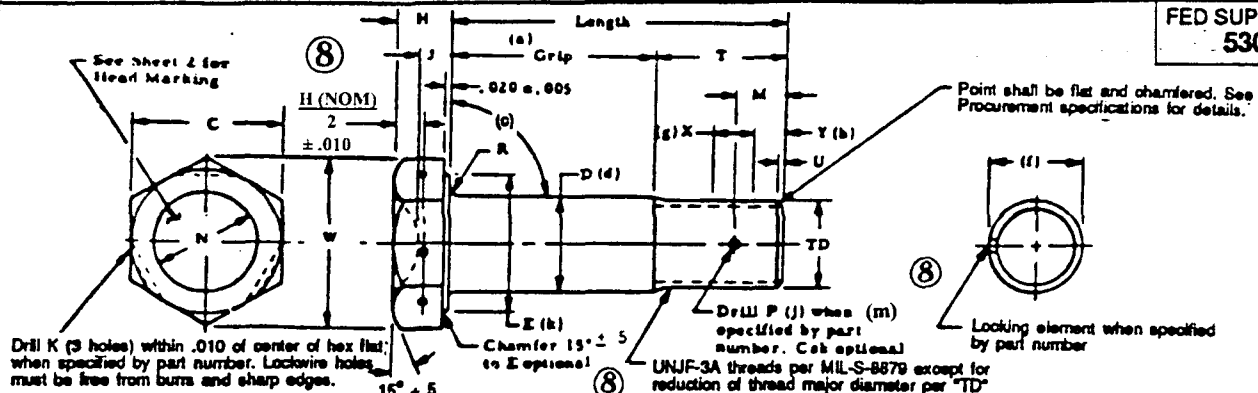




FED SUP CLASS  
5306



AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.  
1250 EYE STREET, N.W.  
WASHINGTON, D.C. 20005

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BASIC NUMBER	NOM THREAD SIZE	C	D DIA. (I)			E DIA MIN	H	J	K DIA	M	N	P
			BEFORE CHROME PLATE	BEFORE CAD PLATE	AFTER PLATE							
NAS6203	.1900-32	.376	.1850	.1885	.1895	.335	.125	.088	.056	.174	.18	.080
NAS6204	2500-28	.439	.2450	.2485	.2495	.398	.140	.098	.056	.180	.24	.086
NAS6205	3125-24	.502	.3075	.3110	.3120	.460	.171	.119	.080	.192	.30	.086
NAS6206	3750-24	.564	.3700	.3735	.3745	.523	.203	.140	.080	.193	.37	.118
NAS6207	4375-20	.690	.4325	.4360	.4370	.648	.234	.161	.080	.209	.43	.116
NAS6208	5000-20	.752	.4950	.4985	.4995	.710	.265	.182	.080	.208	.49	.116
NAS6209	5625-18	.877	.5570	.5605	.5615	.835	.296	.203	.080	.217	.55	.151
NAS6210	6250-18	.940	.6195	.6230	.6240	.898	.327	.223	.080	.217	.61	.151
NAS6212	7500-16	1.065	.7445	.7480	.7490	1.023	.390	.265	.080	.232	.74	.151
NAS6214	8750-14	1.252	.8695	.8730	.8740	1.210	.453	.307	.080	.251	.87	.151
NAS6216	1.0000-12	1.440	.9945	.9980	.9990	1.398	.515	.348	.080	.274	.99	.151
NAS6218	1.1250-12	1.627	1.1195	1.1230	1.1240	1.585	.577	.390	.080	.305	1.11	.151
NAS6220	1.2500-12	1.814	1.2445	1.2480	1.2490	1.772	.640	.432	.080	.305	1.24	.151

BASIC NUMBER	R RAD	T REF(b)	TD DIA	U MAX	W MIN	X (g)	Y (h)	AA	(e) BB	(d) CC
NAS6203	.020	.323	.1840	.039	.410	.156	.094	.0045	.0040	.005
NAS6204	.020	.370	.2440	.045	.480	.179	.107	.0045	.0030	.006
NAS6205	.020	.438	.3060	.052	.552	.208	.125	.0045	.0030	.008
NAS6206	.025	.454	.3680	.052	.623	.208	.125	.0045	.0025	.009
NAS6207	.025	.528	.4310	.062	.764	.250	.150	.0060	.0025	.010
NAS6208	.030	.528	.4930	.062	.836	.250	.150	.0060	.0020	.011
NAS6209	.035	.594	.5550	.068	.978	.278	.167	.0060	.0020	.012
NAS6210	.040	.626	.6180	.068	1.050	.278	.167	.0060	.0020	.015
NAS6212	.045	.666	.7430	.078	1.191	.312	.188	.0060	.0020	.018
NAS6214	.050	.759	.8680	.089	1.405	.357	.214	.0090	.0020	.020
NAS6218	.060	.895	.9930	.104	1.819	.417	.250	.0090	.0020	.022
NAS6220	.075	1.083	1.2430	.104	2.046	.417	.250	.0090	.0020	.028

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(a), (b) etc: See notes on Sheet 2

LIST OF CURRENT SHEETS

NO.	REV.
1	8
2	5
3	NEW
4	4
5	4

CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE

THIRD ANGLE PROJECTION

PROCUREMENT SPECIFICATION NOTED ON SHEET 2

TITLE  
BOLT, TENSION, HEX HEAD, CLOSE TOLERANCE, ALLOY STEEL, SHORT THREAD, REDUCED MAJOR THREAD DIA., SELF-LOCKING AND NONLOCKING, 160 KSI Ft<sub>u</sub>

CLASSIFICATION  
STANDARD PART  
NAS6203 THRU 6220  
SHEET 1 OF 5

USE OF OR RELIANCE UPON THIS DOCUMENT ON ANY NATIONAL AEROSPACE STANDARD IS ENTIRELY VOLUNTARY. AIA DOES NOT QUALIFY SUPPLIERS OR CERTIFY CONFORMANCE OF ITEMS PROCURED UNDER NATIONAL AEROSPACE STANDARDS. AIA MAKES NO REPRESENTATION OR CLAIM RESPECTING (1) THE SUITABILITY OF ITEMS FOR ANY PARTICULAR APPLICATION, OR (2) THE EXISTENCE OF OR APPLICABILITY THERETO OF PATENT OR TRADEMARK RIGHTS.

APPROVAL DATE DEC. 1968 REVISION 7 17 DEC. 1983 8 18 June 1999



MATERIAL: Alloy Steel - 4140 (UNS G41400) per AMS6349, 4340 (UNS43400) per AMS6484, 4340 (UNS43406) per AMS6415 or 8740 (UNSG87400) per AMS6322 or MIL-S-6049

⑤ Locking Element - Plastic per MIL-DTL-18240 and QPL18240.

HEAT TREAT: Develop basic material properties as follows, with controls per MIL-H-6875: 160-180 KSI Ft<sub>u</sub> per MIL-H-6875

FINISH: Cadmium Plated Bolts - Cadmium plate per QQ-P-416, Type II, Class 2. ~~Parts plated to Class 3 may be used until stock depleted.~~ Embrittlement requirement per NAS4002.

Chromium Plated Bolts - Chromium plate per QQ-C-320, Class 2 on shank only. All other surfaced Cadmium plated. No Chromium within .020 of line of tangency of head to shank fillet. Chromium in thread runout permitted. Chromium plated bolts not available with grip dash number 1 or number 2.

CODE: Dash number indicates grip in .0625 increments. See Sheet 3 for tabulation of grip and length dimensions. Add "D" after dash number for drilled shank<sup>(m)</sup>. Add "H" after dash number for drilled head. Add "L" after basic part number for self-locking bolts, optional configuration. Add "P" after basic part number for self-locking bolts, patch type.

⑤ Do not use "P" with "D", "H" or "L" Code. Add "C" after basic part number for chromium plated bolts.

EXAMPLE OF PART NUMBER:

- NAS6204-10 = Bolt, .2500 thread, .625 grip, nonlocking, undrilled.
- NAS6204-10D = Bolt, .2500 thread, .625 grip, nonlocking, drilled shank.
- NAS6204-10DH = Bolt, .2500 thread, .625 grip, nonlocking, drilled shank and drilled head
- NAS6204-10H = Bolt, .2500 thread, .625 grip, nonlocking, drilled head.
- NAS6204L10 = Bolt, .2500 thread, .625 grip, self-locking, (optional configuration), undrilled.
- NAS6204P10 = Bolt, .2500 thread, .625 grip, self-locking, (patch type), undrilled.

HEAD MARKING: Basic number plus grip dash number plus "D", "L", or "P" when applicable, plus manufacturer's symbol raised or depressed .010 max. Arrangement optional.

- "D" identifies bolt with drilled shank
- "L" identifies bolt with optional locking element
- ⑤ "P" identifies bolt with patch type locking element only
- "C" Chromium plated code need not appear on head of bolt.

NOTES:

- (a) Grip length of bolts shall be measured from underside of head to the end of the full cylindrical portion of the shank.
- (b) Reference dimensions are for design purposes only, not an inspection requirement.
- ⑤ (c) Bearing surface squareness: Within .003 FIM of shank diameter.
- (d) Concentricity: "D" diameter to thread pitch diameter within "AA" values. "D" and "E" diameters within "CC" values FIM
- ⑤ (e) Shank straightness: Within "BB" values FIM per inch of length.
- (f) Protrusion of locking element shall be controlled so that it will pass freely or with finger pressure through a ring gage with diameter of .010 (+.001, -.000) greater than maximum major diameter of screw thread.
- (g) "X" minimum (5 thread pitches) = region of minimum engagement of female thread required to meet
- ⑤ MIL-DTL-18240 requirements. Locking element within "X" region must develop required torque when tested per MIL-DTL-18240.
- (h) For ease of starting, locking element shall not be effective in "Y" area (3 thread pitches).
- (j) Cotter pin hole centerline: Within .010 and normal within 2° of bolt centerline.
- (k) Washer face diameter: Max not to exceed actual width across flats; min as tabulated.
- (l) Plating thickness minimum to be .0003 inch per QQ-P-416, Class 2.
- (m) If required, tensile testing of bolts requiring cross-drilled threads shall be performed prior to drilling and the application of plating and/or coatings. When bolts have been drilled, strength may be verified by shear testing
- ⑤ in lieu of tensile testing, in accordance with NASM 1312. Users should be aware that fasteners with cross-drilled threads may exhibit a reduction in tensile strength.

SURFACE TEXTURE: Per ASME B46.1. "D" diameter, bearing surface of head, thread flanks and thread root 32; other surfaces 125.

Dimensions to be met after plating. ⑤  
Dimensions in inches.

PROCUREMENT SPECIFICATION: NAS4002, except as noted. Cold work of head to shank fillet is not required for NAS 6203 bolt. Locking element for self-locking bolts: Per MS15981 and MIL-F-18240. Any type or configuration of locking element is optional when "L" code is specified. Patch type locking element (with no metal removed) is required when "P" code is specified. Locking element must be supplied by a qualified source listed in QPL18240 or approved for listing in QPL18240. Shipping notice should identify supplier of bolt and locking element separately.

NAS6203 THRU 6220  
SHEET 2

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.  
1250 EYE STREET, N.W.  
WASHINGTON, D.C. 20005

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APPROVAL DATE DECEMBER 1968 REVISION (1) 16 MARCH 1970 (2) 15 FEB. 1972 (3) 30 MARCH 1977 (4) 17 DEC. 1983 (5) 18 June 1999





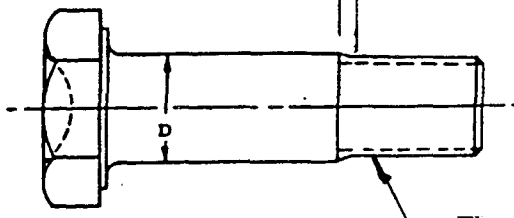
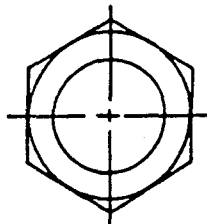
**RESTRICTED USAGE: FOR REPAIR WORK ONLY**  
**.0156 AND .0312 Oversize Shank for Replacement of Bolts Shown on Sheet 1**

Head Marking: Same as on Sheet 2 plus identification for oversize, as applicable, to be included in second sector. Identify .0156 oversize by "X" Identify .0312 oversize by "Y"

See Sheet 1 for dimensions not shown

Incomplete Threads

For .0156 oversize (2 pitches + .017) max  
For .0312 oversize (2 pitches + .033) max



Threads per MIL-S-8879

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APPROVAL DATE DECEMBER 1988 REVISION ① 18 MARCH 1970 ② 30 MARCH 1977 ③ 15 DECEMBER 1993 ④ 18 June 1999

PART NUMBER (NONLOCKING, UNDRILLED SHANK) .0156 OVERSIZE **UNDRILLED HEAD	NOMINAL THREAD SIZE	D DIAMETER .0156 OVERSIZE SHANK (I)		
		BEFORE CAD PLATE ④	BEFORE CHROME PLATE ④	AFTER PLATE
NAS6203-*X	.1900-32	.2016	.1981	.2026
		.2010	.1976	.2016
NAS6204-*X	.2500-28	.2641	.2606	.2651
		.2635	.2601	.2641
NAS6205-*X	.3125-24	.3266	.3231	.3276
		.3260	.3226	.3266
NAS6206-*X	.3750-24	.3891	.3856	.3901
		.3885	.3851	.3891
NAS6207-*X	.4375-20	.4516	.4481	.4526
		.4510	.4476	.4516
NAS6208-*X	.5000-20	.5141	.5106	.5151
		.5135	.5101	.5141
NAS6209-*X	.5625-18	.5761	.5726	.5771
		.5755	.5721	.5761
NAS6210-*X	.6250-18	.6386	.6351	.6396
		.6380	.6346	.6386
NAS6212-*X	.7500-16	.7636	.7601	.7646
		.7630	.7596	.7636
NAS6214-*X	.8750-14	.8886	.8851	.8896
		.8880	.8846	.8886
NAS6216-*X	1.000-12	1.0136	1.0101	1.0146
		1.0130	1.0096	1.0136
NAS6218-*X	1.1250-12	1.1386	1.1351	1.1396
		1.1375	1.1341	1.1381
NAS6220-*X	1.2500-12	1.2636	1.2601	1.2646
		1.2625	1.2591	1.2631

\* Grip dash number in .0625 increments. See sheet 3 for grip and length dimension. For material, finish and procurement information, see sheet 2.

\*\* For drilled head insert "H" before the oversize code.  
Example: NAS6204-\*HX = drilled head, .0156 oversize bolt.

**NAS6203 THRU 6220**  
**SHEET 4**

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.  
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 WASHINGTON, D.C. 20005

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 HEREON.

PART NUMBER (NONLOCKING, UNDRILLED SHANK) <u>.0312 OVERSIZE</u> ** UNDRILLED HEAD	NOMINAL THREAD SIZE	D DIAMETER .0312 OVERSIZE SHANK (1)		
		BEFORE CAD ④ PLATE	BEFORE CHROME PLATE ④	AFTER PLATE
NAS6203-*Y	.1900-32	.2172	.2137	.2182
		.2166	.2132	.2172
NAS6204-*Y	.2500-28	.2797	.2762	.2807
		.2791	.2757	.2797
NAS6205-*Y	.3125-24	.3422	.3387	.3432
		.3416	.3382	.3422
NAS6206-*Y	.3750-24	.4047	.4012	.4057
		.4041	.4007	.4047
NAS6207-*Y	.4375-20	.4672	.4637	.4682
		.4666	.4632	.4672
NAS6208-*Y	.5000-20	.5277	.5262	.5307
		.5291	.5257	.5297
NAS6209-*Y	.5625-18	.5917	.5882	.5927
		.5911	.5877	.5917
NAS6210-*Y	.6250-18	.6542	.6507	.6552
		.6536	.6502	.6542
NAS6212-*Y	.7500-16	.7792	.7757	.7802
		.7786	.7752	.7792
NAS6214-*Y	.8750-14	.9042	.9007	.9052
		.9036	.9002	.9042
NAS6216-*Y	1.000-12	1.0292	1.0257	1.0302
		1.0286	1.0252	1.0292
NAS6218-*Y	1.1250-12	1.1542	1.1507	1.1552
		1.1531	1.1497	1.1537
NAS6220-*Y	1.2500-12	1.2792	1.2757	1.2802
		1.2781	1.2747	1.2787

\* See Note on Sheet 4  
 \*\* See Note on Sheet 4

**NAS6203 THRU 6220**  
 SHEET 5