

FED. SUP CLASS  
5310

1. APPLICATION AND DESIGN SELECTION: THESE A.R.E. (ATTACHED RETENTION ELEMENT) NUT ASSEMBLIES SHALL BE SELECTED AND USED IN ACCORDANCE WITH MS33588.
2. MILITARY INSTALLATION AND TOOLS: NONE.
3. OVERSIZE NUTS: MS14211(AS) OVERSIZE NUTS MAY BE USED AS REPLACEMENT FOR MS14210(AS) NUTS.
4. REPLACEMENT NUT ELEMENT: MS14213(AS)
5. GENERAL REQUIREMENTS:
  - 5.1 PERFORMANCE PER MIL-N-25027:  
INSTALLATION HOLES SHALL BE PER TABLE II, PANEL GRIP THICKNESS PER TABLE III.
  - 5.2 MATERIAL:
    - 5.2.1 NUT ELEMENT: CORROSION RESISTANT STEEL PER AMS 5525, AMS 5735 OR AMS 5737 (ASTM A-286)
    - 5.2.2 SLEEVE: CRES AISI 304 PER AMS 5639 OR AISI 305 PER AMS 5514
    - 5.2.3 CAGE: CORROSION RESISTANT STEEL PER AMS 5528 (17-7 PH)
  - 5.3 HEAT TREAT
    - 5.3.1 NUT ELEMENT: 160 KSI MIN
    - 5.3.2 CAGE: 180 KSI MIN
  - 5.4 FINISH:
    - 5.4.1 SLEEVE AND CAGE SHALL BE PASSIVATED PER QQ-P-35, TYPE III.
  - 5.5 LUBRICANT:
    - 5.5.1 NUT ELEMENT SHALL BE DRY FILM LUBRICATED PER MIL-L-8937.
  - 5.6 SURFACE TEXTURE:
    - 5.6.1 SURFACE TEXTURE IN ACCORDANCE WITH AMS 846.1. UNLESS OTHERWISE SPECIFIED, THE SURFACE ROUGHNESS SHALL NOT EXCEED 125 MICRO INCHES.
  - 5.7 NUT FLOAT:
    - 5.7.1 MINIMUM RADIAL FLOAT 0.020-INCH. THE NUT ELEMENT SHALL BE CAPABLE OF ENGAGEMENT WITH BOLT IN MAXIMUM MISALIGNED POSITION.
  - 5.8 NUT REPLACEABILITY:
    - 5.8.1 NUT ELEMENT SHALL BE REMOVABLE FROM THE CAGE WITH THE PROPER REMOVAL TOOL AND A NEW NUT PER MS14213(AS) SHALL BE CAPABLE OF BEING SNAPPED IN PLACE IN THE CAGE.
    - 5.8.2 CAGE REUSABILITY: CAGE SHALL BE CAPABLE OF BEING REUSED A MINIMUM OF 5 TIMES FOR THE REPLACEMENT OF THE NUT ELEMENT IN ACCORDANCE WITH MS14213(AS) AND THEN THE NUT SHALL MEET THE TORQUE OUT AND PUSH-OUT VALUES OF MIL-N-25027.
  - 5.9 WORKMANSHIP:
    - 5.9.1 BREAK ALL SHARP EDGES AND REMOVE ALL BURRS AND SLIVERS.
    - 5.9.2 DIMENSIONS ARE IN INCHES.
    - 5.9.3 TOLERANCES: DECIMALS  $\pm .010$ , ANGLES  $\pm 5^\circ$  UNLESS OTHERWISE SPECIFIED.
  - 5.10 INSTALLATION:
    - 5.10.1 WHEN INSTALLED INTO PROPERLY PREPARED HOLES USING PROPER TOOLING THE SLEEVE SHALL BE CAPABLE OF FLARING SMOOTHLY WITH NO VISUAL EVIDENCE OF CRACKING OR SPLITTING.
    - 5.10.2 FOR INSTALLATIONS ON MATERIALS HARDER THAN Rb93 SUCH AS CORROSION RESISTANT STEEL OR NICKEL ALLOYS, THE INSTALLATION HOLE MUST BE PRE-BROACHED WITH THE APPROPRIATE LOBE PATTERN.

APPROVED 13 MAR 04 REVISED

P.A. NAVY - AS Other Cost	TITLE NUT, FLOATING, SELF LOCKING, ATTACHED RETENTION ELEMENT (A.R.E.), 4500F, CRES (ASTM A-286), KSI Ftu, REPLACEABLE NUT ELEMENT, 1/64 OVERSIZE REPAIR.	MILITARY STANDARD <b>MS 14211(AS)</b>
PROCUREMENT SPECIFICATION MIL-N-25027	SUPERSEDES:	SHEET 1 OF 4

DD FORM 672-1 (Limited coordination)

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

Project No. 5310-N039

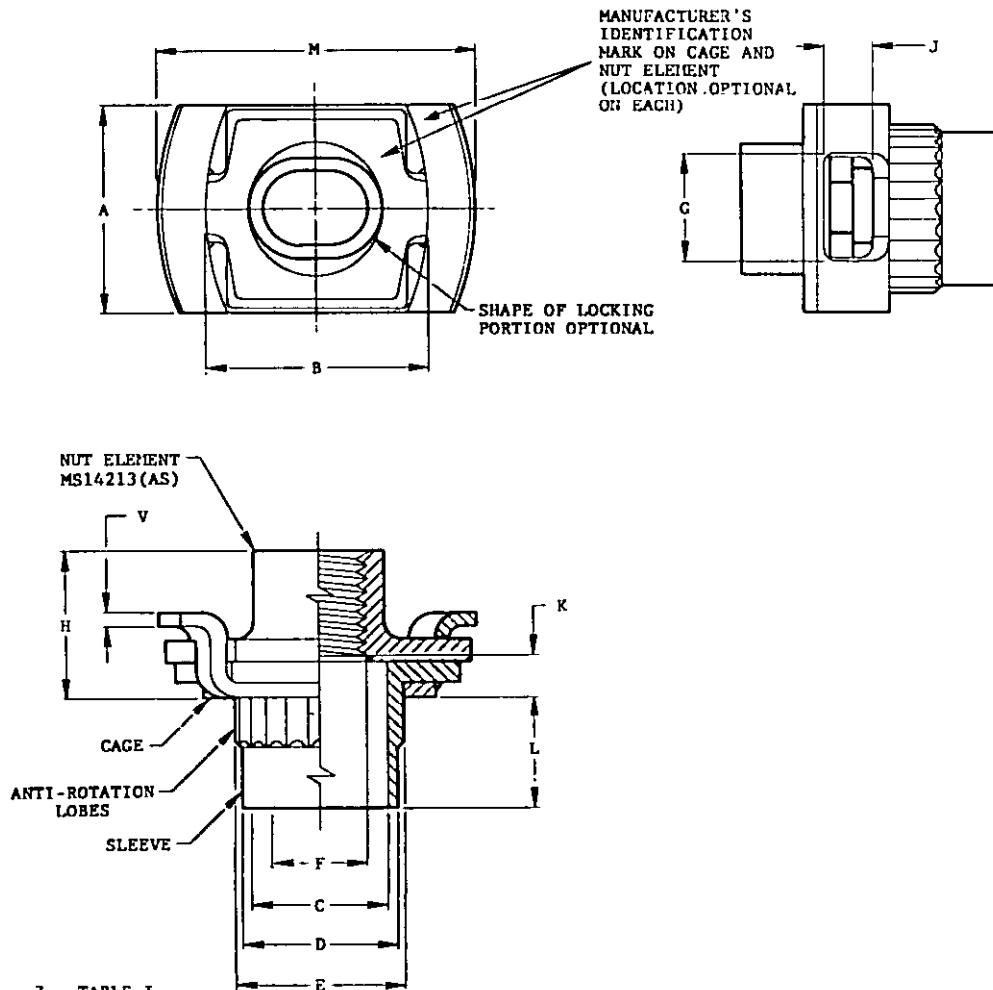
PLATE NO. 17709

This standard has been approved by the NAVAL AIR SYSTEMS COMMAND  
Department of the NAVY and is mandatory for use by  
that activity. All other military activities are required  
to comply with this standard where suitable.

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## 6. ILLUSTRATION:



7. TABLE I

SIZE DASH NO. (a)	THREAD SIZE MIL-S-8879	A MAX.	B ±.010	C DIA. MIN.	F DIA. MIN.	E DIA.		D DIA. MAX.	G ±.010	H MAX.	J ±.010	K REF. (b)	M MAX.	V +.010 -.000	AXIAL STRENGTH LB. MIN.
						MIN.	MAX.								
L04	.1120-40 UNJC-3B	.310	.318	.182	.116	.244	.250	.217	.155	.214	.064	.062	.435	.020	750
L06	.1380-32 UNJC-3B	.310	.318	.182	.142	.244	.250	.217	.155	.214	.064	.062	.435	.020	1130
L08	.1640-32 UNJC-3B	.405	.425	.235	.168	.309	.315	.270	.187	.270	.075	.068	.587	.025	1720
L3	.1900-32 UNJF-3B	.405	.425	.235	.194	.309	.315	.270	.187	.270	.075	.068	.587	.025	2460
L4	.2500-28 UNJF-3B	.465	.496	.300	.254	.375	.381	.335	.198	.325	.083	.089	.665	.035	4580

(a) ASSEMBLY DASH NUMBER IS THE SAME AS THE NUT ELEMENT SIZE DASH NUMBER.

(b) K IS THE THREAD RELIEF, SLEEVE FLANGE AND CAGE THICKNESS.

P.A.  
NAVY - AS  
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## TITLE

NUT, FLOATING, SELF LOCKING, ATTACHED RETENTION ELEMENT  
(A.R.E.), 450°F, CRES (ASTM A-286), 125 KSI F<sub>cu</sub>, REPLACE-  
ABLE NUT ELEMENT, 1/64 OVERSIZE REPAIR.

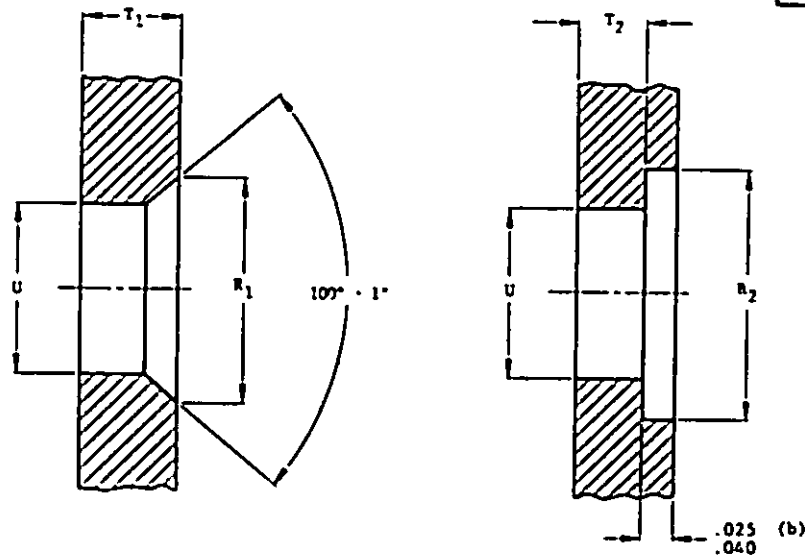
MILITARY STANDARD

MS 14211(AS)

PROCUREMENT SPECIFICATION  
MIL-N-25027

SUPERSEDES:

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8. TABLE II

SIZE DASH NO.	(a) INSTALLATION HOLE LIMITS		R <sub>1</sub> +.005	R <sub>1</sub> +.005 (-2 grip only)	R <sub>2</sub> +.020 -.000	Weight lb/100
	MAX	MIN.				
L04	.238	.233	.307	.275	.312	.131
L06	.238	.233	.307	.275	.312	.140
L08	.300	.295	.370	.343	.375	.365
L3(c)	.300	.295	.370	.343	.375	.370
L4(c)	.367	.362	.437	N/A	.515	.682

9. TABLE III

GRIP DASH NO.	T <sub>1</sub> GRIP THICKNESS (COUNTERSINK)	T <sub>2</sub> GRIP THICKNESS (COUNTERBORE)	L LENGTH
2 (c)	.055 - .073 (c)	N/A	.073
4	.074 - .106	.031 - .062 (c)	.099
6	.107 - .133	.063 - .094	.130
8	.134 - .165	.095 - .125	.161
10	.166 - .196	.126 - .156	.192
12	.197 - .227	.157 - .187	.223
14	.228 - .258	.188 - .218	.254
16	.259 - .289	.219 - .250	.285
18	.290 - .320	.251 - .281	.316
20	.321 - .351	.282 - .312	.347
22	.352 - .382	.313 - .343	.378
24	.383 - .413	.344 - .374	.409
26	.414 - .444	.375 - .405	.440
28	.445 - .475	.406 - .436	.471
30	.476 - .506	.437 - .467	.502

- (a) INSTALLATION MAXIMUM AND MINIMUM HOLE LIMITS CAN BE REDUCED BY 0.009-INCH FOR SIZE DASH NOS. 08, 3 AND 4 WHEN INSTALLING IN SOFT MATERIALS, INCLUDING ALUMINUM ALLOYS WITH HARDNESS NOT EXCEEDING BHN 110 OR ROCKWELL B70.
- (b) COUNTERBORE IS OPTIONAL: TO BE USED IN APPLICATIONS REQUIRING SURFACE FLUSHNESS. FOR THE MINIMUM GRIP THICKNESS OF EACH GRIP DASH NO., COUNTERBORE CAN BE INCREASED TO 0.030 TO ENSURE ROLLOVER FLUSHNESS.
- (c) NUT OF SIZE DASH NO. 4 SHALL NOT BE INSTALLED IN A PANEL OF GRIP THICKNESS LESS THAN 0.060-INCH. NUTS OF SIZE DASH NO. 3 CAN BE INSTALLED IN GRIP THICKNESSES LESS THAN 0.060 PROVIDED THAT THE INSTALLATION HOLE LIMITS ARE 0.291 - 0.296.
- (d) TO OBTAIN WEIGHTS FOR DIFFERENT GRIP DASH NOS., ADD INCREMENTS OF 0.010-LB FOR SIZES 04 AND 06 AND 0.020-LB FOR SIZES 08, 3 AND 4.

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PROCUREMENT SPECIFICATION MIL-H-25027	SUPERSEDES	SHEET 3 OF 4

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## 10. PART NUMBER EXAMPLE:

MS14211(AS) - L08 - 6 - .1640UNJC-3B, NUT,  
FLOATING, SELF LOCKING,  
CRES, 125 KSI, 450°F,  
DRY FILM LUBRICATED.

CRIP DASH NUMBER  
(SEE TABLE III)

SIZE DASH NUMBER  
(SEE TABLE II)

MILITARY STANDARD NUMBER

## 11. ADMINISTRATIVE AND CONTRACTUAL PROVISIONS:

- 11.1 FOR DESIGN PURPOSES, THIS DOCUMENT TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS.
- 11.2 REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BIDS, OR REQUEST FOR PROPOSAL, EXCEPT THAT REFERENCED ADOPTED INDUSTRY DOCUMENTS SHALL GIVE THE DATE OF THE ISSUE ADOPTED.
- 11.3 A.R.E. NUTS WITHOUT MANUFACTURER'S IDENTIFICATION MAY BE FURNISHED FROM MANUFACTURER'S STOCK UNTIL DECEMBER 31, 1985.
- 11.4 THE A.R.E. NUT ASSEMBLIES IDENTIFIED HEREIN ARE PROPRIETARY PRODUCTS OF DEUTSCH FASTENER CORPORATION AND ARE COVERED BY THE FOLLOWING PATENTS: U.S. 3,695,324 (EXPIRING OCTOBER 3, 1989); 3,765,078 (EXPIRING OCTOBER 6, 1990); FRANCE 72,11463 (EXPIRING APRIL 13, 1990); GERMANY 22 17 490 (EXPIRING MARCH 31, 1992). THE GOVERNMENT DOES NOT HAVE A ROYALTY FREE LICENSE.

APPROVED 13 MAR 84 REVISED

P.A. NAVY - AS Other Cust	TITLE NUT, FLOATING, SELF LOCKING, ATTACHED RETENTION ELEMENT (A.R.E.), 450°F, CRES (ASTM A-286), KSI Fcu, REPLACEABLE NUT ELEMENT, 1/64 OVERSIZE REPAIR.	MILITARY STANDARD <b>MS14211(AS)</b>
PROCUREMENT SPECIFICATION MIL-N-25027	SUPERSEDES:	SHEET 4 OF 4

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PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

PLATE NO. 17709

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Department of the NAVY and is mandatory for use by  
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