INCH-POUND
MIL-DTL-62164E(AT)
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SUPERSEDING
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DETAIL SPECIFICATION

SEMITRAILER, LOWBED, HEAVY EQUIPMENT TRANSPORTER, 60-TON, M747

This specification is approved for use by the U.S. Army Tank-automotive and Armaments Command, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers a 4-axle, 16-wheel semitrailer with maximum payload of 60 tons for use on primary and secondary roads and with limited cross-country ability (see 6.1).

1.1.1 Capabilities. The vehicle coupled to a suitable tractor, should haul:

a. M60 series tanks.
b. Related recovery vehicles including the M88A1.
c. Engineer equipment.
d. Equivalent cargo loads.

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 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.

Comments, suggestions, or questions on this document should be addressed to U.S. Army Tank-automotive and Armaments Command, ATTN: RDTA-EN/DM/STND/TRANS, MS# 268, 6501 E. 11 Mile Road, Warren, MI 48397-5000 or emailed to DAMI_STANDARDIZATION@conus.army.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.daps.dla.mil/online/.

AMSC N/A FSC 2330

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).

COMMERCIAL ITEM DESCRIPTIONS

A-A-52484	-	Coupler, Automotive Air Brake Line: Quick Disconnect.
A-A-52543	-	Fifth Wheel Assembly-36 Inch Universal, Truck-Tractor, 45000 Lbs. Capacity.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-53072	-	Chemical Agent Resistant Coating (CARC) System.
MIL-DTL-64159	-	Coating, Water Dispersible Aliphatic Polyurethane, Chemical Agent Resistant.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-209	-	Slinging and Tiedown Provisions for Lifting and Tying Down Military Equipment.
MIL-STD-1179	-	Lamps, Reflectors and Associated Signaling Equipment for Military Vehicles.
MS75021	-	Connector, Receptacle, Electrical-12 Contact, Intervehicle, 28 Volt Waterproof.

DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-310	-	Global Climatic Data for Developing Military Products.
MIL-HDBK-1791	-	Designing for Internal Aerial Delivery in Fixed Wing Aircraft.

(Unless otherwise indicated, copies of the above specifications and standards are available from the Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094 or website https://assist.daps.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 are those cited in the solicitation or contract (see 6.2).

NUCLEAR REGULATORY COMMISSION (NRC)

Code of Federal Regulations (CFR)	-	Title 10, Part 40.

(Copies of the Code of Federal Regulations (CFR) are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 or website http://www.gpoaccess.gov/cfr/.)

DEPARTMENT OF DEFENSE DRAWINGS

COMBINED PROGRAM REQUIREMENT (CPR)

CPR 101116 - Semitrailer, Lowbed; Heavy Equipment, Transporter, 0 Ton M747.

(Copies of these drawings are available from DAMI_STANDARDIZATION@conus.army.mil or 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.)

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 are those cited in the solicitation or contract (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/ASQC Z1.4 - Sampling Procedures and Tables for Inspections by Attributes (DoD Adopted).

(Application for copies may be obtained from the American National Standards Institute, 25 West 43rd Street, New York, NY 10036 (or http://www.ansi.org) or American Society for Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203 (or http://www.asq.org.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D522 - Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
ASTM D610 - Degree of Rusting on Evaluating Painted Steel Surfaces.
ASTM D3359 - Standard Test Methods for Measuring Adhesion by Tape Test.
ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

(Application for copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or http://www.astm.org.)

ASSOCIATION OF AMERICAN RAILROADS (AAR)

Rules Governing the Loading of Commodities on Open-Top Cars.

(Application for copies may be obtained from the Association of American Railroad, 425 3rd Street, SW, Suite 1000, Washington, DC 20024 or http://www.aar.org/homepage.aspx.)

GENERAL MOTORS CORPORATION

GM 9540P - Accelerated Corrosion Test.

(Application for copies may be obtained from GM 9540P, C/O Global Engineering, 15 Inverness Way, Englewood, CO 80112 or http://www.ihs.com/.)

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 3411 - Fifth Wheel Kingpin, Heavy Duty – Commercial Trailers and Semitrailers, Recommended Practice

(Copies of these documents are available from www.iso.org or American National Standards Institute, 11 West 42nd Street, New York, N.Y. 10036.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

SAE J848 - Fifth Wheel Kingpin, Heavy-Duty - Commercial Trailers and Semitrailers, Recommended Practice (DoD Adopted).
SAE J2334 - Laboratory Cyclic Corrosion Test.

(Copies of these documents are available from Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or http://www.sae.org.)

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

3.2 Materials. Materials used shall be in accordance with the manufacturer's material specifications for semitrailers. The materials shall be capable of meeting all of the operational and environmental requirements specified herein (see 4.5.1). Recovered materials shall be used to the maximum extent practicable. Materials and special treatments shall be utilized to prevent corrosion and to resist harmful effects of dust, water and fungi. Dissimilar metals shall not be used in intimate contact without protection from galvanic corrosion.

3.2.1 Asbestos, cadmium, and radioactive materials. Asbestos, cadmium, and radioactive materials shall not be used in this item. Radioactive material is defined by Title 10, Code of Federal Regulations, Part 40 and other radioactive material in which radioactivity is greater than 0.002 microcuries per gram or 0.01 microcuries total activity for the item.

3.2.2 Corrosion protection. Materials used shall provide corrosion protection and coating adherence equal to or exceeding that provided by 1010 steel, hot dip galvanized or electro-galvanized with a 0.75 mil minimum thickness in accordance with appropriate ASTM standard, with zinc phosphate pretreatment, epoxy prime (including E-coat or powder coat) and low VOC CARC top coat in accordance with MIL-DTL-64159 Type II. A proposed alternate design shall be compared to a galvanized sample (as described above) using ASTM D522 Mandrel Bend Test followed by Accelerated Corrosion Test GM 9540P Method B 120 cycles with grade 8 or better rust grade criterion as described in ASTM D610.

3.2.3 Fungus resistance products. Electrical wiring and plastic materials shall not promote the growth of fungus.

3.3 Design and construction. Components, sub-assemblies, and assemblies shall be fabricated and assembled into a complete vehicle in accordance with Drawing CPR 101116 and associated lists. Overall dimensions of the trailer shall be in accordance with table I (see 4.5.2).

TABLE I. Overall vehicle dimensions, inches.

Fifth wheel height	61
King pin diameter	3.5
Overall length	513
Loading platform length	317
Overall width reducible	137 - 120
Overall height	105
Square feet	429
Min. ground clearance	9
Departure angle	27 degrees
Deck height	44

3.3.1 Loading/unloading.

3.3.1.1 Loading ramp. Two loading ramps shall be provided that permit the loading of tanks and their associated recovery vehicles under all conditions of operation including disabled condition. Ramps shall be adjustable in three positions, to permit loading of narrower tread width vehicles. Each ramp shall be capable of being stowed by not more than two men. Suitable means for retaining ramps in stowed position shall be provided. Back of ramps shall be reflectorized for improved safety on highways (see 4.5.2).

3.3.1.2 Track guides. Multi-position and removable track guides shall be provided to aid in aligning and to prevent shifting of vehicle payloads (see 4.5.2).

3.3.1.3 Cable guides. Cable guides of the multi-roller type, with safety bar furnished and installed, shall provide protection for the cable and vehicle, when loading and unloading disabled vehicles (see 4.5.2).

3.3.1.4 Snatch block. A built-in snatch block with a 40-ton working capacity shall be provided at the center rear of the trailer for readily unloading disabled vehicles (see 4.5.2).

3.3.1.5 Payload tiedown. Provisions shall be included on the semitrailer to tie down and secure tanks and other armored vehicles as well as other payloads (see 6.1) for transport in a safe manner utilizing the tiedown devices listed in the applicable Basic Issue Item (BII) list (see 3.3.6). Eight tiedown points shall be provided on the semitrailer to transport two tracked vehicles. Twelve payload tiedown D-rings shall be included with the vehicle for cargo tiedown (see 4.5.2).

3.3.1.6 Fifth wheel plate and kingpin. An upper fifth wheel plate conforming to A-A-52543 and a kingpin conforming to SAE J848 shall be provided. When transported on a flat car, the kingpin shall withstand a force of 3.5 times the gross vehicle weight (see 4.5.2).

3.3.1.7 Landing legs. Landing legs shall be provided on the main frames in the area where the gooseneck starts. Landing legs shall be capable of being raised and stored on the underside of the vehicle by one man when not in use. Landing legs shall be adequate to support the vehicle when loaded with rated payload (see 4.5.2).

3.3.2 Electrical.

3.3.2.1 Electrical system. The vehicle shall be equipped with a 24-volt electrical system complete with all necessary items of equipment and wiring. Lighting and accessory equipment shall meet the requirements of MIL-STD-1179. Rear side marker lights shall be adjustable to the width of anticipated payloads (see 4.5.2).

3.3.2.2 Trailer receptacle, intervehicular cable. The receptacle assembly for the intervehicular connection shall be in accordance with MS75021 and shall be furnished with a waterproof cover (see 4.5.2).

3.3.2.3 Lights and accessories. The external lights and electrical accessories, including cables and receptacles, shall function throughout all vehicle operation conditions. All electrical contacts and connections shall maintain positive contact under all vehicle operating conditions (see 4.5.2).

3.3.3 Suspension. Since the suspension load may occasionally be concentrated on any one axle, the rated capacity of each axle shall be at least equal to the load imposed at the ground by the vehicle when it is loaded with the specified payload. Suspension clearance shall preclude interference between wheels and other portions of the vehicle when vehicle is operating under any condition of its intended purpose. All brake line tubing and flexible hose shall be so

installed and protected to prevent sharp bends, damage by abrasion and contact with the ground or wheels during vehicle operation (see 4.5.2).

3.3.3.1 Walking beams. The suspension shall include two unsprung walking beams for the first and second axles. Sufficient articulation shall be provided to maintain equal loading on each end of walking beams under the following conditions:

a. With jounce bumpers removed and forward wheels on each beam elevated 8 inches (in.) above rear wheels (see 4.5.2).
b. With jounce bumpers removed and rear wheels on each beam elevated 8 in. above forward wheels. Each walking beam shall be interchangeable with one another (see 4.5.2).

3.3.3.2 Air springs. The suspension system shall include four air springs for the third and fourth axles. The air springs shall facilitate the load distribution. The air suspension shall have an 8-in. minimum travel. A second air system shall raise the two rear axles. The combined systems shall permit changing all wheels without the use of a jack while vehicle is unloaded on level surface and the tires on the rear two axles when loaded. Suspension air pressure drop shall not exceed 5 pounds per square inch (psi) in a 1-hour period with 85 psi initially in the suspension system, and an ambient temperature of 70 plus or minus (±) 10 degrees Fahrenheit (°F) (see 4.5.2).

3.3.3.3 Shock absorbers. Shock absorbers, adequate to dampen the air suspension, shall be installed on the two rear axles (see 4.5.2).

3.3.3.4 Seals. With the vehicle operating under condition of specified terrain (see table V) and during fordings (see 4.3.5.9), the seals shall restrict the entrance of foreign matter into the bearings, which are exposed to contamination during these operations. Seals shall limit water contamination of lubricants and water contamination shall not exceed 2 percent (%) by volume. All bearing seals shall prevent the leakage of lubricants from the bearings (see 4.5.2).

3.3.3.5 Tires. The tires shall be 15 x 19.5 with a 14-ply rating and with 60 to 65 psi air pressure and have a manufacturer's recommended load rating such that 25 000 pounds (lbs) per axle can be placed on any axle at maximum speeds and 50 000 lbs per axle at speeds up to 5 miles per hour (mph) for short periods of time (see 4.5.2).

3.3.3.5.1 Tire life. Average tire life to removal from service shall be not less than 9000 miles (see 4.5.2).

3.3.3.5.2 Spare tire assembly. One spare wheel and tire assembly shall be furnished and stored securely in a readily accessible space which shall permit removal of the tire and wheel assembly when the vehicle is loaded. Removal and replacement shall be accomplished by two men (see 4.5.2).

3.3.3.6 Axle assemblies. Four axle assemblies with brakes shall be properly installed, and shall have a capacity per axle as defined under 3.3.3 (see 4.5.2).

3.3.3.7 Brake system. The brake system shall be completely sealed to prevent the leakage of lubricants and the entrance of water, sand or other foreign matter into the system during normal operation including fording to a depth of 4 feet (ft) (see 4.5.3.9). Brake air connectors conforming to A-A-52484 shall provide air tight connections to allow operation of air brakes from the prime mover vehicle (see 4.5.2).

3.3.4 Air system.

3.3.4.1 Air lines and fittings. All air lines and fittings shall be internally clean prior to and after making connections and shall be free from leaks. All lines and fittings shall be secured in such a manner to prevent rubbing on adjacent lines or vehicle appendages. Air system leakage shall not cause a pressure drop of more than 5 psi in a 1-hour period, with 100 psi initially in the air supply tanks at an ambient temperature of 70 ± 18°F (see 4.5.2).

3.3.4.2 Reservoir capacity. The capacity of the braking system reservoirs shall be not less than eight times the service air chamber displacement volume at maximum travel of the brake actuator. The combined air volume of the reservoirs shall be not less than 3200 cubic inches (see 4.5.2).

3.3.5 Adjustment mechanisms. Adjustment mechanisms shall function properly and maintain adjusted settings during all conditions of vehicle operations (see 4.5.2).

3.3.6 BII. Suitable compartments, brackets or other stowage compartments shall be furnished to accommodate all BII depicted on the applicable list (see 6.2). When specified (see 6.2), all BII shall be furnished in accordance with the Government approved list (see 4.5.2).

3.3.7 Pushing device. Provisions shall be provided for the semitrailer to permit it to be pushed by another vehicle as a combined unit without damage (see 4.5.2).

3.3.8 Stake pockets. Provisions for 14 stake pockets to accept 4- by 4-in. wood stakes or steel box channel shall be provided at sides and rear of the semitrailer deck to retain and transport high density cargo (see 4.5.2).

3.3.9 Deck planking. Provisions for installing 4- by 12-in. wood planking to cover the open center of the semitrailer shall be provided to allow for transport of pallets and containers (see 6.1). Such planking may be used in conjunction with stake pockets (see 3.3.8 and 4.5.2).

3.4 Transportability.

3.4.1 Transport by rail. The semitrailer shall be reducible down to 120 in. width and provided with adequate slinging and tiedown eyes and attaching hardware conforming to MIL-STD-209 for transport in accordance with the applicable requirements of the Association of

American Railroads, "Rules Governing the Loading of Commodities on Open Top Cars" (see 4.5.2).

3.4.2 Transport by water. The semitrailer shall be provided with anchor shackles to permit four-point lifting for loading and unloading and with tiedowns for securing the unloaded vehicle when being transported by ships (see 4.5.2).

3.4.3 Transport by air. The semitrailer shall be transportable in airborne operations. Air transportability shall be for type C-5A aircraft and shall meet the requirements of MIL-HDBK-1791 (see 4.5.2).

3.5 Performance. The semitrailer, fully equipped and serviced, coupled to the tractor, and loaded with 105 000 lbs payload shall meet all the requirements specified herein, without failure or damage to vehicle and payload. Performance shall be demonstrated on dry, smooth, relatively level, hard-surfaced roads, free from loose material, except as specified herein (see 4.5.3).

3.5.1 Environmental. The semitrailer and its components shall withstand and operate in ambient air temperatures of +125°F to -50°F, with no special preparation. The complete vehicle, when in storage, shall withstand climatic extremes as specified in MIL-HDBK-210 without deterioration, that may cause failure of any part of the vehicle (see 4.5.3.1).

3.5.2 Road speed. The semitrailer shall be capable of being towed at a speed of not less than 34 mph (see 4.5.3.2).

3.5.3 Grade and slope operation. The semitrailer, loaded with a rated payload, shall function headed up and headed down slope on longitudinal grades not less than 15% and across side slopes of 20% with each side of the vehicle up slope. As a result of the operation, no evidence of faulty lubrication, leakage or other malfunction shall be found (see 4.5.3.3).

3.5.4 Braking ability.

3.5.4.1 Service brakes. The service brakes, without the aid of the prime mover brakes, shall stop the tractor and semitrailer with the rated payload within 100 ft upon steady semitrailer brake handle application (in prime mover), when traveling at 20 mph to insure proper functioning and adjustment of the brake (see 4.5.3.4).

3.5.4.2 Failsafe brakes. With the service brakes in proper adjustment, the failsafe brakes shall function properly to hold the vehicle. The failsafe brake system, when activated, shall hold the vehicle with rated payload on a 15-degree (°) longitudinal slope (see 4.5.3.5).

3.5.4.3 Failsafe release system. The failsafe brake system release, when pressurized to 90 psi, shall fully release the brakes (see 4.5.3.6).

3.5.5 Turning ability. The semitrailer, when coupled to the prime mover operating in its minimum turning circle (90 ft diameter wall to wall in a 180° turn), shall follow without cramping, without damage to the semitrailer or prime mover, and without interference between the semitrailer and the prime mover (see 4.5.3.7).

3.5.6 Trailing ability. When coupled to any prime mover the semitrailer shall trail in a straight line (see 4.5.3.8).

3.5.7 Fording ability. The vehicle shall ford water up to 48 in. for a period of 15 minutes without special preparation, and shall meet the requirements of 3.3.3.4 and 3.3.3.7 without the entrance of water that would prevent proper function of the brake system (see 4.5.3.9).

3.5.8 Reliability. The M747 mission mean miles between failure (MMBF) shall not be less than 9200 miles during the first 20 000 miles of 45% hard-surface roads, 50% secondary roads and 5% cross-country operation. A failure is defined as an event that creates the following conditions:

a. Prevents operation, or
b. Reduces performance below essential levels, or
c. Indicates to the crew that further operations would be unsafe, or
d. Indicates to the crew that further operations might result in extensive damage to the equipment.

Any of the above four conditions which cannot be corrected by the crew in 1 hour, using the tools and parts normally carried on the vehicle constitutes a failure. Maintenance and human induced failures are excluded (see 4.5.3.10).

3.5.9 Maintainability (see 4.5.3.11).

a. Total maintenance excluding driver/crew checks and services shall not exceed 177 manhours during the first 20 000 miles of operation as specified. This equates to a maintenance ratio (MR) of 0.05 at 13 operating miles equivalent to 1 operational hour.
b. The scheduled maintenance intervals shall be 6 months or 6000 miles of operation whichever comes first.
c. Maximum time to repair (to include diagnosis, repair and verification) utilizing personnel normally employed at:
    (1) Organization maintenance shall not exceed 5 hours 95% of the time.
    (2) Direct support maintenance shall not exceed 16 hours 95% of the time.

3.6 Painting. Unless otherwise specified (see 6.2), the trailer shall be cleaned, treated, and painted in accordance with MIL-DTL-53072 with the topcoat color to be determined by the program office (see 4.5.2).

3.7 Marking. The required tire pressures shall be stenciled in white enamel in two control locations with letters and figures legible at a distance of 20 ft. Lift points (see 3.4) shall be identified with stenciled letters using white enamel legible at a distance of 20 ft. The trailer shall be marked with the National Stock Number (NSN) and the manufacturer's name and part number. Markings shall be permanent and legible. All parts, subassemblies shall be identified when specified on drawings (see 4.5.2).

3.7.1 Identification and data plates. Identification and data plates shall be permanent and shall be made of a material suitable to withstand the environmental requirements specified herein and remain legible (see 4.5.2).

3.8 Servicing and adjustment. Prior to delivery, the contractor shall service and adjust each vehicle and its mounted material for operational use including the following: Adjustment of brake system, inflation of all tires, complete lubrication of chassis, suspensions and axles with proper grade of lubricant (per approved lubrication chart) for the climatic condition at the delivery point (see 4.5.2).

3.9 Manpower and personnel integration (MANPRINT). The vehicle shall comply with the safety requirements of 4.5.4. The characteristics of the vehicle shall provide for operation by personnel in all types of clothing and shall be designed in accordance with ISO 3411 (see 4.5.2).

3.10 Workmanship. All parts, components and assemblies of the truck including castings, forgings, molded parts, stamping, bearings, seals, machined surfaces and welds shall be clean and free from sand, dirt, fins, pits, cracks, sprues, scales, flux and other harmful extraneous materials and defects. External surfaces shall be free from burrs, sharp edges and corners except when sharp edges and corners are required. Electric wires and air lines shall be located in a manner so as to prevent possible damage by rubbing on adjacent lines or appendages (see 4.5.2).

4. VERIFICATION

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

a. First article inspection (see 4.2).
b. Conformance inspections (see 4.3).

4.2 First article inspection. Unless otherwise specified (see 6.2), first article inspection shall be performed on preproduction or initial production samples as specified when a first article sample is required (see 3.1). This inspection shall include the examinations of 4.4 (see table II) and the tests of 4.5.3 through 4.5.4 (see table III).

4.2.1 Preproduction inspection. When specified (see 6.2), first article preproduction inspection shall be performed on two trailers. This inspection shall include the examinations of 4.4 (see table II) and the tests of 4.5.3 through 4.5.4 (see table III).

TABLE II. Classification of defects.

Category	Defect	Method of examination
Major:		
101	Loading ramps, jacks - improperly assembled, damaged (see 3.3.1).	Visual and Functional
102	Loading and landing jacks and pads - malfunctioning, incomplete (see 3.3.1).	Visual and Functional
103	Cable guides and shackles - malfunction, improper assembly, damaged or missing (see 3.3.1.3 and 3.3.1.4).	Visual and Functional
104	Upper fifth wheel and kingpin - improper mounting, assembly (see 3.3.1.6).	Visual
105	Electrical system components - malfunction, inoperative; lighting sequence improper (see 3.3.2).	Visual, Functional and SIE 1/
106	Suspension system - system damage, leaks, malfunction, improper assembly or installation (see 3.3.3).	Visual and Functional
107	Walking beam - improper mounting or damage (see 3.3.3.1).	Visual
108	Tires -not as specified (see 3.3.3.5, 3.3.3.5.1, 3.3.3.5.2).	Visual
109	Axles and trunions - improper assembly or installation (see 3.3.3.6).	Visual
110	Adjustment mechanisms – malfunction, inaccessible (see 3.3.5)	Visual, Functional, and SIE
111	Transportability – improper reducibility, size, anchoring shackles defective (see 3.4)	Visual and Functional
112	Marking – improper, illegible, omitted (see 3.7)	Visual
113	Servicing and adjustment - lubrication fittings, drain plugs, maintenance - improper installation, defective, missing, poor adjustment, tire inflation (see 3.8).	Visual and Functional
114	MANPRINT - safety, brakes, steering, interior, human factors (see 3.9).	Visual and Functional
115	Workmanship - faulty workmanship affecting performance (see 3.10).	Visual and Functional
Minor		
201	Payload, tiedowns and lifting eyes - missing improperly located, welding defects (see 3.3.1.5).	Visual
202	Landing device - improper assembly or installation (see 3.3.1.7).	Visual
203	Electrical system - improper assembly or installation (see 3.3.2).	Visual and Functional
204	Electrical cables, tubing wires and ground - improper coded, protection or assembled (see 3.3.2).	Functional

TABLE II. Classification of defects - Continued.

Category	Defect	Method of examination
205	Suspension system components - improper assembly or installation (see 3.3.3).	Visual
206	Tires - tire pressure (see 3.3.3.5).	Visual and SIE
207	Brake system components - improper assembly or installation (see 3.3.3.7).	Visual and Functional
208	Air system components - improper assembly or installation (see 3.3.4)	Visual and Functional
209	BII and stowage - missing, improperly processed (see 3.3.6).	Visual
210	Paint - application and color improper (see 3.6).	Visual
211	Protective coatings - application, coverage and materials improper (see 3.6).	Visual
212	Decals, data and instruction plates - incomplete data; improper size or installation (see 3.7 and 3.7.1).	Visual
213	Lubrication - improper application (see 3.8).	Visual
214	Reflectors - missing, defective improper installation (see 3.3).	Visual
215	Workmanship affecting appearance (see 3.10).	Visual
216	Stake pockets and deck planking not as specified (see 3.3.8).	Visual

1/ SIE = Standard Inspection Equipment.

TABLE III. Classification of inspections.

Title	Requirements	Inspection	First article	Conform-ance
Environmental	3.5.1	4.5.3.1	X	
Road speed	3.5.2	4.5.3.2	X	X
Grade and slope operation	3.5.3	4.5.3.3	X	
Service brakes	3.5.4.1	4.5.3.4	X	X
Failsafe brakes	3.5.4.2	4.5.3.5	X	
Failsafe release system	3.5.4.3	4.5.3.6	X	
Turning ability	3.5.5	4.5.3.7	X	X
Trailing ability	3.5.6	4.5.3.8	X	
Fording ability	3.3.3.4, 3.3.3.7, 3.5.7	4.5.3.9	X	
Reliability	3.5.8	4.5.3.10	X	
Maintainability	3.5.9	4.5.3.11	X	
Safety	3.9	4.5.4	X	

4.2.2 Initial production inspection. Unless otherwise specified (see 6.2), first article preproduction inspection shall be performed on two trailers. This examination shall include the examinations of 4.4 (see table II) and the tests of 4.5.3 through 4.5.4 (see table III).

4.3 Conformance inspection. Conformance inspection shall include the examinations of 4.4 (see table II) and the tests of 4.5.3 through 4.5.4 (see table III).

4.4 Examination.

4.4.1 Sampling. Samples from an inspection lot for conformance inspection shall be selected in accordance with ANSI/ASQC Z1.4. Any redesign or modification of the contractor's standard to comply with specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirement or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.5 Method of inspection.

4.5.1 Materials. Conformance to 3.2 shall be determined by inspection of contractor records providing proof or certification that 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.

4.5.1.1 Corrosion. To determine conformance to 3.2.2 and 3.6, the cyclic corrosion test per GM 9540P Method A or B (Method A is for uncoated metals, Method B for coated metals) or equivalent such as the SAE J2334 shall be performed on that unit or part for 120 cycles and measured to the grade level representing the number of years of specified service life as specified in table IV. The rust grade criterion is described in ASTM D610. All test panels and component parts shall be scribed per ASTM D 3359 prior to testing. Alternative validation test methods must be approved by the Government prior to fielding or manufacturing the system.

Table IV. Service life by grade.

Specified Service Life	<10 Years	10 Years - 15 Years	15 Years – 20 Years	20 Years – 25 Years
Criteria for 120 Cycles of GM-9540P or SAE J2334	Grade 5	Grade 6	Grade 7	Grade 8

4.5.2 Defects. Conformance to 3.3 thru 3.4.3 and 3.6 thru 3.10 shall be determined by examination for the defects listed in table III. Examination shall be visual, tactile, or by measurement with SIE.

4.5.3 Performance. Conditions for tests hereunder shall be as specified in 3.5.

4.5.3.1 Environmental. To determine conformance to high and low temperature operation of 3.5.1, the semitrailer shall be tested as required in MIL-HDBK-210.

4.5.3.2 Road speed. To determine conformance to 3.5.2, the semitrailer shall meet the specified requirement.

4.5.3.3 Grade and slope operation. To determine conformance to 3.5.3, the semitrailer shall be operated on 15% grades headed up and down and on 20% side slopes with each side of the semitrailer up slope.

4.5.3.4 Service brakes. To determine conformance to 3.5.4.1, the brakes shall be checked for functional operation as specified.

4.5.3.5 Failsafe brakes. To determine conformance to 3.5.4.2, the failsafe brake shall be checked for proper functioning utilizing the brake and air suspension system controls at the side of the vehicle.

4.5.3.6 Failsafe release system. To determine conformance to 3.5.4.3, the failsafe brake release system shall be checked utilizing the release control at the side of the semitrailer to determine compliance as specified.

4.5.3.7 Turning ability. To determine conformance to 3.5.5, the prime mover shall be coupled to the semitrailer and the combination shall be driven to the prime mover's minimum turning circle to the right and to the left, without interference between the prime mover and the towed semitrailer.

4.5.3.8 Trailing ability. To determine conformance to 3.5.6, when the vehicle is coupled to the prime mover and operated it shall be observed for trailing ability.

4.5.3.9 Fording ability. To determine conformance to 3.3.3.4, 3.3.3.7, and 3.5.7, the vehicle shall operate in water to a maximum of 48 in. in depth for at least 15 minutes. Immediately following the fording test, the vehicle shall be examined for evidence of water leaks and contamination of seals, and proper functioning of the brakes.

4.5.3.10 Reliability. To determine conformance to 3.5.8, reliability shall be verified at an 80% confidence level while vehicles are subjected to the 20 000-mile test (see table V).

4.5.3.11 Maintainability. To determine conformance to 3.5.9, maintainability shall be verified during the 20 000-mile test (see table V). Maintenance shall be performed by the Government at a Government approved test site.

TABLE V. 20 000 - mile road test. 1/

Course	Mileage and speeds	Payload
Hard surface roads	9000 miles paved at varying speeds up to 34 mph	105 000 lbs
Secondary roads	10 000 miles at speeds applicable to conditions of terrain	105 000 lbs
Off-road	1000 miles at speeds applicable to conditions of terrain	105 000 lbs

1/ Ninety % of the mileage specified for each course shall be performed with payload. The remaining 10% of the mileage shall be performed without payload. Payloads

up to 60 tons may be utilized for the tests with determination to be made by the Government test site as to proper weight distribution and type of payloads. Tests shall be conducted in cycles as determined by test site personnel. Mileage with 60-ton payload may be accomplished in one continuous operation at the conclusion of all cycles of other type operational mileage.

4.5.4 Safety. To determine conformance to 3.9, all exposed parts which are energized electrically shall be located, insulated, fully enclosed or guarded as to prevent hazards to operating personnel and equipment functioning. All moving parts which are of such nature or so located as to be a hazard to operation or maintenance personnel shall be enclosed or guarded. Protective devices shall not impair operating functions.

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

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

6.1 Intended use. The semitrailer vehicle is intended for use with suitable tractors. The primary mission of this transporter is to evacuate a disabled M60 series tank or similar vehicles over primary or alternate main supply routes from vehicle collecting points or maintenance establishments. This vehicle does not replace the tank recovery vehicle, but evacuates disabled vehicles after they have been put into position for pickup. In addition, this transporter system provides a means of transporting such vehicles from railheads, ports, depots, or supporting units to user maintenance areas. Other uses are: To transport non-disabled tracked vehicles over extended distances when movement under their own power is not desired or feasible; and to transport heavy engineer construction equipment and high density cargo, such as ammunition, gasoline, engines, and semi-mobile power plants. This vehicle is considered military unique as commercial counterparts are not capable of performing the above duties.

6.1.1 Other uses. The transporter may be used by maintenance, transportation, and supply units, with the greatest possible consideration being given to employment world-wide. In addition to normal on-road operation, it must be able to leave and return to regularly maintained roads to the limited extent required to:

a. Load and evacuate disabled vehicles from a vehicle collection point, and thereafter unload them.
b. Make short detours to avoid road obstruction.
c. Negotiate bypasses.
d. Negotiate temporary engineer bridging, be compatible with engineer ferries access routes thereto.
e. Reach vehicle parks and areas for concealment.

The vehicle, with the prime mover, will be a self-contained complete unit capable of normal field use by the crew in combat under all conditions of weather and visibility. Design features will not compromise operational characteristics needed for combat support operations.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. If required, the specific issue of individual documents referenced (see 2.2.1, 2.2.2, and 2.3).
c. If first article inspection (preproduction or initial) is not required (see 3.1).
d. List of BII (see 3.3.6).
e. If BII is furnished (see 3.3.6).
f. If painting procedures and color of paint is other than as specified (see 3.6).
g. If first article inspection is specified (see 4.2).
h. If preproduction inspection is specified (see 4.2.1).
i. If initial production inspection is specified (see 4.2.2).
j. Packaging requirements (see 5.1).

6.3 Subject term (key word) listing.

4 axle
16 wheel
M60
Engineer
Recovery
Tank
Tractors
Vehicles

6.4 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 2330-2010-001)

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.daps.dla.mil/online/.