

MIL-C-6458C  
8 JUNE 1966  
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Superseding  
MIL-C-6458B  
13 January 1965 and  
MIL-C-7262A(USAF)  
4 January 1954

MILITARY SPECIFICATION

CHAIN ASSEMBLIES, SINGLE LEG, AIRCRAFT CARGO TIE DOWN

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

1. SCOPE

1.1 Scope. This specification covers two types of aircraft cargo tie down chain assemblies.

1.2 Classification. Chain assemblies covered by this specification shall be of the following types:

Type I - 10,000 pound capacity

Type II - 25,000 pound capacity

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of the specification to the extent specified herein.

SPECIFICATIONS

Federal

PPP-B-601  
PPP-B-636

Boxes, Wood, Cleated-Plywood  
Box, Fiberboard

Military

MIL-P-116  
MIL-E-5272

Preservation, Methods Of  
Environmental Testing, Aeronautical And  
Associated Equipment, General Specification  
For

MIL-H-6875

Heat Treatment Of Steels (Aircraft  
Practice), Process For

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## STANDARDS

## Military

MIL-STD-129	Marking For Shipment And Storage
MIL-STD-130	Identification Marking Of U. S. Military Property
MIL-STD-143	Specifications And Standards Order Of Precedence For The Selection Of Test Reports, Preparation Of Cushioning, Anchoring, Bracing, Blocking, And Waterproofing; With Appropriate Test Methods
MIL-STD-831	
MIL-STD-1186	

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

## 3. REQUIREMENTS

3.1 Preproduction. This specification provides for preproduction testing.

3.2 Component parts. Each chain assembly shall consist of a length of chain, a coupling link, and a hook.

3.3 Selection of specifications and standards. Specifications and standards for necessary commodities and services not specified herein shall be selected in accordance with MIL-STD-143.

3.4 Materials. The chain assembly shall be made of a high quality of metal or alloy steel using heat treatment as required.

3.4.1 Heat treatment. Heat treatment of steel parts shall be in accordance with MIL-H-6875.

3.5 Design and construction. The chain assembly shall be of the welded-link type and constructed so that it forms a single unit without detachable parts.

3.5.1 Strength. The design strength of the chain assembly shall be as specified in Table I.

3.5.2 Hook. The hook shall be a grab type with dimensions as shown in figure I and shall engage chain links of the size specified in Table I.

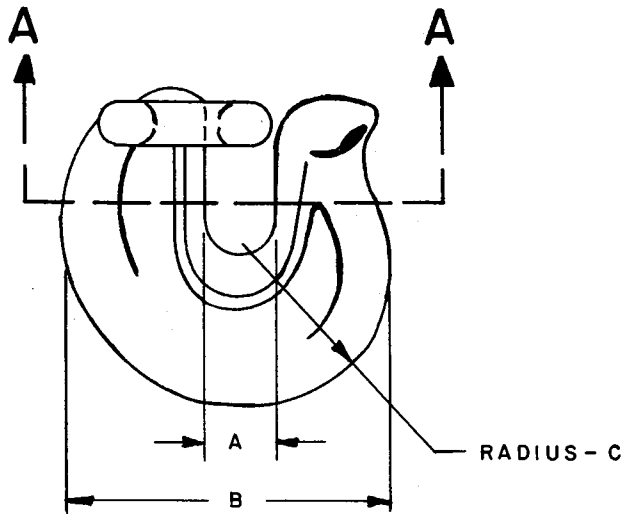
3.5.2.1 The hook shall be designed to permit fastening of one chain assembly to another of the same type to form a single branch system of two chain assemblies connected in series for extension purposes. When used in this manner, the hooks shall meet the strength requirements as specified in 3.5.1 and the hook shall not reduce the strength of the chain assembly into which the hook has been attached.

TABLE I - PHYSICAL CHARACTERISTICS

	CHAIN ASSEMBLY			LINK DIMENSIONS ( INCHES )			
	DESIGN STRENGTH ( POUNDS )	MAXIMUM WEIGHT ( POUNDS )	MINIMUM LENGTH ( INCHES )	ACTUAL BAR SIZE	MAXIMUM OUTSIDE LENGTH	MAXIMUM OUTSIDE WIDTH	MINIMUM INSIDE LENGTH
TYPE I	14,100	8	108	0.281	* 1.521	* 0.975	* 0.825
TYPE II	35,250	24	108	0.469	* 2.407	* 1.500	* 1.383

\* AFTER PROOF LOAD

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DIMENSIONS (INCHES)						
	A	B	C	D	E	F
TOLERANCES	$\pm 1/32$	MAX	APPROXIMATE			
TYPE I	$3/8$	$2 \frac{1}{4}$	1	3	$1 \frac{5}{16}$	$2 \frac{5}{16}$
TYPE II	$5/8$	$3 \frac{7}{16}$	$1 \frac{5}{8}$	$4 \frac{1}{4}$	$1 \frac{3}{4}$	$3 \frac{1}{2}$

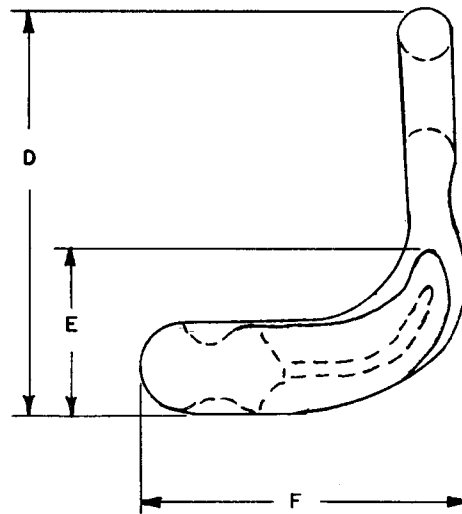
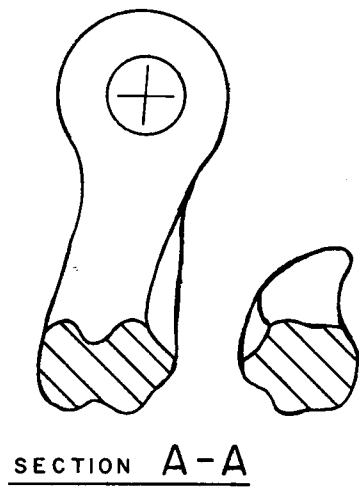


FIGURE 1. GRAB HOOK

### 3.6 Performance.

3.6.1 Tensile load. The chain assembly shall sustain an applied tensile load equal to the design strength when the chain is passed around a six inch diameter bar and the hook fastened into a link maintaining an included angle of  $30 \pm 5$  degrees.

3.6.2 Environmental characteristics. The chain assembly shall be capable of satisfactory operation when subjected to the salt spray test in 4.6.4.

### 3.7 Dimensions.

3.7.1 Length. The minimum length of the chain assembly shall be as specified in Table I.

#### 3.7.2 Link size.

3.7.2.1 The maximum actual bar size of the links shall be as specified in Table I.

3.7.2.2 The link dimensions, after the proof load has been applied, shall be as specified in Table I.

3.8 Weight. The maximum weight of the chain assembly shall be as specified in Table I.

### 3.9 Finish.

3.9.1 Protective coating. All steel parts, with the exception of corrosion resistant steel, shall be treated with a metallic-type coating which will provide a cathodic protective coating to the base metal. This protective coating shall not crack, peel, or flake during normal usage and shall withstand the performance requirements specified in 3.6.

3.10 Identification of product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

3.11 Workmanship. The chain assembly shall be constructed and finished in compliance with the highest industrial manufacturing practice. Particular attention shall be given to welding and heat-treating processes. Dimensions and tolerances not specified, shall be consistent with the best shop practices. Dimensional tolerances shall not affect performance, operation or interchangeability of the chain assembly.

## 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the

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supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of tests. The inspection and testing of the chain assemblies shall be classified as follows:

- a. Preproduction tests.
- b. Acceptance tests.

4.3 Test conditions. Unless otherwise specified, all tests required by this specification shall be made at normal atmospheric conditions.

4.4 Preproduction testing.

4.4.1 Test sample. The preproduction test sample shall consist of three chain assemblies of the type required which are representative of the production chain assemblies. The sample shall be tested at a laboratory designated by the procuring activity or, when so stated in the contract, at the contractor's plant under the supervision of the procuring activity (see 6.3).

4.4.2 Test report. Upon completion of preproduction testing, the contractor shall submit a test report prepared in accordance with MIL-STD-831.

4.4.3 Preproduction tests. The preproduction tests shall consist of all tests described under "test methods" in 4.6.

4.5 Acceptance tests. Acceptance tests shall consist of:

- a. Individual tests.
- b. Periodic sampling.

4.5.1 Individual tests. Each chain assembly shall be subjected to the examination of product in 4.6.1.

4.5.2 Periodic sampling. Two chain assemblies shall be selected at random from each one hundred or fraction thereof produced and shall be subjected to the tests in 4.6.1, 4.6.2 and 4.6.3. Failure of the item being tested and inspected will postpone final acceptance until the cause of rejection has been investigated and corrected.

4.6 Test methods.

4.6.1 Examination of product. Each chain assembly shall be inspected to determine compliance with the requirements specified herein with respect to material, dimensions, weight, protective coating, marking, and workmanship. The link dimensions apply after proof load.

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4.6.2 Proof load test. The chain assembly shall be tested with a static load equivalent to the design strength applied to the grab hook, coupling link, and all other links as specified in 3.6.1. The chain shall remain flexible after removing the applied load.

4.6.3 Hook test. Two chain assemblies of the same type shall be joined as specified in 3.5.2 and subjected to a load equivalent to the design strength. The hook and adjoining links shall be examined under full load for positive engagement. There shall be no evidence of slippage or impending failure of the hook or links.

4.6.4 Salt spray test. The preproduction sample shall be subjected to salt spray test in accordance with procedure II of MIL-E-5272. After completion of the test, the chain assembly shall show no evidence of rust or corrosion.

4.7 Inspection of the preservation, packaging and marking for shipment and storage. Sample items or packs and the inspection of the preservation, packaging, packing and marking for shipment and storage shall be in accordance with the requirements of section 5, or the documents specified therein.

## 5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be Level A or C, as specified (see 6.2).

5.1.1 Level A. Unless otherwise specified in the contract or order, each chain assembly shall be preserved and packaged in accordance with MIL-P-116, Method III, one (1) each in a unit container conforming to PPP-B-636.

5.1.2 Level C. Unless otherwise specified in the contract or order, chain assemblies shall be preserved and packaged in accordance with the manufacturer's commercial practice.

5.2 Packing. Packing shall be Level A, B or C, as specified (see 6.2).

5.2.1 Level A. Chain assemblies preserved and packaged as specified in 5.1.1 shall be packed in overseas type shipping containers conforming to PPP-B-601 or weather resistant type shipping containers conforming to PPP-B-636. As far as practicable shipping containers shall be of uniform shape and size, of minimum cube and tare consistent with the protection required, and contain identical quantities. The gross weight of each shipping container shall not exceed the weight limitation of the specification. Containers shall be closed and strapped in accordance with the specification and appendix thereto.

5.2.2 Level B. Chain assemblies preserved and packaged as specified in 5.1.1 shall be packed in domestic type exterior shipping containers conforming to PPP-B-636. Shipping containers shall be of minimum cube and tare consistent with the protection required. As far as practicable, shipping containers shall be of uniform shape and size and contain identical quantities. The gross weight

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of each shipping container shall not exceed the weight limitation of the specification. Containers shall be closed and strapped in accordance with the specification and appendix thereto. Shipping containers conforming to PPP-B-636. shall meet the special requirements table as applicable.

5.2.3 Level C. Packages that require overpacking for acceptance by the carrier shall be placed in exterior type shipping containers in a manner that will insure safe transportation at the lowest rate to the point of delivery. Containers shall comply with Uniform Freight Classification Rules or regulations of other common carriers as applicable to the mode of transportation.

5.3 Physical protection. Cushioning, blocking and bracing, shall be in accordance with MIL-STD-1186, except that for domestic shipments, waterproofing requirements for cushioning materials and containers shall be waived. Drop tests of MIL-STD-1186 shall be waived when preservation, packaging and packing of the item is for immediate use or when drop tests of MIL-P-116 are applicable.

5.4 Marking. In addition to any special marking required by contract or order, interior packages and shipping containers shall be marked in accordance with the requirements of MIL-STD-129.

## 6. NOTES

6.1 Intended use. The chain assemblies covered by this specification are to be used for securing vehicles and equipment in cargo type aircraft during flight.

6.1.1 Type I. The type I chain assembly is to be used in conjunction with the type MB-1 cargo tie down.

6.1.2 Type II. The type II chain assembly is to be used in conjunction with the type MB-2 cargo tie down.

6.2 Ordering data. Procurement documents shall specify the following:

- a. Title, number, and date of this specification.
- b. Type of chain assembly required (see 1.2).
- c. Applicable levels of preservation, packaging and packing required (see 5.1 and 5.2).

6.3 Instructions for preproduction sample. Type, size and testing site (see 4.4.1).

6.4 Identification of changes. Asterisks are not used in this revision to identify changes with respect to previous issue, due to the extensiveness of the changes.



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Custodian:  
Air Force - 82  
Navy - WP  
Army - GL

Preparing activity:  
Air Force - 82

Review activity:  
Air Force - 82  
Navy - WP  
Army - GL, MO

Project No. 1670-0164

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 119-R004
<b>INSTRUCTIONS</b>		
<p>This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use of the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity.</p>		
SPECIFICATION		
ORGANIZATION		CITY AND STATE
CONTRACT NO.	QUANTITY OF ITEMS PROCURED	DOLLAR AMOUNT \$
MATERIAL PROCURED UNDER A		
<input checked="" type="checkbox"/> Direct Government Contract <input type="checkbox"/> Subcontract		
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?		
A. GIVE PARAGRAPH NUMBER AND WORDING		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES		
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE?		
<input type="checkbox"/> YES <input type="checkbox"/> NO     IF "YES" IN WHAT WAY?		
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity)		DATE