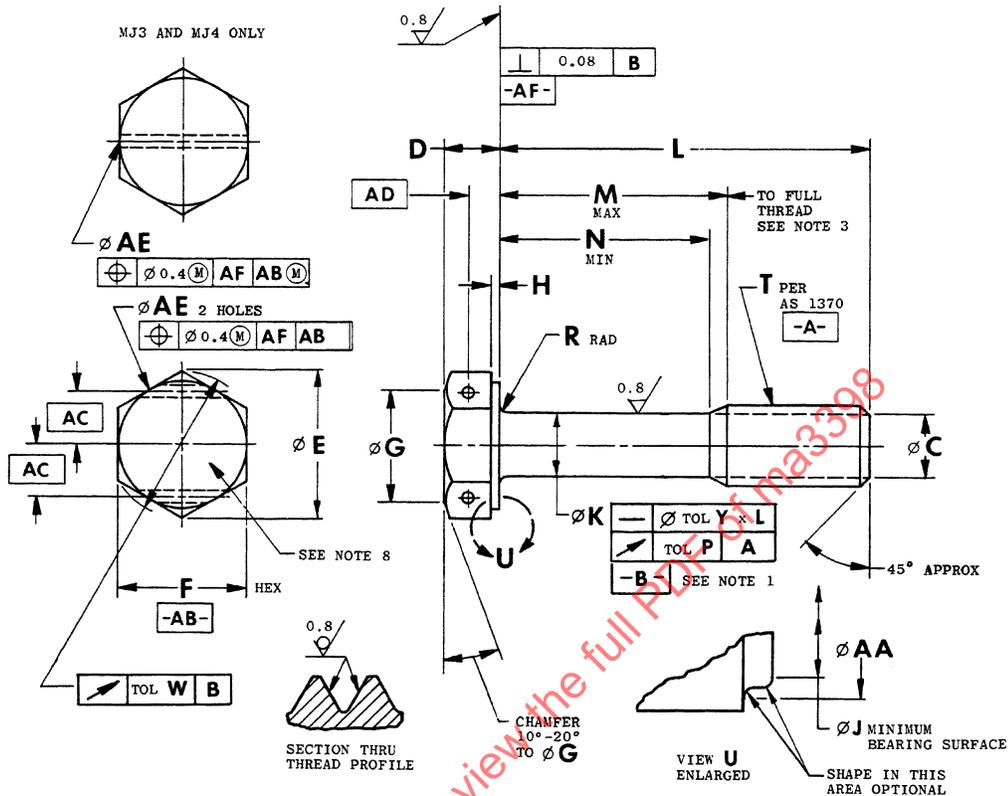


RATIONALE

MA3398 HAS BEEN REAFFIRMED TO COMPLY WITH THE SAE FIVE-YEAR REVIEW POLICY.

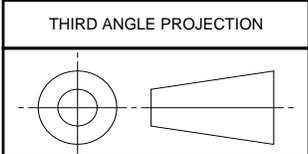
MA3398

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- FOR PART NUMBERS WHICH ARE THREADED TO WITHIN ONE DIAMETER OF THE HEAD THE THREAD PD SHALL REPLACE DATUM B.
 - MATERIAL: CORROSION AND HEAT RESISTANT STEEL, AMS5731 (UNS S66266)
 - PROCUREMENT SPECIFICATION: MA 3374
 - HARDNESS: 26-35 HRC OR EQUIVALENT.
 - FLUORESCENT PENETRANT INSPECTION: AMS 2645. ACCEPTANCE CRITERIA PER MA3374.
 - SURFACE TEXTURE: SYMBOLS PER ANSI Y14.36-1978; REQUIREMENTS PER ANSI/ASME B46.1-1985. UNLESS OTHERWISE SPECIFIED SURFACES TO BE 3.2 MICROMETRES Ra.
 - PART NUMBER SHALL INCLUDE THE STANDARD NUMBER AND THE DASH NUMBER TO INDICATE DIAMETER AND LENGTH. EXAMPLE OF PART NUMBER:
MA3398-030014 = BOLT, MJ3x0.5 THREAD, 14 LONG.
MA3398-200114 = BOLT, MJ20x1.5 THREAD, 114 LONG.
 - MARK PART NUMBER AND MANUFACTURER'S IDENTIFICATION PER AS 478 CLASS A. FOR MJ3 AND MJ4 MARK ONLY MA3398 AND MANUFACTURER'S IDENTIFICATION.
 - BREAK EDGES 0.1-0.4, UNLESS OTHERWISE SPECIFIED.
 - DIMENSIONING AND TOLERANCING: ANSI Y14.5M-1982. TOLERANCE GRADE PER ANSI B4.2-1978.
 - ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 - DO NOT USE UNASSIGNED PART NUMBERS.
- [MA, AS AND AMS ARE SAE PUBLICATIONS.
ANSI IS AMERICAN NATIONAL STANDARDS INSTITUTE PUBLICATIONS.]

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CUSTODIAN: E-25

	<p>METRIC AEROSPACE STANDARD</p> <p>BOLT, MACHINE-HEX HEAD-DRILLED, PD SHANK, LONG THREAD, AMS5731, METRIC</p>	<p>MA3398</p> <p>SHEET 1 OF 7</p>
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ISSUED 1987-07 REAFFIRMED 2015-05

TABLE I

PART NUMBER SEE NOTE 7	NOM DIA REF	THREAD T	C	D	E MIN	F		G MIN	H
MA3398-030XXX	3	MJ3x0.5-4h6h	1.8-2.3	3.1-3.4	7.6	6.85-7.00	h12	6.5	0.2-0.5
MA3398-040XXX	4	MJ4x0.7-4h6h	2.6-3.1	3.6-3.9	8.7	7.85-8.00		7.5	0.2-0.5
MA3398-050XXX	5	MJ5x0.8-4h6h	3.0-4.0	2.7-3.0	9.8	8.78-9.00		8.4	0.2-0.5
MA3398-060XXX	6	MJ6x1-4h6h	3.7-4.7	3.2-3.5	12.0	10.73-11.00		10.3	0.2-0.5
MA3398-070XXX	7	MJ7x1-4h6h	4.7-5.7	3.7-4.0	13.2	11.73-12.00		11.3	0.2-0.5
MA3398-080XXX	8	MJ8x1-4h6h	5.7-6.7	4.2-4.5	15.5	13.73-14.00	h13	13.3	0.3-0.6
MA3398-100XXX	10	MJ10x1.25-4h6h	7.4-8.4	4.7-5.0	18.9	16.73-17.00		16.3	0.3-0.6
MA3398-120XXX	12	MJ12x1.25-4h6h	9.4-10.4	5.7-6.0	21.1	18.67-19.00		18.3	0.3-0.6
MA3398-140XXX	14	MJ14x1.5-4h6h	11.1-12.1	6.7-7.0	24.5	21.67-22.00		21.3	0.3-0.6
MA3398-160XXX	16	MJ16x1.5-4h6h	13.1-14.1	7.7-8.0	26.8	23.67-24.00		23.3	0.3-0.6
MA3398-180XXX	18	MJ18x1.5-4h6h	15.1-16.1	8.7-9.0	30.2	26.67-27.00		26.3	0.3-0.6
MA3398-200XXX	20	MJ20x1.5-4h6h	17.1-18.1	9.7-10.0	33.6	29.67-30.00		29.3	0.3-0.6

PART NUMBER SEE NOTE 7	NOM DIA REF	J MIN	K	P	R	W	Y	AA	AC	AD	AE
								MAX			H13
MA3398-030XXX	3	6.4	2.55-2.81	0.10	0.2-0.4	0.15	0.0030	7.25	—	1.55	1.00-1.14
MA3398-040XXX	4	7.4	3.42-3.68	0.12	0.2-0.4	0.20	0.0030	8.25	—	1.80	1.00-1.14
MA3398-050XXX	5	8.3	4.35-4.61	0.12	0.3-0.5	0.25	0.0030	9.25	3.70	1.35	1.00-1.14
MA3398-060XXX	6	10.2	5.22-5.48	0.12	0.5-0.7	0.30	0.0030	11.25	4.50	1.60	1.40-1.54
MA3398-070XXX	7	11.2	6.22-6.48	0.15	0.5-0.7	0.35	0.0030	12.25	4.95	1.85	1.40-1.54
MA3398-080XXX	8	13.2	7.22-7.48	0.15	0.5-0.7	0.40	0.0030	14.25	5.80	2.10	1.40-1.54
MA3398-100XXX	10	16.0	9.06-9.32	0.15	0.6-0.8	0.50	0.0025	17.25	7.10	2.35	1.60-1.74
MA3398-120XXX	12	18.0	11.06-11.32	0.18	0.6-0.9	0.60	0.0025	19.25	7.90	2.85	1.60-1.74
MA3398-140XXX	14	21.0	12.90-13.16	0.18	0.8-1.1	0.70	0.0025	22.25	9.20	3.35	1.60-1.74
MA3398-160XXX	16	23.0	14.90-15.16	0.18	0.8-1.1	0.75	0.0025	24.25	10.05	3.85	1.60-1.74
MA3398-180XXX	18	26.0	16.90-17.16	0.18	1.0-1.3	0.75	0.0025	27.25	11.30	4.35	1.60-1.74
MA3398-200XXX	20	29.0	18.90-19.16	0.21	1.0-1.3	0.75	0.0025	30.25	12.60	4.85	1.60-1.74

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TABLE II

L LENGTH	MJ3x0.5-4h6h				MJ4x0.7-4h6h			
	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100
3.7-4.3	030004	1.4	0.4	0.109	—	—	—	—
5.7-6.3	030006	1.4	0.4	0.118	040006	1.8	0.4	0.190
7.7-8.3	030008	1.4	0.4	0.127	040008	1.8	0.4	0.205
9.7-10.3	030010	1.4	0.4	0.136	040010	1.8	0.4	0.220
11.7-12.3	030012	1.4	0.4	0.145	040012	1.8	0.4	0.235
13.7-14.3	030014	2.0	0.4	0.154	040014	1.8	0.4	0.250
15.7-16.3	030016	4.0	1.5	0.163	040016	2.0	0.4	0.265
17.7-18.3	030018	6.0	3.5	0.172	040018	4.0	1.1	0.280
19.7-20.3	030020	8.0	5.5	0.181	040020	6.0	3.1	0.295
21.7-22.3	030022	10.0	7.5	0.190	040022	8.0	5.1	0.310
23.7-24.3	030024	12.0	9.5	0.199	040024	10.0	7.1	0.325
25.7-26.3	030026	14.0	11.5	0.208	040026	12.0	9.1	0.340
27.7-28.3	030028	16.0	13.5	0.217	040028	14.0	11.1	0.355
29.7-30.3	030030	18.0	15.5	0.226	040030	16.0	13.1	0.370
31.7-32.3	030032	20.0	17.5	0.235	040032	18.0	15.1	0.385
33.7-34.3	030034	22.0	19.5	0.244	040034	20.0	17.1	0.400
35.7-36.3	030036	24.0	21.5	0.253	040036	22.0	19.1	0.415
37.7-38.3	030038	26.0	23.5	0.262	040038	24.0	21.1	0.430
39.7-40.3	030040	28.0	25.5	0.271	040040	26.0	23.1	0.445
41.7-42.3	030042	30.0	27.5	0.280	040042	28.0	25.1	0.460
43.7-44.3	—	—	—	—	040044	30.0	27.1	0.475
45.7-46.3	—	—	—	—	040046	32.0	29.1	0.490
47.7-48.3	—	—	—	—	040048	34.0	31.1	0.505
49.7-50.3	—	—	—	—	040050	36.0	33.1	0.520
51.7-52.3	—	—	—	—	040052	38.0	35.1	0.535
53.7-54.3	—	—	—	—	040054	40.0	37.1	0.550
55.7-56.3	—	—	—	—	040056	42.0	39.1	0.565

TABLE II (CONTINUED)

L LENGTH	MJ5x0.8-4h6h				MJ6x1-4h6h			
	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100
7.7-8.3	050008	2.1	0.5	0.269	—	—	—	—
9.7-10.3	050010	2.1	0.5	0.293	060010	2.7	0.7	0.426
11.7-12.3	050012	2.1	0.5	0.317	060012	2.7	0.7	0.461
13.7-14.3	050014	2.1	0.5	0.341	060014	2.7	0.7	0.496
15.7-16.3	050016	2.1	0.5	0.365	060016	2.7	0.7	0.531
17.7-18.3	050018	2.1	0.5	0.389	060018	2.7	0.7	0.566
19.7-20.3	050020	4.0	0.9	0.413	060020	2.7	0.7	0.601
21.7-22.3	050022	6.0	2.9	0.437	060022	2.7	0.7	0.636
23.7-24.3	050024	8.0	4.9	0.461	060024	4.0	2.5	0.671
25.7-26.3	050026	10.0	6.9	0.485	060026	8.0	4.5	0.706
27.7-28.3	050028	12.0	8.9	0.509	060028	10.0	6.5	0.741
29.7-30.3	050030	14.0	10.9	0.533	060030	12.0	8.5	0.776
31.7-32.3	050032	16.0	12.9	0.557	060032	14.0	10.5	0.811
33.7-34.3	050034	18.0	14.9	0.581	060034	16.0	12.5	0.846
35.7-36.3	050036	20.0	16.9	0.605	060036	18.0	14.5	0.881
37.7-38.3	050038	22.0	18.9	0.629	060038	20.0	16.5	0.916
39.7-40.3	050040	24.0	20.9	0.653	060040	22.0	18.5	0.951
41.7-42.3	050042	26.0	22.9	0.677	060042	24.0	20.5	0.986
43.7-44.3	050044	28.0	24.9	0.701	060044	26.0	22.5	1.021
45.7-46.3	050046	30.0	26.9	0.725	060046	28.0	24.5	1.056
47.7-48.3	050048	32.0	28.9	0.749	060048	30.0	26.5	1.091
49.7-50.3	050050	34.0	30.9	0.773	060050	32.0	28.5	1.126
51.7-52.3	050052	36.0	32.9	0.797	060052	34.0	30.5	1.161
53.7-54.3	050054	38.0	34.9	0.821	060054	36.0	32.5	1.196
55.7-56.3	050056	40.0	36.9	0.845	060056	38.0	34.5	1.231
57.7-58.3	050058	42.0	38.9	0.869	060058	40.0	36.5	1.266
59.7-60.3	050060	44.0	40.9	0.893	060060	42.0	38.5	1.301
63.7-64.3	050064	48.0	44.9	0.941	060064	46.0	42.5	1.371
67.7-68.3	050068	52.0	48.9	0.989	060068	50.0	46.5	1.441
71.7-72.3	—	—	—	—	060072	54.0	50.5	1.511
75.7-76.3	—	—	—	—	060076	58.0	54.5	1.581
79.7-80.3	—	—	—	—	060080	62.0	58.5	1.651
83.7-84.3	—	—	—	—	060084	66.0	62.5	1.721



METRIC AEROSPACE STANDARD

BOLT, MACHINE-HEX HEAD-DRILLED, PD
SHANK, LONG THREAD, AMS5731, METRICMA3398
SHEET 3 OF 7

TABLE II (CONTINUED)

L LENGTH	MJ7x1-4h6h				MJ8x1-4h6h			
	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100
9.7-10.3	070010	2.7	0.7	0.570	080010	2.7	0.7	0.834
11.7-12.3	070012	2.7	0.7	0.619	080012	2.7	0.7	0.900
13.7-14.3	070014	2.7	0.7	0.668	080014	2.7	0.7	0.966
15.7-16.3	070016	2.7	0.7	0.717	080016	2.7	0.7	1.032
17.7-18.3	070018	2.7	0.7	0.766	080018	2.7	0.7	1.098
19.7-20.3	070020	2.7	0.7	0.815	080020	2.7	0.7	1.164
21.7-22.3	070022	2.7	0.7	0.864	080022	2.7	0.7	1.230
23.7-24.3	070024	4.0	0.7	0.913	080024	2.7	0.7	1.296
25.7-26.3	070026	6.0	2.5	0.962	080026	4.0	0.7	1.362
27.7-28.3	070028	8.0	4.5	1.011	080028	6.0	2.5	1.428
29.7-30.3	070030	10.0	6.5	1.060	080030	8.0	4.5	1.494
31.7-32.3	070032	12.0	8.5	1.109	080032	10.0	6.5	1.556
33.7-34.3	070034	14.0	10.5	1.158	080034	12.0	8.5	1.622
35.7-36.3	070036	16.0	12.5	1.207	080036	14.0	10.5	1.692
37.7-38.3	070038	18.0	14.5	1.256	080038	16.0	12.5	1.758
39.7-40.3	070040	20.0	16.5	1.305	080040	18.0	14.5	1.824
41.7-42.3	070042	22.0	18.5	1.354	080042	20.0	16.5	1.890
43.7-44.3	070044	24.0	20.5	1.403	080044	22.0	18.5	1.956
45.7-46.3	070046	26.0	22.5	1.452	080046	24.0	20.5	2.022
47.7-48.3	070048	28.0	24.5	1.501	080048	26.0	22.5	2.088
49.7-50.3	070050	30.0	26.5	1.550	080050	28.0	24.5	2.154
51.7-52.3	070052	32.0	28.5	1.599	080052	30.0	26.5	2.222
53.7-54.3	070054	34.0	30.5	1.648	080054	32.0	28.5	2.286
55.7-56.3	070056	36.0	32.5	1.697	080056	34.0	30.5	2.352
57.7-58.3	070058	38.0	34.5	1.746	080058	36.0	32.5	2.418
59.7-60.3	070060	40.0	36.5	1.795	080060	38.0	34.5	2.484
63.7-64.3	070064	44.0	40.5	1.893	080064	42.0	38.5	2.616
67.7-68.3	070068	48.0	44.5	1.991	080068	46.0	42.5	2.748
71.7-72.3	070072	52.0	48.5	2.089	080072	50.0	46.5	2.888
75.7-76.3	070076	56.0	52.5	2.187	080076	54.0	50.5	3.012
79.7-80.3	070080	60.0	56.5	2.285	080080	58.0	54.5	3.144
83.7-84.3	070084	64.0	60.5	2.383	080084	62.0	58.5	3.276
87.7-88.3	070088	68.0	64.5	2.481	080088	66.0	62.5	3.408
91.7-92.3	070092	72.0	68.5	2.579	080092	70.0	66.5	3.540
95.7-96.3	070096	76.0	72.5	2.677	080096	74.0	70.5	3.672
99.7-100.3					080100	78.0	74.5	3.804
103.7-104.3					080104	82.0	78.5	3.936
107.7-108.3					080108	86.0	82.5	4.068
111.7-112.3					080112	90.0	86.5	4.200

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TABLE II (CONTINUED)

L LENGTH	MJ10x1.25-4h6h				MJ12x1.25-4h6h			
	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100	DASH NO SEE NOTE 7	M MAX	N MIN	APPROX MASS kg/100
13.7-14.3	100014	3.3	0.8	1.554	—	—	—	—
15.7-16.3	100016	3.3	0.8	1.657	120016	3.4	0.9	2.467
17.7-18.3	100018	3.3	0.8	1.760	120018	3.4	0.9	2.620
19.7-20.3	100020	3.3	0.8	1.863	120020	3.4	0.9	2.773
21.7-22.3	100022	3.3	0.8	1.966	120022	3.4	0.9	2.926
23.7-24.3	100024	3.3	0.8	2.069	120024	3.4	0.9	3.079
25.7-26.3	100026	3.3	0.8	2.172	120026	3.4	0.9	3.232
27.7-28.3	100028	3.3	0.8	2.275	120028	3.4	0.9	3.385
29.7-30.3	100030	4.0	0.8	2.378	120030	3.4	0.9	3.538
31.7-32.3	100032	6.0	2.0	2.481	120032	3.4	0.9	3.691
33.7-34.3	100034	8.0	4.0	2.584	120034	4.0	0.9	3.844
35.7-36.3	100036	10.0	6.0	2.687	120036	6.0	2.0	3.997
37.7-38.3	100038	12.0	8.0	2.790	120038	8.0	4.0	4.150
39.7-40.3	100040	14.0	10.0	2.893	120040	10.0	6.0	4.303
41.7-42.3	100042	16.0	12.0	2.996	120042	12.0	8.0	4.456
43.7-44.3	100044	18.0	14.0	3.099	120044	14.0	10.0	4.609
45.7-46.3	100046	20.0	16.0	3.202	120046	16.0	12.0	4.762
47.7-48.3	100048	22.0	18.0	3.305	120048	18.0	14.0	4.915
49.7-50.3	100050	24.0	20.0	3.408	120050	20.0	16.0	5.068
51.7-52.3	100052	26.0	22.0	3.511	120052	22.0	18.0	5.221
53.7-54.3	100054	28.0	24.0	3.614	120054	24.0	20.0	5.374
55.7-56.3	100056	30.0	26.0	3.717	120056	26.0	22.0	5.527
57.7-58.3	100058	32.0	28.0	3.820	120058	28.0	24.0	5.680
59.7-60.3	100060	34.0	30.0	3.923	120060	30.0	26.0	5.833
63.7-64.3	100064	38.0	34.0	4.129	120064	34.0	30.0	6.139
67.7-68.3	100068	42.0	38.0	4.335	120068	38.0	34.0	6.445
71.7-72.3	100072	46.0	42.0	4.541	120072	42.0	38.0	6.751
75.7-76.3	100076	50.0	46.0	4.747	120076	46.0	42.0	7.057
79.7-80.3	100080	54.0	48.0	4.953	120080	50.0	46.0	7.363
83.7-84.3	100084	58.0	54.0	5.159	120084	54.0	50.0	7.669
87.7-88.3	100088	62.0	58.0	5.365	120088	58.0	54.0	7.975
91.7-92.3	100092	66.0	62.0	5.571	120092	62.0	58.0	8.281
95.7-96.3	100096	70.0	66.0	5.777	120096	66.0	62.0	8.587
99.7-100.3	100100	74.0	70.0	5.983	120100	70.0	66.0	8.893
103.7-104.3	100104	78.0	74.0	6.189	120104	74.0	70.0	9.199
107.7-108.3	100108	82.0	78.0	6.395	120108	78.0	74.0	9.505
111.7-112.3	100112	86.0	82.0	6.601	120112	82.0	78.0	9.811
115.7-116.3	100116	90.0	86.0	6.807	120116	86.0	82.0	10.117
119.7-120.3	100120	94.0	90.0	7.013	120120	90.0	86.0	10.423
123.7-124.3	100124	98.0	94.0	7.219	120124	94.0	90.0	10.729
127.7-128.3	100128	102.0	98.0	7.425	120128	98.0	94.0	11.035
131.7-132.3	100132	106.0	102.0	7.631	120132	102.0	98.0	11.341
135.7-136.3	100136	110.0	106.0	7.837	120136	106.0	102.0	11.647
139.7-140.3	100140	114.0	110.0	8.043	120140	110.0	106.0	11.953
143.7-144.3					120144	114.0	110.0	12.259
147.7-148.3					120148	118.0	114.0	12.565
151.7-152.3					120152	122.0	118.0	12.871
155.7-156.3					120156	126.0	122.0	13.177
159.7-160.3					120160	130.0	126.0	13.483
163.7-164.3					120164	134.0	130.0	13.789
167.7-168.3					120168	138.0	134.0	14.095

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