

Figure 1

## 1. INTRODUCTION

This instruction sheet covers the assembly (contact insertion, installing a body clip and wire dress cover) and disassembly (contact extraction and removal of the wire cover) procedures for the 32-Way AMP 0.64 mm Automotive Unsealed In-line Cap Connector Assemblies 2203467-[ ]. Recommendations for continuity testing are also covered.

These cap connectors accept the contacts listed in Figure 1. The following products are available separately to assemble onto the cap connector.

- Attachment Clip: 13832083 (DELPHI Connector Systems product, not available from TE Connectivity).
- Multiple-out Strain Relief 638941-1. The strain relief is used to support the wires and avoid an excessively sharp bend radius.

These cap connectors mate with 32-way plug assemblies. Refer to Instruction Sheet 408-8624 for assembly of the plug connector and mating procedure.



### NOTE

*Dimensions in this instruction sheet are in millimeters with [inches in brackets]. Figures and illustrations are for reference only and are not drawn to scale.*

## 2. DESCRIPTION

Each connector consists of a cap housing with circuit cavities and a terminal position assurance (TPA). The housing features a shroud, keys, shark fins, clip slot, and rails for strain relief. Refer to Figure 1.

Circuit cavities 1, 8, 25, and 32 are marked on the wire end of the cap connector for circuit identification. The contact cavities are polarized to prevent the contacts from being inserted upside-down. When inserted, the contact deflects a retention finger, locking the contact into place. After all contacts are inserted, the TPA is used to ensure that the contacts are fully seated and to provide additional contact retention.

The cap connector is shipped as one piece with the TPA in the open position (1st STAGE). The TPA is actuated when moved to the lock position (2nd STAGE). When the connectors are mated, the TPA moves to the final-lock position (3rd STAGE). Refer to Figure 2 for TPA staging positions.

When mating connectors, the keys are used to align the connectors. The harness plug latch snaps over the shark fins on the cap connector, to prevent the connectors from separating inadvertently.

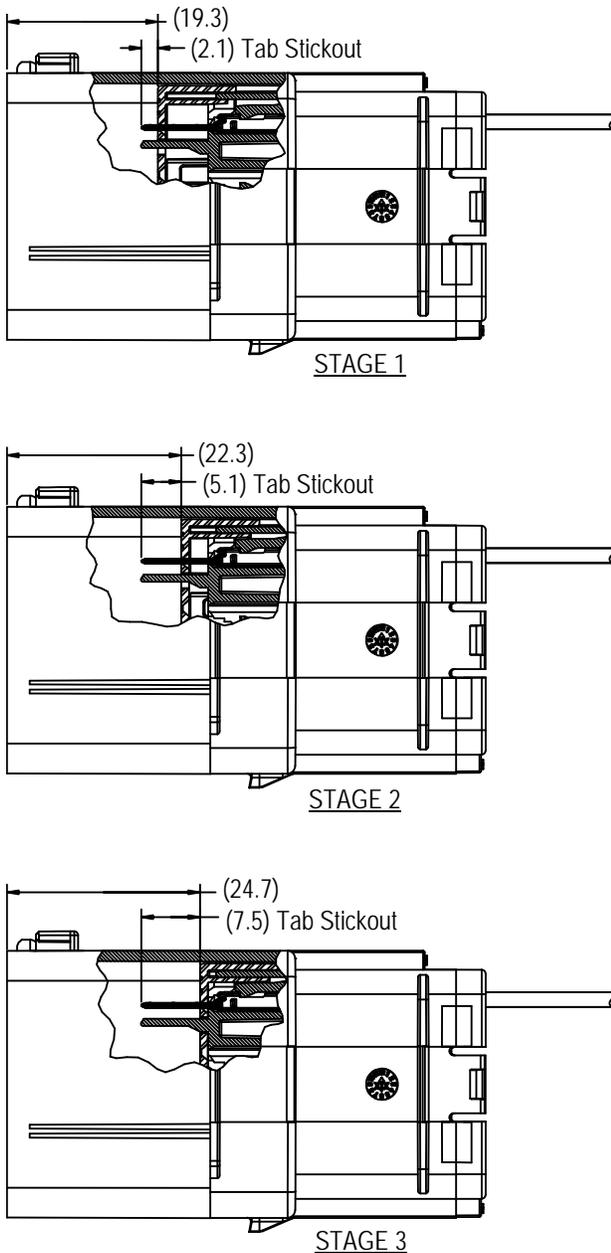


Figure 2

### 3. ASSEMBLY PROCEDURE

#### 3.1. Insert the Contacts

The following procedure assumes that the contacts have been properly crimped. For detailed inspection requirements for the 0.64 mm male contact, refer to Application Specification 114-13006.



**NOTE**  
Kinks that occur in the wire close to the insulation barrel crimp are undesirable and can be reduced or eliminated by using a lubricant when crimping the contact.

1. Ensure that the contacts are properly crimped.

2. Ensure that the TPA of the connector is in the 1st STAGE (as shipped) position. If it is not, use needle nose pliers to grasp the center rib on the TPA and pull it to the proper position. **DO NOT** remove the TPA completely from the housing. See Figures 2 and 3.

3. Grasp the wire of the contact approximately 20 mm [.750 in.] behind the insulation barrel of the contact.

4. At the wire end of the cap connector, align the contact with the desired contact cavity, orienting the contact so that the retention window is facing the top of the contact cavity. See Figure 4. Push the contact straight into the contact cavity until it stops (there will be an audible and tactile “click”).



**CAUTION**

*DO NOT force the contact into the contact cavity. If there is resistance or the wire “buckles”, pull the contact out, ensure proper orientation, and re-insert the contact.*

#### Opening TPA

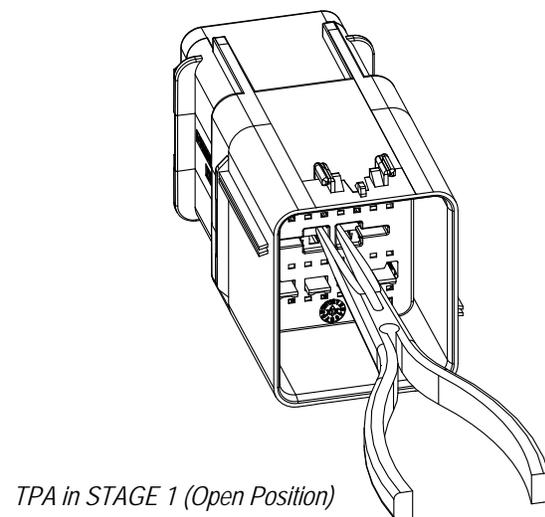
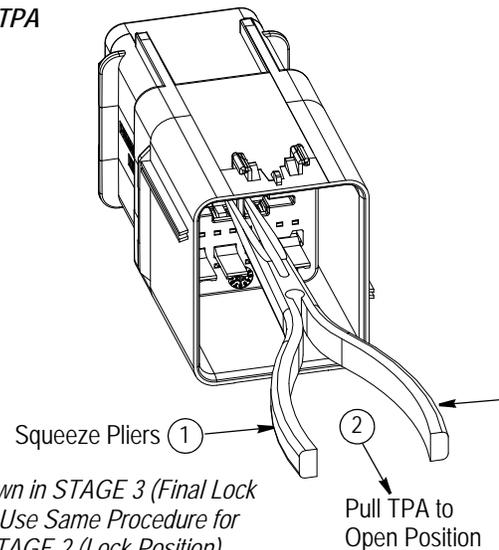


Figure 3

### Inserting Contacts

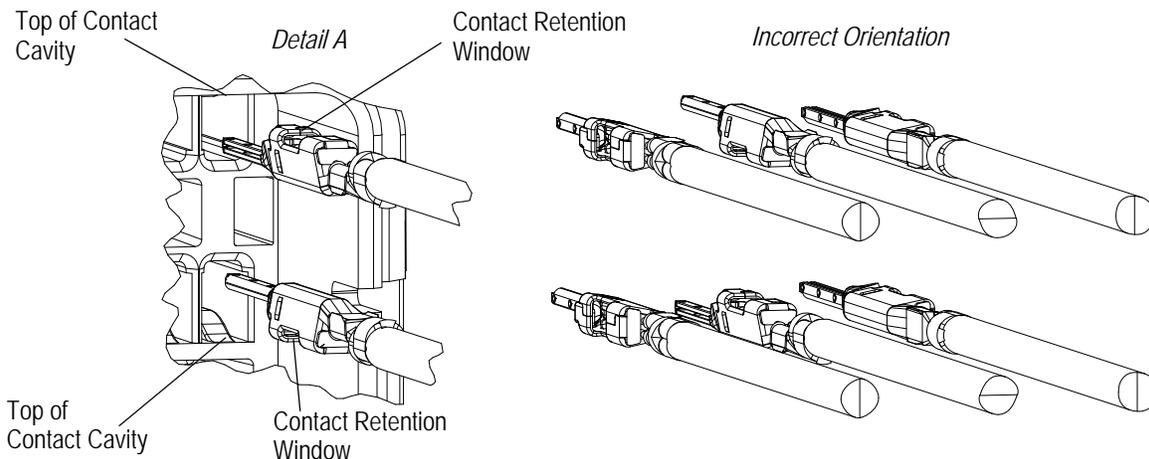
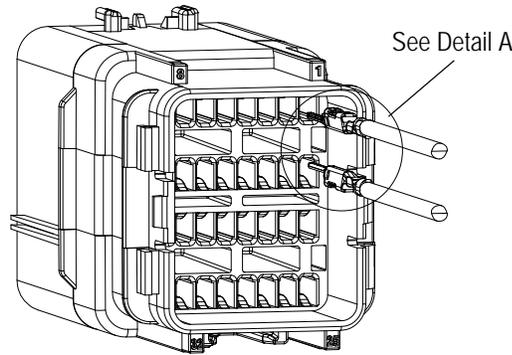


Figure 4

5. After all contacts are inserted, push the TPA to the 2nd STAGE. Use an adequate tool or fixture and make sure to avoid pushing the tips of the contacts. The TPA is in the 2nd STAGE when the tips of the contacts extend approximately 5.1 mm [.200 in.] from the cavities of the TPA. Refer to Figure 2 for 2nd STAGE position.

2. Slide the clip into the clip slot until the clip latch secures it to the cap connector.



**CAUTION**

If the TPA does not move to the 2nd STAGE, pull the TPA to the 1st STAGE, ensure that all contacts are fully seated, then try again. DO NOT force the TPA into the 2nd STAGE.

### 3.2. Test for Continuity



**CAUTION**

It is recommended using a continuity test fixture that will not cause damage to the contacts and will not move the TPA to the 3rd STAGE.



**CAUTION**

To avoid damage to the contact, MAKE SURE that the probe does not apply excessive force to the tip of the contact.

### 3.3. Install the Body Clip (Optional)

1. Orient the body clip as shown in Figure 5 so that the latch on the body clip faces the wire end of the cap connector.

#### Installing the Body Clip (Optional)

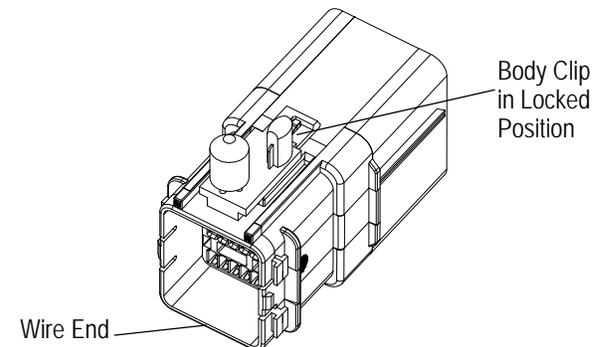
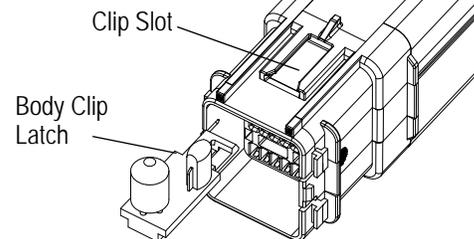


Figure 5

### 3.4. Install the Strain Relief (Optional)

Once contacts have been inserted and the TPA has been closed, the strain relief can be installed. This procedure covers the Multiple-Out Strain Relief 638941-[ ]. For additional strain relief options, refer to Instruction Sheet 408-8624.

1. Make sure the strain relief hinge is in the open position.
2. Orient the strain relief so that the slots line up with the rails on the cap housing. See Figure 6.
3. Slide the strain relief onto the cap housing.
4. Route the wire bundle as necessary.
5. Close the hinged portion of the strain relief (if provided).

#### Installing the Strain Relief

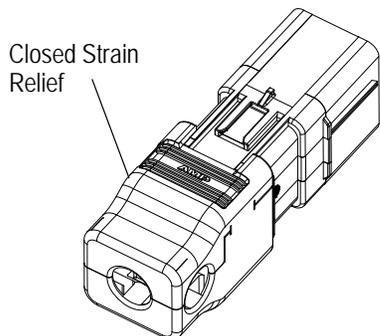
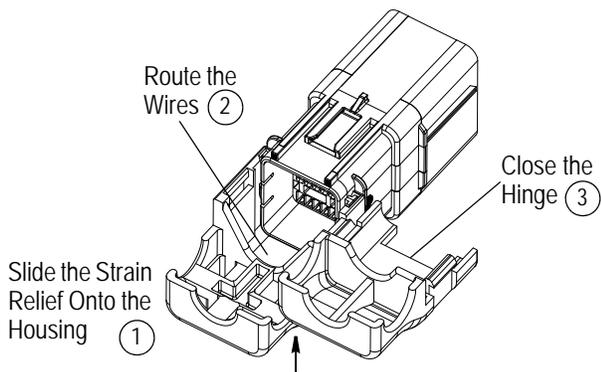
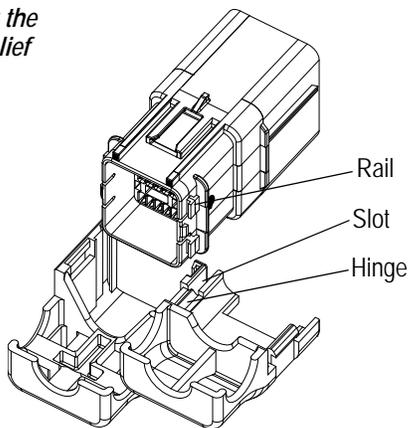


Figure 6

### 3.5. Connector Mating and Unmating

Refer to Instruction Sheet 408-8624 for mating and unmating of plug connector.

## 4. DISASSEMBLY

### 4.1. Strain Relief Removal (Multiple-Out Strain Relief 638941-[ ])

1. Unwrap tape from strain relief
2. Identify the strain relief latch and place a small screwdriver (flat-blade approx. 2.0 mm [.079 in.] wide) under the latch. See Figure 7.
3. Pivot the screwdriver away from the center of the connector. This will release the latch and allow the hinge to open.
4. Refer to Instruction Sheet 408-8624 for removal of other types of strain reliefs.

#### Strain Relief Removal

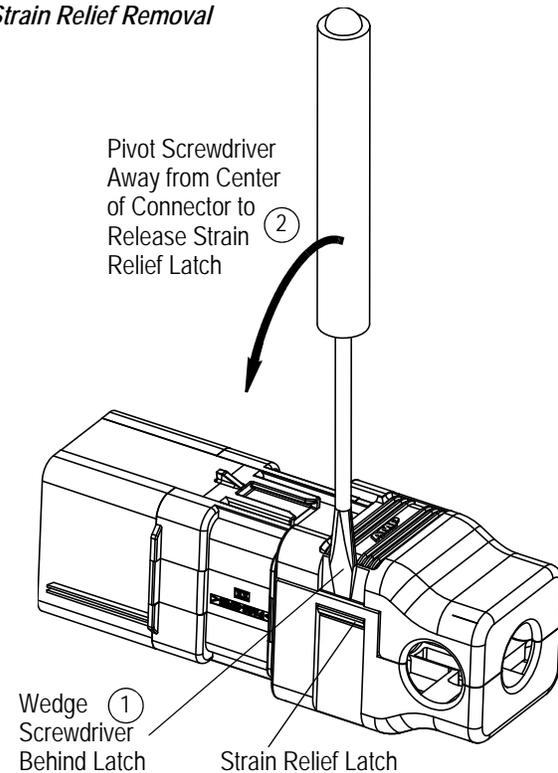


Figure 7

### 4.2. Removing the Body Clip

1. From the mating end of the cap connector, slide the tip of a flat-blade screwdriver under the latch of the body clip. See Figure 8.
2. Rotate the screwdriver 90° to release the clip from the cap shark fin feature.
3. With the clip latch released, slide the clip toward the wire end of the cap connector.

### Removing the Body Clip

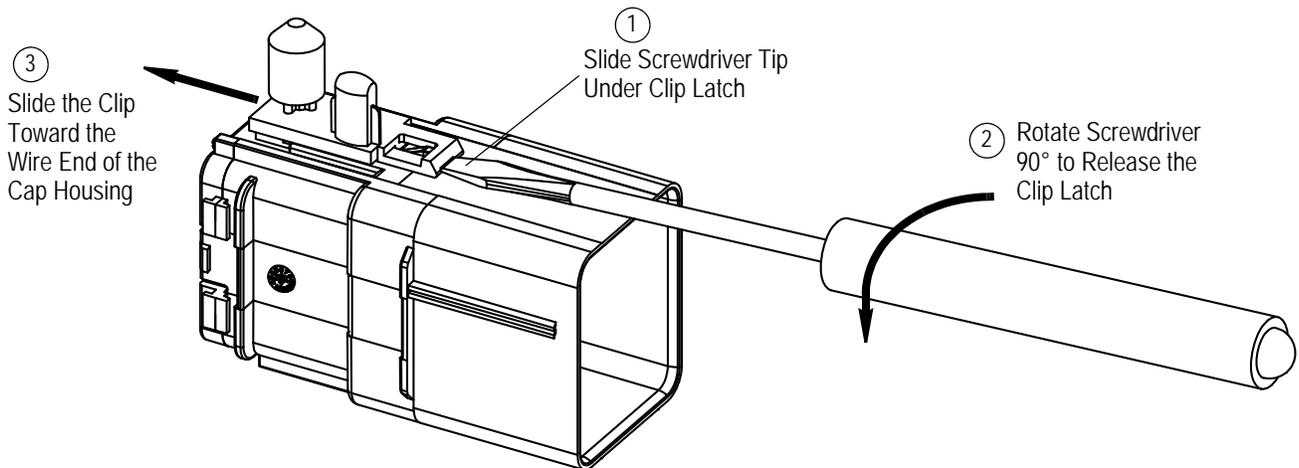


Figure 8

### 4.3. Contact Removal

The connector must be unmated and the strain relief, if present, must be removed (Paragraph 4.1) in order to remove contacts. The TPA must be removed in order to remove contacts. To remove the contacts, proceed as follows:

1. Using a set of needle nose pliers, grip the center rib of the TPA and remove it from the cap housing. See Figure 3 except pull the TPA off completely.
2. Insert a 0.8-1.0 mm [.031-.039 in.] flat-blade screwdriver into the selected exposed contact cavity as shown in Figure 9.
3. Holding the screwdriver in place, gently push the wire of the contact to be removed and push the contact forward until it stops (this will relieve the pressure on the contact retention finger).

4. Rotate the screwdriver toward the contact to lift the housing retention finger away from the contact. See Figure 9.

5. While holding the screwdriver in position with the retention finger deflected, pull on the wire until the contact is released. Then pull the contact straight out of the contact cavity.

6. Pull the screwdriver out of the cap connector.

7. Insert a new contact according to Paragraph 3.1 and test the contact following the recommendations given in Paragraph 3.2.

8. Follow Steps 2 thru 7 for the remaining contacts.

9. When all terminals are properly replaced, re-install the TPA into the housing so that it is in the 2nd STAGE as follows:

### Contact Removal

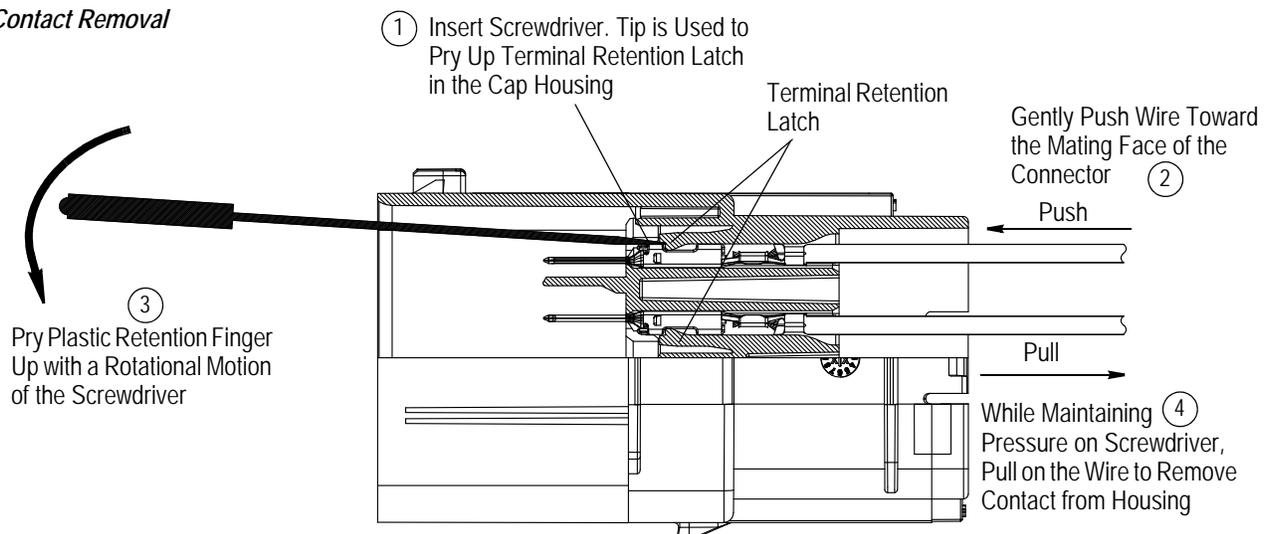


Figure 9

- a. From the mating face of the cap connector, align the cavities of the TPA with the tips of the contacts.
- b. Carefully slide the TPA into the cap connector until it “clicks” into the 2nd STAGE position. Refer to Figure 2 for proper TPA position.

**CAUTION**

*Be careful not to bend any of the contacts. If a contact is bent, it needs to be replaced.*

**5. REPLACEMENT AND REPAIR****CAUTION**

*Contacts and housings are not repairable. DO NOT use any defective or damaged contacts or connectors. DO NOT re-use a terminated contact by removing the wire.*

**6. REVISION SUMMARY**

- Initial release of document