



MAINTAINER CUSTOM BODIES

PROPOSAL

Renton Regional Fire Authority Dive Unit

BID SPECIFICATIONS

NEW ALL-ALUMINUM TWELVE (12) 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 to be minimum Grade 5.

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 tubing and custom extrusions. All framing and supports shall be welded to create a fully enclosed structure. This construction technique provides high strength and durability and enables custom design of interior compartments.

The side wall structure, shall be constructed of 2.0" x 2.0" x .125" 6063-T52 alloy square aluminum tubing, the side wall structure shall be welded and gusseted to the sub structure.

The roof structure shall be constructed of 2.0" x 2.0" x .125" 6063-T52 alloy aluminum tubing 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 .125" aluminum sheet, welded and bonded to body side wall structure. The body roof shall be surfaced using .125" aluminum diamond plate.

A side body impact rail manufactured of 6063-T52 alloy extruded aluminum shall be welded to the apparatus side wall structure. It shall receive the body side sheet by means of a groove, which runs continually fore to aft of the side wall structure.

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 under-side 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 .090" aluminum sheeting and welded to the floor sub-frame.



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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.

BODY MOUNTING:

The body shall be mounted to the chassis frame at not less than six (6) locations, three (3) on each side. The mounts shall secure the 1.0" x 3.0" 6061-T6 alloy solid aluminum flat-bar of the floor sub-frame to the chassis frame.

Neoprene pads shall be furnished and installed between the body and the mounts to prevent electrolysis and to minimize noise transfer.

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 and painted job color. There shall be a kick plate fabricated of .125" aluminum diamond plate, located below the rear opening.

BODY ROOF SHEETING:

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

BODY CORNERS, EXTRUDED:

The exterior body corners and roof perimeter shall be capped with a radiused (2.44") custom aluminum extrusion and welded to the wall and roof structure. Body corners create additional protection from physical and environmental damage to the super-structure.

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 10-step standard body preparation shall be completed.

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



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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.

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.

VEHICLE GRAPHICS:

Custom graphics, including NFPA vehicle side stripe, for Renton Regional Fire Authority to be installed. Final design to be determined.

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 if damaged.

WHEEL WELL LINERS:

Welded aluminum inner liners shall be provided at 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.

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 in place for ease of access. Each compartment floor shall be covered with .188" aluminum sheet for added weight carrying capability.

A full width stainless steel door sill shall be installed protect the lower door opening area and reduce water intrusion under the door when in the closed position.

BODY COMPARTMENT COATING:

All body compartments shall be fully coated with PPG Spatter to aid in abrasion resistance.

EXTERIOR COMPARTMENT VENTING:

Each compartment that extends below the body sub structure shall have a removable louvered vent panel with a replaceable filter.



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ROLL-UP DOOR CONSTRUCTION:

The compartments shall be equipped with custom-built Hansen International Inc. roll-up doors. The doors shall be produced by an ISO-9001 certified company and tested to at least 100,000 cycles. Each door shall have a serial number label and shall carry warranty of ten (10) years. To facilitate a 24-hour replacement part service turn around, the doors must be manufactured in the United States.

Door Construction-Smooth: The doors shall be constructed of double walled and concave hard anodized aluminum extrusion laths with a smooth exterior surface. The interlocking joint extrusion design shall have an integral synthetic spacer seal to reduce noise and prevent weather or debris intrusion in a closed position. Each door lath shall have inter-locking, nested, and replaceable polymer slide guides. Sides of the door openings shall be of hard anodized aluminum extruded guide channels.

Operating Components: The easy opening doors shall be equipped with a 4" counterbalance spring in the roller assembly to assist in lifting and help prevent the accidental closing. A full width lift bar shall secure each door.

Door Handle and Latching-Handle Bar: The latch bar shall consist of a full width .750" diameter stainless steel tube handle with centrally located knurled anti-slip sections and 1.25" hand clearance between handle and the door surface. The lift handle bar assembly shall have four (4) roller wheels to reduce friction and ease opening of door.

Compartment Lighting Switch: The compartment lights and door-ajar light system shall be activated by an 8-amp rated magnetic switch assembly mounted to the right pennant plate at the top of the door roller area with a permanently installed magnet installed in the top lath. If the bar is not properly closed, it shall activate the "Door Open" light in the cab.

Weather Resistance: The top door drip rail shall be a hard anodized aluminum extrusion and shall contain a full width strip of weather seal to minimize water ingress along the top of the door. The top door seal shall be of a two (2) piece 'non-contacting design' to prevent damage to graphics, logos or reflective striping.

Guide channel seals shall be replaceable and constructed of UV resistant rubber with automotive style flocking material for smoothness of operation. The bottom of the door curtain shall have an additional full width UV resistant rubber seal.

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

NOTE: Key Lock: Compartment door handles shall be equipped with a keyed cylinder lock assembly.
Use 1250 lock

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.

NOTE: Uni-Strut not required in RR1 compartment. Adjustable shelf channel only in L2, R2



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EXTERIOR COMPARTMENT SPECIFICATIONS:

DRIVER'S SIDE:

The front driver's side compartment, L1, shall have a clear opening of 60 3/8" H x 48" W x 21" D lower and 45 3/8" D upper with a roll-up door.

The compartment over the rear wheels on the driver's side, L2, shall have a clear opening of 38 1/8" H x 41" W x 21" D with a roll-up door.

The driver's side compartment behind the rear wheels, L3, shall have a clear opening of 57 3/8" H x 31" W x 21" D with a roll-up door.

OFFICER'S SIDE:

The front officer's side compartment, R1, shall have a clear opening of 60 3/8" H x 48" W x 21" D lower and 45 3/8" D upper with a roll-up door.

The compartment over the rear wheels on the officer's side, R2, shall have a clear opening of 38 1/82" H x 41" W x 21" D with a roll-up door.

The officer's side compartment behind the rear wheels, R3, shall have a clear opening of 57 3/8" H x 31" W x 21" D with a roll-up door.

REAR:

There shall be a compartment at the rear of the body, RR1, which shall have a clear opening of 41 5/8" H X 42" W X 83 1/8" 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 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 shelves shall be vertically adjustable by mounting to the Uni-Strut channels provided.~~

L1 Slide Out Tray 500# SlideMaster, Red Ball push/pull latch, 100% extension

L1 (2) SCUBA station mounted on slide-out tray

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R1 Slide Out Tray 500# SlideMaster, Red Ball push/pull latch, 100% extension
R1 (2) SCUBA station mounted on slide-out tray

COMPARTMENT L2 SHALL CONTAIN:

ADJUSTABLE SHELF:

One ~~One~~ **Two (2)** 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 ~~One~~ **Two (2)** 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 L3 SHALL CONTAIN:

Add floor extension for support of slide-out tray for shower system
Custom weight storage below floor extension compartment L3

DIVE RESCUE SHOWER:

Apparatus to have a method for rescue divers to rinse-off with hot water. System to consist of:

- Eccotemp L7 tankless water heater with electronic ignition, min/max gas rate: 15,000 - 41,000 BTUs
- 2.9 GPM, 50 PSI self-priming pump, 12-Volt at 4.4 amps
- Minimum 25-gallon water storage tank with gallon indicators
- 20-gallon propane tank with CSA regulator
- Shower head and hose

Complete system to be installed on a slide-out tray to facilitate shower operation, water tank fill, and heater exhausting outside of the compartment. Final design and mounting location to be determined.

SLIDE OUT TRAY FOR SHOWER SYSTEM:

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.

COMPARTMENT R3 SHALL CONTAIN:

VERTICAL DIVIDER:

A full compartment height vertical divider shall be provided and installed. The vertical divider shall be fabricated from 3/16" smooth aluminum and include gussets or other reinforcement for added strength.

DUALOCK DRAWER SET:

A custom Dualock drawer unit shall be provided. Aluminum rollout drawers to have a 300 lb. mobile capacity and 500 lb. static capacity for each drawer. Each drawer shall have permanent one way & removable dividers the opposite way. Each drawer shall have a single action latch assembly with locking mechanisms on both ends. Drawers latch in the open and in the closed position. All drawer edges shall be hemmed and constructed of .090 inch thick, 3003-H14 grade aluminum. Drawer set to be approximately 36" tall x 16" wide with final individual drawer heights from 3" to 12" tall to be determined. **Width to be modified**



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to facilitate refrigerator dimensions. See updated drawing.

ADJUSTABLE SHELF:

One (1) adjustable shelf shall be fabricated and installed above the Dualock drawer set. 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.

BOAT PADDLE STORAGE:

Compartment to include vertical confinement for six (6) boat paddles. Final configuration to be determined. Customer to install securement device(s) following delivery.

COMPARTMENT RR1 SHALL CONTAIN:

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 1,000 pounds with 70% extension 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.

TRAY MOUNTED ADJUSTABLE SHELF:

A full depth adjustable shelf shall be fabricated and installed above the lower roll-out tray. 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 in four (4) heavy duty C-channel tracks that are attached to corner upright supports affixed to the lower tray corners. Nominal adjustment height is approx. 28".

70% extension

~~NOTE: Slide-out tray to accommodate a storage system for four (4) SCUBA air packs, spare cylinders, flippers, and other special equipment, per drawing submitted. Final design to be determined.~~

BACKBOARD STORAGE:

A horizontal storage rack constructed of 1/8" DA finished aluminum shall be installed in the upper portion of the rear compartment. Strapping shall be provided to contain the backboard in the storage area.

Dimensions provided 72" L x 18.5" W x 2" D.

BOAT STORAGE, ROOF EXTENSION:

Based on engineering review the roof structure of apparatus to be extended forward over the chassis cab for storage of boats with lengths in excess of the main body structure. Construction of roof extension to be integral to the main body structure.

BOAT STORAGE, ROOF CONSTRUCTION:

Roof of apparatus to be constructed for transport and protection of the boat. Apparatus roof on curb side, street side, and front wall to extend a minimum of eighteen inches (18") above the roof surface. Finish of the roof edge to be of rolled aluminum extrusion on the exterior edge and aluminum diamond plate on the interior vertical surface. Roof material to be of aluminum diamond plate and to include a minimum six (6) stainless steel D-rings to be used for the securement of the boat. Final roof design and D-ring location to be determined. Determined that boat could be loaded and secured without accessing the roof. Front securement of boat via winch attachment and by D-Rings installed in floor at rear of roof. Two (2) D-Rings to be installed rear of the front wall approximately 18" and from the side wall approximately 12" (for future applications). Two (2) D-Rings at rear to be approximately 12" forward of the rear roof edge and 12" from side wall.



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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.

BODY HANDRAIL, ROOF ACCESS:

Handrail shall be 1.25" extruded aluminum tubing with deep longitudinal grooves and raised knurled patterned knobs to allow for a non-slip gripping surface. Handrail shall have heavily chrome plated end stanchions with stanchion to body gaskets to prevent dissimilar metal corrosion. Handrail shall be bolted into place on top of roof for access from the ladder.

WARN 2,000 LB. WINCH:

There shall be 12-Volt electric Warn 2000S winch to be installed at the front of the boat storage area on the top of the apparatus. Winch to assist with boat loading from the rear of the apparatus. Winch shall have a 2,000 pound rated line-pull, with fifty feet (50') of 5/32" synthetic rope winch with black powder-coated hawse fairlead. Winch motor and drive train shall be sealed from the elements in a high-strength composite housing. Rocker switch control mounting location to be determined. **Switch to be wall-mounted in R3 compartment.**

BODY ROOF WALKWAY LIGHTS:

There shall be a minimum of six (6) recessed lights installed to illuminate the boat storage area. These lights shall be staggered on each side to provide adequate illumination of entire surface. **Lights to be Whelen PELCC and activated with ladder deployment.**

BOAT STORAGE, LOADING ROLLERS:

Boat loading/unloading to be facilitated by a continuous row of rubber rollers, no less than 12" long, spaced next to each other at the rear edge of the roof. Final design and materials to be determined.

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).



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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 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. **Switch panel to be standard configuration, to include 12 switches with 3 auxiliary.**

ELECTRICAL SYSTEM:

There shall be a Class 1 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 off 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 Deutsche 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 and receive digital and analog signals. 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. Carling rocker type switches shall be provided and installed on the cab dash to control all vehicle warning and scene lights. Each switch shall have function labels for ease of use.

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 shall 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:

Battery master control shall be through the chassis ignition switch. The chassis ignition key shall activate a heavy-duty relay to provide 12-volt battery power to the vehicle. Battery switch shall consist of a minimum 200-ampere, constant duty solenoid to feed from positive side of battery.

BATTERY CHARGER:

A Kussmaul Auto Charge Low Profile LPC 20 Series Model #091-207-12 shall be installed for a single battery system. The charger shall include a Model #091-194-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-amperes, 12-volts DC output at 20-amperes, dimensions of: 3.3" high x 6.8" wide x 13.25" deep and weighs 7 lbs.

KUSSMAUL 120-VOLT SUPER AUTO EJECT:

Kussmaul Super Auto Eject, model 091-55-20-120, 20 amp, automatic shoreline disconnect will be provided for the on board, 120-volt battery charging system. The disconnect will be equipped with a NEMA 5-20P male receptacle, which 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.

110 VOLT RECEPTACLES:

Four (4) 110-volt receptacles shall be provided and installed for charging flashlights, radios, and other department devices via the shoreline. Location of outlets to be determined. (1) R3 for mini-fridge, (1) on each side of PDQ, R1 lower compartment mounted on bottom of floor extension. MCB to research 6hr. timer for PDQ outlets.

COMPARTMENT STRIP LIGHTING:

Hansen International "Brilliant White" LED 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.



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This lighting system to employ 12V D.C. solid state operation with 24" connective pigtail, 120 lumens per foot, rated at 50,000 hours, waterproof to IP66 rating, and be shock and vibration resistant. Lighting shall snap-in for easy installation and service if necessary, be manufactured in the USA, exceed NFPA 1901 current edition, and be white in 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 is open.

ELECTRONIC SIREN:

A Whelen Siren Amplifier model # 295SLSA1 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 295SLSA1 shall have the ability for either 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 295SLSA1 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 295SLSA1.

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 **two (2)** 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.



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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 to be mounted, one (1) in each upper rear corner. Color shall be red LED's with a clear lens. **Lights behind ladder to be de-activated when ladder is deployed.**

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.

Lights behind ladder to be de-activated when ladder is deployed.

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 lamp head 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 separately from the cab console.

LED TELESCOPING SCENE LIGHT:

One (1) Fire Research Spectra LED Scene Light model SPA530-Q15-R14-SW-SR 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. Installation to include a stainless steel panel at roof edge to protect body from damage when light is stowed.

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.

NOTE: The telescoping light shall be mounted rear curb side of the apparatus body.

REAR D.O.T. QUAD CLUSTER W/WARNING LIGHT:

A four (4) light cluster shall be mounted on the rear of the body, one (1) each side.

The cluster will utilize Whelen M6 series LED lights:



BID SPECIFICATIONS

- A Whelen Model #M6BTT LED red combination stop/tail light.
- A Whelen Model #M6T LED amber turn signal.
- A Whelen Model #M6BUW LED white back-up light.
- A Whelen Model #M6RC LED red warning light.

REAR LOWER WARNING LIGHTS:

There shall be two (2) Whelen M6 series Super LED rear lower warning lights with chrome bezels installed. ~~Two (2) lights shall be mounted, one (1) on each side of the lower rear body.~~ **This light is included in the quad cluster.**

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 bracket and activated when the vehicle transmission is in park/neutral and the vehicle park/ headlights are active.

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

CAB CONTROL CONSOLE:

There shall be one (1) cab control console installed in the chassis between the cab bucket seats. This console to be fabricated from .125" aluminum and as large as possible, 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 as specified. Storage for binders and maps to be provided based on available space, to be determined.

The console shall be coated with ~~Light Gray~~ or Black Onyx Zolatone to aid in abrasion resistance. Color to be determined. **Black**

CAB CONSOLE POWER:

~~100-amps of power to be provided for customer installed electronics.~~ **Not required.**

PRE-WIRED ANTENNA CABLES, CUSTOMER PROVIDED:

Customer supplied antenna cables to be installed by the body builder from the chassis roof to the cab center console. Cables to be clearly labeled and secured within the console. **Customer to supply antenna cables and any other items for the console.**

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



BID SPECIFICATIONS

The rear step shall be constructed of an open aluminum grip strut material.

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:

Treadbrite running boards shall be installed on the unit under the cab and crew area doors on both sides of the chassis.

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.

FUEL FILL DOOR:

A flush mounted fuel filler guard with a hinged door shall be installed over the fuel fill hose. The opening shall be labeled DIESEL FUEL ONLY engraved on a permanently attached label.

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. Sensors to be shipped loose for installation by customer.

BACK UP CAMERA:

One (1) Nagy 7" color back up camera system, 8212-IR Camera Kit, shall be installed on the apparatus. The camera shall display the real time view of the area directly behind the apparatus. Monitor shall attach to the windshield in replacement of the chassis rear view mirror.

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 EYES - REAR:

There shall be two (2) tow eyes mounted directly to the chassis bumper framework at the rear of the unit.

MUD FLAPS - REAR:

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

WARNING LABELS AND INFORMATION PLATES:

All operator controls and switches shall have the appropriate label and corresponding bezel such as pump discharge controls, electrical connections, fuel/DEF fill and exterior switches, etc. Labels to be manufactured by Innovative Controls.

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.



BID SPECIFICATIONS

There shall be a label located in the driver's view stating "Occupants Must Remain Seated While Vehicle is in Motion".

There shall be a label located in the driver's view that states the overall height (in feet and inches) of the vehicle from the ground.

There shall be a label located in the driver's view stating the overall maximum length of the apparatus in feet and inches.

There shall be a label located in the driver's view stating the overall maximum width 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:

MANUALS:

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

VEHICLE ROAD AND SYSTEMS INTEGRITY TESTING:

A complete and thorough road test and systems integrity test shall be conducted at the time of vehicle completion, and prior to delivery. The road test portion shall encompass differing types of road conditions and terrain, including but not limited to – hills, curves, rough roads, rural high speed environments, urban stop and go environments, and other conditions to verify vehicle manufacturing and delivery integrity.

A systems integrity test shall be performed on the completed vehicle. In this test, the completed vehicle shall have all systems checked for proper operation and conformity to manufacturing specs. This test shall include but not be limited to - a full 12-volt electrical test, a full 120-volt electrical test, all doors shall be checked for proper closure, all doors, hatches, bellows, etc. shall have a water test performed to check for leaks, all roll out trays, tool boards, drawers, etc. shall be checked for proper opening and closing, tire chains (if included) shall be operated, and any system having a mechanical function shall be tested.