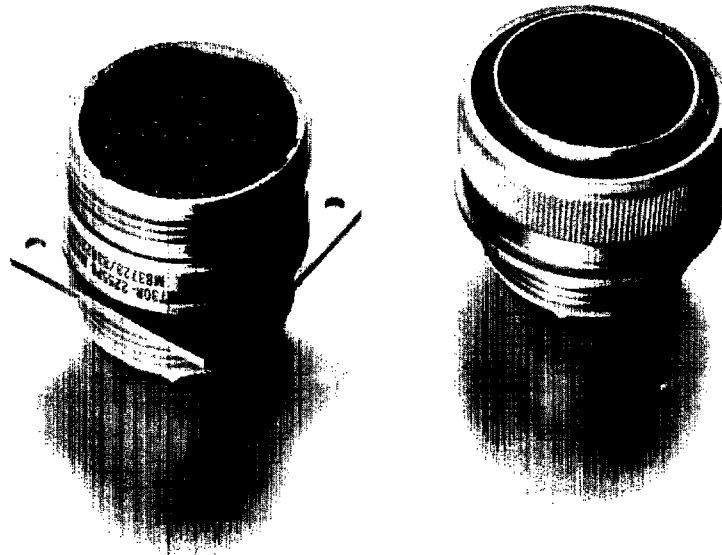


**MIL-C-83723
Series III****Product Facts**

- Self-locking plugs for high vibration environments
- Patented "frustum" insert retention mechanism to withstand high G-loads during shock and vibration
- Closed entry socket contacts to prevent probe damage
- "Cork and bottle" interfacial seals around each contact
- Sealing grommets accept a wide range of wire diameters
- Largest number of shell sizes, styles, classes and insert arrangements qualified to MIL-C-83723
- Thermocouple pin and socket contacts are available, consult AMP for specifications



For applications requiring extended service at temperatures to 200°C, this line of circular connectors qualified to MIL-C-83723 Series III is ideal. They also have the added advantages of a rear-release contact retention system.

This contact retention system permits insertion, release and removal of contacts from the rear of the connector utilizing the same plastic insertion/extraction tool specified for use with most qualified rear-release type connectors. Servicing the connector from the rear helps prevent damage to the front that might affect the sealing characteristics. This system

also eliminates the need to remove and replace the safety wire.

Pin and socket contacts, used in this connector, conform to MIL-C-39029 using the standard crimp tool per MIL-C-22520.

Both square flange and jam nut mounting type receptacles and their mating plugs are available in a full range of shell sizes and insert arrangements. The threaded coupling plugs are available with a choice of safety wire provisions or self-locking feature.

Complete environmental sealing includes individual contact seal, an interfacial seal, a shell-to-shell seal, redundant rear wire

seals, and an insert-to-shell seal.

The hard face closed entry socket insert is designed with a lead-in chamfer that accepts pin contacts bent to a pre-established limit. The interfacial seal on the pin side insert has raised barriers around each pin. This barrier displaces into the chamfer when mated, providing a positive moisture seal.

These connectors have also been designed to meet the requirements of Boeing specifications BACC63BR and BACC63BT; and McDonnell Douglas specification BAN 7025 (DC50 Series).

MIL-C-83723 Series III (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
110,000	33 528	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*	Current Rating		Contact Retention	
	Amperes Max.	Voltage Drop Millivolts	Axial Load	
			lb	N
20	7.5	35	20	89.0
16	13.0	25	25	111.2
12	23.0	25	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 will meet the altitude immersion test specified in MIL-C-83723.

Durability
Minimum of 500 mating cycles.

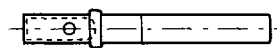
Shock and Vibration Requirements
Wired, mated connectors shall not be damaged, nor shall there be a current interruption longer than 1 microsecond when subjected to the following:

Shock
One shock in each of the three major axes, having a 100 g peak for a 6 millisecond duration (half-sine pulse).

Vibration
Twelve hours of random vibration having a range of 10 to 2,000 Hz with a .06 [1.5] double amplitude (10-55 Hz) and a 20 g peak level (55-2,000 Hz).

Pin and Socket Connectors
MATRIX Engine/Firewall Cylindrical Connectors

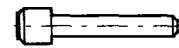
Contacts, Sealing Plugs and Assembly Tools



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

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 10% of the number of contacts.

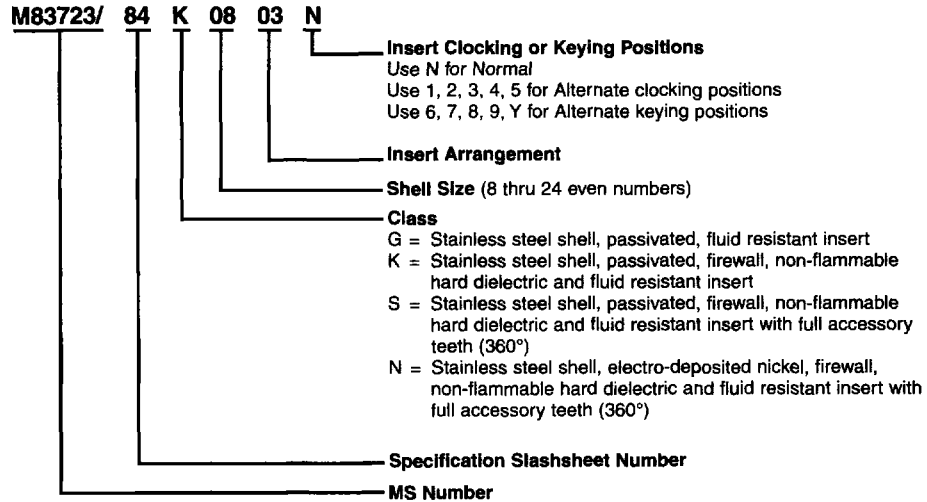
Insertion/Extraction Tools

Contact Size	Color Code	Military Part	MATRIX Part No.
20	Rd./Wh.	M81969/14-02	6500-001-0020
16	Bl./Wh.	M81969/14-03	6500-001-0016
12	Yel./Wh.	M81969/14-04	6500-001-0012

MIL-C-83723

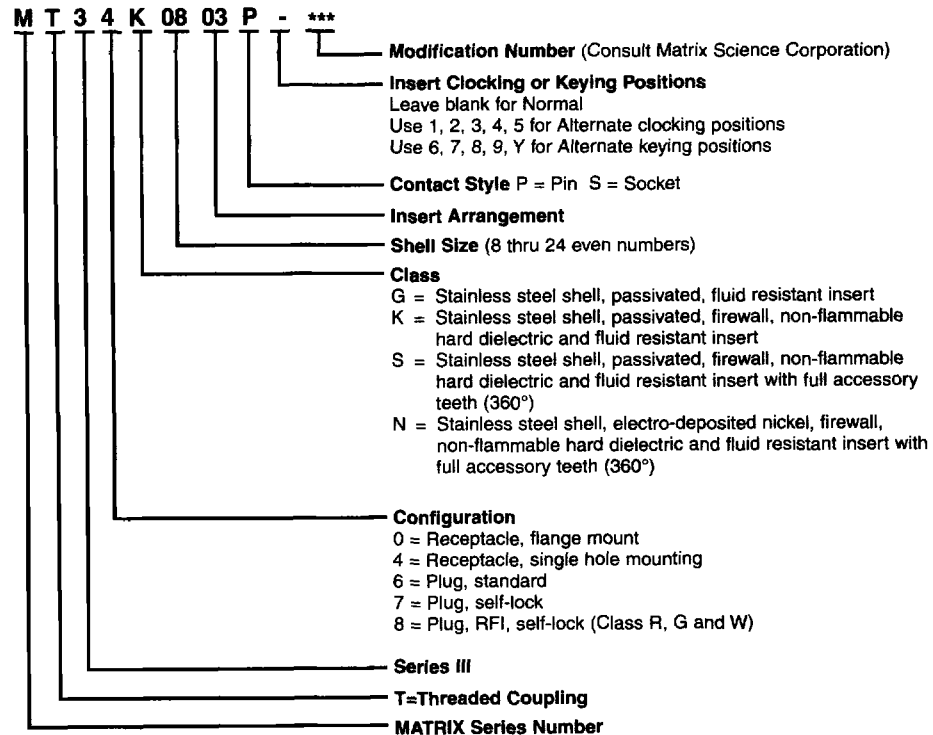
Series III (Continued)

Military Part Number System



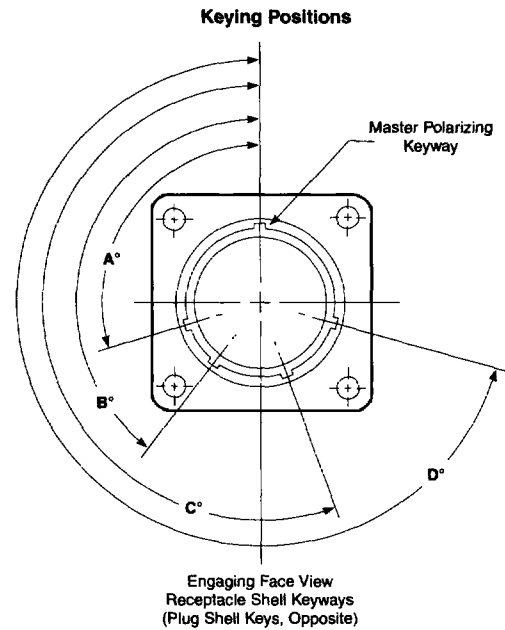
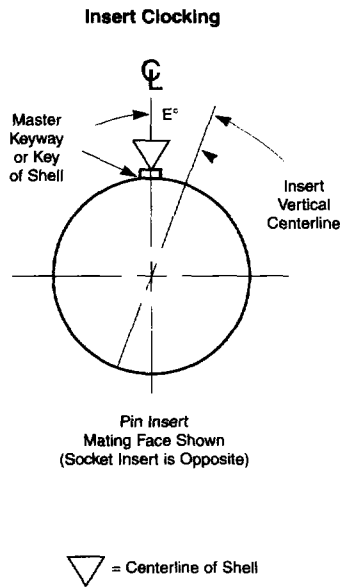
Pin and Socket Connectors
 MATRIX Engine/Firewall Cylindrical Connectors

MATRIX Part Number System



MIL-C-83723 Series III (Continued)

Polarization



Insert Clocking (Per MIL-STD-1554)

Shell Size	Polarizing Position	Key/Keyway Positions				Insert Position E°	Service Rating
		A°	B°	C°	D°		
8,10	N	105	140	215	265	0	Refer to Insert Arrangement Captions on next two pages
	1*	105	140	215	265	10	
	2*	105	140	215	265	20	
	3*	105	140	215	265	30	
	4*	105	140	215	265	40	
12,14 16,18 20,22 24 & 28**	5*	105	140	215	265	50	
	N	105	140	215	265	0	
	1*	105	140	215	265	10	
	2*	105	140	215	265	20	
	3*	105	140	215	265	30	
	4*	105	140	215	265	40	
	5*	105	140	215	265	50	

*Position 1 thru 5 inactive for new design. (Ref. MIL-STD-1554)

Keying Positions (Per MIL-STD-1554)

Shell Size	Polarizing Position	Key/Keyway Positions				Insert Position E°	Service Rating
		A°	B°	C°	D°		
8 thru 24	N	105	140	215	265	0	Refer to Insert Arrangement Captions on next two pages
	6	102	132	248	320	0	
	7	80	118	230	312	0	
8 & 10	8	35	140	205	275	0	
	9	64	155	234	304	0	
	Y*	25	115	220	270	0	
10 only	6	18	149	192	259	0	
	7	92	152	222	342	0	
12, 14 16, 18 20, 22 24 & 28*	8	84	152	204	334	0	
	9	24	135	199	240	0	
	Y*	98	152	268	338	0	

*Positions 10 and Z designators are inactive, superseded by Y. (Ref. MIL-STD-1554)

**Shell size 28 not military standard connector

Notes:

1. In the "Normal insert position" (position N), the insert centerline coincides with the centerline of the master key/keyway of the shell.

2. In the "Alternate insert position" (positions 1, 2, 3, 4 and 5), the socket insert is rotated clockwise relative to the centerline of the master key/keyway of the shell as indicated in the Figure and Table. The pin insert is rotated counter-clockwise.

3. Alternate polarizing positions 1, 2, 3, 4 and 5 are for interchangeability use only. Not recommended for new design, per MIL-C-83723.

4. In the "Alternate keying position" (positions 6, 7, 8, 9 and Y), the minor keys/keyways are positioned with reference to master key/keyway as indicated in the keying position table.

5. All plugs have keys. All receptacles have keyways.

MIL-C-83723 Series III (Continued)

Insert Arrangements (Per MIL-STD-1554)

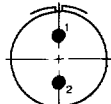
Numbering identification example: **0803** (Shell Size and Insert Number)
3 #20 (Contact quantity and size)
I (Service rating)



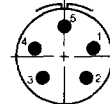
0803
3 #20



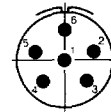
0898
3 #20



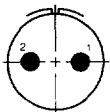
1002
2 #20



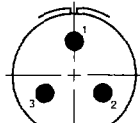
1005
5 #20



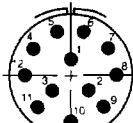
1006
6 #20



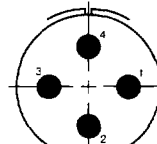
1020
2 #16



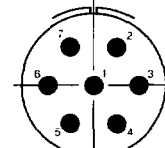
1203
3 #16



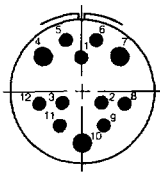
1212
12 #20



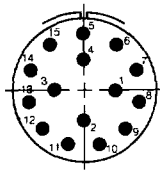
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4 #12



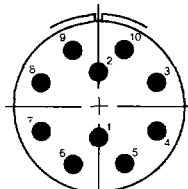
1407
7 #16



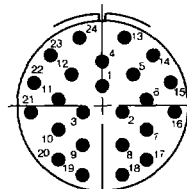
1412
9 #20, 3 #16



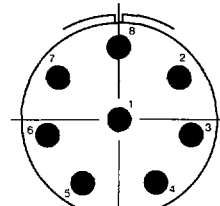
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15 #20



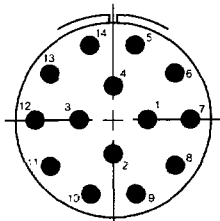
1610
10 #16



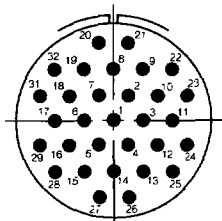
1624
24 #20



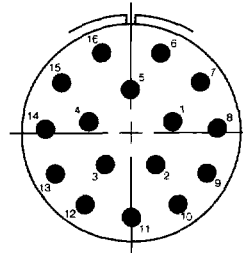
1808
8 #12



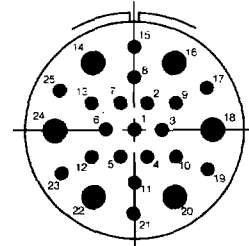
1814
14 #16



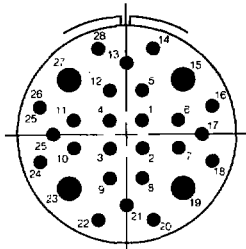
1831
31 #20



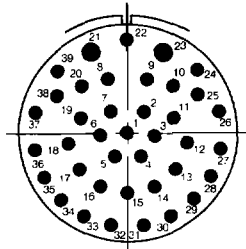
2016
16 #16



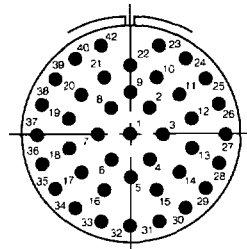
2025
19 #20, 6 #12



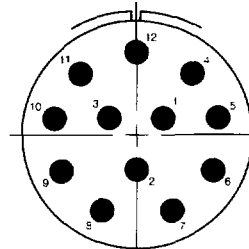
2028
24 #20, 4 #12



2039
37 #20, 2 #16



2041
41 #20



2212
12 #12

Note: Mating face of pin insert is shown. Socket insert is opposite.

SOURCE: Catalog 82785

**Specifications
subject to change.**

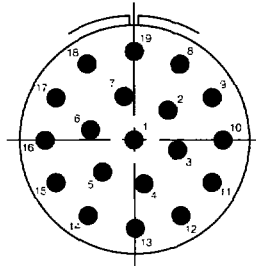
1-800-522-6752
Product Information Center/ AMP FAX Service

1-800-722-1111
Tooling/Technical Assistance Center

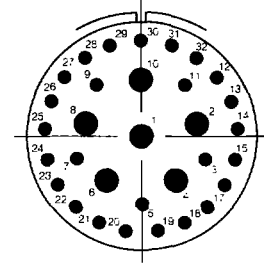
Pin and Socket Connectors
MATRIX Engine/Firewall Cylindrical Connectors

MIL-C-83723
Series III (Continued)

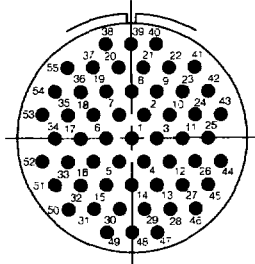
Insert Arrangements
 (Continued)



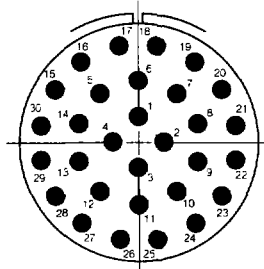
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 19 #16



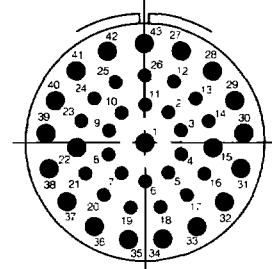
2232
 26 #20, 6 #12



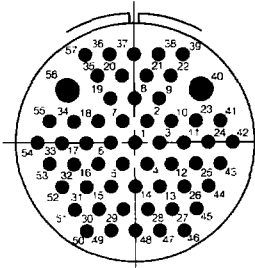
2255
 55 #20



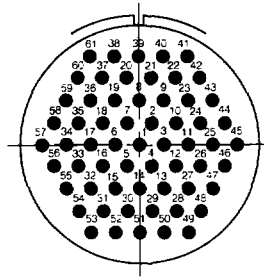
2430
 30 #16



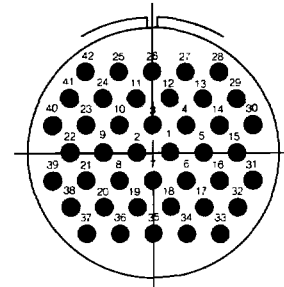
2443
 23 #20, 20 #16



2457
 55 #20, 2 #12



2461
 61 #20



2842
 42 #16
 (Not an MS layout)

Note: Mating face of pin insert is shown. Socket insert is opposite.

Pin and Socket Connectors
MATRIX Engine/Firewall Cylindrical Connectors

2

MIL-C-83723

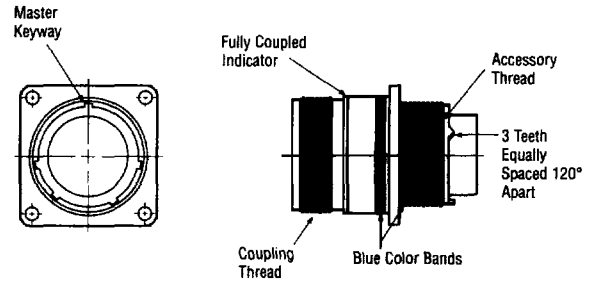
Series III (Continued)

Shell Size

8
10
12
14
16
18
20
22
24
28

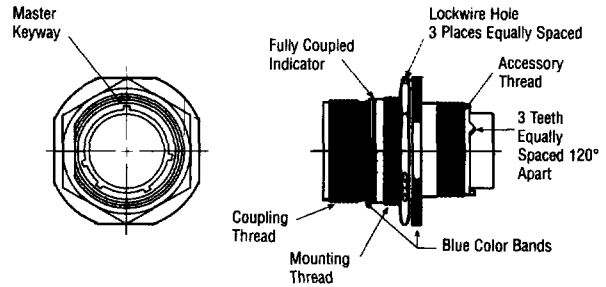
Receptacle Shell, Flange Mount, Threaded Coupling

Military No. M83723/82 & 83
 MATRIX No. MT30 G, K, KS*, KN*
 Boeing No. BACC63BT*
 McDonnell Douglas
 BAN 7025 No. DC54, DC55



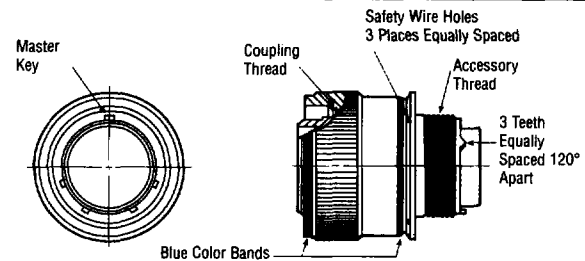
Receptacle Shell, Jam Nut Mount, Threaded Coupling

Military No. M83723/84 & 85
 MATRIX No. MT34 G, K, KS*, KN*



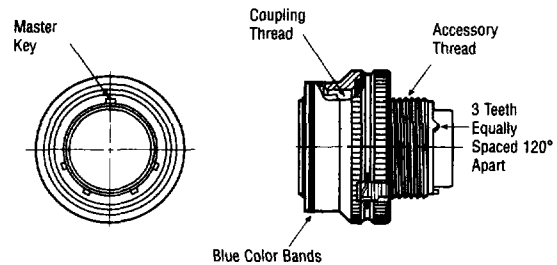
Plug Shell, Threaded Coupling

Military No. M83723/86, 87,
 91*, & 92*
 MATRIX No. MT36 G, K



Plug Shell, Self-Locking, Threaded Coupling

Military No. M83723/95 & 96
 MATRIX No. MT37 G, K
 Boeing No. BACC63BR**
 McDonnell Douglas
 BAN 7025 No. DC 56, DC 57



Plug Shell, RFI Grounding, Self-Locking Threaded Coupling

MATRIX No. M83723/97 & 98
 MATRIX No. MT38 KS, KN

