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INTERNATIONAL
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SURFACE VEHICLE STANDARD

SAE J892

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Superseding J892a

Submitted for recognition as an American National Standard

(R) PUSH-ON SPRING NUTS INCH SERIES—GENERAL SPECIFICATIONS

Foreword—This Document has also changed to comply with the new SAE Technical Standards Board format.

1. ***Scope***—Included herein are general, dimensional, and performance specifications for those types, styles, and sizes of steel stamped Push-On Spring Nuts recognized as SAE standard. These nuts are intended for general use where the engagement on the mating metal or plastic studs and in some cases screw or bolt threads is considered adequate for the fastening joint application. It should be noted that Push-On Spring Nuts having other characteristics and configurations are available and manufacturers should be consulted. For the metric equivalent of this document, see SAE J892M.

2. ***References***

2.1 Applicable Publications—The following publication forms a part of this specification to the extent specified herein. Unless otherwise indicated, the latest version of SAE publications shall apply.

2.1.1 SAE PUBLICATION—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J892M—Push-On Spring Nuts Metric Series—General Specifications

3. ***Dimensional Tolerance***—Tolerance on dimensions are in the tables.

4. ***Boss***—Size and formation of boss and other detail shall be such as to assemble readily and function satisfactorily with the specified stud.

5. ***Material***—Spring steel suitably processed to meet the hardness requirements of this specification.

6. ***Hardness***—Hardness shall be as follows in Table 1:

TABLE 1—HARDNESS

Material Thickness	Rockwell Scale	Dial Reading	HR
Up to 0.016	15N	80.0-85.5	39-50
0.017 - 0.035	30N	58.0-68.5	39-50

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7. ***Finish—***Spring nuts are normally supplied with corrosion-resistant finish as specified by purchaser. Nuts subjected to corrosion preventive treatment which might induce hydrogen embrittlement shall be baked or otherwise treated to obviate such embrittlement.

8. ***Workmanship—***Spring nuts shall be free from cracks, burrs, splits, loose scale, or any other defects which might affect their serviceability.

9. ***Application and Design—***Where nut is to function only as a locking means (Figure 1, Table 2) Style 1 is recommended. Where greater area of load distribution is a requirement, i.e., nut is to function also as spanner washer, Style II is recommended. The Light Series are for use on plastic studs, the Medium Series are for use on soft metal studs, and the Heavy Series are for use on hardened metal or chromium plated studs. Tables 3 and 4 and Figures 2 and 3, Push-On Spring Nuts will be used likewise. Acorn types, closed and open top styles are shown in Table 5 and Figure 4. Note the restricted stud height is designated by rod penetration. Table 6 and Figures 5 and 6, Push-On Spring Bolt Retainers pertain to nuts applied onto screw and bolt threads. Blind push-on spring nut and stud requirements are listed in Tables 7 and 8 and Figures 7 and 8. The stud retained style must be preassembled onto the stud before inserting into a panel whereas the panel retained goes into the panel and then the stud is inserted.

10. ***Assembly Considerations—***Since performance of push-on spring nuts is dependent upon the studs to which they are applied, it is essential that stud diameters and plating recommendations as set forth in Figure 9 and Table 9 be adhered to as closely as possible. The actual stud length is determined by adding the thickness of mating panel or panels "T" through which the stud protrudes to the factors tabulated under "C" (the minimum stud protrusion required for normal installation). It may be necessary to increase this factor to provide adequate stud protrusion where uncompressed materials or mismatch of trim contours are encountered. It should be noted by users desiring to standardize on stud designs that the studs applicable to self-threading stamped nuts may be utilized for push-on spring nuts where economics justify and the additional stud protrusion is not objectionable.

    Heavy Series Nuts are used on round studs only. All other nuts in this document may be used on either round or "D" shaped studs. Nuts are used on round studs in applications where the assembly is permanent and on "D" shaped studs where disassembly is a consideration.

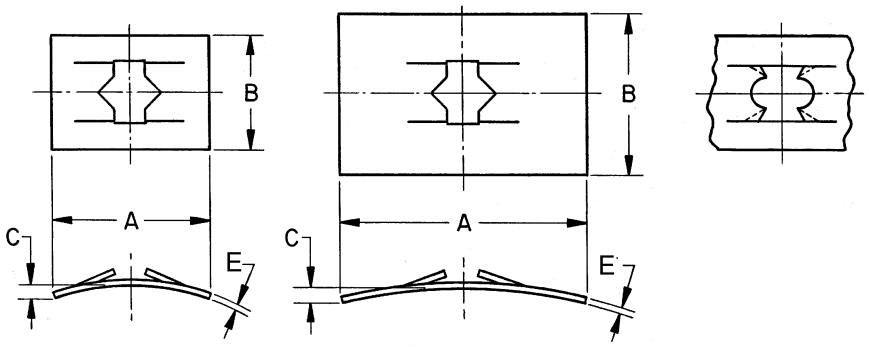

FIGURE 1A—STYLE 1 STANDARD

FIGURE 1B—STYLE II SPANNER

FIGURE 1C—HEAVY SERIES BOSS DESIGN SEE TABLE 3, NOTE 1

FIGURE 1—PUSH-ON SPRING NUTS—RECTANGULAR ARCHED

TABLE 2A—DIMENSIONS OF PUSH-ON SPRING NUTS (FIGURES 1A TO 1C)

Nominal[1] Stud Size in	Style	Series[2]	A Nut Length ±0.20 in	B Nut Width ±0.010 in	C Arch Height Max in	C Arch Height Min in	E Stock Thickness ±0.0015 in
1/16	I	Light	0.38	0.22	0.025	0.005	0.012
1/16	I	Medium	0.38	0.22	0.025	0.005	0.014
1/16	I	Heavy	0.38	0.22	0.025	0.005	0.017
1/16	II	Light	0.56	0.34	0.040	0.010	0.012
1/16	II	Medium	0.56	0.34	0.040	0.010	0.014
1/16	II	Heavy	0.56	0.34	0.040	0.010	0.017
3/32	I	Light	0.45	0.23	0.040	0.010	0.012
3/32	I	Medium	0.45	0.23	0.040	0.010	0.014
3/32	I	Heavy	0.45	0.23	0.040	0.010	0.017
3/32	II	Light	0.70	0.38	0.050	0.020	0.012
3/32	II	Medium	0.70	0.38	0.050	0.020	0.014
3/32	II	Heavy	0.70	0.38	0.050	0.020	0.017
1/8	I	Light	0.58	0.31	0.040	0.010	0.012
1/8	I	Medium	0.58	0.31	0.040	0.010	0.014
1/8	I	Heavy	0.58	0.31	0.040	0.010	0.017
1/8	II	Light	0.45	0.50	0.080	0.050	0.012
1/8	II	Medium	0.45	0.50	0.080	0.050	0.014
1/8	II	Heavy	0.45	0.50	0.080	0.050	0.017
5/32	I	Light	0.56	0.38	0.040	0.010	0.012
5/32	I	Medium	0.56	0.38	0.040	0.010	0.014
5/32	I	Heavy	0.56	0.38	0.040	0.010	0.017

1. See Table 9 for stud dimensions
2. See Section 9 Application and Design

TABLE 2B—DIMENSIONS OF PUSH-ON SPRING NUTS (CONTINUED)

Nominal[1] Stud Size In	Style	Series[2]	A Nut Length ±0.020 in	B Nut Width ±0.010 in	C Arch Height Max in	C Arch Height Min in	E Stock Thickness ±0.0015 in
5/32	II	Light	0.88	0.56	0.075	0.045	0.012
5/32	II	Medium	0.88	0.56	0.075	0.045	0.014
5/32	II	Heavy	0.88	0.56	0.075	0.045	0.017
3/16	I	Light	0.62	0.38	0.060	0.030	0.012
3/16	I	Medium	0.62	0.38	0.060	0.030	0.017
3/16	I	Heavy	0.62	0.38	0.060	0.030	0.020
3/16	II	Light	0.98	0.56	0.080	0.050	0.012
3/16	II	Medium	0.98	0.56	0.080	0.050	0.017
3/16	II	Heavy	0.98	0.56	0.080	0.050	0.020
7/32	I	Light	0.62	0.44	0.050	0.020	0.012
7/32	I	Medium	0.62	0.44	0.050	0.020	0.017
1/4	I	Light	0.62	0.44	0.050	0.020	0.012
1/4	I	Medium	0.62	0.44	0.050	0.020	0.017
1/4	I	Heavy	0.62	0.44	0.050	0.020	0.020
1/4	II	Light	0.98	0.62	0.095	0.065	0.012
1/4	II	Medium	0.98	0.62	0.095	0.065	0.017
1/4	II	Heavy	0.98	0.62	0.095	0.065	0.020
5/16	I	Light	0.69	0.50	0.060	0.030	0.014
5/16	I	Medium	0.69	0.50	0.060	0.030	0.020
3/8	I	Light	0.75	0.56	0.060	0.030	0.014
3/8	I	Medium	0.75	0.56	0.060	0.030	0.020

1. See Table 9 for stud dimensions
2. See Section 9 Application and Design

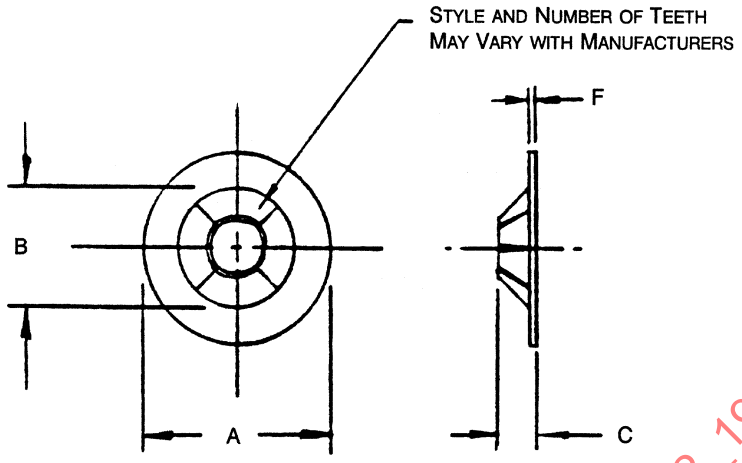

FIGURE 2—PUSH-ON SPRING NUTS—ROUND—FLAT

TABLE 3A—PUSH-ON SPRING NUTS—ROUND—FLAT (SEE FIGURE 2)

Nominal[1] Stud Dia in	Series	A Diameter ±0.005 in	B Tooth Base ±0.010 in	C Height ±0.007 in	E Metal Thickness ±0.0015 in
0.125	Light	0.375	0.228	0.045	0.010
0.125	Medium	0.375	0.228	0.052	0.013
0.156	Light	0.438	0.320	0.047	0.010
0.156	Medium	0.438	0.320	0.058	0.013
0.188	Light	0.438	0.320	0.051	0.010
0.188	Medium	0.438	0.320	0.059	0.015
0.219	Medium	0.531	0.338	0.017	0.017
—	Light	—	—	—	—
0.250	Light	0.531	0.338	0.057	0.012
0.250	Medium	0.531	0.338	0.066	0.017
0.312	Light	0.625	0.456	0.059	0.015
0.312	Medium	0.625	0.456	0.070	0.021
0.375	Light	0.750	0.546	0.061	0.017
0.375	Heavy	0.750	0.546	0.081	0.027
—	Light	—	—	—	—
—	Heavy	—	—	—	—
0.438	—	0.875	0.638	0.97	0.030
0.500	—	1.000	0.730	1.07	0.035

1. See Table 9 for stud dimensions

TABLE 3B—PUSH-ON SPRING NUTS—ROUND—FLAT (CONTINUED)

Nom[1] Stud Dia in	Series	D Teeth Inside Dia ±0.003 in	F Performance Force Requirements max. Push Onto Stud lb	F Performance Force Requirements min. Removal From Stud lb
0.125	Light	0.114	15	130
0.125	Medium	0.114	26	350
0.156	Light	0.140	15	60
0.156	Medium	0.140	25	180
0.188	Light	0.175	15	200
0.188	Medium	0.175	25	400
0.219	Medium	0.206	25	580
—	Light	—	—	—
0.250	Light	0.235	25	400
0.250	Medium	0.235	45	600
0.312	Light	0.295	40	650
0.312	Medium	0.295	60	900
0.375	Light	0.359	50	700
0.375	Heavy	0.359	85	1100
—	Light	—	—	—
—	Heavy	—	—	—
0.438	—	0.422	75	1500
0.50	—	0.482	160	2000

1. See Table 9 for stud dimensions

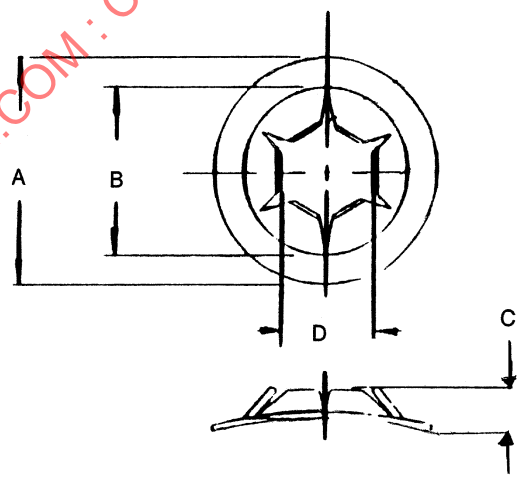

FIGURE 3—PUSH-ON SPRING NUTS—ROUND ARCHED

TABLE 4A—PUSH-ON SPRING NUTS—ROUND ARCHED (SEE FIGURE 3)

Nom[1] Stud Dia in	Series	A Diameter ±0.010 in	B Tooth Base Diameter ±0.010 in	C Height ±0.015 in	D Tooth Inside Dia ±0.003 in
0.125	Light	0.375	0.228	0.063	0.114
0.125	Medium	0.375	0.228	0.068	0.114
0.125	Heavy	0.375	0.228	0.072	0.114
0.156	Light	0.437	0.320	0.084	0.143
0.188	Light	0.437	0.320	0.087	0.175
0.188	Light	0.437	0.320	0.091	0.175
0.188	Medium	0.437	0.320	0.095	0.175
0.250	Light	0.531	0.388	0.095	0.235
0.250	Medium	0.531	0.388	0.103	0.235
0.312	Light	0.625	0.456	0.105	0.295
0.312	Medium	0.625	0.456	0.114	0.295
0.375	Light	0.750	0.546	0.095	0.359
0.375	Light	0.750	0.546	0.115	0.359
0.375	Medium	0.750	0.546	0.111	0.359

1. See Table 9 for stud dimensions

TABLE 4B—PUSH-ON SPRING NUTS—ROUND ARCHED (CONTINUED)

Nom[1] Stud Dia in	Series		E Metal Thickness ±0.0015 in	F Performance Force Required max. Push Onto Stud lb	F Performance Force Required min. Tension On Stud lb	F Performance Force Required min. Removal From Stud lb
0.125	Light	0.25	0.010	15	15	130
0.125	Medium	0.33	0.013	25	25	350
0.125	Heavy	0.43	0.017	55	80	400
0.156	Light	0.25	0.010	15	50	60
0.188	Light	—	0.010	15	50	100
0.188	Light	—	0.013	15	65	300
0.188	Medium	—	0.015	15	100	400
0.250	Light	0.30	0.012	25	60	400
0.250	Medium	0.43	0.017	30	115	600
0.312	Light	0.38	0.015	40	80	655
0.312	Medium	0.53	0.021	60	120	900
0.375	Light	—	0.017	55	110	700
0.375	Light	—	0.021	70	125	900
0.375	Medium	—	0.027	85	150	1160

1. See Table 9 for stud dimensions

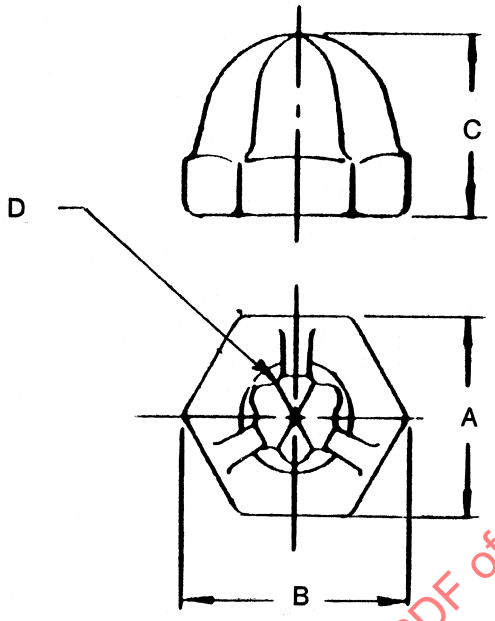

FIGURE 4—PUSH-ON SPRING NUTS—ACORN

TABLE 5A—PUSH-ON SPRING NUTS—ACORN (SEE FIGURE 4)

Nom(1) Stud Dia in	Top Style	A Hex in	B Across Hex Corners in	C Height in	D Tooth Inside Dia ±0.004 in
0.120	closed	0.312/0.306	0.361/0.348	0.271/0.251	0.113
0.120	open	0.312/0.306	0.361/0.348	0.245/0.225	0.113
0.148	closed	0.344/0.338	0.347/0.333	0.305/0.285	0.140
0.156	closed	0.344/0.338	0.347/0.333	0.305/0.285	0.148
0.188	closed	0.375/0.368	0.433/0.418	0.334/0.314	0.174
0.188	closed	0.437/0.429	0.505/0.488	0.390/0.370	0.174
0.188	open	0.437/0.429	0.505/0.488	0.320/0.300	0.174
0.250	closed	0.437/0.429	0.505/0.488	0.382/0.362	0.235
0.250	open	0.437/0.429	0.505/0.488	0.303/0.283	0.235
0.250	closed	0.562/0.553	0.650/0.627	0.494/0.474	0.235
0.250	open	0.562/0.553	0.650/0.627	0.405/0.385	0.235
0.312	closed	0.562/0.553	0.650/0.627	0.484/0.464	0.293
0.312	open	0.562/0.553	0.650/0.627	0.390/0.370	0.293

1. See Table 9 for stud dimensions

TABLE 5B—PUSH-ON SPRING NUTS—ACORN (CONTINUED)

Nom[1] Stud Dia in	Top Style	E Metal Thickness ±0.0015 in	F Rod Penetration in	G Performance Force Required Maximum Push On lb	G Performance Force Required Minimum Removal lb
0.120	closed	0.013	0.21/0.13	40	234
0.120	open	0.013	0.13 min	40	234
0.148	closed	0.017	0.24/0.13	30	329
0.156	closed	0.012	0.24/0.13	32	300
0.188	closed	0.015	0.26/0.16	40	70
0.188	closed	0.021	0.30/0.16	50	185
0.188	open	0.021	0.16 min	50	185
0.250	closed	0.017	0.28/0.19	45	120
0.250	open	0.017	0.19 min	45	120
0.250	closed	0.024	0.38/0.19	50	220
0.250	open	0.024	0.19 min	50	220
0.312	closed	0.020	0.36/0.22	55	200
0.312	open	0.020	0.22 min	55	200

1. See Table 9 for stud dimensions

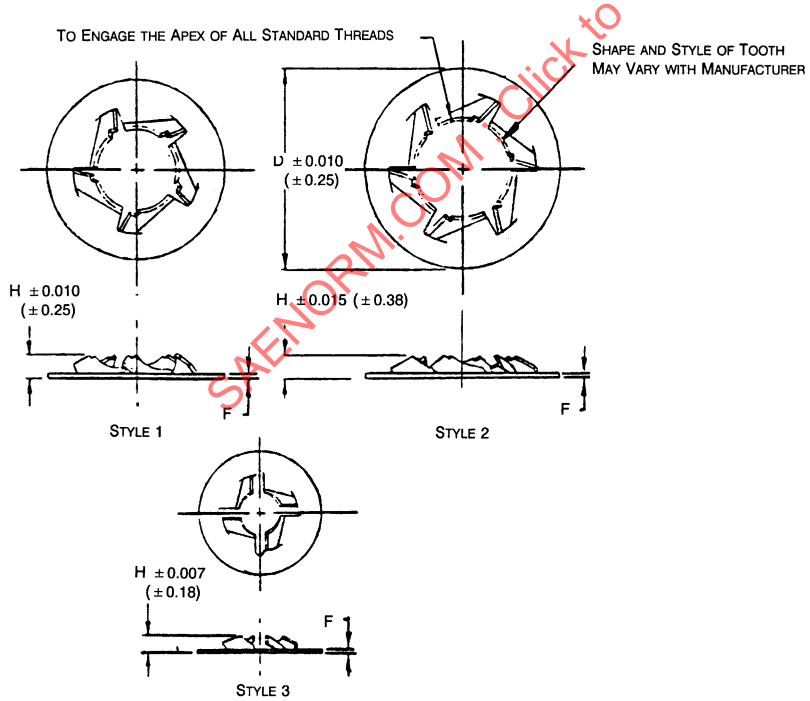

FIGURE 5—PUSH-ON SPRING BOLT RETAINER

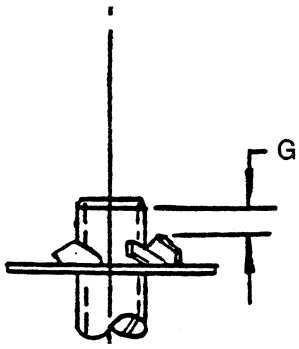

FIGURE 6—PUSH-ON SPRING BOLT RETAINER

TABLE 6A—PUSH-ON SPRING BOLT RETAINER (SEE FIGURES 5 AND 6)

Machine Screw or Bolt[1] Dia in	Style	D Diameter ±0.010 in	H Height ±0.015 in	E Metal Thickness ±0.0015 in
#6	3	0.344	0.047	0.010
#8	3	0.375	0.049	0.010
#10	3	0.437	0.065	0.012
—	1	0.500	0.078	0.010
1/4	1	0.500	0.078	0.010
5/16	1	0.625	0.082	0.015
3/8	2	0.781	0.093	0.015
—	2	—	—	—
7/16	2	0.843	0.103	0.015
—	2	—	—	—
1/2	2	0.938	0.122	0.015
—	2	—	—	—

1. The impression will engage any pitch of thread UNC-UNF inch sizes for diameters shown.

TABLE 6B—PUSH-ON SPRING BOLT RETAINER (SEE FIGURES 5 AND 6) (CONTINUED)

Machine Screw or Bolt[1] Dia in	Style	G Minimum Bolt or Screw Protrusion in	F Performance Maximum Push-On Force lb	F Performance Minimum Removal Force lb
#6	3	0.140	3.8	9.0
#8	3	0.140	4.9	11.2
#10	3	0.156	5.6	14.6
—	1	0.188	5.6	20.2
1/4	1	0.188	5.6	20.2
5/16	1	0.218	6.7	22.5
3/8	2	0.218	6.7	33.7
—	2	—	6.7	33.7
7/16	2	0.250	6.7	56.2
—	2	—	6.7	67.2
1/2	2	0.250	6.7	67.2
—	2	—	6.7	67.2

1. The impression will engage any pitch of thread UNC-UNF inch sizes for diameters shown.

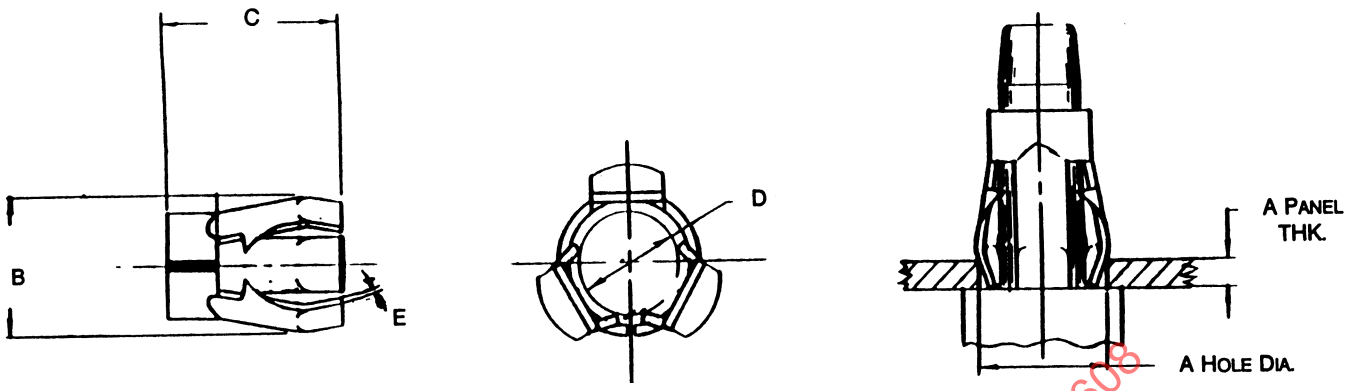

FIGURE 7—PUSH-ON SPRING NUTS—BLIND, STUD RETAINED STYLE

TABLE 7A—PUSH-ON SPRING NUTS—BLIND, STUD RETAINED STYLE (SEE FIGURE 7)

Nom[1] Stud Dia in	A Panel Hole Dia ±0.003 in	T Panel Thickness ±0.004 in	B Knee Dia ±0.010 in	C Length ±0.008 in	D Tooth Inside Dia ±0.008 in
0.094	0.139	0.040	0.162	0.265	0.074
0.094	0.139	0.055	0.162	0.280	0.074
0.094	0.139	0.070	0.162	0.296	0.074
0.125	0.187	0.040	0.205	0.280	0.103
0.125	0.187	0.055	0.205	0.296	0.103
0.125	0.187	0.070	0.205	0.312	0.103
0.156	0.218	0.070	0.238	0.328	0.136
0.188	0.249	0.040	0.275	0.312	0.169
0.188	0.249	0.070	0.275	0.344	0.169

1. See Table 9 for stud dimensions

TABLE 7B—PUSH-ON SPRING NUTS—BLIND, STUD RETAINED STYLE (CONTINUED)

Nom[1] Stud Dia in	E Metal Thickness ±0.0015 in	F Performance Force Required Maximum Push-On Fastener Onto Stud lb	F Performance Force Required Maximum Snap Assembly Into Panel lb	F Performance Force Required Minimum Remove Assembly From Panel lb
0.094	0.011	5	45	15
0.094	0.011	5	45	15
0.094	0.011	5	45	15
0.125	0.014	5	60	22
0.125	0.014	5	60	22
0.125	0.014	5	60	22
0.156	0.014	5	60	22
0.188	0.014	5	65	22
0.188	0.014	5	65	22

1. See Table 9 for stud dimensions

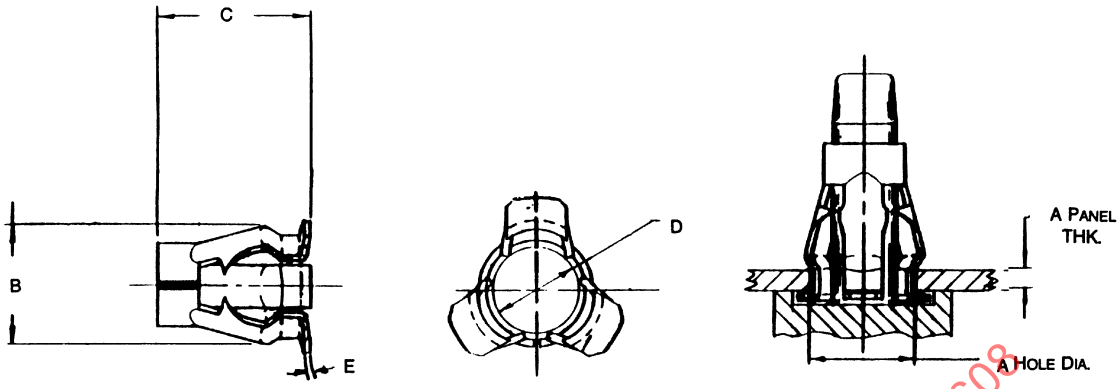

FIGURE 8—PUSH-ON SPRING NUTS—BLIND, PANEL RETAINED

TABLE 8A—PUSH-ON SPRING NUTS—BLIND, PANEL RETAINED (SEE FIGURE 8)

Nom[1] Stud Dia in	A Panel Hole Dia ±0.003 in	T Panel Thickness ±0.004 in	B Knee Dia ±0.010 in	C Length ±0.008 in	D Tooth Inside Dia ±0.008 in
0.094	0.139	0.040	0.178	0.275	0.07
0.125	0.187	0.040	0.234	0.290	0.106
0.188	0.249	0.040	0.297	0.325	0.160
0.188	0.249	0.027	0.297	0.312	0.160

1. See Table 9 for stud dimensions

TABLE 8B—PUSH-ON SPRING NUTS—BLIND, PANEL RETAINED (SEE FIGURE 8) (CONTINUED)

Nom[1] Stud Dia in	E Metal Thickness ±0.0015 in	F Performance Force Required Maximum Push Fastener into Panel lb	F Performance Force Maximum Push Stud into Assembly lb	F Performance Force Required Minimum Remove Studs From Panel lb
0.94	0.011	15	20	40
0.125	0.014	25	35	35
0.188	0.015	25	40	35
0.188	0.015	25	40	35

1. See Table 9 for stud dimensions