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MILITARY SPECIFICATION

TRUCK, FIXED PLATFORM, INTERNAL COMBUSTION ENGINE POWERED, PNEUMATIC RUBBER TIRES, GENERAL SPECIFICATION FOR

This Specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers heavy duty, internal combustion engine powered, pneumatic rubber tired, fixed platform trucks for handling unpalletized loads in open areas over paved and unpaved surfaces.

1.2 Classification. Platform trucks shall be one of the following types, as specified (see 6.2):

Type I - 2,000 pounds (910 kg) capacity

Type II - 4,000 pounds (1820 kg) capacity

Type III - Capacity as specified (see 6.2).

1.3 Sizes. Truck platform sizes shall be one of the following as specified in (see 6.2).

Size A 60 in. (1520 mm) x 108 in. (2740 mm)

Size B As specified (see 6.2)

<p>Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Navy Ships Parts Control Center, Attn. Management and Engineering Department, Code 036 P. O. Box 2020, Mechanicsburg, PA 17055-0788 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.</p>

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Distribution Statement A. Approved for public release; distribution is unlimited.

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2. APPLICABLE DOCUMENTS2.1 Government Documents.

2.1.1 Specifications and standards and handbooks. The following specifications, standards and handbooks form a part of this specifications to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation. (see 6.2)

SPECIFICATIONS

FEDERAL

- GG-P-455 - Plates, Foils, Photographic (Photosensitive Anodized Aluminum)
- QQ-P-416 - Plating, Cadmium (Electrodeposited)
- TT-E-489 - Enamel, Alkyd, Gloss (For Exterior or Interior Surfaces)

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- MIL-V-173 - Varnish, Moisture and Fungus Resistant (for Treatment of Communications, Electronic and Associated Equipment).
- MIL-P-514 - Plate, Identification, Instruction and Marking, blank.
- MIL-T-704 - Treatment and Painting of material.
- MIL-F-3541 - Fitting, Lubrication.
- MIL-G-3859 - Grease Gun, Hand Operated Lever, Push and Screw Type.
- MIL-M-3971 - Meter, Time Totalizing, Non-Hermetically Sealed, electrical, General Specification for.
- MIL-T-17479 - Trailer, Platform, Warehouse, Wood or Metal Platform 6000 Pound Capacity, Pneumatic Tires, Fifth Wheel Steer
- MIL-E-52649 - Engine Cold Starting Aids, Ether Fuel Primers.

STANDARDS

FEDERAL

- FED-STD-595 - Colors
- FED-STD-H28 - Screw Thread Standards for Federal Services

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-130 - Identification Marking of U.S. Military Property.
- MIL-STD-162 - Materials Handling Equipment, Preparation for Shipment, Storage, Cyclic Maintenance, Routine Testing and Processing
- MIL-STD-1474 - Noise Limits For Army Material.

(Unless otherwise indicated, copies of federal and military specifications, standards and handbooks are available from the Naval Publications and Forms Center, (Attn: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099)

2.1.2 Other Government documents, drawings and publications. The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DEPARTMENT OF LABOR

29 CFR, Part 1910 - Occupational Safety and Health Standards (OSHA)

(Application for copies should be made to a local DOL officer to the Superintendent of Documents, U. S. Government Printing Office, Washington DC 20402)

2.2 Non-Government Publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of the documents not listed in the DODISS are the issue of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE.

ANSI/NFPA 505 -Fire Safety Standard for Powered Industrial Trucks

(Application for copies should be addressed to: The American National Standards Institute, 1430 Broadway, New York, New York 10018)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

B 56.8 -Safety Standard for Personnel and Burden Carriers

(Application for copies should be addressed to: American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017)

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AMERICAN SOCIETY FOR TESTING AND MATERIALS

- B 633 -Electrodeposited Coatings for Zinc on Iron and Steel
- D 3951 -Standard Practice for Commercial Packaging

(Application for copies shall be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103).

SOCIETY OF AUTOMOTIVE ENGINEERS INC. (SAE)

- SAE J154 - Operator Enclosures Human Factor Design Considerations
- SAE J180 - Electrical Charging Systems for Construction and Industrial Machinery
- SAE J537 - Lubrication Fittings
- SAE J537 - Storage Batteries
- SAE J541 - Voltage Drop for Starting Motor Circuits
- SAE J551 - Performance Levels and Methods of Measurement of Electromagnetic Radiation from Vehicles and Devices (30-1000 Mhz)
- SAE J636 - V-Belts and Pulleys
- SAE J925 - Minimum Access Dimensions for Construction and Industrial Machinery
- SAE J1127 - Battery Cable
- SAE J1459 - Ribbed Belts and Pulleys

(Application for copies should be addressed to the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096-0001.)

THE TIRE AND RIM ASSOCIATION, INC. (T&RA)

T and RA Yearbook

(Application for copies should be addressed to "The Tire and Rim Association, Inc.", 3200 W. Market St. Akron, OH 44313)

UNDERWRITERS LABORATORIES, INC. (UL)

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

(Application for copies should be addressed to: Underwriters' Laboratories, Inc., 1285 Walt Whitman Road, Melville, Long Island, New York 11746; 207 East Ohio Street, Chicago, Illinois 60611; or 1655 Scott Boulevard, Santa Clara, California 95050)

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(Nongovernment standards and other publications are normally available from the organizations which prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of Precedence. In the event of a conflict between the text of this document and the references cited herein, (except for related associated detail specifications, specification sheets, or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a first produced truck shall be subjected to a first article inspection in accordance with 4.3.

3.2 Environmental Requirements. The engine shall start within 5 minutes and the truck shall operate as specified herein within 15 minutes after engine start in any ambient temperature from 0°F (-18°C) to plus 115°F (46°C)

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

3.3.1 Castings. Castings shall be of the quality normally used in commercial practice, free from blowholes, porosity, shrinkage, cracks, or other defects. Castings shall not be repaired that adversely affect the strength or intended use. Sufficient finish shall be allowed to permit machining for leak-free sealing at covers, closure points, and fasteners.

3.3.2 Plating. All threaded fasteners, washers and cotter pins required to fabricate the truck, except those in contact with oils in reservoirs and those inside corrosion resistant components shall be zinc plated, cadmium plated or made of corrosion resisting material. Zinc plating shall be in accordance with ASTM B633, type I, SC 1 and cadmium plating shall be in accordance with QQ-P-416, type I, class 3.

3.3.3 Screw threads. Screw threads shall be in accordance with FED-STD- H28.

3.4 Safety. The truck shall conform to the applicable requirements of ASME/ANSI B56.8 UL 558, ANSI/NFPA 505 and such additional requirements as specified herein, and with the Occupational Safety and Health Standards requirements of 29 CFR, Chapter XVII, Part 1910. The truck shall have a type G rating for a gasoline engine, type D for a diesel engine, type LP for a liquified petroleum gas (LPG) engine and a type G/LP for a dual fuel gasoline/LPG engine.

3.5 Maintainability. Where applicable provision shall be made for ready adjustment, servicing, or replacement of fan belt, ignition parts or assemblies, carburetor and components, fuel pump and components, oil filter and components, clutch, starter, alternator, alternator regulator, battery, wearing parts of steering assembly, tires, wheels, lights, and horn.

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If hand access openings are used on the exterior of the truck, the edge of the opening shall be smooth and shall be provided with a removable or hinged cover, whenever it is required. Dimensions of access openings shall be in accordance with SAE J925 for a bare or normally gloved hand. There shall be no interference to the servicing or draining of oils and lubricants to or from any assembly or components by frame members or other obstructions, and without requiring the use of flexible connection or other special devices. Draining plugs shall provide for complete drainage. There shall be no part of the hydraulic system extending below the body of the truck unless it is guarded against damage.

3.6 Design and construction. Design of trucks covered by the specification and all components therein, shall insure safe, efficient, and economical operation under normal service conditions. There shall be no evidence of accelerated wear, or failures, or permanent deformation when operated as specified herein. There shall be no exposed bolts, clamps, gages, fittings, or other appendages which can be caught or hooked while the truck is working in a confined space.

3.6.1 Bearings. Unless otherwise specified herein, rotating parts shall be mounted on sealed ball, roller or tapered bearings.

3.6.2 Lubrication. All surfaces requiring lubrication shall be provided with a suitable means for lubricating except where sealed bearings are used.

3.6.3 Lubrication fittings. Lubrication fittings shall conform to SAE J534. Fittings shall be located in a protected position and shall be accessible to a hand-operated grease gun conforming to MIL-G-3859 with a 10-inch (250mm) flexible extension. Accessibility to fittings shall be provided without the removal or adjustment of accessories or parts. Panel and plates equipped with hand-operable, quick-disconnect fasteners or no more than eight common fasteners may be removed to provide accessibility.

3.7 Propulsion.

3.7.1 Engine. The basic engine shall be a commercial industrial type using gasoline, liquified petroleum gas, dual fuel/LPG or diesel as specified (see 6.2). The power and speed rating of the engine shall be such that operation of the truck under any of the operational requirements and conditions specified herein will not require horsepower in excess of the intermittent horsepower as established by the engine manufacturer. All other requirements including electromagnetic suppression, cooling system, fuel system, ignition system and accessories shall be as specified herein.

3.7.2 Engine accessories for gasoline, LPG or gasoline/LPG engines.

3.7.2.1 Ignition. The trucks shall have a nominal 12-volt battery ignition system. The system shall include ignition switch, ammeter, ignition coil, distributor, spark plugs, high tension cables and low tension cables. All wires shall be adequately supported to minimize chafing and provide adequate clearance from moving parts, hot engine parts, exhaust and fuel systems. Cables shall not be supported on oil or grease-retaining surfaces or be exposed to drippage of gasoline, oil or grease.

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When exposed to unusual vibration, cables shall be protected by flexible tubing or shall be suitably harnessed. Grommets shall be provided whenever wiring passes through bulkheads, partitions or structural members, or the wiring shall be suitably fastened to prevent chafing or abrasion. All components of the ignition system shall be weather resistant to prevent the entry of moisture when operated or stored outdoors under all weather conditions. The ignition system shall not be protected by fuses.

3.7.3 Engine accessories for diesel engines.

3.7.3.1 Cold weather system aids. The truck shall be equipped with cold weather system aids to meet the environmental requirements specified herein. Aids shall include battery blankets, glow plugs or fluid priming engine starting system, engine oil heater, engine coolant heater, and transmission heater. However, only the aids necessary to meet the operating temperatures specified herein will be required. Heaters shall operate on 110 volt alternating, 60 cycle electrical current. When fluid priming starting system is provided, it shall conform to MIL-E- 52649, Type III. The size of the primer shall be in accordance with the engine manufacturer's recommendations. The primer may be mechanically or electromechanically operated. When the primer is mechanically actuated, it shall be furnished with a total cable length not to exceed 6 feet (2 m) and a "tee" handle. When electromechanically actuated, it shall be furnished with a temperature control.

3.7.3.2 Fuel supply system. Supply and return fuel lines shall be provided to insure continuous operation at full throttle and maximum loads including slope ascension. The fuel system shall include a fuel transfer pump, primary fuel strainer/water separator with provision for draining sediment, and secondary fuel filter(s) in accordance with engine manufacturer's recommendations. The primary fuel strainer shall be between the fuel tank and transfer pump.

3.7.3.3 Battery starting system. Truck shall be supplied with starting battery(ies) connected in parallel for adequate starting capacity in weather at 0° F (-18°C.)

3.7.4 Accessories for all engines.

3.7.4.1 Alternator. An alternator conforming to SAE J180 shall be provided and shall provide charge at engine low idle speed. The alternator shall not utilize selenium rectifiers. If the alternator is belt driven it shall be driven by single or multiple V-belts conforming to SAE J636 or a V-ribbed belt conforming to SAE J1459.

3.7.4.1.1 Alternator regulator. An alternator regulator shall be furnished and may be integral with the alternator. Provision shall be made within the electrical system for:

- (a) Alternator voltage regulation.
- (b) Current limiting to protect alternator enclosed diodes or the alternator if applicable.
- (c) Disconnection of circuit to the alternator rotor when the ignition switch is off.
- (d) Actuation of ammeter or charge indicator lamps where applicable.
- (e) Field current relay switch to prevent rotor current from passing through the ignition switch where applicable.

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3.7.4.2 Starting system. The starting system shall include a starting motor solenoid, a starting motor, necessary wiring and cable and starting motor switch. Trucks equipped with power shifted transmissions shall be provided with an interlock in the starting system or other means to prevent energizing the starter motor except when the directional control lever is in the neutral position. Cranking torque of the starting motor shall be sufficient to start the engine with battery specified for the truck when both engine and battery are thoroughly cold soaked, at 0° F. Starting system circuit voltage drop shall not exceed the drops specified in SAE J541.

3.7.4.3 Fuel system. The capacity of the fuel tank shall insure not less than 8 hours continuous operation during the reliability test specified herein. The tank shall be equipped with a safety filler cap assembly painted with red enamel which shall incorporate a self-closing cap, screw-locking device for cap, removable strainer and provide for padlocking. The cap assembly and the neck of the fuel tank shall be threaded and when installed, shall not be removable without the use of tools. A standpipe or other suitable means at the fuel line inlet shall be provided to prevent foreign matter from entering the fuel line and to prevent drawing fuel from bottom of tank. The fuel tank shall be equipped with a drain plug at the lowest point of the tank. The drain plug shall be removable with hand tools without the removal of any other component. The fuel tank shall be protected by position or otherwise from external damage. A shut-off valve shall be accessibly located immediately adjacent to the fuel tank. Adequate fuel lines shall be provided to insure continuous operation at full throttle and maximum loads, including slope ascension. Fuel lines shall be protected to the extent necessary for preventing vapor lock by suitable insulation or heat reflectors when located near high temperature areas of the engine. Other construction and design details shall be in accordance with UL 558. No provision for auxiliary fuel supply is required. Fuel pump shall be of the automotive diaphragm type. A fuel filter and a metal sediment bowl of adequate capacity shall be provided between the fuel supply and the pump and shall be accessible from above or from the side. The bowl shall not be obstructed and shall be located to minimize fire hazard. Clearance shall be provided for removing and cleaning the filter.

3.7.4.4 Air cleaner. The engine air inlet shall be provided with an air cleaner. The air cleaner shall be located or designed to prevent water entering the cleaner when the vehicle is operated. The air cleaner shall be constructed so as to permit disassembly without tools for servicing. It shall be accessible when engine cowl, hood, or access plate is opened. When dry replaceable cartridge type air cleaners are used, they shall be of the automotive type.

3.7.4.5 Cooling system. The cooling system, when applicable, shall be of the closed pressure type, incorporating a radiator with a radiator pressure cap, thermostat, fan, and circulating pump, and shall be adequate to prevent coolant temperatures at the head outlet in excess of 115° F. (97°C.) over ambient temperature when the truck is operated continuously with rated loads at test course conditions specified in section 4. One drain cock shall be located in the base of the radiator or pump inlet elbow, whichever is lower, and the second shall be located at the lowest point of the liquid coolant jacket in the cylinder block.

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3.7.4.5.1 Fan. The fan shall discharge away from the operator and rotate on antifriction bearings and be driven by a "V" belt(s) conforming to SAE J636, a V-ribbed belt conforming to SAE J1459 or shall be electric motor driven controlled thermostatically. Fan belt(s) take-up shall be at least three (3) percent of the belt circumferential length, plus an allowance for replacement of a new belt(s) without forcing. The belt(s) shall be clear of all other components within the adjustment range.

3.7.4.5.2 Water pump. The water pump(s) shall be of the centrifugal type, shall be replaceable, and shall be equipped with shaft seals that will prevent leakage. The shaft shall be corrosion resistant when exposed to water and a mixture of ethylene-glycol and water. A life time lubrication system shall be required or an adequate and readily accessible pressure lubrication fitting shall be provided.

3.7.4.5.3 Thermostat. A thermostat of nominal temperature between 165°F.(74°C.) to 180°F.(82°C.) shall be located in the cylinder head outlet to the radiator. It shall be removable with hand tools. Thermostat located in the radiator hose is not acceptable.

3.7.4.5.4 Radiator. The radiator assembly shall consist of a fin and tube type core with an expansion tank and sediment tank. Where the top of the radiator is lower than the top outlet of the engine, a surge tank may be used. The radiator cap shall be accessible without physical removal of engine hood. The radiator shall be mounted to prevent its being damaged due to shock and racking experienced in normal operation of the equipment. The radiator shall be protected by a heavy grilled guard. A shield shall be provided, if necessary, to protect the radiator from mud and gravel thrown by the steering tires. Hoses shall have adequate clearance of the truck structure or other components under all operating conditions.

3.7.4.6 Gaskets, seals and packing. Gaskets, seals and packing used in the cooling system shall be made of materials capable of resisting deterioration from mixtures of water and ethylene-glycol-base antifreeze.

3.7.4.7 Governor. The governor shall be adjusted to limit the maximum speed of the engine to the maximum limit of the engine manufacturers' published recommended speed for industrial truck application. The governed speed of the engine shall limit the maximum speed of the vehicle as required in 3.9.3.

3.7.4.8 Exhaust system. The exhaust system shall conform to the structural and safety requirements of UL 558. The exhaust system shall be protected against entry of rain and shall include drainage provisions to prevent accumulation of water and condensed vapors. The exhaust system shall terminate near, but not beyond the plan outline of the truck. Its outlet shall be no more than 40 inches(1016mm) above ground level. The muffler shall be independently supported around the body or muffler outlet. If the tail pipe is independent of the muffler or extends more than 12 inches(305mm) from the muffler, it shall be supported. Exhaust gases shall be emitted in a horizontal direction at the rear or side rear of the truck or shall be dissipated into the fan discharge away from the operator. The exhaust system shall be arranged to prevent burns to the operator during normal operations. The discharge shall be so designed that a shop exhaust system shall be conveniently connected and used when the engine is operated.

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3.7.5 Fungus and moisture proofing. When specified, (see 6.2) the equipment shall be treated to resist fungus and moisture. All electrical equipment and wiring including that on the engine shall be treated in accordance with the fungus and moisture resistance requirements of MIL-V-173.

3.7.6 Oil filter. Oil filters of either the by-pass or full flow type shall be used. The oil filter shall be mounted in an accessible location for ease of replacement of elements. Oil lines (if applicable) to and from the filters shall be installed to minimize fatigue from vibration.

3.7.7 Drive assembly. The drive assembly shall consist of all components necessary to transmit power from the engine to the wheels. Each gear, shaft, and axle shall be of heat treated alloy steel. All rotating shafts and axles shall be supported on anti-friction bearings. All gears shall operate in lubricant, and a standard pressure grease lubrication system shall be provided for all friction parts not so lubricated. Gear housing shall be equipped with filler plugs and magnetic drain plugs. Differential ring and pinion gears, when used, shall be adjustable. All levers to gear enclosures shall be provided with seals, caps, rubber boots or similar means to prevent the entry of water into the enclosure under normal operation or outside storage. When a drive shaft is provided there shall be a slip joint integrated into the drive line to facilitate the removal of the drive shaft.

3.7.7.1 Transmission. Unless otherwise specified a power shifted transmission shall be furnished (see 6.2).

3.7.7.1.1 Power shifted transmission. The power shifted transmission shall be of the continuous drive type within each speed range(s). An oil filter is required for the transmission oil. Means shall be provided to check the transmission oil level.

3.7.7.2 Torque converter. A torque converter shall be supplied with the power shifted transmission.

3.8 Structure

3.8.1 Chassis and frame. The frame and related structure shall be fabricated from steel and steel castings at least equal to the size and design of manufacturer's normal commercial frame members and shall be capable of withstanding 300 percent of rated load without permanent deformation. Frame members, bracings, and all their joints shall provide a rigid unit structure. The frame and related structure shall have sufficient depth to afford protection for working parts and shall be capable of withstanding, without permanent deformation, stresses induced by capacity loads and tests in Section 4.

3.8.1.1 Bumper plate. The truck shall be provided with a reinforced steel front bumper plate of at least 3/16 inch (5 mm) thick. The bumper plate shall be removable and shall extend from the lowest ground clearance point to the top of the truck. It shall be braced, grided, and flared back on both sides for protection of front springs, tires, frame and radiator. The truck shall be equipped with front and rear bumpers.

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3.8.1.2 Deck. The deck shall be at least 3/16 inch(5 mm) thick and shall be made from non-skid steel floor plate with 3/32 inch(3 mm) high right angle projections. The deck plate shall be welded or bolted to all supporting frame members and shall have no sharp outside edges. It shall be at least skip-welded to the intermediate frame members. If bolted, bolt holes shall be countersunk and bolt head shall not protrude above the deck surface. The deck plate and all supporting frame members shall form a rigid level platform. The overall usable deck space shall be as specified in 1.3. The deck plate shall have 10 smooth edged circular holes. Holes shall line up with the stake pockets specified in 3.8.1.3.1.

3.8.1.3 Wood deck. When specified (see 6.2), a weather resistant plywood rubber covered non-skid deck, 1-inch(25mm) thick, equivalent to the steel deck in 3.8.1.2 shall be furnished. Provisions shall be made for securing the wood deck to the steel deck by fastening devices located along the edges of the steel deck. The fastening devices shall be easily hand operated.

3.8.1.4 Stake pockets. When specified, (see 6.2) commercial stake pockets shall be provided.

3.8.1.5 Side racks. When specified, (see 6.2) removable commercial side racks shall be provided.

3.8.2 Wheels. The truck shall be mounted on steel, malleable or cast iron wheels, equipped with tapered roller bearings. Wheel hub bearings shall provide for adjustment to compensate for wear and shall be sealed with a retainer to prevent leakage of lubricant. Front wheels shall track true in accordance with automotive practice, as determined by their respective radii. There shall be 2 single front steer wheels and 2 single rear drive wheels. Wheels shall have demountable type rims which can be removed from hubs without deflating tires. Wheels, when equipped with new tires, shall clear any part of the truck structure by at least 1/4 inch(6 mm) under all conditions of operation as tested in Section 4. Drive wheel clearance to any part of the truck structure shall be sufficient to permit the use of standard automotive tire chains.

3.8.2.1 Tires. The tires shall be new and unused and shall be selected from sizes listed in the T&RA Yearbook. The tires shall be pneumatic, high pressure, tube or tubeless type, furnished with non-directional tread and smooth tires are unacceptable. Tire loadings shall not exceed the values shown in the T&RA Yearbook. Tires shall be interchangeable between all wheels.

3.8.2.2 Tubes. When tube type tires are furnished, tubes shall be heavy duty type and the size required to fit the tires furnished. Valve stems shall be arranged to permit inflation of mounted tires from the side of the truck.

3.8.3 Steering. An automotive type steering wheel not to exceed 20 inches(510mm) in diameter, mounted on the steering column, shall turn the steer wheels. Wheels shall steer true in accordance with the Ackermann steering principle. Clockwise rotation of the steering wheel shall provide for right-hand turning of the truck while in forward motion. Steering force shall be in accordance with 3.10.1. When power steering is required, a hydraulic steering booster or full power steer shall be supplied.

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Provision shall be made for precision adjustment for wear and alignment of all major steering components and for lubrication of all friction points by accessible grease fittings or a lubricant reservoir. When provided, the reservoir shall be accessible for filling and checking of lubricant level. Means shall be provided to prevent wheels or tires or steering linkage from contacting any part of truck structure, other than stops, irrespective of obstacle magnitude or cramped steer angle. Spindles and kingpins, if used, shall be of heat-treated alloy steel.

3.8.4 Brakes.

3.8.4.1 Service brakes. Service brakes shall be of the hydraulic, internal expanding type, or the disc type hydraulically actuated. The brake drum or housing shall be bolted, riveted, or cast integrally on each drive wheel or the brake shall be rigidly mounted on the pinion drive shaft adjacent to each wheel. Brakes shall be applied by depressing a pedal with the right foot. The brake pedal shall have a replaceable rubber cap. When actuated at all speeds, the brake shall provide smooth braking, free of brake chatter and free of feed-back mounting to more than 1/4 inch (6mm) total movement measured at the foot pad. Either manual hydraulic or power brakes shall be provided to meet the performance requirements of 3.10.6. The hydraulic master cylinder shall be readily accessible for checking and refilling. When hydraulic master cylinder is located underneath the floor plate, an access hole not less than 2 1/2 inches (160mm) in diameter shall be located above the master cylinder. The access hole shall be provided with a cover which can be easily removed. Brakes shall be designed to insure self-elimination of foreign material from the braking surfaces under normal maintenance and operating conditions and shall be adequately protected to insure satisfactory operation. Wheel cylinders shall be located so that hydraulic lines may be bled of air without the necessity of removing the wheels or disconnecting hydraulic lines. Brake lining, when used, shall not contain asbestos materials, shall be of the woven or molded type and shall be cement-bonded or riveted to the brake shoe. Service brake adjustment shall provide for at least 90 percent contact of brake lining with the drum throughout the service life of the brake lining. Brake adjustment mechanism shall be readily accessible and shall not require special tools. Self-adjusting brakes are acceptable. The master cylinder and brake pedal linkages shall be rigidly supported. The brake system shall conform to ASME/ANSI B56.8. The truck shall be equipped with a dual output master cylinder providing a dual hydraulic circuit (split hydraulic brake system).

3.8.4.2 Parking brake. The parking brake shall be an independent mechanical friction brake mounted on the drive or propeller shaft rotating within the wheels, or a separate linkage actuating the service brake. It shall be hand-operated and equipped with a locking device. The manual control shall be located within easy reach of the operator and in a position permitting easy and safe movement on and off the vehicle from either side. The parking brake shall be capable of retaining the truck with rated load on a 15 per cent grade, in both forward and reverse direction. If hand lever is of the ratchet type, the ratchet and pawl shall be of heat treated steel. Adjustment of parking brake shoes or bands shall be accomplished without the removal of any major assembly other than tires and wheels. This adjustment shall provide positive means to prevent loss of adjustment through inadvertent disengagement of adjusting device.

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3.8.5 Body. The truck body shall be constructed of steel sheet or plate equal to that used in the manufacturer's normal commercial product. Weight distribution and spring suspension shall be such as to prevent loss of steerability under loaded and unloaded conditions in either forward or reverse direction. Overall truck width shall be such that the truck can perform applicable tests in this specification. Provisions shall be made for immediate and easy access to all working parts requiring inspection or maintenance. Covers shall be secured with bolts or quick opening fasteners removable with ordinary hand tools.

3.8.5.1 Seat. A cushion seat, adjustable forward and rearward, without the use of hand tools, shall provide comfortable seating for the operator when operating the truck. The seat shall be provided with a cushioned backrest. A protective steel plate of at least 7 gauge (U. S. Standard) and 26 inches (660mm) high and adequately braced shall be permanently installed across the width of the truck and located directly behind the operator's seat.

3.8.5.2 Safety bar. A safety bar shall be furnished and installed on the left side of the vehicle to prevent the driver from falling out of the vehicle when making turns.

3.8.5.3 Cowl or hood. The engine shall be completely enclosed with a hood cover and sideplates. Either the hood cover or sideplates shall be quick-opening. Hood cover, if lift-up type, shall be held in the open position in a safe manner by counterweight or spring and linkage mechanism or latch, which requires no brace or support and cannot be inadvertently released while servicing the vehicle. Hood cover shall be capable of being easily opened or removed by one man. Hand tools shall not be required for release of hood cover or sideplates. All engine components (accessories) shall be completely accessible, without requiring the removal of any additional truck structure, when hood cover and sideplates are opened. Hood cover shall be designed to prevent entry of water into the engine compartment when the vehicle is operated during inclement weather.

3.8.5.4 Instrument panel. An instrument panel shall be installed convenient to and plainly visible to the operator. The instrument panel shall be installed on an inclined or vertical plane to facilitate drainage of water. On this panel shall be mounted the ammeter, oil pressure gauge, coolant temperature gauge, hour meter, fuel gauge, ignition switch, light switch and starter button. An over temperature indicator for the torque converter lubricant or fluid (panel light or audible system) shall be mounted on or adjacent to the instrument panel. If an indicator light, it must be readily visible to the operator.

3.8.5.5 Fenders. If drive or steer wheels when in a straight ahead position, protrude beyond the body of the truck in excess of 1.5 inches (38mm), suitable fenders shall be provided.

3.8.5.6 Closed cab. When specified (see 6.2) trucks shall be equipped with a quickly removable rigid closed cab for use in inclement weather. The cab shall include 1 or 2 power operated windshield wipers, complete with booster, and shatter-proof glazing. Cab glazing shall provide maximum visibility. Cab shall conform to SAE J154, Figure 1 paragraph 3.1 for the 5th percentile and 95th percentile person.

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3.8.5.6.1 Cab heater. An automotive type heater with windshield defroster attachment shall be furnished when closed cab is specified.

3.8.5.7 Lifting and tying down attachments. The trucks shall be equipped with lifting and tying down attachments. Attachments shall be indicated by a transportation plate conforming to MIL-P-514, except tying down attachments may be identified by stenciling or other suitable marking on the truck. Tying down marking shall clearly indicate that the attachments are intended for tying down the equipment when shipped.

3.8.5.8 Towing hook. An automatic type pintle hook shall be provided with a 1500 lb. (6660 N) maximum drawbar pull. The pintle hook shall be mounted 12 inches (304mm) (plus 0.5 in (13mm)) above the ground. The pintle hook shall attach to trailers conforming to MIL-T-17479.

3.8.6 Controls. All switch and lever type controls shall be provided with position markings (decalcomania are not acceptable) either at the switch or lever, or in the case of the directional speed controls, on a diagram visible to the operator. Lever controls shall be equipped with hand grip knobs. The distance from the center line of one knob to the near edge of an adjacent knob or other surface shall be a minimum of 2.5 inches (64mm).

3.8.6.1 Ignition switch. The ignition switch shall be a key type with two positions, on and off. Once the engine has started, a means shall be provided to prevent energizing the starter. The key switch shall not energize the starter unless the truck is in neutral for powershift transmissions or park for an automatic transmissions.

3.8.6.2 Starting motor switch. The starting motor switch shall be a solenoid plunger type connecting the starting motor to the battery. It shall be operated by depressing a button installed on the instrument panel or turning a spring-loaded ignition switch to a "start" position. If a push-button is used, the starter shall be inoperable when the ignition switch is in the "off" position.

3.8.6.3 Brake pedal. The brake pedal shall be conveniently located for right foot operation within a clear space of 6 inches (152mm) wide. Pedal width shall be at least 2.5 inches (25mm). Suitable means shall be provided for lubricating moving parts of the brake pedal linkage when required.

3.8.6.4 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 by a distance of not less than 1.5 inches (38mm).

3.8.6.5 Directional speed controls. Selective forward and reverse speed control lever(s) shall be provided and shall be located for right hand operation.

3.8.7 Instruments. All gauges and meters shall be products of manufacturers regularly engaged in producing these types of instruments. They shall be flush mounted on the instrument panel. All instruments shall be constructed to be moisture and weather resistant.

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3.8.7.1 Ammeter. The truck shall be equipped with a remote indicating ammeter of sufficient capacity to indicate variations in current supply or demand experienced by the truck, exclusive of starter requirements.

3.8.7.2 Oil pressure gauge. A remote indicating, electrical oil pressure gauge shall be provided.

3.8.7.3 Temperature gauge. A remote indicating, coolant temperature gauge shall be provided.

3.8.7.4 Hour meter. An electric operational hour meter, which registers the number of engine operating hours only, shall be provided. The totalizing mechanism shall register not less than 9999. Hour meter shall be in accordance with Specification MIL-M-3971, Type I, Grade A.

3.8.7.5 Fuel gauge. An electric, thermally stabilized, remote indicating fuel gauge shall be provided.

3.8.7.6 Over-temperature signal. An over-temperature signal shall be provided when torque converters are furnished. The device shall have an electric remote indicator mounted on or adjacent to the instrument panel and be readily visible from the operator's position or shall use an audible signalling type.

3.9 Accessories. Where applicable, the provisions of UL 558 shall apply. All accessories shall be constructed to be moisture and weather resistant.

3.9.1 Headlights. Each truck shall be equipped with two sealed beam type headlights of not less than 32 candle power each, recessed behind the front bumper plate to prevent damage, but without obstructing light beam. Directional focus of the lights shall be vertically and horizontally adjustable in accordance with automotive practice.

3.9.2 Stoplight. One automotive, red, reflector type, combination stoplight and tail lamp, of not less than 15 candle power and 3 candle power respectively, shall be recessed or mounted on the rear within the plan outline of the truck. The stoplight shall operate automatically only upon actuation of the service brake pedal and shall not operate when ignition switch is in the "off" position.

3.9.3 Battery. The truck shall be furnished with a 12 volt maintenance free type battery(ies) capable of meeting the cold cranking capacity of the engine when cold soaked to the operating temperature specified herein and in conformance with SAE J537. The term "Maintenance Free" is defined as a battery that does not require the addition of water during the expected battery life.

3.9.3.1 Battery mounting. Battery mounting shall be under the engine hood or in an accessible compartment for easy battery removal. Battery mounting shall provide for complete support over the entire base of the battery. If mounted outside, the battery shall be housed in an individual acid resistant finished box, incorporating provision for drainage. The box shall be fitted with a quick release cover to provide for inspection and servicing. Cover and positioning shall protect against short circuiting.

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The ungrounded cable shall be protected by rubber grommets or insulated passages at entry to battery box. Battery hold down clamps shall be provided to hold the battery in a fixed position.

3.9.3.2 Battery cables. Battery cables shall conform to SAE J1127. Battery terminals on the ends of the cables connected to the battery shall be clamp type, secured with a bolt and nut to facilitate disconnection and battery removal.

3.9.4 Horn. Truck shall be equipped with an electric horn with push button mounted on the center of the steering wheel. Horn button assembly and electrical wiring for the horn shall be protected against moisture and adverse weather conditions.

3.9.5 Fire extinguisher. When specified (see 6.2), each truck shall be equipped with a 4 pound (2 kg) internally operated dry chemical charged fire extinguisher with rechargeable cylinder having a minimum UL rating of 6BC. Mounting shall be on a positive locking quick release bracket, in an accessible position, with the extinguisher nozzle protected against damage.

3.10 PERFORMANCE

3.10.1 Steering. The steer wheels shall be capable of being turned from extreme right to extreme left or vice versa in not more than 6 complete turns of the hand steering wheel; and the force required to operate within the first half of the inner steer wheel angle (from a straight-ahead position) shall not exceed 40 pounds (178 N), nor shall it exceed 80 pounds (356 N) at the extreme ends of the steer in either direction when truck is stationary, on a smooth, dry, concrete floor. At no time shall the free play in the steering mechanism be greater than 3 inches (76 mm). The steering gear assembly shall be capable of withstanding an unbalanced tangential force applied at the rim of the hand steering wheel of 150 pounds (670 N) without permanently distorting, fracturing, or deforming any part of the steering mechanism as tested in Section 4. There shall be a minimum of 7 inches (180mm) measured vertically between the lowest point on the steering wheel rim and a line parallel to the floor passing through the highest point of the unoccupied seat cushion when seat is held in full down position. There shall be a minimum of 3 inches (76 mm) between rim of steering wheel and directional control lever. The truck shall negotiate the reliability test course as specified in section 4 with only the displaced wheel off the ground at any time.

3.10.2 Speed. While carrying rated load on a level surface, trucks shall be capable of a forward speed in high gear of not less than 25 miles (40 km) per hour.

3.10.3 Slope ascension, first speed, forward direction. Trucks shall be capable of ascending a 15 per cent grade on a dry concrete surface when carrying rated load. Trucks shall be able to accelerate from a dead stop on this slope when carrying rated load.

3.10.4 Underclearance. The truck shall have sufficient underclearance to permit operation from one horizontal plane to another, up or down a 15 per cent slope and at least the reliability test course described in section 4.

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3.10.5 Parking brake. The parking brake shall be capable of retaining the truck with rated load on a 15 per cent grade, in both forward and reverse directions.

3.10.6 Service brakes. A brake pedal pressure of not less than 100 pounds (450 N) plus or minus 25 pounds (110N) shall develop a drawbar pull equal to approximately 30 percent of the gross weight of the truck (with rated load), reservoirs filled, while the truck is being towed over a concrete surface having a coefficient of friction of not less than .050. The brake system shall be capable of withstanding brake pedal pressure of 250 pounds (1110N) without failure of any component. These requirements shall be measured in accordance with section 4.

3.10.7 Towing hook. The towing hook shall have a minimum strength of 30 per cent total truck weight plus rated load without permanent deformation.

3.10.8 Turning radius. Trucks shall be capable of turning in 90° intersecting aisles whose width is 144 inches (3.6M). Trucks shall turn in one motion, without backing and turn shall be accomplished in not more than 3 trials.

3.10.9 Acceleration. Truck, when carrying rated load shall be capable of accelerating from a standing start at an average rate in the first 100 feet (30 M) of not less than 3.0 feet (1M) per second per second for type I trucks and not less than 2.0 feet (0.6) per second per second for type II trucks. Trucks when unloaded shall be capable of accelerating from a standing start at an average rate in the first 100 feet (30M) of not less than 4.0 feet (1.2M) per second per second for type I trucks and 3.0 feet (1M) per second per second for type II trucks.

3.10.10 Overload. The truck shall be capable of sustaining 300 per cent overload for a minimum of ten minutes.

3.10.11 Reliability. The truck shall complete 1200 laps without failure when tested as specified in 4.3.9. If failure occurs before lap 1200, the cause of failure shall be corrected and the test restarted at the first lap.

3.10.12 Maintainability. The following maintenance operations shall be accomplished by one man, except as noted, in not more than the time specified using common tools and special tools (if any) furnished with the truck:

(a) Remove, replace, and adjust all engine driven belts - 3/4 hour.
Exclude engine timing belt(s).

(b) Remove and replace alternator - 1/2 hour.

(c) Remove and replace regulator - 1/2 hour.

(d) Remove and replace all filters, screens, and strainers in all hydraulic systems - 1/2 hour.

(e) Drain engine coolant, Remove and replace engine coolant system hoses and thermostat and refill system. - 1 hour.

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(f) Drain engine lubricating oil, remove and replace oil filter elements, and refill crankcase - 1/2 hour.

(g) Remove and replace fuel filter elements and drain water separator - 1/4 hour.

(h) Disconnect battery cables, remove and replace battery(ies), and reconnect battery cables - 1/2 hour.

(i) Drain torque converter oil and transmission oil, remove and replace all filter elements and strainers, and refill converter and transmission - 1/2 hour.

(j) Remove and replace starter - 1 hour.

(k) Bleed and adjust brakes and refill master cylinder (two men) - 3/4 hour.

(l) Remove, read, and replace fluid level dipstick or conduct a visual inspection - 2 minutes each.

(m) Disassemble and service air induction system including replacement of air filter - 1/2 hour.

(n) Reset circuit breaker - 2 minutes each.

3.10.13 Run-in. The truck shall be capable of completing the 30 minutes of operation on the test course specified herein.

3.10.14 Electromagnetic interference. Unless otherwise specified (see 6.2), the electromagnetic interference limits shall be in accordance with SAE J551.

3.10.15 Noise Limits. The sound level at the operators station shall not exceed 85 dB(A) when measured in accordance with 4.3.2.13. Failure to meet the 85 dB(A) level will require that hazard warning plates conforming to MIL-STD-1474 shall be applied in clear view of the operator. Warning plates shall include the requirement for hearing protection.

3.11 Lubrication. All surfaces requiring lubrication shall be provided with a means for lubricating.

3.11.1 Lubricants. The trucks shall operate as specified herein when lubricated with standard lubricants.

3.11.2 Lubrication fittings. Lubrication fittings shall conform to MIL-F-3541. Fittings shall be located in a protected position and shall be accessible to a grease gun conforming to MIL-G-3859. Accessibility to fittings shall be provided without the removal or adjustment of accessories or parts. Panels and plates equipped with hand-operable, quick-disconnect fasteners may be removed to provide accessibility.

3.11.3 Pressure-release device. A pressure-release device shall be provided where the use of pressure lubricating equipment will damage grease seals or other parts.

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3.12 Nameplate. The manufacturer shall provide and install a nameplate, conforming to MIL-P-514, Type III, composition C (GG-P-455, type I, Grade A, Class 1) in a visible and safe location on the truck, as shown in Table I.

TABLE I
TRUCK FIXED PLATFORM, INTERNAL COMBUSTION
ENGINE, POWERED, PNEUMATIC RUBBER TIRES

CAPACITY _____ POUNDS

NAME OF MANUFACTURER _____

SERIAL NUMBER _____

MODEL NUMBER _____

REGISTRATION NUMBER _____

DELIVERY DATE _____ (month and year)

CONTRACT NUMBER _____

INSPECTED _____
(name of inspection office)

SERVICE WEIGHT _____

WHEEL LOADING _____

FRONT WHEELS (each) _____ POUNDS

REAR WHEELS (each) _____ POUNDS

IDENTIFICATION OF MAINTENANCE MANUAL _____
(Truck serial number or other)

3.13 Vehicle marking. Unless otherwise specified (see 6.2) the assigned registration number for each truck shall be painted, by the contractor, in black enamel in block numerals 3 inches (76mm) high by 1/2 inch (12mm) line width for letters and numerals and in a prominent place on truck body.

3.14 Treatment and painting. All exterior surfaces of the truck shall be prepared in accordance with MIL-T-704. Primer and finish coats shall assure complete coverage and durability of finish. The finish color shall be yellow gloss enamel color No. 13538 of FED STD 595 conforming to TP-E-489. When a preproduction model is required for test and evaluation, it shall be painted with one primer coat only.

3.15 Workmanship. The truck shall withstand any operation specified herein, without permanent deformation, breakage of connections, malfunction, or component interference caused by incorrect workmanship. All parts of the truck before and after painting shall be clean and free from sand, rust, dirt, fins, pits, sprues, scale, flux, and other harmful extraneous material. Edges and surfaces exposed to operating and maintenance personnel shall be smooth and rounded to the extent that a hazardous surface does not exist.

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Pivot points shall have hardened pins and bushed holes.

3.16 Steel and other metal fabrication. Metals used in the fabrication of the truck shall provide original quality surface finish and shall be free from kinks and sharp bends. Metals having eroded or pitted surfaces are not acceptable. The straightening of materials shall be done by methods that will not cause weakening or injury to the material. Burrs and sharp edges in holes and on sheets, plates, and members shall be removed sufficiently to assure correct fits and to prevent loosening of fasteners and damage to components. Flame cutting may be employed instead of shearing or sawing. Splatter shall be removed from exposed cuts and from reentrant cuts. Heated metals shall be allowed to cool slowly, and overheating shall be avoided in accordance with the recommendations of the metal manufacturer. All bends of a major character and all modular assembly fabrication shall be made with metal dies and jig fixtures to insure uniformity of size and shape.

3.16.1 Rivet connections. Rivet holes, in the sizes recommended by standard practice, shall be accurately punched or drilled, and shall have burrs removed. Rivets shall be driven with power tools. Rivet heads shall be full, neatly made, concentric with rivet holes, in full contact with the surface of the member. Excessive upsetting of rivets to fill holes will not be acceptable.

3.16.2 Bolted connections. Bolt holes shall be accurately punched or drilled. Washers and lockwashers shall be provided as required on all bolts, studs, and capscrews having straight threads, unless omission is approved by the contracting officer. Self-locking nuts are acceptable in lieu of standard nuts and lockwashers. All fasteners shall be correctly torqued and shall have full thread engagement.

3.16.3 Welding. The surfaces of parts to be welded shall be free from rust, scale, paint, grease, mill scale that can be removed by chipping and wire brushing, and other foreign matter. Welds shall transmit stress without permanent deformation or failure when the parts connected by the welds are subject to proof and service loading. Parent material, weld filler metals, and fabrication techniques shall be as required to enable the truck to conform to the examination and test requirements specified in Section 4. Parts to be joined by filler welds shall be brought into as close a contact as possible and in no event shall be separated by more than 0.187 in. (5mm) unless appropriate bridging techniques are used. The welding process used in fabrication of the truck shall be at the option of the supplier.

3.16.4 Machine work. All parts shall be manufactured to gage through the use of correct jigs, fixtures or tape controlled machines or any desired combination of these. Like parts shall be interchangeable.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government.

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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 the requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all the requirements of the contract. Sampling inspection, as a part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

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

- (a) First produced truck inspection and tests (see 4.3).
- (b) Quality conformance inspection (see 4.4).
- (c) Examination of preparation for delivery (see 4.5).

4.3 First produced truck inspection. Prior to examination and test of the truck specified in 3.1 the following shall be performed:

- (a) Furnish a schedule of maintenance to be followed during all testing of the first produced truck. A list of special tools required to perform this maintenance shall be provided.
- (b) Service the truck with oils and greases specified herein and designated for use in the ambient temperature at which the tests will be conducted.
- (c) Break in the truck as prescribed by the supplier.

4.3.1 Inspections.

4.3.1.1 Pretest examination Prior to testing according to 4.3.2, one or more of the first produced trucks as specified in 3.1 shall be examined for the defects marked "X" in Column 1 of Table II.

4.3.1.2 Post-test inspection (see 4.3.2.13).

4.3.2 Tests. Upon successful completion of the inspection specified in 4.3.1.1, the truck shall be subjected to the tests marked "X" in Column 1 of Table III. Acceptance of a first produced truck shall not exclude the remaining trucks from the quality conformance inspection and acceptance provisions specified in Section 4. Test conditions and schedule shall be as follows:

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- (a) Unless otherwise specified herein, tests shall be conducted at the ambient temperature and climatic conditions existing at the place of test. The test surface, unless otherwise specified for specific tests, shall be level within ± 1 degree. The surface of the test area shall produce a coefficient of friction of .5 or greater for trucks equipped with solid tires. (If the specified coefficient of friction is not available, it is permissible to cover the travel surface with a friction increasing material). Only that maintenance established by the supplier and submitted as a maintenance schedule prior to commencement of tests shall be performed during the tests.
- (b) Tests shall be in accordance with Table III and may be conducted in any order desired except that reliability and post test shall be the last tests conducted. An "X" in the applicable column indicates the tests that shall be conducted.

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TABLE II Examination Schedule

First Produced Inspection	Quality Conform	Defect	Requirement Paragraph
x	x	Environmental requirements not met	3.2
x	x	Castings not as specified	3.3.1
x	x	Plating not as specified	3.3.2
x	x	Threads not as specified	3.3.3
x	x	Safety requirements not as specified	3.4
x	x	Maintainability not as specified	3.5
x	x	Rotating parts not bearing mounted	3.6.1
x	x	Lubrication not as specified	3.6.2
x	x	Engine not as specified, does not function, or leaks	3.7.1
x	x	Ignition system not as specified	3.7.2.1
x	x	Cold weather system aids not as specified	3.7.3.1
x	x	Fuel supply system not as specified, does not function or leaks	3.7.3.2
x	x	Battery capacity not as specified	3.7.3.3
x	x	Alternator not as specified	3.7.4.1
x	x	Alternator regulator not as specified	3.7.4.1.1
x	x	Starting system not as specified	3.7.4.2
x	x	Fuel system not as specified	3.7.4.3
x	x	Air cleaner not as specified	3.7.4.4
x	x	Cooling system not as specified, does not function or leaks	3.7.4.5
x	x	Fan not as specified	3.7.4.5.1

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TABLE II Examination Schedule

x	x	Water pump not as specified	3.7.4.5.2
x	x	Thermostat not as specified	3.7.4.5.3
x	x	Radiator not as specified	3.7.4.5.4
x	x	Governor not as specified	3.7.4.7
x	x	Exhaust system not as specified, does not function or is damaged	3.7.4.8
x	x	Fungus and moisture proofing not as specified	3.7.5
x	x	Oil filter missing or not as specified	3.7.6
x		Drive assembly not as specified	3.7.7
x	x	Transmission not as specified does not function, or leaks	3.7.7.1.1
x	x	Torque converter not supplied	3.7.7.2
x		Frame depth does not protect working parts or is not of specified material	3.8.1
x	x	Bumper plate not as specified	3.8.1.1
x	x	Deck not constructed as specified	3.8.1.2
x	x	Wheels not as specified	3.8.2
x	x	Tires not as specified	3.8.2.1
x	x	Steering system not as specified, does not function or leaks	3.8.3
x	x	Service brakes and parking brakes not as specified, do not function or leak	3.8.4.1 3.4.8.2
x	x	Easy access to all working parts is not provided	3.8.5
x	x	Seat for operator not as specified.	3.8.5.1
x	x	Safety bar missing or not as specified	3.8.5.2
x	x	Cowl or hood missing or not as specified	3.8.5.3
x	x	Instrument panel not as specified	3.8.5.4
x	x	Fenders missing	3.8.5.5

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TABLE II Examination Schedule

x	x	Cab missing or not as specified	3.8.5.6
x	x	Cab heater missing or not as specified	3.8.5.6.1
x		Lifting eyes not as specified	3.8.5.7
x		Towing hook not as specified	3.8.5.8
x	x	Controls not as specified or do not function correctly	3.8.6
x	x	Instruments not as specified or do not function correctly	3.8.7
x	x	Accessories not as specified or do not function correctly	3.9
x	x	Lubricants not as specified or not at correct level	3.11
x	x	Lubrication fittings not as specified damaged or subject to leakage	3.11.2
x	x	Nameplate and registration data incorrect or not as specified	3.12, 3.13
x	x	Treatment and painting not as specified	3.14
x	x	Workmanship not as specified	3.15
x	x	Incorrect fit at joints, seams or edges	3.16
x	x	Welding not as specified	3.16.3

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TABLE III TEST SCHEDULE

First Prod.	Quality Conform.	Post Test	Test	Test Para.	Requir. Para.	Test Method No
x		x	Steering wheel test	4.3.2.1	3.10.1	1
x		x	Wear of steer. mechanism	4.3.2.1	3.10.1	2
x	x	x	Speed	4.3.2.2	3.10.2	3
x	x	x	Slope ascension, underclearance, parking brake	4.3.2.3	3.10.3 3.10.4 3.10.5	4
x	x	x	Service brakes	4.3.2.4	3.10.6	5
x			Towing hook	4.3.2.5	3.10.7	6
x			Turning radius	4.3.2.6	3.10.8	7
x		x	Acceleration	4.3.2.7	3.10.9	8
x			Overload	4.3.2.8	3.10.10	9
x			Reliability	4.3.2.9	3.10.11	10
x			Maintainability	4.3.2.10	3.10.12	11
x	x		Run-in	4.3.2.11	3.10.13	
x			Electromagnetic interference	4.3.2.12	3.10.14	
x			Noise limit	4.3.2.13	3.10.15	

4.3.2.1 Steering. Test the truck in accordance with Test Method No. 1 and 2. Nonconformance with the requirements of 3.10.1 shall constitute failure of the test.

4.3.2.2 Speed. Test the truck in accordance with Test Method No. 3. Noncompliance with 3.10.2 shall constitute failure of the test.

4.3.2.3 Slope ascension, parking brake, underclearance. Test the truck in accordance with Test Method No. 4. Nonconformance with 3.10.3, 3.10.4, or 3.10.5 shall constitute failure of the test.

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4.3.2.4 Service brakes. Test the truck in accordance with Test Method No. 5. Nonconformance with the requirements of 3.6 shall constitute failure of this test.

4.3.2.5 Towing hook. Test the truck in accordance with Test Method No. 6. Nonconformance with 3.10.7 shall constitute failure of the test.

4.3.2.6 Turning radius. Test the truck in accordance with Test Method No. 7. Nonconformance with 3.10.8 shall constitute failure of the test.

4.3.2.7 Acceleration. Test the truck in accordance with Test Method No. 8. Nonconformance with 3.10.9 shall constitute failure of this test.

4.3.2.8 Overload. Test the truck in accordance with Test Method No. 9. Nonconformance with the requirements of 3.10.10 shall constitute failure of this test.

4.3.2.9 Reliability. Test the truck in accordance with Test Method No. 10. Failure for the purpose of the test is defined as any malfunction which cannot be remedied by adjustment, repair or replacement by one person using the organizations tools and parts within 30 minutes and which may cause:

a. Failure to start operation, stop of operation, or degradation of performance capabilities of the truck below designated levels.

b. Serious damage to the truck by continuous operation.

c. Serious personnel safety hazard.

4.3.2.10. Maintainability. Test the truck in accordance with Test Method No. 11. Nonconformance with the requirements of 3.10.13 shall constitute failure of this test.

4.3.2.11 Run-in. With a rated load evenly distributed on the platform, the truck shall be run in for not less than 30 minutes on a level circular course having a diameter not exceeding 100 feet (25 meters). The speed for this 30 minute period shall average not less than 2 miles per hour (3.2 kilometers per hour). Three laps shall be conducted at a speed not less than 6 miles per hour (9 kilometers per hour). During operation and after completion of run in, the truck shall be examined for leaks, operational failure, failure of any component to perform as specified, or permanent deformation. Any evidence of the above shall constitute failure of the tests.

4.3.2.12 Electromagnetic interference. Test to determine compliance with 3.10.14. Nonconformance with 3.10.14 shall constitute failure of this test.

4.3.2.13 Noise limits. The maximum steady state noise level shall be measured at the operator's station (microphone located no more than six (6) inches (150mm) from operator's approximate ear location). Noise level measurement shall be in accordance with MIL-STD-1474 with engine operating at maximum (no load) governed speed and at the speed required for the rated brake horsepower necessary to carry the rated load. Nonconformance to 3.10.15 shall require a hazard warning plate conforming to MIL-STD-1474 be located in clear view of the operator.

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Warning plates shall include the requirement for hearing protection. In no case shall the noise level exceed 90 dB(A).

4.3.2.14 Post test inspection. Upon completion of tests in 4.3.2, the truck shall be subjected to the tests marked "X" in column 3 of Table III. Nonconformance with applicable requirements shall constitute a failure.

4.3.3 Inspection failure. Failure of a first-produced truck to meet any requirement specified herein, during and as a result of the examination and tests specified in 4.3.1 and 4.3.2 shall be cause for refusal by the Government to accept any production truck until evidence has been provided by the supplier that corrective action has been taken to eliminate deficiencies. Correction of such deficiencies shall be accomplished by the supplier at no cost to the Government on trucks produced under the contract. Any deficiencies found as a result of the first inspection and tests will be considered prima facie evidence that all trucks accepted prior to the completion of first inspection and tests are similarly deficient unless evidence to the contrary is furnished by the supplier and such evidence is acceptable to the contracting officer.

4.4 Quality conformance inspection.

4.4.1 Tests. Each truck shall be tested carrying a rated load as specified in Column 2 of Table III. Failure of any test shall be cause for rejection. Overheating, failure of any components, malfunction of any control, or evidence of leakage of fluids shall be cause for rejection of the truck.

4.4.2 Examination. After successful completion of all tests specified in 4.3.2, each truck shall be examined for the defects marked "X" in Column 2 of Table II. Presence of one or more defects shall be cause for rejection.

4.5 Examination of preparation for delivery. The preservation, packaging, packing, and marking shall be examined to determine compliance with MIL-STD-162.

5. PACKAGING

5.1 Preservation, packaging, and packing. Shall be in accordance with MIL-STD-162 or ASTM D3951 as specified (see 6.2).

5.2 Marking. Unless otherwise specified (see 6.2), marking for shipping and storage shall be in accordance with MIL-STD-129.

6. NOTES

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

6.1 Intended use. The heavy duty, fixed platform truck is intended for transporting cargo in and around warehouses, airfield, loading platforms and docks within the military supply system. Trucks are intended for operation over paved and semi-improved surfaces.

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6.2 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number, and data of this specification.
- (b) Issue of the DODISS to be cited in the solicitation and if required, the specific issue of individual documents (see 2.1)
- (c) Type truck required (see 1.2)
- (d) Size Truck Required (see 1.3)
- (e) When first article test is required (see 3.1)
- (f) Type of engine required (see 3.7.1)
- (g) When fungus and moisture resistance treatment is required (see 3.7.5)
- (h) When Power Shifted Transmission is not required (see 3.7.7.1)
- (j) When wood deck is required. (see 3.8.1.3)
- (k) When stake pockets are required. (see 3.8.1.4)
- (l) When side racks are required. (see 3.8.1.5)
- (m) When a closed, all weather cab is required (see 3.8.5.6)
- (n) When fire extinguisher is required. (see 3.9.5)
- (o) When vehicle marking other than specified is required. (see 3.13)
- (p) When inspection is to be done by other than the contractor. (see 4.1)
- (q) Level of preservation, packaging and packing required. (see 5.1)
- (r) Special marking required in addition to MIL-STD-129. (see 5.2)

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6.3 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data is requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To insure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DOD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

<u>Reference Paragraph</u>	<u>DID Number</u>	<u>DID Title</u>	<u>Suggested Tailoring</u>
3.2	DI-T-4902	First Article Inspection Test Report	_____

The above DID was cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management System and Data Requirements Control List (AMSDL), must be researched to insure that only current, cleared DID's are cited on the DD Form 1423.

6.4 Technical Manuals. The requirements for technical manuals should be considered when this specification is applied on a contract. If technical manuals are required, military specifications and standards that have been cleared and listed in DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL) must be listed on a separate Contract Data Requirements List (DD Form 1423), which is included as an exhibit to the contract. The technical manuals must be acquired under separate contract line item in the contract.

6.5 First article. When a first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item should be a preproduction sample, a first article sample, a first production item, a standard production item from the contractor's current inventory (see 3.1) and the number of items to be tested as specified in 4.3. The contracting officer shall also include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results, and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.6 Conditions for use of level B preservation. When level B preservation is specified (see 5.1), this level of protection should be reserved for the acquisition of forklift trucks for resupply worldwide under known favorable handling, transportation and storage conditions.

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6.7 Subject term (key word) listing.

Engine Powered
Platform
Pneumatic Tired
Truck

6.8 Changes from previous issue. Marginal notes are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Navy - SA
Air Force - 84

Preparing Activity:

Navy - SA

Project No. 3930-0652

Review Activities:

Air Force - 85

DLA-CS

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APPENDIX

TEST METHODS

10. SCOPE

10.1 Scope. The test methods contained within this appendix are to determine whether trucks procured under this specification conform to the requirements set forth. This appendix is a mandatory part of this specification. The information contained herein is intended for compliance.

20. APPLICABLE DOCUMENTS. This section is not applicable to this appendix.

30. TEST METHODS.

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TEST METHOD NO. 1

STEERING WHEEL TEST

Purpose: To determine whether the force required to turn the steering wheel meets specification.

Test Description: Place the unloaded truck on a level concrete surface. Using a tension dynamometer, or equivalent, measure the force required to move the steering wheel.

Test Procedure:

1. Place truck on dry, level, smooth, trowelled or brushed concrete with steer wheel(s) in a straight-ahead position.
2. Assemble an adapter pulley having a root diameter equal to the steering wheel diameter and equipped with means for attachment to the wheel spokes.
3. Attach a tension dynamometer to the adapter pulley.
4. Grasp the dynamometer lead and apply a steady force, in a counter-clockwise direction and in the wheel plane, until the wheel turns.
5. Observe the maximum gage reading.
6. Perform 4 and 5 in a clockwise direction.
7. Turn steering wheel clockwise until the steer wheels hit the stop. Apply a 150 lb (660N) unbalanced tangential force to the steering wheel and maintain the force for a minimum of 15 seconds. Perform this operation two more times.
8. Repeat step 7 in the counter-clockwise direction.
9. Measure the number of turns of the hand steering wheel required to turn the steer wheels from the extreme right position to the extreme left position. Repeat this operation in the opposite direction.
10. Measure the steering wheel diameter, and the steering wheel to seat clearance.

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TEST METHOD NO. 2

WEAR OF STEERING MECHANISM

Purpose: To determine cumulative wear in the steering mechanism of the truck due to carrying out requirements of the reliability test.

Test Description: With the truck stationary and without load, the amount of free play in the steering wheel is measured.

Test Procedure:

1. Place unloaded truck on a dry, level, concrete surface with its front wheels parallel to the longitudinal axis of the truck.
2. Attach to the steering column, immediately below the steering wheel and parallel to it, a piece of stiff fiber board or similar material which is semi-circular in shape and which has a radius of at least 1 inch (25mm) greater than the radius of the hand steering wheel.
3. Mark a reference point on the upper portion of the outer edge of the hand steering wheel; mark a corresponding point on the fiber board templet.
4. Turn the steering wheel counterclockwise until the front wheels of the truck begin to turn. Mark a point in the fiber board templet corresponding to the reference point on the outer edge of the steering wheel.
5. Turn the steering wheel clockwise until the front wheels of the truck begin to turn. Mark a point on the fiber board templet corresponding to the reference point on the outer edge of the steering wheel.
6. Remove fiberboard templet from truck.
7. Place fiberboard templet on a flat surface and measure the distance between two points made in accordance with operation 4 and 5 above. This distance, in inches, is the free play of the steering mechanism.

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TEST METHOD NO. 3

SPEED

Purpose: To determine whether truck meets the speed requirements of this specification.

Test Description: Measuring the speed of the the truck, with rated load, a distance of at least 88 feet (27 meters).

Test Procudure:

1. Drive the truck a sufficient distance to attain maximum speed prior to entering the measured test course.
2. Record the length of measured distance and time to transverse the measured distance.
3. Repeat for a total of six runs, in forward gear, three in each direction.
4. Repeat a total of six runs in reverse gear, three in each direction.
Travel speeds in forward and reverse shall be the average of the six runs.

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TEST METHOD NO. 4

SLOPE ASCENSION - PARKING BRAKE - UNDERCLEARANCE

Purpose: To determine whether truck, when carrying rated load, can accelerate from a dead stop on a 15 percent grade and has sufficient underclearance to operate from a 15 percent slope to a horizontal surface. To determine whether the parking brake can hold truck with rated load on a 15 percent slope in both forward and reverse direction.

Test Description: Truck ascends a 15 percent grade in a forward direction on a dry concrete surface. Truck stops and starts up slope again. Horizontal approaches should be provided for the ramp.

Test Procedure:

1. Place rated load on platform.
2. Drive truck along horizontal approach to the 15 percent ramp.
3. Drive truck approximately half-way up the 15 percent ramp and bring to a complete stop.
4. Apply parking brake, release service brakes and observe whether truck remains stationary.
5. Release parking brake, and start truck from dead start and proceed up ramp and onto a horizontal surface. Observe underclearance.
6. Descend ramp. Stop on ramp and apply parking brakes, release service brakes, and observe whether truck remains stationary.
7. Proceed on to the horizontal surface.

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TEST METHOD NO. 5

SERVICE BRAKE PRESSURE

Purpose: To determine whether brake pedal and brake system have the strength required by the specifications.

Test Description: Using a pedal force gauge, apply a pressure of 250 pounds (1110 N) for one minute to the brake pedal a total of 10 times.

Test Procedure:

1. Attach the pressure gage to the brake pedal in a manner which enables pressure to be applied to the face of the gauge.
2. Apply foot pressure to the gauge until it registers 250 pounds (1110 N) and hold for 1 minute.
3. Repeat operation number two, 10 times.

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TEST METHOD NO. 6

SERVICE BRAKE PRESSURE SENSITIVITY,

TOWING HOOK STRENGTH

Purpose: To determine whether a brake pedal pressure within of 100 pounds (450N) will develop a draw bar pull equal to approximately 30 percent of the gross weight of the truck (with rated load) while truck is being pulled.

Test Description: Pull truck with rated load over dry, smooth, trowelled or brushed concrete having a coefficient of friction not less than .50, with parking brake released.

Test Procedure:

1. Determine the gross weight of truck plus rated load.
2. Attach pressure gage to brake pedal, in a manner which will enable pressure to be applied to the face of the gage.
3. Attach a tension dynamometer to the front of the truck.
4. Attach one end of a block and tackle, or similar device for securing mechanical advantage, to the tension dynamometer, and the other end to an anchoring device.
5. Apply sufficient brake pedal pressure to prevent wheel from turning.
6. Apply tension to the dynamometer until force is approximate equal to 30 percent of the total weight of truck plus rated load.
7. Gradually reduce brake pedal pressure until wheels just begin to turn while maintaining the dynamometer tension. This pedal pressure shall be 100 pounds (450 N) plus or minus 25 pounds (110N).
8. Repeat operations 2 through 7 with dynamometer attached to rear towing hook.
9. Examine towing hook for evidence of permanent deformation.

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TEST METHOD NO. 7

TURNING RADIUS

Purpose: To determine whether truck can turn in 90 degree intersecting aisle of specified width.

Test Description: 90 degree intersecting aisles of specified width are laid out. The truck must make a right hand turn within the specified aisle widths in one motion, without backing, and with no more than three trials. The test is repeated with the truck making a left hand turn.

Test Procedure:

1. Layout on dry, smooth, trowelled or brushed concrete two 90 degree intersecting aisles of specified width.
2. Drive truck at slow speed, in one motion and without backing, around the intersecting aisles to the right. Truck must negotiate the turn within the specified aisle width in not more than three trials.
3. Perform operation 2 with truck turning to the left.

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TEST METHOD NO. 8

ACCELERATION

Purpose: To determine acceleration of truck with load on a level surface from a standing start.

Test Description: Truck is accelerated at maximum rate from a standing start, timed through a distance of 22 feet (6.7 meter), and then brought to a stop.

Course Layout:

A-----100ft (30 m)-----B

Test Procedure:

1. Warm up truck for 15 minutes prior to test.
2. Accelerate the truck in forward gear at maximum speed through the specified distance from a standing stop.
3. Repeat a total of six runs, three in each direction.

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TEST METHOD NO. 9

OVERLOAD TEST

Purpose: To determine whether the truck structure can withstand specified overload without permanent visible deflection or deformation.

Test Description: With truck on a level surface, specified overload shall be placed on the truck platform. There shall be no permanent deformation or failures of related structures.

Test Procedure:

1. Place truck on level surface.
2. With crane or forklift, the truck shall be uniformly loaded with specified overload. When placing the overload on trucks, personnel should stand clear and loads should be removed if there is evidence of immediate collapse or breakage in truck structure.
3. If truck accepts loads without immediate failure, let overloads stand for 10 minutes on truck.
4. Remove loads.
5. Inspect truck structure and frame for evidence of deformation, fractures, broken welds, etc.

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TEST METHOD NO. 10

RELIABILITY TEST

1. Test Course:

(a) Layout of course. The test course shall be set up in accordance with the provisions of Drawing A. The length of each leg may be varied, so long as the total length of the course and its general proportions are maintained. Aisle or road widths shall be 12 feet (3.6 meters). The perimeter of the course shall be encompassed with suitable barriers or indicators. Rubber pylons, or other suitable markings shall be placed at all corners and other critical points to assist in keeping the machine under test within the course limits.

(b) Ramp inclusion. The course shall be laid out to include the slope and approximate length specified (plus or minus one percent) on Drawing C.

(c) Obstacle inclusion. Obstacles shall be included at point (G) in the course layout as indicated on Drawing B. Iron, wood, cement or steel blocks may be used. A guideline 15 feet (4.6 meters) long shall be provided to the left of the centerline of the course and parallel to it. This line shall be at a distance from the course centerline equal to one-half the distance between front wheel centers when two steer wheels are used. This spacing and arrangement will allow the left wheels of the machine under test to pass over the first pair of blocks and then the right wheels to pass over the second pair of blocks while the machine is moving forward in a straight line with the left front wheel tracking on the guideline.

(d) Course surface. The test course shall be concrete or macadam, and shall be free of snow, ice, any non-planned obstacles or foreign materials during the course of test.

(e) Minimum lighting requirements. Minimum general illumination of the course shall be 5-foot-candles (5.38 lux) on the operating level. However, lights of the truck shall be on at all times during the test. The light switch shall be turned "off" and "on" at the beginning of each lap.

(f) Refueling. Each truck undergoing test shall be capable of completing the specified number of laps at the rate specified without refueling more than once per 8 hour period.

(g) Speed of negotiating course. Each machine undergoing test should traverse each part of the performance test course at the maximum safe practical speed.

(h) Laps per hour and per day. Each truck shall complete a minimum of 1200 complete circuits of the test course in 100 hours of testing. Circuits (laps) shall be conducted on a continuous basis during each day (8 hour minimum).

(i) Duration of the performance test. The performance test specified in this standard shall be conducted on a continuous basis each operating day until

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the minimum requirements are accomplished.

(j) Periodic maintenance. On the fourth operating day (after 24 hours) of the performance test the truck shall undergo routine maintenance procedures. However, no repairs or replacement of parts shall be permitted.

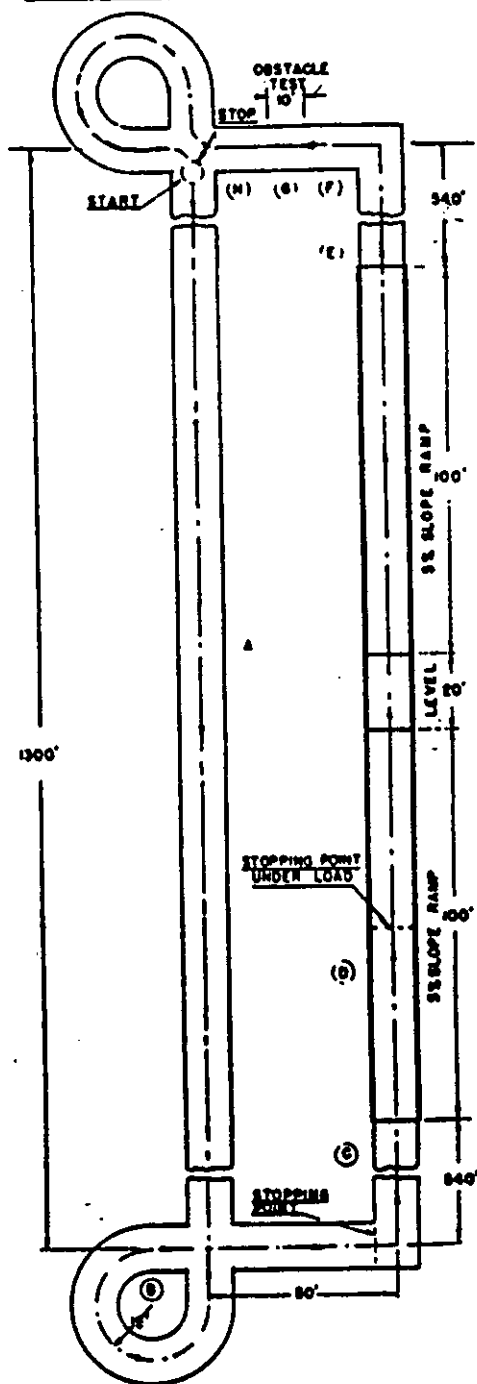
(k) Method of negotiating course. The machine under test shall begin each lap at the point labeled "START" on Drawing A. It shall have been loaded with rated load prior to start of the test. As the operator starts the machine he shall operate the horn for approximately 1 second; turn on headlights, turn off and turn on. Proceed in a forward direction along the portion of the course marked "A" until it reaches the first turn area marked "B" completing a 360° turn in a clockwise direction and continue to stopping point. After stopping, the machine shall make a 90° turn and proceed onto the slope or ramp. The machine under test shall proceed up the slope or ramp to the position labeled "Stopping Point Under Load" on the drawing. Here the driver shall stop the machine and then resume mounting the slope or ramp. After reaching the top of the slope or ramp, the machine shall proceed along the main aisle in the portion of the course marked "E" and "F" until it reaches the portion of the course marked "G" which contains the obstacle test. The obstacle test shall be traversed by the machine being driven through this area in a straight line, with its left front wheel on the guide line, so that its left wheels pass over the first pair of blocks and its right wheels pass over the second pair of blocks. This part of the test may be conducted at low speed. However, the machine shall not be stopped prior to going over the blocks. After the obstacle test has been traversed the machine shall proceed along the main aisle in the portion of the course marked "H" until it reaches the final turn and stop. Here the machine shall make a tight 360° turn, in a counterclockwise direction at maximum acceleration for the first 90° of the turn, and then stop upon completion of the turn. The driver shall continue to maneuver the machine around the course, in the manner described above, in accordance with 1.(g). On alternate days (after 8 hours), the course shall be traversed in the opposite (or clockwise) direction. On these days the test procedures shall be reversed. The "Hourly Record Sheet" shall be filled out for each operating hour of the performance test.

(l) Operating limitations. The truck under test shall not be permitted to leave the bounds circumscribed in Drawing A.

(m) Failure. Any failure of the truck during the performance testing that requires more than thirty minutes to repair (one person) shall be cause to restart the test from the first lap.

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DRAWING "A"
OUTDOOR TEST COURSE FOR PLATFORM TRUCKS



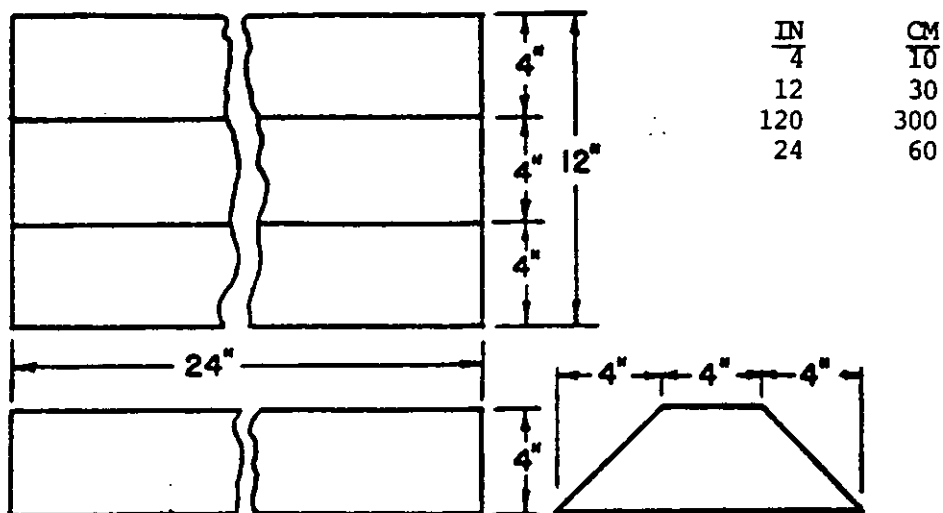
FEET
10
15
20
50
100
540
1300

METERS
3
4.6
6
152
30
164
396

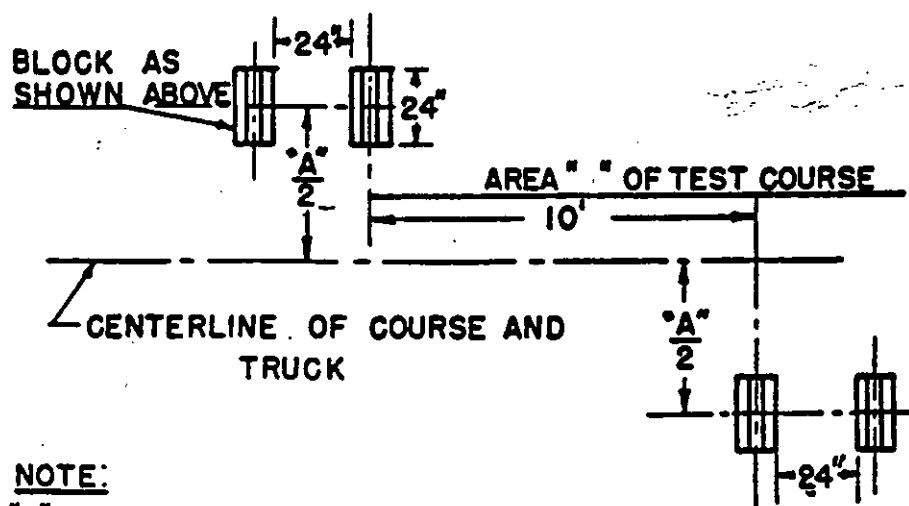
MIL-T-3977D

DRAWING "B"

DETAILS OF OBSTACLE BLOCK CONSTRUCTION



LAYOUT OF OBSTACLE TEST

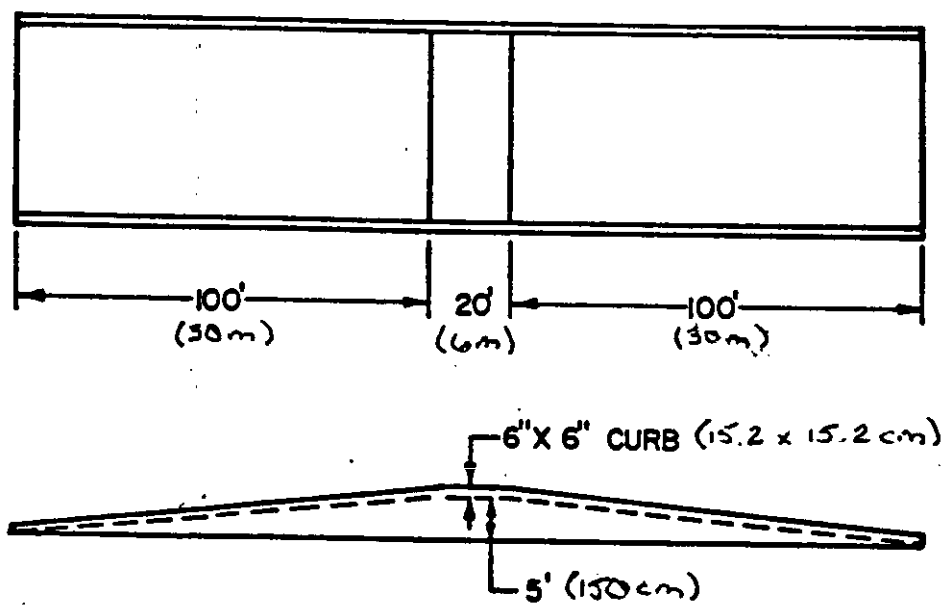


NOTE:

"A" = DISTANCE BETWEEN CENTERLINES OF
DRIVING WHEELS

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DRAWING "C"



OUTDOOR TEST RAMP

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HOURLY TIME RECORD

TRUCK MANUFACTURER			MODEL	SERIAL NO.	DATE
TEST LOCATION		RECORDED BY:	CLOCK READINGS:	(Start)	(Finish)
					REQ'D LAPS/HR
LAPS NUMBER	WATCH READING	ELAPSED TIME	REMARKS		
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

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17			
18			
19			
20			
TOTAL			AVERAGE LAP TIME

Instructions for Timing Performance Test

1. Start decimal minute stop at zero at beginning of each operating hour.
2. Record watch reading at end of each lap in "Watch Reading" space.
3. Subtract watch reading at end of preceding lap from reading at end of lap. Record difference in "Elapsed Time" space.
4. If equipment under test completes the required number of laps prior to completion of an operating hour, it shall be stopped until start of next hour, and then resume performance test.

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TEST METHOD NO. 11

MAINTAINABILITY

1. Test Course:

Shop area of sufficient size to permit unobstructed surveillance of maintenance.

2. Test Apparatus:

- (a) Common handtools
- (b) Special tools (if furnished with truck)

3. Test Procedure:

- (a) Examine truck for accessibility of major assemblies.
- (b) Examine position of drains with respect to accessibility.
- (c) Using the tools, demonstrate that major assemblies are accessible for repair and maintenance.
- (d) Demonstrate both the accessibility of drains and the path of discharge of lubricants by activating drainage controls.
- (e) Perform and time each operation on the maintenance operations list (see 3.10.12).

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