



TABLE J

D	NOMINAL SIZE	(C)	.066	.112	.138	.164
	THREADS PER INCH		56UNC	40UNC	32UNC	32UNC
D ₁	BODY DIAMETER	Max Min	.0760 .0717	.1120 .0925	.1380 .1141	.1640 .1400
A	HEAD DIAMETER	Max Sharp Min Sharp Abs Min	.172 .156 .147	.225 .207 .195	.270 .257 .244	.332 .307 .292
H	HEAD HEIGHT-FULL HEAD	Ref	.051	.067	.083	.100
H ₁	HEAD HEIGHT-UNDERCUT HEAD	Max Min	.036 .025	.047 .036	.050 .045	.070 .055
R	RADIUS-FULL HEAD	Max	.044	.045	.055	.066
R ₁	RADIUS-UNDERCUT HEAD	Max	.013	.017	.021	.025
	DRIVER SIZE		1	1	2	2
	MINIMUM TENSILE STRENGTH LOAD LBS.		300	450	730	1,120
L	LENGTH	Tolerance	Dash Number	Dash Number	Dash Number	Dash Number
Threads shall extend to within 2 threads of the bearing surface of the head, or closer if practicable.	1/8		1	11	24	40
	3/16		2	12	25	40
	1/4		3	13	26	41
	5/16		4	14	27	42
	3/8	+0 -1/32	5	15	28	44
	7/16		6	16	29	44
	1/2		7	17	30	45
	5/8		8	18	31	46
	3/4		9	19	32	47
	7/8	+0 -1/16	10	20	33	48
	1-1/4		21	34	49	
	1-3/4		22	35	50	
	2-1/4	+0 -3/32	23	36	51	
	2-1/2		37	52		
	2-3/4		38	53		
3			54	54		
				55		
				56		
				57		

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- Indicates manufacturer's non-stock production items.
- Based on 70,000 PSI minimum tensile strength. Load pounds are calculated by the stress area indicated in Screw-Thread Standards for Federal Services, Handbook n-24.
- MATERIAL:** Steel, Corrosion-Resisting, 300 series, as specified in QQ-570 and Fed. Std. No. 66, or equal to or interchangeable with 16:1F or 18:5F chromium-nickel alloy steel.
- PROTECTIVE COATING:** Passivated in accordance with QQ-P-35. Black oxide coated in accordance with MIL-C-1024, class 4. (When black oxide coating is required the dash number shall be followed by a "B".)
- MAGNETIC PERMEABILITY:** These fasteners have a magnetic permeability of 2.0 maximum (air = 1.0) for a field strength of H = 200 oersteds using a magnetic indicator per MIL-1-17214.
- THREADS:** The threads shall be in accordance with Screw-Thread Standards for Federal Services, Handbook n-24.
- RECESS:** The recess shall conform with MS9006.
- DIMENSIONS:** All dimensions are in inches, unless otherwise specified.
- PART NUMBER:** The MS part number consists of the MS number, plus the dash number. Example: MS51959-1; Passivated. MS51959-1B; Black oxide coated.
- Referenced documents shall be of the issue in effect on date of invitations for bid.
- For design feature purposes, this standard takes precedence over procurement documents referenced herein.
- Sizes above dotted line have undercut head.

(C) For changes see sheets J and 2.

P.A. WC Other Cast SH B2	TITLE SCREW, MACHINE-FLAT COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CORROSION RESISTING STEEL, UNC-2A	MILITARY STANDARD MS51959
PROCUREMENT SPECIFICATION FF-5-02	SUPERSEDES: MS35200 and in part MS35240, MS35355, MS35363 and AN505	SHEET 1 OF 4

APPROVED 19 DECEMBER 1963 REVISED (A) 15 OCTOBER 1965 (B) 16 DEC 1968 (C) 2 APR 1971

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TABLE 1 (CONTINUED)

D	NOMINAL SIZE	(C)	.190	.250	.3125	.375
	THREADS PER INCH		24UNC	20UNC	18UNC	16UNC
D ₁	BODY DIAMETER	Max Min	.1900 .1886	.2500 .2427	.3125 .2712	.3750 .3287
A	HEAD DIAMETER	Max Sharp Min sharp Abs Min	.365 .359 .340	.507 .477 .452	.635 .600 .568	.762 .722 .685
H	HEAD HEIGHT-FULL HEAD	Ref	.116	.153	.191	.230
H ₁	HEAD HEIGHT-UNDERCUT HEAD	Max Min	.061 .064	.107 .092	.134 .116	.161 .140
R	RADIUS-FULL HEAD	Max	.076	.100	.125	.150
R ₁	RADIUS-UNDERCUT HEAD	Max	.020	.038	.047	.050
	DRIVER SIZE		2	3	4	4
	MINIMUM TENSILE STRENGTH LOAD LBS.		1,400	2,540	4,190	6,200
L	LENGTH	Tolerance	Dash Number	Dash Number	Dash Number	Dash Number
Threads shall extend to within 12 threads of the bearing surface of the head, or closer if practicable.	1/8	±0 -1/32	54	76	92	107
	3/16		58			
	1/4		61			
	5/16		62			
	3/8		63			
	7/16		64			
	1/2	±0 -1/16	65	81	96	109
	5/8		66			
	3/4		67			
	7/8		68			
	1-1/4		69			
	1-1/2		70			
1-3/4	±0 -3/32	71	85	100	113	
2-1/4		72				
2-1/2		73				
2-3/4		74				
3		75				
Minimum complete thread length of 1-3/4		76				

Indicates manufacturer's non-stock production items.
Based on 40,000 PSI minimum tensile strength. Load pounds are calculated by the stress areas indicated in Screw-Thread standards for Federal Services, Handbook H-28.
NOTE: For illustration, material, treatment, and other pertinent data, see sheet 1.

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P.A. WC	TITLE	MILITARY STANDARD
Other Cont SH 82	SCREW, MACHINE-FLAT COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CORROSION RESISTING STEEL, UNC-2A	MS 51959
PROCUREMENT SPECIFICATION E1-S-92	SUPERSEDES MS 35200 and in part: MS 35249, MS 35355, MS 35363 and AN 505	SHEET 2 OF

DD FORM 672-1 (Continued)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

APPROVED 19 DECEMBER 1963 REVISED (C) 15 OCT 1965 (B) 16 DEC 1968 (C) FOR CHANGES SEE SHEETS 1 AND 2

TABLE 11
INTERCHANGEABILITY TABLE

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The screws covered by dash numbers given MS35200 and in part MS35249 and AN505 are cancelled/ inactivated after the dates indicated on the documents. Use the dash numbers given in the preceding sheets for nominal sizes thru 3/4 inch, and MS24671 for larger sizes. The cancelled screws cannot always replace the new screws and should be used until existing stocks are depleted. Use only the new screws for design and replacement. Replacement shall be in accordance with this table and MS24671.

CROSS REFERENCE OF PART NUMBERS

CANCELLED				NEW	CANCELLED				NEW
MS35249	MS35200	AN505		MS51959	MS35249	MS35200	AN505		MS51959
Dash Number				Dash Number	Dash Number				Dash Number
1				No Replacement			C5R14	C5-14	No Replacement
2				No Replacement			C5R15	C5-15	No Replacement
3				No Replacement			C5R16	C5-16	No Replacement
4				No Replacement			C5R17	C5-17	No Replacement
5				No Replacement			C5R20	C5-20	No Replacement
6				No Replacement			C5R22	C5-22	No Replacement
7				No Replacement			C5R24	C5-24	No Replacement
8				No Replacement					
9	1	C2R3	C2-3	1	31	21	C6R3	C6-3	24
10	2	C2R4	C2-4	2	32	22	C6R4	C6-4	25
11	3	C2R5	C2-5	3	33	23	C6R5	C6-5	26
12	4	C2R6	C2-6	4	34	24	C6R6	C6-6	27
13	5	C2R7	C2-7	5	35	25	C6R7	C6-7	28
14	6	C2R7	C2-7	6	36	26	C6R7	C6-7	29
	7	C2R7	C2-7	7	37	27	C6R7	C6-7	30
15	8	C2R9	C2-9	No Replacement	38	28	C6R9	C6-9	No Replacement
		C2R10	C2-10	No Replacement			C6R10	C6-10	No Replacement
16	9	C2R11	C2-11	No Replacement	39	29	C6R11	C6-11	No Replacement
		C2R12	C2-12	No Replacement			C6R12	C6-12	No Replacement
17				9	40	30	C6R13	C6-13	No Replacement
		C3R3	C3-3	No Replacement			C6R14	C6-14	No Replacement
		C3R4	C3-4	No Replacement			C6R15	C6-15	No Replacement
		C3R5	C3-5	No Replacement	41	31	C6R16	C6-16	34
		C3R6	C3-6	No Replacement			C6R17	C6-17	No Replacement
		C3R7	C3-7	No Replacement	42	32	C6R20	C6-20	No Replacement
		C3R8	C3-8	No Replacement			C6R22	C6-22	No Replacement
		C3R9	C3-9	No Replacement	43	33	C6R24	C6-24	No Replacement
		C3R10	C3-10	No Replacement			C6R26	C6-26	No Replacement
		C3R11	C3-11	No Replacement	44	34	C6R27	C6-27	37
		C3R12	C3-12	No Replacement	45	35	C6R30	C6-30	No Replacement
		C3R13	C3-13	No Replacement			C6R32	C6-32	No Replacement
		C3R14	C3-14	No Replacement			C6R34	C6-34	No Replacement
		C3R15	C3-15	No Replacement			C6R36	C6-36	No Replacement
		C3R16	C3-16	No Replacement			C6R37	C6-37	No Replacement
18				10			C6R40	C6-40	No Replacement
							C6R41	C6-41	No Replacement
19	10	C4R3	C4-3	11			C6R42	C6-42	No Replacement
				12					
20	12	C4R4	C4-4	13			C6R44	C6-44	No Replacement
21	13	C4R5	C4-5	14			C6R46	C6-46	No Replacement
22	14	C4R6	C4-6	15			C6R47	C6-47	No Replacement
23	15	C4R7	C4-7	16	46	36			39
24	16	C4R8	C4-8	17	47	37			40
		C4R9	C4-9	No Replacement	48	38	C6R4	C6-4	41
25	17	C4R10	C4-10	18	49	39	C6R5	C6-5	42
		C4R11	C4-11	No Replacement	50	40	C6R6	C6-6	43
26	18	C4R12	C4-12	19	51	41	C6R7	C6-7	44
		C4R13	C4-13	No Replacement	52	42	C6R7	C6-7	45
27	19	C4R14	C4-14	20			C6R9	C6-9	No Replacement
		C4R15	C4-15	No Replacement	53	43	C6R10	C6-10	46
28	20	C4R16	C4-16	21			C6R11	C6-11	No Replacement
		C4R17	C4-17	No Replacement	54	44	C6R12	C6-12	47
		C4R20	C4-20	22			C6R13	C6-13	No Replacement
29		C4R22	C4-22	No Replacement	55	45	C6R14	C6-14	48
		C4R24	C4-24	23			C6R15	C6-15	No Replacement
30		C5R3	C5-3	No Replacement	56	46	C6R16	C6-16	49
		C5R4	C5-4	No Replacement			C6R17	C6-17	No Replacement
		C5R5	C5-5	No Replacement	57	47	C6R20	C6-20	50
		C5R6	C5-6	No Replacement			C6R22	C6-22	No Replacement
		C5R7	C5-7	No Replacement	58	48	C6R24	C6-24	51
		C5R8	C5-8	No Replacement			C6R26	C6-26	No Replacement
		C5R9	C5-9	No Replacement	59	49	C6R27	C6-27	52
		C5R10	C5-10	No Replacement			C6R30	C6-30	No Replacement
		C5R11	C5-11	No Replacement	60	50	C6R32	C6-32	53
		C5R12	C5-12	No Replacement			C6R34	C6-34	No Replacement
		C5R13	C5-13	No Replacement	61		C6R36	C6-36	54

REVIEWER: AV, EL, CL, IS, MI, ASA
USER: AS, AT, MC, ME, M, OS, YD

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(Continued on Sheet 4)

P.A. WC Other Corp SH 82	TITLE SCREW, MACHINE-FLAT COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CORROSION RESISTING STEEL, UNC-2A	MILITARY STANDARD MS 51959
PROCUREMENT SPECIFICATION FF-S-92	SUPERSEDES MS35200 and in part: MS35249, MS35357, MS35361 and AN505	SHEET 3 OF

APPROVED 19 DECEMBER 1965; REVISED A 15 OCT 1965 (B) 16 DEC 1968 (C) FOR CHANGES SEE SHEETS 1 AND 2

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TABLE 11 (CONTINUED)
INTERCHANGEABILITY TABLE (CONTINUED)

CROSS REFERENCE OF PART NUMBERS									
CANCELLED				NEW	CANCELLED				NEW
MS35249	MS35200	AN505		MS51959	MS35249	MS35200	AN505	MS51959	
Dash Number				Dash Number	Dash Number				
62		C416R36	C416-36	No Replacement	96	79	C416R40	C416-40	89
		C416R40	C416-40	55			C416R42	C416-42	No Replacement
63		C416R42	C416-42	No Replacement	97		C416R44	C416-44	90
		C416R44	C416-44	56			C416R46	C416-46	No Replacement
64		C416R46	C416-46	No Replacement	98		C416R48	C416-48	91
65		C416R48	C416-48	57	99	80			92
				58	100	81			93
66	51	C10R5	C10-5	59	101	82	C516R8	C516-8	94
67	52	C10R6	C10-6	60			C516R9	C516-9	No Replacement
68	53	C10R7	C10-7	61	102	83	C516R10	C516-10	95
69	54	C10R8	C10-8	62			C516R11	C516-11	No Replacement
70	55	C10R9	C10-9	63	103	84	C516R12	C516-12	96
		C10R10	C10-10	No Replacement			C516R13	C516-13	No Replacement
				64	104	85	C516R14	C516-14	97
72	57	C10R11	C10-11	No Replacement			C516R15	C516-15	No Replacement
		C10R12	C10-12	65	105	86	C516R16	C516-16	98
		C10R13	C10-13	No Replacement			C516R18	C516-18	No Replacement
73	58	C10R14	C10-14	66	106	87	C516R20	C516-20	99
		C10R15	C10-15	No Replacement			C516R22	C516-22	No Replacement
74	59	C10R16	C10-16	67	107	88	C516R24	C516-24	100
		C10R18	C10-18	No Replacement			C516R26	C516-26	No Replacement
				68	108	89	C516R28	C516-28	101
75	60	C10R22	C10-22	No Replacement			C516R30	C516-30	No Replacement
		C10R24	C10-24	69	109	90	C516R32	C516-32	102
76	61	C10R26	C10-26	No Replacement			C516R34	C516-34	No Replacement
		C10R28	C10-28	70	110	91	C516R36	C516-36	103
77	62	C10R30	C10-30	No Replacement			C516R38	C516-38	No Replacement
		C10R32	C10-32	71	111	92	C516R40	C516-40	104
				72			C516R42	C516-42	No Replacement
79	64	C10R34	C10-34	No Replacement	112		C516R44	C516-44	105
		C10R36	C10-36	73			C516R46	C516-46	No Replacement
80	65	C10R38	C10-38	No Replacement	113		C516R48	C516-48	106
		C10R40	C10-40	74	114	93	C616R8	C616-8	107
81		C10R42	C10-42	No Replacement			C616R9	C616-9	No Replacement
		C10R44	C10-44	75	115	94	C616R10	C616-10	108
		C10R46	C10-46	No Replacement			C616R11	C616-11	No Replacement
82		C10R48	C10-48	76	116	95	C616R12	C616-12	109
83	66	C416R5	C416-5	77			C616R13	C616-13	No Replacement
84	67	C416R6	C416-6	78	117	96	C616R14	C616-14	110
85	68	C416R7	C416-7	79			C616R15	C616-15	No Replacement
86	69	C416R8	C416-8	No Replacement	118	97	C616R16	C616-16	111
		C416R9	C416-9	80			C616R18	C616-18	No Replacement
		C416R10	C416-10				C616R20	C616-20	112
88	71	C416R11	C416-11	No Replacement	119	98	C616R22	C616-22	No Replacement
		C416R12	C416-12	81	120	99	C616R24	C616-24	113
89	72	C416R13	C416-13	No Replacement			C616R26	C616-26	No Replacement
		C416R14	C416-14	82	121	100	C616R28	C616-28	114
90	73	C416R15	C416-15	No Replacement			C616R30	C616-30	No Replacement
		C416R16	C416-16	83	122	101	C616R32	C616-32	115
		C416R18	C416-18	No Replacement			C616R34	C616-34	No Replacement
91	74	C416R20	C416-20	84	123	102	C616R36	C616-36	116
		C416R22	C416-22	No Replacement			C616R38	C616-38	No Replacement
92	75	C416R24	C416-24	85	124	103	C616R40	C616-40	117
		C416R26	C416-26	No Replacement			C616R42	C616-42	No Replacement
93	76	C416R28	C416-28	86	125	104	C616R44	C616-44	118
		C416R30	C416-30	No Replacement			C616R46	C616-46	No Replacement
94	77	C416R32	C416-32	87					
				88	126	105	C616R48	C616-48	119
95	78	C416R34	C416-34	No Replacement	127 thru				
		C416R36	C416-36	89	178				Use MS24671
		C416R38	C416-38	No Replacement					

* Diameters over 3/8" covered by MS24671.

REVIEWER: AV, EL, GL, IS, MI, NSV
USER: AS, AT, BCP, ME, M, OS, VD

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APPROVED 19 DECEMBER 1963 REVISED (A) 15 OCT 1965 (B) 16 DEC 1968 (C) FOR CHANGES SEE SHEETS 1 AND 2

P.A. WC Other Corp SH 82	TITLE SCREW, MACHINE-FLAT COUNTERSUNK HEAD, 82°, CROSS-RECESSED, CORROSION RESISTING STEEL, UNC-2A	MILITARY STANDARD MS 51959
PROCUREMENT SPECIFICATION FF-S-92	SUPERSEDES MS35200 and in part: MS35249, MS3535, MS3536 and AN505	SHEET 4 OF

DD FORM 672-1 (Continued)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE