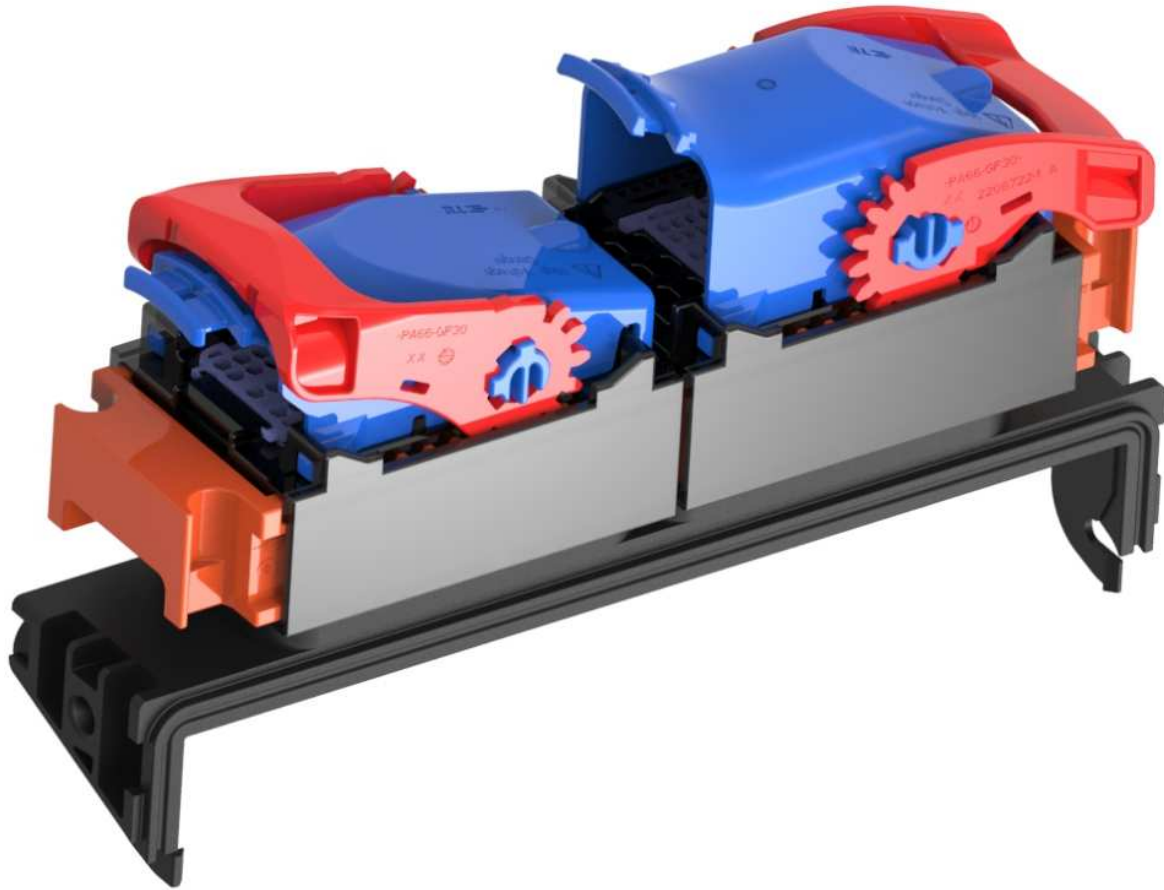

196 WAY ECU CONNECTOR

APPLICATION SPECIFICATION



196 WAY ECU CONNECTOR acc. Spec. LV 214

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1. INTRODUCTION

The shown specification contains the guidelines, to handle the 91 and 105 position socket housings of the 196 way connector system. This connector system is used to connect two cable harnesses into an Electronic Control Unit (ECU). It consists of two cable-sided modules (91 and 105 position) and of a 196 way Male connector (header) on the side of the compound machinery.

2. APPLICABLE DOCUMENTS

2.1 Specifications

114-61042	Interface drawing
114-18387	Application Specification for the AMP MCP 2.8K contact system
114-18464	Application Specification for the MCON 1.2 contact system
108-18717	Product Specification for the AMP MCP 2.8K-contact system
108-18782	Product Specification for the MCON 1.2 point contact system
108-94477-02	Product Specification for the modular connector, 196way

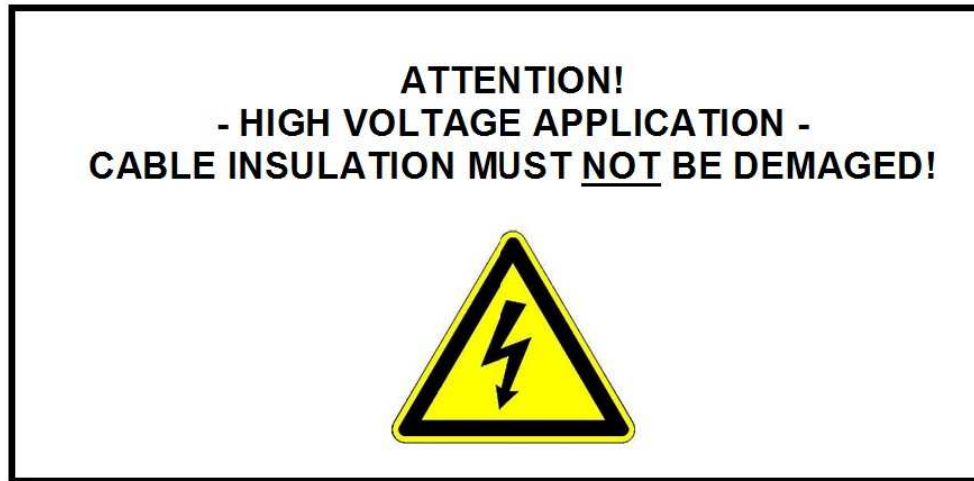
2.2 Overview Drawing Manuals

114-61042	Interface drawing, Pin header 196 way
2208709	91 Way Connector Assy., MCON 1.2 CB*, AMP MCP 2.8K
2208714	Secondary Lock, 91 Pos and 105 Pos 1.2 CB* Contact system
2208715	Secondary Lock, 91 Pos, AMP MCP 2.8K Contact system
2208716	Cover for family seal 91 way
2208720	105 Way Connector Assy., MCON 1.2 CB*
2208738	Cover for family seal 105 way
2208728	Cover assy, outgoing direct
2208729	Cover assy, outgoing vertical
2208730	Cover assy, outgoing angular
2208731	Cover assy, outgoing 90 deg
2208732	Cover assy, outgoing 90 deg
1534594	MCON 1.2 CB* contact, wire size 0.35mm ²
1670144	MCON 1.2 CB* contact, wire size 0.5-0.75mm ²
1452503	MCON 1.2 CB* contact, wire size 1.0-1.5mm ²
1564984	AMP MCP 2.8K, SWS** wire size 0.35mm ²
1241394	AMP MCP 2.8K, SWS** wire size 0.5-1.0mm ²
1241396	AMP MCP 2.8K, SWS** wire size >1.0-2.5mm ²
Insulation Dia 2.7-3.0 mm : 963292-1 Insulation Dia 2.0-2.7 mm: 963293-1 Insulation Dia 1.2-2.1 mm: 963294-1	Single-conductor seal for AMP MCP 2.8K
828922	Sealing plug 2.8mm
Insulation Dia 2.2-3.0 mm : 828905-1 Insulation Dia 1.2-2.1 mm: 828904-1/-2	ALTERNATE SINGLE-CONDUCTOR SEAL FOR AMP MCP 2.8K (Recommended for bigger wire sizes)

* CB = Clean Body

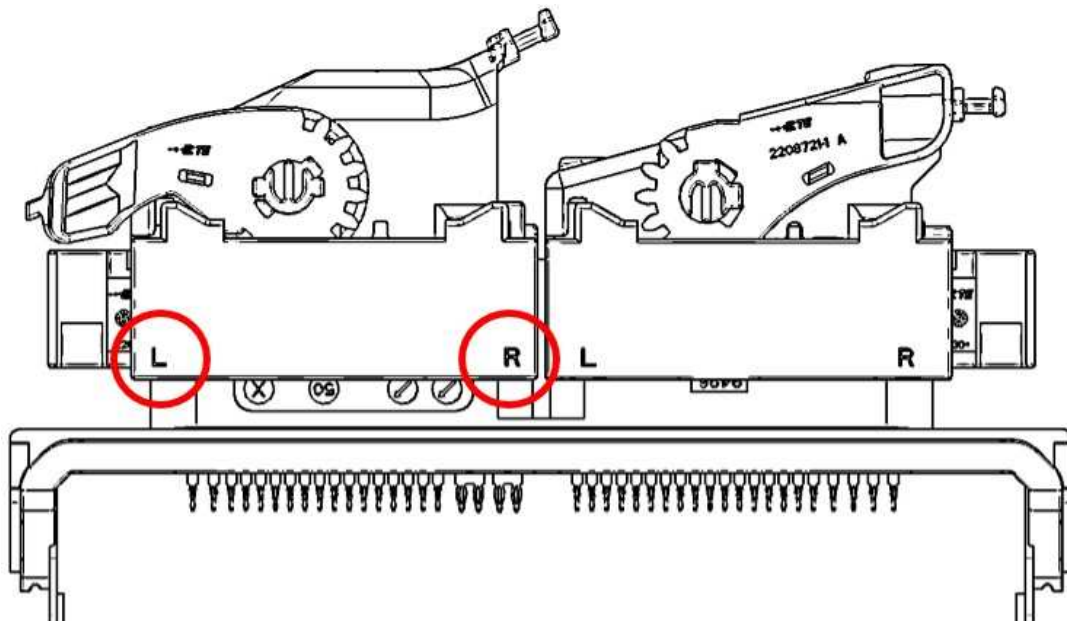
** SWS = Single-Wire-Sealing

2.3 Security Advice



The assembly should only be performed by trained personnel.

2.4 Abbreviations



In both 91 and 105 posn Connectors, 'L' indicates "LEFT" and 'R' indicates "RIGHT" (as shown in the above figure).

3. ASSEMBLY INSTRUCTIONS

3.1 Assembly Overview

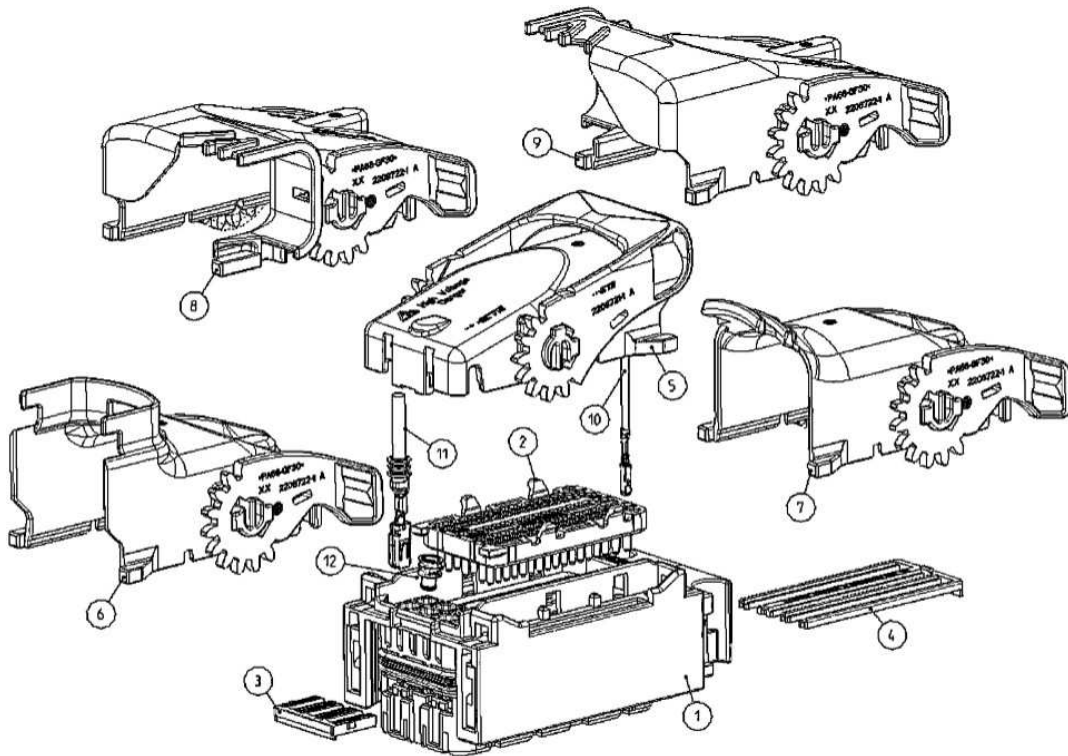


Figure 1

The contacts (10), with wires connected, are pushed through the family sealing plate into the chambers until they lock into position. The geometry of the family seal holder (2) ensures correct orientation of the contacts during insertion. The contacts must be pushed vertically into the chambers. Similarly push contacts (11) into the chambers until they lock in its position.

After the complete loading of contacts, the secondary locks (3, 4) must be inserted and locked. It will be possible without larger energy involved (<30N). If the secondary locks are clamped, the position of the contacts must be checked and corrected (if contact not rested). For mounting the lever cover Assembly (5, 6, 7, 8, 9) the slide must be ensured that, it is in End-locked-position (as shown in figure 1) Based on the direction of cable exit the proper Cover-Lever assembly (5, 6, 7, 8, 9) needs to be selected.

The cables must be secured with a cable tie. Ensure that the lock of the cable tie does not hinder the movement of the lever.

3.2 Family Sealing Plate

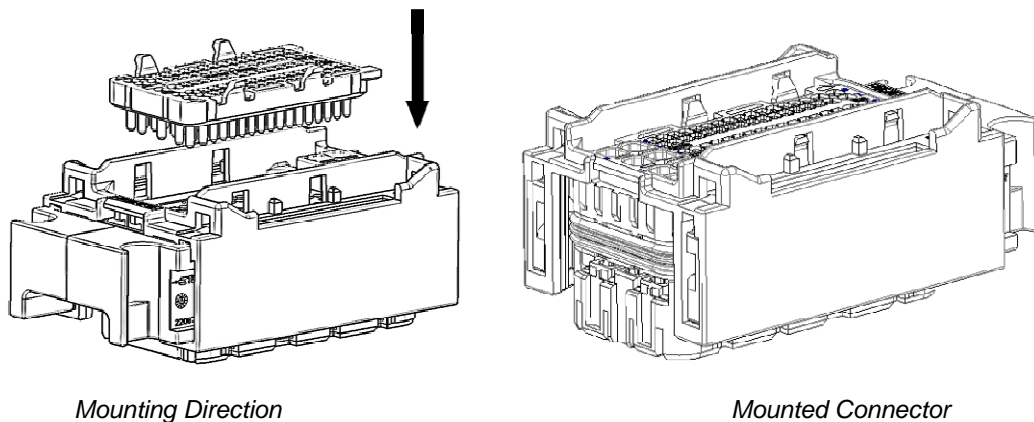


Figure 2

The Family Sealing Plate with required pin-out configuration is mounted on the socket housing to hold the Family seal in its position (as shown in figure 2) and also the remaining pins on it act as the sealing plug for the connector. The mounting is possible without larger energy involved (<30N). The sealing plates are mechanically coded to prevent incorrect mounting.

3.3 Contacts

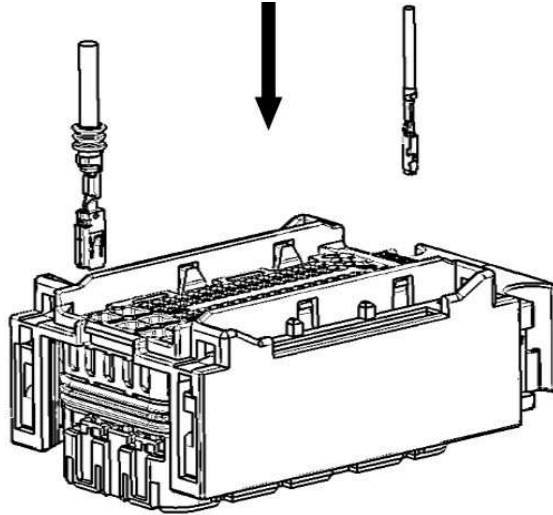


Figure 3

The contacts (10, 11) with wires connected, are pushed into the chambers until they lock into position (click Sound). The geometry of the Family seal Plate (2) ensures correct orientation of the contacts (10) during insertion. The contacts must pushed vertical into the chambers. Inclined insertion of the contacts increase the loading force and also can damaged parts (for example seal). For warranty of Water proof, the non-loaded cavities must occupy with Family seal pins or sealing/blind plugs (12).

First the housings have to be equipped with sealing plugs or with the sealing plate. Then the chambers have to be loaded with contacts with anyone sequence, preferably first the contacts with smallest wire size.

Prefer loading sequence of the 105 and 91 position Housing:

1) Sealing plugs

2) MCON 1.2 CB contacts:

For 91 position cavities loading sequence: - 22-23, 39-40, 56-57, 73-74, 90-91
1-21, 24-38, 41-55, 58-72, 75-89

For 105 position cavities loading sequence: - 1-4, 22-25, 43-46, 64-67, 85-88
5-21, 26-42, 47-63, 68-84, 89-105

3) AMP MCP 2.8K contacts in 91 position connector

3.4 Secondary locks (Retainers)

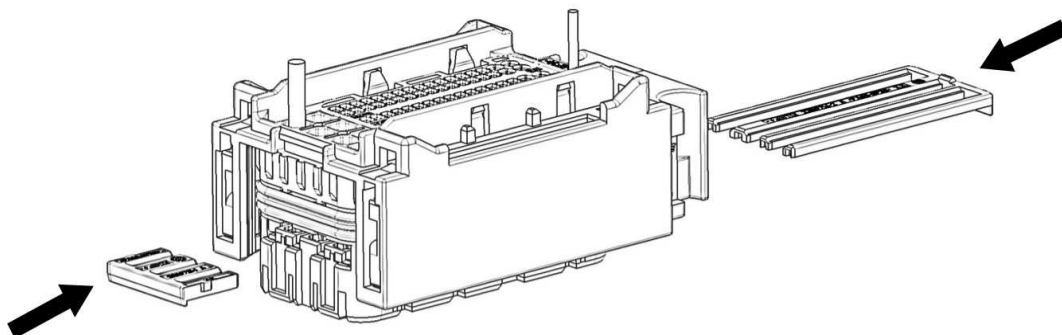


Figure 4

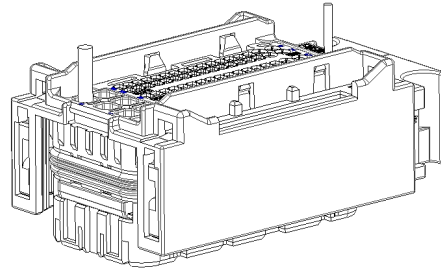


Figure 5

After the complete loading of contacts, the secondary locks (3, 4) must be positioned and pushed until the locking sound heard. It will be possible without larger energy involved (<30N). If the secondary locks are not clamped, in the correct position then check for partially inserted contacts in the housing. Figure 4 shows the inserting direction of secondary locks and Figure 5 shows the locked secondary locks in housing.

3.5 Mounting of Cover-Lever Assembly's

All Lever end lock position must be towards the slide movement direction.

91 position ECU Connector

3.5.1 Cover-Lever Assembly (5)

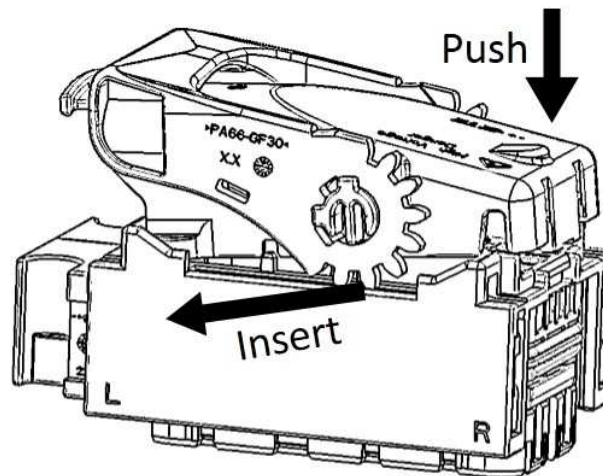


Figure 6

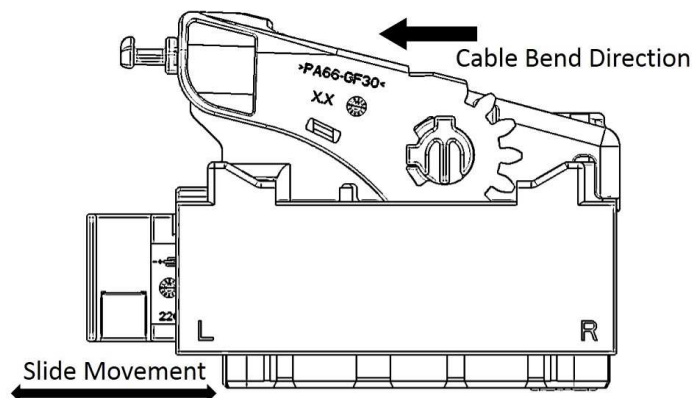


Figure 7

For mounting of the Cover-Lever assembly (5), the lever and slide in the housing (1) of 91 position connector must be in end lock position. The cable must be bend towards the Left side of housing (as shown in figure 6) and the Lever cover assembly (5) must be mounted and pushed till the locking noise heard (as shown in figure 7). The end lock position of the lever will be in the Left side of the housing.

If the Cover-Lever assembly (5) is mounted other than the shown direction (figure 7), the lever cannot be operated and it's unable to mate the connector with male part.

The cables must be secured with a cable tie. Ensure that the lock of the cable tie does not hinder the movement of the slide and the lever.

3.5.2 Cover-Lever Assembly (6, 7, 8, 9)

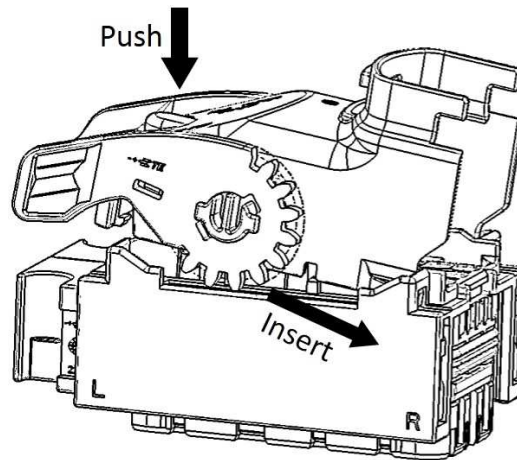


Figure 8

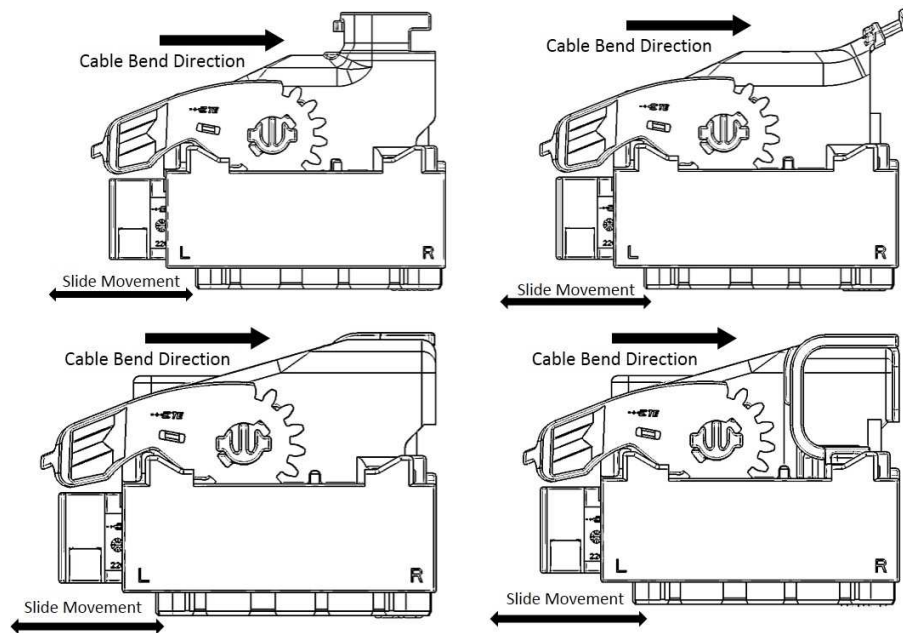


Figure 9

For mounting of the Cover-Lever assembly's (6, 7, 8, 9), the lever and the slide in the housing (1) of 91 position connector must be in end lock position. The cable must be bend to the right side of housing (as shown in figure 9) and the Cover-Lever assembly's (6, 7, 8, 9) must be mounted and pushed till the locking noise heard (as shown in figure 8). The end lock position of the lever will be in the left side of the housing.

If the Cover-Lever assembly's (6, 7, 8, 9) are mounted other than the shown direction (figure 9), the lever cannot be operated and it's unable to mate the connector with male part.

The cables must be secured with a cable tie. Ensure that the lock of the cable tie does not hinder the movement of the slide and the lever.

For 105 position Connector

3.5.3 Cover-Lever Assembly (5)

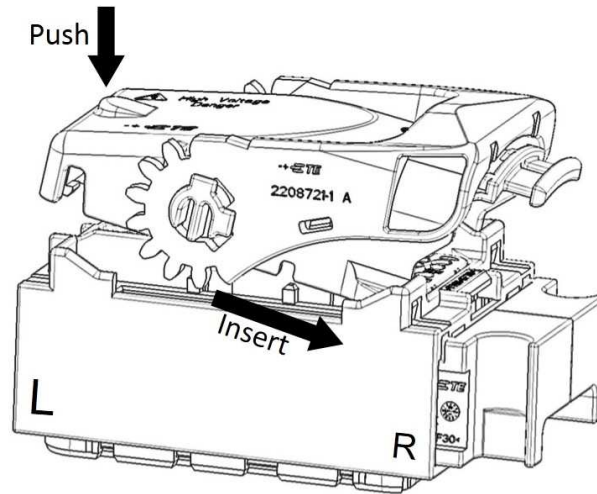


Figure 10

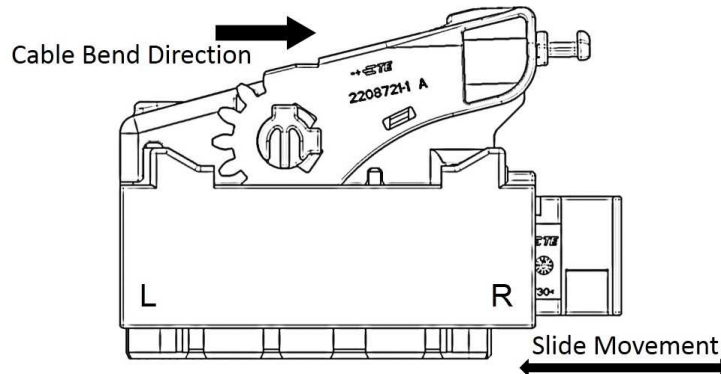


Figure 11

For mounting of the Cover-Lever assembly (5), the lever and slide in the housing (1) of 105 position connector must be in end lock position. The cable must be bend towards the Right side of housing (as shown in figure 11) and the Cover-Lever assembly (5) must be mounted and pushed till the locking noise heard (as shown in figure 10). The end lock position of the lever will be in the right side of the housing.

If the Cover-Lever assembly (5) is mounted other than the shown direction (figure 7), the lever cannot be operated and it's unable to mate the connector with male part.

The cables must be secured with a cable tie. Ensure that the lock of the cable tie does not hinder the Movement of the slide and the lever.

3.5.4 Cover-Lever Assembly (6, 7, 8, 9)

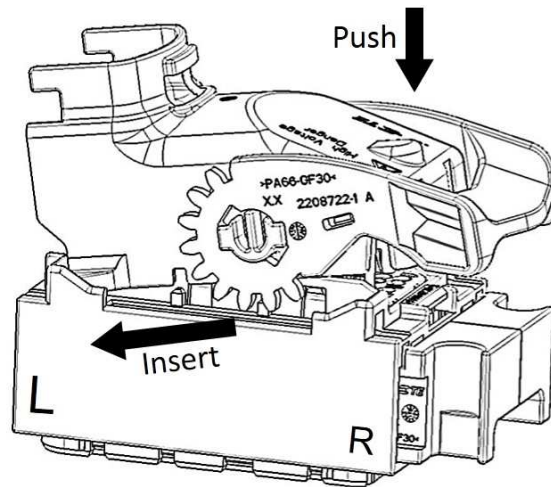


Figure 12

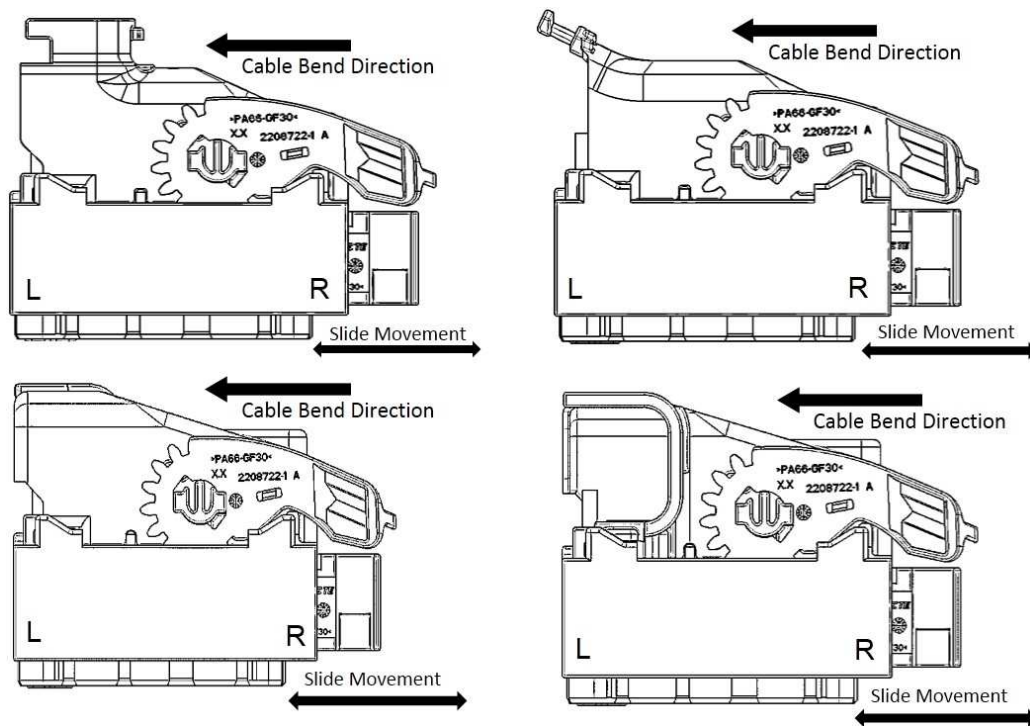


Figure 13

For mounting of the Cover-Lever assembly's (6, 7, 8, 9), the lever and slide in the housing (1) of 105 position connector must be in end lock position. The cable must be bend to the left side of housing (as shown in figure 13) and the Cover-Lever assembly's (6, 7, 8, 9) must be mounted and pushed till the locking noise heard (as shown in figure 12). The end lock position of the lever will be in the right side of the housing.

If the Cover-Lever assembly's (6, 7, 8, 9), are mounted other than the shown direction (figure 13), the lever cannot be operated and it's unable to mate the connector with male part.

The cables must be secured with a cable tie. Ensure that the lock of the cable tie does not hinder the movement of the slide and the lever

3.6 Mounting on Male Connector

91 position Connector

3.6.1 Cover-Lever Assembly (5)

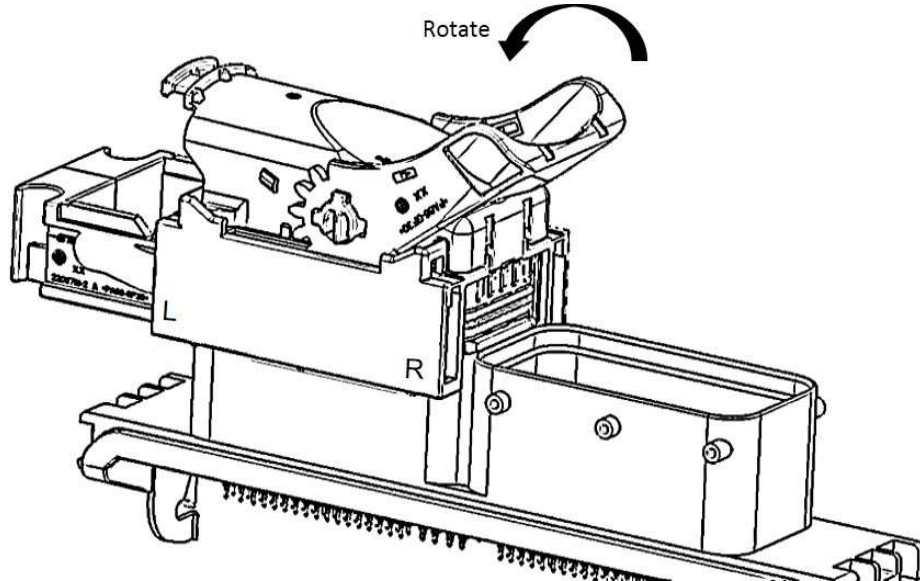


Figure 14

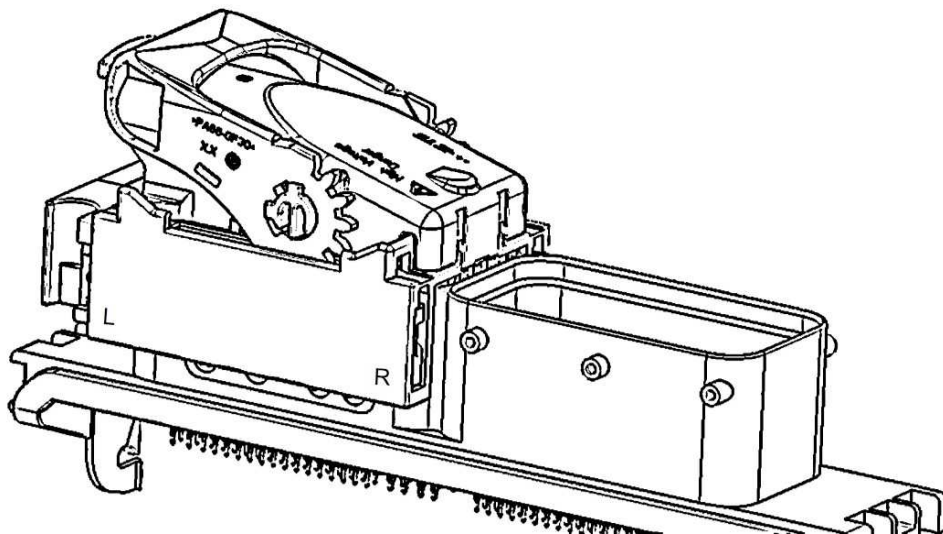


Figure 15

After Cover-Lever assembly mounted on the 91 position housing, the lever is operated to set it for Pre-Lock position.

The Pre-Locked Connector is positioned on the male connector (as shown in Figure 14) until the click noise is heard. Then the lever is operated towards the Left side of the housing by holding the cable and applying the certain amount of Torque (as shown in Figure 14) until the lever locks with the cover (end lock position by click noise as shown in Figure 15).

The cable outlet will be on the left side of the connector for this Cover-Lever assembly.

3.6.2 Cover-Lever Assembly (6, 7, 8, 9)

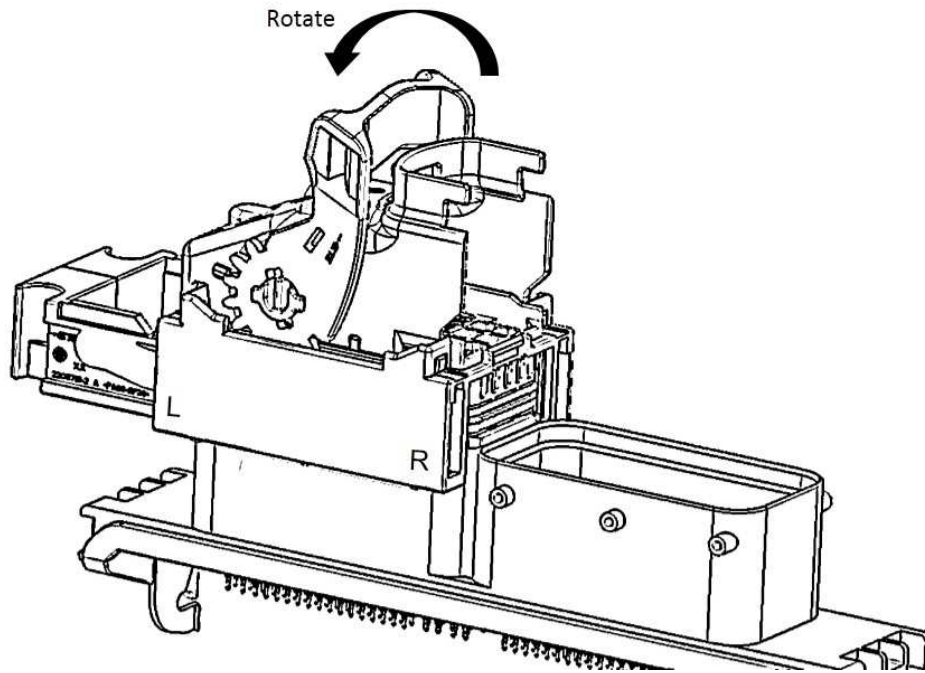


Figure 16

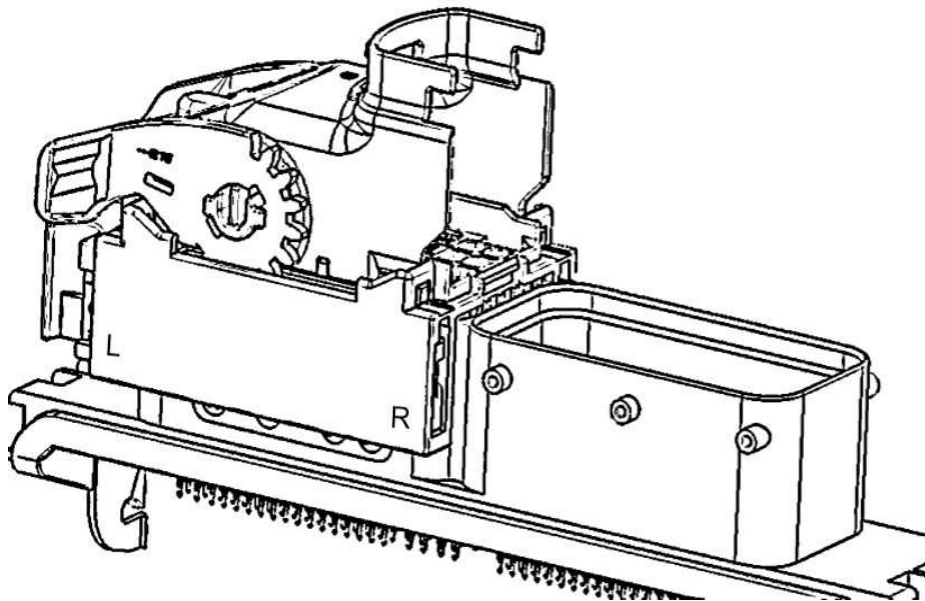


Figure 17

After these Cover-Lever assembly's are mounted on the 91 position housing, the lever is operated to set it for Pre-Lock position.

The Pre-Locked Connector is positioned on the male connector (as shown in Figure 16) until the click noise is heard. Then the lever is operated towards the left side of the housing by applying the certain amount of Torque (as shown in Figure 16) until the lever locks with the cover (end lock position by click noise as shown in Figure 17).

The cable outlet will be on the Right side of the connector for these Cover-Lever assembly's.

105 position Connector

3.6.3 Cover-Lever Assembly (5)

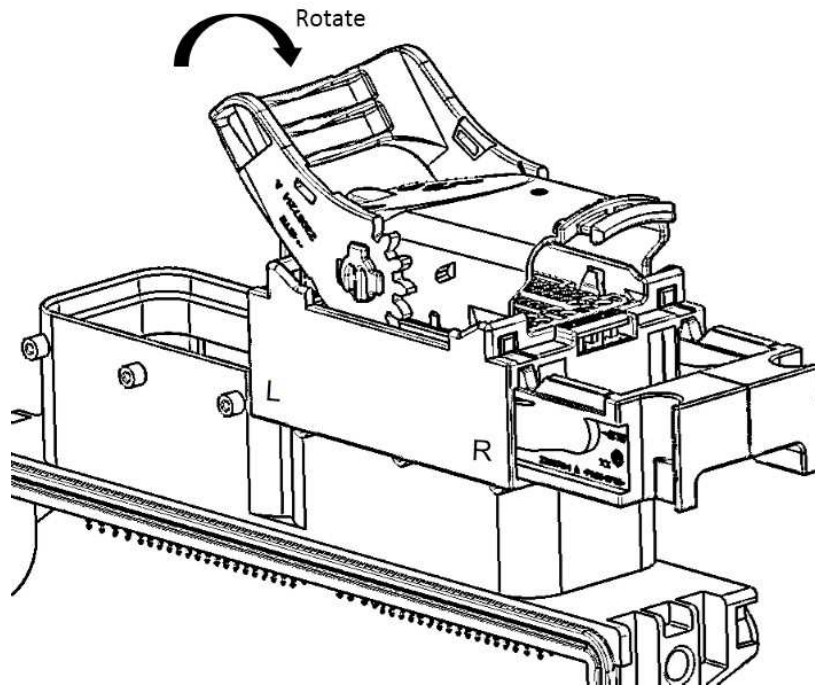


Figure 18

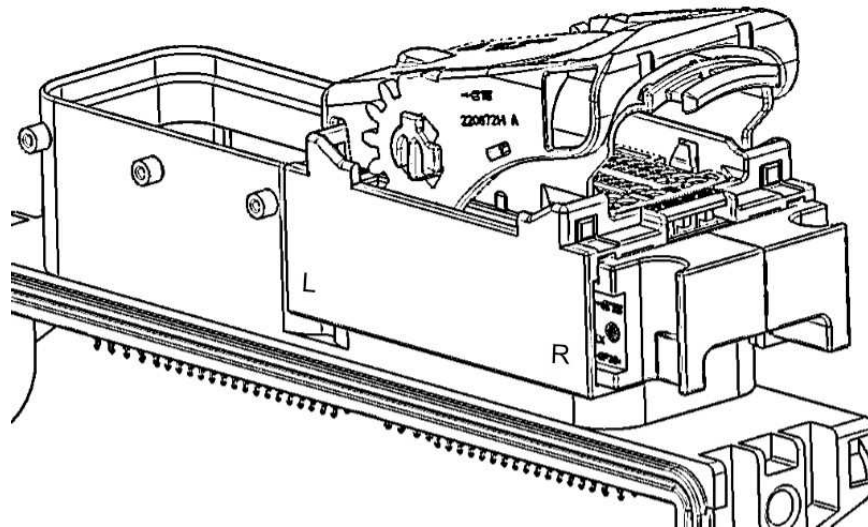


Figure 19

After Cover-Lever assembly mounted on the 105 position housing, the lever is operated to set it for Pre-Lock position.

The Pre-Locked connector is positioned on the male connector (as shown in Figure 18) until the click noise is heard. Then the lever is operated towards the right side of the housing by holding the cable and applying the certain amount of Torque (as shown in Figure 18) until the lever locks with the cover (end lock position by click noise as shown in Figure 19).

The cable outlet will be on the right side of the connector for this Cover-Lever assembly.

3.6.4 Cover-Lever Assembly (6, 7, 8, 9)

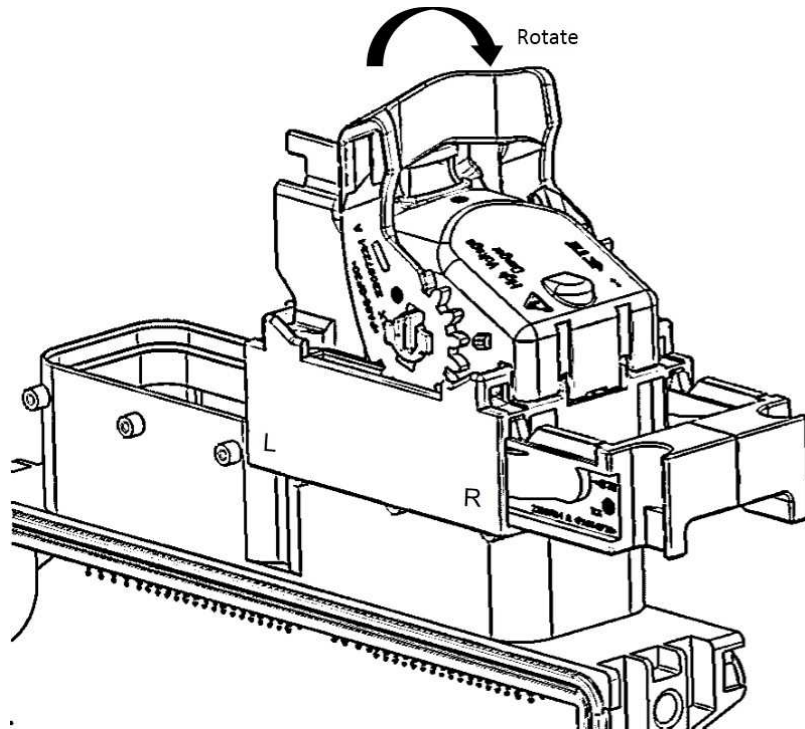


Figure 20

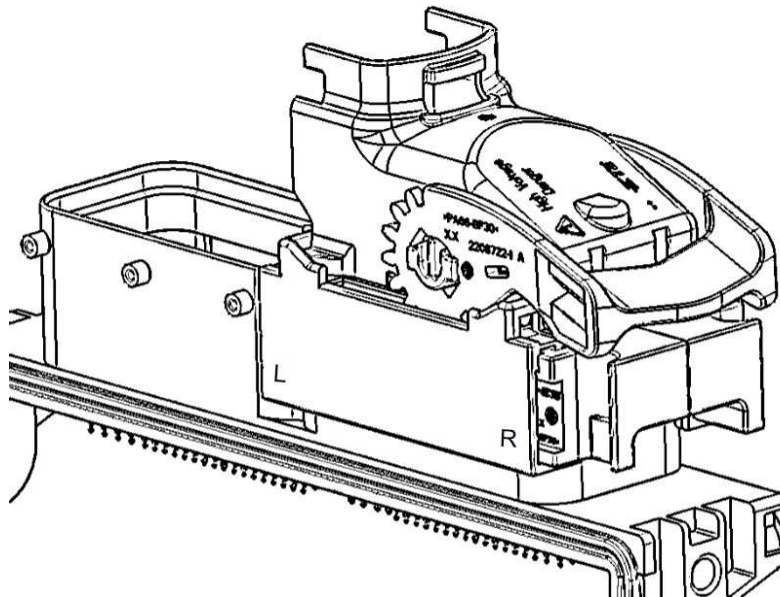


Figure 21

After these Cover-Lever assembly's are mounted on the 105 position housing, the lever is operated to set it for Pre-Lock position.

The Pre-Locked Connector is positioned on the male connector (as shown in Figure 20) until the click noise is heard. Then the lever is operated towards the right side of the housing applying the certain amount of Torque (as shown in Figure 20) until the lever locks with the cover (end lock position by click noise as shown in Figure 21).

The cable outlet will be on the left side of the connector for these Cover-Lever assembly's.

4. DISASSEMBLY INSTRUCTIONS

4.1 Un-Mounting from Male Connector

91 and 105 position Connector

4.1.1 Cover-Lever Assembly (5)

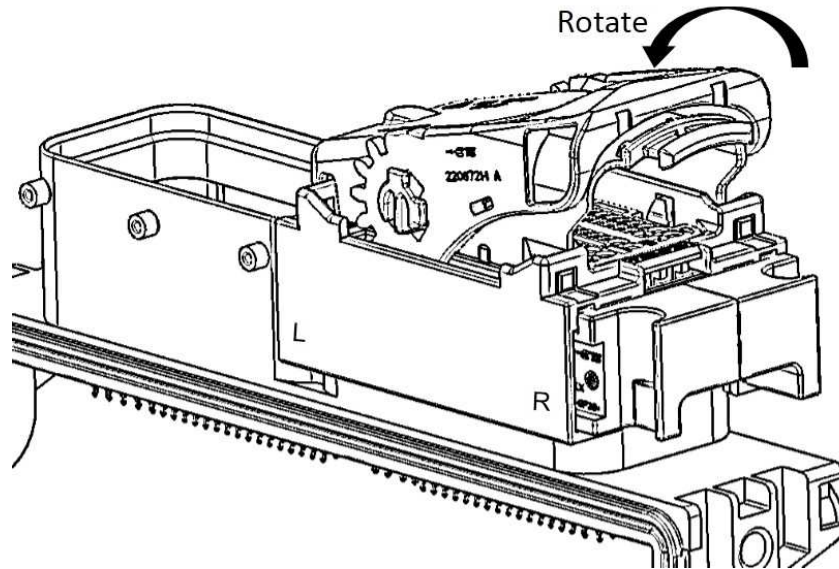


Figure 22

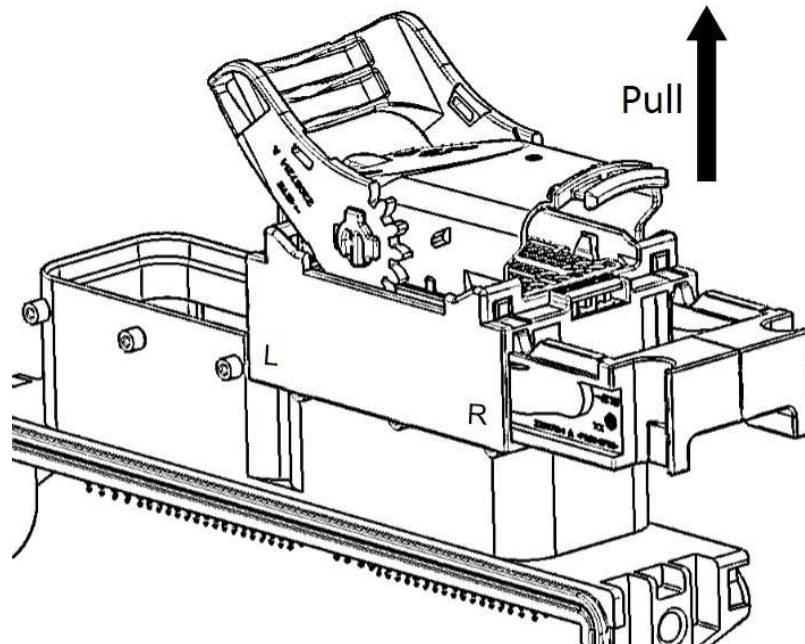


Figure 23

To unmount (both 91 and 105 position) the Female connector from the Male connector with cover-lever assembly (5), apply the torque to actuate the lever on the Female connector till the lever locks at pre-lock position (as shown in figure 22). Then the entire female connector is pulled out from the male connector (as shown in figure 23).

The Female connector will be in Pre-Lock position at the end of unmounting process.

4.1.2 Cover-Lever Assembly (6, 7, 8, 9)

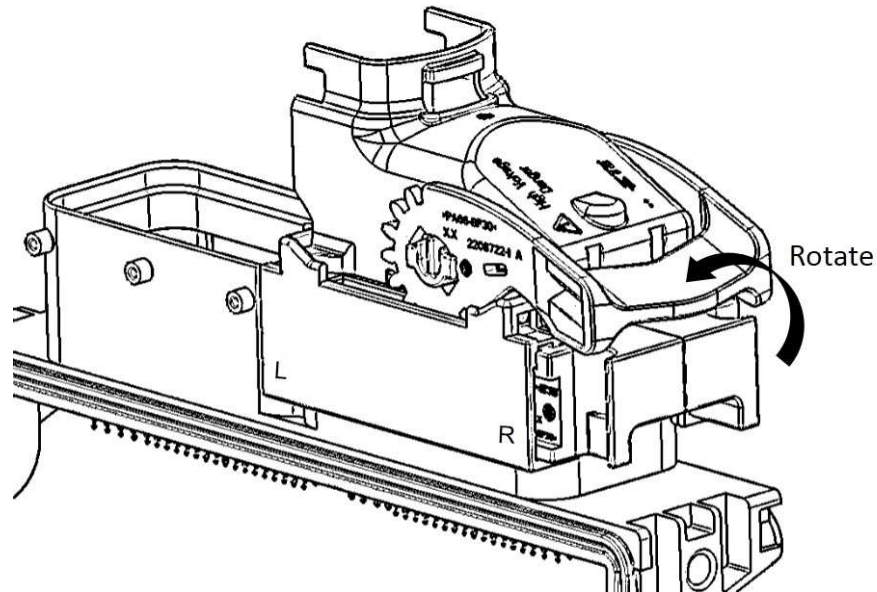


Figure 24

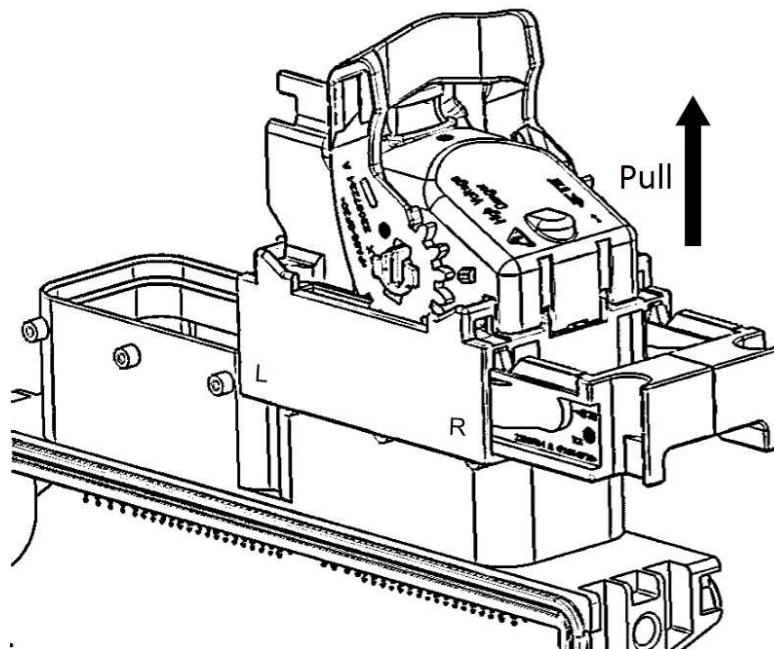


Figure 25

To unmount (both 91 and 105 position) the Female connector from the Male connector with cover-lever assembly (6, 7, 8, 9), apply the torque to actuate the lever on the Female connector till the lever locks at pre-lock position (as shown in figure 24). Then the entire Female connector is pulled out from the Male connector (as shown in figure 25).

The Female connector will be in Pre-Lock position at the end of unmounting process.

4.2 Cover-Lever Assembly Removal

91 and 105 position Connector

Note:-

Before removing the cover-lever assembly form housing, the lever should be in pre-lock position and cable tie must be removed.

4.2.1 Cover-Lever Assembly (5)

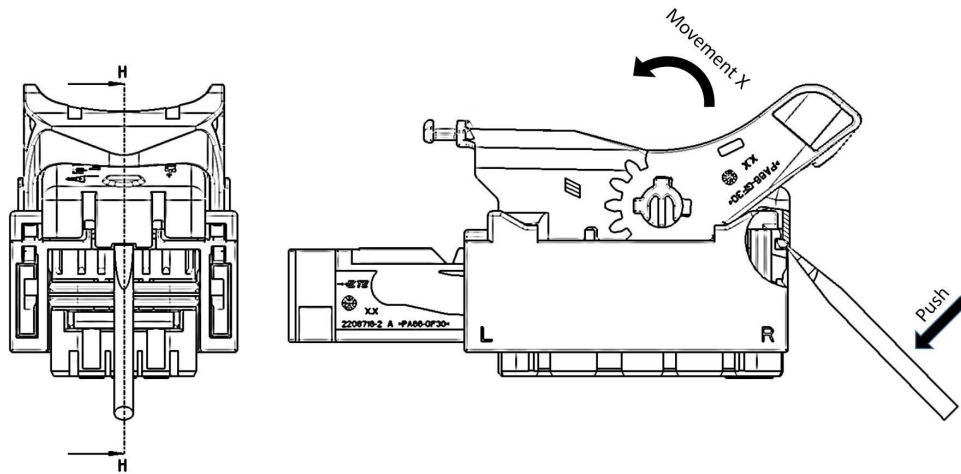


Figure 26

The Cover-Lever Assembly (5) must be unlocked with a screwdriver 1.8x0.3mm by levering the locking hook till the cover gets unlocked (as shown Figure 26) and then it must be moved along direction X from the housing.

4.2.2 Cover-Lever Assembly (6, 7, 8, 9)

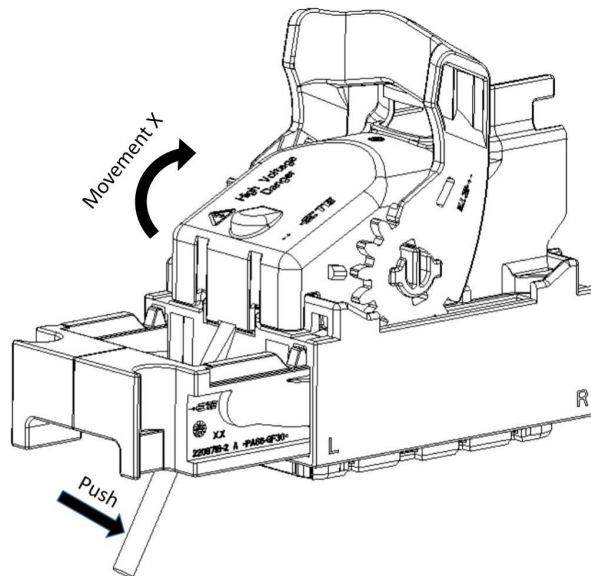


Figure 27

The Cover-Lever Assembly's (6, 7, 8, 9) must be unlocked with a screwdriver 1.8x0.3mm by levering the locking hook till the cover gets unlocked (as shown Figure 27) and then it must be moved along direction X from the housing.

4.3 Secondary Lock and Contacts Removal

4.3.1 Secondary Lock

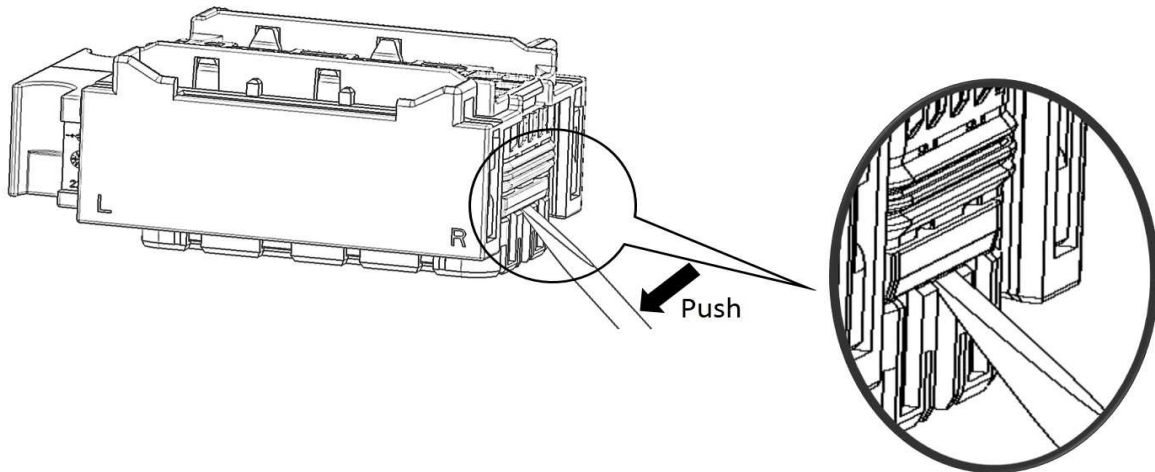


Figure 28

Remove the secondary locks from the Housings (1) in both 91 and 105 position by inserting a screwdriver of 1.8x0.3mm in the slot provided and levering it as shown in figure 28.

4.3.2 AMP MCP 2.8K Contacts

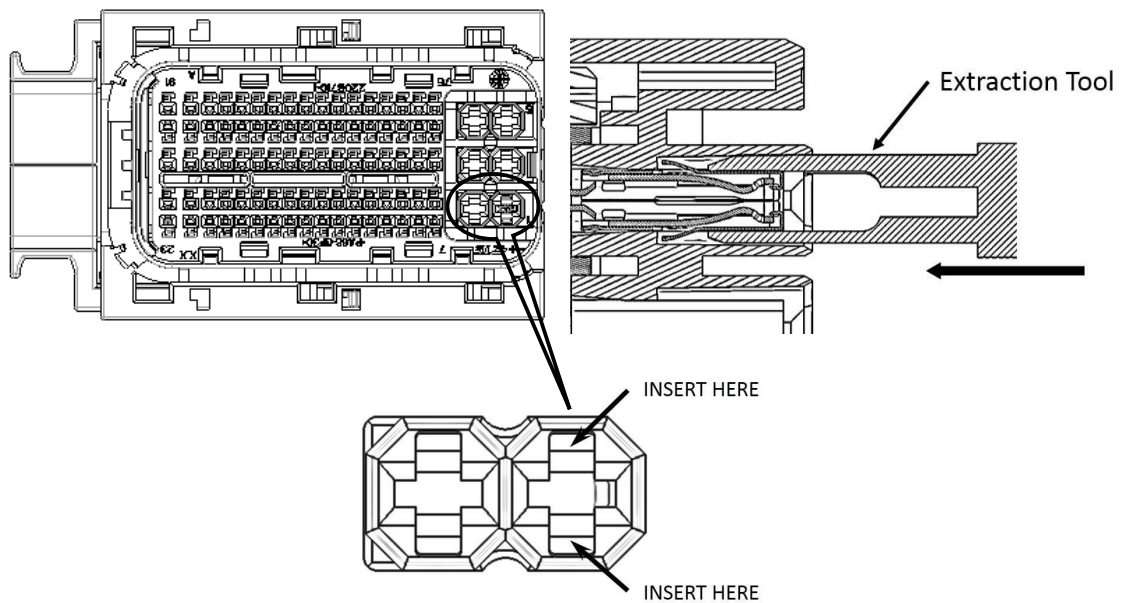


Figure 28

The contacts are released with the extraction tool PN 1-1579007-2. The tool is inserted from the front into the chamber to lever the locking hooks on the Receptacle contact (as shown in Figure 28) and then pull the cable out of the chamber with small force.

4.3.3 MCON 1.2 Clean Body (CB) Contacts

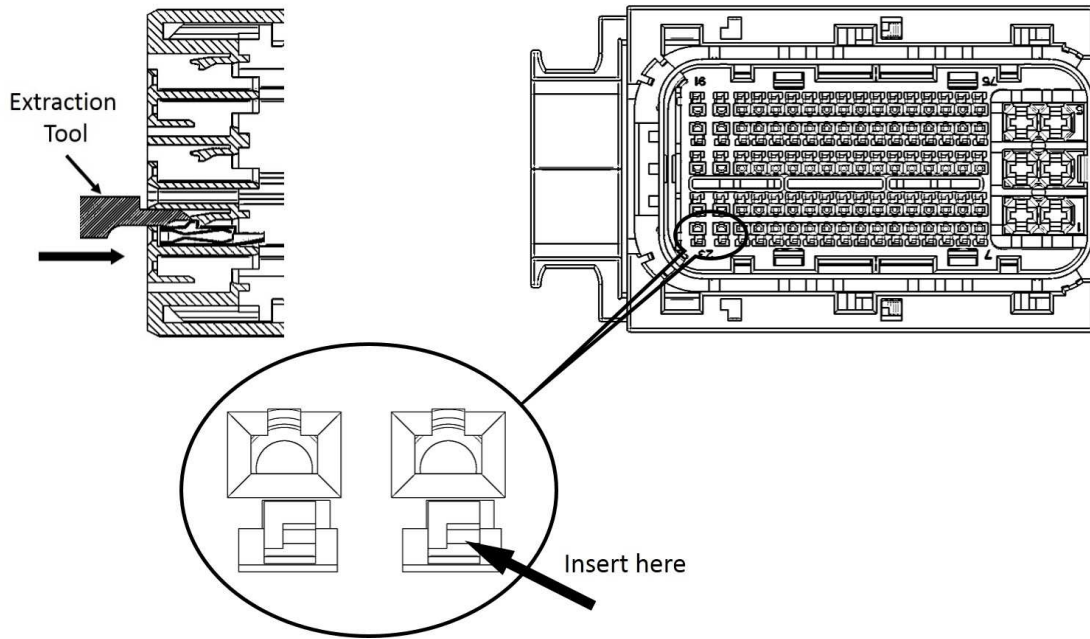


Figure 29

The contacts are released with the extraction tool PN 8-1579008-4. The tool is inserted from the front into the chamber to lever the locking hooks on the Housing (as shown in Figure 29) and then pull the cable out of the chamber with small force.