

INCH-POUND
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MIL-PRF-32542(USAF)  
w/AMENDMENT 1  
21 NOV 2016  
SUPERSEDING  
MIL-PRF-32542(AF-184)  
19 OCT 2016

## PERFORMANCE SPECIFICATION

### TRUCK, FORKLIFT, 4,000 AND 6,200 LB. CAPACITY, FRONT/SIDE LOADING, NON-PNEUMATIC, INTERNAL COMBUSTION ENGINE

This specification is approved for use by the Department of the Air Force and is available for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE.

1.1 Scope. This specification covers a front/side loading, sit-down rider, diesel-engine-driven, counter-balanced forklift truck. The truck will have a telescopic mast, front wheel drive, power steering, hydraulic brakes, solid pneumatic tires, and an overhead guard.

1.2 Classification. Forklifts will be one of the following types as specified (see 6.2):

1.2.1 Types. The types of pound capacity at load center are as follows:

Type I	4,000 pound capacity at 24 inch load center
Type II	6,200 pound capacity at 24 inch load center

Comments, suggestions, or questions on this document should be addressed to: U.S. AIR FORCE – WR AIR LOGISTICS COMPLEX, AFLCMC/WNZEB, 235 Byron Street, Suite 19A, Robins AFB GA 31098-1813 or emailed to [SPEC99@us.af.mil](mailto:SPEC99@us.af.mil) . Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

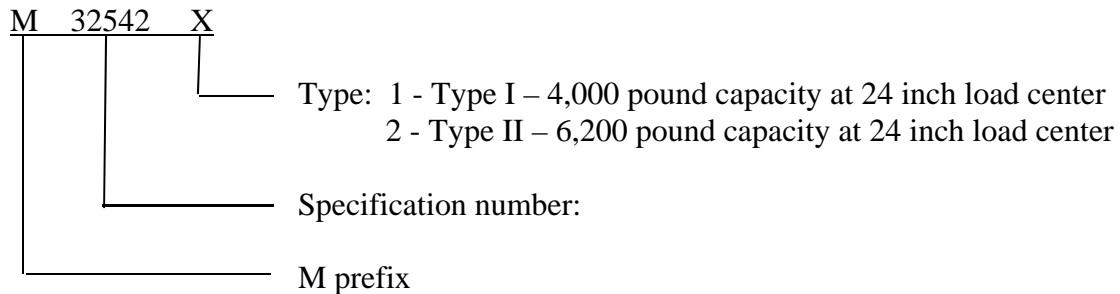
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1.3 Part or Identifying Number (PIN). The following PIN procedure is for government purposes and does not constitute a requirement for the contractor. The PIN to be used for this Forklift Truck acquired to this specification is created as follows:



## 2. APPLICABLE DOCUMENTS.

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

#### FEDERAL STANDARDS

FED-STD-595/24052 – Green, Semigloss

FED-STD-595/30313 – Brown, Flat or Lusterless

#### COMMERCIAL ITEM DESCRIPTIONS

A-A-52557 - Fuel Oil, Diesel; For Posts, Camps and Stations

A-A-59295 - Corrosion Preventative Compounds, Cold Application

#### DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-83282 - Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base,  
Metric, NATO Code Number H-537

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MIL-DTL-83133 - Turbine Fuels, Aviation, Kerosene Types, NATO F-34 (JP-8),  
NATO F-35, and JP-8+100

### DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-209 - Lifting and Tiedown Provisions  
MIL-STD-461 - Requirements for the Control of Electromagnetic Interference  
Characteristics of Subsystems and Equipment  
MIL-STD-810 - Environmental Engineering Considerations and Laboratory Tests  
MIL-STD-1472 - Human Engineering  
MIL-STD-1791 - Designing for Internal Aerial Delivery in Fixed Wing Aircraft

(Copies of these documents are available online at <http://quicksearch.dla.mil/> or addressed to Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents are those cited in the solicitation or contract.

### AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B56.1 - 2000 Safety Standard for Low Lift and High Lift Trucks  
ASME Boiler/Pressure Vessel Code Section IX - Qualification Standard for  
Welding/Brazing Procedures, Welders, Brazers, & Welding & Brazing Operators

(Copies of these documents are available at <http://www.asme.org/> or addressed to American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990)

### AMERICAN WELDING SOCIETY (AWS)

AWS B2.1 – Specification for Welding Procedure and Performance Qualification

(Copies of these documents are available online at <http://www.aws.org/> or addressed to American Welding Society, 8669 NW 36 Street, #130, Miami, Florida 33166-6672)

### SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE J98 - Personnel Protection for General Purpose Industrial Machines  
SAE J386 - Operator Restraint System for Off-Road Work Machines  
SAE J985 - Vision Factors Considerations in Rearview Mirror Design  
SAE J1176 - External Leakage Classifications for Hydraulic Systems (Stabilized Type)

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(Copies of these documents are available online at <http://www.sae.org/> or addressed to SAE World Headquarters, 400 Commonwealth Drive, Warrendale, PA 15096-0001)

### TIRE AND RIM ASSOCIATION, INC. (TRA)

#### The Tire and Rim Association Yearbook

(Copies of this document are available online at <http://www.us-tra.org/> or addressed to the Tire and Rim Association, Inc., 3200 West Market Street, Akron, OH 44313)

### UNDERWRITERS LABORATORIES, INC.

#### UL 558 - Standard for Safety Industrial Trucks, Internal Combustion Engine-Powered

(Copies of these documents are available at <http://ul.com> or addressed to the UNDERWRITERS LABORATORIES, INC., 333 Pfingsten Road, Northbrook, IL 60062-2096)

**2.4 Order of precedence.** Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specified exemption has been obtained.

### 3. REQUIREMENTS.

**3.1 Description.** The forklift (referred to as “forklift” or “truck” in this document) shall be the supplier’s standard, commercial forklift modified to meet the requirements of this specification. The truck shall have a diesel, internal combustion engine, or if otherwise specified (see 6.2), the engine shall be a liquid petroleum gas (LPG). The truck shall be a sit-down rider, counterbalanced, front/side loading truck with front wheel drive, and rear wheel steer. The truck shall be based on the latest model of the manufacturer’s standard commercial product. The truck shall be equipped with instruments, components, and accessories required for the operation of the truck. The truck shall be equipped with all components that are standard with the contractor’s products, whether stipulated herein or not, together with such accessories as may be specified herein. The truck shall be air transportable in C-130, C-17 and C-5 aircraft, as a reference only, refer to MIL-STD-1791.

**3.2 First article.** The contractor shall when specified (see 6.2), furnish one complete truck for first article inspection and demonstration and test in accordance with (see 4.2 and 4.3) of this document. The truck shall be a pre-production unit that shall be identical to all trucks produced on this contract. All testing shall be observed and approved by Government representatives. The approved first article truck shall be refurbished to a like new condition and delivered as soon as possible.

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3.2.1 First article report. The first article inspection report shall include a detailed description of the inspections (see 4.2) and demonstrations and tests (see 4.3.1) performed. The report shall be submitted in digital format, and every effort shall be made to keep the file size reasonable while maintaining image quality. All deficiencies encountered and actions taken to correct the deficiencies shall be included in the report. Approval of the first article test report shall not relieve the contractor of his responsibility to furnish trucks that meet the requirements of this document.

3.3 Materials. Materials shall be as specified herein. Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification.

3.3.1 Recovered materials. The components, pieces and parts incorporated in the trucks may be newly fabricated from recovered materials to the maximum extent practicable, provided the trucks produced meet all other requirements of this specification. Used, rebuilt or remanufactured components, pieces, and parts shall not be incorporated in the truck.

3.3.2 Dissimilar metals. Unless suitably protected against galvanic corrosion, dissimilar metals shall not be in intimate contact with each other.

3.3.3 Drain holes. Structures shall be designed to eliminate pockets where debris and water might accumulate. All structural configurations shall allow water run-off, or shall have adequate sized and placed drain holes.

3.4 Pivot and shift assembly. Pivot and shift assembly shall be provided to allow 90 degrees minimum pivoting of load and full side shift action to facilitate transfer of pallets (size 48 inches deep by 48 inches wide) between the truck and storage position. Pivot and shift shall be accomplished hydraulically. With the forks pivoted 90 degrees and shifted to the extreme left or right, the transverse motion shall be such that the vertical, load carrying, face of the fork extends 1 inch minimum beyond the right or left side of the truck. With the forks in the front handling position, side shift shall provide for a minimum movement of 12 inches across the width of the truck. With forks in the side handling position and side shifted, the truck shall be capable of carrying 16-inch wide loads on the deck of the truck.

3.5 Operation. Truck shall operate over paved surfaces and will be used for transporting long loads and pallet loads. Trucks shall pick up and handle long loads, at least 20 feet long with a maximum width of 30 inches, in an aisle not more than 83 inches wide. Truck shall select and replenish pallet loads in a pallet storage rack area with 64 inch wide clear operating aisles (pallet face to pallet face). The truck shall also load and unload long loads and pallet loads onto and off of over-the-road flatbed trailers from the side and in and out of bulk storage areas from the front-loading and or side-loading positions. Type I trucks shall be capable of driving onto trailers and trailer vans to load and unload.

3.5.1 Operating temperature. The truck shall be capable of operating in temperatures ranging from 0° F to +125° F. The truck, with type C winterization system (see 3.21.1), shall be capable of operating in temperatures ranging from -25° F to +125° F. The truck, with type A winterization

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system (see 3.21.2), shall be capable of operating in temperatures ranging from  $-40^{\circ}$  F to  $+125^{\circ}$  F.

**3.5.2 Storage temperature range.** The truck shall be capable of being stored in ambient temperatures ranging from  $-25^{\circ}$  F to  $140^{\circ}$  F. When specified (see 6.2), the truck shall be furnished with Type A Winterization (see 3.21.1) and shall be capable of storage at ambient temperatures ranging from  $-65^{\circ}$  F to  $140^{\circ}$  F.

**3.6 Design.** The truck shall be capable of safely handling the rated capacity load at all lift heights, mast pivot and side shift positions specified herein. Trucks covered by this document and components incorporated therein shall conform to accepted commercial design practices. Trucks shall be constructed and equipped to meet all requirements specified herein. Component parts of the unit need not be products of the same manufacturer. However, the manufacturer shall be so established that prompt and continuing service and delivery of repair parts will be assured. The truck shall be equipped with all other components and parts not specifically mentioned but necessary to provide a functional machine and shall conform in quality to that normally provided to the commercial industry.

**3.7 Safety.** The truck shall conform to the applicable requirements of ANSI/ITSDF B56.1, UL 558, SAE J98, and OSHA standards in effect at the time of issue of the solicitation. All surface areas subject to personnel standing or walking shall have a nonskid, tread-plate, or expanded metal surface.

**3.7.1 Seat belt.** An operator's seat belt with a retractor shall be installed on the truck. The seat belt must conform to SAE J386, Type 1. However, the installation of a lap belt alone will not be considered as adequate occupant restraint. Additional restraint devices designed to ensure the operator's body remains entirely within the protection of the frame and overhead guard in the event of tip over shall also be provided. The restraint system shall not interfere with operator access or mobility, or the vehicle's operation. (i.e. special seat, shoulder belt, etc.) A warning decal shall be provided advising of the hazards of tip over and the importance of using the restraint system.

**3.7.2 Fire extinguisher.** A commercial fire extinguisher shall be mounted on the truck in an easily accessible location. The fire extinguisher shall be a minimum 2 ½ pound capacity ABC type or equivalent. The fire extinguisher shall be UL listed.

**3.7.3 Horn.** The manufacturer's standard horn shall be provided.

**3.7.4 Backup alarm.** An audible backup alarm shall be furnished. The alarm shall automatically activate when the transmission selector is placed in reverse.

**3.8 Human factors.** The truck shall provide for operation and maintenance by personnel ranging from small person normally clothed, through large person arctic clothed, in accordance with all applicable paragraphs in MIL-STD-1472. This shall include, but not be limited to all travel, load motion, and steering controls; entry to the operator's seat and access to all fluid level check points.

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3.9 Structure.

3.9.1 Chassis and frame. The frame and related structure shall be capable of withstanding 300 percent of rated load without permanent deformation. Frame members, bracing, and all their joints shall provide a rigid unit structure. The frame and related structure shall not crack, deform, or fail under the testing specified in (see 4.3.3).

3.9.2 Fork lifting overload. The fork lifting mechanism shall be capable of withstanding 125 percent of rated load and cycled through the extreme ranges of motion 50 times.

3.9.3 Operator's overhead guard. An overhead guard shall be furnished. The overhead guard shall meet all of the requirements of ANSI/ITSDF B56.1 including falling object protective structure (FOPS) and inside clearances.

3.9.4 Welding. All welds shall be smooth, continuous, with complete heat penetration and shall transmit stress without permanent deformation or failure when the truck is subjected to normal service and the testing of this specification. The contractor's welders, welding operators and welding procedures shall be qualified to meet the welding requirements of the AWS B2.1 or ASME Boiler/Pressure Vessel Code Section IX.

3.10 Rated load. The rated load for the Type I truck shall be a 4,000 (+100, -0) pound cube, 48 inches on each side with a center of gravity located at the geometric center of the cube. The rated load for the Type II truck shall be a 6,200 (+125, -0) pound cube, 48 inches on each side with a center of gravity located at the geometric center of the cube.

3.11 Engine. The truck shall be powered by a standard, commercial engine. Horsepower and torque characteristics shall be sufficient to provide the performance specified herein and shall be at a RPM which will assure performance with an adequate margin of safety.

3.11.1 Diesel engine. The truck shall be equipped with a diesel engine that runs on high sulfur fuel (. Emergency shutdown provisions shall be furnished when recommended by the engine manufacturer. The engine shall crank and start within five minutes in any ambient temperature (and with the truck initially stabilized at ambient temperature) from 0° F to +125° F. Glow plugs or other accessories working off the cranking batteries and auxiliary fluid priming systems which are permanently mounted on the truck and normally used in starting the vehicle may be used. The diesel engine shall operate on diesel fuel in accordance with A-A-52557. Either the engine or forklift manufacturer shall certify that the engine is capable of operating on JP-8 conforming to MIL-DTL-83133 for 400 hours, during normal commercial or military situations, without detrimental effect on the engine. Some power loss is expected, but the forklift shall be able to perform normal operations. A certification letter shall be included in the first article test report. An example of a previous certification letter is shown in Figure 1. The truck shall be DS rated according to UL 558.



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3.11.2 LPG engine. When specified (see 6.2), the truck shall be equipped with a liquefied petroleum gas engine. All necessary filters and components required for LPG operation shall be provided. It shall be of sufficient capacity to provide at least 6 hours of continuous operation. A means shall be provided to prevent fuel flow when the engine run control (ignition switch) is off, or if the engine should stop running. The truck shall be LPS rated according to UL 558.

3.12 Fuel tank. The standard diesel fuel tank shall be of sufficient capacity to allow a minimum 8 hours of continuous operation without refueling. The tank filler neck shall be designed to operate with an OPW ([www.opw-fc.com](http://www.opw-fc.com)) fuel nozzle model 295AF. The dimensions for the OPW 295AF are available on their web site.

3.13 Engine exhaust. The exhaust system shall incorporate a muffler, and shall terminate at a location clear of the operator's station. A means shall be furnished to prevent rain water intrusion into the exhaust system. Muffler and exhaust piping shall conform to the requirements of UL 558.

3.14 Transmission. The transmission shall be the full torque, power-shift type in combination with a torque converter. The transmission shall provide at least two forward and two reverse speeds. Selective forward and reverse directional controls activated by the operator's foot are not acceptable. The transmission shall provide for positive inching or declutch control throughout the entire engine rpm range, in both forward and reverse directions. The inching or declutch control shall permit lifting of rated load, at maximum engine speed, while the transmission is in a forward or reverse gear, with no vehicle motion. A transmission oil cooler shall be furnished.

3.15 Steering. Power steering shall be furnished. In the event of a power failure, the forklift shall be equipped with an emergency power steering mechanism. This supplemental power steering mechanism shall allow the vehicle to be controlled while moving.

3.16 Hydraulic system. The hydraulic system shall consist of all hydraulic components necessary for operation of the forklift, including a filter. All hydraulic hoses shall have a working pressure equal to or greater than the hydraulic system maximum relief valve setting. The hydraulic fluid fill point shall be properly labeled. The hydraulic fluid shall comply with the requirements of MIL-PRF-83282.

3.16.1 External leakage. During all testing, the degree of external hydraulic system leakage shall not exceed a Class 3 for dust free conditions and a Class 3 D for dusty conditions of SAE J1176. External hydraulic system leakage shall not exceed a Class 3 for production trucks under normal operation.

3.16.2 Hydraulic reservoir. The hydraulic reservoir filler shall be of sufficient inside diameter to accept a filler tube of at least 1.56 inches outside diameter.

3.16.3 Hydraulic schematic. The hydraulic schematic shall be provided on a durable material and should be stored in the cab. For example: A book with hard plastic pages (tear resistant & smear resistant).



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3.17 Brakes.

3.17.1 Service brakes. Full air, air-over-hydraulic, or hydraulic-over-hydraulic type, foot controlled, service brakes shall be provided. Not more than 80 pounds of force on the brake pedal shall be required to meet the stopping distance and drawbar drag test.

3.17.2 Parking brake. The parking brake actuation shall be independent from the service brakes. The control shall be located within reach of the seated operator and in a position to permit easy and safe movement on and off the vehicle. Not more than 35 pounds of force shall be required to apply the parking brake. The parking brake shall hold the truck with rated load on a 15% grade in both the forward and reverse directions.

3.18 Electric system. The electrical system shall consist of all electrical components necessary for operation of the truck. The forklift shall have sufficient electrical grounding to prevent static discharge.

3.18.1 Battery. Except when Type A Winterization (see 3.21.1) is specified (see 6.2), the battery(s) shall be of the maintenance-free type. Electrical system voltage shall be 12 volts.

3.18.2 Electrical disconnect switch. A keyless master switch, with an identification plate, shall be installed in a convenient location to permit disconnect of the battery from all electrical load.

3.18.3 Ignition switch. A key operated ignition switch shall be furnished. It shall have not less than three positions; off, on and start. The ignition switch shall not activate the engine starter while the engine is running, nor when the engine is not running and the transmission is in any forward or reverse gear.

3.18.4 Alternator. The alternator shall have sufficient output at normal engine operating RPM to supply full electrical operating load, including all lights, and still provide electrical current to charge the battery.

3.18.5 Wiring schematic. The wiring schematic shall be provided on a durable material and should be stored in the cab. For example: A book with hard plastic pages (tear resistant & smear resistant).

3.19 Instruments. In addition to the instruments supplied on the standard commercial forklift, an hour meter shall be installed in the instrument panel. All instruments, except the hour meter shall be lighted when the front floodlights (see 3.20) are illuminated.

3.20 Lighting. There shall be at least two forward floodlights and one rearward directed floodlight. One of the forward facing floodlights shall be mounted on the mast. The manufacturer shall make available an additional floodlight that is adjustable from the operator's compartment. Tail light(s) and brake stop light(s) shall be installed. All lights shall be protected by location or guards. Individual operator controlled switches shall be provided for the front lights, the rear lights, and

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the adjustable light. If a rotary switch provides all possible options that the individual switches provide, then the rotary switch is acceptable. The forklift shall be equipped with an amber colored strobe light with an intensity of at least 40 candela.

3.21 Winterization. (Minimum requirements)

3.21.1 Type C winterization. When specified (see 6.2), the truck shall be furnished with Type C winterization that shall protect to an operating temperature of -25° F and shall consist of the following:

3.21.1.1 Starting aid. A starting aid such as a measured shot ether injection system shall be furnished to allow -25° F starting.

3.21.1.2 Cab. The cab shall meet the requirements of (see 3.21.1.2).

3.21.1.3 Cab heater and defroster. The heater shall have sufficient capacity to maintain a temperature of at least +40° F at cab floor level in an ambient temperature of -25° F.

3.21.1.4 Anti-freeze engine. To protect the engine from freezing, the coolant system shall be protected to -25° F with antifreeze.

3.21.2 Type A winterization. When specified (see 6.2), the truck shall be furnished with Type A winterization that shall protect to -65° F and shall consist of the following:

3.21.2.1 Power plant heaters. Engine coolant, engine oil and battery heaters shall be provided. All heaters shall operate on either (110 volts @ 60 Hz) or (220 volts @ 50 Hz) alternating current. A three wire, 25 feet long weatherproof cable of adequate capacity for all heaters being used simultaneously shall be provided. The cable shall be able to connect to NATO and American connectors. A stowage place shall be provided on the truck to keep the cable when not in use. The heaters shall be as follows:

- a. The coolant heater shall be installed in the engine block or lower coolant inlet hose. A coolant circulating pump, driven by a 110 volt or 220 volt alternating current motor shall be provided when a coolant inlet hose heater is furnished. The heater shall have adequate capacity to maintain engine coolant at a temperature of 10° F in an ambient temperature of -65° F. It shall be controlled to limit engine coolant to not more than 150° F.
- b. An engine oil heater with adequate capacity to maintain engine oil at a temperature of at least +10° F in an ambient temperature of -65° F shall be furnished. It shall be controlled to limit engine oil temperature to not more than 150° F.

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- c. A battery heater shall be provided. It shall have adequate capacity to maintain battery electrolyte at a temperature of at least +10° F in an ambient temperature of -65° F, and shall have a thermostat to limit temperature of the electrolyte to not more than +80° F.

3.21.2.2 Cab. A cab that is either removable from, or integral with, the overhead guard shall be provided. Thermal insulation shall be installed on the floor, cab sidewalls and cab ceiling, with washable covering over all insulation. Boots are required for insulation to close all openings where attachments and controls enter the cab. There shall be windshield wipers on the front windshield, and rear and roof windows. The cab shall be equipped with two fully opening doors or one fully opening door and one emergency exit. Each door shall have a safety latch and a hold open catch. The cab shall be equipped with an adjustable ventilation fan, not less than 6 inches in diameter.

3.21.2.3 Heater and defroster. The heater shall be of sufficient capacity to maintain a temperature of +40° F at cab floor level in an ambient temperature of -40° F.

3.21.2.4 Cold starting aid. A starting aid such as a measured shot ether injection system shall be furnished to allow -40° F starting.

3.21.2.5 Anti-freeze engine. To protect the engine from freezing, the coolant system shall be protected to -65° F with antifreeze.

3.22 Maintainability. Provisions shall be made for adjustment, servicing, and replacement of all electrical assemblies and components, hydraulic system components, battery, wearing parts of lift and tilt mechanism, brakes and components, wear parts of steering assembly, tires, wheels, lights, and horn. If hand access openings are required to perform maintenance, the edges of each opening shall be smooth, the opening shall be provided with a removable or hinged cover, and the dimensions should accommodate a mittened hand. The engine hood shall be capable of being opened by one man using one hand and shall be securely held open by a counterbalance or positive locking device.

3.22.1 Maintenance operations. The forklift shall be capable of being mechanically maintained by one person not to exceed 1 hour using common tools except. The following items are provided as examples:

- a. Remove, replace and adjust all engine-driven belts - 3/4 hour.
- b. Remove and replace alternator - 3/4 hour.
- c. Remove and replace all hydraulic system filters, screens, and strainers - 1 hour.
- d. Remove and replace engine coolant system hoses - 1 hour.
- e. Drain engine oil, remove and replace engine oil filter, and refill crankcase - 1/2 hour.

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- f. Remove and replace fuel filter elements - 1/2 hour.
- g. Remove, replace and connect battery - 1/2 hour.
- h. Drain transmission fluid, remove and replace all transmission filters and refill transmission – 1 hour.
- i. Remove and replace starter - 1 hour.
- j. Bleed and adjust brakes and refill master cylinder (if applicable), 2 men - 1 hour.
- k. Remove and replace floodlights and taillight bulbs - 1/4 hour each bulb.
- l. Lubricate all lubrication fittings with 2 strokes per fitting - 1 hour.

3.22.2 Special tools. The contractor shall supply any special tools or equipment peculiar to, and only used on this forklift. One set of tools is required for each truck. The manufacturer shall provide a means of storing these tools on the vehicle when not in use.

3.22.3 Lubrication. Means shall be provided to lubricate all moving parts that require lubrication, except where sealed permanent lubrication is provided. Each forklift shall be serviced and run-in with lubricants standard to the contractor's commercial practice. A lubrication schedule shall be provided on a durable material and stored in the cab. For example: A book with hard plastic pages (tear resistant & smear resistant).

3.23 Tires and tire loadings. Tire loadings shall not exceed the values specified by the tire manufacturer or the Tire and Rim Association Yearbook. The truck shall be equipped with solid pneumatic tires. Tires shall be not more than 12 months old on date of acceptance by the Government.

3.24 Rearview mirror. The truck shall be equipped with an adjustable rearview mirror mounted within the operator's field of view as described in SAE J985. The exact mounting location shall be determined by the manufacturer and shall increase the driver's field of vision.

3.25 Data plate. A corrosion resistant plate shall be permanently installed on the instrument panel, or another visible protected location. The following information shall be on the plate:

- a. Nomenclature
- b. Make and model
- c. Manufacturers serial number (VIN)
- d. Registration number

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- e. Asset NSN number
- f. Vehicle curb weight (lbs)
- g. Payload, maximum (lbs)
- h. Gross weight, max (lbs)
- i. Date of delivery
- j. Warranty      month      miles
- k. Contract number
- l. US Property

3.26 Painting. All external surfaces and all surfaces normally painted by the truck manufacturer shall be prepared and primed using material compatible with the final paint. Zinc-rich primers shall be used when possible. The paint finish shall show no evidence of uneven application, curtains, runs snags, orange peel, lack of adhesion, or other defects. The final top-coat shall be the manufacturer's standard commercially available polyurethane. Any deviations from the polyurethane coating system shall be cleared by AFLCMC/WNZEB prior to use. The final color of the truck shall be the manufacturer's standard commercial color.

3.27 Marking. Markings shall be made with paint. Markings for trucks shall be black or white paint, depending on which is more visible on the manufacturer's commercial color. The following markings shall be applied in the indicated locations:

- a. Vehicle capacity ("4,000 POUNDS" for Type I, or "6,200 POUNDS" for Type II) in 1-1/2 inch high letters on the mast, or front of truck.
- b. "NO RIDERS" in 2 inch high letters on each side of truck.

3.29 Emissions. The vehicle emissions shall comply with the EPA regulations in effect at the time of vehicle manufacture. When there is a change in EPA regulations during a contract, EPA provisions shall be consulted to determine which regulations apply. 3.30 Noise limits. If the sound level is above 84 dB(A), the contractor shall provide a hazardous noise warning plate stating that operator's hearing protection is required when operating this truck. The plate shall be made of a corrosion resistant material and shall be at least 4.0 inches square. It shall have black lettering on a yellow background and shall be located to be visible to the operator as he enters the cab, or is seated. Sound level shall not exceed 92 dB(A).

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3.31 Slings and tie-downs. Permanently installed slinging and tie-down devices that enable the truck to be lifted in its normal travel position, and to be tied down to the floor of a transportation medium shall be provided. All devices shall be easily accessible and minimize the need to crawl under the vehicle when securing it. All devices shall be capable of accepting a chain and hook with an outside diameter of 3.00 inches through its opening, and shall have a structural safety factor of 2.3 to 1, based on static load. The notation "LIFT HERE" or "TIE-DOWN" shall be stenciled in paint near each lifting and tie-down device, in the color specified in 3.27. The manufacturer shall submit digital drawings (in Tagged Image File Format, or TIFF) showing the center of gravity location in air-transport mode and tie down instructions on C-130, C-5, and C-17 aircraft. There shall be a corrosion resistant, metal plate permanently installed on the vehicle that shows the center of gravity location in the air-transport mode, and tie-down instructions in C-130 and C-17 aircraft. Refer to MIL-STD-1791 as a guide only.

3.32 Transportability. The forklifts shall be capable of being transported by water, highway and rail without significant restrictions. The trucks shall be air-transportable in C-130, C-141, C-5 and C-17 aircraft without removal of any components. To meet the air transportability requirements, refer to MIL-STD-1791 as a guide only.

3.33 Electromagnetic interference (EMI). The truck shall comply with the EMI requirements per MIL-STD-461, RE101 and RE102.

3.34 Uprights and carriage assembly. Uprights shall be telescopic roller type. Rollers shall be the permanently lubricated-for-life type. The forks shall be easily removable without removing the load backrest. A cut out shall be provided in the fork carrier that allows the lower hook of the fork to pass through.

3.34.1 Load backrest. A metal backrest, with the capability of at least the top 17 inches being removable without disturbing any other component, shall be provided. There shall be no protruding bolts or appendages beyond the side plane of the load backrest. In conjunction with the fork and hanger design, it shall provide a vertical rear guard 42 to 46 inches high, measured from the load carrying surface of the forks, and equal to the width of the carriage, or side shift if equipped. To allow stacking loads close to the ceiling, the upper 20 inches of the load backrest on the Type II trucks shall be removable and replaceable without the use of tools. It shall be secured with quick release pins when installed. Load securing rings or eyes shall be provided on both left and right sides of the backrest and located not more than 12 inches from top of assembly. Ring or eye opening shall be determined using MIL-STD-209. The load securing device, when not in use, shall not extend forward of any surface on front face of backrest. The backrest assembly/load securing device combination shall be capable of withstanding a horizontal force (at load securing devices) equal to three times the truck capacity without failure or permanent deformation or carriage assembly. Direction of force is forward.

3.35 Towing device. A pin type towing device shall be provided at the center rear of the truck and shall be used only for towing the truck when disabled. The pin shall be capable of sustaining a rearward, horizontal force of at least 3 times the GVW of the truck for a maximum of 500 feet.

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3.36 Performance.

3.36.1 Slope ascension, forward direction. Trucks shall be capable of ascending a 15 percent grade on a dry concrete surface with and without rated load. Trucks shall be able to accelerate from a dead stop on this slope when carrying rated load.

3.36.2 Upright tilt. When unloaded, truck mast shall have at least 3.0 degrees of forward tilt, and not less than 4.0 degrees of rear tilt.

3.36.3 Collapsed mast height. The collapsed mast height of a truck with no load on the forks, measured from the ground to the top of the uprights in a vertical position, shall not exceed 91 inches.

3.36.4 Maximum fork height. The fork height of a truck with rated load, with the uprights fully extended, and the forks horizontal, measured from the ground to the load-carrying surface of the forks at the capacity load center, shall be not less than 152 inches.

3.36.5 Dimensions. The overall truck height, with mast collapsed, shall not exceed 91.0 inches. The overall width of the truck, at the widest point, shall not exceed 45.0 inches for the Type I and 54.0 inches for the Type II.

3.36.6 Under clearance. The truck with rated load shall have sufficient under clearance to permit operation from one horizontal plane to another, up or down a 15 percent slope, and over the obstacle course described in Test Method No. 1.

3.36.7 Free lift height. The height the forks shall raise the rated load before the collapsed mast height is reached shall be at least 45.0 inches.

3.36.8 Fork dimensions. Fork thickness shall not exceed 0.5 inch at the tips and the end taper shall be not less than 14 inches long. The fork dimensions shall be as listed in Table I:

Table I. Fork dimensions.

TYPE	FORK SIZE	DIMENSIONS
I	Thickness	1.8125 inches maximum
	Width	5.0625 inches maximum
	Length	42 inches (+0, -1 inch)
II	Thickness	2.0625 inches maximum
	Width	6.0625 inches maximum
	Length	42 inches (+0, -1 inch)



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3.36.9 Fork spacing. The forks shall be capable of being adjusted laterally by manual power. The forks shall be capable of spreading to 37.0 inches minimum when measured to the outside of the forks. The forks shall be capable of closing to not more than 13.0 inches when measured to the outside of the forks.

3.36.10 Fork side shift. Forks shall be capable of side shifting by hydraulic power a minimum of 12 inches in the front position with rated load on the forks.

3.36.11 Lifting speed. Lift speed with rated load on the forks shall not be less than 55 feet per minute over the entire distance from ground level to maximum fork height.

3.36.12 Lowering speed. Speed of lowering unloaded forks shall not be less than 40 feet per minute over the entire distance from maximum fork height to ground level. Speed of lowering forks with rated load shall not be more than 80 feet per minute over the entire distance from maximum fork height to ground level.

3.36.13 Turning radius. The maximum turning radius of the truck, measure to outside of the tires, shall be 90.0 inches for Type I and 110.0 inches for Type II.

3.36.14 Travel speed. While carrying the rated load on a level and flat surface, trucks shall be capable of attaining a speed of at least 8.0 mph in both forward and reverse directions.

3.36.15 Acceleration. From a standing start, the truck when carrying rated load shall have an acceleration in the forward direction of 22 feet in not more than 5 seconds and 44 feet in not more than 8 seconds.

3.36.16 Truck operations. The truck shall complete not less than 3 circuits per hour, for a cumulative total of 135 hours, when tested as specified in (see 4.5.33). Only routine maintenance as prescribed by the manufacturer is allowed and only at the end of each operational period. The truck shall show no signs of unusual or detrimental wear. No failure shall occur during the 135 hour operational test. A failure is defined as any malfunction that cannot be corrected within 30 minutes by adjustment, repair or replacement, which may cause cessation of operation, degradation of performance capabilities below specified levels, damage to the truck by continued operation, or personnel safety hazard.

3.36.17 Fork visibility. With no load on the forks, the operator without leaving the seat and while maintaining full control of the truck shall be able to see at least one fork tip at any fork height, fork tilt, or fork spacing when the mast is in the straight ahead position. The operator must remain seated, but may lean if necessary, to see the tip. Also, the truck manufacturer shall have a side-view of the truck showing sight lines for a 95<sup>th</sup> percentile male and a 5<sup>th</sup> percentile female (see Table B-IV of MIL-STD-1472). The manufacturer shall furnish a copy of this drawing as part of the first article inspection report.

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3.36.18 Drift. The lift assembly shall be capable of holding the rated load at maximum lift height for 10 minutes with not more than 0.5 inch of vertical load lowering and not more than 1.0 degrees of mast rotation.

3.36.19 Stability. The truck shall meet the “forward stacking”, “forward travel”, “lateral stacking”, and “lateral travel” stability requirements of ANSI/ITSDF B56.1.

#### 4. VERIFICATION

4.1 Classification of inspections. The inspections shall be classified as follows:

- a. First article inspection (see 4.2).
- b. Conformance inspection (see 4.3).
- c. Production trucks inspection (see 4.4).

4.2 First article inspection. The first article shall be submitted in accordance with 3.2. The first article and its components, contractor drawings and literature, and vendor literature shall be compared to section 3 of this document to verify conformance. The first article shall then be subjected to the conformance inspection specified in (see 4.3) and the examination of product inspection in section 4.4.1.

4.3 Conformance inspection. The following conformance inspection may be performed in any order, as determined by the contractor. Occurrence of any of the following conditions during the testing specified (see 4.3.1 thru 4.3.29) shall be cause for rejection of the first article:

- 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. If excessive wear is suspected, the original equipment manufacturer's (OEM's) specifications or tolerances shall be utilized for making a determination.
- e. Evidence of corrosion or deterioration.
- f. Misalignment of components.

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- g. Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.
- h. Interference between the first article components or between the first article, the ground, and all required obstacles, with the exception of normal contact by the tires.
- i. Evidence of undesirable mobility characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.
- j. Shutdown faults from:
  - (1) Engine cooling system.
  - (2) Engine lubrication system.
  - (3) Engine protective circuits.

4.3.1. Conformance testing and demonstration. Unless otherwise specified herein, demonstrations and tests shall be conducted at the ambient temperature and climatic conditions existing at the place of demonstration and test. Only that maintenance scheduled by the contractor and submitted as a maintenance schedule prior to commencement of the demonstration and test shall be performed during the demonstration or testing. All distance, time measurements, and other required data obtained during the testing shall be recorded and included in the first article test report.

4.3.2 Fail-safe hydraulic lift system. DELETED.

4.3.3 Overload. Place first article on level surface and support it with blocks under the axle or frame to relieve the load on the tires. Secure the first article to the floor in a manner to compensate for the additional test load. The cylinders may be hydraulically locked for this test. With the mast in the straight-ahead position gradually apply load to the forks until three times the rated capacity (12,000 pounds for Type I and 18,600 pounds for Type II, at 24 inch horizontal and vertical load center) is on forks. Leave this load on the forks for at least 10 minutes. Remove load and inspect first article structure, frame, mast assembly and hydraulic system for deformation, cracks, broken welds, hydraulic system leaks, etc. Inspect forks at least six inches each side of fork heel by magnetic particle method.

4.3.4 Fork lifting overload. The forks shall be loaded with 125 percent of the rated load (5,000 pounds for Type I and 7750 pounds for Type II at 24 inch horizontal and vertical load center), and the first article shall be tied down to prevent overturning. The load shall begin two inches above the ground level with the mast vertical, and this position shall be called waterline 2.0. The load shall be fully side shifted left and right and returned to the center position. The load shall be raised to maximum lift height. The load shall be fully side shifted left and right and returned to the center position. The mast shall be fully tilted forward and backward and returned to the vertical position. The load shall be lowered to waterline 2.0. This shall be considered one cycle. This cycle shall be repeated 50 times. Since this is a severe use of the hydraulic system, the lifting and side shifting

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may be stopped as needed to allow cooling of the hydraulic fluid. The occurrence of any condition listed in 4.3 shall be cause for rejection.

4.3.5 Service brakes. Perform the drawbar and stopping distance service braking tests specified in ASME B56.1 as modified by 3.17.1. Nonconformance with 3.17.1 shall be cause for rejection.

4.3.6 Parking brake. Drive the first article forward, while carrying rated load, onto a 15% grade ramp. Measure the force at the handle required to fully apply the parking brake. Using only the parking brake, hold the first article for 2 minutes. Repeat this test, except test with the first article up the ramp in reverse. The first article may be driven up on the ramp in reverse with no load on the forks and the load applied with the first article stationary on the ramp. Any movement of the first article while the parking brake is applied shall be cause for rejection. Nonconformance with 3.17.2 shall be cause for rejection.

4.3.7 Environmental tests.

4.3.7.1 High temperature storage and operation test. A first article shall be tested in accordance with MIL-STD-810, Method 501.5, Procedures I and II, to demonstrate compliance with the high temperature storage and operating requirements of 3.5.1 and 3.5.2. Test duration shall be one 24-hour cycle for each procedure beginning no less than two hours after test item temperature stabilization.

4.3.7.2 Low temperature storage and operation test. A first article shall be tested in accordance with MIL-STD-810, Method 502.5, Procedures I and II, to demonstrate compliance with the low temperature storage and operating requirements of 3.4.1, 3.4.2, and 3.3.9.6.2, as well as the engine starting requirement of 3.21.2.4. Test duration shall be one 24-hour cycle for each procedure beginning no less than two hours after test item temperature stabilization.

4.3.8 Emissions. The manufacturer shall provide a letter certifying the vehicles conform to the EPA regulations in effect at the time of manufacture. If the emissions regulations change during production, a subsequent certification letter must be provided.

4.3.9 Noise level. Measure noise level at operator's ear with the engine operating at maximum rpm and while lifting rated load. Nonconformance with 3.30 shall be cause for rejection. If noise level is between 84 and 92 dB(A), the noise warning plate described in 3.30 shall be on all trucks delivered on this contract.

4.3.10 Slinging and tie down provisions. Test the slinging provisions by applying the load for the time period specified in MIL-STD-209. Test the tie down provisions by applying the ultimate load for the time period specified in MIL-STD-209. Nonconformance to 3.31 shall constitute failure of this test.

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4.3.11 Air transportability verification. Using the air transportability information, verify that the first article can meet all air transport requirements. For reference only refer to MIL-STD-1791. Nonconformance to 3.32 shall constitute failure of this test.

4.3.12 Electromagnetic interference (EMI). Test the first article to verify that it meets the EMI requirements of (see 3.33). Failure to meet these requirements shall be cause for rejection.

4.3.13 Load backrest securing devices. Apply a total forward, horizontal load of 3 times rated capacity (12,000 pounds for Type I and 18,600 pounds for Type II) divided equally between all load securing devices (see 3.34.1). The load shall be applied for 5 minutes. Any deformation or broken welds shall be cause for rejection.

4.3.14 Towing device. Apply a total rearward, horizontal load of 3 times rated the GVW of the first article for a minimum of 5 minutes. Nonconformance to 3.35 shall be cause for rejection.

4.3.15 Slope ascension. Drive first article forward with rated load horizontal onto a ramp or slope of grade specified in 3.36.1 and bring to a complete stop using the service brakes. Start from a dead stop and proceed up to the top of the ramp. Remove rated load and repeat above test. Use a template or other device to verify that the first article can go from a 15% grade onto a horizontal surface. Nonconformance to 3.36.1 shall be cause for rejection.

4.3.16 Upright tilt. Place first article without load on flat level surface. Raise forks to an elevation of about 2 feet. Tilt mast to full forward position and record angle of tilt, measured from the front surface of the outer most channel of the mast. Tilt mast to full rearward position and record angle of tilt measured from the same surface. Nonconformance with (see 3.36.2) shall be cause for rejection.

4.3.17 Dimension measurement. With the vehicle on a level and flat surface, no load on the forks, and mast in true vertical position, measure and record collapsed mast height, free lift height, the overall first article height (with mast collapsed), and the overall first article width. With the vehicle on a level and flat surface, rated load on the forks, and mast in true vertical position, measure and record maximum fork height and under clearance. Load backrest shall be measured to demonstrate compliance with 3.34.1. Nonconformance to 3.34.1, 3.36.3, 3.36.4, 3.36.5, 3.36.6, and 3.36.7 shall be cause for rejection.

4.3.18 Fork dimensions. Measure the length, width, and thickness of the fork tine to determine compliance with 3.36.8.

4.3.19 Fork spacing. With no load on the forks, move forks together to the most closed position. Measure to outside of forks. Move forks to most spread apart position and measure to outside of forks. Nonconformance with 3.36.9 shall be cause for rejection. The occurrence of any condition listed in 4.3 shall be cause for rejection.

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4.3.20 Fork side shift. With no load on the forks, side shift to extreme left position. Side shift to extreme right and measure total travel. Nonconformance with 3.36.10 shall be cause for rejection. With the rated loads on the forks the side shift shall be operated through 100 complete, continuous cycles. A cycle shall consist of starting at extreme right, side shift to extreme left, then side shift back to extreme right. The occurrence of any condition listed in 4.3 shall be cause for rejection.

4.3.21 Lifting speed and lowering speed. With the forklift on a level and flat surface, measure and record the distances and times (inches and seconds) shown below. Repeat the procedure three times. Nonconformance to 3.36.11 and 3.36.12 shall be cause for rejection.

- a. Dimension from floor to top surface of forks in fully lowered position.
- b. Time required to raise rated load to maximum fork height.
- c. Dimension from floor to top surface of forks raised to maximum fork height.
- d. Difference between maximum fork height and height of the forks in lowered position.
- e. Time required to lower rated load at maximum speed (full open lowering control) to an intermediate fork location (between 3 to 4 feet height). The load shall be abruptly stopped at this intermediate fork location.
- f. Dimension from the floor to the intermediate fork location.
- g. Difference between maximum fork height and height of forks in the intermediate fork location.
- h. Time required to lower unloaded forks from maximum lift height to lowered position.

4.3.21.1 Fork lifting mechanism. The fork lifting mechanism shall be operated through 100 complete continuous cycles (from ground level to maximum lift height and back to ground level) with no load and 200 cycles with rated load on the forks. The test shall be performed at a rate of not less than two cycles per minute. Any failures to lift mechanism components, overheating of engine coolant system or hydraulic system, inability to complete the test or any other failure shall be cause for rejection.

4.3.22 Turning radius. With rated load on forks, operate first article in clockwise direction, at maximum steering angle, for at least one complete full circle. Determine turning radius by measuring to outside of tires. Repeat in counterclockwise direction. Nonconformance with 3.36.13 shall be cause for rejection.

4.3.23 Travel speed. Operate the first article at maximum governed speed in both forward and reverse directions with rated load in the load carry position. Inability to obtain the speed specified

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in 3.36.14, failure of any component, over-heating, malfunctioning, or leaking of fluid shall be cause for rejection.

4.3.24 Acceleration test. Run acceleration test as required in 3.36.15. Nonconformance to (see 3.36.15) shall be cause for rejection.

4.3.25 Truck operations. Perform Test Method No. 1 (see figure 2), Truck Operations. Nonconformance with 3.36.16 shall constitute failure of this test.

4.3.26 Fork visibility. With no load on the forks, vary the lift height, side shifting, fork spacing and mast pivoting to verify compliance to the visibility requirements of 3.36.17.

4.3.27 Drift. Exercise the lift and tilt functions to heat the hydraulic fluid to operating temperature. Raise the rated load to maximum lift height with mast approximately vertical. Measure the vertical distance from ground to bottom of load at the 24-inch load center. Measure the mast tilt from vertical. Shut off engine and let sit for 10 minutes. Re-measure the vertical distance to same point on bottom of load. Re-measure the mast tilt. Nonconformance with the drift requirements of 3.36.18 shall be cause for rejection.

4.3.28 Stability. Perform applicable stability tests of ANSI/ITSDF B56.1 specified in 3.36.19. Inability to pass the ANSI/ITSDF B56.1 tests shall be cause for rejection.

4.3.29 Starter disconnect switch. The engine shall be started and ran for at least 10 seconds. The starter switch shall be energized (moved to the “off” then “on” position if applicable) while the engine is running. With the engine not running, the transmission selector shall be placed in the lowest forward gear and the starter switch shall be energized. This shall be repeated for all forward and reverse gears.

4.4 Production trucks inspection. All trucks produced by the contractor shall be inspected and subjected to the tests contained in 4.4.1, 4.4.2, and 4.4.3. Occurrence of any of the conditions listed in 4.3 shall be cause for rejection.

4.4.1 Examination of product. Each truck shall be examined to verify compliance with the requirements herein prior to accomplishing any other demonstrations or tests listed in 4.3. A contractor-generated, Government-approved checklist (part of the test procedure) shall be used to identify each requirement not verified by an analysis, certification, demonstration, or test, and shall be used to document the examination results. 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 truck function shall be verified. Each production truck shall be inspected to a Government-approved reduced version of the checklist.

4.4.2 Travel. The truck shall be driven at least 1.0 miles at varying speeds, including maximum speed. At least five right and five left turns shall be made at maximum turn angle, and operate



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horn, windshield wipers, lights, heater, defroster, and other components during this one mile drive. Occurrence of any conditions listed in 4.3 shall be cause for rejection.

4.4.3 Material handling. With rated load on forks, raise forks to maximum lift height, then lower at maximum lowering speed and quickly stop at one to two feet above ground level. Repeat at least five times. Side shift rated load from one extreme to the other and back to original position. Repeat at least five times. Occurrence of any conditions listed in (see 4.3) shall be cause for rejection.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2).

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. Front/side loading trucks described herein are intended to operate in minimum and very narrow aisles with pallets and long loads when they are stacking, unstacking, and moving cargo in and around warehouses, loading platforms, and docks within the military supply system; also for moving cargo in and out of transport carriers such as highway trailers and vans, cargo containers, railroad cars, and cargo vessels. Diesel powered trucks will be operated in and out of earth covered ammunition storage facilities and in other uses where internal combustion powered trucks are operated. These solid fill pneumatic tired trucks are also intended for operation over paved, semi-prepared and other hard surfaces for short distances.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Number and date of this specification
- b. Type of forklift to be furnished (see 1.2)
- c. When a first article is to be furnished (see 3.2)
- d. Export diesel engine (see 3.11.1)
- e. When the engine shall be other than diesel type (see 3.11.2)
- f. Type C winterization, when specified (see 3.21.1)
- g. Type A winterization, when specified (see 3.21.2)

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h. Packaging requirements (see 5.1)

### 6.3 Subject item (key word) listing.

Material handling

Pivot mast

Swing mast

6.4 Amendment notations. The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

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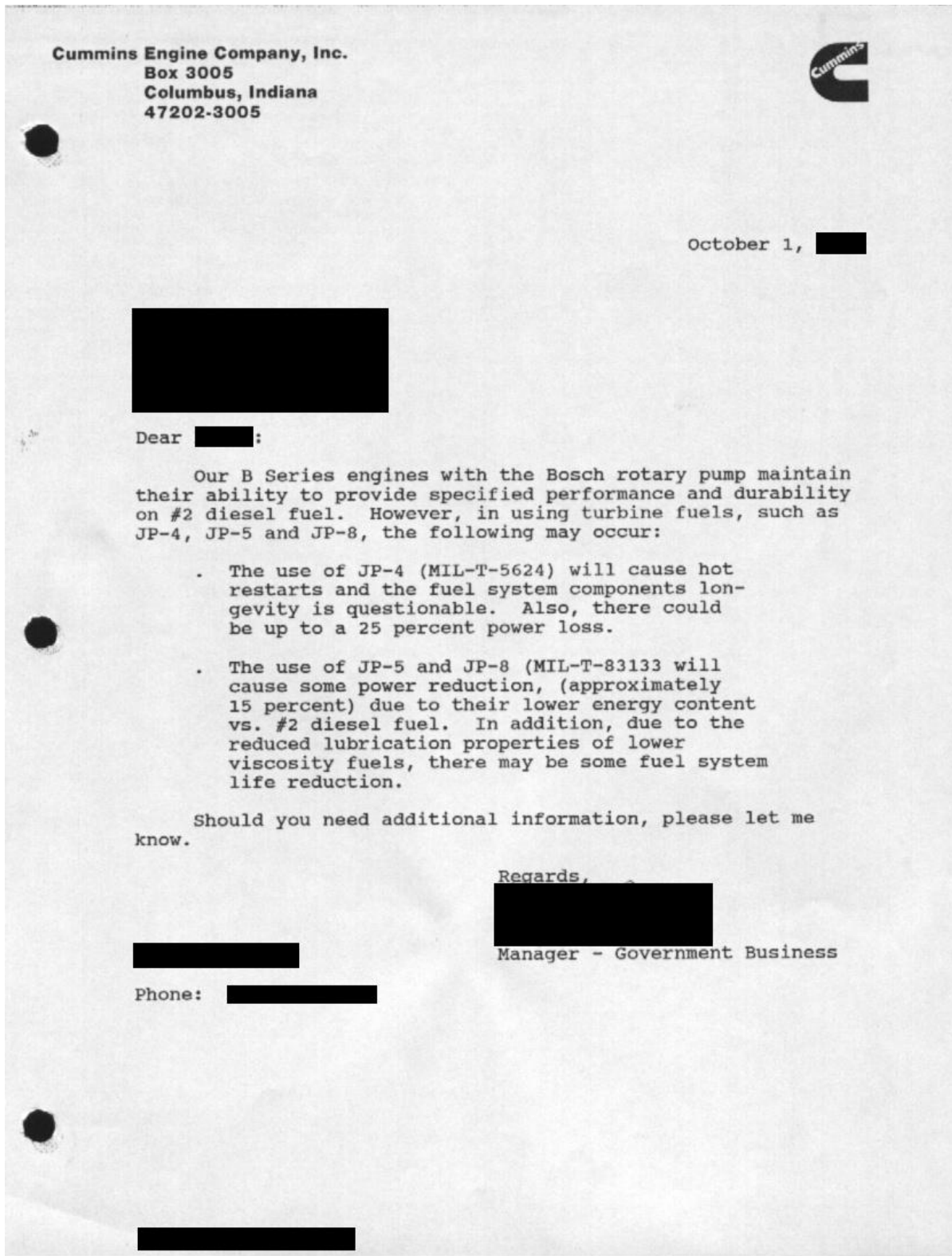


FIGURE 1. Alternate Fuel Certification Letter

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TEST METHODS NO. 1  
TRUCK OPERATIONS1. Demonstration course:

- (a) The test course shall be a level, improved surface laid out in accordance with Figures 3-A and 3-B. Station 1 and Station 3 shall be platforms that are not less than 8 feet in height and capable of supporting rated load. Station 2 shall be at ground level.
- (b) Pick up load from Station 1; back up truck being sure all wheels travel over obstacles; travel forward to Station 2. Before reaching Station 2, stop truck and pivot mast with load 90 degrees to right, then pivot mast back to straight ahead position.
- (c) Deposit load to Station 2; back out; then travel forward to Station 3. Prior to engaging load at Station 3, raise mast to maximum lift height to activate relief valve. Lower forks and engage load.
- (d) Pick up load at Station 3; back out; then travel forward and deposit load at Station 1, being sure all wheels travel over obstacles.
- (e) Disengage load at Station 1; back out, being sure all wheels travel over obstacles; then travel forward to Station 2.
- (f) Pick up load at Station 2; back out; then travel forward and before reaching Station 3, stop truck, pivot load 90 degrees to right, then pivot back to straight ahead position. Deposit load at Station 3.
- (g) Steps 2 (b) through 2 (f) shall constitute one circuit. For 50 percent of the circuits, Station 2 and Station 3 shall be interchanged so that they are in clockwise position rather than in their initial counterclockwise position. Stations shall be changed at the end of each 8-hour operating day.

FIGURE 2. Test Methods No.1

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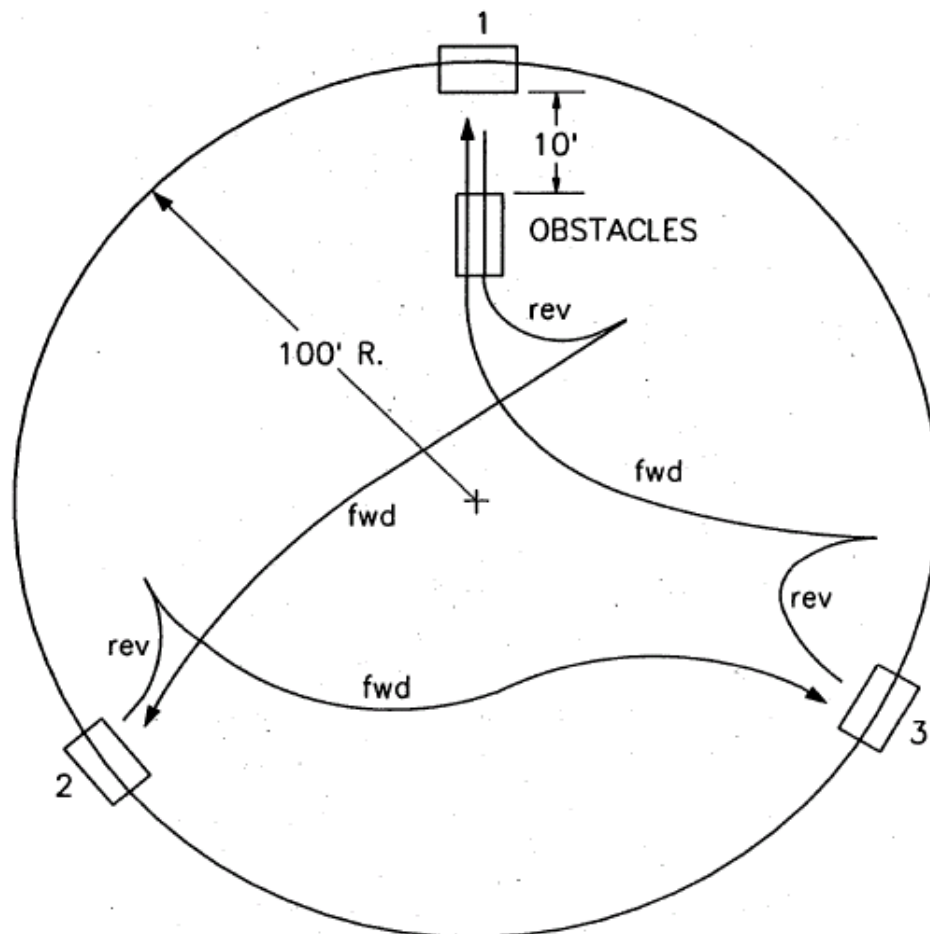
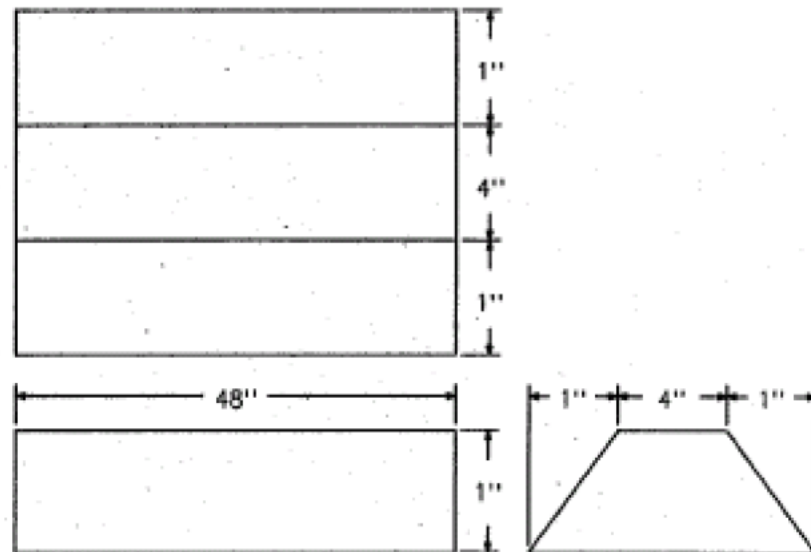


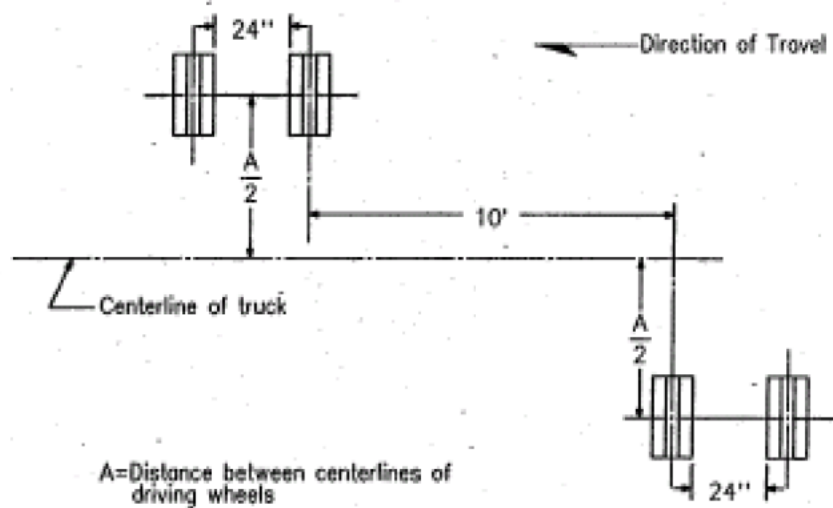
FIGURE 3-A. Truck operations course

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## CONSTRUCTION OF OBSTACLES



## OBSTACLE COURSE LAYOUT

FIGURE 3-B. Obstacles

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Custodians:  
Air Force - 184

Preparing Activity:  
Air Force - 184

Reviewer:  
Air Force - 99  
DLA - IS

Agent:  
Air Force – 99  
(Project 3930-2017-003)

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 <https://assist.dla.mil/> .