RF COAXIAL
CONNECTORS

AEP COAXIAL CONNECTORS

Full Line Catalog

AEP®
A Radiall Brand

SIMPLIFICATION IS OUR INNOVATION

Radiall™

SIMPLIFICATION
is our INNOVATION

Radiall is a community of dedicated individuals with a shared purpose: simplify life for all those who innovate. Our manufacturing expertise allows us to deliver lighter and smaller products that simplify implementation and drive performance. We recognize that simplification starts with us, but proves its true benefits when it reaches you.





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AEROSPACE
DEFENSE
TELECOM
INDUSTRIAL & RAIL
SPACE
TEST & MEASUREMENT
MEDICAL

OUR **COMPANY**

Since 1952, we have been enabling the future through collaboration with our customers. The results are a range of innovative and award-winning products that customers trust for unrivaled repeatability and performance.

We are a global company with facilities around the world that specializes in manufacturing the highest quality interconnect components to support the most demanding applications. At Radiall, you can rely on us to be the industry's global market leader.

INDUSTRIES WE SERVE

For over 60 years, we have fostered relationships grounded in trust by sharing our extensive market knowledge, technological expertise, and experience in each and every interaction. Though an understanding of the unique challenges faced by our customers, we are able to design simple solutions specific to their application and requirements.

*Visit **www.radiall.com** for more information.*

OUR VALUES

Guiding our actions every day.



GROW TOGETHER

With our teams and the world around us



BE GENUINE

To foster mutual trust and growth



MAKE IT SIMPLE

To accelerate innovation



DARE TO BE AUDATIOUS

To make a difference





Connecticut

Obergon



AWARDS & CERTIFICATIONS

Being recognized for our product performance, innovation and timely fulfillment is a testament to our employees' commitment to our customers.

We are a world market leader in reliable, repeatable performance and take great pride in providing award-winning innovation and vendor support.

Our leadership is focused on long-term success and developing key technologies that simplify our customers' lives.

We're committed to our people, the environment, and to the highest quality standards - including ISO 9001, ISO 14001, and AS9100 certifications. We are compliant with the EU Restriction of Hazardous Substances (RoHS) as-well-as the Registration, Evaluation, Authorization, and Restrictions of Chemicals (REACH) systems.

Visit our website to view RoHS and REACH compliance information for specific Radiall part numbers.

IN-HOUSE TECHNOLOGIES

- *High Precision Machining*
- *Stamping*
- *Plating*
- *Molding*
- *Polishing*
- *Laser, Ultrasonic, Vapor, Soldering*
- *Etching on Si*
- *Thick film on AlN*
- *Testing & Simulation*



Château-Renault



Shanghai



L'Isle-d'Abeau

Centr'Alp

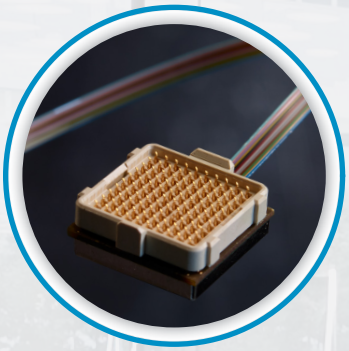


GLOBAL PRESENCE

Recognizing that relationships are rooted in trust, we strive to earn the confidence of our customers by demonstrating our market knowledge, technological expertise, and experience in each and every interaction.

Sales Offices ***Industrial Plants***

COMPREHENSIVE **PORTFOLIO**



Active Optics
High performance optical interconnects, our D-Lightsys® brand provides optical transceiver and electronic solutions suitable for harsh environments.



Antennas
With a military and industrial focus, we have solutions for radio tactical communications, vehicles, positioning, LMR/PMR and telemetry applications.



Microwave Components
Our range covers a wide frequency spectrum from DC to 50 GHz, and includes terminations, attenuators, couplers, power dividers, filters and other specialized components.



Optical Connectors
Designed for demanding applications where reliability and high performance are required, our cost-effective optical connectors serve telecom, industrial, aerospace and defense markets.



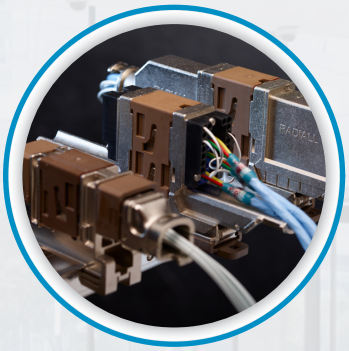
Outdoor Connectors
Designed for outdoor conditions, our range includes high power RF coaxial connectors linking antennas and radio units, as well as innovative multi-signal I/O solutions for optical, Ethernet, power or coaxial links between radio and network.



RF & Microwave Switches
The patented design of our unique, modular actuator and transmission links guarantees operation up to 10 million cycles with superior repeatability.

At Radiall, we provide a comprehensive portfolio of products that meet the application requirements of the key industries we serve. By listening to our customers, we continuously develop new solutions and update our extensive range of products.

With over sixty years of experience and an understanding of the ever-changing business and technical requirements of our customers, we deliver the optimal and most cost-effective, end-to-end interconnect solutions available today.



Multipin Aerospace Connectors

For more than 40 years, commercial airframes have trusted our range of rack and panel connectors and modular solutions. Our new miniature connector series combines high performance and reduced weight to meet civil and military aerospace industry demands.



Multipin Industrial Connectors

Our Van-System brand, designs and produces a range of robust circular electrical connectors suitable for harsh environments, such as railways, machine tools, and plant engineering.



Optical Cable Assemblies

Our extensive product range and worldwide presence supports customers with standard configurations as well as optimized solutions based on customer requirements.



RF Cable Assemblies

Low loss and high frequency characterize our extensive range of cable assemblies, including flexible, semi-rigid and hand-formable solutions with a broad combination of cables and connectors.



RF Coaxial Connectors

The widest range of RF Coaxial Connectors in the Industry. We offers 55 product series including AEP® and Mil QPL connectors.



Space Qualified Components

Known for high quality as well as reliability and performance, our passive product offering includes a wide range of coaxial connectors, cable assemblies, microwave components, and switches with a frequency range up to Ka band.

NUMBERING **SYSTEM**

The following guide illustrates the AEP part numbering system for connectors. For additional information or AEP connector data sheets, visit us at www.radiall.com. Click on "Product Finder," then "RF Coaxial Connectors" and select AEP.

AEP PART NUMBERS

Applied Engineering Products (AEP) was established in 1973 and quickly became a recognized leader in the RF coaxial connectors and cable assemblies industry. In 2005, Radiall, a well known world leader for reliable and innovative product solutions acquired Applied Engineering Products (AEP).

Since acquiring AEP, Radiall has maintained the initial customer-centric service established by AEP over 40 years ago and has become a center of excellence dedicated to providing design engineering, manufacturing, quality, and supply chain functions to support worldwide demand.

Today, AEP is a Radiall product brand commercialized alongside the core Radiall RF product lines. AEP connectors and cable assemblies are designed and qualified by our dedicated staff. Radiall is well positioned to serve the needs of the Telecom, Industrial, Defense, and Aerospace industries.

AEP Number System

9006-9113-001

A B C D

A MODEL NUMBER

1000-1999 - SMC
2000-2999 - SMB
3000-3999 - SLB
4000-4999 - N
5000-5999 - Adapters
6000-6499 - TNC
6500-6999 - BNC
7000-7199 - SSMC
7200-7299 - SSMB
7300-7499 - SSLB
8000-8999 - Others
9000-9999 - SMA - SSMA

B PLATING

1 - Gold
6 - Silver
7 - Nickel
8 - Tin
9 - Passivated

C MATERIAL

1 - Brass
2 - Beryllium copper
3 - Stainless steel
4 - Brass & Stainless steel
6 - Ph bronze
7 - Brass over Ni

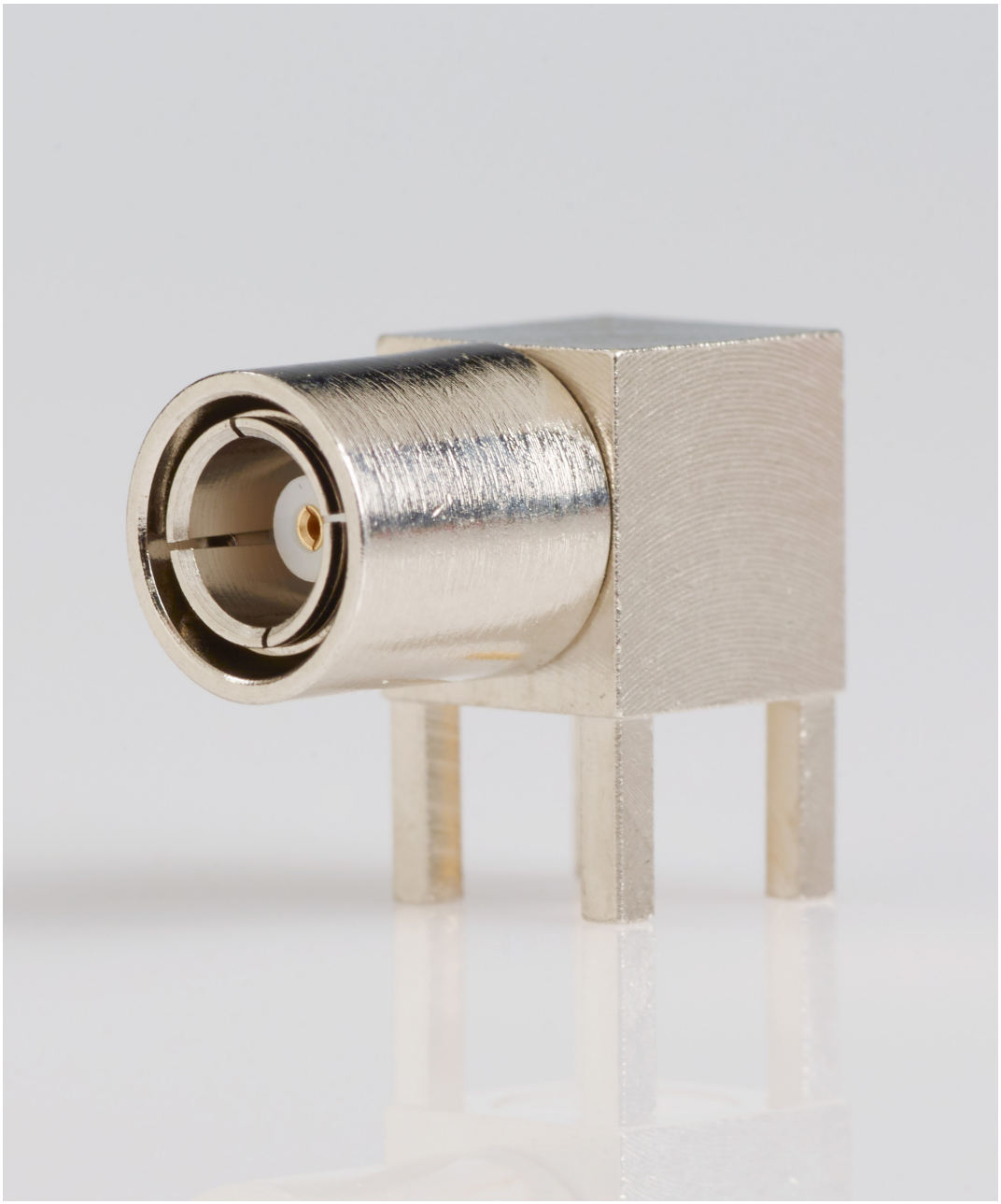
D CABLE GROUP

01 - RG55, RG142, RG223
02 - RG178, RG196
03 - RG174, RG188, RG316
05 - RD196, RD178
06 - RG58, RG141
07 - RG59, RG62
08 - RD188, RD316, RD 174
09 - .141, RG402
10 - .085, RG405
11 - .047
12 - .250, RG401
25 - RD178
30 - RG122


“At Radiall, we share a common purpose – **simplify life for all who innovate.**

NOTES

SECTION 1



MIL-QPL

SMB.....1-2

SMB

Straight plug for flexible cable Clamp type (Category A)		Pg.
Gold Plated	Cable	3-6
M39012/67-0004	RG-316	

Straight plug for flexible cable Crimp type (Category B)		Pg.
Gold Plated	Cable	3-6
M39012/67B0009	RG-316	
M39012/67B0010	RG-179	

Straight jack for flexible cable Clamp type (Category A)		Pg.
Gold Plated	Cable	3-8
M39012/68-0004	RG-316	

Straight jack for flexible cable Crimp type (Category B)		Pg.
Gold Plated	Cable	3-8
M39012/68B0009	RG-316	
M39012/68B0010	RG-179	

Right angle plug for flexible cable Clamp type (Category A)		Pg.
Gold Plated	Cable	3-8
M39012/69-0004	RG-316	

Bulkhead jack for flexible cable Clamp type (Category A)		Pg.
Gold Plated	Cable	3-9
M39012/70-0004	RG-316	

Rear mount bulkhead receptacle Solder pot contact	Pg.
Gold Plated	3-10
M39012/71-0001	

Front mount bulkhead receptacle Solder pot contact	Pg.
Gold Plated	3-10
M39012/71-0002	

Straight P.C. board receptacle			Pg.
Gold Plated	Silver Plated	Leg Length	3-12
M39012/95-0001		.155	
M39012/95-0002		.125	
M39012/95-0003	M39012/95-0006	.093	

Right angle P.C. board receptacle			Pg.
Gold Plated	Silver Plated	Leg Length	3-12
M39012/96-0001		.155	
M39012/96-0002		.125	
M39012/96-0003	M39012/96-0006	.093	

MIL-PRF-39012 P/N	AEP MIL-QPL Status	AEP Old* MIL-QPL P/N	AEP Commercial Equivalent P/N
M39012/55-3006	Discontinued	9201-9553-902	9201-9553-402
M39012/55-3007	Discontinued	9201-9553-903	9201-9553-503
M39012/55-3008	Discontinued	9201-9553-930	9201-9553-230
M39012/55-3009	Discontinued	9201-9553-901	9201-9553-401
M39012/55-3010	Discontinued	9201-9553-906	9201-9553-206
M39012/55-3025	Discontinued	9101-9573-902	9101-9573-402
M39012/55-3026	Discontinued	9101-9573-903	9101-9973-003
M39012/55-3027	Discontinued	9101-9573-930	9101-9573-230
M39012/55-3028	Discontinued	9101-9573-901	9101-9573-401
M39012/55-3029	Discontinued	9101-9573-906	9101-9573-206
M39012/55-3106	Discontinued	9201-9553-802	9201-9553-302
M39012/55-3107	Discontinued	9201-9553-803	9201-9553-403
M39012/55-3108	Discontinued	9201-9553-830	9201-9553-130
M39012/55-3109	Discontinued	9201-9553-801	9201-9553-301
M39012/55-3110	Discontinued	9201-9553-806	9201-9553-106
M39012/55-3125	Discontinued	9101-9573-802	9101-9573-302
M39012/55-3126	Discontinued	9101-9573-803	9101-9873-003
M39012/55-3127	Discontinued	9101-9573-830	9101-9573-130
M39012/55-3128	Discontinued	9101-9573-801	9101-9573-301
M39012/55-3129	Discontinued	9101-9573-806	9101-9573-106
M39012/59-3006	Discontinued	9230-9553-902	9230-9553-602
M39012/59-3007	Discontinued	9230-9553-903	9230-9553-103
M39012/59-3008	Discontinued	9230-9553-930	9230-9553-130
M39012/59-3009	Discontinued	9230-9553-901	9230-9553-101
M39012/59-3010	Discontinued	9230-9553-906	9230-9553-106
M39012/60-3001	Discontinued	9404-9113-999	9404-9113-009
M39012/60-3002	Discontinued	9408-9113-999	9408-9113-007
M39012/61-3001	Discontinued	9432-9113-999	9432-9113-001
M39012/61-3002	Discontinued	9465-9113-999	9465-9113-001
M39012/67-0003	Discontinued	2002-1551-902	2002-1551-202
M39012/67-0004	Active	2002-1551-903	N/A
M39012/67-0103	Discontinued	2002-6551-902	2002-6551-202
M39012/67-0104	Discontinued	2002-6551-903	2002-6551-603
M39012/67B0008	Discontinued	2002-1571-902	2002-1571-302
M39012/67B0009	Active	2002-1571-903	N/A

* Only applies where status is "Discontinued" , the AEP part is no longer active

MIL-PRF-39012 P/N	AEP MIL-QPL Status	AEP Old* MIL-QPL P/N	AEP Commercial Equivalent P/N
M39012/67B0010	Active	2002-1571-803	N/A
M39012/67B0013	Discontinued	2002-6571-902	2002-6571-302
M39012/67B0014	Discontinued	2002-6571-903	2002-6571-703
M39012/67B0015	Discontinued	2002-6571-803	2002-6571-603
M39012/68-0003	Discontinued	2001-1551-902	2001-1551-102
M39012/68-0004	Active	2001-1551-903	N/A
M39012/68-0103	Discontinued	2001-6551-902	2001-6551-102
M39012/68-0104	Discontinued	2001-6551-903	2001-6551-203
M39012/68B0008	Discontinued	2001-1571-902	2001-1571-202
M39012/68B0009	Active	2001-1571-903	N/A
M39012/68B0010	Active	2001-1571-803	N/A
M39012/68B0013	Discontinued	2001-6571-902	2001-6571-202
M39012/68B0014	Discontinued	2001-6571-903	2001-6571-603
M39012/68B0015	Discontinued	2001-6571-803	2001-6571-403
M39012/69-0003	Discontinued	2005-1551-902	2005-1551-202
M39012/69-0004	Active	2005-1551-903	N/A
M39012/69-0012	Discontinued	2105-1921-803	2105-1001-803
M39012/69-0017	Discontinued	2105-6921-903	2105-1001-903
M39012/69-0103	Discontinued	2005-6551-902	2005-6551-202
M39012/69-0104	Discontinued	2005-6551-903	2005-6551-403
M39012/69B0008	Discontinued	2105-1521-902	2105-1921-102
M39012/69B0009	Discontinued	2105-1521-903	2105-1921-503
M39012/69B0010	Discontinued	2105-1521-803	2105-1921-603
M39012/69B0013	Discontinued	2105-6521-902	2105-6921-102
M39012/69B0014	Discontinued	2105-6521-903	2105-6921-503
M39012/69B0015	Discontinued	2105-6521-803	2105-6921-603
M39012/70-0003	Discontinued	2003-1551-902	2003-1551-302
M39012/70-0004	Active	2003-1551-903	N/A
M39012/70-0103	Discontinued	2003-6551-902	2003-6551-302
M39012/70-0104	Discontinued	2003-6551-903	2003-6551-603
M39012/70B0008	Discontinued	2003-1571-902	2003-1571-502
M39012/70B0009	Discontinued	2003-1571-903	2003-1571-603
M39012/70B0010	Discontinued	2003-1571-803	2003-1571-403
M39012/70B0013	Discontinued	2003-6571-902	2003-6571-502
M39012/70B0014	Discontinued	2003-6571-903	2003-6571-603

* Only applies where status is "Discontinued" , the AEP part is no longer active

MIL-PRF-39012 P/N	AEP MIL-QPL Status	AEP Old* MIL-QPL P/N	AEP Commercial Equivalent P/N
M39012/70B0015	Discontinued	2003-6571-803	2003-6571-403
M39012/71-0001	Active	2004-1511-999	N/A
M39012/71-0002	Active	2019-1511-999	N/A
M39012/71-0003	Discontinued	2004-6511-999	2004-6511-012
M39012/71-0004	Discontinued	2019-6511-999	2019-6511-025
M39012/73-0003	Discontinued	1002-1551-902	1002-1551-202
M39012/73-0004	Discontinued	1002-1551-903	1002-1851-003
M39012/73-0103	Discontinued	1002-6551-902	1002-6551-202
M39012/73-0104	Discontinued	1002-6551-903	1002-6851-003
M39012/73B0008	Discontinued	1002-1571-902	1002-1571-102
M39012/73B0009	Discontinued	1002-1571-903	1002-1571-603
M39012/73B0010	Discontinued	1002-1571-803	1002-1571-503
M39012/73B0013	Discontinued	1002-6571-902	1002-6571-102
M39012/73B0014	Discontinued	1002-6571-903	1002-6571-603
M39012/73B0015	Discontinued	1002-6571-803	1002-6571-503
M39012/74-0003	Discontinued	1001-1551-902	1001-1551-102
M39012/74-0004	Discontinued	1001-1551-903	1001-1551-303
M39012/74-0103	Discontinued	1001-6551-902	1001-6551-102
M39012/74-0104	Discontinued	1001-6551-903	1001-6551-303
M39012/74B0008	Discontinued	1001-1571-902	1001-1571-102
M39012/74B0009	Discontinued	1001-1571-903	1001-1571-203
M39012/74B0010	Discontinued	1001-1571-803	1001-1571-103
M39012/74B0014	Discontinued	1001-6571-902	1001-6571-102
M39012/74B0015	Discontinued	1001-6571-903	1001-6571-203
M39012/74B0016	Discontinued	1001-6571-803	1001-6571-103
M39012/75-0003	Discontinued	1005-1551-902	1005-1551-202
M39012/75-0004	Discontinued	1005-1551-903	1005-1551-303
M39012/75-0103	Discontinued	1005-6551-902	1005-6551-202
M39012/75-0104	Discontinued	1005-6551-903	1005-6551-303
M39012/75B0008	Discontinued	1105-1521-902	1105-1521-402
M39012/75B0009	Discontinued	1105-1521-903	1105-1821-003
M39012/75B0010	Discontinued	1105-1521-803	1105-1521-703
M39012/75B0014	Discontinued	1105-6521-902	1105-6521-402
M39012/75B0015	Discontinued	1105-6521-903	1105-6821-003
M39012/75B0016	Discontinued	1105-6521-803	1105-6521-703

* Only applies where status is "Discontinued" , the AEP part is no longer active

MIL-PRF-39012 P/N	AEP MIL-QPL Status	AEP Old* MIL-QPL P/N	AEP Commercial Equivalent P/N
M39012/76-0003	Discontinued	1003-1551-902	1003-1551-102
M39012/76-0004	Discontinued	1003-1551-903	1003-1551-303
M39012/76-0103	Discontinued	1003-6551-902	1003-6551-102
M39012/76-0104	Discontinued	1003-6551-903	1003-6551-303
M39012/76B0008	Discontinued	1003-1571-902	1003-1571-102
M39012/76B0009	Discontinued	1003-1571-903	1003-1571-303
M39012/76B0010	Discontinued	1003-1571-803	1003-1571-203
M39012/76B0014	Discontinued	1003-6571-902	1003-6571-102
M39012/76B0015	Discontinued	1003-6571-903	1003-6571-303
M39012/76B0016	Discontinued	1003-6571-803	1003-6571-203
M39012/77-0001	Discontinued	1004-1511-999	1004-1511-011
M39012/77-0002	Discontinued	1019-1511-999	1019-1511-017
M39012/77-0003	Discontinued	1004-6511-999	1004-6511-011
M39012/77-0004	Discontinued	1019-6511-999	1019-6511-017
M39012/79B3003	Discontinued	9501-9593-910	9501-9593-210
M39012/79B3004	Discontinued	9501-9593-909	9501-9593-509
M39012/79B3103	Discontinued	9501-9593-810	9501-9593-110
M39012/79B3104	Discontinued	9501-9593-809	9501-9593-409
M39012/83B3003	Discontinued	9530-9593-910	9530-9593-210
M39012/83B3004	Discontinued	9530-9593-909	9530-9593-209
M39012/92B3001	Discontinued	9301-1063-909	9301-1863-009
M39012/92B3101	Discontinued	9301-1003-909	9301-1803-009
M39012/95-0001	Active	2009-1511-999	N/A
M39012/95-0002	Active	2009-1511-899	N/A
M39012/95-0003	Active	2009-1511-799	N/A
M39012/95-0004	Discontinued	2009-6511-999	2009-6511-053
M39012/95-0005	Discontinued	2009-6511-899	2009-6511-052
M39012/95-0006	Active	2009-6511-799	N/A
M39012/96-0001	Active	2010-1511-999	N/A
M39012/96-0002	Active	2010-1511-899	N/A
M39012/96-0003	Active	2010-1511-799	N/A
M39012/96-0004	Discontinued	2010-6511-999	2010-6511-032
M39012/96-0005	Discontinued	2010-6511-899	2010-6511-031
M39012/96-0006	Active	2010-6511-799	N/A

* Only applies where status is "Discontinued" , the AEP part is no longer active

SECTION 2



SMA

SECTION 2 TABLE OF CONTENTS

Specifications....2-3
Cable attachment methods....2-4
Semi-rigid connectors....2-8
Flexible cable connectors....2-14
Panel (flange mount) receptacles....2-19
Bulkhead receptacles....2-28
Knurl mount....2-30
P.C. board receptacles....2-31
Stripline receptacles....2-32
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All AEP SMA series connectors meet or exceed MIL-PRF-39012 requirements, offering good electrical performance to 18 GHz. Our unique method of captivating contacts and insulators greatly reduces RF leakage by eliminating epoxy fill holes in the connector body (see page 2-7 for details).

Most of the items shown are available with either gold plated bodies or a less expensive finish (nickel plating or passivated finish); part numbers for each finish are shown in the product section. The coupling nuts of the plug connectors are passivated in all cases.

Pages 2-4 through 2-6 show the various options for cable attachment types. Standard cables for use with AEP SMA connectors are shown at the bottom of the appropriate product pages. If you require an SMA for use with a cable type other than those shown, please contact your local representative. A complete listing of cable groups is on page 13-6.

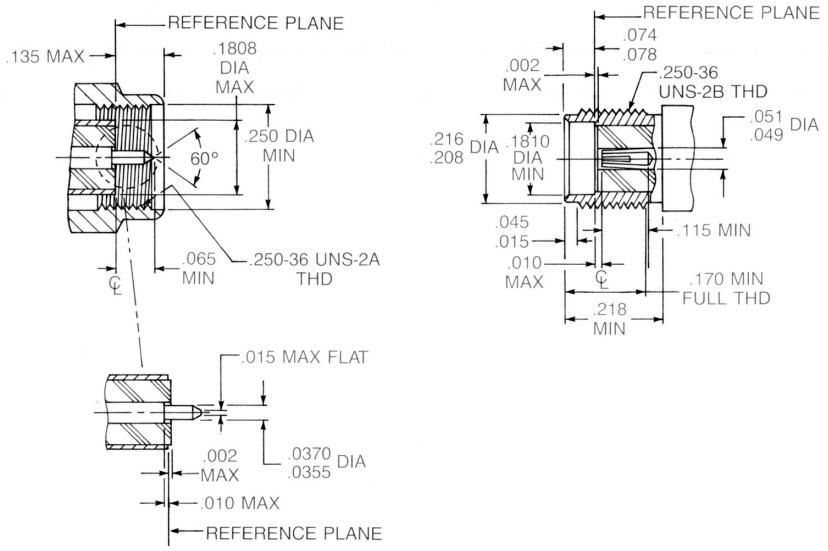
The index listing for each connector shows the appropriate assembly instruction number and trim code; assembly instructions start on page 13-7.

Please contact us directly for custom solutions as we have made hundreds of variations of the items shown here and can likely supply a solution for special connector requirements.

Factory-built cable assemblies using these connectors are available from AEP.

INTERFACE DIMENSIONS

PER MIL-STD-348



SPECIFICATIONS

MIL-PRF-39012

MATERIALS:

Body parts: Stainless steel per ASTM-A-582, type 303.
Contacts: Beryllium copper per ASTM B196.condition HT
Insulators: Teflon TFE per ASTM-D-1710.
Gaskets: Silicone rubber per ZZ-R-765, class 2B, grade 65-75.

FINISH:

Center contacts: Gold plate per MIL-G-45204
All other parts finished to meet MIL-PRF-39012 corrosion requirements.

ELECTRICAL:

Insulation resistance:
Greater than 5000 megohms.
Dielectric withstanding voltage:
Per MIL-STD-202, method 301.
RF highpot voltage:
335-675 VAC @ 5-7 .5 MHz, dependent on cable type.

Contact resistance: 3 milliohms max.
RF leakage: -60 Db min, 2-3 GHz.
Insertion loss: .03 x √F(GHz) max test frequency 6 GHz.
VSWR (Straight cable plugs and jacks):
RG178: 1.20 + (.025xF[GHz]), DC-12.4 GHz.
RG316: 1.15 +(.020xF[GHz]), DC-12.4 GHz.
RG142: 1.15 +(.010x F[GHz]), DC-12.4 GHz.
RG402 (noncaptive contact): 1.05 + (.008xF[GHz]),DC-18 GHz.
RG402 (captive contact): 1.05 + (.001xF(GHz]), DC-18 GHz.
RG405 (captive contact): 1.07 + (.01OxF[GHz]), DC-18 GHz.
RG405 (noncaptive contact): 1 07 + (.008xF[GHz]), DC-18 GHz.
VSWR SPECIFICATIONS ARE NOT APPLICABLE TO NON-CABLED CONNECTORS.
Impedance: 50 ohms.
Frequency range: DC to 8, 12.4 or 18 GHz, dependent on cable type and configuration.

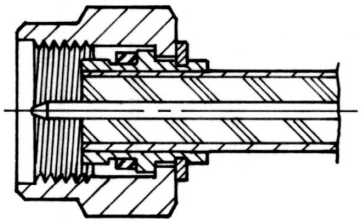
MECHANICAL:

Engage/disengage force: 2 pounds max.
Mating characteristics: Dimensions per above.
For female contacts (after 5 insertions of .0375 dia pin, .040 min depth):
Insertion force with .037 min dia pin, 2 pounds max.
Withdrawal force for .0355 max dia pin, 1 ounce min.
Contact retention (captive contact connectors):
6 pounds min axial force.
Durability: 500 mating cycles.

ENVIRONMENTAL: (per MIL-STD-202)

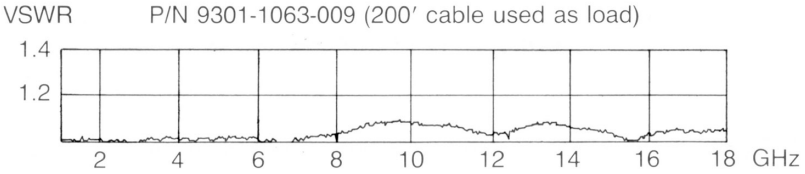
Vibration: Method 204, test condition D.
Mechanical shock: Method 213, condition I.
Thermal shock: Method 107, condition B.
Corrosion: Method 101, condition B, 5% salt solution.
Moisture resistance: Method 106.
Corona level: Corona free @ 70,000 feet.
voltage dependent on cable size.
Temperature rating: -65°C to + 165°C.

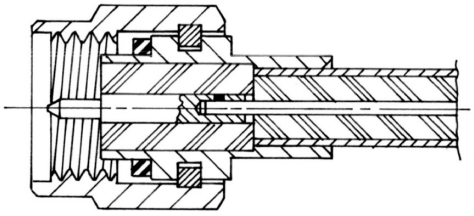
CABLE ATTACHMENT METHODS



Direct Solder for Semi-Rigid Cable (cable center conductor used as contact)

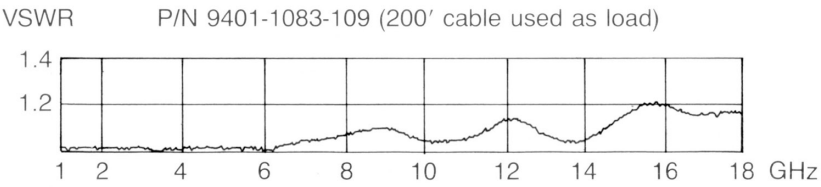
The use of this type of connector ensures the best possible electrical performance since there are no discontinuities introduced by a separate contact. It is best used in applications not requiring frequent mating and unmating, since the pointed center conductor will tend to shed metal chips when mated with an SMA female contact.

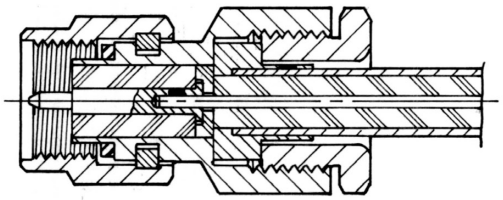




Direct Solder for Semi-Rigid Cable (provided with contact and insulator)

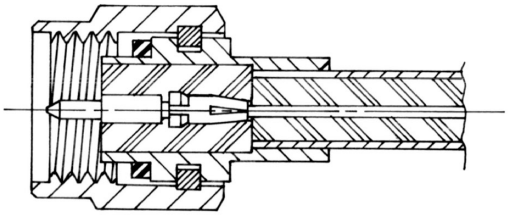
Although this type of connector will have slightly higher VSWR versus when the center conductor is used as a contact, it does provide an outer conductor with no brass from the cable jacket exposed to the interface. This, combined with a center contact with a rounded point, ensures clean interfaces through many mating cycles.





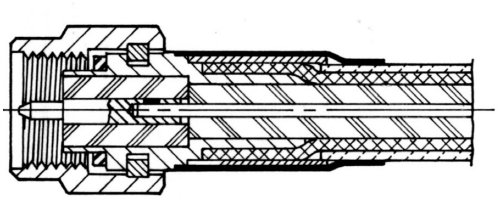
Solder-Clamp for Semi-Rigid Cable

This attachment method is the most useful for right angle plugs and all bulkhead jacks. After the connector is assembled to the cable, it can be repositioned relative to the cable by loosening the clamp nut. When the proper orientation is reached, it can be held in the correct position by retightening the nut. The electrical performance is similar to direct-solder plugs with contacts.



Direct Solder with Captive Contact for Semi-Rigid Cable

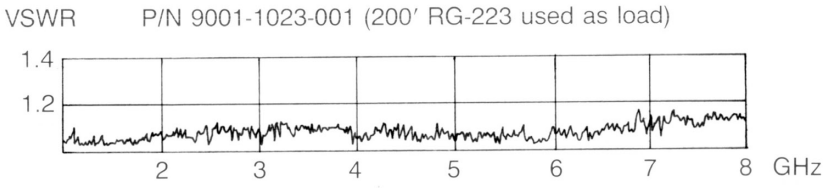
These connectors have electrical performance similar to types with noncaptive contacts, but assembly is much easier. The cable is simply stripped and inserted into the connector until it stops, and the jacket soldered to the body. The proper contact gap is automatically held, and no contact soldering is required

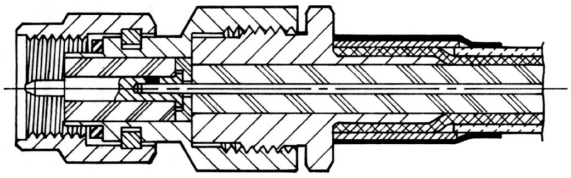


Crimp Type for Flexible Cable (noncaptive contact)

This attachment method provides the best possible electrical performance with flexible cable, and is the easiest to assemble.

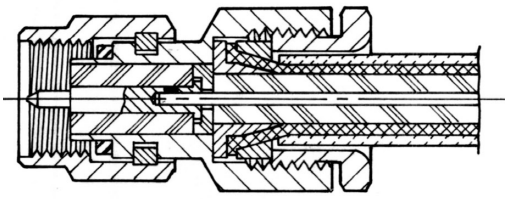
Solder-type connectors for flexible cable use this construction, but have a solder hole in the side of the sleeve for soldering the cable braid. We recommend against using this method, as the soldering heat damages the cable dielectric.





Crimp Type For Flexible Cable (captive contact)

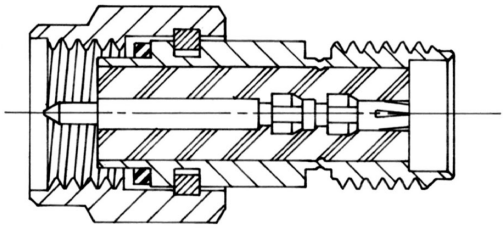
This attachment method mechanically captivates the center contact to eliminate movement during cable flexure or thermal stress.



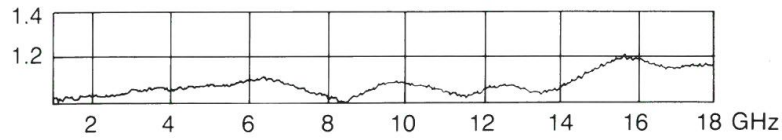
Clamp Type For Flexible Cable (captive contact)

These connectors can be assembled without special tooling, and are field replaceable.

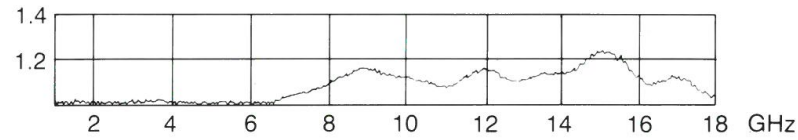
All AEP SMA receptacles and adapters use our unique mechanical captivation for contacts and insulators. This method provides retention strengths to meet MIL-PRF-39012 requirements, and eliminates RF leakage from epoxy fill holes. The contact barbs and body staking are designed and located to provide electrical performance as good as or better than epoxy captivation. The test plots below illustrate the electrical performance of our captivation versus a typical epoxy-captivated adapter of the same configuration.



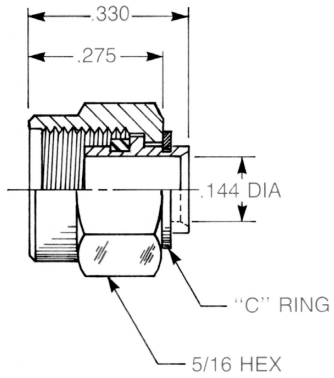
P/N 5916-1103-603 terminated with 9301-1063-009 on 200″ .141 semi-rigid.



Typical epoxy-captivated adapter (tested as above)



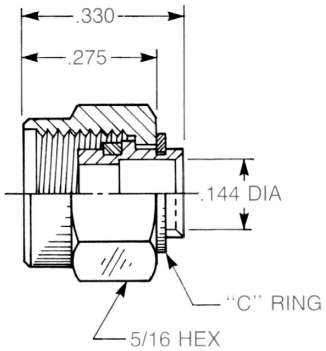
Semi-Rigid Cable Plugs



Straight Plug

- Direct solder attachment
- Retractable coupling nut
- Cable center conductor used as contact

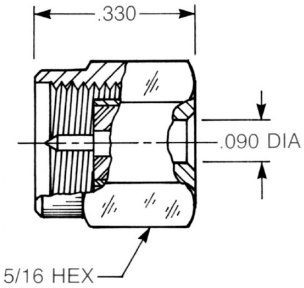
For .141" semi-rigid:
9301-1063-009 (Gold plated)
9301-7063-009 (Nickel plated)



Straight Plug

- Direct solder attachment
- Retractable coupling nut
- Cable center conductor used as contact
- Stepped body for use in applications requiring frequent mating and unmating

For .141" semi rigid:
9301-1063-109 (Gold plated)
9301-7063-109 (Nickel plated)

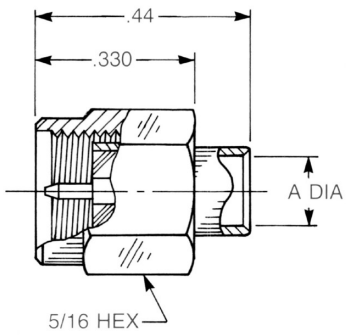


Straight Plug

- Direct solder attachment
- Provided with contact and insulator
- Noncaptive contact
- Short body length allows very tight cable bend in dense packaging applications

For .085" semi-rigid:
9401-1083-210 (Gold plated)
9401-7083-210 (Nickel plated)

Semi-Rigid Cable Plugs

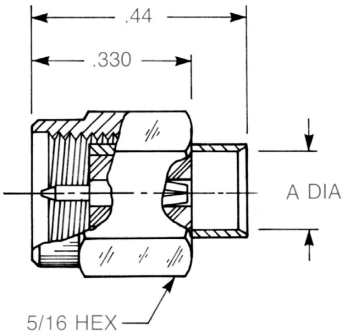


Straight Plug

- Direct solder attachment
- Provided with contact and insulator
- Noncaptive contact

For .085" semi-rigid (A = .089):
9401-1083-010 (Gold plated)
9401-7083-010 (Nickel plated)

For .141" semi-rigid (A = .144):
9401-1083-109 (Gold plated)
9401-7083-109 (Nickel plated)

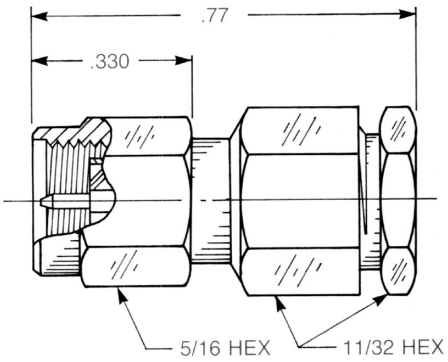


Straight Plug

- Direct solder attachment
- Provided with contact and insulator
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):
9401-1583 -010 (Gold plated)
9401-7583-010 (Nickel plated)

For .141" semi-rigid (A = .144):
9401-1583-109 (Gold plated)
9401-7583-109 (Nickel plated)



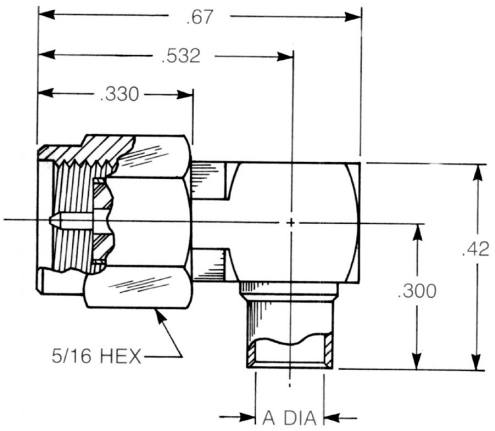
Straight Plug

- Solder-clamp attachment
- Captive contact

For .085" semi-rigid:
9501-1593-010 (Gold plated)
9501-9593-010 (Passivated)

For .141" semi-rigid:
9501-1593-009 (Gold plated)
9501-9593-009 (Passivated)

Semi-Rigid Cable Plugs

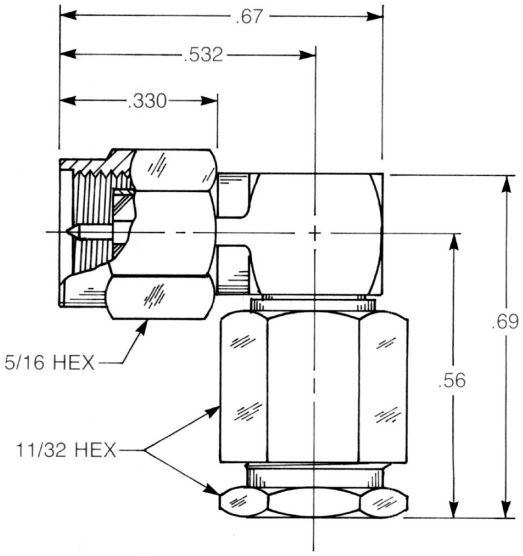


Right Angle Plug

- Direct solder attachment

For .085" semi-rigid (A = .089):
9443-1563-010 (Gold plated)
9443-7563-010 (Nickel plated)

For .141" semi-rigid (A = .144):
9443-1563-009 (Gold plated)
9443-7563-009 (Nickel plated)



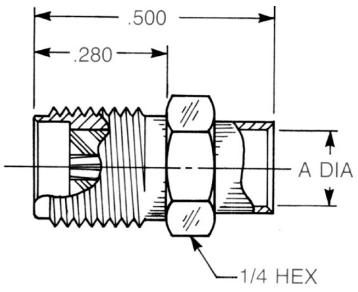
Right Angle Plug

- Solder-clamp attachment

For .085" semi-rigid:
9543-1593-010 (Gold plated)
9543-9593-010 (Passivated)

For .141" semi-rigid:
9543-1593-009 (Gold plated)
9543-9593-009 (Passivated)

Semi-Rigid Cable Jacks

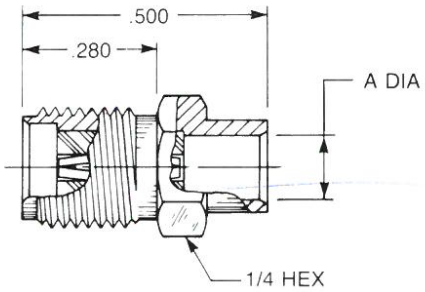


Straight Jack

- Direct solder attachment
- Noncaptive contact

For .085" semi-rigid (A = .089):
9402-1083-010 (Gold plated)
9402-7083-010 (Nickel plated)

For .141" semi rigid (A = .144):
9402-1083 -009 (Gold plated)
9402-7083-009 (Nickel plated)

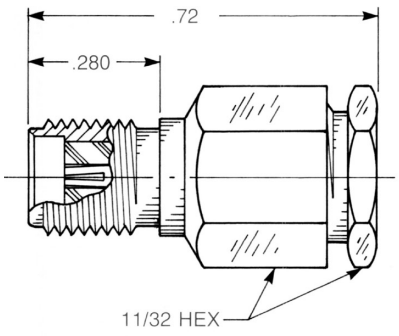


Straight Jack

- Direct solder attachment
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):
9402-1583-010 (Gold plated)
9402-7583-010 (Nickel plated)

For .141" semi-rigid (A = .144):
9402-1583-009 (Gold plated)
9402-7583 -009 (Nickel plated)



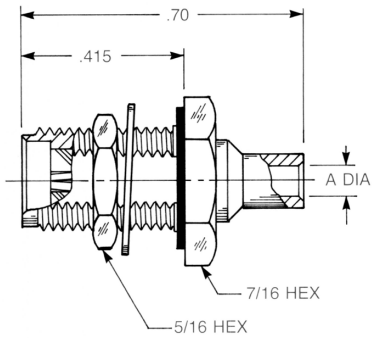
Straight Jack

- Solder-clamp attachment
- Captive contact

For .085" semi-rigid:
9502-1593-010 (Gold plated)
9502-9593-010 (Passivated)

For .141" semi-rigid:
9502-1593-009 (Gold plated)
9502-9593-009 (Passivated)

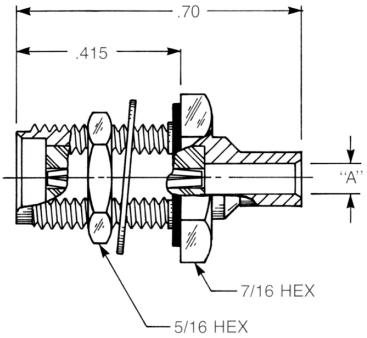
Semi-Rigid Cable Jacks



Straight Bulkhead Jack
- Direct solder attachment
- With mounting gasket
- Noncaptive contact

For .085" semi-rigid (A = .089)
9453-1083-010 (Gold plated)
9453-7083-010 (Nickel plated)

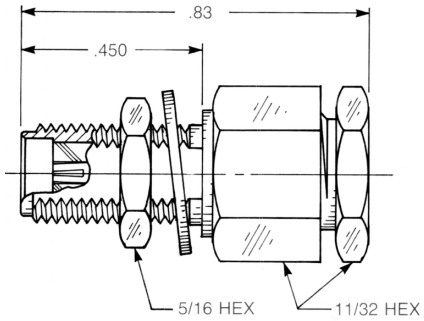
For .141" semi-rigid (A = .144):
9453-1083-009 (Gold plated)
9453-7083-009 (Nickel plated)



Straight Bulkhead Jack
- Direct solder attachment
- With mounting gasket
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):
9453-1583-010 (Gold plated)
9453-7583-010 (Nickel plated)

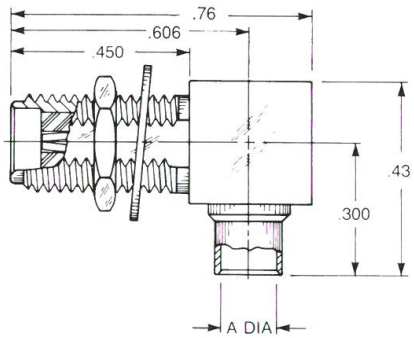
For .141" semi-rigid (A = .144):
9453-1583-009 (Gold plated)
9453-7583-009 (Nickel plated)



Straight Bulkhead Jack
- Solder-clamp attachment
- Captive contact

For .085" semi-rigid:
9530-1593-010 (Gold plated)
9530-9593-010 (Passivated)

For .141" semi-rigid:
9530-1593-009 (Gold plated)
9530-9593-009 (Passivated)



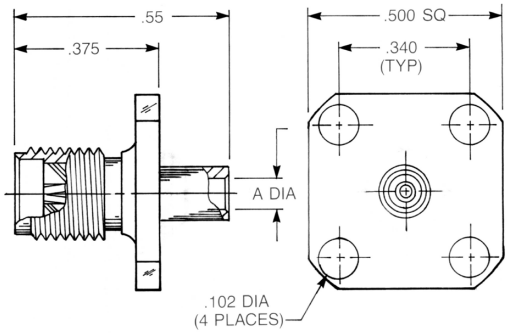
Right Angle Bulkhead Jack
- Direct solder attachment

For .085" semi-rigid (A = .089):
9613-1563-010 (Gold plated)
9613-7563-010 (Nickel plated)

For .141" semi-rigid (A = .144):
9613-1563-009 (Gold plated)
9613-7563-009 (Nickel plated

Designed for use with .125" max thick panel

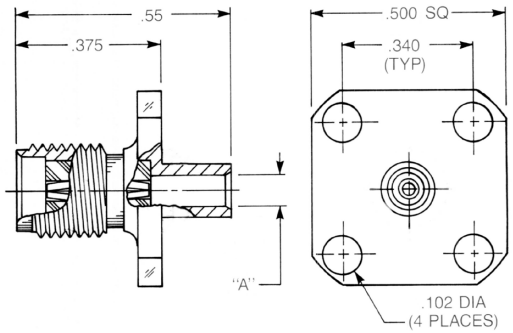
Semi-Rigid Cable Jacks



Straight Panel Jack
- Direct solder attachment
- Square flange
- Noncaptive contact

For .085" semi-rigid (A = .089):
9431-1083-010 (Gold plated)
9431-7083-010 (Nickel plated)

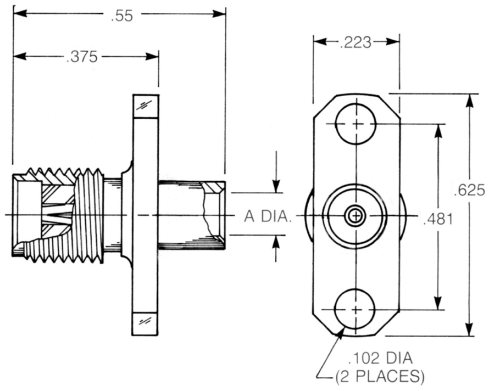
For .141" semi-rigid (A = .144):
9431-1083-009 (Gold plated)
9431-7083-009 (Nickel plated)



Straight Panel Jack
- Direct solder attachment
- Square flange
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):
9431-1583-010 (Gold plated)
9431-7583-010 (Nickel plated)

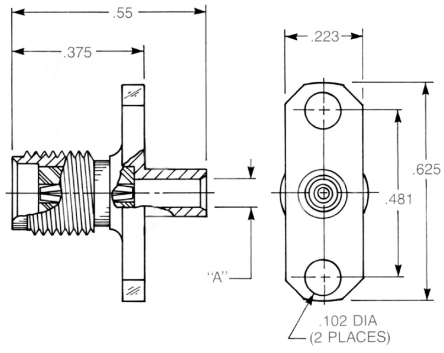
For .141" semi-rigid (A = .144)
9431-1583-009 (Gold plated)
9431-7583-009 (Nickel plated)



Straight Panel Jack
- Direct solder attachment
- 2-hole flange
- Noncaptive contact

For .085" semi-rigid (A = .089):
9441-1083-010 (Gold plated)
9441-7083-010 (Nickel plated)

For .141" semi-rigid (A = .144):
9441-1083-009 (Gold plated)
9441-7083-009 (Nickel plated)

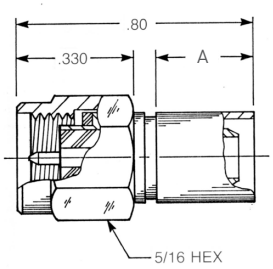


Straight Panel Jack
- Direct solder attachment
- 2-hole flange
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):
9441-1583-010 (Gold plated)
9441-7583-010 (Nickel plated)

For .141" semi-rigid (A = .144):
9441-1583-009 (Gold plated)
9441-7583-009 (Nickel plated)

Flexible Cable Plugs

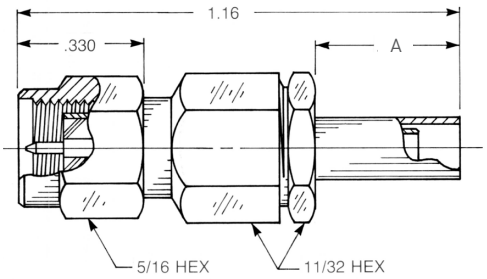


Straight Plug

- Noncaptive contact

Crimp type:
9001-1023-0XX (Gold plated)
9001-9023-0XX (Passivated)

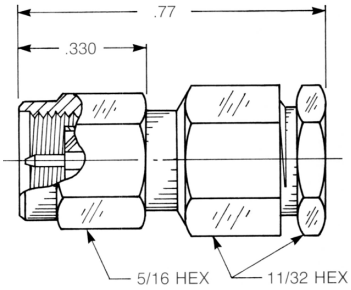
Solder type:
9001-1033-0XX (Gold plated)



Straight Plug

- Captive contact

Crimp type:
9101-1573-0XX (Gold plated)
9101-9573-0XX (Passivated)



Straight Plug

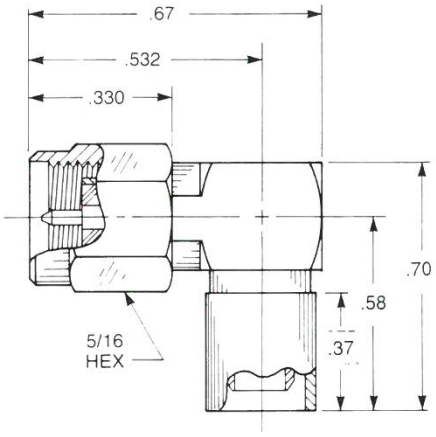
- Captive contact

Clamp type:
9201-1553-0XX (Gold plated)
9201-9553-0XX (Passivated)

Substitute XX with the Appropriate Cable Group Below			
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	06	RG58, RG141, RG303, M17/111, M17/155
		19	RG174DS, RG316DS, M17/152, Times RD316

A Dim = .303 for cable groups 01, 04 and 06, A Dim =.375 for cable groups 02, 03, 05 and 019

Flexible Cable Plugs

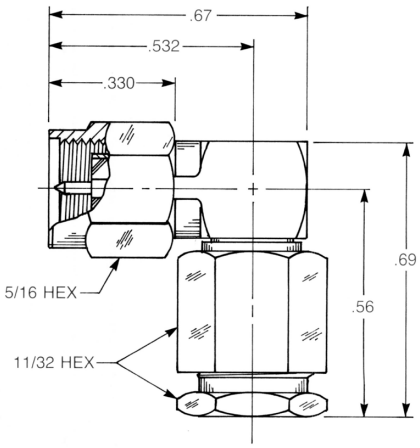


Right Angle Plug

- Captive contact

Crimp type:
9043-1523-0XX (Gold plated)
9043-9523 -0XX (Passivated)

Solder type:
9043-1533-0XX (Gold plated)



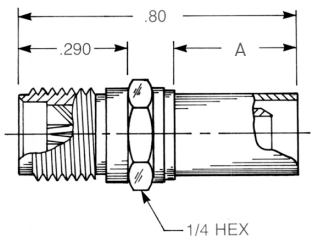
Right Angle Plug

- Captive contact

Clamp type:
9243-1553-0XX (Gold plated)
9243-9553 -0XX (Passivated)

Substitute XX with the Appropriate Cable Group Below			
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	06	RG58, RG141, RG303, M17/111, M17/155
		19	RG174DS, RG316DS, M17/152, Times RD316

Flexible Cable Jacks

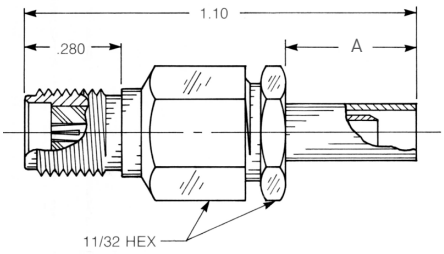


Straight Jack

- Noncaptive contact

Crimp type:
9002-1023-0XX (Gold plated)
9002-9023-0XX (Passivated)

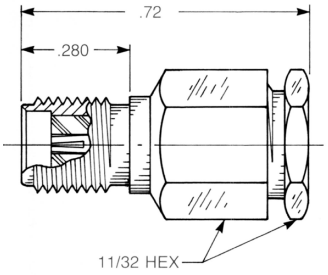
Solder type:
9002-1033-0XX (Gold plated)



Straight Jack

- Captive contact

Crimp type:
9102-1573-0XX (Gold plated)
9102-9573-0XX (Passivated)



Straight Jack

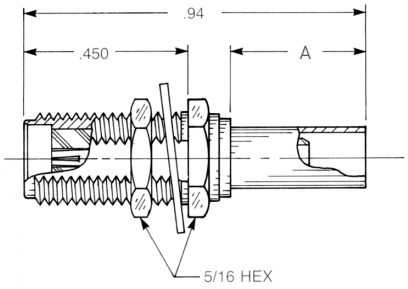
- Captive contact

Clamp type:
9202-1553-0XX (Gold plated)
9202-9553-0XX (Passivated)

Substitute XX with the Appropriate Cable Group Below			
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS
03	RG174, RG179, RG316, M17/113,	06	RG58, RG141, RG303, M17/111, M17/155
	M17/119, M17/172, M17/173	19	RG174DS, RG316DS, M17/152, Times RD316

A Dim = .303 for cable groups 01, 04 and 06, A Dim =.375 for cable groups 02, 03, 05 and 019

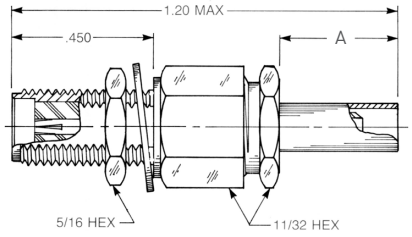
Flexible Cable Jacks



Straight Bulkhead Jack
- Noncaptive contact

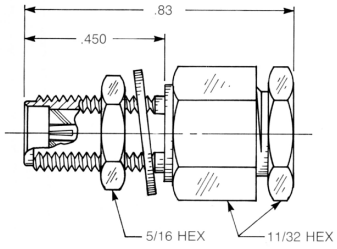
Crimp type:
9030-1023-0XX (Gold plated)
9030-9023-0XX (Passivated)

Solder type:
9030-1033-0XX (Gold plated)



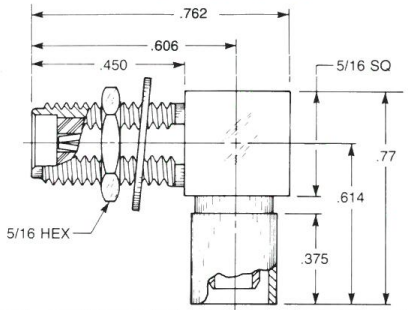
Straight Bulkhead Jack
- Captive contact

Crimp type:
9130-1573-0XX (Gold plated)
9130-9573-0XX (Passivated)



Straight Bulkhead Jack
- Captive contact

Clamp type:
9230-1553-0XX (Gold plated)
9230-9553-0XX (Passivated)



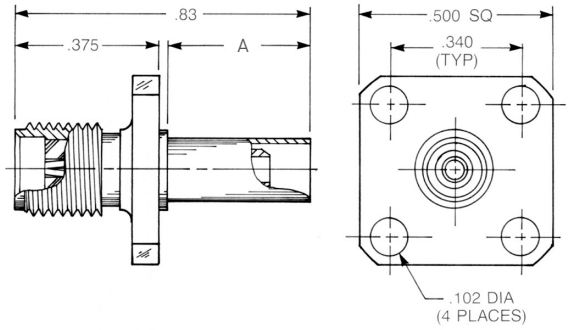
Right Angle Bulkhead Jack

Crimp type:
9613-1523-0XX (Gold plated)
9613-9523-0XX (Passivated)

Substitute XX with the Appropriate Cable Group Below			
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	06	RG58, RG141, RG303, M17/111, M17/155
		19	RG174DS, RG316DS, M17/152, Times RD316

A Dim = .303 for cable groups 01, 04 and 06, A Dim =.375 for cable groups 02, 03, 05 and 019
Designed for use with .125" max thick panel

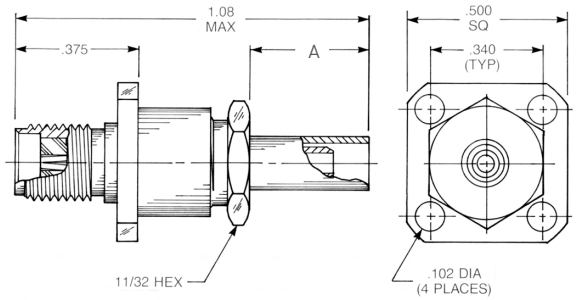
Flexible Cable Jacks



Straight Panel Jack
- Noncaptive contact
- Square flange

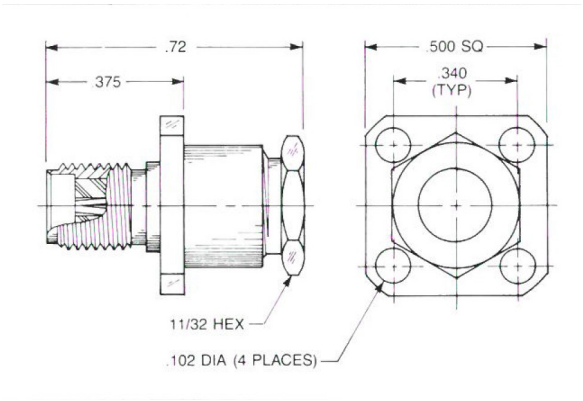
Crimp type:
9031-1023-0XX (Gold plated)
9031-9023-0XX (Passivated)

Solder type:
9031-1033-0XX (Gold plated)



Straight Panel Jack
- Captive contact
- Square flange

Crimp type:
9131-1573-0XX (Gold plated)
9131-9573-0XX (Passivated)



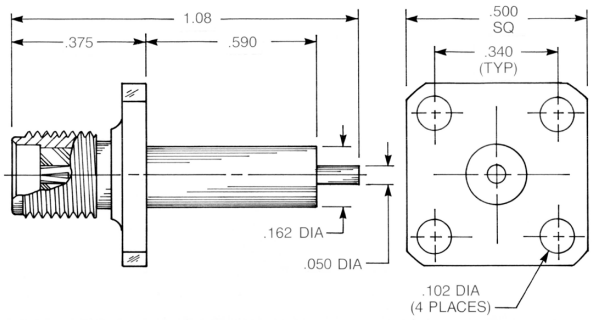
Straight Panel Jack
- Captive contact
- Square flange

Clamp type:
9231-1553-0XX (Gold plated)
9231-9553-0XX (Passivated)

Substitute XX with the Appropriate Cable Group Below			
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	06	RG58, RG141, RG303, M17/111, M17/155
		19	RG174DS, RG316DS, M17/152, Times RD316

A Dim = .303 for cable groups 01, 04 and 06, A Dim =.375 for cable groups 02, 03, 05 and 019

Panel Jack Receptacles

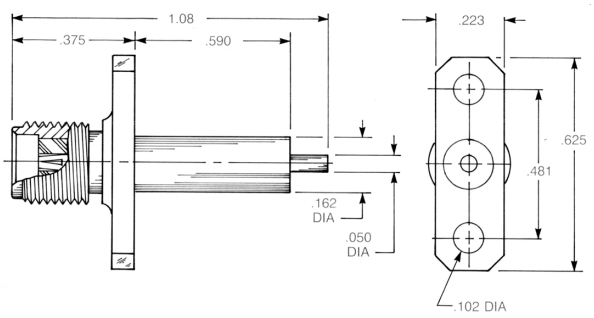


Straight Panel Jack Receptacle

- Extended contact and insulator
- 1/2" square flange

Captive contact:
9004-1113-000 (Gold plated)
9004-9113-000 (Passivated)

Noncaptive contact:
9004-1213-000 (Gold plated)
9004-9213-000 (Passivated)

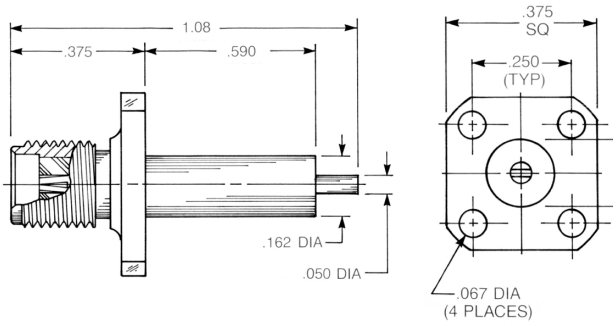


Straight Panel Jack Receptacle

- Extended contact and insulator
- 2-hole flange

Captive contact:
9008-1113-000 (Gold plated)
9008-9113-000 (Passivated)

Noncaptive contact:
9008-1213-000 (Gold plated)
9008-9213-000 (Passivated)

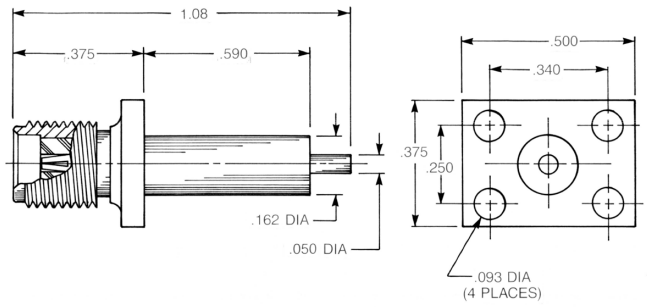


Straight Panel Jack Receptacle

- Extended contact and insulator
- 3/8" square flange

Captive contact:
9076-1113-000 (Gold plated)
9076-9113-000 (Passivated)

Noncaptive contact:
9076-1213-000 (Gold plated)
9076-9213-000 (Passivated)



Straight Panel Jack Receptacle

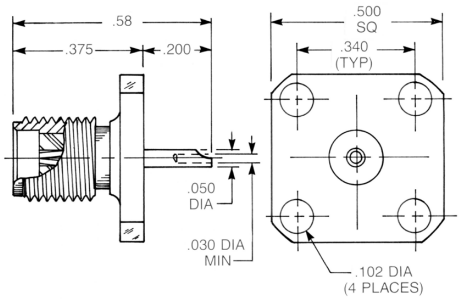
- Extended contact and insulator
- Rectangular flange

Captive contact:
9007-1113-000 (Gold plated)
9007-9113-000 (Passivated)

Noncaptive contact:
9007-1213-000 (Gold plated)
9007-9213-000 (Passivated)

Additional contact and insulator diameters and lengths available upon request

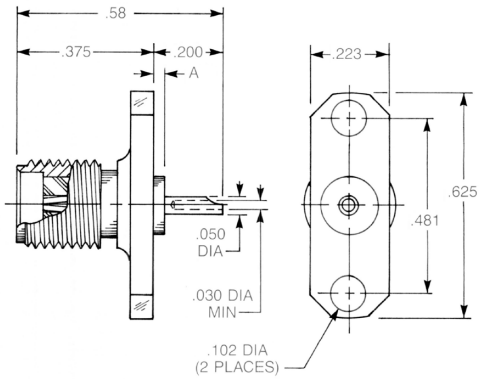
Panel Jack Receptacles



Straight Panel Jack Receptacle

- Solder pot contact
- 1/2" square flange

Captive contact:
9404-1113-000 (Gold plated)
9404-9113-000 (Passivated)

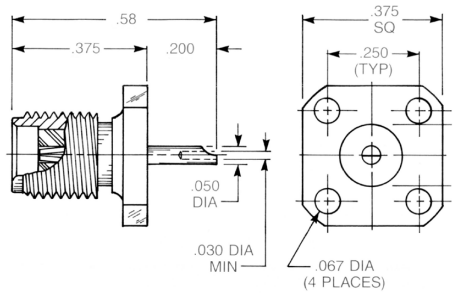


Straight Panel Jack Receptacle

- Solder pot contact
- 2-hole flange

Captive contact (A = .030):
9408-1113-000 (Gold plated)
9408-9113-000 (Passivated)

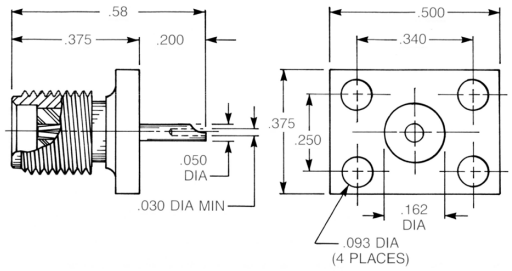
Captive contact (A = .000):
9408-1113-002 (Gold plated)
9408-9113-002 (Passivated)



Straight Panel Jack Receptacle

- Solder pot contact
- 3/8" square flange

Captive contact:
9476-1113-000 (Gold plated)
9476-9113-000 (Passivated)

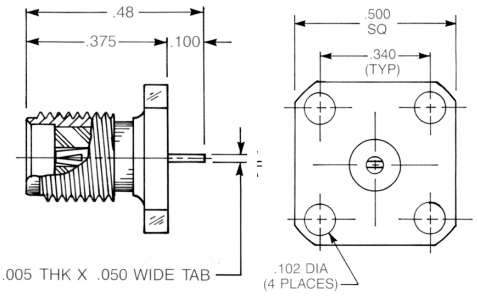


Straight Panel Jack Receptacle

- Solder pot contact
- Rectangular flange

Captive contact:
9407-1113-000 (Gold plated)
9407-9113-000 (Passivated)

Panel Jack Receptacles

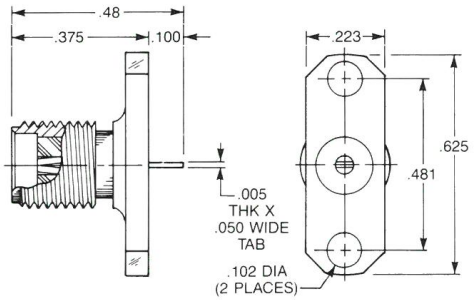


Straight Panel Jack Receptacle

- Tab contact
- 1/2" square flange

Captive contact:
9104-1113-000 (Gold plated)
9104-9113-000 (Passivated)

Noncaptive contact:
9104-1213-000 (Gold plated)
9104-9213-000 (Passivated)

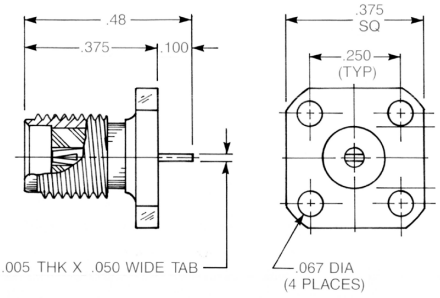


Straight Panel Jack Receptacle

- Tab contact
- 2-hole flange

Captive contact:
9108-1113-000 (Gold plated)
9108-9113-000 (Passivated)

Noncaptive contact:
9108-1213-000 (Gold plated)
9108-9213-000 (Passivated)

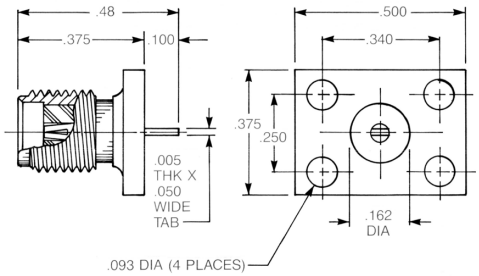


Straight Panel Jack Receptacle

- Tab contact
- 3/8" square flange

Captive contact:
9176-1113-000 (Gold plated)
9176-9113-000 (Passivated)

Noncaptive contact:
9176-1213-000 (Gold plated)
9176-9213-000 (Passivated)



Straight Panel Jack Receptacle

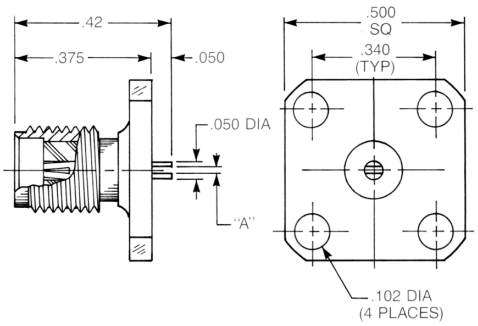
- Tab contact
- Rectangular flange

Captive contact:
9107-1113-000 (Gold plated)
9107-9113-000 (Passivated)

Noncaptive contact:
9107-1213-000 (Gold plated)
9107-9213-000 (Passivated)

Additional tab contacts available in other lengths, widths, and thicknesses

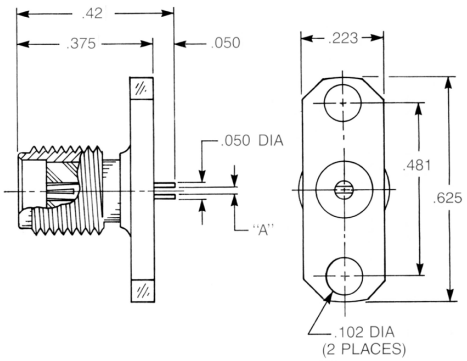
Panel Jack Receptacles



Straight Panel Jack Receptacle

- Slotted contact
- 1/2" square flange

Dim. A	Captive contact:
.012	**9204-1113-002** (Gold plated)
	9204-9113-002 (Passivated)
.018	**9204-1113-001** (Gold plated)
	9204-9113-001 (Passivated)
.025	**9204-1113-003** (Gold plated)
	9204-9113-003 (Passivated)
	Noncaptive contact:
.012	**9204-1213-002** (Gold plated)
	9204-9213-002 (Passivated)
.018	**9204-1213-001** (Gold plated)
	9204-9213-001 (Passivated)
.025	**9204-1213-003** (Gold plated)
	9204-9213-003 (Passivated)



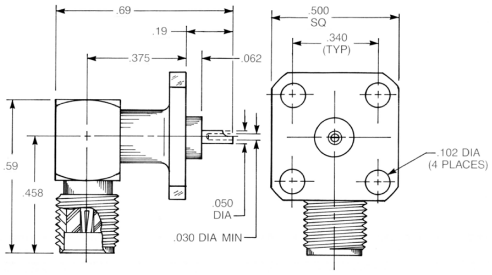
Straight Panel Jack Receptacle

- Slotted contact
- 2-hole flange

Dim. A	Captive contact:
.012	**9208-1113-000** (Gold plated)
	9208-9113-000 (Passivated)
.018	**9208-1113-001** (Gold plated)
	9208-9113-001 (Passivated)
.025	**9208-1113-002** (Gold plated)
	9208-9113-002 (Passivated)
	Noncaptive contact:
.012	**9208-1213-000** (Gold plated)
	9208-9213-000 (Passivated)
.018	**9208-1213-001** (Gold plated)
	9208-9213-001 (Passivated)
.025	**9208-1213-002** (Gold plated)
	9208-9213-002 (Passivated)

Slotted contacts available in other widths and depths

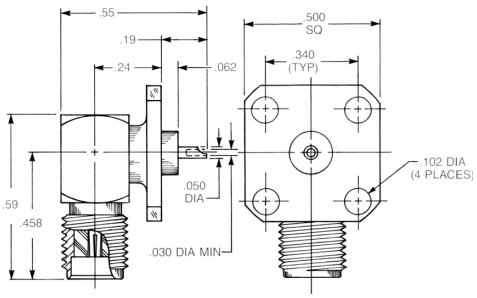
Panel Jack Receptacles



Right Angle Panel Jack Receptacle

- Solder pot contact
- 1/2" square flange

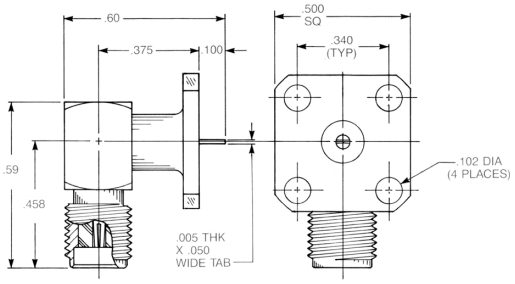
9424-1513-000 (Gold plated)
9424-9513-000 (Passivated)



Low Profile Right Angle Panel Jack Receptacle

- Solder pot contact
- 1/2" square flange

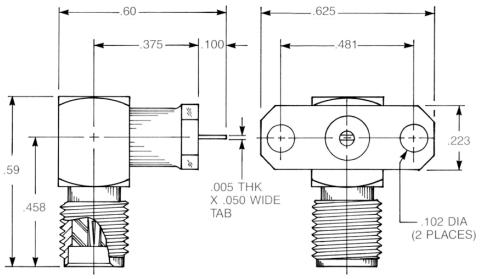
9425-1513-000 (Gold plated)
9425-9513-000 (Passivated)



Right Angle Panel Jack Receptacle

- Tab contact
- 1/2" hole flange

9124-1513-000 (Gold plated)
9124-9513-000 (Passivated)



Right Angle Panel Jack Receptacle

- Tab contact
- 2-hole flange

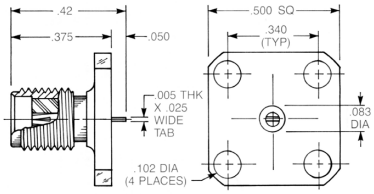
9126-1513-000 (Gold plated)
9126-9513-000 (Passivated)

Receptacles for .025" Microstrip

Standard SMA receptacles with tab contacts have the tab milled from a .050" diameter round contact. This .050" diameter is flush with the rear insulator of the connector.

When these connectors are used with .025" thick microstrip, a capacitive coupling can be introduced because of the close proximity of the microstrip ground plane to the .050" diameter.

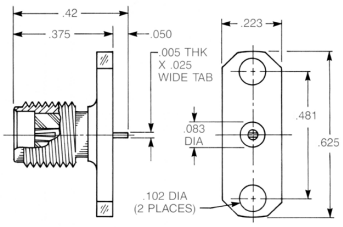
These receptacles eliminate the coupling by reducing the contact rear diameter to .025". The insulator diameter at the rear of the connector is reduced to .083" to maintain 50 ohm impedance.



Straight Jack Receptacle

- 1/2 " square flange

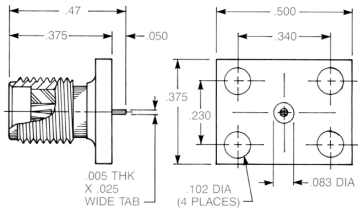
Captive contact:
9114-1113-000 (Gold plated)
9114-9113-000 (Passivated)



Straight Jack Receptacle

- 2-hole flange

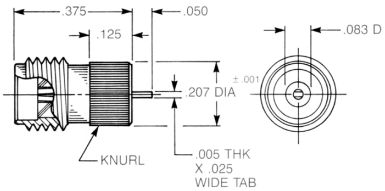
Captive contact:
9118-1113-000 (Gold plated)
9118-9113-000 (Passivated)



Straight Jack Receptacle

- Rectangular flange

Captive contact:
9117-1113-000 (Gold plated)
9117-9113-000 (Passivated)



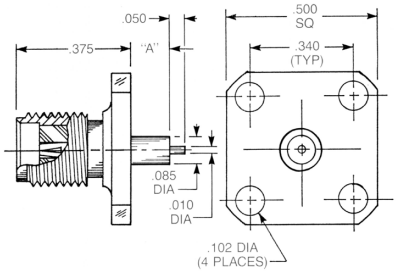
Straight Jack Receptacle

- Knurl mount

Captive contact:
9163-1113-000 (Gold plated)
9163-9113-000 (Passivated)

Receptacles for .010" Microstrip

The receptacles shown below have .010" diameter contacts for good electrical transition to narrow microstrip lines. The reduced-diameter insulators are extended beyond the flange face to carry 50 ohm impedance through the microstrip package wall. All have captive contacts.

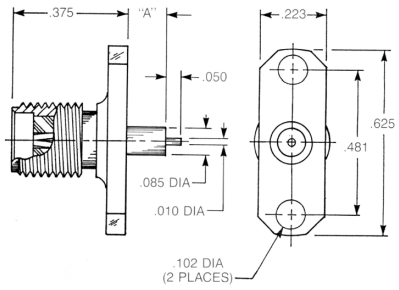


Straight Jack Receptacle

- 1/2" square flange

A = .057:
9304-1113-014 (Gold plated)
9304-9113-014 (Passivated)

A = .125:
9304-1113-013 (Gold plated)
9304-9113-013 (Passivated)

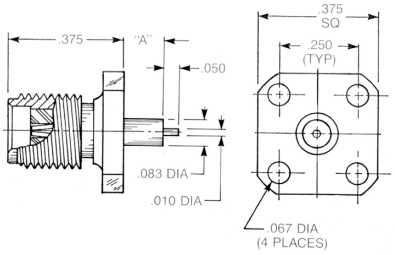


Straight Jack Receptacle

- 2-hole flange

A = .057:
9308-1113-003 (Gold plated)
9308-9113-003 (Passivated)

A = .125:
9308-1113-001 (Gold plated)
9308-9113-001 (Passivated)

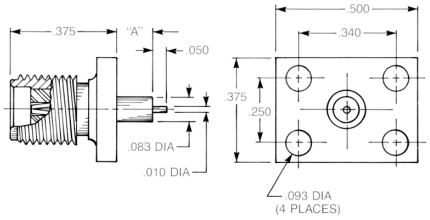


Straight Jack Receptacle

- 3/8" square flange

A = .057:
9376-1113-002 (Gold plated)
9376-9113-002 (Passivated)

A = .125:
9376-1113-001 (Gold plated)
9376-9113-001 (Passivated)



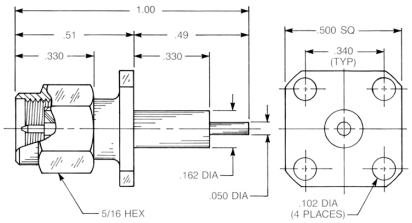
Straight Jack Receptacle

- Rectangular flange

A = .057:
9307-1113-002 (Gold plated)
9307-9113-002 (Passivated)

A = .125:
9307-1113-001 (Gold plated)
9307-9113-001 (Passivated)

Panel Plug Receptacles

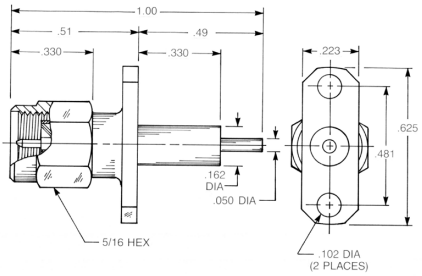


Straight Panel Plug Receptacle

- Extended contact and insulator
- 1/2" square flange

Captive contact:
9009-1113-000 (Gold plated)
9009-9113-000 (Passivated)

Noncaptive contact:
9009-1213-000 (Gold plated)
9009-9213-000 (Passivated)

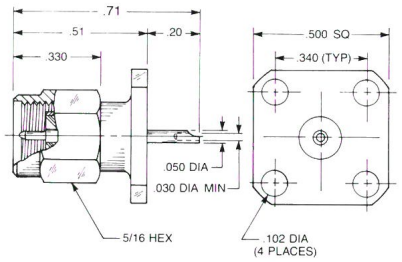


Straight Panel Plug Receptacle

- Extended contact and insulator
- 2-hole flange

Captive contact:
9055-1113-000 (Gold plated)
9055-9113-000 (Passivated)

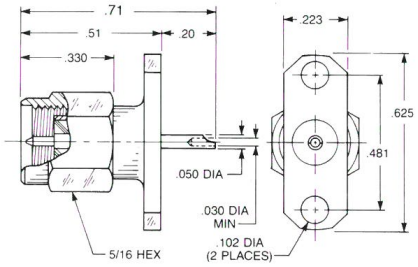
Noncaptive contact:
9055-1213-000 (Gold plated)
9055-9213-000 (Passivated)



Straight Panel Plug Receptacle

- Solder pot contact
- 1/2 " square flange

Captive contact:
9409-1113-000 (Gold plated)
9409-9113-000 (Passivated)



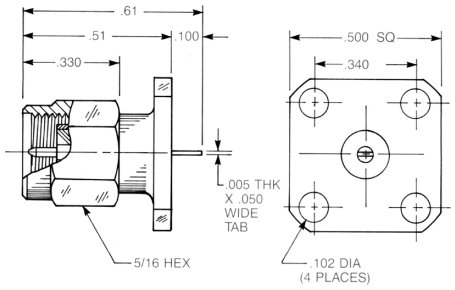
Straight Panel Plug Receptacle

- Solder pot contact
- 2-hole flange

Captive contact:
9455-1113-000 (Gold plated)
9455-9113-000 (Passivated)

Additional contact and insulator configurations available upon request

Panel Plug Receptacles

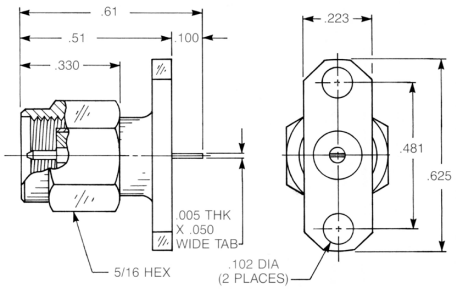


Straight Panel Plug Receptacle

- Tab contact
- 1/2" square flange

Captive contact:
9109-1113-000 (Gold plated)
9109-9113-000 (Passivated)

Noncaptive contact:
9109-1213-000 (Gold plated)
9109-9213-000 (Passivated)

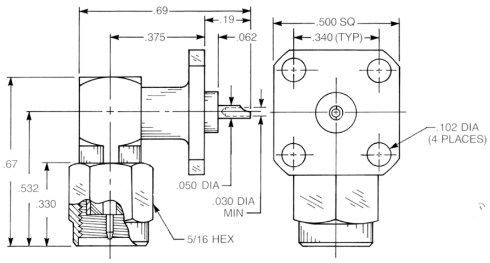


Straight Panel Plug Receptacle

- Tab contact
- 2-hole flange

Captive contact:
9155-1113-000 (Gold plated)
9155-9113-000 (Passivated)

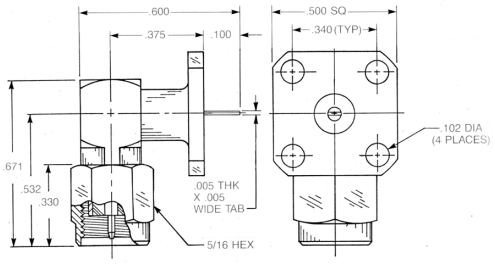
Noncaptive contact:
9155-1213-000 (Gold plated)
9155-9213-000 (Passivated)



Right Angle Panel Plug Receptacle

- Solder pot contact
- 1/2" square flange

9454-1513-000 (Gold plated)
9454-9513-000 (Passivated)



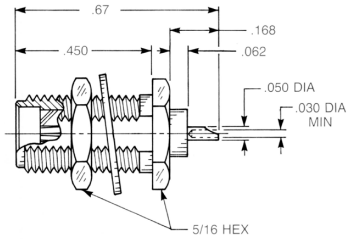
Right Angle Panel Plug Receptacle

- Tab contact
- 1/2" square flange

9154-1513-000 (Gold plated)
9154 -9513-000 (Passivated)

Additional contact and insulator configurations available upon request

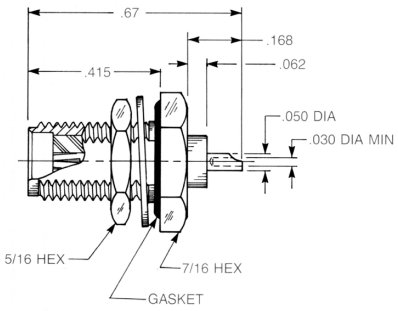
Bulkhead Jack Receptacles



Straight Bulkhead Jack Receptacle

- Solder pot contact
- Rear mount

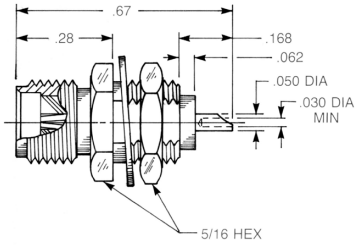
Captive contact:
9412-1113-000 (Gold plated)
9412-9113 -000 (Passivated)



Straight Bulkhead Jack Receptacle

- Solder pot contact
- Rear mount
- With mounting gasket

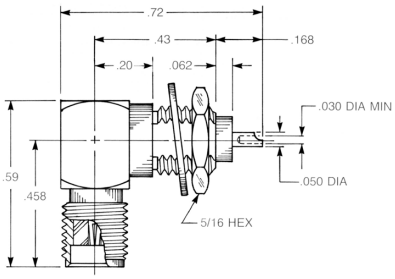
Captive contact:
9432-1113-000 (Gold plated)
9432-9113-000 (Passivated)



Straight Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

Captive contact:
9422-1113-000 (Gold plated)
9422-9113-000 (Passivated)



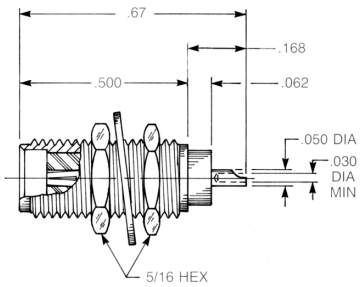
Right Angle Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

Captive contact:
9609-1513-000 (Gold plated)
9609-9513-000 (Passivated)

Additional contact and insulator configurations available upon request. Designed for use with .125" thick max panel

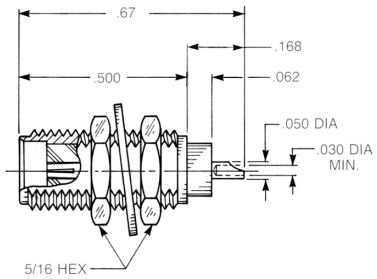
Bulkhead Jack Receptacles



Straight Bulkhead Jack Receptacle

- Solder pot contact
- Round body
- Provided with two mounting nuts and one lockwasher

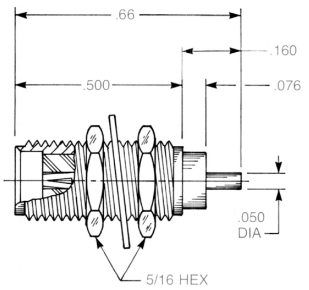
Captive contact:
9413-1113-000 (Gold plated)
9413-9113-000 (Passivated)



Straight Bulkhead Jack Receptacle

- Solder pot contact
- D-flatted body
- Provided with two mounting nuts and one lockwasher

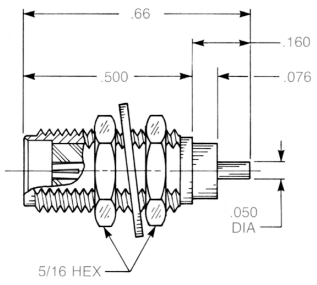
Captive contact:
9456-1113-002 (Gold plated)
9456-9113-002 (Passivated)



Straight Bulkhead Jack Receptacle

- Post contact
- Round body
- Provided with two mounting nuts and one lockwasher

Captive contact:
9013-1113-000 (Gold plated)
9013-9113-000 (Passivated)



Straight Bulkhead Jack Receptacle

- Post contact
- D-flatted body
- Provided with two mounting nuts and one lockwasher

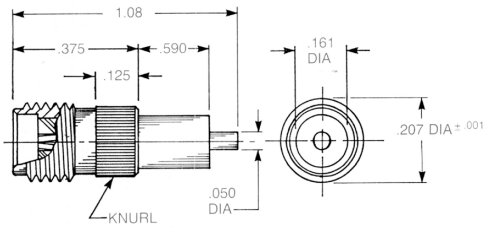
Captive contact:
9056-1113-000 (Gold plated)
9056-9113-000 (Passivated)

Additional contact and insulator configurations available upon request. Designed for use with .125" thick max panel

Knurl Mount

These knurl mount connectors can provide an economical alternative to flange mounted connectors, and are especially useful in dense packaging applications.

To ensure retention, these connectors should be used in panels of .100" minimum thickness. Gold-plated bodies can be soldered to the panel if necessary, but an absolute minimum of heat should be used to prevent insulator damage.

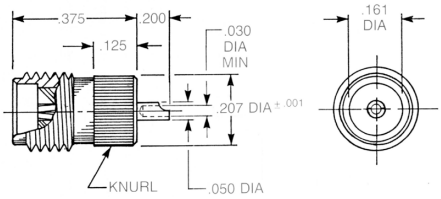


Straight Jack Receptacle

- Extended contact and insulator

Captive contact:
9033-1113-000 (Gold plated)
9033-9113-000 (Passivated)

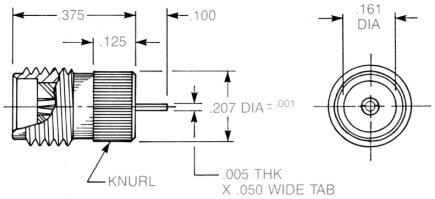
Noncaptive contact:
9033-1213-000 (Gold plated)
9033-9213-000 (Passivated)



Straight Jack Receptacle

- Solder pot contact

Captive contact:
9433-1113-000 (Gold plated)
9433-9113-000 (Passivated)

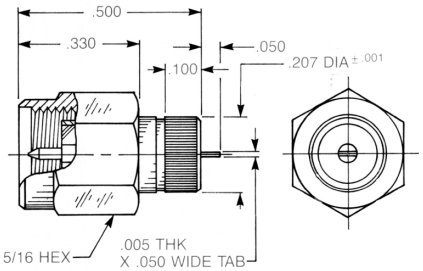


Straight Jack Receptacle

- Tab Contact

Captive contact:
9133-1113-000 (Gold plated)
9133-9113-000 (Passivated)

Noncaptive contact:
9133-1213-000 (Gold plated)
9133-9213-000 (Passivated)



Straight Plug Receptacle

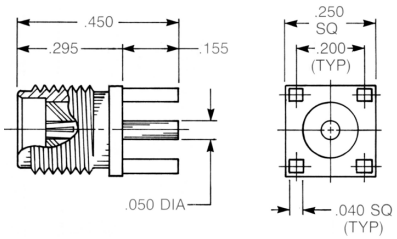
- Tab Contact

Captive contact:
9139-1113-000 (Gold plated)
9139-9113-000 (Passivated)

Noncaptive contact:
9139-1213-000 (Gold plated)
9139-9213-000 (Passivated)

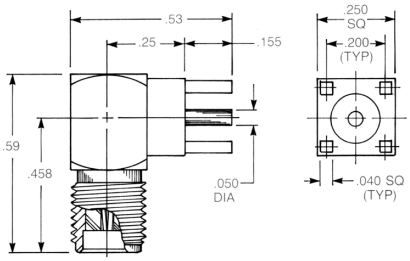
Additional contact and insulator configurations available upon request.

PCB Receptacles



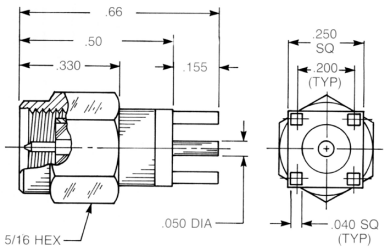
Straight Jack Receptacle

9650-1113-000 (Gold plated)



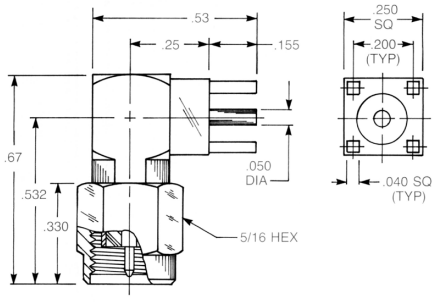
Right Angle Jack Receptacle

9647-1513-000 (Gold plated)



Straight Plug Receptacle

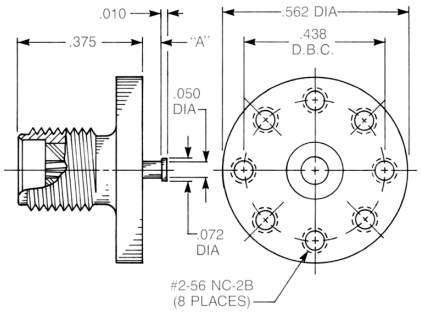
9649-1113-000 (Gold plated)



Right Angle Plug Receptacle

9646-1513-000 (Gold plated)

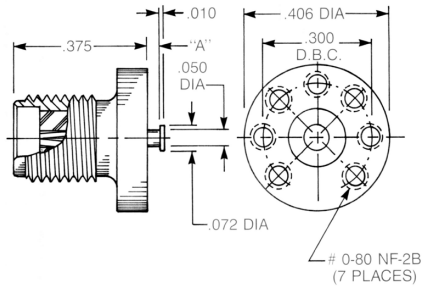
Stripline Receptacles



Straight Surface Mount Jack Receptacle

- Standard flange
- Noncaptive contact

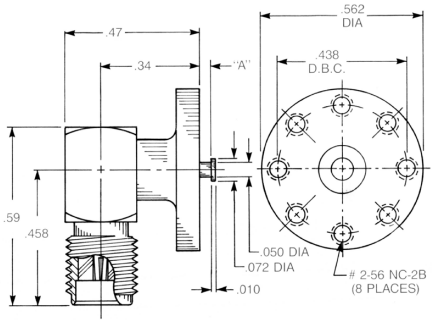
Dim. A	
.031	**9003-1213-001** (Gold plated)
	9003-9213-001 (Passivated)
.063	**9003-1213-002** (Gold plated)
	9003-9213-002 (Passivated)
.125	**9003-1213-003** (Gold plated)
	9003-9213-003 (Passivated)



Straight Surface Mount Jack Receptacle

- Small diameter flange
- Noncaptive contact

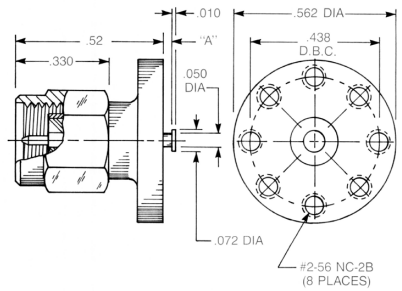
Dim. A	
.031	**9610-1213-001** (Gold plated)
	9610-9213-001 (Passivated)
.063	**9610-1213-002** (Gold plated)
	9610-9213-002 (Passivated)
.125	**9610-1213-003** (Gold plated)
	9610-9213-003 (Passivated)



Right Angle Surface Mount Jack Receptacle

- Standard flange
- Noncaptive contact

Dim. A	
.031	**9035-1513-001** (Gold plated)
	9035-9513-001 (Passivated)
.063	**9035-1513-002** (Gold plated)
	9035-9513-002 (Passivated)
.125	**9035-1513-003** (Gold plated)
	9035-9513-003 (Passivated)



Straight Surface Mount Plug Receptacle

- Standard flange
- Noncaptive rear contact

Dim. A	
.031	**9034-1213-001** (Gold plated)
	9034-9213-001 (Passivated)
.063	**9034-1213-002** (Gold plated)
	9034-9213-002 (Passivated)
.125	**9034-1213-003** (Gold plated)
	9034-9213-003 (Passivated)

Connectors for use with other board thicknesses are available

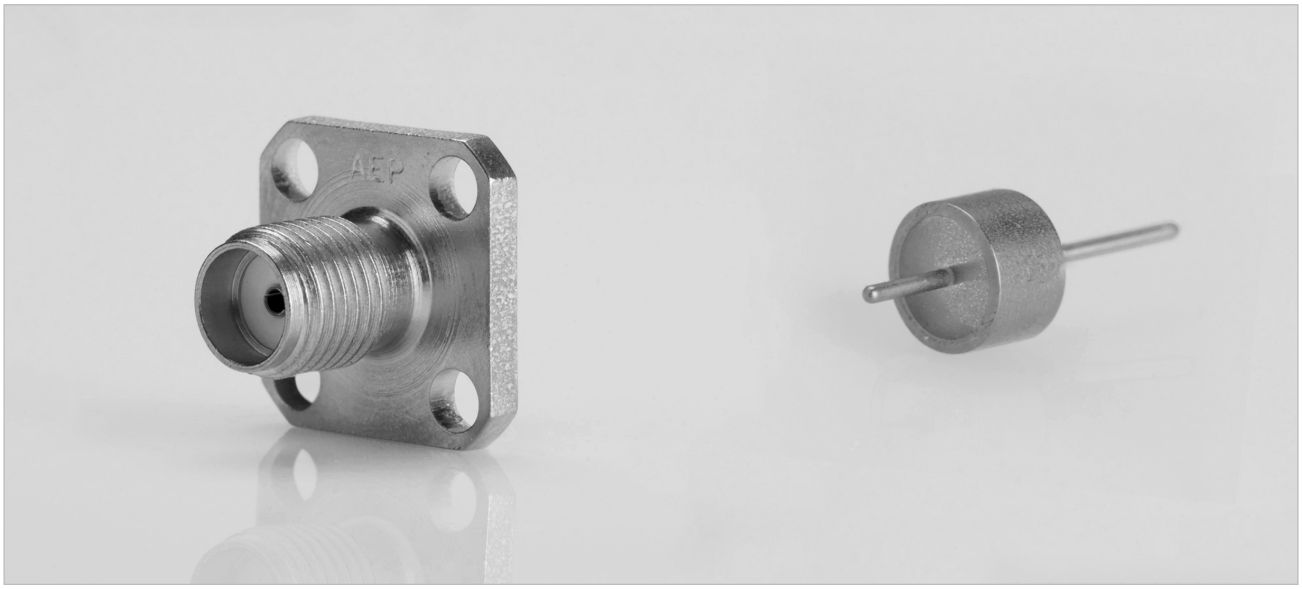
Hermetic Seal Launchers

AEP SMA hermetic seal launchers are designed for use with separate hermetic seals with pin diameters ranging from .012" to .036". The use of a connector/seal system rather than a connector with an integral seal means that microstrip boxes can remain sealed when connectors are removed or changed. The connectors can be reused many times on components that need to be 'connectorized' only for testing.

All the items in this section have passivated bodies. All other characteristics are as shown on page 2-3 for SMA series connectors.

The electrical performance of these launchers is dependent to a great extent upon the method used to affix the inner seal pin to the microstrip line. The application notes on pages 2-34 to 2-40 give a detailed explanation of the connectors' electrical characteristics.

We also have a wide variety of hermetic seals available in configurations other than those shown here.
For information, please contact us directly.



APPLICATION NOTES

INTRODUCTION

In recent years, as hermetically sealed MIC (Microwave Integrated Circuit) devices have come into common usage, designers have sought an alternative to "spark plug" type SMA connectors for launching from microstrip to a coaxial line. "Spark plug" launchers perform well electrically and mechanically, but they have some disadvantages: Because the hermetic seal is integral to the connector, the package loses hermeticity if the connector is removed. They are also expensive to manufacture, requiring costly special welding and testing equipment, and manufacturing yields can be quite low.

The alternative approach discussed here is to seal the package with an inexpensive 50 ohm hermetic seal, and use a non-hermetic SMA connector that fits over the protruding seal pin. The advantages are several: If the seal is damaged during installation, it can be replaced easily and inexpensively. If a connector is damaged during service, it can be replaced without compromising the package's hermeticity. If devices are to be shipped with pins only, a connector can be put on for testing, removed, and reused for testing on other packages.

This type of connector is known by many names; no industry-wide generic term has come into use. It may be variously described as a hermetic seal launcher, MIC launcher, field replaceable jack, or combinations of these terms.

All of these terms are descriptions of the same thing: SMA series receptacles designed for mounting on a hermetic seal which provides an environmental, mechanical, and electrical transition from a microstrip line to a coaxial line. They typically have flanges for mounting to the package; screw-in types are available but require a thick-walled package to allow for seal mounting.

DESIGN

AEP SMA hermetic seal launchers are designed with mechanically captivated contacts and insulators. Epoxy captivation is avoided in order to eliminate RF leakage through epoxy fill holes at high frequencies.

50 ohm hermetic seals with pin diameters of .012", .015", and .018" use glass dielectrics that yield an outer ring diameter considerably smaller than the inner diameter of a standard SMA body. In order to make the transition from an SMA interface to this smaller diameter, the diameters of the connector body, contact, and insulator must be stepped down from the front (SMA interface) end of the connector to the rear (seal interface) end.

These steps, together with the barbs and shoulders used to captivate the contact and insulator, are designed and located to perform electrical compensation for locally capacitive or inductive sections. The seal's electrical characteristics and the impedance at the connector/seal interface are also compensated for in order to produce a connector and seal combination as close to 50 ohms overall as possible. Figure A illustrates the transitional steps and contact captivation method.

APPLICATION NOTES

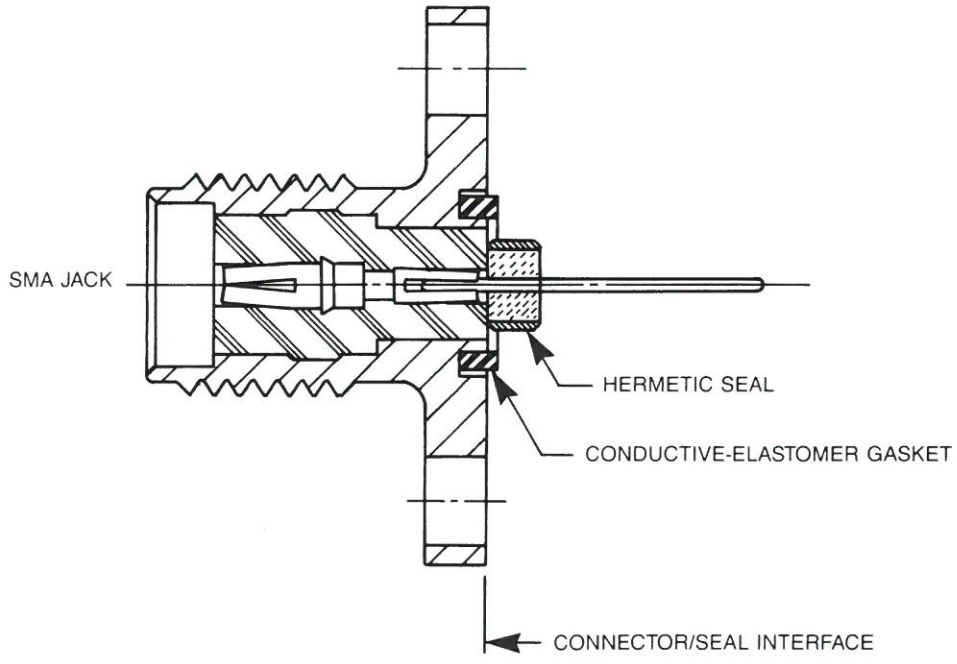
DESIGN (continued)

A conductive-elastomer gasket is placed in a groove in the rear flange of the connector. This gasket ensures good RF grounding and guards against RF leakage due to irregularities in the connector flange or package surface.

Seals with .020" pin diameters have an outer ring diameter of .158". This is close enough to the inner diameter of an SMA body that the stepdown transition discussed above is not needed. Connectors for use with these seals have "straight through" contact and insulator diameters. This design precludes the use of the conductive gasket on the flange end.

FIGURE A

CONNECTOR/SEAL DESIGN



(Proportions altered to illustrate detail)

APPLICATION NOTES

THE COAXIAL LINE TO MICROSTRIP INTERFACE

Although the impedance of the connectors and seals can be tightly controlled at the point of manufacture, their performance in a system will be greatly affected by the method and process of attaching the seal pin to the microstrip line. It is very important for any discontinuities introduced by the pin attachment to be minimized and "tweaked" as much as possible to get the maximum electrical performance from the connector and seal.

The first step toward the best match is to select a seal with a pin diameter as close as possible to the microstrip line width. If the coaxial section (pin) is significantly larger than the microstrip section (line), the circuit will show an inductive discontinuity as the input signal radiates farther on the pin before entering the line (antenna effect) . Conversely, if the line section is significantly larger than the pin, the circuit will become capacitive in this section.

Perhaps the most important part of the entire connector/seal/microstrip assembly is the pin-to-line attachment method and process. Please note that as connector manufacturers rather than microstrip circuit designers, we cannot recommend any specific method of pin attachment. The information shown here has been compiled from discussions with our customers. The method used in a given situation will depend on the specific design and operating requirements of the device, and the equipment available to the circuit manufacturer. As with any electronic device, tradeoffs are commonly required to balance the need for performance over a narrow or wide frequency bandwidth, and environmental and mechanical considerations.

When a microstrip device is subjected to a wide temperature range during service, a circumstance frequently arises which adds yet another consideration to the decision on the pin attachment method. If the thermal expansion coefficient of the package material is different from that of the substrate, relative movement between the pin and the line will occur during temperature changes. With widely different expansion rates, and/or wide temperature ranges, this movement can be enough to break a direct pin-to-line bond. In these cases, an attachment incorporating a sliding contact or a looped gold ribbon is commonly used to permit movement of the line relative to the pin. Keep in mind that most methods used to allow this movement will add discontinuities greater than those from a direct bond.

Whatever the method that is used for the pin attachment, a prototype unit should be examined with a fast rise-time TDR to determine if the attachment section is inductive or capacitive. An appropriate amount of capacitance or inductance should be added to the circuit to compensate for the discontinuities found.

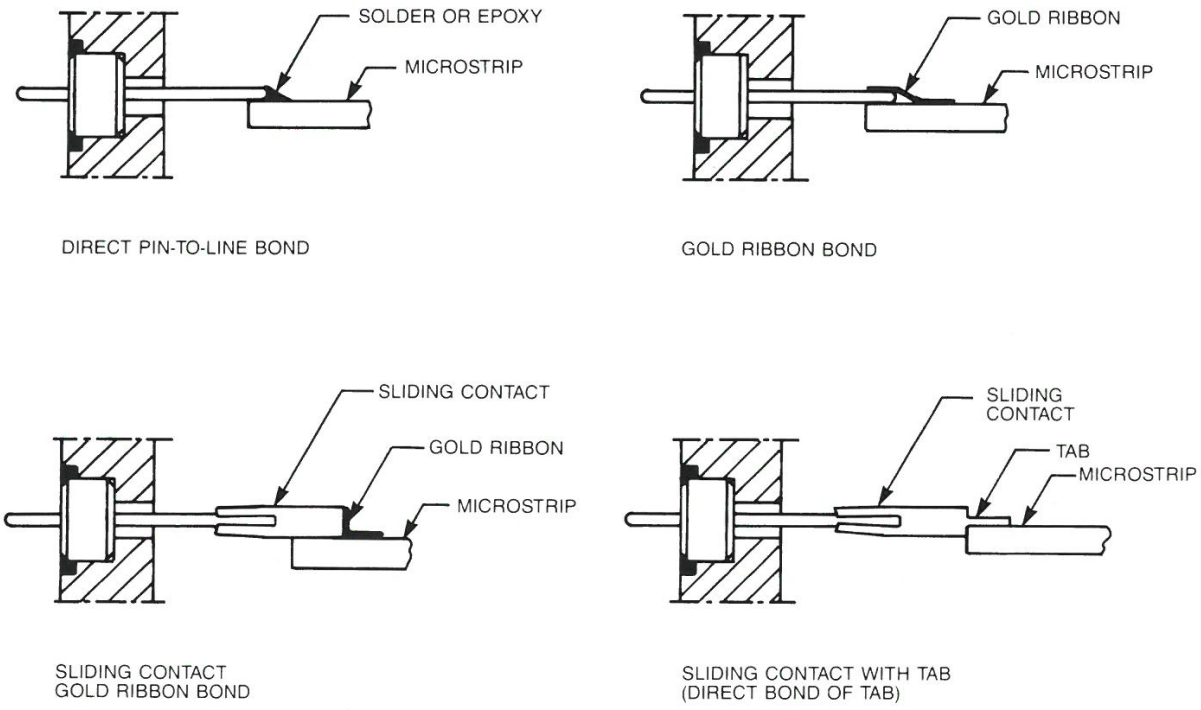
APPLICATION NOTES

THE COAXIAL LINE TO MICROSTRIP INTERFACE (continued)

Figure B shows some of the more common methods of pin attachment: solder, gold ribbon bonding (commonly bonded by ultrasonic welding), and conductive epoxy. Mechanical pressure is sometimes used to hold the pin in contact with the line; this eliminates heating the circuit during attachment.

FIGURE B

PIN TO LINE ATTACHMENT METHODS



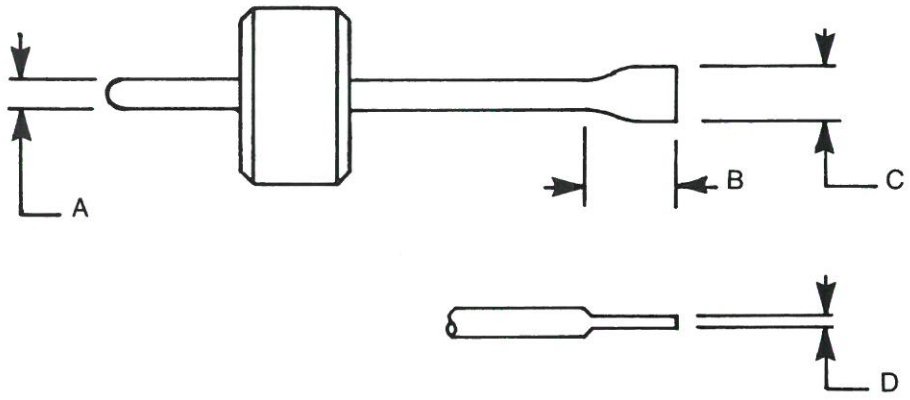
(Proportions altered to illustrate detail)

APPLICATION NOTES

Some users report that using a seal with the circuit end of the seal pin flattened gives them better results than a standard round pin. Besides providing a smooth round-to-planar transition, the flattened pin can lessen discontinuity when the line width must be greater than the pin diameter. Figure C shows the dimensions of flattened ends for each standard pin size. Flattened ends are available at a small extra charge on all seals shown in our hermetic seal brochure or main catalog.

FIGURE C

SEALS WITH FLATTENED-END PINS



A (Pin Dia.)	B (± .005) (Flat Length)*	C (± .005) (Flat Width)	D (± .002) (Flat Thickness)
.012	.050	.025	.006
.015	.050	.030	.007
.018	.050	.035	.009
.020	.050	.040	.010

*Other flat lengths available upon request.

TEST METHODS

Test methods for these connectors vary widely, and disputes often arise when a user tests by a method different from the manufacturer's. It is important to remember that, as with any published data, **the manufacturer's published performance specifications are based solely on testing by his method.** If the user prefers another way of testing, their results can only be used to compare different manufacturer's parts or to check lot consistency.

APPLICATION NOTES

We have tested our connectors by several methods and have found significant drawbacks in all except the last:

1) Testing on a "dummy" microstrip package (direct line from input to output) most closely simulates the final application of the connectors and seals. However, the test results will be skewed by the pin attachment method and will be valid for production units only if the attachment method in production is 100% the same as on the test fixture.

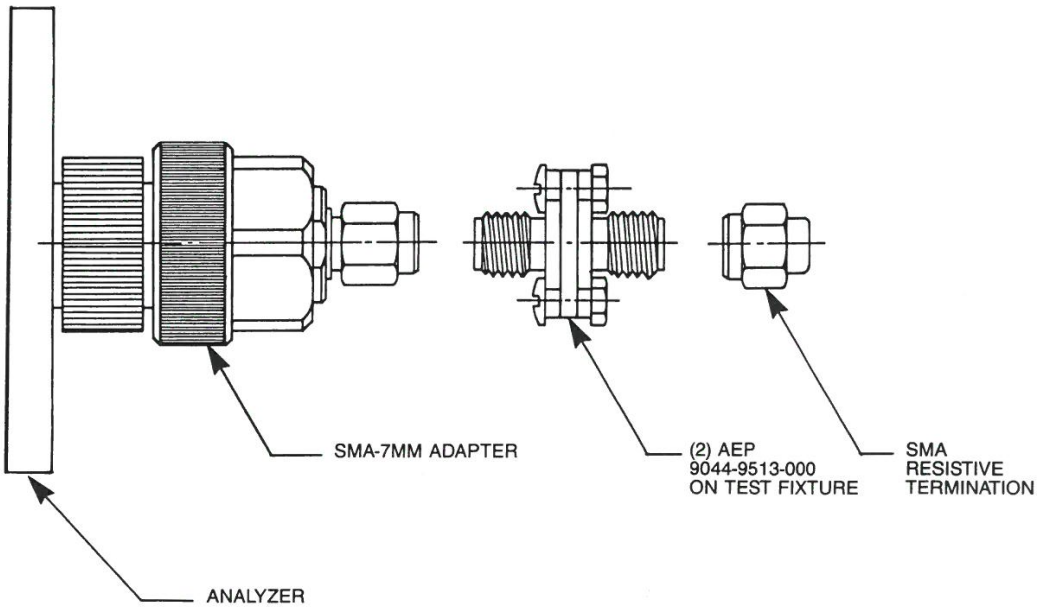
2) Testing two connectors bolted back-to-back with a pin joining the center contacts is inaccurate because it does not include the seal with which the connectors are designed to be used. This test method can also be inconsistent because of the difficulty of making sure the connectors are lined up with each other accurately.

3) Special resistive terminations that plug into the back of the connector also do not account for the compensation designed into the connector for the seal. One user who tests by this method found that the brand of connectors rated worst by the test fixture actually worked the best when installed on one of their products.

The test method used to obtain the information in figure E is to mount two connectors back-to-back on a fixture that has the appropriate seal installed (See figure D). The thickness of the fixture (a brass plate) is such that the seal surfaces are flush with the fixture surface, as they should be with the MIC package surface.

FIGURE D

TEST SETUP FOR HERMETIC SEAL LAUNCHERS



APPLICATION NOTES

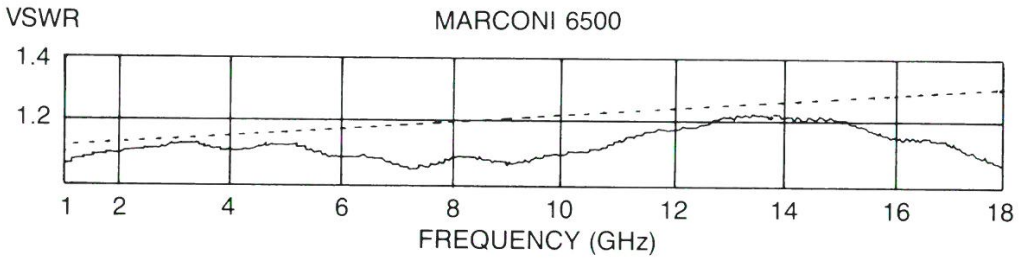
This method tests the connectors as they are ultimately used (two connector interfaces and two seal inter faces), and eliminates the variable of pin-to-line transitions. The VSWR figures obtained from this test method can be translated to single connector/seal VSWR by extracting the square root of the result.

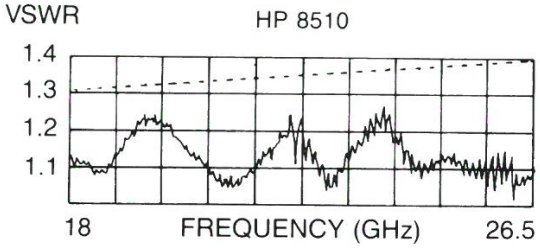
Although we believe that this test method most accurately reflects the performance of our connectors and seals, the results (figure E) should only be used as a baseline for estimating their VSWR contribution to a device. Any VSWR contributed by the pin-to-line attachment must be accounted for before the final performance of the device can be known.

As with all of our products, requests for variations of the standard parts shown in our literature are welcome.

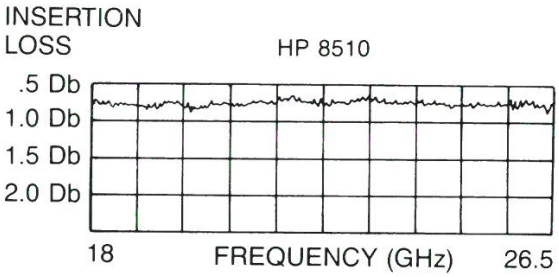
FIGURE E

TEST RESULTS, (2) 9044-9513-000
TESTED PER FIGURE D





Dotted line = VSWR $(1.05 + .005F\ [GHz])^2$
Max. VSWR DC-18 GHz: 1.23: 1 @ 13.93 GHz
Max. VSWR DC-26.5 GHz: 1.28: 1 @ 23.74 GHz



HERMETIC SEAL DATA

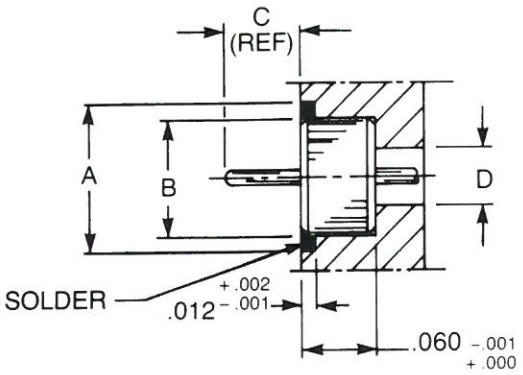
MATERIALS

All metal parts: Kovar, gold plated per MIL-G-45204 type II, grade C, class 1 over nickel per MIL-C-26074, class 1, over copper per MIL-C-14550. Glass: Corning glass as noted:

P/ N	Glass
920-55	7052
920-56	7070
920-69	7052
920-82	7070
920-92	7052

Hermeticity : Greater than 1 x 10^{-8} cc/sec @ 1 atmosphere.
Impedance: 50 ± 1 ohms.

Frequency range: DC-26 GHz.
Insertion loss:
.1 Db max to 12.4 GHz.
.2 Db max to 18 GHz.
.25 Db max to 26 GHz.
VSWR: Dependent on application.
Rated voltage: 335V RMS max @ sea level.
Rated current: 500 ma.
DWV: 1000V RMS @ sea level.
Insulation resistance: 100K megohms (25°C)
Solderability: Per MIL-STD-202, method 209.
Meniscus: .005" max.
Pin concentricity: .003 T.I.R.
Temperature range: -65 to 250°C.



MOUNTING DIMENSIONS

P/N	A(+ .001)	B(+ .001)	C
920-55	.127	.102	.070
920-56	.140	.115	.070
920-69	.188	.163	.060
920-82	.127	.102	.070
920-92	.188	.163	.075

NOTES:

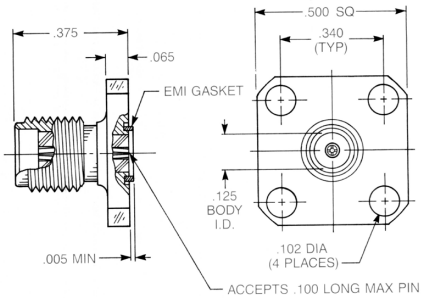
1) The hermetic seal should be as flush as possible with the surface of the package. When the seal is recessed into the mounting hole, an air gap is created which adversely affects electrical performance . A slight protrusion (less than .005") is acceptable.

2) A solder ring should be used which will fill the counterbore flush with the package surface after soldering. The counterbore can be an 80 to 90 degree countersink rather than square-bottomed as shown, but still must be filled to avoid an air gap.

3) Some users, especially when using a small pin diameter and a thick-walled package, use a Teflon insulator in the package wall to support the pin. The through-hole diameters shown below are for 50 ohm impedance.

Pin Diameter	'D'-Air Dielectric	'D'-Teflon Dielectric
.012	.028	.040
.015	.035	.050
.018	.041	.059
.020	.046	.066

Hermetic Seal Launchers for .012" Diameter Pins

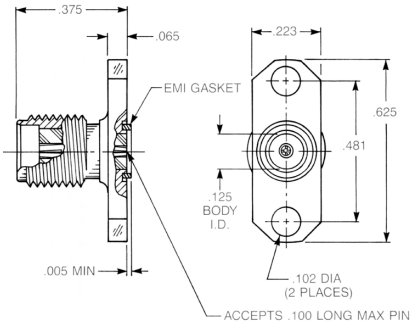


Straight Jack

- 1/2" Square Flange

9045-9513-000

Optional packaging:
9145-9513-000 (Includes 920-55)
9245-9513-000 (Includes 920-55 and 907-111-1)
9345-9513-000 (Includes 907-111-1)

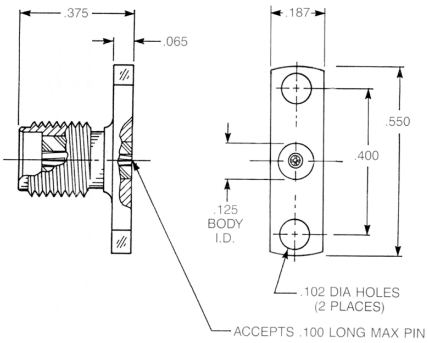


Straight Jack

- 2-Hole Flange

9044-9513-000

Optional packaging:
9144-9513-000 (Includes 920-55)
9244-9513-000 (Includes 920-55 and 907-111-1)
9344-9513-000 (Includes 907-111-1)

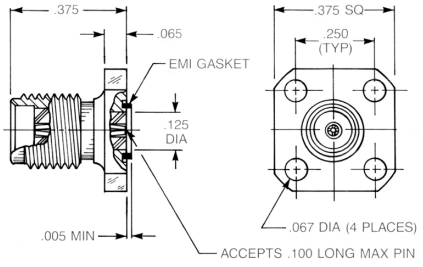


Straight Jack Narrow

- 2-Hole Flange
- No EMI gasket

9080-9513-000

Optional packaging:
9180-9513-000 (Includes 920-55)
9280-9513-000 (Includes 920-55 and 907-111-1)
9380-9513-000 (Includes 907-111-1)



Straight Jack

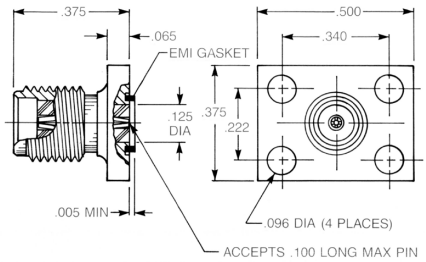
- 3/8" Square Flange

9079-9513-000

Optional packaging:
9179-9513-000 (Includes 920-55)
9279-9513-000 (Includes 920-55 and 907-111-1)
9379-9513-000 (Includes 907-111-1)

These parts accept pin diameters from .011" to .015

Hermetic Seal Launchers for .012" Diameter Pins

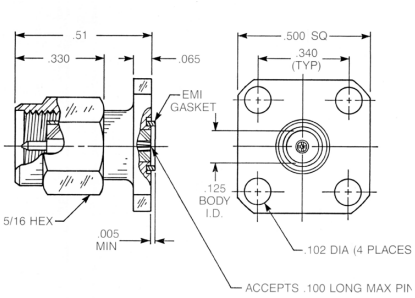


Straight Jack

- Rectangular Flange

9062-9513-000

Optional packaging:
9162-9513-000 (Includes 920-55)
9262-9513-000 (Includes 920-55 and 907-111-1)
9362-9513-000 (Includes 907-111-1)

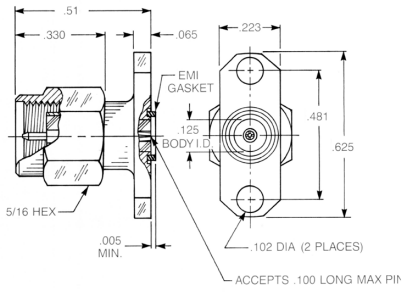


Straight Plug

- 1/2" Square Flange

9047-9513-000

Optional packaging:
9147-9513-000 (Includes 920-55)
9247-9513-000 (Includes 920-55 and 907-111-1)
9347-9513-000 (Includes 907-111-1)



Straight Plug

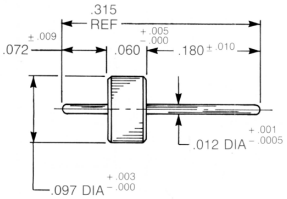
- 2-Hole Flange

9046-9513-000

Optional packaging:
9146-9513-000 (Includes 920-55)
9246-9513-000 (Includes 920-55 and 907-111-1)
9346-9513-000 (Includes 907-111-1)

Solder-In Hermetic Seal

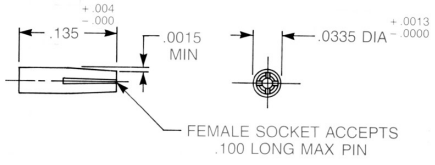
P/N **920-55**



See page 2-41 for material and finish specifications and mounting dimensions.

Accessory Contact

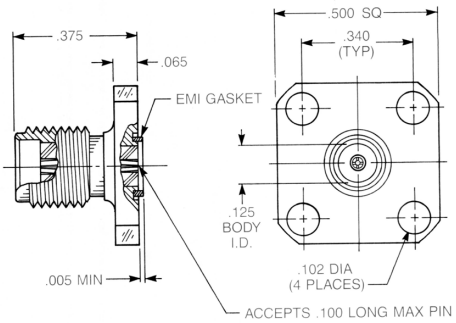
P/N **907-111-1**



Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550

These parts accept pin diameters from .011" to .015

Hermetic Seal Launchers for .015" Diameter Pins

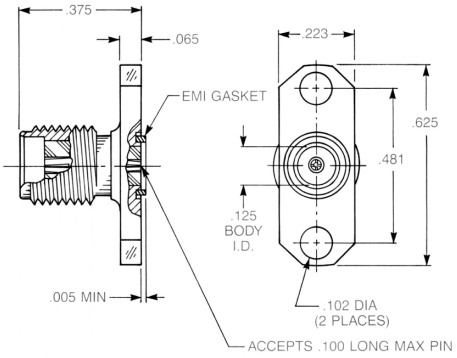


Straight Jack

- 1/2" Square Flange

9045-9513-001

Optional packaging:
9145-9513-001 (Includes 920-82)
9245-9513-001 (Includes 920-82 and 907-111-5)
9345-9513-001 (Includes 907-111-5)

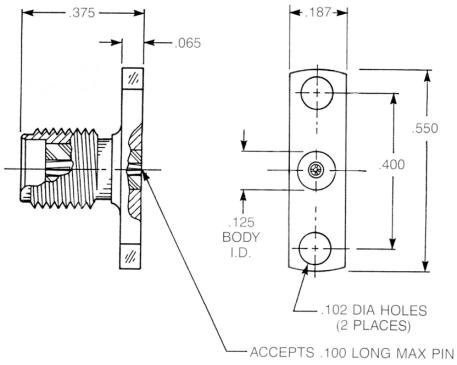


Straight Jack

- 2-Hole Flange

9044-9513-001

Optional packaging:
9144-9513-001 (Includes 920-82)
9244-9513-001 (Includes 920-82 and 907-111-5)
9344-9513-001 (Includes 907-111-5)

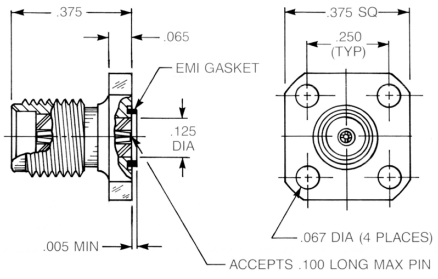


Straight Jack Narrow

- 2-Hole Flange
- No EMI gasket

9080-9513-001

Optional packaging:
9180-9513-001 (Includes 920-82)
9280-9513-001 (Includes 920-82 and 907-111-5)
9380-9513-001 (Includes 907-111-5)



Straight Jack

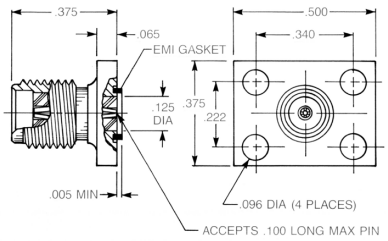
- 3/8" Square Flange

9079-9513-001

Optional packaging:
9179-9513-001 (Includes 920-82)
9279-9513-001 (Includes 920-82 and 907-111-5)
9379-9513-001 (Includes 907-111-5)

These parts accept pin diameters from .014" to .016

Hermetic Seal Launchers for .015" Diameter Pins

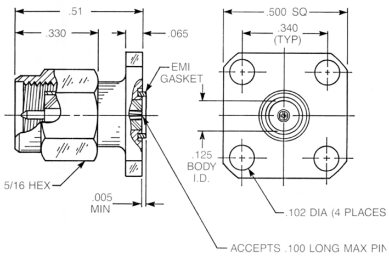


Straight Jack

- Rectangular Flange

9062-9513-001

Optional packaging:
9162-9513-001 (Includes 920-82)
9262-9513-001 (Includes 920-82 and 907-111-5)
9362-9513-001 (Includes 907-111-5)

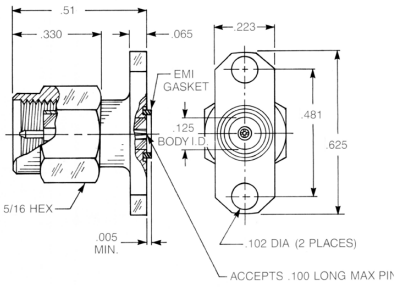


Straight Plug

- 1/2" Square Flange

9047-9513-001

Optional packaging:
9147-9513-001 (Includes 920-82)
9247-9513-001 (Includes 920-82 and 907-111-5)
9347-9513-001 (Includes 907-111-5)



Straight Plug

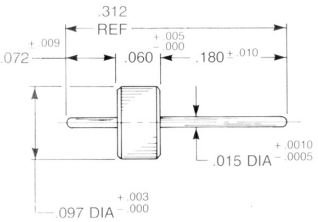
- 2-Hole Flange

9046-9513-001

Optional packaging:
9146-9513-001 (Includes 920-82)
9246-9513-001 (Includes 920-82 and 907-111-5)
9346-9513-001 (Includes 907-111-5)

Solder-In Hermetic Seal

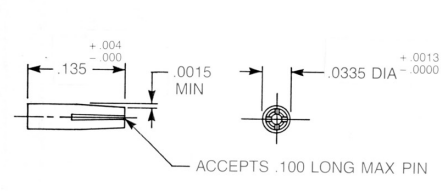
P/N **920-82**



See page 2-41 for material and finish specifications and mounting dimensions.

Accessory Contact

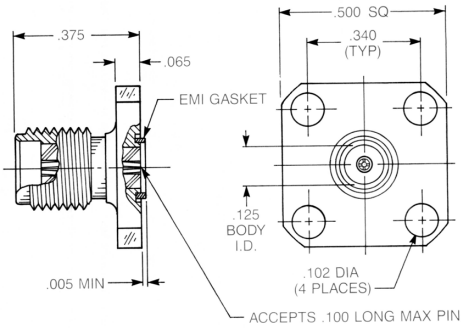
P/N **907-111-5**



Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550

These parts accept pin diameters from .014" to .016

Hermetic Seal Launchers for .018" Diameter Pins

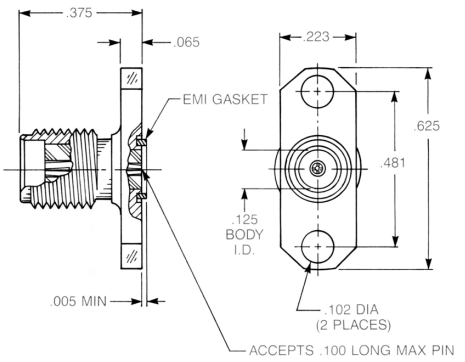


Straight Jack

- 1/2" Square Flange

9049-9513-000

Optional packaging:
9149-9513-000 (Includes 920-56)
9249-9513-000 (Includes 920-56 and 907-111-2)
9349-9513-000 (Includes 907-111-2)

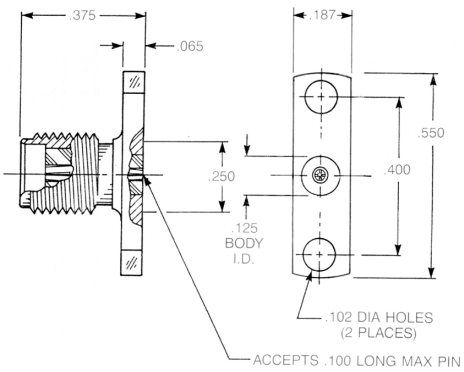


Straight Jack

- 2-Hole Flange

9048-9513-000

Optional packaging:
9148-9513-000 (Includes 920-56)
9248-9513-000 (Includes 920-56 and 907-111-2)
9348-9513-000 (Includes 907-111-2)

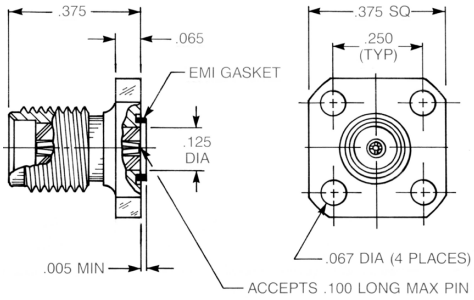


Straight Jack

- Narrow 2-Hole Flange
- No EMI gasket

9081-9513-000

Optional packaging:
9181-9513-000 (Includes 920-56)
9281-9513-000 (Includes 920-56 and 907-111-2)
9381-9513-000 (Includes 907-111-2)



Straight Jack

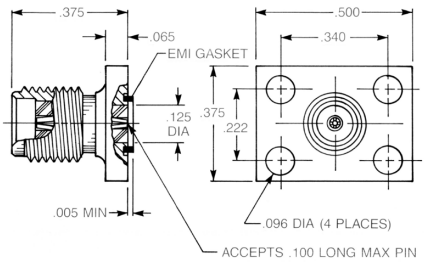
- 3/8" Square Flange

9074-9513-000

Optional packaging:
9174-9513-000 (Includes 920-56)
9274-9513-000 (Includes 920-56 and 907-111-2)
9374-9513-000 (Includes 907-111-2)

These parts accept pin diameters from .016" to .020

Hermetic Seal Launchers for .018" Diameter Pins

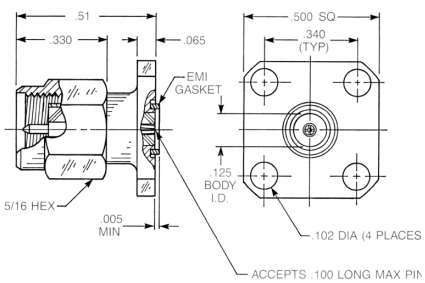


Straight Jack

- Rectangular Flange

9068-9513-000

Optional packaging:
9168-9513-000 (Includes 920-56)
9268-9513-000 (Includes 920-56 and 907-111-2)
9368-9513-000 (Includes 907-111-2)

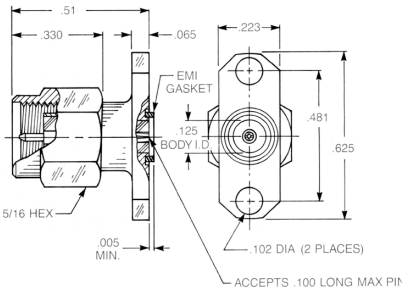


Straight Plug

- 1/2" Square Flange

9051-9513-000

Optional packaging:
9151-9513-000 (Includes 920-56)
9251-9513-000 (Includes 920-56 and 907-111-2)
9351-9513-000 (Includes 907-111-2)



Straight Plug

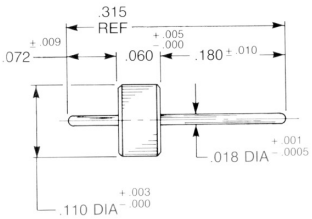
- 2-Hole Flange

9050-9513-000

Optional packaging:
9150-9513-000 (Includes 920-56)
9250-9513-000 (Includes 920-56 and 907-111-2)
9350-9513-000 (Includes 907-111-2)

Solder-In Hermetic Seal

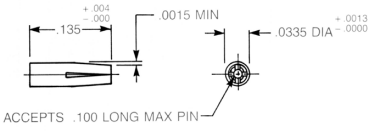
P/N **920-56**



See page 2-41 for material and finish specifications and mounting dimensions.

Accessory Contact

P/N **907-111-2**

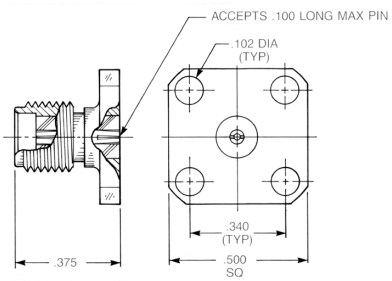


Material: Beryllium copper
Finish: Gold per MIL-G-45204 , type II, class I, grade C, over .0001 copper per MIL-C-14550

These parts accept pin diameters from .016" to .020

Hermetic Seal Launchers for .020" Diameter Pins

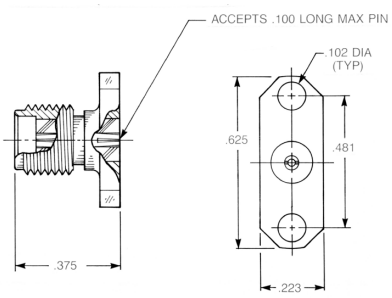
The hermetic seal launchers shown here are designed for use with seals having a .020" pin diameter, and a .160" outer ring diameter. The contact and insulator diameters are constant through these connectors, since they do not require the internal compensation featured in the launchers for smaller seals. The large outer diameter of the seals precludes the use of EMI gaskets on these connectors.



Straight Jack

- 1/2" Square Flange

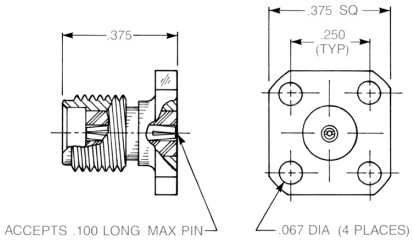
9504-9113-031
9504-9113-034 (Includes 920-69)



Straight Jack

- 2-Hole Flange

9508-9113-002
9508-9113-003 (Includes 920-69)

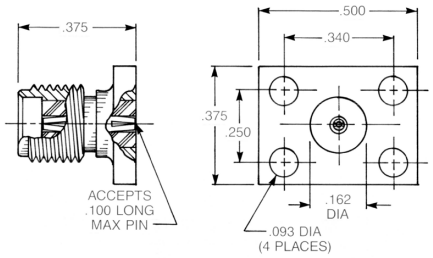


Straight Jack

- 3/8" Square Flange

9576-9113-001
9576-9113-002 (Includes 920-69)

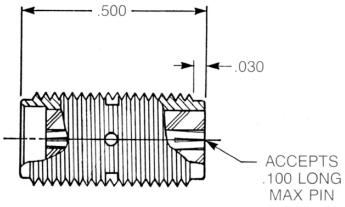
Hermetic Seal Launchers for .020" Diameter Pins



Straight Jack

- Rectangular Flange

9507-9113-003
9507-9113-004 (Includes 920-69)



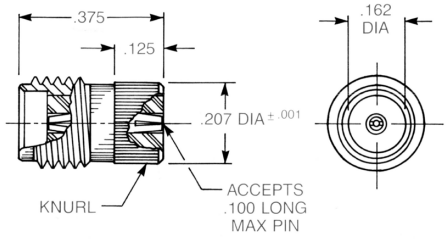
Straight Jack

- Screw-in Mounting

9513-9113-009
9513-9113-012 (Includes 920-69)

These connectors require a minimum package wall thickness of .250" for proper retention

---



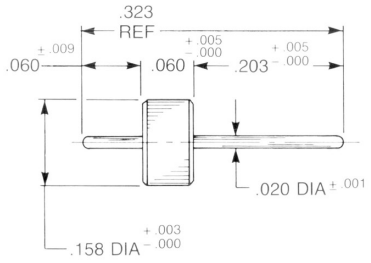
Straight Jack

- Knurl Mount

9533-9113-003
9533-9113-002 (Includes 920-69)

These connectors require a minimum package wall thickness of .235" for proper retention

---



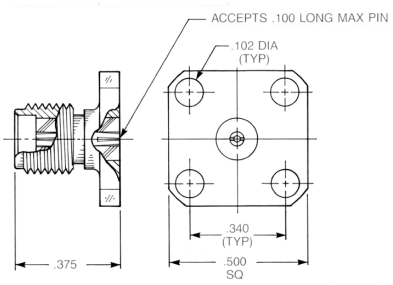
Solder-In Hermetic Seal

P/N **920-56**

See page 2-41 for material and finish specifications and mounting dimensions.

Hermetic Seal Launchers for .036" Diameter Pins

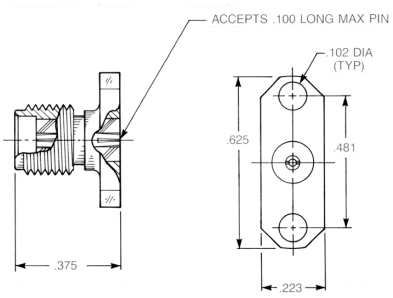
The hermetic seal launchers shown here are designed for use with hermetic seals having a .036" diameter pin on the connector (outer) side, and a .020" diameter pin on the circuit (inner) side. The seal outer ring is .158" diameter. The contact and insulator diameters are constant through these connectors, since they do not require the internal compensation featured in the launchers for smaller seals. The large outer diameter of the seals precludes the use of EMI gaskets on these connectors.



Straight Jack

- 1/2" Square Flange

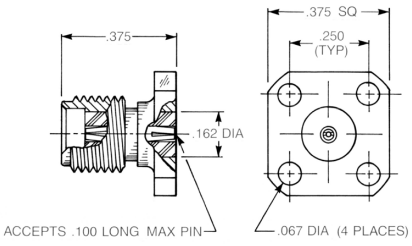
9504-9113-009
9504-9113-035 (Includes 920-92)



Straight Jack

- 2-Hole Flange

9508-9113-001
9508-9113-011 (Includes 920-92)

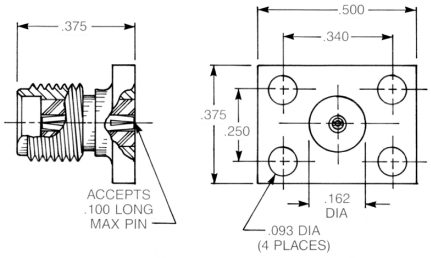


Straight Jack

- 3/8" Square Flange

9576-9113-003
9576-9113-004 (Includes 920-92)

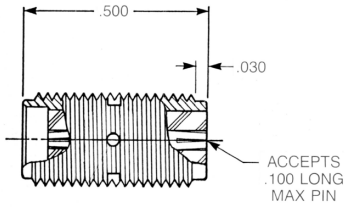
Hermetic Seal Launchers for .036" Diameter Pins



Straight Jack

- Rectangular Flange

9507-9113-005
9507-9113-006 (Includes 920-92)



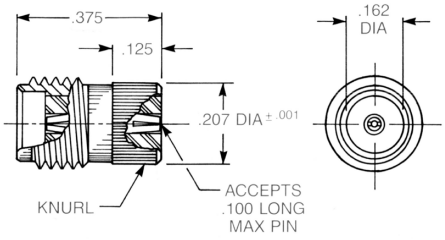
Straight Jack

- Screw-In Mounting

9513-9113-008
9513-9113-013 (Includes 920-92)

These connectors require a minimum package wall thickness of .250" for proper retention

---



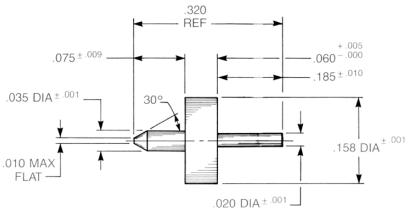
Straight Jack

- Knurl Mount

9533-9113-001
9533-9113-004 (Includes 920-92)

These connectors require a minimum package wall thickness of .235" for proper retention

---

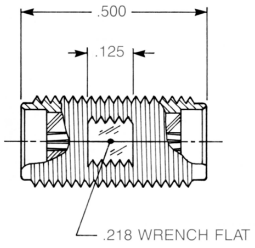


Solder-In Hermetic Seal

P/N **920-92**

See page 2-41 for material and finish specifications and mounting dimensions.

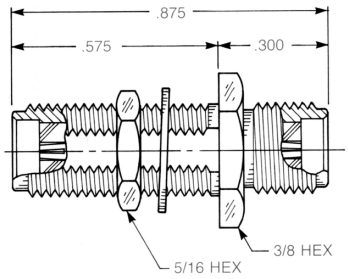
Adapters Within Series



Straight Adapter

- Jack To Jack
- Connects two plugs

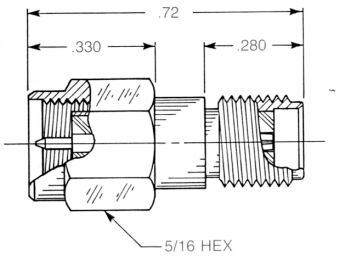
Captive contact:
5917-1103-000 (Gold plated)
5917-9103-000 (Passivated)



Straight Bulkhead Mounted Adapter

- Jack To Jack
- Connects two plugs

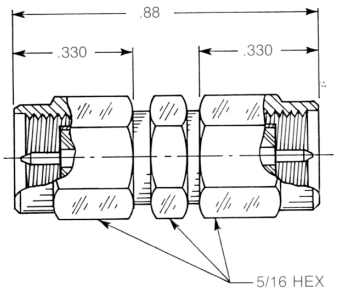
Captive contact:
5909-1103-000 (Gold plated)
5909-9103-000 (Passivated)



Straight Adapter

- Jack To Plug
- Prevents damage to equipment-mounted jacks during frequent mating and unmating

Captive contact:
5916-1103-603 (Gold plated)
5916-9103-603 (Passivated)

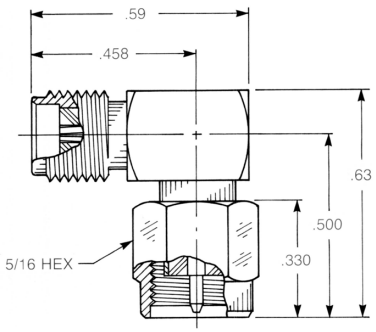


Straight Adapter

- Plug To Plug
- Connects two jacks

Captive contact:
5918-1103-000 (Gold plated)
5918-9103-000 (Passivated)

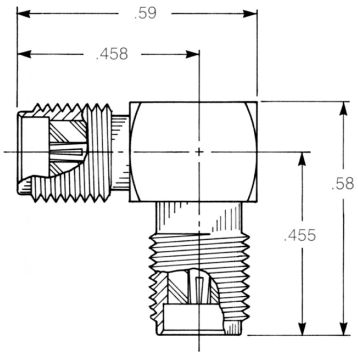
Adapters Within Series



Right Angle Adapter

- Jack To Plug
- Connects one jack and one plug

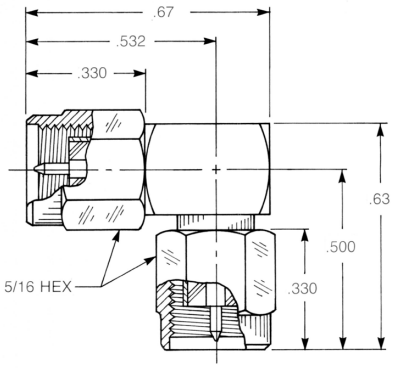
5919-1503-000 (Gold plated)
5919-9503-000 (Passivated)



Right Angle Adapter

- Jack To Jack
- Connects two plugs

5919-1503-003 (Gold plated)
5919-9503-003 (Passivated)

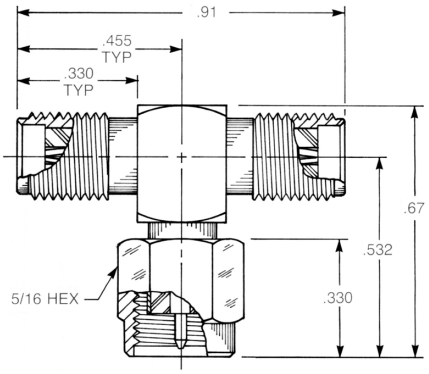


Right Angle Adapter

- Plug To Plug
- Connects two jacks

5919-1503-001 (Gold plated)
5919-9503-001 (Passivated)

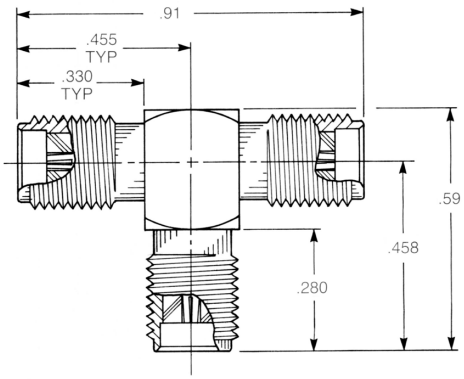
Tee Adapters - Resistive Terminations



Tee Adapter (Unmatched Power Divider)

- Jack To Plug To Jack
- Connects two plugs and one jack

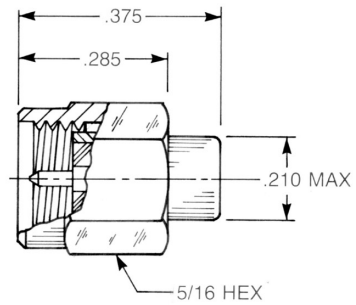
5905-1503-000 (Gold plated)
5905-9503-000 (Passivated)



Tee Adapter (Unmatched Power Divider)

- Jack To Jack To Jack
- Connects three plugs

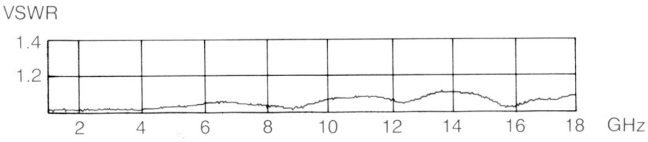
5903-1503-000 (Gold plated)
5903-9503-000 (Passivated)



Plug Resistive Termination (Dummy load)

- VSWR 1.15: 1 max. to 18 GHz.
- Maximum average power: 1 watt
- Peak power: 1.5 watts

9620-9003-151 (Passivated)



SECTION 3



SMB / SMC / SLB

SECTION 3 TABLE OF CONTENTS

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SMB SERIES
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Cable jacks 3-8
Bulkhead receptacles 3-9
P.C. board receptacles 3-12
Stripline receptacles 3-14
Adapters within series 3-15
Resistive terminations 3-16

SMC SERIES
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SLB SERIES
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Float mount/blind mate connectors 3-35

AEP SMB series connectors meet or exceed MIL-PRF-39012 performance requirements, offering good electrical performance to 10 GHz. Their **snap-on** mating makes them ideal for use in confined areas where the use of wrenches is not practical.

AEP SMC series connectors offer the same low cost and small size as SMB series, but their **screw-on** mating provides extra mating security. Frequency range: DC-10 GHz.

AEP SLB series connectors are similar to SMB series, but have **slide-on** mating for use in multiple mounting or rack-and-panel applications. SLB plugs will mate with SMB jacks.

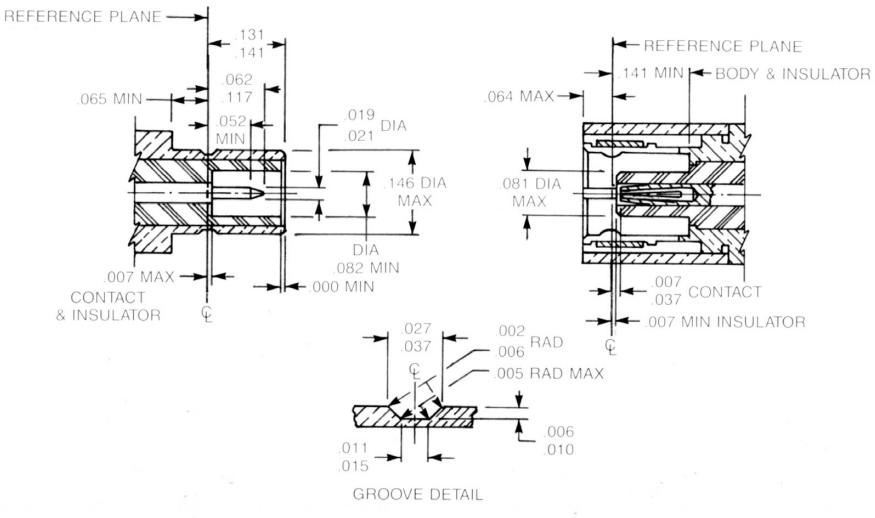
Standard cables for use with these connectors are shown at the bottom of the appropriate product pages. A complete listing of cable groups is on page 13-6. All the items shown are available with either gold or nickel plated bodies; part numbers for each finish are shown in the product section. The index listing for each connector shows the appropriate cable assembly instruction. Assembly instructions start on page 13-14.

Factory-built cable assemblies using these connectors are available from AEP.

SMB

INTERFACE DIMENSIONS

PER MIL-STD-348

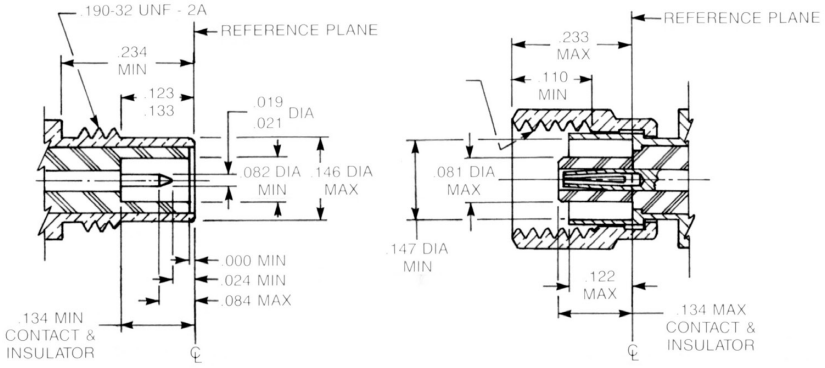


SLB dimensions identical to above except without detent.

SMC

INTERFACE DIMENSIONS

PER MIL-STD-348



SPECIFICATIONSMIL-PRF-39012

MATERIALS:

Body components , male contacts:
Brass per ASTM B16, alloy 360, 1/2 hard
Female contact: Beryllium copper per ASTM B196, condition HT.
Insulators: Teflon TFE per ASTM-D-1710.

FINISH:

Center contacts: Gold plated per MIL-G-45204.
All other parts finished to meet MIL-PRF-39012 corrosion requirements.

ELECTRICAL:

Impedance: 50 ohms.
Frequency range: SMC: DC-10 GHz. SMB, SLB: DC-4 GHz.
Voltage Rating:
RG178: 250V RMS, sea level.
RG316: 335V RMS, sea level.
Insulation resistance: 1000 megohms min.
VSWR :
SMB, SLB straight connector:
RG178: 1.30 + (.04x F [GHz]).
RG316: 1.25 + (.04x F[GHz])
SMB, SLB right angle:
RG178: 1.45 + (.06xF[GHz])
RG316: 1.35 + (.04x F[GHz])
SMC straight connector:
RG178: 1.25 + (.04xF[GHz])
RG316: 1.20 + (.04x F[GHz])
SMC right angle:
RG178: 1.40 +(.06x F[GHz])
RG316: 1.30 +(.04xF[GHz])
Contact resistance:
Straight, 6 milliohms max initial,
8 milliohms max after environment.
Right angle, 12 milliohms max initial,
16 milliohms max after environment.
Dielectric Withstanding Voltage (sea level):
RG178: 750V RMS
RG316: 1000V RMS
Corona level @ 70,000 ft.:
RG178: 185V RMS
RG316: 250V RMS
RF highpot @ 5MHz:
RG178: 500V RMS
RG316: 700V RMS
RF leakage :
SMB, SLB: -55 Db min, 2-3 GHz.
SMC: -60 Db min, 2-3 GHz.
Insertion loss :
SMB, SLB @ 1.5 GHz:
Straight .30 Db max.
Right angle .60 Db max.
SMC @ 4 GHz:
Straight .25 Db max.
Right angle .50 Db max.

MECHANICAL:

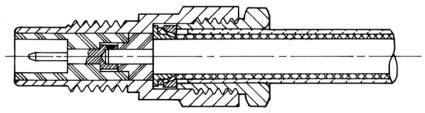
Force to engage: SMB, 14 lbs max, SLB 6 lbs max.
Mating torque: SMC, 35-50 inch ounces.
Coupling nut pulloff resistance: SMC, 35 lbs min.
Contact retention (captive contact connectors) :
4 pounds min. axial force.
Durability: 500 mating cycles.

ENVIRONMENTAL: (per MIL-STD-202)

Temperature rating: -65° C to + 165° C.
Corrosion: Method 101, condition B, 5% salt solution.
Vibration: Method 204,
SMB, condition B.
SMC, condition D.
Mechanical shock: Method 213,
SMB, condition B.
SMC, condition C.
Thermal shock: method 107, condition B.

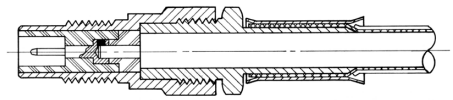
Cable Attachment Methods

All connectors in these series have captivated contacts which are soldered to the cable center conductor. All the cable attachment methods shown have gripping force greater than the breaking strength of the cable.



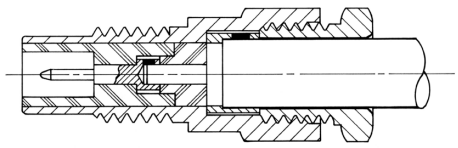
Clamp Type For Flexible Cable

These connectors can be assembled without special tooling, and are field replaceable. They provide metal-to-metal clamping of the cable braid.



Crimp Type For Flexible Cable

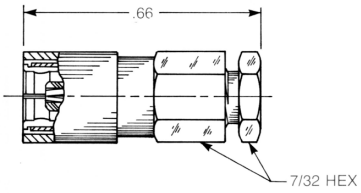
Crimping the cable braid is the most reliable and repeatable method of cable assembly, and provides support for the cable during flexure. AEP crimp type connectors are assembled quickly and easily using readily-available commercial or MIL crimp tools.



Solder-Clamp For Semi-Rigid Cable

This method allows retrimming of the cable dielectric, if necessary, during assembly. Connectors can be repositioned relative to the cable after assembly by loosening the clamp nut. Solder-clamp connectors are field replaceable without requiring special tools.

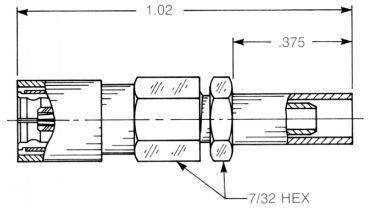
Cable Plugs



Straight Female Cable Plug

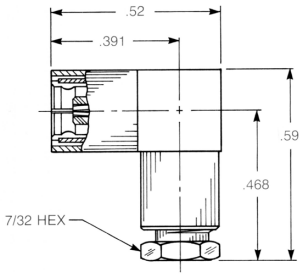
Clamp type for flexible cable:
2002-1551-0XX (Gold plated)
2002-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
2002-1541-0XX (Gold plated)
2002-7541-0XX (Nickel plated)



Straight Female Cable Plug

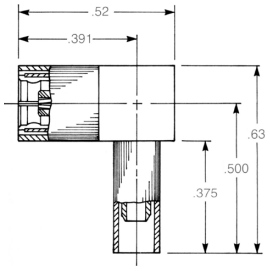
Crimp type for flexible cable:
2002-1571-0XX (Gold plated)
2002-7571-0XX (Nickel plated)



Right Angle Female Cable Plug

Clamp type for flexible cable:
2005-1551-0XX (Gold plated)
2005-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
2005-1541-0XX (Gold plated)
2005-7541-0XX (Nickel plated)

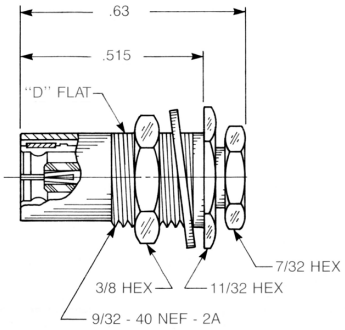


Right Angle Female Cable Plug

Crimp type for flexible cable:
2105-1521-0XX (Gold plated)
2105-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

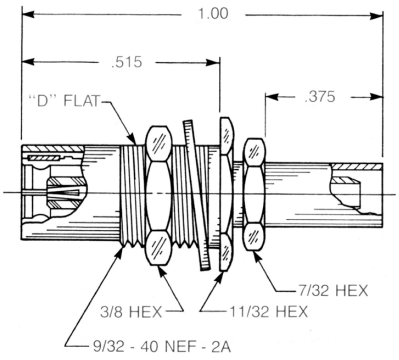
Bulkhead Mounted Cable Plugs



Bulkhead Mounted Straight Cable Plug

Clamp type for flexible cable:
2028-1551-0XX (Gold plated)
2028-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
2028-1541-0XX (Gold plated)
2028-7541-0XX (Nickel plated)



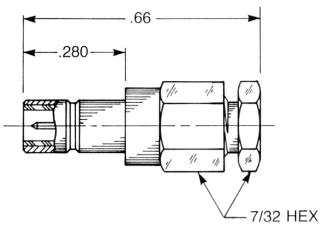
Bulkhead Mounted Straight Cable Plug

Crimp type for flexible cable:
2028-1571-0XX (Gold plated)
2028-7571-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

Designed for use with .093" max thick panel

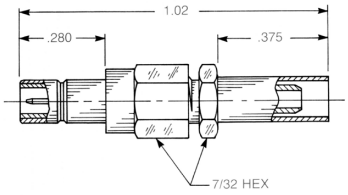
Cable Jacks



Straight Male Cable Jack

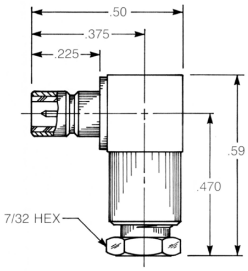
Clamp type for flexible cable:
2001-1551-0XX (Gold plated)
2001-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
2001-1541-0XX (Gold plated)
2001-7541-0XX (Nickel plated)



Straight Male Cable Jack

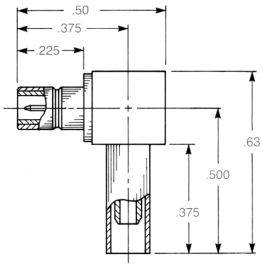
Crimp type for flexible cable:
2001-1571-0XX (Gold plated)
2001-7571-0XX (Nickel plated)



Right Angle Male Cable Jack

Clamp type for flexible cable:
2041-1551-0XX (Gold plated)
2041-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
2041-1541-0XX (Gold plated)
2041-7541-0XX (Nickel plated)

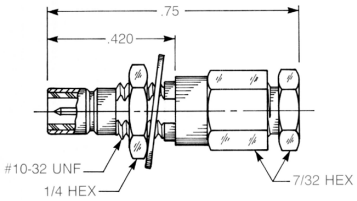


Right Angle Male Cable Jack

Clamp type for flexible cable:
2141-1521-0XX (Gold plated)
2141-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

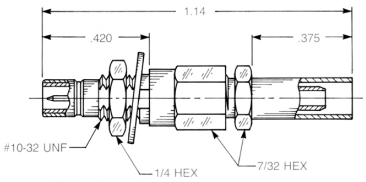
Bulkhead Jacks



Straight Male Bulkhead Cable Jack

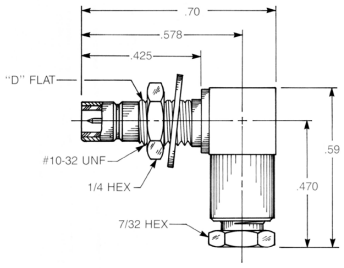
Clamp type for flexible cable:
2003-1551-0XX (Gold plated)
2003-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
2003-1541-0XX (Gold plated)
2003-7541-0XX (Nickel plated)



Straight Male Bulkhead Cable Jack

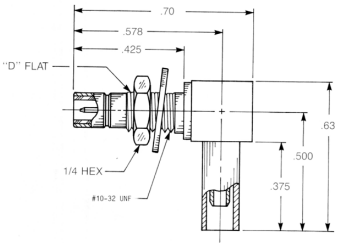
Crimp type for flexible cable:
2003-1571-0XX (Gold plated)
2003-7571-0XX (Nickel plated)



Bulkhead Mounted Right Angle Male Cable Jack

Clamp type for flexible cable:
2006-1551-0XX (Gold plated)
2006-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
2006-1541-0XX (Gold plated)
2006-7541-0XX (Nickel plated)



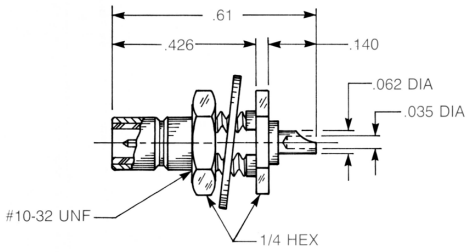
Bulkhead Mounted Right Angle Male Cable Jack

Crimp type for flexible cable:
2106-1521-0XX (Gold plated)
2106-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

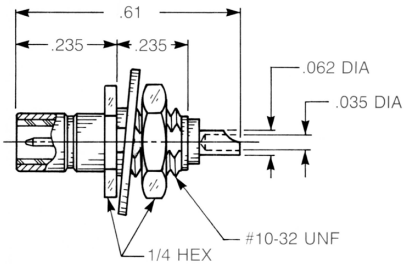
Designed for use with .093" max thick panel, see page 12-3 for D flat location in relation to hex.

Bulkhead Jack Receptacles



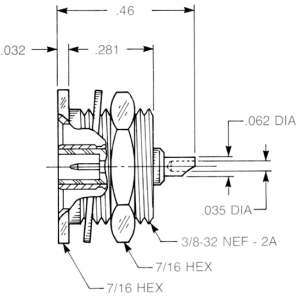
Straight Male Bulkhead Jack Receptacle
- Solder pot contact
- Rear mount

2004-1511-000 (Gold plated)
2004-7511-000 (Nickel plated)



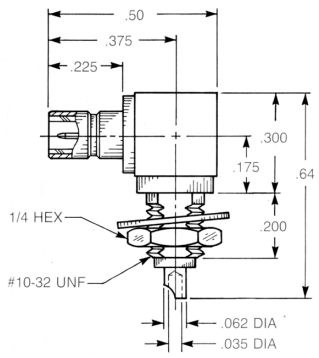
Straight Male Bulkhead Jack Receptacle
- Solder pot contact
- Front mount

2019-1511-000 (Gold plated)
2019-7511-000 (Nickel plated)



Straight Male Bulkhead Jack Receptacle
- Solder pot contact
- Recessed front mount

2014-1511-000 (Gold plated)
2014-7511-000 (Nickel plated)

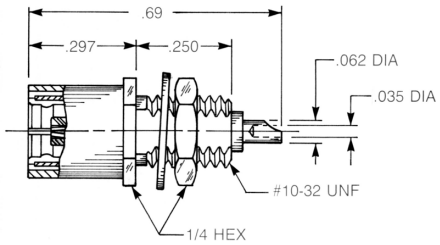


Straight Male Cable Jack
- Solder pot contact
- Front mount

2012-1511-000 (Gold plated)
2012-7511-000 (Nickel plated)

Designed for use with .093" max thick panel, see page 12-3 for D flat location in relation to hex.

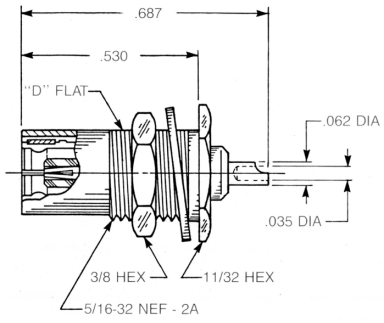
Bulkhead Plug Receptacles



Straight Female Bulkhead Plug Receptacle

- Solder pot contact
- Front mount

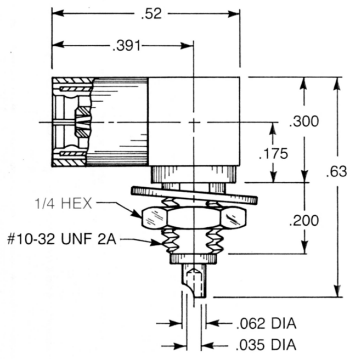
2017-1511-000 (Gold plated)
2017-7511-000 (Nickel plated)



Straight Female Bulkhead Plug Receptacle

- Solder pot contact
- Rear mount

2048-1511-000 (Gold plated)
2048-7511-000 (Nickel plated)



Right Angle Female Bulkhead Plug Receptacle

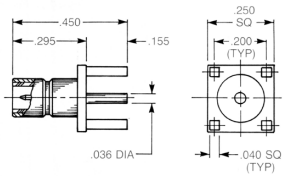
- Solder pot contact
- Front mount

2097-1511-000 (Gold plated)
2097-7511-000 (Nickel plated)

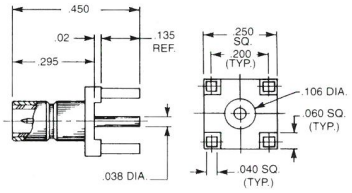
Designed for use with .093" max thick panel.

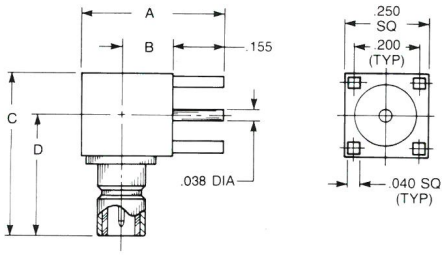
Straight Male Jack Receptacle

2009-1511-000 (Gold plated)
2009-7511-000 (Nickel plated)



2009-1511-050 (Gold plated)
2009-7511-050 (Nickel plated)

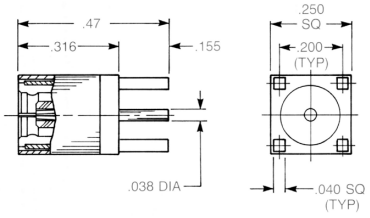




Right Angle Male Jack Receptacle

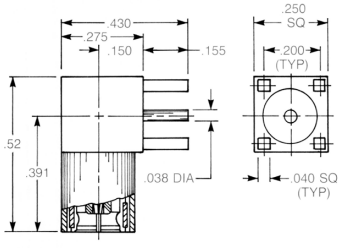
A	B	C	D
.43	.15	.50	.38
2010-1511-000 (Gold plated)			
2010-7511-000 (Nickel plated)			

A	B	C	D
.50	.215	.56	.437
2010-1511-002 (Gold plated)			
2010-7511-002 (Nickel plated)			



Straight Female Plug Receptacle

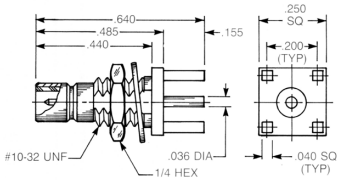
2025-1511-000 (Gold plated)
2025-7511-000 (Nickel plated)



Right Angle Female Plug Receptacle

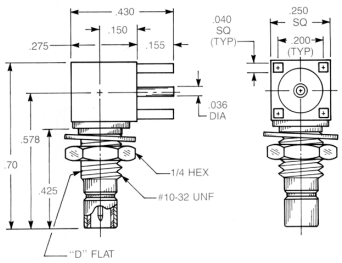
2042-1511-000 (Gold plated)
2042-7511-000 (Nickel plated)

PCB and Panel Receptacles



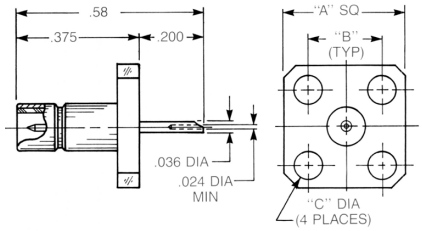
Bulkhead Mounted Straight Male Jack PCB Receptacle

2109-1511-000 (Gold plated)
2109-7511-000 (Nickel plated)



Bulkhead Mounted Right Angle Male Jack PCB Receptacle

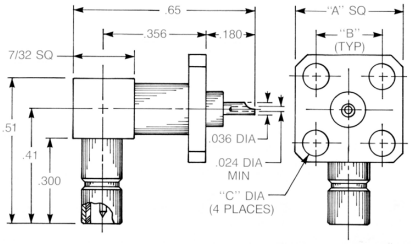
2110-1511-000 (Gold plated)
2110-7511-000 (Nickel plated)



Straight Male Panel Receptacle

A sq.	B	C. dia.
.500	.340	.102
2486-1511-000 (Gold plated)		
2486-7511-000 (Nickel plated)		

A sq.	B	C. dia.
.375	.232	.093
2484-1511-000 (Gold plated)		
2484-7511-000 (Nickel plated)		

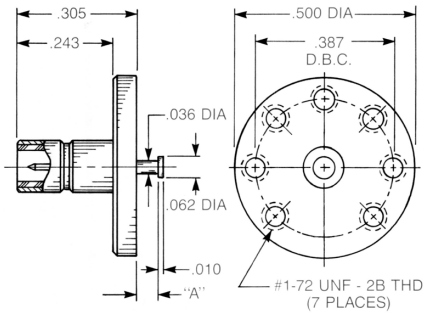


Right Angle Male Panel Receptacle

A sq.	B	C. dia.
.500	.340	.102
2490-1511-000 (Gold plated)		
2490-7511-000 (Nickel plated)		

A sq.	B	C. dia.
.375	.232	.093
2488-1511-000 (Gold plated)		
2488-7511-000 (Nickel plated)		

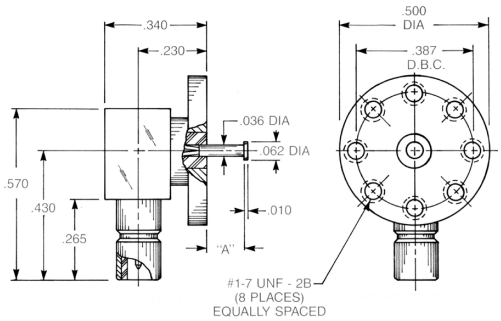
Stripline Receptacles



Straight Male Top Launch Jack

- Non-captive contact

Dim. A	Part Number:
.031	**2029-1211-001** (Gold plated)
	2029-7211-001 (Nickel plated)
.063	**2029-1211-002** (Gold plated)
	2029-7211-002 (Nickel plated)
.125	**2029-1211-003** (Gold plated)
	2029-7211-003 (Nickel plated)

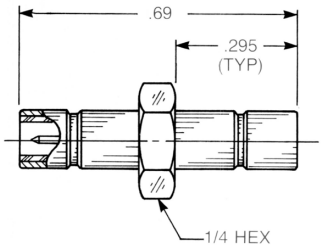


Right Angle Male Top Launch Jack

- Removable rear contact

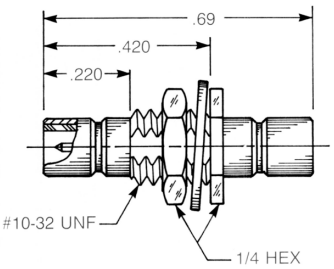
Dim. A	Part Number:
.031	**2092-1511-001** (Gold plated)
	2092-7511-001 (Nickel plated)
.063	**2092-1511-002** (Gold plated)
	2092-7511-002 (Nickel plated)
.125	**2092-1511-003** (Gold plated)
	2092-7511-003 (Nickel plated)

Adapters Within Series



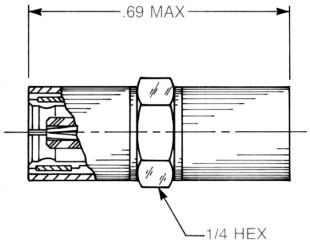
Straight Male Adapter
- Jack To Jack
- Connects two plugs

5213-1501-000 (Gold plated)
5213-7501-000 (Nickel plated)



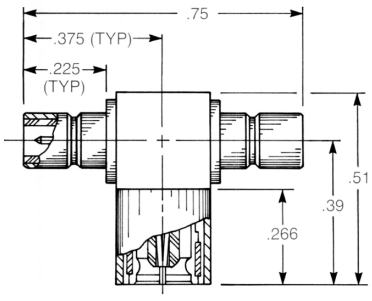
Bulkhead Mounted Straight Male Adapter
- Jack To Jack
- Connects two plugs
- For .093" max. panel

5222-1501-000 (Gold plated)
5222-7501-000 (Nickel plated)



Straight Female Adapter
- Plug To Plug
- Connects two jacks

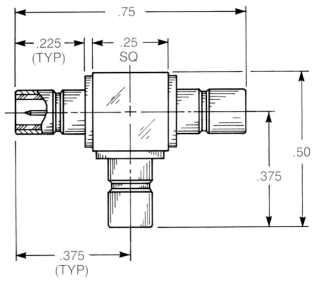
5216-1501-000 (Gold plated)
5216-7501-000 (Nickel plated)



Tee Adapter (Unmatched Power Divider)
- Jack To Plug To Jack
- Connects two plugs and one jack

5215-1501-000 (Gold plated)
5215-7501-000 (Nickel plated)

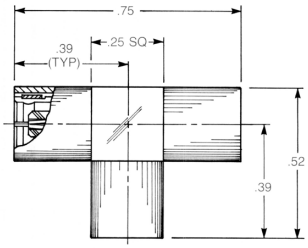
Adapters Within Series - Resistive Terminations



Tee Adapter (Unmatched Power Divider)

- Jack To Jack To Jack
- Connects three plugs

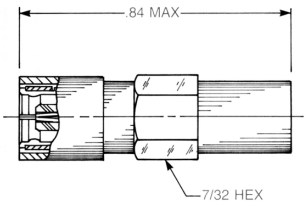
5207-1501-000 (Gold plated)
5207-7501-000 (Nickel plated)



Tee Adapter (Unmatched Power Divider)

- Plug To Plug To Plug
- Connects three jacks

5208-1501-000 (Gold plated)
5208-7501-000 (Nickel plated)

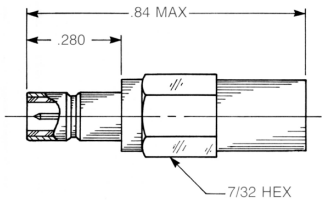


Female Plug Resistive Termination (Dummy load)

Standard resistor:
51 ohm, 1/2 watt, 5% tolerance

2036-1511-051 (Gold plated)
2036-7511-051 (Nickel plated)

Available with other resistive values.



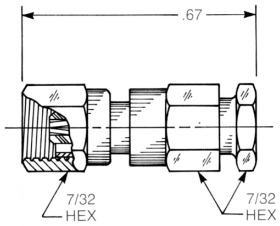
Male Jack Resistive Termination (Dummy load)

Standard resistor:
51 ohm, 1/2 watt, 5% tolerance

2037-1511-051 (Gold plated)
2037-7511-051 (Nickel plated)

Available with other resistive values.

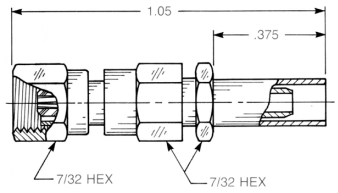
Cable Plugs



Straight Female Cable Plug

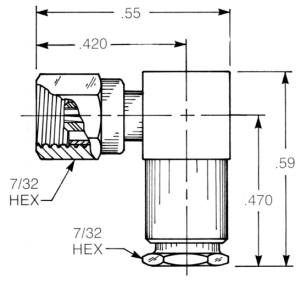
Clamp type for flexible cable:
1002-1551-0XX (Gold plated)
1002-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
1002-1541-0XX (Gold plated)
1002-7541-0XX (Nickel plated)



Straight Female Cable Plug

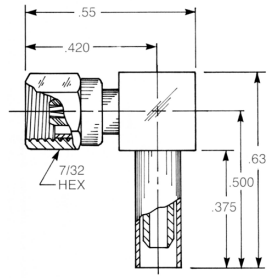
Crimp type for flexible cable:
1002-1571-0XX (Gold plated)
1002-7571-0XX (Nickel plated)



Right Angle Female Cable Plug

Clamp type for flexible cable:
1005-1551-0XX (Gold plated)
1005-7551-0XX (Nickel plated)

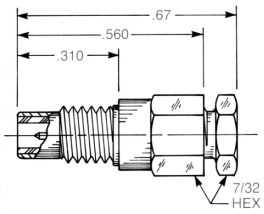
Solder-clamp for semi-rigid cable:
1005-1541-0XX (Gold plated)
1005-7541-0XX (Nickel plated)



Right Angle Female Cable Plug

Clamp type for flexible cable:
1105-1521-0XX (Gold plated)
1105-7521-0XX (Nickel plated)

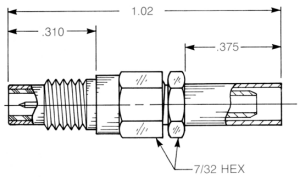
Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316



Straight Male Cable Jack

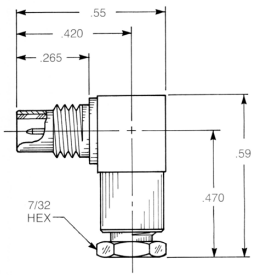
Clamp type for flexible cable:
1001-1551-0XX (Gold plated)
1001-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
1001-1541-0XX (Gold plated)
1001-7541-0XX (Nickel plated)



Straight Male Cable Jack

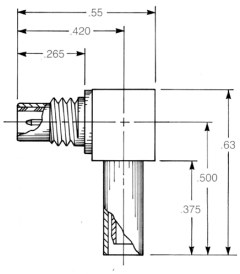
Crimp type for flexible cable:
1001-1571-0XX (Gold plated)
1001-7571-0XX (Nickel plated)



Right Angle Male Cable Jack

Clamp type for flexible cable:
1041-1551-0XX (Gold plated)
1041-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
1041-1541-0XX (Gold plated)
1041-7541-0XX (Nickel plated)

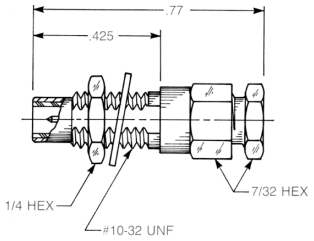


Right Angle Male Cable Jack

Clamp type for flexible cable:
1141-1521-0XX (Gold plated)
1141-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

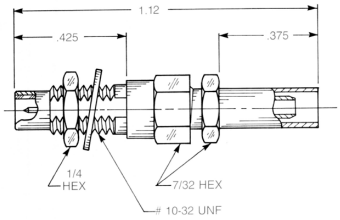
Bulkhead Jacks



Straight Male Bulkhead Cable Jack

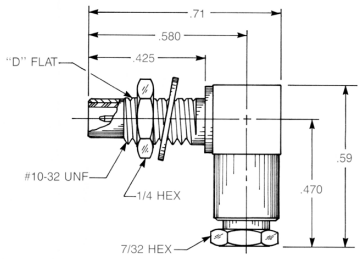
Clamp type for flexible cable:
1003-1551-0XX (Gold plated)
1003-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
1003-1541-0XX (Gold plated)
1003-7541-0XX (Nickel plated)



Straight Male Bulkhead Cable Jack

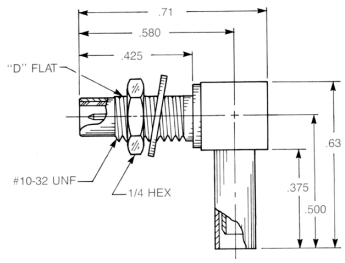
Crimp type for flexible cable:
1003-1571-0XX (Gold plated)
1003-7571-0XX (Nickel plated)



Bulkhead Mounted Right Angle Male Cable Jack

Clamp type for flexible cable:
1006-1551-0XX (Gold plated)
1006-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
1006-1541-0XX (Gold plated)
1006-7541-0XX (Nickel plated)



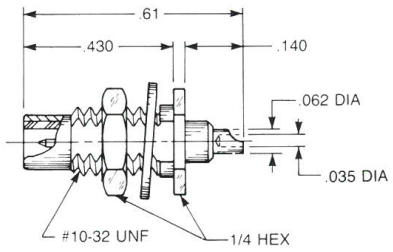
Bulkhead Mounted Right Angle Male Cable Jack

Crimp type for flexible cable:
1106-1521-0XX (Gold plated)
1106-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

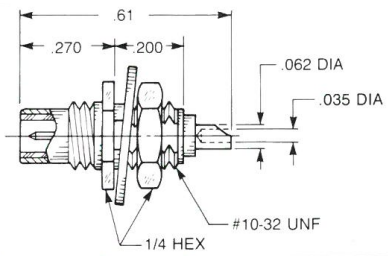
Designed for use with .093" max thick panel, see page 12-3 for D flat location in relation to hex.

Bulkhead Mounted Receptacles



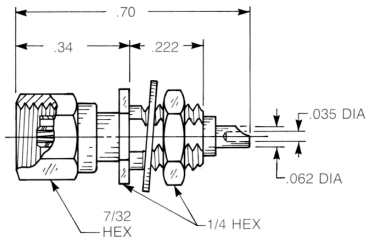
Straight Male Bulkhead Jack Receptacle
- Solder pot contact
- Rear mount

1004-1511-000 (Gold plated)
1004-7511-000 (Nickel plated)



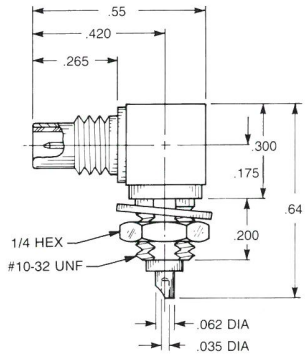
Straight Male Bulkhead Jack Receptacle
- Solder pot contact
- Front mount

1019-1511-000 (Gold plated)
1019-7511-000 (Nickel plated)



Straight Female Bulkhead Plug Receptacle
- Solder pot contact
- Front mount

1017-1511-000 (Gold plated)
1017-7511-000 (Nickel plated)

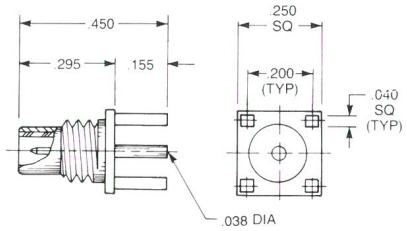


Right Angle Male Bulkhead Jack Receptacle
- Solder pot contact
- Front mount

1012-1511-000 (Gold plated)
1012-7511-000 (Nickel plated)

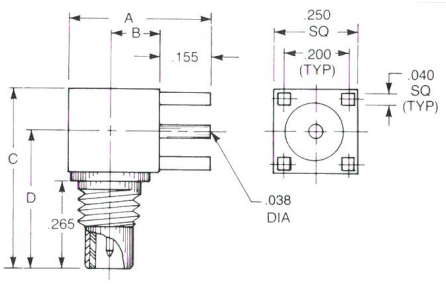
Designed for use with .093" max thick panel, see page 12-3 for D flat location in relation to hex.

PCB Receptacles



Straight Male Jack Receptacle

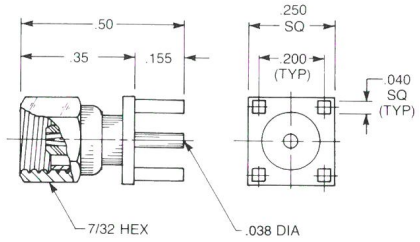
1009-1511-000 (Gold plated)
1009-7511-000 (Nickel plated)



Right Angle Male Jack Receptacle

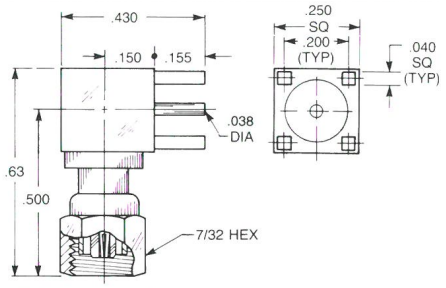
A	B	C	D
.43	.15	.55	.42
1010-1511-000 (Gold plated)			
1010-7511-000 (Nickel plated)			

A	B	C	D
.50	.215	.55	.42
1010-1511-001 (Gold plated)			
1010-7511-001 (Nickel plated)			



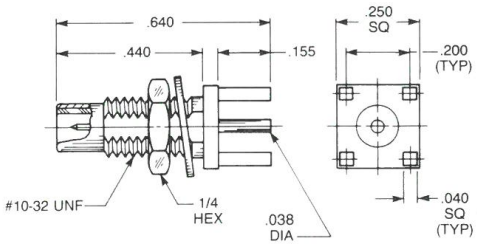
Straight Female Plug Receptacle

1025-1511-000 (Gold plated)
1025-7511-000 (Nickel plated)



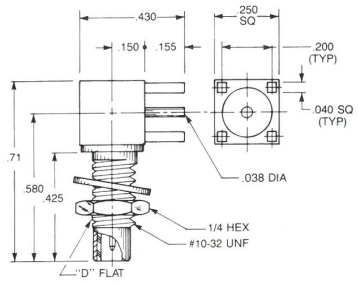
Right Angle Female Plug Receptacle

1042-1511-000 (Gold plated)
1042-7511-000 (Nickel plated)



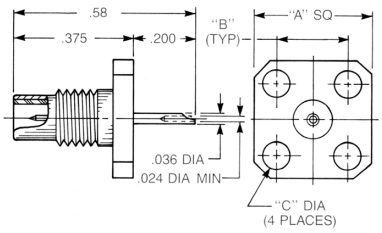
Bulkhead Mounted Straight Male Jack PCB Receptacle

1109-1511-000 (Gold plated)
1109-7511-000 (Nickel plated)



Bulkhead Mounted Right Angle Male Jack PCB Receptacle

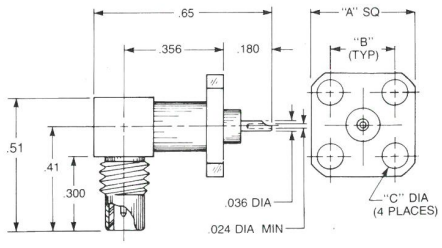
1110-1511-000 (Gold plated)
1110-7511-000 (Nickel plated)



Straight Male Panel Receptacle

A sq.	B	C. dia.
.500	.340	.102
1486-1511-000 (Gold plated)		
1486-7511-000 (Nickel plated)		

A sq.	B	C. dia.
.375	.232	.093
1484-1511-000 (Gold plated)		
1484-7511-000 (Nickel plated)		

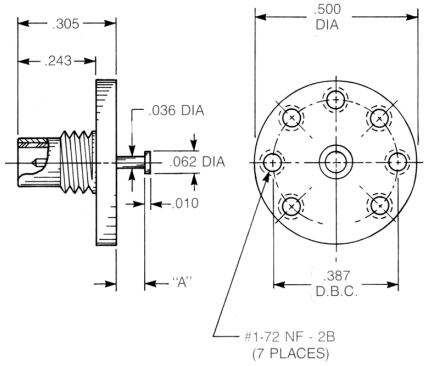


Right Angle Male Panel Receptacle

A sq.	B	C. dia.
.500	.340	.102
1490-1511-000 (Gold plated)		
1490-7511-000 (Nickel plated)		

A sq.	B	C. dia.
.375	.232	.093
1488-1511-000 (Gold plated)		
1488-7511-000 (Nickel plated)		

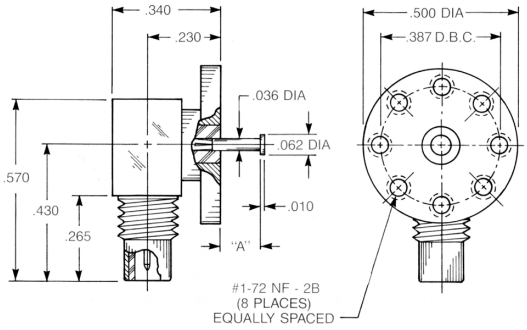
Stripline Receptacles



Straight Male Top Launch Jack

- Non-captive contact

Dim. A	Part Number:
.031	**1029-1211-001** (Gold plated)
	1029-7211-001 (Nickel plated)
.063	**1029-1211-002** (Gold plated)
	1029-7211-002 (Nickel plated)
.125	**1029-1211-003** (Gold plated)
	1029-7211-003 (Nickel plated)

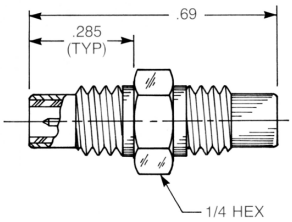


Right Angle Male Top Launch Jack

- Removable rear contact

Dim. A	Part Number:
.031	**1092-1511-001** (Gold plated)
	1092-7511-001 (Nickel plated)
.063	**1092-1511-002** (Gold plated)
	1092-7511-002 (Nickel plated)
.125	**1092-1511-003** (Gold plated)
	1092-7511-003 (Nickel plated)

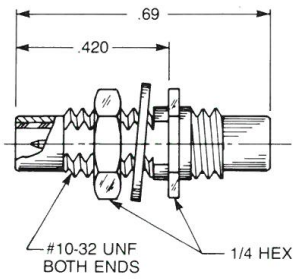
Adapters Within Series



Straight Male Adapter

- Jack To Jack
- Connects two plugs

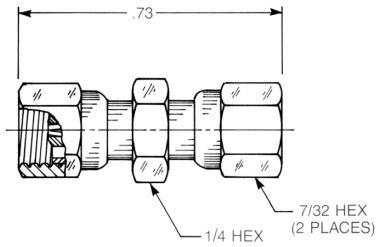
5813-1501-000 (Gold plated)
5813-7501-000 (Nickel plated)



Bulkhead Mounted Straight Male Adapter

- Jack To Jack
- Connects two plugs
- For .093 max. panel

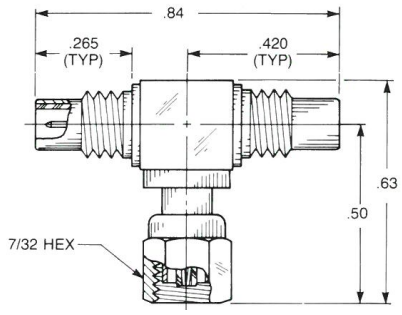
5822-1501-000 (Gold plated)
5822-7501-000 (Nickel plated)



Straight Female Adapter

- Plug To Plug
- Connects two jacks

5816-1501-000 (Gold plated)
5816-7501-000 (Nickel plated)

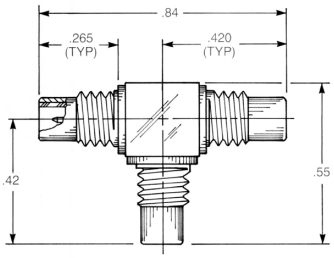


Tee Adapter
(Unmatched Power Divider)

- Jack To Plug To Jack
- Connects two plugs and one jack

5815-1501-000 (Gold plated)
5815-7501-000 (Nickel plated)

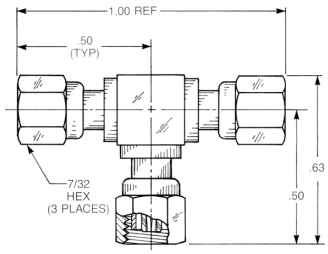
Adapters Within Series - Resistive Terminations



Tee Adapter (Unmatched Power Divider)

- Jack To Jack To Jack
- Connects three plugs

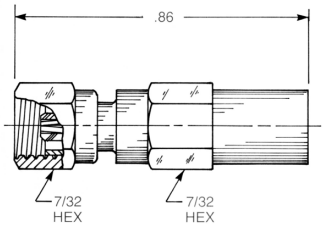
5807-1501-000 (Gold plated)
5807-7501-000 (Nickel plated)



Tee Adapter (Unmatched Power Divider)

- Plug To Plug To Plug
- Connects three jacks

5808-1501-000 (Gold plated)
5808-7501-000 (Nickel plated)

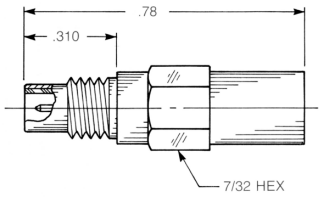


Female Plug Resistive Termination (Dummy load)

Standard resistor:
51 ohm, 1/2 watt, 5% tolerance

1036-1511-051 (Gold plated)
1036-7511-051 (Nickel plated)

Available with other resistive values.

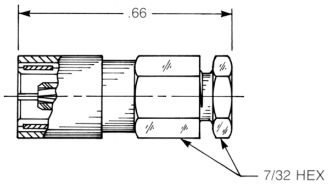


Male Jack Resistive Termination (Dummy load)

Standard resistor:
51 ohm, 1/2 watt, 5% tolerance

1037-1511-051 (Gold plated)
1037-7511-051 (Nickel plated)

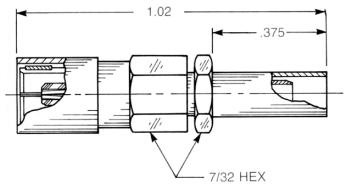
Available with other resistive values.



Straight Female Cable Plug

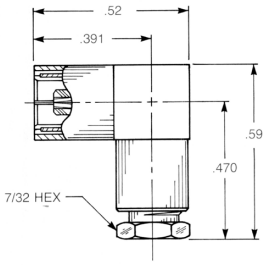
Clamp type for flexible cable:
3002-1551-0XX (Gold plated)
3002-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
3002-1541-0XX (Gold plated)
3002-7541-0XX (Nickel plated)



Straight Female Cable Plug

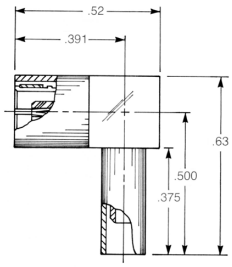
Crimp type for flexible cable:
3002-1571-0XX (Gold plated)
3002-7571-0XX (Nickel plated)



Right Angle Female Cable Plug

Clamp type for flexible cable:
3005-1551-0XX (Gold plated)
3005-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
3005-1541-0XX (Gold plated)
3005-7541-0XX (Nickel plated)

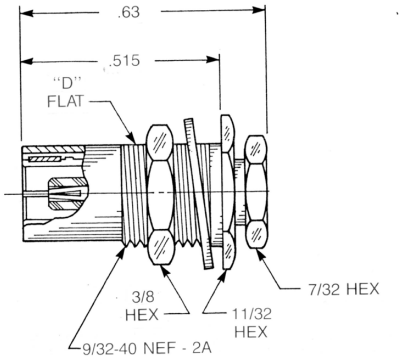


Right Angle Female Cable Plug

Crimp type for flexible cable:
3105-1521-0XX (Gold plated)
3105-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

Bulkhead Mounted Cable Plugs

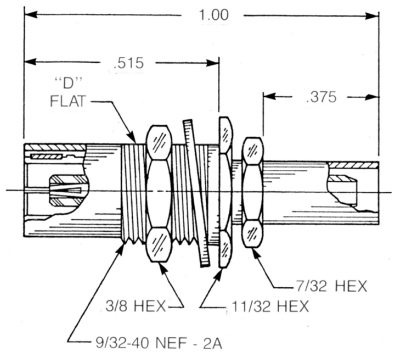


Bulkhead Mounted Straight Female Cable Plug

Clamp type for flexible cable:
3028-1551-0XX (Gold plated)
3028-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
3028-1541-0XX (Gold plated)
3028-7541-0XX (Nickel plated)

See page 3-35 for float-mount version



Bulkhead Mounted Straight Female Cable Plug

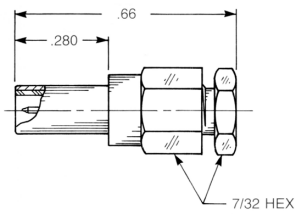
Crimp type for flexible cable:
3028-1571-0XX (Gold plated)
3028-7571-0XX (Nickel plated)

See page 3-35 for float-mount version

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

Designed for use with .093" max thick panel.

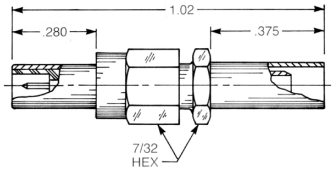
Cable Jacks



Straight Male Cable Jack

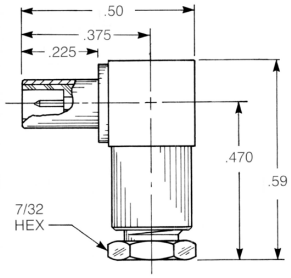
Clamp type for flexible cable:
3001-1551-0XX (Gold plated)
3001-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
3001-1541-0XX (Gold plated)
3001-7541-0XX (Nickel plated)



Straight Male Cable Jack

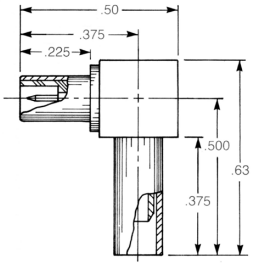
Crimp type for flexible cable:
3001-1571-0XX (Gold plated)
3001-7571-0XX (Nickel plated)



Right Angle Male Cable Jack

Clamp type for flexible cable:
3041-1551-0XX (Gold plated)
3041-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
3041-1541-0XX (Gold plated)
3041-7541-0XX (Nickel plated)

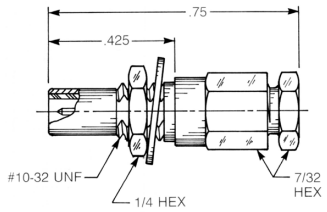


Right Angle Male Cable Jack

Crimp type for flexible cable:
3141-1571-0XX (Gold plated)
3141-7571-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

Bulkhead Jacks

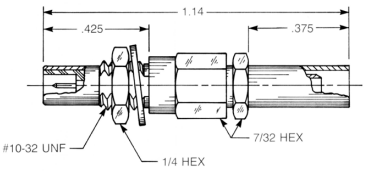


Straight Male Bulkhead Cable Jack

Clamp type for flexible cable:
3003-1551-0XX (Gold plated)
3003-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
3003-1541-0XX (Gold plated)
3003-7541-0XX (Nickel plated)

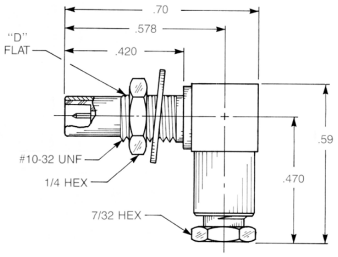
See page 3-36 for float-mount version



Straight Male Bulkhead Cable Jack

Crimp type for flexible cable:
3003-1571-0XX (Gold plated)
3003-7571-0XX (Nickel plated)

See page 3-36 for float-mount version

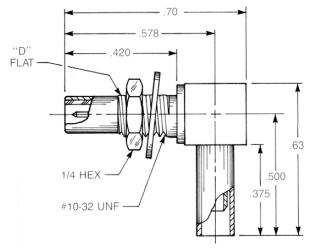


Right Angle Male Bulkhead Cable Jack

Clamp type for flexible cable:
3006-1551-0XX (Gold plated)
3006-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
3006-1541-0XX (Gold plated)
3006-7541-0XX (Nickel plated)

See page 3-37 for float-mount version



Right Angle Male Bulkhead Cable Jack

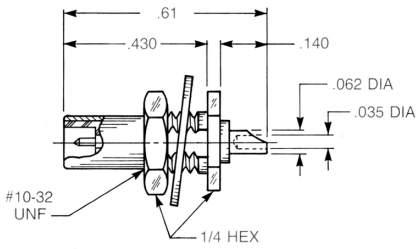
Crimp type for flexible cable:
3106-1521-0XX (Gold plated)
3106-7521-0XX (Nickel plated)

See page 3-37 for float-mount version

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

Designed for use with .093" max thick panel, see page 12-3 for D flat location in relation to hex.

Bulkhead Jack Receptacles

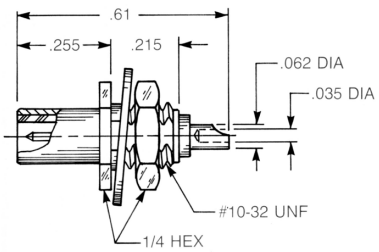


Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Rear mount

3004-1511-000 (Gold plated)
3004-7511-000 (Nickel plated)

See page 3-38 for float-mount version

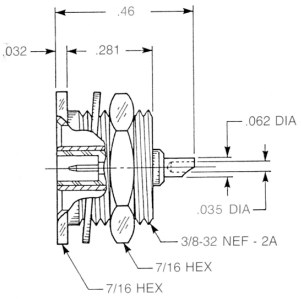


Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

3019-1511-000 (Gold plated)
3019-7511-000 (Nickel plated)

See page 3-38 for float-mount version

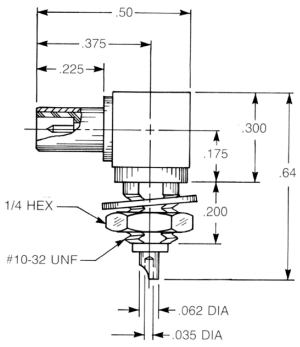


Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Recessed front mount

3014-1511-000 (Gold plated)
3014-7511-000 (Nickel plated)

See page 3-38 for float-mount version



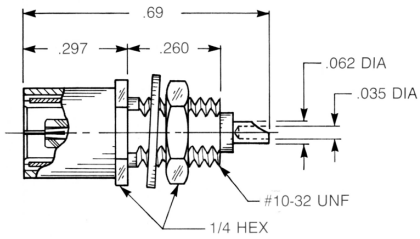
Right Angle Male Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

3012-1511-000 (Gold plated)
3012-7511-000 (Nickel plated)

Designed for use with .093" max thick panel, see page 12-3 for D flat location in relation to hex.

Bulkhead Plug Receptacles

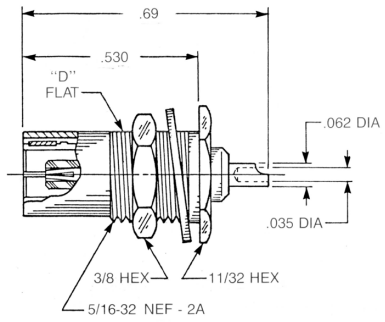


Straight Female Bulkhead Plug Receptacle

- Solder pot contact
- Front mount

3017-1511-000 (Gold plated)
3017-7511-000 (Nickel plated)

See page 3-39 for float-mount version

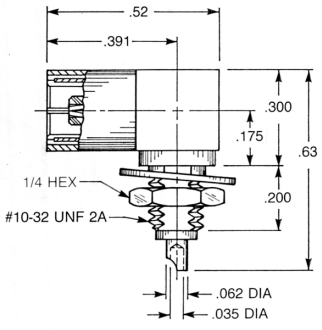


Straight Female Bulkhead Plug Receptacle

- Solder pot contact
- Rear mount

3048-1511-000 (Gold plated)
3048-7511-000 (Nickel plated)

See page 3-39 for float-mount version

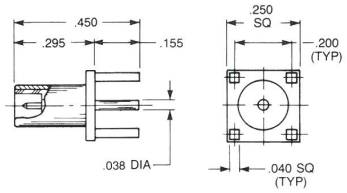


Right Angle Female Bulkhead Plug Receptacle

- Solder pot contact
- Front mount

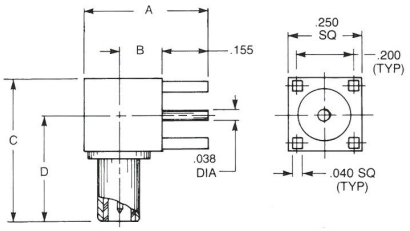
3097-1511-000 (Gold plated)
3097-7511-000 (Nickel plated)

Designed for use with .093" max thick panel.



Straight Male Jack Receptacle

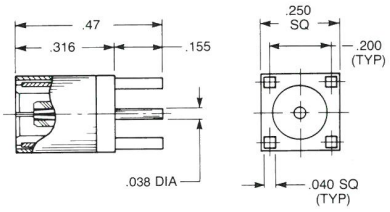
3009-1511-000 (Gold plated)
3009-7511-000 (Nickel plated)



Right Angle Male Jack Receptacle

A	B	C	D
.43	.15	.50	.38
3010-1511-000 (Gold plated)			
3010-7511-000 (Nickel plated)			

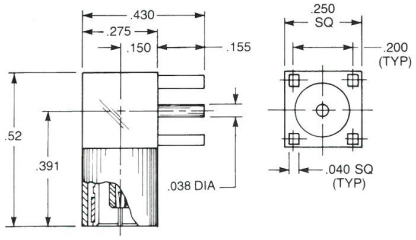
A	B	C	D
.50	.215	.56	.437
3010-1511-003 (Gold plated)			
3010-7511-003 (Nickel plated)			



Straight Female Plug Receptacle

3025-1511-000 (Gold plated)
3025-7511-000 (Nickel plated)

See page 3-40 for blind-mate version

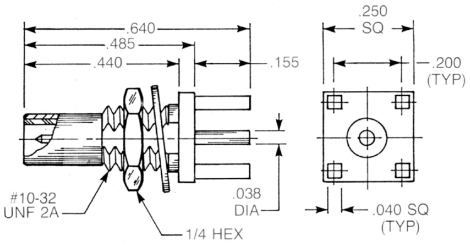


Right Angle Female Plug Receptacle

3042-1511-000 (Gold plated)
3042-7511-000 (Nickel plated)

See page 3-40 for blind-mate version

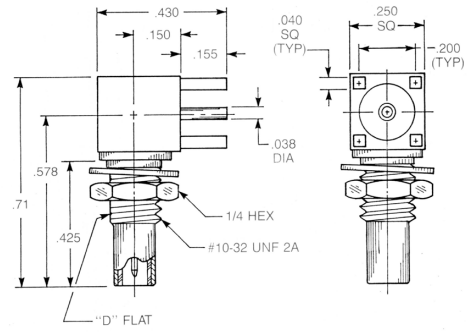
PCB Receptacles - Adapter



Bulkhead Mounted Straight Male Jack PCB Receptacle

3109-1511-000 (Gold plated)
3109-7511-000 (Nickel plated)

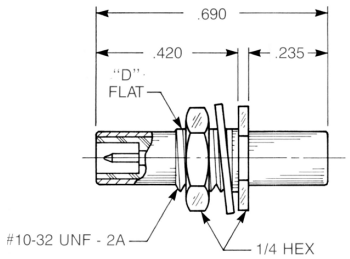
See page 3-40 for float-mount version



Bulkhead Mounted Right Angle Male Jack PCB Receptacle

3110-1511-000 (Gold plated)
3110-7511-000 (Nickel plated)

See page 3-40 for float-mount version



Bulkhead Mounted Straight Male

- Jack to Jack Adapter

5252-1501-000 (Gold plated)
5252-7501-000 (Nickel plated)

See page 3-39 for float-mount version

Designed for use with .093" max thick panel.

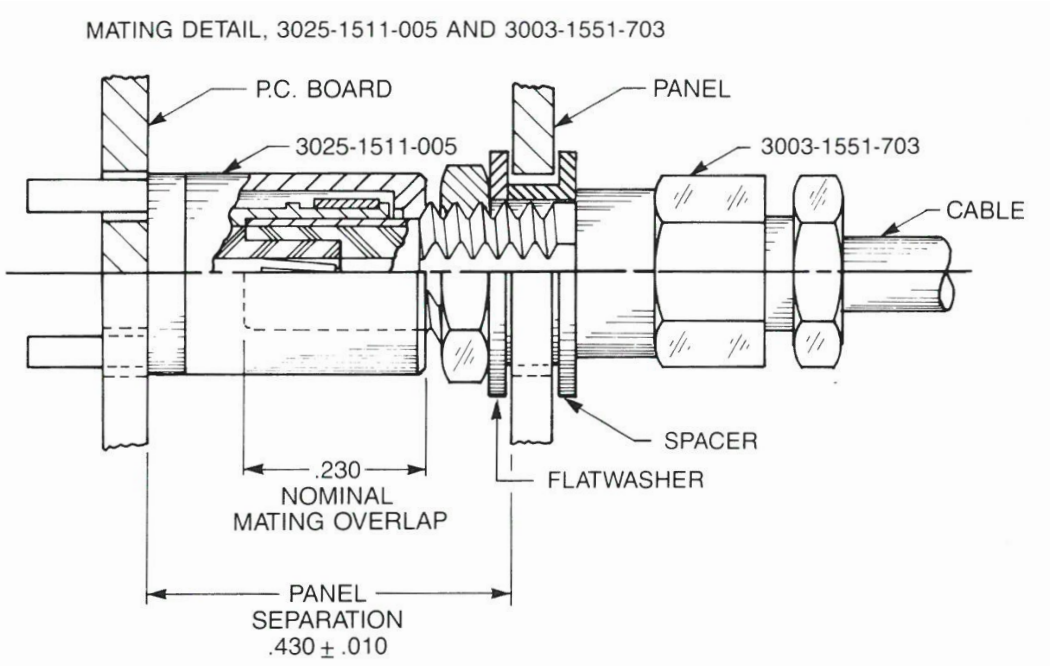
Float Mount - Blind Mate

AEP SLB series connectors can provide a low-cost alternative to other float mount/blind mate connector systems in applications below 4 GHz.

The radial float of the panel mounted connectors, combined with the closed-entry mating end hood of the plugs, allows the mating pairs to be misaligned up to about .025" without damage occuring during mating. Since the axial float is not spring-loaded, panel-to-panel separation should be maintained within ± .010".

Mating force per connector is 6 pounds maximum, and unmating force is 8 ounces minimum. External actuators, such as levers or jackscrews, should be considered in applications requiring simultaneous mating of multiple connector pairs, especially when one side is P.C. board mounted.

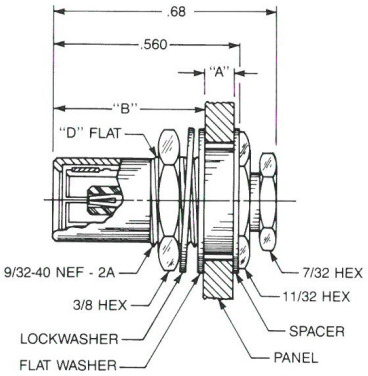
We recommend that only one side of the mating pair be float mounted.



To determine panel separation: add projection from panel or P.C. board for each connector used and subtract mating overlap (.230). Projection for each connector is shown on product pages, and is with all axial float loaded toward panel. Axial float is .008" for all items. Lockwasher is not included with connectors for .093" panel.

Radial float: when desired float is determined, drill panel to .230" diameter plus float amount.

Cable Plugs - Float Mount / Blind Mate

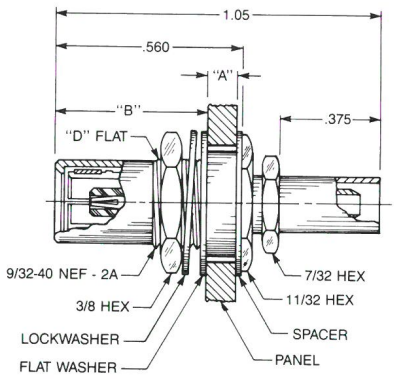


Bulkhead Mounted Straight Female Cable Plug Float Mount/Blind Mate

- Closed-entry mating end hood

Dim. A	Dim. B	Clamp type for flexible cable:
.031	.500	**3028-1551-5XX** (Gold plated)
		3028-7551-5XX (Nickel plated)
.062	.469	**3028-1551-6XX** (Gold plated)
		3028-7551-6XX (Nickel plated)
.093	.438	**3028-1551-7XX** (Gold plated)
		3028-7551-7XX (Nickel plated)

Dim. A	Dim. B	Solder-clamp for semi-rigid cable:
.031	.500	**3028-1541-5XX** (Gold plated)
		3028-7541-5XX (Nickel plated)
.062	.469	**3028-1541-6XX** (Gold plated)
		3028-7541-6XX (Nickel plated)
.093	.438	**3028-1541-7XX** (Gold plated)
		3028-7541-7XX (Nickel plated)



Bulkhead Mounted Straight Female Cable Plug Float Mount/Blind Mate

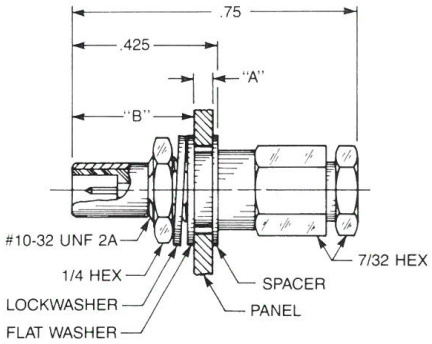
- Closed-entry mating end hood

Dim. A	Dim. B	Crimp type for flexible cable:
.031	.500	**3028-1571-5XX** (Gold plated)
		3028-7571-5XX (Nickel plated)
.062	.469	**3028-1571-6XX** (Gold plated)
		3028-7571-6XX (Nickel plated)
.093	.438	**3028-1571-7XX** (Gold plated)
		3028-7571-7XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

See page 3-34 for float mount details

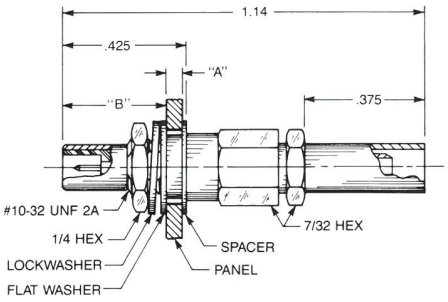
Bulkhead Cable Jacks - Float Mount / Blind Mate



Float Mount
Straight Male
Bulkhead Cable Jack

Dim. A	Dim. B	Clamp type for flexible cable:
.031	.365	**3003-1551-5XX** (Gold plated)
		3003-7551-5XX (Nickel plated)
.062	.334	**3003-1551-6XX** (Gold plated)
		3003-7551-6XX (Nickel plated)
.093	.303	**3003-1551-7XX** (Gold plated)
		3003-7551-7XX (Nickel plated)

Dim. A	Dim. B	Solder-clamp for semi-rigid cable:
.031	.365	**3003-1541-5XX** (Gold plated)
		3003-7541-5XX (Nickel plated)
.062	.334	**3003-1541-6XX** (Gold plated)
		3003-7541-6XX (Nickel plated)
.093	.303	**3003-1541-7XX** (Gold plated)
		3003-7541-7XX (Nickel plated)



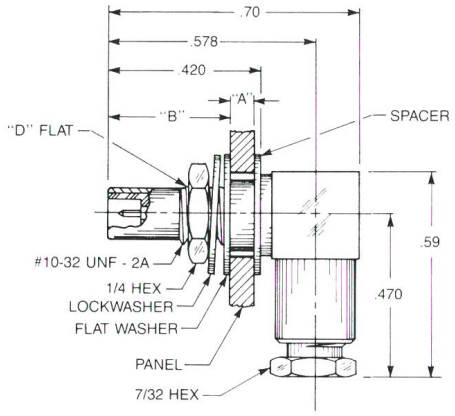
Float Mount
Straight Male
Bulkhead Cable Jack

Dim. A	Dim. B	Crimp type for flexible cable:
.031	.365	**3003-1571-5XX** (Gold plated)
		3003-7571-5XX (Nickel plated)
.062	.334	**3003-1571-6XX** (Gold plated)
		3003-7571-6XX (Nickel plated)
.093	.303	**3003-1571-7XX** (Gold plated)
		3003-7571-7XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

See page 3-34 for float mount details

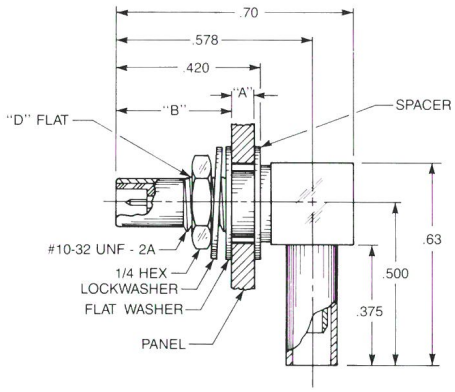
Bulkhead Jack Receptacles - Float Mount / Blind Mate



Float Mount
Right Angle Male
Bulkhead Cable Jack

Dim. A	Dim. B	Clamp type for flexible cable:
.031	.360	**3006-1551-5XX** (Gold plated)
		3006-7551-5XX (Nickel plated)
.062	.329	**3006-1551-6XX** (Gold plated)
		3006-7551-6XX (Nickel plated)
.093	.298	**3006-1551-7XX** (Gold plated)
		3006-7551-7XX (Nickel plated)

Dim. A	Dim. B	Solder-clamp for semi-rigid cable:
.031	.360	**3006-1541-5XX** (Gold plated)
		3006-7541-5XX (Nickel plated)
.062	.329	**3006-1541-6XX** (Gold plated)
		3006-7541-6XX (Nickel plated)
.093	.298	**3006-1541-7XX** (Gold plated)
		3006-7541-7XX (Nickel plated)

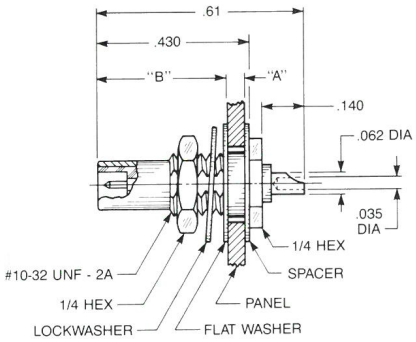


Float Mount
Right Angle Male
Bulkhead Cable Jack

Dim. A	Dim. B	Crimp type for flexible cable:
.031	.360	**3106-1521-5XX** (Gold plated)
		3106-7521-5XX (Nickel plated)
.062	.329	**3106-1521-6XX** (Gold plated)
		3106-7521-6XX (Nickel plated)
.093	.298	**3106-1521-7XX** (Gold plated)
		3106-7521-7XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

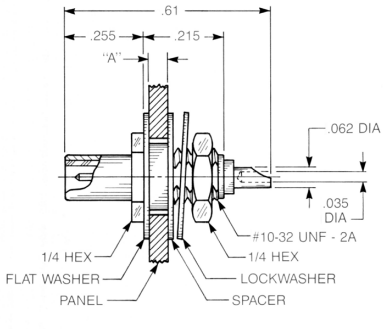
See page 3-34 for float mount details



Float Mount Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Rear mount

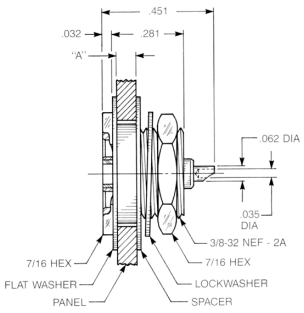
Dim. A	Dim. B	
.031	.370	**3004-1511-500** (Gold plated)
		3004-7511-500 (Nickel plated)
.062	.339	**3004-1511-600** (Gold plated)
		3004-7511-600 (Nickel plated)
.093	.308	**3004-1511-700** (Gold plated)
		3004-7511-700 (Nickel plated)



Float Mount Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

Dim. A	
.031	**3019-1511-500** (Gold plated)
	3019-7511-500 (Nickel plated)
.062	**3019-1511-600** (Gold plated)
	3019-7511-600 (Nickel plated)
.093	**3019-1511-700** (Gold plated)
	3019-7511-700 (Nickel plated)



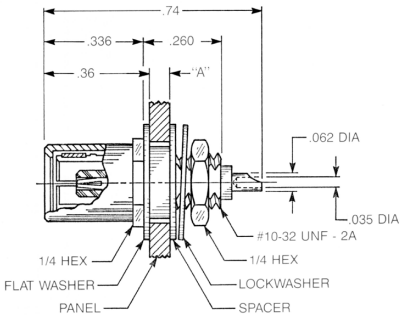
Float Mount Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Recessed front mount

Dim. A	
.031	**3014-1511-500** (Gold plated)
	3014-7511-500 (Nickel plated)
.062	**3014-1511-600** (Gold plated)
	3014-7511-600 (Nickel plated)
.093	**3014-1511-700** (Gold plated)
	3014-7511-700 (Nickel plated)

See page 3-34 for float mount details

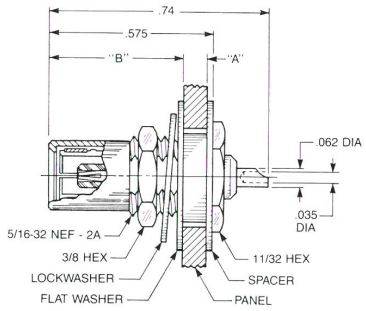
Bulkhead Plug Receptacles - Float Mount / Blind Mate



Float Mount Straight Female Bulkhead Plug Receptacle

- Solder pot contact
- Front mount
- Closed-entry mating end hood

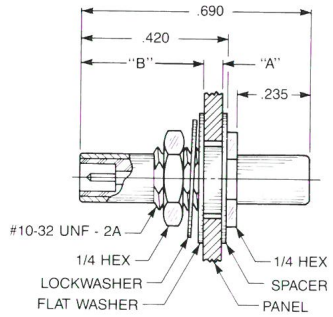
Dim. A	
.031	**3017-1511-500** (Gold plated)
	3017-7511-500 (Nickel plated)
.062	**3017-1511-600** (Gold plated)
	3017-7511-600 (Nickel plated)
.093	**3017-1511-700** (Gold plated)
	3017-7511-700 (Nickel plated)



Float Mount Straight Female Bulkhead Plug Receptacle

- Solder pot contact
- Front mount
- Closed-entry mating end hood

Dim. A	Dim. B	
.031	.515	**3048-1511-500** (Gold plated)
		3048-7511-500 (Nickel plated)
.062	.484	**3048-1511-600** (Gold plated)
		3048-7511-600 (Nickel plated)
.093	.453	**3048-1511-700** (Gold plated)
		3048-7511-700 (Nickel plated)

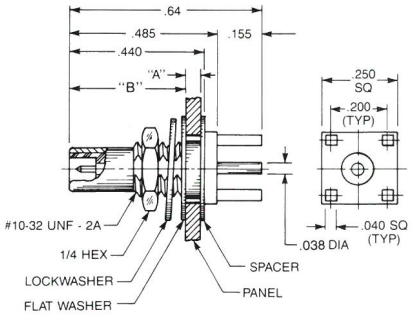


Float Mount Straight Male Adapter

- Jack To Jack
- Connects two plugs

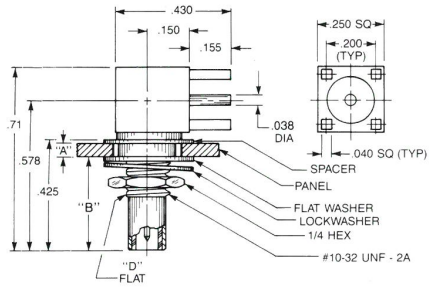
Dim. A	Dim. B	
.031	.360	**5252-1501-500** (Gold plated)
		5252-7501-500 (Nickel plated)
.062	.329	**5252-1501-600** (Gold plated)
		5252-7501-600 (Nickel plated)
.093	.298	**5252-1501-700** (Gold plated)
		5252-7501-700 (Nickel plated)

See page 3-34 for float mount details



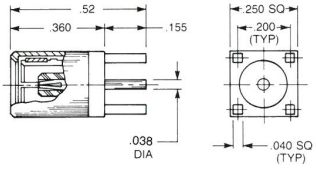
Float Mount
Straight Male Jack
PCB Receptacle

Dim. A	Dim. B	
.031	.380	**3109-1511-500** (Gold plated)
		3109-7511-500 (Nickel plated)
.062	.349	**3109-1511-600** (Gold plated)
		3109-7511-600 (Nickel plated)
.093	.318	**3109-1511-700** (Gold plated)
		3109-7511-700 (Nickel plated)



Float Mount
Right Angle Male Jack
PCB Receptacle

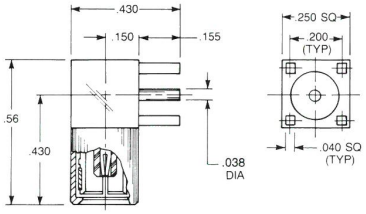
Dim. A	Dim. B	
.031	.365	**3110-1511-500** (Gold plated)
		3110-7511-500 (Nickel plated)
.062	.334	**3110-1511-600** (Gold plated)
		3110-7511-600 (Nickel plated)
.093	.303	**3110-1511-700** (Gold plated)
		3110-7511-700 (Nickel plated)



Straight Female Plug
PCB Receptacle

- Closed-entry mating end hood

3025-1511-005 (Gold plated)
3025-7511-005 (Nickel plated)



Right Angle Female Plug
PCB Receptacle

- Closed-entry mating end hood

3042-1511-006 (Gold plated)
3042-7511-006 (Nickel plated)

See page 3-34 for float mount details

SECTION 4



SSMB / SSMC / SSLB

SECTION 4 TABLE OF CONTENTS

SSMB SERIES

Specifications....4-3
Cable plugs....4-4
Cable jacks....4-5
Bulkhead receptacles....4-6
P.C. board receptacles....4-7
Panel (flange mount) receptacles....4-8

SSMC SERIES

Specifications....4-9
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Receptacles and adapters....110

SSLB SERIES

Mating plugs....4-15
Cable plugs....4-16

With AEP SSMB and SSMC series microminiature connectors, having to trade reliability for small size is no longer a design consideration. These rugged little connectors have been tested to 1,000 mating cycles with no change in insertion loss or mating forces. They have also passed all MIL-PRF-39012 qualification parameters for SMB connectors.

The key to this reliability is our use of beryllium copper outer contacts in plug connectors, and closed entry female contacts.

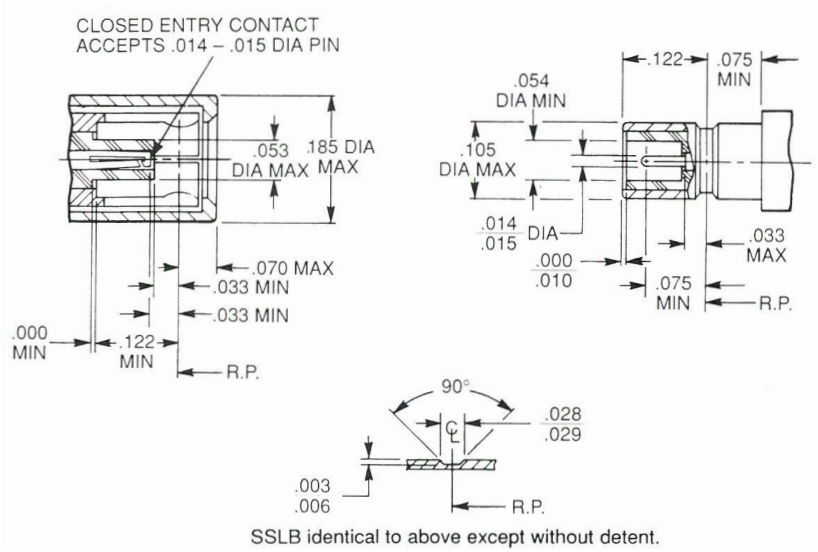
The standard mating design for SSMB and SSMC series connectors are similar to SMB and SMC but with size reduced approximately one-third. This makes them ideal for use in confined areas where the use of wrenches is not practical. Pages 4-15 and 4-16 show a group of plugs with slide-on mating for use where multiple connector pairs must be mated simultaneously.

These connectors have gained wide acceptance and usage in military radio systems, where small size is needed for miniaturization but ruggedness and reliability are paramount.

Because of the SSMB and SSMC series' small size and tight tolerance, finishes other than gold plating are not recommended.

Factory-built cable assemblies using these connectors are available from AEP. The index listing for each connector shows the appropriate cable assembly instruction. Assembly instructions start on page 13-14.

Interface Dimensions



SSLB identical to above except without detent.

SPECIFICATIONSMIL-PRF-39012

MATERIALS:

Female body components, center contacts: Beryllium copper per ASTM B196. condition HT. all other metalparts: brass per ASTM B16. alloy 360, 1/2 hard.
Insulators: Teflon TFE per ASTM-D-1710.

FINISH:

Center Contacts: Gold plated per MIL-G-45204, Type II, class 1, grade C.
All other parts finished lo meet MIL-PRF-39012 corrosion requirements.

ELECTRICAL:

Impedance: 50 ohms.
Frequency range: DC-12.4 GHz.
Voltage rating: 250V RMS, sea level 60V RMS, 70,000 ft.
Insulation resistance: 1000 megohms minimum.

VSWR:

Straight connector:
RG178: 1.25 + (.020 x F[GHz])
RG316: 1.30 + (.020 x F[GHz])
.085" SR: 1.25 + (.015 x F[GHz])
Right angle connector:
RG178: 1.25 + (.030 x F[GHz])
RG316: 1.30 + (.030 x F[GHz])
.085" SR: 1.25 + (.025 x F[GHz])
Contact resistance:
Center: 4.0 milliohms max initial.
6.0 milliohms max after environment.
Outer contact: 1.0 milliohms max initial,
1.5 milliohms max after environment.
Braid to body: 1.0 milliohms max initial,
N/A after environment.
Corona level: 125V @ 70,000 ft.
RF highpot: 400V RMS @ 5 MHz.
RF leakage: -70 dB min @ 2-3 GHz.
Insertion loss: .30 dB max @ 1.5 GHz.

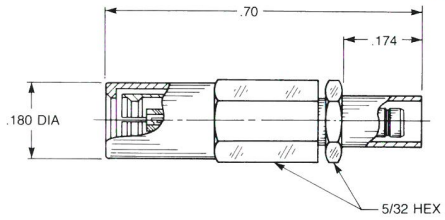
MECHANICAL:

Force to engage:
SSMB: Initial - 6 lbs max engagement,
2 lbs min disengagement.
After 500 matings - 6 lbs max engagement,
1 lb min disengagement.
SSLB: Initial 6 lbs max engagement,
0.5 lbs min disengagement.
Contact retention: 2 lbs min axial force.
Durability: 500 mating cycles.

ENVIRONMENTAL: (per MIL-STD-202)

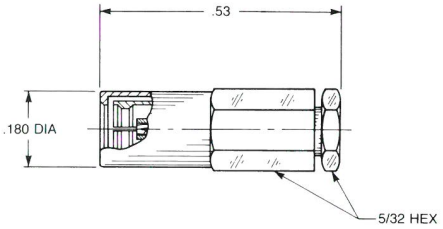
Temperature rating: -65° C to +165° C.
Corrosion: Method 101, condition B, 5% salt solution.
Vibration: Method 204,
SSMB, condition B (15G).
SSLB, condition A (10G).
Mechanical shock: Method 213,
SSMB, condition B; 75 G @ 6 ms @ 1/2 sine.
SSLB, N/A

Cable Plugs



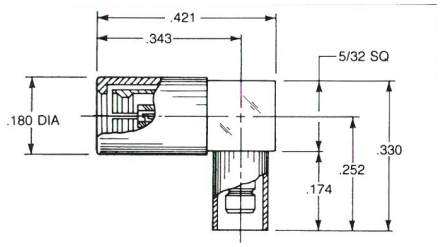
Straight Plug

Crimp type for flexible cable:
7202-1572-0XX



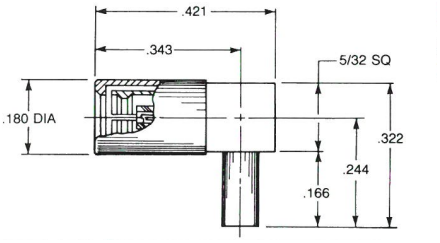
Straight Plug

Solder type for semi-rigid:
7202-1542-0XX



Right Angle Plug

Crimp type for flexible cable:
7405-1521-0XX

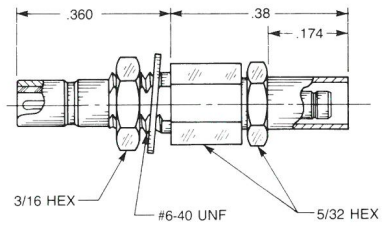


Right Angle Plug

Solder type for semi-rigid:
7405-1561-0XX

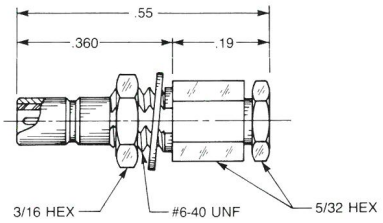
Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	10	.085" semi-rigid, RG405, M17/133
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	11	.047" semi-rigid, M17/151
		19	RG174DS, RG316DS, M17/152, Times RD316
05	RG178DS, RG196DS	21	.056" semi-rigid

Cable Jacks



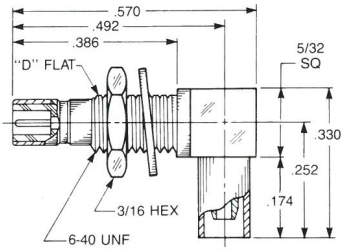
Straight Bulkhead Jack

Crimp type for flexible cable:
7203-1571-0XX



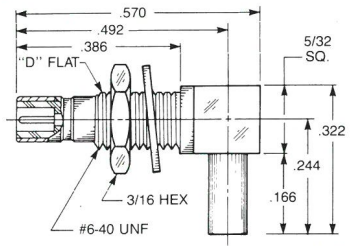
Straight Bulkhead Jack

Solder type for semi-rigid:
7203-1541-0XX



Right Angle Bulkhead Jack

Crimp type for flexible cable:
7406-1521-0XX

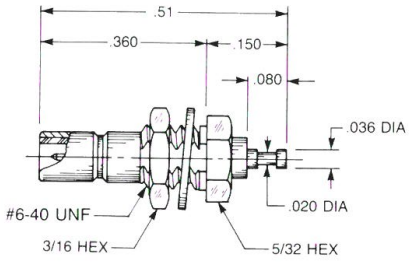


Right Angle Bulkhead Jack

Solder type for flexible cable:
7406-1561-0XX

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	10	.085" semi-rigid, RG405, M17/133
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	11	.047" semi-rigid, M17/151
		19	RG174DS, RG316DS, M17/152, Times RD316
05	RG178DS, RG196DS	21	.056" semi-rigid

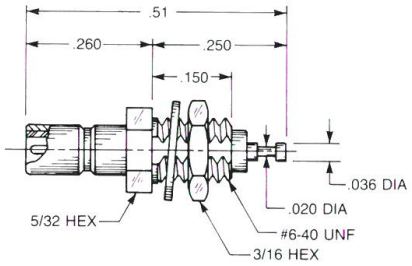
Bulkhead Receptacles



Straight Bulkhead Jack Receptacle

- Turret contact
- Rear mount

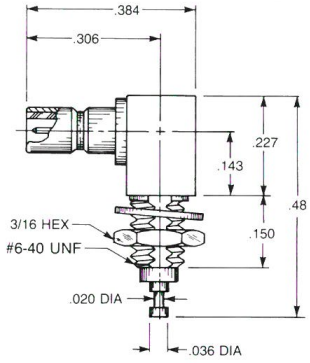
7204-1511-000



Straight Bulkhead Jack Receptacle

- Turret contact
- Front mount

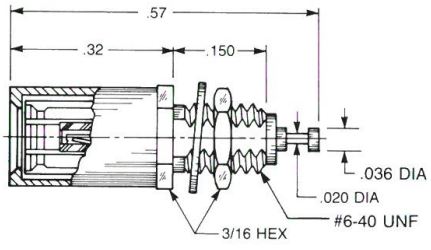
7219-1511-000



Right Angle Bulkhead Jack Receptacle

- Turret contact
- Front mount

7212-1511-000

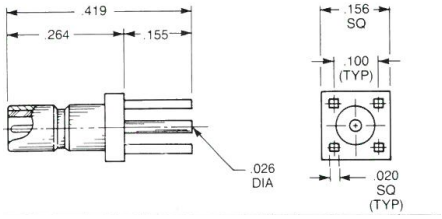


Straight Bulkhead Plug Receptacle

- Turret contact
- Front mount

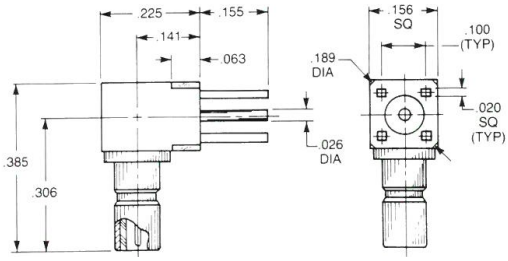
7217-1512-000

PCB Receptacles



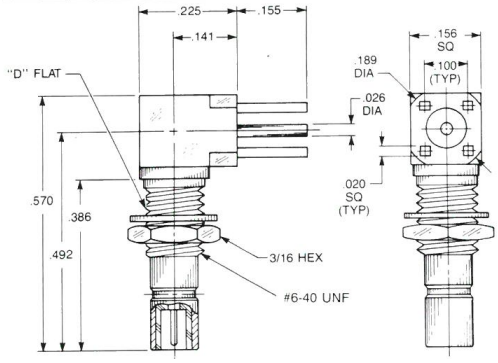
Straight Jack

7209-1511-000



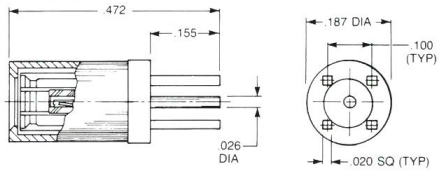
Right Angle Jack

7210-1511-000



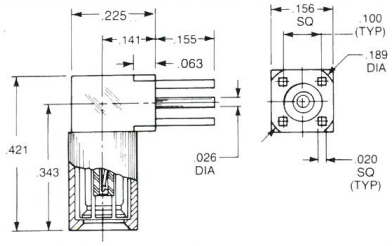
Right Angle Bulkhead Jack

7410-1511-000



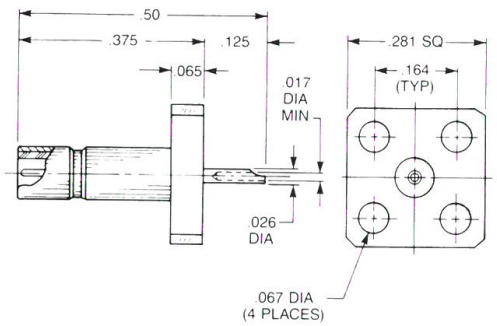
Straight Plug

7225-1512-000



Right Angle Plug

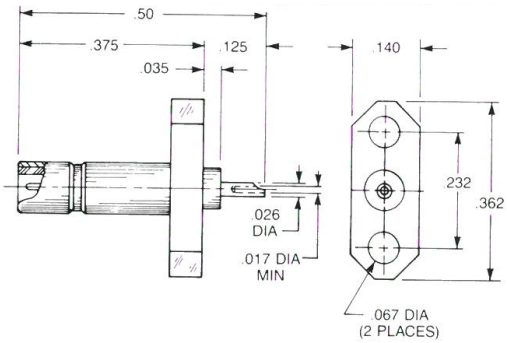
7242-1511-000



Straight Panel Receptacle

- Solder pot contact
- Stainless steel body

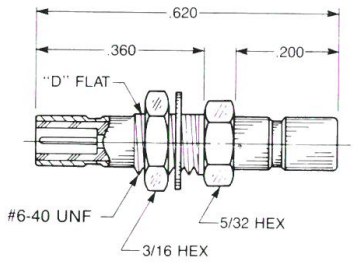
Square flange:
7498-1513-000



Straight Panel Receptacle

- Solder pot contact
- Stainless steel body

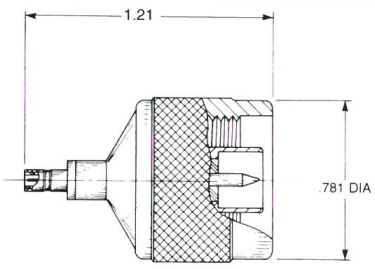
2-hole flange:
7499-1513-000



Bulkhead Mounted Adapter

- Jack To Jack
- Connects two plugs

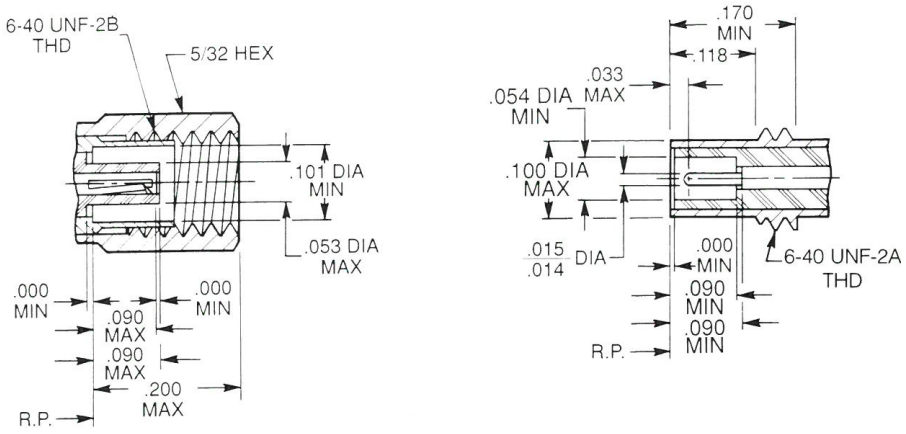
7222-1501-000



Precision Type N Plug To SSMB Series Jack Adapter

5011-1503-000

Interface Dimensions



SPECIFICATIONS MIL-PRF-39012

MATERIALS:

Female body components, center contacts: Beryllium copper per ASTM B196. condition HT. all other metalparts: brass per ASTM B16. alloy 360, 1/2 hard.
Insulators: Teflon TFE per ASTM-D-1710.

FINISH:

Center Contacts: Gold plated per MIL-G-45204, Type II, class 1, grade C.
All other parts finished lo meet MIL-PRF-39012 corrosion requirements.

ELECTRICAL:

Impedance: 50 ohms.
Frequency range: DC-12.4 GHz.
Voltage rating: 250V RMS, sea level 60V RMS, 70,000 ft.
Insulation resistance: 1000 megohms minimum.

VSWR:

Straight connector:
RG178: 1.20 + (.020 x F[GHz])
RG316: 1.25 + (.020 x F[GHz])
.085" SR: 1.20 + (.015 x F[GHz])
Right angle connector:
RG178: 1.20 + (.030 x F(GHz])
RG316: 1.25 + (.030 x F[GHz])
.085" SR: 1.20 + (.025 x F[GHz])

Contact resistance:
Center: 4.0 milliohms max initial.
6.0 milliohms max after environment.
Outer contact: 1.0 milliohms max initial,
1.5 milliohms max after environment.
Braid to body: 1.0 milliohms max initial,
N/A after environment.
Corona level: 125V @ 70,000 ft.
RF highpot: 400V RMS @ 5 MHz.
RF leakage: -50 dB min @ 2-3 GHz.
Insertion loss: .30 dB max @ 1.5 GHz.

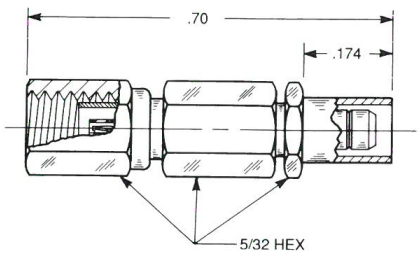
MECHANICAL:

Force to engage: 16 inch-ounces torque max.
Mating Torque 28-32 inch-ounces.
Contact retention: 2 lbs min axial force.
Coupling nut pulloff resistance: 25 lbs min.
Durability: 500 mating cycles.

ENVIRONMENTAL: (per MIL-STD-202)

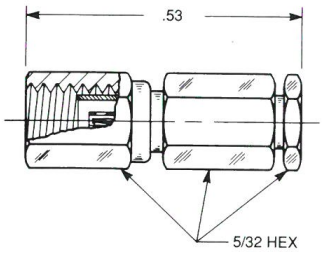
Temperature rating: -65° C to +165° C.
Corrosion: Method 101, condition B, 5% salt solution.
Vibration: Method 204,condition D (20 G)
Mechanical shock: Method 213, condition B;
75 G @ 6 ms @ 1/2 sine.

Cable Plugs



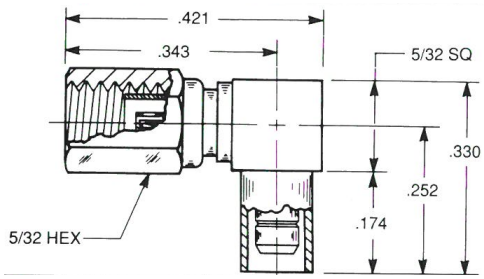
Straight Plug

Crimp type for flexible cable:
7002-1572-0XX



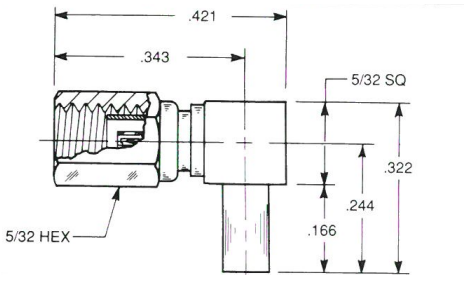
Straight Plug

Solder type for semi-rigid:
7002-1542-0XX



Right Angle Plug

Crimp type for flexible cable:
7105-1521-0XX

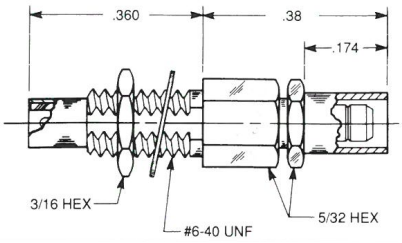


Right Angle Plug

Solder type for semi-rigid:
7105-1561-0XX

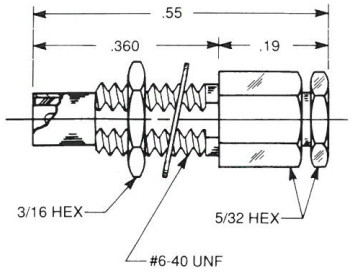
Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	10	.085" semi-rigid, RG405, M17/133
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	11	.047" semi-rigid, M17/151
		19	RG174DS, RG316DS, M17/152, Times RD316
05	RG178DS, RG196DS	21	.056" semi-rigid

Cable Jacks



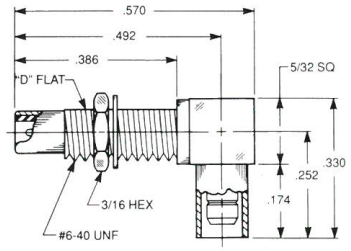
Straight Bulkhead Jack

Crimp type for flexible cable:
7003-1572-0XX



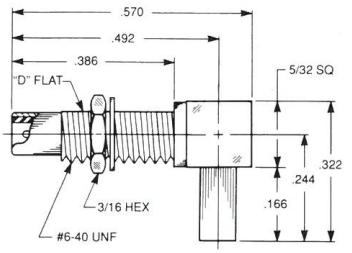
Straight Bulkhead Jack

Solder type for semi-rigid:
7003-1542-0XX



Right Angle Bulkhead Jack

Crimp type for flexible cable:
7106-1521-0XX

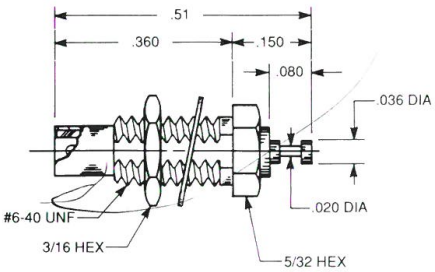


Right Angle Bulkhead Jack

Solder type for flexible cable:
7106-1561-0XX

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	10	.085" semi-rigid, RG405, M17/133
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	11	.047" semi-rigid, M17/151
		19	RG174DS, RG316DS, M17/152, Times RD316
05	RG178DS, RG196DS	21	.056" semi-rigid

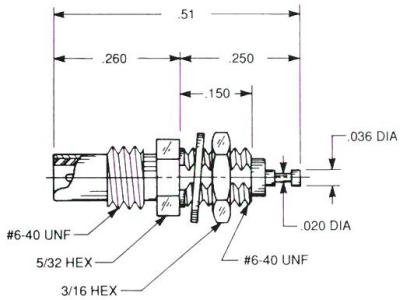
Bulkhead Receptacles



Straight Bulkhead Jack Receptacle

- Turret contact
- Rear mount

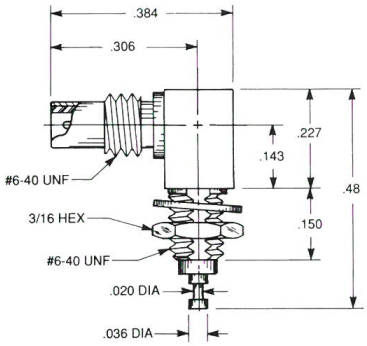
7004-1512-000



Straight Bulkhead Jack Receptacle

- Turret contact
- Front mount

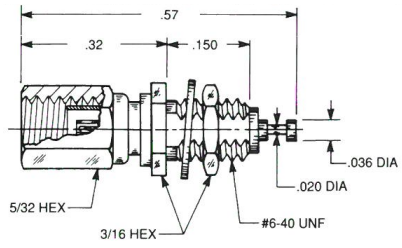
7119-1512-000



Right Angle Bulkhead Jack Receptacle

- Turret contact
- Front mount

7012-1511-000

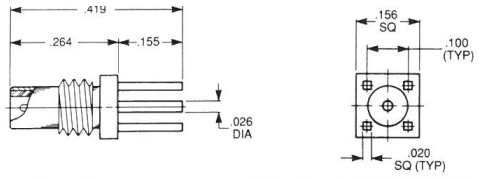


Straight Bulkhead Plug Receptacle

- Turret contact
- Front mount

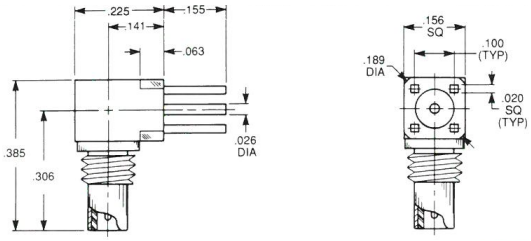
7017-1512-000

PCB Receptacles



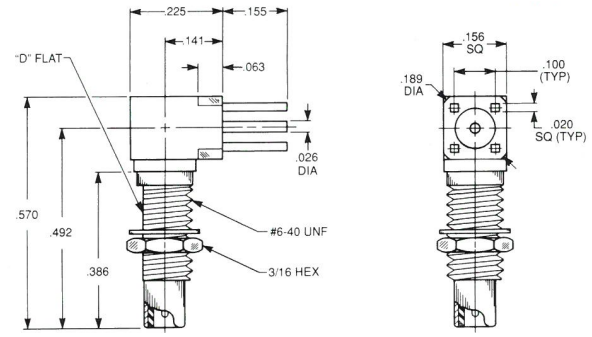
Straight Jack

7009-1511-000



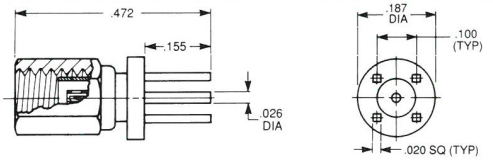
Right Angle Jack

7010-1511-000



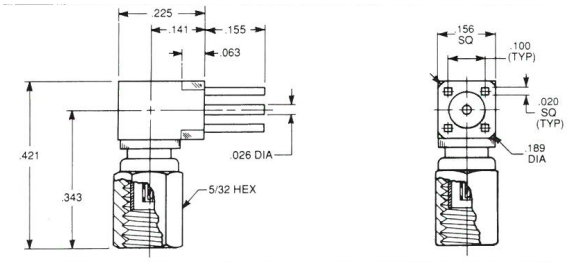
Right Angle Bulkhead Jack

7110-1511-000



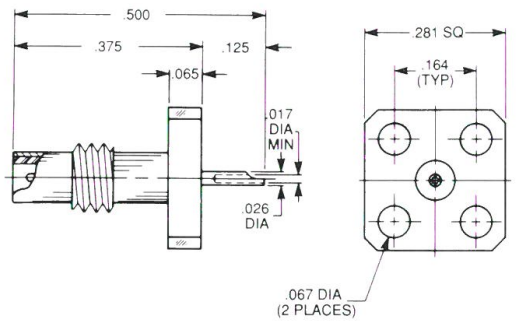
Straight Plug

7025-1512-000



Right Angle Plug

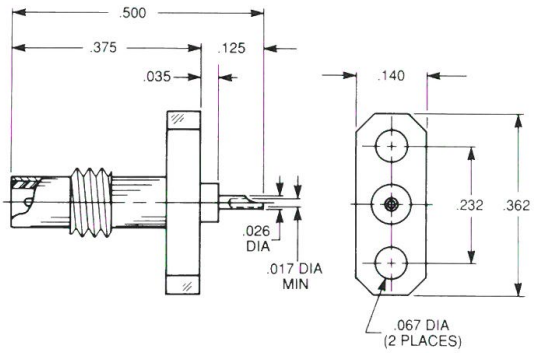
7042-1511-000



Straight Panel Receptacle

- Solder pot contact
- Stainless steel body

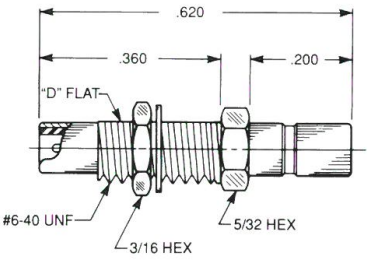
Square flange:
7198-1513-000



Straight Panel Receptacle

- Solder pot contact
- Stainless steel body

2-hole flange:
7100-1513-000



Bulkhead Mounted
SSMC Jack to SSMB Jack Adapter

- Connects SSMB plug and SSMC plug

7022-1502-000

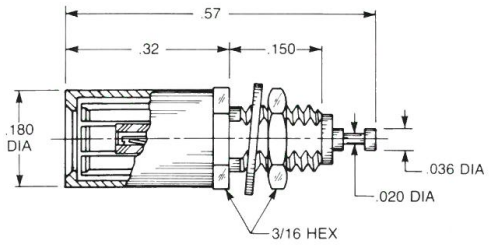
Slide-On Mating Plugs

AEP SSMB series snap-on connectors were designed to provide the highest practical mating and unmating forces in microminiature size, making them the most rugged and reliable microminiature coaxial connectors available. This high mating force can, however, cause damage to bulkheads or P.C. boards when the connectors are mated in multiple pairs in rack and panel or blind-mate applications.

The slide-on plugs shown here were designed to reduce mating forces from 6 pounds maximum to 3 pounds maximum per pair, and unmating forces from 2 pounds minimum to 1/2 pound minimum per pair. These forces are high enough to ensure consistent outer conductor grounding, but low enough to allow the connectors to be used in multiple mating arrays.

The use of external actuators, such as levers or jackscrews, should be considered in applications requiring the simultaneous mating of multiple connector pairs, especially when one side is P.C. board mounted.

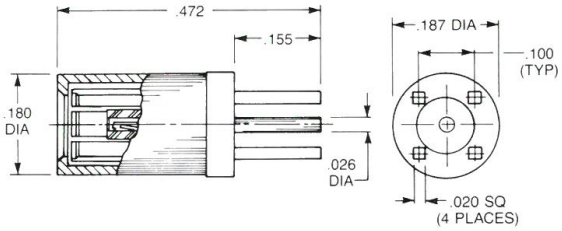
These slide-on plugs will mate with any SSMB series snap-on jack.



Slide-On Bulkhead Plug Receptacle

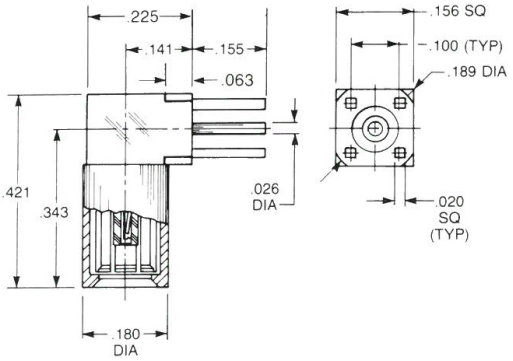
- Turret contact
- Front mount

7317-1512-000



Slide-On Straight PCB Plug

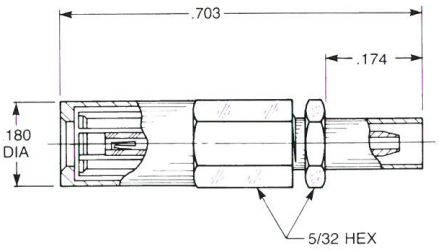
7325-1512-000



Slide-On Right Angle PCB Plug

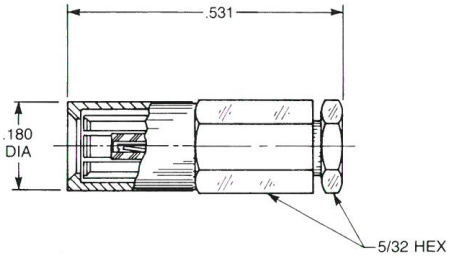
7342-1511-000

Slide-On Cable Plugs



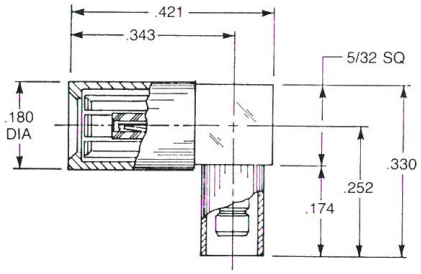
Straight Plug

Crimp type for flexible cable:
7302-1572-0XX



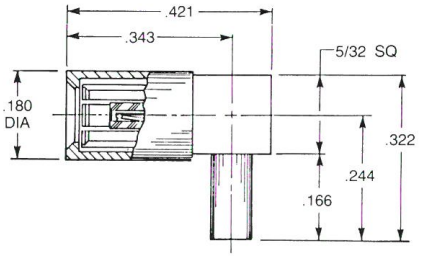
Straight Plug

Solder type for semi-rigid:
7302-1542-0XX



Right Angle Plug

Crimp type for flexible cable:
7305-1521-0XX



Right Angle Plug

Solder type for semi-rigid:
7305-1561-0XX

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	10	.085" semi-rigid, RG405, M17/133
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	11	.047" semi-rigid, M17/151
		19	RG174DS, RG316DS, M17/152, Times RD316
05	RG178DS, RG196DS	21	.056" semi-rigid

SECTION 5



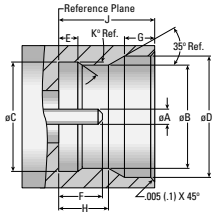
SMP

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Mating interfaces 5-2
Male shrouds with hermetic seals and bullet adapters 5-3
Male shrouds with cable connectors 5-4
Hermetic seals 5-5
Straight female cable connectors 7
Straight male cable connectors 7
Male panel mounted cable connectors (two-piece) 8
Hermetic seal installation 9

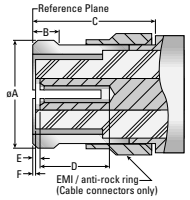
SMP Specifications

SMP Male Interface Dimensions



Dimension	Full Detent		Limited Detent		Smooth Bore	
	Min.	Max.	Min.	Max.	Min.	Max.
øA	.014	.016	.014	.016	.014	.016
øB	.114	.118	.118	.122	.123	.127
øC	.124	.126	.124	.126	N/A	N/A
øD	.139	.145	.139	.145	.139	.145
E	.0205	.0235	.0205	.0235	N/A	N/A
F	.045	.055	.045	.055	.045	.055
G	.033	.037	.033	.037	.033	.037
H	.051	.057	.054	.060	.059	.065
J	.108	.112	.108	.112	.108	.112
K	28°	32°	28°	32°	N/A	N/A

SMP Female Interface Dimensions



Dimension	Cabled		Uncabled	
	Min.	Max.	Min.	Max.
øA	—	.135	—	.135
B	.025	.035	.018	.025
C	.132	—	.112	—
D	.070	—	.070	—
E	.000	.008	.000	.008
F	.000	.010	.000	.010

MATERIALS:

Body Components: Beryllium copper per ASTM B196, Condition HT, or stainless steel per ASTM A582, type 303.
Contacts: Beryllium copper per ASTM B196, Condition HT.
Insulators: Teflon (PTFE) per ASTM D1710.

FINISH:

Center contacts: Gold plated per MIL-G-45204, Type II, Class 1, Grade C.
Other metal parts: Gold plated (beryllium copper or stainless steel) or passivated (stainless steel) to meet current MIL-PRF-39012 corrosion requirements.

ELECTRICAL:

Impedance: 50Ω.
Frequency range: DC–40 GHz.
Voltage Rating: 335V RMS max. @ sea level; 65V RMS max. @ 70,000 feet.
Dielectric Withstanding Voltage: 500V RMS min. @ sea level; 125V RMS min. @ 70,000 feet.
VSWR: DC–23 GHz: 1.10:1 max; 23–26.5 GHz: 1.15:1 max; 26.5–40 GHz: 1.35:1 max.*
Insertion Loss: .10 √F (GHz) (female bullets); .12F √F (GHz) (cable connectors).
Insulation Resistance: 5,000 megohms minimum.
Contact Resistance: Center contact: 6.0 milliohms maximum.
Outer contact: 2.0 milliohms maximum.
Corona Level: 190V min. @ 70,000 feet.
RF Highpot: 325V RMS @ 5 MHz.
RF Leakage: -80 dB min. to 3 GHz; -65 dB min. 3 GHz–26.5 GHz.

MECHANICAL:

Force to Engage: Full Detent, 15 lbs.
Limited Detent, 10 lbs.
Smooth Bore, 2 lbs.
Force to Disengage: Full Detent, 5 lbs.
Limited Detent, 2 lbs.
Smooth Bore, .5 lbs.
Contact Retention: 1.5 lbs min. axial force.
Axial Misalignment: .000 / .010".
Radial Misalignment: .010" centerline to centerline (.020" with special shrouds).
Durability: Full Detent, 100 mating cycles min.
Limited Detent, 500 mating cycles min.
Smooth Bore, 1,000 mating cycles min.

ENVIRONMENTAL (MIL-STD-202):

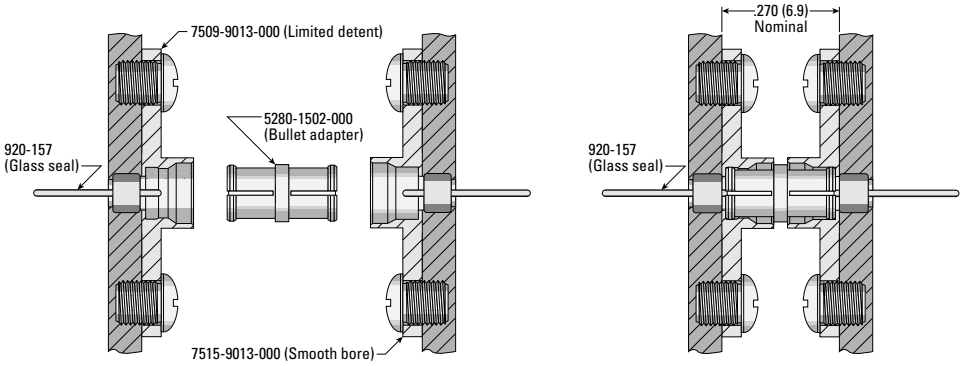
Temperature Range: -65° C to +165° C.
Vibration: Method 204, condition D.
Mechanical Shock: Method 213, condition I.
Thermal shock: Method 107, condition B.

*VSWR for P/N 5280-1502-000 "bullet" adapter. Performance of other configurations may vary. Contact factory for additional information.

These specifications change periodically with updates to MIL-PRF-39012 requirements. Contact factory for latest specifications.

PANEL MOUNTED SHROUDS

With Bullet Adapter



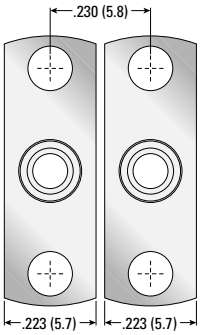
In low-profile, blind-mate applications, flange-mount shrouds are used with "bullet" adapters to provide axial and radial "float" for proper mating.

The bullet adapter mates with the pins of glass-to-metal hermetic seals soldered into the panels.

In these applications, one of the shrouds is typically a "limited detent" type, and the other a "smooth bore" type. This pairing keeps mating and unmating forces to a minimum, and retains the bullet adapter in the "limited detent" shroud when the panels are separated.

The space between panels when mated can be changed by the use of different-length bullet adapters.

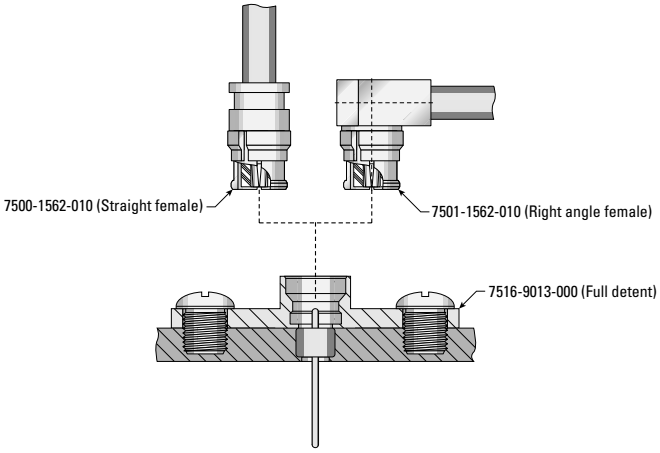
Spacing for Mounted Shrouds



Shrouds may be mounted with centerline spacing as little as .230" for units with .223" wide flanges. Narrower flanges can be provided to allow for spacing as little as .170" (4.3 mm).

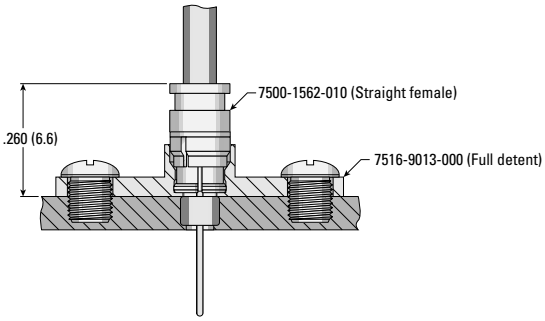
PANEL MOUNTED SHROUDS

With Cable Connectors

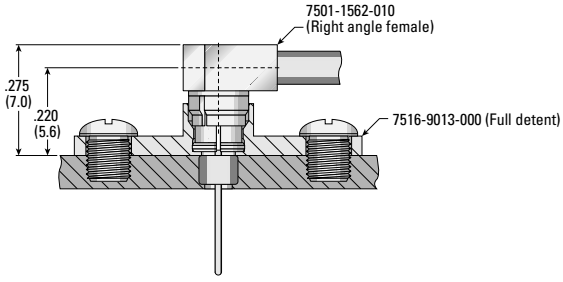


A "full-detent" shroud is used in applications with cable connectors to provide secure mating.

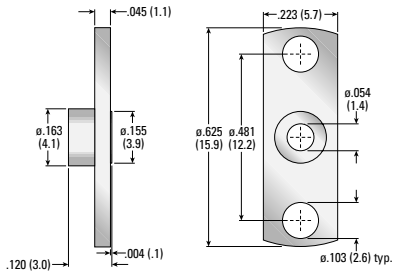
Height Above Panel for Typical Straight Cable Connector



Height Above Panel for Typical Right Angle Cable Connector



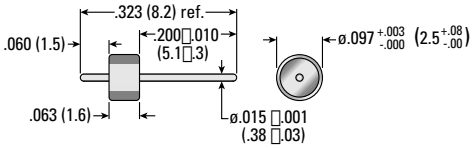
MALE SHROUDS FOR USE WITH HERMETIC SEALS



Detent Type	AEP P/N
Full Detent	**7516-9013-000**
Limited Detent	**7509-9013-000**
Smooth Bore	**7515-9013-000**

Body material: Stainless steel

HERMETIC SEAL



AEP P/N
920-157

MATERIALS:

Outer Ring and Pin: Kovar.
Glass Bead: Corning 7070 or equivalent.

FINISH:

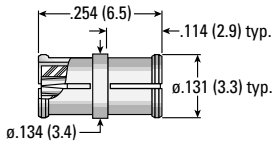
Outer Ring and Pin: Gold plated per MIL-G-45204, type II, Grade C, Class 1, over nickel per MIL-C-26074, Class I, over copper per MIL-C-14550.

HERMETICITY:

Leak Rate: Less than 1 x 10-8 cc/second.

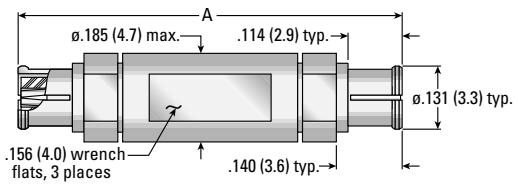
See page 5-8 for hermetic seal installation instructions.

FEMALE-TO-FEMALE STRAIGHT BULLET ADAPTERS FOR USE WITH SHROUDS



AEP P/N
5280-1502-000

Body material: Beryllium copper

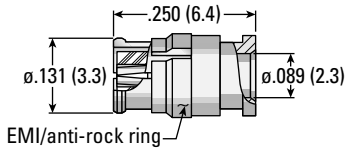


A	AEP P/N
.805 (20.4)	**5280-1502-001**
1.142 (29.0)	**5280-1502-002**

Body material: Beryllium copper

STRAIGHT FEMALE CABLE CONNECTORS (DIRECT SOLDER FOR SEMI-RIGID CABLE)

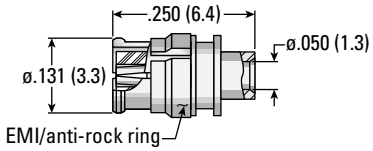
For .086" semi-rigid cable



TYPE	AEP P/N
Standard	**7500-1562-010**
High Frequency	**7500-1262-010**

Body material: Beryllium copper

For .047" semi-rigid cable

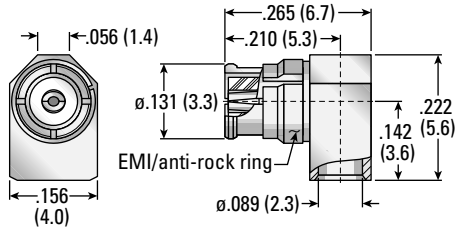


AEP P/N
7500-1582-011

Body material: Beryllium copper

RIGHT ANGLE FEMALE CABLE CONNECTORS (DIRECT SOLDER FOR SEMI-RIGID CABLE)

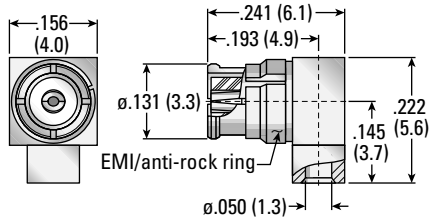
For .086" semi-rigid cable



AEP P/N
7501-1562-010

Body material: Beryllium copper

For .047" semi-rigid cable

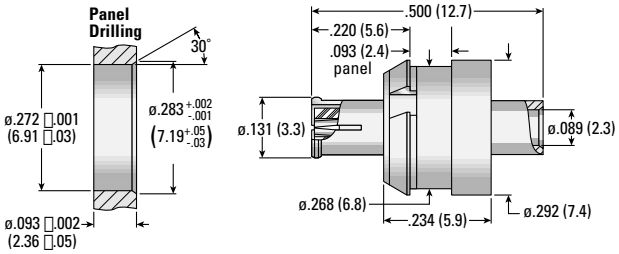


AEP P/N
7501-1562-011

Body material: Beryllium copper

STRAIGHT FEMALE CABLE CONNECTOR (DIRECT SOLDER FOR SEMI-RIGID CABLE)

For .086" semi-rigid cable—Snap-In panel mounting (float mount)



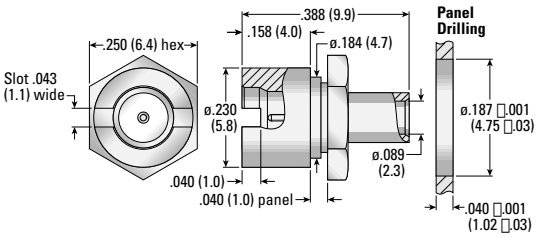
AEP P/N
7504-2282-010

Body material: Beryllium copper

Cable assembly instructions are shipped with each connector.

STRAIGHT MALE CABLE CONNECTOR (DIRECT SOLDER FOR SEMI-RIGID CABLE)

Captive Contact, for .086" semi-rigid / .040" thick panel

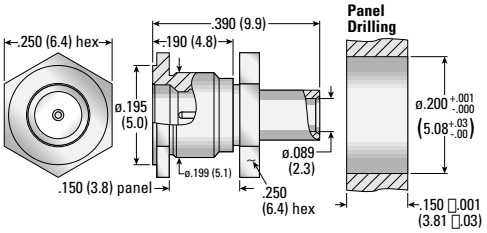


Detent Type	AEP P/N
Full Detent	**7503-1582-010**
Limited Detent	**7506-1582-010**
Smooth Bore	**7502-1582-010**

Body material: Beryllium copper

STRAIGHT MALE CABLE CONNECTOR (DIRECT SOLDER FOR SEMI-RIGID CABLE)

Captive Contact, for .086" semi-rigid / .150" thick panel

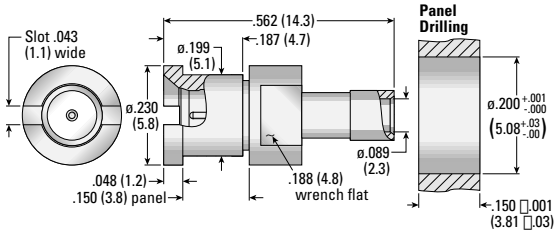


Detent Type	AEP P/N
Full Detent	**7503-1582-110**
Limited Detent	**7506-1582-110**
Smooth Bore	**7502-1582-110**

Body material: Beryllium copper

STRAIGHT MALE CABLE CONNECTOR (CATCHER'S MITT* DIRECT SOLDER FOR SEMI-RIGID CABLE)

Non-Captive Contact, for .086" semi-rigid / .150" thick panel



Detent Type	AEP P/N
Full Detent	**7503-1083-010**
Limited Detent	**7506-1083-010**
Smooth Bore	**7502-1083-010**

Body material: Stainless Steel

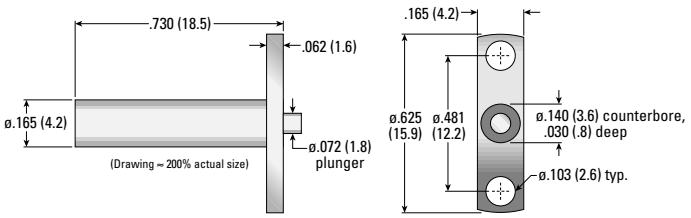
*The "Catcher's Mitt" configuration features a wider-than-standard flare at the mating end, increasing its ability to "capture" a misaligned mating connector and guide it to center for proper mating.

These panel connectors have two-piece bodies; after the rear assembly is inserted through the panel, the front shroud is assembled and tightened with a screwdriver or wrench.

Cable assembly instructions are shipped with each connector.

SMP Hermetic Seal Installation

HERMETIC SEAL FIXTURING TOOL

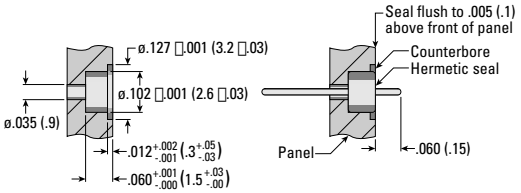


AEP P/N
TA-0453

Body material: Tool steel

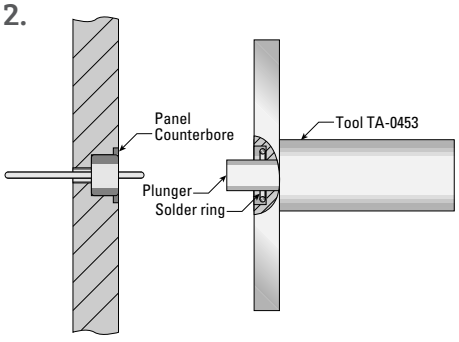
HERMETIC SEAL INSTALLATION

1.



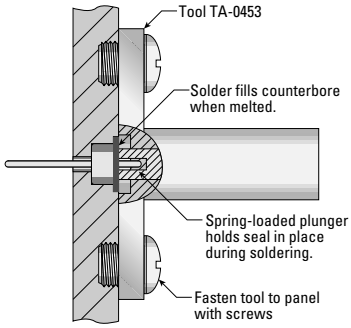
- Drill panel as shown.
- Front of seal should be as close to flush as possible with front surface of panel; if front of seal is below panel surface, an air gap is created which adversely affects electrical performance.
- Front of seal should be flush with front surface of panel, but may protrude up to .005" without affecting performance.

2.



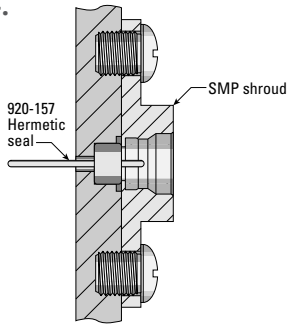
- Form solder ring of a size to completely fill panel counterbore when melted.
- Place preformed solder ring into counterbore of tool.

3.



- Secure tool to panel with screws.
- Apply heat to completely melt solder.
- Remove tool only after solder joint has cooled.

4.



- Secure SMP shroud flange to panel with screws.

SECTION 6



75 OHM

SECTION 6 TABLE OF CONTENTS

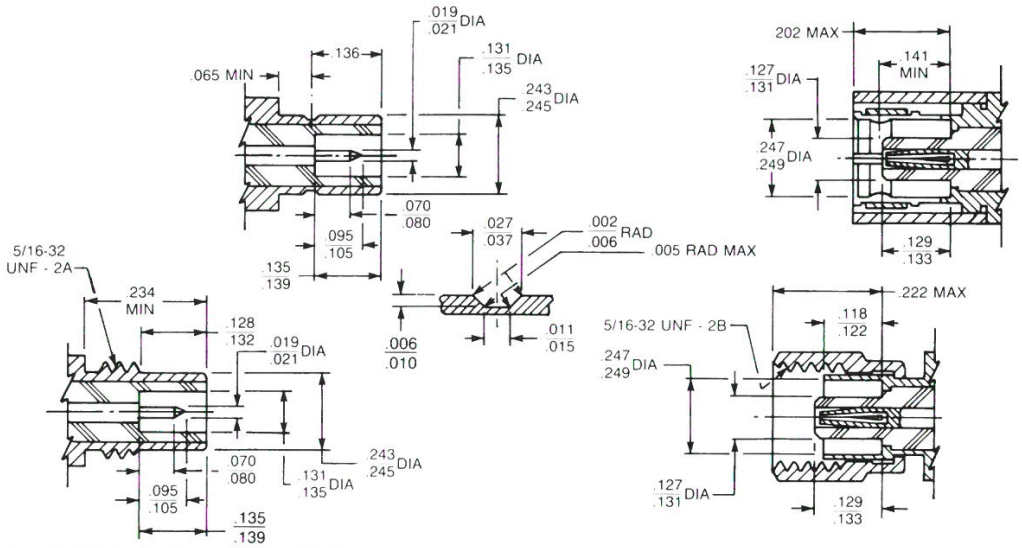
Specifications....6-3
Screw-on mating:
Cable plugs 6-4
Cable jacks....6-5
Receptacles....6-6
Adapters and terminations 6-7
Snap-on mating:
Cable plugs 6-8
Cable jacks....6-9
Receptacles....6-10
Adapters and terminations 6-12

The 75 ohm connectors shown on the following pages provide matched impedance for critical applications such as CATV or Telecom. The screw-on interface is similar in configuration to SMC, and the snap-on interface is similar in configuration to SMB. The cable attachment methods are the same as shown on page 3-5.

Standard cables for use with these connectors are shown at the bottom of the appropriate product pages. A complete listing of cable groups is on page 13-6. All the items shown are available with either gold or nickel plated bodies; part numbers for each finish are shown on the product pages. The index listing shows the appropriate cable assembly instruction. Assembly instructions start on page 13-7.

Factory-built cable assemblies using these connectors are available from AEP.

Interface Dimensions



SPECIFICATIONS

MATERIALS:

Body components: Male contacts & nuts - Brass per ASTM B16, alloy 360, 1/2 hard.
Spring Contacts - Beryllium copper, ASTM B196, condition HT
Lockwashers - Phosphor Bronze per ASTM B139.

FINISH:

Center contacts: Gold plated per MIL-G-45204, Type II, Class 1, Grade C.
Other metal parts: Gold plated per MIL-G-45204 , Type II, Class 1, Grade C, over Copper per MIL-C-14550 , Class 4 or per customer specifications.

ELECTRICAL:

Impedance: 75 ohms, nominal.
Frequency: 0 to 2 GHz
Voltage Rating (max): Sea Level 165V RMS, 70,000 Feet, 65V RMS
Voltage Drop: 4 millivolts max. at 1 amp. including mating connector.
Insulation Resistance: 1000 megohms (min.)
Contact Resistance: (Milliohms max.)

Initial	STRAIGHT	RT. ANGLE
Center	6.0	12.0
Outer Contact	1.0	1.0
Braid to Body	1.0	1.0

Dielectric Withstanding Voltage (Sea Level): 75 ohm conn. for RG-180B/U cable, 2000V RMS
Corona Level: at 70,000 ft . altitude (min.) 75 ohm conn. for RG-180B/U Cable, 350 VOLTS
R.F. High Potential Voltage: Frequency 5MHz 75 ohm conn. for RG-180B/U cable, 1000V RMS
R.F. Leakage: dB min. @ 2 to 3 GHz: SNAP-ON, 55; SCREW-ON , 60
Insertion Loss: (dB) max. @ 1.5 GHz: STRAIGHT, 0.30; RIGHT ANGLE, 0.60.

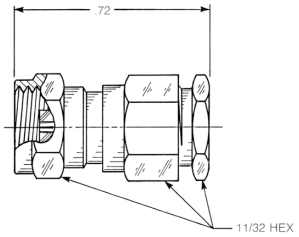
MATING CHARACTERISTICS:

Interface design: Interchangeable with leading manufacturers.

Engagement Force:	SNAP-ON	SCREW-ON
Longitudinal force	14 lbs. max.	N.A.
Torque	N.A.	90 inch oz.

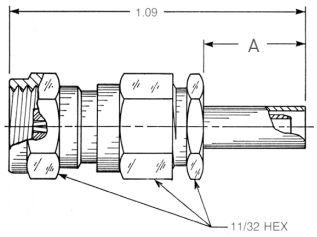
Cable Pullout Resistance: 18 lbs. min., clamp and crimp types.
Coupling Nut Pullout Resistance: Female screw-on types, 35 lbs. min. to 100 lbs.

Plugs - Screw-On Mating



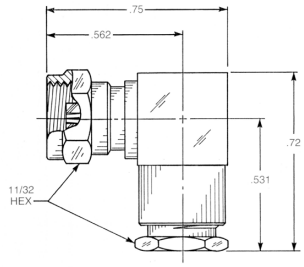
Straight Female Cable Plug

Clamp type for flexible cable:
1702-1551-0XX (Gold plated)
1702-7551-0XX (Nickel plated)



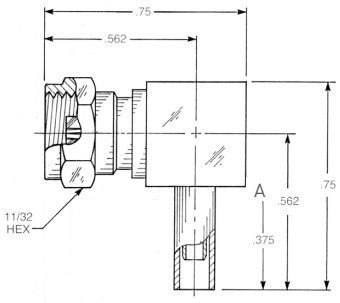
Straight Female Cable Plug

Crimp type for flexible cable:
1702-1571-0XX (Gold plated)
1702-7571-0XX (Nickel plated)



Right Angle Female Cable Plug

Clamp type for flexible cable:
1705-1551-0XX (Gold plated)
1705-7551-0XX (Nickel plated)



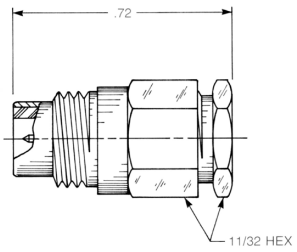
Right Angle Female Cable Plug

Crimp type for flexible cable:
1715-1521-0XX (Gold plated)
1715-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
03	RG179, M17/94	07	RG59, RG62, M17/29, M17/30
04	RG180, RG195, M17/95		

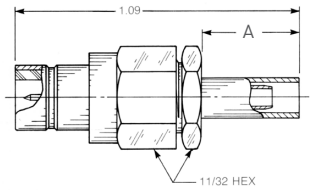
A Dim = .303 for cable group 07, A Dim = .375 for cable groups 03 and 04

Jacks - Screw-On Mating



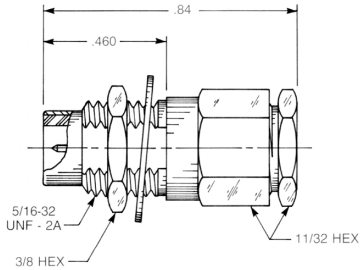
Straight Male Cable Jack

Clamp type for flexible cable:
1701-1551-0XX (Gold plated)
1701-7551-0XX (Nickel plated)



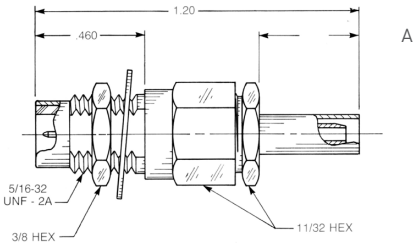
Straight Male Cable Jack

Crimp type for flexible cable:
1701-1571-0XX (Gold plated)
1701-7571-0XX (Nickel plated)



Straight Male Bulkhead Cable Jack

Clamp type for flexible cable:
1703-1551-0XX (Gold plated)
1703-7551-0XX (Nickel plated)



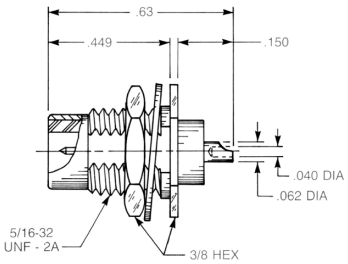
Straight Male Bulkhead Cable Jack

Crimp type for flexible cable:
1703-1571-0XX (Gold plated)
1703-7571-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
03	RG179, M17/94	07	RG59, RG62, M17/29, M17/30
04	RG180, RG195, M17/95		

A Dim = .303 for cable group 07, A Dim = .375 for cable groups 03 and 04

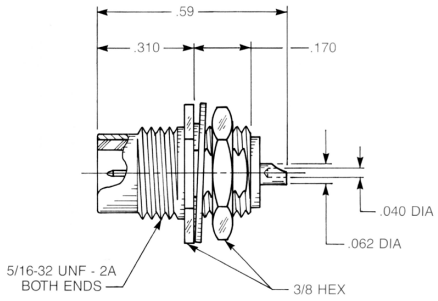
Receptacles - Screw-On Mating



Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Rear mount

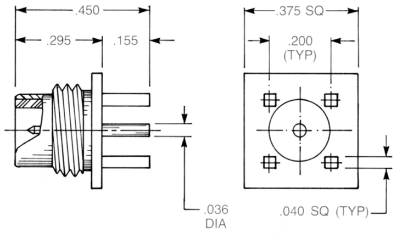
1704-1511-000 (Gold plated)
1704-7511-000 (Nickel plated)



Straight Male Bulkhead Jack Receptacle

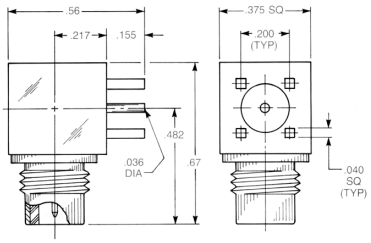
- Solder pot contact
- Front mount

1719-1511-000 (Gold plated)
1719-7511-000 (Nickel plated)



Straight Male PCB Receptacle

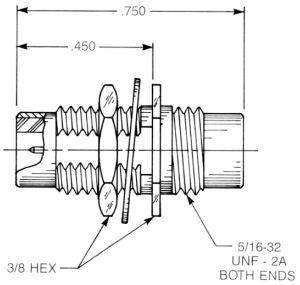
1709-1511-000 (Gold plated)
1709-7511-000 (Nickel plated)



Right Angle Male PCB Receptacle

1710-1511-000 (Gold plated)
1710-7511-000 (Nickel plated)

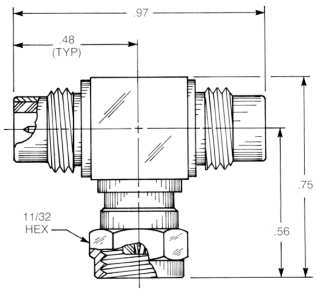
Adapters - Screw-On Mating



Bulkhead Mounted Straight Male Adapter

- Jack To Jack
- Connects two plugs

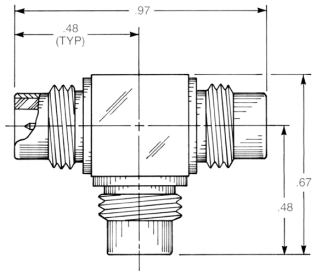
5722-1501-000 (Gold plated)
5722-7501-000 (Nickel plated)



Tee Adapter (Unmatched Power Divider)

- Jack To Plug To Jack
- Connects two plugs and one jack

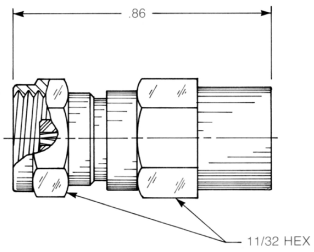
5715-1501-000 (Gold plated)
5715-7501-000 (Nickel plated)



Tee Adapter (Unmatched Power Divider)

- Jack To Jack To Jack
- Connects three plugs

5707-1501-000 (Gold plated)
5707-7501-000 (Nickel plated)

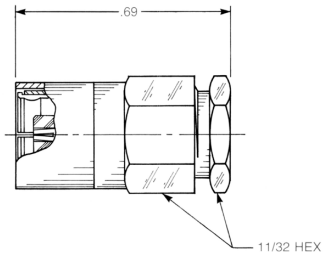


Female Plug Resistive Termination (Dummy load)

Standard resistor:
75 OHM, 1/2 watt,
5% tolerance

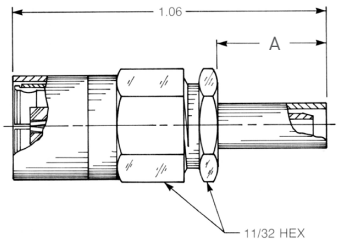
1736-1511-075 (Gold plated)
1736-7511-075 (Nickel plated)

Plugs - Snap-On Mating



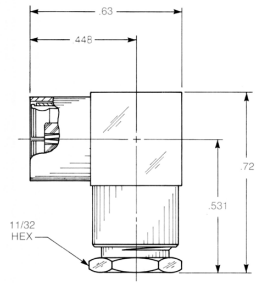
Straight Female Cable Plug

Clamp type for flexible cable:
2702-1551-0XX (Gold plated)
2702-7551-0XX (Nickel plated)



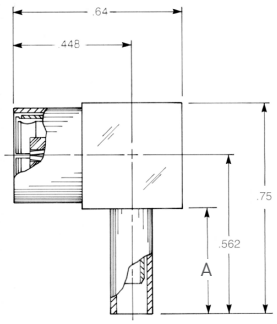
Straight Female Cable Plug

Crimp type for flexible cable:
2702-1571-0XX (Gold plated)
2702-7571-0XX (Nickel plated)



Right Angle Female Cable Plug

Clamp type for flexible cable:
2705-1551-0XX (Gold plated)
2705-7551-0XX (Nickel plated)



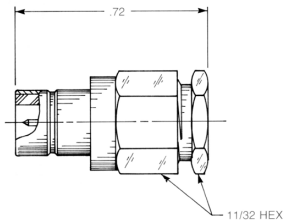
Right Angle Female Cable Plug

Crimp type for flexible cable:
2715-1521-0XX (Gold plated)
2715-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
03	RG179, M17/94	07	RG59, RG62, M17/29, M17/30
04	RG180, RG195, M17/95		

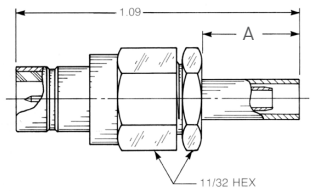
A Dim = .303 for cable group 07, A Dim = .375 for cable groups 03 and 04

Jacks - Snap-On Mating



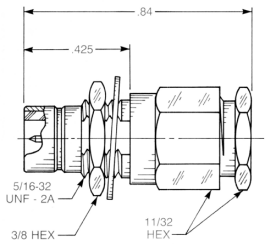
Straight Male Cable Jack

Clamp type for flexible cable:
2701-1551-0XX (Gold plated)
2701-7551-0XX (Nickel plated)



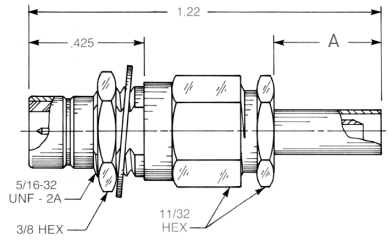
Straight Male Cable Jack

Crimp type for flexible cable:
2701-1571-0XX (Gold plated)
2701-7571-0XX (Nickel plated)



Straight Male Bulkhead Cable Jack

Clamp type for flexible cable:
2703-1551-0XX (Gold plated)
2703-7551-0XX (Nickel plated)



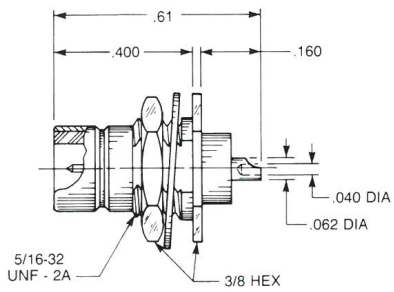
Straight Male Bulkhead Cable Jack

Crimp type for flexible cable:
2703-1571-0XX (Gold plated)
2703-7571-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
03	RG179, M17/94	07	RG59, RG62, M17/29, M17/30
04	RG180, RG195, M17/95		

A Dim = .303 for cable group 07, A Dim = .375 for cable groups 03 and 04

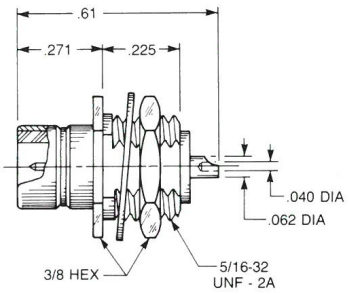
Receptacles - Snap-On Mating



Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Rear mount

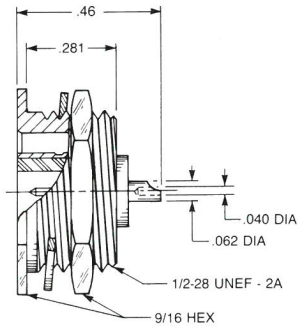
2704-1511-000 (Gold plated)
2704-7511-000 (Nickel plated)



Straight Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

2719-1511-000 (Gold plated)
2719-7511-000 (Nickel plated)

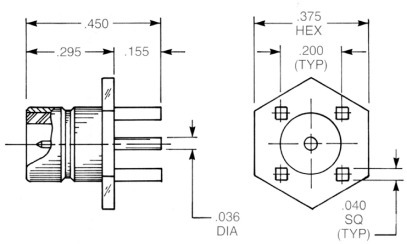


Straight Male Bulkhead Jack Receptacle

- Solder pot contact
- Recessed front mount

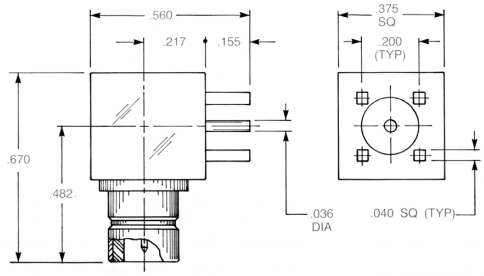
2776-1511-000 (Gold plated)
2776-7511-000 (Nickel plated)

Receptacles - Snap-On Mating



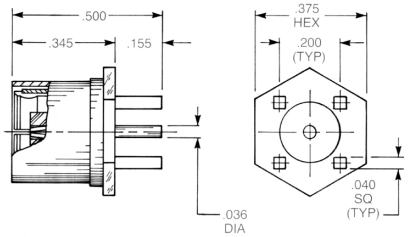
Straight Male Jack PCB Receptacle

2709-1511-001 (Gold plated)
2709-7511-001 (Nickel plated)



Right Angle Male Jack PCB Receptacle

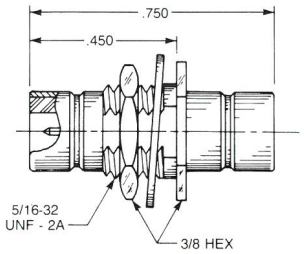
2710-1511-000 (Gold plated)
2710-7511-000 (Nickel plated)



Straight Female Plug PCB Receptacle

2725-1511-000 (Gold plated)
2725-7511-000 (Nickel plated)

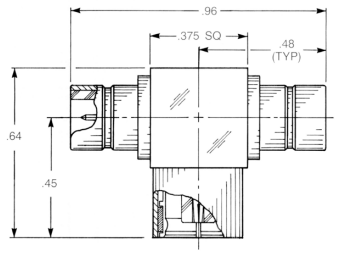
Adapters - Snap-On Mating



Bulkhead Mounted Straight Male

- Jack To Jack Adapter
- Connects two plugs

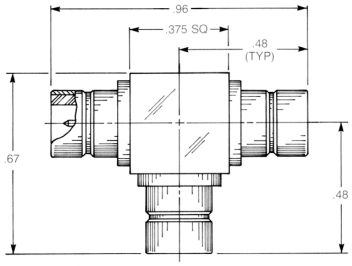
5732-1501-000 (Gold plated)
5732-7501-000 (Nickel plated)



Tee Adapter (Unmatched Power Divider)

- Jack To Plug To Jack
- Connects two plugs and one jack

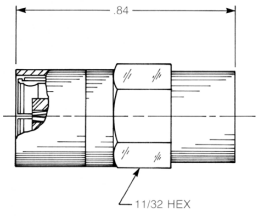
5725-1501-000 (Gold plated)
5725-7501-000 (Nickel plated)



Tee Adapter (Unmatched Power Divider)

- Jack To Jack To Jack
- Connects three plugs

5727-1501-000 (Gold plated)
5727-7501-000 (Nickel plated)



Female Plug Resistive Termination (Dummy load)

Standard resistor:
75 OHM, 1/2 watt,
5% tolerance

2736-1511-075 (Gold plated)
2736-7511-075 (Nickel plated)

SECTION 7



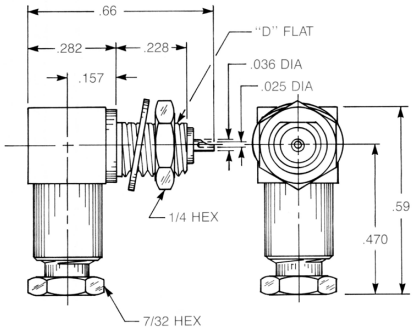
CABLETERMINATIONS

SECTION 7 TABLE OF CONTENTS

Cable terminations 124

Some applications require that a signal or cable core be fed through a bulkhead or into a P.C. board, but do not need the option of disconnecting the cable.

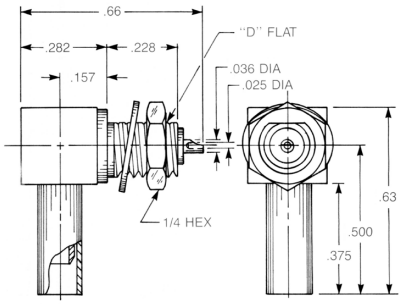
In these cases, a cable termination provides a method of securely anchoring the cable mechanically and electrically. In addition, considerable expense can be saved compared with the use of a pair of connectors.



Bulkhead Mounted Right Angle Cable Termination

Clamp type for flexible cable:
8044-1551-0XX (Gold plated)
8044-7551-0XX (Nickel plated)

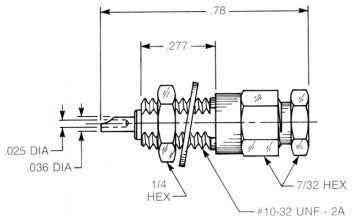
Solder-clamp for semi-rigid cable:
8044-1541-0XX (Gold plated)
8044-7541-0XX (Nickel plated)



Bulkhead Mounted Right Angle Cable Termination

Crimp type for flexible cable:
8144-1521-0XX (Gold plated)
8144-7521-0XX (Nickel plated)

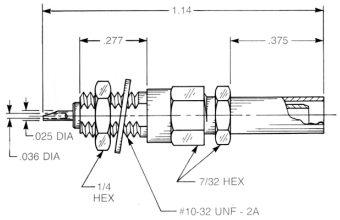
Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316



Bulkhead Mounted Straight Cable Termination

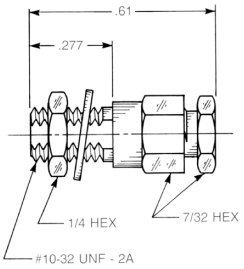
Clamp type for flexible cable:
8020-1551-0XX (Gold plated)
8020-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
8020-1541-0XX (Gold plated)
8020-7541-0XX (Nickel plated)



Bulkhead Mounted Straight Cable Termination

Crimp type for flexible cable:
8020-1571-0XX (Gold plated)
8020-7571-0XX (Nickel plated)

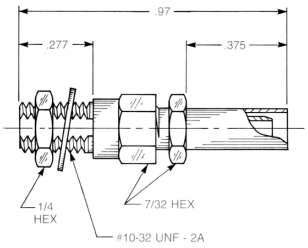


Bulkhead Mounted Straight Cable Feedthrough

- Feeds cable dielectric and center conductor through bulkhead

Clamp type for flexible cable:
8021-1051-0XX (Gold plated)
8021-7051-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
8021-1041-0XX (Gold plated)
8021-7041-0XX (Nickel plated)

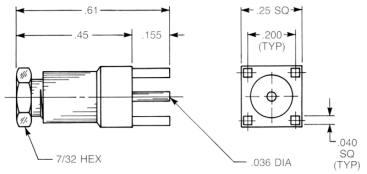


Bulkhead Mounted Straight Cable Feedthrough

- Feeds cable dielectric and center conductor through bulkhead

Crimp type for flexible cable:
8021-1071-0XX (Gold plated)
8021-7071-0XX (Nickel plated)

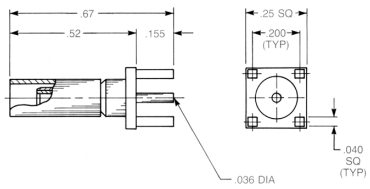
Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316



Straight PCB Cable Termination

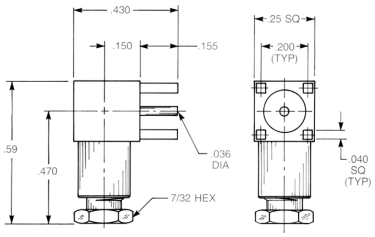
Clamp type for flexible cable:
8046-1551-0XX (Gold plated)
8046-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
8046-1541-0XX (Gold plated)
8046-7541-0XX (Nickel plated)



Straight PCB Cable Termination

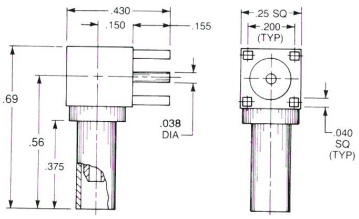
Crimp type for flexible cable:
8146-1521-0XX (Gold plated)
8146-7521-0XX (Nickel plated)



Right Angle PCB Cable Termination

Clamp type for flexible cable:
8045-1551-0XX (Gold plated)
8045-7551-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
8045-1541-0XX (Gold plated)
8045-7541-0XX (Nickel plated)



Right Angle PCB Cable Termination

Crimp type for flexible cable:
8145-1521-0XX (Gold plated)
8145-7521-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

SECTION 8



QCD

SECTION 8 TABLE OF CONTENTS

QCD (Quick Connect-Disconnect)..... 124

QCD (Quick Connect-Disconnect) provides a 26 GHz bayonet to SMA connector solution that reduces time for setup, reduces calibration steps, provides a quick test setup and aids in preserving test cable durability. The QCD is a perfect time savings solution for high density, high count test environments.

Features

- 50 ohms
- DC to 26.5 GHz
- Low VSWR and insertion loss
- 5,000 matings minimum
- Reduces time for setup, calibration and testing
- Reduces need for additional calibration
- Perfect for high mating/ unmating applications
- Bayonet coupling for easy mating
- Extended life of test cables



MATERIALS:

Body parts: Stainless steel
Contacts: Beryllium copper
Insulators: PTFE
Gaskets: Silicone rubber

FINISH:

Body: Passivated
Center contacts: NPGR
Outer contact: Gold 0.2 over Nickel 2

ELECTRICAL:

Impedance: 50Ω.
Frequency range: 0-26 GHz.
VSWR: 1.1 + 0.0000 x F(GHz) Maxi.
Insertion Loss: 0.06 √F(GHz) dB Maxi.
RF Leakage: -(N/A-F(GHz)) dB Maxi.
Voltage Rating: 500 Veff Maxi.
Dielectric Withstanding Voltage: 1,000 Veff mini.
Insulation Resistance: 5,000 MΩ mini.

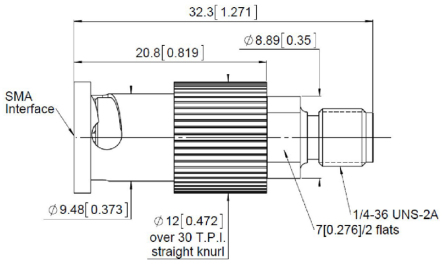
MECHANICAL:

5913-2503-000
Center contact retention:
Axial force – Mating End: 2.8 N mini.
Axial force – Opposite end: N mini.
Torque: N.cm mini.
Recommended torque:
Mating: SMA 0 N.cm.
Panel nut: 0 N.cm.
Mating life: 5,000 Cycles mini.
Weight: 12.3520 g.

5914-9503-000
Center contact retention:
Axial force – Mating End: 27 N mini.
Axial force – Opposite end: 27 N mini.
Torque: 2.8 N.cm mini.
Recommended torque:
Mating: SMA 110 N.cm.
Panel nut: N.cm
Mating life: 5,000 Cycles mini
Weight: 4.2470 g

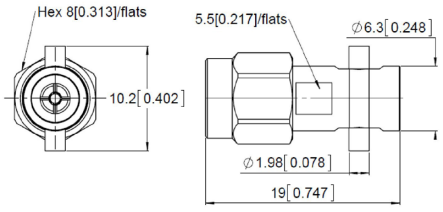
ENVIRONMENTAL:

Operating: -65/+165 °C
Hermetic seal: Atm.cm3/s
Panel leakage



SMA Straight Flange Floating Jack to QCD Plug Adapter

5913-2503-000



SMA Plug to Female QCD Adapter

5914-9503-000

NOTES

SECTION 9

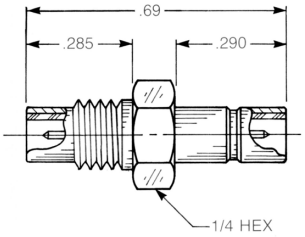


ADAPTERS

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N to subminiature 9-4
TNC to subminiature 9-5

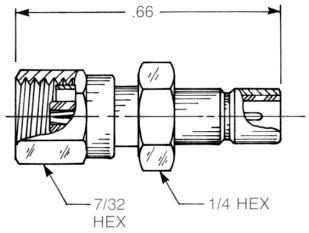
Between Series SMB to SMC



SMB Male Jack To SMC Male Jack

- Connects SMB plug to SMC plug

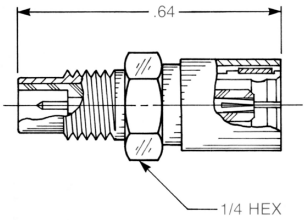
5814-1501-000 (Gold plated)
5814-7501-000 (Nickel plated)



SMB Male Jack To SMC Female Plug

- Connects SMB plug to SMC jack

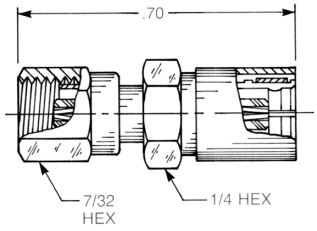
5830-1501-000 (Gold plated)
5830-7501-000 (Nickel plated)



SMB Female Plug To SMC Male Jack

- Connects SMB jack to SMC plug

5832-1501-000 (Gold plated)
5832-7501-000 (Nickel plated)



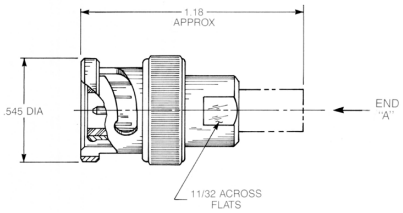
SMB Female Plug To SMC Female Plug

- Connects SMB jack to SMC jack

5831-1501-000 (Gold plated)
5831-7501-000 (Nickel plated)

Between Series BNC to Subminiature

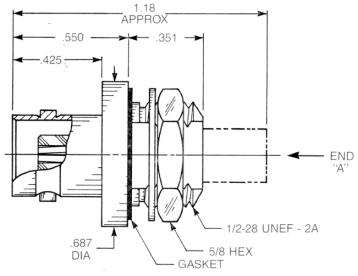
BNC Plug



END "A" CONFIGURATION		
	SMC MALE JACK	**5402-1501-000** (Gold plated) **5402-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5403-1501-000** (Gold plated) **5403-7501-000** (Nickel plated)
	SMB MALE JACK	**5404-1501-000** (Gold plated) **5404-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5405-1501-000** (Gold plated) **5405-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5406-1501-000** (Gold plated) **5406-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5407-1501-000** (Gold plated) **5407-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5408-1501-000** (Gold plated) **5408-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5409-1501-000** (Gold plated) **5409-7501-000** (Nickel plated)

BNC Bulkhead Jack

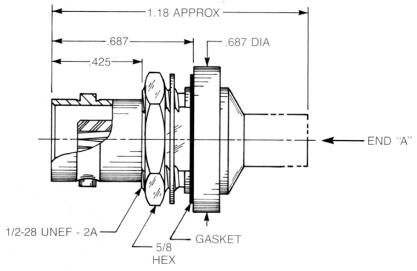
- Front mount



END "A" CONFIGURATION		
	SMC MALE JACK	**5510-1501-000** (Gold plated) **5510-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5511-1501-000** (Gold plated) **5511-7501-000** (Nickel plated)
	SMB MALE JACK	**5512-1501-000** (Gold plated) **5512-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5513-1501-000** (Gold plated) **5513-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5514-1501-000** (Gold plated) **5514-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5515-1501-000** (Gold plated) **5515-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5516-1501-000** (Gold plated) **5516-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5517-1501-000** (Gold plated) **5517-7501-000** (Nickel plated)

BNC Bulkhead Jack

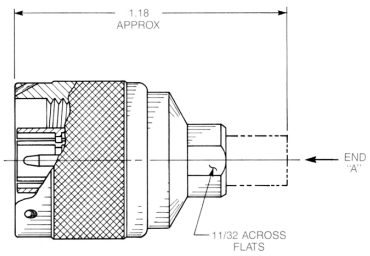
- Rear mount



END "A" CONFIGURATION		
	SMC MALE JACK	**5502-1501-000** (Gold plated) **5502-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5503-1501-000** (Gold plated) **5503-7501-000** (Nickel plated)
	SMB MALE JACK	**5504-1501-000** (Gold plated) **5504-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5505-1501-000** (Gold plated) **5505-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5506-1501-000** (Gold plated) **5506-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5507-1501-000** (Gold plated) **5507-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5508-1501-000** (Gold plated) **5508-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5509-1501-000** (Gold plated) **5509-7501-000** (Nickel plated)

Between Series N to Subminiature

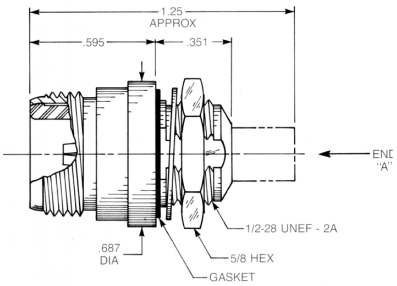
N Plug



END "A" CONFIGURATION		
	SMC MALE JACK	**5002-1501-000** (Gold plated) **5002-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5003-1501-000** (Gold plated) **5003-7501-000** (Nickel plated)
	SMB MALE JACK	**5004-1501-000** (Gold plated) **5004-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5005-1501-000** (Gold plated) **5005-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5006-1501-000** (Gold plated) **5006-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5007-1501-000** (Gold plated) **5007-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5008-1501-000** (Gold plated) **5008-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5009-1501-000** (Gold plated) **5009-7501-000** (Nickel plated)

N Bulkhead Jack

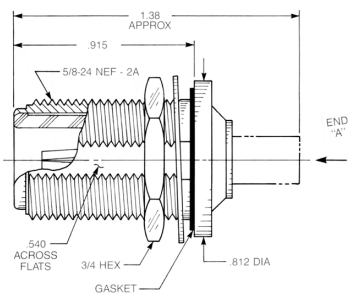
- Front mount



END "A" CONFIGURATION		
	SMC MALE JACK	**5610-1501-000** (Gold plated) **5610-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5611-1501-000** (Gold plated) **5611-7501-000** (Nickel plated)
	SMB MALE JACK	**5612-1501-000** (Gold plated) **5612-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5613-1501-000** (Gold plated) **5613-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5614-1501-000** (Gold plated) **5614-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5615-1501-000** (Gold plated) **5615-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5616-1501-000** (Gold plated) **5616-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5617-1501-000** (Gold plated) **5617-7501-000** (Nickel plated)

N Bulkhead Jack

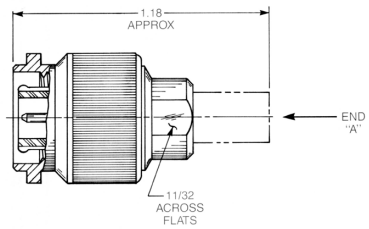
- Rear mount



END "A" CONFIGURATION		
	SMC MALE JACK	**5602-1501-000** (Gold plated) **5602-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5603-1501-000** (Gold plated) **5603-7501-000** (Nickel plated)
	SMB MALE JACK	**5604-1501-000** (Gold plated) **5604-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5605-1501-000** (Gold plated) **5605-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5606-1501-000** (Gold plated) **5606-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5607-1501-000** (Gold plated) **5607-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5608-1501-000** (Gold plated) **5608-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5609-1501-000** (Gold plated) **5609-7501-000** (Nickel plated)

Between Series TNC to Subminiature

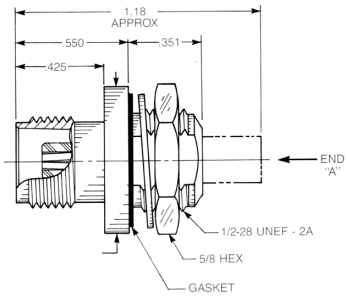
TNC Plug



END "A" CONFIGURATION		
	SMC MALE JACK	**5302-1501-000** (Gold plated) **5302-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5303-1501-000** (Gold plated) **5303-7501-000** (Nickel plated)
	SMB MALE JACK	**5304-1501-000** (Gold plated) **5304-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5305-1501-000** (Gold plated) **5305-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5306-1501-000** (Gold plated) **5306-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5307-1501-000** (Gold plated) **5307-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5308-1501-000** (Gold plated) **5308-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5309-1501-000** (Gold plated) **5309-7501-000** (Nickel plated)

TNC Bulkhead Jack

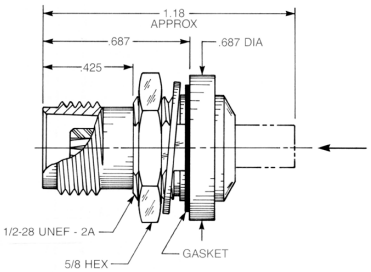
- Front mount



END "A" CONFIGURATION		
	SMC MALE JACK	**5110-1501-000** (Gold plated) **5110-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5111-1501-000** (Gold plated) **5111-7501-000** (Nickel plated)
	SMB MALE JACK	**5112-1501-000** (Gold plated) **5112-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5113-1501-000** (Gold plated) **5113-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5114-1501-000** (Gold plated) **5114-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5115-1501-000** (Gold plated) **5115-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5116-1501-000** (Gold plated) **5116-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5117-1501-000** (Gold plated) **5117-7501-000** (Nickel plated)

TNC Bulkhead Jack

- Rear mount



END "A" CONFIGURATION		
	SMC MALE JACK	**5102-1501-000** (Gold plated) **5102-7501-000** (Nickel plated)
	SMC FEMALE PLUG	**5103-1501-000** (Gold plated) **5103-7501-000** (Nickel plated)
	SMB MALE JACK	**5104-1501-000** (Gold plated) **5104-7501-000** (Nickel plated)
	SMB FEMALE PLUG	**5105-1501-000** (Gold plated) **5105-7501-000** (Nickel plated)
	75 OHM SCREW-ON MALE JACK	**5106-1501-000** (Gold plated) **5106-7501-000** (Nickel plated)
	75 OHM SCREW-ON FEMALE PLUG	**5107-1501-000** (Gold plated) **5107-7501-000** (Nickel plated)
	75 OHM SNAP-ON MALE JACK	**5108-1501-000** (Gold plated) **5108-7501-000** (Nickel plated)
	75 OHM SNAP-ON FEMALE PLUG	**5109-1501-000** (Gold plated) **5109-7501-000** (Nickel plated)

NOTES

SECTION 10

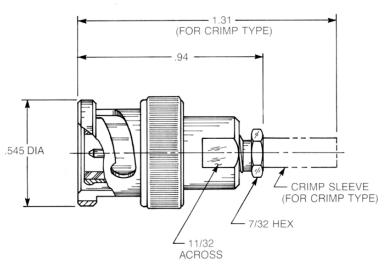


BNC

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BNC cable connectors.....10-2

Cable Connectors

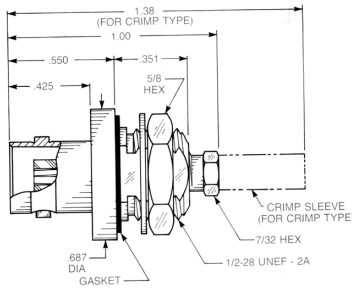


Straight Plug For Flexible or Semi-Rigid Cable

Clamp type for flexible cable:
6500-1051-0XX (Gold plated)
6500-7051-0XX (Nickel plated)

Crimp type for flexible cable:
6500-1071-0XX (Gold plated)
6500-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
6500-1041-0XX (Gold plated)
6500-7041-0XX (Nickel plated)



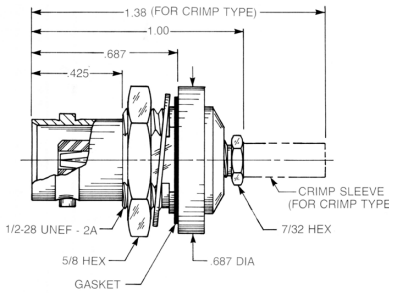
Bulkhead Jack

- Front mount

Clamp type for flexible cable:
6502-1051-0XX (Gold plated)
6502-7051-0XX (Nickel plated)

Crimp type for flexible cable:
6502-1071-0XX (Gold plated)
6502-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
6502-1041-0XX (Gold plated)
6502-7041-0XX (Nickel plated)



Bulkhead Jack

- Rear mount

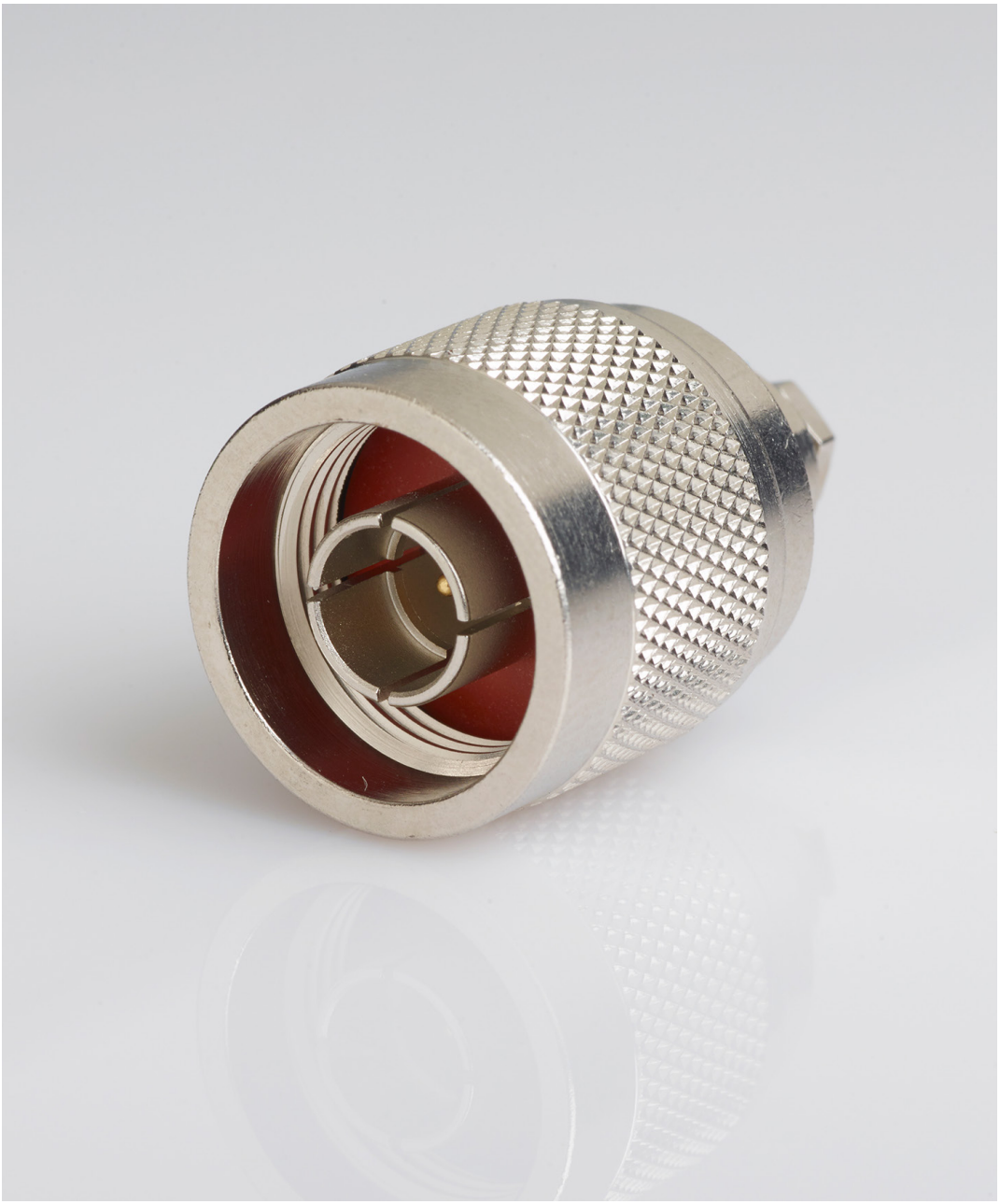
Clamp type for flexible cable:
6501-1051-0XX (Gold plated)
6501-7051-0XX (Nickel plated)

Crimp type for flexible cable:
6501-1071-0XX (Gold plated)
6501-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
6501-1041-0XX (Gold plated)
6501-7041-0XX (Nickel plated)

Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

SECTION 11

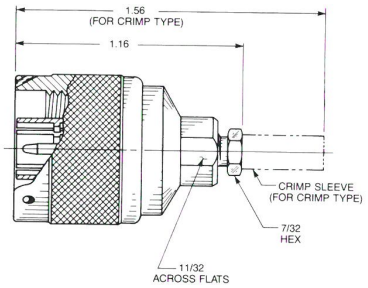


TYPE N

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Cable connectors..... 11-2
Precision plugs and jacks..... 11-3

Cable Connectors

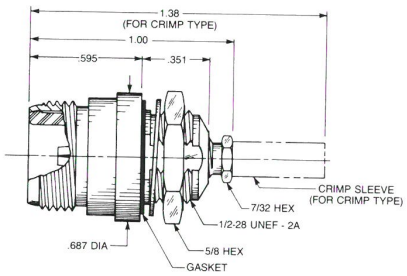


Straight Plug For Flexible or Semi-Rigid Cable

Clamp type for flexible cable:
4000-1051-0XX (Gold plated)
4000-7051-0XX (Nickel plated)

Crimp type for flexible cable:
4000-1071-0XX (Gold plated)
4000-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
4000-1041-0XX (Gold plated)
4000-7041-0XX (Nickel plated)



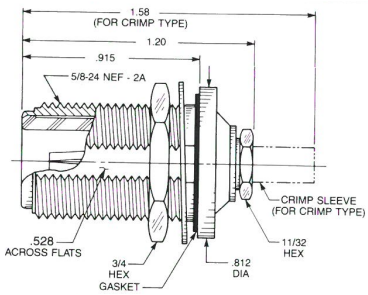
Bulkhead Jack

- Front Mount

Clamp type for flexible cable:
4502-1051-0XX (Gold plated)
4502-7051-0XX (Nickel plated)

Crimp type for flexible cable:
4502-1071-0XX (Gold plated)
4502-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
4502-1041-0XX (Gold plated)
4502-7041-0XX (Nickel plated)



Bulkhead Jack

- Rear mount

Clamp type for flexible cable:
4501-1051-0XX (Gold plated)
4501-7051-0XX (Nickel plated)

Crimp type for flexible cable:
4501-1071-0XX (Gold plated)
4501-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
4501-1041-0XX (Gold plated)
4501-7041-0XX (Nickel plated)

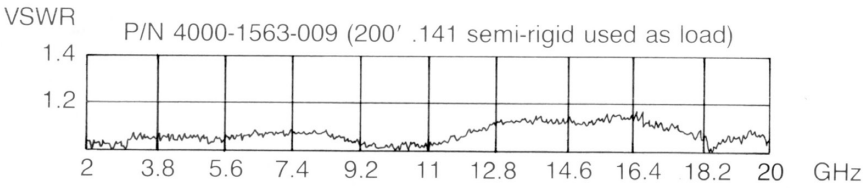
Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

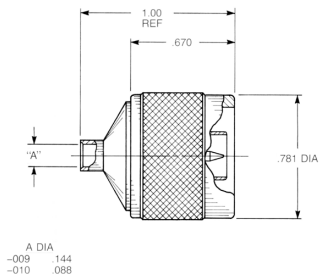
Precision Plugs and Jacks

The precision type N connectors shown here are constructed of 303 stainless steel, with Teflon insulators and beryllium copper contacts.

These plugs and jacks all have captivated contacts which plug on to the cable center conductor, eliminating contact soldering and gapping. Simply trim the cable, slide the connector on, and solder the jacket.

The VSWR data shown is taken from production units.



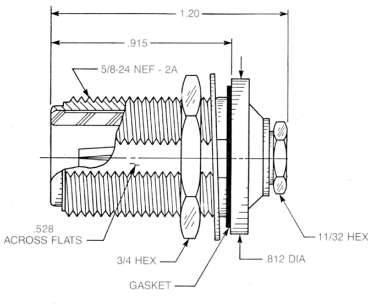


Straight Plug

- Direct solder type
- Gold plated body, passivated coupling nut

For .085 " semi-rigid (A = .089):
4000-1563-010

For .141" semi-rigid (A = .144):
4000-1563-009



Bulkhead Jack

- Solder-clamp type to allow repositioning of D-flats after assembly
- Passivated body, gold plated solder ferrule
- Rear mount

For .085 " semi-rigid (A = .089):
4501-9543-010

For .141" semi-rigid (A = .144):
4501-9543-009

NOTES

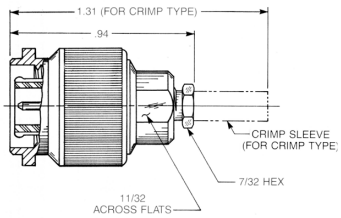
SECTION 12



TNC

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TNC cable connectors 12-2

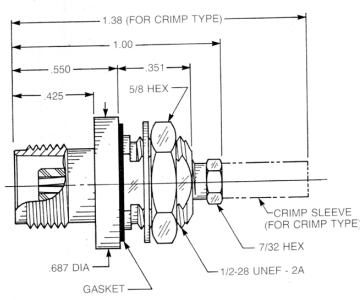


Straight Plug For Flexible or Semi-Rigid Cable

Clamp type for flexible cable:
6000-1051-0XX (Gold plated)
6000-7051-0XX (Nickel plated)

Crimp type for flexible cable:
6000-1071-0XX (Gold plated)
6000-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
6000-1041-0XX (Gold plated)
6000-7041-0XX (Nickel plated)



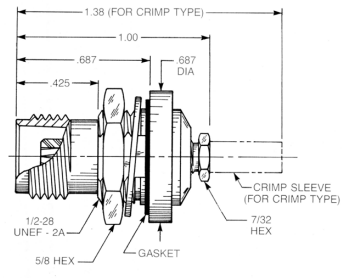
Bulkhead Jack

- Front Mount

Clamp type for flexible cable:
6002-1051-0XX (Gold plated)
6002-7051-0XX (Nickel plated)

Crimp type for flexible cable:
6002-1071-0XX (Gold plated)
6002-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
6002-1041-0XX (Gold plated)
6002-7041-0XX (Nickel plated)



Bulkhead Jack

- Rear mount

Clamp type for flexible cable:
6001-1051-0XX (Gold plated)
6001-7051-0XX (Nickel plated)

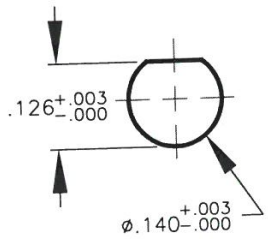
Crimp type for flexible cable:
6001-1071-0XX (Gold plated)
6001-7071-0XX (Nickel plated)

Solder-clamp for semi-rigid cable:
6001-1041-0XX (Gold plated)
6001-7041-0XX (Nickel plated)

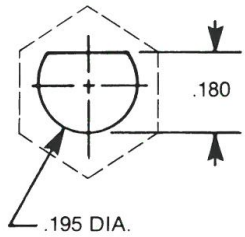
Substitute XX with the Appropriate Cable Group Below			
02	RG178, RG196, M17/93, M17/169	09	.141" semi-rigid, RG402, M17/130
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/173	10	.085" semi-rigid, RG405, M17/133
05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/152, Times RD316

ALL DIMENSIONS ± .003 UNLESS OTHERWISE SPECIFIED

SSMB/SSMC SERIES BULKHEAD CONNECTORS

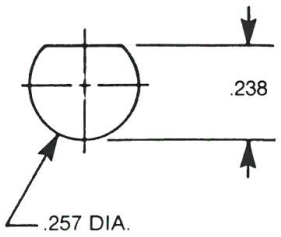


SMB, SMC, SLB BULKHEAD CONNECTORS

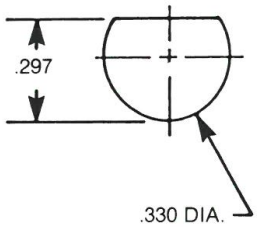


DOTTED LINE INDICATES FLAT LOCATION IN RELATION TO HEX.

SMA BULKHEAD CONNECTORS

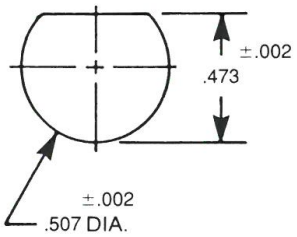


75 0HM BULKHEAD CONNECTORS

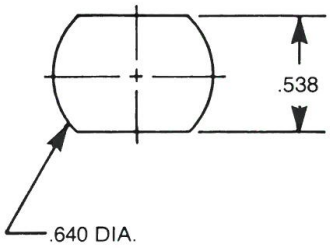


BNC, TNC, N BULKHEAD CONNECTORS AND BETWEEN SERIES ADAPTERS

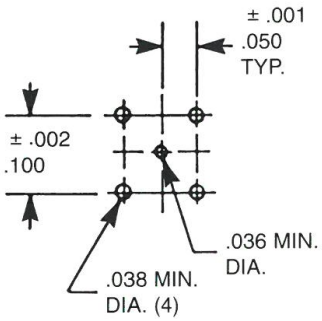
(Except type N rear mount)



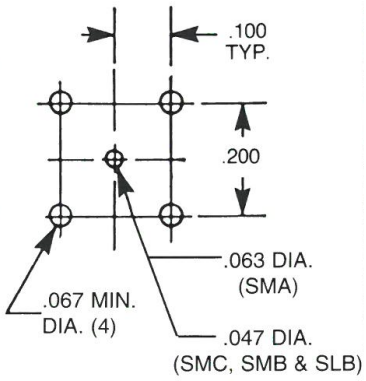
TYPE N REAR MOUNT CONNECTORS AND ADAPTERS



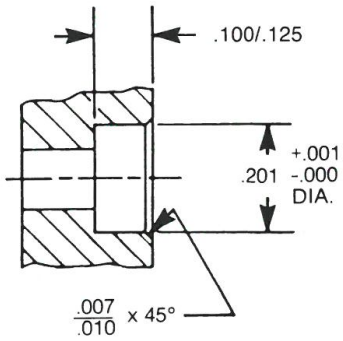
SSMB/SSMC SERIES PRINTED-CIRCUIT BOARD CONNECTORS



ALL PRINTED-CIRCUIT BOARD CONNECTORS EXCEPT SSMB/SSMC

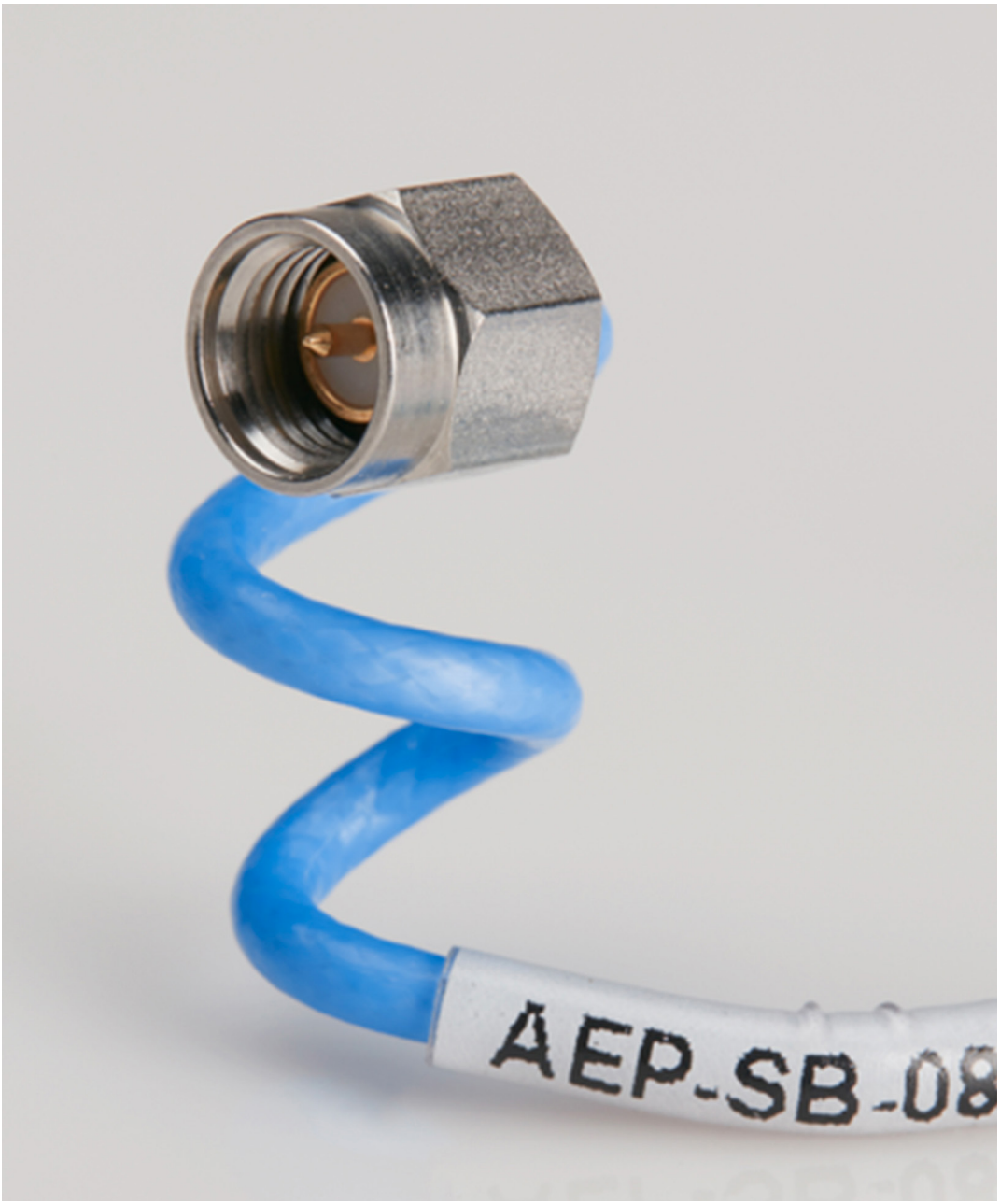


SMA KNURL MOUNT CONNECTORS



NOTES

SECTION 13



ASSEMBLIES

SECTION 13 TABLE OF CONTENTS

Design considerations....13-3
Cable data....13-5
Cable groups....13-6
Trim codes....13-7
Short bend assemblies....13-8
Standard flexible assemblies....13-9
Standard semi-rigid assemblies....13-12
Assembly instructions....13-14

Even the best coaxial connector won't work right unless it is correctly assembled to the cable. Since we make the connectors, we have the knowledge and the ability to do the job right.

If you make your own cable assemblies, here's what you have to do:

- Determine what you'll need to do the job, accounting for scrap rates.
- Buy and stock connectors, cable, markers, and shrink tubing.
- Develop a training system for your assemblers.
- Develop and maintain the assembly tooling and test equipment.
- Scrap parts damaged during assembly as well as complete assemblies that don't meet specifications.
- Juggle your production schedule to make sure the right assemblies are ready for installation at the right time.

If you buy complete assemblies from us, here's what you have to do:

- Install the assemblies in your equipment.

The following pages show a number of suggestions for minimizing your cost of cable assemblies. Send us your drawings and we'll show you how to get the assemblies you need, when you need them, without frustration.

DESIGN CONSIDERATIONS FOR FLEXIBLE ASSEMBLIES

There are a number of things that, when kept in mind while specifying flexible cable assemblies can cut costs and ensure the best possible performance:

1. Crimp type connectors are faster and less expensive to assemble than clamp types, and provide better strain relief at the cable junction. Crimp connectors grip five to ten times more length of braid than clamp connectors do, an important consideration given the small cross-sectional area of most coaxial cable braid wires.

2. Nickel plated or passivated connectors provide the same electrical performance as gold plated connectors, but at a lower price.

3. Cable terminations (see pages 7-1 to 7-4) can often eliminate the need for (and expense of) a cable connector /receptacle combination in applications where one end of the cable will not need to be disconnected during service.

4. Cables with wrapped-tape dielectrics and/or jackets are generally more expensive to buy and always more expensive to assemble than cables with extruded dielectrics and jackets.

5. Soldering the braid of flexible cables to connectors should ALWAYS be avoided. The heat used in soldering will damage even cables with Teflon dielectrics, and will destroy cables with polyethylene dielectrics. All AEP connectors grip the cable with strength greater than the breaking strength of the cable braid, so soldering is also redundant.

6. Excessively tight tolerances will increase cost. Additionally, if enough slack is not designed into the specification, you may run the risk of having cables that will be under constant mechanical stress when installed, thereby degrading the electrical performance over time.

7. All screw-on connectors have some play in the coupling nuts, so lengths should be dimensioned to the reference plane. In general, length should be dimensioned to the following points:
   Straight plugs and jacks: To reference plane.
   Bulkhead jacks: To bulkhead mounting surface.
   Right angle connectors: To centerline of mating side.

The standard flexible cable assemblies shown on the following pages all have nickel plated crimp type connectors, and have heat-shrink tubing installed at the cable junction.

DESIGN CONSIDERATIONS FOR SEMI-RIGID ASSEMBLIES

Since semi-rigid assemblies are generally used at higher frequencies than flexible assemblies. the design and construction elements are more critical. We make our own bending and trimming equipment, and use induction heating only (not resistance pliers) for soldering cable jackets. We can make semi-rigid assemblies using any connectors on cable sizes from .047" to .250". made and tested to meet your specifications, 100% guaranteed.

Keeping the following in mind can cut cost and ensure the best possible performance in semi-rigid assemblies:

Cable Assembly Guidelines (Cont.)

1. When using .141" semi-rigid cable and SMA connectors, the best performance is gained from using plugs that use the cable center conductor as the contact, such as our 9301-1063-009. One problem presented by this connector used to be that the sharp edge of the pointed center conductor would shed metal chips onto the interface each time the connector was mated. Since we use only the best equipment available to manufacture our cable assemblies, we are able to produce a point which virtually eliminates this problem. Our equipment also enables us to machine an extremely smooth, burr free finish on the interface which is critical for high frequency applications.

2. Dimensions should be as tight as possible and tolerances as loose as possible. Tolerances less than ± .030" add extra expense.

3. Extremely tight bends are expensive and will cause the cable center conductor to migrate toward the outside of the bend over time. Bend radii should be as large as possible, and never smaller than 1.5 times the cable diameter (measured to the inside of the cable). A minimum of two cable diameters of straight length should be allowed from the connector attachment before starting bends.

4. Lengths should be dimensioned to the following points, since they are a fixed characteristic of the connectors and installation locations:
   Straight plugs and jacks: To reference plane.
   Bulkhead jacks: To bulkhead mounting surface.
   Right angle connectors: To centerline of mating end.

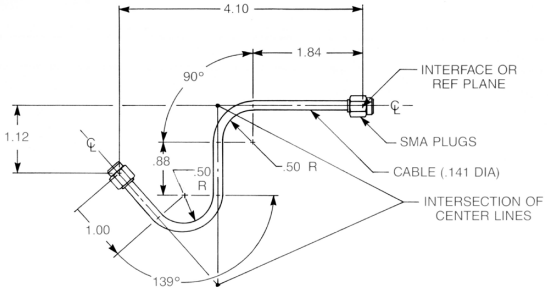
5. We can bend cables tightly enough without damage that a straight SMA plug with a 90° bend will fit in the same space as a right angle plug. Right angle plugs are more expensive and have relatively poor electrical performance at high frequency.

6. The drawing below illustrates a dimensioning method that is easiest to translate into finished assemblies.

a. Straight lengths should be dimensioned to the start of bends.

b. Bends should be specified by radius to inside of cable and degrees of bend. Radii to center of cable are unmeasurable.

c. Dimensions that cannot be definitively measured, such as intersections of centerlines of bent cables as shown below, should be avoided.



The standard semi-rigid assemblies shown on the following pages all use nickel-plated connectors and hand-formable (soft jacketed) semi-rigid cable.

FLEXIBLE CABLE

RG-	M17/	AEP CABLE GROUP	CENTER CONDUCTOR	DIELECTRIC	BRAID	JACKET	IMPEDANCE	MAX FREQUENCY (GHZ)	ATTENUATION (DB/100 FT) @ MAX	(POWER (WATTS) @ MAX
55	26,167	01	A .032	G .116	DE .176	G .206	50	USE	RG-	223
58	28,155,197	06	SE .036	G .116	E .150	J .195	50	1.0	28	55
59	29	07	C .023	G .146	F .191	J .242	75	1.0	16	72
62	30,91,97	07	C .025	G .146	F .191	J .242	93	1.0	13	45
122	54,197,197	30	SE .031	G .096	E .126	J .160	50	1.0	30	35
141	59,170	06	B .039	H .116	A .146	I .190	50	USE	RG-	303
142	60,158	01	B .037	H .116	DA .171	K .195	50	12.4	76	140
174	119,173	03	SC .019	H .060	E .088	J .110	50	1.0	45	17
178	93,169	02	SB .012	H .033	A .054	K .071	50	3.0	94	47
179	94	03	SB .012	H .063	A .084	K .100	75	3.0	43	150
180	95	04	SB .012	H .102	A .124	K .141	95	3.0	36	150
187	68,94	03	SB .012	H .063	A .084	K .100	75	USE	RG-	179
188	69,113	03	SB .020	H .060	A .081	K .110	50	USE	RG-	316
195	70,95	04	SB .012	H .102	A .124	K .155	95	USE	RG-	180
196	71,169	02	SB .012	H .034	A .054	K .080	50	USE	RG-	178
223	84,167,200	01	A .035	G .116	DA .176	J .212	50	12.4	100	11
303	111,170	06	B .037	H .116	A .146	K .170	50	3.0	26	350
316	1136,172	03	SB .020	H .060	A .081	K .098	50	3.0	58	78
400	128,175	01	SA .038	H .116	DA .171	K .095	50	12.4	90	140
-	152	19	SB .020	H .060	DA .096	K .114	50	12.4	85	37
TIMES RD-178		25	SB .012	H .034	DA .070	K .092	50	3.0	94	47
TIMES RD-316		19	SB .020	H .060	DA .096	K .118	50	3.0	58	78

SEMI-RIGID CABLE

RG-	M17/	AEP CABLE GROUP	CENTER CONDUCTOR	DIELECTRIC	OUTER CONDUCTOR	IMPEDANCE	ATTENUATION (DB/100 FT)	10 GHz	18 GHz
402	130	09	B .036	H .118	F .141	50	12	45	64
405	133	10	B .020	H .066	F .086	50	22	80	123
-	151	11	B .011	H .037	F .047	50	40	130	180
.056" SEMI-RIGID		21	B .011	H .037	F .056	50	35	117	161

KEY TO MATERIAL CODES:

A. Silver-covered copper
B. Silver-covered copperweld
C. Copperweld
D. Double braid
E. Tinned copper
F. Bare copper
G. Polyethylene
H. PTFE (Teflon)
I. Fiberglass
J. PVC
K. FEP (Teflon)
S. Stranded center conductor

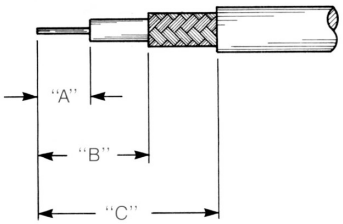
Data is compiled from MIL-C-17 and manufacturer 's literature and is not a guarantee of performance.

Each cable group includes all modification letters for RG numbers shown, and all dash numbers for M17 slash sheets shown. For specific information on cables, please consult MIL-C-17 or the cable manufacturers.

Group	Cable(s)	Standard Application	Die Size for Crimp
01	RG-55, 142, 223, M17/60, M17/84, M17/158, M17/167	All series except SSMB/SSMC. Crimp only for SMB, SMC, BNC, TNC, N, terminations.	.213
02	RG-178, 196, M17/93, M17/169	All series.	.105
03	RG-174, 179, 187, 188, 316, M17/94, 113, 119, 172, 173	All series.	.128
04	RG-180, 195, M17/95, Essex 21-597, Raychem 9527-A-1317, 9528-A-1317	All series except SSMB/SSMC. Crimp only for SMB, SMC, BNC, N, TNC, terminations.	.151
05	RG 178DS, 196DS, Microdot 250-3908	All series.	.128 (.105 for SSMB/SSMC)
06	RG-58, 141, 303, M17/111, M17/28, M17/155, M17/170	All series except SSMB/SSMC. Crimp only for SMB, SMC, BNC, N, TNC, terminations.	.213
07	RG-59, 62, M17/29, M17/30	75 Ohm.	.255
09	.141" semi-rigid, RG-402, M17/130	All series except SSMB/SSMC.	N/A
10	.085" semi-rigid, RG-405, M17/133	All series.	N/A
11	.045/.047" semi-rigid	SSMB/SSMC series.	N/A
13	Raychem 9530-A-1317, Microdot 295-3986	Contact factory.	
14	Microdot 250-4021	All series.	.128
15	Microdot 250-3953	Contact factory.	
19	RG-174DS,316DS, M17/152, Times RD316	All series except SMA	.128 (.158 for SMA)
21	.056" semi-rigid	SSMB/SSMC series.	N/A
25	Times RD178	All series.	.128
30	RG-122, M17/54, M17/157	SMA QPL.	

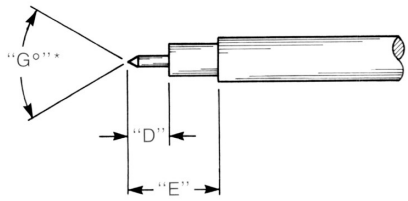
The references above indicate only standard cable/ connector combinations. Please contact us directly if you need something you don't see.

FLEXIBLE CABLE



TRIM CODE #	DIM "A"	DIM "B"	DIM "C"
1	.080	.120	.240
2	.100	.430	.700
3	.080	.180	.300
4	.070	.200	.450
5	.100	.125	.265
6	.100	.475	.725
7	.075	.200	.350
8	.075	.250	.500
9	.125	.300	.400
10	.100	.230	.500
11	.125	.600	.850
12	.100	.600	.870
13	.125	.325	.425
14	.100	.160	.390
15	.100	.470	.720
16	.100	.100	.230
17	.100	.210	.430
18	.100	.275	.400
19	.125	.125	.275
20	.125	.515	.765
21	.200	.220	.310
22	.200	.510	.760
23	.125	.300	.490
24	.125	.300	.490
25	.050	.100	.250
26	.070	.265	.515
27	.080	.180	.425
28	.150	.300	.400
29	.150	.600	.850
30	.100	.280	.550

SEMI-RIGID CABLE



* Break edge if no angle for "G" given

TRIM CODE #	DIM "D"	DIM "E"	DIM "G"
101	.090	.090	
102	.090	.180	70° - 90°
103	.100	.135	
104	.080	.170	
105	.125	.125	
106	.125	.290	
107	.090	.090	70° - 90°
108	.100	.215	
109	.060	.120	
110	.115	.330	
111	.125	.330	
112	.090	.170	
113	.105	.130	
114	.120	.150	
115	.200	.350	
116	.100	.180	
117	.125	.195	
118	.075	.100	
119	.110	.140	
120	.110	.150	
121	.125	.125	70° - 90°
122	.090	.090	70° - 90°
123	.125	.195	70° - 90°
124	.000	.125	70° - 90°
125	.075	.075	

AEP SHORT BEND ASSEMBLIES

Designed for test labs and production environments, Radiall AEP introduces the line of Short Bend cable assemblies. Short bend is a perfect solution when a low loss coaxial cable assembly is needed for point to point applications that require low profile bending.

Radiall AEP Short Bend is a 26 GHz, low loss coaxial cable assembly specifically designed for point to point applications that require low profile bending. Short Bend is an alternative to semi rigid and/or hand conformable cables and eliminates the need for special cable bending tools.

Short Bend Provides flexible solution in tight spaces and possibly can eliminate the need for right angle connectors.

ELECTRICAL

Impedance: 50Ω
Frequency range: DC-26 GHz
VSWR: 1.02 + 0.01 x F(GHz)
Intermodulation: typ. -123dBM (-166dBc, 2 carriers 2X20W + 43dBM)

ENVIRONMENTAL

Operating temperature: -55/+125 °C
Moisture: IP67

MECHANICAL

Coupling nut retention force: ≥450N
Coupling Torque: N.cm mini.
Recommended torque: 10Nm for tool screw version
Mating life: 100 Cycles mini.

Straight Plug To Straight Plug
.086" CABLE: **81-6200-XXXX**



Straight Plug To Straight Plug
.141" CABLE: **81-6201-XXXX**



(-XXXX refers to length of assembly (example 81-6200-0600 is 6" long)
Standard lengths available from 2.5" up to 16", custom are lengths available upon request.

Straight Plug To Straight Plug

RG-316/U CABLE: **80-1161-XXXX**
RG-223/U CABLE: **80-1162-XXXX**

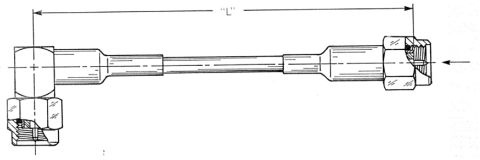
9001-9023-0XX → ← 9001-9023-0XX



Right Angle Plug To Straight Plug

RG-316/U CABLE: **80-1163-XXXX**
RG-223/U CABLE: **80-1164-XXXX**

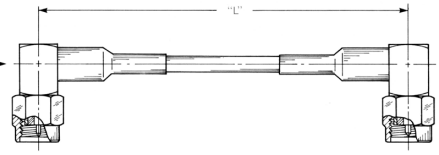
9043-9523-0XX → ← 9001-9023-0XX



Right Angle Plug To Right Angle Plug

RG-316/U CABLE: **80-1165-XXXX**
RG-223/U CABLE: **80-1166-XXXX**

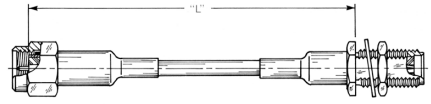
9043-9523-0XX → ← 9043-9523-0XX



Straight Plug To Bulkhead Jack

RG-316/U CABLE: **80-1167-XXXX**
RG-223/U CABLE: **80-1168-XXXX**

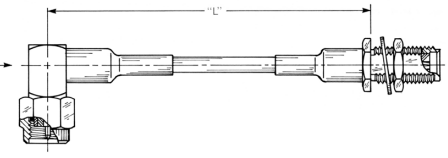
9001-9023-0XX → ← 9030-9023-0XX



Right Angle Plug To Bulkhead Jack

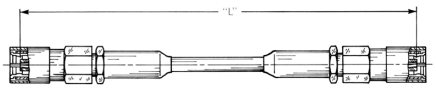
RG-316/U CABLE: **80-1169-XXXX**
RG-223/U CABLE: **80-1170-XXXX**

9043-9523-0XX → ← 9030-9023-0XX

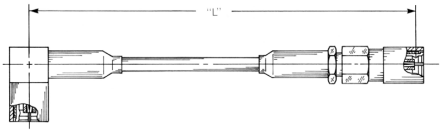


The last four digits represent length 'L' in inches and decimal fractions.
Example: 80-1154-1200 indicates one foot O.A.L. Tolerance: ± 1/8"

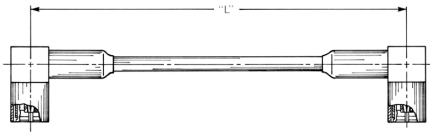
Straight Plug To Straight Plug
RG-316/U CABLE: **80-1151-XXXX**

2002-7571-003 →  ← 2002-7571-003

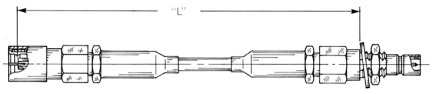
Right Angle Plug To Straight Plug
RG-316/U CABLE: **80-1152-XXXX**

2105-7521-003 →  ← 2002-7571-003

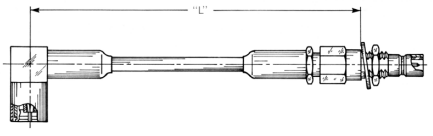
Right Angle Plug To Right Angle Plug
RG-316/U CABLE: **80-1153-XXXX**

2105-7521-003 →  ← 2105-7521-003

Straight Plug To Bulkhead Jack
RG-316/U CABLE: **80-1154-XXXX**

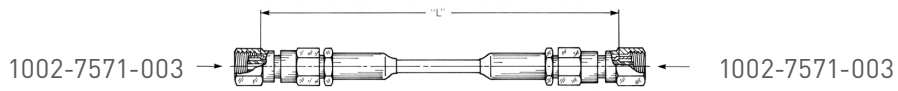
2002-7571-003 →  ← 2003-7571-003

Right Angle Plug To Bulkhead Jack
RG-316/U CABLE: **80-1155-XXXX**

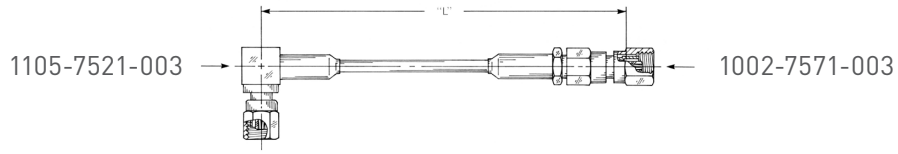
2105-7521-003 →  ← 2003-7571-003

The last four digits represent length 'L' in inches and decimal fractions.
Example: 80-1154-1200 indicates one foot O.A.L. Tolerance: ± 1/8"

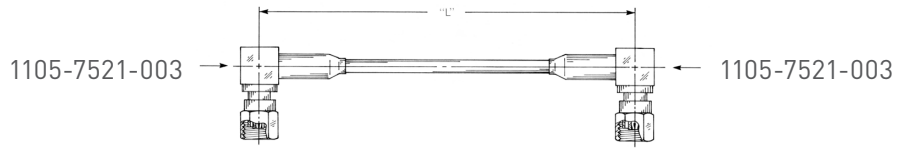
Straight Plug To Straight Plug
RG-316/U CABLE: **80-1156-XXXX**



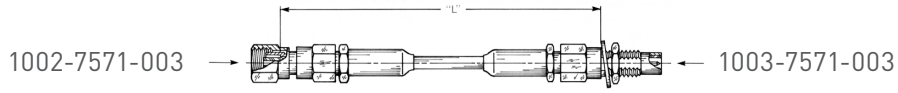
Right Angle Plug To Straight Plug
RG-316/U CABLE: **80-1157-XXXX**



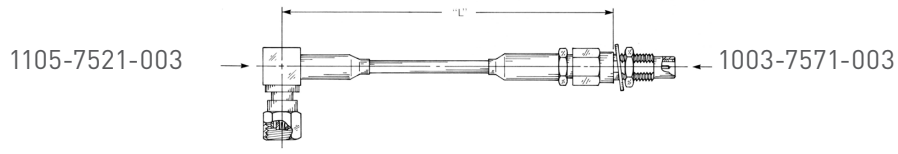
Right Angle Plug To Right Angle Plug
RG-316/U CABLE: **80-1158-XXXX**



Straight Plug To Bulkhead Jack
RG-316/U CABLE: **80-1159-XXXX**



Right Angle Plug To Bulkhead Jack
RG-316/U CABLE: **80-1160-XXXX**



The last four digits represent length 'L' in inches and decimal fractions.
Example: 1157-1425-1200 indicates 14 1/4" O.A.L. Tolerance: ± 1/8"

Straight Plug To Straight Plug

.085" SEMI-RIGID: **81-1224-XXXX**
.141" SEMI-RIGID: **81-1212-XXXX**

.085": 9401-7083-010
.141": 9301-7063-009

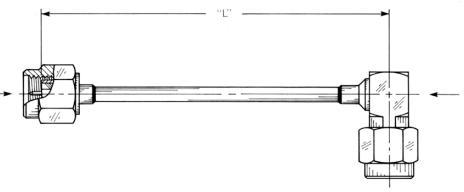


.085": 9401-7083-010
.141": 9301-7063-009

Straight Plug To Right Angle Plug

.085" SEMI-RIGID: **81-1225-XXXX**
.141" SEMI-RIGID: **81-1226-XXXX**

.085": 9401-7083-010
.141": 9301-7063-009

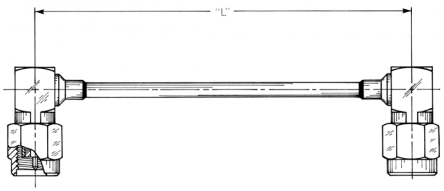


9443-7563-0XX

Right Angle Plug To Right Angle Plug

.085" SEMI-RIGID: **81-1227-XXXX**
.141" SEMI-RIGID: **81-1228-XXXX**

9443-7563-0XX



9443-7563-0XX

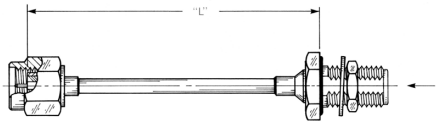
The last four digits represent length 'L' in inches and decimal fractions.
Example: 81-1225-1850 indicates 18 1/2" O.A.L. Tolerance: ± 1/8"

Semi-Rigid Cable Assemblies - SMA Series Connectors

Straight Plug To Bulkhead Jack

.085" SEMI-RIGID: **81-1229-XXXX**
.141" SEMI-RIGID: **81-1230-XXXX**

.085": 9401-7083-010
.141": 9301-7063-009

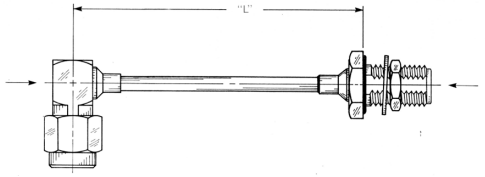


9453-7083-0XX

Right Angle Plug To Bulkhead Jack

.085" SEMI-RIGID: **81-1231-XXXX**
.141" SEMI-RIGID: **81-1232-XXXX**

9443-7563-0XX

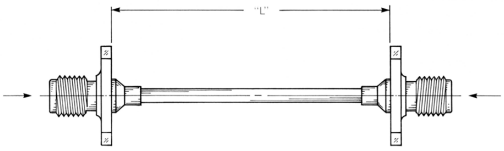


9453-7083-0XX

Panel Jack To Panel Jack
2-hole flange

.085" SEMI-RIGID: **81-1233-XXXX**
.141" SEMI-RIGID: **81-1234-XXXX**

9441-7083-0XX



9441-7083-0XX

The last four digits represent length 'L' in inches and decimal fractions.
Example: 81-1233-0925 indicates 9 1/2" O.A.L. Tolerance: ± 1/8"

Cable Assembly Instructions

General Notes:

1) All cuts when trimming cable should be square and of precise depth. Nicking the layer underneath the layer being cut will weaken the cable mechanically and adversely affect electrical performance.

2) The hole in the side of the cable entry hole in contacts is there for two reasons: A) To visually inspect for proper cable insertion, and B) to allow gases formed during the soldering process to escape. It is NOT for feeding solder into the contact. Even the steadiest operator will end up with a glob of solder on the outside of the contact when using the inspection hole to feed solder. This solder on the outside of the contact makes the connector hard or impossible to assemble, and degrades electrical performance. Filing the solder glob off the contact removes plating. The proper procedure is to tin the cable center conductor, and add some liquid flux to the tinned end just before soldering to the contact. Simply insert the tinned and fluxed cable into the contact and reheat until the solder has melted.

3) Always avoid excessive heat when soldering. Carbon-jawed resistance pliers are much more precise and faster than soldering irons.

4) Always heat the sleeve, body, or contact, not the cable component being soldered.

5) When soldering nickel-plated connector bodies to semi-rigid cable, use Kester #2331 flux. This flux is active enough to ensure good solder bonding and is water-soluble.

6) When soldering to the jacket of semi-rigid cable, the cable and solder ferrule or connector body should be fixtured as tightly as possible. The soldering operation should be carried out as rapidly as possible and the joint cooled by brushing with alcohol. This, combined with a thermal cycling of the bent cable before assembly, will minimize Teflon extrusion during soldering. All major semi-rigid cable manufacturers outline cable thermal cycling procedures in their literature.

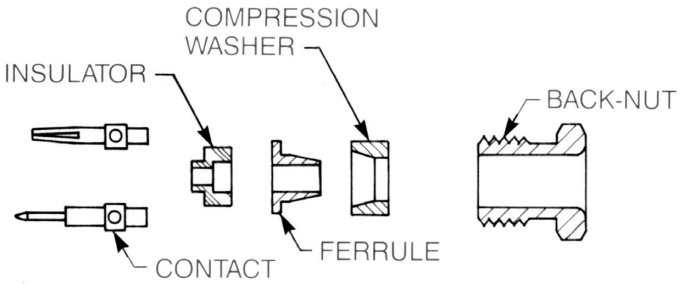
7) When cable sub-assemblies are threaded into bodies, always turn the nut, not the body, to prevent twisting the cable, and breaking the center conductor.

8) After trimming cable for use with crimp connectors, rotate the dielectric several times to flare the cable braid slightly. This step prevents braid wires from sliding inside the crimp tail during assembly.

9) When installing cable assemblies using screw-on connectors into equipment, use a torque wrench for mating. Overtorquing the plugs will damage both the cable connector and the equipment-mounted jack, and will void any warranties.

10) For best results when soldering SMA series connectors, use interface mates (TA-0434) with plugs and (TA-0435) with jacks.

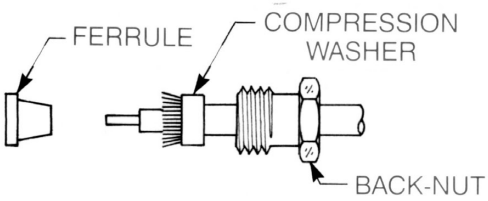
ASSEMBLY PROCEDURE A



1) Trim cable per trim code.

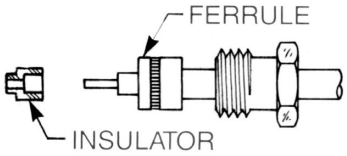
2) Tin end of center conductor.

3) Slide back nut onto cable.

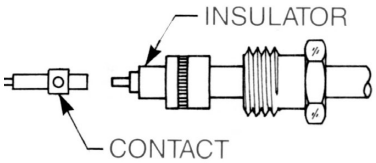


4) Slide compression washer over the braid until it bottoms out on the cable jacket.

5) Fan out braid radially against the compression washer by rotating the cable dielectric.



6) Slide ferrule onto cable, over dielectric and under braid. Push into washer until it stops. If necessary trim excess braid flush with surface of compression washer and flange of ferrule.

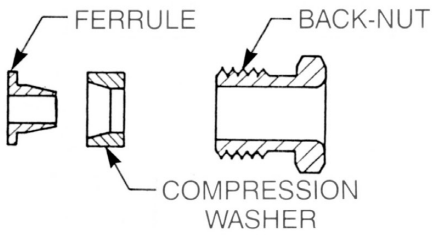


7) Install small insulator over cable dielectric.

8) Solder contact to center conductor. When contact adapter is also supplied, install contact adapter onto center conductor, then solder contact to center conductor.

9) Insert cable assembly into body and tighten nut with a torque of 90-100 inch ounces on the 50 ohm impedance sizes and 140-150 inch ounces on the 75 ohm impedance sizes.

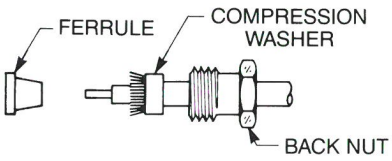
ASSEMBLY PROCEDURE B



1) Trim cable per trim code.

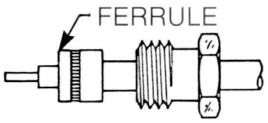
2) Tin end of center conductor.

3) Slide back nut onto cable.



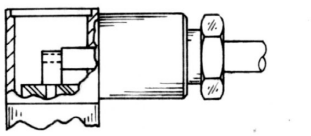
4) Slide compression washer over the braid until it bottoms out on the cable jacket.

5) Fan out braid radially against the compression washer by rotating the cable dielectric.



6) Slide ferrule onto cable, over dielectric and under braid. Push into washer until it stops. If necessary trim excess braid flush with surface of compression washer and flange of ferrule.



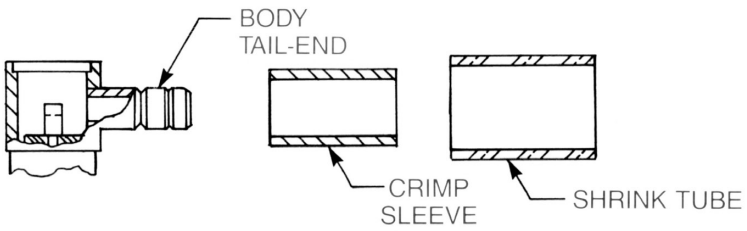


7) Insert cable assembly into body and tighten nut with a torque of 90-100 inch ounces on the 50 ohm impedance sizes and 140-150 inch ounces on the 75 ohm impedance sizes.

8) Solder center conductor of cable to contact.

9) Place insulator and end cap into connector body as shown and use a .185" diameter flat bottom arbor to press cap into place. Cap must be below body surface to seat properly.

ASSEMBLY PROCEDURE C

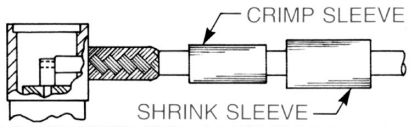


1) Trim cable per trim code.

2) Tin end of center conductor.

3) Slide crimp sleeve and shrink tube (if supplied) over cable jacket.

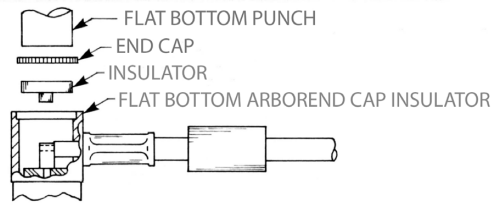
4) Flare cable braid out slightly by rotating dielectric.



5) Insert cable assembly into body tail-end making sure tail goes over dielectric and under braid. Slide in until braid touches rear surface of body.

6) Slide crimp sleeve forward and use applicable hex die to crimp sleeve to braid.

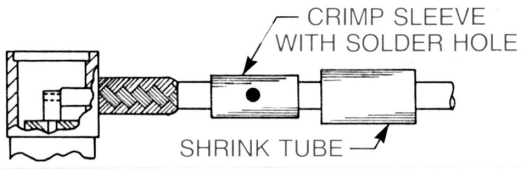
7) Solder center conductor of cable to contact.



8) Place insulator and end cap into connector body as shown and use a .185" diameter flat bottom punch to press cap in place. Cap must be below surface to seat properly.

9) Slide shrink tube over crimp sleeve and shrink to fit.

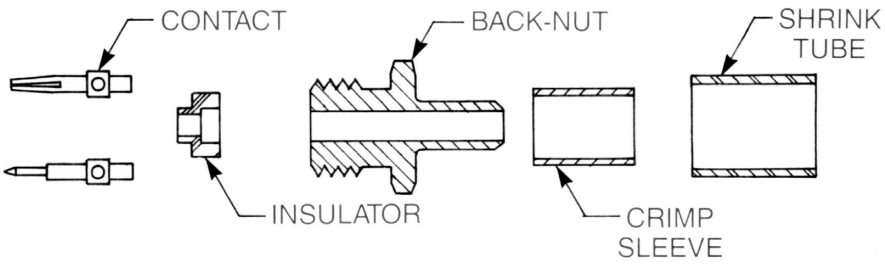
ASSEMBLY PROCEDURE D



Follow procedure C, except step 6. At this step, slide sleeve forward and use applicable hex die to crimp sleeve to braid. Solder braid through cross hole of crimp sleeve.

Proceed with step 7 of procedure C.

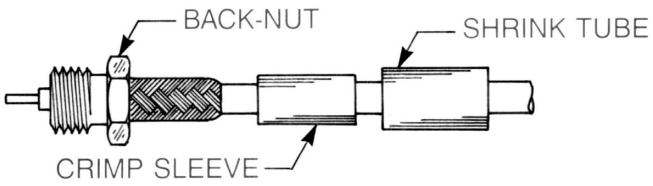
ASSEMBLY PROCEDURE E



1) Trim cable per trim code.
2) Tin end of center conductor.
3) Slide crimp sleeve and shrink tube over cable jacket.
4) Flare cable braid out slightly by rotating dielectric.

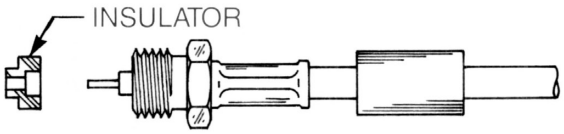
(Continued on next page)

ASSEMBLY PROCEDURE E (continued)

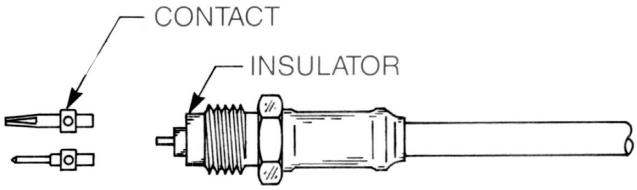


5) Insert cable into tail-end of back nut, making sure tail goes over dielectric and under braid. Slide in until braid touches rear surface of nut.

6) Slide crimp sleeve forward and use applicable hex die to crimp.



7) Position insulator over cable dielectric and center conductor.



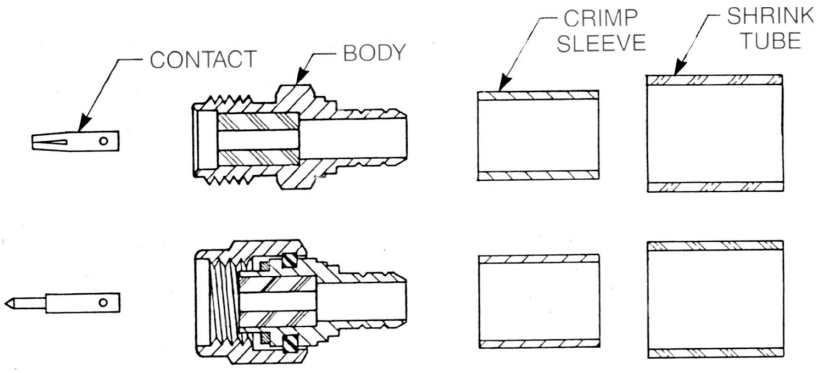
8) Solder contact to center conductor.

9) Insert cable assembly into body and tighten nut with a torque wrench with a torque of 70-100 inch ounces on the 50 ohm impedance sizes and 140-150 inch ounces on the 75 ohm sizes. 35-45 inch ounces for SSMB and SSMC series.

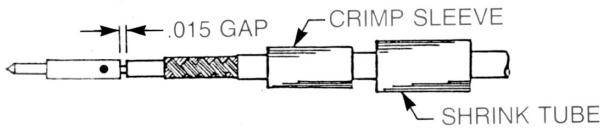
10) Slide shrink tube over crimp sleeve and shrink to fit.

ASSEMBLY PROCEDURE F

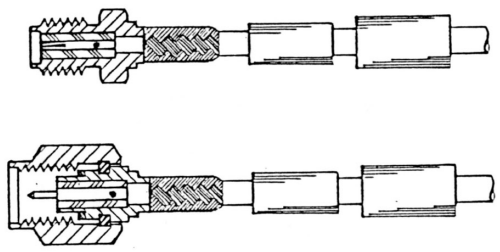
NOTE: ON CABLE GROUP -002, AN ADDITIONAL SLEEVE AND INSULATOR ARE SUPPLIED.



1) Trim cable per trim code.
2) Tin end of center conductor.
3) Slide crimp sleeve and shrink tube over cable jacket.
4) Flare braid out slightly by rotating dielectric.



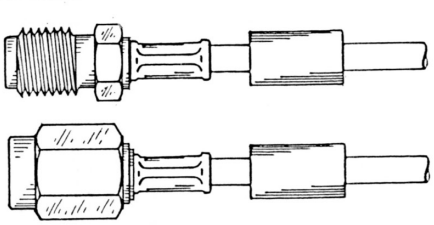
5) Solder contact to center conductor, leaving a .015" gap between rear of contact and cable dielectric.



6) Insert cable into tail-end of body, making sure body goes over dielectric and under braid.
7) Check interface dimensions of insulator and contact.

(Continued on next page)

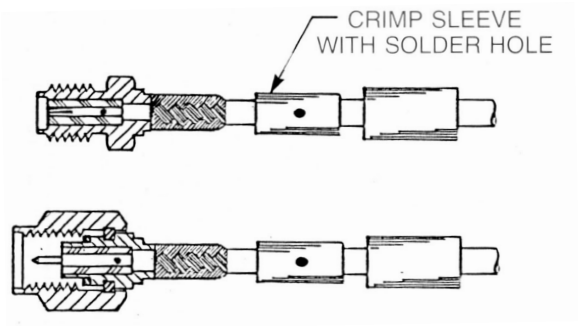
ASSEMBLY PROCEDURE F (continued)



8) Slide crimp sleeve forward and use applicable hex die to crimp.

9) Slide shrink tube over crimp sleeve and shrink to fit.

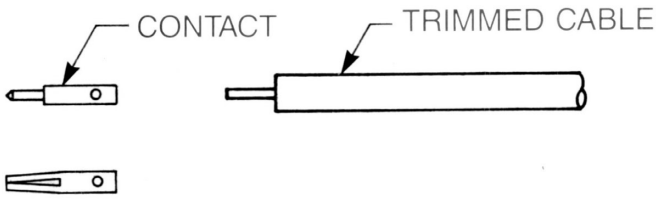
ASSEMBLY PROCEDURE G



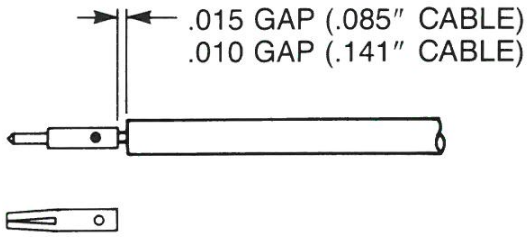
Follow procedure F, except step 8. At this step, slide crimp sleeve forward and use applicable hex die to crimp. Solder braid through cross hole of crimp sleeve.

Proceed with step 9 of procedure F.

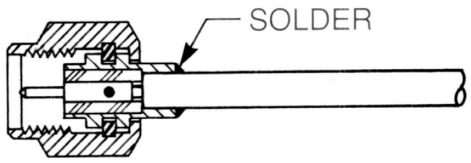
ASSEMBLY PROCEDURE H

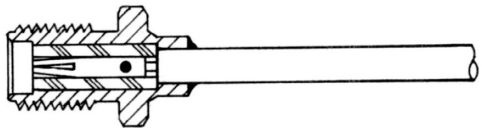


1) Trim cable per trim code.



2) Solder contact to center conductor, leaving a gap between rear of contact and cable jacket as shown.

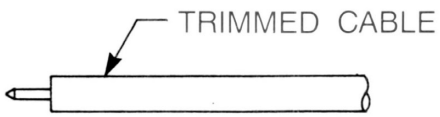




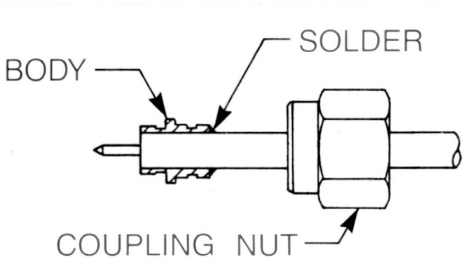
3) Insert cable into body until it bottoms. Check that insulator and contact meet interface dimensions.

4) Solder cable jacket to connector body. Do not disturb joint until it has cooled. Clean flux residue.

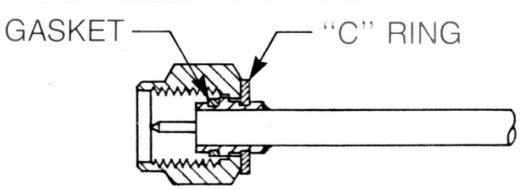
ASSEMBLY PROCEDURE I



1) Trim cable per trim code.
2) Slide coupling nut onto cable, threads forward.

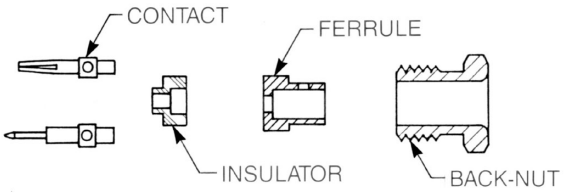


3) Insert cable into body until trimmed end is flush with interface. Fixture in this position.
4) Solder cable jacket to connector body. Do not disturb joint until it has cooled. Clean flux residue.



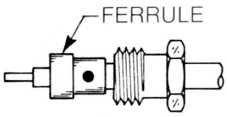
5) Install gasket on front face of connector body.
6) Slide coupling nut forward and snap on "C" ring.

ASSEMBLY PROCEDURE J



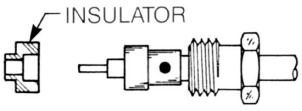
1) Trim cable per trim code.

2) Slide back nut onto cable.

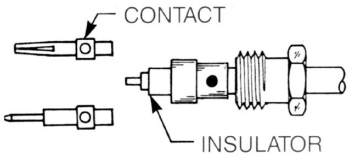


3) Slide ferrule over cable dielectric until it bottoms on the cable jacket.

4) Solder ferrule to cable jacket. Do not disturb solder joint until it has cooled.



5) Install small insulator over cable dielectric.



6) Solder contact to center conductor.

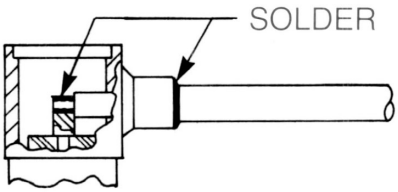
7) Insert cable assembly into connector body and tighten back nut to 90-100 inch ounces torque for SMB & SMC, 140-150 inch ounces torque tor SMA.

ASSEMBLY PROCEDURE K



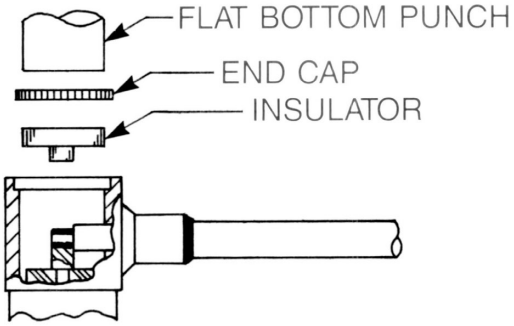
1) Trim cable per trim code.

2) Insert cable into body. Cable jacket should bottom on step inside body and center conductor should lie in slot of contact. Fixture in this position.



3) Solder center conductor to contact.

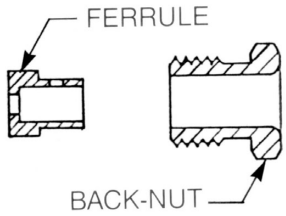
4) Solder cable jacket to connector body. Do not disturb joint until it has cooled. Clean flux residue.



5) Press insulator and end cap into connector body and use a .185" diameter flat bottom arbor to press cap in place. Cap must be below body surface to seat properly.

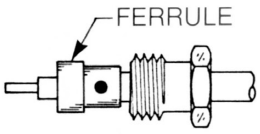
6) Slide coupling nut forward and snap on "C" ring.

ASSEMBLY PROCEDURE L



1) Trim cable per trim code.

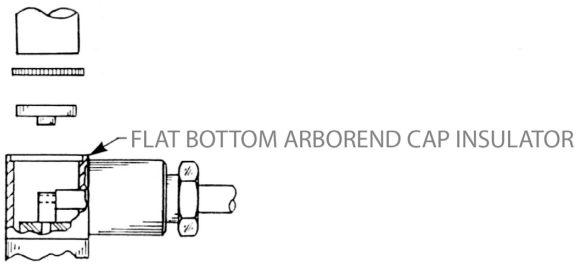
2) Slide back nut onto cable.



3) Slide ferrule over cable dielectric until it bottoms on the cable jacket.

4) Solder ferrule to cable jacket. Do not disturb solder joint until it has cooled.

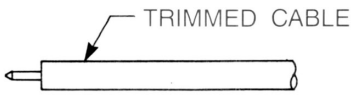
5) Insert cable assembly into body and tighten to 90-100 inch ounces torque for SMB & SMC, 140-150 inch ounces torque for SMA.



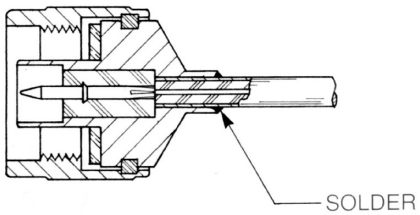
6) Solder center conductor to contact.

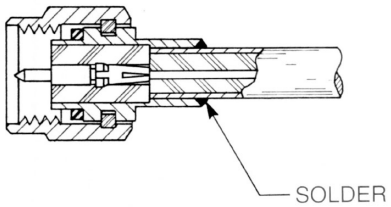
7) Press insulator and end cap into connector body and use a .185" diameter flat bottom arbor to press cap in place. Cap must be below body surface to seat properly.

ASSEMBLY PROCEDURE M



1) Trim cable per trim code.

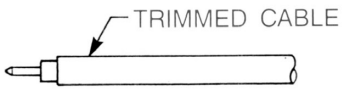




2) Insert cable into body until it bottoms, making sure center conductor of cable goes into contact.

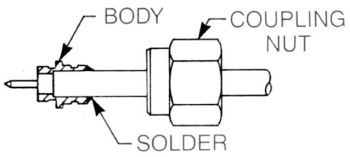
3) Solder cable jacket to connector body. Do not disturb joint until it has cooled. Clean flux residue.

ASSEMBLY PROCEDURE N



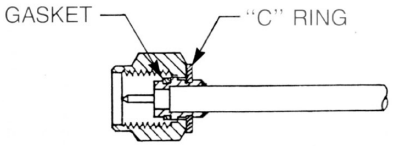
1) Trim cable per trim code.

2) Slide coupling nut onto cable, threads forward.



3) Insert cable into body until cable dielectric is flush with interface. Cable jacket should bottom on step inside connector body. Fixture in this position.

4) Solder cable jacket to connector body. Do not disturb joint until it has cooled. Clean flux residue.



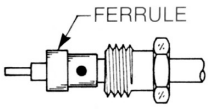
5) Install gasket on front face of body.

6) Slide coupling nut forward and snap on "C" ring.

ASSEMBLY PROCEDURE P

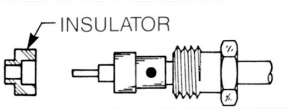
1) Trim cable per trim code.

2) Slide back nut onto cable.



3) Slide ferrule over cable dielectric until it bottoms on the cable jacket.

4) Solder ferrule to cable jacket. Do not disturb solder joint until it has cooled.



5) Install small insulator over cable dielectric (one applies for .085 semi-rigid cable).

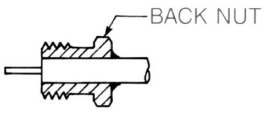
5a) Trim dielectric flush with ferrule, then point center conductor 70° to 90° (only applies to .141 dia. semi-rigid cable).

6) Insert cable assembly into body until it bottoms, making sure center conductor of cable goes into contact.

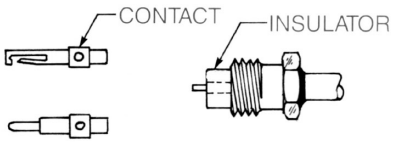
7) Torque back nut to 90-100 inch ounces.

ASSEMBLY PROCEDURE Q

1) Trim cable per trim code.



2) Slide back nut onto cable until trimmed end of jacket is flush with front of nut. Solder nut to cable.



3) Install insulator over cable center conductor.

4) Solder contact to center conductor.

5) Insert cable assembly into connector body and tighten to 35-45 inch ounces torque.

NOTES

SECTION 14



TOOLING

SECTION 14 TABLE OF CONTENTS

Crimp tools....14-2
Torque wrenches....14-2
SMA interface gages....14-3

CRIMP TOOLS FOR FLEXIBLE CABLE

Complete tools	Dieset only	Die size(s)
TA-0007	**TA-0008-1**	.128, .213
TA-0071	**TA-0008-4**	.151
TA-0105	**TA-0089**	.105, .128
TA-0190	**TA-0008-6**	.255, .068
TA-0234	**TA-0008-5**	.255



Die size application:

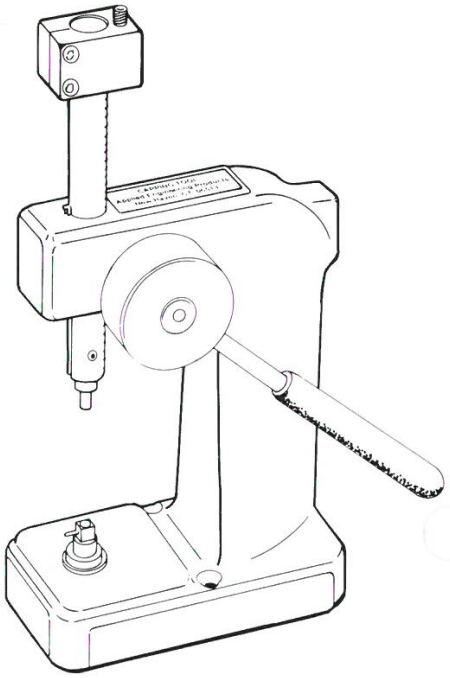
.105: All connectors for -002 cable groups, SSMB, SSLB, SSMC series.

.128: All connectors for -002, -003, -005, -014 & -025 cable groups and -019 for SMB, SMC, SLB, BNC, TNC & N.

.151: All connectors for -004 and -019 for SMA series.

.213: All connectors for -001, -006 cable groups.

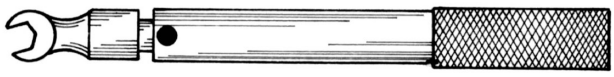
.255: All connectors for -007 cable group.



Capping Tool for right angle connectors.

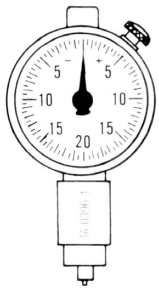
TORQUE WRENCHES

Using a torque wrench for mating SMA, SMC and SSMC plugs will prevent damage to equipment-mounted jacks as well as to the plugs themselves.

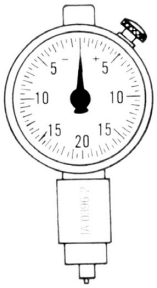


P/N	Application	Jaw Size	Preset Torque
TA-0397	SMA plugs	5/16"	8 inch-pounds ± 1
TA-0398	SMC plugs	7/32"	3 inch-pounds ± 1
TA-0432	SSMC plugs	5/32"	30 inch-ounces ± 1

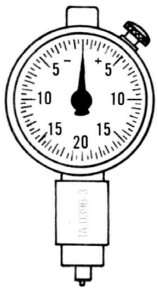
SMA INTERFACE GAGES



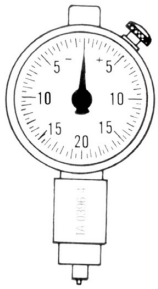
P/N **TA-0396-1**



P/N **TA-0396-2**



P/N **TA-0396-3**



P/N **TA-0396-4**

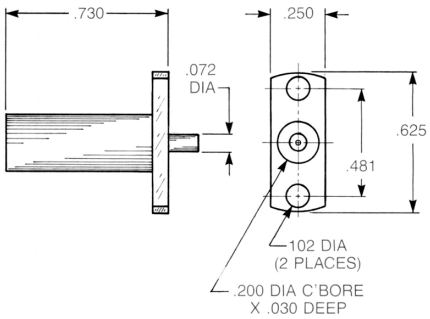
SMA interface dimensions are critical to connector performance, and are largely determined by correct cable assembly procedure. We strongly recommend the use of interface gages after cable assembly to prevent damage to equipment-mounted jacks at installation.

The gages shown here are 'right reading', giving a minus indication for interface components below the reference plane, and a plus indication for components above the reference plane. Standard dial indicators read the opposite way and can be confusing for operators.

These gages are accurate to .00025 inch, have graduation values of .0005 inch, and are zero-set before shipment. Replacement parts and master zero-setting gages are available.

Part numbers:

TA-0396:	Set of four gages listed below, in padded wooden box with instruction booklet.
TA-0396-1:	SMA plug insulator gage.
TA-0396-2:	SMA plug contact gage.
TA-0396-3:	SMA jack insulator gage.
TA-0396-4:	SMA jack contact gage.

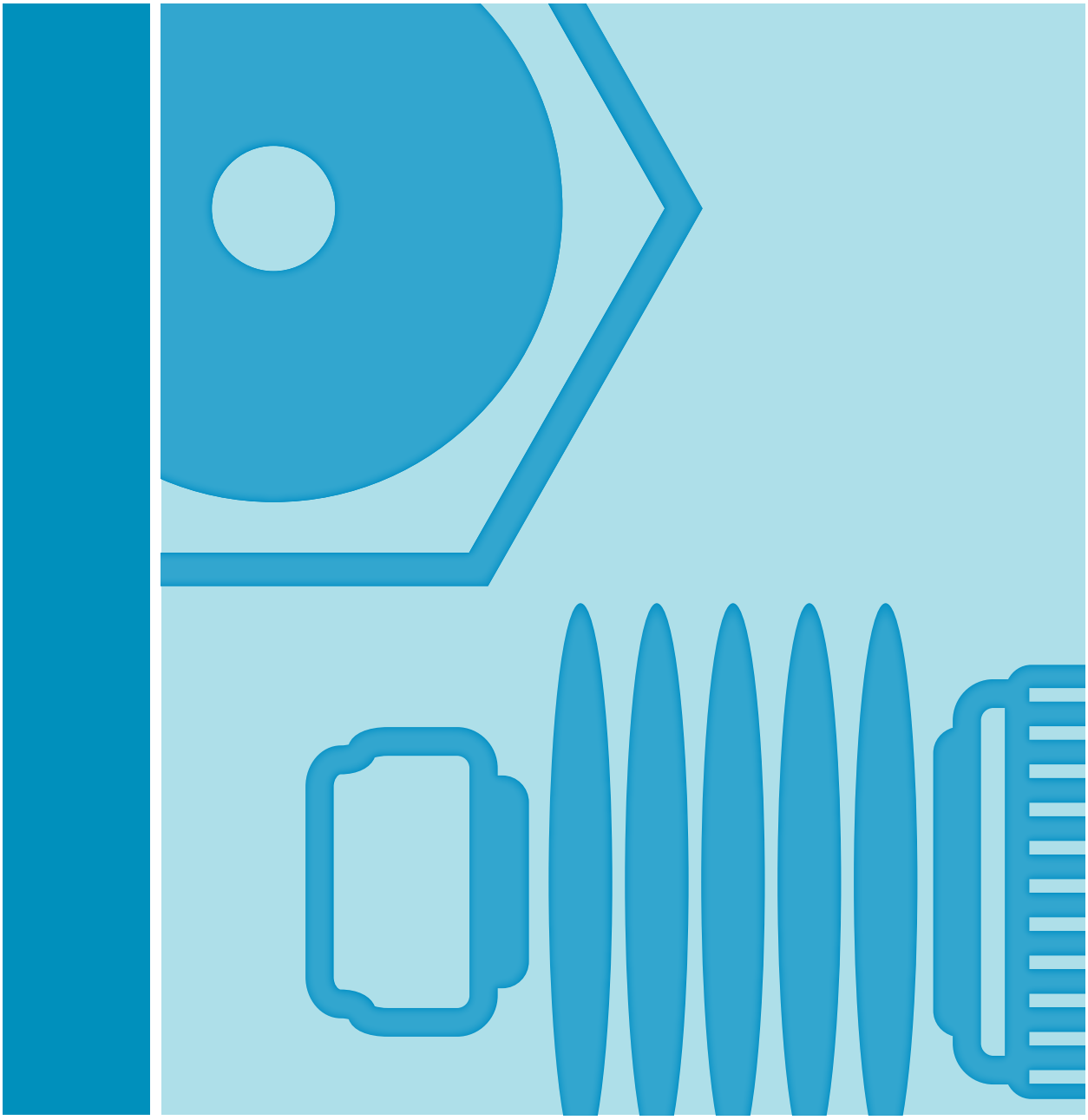


Hermetic seal soldering tool

This tool can be used with any hermetic seal except 920-92. The spring-loaded plunger holds the seal in place during the soldering operation.

P/N **TA-0394**

NOTES



SECTION 15

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AEP P/N INDEX

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1001-1551-003	A	1	3-18
1001-1551-005	A	1	3-18
1001-1551-019	A	1	3-18
1001-1571-002	E	2	3-18
1001-1571-003	E	2	3-18
1001-1571-005	E	2	3-18
1001-1571-019	E	2	3-18
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1001-7541-010	J	112	3-18
1001-7551-002	A	1	3-18
1001-7551-003	A	1	3-18
1001-7551-005	A	1	3-18
1001-7551-019	A	1	3-18
1001-7571-002	E	2	3-18
1001-7571-003	E	2	3-18
1001-7571-005	E	2	3-18
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1002-7551-019	A	1	3-17
1002-7571-002	E	2	3-17
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1002-7571-005	E	2	3-17
1002-7571-019	E	2	3-17
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1003-1551-003	A	1	3-19
1003-1551-005	A	1	3-19
1003-1551-019	A	1	3-19
1003-1571-002	E	2	3-19
1003-1571-003	E	2	3-19
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1003-7551-003	A	1	3-19
1003-7551-005	A	1	3-19
1003-7551-019	A	1	3-19
1003-7571-002	E	2	3-19
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1003-7571-019	E	2	3-19
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1005-1551-005	B	3	3-17
1005-1551-019	B	3	3-17
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1005-7541-010	L	120	3-17
1005-7551-002	B	3	3-17
1005-7551-003	B	3	3-17
1005-7551-005	B	3	3-17
1005-7551-019	B	3	3-17

PART NUMBER	ASSEMBLY PROCEDURE	TRIM CODE	PAGE
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1006-1541-010	L	120	3-19
1006-1551-002	B	3	3-19
1006-1551-003	B	3	3-19
1006-1551-005	B	3	3-19
1006-1551-019	B	3	3-19
1006-7541-009	L	120	3-19
1006-7541-010	L	120	3-19
1006-7551-002	B	3	3-19
1006-7551-003	B	3	3-19
1006-7551-005	B	3	3-19
1006-7551-019	B	3	3-19
1009-1511-000	N/A	N/A	3-21
1009-7511-000	N/A	N/A	3-21
1010-1511-000	N/A	N/A	3-21
1010-1511-001	N/A	N/A	3-21
1010-7511-000	N/A	N/A	3-21
1010-7511-001	N/A	N/A	3-21
1012-1511-000	N/A	N/A	3-20
1012-7511-000	N/A	N/A	3-20
1017-1511-000	N/A	N/A	3-20
1017-7511-000	N/A	N/A	3-20
1019-1511-000	N/A	N/A	3-20
1019-7511-000	N/A	N/A	3-20
1025-1511-000	N/A	N/A	3-21
1025-7511-000	N/A	N/A	3-21
1029-1211-001	N/A	N/A	3-23
1029-1211-002	N/A	N/A	3-23
1029-1211-003	N/A	N/A	3-23
1029-7211-001	N/A	N/A	3-23
1029-7211-002	N/A	N/A	3-23
1029-7211-003	N/A	N/A	3-23
1036-1511-051	N/A	N/A	3-25
1036-7511-051	N/A	N/A	3-25
1037-1511-051	N/A	N/A	3-25
1037-7511-051	N/A	N/A	3-25
1041-1541-009	L	120	3-18
1041-1541-010	L	120	3-18
1041-1551-002	B	3	3-18
1041-1551-003	B	3	3-18
1041-1551-005	B	3	3-18
1041-1551-019	B	3	3-18
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1041-7551-002	B	3	3-18
1041-7551-003	B	3	3-18
1041-7551-005	B	3	3-18
1041-7551-019	B	3	3-18
1042-1511-000	N/A	N/A	3-21
1042-7511-000	N/A	N/A	3-21
1092-1511-001	N/A	N/A	3-23
1092-1511-002	N/A	N/A	3-23
1092-1511-003	N/A	N/A	3-23
1092-7511-001	N/A	N/A	3-23
1092-7511-002	N/A	N/A	3-23
1092-7511-003	N/A	N/A	3-23
1105-1521-002	C	4	3-17
1105-1521-003	C	4	3-17
1105-1521-005	C	4	3-17
1105-1521-019	C	4	3-17
1105-7521-002	C	4	3-17
1105-7521-003	C	4	3-17
1105-7521-005	C	4	3-17
1105-7521-019	C	4	3-17
1106-1521-002	C	4	3-19
1106-1521-003	C	4	3-19
1106-1521-005	C	4	3-19
1106-1521-019	C	4	3-19
1106-7521-002	C	4	3-19
1106-7521-003	C	4	3-19
1106-7521-005	C	4	3-19
1106-7521-019	C	4	3-19
1109-1511-000	N/A	N/A	3-22
1109-7511-000	N/A	N/A	3-22

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1141-1521-003	C	4	3-18
1141-1521-005	C	4	3-18
1141-1521-019	C	4	3-18
1141-7521-002	C	4	3-18
1141-7521-003	C	4	3-18
1141-7521-005	C	4	3-18
1141-7521-019	C	4	3-18
1484-1511-000	N/A	N/A	3-22
1484-7511-000	N/A	N/A	3-22
1486-1511-000	N/A	N/A	3-22
1486-7511-000	N/A	N/A	3-22
1488-1511-000	N/A	N/A	3-22
1488-7511-000	N/A	N/A	3-22
1490-1511-000	N/A	N/A	3-22
1490-7511-000	N/A	N/A	3-22
1701-1551-003	A	5	6-5
1701-1551-004	A	5	6-5
1701-1551-007	A	5	6-5
1701-1571-003	E	6	6-5
1701-1571-004	E	6	6-5
1701-1571-007	E	6	6-5
1701-7551-003	A	5	6-5
1701-7551-004	A	5	6-5
1701-7551-007	A	5	6-5
1701-7571-003	E	6	6-5
1701-7571-004	E	6	6-5
1701-7571-007	E	6	6-5
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1702-1551-004	A	5	6-4
1702-1551-007	A	5	6-4
1702-1571-003	E	6	6-4
1702-1571-004	E	6	6-4
1702-1571-007	E	6	6-4
1702-7551-003	A	5	6-4
1702-7551-004	A	5	6-4
1702-7551-007	A	5	6-4
1702-7571-003	E	6	6-4
1702-7571-004	E	6	6-4
1702-7571-007	E	6	6-4
1703-1551-003	A	5	6-5
1703-1551-004	A	5	6-5
1703-1551-007	A	5	6-5
1703-1571-003	E	6	6-5
1703-1571-004	E	6	6-5
1703-1571-007	E	6	6-5
1703-7551-003	A	5	6-5
1703-7551-004	A	5	6-5
1703-7551-007	A	5	6-5
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1703-7571-004	E	6	6-5
1703-7571-007	E	6	6-5
1704-1511-000	N/A	N/A	6-6
1704-7511-000	N/A	N/A	6-6
1705-1551-003	B	7	6-4
1705-1551-004	B	7	6-4
1705-1551-007	B	7	6-4
1705-7551-003	B	7	6-4
1705-7551-004	B	7	6-4
1705-7551-007	B	7	6-4
1709-1511-000	N/A	N/A	6-6
1709-7511-000	N/A	N/A	6-6
1710-1511-000	N/A	N/A	6-6
1710-7511-000	N/A	N/A	6-6
1715-1521-003	C	8	6-4
1715-1521-004	C	8	6-4
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1715-7521-004	C	8	6-4
1715-7521-007	C	8	6-4
1719-1511-000	N/A	N/A	6-6
1719-7511-000	N/A	N/A	6-6

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2001-1551-002	A	1	3-8
2001-1551-003	A	1	3-8
2001-1551-005	A	1	3-8
2001-1551-019	A	1	3-8
2001-1551-903	E	2	1-4
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2002-1541-009	J	113	3-6
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2002-1551-002	A	1	3-6
2002-1551-003	A	1	3-6
2002-1551-005	A	1	3-6
2002-1551-019	A	1	3-6
2002-1551-903	A	1	1-3
2002-1571-002	E	2	3-6
2002-1571-003	E	2	3-6
2002-1571-005	E	2	3-6
2002-1571-019	E	2	3-6
2002-1571-803	E	2	1-4
2002-1571-903	E	2	1-3
2002-7541-009	J	113	3-6
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2002-7551-002	A	1	3-6
2002-7551-003	A	1	3-6
2002-7551-005	A	1	3-6
2002-7551-019	A	1	3-6
2002-7571-002	E	2	3-6
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2003-1551-019	A	1	3-9
2003-1551-903	A	1	1-4
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2003-7551-005	A	1	3-9
2003-7551-019	A	1	3-9
2003-7571-002	E	2	3-9
2003-7571-003	E	2	3-9
2003-7571-005	E	2	3-9
2003-7571-019	E	2	3-9
2004-1511-000	N/A	N/A	3-10
2004-1511-999	N/A	N/A	1-5
2004-7511-000	N/A	N/A	3-10
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2005-1541-010	L	120	3-6

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2005-1551-003	B	3	3-6
2005-1551-005	B	3	3-6
2005-1551-019	B	3	3-6
2005-1551-903	B	3	1-4
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2005-7541-010	L	120	3-6
2005-7551-002	B	3	3-6
2005-7551-003	B	3	3-6
2005-7551-005	B	3	3-6
2005-7551-019	B	3	3-6
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2006-1551-005	B	3	3-9
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2006-7551-002	B	3	3-9
2006-7551-003	B	3	3-9
2006-7551-005	B	3	3-9
2006-7551-019	B	3	3-9
2009-1511-000	N/A	N/A	3-12
2009-1511-050	N/A	N/A	3-12
2009-1511-799	N/A	N/A	1-6
2009-1511-899	N/A	N/A	1-6
2009-1511-999	N/A	N/A	1-6
2009-6511-799	N/A	N/A	1-6
2009-7511-000	N/A	N/A	3-12
2009-7511-050	N/A	N/A	3-12
2010-1511-000	N/A	N/A	3-12
2010-1511-002	N/A	N/A	3-12
2010-1511-799	N/A	N/A	1-6
2010-1511-899	N/A	N/A	1-6
2010-1511-999	N/A	N/A	1-6
2010-6511-799	N/A	N/A	1-6
2010-7511-000	N/A	N/A	3-12
2010-7511-002	N/A	N/A	3-12
2012-1511-000	N/A	N/A	3-10
2012-7511-000	N/A	N/A	3-10
2014-1511-000	N/A	N/A	3-10
2014-7511-000	N/A	N/A	3-10
2017-1511-000	N/A	N/A	3-11
2017-7511-000	N/A	N/A	3-11
2019-1511-000	N/A	N/A	3-10
2019-1511-999	N/A	N/A	1-5
2019-7511-000	N/A	N/A	3-10
2025-1511-000	N/A	N/A	3-12
2025-7511-000	N/A	N/A	3-12
2028-1541-009	J	113	3-7
2028-1541-010	J	112	3-7
2028-1551-002	A	1	3-7
2028-1551-003	A	1	3-7
2028-1551-005	A	1	3-7
2028-1551-019	A	1	3-7
2028-1571-002	E	2	3-7
2028-1571-003	E	2	3-7
2028-1571-005	E	2	3-7
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2028-7551-002	A	1	3-7
2028-7551-003	A	1	3-7
2028-7551-005	A	1	3-7
2028-7551-019	A	1	3-7
2028-7571-002	E	2	3-7
2028-7571-003	E	2	3-7
2028-7571-005	E	2	3-7
2028-7571-019	E	2	3-7
2029-1211-001	N/A	N/A	3-14
2029-1211-002	N/A	N/A	3-14
2029-1211-003	N/A	N/A	3-14
2029-7211-001	N/A	N/A	3-14

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2029-7211-003	N/A	N/A	3-14
2036-1511-051	N/A	N/A	3-16
2036-7511-051	N/A	N/A	3-16
2037-1511-051	N/A	N/A	3-16
2037-7511-051	N/A	N/A	3-16
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2041-1551-005	B	3	3-8
2041-1551-019	B	3	3-8
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2041-7551-003	B	3	3-8
2041-7551-005	B	3	3-8
2041-7551-019	B	3	3-8
2042-1511-000	N/A	N/A	3-12
2042-7511-000	N/A	N/A	3-12
2048-1511-000	N/A	N/A	3-11
2048-7511-000	N/A	N/A	3-11
2092-1511-001	N/A	N/A	3-14
2092-1511-002	N/A	N/A	3-14
2092-1511-003	N/A	N/A	3-14
2092-7511-001	N/A	N/A	3-14
2092-7511-002	N/A	N/A	3-14
2092-7511-003	N/A	N/A	3-14
2097-1511-000	N/A	N/A	3-11
2097-7511-000	N/A	N/A	3-11
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2105-1521-003	C	4	3-6
2105-1521-005	C	4	3-6
2105-1521-019	C	4	3-6
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2105-7521-003	C	4	3-6
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2106-7521-019	C	4	3-9
2109-1511-000	N/A	N/A	3-13
2109-7511-000	N/A	N/A	3-13
2110-1511-000	N/A	N/A	3-13
2110-7511-000	N/A	N/A	3-13
2141-1521-002	C	4	3-8
2141-1521-003	C	4	3-8
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2141-1521-019	C	4	3-8
2141-7521-002	C	4	3-8
2141-7521-003	C	4	3-8
2141-7521-005	C	4	3-8
2141-7521-019	C	4	3-8
2484-1511-000	N/A	N/A	3-13
2484-7511-000	N/A	N/A	3-13
2486-1511-000	N/A	N/A	3-13
2486-7511-000	N/A	N/A	3-13
2488-1511-000	N/A	N/A	3-13
2488-7511-000	N/A	N/A	3-13
2490-1511-000	N/A	N/A	3-13
2490-7511-000	N/A	N/A	3-13
2701-1551-003	A	5	6-9
2701-1551-004	A	5	6-9
2701-1551-007	A	5	6-9
2701-1571-003	E	6	6-9
2701-1571-004	E	6	6-9
2701-1571-007	E	6	6-9
2701-7551-003	A	5	6-9
2701-7551-004	A	5	6-9

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2701-7571-004	E	6	6-9
2701-7571-007	E	6	6-9
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2702-1551-004	A	5	6-8
2702-1551-007	A	5	6-8
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2702-1571-004	E	6	6-8
2702-1571-007	E	6	6-8
2702-7551-003	A	5	6-8
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2702-7551-007	A	5	6-8
2702-7571-003	E	6	6-9
2702-7571-004	E	6	6-9
2702-7571-007	E	6	6-9
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2703-1571-003	E	6	6-9
2703-1571-004	E	6	6-9
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2703-7551-003	A	5	6-9
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2704-1511-000	N/A	N/A	6-10
2704-7511-000	N/A	N/A	6-10
2705-1551-003	B	7	6-8
2705-1551-004	B	7	6-8
2705-1551-007	B	7	6-8
2705-7551-003	B	7	6-8
2705-7551-004	B	7	6-8
2705-7551-007	B	7	6-8
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2709-7511-001	N/A	N/A	6-11
2710-1511-000	N/A	N/A	6-11
2710-7511-000	N/A	N/A	6-11
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2715-1521-007	C	8	6-8
2715-7521-003	C	8	6-8
2715-7521-004	C	8	6-8
2715-7521-007	C	8	6-8
2719-1511-000	N/A	N/A	6-10
2719-7511-000	N/A	N/A	6-10
2725-1511-000	N/A	N/A	6-11
2725-7511-000	N/A	N/A	6-11
2736-1511-075	N/A	N/A	6-12
2736-7511-075	N/A	N/A	6-12
2776-1511-000	N/A	N/A	6-10
2776-7511-000	N/A	N/A	6-10
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3001-1541-010	J	112	3-28
3001-1551-002	A	1	3-28
3001-1551-003	A	1	3-28
3001-1551-005	A	1	3-28
3001-1551-019	A	1	3-28
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3001-1571-019	E	2	3-28
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3001-7571-005	E	2	3-28
3001-7571-019	E	2	3-28

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3002-1551-019	A	1	3-26
3002-1571-002	E	2	3-26
3002-1571-003	E	2	3-26
3002-1571-005	E	2	3-26
3002-1571-019	E	2	3-26
3002-7541-009	J	113	3-26
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3002-7571-005	E	2	3-26
3002-7571-019	E	2	3-26
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3003-1541-010	J	112	3-29
3003-1541-509	J	113	3-36
3003-1541-510	J	112	3-36
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3003-1541-610	J	112	3-36
3003-1541-709	J	113	3-36
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3003-1551-003	A	1	3-29
3003-1551-005	A	1	3-29
3003-1551-019	A	1	3-29
3003-1551-502	A	1	3-36
3003-1551-503	A	1	3-36
3003-1551-505	A	1	3-36
3003-1551-519	A	1	3-36
3003-1551-602	A	1	3-36
3003-1551-603	A	1	3-36
3003-1551-605	A	1	3-36
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3003-1551-705	A	1	3-36
3003-1551-719	A	1	3-36
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3003-1571-005	E	2	3-29
3003-1571-019	E	2	3-29
3003-1571-502	E	2	3-36
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3003-1571-519	E	2	3-36
3003-1571-602	E	2	3-36
3003-1571-603	E	2	3-36
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3003-1571-705	E	2	3-36
3003-1571-719	E	2	3-36
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3003-7541-010	J	112	3-29
3003-7541-509	J	113	3-36
3003-7541-510	J	112	3-36
3003-7541-609	J	113	3-36
3003-7541-610	J	112	3-36
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3003-7551-002	A	1	3-29
3003-7551-003	A	1	3-29
3003-7551-005	A	1	3-29
3003-7551-019	A	1	3-29
3003-7551-502	A	1	3-36
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3003-7551-603	A	1	3-36
3003-7551-605	A	1	3-36
3003-7551-619	A	1	3-36
3003-7551-702	A	1	3-36
3003-7551-703	A	1	3-36
3003-7551-705	A	1	3-36
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3003-7571-703	E	2	3-36
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3004-1511-600	N/A	N/A	3-38
3004-1511-700	N/A	N/A	3-38
3004-7511-000	N/A	N/A	3-30
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3004-7511-700	N/A	N/A	3-38
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3005-7551-019	B	3	3-26
3006-1541-009	L	120	3-29
3006-1541-010	L	120	3-29
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3006-1541-510	L	120	3-37
3006-1541-609	L	120	3-37
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3017-1511-600	N/A	N/A	3-39
3017-1511-700	N/A	N/A	3-39
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3017-7511-600	N/A	N/A	3-39
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3028-1541-510	J	112	3-35
3028-1541-609	J	113	3-35
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3028-1551-505	A	1	3-35
3028-1551-519	A	1	3-35
3028-1551-602	A	1	3-35
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3028-1571-705	E	2	3-35
3028-1571-719	E	2	3-35
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3028-7541-010	J	112	3-27
3028-7541-509	J	113	3-35
3028-7541-510	J	112	3-35
3028-7541-609	J	113	3-35
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3028-7571-002	E	2	3-27
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3048-7511-000	N/A	N/A	3-31
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3048-7511-600	N/A	N/A	3-39
3048-7511-700	N/A	N/A	3-39
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3109-7511-000	N/A	N/A	3-33
3109-7511-500	N/A	N/A	3-40
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9150-9513-000	N/A	N/A	2-47
9151-9513-000	N/A	N/A	2-47
9154-1513-000	N/A	N/A	2-27
9154-9513-000	N/A	N/A	2-27
9155-1113-000	N/A	N/A	2-27
9155-1213-000	N/A	N/A	2-27
9155-9113-000	N/A	N/A	2-27
9155-9213-000	N/A	N/A	2-27
9162-9513-000	N/A	N/A	2-43
9162-9513-001	N/A	N/A	2-45
9163-1113-000	N/A	N/A	2-24
9163-9113-000	N/A	N/A	2-24
9168-9513-000	N/A	N/A	2-47
9174-9513-000	N/A	N/A	2-46
9176-1113-000	N/A	N/A	2-21
9176-1213-000	N/A	N/A	2-21
9176-9113-000	N/A	N/A	2-21
9176-9213-000	N/A	N/A	2-21
9179-9513-000	N/A	N/A	2-42
9179-9513-001	N/A	N/A	2-44
9180-9513-000	N/A	N/A	2-42
9180-9513-001	N/A	N/A	2-44
9181-9513-000	N/A	N/A	2-46
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9204-1113-002	N/A	N/A	2-22
9204-1113-003	N/A	N/A	2-22
9204-1213-001	N/A	N/A	2-22
9204-1213-002	N/A	N/A	2-22
9204-1213-003	N/A	N/A	2-22
9204-9113-001	N/A	N/A	2-22
9204-9113-002	N/A	N/A	2-22
9204-9113-003	N/A	N/A	2-22
9204-9213-001	N/A	N/A	2-22
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9204-9213-003	N/A	N/A	2-22
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9208-1113-002	N/A	N/A	2-22
9208-1213-000	N/A	N/A	2-22
9208-1213-001	N/A	N/A	2-22
9208-1213-002	N/A	N/A	2-22
920-82	N/A	N/A	2-41
9208-9113-000	N/A	N/A	2-22
9208-9113-001	N/A	N/A	2-22
9208-9113-002	N/A	N/A	2-22
9208-9213-000	N/A	N/A	2-22
9208-9213-001	N/A	N/A	2-22
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9243-9533-006	B	16	2-15
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9244-9513-000	N/A	N/A	2-42
9244-9513-001	N/A	N/A	2-44
9245-9513-000	N/A	N/A	2-42
9245-9513-001	N/A	N/A	2-44
9246-9513-000	N/A	N/A	2-43
9246-9513-001	N/A	N/A	2-45
9247-9513-000	N/A	N/A	2-43
9247-9513-001	N/A	N/A	2-45
9248-9513-000	N/A	N/A	2-46
9249-9513-000	N/A	N/A	2-46
9250-9513-000	N/A	N/A	2-47
9251-9513-000	N/A	N/A	2-47
9262-9513-000	N/A	N/A	2-43
9262-9513-001	N/A	N/A	2-45
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9274-9513-000	N/A	N/A	2-46
9279-9513-000	N/A	N/A	2-42
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9280-9513-000	N/A	N/A	2-42
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9307-9113-002	N/A	N/A	2-25
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9346-9513-000	N/A	N/A	2-43
9346-9513-001	N/A	N/A	2-45
9347-9513-000	N/A	N/A	2-43
9347-9513-001	N/A	N/A	2-45
9348-9513-000	N/A	N/A	2-46
9349-9513-000	N/A	N/A	2-46
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9351-9513-000	N/A	N/A	2-47
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9376-9113-001	N/A	N/A	2-25
9376-9113-002	N/A	N/A	2-25
9379-9513-000	N/A	N/A	2-42
9379-9513-001	N/A	N/A	2-44
9380-9513-000	N/A	N/A	2-42
9380-9513-001	N/A	N/A	2-44
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9401-1083-109	H	101	2-9
9401-1083-210	H	101	2-8
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9401-1583-109	M	122	2-9
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9407-9113-000	N/A	N/A	2-20
9408-1113-000	N/A	N/A	2-20
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9408-9113-000	N/A	N/A	2-20
9408-9113-002	N/A	N/A	2-20
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9409-9113-000	N/A	N/A	2-26
9412-1113-000	N/A	N/A	2-28
9412-9113-000	N/A	N/A	2-28
9413-1113-000	N/A	N/A	2-29
9413-9113-000	N/A	N/A	2-29
9422-1113-000	N/A	N/A	2-28
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9424-1513-000	N/A	N/A	2-23
9424-9513-000	N/A	N/A	2-23
9425-1513-000	N/A	N/A	2-23
9425-9513-000	N/A	N/A	2-23
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9433-9113-000	N/A	N/A	2-30
9441-1083-009	H	101	2-13
9441-1083-010	H	101	2-13
9441-1583-009	M	122	2-13
9441-1583-010	M	122	2-13
9441-7083-009	H	101	2-13
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9454-9513-000	N/A	N/A	2-27
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9456-1113-002	N/A	N/A	2-29
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9476-1113-000	N/A	N/A	2-20
9476-9113-000	N/A	N/A	2-20
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9504-9113-009	N/A	N/A	2-50
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9507-9113-004	N/A	N/A	2-49
9507-9113-005	N/A	N/A	2-51
9507-9113-006	N/A	N/A	2-51
9508-9113-001	N/A	N/A	2-50
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9533-9113-004	N/A	N/A	2-51
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9543-1593-010	L	106	2-10
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9576-9113-004	N/A	N/A	2-50
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9609-9513-000	N/A	N/A	2-28
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9610-1213-002	N/A	N/A	2-32
9610-1213-003	N/A	N/A	2-32
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