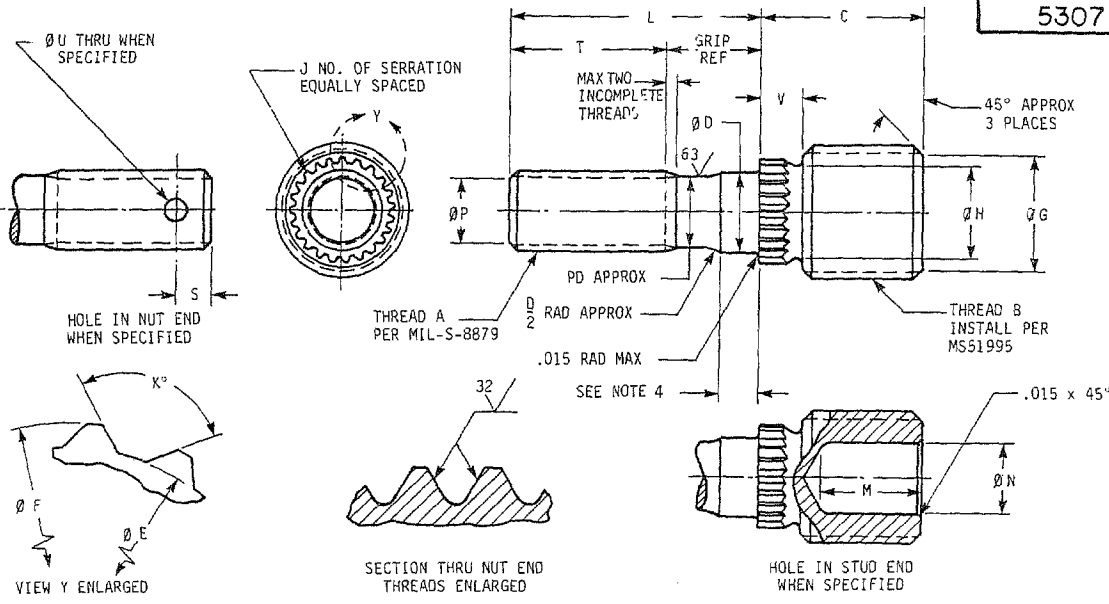


JUN 03 1985

FED. SUP CLASS
5307



User activities:
Army - MI
Navy - MC, OS

Review activities:
Army - AT, AV, GL, ME
Air Force - 11, 82
NSA - NS
DLA - TS

TABLE I - SHORT LENGTH

DASH NO.	A NUT END THREAD UNJF-3A	B STUD END THREAD			C	ØD	ØE	ØF	ØG	ØH	J	K°	M	ØN	T	V	ØP	S	ØU	LOCKRING MS51997 BASIC DASH NO.
		SEE REQT 4	PITCH DIA	MINOR DIA																
-502	.1900-32	.3750-24	.3512 .3497	.3271 .3185	.386	.189 .186	.255	.284	.318	.233	17	86°	.181	.202	.469	.142	.137	.120	.067	103P
-503	.2500-28	.4375-20	.4084 .4067	.3795 .3700	.486	.249 .246	.316	.345	.370	.294	20	102°	.239	.205	.594	.155	.190	.160	.067	104P
-504	.3125-24	.5000-20	.4711 .4694	.4422 .4325	.627	.312 .309	.380	.407	.432	.357	24	102°	.345	.222	.688	.200	.242	.160	.067	105P
-505	.3750-24	.6250-18	.5927 .5910	.5606 .5498	.762	.374 .371	.456	.487	.549	.433	26	102°	.471	.324	.750	.200	.305	.170	.096	106P
-506	.4375-20	.7500-16	.7134 .7114	.6773 .6656	.808	.437 .433	.567	.601	.665	.535	26	111°	.488	.438	.812	.200	.354	.170	.096	107P
-507	.5000-20	.8750-14	.8328 .8308	.7916 .7786	.883	.499 .495	.687	.721	.778	.645	30	111°	.503	.470	.875	.255	.416	.190	.096	108P
-508	.6250-18	1.0000-12	.9503 .9478	.9022 .8878	1.153	.624 .620	.783	.820	.887	.741	30	111°	.728	.476	1.000	.255	.532	.220	.128	109P

TABLE II - MEDIUM LENGTH

DASH NO.	A NUT END THREAD UNJF-3A	B STUD END THREAD			C	ØD	ØE	ØF	ØG	ØH	J	K°	M	ØN	T	V	ØP	S	ØU	LOCKRING MS51997 BASIC DASH NO.
		SEE REQT 4	PITCH DIA	MINOR DIA																
-642	.1900-32	.3750-24	.3512 .3497	.3271 .3185	.433	.189 .186	.255	.284	.318	.233	17	86°	.226	.202	.469	.142	.137	.120	.067	103P
-643	.2500-28	.4375-20	.4084 .4067	.3795 .3700	.558	.249 .246	.316	.345	.370	.294	20	102°	.311	.205	.594	.155	.190	.160	.067	104P
-644	.3125-24	.5000-20	.4711 .4694	.4422 .4325	.725	.312 .309	.380	.407	.432	.357	24	102°	.443	.222	.688	.200	.242	.160	.067	105P
-645	.3750-24	.6250-18	.5927 .5910	.5606 .5498	.893	.374 .371	.456	.487	.549	.433	26	102°	.602	.324	.750	.200	.305	.170	.096	106P
-646	.4375-20	.7500-16	.7134 .7114	.6773 .6656	.948	.437 .433	.567	.601	.665	.535	26	111°	.628	.438	.812	.200	.354	.170	.096	107P
-647	.5000-20	.8750-14	.8328 .8308	.7916 .7786	1.038	.499 .495	.687	.721	.778	.645	30	111°	.658	.470	.875	.255	.416	.190	.096	108P
-648	.6250-18	1.0000-12	.9503 .9478	.9022 .8878	1.364	.624 .620	.783	.820	.887	.741	30	111°	.939	.476	1.000	.255	.532	.220	.128	109P

This military standard is approved for use by all departments and agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document, when applicable.

P. A. Other Cust	AR AS 99	INTERNATIONAL INTEREST	TITLE STUD, LOCKED IN-RING LOCKED, SERRATED, HIGH STRENGTH, OVERSIZE REPLACER	MILITARY STANDARD MS51497
PROCUREMENT SPECIFICATION MIL-S-45909		SUPERSEDES:		PAGE 1 OF 3

REVISED
APPROVED 11 MAR 85

AM 09-4

TABLE III - LONG LENGTH

DASH NO.	A NUT END THREAD UNJF-3A	B STUD END THREAD			C ±.020	ØD	ØE +.005 -.004	ØF +.007 -.002	ØG +.000 -.015	ØH MIN	J	K° +2° -1°	M REF	ØN	T	V ±.015 ±.015	ØP ±.010	S ±.015	ØU +.005 -.002	LOCKRING MS51997 BASIC DASH NO.
		SEE REQT 4	PITCH DIA	MINOR DIA																
-802	.1900-32	.3750-24	.3512 .3497	.3271 .3185	.511	.189 .186	.255	.284	.318	.233	17	86°	.339	.202	.469	.142	.137	.120	.067	103P
-803	.2500-28	.4375-20	.4084 .4067	.3795 .3700	.673	.249 .246	.316	.345	.370	.294	20	102°	.465	.205	.594	.155	.190	.160	.067	104P
-804	.3125-24	.5000-20	.4711 .4694	.4422 .4325	.868	.312 .309	.380	.407	.432	.357	24	102°	.617	.222	.688	.200	.242	.160	.067	105P
-805	.3750-24	.6250-18	.5927 .5910	.5606 .5498	1.076	.374 .371	.456	.487	.549	.433	26	102°	.828	.324	.750	.200	.305	.170	.096	106P
-806	.4375-20	.7500-16	.7134 .7114	.6773 .6656	1.155	.437 .433	.567	.601	.665	.535	26	111°	.835	.438	.812	.200	.354	.170	.096	107P
-807	.5000-20	.8750-14	.8328 .8308	.7916 .7786	1.267	.499 .495	.687	.721	.778	.645	30	111°	.928	.470	.875	.255	.416	.190	.096	108P
-808	.6250-18	1.0000-12	.9503 .9478	.9022 .8878	1.656	.624 .620	.783	.820	.887	.741	30	111°	1.231	.476	1.000	.255	.532	.220	.128	109P

REQUIREMENTS:

1. MATERIAL:

CODE LETTER

- A - Steel, alloy, Grade 8740 (UNS G87400) conforming to MIL-S-6049 or AMS 6322.
- B - Steel, alloy, Grade 8740 (UNS G87400) conforming to MIL-S-6049 or AMS 6322.
- C - Steel, corrosion and heat resistant, Type A286 (UNS S66286) conforming to AMS 5731 or AMS 5734.
- D - Nickel base alloy, corrosion and heat resistant, Type 718 (UNS N07718) conforming to AMS 5662.
- E - Titanium alloy, 6Al-4V (UNS R56400) conforming to MIL-T-9047, 6Al-4V, condition A or AMS 4967.

2. PROTECTIVE COATING OR TREATMENT:

MATERIAL CODE LETTER

- A - Cadmium plated in accordance with QQ-P-416, Type II, class 3.
- B - Cadmium plated in accordance with AMS 2401.
- C & D - Cleaned, descaled and passivated in accordance with ASTM A380.
- E - None.

3. SURFACE ROUGHNESS:

Unless otherwise specified, machined surfaces shall be 125 microinches in accordance with ANSI B46.1 except for serrated collar.

4. THREADS:

The stud end thread has a special pitch diameter and minor diameter which installs into a MIL-S-8879, Class 3B tapped hole. Threads shall be in accordance with procurement specification.

5. MECHANICAL PROPERTIES:

Material code letters and corresponding hardness, tensile strengths and pertinent length dash numbers follow:

Material Code Letters	Hardness Min	Min Tensile Strength KSI	Dash Numbers
B	39HRC	180	-502 thru -508
C	277HB	140	-502 thru -508, -642 thru -648 & -802 thru -808
D	39HRC	180	-502 thru -508
E	35HRC	160	-502 thru -508, -642 thru -648 & -802 thru -808

6. CONCENTRICITY:

Shank of nut end shall be concentric with serrated collar within .006 FIM.

7. FILLETS:

Filletts shall be .030 radius maximum.

8. EDGES:

Edges broken .003-.015 unless otherwise specified.

9. TOLERANCES:

Linear dimensions ±.005, angular dimensions ±2°.

10. PART NUMBER:

The MS part number consists of the MS number, plus the material code letter, plus the dash number, plus the second dash number for length (table IV). Add "D" in lieu of the "dash" for drilled hole in nut end. Add "R" as suffix for recess in stud end. EXAMPLE:

- MS51497 A 803-24 Stud, Alloy Steel, 1.5 inch nut end length
- MS51497 B 503-24 Stud, Alloy Steel, 1.5 inch nut end length
- MS51497 C 643-24 Stud, Cres, 1.5 inch nut end length
- MS51497 D 503-24 Stud, Nickel Base Alloy, 1.5 inch nut end length
- MS51497 E 803-24 Stud, Titanium Alloy, 1.5 inch nut end length
- * MS51497 A 803D24 Stud, Alloy Steel, drilled hole, 1.5 inch nut end length
- * MS51497 A 803D24R Stud, Alloy Steel, drilled hole, recess in stud end, 1.5 inch nut end length
- * The same condition(s) can exist for all of the above materials.

NOTES:

1. DIMENSIONS: Dimensions in inches; to be met after plating.
2. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence.
3. Referenced Government (or non-government) documents 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 standard to the extent specified herein.

P. A.	AR	INTERNATIONAL INTEREST	TITLE	MILITARY STANDARD
Other Cust	AS		STUD, LOCKED IN-RING LOCKED, SERRATED, HIGH STRENGTH, OVERSIZE REPLACER.	MS51497
	99			
PROCUREMENT SPECIFICATION MIL-S-45909			SUPERSEDES:	PAGE 2 OF 3

APPROVED 11 MAR 85
REVISED

User activities:
Army - MI
Navy - MC, OS

Review activities:
Army - AT, AV, GL, ME
Air Force - 11, 82
NSA - IS
DLA - IS

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TABLE IV
TABULATED LENGTHS (NUT END)

DASH NO.	L ±.015 NUT END	GRIP LENGTH, REF (APPLICABLE TO TABLES I, II AND III)						
		UNJF SERIES 3A THREADS						
		.1900	.2500	.3125	.3750	.4375	.5000	.6250
-8	.500	*						
-9	.562	.093	*					
-10	.625	.156	*					
-11	.688	.219	*	*				
-12	.750	.281	.156	*	*			
-13	.812	.343	.218	.124	*			
-14	.875	.406	.281	.187	.125			
-15	.938	.469	.344	.250	.188	*		
-16	1.000	.531	.406	.312	.250	.188	*	
-17	1.062	.593	.468	.374	.312	.250	.187	
-18	1.125	.656	.531	.437	.375	.313	.250	*
-19	1.188	.719	.594	.500	.438	.376	.313	.188
-20	1.250	.781	.656	.562	.500	.438	.375	.250
-21	1.312	.843	.718	.624	.562	.500	.437	.312
-22	1.375	.906	.781	.687	.625	.563	.500	.375
-23	1.438	.969	.844	.750	.688	.626	.563	.438
-24	1.500	1.031	.906	.812	.750	.688	.625	.500
-25	1.562	1.093	.968	.874	.812	.750	.687	.562
-26	1.625	1.156	1.031	.937	.875	.813	.750	.625
-27	1.688	1.219	1.094	1.000	.938	.876	.813	.688
-28	1.750	1.281	1.156	1.062	1.000	.938	.875	.750
-29	1.812	1.343	1.218	1.124	1.062	1.000	.937	.812
-30	1.875	1.406	1.281	1.187	1.125	1.063	1.000	.875
-31	1.938	1.469	1.344	1.250	1.188	1.126	1.063	.938
-32	2.000	1.531	1.406	1.312	1.250	1.188	1.125	1.000
-34	2.125	1.656	1.531	1.437	1.375	1.313	1.250	1.125
-36	2.250	1.781	1.656	1.562	1.500	1.438	1.375	1.250
-38	2.375	1.906	1.781	1.687	1.625	1.563	1.500	1.375
-40	2.500	2.031	1.906	1.812	1.750	1.688	1.625	1.500
-42	2.625	2.156	2.031	1.937	1.875	1.813	1.750	1.625
-44	2.750	2.281	2.156	2.062	2.000	1.938	1.875	1.750
-46	2.875	2.406	2.281	2.187	2.125	2.063	2.000	1.875
-48	3.000	2.531	2.406	2.312	2.250	2.188	2.125	2.000
-50	3.125	2.656	2.531	2.437	2.375	2.313	2.250	2.125
-52	3.250	2.781	2.656	2.562	2.500	2.438	2.375	2.250
-54	3.375	2.906	2.781	2.687	2.625	2.563	2.500	2.375
-56	3.500	3.031	2.906	2.812	2.750	2.688	2.625	2.500
-58	3.625	3.156	3.031	2.937	2.875	2.813	2.750	2.625
-60	3.750	3.281	3.156	3.062	3.000	2.938	2.875	2.750
-62	3.875	3.406	3.281	3.187	3.125	3.063	3.000	2.875
-64	4.000	3.531	3.406	3.312	3.250	3.188	3.125	3.000

*HAS NO "D" SHANK AND "T" DIMENSION IS REDUCED. "T" DIMENSION WILL TERMINATE WITHIN 3 PITCHES OF SERRATED COLLAR.

NOTES: CONTINUED

4. DASH NUMBER PARTS BELOW HEAVY LINE HAVE LENGTH OF SHANK D EQUAL TO $\frac{D(MAX)}{2}$
 DASH NUMBER PARTS ABOVE HEAVY LINE HAVE LENGTH OF SHANK D SHORTER THAN $\frac{D(MAX)}{2}$

User activities:
Army - MI
Navy - MC, OS

Review activities:
Army - AT, AV, GL, ME
Air Force - 11, 82
NSA - NS
DLA - IS

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REVISED
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P. A. Other Cust 99	AR AS	INTERNATIONAL INTEREST	TITLE STUD, LOCKED IN-RING LOCKED, SERRATED, HIGH STRENGTH, OVERSIZE REPLACER	MILITARY STANDARD MS51497
PROCUREMENT SPECIFICATION MIL-S-45909			SUPERSEDES:	PAGE 3 OF 3