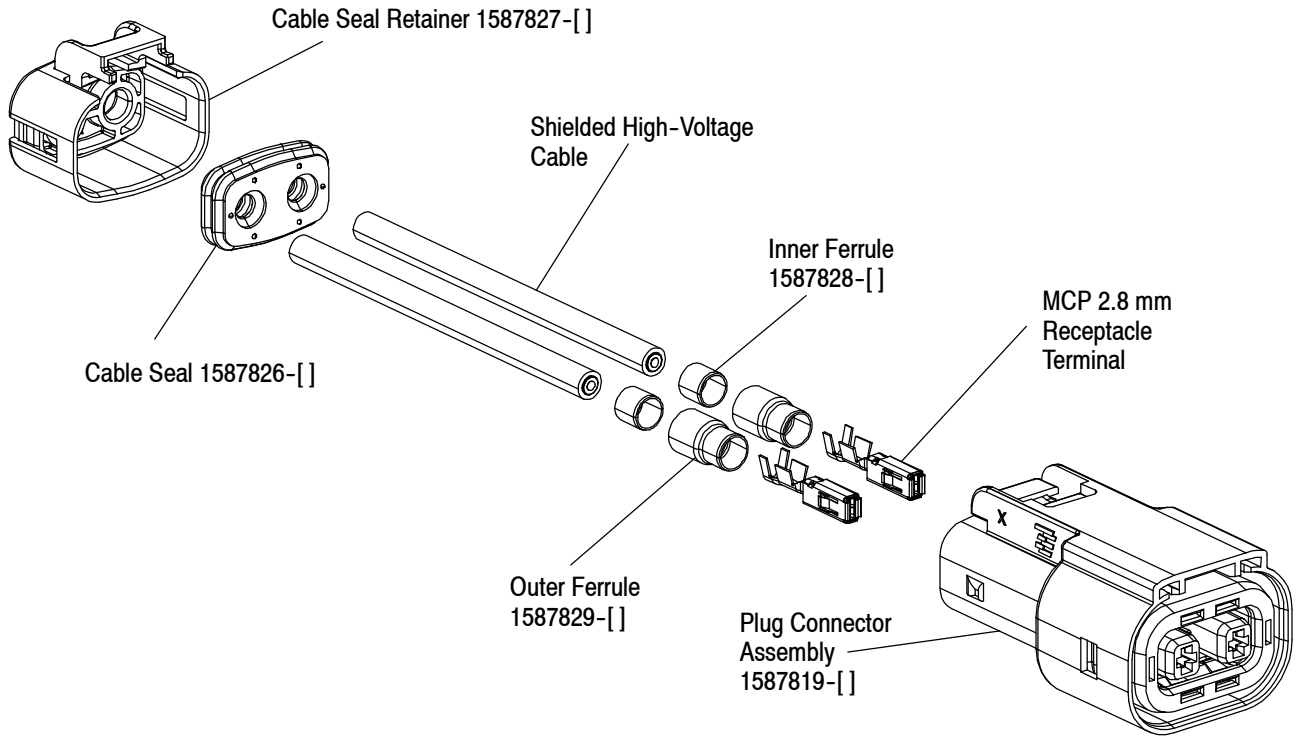

Figure 1

1. INTRODUCTION

This instruction sheet provides information on the assembly of the HVA280-2phi High-Voltage Plug Connector 1587819-[ ] and mating and unmating of the plug assembly.

NOTE

All dimensions are in millimeters. Figures and illustrations are for reference only and are not drawn to scale.

Read these instructions carefully before attempting any assembly procedures. Also refer to Application Specification 114-13259 for application requirements.

2. COMPONENTS

Figure 1 provides the components required to make the assemblies in this instruction sheet.

3. TOOLING

Tools which are required for crimping the receptacle contacts and ferrules in these assemblies are:

- *For ferrule crimping:* Application Specification 114-13259 for crimping information.
- *For receptacle contact crimping:* Application Specification 114-18148-1 for crimping information.

4. ASSEMBLY

The following procedures shows the details of the inner housing assembly and insertion instructions of the inner housing assembly into the plug subassembly.

Cable is available in wire sizes 2.0-2.5 mm^2 (Inner and Outer Ferrules, Cable Seal and Seal Retainers - Size A); and 3.0 (Inner and Outer Ferrules, Cable Seal and Seal Retainers - Size B); 4.0 mm^2 (Inner and Outer Ferrules, Cable Seal and Seal Retainers - Size C) for this product line. Refer to the Customer Drawing for specific part numbers.

1. Assemble cable seal retainer 1587827-[ ] and cable seal 1587826-[ ] in the order and direction shown in Figure 2A.

NOTE

Note that the circuit numbers are shown on the cable seal retainer, and make sure that the correct wire is inserted into each opening. See Figure 2B.

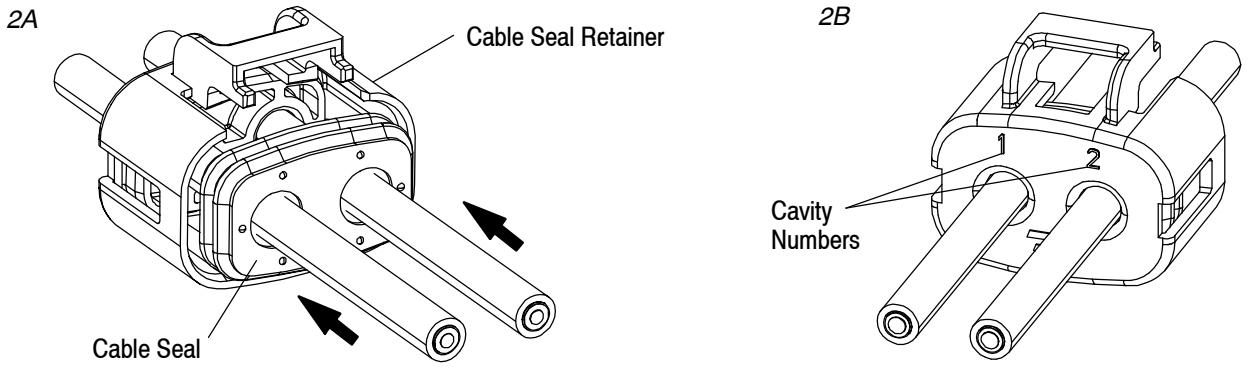

Figure 2

2. With the cable seal retainer and cable seal safely out of the way, strip 11.60 mm (ref) of the outer jacket and braided cable shield off of both wires. See Figure 3.

CAUTION

Make sure that the stripping equipment has not nicked, scraped, or cut the wire conductor insulation during the stripping operation and that there are no remaining cable shield strands.

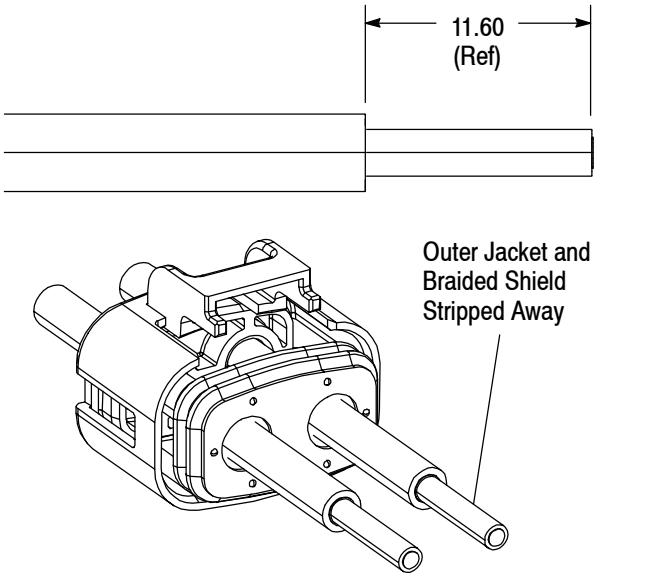

Figure 3

3. Strip the outer jacket further so that the combined exposed strip length of braided cable shield and conductor insulation is 19.10 mm (ref). See Figure 4.

CAUTION

Make sure that the stripping equipment has not nicked, scraped, or cut the braided cable shield strands during the stripping operation.

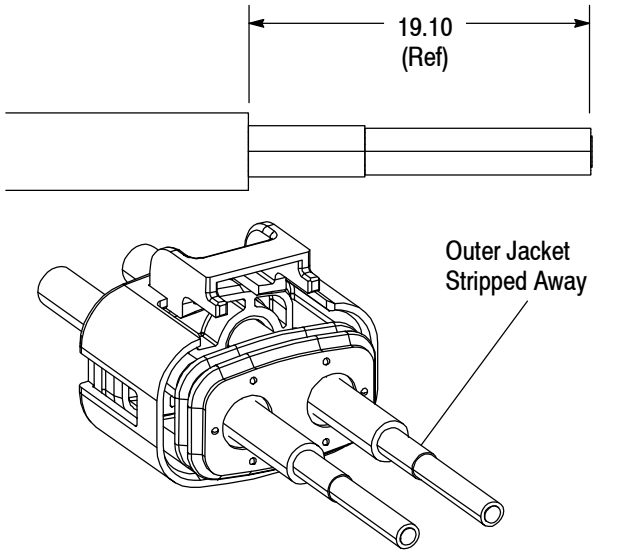

Figure 4

4. Insert the inner ferrules 1587828-[ ] onto both wires and over the outer jacket as shown in Figure 5. Wire size 2.0-2.5 mm^2 accepts Size A inner ferrule; and wire size 3.0 accepts Size B inner ferrule, and wire size 4.0 mm^2 accepts Size C inner ferrule. Refer to the Customer Drawing for specific part numbers.

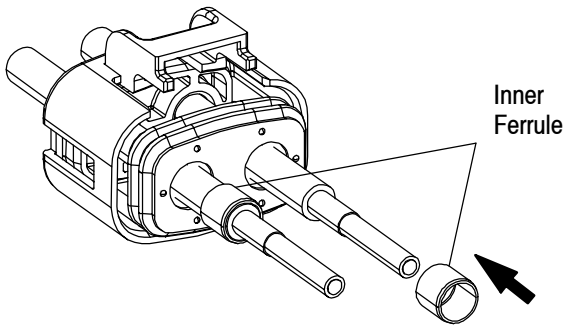

Figure 5

5. Fold the braided cable shield back over the inner ferrule, taking care to try to keep inner ferrule positioned such that its edge is flush with the stripped edge of the outer jacket as shown in Figure 6.

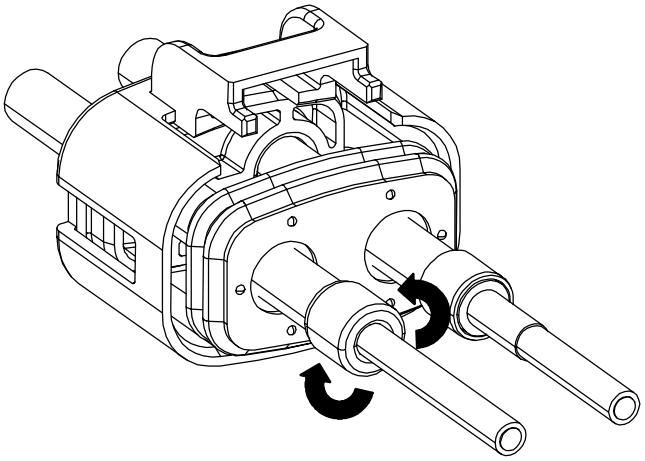

Figure 6

6. Strip the conductor insulation off of each wire to a length as defined in the MCP2.8 Application Specification 114–18148–1. See Figure 7.

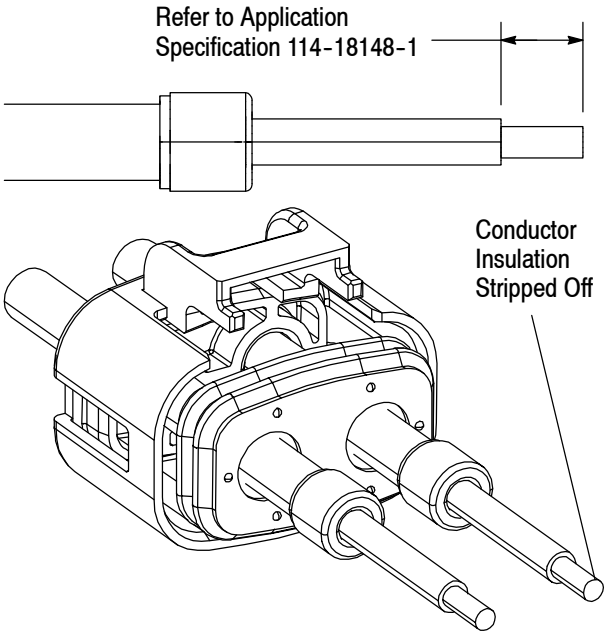

Figure 7

7. Apply the MCP 2.8 terminals to both wires using the tooling, method, dimensions, and inspections detailed in Application Specification 114–18148–1. The trailing edge of the terminal box should be located approximately 23.75 mm (ref) from the stripped edge of the outer jacket. See Figure 8.

NOTE

While the steps in this section provide the correct procedures to complete the assembly, this step (Step 7) may be performed prior to Steps 4 and 5 if desired.

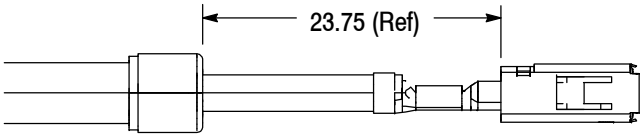

Figure 8

8. Insert the outer ferrules 1587829-[ ] onto both cables in the orientation shown in Figure 9 over the inner ferrules and folded back braided cable shield. Wire sizes 2.0–2.5 mm^2 accept (Outer Ferrule – Size A); 3.0 accept (Outer Ferrule – Size B), and 4.0 mm^2 accept (Outer Ferule – Size C).

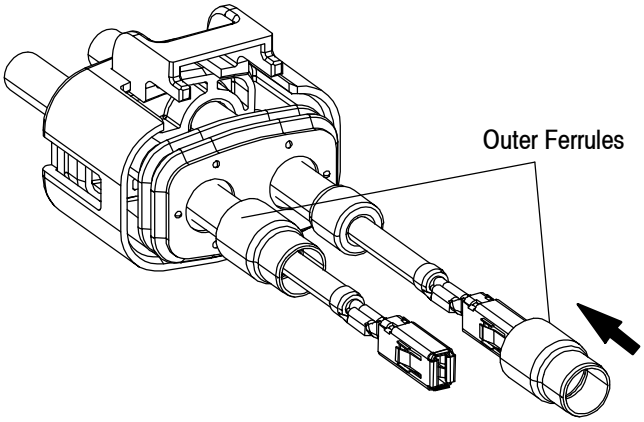

Figure 9

9. Crimp both of the outer ferrules using a hex crimper with the dimensions for outer ferrule size A, (6.23 ±0.10 mm); for outer ferrule size B, (6.79 ±0.10 mm); and for outer ferrule size C, (7.40 ±0.10 mm).

The distance between the leading edge of the outer ferrule and trailing edge of the MCP terminal box must be maintained at 18.10 ±1.00 mm. See Figure 10.

CAUTION

Any loose strands of the braided cable shield seen protruding from below the outer ferrule should be trimmed, taking special care not to cut any insulation, or leave any detached strands attached to the assembly.

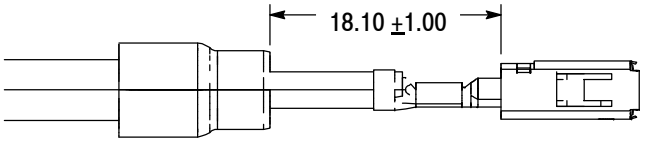

Figure 10

4.1. Cable Assembly Inspection Summary (See Figure 11)

- Samples match visual examples shown in the figures
- Wires are inserted in correct cavity openings in seal retainer
- Seal is not rolled or damaged
- Outer jacket or conductor is not damaged
- No loose or protruding strands from braided cable shield/ferrule crimp
- Terminal crimp meets requirements outlined in Application Specification 114–18148–1
- Outer ferrule hex crimp height is correct, and outer ferrule is not distorted, and is straight relative to the cable

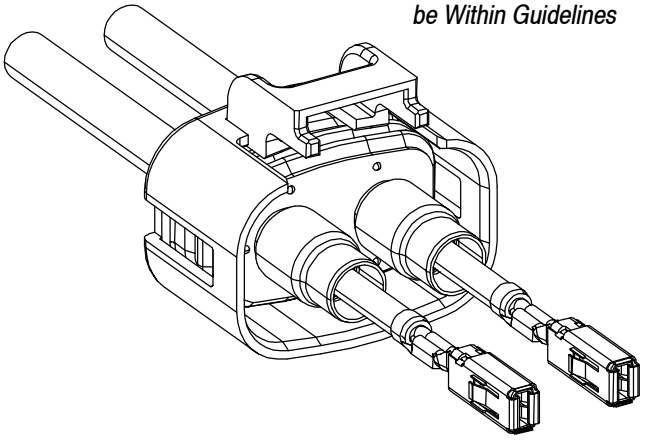

Figure 11

4.2. Terminal Installation

1. Orient the cable assembly such that the bridge feature on the cable seal retainer is aligned with the connector latch as shown in Figure 12.

2. Insert the terminals into their respective cavities until they are fully locked, and an audible and tactile “click” is detected. See Figure 13.

The installation of the ferrule into the contact springs of the connector shield will cause some resistance, so it is important to verify that the terminals are fully installed with a light pull.

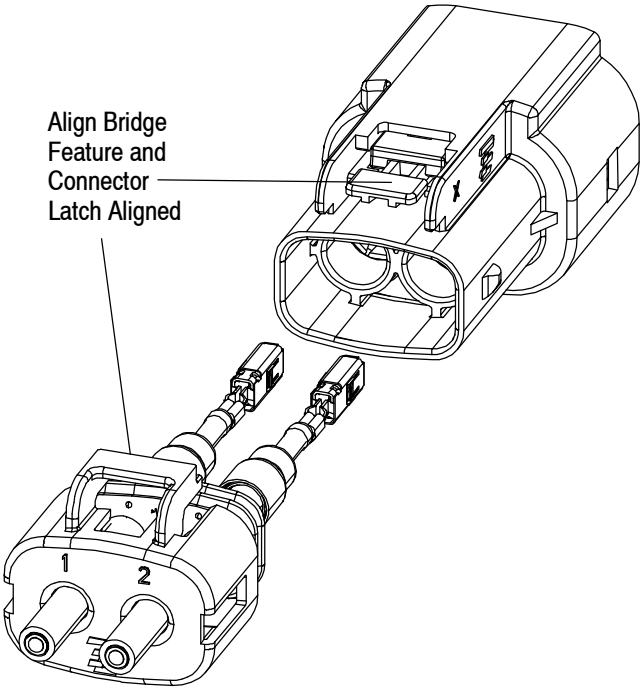

Figure 12

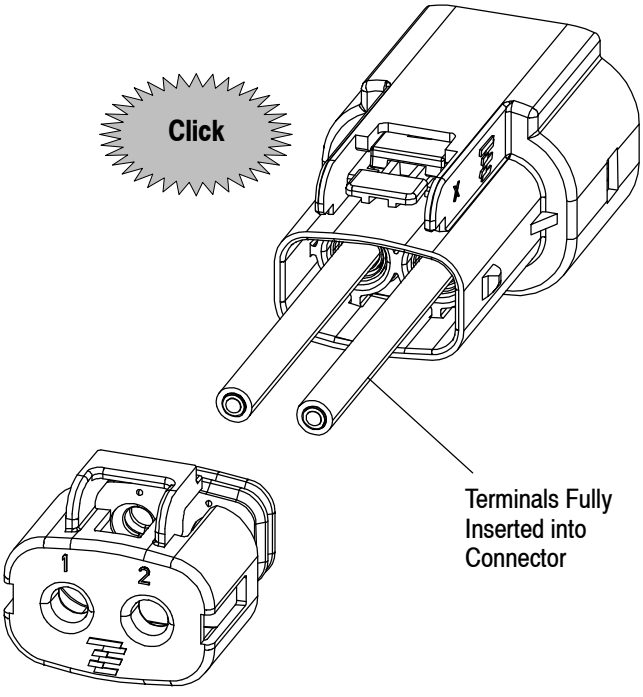

Figure 13

3. Fully insert the cable seal as shown in Figure 14 until it stops inside the back of the plug connector outer housing.

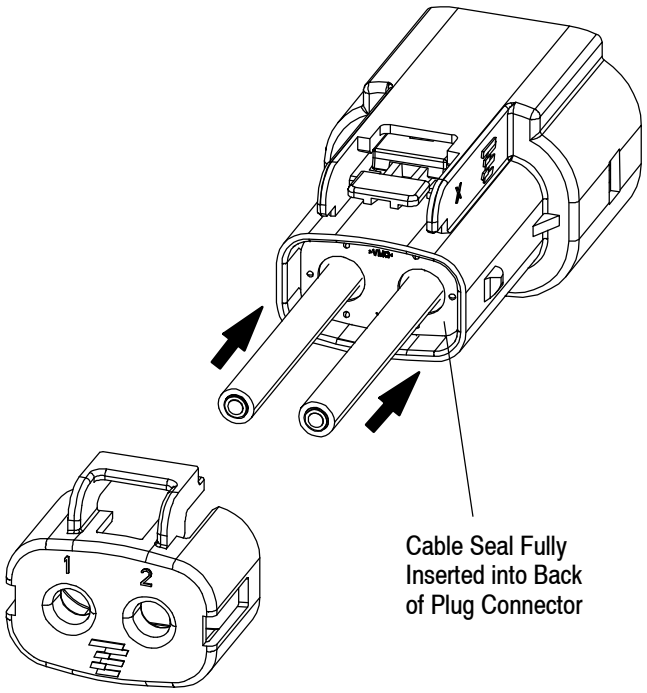

Figure 14

4. Fully install the cable seal retainer as shown in Figure 15 over the back of the plug connector outer housing, making sure that the bridge feature is correctly aligned with the connector latch feature.

Verify that both locking features are fully engaged.

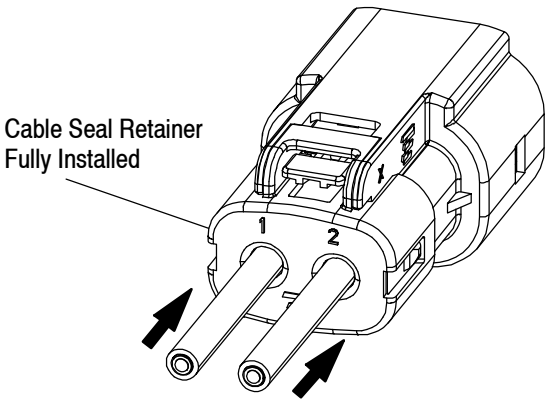

Figure 15

4.3. Connector Mating

1. Align plug and header connectors as shown in Figure 16.

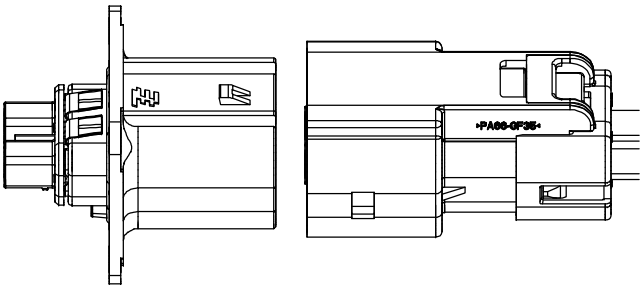

Figure 16

2. Push the connector halves together fully until they stop (two clicks will be heard).

Verify that the connectors are fully locked with a light tug and by visually verifying the location of the indicator slot on the floating latch as shown in Figure 17.

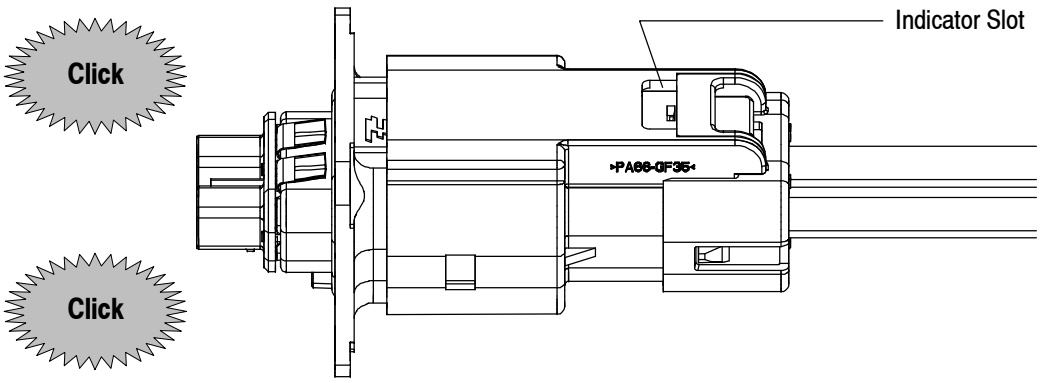

Figure 17

4.4. Connector Unmating

1. Fully depress the thumb actuation pad on the plug connector flexible latch (orange). See Figure 18.

2. Pull the plug connector back (~4.5 mm) into the intermediate position. At this point, the HVIL circuit has been opened, but the HV terminals are still making contact.

NOTE

Do NOT pull on the wires.

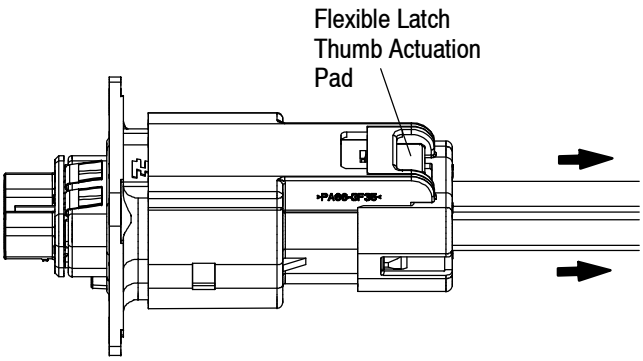

Figure 18

3. Fully depress the thumb actuation pad on the floating latch (red). See Figure 19A.

4. Pull the plug connector until it is fully separated from the header. See Figure 19B.

NOTE

Do NOT pull on the wires.

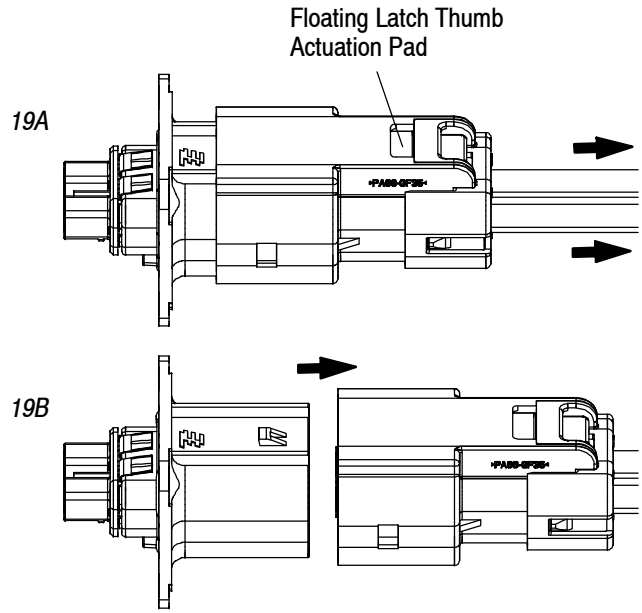

Figure 19

5. REPAIR

CAUTION

Damaged product should not be used. If a damaged component is evident, it should be replaced with a new one.

6. REVISION SUMMARY

- Updated document to corporate requirements
- Updated text and/or dimensions in Paragraphs 4, 4.3, 4.4, 4.7, 4.8, and 4.9
- Changed dimensions in Figures 4, 8, and 10