

MIL-S-85376A(AS)
1 February 1985
SUPERSEDING
MIL-S-85376(AS)
9 April 1980

MILITARY SPECIFICATION

STAND, SHIPBOARD, HELICOPTER MAINTENANCE

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 covers a helicopter maintenance stand used by personnel aboard aviation capable ships.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

QQ-A-200/9	Aluminum Alloy Bar, Rod, Shapes, Tube and Wire, Extruded, 6063
QQ-A-250/11	Aluminum Alloy 6061, Plate and Sheet
NW-T-700/6	Tube, Aluminum Alloy, Drawn, Seamless, 6061
MMM-A-134	Adhesive, Epoxy Resin, Metal to Metal Structural, Bonding
PPP-B-601	Boxes, Wood, Cleated-Plywood
PPP-B-621	Box, Wood, Nailed and Lock-corner

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 93), Naval Air Engineering Center, Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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SPECIFICATIONS (cont'd)

MILITARY

MIL-C-5541	Chemical Conversion Coatings on Aluminum and Aluminum Alloys
MIL-R-5674	Rivet, Structural, Aluminum Alloy, Titanium Columbium Alloy, General Specification for
MIL-W-22248	Weldment, Aluminum and Aluminum Alloy
MIL-C-22751	Coating System, Epoxy-Polyamide, Chemical and Solvent Resistant, Process for Application of
MIL-P-23377	Primer Coatings: Epoxy-Polyamide, Chemical and Solvent Resistant
MIL-N-25027	Nut, Self-locking, 250°F, 450°F, and 800°F

STANDARDS

FEDERAL

FED-STD-595	Colors
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MILITARY

MIL-STD-129	Marking for Shipment and Storage
MIL-STD-130	Identification Marking of US Military Property
MS17829	Nut, Self-Locking, Hexagon, Regular Height 250°F, (Nonmetallic Insert), Non-Corrosion-Resistant Steel
MS17985	Pin, Quick-release, Self-retaining, Positive Locking, Single Acting (T) Handle
MS21044	Nut, Self-locking, Hexagon Regular Height, 250°F, 125 ksi Ftu and 60 ksi Ftu (Asg)
MS24380	Caster, Industrial
AN3	Bolt and Machine, Aircraft
AN6	Bolt and Machine, Aircraft

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

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

NAVAIRENGCEN

MPR 1212	Formulation and Processing of Polyurethane Type Compound for Moulding of Parts With or Without Metal Inserts for Impact Resistance.
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(Application for copies should be addressed to the Naval Air Engineering Center, Ship Installations Engineering Department, Code 912, Lakehurst, New Jersey 08733).

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2.1.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

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

3.2 Materials. The front frame, rear folding frame, braces, and the spreader latch assembly shall be constructed of extruded aluminum alloy conforming to QQ-A-200/9. The rails shall be constructed of drawn aluminum tubing conforming to WW-T-700/6 Type I.

3.2.1 Treads. Each tread shall be constructed of open-grip aluminum alloy 6061 conforming to QQ-A-250/11 or aluminum alloy 6063. (Morton Mfg. Co., 5th and Church Streets, P.O. Box 640, Libertyville, IL 60048) or equivalent (see 3.4.2).

3.2.2 Platform. The platform shall be constructed of tread-grip aluminum alloy 6061 conforming to QQ-A-250/11 or aluminum alloy 6063.

3.3 Design and construction. The work platform shall be 80 ± 2 inches high. The stand shall have hand rails on the front frame parallel to the channels, removable guard rails on the work platform and a folding rear frame (see Figure 1). The stand shall be equipped with a chain. The chain shall latch and unlatch the front and rear frames when in the collapsed position. The chain shall be removable without the use of tools. The stand shall be capable of supporting not less than 1000 pounds. The stand shall weigh not more than 85 pounds. Lighten holes are acceptable where they do not effect the structural strength of the stand. All weldments shall conform to MIL-W-22248 class 3.

3.4 Dimensions.

3.4.1 Front Frame. The front frame shall be fabricated from aluminum alloy channels (5 x 2 x 0.1875 inch). The frame shall be at an angle of $60(+0, -5)$ degrees from the horizontal when in the open position. It shall be 18 ± 3 inches wide at the top and 24 ± 3 inches at the bottom. There shall be two 5 x 2 x 0.1875 inch side rail channels. The channels shall open to the outside of the stand. The frame shall be welded to the work platform.

3.4.1.1 Tread Spacing. There shall be nine (9) treads equally spaced on the front frame. The treads shall be 4.875 ± 0.0625 inches deep and 0.125 inch thick with 2 inch flanges. Treads shall be fabricated from open-grip tread or equivalent. Treads shall be fastened to the front frame with bolts conforming to AN3 and nuts conforming to MS21044 (see 4.4.2).

3.4.1.2 Braces. Two 45° cross braces shall be fabricated from 1 x 1 x 0.1875 inch aluminum alloy angle. Each brace shall be secured to the underside of the lowest tread by aluminum alloy rivets conforming to MIL-R-5674 or bolts conforming to AN3 and nuts conforming to MS21044 or by welding (See Figure 1).

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3.4.1.3 Casters. The stand shall be equipped with two (2) rigid casters conforming to MS 24380-6RC. Each caster shall be fastened to two (2) 0.5 x 1.0 inch aluminum alloy rectangular bars conforming to QQ-A-200/9. The bars shall be welded to the back of the front channels (see Figure 1). The casters shall be secured to the bars by four (4) bolts conforming to AN6C5 and four (4) self-locking nuts conforming to MS17829-6F.

3.4.2 Work Platform. The work area of the platform shall be 18 by 18 inches square and 0.125 inches thick. The platform shall be constructed of tread-grip or equivalent. The platform shall be inspected and tested as specified in 4.4.1 and 4.4.2.

3.4.3 Rear Folding Frame. The rear folding frame shall be fabricated from aluminum alloy channel (3 x 1 x 0.125 inch) (see 4.4.1.1). The channels shall face the inside of the stand. The frame shall be provided with type CE, phenolic wear bushings.

3.4.3.1 Horizontal Cross Braces. The rear frame shall contain three (3) 3 x 1 x 0.125 inch extruded channel horizontal cross braces (see Figure 1). Each brace shall be fastened to the side channels with solid aluminum alloy rivets conforming to MIL-R-5674 or bolts conforming to AN3 and nuts conforming to MS21044.

3.4.3.2 45° Cross Braces. Two 45° cross braces shall be fabricated from 1 x 1 x 0.1875 inch aluminum alloy angle. Each brace shall be secured to the underside of the lowest horizontal brace by aluminum alloy rivets conforming to MIL-R-5674 or bolts conforming to AN3 and nuts conforming to MS21044 (see Figure 1).

3.4.4 Spreader Latch Assembly. The stand shall be equipped with a spreader latch assembly that shall be attached to the front and rear frames to provide stability (see Figure 2). It shall be fabricated from aluminum alloy angle (1.5 x 1.0 x 0.1851). The angle shall not extend beyond the outside of the side rails when in the open or collapsed position. The latch shall be locked in the open position using a quick release pin conforming to MS17985. The pin shall be secured to the stand with a vinyl coated corrosion resistant wire rope (to prevent loss of the pin). The hole in the angle (to house the pin) shall contain a stainless steel grommet (see Figure 2).

3.4.5 Tiedown rings. The stand shall be equipped with four (4) tiedown rings, one ring on each of the four channels. The rings shall be located between the center horizontal cross braces (rear of frame) and the spreader latch assembly. Each ring shall have a 0.375 inch thread with a 2 inch inside diameter eye. The rings shall be fastened to the frame using a flat washer and a self-locking nut conforming to MIL-N-25027 (see 4.4.2.1).

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3.4.6 Shoes. Safety stand shoes shall be fabricated from 0.093 inch thick corrosion resistant steel (see Figure 3 and Figure 4). Polyurethane conforming to NAVAIRENGCEN MPR 1221 formula #6 0.75 inch thick shall be attached to the bottom of the shoe with an adhesive conforming to MMM-A-134 (see 4.4.2.2). The shoe shall be attached to the bottom of the frame with a 0.3125 inch diameter corrosion resistant steel bolt. The shoe shall pivot around the bolt conforming to AN3. The bolt shall be secured with a self-locking nut conforming to MS21044. The shoe shall be 1.5 ± 0.25 inches wide and 6 ± 0.25 inches long.

3.4.7 Rails.

3.4.7.1 Hand Rails. The front frame shall have two hand rails one on each side of the frame. The rails shall be fabricated from 1.25 inch diameter x 0.035 inch thick aluminum alloy tubing conforming to WW-T-700/6 Type I. The rails shall be fastened to the top of the channels by weldment (see Figure 4).

3.4.7.2 Guard Rails. The removable guard rail shall be in three sections. The rail shall be installed on three sides of the work platform. They shall be fabricated from 1.25 inch diameter x 0.035 inch thick aluminum alloy tubing conforming to WW-T-700/6 Type I. The height of the rail shall be 33.5 ± 0.5 inches from the platform. The back section of the rail shall be attached to the side sections with quick release pins. The guard rails shall be capable of being removed from the platform by one person without the use of tools. The rails shall be housed in four sockets, two on each side of the work platform. The distance between the sockets shall be 16 ± 0.25 inches (see Figure 1). They shall be secured by four 0.187 inch diameter quick release pins conforming to MS17985. Each socket shall have a positive stop at the bottom. The pins shall be secured to the work platform with a vinyl coated corrosion resistant wire rope to prevent loss of the pins (see 4.4.1.3).

3.5 Placards. Placards shall be provided with tie-down instructions.

3.6 Storage. The stand shall fold for storage such that the rear frame and front frame butt against each other (see 4.4.1.4).

3.7 Surfaces. All exposed surfaces shall be free from sharp edges, burrs or other safety hazards. The surfaces shall be treated with Alodine (or the equivalent) to retard corrosion. All surfaces shall be coated and painted.

3.7.1 Finishes and Color. All surfaces shall be coated in accordance with MIL-C-5541 Class 1A. The primer coat shall be in accordance with MIL-P-23377 and the topcoat shall be in accordance with MIL-C-22751. The color of the stand shall be in accordance with FED-STD-595; gloss yellow (number 13538).

3.8 Identification.

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3.8.1 Nameplate. A nameplate permanently and legibly marked for identification in accordance with MIL-STD-130, shall be securely attached to a side rail channel. The nameplate shall contain the following information:

STAND, HELICOPTER MAINTENANCE
CAPACITY - 300 POUNDS
SPECIFICATION - MIL-S-85376(AS)
STOCK NO. -(AS APPLICABLE)
PART NO. - M85376A
CONTRACT OR ORDER NO. -
MANUFACTURER'S NAME OR TRADEMARK
U.S. PROPERTY

3.9 Workmanship. Workmanship shall be of a quality to ensure delivery of a stand that is free from defects resulting from defective material, improper manufacturing or assembly practices.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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 the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.2 First Article Inspection. First Article Inspection shall consist of all the tests specified herein.

4.2.1 First article sample. Unless otherwise specified, as soon as practicable after the award of the contract or order, the manufacturer shall submit one unit for inspection to determine conformance with this specification (see 6.3.1.1). The unit shall be representative of the construction, workmanship, components, and materials to be used during production. When a manufacturer is in continuous production of these units from contract to contract, submission of a first article sample on the new contract may be waived at the discretion of the Government. Approval of the first article sample or the waiving of the first article inspection is not a waiver of the requirement of submitting to the quality conformance inspection.

4.3 Quality Conformance Inspections. Quality Conformance Inspections shall be as specified in Table I.

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Table I. Quality Conformance Inspections

Inspection	Requirement Paragraph	Test Method Paragraph
Visual Examination		4.4.1
Dimensions	3.4	4.4.1.1
Spreader Latch Assembly	3.4.4	4.4.1.2
Guard Rails	3.4.7.2	4.4.1.3
Storage	3.6	4.4.1.4
Strength		4.4.2
Tiedown Rings	3.4.5	4.4.2
Safety Stand Shoes	3.4.6	4.4.2.1

4.4 Inspection Methods.

4.4.1 Visual Examinations. The stand shall be examined visually for conformance to Figure 1 and Section 3.

4.4.1.1 Dimensions. The front frame, work platform, rear folding frame, and rails shall be inspected for conformance to 3.4.1, 3.4.2, 3.4.3, and 3.4.7 respectively.

4.4.1.2 Spreader Latch Assembly. The Spreader Latch Assembly shall be visually examined such that the quick release pin shall be installed and removed without use of tools.

4.4.1.3 Guard Rails. The removability of the guard rails shall be inspected for conformance to 3.4.7.2.

4.4.1.4 Storage. The stand in the storage configuration (folded) shall be inspected for conformance to 3.6.

4.4.2 Strength Test. The 1000 pound load shall be applied to each tread for 5 minutes and the work platform for 30 minutes with the stand in service position. There shall be no fracture or deformation of treads or work platform. A chain shall be connected from each tiedown ring to a pad eye on a test platform with a 1000 pound load applied to the stand. The chains shall be taut on each side so that there is no movement of the stand. The test platform shall be tilted 30 degrees from the vertical to the left for five minutes. This test shall be repeated tilting the stand 30 degrees from the vertical to the right. The stand shall remain anchored at all times. There shall be no rupture, deformation or pull out of the tiedown rings. The stand shall not collapse, rupture or deform.

4.4.2.1 Safety Stand Shoes. The epoxy used shall be tested in accordance with MMM-A-134 test #1.

4.5 Packaging. Packaging shall be examined for conformance to section 5.

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5. Packaging.

5.1 Packing. Packing shall be Level A as specified (see 6.2).

5.1.1 Level A. The stand shall be packed in wood boxes conforming to PPP-B-601, overseas Type, Grade B or PPP-B-621, Class 2.

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

6. NOTES

6.1 Intended use. The servicing stand is intended for maintenance of SH-2 and SH-60 aircraft aboard aviation capable ships.

6.2 Ordering data. Acquisition documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Level of packing (see 5.1).

6.3 Information for the contracting officer. Contracts or orders should specify the following:

- (a) Title, number, and date of this specification.
- (b) Packing: - Level A.
- (c) Special marking, if required (see 5.2).
- (d) First article inspection, if other than specified (see 6.3.1.1).
- (e) Where first article inspection shall be conducted (see 6.3.1.1.a).
- (f) Where first article inspection report shall be sent.

6.3.1.1 Whether first article inspection is required. When a contractor is in continuous production of the maintenance stand from contract to contract, consideration should be given to waive the first article inspections. If first article inspection is required, indicate:

a. Where the first article inspection is to be conducted (at the contractor's plant or Government or commercial laboratory).

b. That the approval of first article samples or the waiving of the first article inspection shall not relieve the contractor of his obligation to fulfill all other requirements of the specification and contract.

Preparing activity:

Navy - AS

Project No. 4920-N391

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NOTES:

1. DIMENSIONS ARE IN INCHES.

2. ALL WELDING PROCESS SHALL BE IN ACCORDANCE WITH BEST COMMERCIAL PRACTICE.

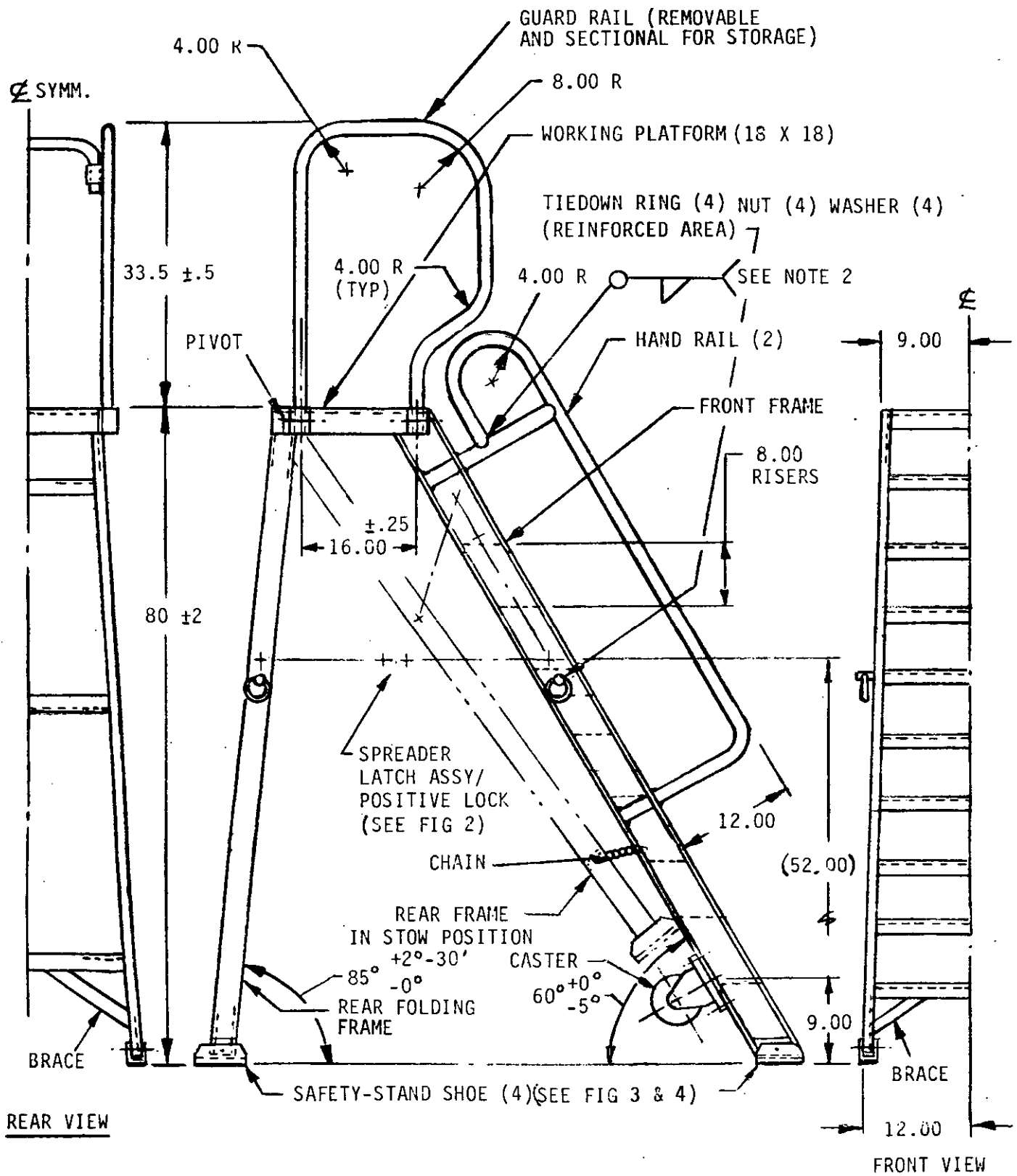


Figure 1. Maintenance Stand

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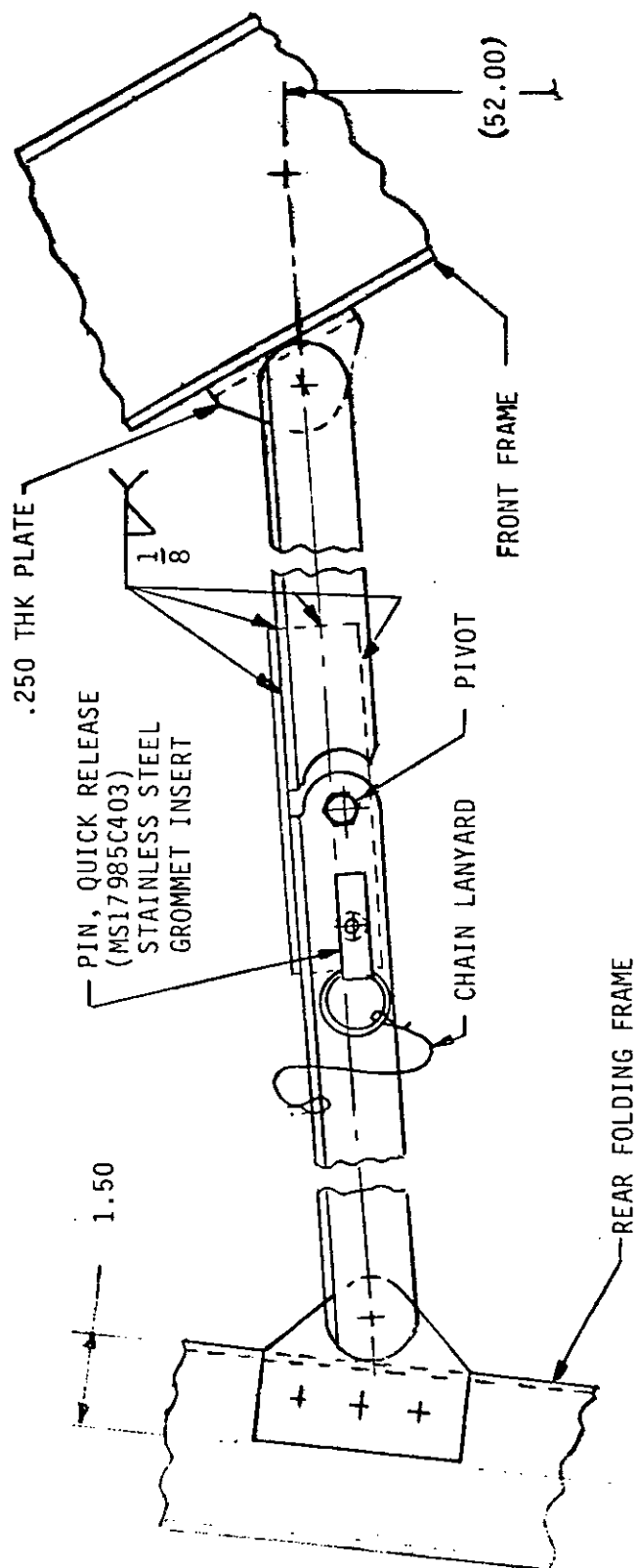


Figure 2. Spreader Latch Assembly

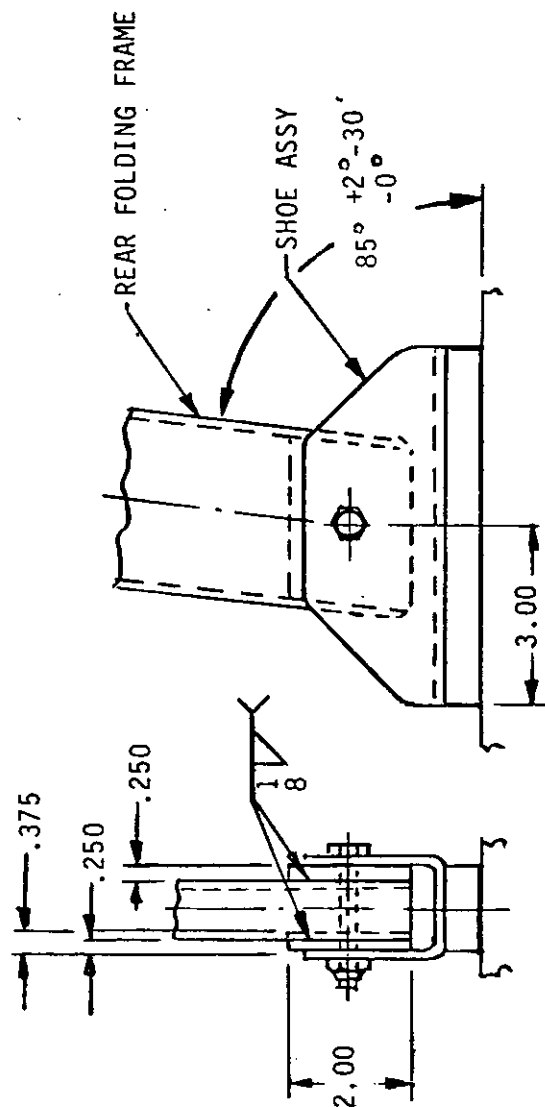


Figure 3. Rear Shoe Installation (For info not shown see fig. 4.)

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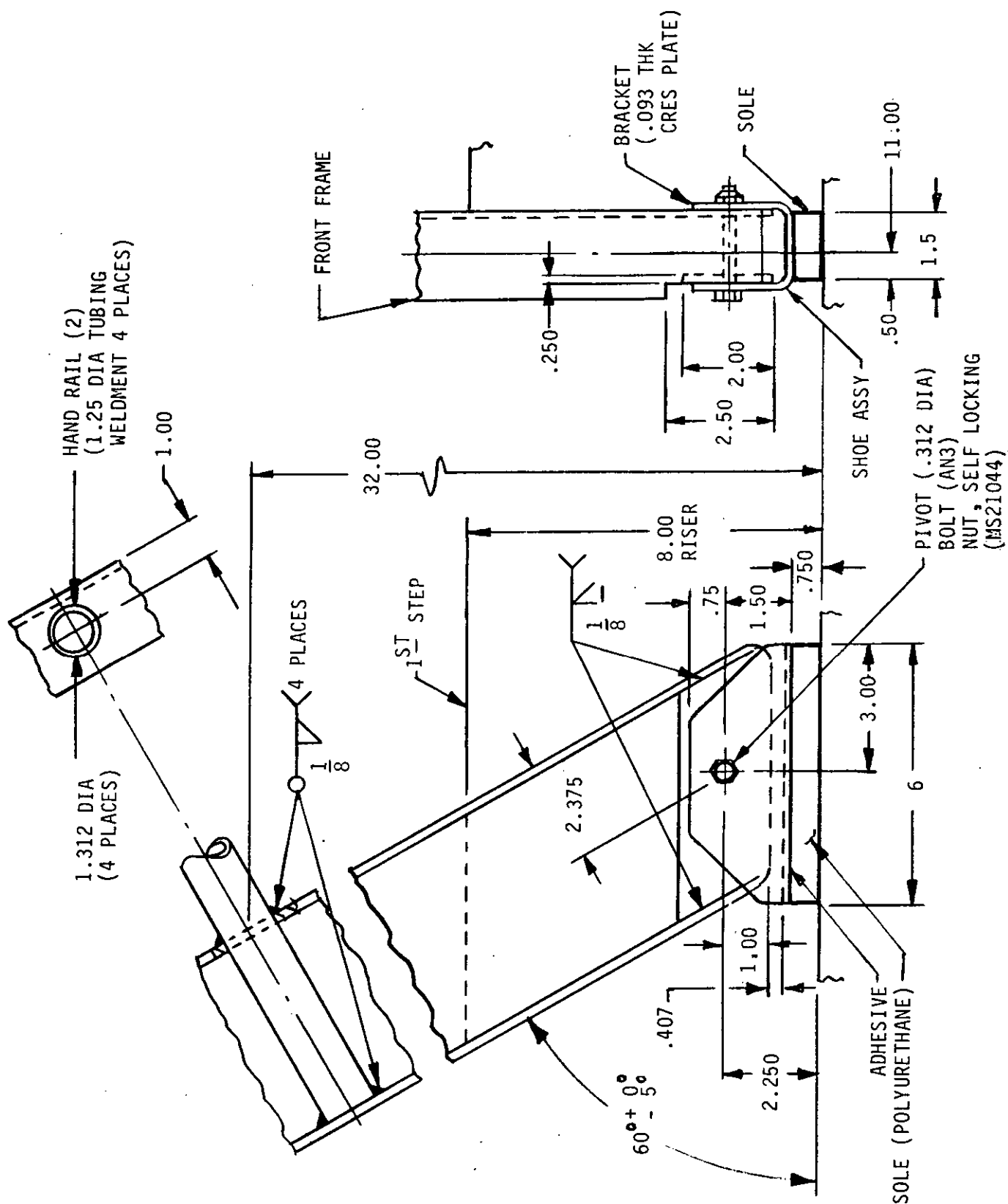


Figure 4. Shoe and Hand Rail Installation

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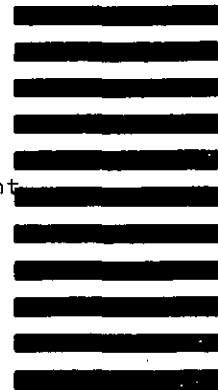
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