

INCH-POUND

MIL-T-83830 (USAF)

24 March 1995

MILITARY SPECIFICATION

TRUCK, LIFT, FORK, ROUGH TERRAIN, DIESEL ENGINE DRIVEN,

25,000 POUND CAPACITY AT A 48 INCH LOAD CENTER

This specification is approved for use by Warner Robins Air Logistics Center Department of the Air Force and is available for use by all Department and Agencies of the Department of Defense.

1. SCOPE.

1.1 Scope. This specification describes a 25,000 pound, diesel engine driven, rough terrain, four wheel drive pneumatic tired forklift truck (hereinafter called the truck) with two/four wheel steer (rigid frame) or articulated frame steering.

2.0 APPLICABLE DOCUMENTS.

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

STANDARDS

FEDERAL

FED-STD-297 Rustproofing of Commercial (Nontactical) Vehicles

FED-STD-595 Colors

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to:
WR-ALC/LVRE, 225 Ocmulgee Court, Robins AFB GA 31098-1647 by using the
Standardization Document Improvement Proposal (DD Form 1426) appearing at the
end of the document or by letter.

AMSC N/A

FSC 3930

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2.1.2 Other Government documents, drawings, and publications. The following other Government documents form a part of this specification to the extent specified herein.

MILITARY

MIL-STD-209 Slings and Tiedown Provisions for Lifting and
Tying Down Military Equipment

MIL-STD-1791 Designing for Internal Aircraft Delivery in Fixed
Wing Aircraft

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval publications and Forms Center, Standardization Documents Order Desk, Building 4D, 700 Robins Avenue, Philadelphia PA 19111-5094.)

DESIGN HANDBOOKS

AFSC DH 1-11 Air Transportability

(Copies of this design handbook should be obtained from HQ AFLC, ASD/ENEC, Wright Patterson AFB Ohio 45433-5000).

CODE OF FEDERAL REGULATIONS

Motor Carrier Safety Regulation 393.77(c)(7)

(Copies should be obtained from the Superintendent of Documents, Government Printing Office, Washington, DC 20402)

2.2 Non-Government. The following documents form a part of this specification to the extent specified herein.

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

B 56.6 Safety Standards for Rough Terrain Forklift Trucks

B 56.11.3 Load Handling Symbols for Powered Industrial Trucks

Z26. I Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways

(Copies should be obtained from the American National Standards Institute, Inc. (ANSI), 1430 Broadway, New York, NY 10018.)

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE-J53 Machines, Wheeled Earthmoving Construction, Minimum Performance Criteria for
Emergency Steering of

SAE-J98 Machines, Industrial. Personnel Protection for General Purpose

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SAE-J154 Operator Space Envelope Dimensions for Off-Road Machines

SAE-J185 Construction and Industrial Equipment, Access Systems For

SAE-J198 Windshield Wiper Systems, Trucks, Buses and Multipurpose Vehicles

SAE-J386 Machines, Operator Restraint System for Off-Road Work

SAE-J514 Tube, Fittings, Hydraulic

SAE-J516 Fittings, Hose, Hydraulic

SAE-J517 Hydraulic Hose

SAE-J518 Hydraulic Flanged Tube, Pipe and Hose Connections, 4-Bolt Split Flange Type

SAE-J524 Steel Tubing, Seamless Low Carbon, Annealed for Binding and Flaring

SAE-J525 Steel Tubing, Low Welded and Cold Drawn Carbon, Annealed for Binding and Flaring

SAE-J534 Fittings Lubrication

SAE-J541 Circuits, Starting Motor, Voltage Drop For

SAE-J551 Limits and Methods of Measurement of Radio Interference Characteristics of Vehicles and Devices

SAE-J553 Circuit Breakers, SAE Recommended Practice

SAE-J585 Lamps Tail (Rear Position Lamps)

SAE-J586 Lamps Stop Motor Vehicles Use on Less Than 2032 MM IN Overall Width

SAE-J598 Machinery, Construction and Industrial, Sealed Lighting Units For

SAE-J695 Motor Vehicles - Turning Ability and Off Tracking

SAE-J833 Human Physical Dimensions

SAE-J898 Work Machines, Off Road, Control Locations For

SAE-J899 Work Machines, Off Road Self-Propelled, Operator's Seat Dimensions For

SAE-J919 Measurement Sound - Earthmoving - Operator - Singular Type

SAE-J925 Machines, Off Road, Minimum Service Access Dimensions For

SAE-J985 Mirror, Rear View, Vision Factors, Considerations in Design

SAE-J1040 Machines, For Construction, Earthmoving, Forestry, and Mining, Performance Criteria for Rollover Protective Structures (ROPS)

SAE-J1176 External Leakage Classification for Hydraulics System

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SAE-J1234 Work Machines, Off Road, Specification Definitions

(Copies should be obtained from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15086).

UNDERWRITERS LABORATORIES INC. (UL).

UL 558 Standard for industrial Trucks, Internal Combustion Powered

(Copies should be obtained from Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062).

TIRE & RIM ASSOCIATION

Tire & Rim Association Yearbook

(Copies should be obtained from the Tire & Rim Association, inc., 3200 West Market Street, Akron, OH 44313).

3. REQUIREMENTS

3.1 Description. The truck shall be diesel-engine-driven, four wheel drive, rough terrain type forklift. It shall have operator selected 2-wheel, 4-wheel, and crab steering, or shall have an articulated frame.

3.2 First article test. The contractor shall furnish one complete truck for first article inspection (4.3) and testing (4.5), and when specified (see 6.2), a second truck for User Test (4.8). The truck for the User Test shall be subjected only to examination (4.3.1) and production run in (4.6) by the contractor and Government representatives prior to shipment to the User Test. The truck for the User Test shall not be subjected to the testing of 4.5. The first article truck(s) shall be identical to all production trucks and shall be rehabilitated to like new condition and delivered as specified in the contract. Examination and testing shall be subject to surveillance and approval by the Government.

3.3 Material.

3.3.1 Dissimilar metals. Unless suitably protected against electrolytic corrosion, dissimilar metals shall not be used in intimate contact with each other.

3.3.2. Drain holes. Structures shall be designed to avoid pockets where debris and water might accumulate. All structural configurations shall allow water run off, or have adequately sized and placed drain holes.

3.3.3 Rustproof. When specified (see 6.2), the following areas of the truck shall be treated in accordance with FED-STD-297 for tropical rustproofing:

- a. Hood
- b. Roof
- c. Doors
- d. Pillars
- e. Cab interior
- f. Other body requirements (cab only)
- g. Applicable areas specified for tropical rustproofing (see FED-STD-297).

3.4 Operating temperature. The engine shall start without preheating or any external power source within 5 minutes in any ambient temperature (and with the truck stabilized at ambient temperature) from 0 to +125 degrees F. With proper oil and lubricants, the truck shall operate as specified herein within

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15 minutes after engine start in any temperatur 0 to +125 degrees F.

3.5 Safety. The truck shall conform to the applicable requirements of ASME/ANSI B56.6, and OSHA standards in effect at the time of manufacturer, UL 558 for DS type trucks, SAE J98, and arty other applicable SAE standards. All rotating and reciprocating parts and parts subject to high temperature shall be guarded when such parts are exposed to contact by operator and maintenance personnel performing daily maintenance functions. There shall be no sharp edges on surfaces. Nonfunctional edges shall be rounded, projecting points shall be blunted or rounded, and excessive length of fasteners shall be avoided. Steps and platforms shall have antiskid surfaces.

3.5.1 Seatbelt and operator's restraint. An operator's seatbelt conforming to SAE J386, Type One, shall be installed. Additional restraint devices (e.g., winged seats, enclosures, etc.) designed to ensure the operators body remains entirely within the protection of the frame and overhead guard in the event of tipover or lateral roll will also be provided. The restraint system will not interfere with operator access or mobility or the vehicles operation. A warning decal will be provided advising of the hazards of tipover and the importance of using the restraint system. The installation of the lapbelts alone will not be considered as adequate occupant restraint. The manufacturer will provide evidence of the suitability and effectiveness of any provided occupant restraint system.

3.5.2 Fire extinguisher. A 2-1/2 pound, dry chemical fire extinguisher shall be installed in an accessible location.

3.5.3 Rear view mirror. A rear view mirror of at least 6.0 inch diameter, or at least 30 square inches if rectangular, shall be mounted on both right and left sides within the operators field of view as described in SAE J985.

3.6 Human factors. The forklift including cab ,if furnished, shall provide for operation and maintenance by personnel ranging from the small person clothed through the large per arctic clothed per SAE J833, and SAE J925. At least the following shall be included: accelerator, service and parking brakes, inching pedal, steering wheel, all travel and load motion control levers, entry into the operators seat, access to all fluid level checks, switches, and door handles.

3.7 Design. The truck shall be designed for at least 25,000 pound capacity at 48 inch horizontal and vertical load center, with the forks at the maximum lift height of the truck and with the mast tilted to extreme forward position and with the load sideshifted to extreme right and left positions. There shall be no evidence of accelerated wear, galling, overheating, failures, or permanent deformation when operated as specified herein. The truck shall have a structural safety factor of at least 3 to 1 and shall support a 300% overload with no deformation.

3.8 Engine. The buck shall be powered with a standard commercial diesel engine. Horsepower and torque characteristics shall be sufficient to provide the performance specified herein. Engine torque and horsepower shall be provided at an RPM which will assure performance with an adequate margin of safety. Emergency manual shutdown provisions shall be furnished when recommended by the engine manufacturer. The engine shall operate on diesel fuel, and Jet-A or Jet-A1, without detrimental effect on the engine. When operating on Jet-A or Jet-A1, the truck shall meet the performance requirements of Section 4 of this document.

3.8.1 Starting System. A means shall be furnished to prevent energizing the starter motor whenever the engine is running. The truck shall be provided with a means to prevent energizing the starter motor except when the transmission is in neutral. The starter shall be in accordance with the engine manufacturer's recommendations.

3.8.2 Alternator. A DS rated alternator with sufficient capacity to maintain all electrical accessories at engine idle speed shall be provided.

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3.8.3 Fuel System. The capacity of the fuel tank shall be adequate to allow at least 10 hours of continuous operation as defined in 4. If the fluid level of the tank is above the engine, the tank shall be provided with a hand-operated fuel shutoff valve attached directly to the tank. The fuel tank cap shall be approved DS cap. A data plate shall be furnished near the fill pipe marked "Diesel Fuel" in not less than 1-inch high letters. The tank filler shall have an inside diameter of at least 3/4 inch and shall accept fuel from a nozzle of 2 1/4 inch diameter with air release clearances and shall be located so that the tank can be filled from a 5 gallon can by a person standing on the ground or truck surface designed for standing. The fuel tank shall be equipped with a drainplug at the lowest point of the tank. The drainplug shall be removable with handtools without the removal of any other component. Fuel lines shall provide continuous operation at fuel throttle and maximum loads, including slope ascension. The fuel system shall include provisions for priming, if necessary.

3.8.4 Air cleaner. The engine shall be furnished with an air cleaner that meets the DS requirements of UL 558. The capacity of the air cleaner should be in accordance with the engine manufacturer's recommendations. An air cleaner intake restriction indicator shall be provided and located for quick and easy checking.

3.8.5 Cooling system. The cooling system shall be of the closed pressure type. Under all operating conditions specified herein, the temperature of the coolant in the radiator top tank shall not exceed the operating limits as recommended by the engine manufacturer.

3.8.6 Fan. The fan shall discharge away from the operator.

3.8.7 Radiator. The cooling system shall include at least a radiator and a coolant recovery system. The radiator shall be mounted to prevent its being damaged due to shock and racking experienced in normal operation of truck. The radiator shall be protected by a heavy grill, guard, or by the counterweight. A shield shall be provided, if necessary, to protect radiator from mud and gravel thrown by the tires, both internally and externally.

3.8.8 Governor. A governor shall be provided to limit engine speed to not more than the intermittent duty speed recommended by the engine manufacturer with the truck operating under any condition specified herein.

3.8.9 Exhaust system. The exhaust system shall be protected against entry of rain. The back pressure of the exhaust system, including muffler, shall in no case exceed the maximum recommended by the engine manufacturer at any load up to rated net continuous load. Exhaust gases shall be emitted vertically above the operator's head or at the rear or side rear of the truck within the plan outline of the truck. The exhaust system shall be arranged or guarded to prevent bumps to the operator and maintenance personnel while working on step surfaces of the truck.

3.8.10 Crankcase Ventilation System. The crankcase ventilation system shall preclude water entering the engine during fording operations.

3.8.11 Oil Filters. Spin-on, throw away type oil filter(s) shall be furnished in accordance with the engine manufacturer's recommendations.

3.9 Power Train. The power train shall consist of the torque convertor, transmission, axle assemblies, and drive shafts all adequate to accept full horsepower and torque rating of the engine.

3.9.1 Transmission. A powershift transmission that provides not less than two forward and two reverse gear ratios. All transmission gears shall be constant mesh. The transmission shall allow for shifting under full engine power through all successive forward and reverse transmission gear ratios. The transmission shall be protected from damage when the operator moves or attempts to move the directional control to the

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opposite direction while the forklift is in motion. Oil pressure for actuation of the transmission clutches, for torque converter supply, and for transmission lubrication shall be supplied by a mechanically driven pump. The transmission and torque converter fluid shall be filtered by filter(s) having replaceable elements or by spin-on, throw-away type filters in accordance with the transmission manufacturers recommendations. Torque converter and transmission shall absorb maximum stall operation for a minimum of 30 seconds without damage or permanent deformation and without exceeding the fluid temperature limit of 250 degrees F with an initial fluid temperature of not less than 120 degrees F in an ambient temperature of not lower than 40 degrees F. The transmission shall be provided with a clutch disconnect or an inching pedal which shall provide controlled low speed movement of the truck in the forward and reverse directions throughout the entire range of engine speed. The forklift shall be capable of achieving maximum specified lifting, lowering and tilting rates of the rated load while the inching control or clutch disconnect is being used. A transmission fluid heat exchanger shall be incorporated in the engine cooling system or shall be air cooled.

3.9.2 Transmission controls. All transmission control levers shall be mounted within easy reach of seated operator. They shall be not closer than 3.0 inches to the nearest point on the steering wheel rim, and shall be no closer than 1.5 inches to each other. The shift lever shall pass through the neutral position when shifting from forward to reverse gear.

3.9.3 Front and rear axles. The axle manufacturers recommended ratings for torque input, and beam loading shall be in excess of the actual maximum loads. A rear axle drive disconnect easily operated from the operator's seat shall be provided on rigid frame trucks, and on articulated trucks (unless the vehicle is designed so that there is negligible difference in the path of travel of the front and rear wheels while the frame is articulating to negotiate turns).

3.10 Wheels. Wheel rims shall be in accordance with the Tire and Rim Association (T&RA) Yearbook and all rims on the truck shall be the same size.

3.11 Tires. All tires shall be new and of same rated size and construction. The tires shall be pneumatic and tubeless, furnished with nondirectional, traction or rock lug tread and shall require not more than 100 psi pressure to match the Gross Vehicle Weight (GVW) of the forklift. Tire loading shall be in accordance with the Tire and Rim Association (T&RA) Yearbook, or ratings approved by the rim or wheel manufacturer at the 5 mph rating for 100 psi inflation (maximum) pressure.

3.12 Steering system. The steering system shall provide positive hydraulic power steering control of the truck at all speeds and during all operations. The system shall provide the operator the option of two wheel, four wheel, or crab steer for rigid frame trucks; or articulated frame steer. When traveling forward, as viewed from the operator's normal seated position, when the steering wheel is turned clockwise, the truck shall turn to the right and when the steering wheel is turned counterclockwise the truck shall turn to the left.

3.12.1 Steering control system Wheels of a stationary unloaded truck shall turn from the extreme right position to the extreme left position or vice versa in not more than 6 1/2 turns of the steering wheel. The turning force tangential to the steering wheel required to turn the steering wheel shall not exceed 10 pounds when truck is on a dry, level, concrete surface, both loaded and unloaded, in all steering modes of the truck.

3.12.2 Emergency steering. A system shall be furnished that will provide adequate hydraulic pressure and capacity to meet the performance criteria of SAE J53 in the event of engine or hydraulic pump failure.

3.13 Brakes.

3.13.1 Service brake. The service brakes shall be the full air, air-over-hydraulic, or hydraulic-over-hydraulic type. The air system shall contain an air dryer. The brakes shall be capable of satisfactory

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operation when immersed to depth of three feet in fresh water and shall be readily accessible for adjustment and servicing. A brake holding device, manually controlled for locking and releasing, shall be installed to provide positive locking of the service brake.

3.13.2 Parking brake. The parking brake shall be capable of meeting the performance requirements, and testing, specified in this document.

3.14 Frame. The frame shall be designed and fabricated to meet all requirements specified herein. There shall be no evidence of cracks, permanent deformation, or structural failure of the frame, body assembly, and all connecting parts during operation and testing specified herein.

3.15 Hydraulic system. The hydraulic system shall consist of all hydraulic components necessary for operation of the forklift, including steering system, but does not include power train. The system shall have a maximum working pressure (relief valve setting), not in excess of 3,000 psi. All hydraulic component material shall be compatible with this fluid. Unless otherwise specified herein, the temperature rise of hydraulic fluid shall not exceed 100 degrees F above ambient. Unless otherwise specified herein, all system components shall withstand a proof pressure which is equal to or greater than 1-1/2 times the maximum pressure in each component without external leakage, damage, or permanent deformation. The hydraulic system shall be cleaned of foreign matter including weld slag and spatter.

3.15.1 Fail-safe hydraulic lift system. The truck shall have a fail-safe hydraulic lift system that will automatically prevent load lowering and fork tilting in the event of failure or rupture of any hydraulic line, hose, or component. In addition, a means shall be provided to manually override the system to safely and slowly (not more than 10 fpm) lower the loaded or unloaded forks to ground level.

3.15.2 Hydraulic hoses. The hose installation, such as angle of fittings and location, shall cause no stress concentration on the hose at the fitting, and the hose shall be supported, when necessary, to eliminate sagging and chafing.

3.15.3 Pressure hose assemblies. Pressure hose shall be as specified in SAE J517 except 100R7 type hose is not acceptable. All pressure hose assemblies shall be equipped with reusable fittings. All fittings shall be 37-degree flare, female swivel or 4-bolt split flange as specified in SAE J516. The hose selected shall have a working pressure which is equal to or greater than the hydraulic system maximum relief valve setting. The hose installation shall not cause the hose to be bent beyond the minimum bend radius for each hose.

3.15.4 Pressure tubing. Hydraulic pressure tubing shall be in accordance with SAE J524 or SAE J525 and shall meet the requirements specified herein. All tubing shall have a minimum burst pressure which is equal to or greater than 3.5 times the systems maximum working pressure. Tubing shall be clamped by cushioned, threaded fasteners. All bends shall be smooth without flattening, kinking, or wrinkling of the tube. The term "without flattening" is defined as follows: Throughout the bend, the tube maximum diameter shall be equal to or greater than the tube nominal diameter, and the tube maximum diameter minus the tube minimum diameter shall be not greater than 15 percent of the tube nominal diameter.

3.15.5 Pressure tube fittings. Unless otherwise specified herein, pressure tube fittings shall be 37 degree flare or O-ring boss conforming to SAE J514, or 4-bolt split flange conforming to SAE J518. Jump size tees may be used. Four-bolt split flange connections may terminate in either a flange head which incorporates a SAE J518 mating face or a flange head which integrally incorporates four boltholes and an O-ring groove for mating to a SAE J518 port face. Pressure tube fittings which incorporate the SAE J518 connection shall contain a boss into which the tube shall be brazed or welded. Pressure tube fittings shall have minimum burst pressure which is equal or greater than 3.5 times the maximum system working pressure.

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3.15.6 Suction lines. The pump suction line (pump inlet line) shall include provision for flexibility when there is vibration or movement between the reservoir and pump. The suction line shall be sized so that the minimum pump inlet pressure does not fall below atmosphere by more than 7 inches or mercury vacuum at 100 degrees F (or greater) oil temperature and at governed engine speed. The suction line installation shall include no stress concentration at end fittings and no kinks. The suction line assembly shall be capable of withstanding a minimum of 25 inches of mercury vacuum without evidence of leakage or collapse.

3.15.7 Return lines. Return lines shall be in accordance with SAE J517 except 100R7 type hose is not acceptable.

3.15.8 Hydraulic pump(s) The hydraulic pump(s) shall withstand a minimum proof pressure of 1-1/2 times the maximum system working pressure without permanent deformation, damage, or external leakage.

3.15.9 System filtration. System filter(s) shall be furnished either in the suction line, pressure line, return line, or a combination.

3.15.10 Reservoir. A reservoir shall be furnished to contain the hydraulic system oil. The reservoir shall include a filler opening, screen, cap, and other items required to function as specified herein. The reservoir shall be rigidly mounted to prevent vibrations which could result in leaks, loosening of fasteners, embrittlement of material, or cracks. The reservoir shall have sufficient capacity to prevent air entering the system with all hydraulic pistons fully extended and sufficient free air capacity to prevent oil being discharged through the reservoir air vent when maximum return flow of oil is surged into the reservoir from the system. The filler cap and tube shall be located to provide for filling from a standard five gallon container, and to prevent entrance of contaminants throughout filling and checking operations. The filler tube inside diameter shall be not less than a 2.0 inch. The reservoir shall have one or more access holes of at least 4.0 inches in diameter (with removable covers) for manual cleaning of the entire inside. A hydraulic level indication sight gauge or dipstick shall be provided within easy access to permit checking hydraulic oil level and shall have add and fill marks to indicate correct oil level when the truck is on level ground and the oil is at normal operating temperature. A means shall be provided to drain fluid from the lowest point of the tank and it shall be protected.

3.15.11 Relief valve. A hydraulic system relief valve shall be provided to protect the hydraulic system from excessive pressure.

3.15.12 Hydraulic control valve. All control valve spools shall be spring centered with sufficient force to return the levers to the center position and retain them there throughout all operations. Spools shall not bind under any operating condition specified herein. All exposed control valve surfaces shall show no evidence of corrosion when tested as specified herein. Valves shall not clatter at operating temperature and under load.

3.15.13 Cylinders. All cylinders shall withstand a pressure that is equal to 1.5 times the system relief valve setting without evidence of rupture, permanent deformation, damage, or external leakage.

3.15.14 Contamination levels for hydraulic system. During normal operation, particle counts shall not exceed 1000 particles per milliliter greater than 10 micrometers and particle counts shall not exceed 10 particles per milliliter greater than 20 micrometers.

3.15.15 Hose reels. When hydraulic hose reels are used on the mast to maintain hose tension during mast extension, sheave wheels, guide rollers, guide blocks, or other means shall be provided to prevent the hose from becoming entangled around and riding over the reels or reel flanges. Hose reels shall be mounted such that they are within the plan outline of the truck for all positions of the forks. All hydraulic lines shall be secured and protected to prevent damage due to chafing.

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3.15.16 Quick disconnects. Quick disconnect fittings shall be furnished for hydraulic lines to any component (for example, the carriage or mast) that must be removed to meet the air transportability requirements. The coupling halves shall be restrained to prevent contact with the ground or any surface of the truck when connected and disconnected. The coupling halves shall be identified with metal identification plates, tags, or bands to assure assembly of correct mating halves. The connected couplings shall withstand at least 1.5 times the hydraulic system pressure without evidence of leakage or rupture. The couplings shall show no evidence of leakage when subjected to operation and testing as specified herein.

3.16 Uprights and Carriage. Uprights, when furnished, shall be of the telescopic, roller type. Rollers shall be of the permanently lubricated for life type or equipped with lubrication fittings. The drive tires shall not interfere with the uprights or the carriage assembly travel at any upright tilt angle. The lift cylinder shall be mounted and positioned so that it does not protrude forward of the plan outline of the uprights. Uprights and carriage assembly shall be removable from the truck without requiring permanent modification (such as cutting or welding) to the truck. Crossmembers of the mast structure, when in a lowered position, shall not interfere with the operators horizontal or downward line of sight to the front of the truck. The collapsed mast height with no load on forks, measured from the ground to the top of the uprights, in a vertical position, shall not exceed 102 inches. Positive means shall be provided to prevent overtravel of the carriage or channel in both upper and lower positions. Chains and chain anchors used in the lifting mechanism shall have a factor of safety of not less than 4.6 to 1 based on minimum ultimate tensile strength when truck is carrying rated load equally distributed on the chains.

3.16.1 Carriage. Whether or not an upright is furnished, a carriage shall be supplied. A carriage backrest starting not more than 6 inches above, and extending at least 72 inches above the horizontal load carrying surfaces of the forks, shall be provided. The truck shall be equipped with hydraulically powered side shift and fork positioning. Load securing rings or eyes shall be provided on both outer members of the backrest and located 18 to 24 inches above the horizontal load carrying surfaces of the forks. Safety factor for these load securing devices shall be not less than 3 to 1 based on yield strength, when a forward horizontal load of 25,000 pounds is applied. The load shall be divided equally between all load securing devices.

3.16.2 Forks. The forks, along with the entire truck shall withstand, without permanent deformation or damage, 300% (percent) of the rated load on the forks at the applicable load center. The forks shall be 96 (+/-1.0) inches long with a maximum width of 10.0 inches and 3.0 inches maximum thickness. The taper shall be on the underside of the forks and shall be not less than 30 inches long measured from the tip of the fork. The fork tips shall be chamfered or rounded to break comers and provide smooth edges. The fork tip shall be not more than 5/8 inch thick.

3.16.3 Controls. Each control shall be provided with position markings either on plates or embossed or depressed on or near the control. Markings for levers which control any part of the lift mechanism shall conform to ASME/ANSI B 56.11.3. Decals or stencils are not acceptable. The markings shall be clearly visible to the operator from his normal operating position. Unless otherwise specified herein, the distance from the near edge of one control to the near edge of an adjacent control or other surface shall be a minimum of 1-1/2 inches. Electric controls shall be moisture and weather resistant. Forces necessary to actuate directional and hydraulic controls shall be 10 pounds maximum. All hand control levers and linkages shall withstand a minimum force of 50 pounds applied at the handgrip in the normal direction of operation and shall have sufficient strength to withstand, without permanent deformation or damage, all vibration forces generated during all operations specified herein. The travel of the load motion controls shall not exceed 6 inches from the center position when measured at the end of the grip. The control levers shall be self-centering.

3.17 Light switches. "On-off" light switches shall be furnished on the instrument panel. One switch shall control both the forward and rear floodlamps. One light switch shall be provided for the rear taillight and instrument panel lights. One light switch shall be provided for the cab light. All switches shall be identified as to their function.

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3.18 Engine run control. An engine run and starter control switch shall be mounted on the instrument panel, within reach of the seated operator. This shall be the keyless type. It shall have not less than three positions "on", "off" and "start". The "start" position shall be spring loaded to return to "on" position when released. The switch shall control operation of monitors and electrical accessories, except the horn.

3.19 Braking controls. One or two pedals or treadles shall be provided for braking and inching. When one pedal is provided, a switch mounted on the instrument panel shall be provided for selection between braking only and a combination of braking and inching (or declutch). When two separate pedals are provided, the left pedal shall combine braking and inching (or declutch), and the right shall provide braking control only. Each pedal or treadle shall be a minimum of 2.5 inches wide, and shall be separated from other pedals or treadles by a minimum of 2.5 inches.

3.20 Accelerator control. The accelerator control shall be installed for comfortable right foot operation and shall be located to the right of, and shall be free of interference from, the brake pedal(s) by a distance of not less than 2.5 inches.

3.21 Instruments. The following instruments, and any other gauges necessary for operation, or normally supplied on the commercial model, shall be mounted on the instrument panel in view of the seated operator. All gauges except the hourmeter shall be lighted and controlled by the rear tail light switch. All gauges shall be weather resistant and identified. If the gauges furnished have international symbols, the gauge shall also be identified with the equivalent English language identification.

3.21.1 Electrical system monitor. An ammeter, or voltmeter shall be furnished.

3.21.2 Engine oil pressure monitor. An engine oil pressure gauge shall be furnished.

3.21.3 Engine coolant temperature monitor. An engine coolant temperature gauge shall be furnished.

3.21.4 Transmission temperature monitor. A transmission temperature gauge shall be furnished.

3.21.5 Tachometer. A tachometer shall be furnished.

3.21.6 Fuel level gauge. A fuel gauge shall be provided.

3.21.7 Air pressure monitor. When air, or air-over-hydraulic brakes are furnished, an air pressure gauge shall be installed, and a warning buzzer shall indicate when air pressure is inadequate for proper brake operations.

3.21.8 Hourmeter. An operational hourmeter which registers the number of engine operating hours shall be provided. The hourmeter shall be capable of totaling 9,999 engine hours. The hourmeter shall be activated by an engine oil pressure sensor (or other means) so that it operates only when the engine is running.

3.21.9 Winterization warning light. For trucks with Type A winterization, a warning light that shall illuminate when the winterization electrical cable (3.50.1) is connected to a power source. The light shall be labeled "HEATER CABLE CONNECTED".

3.22 Battery and battery mounting.

3.22.1 Batteries. The truck shall have maintenance free type battery(ies). The battery(ies) shall be shipped charged.

3.22.2 Battery mounting. Batteries shall be located so they can be cleaned serviced, and removed without removing any component except opening the hood or engine side covers. Battery supports, hold downs,

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and areas around the installation which could possibly be affected by dripping or seepage of acids shall be protected with an acid resistant coating. The battery shall be mounted in such a manner as not to interfere with access to engine components.

3.22.3 Battery cable terminals. Battery cables shall be in accordance with SAE J541. Positive and negative cable terminals shall be identified.

3.23 Electrical components and circuits. The electrical system shall be 12 volts. Wiring shall be color or number coded. A master switch shall be provided to disconnect the battery and alternator from the electrical system.

3.23.1 Circuit breaker. Each electrical circuit shall be protected with a circuit breaker in accordance with SAE J553. Fuses are not acceptable.

3.23.2 Lights. The truck shall be provided with not less than two floodlamps for forward illumination and not less than two floodlamps for rearward illumination. The lights shall be shock mounted in elastomer ring housings and shall conform to SAE J598 or the entire lamp shall be shock mounted. Front floodlamps shall be adjustable a minimum of 45 degrees above and below the horizontal plane. Lights positioned in such a way as to be subject to damage shall be protected by guards.

3.23.3 Taillights. Rear lights shall be combination taillight and stoplight mounted on the rear of the truck. Lights shall be moisture resistant and conform to SAE J585 and J586. Lights shall be protected from damage by location or guards.

3.23.4 Horn. The truck shall be equipped with an electric horn. The horn button assembly and electrical wiring for the horn shall be constructed to be moisture and weather resistant to prevent entry of moisture when operated or stored outdoors under all weather conditions. The horn button maybe mounted in the zone of reach defined in SAE J898.

3.24 Lubrication fittings. Lubrication fittings shall conform to SAE J534. Fittings shall be accessible to a standard, commercial, grease gun, equipped with a 10-inch flexible extension. Accessibility to fittings shall be provided without the removal of accessories or parts. Panels and plates equipped with hand operated fasteners maybe removed to provide accessibility.

3.25 Enclosures with integral reservoir of lubricant. Enclosures, such as the gearcases, transmission housing, and engine crankcase, which contain a reservoir of liquid lubricants for the lubrication of the parts enclosed, shall be equipped with dipsticks, check plugs not less than 1/2 inch pipe size, or sight gages to determine the acceptable level of the lubricant. As a minimum, dipsticks shall be graduated to show "full" and "add" levels. The drain, except planetaries, shall be fitted with a magnetic drainplug. The drainplug shall be located so that removal of the plug will result in complete drainage of the lubricant from the enclosure. Drainage shall be to the ground when the truck is on a level surface. Integral tubes or troughs may be used to convey the lubricant from the drain to the ground. Accessibility to the drainplug, the filling means, and the lubricant level checking device shall be possible without the removal of accessories or parts. Plates equipped with hand-operated fasteners may be removed.

3.26 Hood cover. The engine shall be protected by a metal hood cover and, if necessary, metal sideplates. Either the hood cover or sideplates shall be quick opening if both are provided. The hood cover, if lift up type, shall be held in the open position in a safe manner by counterweight, spring, mechanism, latch, or by a brace which cannot be inadvertently released while servicing the truck. The hood cover or sideplate shall be capable of being opened or removed by one man. Handtools shall not be required for release of quick opening hood or sideplates. If single finger ring lift latches are provided, the force required to release or fasten the latches shall not exceed 15 pounds. All engine accessories shall be completely accessible, without requiring the removal of any additional truck structure, when hood cover and sideplates are opened.

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3.27 Wheel guards. Metal wheel guards shall be provided per ASME/ANSI B56.6 to prevent foreign objects and road splash being discharged in the direction of the operator.

3.28 Instrument panel. The instrument panel shall be installed on an inclined or vertical plane to facilitate drainage of water. All gages and switches shall be identified on the face of the gage or by a corrosion resistant metal plate. All gages shall be flush mounted to their mounting surfaces.

3.29 Operator access. Operator access systems to the truck shall be in accordance with minimum requirements of SAE J185. If necessary to assist in cab entry, a grab handle and steps shall be provided on the exterior of the cab.

3.30 Seat. A cushion seat and backrest shall be furnished in accordance with the minimum requirements specified in SAE J899. Fore and aft seat adjustment shall be by the operator from the operating position without the use of tools. The seat cushion and backrest shall be foam rubber or polyurethane, covered with vinyl upholstery having a minimum weight of 40 ounces per yard for 54-inch width. The seat location shall conform to SAE J898.

3.31 Drawbar pin. A rear mounted drawbar pin shall be provided. The drawbar pin shall be located on the vertical centerline of the truck not less than 22 inches nor more than 30 inches above ground level. The pin shall be capable of accepting a round lunette with an inside diameter of 3.00 inches, and an outside diameter of 6.25 inches. The lunette shall have a circular cross section of 1.62 inch diameter. The drawbar pin mounting shall be of sufficient strength to withstand, without permanent deformation or damage, a drawbar pull of at least 3 times the maximum drawbar pull of the truck.

3.33 Tiedown provision. Permanently affixed provisions which enable the truck to be fastened to the floor or deck of a transportation medium shall be provided. Provisions shall conform to MIL-STD-209 and the MIL-STD-1791 air transportability requirements. See DH 1-11 or MIL-STD-1791 for location of tiedown points in C-130 and C-141 aircraft. If possible, the tiedown points should be the same as the lifting points specified in the following paragraph. The capacity of each tiedown shall be indicated as "TIEDOWN 10,000 POUNDS" stenciled in 1.0 inch high letters near each tiedown point. The color shall be the same as specified for markings (3.45).

3.34 Lifting attachments. Permanently affixed slinging provisions conforming to MIL-STD-209 which enable the truck to be lifted in its normal travel position shall be provided. The notation "LIFT HERE" shall be stenciled in 1.0 inch letters in the color specified in 3.45 near each lift point.

3.35 Safety. All rotating and reciprocating parts shall be guarded when such parts are exposed to contact by operator and maintenance personnel performing daily maintenance functions. Platforms and steps shall have antiskid surfaces. Nonfictional sharp edges, projecting points, and excessive length of fasteners shall be avoided. Also caution labels shall be provided in accordance with OSHA standards.

3.36 Falling objects protective structure (FOPS). The truck shall be provided with FOPS conforming to the requirements and test of ASME/ANSI B56.6 or SAE J 1040. Installation and removal of FOPS shall be accomplished without cutting or welding.

3.37 Human factors. The characteristics of the truck, with FOPS installed, shall provide for operation by personnel, ranging from the small man clothed through the large man arctic clothed, in accordance with SAE J833 and SAE J925.

3.38 Noise limits. The noise level of the truck (excluding hems) shall not exceed the following when tested in accordance with 4.5.31:

- (a) 91 decibels (dB) (A) at the operators station during normal operating procedures of the truck.

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3.38.1 Noise hazard. A noise hazard warning sign shall be installed in an easily seen location within the cab when the noise level exceeds 84 db(A) at the operator's station.

3.39 Cab. The truck shall be equipped with an insulated, weathertight, personnel cab. Either the cab, or the cab and overhead guard combination, shall meet the FOPS requirements of 3.36. The cab clearances shall be in accordance with SAE J154. The cab shall inherently resist torsional strain and withstand all operational shock and vibration under the operating conditions specified herein. The cab shall be equipped with a minimum of two fully opening doors or one fully opening door and one emergency exit that meets the requirements of SAE J185. Each door shall have a safety latch, opening stop, and a hold open catch. All hardware shall be of the heavy duty or industrial type, resistant to corrosion. The cab shall be equipped with at least two ventilation fans, not less than 6 inches in diameter, adjustable to direct air flow toward window areas. Each fan shall have an "on-off" switch. There shall be an interior light located approximately in the center of the ceiling. If the cab is to remain on the truck during air transport, it shall have an overall height of not more than 102 inches. If the cab must be removed to meet the air transportability requirements, it shall be made in easily removable sections that weigh not more than 70 pounds each. Any electrical connections that must be separated for cab removal shall have quick disconnects.

3.39.1 Glazing. The cab shall provide the operator with at least 250 degrees horizontal visibility. All glazing shall conform to ASME/ANSI Z26.1, Type AS1 or AS2. Fixed glazing shall be sealed in waterproof stress absorbent molding, and moveable windows shall be sealed on extra heavy type, pile lined channels.

3.39.2 Windshield and Window Wipers. The cab shall be equipped with at least three powered wiper assemblies to clear the windshield, the rear window, and the roof window. Windshield wiper systems shall be in accordance with the requirements of SAE J198. Wipers shall have a minimum of two speeds with the second speed capable of 60 cycles per minute minimum. Self-parking features shall be provided. Wiper arms and blades shall be of the commercial heavy-duty type, having saddle and pin blade listening. The wiper arms shall provide pressure on the glazed surface of at least 1-ounce for each inch of wiper arm length. The operator controls shall be located for convenient operation by the operator from the normal operating position.

3.40 Welding. Welds shall transmit stress without permanent deformation or failure when the parts connected by the welds are subjected to proof and service loading. The welders, welding operators, and welding procedures shall be qualified to meet the applicable codes of American Welding Society (AWS) or American Society of Mechanical Engineers (ASME).

3.41 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 and the opening shall be provided with a removable or hinged cover. Dimensions of access openings shall be in accordance with SAE J925 for hands wearing mittens. When fluids (water, oil, etc) are drained, they shall not contact any forklift structure. Drain hoses may be provided if necessary to meet this requirement.

3.41.1 Maintenance operations. Unless otherwise specified herein, each operation in the following maintenance operations list shall be accomplished by one man in not more than the time specified using common tools and, if necessary, the special tools furnished with the truck.

- a. Remove, replace, and adjust all engine driven belts - 1/2 hour.
- b. Remove and replace alternator - 1/2 hour.

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- c. Remove and replace all filters, screens, and strainers in all hydraulic systems - 1 hour.
- d. Remove and replace fuel filter elements - 1/2 hour.
- e. Drain engine lubricating oil, remove and replace oil filter elements and refill crankcase - 3/4 hour.
- f. Remove and replace engine coolant system hoses - 1/2 hour.
- g. Disconnect battery cables, remove and replace batteries and reconnect battery cables - 1/2 hour.
- h. Drain transmission oil, remove and replace all filter elements and strainers and refill transmission - 1 hour.
- i. Remove and replace starter - 1 hour.
- j. Bleed and adjust brakes, refill master cylinder (two men) - 3/4 hour (does not apply to fill air brake system).
- k. Remove and replace headlight, floodlight, and taillight bulbs - 1/4 hour each.
- l. Remove, disassemble, and reinstall air cleaner - 1/2 hour.
- m. Lubricate all lubrication fittings with 2 strokes per fitting using grease gun and extension - 1/2 hour.
- n. Perform all daily scheduled maintenance and service - see 3.41.2

3.41.2 Serviceing. Maximum time for one person to perform all daily operator scheduled maintenance (if any) and daily service tasks shall not be more than 15 minutes. Operator daily service shall be limited to checking and adjusting fluid levels, i.e., engine oil and coolant, transmission and fluid levels, power steering fluid (if it is a separate system), checking and adjusting tire pressure, checking drive belts for tension and fraying, and visual inspection for fluid leaks. This servicing shall be capable of being performed by personnel wearing winter mittens.

3.41.3 Special tools. Any special tools (tools that are peculiar to this truck) that are needed to perform scheduled or unscheduled maintenance shall be provided by the contractor. One set of special tools shall be supplied with each truck.

3.42 Transportability. The forklift shall withstand, without damage, highway and air transport as described hereinafter.

3.42.1 Highway transportability. The forklifts shall be capable of being towed with a dead engine without damage. The drive train shall be provided with means to disengage the wheels from the transmission for towing. Disengagement and re-engagement shall each be performed in not more than one hour by one man using only manual devices and common tools.

3.42.2 Air transportability. The forklift shall be transportable in USAF C-130, C-141, and C-5A aircraft. Transportability requirements shall be in accordance with MIL-STD-1791, Air Force Design Handbook DH1-11, and as specified herein. Disassembly or re-assembly to achieve air transportable configuration (3.42.3) shall be accomplished by not more than 2 men, in 2 hours or less using only common tools and without external lifting devices. All removed parts shall be transportable with the truck in the aircraft. A stainless steel data plate which indicates the center-of-gravity location (both horizontally from the front axle and vertically above ground level) in the air transport mode, and tiedown instructions for transport aboard C-130 and C-141 aircraft shall be permanently installed on the truck.

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3.42.3 Transport configuration. The truck may be disassembled to meet the overall height and axle weight requirements; however, it shall be capable of being driven on and off the aircraft. Each axle shall weigh not more than 13,000 pounds with at least 1/4 tank of fuel.

3.43 Performance. The truck shall conform to the requirements specified herein under all conditions specified without malfunction, damage or permanent deformation. There shall be no evidence of accelerated wear or failures when operated under service conditions specified herein.

3.43.1 Stability. The truck shall meet the longitudinal stacking, longitudinal travel, lateral stacking, and lateral travel stability requirements of ASME/ANSI B56.6. With rated load on forks, mast vertical, and the heel of the forks 24 inches above ground, the rear axle weight shall be at least 13% of the Gross Vehicle Weight (GVW) of the forklift.

3.43.2 Slope operation.

3.43.2.1 Longitudinal slope. The truck with rated load shall be capable of negotiating a 20% (percent) longitudinal slope.

3.43.2.2 Lateral slope (dynamic). With rated load the truck shall be capable of full circle operation on a 15% slope, at a maximum steer angle (4-wheel steering if furnished) in both clockwise and counterclockwise directions, in both forward and reverse, on a 15% (percent) slope.

3.43.3 Slope ascension. The truck with rated load shall be capable of starting from a complete stop on a 20% slope and continuing up the grade.

3.43.4 Speed. The truck, with rated load, shall be capable of operating at a speed of at least 15 mph in both forward and reverse gears when driven on a level surface.

3.43.5 Operating conditions. The truck shall withstand the testing defined in Section 4 and the usage described in 6.1 without damage, permanent deformation, or failure of components.

3.43.6 Electromagnetic interference. The electromagnetic interference emission characteristics of the truck shall meet the limits specified in SAE J551.

3.43.7 Fork visibility. With no load on the forks, the seated operator shall be able to see at least one fork tip at all lift heights and fork spacings. The operator must remain seated, but may lean if necessary, to see to fork tip.

3.43.8 Service brakes. The service brakes shall meet the stopping distance test and the drawbar drag test of ASME/ANSI B56.6, except the brake pedal force during these tests shall not exceed 70 pounds.

3.43.9 Service brake holding device. The service brake holding device shall be capable of holding the truck with rated load on a 20% slope immediately after being immersed in 3 feet deep water.

3.43.10 Parking brake. The parking brake shall be capable of holding the truck with rated load on a 20% slope, in both forward and reverse direction.

3.43.11 Fork tilt. The forks with no load shall be capable of tilting forward at least 10 degrees and rearward at least 15 degrees.

3.43.12 Sideshift. The forks shall be capable of sideshifting the rated load at least 6 inches each side of center (12 inches total travel).

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3.43.13 Fork spacing. The fork positioner shall be capable of spreading the forks at least 84 inches when measured center to center of the forks. It shall be capable of closing the forks not more than 22 inches apart when measured center to center of the forks.

3.43.14 Lifting speed. Lifting speed with rated load on forks shall be at least 55 feet per minute (fpm) over the entire distance from ground level to maximum fork height.

3.43.15 Lowering speed. Speed of lowering unloaded forks shall be not less than 30 fpm, and for fully loaded forks not more than 80 fpm, from maximum lift height to ground level.

3.43.16 Lift height. With rated load and the forks horizontal, the horizontal load carrying surfaces of the forks shall be capable of being raised at least 130 inches above ground level.

3.43.17 Ground clearance. The ground clearance of the forklifts as defined in SAE J1234 shall not be less than 12 inches and shall apply with the forklifts fully fueled and serviced, with rated load. The forklifts with and without load, shall be capable of negotiating a 20 degree ramp with level surfaces at both top and bottom of the ramp. No portion of the forklifts other than the tires, shall come in contact with the ramp when the forklifts travel over the ramp in either direction.

3.43.18 Truck operations. The truck shall complete 100 hours without failure when tested as specified in 4.5.33. Failure shall be as defined in 4.5.33.

3.43.19 Drift. The lift assembly shall be capable of holding the rated load at maximum lift height for 60 minutes with not more than 0.5 inch of vertical drop, and for 10 minutes with not more than one degree of rotation of the forks.

3.43.20 Curb clearance circle. The curb clearance circle, as defined in SAE J695, shall be 50 feet maximum.

3.43.21 Static overload. The truck frame and lift system shall withstand a 75,000 pound load on the forks with no deformation, cracks, broken welds or hydraulic leaks.

3.43.22 Lifting capability. The lifting system shall be capable of raising, lowering and side shifting 125% of the rated load as specified in Section 4 of this document.

3.44 Painting. All external surfaces normally painted by the truck manufacturer shall be prepared and primed using material compatible with the final paint. Unless otherwise specified (see 6.2), the truck shall be painted with polyurethane paint color number 24052 of FED-STD-595. The paint shall be DuPont Imron, or equal. Or equal is defined as having performance identical, or superior to, DuPont Imron. All exterior trim (wheels, radiator grill, rims on lights, etc) shall be the same type and color as the exterior paint. The paint finish shall show no evidence of uneven application, curtains, runs, snags, orange peel, lack of adhesion, or other defects.

3.45 Truck marking. Unless otherwise specified (see 6.2), markings on truck shall be painted black. Characters shall be block type capitals and Arabic numerals. Location and character size shall be as follows:

information	Example	Minimum Character	
		Location	Size
Capacity	25000 lb	On each side and rear	2 inches
Safety	No riders	On rear of mast	1 inch

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3.46 Identification marking. A stainless steel nameplate shall be permanently attached in a visible location. The following information shall be contained on the nameplate:

Truck, Forklift
 Capacity: 25,000 pounds at 48 inch load center
 National Stock Number:
 Contract Number:
 Manufacturer:
 Model Number:
 Registration Number:
 Serial Number:
 Warranty Expiration Date:
 Operating Weight:
 Axle loading (in air transport configuration)
 Front axle:
 Rear axle:

3.47 Safety marking. Corrosion resistant metal plates indicating the DS safety designation of truck shall be applied to each side of the vehicle in a visible but protected location. These markers shall be in accordance with UL 558.

3.48 Instruction and Data plates. The truck shall be provided with equipment operational data plates describing operating and servicing procedures, including warning and caution instructions, and shall be located in suitable conspicuous locations. Data plates shall be corrosion resistant metal and shall be permanently attached to the truck. Decals are not acceptable.

3.49 Workmanship. All parts, components, assemblies of the truck, including castings, forgings, molded parts, stampings, bearings, seals, machined surfaces, and welded parts, shall be clean and free from sand, dirt, pits, scale, flux, and other harmful extraneous material.

3.50 Winterization. When specified (see 6.2), the truck shall be winterized as follows:

3.50.1 Type A. Type A Winterization shall protect to minus 65 degrees F, and shall consist of the following components:

a. Power plant heater. Coolant, engine oil and battery heaters shall be provided. Heaters shall operate on 110-volt alternating current, and shall be wired through a junction block to a single three pronged (male), weatherproof, slave receptacle for receiving external power and grounding vehicle. A three wire connecting cable, 25 feet long and of adequate line capacity to supply power for heater units simultaneously, shall be furnished. Connecting cable shall include a matching female connector at the vehicle and a standard, weatherproof, three pronged (two power plus one ground) male connector at the other end. Electrical apparatus shall conform to Motor Carrier Safety Regulation 393.77(c)(7). Electrical insulation, of connecting cable, shall withstand normal operating stresses in low ambient air temperature (down to minus 65 degrees F) without loss of dielectric capacity. All heater lead wires shall be installed without interfering with vehicle component operation and without loose excess wire. A carrier for the connecting cable shall be mounted within the cab or engine compartment and shall provide positive cable retention during vehicle operation. Heaters shall be furnished as follows:

(1) Coolant heater, 1500-watt minimum rating, shall be installed in the engine block or lower coolant inlet hose. A coolant circulating pump, driven by a 110-volt alternating current motor, shall be provided.

(2) Immersion type engine oil heater, 300 watt minimum rating with 190 to 195 degrees F thermostat, shall be installed in oil pan.

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b. Battery. Heavy duty (lead acid) battery shall be furnished. The battery shall be heated by an electrical heater. Battery heater shall have a capacity adequate to maintain the battery electrolyte at a temperature of not less than 100 degrees F during vehicle exposure in ambient temperature as low as minus 65 degrees F, and shall embody a thermostat to limit the temperature of the electrolyte to not more than +80 degrees F.

c. Cab insulation. Thermal insulation shall be installed on the cab floor, side walls and ceiling, with washable covering over all insulation. Boots are required for insulation to close all openings where attachments and controls enter the cab.

d. Thermostat. Install a 170 to 190 degrees F engine thermostat.

e. Personnel cab heater with defroster. A hot water heater and defroster shall be installed. The heater shall be of sufficient capacity to maintain a temperature of +40 degrees F at cab floor level in an ambient temperature of -50 degrees F. Use may be made of sufficient thermal insulation material in the cab to insure that the cab heater can meet these temperature conditions.

f. Arctic type lubricants. Engines, gearboxes, transmission and other reservoirs shall be compatible with arctic type lubricants.

g. Antifreeze shall be standard commercial type. Coolant liquid shall be protected to at least minus 65 degrees F.

3.50.2 Type C. Type C Winterization shall protect to minus 25 degrees F and shall consist of the following components:

a. Cab insulation. Cab insulation per 3.3.50.1.C shall be provided.

b. Antifreeze. Antifreeze shall be standard commercial type. Coolant liquid shall be protected to minus 25 degrees F, or lower temperature.

c. Thermostat. Install a 170 to 190 degrees F engine thermostat.

d. Personnel cab heater with defroster. A hot water heater and defroster shall be installed. The heater shall have sufficient capacity to maintain a temperature of +40 degrees F at cab floor level in an ambient temperature of minus 25 degrees F.

4 QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other suitable facilities for the performance of the inspection requirements specified herein, unless disapproved by the Government. Government representatives shall witness all testing in section 4 of this document. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements,

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become part of the overall inspection system or quality control program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products and supplies submitted to the Government for acceptance comply with all the requirements of the contract. Sampling inspections, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however,

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this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of inspection. The inspections requirements specified herein are classified as follows:

- a. First article inspection (see 4.3).
- b. Production run-in (see 4.6).
- c. Inspection of packaging (see 4.7).
- d. User test (see 4.8).
- e. Random sample test (see 4.9).

4.3 First article inspection.

4.3.1 First article examination. Prior to testing, the first article truck shall be examined and compared with the requirements of Section 3 of this document. The truck (except for the User Test truck, 4.8) shall then be subjected to the demonstrations and tests specified in 4.3.2.

4.3.2 First article tests. Upon successful completion of examination specified in 4.3.1, the truck shall be subjected to the demonstrations and tests specified in 4.5 (except the truck for the User Test shall not be subjected to 4.5). All of these tests except Cold Start (4.5.35) shall be conducted using Jet-A, or Jet-A1 as the fuel.

4.3.3 Inspection failure. Failure of the first article truck to meet any requirements during examination (4.3.1) or occurrence of any of the following conditions during the testing of 4.5, 4.6, 4.8 and 4.9 shall be cause for rejection:

- a. Inability to meet specified performance requirements of any test or inability to complete any test.
- b. Permanent deformation, overheating, malfunction, or leakage of fuel, or lubricants, or leakage of hydraulic fluid in excess of Class 3 or 3D of SAE J1176.
- c. Any binding, jerking, or uneven operation of any component or system.
- d. Any wearing, galling, gouging, or other removal of material that, in the option of the Government contracting officer, will cause premature failure.

4.4 Test conditions.

4.4.1 Test conditions. Prior to test, the truck shall be lubricated with oils and greases designated for use in the ambient temperature at the place of test. Unless otherwise specified in a specific test, tests shall be performed at the climatic conditions existing at the place of test.

4.4.2 Rated load. Rated load shall be established with a load equivalent to an unrestrained cube with overall dimensions twice the load center dimensions and whose center of gravity is located at the geometrical center of the cube. The tolerance for weight shall be plus 2 percent and minus 0 percent. The cube shall weigh 25,000 pounds.

4.4.2.1 Load center. The load center shall be defined as the horizontal longitudinal distance from the intersection of the horizontal load carrying surfaces and vertical load engaging faces of the forks to the center of the rated load.

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4.5 Tests. The truck shall be tested to demonstrate compliance with the requirements set forth in section 3 in accordance with procedures shown in section 4. Failure to complete one or more tests, or the occurrence of an inspection failure as defined in 4.3.3, shall constitute failure of the tests.

4.5.1 Service brake. The service brake stopping distance and drawbar drag tests of ASME/ANSI B56.6 shall be performed with the maximum brake pedal force limited to the amount specified in 3.43.10. Failure to pass these tests shall constitute failure.

4.5.2 Parking brake. The truck, with rated load in the carry position, transmission in neutral, and stopped on a 20% slope, shall be held without movement for two minutes by the parking brake. This test shall be performed both in the forward and reverse directions, to test with the truck facing downhill, the truck may be driven up the slope empty and then have the load placed on the forks, before testing the parking brake. Inability of the parking brake to hold the truck without movement shall be cause for rejection.

4.5.3 Curb clearance circle. The truck curb clearance circle shall be determined per SAE J695. Exceeding the dimension specified in 3.43.22 shall be cause for rejection.

4.5.4 Maximum fork height collapsed mast height, cab overall height, underclearance. With no load and mast in true vertical position, measure and record collapsed mast height, and overall cab height. With rated load and load carrying surfaces of the forks horizontal, measure and record maximum fork height. With rated load and mast vertical, measure and record underclearance. Nonconformance to 3.16, 3.39, 3.43.18, or 3.43.19 shall be cause for rejection.

4.5.5 Lifting speed and lowering speed. Measure and record distance in inches from floor to top surface of forks in fully lowered position. Record time in seconds required to raise rated load to maximum fork height. Record the difference between maximum fork height and the height of the forks in lowered position. Record time in seconds to lower rated load at maximum speed (full open valve) to 1 or 2 foot height, load to be abruptly stopped at the 1 to 2 foot height. Repeat the raising and lowering three times. Remove load and raise empty forks to maximum lift height. Record time in seconds required to lower forks to lowered fully position. Calculate all recorded lifting and lowering speeds. Nonconformance to 3.43.16 or 3.43.17 shall be cause for rejection.

4.5.6 Travel speed. Operate the truck at governed speed on a level surface with rated load in carry position. The speed shall be the average of three runs in each direction. Inability of the truck to attain the minimum speed as specified in 3.43.5, failure of any component, over-heating, malfunction, or leaking of fluid shall be cause for rejection.

4.5.7 Slope ascension. Drive truck forward with rated load along a horizontal approach and onto a 20% slope and bring to complete stop. Start from a dead stop and proceed up the ramp. Remove rated load and repeat above test. Nonconformance to 3.43.4 shall be cause for rejection.

4.5.8 Side slope operation. Drive the truck with rated load onto a hill with a slope specified in 3.43.3.2 and perform two complete forward circles in a clockwise direction, at maximum steer angle. Repeat by driving forward in counterclockwise direction. Repeat in both clockwise and counterclockwise directions, but in reverse. Repeat all of these tests, but with no load on the forks. Inability to negotiate the slope, any wheel or wheels leaving the ground, any leaks or appearance of lack of lubrication shall constitute failure of this test.

4.5.9 Tilt. Place truck without load on flat level surface. Raise forks to an elevation of 2 to 4 feet. Tilt forks to full forward position and record angle of tilt. Tilt forks to full rearward position and record angle of tilt. Nonconformance to 3.43.13 shall be cause for rejection.

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4.5.10 Hydraulic lift system. Raise the rated load 6 to 10 feet above ground level with the mast approximately vertical. Measure vertical distance to one fork heel. Disconnect a hydraulic line that supplies pressure to the lift system to simulate a line failure. When fluid stops draining, remeasure vertically to same point on fork. A drop of more than 1/2 inch shall be cause for rejection. Measure the fork tilt. Disconnect all tilt cylinder hydraulic lines that supply pressure to prevent downward rotation of the forks. When fluid stops draining, remeasure fork tilt. A change of more than one degree shall be cause for rejection. Lower the forks to ground level using the override system at a speed not in excess of that specified in 3.15.1.

4.5.11 Stability. Perform ASME/ANSI B56.6 stability tests specified in 3.43.2. Nonconformance shall be cause for rejection.

4.5.12 Weight distribution. With rated load on forks, mast vertical, and heel of forks 24 inches above ground, place scales under rear wheels. The rear axle weight shall be as specified in 3.43.2.

4.5.13 Starter disconnect. Start the truck and allow the engine to run for a minimum of 30 seconds. Re-energize the starter switch while the engine is running. Any evidence of starter engagement while engine is running shall be cause for rejection.

4.5.14 Transmission neutral switch. With the engine not running, place transmission selector in lowest forward gear and energize stinter switch. Repeat for all forward and reverse gears. Any evidence of starter engagement while transmission is in gear shall be cause for rejection.

4.5.15 Slingsing and tiedown provisions. Test the slingsing provisions by applying the load for the time period specified in MIL-STD-209. Test the tiedown provisions by applying the ultimate load for the time period specified in MIL-STD-209. Nonconformance to applicable requirements of MIL-STD-209 shall constitute failure of this test.

4.5.16 Tire loading. Determine the load on each tire using a scale under each tire with no load and again with the rated load on the forks. Exceeding the rated load capacity given in the Tire and Rim Yearbook shall be cause for rejection.

4.5.17 Electromagnetic interference (EMI). Test the truck to verify that it meets the EMI requirements of 3.43.8. Failure to meet these requirements shall be cause for rejection.

4.5.18 Fork tines. Measure the length, width, and thickness of the fork tines to determine compliance with 3.16.2.

4.5.19 Sideshift and fork spacing. With no load on the forks sideshift to extreme left position. Sideshift to extreme right and measure total travel. Move forks together to the most closed position. Measure center-line to center-line forks. Move forks to most spread apart position and measure center-line to center-line forks. Nonconformance with 3.43.14 and 3.43.15 shall be cause for rejection.

4.5.20 Fork visibility. With no load on the forks, vary the lift height, sideshifting, fork spacing and mast pivoting to verify compliance to the visibility requirements of 3.43.9.

4.5.21 Steering. With no load on the forks, engine at idle speed and truck stationary, measure tangential force on the steering wheel required to cause the steering wheels to turn. Repeat in ail steering modes. Again repeat with rated load, and in all steering modes. Count number of turns of steering wheel to go from extreme right to extreme left position, and then back to extreme right. Failure to meet the requirements of 3.12.1 shall be cause for rejection.

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4.5.22 Conversion to and from air transport mode. Starting with the truck in the operational mode, convert to air transport mode (3.42.2) within the time frame, and using only the personnel and equipment specified in 3.42.2. After completing 4.5.23 and 4.5.24, convert back to operational mode, again meeting the restrictions and requirements of 3.42.2. Nonconformance with 3.42.2 shall be cause for rejection.

4.5.23 Axle weight in air transport configuration. Weigh front and rear axles with the forklift in air transport configuration and at least 1/4 tank of fuel. The axle weights shall meet the air transportability requirements of MIL-T-1791 and Design Handbook AFSC DH 1-11.

4.4.24 Height. Measure the overall height, and any other dimensions needed to verify that the dimensional limits of MIL-T-1791 and DH 1-11 are met.

4.5.25 Overload. Place truck on level surface and support it with blocks under the axle or frame to relieve the load on the tires. Secure the truck to the floor in a manner to compensate for the additional test load. The tilt cylinders may be hydraulically locked for this test. With the mast in straight ahead position gradually apply load to the forks until three times the rated capacity (75,000 pounds at 48 inch horizontal and vertical load center) is on forks. Leave this load on the forks for at least 10 minutes. Remove load and inspect truck 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 heel by magnetic particle or dye penetrant method.

4.5.26 Overhead guard. Perform the failing object protective structure (FOPS) test of ASME/ANSI 1356.6. Failure to meet the criteria of this test shall be cause for rejection.

4.5.27 Load securing devices Apply a total forward, horizontal load of 3 times rated capacity (75,000 pounds divided equally between all load securing devices (see 3.16.1). The entire test load does not have to be applied at one time, the test load for each device may be applied independently. Any deformation, broken welds, etc. shall be cause for rejection.

4.5.28 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 100 complete, continuous cycles with rated load on the forks. A cycle shall be defined as raising forks from ground level to maximum lift height at maximum lifting speed, and then lowering back to ground level at maximum lowering speed. Continuous lifting and lowering of the rated load could exceed the heat dissipating capability of the hydraulic system, therefore, lifting maybe stopped ever 10 cycles to allow cooling. Any failures of lift mechanism components, overheating of engine coolant system or hydraulic system, inability to complete the test or occurrence of any condition listed in 4.4.3 shall be cause for rejection.

4.5.29 Fork lifting and side shift overload. With 125 percent of the rated load (31,500 pounds at 48 inch horizontal and vertical load center) on the forks and with the truck tied down to prevent overturning, the lifting mechanism shall be operated through 25 complete cycles. From ground level to maximum lift height at maximum lifting speed and back to ground level at maximum lowering speed shall be considered one cycle. Side shift the 125 percent load from extreme right to extreme left and back to extreme right at maximum sideshifting speed. This shall be considered one cycle. Perform 25 cycles. The lifting and side shifting may be stopped every five cycles to allow cooling of the hydraulic system. Any failures of the lift mechanism components, overheating of the engine coolant or hydraulic system, inability to complete the test or occurrence of any condition listed in 4.4.3 shall be cause for rejection.

4.5.30 Fork spacing mechanism. The fork spacing shall be operated with no load on the forks through 100 complete continuous cycles. A cycle shall consist of starting at closed position, going to open position and returning to closed position at maximum fork travel speed. Any evidence of binding, galling, erratic movement, or occurrence of any condition listed in 4.4.3 shall because for rejection.

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4.5.31 Sound level measurements. Measure the maximum steady state noise levels of the truck in accordance with procedures of SAE J919, except the following modes of operation shall be used in lieu of the tests in SAE J919:

- a. Lifting rated load at maximum lift speed
- b. Engine stalled against convertor
- c. Engine stalled against hydraulic system relief
- d. Governed engine speed, no load
- e. Maximum acceleration while carrying rated load

Nonconformance with 3.38 shall be cause for rejection.

4.5.32 Reliability demonstration. The truck shall be tested in accordance with Test Method No. 1, Truck Operations at a rate of not less than five circuits per hour, for 100 hours with no failure. A failure is defined as any malfunction that can not be remedied by adjustment, repair, or replacement within 30 minutes and which may cause:

- a. Failure to commence operation, cessation of operation, or degradation of performance capabilities of the truck below designated levels.
- b. Serious damage to the truck by continued operation.
- c. Any personnel safety hazard.

4.5.33 Drift. With the hydraulic fluid at, or near, ambient temperature, raise rated load to maximum lift height with forks approximately horizontal. Shut off engine. Measure vertical distance from ground to top surface of forks at the 48 inch load center. After sitting for 60 minutes, again measure horn ground to same point on forks. Ensure that forks are approximately horizontal, or adjust as needed. Measure fork tilt. After sitting for 10 minutes remeasure fork tilt. Fork lowering or tilting in excess of the amount specified in 3.43.21 shall be cause for rejection.

4.5.34 Cold starting. Place the truck in an ambient temperature of 0 degrees F, or cooler, until all components are stabilized at the ambient temperature. The engine shall start within five minutes and run smoothly at idle speed without continued engine control adjustment within 15 minutes. At this time, all travel, braking, and load handling mechanism shall be operated. The forks shall be raised to maximum lift height allowed by the test chamber, and sideshifted and adjusted laterally between extreme positions. Starting aides such as the ether injection or glow plug furnished with the truck maybe used to assist starting; however, no external power or heat source shall be used. The test chamber shall maintain the ambient temperature as close to 0 degrees F as possible during the entire test. Failure to meet any of these requirements shall be cause for rejection.

4.5.35 Maintainability. Record time to perform all maintenance tasks listed in 3.41.1. Perform daily servicing (3.41.2) while wearing heavy, winter mittens. Inability to complete a task in the specified time, by the specified number of people, shall be cause for rejection.

4.6 Production run-in. Each truck produced on the contract shall be subjected to a production run-in and servicing as specified herein. Inability to complete the run-in, overheating, failure of any components, malfunction of any control, or evidence of leakage of fluids in excess of Class 3 in accordance with SAE J1176 shall be cause for rejection of the truck by the Government until such deficiencies are corrected.

4.6.1 Travel. While carrying rated load, demonstrate starting, ascending a 20 percent ramp, steering, inching and travel. Operate all lights, horn, and brake system not less than two times during this demonstration.

4.6.2 Load lifting. Demonstrate ability to lift rated load to full lift height at full lift speed and lower load at full opened valve without exceeding maximum lowering speed. Demonstrate ability to tilt fork full

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forward and full rearward without rated load on the forks. Demonstrate ability to side shift rated load throughout full range of side shift. Demonstrate ability to feather controls of all hydraulic functions. Each operation shall be performed at least three times.

4.6.3 Service and adjustment. Prior to delivery, the manufacturer shall service and adjust each truck for proper operational use, including at least the following:

- a. Lift assembly.
- b. Engine, transmission, and power train.
- c. Brake system.
- d. Steering system.
- e. Continuity check of electrical system, including filling and charging of battery, unless otherwise specified in the preservation and packing requirement.
- f. Check torque on wheel lug nuts and proper inflation of tires.
- g. Check fluid levels and fill to required level, if necessary.

4.7 Inspection of packaging. The preservation, packing, and marking of each forklift truck shall be inspected to verify they meet the requirements of 5.1.

4.8 User test. The User Test forklift shall be delivered to Nellis AFB Nevada for 45 available days (seven days a week) of user tests. The 45 available days shall be consecutive, except when interrupted for maintenance/repair downtime, as defined herein. The User Test will not begin until after completion of the first article tests, except the EMI and environmental tests, of the contractor test sample as defined by 4.3.a. Production run-in (see 4.6) and the examination of product (see 4.3.1) shall be performed on the user test sample prior to shipment of the user test sample to Nellis AFB. The user test sample shall not be shipped to Nellis AFB without prior 15 day notification to the POC. The test period shall begin the day after the vehicle arrives at Nellis AFB and shall end when 45 days of availability are complete or 60 calendar days have elapsed, whichever occurs first. If the user test sample has not been available for 45 test days after 60 calendar days have elapsed, the User Test shall be considered a failure. The vehicle shall be available for any one period of eight consecutive hours during each day of the 45 day test. The periods shall be scheduled by the Nellis AFB representative and the schedules shall be provided to the contractor at least 12 hours in advance. Any period of more than two hours of the same day that the vehicle is out of service for maintenance or repair shall not be considered an available day for the test period. The vehicle shall be operated, and scheduled maintenance shall be performed by Air Force personnel using the operation and maintenance procedures contained in the preliminary technical data to be supplied with the test sample. The preliminary technical data shall contain procedures for preparation/tiedown of the forklift for air shipment. The contractor will provide any special tools and/or equipment required to perform operator's maintenance or scheduled maintenance. Any parts or corrective actions required shall be provided by the contractor. Any maintenance actions performed by the contractor shall not begin before notification to a Nellis AFB representative, and Government personnel shall be allowed to observe their actions. The contractor shall provide all forklift consumable required in the course of the test except for diesel fuel, water, compressed air and electrical power which will be furnished by Nellis AFB. The contractor shall provide on-site familiarization to the operators and mechanics as necessary to perform this test. The operations will be used in, or will simulate, normal Air Force usage and will not exceed any performance requirements defined by Section 3 of this document. Nonconformance with the performance requirements of this document shall be cause for rejection. The contractor shall maintain a daily log. The log shall be signed by the Nellis AFB representative and the contractor after each day of activity. The daily log shall document, but not be limited to the following:

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- a. Operating time.
- b. Tasks completed.
- c. Technical manual errors.
- d. All failures and corrective actions taken.
- e. Operational problems encountered.
- f. Nellis AFB representative comments.

The contractor shall include the user test results, including daily logs of activities, in the First Article Inspection Report.

4.9 Random sale test. Any vehicle from the production line maybe selected by the procuring activity at any time during the production phase of the contract to be subjected to the examination in 4.3.1 and the test described in 4.3.2. Any deficiencies found as a result of the inspection or test shall be considered prima facie evidence that all trucks already accepted are similarly deficient. Correction of such deficiencies shall be accomplished by the supplier at no cost to the Government on trucks previously produced and accepted under the contract, as well as on ail trucks to be produced during the remainder of the contract.

5. PACKAGING

5.1 Preservation, packing, and marking. Preservation, packing, and marking shall be in accordance with the requirements of the contract.

6 NOTES

6.1 Intended use. Trucks described herein are primarily intended for stacking, unstacking, and moving 20-foot International Standards Organization (ISO) containers, palletized loads and other large cargo. Operations will include, but not be limited to, loading and unloading flatbed trailers, loading docks, and C-130, C-141, and C-5 aircraft. The will operate on hard paved surfaces, unprepared natural ground rough terrain, mud, and soft sand. Traveling at maximum speed between work sites as far as five miles apart, both fully loaded and unloaded, is also required.

6.2 Ordering data.

- a. When User Test is required (see 3 .2).
- b. When rustproofing shall be applied (see 3.3.5).
- c. When paint color shall be other than as specified (see 3.44).
- d. When color of markings shall be other than as specified (see 3.45).
- e. When winterization, and which type, is required (see 3 .50).
- f. Time frame for submittal of First Article Test Report (see 6.4).

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6.3 Carry position. Carry position is defined as the forks in the straight ahead position with the heel of the forks 4 to 12 inches above ground, and the mast tilted to the most rearward position.

6.4 First article report. The contractor shall prepare and submit the first article demonstration and test report to the contracting officer for approval within the time frame specified (see 6.2). The report shall include a detailed description of the examination, and demonstrations performed, User test (if applicable), deficiencies encountered and actions taken to correct the deficiencies, and copies of all incident reports. Approval of the first article test report shall not relieve the contractor of his obligation to furnish forklifts conforming to this purchase description.

6.5 Subject term (key word) listing.

Forklift

Material Handling

Container Handling

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APPENDIX

TEST METHOD NUMBER 1

TRUCK OPERATIONS

1. Test course:

(a) The test course shall be a level, paved or unpaved surface laid out in accordance with figure 1. Stations 1 and 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) Obstacles shall be in accordance with figure 2 and placed so that the nearest obstacle is 20 (+ or -3) feet from Station 1.

2. Test apparatus:

(a) Two each rated loads.

(b) Thermocouples to measure:

(1) Engine coolant at engine outlet to the radiator.

(2) Engine coolant from radiator.

(3) Transmission sump.

(4) Engine oil galley.

(5) Drive axle differential.

(6) Hydraulic oil reservoir.

(7) Ambient air temperature during test.

3. Test procedure.

(a) Initially place rated loads on platforms at Stations 1 and 3.

(b) Pick up load from Station 1, backup truck being sure all wheels travel over obstacles. Travel forward and deposit load at Station 2.

(c) Disengage load at Station 2. Back out and travel forward to Station 3. Prior to engaging load at Station 3, raise mast to maximum lift height to activate the relief valve. Lower forks and engage load.

(d) Pick up load at Station 3. Back out, 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 the obstacles. Travel forward to Station 2.

(f) Pick up load at Station 2. Back out, travel forward to Station 3 and deposit load.

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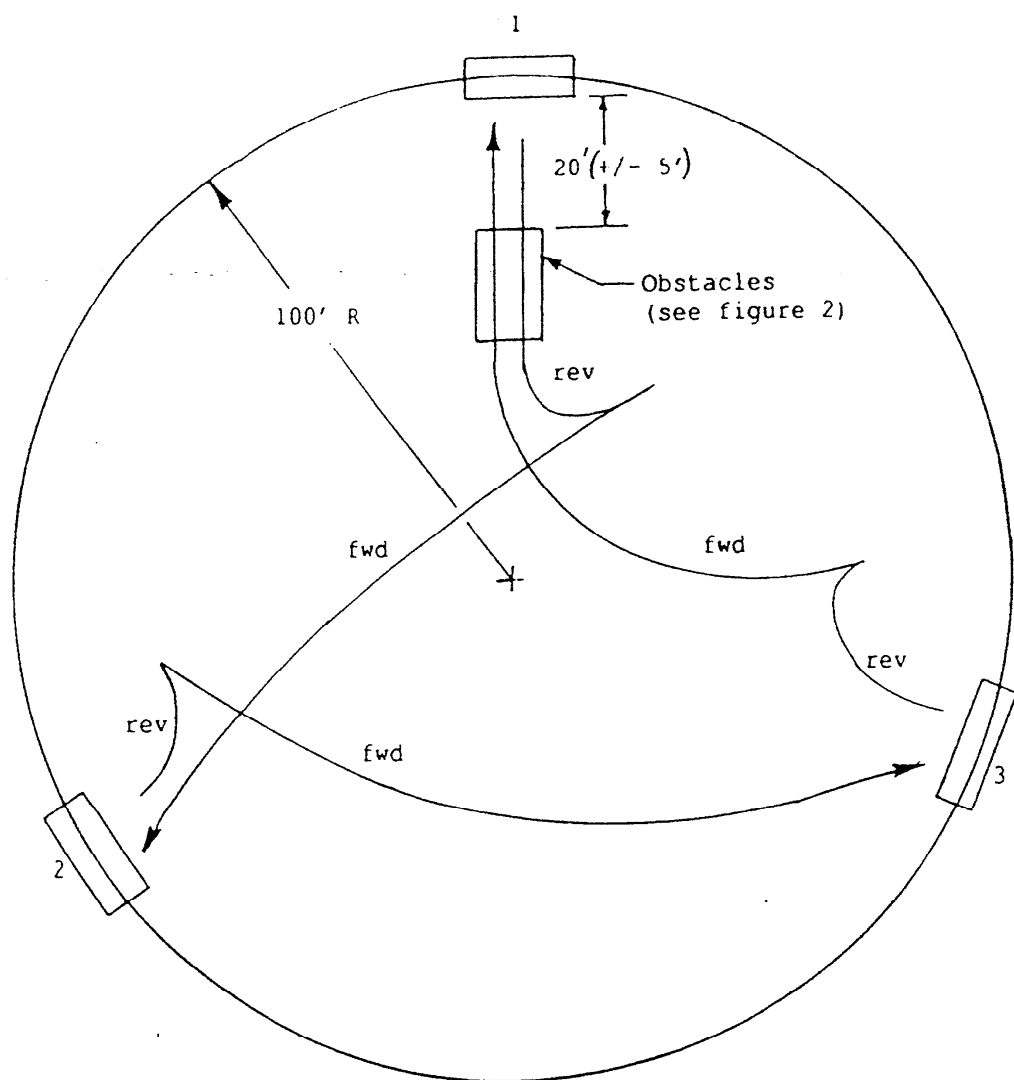
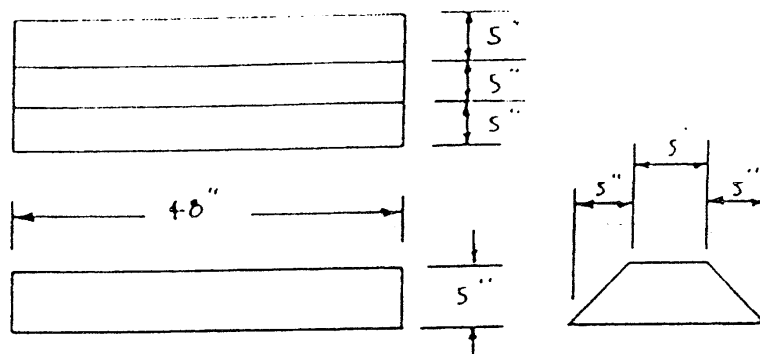


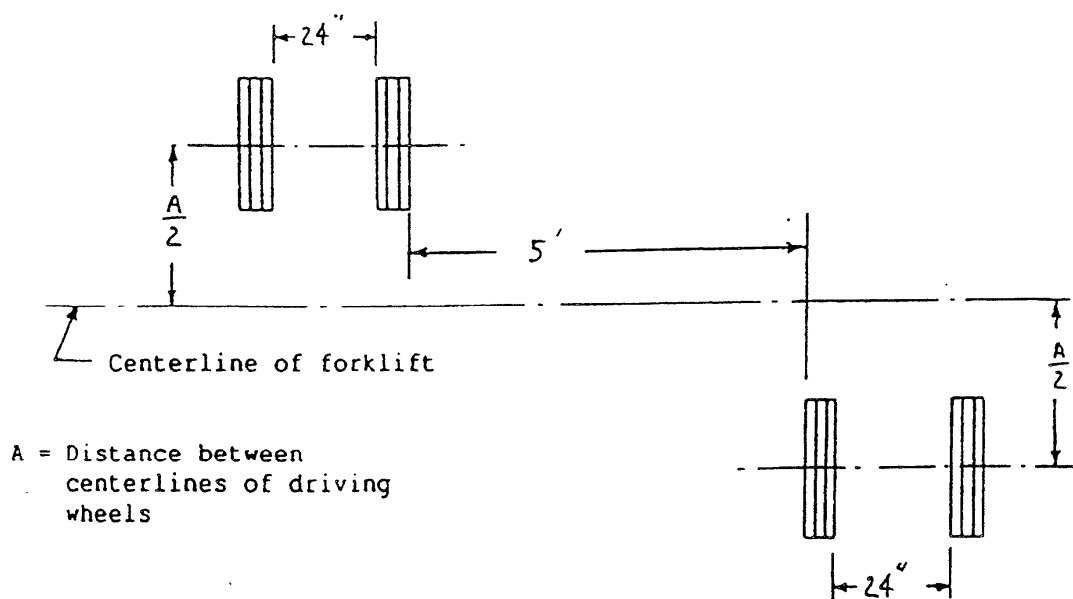
FIGURE 1 TEST COURSE

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CONSTRUCTION OF OBSTACLES



OBSTACLE COURSE LAYOUT

FIGURE 2 OBSTACLES

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

1. RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-T-83830 (USAF)	2. DOCUMENT DATE (YYMMDD) 24 March 1995
3. DOCUMENT TITLE TRUCK, LIFT, FORK, ROUGH TERRAIN, DIESEL ENGINE DRIVEN			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME (Last, First, Middle Initial)		b. ORGANIZATION	
c. ADDRESS (Include Zip Code)		d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME GEORGE CYPHERS		b. TELEPHONE (Include Area Code) (1) Commercial 912-926-2192 (2) AUTOVON 468-2192	
c. ADDRESS (Include Zip Code) WR-ALC/LVRE 225 OCMULGEE COURT ROBINS AFB GA 31098-1647		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	

NOTICE OF INACTIVATION
FOR NEW DESIGN

INCH - POUND

MIL-T-83830(USAF)
NOTICE 1
6 Mar 96

MILITARY SPECIFICATION

TRUCK, LIFT, FORK, ROUGH TERRAIN, DIESEL ENGINE DRIVEN, 25,000 POUND
CAPACITY AT A 48 INCH LOAD CENTER

This notice should be filed in front of MIL-T-83830 (USAF)
dated 24 Mar 1995.

MIL-T-83830 (USAF), dated 24 Mar 1995, is inactive for new design and is no longer to be used
except for replacement purposes.

Custodians:
Air Force -99
Army -
Navy -

Preparing Activity:
Air Force - 84

Agent Activity:
Air Force - 99

(Project: 3930-0680)

AMSC N/A

FSC 3930

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