

INCH-POUND

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SUPERSEDES

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COMMERCIAL ITEM DESCRIPTION

TRUCK, AIRCRAFT REFUELING, HYDRANT

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

1. Scope. This commercial item description covers the general requirements for a hydrant truck used for fuel servicing military and commercial aircraft on Government installations. The vehicle shall be capable of servicing aircraft from a Type III Hydrant System utilizing ground discharge hoses at a rate of 750 GPM or lift platform hoses when equipped, at fueling rates of 1,000 gallons per minute and when equipped, defuel at rates of 300 gallons per minute. The truck shall be air transportable in type C-130, C-17, and C-5 aircraft.

2. SALIENT CHARACTERISTICS.

2.1 Safety. The truck shall comply with all applicable requirements of the Federal Motor Carrier Safety Regulations (49CFR 393), Federal Motor Vehicles Safety Standards (49CFR 571), and OSHA standards in effect at the time of manufacture. The principal walking surfaces shall be of an anti-skid self-cleaning type.

2.2. Design and construction. The vehicle shall be designed to comply with all applicable requirements of SAE ARP 1247 and NFPA 407, and shall have a 12 year minimum life expectancy. All components which come into contact with fuel shall be compatible with fuels conforming to ASTM D1655, MIL-DTL-5624 and MIL-DTL-83133. All system components shall have a working pressure rating of 150psi or greater.

2.3 Maintainability. All assemblies, controls, and installed equipment shall be located so that there is no interference with each other or the operation, and shall be readily accessible for maintenance, operation,

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removal, and replacement using common hand tools. All operating controls and servicing shall be so designed to allow access by personnel wearing arctic clothing and mittens/gloves.

2.4 Environmental requirements. The vehicle shall be capable of satisfactory storage, start and operation under the following environmental conditions with truck stabilized at:

- a. Temperatures ranging from -25° F to +125° F.
- b. Exposure to relative humidity up to 100 percent.
- c. Exposure to salt fog consistent with a seaside environment.
- d. Exposure to sand and dust particles as encountered in desert areas.

2.5 Truck Chassis and Cab. The hydrant truck shall consist of a standard commercial truck chassis and cab, Type I, Class D, in accordance with FED-STD-794 and as specified herein. The vehicle shall have a wall to wall turning diameter not to exceed 64 feet. The chassis shall be equipped with driveshaft guards positioned to prevent any drive shaft from contacting any fuel containing component in the event of failure.

2.5.1 Cab. In addition to the cab requirements in FED-STD-794, the standard cab shall be equipped with two interior lights with a minimum capacity of 30 foot-candles. The lights shall be of proper size, location, and intensity for reading manuals while seated in the cab or standing at the open driver's cab door during night operations. An air conditioning system complying with the requirements of FED-STD-794 shall be provided. The cab shall not be furnished with a cigar lighter or radio.

2.5.2 Exhaust System. The truck muffler shall be mounted under and behind the front bumper, with a right side outlet pointing down and forward. The exhaust system shall not extend behind the truck cab.

2.5.3 Transmission. The vehicle shall be equipped with an automatic transmission meeting the requirements of FED-STD-794. When defuel capability is specified, the transmission shall automatically lock in gear when the PTO is engaged and shall remain locked in all throttle positions.

2.5.4 Power Takeoff PTO. When defuel capability is specified, a split shaft power takeoff shall be furnished. The power takeoff shall have sufficient capacity to drive the pump under the maximum load conditions to be encountered during operation of the truck. The power takeoff and pump gearbox ratios shall be selected to provide pump operations at sufficient engine speed to assure adequate engine and gearbox lubrication and cooling. The power takeoff and pump gearbox ratios shall also provide stall free pump operation and engagement during low temperature operations and at engine idle.

2.5.4.1 Power takeoff control. The power takeoff shall be air-operated, unless it is a part of the electronic transmission shift assembly, and controlled by the driver while sitting in the driver's seat. The control lever shall not interfere with normal operation of the transmission or access to the driver's seat. Other controls shall be installed as required to provide a positive, smooth mechanical engagement. Any engagement device which can cause or allow clashing of mechanical parts or heavy shock loading is not acceptable. The selected position of the PTO shall be maintained by air pressure and/or mechanical linkage.

2.5.4.2 Power takeoff safety devices. An interlock system shall be provided to prevent simultaneous propelling of the truck and operation of the pump. An interlock system shall be provided to prevent

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engagement or disengagement of the power takeoff control unless the engine is at idle speed, transmission in neutral and the parking brakes are applied. A safety device shall be provided to prevent the use of the auxiliary throttle when the power takeoff is in the vehicle drive position. A safety device shall be provided to prevent the use of the accelerator pedal when the power takeoff is in the pump mode. A positive indicator device shall be installed to show when the PTO is in pump mode; the indicator shall be mechanically actuated by the PTO shifter shaft.

2.5.5 Electrical System. The wiring system and electrical components shall be in accordance with NFPA 407 and SAE ARP 1247. All wiring rear of the cab shall be run in plastic/metallic tubing and shall utilize vapor proof connectors. All electrical enclosures shall be vapor proof. All exposed connections shall be weather protected.

2.5.5.1 Floodlight. A fully adjustable floodlight shall be provided on the forward left side of the vehicle. The light shall illuminate the entire left side of the vehicle. A fully adjustable floodlight shall be provided on the rear of the vehicle. The rear light shall illuminate the entire rear working area of the vehicle. An individual switch and adjusting handle shall be provided for each light to allow operation from the ground. The lights shall not operate unless the vehicle's parking lights are on. The lights shall have a minimum of 1000 candlepower.

2.5.6 Air and Brake System. The air system shall comply with the requirements of FED-STD-794 and modified as necessary to meet the requirements specified here in. An auxiliary air line, with a standard ¼ inch quick disconnect type air coupling, shall be provided at the front and rear of the vehicle. A brake interlock override valve, to be used in emergency situations, shall be mounted in a protected location inside the cab, sealed in the "non override" position.

2.5.7 Chassis Winterization. Power plant heaters and fuel warmer as specified in FED-STD-794 shall be provided except that the system shall operate on 110 and 220 volt, 50 or 60 cycle, alternating current (AC). The winterization system shall also incorporate a battery heater and charger.

2.5.8 Spare wheel. A spare wheel shall be provided with each truck. A mount point on the truck is not required.

2.6 Mounted Equipment. The hydrant truck shall consist of the mounted equipment necessary to fuel and when equipped, defuel aircraft on a Type III hydrant system (see 6.4). All Aluminum fuel handling components shall be anodized or chemically conversion coated without deleterious effects on the function performance or availability of these components. All aluminum piping and unprotected aluminum surfaces subject to corrosion or abrasion shall be anodized in accordance with standard commercial practice. There shall be no copper based materials used in contact with fuel except as specified herein. Copper based materials may be used in couplings, drain valves, and gauges.

2.6.1 Flow and Pressure Control System. The control system shall consist of the necessary control valves, pilot valves, selector controls, automatic controls, venturis, gauges, surge suppressors, and safety devices necessary to regulate the pressure and flow of fuel during refueling and when equipped, defueling, on the specified hydrant systems.

2.6.1.1 Flow Control system. The flow control system shall control flow rates from 0 to 750 gallons per minute(GPM) through the ground discharge hose(s) and when equipped flow at rates from 0 to 1000 GPM through the lift platform hose(s) and shall not allow the rated flow of the fuel filtration system to be exceeded. The hydrant pit pressure shall be maintained at a minimum of 110psi and nozzle pressures not to exceed 50 ± 5 psi.

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2.6.1.2 Pressure control system. A primary and secondary pressure control system shall be provided. The primary pressure control shall be set to independently control the fueling pressure at the nozzle. The primary pressure control is the hydrant pit control valve on the Type III hydrant systems. The secondary pressure control shall be set to control the nozzle pressure if the primary control fails to control pressure at the nozzle. The pressure control system shall limit pressure at the inlet to the discharge nozzle(s) to a maximum of 50±5psi under all dynamic flow conditions. The pressure control system shall limit pressure surges to 120psi at the discharge nozzle, with a two second shutdown at the aircraft. The pressure surge during quick shutdown at the aircraft shall not exceed the published rating of any component in the fuel flow system. The pressure control system shall have a fuel pressure sensed from a venturi(s) or some form of pressure compensator to simulate nozzle pressure at the discharge nozzle(s). If an in-line pressure control valve or other adjustable compensating system is provided as the secondary control, the opening rate shall be adjustable from 5 to 25 seconds. The closing rate shall be adjustable from 10 to 30 seconds. A relief system shall be provided to prevent pressure buildup in the pumping system after all fueling operations are complete and nozzles properly stored. The relief system shall not allow backflow of fuel into the recovery tank when nozzles are connected to aircraft servicing points.

2.6.2 Defuel System. The hydrant truck shall be provided with a defuel system. The hydrant truck shall be capable of defueling aircraft through the ground discharge hoses and through the platform hoses. The defuel system shall be capable of defueling at a rate up to 300 GPM with a hydrant pit pressure of 160psi. The defuel suction line shall incorporate an 8 mesh low-pressure drop strainer that is easily removed for cleaning.

2.6.3 Lift Platform. The hydrant truck shall be provided with a variable height lift platform. The lift platform shall be located adjacent to the rear of the cab and shall be provided with two discharge hoses for servicing any commercial type wide bodied aircraft. The lift platform shall be capable of being lowered to the lowest position with the lift platform hoses connected to the aircraft. The platform shall be equipped with aluminum guard rails with entry gate and a toe plate and shall meet all requirements of 29CFR 1910.67; an access ladder or steps; nozzle pressure gauge; lift controls and manual override; and emergency engine shutoff capability. The lift platform shall raise from the stowed position to the height required to allow a small human, as defined by SAE J833, to service any wide bodied aircraft at the under wing receptacle. Provisions shall be made for easy entry and exit of the platform. The platform shall raise and remain at any selected height with two 250-pound operators onboard with a safety factor of 4. There shall be no signs of excessive lean, sway, or instability that would constitute an unsafe operating condition of the fully loaded platform in any position. The platform shall be capable of being fully raised or lowered in not less than 15 seconds or more than 35 seconds. A means shall be provided to prevent rapid accidental lowering of the platform in the event of hose or other component failure. A lowering device (manual override) that will override the main control and provide a smooth controlled lowering of the platform shall also be provided in a convenient location accessible by the operator from the ground. The lift platform shall have a wing stop control which will stop the platform from lifting if the highest portion of the lift comes in contact with the aircraft wing. The lift platform system shall incorporate a safety interlock that sets the parking brakes when the lift platform is not in the full down position. The platform shall have a minimum 2000 pound lift capacity. The platform deck shall not exceed 54 inches from the ground when in the stowed position.

2.6.4 Fuel Filtration System. The filtration system shall be rated for the maximum flow and pressure. The filter vessel and elements shall be a horizontal unit designed, manufactured, and qualified to the current requirements of the API/IP Specification 1581; using M fuel except the effluent fuel samples shall not exceed 10 parts per million free water content. Stages one and two must conform to API/IP Specification 1581, M class filtration.

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2.6.4.1 Pressure vessel. The filter vessel shall be designed and fabricated in accordance with the ASME Boiler and Pressure Vessel Code for unfired pressure vessels. The vessel shall be inspected and stamped by a qualified ASME inspector. The pressure vessel shall be constructed of aluminum or stainless steel. The lowest point of the vessel shall be equipped with a 3/4 inch drain plug for draining all fuel from the filter vessel. A pressure relief valve shall be provided.

2.6.4.2 Air eliminator. An air eliminator shall be provided in the top of filter vessel to allow automatic purging of air from the pumping system. The eliminator shall be vented into a suitable location and shall not allow the backflow of air into the filter vessel. The air eliminator shall have an orifice 1/8 inch or less in diameter.

2.6.4.3 Water slug control. A water slug control valve with check feature shall be provided on the filter vessel to stop the flow of fuel when a predetermined water level is reached in the vessel and then permit fuel flow when the water level is lowered to a predetermined level.

2.6.4.3.1 Float-actuated selector valve. The float actuated selector valve used in conjunction with the flow shut off system shall include provisions which permit manual movement of the float through its complete range for testing when installed and the system is pressurized. The manual adjustment shall be accessible by an operator standing on the ground.

2.6.4.4 Manual water drain. The water sump of the filter vessel shall be equipped with a one inch manually operable stainless steel ball type valve with a spring return handle that renders the valve normally closed. The drain shall be easily accessible to an operator standing on the ground. A grounding braid shall be attached to the pipe with less than 10 ohms of resistance between the braid and chassis; the braid is to be used for grounding to a drain bucket.

2.6.4.5 Filter separator check valves. All fuel lines entering and exiting the lower portion of the filter vessel shall be equipped with check valves as necessary to keep the vessel full of fuel after initial filling of the filter separator. The only means to drain the filter separator shall be the manual drain valve and lower chamber drain plug.

2.6.4.6 Differential pressure gauge. A Gammon Technical Products GTP-534-PB-PH-30A0 differential pressure gauge, or equivalent, shall register the highest pressure drop achieved during operation. The differential pressure gauge shall continuously monitor the pressure loss across the filter vessel.

2.6.4.7 Element sealing. Element connections shall be sealed by one of the methods outlined in API/IP Specification 1581.

2.6.5 Piping. All piping shall be securely mounted to the vehicle to prevent chaffing and vibration during all modes of vehicle operation. All valves/components shall be coupled to the piping using groove type couplings or flanged connections. The piping shall be seamless schedule 40 aluminum IAW ASTM-B241/B241M or seamless schedule 10 TP 304L stainless steel IAW ASTM-A312/A312M. The piping shall not extend past the rear bumper and aluminum piping shall utilize cut grooves for the groove type couplings. All piping shall be positioned so it is protected by the chassis rails or mounted equipment. Step platforms shall be provided as necessary to prevent mechanics from stepping on piping or valves while performing maintenance. The piping system shall incorporate a one inch minimum drain valve at the lowest point. All piping swivel joints shall be sealed and not require lubrication.

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2.6.6 Flow Meter. A flow meter to record all fuel dispensed or defueled shall be provided and shall be located downstream of the filter separator. The meter shall be a 4 inch Bi-Rotor Plus or equivalent. The meter shall have a resettable and non-resettable totalizer. The meter readout shall be visible from a distance of at least 15 ft during day or night operations. The meter shall be compatible with current fuels Automatic Data Collection (ADC) equipment. If a digital out-put meter is used, it shall be equipped with a pulse output card. The Syn-Tech FuelMaster 2525 Automated Data Collection/Fuel Dispensing System (ADC/FDS) P/N 032A0100 or equivalent shall be required.

2.6.7 Hose Reels. The hose reels shall be designed for servicing with any portion of the hose unwound. The hose reel shall rewind the entire flooded hose at a rate of 1.5 feet per second or greater. The hose reels shall be of the top pull type. The hose reel drum size shall be in accordance with API Bulletin 1529. The reel shall have features to prevent over-travel during deployment and rewind. The rewind assembly shall incorporate a clutch and brake assembly. The fluid path shall be aluminum or stainless steel. The reels shall also be furnished with a manual crank for emergency rewinding. Provisions shall be made for storing the crank on the vehicle. The reel shall be designed to prevent the last 1/2 turn of hose from unwinding from the reel. Stainless steel guide rollers utilizing permanently lubricated metal bearings shall be provided to prevent damage to the hose while winding or unwinding. All moving parts (drive chains, gears, etc.) shall be equipped with protective coverings to prevent injury to the operator.

2.6.7.1 Hose Reel Rewind Control. The hose reel rewind control switch shall be positioned so the operator can operate the switch with one hand and guide the hose on the reel with the other hand.

2.6.7.2 Hydrant Hose Reel. The hydrant hose shall be stored on a hose reel located on the left (driver side) of the vehicle. The hose reel shall be capable of storing 30 feet of API 1529 hose. The hydrant coupler shall be no higher than 3 feet above the ground when in the stowed position.

2.6.7.3 Discharge Hose Reels. The ground discharge hoses shall be stored on two hose reels located on the rear of the vehicle facing rearward. Each reel shall be designed to store 75 feet of 2 1/2 inch diameter API 1529 hose.

2.6.8 Nozzles and Couplers. Each hose shall be equipped with a dry break coupler and a 40-mesh stainless steel strainer. A type D-1 single point nozzle in accordance with SAE-AS-5877 shall be provided for each ground discharge hose. A type D-2 single point nozzle in accordance with SAE-AS-5877 shall be provided for each lift platform hose. When specified (see 6.1), a Universal Inlet Nozzle Coupling with nozzle shall be provided in lieu of the D-1 or D-2 nozzle. When specified (see 6.1), a 351GF-14S Moosehead Coupling shall be required for hydrant pit connection. Each single point nozzle shall be equipped with an automatic vacuum break assembly. The hydrant hose shall be equipped with a 4 inch API style coupler conforming to API Bulletin 1584. The hydrant and servicing nozzles shall have receptacles with interlocks which prevent the parking brake from releasing unless the nozzles are properly stored. The servicing nozzle receptacles with interlocks shall be compatible with all nozzles complying with the applicable version of SAE-AS-5877.

2.6.9 Servicing Hoses. The vehicle shall be equipped with a hydrant hose, two ground discharge hoses and when a lift platform is specified two platform servicing hoses. All hoses shall conform to API 1529, Edition 5, Grade 2, Type C. The hoses shall be equipped with couplings in accordance with API 1529 Section 7. The coupling shall be of two-piece construction, internally expandable, non-reattachable design constructed of high strength corrosion resistant metal.

2.6.9.1 Hydrant Hose. The truck shall be equipped with a hydrant hose 30 feet in length.

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2.6.9.2 Discharge Hoses. The ground discharge hoses shall be 2-1/2 inch inside diameter and 60 feet in length.

2.6.9.3 Lift Platform Hoses. The lift platform discharge hoses shall be 2-1/2 inch inside diameter hoses. The hose length shall allow a large human as defined in SAE J 833 to connect to a single point nozzle five feet on either side of the truck center line. Provisions shall be made for storage of the hose on the lift platform, so the hose will not be chaffed, twisted, crimped, or pinched under any operating condition.

2.6.10 Sensing Lines. The sensing lines for the Type III system shall be located on reels next to the hydrant hose. The reel shall be the spring rewind type. The hose shall not exceed the length of the hydrant hose. The reel shall be equipped with arresting features for making random stop at any position. Provisions shall be made to prevent the last 1/2 turn of hose from unwinding and a ball stop shall be provided to prevent over wind. Dummy sensing line connections shall be installed adjacent to reel to secure connections when not in use.

2.6.11 Deadman Control System. A deadman control system shall be provided in accordance with NFPA 407 and as specified herein. The system shall stop flow to and from the aircraft IAW the parameters as specified in NFPA 407. The deadman shall stop the flow of fuel by closing the hydrant pit valve and by closing a valve downstream of the hydrant coupler. If an inline control valve is provided, it shall be utilized as the valve downstream of the hydrant coupler. The deadman system shall be equipped with 70 feet of supply hose and be positioned so the control handle can be operated from the control panel, ground discharge reels and raised lift platform. The deadman control lever shall be operable by an operator wearing artic type mittens. If an electrical deadman system is provided, it shall be certified as intrinsically safe and shall incorporate a timer system for continuous operator input. Deadman hoses shall be stored on a reel. The reel shall hold at any deployed hose length and shall have a non-manual rewind system. A ball stop shall be provided on the deadman hose near the deadman control lever to prevent over wind of the deadman hose. A rewind reel is not required for an electrical deadman, however provisions for storage of the cable shall be provided. When the hydrant truck is supplied with defuel capability, deactivation of the deadman control system shall reduce engine speed to idle regardless of the position of the auxiliary throttle.

2.6.12 Operator's Controls, Instrumentation. A covered control panel shall be located on the driver's side of the vehicle adjacent to the ground discharge reels. The control panel shall be fully illuminated for night servicing operations. All components on the panel shall be weather proof. The primary and secondary pressure regulators shall incorporate covers or other such measures to prevent unauthorized adjustments. The panel shall contain as a minimum the following components:

- a. Auxiliary Throttle (When defuel is specified)
- b. Tachometer/Hourmeter
- c. Emergency Engine Shutoff Switch
- d. Differential Pressure Gauge
- e. Nozzle Pressure Gauges (Ground Discharge and Lift Platform when equipped)
- f. Pump Discharge Pressure Gauge (When defuel is specified)
- g. Hydrant Inlet Pressure Gauge
- h. Surge suppresser Gauges
- i. Surge suppresser fill connections
- j. Primary and secondary air pressure regulators
- k. Primary and secondary pressure regulator gauges
- l. Fueling Mode Selector (if required)
- m. Manual sump tank return button

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n. Sump tank high-level warning light

2.6.12.1 Auxiliary throttle. When defuel capability is specified, an auxiliary throttle shall be provided for control of engine speed during all defueling system operations. The throttle shall allow the operator to control the engine at any desired speed, from idle through maximum rated pump speed, but shall not allow maximum rated pump speed to be exceeded. The throttle shall incorporate a mechanism to allow the throttle to be locked at any desired setting. The mechanism shall be designed such that the operator can quickly return the engine to idle speed.

2.6.12.2 Engine Shutoff switch. The control panel shall incorporate an engine emergency manual cutoff to provide for immediate and complete shutdown of the truck engine under any operating condition without the use of any other control. The switch shall be marked by a red circle at least one inch in diameter.

2.6.12.3 Pressure Gauges. All pressure gauges shall be weatherproof and incorporate restriction devices (orifices) or other mechanisms as required to dampen oscillations and provide stability of the indicating needle. The gauges shall be accurate to within 1psi and capable of withstanding 1 1/2 times the maximum working pressure. The differential pressure gauge shall be a piston type gauge. All gauges shall be marked with a red line as to the maximum safe operating limit. Gauges shall be graduated in 1psi increments for nozzle pressure and differential pressure gauges and no less than 5psi increments for hydrant and pump discharge gauges with a scale of at least 1 1/2 the normal working pressure of the system that the gauge monitors. They shall all be a minimum of 4 inches in diameter and marked as to their function. (Single Point Nozzle Pressure, Pump Discharge Pressure, Filter Differential Pressure)

2.6.12.4 Pilot control valves. All flow and pressure control system pilot valves shall be located so that a mechanic can observe the control panel gauges, operate the controls, and adjust the pilot valves while standing on the ground. The pilot valves shall be covered with a sheet metal cover attached by screws and lock plates, hinges, or quick locking devices to prevent unauthorized adjustments to the pumping system. The panel shall be removable by a mechanic within one minute.

2.6.13 Emergency Shutdown. Emergency shut-off controls shall be installed on the hydrant truck fuel control system. The emergency shut-off shall be a manually operated deactivation of the deadman control system. Emergency shut-off controls shall be located at the control panel, on the passenger's side of the vehicle opposite the control panel and when lift platform is specified, on the gauge panel of the lift platform. All emergency shut-off controls shall stop the flow of fuel IAW the parameters as specified in NFPA 407.

2.6.14 Fuel Recovery Tank. A sump tank of sufficient size (24 hours of operational use) to allow for thermal expansion of fuel and fuel from the fuel filtration system air eliminator shall be provided. The tank shall be equipped with relief valves and vents as necessary for safe operation. The sump tank shall be equipped with a manual drain valve to allow for complete draining of the tank. An automatic emptying system to empty the fuel recovery tank during refueling and defueling operations shall be provided and shall incorporate a full tank shutdown system. The automatic emptying system shall not utilize an electrically driven pump and shall not allow the backflow of fuel into the sump tank when not in use. The automatic emptying system shall inject the fuel up-stream of the fuel filtration system. The system shall also incorporate a deadman type button/switch to be located on the control panel to allow the manual operation of the automatic emptying system. The system shall drain the contents of the tank within ten minutes and shall not allow the dumping of fuel on the ground. The automatic emptying system shall operate only when the deadman control is actuated. A gauge shall be provided on the tank to monitor the level of fuel and shall be readable by the operator standing on the ground. A warning light

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shall illuminate on the control panel whenever the fuel level in the sump tank exceeds the predetermined level where the automatic return system is scheduled to activate. The warning light shall remain illuminated until product level drops below the return system activation point.

2.6.15 Sampling Devices. The main flow system shall be equipped with two sampling connections; one upstream of the filter separator near the hydrant hose outlet, the other downstream of the filter near the discharge hoses. If possible, the sampling devices should be located in a vertical pipe. The sampling device nipple shall extend at least 1/4 inch beyond the inside wall of the pipe from which the sample is obtained. Adequate space shall be provided to permit connection of an in-line sampler such as the Millipore Corporation, Bedford, MA 01730, fluid sampling kit, catalog No. XX64 037 00, for solid and water samples. Each sampling device shall consist of the following:

- a. Nipple, 1/4-inch nominal schedule 40, aluminum pipe 2 inches long with one end threaded with 1/4-18 NPT.
- b. Valve, ball-type, 1/4 inch, internal 1/4-18 NPT both ends; aluminum-alloy body; highly polished, stainless-steel ball; 300 series stainless-steel stem; Teflon seals; zinc plated malleable iron handle; zinc-plated carbon steel handle where the zinc-plated carbon steel handle stops; quarter turn of handle where the valve goes from full open to full close; handle stops limit rotation to 90±5 degrees; pressure loss shall not exceed 1.1 psig at 1.1 GPM of water.
- c. Quick-disconnect, Snap-Tite Inc., part no. SPEAC4-4F (JF), manufactured by Snap-Tite, Incorporated, Titusville Road, Union City, PA 16438, or a coupling of equal construction and characteristics, which shall connect to the sampling kit quick-disconnect.
- d. Dust plug, Snap-Tite, Inc., part no. AMPE-4, manufactured by Snap-Tite, Inc., or equal, to fit the SPEAC4-4F (JF) quick-disconnect with a 1/16-inch diameter security wire rope made from corrosion resistant steel.
- e. Teflon tape shall be used on the threads that connect the nipple, valve and quick-disconnect.

2.6.16 Static discharge grounding reels. Two hand rewind static discharge grounding reels shall be provided. One grounding reel shall be provided with a welder style grip clamp and the other grounding reel shall be provided with a ground plug. The reels shall be installed side-by-side with their bases in a horizontal or vertical position in a readily accessible location near the hydrant reel. The reels shall be bolted to the truck, with a resistance between each reel and the chassis frame of not more than 0.5 ohm.

2.7 Electromagnetic interference (EMI). The hydrant truck shall comply with the EMI emission requirements of SAE J551-2. The hydrant truck shall be tested for EMI susceptibility per the requirements of SAE J551-11. The test severity levels shall be as referenced except that all class C functions shall fall within Region I. All applicable requirements of SAE J551-1 shall be complied with.

2.8 Sound levels.

2.8.1 Truck cab interior sound level. The interior sound level shall be in accordance with the requirements of the Federal Motor Carrier Safety Regulations (49 CFR 393.94) for vehicle interior noise level.

2.8.2 Pumping operation sound levels. The maximum A-weighted sound levels produced by the truck during pumping operations shall not exceed 84 dBA at a distance of 15 feet from the geometric center of

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the truck cab and at the operator's position in front of the pumping control panel. An additional 2 dBA allowance over this sound level limit shall be permitted for production units to provide for variation in test site, temperature gradients, test equipment, and inherent differences in nominally identical vehicles.

2.9 Air Transportability. The vehicle shall be air transportable without shoring in accordance with MIL-HDBK-1791 in C-130, C-5, and C-17 type aircraft.

2.10 Fire Extinguishers. Two Type I, Class 1, size 20 fire extinguishers in accordance with A-A-393 shall be provided with holding brackets. One fire extinguisher shall be mounted vertically on each side of the truck. Protection from mud and splashing water shall be provided. The extinguishers shall be readily accessible to personnel standing on the ground.

2.11 Wheel Chock Storage Container. A wheel chock storage container 24 inches long, 10 inches deep and 6 inches high; shall be furnished and installed in a space located on the driver's side in an easily accessible location. The bottom of container shall be smooth and have drainage holes. The container shall be designed for easy removal and storage of wheel chocks without allowing the chocks to fall out during road operation.

2.12 Finish. The outer surface of the vehicle and the interior surfaces of compartments shall be painted with two part polyurethane paint or other type approved by the procuring activity, forest green, color number 14052 of FED-STD-595. All exterior trim (such as wheels, wheel covers, running boards, metal radiator grilles, bumpers, headlight trim rings, door handles, and drip rails) shall match the exterior color of vehicle. The chassis frame and running gear may be black. The engine and transmission and other components not visible during operation of the vehicle may be the manufacturer's original color.

2.13 Rustproofing. The vehicle chassis and cab shall be rust proofed and undercoated in accordance with FED-STD-297. The level of corrosion treatment shall be tropical and the use of proprietary material shall require Government approval.

2.14 Markings and Data Plates. Markings and data plates shall be as follows.

2.14.1 Markings. The truck shall be marked as specified by NFPA 407 in block type red reflectorized letters. In addition to the markings required by NFPA 407, "NO SMOKING WITHIN 50 FT" shall be applied in four inch block type red reflectorized letters on each cab door and on the rear of the vehicle. Other markings shall be in accordance with Technical Order 36-1-191.

2.14.2 NO SMOKING Label. A "NO SMOKING" label shall be attached in the cab in a highly visible location.

2.14.3 Hazardous material labels. Four DOT hazardous materials, Number 1863, shall be mounted on the vehicle, one on the front, rear, left, and right side of the vehicle. The placards shall be installed in placard holders.

2.14.4 Nameplates and operating instructions. Nameplates and operating instruction plates shall be as follows.

2.14.4.1 Nameplates. Equipment, assemblies, gauges, and parts shall be marked for identification with anodized aluminum plates. A nameplate containing the following information shall be mounted in the cab; except for the serial number, vehicle registration number, and date of delivery, which may be stamped, all data shall be inscribed.

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Make and Model

Serial Number

Vehicle Registration Number

National Stock Number

Contract Number

Rated Flow Rate

Date of Delivery

Vehicle Weight, Unloaded (Pounds)

Gross Vehicle Weight (Pounds)

Fuel Type

Oil, Engine, Above 32°F SAE Grade

Oil, Engine, Below 32°F SAE Grade

2.14.4.2 Control markings. All controls, valves, gauges, and indicators used in the operation of the vehicle shall be identified by securely attached nameplates of such construction that exposure to oil, dirt, light, et cetera, will neither fade nor eradicate them. Tags or decals shall not be used.

2.14.4.3 Operating instructions and data plates. All data plates, placards, charts, instruction plates, et cetera, shall utilize anodized aluminum plates of a size and shape consistent with the information required thereon.

2.14.4.3.1 Diagrams. Schematic diagrams of the piping and electrical systems shall be provided. Each valve, switch, et cetera, on the diagram shall be properly identified to correspond to the markings on like parts on the truck.

2.14.4.3.2 Operating instructions. Brief operating and precautionary instructions shall be permanently affixed near the appropriate system control panel. The instructions shall be clear, concise, and adequate to enable operation of the vehicle without damage to the equipment or injury to personnel, and shall refer to the components as identified on the schematic diagrams.

2.14.4.3.3 Lubrication plate. A lubrication plate shall be provided directing attention to all lubrication fittings and components which require lubrication. The plate shall identify the type and grade of lubricant required for all operational temperatures.

2.14.4.3.4 Transportation data plate. A transportation data plate shall be provided. The plate shall contain at least the following information:

- a. Side and rear silhouette views of the vehicle.

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- b. Horizontal and vertical location of the center-of-gravity of the vehicle in air transportable configuration, marked on the silhouette views.
- c. Shipping weight.
- d. Loading cubage.
- e. Overall height, width, and length.
- f. Front and rear axle loads

3. REGULATORY REQUIREMENTS.

3.1 Recovered Materials. 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 Commercial Item Description, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

4.2 Contractor requirements. The contractor shall provide copies of the truck manuals for review 30 days prior to the time of tests or demonstration of the first truck. The contractor's parts manuals shall list the part numbers for contractor manufactured parts, plus the part numbers for purchased sub-level components and whole components. The contractor shall also provide with each truck a product familiarization video tape that verbally and visually provides all information for the operation and routine maintenance of the truck and its components, using the commercial manuals as a baseline.

4.3 Verification. Prior to delivery of the first truck, the contractor shall demonstrate and test, on an Air Force TYPE III hydrant system or equivalent at a location to be determined, each requirement of the CID or referenced documents.

4.4 Reconfiguration Criteria. Failure to comply with the requirements of this CID, reference documents, or the tests shall be cause for reconfiguration and re-demonstration. Causes for reconfiguration shall include: structural failure; non-correctable misalignments; component interference; conditions presenting a safety hazard to the user or maintainer: instability during operation; spillage of fuel or coolant; and overheating.

4.5 Examination of product. A check list of specific requirements from this CID and the referenced documents shall be compared to the final configuration of the hydrant truck. Where specific certifications are required, copies shall be provided.

4.6 Acceptance Test. Acceptance testing shall be performed at the contractors facility on all subsequent vehicles (excluding first production vehicle) and shall include testing/compliance to the following

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paragraph's: 2.5.4 - 2.5.4.2, 2.6.1.1 - 2.6.4, 2.6.6, 2.6.11, & 2.6.13. In addition each truck shall be driven over 20 miles of paved road.

5. PACKAGING.

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

6. NOTES.

6.1 Options: The purchaser shall specify the following at time of purchase:

- a. A Universal Inlet Nozzle Coupling with nozzle, if required, in lieu of D-1 or D-2 nozzle. (See 2.6.8)
- b. 351GF-14S Moosehead Coupling, if required, for hydrant pit connection. (See 2.6.8)

6.2 Sources of documents.

6.2.1 The Code of Federal Regulations, (CFR), may be at <http://www.gpoaccess.gov/cfr/index.html> or obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402

6.2.2. Military Specifications, Standards, and Handbooks and Fed Std's referenced herein may be obtained at <http://assist.daps.dla.mil/> or from the Standardization Documents Order Desk, 700 Robbins Ave., Bldg 4, Section D, Philadelphia, PA 19111-5094.

6.2.3 SAE documents may be obtained at www.sae.org or from Society of Automotive Engineers, Inc. 400 Commonwealth Drive. Warrendale, PA 15096

6.2.4 NFPA documents may be obtained at www.nfpa.org/index.asp or from National Fire Protection Association 11 Tracy Drive Avon, MA 02322

6.2.5 ASTM documents may be obtained at www.astm.org or from American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959

6.2.6 ASME documents may be obtained at www.asme.org or from American Society of Mechanical Engineers, P.O. Box 2900, Fairfield NJ 07007.

6.2.7 Gammon Technical Products information may be obtained at <http://www.gammontech.com/> or from Gammon Technical Products 2300 Highway 34, Manasquan, NJ 08736

6.2.8 API documents may be obtained at www.api.org or from American Petroleum Institute Monogram Program 1220 L Street, NW Washington, DC 20005-4070

6.2.9 Syn-Tech FuelMaster information may be obtained at www.syntech-fuelmaster.com/default.asp or from Syn-Tech Systems, Inc. P.O. Box 5258 Tallahassee, FL 32314

6.2.10 Technical order 36-1-191 may be obtained at www.robins.af.mil/logistics/LGEDA/documents/techords/36-1-191.pdf or from 542 MSUG/GBMUDE, Robins AFB, GA 31098.

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6.3 Recovered materials. For the purpose of this requirement, recovered materials are those materials that have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the vehicle may be newly fabricated from recovered materials to the maximum extent practicable, provided the vehicle produced meets all other requirements of this CID. Used, rebuilt or re-manufactured components, pieces and parts shall not be incorporated.

6.4 Type III Systems. The type III system is an "on demand" type system which maintains a constant pressure of approximately 65psi. When pressure starts to drop, additional pumps activate. Flow rates of up to 1200 gpm are possible with pressures ranging from 60 to 150psi at the farthest hydrant outlet from the operating pump house. Aircraft servicing pressure is controlled by a control valve mounted in the hydrant pit. The control valve receives sensing pressure (fuel) and air pressure from the hydrant hose truck. Defueling is accomplished by using the pump on the hose truck to overcome the hydrant pressure.

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MILITARY INTERESTS:

CUSTODIANS:

AF- 99

PREPARING ACTIVITY:

AF- 84

AGENT

AF- 99

PROJECT NUMBER 2320-2007-001

Note: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change; you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil/>.