

NOT MEASUREMENT SENSITIVE

MIL-DTL-40137F
2 November 2004
 SUPERSEDING
 MIL-C-40137E
 20 March 1984

MILITARY SPECIFICATION

CLEVISES, RIGGING, AIR DELIVERY TYPE: GENERAL SPECIFICATION FOR

This specification is approved for use by all departments and agencies of the Department of Defense.

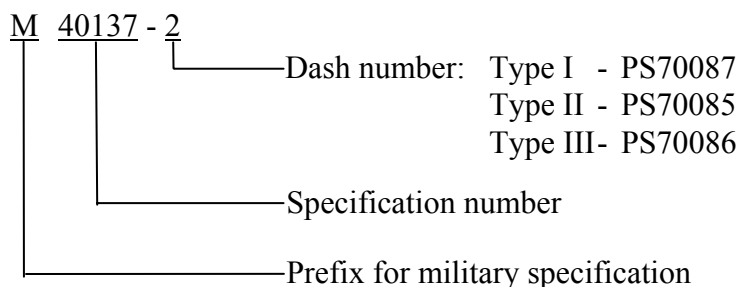
1. SCOPE

1.1 Scope. This specification covers the general requirements for three types of air delivery rigging clevises, commonly referred to as shackles.

1.2 Classification. Clevises are of the following types as specified (see 6.2):

- Type I - Clevis, suspension (PS70087)
- Type II - Clevis, tiedown (PS70085)
- Type III - Clevis, riser (PS70086)

1.3 Part or identifying number (PIN). The PIN to be used for clevises acquired to this specification is created as follows:



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

2.2 Government documents.

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

STANDARDS

DEPARTMENT OF DEFENSE

- MIL-STD-129 - Military Marking for Shipment and Storage.
- MIL-STD-1916 - DoD Preferred Methods for Acceptance of Product.

(Copies of these documents are available online at <http://assist.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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).

PARACHUTE INDUSTRY ASSOCIATION (PIA)

- PS70085 - Clevis, Tiedown, Air Delivery Type II (DoD adopted).
- PS70086 - Clevis, Riser, Air Delivery Type III (DoD adopted).
- PS70087 - Clevises, Suspension, Air Delivery Type I (DoD adopted).

(Copies of these documents are available online at <http://www.pia.com/> or from the Parachute Industry Association, 3833 West Oakton Street, Skokie, IL 60076.)

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.

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3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 4.2 and 6.3).

3.2 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.

3.3 Materials and components. Materials and components used shall conform to the documents and standards referenced in PS70085, PS70086, and PS70087.

3.4 Construction. Fabrication of the components and assembly of the clevises shall conform to the requirements of this document and the design details shown or specified in PS70085, PS70086, or PS70087, as applicable.

3.4.1 Cross section dimensions. Cross sections of forged components may be cut unsymmetrical or out of round due to die mismatch, flash trim, and cleaning processes. The cross section contour at any point shall be within the maximum and minimum material condition limits set by the dimensions and tolerances specified.

3.4.2 Heat treatment. Forged clevis components shall be heat treated as specified in the applicable standard.

3.5 Finish.

3.5.1 Surface defects and roughness. Forged components shall be free from scale, burrs, sharp edges, fins, cracks, and laps. Forging flash shall be removed substantially flush with the adjacent surfaces. Surface roughness shall not exceed values specified on the applicable standard.

3.5.2 Protective finish. Unless otherwise specified (see 6.2), the protective finish for metal components shall be as specified on the applicable standard.

3.6 Performance. Clevises shall be capable of withstanding proof loads specified in the applicable standard without developing any evidence of failure, visible permanent deformation, or defects that would interfere with disassembly when tested in accordance with 4.3.4.

3.6.1 Functional performance. The hardware shall meet all functional test and assembly requirements specified in the applicable standard.

3.7 Marking for identification. Each clevis body shall be marked for identification with the part number and the manufacturer's name or readily identifiable trademark. Forged clevis pins shall be marked with the part number only. The marking shall be the size and in the location shown in the applicable standard. The manufacturer may, at their option, utilize either raised or indented marking. If raised marking is used, the height of the characters shall be sufficient to insure legibility but shall not exceed 0.02 inches.

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3.8 Workmanship. All components and assemblies of the rigging clevises shall be free of any rust or corrosion, dirt, and other foreign matter. External surfaces shall be free from sharp edges or burrs. Components shall not be fractured, cracked, buckled, loose, dented, missing, malformed, or misaligned.

4. VERIFICATION

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

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

4.2 First article inspection. When required (see 6.2), examination of the first article samples for defects shall be as specified in 4.3.2 and 4.3.3 and testing of the first article samples for proof load shall be as specified in 4.4.1. The presence of any defect or failure of the proof load test shall be cause for rejection of the first article.

4.3 Conformance inspection. Unless otherwise specified (see 6.2), sampling for conformance inspection shall be performed in accordance with MIL-STD-1916. The level of inspection shall be as specified (see 6.2).

4.3.1 Inspection of materials and components. Components and materials used shall be inspected in accordance with all the requirements of the applicable standard unless otherwise specified in the acquisition order (see 6.2).

4.3.2 End item visual examination. The end item shall be examined for the defects listed in table I. The lot size shall be expressed in units of clevises.

TABLE I. End item visual defects.

Examine	Defect	Classification	
		Major	Minor
Finish, protective	Any breaks through coating to metal	101	201
	Any area of rust or corrosion	102	
	Dirt, oil, grease, or other foreign matter		
Design	Not specified type or size	103	
	Any departure from design indicated on applicable document (not otherwise classified herein)	104	
Construction and workmanship	Any component missing	105	202 203
	Any component cracked or fractured	106	
	Any operation omitted or not performed as specified	107	
	Any sharp edges, burrs, or metal slivers	108	
	Any part not assembled or joined as specified		
	Any surface roughness exceeding specified limit		
Identification marking	Missing, illegible, incomplete, incorrect, not permanent		204

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4.3.3 End item critical dimension examination. The end item shall be examined for conformance to the dimensions specified on the applicable standard. The lot size shall be expressed in units of clevises of one type and part number only. The sample size shall not be less than ten clevises, regardless of the lot size. Failure of any clevis to conform to any dimension shall be cause for rejection of the lot.

4.3.4 End item testing. The end item shall be proof loaded as specified in 4.4.1 and examined for conformance to the requirements in 3.6. The lot size shall be expressed in units of clevises of one type and part number only. Failure of any clevis to conform to the requirements in 3.6 shall be cause for rejection of the lot.

4.4 Methods of inspection.

4.4.1 Proof load test. The proof load specified on the applicable detail drawing, military specification, or non-government standard (NGS) shall be applied for not less than 15 seconds in the direction shown on the document. Any suitable tensile testing machine may be used. The attachments to the clevis for proof loading shall be made as follows:

- a. Attachment at pin end. Use a steel band of the appropriate thickness and width approximately equal to the clevis mortise dimension.
- b. Attachment at bow end. For a bow with a straight section at the top, use a steel band of the thickness and a width approximately equal to the length of the straight section. For a bow with a continuous curvature, use a steel band or bar of a width or diameter not greater than the clevis pin.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the inventory control point's packaging activities within the military service or defense agency, or within the military service's system commands. Packaging data retrieval is available from the managing military department's or defense agency's automated packaging files, CD-ROM products, or by the contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. This specification is intended for use in rigging cargo and equipment for air delivery.

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6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. The specific issue of individual documents referenced (see 2.2.1 and 2.3).
- c. First article inspection, if required (see 3.1, 4.2, and 6.3).
- d. Protective finish, if not as specified (see 3.5.2).
- e. Conformance inspection, if different (see 4.3).
- f. Sampling level (see 4.3).
- g. Component and material inspection requirements, if different (see 4.3.1).
- h. Packaging (see 5.1).

6.3 First article. When a first article sample is required, it shall be inspected and approved under the appropriate provisions of Defense Acquisition Regulations (DAR) 7-104.55, "Enforcement of Marketing Programs". The first article should be a reproduction sample and consist of one unit. The contracting officer should include specific instructions in all acquisition documents regarding arrangements for inspection and approval of the first article.

6.4 Subject term (key word) listing.

cargo
riser
shackles
suspension
tiedown

6.5 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 - GL
Navy - AS
Air Force - 11

Preparing Activity:
DLA - GS1

(Project 1670-1055)

Review Activities:
Army - AV
Navy - MC
Air Force - 71, 99

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 <http://assist.daps.dla.mil>.