

STAK50H CONNECTOR SYSTEM APPLICATION SPECIFICATION

1.0 SCOPE:

This procedure applies to all part numbers with the series 160014, 160026, 160027, 160028 and 160029

2.0 PRODUCT DESCRIPTION:

- 27way / 28way connectors contain up to eight 1.2mm receptacle terminal locations and twenty-one 0.50mm receptacle terminal locations. (depopulations available)
- 12way connector contains four 2.8mm receptacle terminal locations and eight 1.2mm receptacle terminal locations.
- 25way connector contains four 2.8mm receptacle terminal locations and twenty-one 0.50mm receptacle terminal locations.
- 32way connector contains four 1.2mm receptacle terminal locations and twenty-eight 0.50mm receptacle terminal locations.

- 4 polarization options for each connector configuration

- Wire range per SAE/J1128 Thin Wall Insulation
 - 0.5 terminals – 0.13mm² – 0.35mm² (1.3mm MAXIMUM OUTSIDE DIAMETER PER TE TERMINAL CAVITY SPECIFICATION C-2272306-C)
 - 1.2 terminals – 0.5mm² – 1.5mm²
 - 2.8 terminals – 0.5mm² – 2.5mm²

- Utilizes the following terminals:
 - 0.5 Molex TAK50 Terminals
 - TAK Family (0.5mm)
 - PN: 200096-0101, Tin Plating, Wire Gage: 0.35
 - PN: 200096-0201, Tin Plating, Wire Gage: 0.13
 - 0.5 NanoMQS Drawing
 - TE Generation50 Locking Lance = C-2272196
 - 1.2 MCON Drawing
 - JST MSA1.2 = CT0-00041-410
 - Delphi OCS1.2 = 13543112
 - 2.8 MCP Drawing
 - TE AMP MCP2.8 = C-1355036
 - Delphi CTS2.8 = 15457850

PENDING APPROVAL

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
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DOCUMENT NUMBER:		CREATED / REVISED BY:	CHECKED BY:
AS-160014-001		Jacob Burgio	Jim Condon
		APPROVED BY:	
		Kurt Dekoski	

Receptacle Connectors



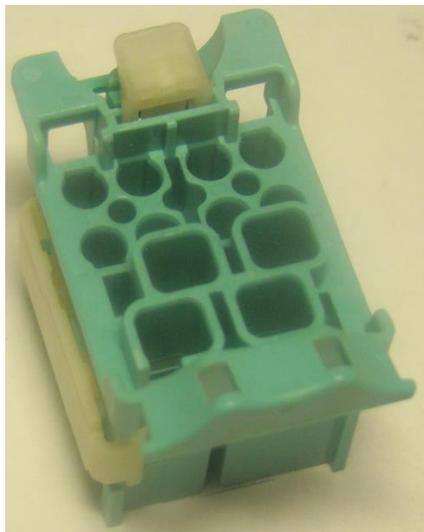
160029 – 27way



160014 – 28way



160028 – 32way



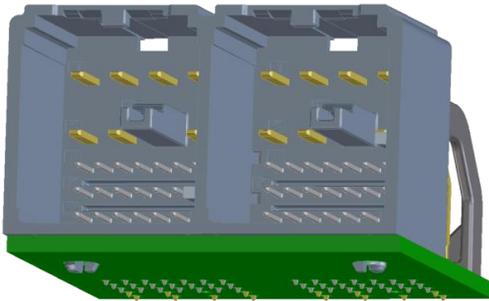
160026 – 12way



160027 – 25way

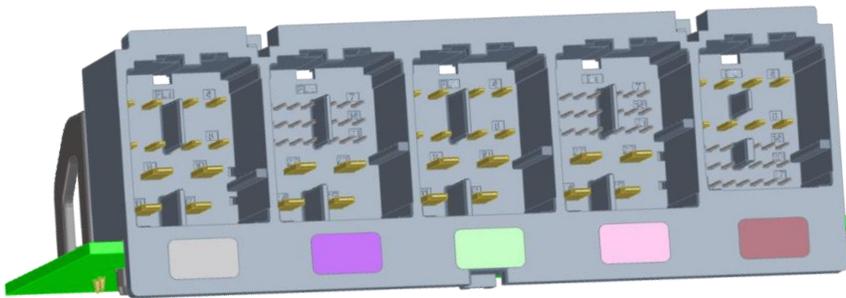
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DOCUMENT NUMBER: AS-160014-001	CREATED / REVISED BY: Jacob Burgio	CHECKED BY: Jim Condon	APPROVED BY: Kurt Dekoski

Header Assemblies



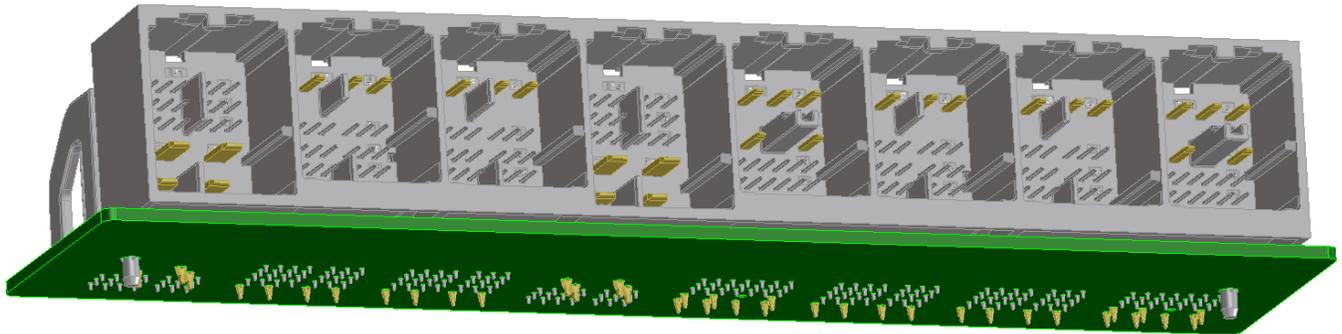
56way Header Assembly

2, 28way Pockets
Reflow Solder Process



5 Pocket Hybrid Header Assembly

2, 12way Pockets
2, 25way Pockets
1, 27way Pocket
Wave Solder Process



8 Pocket Hybrid Header Assembly

4, 32way Pockets
2, 25way Pockets
2, 28way Pockets
Wave Solder Process

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Application Specification

3.0 REFERENCE DOCUMENTS:

Connector Product Specification	PS-160014-001
Connector Application Specification	AS-160014-001
Header Application Specification	AS-160013-001
27way Connector	SD-160014-0001
28way Connector	SD-160014-0001
32way Connector	SD-160028-0001
12way Connector	SD-160026-0001
25way Connector	SD-160027-0001
2 Bay Header	SD-160013-0001
5 Bay Header	1600370002 - RSD
8 Bay Header	1600250003 - RSD
27way Interface	SD-160029-002
28way Interface	SD-160014-002
32way Interface	SD-160028-002
12way Interface	SD-160026-002
25way Interface	SD-160027-002
Packaging – Connectors	PK-31302-266
Packaging – 2 Bay Header	PK-31302-235
Packaging – 5 Bay Header	PK-31302-278
Packaging – 8 Bay Header	PK-31302-278
Dress Covers	
*Dress Cover A (for 27, 28, 32 way)	1600300002 - SD
*Dress Cover B (for 12, 25 way)	1600300003 - SD
*WDCs are USCAR-25 Compliant	

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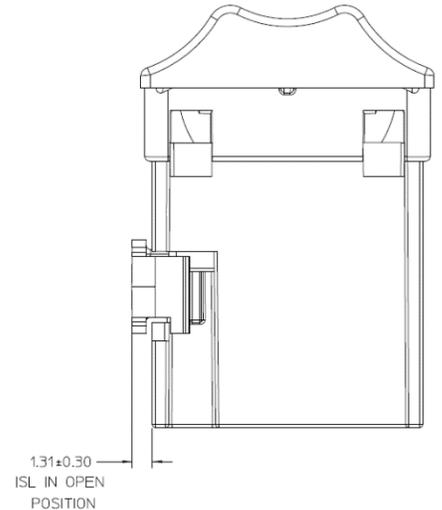
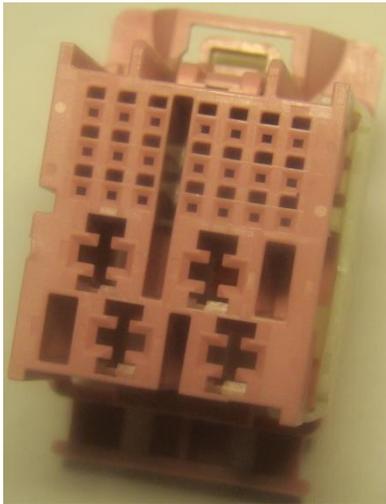
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4.0 PROCEDURE

4.1 GENERAL REQUIREMENTS:

A. Connector "As Shipped"

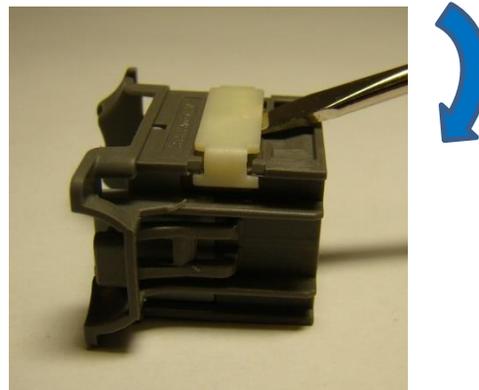
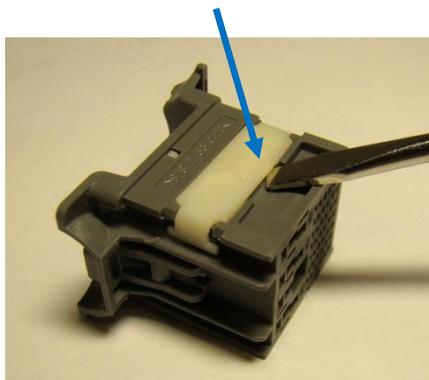
Connector ISL shown in "as shipped" condition (open) the ISL must remain in the open position until all circuits are loaded



B. ISL position

ISL must be in pre-lock position to populate the connector or remove terminals. If during shipping the Connector ISL moves from its pre-lock position. Simply slide a small flat head screwdriver (2.4 – 3.5 mm) behind wall of the ISL and pry to open the ISL

If the ISL or housing is damaged in any way do not use the connector!!!



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4.2 ASSEMBLY INSTRUCTIONS:

A. Terminal Installation:

With ISL still in pre-lock position, orient the terminal to the rear of the connector as shown below. Grip the wire no less than 20 mm behind the terminal insulation crimp and insert it through the appropriate circuit opening. If resistance is encountered, retract the terminal and adjust the angle of insertion. Continue inserting the terminal until it stops and locks up on the lock finger with an audible click or tactile feedback...

ISL MUST BE IN OPEN POSITION TO POPULATE CONNECTOR

0.5 Terminals



1.2 Terminals



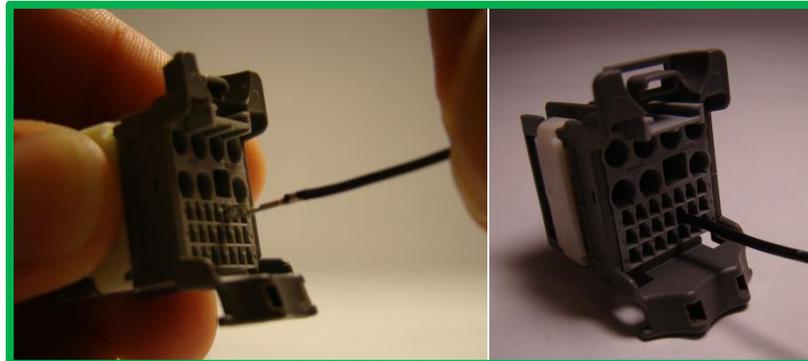
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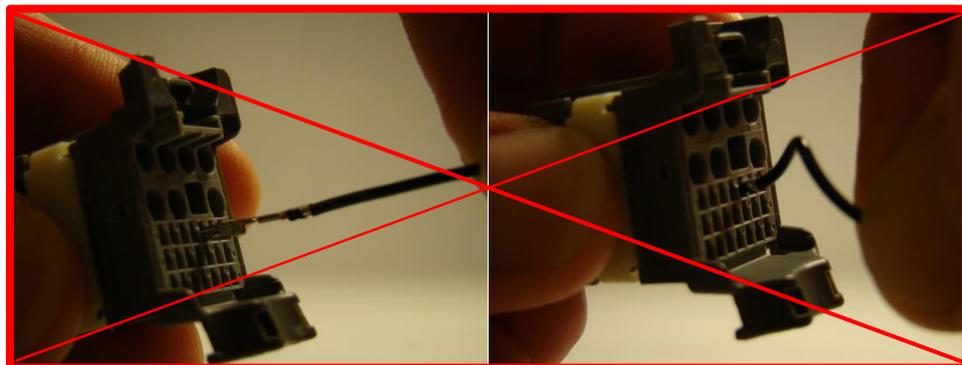
2.8 Terminals



Note: Installing the terminal correctly will have a low effort
 Incorrectly installing a terminal (rotated out of position) will lead to high effort and wire buckle



Terminal installed correctly

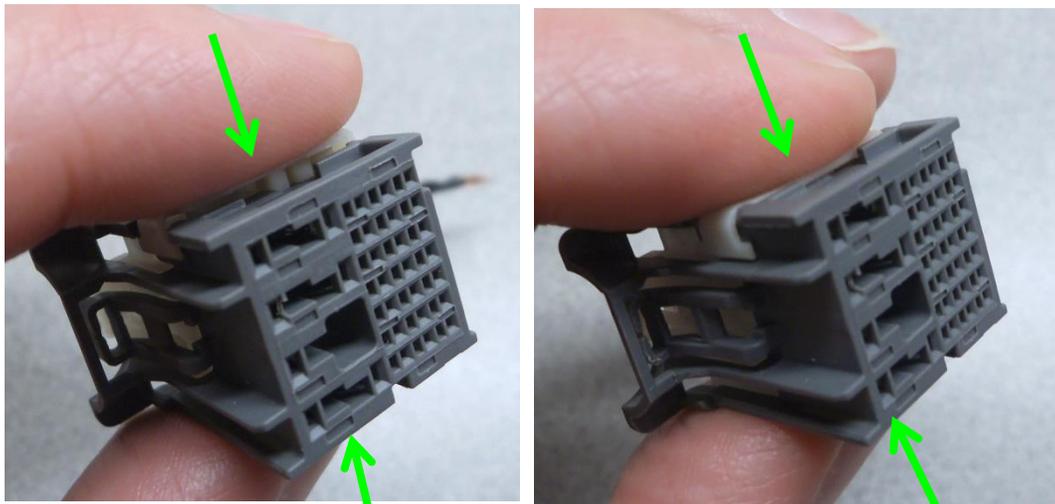
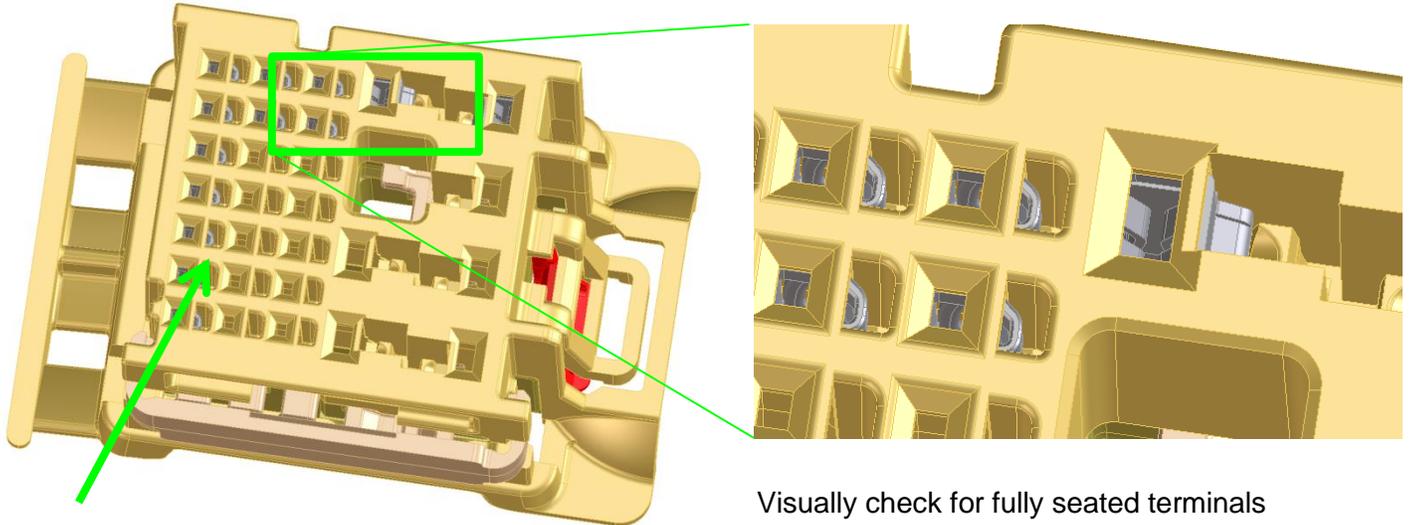


Terminal installed incorrectly

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<small>TEMPLATE FILENAME: APPLICATION_SPEC[SIZE_A](V.1).DOC</small>			

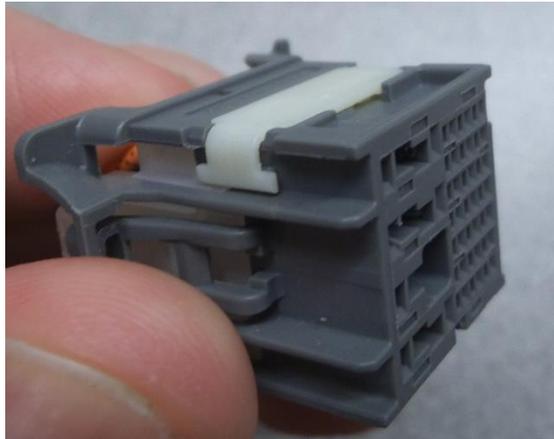
B. Seating the ISL

Prior to closing the ISL, a visual check is recommended to confirm that all of the terminals are seated properly and in the correct position. Once all terminals are installed, close the ISL by placing your thumb and forefinger on the ISL and the connector side opposite of the ISL and apply a gentle force



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TEMPLATE FILENAME: APPLICATION_SPEC[SIZE_A](V.1).DOC			

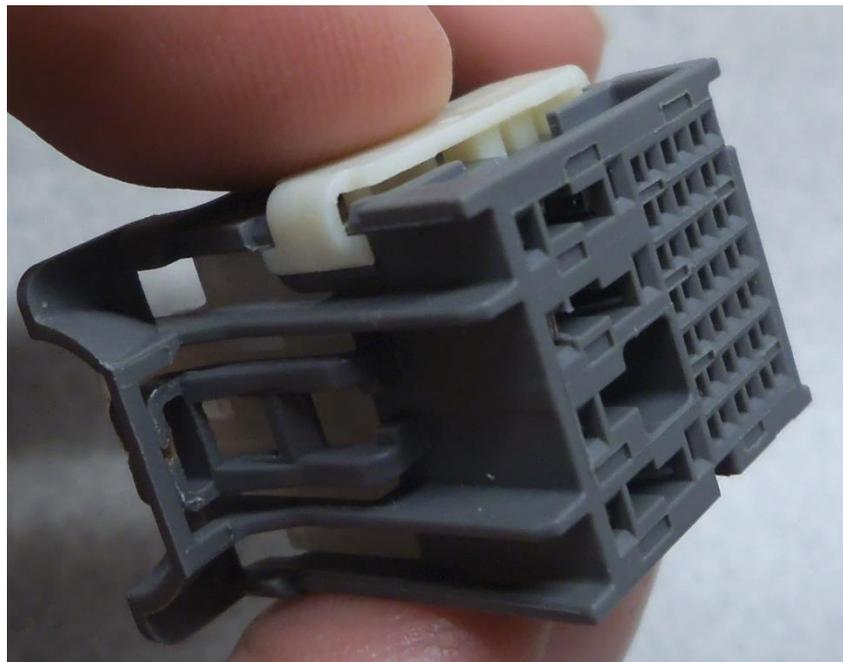


TPA in the fully seated position

C. Detecting a partially installed terminal

The ISL will not close with a partially installed terminal. If the ISL will not close, confirm that all terminals are fully installed. Leaving the connector in this state will not allow the operator to mate the connector to the header.

Do not force the ISL closed! Damage to the terminal and the ISL will occur!

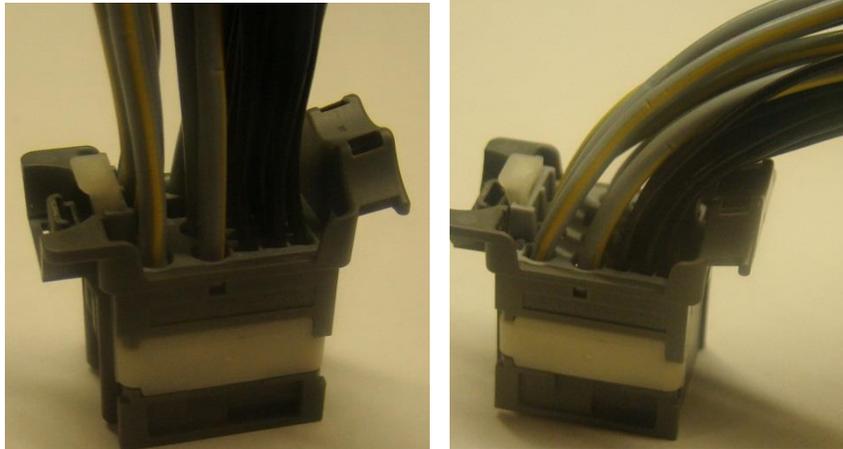


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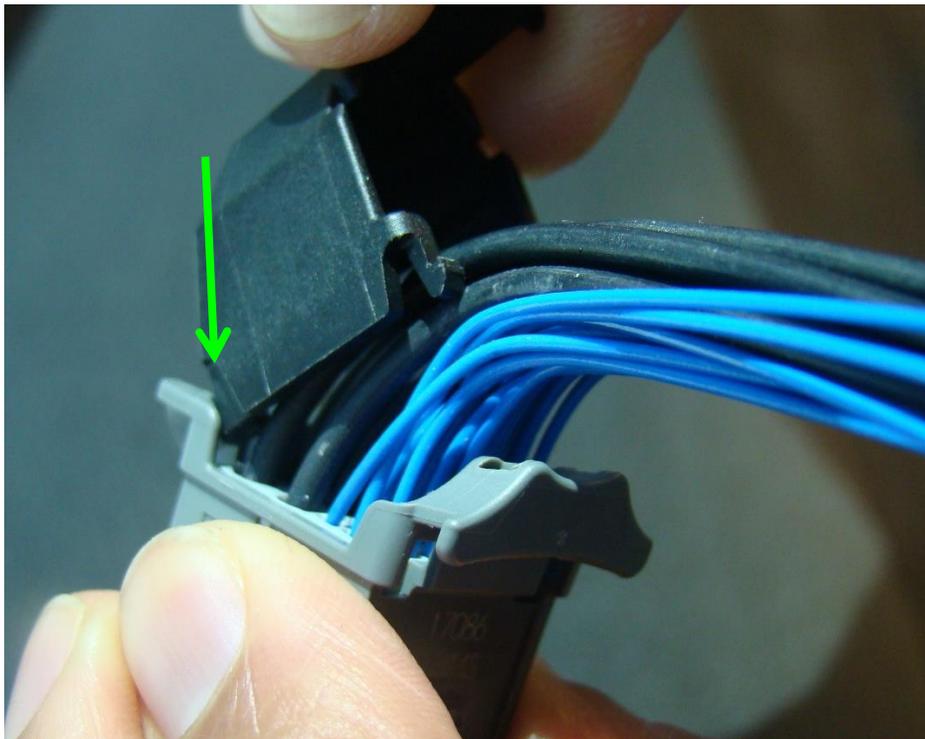
D. Wire Dress Cover (WDC) installation

After completing the terminal/connector assembly, the Wire Dress Cover can be added to the assembly.

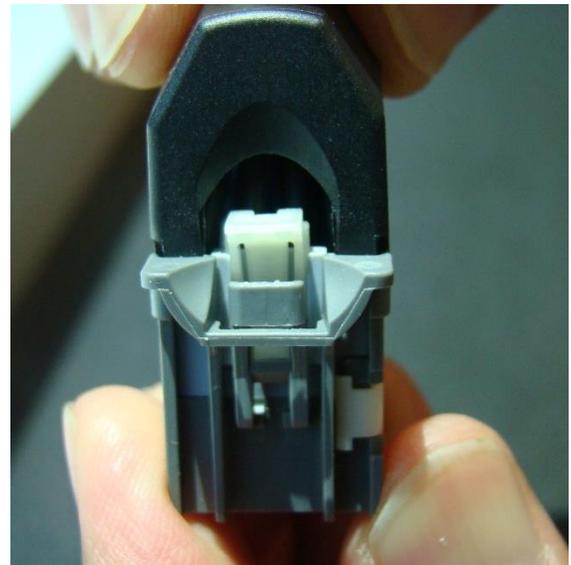
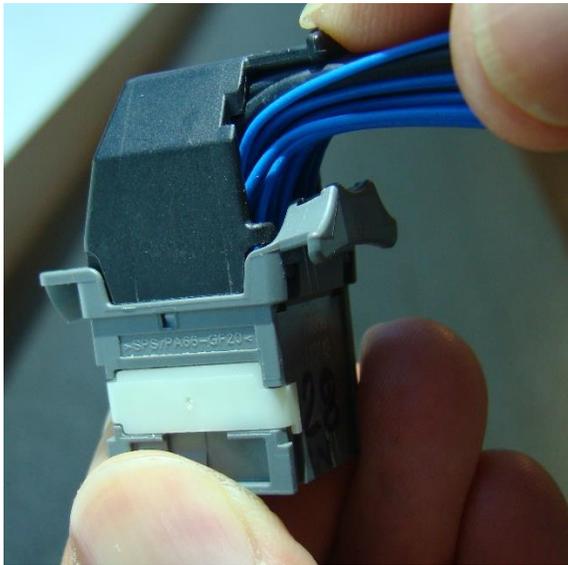
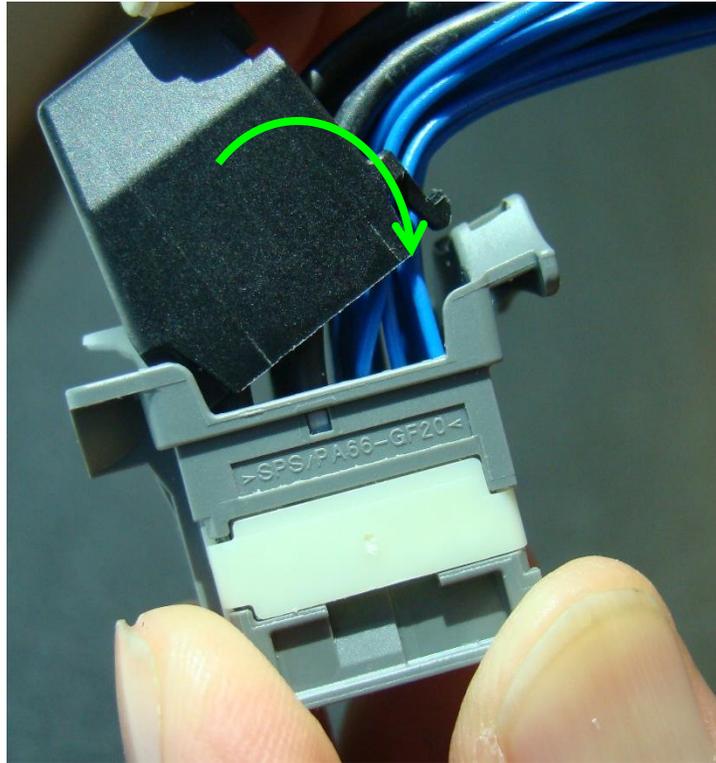
Start by forming the wires away from the connector latch



Install the WDC at an angle with the lock features of the WDC engaging the pockets on either side of the latch. Rotate the WDC over the wires to the final lock position.



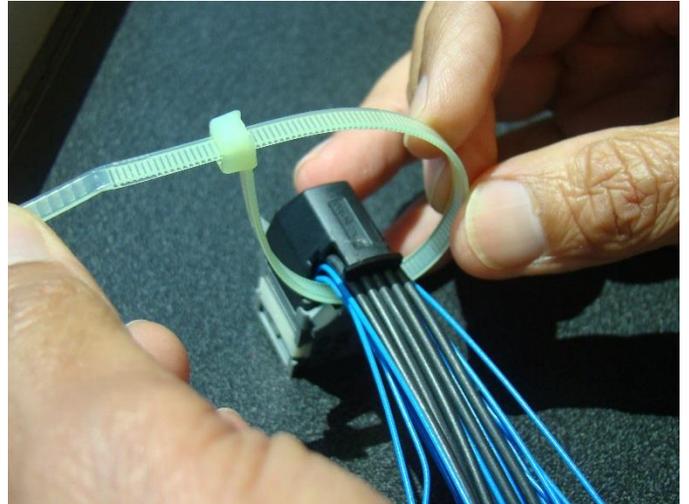
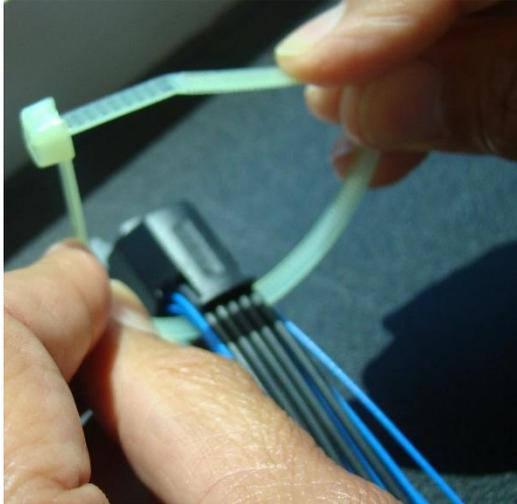
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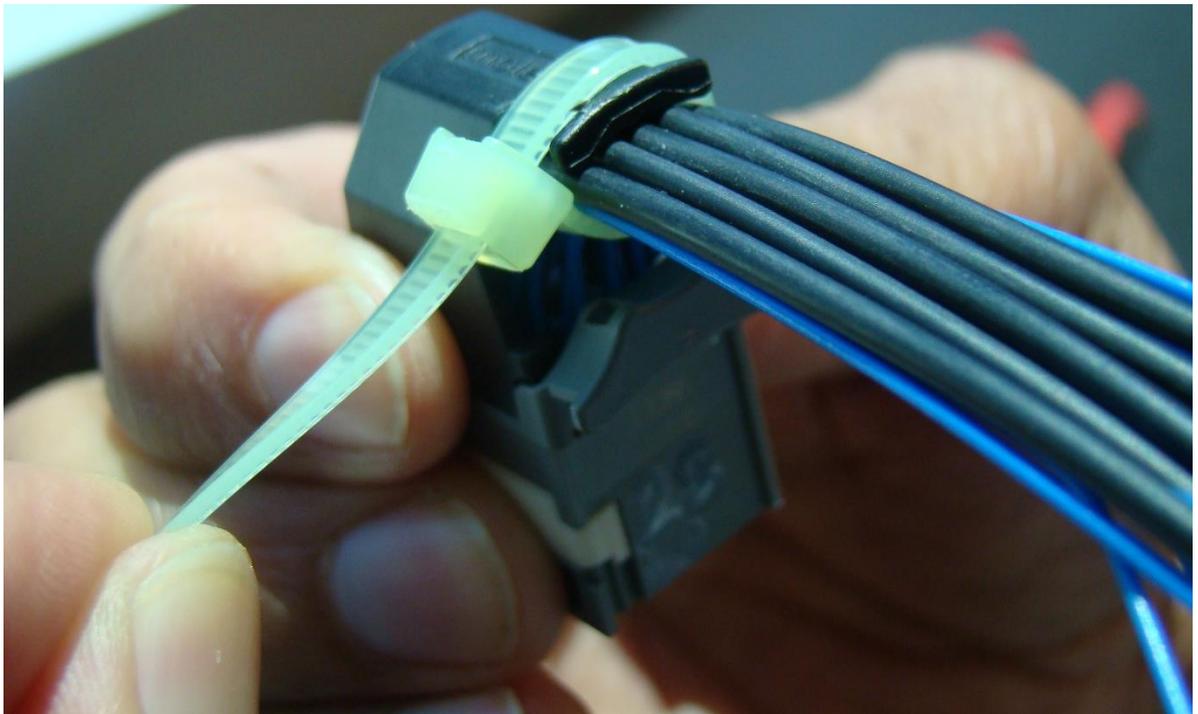
Completely installed Dress Cover

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Dress the wires in the desired direction and secure them to the WDC using plastic wire zip tie with a maximum width of 2.5mm
Secure wire tie, making sure it stays on top of WDC behind its protective step rib

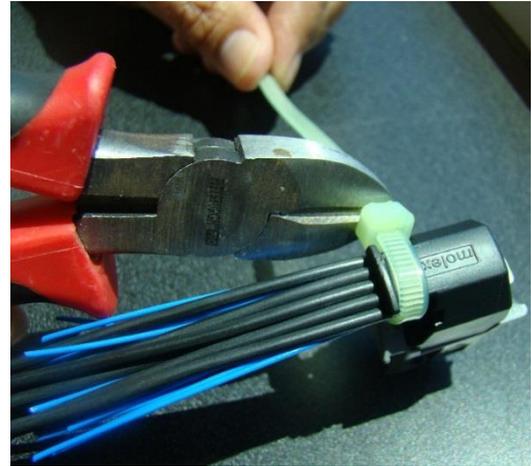
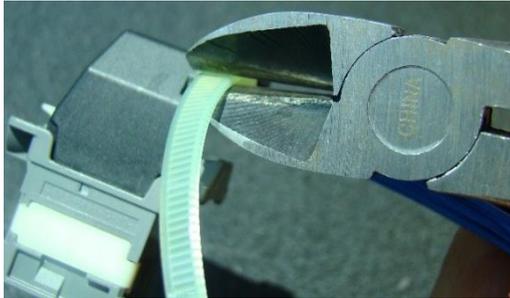


Make sure the wires are protected and don't get damaged while securing with the zip tie



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Trim the wire zip tie as desired assuring no damage caused to the wires

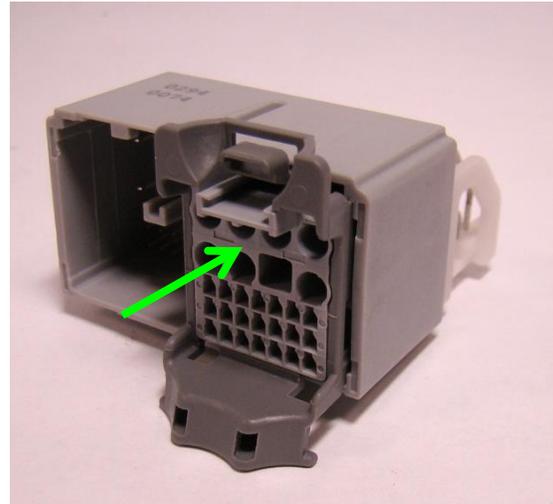
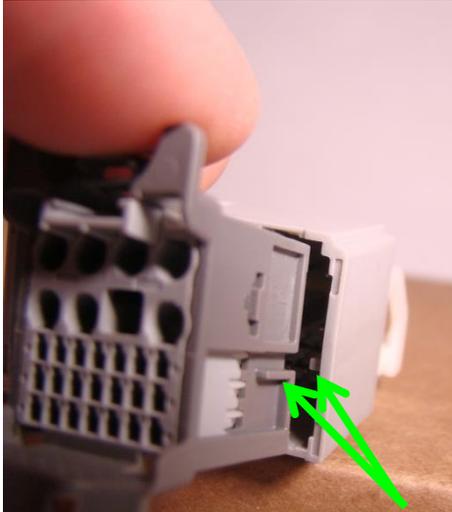


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E. Connector Mating

To properly mate the connector, first note and align connector keying features, from receptacle connector to mating header.

Begin sliding the receptacle connector assembly into the header assembly and press firmly until you hear an audible click.

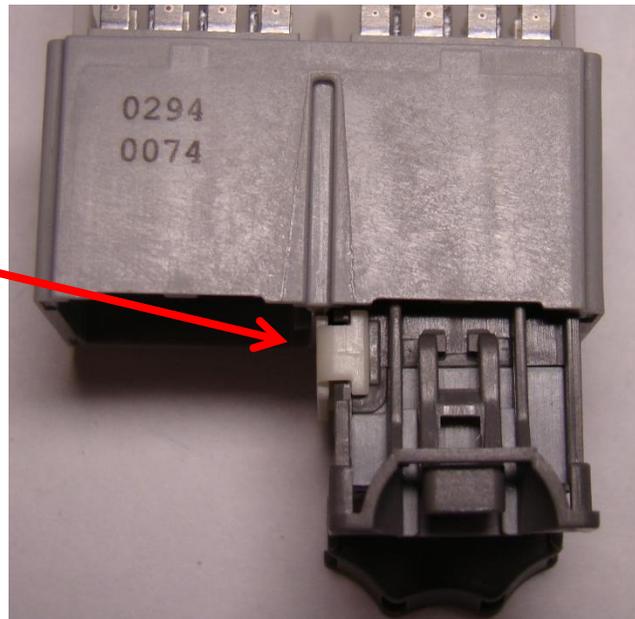


Keying features

If resistance is encountered, confirm the terminals are fully installed and the ISL is seated.

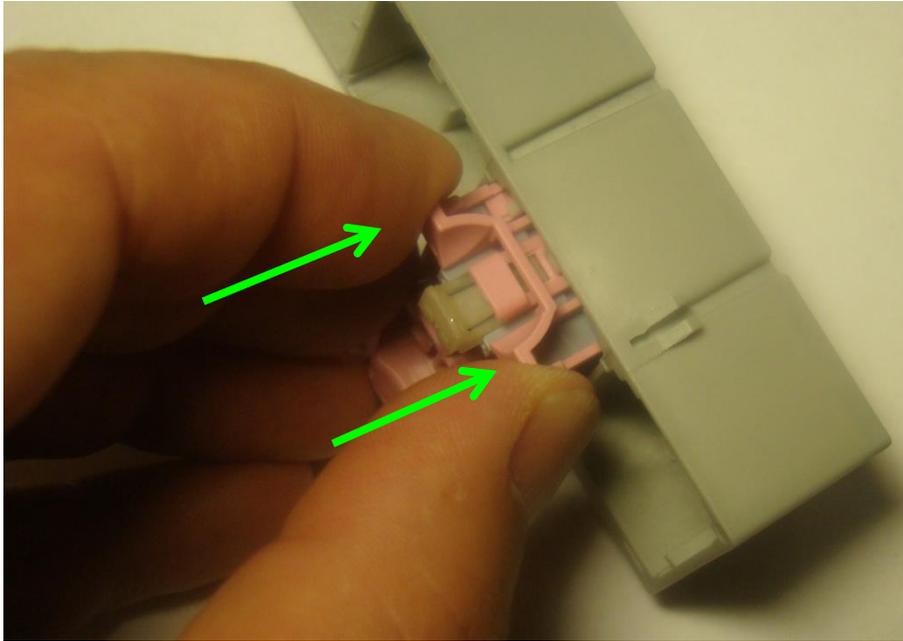
Do not force the connector! Damage to the header, connector, or terminal will occur!

ISL not seated

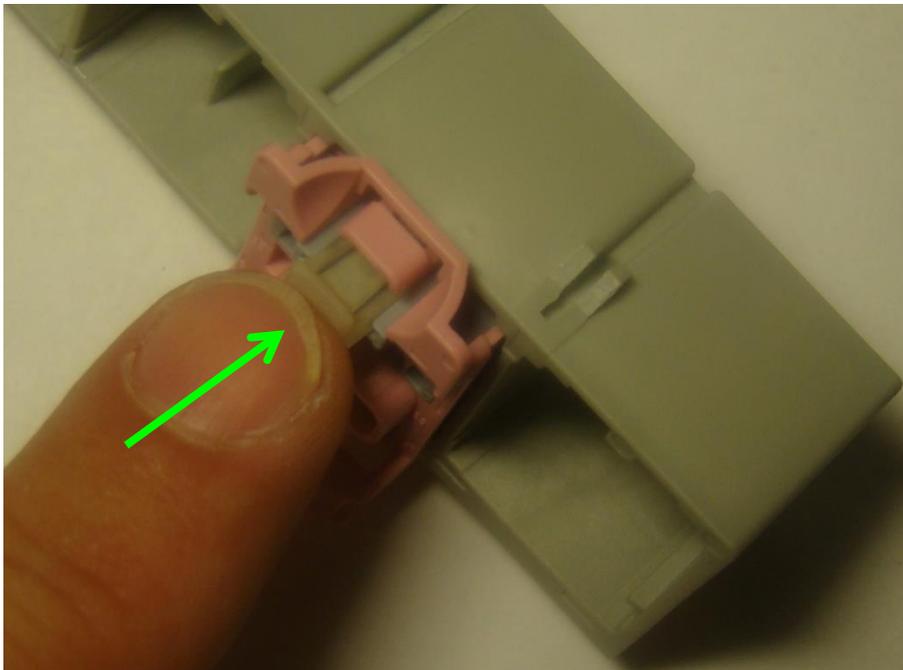


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- F. Connector mating with the optional CPA
Align the keying features and push evenly on the connector body.
Do not push on the CPA during the connector mating process!

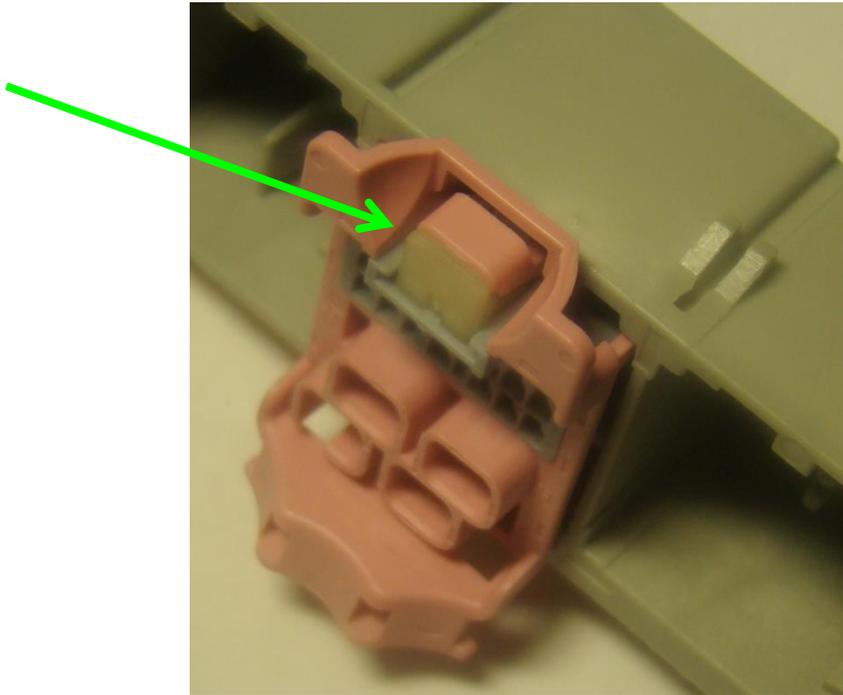


After mating the connector, push on the CPA to engage.



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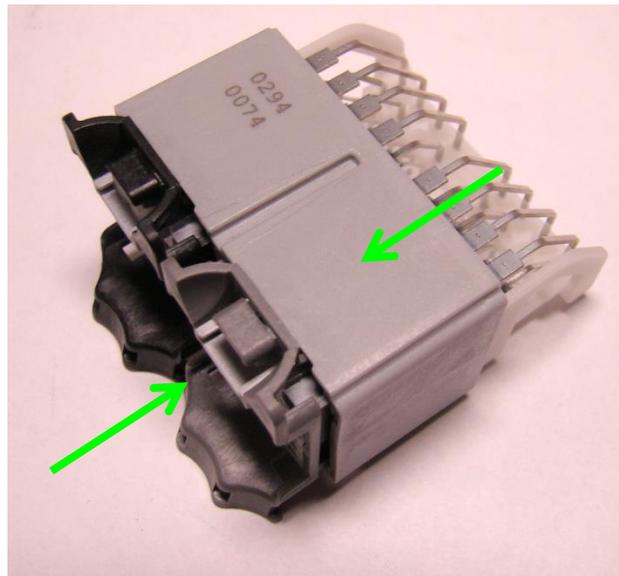
Connector with the CPA in the lock position



4.3 REMOVAL INSTRUCTIONS

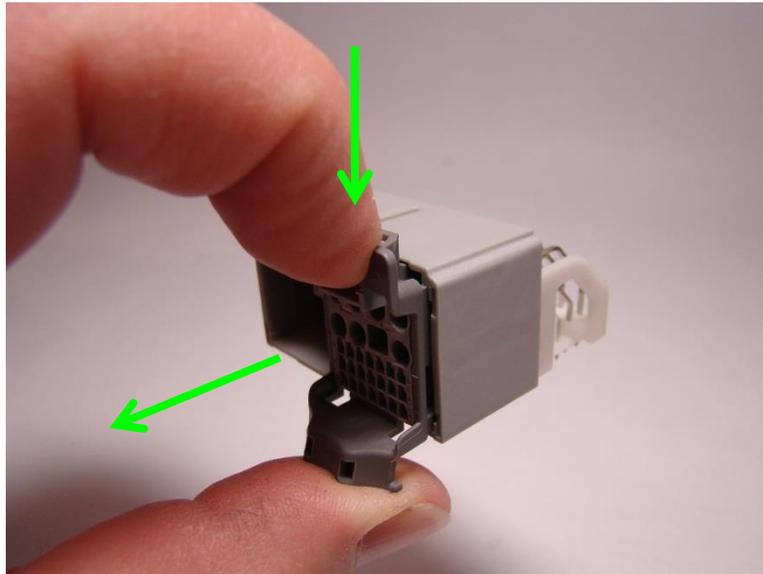
A. Un-mating the connector

To un-mate the connector, push the connector and header together to unload the latch system

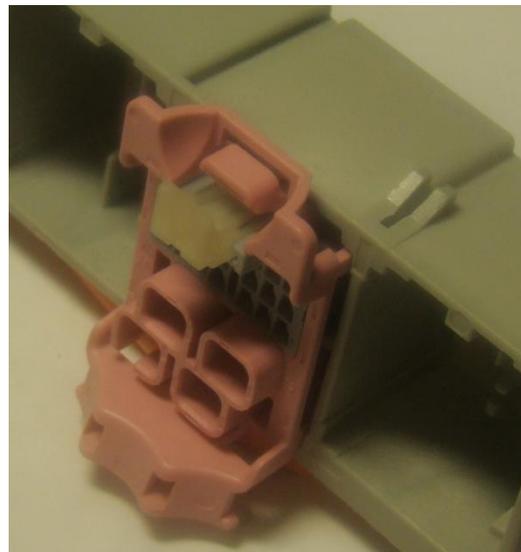
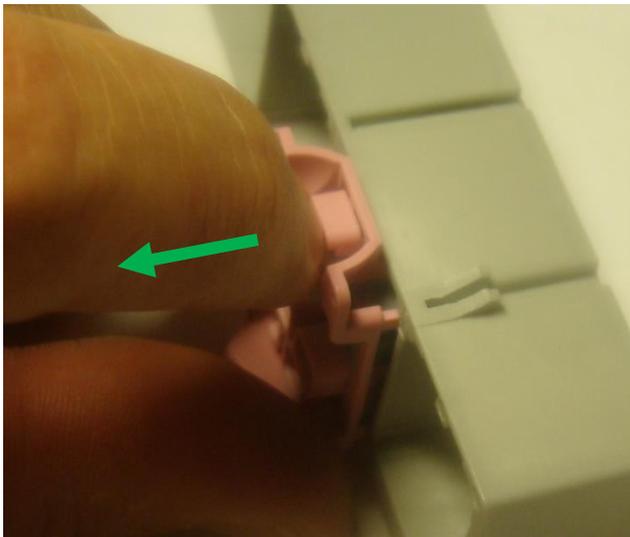


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While depressing the connector latch, gently pull the connector from the header



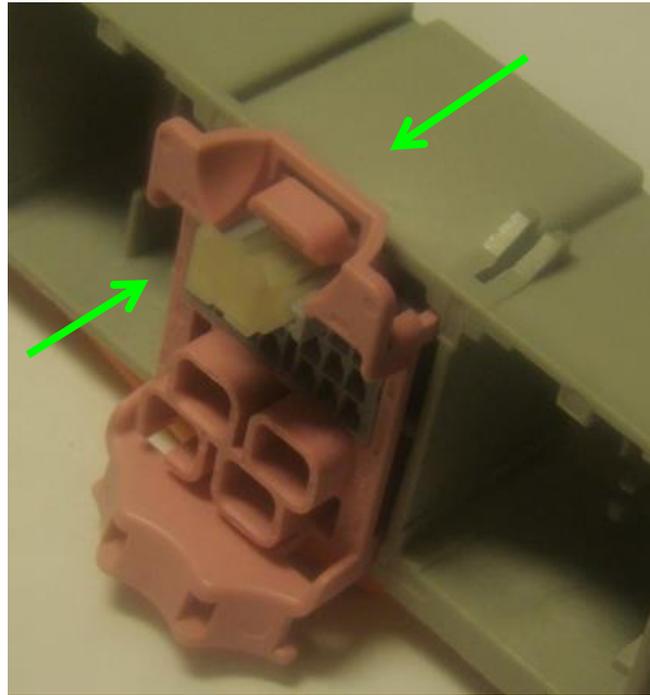
- B. Un-mating the connector with the optional CPA**
Using a fingertip, gently pry the CPA to the un-lock position



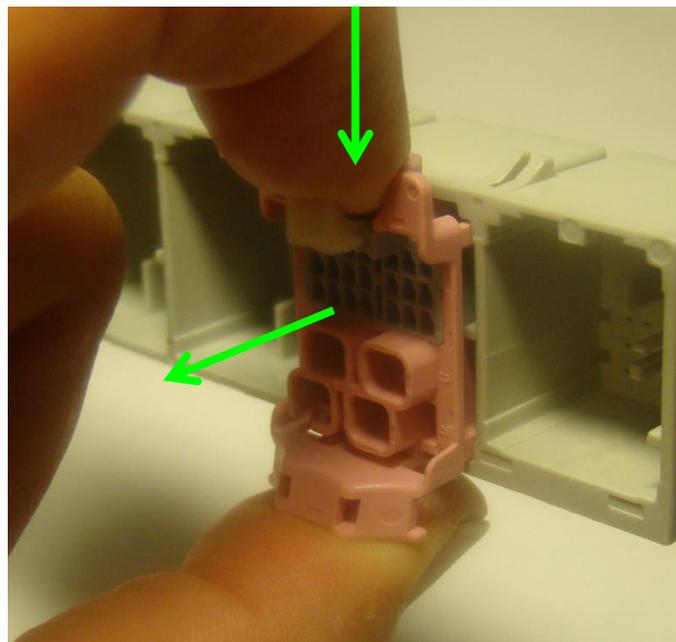
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Push the connector and the header together to un-load the latch system



While depressing the connector latch, gently pull the connector from the header



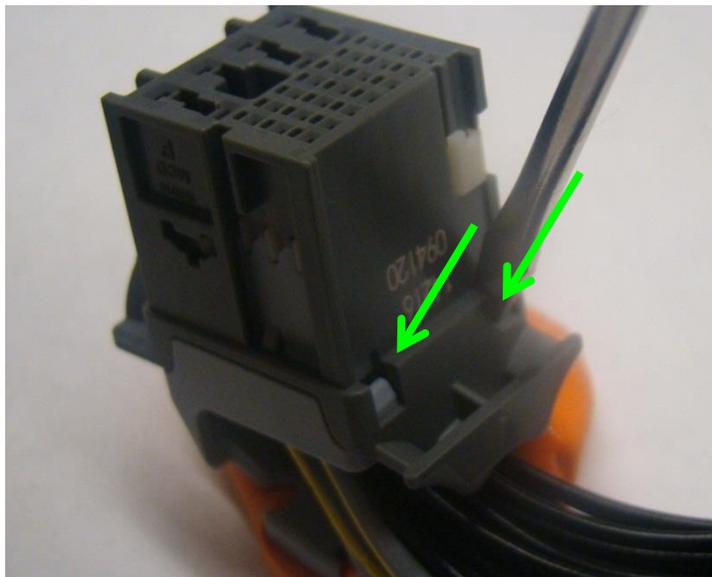
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- C. Removing the Wire Dress Cover (WDC)
 - Remove the plastic wire tie using a pair of side cutters.
 - The wire tie MUST be cut above the wire dress tab to prevent damage to the wires!**

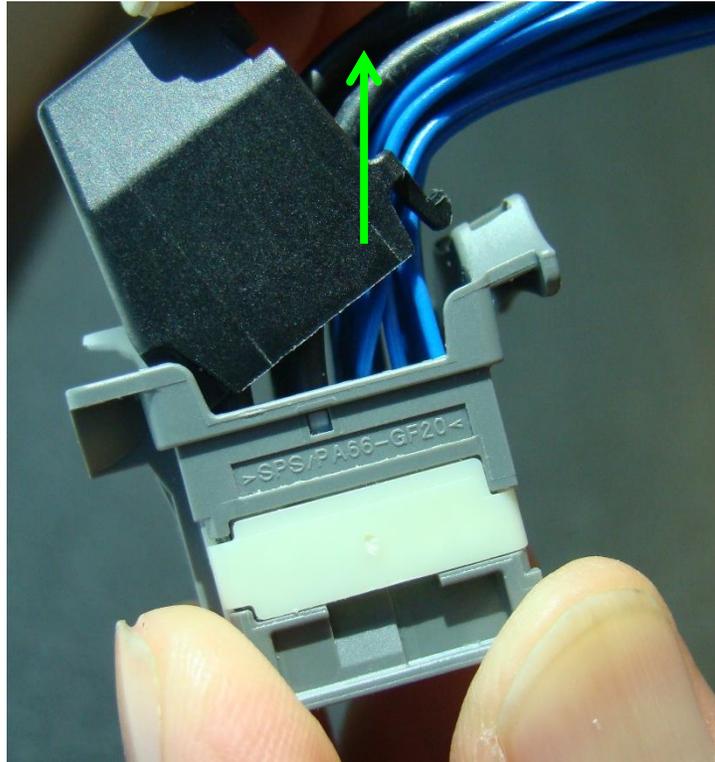


Using a small, flat tip screwdriver (2.4 - 3.5 mm wide maximum), release the retention features of the WDC the side of the connector opposite of the latch



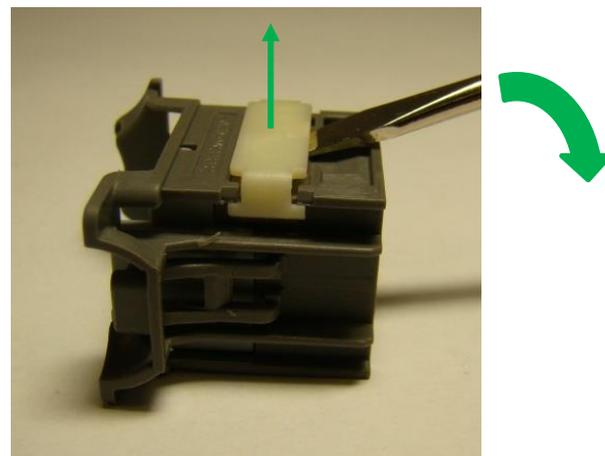
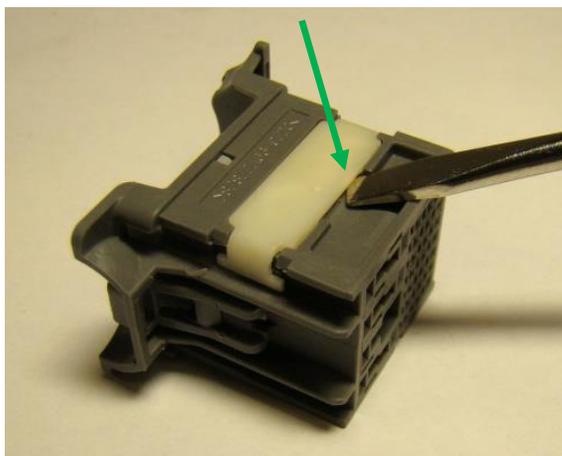
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Lift the WDC off the connector assembly



D. Opening the ISL

Slide a small flat tip screwdriver (2.4 – 3.5 mm) under the ISL and gently pry to open the ISL



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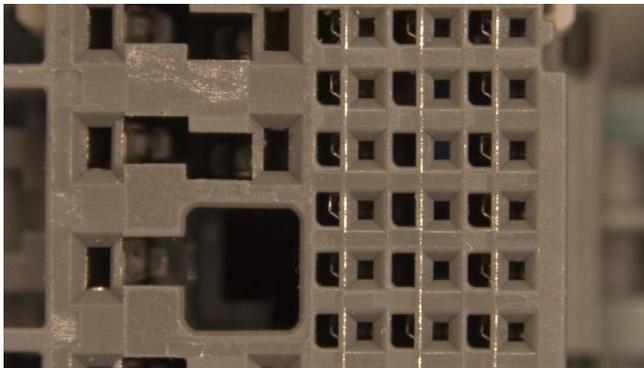
4.4 TERMINAL SERVICING

With the ISL in open position, use the identified tool gently insert tool to depress the terminal lock feature. Once the lock feature is released, pull on the terminal to remove it from the housing.

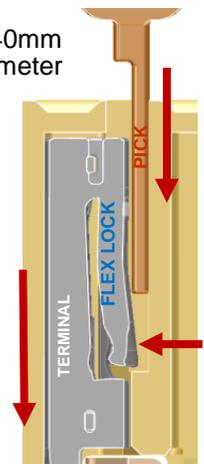
Connector components may be damaged during servicing, inspect the terminal, housing, and lock finger for damage. Components must be replaced if damaged.

0.5mm Terminals

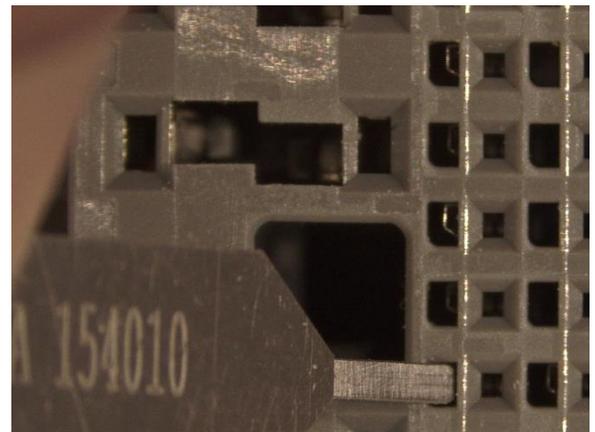
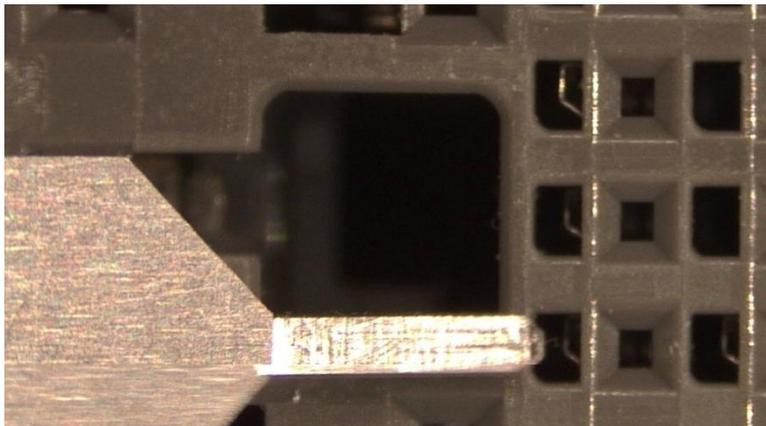
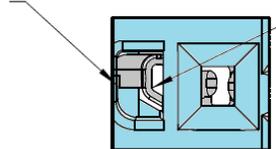
Molex Tool #: 638247500



Pick Size 0.35mm to 0.40mm
Square or Diameter

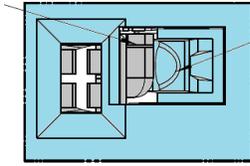


TERMINAL EXTRACTION
TOOL AREA

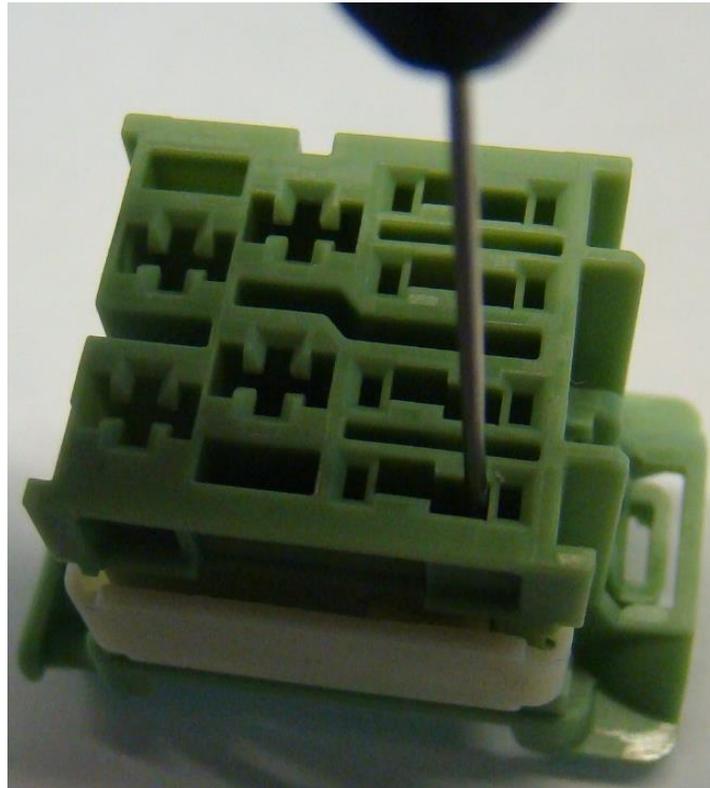
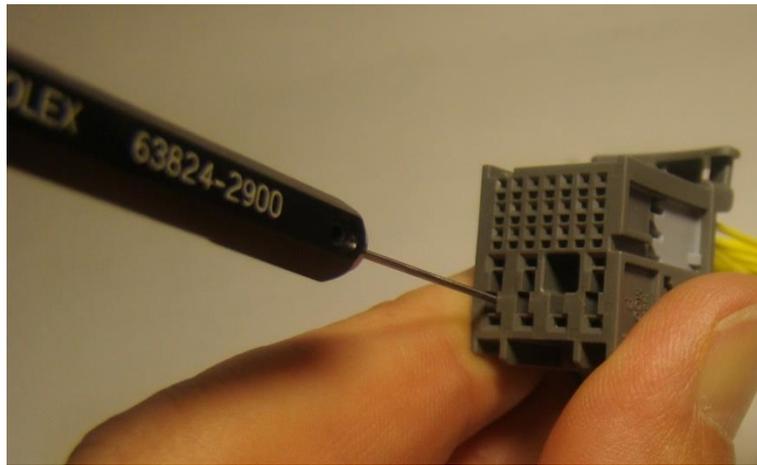


REVISION: C1	ECR/ECN INFORMATION: EC No: 10906817 DATE: 2018-JUNE-06	TITLE: STAK50H Connector System Application Specification	SHEET No. 21 of 29
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1.2mm Terminals
Molex tool number 638242900



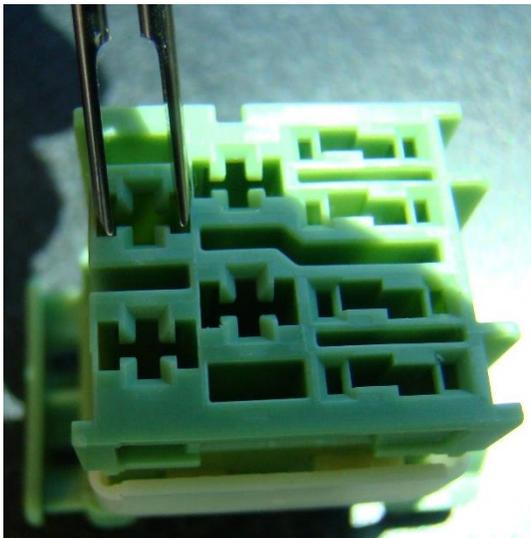
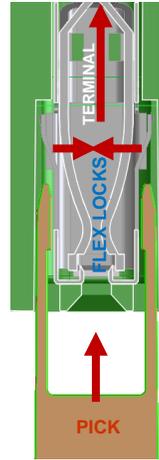
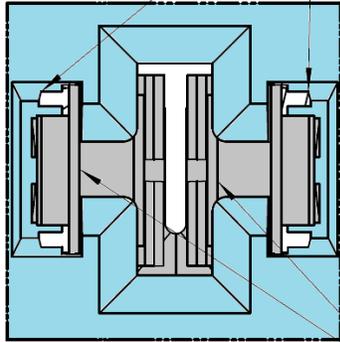
TERMINAL EXTRACTION
 TOOL AREA



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2.8mm Terminals
TE Tool Number 2-1579007-1

TERMINAL EXTRACTION
 TOOL AREA



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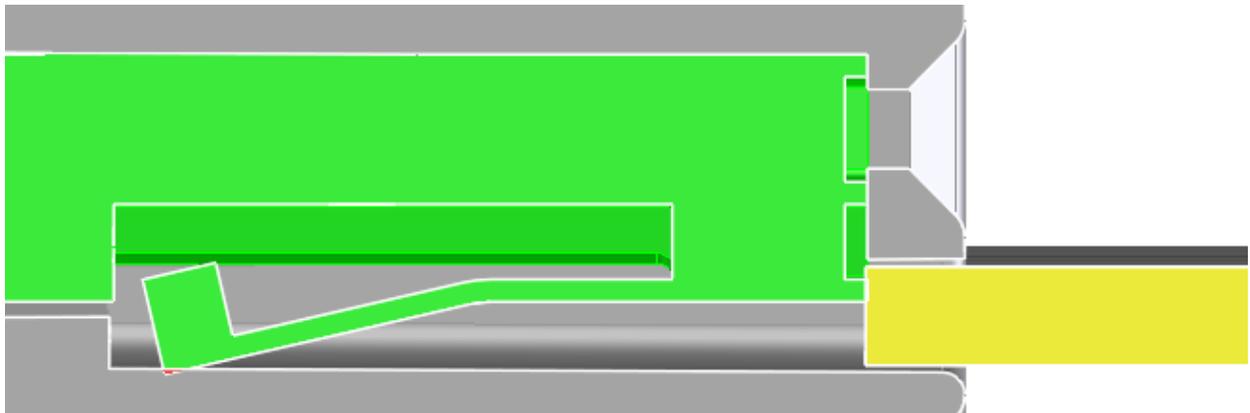
4.5 TERMINAL PROBING

Pogo Pin Recommendations

0.5mm Terminals

Manufacturer: Lone Star Industrial
 Pin: LS040R-219
 Tip Style: Small flat
 Spring Force: 4.7 grams (standard)

This pin is intended to contact the front of the terminal through the servicing hole



1.2mm Terminals

Manufacturer: Lone Star Industrial
 Pin: LS054R-415
 Tip Style: Small flat
 Spring Force: 4.7 grams (standard)

This pin is intended to contact the terminal retention feature

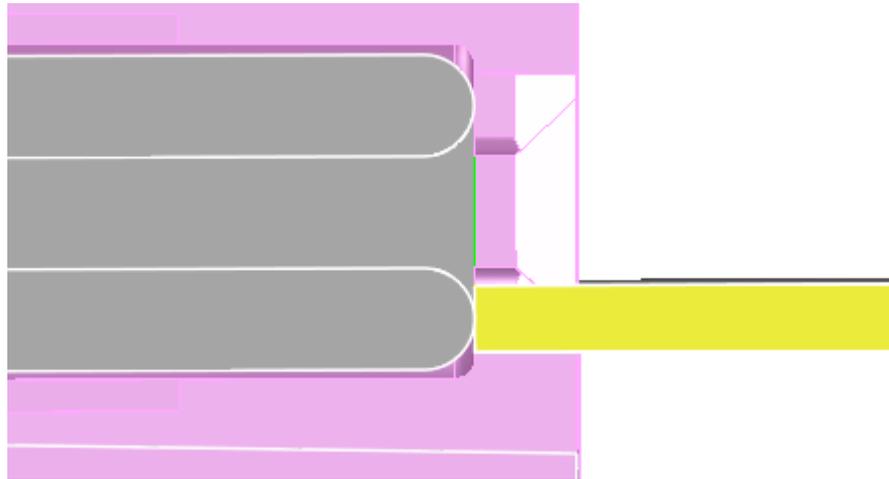


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2.8mm Terminals

Manufacturer: Lone Star Industrial
Pin: LS040R-219
Tip Style: Small flat
Spring Force: 4.7 grams (standard)

This pin intended to contact the front of the terminal



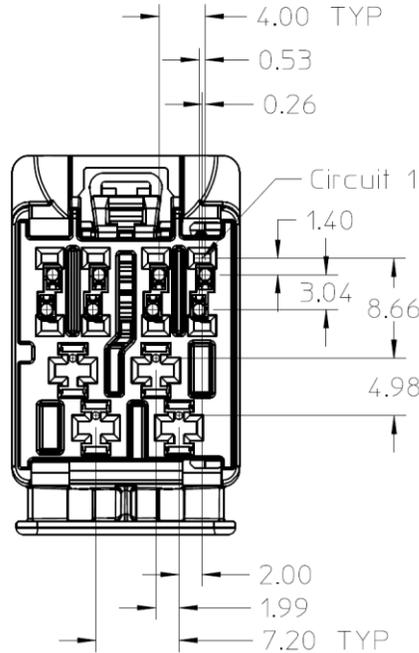
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DOCUMENT NUMBER: AS-160014-001	CREATED / REVISED BY: Jacob Burgio	CHECKED BY: Jim Condon	APPROVED BY: Kurt Dekoski

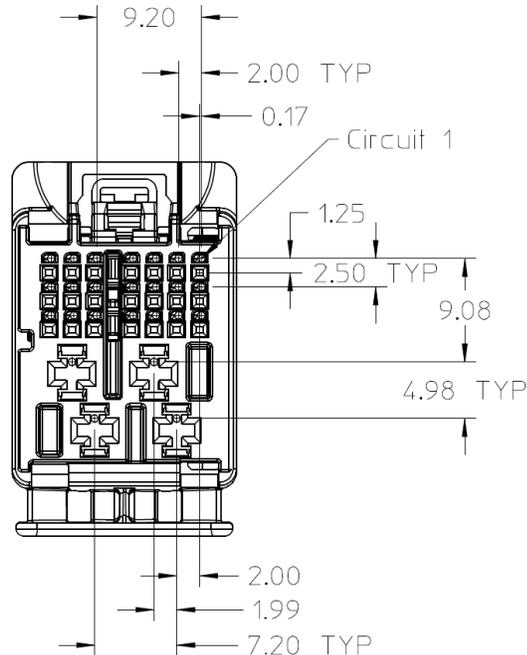
Probe Patterns

The dimensions shown are for locating the center of the terminal probes in relation to circuit 1 of the connection system

12 Way

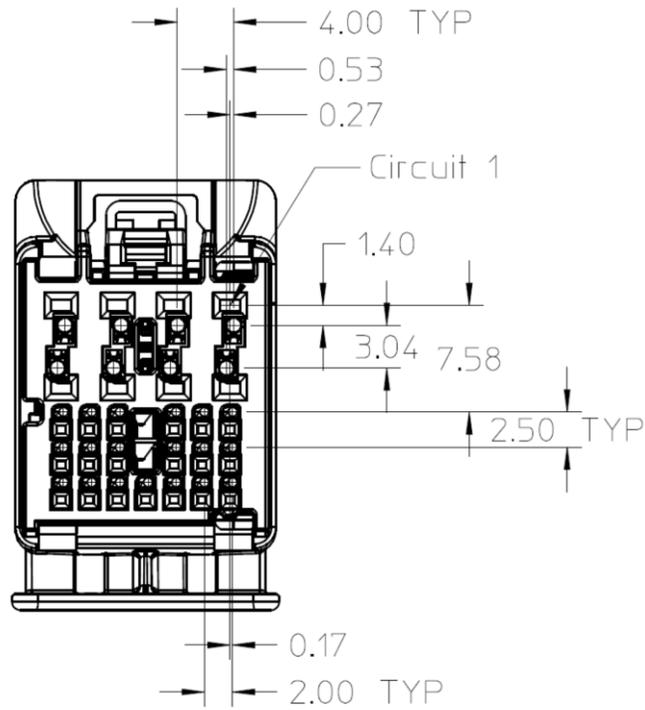


25 Way

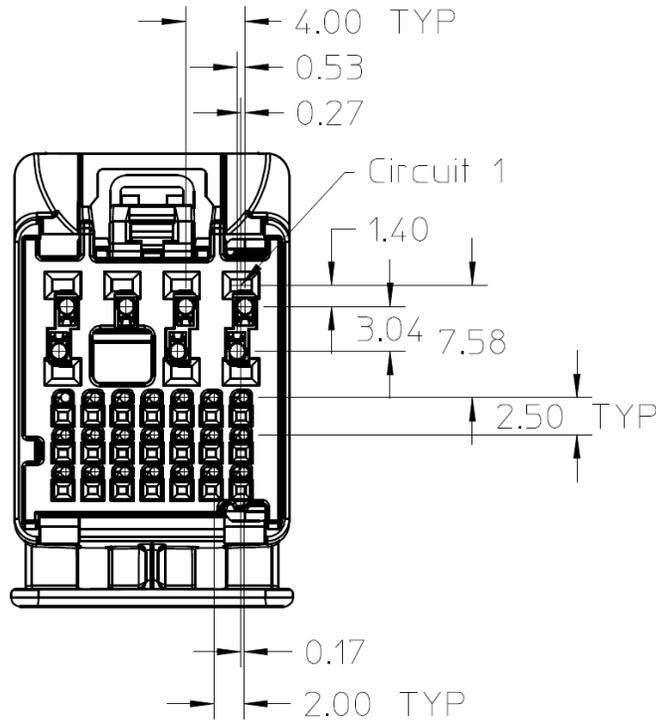


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27 Way

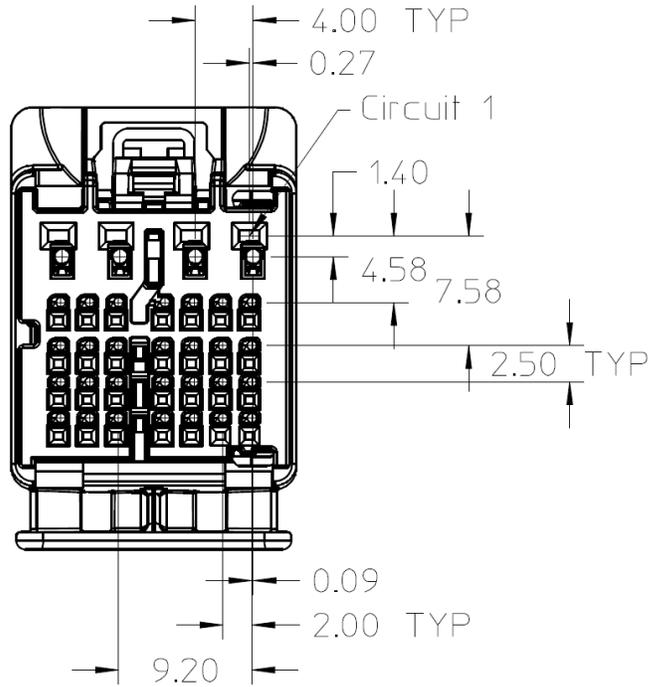


28 Way



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32 Way



PENDING APPROVAL

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DOCUMENT NUMBER: AS-160014-001	CREATED / REVISED BY: Jacob Burgio	CHECKED BY: Jim Condon	APPROVED BY: Kurt Dekoski

REVISION PAGE:

REVISION	DATE	DESCRIPTION
A	2014/05/06	INITIAL RELEASE
B	2015/09/03	GENERAL UPDATE WITH PICTURES OF PARTS AND ADDED CONNECTOR PROBING PATTERNS
C	2015/11/24	CAVITY SPEC INFO INCLUDED FOR 0.5 TERMINALS
C1	2018/06/28	UPDATED TERMINAL INFORMATION – PAGE1 UPDATED FORMAT – PAGES 2, 3 UPDATED SECTION 3 WITH NEW WDC PN'S – PAGE 4 UPDATED NEW WDC VISUALS IN SECTION 4.2.D – PAGES 10 – 13 UPDATED TERMINAL SERVICE PORT VISUALS – PAGES 21 – 23 UPDATED REV. TABLE – PAGE 29

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