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INCH-POUND

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COMMERCIAL ITEM DESCRIPTION

TRUCK, FIRE FIGHTING (TELESCOPING AERIAL LADDER AND WORK PLATFORM)

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 an aerial ladder fire truck. It has a straight frame 6x4 chassis with a diesel engine and an automatic transmission; a cab for at least four persons with at least four doors; a 1,250 gallon per minute (gpm) fire pump; a water tank with a capacity of at least 150 gallons; hose storage areas; an aerial ladder with a permanently mounted waterway and work platform; ground ladders; and equipment compartments. The aerial ladder truck is intended to combat structural and associated fires, and to support fire fighting and rescue operations by positioning personnel, handling materials, providing continuous egress, or discharging water at positions elevated from the ground.

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

Chapter	Title
1	Administration
2	General Requirements
6	Aerial 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
14	Fire Pump and Associated Equipment
17	Water Tanks

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Chapter	Title
18	Aerial Devices
21	Line Voltage Electrical Systems
25	Referenced Publications

2.1 Administration.

2.1.1 Environmental conditions.

2.1.1.1 Altitude. Unless otherwise specified (see 6.2), the vehicle, including the pumping system, 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 2.10.2).

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.

2.1.3.2 Acceleration. The fully loaded vehicle shall accelerate from 0 to 35 miles per hour (mph) within 25 seconds on a level, paved road.

2.1.3.3 Maximum speed. The fully loaded vehicle shall attain a minimum top speed of 50 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 20 mph while ascending any paved grade up to and including 8.0 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	560 inches
Width	102 inches (excluding mirrors)
Height	144 inches

2.1.5 Turning diameter. The fully loaded vehicle shall have a wall to wall turning diameter of 90 feet maximum in both directions.

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2.1.6 Angles of approach and departure. The fully loaded vehicle shall have angles of approach and departure of not less than 8.0°.

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 60 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 the fire extinguishing equipment, and 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 fire extinguishing system(s) and 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.

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i. Procedures for towing a disabled vehicle.

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

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. Fire fighting system schematic(s).

b. Hydraulic schematic.

c. Pneumatic schematic.

d. Electrical schematic.

e. Winterization schematic.

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

g. 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.

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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 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

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2.2 General requirements.

2.2.1 Hose storage.

2.2.1.1 Hose storage area. The vehicle shall have a hose bed, with removable cover and two adjustable dividers, capable of carrying 1,000 feet of 5-inch hose and 800 feet of 2½- or 3-inch hose.

2.2.1.2 Cross lay hose beds. The vehicle shall have three cross lay hose beds with one or more removable covers. Two hose beds shall be capable of carrying 200 feet of 1¾-inch preconnected hose each. The third hose bed shall be capable of carrying 200 feet of 3-inch hose. Sufficient clearance shall be provided between the hose and cover to allow a preconnected hose nozzle to be pulled through from either side of the vehicle.

2.2.2 Suction hose.

2.2.2.1 Soft suction hose. The vehicle shall be equipped with a 20 foot long, 5-inch soft suction hose in accordance with NFPA 1961, with a 4½-inch long handle National Hose thread female coupler on one end and a 6-inch long handle National Hose thread female coupler on the opposite end. The couplers shall be in accordance with NFPA 1963. The soft suction hose and couplers shall be stored in a compartment between the truck cab and the extended front bumper.

2.2.3 Ground ladders. The ground ladders listed in 6-7 of NFPA 1901 shall be of aluminum construction. The ground ladders shall be mounted in locations readily accessible to personnel standing on the ground. Each ladder shall be individually accessible; it shall not be necessary to remove or relocate one ladder to access another ladder. The ground ladder mounting system design shall be subject to approval by the procuring activity.

2.2.4 Minor equipment. The vehicle shall be equipped with the full complement of equipment required by 6-8 of NFPA 1901, except for the self-contained breathing apparatus (SCBA) units, spare SCBA cylinders, and the resuscitator equipment. Axe, pike pole, hammer, and shovel handles shall be fiberglass. Minor equipment storage and mounting shall be subject to approval by the procuring activity.

2.3 Chassis and vehicle components.

2.3.1 Engine. The vehicle shall have a diesel engine.

2.3.1.1 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.

2.3.2 Exhaust system. The exhaust system outlet(s) shall be directed away from personnel accessing equipment compartments.

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2.3.2.1 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.

2.3.3 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 12 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.

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.

2.3.3.1 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.

2.3.3.2 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

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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.

2.3.3.3 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.

2.3.4 Tires and wheels. The vehicle shall be equipped with tubeless steel radial tires with highway type tread mounted on steel disc wheel assemblies. If all tire and wheel assemblies are identical, one spare tire and wheel assembly shall be provided. If two different tire and wheel assemblies are provided, two spare tire and wheel assemblies shall be provided, one of each configuration. Spare tires and wheels are not required to be mounted on the vehicle.

2.3.5 Tire chains. When specified (see 6.2), the vehicle shall be equipped with driver activated automatic type tire chains for the rear axles.

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

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

2.3.8 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 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. The transmission shall have a direct drive lockup for pumping.

2.3.9 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.

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

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

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2.4.1 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.

2.4.2 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.

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

2.4.3 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 2.10.2). 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.

2.4.4 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.

2.4.4.1 Light bars. Two each four head, strobe type light bars shall be provided, one on each side of the bedded ladder, each with both forward and side facing strobe heads. Forward facing lenses shall be red-white-red-white-white-red-white-red, with the white lights switched off in blocking right-of-way mode. Rearward facing lenses shall be red-amber-red-amber-amber-red-amber-red. A switch shall be provided on the warning light panel for the control of the light bars.

2.4.4.2 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.

2.4.4.3 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.

2.4.5 Audible warning devices.

2.4.5.1 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.

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2.4.5.2 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.

2.4.6 Work lighting.

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

2.4.6.2 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.

2.4.6.3 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.

2.4.6.4 Spotlights. Two halogen spotlights rated at 160,000 candlepower (CP) minimum each shall be mounted on the cab roof and controlled from inside the cab.

2.4.7 Scene lights. The vehicle shall be equipped with four 12 volt, 150 watt quartz halogen scene lights, two on each side, mounted at the top front and rear corners of the body. Switches for the scene lights shall be located in both the work areas and on the cab instrument panel.

2.4.8 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.

2.4.9 Intercom system. An intercom system shall be provided to facilitate two-way voice communication, with a speaker and a microphone at the pump operator's control panel, at the turntable, and at the tip of the platform.

2.5 Driving and crew areas.

2.5.1 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 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.

2.5.1.1 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

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have a backrest and brackets designed to store a one-hour capacity Interspiro SCBA. Each seat shall be provided with a Type 2 seat belt assembly (i.e., 3-point restraint) in accordance with 49 CFR 571.209.

2.5.1.2 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.

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

2.5.1.4 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.

2.5.1.5 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.

2.5.1.6 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.

2.6 Body, compartments, and equipment mounting.

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

2.6.2 Compartments. The vehicle body shall include sufficient compartment space to hold all of the equipment listed in 2.2.4.

2.6.2.1 Compartment doors. Compartments shall have clear anodized aluminum, counterbalanced, non-locking, roll-up doors. Door latch handles shall be full-width bar type.

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Door straps shall be provided to assist in closing the compartment doors when the rolled up door height exceeds six feet above the ground.

2.6.2.2 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.

2.6.2.3 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.

2.6.2.4 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.

2.6.2.5 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.

2.6.3 SCBA storage tubes. Tubes for storage of four SCBA one-hour bottles shall be installed adjacent to the wheel wells on each side of the body. The tubes shall be in accordance with 13-5.6 of NFPA 1901.

2.6.4 Ladder, handrails, and walkways. 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.

2.7 Fire pump and associated equipment.

2.7.1 Fire pump. The fire pump shall be a single stage centrifugal design, with a bronze body and impeller, capable of providing 1,250 gpm of water at 150 psig. The pump shall be driven from the chassis propulsion engine through a split shaft power takeoff with ratings to handle the full torque and power applied.

2.7.2 Piping and associated components. All metallic surfaces of the piping and associated components that come into contact with the water shall be of passivated stainless steel or bronze and shall be capable of storing brackish/saltwater. The discharge piping shall flow water at a minimum of 1,250 gpm.

2.7.3 Intake connections. The vehicle shall have four 6-inch intake connections: one on each side, one at the front of the vehicle; and one at the rear of the vehicle, directly connected to the aerial waterway and equipped with a 6-inch 45° turn-down fitting. The front intake connection shall be equipped with an air actuated valve and at least 5-inch nominal diameter piping. The top

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of the rear intake connection shall be no higher than 36 inches above the ground; it shall be equipped with at least 4-inch nominal diameter piping. The 6-inch intakes on the sides of the vehicle shall be equipped with short stub connections. When specified (see 6.2), 6-inch quarter turn valves shall be provided for the 6-inch side intakes. The optional valves shall have National Hose threads and shall be equipped with a pressure relief device in accordance with 14-6.6 of NFPA 1901. The vehicle shall have two 2½-inch intake connections, one on each side, adjacent to the 6-inch intake connections and fitted with 45° turn-down fittings. Each intake connection shall be gated and shall have National Hose threads.

2.7.4 Discharge connections. The vehicle shall be equipped with a standard master discharge connection on the right side. It shall be provided with no less than 3-inch full flow piping and valve with a 2½-inch adapter and a 45° turn-down fitting. The vehicle shall be equipped with three 2½-inch discharge connections, one on the right side and two on the left side. Each 2½-inch discharge connection shall be equipped with no less than 2½-inch full flow piping and valve with a 2½-inch adapter and a 45° turn-down fitting. The vehicle shall be equipped with three swivel discharges to accommodate the preconnected cross lay hoses. Two shall be plumbed with no less than 2-inch piping or high pressure hose, have 1½-inch swivel connections, and flow at least 200 gpm through 200 feet of 1¾-inch fire hose. The third shall be plumbed with no less than 2½-inch piping or high pressure hose, have a 2½-inch swivel connection, and flow at least 250 gpm through 200 feet of 2½-inch fire hose. All discharge connections shall have National Hose threads.

2.7.5 Monitor. The vehicle shall be equipped with a single 1,000 gpm monitor (deluge gun) permanently mounted on the platform. The horizontal and vertical position of the monitor, as well as the discharge pattern, shall be controlled by individual switches located at both the turntable and in the platform. A fog tip and stacking type tips with stream straighteners, 2-inch, 1¾-inch, 1½-inch, and 1 3/8-inch shall be furnished.

2.7.6 Pump operator's control panel. A pump operator's control panel in accordance with 14-9 through 14-12 of NFPA 1901 shall be provided. It shall be mounted on the left center side of the vehicle. Analog gauges shall be provided. The panel shall have master intake and discharge pressure gauges, not less than 4½-inch diameter, and individual discharge outlet pressure gauges, not less than 2-inch diameter. The panel shall also have a flowmeter for the aerial waterway, the standard master discharge connection, and one of the 2½-inch discharge connections on the left side. Each discharge outlet shall be controlled from the pump operator's panel through a manual valve having locking features. The water tank level indicator shall be of the five light type; that is, it shall have lights to show the water tank level at quarter-tank-capacity intervals and have a flashing "refill" or "tank empty" light. Discharge and intake controls shall be color coded in accordance with Table A-14-9.1 of NFPA 1901.

2.8 Water tank. The vehicle shall have a water tank with a certified capacity of at least 150 gallons.

2.8.1 Water tank material. The water tank shall be constructed of polypropylene.

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2.8.2 Water tank baffling. The water tank shall be designed for dynamic baffling in accordance with 17-2.4 and 17-2.4.2 of NFPA 1901.

2.8.3 Tank to pump intake line. All metallic surfaces of the tank to pump intake line and associated components that come into contact with the water shall be of passivated stainless steel or bronze and shall be capable of storing brackish/saltwater. The tank to pump intake line shall be capable of delivering water at a flow rate in accordance with 17-3.2 of NFPA 1901 for the certified capacity of the water tank provided. The tank to pump valve(s) shall be air or electrically actuated.

2.9 Aerial device. The vehicle shall be equipped with a telescoping aerial ladder and work platform. Unless otherwise specified (see 6.2), the rated vertical height of the platform shall be at least 95 feet when measured in accordance with 18-7.2 of NFPA 1901. The maximum elevation of the ladder should not exceed 75° (nominal). The horizontal reach of the extended platform shall be a minimum of 85 feet from the side of the vehicle. The platform shall be capable of depressing below the horizontal sufficiently to step aboard from ground level 70 feet from the side of the truck; step aboard height shall not exceed 24 inches. The rated capacity of the aerial ladder shall be a minimum load of 250 pounds (114 kg) carried at the tip of the fly section with the aerial ladder at 45° to the horizontal and at maximum extension, while discharging water through the full range of monitor or nozzle movements as permitted by the aerial manufacturer. The platform shall have a 2½-inch gated discharge connection with National Hose threads on the front face and two covered storage bins, each capable of holding 100 feet of 1¾-inch double jacketed fire hose. A vacuum relief valve and an automatic drain valve shall be provided on the aerial waterway.

2.10 Line voltage electrical system.

2.10.1 Auxiliary generator. A 15 kilowatt (KW) (continuous rating), 120/240 volt, 60 hertz, hydraulically driven generator shall be provided. The generator shall be activated from the driver's position and shall have a monitor light to indicate operation. 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 the generator. Individual circuit breaker tripping or failure shall not affect operation of other active circuits.

2.10.2 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 50 foot long, three wire, 15 amp rated, 120 volt, AC power cable, with straight blade (non twist-lock) connectors, shall be provided. When equipped with a winterization system, two identical receptacles and cables shall be provided; the receptacles shall be clearly marked. The winterization system shall have a labeled activation switch with a pilot light.

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2.10.3 Distribution box. A weatherproof distribution box shall be located adjacent to the pump operator's control panel. It shall have a minimum of seven 120 volt, 15 amp circuits, with ground fault indicator (GFI) breakers, and two 240 volt, 50 amp circuits, with GFI breakers.

2.10.4 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 2.10.1).

2.10.5 Cable reels. The vehicle shall be equipped with three electrical cable reels, one in a compartment on each side of the truck and one on the aerial platform. Each reel shall be equipped with 200 feet of 20 amp, 600 volt, 90° C insulated electrical cable. Electrical cables shall be provided with twist-lock receptacles. 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. The cable reels shall be powered by the auxiliary generator (see 2.10.1).

2.10.6 Aerial platform lights. The vehicle shall be equipped with two 1,000 watt quartz halogen lights at the aerial platform, powered by the auxiliary generator (see 2.10.1).

2.11 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.

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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 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.

k. Failure of the firefighting system.

4.3.3 Detailed inspection requirements.

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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 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 Auxiliary braking system test. The vehicle shall be tested in accordance with 2-12.4 of NFPA 1901.

4.3.3.2.4 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.

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

4.3.3.2.6 Roadability test. The fully loaded first production vehicle shall be driven over 10 miles of paved roads. 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 Test of fire pump and associated equipment. The vehicle shall be tested in accordance with 14-13 of NFPA 1901. The costs associated with the independent certification shall be included in the price of the vehicle.

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4.3.3.6 Aerial device certification tests. The vehicle shall be tested in accordance with 18-24 of NFPA 1901. The costs associated with the independent certification shall be included in the price of the vehicle.

4.3.3.7 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.

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 2.3.2.1).

e. If driver activated automatic type tire chains are required (see 2.3.5).

f. Warning light color required (amber or blue in place of red) (see 2.4.4.2).

g. If each crew member seat is required to have a backrest and brackets designed to store a one-hour capacity Interspiro SCBA (see 2.5.1.1).

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h. If air conditioning is not required (see 2.5.1.5).

i. If two 6-inch quarter turn valves are required for the side intake connections (see 2.7.3).

j. Minimum rated vertical height of the aerial platform, if not 95 feet (see 2.9).

Custodian:
Air Force - 99

Preparing activity:
Air Force - 84

Agent:
Air Force - 99

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