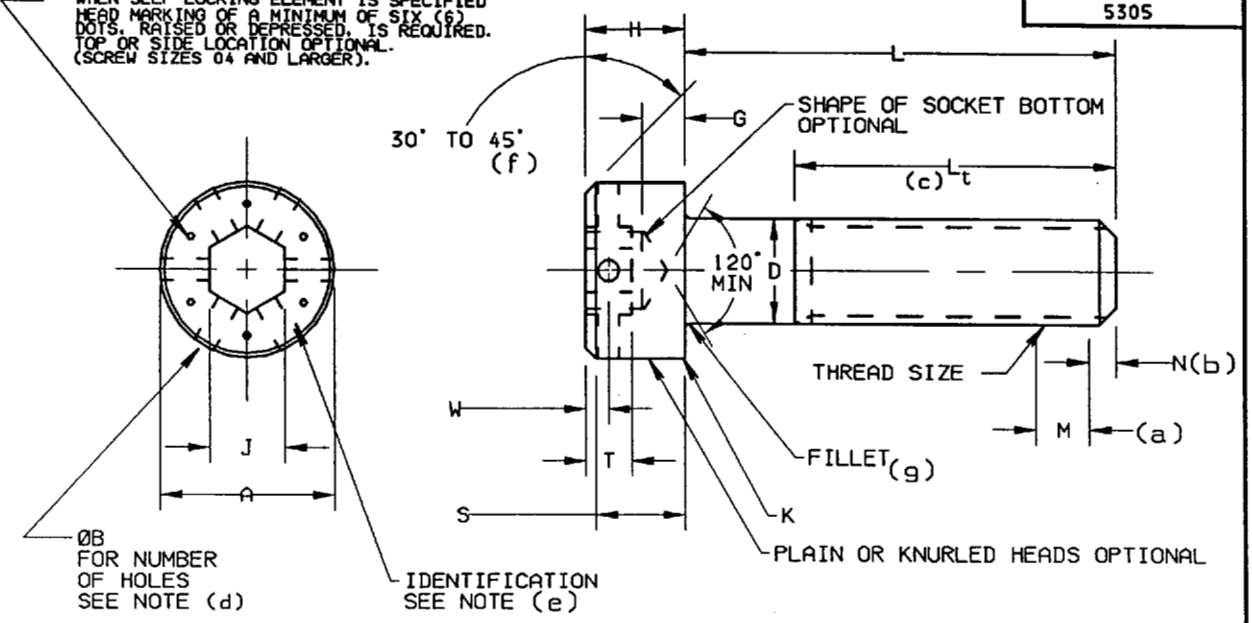
Aerospace Industries Association

NATIONAL AEROSPACE STANDARD

FED. SUP CLASS 5305



NOMINAL SIZE DASH NO.	THREAD SIZE	D BODY DIAMETER MAX.	D BODY DIAMETER MIN.	A HEAD DIAMETER MAX.	A HEAD DIAMETER MIN.	H HEAD HEIGHT MAX.	H HEAD HEIGHT MIN.	S HEAD SIDE HEIGHT MIN.	J SOCKET SIZE NOMINAL	T KEY ENGAGEMENT MIN	G WALL THICKNESS MIN.	K CHAMFER OR RADIUS MAX.
00	.0600-80	.060	.0568	.096	.091	.060	.057	.054	.050	.025	.020	.003
01	.0730-72	.073	.0695	.118	.112	.073	.070	.066	.062	.031	.025	.003
02	.0860-64	.086	.0822	.140	.134	.086	.083	.077	.078	.038	.029	.003
03	.0990-56	.099	.0949	.161	.154	.099	.095	.089	.078	.044	.034	.003
04	.1120-48	.112	.1075	.183	.176	.112	.108	.101	.094	.051	.038	.005
06	.1380-40	.138	.1329	.226	.218	.138	.134	.124	.109	.064	.047	.005
08	.1640-36	.164	.1585	.270	.262	.164	.159	.148	.141	.077	.056	.005
3	.1900-32	.190	.1840	.312	.303	.190	.185	.171	.156	.090	.065	.005
4	.2500-28	.250	.2435	.375	.365	.250	.244	.225	.188	.120	.095	.008
5	.3125-24	.3125	.3053	.469	.457	.312	.306	.281	.250	.151	.119	.008
6	.3750-24	.375	.3678	.562	.550	.375	.368	.337	.312	.182	.143	.008
7	.4375-20	.4375	.4294	.656	.642	.437	.430	.394	.375	.213	.166	.010
8	.5000-20	.500	.4919	.750	.735	.500	.492	.450	.375	.245	.190	.010
10	.6250-18	.625	.6163	.937	.921	.625	.616	.562	.500	.307	.238	.010
12	.7500-16	.750	.7406	1.125	1.107	.750	.740	.675	.625	.370	.285	.010
14	.8750-14	.875	.8647	1.312	1.293	.875	.864	.787	.750	.432	.333	.015
16	1.0000-12	1.000	.9886	1.500	1.479	1.000	.988	.900	.750	.495	.380	.015

LIST OF CURRENT SHEETS

NO.	REV.
1	9
2	4
3	9
4	1

⑨ COMPLETELY REVISED

CUSTODIAN: NATIONAL AEROSPACE STANDARDS COMMITTEE

THIRD ANGLE PROJECTION

PROCUREMENT SPECIFICATION: NOTED

TITLE: SCREW, CAP, SOCKET HEAD
UNDRILLED AND DRILLED, PLAIN AND SELF-LOCKING
ALLOY STEEL, CORROSION-RESISTANT STEEL
AND HEAT-RESISTANT STEEL, UNRF-3A

CLASSIFICATION: PART STANDARD

NAS 1351
SHEET 1 OF 4

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.

REVISION ⑨ 31 May 1996

APPROVAL DATE: APRIL 1962

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NOMINAL SIZE DASH NO.	L_t MINIMUM BASIC THREAD LENGTH (c)	SAFETY WIRE HOLE WHEN SPECIFIED: W DRILLED HOLE LOCATION MAX.	W DRILLED HOLE LOCATION MIN.	ØB DRILLED HOLE (d) MAX.	ØB DRILLED HOLE (d) MIN.	MINIMUM BREAKING STRENGTH (POUNDS): ALLOY STEEL	CORROSION RESISTANT STEEL	HEAT RESISTANT STEEL
00	.500					324	140	288
01	.625					500	220	445
02						710	310	631
03						940	420	836
04	.750	.040	.026			1,190	530	1,058
06		.050	.035	.039	.033	1,820	810	1,620
08	.875	.060	.040			2,650	1,180	2,360
3		.065	.045	.050	.044	3,600	1,600	3,200
4	1.000	.085	.065			~~6,200~~ 6,550(h)	2,910	5,820
5	1.125	.104	.084			~~9,850~~ 10,400(h)	4,640	9,280
6	1.250	.123	.103			~~14,900~~ 15,800(h)	7,020	14,080
7	1.375	.141	.121	.067	.061	~~20,200~~ 21,400(h)	9,500	19,000
8	1.500	.160	.140			~~27,000~~ 28,800(h)	12,800	25,600
10	1.750	.198	.178			43,500	20,500	41,000
12	2.000	.235	.215			63,400	26,100	59,700
14	2.250	.273	.253	.097	.091	86,500	35,600	81,400
16	2.500	.310	.290			113,000	46,400	106,200

(a) "M" MIN. (5 THREAD PITCHES) = REGION OF MINIMUM ENGAGEMENT WITH FULL FEMALE THREAD REQUIRED TO MEET SPEC MIL-F-18240 REQUIREMENTS.
LOCKING ELEMENT WITHIN "M" REGION MUST DEVELOP REQUIRED TORQUE WHEN TESTED IN ACCORDANCE WITH SPEC MIL-F-18240.
LENGTH OR DIAMETER OF LOCKING ELEMENT MAY BE MORE OR LESS THAN "M" PROVIDING ALL OTHER REQUIREMENTS ARE MET.

(b) "N" = ONE (1) COMPLETE THREAD PLUS UNTHREADED PORTION OF END. FOR EASE OF STARTING. LOCKING ELEMENT SHALL NOT BE EFFECTIVE WITHIN THIS AREA.

(c) SCREWS WHICH HAVE A LENGTH LESS THAN THE MINIMUM BASIC THREAD LENGTH, SHALL BE THREADED AS CLOSE TO HEAD AS PRACTICABLE. FOR SCREWS WHICH HAVE A LENGTH GREATER THAN THE MINIMUM BASIC THREAD LENGTH, THE BODY AND GRIP LENGTH SHALL BE IN ACCORDANCE WITH ASME/ANSI B18.3.

(d) DRILLED HOLE DATA IN ACCORDANCE WITH PROCUREMENT SPEC FF-S-86.
PARTS SHALL HAVE DRILLED HEADS IF SPECIFIED BY CODE H.
SCREW SIZES 04 AND 06 SHALL HAVE TWO (2) DRILLED HOLES SPACED 180°.
SCREW SIZES 08 THRU 16 SHALL HAVE SIX (6) DRILLED HOLES SPACED 60°.
(DRILLED HOLES NOT APPLICABLE TO SCREW SIZES BELOW 04).

(e) IDENTIFICATION LETTER "N" IMPRESSED ON THE TOP OR SIDE OF THE HEAD. FOR SCREW SIZES 04 AND LARGER ONLY. TO DENOTE HEAT-RESISTANT STEEL.

(f) THE INTERSECTION OF THE TOP AND SIDE OF THE HEAD MAY BE CHAMFERED OR RADIUSED AT THE MANUFACTURER'S OPTION PER ASME/ANSI B18.3.

(g) THE FILLET SHALL BE IN ACCORDANCE WITH ASME/ANSI B18.3.

(h) MINIMUM BREAKING STRENGTH VALUES ARE BASED ON 180 KSI HEAT TREATMENT. LINED THROUGH STRENGTH VALUES WERE BASED ON 170 KSI.

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L SCREW LENGTH (1)	SCREW SIZE																
	00	01	02	03	04	06	08	3	4	5	6	7	8	10	12	14	16
.125	-00-2	-01-2															
.188	-00-3	-01-3	-02-3														
.250	-00-4	-01-4	-02-4	-03-4	-04-4	-06-4	-08-4										
.375	-00-6	-01-6	-02-6	-03-6	-04-6	-06-6	-08-6	-3-6	-4-6	-5-6							
.500			-02-8	-03-8	-04-8	-06-8	-08-8	-3-8	-4-8	-5-8	-6-8						
.625				-03-10	-04-10	-06-10	-08-10	-3-10	-4-10	-5-10	-6-10						
.750					-04-12	-06-12	-08-12	-3-12	-4-12	-5-12	-6-12	-7-12	-8-12				
.875						-06-14	-08-14	-3-14	-4-14	-5-14	-6-14	-7-14	-8-14				
1.000						-06-16	-08-16	-3-16	-4-16	-5-16	-6-16	-7-16	-8-16	-10-16			
1.250							-08-20	-3-20	-4-20	-5-20	-6-20	-7-20	-8-20	-10-20			
1.500							-08-24	-3-24	-4-24	-5-24	-6-24	-7-24	-8-24	-10-24	-12-24		
1.750								-3-28	-4-28	-5-28	-6-28	-7-28	-8-28	-10-28	-12-28		
2.000								-3-32	-4-32	-5-32	-6-32	-7-32	-8-32	-10-32	-12-32	-14-32	
2.250									-4-36	-5-36	-6-36	-7-36	-8-36	-10-36	-12-36	-14-36	
2.500										-5-40	-6-40	-7-40	-8-40	-10-40	-12-40	-14-40	-16-40
2.750											-6-44	-7-44	-8-44	-10-44	-12-44	-14-44	-16-44
3.000											-6-48	-7-48	-8-48	-10-48	-12-48	-14-48	-16-48
3.250															-12-52	-14-52	-16-52
3.500															-12-56	-14-56	-16-56
4.000																-14-64	-16-64
4.500																-14-72	-16-72
5.000																	-16-80

NOTE: SEE CODE FOR ADDITIONAL LENGTHS. (1) LENGTH TOLERANCE SHALL BE AS FOLLOWS:

NOMINAL LENGTH	SIZE		
	0 THRU .375	OVER .375 THRU .750	OVER .750 THRU 1.000
	TOLERANCES		
UP TO AND INCL. 1.000	+.000 −.030	+.000 −.030	+.000 −.050
OVER 1.000 & INCL. 2.500	+.000 −.040	+.000 −.060	+.000 −.100
OVER 2.500 & INCL. 6.000	+.000 −.060	+.000 −.080	+.000 −.140

THREADS: UNRF-3A IN ACCORDANCE WITH PROCUREMENT SPECIFICATION.

MATERIAL: ALLOY STEEL IN ACCORDANCE WITH PROCUREMENT SPEC FF-S-86.
CORROSION-RESISTANT STEEL IN ACCORDANCE WITH PROCUREMENT SPEC FF-S-86.
HEAT-RESISTANT STEEL CONFORMING TO THE CHEMISTRY OF AMS 5731 (UNS S66286) OR AMS 5737 (UNS S66286) COLD WORKED AND AGE HARDENED TO MEET THE FASTENER REQUIREMENTS OF FF-S-86 AND THIS STANDARD.

FINISH: ALLOY STEEL - CADMIUM PLATE IN ACCORDANCE WITH SPEC QQ-P-416, TYPE II, CLASS 2.
- BLACK OXIDE IN ACCORDANCE WITH SPEC MIL-C-13924, CLASS 1.

CORROSION RESISTANT STEEL - CADMIUM PLATE IN ACCORDANCE WITH SPEC QQ-P-416, TYPE I, CLASS 2, EXCEPT POST-PLATE HYDROGEN EMBRITTLEMENT BAKING AND TESTING PER QQ-P-416 ARE NOT REQUIRED.
- SILVER FLASH IN ACCORDANCE WITH AMS 2411.
- PASSIVATE IN ACCORDANCE WITH QQ-P-35.

HEAT-RESISTANT STEEL - SILVER FLASH IN ACCORDANCE WITH AMS 2411.
- PASSIVATE IN ACCORDANCE WITH QQ-P-35.
- BLACK OXIDE IN ACCORDANCE WITH SPEC MIL-C-13924, CLASS 3.
- CADMIUM PLATE IN ACCORDANCE WITH SPEC QQ-P-416, TYPE II, CLASS 2, EXCEPT POST-PLATE HYDROGEN EMBRITTLEMENT BAKING AND TESTING PER QQ-P-416 ARE NOT REQUIRED.

CODE: MATERIAL CODE AFTER BASIC NUMBER, "-" = ALLOY STEEL.
"C" = CORROSION-RESISTANT STEEL.
"N" = HEAT-RESISTANT STEEL.

⑨ COMPLETELY REVISED

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APPROVAL DATE: APRIL 1962

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FIRST DASH NUMBER DESIGNATES SCREW THREAD SIZE AS TABULATED.

TYPE CODE AFTER FIRST DASH NUMBER:
"H" = DRILLED HEAD.
"LE" = SELF-LOCKING MALE THREADED FASTENER.
(OPTIONAL TYPE LOCKING ELEMENT IN ACCORDANCE WITH NAS1283).
"LL" = SELF-LOCKING MALE THREADED FASTENER.
(LONGITUDINAL STRIP LOCKING ELEMENT IN ACCORDANCE WITH NAS1283, TYPE L).
"LN" = SELF-LOCKING MALE THREADED FASTENER.
(PELLET LOCKING ELEMENT IN ACCORDANCE WITH NAS1283, TYPE N).
"LB" = SELF-LOCKING MALE THREADED FASTENER.
(PATCH TYPE LOCKING ELEMENT IN ACCORDANCE WITH NAS1283, TYPE P).

SECOND DASH NUMBER DESIGNATES NOMINAL LENGTH IN SIXTEENTHS OF AN INCH AS TABULATED.
TABULATED CODING INDICATES PREFERRED LENGTHS.
ADDITIONAL LENGTHS AVAILABLE ON SPECIAL ORDER, MINIMUM RUN BASIS.
FOR SUCH LENGTHS ADDITIONAL CODING MAY BE ASSIGNED TO LENGTHS IN .0625 INCH INCREMENTS UP TO 3.500 INCHES, AND IN .125 INCH INCREMENTS FROM 3.500 INCHES UP TO AND INCLUDING 6.000 INCHES.

FINISH CODE AFTER SECOND DASH NUMBER:
ALLOY STEEL. "P" = CADMIUM PLATE.
NO SUFFIX FOR BLACK OXIDE.

CORROSION-RESISTANT STEEL. "P" = CADMIUM PLATE.
"S" = SILVER FLASH.
NO SUFFIX FOR PASSIVATE.

HEAT-RESISTANT STEEL. "S" = SILVER FLASH.
"B" = BLACK OXIDE.
"P" = CADMIUM PLATE
NO SUFFIX FOR PASSIVATE.

EXAMPLE:	NAS1351-02-8	= .0860-64 UNRF-3A SCREW, CAP, SOCKET HEAD, ALLOY STEEL, UNDRILLED HEAD, PLAIN, .500 INCH LONG, BLACK OXIDE FINISH.
	NAS1351C04H12	= .1120-48 UNRF-3A SCREW, CAP, SOCKET HEAD, CORROSION-RESISTANT STEEL, DRILLED HEAD, PLAIN, .750 INCH LONG, PASSIVATED.
	NAS1351-08LE16P	= .1640-36 UNRF-3A SCREW, CAP, SOCKET HEAD, ALLOY STEEL, SELF-LOCKING, OPTIONAL TYPE LOCKING ELEMENT, 1.000 INCH LONG, CADMIUM PLATE, UNDRILLED HEAD.
	NAS1351C4LL24P	= .2500-28 UNRF-3A SCREW, CAP, SOCKET HEAD, CORROSION-RESISTANT STEEL, SELF-LOCKING, LONGITUDINAL STRIP LOCKING ELEMENT, 1.500 INCHES LONG, CADMIUM PLATE, UNDRILLED HEAD.
	NAS1351N10LN32	= .6250-18 UNRF-3A SCREW, CAP, SOCKET HEAD, HEAT-RESISTANT STEEL, SELF-LOCKING, PELLET LOCKING ELEMENT, 2.000 INCHES LONG, PASSIVATED, UNDRILLED HEAD.
	NAS1351N12LB36S	= .7500-16 UNRF-3A SCREW, CAP, SOCKET HEAD, HEAT-RESISTANT STEEL, SELF-LOCKING, PATCH TYPE LOCKING ELEMENT, 2.250 INCHES LONG, SILVER FLASH, UNDRILLED HEAD.
	NAS1351N4LB16B	= .2500-28 UNRF-3A SCREW, CAP, SOCKET HEAD, HEAT-RESISTANT STEEL, SELF-LOCKING, PATCH TYPE LOCKING ELEMENT, 1.000 INCH LONG, BLACK OXIDE COATING, UNDRILLED HEAD.

NOTES:

(1). LOCKING ELEMENT: EXCEPT AS NOTED HEREIN, THE LOCKING ELEMENT WHEN SPECIFIED SHALL BE IN ACCORDANCE WITH SPEC MIL-F-18240.

(2). IDENTIFICATION: MANUFACTURER TO IDENTIFY ALL MINIMUM PACKAGES BY PACKAGE MARKING OF APPLICABLE COMPLETE NAS STANDARD PART NO. IN ACCORDANCE WITH MIL-STD-130.

(3). DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED DIMENSIONS AND TOLERANCES SHALL BE IN ACCORDANCE WITH FF-S-86, TYPE VI AND ASME/ANSI B18.3.

(4). REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON THE DATE OF INVITATION FOR BID.

(5). THIS STANDARD TAKES PRECEDENCE OVER DOCUMENTS SPECIFIED HEREIN.

(6). ADDITIONAL PART MARKING SHALL BE IN ACCORDANCE WITH FF-S-86.

PROCUREMENT SPECIFICATION: FF-S-86: UNLESS OTHERWISE SPECIFIED, CAP SCREWS FURNISHED UNDER THIS STANDARD SHALL BE SUBJECT TO IN-PROCESS CONTROL AND/OR END PRODUCT INSPECTION WHICH WILL INSURE MECHANICAL, METALLURGICAL, CHEMICAL AND COATING OR TREATMENT CHARACTERISTICS WHEN SAMPLED IN ACCORDANCE WITH ANSI/ASQC Z1.4, INSPECTION LEVEL S1, 1% AQL.

REVISION ① 31 May 1996
APPROVAL DATE: JUNE 1986

① COMPLETELY REVISED