2" in width and approximately 4-1/2" in height for the bottom section of door assembly.

EXTERIOR ROLL-UP DOOR FINISH

The roll-up doors shall have a satin aluminum finish on the door slats and the door trim components.

The reflective stripe shall be applied over the roll-up doors. The stripe shall be precision machine cut for each seam of the roll-up doors.

BODY HEIGHT MEASUREMENTS

The vertical body dimensions will be as follows:

AHEAD OF REAR AXLE

	Description	Dimension
A	Bottom of Subframe to Top of Body	69.0"
B	Bottom of Subframe to Bottom of Body	18.0"
C	Vertical Door Opening	
	-with roll-up door	60.5"
	-with hinged door	64.5"

ABOVE REAR AXLE

	Description	Dimension
D	Vertical Door Opening - Above Rear Wheel	
	-with roll-up door	37.0"
	-with hinged door	40.0"

BEHIND REAR AXLE

	Description	Dimension
E	Bottom of Subframe to Bottom of Body	15.0"
F	Vertical Door Opening	
	-with roll-up door	58.0"
	-with hinged door	62.0"

GENERAL

	Description	Dimension
G	Bottom or Drip Rail to Top of Body	18.5"

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

BODY WIDTH DIMENSIONS

The body will be 96.0" wide, not including drip rail or non-permanent fixtures. Interior compartment depth dimensions will be:

Area Description	Dimension
Transverse Area: - Above Top of Subframe	91.5"
Compartment Depth: - Below Top of Subframe - Ahead of Rear Axle	21.5"
Compartment Depth: - Below Top of Subframe - Behind the Rear Axle	20.0"

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

STREETSIDE COMPARTMENT - FRONT (S1)

The interior useable compartment width shall be approximately 56.0" wide.

The compartment door opening shall be approximately 49.0" wide.

This compartment will have a Robinson Roll-up door with an exterior satin aluminum finish.

- A keyed cylinder lock will be provided in the bottom portion of the roll-up door.
- One (1) aluminum drip pan / splash guard will be provided with the rollup door.

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

COMPARTMENT COMPONENTS

§ There will be vertically mounted shelf trac for shelving installation.

§ There will be one (1) 1,000 lbs. slide-out tray(s) with an OnScene Solutions base approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails.

§ There will be two (2) 250 lbs. slide out and down tray(s) with an OnScene Solutions base approximately 44" deep and as wide as the compartment layout or door opening permits. It will be located above the level of the chassis frame rails and will be vertically adjustable in height.

§ The floor of the compartment above the frame rails will be extended to the interior edge of the door. The floor will have a 2" vertical lip and a 1" return to increase strength.

§ One (1) Hannay ECR1616-17-18 cable reel(s) capable of storing 150' of 10/3 electric cable. The rewind switch for each reel will be located adjacent to the reel it controls.

- The cable reel will equipped with 150' of 10/3 SOWY black cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end.
- One (1) Akron model EJB electrical junction box with yellow powder coat finish. The junction box will include:
  - a 12" pigtail that terminates in an L5-30 configuration to match the cable on the cord reel. The outlet configuration will include:
    - One (1) L5-15 single twist lock receptacle
    - One (1) L5-15 single twist lock receptacle
    - One (1) L5-15 single twist lock receptacle
    - One (1) L5-15 single twist lock receptacle
- One (1) EJB vertical apparatus mounting bracket - treadplate

§ Two (2) vertically mounted OnScene Solutions LED Nightstiks.

§ One (1) 120 volt, 20 amp, duplex, straight-blade receptacle (NEMA 5-20R).

§ The controls for the specified light tower(s).

§ The 12 volt electrical distribution panel will be located in the streetside front lower compartment.

STREETSIDE COMPARTMENT - ABOVE REAR WHEEL (S2)

The interior useable compartment width shall be approximately 45.0" wide.

The compartment door opening shall be approximately 38.0" wide.

This compartment will have a Robinson Roll-up door with an exterior satin aluminum finish.

- A keyed cylinder lock will be provided in the bottom portion of the roll-up door.
- One (1) aluminum drip pan / splash guard will be provided with the rollup door.

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

COMPARTMENT COMPONENTS

§ There will be vertically mounted shelf trac for shelving installation.

§ There will be one (1) 1,000 lbs. slide-out tray(s) with an OnScene Solutions base approximately 94" deep and as wide as the compartment layout or door opening permits, capable of extending out either side of the body located above the level of the chassis frame rails.

§ There will be one (1) 250 lbs. slide out and down tray(s) with an OnScene Solutions base approximately 44" deep and as wide as the compartment layout or door opening permits. It will be located above the level of the chassis frame rails and will be vertically adjustable in height.

§ Two (2) vertically mounted OnScene Solutions LED Nightstiks.

§ One (1) 120 volt, 20 amp, duplex, straight-blade receptacle (NEMA 5-20R).

STREETSIDE COMPARTMENT - REAR (S3)

The interior useable compartment width shall be approximately 35.0" wide.

The compartment door opening shall be approximately 28.0" wide.

This compartment will have a Robinson Roll-up door with an exterior satin aluminum finish.

- A keyed cylinder lock will be provided in the bottom portion of the roll-up door.
- One (1) aluminum drip pan / splash guard will be provided with the rollup door.

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

COMPARTMENT COMPONENTS

§ There will be vertically mounted shelf trac for shelving installation.

§ There will be two (2) adjustable shelf/shelves approximately 20" deep.

§ The floor of the compartment above the frame rails will cover the area directly above the frame rails ONLY (non-extended floor).

§ Two (2) vertically mounted OnScene Solutions LED Nightstiks.

§ One (1) 120 volt, 20 amp, duplex, straight-blade receptacle (NEMA 5-20R).

§ One (1) 120 volt outlet strip(s) approximately 2' long with straight blade household type outlets.

PORTABLE SINK

There will be a portable sink located in the compartment. The system will include a small sink that can be removed and set-up outside the compartment.

There will be a 10-gallon poly water tank located in the lower portion of the compartment to supply water to the sink.

A RV style water pump will be located in the compartment with a on/off switch located on the side wall of the compartment.

CURBSIDE COMPARTMENT - FRONT (C1)

The interior useable compartment width shall be approximately 56.0" wide.

The compartment door opening shall be approximately 49.0" wide.

This compartment will have a Robinson Roll-up door with an exterior satin aluminum finish.

- A keyed cylinder lock will be provided in the bottom portion of the roll-up door.
- One (1) aluminum drip pan / splash guard will be provided with the rollup door.

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

COMPARTMENT COMPONENTS

§ There will be vertically mounted shelf trac for shelving installation.

§ There will be one (1) 1,000 lbs. slide-out tray(s) with an OnScene Solutions base approximately 94" deep, capable of extending out either side of the body located above the level of the chassis frame rails.

§ There will be two (2) 250 lbs. slide out and down trays with an OnScene Solutions base approximately 44" deep and as wide as the compartment layout or door opening permits. It will be located above the level of the chassis frame rails and will be vertically adjustable in height.

§ The floor of the compartment above the frame rails will be extended to the interior edge of the door. The floor will have a 2" vertical lip and a 1" return to increase strength.

§ One (1) Hannay ECR1616-17-18 cable reel(s) capable of storing 150' of 10/3 electric cable. The rewind switch for each reel will be located adjacent to the reel it controls.

- The cable reel will equipped with 150' of 10/3 SOWY black cable, a molded plastic ball clamp, and a single heavy duty L5-30 twist-lock female plug at the end.
- One (1) Akron model EJB electrical junction box with yellow powder coat finish. The junction box will include:
  - a 12" pigtail that terminates in an L5-30 configuration to match the cable on the cord reel. The outlet configuration will include:
    - One (1) L5-15 single twist lock receptacle
    - One (1) L5-15 single twist lock receptacle
    - One (1) L5-15 single twist lock receptacle
    - One (1) L5-15 single twist lock receptacle
- One (1) EJB vertical apparatus mounting bracket - treadplate

§ Two (2) vertically mounted OnScene Solutions LED Nightstiks.

§ One (1) 120/240 volt load center.

§ The FROG-D generator monitoring panel.

§ One (1) 120 volt, 20 amp, duplex, straight-blade receptacle (NEMA 5-20R).

CURBSIDE COMPARTMENT - ABOVE REAR WHEEL (C2)

The interior useable compartment width shall be approximately 45.0" wide.

The compartment door opening shall be approximately 38.0" wide.

This compartment will have a Robinson Roll-up door with an exterior satin aluminum finish.

- A keyed cylinder lock will be provided in the bottom portion of the roll-up door.
- One (1) aluminum drip pan / splash guard will be provided with the rollup door.

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

COMPARTMENT COMPONENTS

§ There will be vertically mounted shelf trac for shelving installation.

§ There will be one (1) 1,000 lbs. slide-out tray(s) with an OnScene Solutions base approximately 94" deep, capable of extending out either side of the body located above the level of the chassis frame rails.

§ There will be one (1) 250 lbs. slide out and down tray(s) with an OnScene Solutions base approximately 44" deep and as wide as the compartment layout or door opening permits. It will be located above the level of the chassis frame rails and will be vertically adjustable in height.

§ Two (2) vertically mounted OnScene Solutions LED Nightstiks.

CURBSIDE COMPARTMENT - REAR (C3)

The interior useable compartment width shall be approximately 35.0" wide.

The compartment door opening shall be approximately 28.0" wide.

This compartment will have a Robinson Roll-up door with an exterior satin aluminum finish.

- A keyed cylinder lock will be provided in the bottom portion of the roll-up door.
- One (1) aluminum drip pan / splash guard will be provided with the rollup door.

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

COMPARTMENT COMPONENTS

§ There will be vertically mounted shelf trac for shelving installation.

HANGING ROD

There will be a single heavy-dut hanging rod located in the upper portion of the compartment for hanging clothes and suits.

§ The floor of the compartment above the frame rails will cover the area directly above the frame rails ONLY (non-extended floor).

§ Two (2) vertically mounted OnScene Solutions LED Nightstiks.

§ One (1) 120 volt, 20 amp, duplex, straight-blade receptacle (NEMA 5-20R).

RHINO COATING

The entire compartment will have a Rhino Coating applied to the interior surfaces.

REAR COMPARTMENT - CENTER (RC1)

The rear center compartment shall be closed to both side rear compartments. The lower comartment shall be open to area between rear wheels for 77" deep tray.

The rear center compartment shall start at the top of the frame and be as high as the body permits.

The interior useable compartment width shall be approximately 41.0" wide.

The compartment door opening shall be approximately 34.0" wide.

This compartment will have a Robinson Roll-up door with an exterior satin aluminum finish.

- A keyed cylinder lock will be provided in the bottom portion of the roll-up door.
- One (1) aluminum drip pan / splash guard will be provided with the rollup door.

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

COMPARTMENT COMPONENTS

§ There will be vertically mounted shelf trac for shelving installation.

§ There will be one (1) long equipment storage module for the following long tools and equipment:

- One (1) Salinas Police Department supplied ladder(s). Manufacturer, model number and dimensions of the ladder(s) will be provided during the pre-construction meeting.
- There will be one (1) OnScene Solutions cargo straps provided to secure the stored equipment.

§ Two (2) vertically mounted OnScene Solutions LED Nightstiks.

§ One (1) 120 volt, 20 amp, duplex, straight-blade receptacle (NEMA 5-20R).

§ One (1) 120 volt outlet strip(s) approximately 2' long with straight blade household type outlets.

PLASTIC FLOOR AND SHELF TILE

All compartment floors, shelves, and trays shall be covered with Dri-Deck plastic interlocking grating.

§ The plastic floor tile shall be black.

FRONT GRAVEL GAURDS

Gravel guards shall be fabricated of brushed stainless steel. Gravel guards shall be installed on the front lower body corners and shall wrap around the corners to the front compartment door hinge on each side.

ROOF ACCESS HANDRAIL

There shall be one (1) handrail mounted on top of body to assist in roof access. Handrails shall be NFPA compliant 1-1/4" extruded aluminum tubing with chrome plated end stanchions.

FOLDING STEP(S)

There shall be four (4) NFPA approved folding step(s) furnished and installed. Each step shall be cast aluminum with heavy duty stainless steel spring and textured step surface.

ROLL-OUT AWNING STREETSIDE

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

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

Features of the awning are:

§ Built-in Thin-Lite 12 volt amber fluorescent light
§ 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
§ Alumaguard metal wrap cover

§ The awning color shall be White (5217).

ROLL-OUT AWNING CURBSIDE

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

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

Features of the awning are:

- § Built-in Thin-Lite 12 volt amber fluorescent light
- § 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
- § Alumaguard metal wrap cover

- § The awning color shall be White (5217).

REAR ROLL-OUT AWNING

The upper rear of truck will be equipped with a Carefree Ltd Freedom III box awning. The box the awning is stored in is approximately 8’ wide x 5-3/8” high x 3-3/8” deep and white in color. The awning will be 8’ wide with an extension length of 6-1/2'. The awning support arms are hidden inside the contour styled box.

There are no latches or knobs to unlock. To extend awning, simply engage and turn the hand crank. Awning arms foldout of the lead bar once it’s eye level and within easy reach. Arms adjust easily with flip lock controls. To close, just crank the opposite direction; the awning case locks shut automatically.

The awning will be 18 oz., 1000 denier for the best protection of the vinyl fabric. The vinyl will be white in color.

COMPARTMENT COMPONENTS DESCRIPTIONS

All interior compartment components will be fabricated as follows:

ADJUSTABLE SHELVING HARDWARE

Adjustable shelving hardware will be provided indicated in the numbered compartment list.

The shelving hardware will include a minimum of four (4) aluminum shelf tracs mounted vertically on compartment side walls or vertical partitions. There will be one (1) cast aluminum shelf bracket per vertical shelf trac to mount each shelf, tray, or adjustable storage module. Shelving hardware will be of heavy duty quality with unlimited vertical adjustment settings.

ADJUSTABLE SHELF/SHELVES

Adjustable shelf/shelves will be provided in exterior compartment as indicated in the numbered compartment list.

Shelves will be fabricated from 3/16" (.188) aluminum 3003H-14 alloy smooth plate with a 2" vertical flange along the front and rear edges. Shelves will be designed to be used with flanges either in the upward position to hold various equipment on shelf, or in the downward position for sweep-out shelf surface.

All shelves will be fully adjustable, from top to bottom of the compartment. There will be at least four (4) vertical mounting channels and shelving hardware, two (2) each side of compartment. Shelving hardware will be of heavy duty quality with unlimited vertical adjustment settings.

HEAVY DUTY 100% EXTENSION EQUIPMENT SLIDE - (1,000# CAPACITY)

Heavy duty slide-out equipment tray(s) will be provided in exterior compartment as indicated in the numbered compartment list.

Trays will be fabricated from 3/16" (.188) aluminum 3003H-14 alloy smooth plate. Trays will be built with a 4" high vertical lip with welded corners to form a box type tray surface. The tray will be mounted on a slide frame constructed of anodized aluminum extrusion(s). The frame will be assembled using stainless steel fasteners (no welds). Each slide will use a three extrusion rail design utilizing twelve to sixteen (12 - 16) urethane rollers. Each roller will contain two (2) precision roller bearings mounted in an aluminum hub with a molded on urethane cover. The rollers will not lose contact with the rail extrusion during operation of the slide unit. Each slide will have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release). The slide will lock in the closed and full extension positions. The slide will be rated for a maximum distributed load of 1,000# and a 500# end load.

HEAVY DUTY 70% EXTENSION EQUIPMENT SLIDE TRANSVERSE (1,000 # CAPACITY)

Heavy duty slide-out equipment tray(s) will be provided in exterior compartment as indicated in the numbered compartment list.

Trays will be fabricated from 3/16" (.188) aluminum 3003H-14 alloy smooth plate. Each tray will be built with a 4" high vertical lip with welded corners to form a box type tray surface. The tray will be mounted on a slide frame constructed of anodized aluminum extrusion(s). The frame will be assembled using stainless steel fasteners (no welds). Each slide will use a two extrusion rail design utilizing twenty (20) urethane rollers. Each roller will contain two (2) precision roller bearings mounted in an aluminum hub with a molded on urethane cover. Each slide will have two (2) cable operated, spring loaded latches operated by two (2) large hand openings with red pull handles (Pull to Release). The slide will lock in the closed and full extension position in two (2) directions. The slide will be rated for a maximum distributed load of 1,000# and a 500# end load.

HEAVY DUTY EQUIPMENT TRAYS - SLIDE OUT AND DOWN (250 # CAPACITY)

Heavy duty slide-out equipment tray(s) will be provided in exterior compartment as indicated in the numbered compartment list.

Trays will be fabricated from 3/16" (.188) aluminum 3003H-14 alloy smooth plate. Each tray will be built with a 4" high vertical lip with welded corners to form a box type tray surface. The tray will be mounted on a slide frame constructed of anodized aluminum extrusion(s). The frame will be assembled using stainless steel fasteners (no welds). Each slide will use a two extrusion rail design utilizing four (4) urethane rollers. Each roller will contain two (2) precision roller bearings mounted in an aluminum hub with molded on urethane cover. The roller will not lose contact with the rail extrusion during operation of the slide unit. Each slide will have a cable operated, spring loaded latch complimented by a large hand opening and red pull handle (Pull to Release). The slide will lock in the closed position. The slide will be rated for a maximum distributed load of 250#.

STORAGE MODULE

Storage module for long equipment will be provided as indicated in the numbered compartment list.

The module will be fabricated from 1/8" (.125") thick smooth aluminum. Exact size and layout will be approved prior to construction.

COMPARTMENT LIGHTING

OnScene Solutions LED Nightstik will be provided with 30 LEDs per 18” light section. The following are minimum lighting requirements:

- Full Height Compartments 54” Section (90 LEDs)
- Wheel well Compartments 36” Section (60 LEDs)
- Rear Rescue Compartment 54” Section (90 LEDs)
- Low Compartments 18" Section (30 LEDs)

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

12 VOLT ELECTRICAL SYSTEM

The apparatus will 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 will meet or exceed current NFPA 1901 Standards and SAE J1292 requirements.

System wiring will be stranded copper conductors of a gauge rated to carry 125% of the maximum current for which the circuit is protected. All wiring will 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 will correspond with schematics provided with the vehicle. Wiring will be mounted in high temperature protective loom secured to body with bolted on clips with nylon wire ties. The XLP wiring will 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 will be used to protect wire and wire looms. Wiring will be protected against heat, liquid contamination and damage. Electrical connections will be with double crimp water-tight heat shrink connectors. Wire nut, insulation displacement, or insulation piercing connections will NOT BE ACCEPTABLE.

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

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

A complete electrical wiring schematic of actual system will be provided with finished apparatus. Similar or generic type electrical schematics will NOT BE ACCEPTABLE.

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

12 VOLT DIAGNOSTIC RELAY CONTROL CENTER

The 12 volt power distribution will be conveniently located with easy access for service. All relays and circuit breakers will be plug-in type allowing for removal for repairs without necessitating soldering or tools. The sockets mounts for both the relays and circuit breakers will be of a design that permits the use of standard automotive type components. All circuit breakers will be reset type.

The 12 volt distribution panel will utilize printed circuit boards mounted in high strength enclosure. Each printed circuit board will be provided with twelve (12) heavy duty independent switching relays. Each relay will have the ability to be configured either normally open or normally closed and be protected by a 20 amp automatic reset breaker. Each circuit will be provided with a LED for visual diagnostic.

Power distribution panel will be located in apparatus body within a protected enclosure with removable or hinged cover.

ROCKER SWITCH PANEL

The control of the 12 volt equipment installed on chassis and body shall be centrally located in the cab. The individual rocker style switches shall be located on a separate electrical panel, complete with backlit name tags describing function of each individual switch. The back lighting shall have two (2) levels of intensity, low level lights activated when the vehicle lights or ignition switch is turned "On", and high level lights activated when individual switch is turned "On". An internally lighted rocker switch shall be furnished to the left of specified emergency lighting switches, and identified as "MASTER EMERGENCY SWITCH".

Switch circuitry shall be on a printed circuit board with solid state type lighting with a 100,000 hour life span.

The rocker switch panel shall be located in the cab center console for all master switches and emergency light switches.

CAB CONSOLE

A center cab console shall be provided and located in the center of the cab, on the floor just ahead of the seat. Console shall be as large as possible and fabricated of 1/8" smooth aluminum. A textured powder coat paint finish shall be provided for durability and finished appearance.

The console shall contain the 12 volt switches to operate the emergency warning equipment on the vehicle. There shall be room available for a siren control head or customer supplied radio.

The final design of console shall be determined by the Salinas Police Department at the pre-construction meeting.

MAP LIGHT

There shall be one (1) 24" goose neck 12 volt map light(s) furnished and installed in the cab. Exact location to be determined by the Salinas Police Department at the pre-construction meeting.

ELECTRICAL SYSTEM MANAGER

The apparatus 12 volt electrical system shall be provided with a system manager for:

- Monitoring chassis battery voltage
- Shedding pre-determined electrical circuits
- Sequencing pre-determined electrical circuits
- Automatically controlling chassis engine fast-idle
- Monitor master switch and parking brake applications
- Automatically control warning light modes ("Calling-For" and "Blocking Right of Way")
- Provide low voltage alarm
- Programmable control circuits
- Remote system status indicator panel

System manager shall perform all electrical functions required by current NFPA 1901 Standards.

BATTERY MONITORING

The system manager shall monitor the vehicle battery voltage. When electrical loads exceed the alternator output and the voltage drops, the load manager shall start shutting down electrical outputs. The system shall shut down only as many outputs required to maintain the system voltage. A special indicator to show different states of the electrical system by flashing at rate proportional to the battery discharge.

LOAD SEQUENCING AND SHEDDING

The system shall be capable of sequentially switching and shedding 12 volt loads. The Master light switch starts the sequential switch when it is turned "On". Likewise turning the Master Switch "Off" will sequentially de-energize the loads.

MAP LIGHT

There shall be one (1) 24" goose neck 12 volt map light(s) furnished and installed in the cab. Exact location to be determined by the Salinas Police Department at the pre-construction meeting.

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.

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 will be provided. This system will 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 behaviour where it will 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 will have a EMC FCC Class B Approval, **NO EXCEPTIONS**.

SHORE POWER PLUG

One (1) 120 volt, 20 amp shore power receptacle plug with weather resistant snap cover will be furnished and installed.

§ The shorepower plug receptacle will be located adjacent to the Driver's door.

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 provided in chassis cab. The 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
§ Step is not fully stowed

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

An audible alarm shall be provided for the door ajar light.

BACK-UP ALARM

The body manufacturer shall furnish and install one (1) 107 dB(A) electronic back-up alarm. Back-up alarm to actuate automatically when the transmission gear selector is placed in reverse.

REAR VIEW CAMERA

There shall be one (1) rear view camera system furnished and installed on the apparatus. The system shall include one (1) color camera installed on the rear vertical face of the body. The image shall be displayed on a 5.6" color flat panel display located in the Driver's range of view.

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 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 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.

STEP LIGHTS / GROUND LIGHTS

There shall be two (2) OnScene Solutions 9" LED Nightstik light(s) installed on the apparatus. Lights 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 will be 15 LEDs per 9” light. The light stick will be rated at 100,000 hours of service. Each light stick will be provided with a 5 year free replacement warranty.

The location of each light shall be determined at the preconstruction meeting.

LICENSE PLATE LIGHT

One (1) Arrow #437 chrome plated license plate light shall be installed on the rear of the apparatus body. License plate light shall be wired to the headlight circuit of chassis. Nutsert inserts shall be provided for license plate installation.

SIDE SCENE LIGHTS

There shall be four (4) 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) switches shall be provided, 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 will be switched at the 12 volt control panel in the cab.

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

TRAFFIC DIRECTIONAL LIGHT

One (1) Whelen TAM85, 47" eight (8) Super LED light, traffic directional warning device with 30' control cable will be located on upper rear body. The control head will be located in the cab within easy reach of Driver.

§ The traffic directional light will be surface mounted on upper rear body.

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 will be one (1) Whelen Edge FN60QLED LED 60" lightbar permanently mounted to the cab roof.

The lightbar configuration (streetside to curbside) will be:

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

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

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

Z-LIFT

The Whelen lightbar will be mounted onto a Command Light Z-Lift model ZL375-WH. This will elevate the lightbar 40" to allow for better visibility of the lightbar.

ZONES B AND D - SIDE WARNING LIGHTS

UPPER REAR CORNER WARNING LIGHTS

There will be two (2) Whelen 900 series (9" x 7") Linear Super-LED lights (90RR5FRR) provided, one (1) each side. Each light will have a clear lens, blue LED's and chrome flange. The lights will be switched at the 12 volt control panel in the cab.

ZONE C - REAR WARNING LIGHTS

There will be two (2) Whelen 900 series (9" x 7") Linear Super-LED lights provided on the rear of the body, one (1) each side. The street side light will have a clear lens with a red LED's and a chrome flange. The curb side light will have a clear lens with blue LED's and a chrome flange. The lights will be switched at 12 volt control panel in cab.

There will be two (2) Whelen 700 series (7" x 3") Linear Super-LED lights provided on the rear of the body, one (1) each side below the 900 series lights described above. The street side light will have a clear lens with blue LED's and chrome flange. The curb side light will have a clear lens with red LED's and a chrome finished flange. The lights will be switched at 12 volt control panel in cab.

LOWER LEVEL WARNING LIGHTS

ZONE A - FRONT WARNING LIGHTS

There will be two (2) Whelen 400 series (4" x 3") Linear Super-LED lights provided, one (1) each side. The street side light will have a clear lens with red LED's and chrome finished flange. The curb side light will have a clear lens with blue LED's and a chrome finished flange. The lights will be switched at 12 volt control panel in cab.

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

There will be two (2) Whelen 400 series (4" x 3") Linear Super-LED lights provided, one (1) each side. The street side light will have a clear lens with red LED's and chrome finished flange. The curb side light will have a clear lens with blue LED's and a chrome finished flange. The lights will be switched at 12 volt control panel in cab.

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

There will be two (2) Whelen 400 series (4" x 3") Linear Super-LED lights provided, one (1) each side. The lights will have a clear lens, blue LED's and a chrome finished flange. The lights will be switched at 12 volt control panel in cab.

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

There will be two (2) Whelen 600 series (6" x 4") Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light will have a clear lens, red LED and chrome finished flange. The lights will be switched at 12 volt control panel in cab.

ZONE C - REAR WARNING LIGHTS (LOWER REAR CORNERS)

There will be two (2) Whelen 600 series (6" x 4") Linear Super-LED lights (60R02FRR) provided, one (1) each side. Each light will have a clear lens, streetside to have blue LED and curbside to have red LED and chrome finished flange. The lights will be switched at 12 volt control panel in cab.

LINE VOLTAGE SYSTEM

ONAN PTO GENERATOR

The apparatus shall be equipped with a Onan "Protec AC" PTO generator system with a capacity of 20,000 watts at 120/240 volt, 144/48 amps, three 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 will 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 rocker switch and red pilot light 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 SPEED CONTROL

The apparatus will be equipped with an InPower ETM, Electronic Throttle Module, to maintain a stable cycle output from generator. The ETM will activate after the vehicle parking brake is applied and the transmission selector is placed in park.

GENERATOR MONITORING PANEL

To properly monitor the generator performance and load demand during operation, the generator installation will be equipped with a full instrument monitor panel.

This unit will be manufactured by FRC model FROG-D-3P-D and mounted next to the circuit breaker panel. The display case will be waterproof and have dimensions not to exceed 4 1/4" high by 4 1/4" wide by 3 1/4" deep.

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

§ Generator frequency in hertz
§ Line voltage, phase to neutral or phase to phase, in volts
§ Line current in amperes

Individual line current and voltage will be displayed at the push of a button or set to continuously scroll.

The program will support the accumulation of elapsed generator hours and the monitoring of engine oil temperature. Generator hours and oil temperature will be displayed at the push of a button.

CIRCUIT BREAKER BOX

The circuit breaker box shall be a 3-phase Cutler Hammer or equal with cover, and circuit breakers rated to the wire size and load demand.

SHORE POWER RECEPTACLE

One (1) 30 ampere, 120 volt, single phase shore power receptacle(s) will be provided on the apparatus to provide an external power source for apparatus electrical circuits. A matching 30 ampere plug will be shipped with the apparatus for Salinas Police Department supplied external power source wiring.

Shore power shall be wired to the specified 120 volt, 20 ampere electrical circuits on apparatus (maximum four (4) circuits). Circuits will be provided with circuit breaker protection with either generator or shore power providing power.

To protect both the generator or external power source from backfeed, two (2) 120 volt, 30 ampere, 4PST auxillary contact with safety interlock relay will be installed. Relay will cut-off the connection between the generator supply circuit and device circuits when shore power is connected.

SHORE POWER PLUG

One (1) Kussmaul 30 amp "Super Auto-Eject" shore power plug(s) will be furnished and installed. The shore power connection will automatically disengage from vehicle when chassis ignition is engaged.

§ The Auto-eject outlet cover shall be blue.

§ The shorepower plug receptacle will be located adjacent to the Driver's door.

OUTLETS AND CIRCUITS

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

§ Two (2) 120 volt exterior outlets, one (1) each side rear of body.

- The receptacle will be 20 amp, straight-blade (NEMA 5-20R).

OUTLET STRIP

There shall be one (1) 120 volt outlet strip approximately 2' long with straight blade household type outlets provided in the rear cab work area. A 15 ampere circuit breaker protection shall be provided for each strip. Exact location shall be specified by the Salinas Police Department at the pre-construction meeting.

INVERTER

The apparatus will 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 three (3) deep cycle batteries provided as the 12volt power source for the onboard inverter. The batteries will incorporate Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance. The batteries will be mounted in a stainless steel pan with hold down provisions for mobile application.

INVERTER BATTERY SUPPLY - VSR

There shall be one (1) Voltage Sensative 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 (eg 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.

120 / 240 VOLT SCENE LIGHTING

Two (2) Akron Extenda-Lite, model E500-POD-SW, quartz tri-pod floodlight(s) will be provided. The telescoping pole and leg braces will be heavy-duty anodized aluminum for extreme strength and durability. The fully extended tripod system shall exceed a height of 11' and be less than 6' when collapsed. Wiring will extend from the pole bottom with a retractile cord.

The lamphead will have one (1) quartz halogen 500 watt 120 volt bulb. The bulb will draw 4.5 amps and generate 16,850 lumens. The bulb will be accessible through the front. The lamphead angle of elevation will be adjustable at a pivot in the mounting arm and the position locked with a hand knob.

A weatherproof on-off toggle switch will be mounted on the lamphead.

A wire guard will be furnished to protect the lamphead glass.

A tripod truck mount bracket set will be provided for each light. Each set will include a lower base plate, an upper lock with a quick release spring loaded locking pin.

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 two (2) weatherproof, 1,500 watt, 240-volt quartz halogen lights and four (4) 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) will be mounted on the roof of the apparatus body.

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.