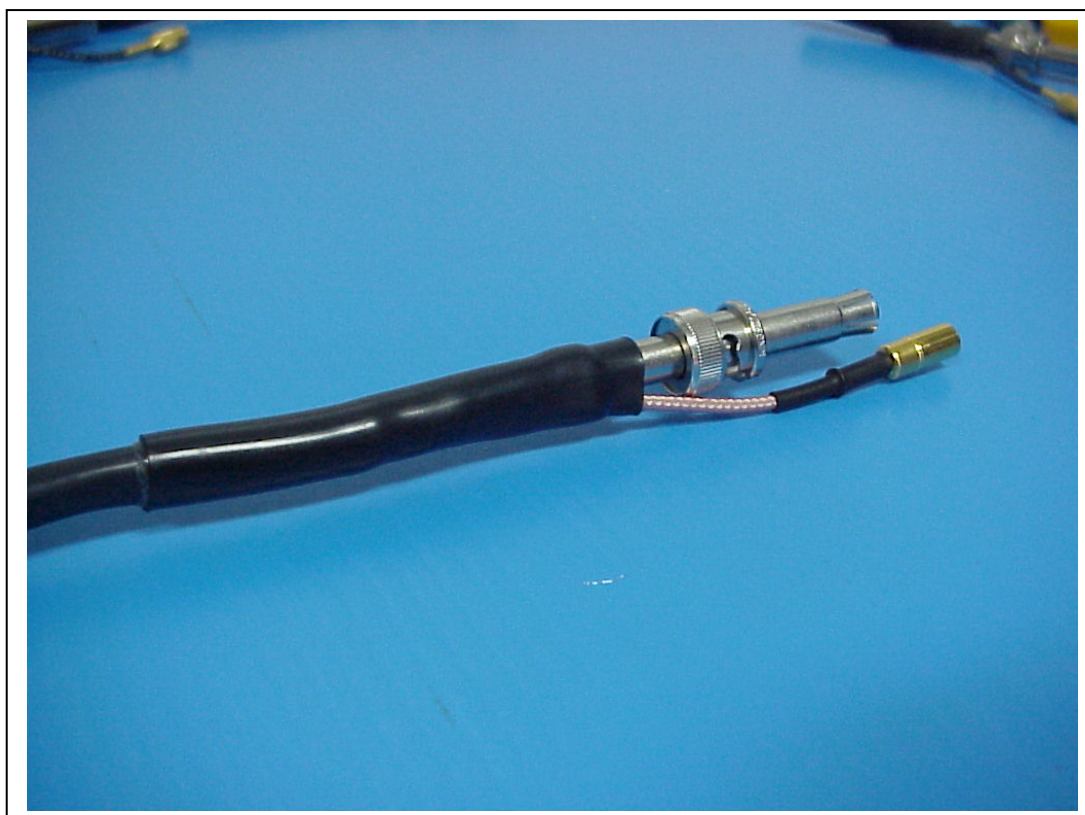



REVISIONS

REV	CO	DESCRIPTION	DATE	APPROVED
A	11.592	RELEASE; REPLACES643873	11-09-05	RDG
B	74.001	REWRITE	1-24-07	RDG
C	70.696	SCP WAS SCG	4-4-07	RDG
D	114.396	MOLEX USES SLOT H	7-29-09	RDG
E	134.066	ADDED MORE ASSEMBLY DETAILS	3-25-10	MHC

SHV10 CONTROL END CONNECTOR WITH SMB SAFECONN FOR ISOLATED GROUND PUMP CONNECTOR



FIRST PAGE REVISION IS THE CURRENT REVISION OF THIS DOCUMENT. REVISION LETTERS ON SUBSEQUENT PAGES ONLY UPDATE WHEN A CHANGE IS MADE TO THAT PAGE.

PREPARED BY R GOLLA	DATE 11-09-05	CHECKED AND APPROVED BY M CORPRON	DATE 11-09-05
 Gamma Vacuum, LLC 2915 133 rd Street West, Shakopee, MN 55379		SHEET 1 OF 16	
TITLE PROC,CA ASM,SCP,CNTRL,370010		NUMBER 430017	REV E

1.0 GENERAL

The purpose of this procedure is to give detailed instructions for the assembly of SHV10 connector 390065 to cable 380052 with Gamma style safeconn hardware (SMB connector). This procedure is to be used for cables with pump end connectors with isolated ground.

2.0 BILL OF MATERIALS

<u>ITEM</u>	<u>PART NO.</u>	<u>QTY</u>	<u>DESCRIPTION</u>
1	390065	1	CONN-SHV10, NON-BAKEABLE
2	390627	3.5"	SHRINK TUBING-3/8",POLY,ADH
3	390079	1	FERRULE,CRIMP
4	390755	2"	SHRINK TUBING-1/8",POLY,BLK
5	506706	1.25"	SHRINK TUBIN-3/16",POLY,BLK
6	380212	1	SMB CABLE
7	101138	A/R	HI-TEMP SOLDER 300C
8	380052	SEE JOB	CABLE-SAFECONN

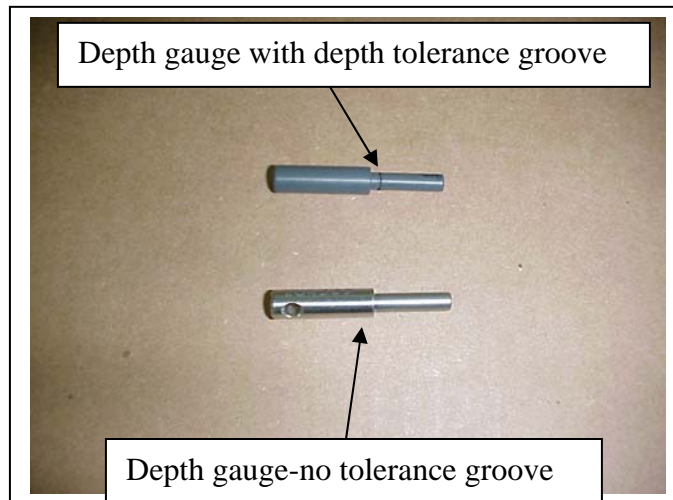
NOTE: If this BOM does not match Traveler, the Traveler takes precedence.

3.0 TOOLS REQUIRED

- Crimper- Sargent Crimper with die #KTH 2061.



- SHV10 Pin Depth Gauge



- Knife and wire cutter



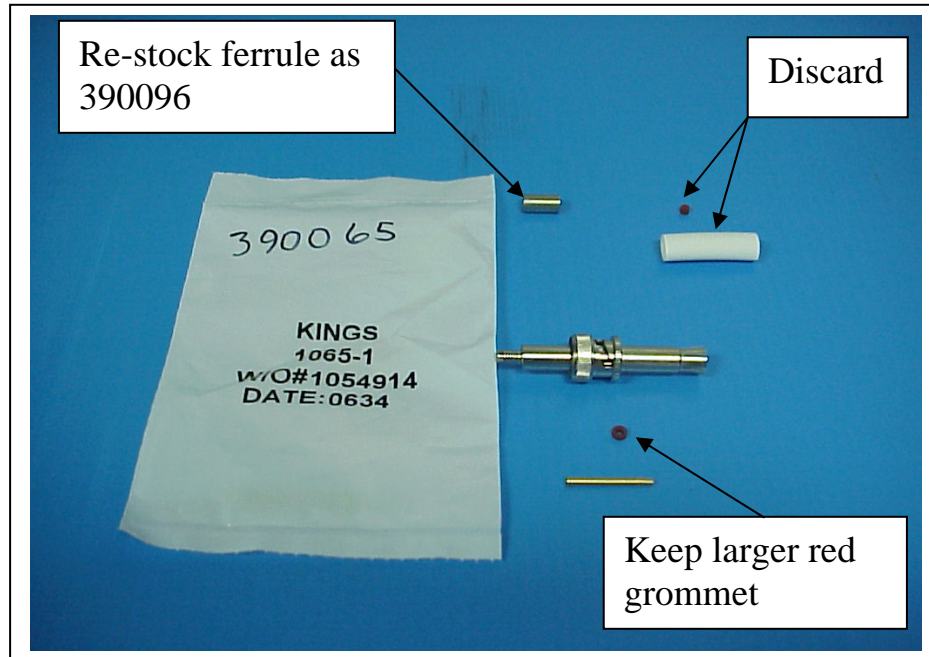
- SHV10 (Kings) Feedthru tooling



4.0 ASSEMBLY INSTRUCTIONS:

4.1 Remove contents from Item 1 packaging.

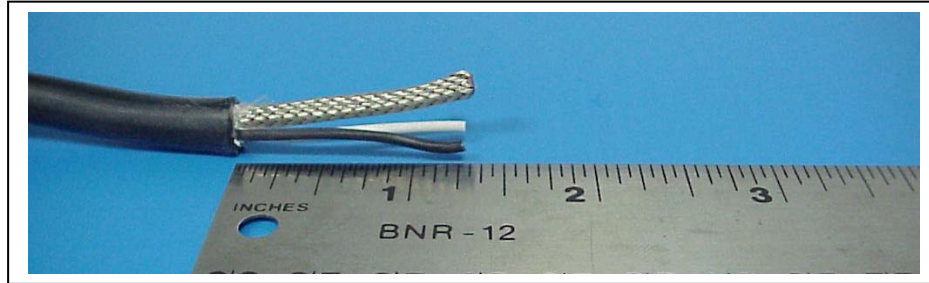
- Discard the white shrink tubing and small red grommet found in the packet.
- Re-stock crimp ferrule as 390096.
- Keep all remaining items.



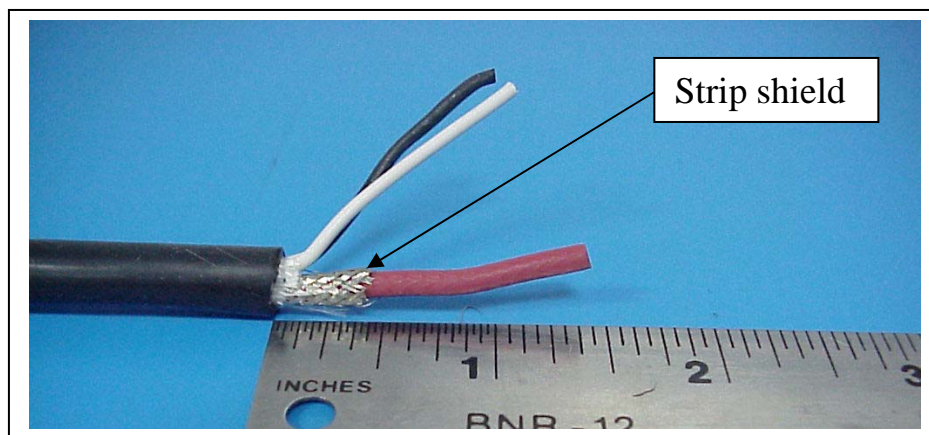
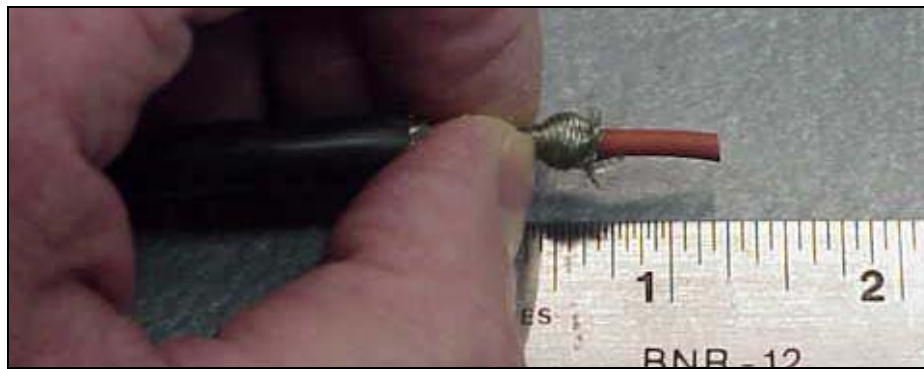
4.2 Carefully strip outer cable jacket (Item 8) about 1.25" (3.2 cm) as shown.



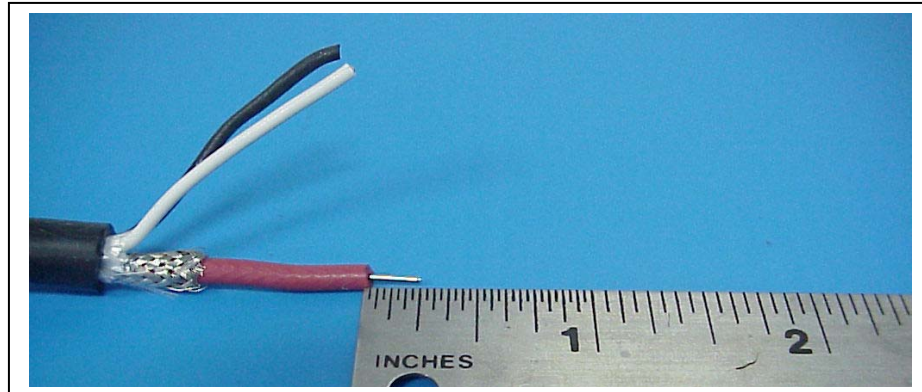
4.3 Remove fiberglass sheath and remove clear sleeve from braided shield.



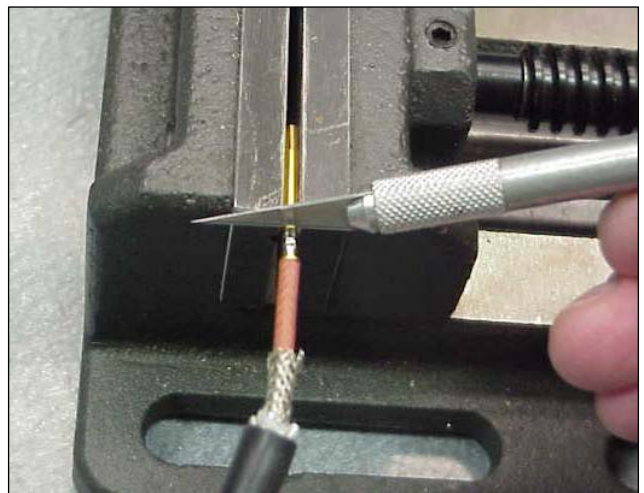
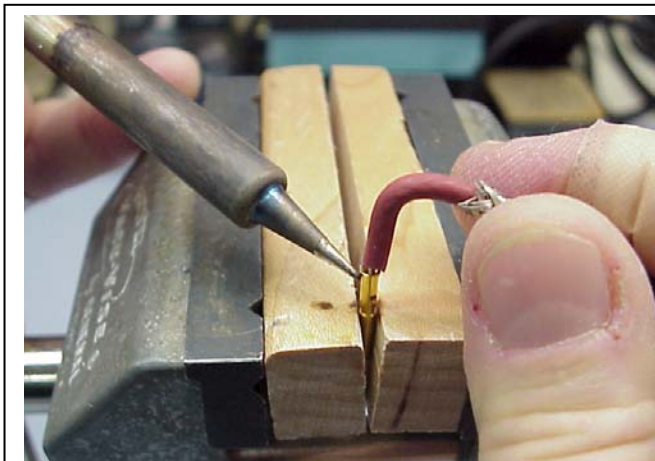
4.4 Strip shield (next two photos) to approximately 7/16" (11 mm) long as shown. Be very careful to avoid damage to insulation on red, white, and black wires. Before cutting, push the shield together to expand it as shown in the first photo.



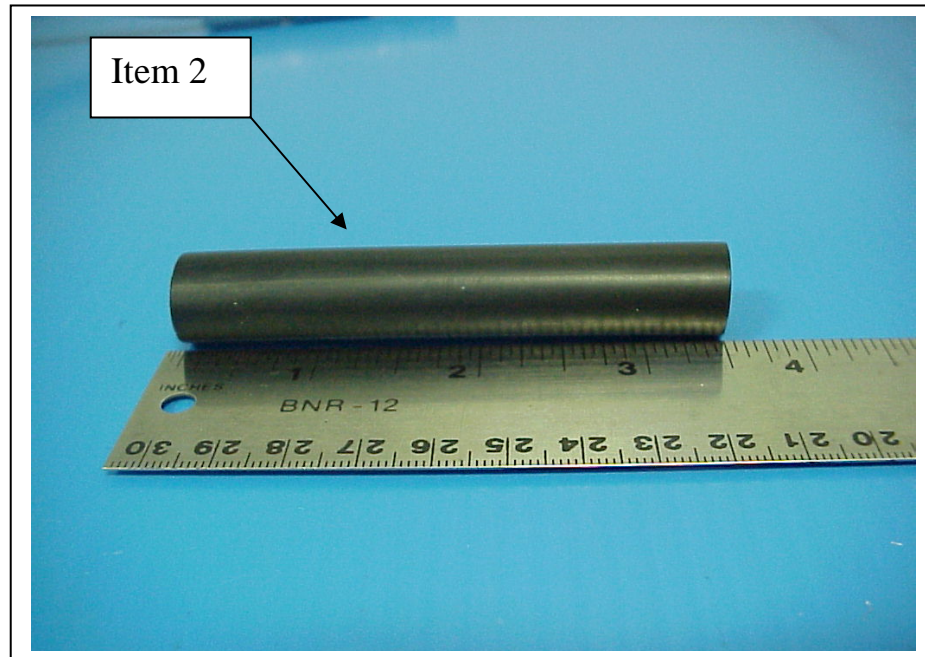
- 4.5 Use the 20 AWG solid hole on the wire stripper 73574 to strip center conductor back approximately, but no more than, 1/4" (6.35 mm).



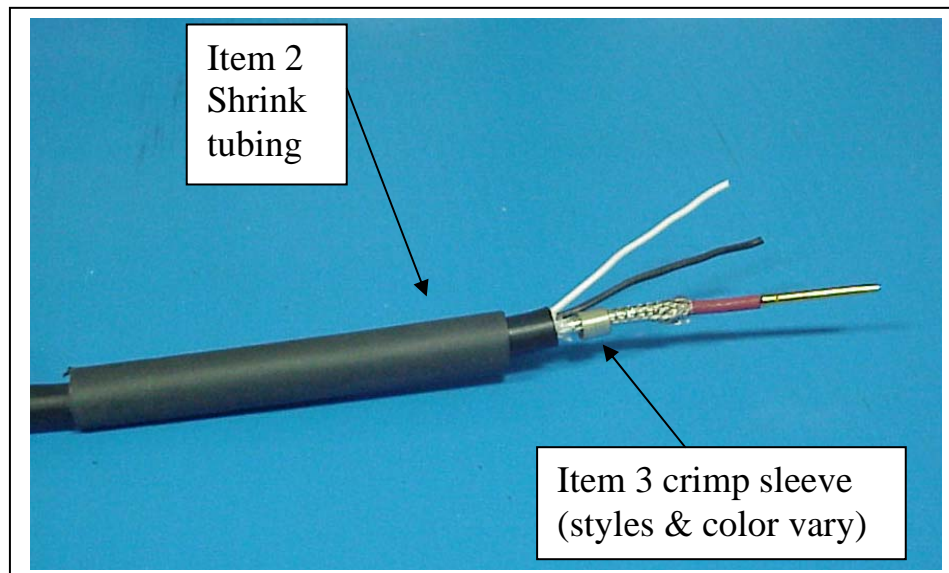
- 4.6 Install center HV conductor (supplied with Item 1) into contact until the shoulder of the contact meets the insulation on the wire. Use hi-temp solder. Remove excess flux and excess solder when done. Excess solder can be removed by carefully scraping it with the Exacto knife blade held 90° to the conductor. Scrape away from wire, along conductor, to avoid slipping and cutting the insulation. When done, inspect insulation on all wires. Nicks or cuts are not acceptable.



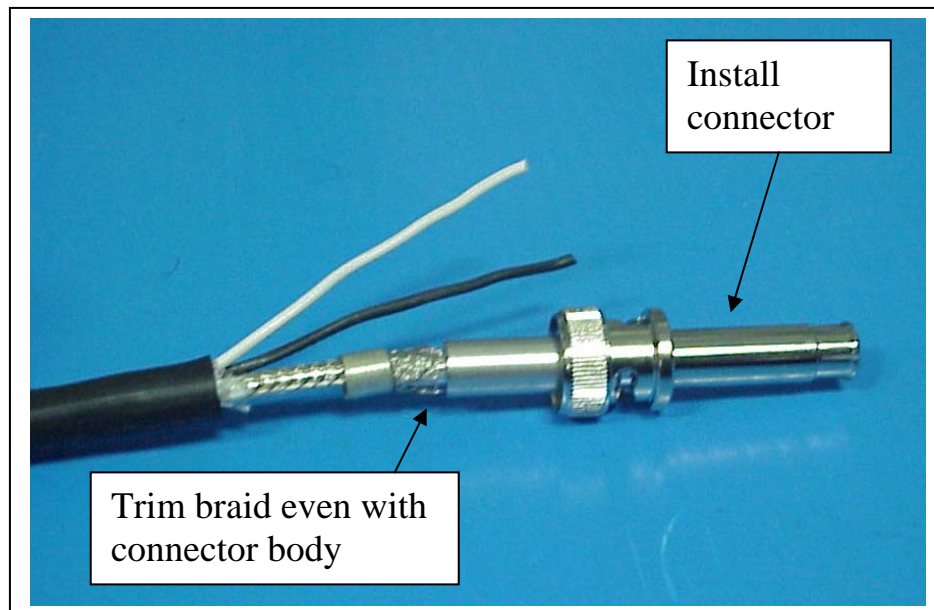
4.7 Cut shrink tubing (Item 2) to approximately 3.5" (8.9 cm) length.



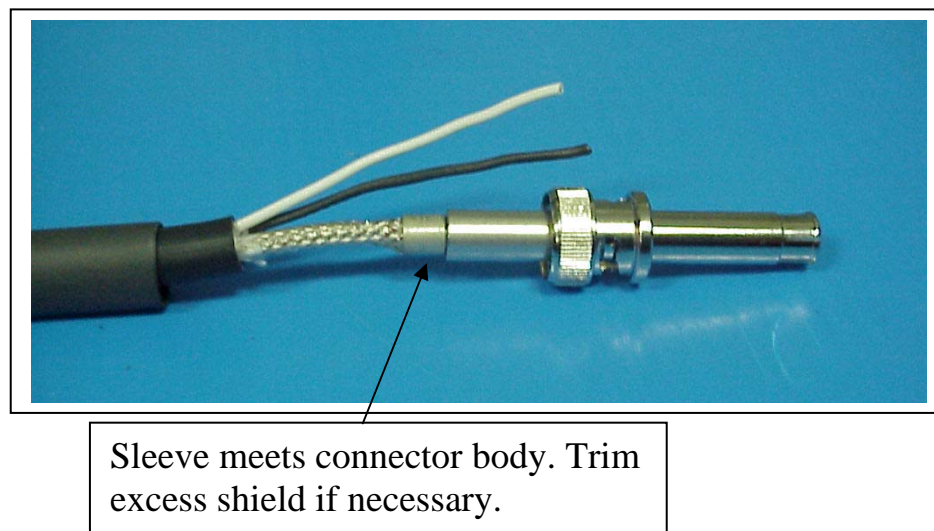
4.8 Pull outer cable jacket back about 1.5" (3.8 cm), but prevent the black and white wires from sliding back with it. Slide shrink tubing (Item 2) over outer jacket. Slide crimp sleeve (Item 3) over braid as shown. Comb exposed shielding straight if necessary.



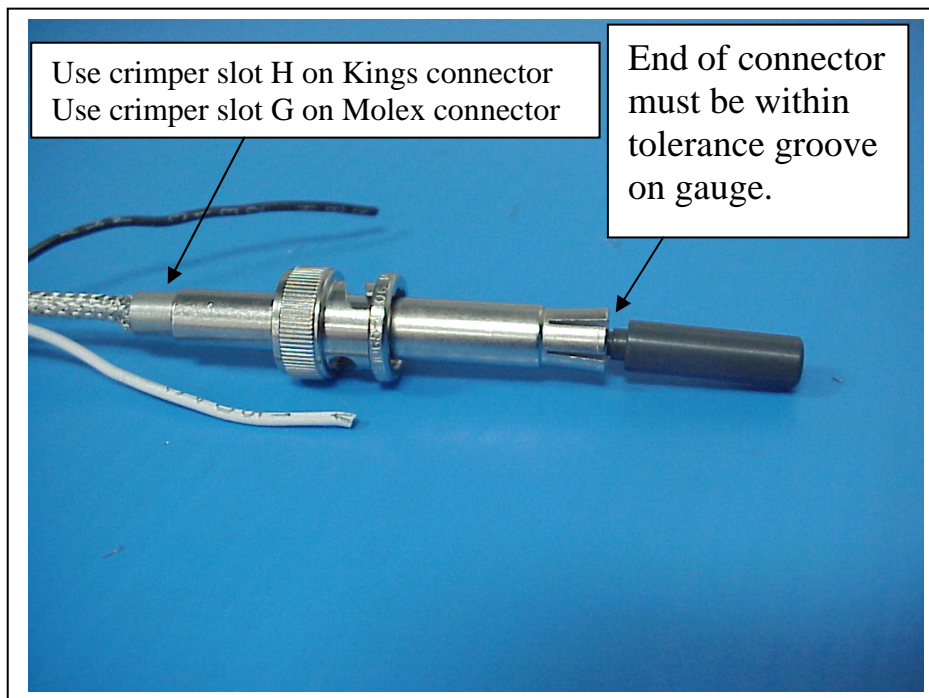
- 4.9 Carefully install the HV contact into SHV connector. Make sure braided shield covers the crimp support on the connector. Use the ferrule to mark the braid (shield) for trimming. Carefully remove ferrule and SHV connector, then trim braid even with connector body. After trimming, re-install the HV contact into SHV connector.



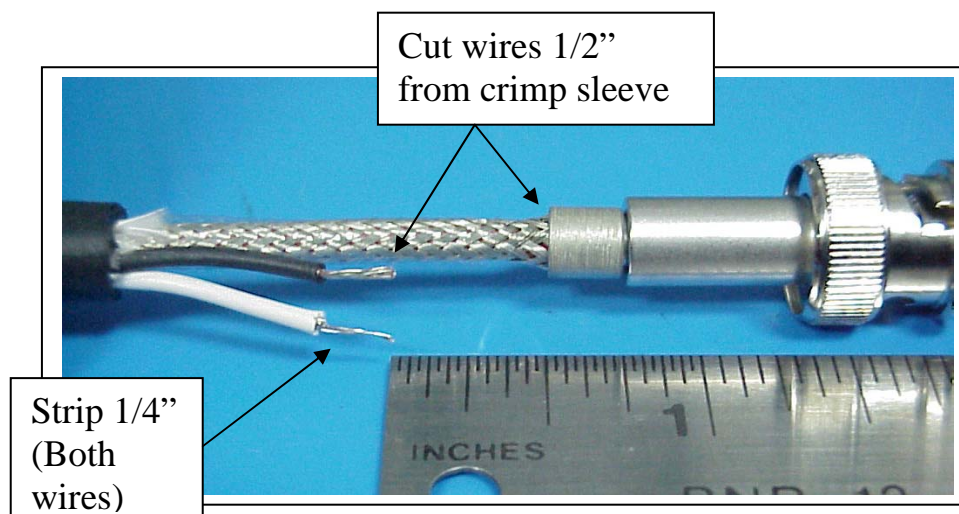
- 4.10 Slide crimp ferrule (Item 3) over connector crimp support until it butts up against body. Trim excess shield if necessary.



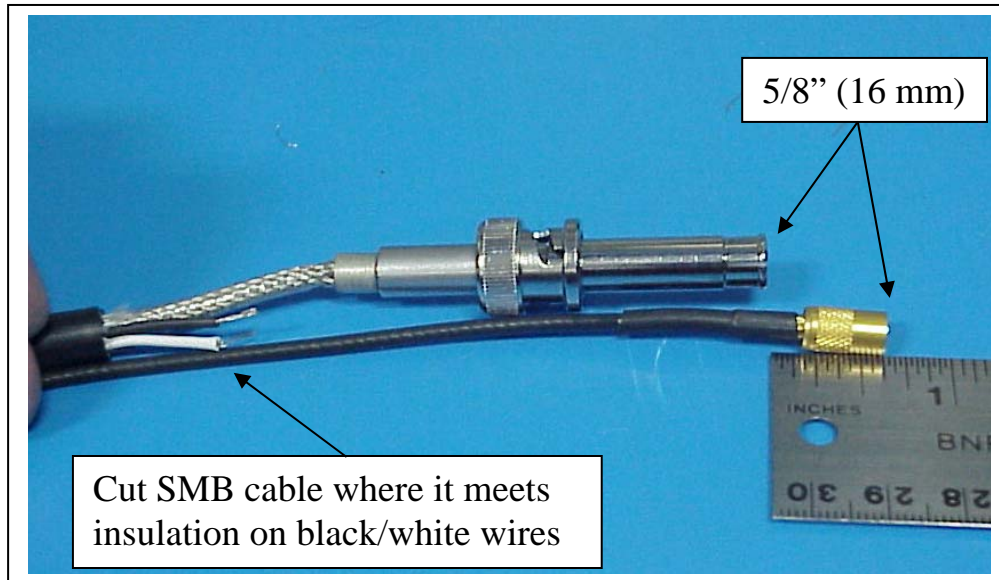
- 4.11 Install pin depth gauge. The end of the connector must lie within the tolerance groove on the gauge. If depth is ok, use appropriate slot on Sargent crimper to crimp the sleeve onto the connector. Recheck pin depth after crimping.



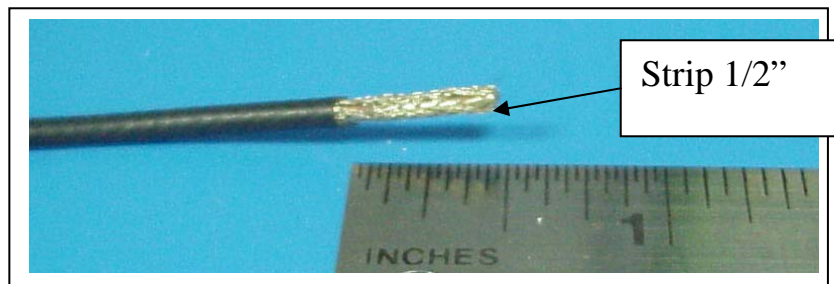
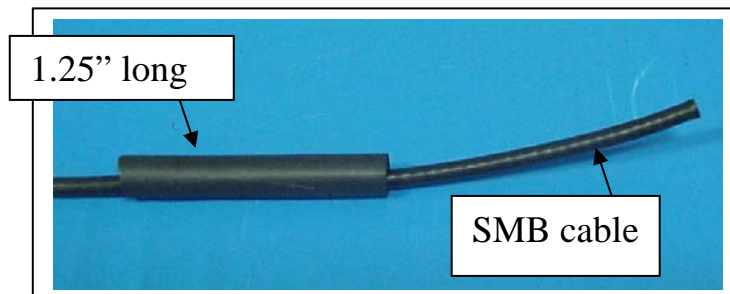
- 4.12 Cut black and white wires about 1/2" (12.7 mm) from the end of the crimp sleeve. Use the 22 AWG stranded hole on the 73574 wire stripper to strip each wire 1/4" (6.35 mm)



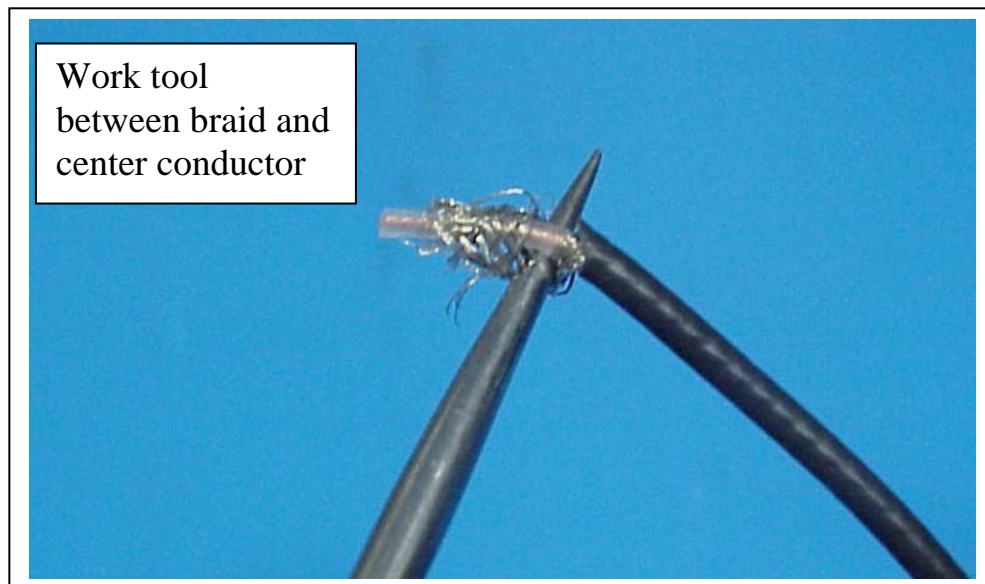
- 4.13 Set SMB cable (Item 6) next to SHV connector so that it extends 5/8" (16 mm) beyond SHV connector. Mark the SMB cable at the point where it meets the black and/or white insulation on the two wires. Cut the SMB cable to this length.



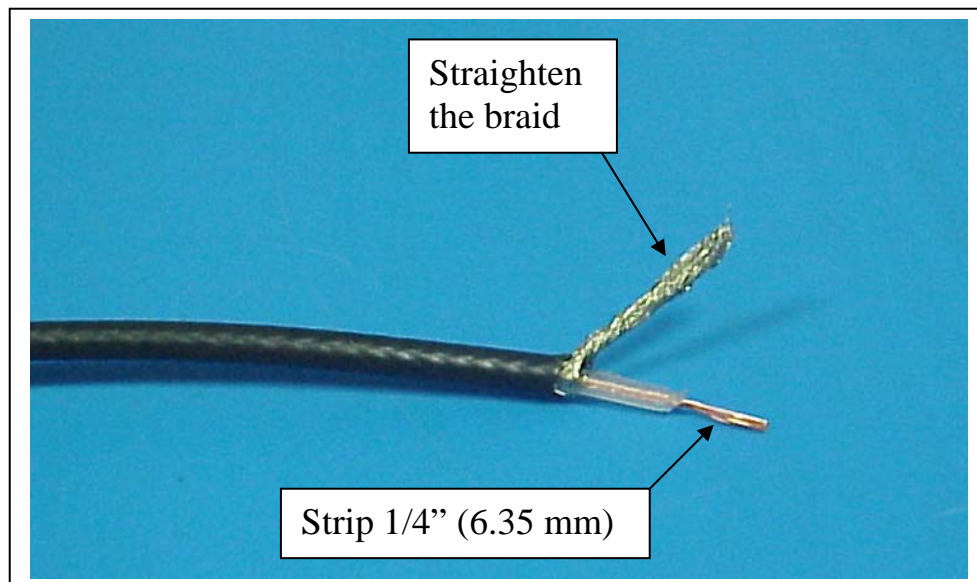
- 4.14 Cut shrink tubing (Item 5) to about 1.25" (3.2 cm) length and slide over SMB cable (Item 6). Use the 14 AWG stranded hole in the wire stripper 73573 to strip the SMB cable jacket approximately 1/2" (12.7 mm).



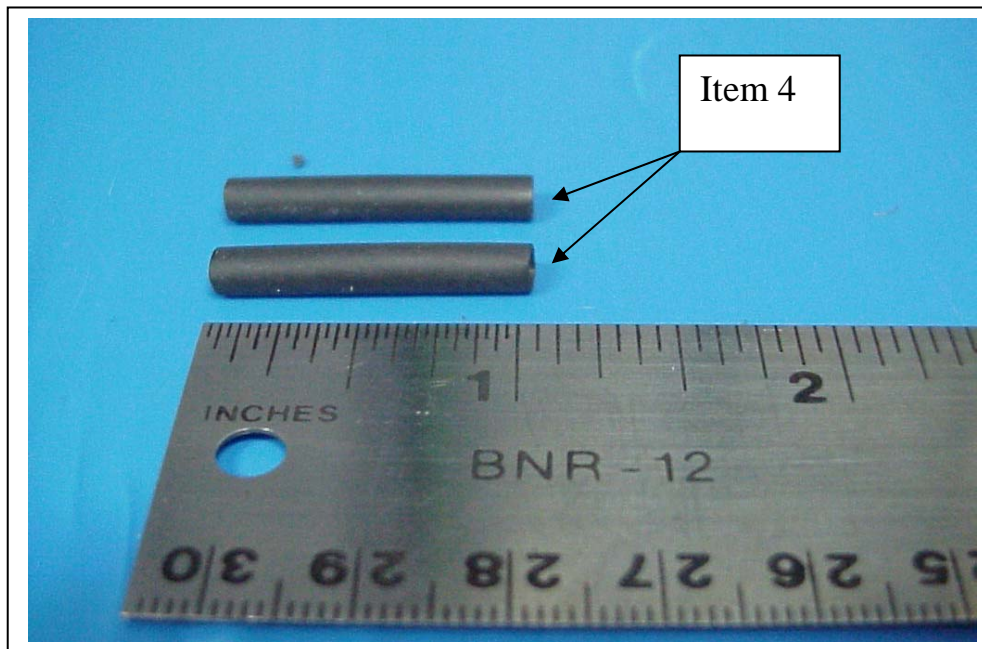
- 4.15 Prepare SMB cable: Use Steel Tipped Scribe tool to open a hole in the braid at the base of the cable jacket. Work the tool between the braid and center conductor. Be careful not to damage insulation on center conductor.



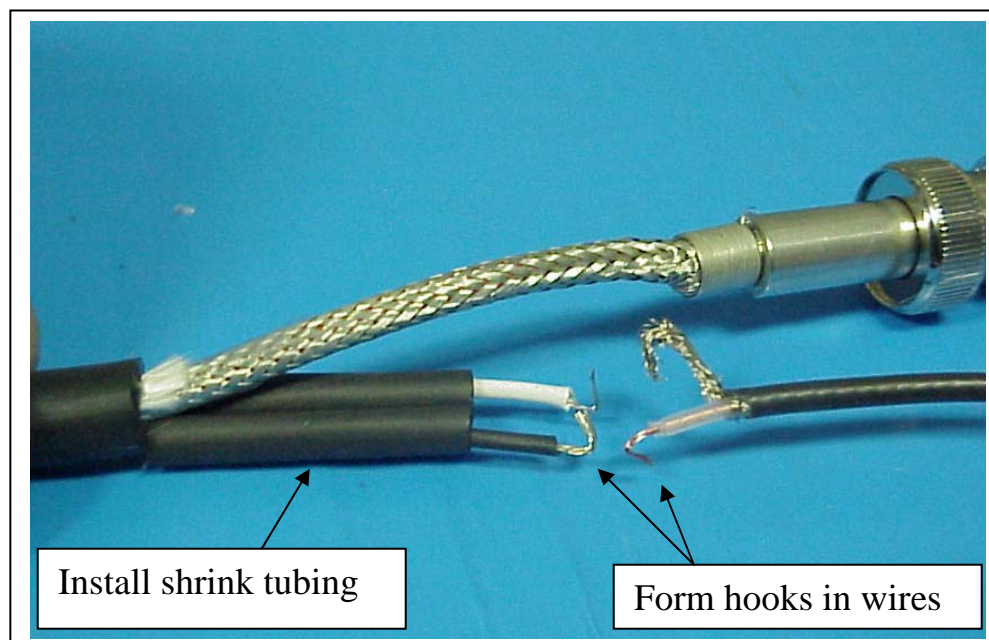
- 4.16 Pull the center conductor out of the braid. Use the 26 AWG stranded hole in wire stripper 73574 to strip the center conductor about 1/4" (6.35 mm). Straighten the braid.



4.17 Cut shrink tubing (Item 4) to 1" (2.5 cm) length. Cut two pieces.

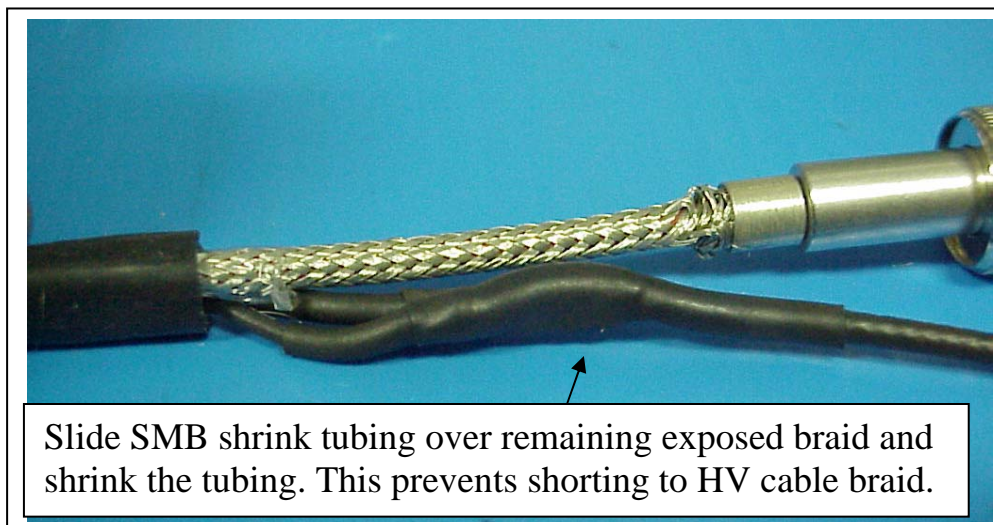
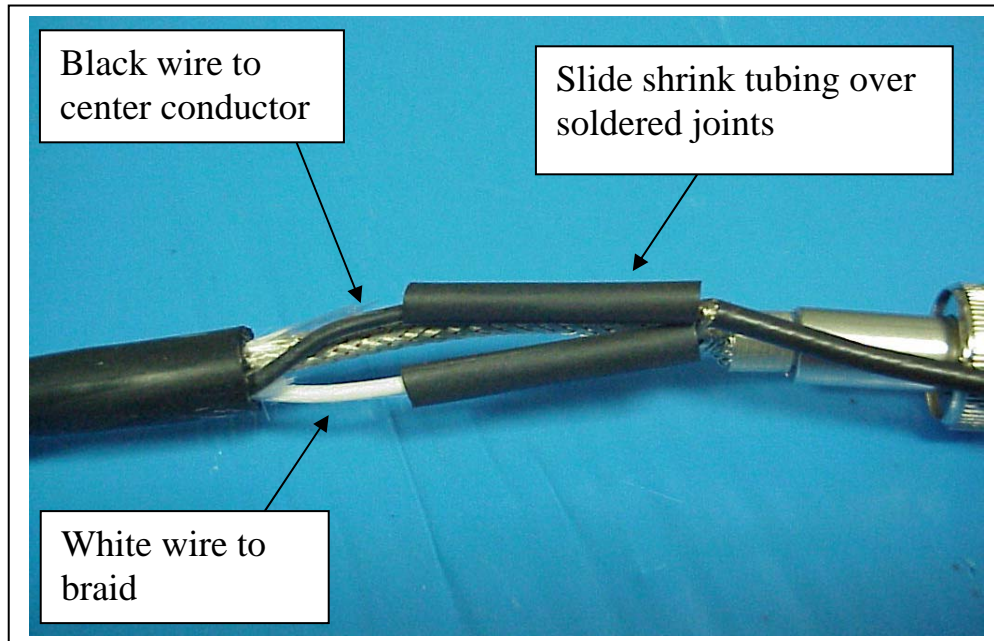


4.18 Slide shrink tubing (Item 4) over black and white wires. Pull cable jacket back about 1/2" (12.7 mm) if necessary to get shrink tubing to fit. Use needle nose pliers to form hooks into the ends of the black and white wires. Also form hooks on the ends of the SMB cable (including braid).

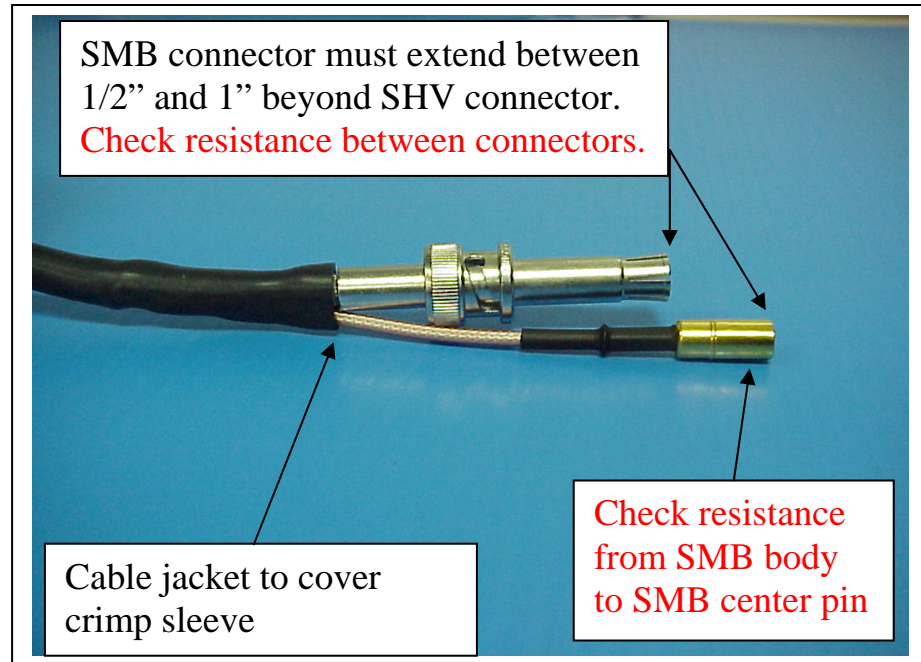


4.19 Connect SMB cable as follows:

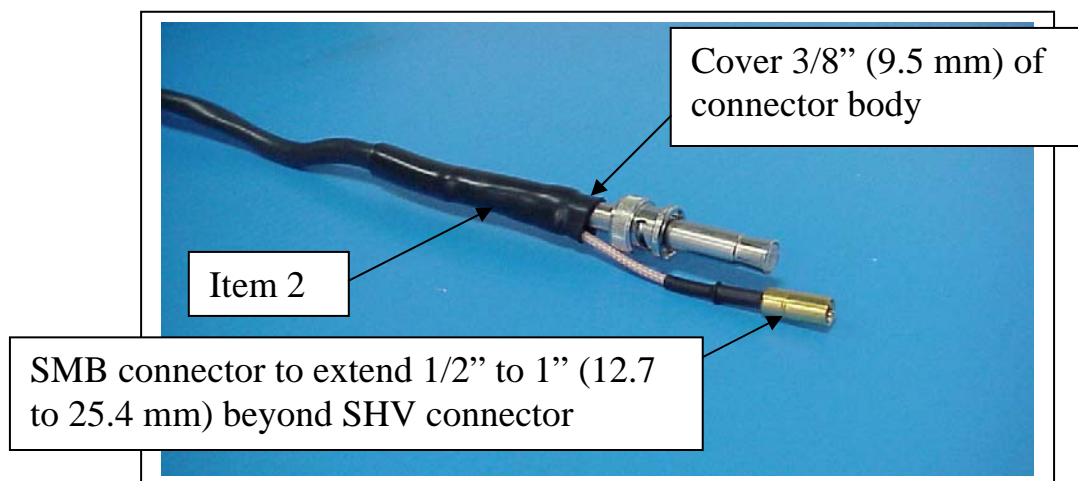
- Hook black wire to center conductor on SMB cable. Squeeze hooks together and solder with lead-free solder (not high temp. solder).
- Hook white wire to braid on SMB cable. Squeeze hooks together and solder with lead-free solder.
- Slide shrink tubing (Item 4) over soldered joints.
- Shrink the tubing.
- Slide shrink tubing from SMB cable (Item 5) over exposed braid and shrink the tubing.



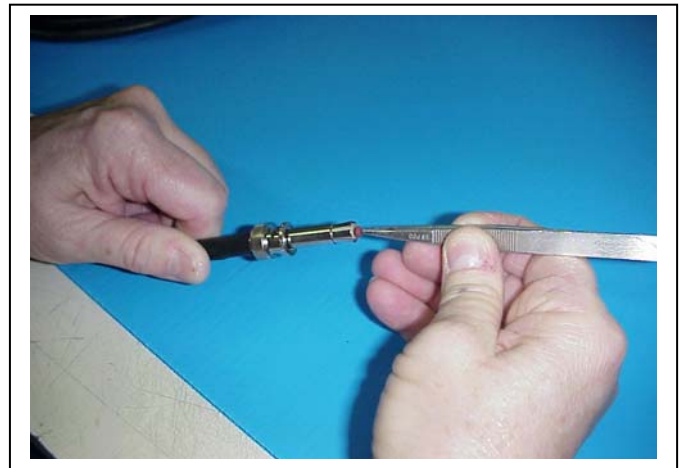
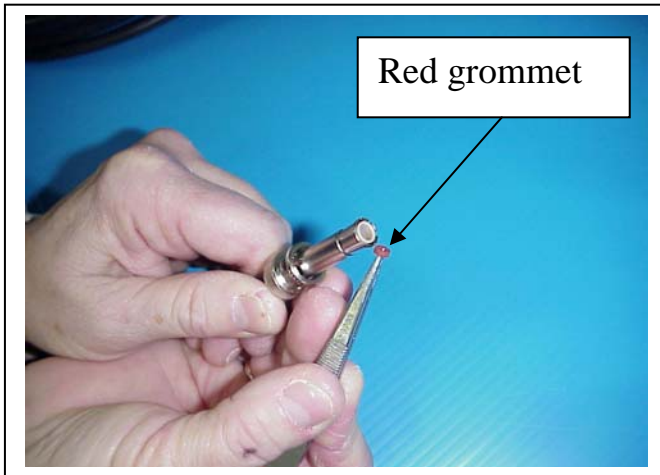
- 4.20 Push (stretch) outer cable jacket forward over soldered joints until jacket covers crimp ferrule. SMB connector must now be within 1/2" to 1" (12.7 mm to 25.4 mm) of SHV connector. **Using an ohm meter, check resistance from SMB body to SHV10 body. Also check resistance from SMB body to SMB center pin. Both of these must show open circuit. If not, a short exists and must be fixed.**



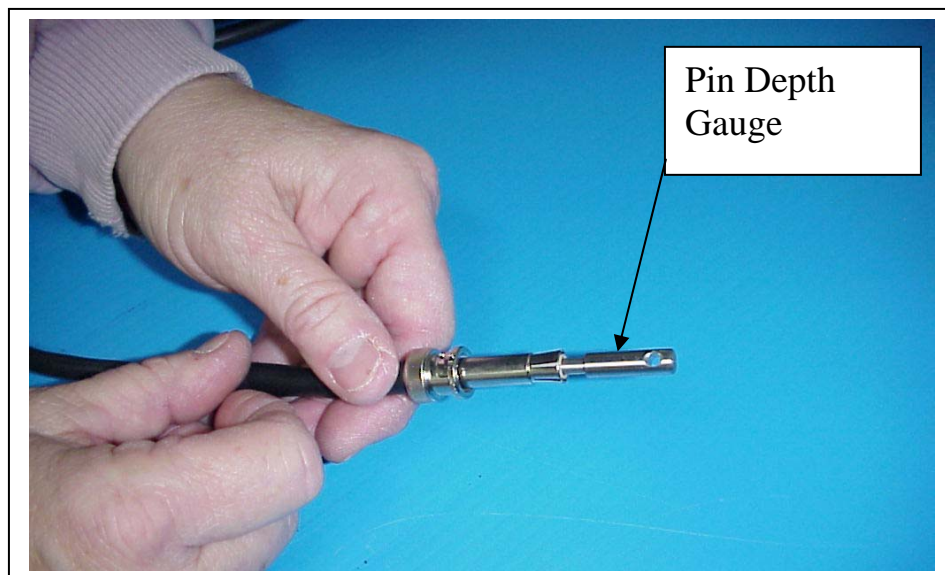
- 4.21 Slide large shrink tubing (Item 2) forward until it covers approximately 3/8" (9.5 mm) of connector body as shown and shrink the tubing.



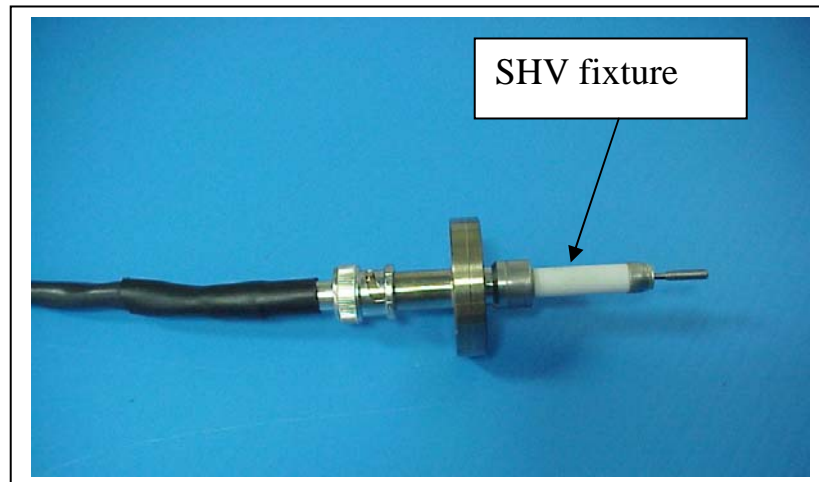
4.22 Insert red grommet (Supplied with Item 1) into the end of the SHV connector.



4.23 Push grommet into connector using pin depth gauge.



- 4.24 Install SHV10 tooling fixture to fully seat the grommet in the connector.
NOTE: If desired, this step can be done on cable test fixture during cable test procedure.



- 4.25 Assembly procedure complete.

