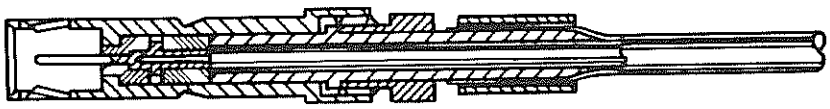
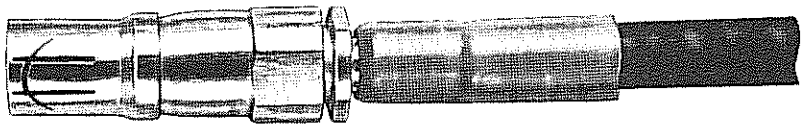
21-PT-SE Series Coaxial Contacts

Installation Instructions





Impedance Matched and Moisture Resistant Types

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SECTION I

GENERAL INSTRUCTIONS

1-1. This manual contains installation procedures for 21-PT-SE series coaxial contacts. Socket contact assembly numbers are 21-33011 and 21-33037; the pin assembly numbers are 21-33012 and 21-33038. The contact assembly number is followed by a dash number which specifies the contact configuration for use with certain coaxial cables. For example, 21-33011-23 is a socket contact which uses RG/U coaxial cable. The entire contact part number is stamped on the outside of the contact.

1-2. Section III of this manual describes installation procedures for coaxial contacts 21-33105 (socket) and 21-33106 (pin).

1-3. There are two types of 21-PT-SE coaxial contacts. Type I is the moisture resistant type which contains packing between the front and back insulators. Refer to Section II, paragraphs 21 thru 26, for installation instructions. Type II is the impedance matched version in which front and back insulator are butted against shoulder of inner contact. Refer to Section II, paragraphs 27 thru 29.

1-4. The main differences in installation procedure for various dash number contacts are:

a. Type of coaxial cable used.
b. Method of insertion and removal.
c. Type of crimping tool, insertion tool and removal tool used.

1-5. Refer to Section II for installation procedure. Table I lists the cable type and tool numbers for each contact configuration.

1-6. General information concerning installation of coaxial contacts.

a. When cutting cables to proper lengths, ends must be cut cleanly and at right angles to axial plane of cable. Cable must not be deformed while making cut.

b. Strip cable sheath and dielectric carefully to avoid cutting or nicking braid or conductor strands. Small diagonal cutting pliers, scissors or a fingernail clipper may be used for trimming braid.

NOTE

Do not comb out braid prior to crimping. Marginal crimp values may result.

c. Pretin 1/2 of bare conductor end before soldering to contact. A good grade of rosin-alcohol flux and a solder bath with 60/40 tin-lead solder at 500°-550°F is recommended. When working with multi-strand conductors, make certain strands are formed together tightly before dripping in flux and solder. Do not hold conductor in solder bath longer than time necessary to thoroughly tin all strands of wire. Avoid excessive temperatures which will burn, scorch or swell the dielectric.

d. Contact wire wells must be pretinned with a good grade of rosin-alcohol flux and 60/40 tin-lead solder. Support contact vertically in a pin vise. Insert flux or solder into contact wire well and apply heat to outside of contact until flux or solder flows into wire well. Apply flux to wire well before solder.

e. When soldering conductor to contact, dip pretinned conductor end into rosin-alcohol flux and start it into wire well, simultaneously applying heat to outside of well. Continue heating until solder on conductor and in wire well is completely liquefied. Remove heat and maintain alignment of conductor and contact until solder solidifies. Do not move conductor while solder is cooling. Allowing 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 hole in side of wire well and apply heat. Wipe solder from outside of wire well before it hardens.

f. If outer sheath of cable is the woven type which tends to fray easily, slip a one inch length of tight fitting vinyl tubing onto cable ahead of contact attaching parts. After soldering is completed and attaching parts are installed, slide vinyl sleeve along cable until it fits snugly against contact assembly.

SECTION II

INSTALLATION INSTRUCTIONS

NOTE:

Refer to paragraph 1-5, for general information concerning cutting, stripping and soldering of cable. Refer to Table I for cable type and tool numbers for each contact configuration. See figures 2-1 and 2-3 for contact part identification.

TABLE I

SE (21-) CRIMP COAX CONTACTS

CONTACT				USE WITH RG/U CABLE NO.	CRIMP TOOL (OUTER BARREL)	INSERTION TOOL 11-8369 OR 11-8660	REMOVAL TOOL 11-7880 *	"X" DIM. (IN.) (A, FIGURES 2-2 & 2-4.)
SERIES PART NO.	DASH NO.	SIZE	TYPE					
21-33011**, 21-33037*** SOCKET 21-33012**, 21-33038*** PIN	-1	12	I	161, 174 179A, 187, 188	WT 200	-2	-12	3/4
	-3	12	I	178 196	WT219	-1	-12	3/4
	-4	12	II	174 188	WT200	-2	-12	3/4
	-5	12	II	178 196	WT219	-1	-12	3/4
	-6	12	I	188 Double Braid	WT201	-2	-12	3/4
	-8	-12	I	Ray Chem #62-504	WT200	-2	-8	7/8
	-21	8	I	55A, 142A 223	WT208	-5	-8	7/8
	-22	8	I	58 141	WT203	-4	-8	7/8
	-23	8	I	122	WT203	-4	-8	7/8
	-24	8	I	180 195	WT203	-4	-8	7/8
	-25	8	II	55A, 142A 223	WT208	-5	-8	7/8

(cont'd.)

(cont'd)

TABLE I
SE (21-) CRIMP COAX CONTACTS

CONTACT				USE WITH RG/U CABLE NO.	CRIMP TOOL (OUTER BARREL)	INSERTION TOOL 11-8369 OR 11-8660	REMOVAL TOOL 11-7880 *	"X" DIM. (IN.) (A, FIGURES 2-2 & 2-4.)
SERIES PART NO.	DASH NO.	SIZE	TYPE					
21-33011**, 21-33037*** SOCKET 21-33012**, 21-33038*** PIN	-26	8	II	58 141	WT203	-4	-8	7/8
	-27	8	II	122	WT203	-4	-8	7/8
	-28	8	I	195 Double Braid	WT206	-4	-8	7/8
	-30	8	II	188	WT200	-2	-8	7/8
	-31	8	I	Ray Chem #82-404	WT203	-4	-8	7/8
	-32	8	II	Ray Chem #82-403	WT203	-4	-8	7/8
	-33	8	I	Special	WT203	-4	-8	7/8
	-34	8	I	174 188	WT200	-2	-8	7/8
	-35	8	I	178 196	WT219	-1	-8	7/8
	-36	8	II	59, 62	WT209	-5	-8	7/8
	-39	8	II	Ray Chem 9527A1317	WT203	-4	-8	7/8
	-41	8	I	ITT II 14336	WT203	-4	-8	7/8

Inner Contacts are Soldered
* Alternate Tools 11-8154-1 Size 8 and 11-8154-2 Size 12.
**0.000050 min. gold over silver finish
***0.000010 min. gold over copper finish

2-1. TYPE I CONTACTS.

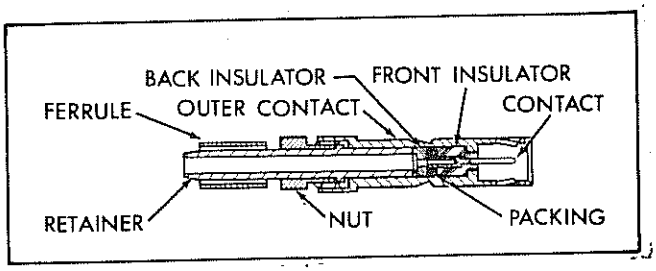

Figure 2-1. Type I Contact Part Identification

2-2. Assemble contact to cable as follows:

a. Remove length ("X" dimension) of cable outer sheath from end of cable (A, figure 2-2).. Hot wire stripping is recommended to avoid cutting or nicking center conductor.

b. Slide ferrule over outer braid flush with edge of outer sheath (B, figure 2-2).

c. Trim braid flush with edge of ferrule.

d. Slide ferrule over outer sheath (C, figure 2-2). On some coaxial cables this ferrule will not move back over the outer sheath due to diameter interference. Position the nut and retainer assembly inside the outer braid while holding the ferrule in position over the outer braid. Crimp as described in step f.

e. Position nut on retainer. Expand outer braid and slide retainer under braid. Leave approximately 1/64 inch gap between edge of braid and nut.

f. Slide ferrule over outer braid and crimp braid between ferrule and retainer with Thomas & Betts Crimping Tool* (D, figure 2-2).. Make certain nut turns freely after crimping.

g. Trim cable core flush with end of retainer. Do not cut or nick center conductor.

h. Slide back insulator over center conductor until it butts against end of retainer (E, figure 2-2)..

i. Trim center conductor to allow inner contact to butt against edge of back insulator.

j. Tin center conductor and, using a 47.5 watt soldering iron, solder center conductor into inner contact wire well. Refer to Section I, paragraph 1-5, for general soldering instructions. A pin vise can be used to hold inner contact.

k. Position packing over inner contact and against back insulator (F, figure 2-2)..

l. Slide front insulator over inner contact, large diameter first.

m. Slide outer contact over insulator and thread nut into rear of outer contact. For size 12 contacts, torque nut to 16-20 inch oz. using the 11-8676-1 wrench. The nut of size 8 contacts shall be torqued to 30-36 inch oz. using the 11-8676-2 wrench. Do not allow cable to turn when tightening nut.

2-3. CONTACT INSERTION.

2-4. Using channel type insertion tool*, insert contact assembly into rear (grommet) end of connector. Make certain that contact is aligned with hole and not inserted at an angle. Some increase in resistance will be noted prior to seating of contact into contact retaining bushing. To aid insertion of contacts into grommets with small wire hole diameters, without tearing the grommet, a nylon pilot plug (P/N 10-406910-81 for size 8; 10-406910-122 for size 12 is furnished with the contacts. Install the pilot plug in the socket contacts prior to insertion into the grommet. After sealing contact within insert, the pilot plug may be removed through the front of the insert.

2-5. CONTACT REMOVAL.

2-6. Working from front face of connector, insert removal tool* into insert until it fully

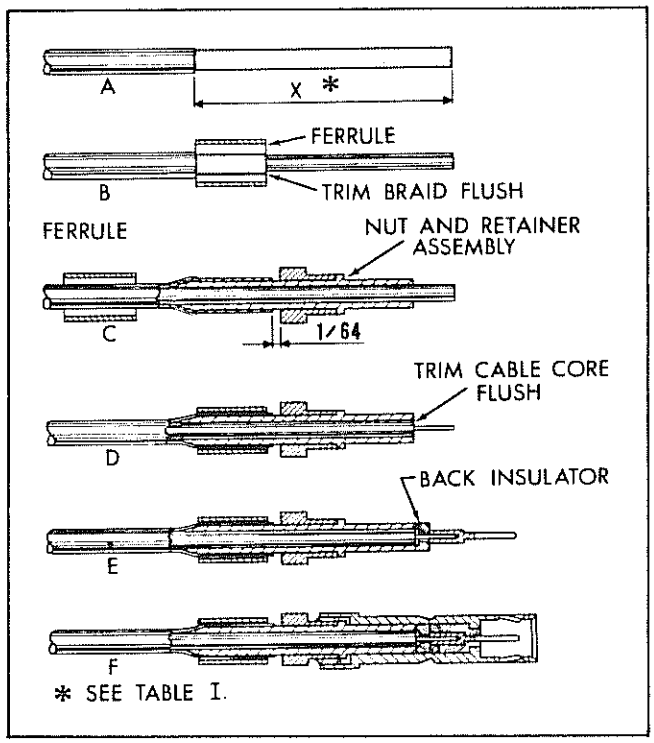

Figure 2-2. Type I Contact Assembly Steps.

*See Table I for proper tool to be used with each contact configuration.

engages in contact retaining bushing. Rotate tool slight to open bushing and disengage contact by pushing spring loaded sleeve fully forward. Remove contact by gripping contact wire well and pulling straight to rear. Do not grip wire.

2-7. TYPE II CONTACTS.

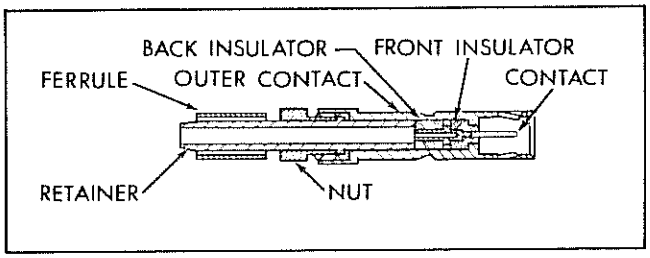

Figure 2-3. Type II Contact Part Identification

2-8. Assemble contact to cable as follows:

a. Remove length ("X" dimension) of cable outer sheath from end of cable (A, figure 2-4). Hot wire stripping is recommended to avoid cutting or nicking center conductor.

b. Slide ferrule over outer conductor (braid) flush with edge of outer sheath (B, figure 2-4).

c. Trim braid flush with edge of ferrule.

d. Slide ferrule over outer sheath (C, figure 2-4). On some coaxial cables this ferrule will not move back over the outer sheath due to diameter interference. Position the nut and retainer assembly inside the outer braid while holding the ferrule in position over the outer braid. Crimp as described in step f.

e. Position nut on retainer. Expand outer conductor (braid) and slide retainer under braid. Leave approximately 1/64 inch gap between edge of braid and nut.

f. Slide ferrule over outer conductor (braid) and crimp braid between ferrule and retainer with Thomas & Betts Crimping Tool* (D, figure 2-4). Make certain nut turns freely after crimping.

g. Trim cable core flush with end of retainer. Do not cut or nick center conductor.

h. Install back insulator over back end of inner contact (E, figure 2-4).

i. Trim center conductor to allow back insulator to butt against retainer when inner contact is installed.

j. Tin center conductor and, using a 47.5 watt soldering iron, solder center conductor into inner contact wire well. Refer to Section I, paragraph 1-5, for general soldering instructions. A pin vise can be used to hold inner contact.

k. Slide front insulator over inner contact, large diameter first (F, figure 2-4).

l. Slide outer contact over insulator and thread nut into rear of outer contact. For size 12 contacts, torque nut to 16-20 inch oz. using the 11-8676-1 wrench. The nut of size 8 contacts shall be torqued to 30-36 inch oz. using the 11-8676-2 wrench. do not allow cable to turn when tightening nut.

2-9. Refer to paragraphs 2-3 thru 2-6 for contact insertion and contact removal.

2-10. Sealing plug P/N 10-101033-13 is used to seal unused grommet holes for size 12 contacts.

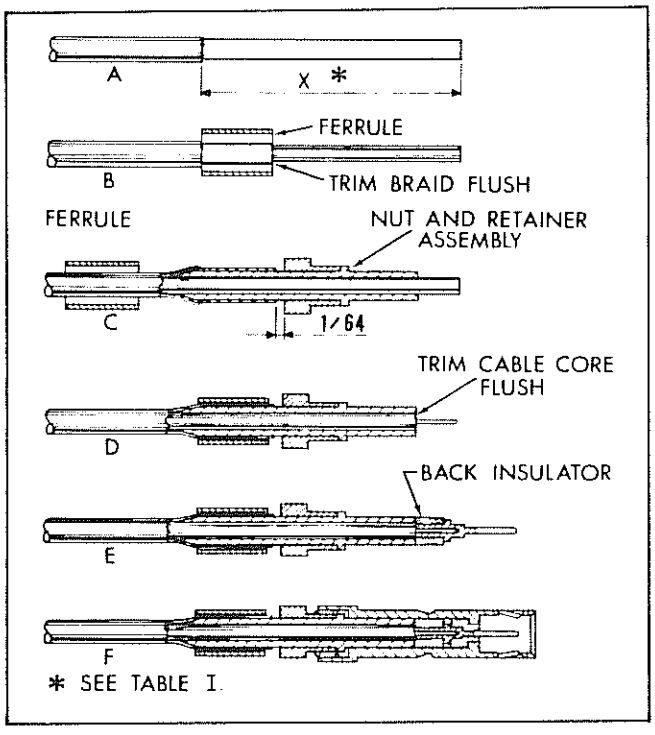

Figure 2-4. Type II Contact Assembly Steps

*See Table I for proper tool to be used with each contact configuration.

SECTION III

INSTALLATION INSTRUCTIONS FOR 21-33106-40F PIN AND 21-33105-40F SOCKET, PT-SE, COAXIAL CONTACTS

3-1. Cable Preparation. Proceed as follows:

a. Cut cable to proper length. Ends must be cut cleanly and at right angles to axial plane of cable. Cable must not be deformed while making cut.

b. Strip cable outer sheath 19/32 from end of cable. Hot wire stripping is recommended to avoid cutting or nicking cable braid.

c. Slide cable braid back until center conductor insulation is exposed for stripping.

d. Strip center conductor insulation 13/32 from end of cable. Hot wire stripping is recommended.

3-2. Assembly of Contact to Cable. See exploded view (figure 3-1) and assemble contact to cable as follows:

a. Pull braid forward and slide ferrule over outer sheath.

b. Push braid back and slide back insulator over center conductor until it butts against center conductor insulation.

c. Trim center conductor to allow center contact shoulder to butt against edge of back insulator. Center conductor must be visible through contact inspection hole.

d. Remove center contact after the center conductor has been cut to proper length.

e. Pretin half of the bare conductor. A good grade of rosin-alcohol flux and a solder bath with 60/40 tin-lead solder at 500° to 550°F is recommended.

NOTE

Make sure wire strands are formed together tightly before dipping in flux and solder.

f. Pretin center contact wire well.

g. Solder center contact to conductor using tweezer type resistance soldering equipment.

h. Inspect to make sure back insulator butts against center insulation and center contact shoulder butts against back insulator.

i. Slide front insulator over center contact.

j. Install outer contact onto cable and under braid until front insulator bottoms.

k. Slide ferrule down cable and over braid.

l. Crimp ferrule to braid using Daniels Crimp Tool #GS200 and Positioner* #G2P330.

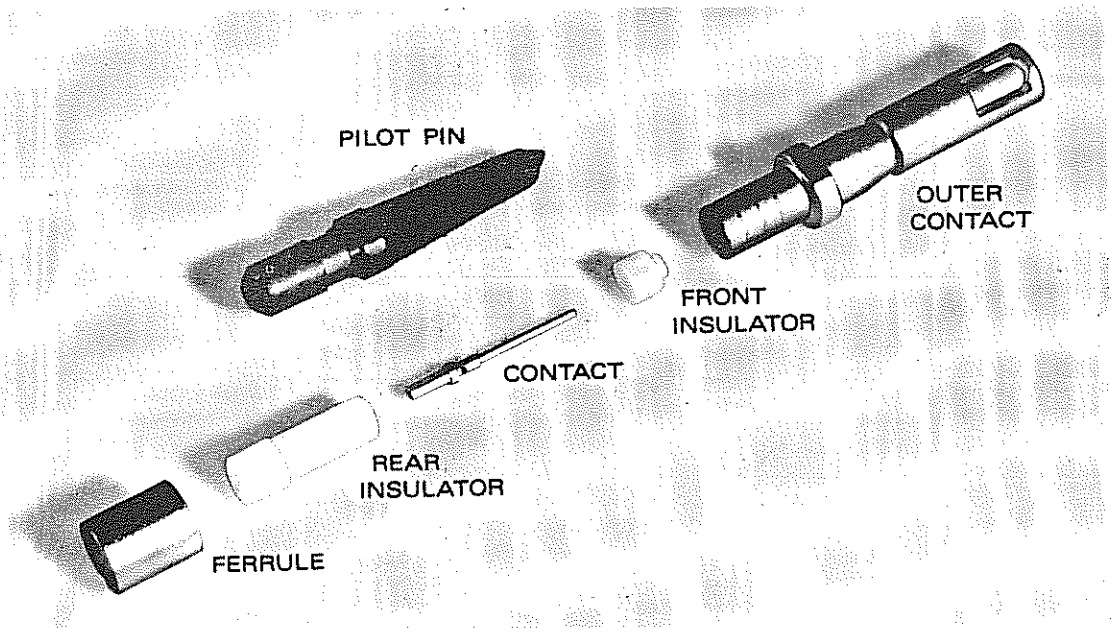

Figure 3-1. PT-SE Coaxial Contact, Exploded View

*Available from Daniels Mfg. Corp., 2266 Franklin Road, Bloomfield Hills, Mich. 48013.

m. Rotate assembly 45° and recrimp.

n. Trim off excess braid behind outer contact rear shoulder.

3-3. Contact Insertion. Insert contact as follows:

a. Remove back accessories from connector and slide onto cable.

b. Insert contact into connector using the 11-8674-12 Insertion Tool. This tool is the standard insertion tool for Size 12 JT-RE type contacts. The front of the tool tips should be butted against the rear of the ferrule during the insertion operation.

c. Slide back accessories down cable and secure to connector after contact insertion is completed.

3-4. Contact Removal. Proceed as follows:

a. Remove contact from the front side of the connector using PT-SE Removal Tool 11-7880-12.

NOTE

Be sure to remove back accessories from rear of connector before attempting to remove contacts.