NOT MEASUREMENT SENSITIVE

MIL-T-46705E
19 February 1993
SUPERSEDING
MIL-T-46705D
4 April 1986

MILITARY SPECIFICATION

TRAILERS, STAKE: WAGON TYPE, 2270 AND 4540 KILOGRAM (5,000 AND 10,000 POUND) CAPACITY, 4-WHEEL, MODIFIED COMMERCIAL

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

1. SCOPE

1.1 Scope. This specification covers 4-wheel, 2-wheel steerable, wagon type, stake and platform trailers for general purpose use. Vehicles procured under this specification are commercial items that are required to be warranted by the manufacturer as specified in acquisition document.

1.2 Classification. The trailer shall be one of the following types and classes, as specified (see 6.2).

Type I - For limited use, 2270 kilograms (kg) (5,000 pounds) capacity.
Type II - For highway use, 4540 kg (10,000 pounds) capacity.

Class A - Wood floor.
Class B - Formed steel floor.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Tank-Automotive Command, ATTN: AMSTA-UED, Warren, MI 48397-5000, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document of by letter.

AMSC N/A

FSC-2330

2. APPLICABLE DOCUMENTS

2.1 GOVERNMENT DOCUMENTS.

* 2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are 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

*	W-B-131	- Battery, Storage: Vehicular Ignition, Lighting and Starting.

MILITARY

*	MIL-H-3912	- Hardwood; Floorboards and Platforms: Military Vehicles.

STANDARDS

FEDERAL

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

MILITARY

	MIL-STD-1223	- Nontactical Wheeled Vehicles Treatment, Painting, Identification Marking and Data Plate Standards.
*	MIL-STD-1595	- Qualification of Aircraft, Missile and Aerospace Fusion Welders.
	MS 51335	- Pintle Assembly, Towing, 18,000 Lbs. Capacity, Manual Release.
	MS 51336	- Lunette-Coupler, Drawbar, Ring.

* (Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, Military Specifications and Standards, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

* 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 DEFENSE

Department of Defense Index of Specifications and Standards (DODISS).

(Copies of the DODISS are available on a yearly subscription basis either from the Government printing office for hard copy, or microfiche copies are available from the Director, Navy Publications and Printing Service Office, 700 Robbins Avenue, Philadelphia, PA 19111-5093.)

DEPARTMENT OF TRANSPORTATION (DOT)
Federal Motor Carrier Safety Regulations (FMCSR).
Federal Motor Vehicle Safety Standards (FMVSS).

* (Application for copies of DoT publications should reference the Code of Federal Regulations, 49 CFR, and the Federal Register, and should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

* OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
Code of Federal Regulations, 29 CFR.

(Application for copies of OSHA publications should reference the Code of Federal Regulations, 29 CFR, and the Federal Register and should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 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 are 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 issues of the documents cited in the solicitation (see 6.2).

* AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
ASME Boiler and Pressure Vessel Code (BPVC)
Section IX - Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators.

(Application for copies of ASME publications should be addressed to the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017.)

* AMERICAN WELDING SOCIETY (AWS)
AWS B2.1 - Standard for Welding Procedure and Performance Qualifications.
AWS Dl.1 - Structural Welding Code-Steel.

(Application for copies of AWS publications should be addressed to the American Welding Society, 2501 NW 7th Street, Miami, FL 31025.)

* THE EUROPEAN TYRE AND RIM TECHNICAL ORGANISATION (ETRTO)
Standards Manual.

(Application for copies of ETRTO publications should be addressed to the European Tyre and Rim Technical Organisation, 32, Avenue Brugmann, 1060 Brussels, Belgium.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)
SAE Standards and Recommended Practices

*	J537	- Storage Batteries.
	J560	- Seven Conductor Electrical Connector for Truck-Trailer Jumper Cable.
	J682	- Rear Wheel Splash and Stone Throw Protection. (DOD Adopted).
	J1067	- Seven Conductor Jacketed Cable for Truck-Trailer Connections.
*	J1292	- Automotive, Truck Tractor, Trailer and Motor Coach Wiring.

(Application for copies of SAE publications should be addressed to SAE, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

THE TIRE AND RIM ASSOCIATION, INC.
Year Book.

* (Application for copies of Tire and Rim Association publications should be addressed to The Tire and Rim Association, Inc., 175 Montrose West Ave., Copley, OH 44321.)

* (Non-Government standards and other publications are normally available from the organizations that 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, 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 Standard vehicle and accessories. Except as specified in 3.1.1 through 3.1.1.10, the vehicle, components, assemblies, and accessories to be delivered under the contract shall be the manufacturer's standard or optional items, which meet or exceed the requirements of this specification. All vehicle items shall be as represented and rated in the vehicle and equipment manufacturer's technical data. Technical data shall be limited to specifications and technical material, identical to that furnished to the authorized company representatives for selection of vehicle models and components and shall be available to the engineering offices of the procuring activity, prior to shipment of the vehicle. The vehicle shall be a standard commercial trailer, of a model sold to a significant number of buyers other than the Government, in the course of normal business operations. The model furnished shall be not older than the manufacturer's current model on the date of invitation for bids.

3.1.1 Special requirements. In addition to the standard vehicle and components specified in 3.1, the vehicle shall be furnished with special equipment as specified herein.

* 3.1.1.1 Treatment and painting. The vehicle shall be treated and painted in accordance with MIL-STD-1223. As specified by the procuring activity for the appropriate military service (see 6.2), the exterior color shall be in accordance with MIL-STD-1223.

* 3.1.1.2 Marking and data plates. As specified by the procuring activity for the appropriate military service (see 6.2), identification markings and data plates shall be in accordance with MIL-STD-1223.

* 3.1.1.3 Rustproofing. The vehicle shall be rustproofed in accordance with MIL-STD-297.

* 3.1.1.4 Brake lights. At least one pair of brake lights shall override the four-way emergency flasher or the two systems shall be independent of each other. Modifications to the manufacturer's standard product to accommodate this requirement shall not compromise conformance to any Federal Motor Carrier Safety Regulation referenced herein or to any Federal Motor Vehicle Safety Standard. If additional lights are added to the vehicle, the lights shall be selected from the chassis manufacturer's standard matching hardware.

* 3.1.1.5 Welders and welding. In addition to the requirements of 3.24.4, all welders employed in the fabrication of the trailer shall be certified, before any welding is accomplished, in accordance with MIL-STD-1595; the welding qualifications of the ASME BPVC, Section IX; or AWS B2.1 or D1.1. The certification that the welders have passed the qualifications test shall be on file at the contractor's facility and shall be available for review by the Government.

* 3.1.1.6 Lubrication chart. An illustrated or schematic diagram type lubrication chart shall be provided on the trailer. The chart shall direct attention to all lubrication fittings and specify the range and grade of lubricants required for critical temperatures. The chart shall be permanently attached to the trailer in a readily visible location. The chart shall be inscribed on a plate conforming to composition A (class l or 2) or composition C of MIL-P-514.

* 3.1.1.7 Hardwood. The platform on class A vehicle B (see 3.16) shall be floored with apitong, white or red oak, or white ash as specified in MIL-H-3912. Apitong is allowed for flooring only, provided the average weight shall be not less than 753 kilograms per cubic meter (kg/m^3) (47 pounds per cubic foot (pcf)), with none of the individual pieces weighing less than 673 kg/m^3 (42 pcf), with no more than 15 percent moisture content at time of weighing. Flooring is to be Government source inspected. Wood racks (stakes and slats) (see 3.18) shall be solid or jointed stock hardwood, other than apitong, conforming to MIL-H-3912.

3.1.1.8 Wood treatment. Wood, including apitong, shall be treated with wood preservative in accordance with MIL-STD-1223.

3.1.1.9 Lunette. The trailer shall be equipped with a lunette conforming to MS 51336 and 3.11.

* 3.1.1.10 Pintle. A pintle conforming to MS 51335-2 shall be furnished. Mounting shall include reinforcement to transfer pintle loads directly to the vehicle frame. The rearmost portion of the installed pintle shall not more than 100 millimeters (mm) (4 inches) forward of the rearmost part of the vehicle. Two trailer safety chain attachment devices, one adjacent to each side of the pintle, shall be provided. Each attachment device shall provide an ultimate strength at least equal to the curb weight of the trailer plus the rated payload capacity of the trailer. The attachment devices shall be capable of accommodating a standard grab hook [56 mm (2-3/16 inches) wide, 18.7 mm (47/64 inch) thick and 12.3 mm (31/64 inch) throat width] for a 9.5 mm (3/8 inch) chain.

3.2 General design.

3.2.1 Federal Motor Vehicle Safety Standards. The vehicle and furnished accessories shall comply with all Federal Motor Vehicle Safety Standards in effect on the date of manufacture.

* 3.2.2 OSHA and FMCSR regulations. The vehicle, with all furnished attachments, accessories and equipment, shall enable compliance by any user with all OSHA and FMCSR user regulations that are vehicle or vehicle equipment dependent. Regulations shall be those that are applicable to a commercial user of such a similar type, class and size of semitrailer for the same general use. See 6.1.

3.2.3 Ratings. Vehicle ratings shall be the manufacturer's published rating, component and vehicular ratings shall not be raised to meet the requirements of this specification. When published ratings are not available, verification of ratings shall be available to the engineering office of the procuring activity.

* 3.2.4 Dissimilar metals. All dissimilar metals used throughout the vehicle shall be insulated from one another to prevent galvanic or electrolytic action.

* 3.2.5 Prohibited materials. Asbestos materials shall not be used in any form in any part of the vehicle. No item, part or assembly shall contain radioactive materials in which the specific activity is greater than 0.002 microcurie per gram or activity per item equals or exceeds 0.01 microcuries.

* 3.2.6 Accessibility. The design of the vehicle and optional equipment shall permit access for routine servicing and shall permit access for replacement and adjustment of component parts and accessories with minimal disturbance of other components and systems.

* 3.2.7 Lubrication. Lubrication means shall be provided for all parts of the trailer normally requiring lubrication. Where the use of high lubricating pressure will damage grease seals or other parts, fittings with pressure release shall be used.

* 3.2.8 Safety. All equipment or exposed portions of the equipment which are subject to extreme temperatures and inclement weather and all rotating or reciprocating parts which are of such a nature or so located as to become a hazard to operating personnel shall be insulated, fully enclosed, or properly guarded.

3.3 Performance. The trailer shall evidence no part failure, deformation, permanent set or interference between parts when towed, both empty and when loaded as specified in 3.4:

(a) At speeds as great as 32 kilometers per hour (km/h) (20 miles per hour (mph)) over unimproved roads and reasonably hard uneven terrain;
(b) At speeds as great as 97 km/h (60 mph) over improved roads; and
(c) At speeds as great as 16 km/h (10 mph) on 10 percent side slopes on unimproved roads and reasonably hard uneven terrain.

3.3.1 Turning ability. Trailers shall be capable of performing the following operations:

(a) Trailer front undercarriage and tow hitch shall be capable of assuming a cramping angle of 90 degrees with the longitudinal centerline of the trailer without upsetting of the trailer and without interference between the front undercarriage and the trailer.
(b) With the trailer undercarriage (tow hitch) in line with the remainder of the trailer, the trailer shall be capable of moving through an angle of not less than 55 degrees with the coupled towing vehicle without upsetting and without interference between the trailer and the towing vehicle. This angle shall be measured at the lunette and shall be the angle between the longitudinal axis of the trailer and the longitudinal axis of the towing vehicle. The ability of the trailer to meet the requirement shall be demonstrated actually or graphically with a 2440 mm (96 inch) wide towing vehicle having the center of its pintle located at the extreme rear of the towing vehicle. Interference will be considered to exist if, with trailer at the 55 degree angle specified above, any portion of the trailer less than 1220 mm (48 inches) from the center of the lunette is forward of the pintle.

* 3.3.2 Tracking ability. The trailer shall not exceed the allowance for tracking deviation specified in Federal Motor Carrier Safety Regulation 393.70(a). Additionally, each of the fully equipped and loaded trailers shall be capable of being towed, as a train of 6 trailers, at speeds as great as 24 km/h (15 mph) over improved surfaces.

3.3.3 Trailing ability. When coupled to the towing vehicle operating in its minimum turning circle, the trailer shall follow without cramping.

3.3.4 Service brakes. For type II trailer, and unless otherwise specified (see 3.10) for type I trailers, the service brakes, in conjunction with the towing vehicle (truck-trailer combination in accordance with Federal Motor Carrier Safety regulation 393.52.

* 3.3.5 Parking brakes. The hand parking (mechanical) brakes shall hold the trailer on a dry hard surfaced road on a grade of not less than 10 percent, with the trailer uncoupled from the towing vehicle and headed both up and down the incline.

3.4 Rated payload capacity. The rated payload capacity, evenly distributed over the length of the platform, shall be not less than 2270 kg (5,000 pounds) for type I trailer and 4540 kg (10,000 pounds) for type II trailer.

3.5 Dimensions and clearances. The trailer, uncoupled from the towing vehicle, without payload, on level ground, shall conform to the dimensions and clearances specified in table I.

TABLE I. Trailer dimensions and clearances.

Characteristics	Type I		Type II	
	mm	inches	mm	inches
Overrall width	---	---	2410 ±25	(95 ±1)
Platform width	1220 ±3.3	(48 ±0.13)	2290	(90) min.
Overall length (with draw bar folded back)	3350	(132) max.	4013	(158) max.
Platform length	3050 ±3.3	(120 ±0.13)	3660	(144) min.
Wheelbase	2160 ±120	(85 ±5)	2900	(114) min.
Overall height (excluding towing hitch in upright position)	1310	(51.75) max.	---	---
Platform height	705	(27.75) max.	Minimum practicable	
Rack height, above platform	610 ±3.3	(24 ±0.13)	1070 ±3.3	(42 ±0.13)
Ground clearance, between top of tire and underside of trailer	180	(7) min.	---	---
	50	(2) min.	---	---

* 3.6 Construction and stresses. Main frame members shall be fabricated of high strength steel with a yield strength of not less than 345 mega Pascals (mPa) (50,000 pounds per square inch). Main frame members shall be adequately braced with a sufficient number of crossmembers to present a rigid construction with sufficient strength for the dynamic and static loads imposed. All parts of the framing shall be completely electric-arc welded. The strength of the finished welds shall be such that they will not fail or crack when the trailer is subjected to the loads and performance requirements specified herein. When the trailer is loaded as specified in 3.4, the maximum fiber stress in each frame member shall be not greater than 50 percent of the frame material yield strength.

* 3.6.1 Frame splices. Main frame members shall have one piece upper and lower flanges, running the full length of the trailer. Where frame members are otherwise spliced, joints shall be reinforced to fulfill the dynamic and the static loading requirements specified herein. Splices shall be designed to avoid stress concentration. Splice welds shall be continuous.

* 3.6.2 Stress analysis. A stress analysis for the trailer, loaded as specified in 3.4, shall be performed. The stress analysis shall include shear and moment diagrams and deflection calculations. Stress calculations shall include complete analysis of the floor, crossmembers, and longitudinal frame members.

3.6.3 Chassis. The vehicle shall be a 4-wheel, stake and platform, full trailer. The trailer shall be furnished with all accessories, components, parts, and assemblies to provide a complete vehicle.

3.7 Axles. Axles shall have a rated capacity at least equal to the load imposed on each axle, measured at the ground, when the trailer is loaded as specified in 3.4. The front axle shall be trunnion mounted to minimize distortion to trailer components when traversing uneven terrain, and shall be incorporated in a fifth wheel of sufficient dimensions to assure trailer stability throughout a 360 degree turning circle. The fifth wheel plate shall incorporate grease fittings and grooves to facilitate lubrication.

3.8 Suspension (type II). Type II trailer shall be furnished with a suspension system with components having a rated capacity at least equal to the load imposed on each member, measured at the ground, with the trailer loaded as specified in 3.4. When suspension capacity is rated at the spring pads, unsprung weight shall be deducted.

3.8.1 Springs. Type II trailer shall be furnished with individual wheel, semielliptical springs and shall support the loads imposed under the performance conditions specified.

* 3.9 Wheels, rims and tires. The vehicle shall be equipped with single front and rear disc type wheels. Rims and tire ratings shall conform to Tire and Rim Association or European Tyre and Rim Technical Organisation recommendations for the type and size of tires furnished. Multi-piece rims shall not be furnished. Wheel sizes shall be the same for all wheels on each vehicle. Wheels shall be interchangeable without the use of an adapter.

* 3.9.1 Tires. Tires shall be of the tubeless, steel belted radial, truck type, with highway tread. Tires shall be of rated capacity at least equal to the load imposed on each tire, measured at each wheel, at the ground, with the vehicle loaded as specified in 3.4. Tires shall conform to Tire and Rim Association or to the European Tyre and Rim Technical Organisation recommendations. Tire size and load range (ply rating) shall be the same for all tires on each vehicle.

* 3.9.2 Carrier for spare tire assembly. A carrier for a spare wheel or rim and tire assembly shall be installed in a readily accessible location underneath the trailer. Threaded fasteners, when used to secure the spare tire in the carrier shall be constructed of or plated with corrosion-resistant material. The carrier design shall enable safe removal or mounting of a spare wheel assembly using only tools furnished with the trailer. The carrier shall enable the safe removal and installation of the spare tire assembly from and to the trailer and carrier without personnel positioning themselves or any part of their body under the spare tire assembly.

3.9.3 Spare wheel or rim. When specified (see 6.2), a spare wheel or rim shall be furnished. When a spare tire assembly is specified (see 3.9.4), a spare wheel or rim shall be furnished.

3.9.4 Spare tire assembly. When specified (see 6.2), a spare tire assembly shall furnished. The spare tire assembly shall include an inflated spare tire mounted on the spare wheel or rim. The spare tire shall be of the same size, tread design and load range (ply rating) as the tires furnished on the vehicle.

3.9.5 Tools. When specified (see 6.2), the vehicle shall be furnished with tools required for exchanging a mounted tire assembly with the spare assembly, and shall include at least a jack, jack handle, and wheel nut wrench. The jack shall be of such closed height as to permit its location under any satisfactory lift point, at any wheel with the tire flat. The jack shall be capable of raising the fully loaded vehicle, without blocking, to a height adequate to permit removal and replacement of a wheel and tire assembly.

* 3.10 Electric brakes (type II). Type II trailer and unless otherwise specified (see 6.2), type I trailer shall be furnished with a 12-volt electric brake system. Brake linings shall be asbestos free. The system shall include a manual controller kit for mounting on the dash of the towing

vehicle and a controller kit for synchronizing the trailer electric brakes with the brakes of the towing vehicle. Unless otherwise specified, the synchronizing controller shall be for use with hydraulic-brake-equipped towing vehicles. When specified (see 6.2), the synchronizing controller shall be for use with air-brake-equipped towing vehicles. Kits shall be complete with all necessary parts and installation instructions. The kits shall be boxed, marked as to the contents and securely attached to the trailer for shipment.

3.10.1 Parking brakes. Manually applied parking brakes shall be furnished and shall conform to Federal Motor Carrier Safety Regulation 393.41. Parking brakes shall be of the internal expanding type. The parking brake lever shall have sufficient moment arm to require not more than 14 kg (30 pounds) of effort for application and release. Provisions shall be made for slack adjustment. When brake cables are used, they shall be of corrosion resistant steel. Lubrication fittings shall be provided.

3.11 Towing hitch. The towing hitch shall be of the "A" frame type, all-steel construction, hinged to fold vertically against the front of the trailer, furnished with means for holding in the folded position, and provided with a lunette conforming to 3.1.1.9. The towing hitch shall ensure that the trailer will meet the performance requirements specified. The towing hitch shall be capable of being removed for shipment.

3.11.1 Safety chains. Safety chains shall be provided. Two chains with eyes shall be furnished. Chains shall conform to Federal Motor Carrier Safety Regulation 393.70(d).

3.12 Reflectors. The trailer shall be provided with reflectors in accordance with Federal Motor Carrier Safety Regulations 393.11 and 393.26. Reflectors shall not be mounted on the vehicle bumper.

* 3.13 Lighting. Type II trailer, and unless otherwise specified (see 6.2), type I trailer, shall have a 12-volt direct current (dc) electrical lighting system, lighting cable and turn signals. All vehicle lights and wiring (including electric brakes) shall conform to Federal Motor Carrier Safety Regulations 393.9, 393.11, 393.19, 393.20, 393.22, 393.23, 393.25, 393.27, 393.28, 393.29, 393.31, 393.32 and 393.33. All wiring shall conform to SAE J1292. Lights shall not be mounted on vehicle bumpers.

* 3.13.1 Lighting receptacle. A recessed electrical receptacle with cover assembly conforming to SAE J560 shall be mounted on the front of the trailer. Conductors shall be connected and color coded as specified therein.

* 3.13.2 Electrical cable. An electrical cable conforming to SAE Jl067 shall be furnished. Both ends of the cable shall be equipped with a round plug in accordance with SAE J560. The plugs shall be equipped with a grip for withdrawing from the connector sockets. The cable shall

be not less than 910 mm (3 feet) longer than the distance from the trailer receptacle to the lunette. Provisions shall be made for securing the cable, when not in use, to the drawbar or trailer body.

3.13.3 Brake wiring. Electric brake shall be wired to the auxiliary circuit of the SAE J560 seven-conductor electrical receptacle. All wiring shall be properly mounted and secured with clamps. Brake wiring shall be heavy thermoplastic insulated cable and shall be enclosed in conduit.

* 3.13.4 Breakaway battery wiring. When electric brakes are furnished, a 12 volt battery shall be installed to operate the electric brakes in the event of a breakaway from the towing vehicle. The battery shall be maintenance-free type having the maintenance-free characteristics listed in W-B-131. The reserve capacity rating measured in accordance with SAE J537 shall be not less than 35 minutes. The cold cranking rating at minus 18 degrees Celsius (^{o}C) (0 degrees Fahrenheit) (^{o}F) measured in accordance with SAE J537 shall be not less than 160 amperes. A weatherproof battery box shall be furnished. A battery recharging circuit shall be wired through the first pin of the four-conductor electrical receptacle specified in 3.13.5. The second pin shall be return ground to the towing vehicle. A diode shall be installed in the system so that the electric current will not flow from the trailer battery to the towing vehicle system.

* 3.13.5 Breakaway battery wiring. The breakaway battery shall be wired to two conductors of a four-conductor electrical receptacle, Midland Model 23400 or equal. A second identical receptacle for mounting on a towing vehicle shall be furnished. The receptacles shall be polarized and weather-proof. A connecting cable, each end equipped with a mating plug, Midland Model 23403 or equal, shall be furnished. The cable shall be not less than 910 mm (3 feet) longer than the distance from the four-conductor receptacle to the lunette.

* 3.14 Rear end protection. Rear end protection in accordance with Federal Motor Carrier Safety Regulation 393.86 shall be furnished. Rear bumper or bumperettes shall be furnished on type II trailer.

* 3.15 Rear wheel splash and stone throw protection. Mud flaps shall be provided to the rear of the wheels in accordance with SAE J682. A metal strip of not less than 3.2 mm (0.125 inch) thick and a not less than 25 mm (one inch) wide, extending the entire width of the mud flap, shall be used as a baking to prevent bolt head or bolt nut from damaging the mud flap. As an alternate method of attaching the mud flaps, tabs or clips with minimum surface contact dimensions of 25 mm (1 inch) high by 32 mm (1.25 inch) wide by 2.4 mm (0.094 inch) thick shall be furnished at each bolt.

* 3.16 Platform, class A. The platform shall be a rectangular level surface, free from kick-up or wheelhousings. The flooring shall be tongue and groove or ship-lapped hardwood, conforming to 3.1.1.7 and 3.1.1.8, having a thickness of not less than 25 mm (1 inch).

Hardwood flooring shall be laid lengthwise and shall be supported directly on and attached to the floor support members of the trailer frame with countersunk and corrosion-resistant bolts, self-tapping screws or fasteners. The floor and fasteners shall be of adequate strength to withstand, without damage, the rated payload distributed over the entire floor with trailer operating under mobile conditions specified herein.

3.17 Platform, class B. The platform shall be a rectangular level surface, free from kick-up or wheelhousings. Class B trailer shall have a formed steel floor of 16 gage (1.519 mm) (0.0598 inch) steel. The floor pattern shall be of ribbed construction with ribs on l00 mm (four inch) centers, with a rib valley not less than 19 mm (0.750 inches) deep. The top ends of all ribs shall be flush with the siderails of the body. Corrugations shall be installed parallel with or perpendicular to the trailer longitudinal axis. The floor shall be of adequate strength to withstand, without damage, the rated payload distributed over the entire floor with trailer operating under mobile conditions specified herein.

3.18 Slat sides. On type I, a removable rack section shall be provided at front and rear of body; two removable rack sections shall be furnished on each side. On type II, two removable rack sections shall be provided at both the front and the rear of the body; not less than three removable rack sections shall be furnished on each side. Each rack section shall be equipped with interlocking hardware. Each rack section shall be provided with positive locking devices to fasten each rack to the body. The upright posts shall be hardwood conforming to 3.1.1.7 and 3.1.1.8, with steel bound pocket ends having a base cross sectional dimension of not less than 1.625 by 2.5 inches, or shall be of 12 gage (2.657 mm) (0.1046 inch) formed reinforced steel construction. Rack slats shall be hardwood conforming to 3.1.1.7 and 3.1.1.8 or shall be roll formed steel. Slats shall be evenly spaced and not less than 75 mm (3 inches) in width. The total of slat widths shall be not less than 60 percent of the rack height. Wood slats shall be not less than 22 mm (0.875 inch) thick. Steel slats shall be roll formed 16 gage (1.519 mm) (0.0598 inch) steel, having a formed thickness of not less than 19 mm (0.75 inch).

3.19 Tarpaulin. When specified (see 6.2), a fitted tarpaulin and tarpaulin tiedown devices shall be provided to protect cargo from inclement weather. The color of the tarpaulin shall harmonize with the vehicle exterior color. The tarpaulin shall be number 10 cotton duck with double stitched seams or vinyl coated nylon material not less than 0.68 kilograms per square meter (kg/m^2) (20 ounces weight per square yard). The tarpaulin material shall be water repellant and fire resistant. The tarpaulin shall cover the entire body when spread over a load level with the top of the racks, and shall extend down the sides, front and rear to within 75 mm (3 inches) of the platform. Manila tiedown ropes, 9.5 mm (0.375 inch) in diameter, shall be

spliced through grommets and spaced not more than 610 mm (2 feet) apart. The free ends shall be secured with metal clips or sized with waxed twine to prevent raveling. A sufficient number of symmetrically spaced tiedown devices shall be provided on the front, rear, and each side of the body for tiedown of all tarpaulin ropes. Tiedown ropes shall be of sufficient length to permit tying down to the tiedown devices when the edges of the tarpaulin are at least 510 mm (20 inches) above the platform.

3.20 Vehicular tiedown rings. When specified (see 6.2), not less than four vehicular tiedown rings shall be furnished. Tiedown rings shall be adequate to secure the trailer to the bed of a carrier (truck, trailer, etc.). Tiedown ring assemblies shall be mounted in a recessed location at each outer corner of the front and rear cross members. Tiedown rings shall swivel to permit direct line pull in any direction away from vertical planes parallel to and located at the front and rear of trailer. Each ring and trailer mounting shall withstand 4540 kg (10,000 pounds) line pull.

3.21 Fork lift pockets (type I). Unless otherwise specified (see 6.2), type I trailers shall have boxed type pockets for fork lift operations installed on each side of trailer to facilitate hoisting the trailer for aircraft loading and unloading purposes. The center line of each pocket shall be approximately 460 mm (18 inches) on each side of the transverse centerline of the trailer. Pocket openings shall have a cross sectional dimension of 270 mm (10.75 inches) in width by 105 mm (4.125 inches) in height, with a tolerance of 3.2 mm (0.125 inch). The depth of the pockets shall be approximately 300 mm (1 foot).

3.22 Stowage compartment. When specified (see 6.2), a weatherproof stowage compartment shall be provided, with hasp for a padlock, for storage of highway flares, small hand tools, manuals and the tools specified in 3.9.5. The stowage compartment shall be accessible from the curb side, and shall be located under the frame of the trailer. The compartment shall be made of not less than 2.657 mm (12 gage) (0.1046 inch) steel or of equivalent strength aluminum. The box shall be weatherproof and shall provide for locking with a padlock.

* 3.23 Servicing and adjusting. Prior to acceptance of the trailer by the Government inspector, the contractor shall service and adjust the trailer for immediate operational use. The servicing and adjustment shall include at least the following:

(a) Inflation of all tires
(b) Adjustment of brakes
(c) A check for proper functioning of all lights
(d) Complete lubrication with grades of lubricants recommended for ambient air temperature at the delivery point.

* 3.24 Workmanship. Defective components or parts and assemblies which have been repaired or modified to overcome deficiencies shall not be furnished. Bolted, riveted and welded construction used shall be in accordance with the highest standards of the industry.

* 3.24.1 Metal fabrication. Metal used in the fabrication of equipment shall be free from kinks and sharp bends. The straightening of material shall be done by methods that will not cause damage to the metal. Shearing and chipping shall be done neatly and accurately. All bends of a major character shall be made with controlled means in order to ensure uniformity of size and shape.

* 3.24.2 Bolted connections. Bolt holes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

* 3.24.3 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and of uniform size for the same diameter of rivet. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member.

* 3.24.4 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease or other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the welds are subjected to proof and service loading. See 3.1.1.5.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements (examination and tests) as specified herein. Except as otherwise specified in the contract, 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. 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 must meet all 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 for ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as 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 Government verification. Quality assurance operations performed by the contractor will be subject to Government verification at unscheduled intervals. Verification will consist of observation of the operations to determine that practices, methods, and procedures of the contractor's inspection are being properly applied. Failure of the contractor to promptly correct product deficiencies discovered shall be cause for suspension of acceptance until correction has been made or until conformance of product to specification criteria has been demonstrated.

* 4.3 First production vehicle inspection. The first vehicle produced under the contract shall be inspected by the contractor at his plant under the direction and in the presence of Government representatives. The purpose of the inspection, shall be to determine vehicle conformity to the requirements of the contract. Acceptance of the first production vehicle shall not constitute a waiver by the Government of its rights under the provisions of the contract.

4.3.1 Vehicle weight. The first production vehicle shall be weighed to determine curb weight and distribution of curb weight on front and rear axles. The imposed loading on the front and rear axles will be computed using curb weight and payload distributed as specified in 3.4. The rated capacity of the axles, suspension system and tires shall be compared to the loads imposed on them to determine if they conform to contract requirements.

* 4.3.2 Road test. The first vehicle for each contract line item number (CLIN) under contract shall be road tested with and without payload. The road test shall be for the distance required in table II, corresponding to the number of vehicles being procured under the specific contract line item number (CLIN). The test shall be conducted by the contractor under the direction of Government representatives. The test shall be conducted over a test course approved by the procuring activity and meeting the requirements of table III. The vehicle shall be inspected periodically during and at the completion of the test by the contractor.

* TABLE II. Road test distance.

Number of vehicles being procured	Road test distance km (miles)
1 – 10	160 (100)
11 – 20	320 (200)
21 – 30	480 (300)
31 – 40	640 (400)
41 – 50	800 (500)
51 – 100	1600 (1000)
101 – up	8050 (5000)

* TABLE III. Test course requirements.

Type of road	Road test distance
Dirt	10 percent
Gravel	30 percent
Improved pavement	60 percent

* 4.3.2.1 Test course. The total test mileage shall be on roads and highways within the general geographic limits of the place of manufacture and adjoining states. Any special highway permits required shall be obtained by the contractor. The course shall be arranged to return the vehicle to the manufacturer's plant at the completion of each 1600 km (1,000 miles), if applicable, or at the completion of the test otherwise, for inspection and chassis servicing.

* 4.3.2.2 Test loads. The trailer shall be tested for 90 percent of the mileage with the trailer loaded as specified in 3.4 and for 10 percent of the mileage with the trailer empty. Average speeds during all road tests shall be as close as possible to those specified in 3.3.

* 4.3.2.3 Road test failure. The vehicle shall successfully complete the entire test. Failure of the vehicle to successfully complete the test shall be cause for non acceptance of any of the contract quantity, pending correction of deficiencies and evidence of corrective action which shall prevent the recurrence of similar deficiencies in the contract quantity. Failure of the vehicle to successfully complete the test shall not constitute an excusable delay in meeting scheduled deliveries. The equipment shall be closely monitored throughout the test for interference with towing operations, and for instability as evidenced by poor tracking or uncontrollable side slipping, skidding, swerving, or tilting. The equipment also shall be closely monitored for loosening of parts, interference between parts, leakage of fluids or lubricants, overheating of

components, and for damage, permanent distortion, or excessive wear of parts and components. The equipment shall be disassembled to the extent necessary for inspection for unusual wear or damage to components. Substitution of a new trailer or replacement of a major component may require complete retest at the discretion of the Government representatives. Rejection of the test trailer shall be for damage or deficiencies, including but not limited to the following:

(a) Damage caused by collision
(b) Failure of any major component
(c) Vibration due to misalinement of wheels or frame
(d) Vibration due to the type of construction or mounting
(e) Evidence of abnormal tire wear due to misalinement or unbalance
(f) Failure of any vehicular safety device such as brakes or electrical circuits
(g) Evidence of structural weakness in any part of the vehicles, vehicle components, accessories or welds
(h) Loose mountings of parts or accessories due to workmanship or vehicular operation.

4.3.3 Failure. Failure of the first production vehicle to meet requirements of the contract shall be cause for the Government to refuse acceptance of vehicle until corrective action has been taken.

4.3.4 Production sample. Upon acceptance of the first production vehicle, it shall remain at the manufacturing facility as a production sample, and be the last vehicle shipped on the contract. The contractor shall maintain the vehicle in an as new condition for the duration of the contract. Release of the first vehicle for shipment prior to completion of the contract shall be at the discretion of the local Government Quality Assurance Representative (QAR).

4.3.4.1 Delivery of test vehicle. Upon successful completion of vehicle test and final examination, vehicle shall be cleaned, serviced, and refurbished to the extent required for delivery of a new vehicle to the Government. Warranty provisions of the contract shall be exclusive of total test miles. Acceptance of the first production vehicle shall not constitute a waiver by the Government of its rights under the provisions of the contract.

4.4 Inspection of production vehicles. The contractor's inspection system shall, as a minimum, assure that the vehicle conforms to the physical and dimensional requirements and is capable of meeting performance requirements contained herein. For each vehicle under contract, the contractor shall make available to the Government, at the point of final acceptance, records acceptable to the Government indicating that the servicing and adjusting has been accomplished.

4.4.1 Tracking ability of trailer train. A tracking test, with a train of six trailers of the same type shall be performed to verify conformance to 3.3.2.

4.5 Wood treatment certification. Manufacturer's records, acceptable to the Government, shall be furnished to verify that all wood requiring treatment in accordance with MIL-STD-1223 has been treated.

5. PACKAGING

5.1 Vehicle processing. Vehicle shall be processed for shipment, from manufacturer's plant to initial receiving activity, in accordance with the manufacturer's standard commercial practice.

6. NOTES

6.1 Intended use. The trailers covered by this specification are intended for use by the Government for hauling cargo and for general utility purposes. Type I trailers are intended for use within the confines of a Military base or installation. Type II trailers may be used on public highways.

6.2 Ordering data. Acquisition documents should specify the following:

(a) Title, number and date of this specification.
(b) Type and class of vehicle required (see 1.2).
* (c) Issue of DODISS to be cited in the solicitation and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
* (d) Identification of appropriate military service for painting (see 3.1.1.1).
* (e) Identification of appropriate military service for marking (see 3.1.1.2).
(f) Spare wheel or rim, if required (see 3.9.3).
(g) Spare tire assembly, if required (see 3.9.4).
(h) Tools, if required (see 3.9.5).
(i) If electric brakes are not required on Type I (see 3.10).
(j) An airbrake synchronizing controller, if required, in lieu of a hydraulic brake synchronizing controller (see 3.10).
(k) If lighting is not required on type I (see 3.13).
(l) Tarpaulin with tiedowns, if required (see 3.19).
(m) Vehicular tiedown rings, if required (see 3.20).
(n) If fork lift pockets are not required for type I trailers (see 3.21).
(o) Stowage compartment, if required (see 3.22).

* 6.3 Subject (term key) word listing.

Electric brakes
Non-tactical vehicle (NTV)
Platform
Slat sides
Tarpaulin
Towing hitch
Towing speed
Tracking ability
Welder's qualifications.

6.4 Identification of changes. The margins of this specification are marked with asterisks (*) to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractor are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the previous issue.

Custodians:
Army - AT
Navy - YD
Air Force - 99

Review activity:
Navy - MC
Air Force - 84

Preparing activity:
Army - AT

Project No. 2330-0132