

INCH-POUND  
MIL-T-85239A(AS)  
20 Nov 1990  
SUPERSEDES  
MIL-T-85239(AS)  
15 Sept 1978

MILITARY SPECIFICATION  
TRAILER, MUNITIONS, MHU-151/M

This specification is approved for use by the  
Naval Air Systems Command, Department of the Navy  
and is available for use by all Departments  
and Agencies of The Department of Defense

1. SCOPE

1.1 Scope. This specification establishes the requirements for a  
munitions trailer designated as MHU-151/M

2. APPLICABLE DOCUMENTS

2.1 Government documents.

\* 2.1.1 Specifications and standards. The following specifications and  
standards 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

Military

MIL-L-2104	- Lubricating Oil, Internal Combustion Engine
MIL-G-10924	- Grease, Automotive and Artillery
MIL-I-45208	- General Specifications for Inspection Requirements

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Systems Engineering and Standardization Department (Code 53) Naval Air Engineering Center, Lakehurst, NJ 08733-5100 by using Standard- ization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.
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AMSC N/A

FSC 2330

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STANDARDSMilitary

- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-281 - Automobiles, Trucks, Trucks-Tractors, and Trailer  
Dollies; Preservation and Packaging of
- MIL-STD-831 - Test Reports, Preparation of

(Unless otherwise indicated, copies of federal and military specifications and standards are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094

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

DRAWINGS (NAVAL AIR SYSTEMS COMMAND)

- DL1193AS100 - Trailer, Munitions (and all documents listed therein)

(Copies of specifications, standards, and drawings required by suppliers in connection with specific procurement functions, should be obtained from the procuring activity or as directed by the Contracting Officer.)

2.3 Order of precedence. In the event of 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(see 6.4) in accordance with 4.4. The first article sample shall be manufactured by the same procedures and processes, and at the same location as proposed for the balance of the contract production.

3.2 Design and Construction

3.2.1 Construction. The trailer shall be manufactured in accordance with Data List 1193AS100 and all documents listed thereon.

\* 3.2.2 Welding. All welding shall be in accordance with the standards required by the applicable drawings.

\* 3.2.2.1 Welders. Welding shall be performed by personnel presently qualified to the requirements of the applicable drawings

3.2.3 Lubrication. The trailer shall be lubricated with grease MIL-G-10924, or lubricating oil MIL-L-2104 as applicable.

3.3 Performance Requirements. The trailer specified herein shall be capable of transporting various munitions on unimproved roads or in an environment as encountered in an expeditionary airfield. The mobility of the trailer shall not be limited by any side slope of up to eight degrees angle. This trailer may be towed either by its drawbar or be manually moved as desired. Its lighting and braking systems shall provide the necessary features required during mobility.

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3.3.1 Proof Load. The trailer, when supported by its running gear, shall withstand a proof load of 6,000 +100/-0 pounds.

3.3.2 Brake System.

3.3.2.1 Parking Brakes. The parking brakes shall be capable of holding the trailer, loaded with a 3,000 +100/-0 pound test load, on a 15° +5/-0 grade in either direction.

3.3.2.2 Service Brakes. The service brakes shall be capable of stopping the trailer, loaded with a 3,000 +100/-0 pound test load, within 30 feet when traveling at 20 miles per hour, on level, dry concrete.

3.3.2.3 Manual Brake System. The trailer's service brake shall be equipped with a hand grip lever to facilitate manual operation of the service brake while under tow. The service brake system shall also be equipped with a cable capable of automatically operating the manual brake lever thereby bringing the trailer to a halt in the event that the drawbar should break away from the prime mover.

3.4 Towing Force. The towing force required to move the trailer from rest on smooth, dry, level, paved surface, such as brushed concrete, shall not exceed 100 pounds measured at the drawbar.

3.5 Workmanship. The trailer shall be fabricated in accordance with the drawings and shall be assembled to meet the performance requirements of the specifications.

3.5.1 Hardware and Equipment. Equipment having missing, inoperative, defective, bent, broken, or otherwise damaged parts, will not be acceptable. The installation of hardware parts, such as catches, pins, handles, nuts, bolts, etc. shall be accomplished in such a manner as to avoid damaging the hardware or the mounting surface. Screws, nuts, and bolts showing cross threading, mutilation, detrimental or hazardous burrs shall not be acceptable.

3.5.2 Electrical Installation. Insulated wires shall be formed into cables or ducted whenever possible. Wires, cables, and brake lines shall be routed and positioned in a protective manner to avoid contact with rough or irregular surfaces and sharp edges.

3.5.3 Weldments. There shall be no evidence of burn through. Angular or thickness misalignment, warpage, or dimensional change due to heat from the welding operation shall be within permitted tolerances. There shall be no damage to adjacent parts resulting from welding. The quality of all welds shall conform to the applicable drawings.

#### 4. QUALITY ASSURANCE PROVISIONS

\* 4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

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\* 4.1.1 Responsibility for compliance. All items shall meet all requirements of section 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual nor does it commit the Government to accept defective material.

4.1.2 Inspection System. The contractor shall provide and maintain an inspection system in accordance with MIL-I-45208.

\* 4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.4).
- b. Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in (applicable test method document or applicable paragraph(s) in the specification).

4.4 First Article Inspection. The first article sample (see 3.1) shall be subjected to the tests listed in Table I under first article and in the sequence as shown. Trailers submitted for a first article inspection shall not be painted.

4.4.1 3,000 pound test load. The 3,000 +100/-0 pound test load shall consist of bulk material, such as steel or concrete evenly distributed over the entire trailer deck, which shall not restrict the trailer cramping angle or drawbar movement. The center of gravity ( C.G.) of the 3,000 pound test load shall be approximately 16 inches above the trailer deck. This test load shall be used for all tests requiring a service test load.

\* 4.5 Quality Conformance Inspection. Trailer components shall be inspected using sampling plans as noted in the detail drawings or if none are specified, as directed by the procuring activity. The complete trailer shall be inspected for quality conformance in accordance with Table I.

#### Test Methods.

4.6.1 Visual Examination. Each trailer shall be examined visually to determine compliance with the requirements of this specification for which tests are not specified, including materials and workmanship. Particular attention shall be given to routing protection and functioning of the lighting circuits and brake lines.

4.6.2 Conformance to Drawings. Each trailer shall be inspected to determine conformance to the engineering drawings. Dimensions and attributes not in compliance with drawing tolerances shall not be acceptable.

4.6.3 Functioning. Each trailer shall be examined and tested to determine that its wheels are correctly aligned, that all brake systems function, including back-up, and are correctly adjusted, that the electrical system is in proper working order, that all points requiring lubrication are properly lubricated, and that wheel bearings are properly adjusted and lubricated.

TABLE I. TESTS AND TEST SEQUENCE

TEST SEQUENCE	NAME OF TEST	REQUIREMENT PARAGRAPH	TEST PARAGRAPH	FIRST ARTICLE INSPECTION	QUALITY CONFORMANCE INSPECTION
Group A Nondestructive Inspections, Visual & Dimensional					
1	Visual Examination	3.2.1	4.6.1	X	X
2	Conformance to Drawings	3.2.1	4.6.2	X	X
Group B Complex Nondestructive Inspections & Tests					
3	Functioning	3.3	4.6.3	X	X
4	Towing Force	3.4	4.6.4	X	
5	Side Slope	3.3	4.6.5	X	
6	Mobility	3.3	4.6.6	X	
7	Service Brake	3.3.2.2 3.3.2.2	4.6.7.1 4.6.7.2	X	X
8	Parking brake	3.3.2.1	4.6.7.3	X	X
9	Manual and Break away	3.3.2.3	4.6.7.4	X	
10	Proof Load	3.3.1	4.6.8	X	X
11	Weldment & casting	3.2.2	4.6.9	X	

\* 4.6.3.1 Wheel Alignment. To check alignment, trailer should be on a level surface, and with front wheels straight ahead, measure the distance between the front wheels at hub height. Mark point where measurement was made. Roll trailer forward until these marks are on the opposite side of the axle (180°). Measure the distance between the wheels at hub height at the mark location. The difference between the two measurements is the actual toe-in; it should not be over 1/2 inch. If toe-in is not as stated, adjust to 0 to 1/2 inch. For adjustment, loosen jam nuts on both ends of the tie-rods and rotate tie-rods in or out as required using only standard automobile mechanics tools.

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4.6.3.2 Wheel Bearing Adjustment. To adjust wheel bearings; jack or prop trailer to raise wheel off the ground, spin the wheel and tighten adjusting nut until a heavy drag is felt, then loosen nut until wheel rotates freely and bearing end play does not exceed 0.002 to 0.003 inches, install cotter pin through nut and axle, secure it and replace grease cap.

4.6.4 Towing Force Test. A scale shall be placed between the prime mover and the drawbar of the trailer, loaded with a 3,000 +100/-0 pound test load (see 4.4.1). The prime mover shall apply a gradual towing force through the scale to the loaded trailer, with its brakes released and with the trailer on level concrete. The trailer shall roll before the scale registers 100 pounds.

4.6.5 Side Slope Test. The trailer, loaded with a 3,000 +100/-0 pound test load (see 4.4.1), shall be made to traverse a minimum 8 degree (1½"rise/ft.) slope, at a speed of 5-10 MPH for a distance of 20 feet without overturning.

4.6.6 Mobility Tests. During the following tests, the trailer shall be closely observed for its ease of handling. Any tendency to yaw, sway, dog walk, or jackknife, shall be cause for rejection.

\* 4.6.6.1 Road Tests. The trailer loaded with a 3,000 +100/-0 pound test load, (see 4.4.1) shall be subjected to the following road tests in Table II.

TABLE II. Road test conditions

SURFACE CONDITION	SPEED	DISTANCE
Level Paved Highway	15-20 MPH	100 Miles
Graded Gravel Road	5-10 MPH	50 Miles
#	5-10 MPH	5 Miles

# On a level course with one (1) inch snow chains installed on all tires.

4.6.6.2 Maneuverability. Upon completion of testing in paragraph 4.6.6.1, the loaded trailer shall be towed over level paved highway, at speeds of eight (8) MPH through twenty-five (25) right circle turns and twenty-five (25) left circle turns, both at maximum cramping angle. It shall then perform twenty-five (25) sudden stops at speeds of 20 MPH. At the conclusion of these tests and those described in paragraph 4.6.6.1, the vehicle shall be closely examined. Any evidence of excessive wear or damage shall be cause for rejection.

#### 4.6.7 Brake Systems Tests.

4.6.7.1 Service Brakes. the trailer loaded with a 3,000 +100/-0 pound test load (see 4.4.1), shall be connected to a prime mover and the trailer service brakes will then be tested in the following manner.

4.6.7.1.1 Brake Stopping Capability Test. Tow the loaded trailer at a speed of 20 MPH on a level, dry concrete surface. Stop by applying brakes of towing vehicle thus actuating the trailer inertia brake. The trailer shall stop within 30 feet or less of the point where brakes were first applied. The trailer shall exhibit no tendency to jackknife. At the end of five test cycles, inspect the service brakes and actuating mechanism. Failure to operate satisfactorily or evidence of excessive heating or distortion shall be cause for rejection.

4.6.7.1.2 Back-up Test. After acceptance under paragraph 4.6.7.1.1, the trailer shall be subjected to a back-up force. The service brakes shall hold momentarily but with continued force, shall release and allow unrestricted rearward travel. The test shall be performed five times.

\* 4.6.7.2 Braking Capability. All trailers produced in a production run shall have the service brake verified to be in proper working order by activating the brake system at least 4 times and then visually check for any leakage of brake fluid.

4.6.7.3 Parking Brake Tests. The trailer, loaded with a 3,000 +100/-0 pound test load (see 4.4.1), shall be placed on a 15 + 5/-0 degree inclined ramp, facing uphill, and with parking brakes applied, the trailer shall not roll. The loaded trailer shall then be tested facing downhill. This test should be performed after all mobility testing to ensure that the brakes have been burnished sufficiently to achieve a successful test.

4.6.7.4 Manual and Break Away Test. Manually tow the trailer loaded with a 3,000 +100/-0 pound test load (see 4.4.1). While under tow, exert a pull on the break away cable to actuate the brake system. The wheels should lock bringing the trailer to a halt. This test will then be repeated, but this time, actuating the brake system with the manual device affixed to the service brake, to bring the trailer to a halt.

4.6.8 Proof Load Test. The proof load testing shall be accomplished by placing a 6,000 +100/-0 pound test load evenly distributed over the entire trailer deck for a ten minute period. At completion of the test, evidence of permanent distortion such as warpage of trailer deck, or damage such as dents or breakage of component parts, or misalignment of wheels, or other defects detrimental to the intended end use, shall be cause for rejection.

\* 4.6.9 Weldment and Casting Tests. All welds, weldments, and castings shall be reinspected in accordance with the drawings after the completion of all other first article inspections.

4.7 Test Report. A test report shall be prepared in accordance with MIL-STD-831 delineating the results of testing the first article sample(s).

## 5. PACKAGING

5.1 Preservation and Packaging. Preservation and packaging shall be in accordance with MIL-STD-281, Level C, or as required in the contract or purchase order.

5.2 Marking. Marking for shipment shall be in accordance with MIL-STD-129.

## 6. NOTES

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

6.1 Intended Use. The MHU-151/M Munitions Trailer is intended for Marine Corps use at shorebase stations to transport munitions from magazine to aircraft; and can also be airlifted aboard the CH-46 and CH-53 helicopters in fully loaded condition, under tactical situations encountered in an Expeditionary Airfield (EAF) environment operation.



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- \* 6.2 Ordering Data. Procurement documents should specify the following:
- a. Title, Number and Date of the Specification.
  - b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1).
  - c. Conditions under which Government loaned property, if any, will be made available to the Contractor.
  - d. Selection of applicable levels of preservation, packaging, and packing required (see paragraph 5.1).
  - e. Whether First Article Inspection is required (see paragraph 3.1)

\* 6.3 Data Requirements. The following Data Item Descriptions (DID's) must be listed, as applicable, on the Contract Data Requirements List (DD Form 1423) when this specification is applied on a contract, in order to obtain the data, except where DOD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

<u>Referenced Paragraph</u>	<u>DID Number</u>	<u>DID Title</u>	<u>Suggested Tailoring</u>
4.7	DI-T-2072/ DI-MISC-80653	Test Reports	Wherever possible, use the contractor's standard test report format.

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

\* 6.4 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a preproduction sample, a first article sample, a first production item, a sample selected from the first 6 production items, a standard production item from the contractors's current inventory (see 3.2.1), and the number of items to be tested as specified in 4.5. The contracting officer should also include specific instructions in acquisition documents regarding arrangement for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

\* 6.5 Subject Term (key Word) Listing.

Aircraft, Bomb replenishment  
Bombs, Transport to aircraft  
Marine, Bomb Transport  
Shorebased, Bomb Transport  
Transport, Bombs to aircraft



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\* 6.6 Changes from previous issue. The Margins of this specification are marked with astericks to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

PREPARING ACTIVITY:  
NAVY - AS  
Project No. 2330-N013

# 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, 6, 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.

<b>I RECOMMEND A CHANGE:</b>		<b>1. DOCUMENT NUMBER</b> MIL-T-85239A(AS)	<b>2. DOCUMENT DATE (YYMMDD)</b> 20 November 1990
<b>3. DOCUMENT TITLE</b> TRAILER, MUNITIONS, MHU-151/M			
<b>4. NATURE OF CHANGE</b> (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
<b>5. REASON FOR RECOMMENDATION</b>			
<b>6. SUBMITTER</b>			
<b>a. NAME (Last, First, Middle Initial)</b>		<b>b. ORGANIZATION</b>	
<b>c. ADDRESS (Include Zip Code)</b>		<b>d. TELEPHONE (Include Area Code)</b> (1) Commercial (2) AUTOVON (if applicable)	<b>7. DATE SUBMITTED (YYMMDD)</b>
<b>8. PREPARING ACTIVITY</b>			
<b>a. NAME</b> Commanding Officer NAEC (SESD) Code 53		<b>b. TELEPHONE (Include Area Code)</b> (1) Commercial (2) AUTOVON 908-323-7709 624-7709	
<b>c. ADDRESS (Include Zip Code)</b> Lakehurst, N.J. 08733-5100		<b>IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:</b> Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	