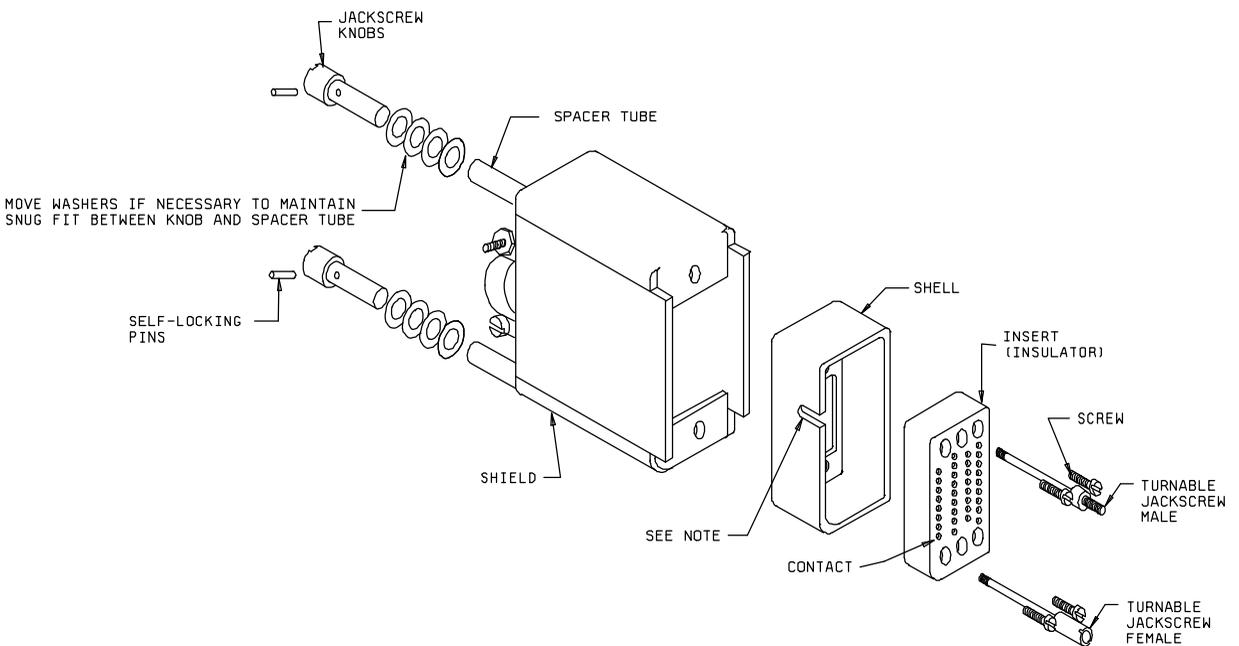


PERFORMANCE SPECIFICATION SHEET

CONNECTORS, ELECTRICAL, RECTANGULAR,  
 RACK AND PANEL, SOLDER TYPE SOCKET CONTACTS, SIZE 16

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue MIL-DTL-28748 listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation:

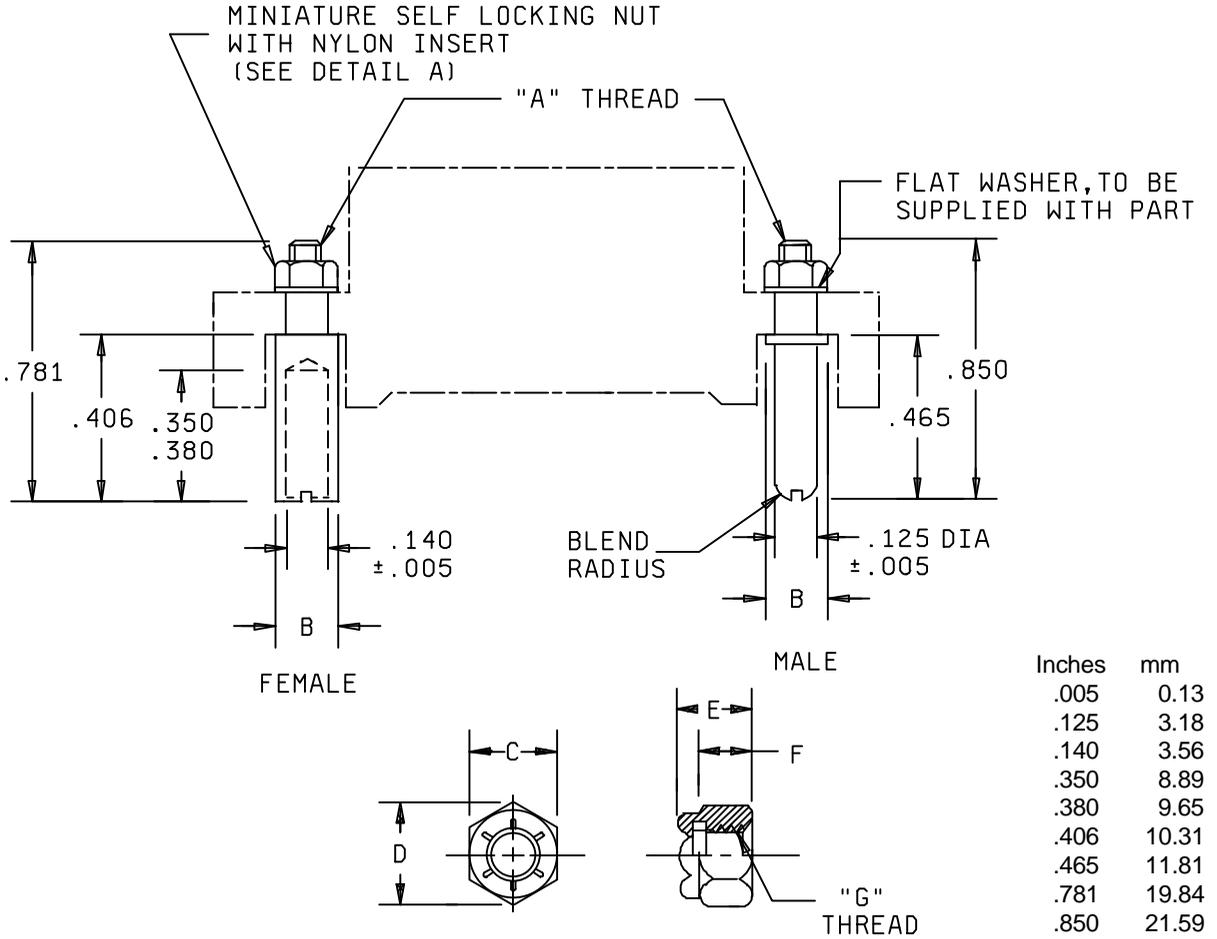


Connector

NOTE: The polarization feature (groove on the receptacle shell, pin on the plug shell) shall be adjacent to the side closest to the number 1 or A contact position.

Configuration A

FIGURE 1. Connector with shield, plug shell, jackscrews, and guidepins.



Detail A  
Miniature self locking nut  
(nylon insert)

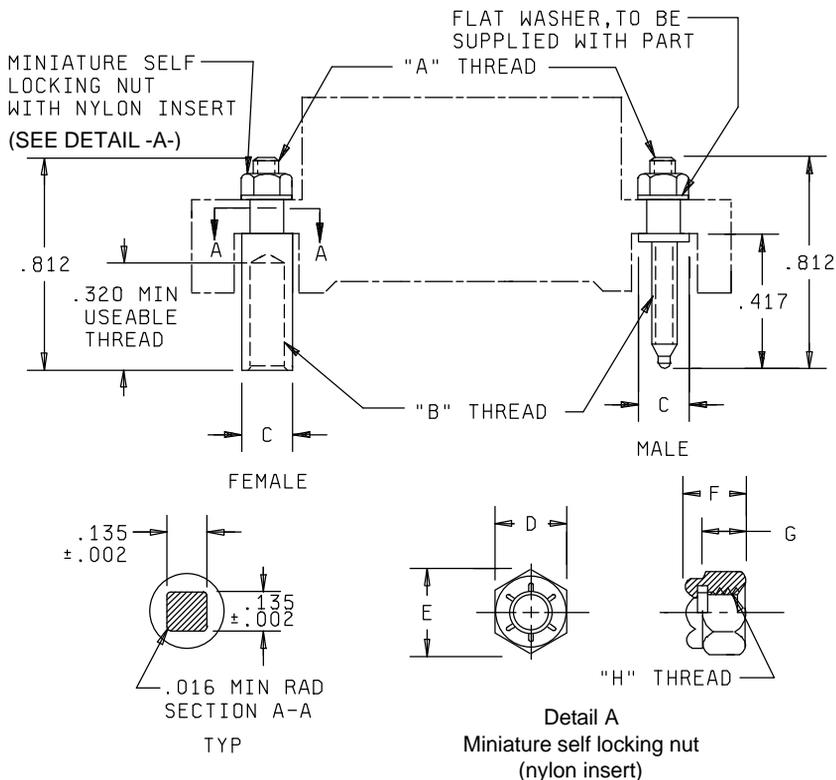
Guidepin designator G

| Style  | Connector size<br>(number of<br>contacts) | A<br>Thread<br>class 2     | B<br>dia<br>max | C              |                | D<br>ref       | E              |                | G<br>Thread<br>class 3     |
|--------|---|----------------------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------------------|
|        |   |                            |                 | min            | max            |                | min            | max            |                            |
| Male   | 9, 14, 20, 34, 42,<br>50, 66, 75          | 4-40 UNC-2A<br>.112-40 UNC | .190<br>(4.83)  | .181<br>(4.06) | .190<br>(4.83) | .205<br>(5.21) | .095<br>(2.41) | .125<br>(3.18) | 4-40 UNC-3B<br>.112-40 UNC |
| Female | 9, 14, 20, 34, 42,<br>50, 66, 75          | 4-40 UNC-2A<br>.112-40 UNC | .190<br>(4.83)  | .181<br>(4.06) | .190<br>(4.83) | .205<br>(5.21) | .095<br>(2.41) | .125<br>(3.18) | 4-40 UNC-3B<br>.112-40 UNC |
| Male   | 104                                       | 6-32 UNC-2A<br>.138-32 UNC | .190<br>(4.83)  | .240<br>(6.10) | .252<br>(6.04) | .275<br>(6.99) | .133<br>(3.38) | .153<br>(3.89) | 6-32 UNC-3B<br>.138-32 UNC |
| Female | 104                                       | 6-32 UNC-2A<br>.138-32 UNC | .190<br>(4.83)  | .240<br>(6.10) | .252<br>(6.04) | .275<br>(6.99) | .133<br>(3.38) | .153<br>(3.89) | 6-32 UNC-3B<br>.138-32 UNC |

Connector with guidepins

Configuration B

FIGURE 1. Connector with shields, jackscrews, and guidepins - Continued.



Detail A  
Miniature self locking nut  
(nylon insert)

Jackscrew designator F

| Style  | Connector size<br>(number of contacts) | A<br>Thread<br>class 2     | B<br>Thread<br>class 2     | C<br>dia<br>max |
|--------|--|----------------------------|----------------------------|-----------------|
| Male   | 9, 14, 20, 34, 42, 50,<br>66, 75       | 4-40 UNC-2A<br>.112-40 UNC | 6-32 UNC-2A<br>.138-32 UNC | .190<br>(4.83)  |
| Female | 9, 14, 20, 34, 42, 50,<br>66, 75       | 4-40 UNC-2A<br>.112-40 UNC | 6-32 UNC-2B<br>.138-32 UNC | .190<br>(4.83)  |
| Male   | 104                                    | 6-32 UNC-2A<br>.138-32 UNC | 6-32 UNC-2A<br>.138-32 UNC | .225<br>(5.72)  |
| Female | 104                                    | 6-32 UNC-2A<br>.138-32 UNC | 6-32 UNC-2B<br>.138-32 UNC | .225<br>(5.72)  |

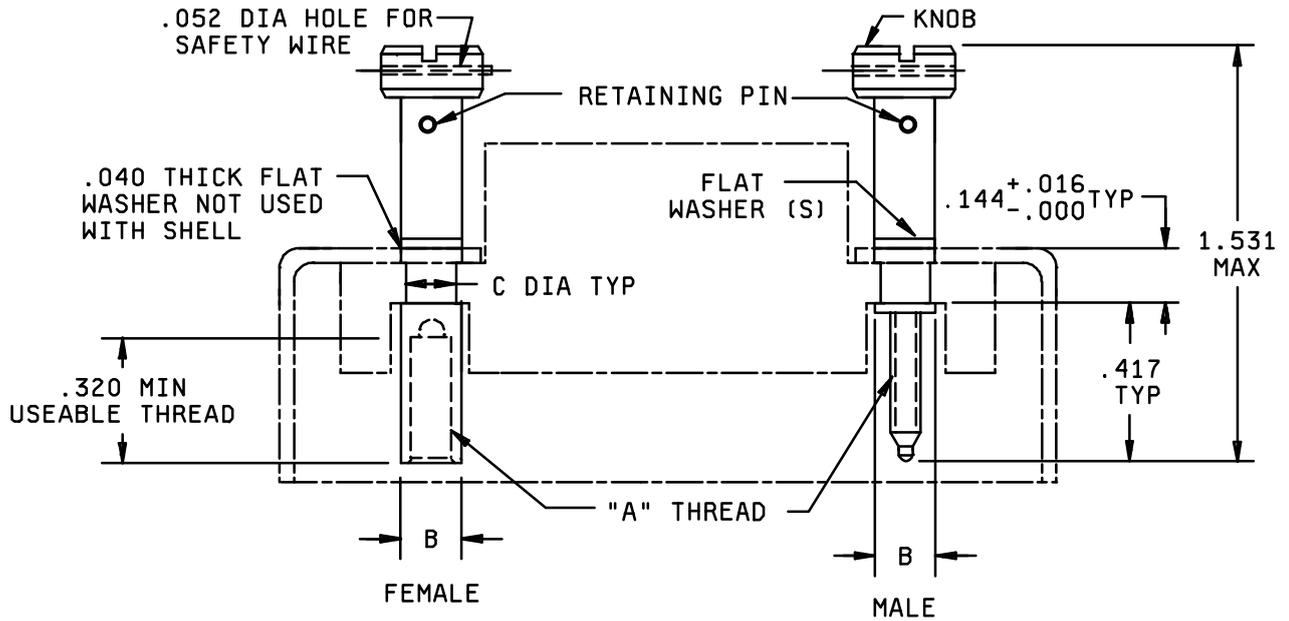
Self locking nut

| Connector size<br>(number of contacts) | D              |                | E<br>ref       | F              |                | G<br>ref       | H<br>Thread<br>class 3     |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------------------|
|  | min            | max            |                | min            | max            |                |                            |
| 9, 14, 20, 34, 42, 50, 66, 75          | .181<br>(4.06) | .190<br>(4.83) | .205<br>(5.21) | .095<br>(2.41) | .125<br>(3.18) | .070<br>(1.78) | 4-40 UNC-3B<br>.112-40 UNC |
| 104                                    | .240<br>(6.10) | .252<br>(6.04) | .275<br>(6.99) | .133<br>(3.38) | .153<br>(3.89) | .081<br>(2.06) | 6-32 UNC-3B<br>.138-32 UNC |

Connector with fixed jackscrews

Configuration C

FIGURE 1. Connector with shields, jackscrews, and guidepins - Continued.



| Inches | mm    |
|--------|-------|
| .016   | 0.41  |
| .040   | 1.02  |
| .052   | 1.32  |
| .144   | 3.60  |
| .320   | 8.13  |
| .417   | 10.59 |
| 1.531  | 58.89 |

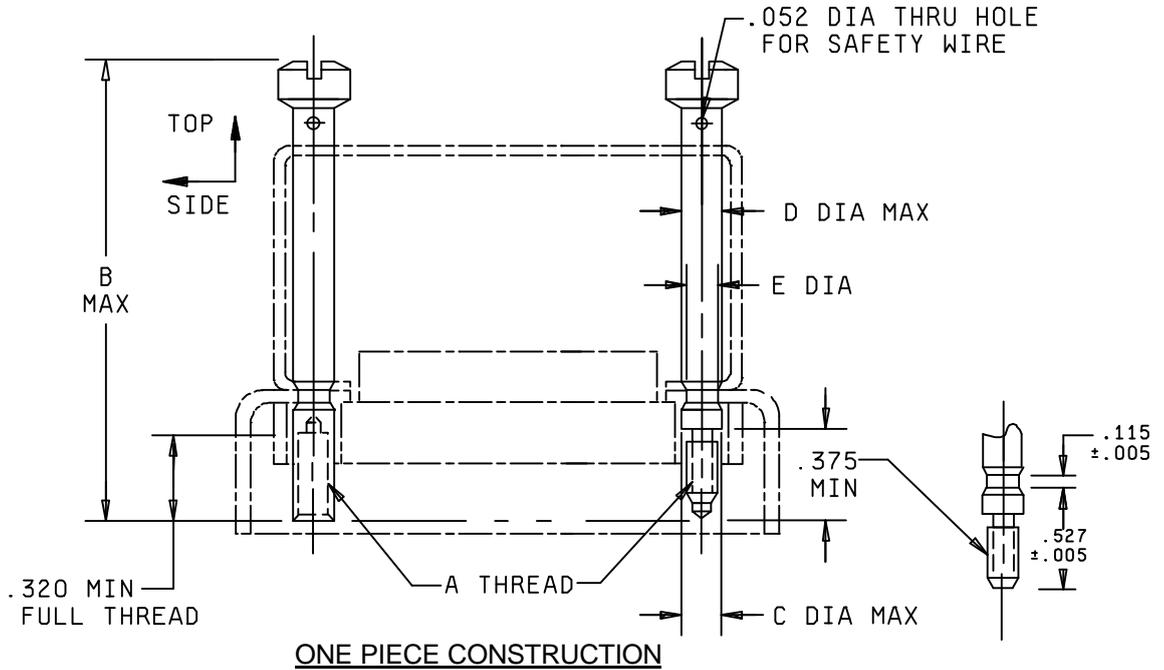
Jackscrew designator S

| Style  | Connector size<br>(number of contacts)  | "A"<br>Thread<br>class 2   | "B" dia<br>max | C DIA<br>±.003 (0.08 mm) |
|--------|---|----------------------------|----------------|--------------------------|
| Male   | 7, 9, 14, 20, 26, 34, 42,<br>50, 66, 75 | 6-32 UNC-2A<br>.138-32 UNC | .190 (4.83)    | .115 (2.92)              |
| Female | 7, 9, 14, 20, 26, 34, 42,<br>50, 66, 75 | 6-32 UNC-2B<br>.138-32 UNC | .190 (4.83)    | .115 (2.92)              |
| Male   | 104                                     | 8-32 UNC-2A<br>.164-32 UNC | .225 (5.72)    | .137 (3.48)              |
| Female | 104                                     | 8-32 UNC-2B<br>.164-32 UNC | .225 (5.72)    | .137 (3.48)              |

Connector with short turnable jackscrews

Configuration D

FIGURE 1. Connector with shields, jackscrews, and guidepins - Continued.



**ONE PIECE CONSTRUCTION**

| Inches | mm    |
|--------|-------|
| .005   | 0.13  |
| .052   | 1.32  |
| .115   | 2.92  |
| .320   | 8.13  |
| .375   | 9.53  |
| .527   | 13.39 |

Jackscrew designator L

| Style  | Connector size<br>(number of contacts) | "A"<br>Thread<br>class 2 | "B"<br>max       | C<br>dia<br>max | D<br>dia<br>max | E dia<br>±.002<br>(0.05 mm) |
|--------|--|--------------------------|------------------|-----------------|-----------------|-----------------------------|
| Male   | 34, 42, 50, 66, 75                     | .138-32 UNC              | 2.438<br>(61.93) | .192<br>(4.88)  | .192<br>(4.88)  | .111<br>(2.82)              |
| Female | 34, 42, 50, 66, 75                     | .138-32 UNC              | 2.438<br>(61.93) | .192<br>(4.88)  | .192<br>(4.88)  | .111<br>(2.82)              |
| Male   | 104                                    | .164-32 UNC              | 3.282<br>(83.36) | .225<br>(5.72)  | .225<br>(5.72)  | .140<br>(3.56)              |
| Female | 104                                    | .164-32 UNC              | 3.282<br>(83.36) | .225<br>(5.72)  | .225<br>(5.72)  | .140<br>(3.56)              |

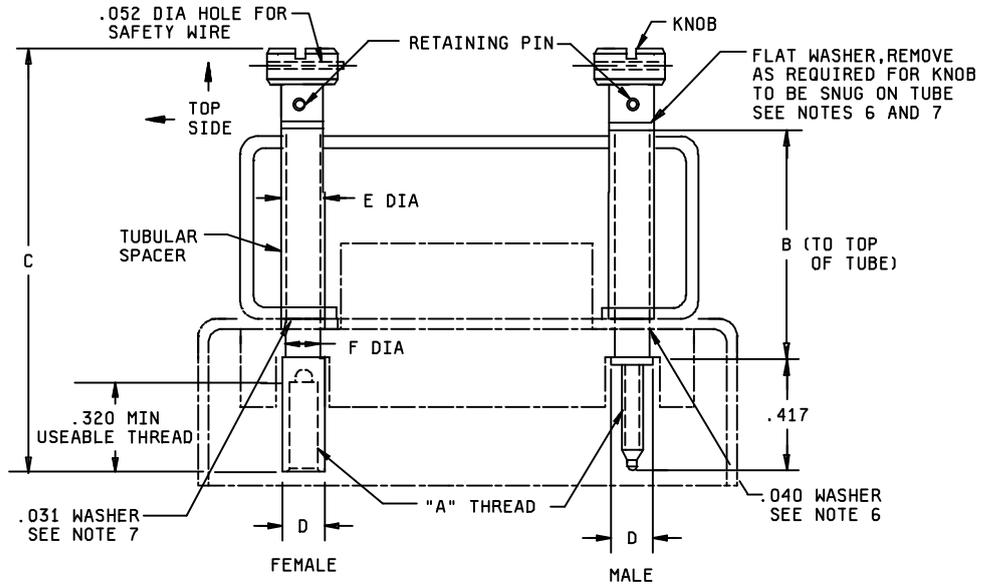
For use with shields 3, 4, 9, A, D, and E or plug shells S thru Z, and receptacle shells 1 thru 8.

When plug shells S thru Z or receptacle polarizing shells 1 thru 8 are required to be used with a shield, use shield configurations 1, 2, B, and C.

Connector with long turnable jackscrews

Configuration L

FIGURE 1. Connector with shields, jackscrews, and guidepins - Continued.



| Inches | mm    |
|--------|-------|
| .031   | 0.79  |
| .040   | 1.02  |
| .052   | 1.32  |
| .320   | 8.13  |
| .417   | 10.59 |

**MULTIPIECE CONSTRUCTION**

Jackscrew designator M

| Style  | Connector size<br>(number of contacts) | "A"<br>Thread<br>class 2   | "B"<br>±.016<br>(0.41 mm) | C<br>max         | D<br>dia<br>max | E dia<br>±.004<br>(0.10 mm) | F dia<br>±.003 |
|--------|--|----------------------------|---------------------------|------------------|-----------------|-----------------------------|----------------|
| Male   | 9, 14, 20, 34, 42, 50,<br>66, 75       | 6-32 UNC-2A<br>.138-32 UNC | 1.500<br>(43.10)          | 2.467<br>(62.66) | .190<br>(4.83)  | .188<br>(4.78)              | .115<br>(2.92) |
| Female | 9, 14, 20, 34, 42, 50,<br>66, 75       | 6-32 UNC-2B<br>.138-32 UNC | 1.500<br>(43.10)          | 2.467<br>(62.66) | .190<br>(4.83)  | .188<br>(4.78)              | .115<br>(2.92) |
| Male   | 104                                    | 8-32 UNC-2A<br>.164-32 UNC | 2.495<br>(63.37)          | 3.438<br>(87.33) | .225<br>(5.72)  | .219<br>(5.56)              | .137<br>(3.48) |
| Female | 104                                    | 8-32 UNC-2B<br>.164-32 UNC | 2.495<br>(63.37)          | 3.438<br>(87.43) | .225<br>(5.72)  | .219<br>(5.56)              | .137<br>(3.48) |

**NOTES:**

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.016 inch (0.41 mm).
4. Material corrosion resistance steel in accordance with QQ-S-763 or QQ-S-764, classes 302, 303, 303se, 304 or 316 except for aluminum alloy knob and tubular, spacer, on multipiece construction.
5. Finish passivated in accordance with QQ-P-35 except for anodized knob on multipiece construction.
6. Washer .040 inch thick (1.02 mm) supplied with all sizes, not used with shell.
7. Washer .031 inch thick (0.79 mm) supplied with shield sizes 34 through 75.
8. When plug shells A through H and receptacle shells J through R are required to be used with a shield, use shield configurations 1, 2, B, and C.

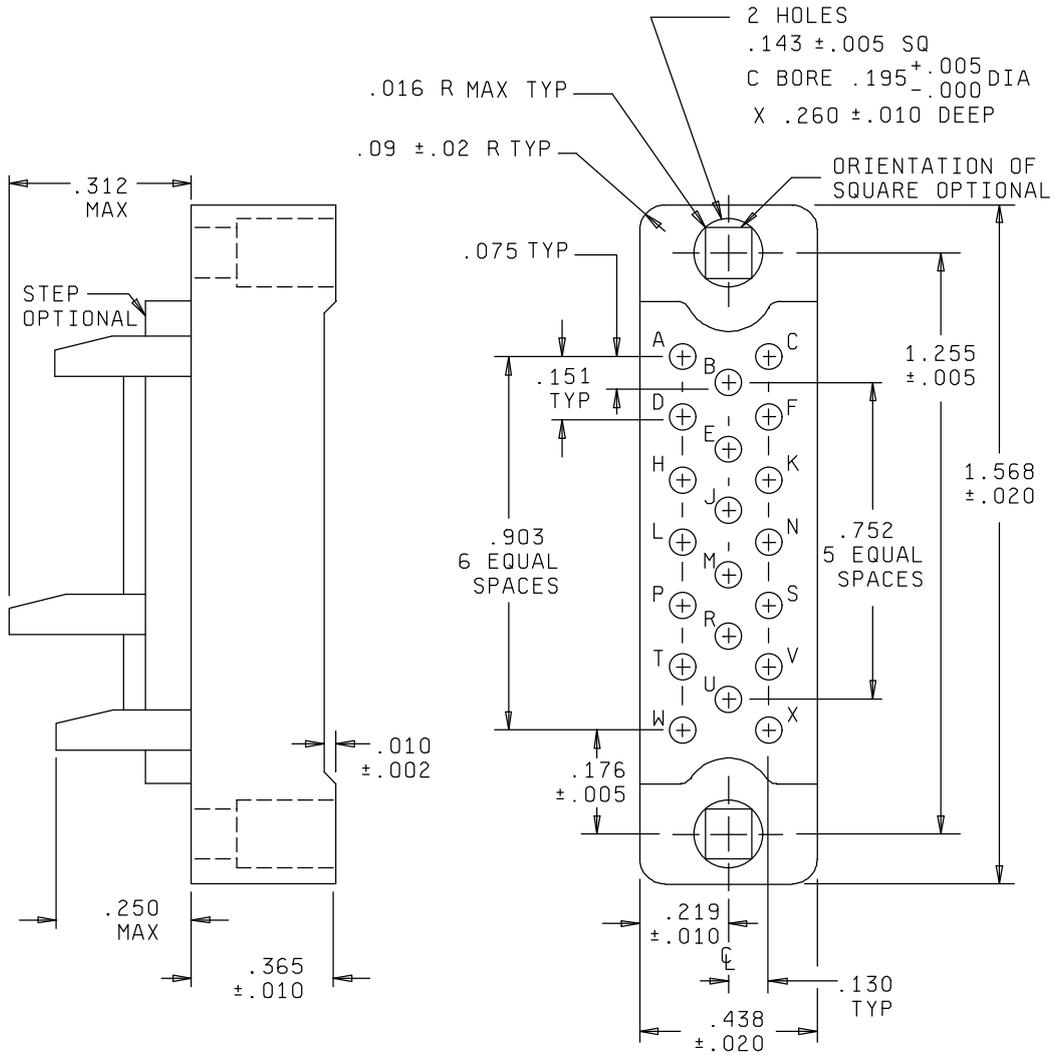
Connector with long turnable jackscrews

Configuration E

FIGURE 1. Connector with shields, jackscrews, and guidepins - Continued.





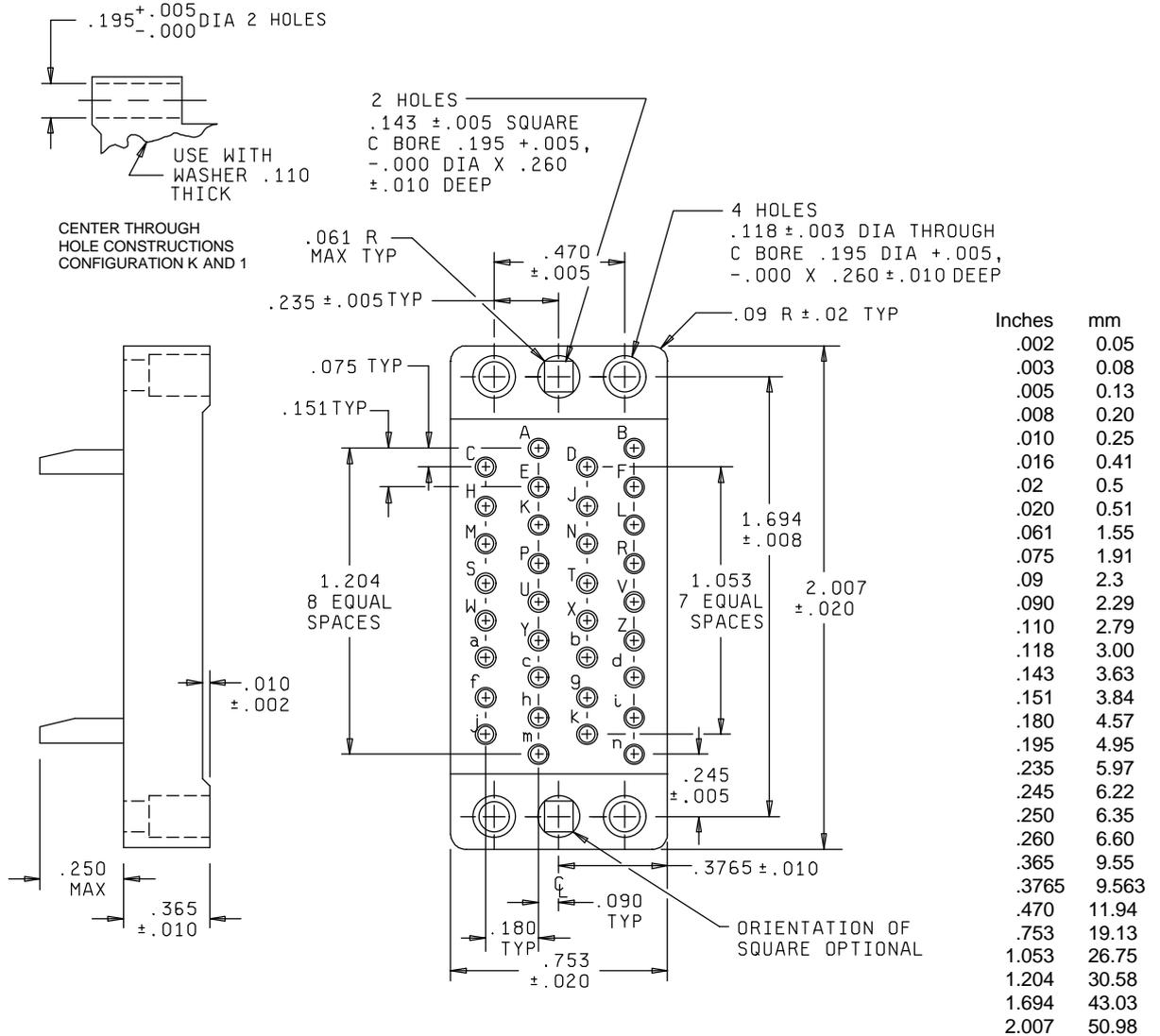


| Inches | mm   | Inches | mm   | Inches | mm    |
|--------|------|--------|------|--------|-------|
| .002   | 0.05 | .130   | 3.30 | .312   | 7.92  |
| .005   | 0.13 | .143   | 3.63 | .365   | 9.27  |
| .010   | 0.25 | .151   | 3.84 | .438   | 11.13 |
| .016   | 0.41 | .176   | 4.47 | .752   | 19.10 |
| .02    | 0.5  | .195   | 4.95 | .903   | 22.94 |
| .020   | 0.51 | .219   | 5.56 | 1.255  | 31.88 |
| .075   | 1.91 | .250   | 6.35 | 1.568  | 39.89 |
| .09    | 2.3  | .260   | 6.60 |        |       |

Insert with 20 contacts

Insert designators C and T

FIGURE 2. Insert arrangements - Continued.

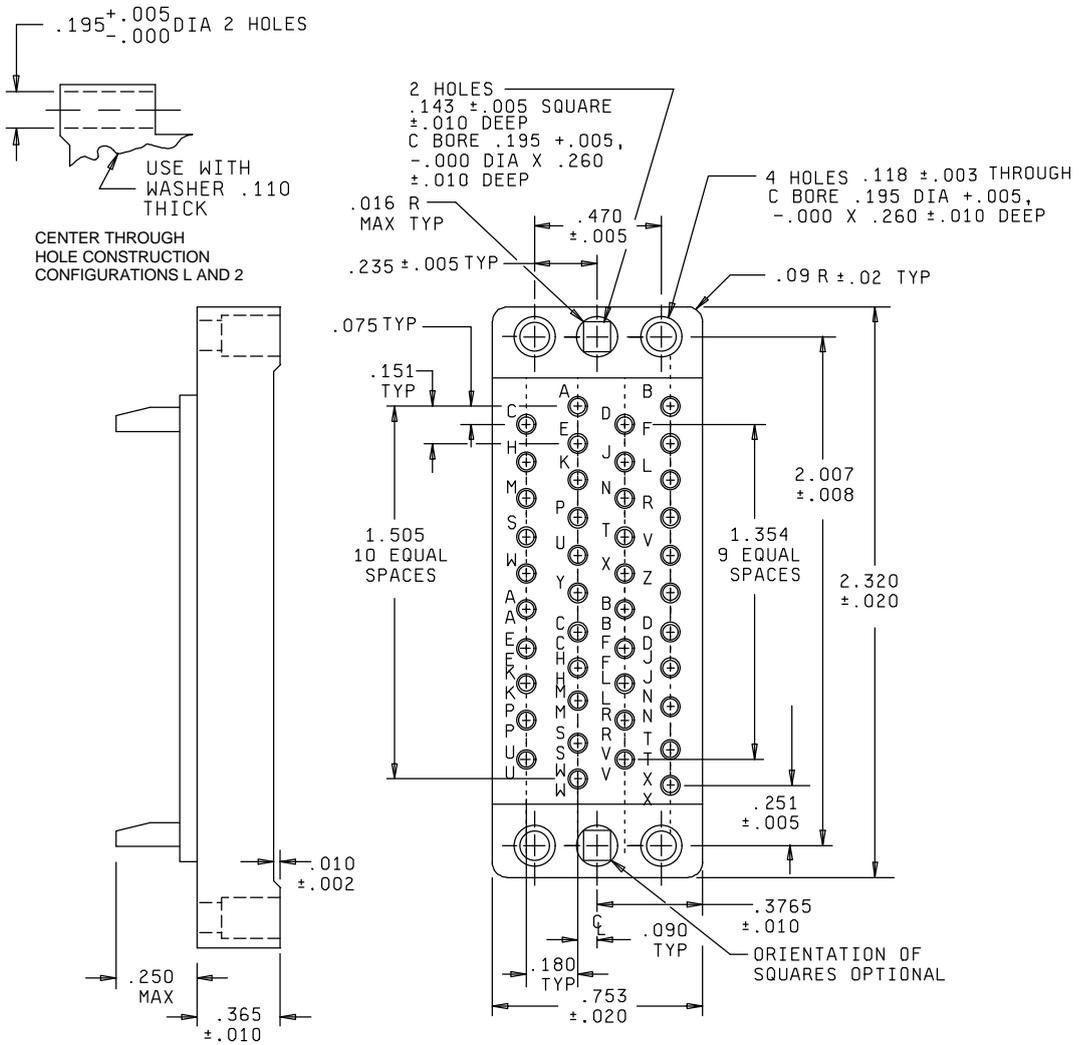


Configurations D and U - Suitable for all applications, except one-piece jackscrews.  
 Configurations K and 1 - For one piece jackscrews (through hole construction).

Insert with 34 contacts

Insert designators D, K, U, and 1

FIGURE 2. Insert arrangements - Continued.



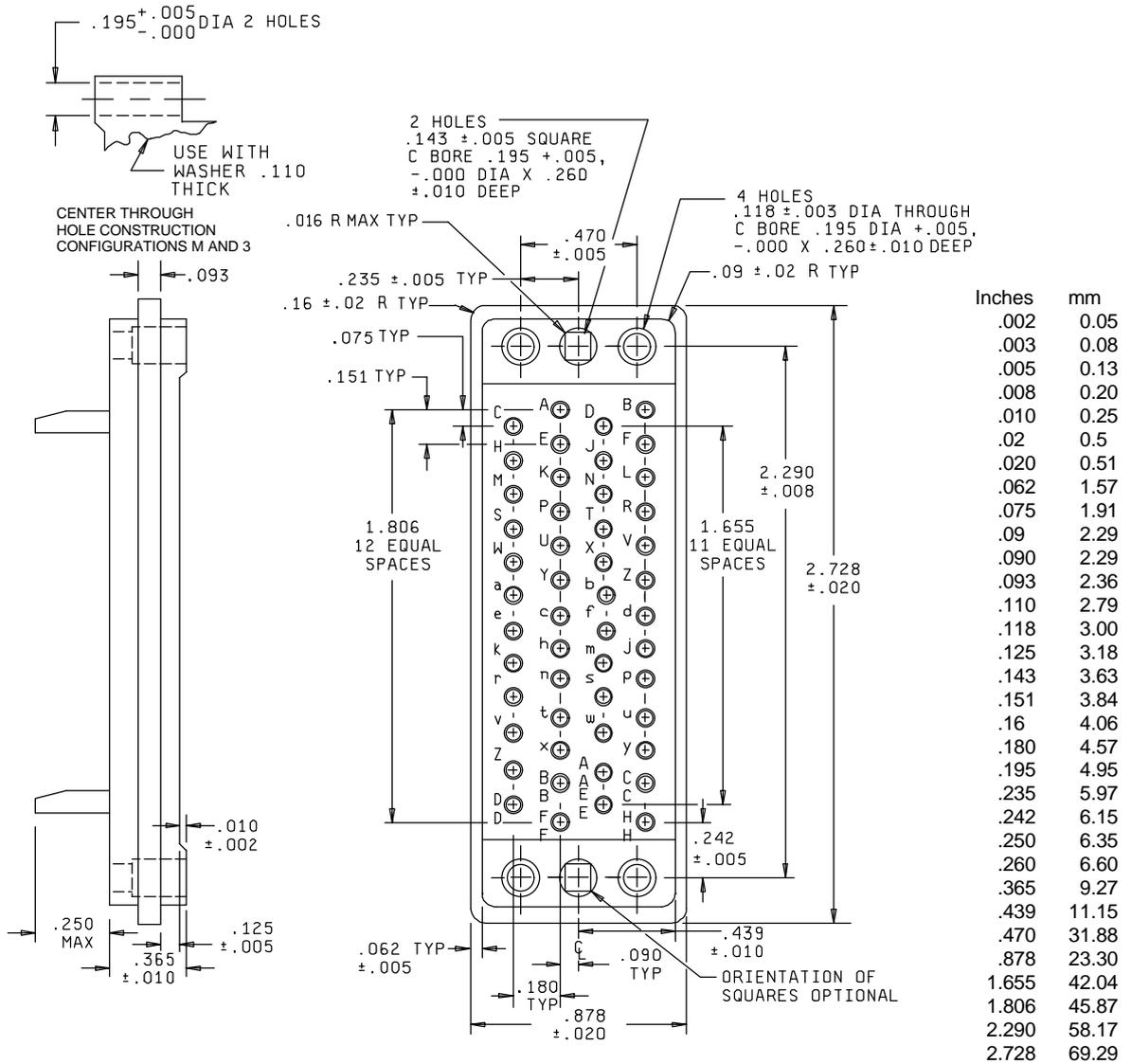
| Inches | mm   | Inches | mm   | Inches | mm    |
|--------|------|--------|------|--------|-------|
| .002   | 0.05 | .110   | 2.79 | .260   | 6.60  |
| .003   | 0.08 | .118   | 3.00 | .365   | 9.27  |
| .005   | 0.13 | .143   | 3.63 | .3765  | 9.56  |
| .010   | 0.25 | .151   | 3.84 | .470   | 11.94 |
| .016   | 0.41 | .180   | 4.57 | .753   | 19.13 |
| .020   | 0.51 | .195   | 4.95 | 1.354  | 34.39 |
| .075   | 1.91 | .235   | 5.97 | 1.505  | 38.23 |
| .09    | 2.29 | .250   | 6.35 | 2.007  | 50.98 |
| .090   | 2.29 | .251   | 6.38 | 2.320  | 58.93 |

Configurations E and V - Suitable for all applications, except one-piece jackscrews.  
 Configurations L and 2 - For one-piece jackscrews (through hole construction).

Insert with 42 contacts

Insert designators E, L, V, and 2

FIGURE 2. Insert arrangements - Continued.

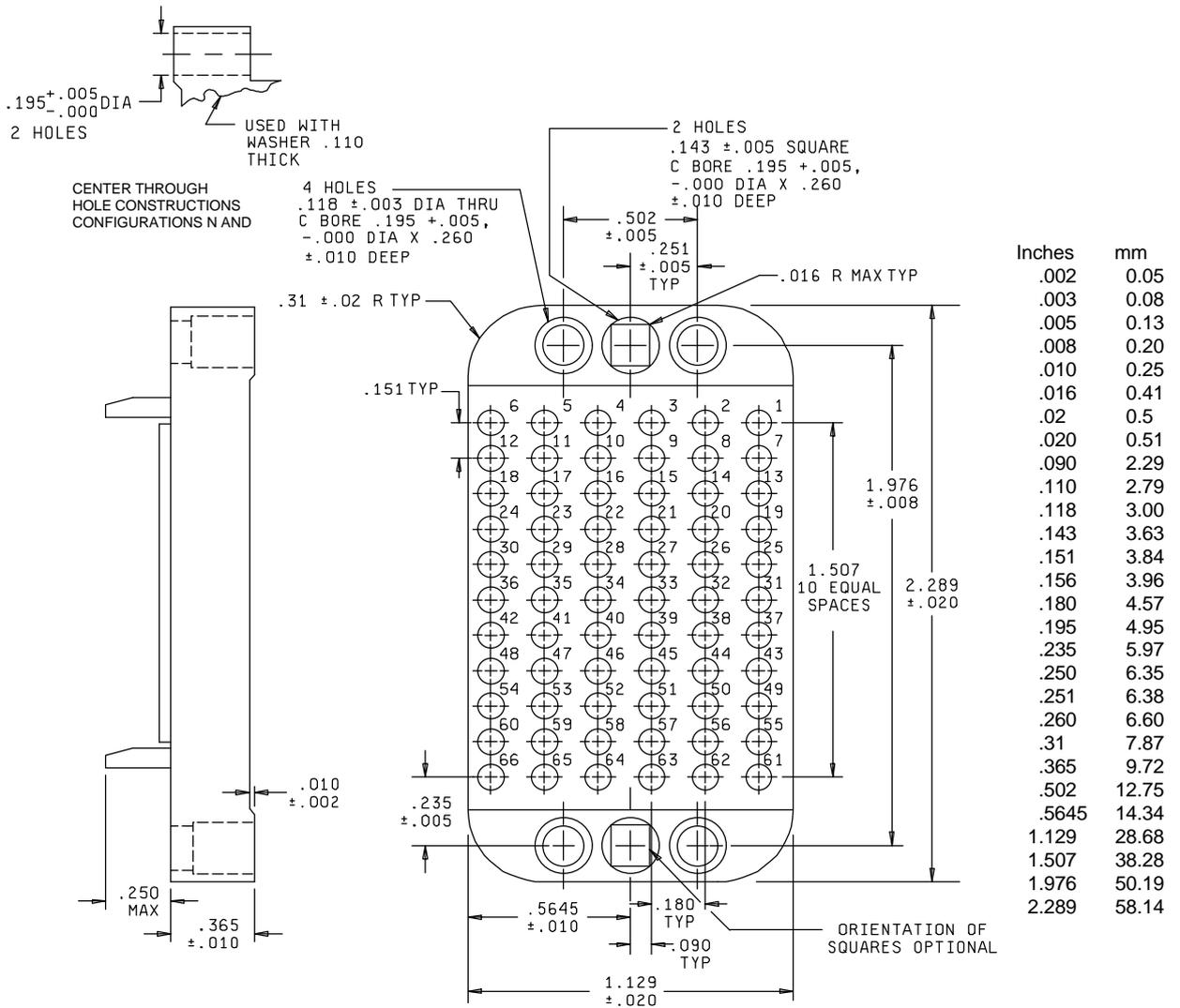


Configurations F and W - Suitable for all applications, one-piece jackscrews.  
 Configurations M and 3 - For one-piece jackscrews (through hole construction).

Insert with 50 contacts

Insert designators F, M, W, and 3

FIGURE 2. Insert arrangements - Continued.

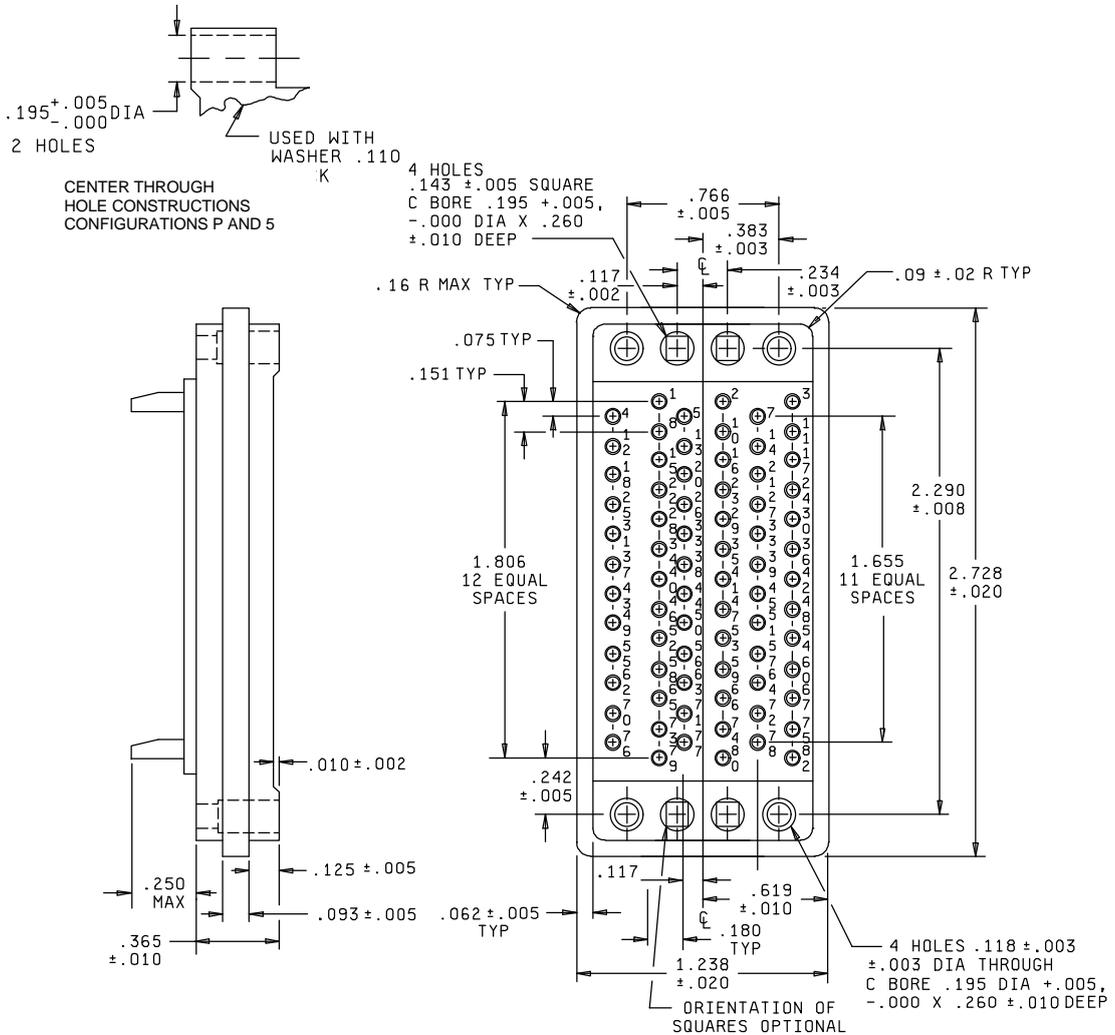


Configurations G and X - Suitable for all applications, except one-piece jackscrews.  
 Configurations N and 4 - one-piece jackscrews (through hole construction).

Insert with 66 contacts

Insert designators G, N, X, and 4

FIGURE 2. Insert arrangements - Continued.



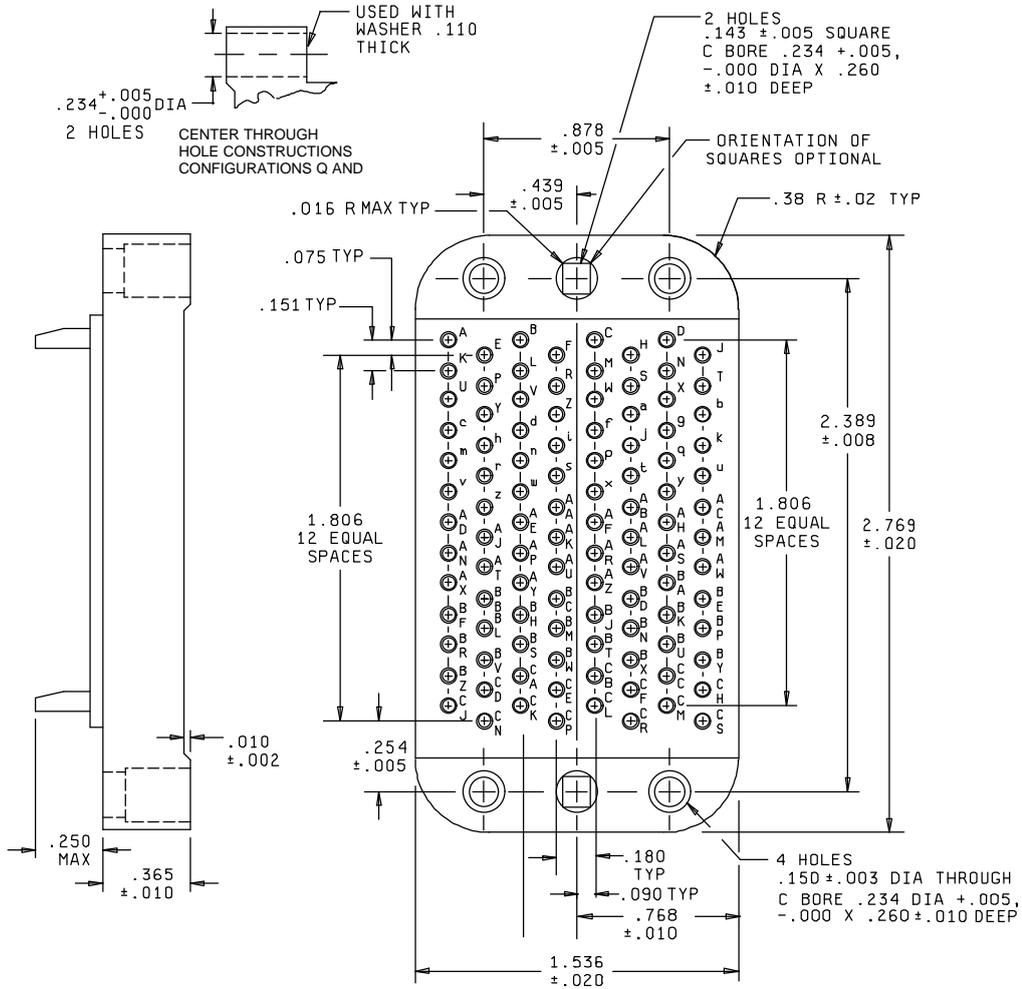
| Inches | mm   | Inches | mm   | Inches | mm   | Inches | mm    |
|--------|------|--------|------|--------|------|--------|-------|
| .002   | 0.05 | .09    | 2.3  | .180   | 4.57 | .384   | 9.75  |
| .003   | 0.08 | .093   | 2.36 | .195   | 4.95 | .619   | 12.75 |
| .005   | 0.13 | .110   | 2.79 | .234   | 5.97 | .766   | 19.46 |
| .010   | 0.25 | .117   | 2.97 | .242   | 6.15 | .769   | 19.53 |
| .016   | 0.41 | .118   | 3.00 | .250   | 6.35 | 1.238  | 31.45 |
| .02    | 0.5  | .125   | 3.18 | .260   | 6.60 | 1.655  | 42.04 |
| .020   | 0.51 | .143   | 3.63 | .31    | 7.87 | 1.806  | 44.97 |
| .062   | 1.57 | .151   | 3.84 | .365   | 9.27 | 2.290  | 58.17 |
| .075   | 1.91 | .16    | 4.1  | .383   | 9.73 | 2.728  | 59.29 |

Configurations H and Y - Suitable for all applications, except one-piece jackscrews.  
 Configurations P and 5 - For one-piece jackscrews (through hole construction).

Insert with 75 contacts

Insert designators H, P, Y, and 5

FIGURE 2. Insert arrangements - Continued.



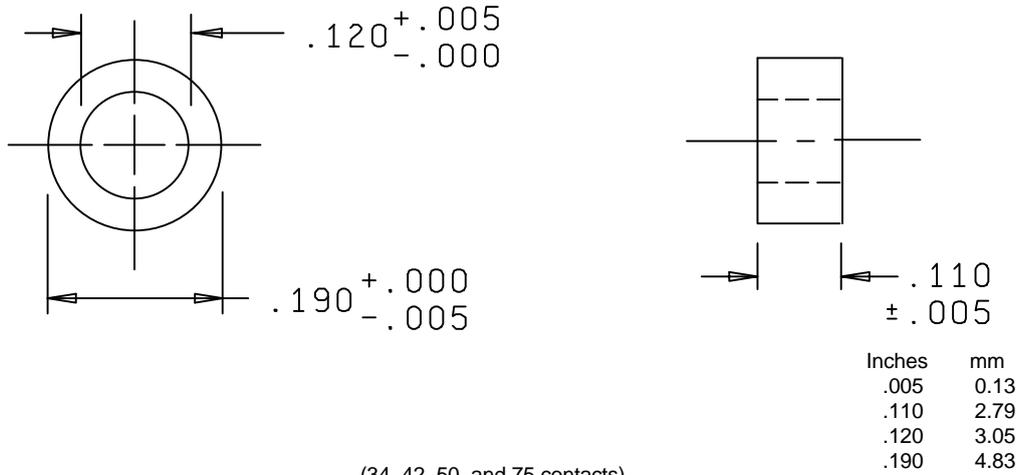
| Inches | mm   | Inches | mm   | Inches | mm    |
|--------|------|--------|------|--------|-------|
| .002   | 0.05 | .090   | 2.29 | .260   | 6.60  |
| .003   | 0.08 | .110   | 2.79 | .365   | 9.27  |
| .005   | 0.13 | .143   | 3.63 | .38    | 9.65  |
| .008   | 0.20 | .150   | 3.81 | .439   | 11.15 |
| .010   | 0.25 | .151   | 3.84 | .478   | 12.15 |
| .016   | 0.41 | .180   | 4.57 | .768   | 19.51 |
| .020   | 0.51 | .234   | 5.94 | 1.536  | 39.01 |
| .062   | 1.57 | .250   | 6.35 | 1.806  | 45.87 |
| .075   | 1.91 | .254   | 6.45 | 2.389  | 60.68 |
|        |      |        |      | 2.769  | 70.33 |

Configurations J and Z - Suitable for all applications, except one-piece jackscrews.  
 Configurations Q and 6 - For one-piece jackscrews (through hole construction).

Insert with 104 contacts

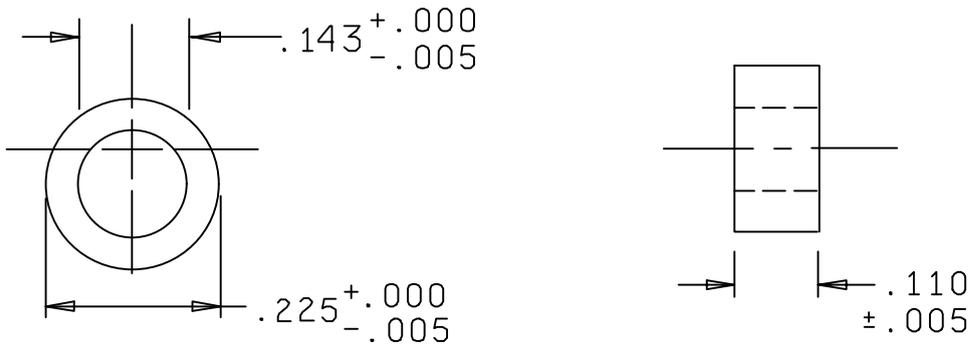
Insert designators J, Q, Z, and 6

FIGURE 2. Insert arrangements - Continued.



(34, 42, 50, and 75 contacts)

For use with inserts K, L, M, N, P (through hole).



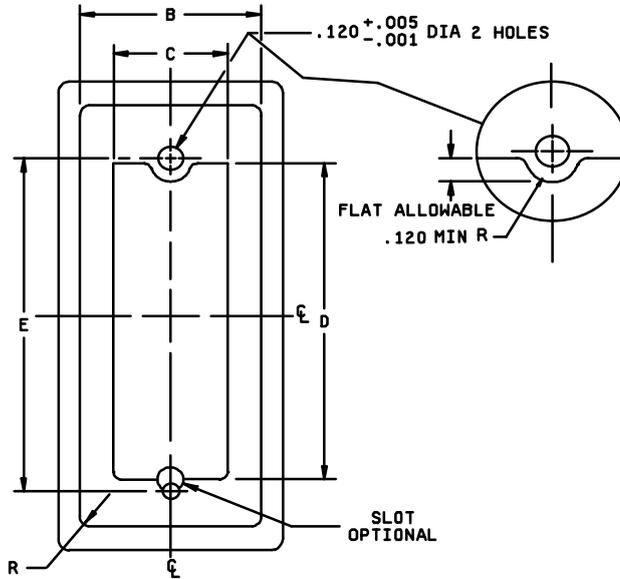
(104 contacts)

For use with Insert Q (through hole).

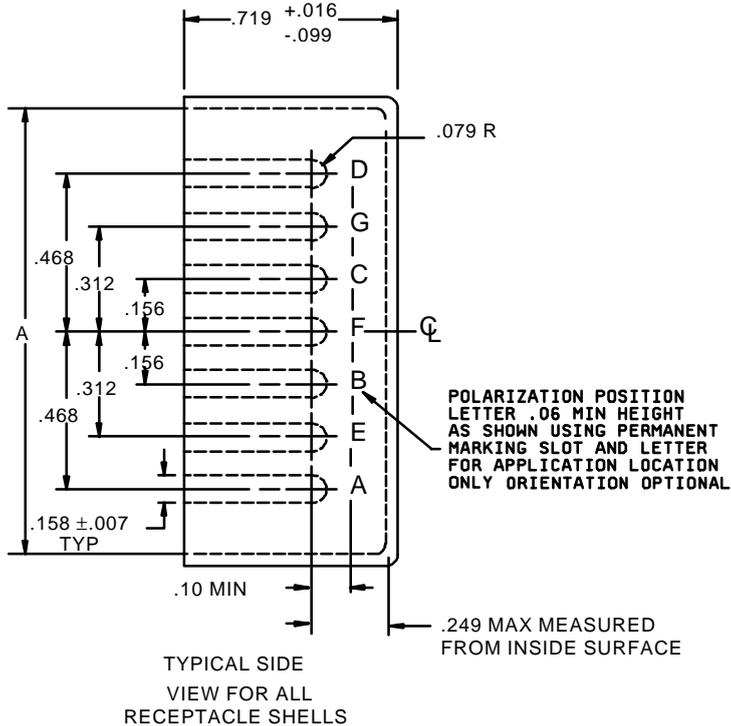
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm 0.02$  inch (0.51 mm) for two place decimals and  $\pm 0.015$  inch (0.38 mm) for three place decimals.
4. Tolerance between any two adjacent contact centers shall be  $\pm 0.004$  inch (0.10 mm). Tolerance between any two contact centers, other than adjacent contacts, shall be  $\pm 0.006$  inch (0.15 mm).
5. Contact identification may be located on either side of the contact hold but shall appear on the front and rear face of the contact insert.
6. Designed for use with MIL-DTL-28748 size 16 contacts.
7. Insert material shall be in accordance with MIL-DTL-28748.
8. Washer and self locking nut: Corrosion resistant steel, in accordance with QQ-S-763 or QQ-S-764, classes 302, 303, 303Se, 304, or 316.
9. Washer finish: Passivated in accordance with QQ-P-35 and self locking nut.

FIGURE 2. Insert arrangements - Continued.



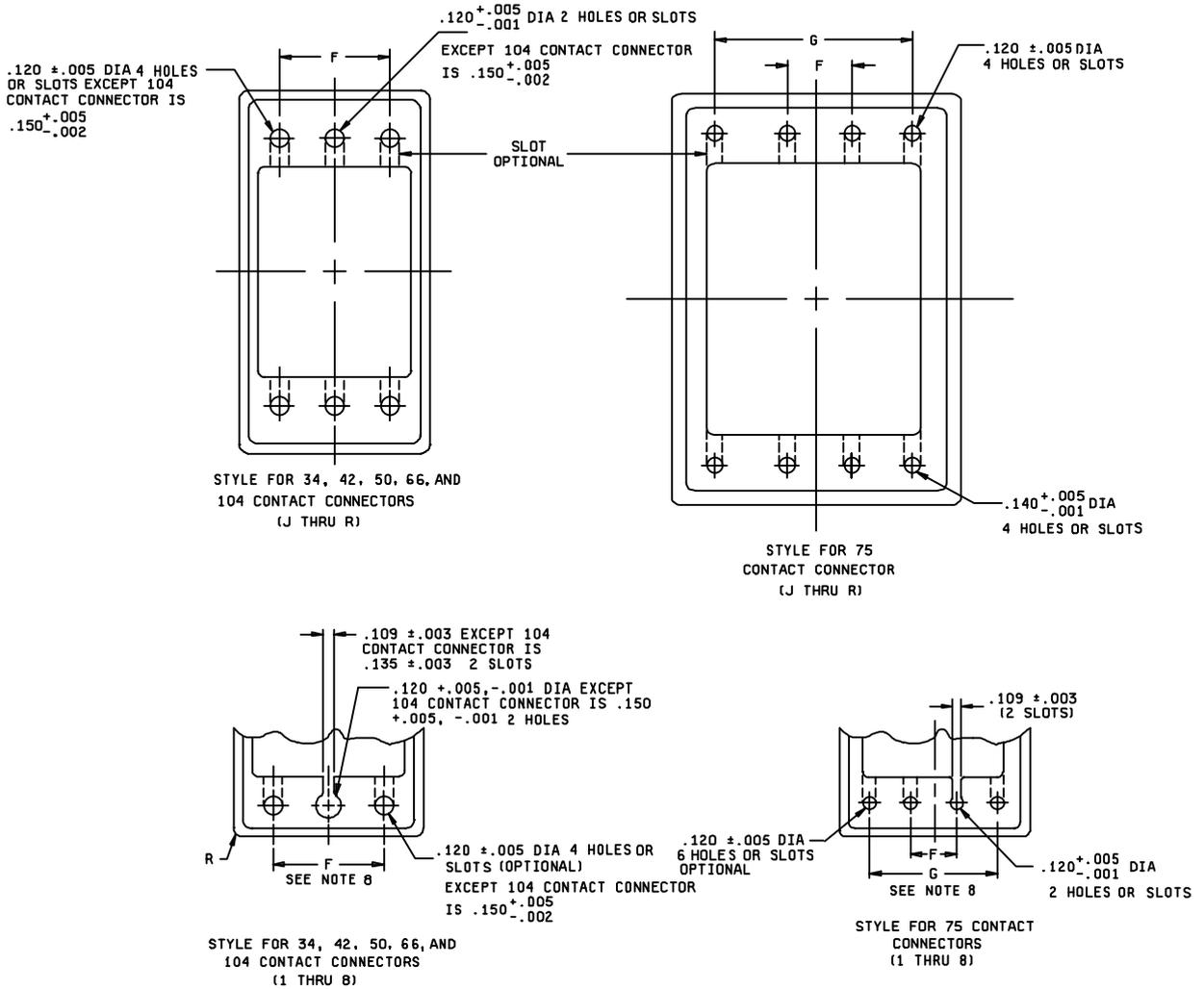
STYLE FOR 9, 14, AND 2D CONTACT CONNECTORS (J THRU R)



TYPICAL SIDE VIEW FOR ALL RECEPTACLE SHELLS

Receptacle shell polarizing

FIGURE 3. Shell configurations.



| Inches | mm   | Inches | mm    |
|--------|------|--------|-------|
| .001   | 0.03 | .120   | 3.05  |
| .002   | 0.05 | .125   | 3.18  |
| .003   | 0.08 | .135   | 3.43  |
| .005   | 0.13 | .140   | 3.56  |
| .007   | 0.18 | .150   | 3.81  |
| .016   | 0.41 | .156   | 3.96  |
| .021   | 0.53 | .158   | 4.01  |
| .062   | 1.57 | .234   | 5.94  |
| .063   | 1.60 | .249   | 6.32  |
| .070   | 1.78 | .312   | 7.92  |
| .079   | 2.01 | .452   | 11.48 |
| .099   | 2.51 | .468   | 11.89 |
| .10    | 2.54 | .719   | 18.26 |
| .109   | 2.77 | .936   | 23.77 |
| .116   | 2.95 |        |       |

Receptacle shell polarizing

FIGURE 3. Shell configurations - Continued.

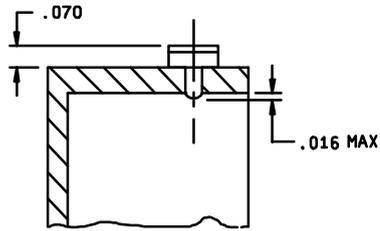
| Polarization designators | Connector size (number of contacts) | A min            | B min            | C min            | D min            | E ±.005 (0.13 mm) | F ±.005 (0.13 mm) | G ±.005 (0.13 mm) | R                 |
|--------------------------|-------------------------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|
| J thru R                 | 9                                   | 1.448<br>(36.78) | .512<br>(13.00)  | .375<br>(9.52)   | .864<br>(21.94)  | 1.000<br>(25.40)  | ---               |                   | .141<br>(3.58)    |
| J thru R                 | 14                                  | 1.388<br>(35.36) | .575<br>(14.60)  | .440<br>(11.18)  | .800<br>(20.32)  | .938<br>(23.82)   | ---               |                   | .141<br>(3.58)    |
| J thru R                 | 20                                  | 1.702<br>(43.23) | .575<br>(14.60)  | .440<br>(11.18)  | 1.097<br>(27.86) | 1.250<br>(31.75)  | ---               |                   | .141<br>(3.58)    |
| J thru R                 | 34                                  | 2.138<br>(54.30) | .888<br>(22.56)  | .745<br>(18.92)  | 1.400<br>(35.76) | 1.688<br>(42.88)  | .468<br>(11.89)   |                   | .141<br>(3.58)    |
| J thru R                 | 42                                  | 2.450<br>(62.23) | .888<br>(22.56)  | .745<br>(18.92)  | 1.700<br>(43.18) | 2.000<br>(50.80)  | .468<br>(11.89)   |                   | .141<br>(3.58)    |
| J thru R                 | 50                                  | 2.856<br>(72.54) | 1.015<br>(25.78) | .745<br>(18.92)  | 2.026<br>(51.46) | 2.281<br>(57.94)  | .468<br>(11.89)   |                   | .188 4/<br>(4.78) |
| J thru R                 | 66                                  | 2.420<br>(61.47) | 1.264<br>(32.11) | 1.115<br>(28.32) | 1.696<br>(43.08) | 1.969<br>(50.01)  | .500<br>(12.70)   |                   | .375<br>(9.52)    |
| J thru R                 | 75                                  | 2.855<br>(72.52) | 1.370<br>(34.80) | 1.104<br>(28.04) | 2.026<br>(51.46) | 2.281<br>(57.94)  | .234<br>(5.94)    | .766<br>(19.46)   | .203<br>(5.16)    |
| J thru R                 | 104                                 | 2.900<br>(73.66) | 1.680<br>(42.67) | 1.476<br>(37.49) | 2.073<br>(52.65) | 2.375<br>(60.32)  | .875<br>(22.22)   |                   | .422<br>(10.72)   |
| 1 thru 8<br>(see note 8) | 34                                  | 2.138<br>(54.30) | .888<br>(22.56)  | .745<br>(18.92)  | 1.400<br>(35.56) | 1.688<br>(42.88)  | .468<br>(11.89)   |                   | .141<br>(3.58)    |
| 1 thru 8<br>(see note 8) | 42                                  | 2.450<br>(62.23) | .888<br>(22.56)  | .745<br>(18.92)  | 1.700<br>(43.18) | 2.000<br>(50.80)  | .468<br>(11.89)   |                   | .141<br>(3.58)    |
| 1 thru 8<br>(see note 8) | 50                                  | 2.856<br>(72.54) | 1.015<br>(25.78) | .745<br>(18.92)  | 2.026<br>(51.46) | 2.281<br>(57.94)  | .468<br>(11.89)   |                   | .188 4/<br>(4.78) |
| 1 thru 8<br>(see note 8) | 66                                  | 2.420<br>(61.47) | 1.264<br>(32.10) | 1.115<br>(28.32) | 1.696<br>(43.08) | 1.969<br>(50.01)  | .500<br>(12.70)   |                   | .375<br>(9.52)    |
| 1 thru 8<br>(see note 8) | 75                                  | 2.855<br>(72.52) | 1.370<br>(34.80) | 1.104<br>(28.04) | 2.026<br>(51.46) | 2.281<br>(57.94)  | .234<br>(5.94)    | .766<br>(19.46)   | .203<br>(5.16)    |
| 1 thru 8<br>(see note 8) | 104                                 | 2.900<br>(73.66) | 1.680<br>(42.67) | 1.476<br>(37.49) | 2.073<br>(52.65) | 2.375<br>(60.32)  | .875<br>(22.22)   |                   | .422<br>(10.72)   |

## NOTES:

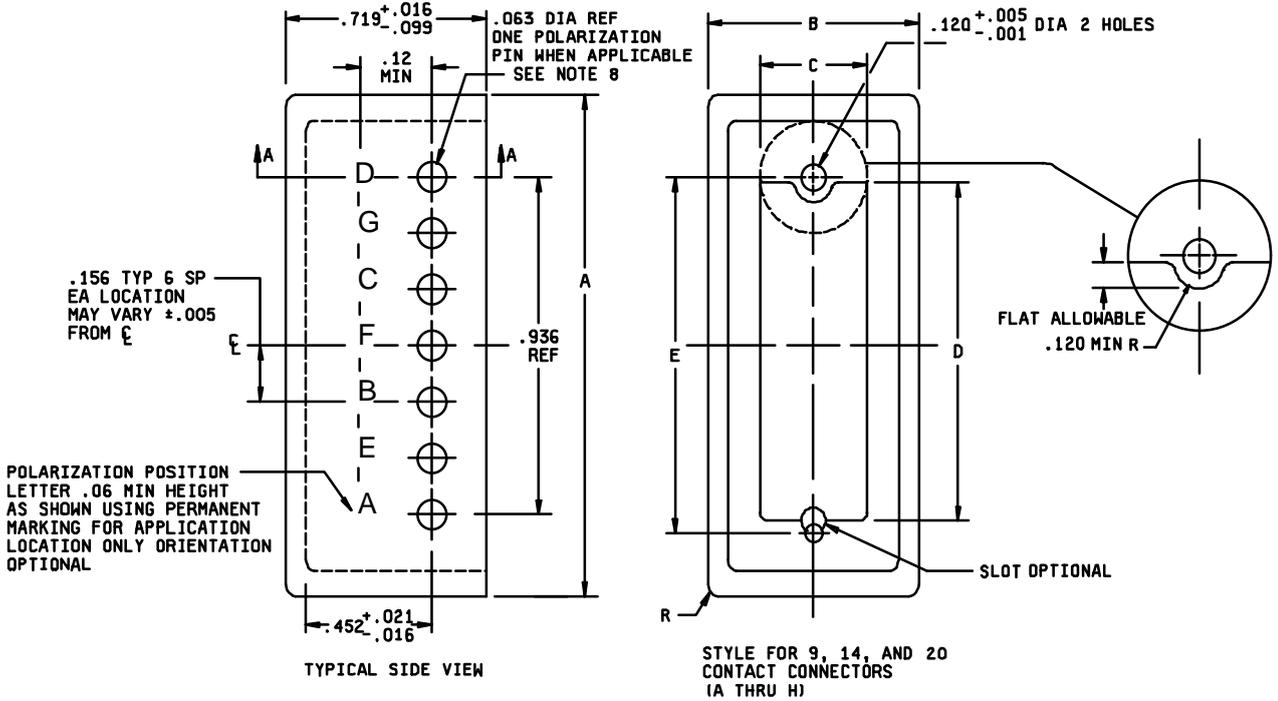
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.016 inch (0.41 mm).
4. Tolerance +.020 inch (0.51 mm) -.016 inch (0.41 mm).
5. Material aluminum alloy in accordance with specification QQ-A-250/8, temper H32 .040 inch (1.02 mm) thick.
6. Finish anodize in accordance with MIL-A-8625, type I or type II.
7. Each slot may vary ±.005 inch (0.13 mm) from centerline.
8. Receptacle shell designators 1, 2, 3, 4, 5, 6, 7, and 8 are not used with one-piece jackscrew shield designators 3, 4, 9, A, D, and E.

Receptacle shell polarizing

FIGURE 3. Shell configurations - Continued.



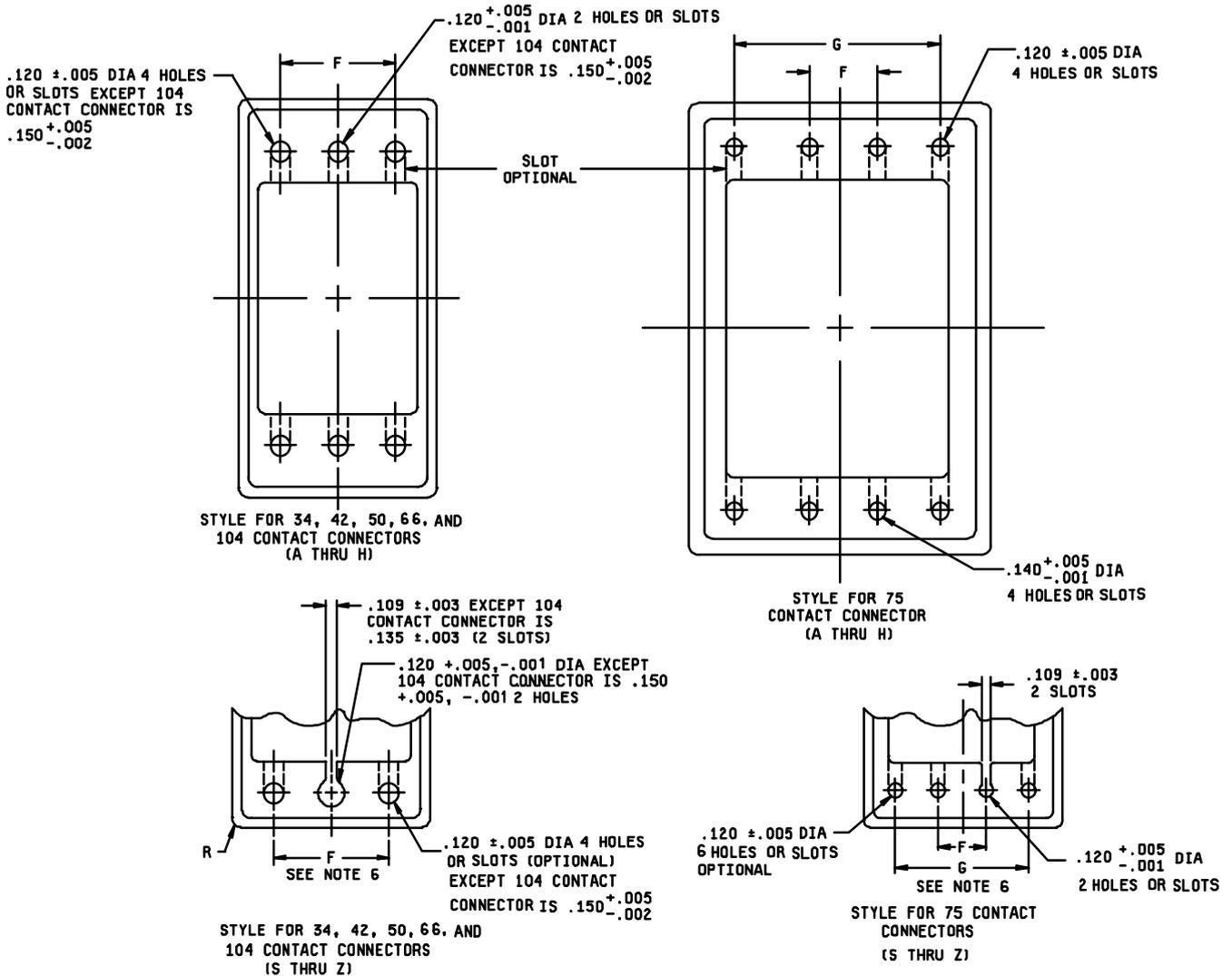
SECTION A-A



| Inches | mm   | Inches | mm    |
|--------|------|--------|-------|
| .001   | 0.03 | .099   | 2.51  |
| .005   | 0.13 | .116   | 2.95  |
| .016   | 0.41 | .120   | 3.05  |
| .021   | 0.53 | .156   | 3.96  |
| .06    | 1.52 | .452   | 11.48 |
| .070   | 1.78 | .719   | 18.26 |

Plug shell polarizing

FIGURE 3. Shell configurations - Continued.



| Inches | mm   | Inches | mm    |
|--------|------|--------|-------|
| .001   | 0.03 | .116   | 2.95  |
| .002   | 0.05 | .120   | 3.05  |
| .003   | 0.08 | .125   | 3.18  |
| .005   | 0.13 | .135   | 3.43  |
| .016   | 0.41 | .140   | 3.56  |
| .021   | 0.53 | .150   | 3.81  |
| .062   | 1.57 | .156   | 3.96  |
| .063   | 1.60 | .234   | 5.94  |
| .070   | 1.78 | .452   | 11.48 |
| .099   | 2.51 | .719   | 18.26 |
| .109   | 2.77 | .936   | 23.77 |

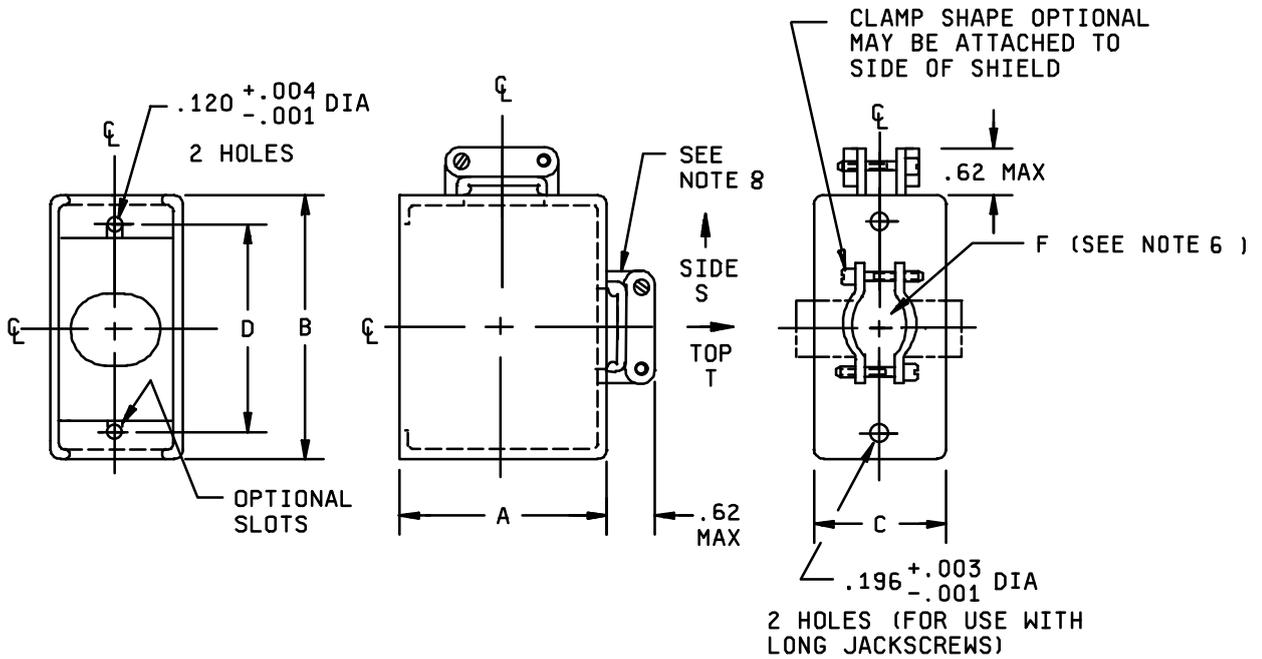
FIGURE 3. Shell configurations - Continued.

| Shell suffix designator  | Connector size (number of contacts) | A max            | B max            | C min            | D min            | E ±.005 (0.13 mm) | F ±.005 (0.13 mm) | G ±.005 (0.13 mm) | R               |
|--------------------------|-------------------------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|-----------------|
| A thru H                 | 9                                   | 1.440<br>(36.58) | .500<br>(12.70)  | .375<br>(9.52)   | .864<br>(21.94)  | 1.000<br>(25.40)  | ---               |                   | .141<br>(3.58)  |
| A thru H                 | 14                                  | 1.380<br>(35.05) | .567<br>(14.40)  | .440<br>(11.18)  | .800<br>(20.32)  | .938<br>(23.82)   | ---               |                   | .141<br>(3.58)  |
| A thru H                 | 20                                  | 1.700<br>(43.18) | .567<br>(14.40)  | .440<br>(11.18)  | 1.097<br>(27.86) | 1.250<br>(31.75)  | ---               |                   | .141<br>(3.58)  |
| A thru H                 | 34                                  | 2.130<br>(54.10) | .880<br>(22.35)  | .745<br>(18.92)  | 1.400<br>(35.76) | 1.688<br>(42.88)  | .468<br>(11.89)   |                   | .141<br>(3.58)  |
| A thru H                 | 42                                  | 2.442<br>(62.03) | .880<br>(22.35)  | .745<br>(18.92)  | 1.700<br>(43.18) | 2.000<br>(50.80)  | .468<br>(11.89)   |                   | .141<br>(3.58)  |
| A thru H                 | 50                                  | 2.846<br>(72.39) | 1.005<br>(25.53) | .745<br>(18.92)  | 2.026<br>(51.46) | 2.281<br>(57.94)  | .468<br>(11.89)   |                   | .188<br>(4.78)  |
| A thru H                 | 66                                  | 2.410<br>(61.21) | 1.254<br>(31.85) | 1.115<br>(28.32) | 1.696<br>(43.08) | 1.969<br>(50.01)  | .500<br>(12.70)   |                   | .375<br>(9.52)  |
| A thru H                 | 75                                  | 2.850<br>(72.39) | 1.365<br>(34.67) | 1.104<br>(28.04) | 2.026<br>(51.46) | 2.281<br>(57.94)  | .234<br>(5.94)    | .766<br>(19.46)   | .187<br>(4.75)  |
| A thru H                 | 104                                 | 2.890<br>(73.41) | 1.670<br>(42.42) | 1.476<br>(37.49) | 2.073<br>(52.65) | 2.375<br>(60.32)  | .875<br>(22.22)   |                   | .422<br>(10.72) |
| S thru Z<br>(see note 6) | 34                                  | 2.130<br>(54.10) | .880<br>(22.35)  | .745<br>(18.92)  | 1.400<br>(35.56) | 1.688<br>(42.88)  | .468<br>(11.89)   |                   | .141<br>(3.58)  |
| S thru Z<br>(see note 6) | 42                                  | 2.442<br>(62.03) | .880<br>(22.35)  | .745<br>(18.92)  | 1.700<br>(43.18) | 2.000<br>(50.80)  | .468<br>(11.89)   |                   | .141<br>(3.58)  |
| S thru Z<br>(see note 6) | 50                                  | 2.846<br>(72.29) | 1.005<br>(25.53) | .745<br>(18.92)  | 2.026<br>(51.46) | 2.281<br>(57.94)  | .468<br>(11.89)   |                   | .188<br>(4.78)  |
| S thru Z<br>(see note 6) | 66                                  | 2.410<br>(61.21) | 1.254<br>(31.85) | 1.115<br>(28.32) | 1.696<br>(43.08) | 1.969<br>(50.01)  | .500<br>(12.70)   |                   | .375<br>(9.52)  |
| S thru Z<br>(see note 6) | 75                                  | 2.850<br>(72.39) | 1.365<br>(34.67) | 1.104<br>(28.04) | 2.026<br>(51.46) | 2.281<br>(57.94)  | .234<br>(5.94)    | .766<br>(19.46)   | .187<br>(4.75)  |
| S thru Z<br>(see note 6) | 104                                 | 2.890<br>(73.41) | 1.670<br>(42.42) | 1.476<br>(37.49) | 2.073<br>(52.65) | 2.375<br>(60.32)  | .875<br>(22.22)   |                   | .422<br>(10.72) |

## NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.016 inch (0.41 mm).
4. Material aluminum alloy in accordance with QQ-A-250/8, temper H32 .040 inch (1.02 mm) thick.
5. Finish anodize in accordance with MIL-A-8625, type I or type II.
6. Plug shell designators S, T, U, V, W, X, Y, and Z are not used with one-piece jackscrew shield designators 3,4, 9, A, D, and E.
7. One polarization pin is used when applicable.

FIGURE 3. Shell configurations - Continued.



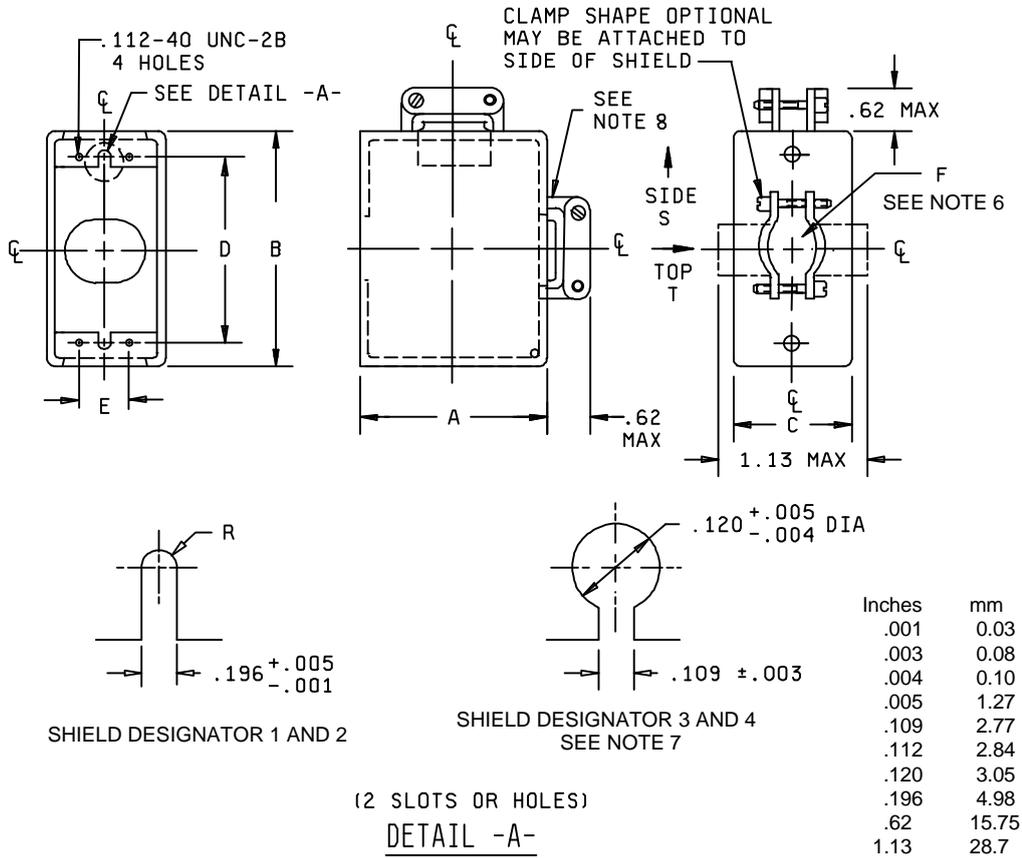
| Inches | mm    |
|--------|-------|
| .001   | 0.03  |
| .003   | 0.08  |
| .004   | 0.10  |
| .120   | 3.05  |
| .196   | 4.98  |
| .62    | 15.75 |

Configurations 1 and 2 are used with shell for "L" hardware and can be used with or without shell for "M" hardware. Configurations 3 and 4 are used without shell.

| Shield clamp location suffix designator | Connector size (no. of contacts) | A min max    | B $\pm$ .016 (0.41 mm) | C $\pm$ .016 (0.41 mm) | D $\pm$ .005 (0.13 mm) | F Min. Cable opening sq. inch |
|---|----------------------------------|--------------|------------------------|------------------------|------------------------|-------------------------------|
| 1 - top opening                         | 9                                | 1.18 (29.97) | 1.312 (33.32)          | .437 (11.10)           | 1.000 (25.40)          | .10 (2.54)                    |
| 2 - side opening                        |                                  | 1.35 (34.29) |                        |                        |                        |                               |
| 1 - top opening                         | 14                               | 1.18 (29.97) | 1.250 (31.75)          | .500 (12.70)           | .938 (23.83)           | .19 (4.83)                    |
| 2 - side opening                        |                                  | 1.35 (34.29) |                        |                        |                        |                               |
| 1 - top opening                         | 20                               | 1.18 (29.97) | 1.562 (39.67)          | .500 (12.70)           | 1.250 (31.75)          | .22 (5.59)                    |
| 2 - side opening                        |                                  | 1.35 (34.29) |                        |                        |                        |                               |

See notes at end of figure.

FIGURE 4. Shield.



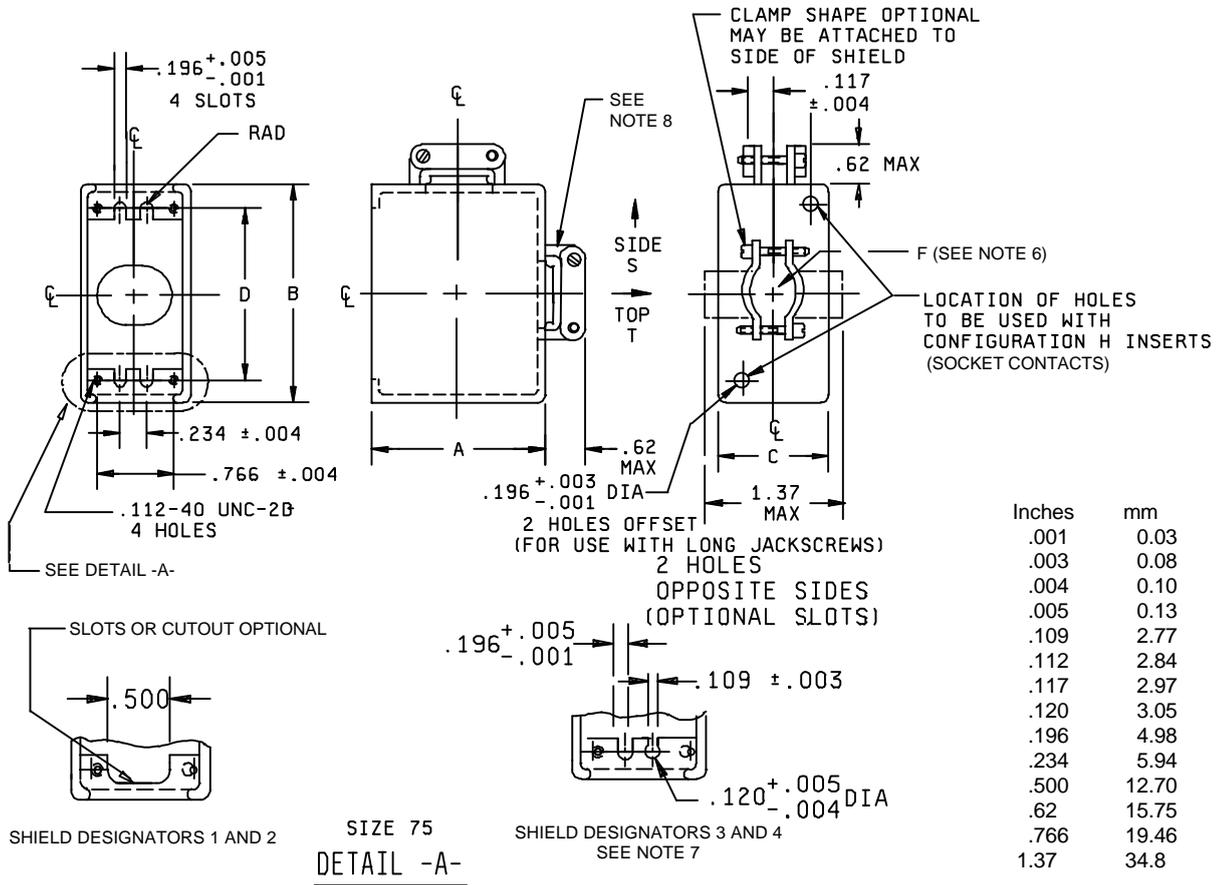
(2 SLOTS OR HOLES)

DETAIL -A-

Configurations 1 and 2 are used with shell for "L" hardware and can be used with or without shell for "M" hardware. Configurations 3 and 4 are used without shell.

| Shield clamp location suffix designator | Connector size (no. of contacts) | A min max    | B ± .016 (0.41 mm) | C ± .016 (0.41 mm) | D ± .005 (0.13 mm) | E ± .010 (0.25) | F Min. Cable opening sq. inch |
|---|----------------------------------|--------------|--------------------|--------------------|--------------------|-----------------|-------------------------------|
| 1 - top opening                         | 34                               | 1.22 (30.99) | 2.000              | .828               | 1.688              | .468            | .34                           |
| 2 - side opening                        |                                  | 1.35 (34.29) | (50.80)            | (21.03)            | (42.88)            | (11.89)         | (8.64)                        |
| 1 - top opening                         | 42                               | 1.22 (30.99) | 2.312              | .828               | 2.000              | .468            | .34                           |
| 2 - side opening                        |                                  | 1.35 (34.29) | (58.72)            | (21.03)            | (50.80)            | (11.89)         | (8.64)                        |
| 1 - top opening                         | 50                               | 1.22 (30.99) | 2.594              | .828               | 2.282              | .468            | .34                           |
| 2 - side opening                        |                                  | 1.35 (34.29) | (65.89)            | (21.03)            | (57.96)            | (11.89)         | (8.64)                        |
| 3 - top opening (see note 9)            | 34                               | 1.22 (30.99) | 2.000              | .828               | 1.688              | .468            | .34                           |
| 4 - side opening                        |                                  | 1.35 (34.29) | (50.80)            | (21.03)            | (42.88)            | (11.89)         | (8.64)                        |
| 3 - top opening (see note 9)            | 42                               | 1.22 (30.99) | 2.312              | .828               | 2.000              | .468            | .34                           |
| 4 - side opening                        |                                  | 1.35 (34.29) | (58.72)            | (21.03)            | (50.80)            | (11.89)         | (8.64)                        |
| 3 - top opening (see note 9)            | 50                               | 1.22 (30.99) | 2.594              | .828               | 2.282              | .468            | .34                           |
| 4 - side opening                        |                                  | 1.55 (39.37) | (65.89)            | (21.03)            | (57.96)            | (11.89)         | (8.64)                        |

FIGURE 4. Shield - Continued.



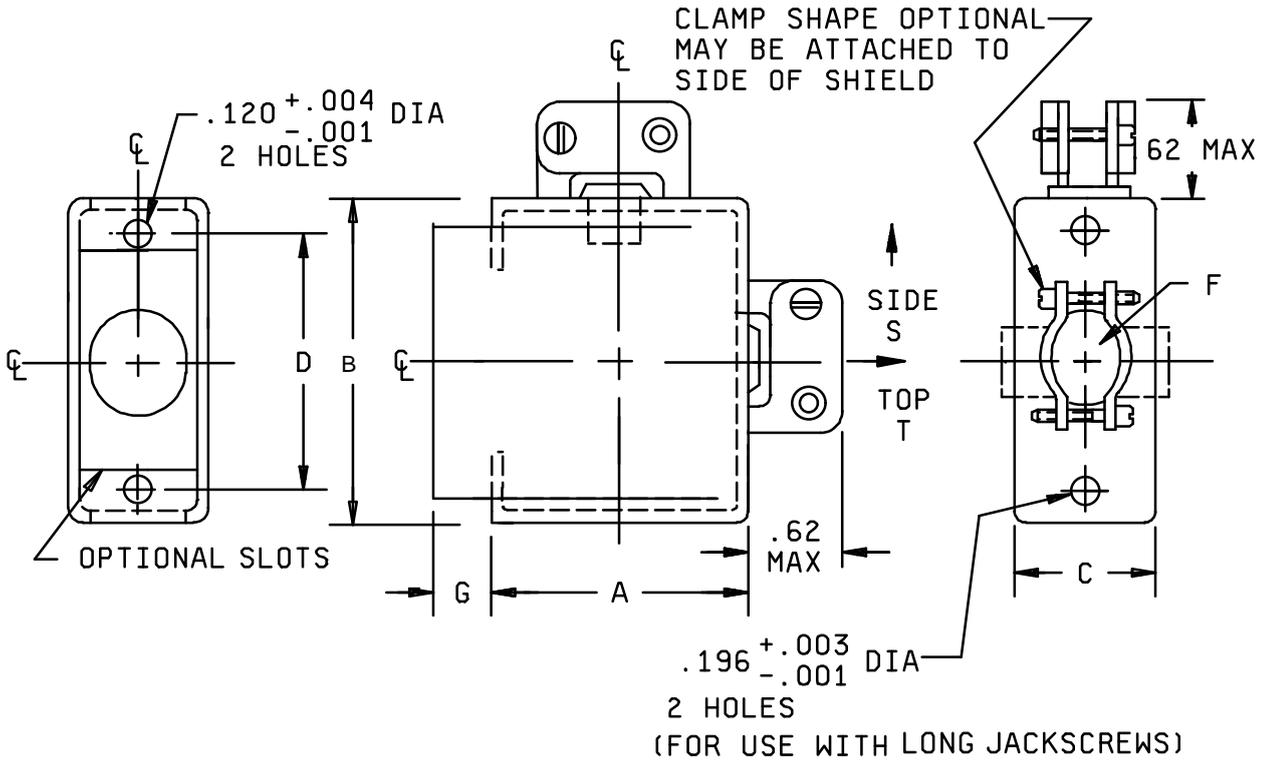
Configurations 1 and 2 are used with shell for "L" hardware and can be used with or without shell for "M" hardware. Configurations 3 and 4 are used without shell.

| Shield clamp location suffix designator | Connector size (no. of contacts) | A min max    | B ± .016 (0.41 mm) | C ± .016 (0.41 mm) | D ±.005 (0.13 mm) | F Min. Cable opening sq. inch |
|---|----------------------------------|--------------|--------------------|--------------------|-------------------|-------------------------------|
| 1 - top opening                         | 75                               | 1.22 (30.99) | 2.594 (65.89)      | 1.188 (65.89)      | 2.282 (57.96)     | .55 (13.97)                   |
| 2 - side opening                        | Socket only                      | 1.35 (34.29) | 2.594 (65.89)      | 1.188 (65.89)      | 2.282 (57.96)     | .55 (13.97)                   |
| 3 - top opening                         | 75                               | 1.22 (30.99) | 2.594 (65.89)      | 1.188 (65.89)      | 2.282 (57.96)     | .55 (13.97)                   |
| 4 - side opening (see note 7)           | Socket only                      | 1.35 (34.29) | 2.594 (65.89)      | 1.188 (65.89)      | 2.282 (57.96)     | .55 (13.97)                   |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.016 inch (0.41 mm).
4. Material aluminum alloy in accordance with QQ-A-250/8, temper H32 .040 inch (1.02 mm) thick.
5. Finish anodize in accordance with MIL-A-8625, type I or type II.
6. Edges of cable entry hole to be rounded to prevent insulation chafing.
7. Shield and shield clamp location PIN designators, "3 and 4", are for use with one-piece jackscrews.
8. Clamp hinge may attach to side of shield.

FIGURE 4. Shield - Continued.



| Inches | mm    |
|--------|-------|
| .001   | 0.03  |
| .003   | 0.08  |
| .004   | 0.10  |
| .120   | 3.05  |
| .196   | 4.98  |
| .62    | 15.75 |

For use when no shell is specified.

FIGURE 4. Shield - Continued.

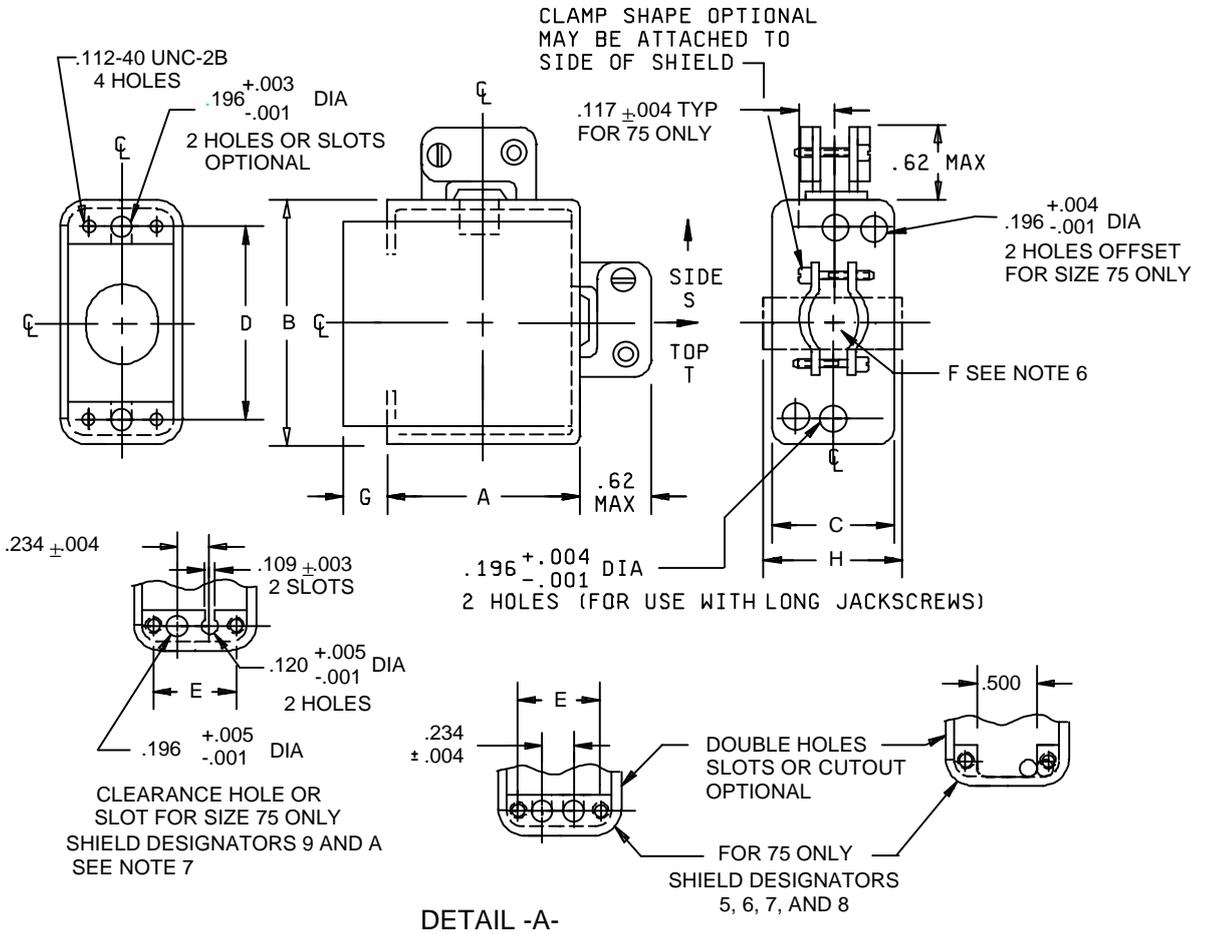
For use when no shell is specified.

| Shield clamp location suffix designator | Connector size (no. of contacts) | A min max                    | B $\pm .016$ (0.41 mm) | C $\pm .016$ (0.41 mm) | D $\pm .005$ (0.13 mm) | F Min. Cable opening sq. inch | G $\pm .047$ (1.19 mm) |
|---|----------------------------------|------------------------------|------------------------|------------------------|------------------------|-------------------------------|------------------------|
| 5 - top opening<br>6 - side opening     | 7                                | 1.18 (29.97)<br>1.35 (34.29) | 1.218<br>(30.94)       | .437<br>(11.10)        | .906<br>(23.01)        | .07<br>(1.78)                 | .265<br>(6.73)         |
| 5 - top opening<br>6 - side opening     | 9                                | 1.18 (29.97)<br>1.35 (34.29) | 1.312<br>(33.32)       | .437<br>(11.10)        | 1.000<br>(25.40)       | .16<br>(4.06)                 | .265<br>(6.73)         |
| 5 - top opening<br>6 - side opening     | 14                               | 1.18 (29.97)<br>1.35 (34.29) | 1.250<br>(31.75)       | .500<br>(12.70)        | .937<br>(23.80)        | .19<br>(4.83)                 | .265<br>(6.73)         |
| 5 - top opening<br>6 - side opening     | 20                               | 1.18 (29.97)<br>1.35 (34.29) | 1.562<br>(39.67)       | .500<br>(12.70)        | 1.250<br>(31.75)       | .22<br>(5.59)                 | .265<br>(6.73)         |
| 5 - top opening<br>6 - side opening     | 26                               | 1.18 (29.97)<br>1.35 (34.29) | 1.625<br>(41.28)       | .634<br>(16.10)        | 1.312<br>(33.32)       | .26<br>(6.60)                 | .265<br>(6.73)         |

The following PINs are the same as those listed above except the two .120 inch (3.05 mm) through holes for mounting the insert are threaded and the two .196 inch (4.98 mm) holes are omitted. **THESE PARTS ARE NOT RECOMMENDED FOR NEW DESIGN**

| Shield clamp location suffix designator | Connector size (no. of contacts) | Thread size |
|---|----------------------------------|-------------|
| 7 - top opening<br>8 - side opening     | 7                                | 4-40 UNC-2B |
| 7 - top opening<br>8 - side opening     | 9                                | 4-40 UNC-2B |
| 7 - top opening<br>8 - side opening     | 14                               | 4-40 UNC-2B |
| 7 - top opening<br>8 - side opening     | 20                               | 4-40 UNC-2B |
| 7 - top opening<br>8 - side opening     | 26                               | 4-40 UNC-2B |

For use when no shell is specified.FIGURE 4. Shield - Continued.



| Inches | mm    |
|--------|-------|
| .001   | 0.03  |
| .003   | 0.08  |
| .004   | 0.10  |
| .005   | 0.13  |
| .109   | 2.77  |
| .112   | 2.84  |
| .117   | 2.97  |
| .120   | 3.05  |
| .196   | 4.98  |
| .234   | 5.94  |
| .500   | 12.70 |
| .62    | 15.70 |

For use when no shell is specified.

FIGURE 4. Shield - Continued.

| Shield clamp location suffix designator | Connector size (no. of contacts) | A min max                    | B $\pm .016$ (0.41 mm) | C $\pm .016$ (0.41 mm) | D $\pm .005$ (0.13 mm) | E $\pm .005$    | F Min. Cable opening sq. inch | G $\pm .047$ (1.19 mm) |
|---|----------------------------------|------------------------------|------------------------|------------------------|------------------------|-----------------|-------------------------------|------------------------|
| 5 - top opening<br>6 - side opening     | 34                               | 1.22 (30.99)<br>1.35 (34.29) | 2.000<br>(50.80)       | .828<br>(21.03)        | 1.168<br>(29.67)       | .468<br>(11.89) | .34<br>(8.64)                 | .265<br>(6.73)         |
| 5 - top opening<br>6 - side opening     | 42                               | 1.22 (30.99)<br>1.35 (34.29) | 2.312<br>(58.72)       | .828<br>(21.03)        | 2.000<br>(50.80)       | .468<br>(11.89) | .34<br>(8.64)                 | .265<br>(6.73)         |
| 5 - top opening<br>6 - side opening     | 50                               | 1.22 (30.99)<br>1.35 (34.29) | 2.594<br>(65.89)       | .828<br>(21.03)        | 2.282<br>(57.96)       | .468<br>(11.89) | .34<br>(8.64)                 | .093<br>(2.36)         |
| 5 - top opening<br>6 - side opening     | 75                               | 1.22 (30.99)<br>1.35 (34.29) | 2.594<br>(65.89)       | 1.188<br>(30.18)       | 2.282<br>(57.96)       | .766<br>(19.46) | .55<br>(13.97)                | .093<br>(2.36)         |

The following PIN's are the same as those listed above except the two .196 inch (4.98 mm) thru holes for mounting the insert are threaded and the two .196 inch (4.98 mm) holes are omitted. **THESE PARTS ARE NOT RECOMMENDED FOR NEW DESIGN.**

| Shield clamp location suffix designator | Connector size (no. of contacts) | Thread size    |
|---|----------------------------------|----------------|
| 7 - top opening<br>8 - side opening     | 34                               | .112-40 UNC-2B |
| 7 - top opening<br>8 - side opening     | 42                               | .112-40 UNC-2B |
| 7 - top opening<br>8 - side opening     | 50                               | .112-40 UNC-2B |
| 7 - top opening<br>8 - side opening     | 75                               | .112-40 UNC-2B |

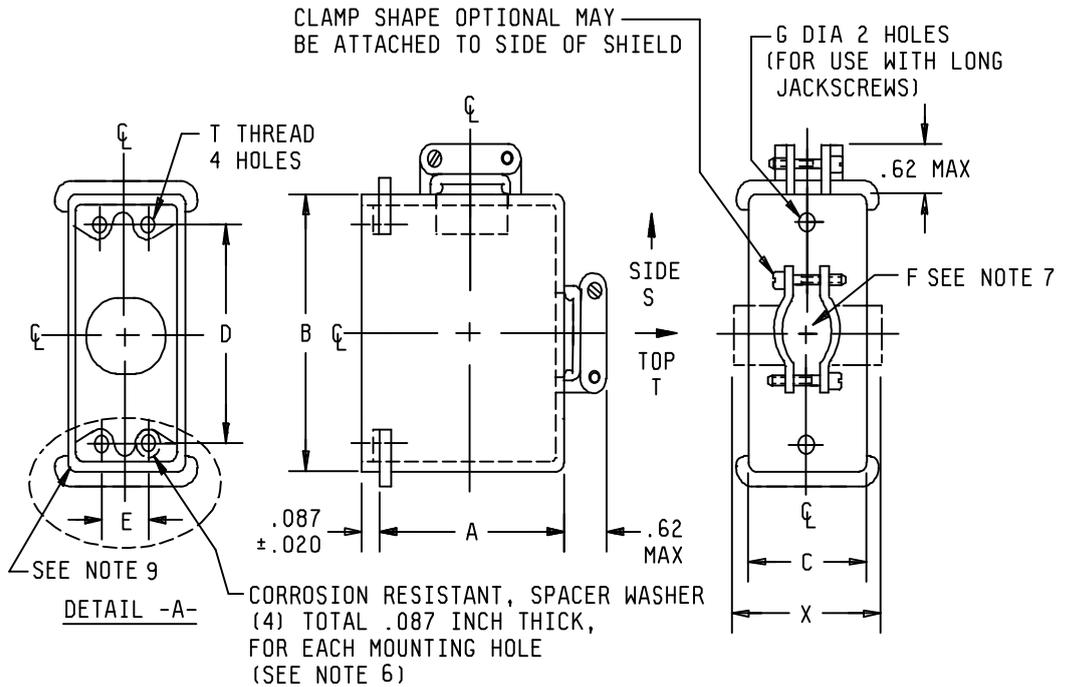
For use with one-piece jackscrews and not used with shells.

| Shield clamp location suffix designator (see note 7) | Connector size (no. of contacts) | A min max                    | B $\pm .016$ (0.41 mm) | C $\pm .016$ (0.41 mm) | D $\pm .005$ (0.13 mm) | E $\pm .005$    | F Min. Cable opening sq. inch | G $\pm .047$ (1.19 mm) |
|--|----------------------------------|------------------------------|------------------------|------------------------|------------------------|-----------------|-------------------------------|------------------------|
| 9 - top opening<br>A - side opening                  | 34                               | 1.22 (30.99)<br>1.35 (34.29) | 2.000<br>(50.80)       | .828<br>(21.03)        | 1.168<br>(29.67)       | .468<br>(11.89) | .34<br>(8.64)                 | .265<br>(6.73)         |
| 9 - top opening<br>A - side opening                  | 42                               | 1.22 (30.99)<br>1.35 (34.29) | 2.312<br>(58.72)       | .828<br>(21.03)        | 2.000<br>(50.80)       | .468<br>(11.89) | .34<br>(8.64)                 | .265<br>(6.73)         |
| 9 - top opening<br>A - side opening                  | 50                               | 1.22 (30.99)<br>1.35 (34.29) | 2.594<br>(65.89)       | .828<br>(21.03)        | 2.282<br>(57.96)       | .468<br>(11.89) | .34<br>(8.64)                 | .093<br>(2.36)         |
| 9 - top opening<br>A - side opening                  | 75                               | 1.22 (30.99)<br>1.35 (34.29) | 2.594<br>(65.89)       | 1.188<br>(30.18)       | 2.282<br>(57.96)       | .766<br>(19.46) | .55<br>(13.97)                | .093<br>(2.36)         |

NOTES:

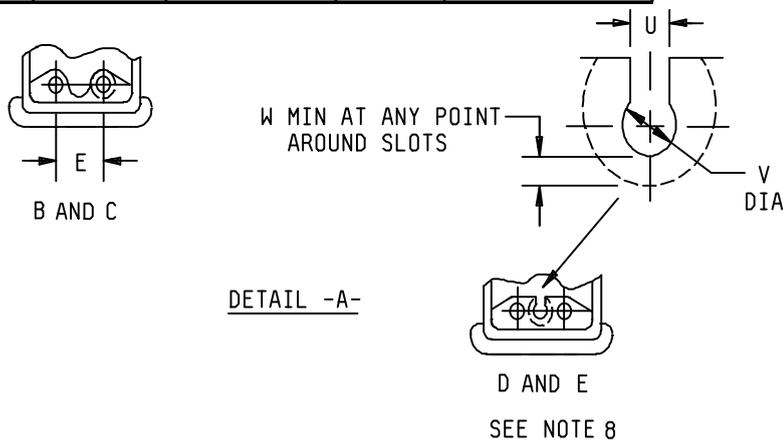
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm .16$  inch (0.41 mm).
4. Material aluminum alloy in accordance with QQ-A-250/8, temper H32 .040 inch (1.02 mm) thick.
5. Finish anodize in accordance with MIL-A-8625, type I or type II.
6. Edges of cable entry hole to be rounded to prevent insulation chafing.
7. For use with one-piece jackscrews and are not used with shells.

FIGURE 4. Shield - Continued.



| Shield and shield clamp location (see note 8) | U<br>±.003<br>(0.08 mm) | V<br>+.005<br>(0.13 mm)<br>-.001<br>(0.03 mm) | W<br>Min | Connector size<br>(no. of contacts) |
|---|-------------------------|---|----------|-------------------------------------|
| D - top opening                               | .109                    | .120  | .062     | 66                                  |
| E - side opening                              | (2.77)                  | (3.05)  | (1.57)   |                                     |
| D - top opening                               | .133                    | .150  | .110     | 104                                 |
| E - side opening                              | (3.38)                  | (3.81)  | (2.79)   |                                     |

| Inches | mm    |
|--------|-------|
| .001   | 0.03  |
| .003   | 0.08  |
| .004   | 0.10  |
| .020   | 0.51  |
| .087   | 2.21  |
| .120   | 3.05  |
| .196   | 4.98  |
| .62    | 15.75 |



Use with or without shells.

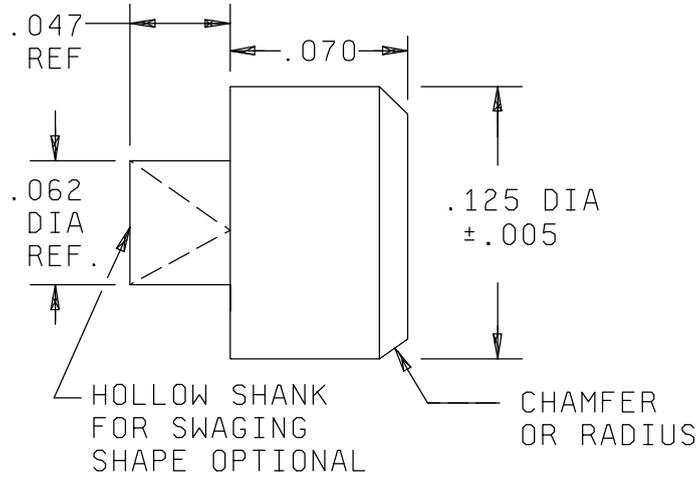
FIGURE 4. Shield - Continued.

| Shield clamp location<br>suffix designator       | Connector<br>size<br>(no. of<br>contacts) | A<br>±.03<br>(0.76 mm) | B<br>±.016<br>(0.41 mm) | C<br>±.016<br>(0.41 mm) | D<br>±.005<br>(0.13 mm) | E<br>±.005<br>(0.13 mm) | F<br>Min. Cable<br>opening sq.<br>inch | G<br>+.003<br>(0.08 mm)<br>-.001<br>(0.03 mm) | T<br>thread       | X<br>max        |
|--|---|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--|---|-------------------|-----------------|
| B - top opening<br>C - side opening              | 66  | 1.17<br>(29.72)        | 2.366<br>(60.10)        | 1.211<br>(30.76)        | 1.969<br>(50.01)        | .500<br>(12.70)         | .55<br>(13.97)                         | .196<br>(4.98)                                | .112-40<br>UNC-2B | 1.37<br>(34.80) |
| B - top opening<br>C - side opening              | 104                                       | 2.23<br>(56.64)        | 2.835<br>(72.01)        | 1.625<br>(41.28)        | 2.375<br>(60.33)        | .875<br>(22.23)         | 1.10<br>(27.94)                        | .229<br>(5.82)                                | .138-32<br>UNC-2B | 1.88<br>(47.75) |
| D - top opening (see note 8)<br>E - side opening | 66  | 1.17<br>(29.72)        | 2.366<br>(60.10)        | 1.211<br>(30.76)        | 1.969<br>(50.01)        | .500<br>(12.70)         | .55<br>(13.97)                         | .196<br>(4.98)                                | .112-40<br>UNC-2B | 1.37<br>(34.80) |
| D - top opening (see note 8)<br>E - side opening | 104                                       | 2.23<br>(56.64)        | 2.835<br>(72.01)        | 1.625<br>(41.28)        | 2.375<br>(60.33)        | .875<br>(22.23)         | 1.10<br>(27.94)                        | .229<br>(5.82)                                | .138-32<br>UNC-2B | 1.88<br>(47.75) |

## NOTES:

- Dimensions are in inches.
- Metric equivalents are given for general information only.
- Unless otherwise specified, tolerances are ±.016 inch (0.41 mm).
- Material aluminum alloy in accordance with QQ-A-250/8, temper H32 .040 inch (1.02 mm) thick.
- Finish anodize in accordance with MIL-A-8625, type I or type II.
- Spacer washers, (4), used only with shell, discard in other uses. Spacer washers are corrosion resistant steel.
- Edges of cable entry hole to be rounded to prevent insulation chafing.
- For use with one-piece jackscrews.
- No cracks, chips, or sharp edges on all 4 edges of flange.

FIGURE 4. Shield - Continued.



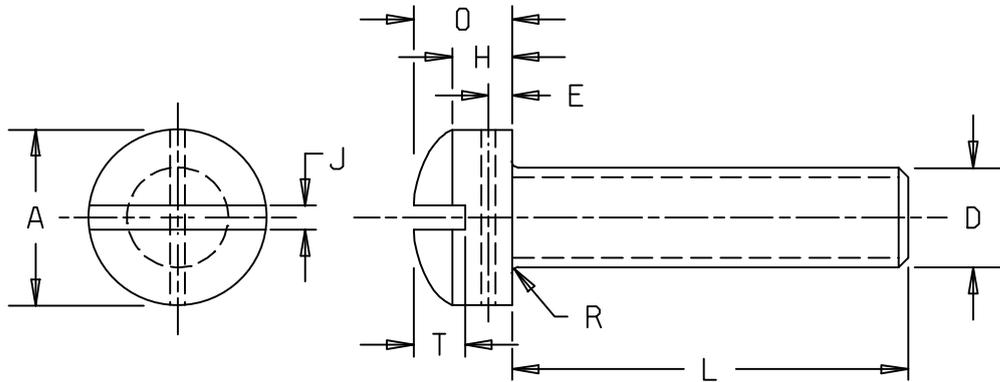
| Inches | mm   |
|--------|------|
| .005   | 0.13 |
| .047   | 1.19 |
| .062   | 1.57 |
| .070   | 1.78 |
| .125   | 3.18 |

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is  $\pm .016$  inch (0.41 mm).
3. Metric equivalents are given for general information only.
4. Material: Corrosion resistant steel in accordance with QQ-S-763, classes 302, 303, 303Se, 304, 316, or ASTM A484, or ASTM A532.
5. See M28748/1 to order polarizing pin separately.

Pin polarizing, straight headed.

FIGURE 5. Pin configuration.



Screws furnished with shields when required crossed drilled hole is optional.  
 To order screws individually use MS35275-215 (#4) or -229 (#6).

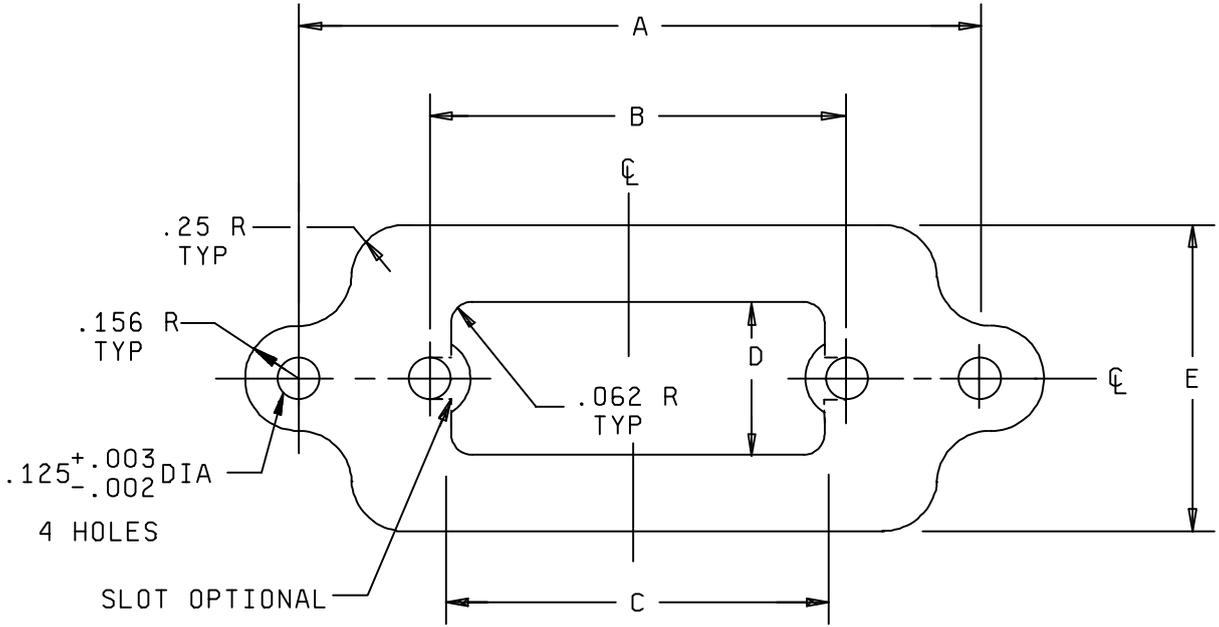
| Shield designator   | Nominal size         | Threads per inch, UNC-2A<br>(Pitch) | D<br>Body diameter |                  | A<br>Head diameter |                 | H<br>Head side height |                 | O<br>Total head height |                 |
|---|----------------------|-------------------------------------|--------------------|------------------|--------------------|-----------------|-----------------------|-----------------|------------------------|-----------------|
|   |                      |                                     | min                | max              | min                | max             | min                   | max             | min                    | max             |
| 1, 2, 3, 4, (sizes 34, 42, 50, 75); 5, 6, 7, 8, (sizes 34, 42, 50, 75); 9, A, B, C, D, E, (size 66) | .112 (#4)<br>(2.845) | 40<br>(.64)                         | .0925<br>(2.350)   | .1120<br>(2.845) | .166<br>(4.216)    | .183<br>(4.648) | .072<br>(1.829)       | .079<br>(2.007) | .094<br>(2.388)        | .107<br>(2.718) |
| B, C, D, E size 104 only  | .138 (#6)<br>(3.505) | 32<br>(.79)                         | .1141<br>(2.898)   | .1380<br>(3.505) | .208<br>(5.283)    | .226<br>(5.740) | .089<br>(2.261)       | .096<br>(2.438) | .118<br>(2.997)        | .132<br>(3.353) |

| Shield designator   | J<br>Slot width |                 | T<br>Slot depth |                 | E<br>drill location nom | Drilled hole size nom | R<br>radius max | Tensile strength LB-min (KN-min) |
|---|-----------------|-----------------|-----------------|-----------------|-------------------------|-----------------------|-----------------|----------------------------------|
|   | min             | max             | min             | max             |                         |                       |                 |                                  |
| 1, 2, 3, 4, (sizes 34, 42, 50, 75); 5, 6, 7, 8, (sizes 34, 42, 50, 75); 9, A, B, C, D, E, (size 66) | .031<br>(.787)  | .039<br>(.991)  | .030<br>(.762)  | .038<br>(.965)  | .035<br>(.889)          | .037<br>(.940)        | .017<br>(.432)  | .480<br>(2.151)                  |
| B, C, D, E size 104 only  | .039<br>(.991)  | .048<br>(1.219) | .035<br>(.889)  | .045<br>(1.143) | .043<br>(1.092)         | .046<br>(1.168)       | .021<br>(.533)  | .730<br>(3.272)                  |

NOTES:

1. Material corrosion resisting, in accordance with Federal standard number 66, AISI 302, 303, 304, 305, 316, 384 (developed for cold heading) or type UNS S30430 in accordance with the chemical requirements of ASTM-A-493.
2. Treatment: Passivation shall be in accordance with QQ-P-35, or an industry approved equivalent.
3. Magnetic permeability: These screws shall have a magnetic permeability of 2.0 maximum (air = 1.0) for a field strength of H = 200 oersteds, using a magnetic indicator in accordance with ASTM A342.
4. Threads: Threads shall be in accordance with FED-STD-H28.
5. Threads: Screws shall have complete threads extending to within two threads of the head, or closer if practicable.
6. Drilled hole is to be approximately at right angles to the slot and may be permitted to break through the bottom of the slot. All sharp edges shall be removed.

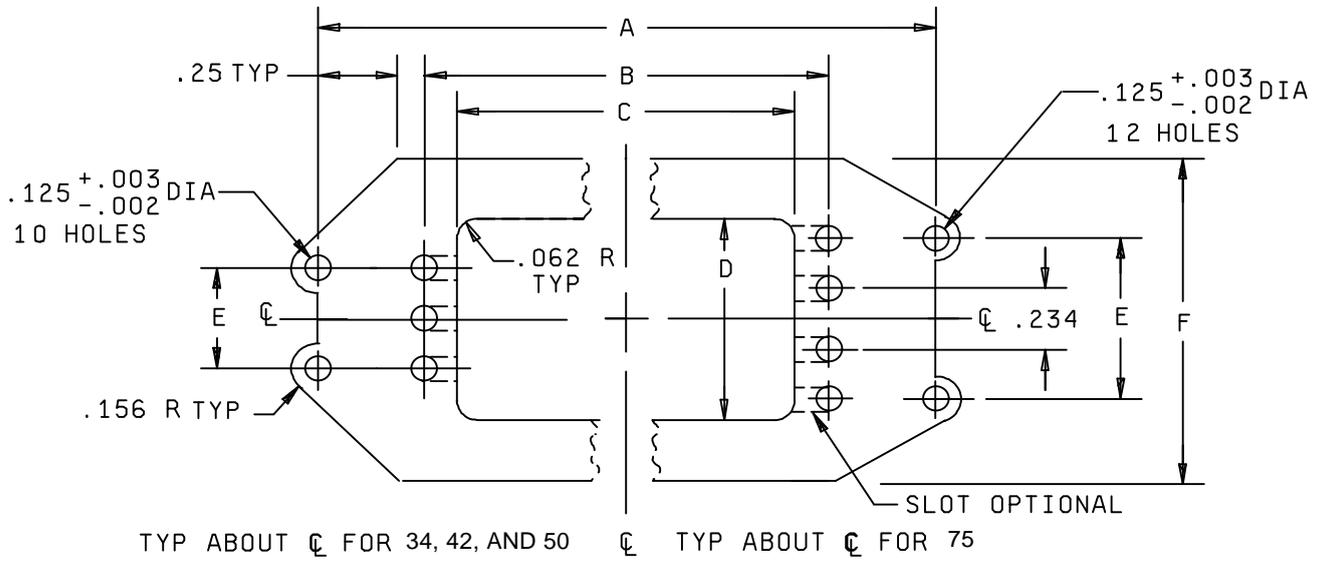
FIGURE 6. Slotted screw.



| Inches | mm   |
|--------|------|
| .002   | 0.05 |
| .003   | 0.08 |
| .062   | 1.57 |
| .125   | 3.18 |
| .156   | 3.96 |
| .25    | 6.35 |

| Connector size<br>(No. of contacts) | A<br>±.005<br>(0.13 mm) | B<br>±.005<br>(0.13 mm) | C             | D            | E             |
|-------------------------------------|-------------------------|-------------------------|---------------|--------------|---------------|
| 9                                   | 2.016 (51.21)           | 1.000 (2.54)            | .875 (22.23)  | .406 (10.31) | .953 (24.21)  |
| 14                                  | 1.953 (49.61)           | .937 (23.80)            | .812 (20.62)  | .469 (11.91) | 1.016 (25.81) |
| 20                                  | 2.266 (57.56)           | 1.250 (31.75)           | 1.125 (28.58) | .469 (11.91) | 1.016 (25.81) |

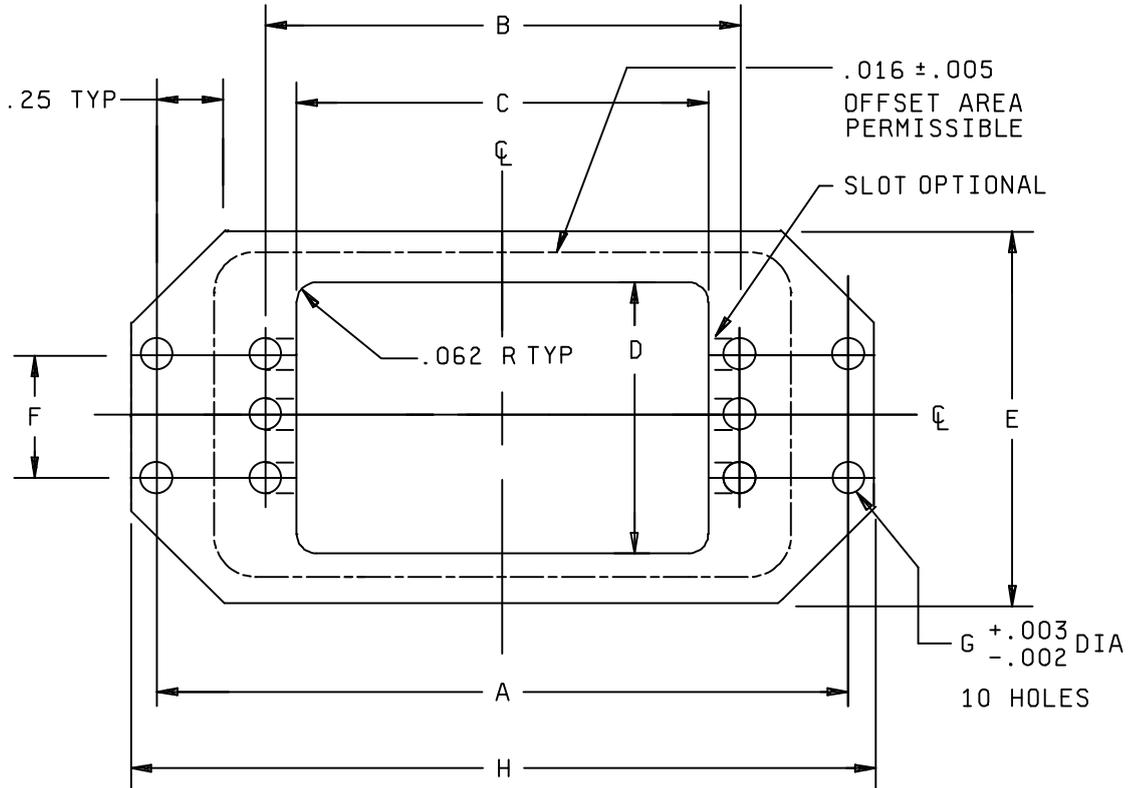
FIGURE 7. Retaining plate.



| Inches | mm   |
|--------|------|
| .002   | 0.05 |
| .003   | 0.08 |
| .062   | 1.57 |
| .125   | 3.18 |
| .156   | 3.96 |
| .234   | 5.94 |
| .25    | 6.35 |

| Connector size<br>(No. of contacts) | A<br>±.005<br>(0.13 mm) | B<br>±.005<br>(0.13 mm) | C             | D             | E<br>±.005<br>(0.13 mm) | F             |
|-------------------------------------|-------------------------|-------------------------|---------------|---------------|-------------------------|---------------|
| 34                                  | 2.703 (68.66)           | 1.687 (42.85)           | 1.438 (36.53) | .750 (19.05)  | .468 (11.89)            | 1.328 (33.73) |
| 42                                  | 3.016 (78.89)           | 2.000 (50.80)           | 1.750 (44.45) | .750 (19.05)  | .468 (11.89)            | 1.328 (33.73) |
| 50                                  | 3.422 (86.92)           | 2.281 (57.94)           | 2.031 (51.60) | .750 (19.05)  | .468 (11.89)            | 1.453 (36.91) |
| 75                                  | 3.422 (86.92)           | 2.281 (57.94)           | 2.031 (51.60) | 1.109 (28.17) | .766 (19.46)            | 1.797 (45.64) |

FIGURE 7. Retaining plate - Continued.



| Inches | mm   |
|--------|------|
| .002   | 0.05 |
| .003   | 0.08 |
| .062   | 1.57 |
| .125   | 3.18 |
| .156   | 3.96 |
| .234   | 5.94 |
| .25    | 6.35 |

| Connector size<br>(No. of contacts) | A<br>±.005<br>(0.13 mm) | B<br>±.005<br>(0.13 mm) | C                | D                | E                | F<br>±.005<br>(0.13 mm) | G              | H                |
|-------------------------------------|-------------------------|-------------------------|------------------|------------------|------------------|-------------------------|----------------|------------------|
| 66                                  | 2.984<br>(75.79)        | 1.969<br>(50.01)        | 1.718<br>(43.64) | 1.125<br>(28.58) | 1.688<br>(42.88) | .500<br>(12.70)         | .125<br>(3.18) | 3.296<br>(83.72) |
| 104                                 | 3.500<br>(88.90)        | 2.375<br>(60.33)        | 2.125<br>(53.98) | 1.486<br>(37.74) | 2.000<br>(50.80) | .875<br>(22.23)         | .150<br>(3.81) | 3.875<br>(98.43) |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.16 inch (0.41 mm).
4. Material aluminum alloy per specification QQ-A-250/8, temper H32, .040 inch (1.02 mm) thick.
5. Finish anodize in accordance with MIL-A-8625, type I or type II.

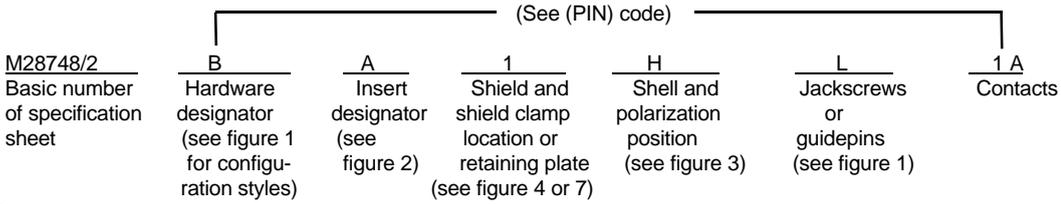
FIGURE 7. Retaining plate - Continued.

REQUIREMENTS:

Dimensions and configuration: See figures 1, 2, 3, 4, 5, 6, and 7.

Mating connector: See MIL-DTL-28748/1 and MIL-DTL-28748/3.

PIN: As shown in the following example: 1/        



PIN code:

| Hardware Designators <u>2/</u>    | Insert designators                                  | Number of contact positions | Shield and shield clamp Locations                                       | Shell and Polarization designators | Polarization positions <u>3/</u> |
|-----------------------------------|---|-----------------------------|---|------------------------------------|----------------------------------|
| A - Long jackscrew hardware only. | A   | 9                           | 1 - top opening <u>5/</u>   | 0 - None included                  | A                                |
| B - All other hardware.           | B   | 14                          | 2-side opening <u>5/</u>  | A                                  | B                                |
| -- (insert only)                  | C   | 20                          | 3 - top opening <u>6/</u>   | B Plug shells --                   | C                                |
|                                   | D   | 34                          | 4-side opening <u>6/</u>  | D                                  | D                                |
|                                   | E   | 42                          | 5 - top opening <u>7/</u>   | E                                  | E                                |
|                                   | F   | 50                          | 6-side opening <u>7/</u>  | F                                  | F                                |
|                                   | G   | 66                          | 7- top opening <u>8/</u>  | G                                  | G                                |
|                                   | H   | 75                          | 8- side opening <u>8/</u>   | H - Unpolarized                    |                                  |
|                                   | J   | 104                         | 9 - top opening <u>9/</u>   | J                                  | A                                |
|                                   | 0   | No insert included          | A-side opening <u>9/</u>  | K                                  | B                                |
|                                   |   |                             | B - top opening <u>10/</u>  | L Receptacle shells -----          | C                                |
|                                   | Insert designators through hole <u>4/</u>           |                             | C - side opening <u>10/</u>   | M                                  | D                                |
|                                   | K   | 34                          | D- top opening <u>11/</u>   | N                                  | E                                |
|                                   | L   | 42                          | E - side opening <u>11/</u>   | P                                  | F                                |
|                                   | M   | 50                          |   | Q                                  | G                                |
|                                   | N   | 66                          | 0-none included   | R - Unpolarized                    |                                  |
|                                   | P   | 75                          | <u>Retaining plate</u>  | S                                  | A                                |
|                                   | Q   | 104                         | P - Plate   | T                                  | B                                |
|                                   |   |                             |   | U Plug shells --                   | C                                |
|                                   | Insert designators for piece part orders <u>12/</u> |                             | <u>Through hole insert designators for piece part orders <u>13/</u></u> | V                                  | D                                |
|                                   | R   | 9                           |   | W                                  | E                                |
|                                   | S   | 14                          |   | X                                  | F                                |
|                                   | T   | 20                          |   | Y                                  | G                                |
|                                   | U   | 34                          | 1   | Z - Unpolarized                    |                                  |
|                                   | V   | 42                          | 2   | 1                                  | A                                |
|                                   | W   | 50                          | 3   | 2                                  | B                                |
|                                   | X   | 66                          | 4   | 3 Receptacle shells -----          | C                                |
|                                   | Y   | 75                          | 5   | 4                                  | D                                |
|                                   | Z   | 104                         | 6   | 5                                  | E                                |
|                                   |   |                             |   | 6                                  | F                                |
|                                   |   |                             |   | 7                                  | G                                |
|                                   |   |                             |   | 8 - Unpolarized                    |                                  |

See footnotes on next page.

Jackscrews  
or  
guidepins

- F - Fixed jackscrews, configuration C, figure 1 (not used with shield).
- G - Guidepins, configuration B, figure 1.
- L - Long jackscrews, one-piece construction, configuration E, figure 1.
- M - Long jackscrews, multi-piece construction, configuration F, figure 1.
- S - Short jackscrews slotted head, configuration D, figure 1 (not used with shield).
- 0 - None included.

Jack and guide location: The jackscrew male (turning or fixed) or guide pin shall be located by the A or 1 pin contact.

Contacts: In accordance with MIL-DTL-28748.

- 1A - 100 percent size 16
- 1L - none included 13

- 
- 1/ The number zero (0) is used to indicate which parts are not included.
  - 2/ Used for information to indicate size and style of insert or hardware to be used.
  - 3/ Polarization positions are for location of plug and receptacle shells pins and slots (see figure 3).
  - 4/ Manufacturers, mold bodies, and hardware will not necessarily interchange with each other.
  - 5/ Used when shell is specified and with "L" hardware or used with or without shell for "M" hardware.
  - 6/ Use when no shell is specified and with "L" hardware.
  - 7/ Use when no shell is specified and with "M" hardware.
  - 8/ Use when no shell is specified and with "G" hardware, not for new design.
  - 9/ Used when no shell is specified and with "L" hardware.
  - 10/ Use with or without shell for "M" hardware or used when shell is specified and with "L" hardware.
  - 11/ Used when no shell is specified and with "L" hardware.
  - 12/ These designators are informational and used for insert reference (connector size) to order an appropriate shield or shell as a piece part. Shields and shells may be ordered together or separately.
  - 13/ The "1L" ordering code shall be used in conjunction with insert designator zero "0" or with the insert designators for piece part orders for which no insert is included.

TABLE I. Superseded specification and MS sheets.

| Specification or MS sheet | Dated            |
|---------------------------|------------------|
| MIL-C-28748/2D            | 30 November 1981 |
| MS18173                   | 20 May 1970      |
| MS18192                   | 1 June 1983      |
| MS18193                   | 26 April 1990    |
| MS18198                   | 23 June 1972     |
| MS18199                   | 23 June 1972     |
| MS18200                   | 20 May 1970      |
| MS18203                   | 26 April 1990    |
| MS18204                   | 26 April 1990    |
| MS18205                   | 23 June 1972     |
| MS18239                   | 23 June 1972     |
| MS18241                   | 23 June 1972     |
| MS18243                   | 23 June 1972     |
| MS18245                   | 23 June 1972     |
| MS18247                   | 23 June 1972     |
| MS18249                   | 23 June 1972     |
| MS18251                   | 23 June 1972     |
| MS18253                   | 23 June 1972     |
| MS18255                   | 23 June 1972     |
| MS24132                   | 1 June 1976      |
| MS24133                   | 3 January 1976   |
| MS35275                   | 14 June 1976     |
| MS35275                   | 14 June 1976     |

Revision letters are not used to denote changes due to the extensiveness of the changes.

#### CONCLUDING MATERIAL

Custodians:  
 Army - CR  
 Navy - EC  
 Air Force - 11  
 DLA - CC

Preparing activity:  
 DLA - CC

(Project 5935-4132-02)

Review activities:  
 Army - AT, MI  
 Navy - AS, SH  
 Air Force - 17, 99

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**I RECOMMEND A CHANGE:**

**1. DOCUMENT NUMBER**  
**MIL-DTL-28748/2D**

**2. DOCUMENT DATE (YYYYMMDD)**  
**1999 May 11**

**3. DOCUMENT TITLE**

**CONNECTORS, ELECTRICAL, RECTANGULAR, RACK AND PANEL, SOLDER TYPE SOCKET CONTACTS, SIZE 16**

**4. NATURE OF CHANGE** *(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)*

**5. REASON FOR RECOMMENDATION**

**6. SUBMITTER**

a. NAME *(Last, First, Middle Initial)*

b. ORGANIZATION

c. ADDRESS *(Include zip code)*

d. TELEPHONE *(Include Area Code)*

7. DATE SUBMITTED

(1) Commercial

(YYYYMMDD)

(2) DSN  
*(if applicable)*

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**Defense Logistics Agency  
Defense Supply Center, Columbus**

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(2) DSN **850-0573**

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