

INCH POUND
MIL-F-85731/1B
29 August 1994
SUPERSEDING
MIL-F-85731/1A

MILITARY SPECIFICATION

FASTENER, ELECTRONIC EQUIPMENT, POSITIVE SELF-LOCKING

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

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-F-85731.

REQUIREMENTS:

Qualification required.

PERFORMANCE REQUIREMENTS:

The fastener shall lock in increments of not more than 30° (for dash numbers -1 through -4, see Table I, p.4) and 15° (for dash numbers -5 through -10, see Table II, p.5).

The fastener shall tighten by turning the knob clockwise. It shall unlock by pulling and turning, or in some fasteners just turning the knob counter-clockwise. No tool shall be required to tighten, lock or unlock the fastener.

The fastener shall not unlock when a torque of 125 inch-pounds is applied to dash numbers -1 and -2, or when 75 inch-pounds is applied to dash numbers -3 and -4.

The fastener shall meet the loads specified in Tables I, II, III, and IV. Orientation shall be such that the load line (the line from the pin center to the contact point between the locking collar and the equipment hook) is at an approximate angle of 45°, see Figure 1.

DESIGN REQUIREMENTS.

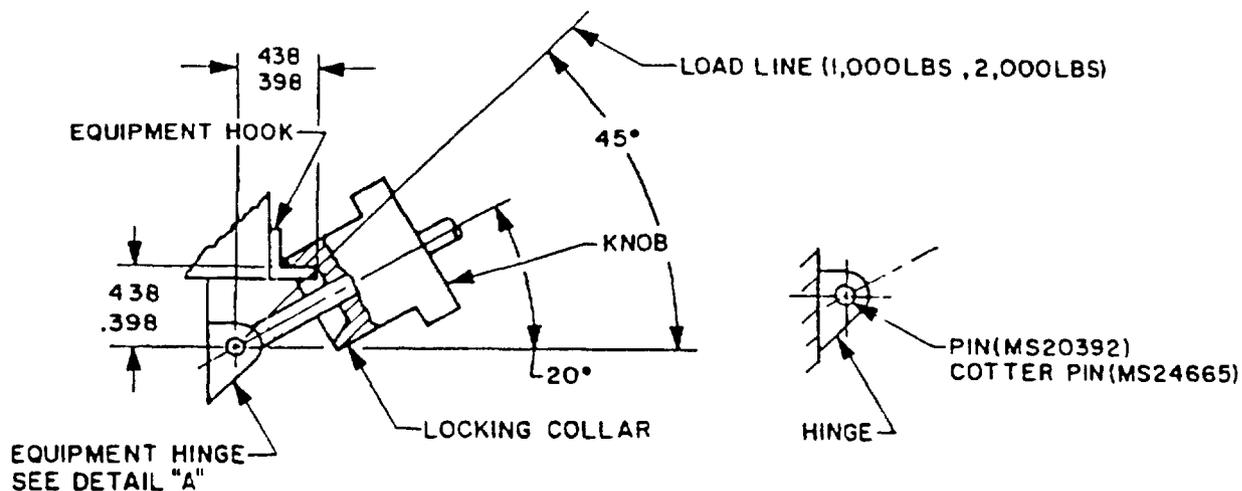
The configuration of this fastener shall permit the latch assembly to remain oriented in a position so as not to interfere with the installation or removal of the weapon replaceable assembly (wra)

AMSC N/A

FSC 5340

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

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FIGURE 1 Fastener loads

DETAIL "A"

Threads shall be per MIL-S-7742 or MIL-S-8879, UNF-2A UNF-3A or UNJF-3A and heat treated

Materials.

<u>Screw</u>	Corrosion Resistant Steel (CRES) 316 (UNS S31600) in accordance with QQ-S-763 condition A or, 17-4 PH (UNS S17400) in accordance with SAE-AMS 5643 condition H1025
<u>Washer</u>	Nylon 6/6 in accordance with L-P-410 NAS 1515 H5H Plastic or synthetic rubber
<u>Knob</u> CRES.	CRES 316 (UNS S31600) per QQ-S-763 condition A or PM PMA SS 316L-R and passivated per QQ-P-35
Aluminum	Aluminum Alloy 2024 T4 (UNS A92024) per QQ-A-225/6, or Aluminum Alloy 2024 T3511 (UNS A92024) per QQ-A-200/3
<u>Washer stop</u>	CRES 301 (UNS S30100) or 302 (UNS S30200) in accordance with SAE-AMS 5901 or SAE-AMS 5516 respectively.
<u>Locking collar</u>	CRES 316 (UNS S31600) or CRES 304 (UNS S30400) per QQ-S-763 condition A Optional material CRES 15-5PH per SAE-AMS 5357, condition H1000 Rockwell Hardness C33-39, or PM PMA SS 316L-R and passivated per QQ-P-35

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Retaining ring PH15-7 Mo per SAE-AMS 5520

Hook Alloy Steel:

4130 Alloy Steel (UNS G41300) per MIL-S-6758, or
MIL-S-18729; or
4140 Alloy Steel (UNS G41400) (investment casting) per
MIL-S-5626.

Heat treat per MIL-H-6875 to Rockwell Hardness C39-43.

Corrosion Resistant Steel (CRES):

CRES 410 (UNS S41000) condition T, per QQ-S-763 or
ASTM A240 class 410;
CRES 17-4PH (UNS S17400) per SAE-AMS 5343, SAE-AMS 5643
or MIL-S-81591; or
CRES 17-7PH (UNS S17700) per MIL-S-25043 or SAE-AMS 5528.

Heat treat per MIL-H-6875 as follows:

CRES 410 - Rockwell Hardness C39 minimum;
CRES 17-4PH (wrought) - to condition H1025, Rockwell
Hardness C33-39;
CRES 17-4PH (cast) - to condition H1000, Rockwell
Hardness C33-39; or
CRES 17-7PH - to condition H1000 or TH1050 per
SAE-AMS 2759 or MIL-S-25043.

Spacer stop CRES 303S (UNS S30300), or 303SE (UNS S30323) per
ASTM A582, condition A or ASTM A484; CRES 304
(UNS S30400) per ASTM A269.

Hinge Alloy Steel:

4140 Alloy Steel (UNS G41400) per MIL-S-5626.
Heat treat per MIL-H-6875 Rockwell Hardness C39-43

CRES:

CRES 17-4PH (UNS S17400) per SAE-AMS 5643 or
SAE-AMS 5343.
Heat treat per MIL-H-6875 to condition H1025
(wrought - Rockwell Hardness C34-42) or condition H1000
(cast - Rockwell Hardness C36-43).

Finish:

All CRES Components: Passivate in accordance with QQ-P-35.

Aluminum Components: Anodize in accordance with MIL-A-8625,
Type II, Class 1 or Type III, Class 1 or 2.

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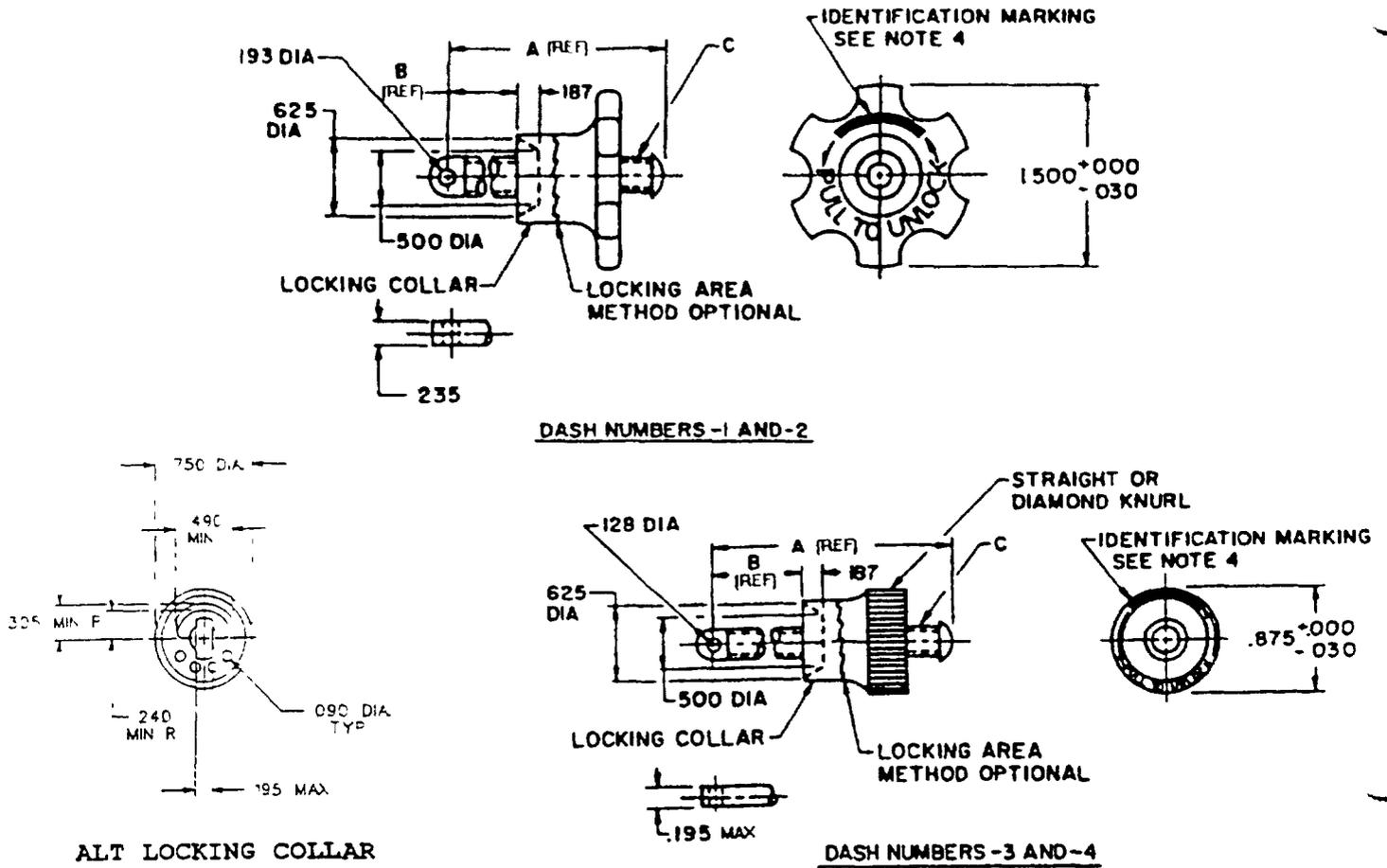
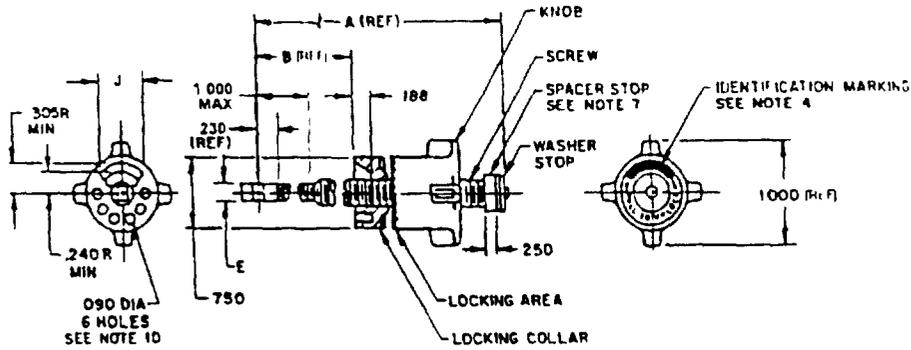


FIGURE 2 Dash numbers 1 through 4

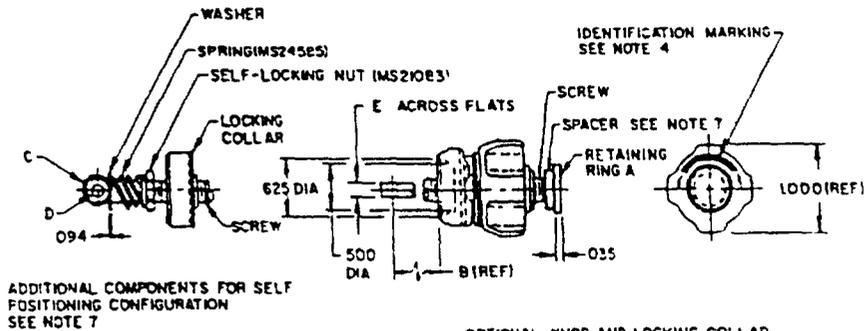
TABLE I. Fasteners.

DASH NO	A (REF)	B (REF)	C THRFADS	LOAD (LBS MIN)	MAX WT (OUNCES)
-1	1 88	1.00	312-24	2,000	3
-2	2 75	1 88	312-24	2,000	3
-3	1 88	1 00	250-28	1,000	2.5
-4	2 75	1 88	250-28	1,000	2.5

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UNLOCKS BY TURNING AND PULLING



OPTIONAL KNOB AND LOCKING COLLAR

UNLOCKS BY TURNING

FIGURE 3. Dash numbers -5 through -10TABLE II Fasteners.

DASH NO.	A	* B (REF)	THREADS (REF)	C RAD	D + .003 - .000	E	J FLAT MIN.	LOAD (LBS)
-5	2.03	1.000	.250-28 1/	.156	.128	.156	.490	1000
-6	2.41	1.375	.250-28 1/	.156	.128	.156	.490	1000
-7	2.91	1.875	.250-28 1/	.156	.128	.156	.490	1000
-8	2.03	1.000	.312-24	.190	.160	.183	.490	2000
-9	2.41	1.375	.312-24	.190	.160	.183	.490	2000
-10	2.91	1.875	.312-24	.190	.160	.183	.490	2000

1/ 312-24 threads shall be optional for -5, -6, and -7.

* See Note 7, p 9.

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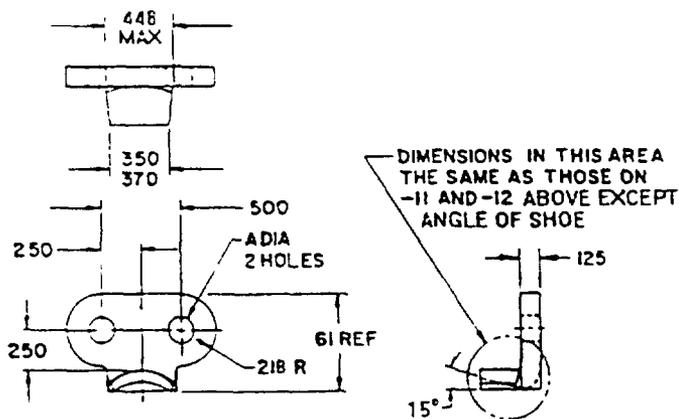
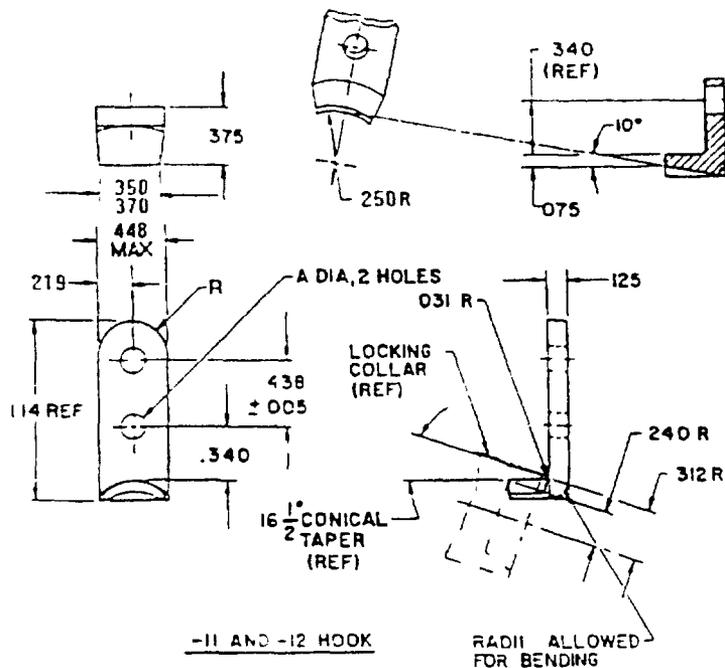


FIGURE 4 Dash numbers -11 through -14

TABLE III Hooks

DASH NO.		A	LOAD (LBS MIN)	MATING LATCH ASSY
STEEL	CRES			
-11	-11C	167-.172	1000	-3, -4, -5, -6, -7
-12	-12C	193-198	2000	-1 -2 -8 -9, -10
-13	-13C	167-172	1000	-3 -4, -5, -6, -7
-14	-14C	193-198	2000	-1, -2 -8, -9, -10

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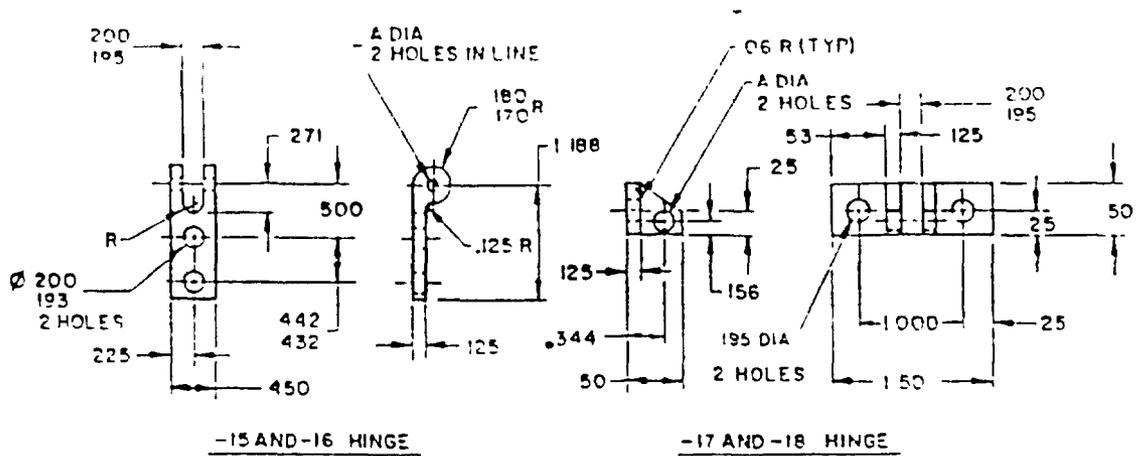


FIGURE 5. Dash numbers 15 through 18

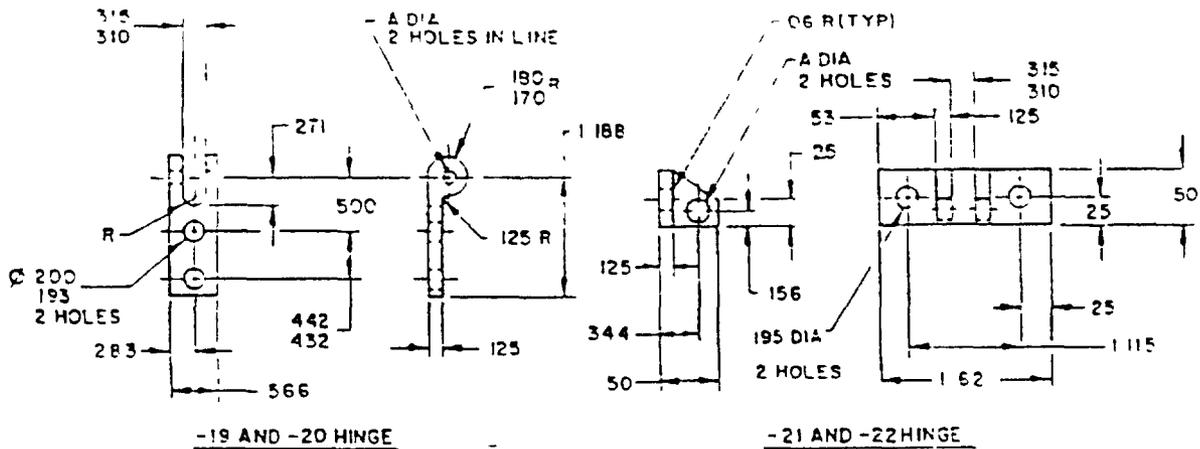


FIGURE 6. Dash numbers 19 through 22

TABLE IV. Hinges

DASH NO		A	LOAD (LBS MIN)	MATING LATCH ASSY		
STEEL	CRES					
-15	-15C	128- 133	1000	-3, -4	-5, -6, -7	
-16	-16C	160- 165	2000	-8, -9	-10	
-17	-17C	128- 133	1000	-3, -4, -5, -6, -7		
-18	-18C	160- 165	2000	-8, -9, -10		
-19	-19C	128- 133	1000	-3, -4, -5, -6, -7		
-20	-20C	160- 165	2000	-1, -2, -8, -9, -10		
-21	-21C	128- 133	1000	-3, -4, -5, -6, -7		
-22	-22C	160- 165	2000	-1, -2, -8, -9, -10		

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Alloy Steel Components Cadmium plate in accordance with QQ-P-416, Type II, Class 2 Bake within 2 hours after plating for 23 hours at 375°F \pm 25°F

Lubricant: Dry film lubricant in accordance with MIL-L-46010, Type I.

When special hooks are required to meet design requirements, the tip configuration shall be in accordance with MIL-F-85731/1-11.

NOTES:

1. Remove burrs, slivers and break sharp edges.
2. Dimensions are in inches.
3. Unless otherwise specified, tolerances: 2 place decimal \pm 03, 3 place decimal \pm 010
4. Identification (MIL-F-85731/1) and other markings shall be permanent. Method of application is optional as long as the identification is not destroyed through normal use. Manufacturer's name and part number may appear elsewhere on the item supplied.
5. Suffix "A" - Following dash number (-5 through -10) designates spacer stop feature.
- Suffix " " - No suffix following dash number (-5 through -10) designates no spacer stop feature.
- Suffix "ACP"- Following dash number (-5 through -10) designates self positioning and stop feature
- Suffix "CP" - Following dash number (-5 through -10) designates self positioning feature.
- Suffix "C" - Following dash number (-11 through -22) designates corrosion resistant steel material.

6. Example of part number:

M85731/1-5A
 |
 _____ Stop Feature

M85731/1-15C
 |
 _____ Corrosion Resistant Steel Material

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7 The self positioning configuration of this fastener will allow the latch assembly to remain oriented in any desired position after equipment removal. This configuration should be utilized where the unattached latch assembly will hang in a position which would interfere with the installation or removal of other equipment. The spacer stop configuration reduces "B" dimension (at maximum open position) by 0.250, see Table II, p.5.

8. Referenced documents shall be the issue in effect on date of invitations for bids or request for proposal, except that referenced DoD adopted non-government documents shall give the date of the issue adopted.

9. For design feature purposes, this standard takes precedence over procurement documents referenced herein.

10. The 0.090 inch diameter surface holes do not affect the function of the part. The number of holes may vary from the designated four and six, see Figures 2 and 3 respectively.

11. Alloy steel parts shall be magnetic particle inspected per ASTM E-1444.

12. Corrosion resistant steel parts shall be liquid penetrant inspected per MIL-STD-6866. Sintered metal parts shall be exempt from this inspection.

The margins of this specification sheet are marked with vertical lines 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

Custodians:

Army - ER
Navy - AS
AF - 99

Preparing activity:

Navy - AS

(Project 5340-2156)

Review activity:

Army - AR, AV

INCH-POUND

MIL-F-85731/1B
AMENDMENT 2
26 June 1995
SUPERSEDING
AMENDMENT 1
5 December 1994

MILITARY SPECIFICATION SHEET
FASTENER, ELECTRONIC EQUIPMENT,
POSITIVE SELF-LOCKING

This amendment forms a part of MIL-F-85731/1B, dated 29 August 1994, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 2

Knob

*CRES: Delete "PM PMA SS 316L-R" and substitute "PM SS316L."

CRES: Delete "and passivated per QQ-P-35" at end of statement.

Locking collar

*Delete "PM PMA SS 316L-R" and substitute "PM SS316L."

Delete "and passivated per QQ-P-35" at end of statement.

PAGE 3

Finish:

*All CRES Components: Delete "PM PMA SS 316L-R" and substitute "PM SS316L."

All CRES Components: Add "except PM PMA SS 316L-R, sintered CRES parts" to end of statement.

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AMENDMENT 2

The margins of this amendment are marked with an asterisk to indicate where changes from the previous amendment 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 amendment.

Custodians:

Army - ER
Navy - AS
Air Force - 99

Preparing activity:

Navy - AS
(Project 5340-2236)

Reviewer activities:

Army - AR, AV