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COMMERCIAL ITEM DESCRIPTION

TRUCK, FIRE FIGHTING, (RESCUE) (HEAVY RESCUE TRUCK)

The General Services Administration has authorized the use of this commercial item description for all federal agencies.

1. SCOPE. This commercial item description (CID) covers a commercial heavy rescue truck. It has a 4x4 chassis with a diesel engine and an automatic transmission; a cab for at least four persons with at least four doors; and a utility body. The heavy rescue truck is intended to stow and transport forcible entry and rescue equipment for hazardous materials clean-up, and for structural, automotive, and aircraft occupant rescue, in both on- and off-road environments.

2. SALIENT CHARACTERISTICS. The heavy rescue truck shall be in accordance with the applicable requirements of the following chapters of National Fire Protection Association (NFPA) 1901, 1999 Edition, for Special Service Fire Apparatus:

Chapter	Title
1	Administration
2	General Requirements
8	Special Service Fire Apparatus
10	Chassis and Vehicle Components
11	Low-Voltage Electrical Systems and Warning Devices
12	Driving and Crew Area
13	Body, Compartments, and Equipment Mounting
21	Line Voltage Electrical Systems
23	Air Systems
24	Winches
25	Referenced Publications

AMSC N/A FSC 4210

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2.1 Administration.

2.1.1 Environmental conditions.

2.1.1.1 Altitude. Unless otherwise specified (see 6.2), the vehicle shall be designed for operation at 2,000 feet above sea level.

2.1.1.2 Temperature range. The vehicle shall be capable of satisfactory storage and operation in temperatures ranging from 32° to 125° F. When specified (see 6.2), the vehicle shall be equipped with a winterization system that includes an engine coolant heater and a battery heater (a blanket type battery heater is not acceptable). The winterization system shall be powered through the electrical shoreline connection (see 2.6.2).

2.1.2 Foreign object damage. All loose metal parts, such as pins and valve caps, shall be securely attached to the vehicle with wire ropes or chains. "Dog tag" style beaded chains shall not be provided. Removable panels, if provided, shall be attached with captive fasteners.

2.1.3 Roadability.

2.1.3.1 Operating terrain. The vehicle shall operate on paved and graded gravel roads and off-road (cross country) terrain.

2.1.3.2 Acceleration. The fully loaded vehicle shall accelerate from 0 to 50 miles per hour (mph) within 35 seconds on a level, paved road.

2.1.3.3 Maximum speed. The fully loaded vehicle shall attain a minimum top speed of 65 mph on a level, paved road.

2.1.3.4 Gradeability. The fully loaded vehicle shall be able to maintain a speed of at least 30 mph while ascending any paved slope up to and including 8.0 percent. The fully loaded vehicle shall also be able to maintain a speed of at least 5.0 mph while ascending any paved slope up to and including 30 percent.

2.1.4 Overall dimensions. Overall dimensions shall be the minimum consistent with the operational performance and the design constraints necessary to achieve the specified performance. Overall dimensions shall not exceed:

Length	360 inches
Width	96 inches (excluding mirrors)
Height	124 inches

2.1.5 Turning diameter. The fully loaded vehicle shall have a wall to wall turning diameter of 75 feet maximum in both directions.

2.1.6 Angles of approach and departure. The fully loaded vehicle shall have angles of approach and departure of not less than 11°.

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2.1.7 Manuals and video tape.

2.1.7.1 Technical manuals. The overall format for the manuals may be military specification, commercial, or a combination of both. Each technical manual shall have a title page. Line art shall be used to the maximum extent possible for illustrations and parts lists.

The contractor shall validate the technical manuals for accuracy prior to submission to the procuring activity for verification. The contractor shall submit one complete set to the procuring activity for verification at least 30 days prior to the first production test. Any changes or corrections noted by the procuring activity shall be corrected and updated pages or manuals shall be submitted to the procuring activity.

Once approved by the procuring activity, the contractor shall pack two complete sets with each vehicle. An additional two complete sets shall be submitted to the procuring activity for stock.

2.1.7.1.1 Operator's manual. The operator's manual shall include all information required for the safe and efficient operation of the vehicle, including any special attachments or auxiliary equipment. The operator's manual shall include at least the following:

a. Location and function of all controls and instruments shall be illustrated and fully described.

b. Safety information that is consistent with the safety standards established by the Occupational Safety and Health Administration (OSHA).

c. Checks and adjustments in preparation for placing the vehicle for service upon receipt from the contractor.

d. Preparation for shipment or storage.

e. Warranty information and period of the warranty for the complete vehicle and for any component warranty that exceeds the warranty of the complete vehicle. Addresses and telephone numbers shall be provided for all warranty providers.

f. General description of and step-by-step instructions for the operation of the vehicle and its auxiliary equipment.

g. Description of the post-operational procedures (draining, flushing, et cetera).

h. Checklists for the daily maintenance inspection and mission readiness checks that the operator is expected to perform.

i. Procedures for towing a disabled vehicle.

j. Schedules for required preventative maintenance and required periodic maintenance.

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2.1.7.1.2 Service manual. The service manual shall identify any special tools and test equipment required and shall cover troubleshooting and maintenance as well as minor and major repair procedures. The text shall contain performance specifications, tolerances, and fluid capacities; current, voltage, and resistance data; test procedures; and such illustrations and exploded views as may be required to permit proper maintenance by qualified mechanics. The manual shall contain an alphabetical subject index as well as a table of contents. The service manual shall contain at least the following, where applicable:

a. Hydraulic schematic.

b. Pneumatic schematic.

c. Electrical schematic.

d. Winterization schematic.

e. Schedules for required preventative maintenance and required periodic maintenance.

f. Location, procedure, and interval for parts of the truck and equipment which require lubrication.

2.1.7.1.3 Parts manual. The parts manual shall include illustrations and exploded views, as needed, to properly identify all parts, assemblies, subassemblies, and special equipment. All components of assemblies shown in illustrations or exploded views shall be identified by reference numbers which correspond to the reference numbers in the parts lists. All purchased parts shall be cross-referenced with the original manufacturer's name and part number. The parts identification manual shall provide the description, length, dimensions, and quantity of each item used per vehicle. The manual shall contain a numerical index. The parts manual shall contain a list of all of the component vendor names, addresses, and telephone numbers referenced in the parts list.

2.1.7.2 Video tape. A product familiarization video tape shall be provided with each truck. The tape shall verbally and visually provide all information required for operation and routine inspection and maintenance of the vehicle and its components, using the manuals as a baseline. An additional copy of the video tape shall be provided to the procuring activity.

2.1.8 Painting, plating, and corrosion control.

2.1.8.1 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, shall not be used in intimate contact with each other.

2.1.8.2 Finish. Exterior surfaces shall be prepared, primed, and painted with polyurethane paint in accordance with all of the paint manufacturer's instructions and recommendations. Unless otherwise specified (see 6.2), the exterior finish color shall be Candy Apple Red, Sikkens Color Number FLNA3021, DuPont Color Number 97902U or 4737U, PPG Color Number 71528 (the

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PPG name for this color is Cardinal Red), or equal. When specified, the exterior finish color shall be Forest Green, Color Number 24052 of FED-STD-595, or Desert Sand, Color Number 30313 of FED-STD-595.

a. For vehicles painted Candy Apple Red, the cab upper body (from the bottom of the windshield) and roof shall be painted White, Color Number 17875 of FED-STD-595. Compartment interiors shall have a standard commercial finish. All bright metal and anodized parts, such as mirrors, horns, light bezels, and treadplate, shall not be painted. Roll-up compartment doors may be painted or unpainted.

b. For vehicles painted Forest Green or Desert Sand, all exterior surfaces, including all normally bright metal and anodized parts and any interior surfaces visible with any compartment door open (but not the interior of the cab), shall be painted body color. This includes compartment shelves and mounting hardware, but does not include items mounted in the compartments. Non-metallic materials may be black or gray.

2.1.8.3 Reflective stripes. Horizontal, reflective stripes in accordance with 13-9.2 of NFPA 1901 shall be applied around the vehicle in an approximate plane with the headlights. Offsets in the reflective stripes shall be made to maximize the length of reflective surface. Bright metal trim or anodized parts may interrupt the reflective stripes. The pattern shall be 10 inches wide with three reflective stripes (one inch reflective, one inch body color, six inches reflective, one inch body color, and one inch reflective). The reflective stripes shall be white for vehicles painted Candy Apple Red and Desert Sand, and black for vehicles painted Forest Green.

2.1.9 Identification plate. A permanently marked identification plate shall be securely mounted at the driver's compartment. The identification plate shall contain the following information:

NOMENCLATURE
MANUFACTURER'S MAKE AND MODEL
MANUFACTURER'S SERIAL NUMBER
REGISTRATION NUMBER
NATIONAL STOCK NUMBER (NSN)
VEHICLE CURB WEIGHT: kg (pounds)
PAYLOAD, MAXIMUM: kg (pounds)
GROSS VEHICLE WEIGHT (GVW): kg (pounds)
DATE OF DELIVERY (month and year)
WARRANTY (months and km (miles))
CONTRACT NUMBER

2.2 Chassis and vehicle components.

2.2.1 Capacity. The vehicle shall have a payload capacity of 8,000 pounds of equipment (including the mast light), and shall have a minimum Gross Vehicle Weight Rating (GVWR) of 34,500 pounds.

2.2.2 Engine. The vehicle shall have a diesel engine.

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2.2.2.1 High idle switch. A high idle switch, which does not increase engine speed more than 25 percent above normal low idle speed and does not exceed the engine manufacturer's recommendation, may be provided to increase alternator, air compressor, or air conditioning compressor output to meet the maximum load requirements. A lighted rocker switch, accessible from the driver's seated position, shall activate the high idle control unit. The high idle switch shall operate only when the vehicle is out of gear and the parking brake is engaged and shall automatically disengage if the transmission is placed in gear or the parking brake is released.

2.2.2.2 Fuel filters. Primary and secondary fuel filters and a fuel/water separator shall be provided. The fuel/water separator shall include a water coalescer and a drain valve, and shall be in accordance with SAE J1839. A combination fuel filter and fuel/water separator may be provided. Fuel filter elements shall be replaceable without loss of engine prime.

2.2.3 Exhaust system. The exhaust system outlet(s) shall be directed away from personnel accessing equipment compartments or the roof access ladder.

2.2.3.1 Exhaust filter system. When specified (see 6.2), the vehicle shall be equipped with an exhaust filter system. The system shall remove all visible smoke from the exhaust for an adjustable period of 10 to 99 seconds after the vehicle starts, at all times when the vehicle is in reverse gear, and for an adjustable period of 10 to 99 seconds after the vehicle’s transmission is shifted out of reverse. The time of filter operation shall be easily set by a mechanic with common hand tools. The system shall be completely automatic, not requiring action by any personnel at any time, with the exception of normal maintenance. Operation of the system shall not be detrimental to the vehicle or any vehicle components. The system shall protect the engine by automatically preventing itself from activating when back pressure exceeds 1.8 pounds per square inch (psi), at which time a light on the cab dash shall indicate that the filter requires changing. The filter shall be easily replaced by a mechanic using common hand tools.

2.2.4 Brake system. The vehicle shall be equipped with an all-wheel antilock brake system; the brakes shall be fully air-actuated. Brakes shall be in accordance with Code of Federal Regulations (CFR) 49 CFR 393.40 through 393.42(b)), 393.43, and 393.43 through 393.52. The braking system complete with all necessary components shall include:

a. Air compressor having a capacity of not less than 15 standard cubic feet per minute (scfm).

b. Air storage reservoir(s), each tank equipped with drain, and with safety and check valves between the compressor and the reservoir tank.

c. Automatic moisture ejector on air storage reservoir.

d. Automatic slack adjusters on cam brakes or internal self-adjusting brakes on wedge and disc brakes on all axles.

e. Spring set parking brakes.

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All components of the braking system shall be installed in such a manner as to provide adequate road clearance when traveling over uneven or rough terrain, including objects liable to strike and cause damage to the brake system components. No part of the braking system shall extend below the bottom of wheel rims, to ensure, in case of a flat tire, that the weight of the vehicle will be supported by the rim and the flat tire and not be imposed on any component of the braking system. Slack adjusters and air chambers shall be located above the bottom edge of the axle carrier.

2.2.4.1 Air dryer. A replaceable cartridge desiccant air dryer shall be installed in the air brake system. The dryer shall have the capability of removing not less than 95 percent of the moisture in the air being dried. The dryer shall have a pre-cooler and a filter to screen out oil and solid contaminants. The dryer shall have an automatic self-cleaning cycle and a thermostatically controlled heater to prevent icing of the purge valve.

2.2.4.2 Compressed air shoreline. A checked, auto-eject compressed air shoreline connection shall be provided to maintain brake system pressure while the vehicle is not running. It shall be located on the exterior of the vehicle, either adjacent to the driver's door or within 6.0-inches of the left side front corner of the body.

2.2.4.3 Auxiliary braking system. The service brakes shall be augmented by one of the following auxiliary braking systems:

a. A system which opens all or some of the engine exhaust valves near the end of the compression stroke, thereby converting vehicle motion to a pumping loss. The engine brake shall be approved by the engine manufacturer.

b. A hydrodynamic retarder integral with the transmission.

A dash mounted switch shall be provided to activate, modulate, or cut out the brake augmentation. The switch shall be marked to indicate its position. When active, the system shall be fully controlled by means of the conventional driving controls to apply retardation during vehicle deceleration, and to cut it out in the other operating modes.

2.2.5 Tires and wheels. The vehicle shall be equipped with single tires and wheels on both the front and rear axles. The vehicle shall be equipped with tubeless steel radial tires with on/off-road type tread mounted on steel disc wheel assemblies. Tire and wheel assemblies shall be identical at all positions. A spare tire and wheel assembly shall be provided; however, it is not required to be mounted on the vehicle.

2.2.6 Fenders. Rear fenders and fender liners having tire chain clearance shall be provided.

2.2.7 Steering. The vehicle shall be equipped with power steering.

2.2.8 Transmission. A fully automatic transmission with a hydraulic torque converter and at least five forward speeds shall be provided. The normal driving range selector position shall provide

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at least four gear ratios without movement of the selector. The net torque capacity and the net power rating of the transmission shall exceed the output ratings of the engine.

2.2.9 Traction control. The vehicle shall be equipped with limited slip, automatic locking, or driver controlled, air actuated, locking differentials in the rear axle and between the axles.

2.2.10 Fuel tank. Fuel tank(s) having a minimum usable capacity in accordance with 10-3.4.1 of NFPA 1901 or 50 gallons, whichever is greater, shall be provided. The location of the fuel tank(s) shall protect it (them) from mechanical damage during normal use of the vehicle.

2.2.11 License plate bracket. A lighted license plate bracket shall be provided at the left rear of the vehicle.

2.3 Low-voltage electrical systems. The vehicle shall have a 12 volt electrical and starting system.

2.3.1 Alternator. A single alternator charging system in accordance with 11-3 of NFPA 1901 shall be provided. The minimum continuous electrical load shall include operation of the air conditioning system.

2.3.2 Batteries. Batteries shall be of the maintenance-free type; addition of water shall not be required during normal service life. The battery cover and vent system shall be designed to prevent electrolyte loss during service and to keep the top of the battery free from electrolyte.

2.3.2.1 Battery compartment. The batteries shall be mounted in an acid-resistant tray and shall be enclosed in a weatherproof box or compartment.

2.3.3 Battery charger or conditioner. The vehicle shall have a DC taper type battery charger or an automatic battery conditioner, providing a minimum 15 amp output. The charger/conditioner shall be permanently mounted on the vehicle in a properly ventilated, accessible location. The charger/conditioner shall be powered from the electrical shoreline receptacle (see 2.6.2). A charging indicator shall be installed next to the receptacle. When a battery conditioner is provided, it shall monitor the battery state of charge and, as necessary, automatically charge or maintain the batteries without gassing, depleting fluid level, overheating, or overcharging.

2.3.4 Warning lights. All warning lights shall use strobe type or light emitting diode (LED) elements. The warning light system, related components, and devices shall be in accordance with 11-8 of NFPA 1901.

2.3.4.1 Light bar. A six element strobe-type light bar, with both forward and side facing strobe heads, shall be mounted on the cab roof. Forward facing lenses shall be red-white-red-red-white-red, with the white lights switched off in blocking right-of-way mode. Rearward facing lenses shall be red-amber-red-red-amber-red. The light bar shall be separately switched from the warning light panel.

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2.3.4.2 Warning light color. When specified (see 6.2), the rearward, red strobe lights shall be replaced with amber. When specified (see 6.2), all red warning and strobe lights shall be replaced with blue.

2.3.4.3 Headlight flashing system. A high beam, alternating/flashing, headlight system shall be provided. The headlight flasher shall be separately switched from the warning light panel.

2.3.5 Audible warning devices.

2.3.5.1 Siren. The vehicle shall be equipped with an electronic siren system. The amplifier unit shall include volume control and selection of "Radio," "PA," "Manual," "Yelp," "Wail," and "Hi-Lo" (European) modes, and a magnetic noise canceling microphone. The amplifier, microphone, and controls shall be within reach of the driver and right front passenger. Siren activating foot switches shall be located in front of the driver and the right front passenger. The siren speaker shall be rated at 100 watts minimum and shall be located in a guarded position in the front bumper.

2.3.5.2 Horn. Dual forward facing air horns shall be installed in protected locations near the front of the truck. Air horn activating foot switches shall be located in front of the driver and the right front passenger.

2.3.6 Work lighting.

2.3.6.1 Cab interior lights. Cab interior light levels shall be sufficient for reading maps or manuals.

2.3.6.2 Compartment lights. White lighting sufficient to provide an average minimum illumination of 1.0 footcandle shall be provided in each compartment greater than 4.0 cubic feet and having an opening greater than 144 square inches. Where a shelf is provided, this illumination shall be provided both above and below the shelf. Lights shall automatically illuminate only when the respective doors are opened.

2.3.6.3 Ladder, step, and area lights. Non-glare white lighting shall be provided at ladders and access steps where personnel work or climb during night operations. These area lights shall be controlled with switches on the cab instrument panel and near the light sources.

2.3.7 Radio circuit. The vehicle shall have a separate 30 amp circuit, with breaker and a wire routed to a space provided between the driver and crew chief for a purchaser provided radio.

2.4 Driving and crew areas.

2.4.1 Cab. The vehicle shall have a tilting or non-tilting cab for at least four persons with at least four doors. The cab shall be of all aluminum or all stainless steel construction. Aluminum thickness shall be at least 0.125 inches, except for door skins, which shall be at least 0.090 inches. Stainless steel thickness shall be at least 0.090 inches. The cab shall have a wrap-around windshield and a matching contour cab face. Cab door openings shall extend for the full vertical

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height of the side panels. Steps and handrails shall be provided for all crew doors, and at least one grab handle shall be provided for each crew member, located inside the cab for use while the vehicle is in motion.

2.4.1.1 Rear crew compartment. The rear crew compartment shall have a raised roof with visibility above the forward cab roof, to the sides, and to the rear through the recessed walkway of the utility body. Floor to ceiling height in the rear crew compartment shall be not less than 70 inches clear.

2.4.1.2 Seats. The driver's seat shall be of an adjustable air suspension design. The crew member seats shall be of a non-suspension design. When specified (see 6.2), each crew member seat shall have a backrest and brackets designed to store a one-hour capacity Interspiro self-contained breathing apparatus (SCBA). Each seat shall be provided with a Type 2 seat belt assembly (i.e., 3-point restraint) in accordance with Code of Federal Regulations (CFR) 49 CFR 571.209.

2.4.1.3 Cab interior sound level. The maximum sound level at any seat location shall not exceed 83 dBA without any warning devices in operation, as measured in accordance with 49 CFR 393.94(c), "Vehicular interior noise levels test procedure," except that the test shall be performed with the vehicle traveling at a steady speed of 45 mph on a level, hard, smooth surface road.

2.4.1.4 Windshield and windows. The windshield and windows shall be of tinted safety glass.

2.4.1.5 Mirrors. Combination flat and convex outside rearview mirrors shall be installed on each side of the cab, mounted on fold-back west coast style brackets. The flat mirrors shall be of the motorized remote control type, providing not less than 60° horizontal rotational viewing range. The flat mirrors shall also have electrically heated heads. Mirror remote and heating controls shall be located on the instrument panel within reach of the seated driver.

2.4.1.6 Climate control system. The offeror/contractor's standard heater/defroster system shall be provided. Unless otherwise specified (see 6.2), the offeror/contractor's standard air conditioning system shall also be provided. In 100° F ambient temperature with 50 percent relative humidity and at maximum compressor speed, the air conditioning system shall cool the fully occupied cab to 75° F within 30 minutes.

2.4.1.7 Instruments and controls. Gauges shall be provided for oil pressure, coolant temperature, and automatic transmission temperature. In addition to the instruments and controls required by 12-3.4 of NFPA 1901, the following shall be provided within convenient reach of the seated driver:

a. Master warning light control switch,

b. Work light switch(es), and

c. Compartment "Door Open" warning light and intermittent alarm that sounds when a compartment door is open and the parking brakes are released or the transmission is in any position other than neutral.

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2.5 Body, compartments, and equipment mounting.

2.5.1 Body. The vehicle shall have an all aluminum or all stainless steel utility body. Aluminum thickness shall be at least 0.125 inches; stainless steel thickness shall be at least 0.090 inches.

2.5.2 Compartments. The utility body shall have side, rear, and roof compartments with a minimum of 700 cubic feet of enclosed storage space. Floors for side and rear compartments shall be accessible to crew members standing on the ground. The compartment floor areas shall support a minimum load of 700 pounds without permanent deformation and should support a load of 1,000 pounds without permanent deformation.

2.5.2.1 Compartment doors. Compartments shall have clear anodized aluminum, counterbalanced, non-locking, roll-up doors. Door latch handles shall be full-width bar type. Door straps shall be provided to assist in closing the compartment doors when the rolled up door height exceeds six feet above the ground.

2.5.2.2 Scuffplates. Replaceable scuffplates shall be provided to prevent body damage from sliding equipment in and out of the compartments. The scuffplates shall be attached at the compartment threshold with flush headed capscrews and nuts.

2.5.2.3 Drip rails. Drip rails shall be provided over each compartment door. If the drip rails are not integral with the body, they shall be of anodized extruded aluminum and shall have a bright finish for trucks painted Candy Apple Red.

2.5.2.4 Shelves. An adjustable and removable compartment shelf shall be provided for every 18 inches of each vertical compartment door opening. Shelving adjustments shall require no more than common hand tools, and shall not require disassembly of fasteners. Shelves shall support a minimum of 200 pounds without permanent deformation and should support a minimum of 500 pounds without permanent deformation. Each shelf shall be accessible to crew members standing on the ground or steps mounted on the vehicle. Each shelf shall have drain holes located so as to allow for drainage of any water from the stowed equipment.

2.5.2.5 Drainage mats. Each compartment floor and shelf shall be covered with a removable mat designed to allow for drainage of any water from the stowed equipment.

2.5.2.6 Pass-through compartments with roll-out trays. Two pass-through compartments with roll-out trays shall be provided. The length of each roll-out tray shall be the full interior width of the utility body and shall extend four feet from either side of the utility body. Each roll-out tray shall support a 500 pound load without permanent deformation and should support a 1,000 pound load without permanent deformation. The roll-out trays shall be adjustable for incremental vertical height. Slide out adjustments shall be accomplished without the use of tools. Automatic latches shall secure the stowed trays and shall prevent over-travel when fully extended. One roll-out tray shall support a customer provided and mounted diesel engine powered rescue tool kit.

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2.5.2.7 Underside compartments. Where the side roll-up door compartments do not extend below the top of the chassis frame rails, one or more underside compartments shall be provided on each side of the vehicle, from the front of the utility body to the rear axle wheelhouse opening and extending down to the nominal (12°) interaxle clearance point. Open underside compartment doors shall not interfere with access to the above compartments. Push button latches shall not be used.

2.5.3 Hatch style compartments. Weather resistant hatch style compartments with gasketed covers shall be mounted on the roof of the utility body; they shall extend the entire length of the utility body on both sides of the walkway, except for the area above the light mast (see 2.6.6). The compartments, their latches, and associated hardware shall not present a tripping hazard.

2.5.4 Ladder storage compartment. The vehicle shall have a storage compartment within the utility body for a 14 foot, two section extension ladder. The storage compartment shall be located at the rear of the vehicle and shall permit removal of the ladder by a person standing on the ground.

2.5.5 SCBA storage rack. A rack for storage of eight SCBA one-hour bottles shall be installed in a compartment. The top of the rack shall not be higher than 66 inches above the ground.

2.5.6 Ladder, handrails, and walkways. The utility body roof shall have a walkway, which shall extend from the back of the cab to the rear of the utility body, with a depth and a width of not less than 30 inches. A walkway access ladder with non-slip handrails and rungs shall be provided. Retractable or folding steps shall be provided to assist crew members reaching equipment located on higher compartment shelves. Steps shall have automatic locking devices to secure steps in both extended and stored positions. All ladders, stepping, standing, and walking surfaces shall be in accordance with 13-7 of NFPA 1901. Handrails shall be provided in accordance with 13-8 of NFPA 1901.

2.6 Line voltage electrical system.

2.6.1 Auxiliary generator. A 20 kilowatt (KW) (continuous rating), 120/240 volt, 60 hertz, split shaft power takeoff (PTO) driven generator shall be provided. The PTO shall be activated from the driver's position and shall have a monitor light to indicate engagement. The PTO shall operate only when the vehicle is out of gear and the parking brake is engaged; it shall automatically disengage if the transmission is placed in gear or the parking brake is released. A governor shall regulate engine speed to match the generator output to the connected load. Gauges shall monitor the operation of the generator system and indicate the connected load. Access for maintenance shall be provided above and below the generator. Individual circuit breaker tripping or failure shall not affect operation of other active circuits.

2.6.2 Electrical shoreline connection. The battery charger/conditioner shall be powered from a covered, polarized, insulated, labeled, recessed, male, 120 volt AC auto-eject receptacle. It shall be located on the exterior of the vehicle, either adjacent to the driver's door or within 6.0-inches of the left side front corner of the body. A weatherproof charge meter shall be installed next to

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the receptacle. A 50 foot long, three wire, 15 amp rated, 120 volt, AC power cable, with straight blade (non twist-lock) connectors, shall be provided.

2.6.3 Receptacles. Four 120 volt AC, 20 amp, electrical outlets shall be provided, one at each corner of the body. Each outlet shall have weatherproof cover(s) and shall provide two twist-lock and two conventional receptacles. The receptacles shall be powered by the auxiliary generator (see 2.6.1).

2.6.4 Cable reels. The vehicle shall be equipped with two electrical cable reels, one ceiling mounted in a compartment on each side. Each reel shall be equipped with 200 feet of 20 amp, 600 volt, 90° C insulated electrical cable. The electrical cables shall be equipped with rubber ball stops to prevent cable pull through during rewinding operations. A four-way roller guide shall be provided for each cable reel to prevent chafing of cable insulation. Each cable reel shall have an electric rewind motor with provisions for manual rewind in the event of motor failure; the manual rewind handle shall be securely stored near the cable reel. A weatherproof duplex outlet box, with built-in circuit breakers and twist-lock receptacles, shall be connected to each cable end. The cable reels shall be powered by the auxiliary generator (see 2.6.1).

2.6.5 Scene lights. The vehicle shall be equipped with four 1,000 watt quartz halogen scene lights, two on each side, mounted at the top front and rear corners of the utility body. The scene lights shall be recessed into the utility body. The light enclosures shall be pitched for drainage and shall permit air circulation. Access shall be provided for removal or replacement of the light elements or complete light assemblies. Switches for the scene lights shall be located in both the work areas and on the cab instrument panel. The scene lights shall be powered by the auxiliary generator (see 2.6.1).

2.6.6 Light mast. The vehicle shall be equipped with an elevating light mast with four 1,500-watt "instant-on" halogen lights. The light mast shall be of a free standing design, shall not require outriggers or guywires, and shall sustain a light mast tip load of 150 pounds. The light mast shall be pneumatically powered to extend a minimum of 25 feet above the ground. It shall stop at any vertical height and the light head shall rotate 360°. The light mast shall include a remote control on a 25-foot cord to provide pan-and-tilt and rotation of the lights. The light mast shall retract completely into a ventilated and drained compartment of the vehicle body. Electrical power shall be provided by the auxiliary generator (see 2.6.1). The lights and light mast shall be operable by a person standing on the ground. The light system shall be interlocked to operate only while the engine is running. Pneumatic power for the light mast shall be supplied from the vehicle air brake compressor. If necessary, the air brake reservoir capacity shall be increased to fully extend the light mast without hesitation and without the air reservoir system falling below 80 psi. Light mast controls shall include a permanently set air regulator, an air control valve, and a system air pressure gauge. A red warning light shall flash continuously, in front of the driver, while the light mast is extended. The vehicle horn shall blow continuously if the transmission is placed in gear or the parking brake is released while the mast is extended. The light mast shall be stored within the utility body.

2.7 Air systems.

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2.7.1 Air hose reels. Two air hose reels shall be provided, one ceiling mounted in a compartment on each side. Each hose reel shall be equipped with 150 feet of 0.50 inch inside diameter hoseline; a 3/8 inch National Pipe Taper (NPT) fitting and female style quick disconnect shall be connected to the end of each hoseline. Hoselines shall be equipped with rubber ball stops to prevent hose pull through on roller guides during rewinding operations. A four-way roller guide shall be provided for each hose reel to prevent hose chafing and kinking. Each hose reel shall have an electric rewind motor and provisions for manual rewind in the event of motor failure; the manual rewind handle shall be securely stored near the hose reel. A pressure protected air supply from the chassis air system shall be connected to each hose reel. The air supply lines shall be routed with minimum bends and located or guarded from damage from the carried equipment.

2.8 Winch. A winch with at least 12,000 pound-pull shall be installed, recessed behind the front bumper. The winch shall be electric or hydraulic powered and shall have one or more forward and reverse speeds of not less than 15 feet per minute. The winch shall be equipped with a minimum 125 feet of 3/8-inch galvanized aircraft cable, with 36 inch end chain and hook. The winch shall include a four way cable guide. A 10 foot minimum remote control cable shall be provided for operation of the winch. If an extended bumper is used, a cover fabricated of treadplate shall be installed over the winch and the space between the cab and bumper.

2.9 Workmanship. The vehicle, including all parts and accessories, shall be fabricated in a thoroughly workmanlike manner. Particular attention shall be given to freedom from blemishes, burrs, defects, and sharp edges; accuracy of dimensions, radii of fillets, and marking of parts and assemblies; thoroughness of welding, brazing, soldering, riveting, and painting; alignment of parts; tightness of fasteners; et cetera. The vehicle shall be thoroughly cleaned of all foreign matter.

3. REGULATORY REQUIREMENTS.

3.1 The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

4. PRODUCT CONFORMANCE PROVISIONS

4.1 Product conformance. The products provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The government reserves the right to require proof of such conformance.

4.2 Commercial item requirement. The vehicle furnished shall comply with the "commercial item" definition of FAR 2.101 as of the date of award. The government reserves the right to require the offeror/contractor to prove that their product complies with the referenced commerciality requirements and each salient characteristic of this CID.

The offeror/contractor shall provide an itemized technical proposal that describes how the proposed model complies with each salient characteristic of this CID; a paragraph by paragraph response to the salient characteristics section of this CID shall be provided. The

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offeror/contractor shall provide two copies of their commercial descriptive catalogs with their offer as supporting reference to the itemized technical proposal. The offeror/contractor shall identify all modifications made to their commercial model in order to comply with the requirements herein.

4.3 Inspection requirements.

4.3.1 General inspection requirements. Apparatus used in conjunction with the inspections specified herein shall be laboratory precision type, calibrated at proper intervals to ensure laboratory accuracy.

4.3.2 Test rejection criteria. Throughout all tests specified herein, the vehicle shall be closely observed for the following conditions, which shall be cause for rejection:

a. Failure to conform to design or performance requirements specified herein or in the contractor's technical proposal.

b. Any spillage or leakage of any liquid, including fuel, coolant, lubricant, or hydraulic fluid, under any condition, except as allowed herein.

c. Structural failure of any component, including permanent deformation, or evidence of impending failure.

d. Evidence of excessive wear.

e. Interference between the vehicle components or between the vehicle, the ground, and all required obstacles, with the exception of normal contact by the tires.

f. Misalignment of components.

g. Evidence of undesirable roadability characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.

h. Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.

i. Overheating of the engine, transmission, or any other vehicle component.

j. Evidence of corrosion.

4.3.3 Detailed inspection requirements.

4.3.3.1 Examination of product. Each vehicle shall be examined to verify compliance with the salient characteristics herein. A contractor generated checklist that identifies each relevant requirement and the inspection results shall be used. Particular attention shall be given to materials, workmanship, dimensions, surface finishes, protective coatings and sealants and their

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application, welding, fastening, and markings. Proper operation of each vehicle function shall be verified. Each production vehicle shall be inspected to a reduced version of the checklist that has been approved by the procuring activity.

4.3.3.2 Road tests. The following tests shall be performed in accordance with 2-12 of NFPA 1901.

4.3.3.2.1 Maximum speed and acceleration test. The vehicle shall be tested to demonstrate compliance with 2.1.3.2 and 2.1.3.3. For the first production unit, a time-distance recorder shall be used to record data for this test.

4.3.3.2.2 Gradeability test. The first production vehicle shall be tested to demonstrate compliance with 2.1.3.4.

4.3.3.2.3 Service brake system test. The vehicle shall be tested in accordance with 2-12.5 of NFPA 1901. For the first production unit, a time-distance recorder shall be used to record data for this test.

4.3.3.2.4 Turning diameter test. The fully loaded first production vehicle shall be tested in accordance with SAE J695 to demonstrate compliance with 2.1.5.

4.3.3.2.5 Roadability test. The fully loaded first production vehicle shall be driven over 10 miles of paved and ten miles of off-road terrains. All loads shall be removed and all structure and surfaces shall be visibly inspected for failure or permanent deformation.

4.3.3.3 Low voltage electrical system performance tests. The vehicle shall be tested in accordance with 11-14 of NFPA 1901.

4.3.3.4 Cab interior sound level test. The cab interior sound levels of the first production vehicle shall be measured in accordance with 49 CFR 393.94(c), "Vehicular interior noise levels test procedure," except that the test shall be performed with the vehicle traveling at a steady speed of 45 mph on a level, hard, smooth surface road.

4.3.3.5 Line voltage electrical system testing. The vehicle shall be tested in accordance with 21-14 of NFPA 1901.

5. PACKAGING.

5.1 Preservation, packing, and marking shall be as specified in the contract or order.

6. NOTES.

6.1 Source of documents.

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6.1.1 Department of Defense and Federal documents may be obtained from the Document Automation and Production Service, Bldg 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia PA 19111-5094.

6.1.2 The Code of Federal Regulations (CFR) may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402.

6.1.3 SAE documents may be obtained from SAE, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.

6.1.4 NFPA documents may be obtained from NFPA, Batterymarch Park, Quincy MA 02269-9101.

6.2 Ordering data. The contract or order should specify the following:

a. Altitude for which vehicle operation is to be designed, if greater than 2,000 feet above sea level (see 2.1.1.1).

b. If a winterization system is required (see 2.1.1.2).

c. Finish color required (Forest Green or Desert Sand in place of Candy Apple Red) (see 2.1.8.2).

d. If an exhaust filter system is required (see 2.2.3.1).

e. Warning light color required (amber or blue in place of red) (see 2.3.4.2).

f. If each crew member seat is required to have a backrest and brackets designed to store a one-hour capacity Interspiro SCBA (see 2.4.1.2).

g. If air conditioning is not required (see 2.4.1.6).

Custodian:
Air Force - 99

Preparing activity:
Air Force - 84

Agent:
Air Force - 99

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