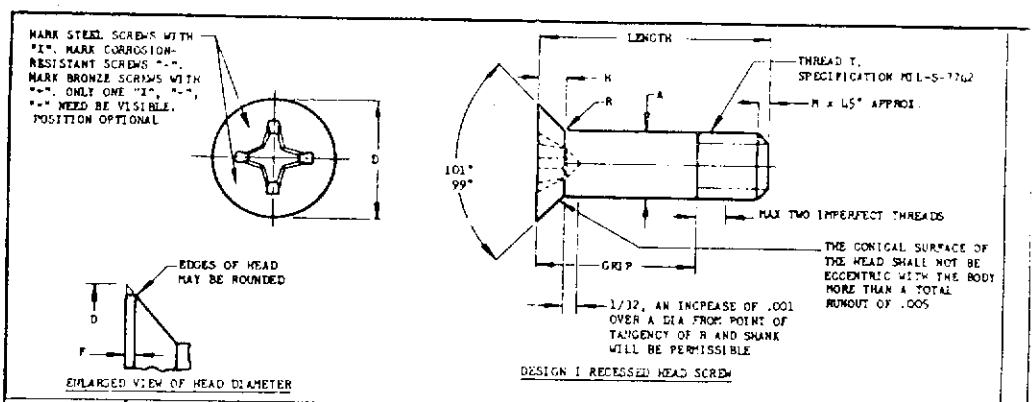
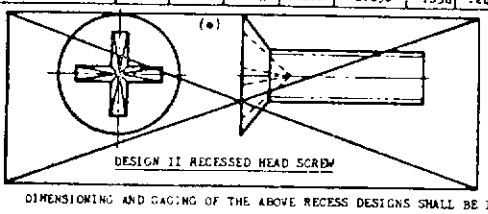


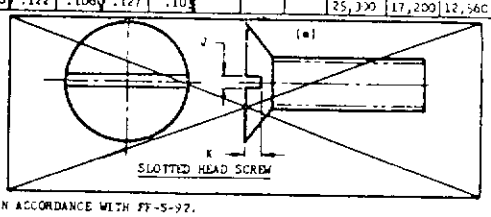
ENLARGED VIEW OF HEAD DIAMETER

DESIGN I RECESSED HEAD SCREW

THREAD T	A DIA		D DIA			F	(a) H REF	J		K		M	R RAD		TENSILE STRENGTH LBS. MIN. (d)		
			MAX SHARP	MIN SHARP	ABSOLUTE MIN WITH MAX T										ALLOY STEEL	CRES	AL ALLOY
	MAX	MIN				MAX		MAX	MIN	MAX	MIN	MAX	MAX	MIN			
8-32UNC-3A	.1640	.1610	.332	.319	.283	.015	.068	.055	.045	.031	.027	.031	.015	.005	1,740	1,150	860
10-32UNF-3A	.1890	.1860	.385	.371	.327	.016	.080	.060	.050	.042	.031				2,690	1,690	1,230
1/4 -28UNF-3A	.2490	.2460	.507	.491	.447	.018	.106	.079	.066	.055	.042				4,520	3,380	2,240
5/16 -24UNF-3A	.3115	.3055	.635	.617	.569	.020	.133	.098	.082	.069	.053				7,240	4,720	3,520
3/8 -24UNF-3A	.3740	.3710	.762	.742	.686	.023	.159	.096	.081	.083	.064				10,250	7,450	5,430
7/16-20UNF-3A	.4365	.4325	.890	.868	.805	.026	.186	.098	.082	.097	.077	.047	.020	.010	14,800	10,070	7,350
1/2 -20UNF-3A	.4990	.4950	1.017	.992	.919	.030	.213	.110	.091	.112	.044				19,950	13,470	9,990
9/16 -18UNF-3A	.5615	.5575	1.145	1.118	1.036	.034	.240	.122	.106	.127	.103				25,300	17,200	12,560



DESIGN II RECESSED HEAD SCREW



SLOTTED HEAD SCREW

DIMENSIONING AND GAGING OF THE ABOVE RECESS DESIGNS SHALL BE IN ACCORDANCE WITH FF-S-92.

(a) REFERENCE DIMENSIONS ARE FOR DESIGN PURPOSES ONLY AND ARE NOT AN INSPECTION REQUIREMENT.
(b) TOLERANCE ON THE LENGTHS FOR NO. 8-32, NO. 10-32, 1/4-28, AND 3/8-24 SCREWS = +1/32, -1/64; FOR 5/16-24 AND 9/16-18 SCREWS = +3/64, -0; FOR 7/16-20 AND 1/2-20 SCREWS = +1/64, -1/32.
(c) BRONZE SCREWS INACTIVE FOR DESIGN AFTER 31 JANUARY 1952.
(d) THE VALUES SHOWN FOR THE ULTIMATE TENSILE STRENGTHS ARE FOR MINIMUM VALUES AND ARE BASED ON: 125,000 PSI FOR LOW ALLOY STEEL; 85,000 PSI FOR CORROSION RESISTANT STEEL; 62,000 PSI FOR ALUMINUM ALLOY. THE STRESS AREAS USED FOR THE CALCULATION OF THE TENSILE STRENGTH VALUES ARE BASED ON THE AVERAGE OF THE MEAN PITCH AND MINOR DIAMETERS OF THE EXTERNAL THREAD.
(e) DESIGN II RECESSED AND SLOTTED HEAD SCREWS INACTIVE FOR DESIGN AFTER 17 FEBRUARY 1959.

FOR DEFINITION AND APPLICATION OF DRAWING STATUS NOTES, SEE AIA BULLETIN NO. 337.
MATERIAL: LOW ALLOY STEEL, ALUMINUM ALLOY, CORROSION-RESISTANT STEEL SEE PROCUREMENT SPECIFICATION; COMMERCIAL BRONZE, 85,000 PSI MINIMUM.
FINISH: LOW ALLOY STEEL, CORROSION-RESISTANT STEEL AND ALUMINUM ALLOY, SEE PROCUREMENT SPECIFICATION; BRONZE, CADMIUM PLATE, SPECIFICATION QQ-P-416, TYPE I, CLASS 3.
GRIP LENGTHS IN ADDITION TO THOSE TABULATED ARE AVAILABLE IN 1/8 INCH INCREMENTS BY THE USE OF SIGNIFICANT DASH NUMBERS.
PLAIN DASH NUMBERS INDICATE STEEL SCREWS.
(c) ~~ADD B BEFORE (FOR B-1CH HEADS) FOR DASH (ROUND ONLY), AND P (FOR C-1CH PILOT DASH NUMBER FOR PLATED BRONZE SCREWS.~~
ADD C BEFORE FIRST DASH NUMBER FOR CORROSION RESISTANT STEEL SCREWS.
ADD D BEFORE FIRST DASH NUMBER FOR ALUMINUM ALLOY SCREWS.
ADD R BETWEEN FIRST AND SECOND DASH NUMBER FOR RECESSED HEAD SCREWS.
EXAMPLES OF PART NOS.: AN509-10-12 = NO. 10 SLOTTED HEAD STEEL SCREW 25/32 INCH LONG.
(c) ~~AN509P10-12 = NO. 10 SLOTTED HEAD PLATED BRONZE SCREW 25/32 INCH LONG.~~
(c) ~~AN509B10-12 = NO. 10 SLOTTED HEAD BARE BRONZE SCREW 25/32 INCH LONG.~~
AN509C10-12 = NO. 10 SLOTTED HEAD CORROSION RESISTANT STEEL SCREW 25/32 INCH LONG.
AN509D10-12 = NO. 10 SLOTTED HEAD ALUMINUM ALLOY SCREW 25/32 INCH LONG.
AN509-10R12 = NO. 10 RECESSED HEAD STEEL SCREW 25/32 INCH LONG.
SCREWS SHALL BE FREE OF ALL LOOSE OR HANGING BURRS OR SLIVERS WHICH MIGHT BECOME DISLODGED UNDER USAGE.
DIMENSIONS IN INCHES.

CANCELED AFTER 21 APR 1967
④ FOR NEW DESIGN AND ENGINEERING USE MS24694

PROCUREMENT SPECIFICATION	AIR FORCE-NAVY AERONAUTICAL STANDARD	AN509
MIL-S-7819	SCREW - MACHINE, FLAT HEAD, 100°, STRUCTURAL	SHEET 1 OF 1

APPROVED 21 May 57 REVISED ① 15 Jul 57 ② 17 Feb 59 ④ 21 APR 1967

(6) LENGTH	NO. 6-32 GRIP		DASH NO.	NO. 8-32 GRIP		DASH NO.	1/4-28 GRIP		DASH NO.	5/16-24 GRIP		DASH NO.
9/32	3/32		B-4	1/64		10-4			416-4	11/64		516-4
11/32	5/32	±1/32 -0	B-5	3/64	±1/32 -0	10-5	5/64	±1/32 -0	416-5	11/64		516-5
13/32	7/32		B-6	1/16		10-6	3/32		416-6	11/64		516-6
15/32	9/32		B-7	5/64		10-7	7/64		416-7	11/64		516-7
17/32	11/32		B-8	3/32		10-8	1/8		416-8	11/64	±1/32 -0	516-8
19/32	13/32		B-9	7/64		10-9	9/64		416-9	11/64		516-9
21/32	15/32		B-10	1/8		10-10	5/32		416-10	11/64		516-10
23/32	17/32		B-11	1/4		10-11	3/16		416-11	11/64		516-11
25/32	19/32		B-12	5/16		10-12	1/4		416-12	7/32		516-12
27/32	21/32		B-13	3/8		10-13	5/16		416-13	9/32		516-13
29/32	23/32		B-14	7/16		10-14	3/8		416-14	11/32		516-14
31/32	25/32		B-15	1/2		10-15	7/16		416-15	13/32		516-15
1- 1/32	27/32		B-16	9/16		10-16	1/2		416-16	15/32		516-16
1- 3/32	29/32		B-17	5/8		10-17	9/16		416-17	17/32		516-17
1- 5/32	31/32		B-18	11/16		10-18	5/8		416-18	19/32		516-18
1- 7/32	1- 1/32		B-19	3/4		10-19	11/16		416-19	21/32		516-19
1- 9/32	1- 3/32		B-20	13/16		10-20	3/4		416-20	23/32		516-20
1-11/32	1- 5/32		B-21	7/8		10-21	13/16		416-21	25/32		516-21
1-13/32	1- 7/32		B-22	15/16		10-22	7/8		416-22	27/32		516-22
1-15/32	1- 9/32	±1/64	B-23	1		10-23	15/16		416-23	29/32		516-23
1-17/32	1-11/32		B-24	1- 1/16		10-24	1		416-24	31/32		516-24
1-19/32	1- 5/32		B-25	1- 1/8		10-25	1- 1/16		416-25	1- 1/32		516-25
1-21/32	1- 7/32		B-26	1- 3/16		10-26	1- 1/8		416-26	1- 3/32		516-26
1-23/32	1- 9/32		B-27	1- 1/4		10-27	1- 3/16		416-27	1- 5/32		516-27
1-25/32	1-13/32		B-28	1- 5/16	±1/64	10-28	1- 1/4		416-28	1- 7/32		516-28
1-27/32	1-13/32		B-29	1- 3/8		10-29	1- 5/16	±1/64	416-29	1- 9/32		516-29
1-29/32	1-15/32		B-30	1- 7/16		10-30	1- 3/8		416-30	1-11/32		516-30
1-31/32	1-17/32		B-31	1- 1/2		10-31	1- 7/16		416-31	1-13/32	±1/64	516-31
2- 1/32	1-19/32		B-32	1-9/16		10-32	1- 1/2		416-32	1-15/32		516-32
2- 1/32	1-21/32		B-33	1- 5/8		10-33	1- 9/16		416-33	1-17/32		516-33
2- 5/32	1-23/32		B-34	1-11/16		10-34	1- 5/8		416-34	1-19/32		516-34
2- 7/32	1-25/32		B-35	1- 3/4		10-35	1-11/16		416-35	1-21/32		516-35
2- 9/32	1-27/32		B-36	1-13/16		10-36	1- 3/4		416-36	1-23/32		516-36
2-11/32	1-29/32		B-37	1- 7/8		10-37	1-13/16		416-37	1-25/32		516-37
2-13/32	1-31/32		B-38	1-15/16		10-38	1- 7/8		416-38	1-27/32		516-38
2-15/32				2		10-39	1-15/16		416-39	1-29/32		516-39
2-17/32				2- 1/16		10-40	2		416-40	1-31/32		516-40
2-19/32				2- 1/8		10-41	2- 1/16		416-41	2- 1/32		516-41
2-21/32				2- 3/16		10-42	2- 1/8		416-42	2- 3/32		516-42
2-23/32				2- 1/4		10-43	2- 3/16		416-43	2- 5/32		516-43
2-25/32				2- 5/16		10-44	2- 1/4		416-44	2- 7/32		516-44
2-27/32				2- 3/8		10-45	2- 5/16		416-45	2- 9/32		516-45
2-29/32				2- 7/16		10-46	2- 3/8		416-46	2-11/32		516-46
2-31/32				2- 1/2		10-47	2- 7/16		416-47	2-13/32		516-47
3- 1/32				2- 9/16		10-48	2- 1/2		416-48	2-15/32		516-48
3- 3/32												
3- 5/32												
3- 7/32												
3- 9/32												
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3-27/32												
3-29/32												
3-31/32												
4- 1/32												
4- 3/32												

APPROVED 31 May 49 REVISED (1) 22 Jul 57 (1) 11 Jan 58 (3) 21 APR 1967

NOTE: This document was approved by [illegible] of the Air Force-Navy Department as the Procurement specification for the procurement of [illegible] and shall not be changed without approval of the Chief, Bureau of Aeronautics, Department of the Navy, and the Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. [illegible] shall not be changed without approval of the Chief, Bureau of Aeronautics, Department of the Navy, and the Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. [illegible] shall not be changed without approval of the Chief, Bureau of Aeronautics, Department of the Navy, and the Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio.

(3) CANCELED AFTER 21 APR 1967
FOR NEW DESIGN AND ENGINEERING USE MS24694.

PROCUREMENT SPECIFICATION	AIR FORCE-NAVY AERONAUTICAL STANDARD	AN509
MIL-S-7839	SCREW - MACHINE, FLAT HEAD, 100° STRUCTURAL	SHEET 2 OF 3

(b) LENGTH	1/8-36 GRIP		DASH NO.	7/16-20 GRIP		DASH NO.	1/2-20 GRIP		DASH NO.	9/16-18 GRIP		DASH NO.
9/32												
11/32												
13/32	3/16		616-5									
15/32	3/16		616-6	1/32		716-6	1/4		816-6			
17/32	3/16		616-7	1/32		716-7	1/4		816-7	9/32		916-7
19/32	3/16	+1/32 -0	616-8	1/32		716-8	1/4		816-8	9/32		916-8
21/32	3/16		616-9	1/32	+1/32 -0	716-9	1/4		816-9	9/32		916-9
23/32	3/16		616-10	1/32		716-10	1/4		816-10	9/32		916-10
25/32	3/16		616-11	1/32		716-11	1/4	+1/32 -0	816-11	9/32		916-11
27/32	3/16		616-12	1/32		716-12	1/4		816-12	9/32	+1/32 -0	916-12
29/32	1/32		616-13	1/32		716-13	1/4		816-13	9/32		916-13
31/32	9/32		616-14	1/4		716-14	1/4		816-14	9/32		916-14
1- 1/32	11/32		616-15	5/16		716-15	1/4		816-15	9/32		916-15
1- 3/32	13/32		616-16	3/8		716-16	1/4		816-16	9/32		916-16
1- 5/32	15/32		616-17	7/16		716-17	5/16		816-17	9/32		916-17
1- 7/32	17/32		616-18	1/2		716-18	3/8		816-18	9/32		916-18
1- 9/32	19/32		616-19	9/16		716-19	7/16		816-19	11/32		916-19
1-11/32	21/32		616-20	5/8		716-20	1/2		816-20	13/32		916-20
1-13/32	23/32		616-21	11/16		716-21	9/16		816-21	15/32		916-21
1-15/32	25/32		616-22	3/4		716-22	5/8		816-22	17/32		916-22
1-17/32	27/32		616-23	13/16		716-23	11/16		816-23	19/32		916-23
1-19/32	29/32		616-24	7/8		716-24	3/4		816-24	21/32		916-24
1-21/32	31/32		616-25	15/16		716-25	13/16		816-25	23/32		916-25
1-23/32	1- 1/32		616-26	1		716-26	7/8		816-26	25/32		916-26
1-25/32	1- 3/32		616-27	1- 1/16		716-27	15/16		816-27	27/32		916-27
1-27/32	1- 5/32		616-28	1- 1/8		716-28	1		816-28	29/32		916-28
1-29/32	1- 7/32		616-29	1- 3/16		716-29	1- 1/16		816-29	31/32		916-29
1-31/32	1- 9/32	±1/64	616-30	1- 1/4		716-30	1- 1/8		816-30	1- 1/32		916-30
2- 1/32	1-11/32		616-31	1- 5/16	±1/64	716-31	1- 3/16		816-31	1- 3/32		916-31
2- 3/32	1-13/32		616-32	1- 3/8		716-32	1- 1/4		816-32	1- 5/32		916-32
2- 5/32	1-15/32		616-33	1- 7/16		716-33	1- 5/16		816-33	1- 7/32		916-33
2- 7/32	1-17/32		616-34	1- 1/2		716-34	1- 3/8		816-34	1- 9/32		916-34
2- 9/32	1-19/32		616-35	1- 9/16		716-35	1- 7/16		816-35	1-11/32		916-35
2-11/32	1-21/32		616-36	1- 5/8		716-36	1- 1/2		816-36	1-13/32		916-36
2-13/32	1-23/32		616-37	1-11/16		716-37	1- 9/16		816-37	1-15/32		916-37
2-15/32	1-25/32		616-38	1- 3/4		716-38	1- 5/8		816-38	1-17/32		916-38
2-17/32	1-27/32		616-39	1-13/16		716-39	1-11/16		816-39	1-19/32		916-39
2-19/32	1-29/32		616-40	1- 7/8		716-40	1- 3/4	±1/64	816-40	1-21/32		916-40
2-21/32	1-31/32		616-41	1-15/16		716-41	1-13/16		816-41	1-23/32		916-41
2-23/32	2- 1/32		616-42	2		716-42	1- 7/8		816-42	1-25/32	±1/64	916-42
2-25/32	2- 1/32		616-43	2- 1/16		716-43	1-15/16		816-43	1-27/32		916-43
2-27/32	2- 5/32		616-44	2- 1/8		716-44	2		816-44	1-29/32		916-44
2-29/32	2- 7/32		616-45	2- 3/16		716-45	2- 1/16		816-45	1-31/32		916-45
2-31/32	2- 9/32		616-46	2- 1/4		716-46	2- 1/8		816-46	2- 1/32		916-46
3- 1/32	2-11/32		616-47	2- 5/16		716-47	2- 3/16		816-47	2- 3/32		916-47
3- 3/32	2-13/32		616-48	2- 3/8		716-48	2- 1/4		816-48	2- 5/32		916-48
3- 5/32							2- 5/16		816-49	2- 7/32		916-49
3- 7/32							2- 3/8		816-50	2- 9/32		916-50
3- 9/32							2- 7/16		816-51	2-11/32		916-51
3-11/32							2- 1/2		816-52	2-13/32		916-52
3-13/32							2- 9/16		816-53	2-15/32		916-53
3-15/32							2- 5/8		816-54	2-17/32		916-54
3-17/32							2-11/16		816-55	2-19/32		916-55
3-19/32							2- 3/4		816-56	2-21/32		916-56
3-21/32							2-13/16		816-57	2-23/32		916-57
3-23/32							2- 7/8		816-58	2-25/32		916-58
3-25/32							2-15/16		816-59	2-27/32		916-59
3-27/32							3		816-60	2-29/32		916-60
3-29/32							3- 1/16		816-61	2-31/32		916-61
3-31/32							3- 1/8		816-62	3- 1/32		916-62
4- 1/32							3- 3/16		816-63	3- 3/32		916-63
4- 3/32							3- 1/4		816-64	3- 5/32		916-64

(3) CANCELED AFTER 21 APR 1967
FOR NEW DESIGN AND ENGINEERING USE MS24694.

APPROVED (1) 22 Jul 47 (2) 11 Jan 52 (3) 21 APR 1967
(1) May 48 REVISED

PROCUREMENT SPECIFICATION	AIR FORCE-NAVY AERONAUTICAL STANDARD	AN509
MIL-S-7839	SCREW - MACHINE, FLAT HEAD, 100° STRUCTURAL	SHEET 3 OF 3

*U.S. GOVERNMENT PRINTING OFFICE: 1967-251-520/6483