

REVISOR: AT, NY, EA, IS, MI, MU, NSA, OS
USER: ME, PA, W, YD

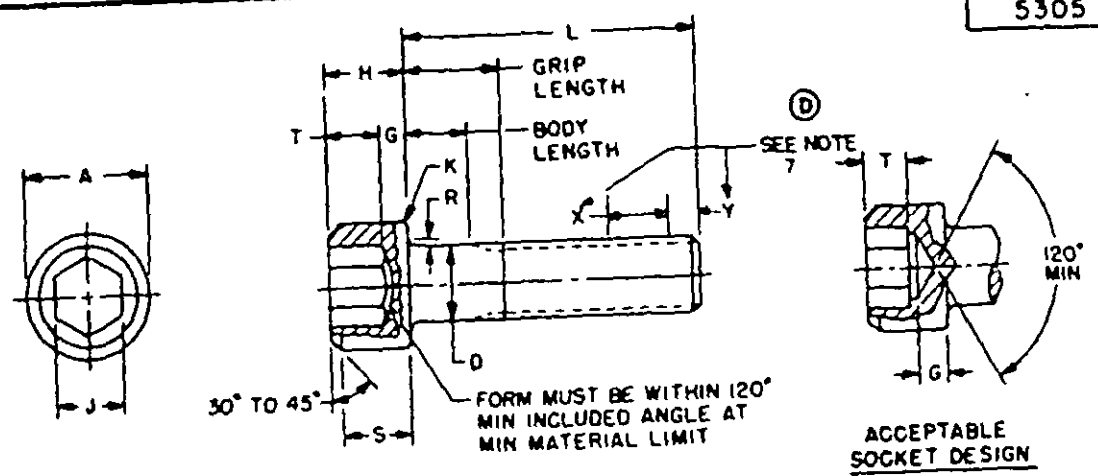


TABLE I

NOMINAL SIZE	(#2) .086	(#4) .112	(#6) .138	(#8) .164	(#10) .190	(1/4) .250							
THREADS PER INCH UNC-3A	56	40	32	32	24	20							
D BODY DIAMETER	MAX MIN	.0860 .0822	.1120 .1075	.1380 .1329	.1640 .1585	.1900 .1840	.2500 .2435						
A HEAD DIAMETER	MAX MIN	.140 .134	.183 .176	.226 .218	.270 .262	.3125 .303	.375 .365						
H HEAD HEIGHT	MAX MIN	.086 .083	.112 .108	.138 .134	.164 .159	.190 .185	.250 .244						
S HEAD SIDE HGT	MIN	.077	.101	.124	.148	.171	.225						
J SOCKET WIDTH ACROSS FLATS	MAX MIN	.0791 .0781	.0942 .0937	.1111 .1094	.1426 .1406	.1587 .1562	.1900 .1875						
T KEY ENGAGEMENT	MIN	.014	.051	.064	.077	.090	.095						
C WALL THICKNESS	MIN	.029	.038	.047	.056	.065	.095						
A CHAMFER OR RADIUS	MAX	.003	.005	.005	.005	.005	.006						
R FILLET EXTENSION	MAX MIN	.006 .004	.004 .005	.010 .006	.012 .007	.014 .009	.014 .009						
TENSILE STRENGTH LBS - MIN		560	920	1,400	2,170	2,710	4,950						
L LENGTH	TOLERANCE	DASH NO.	DASH NO.	DASH NO.	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN
.188	+000 -031	1	9	19	30						57		
.250		2	10	19	31			43			58		
.375		3	11	20	32			44			59		
.500		4							45			60	
.625	+000 -040		12	21	33			46			61		
.750			13	22	34			47			62		
.875				23	35			48			63		
1.000				24	36			49	.375	.167	64	1.000	.750
1.250	+000 -060				37	.175	.210	50	.175	.167	65	1.000	.750
1.500					38	.175	.210	51	.175	.167	66	1.000	.750
1.750								52	.175	.167	67	1.000	.750
2.000											68	1.000	.750
2.250	+000 -060										69	1.000	.750
2.500											70	1.000	.750
2.750													
3.000													

For notes see sheet 1.

for changes see sheets 1 thru 7.

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. 60 Other Cont. AS 99	TITLE ① SCREW, CAP, SOCKET HEAD AND SCREW, CAP, SOCKET HEAD, SELF-LOCKING; ALLOY STEEL, CADMIUM PLATED, UNC-3A	MILITARY STANDARD MS16997
PROCUREMENT SPECIFICATION FF-S-86	SUPersedes BCW11, 1.1, 1.2; BCW12, 2.1, 2.2; BCW13, 1.1, and 1.4; MS35455, MS35457 and MS35459 in part	SHEET 1 OF 7

DD FORM 672-1 (Continued)

5305-1144

APPROVED 5 APR 1962 REVISED 4 21 FEB 1963 25 MAR 1965 22 OCT 1970 31 DEC 1976

TABLE 1 (Cont'd)

NOMINAL SIZE	(5/16)	(3/4)	(7/16)	(1/2)										
THREADS PER INCH UNC-3A	16	16	14	13										
D BODY DIAMETER	MAX MIN	.3750 .3676	.4175 .4294	.5000 .4919										
A HEAD DIAMETER	MAX MIN	.4064 .457	.5625 .550	.750 .735										
H HEAD HEIGHT	MAX MIN	.3125 .306	.375 .365	.500 .492										
S HEAD SIDE HGT	MIN	.291	.317	.450										
J SOCKET WIDTH ACROSS FLATS	MAX MIN	.2550 .2500	.3160 .3125	.3790 .3750										
T KEY ENGAGEMENT	MIN	.151	.162	.245										
G WALL THICKNESS	MIN	.119	.143	.190										
A CHAMFER OR RADIUS	MAX	.004	.006	.010										
H FILLET EXTENSION	MAX MIN	.017 .012	.020 .015	.023 .020										
TENSILE STRENGTH LBS - MIN	6,190	12,100	16,700	22,300										
L LENGTH	TOLERANCE		DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN
	SIZE .375 UNDER	OVER .375												
.375			75											
.500			76			95						137		
.625	+.000	-.000	77			96						138		
.750			78			97						139		
.875			79			98						140		
1.000			80			99						141		
1.250			81			100						142		
1.500			82			101						143		
1.750	+.000	-.000	83	.625	.347	102	.500	.187				144		
2.000	-.040	-.060	84	.625	.347	103	.500	.187				145		
2.250			85	1.125	.647	104	1.000	.687				146	.750	.365
2.500			86	1.125	.647	105	1.000	.687				147	.750	.365
2.750			87	1.625	1.347	106	1.500	1.187				148	.750	.365
3.000			88	1.625	1.347	107	1.500	1.187				149	1.500	1.115
3.250			89	2.125	1.647	108	2.000	1.687				150	1.500	1.115
3.500			90	2.125	1.647	109	2.000	1.687				151	1.500	1.115
4.000	+.000	-.000				110	2.500	2.187				152	2.250	1.665
4.500	-.060	-.080				111	3.000	2.687				153	3.000	2.615
5.000												154	3.000	2.615
5.500												155	3.750	3.365
6.000												156	4.500	4.315
6.500	+.000	+.000										157	4.500	4.115
7.000	-.120	-.120										158	5.250	4.865
8.000												159	6.000	5.615

DIVISION: AT, AV, LA, LS, MI, MU, NSA, OS
USER: ME, PA, WY, ZO

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.

For notes see sheet J.

Ⓧ INACTIVE FOR NEW DESIGN AFTER 31 DECEMBER 1976.

APPROVED 3 APR 1982 REVISED ① For changes see sheets I thru 7

PA VC Other Code AS 99	TITLE Ⓧ SCREW,CAP, SOCKET HEAD AND SCREW,CAP, SOCKET HEAD, SELF-LOCKING: ALLOY STEEL, CADMIUM PLATED, UNC-3A	MILITARY STANDARD MS16997
PROCUREMENT SPECIFICATION FF-S-86	SUPERSEDES BCX1, 1.1, 1.2; BCX2, 2.1, 2.2; BCX3, 3, and 3.4; MS35455, MS35457 and MS35459 in part	SHEET 2 OF 7

TABLE I (Cont'd)

NOMINAL SIZE	(5/8)	(3/4)	(7/8)	(1)
THREADS PER INCH UNC-3A	11	10	9	8
D BODY DIAMETER	MAX .6250 MIN .6163	.7500 .7406	.8750 .8647	1.0000 .9886
A HEAD DIAMETER	MAX .9375 MIN .921	1.125 1.107	1.3125 1.291	1.500 1.479
H HEAD HEIGHT	MAX .625 MIN .616	.750 .740	.875 .864	1.000 .988
S HEAD SIDE HGT	MIN .562	.675	.787	.900
J SOCKET WIDTH ACROSS FLATS	MAX .5050 MIN .5000	.6110 .6250	.7570 .7500	.7570 .7500
T KEY ENGAGEMENT	MIN .107	.170	.432	.380
C WALL THICKNESS	MIN .238	.285	.333	.380
K CHAMFER OR RADIUS	MAX .010	.010	.015	.015
R FILLET EXTENSION	MAX .032 MIN .024	.039 .030	.044 .034	.050 .040

L LENGTH	TOLERANCE		DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN
	SIZE .750 & UNDER	OVER .760												
1.000	-.031	-.050	164											
1.250			165			187								
1.500			166			188								
1.750	+.000	+.000	167			189						226		
2.000	-.060	-.100	168			190								
2.250			169			191								
2.500			170	.750	.295	192								
2.750			171	.750	.295	191								
3.000			172	.750	.295	194	1.000	.500						
3.250			173	1.500	1.045	195	1.000	.500	214	1.000	.444	233	1.000	1.375
3.500	+.000	+.000	174	1.500	1.045	196	1.000	.500	214	1.000	.444	234	1.000	1.375
4.000	-.080	-.140	175	2.250	1.795	197	2.000	1.500	216	1.000	.444	235	1.000	1.375
4.500			176	2.250	1.795	198	2.000	1.500	217	2.000	1.444	236	2.000	1.375
5.000			177	3.000	2.545	199	3.000	2.500	218	2.000	1.444	237	2.000	1.375
5.500			178	3.750	3.295	200	3.000	2.500	219	3.000	2.444	238	3.000	2.375
6.000			179	3.750	3.295	201	4.000	3.500	220	3.000	2.444	239	3.000	2.375
6.500	+.000	+.000	180	4.500	4.045	202	4.000	3.500	221	4.000	3.444	240	4.000	3.375
7.000	-.120	-.200	181	5.250	4.795	203	5.000	4.500	222	4.000	3.444	241	4.000	3.375
8.000			182	6.000	5.545	204	6.000	5.500	223	5.000	4.444	242	5.000	4.375

NOTES:

- MATERIAL: Alloy steel in accordance with procurement specification.
- PROTECTIVE COATING: Cadmium plating in accordance with procurement specification.
- THREADS: The threads shall be in accordance with procurement specification.
- THREAD LENGTH: Screws above heavy line, for sizes #2 thru 5/8, inclusive, shall have complete (full form) threads extending within two threads of the head as measured with a thread ring gauge, and for sizes larger than 5/8 shall have complete threads extending as close to the head as practicable.
- DIMENSIONS: All dimensions are in inches, unless otherwise specified.
- HEAD: The head may or may not be knurled at the manufacturer's option. Type of knurling optional.
- SELF-LOCKING ELEMENT: (a) The self-locking element shall be a patch type or longitudinal strip in accordance with MIL-F-18240.
(b) For "I" and "Y" dimensions, design and usage limitations, see MS15981.
(c) Maximum ring gage diameter that the locking region of screw must pass thru freely or with finger pressure shall be the nominal size plus 0.010.
- TENSILE STRENGTH: Based on 160,000 PSI minimum ultimate tensile strength. Load pounds are calculated by the stress areas indicated in the Screw-Thread Standards for Federal Services, Handbook H28.
- PART NUMBER: The MS part number consists of the MS number, plus the dash number. For screws with self-locking element add the letter "L" after the dash number. Example: MS16997-1 Plain screw
MS16997-1L Self-locking screw
- 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.

Ⓢ INACTIVE FOR NEW DESIGN AFTER 31 DECEMBER 1976.

P A	VC	TITLE	MILITARY STANDARD
Other Cont	AS 99	Ⓢ SCREW,CAP, SOCKET HEAD AND SCREW,CAP, SOCKET HEAD, SELF-LOCKING; ALLOY STEEL, CADMIUM PLATED, UNC-3A	MS16997
PROCUREMENT SPECIFICATION	SUPERMODEL BCVII, 1.1, 1.2; BCXII, 2.1, 2.2; BCXIII, J, and FF-S-86	3.4; MS35455, MS35457 and MS35439 in part	SHEET 3 OF 7

REVIEWER: AT, AV, CA, IS, MI, NU, NSA, OS
 USER: MC, PA, PV, TD
 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.

APPROVED 5 APR 1962 REVISED Ⓢ For changes see sheets 1 thru 7

TABLE II
INTERCHANGEABILITY TABLE

The screws covered by dash numbers given in MS35455, MS35457 and MS35459 that are replaced by applicable dash numbers in this document are cancelled after 5 April 62. Use the dash numbers given in the preceding sheets. 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. Interchangeability information regarding part numbers on superseded drawings are also contained in this table.

REVIEWER: AT, AV, EA, ES, NI, NU, NSA, OS
USER: PE, PA, WF, TD

PART NUMBERS		PART NUMBERS		PART NUMBERS	
CANCELLED	SUPERSEDING	CANCELLED	SUPERSEDING	CANCELLED	SUPERSEDING
MS35455 MS35457 MS35459	MS16997	MS35455 MS35457 MS35459	MS16997	MS35455 MS35457 MS35459	MS16997
Dash No.	Dash No.	Dash No.	Dash No.	Dash No.	Dash No.
1	9	31	52	77	110
2	10	32	57	78	111
3	11	33	58	79	112
4	12	34	59	98	137
5	13	35	60	99	138
6	18	36	61	100	139
7	19	37	62	101	140
8	20	38	63	102	141
9	21	39	64	103	142
10	22	40	65	104	143
11	23	41	66	105	144
12	24	42	67	106	145
13	30	43	68	107	146
14	31	44	69	108	147
15	32	45	70	109	148
16	33	62	93	110	149
17	34	63	96	111	150
18	35	64	97	112	151
19	36	65	98	113	152
20	37	66	99	114	153
21	38	67	100	115	154
22	43	68	101	116	155
23	44	69	102	117	156
24	45	70	103		
25	46	71	104		
26	47	72	105		
27	48	73	106		
28	49	74	107		
29	50	75	108		
30	51	76	109		

Screws covered by the following part numbers are inactive for Design and Engineering. They shall be used for maintenance of existing equipment to replace the 5/16, 7/16, 3/8, 3/4, 1/2 and 1 inch size screws used in counterbored holes or other close applications.

PART NO.	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
MS35455 MS35457 MS35459	MS35455 MS35457 MS35459	MS35455 MS35457 MS35459	MS35455 MS35457 MS35459	MS35455 MS35457 MS35459	MS35455 MS35457 MS35459	MS35455 MS35457 MS35459
Dash No.	Dash No.	Dash No.	Dash No.	Dash No.	Dash No.	Dash No.
46	59	90	125	134	151	164
47	60	91	126	139	152	165
48	61	92	127	140	153	166
49	62	93	128	141	154	167
50	63	94	129	142	155	168
51	64	95	130	143	156	169
52	65	114	131	144	157	170
53	66	119	132	145	158	171
54	67	120	133	146	159	172
55	68	121	134	147	160	
56	69	122	135	148	161	
57	70	123	136	149	162	
58	71	124	137	150	163	

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APPROVED 5 APRIL 62 REVISED ① For changes see sheets 3 thru 7

P.A. WC	TITLE	MILITARY STANDARD
Other Code AS 09	① SCREW,CAP,SOCKET HEAD AND SCREW,CAP,SOCKET HEAD,SELF-LOCKING; ALLOY STEEL,CADMIUM PLATED,UNC-3A	MS 16997
PROCUREMENT SPECIFICATION FF-S-76	SUPERSEDES BCW1, 1.1, 1.2; BCW2, 2.1, 2.2; BCW3, 3, and 1.4, MS35455, MS35457 and MS35459 in part	SHEET 4 OF 7

REVIEWER: AT, AV, CA, IS, MI, MU, RMA, OS
USER: PE, PA, PY, YD

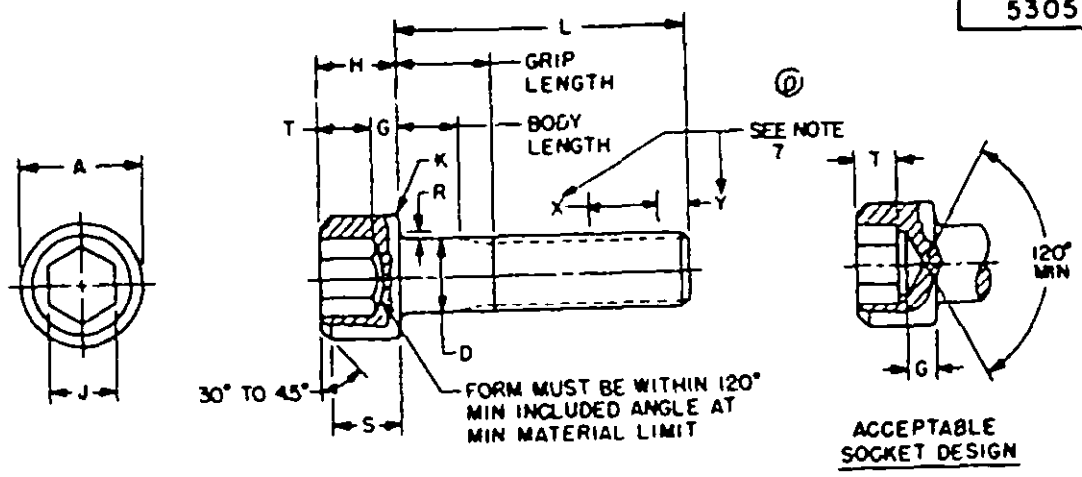


TABLE III
METRIC TRANSLATION OF TABLE I

NOMINAL SIZE mm	2.184	2.845	3.505	4.166	4.826	6.350							
THREADS per 25.4mm UNC-3A	56	40	32	32	24	20							
D BODY DIAMETER	MAX 2.184 MIN 2.088	MAX 2.845 MIN 2.730	MAX 3.505 MIN 3.376	MAX 4.166 MIN 4.026	MAX 4.826 MIN 4.674	MAX 6.350 MIN 6.185							
A HEAD DIAMETER	MAX 3.556 MIN 3.404	MAX 4.648 MIN 4.470	MAX 5.740 MIN 5.537	MAX 6.858 MIN 6.655	MAX 7.938 MIN 7.696	MAX 9.525 MIN 9.271							
H HEAD HEIGHT	MAX 2.184 MIN 2.108	MAX 2.845 MIN 2.743	MAX 3.505 MIN 3.404	MAX 4.166 MIN 4.039	MAX 4.826 MIN 4.699	MAX 6.350 MIN 6.198							
S HEAD SIDE HGT	MIN 1.956	MIN 2.565	MIN 3.150	MIN 3.759	MIN 4.343	MIN 5.715							
J SOCKET WIDTH ACROSS PLATS	MAX 2.009 MIN 1.984	MAX 2.418 MIN 2.380	MAX 2.822 MIN 2.779	MAX 3.622 MIN 3.571	MAX 4.031 MIN 3.967	MAX 4.826 MIN 4.762							
T KEY ENGAGEMENT	MIN .965	MIN 1.295	MIN 1.626	MIN 1.956	MIN 2.286	MIN 3.048							
G WALL THICKNESS	MIN .737	MIN .965	MIN 1.194	MIN 1.422	MIN 1.651	MIN 2.413							
K CHAMFER OR RADIUS	MAX .076	MAX .127	MAX .127	MAX .127	MAX .127	MAX .203							
R FILLET EXTENSION	MAX .203 MIN .102	MAX .229 MIN .127	MAX .254 MIN .152	MAX .305 MIN .179	MAX .356 MIN .229	MAX .356 MIN .229							
TENSILE STRENGTH kN - MIN (D)	2.520	4.140	6.300	9.765	12.195	22.275							
L LENGTH	TOLERANCE	DASH NO.	DASH NO.	DASH NO.	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN
4.775 6.350 9.525 12.700	+000 -787	1	9	18	30						57		
15.875 19.050 22.225 25.400			10	19	31			43			58		
			11	20	32			44			59		
			12	21	33			45			60		
31.750 38.100 44.450 50.800	+000 -1.016		13	22	34			46			61		
57.150 63.500 69.850 76.200			23	35			47			62			
			24	36			48			63			
				37	38	9.525 9.525	5.563 5.563	49 50	9.525 9.525	4.242 4.242	64 65	12.700 12.700	6.350 6.350
							51	22.225	16.942	66	25.400	19.050	
							52	22.225	16.942	67	25.400	19.050	
										68	38.100	31.750	
										69	38.100	31.750	
										70	50.800	44.450	

NOTE: All dimensions are in millimeters (mm), unless otherwise specified and are based on an approximate conversion factor of 25.4mm equal one inch.

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APPROVED 5 APR 1962 REVISED (D) for change see sheets 1 thru 7

P.A. UC Other Comp AS 99	TITLE (D) SCREW, CAP, SOCKET HEAD AND SCREW, CAP, SOCKET HEAD, SELF-LOCKING; ALLOY STEEL, CADMIUM PLATED, UNC-3A	MILITARY STANDARD
		MS16997
PROCUREMENT SPECIFICATION FF-S-86	SUPERSEDED BY: 1.1, 1.2, 1.3; 2.1, 2.2; 3.1, 3.2, 3.3, 3.4; 4.1, 4.2; 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15, 5.16, 5.17, 5.18, 5.19, 5.20, 5.21, 5.22, 5.23, 5.24, 5.25, 5.26, 5.27, 5.28, 5.29, 5.30, 5.31, 5.32, 5.33, 5.34, 5.35, 5.36, 5.37, 5.38, 5.39, 5.40, 5.41, 5.42, 5.43, 5.44, 5.45, 5.46, 5.47, 5.48, 5.49, 5.50, 5.51, 5.52, 5.53, 5.54, 5.55, 5.56, 5.57, 5.58, 5.59, 5.60, 5.61, 5.62, 5.63, 5.64, 5.65, 5.66, 5.67, 5.68, 5.69, 5.70, 5.71, 5.72, 5.73, 5.74, 5.75, 5.76, 5.77, 5.78, 5.79, 5.80, 5.81, 5.82, 5.83, 5.84, 5.85, 5.86, 5.87, 5.88, 5.89, 5.90, 5.91, 5.92, 5.93, 5.94, 5.95, 5.96, 5.97, 5.98, 5.99, 6.00, 6.01, 6.02, 6.03, 6.04, 6.05, 6.06, 6.07, 6.08, 6.09, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15, 6.16, 6.17, 6.18, 6.19, 6.20, 6.21, 6.22, 6.23, 6.24, 6.25, 6.26, 6.27, 6.28, 6.29, 6.30, 6.31, 6.32, 6.33, 6.34, 6.35, 6.36, 6.37, 6.38, 6.39, 6.40, 6.41, 6.42, 6.43, 6.44, 6.45, 6.46, 6.47, 6.48, 6.49, 6.50, 6.51, 6.52, 6.53, 6.54, 6.55, 6.56, 6.57, 6.58, 6.59, 6.60, 6.61, 6.62, 6.63, 6.64, 6.65, 6.66, 6.67, 6.68, 6.69, 6.70, 6.71, 6.72, 6.73, 6.74, 6.75, 6.76, 6.77, 6.78, 6.79, 6.80, 6.81, 6.82, 6.83, 6.84, 6.85, 6.86, 6.87, 6.88, 6.89, 6.90, 6.91, 6.92, 6.93, 6.94, 6.95, 6.96, 6.97, 6.98, 6.99, 7.00, 7.01, 7.02, 7.03, 7.04, 7.05, 7.06, 7.07, 7.08, 7.09, 7.10, 7.11, 7.12, 7.13, 7.14, 7.15, 7.16, 7.17, 7.18, 7.19, 7.20, 7.21, 7.22, 7.23, 7.24, 7.25, 7.26, 7.27, 7.28, 7.29, 7.30, 7.31, 7.32, 7.33, 7.34, 7.35, 7.36, 7.37, 7.38, 7.39, 7.40, 7.41, 7.42, 7.43, 7.44, 7.45, 7.46, 7.47, 7.48, 7.49, 7.50, 7.51, 7.52, 7.53, 7.54, 7.55, 7.56, 7.57, 7.58, 7.59, 7.60, 7.61, 7.62, 7.63, 7.64, 7.65, 7.66, 7.67, 7.68, 7.69, 7.70, 7.71, 7.72, 7.73, 7.74, 7.75, 7.76, 7.77, 7.78, 7.79, 7.80, 7.81, 7.82, 7.83, 7.84, 7.85, 7.86, 7.87, 7.88, 7.89, 7.90, 7.91, 7.92, 7.93, 7.94, 7.95, 7.96, 7.97, 7.98, 7.99, 8.00, 8.01, 8.02, 8.03, 8.04, 8.05, 8.06, 8.07, 8.08, 8.09, 8.10, 8.11, 8.12, 8.13, 8.14, 8.15, 8.16, 8.17, 8.18, 8.19, 8.20, 8.21, 8.22, 8.23, 8.24, 8.25, 8.26, 8.27, 8.28, 8.29, 8.30, 8.31, 8.32, 8.33, 8.34, 8.35, 8.36, 8.37, 8.38, 8.39, 8.40, 8.41, 8.42, 8.43, 8.44, 8.45, 8.46, 8.47, 8.48, 8.49, 8.50, 8.51, 8.52, 8.53, 8.54, 8.55, 8.56, 8.57, 8.58, 8.59, 8.60, 8.61, 8.62, 8.63, 8.64, 8.65, 8.66, 8.67, 8.68, 8.69, 8.70, 8.71, 8.72, 8.73, 8.74, 8.75, 8.76, 8.77, 8.78, 8.79, 8.80, 8.81, 8.82, 8.83, 8.84, 8.85, 8.86, 8.87, 8.88, 8.89, 8.90, 8.91, 8.92, 8.93, 8.94, 8.95, 8.96, 8.97, 8.98, 8.99, 9.00, 9.01, 9.02, 9.03, 9.04, 9.05, 9.06, 9.07, 9.08, 9.09, 9.10, 9.11, 9.12, 9.13, 9.14, 9.15, 9.16, 9.17, 9.18, 9.19, 9.20, 9.21, 9.22, 9.23, 9.24, 9.25, 9.26, 9.27, 9.28, 9.29, 9.30, 9.31, 9.32, 9.33, 9.34, 9.35, 9.36, 9.37, 9.38, 9.39, 9.40, 9.41, 9.42, 9.43, 9.44, 9.45, 9.46, 9.47, 9.48, 9.49, 9.50, 9.51, 9.52, 9.53, 9.54, 9.55, 9.56, 9.57, 9.58, 9.59, 9.60, 9.61, 9.62, 9.63, 9.64, 9.65, 9.66, 9.67, 9.68, 9.69, 9.70, 9.71, 9.72, 9.73, 9.74, 9.75, 9.76, 9.77, 9.78, 9.79, 9.80, 9.81, 9.82, 9.83, 9.84, 9.85, 9.86, 9.87, 9.88, 9.89, 9.90, 9.91, 9.92, 9.93, 9.94, 9.95, 9.96, 9.97, 9.98, 9.99, 10.00	SHEET 5 OF 7

TABLE III (Cont'd)
METRIC TRANSLATION OF TABLE I

FED. SUP CLASS
5305

NOMINAL SIZE		7.936	9.525	11.112	12.700
THREAD per 25.4mm UNC-3A		18	16	14	13
D BODY DIAMETER	MAX MIN	7.936 7.755	9.525 9.342	11.112 10.907	12.700 12.494
A HEAD DIAMETER	MAX MIN	11.908 11.606	14.288 13.970	16.667 16.307	19.050 18.669
H HEAD HEIGHT	MAX MIN	7.936 7.772	9.525 9.347	11.112 10.922	12.700 12.497
S HEAD SIDE HGT	MIN	7.137	6.560	10.008	11.430
J SOCKET WIDTH ACROSS FLATS	MAX MIN	6.426 6.350	8.026 7.936	9.627 9.525	9.627 9.525
T KEY ENGAGEMENT	MIN	5.835	4.623	5.410	6.223
G WALL THICKNESS	MIN	3.025	3.632	4.216	4.826
K CHAMFER OR RADIUS	MAX	.203	.203	.254	.254
R FILLET EXTENSION	MAX MIN	.432 .305	.509 .381	.584 .457	.660 .508
Y TENSILE STRENGTH kN - MIN	(D)	36.855	54.450	75.150	100.350

REVIEWER: AT. AV. CA. JS. MI. NU. NSA. OS
USER: ME. PA. WY. YD

L LENGTH	TOLERANCE		DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	D** DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN
	SIZE 9.525 UNDER	OVER 9.525												
9.525			75						117			117		
12.700			76			95			118			118		
15.875	+0.000	+0.000	77			96								
19.050	-0.787	-0.787	78			97			119			119		
22.225			79			98			120			120		
25.400			80			99			121			121		
31.750			81			100			122			122		
38.100			82			101			123			123		
44.450	+0.000	+0.000	83	15.875	8.814	102	12.700	4.750	124	15.875	6.807	144	19.050	9.271
50.800	-1.016	-1.574	84	15.875	8.814	103	12.700	4.750	125	15.875	6.807	145	19.050	9.271
57.150			85	28.575	21.514	104	25.400	17.450	126	28.575	19.507	146	19.050	9.271
63.500			86	28.575	21.514	105	25.400	17.450	127	28.575	19.507	147	19.050	9.271
69.850			87	41.275	34.214	106	38.100	30.150	128	41.275	32.207	148	19.050	9.271
76.200			88	41.275	34.214	107	38.100	30.150	129	41.275	32.207	149	18.100	28.321
82.550			89	53.975	46.914	108	50.800	42.850	130	53.975	44.907	150	18.100	28.321
88.900			90	53.975	46.914	109	50.800	42.850	131	53.975	44.907	151	18.100	28.321
103.600	+0.000	+0.000	110			110	63.500	55.550	132	66.675	57.607	152	57.150	47.371
114.300	-1.524	-2.032	111			111	76.200	68.250	133			153	76.200	66.421
127.000						112	88.900	80.950				154	76.200	66.421
139.700												155	95.250	65.471
152.400												156	114.300	104.521
165.100												157	114.300	104.521
177.800	+0.000	+0.000										158	133.350	123.571
201.200	-1.048	-3.048										159	152.400	142.621

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.

NOTE: All dimensions are in millimeters (mm), unless otherwise specified and are based on an approximate conversion factor of 25.4mm equal one inch.

(D) ** INACTIVE FOR NEW DESIGN AFTER 31 DECEMBER 1976.

P.A. bc Other Code AS 99	TITLE SCREW, CAP, SOCKET HEAD AND SCREW, CAP, SOCKET HEAD, SELF-LOCKING. ALLOY STEEL, CADMIUM PLATED, UNC-3A	MILITARY STANDARD MS16997
PROCUREMENT SPECIFICATION FF-S-146	SUPERSEDES BCW11 1.1, 1.2, BCW12 2.1, 2.2; BCW13.3, AND 1.4; MS15455, MS15457 and MS15459 in part	SHEET 6 OF 7

DD FORM 672-1

APPROVED 5 APR 1962 REVISED (D) For Changes see sheets 1 thru 7

TABLE III (Cont'd)
METRIC TRANSLATION OF TABLE I

FED SUP CLASS
5305

NOMINAL SIZE ϕ		15.875	19.050	22.225	25.400
THREADS per 25.4 mm UNC-3A		11	10	9	8
D BODY DIAMETER	MAX MIN	15.875 15.654	19.050 18.811	22.225 21.963	25.400 25.110
A HEAD DIAMETER	MAX MIN	23.812 23.393	26.575 26.115	33.338 32.542	36.100 35.567
H HEAD HEIGHT	MAX MIN	15.875 15.646	19.050 18.796	22.225 21.946	25.400 25.095
S HEAD SIDE HGT	MIN	14.275	17.145	19.990	22.860
J SOCKET WIDTH ACROSS FLATS	MAX MIN	12.827 12.700	16.027 15.875	19.228 19.050	19.228 19.050
T KEY ENGAGEMENT	MIN	7.798	9.398	10.973	12.573
G WALL THICKNESS	MIN	6.045	7.239	8.458	9.652
A CHAMFER OR RADIUS	MAX	.254	.254	.351	.381
R FILLET EXTENSION	MAX MIN	.813 .610	.991 .762	1.135 .864	1.270 1.015

TENSILE STRENGTH kN - MIN (D)		160.200		237.600		328.500		431.100						
L LENGTH	TOLERANCE		DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN	DASH NO.	GRIP LENGTH MAX	BODY LENGTH MIN
	SIZE 19.050 UNDR	OVER 19.050												
25.400	- .787	-1.270	164											
31.750			165											187
38.100			166											188
44.450			167											189
50.800	+ .000	+ .000	168											190
57.150	-1.524	-2.540	169											191
63.500			170	19.050	7.493	192								209
69.850			171	19.050	7.493	193								210
76.200			172	19.050	7.493	194	25.400	12.700						211
82.550			173	35.100	26.543	195	25.400	12.700	214	25.400	11.278			212
88.900			174	38.100	26.543	196	25.400	12.700	215	25.400	11.278	234	25.400	9.525
101.600	+ .000	+ .000	175	57.150	45.593	197	50.800	36.100	216	25.400	11.278	235	25.400	11.275
114.300	-2.032	-3.556	176	57.150	45.593	198	50.800	36.100	217	50.800	36.678	236	50.800	14.925
127.000			177	76.200	64.643	199	76.200	61.500	218	50.800	36.678	237	50.800	14.925
139.700			178	95.250	83.693	200	76.200	61.500	219	76.200	62.078	238	76.200	60.325
152.400			179	95.250	83.693	201	101.600	88.900	220	76.200	62.078	239	76.200	60.325
165.100			180	114.300	102.743	202	101.600	88.900	221	101.600	87.478	240	101.600	55.725
177.800	+ .000	+ .000	181	133.350	121.793	203	127.000	114.300	222	101.600	87.478	241	101.600	55.725
203.200	-3.048	-5.080	182	152.400	140.843	204	152.400	139.700	223	127.000	112.878	242	127.000	111.125

NOTE: All dimensions are in millimeters (mm), unless otherwise specified and are based on an approximate conversion factor of 25.4 mm equal one inch.

(D) ** INACTIVE FOR NEW DESIGN AFTER 31 DECEMBER 1976.

REVIEWER: AI, AV, EA, IS, MI, WS, OS
USER: ME, PA, WV, YD

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.

APPROVED 5 APR 1962 REVISED (D) For changes see sheets 1 thru 7

P.A. 6C Other Code AS 99	TITLE (D) SCREW, CAP, SOCKET HEAD AND SCREW, CAP, SOCKET HEAD, SELF-LOCKING; ALLOY STEEL, CADMIUM PLATED, UNC-3A	MILITARY STANDARD MS16997
PROCUREMENT SPECIFICATION FF-S-86	SUPPLEMENT BCW11, 1.1, 1.2; BCW12, 2.1, 2.2; BCW13.3 and 3.4, MS35435, MS35437 and MS35439 in part.	SHEET 7 OF 7