

Figure 1

## 1. INTRODUCTION

This instruction sheet provides assembly, disassembly, mating, and un-mating procedures for the sealed female harness connector shown in Figure 1. The connector is designed to use 1.2 MCON receptacle terminals (Clean Body design) that pass through a grommet (mat seal). Connector assemblies can be configured with specific patterns of blocked circuits, or in “all open” configuration and blocking of unused circuits accomplished by using “sealing plug” components also shown in Figure 1. The connector system must be used with the wire dress assembly shown due to the latching feature and CPA (Connector Position Assurance) for the lever mechanical assist is contained in the wire dress assembly.

## 2. DESCRIPTION

Each connector female assembly consists of an inner housing with circuit cavities, outer housing, lever mechanical assist, terminal secondary lock (ISL), peripheral seal, and grommet (mat seal). The wire dress assembly likewise consists of a wire cover and CPA.

Each circuit cavity is polarized to prevent the terminal from being inserted upside-down. After all terminals are inserted, the ISL is used to detect and ensure that all are fully seated as well as provide secondary terminal retention. If a terminal is not fully seated or improperly oriented in the cavity, the ISL will not close properly.

The peripheral seal prevents moisture from entering the connector to header interface. The grommet or mat seal prevents moisture from entering the connector body around the wires. The connector outer housing contains latch features on each side that retain the lever in the pre-stage position for shipping and handling, and keep the lever in that position until properly mated to the header where the latches release the lever and allow it to “kick” a number of degrees of rotation signifying it is ready to be mated fully.

Once the lever is fully rotated completing the mating sequence, it will latch into the thumb latch of the wire cover. The CPA component is released at this point and able to be seated. The CPA is used to provide a visual indication that the connector is fully mated to the header connector, and provide reinforcement to the cover latch so that it is unable to be inadvertently released during high shock or vibration loads, water spray, or during vehicle maintenance procedures on surrounding areas to the transmission cover.

### 3. ASSEMBLY PROCEDURE

#### 3.1. Terminal Insertion

1. Crimp the terminals according to Application Specification 114-18464 for the 1.2-mm MCON terminals and ensure that the terminals are properly crimped.
2. Ensure that the ISL of the plug assembly is in the open (as shipped) position as shown in Figure 2A. If the ISL is closed or partially closed, refer to Step 1 of Paragraph 4.3.
3. Align a crimped terminal with the appropriate circuit cavity of the plug assembly so that the orientation feature on the terminal is facing as shown in Figure 2B and 2C

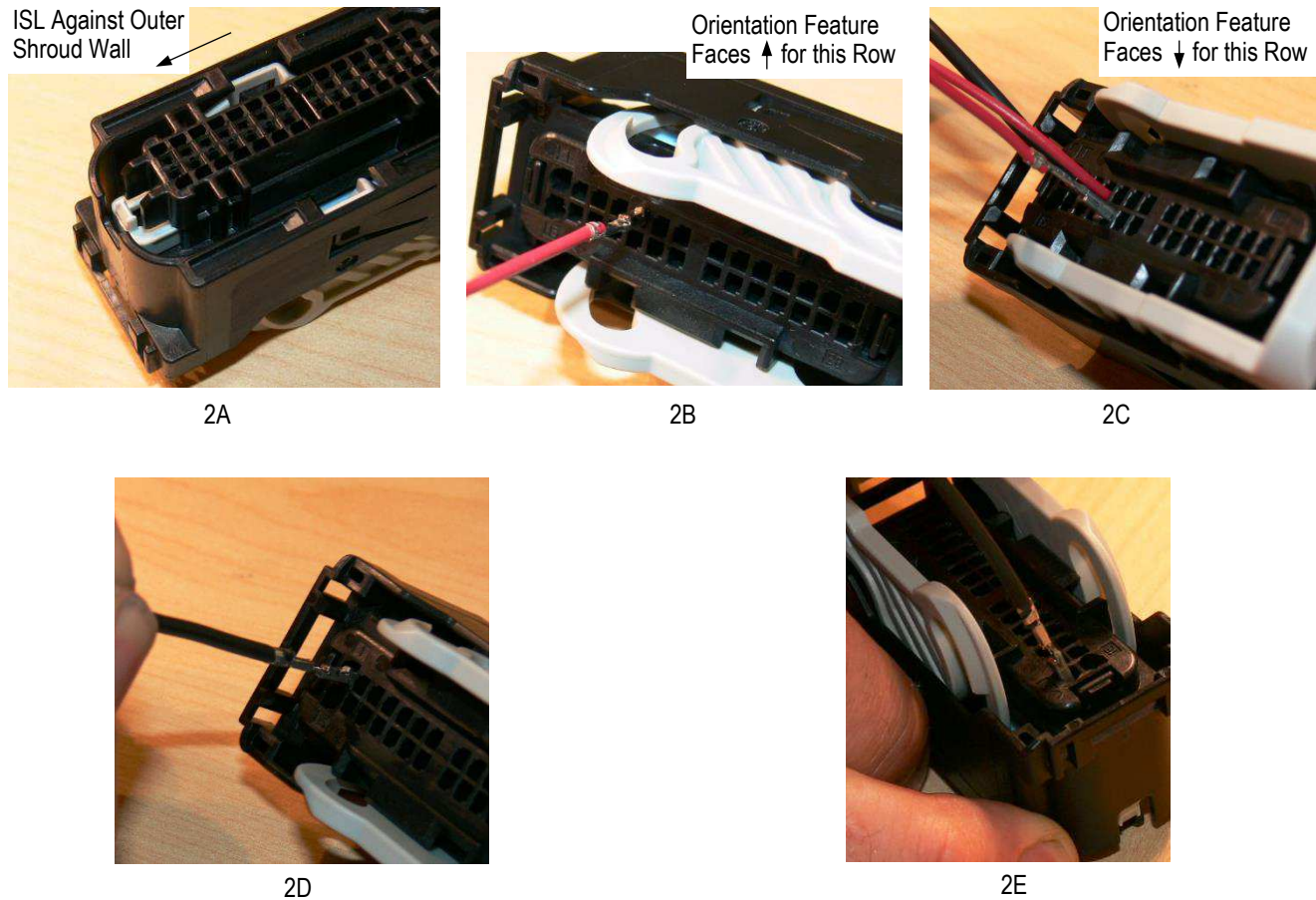


Figure 2



#### CAUTION

Circuits No. 1 and 15 have large openings for clearance using 1.5 mm<sup>2</sup> wire. Very little initial guidance of terminal is provided. Take care not to angle the terminals during insertion as shown in Figure 2E, or grommet seal damage can occur.

4. Grasp the wire of the crimped terminal, and insert the terminal straight into the circuit cavity until it is fully inserted. If there is significant resistance during insertion, remove the terminal and verify proper orientation. An audible and tactile click should be felt when terminals are fully latched into the circuit.

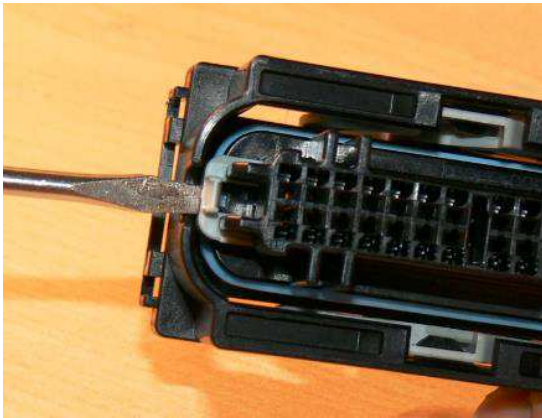


#### NOTE

If the terminal is difficult to insert into the circuit cavity, check for a de-populated arrangement. Refer to the wiring diagram on the customer drawing for the specific plug assembly.

5. Lightly pull the wire to ensure that the terminal is latched to the terminal block.
6. Follow step 3 through step 5 for the remaining terminals.

7. After all terminals have been inserted, using a small screwdriver, push the push pad of the ISL (see Figure 3, Detail A) until the ISL moves to the closed position. The ISL is in the closed position when it is flush with the plug housing. See Figure 3, Detail B.



3A



3B

Figure 3


**NOTE**

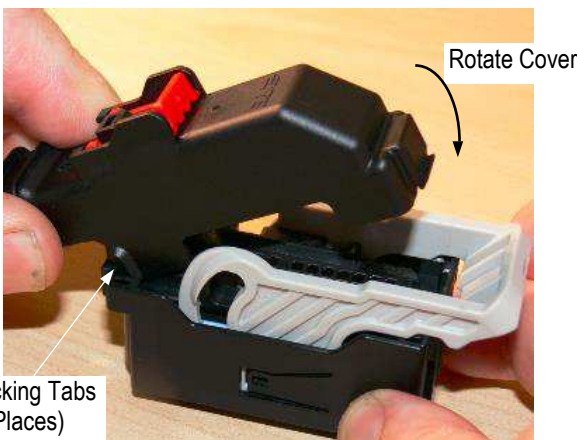
If the ISL does not move easily into the closed position, one or more of the terminals is not fully inserted. Move the ISL to the open position (as described in Step 1 of Paragraph 4.3), then check that all terminals are fully inserted.

### 3.2. Wire Dress Assembly Installation

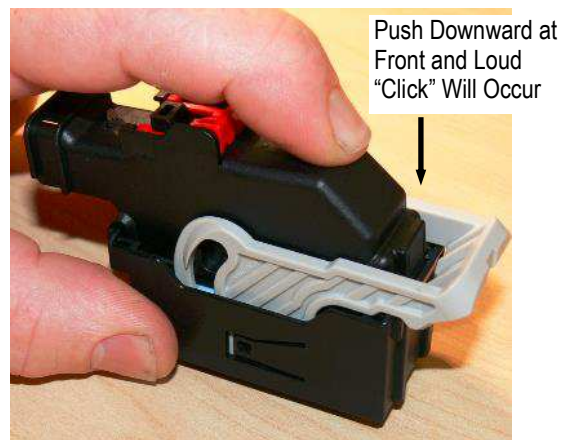

**NOTE**

The wire dress cover should be installed after all terminals have been fully inserted.

1. Bundle the wires and bend them in a shape that will fit into the wire exit of the wire dress cover.
2. Align the locking tabs of the wire dress cover with the windows of the plug housing, and place the wire dress cover onto the plug housing. See Figure 4, Detail A.
3. Ensure that the wire bundle is completely captured within the wire exit of the wire dress cover and no wires are pinched between the plug housing and the wire dress cover, then rotate the wire dress cover, while maintaining pressure on the locking tabs, until the wire dress cover locks into place. There will be an audible click. Detail B in Figure 4 shows the wire dress cover fully seated onto the plug housing.



4A



4B

Figure 4



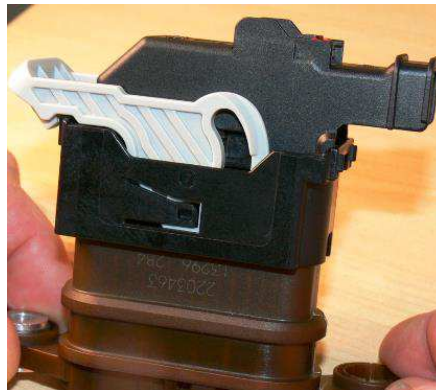
4. Using tape or wire ties, attach the wire bundle to the wire dress cover.

### 3.3. Connector Mating

1. Ensure that the mating lever of the plug assembly is in the open (as shipped) position as shown in Figure 5A. If the mating lever is closed or partially closed, rotate it back to the pre-stage position until it stops. When it is in the open position, there will be an audible click.
2. Align the mating face of the plug assembly with the mating face of the cap assembly, and push them together until the plug assembly pre-stage mating latches engage and the mating lever starts to rotate. See Figures 5B and 5C.



5A



5B



5C

Figure 5

**i** **NOTE**  
If there is significant resistance during mating, ensure that the ISL is in the closed position (as described in Step 7 of Paragraph 3.1).

3. Manually rotate the mating lever (toward the wire dress exit) until it latches into the locked position. There will be an audible click when the locked position is reached. See Figure 6A. Force should not be applied to the CPA until the Lever is in the fully locked position (use a 2 step procedure). Once the Lever is in the fully locked position per figure 6A, proceed to step 4.



#### NOTE

*The force applied to the Lever push area during final lock must be directed straight downward towards the Wire Dress Cover. Applying force to the side or at an angled direction on the Lever push area will distort the lever and cause binding, or inability to lock.*

4. Push the CPA toward the lever. The CPA is now in the closed position. See Figure 6B.

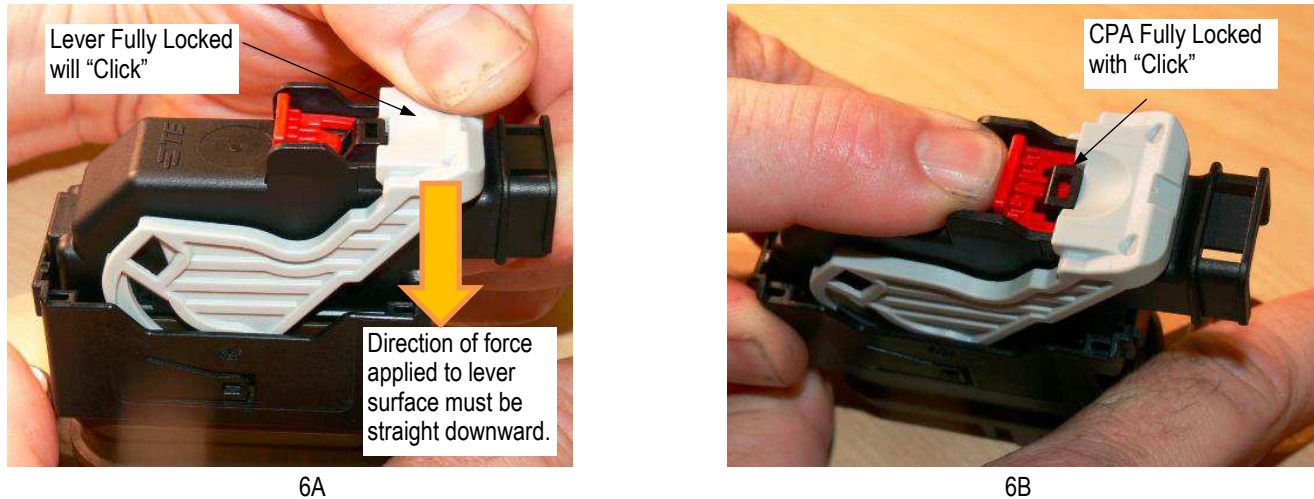


Figure 6



#### NOTE

If there is significant resistance when sliding the CPA, ensure that the mating lever is completely latched in the closed position. A slight downward pressure on the lever when pushing the CPA will make this step nearly effortless.

## 4. DISASSEMBLY PROCEDURES

Disassembly must be performed in the following order.

### 4.1. Connector Un-Mating

1. Slide the CPA away from the lever latch until it stops. The CPA is now in the open position. See Figure 7.
2. Press the plug assembly mating latch until the mating lever is released; then, rotate the mating lever away from the wire exit end until it stops. The mating lever is in the open position as shown in Figure 5B.

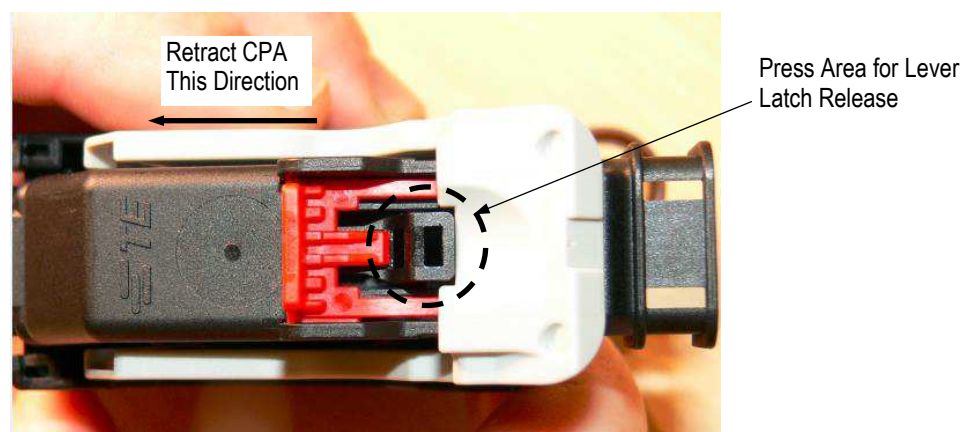


Figure 7

3. Pull the plug assembly straight away from the header assembly. There will be a slight resistance as the pre-stage mating latches are released.

#### 4.2. Wire Dress Assembly Removal

Using the tip of a screwdriver, pry the latch of the wire dress cover inward, then rotate the wire dress cover until it is released from the plug assembly. See Figure 8.

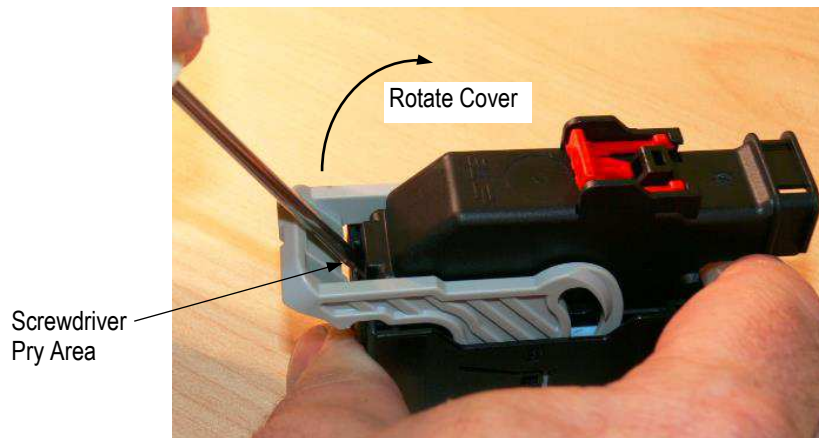


Figure 8

#### 4.3. Terminal Removal

1. Terminals can be removed only when the ISL is in the open position. Move the ISL to the open position as follows:
  - a. Insert the tip of a screwdriver into the cutout/chamfered area of the ISL.
  - b. Gently pry the end of the ISL away from the plug housing until the ISL is in the open position. There will be an audible click. See Figure 9.

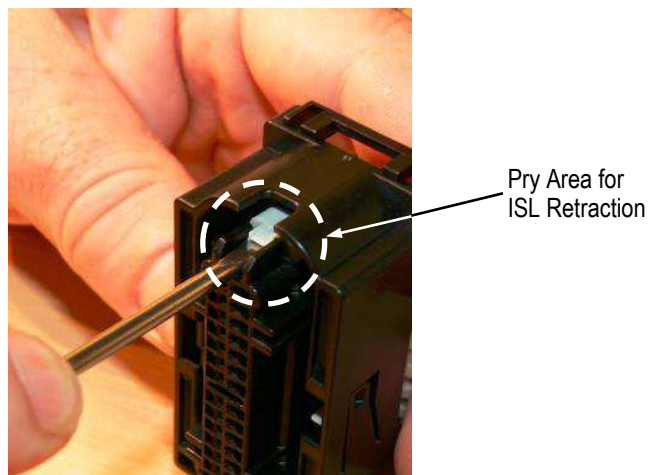


Figure 9

2. Push the wire of the terminal to be removed toward the circuit cavity so that the terminal moves toward the front of the housing.
3. Suggested removal tools are 8-1579008-4 (TE Connectivity); or J-38125-215A (Kent Moore). Remove each terminal as follows:

- a. From the mating face of the plug assembly, insert the tip of removal tool into the opening above the circuit cavity of the terminal to be removed. Gently rotate the tool towards the terminal body, lifting the latch finger.

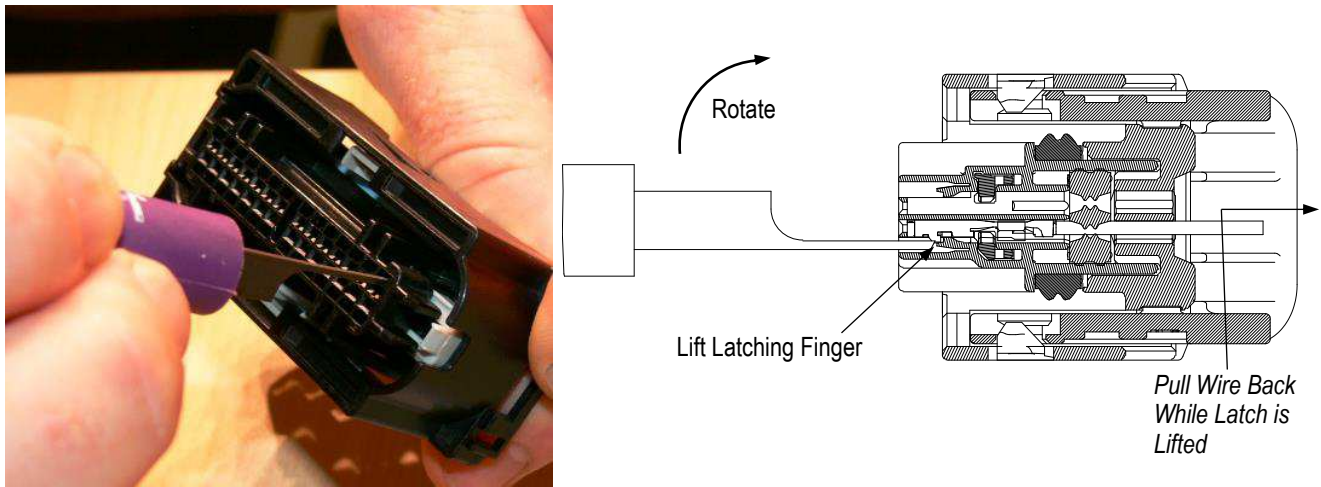


Figure 10

4. From the wire end of the plug assembly, gently pull the wire of the terminal to be removed until the terminal is out of the housing.



#### NOTE

If the terminal is not removing easily, verify that the ISL is in the open position as shown in Figure 10.

## 5. ELECTRICAL PROBING

See Figure 11 for the designated areas to electrically probe connector assemblies. A blade or round probe with a max width/diameter of 0.6 mm will fit the open areas of the connector body circuits detailed in Figure 11.

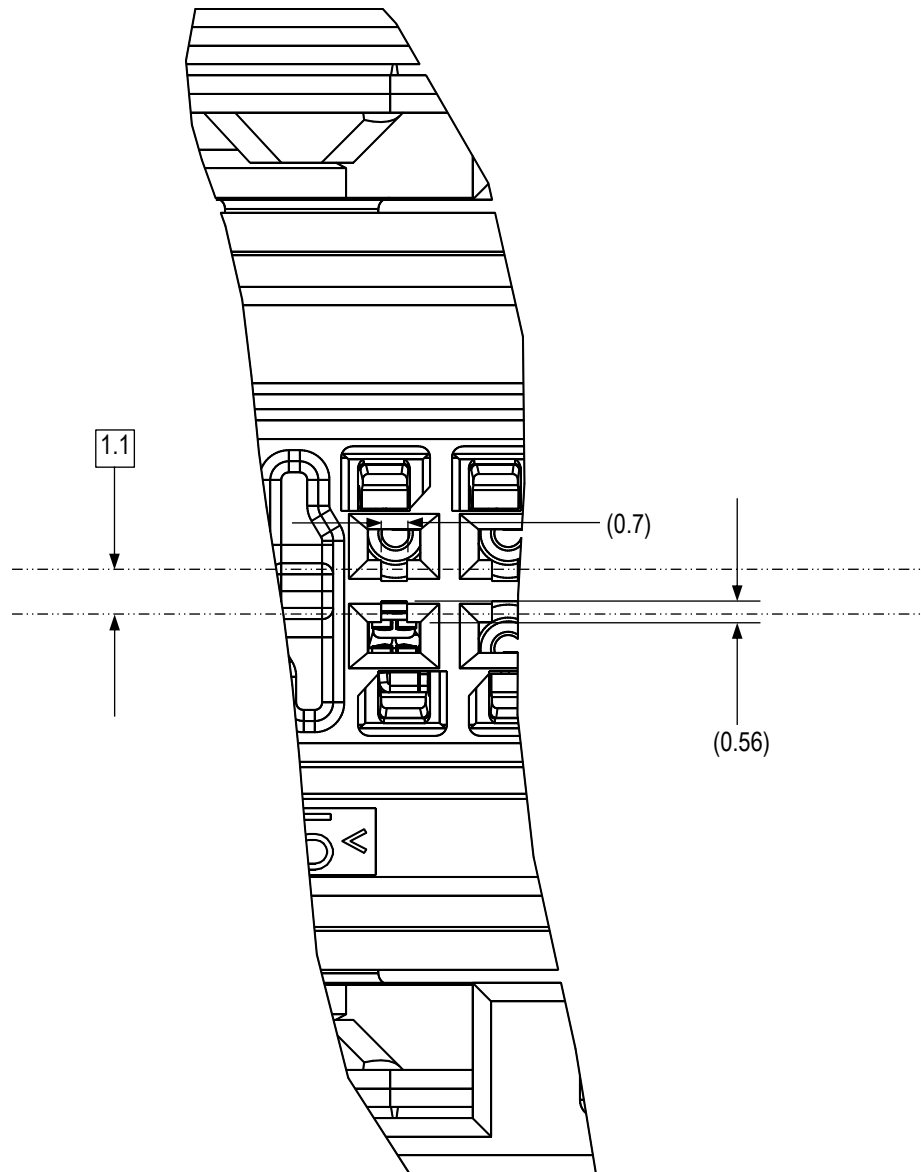


Figure 11

## 6. REPLACE AND REPAIR

DO NOT use defective or damaged product. The lever can be replaced individually in the plug assembly. Remaining parts of the plug assembly are not repairable. The wire dress assembly can be replaced as a unit if damaged.



## 7. CAVITY PLUGS FOR UNUSED CIRCUITS

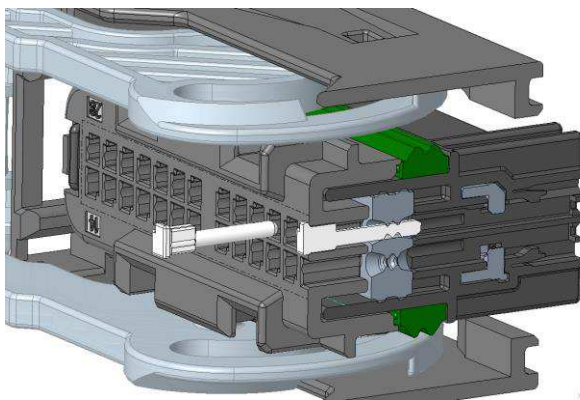
For blocking unused circuits where a molded-closed circuit configuration is not available, the use of cavity plug components is an option. There are 'blind plug' type and 'locking type' components available.

TE Part No. 1-1452424-3 = these are interference 'blind plug' type and push into the rear cover. Can be used on all circuits except #1 and #15. (No 'blind plug' type is available for circuits #1 and #15).

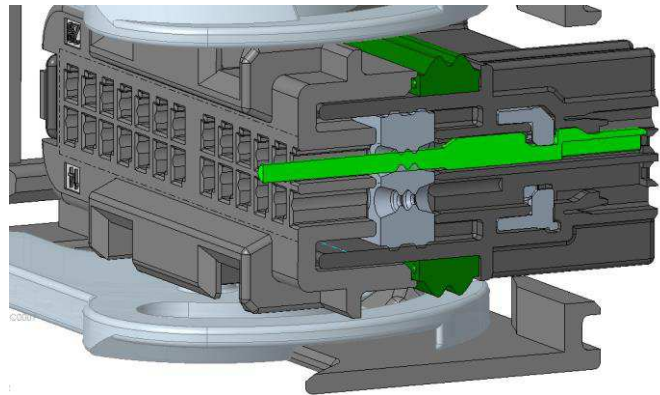
TE Part No. 2304518-1 = Extra Long type, with Primary Latching, can be used in all circuit locations.

TE Part No. 2286476-1 = Short type, Secondary Lock only, can be used in all circuit locations.

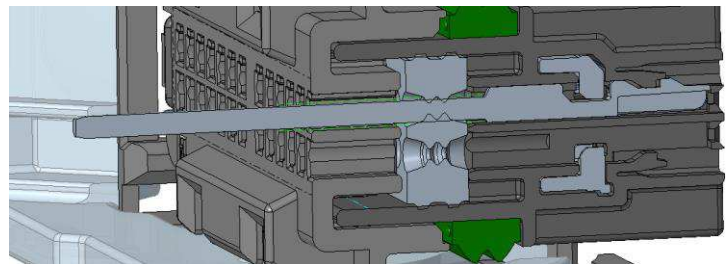
The locking type cavity plugs contain orientation features to align them, just like the MCON terminal system. They are inserted thru the grommet/wire seal, until they reach the front of cavity. TE part 2304518-1 will click-in and provide a tactile feel when primary latched. TE part 2286476-1 does not have a primary latching feature, so it simply pushes forward until it hits the forward stop of the cavity. It is recommended all cavity plugs be installed before crimped terminals. If the 2304518-1 type plug is used, trimming of the excess length protruding from the back of connector is necessary prior to installation of the Wire Dress Cover. This trimming of plastic posts should be done prior to loading crimped terminals to avoid nicking / damaging wires. Once all cavity plugs and crimped leads are inserted, locking of the Independent Secondary Lock will retain the cavity plugs in the same manner as the MCON terminal system. See figure 12 below for details of these cavity plugs.



Detail view of 1-1452424-3 'Blind Plug' type installed.



Detail view of 2286476-1 installed and secondary lock seated



Detail view of 2304518-1 installed and secondary lock seated. Extra length should be trimmed to allow Wire Dress installation.

Figure 12

## 8. REVISION SUMMARY

Nov.5, 2014	Rev A	Initial release of document.
Aug. 31, 2017	Rev B	Updated section 3.3 connector mating details, and Figure 6.
Mar. 12, 2020	Rev C	Added section 7 and updated Figure 1, with cavity plug information.