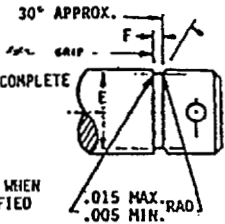
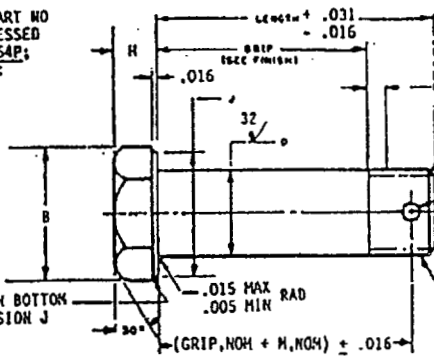
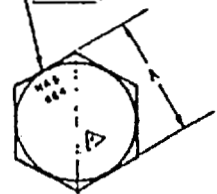




MARK APPLICABLE BASIC PART NO AND Δ RAISED OR DEPRESSED PLATED SHANK TYPE: NAS464P; FOR UNPLATED SHANK TYPE: NAS 464.



ALTERNATE CONSTRUCTION FOR MACHINED THREADS

THREAD PER MIL-S-8979

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

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

FIRST DASH NO.	THREAD UNJF-3A	A	D DIAMETER			E ±.005	F	H ±.016	J MIN	K	M	P +.010 -0.000 DIA	RATED STRENGTH	
			B REF	UNPLATED SHANK TYPE	PLATED SHANK TYPE								SINGLE SHEAR LB	TENSILE LB (a) (c)
3	.1900-32	.375 +.002 -0.010	.43	.1894 +.0000 -0.0005	.1894 +.0000 -0.0009	.141	.047	.094	.335	.031	.188	.070	2,690	1,105
4	.2500-28	.438 +.002 -0.010	.51	.2492 +.0000 -0.0005	.2492 +.0000 -0.0009	.196	.047	.125	.398	.031	.188	.076	4,650	2,040
5	.3125-24	.500 +.002 -0.010	.58	.3117 +.0000 -0.0005	.3117 +.0000 -0.0009	.250	.062	.156	.460	.047	.188	.106	7,300	3,250
6	.3750-24	.562 +.002 -0.010	.65	.3742 +.0000 -0.0005	.3742 +.0000 -0.0009	.312	.062	.188	.523	.047	.219	.106	10,500	5,050
7	.4375-20	.625 +.002 -0.010	.72	.4367 +.0000 -0.0005	.4367 +.0000 -0.0009	.359	.062	.219	.609	.047	.219	.106	14,300	6,800
8	.5000-20	.750 +.002 -0.010	.87	.4991 +.0000 -0.0005	.4991 +.0000 -0.0009	.422	.062	.250	.710	.047	.250	.106	18,650	9,250
9	.5625-18	.875 +.002 -0.010	1.01	.5616 +.0000 -0.0005	.5616 +.0000 -0.0009	.482	.078	.281	.835	.062	.312	.141	23,600	11,800
10	.6250-18	.938 +.002 -0.010	1.09	.6240 +.0000 -0.0006	.6240 +.0000 -0.0010	.544	.078	.312	.898	.062	.312	.141	29,150	15,050
12	.7500-16	1.062 +.003 -0.010	1.23	.7488 +.0000 -0.0007	.7488 +.0000 -0.0011	.660	.094	.375	1.023	.062	.375	.141	41,950	22,000
14	.8750-14	1.250 +.003 -0.010	1.44	.8737 +.0000 -0.0008	.8737 +.0000 -0.0012	.773	.094	.438	1.210	.078	.438	.141	57,100	30,000
(b) 16	1-14 NS-3A	1.438 +.003 -0.010	1.66	.9985 +.0000 -0.0010	.9985 +.0000 -0.0014	.898	.094	.500	1.438	.078	.500	.141	74,800	40,950
17	1.0000-12	1.438 +.003 -0.010	1.66	.9985 +.0000 -0.0010	.9985 +.0000 -0.0014	.898	.094	.500	1.398	.078	.500	.141	74,800	40,350

(a) RATED TENSILE STRENGTHS ARE APPLICABLE ONLY WHEN SHEAR NUT AN320 IS USED.
(b) 1-14 NS-3A THREAD INACTIVE FOR DESIGN.
(c) 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, IN LIEU OF TENSILE TESTING, IN ACCORDANCE WITH MIL-STD-1312. USERS SHOULD BE AWARE THAT FASTENERS WITH CROSS DRILLED THREADS MAY EXHIBIT A REDUCTION IN TENSILE STRENGTH.

INACTIVE FOR DESIGN AFTER JULY 1, 1976
SEE NAS6203 THRU NAS6220

LIST OF CURRENT SHEETS

18	
NO. REV.	NO. REV.
1 18	3 12
2 16	4 1

18 COMPLETELY REVISED

CUSTODIAN	NATIONAL AEROSPACE STANDARDS COMMITTEE	THIRD ANGLE PROJECTION	
PROCUREMENT SPECIFICATION	TITLE	CLASSIFICATION STANDARD PART	
NOTED	BOLT - SHEAR, CLOSE TOLERANCE	NAS 464	
		SHEET 1 OF 4	

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29 March 1996 18 13 March 1989 17 17 Nov. 1988 16 11 April 1985 15 15 Jan 1981 14 15 Jan 1975 13 31 Jan. 1975 12 15 Oct 1973 11 15 Oct 1973 10 15 Oct 1973 9 15 Oct 1973 8 15 Oct 1973 7 15 Oct 1973 6 15 Oct 1973 5 15 Oct 1973 4 15 Oct 1973 3 15 Oct 1973 2 15 Oct 1973 1 15 Oct 1973



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

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

MATERIAL: STEEL - IN ACCORDANCE WITH PROCUREMENT SPECIFICATION

HEAT TREATMENT: 160,000 TO 180,000 PSI TENSILE STRENGTH

FINISH: UNPLATED SHANK TYPE - CADMIUM PLATE HEADS AND THREADS PER QQ-P-416, TYPE II, CLASS 2. AFTER GRINDING, SHANKS SHALL BE COATED WITH CORROSION PREVENTIVE COMPOUND PER MIL-C-11796 OR MIL-C-16173. SMALL AREAS OF CADMIUM PLATING REMAINING ON THE GROUND PORTION OF BOLTS SHALL NOT BE CAUSE FOR REJECTION.

PLATED SHANK TYPE - CADMIUM PLATE ENTIRE BOLT PER QQ-P-416, TYPE II, CLASS 2.

CODE: FIRST DASH NUMBER DESIGNATES NOMINAL DIAMETER IN SIXTEENTHS. SECOND DASH NUMBER DESIGNATES GRIP IN SIXTEENTHS. GRIP LENGTHS LONGER THAN THOSE TABULATED ON SHEET 4 ARE AVAILABLE IN 1/8 - INCH INCREMENTS BY USE OF SIGNIFICANT DASH NUMBERS. ADD "P" AFTER BASIC PART NUMBER TO DESIGNATE CADMIUM PLATED SHANK. ADD "L" AFTER FIRST DASH NUMBER TO DESIGNATE BOLT WITH LONGER THREAD (BUT ONLY ON THOSE DIAMETERS FOR WHICH LONGER THREADS ARE AVAILABLE). (SEE SHEETS 3 AND 4.) ADD "A" BEFORE LAST DASH NUMBER TO DESIGNATE BOLT WITHOUT COTTER PIN HOLE.

EXAMPLE OF PART NUMBER: NAS464-3-11 = .1900-32 BOLT, 11/16 GRIP, WITH COTTER PIN HOLE, STEEL, UNPLATED SHANK.

NAS464P3-11 = .1900-32 BOLT, 11/16 GRIP, WITH COTTER PIN HOLE, STEEL, PLATED SHANK.

NAS464-6L16 = .3750-24 BOLT, 1 - INCH GRIP, INCREASED THREAD LENGTH, WITH COTTER PIN HOLE, STEEL, UNPLATED SHANK.

NAS464P6LA16 = .3750-24 BOLT, 1 - INCH GRIP, INCREASED THREAD LENGTH, WITHOUT COTTER PIN HOLE, STEEL, PLATED SHANK.

- NOTES: 1. SURFACE ROUGHNESS IN ACCORDANCE WITH ANSI/ASME B46.1. 2. TOLERANCES UNLESS OTHERWISE SPECIFIED: DECIMALS ±.010, FRACTIONS ±1/64. 3. WASHER FACE DIAMETER: MAX NOT TO EXCEED ACTUAL WIDTH ACROSS FLATS; MIN AS TABULATED.

PROCUREMENT SPECIFICATION: NAS498, EXCEPT MIL-S-8879 THREAD CALLOUT ON THIS DRAWING TAKES PRECEDENCE OVER THE THREAD CALLOUT IN THE PROCUREMENT SPECIFICATION.

INACTIVE FOR DESIGN AFTER JULY 1, 1976
SEE NAS6203 THRU NAS6220

16 COMPLETELY REVISED

NAS 464 SHEET 2

APPROVAL DATE Oct. 1949 REVISION 12 15 Oct 1973 13 31 Jan. 1975 14 15 Jan 1981 15 11 April 1985 16 29 March 1996

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NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 1725 DE SALES STREET, N. W., WASHINGTON, D. C. 20036

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME PRODUCT AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST DATE OF APPROVAL SHOWN HEREON

AIA AND ITS COMMITTEES WILL NOT INVESTIGATE THE APPLICABILITY OF PATENTS TO THE SUBJECT MATTER OF NAS STANDARDS, AND IN RESPECT THEREOF DO NOT ASSUME ANY LIABILITY TO PATENT OWNERS OR TO PROSPECTIVE USERS

SECOND DASH NUMBER	GRIP	464-3	464-4	464-5	464-5L	464-6	464-7	464-7L	464-8	464-8L	464-9	464-10	464-10L	464-12	464-14	464-16	464-16L
-1	3/16	17/32	17/32	39/64	21/32	39/64		27/32	51/64	27/32	15/16						
-2	1/4	19/32	19/32	43/64	23/32	43/64	11/16	29/32	55/64	29/32	1						
-3	5/16	21/32	21/32	47/64	25/32	47/64	3/4	31/32	59/64	31/32	1						
-4	7/16	23/32	23/32	51/64	27/32	51/64	7/8	1-1/32	63/64	1-1/32	1						
-5	1/2	27/32	27/32	55/64	29/32	55/64	15/16	1-1/32	67/64	1-1/32	1						
-6	5/8	31/32	31/32	63/64	31/32	63/64	1	1-1/32	71/64	1-1/32	1						
-7	11/16	1-1/32	1-1/32	1-3/64	1-3/32	1-3/64	1-1/16	1-5/32	1-7/64	1-5/32	1						
-8	3/4	1-3/32	1-3/32	1-7/64	1-5/32	1-7/64	1-3/16	1-7/32	1-11/64	1-7/32	1						
-9	7/8	1-5/32	1-5/32	1-11/64	1-9/32	1-11/64	1-1/4	1-9/32	1-15/64	1-9/32	1						
-10	15/16	1-9/32	1-9/32	1-15/64	1-11/32	1-15/64	1-1/2	1-13/32	1-19/64	1-11/32	1						
-11		1-11/32	1-11/32	1-23/64	1-13/32	1-23/64	1-1/2	1-15/32	1-21/64	1-13/32	1						
-12		1-13/32	1-13/32	1-27/64	1-15/32	1-27/64	1-1/2	1-17/32	1-25/64	1-15/32	1						
-13		1-15/32	1-15/32	1-31/64	1-17/32	1-31/64	1-1/2	1-19/32	1-29/64	1-17/32	1						
-14		1-17/32	1-17/32	1-35/64	1-19/32	1-35/64	1-1/2	1-21/32	1-33/64	1-19/32	1						
-15		1-19/32	1-19/32	1-39/64	1-21/32	1-39/64	1-1/2	1-23/32	1-37/64	1-21/32	1						
-16		1-21/32	1-21/32	1-43/64	1-23/32	1-43/64	1-1/2	1-25/32	1-41/64	1-23/32	1						
-17		1-23/32	1-23/32	1-47/64	1-25/32	1-47/64	1-1/2	1-27/32	1-45/64	1-25/32	1						
-18		1-25/32	1-25/32	1-51/64	1-27/32	1-51/64	1-1/2	1-29/32	1-49/64	1-27/32	1						
-19		1-27/32	1-27/32	1-55/64	1-29/32	1-55/64	1-1/2	1-31/32	1-53/64	1-29/32	1						
-20		1-29/32	1-29/32	1-59/64	1-31/32	1-59/64	1-1/2	1-33/32	1-57/64	1-31/32	1						
-21		1-31/32	1-31/32	1-63/64	1-33/32	1-63/64	1-1/2	1-35/32	1-61/64	1-33/32	1						
-22		1-33/32	1-33/32	1-67/64	1-35/32	1-67/64	1-1/2	1-37/32	1-65/64	1-35/32	1						
-23		1-35/32	1-35/32	1-71/64	1-37/32	1-71/64	1-1/2	1-39/32	1-69/64	1-37/32	1						
-24		1-37/32	1-37/32	1-75/64	1-39/32	1-75/64	1-1/2	1-41/32	1-73/64	1-39/32	1						
-25		1-39/32	1-39/32	1-79/64	1-41/32	1-79/64	1-1/2	1-43/32	1-77/64	1-41/32	1						
-26		1-41/32	1-41/32	1-83/64	1-43/32	1-83/64	1-1/2	1-45/32	1-81/64	1-43/32	1						
-27		1-43/32	1-43/32	1-87/64	1-45/32	1-87/64	1-1/2	1-47/32	1-85/64	1-45/32	1						
-28		1-45/32	1-45/32	1-91/64	1-47/32	1-91/64	1-1/2	1-49/32	1-89/64	1-47/32	1						
-29		1-47/32	1-47/32	1-95/64	1-49/32	1-95/64	1-1/2	1-51/32	1-93/64	1-49/32	1						
-30		1-49/32	1-49/32	1-99/64	1-51/32	1-99/64	1-1/2	1-53/32	1-97/64	1-51/32	1						
-31		1-51/32	1-51/32	1-103/64	1-53/32	1-103/64	1-1/2	1-55/32	1-101/64	1-53/32	1						
-32		1-53/32	1-53/32	1-107/64	1-55/32	1-107/64	1-1/2	1-57/32	1-105/64	1-55/32	1						
-33		1-55/32	1-55/32	1-111/64	1-57/32	1-111/64	1-1/2	1-59/32	1-109/64	1-57/32	1						
-34		1-57/32	1-57/32	1-115/64	1-59/32	1-115/64	1-1/2	1-61/32	1-113/64	1-59/32	1						
-35		1-59/32	1-59/32	1-119/64	1-61/32	1-119/64	1-1/2	1-63/32	1-117/64	1-61/32	1						
-36		1-61/32	1-61/32	1-123/64	1-63/32	1-123/64	1-1/2	1-65/32	1-121/64	1-63/32	1						
-37		1-63/32	1-63/32	1-127/64	1-65/32	1-127/64	1-1/2	1-67/32	1-125/64	1-65/32	1						
-38		1-65/32	1-65/32	1-131/64	1-67/32	1-131/64	1-1/2	1-69/32	1-129/64	1-67/32	1						
-39		1-67/32	1-67/32	1-135/64	1-69/32	1-135/64	1-1/2	1-71/32	1-133/64	1-69/32	1						
-40		1-69/32	1-69/32	1-139/64	1-71/32	1-139/64	1-1/2	1-73/32	1-137/64	1-71/32	1						
-41		1-71/32	1-71/32	1-143/64	1-73/32	1-143/64	1-1/2	1-75/32	1-141/64	1-73/32	1						
-42		1-73/32	1-73/32	1-147/64	1-75/32	1-147/64	1-1/2	1-77/32	1-145/64	1-75/32	1						
-43		1-75/32	1-75/32	1-151/64	1-77/32	1-151/64	1-1/2	1-79/32	1-149/64	1-77/32	1						
-44		1-77/32	1-77/32	1-155/64	1-79/32	1-155/64	1-1/2	1-81/32	1-153/64	1-79/32	1						
-45		1-79/32	1-79/32	1-159/64	1-81/32	1-159/64	1-1/2	1-83/32	1-157/64	1-81/32	1						
-46		1-81/32	1-81/32	1-163/64	1-83/32	1-163/64	1-1/2	1-85/32	1-161/64	1-83/32	1						
-47		1-83/32	1-83/32	1-167/64	1-85/32	1-167/64	1-1/2	1-87/32	1-165/64	1-85/32	1						
-48		1-85/32	1-85/32	1-171/64	1-87/32	1-171/64	1-1/2	1-89/32	1-169/64	1-87/32	1						
-49		1-87/32	1-87/32	1-175/64	1-89/32	1-175/64	1-1/2	1-91/32	1-173/64	1-89/32	1						
-50		1-89/32	1-89/32	1-179/64	1-91/32	1-179/64	1-1/2	1-93/32	1-177/64	1-91/32	1						
-51		1-91/32	1-91/32	1-183/64	1-93/32	1-183/64	1-1/2	1-95/32	1-181/64	1-93/32	1						

BOLTS WITH SHORT THREAD LENGTH

12 INACTIVE FOR DESIGN AFTER JULY 1, 1976
SEE NAS6203 THRU 6220

NAS 464

SHEET 3

