MIL-S-45933/2A
22 September 1977
SUPERSEDING
MIL-S-45933/2
30 June 1971

MILITARY SPECIFICATION SHEET

STUD, KEYRING LOCKED, 160 KSI FTU, MULTIPLE STEP

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

The complete requirements for procuring the studs described herein shall consist of this document and the latest issue of specification MIL-S-45933.

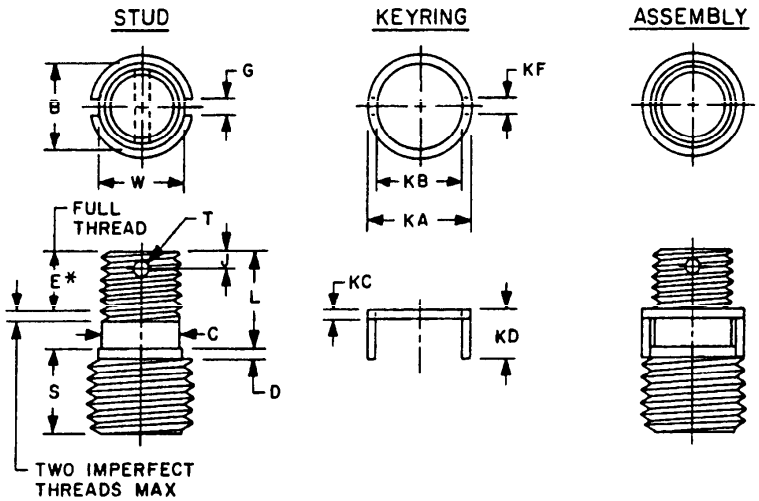

TABLE I - Sizes and Dimensions

DASH NO. 1/	NUT END THREADS UNJF-3A	STUD END THREADS UNJF-3A	B ±.005	C ±.005	D ±.005	E ±.030	G ±.005
1	.1120-40	.1640-32	.121	.112	.025	.343	.035
2	.1380-32	.1900-32	.135	.135	.032	.375	.035
3	.1640-32	.2500-28	.179	.164	.037	.406	.065
4	.1900-32	.3125-24	.236	.190	.040	.437	.065
5	.2500-28	.3750-24	.289	.250	.045	.500	.081
6	.3125-24	.4375-20	.338	.312	.052	.562	.081
7	.3750-24	.5625-18	.447	.375	.060	.625	.128

DASH NO.	J ±.010	S ±.015	T ±.005	W REF	KA +.000 −.005	KB +.010 −.000	KC +.005 −.000	KD ±.010	KF REF
1	-	.190	-	.117	.164	.127	.025	.098	.030
2	-	.250	-	.129	.190	.140	.027	.122	.030
3	.109	.250	.070	.172	.250	.185	.032	.127	.060
4	.125	.312	.070	.233	.312	.242	.035	.145	.060
5	.156	.437	.076	.284	.375	.295	.040	.175	.076
6	.156	.562	.076	.334	.437	.344	.047	.203	.076
7	.172	.625	.106	.434	.562	.453	.055	.255	.123

1/ Dash No. 1, 2 and 3 nut end threads are UNJC-3A:
Dash No. 1 stud end is UNJC-3A

* When "L" is equal to or less than "E", then "E" shall equal "L" minus two imperfect threads.

TABLE I - Continued

DASH NO.	NUT END THREADS UNJF-3A	STUD END THREADS UNJF-3A	B ±.005	C ±.005	D ±.005	E ±.030	G ±.005
8	.4375-20	.6250-18	.507	.437	.060	.687	.128
9	.5000-20	.7500-16	.619	.500	.067	.812	.159
10	.5625-18	.8750-14	.728	.562	.075	.875	.159
11	.6250-18	1.0000-12	.836	.625	.083	.937	.190
12	.7500-16	1.1250-12	.930	.750	.099	1.062	.190
14	.8750-14	1.3750-12	1.149	.875	.114	1.187	.253
16	1.0000-12	1.5000-12	1.273	1.000	.114	1.312	.253

DASH NO.	J ±.010	S ±.015	T ±.005	W REF	KA +.000 −.005	KB +.010 −.000	KC +.005 −.000	KD ±.010	KF REF
8	.172	.750	.106	.496	.625	.516	.055	.255	.123
9	.187	.875	.106	.605	.750	.625	.062	.312	.154
10	.220	.937	.141	.717	.875	.734	.070	.351	.154
11	.220	1.000	.141	.820	1.000	.846	.078	.390	.185
12	.220	1.250	.141	.913	1.125	.938	.094	.437	.185
14	.250	1.375	.141	1.126	1.375	1.156	.109	.531	.248
16	.250	1.625	.141	1.253	1.500	1.281	.109	.531	.248

TABLE II - Length Dash Numbers

L NUT END ±.015	LENGTH DASH NUMBER								
	NUT END DIAMETER								
	.1120 .1380	.1640	.1900 .2500	.3125	.3750 .4375	.5000	.5625	.6250 .7500	.8750 1.0000
.250	4								
.312	5								
.375	6	6	6						
.437	7	7	7						
.500	8	8	8						
.562	9	9	9	9					
.625	10	10	10	10	10				
.687		11	11	11	11				
.750		12	12	12	12	12			
.812		13	13	13	13	13			
.875		14	14	14	14	14	14		
.937		15	15	15	15	15	15		
1.000		16	16	16	16	16	16	16	
1.062		17	17	17	17	17	17	17	
1.125		18	18	18	18	18	18	18	18
1.187		19	19	19	19	19	19	19	19
1.250		20	20	20	20	20	20	20	20
1.312		21	21	21	21	21	21	21	21
1.375		22	22	22	22	22	22	22	22
1.437		23	23	23	23	23	23	23	23

TABLE II - Continued

L NUT END ±.015	LENGTH DASH NO. NUT END DIA .1900	LENGTH DASH NO. NUT END DIA .2500 Thru 1.0000	L NUT END ±.015	LENGTH DASH NO. NUT END DIA .2500 Thru 1.0000
1.500	24	24	2.625	42
1.562	25	25	2.750	44
1.625	26	26	2.875	46
1.687	27	27	3.000	48
1.750	28	28	3.125	50
1.812	29	29	3.250	52
1.875	30	30	3.375	54
1.937	31	31	3.500	56
2.000	32	32	3.625	58
2.125		34	3.750	60
2.250		36	3.875	62
2.375		38	4.000	64
2.500		40		

NOTES:

1. MATERIAL: Studs: Alloy steel in accordance with MIL-S-6758 (4130) or MIL-S-5626 (4140).
   Corrosion-resisting steel in accordance with AMS 5737, composition A286.
   Keyrings: Corrosion-resisting steel, composition 410, in accordance with AMS 5504 or AMS 5613.

2. PROTECTIVE COATING: Alloy steel studs, with keyrings, shall be cadmium plated in accordance with QQ-P-416, Type II, Class 2.
   Corrosion-resisting steel studs, with keyrings, shall be passivated in accordance with QQ-P-35 or silver plated in accordance with AMS 2411.

3. SURFACE ROUGHNESS: Thread surfaces shall be 63 microinches, turned surfaces shall be 125 microinches and milled areas shall be 125-250 microinches, in accordance with ANSI B46.1.

4. THREADS: Threads shall be in accordance with MIL-S-8879.

5. HARDNESS: Alloy steel studs shall be Rockwell C36-40.
   Corrosion-resisting steel studs shall be Rockwell C35-39.
   Keyrings shall be Rockwell C35-45.

6. DIMENSIONS: All dimensions are in inches and shall apply after protective coating.

7. CONCENTRICITY: Nut end and stud end threads shall be concentric within 0.006 at the pitch diameter.

8. PART NUMBER: The part number consists of M45933/2 plus a size dash number from Table I, plus a length dash number from Table II.
Add "A" in lieu of the first "dash" for A286 corrosion-resisting steel.
Add "D" in lieu of the second "dash" for drilled hole in nut end.
Add "P" as suffix to length dash number for silver plating.
Examples:

M45933/2-5-16	Alloy steel stud, not drilled, 1.000 nut end length.
M45933/2A5D16P	Corrosion-resisting steel stud, drilled nut end, 1.000 nut end length, silver plated.

9. Studs shall be free of all hanging burrs and slivers which might become dislodged under usage.

10. These studs are manufactured under U.S. Patent No. 2,980,929 which expires 25 March 1978. The Government does not have a royalty free license.

11. Install studs in accordance with MIL-S-45933/3.

12. Revision letters are not used to denote changes due to the extensiveness of the changes.

Custodians:
Army - WC
Air Force - 99

Reviewer Activities:
Army - AV, EL
DSA - IS
NSA - NS

Preparing Activity:
Army - WC

Project No. 5307-0199

User Activities:
Navy - AS, OS

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
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DOCUMENT IDENTIFIER AND TITLE

MIL-S-45933/2A

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?
   A. GIVE PARAGRAPH NUMBER AND WORDING.

   B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

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   ☐ YES ☐ NO *(If "Yes", in what way?)*

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