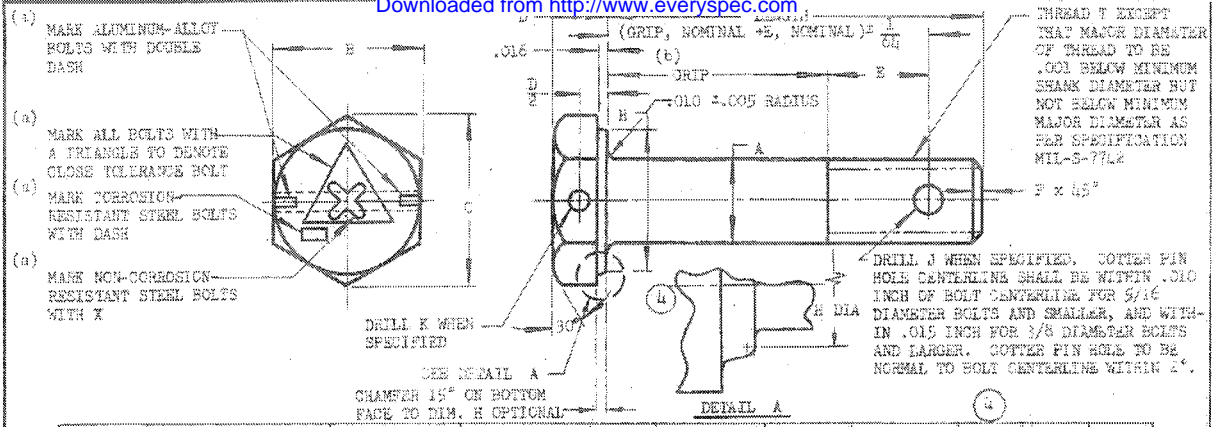


NOTE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government hereby incurs no responsibility, nor any obligation whatsoever, and the fact that the Government name may be mentioned in any drawing, specification, or other data is not to be regarded as an implication or acknowledgment on the part of the Government in any manner whatsoever, or as an endorsement, approval, or recommendation of the product, or as an acknowledgment of the superiority of the product over other products, or as an acknowledgment of the liability of the manufacturer, user, or seller of any patented article that may be used in any way that may be related thereto.



PART AND PART NO.	THREAD T	A DIA		B		C REF	D		E REF	F		(d) H DIA	J DRILL DIA +.010 - .000	K DRILL DIA +.010 - .000
		MAX	MIN	MAX	MIN		MAX	MIN		MAX	MIN	MIN		
ANI73	NO. 10-32 NF-3A	.1874	.1889	.377	.365	.430	.241	.409	17/64	.047	.015	.335	.070	.086
ANI74	1/8-28 UNF-3A	.2492	.2477	.440	.428	.510	.172	.410	5/16	.047	.015	.398	.076	.086
ANI75	5/16-24 UNF-3A	.3117	.3112	.502	.490	.580	.204	.472	23/64	.063	.031	.450	.076	.070
ANI76	3/8-24 UNF-3A	.3742	.3737	.565	.553	.650	.235	.503	7/16	.063	.031	.523	.106	.070
ANI77	7/16-20 UNF-3A	.4367	.4362	.627	.615	.720	.266	.534	31/64	.063	.031	.580	.106	.070
ANI78	1/2-20 UNF-3A	.4991	.4986	.752	.740	.870	.297	.625	27/64	.063	.031	.710	.106	.070
ANI79	9/16-18 UNF-3A	.5616	.5611	.877	.865	1.010	.328	.696	21/32	.078	.046	.822	.141	.070
ANI80	5/8-18 UNF-3A	.6240	.6235	.940	.928	1.090	.360	.768	47/64	.078	.046	.898	.141	.070
ANI82	3/4-16 UNF-3A	.7152	.7147	1.066	1.053	1.230	.422	.890	7/8	.078	.046	1.025	.141	.070
ANI83	7/8-14 UNF-3A	.8737	.8732	1.253	1.240	1.440	.485	1.054	53/64	.094	.062	1.230	.141	.070
ANI86	1-14 NF-3A	.9935	.9930	1.441	1.428	1.660	.547	1.315	1- 3/32	.094	.062	1.398	.141	.070

SEE SHEET 3 FOR NOTES (a), (b), AND (c).

(d) THE DIAMETER OF THE WASHER FACE SHALL NOT EXCEED THE ACTUAL WIDTH ACROSS FLATS.

MATERIAL: NON-CORROSION-RESISTANT STEEL, CORROSION-RESISTANT STEEL, OR ALUMINUM ALLOY. SEE PROCUREMENT SPECIFICATION

FINISH: SEE PROCUREMENT SPECIFICATION, EXCEPT AS NOTED.

PLATING MAY BE GROUND OFF SHANK OR UNDERSIDE OF HEAD. SMALL AREAS OF CADMIUM PLATING REMAINING ON THE GROUND PORTION OF BOLTS SHALL NOT BE CAUSE FOR REJECTION. UNPLATED SURFACES SHALL BE COATED WITH COMPOUND, SPECIFICATION MIL-C-11796 OR MIL-C-16174. SURFACE ROUGHNESS IN RMS MICHRO INCHES BEFORE PLATING SHALL BE: 63 MAX FOR SHANK AND UNDERSIDE OF HEAD, 125 MAX FOR THREADS (VISUAL COMPARISON ONLY), 250 MAX FOR ALL OTHER AREAS (VISUAL COMPARISON ONLY).

ADD C BEFORE DASH NUMBER FOR CORROSION-RESISTANT STEEL BOLT. (SEE (c) NOTE.)

ADD DD BEFORE DASH NUMBER FOR ALUMINUM-ALLOY BOLT. (SEE (c) NOTE.)

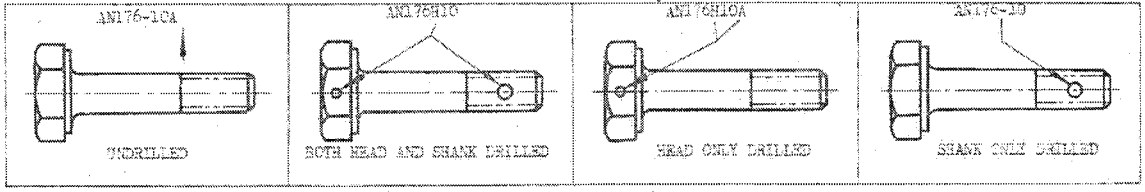
ADD A AFTER DASH NUMBER FOR UNDRILLED BOLT. SEE ILLUSTRATION.

ADD H BEFORE DASH NUMBER FOR BOLT WITH DRILLED HEAD AND SHANK. SEE ILLUSTRATION.

ADD B BEFORE DASH NUMBER AND A AFTER DASH NUMBER FOR BOLT WITH DRILLED HEAD ONLY. SEE ILLUSTRATION

EXAMPLES OF PART NUMBERS:

- ANI76-10 = 3/8 NON-CORROSION-RESISTANT STEEL BOLT 1-5/64 LONG, 7/16 GRIP WITH DRILLED SHANK ONLY. SEE ILLUSTRATION.
- ANI76C10 = 3/8 CORROSION-RESISTANT STEEL BOLT 1-5/64 LONG, 7/16 GRIP WITH DRILLED SHANK ONLY. SEE ILLUSTRATION. (SEE (c) NOTE.)
- ANI76DD10 = 3/8 ALUMINUM-ALLOY BOLT 1-5/64 LONG, 7/16 GRIP WITH DRILLED SHANK ONLY. SEE ILLUSTRATION. (SEE (c) NOTE.)
- ANI76DD10A = 3/8 ALUMINUM-ALLOY BOLT 1-5/64 LONG, 7/16 GRIP, UNDRILLED HEAD AND SHANK. SEE ILLUSTRATION. (SEE (c) NOTE.)
- ANI76DDH10 = 3/8 ALUMINUM-ALLOY BOLT 1-5/64 LONG, 7/16 GRIP WITH DRILLED HEAD AND SHANK. SEE ILLUSTRATION. (SEE (c) NOTE.)
- ANI76DDH10A = 3/8 ALUMINUM-ALLOY BOLT 1-5/64 LONG, 7/16 GRIP WITH DRILLED HEAD ONLY. SEE ILLUSTRATION. (SEE (c) NOTE.)



BOLTS SHALL BE FREE FROM ALL HANGING BURRS AND SLIVERS WHICH MIGHT BECOME DISLOADED UNDER USAGE. COUNTERSINKING OF DRILLED HOLES IN HEAD IS MANDATORY. COUNTERSINKING OF DRILLED HOLES IN SHANK IS OPTIONAL.

DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS ±.010, ANGLES ±5°.

PROCUREMENT SPECIFICATION

AIR FORCE-NAVY AERONAUTICAL STANDARD

MIL-S-8712

BOLT-1

ANI73 THRU ANI86

APPROVED 29 Mar 54 BY REVISED 14 Mar 52 230 Oct 52 15 Mar 55 14 6 Apr 54

NOTE: This drawing was prepared by joint action of the Navy Department and the Navy Aircraft Division. This drawing supersedes all unapproved drawings for use in new orders, not later than 6 months after the issue date of approval shown. It may be put into effect, however, at an earlier date after promulgation.

NOTE: This drawing was prepared by joint action of the Navy Department and the Navy Aircraft Division. This drawing supersedes all unapproved drawings for use in new orders, not later than 6 months after the issue date of approval shown. It may be put into effect, however, at an earlier date after promulgation.

DASH NO.	AN180		AN182		AN184		AN186	
	GRIP ±1/64	LENGTH +1/32 -1/64	GRIP ±1/64	LENGTH +1/32 -1/64	GRIP ±1/64	LENGTH +1/32 -1/64	GRIP ±1/64	LENGTH +1/32 -1/64
7	2-1/16	1-1/64						
10	3/16	1-9/64	1/16	1-5/32				
11	5/16	1-17/64	3/16	1-9/32	1/16	1-5/16		
12	7/16	1-25/64	5/16	1-13/32	3/16	1-7/16	1/8	1-1/2
13	9/16	1-33/64	7/16	1-17/32	5/16	1-9/16	1/4	1-5/8
14	11/16	1-41/64	9/16	1-21/32	7/16	1-11/16	3/8	1-3/4
15	13/16	1-49/64	11/16	1-25/32	9/16	1-13/16	1/2	1-7/8
16	15/16	1-57/64	13/16	1-29/32	11/16	1-15/16	5/8	2
17	1-1/16	2-1/64	15/16	2-1/32	13/16	2-1/16	3/4	2-1/8
20	1-3/16	2-9/64	1-1/16	2-5/32	15/16	2-3/16	7/8	2-1/4
21	1-5/16	2-17/64	2-3/16	2-9/32	1-1/8	2-5/16	1	2-3/8
22	1-7/16	2-25/64	2-5/16	2-13/32	1-3/8	2-7/16	1-1/8	2-1/2
23	1-9/16	2-33/64	1-7/8	2-17/32	1-5/8	2-9/16	1-1/4	2-5/8
24	1-11/16	2-41/64	1-9/16	2-21/32	1-7/8	2-11/16	1-3/8	2-3/4
25	1-13/16	2-49/64	1-11/16	2-25/32	1-9/8	2-13/16	1-1/2	2-7/8
26	1-15/16	2-57/64	1-13/16	2-29/32	1-11/16	2-15/16	1-5/8	3
27	2-1/16	3-1/64	1-15/16	3-1/32	1-13/16	3-1/16	1-3/4	3-1/8
30	2-3/16	3-9/64	2-1/16	3-5/32	1-15/16	3-3/16	1-7/8	3-1/4
31	2-5/16	3-17/64	2-3/16	3-9/32	2-1/16	3-5/16	2	3-3/8
32	2-7/16	3-25/64	2-5/16	3-13/32	2-3/16	3-7/16	2-1/8	3-1/2
33	2-9/16	3-33/64	2-7/16	3-17/32	2-5/16	3-9/16	2-1/4	3-5/8
34	2-11/16	3-41/64	2-9/16	3-21/32	2-7/16	3-11/16	2-3/8	3-3/4
35	2-13/16	3-49/64	2-11/16	3-25/32	2-9/16	3-13/16	2-1/2	3-7/8
36	2-15/16	3-57/64	2-13/16	3-29/32	2-11/16	3-15/16	2-5/8	4
37	3-1/16	4-1/64	2-15/16	4-1/32	2-13/16	4-1/16	2-3/4	4-1/8
40	3-3/16	4-9/64	3-1/16	4-5/32	2-15/16	4-3/16	2-7/8	4-1/4
41	3-5/16	4-17/64	3-3/16	4-9/32	3-1/16	4-5/16	3	4-3/8
42	3-7/16	4-25/64	3-5/16	4-13/32	3-3/16	4-7/16	3-1/8	4-1/2
43	3-9/16	4-33/64	3-7/16	4-17/32	3-5/16	4-9/16	3-1/4	4-5/8
44	3-11/16	4-41/64	3-9/16	4-21/32	3-7/16	4-11/16	3-3/8	4-3/4
45	3-13/16	4-49/64	3-11/16	4-25/32	3-9/16	4-13/16	3-1/2	4-7/8
46	3-15/16	4-57/64	3-13/16	4-29/32	3-11/16	4-15/16	3-5/8	5
47	4-1/16	5-1/64	3-15/16	5-1/32	3-13/16	5-1/16	3-3/4	5-1/8
50	4-3/16	5-9/64	4-1/16	5-5/32	3-15/16	5-3/16	3-7/8	5-1/4
51	4-5/16	5-17/64	4-3/16	5-9/32	4-1/16	5-5/16	4	5-3/8
52	4-7/16	5-25/64	4-5/16	5-13/32	4-3/16	5-7/16	4-1/8	5-1/2
53	4-9/16	5-33/64	4-7/16	5-17/32	4-5/16	5-9/16	4-1/4	5-5/8
54	4-11/16	5-41/64	4-9/16	5-21/32	4-7/16	5-11/16	4-3/8	5-3/4
55	4-13/16	5-49/64	4-11/16	5-25/32	4-9/16	5-13/16	4-1/2	5-7/8
56	4-15/16	5-57/64	4-13/16	5-29/32	4-11/16	5-15/16	4-5/8	6
57	5-1/16	6-1/64	4-15/16	6-1/32	4-13/16	6-1/16	4-3/4	6-1/8
60	5-3/16	6-9/64	5-1/16	6-5/32	4-15/16	6-3/16	4-7/8	6-1/4
61	5-5/16	6-17/64	5-3/16	6-9/32	5-1/16	6-5/16	5	6-3/8
62	5-7/16	6-25/64	5-5/16	6-13/32	5-3/16	6-7/16	5-1/8	6-1/2
63	5-9/16	6-33/64	5-7/16	6-17/32	5-5/16	6-9/16	5-1/4	6-5/8
64	5-11/16	6-41/64	5-9/16	6-21/32	5-7/16	6-11/16	5-3/8	6-3/4
65	5-13/16	6-49/64	5-11/16	6-25/32	5-9/16	6-13/16	5-1/2	6-7/8
66	5-15/16	6-57/64	5-13/16	6-29/32	5-11/16	6-15/16	5-5/8	7
67	6-1/16	7-1/64	5-15/16	7-1/32	5-13/16	7-1/16	5-3/4	7-1/8
70	6-3/16	7-9/64	6-1/16	7-5/32	5-15/16	7-3/16	5-7/8	7-1/4
71	6-5/16	7-17/64	6-3/16	7-9/32	6-1/16	7-5/16	6	7-3/8
72	6-7/16	7-25/64	6-5/16	7-13/32	6-3/16	7-7/16	6-1/8	7-1/2
73	6-9/16	7-33/64	6-7/16	7-17/32	6-5/16	7-9/16	6-1/4	7-5/8
74	6-11/16	7-41/64	6-9/16	7-21/32	6-7/16	7-11/16	6-3/8	7-3/4
75	6-13/16	7-49/64	6-11/16	7-25/32	6-9/16	7-13/16	6-1/2	7-7/8
76	6-15/16	7-57/64	6-13/16	7-29/32	6-11/16	7-15/16	6-5/8	8
77	7-1/16	8-1/64	6-15/16	8-1/32	6-13/16	8-1/16	6-3/4	8-1/8
80	7-3/16	8-9/64	7-1/16	8-5/32	6-15/16	8-3/16	6-7/8	8-1/4
81							7	8-3/8
82							7-1/8	8-1/2

- (a) MARKING MAY BE EITHER RAISED OR DEPRESSED. THE HEIGHT OR DEPTH OF THE MARKINGS SHALL NOT EXCEED THE FOLLOWING VALUES:
 .025 INCH FOR 9/16 DIAMETER BOLTS AND SMALLER;
 .030 INCH FOR 5/8 DIAMETER BOLTS AND LARGER.
 HEAD MARKING MAY INCLUDE MANUFACTURER'S MARKINGS.
- (b) GRIP LENGTH OF BOLTS SHALL BE MEASURED FROM THE UNDERSIDE OF THE HEAD TO THE END OF THE FULL CYLINDRICAL PORTION OF THE SHANK. COMPLETE THREADS SHALL BEGIN WITHIN TWO THREAD PITCH MAXIMUM. TWO THREAD PITCH MAXIMUM MAY CONSIST OF INCOMPLETE THREAD OR EXTRUSION ANGLE.
- (c) CORROSION RESISTING STEEL BOLTS AND ALUMINUM ALLOY BOLTS INACTIVE FOR DESIGN AFTER 24 MARCH 1952. FOR DEFINITION AND APPLICATION OF DRAWING STATUS NOTES, SEE ANA BULLETIN NO. 337.

PROCUREMENT SPECIFICATION
 MIL-B-6012

AIR FORCE-NAVY AERONAUTICAL STANDARD
 BOLT-

AN173 THRU AN186

APPROVED 26 Mar 52 REVISED 1 24 Mar 52 (2) FOR CHANGES SEE SHEET 1

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BASIC PART NO.	THREAD T	RATED STRENGTH (POUNDS)					
		ULTIMATE TENSILE AT ROOT DIA		YIELD TENSILE AT ROOT DIA		SINGLE SHEAR AT FULL DIA	
		STEEL	AL ALLOY	STEEL	AL ALLOY	STEEL	AL ALLOY
AN173	No. 10-32 NF-3A	2 210	1 100	1 690	710	2 125	990
AN174	1/4 -28 UNF-3A	4 060	2 030	3 130	1 310	3 680	1 715
AN175	5/16-24 UNF-3A	6 500	3 220	4 980	2 080	5 750	2 685
AN176	3/8 -24 UNF-3A	10 100	5 020	7 740	3 240	8 280	3 870
AN177	7/16-20 UNF-3A	13 600	6 750	10 430	4 350	11 250	5 250
AN178	1/2 -20 UNF-3A	18 500	9 180	14 190	5 920	14 700	6 850
AN179	9/16-18 UNF-3A	23 600	11 700	18 100	7 550	18 700	8 700
AN180	5/8 -18 UNF-3A	30 100	14 900	23 080	9 610	23 000	10 750
AN182	3/4 -16 UNF-3A	44 000	21 800	33 730	14 100	33 150	15 500
AN184	7/8 -14 UNF-3A	60 000	29 800	46 000	19 200	45 050	21 050
AN186	1 7/8 -14 NF-3A	80 700	40 000	61 870	25 800	58 900	27 500

NOTE—This drawing was prepared by joint action of the Air Force and Navy Department as the Air Force-Navy standard for this product. This drawing supersedes all antecedent standard drawings for the same product and shall become effective for the procurement of aeronautical supplies, or for use in new designs, not later than six months after the latest date of approval shown.

APPROVED 24 Mar 52 REVISED 1 FOR CHANGES SEE SHEET 1

PROCUREMENT SPECIFICATION
MIL-B-6812

AIR FORCE-NAVY AERONAUTICAL STANDARDS

BOLT -

U AN86

SHEET 1 OF 1