

METRIC

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SUPERSEDING

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23 May 1991

PERFORMANCE SPECIFICATION

DOLLY SETS, LIFT, TRANSPORTABLE SHELTER: 2.72-METRIC TON TO 4.76-METRIC TON

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

1. SCOPE

1.1 Scope. This specification covers dolly sets used for transporting shelters over all types of roads, cross-country terrain, and fording water crossings (see 6.1).

1.2 Classification. Dolly sets are of the following models, as specified (see 6.2):

Model M720	- 2.72-Metric Ton
Model M840	- 4.08-Metric Ton
Model M832	- 4.76-Metric Ton

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by letter.

AMSC N/A

FSC 2330

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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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.

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 listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

A-A-50271 - Plate, Identification, Instruction and Marking, Blank.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Bldg 4D, Philadelphia, PA 19111-5094.)

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 (see 6.2).

DRAWINGS

ARMY

8736723 - Dolly set, Lift, Transportable Shelter: 2.72-Metric Ton M720 (Interface).
 8736772 - Dolly Set, Lift, Transportable Shelter: M840 (Interface).
 8736921 - Dolly Set, Lift, Transportable Shelter: 4.76-Metric Ton M832 (Interface).

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(Copies of these drawings are available from the U.S. Army Tank-automotive and Armaments Command, AMSTA-TR-E/BLUE, Warren, MI 48397-5000.)

NUCLEAR REGULATORY COMMISSION (NRC)

Code of Federal Regulations (CFR) - Title 10, CFR 40, Domestic Licensing of Source Material.

(Copies of the Code of Federal Regulations (CFR) are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

DEPARTMENT OF TRANSPORTATION (DoT)

Code of Federal Regulations (CFR) - Title 49, CFR 393, Federal Motor Carrier Safety Regulations (FMCSR).
- Title 49, CFR 571, Federal Motor Vehicle Safety Standards (FMVSS).

(Copies of the Code of Federal Regulations (CFR) are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

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 the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products (DoD Adopted).

(Application for copies should be addressed to the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

GLOBAL ENGINEERING

GM 9540P - Accelerated Corrosion Test.

(Application for copies should be addressed to Global Engineering, 15 Inverness Way, Englewood, CO 80112.)

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SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

SAE J527

- Brazed Double Wall Low Carbon Steel Tubing.

(Application for copies should be addressed to Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

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 sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Materials. Materials shall be in accordance with the manufacturer's materials for dolly sets and shall be capable of meeting all of the operational and environmental requirements specified herein. Materials shall be free of defects which adversely affect performance or serviceability of the finished product. Asbestos, cadmium, and radioactive materials shall not be used in this item. Radioactive materials are defined by (a) Title 10, CFR, Parts 30 and 40, and (b) other radioactive materials in which the radioactivity is greater than 0.002 microcuries per gram or 0.01 microcuries total activity for the item (see 4.6.1).

3.2.1 Corrosion protection. The dolly set shall be fabricated from compatible materials providing corrosion protection and coating adherence equal to or exceeding that provided by hot dip galvanized 1020 steel, with coating thickness in accordance with ASTM A123 (or minimum coating thickness of 19 micrometers (.75 mil) on pre-galvanized sheet 1.6 millimeters (mm) (0.063 inch (in.)) or less), with zinc phosphate pre-treatment. A proposed alternate design shall be compared to a galvanized sample (as described above) using the Accelerated Corrosion Test GM 9540P Method B 120 cycles, or until prior failure of one of the items with defects such as extensive corrosion at scribe or significant penetration of base material (see 4.4.1).

3.2.2 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion by using the manufacturer's standard process (see 4.6.1 and 4.6.2).

3.2.3 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 4.6.1).

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3.2.4 Hydraulic brake line. All hydraulic brake line tubing shall be made in accordance with SAE J527. Means for compatibility with the prime movers shall be provided (see 4.6.1).

3.3 Design and construction. Components, sub-assemblies, and assemblies shall be fabricated and assembled into a complete dolly set in accordance with the applicable drawing specified below, and associated documents and publications referenced herein (see 4.6.1).

<u>Model</u>	<u>Drawing</u>
M720	8736723
M832	8736921
M840	8736772

3.3.1 Safety chains. The dolly set shall be equipped with two safety chains conforming to 49 CFR 393.70 (see 4.6.2).

3.3.2 Lighting. The lighting system shall be of the 24-volt type and shall be compatible with the 24-volt military prime mover electrical circuit. The lights shall be of the blackout and normal lighting combination (see 4.6.2, 4.6.2.1, and 6.5).

3.3.3 Spare wheel (M720 only). A spare wheel assembly with tire mounted shall be provided and mounted on a carrier and installed on the front end of the M720 dolly set. The carrier shall permit removal or installation of spare wheel assembly, using only tools furnished with the dolly set (see 4.6.2 and 4.6.2.2).

3.3.4 Adjustment mechanisms. All adjustment mechanisms shall function properly and maintain adjustment within required settings during all dolly set operating conditions (see 4.6.2 and 4.6.2.3).

3.3.5 Controls. All electrical, mechanical, and hydraulic controls shall operate without malfunction under all dolly set operating conditions (see 4.6.2 and 4.6.2.4).

3.3.6 Storage compartment. A storage compartment shall be mounted on the chassis and be readily accessible for storage of tools, chains, and manuals (see 4.6.2 and 4.6.2.5).

3.3.7 Seals. When fording or operating in mud, sand, or snow, seals shall prevent the entrance of foreign matter into the bearings. Bearing seals shall restrict the leakage of lubricants from bearings (see 4.6.2 and 4.6.2.6).

3.3.8 Safety. The dolly set shall comply with all FMCSR and FMVSS requirements applicable at the time of manufacture. All exposed parts which are energized electrically shall be located, insulated, fully enclosed, or guarded so as to prevent hazards to operating or maintenance

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personnel or to equipment functioning. All moving parts which are of such nature or so located as to be a hazard to operating or maintenance personnel shall be enclosed or guarded. Protective devices shall not impair operating functions (see 4.6.2 and 4.6.2.7).

3.4 Performance. The dolly set, with the rated payload specified in table I, serviced with products (see 6.4), and towed by an M54 cargo truck, shall meet all the performance requirements specified herein (see 4.6.5).

TABLE I. Towing speeds and payloads.

Road types	Towing speed (km/h <u>1/</u>)		Payloads (kg <u>2/</u>)		
	Average	Maximum	M720	M832	M840
Hard-surfaced	64	80	2948	4763	4082
Gravel and dirt	32	40	2948	4763	4082
Cross-country <u>3/</u>	24	32	2948	4763	4082
Belgian block <u>3/</u>	24	32	2948	4763	4082

1/ Kilometers per hour.

2/ Kilograms.

3/ 676 kilometers (km) of the cross-country and 48 km of the Belgian block operation shall be accomplished without payload.

3.4.1 Payload, towing speeds, and trailing.

3.4.1.1 Highway operation. The dolly set shall track the towing vehicle in a straight line without weaving from side to side or swaying laterally to an extent which would affect the controllability of the vehicle combination (see 4.6.5.1).

3.4.1.2 Cross-country operation. The dolly set, when operated in a straight line, shall track the towing vehicle without damage to itself or the towing vehicle. Stability shall be maintained (see 4.6.5.2).

3.4.2 Gradeability. When towed over a dry, hard surface free of loose material, the dolly set shall exhibit stability and gradeability specified in 3.4.2.1 and 3.4.2.2.

3.4.2.1 Longitudinal inclines. The dolly set shall follow the towing vehicle, when operating on longitudinal inclines, without weaving to an extent which adversely affects the controllability of the vehicle combination (see 4.6.5.3).

3.4.2.2 Side slopes. The dolly set shall follow the towing vehicle without slipping or upsetting when operating on side slopes (see 4.6.5.4).

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3.4.3 Turning ability. The dolly set shall follow to the right and to the left, without damage to the dolly set or the towing vehicle and without interference between dolly set and the towing vehicle (see 4.6.5.5).

3.4.4 Brake system. When tested in accordance with 4.6.5.6, hydraulic fluid leakage shall not be evident, and the rate of drop in air pressure shall be not more than 34 kilopascals (kPa) per minute with the brakes fully applied or fully released.

3.4.4.1 Service brakes. The service brakes of the dolly set and towing vehicle combination shall decelerate and stop the vehicle combination within a braking distance of 9 meters (see 4.6.5.6.1).

3.4.4.2 Parking brake. The parking (hand) brake shall hold the dolly set with rated payload on a dry, hard-surfaced 15% grade (see 4.6.5.6.2).

3.4.4.3 Automatic actuation. The automatic actuation device of the dolly set shall apply and maintain the application of service brakes upon breakaway from towing vehicle. Upon breakaway, service brakes shall hold the dolly set stationary on grades up to and including 20% for a period of not less than 15 minutes (see 4.6.5.6.3).

3.4.5 Towing. The dolly set shall not shift or swerve from side to side more than 8 cm to each side of the path of the towing vehicle (see 4.6.5.7).

3.4.6 Fording. With rated payload, the dolly set shall ford hard-bottomed salt or fresh water crossings deep enough to completely submerge its wheels. The dolly set shall withstand submergence for not less than 15 minutes without being damaged and without special preparation or servicing before or after fording operations (see 4.6.5.8).

3.4.7 Lifting devices. Mechanical or hydraulic system lifting devices shall have independent action for purposes of attaching the dolly set to the shelter on even, or uneven, ground. The system shall level the shelter on uneven ground. The mechanical or hydraulic system lifting devices shall vary the shelter ground clearance down to 0 cm for loading into cargo aircraft. The lifting devices shall relieve weight from the wheels while the dolly set is attached to the shelter. The mechanical or hydraulic system shall position the shelter to a level position when one wheel is 4 cm lower than the opposite wheel on the same axle (see 4.6.2 and 4.6.5.9).

3.4.8 Attachment. The dolly set shall be attachable to the shelters within 30 minutes without use of special tools or equipment. The dolly set shall be such that it can be attached to the shelter when on level or rough terrain. The dolly set shall support the loaded shelter indefinitely in an elevated position (see 4.6.2 and 4.6.5.9).

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3.4.9 Environmental. The dolly set shall be capable of operating under extreme conditions of weather in ambient air temperatures ranging from -46 to 52°C (see 4.6.5.10).

3.4.10 Life cycle.

3.4.10.1 Reliability. The reliability of the dolly sets shall have a specified value (SV) of 9656 mean kilometers between failure (MkmBF) and shall be demonstrated in accordance with the operational profile (see 3.4.10.1.1). For calculation of (MkmBF), a failure shall be defined as a condition which (see 4.6.5.11):

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

Any of the aforesaid conditions which cannot be corrected by the crew in one hour using the tools and parts normally carried on the prime mover constitutes a failure. Maintenance and human-induced failures are excluded.

3.4.10.1.1 Operational profile. The 9656 km of operation shall be apportioned as specified below with speeds varying up to maximum:

- a. Hard-surfaced roads 45% - rated payload.
- b. Gravel and dirt roads 25% - rated payload.
- c. Level cross-country 15% - rated payload.
- d. Level cross-country 5% - empty.
- e. Hilly cross-country 6% - rated payload.
- f. Hilly cross-country 2% - empty.
- g. Belgian block 1.5% - rated payload.
- h. Belgian block 0.5% - empty.

3.4.10.2 Maintainability. Total active maintenance, excluding driver and crew checks and services, shall not exceed 18 man-hours during 9656 km of operation as specified in table I. This equates to a maintenance ratio (MR) of 0.06 at 32 km/h per-of-operation. The scheduled maintenance interval shall be conducted according to technical manual instructions (see 4.6.5.12).

3.5 Painting. Metal treatment, priming, and finish painting shall be in accordance with the manufacturer's standards. When specified (see 6.2), the top coat shall conform to an appropriate chemical agent resistant coating (CARC) and the color shall be forest green (see 4.6.2).

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3.6 Identification and marking. Dolly set registration and marking (see 6.6) shall include as a minimum, the part or identifying number (PIN), the contract or order number, and the manufacturer's name or trademark (see 4.6.2 and 6.3).

3.6.1 Identification plates. Unless otherwise specified (see 6.2), identification plates shall be in accordance with A-A-50271 (see 4.6.2).

3.6.2 Parts. Unless otherwise specified, all parts requiring identification shall be marked in accordance with the manufacturer's standard practice and shall include as a minimum the following (see 4.6.2 and 6.2):

- Military part number,
- Federal stock number,
- Manufacturer's identification and serial number
- Contract number, and
- Date of manufacture

3.7 Servicing and lubrication. Servicing and lubrication shall be performed using the standard service products (see 4.6.2 and 6.4).

3.8 Workmanship. Workmanship shall be of such quality as to assure that the dolly set and its components are free of defects that compromise, limit, or reduce the capability of the dolly set in the performance of its intended use (see 4.6.2).

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 inspection (CI) (see 4.3).
- c. Comparison tests (see 4.4).

4.2 First article inspection. First two dolly sets produced under the contract shall be subjected to first article inspection. Initial production inspection shall consist of examination and tests as specified in tables II and III.

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TABLE II. Classification of inspections.

Title	Requirement	Inspection	First article tests <u>1/</u>	CI tests	Comparison tests <u>1/</u>
Material, design, and construction	3.2 thru 3.3	4.6.1	X		
Lighting	3.3.2	4.6.2.1	X	X	X
Spare wheel	3.3.3	4.6.2.2	X	X	X
Adjustment mechanisms	3.3.4	4.6.2.3	X	X	X
Controls	3.3.5	4.6.2.4	X	X	X
<u>Road test:</u>					
Eight kilometer road test		4.6.3	X		
Eighty kilometer break		4.6.4	X		
Highway operation	3.4.1.1	4.6.5.1	X	X	X
Cross-country operation	3.4.1.2	4.6.5.2	X		X
Longitudinal inclines	3.4.2.1	4.6.5.3	X		X
Side slopes	3.4.2.2	4.6.5.4	X		X
Turning ability	3.4.3	4.6.5.5	X	X	X
Brake system	3.4.4	4.6.5.6	X	X	X
Service brakes	3.4.4.1	4.6.5.6.1	X	X	X
Parking brake	3.4.4.2	4.6.5.6.2	X	X	X
Automatic actuation	3.4.4.3	4.6.5.6.3	X	X	X
Towing	3.4.5	4.6.5.7	X	X	
Fording	3.4.6	4.6.5.8	X		X
Lifting devices	3.4.7	4.6.5.9	X		X
Attachment	3.4.8	4.6.5.9	X	X	X
Environmental	3.4.9	4.6.5.10	X		
Reliability <u>2/</u>	3.4.10.1	4.6.5.11	X		
Maintainability <u>2/</u>	3.4.10.2	4.6.5.12	X		

1/ Tests shall be conducted at a Government proving ground.

2/ Government proving ground shall obtain and provide data only in sufficient detail to enable test sponsor to evaluate requirement.

4.3 CI. Unless otherwise specified (see 6.2), CI shall be performed on each vehicle (100% inspection) and in the following sequence:

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- a. Examination as specified in table III.
- b. An eight-kilometer road test (see 4.3.1).
- c. Tests as specified in table II.

4.3.1 Road test. Prior to conducting any vehicle CI test specified in table II each dolly shall be subjected to the eight-kilometer road test (see 4.6.3).

4.4 Comparison tests. 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 II. The comparison tests will be conducted by the Government at site(s) it will select. Vehicles selected for comparison tests shall be new and shall have passed the CI of 4.3.

4.5 Comparison test failure. Failure of any vehicle to pass any of the specified inspections of 4.4 shall be cause for the Government to refuse acceptance of the production quantity represented, until action taken by the contractor to correct defects and prevent recurrence has been approved by the Government.

4.6 Methods of inspection.

4.6.1 Materials, design, and construction. Conformance to 3.2 through 3.3 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 Defects. Conformance to 3.2.2, 3.3.1 through 3.3.8, 3.4.4.1, 3.4.4.2, 3.4.7, 3.4.8 and 3.5 through 3.8 shall be determined by examination of defects in accordance with table III. Examination shall be visual, functional or by using SIE.

4.6.2.1 Lights and wiring. To determine conformance to 3.3.2, the lights and wiring shall be examined for proper installation, location, and protection.

4.6.2.2 Spare wheel. To determine conformance to 3.3.3, the spare wheel shall be examined for proper installation, service, and accessibility.

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TABLE III. Classification of defects.

Category	Defect	Methods of examination
Critical	None	
<u>Major:</u>		
101	Dissimilar metal not as specified (see 3.2.2).	Visual
102	Dimension not as specified (see 3.3).	SIE <u>1/</u>
103	Malfunction; inoperative; damaged electrical system components (see 3.3.2).	Visual & Functional
104	Improper installation and easy removal of spare wheel (see 3.3.3).	Visual & Functional
105	Improper adjustment mechanisms; Failure to maintain adjustment within required setting (see 3.3.4).	Visual & Functional
106	Malfunction; improper control of electrical, mechanical and hydraulic system (see 3.3.5).	Functional
107	Inoperative; improper installation of storage compartment (see 3.3.6).	Visual
108	Improper bearings contamination; leaks (see 3.3.7).	Visual
109	Safety; Improper design and hazard to operating and maintenance personnel (see 3.3.8).	Visual
110	Malfunction; inoperative lifting device (see 3.4.7).	Visual & Functional
<u>Minor:</u>		
201	Application, coverage or materials improper protective coating (see 3.5).	Visual
202	Incomplete data; missing; improper location of decal marking, data and instruction plates (see 3.6).	Visual
203	Improper lubrication; incomplete servicing (see 3.7).	Visual
204	Workmanship not as specified (see 3.8).	Visual

1/ SIE = Standard inspection equipment.

4.6.2.3 Adjustment mechanisms. To determine conformance to 3.3.4, all electrical, mechanical, and hydraulic adjustment mechanisms shall be operated and examined for proper adjustment, and adjusted if required.

4.6.2.4 Controls. To determine conformance to 3.3.5, all controls shall be operated and examined for function during dolly set operation.

4.6.2.5 Storage compartment. To determine conformance to 3.3.6, the storage compartment shall be examined for location, to permit adapter kit mounting to shelter without interference, and for accessibility of stored items. Compartment door shall be examined for proper installation and operation.

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4.6.2.6 Seals. To determine conformance to 3.3.7, after the 9656 km test and fording operation, all bearings shall be examined for dirt contamination and lubricant leakage.

4.6.2.7 Safety. To determine conformance to 3.3.8, the dolly set shall be examined to assure that hazards to operating and maintenance personnel have been eliminated or controlled. Equipment which creates hazards shall be considered to be failures.

4.6.3 Eight-kilometer road test. When specified herein, the dolly sets shall be connected to a shelter without payload and towed for a distance of not less than 8 km over relatively smooth, hard-surfaced roads.

4.6.4 Eighty-kilometer road test. When specified herein, the dolly set shall be loaded with full or simulated payload and towed for a distance of not less than 80 km. The test course shall be relatively smooth, approximately level, hard-surfaced roads.

4.6.5 Performance. To determine conformance to 3.4, the dolly set shall pass the tests of 4.6.5.1 through 4.6.5.12. Prior to performance testing, the dolly set shall be equipped, serviced, loaded, and coupled to the towing vehicle as specified herein.

4.6.5.1 Highway operation. To determine conformance to 3.4.1.1, the dolly set shall be loaded with rated payload and towed at speeds specified in table I, over relatively level, smooth, hard-surfaced paved roads. The dolly set shall meet the performance requirements specified.

4.6.5.2 Cross-country operation. To determine conformance to 3.4.1.2, the dolly set shall be towed with rated payload and at the speed specified in table I over unimproved roads, or gently rolling terrain. The dolly set shall meet the performance requirements specified.

4.6.5.3 Longitudinal inclines. To determine conformance to 3.4.2.1, the dolly set shall be towed up and down longitudinal inclines having a 15% grade at cross-country speed and shall meet the performance requirements specified.

4.6.5.4 Side slopes. To determine conformance to 3.4.2.2, the dolly set shall be towed either left or right on side slopes having a 20% grade at cross-country speed, the dolly set shall meet the performance requirements specified.

4.6.5.5 Turning ability. To determine conformance to 3.4.3, the dolly set, when fully loaded (see 6.1.1) and coupled to the towing vehicle, shall be operated at the towing vehicle's minimum turning circle, to the right and to the left. Not less than two complete circles shall be conducted. The dolly set shall meet the performance requirements specified.

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4.6.5.6 Brake system. To determine conformance to 3.4.4, the dolly set air reservoir shall be charged with air to 689 ± 34 kPa and the air supply line disconnected, apply brakes on all wheels of the dolly set. the brake system shall be observed for performance requirements.

4.6.5.6.1 Service brakes. To determine conformance to 3.4.4.1, with the dolly set loaded with rated payload, the service brakes of the towing vehicle and dolly set shall be applied for stopping while traveling forward at a speed of 32 km/h on a dry, relatively smooth, level, hard-surfaced road free of loose material. The speed and stopping distance shall be measured.

4.6.5.6.2 Parking brake. To determine conformance to 3.4.4.2, the dolly set, standing on the specified grade, shall be uncoupled from the towing vehicle and headed up or down grade with the dolly set parking brake applied, and the brakes shall hold as specified. Caution shall be observed to assure the safety of personnel and equipment when performing this test. Safety measures, such as chock blocks placed at the dolly set wheels when an uncoupling operation is performed should be used. The test may also be safely conducted in the coupled position by easing the towing vehicle forward, or rearward enough to allow the dolly set lunette to relax (loosen) in the pintle hook. The lunette continuing to remain loose is an indication that the brakes have held.

4.6.5.6.3 Automatic actuation. To determine conformance to 3.4.4.3, the dolly set and the towing vehicle shall be placed on the specified grade and the breakaway device actuated. Brake holding is as specified if, during the time specified, the brakes remain in the locked position when the towing vehicle attempts to pull the dolly set, and the wheels on the dolly set will not roll. Caution shall be observed to assure safety of personnel and equipment when performing this test.

4.6.5.7 Towing. To determine conformance to 3.4.5, the dolly set loaded with rated payload shall be towed by a 4.53 metric ton M54 prime mover, when the combination is operated in a straight line or a level, smooth paved surface, the dolly set shall be observed for performance requirements.

4.6.5.8 Fording. To determine conformance to 3.4.6, the dolly set shall be loaded with rated payload, operated in water of the depth and for the time specified, and subsequently examined for damage. Any evidence of damage, special preparation, or servicing required before or after fording shall be cause for failure.

4.6.5.9 Lifting devices and attachments. To determine conformance to 3.4.7 and 3.4.8, the dolly set shall be attached to the applicable shelter on both level and rough terrain without using special tools or equipment. Attachment time shall be observed. The dolly set, with attached shelter, shall be placed on rough terrain and both mechanical and hydraulic systems, as applicable, shall be operated to level and lift the shelter as specified. Not less than four complete cycles shall be conducted.

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4.6.5.10 Environmental. To determine conformance to 3.4.9, the dolly set, properly serviced and equipped, shall be operated at the temperatures specified. The dolly set shall evidence no damage as a result of such operation.

4.6.5.11 Reliability. To determine conformance to 3.4.10.1, a point estimate value equal to or greater than 9656 MkmBF shall be demonstrated while the dolly sets are subjected to the 9656 km test specified in table IV. The point estimate shall be determined using cumulative test mileage of all dolly sets divided by the cumulative number of chargeable failures of all dolly sets.

TABLE IV. 9656 kilometer test 1/.

Course	Kilometer and speeds
Hard-surfaced roads	4345 km at varying speeds up to maximum
Gravel and dirt roads	2414 km at varying speeds up to maximum
Level cross-country roads	1931 km at varying speeds up to maximum (483 km of this kilometer shall be unloaded)
Hilly cross-country roads	773 km at varying speeds up to maximum (193 km of this kilometer shall be unloaded)
Belgian block roads	193 km at varying speeds up to maximum (48 km of this kilometer shall be unloaded)

1/ Except as otherwise specified herein, the dolly set shall be loaded with rated payload.

4.6.5.12 Maintainability. To determine conformance to 3.4.10.2, a MR of less than or equal to 0.06 as specified in 3.4.10.2 shall be demonstrated during the 9656 km test specified in 4.6.5.11. The maintenance shall be performed by the Government at the approved test site according to technical manual instructions. The MR shall be determined using the ratio of total active scheduled and unscheduled maintenance manhours to the total operating hours. Chargeable active schedule maintenance includes both servicing time and inspection time above operator level. Chargeable active unscheduled maintenance includes diagnostic for on - vehicle repairs only. This maintenance must be the result of hardware or technical manual problems and will not include: errors, checks, services, operator repairs, maintenance errors, or test item abuse. Total operating hours (OH) shall be determined based on the following formula:

$$OH = \frac{\text{Total test km}}{32 \text{ km/h}}$$

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

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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.)

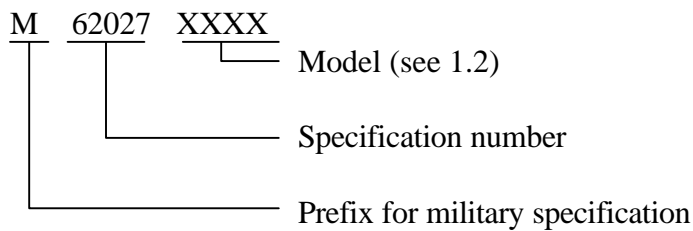
6.1 Intended use. The dolly sets covered by this specification are intended for use by the United States Armed Services in transporting shelters and electronic equipment. The dolly sets are intended for use under extreme or unusual conditions of climate and terrain.

6.1.1 Limitations. The turning ability of dolly sets covered by this specification is limited to handling shelters and other container loads up to 366 cm in length without damage or interference between dolly set and M54 towing vehicle.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Model and PIN of dolly set required (see 1.2 and 6.3).
- c. Issue of DoDISS to be cited in the solicitation and, if required, the specific issue of individual documents referenced (see 2.2.1, 2.2.2 and 2.3).
- d. When first article is required (see 3.1).
- e. Type of CARC required (see 3.5).
- f. Identification plates, if other than as specified (see 3.6.1).
- g. Identification parts if other than as specified (see 3.6.2).
- h. If CI examination is to be performed on a sampling basis instead of 100% inspection and type of sampling required (see 4.3).
- i. Packaging requirements (see 5.1).

6.3 Part or identifying number (PIN). The PIN to be used for dolly sets acquired to this document are created as follows:



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6.4 Recommended service products. Typically, the vehicles should be serviced with the following products listed in table V or equivalents.

TABLE V. Service product specifications.

Product	Ambient air temperature operating range	
	-18 to 52°C	-54 to -18°C
Fluid:		
Hydraulic brakes	MIL-B-46176	MIL-B-46176
Shock absorbers	MIL-H-5605	MIL-H-5605
Grease:		
Sealed bearings	MIL-G-23827	MIL-G-23827
General chassis lubrication including wheel bearings	MIL-PRF-10924	MIL-PRF-10924
Oil:		
General purpose lubrication	MIL-PRF-3150	VV-L-800

6.5 Lighting. MIL-STD-1179 is used for lamps and reflectors to enable safe operation of military vehicles in darkness and other conditions of reduced visibility, and during blackout conditions. It is also used for associated signaling equipment to enable safe operation of military vehicles under normal conditions of visibility as well as in darkness and other conditions of reduced visibility.

6.6 Registration and marking. MIL-STD-642 is used for identification marking of combat and tactical transport vehicles.

6.7 Subject term (key word) listing.

Attachments
 Fording
 Payload
 Safety chains
 Service brakes
 Towing
 Trailing

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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.

Custodians:

Army - AT
Navy - YD1

Preparing Activity:
Army - AT

(Project 2330-0227)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

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

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-PRF-62027J

2. DOCUMENT DATE (YYMMDD)
970730

3. DOCUMENT TITLE

Dolly Sets, Lift, Transportable Shelter: 2.72-Metric Ton to 4.76-Metric Ton

4. NATURE OF CHANGE *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME *(Last, First, Middle Initial)*

b. ORGANIZATION

c. ADDRESS *(Include Zip Code)*

d. TELEPHONE *(Include Area Code)*
(1) Commercial
(2) AUTOVON
(If applicable)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME

b. TELEPHONE *(Include Area Code)*
(1) Commercial
(810) 574-8745

(2) AUTOVON
786-8745

c. ADDRESS *(Include Zip Code)*

Commander
U.S. Army Tank-automotive and Armaments Command
ATTN: AMSTA-TR-E/BLUE
Warren, MI 48397-5000

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
Defense Quality and Standardization Office
5203 Leesburg Pike, Suite 1403
Falls Church, VA 22041-3466
Telephone (703) 756-2340 AUTOVON 289-2340