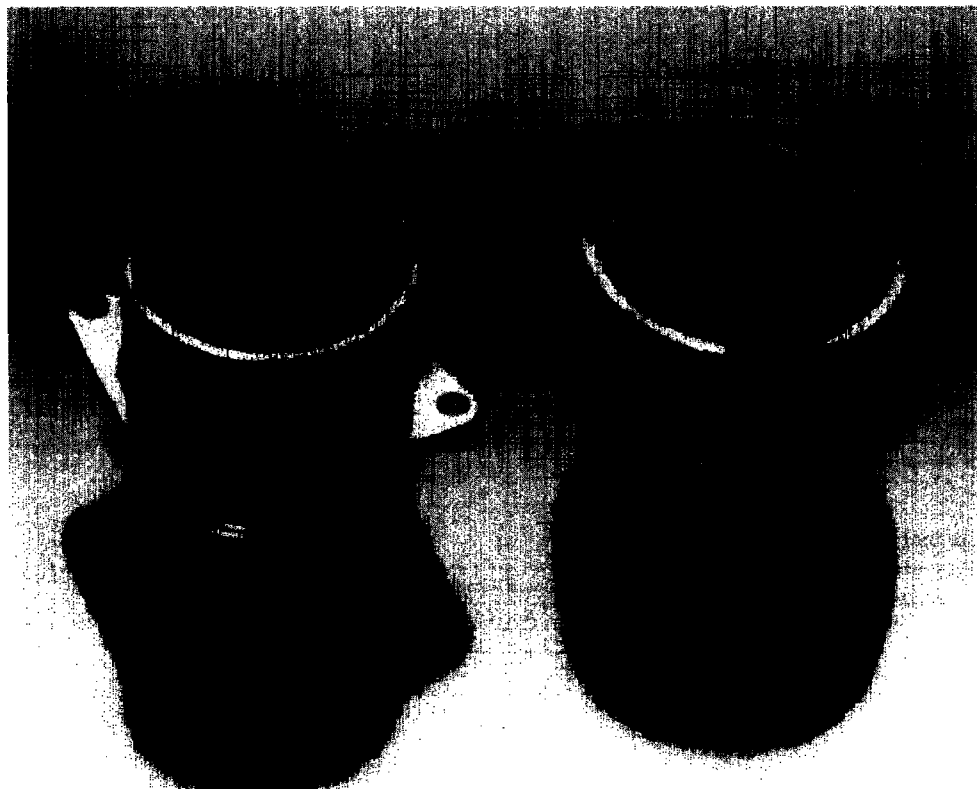


**MIL-C-83723
Series I****Pin and Socket Connectors**
Military Specified Circular Connectors

MIL-C-83723 Series I connectors are identical to MIL-C-26482 Series II connectors, and are marked with both military part numbers as applicable. The Department of Defense has inactivated MIL-C-83723 Series I in favor of MIL-C-26482 Series II. MIL-C-83723 Series I connectors are now used for existing applications.

Contacts are qualified to MIL-C-39029 requirements and are BIN coded (three color bands) for identification. These contacts are crimped with a standard crimp tool per MIL-C-22520.

The contact retention system of this connector permits insertion and removal of contacts from

the rear of the connector utilizing the same plastic tool specified for use with most qualified rear-release type connectors. Should an assembler ever misuse the tool when inserting or removing a contact, the tool is designed to break before causing damage to the connector.

Servicing the connector only from the rear helps prevent damage to the front that might affect the sealing characteristics.

Sealing grommets are constructed of tear-resistant elastomer and experience no degradation when exposed to a broad range of fluids. Sealing over a range of wire diameters is provided by a

triple wire seal at the rear of the connector.

The closed entry socket side of the insert is designed with a lead-in chamfer and a hard face that will accept a pin contact bent within pre-established limits. The elastomer interfacial seal on the pin side has raised barriers around each pin which displace into the socket chamfer when mated, providing a positive moisture seal.

Square flange, jam nut single-hole mount and cable connecting receptacles are available as well as standard and RFI plugs. All are available in a range of shell sizes and insert arrangements.

MIL-C-83723 Series I (Continued)

Performance Specifications

Voltage Rating

| Altitude | | Mated Service Rating | |
|-----------|--------|----------------------|------|
| ft. | m | I | II |
| Sea Level | — | 1500 | 2300 |
| 50,000 | 15 240 | 500 | 750 |
| 70,000 | 21 336 | 375 | 500 |
| 100,000 | 30 480 | 200 | 200 |

Note: When the voltage as indicated above is applied between shell and closest contact to the shell or between the two closest contacts for a period of 5 seconds, there shall be no evidence of flashover or breakdown.

Contact Current Rating and Retention

| Contact Size* | DC Test Amperage | Contact Retention | |
|---------------|------------------|-------------------|-------|
| | | Axial Load | |
| | | lb | N |
| 20 | 7.5 | 15 | 66.7 |
| 16 | 13.0 | 25 | 111.2 |
| 12 | 23.0 | 30 | 133.4 |

*Organize individual circuits to maintain heat rise within operating temperature requirements.

Operating Temperature Range

-65°C to +200°C (-85°F to +392°F)

Environmental Seal

Wired, mated connectors with the specified accessory attached, shall meet the altitude-immersion test specified in MIL-C-26482.

Durability

Minimum of 500 mating cycles.

Shock and Vibration Requirements

When tested as follows the connector shall sustain no physical damage, or electrical discontinuity exceeding one microsecond.

Shock

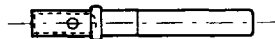
Pulse of an approximate half sine wave of 300 g magnitude with duration of 3 milliseconds applied in three axes.

Vibration

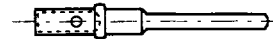
Sixteen hours of random vibration having a range of 50 to 2,000 Hz with a 41.7 G peak level.

2
 Pin and Socket Connectors
 Military Specified Circular Connectors

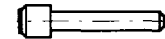
Contacts, Sealing Plugs and Assembly Tools



Socket Contact



Pin Contact



Sealing Plug

| Contact Size | Wire Range | | Socket Contacts | | Pin Contacts | | Sealing Plugs | |
|--------------|------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| | AWG | mm ² | Military Part No. | MATRIX Part No. | Military Part No. | MATRIX Part No. | Military Part No. | MATRIX Part No. |
| 20 | 24-20 | 0.2-0.6 | M39029/5-115 | 5100-001-0020 | M39029/4-110 | 5000-054-0020 | MS27488-20 | 3400-043-0020 |
| 16 | 20-16 | 0.5-1.4 | M39029/5-116 | 5100-001-0016 | M39029/4-111 | 5000-054-0016 | MS27488-16 | 3400-043-0016 |
| 12 | 14-12 | 2-3 | M39029/5-118 | 5100-001-0012 | M39029/4-113 | 5000-054-0012 | MS27488-12 | 3400-043-0012 |

Crimping Tools

| Contact Size | Wire Range | | Finished Wire Dia. Range | | Military Part No. | |
|--------------|------------|-----------------|--------------------------|-----------|----------------------|----------------------|
| | AWG | mm ² | inch | mm | Crimping Tool | Turret or Positioner |
| 20 | 24-20 | 0.2-0.6 | .040-.083 | 1.02-2.11 | M22520/1-01 or /2-01 | M22520/1-02 or /2-02 |
| 16 | 20-16 | 0.5-1.4 | .053-.103 | 1.34-2.62 | M22520/1-01 | M22520/1-02 |
| 12 | 14-12 | 2-3 | .097-.158 | 2.46-4.01 | M22520/1-01 | M22520/1-02 |

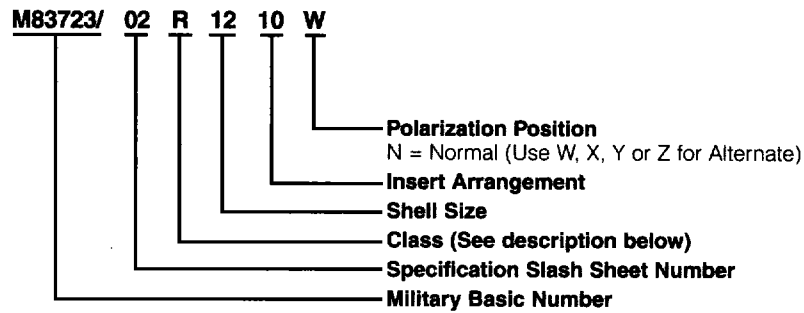
Insertion/Extraction Tools

| Contact Size | Color Code | Military Part No. | MATRIX Part No. |
|--------------|------------|-------------------|-----------------|
| 20 | Rd./Wh. | M81969/14-11 | 6500-001-0020 |
| 16 | Bl./Wh. | M81969/14-03 | 6500-001-0016 |
| 12 | Yel./Wh. | M81969/14-04 | 6500-001-0012 |

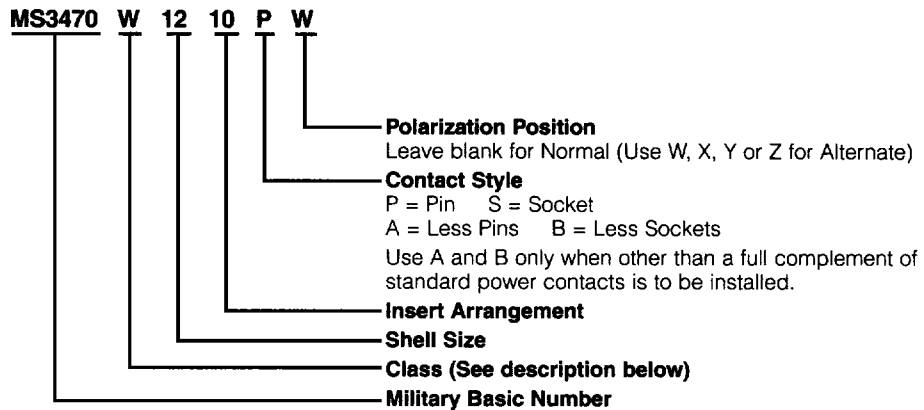
Note: Each connector is furnished with contacts. One spare for inserts requiring 1 to 26 of each contact and two spares for inserts with more than 26 contacts and a minimum of one sealing plug up to 15% of the number of contacts.

MIL-C-83723 Series I (Continued)

Military Part Number System MIL-C-83723 Series I



MIL-C-26482 Series II



Pin and Socket Connectors
 Military Specified Circular Connectors

Equivalent Connector Classes — Cross Reference

| MATRIX MB1 Series | MIL-C-26482 Series II | MIL-C-83723 Series I | Description |
|-------------------|-----------------------|----------------------|---|
| R | L | R | Aluminum shell, electroless nickel finish |
| — | E* | — | Superseded, (see notes below) |
| — | R* | F** | Superseded, (see notes below) |
| A | A | A | Aluminum shell, anodized finish, black |
| G | S | G | Stainless steel, passivated † |
| W | W | — | Aluminum shell, olive drab cadmium plated |

* Class E & R Inactive in favor of Class L (Ref. MIL-C-26482)
 ** Class F Inactive in favor of Class R (Ref. MIL-C-26482)
 † Not on QPL, can be supplied to MATRIX Part Number only.

MIL-C-83723 Series I (Continued)

MATRIX Part Number System

M B 1 0 W 12 10 P W ***

Modification Number (Consult Matrix Science Corporation)

Insert Clocking Position

Leave Blank for Normal (Use W, X, Y, or Z for Alternate)

Contact Style P = Pin S = Socket

Insert Arrangement

Shell Size

Finishes

A = Aluminum shell, black anodized, non-conductive

R = Aluminum shell, electroless nickel

G = Stainless steel, passivated

W = Aluminum shell, cadmium plated, olive drab

Configuration

0 = Receptacle, narrow flange mounting

1 = Receptacle, wide flange mounting

3 = Receptacle, cable connecting

4 = Receptacle, jam nut mounting

6 = Plug, standard

8 = Plug, with RFI fingers (R, G, W only)

Matrix Series I

Bayonet Coupling

Matrix Science Corporation

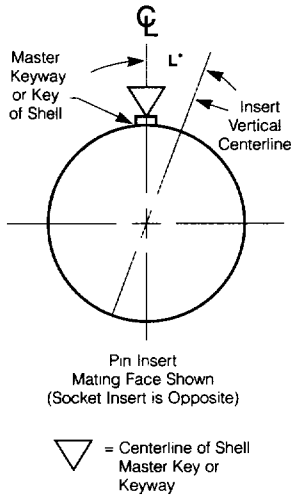
Pin and Socket Connectors
Military Specified Circular Connectors

MIL-C-83723 Series I (Continued)

Polarization

Clocking Positions

1. In the Normal insert clocking position (position N) the insert centerline coincides with the centerline of the master key/keyway of the shell.
2. In the Alternate insert clocking position (W, X, Y, Z) the pin insert is rotated clockwise relative to the centerline of the master key/keyway as indicated in the figure and chart. The socket insert is rotated counter-clockwise.
3. Plugs have keys, receptacles have keyways.



Insert Arrangement and Clocking Positions (Per MIL-STD-1669)

| Shell Size & Insert Arrangement | L Degrees | | | | | Service Rating |
|---------------------------------|-----------|-----|-----|-----|-----|----------------|
| | N | W | X | Y | Z | |
| 8-3 | 0 | 60 | 210 | - | - | I |
| 8-4 | 0 | 45 | - | - | - | I |
| 8-33 | 0 | 90 | - | - | - | I |
| 8-98 | 0 | - | - | - | - | I |
| 10-6 | 0 | 90 | - | - | - | I |
| 10-98 | 0 | 90 | 180 | 240 | 270 | I |
| 12-3 | 0 | - | - | 180 | - | II |
| 12-8 | 0 | 90 | 112 | 203 | 292 | I |
| 12-10 | 0 | 60 | 155 | 270 | 295 | I |
| 14-4 | 0 | 45 | - | - | - | I |
| 14-5 | 0 | 40 | 92 | 184 | 273 | I |
| 14-9 | 0 | 15 | 90 | 180 | 270 | I |
| 14-12 | 0 | 43 | 90 | - | - | I |
| 14-15 | 0 | 17 | 110 | 155 | 234 | I |
| 14-18 | 0 | 15 | 90 | 180 | 270 | I |
| 14-19 | 0 | 30 | 165 | 315 | - | I |
| 14-22 | 0 | 45 | - | - | - | I |
| 16-8 | 0 | 54 | 152 | 180 | 331 | II |
| 16-14 | 0 | 25 | 78 | 180 | 240 | I |
| 16-23 | 0 | 158 | 270 | - | - | I |
| 16-26 | 0 | 60 | - | 275 | 338 | I |
| 16-95 | 0 | 25 | 90 | 153 | - | I |
| 16-99 | 0 | 66 | 156 | 223 | 340 | I |
| 18-8 | 0 | 180 | - | - | - | I |
| 18-11 | 0 | 62 | 119 | 241 | 340 | II |
| 18-30 | 0 | 18 | 193 | 285 | 350 | I |
| 18-32 | 0 | 85 | 138 | 222 | 265 | I |
| 18-85 | 0 | 45 | 90 | 180 | 240 | I |
| 18-88 | 0 | 12 | 45 | 168 | 202 | I |
| 20-16 | 0 | 238 | 318 | 333 | 347 | II |
| 20-24 | 0 | 70 | 145 | 215 | 290 | I |
| 20-27 | 0 | 72 | 14 | 216 | 288 | I |
| 20-39 | 0 | 63 | 144 | 252 | 333 | I |
| 20-41 | 0 | 45 | 126 | 225 | - | I |
| 20-90 | 0 | 18 | 60 | 240 | 270 | I |
| 22-12 | 0 | - | - | - | - | I |
| 22-19 | 0 | 15 | 90 | 225 | 308 | I |
| 22-21 | 0 | 16 | 135 | 175 | 349 | II |
| 22-32 | 0 | 72 | 145 | 215 | 288 | I |
| 22-34 | 0 | 62 | 142 | 218 | 298 | I |
| 22-41 | 0 | 39 | 135 | 264 | - | I |
| 22-55 | 0 | 30 | 142 | 226 | 314 | I |
| 22-95 | 0 | 26 | 180 | 266 | - | I |
| 22-96 | 0 | 19 | 41 | - | - | I |
| 24-19 | 0 | 30 | 165 | 315 | - | II |
| 24-27 | 0 | 45 | 110 | 140 | 225 | I |
| 24-31 | 0 | 90 | 225 | 255 | - | I |
| 24-61 | 0 | 90 | 180 | 270 | 324 | I |

SOURCE: Catalog 82647

MIL-C-83723 Series I (Continued)

Insert Arrangements (Per MIL-STD-1669)
Number identification example: 0833 (Insert Arrangement No.)
3 #20 (Contact quantity and size)

Note: For rating see table on page 2103.



0803*
3 #20

(MIL-C-83723
Series I only
Solder Contacts)



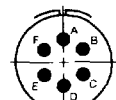
0804*
4 #20



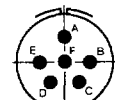
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3 #20



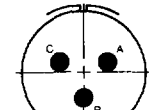
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3 #20



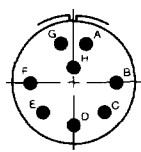
1006
6 #20



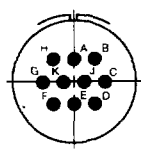
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6 #20



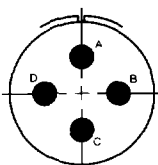
1203
3 #16



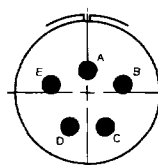
1208
8 #20



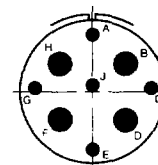
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10 #20



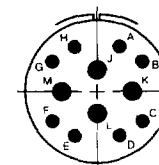
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4 #12



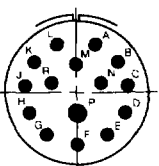
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5 #16



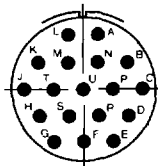
1409
5 #20, 4 #12



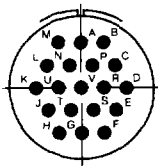
1412
4 #16, 8 #20



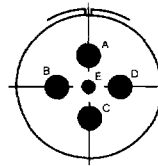
1415
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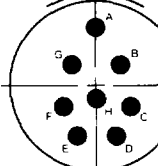
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18 #20



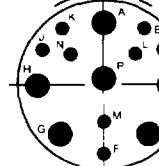
1419
19 #20



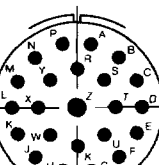
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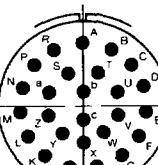
1608
8 #16



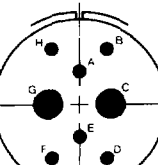
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8 #20, 6 #12



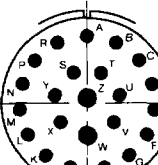
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1 #16, 22 #20



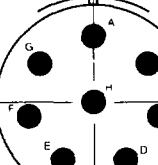
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26 #20



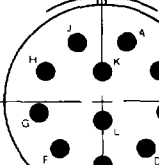
1695*
6 #20, 2 #8
Shielded



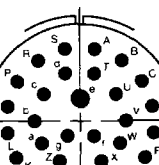
1699*
2 #16, 21 #20



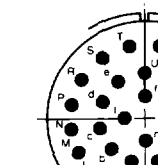
1808
8 #12



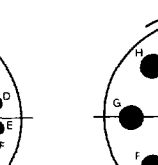
1811
11 #16



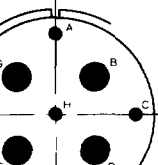
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1 #16, 29 #20



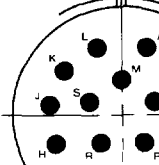
1832
32 #20



1885*
5 #20, 8 #12



1888*
4 #20, 4 #8
Shielded



2016
16 #16

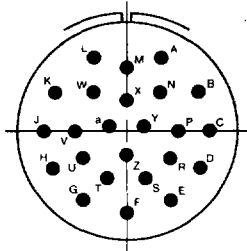
* Consult AMP for availability.

Note: Mating face of pin insert is shown, socket is opposite.

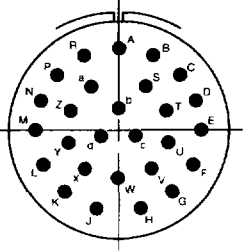
Pin and Socket Connectors
Military Specified Circular Connectors

MIL-C-83723
Series I (Continued)

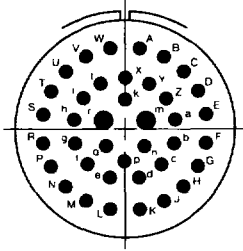
Insert Arrangements (Continued)



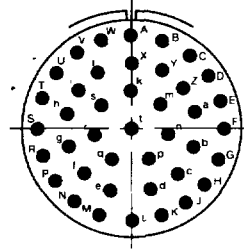
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24 #20



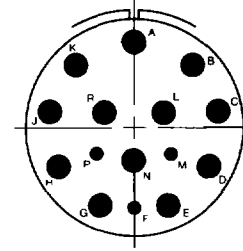
2027*
27 #20



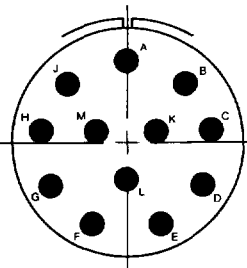
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2 #16, 37 #20



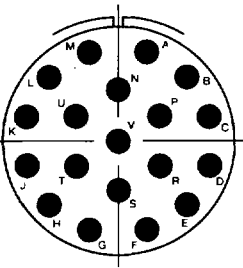
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41 #20



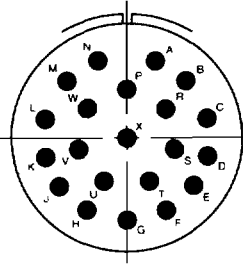
2090*
3 #20, 12 #12



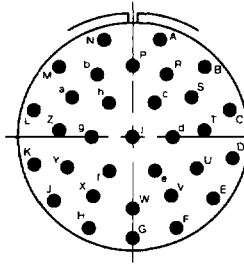
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12 #12



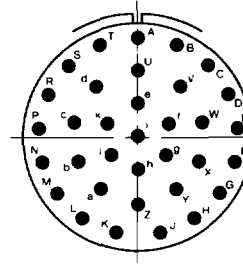
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19 #12



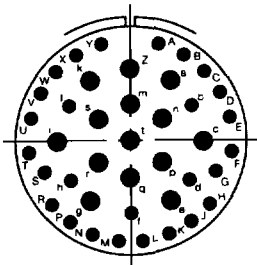
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21 #16



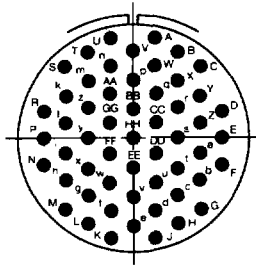
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32 #20



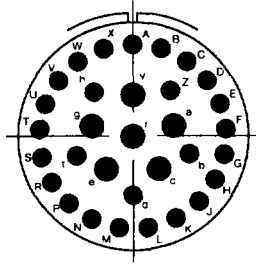
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34 #20



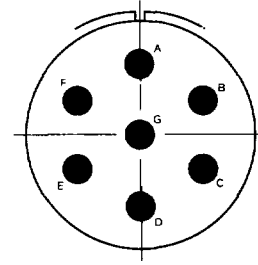
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14 #16, 27 #20



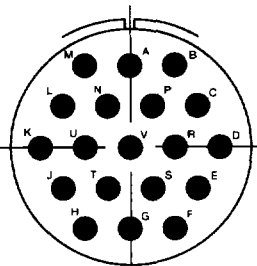
2255
55 #20



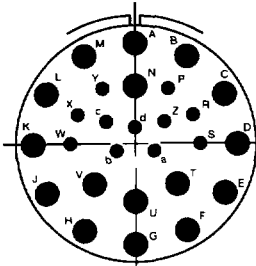
2295
6 #12, 26 #20



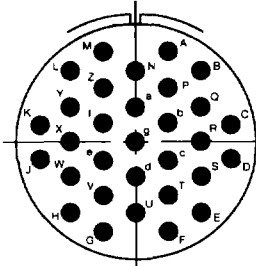
2296*
7 #8 Shielded



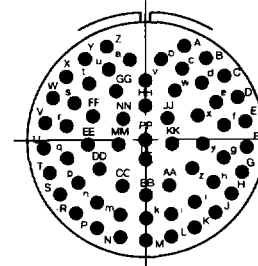
2419
19 #12



2427*
11 #20, 16 #12



2431
31 #16



2461
61 #20

* Consult AMP for availability
Note: Mating face of pin insert is shown, socket is opposite.

Pin and Socket Connectors
Military Specified Circular Connectors

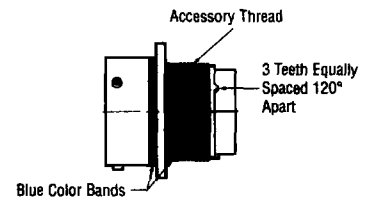
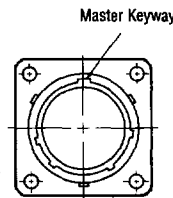
MIL-C-83723
Series I (Continued)

Shell Size:

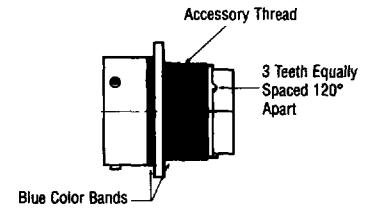
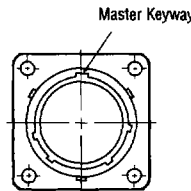
| |
|----|
| 8 |
| 10 |
| 12 |
| 14 |
| 16 |
| 18 |
| 20 |
| 22 |
| 24 |

Pin and Socket Connectors
Military Specified Circular Connectors

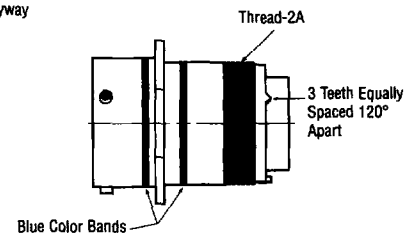
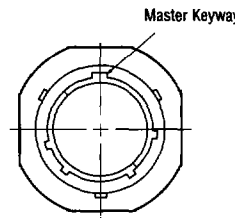
**Receptacle Shell,
Wall Mount,
Narrow Flange,
Bayonet Coupling**
Military No. MS3470,
M83723/01 & /02
MATRIX No. MB10



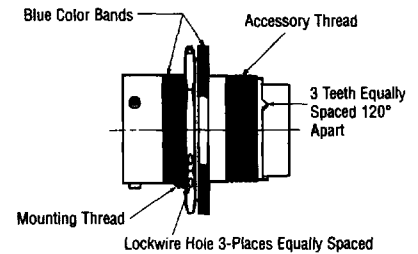
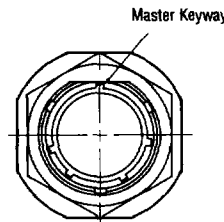
**Receptacle Shell,
Wall Mount,
Wide Flange,
Bayonet Coupling**
Military No. MS3472,
M83723/03 & /04
MATRIX No. MB11



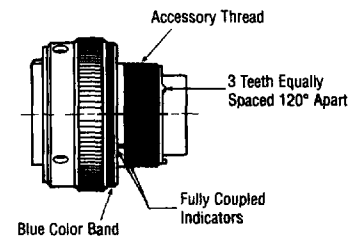
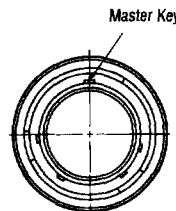
**Receptacle Shell,
Cable Connecting,
Bayonet Coupling**
Military No. MS3471,
M83723/07 & /08
MATRIX No. MB13



**Receptacle Shell,
Jam Nut Mount,
Bayonet Coupling**
Military No. MS3474,
M83723/05 & /06
MATRIX No. MB14



**Plug Shell,
Bayonet Coupling**
Military No. MS3476,
M83723/13 & /14
MATRIX No. MB16



**Plug Shell,
RFI Grounding,
Bayonet Coupling**
Military No. MS3475,
M83723/42 & /43
MATRIX No. MB18

