Microminiature Rectangular Connectors with MICRO-PIN Contacts on .050 (1.27) centers.

MICRO-D microminiature rack/panel connectors are used in applications requiring highly reliable, extremely small, lightweight connectors.

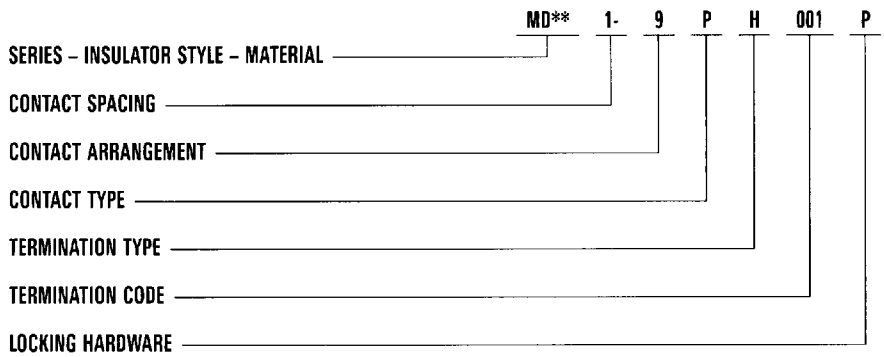
These connectors are available in 4 insulator materials, 2 mounting variations, 7 shell sizes accommodating from 9 to 51 contacts and a special arrangement of 5 micro contacts and 2 coaxials. The 4 insulator materials listed give the MICRO-D connector wide versatility in most applications required by industry.

ITT Cannon can also terminate a wide variety of stranded or solid wire directly to MICRO-D contacts, which is often desirable in high density arrangements.

MICRO-D connectors can also be custom harnessed to meet any customer requirement of single or multiple connectors. Pigtail lead and harness description must be given by the customer. A typical description would be: 192" #25 AWG, gold plated copper leads or 18" of #26 yellow, Teflon-insulated, Type E wire. Shown below are various methods of termination. Consult the factory for any routine or complex harnessing of MICRO-D connectors.

- Glass-filled diallyl phthalate–a thermoset material used in high termperature applications that is immune to cleaning solvents. It also has excellent dielectric properties. Temperature range: −65°F to +257°F (−18°C to +125°C).
- Glass-filled polyester –a thermoplastic that is not affected by cleaning solvents and exhibits excellent dielectric properties. Temperature range: −55°F to +257°F (−65°C to +125°C).

How to Order



SERIES-INSULATOR STYLE-MATERIAL
- MD – Clip mounting–Diallyl phthalate
- MDB – Screw mounting–Diallyl phthalate
- MDV – Clip mounting–Polyester
- MDVB – Screw mounting–Polyester

CONTACT SPACING
- 1 – .050 (1.27) centers

CONTACT ARRANGEMENT
9-15-21-25-31*-37-51. See page 21.

CONTACT TYPE
- P – Pin
- S – Socket

TERMINATION TYPE
- H – Insulated solid or stranded wire
- L – Uninsulated solid wire
- S – Solder pot to accept #26 AWG max. harness wire.

TERMINATION CODE**
- (H) 001 – 18", 7/34 strand, #26 AWG, MIL-W-16878/4, Type E Teflon, yellow.
- (H) 003 – 18", 7/34 strand, #26 AWG, MIL-W-16878/4, Type E Teflon, color coded to MIL-STD-681 System I.
- (L) 1 – 1/2" uninsulated solid #25 AWG gold plated copper.
- (L) 2 – 1" uninsulated solid #25 AWG gold plated copper.

LOCKING HARDWARE (SCREW MOUNTING ONLY)
- P – Jackpost
- K – Jackscrew-standard
- L – Jackscrew-low profile
- F – Float mount
- M – Military specification hardware, see page 25.

No designator – No hardware - standard mounting .091 (2.31) hole diameter

*Not available in clip mounting.
**See table below for additional codes.

Standard Wire Termination Codes

For lengths not shown, consult factory for proper modification code. All wire lengths are minimum.

Harness Type (H)
#26 AWG per MIL-W-16878 Type E Teflon, stranded.

Length	All Yellow	Color Coded*
3 (76.2)	H020	H027
6 (152.4)	H019	H016
8 (203.2)	H026	H034
10 (254.0)	H029	H025
12 (304.8)	H028	H002
18 (457.2)	H001	H003
20 (508.0)	H038	H023
24 (609.6)	H009	H004
30 (762.0)	H010	H005
36 (914.4)	H011	H006
48 (1219 2)	H013	H048
72 (1828 8)	H017	H046
120 (3048.0)	H042	H041

*Cavity #1 black

Solid Uninsulated Type (L)
#25 AWG Gold Plated Copper

Termination Code	Length
L61	125 (3.18)
L56	.150 (3.81)
L57	190 (4 83)
L39	250 (6.35)
L58	.375 (9.52)
L1	.500 (12.70)
L14	.750 (19.05)
L2	1.000 (25.40)
L7	1.500 (38 10)
L6	2.000 (50.80)
L16	2.500 (63.50)
L10	3 000 (76.20)

Standard Data

MATERIALS AND FINISHES

Shell/Insulator (One Piece)	MD/MDB: Glass-filled thermoset plastic MDV/MDVB: Thermoplastic
Contacts	—Copper alloy, gold plate

ELECTRICAL DATA

No. of Contacts	– 9 to 51: (1 arrangement of 5 contacts and 2 coaxials – for screw mount only)
Coaxial Cable	– RG-178/U (Not available for MD clip mount)
Wire Size	– #24 thru #32 AWG
Contact Termination	– Crimp stationary

MECHANICAL FEATURES

Size or Length	– 7 sizes
Coupling	– Friction/jackscrews
Polarization	– Keystone-shaped shells
Contact Spacing Centers	–.050 (1.27mm)
Shell Styles	– Plug and receptacle

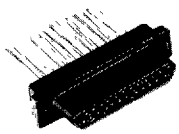
Consult factory for availability.

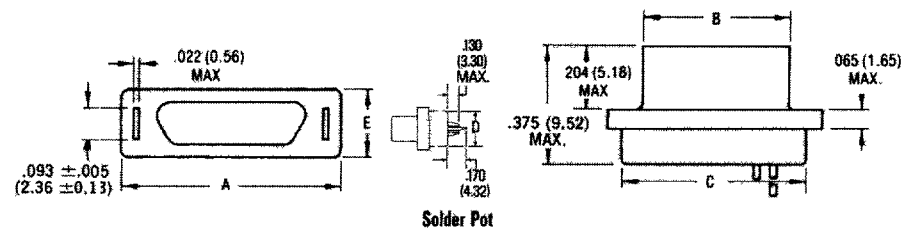
With Clip Mounting Slots

Plug

MD **Glass-filled Diallyl Phthalate Plastic Insulator**

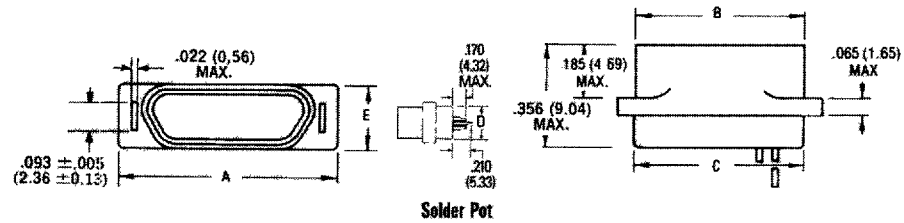
MDV **Glass-filled Polyester Plastic Insulator**





Solder Pot

Receptacle



Solder Pot

Part Number by Shell Size		A Max.	B Max.	C Max.	D Max.	E Max.	Avg. Weight*** ±5% (oz.)/±5% (gm.)
MD1-9P**	MDV1-9P**	.512 (13.00)	.292 (7.42)	.405 (10.29)	.170 (4.32)	.215 (5.46)	.026 (0 73)
MD1-9S**	MDV1-9S**	.512 (13.00)	.376 (9.55)	.405 (10.29)	.170 (4.32)	.215 (5.46)	.026 (0.73)
MD1-15P**	MDV1-15P**	.662 (16.81)	.442 (11.23)	.555 (14.10)	.170 (4.32)	.215 (5.46)	.038 (1.10)
MD1-15S**	MDV1-15S**	.662 (16.81)	.526 (13.36)	.555 (14.10)	.170 (4.32)	.215 (5.46)	.035 (1.00)
MD1-21P**	MDV1-21P**	.812 (20.62)	.592 (15.04)	.705 (17.91)	.170 (4.32)	.215 (5.46)	.053 (1.50)
MD1-21S**	MDV1-21S**	.812 (20.62)	.676 (17.17)	.705 (17 91)	.170 (4.32)	.215 (5.46)	.050 (1.40)
MD1-25P**	MDV1-25P**	.912 (23.16)	.692 (17.58)	.805 (20.45)	170 (4.32)	215 (5.46)	.063 (1.80)
MD1-25S**	MDV1-25S**	.912 (23.16)	.776 (19.71)	.805 (20.45)	.170 (4.32)	.215 (5.46)	.056 (1.60)
MD1-37P**	MDV1-37P**	1.212 (30.78)	.992 (25.20)	1.105 (28.07)	.170 (4.32)	.215 (5.46)	.086 (2.45)
MD1-37S**	MDV1-37S**	1.212 (30.78)	1.076 (27.33)	1.105 (28.07)	.170 (4 32)	.215 (5.46)	.076 (2.15)
MD1-51P**	MDV1-51P**	1.162 (29.51)	.942 (23.93)	1.055 (26.80)	.213 (5.41)	.258 (6.55)	.109 (3.10)
MD1-51S**	MDV1-51S**	1.162 (29.51)	1.026 (26.06)	1.055 (26.80)	.213 (5.41)	.258 (6.55)	.093 (2.65)

**Add lead type and length, see Part Number Explanation

***Weight given is with 1/2", uninsulated solid #25 AWG gold plated copper pigtails.

ITT Cannon

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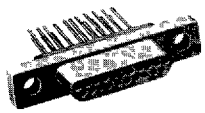
Dimensions are shown in inches (millimeters)
Dimensions subject to change

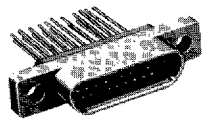
With Screw Mounting Holes (Conforms to MIL-C-83513)

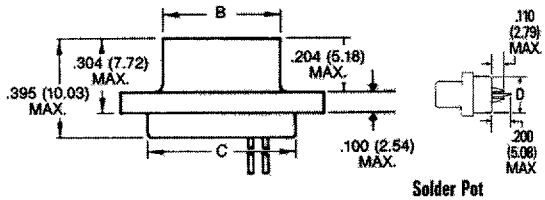
Plug

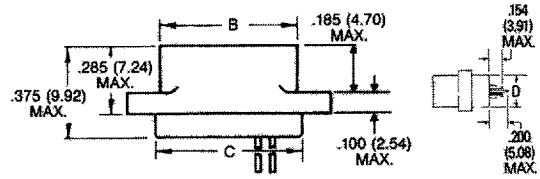
MDB **Glass-filled Diallyl Phthalate Plastic Insulator** MDVB **Glass-filled Polyester Plastic Insulator**

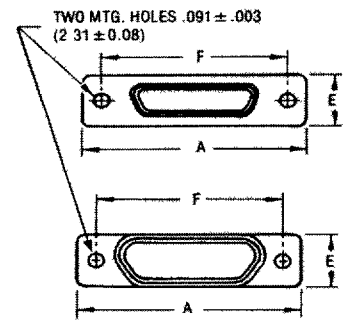


Receptacle









Part Number by Shell Size		A Max.	B Max.	C Max.	D Max.	E Max.	F ±.005	Avg. Weight*** ±5% (oz.) ±5% (gm.)
MDB1-9P**	MDVB1-9P**	788 (20.02)	.292 (7.42)	408 (10.36)	.173 (4.39)	218 (5.54)	.565 (14.35)	.026 (0.73)
MDB1-9S**	MDVB1-9S**	.788 (20.02)	380 (9.65)	.408 (10.36)	.173 (4.39)	.218 (5.54)	.565 (14.35)	.025 (0.70)
MDB1-15P**	MDVB1-15P**	.938 (23.82)	.442 (11.23)	.588 (14.17)	173 (4.39)	.218 (5.54)	.715 (18 16)	.038 (1.10)
MDB1-15S**	MDVB1-15S**	.938 (23.82)	.530 (13.46)	588 (14.17)	.173 (4 39)	.218 (5 54)	.715 (18 16)	.035 (1.00)
MDB1-21P**	MDVB1-21P**	1.088 (27.64)	.592 (15.04)	.708 (17.98)	.173 (4.39)	.218 (5.54)	.865 (21.97)	.053 (1.50)
MDB1-21S**	MDVB1-21S**	1 088 (27 64)	.680 (17 27)	.708 (17.98)	.173 (4 39)	.218 (5.54)	865 (21 97)	.050 (1 40)
MDB1-25P**	MDVB1-25P**	1.188 (30 18)	692 (17 58)	.808 (20 56)	.173 (4.39)	218 (5.54)	.965 (24.51)	.063 (1.80)
MDB1-25S**	MDVB1-25S**	1.188 (30.18)	780 (19.81)	.808 (20.56)	.173 (4.39)	.218 (5.54)	965 (24.51)	.056 (1.60)
MDB1-31P**	MDVB1-31P**	1 338 (33 98)	.842 (21 39)	958 (24 33)	173 (4.39)	.218 (5 54)	1.115 (28 32)	.080 (2.30)
MDB1-31S**	MDVB1-31S**	1.338 (33.98)	.930 (23.62)	.958 (24 33)	173 (4.39)	.218 (5.54)	1.115 (28.32)	.073 (2.10)
MDB1-37P**	MDVB1-37P**	1.488 (37.80)	992 (25.20)	1.108 (28.14)	.173 (4.39)	.218 (5.54)	1 265 (32.13)	086 (2.45)
MDB1-37S**	MDVB1-37S**	1 488 (37.80)	1 080 (27.43)	1.108 (28.14)	173 (4.39)	218 (5.54)	1 265 (32.13)	076 (2 15)
MDB1-51P**	MDVB1-51P**	1.438 (36.52)	.942 (23.93)	1.008 (26 87)	.220 (5 59)	.260 (6.60)	1.215 (30.86)	109 (3.10)
MDB1-51S**	MDVB1-51S**	1.438 (36.52)	1 030 (26.16)	1.058 (26.87)	.220 (5.59)	.260 (6.60)	1.215 (30.86)	.093 (2 64)

**Add lead type and length, see Part Number Explanation

***Weight given is with 1/2", uninsulated solid #25 AWG gold plated copper pigtails

Panel Mounting Hardware

Clip Mounting

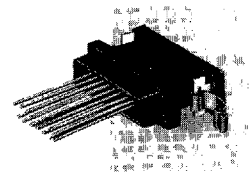
Illustrated is the recommended method of front mounting with metal panel mounting keys. Panel mounting keys are available with or without coupling retention clips.

For front mounting, place the rear of the connector thru the panel cutout. With the mounting flange against the panel, fully insert the panel mounting keys thru the slots in the flange and thru the panel cutout. Retaining the keys in this position, bend them outward against the rear of the panel. When mating a front mounted connector with an unmounted connector, a coupling retention clip assembly may be used to securely lock the two together. Mounting screw brackets are available and may be used instead of the panel mounting keys.

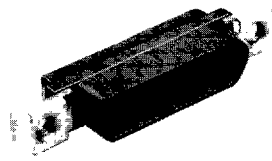
Description	Part Number
Panel Mounting Key	201-9100-000
Mounting Key and Coupling Clip Assembly	294-9100-000
Mounting Screw Bracket	015-9100-000
*Edgeboard Mounting Bracket	015-5009-000
**Edgeboard Mounting Bracket and Coupling Clip Assembly	MD51428-1

*Must be ordered separately; specify left and right hand for complete assembly.

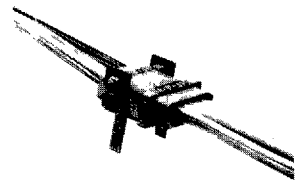
**Must be ordered separately; assembly contains a set of left and right hand types.



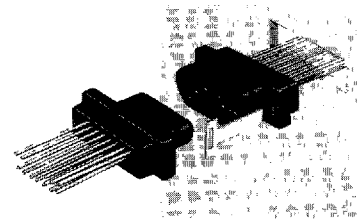
Coupling Retention Clip
(see Figure 2)



Mounting Screw Brackets
(see Figures 1 and 3)

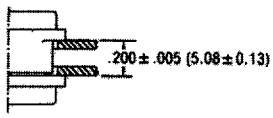


Edgeboard Mounted
(see Figure 4)

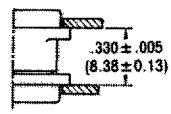


Panel
Mounting Key

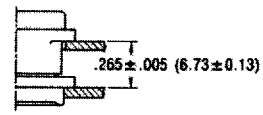
Dimensions (Clip Mounting Only)



Plug and Receptacle
Rear Mounted



Plug and Receptacle
Front Mounted



Plug Front Mounted
Receptacle Rear Mounted

Panel Cutouts

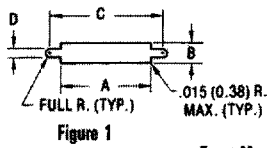


Figure 1

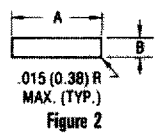


Figure 2

Front Mounting

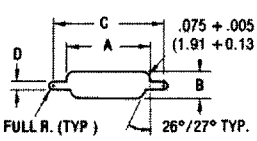


Figure 3
Rear Mounting

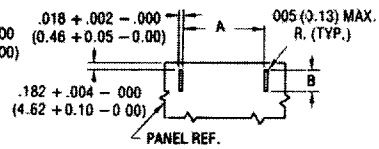
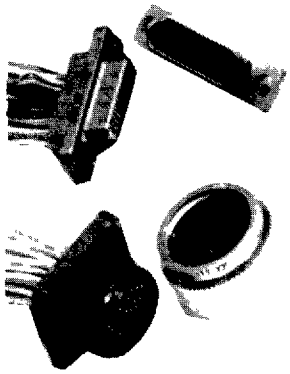


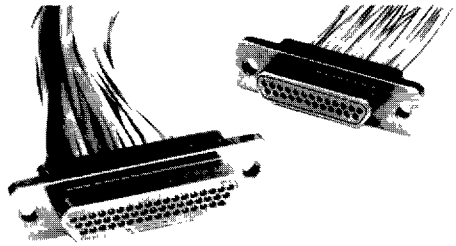
Figure 4
Edgeboard Mounting

1. A panel thickness of 1/8" (3.17mm) maximum is recommended for ease of tab bending when a panel mounting key & clip assembly or edgeboard mounting brackets are used.
2. Front mounting is preferred. However, when rear mounting is necessary, use figure 3 for dimensions.
3. Figure 4 is for edgeboard mounting bracket or edgeboard clip assembly The .184 ± .002 (2.67 ± 0.05) dimension locates the MD socket insulator flush with the end of the board
4. Screw brackets (015-9100-000) will accommodate #2-56 screws.
5. Front mounting (Fig. 1) and rear mounting (Fig. 3) accommodate #2-56 screws when jackscrews are used. See detail on page 24 when jackposts are used.

Shell Size	Cutout Figure	A +.004 (0.10) –.000 (0.00)	B +.004 (0.10) –.000 (0.00)	C +.004 (0.10) –.000 (0.00)	D +.005 (0.13) –.000 (0.00)
9	1	408 (10.36)	.172 (4.37)	650 (16.51)	089 (2.26)
	2	.408 (10.36)	.172 (4.37)	—	—
	3	.378 (9.60)	.217 (5.51)	.650 (16 51)	.089 (2.26)
	4	400 (10.16)	.091 (2.31)	—	—
15	1	588 (14.94)	.172 (4.37)	.795 (20.19)	.089 (2.26)
	2	.588 (14.94)	.172 (4.37)	—	—
	3	.528 (13.28)	.217 (5.51)	.795 (20.19)	.089 (2.26)
	4	.550 (13.97)	.091 (2.31)	—	—
21	1	.738 (18.75)	.172 (4.37)	.945 (24.00)	.089 (2.26)
	2	.738 (18.75)	.172 (4.37)	—	—
	3	.678 (17.27)	.217 (5.51)	945 (24.00)	.089 (2.26)
	4	.700 (17.78)	091 (2.31)	—	—
25	1	.838 (21.29)	.172 (4.37)	1.045 (26.54)	.089 (2.26)
	2	.838 (21.29)	.172 (4.37)	—	—
	3	.778 (19.76)	.217 (5.51)	1.045 (26.54)	.089 (2.26)
	4	.800 (20.32)	091 (2.31)	—	—
37	1	1.138 (28.91)	.172 (4.37)	1.345 (34.16)	.089 (2.26)
	2	1.138 (28.91)	172 (4.37)	—	—
	3	1.078 (27.38)	.217 (5.51)	1 345 (34 16)	.089 (2.26)
	4	1.100 (27.94)	091 (2.31)	—	—
51	1	1 088 (27.64)	.215 (5.46)	1.295 (32.89)	.089 (2.26)
	2	1 088 (27.64)	215 (5.46)	—	—
	3	1.028 (26.11)	.260 (6.60)	1.295 (32.89)	089 (2 26)
	4	1.050 (26.67)	.091 (2.31)	—	—

The Micro Line – .050" Center Spacing





The Cannon MICRO Series established the standards for performance and reliability in microminiature interconnects. Exceptionally versatile, MICRO connectors are available in rectangular, circular, and strip configurations, with 3 amp MICROPIN™/MICROSOCKET™ contacts on .050(1.27) centers, or with special arrangements of power and coaxial contacts.

The heart of the Cannon MICROPIN/MICROSOCKET contact system is a multi-element Twist Pin Contact recessed within an insulating housing. The rugged, cylindrical sockets are mounted in the exposed half of the connector. When connector halves are mated, the chamfered sockets are first aligned by the connector body, then guide the spiral MICROPIN contacts into proper and positive alignment, even under worst-case tolerance conditions. This is Cannon's POS-A-LINE connector design.

The multiple spring elements of the MICROPIN, then under compression, form a multi-point contact system of high mechanical and electrical integrity. Contacts will provide a high degree of reliability over hundreds of mating and unmating cycles, and have proven themselves in applications that range from commercial products to equipment that has been landed on the moon.

- Contact rating – 3 amps max.
- Contact centers – .050(1.27).
- Wire sizes – #24 thru #32 AWG, stranded or solid.
- Contact termination–multiple indent crimp.
- Contact retention – fixed via epoxy.
- Contact materials and finish – Copper alloy, gold-plated per MIL-G-45204, Type II, Grade C, Class 1 over copper flash.
- Mating/unmating force – 8 oz. per contact, max./0.5 oz. per contact min.

Performance Data

The table below summarizes the results of key tests performed in accordance with MIL-STD-1344, where applicable. Data is applicable to standard connectors with standard terminations. Variations may affect this data, so please consult the factory for further information on your requirements.

Test	Method	Criteria of Acceptance
Dielectric Withstanding Voltage	Method 3001:	
	900 VAC at sea level	No breakdown
	300 VAC at 70,000' altitude	No breakdown
	Solder Pots and Shielded Cable 600 VAC at sea level	No breakdown
	150 VAC at 70,000' altitude	No breakdown
Insulation Resistance	Method 3003	5,000 megohms minimum
Thermal Shock	Method 1003, Condition A: −55°C to +125°C	No physical damage
Physical Shock	Method 2004, Condition E: 50 G's, 3-axes, 6 millisecond duration sawtooth pulse	No physical damage No loss of continuity > 1 μsec
Vibration	Method 2005, Condition IV: 20 G's, 10-2,000 Hz, 12 hrs.	No physical damage No loss of continuity > 1 μsec
Durability	500 cycles of mating and unmating, 500 CPH max.	No mechanical or electrical defects
Moisture Resistance	Method 1002, Type II omit steps 7a & 7b	Insulation resistance > 100 megohms
Salt Spray	Method 1001, Condition B. 48 hours	Shall be capable of mating and unmating, and meet contact resistance requirements
Contact Resistance (MIL-STD-202)	Method 307:	
	At 3 amps	8 milliohms maximum
	At 1 milliamp	10 milliohms maximum
Contact Retention	Per MIL-C-83513	5 lb. minimum axial load

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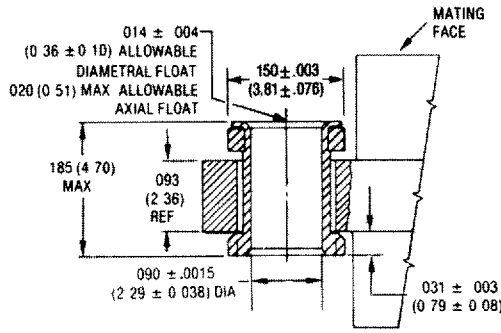
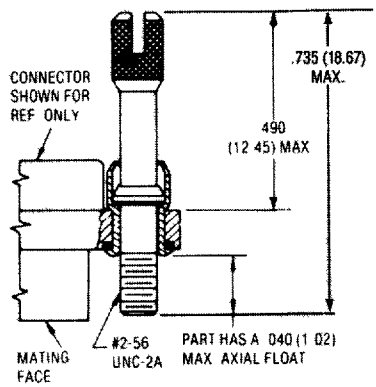
Mounting Hardware Views (sizes 9 – 51)

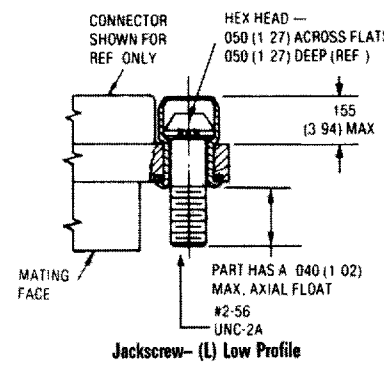
This hardware is factory installed.



Float Mount– (F)



Jackscrew– (K) Standard



Jackscrew– (L) Low Profile

Shown here is a cutaway view of the float mount for the MD connector. The basic shell dimensions are the same for the float mount and the screw mounting hole configurations. View shown is for standard float mount front panel mounting. Reverse mounting is available on request

Repair kit available–consult factory.

*NOTE: Torque values are as follows.
Low Profile Jackscrew (L)–2.5 in/lbs
Standard Jackscrew (K)–2.5 in/lbs

Mounting Hardware to Military Specification (for sizes 9 – 100) per MIL-C-83513/5

This hardware supplied unassembled.

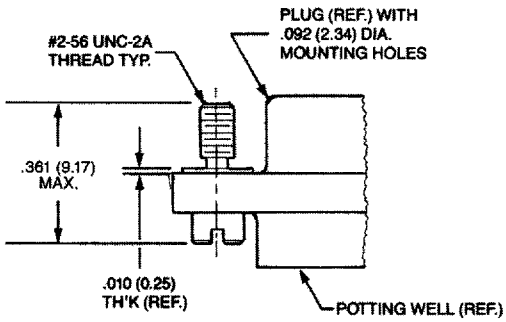
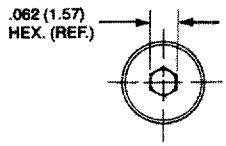


Figure 1. Jackscrew – Low profile Slotted Head Size 9-51



Allen Head Optional Head Configuration Plug and Receptacle Low and High Profile Size 9-51

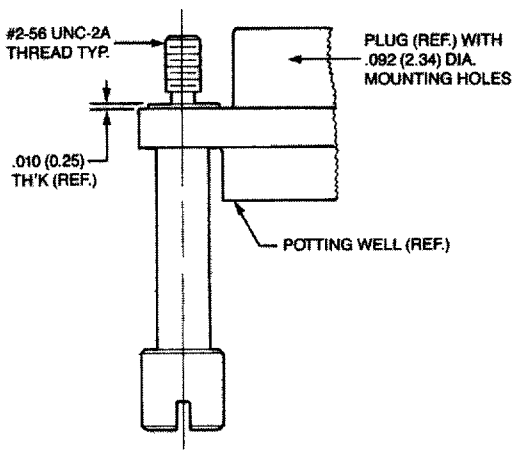


Figure 2. Jackscrew – High Profile Slotted Head Size 9-51

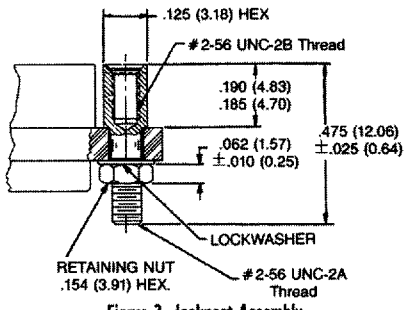


Figure 3. Jackpost Assembly Size 9-51

Description	Size 9-51 Mod Code Part Number	Size 100* Mod Code Part Number
Slotted Head Jackscrew Assy Low Profile (Figure 1)	M5 320-9508-025	M15 320-9508-021
Slotted Head Jackscrew Assy High Profile (Figure 2)	M6 320-9508-027	M16 320-9508-023
Allen Head Jackscrew Assy Low Profile (Figure 1)	M2 320-9508-026	M12 320-9508-022
Allen Head Jackscrew Assy High Profile (Figure 2)	M3 320-9508-028	M13 320-9508-024
Jackpost Assy (Figure 3)	M7 320-9505-033	M17 320-9505-030

*Size 100 requires B1 size mounting holes.

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