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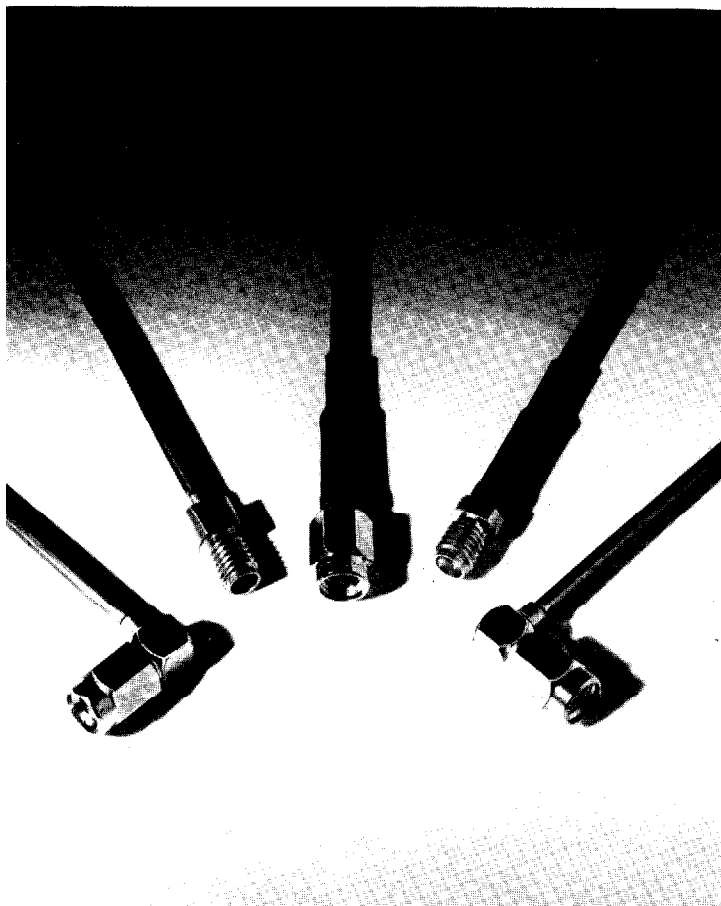
SSMA

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50 Ω

DC - 18 GHz

DC - 34 GHz possible



The SSMA series of connectors are of identical construction to the classic SMA series but offer the benefit of greatly reduced dimensions. They are recommended for use on equipment having limited component space availability combined with frequency requirements up to 34 GHz.

GENERAL

- Miniature coaxial connectors
- Screw-on coupling
- High RF performance
- Reduced weight and package size.

APPLICABLE STANDARDS

- IEC (Draft)
- CECC 22160
- BS 9210 F 0018



SPACE QUALIFIED APPROVAL

- SCC 3402 (ESA)



APPLICATIONS

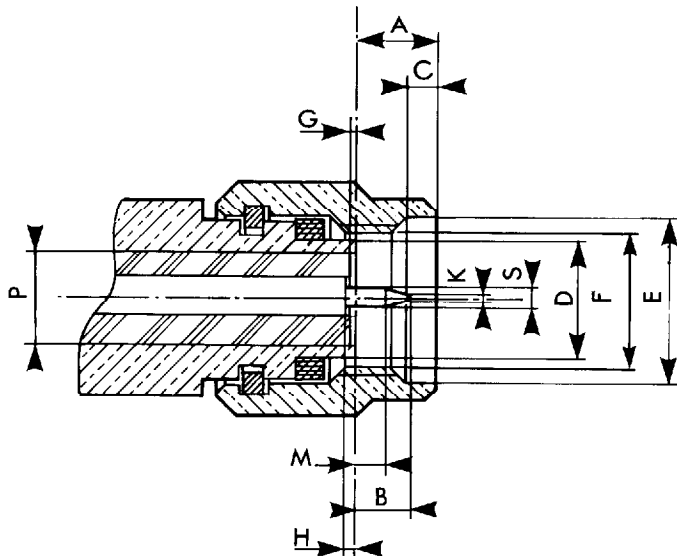
- Military aeronautics
- Missiles
- Detection - Countermeasures

SSMA

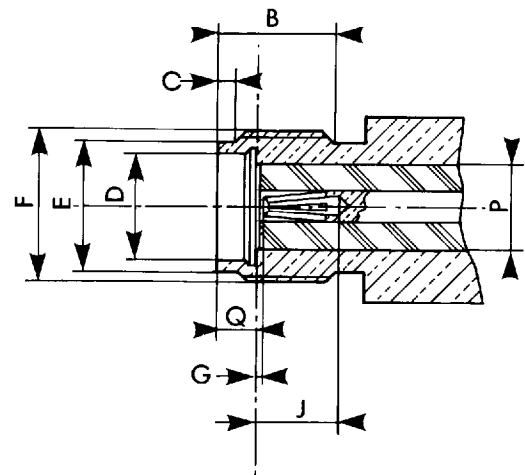
CHARACTERISTICS

REQUIREMENT	MIL - C - 39012 paragraph	GENERAL SPECIFICATIONS									
ELECTRICAL											
Impedance		50 Ω									
Frequency range		0 - 18 GHz									
VSWR	3 - 14	cable 2,6/50 .085" straight 1,20 + 0,03 F (GHz) 1,07 + 0,009 F (GHz) right angle 1,20 + 0,033 F (GHz) 1,10 + 0,009 F (GHz)									
Insertion loss	3 - 27	straight : 0,04 \sqrt{F} (GHz) dB max. right angle : 0,06 \sqrt{F} (GHz) dB max.									
RF leakage	3 - 26	- 90 dB min. between 2 and 3 GHz									
Insulation resistance	3 - 11	1000 megohms min.									
Contact resistance	3 - 16	<table border="1"> <thead> <tr> <th></th> <th>Initial</th> <th>After environmen</th> </tr> </thead> <tbody> <tr> <td>Centre contact (mΩ)</td> <td>4</td> <td>10</td> </tr> <tr> <td>Outer contact (mΩ)</td> <td>2,5</td> <td>7,5</td> </tr> </tbody> </table>		Initial	After environmen	Centre contact (m Ω)	4	10	Outer contact (m Ω)	2,5	7,5
	Initial	After environmen									
Centre contact (m Ω)	4	10									
Outer contact (m Ω)	2,5	7,5									
Voltage rating (volts RMS)		at sea level 250 V ; at 70000 ft (21000m) 85 V or limited by the cable									
Dielectric withstanding voltage	3 - 17	at sea level 750 V ; at 70000 ft (21000m) 150 V or limited by the cable									
RF high potential withstanding voltage (Frequency 5 MHz)	3 - 23	at sea level 500 V or limited by the cable.									
MECHANICAL											
Life	3 - 15	500 matings									
Force to engage and disengage	3 - 5 - 1	torque : 2 inch-pounds - 12 N.cm									
Mating torque		5.3 to 7,1 inch pounds - 60 to 80 N.cm									
Coupling nut proof torque		7.5 inch-pounds - 85 N.cm									
Coupling nut retention force	3 - 25	22.5 Lbf - 100 N									
Cable retention force	3 - 24	cable 2.6/50 : 25 Lbs - 110 N ; and cable .085" : 30 Lbs - 133 N									
Contact captivation		axial force : 5 Lbf - 22 N torque : 2.5 inch-ounces - 1.8 N.cm if applicable									
ENVIRONMENTAL											
Operating temperature range		standard models : - 55°C + 155°C hermetic : - 55°C + 155°C semi rigid cables : - 55°C + 105°C									
Temperature cycling		MIL - STD - 202, method 102, condition D									
Thermal shock	3 - 20	MIL - STD - 202, method 107, condition A									
High temperature test		MIL - STD - 202, method 108									
Corrosion (salt spray)	3 - 13	MIL - STD - 202, method 101, condition B, 5%									
Vibration	3 - 18	MIL - STD - 202, method 204, condition A, 10 g									
Shock	3 - 19	MIL - STD - 202, method 213, condition A, 50 g									
Moisture resistance	3 - 21	MIL - STD - 202, method 106									
Barometric pressure	3 - 22	MIL - STD - 202, method 105, condition C									
Hermetic test		down to 10 ⁻⁶ mm Hg (Torr) leak rate : < 1 x 10 ⁻⁸ atm/cm ³ /s									
MATERIALS											
Bodies		stainless steel or beryllium copper									
Contacts		beryllium copper									
Insulators		PTFE teflon									
Gaskets		silicone rubber									
PLATING/FINISH											
Body		passivated or nickel (except R 121 630 003 - gold)									
Centre contacts		gold									

PLUG



JACK



SSMA

Letter	PLUG				JACK			
	mm		Inch		mm		Inch	
	min.	max.	min.	max.	min.	max.	min.	max.
A		3,43		.135				
B		1,65		.065	4,32		.170	
C	0,38	1,14	.015	.045	0,38	1,14	.015	.045
ØD	3,15	3,22	.124	.127	3,23	3,30	.127	.130
ØE	4,98		.196		3,89	4,06	.153	.160
F	N° 10 - 36 UNS 2 B				N° 10 - 36 UNS 2 A			
G *	+0,05	-0,18	+0,002	-.007	0,0	0,41	0,0	.016

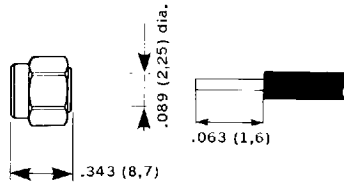
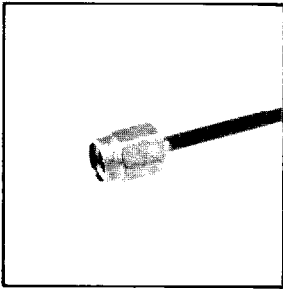
Letter	PLUG				JACK			
	mm		Inch		mm		Inch	
	min.	max.	min.	max.	min.	max.	min.	max.
H	0,0		0,0					
J					2,92		.115	
ØK		0,25		.010				
M	1,0		.039					
Q					1,88	1,98	.074	.078
ØS	0,495	0,528	.019	.021				
P	2,80 nom.		.110 nom.		2,80 nom.		.110 nom.	

NOTE : the sign - signifies set back from the reference plane
the sign + signifies in front of the reference plane

SSMA

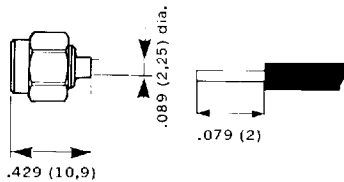
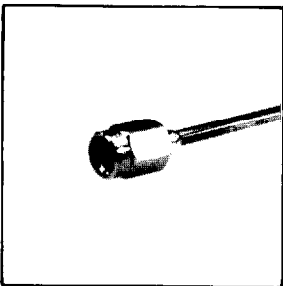
FOR SEMI RIGID CABLE, DIRECT SOLDER TYPE

STRAIGHT PLUG



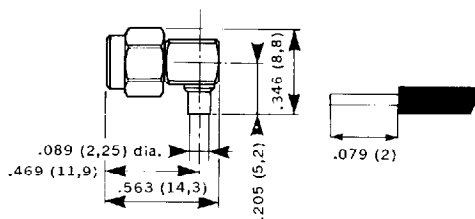
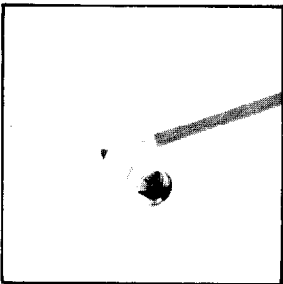
CABLE Ø	.085"
PART NUMBER	R 121 052
a dia.	.089 (2,25)
Assembly	M 01

STRAIGHT PLUG WITH CENTRE CONTACT



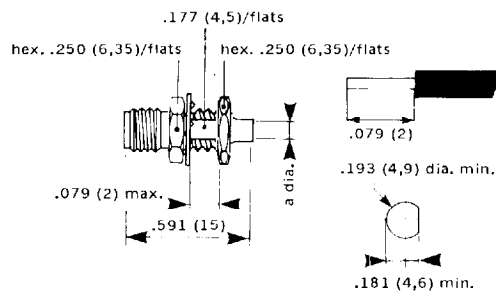
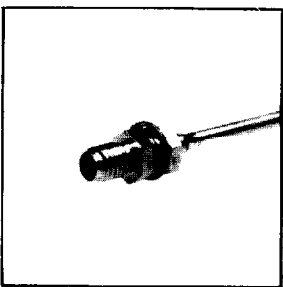
CABLE Ø	.085"
PART NUMBER	R 121 053
a dia.	.089 (2,25)
Assembly	M 02

RIGHT ANGLE PLUG



CABLE Ø	.085"
PART NUMBER	R 121 153
a dia.	.089 (2,25)
Assembly	M 04

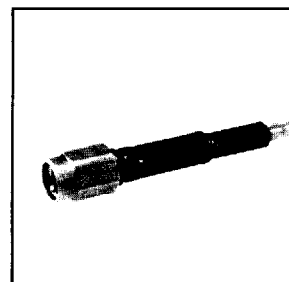
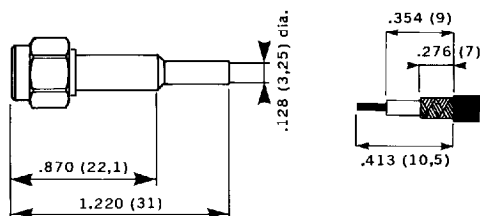
BULKHEAD JACK



CABLE Ø	.085"
PART NUMBER	R 121 316
a dia.	.089 (2,25)
Assembly	M 06

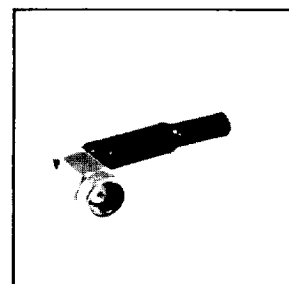
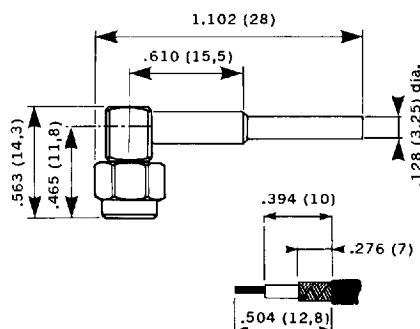
STRAIGHT PLUG

CABLE RG	174 A/U - 188 A/U
PART NUMBER	R 121 072
a dia.	.128 (3,25)
Assembly	M 03

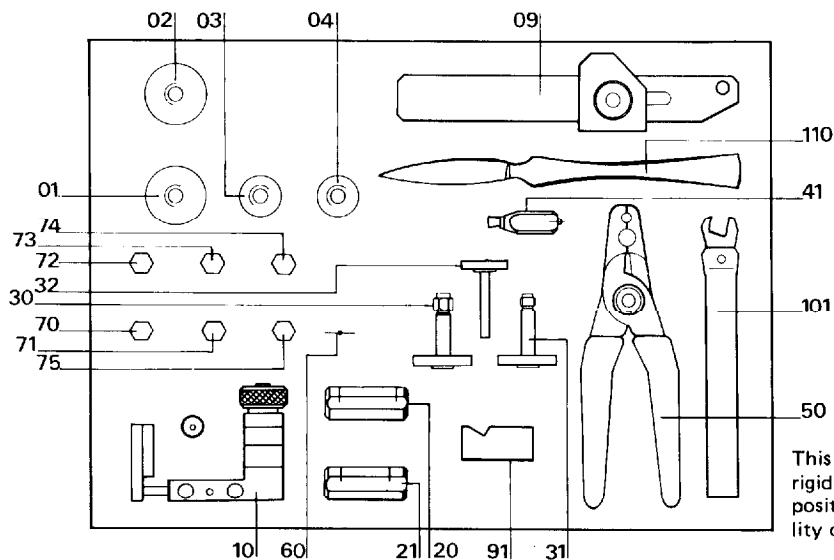


RIGHT ANGLE PLUG

CABLE RG	174 A/U - 188 A/U
PART NUMBER	R 121 172
a dia.	.128 (3,25)
Assembly	M 05



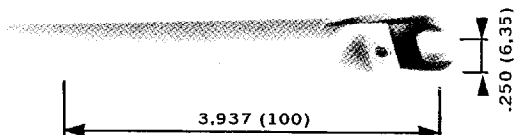
SSMA CABLING TOOL KIT R 282 118



(01) 730.11.030	(50) 730.81.021
(02) 730.11.050	(60) 730.15.140
(03) 730.11.040	(70) 730.40.002
(04) 730.11.060	(71) 730.70.004
(09) 730.11.000	(72) 730.15.003
(10) 730.15.021	(73) 730.30.003
(20) 730.20.033	(74) 730.40.024
(21) 730.20.073	(75) 730.40.023
(30) 730.25.003	(91) 730.20.140
(31) 730.25.004	(101) 730.80.230
(32) 730.25.043	(110) 730.81.021
(41) 730.60.000	

This kit has been specially designed for the assembly of .085" semi rigid cable with SSMA connectors and contains all the tools, jigs, positioners etc. necessary to ensure repeatable quality and reliability of microwave semi rigid cable assemblies.

TORQUE WRENCH : R 282 319

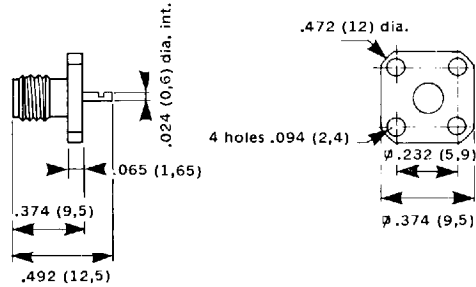
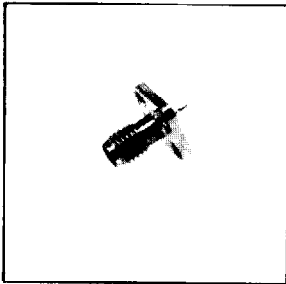


This torque wrench is preset to the recommended tightening torque and designed specifically for tightening the coupling nuts of plugs to the correct torque. Its use avoids damage to the interfaces and ensures good resistance to shock and vibration.

SSMA

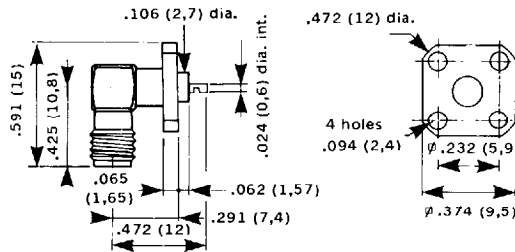
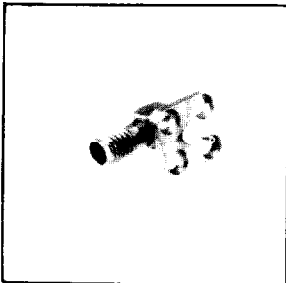
FLANGE RECEPTACLES - SOLDER POT CONTACT

SQUARE FLANGE RECEPTACLE



PART NUMBER	R 121 403
Captive contact	YES

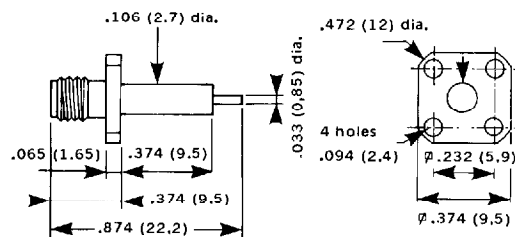
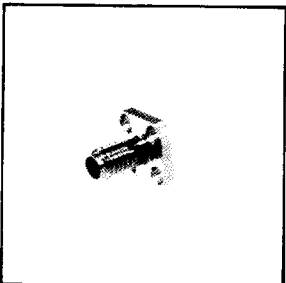
RIGHT ANGLE FLANGE RECEPTACLE



PART NUMBER	R 121 653
Captive contact	YES

FLANGE RECEPTACLES - STUB CONTACT

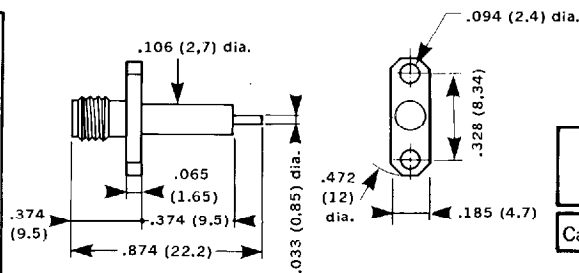
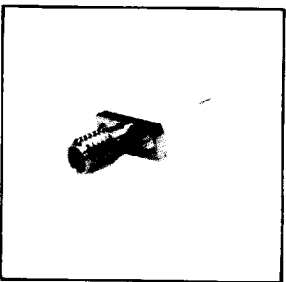
SQUARE FLANGE RECEPTACLE



PART NUMBER	R 121 414
Captive contact	YES

FLANGE RECEPTACLES - STUB CONTACT, MICROELECTRONIC BOX MOUNTING - APPLICATIONS

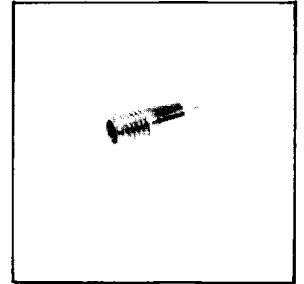
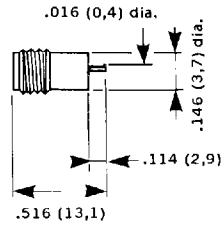
NARROW FLANGE RECEPTACLE



PART NUMBER	R 121 464
Captive contact	YES

SOLDER MOUNT MIC RECEPTACLE

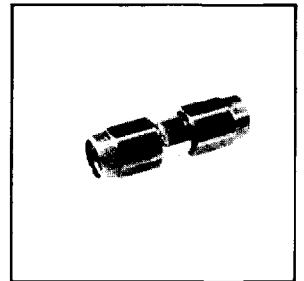
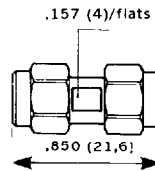
PART NUMBER	R 121 630 003
Captive contact	YES
Installation	M 07



IN SERIES ADAPTORS

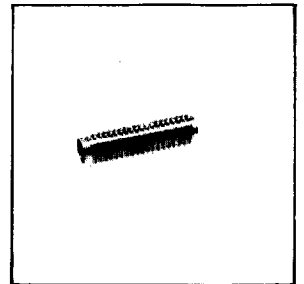
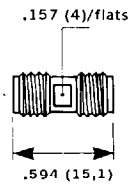
MALE - MALE

PART NUMBER	R 121 703
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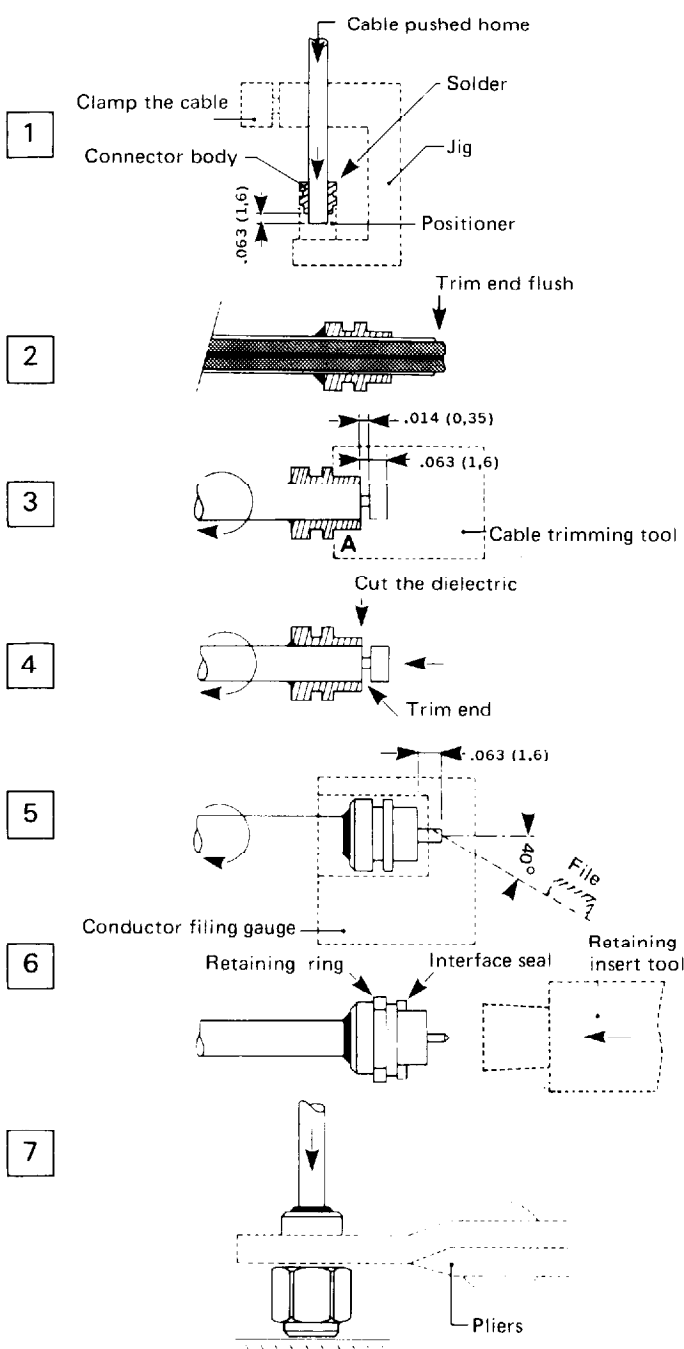
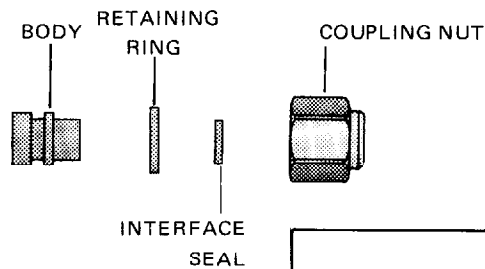
FEMALE - FEMALE

PART NUMBER	R 121 705
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MOUNTING INSTRUCTIONS

M 01



CONNECTOR R 121 052

Tool kit R 282 118

	Item
assembly jig	10
positioner	72
cable trimming tool	21
retaining ring insert tool	41
retaining ring pliers	50
conductor filing gauge	91

NOTE : It is recommended that semi-rigid cable with a silvered copper covered steel conductor is used as the conductor becomes the centre contact.

- 1 - 1 Place the cable into the assembly jig
- 1 - 2 Place the connector body and positioner onto the cable, then clamp the cable
- 1 - 3 Put 3 rings of solder around the cable
- 1 - 4 Solder the body onto the semi-rigid

- 2 - 1 After the sub-assembly has cooled, remove it from the jig
- 2 - 2 Trim extended dielectric flush with the end of the cable outer

- 3 - 1 Insert the connector body into side A of the cable trimming tool
- 3 - 2 Saw through cable outer whilst turning seated sub-assembly

- 4 - 1 Cut through dielectric and bare inner conductor
- 4 - 2 Inspect sub-assembly and clean unit free from all chips, foreign matter etc.

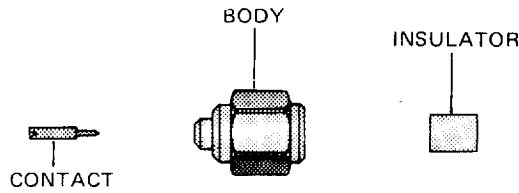
- 5 - 1 Push home sub-assembly into the conductor filing gauge and file the conductor to a point whilst turning the cable

- 6 - 1 Place the interface seal O ring onto body
- 6 - 2 Place retaining ring onto its insert tool
- 6 - 3 Push sub-assembly into the tool until the retaining ring snaps into place

- 7 - 1 Compress retaining ring using retaining ring pliers
- 7 - 2 Push coupling nut onto sub-assembly and over retaining ring

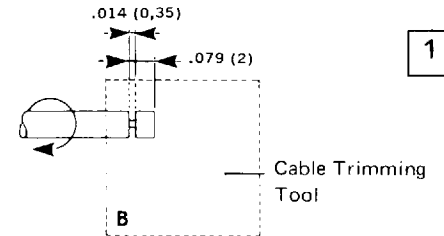
MOUNTING INSTRUCTIONS

M 02



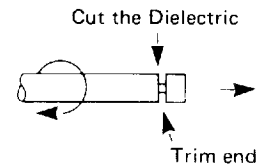
CONNECTOR	TOOLING
R 121 053	Tool kit R 282 118
	cable trimming tool Item 21
	assembly jig 10
	spacer 60
	positioner 75
	dielectric insert tool 30
	dielectric plunger 32

- 1 - 1 Insert the cable into end B of the cable trimming tool
 1 - 2 Saw through cable outer and into dielectric whilst turning the cable



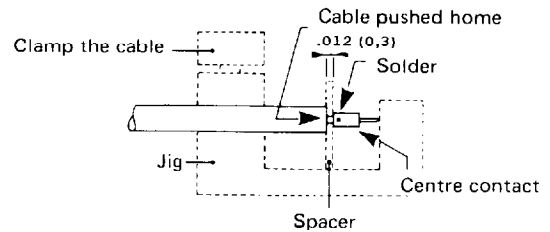
1

- 2 - 1 Cut through the dielectric and bare inner conductor
 2 - 2 Trim the end of the cable
 2 - 3 Inspect cable and clean free from all chips, foreign matter etc.



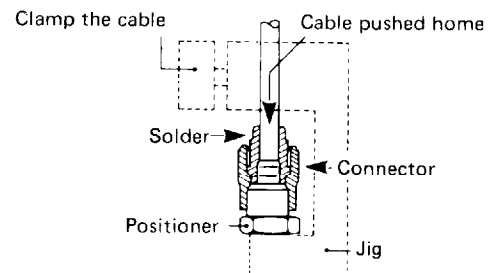
2

- 3 - 1 Place the cable into the assembly jig
 3 - 2 Position the contact and spacer as shown
 3 - 3 Solder the contact



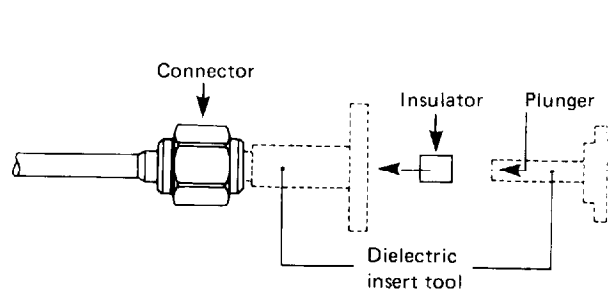
3

- 4 - 1 After the sub-assembly has cooled, remove it from the jig
 4 - 2 Screw the body and positioner together
 4 - 3 Place cable into the body until the contact bottoms with the positioner and clamp the cable
 4 - 4 Put 3 rings of solder around the cable and solder the body onto the semi-rigid



4

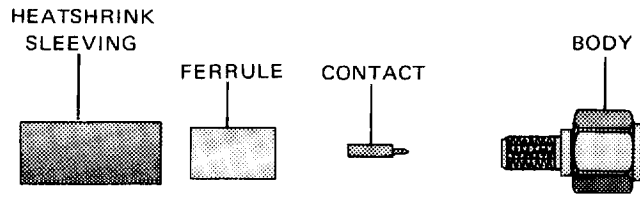
- 5 - 1 After the sub-assembly has cooled, remove it from the jig
 5 - 2 Screw the dielectric insert tool into the body and insert the insulator with the plunger



5

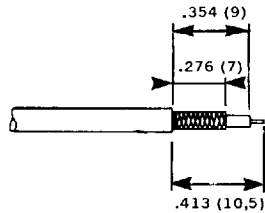
MOUNTING INSTRUCTIONS

M 03



CONNECTOR	TOOLING
R 121 072	RADIALL crimp tool R 282 211 or RADIALL crimp tool R 282 240 + RADIALL crimp dies R 282 241
	or BUCHANAN crimp tool 612 648 + BUCHANAN crimp dies 612 784
	.102 (2,6) Dia. cable : Hex. .128 (3,25)

1



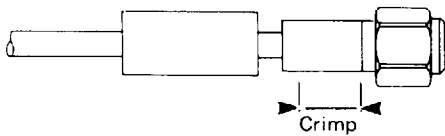
- 1 - 1 Place heatshrink sleeving and ferrule onto the cable
- 1 - 2 Strip the cable

2



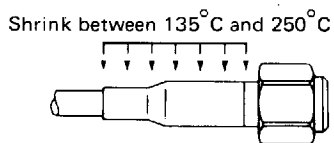
- 2 - 1 Solder the contact
- 2 - 2 Flare the braid

3



- 3 - 1 Position the body onto the cable
- 3 - 2 Crimp the ferrule

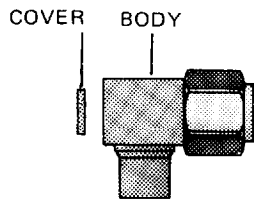
4



- 4 - 1 Shrink the heatshrink sleeving over the ferrule

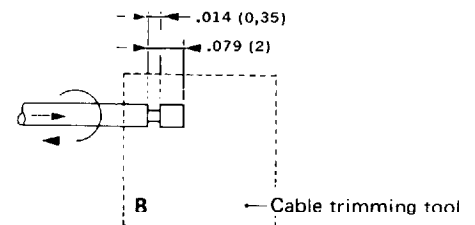
MOUNTING INSTRUCTIONS

M 04

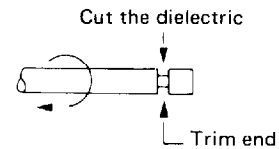


CONNECTOR	TOOLING	
R 121 153	Tool kit R 282 118	Item
	cable trimming tool	21
	assembly jig	10
	positioner	74

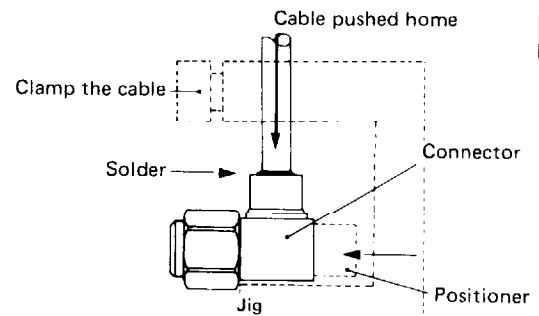
- 1 - 1 Insert the cable into end B of the cable trimming tool
- 1 - 2 Saw through cable outer and into dielectric whilst turning the cable



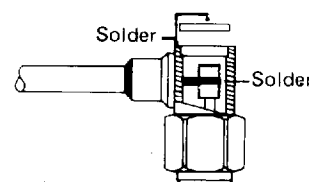
- 2 - 1 Cut through the dielectric and bare inner conductor
- 2 - 2 Trim the end of the cable
- 2 - 3 Inspect cable and clean free from all chips, foreign matter etc. . .



- 3 - 1 Insert the cable into the body
- 3 - 2 Secure the positioner into the body
- 3 - 3 Place the sub-assembly into the assembly jig
- 3 - 4 Put 3 rings of solder around the cable and solder the body onto the semi-rigid

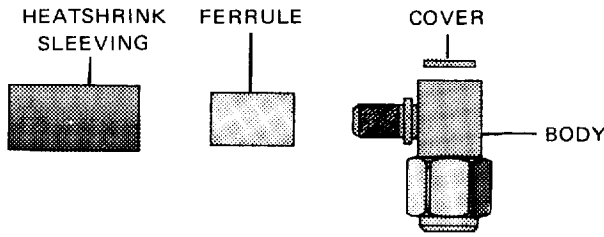


- 4 - 1 After the sub-assembly has cooled, remove it from the jig
- 4 - 2 Remove the positioner
- 4 - 3 Solder the contact
- 4 - 4 Solder the cover



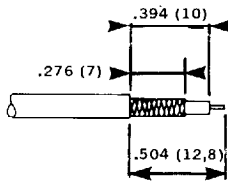
MOUNTING INSTRUCTIONS

M 05



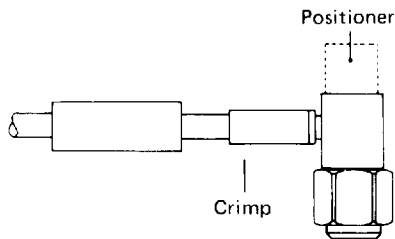
CONNECTOR	TOOLING
R 121 172	Tool kit positioner R 282 118 Item 74
	RADIALL crimp tool R 282 211 or RADIALL crimp tool R 282 240 + RADIALL crimp dies R 282 241
	or BUCHANAN crimp tool 612 648 + BUCHANAN crimp dies 612 784
	.102 (2,6) Dia. cable : Hex. .128 (3,25)

1



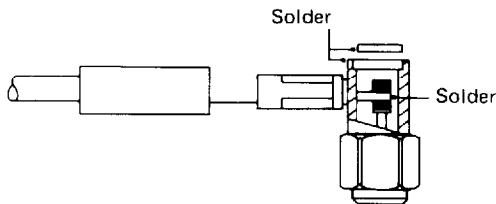
- 1 - 1 Place the heatshrink sleeving and ferrule onto the cable
- 1 - 2 Strip the cable

2



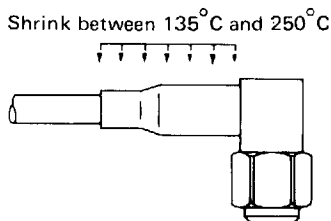
- 2 - 1 Flare the braid
- 2 - 2 Position the body onto the cable
- 2 - 3 Secure the positioner into the body
- 2 - 4 Crimp the ferrule

3



- 3 - 1 Remove the positioner
- 3 - 2 Solder the contact
- 3 - 3 Solder the cover

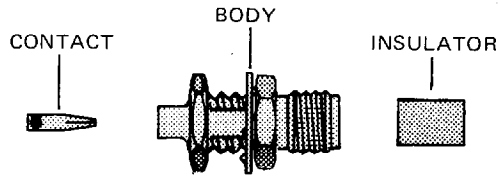
4



- 4 - 1 Shrink the heatshrink sleeving over the ferrule

MOUNTING INSTRUCTIONS

M 06



CONNECTOR	TOOLING	
R 121 316	Tool kit R 282 118	Item
	cable trimming tool	21
	assembly jig	10
	spacer	60
	positioner	70
	dielectric insert tool	31
	dielectric plunger	32

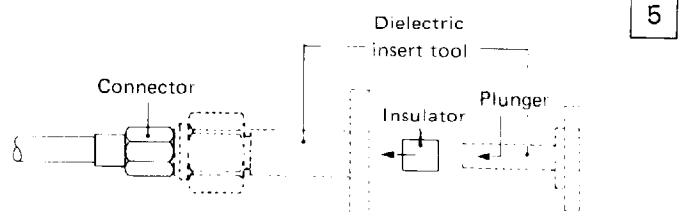
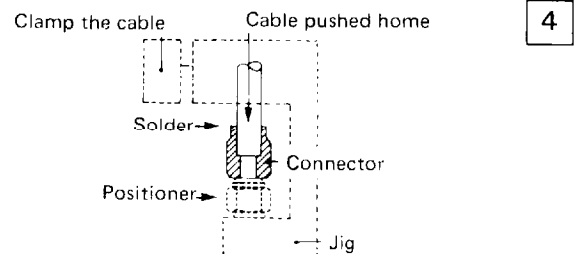
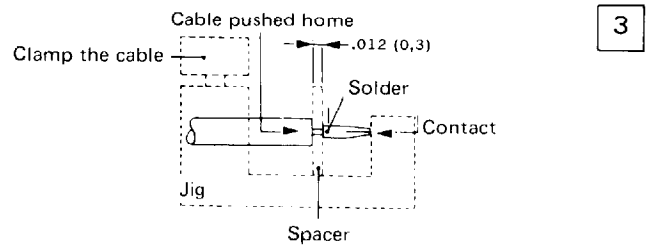
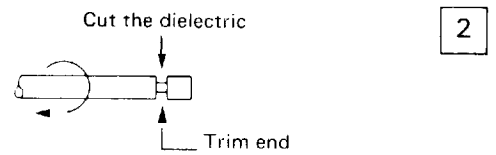
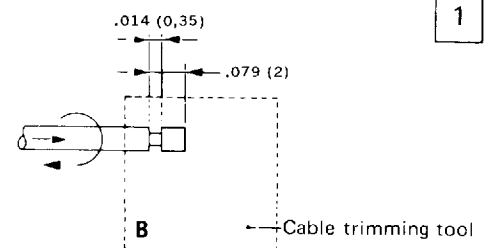
- 1 - 1 Insert the cable into end B of the cable trimming tool
- 1 - 2 Saw through cable outer and into dielectric whilst turning the cable

- 2 - 1 Cut through the dielectric and bare inner conductor
- 2 - 2 Trim the end of the cable
- 2 - 3 Inspect cable and clean free from all chips, foreign matter etc.

- 3 - 1 Place the cable into the assembly jig
- 3 - 2 Position the contact and spacer as shown
- 3 - 3 Solder the contact

- 4 - 1 After the sub-assembly has cooled, remove it from the jig
- 4 - 2 Screw the body and positioner together
- 4 - 3 Place cable into the body until the contact bottoms with the positioner and clamp the cable
- 4 - 4 Put 3 rings of solder around the cable and solder the body onto the semi-rigid

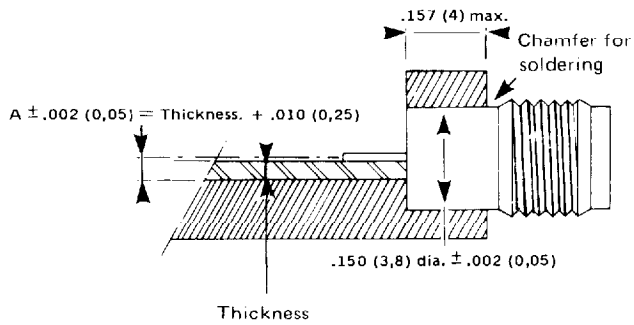
- 5 - 1 After the sub-assembly has cooled, remove it from the jig
- 5 - 2 Screw the dielectric insert tool into the body and insert the insulator with the plunger



Stripline installation

M 07

CONNECTOR	TOOLING
R 121 630 003	100 or 250 W resistance soldering iron with tweezers



RECOMMENDED CIRCUIT

- Insulator : ceramic
- thickness : $.025 (0,635 \text{ mm})$
- Dielectric constant : $.386 (9,8 \text{ mm})$
- Stripline : gold
- width : $.025 (0,635 \text{ mm})$
- Circuit : gold
- Ground plane : gold

CABLE-CONNECTOR SELECTION GUIDE

CABLE DIMENSION REFERENCE CHART

The following tables are presented as a convenient reference only.
For detailed specifications, refer to the relevant national or cable manufacturer's specifications.
All dimensions are nominal unless otherwise specified.

CABLE TYPE	DIMENSIONS Ø in inch and (mm)					CABLE GROUP O.D/Ω	STANDARD
	CENTRE CONDUCTOR		DIELECTRIC	BRAID *	JACKET		
	COMPOSITION	NOM.					

FLEXIBLE CABLES

RG 174 A/U	7 x .006 (0.16)	.019 (0.48)	.060 (1.52)	.088 (2.24) max.	.110 (2.79)	2.6/50	MIL-C-17 F
RG 188 A/U	7 x .007 (0.17)	.020 (0.52)	.060 (1.52)	.081 (2.06) max.	.098 (2.49)	2.6/50	MIL-C-17 F
RG 316 /U	7 x .007 (0.17)	.020 (0.51)	.060 (1.52)	.081 (2.06) max.	.098 (2.49)	2.6/50	MIL-C-17 F
URM 95	solid	.018 (0.46)	.059 (1.50)	.077 (1.95)	.091 (2.30)	2.6/50	BS 2316
URM 109	7 x .007 (0.18)	.021 (0.54)	.059 (1.50)	.077 (1.95)	.096 (2.45)	2.6/50	BS 2316
URM 116	7 x .006 (0.165)	.020 (0.495)	.059 (1.50)	.077 (1.95)	.110 (2.80)	2.6/50	BS 2316

SEMI-RIGID CABLE

RG 405 /U	solid	.020 (0.51)	.060 (1.52)		.087 (2.20)	.085"	MIL-C-17 F
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* All these cables are single braid

CHRONOLOGICAL INDEX BY RADIAL PART NUMBER

PART NUMBER	DESCRIPTION	CABLE GROUP O.D/Ω	PAGE
R 121 052	Straight plug for semi-rigid cable	.085"	6
R 121 053	Straight plug for semi-rigid cable	.085"	6
R 121 072	Straight plug for flexible cable	2.6/50	7
R 121 153	Right angle plug for semi-rigid cable	2.6/50	6
R 121 172	Right angle plug for flexible cable	2.6/50	7
R 121 316	Bulkhead jack for semi-rigid cable	2.6/50	6
R 121 403	Square flange receptacle	2.6/50	8
R 121 414	Square flange receptacle	2.6/50	8
R 121 464	Narrow flange receptacle	2.6/50	8
R 121 630 003	Hermetically sealed microstrip receptacles	2.6/50	9
R 121 653	Right angle flange receptacle	2.6/50	8
R 121 703	In series male - male adaptors	2.6/50	9
R 121 705	In series female - female adaptors	2.6/50	9
R 282 118	SSMA cabling tool kit	2.6/50	7
R 282 319	SSMA torque wrench	2.6/50	7

INTER SERIES ADAPTORS

R 191 033	SSMA male - APC7 ®	
R 191 035	SSMA fem. - APC7 ®	
R 191 347	SSMA fem. - SMA male	
R 191 349	SSMA fem. - SMA fem.	® APC7 - Bunker Ramo Amphenol