

FED. SUPPLY CLASS

5306

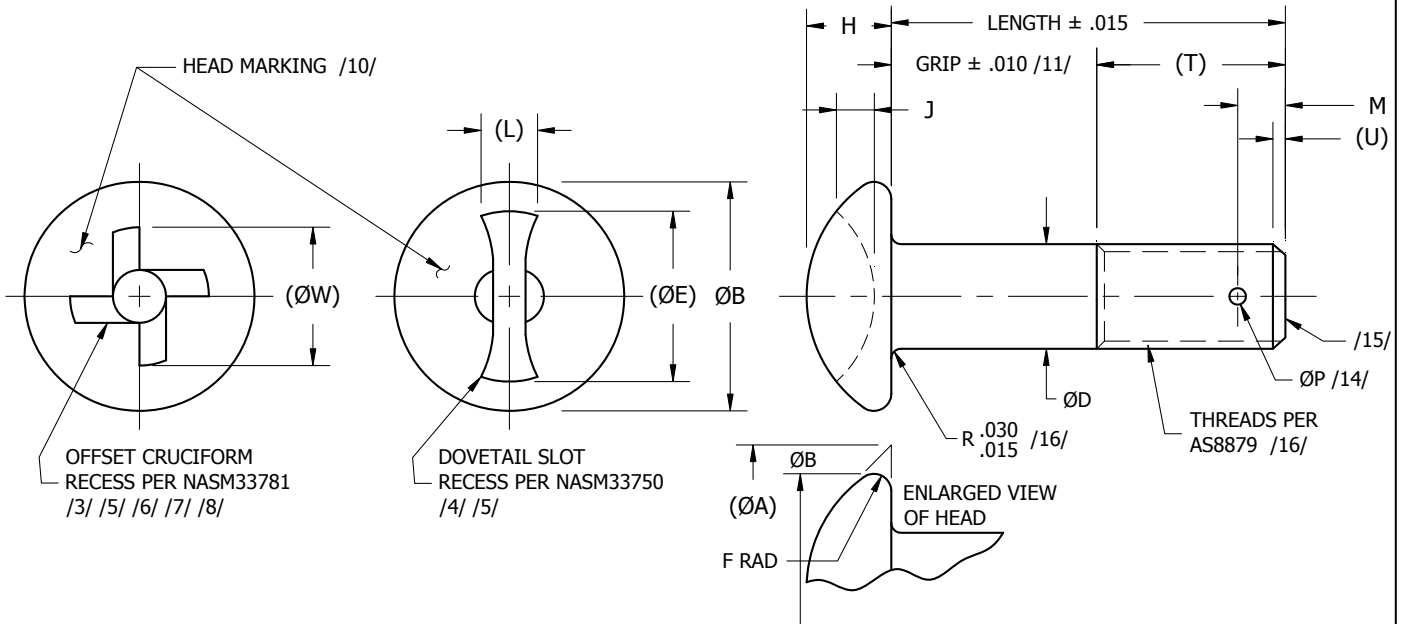


FIGURE 1 - BOLT

TABLE I - DIMENSIONS

BASIC PART NO.	THREAD /16/	(ØA)	ØB MIN	ØD /19/	(ØE) /4/	F RAD	H	J		(L) /4/	M ±.010	ØP +.010 −.000 /14/	(T)	(U)	(W)	Y /1/	Z /2/
								RECESS DEPTH									
								OFFSET CRUCIFORM /3/	DOVETAIL SLOT /4/								
NAS1982	.1640-32 UNJC-3A	.326	.309	.1635 .1625	.216	.010 .005	.102 .088	.065 .055	.061 .055	.090	−	−	.338	.016	.190 .180	.005	.0040
NAS1983	.1900-32 UNJF-3A	.381	.361	.1895 .1885	.250	.015 .007	.118 .103	.075 .065	.061 .055	.094	.163	.070	.338	.016	.219 .209	.005	.0040
NAS1984	.2500-28 UNJF-3A	.488	.464	.2495 .2485	.330	.020 .010	.150 .133	.098 .088	.078 .072	.119	.178	.076	.425	.018	.286 .276	.006	.0030
NAS1985	.3125-24 UNJF-3A	.593	.568	.3120 .3110	.392	.025 .012	.183 .162	.122 .112	.093 .087	.133	.181	.076	.469	.021	.357 .347	.007	.0030
NAS1986	.3750-24 UNJF-3A	.698	.671	.3745 .3735	.505	.030 .015	.215 .191	.145 .135	.129 .121	.164	.197	.106	.578	.021	.427 .417	.009	.0025
NAS1987	.4375-20 UNJF-3A	.803	.774	.4370 .4360	.565	.034 .016	.248 .221	.169 .159	.144 .136	.188	.201	.106	.594	.025	.498 .488	.009	.0025
NAS1988	.5000-20 UNJF-3A	.908	.877	.4995 .4985	.640	.038 .018	.280 .250	.193 .183	.164 .156	.227	.216	.106	.735	.025	.568 .558	.010	.0020
NAS1989	.5625-18 UNJF-3A	1.013	.980	.5615 .5605	.773	.043 .021	.312 .279	.217 .207	.182 .174	.265	.218	.141	.840	.028	.638 .628	.010	.0020
NAS1990	.6250-18 UNJF-3A	1.118	1.083	.6240 .6230	.821	.048 .024	.344 .308	.241 .231	.213 .205	.292	.249	.141	.902	.028	.708 .698	.010	.0020

THIRD ANGLE PROJECTION	
PROCUREMENT SPECIFICATION	NOTED

CUSTODIAN	NATIONAL AEROSPACE STANDARDS COMMITTEE
TITLE	BOLT, SHEAR, BRAZIER HEAD, OFFSET CRUCIFORM AND DOVETAIL SLOT, 108 KSI Fsu

REVISION	11
CLASSIFICATION PART STANDARD	NAS1982 THRU NAS1990
SHEET 1 OF 7	

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.
1000 WILSON BLVD.
ARLINGTON, VA 22209

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME
PRODUCT AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST
REVISION DATE.

FORM 12-01

REVISION DATE: JUNE 30, 2015

ISSUE DATE: DECEMBER 1973

TABLE II – MECHANICAL PROPERTIES

BASIC PART NO.	RECESS NO		TENSILE STRENGTH LBF MIN /20/ /21/	DOUBLE SHEAR STRENGTH LBF MIN /22/	FATIGUE LOADING (LBF) /23/			
	OFFSET CRUCIFORM	DOVETAIL SLOT			ALLOY & CRES		TITANIUM	
					HIGH TENSION LOAD	LOW TENSION LOAD	HIGH TENSION LOAD	LOW TENSION LOAD
NAS1982	8	2	2,800	4,600	1,050	105	930	93
NAS1983	10	3	3,910	6,100	1,470	147	1,300	130
NAS1984	1/4	4	6,980	10,600	2,620	262	2,320	232
NAS1985	5/16	5	11,100	16,600	4,160	416	3,700	370
NAS1986	3/8	6	17,100	23,900	6,410	641	5,690	569
NAS1987	7/16	7	23,200	32,500	8,700	870	7,730	773
NAS1988	1/2	8	30,900	42,400	11,590	1,159	10,290	1,029
NAS1989	9/16	9	39,200	53,700	14,700	1,470	13,050	1,305
NAS1990	5/8	10	49,000	66,300	18,380	1,838	16,320	1,632

MATERIAL:

ALLOY STEEL: 4140 (UNS G41400) PER AMS6349 OR AMS6382.
4340 (UNS G43400) PER AMS6484 OR ~~AMS-S-5000~~ AMS6484, OR AMS6415
(UNS G43406).
8740 (UNS G87400) PER AMS6322, AMS6325 OR AMS6327.
CRES: A286 (UNS S66286) SHALL CONFORM TO THE CHEMISTRY OF AMS5731, AMS5732,
AMS5737 OR AMS5853.
TITANIUM: 6Al-6V-2Sn (UNS R56620) PER AMS4971.

HEAT TREATMENT:

DEVELOP BASIC MATERIAL PROPERTIES AS FOLLOWS, WITH CONTROLS PER AMS2759 FOR ALLOY
STEEL AND CRES, AND AMS-H-81200 OR AMS2801 FOR TITANIUM:

- ⑪ ALLOY STEEL: 180-200 KSI Ft_u AND 108 KSI MIN F_{su}. 39-43 HRC.
CRES: 180 KSI MIN Ft_u AND 108 KSI MIN F_{su}. PRECIPITATION HARDEN PER AMS5853.
⑪ TITANIUM: 180-200 KSI Ft_u AND 108 KSI MIN F_{su}.

FINISH:

- ALLOY STEEL: CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2. BOLTS SHALL NOT BE
PICKLED. WITHIN ONE (1) HOUR AFTER PLATING, THE BOLTS SHALL BE
PLACED IN AN OVEN AT 375 °F, ± 25 °F, AND BAKED FOR A MINIMUM OF
23 HOURS. /17/
⑪ CRES: CLEAN AND PASSIVATE PER AMS2700, METHOD 1, CLASS 4.
ALUMINUM COATING PER NAS4006 AS DESIGNATED BY THE PART STANDARD CODE
LETTER "P".
TITANIUM: NONE.
ALUMINUM COATING PER NAS4006 AS DESIGNATED BY THE PART STANDARD CODE
LETTER "P".

LUBRICATION:

TITANIUM: INCLUDE A HALOGEN FREE CETYL ALCOHOL LUBRICANT ON ALL TITANIUM BOLTS.

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CODE:

SEE TABLE III FOR NOMINAL GRIP VALUES AND NOMINAL LENGTH VALUES (IN .0625 INCREMENTS). A DASH "-", BUT NO LETTER FOLLOWING THE BASIC PART NUMBER, DESIGNATES UNDRILLED ALLOY STEEL.

"C", IN LIEU OF A DASH "-" FOLLOWING THE BASIC PART NUMBER, DESIGNATES A286 CRES.

"T" (FORMERLY "V" CODE) IN LIEU OF A DASH "-" FOLLOWING THE BASIC PART NUMBER DESIGNATES 6Al-6V-2Sn TITANIUM.

"D" FOLLOWING THE LENGTH DASH "-" NUMBER DESIGNATES A DRILLED SHANK.

"H" FOLLOWING THE LENGTH DASH "-" NUMBER DESIGNATES A DOVETAIL SLOT RECESS.

"P" FOLLOWING THE LENGTH DASH "-" NUMBER ON CRES OR TITANIUM DESIGNATES ALUMINUM COATING.

"T" FOLLOWING THE LENGTH DASH "-" NUMBER DESIGNATES AN OFFSET CRUCIFORM RECESS.

(11) "X" FOLLOWING THE LENGTH DASH "-" NUMBER DESIGNATES A .0156 OVERSIZE SHANK DIAMETER.

"Y" FOLLOWING THE LENGTH DASH "-" NUMBER DESIGNATES A .0312 OVERSIZE SHANK DIAMETER.

IF MORE THAN ONE CODE LETTER IS USED IN THE PART NUMBER FOLLOWING THE LENGTH DASH NUMBER, ARRANGE THE LETTERS ALPHABETICALLY.

EXAMPLES OF PART NUMBER:

NAS1988-10T = .5000-20 BOLT, .625 INCH GRIP LENGTH, ALLOY STEEL MATERIAL, UNDRILLED AND WITH AN OFFSET CRUCIFORM RECESS
 NAS1988T10H = .5000-20 BOLT, .625 INCH GRIP LENGTH, TITANIUM MATERIAL, UNDRILLED AND WITH A DOVETAIL SLOT RECESS
 NAS1988C10DH = .5000-20 BOLT, .625 INCH GRIP LENGTH, CRES MATERIAL, DRILLED SHANK AND WITH A DOVETAIL SLOT RECESS
 NAS1988C10PT = .5000-20 BOLT, .625 INCH GRIP LENGTH, CRES MATERIAL, UNDRILLED, ALUMINUM COATED AND WITH AN OFFSET CRUCIFORM RECESS
 NAS1988C10DHP = .5000-20 BOLT, .625 INCH GRIP LENGTH, CRES MATERIAL, DRILLED SHANK, ALUMINUM COATED AND WITH A DOVETAIL SLOT RECESS

NOTES:

- /1/ CONCENTRICITY: "ØD" AND THREAD PITCH DIAMETER WITHIN "Y" VALUE FIM. RECESS TO SHANK WITHIN .016 FIM THROUGH .2500-28 THREAD SIZE AND WITHIN .024 FOR THREAD SIZES ABOVE .2500-28.
- /2/ SHANK STRAIGHTNESS SHALL BE WITHIN "Z" VALUES FIM PER INCH OF BOLT LENGTH.
- /3/ RECESS GAGING FOR THE OFFSET CRUCIFORM RECESS IN ACCORDANCE WITH NASM33781, EXCEPT AS NOTED.
- /4/ RECESS GAGING FOR THE DOVETAIL SLOT RECESS IN ACCORDANCE WITH NASM33750, EXCEPT AS NOTED.
- /5/ RECESS TORQUE TESTING SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROCUREMENT SPECIFICATION.
- /6/ BOLTS MANUFACTURED PRIOR TO 17 OCTOBER, 2001, WHICH (1) MET THE REQUIREMENTS FOR THE RECESS TORQUE VALUES AT THE TIME OF MANUFACTURE, AND/OR (2) WERE EXEMPT FROM FATIGUE TESTING AT THE TIME OF MANUFACTURE, MAY BE USED UNTIL STOCK IS DEPLETED.

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