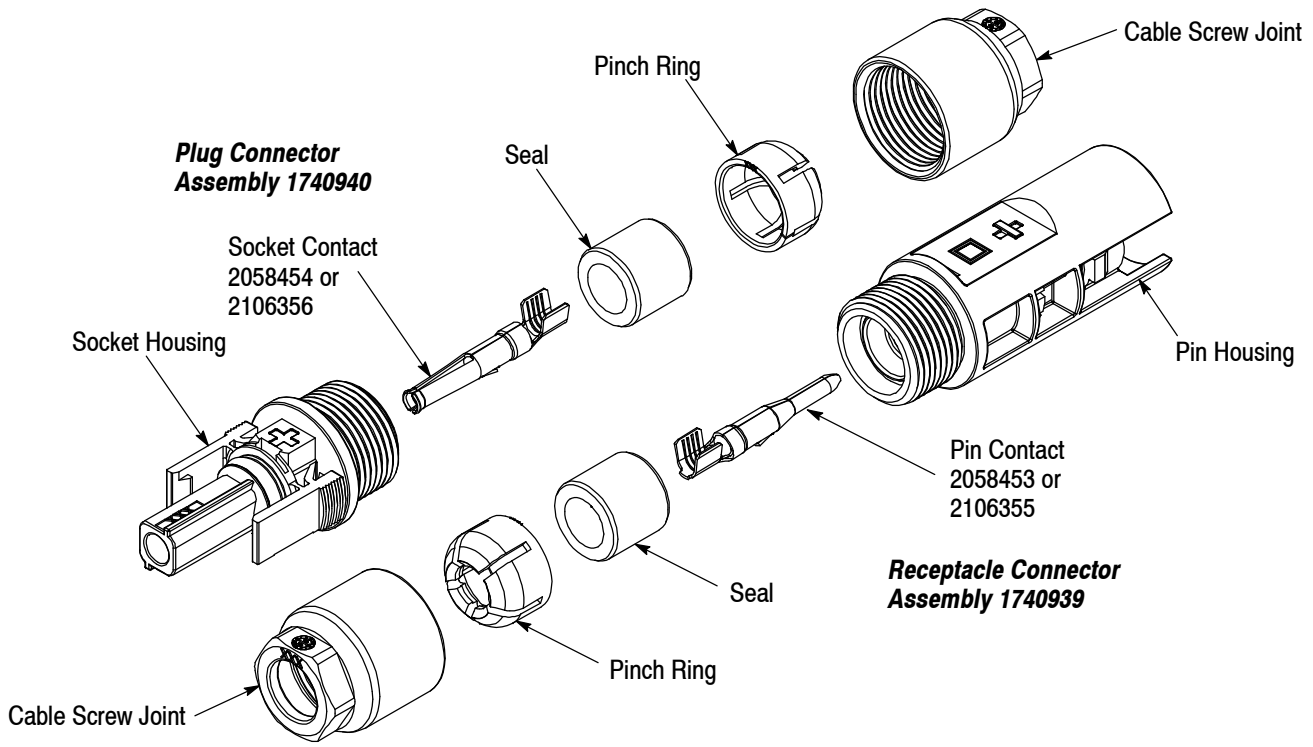

Figure 1

1. INTRODUCTION

This instruction sheet provides assembly procedures for the SOLARLOK Stamped and Formed Contacts and Connectors. These contacts are to be used as alternatives to standard screw-machined HVT contacts currently used in photovoltaic products. The contacts are a drop-in replacement and can be directly assembled into existing SOLARLOK Connectors. See Figure 1.

2. DESCRIPTION

The contacts are made from copper alloy and are silver over nickel plate with a wire size range of 2.5-6.0 mm^2 [14-10 AWG]. The SOLARLOK contacts will mate with existing screw-machined SOLARLOK contacts and will fit into existing SOLARLOK connector housings.

3. ASSEMBLY PROCEDURES

NOTE

Refer to Instruction Sheet 408-10322 for termination of the contacts and Application Specification 114-13256 for application requirements of the SOLARLOK Contacts and Connectors. Assembly procedures show pin contact and connector, but socket contact and connector is assembled similarly.

CAUTION

This connector must be used only to interconnect firmly fixed cables. Do NOT disconnect under load.

DANGER

To protect against shock, ensure that conductors and their associated connectors are separated from opposite polarity components.

CAUTION

Any kind of pollution (dust, humidity, etc.) during the assembly process can degrade contact and connector performance. This applies in particular to the seals and the crimping of the contacts. A clean assembly environment is therefore essential.

3.1. Selection of Cable Seal and Pinch Ring for Cable Connectors

- Use only UL/TÜV rated photovoltaic cable (see Figure 9 for approved cables).
- Pre-assembled connectors are for wire insulation diameters 4.5-6.9 mm. Insert wire with contact directly into the pre-assembled connector. See Figure 7. All other wire insulation sizes follow instruction Steps 3 thru 5.
- Alternative seals for varying wire insulation sizes are provided in Figure 2.

- The cable seal should be selected based upon the insulation diameter of the wire being used.
- The cable seal and pinch ring must be matched to the cable diameter.

SEAL INNER DIA.	INSULATION DIA. RANGE	CABLE SEAL	PINCH RING
∅ 5 mm	4.2-5.3 mm	1394465-1	1418677-1
∅ 6 mm	5.3-6.2 mm	1394465-2	1418677-1
∅ 7 mm	6.2-7.2 mm	1394465-3	1418677-2
∅ 8 mm	7.2-8.0 mm	1394465-4	1418677-2

Figure 2

3.2. Contact Repair/Replacement

CAUTION

SOLARLOK Stamped and Formed Contacts are not to be re-inserted into a SOLARLOK housing after extraction. A new contact must be applied to the cable.

A. Assembly Steps

1. Place backshell nut onto wire as shown in Figure 3.

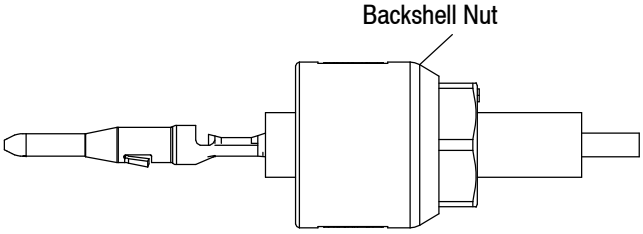

Figure 3

2. Press seal into the connector housing until it stops as shown in Figure 4.

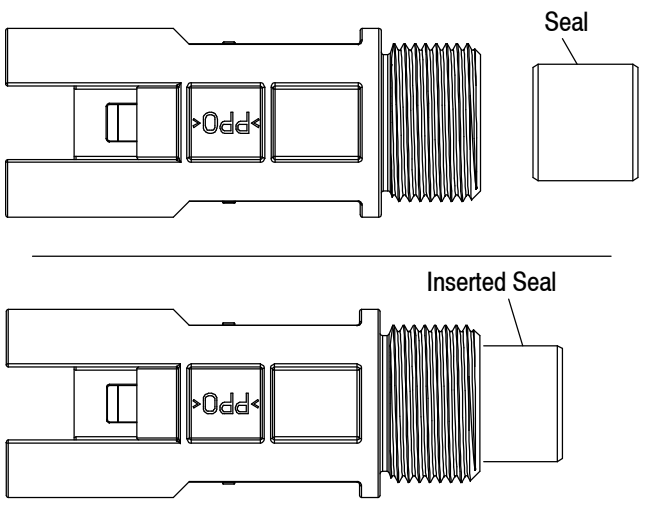

Figure 4

3. Assemble the pinch ring (see Figure 5) before inserting contact if the connector is not preassembled.

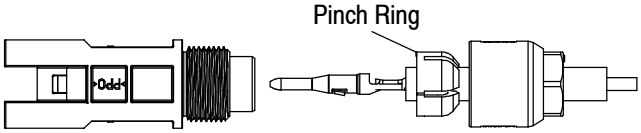

Figure 5

4. Push contact with cable into the connector housing until you hear the contact click into plastic housing; pull back to ensure the contact is locked. See Figure 6.

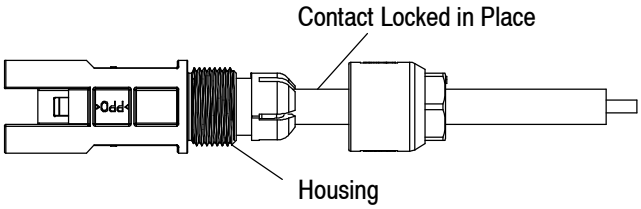

Figure 6

NOTE

For pre-assembled connectors, insert contact as shown in Figure 7, until you hear the contact click into plastic housing; pull back to ensure the contact is locked.

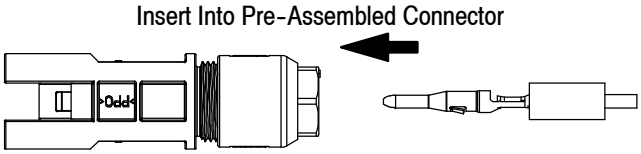

Figure 7

5. Screw backshell nut onto connector housing. See Figure 8. Tighten backshell nut to a torque (maximum: 1.5 Nm [13.3 lb-in.]) dependent on wire insulation diameter. See Figure 9 for specific tightening torque value based on wire insulation diameter. Identify plug connector with label reading “DO NOT DISCONNECT UNDER LOAD” as shown in Figure 8.

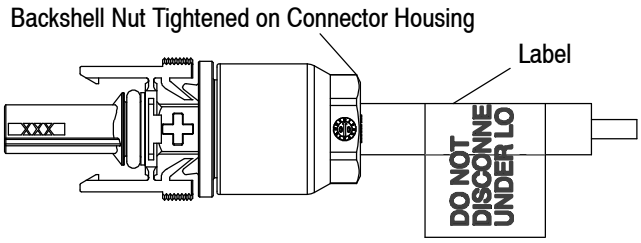

Figure 8

CABLE TYPE	TIGHTENING TORQUE	TIGHTENING TORQUE (PRE-ASSEMBLED CONNECTORS)
Tyco Electronics UL/TÜV Dual-Rated PV Cable	0.8 ±0.1 Nm [7.1 ±.8 lb-in.]	1.3 ±0.2 Nm [11.5 ±1.7 lb-in.]
Okonite USE-2 14, 12, and 10 AWG	0.8 ±0.1 Nm [7.1 ±.8 lb-in.]	1.3 ±0.2 Nm [11.5 ±1.7 lb-in.]
Tyco Electronics Wire 14, 12, and 10 AWG	1.3 ±0.2 Nm [11.5 ±1.7 lb-in.]	1.3 ±0.2 Nm [11.5 ±1.7 lb-in.]
Studer Cable Betaflam 125 12 and 10 AWG	0.8 ±0.1 Nm [7.1 ±.8 lb-in.]	1.3 ±0.2 Nm [11.5 ±1.7 lb-in.]
Huber & Suhner 6.0 mm^2 and 10 AWG	0.8 ±0.1 Nm [7.1 ±.8 lb-in.]	1.3 ±0.2 Nm [11.5 ±1.7 lb-in.]

Figure 9

B. Connector Mating

NOTE

When mating the SOLARLOK Connectors, ensure that connectors labeled with a "+" or "-" are keyed and can only be mated to similarly marked and keyed connectors. See Figure 10.

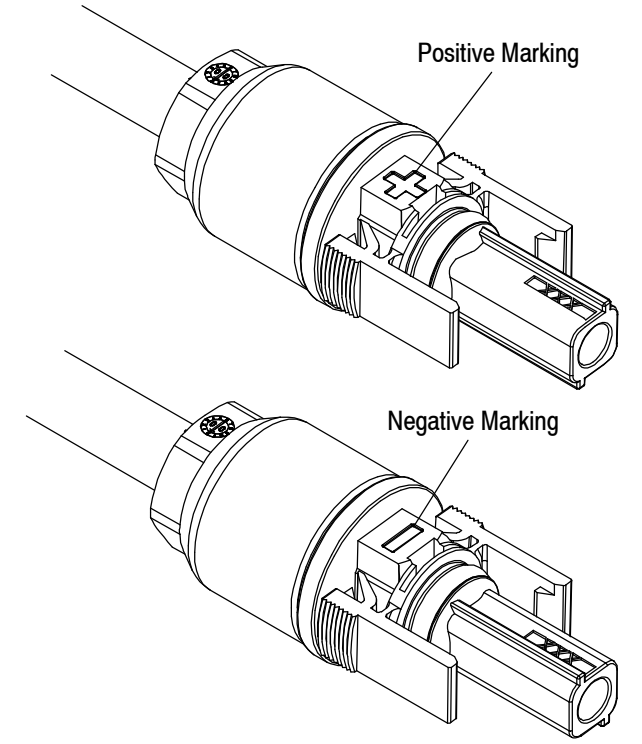

Figure 10

CAUTION

The "neutral" designated receptacle-connectors incorporate no keying features and may be freely mated to either "+" or "-" keyed plug-connectors. The neutral product should not be used where maintaining polarity is critical. It is only permitted for serial connections.

The polarity of a "neutral" connector must be labeled with (1394725-1 or -2) nearby the connector. See Figure 11.

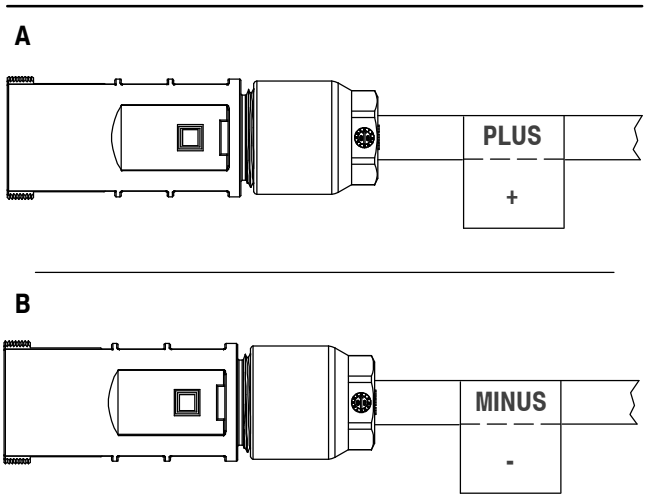

Figure 11

When mating the SOLARLOK Connector System, the following must be ensured:

- The plus- and minus-coded connectors can only be mated to a similarly coded connector.
- The connector system is fully latched only when the latches are flush with the mating connector.

3.3. Connector Unmating

CAUTION

Do NOT disconnect connectors under load. Disconnect circuit from load before unplugging connectors.

Cable assemblies should be labeled using Tyco Electronics label 1718077-1.

To unmate the connector:

- The locking mechanism is opened by depressing the latches as shown in Figure 12.
- While depressing the latches, disconnect the plug by pulling the connector halves apart.

4. REVISION SUMMARY

- Updated document to corporate requirements
- Added information in Figures 1 and 9 and new Paragraph 3.2 and renumbered

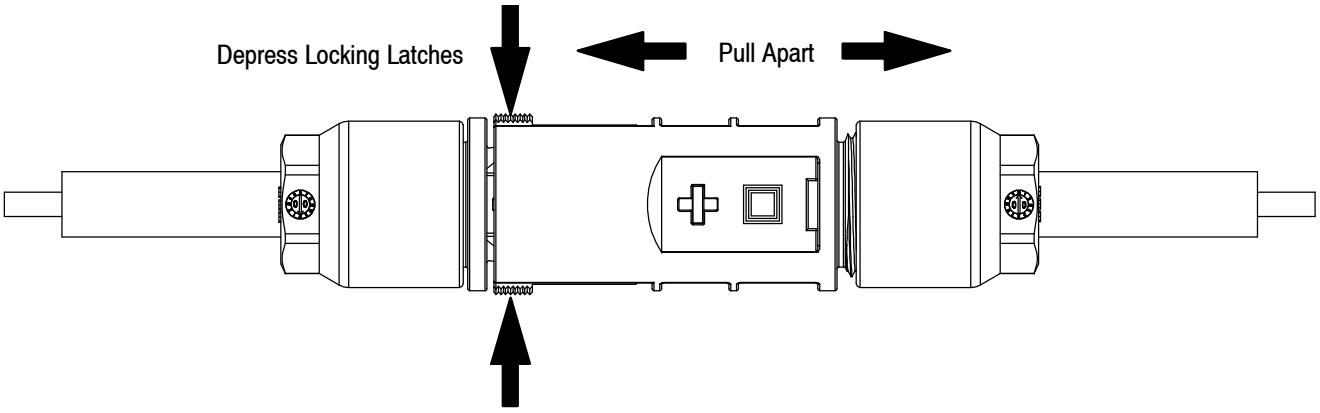

Figure 12