

FEDERAL SUPPLY CLASS
5307

REV.
B

AS51992™

RATIONALE

FIGURE REDRAWN, TABLES RETYPED, CADMIUM PLATE NOTE ADDED, CADMIUM PLATING SPEC UPDATED AND DOCUMENT GENERALLY UPDATED.

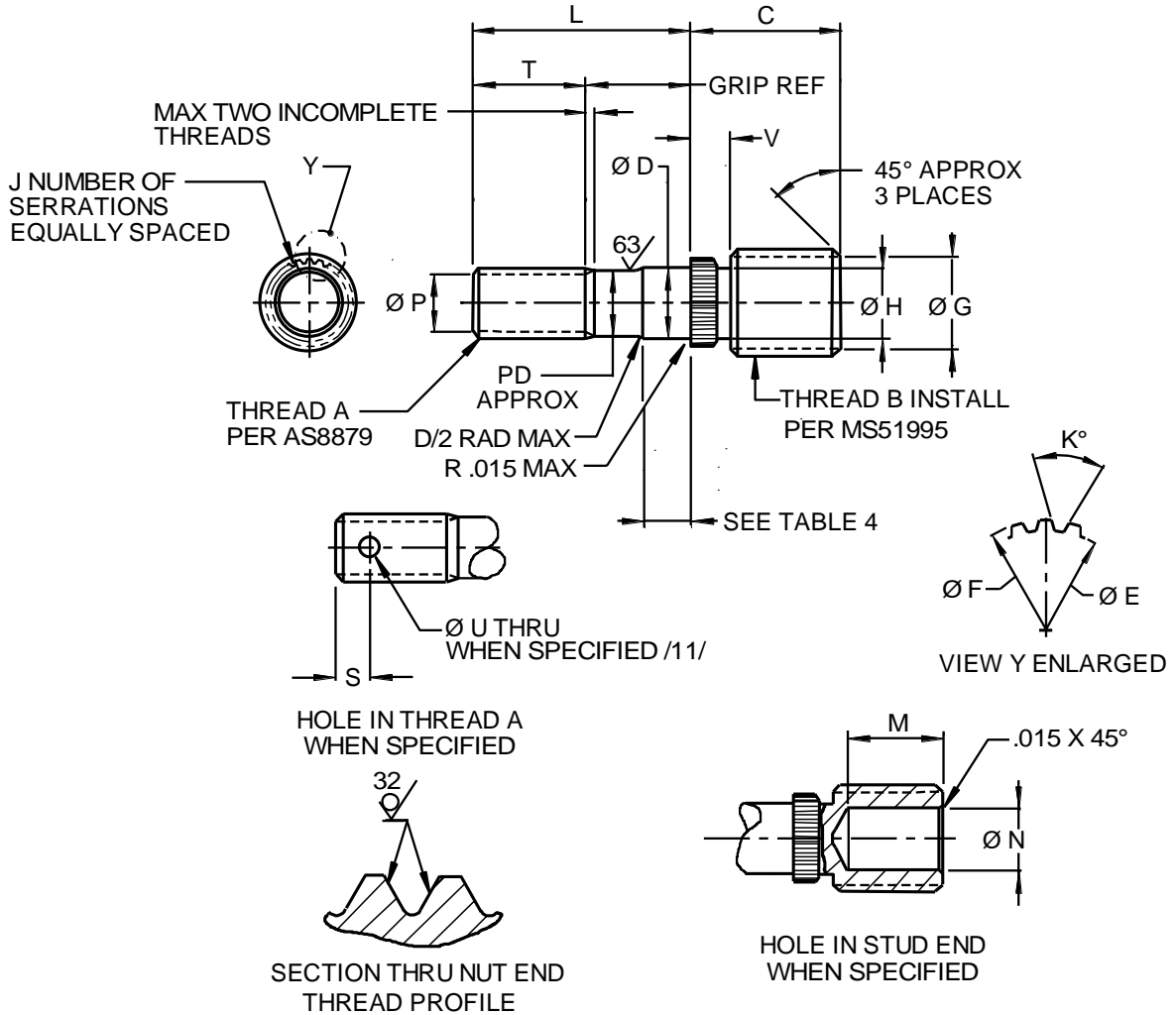
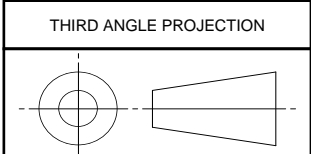


FIGURE 1

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CUSTODIAN: E-25

PROCUREMENT SPECIFICATION: NASM45909



AEROSPACE STANDARD

(R) STUD, LOCKED IN-RING, SERRATED, HIGH STRENGTH

AS51992™
SHEET 1 OF 5

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ISSUED 1999-04 REAFFIRMED 2012-11 REVISED 2016-02

TABLE 1 - SHORT STUD END LENGTH

DASH NO.	A NUT END THREAD UNJF-3A	B STUD END THREAD			C ±.020	Ø D	Ø E +.005 -.004	Ø F +.007 -.002	Ø G +.000 -.015	Ø H MIN
		/5/	PITCH DIA	MINOR DIA						
-502	.1900-32	.3125-24	.2869 -.2884	.2559 -.2643	.386	.186 -.189	.203	.230	.255	.175
-503	.2500-28	.3750-24	.3497 -.3512	.3185 -.3271	.486	.246 -.249	.255	.284	.318	.233
-504	.3125-24	.4375-20	.4067 -.4084	.3700 -.3795	.627	.309 -.312	.316	.345	.370	.294
-505	.3750-24	.5000-20	.4694 -.4711	.4325-.4422	.762	.371 -.374	.380	.407	.432	.357
-506	.4375-20	.6250-18	.5910 -.5927	.5498 -.5606	.808	.433 -.437	.456	.487	.549	.433
-507	.5000-20	.7500-16	.7114 -.7134	.6656 -.6773	.883	.495 -.499	.567	.601	.665	.535
-508	.6250-18	.8750-14	.8308 -.8328	.7786 -.7916	1.153	.620 -.624	.687	.721	.778	.645

TABLE 1 - SHORT STUD END LENGTH (CONTINUED)

DASH NO.	J	K +2° -1°	M REF	Ø N	T ±.015	V ±.015	Ø P ±.010	S ±.015	Ø U +.005 -.002	LOCK RING MS51997 BASIC DASH No
-502	13	102°	.205	.174	.469	.128	.137	.120	.067	102P
-503	17	86°	.281	.202	.594	.142	.190	.160	.067	103P
-504	20	102°	.380	.205	.688	.176	.242	.160	.067	104P
-505	24	102°	.480	.222	.750	.200	.305	.170	.096	105P
-506	26	102°	.517	.324	.812	.200	.354	.170	.096	106P
-507	26	111°	.563	.438	.875	.200	.416	.190	.096	107P
-508	30	111°	.773	.470	1.000	.255	.532	.220	.128	108P

TABLE 2 - MEDIUM STUD END LENGTH

DASH NO.	A NUT END THREAD UNJF-3A	B STUD END THREAD			C ±.020	Ø D	Ø E +.005 -.004	Ø F +.007 -.002	Ø G +.000 -.015	Ø H MIN
		/5/	PITCH DIA	MINOR DIA						
-642	.1900-32	.3125-24	.2869 -.2884	.2559 -.2643	.433	.186 -.189	.203	.230	.255	.175
-643	.2500-28	.3750-24	.3497 -.3512	.3185 -.3271	.558	.246 -.249	.255	.284	.318	.233
-644	.3125-24	.4375-20	.4067 -.4084	.3700 -.3795	.725	.309 -.312	.316	.345	.370	.294
-645	.3750-24	.5000-20	.4694 -.4711	.4325-.4422	.893	.371 -.374	.380	.407	.432	.357
-646	.4375-20	.6250-18	.5910 -.5927	.5498 -.5606	.948	.433 -.437	.456	.487	.549	.433
-647	.5000-20	.7500-16	.7114 -.7134	.6656 -.6773	1.038	.495 -.499	.567	.601	.665	.535
-648	.6250-18	.8750-14	.8308 -.8328	.7786 -.7916	1.364	.620 -.624	.687	.721	.778	.645

TABLE 2 - MEDIUM STUD END LENGTH (CONTINUED)

DASH NO.	J	K +2° -1°	M REF	Ø N	T ±.015	V ±.015	Ø P ±.010	S ±.015	Ø U +.005 -.002	LOCK RING MS51997 BASIC DASH No
-642	13	102°	.252	.174	.469	.128	.137	.120	.067	102P
-643	17	86°	.353	.202	.594	.142	.190	.160	.067	103P
-644	20	102°	.478	.205	.688	.176	.242	.160	.067	104P
-645	24	102°	.611	.222	.750	.200	.305	.170	.096	105P
-646	26	102°	.657	.324	.812	.200	.354	.170	.096	106P
-647	26	111°	.718	.438	.875	.200	.416	.190	.096	107P
-648	30	111°	.984	.470	1.000	.255	.532	.220	.128	108P



AEROSPACE STANDARD

(R) STUD, LOCKED IN-RING,
SERRATED, HIGH STRENGTHAS51992™
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TABLE 3 - LONG STUD END LENGTH

DASH NO.	A NUT END THREAD UNJF-3A	B STUD END THREAD			C ±.020	Ø D	Ø E +.005 -.004	Ø F +.007 -.002	Ø G +.000 -.015	Ø H MIN
		/5/	PITCH DIA	MINOR DIA						
-802	.1900-32	.3125-18	.2778 - .2795	.2373 - .2474	.511	.186 - .189	.203	.230	.237	.175
-803	.2500-28	.3750-16	.3358 - .3378	.2906 - .3017	.673	.246 - .249	.255	.284	.290	.233
-804	.3125-24	.4375-14	.3926 - .3946	.3411 - .3534	.868	.309 - .312	.316	.345	.341	.294
-805	.3750-24	.5000-13	.4512 - .4537	.3963 - .4093	1.076	.371 - .374	.380	.407	.396	.357
-806	.4375-20	.6250-11	.5674 - .5699	.5028 - .5174	1.155	.433 - .437	.456	.487	.502	.433
-807	.5000-20	.7500-10	.6866 - .6891	.6156 - .6314	1.267	.495 - .499	.567	.601	.615	.535
-808	.6250-18	.8750-9	.8046 - .8071	.7257 - .7430	1.656	.620 - .624	.687	.721	.725	.645

TABLE 3 - LONG STUD END LENGTH (CONTINUED)

DASH NO.	J	K +2° -1°	M REF	Ø N	T ±.015	V ±.015	Ø P ±.010	S ±.015	Ø U +.005 -.002	LOCK RING MS5197 BASIC DASH No
-802	13	102°	.330	.148	.469	.128	.137	.120	.067	102P
-803	17	86°	.468	.157	.594	.142	.190	.160	.067	103P
-804	20	102°	.621	.153	.688	.176	.242	.160	.067	104P
-805	24	102°	.794	.148	.750	.200	.305	.170	.096	105P
-806	26	102°	.864	.239	.812	.200	.354	.170	.096	106P
-807	26	111°	.947	.369	.875	.200	.416	.190	.096	107P
-808	30	111°	1.276	.378	1.000	.255	.532	.220	.128	108P

NOTES:

NOTICE

THIS DOCUMENT REFERENCES A PART WHICH CONTAINS CADMIUM AS A PLATING MATERIAL. CONSULT LOCAL OFFICIALS IF YOU HAVE QUESTIONS CONCERNING CADMIUM'S USE.

1. MATERIAL CODE LETTER:

A - STEEL ALLOY GRADE 8740 (UNS G87400) CONFORMING TO AMS6322

B - STEEL ALLOY GRADE 8740 (UNS G87400) CONFORMING TO AMS6322

C - STEEL CORROSION AND HEAT RESISTANT, A286 CONFORMING TO AMS5731, AMS5732, AMS5734, OR AMS5737

D - NICKEL BASE ALLOY, CORROSION AND HEAT RESISTANT, TYPE 718 (UNS N07718) CONFORMING TO AMS5662

E - TITANIUM ALLOY, TI-6Al-4V (UNS R56400) TO AMS-T-9047, TI-6Al-4V CONDITION A, OR AMS4967

2. PROTECTIVE COATING OR TREATMENT CODE LETTER:

A - CADMIUM PLATED TO AMS2400, DIMENSIONS TO BE MET AFTER PLATING

B - CADMIUM PLATED TO AMS2401, DIMENSIONS TO BE MET AFTER PLATING

C AND D - PASSIVATE IN ACCORDANCE WITH AMS2700, METHOD 1, TYPE 2 OR TYPE 8

E - NONE

3. SURFACE TEXTURE:

SYMBOLS PER ASME Y14.36M. REQUIREMENTS PER ASME B46.1. UNLESS OTHERWISE SPECIFIED, MACHINED SURFACES TO BE 125 MICRINCHES Ra, EXCEPT FOR SERRATED COLLAR.

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	(R) STUD, LOCKED IN-RING, SERRATED, HIGH STRENGTH		

4. DIMENSIONS IN INCHES.

/5/ THREADS:

THE STUD END THREAD HAS A SPECIAL PITCH DIAMETER AND MINOR DIAMETER WHICH INSTALLS INTO A AS8879 CLASS 3B TAPPED HOLE. THREADS SHALL BE IN ACCORDANCE WITH THE PROCUREMENT SPECIFICATION.

6. MECHANICAL PROPERTIES:

MATERIAL CODE LETTERS AND CORRESPONDING HARDNESS, TENSILE STRENGTHS, AND PERTINENT LENGTH DASH NUMBERS FOLLOWS:

CODE LETTER	MIN HARDNESS	MIN TENSILE STRENGTH KSI	DASH NUMBERS
A	35HRC	160	-642 THRU - 648 -802 THRU - 808
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

7. SHANK OF NUT END SHALL BE CONCENTRIC WITH SERRATED COLLAR WITHIN .006 FIM.

8. FILLETS SHALL BE .030 RADIUS MAXIMUM.

9. EDGES:

EDGES BROKEN .003 TO .015 UNLESS OTHERWISE SPECIFIED.

10. TOLERANCES:

LINEAR DIMENSIONS ± 0.005 , ANGULAR DIMENSIONS $\pm 2^\circ$.

/11/ PART NUMBER CONSISTS OF MS PART NUMBER, MATERIAL CODE LETTER, DASH NUMBER AND SECOND DASH NUMBER FOR LENGTH SEE TABLE 4.

ADD D IN PLACE OF FIRST DASH FOR DRILLED HOLE IN NUT END

ADD R AS A SUFFIX FOR RECESS IN STUD END.

EXAMPLES:

MS51992A803-24 STUD, ALLOY STEEL, 1.5 INCH NUT END LENGTH

MS51992B803-24 STUD, ALLOY STEEL, 1.5 INCH NUT END LENGTH

MS51992C643-24 STUD, CRES, 1.5 INCH NUT END LENGTH

MS51992D503-24 STUD, NICKEL BASE ALLOY, 1.5 INCH NUT END LENGTH

MS51992E803-24 STUD, TITANIUM ALLOY, 1.5 INCH NUT END LENGTH

* MS51992A803D24 STUD, ALLOY STEEL, DRILLED HOLE, 1.5 INCH NUT END LENGTH

* MS51992A803D24R 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

12. UNLESS OTHERWISE SPECIFIED, PART INVENTORY MANUFACTURED TO PREVIOUS REVISIONS OF THE APPLICABLE DRAWING OR SPECIFICATION MAY BE PROCURED AND USED UNTIL STOCK IS DEPLETED.

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	(R) STUD, LOCKED IN-RING, SERRATED, HIGH STRENGTH		

13. REVISION INDICATOR:

A CHANGE BAR (I) LOCATED IN THE LEFT MARGIN IS FOR THE CONVENIENCE OF THE USER IN LOCATING AREAS WHERE TECHNICAL REVISIONS, NOT EDITORIAL CHANGES, HAVE BEEN MADE TO THE PREVIOUS ISSUE OF THIS DOCUMENT. AN (R) SYMBOL TO THE LEFT OF THE DOCUMENT TITLE INDICATES A COMPLETE REVISION OF THE DOCUMENT, INCLUDING TECHNICAL REVISIONS. CHANGE BARS AND (R) ARE NOT USED IN ORIGINAL PUBLICATIONS NOR IN DOCUMENTS THAT CONTAIN EDITORIAL CHANGES ONLY.

TABLE 4

DASH NUMBER	L ± .015 NUT END	GRIP LENGTH REF (APPLICABLE TO TABLES 1, 2, AND 3)						
		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

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

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

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

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	(R) STUD, LOCKED IN-RING, SERRATED, HIGH STRENGTH		