

**INCH-POUND**

MIL-DTL-0045150M(AT)

19 July 2012

USED IN LIEU OF

MIL-DTL-45150L

30 September 1998

## DETAIL SPECIFICATION

### CHASSIS, TRAILER, 2-WHEEL CART TYPE 1/4 TO 3-1/2 TON

This specification is approved for interim use by the U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC), Research, Development and Engineering Command (RDECOM). Other activities in the Department of Defense may use this interim revision or may continue using MIL-DTL-45150L.

#### 1. SCOPE

1.1 Scope. This specification covers 2-wheel trailer chassis intended for mounting of various type bodies and equipment used by the United States Armed Forces (see 6.1).

1.2 Classification. Trailers will be of the following models, as specified (see 6.2):

<u>Model</u>	<u>Description</u>
M569A1	1/4 Ton
M569A2	3/4 Ton
M116A2E1	3/4 Ton
M116A3	1 Ton
M514	1 Ton
XM545	1 Ton
M103A3	1-1/2 Tons
M103A4	1-1/2 Tons
M492A1	1-1/2 Tons
XM580	1-1/2 Tons
M390	2 Tons
M390C	2 Tons
M200A1	2-1/2 Tons
M537	2-1/2 Tons

Comments, suggestions, or questions on this document should be addressed to U.S. Army RDECOM, Tank Automotive Research, Development and Engineering Center, ATTN: RDTA-EN/STND/TRANS MS #268, 6501 E. 11 Mile Road, Warren, MI 48397-5000 or sent by email to [usarmy.detroit.rdecom.mbx.tardec-standardization@mail.mil](mailto:usarmy.detroit.rdecom.mbx.tardec-standardization@mail.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

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M353	3-1/2 Tons
M536	3-1/2 Tons

2. APPLICABLE DOCUMENTS

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

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see 6.2).

INTERNATIONAL STANDARTIZATION AGREEMENTS

NATO AMovP-01	-	Road Movements and Movement Control
STANAG 2601	-	Standardization of Voltage of Electrical Systems in Tactical Vehicles
STANAG 2604	-	Breaking Systems between Tractor, Draw-Bar Trailer and Semi-Trailer Equipment Combinations for Military Use
STANAG 4007	-	Electrical Connectors between Prime Movers, Trailers and Towed Artillery
STANAG 4381	-	Blackout Lighting Systems for Tactical Land Vehicles

(Copies of these documents are available from <http://nsa.nato.int/nsa/> or NATO Standardization Agency, North Atlantic Treaty Organization HQ, 1110 Brussels, Belgium, or as directed by the contracting officer.)

COMMERCIAL ITEM DESCRIPTIONS

A-A-50271	-	Plate, Identification
A-A-52557	-	Fuel Oil, Diesel: For Posts, Camps and Stations.

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DEPARTMENT OF DEFENSE SPECIFICATIONS

- MIL-PRF-3150 - Lubrication Oil, Preservative, Medium.
- MIL-PRF-6083 - Hydraulic Fluid, Petroleum Base, for Preservation and Operation.
- MIL-PRF-10924 - Grease, Automotive and artillery.
- MIL-PRF-23827 - Grease, Aircraft and Instrument, Gear and Actuator Screw, NATO Code Number G-354, Metric.
- MIL-PRF-46176 - Brake Fluid, Silicone, Automotive, All Weather, Operational and Preservative, Metric.
- MS75021 - Connector, Receptacle, Electrical - 12 Contact, Intervehicular, 28 Volt, Waterproof

DEPARTMENT OF DEFENSE STANDARDS

- MIL-STD-209 - Slings and Tiedown Provisions for Lifting and Tying Down Military Equipment
- MIL-STD-810 - Environmental Test Methods and Engineering Guidelines
- MIL-STD-1366 - Interface Standard for Transportability Criteria
- MIL-STD-1472 - Human Engineering

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 or website: <https://assist.dla.mil/quicksearch/>.)

2.2.2 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 of these documents are those cited in the solicitation or contract (see 6.2).

FEDERAL MOTOR CARRIER SAFETY REGULATIONS (FMCSR).

- 49CFR393.52 - Brake performance
- 49CFR393.86 - Rear impact guards and rear end protection

(Copies of these documents are available within Title 49, Chapter III, Part 393 of the Code of Federal Regulations at <http://www.gpoaccess.gov/cfr/index.html> or from U.S. Government Printing Office, P.O. Box 979050, St. Louis, MO 63197-9000.)

FEDERAL MOTOR VEHICLE SAFETY STANDARDS (FMVSS)

- 49CFR571.105 - Hydraulic and electric brake systems
- 49CFR571.121 - Air brake systems
- 49CFR571.223 - Rear impact guards

49CFR571.224 - Rear impact protection

(Copies of these documents are available within Title 49, Chapter V, Part 571 of the Code of Federal Regulations at <http://www.gpoaccess.gov/cfr/index.html> or from U.S. Government Printing Office, P.O. Box 979050, St. Louis, MO 63197-9000.)

U.S. ARMY DRAWINGS

- 8358991 - Chassis, Trailer, 1-1/2 Tons, 2-Wheel, M103A3.
- 8358992 - Chassis, Trailer, 1-1/2 Tons, 2-Wheel, M103A4.
- 8358998 - Chassis, Trailer, 2-1/2 Tons, 2-Wheel, M200A1.
- 8736243 - Chassis, Trailer, 1 Ton, 2-Wheel, M514.
- 8736268 - Chassis, Trailer, 3-1/2 Tons, 2-Wheel, M353.
- 8736315 - Chassis, Trailer, 2 Tons, 2-Wheel, M390C.
- 8736321 - Chassis, Trailer, 3-1/2 Tons, 2-Wheel, M536.
- 8736322 - Chassis, Trailer, 2-1/2 Tons, 2-Wheel, M537.
- 8736324 - Chassis, Trailer, 2 Tons, 2-Wheel, M390.
- 8736332 - Chassis, Trailer, 1 Ton, 2-Wheel, XM545.
- 8736417 - Chassis, Trailer, 1-1/2 Tons, 2-Wheel, XM580.
- 8736829 - Chassis, Trailer, 1-1/5 Tons, 2-Wheel, M492A1.
- 8736996 - Chassis, Trailer, 1/4 Ton, 2-Wheel, M569A1.
- 8750054 - Chassis, Trailer, 3/4 Ton, 2-Wheel, M116A2.
- 8750240 - Chassis, Trailer, 3/4 Tons, 2-Wheel, M116A2E1.
- 8750253 - Chassis, Trailer, 1 Ton, 2-Wheel, M116A3.
- 7731428 - Cover Assy, Receptacle
- 7723309 - Nut, Grommet, Retaining, Size 28
- 7722333 - Grommet, Electrical Connector
- 12258212 - Stop and Tail Lamp Blackout Lightning Kit
- 12355846 - Treatment and Paint Specification for Tactical Trailers.
- 12484676 - Plate, Transportation
- 12461851-12 - Chain Assembly, Safety

(Copies of these documents are available from U.S. Army RDECOM, Tank Automotive Research, Development and Engineering Center, ATTN: RDTA-EN/STND/TRANS MS #268, 6501 E. 11 Mile Road, Warren, MI 48397-5000 or can be requested by sending an email to [usarmy.detroit.rdecom.mbx.tardec-standardization@mail.mil](mailto:usarmy.detroit.rdecom.mbx.tardec-standardization@mail.mil).)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents those cited in the solicitation or contract (see 6.2).

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M - Structural Welding Code - Steel

(Copies of these documents are available from [www.aws.org](http://www.aws.org) or American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.)

ASTM INTERNATIONAL

ASTM D2000 - Rubber Products in Automotive Applications, Classification System for

(Copies of these documents are available from [www.astm.org](http://www.astm.org) or ASTM International, P.O. Box C700, West Conshohocken, PA 19428-2959.)

SAE INTERNATIONAL

- SAE J560 - Primary and Auxiliary Seven Conductor Electrical Connector for Truck-Trailer Jumper Cable
- SAE J588 - Turn signal lamps for use on Motor vehicles (less than 2032 mm in overall width)
- SAE J702 - Brake and Electrical Connection Locations—Truck-Tractor and Truck-Trailer
- SAE J1292 - Automobile, Truck, Truck-Tractor, Trailer and Motor Coach Wiring
- SAE J1889 - L.E.D. Signal and Marking Lighting Devices
- SAE J2394 - Seven Conductor Cable for ABS Power-Truck and Bus

(Copies of these documents are available from [www.sae.org](http://www.sae.org) or SAE Customer Service, 400 Commonwealth Drive, Warrendale, PA 15096-0001.)

2.4 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 First article inspection. When specified (see 6.2), a first article sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Design and construction. Completed trailers shall conform to this specification and the applicable drawing listed below and meet the operating, interface, support and ownership and operating environment requirements specified (see 4.6.2 and 4.6.2.1):

<u>Model</u>	<u>Drawing</u>
M103A3	8358991
M103A4	8358992
M200A1	8358998
M514	8736243
M353	8736268
M390C	8736315
M536	8736321
M537	8736322
M390	8736324
XM545	8736332
XM580	8736417
M492A1	8736829
M569A1	8736996
M116A2	8750054
M116A2E1	8750240
M116A3	8750253

3.2.1 Materials. The trailer shall not contain any part that consists of any amount of asbestos, or radioactive material. (see 4.6.2).

3.2.1.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs (see 4.6.2).

3.2.1.2 Ozone resistance. Rubber products are to be ozone resistant in accordance with ASTM D2000 or equivalent (see 4.6.2).

3.2.1.3 Rust-proofing. The trailer metal parts shall be treated and protected from corrosion and rust in accordance with Army Drawing 12355846, such that the functional, operational and performance capabilities are not deteriorated (see 4.6.2.1).

3.3 Marking and data plates. The identification marking and data plates shall include, as a minimum, part or identification number (PIN) (see 6.5), the department of agency identification, the registration number, and legend as specified for the appropriate military agency (see 4.6.2). Marking shall be permanent and legible. When specified (see 6.2), concealed marking shall be furnished. Data plates shall be in accordance with Class 2, Composition C of A-A-50271. The transportation data plate requirements are defined in drawing 12484676. The location of the data plate is described on drawing 8358998.

3.4 Treatment and painting. The vehicle shall be treated and painted in accordance with Army Drawing 12355846 and shall meet the requirements specified herein (see 4.6.2 and 6.6).

3.4.1 Welding requirements. All steel weldments shall meet the design and fabrication requirements in AWS D1.1/D1.1M. All welding equipment used in the building items described herein shall be certified and all welders and operators have passed qualification testing as prescribed in the applicable qualification standards established by the AWS D1.1/D1.1M (see 4.6.1.1).

3.5 Operational requirements. Each trailer shall provide the following functional, operational and performance capabilities.

3.5.1 Seals. The bearing seals shall prevent entrance of foreign matter into the bearings exposed to contamination while fording or operating in mud, sand, or snow. Water contamination of bearing lubricants shall not be more than 2.0% by volume. All bearing seals shall restrict the leaking of lubricants from the bearings. (see 4.6.2.1).

3.5.2 Electrical.

3.5.2.1 Electrical circuits. Electrical circuits shall maintain continuity from end to end without evidence of internal or external shorts during all trailer operating conditions (see 4.6.3.a).

3.5.2.2 Lights. Lights shall be capable of operation throughout all trailer operating conditions and shall conform to SAE J1292 (see 4.6.3.b). Turn signal lamps shall conform to SAE J588. The brake lights shall override the four-way emergency flashers or the two systems shall be independent of each other.

3.5.2.3 Running Light Requirements. All running lights except blackout running light requirements shall be of the commercial U.S. 12/24 volt (V) LED type that fully meets the DOT/FMVSS requirements when 12 or 24 volts DC operate the running lights. License plate light and related harness is not to be furnished. Mid-ship turn signals are not to be furnished. Conspicuity markings using reflective sheeting tape with extended life shall be furnished. Commercial aluminum frame reflectors (painted before assembly) are to be used (see 4.6.3.c).

3.5.2.4 Blackout Lighting System. A blackout 24 volt LED running light system for tail light, stop light, and turn signals (per STANAG 4381) shall be provided (ref. 12258212/19207 drawing, 24 volt). The energy emission of any trailer light source to be illuminated in blackout mode shall be limited to the visible spectrum of 380 to 700 nanometers (nm), with the following exception: Energy may be radiated in the 700 to 1200 nm band range provided it is less than 1% of the energy radiated in the 380 to 700 nm band. The 24 volt lamp assembly is to include one, yellow, solid state lamp in the center and a pair of red, solid state lamps on each side of the center lamp. The four red lamps will appear as individual lights up to 60 feet, from 60 to 120 feet the four red lights will converge into two points of light. Lights will be visible at 1000, plus or minus 200 feet. When trailer is on a 20 percent downgrade no light is to be visible from an altitude which exceeds 400 feet (see 4.6.3.d).

3.5.2.5 Light Emitting Diodes (LEDs). LEDs shall be in accordance with SAE J1889. Related electrical harness wires shall be of commercial design currently being produced and marketed by the supplier and shall fully meet the LED light requirements described herein for one LED running light system, operational with either 12 or 24 volt (see 4.6.3.e).

3.5.2.6 Electrical Harness Requirements. All electrical harness connections shall be water tight, environmentally sealed, positive retention type to protect it from rain, road spray, etc. Wiring shall be secured to prevent chaffing and loose connections (see 4.6.3.f).

3.5.2.7 Receptacles. The trailer shall be equipped with one 12-contact receptacle with cover, and one 7-contact receptacle with cover installed at the front of the trailer. The 12-contact receptacle shall conform to MS75021-1 and be equipped with a cover assembly conforming to drawing 7731428, nut grommet, retainer conforming to drawing 7723309, and grommet, electrical connector conforming to drawing 7722333. The 7-contact receptacle shall conform to SAE J560 round socket with cover for an intermediate connector cable. Both receptacles are to be located as required by SAE J702. These receptacles are to be interconnected without the use of circuit breakers. Interconnections between the 12-contact and 7-contact receptacles shall be as per table I below (see 4.6.3.g).

3.5.2.7.1 Receptacle circuits. Circuits B and J on tactical tractors are combination stop and turn signal indicator circuits. The normal 12 V turn signal lights will function both as turn signals and stop lights and the normal 12 V stop lights will not be in operation when the trailer is connected to a towing vehicle with a 24 V power supply. Because of this condition the number 4 stop light circuit is not connected to the 24 V, 12 contact receptacle.

3.5.3 Controls. Electrical, mechanical, and hydraulic controls shall operate without malfunction, throughout all ranges of operation under all trailer operating conditions (see 4.6.3.h).

3.5.4 Adjustment mechanisms. Adjustment mechanisms shall function properly and maintain adjustment settings during all trailer operating conditions (see 4.6.3.i).

3.5.5 Safety chains. The trailer shall have safety chains attached to be used when the trailer is connected to the prime mover (see 4.6.3.j). The safety chain assembly shall conform to drawing 12461851-12.

3.5.6 Transportability. The transportability performance requirements for the trailer, shall be in accordance with MIL-STD-1366 and MIL-STD-209 (see 4.6.3.k).

3.5.6.1 Lifting/tiedown provisions. The trailer shall be equipped with lifting/tiedown provisions to secure the trailer and cargo during transport and to lift the vehicle. The provisions shall be in accordance with MIL-STD-209 and MIL-STD-810 (see 3.6, 4.6.3.l).

TABLE I. 24V connector pin assignments.

Pin	Use
A	24V left blackout tail
B	Circuit 3 (8V-30V)
C	24V right blackout tail
D	Circuit 1 ground
E	Circuits 2 and 6 (8V-30V service)
F	24V blackout stop
H	Not used
J	Circuit 5 (8V-30V right turn)
K	Not used
L	Circuit 1 ground
M	Not used
N	Not used

3.5.6.2 Marine Transport. The trailer shall be marine transportable when coupled to the prime mover and with a payload equivalent to an empty M200A1 trailer. The trailer shall be in accordance with Roll On/Roll Off (RO/RO) marine transportability requirements of MIL-STD-1366. The trailer shall be capable of entering, cresting and leaving a 15 degree ramp.

3.5.6.3 Lifting Provisions. The trailer, with rated payload, shall be equipped with lifting provisions that meet the design requirements of type I of the latest version of MIL-STD-209, and be able to lift the trailer with full payload. Non-welded parts of the lifting provisions shall be hot dip galvanized. Lifting provisions shall have chamfered edges. Lifting provisions shall be recessed below the level of the deck. Each of the trailer lifting eye recessed pockets shall have a drain hole.

3.5.6.4 Tie-down provisions. The trailer shall be equipped with tie-down provisions in accordance with MIL-STD-209 (see 4.6.3.o).

3.5.6.5 Rail transport. Rail transportability will include the trailer coupled to the prime mover and with a payload equivalent to that of an empty trailer on TOFC (see 4.6.3.p).

3.5.6.6 Rail impact testing. The rail transport subjects the trailer to severe longitudinal forces. The MIL-STD-810 rail impact test shall be used to validate the structural integrity of the item and the adequacy of the trailer provisions and procedures. Any item that passes the impact test shall be capable of rail transport without damage to the trailer or tie-downs (see 4.6.3.q).

3.5.6.7 Fixed wing air transport. The trailer shall be air transportable by C-130 aircraft and be capable of being externally slung from a CH-47 helicopter and delivered in a single lift while fully assembled (see 4.6.3.r).

3.5.7 Performance. The trailer shall meet performance requirements 3.5.7.1 through 3.8 of this specification when equipped as specified herein, serviced with standard products (see 3.6.1) and loaded and coupled to prime mover specified in Table II. The trailer, serviced and equipped for existing climatic conditions, shall operate as specified without special equipment (see 4.6.3.1).

TABLE II. Prime mover, payloads, and speeds.

Chassis	Preferred companion prime mover	Payload (lbs)	Highway (mph)	Gravel roads (mph)	Cross-country (mph)
M569A1 1/	M151	500	50	35	15
M116A3	HMMWV	2360	50	35	15
M116A2E1	CUCV	2420	50	35	15
M514	M536	2500	50	-	10
M116A2	1-1/4 ton truck	1965	50	35	15
XM545	M36	2800	50	35	10
M103A3	M35	4090	50	35	10
M103A4	M35	4090	50	35	10
M492A1	M35	4200	50	-	15
M390	M35	4000	50	35	10
M390C	M35	4000	50	35	10
M200A1	2-1/2 ton truck	5000	50	35	15
M353	M54	7000	50	35	15
M536	M52	6800	50	35	10
M537	M35	5000	50	35	10
XM580	M35	4000	50	35	10

1/ The Durability test shall be conducted with the mission payload, however, if such payload is not available, the loads cited herein shall be applied.

#### 3.5.7.1 Payload, towing speeds, and trailing ability.

3.5.7.1.1 Highway (paved) and gravel road operation. The trailer shall be loaded with the highway rated payload or with a simulated load of equal weight uniformly distributed over the load area. The trailer shall be towed over relatively level, smooth, improved, and prepared hard-surfaced roads and gravel roads, at the maximum speeds specified in table I without damage to the trailer or prime mover. The trailer shall track the towing vehicle without weaving from side to side of path of the towing vehicle moving in a straight line, and without swaying laterally to an extent that adversely affects the controllability of the vehicle combination. There shall be no evidence of wheel/tire imbalance such as would be exhibited by wheel tramp, hop, or of wheel/suspension misalignment (see 4.6.3.1.1).

3.5.7.1.2 Cross-country operation. The trailer, loaded with rated payload uniformly distributed over the load area, shall be capable of being towed over unimproved roads, open fields, rolling hills, and cross-country terrain at average speeds specified in table II without damage to the trailer or prime mover. The payload shall be distributed so that the proper center of gravity is established (see 4.6.3.1.1).

3.5.7.1.3 Grade and slope operation. The trailer with mission payload shall be capable of being towed without slipping or upsetting when ascending or descending longitudinal grades of not more than 40 percent (%) and when crossing side slopes of not more than 20% (see 4.6.3.1.2).

### 3.5.7.2 Braking.

3.5.7.2.1 Service brakes. All trailers shall be equipped with service brakes. The service brakes shall be in accordance with FMVSS, CFR 49, chapter 571.121 for air brakes, CFR 49, chapter 571.105 for hydraulic brakes, and both chapters 571.121 and 571.105 for air-over-hydraulic brakes. The brake linings shall be of non-asbestos material. The combined service brakes of the trailer and towing vehicle shall, under all conditions of loading, bring the combination to a positive stop within 30 feet (ft) (9.1 meters (m)) from a speed of 20 mph (32.2 km/h) on a dry, smooth, and level hard surfaced road, free of loose material (see 4.6.3 and 4.6.3.1.3).

3.5.7.2.2 Automatic brake actuator. The actuator shall automatically apply the trailer service brakes upon breakaway from towing vehicle in accordance with FMVSS CFR 49, chapter 571.121, S 5.3.3. The actuator shall maintain the application of brakes holding the trailer stationary under all loads specified herein for not less than 15 minutes (see 4.6.2.1 and 4.6.3.1.4).

3.5.7.2.3 Parking brake. A manually operated parking brake shall hold the trailer with cross-country payload on a dry, hard, smooth-surfaced road on a 20% grade while unrestrained by the towing vehicle at the pintle and headed up or down grade (see 4.6.2.1 and 4.6.3.1.5).

3.5.7.2.4 M200A1 anti-lock brake system (ABS). Both trailer axles shall be equipped with anti-lock brake systems (ABS) in accordance with CFR 49.571.121. The ABS shall operate on both 12 V DC and 24 V DC. Use of a voltage converter box to meet the 24 V DC operation requirement is acceptable. The ABS Electronic Control Unit (ECU) shall include wiring provisions to transmit the trailer (cable, SAE J2394) ABS malfunction signal to the prime mover cab. ABS systems that are used on Power Line Carrier (PLC) communication technology to transmit ABS malfunction shall be provided. A diagnostic warning blink light shall be mounted on an angle at the left side front of the trailer and shall be in view of truck operator. The ABS diagnostic box shall be water proof to road splash/spray and shall be located above fording level with easy access for maintenance (see 4.6.3.1.6).

3.5.7.3 Landing device. When specified (see 6.2), the trailer shall be equipped with a swing-up type, vertically adjustable landing device. The landing device shall support the trailer under any load specified herein on a 10 degree grade in any direction, shall lift the lunette to a

height required for coupling to the prime mover, and shall withstand strains imposed during coupling or uncoupling, without impairing operation of the trailer or towing vehicle. In the stowed position the device shall be horizontal and clear the ground during cross-country operation (see 4.6.2.1 and 4.6.3.1.7).

3.5.7.4 Leveling jacks. The manually operated leveling jacks shall raise and support the fully loaded trailer and shall adjust to permit placing the jack bases on the ground and leveling the trailer on an off-road site (see 4.6.2.1 and 4.6.3.1.8).

3.5.7.5 Trailer bolster. Overall travel of the reach tube shall be 4 ft ± 2 inch (in.) (1.2m ± 5.1cm) adjustable in increments of 12 to 12.5 in. (30.5 to 31.8 cm). The bolster locking stanchion shall be removable and stowed within the trailer when not in use. Removable rear ramps shall be stowed within the trailer frame when not in use. Removable rear ramps shall be provided for loading and unloading of pontoons, boats, treadways, etc. When not in use, the rear ramps shall store within the framework of the trailer. The retractable landing leg shall rotate upward into the traveling position by removing a ball-lock type pull pin holding the retractable landing leg in operating position (see 4.6.3.1.9).

3.5.7.6 Turning ability. When coupled to the prime mover operating in its minimum turning circle, the trailer shall follow without cramping and without damage to the towed trailer or prime mover, and without interference between the towed trailer and the prime mover (see 4.6.3.1.10).

3.6 Interface requirements. Completed trailers shall conform to this specification and interface with the appropriate prime movers (see 4.7 and table I). The trailer shall meet the NATO requirements of standardization of voltage STANAG 2601, braking and brake interoperability between tractor and trailer STANAG 2604, electrical connections STANAG 4007, blackout lighting systems STANAG 4381, and trailer road/terrain movements AMovP-01.

3.6.1 Servicing and adjusting. Prior to acceptance of the trailer by the Government, the contractor shall adjust and service each trailer for immediate operational use, including at least the following: Adjust braking system, check electrical system, inflate all tires, and completely lubricate the trailer and all running gear with standard products specified in table III for the ambient temperature at the delivery point (see 4.7.1).

TABLE III. Service product specifications.

Product	Ambient air temperature operating range	
	-10 to +132 °F (-23.3 to +55.6 °C)	-65 to 0 °F (-53.9 to -17.8 °C)
Oil:		
Hydraulic brakes	MIL-PRF-46176	MIL-PRF-46176
Shock absorbers	MIL-PRF-6083	MIL-PRF-6083
General purpose lubrication	MIL-PRF-3150	A-A-52557
Grease:		
Sealed bearings	MIL-PRF-23827	MIL-PRF-23827
General chassis lubrication, including wheel bearings	MIL-PRF-10924	MIL-PRF-10924

### 3.7 Support and ownership requirements.

3.7.1 Reliability. Trailers shall possess not less than a 60% probability of completing not less than 6000 miles (9656 km) of operation in accordance with the operational profile specified in 4.8.1, without failure of components, assemblies, or subassemblies: i.e., suspension, including springs, axles and wheels; brake systems; landing device; leveling jacks and when specified; lunette; and frame (see 4.8.1).

3.7.2 Maintainability. Total scheduled maintenance excluding driver/crew checks and services shall be between 4 and 6 manhours, and total unscheduled maintenance shall be between 0 and 10 manhours, during the first 6000 miles of operation in accordance with the operational profile (see 3.8.1.1). This equates to a maintenance ratio (MR) of 0.013 to 0.053 at 20 mph (32 km/h) and a MR of 0.02 to 0.08 at 30 mph (48 km/h). Scheduled maintenance intervals shall be 3 months or 3000 miles (4828 km) of operation, whichever comes first, for first article inspection only (see 4.2). Maximum time to repair (to include diagnosis, repair, and verification) using personnel normally employed at (see 4.8.2):

- a. Organizational maintenance level shall not exceed 2 manhours 95% of the time.
- b. Direct support maintenance level shall not exceed 4 manhours 95% of the time.

3.8 Operating environmental requirements. Each trailer shall operate under the environmental conditions of 3.8.1 and 3.8.2, without degradation in performance.

3.8.1 Environmental. The trailer shall operate under extreme conditions of weather in ambient temperatures ranging from -50 to +125 degrees Fahrenheit (°F), (-45.6 to 51.7 degrees Celsius (°C)). The trailer shall be capable of withstanding storage at -80°F (-62°C) without deterioration that causes failure of any component (see 4.9).

3.8.2 Fording. The trailer shall be capable of being towed in fresh or salt water of any depth great enough to immerse the chassis entirely for periods up to 15 minutes without impairing performance of the trailer or its components. Fording shall be accomplished without use of

special kits and with a minimum of preparation or servicing before and after the fording operation (see 4.9.1).

3.9 Human factors. The trailer shall be operable and maintainable by a fifth percentile female through a ninety-fifth percent male wearing arctic and/or MOPP IV clothing. All hand holds and steps necessary for Army personnel to gain access to locations on the trailer platform shall be an integral and permanent part of the trailer. The trailer design should utilize MIL-STD-1472. The spare wheel and tire assembly shall be removable and stow-able by two operators. All functional items of the trailer and all modes of operations shall be operational in/under arctic conditions (at minus 30 degrees F with moderate winds) with personnel in arctic clothing. All functional items of the trailer shall be operational in a safe manner under poor outside conditions. All human engineering requirements are applicable except for the maintenance function involving changing a flat tire, removal and installation of bulkheads, and tarps (see 4.9.2).

3.10 Service parts. The trailer shall have Government parts support and a Department of Army (DA) technical manual (see 4.9.3).

3.11 Workmanship. Material shall be free of defects and imperfections that might affect the serviceability and reliability of the finished product (see 4.9.4).

3.12 Rear end protection. The rear end protection of the M200A1 trailer shall comply with the requirements of 49CFR393.86, 49CFR571.223 and 49CFR571.224

#### 4. VERIFICATION

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

- a. First article inspection (see 4.2).
- b. Quality Conformance inspections (see 4.3).
- c. Control Tests (see 4.4).
- d. Comparison tests (see 4.5)

4.2 First article inspection. When first article is required (see 3.1), first article inspection shall be performed on first article samples and shall include the inspections specified in table IV (see 6.2). Road testing shall be required prior to conducting the tests specified in table IV.

TABLE IV. Classifications of inspection.

Title	Requirement	Inspection	First Article		QCI 1/		Comparison tests 2/
			CT 1/	IPT 2/	Exam	Tests	
Materials, design, and construction	3.2 to 3.4	4.6.2	X	X	X		
Highway (paved) and gravel road operation	3.5.7.1.1	4.6.3.1.1		X		X	X
Cross-country operation	3.5.7.1.2	4.6.3.1.1		X			X
Grade and slope operation	3.5.7.1.3	4.6.3.1.2		X			X
Service brakes	3.5.7.2.1	4.6.3.1.3	X	X		X	X
Automatic brake actuator	3.5.7.2.2	4.6.3.1.4	X	X		X	X
Parking brake ABS	3.5.7.2.3	4.6.3.1.5	X	X		X	X
Landing device	3.5.7.3	4.6.3.1.6	X	X		X	X
Leveling jacks	3.5.7.4	4.6.3.1.7	X	X		X	X
Trailer bolster	3.5.7.5	4.6.3.1.8	X	X		X	X
Turning ability	3.5.7.6	4.6.3.1.9	X	X		X	X
Reliability	3.7.1	4.8.1		X			X
Maintainability	3.7.2	4.8.2		X			X
Environmental	3.8.1	4.9		X			X
Fording	3.8.2	4.9.1		X			X

1/ At place of Manufacturer.

2/ At Government Proving Grounds.

4.3 Conformance inspection (CI). When conformance inspection is required (see 6.2), CI shall be conducted on each trailer and shall include the examination of 4.3.1, the 5 mile (8 km) road test specified in 4.4.2. and the tests of 4.3.2 (see 6.2). Noncompliance with any of the specified requirements in sections 3 and 5 shall be cause for rejection.

4.3.1 Examination. When examination is required (see 6.2), examination shall be conducted on each trailer specified in 4.5, and the tests of 4.3.2 (see 6.2). Noncompliance with any of the specified requirements in sections 3 and 5 shall be cause for rejection. Trailers shall be examined for the defects specified in table V.

4.3.2 Quality conformance testing. Subsequent to the examination of 4.3.1 and the road test specified in 4.4.2, trailers shall be subjected to the CI tests specified in table IV (see 4.3).

TABLE V. Classifications of defects.

Category	Defect	Method of Inspection
<u>Major:</u>		
101	Wheels and tires – condition and assembly, tire damage (see 3.2)	Visual
102	Frame – improper components, improperly riveted, improperly welded (see 3.2)	Visual
103	Axles – improperly assembled, improperly installed, improperly welded (see 3.2)	Visual and Functional
104	Suspension system – damaged, improper assembly and ground clearance (see 3.2)	Visual and Functional
105	Lunette eye – improper casting, improper size (see 3.2)	Visual and SIE
106	Interfaces – improperly designed and/or fabricated (see 3.2)	Visual and SIE
107	Paint – improper paint, improper compounding or curing (see 3.2 and 6.2)	Visual and Functional
108	Electrical system – cables, wiring, and ground straps, malfunction, improper lighting sequence, improper components, improper operation, inoperative, damaged (see 3.2)	Visual, Functional, and SIE
109	Controls – electrical, mechanical, and hydraulic malfunction, inoperative (see 3.5.3)	Visual and Functional
110	Adjustment mechanism – defective, improper function (see 3.5.4)	Visual and Functional
111	Safety chains – intervehicular hose and tubing, improper lengths, missing, improper coupling, damaged (see 3.2 and 3.5.5)	Visual and SIE
112	Service and parking brakes – inoperative, malfunction, component damage, nonconformance (see 3.5.7.2 and 3.5.7.2.3)	Visual and Functional
113	Automatic brake actuator – inoperative, improper operation, component damage (see 3.5.7.2.2)	Functional
114	Landing device – malfunction, improper installation, incomplete assembly (see 3.5.7.3)	Functional
115	Leveling mechanism – inoperative, improper operation (see 3.5.7.4)	Functional
<u>Minor:</u>		
201	Wheels and tires – improper size, improper type, improper mounting, improper installation (see 3.2)	Visual, Functional, and SIE
202	Records forms – missing and improper information (see 3.2)	Visual
203	Tools – missing, improper stowage (see 3.2)	Visual
204	Lunette eye – improper assembly, improper installation (see 3.2)	Visual
205	Suspension system – improper installation (see 3.2)	Visual

TABLE V. Classifications of defects - Continued.

Category	Defect	Method of Inspection
206	Frame and sheet metal – improper assembly, improper installation (see 3.2)	Visual
207	Reflectors – missing, improper installations, improper reflectors (see 3.2)	Visual
208	Brake system – improper assembly, improper installation, improper clearances (see 3.2)	Visual
209	Lube fittings – missing, improper installation, improper operation (see 3.2)	Visual and Functional
210	Rustproofing – missing, improper application (see 3.2.1.3)	Visual
211	Markings and identification – missing, improper size, improper installation (see 3.3)	Visual
212	Paint – improper color, improper application (see 3.4)	Visual
213	Seals – leaking, defective, damaged (see 3.5.1)	Visual
214	Electrical system – improper coding, improper protection, improper assembly, improper installation (see 3.5.2)	Visual
215	Adjustment mechanism – improper installation, damaged (see 3.5.4)	Visual and Functional
216	Tiedowns, lashings, and lifts – missing, improper installation, improper welds (see 3.5.6)	Visual
217	Lubrication – missing, improper grade, improper installation (see 3.6.1)	Visual
218	Hydraulic fluid – missing, improper grade, improper installation (see 3.6.1)	Visual

SIE = STANDARD INSPECTION EQUIPMENT

4.4 Control tests. When control testing is required (see 6.2), control tests for maintaining control of manufacturing operations shall be conducted as specified below.

4.4.1 Road tests.

4.4.2.1 Five-mile road test. When specified herein, the trailer shall be assembled and serviced with the lubricants and fluids of table II and shall be connected to the prime mover and towed for a distance of not less than 5 miles without payload over smooth, hard-surfaced roads.

4.4.1.2 Fifty-mile road test. When specified herein, the trailer shall be loaded with full or simulated payload and towed for a distance of not less than 50 miles (80 km). The test course shall be a smooth, hard-surfaced road.

4.5 Comparison tests. When comparison tests are required (see 6.2), the Government may randomly select vehicles at any time during the production contract period and subject these vehicles to the comparison tests specified in table IV. Tests will be conducted by the Government

at a site(s) it will select. Vehicles selected for comparison tests shall be new and shall have successfully passed the QCI specified in 4.3.

#### 4.6 Verification methods.

4.6.1 Verification alternatives. When specified, the manufacturer may propose alternative test methods, techniques, or equipments including the application of statistical process control, tool control, or cost-effective sampling procedures, to verify performance. See the contract for alternatives that replace verifications required by this specification.

4.6.1.1 Welding requirements. To determine conformance to 3.4.1, Welding procedures, workmanship specimens and welder certifications will be reviewed during FAT and Control test.

4.6.2 Materials, design, and construction. Conformance to 3.2, 3.2.1 through 3.2.1.3, 3.3 and 3.4 shall be determined by inspection of contractor records providing proof or certification that design, construction, processing, and materials conform to requirements. Applicable records shall include drawings, specifications, design data, receiving inspection records, processing and quality control standards, vendor catalogs and certifications, industry standards, test reports, and rating data.

4.6.2.1 Examination. Conformance to 3.2, 3.2.1, 3.5.1 through 3.5.7, 3.5.7.2.2 through 3.5.7.4 and 3.6.1 shall be determined by the examination specified in table V.

4.6.3 Operational verification. Each trailer shall be tested under environmental conditions of 4.9 and 4.9.1 without degradation in performance.

- a. Electrical circuits. To determine conformance to 3.5.2.1, electrical circuits shall maintain continuity from end to end without evidence of internal or external shorts during all trailer operating conditions.
- b. Lights. To determine conformance to 3.5.2.2, lights shall operate throughout all trailer operating conditions and shall conform to SAE J1292. Turn signal lamps shall conform to SAE J588. The brake lights shall override the four-way emergency flashers or the two systems shall be independent of each other.
- c. Running light requirements. To determine conformance to 3.5.2.3, running lights shall operate using the commercial U.S. 12/24 volt (V) LED type that fully meets the DOT/FMVSS requirements when 12 or 24 volts DC operate the running lights. License plate light and related harness is not to be furnished. Mid-ship turn signals are not to be furnished. Conspicuity markings using reflective sheeting tape with extended life shall be furnished. Commercial aluminum frame reflectors (painted before assembly) are to be used.
- d. Blackout lighting system. To determine conformance to 3.5.3.4, blackout light systems shall operate under the energy emission of any trailer light source and to be illuminated in blackout mode be limited to the visible spectrum of 380 to 700

- nanometers (nm), with the following exception: Energy may be radiated in the 700 to 1200 nm band range provided it is less than 1% of the energy radiated in the 380 to 700 nm band. The 24 volt lamp assembly is to include one, yellow, solid state lamp in the center and a pair of red, solid state lamps on each side of the center lamp. The four red lamps will appear as individual lights up to 60 feet, from 60 to 120 feet the four red lights will converge into two points of light. Lights will be visible at 1000, plus or minus 200 feet. When trailer is on a 20 percent downgrade no light is to be visible from an altitude which exceeds 400 feet
- e. Light emitting diodes (LEDs). To determine conformance to 3.5.2.5, LEDs shall operate under SAE J1889 and related electrical harness wires are to be of commercial design currently being produced and marketed by the supplier, and fully meet the LED light requirements described herein for one LED running light system, operational with either 12 or 24 volt.
  - f. Electrical harness requirements. To determine conformance to 3.5.2.6, verify that the wiring is secured to prevent chaffing and loose connections.
  - g. Receptacles. To determine conformance to 3.5.2.7, receptacles shall operate with one 12-contact receptacle with cover, and one 7-contact receptacle with cover installed at the front of the trailer. Both receptacles are to be located as required by SAE J702. These receptacles are to be interconnected without the use of circuit breakers.
  - h. Controls. To determine conformance to 3.5.3, controls shall operate without malfunction, throughout all ranges of operation under all trailer operating conditions.
  - i. Adjustment mechanisms. To determine conformance to 3.5.4, adjustment mechanisms shall operate properly and maintain adjustment settings during all trailer operating conditions.
  - j. Safety chains. To determine conformance to 3.5.5, verify the safety chain assembly are to drawing 12461851-12.
  - k. Transportability. To determine conformance to 3.5.6, verify the transportability requirements used for the trailer have been approved.
  - l. Lifting/tiedown provisions. To determine conformance to 3.5.6.1, verify the lifting/tiedown provisions to secure the trailer and cargo during transport and to lift the vehicle have been approved.
  - m. Marine transport. To determine conformance to 3.5.6.2, verify that when coupled to the prime mover and with a payload equivalent to an empty M200A1 trailer the trailer has been approved for marine transport.
  - n. Lifting provisions. To determine conformance to 3.5.6.3, verify the lifting provisions meet the design requirements and have been approved.
  - o. Tiedown provisions. To determine conformance to 3.5.6.4, verify the tie-down provisions have been approved.
  - p. Rail transport. To determine conformance to 3.5.6.5, verify the trailer coupled to the prime mover and with a payload equivalent to that of an empty trailer on TOFC have been approved for rail transport.
  - q. Rail impact testing. To determine conformance to 3.5.6.6, verify that the MIL-STD-810 rail impact test has been used to validate the structural integrity of the item and approved.

- r. Fixed wing air transport. To determine conformance to 3.5.6.7, verify that the trailer was approved for air transportable by C-130 aircraft and be capable of being externally slung from a CH-47 helicopter and delivered in a single lift while fully assembled.

4.6.3.1 Performance. To determine conformance to 3.5.7, the trailer shall pass the tests of 4.6.3.1.1 through 4.6.3.1.9. Prior to performance tests, the trailer shall be equipped, serviced, loaded, and coupled to the prime mover as specified herein.

4.6.3.1.1 Highway and cross-country operation. To determine conformance to 3.5.7.1.1 and 3.5.7.1.2, the trailer shall be connected to the prime mover, loaded as specified and towed during road testing over terrain at speeds specified in table II. During and after road testing, trailers shall be examined as specified and as applicable in 4.6.3 and table IV. Trailers with reach tubes shall be operated in the fully extended position for a distance of 25 miles (40 km) as part of a 50 mile (80 km) road test (see 4.4.2.1). For trailers with bolsters, the payload shall be distributed on three bolsters in extended and retracted positions and maintain required weight on the lunette.

4.6.3.1.2 Grade and slope operation. To determine conformance to 3.5.7.1.3, the trailer shall be towed by its prime mover ascending and descending a 40% grade. The trailer shall be towed across a 20% side slope. Trailer slip or upset shall be considered failure.

4.6.3.1.3 Service brakes. To determine conformance to 3.5.7.2.1, the brakes of the towing vehicle and trailer shall be applied simultaneously while the combination is traveling forward at 20 mph. Stopping distance in excess of 35 ft (10.7 m) shall constitute failure of this test. The results of the test shall also comply with FMCSR CFR 49, chapter 393.52.

4.6.3.1.4 Automatic brake actuator. To determine conformance to 3.5.7.2.2, the fully loaded trailer, coupled to its prime mover shall be parked on a 15% grade. With the prime mover brakes applied, air lines to the trailer shall be disconnected allowing the actuator to engage the trailer pulling the breakaway chain. The prime mover shall be moved to provide clearance between the pintle and lunette so that trailer movement is possible. With the prime mover brakes reset, the trailer shall remain stationary for 15 minutes; any movement within the 15 minutes shall constitute test failure. The test shall be performed with the trailer headed upgrade and downgrade.

4.6.3.1.5 Parking brake. To determine conformance to 3.5.7.2.3, the prime mover with coupled trailer shall be placed on a 20% grade, ascending or descending, and the parking brake actuated. The prime mover shall be moved to provide clearance between the pintle and lunette so that trailer movement is possible. The trailer shall remain stationary. Any rolling movement shall constitute failure of this test.

4.6.3.1.6 M200A1 anti-lock brake system (ABS). To determine conformance to 3.5.7.2.4, the ABS shall operate on both 12v and 24v. Use of a voltage converter box to meet the 24v operation requirement is acceptable. The ABS Electronic Control Unit (ECU) shall include wiring provisions to transmit the trailer (cable, SAE J2394) ABS malfunction signal to the prime

mover cab. ABS systems that are used on Power Line Carrier (PLC) communication technology to transmit ABS malfunction shall be provided. A diagnostic warning blink light shall be mounted on an angle at the left side front of the trailer and shall be in view of truck operator. The ABS diagnostic box shall be water proof to road splash/spray and shall be located above fording level with easy access for maintenance.

4.6.3.1.7 Landing device. To determine conformance to 3.5.7.3, the fully loaded trailer shall be towed to position on a 20% grade and landing device secured in a position to support the uncoupled trailer. The prime mover shall be uncoupled and removed. The landing device shall be operated to lower and raise the lunette to the proper coupling height. The prime mover shall be returned and recoupled to the trailer. Except for sinking in soft terrain, any movement of the trailer, during uncoupling, free standing, or recoupling, or any impairment of operation of the landing device shall constitute failure of this test. The landing device shall be examined after cross-country operation for evidence of interference with ground. Interference with ground shall constitute failure of this test.

4.6.3.1.8 Leveling jacks. To determine conformance to 3.5.7.4, the fully loaded trailer shall be parked on an off-road site and the leveling mechanism activated. Inability to support the trailer or to level the trailer floor shall constitute failure of this test.

4.6.3.1.9 Trailer bolster. To determine conformance to 3.5.7.5, the reach tube, removable components, and landing device, shall be checked for locking positions and adjustments. Removable items shall be removed and checked for fit and interference in stowage compartments within the frame of the trailer and for retainment during trailer towing conditions. The parking brake shall be applied when checking the travel of the reach tube.

4.6.3.1.10 Turning ability. To determine conformance to 3.5.7.6, the prime mover shall be coupled to the trailer and the combination shall be driven in the prime mover's minimum turning circle to the right and left without interference between the prime mover and towed trailer.

4.6.3.1.11 Rear-end protection. To determine conformance to 3.12, verify the rear end protection is in compliance with 49CFR393.86, 49CFR571.223 and 49CFR571.224.

4.7 Interface verification. To determine conformance to 3.6, the appropriate prime movers and associated trailers are to be tested for compatibility (see table II).

4.7.1 Servicing and adjusting. To determine conformance to 3.6.1, each trailer shall be adjusted and serviced for immediate operational use, including at least the following: braking system adjusted, electrical system checked and verified, all tires inflated to specified levels, and the trailer and all running gear completely lubricated with standard products specified in table III for the ambient temperature at the delivery point (see 4.6.2.1).

4.8 Support and ownership verification. Each trailer shall be tested for the following life cycle ownership requirements ( see 3.7 ).

4.8.1 Reliability. To determine conformance to 3.7.1, reliability shall be verified at a 60% confidence level while trailers are subjected to the 6000 mile test specified in table VI. In the event the production contract delineates test mileage less than 6000 miles (see 6.2), the mileage mix for the various types of courses in table VI shall be proportional to the miles shown in the mileage and speeds column.

TABLE VI. 6000 mile test sequence.

Course	Mileage and speeds	Chassis Payload
Gravel & dirt roads	1500 at varying speeds up to maximum	Highway
Belgian block roads	120 at speeds applicable to trailer characteristics	Cross-country
Hard-surfaced roads	2400 at varying speeds up to maximum	Highway
Level cross-country roads	1380 at varying speeds up to maximum	Cross-country
Hilly cross-country roads	600 at varying speeds up to maximum	Cross-country

4.8.2 Maintainability. To determine conformance to 3.7.2, maintainability shall be verified during the 6000 mile test requirement specified in 3.7.1.

4.9 Operating environmental verification. To determine conformance to 3.8 and 3.8.1, component certifications of temperature serviceability of critical items shall be reviewed (see 4.6.2). When specified (see 6.2), physical testing may be substituted for the component certifications. During physical testing the trailer shall be operated and stored at the temperatures specified for a period of 24 hours. The trailer shall show no damage as a result of such operation or storage.

4.9.1 Fording. To determine conformance to 3.8.2, the trailer chassis shall be immersed in fresh or salt water for not less than 15 minutes. The trailer shall then be examined as specified and as applicable in 4.6.3 and table III.

4.9.2 Human factors. To determine conformance to 3.9, verify that all human factors requirements have been met.

4.9.3 Service parts. To determine conformance to 3.10, the trailer shall have Government parts support and a Department of Army (DA) technical manual.

4.9.4 Workmanship. To determine conformance to 3.11, the vehicle shall be examined for removal of sharp edges and weld slag. Fasteners shall be examined for proper installation and presence of any required locking devices. Proper disposition of nonconforming material shall be periodically confirmed.

## 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

6.1 Intended use. Trailers covered by this specification are intended for use by military services that are used to transport military unique supplies and equipment during tactical military operations under extreme conditions of weather and terrain. Trailers are military unique due to special mounts interfacing with special equipment (bakery mounted enclosures, variable general purpose bolster, etc.).

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Model of trailer required (see 1.2).
- c. If required, the specific issue of individual documents referenced (see 2.2.1, 2.2.2, and 2.3).
- d. First article When Specified (see 3.1).
- e. If special identification/markings is required on identification plates (see 3.3)
- f. If protective finish is other than commercial practice (see 3.4)
- g. If landing device is not required for the M795 or M796A1 (see 3.5.7.3).
- h. If first article inspection is required (see 4.2).
- i. If conformance inspection is required (see 4.3)
- j. If examination is required (see 4.3.1)
- k. If control tests are required (see 4.4)
- l. If comparison tests are required (see 4.5)
- m. If verification alternatives are permissible and approval process for verification alternatives (see 4.6.1)
- n. Provisions for inspecting CARC paint and special contractual test requirement (see table V).
- o. Test mileage, if other than 6000 miles (see 4.8.1).
- p. Packaging requirements (see 5.1).

6.3 First article inspection. When specified, contracting documents should provide specific guidance to offerors. This guidance should cover whether the first article is a first article sample, a first production item, or a standard production item from the contractor's current

inventory and the number of test items. These documents should also include specific instructions regarding arrangements for examinations, approval of the first article test results, and disposition of first articles. Pre-solicitation documents should provide Government waiver rights for samples for first article inspection to bidders offering a previously acquired or tested product. Bidders offering such products who wish to rely on such production testing must furnish evidence with the bid that prior Government approval is appropriate for the pending contract (see 4.2).

6.4 Conformance inspection. Affordable conformance inspection with confidence varies depending upon a number of procurement risk factors. Some of these factors include: Contractor past performance, government schedules and budget, product material and design maturity, manufacturing capital equipment and processes applied, the controlled uniformity of those processes, labor skill and contracting documents should indicate those tests desired from table III and their designated frequency based on risk assessment for the procurement (see 4.3).

6.4.1 Fluid leaks classification.

- Class I - Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
- Class II - Leakage of fluid great enough to form drops, but not enough to cause drops to drip from item being inspected.
- Class III - Leakage of fluid great enough to form drops that fall from the item being inspected.

6.4.2 Category of defect.

- Class I - Minor defect.
- Class II - Major defect.
- Class III - Critical defect.

6.5 Part or Identifying Number (PIN). The PINs to be used for the trailer acquired to this specification are created as follows (see 3.3):

M    45150    -    X            Example of PIN: M45150-01

PIN number M45150	Model	PIN number M45150	Model
01	M569A1	09	M492A1
02	M569A2	10	XM580
03	M116A2E1	11	M390
04	M116A3	12	M390C
05	M514	13	M200A1
06	XM545	14	M537
07	M103A3	15	M353
08	M103A4	16	M536

6.6 Finish. Paint should conform to FED-STD-595 or equivalent and be applied with a coating of MIL-C-46168, MIL-C-53039 or optional equivalent (see 3.4).

6.7 Subject term (key word) listing.

Adjustment mechanism  
Controls  
Electrical circuits  
Fording  
Landing device  
Leveling jacks  
Lights  
Ozone resistance  
Safety chains  
Seals  
Service brakes  
Tiedowns.

6.7.1 Terrain conditions.

6.7.1.2 Primary roads. Two or more lanes, all-weather, maintained, hard surface (paved) roads with good driving visibility used for heavy and high density traffic. These roads have lanes with a minimum of 9 feet, road crown to 20 degrees and the legal maximum Gross Vehicle Weight/Gross Combined Weight for the county or state is assured for all bridges. During testing at Aberdeen Proving Ground, Perryman Paved and other paved roads to include Yuma Test Center (YTC) Dynamometer Course to fulfill this test requirement.

6.7.1.3 Secondary roads. Up to two lanes, all weather, occasionally maintained, hard or loose surface (e.g., large rock, paved, crushed rock, gravel) roads intended for medium-weight, low density traffic. These roads have lanes with minimum width of 8 feet and no guarantee that the legal maximum Gross Vehicle Weight/Gross Combined Weight for the county or state is assured for all bridges. During testing at Aberdeen Proving Ground, Perryman A, Munson Belgian block, Munson gravel and Munson improved gravel, to include the course known as YPG Old Highway 95 to fulfill the secondary road test requirement.

6.7.1.4 Cross-country. Vehicle operations over terrain not subject to repeated traffic and where no roads, routes, well-worn trails or man-made improvements exist. (This definition does not apply to vehicle test courses which are used to simulate cross-country terrain.) During testing at Aberdeen Proving Ground, Perryman 1, 2, & 3 will be used to simulate level cross-country and Churchville B will be used to simulate hilly cross-country. To include YPG Truck Level, High Hills and Rolling Hills Cross Country Courses.

6.7.1.5 Trails. The courses known as YPG Rock Ledge and Middle East Courses.

6.7.1.6 Slopes. Defined as a sharp transition from one constant grade to another constant grade which is up to a specified percentage different in any direction.

6.7.1.7 Gross vehicle weight. The Gross Vehicle Weight (GVW) includes the curb weight and the payload.

6.7.1.8 Curb weight. The curb weight includes the weight of the vehicle with all attachments, accessories, equipment, and lubricants.

6.7.1.9 Vehicle payload. The vehicle payload includes basic issue items and kits.

6.7.1.10 Overhaul. An overhaul is considered to have occurred when repair or corrective action required by a malfunction of any component of the referenced assemblies exceed the capabilities of the organizational and direct support maintenance levels. The corrective categories should be defined in the approved maintenance allocation chart.

6.7.1.11 Classifying corrosion damage. Stages of corrosion can be determined by visual examination and the use of probes, springs-loaded punches or similar devices to determine metal soundness. As an aid in evaluating corrosion damage and planning corrosion repair actions, corrosion has been classified into four stages.

- Stage 1 - Red, black and/or white corrosion products on surfaces accompanied by minor etching and pitting. Base metal is sound.
- Stage 2 - Powdered, granular or scaled condition resulting in erosion of material from surface. Base metal is sound.
- Stage 3 - Surface condition and corrosion deposits are similar to stage 2 except that metal in corroded areas is unsound and small pinholes may be present.
- Stage 4 - Corrosion has developed/advanced to a point where the surface has been penetrated. No metal remains at point of severest corrosion. There are rust holes in the surface area or metal is completely missing along the edge.

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

Custodian:  
Army - AT

Preparing Activity:  
Army – AT

(Project 2330-2012-005)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.