

Figure 1

## 1. INTRODUCTION

This instruction sheet provides information on the assembly of the AMP+ HVA400 Pin Terminal Assembly and insertion instructions of the pin terminal assembly into the AMP+ HVA400 Cap Connector.



**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.

## 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 pin terminals and ferrules in these assemblies are:

- For ferrule crimping: 6.1 mm hex tooling in either a hand actuated or electric/pneumatic tool.
- For terminal crimping: Daniels turret head TH695 in either a hand actuated or pneumatic/electric tool.

#### 4. PIN TERMINAL ASSEMBLY

The following procedures show the details of the pin terminal assembly.

1. Slide cable seal retainer 1587525-[ ] first, then the cable seal 1587530-[ ] onto the cable 1587669-[ ] as shown in Figure 2.

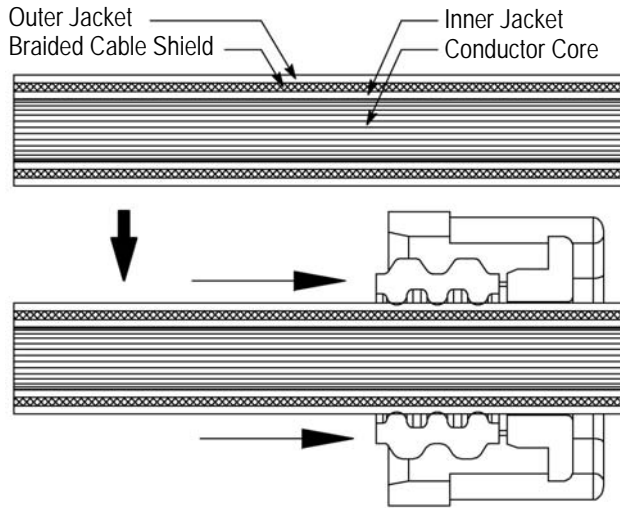


Figure 2

2. Cut and remove 8.5 mm of the braided cable shield and outer jacket from the end as shown in Figure 3.

**CAUTION**  
Be careful not to damage any of the strands during the stripping process.

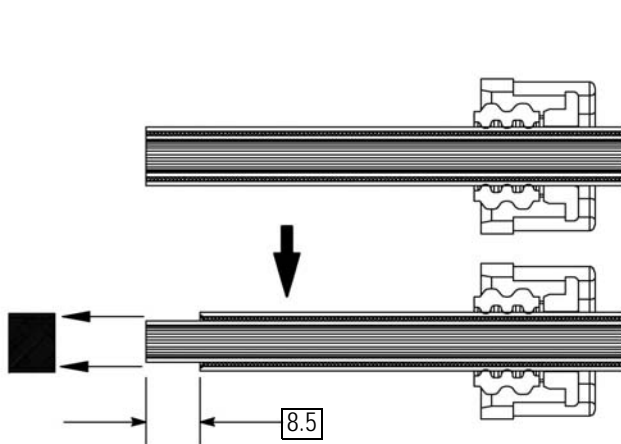


Figure 3

3. Strip the outer cable jacket 22 mm from the end, exposing the braided cable shield as shown in Figure 4.



**CAUTION**  
Be careful not to leave behind any cut or partially cut strands from the braided cable shield.

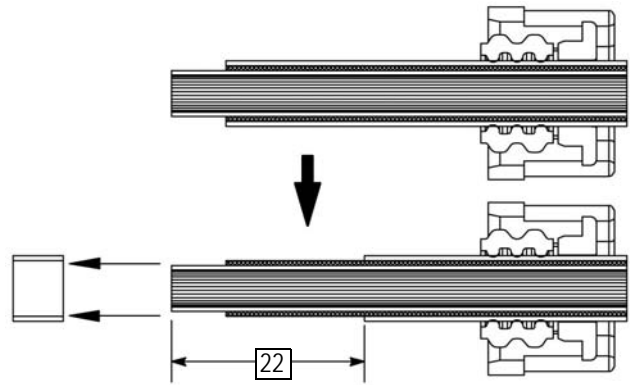


Figure 4

4. Slide the inner ferrule 1587583-[ ] over the braided cable shield until it contacts the outer jacket as shown in Figure 5.

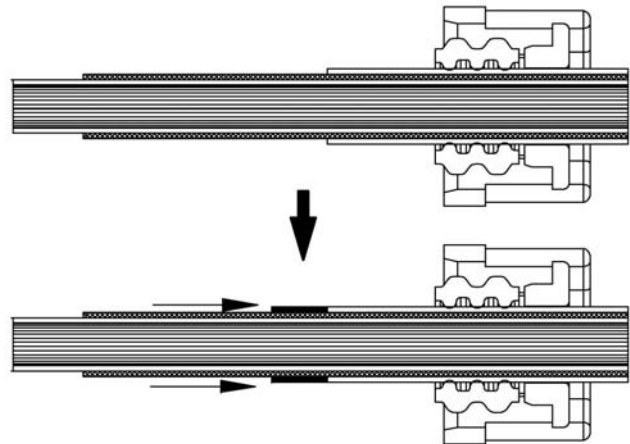


Figure 5

5. Fold the braided cable shield back over the inner ferrule as shown in Figure 6.

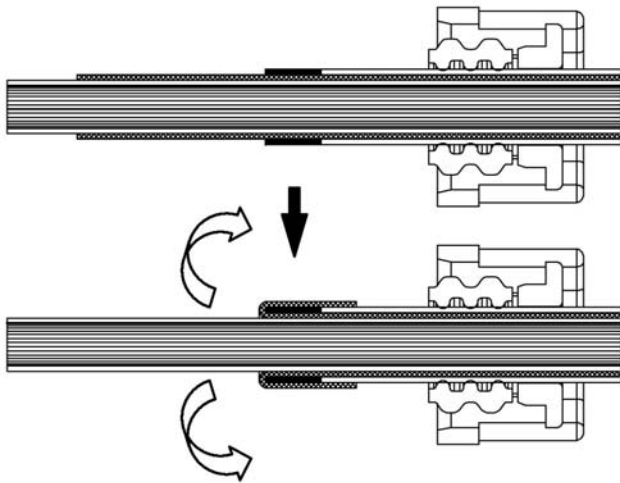


Figure 6

6. Strip the inner jacket 12 mm from cut end of cable exposing the conductor strands as shown in Figure 7.

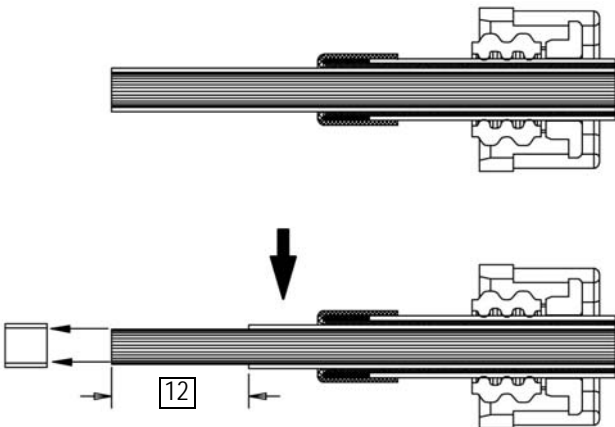


Figure 7

7. Insert the pin terminal assembly 1587556-[ ] over the exposed conductor strands as shown in Figure 8.

**i** **NOTE**  
There must be 3.25 mm minimum clearance between the terminal and ferrule/shield braid as shown in Figure 8.

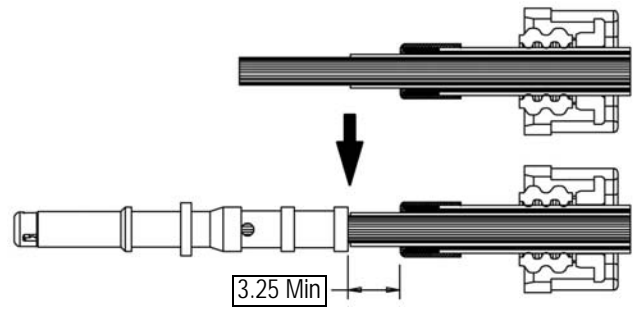


Figure 8

8. Crimp the terminal to the conductor core using the Daniels TH695 turret head as shown in Figure 9. The TH695 turret head should be on selector setting 6.

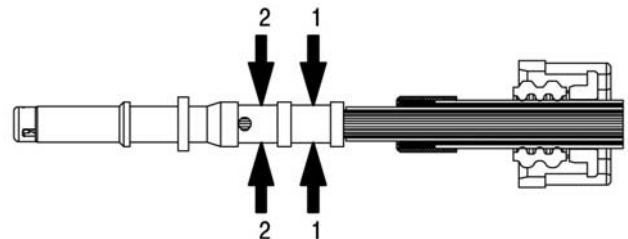


Figure 9

9. Install outer ferrule 1587584-[ ] past the pin terminal, over folded braided cable shield and inner ferrule, maintaining the dimensions as shown in Figure 10.

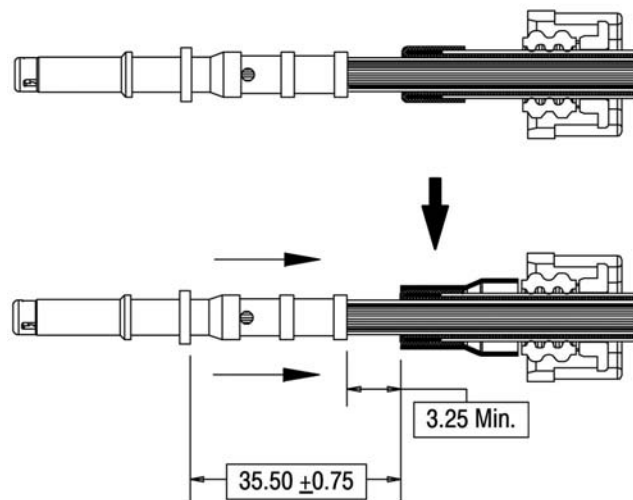


Figure 10

10. Crimp outer ferrule to the braided cable shield and inner ferrule in the area shown using 6.1 mm hex crimp tooling as shown in Figure 11. The hex crimp dimensions should measure  $6.20 \pm 0.10$  mm across all three sets of flat sections and there should be no flash in the hex crimp region.



**CAUTION**  
Avoid distorting the rear diameter of the outer ferrule.

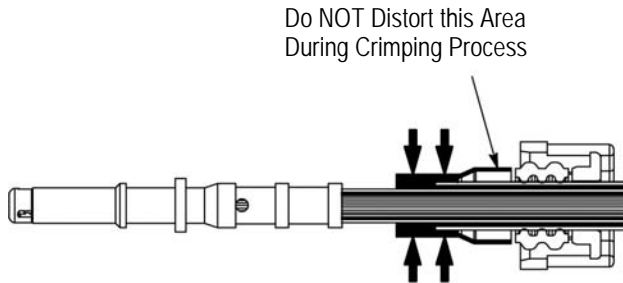


Figure 11



**NOTE**  
The 35.5 mm and 3.25 mm minimum dimensions are functional dimensions and must be correct in the final assembly.



**NOTE**  
The finished product should visually match the example shown in Figure 12 and is now ready for insertion into the cap connector assembly.

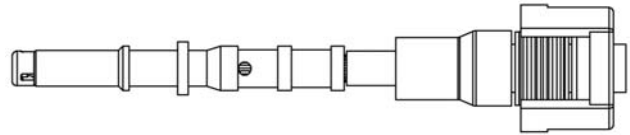


Figure 12

11. The following items must be inspected and verified:

- 35.50  $\pm$ 0.75 mm dimension inspection
- 3.25 mm minimum clearance shield/ferrule to terminal distance
- No loose shield or connector strands
- Crimped in correct location
- All components present (pin cap, seal, ferrules, seal retainer)
- No excessive ferrule distortion
- No seal/seal retainer damage



**NOTE**  
Figures 13, 14, and 15 illustrate defects that are to be avoided in the crimping process.



Figure 13

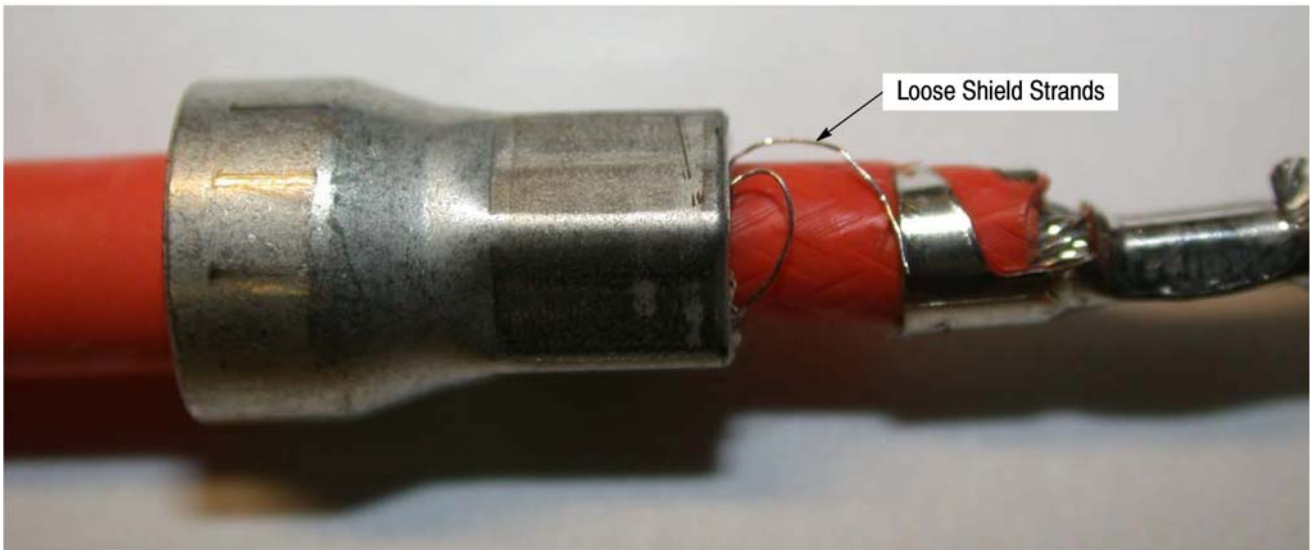


Figure 14



Figure 15



### 5. PIN TERMINAL INSERTION

Refer to the following procedures for inserting the 4 mm pin terminal assembly into the cap connector assembly. Figure 16 shows the major components of the AMP+ HVA400 cap connector and the pin terminal assembly.

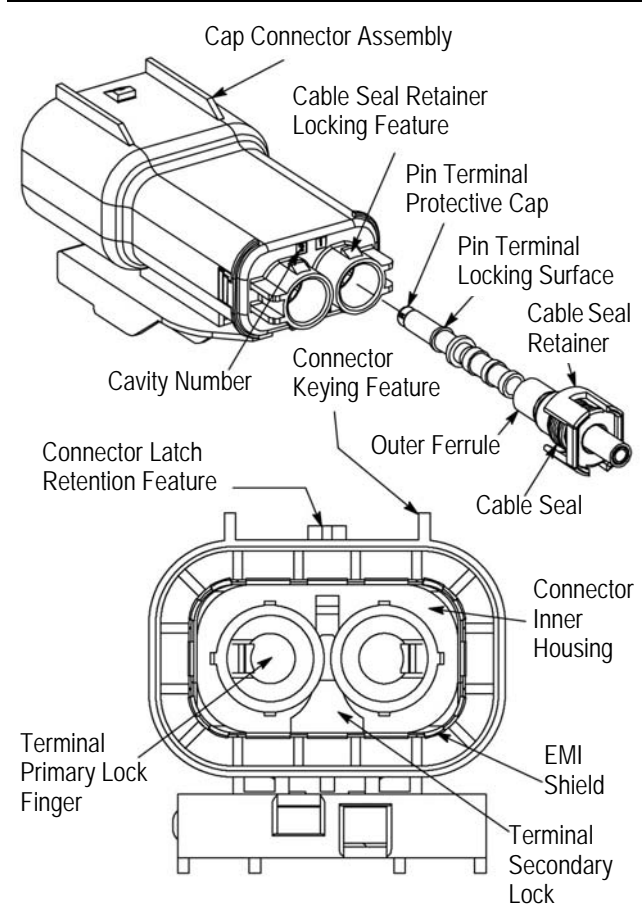


Figure 16

1. Make sure that connector terminal secondary lock is in the open position as shown in Figure 17.



**NOTE**

The inner housing, shield, and secondary lock can all be reversed as shown in Figure 17.

Inner Housing Position and Secondary Lock Detail

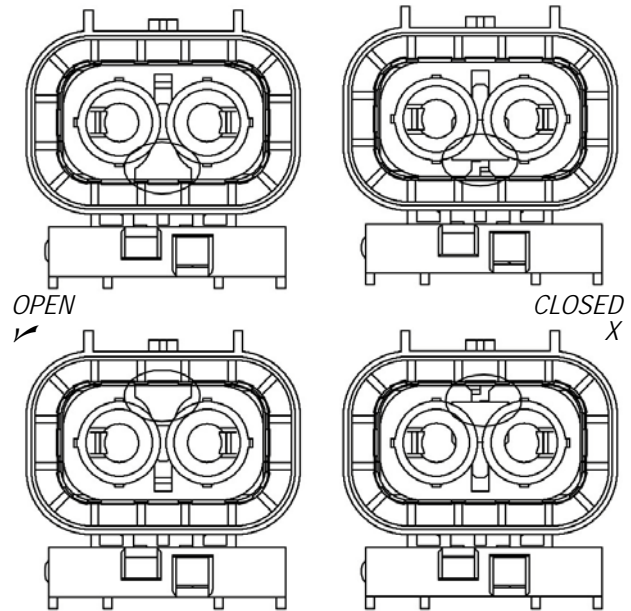


Figure 17

2. Note the cavity number on the cable entry end of the connector (Figure 18A). Insert the pin terminal into the terminal cavity until the primary lock finger in the cavity is fully engaged with the locking surface on the terminal. Visually verify that the terminal is completely inserted as shown in Figure 18B. Pull back gently to ensure the terminal is locked in place.

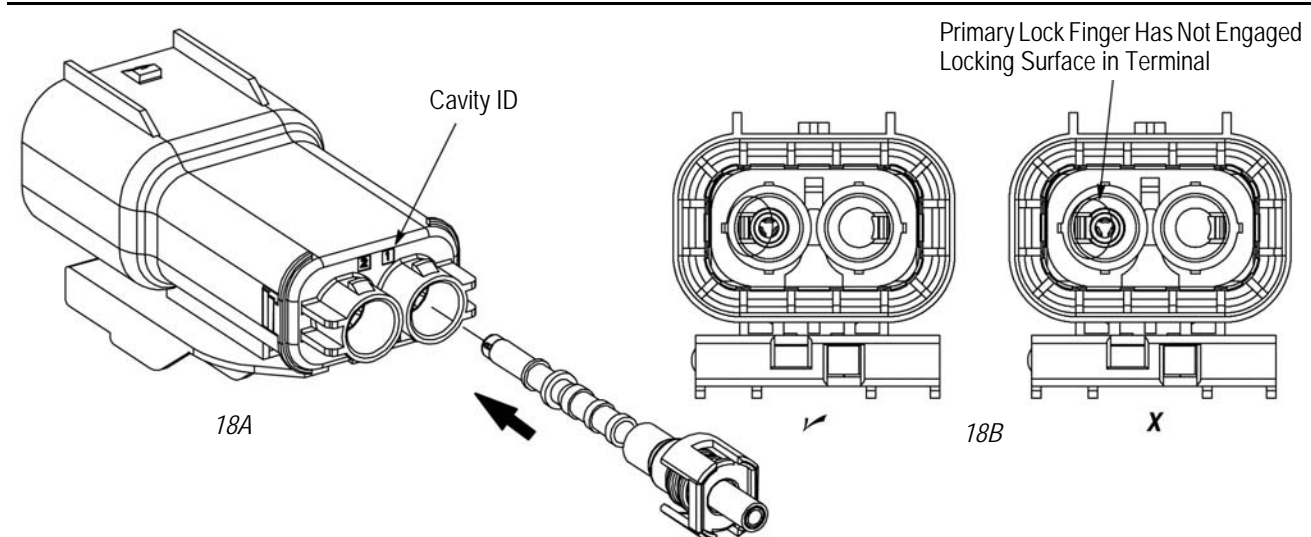


Figure 18

3. Slide the cable seal along the cable end and push it into the cavity until it is flush with the back of the terminal cavity as shown in Figure 19.



**CAUTION**

*If a tool is used to assist with the installation of the seal, be sure that it has no sharp edges or features that could cut or otherwise damage the seal.*

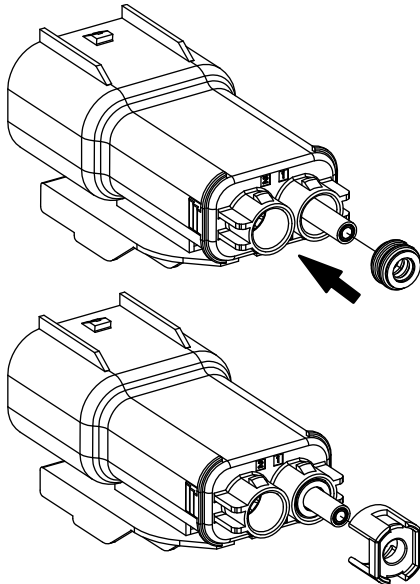


Figure 19

4. Slide the cable seal retainer along the cable and snap it over the locking features. Visually check to ensure that both locking features are engaged as shown in Figure 20. Use a light tug to check that it is fully locked in place.

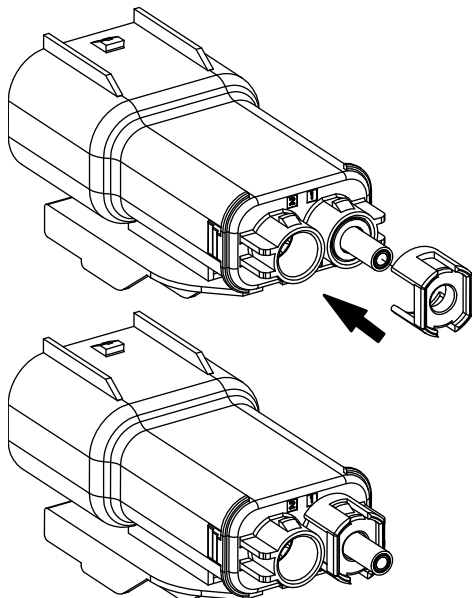


Figure 20

5. Repeat installation procedure for the second terminal cavity. See Figure 21.

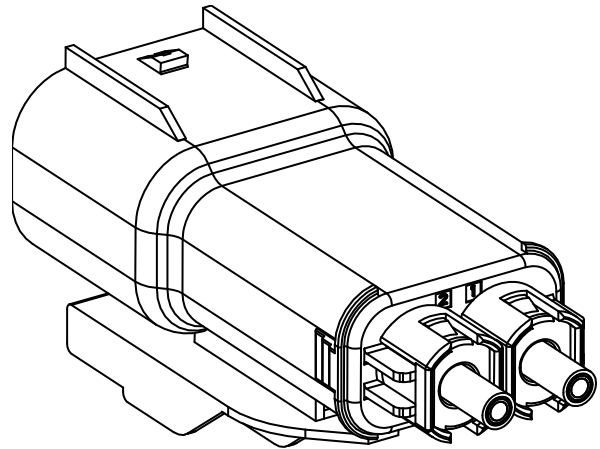
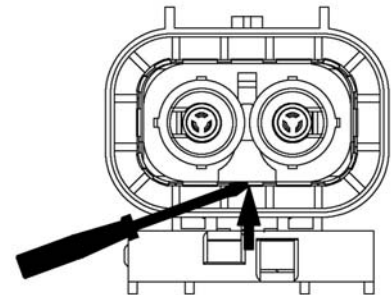


Figure 21

6. Move secondary lock from pre-lock to fully locked position using a small flat-bladed screwdriver. See Figure 22. If the secondary lock does not change positions easily, check to make sure that both terminals are fully installed.

Pre-Lock



Full-Lock

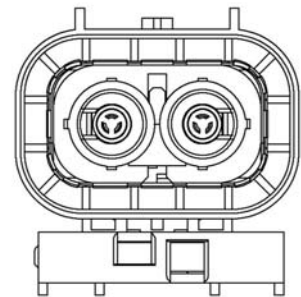


Figure 22

The connector is now ready for use in its intended application.

**6. TERMINAL PROBING**



**CAUTION**

*Avoid probing the terminal in an area that could damage the plating on the pin terminal. The best location for probing the pin terminal is at the base of the pin terminal as shown in Figure 23.*

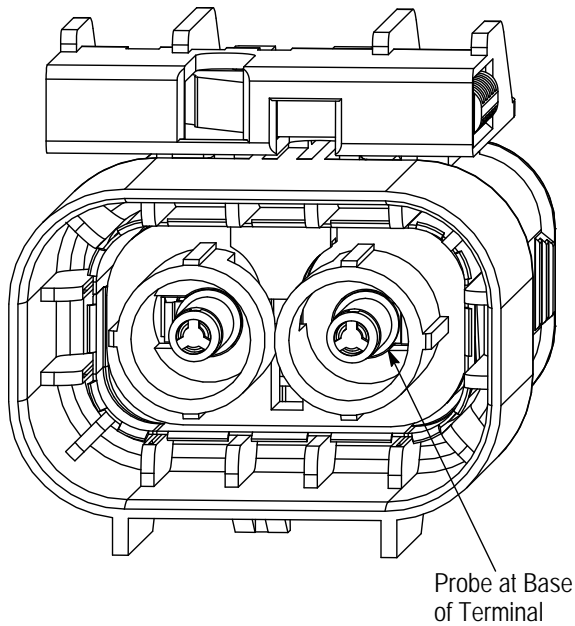


Figure 23

## 7. CONNECTOR MATING

The following steps illustrate mating and unmating of the AMP+ HVA400 with the integrated low voltage connector. See Figure 24. If the AMP+ HVA400 system you are using does not have the integrated low voltage connector simply mate the AMP+ HVA400 connectors as described in Paragraph 7.1, then unmate the connectors as described in Paragraph 8.3.

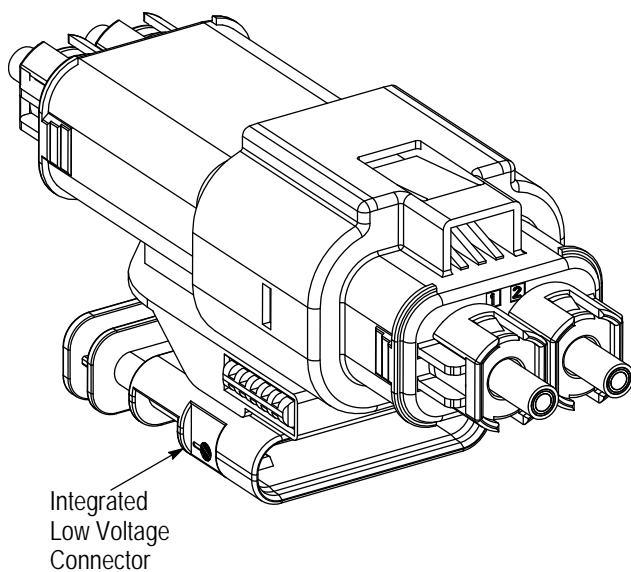


Figure 24

1. Push the AMP+ HVA400 connector halves together until the main latch engages with a click. See Figure 25.

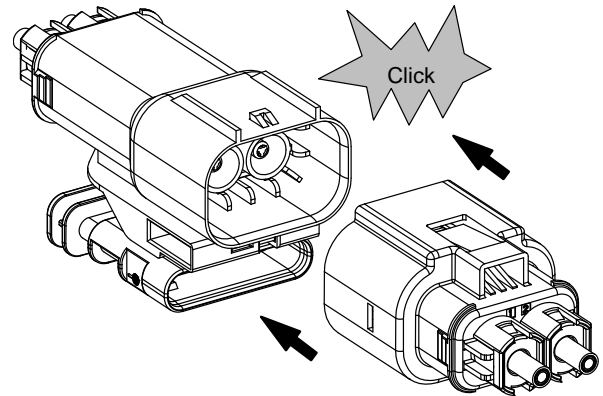


Figure 25

2. The HVIL post on the AMP+ HVA400 plug connector should engage and change the position of the HVIL slider as shown in Figure 26. If the connector halves do not fit together easily, check the following:

- Secondary lock position on AMP+ HVA400 cap connector
- Secondary lock position on AMP+ HVA400 plug connector
- Keying options on AMP+ HVA400 cap and plug connector are matched
- AMP+ HVA400 connectors are correctly oriented (180°)

Pull lightly on the AMP+ HVA400 connector to verify that the connectors are fully latched.

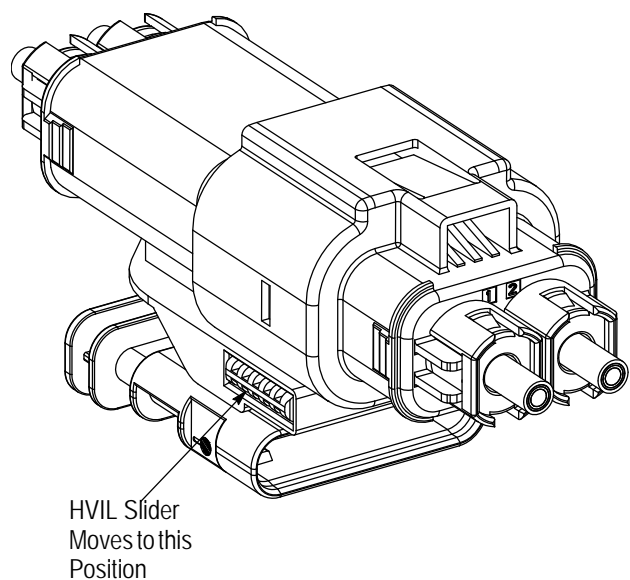


Figure 26



3. Push low voltage connector halves together until their main latch engages with a click as shown in Figure 27, then engage the low voltage connector CPA.

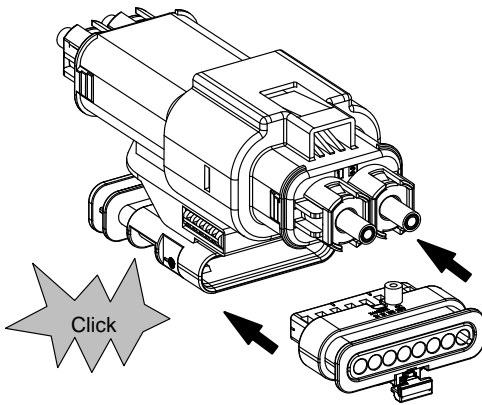


Figure 27

4. The HVIL post on the AMP+ HVA400 plug connector should engage and change the position of the HVIL slider as shown in Figure 28. If the connector halves do not fit together easily, check the following:

- Secondary lock position on low voltage cap connector
- Secondary lock position on low voltage plug connector
- Keying options on low voltage cap and plug connector are matched
- Low voltage connectors are correctly oriented (180°)
- AMP+ HVA400 connector is fully mated

Pull lightly on the low voltage connector to verify that the connectors are fully latched.

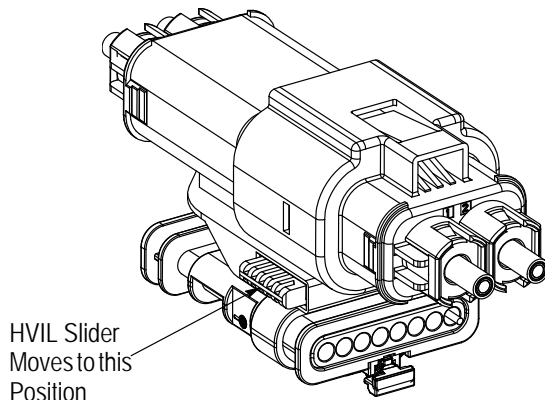


Figure 28

The connector system is now fully functional.

## 8. CONNECTOR UNMATING

The following procedures provide steps to unmate the high and low voltage cap and plug connector assemblies.

1. Disengage the low voltage connector CPA. While depressing the latch on the low voltage plug connector, pull the low voltage plug connector until it is completely unmated from the low voltage cap connector. See Figure 29. If the low voltage connectors cannot be easily unmated, ensure that the plug connector CPA has been completely disengaged, and that the plug connector latch has been completely depressed.

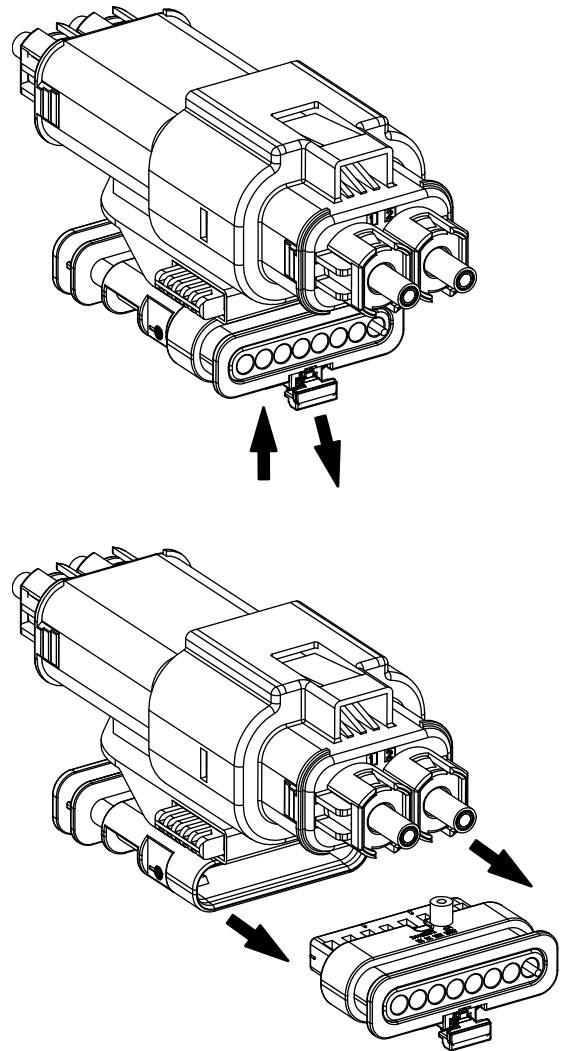


Figure 29

2. Push the HVIL slider into the intermediate position flush with the AMP+ HVA400 connector housing. See Figure 30. If the HVIL slider cannot easily be moved into its intermediate position, check whether the low voltage connector has been completely unmated.

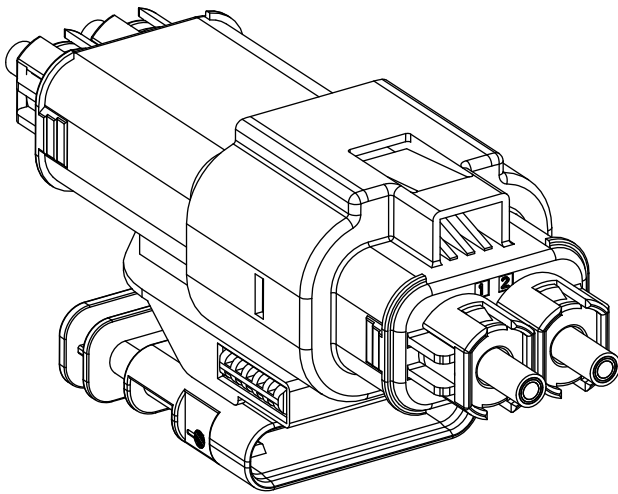
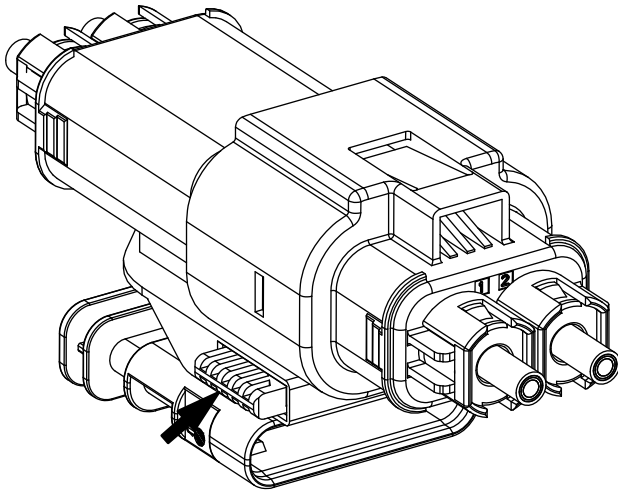


Figure 30

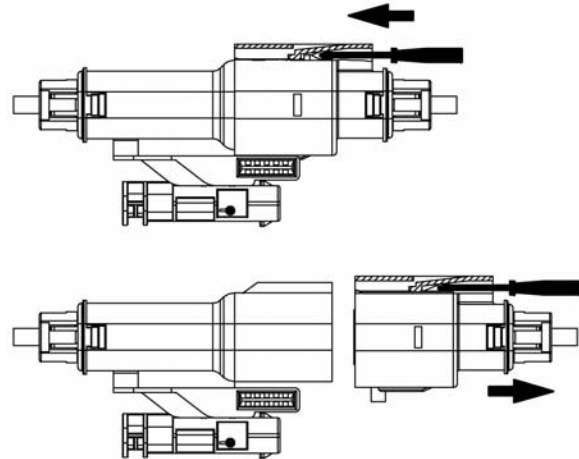


Figure 31

3. Push a flat-bladed screwdriver straight into the latch opening in the back of the AMP+ HVA400 plug connector. The screwdriver will act as a wedge between the latch on the AMP+ HVA400 plug connector and the latch retention feature on the AMP+ HVA400 cap connector. Do NOT pry the latch.

At the same time, pull the AMP+ HVA400 plug and cap connectors apart using the grip features on the sides of both connectors as shown in Figure 31. Do NOT pull on the cables or cable seal retainers.

The connectors are now ready for servicing or mating.

## 9. REVISION SUMMARY

- Updated document to corporate requirements
- Added AMP+ to product name throughout document