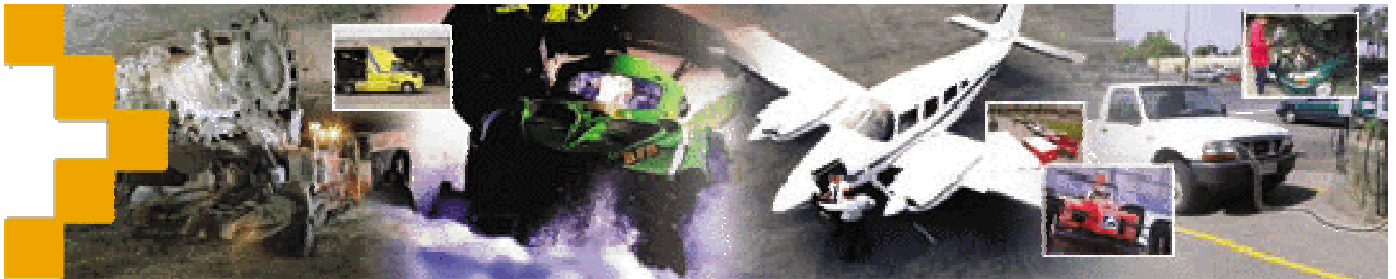


## **Extension cable assembly procedure manual**

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## 1 Materials list :

Item	Qty.	Description	Part No.	Manufacturer
1	Cut to Desired Length	Shielded 3 Conductor Cable, 22 AWG,0.118" OD		
2	2	Solder Sleeve Shield Terminator	S02-08-R	Raychem
3	4	Mini Sure-Seal Pins	330-8672-100	PEI-Genesis
4	4	Mini Sure-Seal Sockets	031-8703-100	PEI-Genesis
5	2 x 1"	Black 1/4" Dia Flexible Heat Shrinking Tube	PHS-016	SPC Technology
6	2 x 2"	Black 1/2" Dia Flexible Heat Shrinking Tube	PHS-032	SPC Technology
7	2 x 2"	Clear 1/4" Dia Flexible Heat Shrinking Tube	ES1000-NO.1-C1-X-STK	Raychem
8	1	Mini Sure-Seal Plug (4 conductors)	120-8552-102	PEI-Genesis
9	1	Mini Sure-Seal Receptacle (4 conductors)	120-8551-102	PEI-Genesis

## 2 Tools list :

Item	Description	Part No.	Manufacturer	Image
10	Standard Cutting Pliers	---	---	
11	Standard Utility Knife	---	---	
12	Standard Heat Gun	---	---	
13	Stripping Tool	3757-2	C.K.	
14	Crimping Tool	696202-1	Tyco Electronics	
15	Insertion Tool	MSS-2000	PEI-Genesis	

### 3 MSS4 Extension Cable Assembly Procedure :

#### 1. Prepare the cables :

- a. Using the *Standard Cutting Pliers* (Item 10), cut the *3 Conductor Shielded Cable* (Item 1) to the desired length.
- b. Using the *Standard Utility Knife* (Item 11), strip 1" of jacket off the *3 Conductor Shielded Cable* (Item 1).
- c. Using the *Standard Cutting Pliers*, cut the cable shield to leave only 0.25" sticking out from the jacket. Roll back the remaining shield over the jacket.
- d. Repeat steps a) through c) for both ends of the cable.

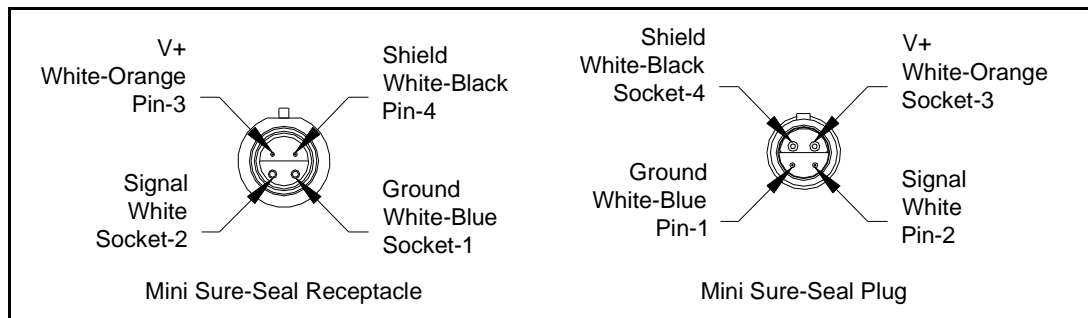
#### 2. Make an electrical connection with the cable's shield :

- a. Insert a *Solder Sleeve Shield Terminator* (Item 2) around the cable, carefully aligning the solder ring with the folded shield. The wire from the *Solder Sleeve Shield Terminator* should stick out in the same direction as the cable's 3 conductors.
- b. Using the *Standard Heat Gun* (Item 12), heat up the *Solder Sleeve Shield Terminator* until the solder ring melts and wets the shield thoroughly.  
*Note:* The solder ring is expected to change color, from red to silver, during this process.
- c. Cut the *Solder Sleeve Shield Terminator* wire so that it is the same length as the 3 conductors of the shielded cable.
- d. Repeat steps a) through c) for both ends of the cable.

### 3. Crimp conductors to pins and sockets :

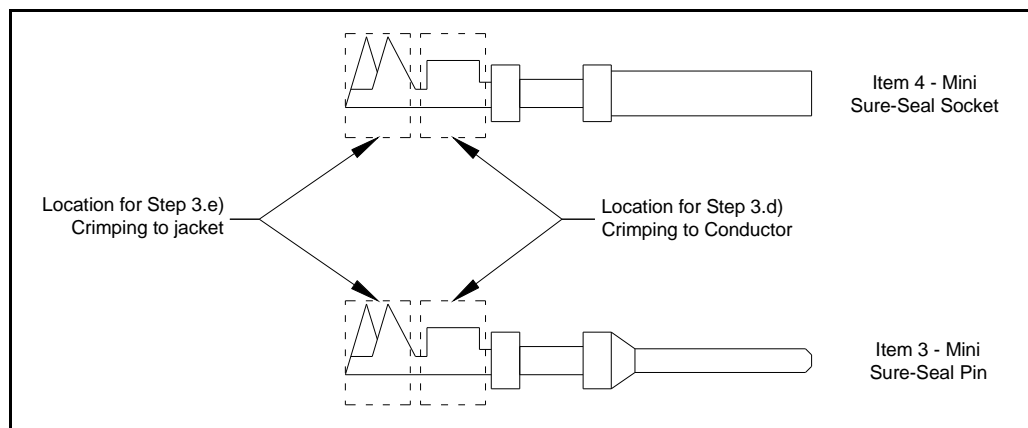
- a. Using the *Stripping Tool* (Item 13) set at 0.80mm, strip 0.25" of jacket off the end of each of the 4 conductors.
- b. For each end of the cable, select 2 *Mini Sure-Seal Pins* (Item 3) and 2 *Mini Sure-Seal Sockets* (Item 4).
- c. For one end of the cable, insert the Ground conductor (White-Blue) and the Signal conductor (White) into 2 *Mini Sure-Seal Pins*. Subsequently insert the V+ conductor (White-Orange) and Shield conductor (White-Black) into *Mini Sure-Seal Sockets*.

This is the *Mini Sure-Seal Plug* end. Refer to *Figure 1*.



**Figure 1: Connection schematic for *Mini Sure-Seal Receptacle* and *Plug*.**

- d. Using the *Crimping Tool* (Item 14) in position C, crimp the section of each *Mini Sure-Seal Pin* which grips onto the conductor. Refer to *Figure 2*.
- e. Using the *Crimping Tool* in position D, crimp the section of each *Mini Sure-Seal Pin* which grips onto the jacket of the conductor. Refer to *Figure 2*.



**Figure 2: Crimping positions on *Mini Sure-Seal Pins* and *Sockets*.**

- f. For the other end of the cable, insert the Ground conductor (White-Blue) and the Signal conductor (White) into 2 *Mini Sure-Seal Sockets* (Item 3). Subsequently insert the V+ conductor (White-Orange) and Shield conductor (White-Black) into *Mini Sure-Seal Pins* (Item 4).

This is the *Mini Sure-Seal Receptacle* end. Refer to *Figure 1*.

- g. Go through steps d) and e) to crimp the conductors at the *Receptacle* end of the cable.

4. Prepare Flexible Heat Shrinking Tube :

- a. Slide over the cable the 2 *Black 0.25" Dia Flexible Heat Shrinking Tube* pieces (Item 5), the 2 *Black 0.5" Dia Flexible Heat Shrinking pieces* (Item 6) the 2 *Clear 0.25" Dia Flexible Heat Shrinking pieces* (Item 7). These will be used later for sealing of the *Mini Sure-Seal* connectors and cable identification.

5. Insert pins and sockets into connectors :

- a. Using the *Insertion Tool* (Item 15), push each pin and socket into their respective position in the *Mini Sure-Seal Plug* (Item 8) and *Mini Sure-Seal Receptacle* (Item 9). Refer to *Figure 1* for correct positioning.

*Note:* It is recommended to partially insert all 4 pins and sockets in the *Mini Sure-Seal Plug* or *Receptacle* before using the *Insertion Tool* to completely push-in any pin or socket.

*Note:* It is also recommended to connect a spare *Mini Sure-Seal Plug* or *Receptacle* to the one being installed for better grip and to minimize chances of injuries.

6. Cover the Mini Sure-Seal connectors with heat-shrink :

- a. Slide the *Black 0.25" Dia Flexible Heat Shrinking Tube* (Item 5) until it butts against the bottom of the *Mini Sure-Seal* connectors. Use the *Standard Heat Gun* (Item 12) to shrink the tube. Repeat for both ends of the cable.

*Note:* To avoid injuries, let heat shrink cool 30 seconds before manipulating.

- b. Slide the *Black 0.5" Dia Flexible Heat Shrinking Tube* (Item 5) over the *Mini Sure-Seal* connector to completely cover the shoulder of the connector and the *0.25" Dia Flexible Heat Shrinking Tube installed in step 6.a*). Use the *Standard Heat Gun* (Item 12) to shrink the tube. Repeat for both ends of the cable.

*Note:* To avoid injuries, let heat shrink cool 30 seconds before manipulating.

7. Identify the extension cables :

- a. On two small pieces of paper (0.5" x 1.0"), write down name tags for both ends of the cable (e.g. EGT or A3).
- b. Slide the pieces of paper under the previously inserted *Clear 0.25" Dia Flexible Heat Shrinking Tube*.
- c. Use the *Standard Heat Gun* to shrink the *Clear Shrinking Tube* over the pieces of paper, at either end of the cable.