INSTALLATION INSTRUCTIONS

Bendix®

SOLDER TYPE COAXIAL CONTACTS

Scintilla Division
SIDNEY. NEW YORK 13838

THE Bendix CORPORATION

May 1966

L-708
(Supersedes MG-1004-2, MG-1180)

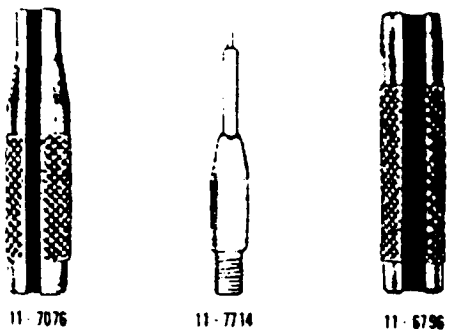


Figure 1

1-7. Wirewells on pins or sockets must be pre-tinned with a good grade of rosin-alcohol flux and 60/40 tin-lead solder. Wire solder in diameters of 0.032 in. and larger should be available for use as required. When flux or solder is inserted in the wire wells, heat should be applied to the outside of the contact wire well. Wire wells smaller in diameter than 0.032 in. can be tinned by holding solder against the open end of the contact and applying heat to the side of the wire well. The contact should be supported vertically, and flux should be inserted in the wire well before tinning.

1-8. When soldering a conductor to a pin or socket, dip the pre-tinned conductor end into rosin-alcohol flux and start it into the wire well, simultaneously applying heat to the outside of the well. As the solder becomes liquid, fully seat the conductor in the well. Maintain heat until the solder on the conductor and in the wire well has completely liquefied. Remove heat and align the conductor with the contact until the solder solidifies. Allowing the conductor to move as solder cools through the plastic state, will result in crystallization and a weak solder joint. If additional solder is necessary, insert wire solder through the hole in side of the wire well and apply heat. Any excess solder on the outside of the well should be carefully wiped off before it solidifies.

1-9. If the outer sheath of the cable is a woven type which tends to fray easily, a one inch length of close fitting vinyl tubing should be slipped on the cable ahead of the contact attaching parts. After soldering is complete and the cable nut or other parts are properly installed, the vinyl sleeve should be slipped along the cable until snug against the contact assembly.

SECTION II

CONTACT IDENTIFICATION

NOTE

To list all the combinations of insert arrangements and Bendix connectors which incorporate coaxial contacts would be impractical since a list of this type would be too large and complex. The following methods are therefore recommended for determining the coaxial contact part number in a "given" connector assembly. Consult the factory if a coaxial contact part number cannot be determined or is not listed in this publication.

2-1. AN(MS) .

a. AN(MS) type connectors (with UNEF or NEF main coupling thread) containing coaxial contacts are identified with manufacturing part number. (Example 10-XXXXX-X).

NOTE

Military Specification MS33695 has been established for coaxial contacts that are to be used in two specific insert arrangements. These two arrangements (32-101 P or S and 32-102 P or S) are covered by Military Specification MS33696. Connectors using these arrangements and contacts are stamped with a standard MS coded stamping. (Example MS3100-32-101P). To date this connector has not been manufactured by the Scintilla Division.

b. Suggested methods for determining appropriate contact, insert arrangement or connector assembly.

1. Consult parts lists.
2. Consult specification drawings.
3. Consult installation drawings.
4. Consult factory.

2-2. PYGMY.

a. Pygmy or miniature connectors containing coaxial contacts are stamped in various ways. (Example special stamping, manufacturers stamp, coded stamping, etc.). It is therefore difficult to associate connector stamping with the coaxial contact it may utilize.

b. Insert arrangement can generally be determined from connector stamping. This is important since contact part number can often be determined if arrangement is known.

Example: A connector stamped PT06A-22-7P would indicate an insert arrangement of 22-7 containing P or pin type contacts. Further the user may determine that this arrangement could use a size 8, 10-117902-1 coaxial contact.

c. Part numbers will often contain a suffix which may further identify contact. Suffix stampings are:

(103) - indicating a coaxial contact with a plain bushing.
(104) - indicating a captive coaxial contact with a plain bushing.
(305) - indicating coaxial contact with a plain bushing and used in a connector with strain relief.
(308) - indicating captive coaxial contact with plain bushing and used in a connector with strain relief.
(316) - indicating coaxial contact with plain bushing used in connector with an alumilite finish.
(317) - indicating coaxial contact with plain bushing used in connector with an alumilite finish and strain relief.

d. Suggested methods for further identifying appropriate contact, insert arrangement or connector assembly:

1. Consult parts list.
2. Consult specification drawings.
3. Consult installation drawings.
4. Consult factory.

2-3. RACK AND PANEL.

a. Installation drawings, specification drawings and parts lists are again recommended as a method of identifying coaxial contacts used in rack and panel connectors.

b. The Bendix Electrical Connector Catalog Section 12-032 is an invaluable source of information for identifying rack and panel insert arrangements and connector assemblies which may utilize coaxial contacts.

NOTE

It should be further emphasized that there are many coaxial contact arrangement and connector assembly combinations. To list them all here would be impractical. If preceding methods will not definitely determine the desired information, factory should be consulted.

TABLE I
AN (MS)

Part No.	Contact Size	Pin	Socket	Cable Information	Installation Procedure No.
10-36253	Special	X		Microdot 70-3904	3
10-36254	Special		X	Microdot 70-3904	3
10-37204	8	X		RG-55/U	3
10-37208	8		X	RG-55/U	3
10-72776-8	8		X	Unknown	3
10-72777-8	8	X		Unknown	3
10-101625	Special		X	Microdot 93-3904	3
10-101626	Special	X		Microdot 93-3904	3
10-101652	0	X		RG-41/U Modified (Check Details of Modified Cable)	2
10-101663	0		X	Same as above	2
10-113508	0	X		RG-59A/U, -62A/U, -62B/U, -71/U	2
10-113509	0		X	Same as above	2
10-113686-4	4	X		Same as above	2
10-113686-81	8	X		RG-161/U, -179/U	2
10-113687-4	4		X	RG-59A/U, -62A/U -62B/U, -71/U	2
10-113687-81	8		X	RG-161/U, -179/U	2
10-158846-1	0		X	RG-7/U, -8/U, -11/U, -12/U, -13/U	2
10-158847-1	0	X		Same as above	2
10-183182-11	0	X		RG-41/U Modified (Check details of Modified Cable)	2
10-183182-12	0	X		RG-59/U, -62A/U	2
10-183182-13	0	X		RG-58/U	2
10-183182-41	4	X		RG-59/U, -62A/U	2
10-183182-42	4	X		RG-58/U	2

TABLE I (continued)

Part No.	Contact Size	Pin	Socket	Cable Information	Installation Procedure No.
10-183182-81	8	X		RG-161/U	2
10-183183-11	0		X	Modified RG-41/U (Check details of Modified Cable)	2
10-183183-12	0		X	RG-59/U, -62A/U	2
10-183183-13	0		X	RG-58/U	2
10-183183-41	4		X	RG-59/U,-62A/U	2
10-183183-42	4		X	RG-58/U	2
10-183183-81	8		X	RG-161/U	2
10-189342-81	8	X		RG-122/U	2
10-189342-83	8	X		RG-122/U	2
10-189343-81	8		X	RG-122/U	2
10-189343-83	8		X	RG-122/U	2
10-189393	8L	X		RG-62/U	2
10-189394	8L		X	RG-62/U	2
10-189441-81	8	X		RG-62/U	3
10-189442-81	8		X	RG-62/U	3
10-189450-43	4	X		RG-59A/U, -62A/U, -62B/U, -71/U	2
10-189451-43	4		X	RG-59A/U, -62A/U, -62B/U, -71/U	2
10-305982-41	4	X		RG-59A/U	2
10-305983-41	4		X	RG-59A/U	2

TABLE II

PYGMY

Part No.	Contact Size	Pin	Socket	Cable Information	Installation Procedure No.	Suffix Cross Ref.
10-117902-1	8L	X		RG-195/U	5	103,305, 316,317
10-117902-1	8L	X		RG-180/U	9	103,305, 316,317
*10-117902-2	8L	X		RG-195/U	5	103,305, 316,317
*10-117902-2	8L	X		RG-180/U	9	103,305, 316,317
10-117904-1	8L		X	RG-195/U	5	103,305, 316,317
10-117904-1	8L		X	RG-180/U	9	103,305, 316,317
*10-117904-2	8L		X	RG-195/U	5	103.305, 316.317
*10-117904-2	8L		X	RG-180/U	9	103.305 316,317
10-117963-1	8		X	RG-195/U	5	103,305, 316.317
10-117969-1	8	X		RG-195/U	5	103.305, 316,317
10-123063-1	8		X	**Special	1	--------
10-123069-1	8	X		**Special	1	--------
10-184920-1	12L		X	RG-196/U & RG-178/U	6	103,305, 316,317
10-184925-1	12L	X		RG-196/U & RG-178/U	6	103,305, 316,317
10-184932-1	12	X		RG-196/U & RG-178/U	6	103,305, 316,317
10-184934-1	12		X	RG-196/U & RG-178/U	6	103,305, 316,317
10-188928-1	8	X		RG-195/U	7	104,308

TABLE II (continued)

PYGMY

Part No.	Contact Size	Pin	Socket	Cable Information	Installation Procedure No.	Suffix Cross Ref.
10-188928-2	8L	X		RG-195/U	7	104, 308
10-188928-3	8L	X		RG-196/U		
10-188928-4	8L	X		RG-187/U & RG-188/U	7	104, 308
10-188928-81	8	X		RG-122/U	7	104, 308
10-188929-1	8		X	RG-195/U	7	104, 308
10-188929-2	8L		X	RG-195/U	7	104, 308
10-188929-3	8L		X	RG-196/U	7	104, 308
10-188929-4	8L		X	RG-187/U & RG-188/U	7	104, 308
10-188929-81	8		X	RG-122/U	7	104, 308
10-195900-1	12	X		RG-196/U	8	104, 308
10-195900-2	12L	X		RG-196/U	8	104. 308
10-195901-1	12		X	RG-196/U	8	104. 308
10-195901-2	12L		X	RG-196/U	8	104. 308
10-195978-2	8L	X		RG-62/U	3	-------
10-195982-2	8L		X	RG-62/U	3	-------
10-263968-1	8	X		RG-195/U	7	357
10-263968-2	8L	X		RG-195/U	7	357
10-263969-1	8		X	RG-195/U	7	357
10-263969-2	8L		X	RG-195/U	7	357
10-314919-2	8L	X		Special	5	103, 305, 316, 317
10-314920-2	8L		X	Special	5	103, 305, 316, 317
10-344988-2	8L	X		Special	7	104, 308
10-344988-3	8	X		Suprenant 1 & BUG726 GN-IN	7	104, 308

TABLE II (continued)

PYGMY

Part No.	Contact Size	Pin	Socket	Cable Information	Installa: Proced: No.
10-344989-2	8L		X	Special	7
10-344989-3	8		X	Suprenant 1 & BUG 726 GN-IN	7

*Same as -1 except finish .0001 - .0002 silver and .00010-.00015 Gold in .0002-.0003 silver, and .000050 Gold.

**This contact is supplied only in connectors with no suffix stamping that ha applicable insert arrangements.

TABLE III

RACK AND PANEL

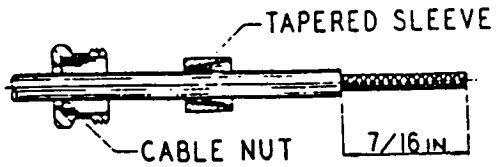
Part No.	Contact Size	Pin	Socket	Cable Information	Inst Pro N
10-130045-1	8	X		Microdot 70 OHM Miniature	4
10-130046-1	8		X	*	*
10-130046-2	8		X	*	*
10-130046-3	8		X	*	*
10-158231-1	8		X	Microdot 70 OHM Miniature	4
10-158677-1	8	X		RG-55/U, -58/U	3
10-158677-2	8	X		RG-62/U	3
10-158677-3	8	X		*	*
10-158678-1	8		X	RG-55/U	3
10-158678-2	8		X	RG-58/U, RG-62/U	3

*Mates with UG692/U Connector. See Manufacturer's instructions for metho attaching connector to cable.

PROCEDURE NO. 1

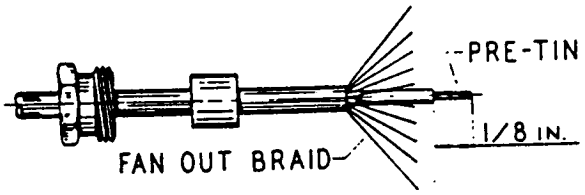
NOTE

See "Section I - General Instructions" for information on cutting and stripping the cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.



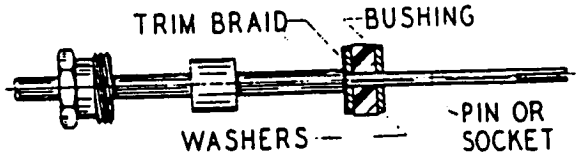
1. Slide the cable nut and tapered sleeve on the cable and push back out of the way. The small I. D. jopening of the sleeve must go on the cable first.

   Remove the outer cable jacket for 7/16 in. from the end. Avoid cutting or nicking the braid.



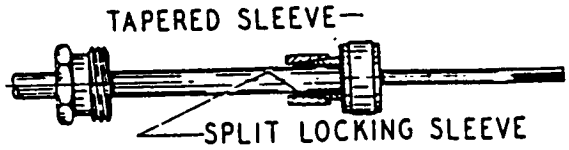
2. Fan out the braid and strip 1/8 in. of dielectric from the end of the conductor. Avoid nicking or cutting the conductor strands.

   Pre-tin the conductor end using rosin-alcohol flux and 60/40 solder.



3. Slide the first washer, bushing and second washer on the cable. Push back against the fanned out braid and trim the strands even with the edge of the washer.

   Pre-tin the pin or socket wire well and solder to the conductor. The dielectric should butt against the end of the wire well.



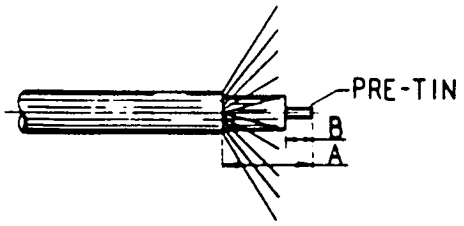
4. Place the split locking sleeve tight against the fanned braid strands and start the tapered sleeve over the split sleeve. Hold the washers against the fanned braid and push the tapered sleeve forward over the split sleeve until secure.

5. Move the cable nut forward over the tapered sleeve and start the pin or socket into the contact assembly. Push firmly in place, start the cable nut into position, and tighten with an open end wrench.

PROCEDURE NO. 2

NOTE

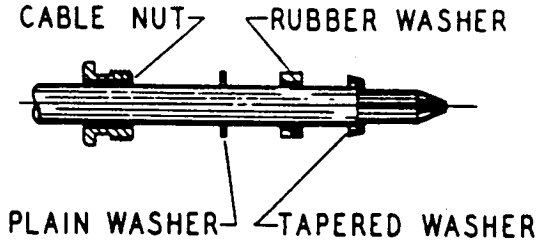
See "Section I - General Instructions" for information on cutting and stripping cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.



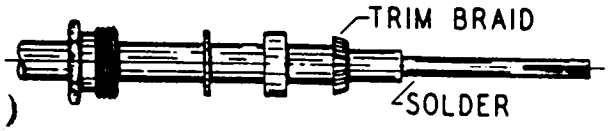
1. Strip the outer sheath of the cable to dimension "A". Comb out the braid and strip the dielectric to dimension "B".

   Pre-tin the conductor using rosin-alcohol flux and 60/40 tin-lead solder.

PART NUMBER		A	B
10-101652 10-113508 10-158846-1 10-183182-11, -12, -13	10-101663 10-113509 10-158847-1 10-183183-11, -12, -13	9/16	1/4
10-113686-4 10-183182-41, -42 10-189450-43 10-305982-41	10-113687-4 10-183183-41, -42 10-189451-43 10-305983-41	7/16	3/16
10-183182-81 10-189342-81, -83 10-189393	10-183183-81 10-189343-81, -83 10-189394	3/8	1/8
10-113686-81	10-113687-81	5/16	3/32



2. Taper the braid around the center conductor. Remove the cable nut and washers from the contact and position them on the cable in the position shown.



3. Fold braid strands back over the tapered washer and trim off all excess.

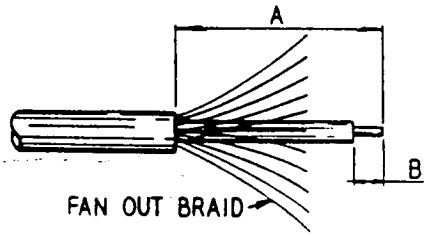
   Remove the pin or socket from the contact, pre-tin the wire well, and solder to the conductor. The wire well must be flush against the dielectric.

4. Slide the rubber washer, plain washer, and cable nut forward to the tapered washer. Start the pin or socket into the insert and push forward on the cable until seated. Tighten the cable nut.

PROCEDURE NO. 3

NOTE

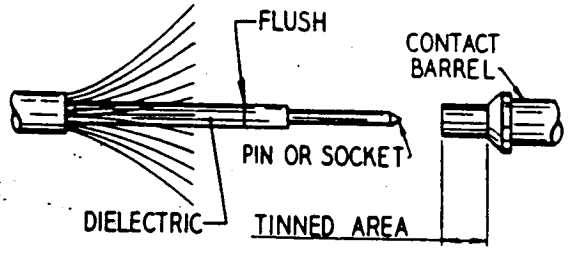
See "Section I - General Instructions" for information on cutting and stripping cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.



1. Strip the outer sheath of cable to dimension "A", comb out the braid back to the outer sheath, and strip the dielectric to dimension "B".

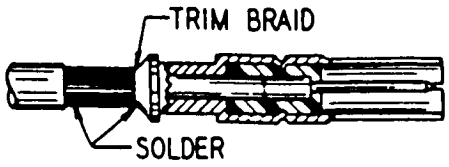
   Tin the conductor end using rosin-alcohol flux and 60/40 tin-lead solder.

Part No.	A	B	Part No.	A	B
10-36253	7/8	1/8	10-101626	7/8	1/8
10-36254	7/8	1/8	10-158677-1	1/2	5/32
10-37204	3/4	9/64	10-158677-2	1/2	1/8
10-37208	1	9/64	10-158678-1	1/2	5/32
10-101625	7/8	1/8	10-158678-2	1/2	1/8
10-195978-2	1/2	1/8	10-189441-81	41/64	1/8
10-195982-2	1/2	1/8	10-189442-81	41/64	1/8
10-72776-8	3/4	9/64	10-72777-8	3/4	9/64



2. Remove the pin or socket contact from the insert, tin the wire well, and solder to the conductor. The dielectric should be flush against the end of the wire well when soldering is complete.

   Tin the contact barrel from the cable end to the shoulder.



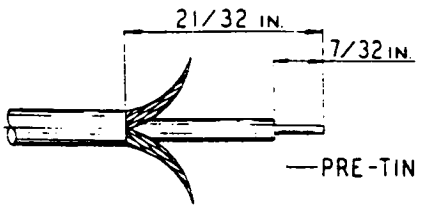
3. Insert the pin or socket in the barrel to its fully seated position. Distribute the braid strands about the outside of the barrel and trim them even with the first shoulder on the barrel.

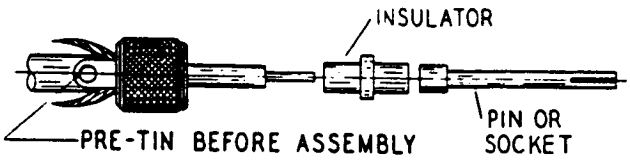
   Smooth the braid strands over the barrel and push forward, holding the pin or socket firmly in place while soldering. Solder the braid strands to the barrel, applying flux and solder between and at the ends of the strands.

PROCEDURE NO. 4

NOTE

See "Section I - General Instructions" for information on cutting and stripping cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.

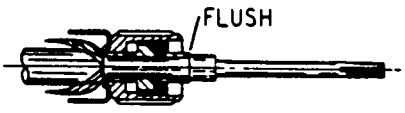




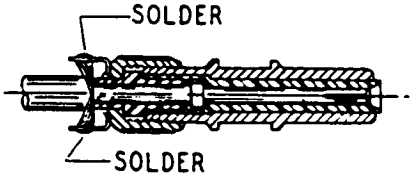
1. Strip the cable sheath to 21/32 in. from the end, comb out the braid, and separate the strands into two equal bundles. Strip the dielectric 7/32 inch.

   Pre-tin the conductor end using rosin-alcohol flux and 60/40 tin-lead solder.

2. Remove the nut and insulator from the contact assembly and pre-tin the lugs on the nut. Fold the braid back over the cable and position the nut on the cable against the braid.



3. Slide the insulator on the cable and into the nut. Remove the pin or socket from the contact shell, pre-tin the wire well, and solder to the conductor. The end of the wire well must be snug against the insulator and dielectric.



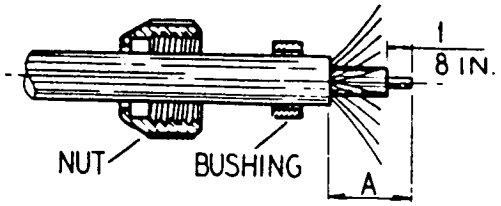
4. Insert the contact in the shell and push forward. The threads on the nut will engage the threads on the shell. Tighten the nut.

   Insert the braid strands through the lugs and trim. Solder the braid to the lugs. Remove any sharp ends.

PROCEDURE NO. 5

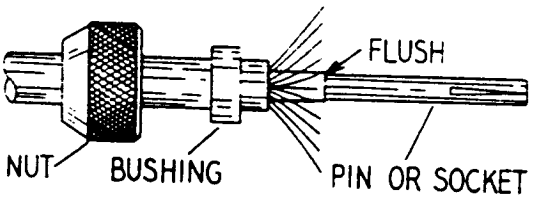
NOTE

See "Section I - General Instructions" for information on cutting and stripping cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.



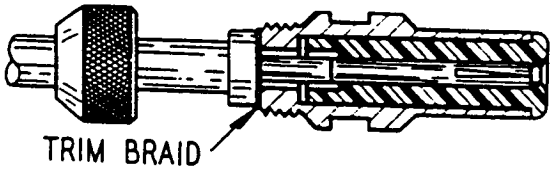
1. Slide the nut and bushing on the cable. Strip the outer jacket to "A" dimension, comb out the braid and strip the dielectric 1/8 inch.

PART NUMBER	A
10-117902-1	9/16
10-117902-2	9/16
10-117904-1	9/16
10-117904-2	9/16
10-117963-1	1/2
10-117969-1	1/2
10-314920-2	9/16
10-314919-2	9/16



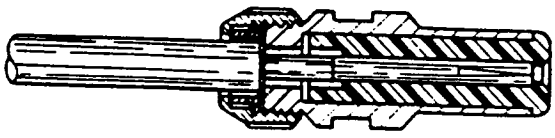
2. Tin the conductor end using rosin-alcohol flux and 60/40 tin-lead solder.

   Remove the pin or socket from the contact assembly, pre-tin the wire well, and solder to the conductor. The wire well should be flush against the dielectric.



3. Start the pin or socket into the insert and set in place by pushing on the cable. Spread the braid strands evenly around the end of the contact barrel.

   Slide bushing forward, pinching the braid against the contact barrel. Trim the braid even with the outside diameter of the bushing.



4. Thread nut on the barrel and tighten

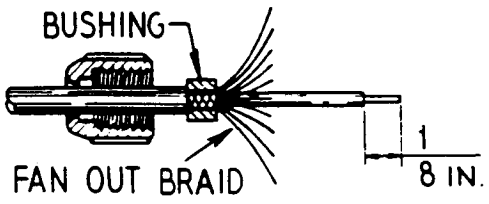
PROCEDURE NO. 6

NOTE

See "Section I - General Instructions" for information on cutting and stripping cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.

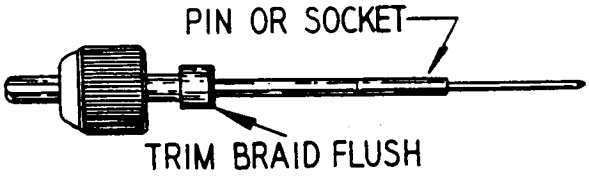
1. Strip outer sheath of cable to dimension "A".

PART NUMBER	A
10-184920-1	21/32
10-184925-1	21/32
10-184932-1	19/32
10-184934-1	19/32



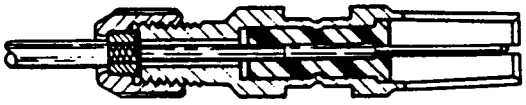
2. Position nut on the cable and slide bushing over the braid back against the cable sheath. Fan out the braid.

   Strip the conductor 1/8 inch and pre-tin using rosin-alcohol flux and 60/40 tin-lead solder.



3. Remove the pin or socket from the contact assembly, pre-tin the wire well, and solder to the conductor. Wire well should be flush against the dielectric.

   Trim the braid flush with the O. D. of the bushing.

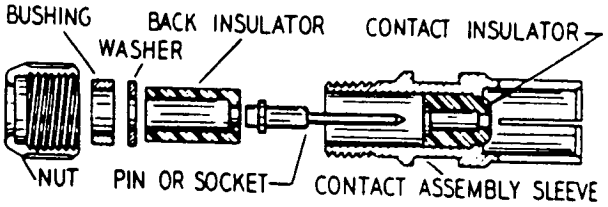


4. Start the pin or socket into the contact insert and fully seat by pushing on the cable. Slide the nut forward over the bushing, thread on the contact barrel, and tighten.

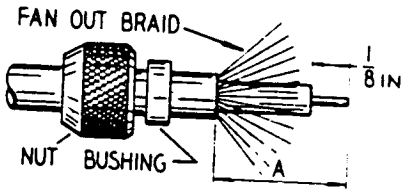
PROCEDURE NO. 7

NOTE

See "Section I - General Instructions" for information on cutting and stripping cable. disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.



1. Unscrew the nut from the rear of the contact barrel. Slide the washer and bushing out of the nut. Remove the back insulator and contact from the barrel by pushing on the pin or socket from the front. The contact insulator need not be removed.



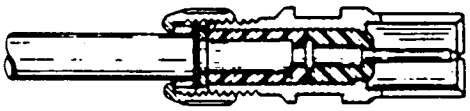
2. Slide the nut and bushing on the cable. Strip the outer sheath to dimension "A". Fan out the braid and strip the conductor 1/8 inch.

   Pre-tin the conductor and wire well using rosin-alsohol flux and 60/40 tin-lead solder.

PART NUMBER	A "IN."
10-188928-1 10-188929-1	7/16
10-188928-2 10-188929-2	5/8
10-188928-3 10-188929-3	5/8
10-188928-4 10-188929-4	5/8
10-263968-1 10-263969-1	7/16
10-263968-2 10-263969-2	5/8
10-344988-2 10-344989-2	5/8
10-344988-3 10-344989-3	7/16

3. Slide washer on cable back against the braid. Slide the bushing forward, pinching the braid against the washer. Trim the braid strands even with the O. D. of the washer.

Position the back insulator on the dielectric. Sweat solder the pin or socket to the conductor. Make sure the shoulder is flush against the back insulator, and no excess solder collects on the outside of the solder well.

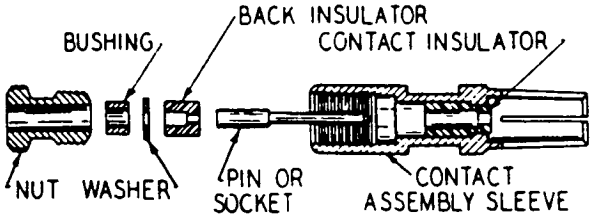


4. Start the pin or socket into the contact barrel, and fully seat the contact by pushing on the cable. Move the cable nut forward, thread into position and tighten.

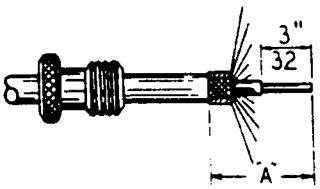
PROCEDURE NO. 8

NOTE

See "Section I - General Instructions" for information regarding cutting and stripping cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.



1. Unscrew the nut and remove the bushing and washer from the rear of the contact barrel. Remove the pin or socket and back insulator by pushing from the front. The contact insulator need not be removed.



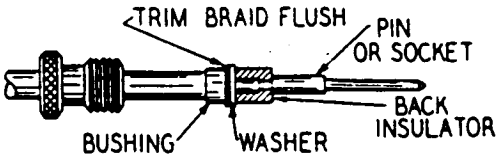
2. Slide the nut on the cable and strip the outer sheath to dimension "A". Slide the bushing over the braid. back against end of the sheath. Fan out the braid and strip the conductor 5/32 inch.

   Pre-tin the conductor and wire well using rosin-alcohol flux and 60/40 tin-lead solder.

Part Number	A
10-195900-1 10-195901-1	3/8
10-195900-2 10-195901-2	1/2

3. Slide the washer over the dielectric, back against the fanned out braid. Trim the braid strands flush with the O. D. of the washer.

   Position the back insulator over the dielectric, tight against the washer. Sweat solder the pin or socket to the center conductor. Assure that the contact is flush against the back insulator and no excess solder collects on the outside of the wire well.

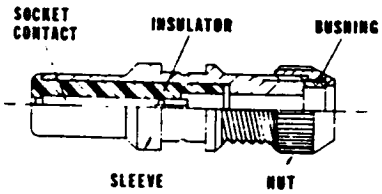


4. Start the pin or socket into the contact barrel to its fully seated position. Move the cable nut forward, thread into position, and tighten.

PROCEDURE NO. 9

NOTE

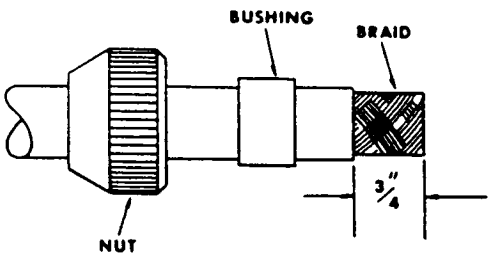
See "Section I - General Instructions" for information on cutting and stripping cable, disassembly of coaxial contact for installation, and recommended procedures for tinning and soldering.



1. Remove nut and bushing from the contact assembly and tin the bushing in the following manner:

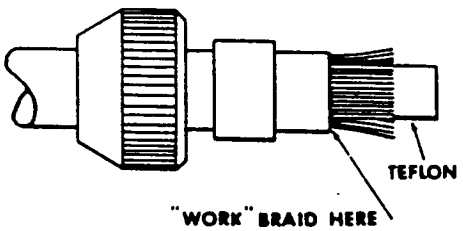
   a. Dip the bushing in rosin alcohol flux - shake off all excess.

   b. Dip the bushing in a soldering pot of 60/40 tin lead solder. Again, shake off any excess solder. Solder temperatures should be maintained between 500° and 550°F.

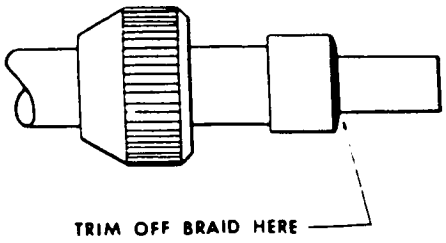


2. Slide the nut and bushing on the cable. Remove the outer jacket (insulation) 3/4 inch from the end of the cable.

3. "Work" the braid toward the spot where the jacket was stripped. This enlarges the diameter of the braid in the area where the bushing will be soldered to the braid. This operation is necessary because the I. D. of the bushing was originally designed for RG-195/u coaxial cable and is larger than the O. D. of the outer conductor (braid) of the RG-180 cable.

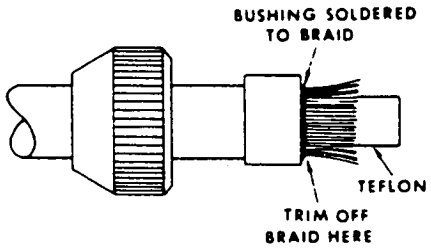


4. Using a small typical soldering iron or resistance soldering equipment, tin the entire circumference of the braid in the area where it has been built up, according to the following steps:



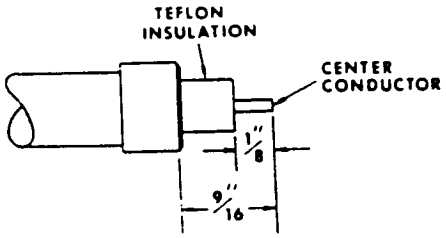
a. Using a narrow brush, cover the "built-up" area of the braid with rosin alcohol flux. Apply the flux as near as possible to the spot where the outer jacket has been stripped. Cover only enough area to insure that the bushing will be properly soldered to the braid. Avoid applying excess flux on adjoining areas.

b. Apply a small amount of 60/40 tin-lead solder about the braid. Apply only enough solder to insure complete tinning of the braid in the required area.



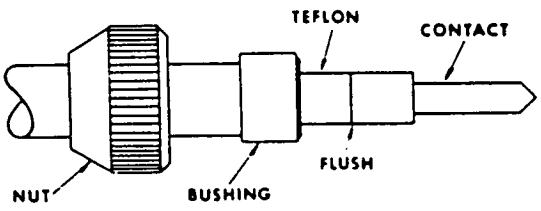
5. Bring the bushing forward and position against or over the tinned area of the braid. Using the soldering equipment, apply heat to the bushing until the solder liquefies and the bushing is "sweated" to the braid. The bushing should be as close to the outer jacket as possible and positioned evenly in relation to the cable. If the bushing is soldered to the braid in a pivoted position, it would not seat properly in the nut and could prevent proper threading alignment.

6. Using a small pair of scissors, trim the braid flush with the bushing. Do not cut or damage the teflon insulation.



7. Cut off the center conductor and insulation at a point 9/16 inch from the front edge of the bushing. Strip 1/8 inch of the teflon insulation from the center conductor.

8. Tin the conductor end using rosin-alcohol flux and 60/40 tin-lead solder. Remove the pin or socket from the contact assembly, pre-tin the wire well, and solder to the conductor. The wire well should be flush against the dielectric.



9. Carefully align the pin or socket with the hole in the contact insert and seat in place by pushing on the cable. Hold the contact and cable firmly. Bring the nut forward and secure in position by threading it onto the contact barrel.

CAUTION

Twisting the barrel or braid before the nut is securely positioned could cause breakage of the center conductor.