



MAINTAINER CUSTOM BODIES

PROPOSAL

2017 Rescue 18' Stock Unit M279

BID SPECIFICATIONS

MAINTAINER CUSTOM BODIES SPECIFICATION NEW ALL-ALUMINUM EIGHTEEN (18) FOOT RESPONDER BODY WALK-AROUND RESCUE

The apparatus body shall be manufactured as per the following specifications:

BODY DESIGN:

The body shall be modular in design, capable of being removed and remounted on a new chassis. Body integrity and strength to be independent of chassis mounting. Body is specifically designed to enable custom layout of interior compartments.

BODY MATERIALS:

The following shall be the minimum acceptable materials, gauge, and finish used:

Aluminum Sheeting - All exterior panels shall be 5052-H32 aluminum of .125" thickness.

Aluminum Diamond Plate - All diamond plate shall be 3003-H14 aluminum of .125" thickness.

Body Mounting - All body mounting bolts and/or clips to be of hardened steel.

Exterior Fasteners - All exterior nuts, bolts, and screws shall be stainless steel.

CORROSION PROTECTION:

Electrolysis Corrosion Kontrol (ECK) shall be used to prevent dissimilar metal corrosion. ECK shall be used for door latches, door hinges, trim plates, fenderettes, etc. ECK shall be applied to every external fastener hole prior to component mounting.

BODY SUPER-STRUCTURE:

The body super-structure shall be constructed of square aluminum extrusion. All framing and supports shall be welded by continuous weld using an inert gas automatic welder. Completion of super-structure creates a fully enclosed cage. This construction technique provides high strength and durability and enables custom design of interior compartments.

The floor structure, built on 16-inch centers, shall be constructed of 2.0" x 2.0" x .250" 6063-T52 alloy square aluminum extrusion. Floor structure shall be a fully welded grid design for maximum strength and durability. The floor structure shall be welded and gusseted to the side-wall structure. Two (2) mounting rails of full-length 1.0" x 3.0" 6061-T6 alloy solid aluminum flat-bar shall be welded to the under-side of the floor-structure. Mounting rails to align with the chassis frame rails for mounting of the body to the chassis.

The side-wall structure, built on 16-inch centers, shall be constructed of 2.0" x 2.0" x .125" 6063-T52 alloy square aluminum extrusion. Wall structure shall be a fully welded grid design for maximum strength and durability. The side-wall structure shall be welded and gusseted to the floor structure.

The roof structure shall be constructed of 2.0" x 2.0" x .125" 6063-T52 alloy aluminum extrusion in a lateral pattern, maximum 20-inch spacing. The roof structure shall be welded to the side-wall structure.

All side walls shall be surfaced using a minimum .125" aluminum sheet, fully welded and bonded to body super-structure. The body roof shall be surfaced using a minimum of .125" aluminum diamond plate.



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A structural body impact rail shall be welded to the apparatus body structural members. This impact rail shall be composed of 6063-T52 alloy extruded aluminum. It shall receive the body side sheet by means of a groove, which runs continually fore to aft of the module for maximum strength and impact protection.

BODY FLOOR CONSTRUCTION:

Floor sub-frame consists of 2.0" square aluminum tubing running transverse to the chassis frame rails. Two (2) mounting rails of full-length 1.0" x 3.0" 6061-T6 alloy solid aluminum flat-bar shall be welded to the underside of the floor-structure. Mounting rails to align with the chassis frame rails for mounting of the body to the chassis.

The sub-floor belly-pan shall be fabricated from .125" aluminum sheeting and welded to the floor sub-frame.

UNDERCOATING:

The underside of the vehicle including all under-structure metal work shall be sprayed with black automotive undercoating. This undercoating shall aid in preventing corrosion and will provide sound and vapor barriers to the aluminum body structure work. Undercoating will not be applied within 12" of the exhaust system.

BODY MOUNTING:

The body shall be mounted to the chassis frame at a minimum of eight (8) locations, four (4) on each side. Neoprene pads shall be furnished and installed between the body and mounts to prevent electrolysis and to minimize noise transfer.

The U-bolts and/or clips shall secure the 1" x 3" solid aluminum flat-bar of the floor sub-frame to the chassis frame.

BODY FRONT SHEETING:

The entire front of the apparatus body shall be constructed of .125" smooth aluminum sheeting and shall be painted.

STONE GUARDS:

The front body corners shall have .125" aluminum diamond plate protective guards. The stone guards shall be bolted to the body and provide coverage at a minimum of 24" high from the base of the body.

BODY REAR SHEETING:

The rear body sheet shall be fabricated of .125" smooth aluminum sheeting. The area under the rear door and above the rear step shall include an overlay of .125" aluminum diamond plate. This will serve as a kick plate to protect the painted surfaces.

BODY ROOF SHEETING:

The body roof sheet shall be fabricated of .125" aluminum diamond plate.

BODY CORNERS, EXTRUDED:

The exterior body corners, including roof perimeter, shall be covered with rolled extruded aluminum, minimum 2.78" radius, to protect from physical and environmental damage. No visible fasteners shall be allowed.

APPARATUS BODY PAINT FINISH:

The final finish of the apparatus shall conform to fire apparatus standards, exhibiting excellent gloss and color retention properties.

Preparation: Since the removal of all contaminants and oxidation is essential to the final effect of a finish system, the apparatus shall be pre-cleaned with wax and grease remover and towel dried to evaporation. A



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10-step standard body preparation shall be completed. When the substrate is prepared, the entire body shall be cleaned by washing again with wax and grease remover and towel dried.

Pre-treat ANF Primers: The pre-treat and primer applications shall be made in two (2) independent steps. An application of a combined pre-treat/primer product shall not be allowed as a substrate. The prepared substrate shall be pre-treated with Acid Curing 2 component primer to provide corrosion protection and create an adhesive bond between the substrate and the surface applications. To enhance adhesion and topcoat gloss, a two-component urethane primer shall be applied. All the primed surfaces shall be sanded smooth, thus removing all texture and surface imperfections and creating a finish base that will meet the rigid requirements of the fire and emergency services.

Top Coats: Paint shall be PPG FBCH. Two (2) coats urethane base coat shall be applied according to paint manufacturer specifications. After the base coats have cured properly, two (2) coats of a high solids urethane clear shall be applied. All surface imperfections shall be removed by buffing and polishing.

REFLECTIVE STRIPE:

A four inch (4") white "Scotchlite" stripe will be provided. Location and application details to be determined at pre-construction meeting.

REAR BODY CHEVRONS:

"Diamond Grade" Chevron reflective striping, six inch (6") wide, shall be applied to at least 50% of the entire rear body panel. The chevron style striping shall be applied in an inverted "V" pattern at a 45-degree angle from the tailboard to the upper centerline of the rear panel. The stripes shall alternate red reflective, yellow reflective.

CAB DOOR REFLECTIVE TRIM:

White reflective trim shall be installed on the inside of each cab door. The reflective trim shall be installed as to not be seen or disruptive from the inside of the cab while the doors are closed but shall provide additional notification to oncoming traffic when the door is open. This trim shall meet NFPA 1901.

RUB RAILS:

A two (2) part impact and rub rail system shall be used for body side protection. A polished aluminum rub rail .75" thick x 3" wide shall be bolted to the body "impact" rail to aid in collision protection. The outside vertical edges shall be chamfered for an aesthetic appearance and to reduce the chance of personnel injury.

Black Scotchlite reflective striping to be applied to the recessed center of rub rail to provide additional body side illumination. An additional four (4) reflectors to be installed, two (2) each side of body.

DRIP RAILS:

There shall be polished aluminum rain gutters installed over all side and rear compartments and any entry doors. The rain gutters shall be fastened to the body and removable in case of damage. Rain gutters that are an integral part of the roof radius will not be acceptable due to the difficulty in replacing due to damage.

WHEEL WELL LINERS:

Aluminum inner liners shall be provided inside of both rear wheel wells.

WHEEL WELL SURROUND PANELS PAINTED:

The body panels that surround the wheel wells shall be painted with no trim overlaid on the body panel.



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FENDERETTES:

The wheel well openings shall be trimmed with polished stainless steel fenderettes, bolted into place.

BODY COMPARTMENT CONSTRUCTION:

The body compartment shall be fully enclosed, all seams fully sealed. Compartment walls shall be covered with .125" aluminum sheet. Wiring channels shall be provided where necessary and these shall be bolted into place for ease of access. Each compartment floor shall be covered with .188" aluminum sheet. Each body compartment shall be coated with light gray Zolatone surfacing material.

INTERIOR ROOF PANEL & UPPER CORNER COVER:

The interior roof shall be completely sheeted with a .125 aluminum panel. In addition the corner space between the front, rear and sidewalls will incorporate a corner cover to protect any wiring in all of the adjacent areas.

EXTERIOR COMPARTMENT VENTING:

Each compartment shall have a removable louvered panel with a replaceable filter.

ROOFTOP COMPARTMENTS:

Rooftop compartments shall be provided full length on each side of the roof. Interior dimensions of four (4) identical compartments to be a minimum of 73.0" L x 29.0" W x 22.0" D. These compartments shall be an integral part of the body. Each compartment shall be provided without internal dividers and include an aluminum diamond plate doors and a full length stainless steel hinge, held in the open position with gas struts. The interior of each compartment shall be smooth sheet aluminum.

The roof top compartments shall be adequately illuminated. There shall be a walkway recessed between the compartments on the roof of the apparatus body. Walkway shall be overlaid with aluminum diamond plate with a non-slip surface. Walkway shall be illuminated by recessed lighting. A control switch for the walkway lights shall be provided at the rear of the body. A step approximately 9" deep constructed of stair tread material shall be provided at the rear of the body.

FRONT ROOFTOP COMPARTMENT:

There shall be an open-air rooftop compartment provided at the front of the body between, and integrated with, the left and right side roof compartments. This compartment shall be an integral part of the body and include drainage to the ground. The interior of the compartment shall be smooth sheet aluminum. Compartment to be open to the environment for the future mounting of generator and/or light tower. In the event that the compartment is not used for mounting of generator and/or light tower then the compartment will include a removable vinyl covering.

ZICO QUIC-LADDER:

Zico Model 3096 ladder, with a two-rung fold-down section, shall be mounted on the rear of the body to provide access to the roof. The ladder incorporate 1.25" heavy-walled aluminum handrails, covered in rough grip black powder coat. Ladder rungs, 3" deep non-skid in compliance to NFPA 1901-09 requirements for slip resistance and static load.

LADDER STEP LIGHT:

One (1) Whelen PELCC LED step light shall illuminate the rooftop ladder step area. The light(s) shall be activated when ladder is deployed.

BODY HANDRAILS:

Handrails shall be 1.25" extruded aluminum tubing with deep longitudinal grooves and raised knurled patterned knobs to allow for a non-slip gripping surface. Each handrail shall have heavily chrome plated end



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stanchions with stanchion to body gaskets to prevent dissimilar metal corrosion. Each handrail shall be bolted into place for ease of removal or replacement.

A handrail is to be installed on each side of the RR1 compartment. An additional handrail to be installed on the top of the roof storage compartment on the ladder side of the apparatus.

ROLL-UP DOOR CONSTRUCTION:

The compartments shall be equipped with custom-built Dover roller shutter doors, manufactured and assembled in the United States.

Door Construction-Smooth: The doors shall be constructed of minimum 6063-T5 aluminum alloy, double walled hard anodized with a minimum .040 inch wall thickness. The interlocking ball and socket joint design of the door slats shall include a seal to eliminate moisture penetration. Every slat must have overlapping end clips to prevent slat from moving side-to-side and binding the door.

Door Finish-Satin: The roll-up doors shall be finished anodized Satin.

Key Lock: Compartment door handles shall be equipped with a keyed cylinder lock assembly.

Operating Components: A full width lift bar shall secure each door. Each roll-up door shall have a three inch or less diameter counterbalance operator drum to assist in lifting the door and to prevent accidental closing.

Compartment Sill Plate: A full width stainless steel door sill shall be installed protect the lower door opening area and improve appearance along the bottom of the compartment opening. The door sill configuration shall have a raised peak along the rear of the sill to reduce water intrusion under when in the closed position.

Door Handle and Latching-Handle Bar: The latch bar shall consist of a full width .875" diameter stainless steel tube handle and 2.0" hand clearance between handle and the door surface.

Compartment Lighting Switch: The compartment lights and door-ajar light system shall be activated by a magnetic switch assembly. If the door is not properly closed, it shall activate the "Door Open" light in the cab.

ADJUSTABLE SHELF CHANNEL:

Vertically mounted Uni-Strut channel shall be provided and installed in all exterior compartments for the installation of infinitely adjustable shelving and trays. The channels shall be of such design to allow square type spring loaded, self-tightening nuts to be attached inside of the channel.

EXTERIOR COMPARTMENT SPECIFICATIONS:

DRIVER'S SIDE:

The front driver's side compartment, L1, shall have a clear opening of 57.5" H x 44.0" W x 26.0" D with a roll-up door. The compartment shall be transverse.

The front driver's side compartment, L2, shall have a clear opening of 57.5" H x 44.0" W x 26.0" D with a roll-up door. The compartment shall be transverse.

The compartment over the rear wheels on the driver's side, L3, shall have a clear opening of 29" H x 56.0" W with a roll-up door. The compartment shall be transverse.

The driver's side compartment behind the rear wheels, L4, shall have a clear opening of 51.5" H x 43.5" W x 26" D with a roll-up door.



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OFFICER'S SIDE:

The front officer's side compartment, R1, shall have a clear opening of 57.5" H x 44.0" W x 26.0" D with a roll-up door. The compartment shall be transverse.

The front officer's side compartment, R2, shall have a clear opening of 57.5" H x 44.0" W x 26.0" D with a roll-up door. The compartment shall be transverse.

The compartment over the rear wheels on the officer's side, R3, shall have a clear opening of 29.0" H x 56" W with a roll-up door. The compartment shall be transverse.

The officer's side compartment behind the rear wheels, R4, shall have a clear opening of 51.5" H x 43.5" W x 26" D with a roll-up door.

REAR:

There shall be a compartment located at the rear of the body, RR1, which shall have a clear opening of 46" H x 42" W x 36" D x 47 3/8" D with a roll-up door.

COMPARTMENT L1 SHALL CONTAIN:

FLOOR EXTENSION:

Floor height at the area over the frame rails to be continued on the same plane to the outer body side-wall. Floor extension shall be fabricated of 3/16" smooth aluminum in the form of an inverted box with a 2" lip to create additional support strength.

ADJUSTABLE SHELF:

One adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

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FLOOR EXTENSION:

Floor height at the area over the frame rails to be continued on the same plane to the outer body side-wall. Floor extension shall be fabricated of 3/16" smooth aluminum in the form of an inverted box with a 2" lip to create additional support strength.

ADJUSTABLE SHELF:

One adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

TRANSVERSE COMPARTMENT L1/R1 SHALL CONTAIN:

DUAL DIRECTION SLIDE TRAY:

A dual direction slide tray shall be mounted in the transverse compartment. The tray shall be fabricated from 3/16" DA finished aluminum and have a 3" lip on all four sides. Tray shall be mounted on 1,000 pound capacity SlideMaster slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position.



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COMPARTMENT L2 SHALL CONTAIN:

ADJUSTABLE SHELF:

One adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT R2 SHALL CONTAIN:

ADJUSTABLE SHELF:

One adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

TRANSVERSE COMPARTMENT L2/R2 SHALL CONTAIN:

DUAL DIRECTION SLIDE TRAY:

A dual direction slide tray shall be mounted in the transverse compartment. The tray shall be fabricated from 3/16" DA finished aluminum and have a 3" lip on all four sides. Tray shall be mounted on 1,000 pound capacity SlideMaster slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position.

COMPARTMENT L3 SHALL CONTAIN:

ADJUSTABLE SHELF:

One adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT R3 SHALL CONTAIN:

ADJUSTABLE SHELF:

One adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT L4 SHALL CONTAIN:

ADJUSTABLE SHELVES:

Two (2) adjustable shelves shall be fabricated and installed. The shelves shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

COMPARTMENT R4 SHALL CONTAIN:

ADJUSTABLE SHELVES:

Two (2) adjustable shelves shall be fabricated and installed. The shelves shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.



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COMPARTMENT RR1 SHALL CONTAIN:

ADJUSTABLE SHELF:

One adjustable shelf shall be fabricated and installed. The shelf shall be constructed of 3/16" DA finished aluminum, with a 2" lip on all four sides. The shelf shall be vertically adjustable by mounting to the Uni-Strut channels provided.

SLIDE OUT TRAY:

A slide out tray shall be fabricated and installed in the compartment. The tray shall be constructed from 3/16" smooth aluminum and have a 3" lip on all four sides. The tray shall have a capacity of 500 pounds and shall be mounted on SlideMaster slides. An IMS push/pull red ball latch on the front of the slide shall lock the tray in the "in" or "out" position.

SCBA WHEEL WELL STORAGE:

There shall be four (4) individual SCBA bottle storage areas provided in the rear wheel well area, One (1) on each side of the wheel well, and on both sides of truck. The air bottle compartments shall be in the form of a round tube and of adequate depth to accommodate air bottles. Each storage area shall have a rubber liner on the sides and bottom and a drain hole. A strap shall be installed in each cylinder tube to retain the cylinder in the event of a collision. A Cast Products polished aluminum hinged door with a latch shall be provided for each compartment.

SCBA DOOR SWITCHING:

Each door to be equipped with a switch that is tied to the cab console "Door Open" warning light.

ELECTRICAL SYSTEM - BASE:

All wiring and electrical equipment shall meet N.F.P.A. 1901 and SAE standards. All lighting and reflectors shall meet Federal Motor Vehicle Standards.

A master warning device switch that energizes all of the optical warning devices shall be provided.

The warning system on the apparatus shall be capable of two separate signaling modes during emergency operations. One mode shall signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right of way. The other mode shall signal that the apparatus is stopped and is blocking the right of way.

Switching shall be provided that senses the position of the park position of an automatic transmission. When the master warning system switch is closed, and the parking brake is released or the automatic transmission is not in park, the warning devices signaling the call for right of way shall be energized. When the master optical warning system switch is closed, and the parking brake is on or the automatic transmission is in park, the warning devices signaling the blockage of right of way shall be energized. The system shall be permitted to have a method of modifying the two signaling modes.

The warning devices shall be constructed or arranged to avoid the projection of light either directly or through mirrors into any driving or crew compartment(s).

Electromagnetic interference suppression shall be in accordance with SAE J551, performance levels and methods of measurement of electromagnetic radiation from vehicles and devices (30-1000 MHZ).

Wiring grommets shall be provided through all panels for automotive type wiring with coated automotive type loom. Insulation shall be in accordance with SAE J1128, low tension primary cable, type SXL or GXL, and wired to SAE J1292, Automobile, Truck, Truck-Tractor, Trailer and Motor Coach wiring for such loading at the



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potential employed. All wiring installed by the Apparatus Manufacturer shall be stranded copper alloy conductors of a gauge rated to carry 125 percent of the maximum current for which the circuit is protected.

Voltage drops in all wiring from the power source to the using device shall not exceed 10 percent. Wiring shall be color and function coded the entire length with insulated bolted-down type hold-down clamps and mechanically secured connections. Overall covering of conductors shall be 280 degrees F. Minimum flame retardant, moisture resistant loom.

Hydraulic lines, air system tubing, control cables, and electrical lines shall be clipped to the frame or body structure of the apparatus and shall be furnished with metal protective looms or grommets at each point where they pass through body panels or structural members. Where any through-the-frame connector is provided, any such connector and wiring shall also be protected from shear or tear.

Wiring shall be provided with properly rated low voltage over current automatic resetting protective devices.

Such devices shall be readily accessible and protected against excessive heat, damage and water spray. Switches, relays, terminals, and connectors shall have a direct current rating of 125 percent of maximum current for which the circuit is protected. All electrical components shall be protected against corrosion, heat, vibration and moisture.

There shall be a minimum of two (2) spare wires installed in each loom running to the body of the vehicle.

ELECTRICAL MULTIPLEX SYSTEM:

There shall be a Weldon Programmable Multiplexed Electrical System installed. The multiplex system shall consist of all solid-state components contained inside aluminum extrusions referred to as nodes. Each node shall consist of twenty-four (24) output channels and twenty-four (24) input channels. All inputs and outputs shall be configured into a scale-able electrical harness utilizing Duetsche connectors. The nodes must be waterproof and not require special mounting requirements.

The system is expandable and shall be capable of performing the following functions: load management sequencing, switch loads, receive digital and analog signals, perform and report diagnostics and continuously report vehicle status.

Data shall be reported in "Real Time" and shall be displayed through a Vista V-MUX user interface display. All functions to be controlled via push buttons at the screen.

The placement of nodes throughout the apparatus enables a reduction in wire harness bundles, elimination of redundant harnesses and separate circuit boards, relay and circuit breakers, electrical hardware, separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

The complete multiplex system shall eliminate the need for the following separate components or devices: load manager, load sequencer, warning lamp flasher, headlamp flasher, door open notification system, interlock modules, separate volt meter, ammeter and temperature monitor.

POWER DISTRIBUTION QUARTERS:

The vehicle shall be equipped with a sealed Power Distribution Quarters (PDQ) to provide a protected environment for the electrical systems interface to the apparatus body. The PDQ shall have a service access door that is removable via two (2) recessed positive type door latches. 12v lighting shall automatically activate with the removal of the access door. The compartment and access door to be fabricated from 5052-H32 aluminum alloy, finished to match with interior compartments, and include venting for heat dissipation.



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The design shall provide a standardized platform for reliable and repeatable hard-wired or multiplexed electrical systems that can be documented and easily serviced and maintained. The electrical distribution

panel shall incorporate wiring harnesses that meet or exceed NFPA standards while providing a central location for body wiring harnesses, as well as a centralized point for chassis harness interface. All harnesses entering and exiting the distribution panel shall pass through a protected wiring channel directly into the PDQ to eliminate connectivity issues common with bulkhead connectors. Internal wiring terminals shall be machine or torque-tool crimped to the wire ends and splices shall be protected with heat shrink material.

The distribution panel, including all circuits, shall be documented and made part of the records available at time of delivery.

BATTERY CONTROL SYSTEM, IGNITION SWITCH:

Body electrical to be provided via a chassis master switch.

BATTERY CHARGER:

A Kussmaul Auto Charge Low Profile LPC 20 Series Model #091-207-12-194B shall be installed for a single battery system. The charger shall include a Model #091-194B-IND "Status Center" exterior digital display.

Charger to be built in an aluminum enclosure and include an auxiliary 15-amp output circuit with power source selector for operating accessory loads, and front panel connections for a remote display. Charger output shall pose no interference with other electronic systems on the vehicle.

The charger shall have the following operational specifications: 120 volts AC input at 7 amps, 12 volts DC output at 20 amps, Dimensions of: 3.3" high x 6.8" wide x 13.25" deep and weighs 7 lbs.

KUSSMAUL 120-VOLT AUTO EJECT:

Kussmaul Auto Eject, model 091-20WP-120, 120-volt, 20-amp, automatic shoreline disconnect will be provided for the on board, 120-volt battery charging system. The dis-connect will be equipped with a NEMA 5-20P male receptacle that will automatically eject the shoreline when the vehicle starter is energized. The connection will be equipped with a weatherproof cover. A label will be provided indicating voltage and amperage ratings.

COMPARTMENT STRIP LIGHTING:

Dover LED, SMD 5050, modular compartment lighting shall be installed all compartments to provide even, full height lighting for the compartment without interference from shelves or equipment. Protected strip to be installed on both sides of the opening and shall run the full height of the compartment. Lights shall be activated by a magnet switch when opening the compartment door.

This lighting system to be 12V D.C. solid state operation rated at 50,000 hours, waterproof, shock, and vibration resistant, white color.

"DOOR OPEN" WARNING LIGHT:

A red LED warning light, Weldon 1500 Series, shall be installed on the cab console and shall flash when any compartment door or entry door is open.

ELECTRONIC SIREN:

A Whelen Siren Amplifier model # 295SLSA shall be provided and installed in the cab console. The siren amplifier shall incorporate a 12V/200W siren installed on an aluminum alloy chassis covered by a black polycarbonate powder coated housing for maximum protection. The 295SLSA shall have the ability for either



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100 or 200-watt output. The front overlay shall be made of velvet Lexan™ with a matte finish. The lettering and artwork on the overlay shall be illuminated with adjustable backlighting of soft LED non-glaring green. The operating controls will consist of a power switch, manual button, PA volume switch, horn button, and rotary switch. The 295SLSA PC board shall have input polarity protection, output short circuit protection. The siren amplifier shall include a 20A/32V fuse. The solid state siren speaker amplifier shall be vibration resistant. The microphone shall be hardwired to the 295SLSA.

SPEAKER SYSTEM:

There shall be one (1) Cast Products 3800 Series siren speaker recessed into the front bumper. Speaker to be polished aluminum, 100 watt, wired to the siren head.

FRONT LIGHT BAR:

Whelen Edge Ultra Freedom F4N0VLED light bar shall be installed on the vehicle. The light bar shall be 60"

long and include two (2) front corner red linear LED's, four (4) front linear LED's, two (2) red and two (2) white and two (2) rear corner red linear LED's.

FRONT LOWER WARNING LIGHTS:

There shall be Whelen M2RC series Super LED lights with chrome bezels installed on the front lower area of the cab. Clear lens with red LED.

SIDE UPPER WARNING LIGHTS:

There shall be Whelen M9RC series Super LED upper warning lights with chrome bezels installed. Clear Lens with red LED.

Two (2) warning lights shall be mounted on the left upper body panel.

Two (2) warning lights shall be mounted on the right upper body panel.

SIDE LOWER WARNING LIGHTS:

There shall be Whelen M2RC series Super LED lower warning lights with chrome bezels installed on the vehicle. Clear lens with red LED.

Two (2) lights installed, one (1) on each front fender of the chassis.

Two (2) lights installed, one (1) above each rear wheel well.

Two (2) lights installed, one (1) at each side of bumper tail.

REAR UPPER WARNING LIGHTS:

There shall be Whelen M9RC series Super LED rear upper warning lights with chrome bezels installed on the vehicle.

Two (2) lights shall be mounted, one (1) in each upper rear corner.

Color shall be Red LED's with a Clear lens.

SIDE BODY SCENE LIGHTS:

There shall be two (2) Spectra surface mount LED scene lights, model SPA260-Q20. One (1) light to be installed in the center upper portion on both sides of the body.

The lamphead shall have sixty (60) ultra-bright white LEDs, 56 for flood lighting and 4 to provide a spot light beam pattern. It shall operate at 12/24 volts DC, draw 13.8/6.9 amps, and generate 20,000 lumens of light. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamp head shall be powder coated.

The lights shall be switched individually at the cab console.



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REAR BODY SCENE LIGHTS:

There shall be two (2) Whelen M9 series Super LED clear scene lights with chrome bezels installed. Two (2) lights shall be mounted on the rear upper body. The scene lights shall be controlled at the cab console.

LED TELESCOPING SCENE LIGHTS:

Fire Research Spectra LED Scene Light model SPA530-SW-A side mount push up telescopic light shall be installed. The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall rotate 360 degrees. The outer pole shall be a grooved aluminum extrusion and qualify as an NFPA compliant handrail. The pole mounting brackets shall have a 2 3/4" offset. Wiring shall extend from the pole bottom with a 4' retractile cord.

Fire Research Spectra LED Scene Light model SPA100-Q15 lamphead shall be provided. The lamphead mounting arm shall terminate in 3/4" NPT threads. Wiring shall extend from the lamphead mounting arm

bottom. The lamphead shall have sixty (60) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spot light beam pattern. It shall operate at 12/24 volts DC, draw 13/6.5 amps, and generate 15,000 lumens of light. The lamphead shall have a unique lens that directs flood lighting onto the work area and focuses the spot light beam into the distance. The lamphead angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamphead shall be no more than 5 3/8" high by 14" wide by 3 3/4" deep and have a heat resistant handle. The lamphead and mounting arm shall be powder coated. The LED scene light shall be for fire service use.

The telescoping lights shall be mounted as follows: One (1) on the front, curb-side of the body, and one (1) on the rear, street-side of the body.

TRAFFIC ADVISOR LIGHT BAR:

A Whelen Traffic Advisor light bar, model TAL85, shall be installed on the rear of the unit. This is a low profile, 8 lamp LED traffic director which is 46 7/8" long. A control box shall be mounted in the cab.

REAR TURN SIGNAL, BACK-UP AND BRAKE LIGHTS:

The rear turn signal, backup and stop/tail lights shall be a Whelen M6 series LED. The top brake light shall be a Whelen M6 series LED red combination stop/tail light. The rear turn signal shall be a Whelen M6 series LED amber turn signal. The backup light shall be a Whelen M6 series LED white back-up light. The bottom light shall be a Whelen M6 series LED red flasher with a clear lens.

MIDSHIP TURN SIGNALS:

Two (2) Weldon 1500 Series LED midship body turn signal/marker lights shall be provided, one (1) each side at the rear wheel well area. Lights shall have an amber lens and operate with chassis turn signals. LED low amp draw lamps, 1.1" X 2.59" with 0J10-1200 with isolating pad and stainless steel brush guard for added durability.

LED CLEARANCE LIGHTS:

Nine (9) clearance lights, Weldon 1500 Series, seven (7) red and two (2) amber, shall be installed to meet ICC, FMVSS and other applicable regulations. LED Low Amp Draw Marker Lamps, 1.1" X 2.59" with 0J10-1200 with isolating pad and stainless steel brush guard for added durability.

LED UNDERBODY LIGHTS:

There shall be eight (8) TecNiq Series E10-WS00-1 white LED under body lights installed under the cab doors and as required under the sides and rear of the body. Lights shall be mounted with a Stainless Steel



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bracket and activated when the vehicle transmission is in park/neutral or if the emergency brake is set and the vehicle park/ headlights are active.

BODY ROOF WALKWAY LIGHTING:

There shall be a minimum of four (4) recessed walkway lights installed to illuminate the walkway. These lights shall be staggered on each side to provide adequate illumination of entire walkway.

ROOF COMPARTMENT LIGHTING:

Each roof compartment shall have continuous strip lighting full length of each compartment. Opening the compartment door shall automatically turn on the lights.

LICENSE PLATE BRACKET WITH LIGHT:

There shall be a license plate bracket with light supplied and mounted at the rear of the apparatus.

CHASSIS RELATED ACCESSORIES

VEHICLE DATA RECORDER (VDR):

There shall be one (1) Weldon Vehicle Data Recorder (VDR) provided and installed per NFPA 1901-2009 requirements. The VDR shall be interfaced with the Vista display of the multiplexed electrical system and shall record such data as the vehicle speed, acceleration/deceleration, engine speed, engine throttle position,

ABS event, seat occupied status, seat belt status, master optical warning switch, park brake, service brake, time, date and engine hours. The VDR data shall be downloadable by a mini USB cable to a computer.

CAB CONTROL CONSOLE:

There shall be one (1) cab control console installed in the chassis between the cab bucket seats. This console shall be fabricated from .125" aluminum and shall be as large as possible and bolted into place. This console shall have a removable top cover plate, which shall be retained by stainless steel counter-sunk fasteners.

The console shall accommodate all required electrical connections, sirens, light controls, switch banks, multiplex control heads, and any other electrical equipment so specified. Storage for binders and maps to be provided based on available space, to be determined.

The console shall be coated with Black Onyx Zolatone to aid in abrasion resistance.

PRE-WIRED ANTENNA CABLES:

There shall be two (2) RG58U coax cables pre-wired by the body builder from the module roof to the cab center console. Cables to be clearly labeled and secured within the console. Antenna bases to be protected by removable plastic covers.

USB PORT, DUAL, KUSSMAUL

One (1) Kussmal # 091-219-WP Dual USB Charging Port shall be provided in the center console area allowing for quick and easy way to recharge electronic devices in the apparatus. High capacity 3 Amps max output allows charging of both a smart phone and tablet at the same time. Built-In LED Indicator indicates device is powered. To include a weather-proof cover.

REAR STEP AND BUMPER:

The rear bumper and step assembly shall extend full width of the body.

The bumper structure shall be attached to the chassis frame rails using a minimum of 3" structural channel.



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The bumper and step assembly shall extend beyond the rear of the modular body approximately 11" to protect the body from damage.

The rear step shall be constructed of aluminum diamond plate with an open aluminum grip strut insert in the center.

TRAILER HITCH:

Class III trailer hitch shall be installed on the rear of the rescue vehicle. The trailer hitch shall include an electrical connection.

TRAILER LIGHT CONNECTOR:

A combination 7-pin/4-pin trailer plug connector wired to the tail lights shall be provided and installed under the rear step. Power shall also be provided for the trailer brakes.

RUNNING BOARDS:

Chassis supplied.

STEP LIGHTS:

There shall be four (4) Whelen OS Series #0AC0EDCR white LED step lights provided. There shall be one (1) light installed at each cab and crew door, one (1) light per door step. The lights shall be activated when parking lights are activated and the transmission is in the Park position.

REAR VISION CAMERA INTERFACED TO MULTIPLEX DISPLAY

One (1) color back-up camera system shall be installed on the rear of the apparatus. The camera shall display the real time view of the area directly behind the apparatus. The image shall be displayed on the apparatus Vista screen or screen provided by the chassis manufacturer. The camera shall activate anytime the apparatus transmission is placed in reverse or the view is selected from the Vista screen or chassis touch screen.

BACK-UP ALARM:

There shall be an electronic back-up alarm with momentary cut off switch installed, activated when the chassis is shifted into reverse.

TOW HOOKS - REAR:

There shall be two (2) tow hooks mounted directly to the chassis frame rail at the rear of the unit.

MUD FLAPS - REAR:

There shall be black rubber mud flaps installed for the rear wheels.

TIRE PRESSURE MONITORING DEVICES:

The apparatus shall be equipped with an AirGuard LED tire alert pressure management system. When tire is properly inflated, the indicator inside the cap shall be clear. The sensor shall activate an integral battery operated LED when the pressure of that tire drops by 8 psi or more. Valve stem extensions shall be included on outer rear wheels.

WARNING LABELS AND INFORMATION PLATES:

There shall be a label located in the driver's view specifying the maximum number of personnel the vehicle is designed to carry per NFPA standards.

There shall be a label located in the cab stating "Occupants Must Remain Seated While Vehicle is in Motion".



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There shall be a label located in the cab in view of the driver stating the overall maximum height of the apparatus in feet and inches.

There shall be a label located in the cab stating "Occupants Must Fasten Seat Belts Before Vehicle is in Motion."

There shall be two (2) labels located on the rear of the apparatus, one on each side, stating "Danger: Do Not Ride on Rear Step While Vehicle is in Motion - Death or Serious Injury May Result".

DELIVERY REQUIREMENTS:

All manuals related to sub-system components for included optional equipment to be provided at the time of delivery.

CHASSIS SPECIFICATIONS:

2016 International 7400 4x2 Crew Rescue Chassis
Navistar N9 Engine, 330HP, Electronic Exhaust Brake
Allison 3000EVS Transmission with Power Take-Off
Meritor 14,000# Front Axle, Dana 26,000# Rear Axle
Goodyear 12R22.5 Tires, G661 HSA Front, G622 RSD Rear
Parabolic Taper Leaf Front Suspension, Vari-Rate Rear Suspension
Dual Air Brake System, Meritor Wabco 1200 Dryer w/Heater, Anti-Lock & Stability Control
Bendix Tu-Flo 550 Compressor, 13.2 CFM Capacity
Tilt & Telescope Steering Wheel
Mirrors, Heated & Power Adjustable
Leece-Neville 320-amp Alternator
Maintenance Free (3) Batteries, 2775 CCA Total
Chrome Grille
50-Gallon Fuel Tank
Polished Aluminum Wheels, 22.5"
Custom Two-Tone Red/White Paint
Extended Chassis Warranty Included

CREW SEATING:

Driver High Back Seat, 911 NFPA Seats, Inc.
Officer High Back SCBA Seat, 911 NFPA Seats, Inc.
Rear Crew High Back (3) SCBA Seats, 911 NFPA Seats, Inc.