

INCH-POUND

A-A-59727

28 June 2002

## COMMERCIAL ITEM DESCRIPTION

TRUCK, LIFT, FORK, DIESEL-ENGINE-DRIVEN, PNEUMATIC-TIRED,  
20,000 POUND CAPACITY AT 24 INCH LOAD CENTER

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

## 1. SCOPE

1.1 Description. This commercial item description covers the general requirements for a diesel engine driven, front wheel drive, rear wheel steer, pneumatic tired, 20,000 pound capacity, forklift truck. The forklift is intended for handling cargo in and around warehouses, loading platforms, docks and on paved or other hard surfaces.

## 2. SALIENT CHARACTERISTICS

2.1 Safety. The forklift shall comply with ASME/ANSI B56.1, UL 558, and OSHA standards in effect at the time of manufacture. The forklift shall be DS rated. An operator's seatbelt conforming to SAE J 386, and restraint devices designed to ensure the operator's upper body remains entirely within the protection of the overhead guard in the event of tipover shall be provided.

2.2 Environmental requirements. The truck, with type A winterization system, shall be capable of operating in temperatures ranging from -65 degrees F to +125 degrees F. The truck, with type C winterization system, shall be capable of operating in temperatures ranging from -25 degrees F to +125 degrees F.

2.3 Engine. The forklift shall be powered by a standard, commercial, turbocharged, diesel engine. The engine shall operate on diesel fuel in accordance with A-A-52557 without detrimental effects on the engine, or its performance.

2.4 Fuel system. The forklift shall have all necessary filters, water separators, and components required for diesel fuel operation. The forklift shall have a fuel tank of sufficient capacity to allow at least eight hours of continuous operation.

2.5 Starting system. The starter 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. The starter switch shall only operate when the transmission is in the "neutral" or "park" positions.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: WR-ALC/LEEV, 295 Byron Street, Robins AFB GA 31098-1611

AMSC N/A

FSC 3930

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2.6 Transmission. A torque converter and a powershift type of transmission shall be furnished, with at least two speeds forward and two speeds reverse. The transmission shall provide for positive inching control, or declutch control, that permits lifting of rated load at maximum lifting speed while the transmission control is in either forward or reverse direction, without vehicle movement. This control shall also apply the service brakes. When specified (see 6.3), a transmission oil cooler shall be furnished.

2.7 Hydraulic system. A pressure relief protection device is required along with pump(s), cylinders, control valves, filter(s), reservoir, hoses, and all other components necessary to make a complete hydraulic system.

2.8 Uprights and carriage. With no load on the forks, the seated operator with seatbelt engaged shall be able to see at least one fork tip at all lift heights and fork positions.

2.9 Forks and carriage. Fork tines shall have the following standard dimensions. The forks shall be mounted so that when fully lowered and forklift operating in reverse, there is no damage or degradation to the fork tines, their attachment, or any other component of the carriage, including fork positioner and side shift. When specified (see 6.3), optional forks shall be furnished.

2.9.1 Standard Forks

- a. Length: 72 ( $\pm$  1.0) inches
- b. Width: 10 inches (maximum)
- c. Thickness: 3.0 inches (maximum)

2.9.2 Optional Forks

- a. Length: 27 ( $\pm$ 0.5) inches
- b. Width: 10 inches (maximum)
- c. Thickness: 3.0 inches (maximum)

2.10 Fork positioner. A hydraulically powered fork positioner shall be furnished and controlled by the operator while seated. The fork positioner shall allow tine spacing of 22 inches (or less) to 64 inches (or more), measured between centerlines of the forks.

2.11 Side shift. Hydraulically powered side shift capability shall be furnished. It shall be controlled by the seated operator, and shall provide at least six inch side shift capability (each side of center or 12.0 inches minimum total travel).

2.12 Load backrest. The load backrest, in conjunction with the forks and carriage, shall provide a vertical rear load guard of at least 48 inches high, measured from the load carrying surfaces of the forks.

2.13 Steering. Power steering, with emergency steering in the event of power failure, shall be furnished.

2.14 Service brakes. Power brakes conforming to ASME/ANSI B56.1 shall be furnished, except maximum brake pedal force during stopping shall not exceed 80 pounds.

2.15 Parking brake. Parking brake shall conform to ASME/ANSI B56.1.

2.16 Electrical system. A 12 volt direct current electrical system shall be furnished. The electrical system shall consist of all electrical components necessary for operation of the forklift. The forklift shall have sufficient electrical grounding to prevent static discharge.

2.17 Instruments and controls. In addition to the instruments supplied on the standard commercial forklift, an hour meter and tachometer shall be installed in the instrument panel. Except the hour meter, all instruments shall illuminate. All load motion controls shall be right hand operation controls and of the self-centering type, i.e., controls shall return to the neutral position when released.

2.18 Lighting. Minimum four sealed beam floodlights, two in front facing forward and two mounted in the rear facing rearward, shall be furnished. 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 front floodlights, rear floodlights, and adjustable lights.

2.19 Horn. Horn button shall be mounted in the center of the steering wheel.

2.20 Operator's overhead guard. The guard shall be in accordance with ASME/ANSI B56.1. It shall also be a falling-object-protective-structure (FOPS) conforming to ASME/ANSI B56.1. Overhead guard height from ground to top of guard shall be 120 inches maximum.

2.21 Cab. When specified (see 6.3), the forklift, shall be equipped with an enclosed cab that shall incorporate overhead protection requirements of ASME/ANSI B56.1. The cab shall have a door on each side of the vehicle with at least one window per door, which can be opened for ventilation; the windows shall be capable of being locked in either the open or closed positions. In addition to the door windows, the cab shall be furnished with a front windshield, rear window, and roof window. The windshield and all windows shall be safety glass. The cab interior shall be furnished with water-resistant non-absorbent thermal insulation. A commercial fire extinguisher shall be mounted on the truck in an easily accessible location. The fire extinguisher shall be a minimum 2-1/2 pound capacity ABC type, or equivalent. The fire extinguisher shall be UL listed. The manufacturer's heaviest duty heater and defroster shall be furnished.

2.22 Windshield wipers. There shall be at least three wipers furnished, one on the front windshield, one on the rear window, and one on the roof window.

2.23 Performance.

2.23.1 Capability at 48 inch per side cube. Capability to safely handle a 20,000 pound, 48 inch per side cube with the center of gravity at the center of the cube. It shall be able to handle this load at all lift heights that the forklift is capable of attaining.

2.23.2 Capability at 30x53x120 inch block. Capability to safely handle a 20,000 pound, 30 inch deep by 53 inch tall by 120 inch wide block with a center of gravity at the center of the block. It shall be able to handle this load at all lift heights that the forklift is capable of attaining (see figure 1 & 2).

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2.23.3 Lifting speed. Lifting speed shall be at least 11 inches per second.

2.23.4 Lowering speed. Not more than 16 inches per second with rated load on the forks. Not less than 8 inches per second with rated load and with engine at idle speed.

2.23.5 Right angle turn. Right angle turn with rated load on the forks, forklift positioned perpendicular to a wall, and with the front of the load against the wall, the truck shall be able to back up and make a complete right angle turn (ending up parallel to the wall) within 272 inches.

2.23.6 Travel speed. Travel speed shall be 12 miles per hour (mph) minimum (not to exceed 18 mph), in both forward and reverse, while carrying rated load on the forks. The vehicle speed shall be governed so that maximum speed for safe operations is not exceeded.

2.23.7 Slope ascension. Slope ascension with the truck facing up the slope and with rated load on the forks, the truck shall be able to accelerate up a 20 percent slope from a dead stop.

2.23.8 Upright tilt. Upright tilt with no load on the truck, the forks shall have at least 3.0 degrees of forward tilt, and at least 6.0 degrees of rear tilt.

2.23.9 Upright height (collapsed mast height) and Maximum fork lift height (STANDARD). With no load on the forks and the forks on the ground, the maximum upright height shall be 176 inches. The maximum fork "lift height" shall be at least 210 inches with rated load on the forks and the forks horizontal.

2.23.10 Upright height (collapsed mast height) and Maximum fork lift height (OPTIONAL). When specified (see 6.3). With no load on the forks and the forks on the ground, the maximum upright height shall be 132 inches. The maximum fork lift height shall be at least 145 inches with rated load on the forks and the forks horizontal.

2.23.11 Ground clearance. With rated load on the forks and mast vertical, ground clearance beneath the mast shall be at least 8.0 inches. With no load on the forks, the ground clearance of the truck other than the mast and axles shall be at least 7.0 inches.

2.23.12 Load drift. With hydraulic fluid at normal operating temperature, the lift assembly shall hold rated load at maximum lift height for at least 10.0 minutes with not more than 1.75 inch of vertical drift, and not more than 1.0 degree of rotational drift.

2.23.13 Stability. The forklift shall meet the ASME/ANSI B56.1 "forward stacking", "forward travel", "lateral stacking", and "lateral travel" stability requirements.

2.23.14 Noise limits. Maximum allowable noise level shall not exceed 84dB(A) at the operator's ear. If the noise level at the operator's ear is between 85 to 92 dB(A), a permanent warning decal or placard shall be installed inside the cab clearly visible to the operator. Noise level shall not exceed 92dB(A).

2.24 Painting. The forklift shall be primed and painted using standard commercial practices. The final paint shall be a standard, commercially available polyurethane. The paint finish shall

show no evidence of uneven application, curtains, runs snags, orange peel, lack of adhesion, or other defects. The color shall be the manufacturer's standard color. When specified (see 6.3), the manufacturer shall make color 24052 of FED-STD-595 available.

2.25 Markings, data plates, and instruction plates. Corrosion resistant identification plate, hydraulic schematic, wiring schematic, and all warning and instruction plates shall be provided and mounted on the vehicle. The identification plate shall contain the following information:

Nomenclature:  
 Make and Model:  
 Manufacturers Serial Number (VIN):  
 Registration Number:  
 National Stock Number (NSN):  
 Vehicle Curb Weight (lbs):  
 Payload, Maximum (lbs):  
 Gross Weight, Maximum (lbs):  
 Date of Delivery:  
 Warranty (months/miles):  
 Contract Number:  
 Ship to \_\_\_\_\_ Mark for \_\_\_\_\_  
 U S Property

2.26 Walkway coating. Floor plates and step surfaces shall be coated with a nonslip coating compound, or be furnished with a nonslip metal or treadplate surface.

2.27 Lifting and tiedown provisions. There shall be permanently installed lifting devices that enable the forklift to be lifted in its normal travel configuration, and tiedown devices that enable the forklift to be tied down to the floor of the transportation media. All devices shall have an inside diameter of 3.0 inches and minimum structural safety factor of 2:1, based on static load. The notation "LIFT HERE" and "TIEDOWN" shall be stenciled, in black, near each lifting and tiedown device.

2.28 Electromagnetic interference (EMI). The forklift shall comply with EMI requirements of SAE J551-1 and SAE J551-2.

2.29 Highway transportability. The truck, when loaded on a semitrailer, shall be within the highway permit limits for all states.

2.30 Exhaust system. The truck shall contain all of the standard commercial components composing an exhaust system. When specified (see 6.3), the exhaust system shall include a commercially available spark arrestor muffler. The spark arrestor muffler shall be sized to meet requirements for engine exhaust flow at rated engine speed.

2.31 Winterization. (Minimum Requirements)

2.31.1 Type A winterization. When specified (see 6.3), the truck shall be furnished with Type A winterization that shall protect to -65 degrees F and shall consist of the following:

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2.31.1.a. 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:

(1) 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 degrees F in an ambient temperature of -65 degrees F. It shall be controlled to limit engine coolant to not more than 150 degrees F.

(2) An engine oil heater with adequate capacity to maintain engine oil at a temperature of at least +10 degrees F in an ambient temperature of -65 degrees F shall be furnished. It shall be controlled to limit engine oil temperature to not more than 150 Degrees F.

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

2.31.1.b. Cab. The cab shall meet the requirements of 2.21, and shall also contain thermal insulation, if necessary, to meet the heating requirements of 2.31.1.c.

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

2.31.1.d. Starting aid. Glow plug(s) or a measured shot ether injection system shall be provided to assist in engine cold temperature starting.

2.31.1.e. Antifreeze. Engine coolant shall be protected to -65 degrees F.

2.31.2 Type C winterization. When specified (see 6.3), the truck shall be furnished with Type C winterization that shall protect to -25 degrees F and shall consist of the following:

2.31.2.a. Starting aid. Glow plug(s) or a measure shot ether injection system shall be furnished.

2.31.2.b. Cab. The cab shall meet the requirements of 2.21, and shall also contain thermal insulation, if necessary, to meet the heating requirements of 2.31.2.c.

2.31.2.c Cab heater and defroster. The heater shall have sufficient capacity to maintain a temperature of at least +40 degrees F at cab floor level in an ambient temperature of -20 degrees F.

2.31.2.d Antifreeze. Engine coolant shall be protected to -25 degrees F with antifreeze.

### 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.

#### 5. PACKAGING

5.1. Preservation, Packaging, Labeling and Marking. Unless otherwise specified (see 6.3), the preservation, packaging, and packing shall be to a degree of protection to preclude damage to containers and/or contents thereof under normal shipping conditions, handling, etc. This involves shipment from the supply source to the receiving activity, and reshipment from the receiving activity. The preservation, packaging, and packing shall conform to applicable carrier's rules and regulations. Intermediate and exterior package quantities, labeling and marking shall be as specified in the contract and/or order.

#### 6. NOTES

6.1 Intended use. This commercial item description covers the general requirements for a diesel engine driven, front wheel drive, rear wheel steer, pneumatic tired, 20,000 pound capacity, forklift truck. The forklift is intended for handling cargo in and around warehouses, loading platforms, docks and on paved or other hard surfaces.

##### 6.2 Source of Documents.

6.2.1 Government documents. Copies of specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

6.2.2 ASME Standards. Copies of ASME standards may be obtained from the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.

6.2.3 SAE Standards. Copies of SAE standards may be obtained from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.

6.2.4 TRA Standards. Copies of TRA standards may be obtained from the Tire and Rim Association, 3200 West Market Street, Akron, OH 44313.

6.2.5 UL Standards. Copies of UL standards may be obtained from the Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

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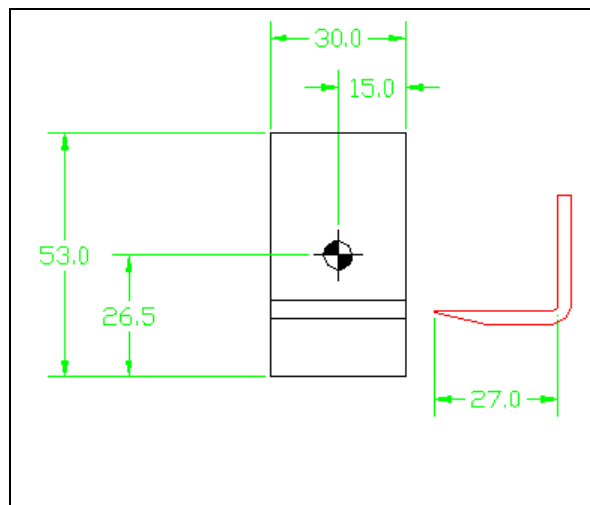
6.3 Ordering data. Acquisition documents shall specify the following information:

- a. CID document number, revision and CID PIN.
- b. Transmission oil cooler, when specified (see 2.6)
- c. Optional forks, if required (see 2.9)
- d. Enclosed Cab, when specified (see 2.21)
- e. Optional Upright height and Maximum fork “lift height”, when specified (see 2.23.10)
- f. When paint is other than manufacturer’s standard color (see 2.24)
- g. Spark arrestor muffler, if required (see 2.30)
- h. Type of winterization, if any (see 2.31.1 or 2.31.2)
- i. Packaging requirements, if different (see 5.1).

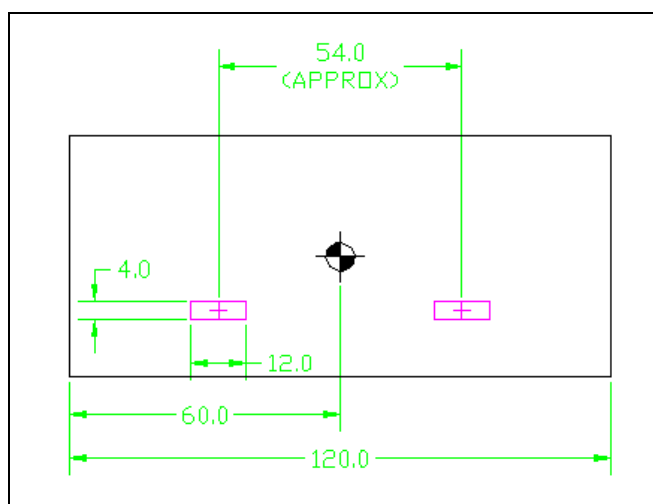
6.4 Subject term (key word) listing.

front wheel drive  
rear wheel steer  
handling cargo  
warehouses  
Fork positioner  
Load backrest  
Cab





**Figure 1 Side View of Block with Forks**



**Figure 2 Front View of Block**

**MILITARY INTERESTS:**

Custodians:  
Air Force – 99

Preparing activity:  
Air Force 84

Agent :  
Air Force 99

(Project 3930-0027)