APPLICATION SPECIFICATION

MOLEX 34 AND 38 WAY MINI50 CONNECTOR SYSTEM APPLICATION SPECIFICATION

1.0 SCOPE: This procedure applies to all part numbers in the 34/38 Way Mini50 series 34958, 34959, and 34961

Table of Contents
1. Product Scope
2. Product Description
3. Reference Documents
4. Procedure
5. Service Instructions

2.0 PRODUCT DESCRIPTION:

- Connector Configurations:
  - 38 Circuit - 0.50mm
  - 34 Circuit - 0.50mm/1.20mm Hybrid
- 3 Polarization Options
- Wire Ranges:
  - 050mm Terminal - $0.13mm^2 – 0.35mm^2$
  - 1.20mm Terminal - $0.25mm^2 – 1.0mm^2$
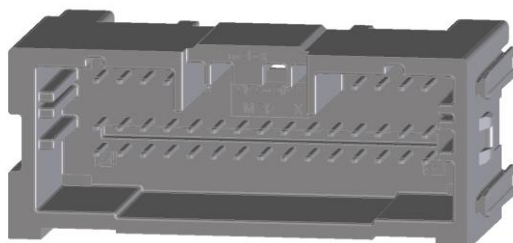- Utilizes the Molex CTX50 and Tyco 1.2mm MCON Terminal Systems
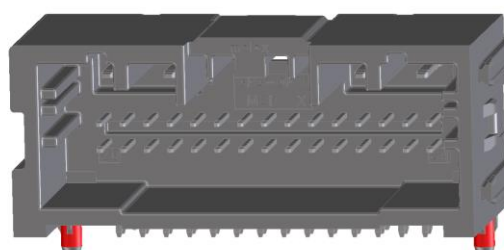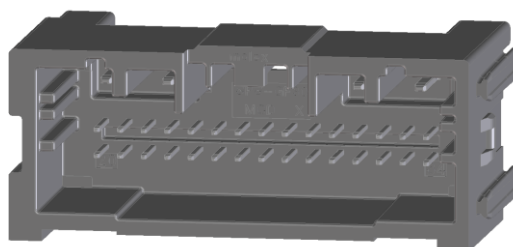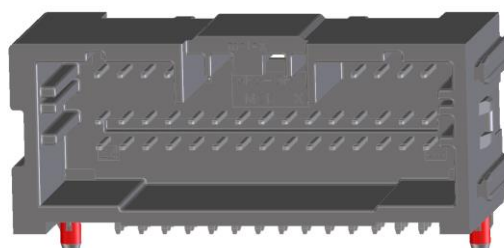
Receptacles

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Headers

Vertical   *Right Angle*

3.0 REFERENCE DOCUMENTS

Header Series	SD-34958-300 SD-34961-030	Header Packaging	PK-31302-070 PK-31301-688
Multi-Bay Header Series	SD-34690-0200 SD-34690-0300	Receptacle Packaging	PK-31301-538
Receptacle Series	SD-34959-030	Connector Product Specification	PS-34959-001

CTX50 Terminal Sales Drawing   SD-560023-002
CTX50 Product Specification   PS-560023-001

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4.0 PROCEDURE
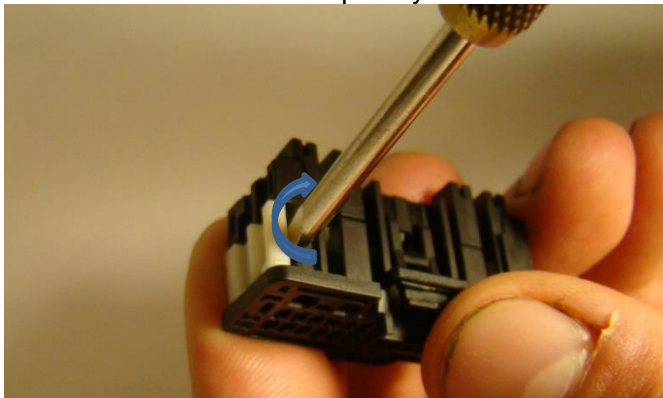
A. Connector "As Shipped"
Connector ISL shown in "as shipped" condition (closed). The ISL must be removed and remain removed until all circuits are loaded.


ISL Component
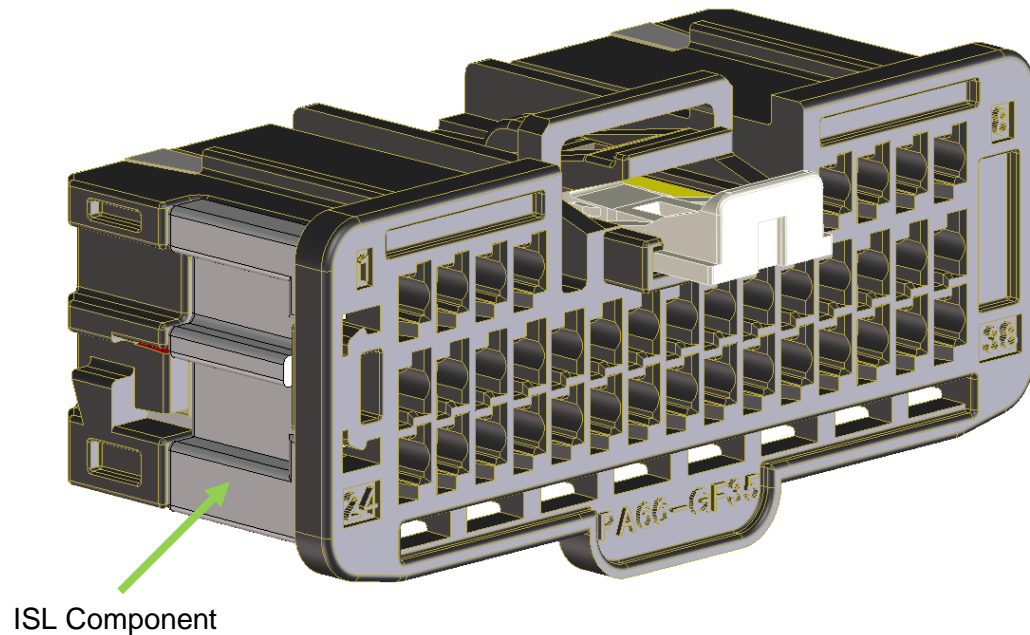
B. ISL removal procedure
ISL must be removed prior to populating the connector. Insert a small screwdriver (3.0-4.0mm) into the slot located on the ISL and gently twist the screwdriver to unlock the ISL. Then remove the ISL completely from the connector housing.
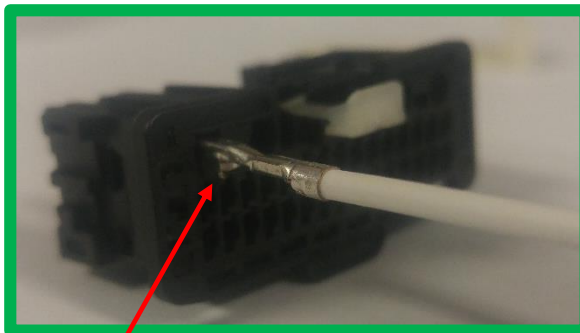

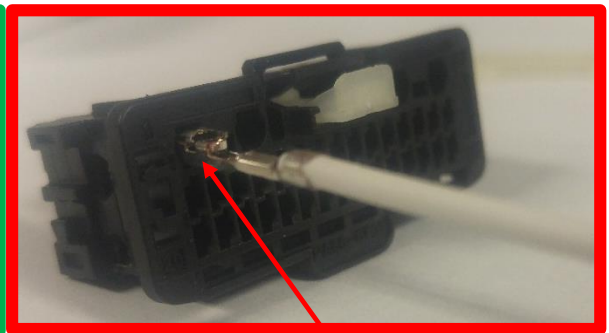| REVISION:	ECR/ECN INFORMATION:	TITLE:		SHEET No.
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C. Terminal Installation:
   With ISL still removed, orient the terminal to the rear of the connector as shown below. Grip the wire behind the terminal insulation crimp and insert it through the appropriate 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. Installing a terminal will have low effort. Improper installation of the terminals with lead to high effort and wire buckle.
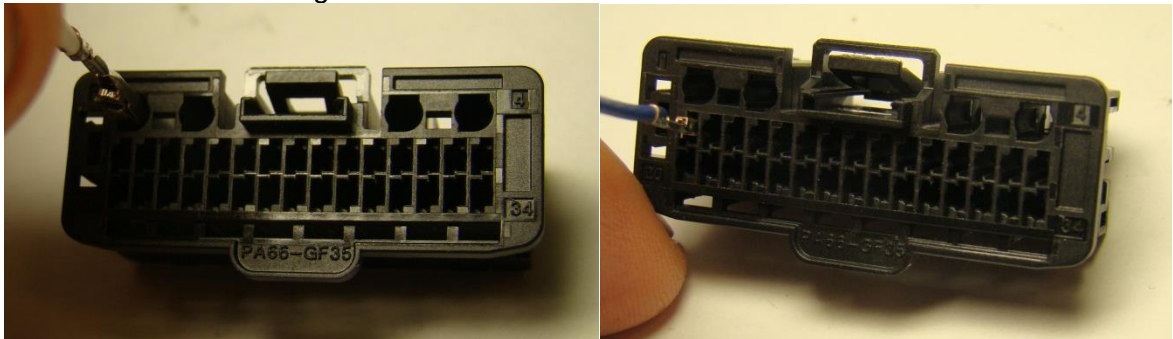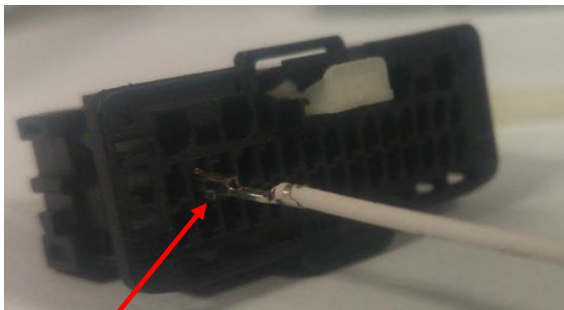

MCON 1.2mm Terminal Installation

Correct Orientation

180° Mis-orientation
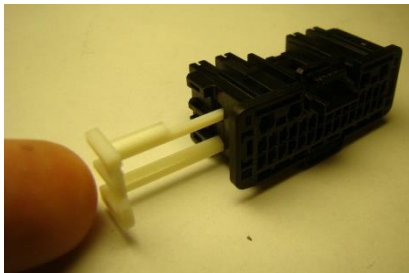
CTX50 0.50mm Terminal Insertion

Correct Orientation

180° Mis-orientation

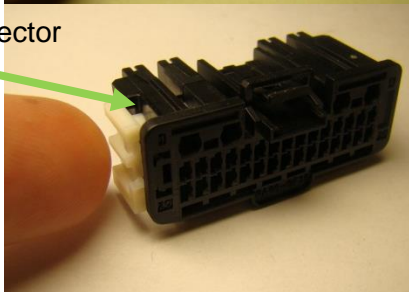| REVISION:	ECR/ECN INFORMATION:	TITLE:		SHEET No.
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D. Closing the ISL
   Prior to closing the ISL a visual check is recommended to confirm all terminals are fully
   seated and in the correct position. Once all terminals are installed, reinstall the ISL and push
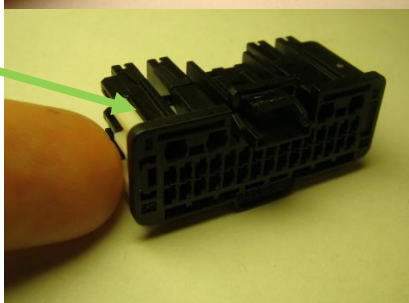   until a click or tactile feedback is felt. Install the ISL by pushing on the area as shown below.

Beginning to install the ISL

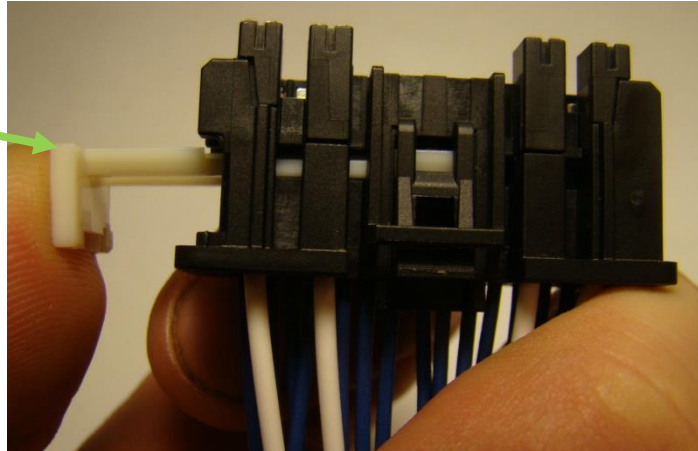ISL-to-Connector gap

Just before ISL final lock

No gap

ISL after being pushed into final lock

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E. Detecting a partially installed terminal
The ISL will not insert fully with a partially installed terminal. The ISL should slide smoothly through the cavities until it contacts the ISL snap in features. If any resistance is encountered, remove the ISL from the connector and check to ensure all terminals are seated fully, and then try to reinstall the ISL.

ISL bows due to terminal blocking force

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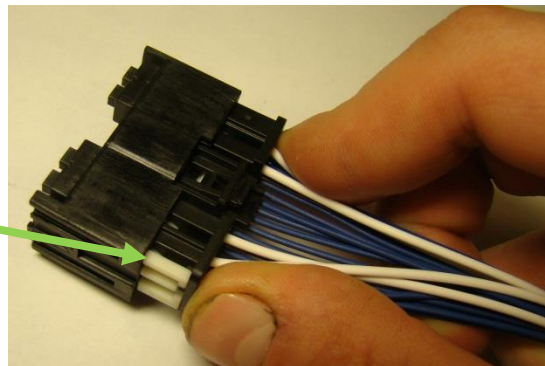
F. Connector Mating

To properly mate the connector, first note and align connector keying and ensure both mating halves share the same color.

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

Keying features
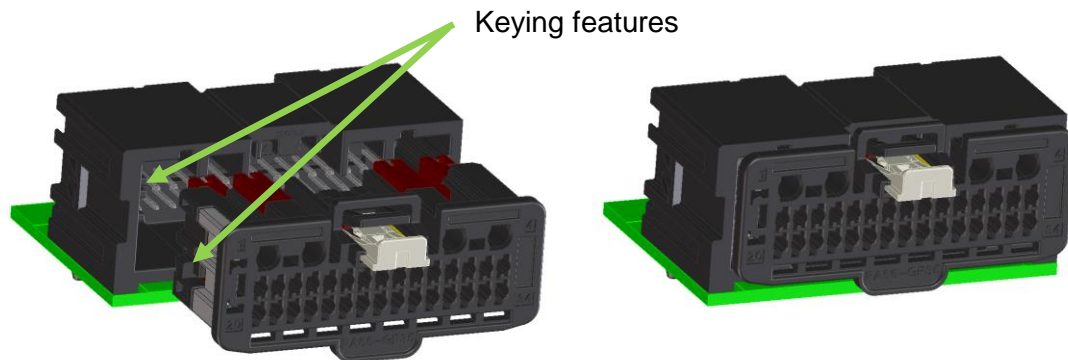
If resistance is encountered, confirm the ISL is fully locked and all terminals are fully installed. A partially installed terminal will not allow the ISL to close.
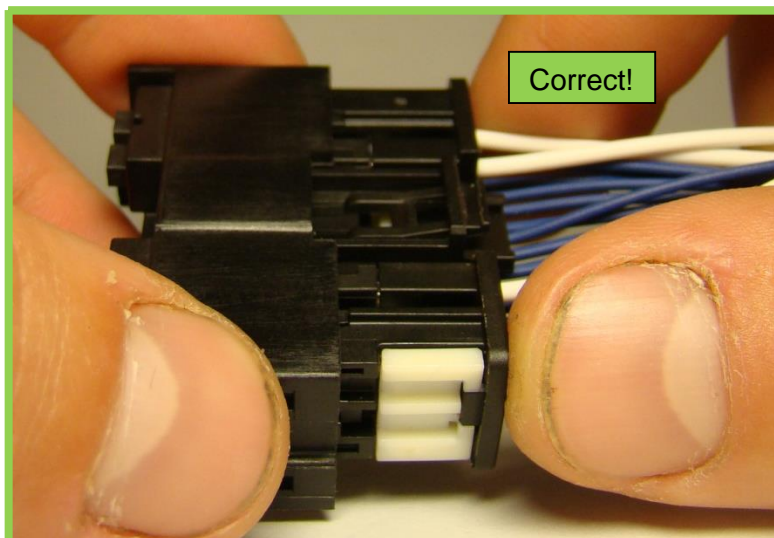

ISL not in final lock

DO NOT FORCE THE CONNECTOR! DAMAGE TO THE TERMINAL, HEADER AND CONNECTOR ISL WILL OCCUR!

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TEMPLATE FILENAME: APPLICATION_SPEC[SIZE_A](V.1).DOC
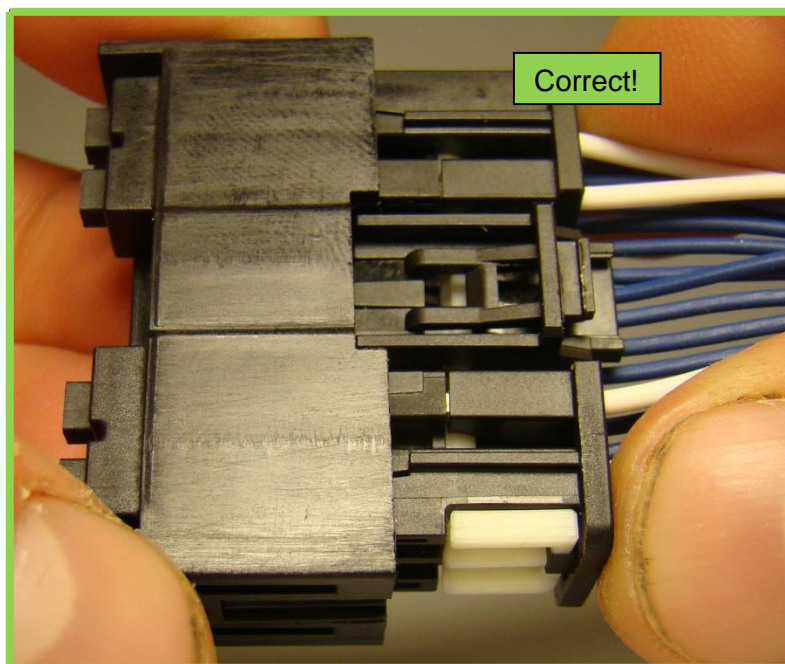
F.   Connector Mating: continued

Never mate system at an angle, or with bias. This may cause damage to the header, or connector
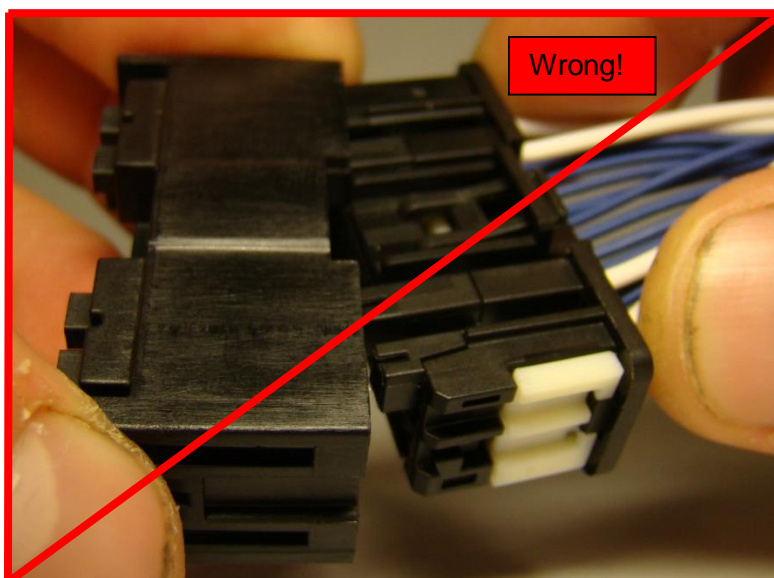
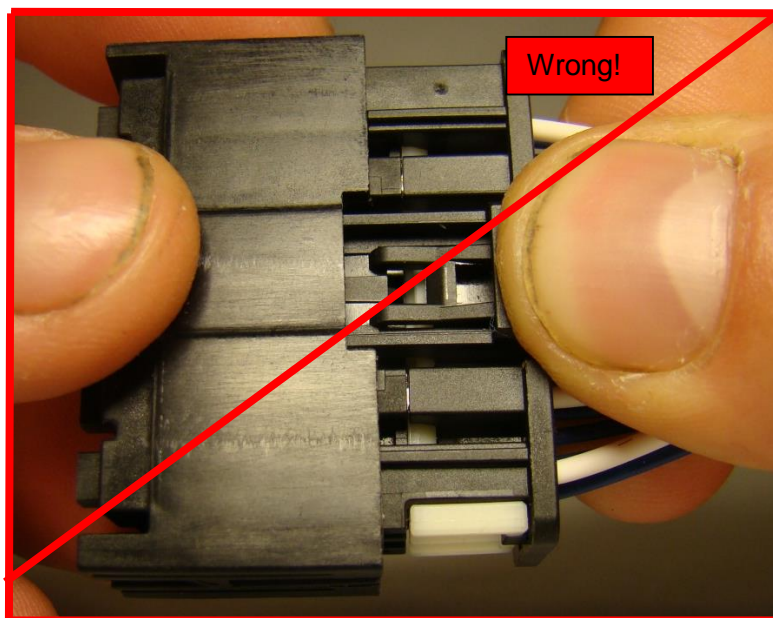| REVISION:	ECR/ECN INFORMATION:	TITLE:		SHEET No.
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Correct!

Always push on connector housing while mating. DO NOT push on latch while mating..

Wrong!

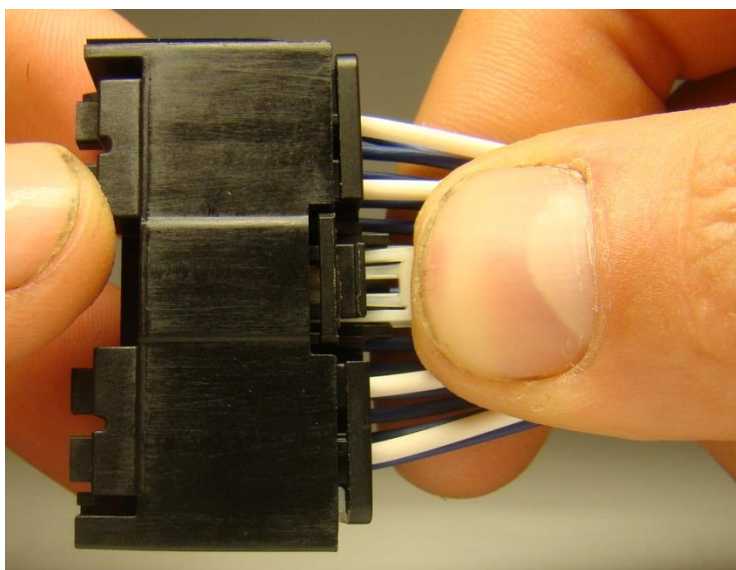| REVISION:	ECR/ECN INFORMATION:	TITLE:		SHEET No.
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Mating the connector with a CPA

Align the connector and push evenly on the connector body to mate
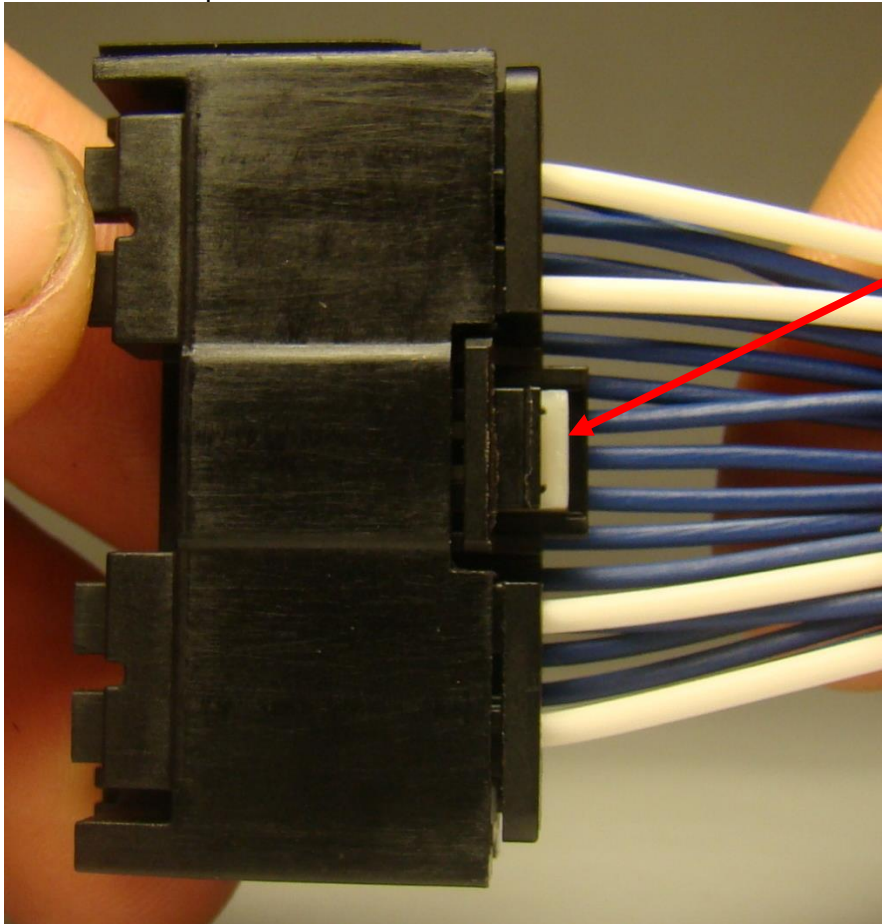
DO NOT PUSH ON THE CPA DURING THE MATING PROCESS
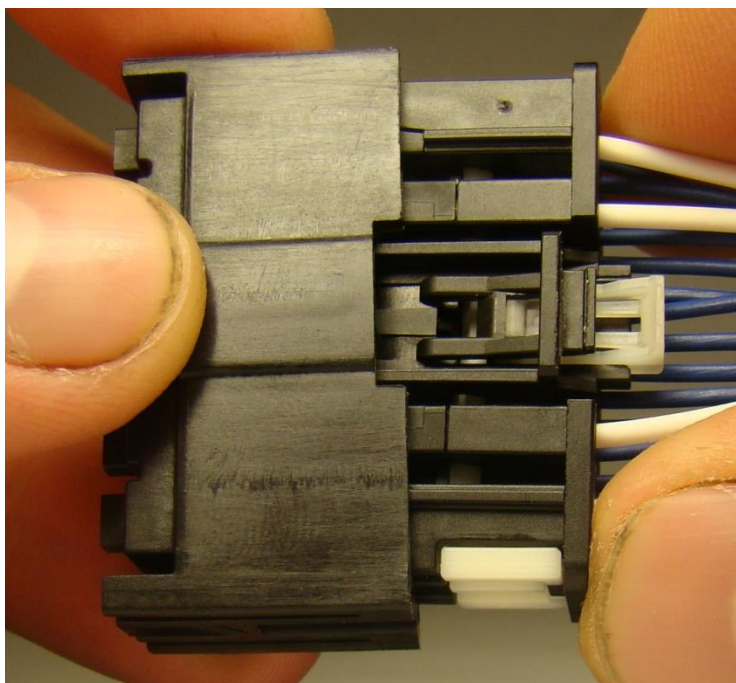
After mating the connector, push on the CPA to engage

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Connector with CPA in lock position

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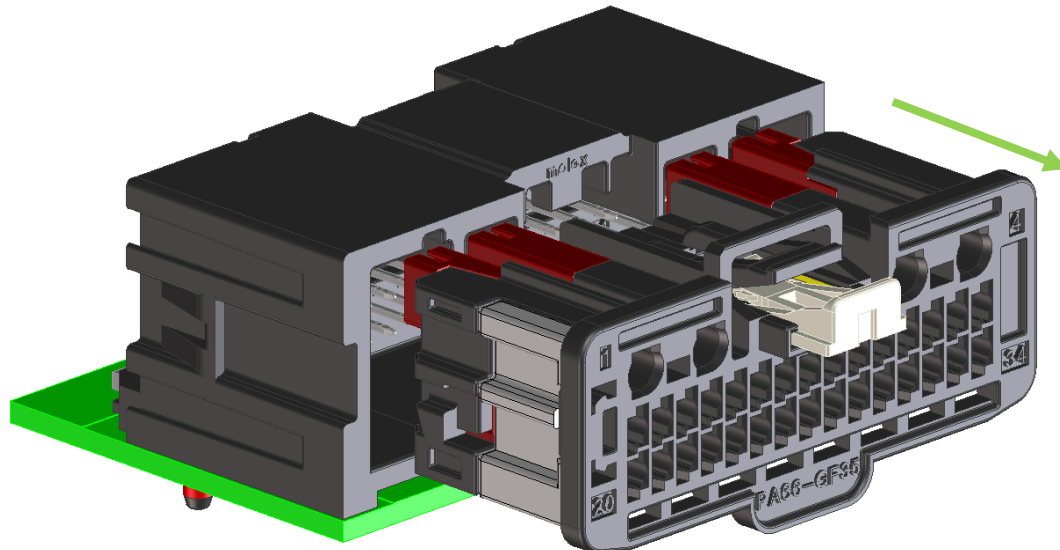| DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
AS-34959-001	**Tucker Hazel**	**Jarod Fischer**	**Ron Bauman**

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

G. Un-mate procedure
The un-mate the connectors, push connector together to unload the latch system. Then depress the latch with your thumb (Step 1). Continue to depress the latch, and gently pull apart connector assemblies
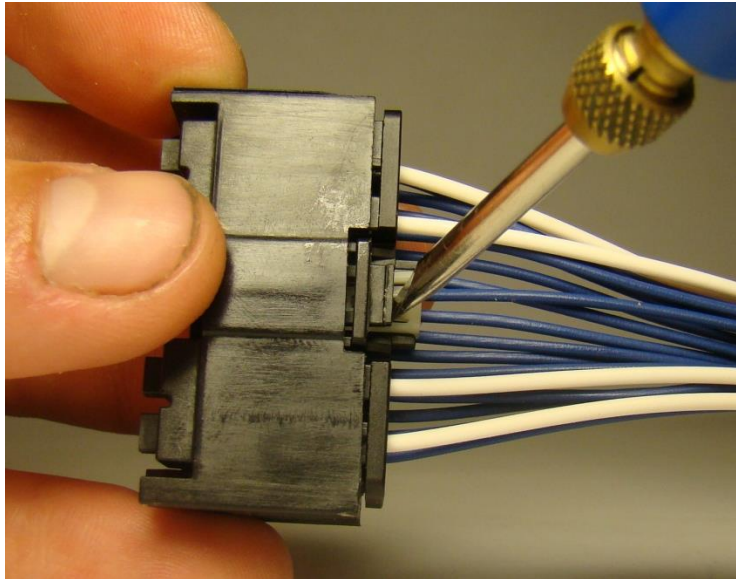
Step 1
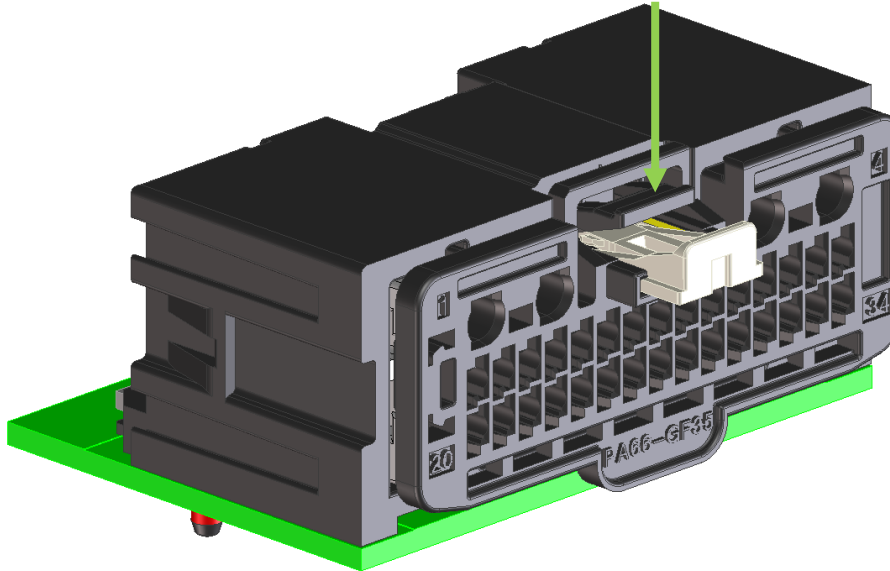
Step 2

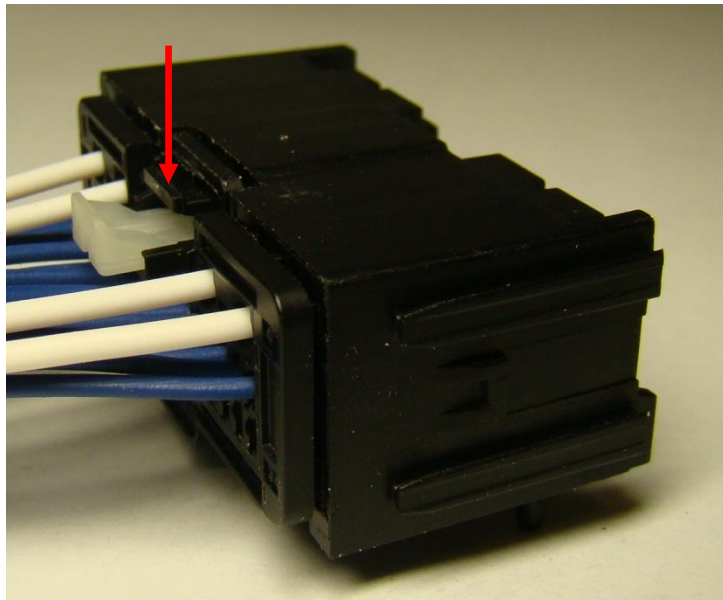| REVISION:	ECR/ECN INFORMATION:	TITLE:		SHEET No.
A1	EC No: **114494** DATE: **2017 / 03 / 14**	**Molex 34 and 38 Way Mini50 Application Specification**		**12** of **22**
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Un-mating a connector with a CPA

Using a small flat tip screwdriver, disengage the CPA by inserting the screwdriver between the latch and CPA and twisting the screwdriver gently
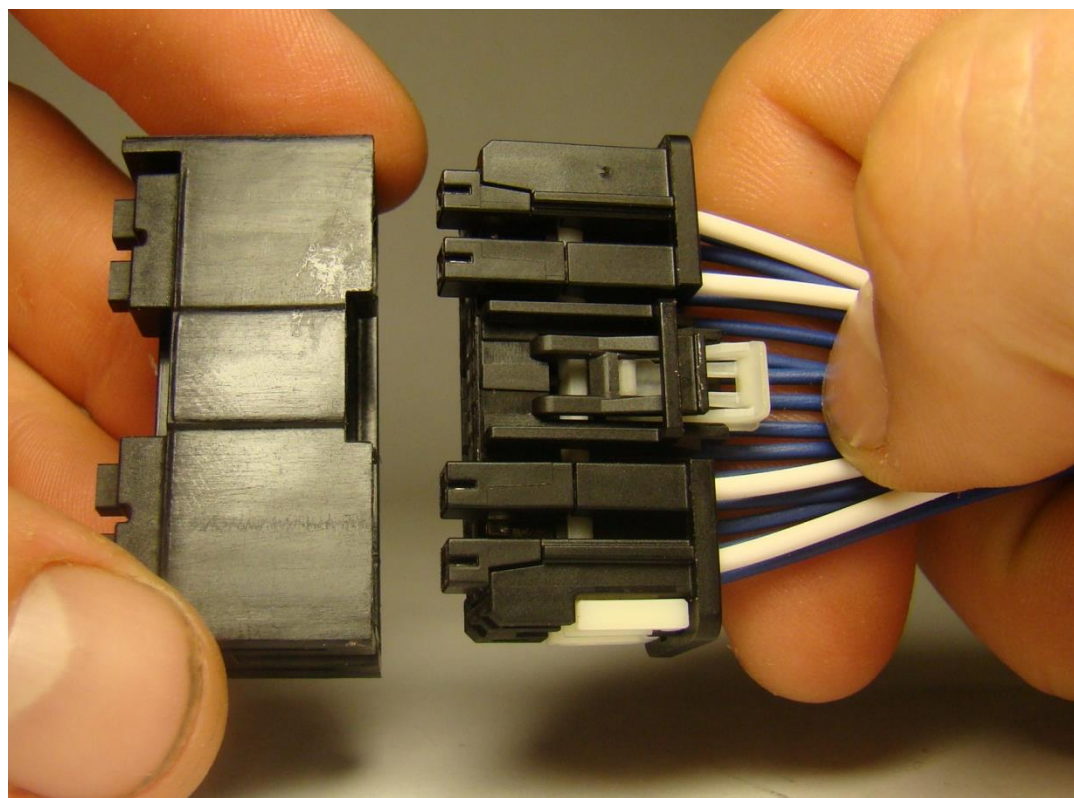

Push the connector together to unload the latch system. Depress the latch and hold.

Gently pull the connector assemblies apart.

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H. Opening the ISL
Insert a small screwdriver into the slot located on the ISL and gently twist the screwdriver to unlock the ISL. Then remove the ISL completely from the connector housing.

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I. Terminal Servicing
   For 0.50mm Terminals
    > With a small thumbtack, gently pry up on the terminal lock finger. Once the lock finger is released pull on the terminal to remove it from the housing. Connector housing may be damaged during servicing; inspect the terminal, housing, and lock finger for damage. Components must be replaced if damaged.

    Connector housing can be serviced up to two times, then it must be replaced.
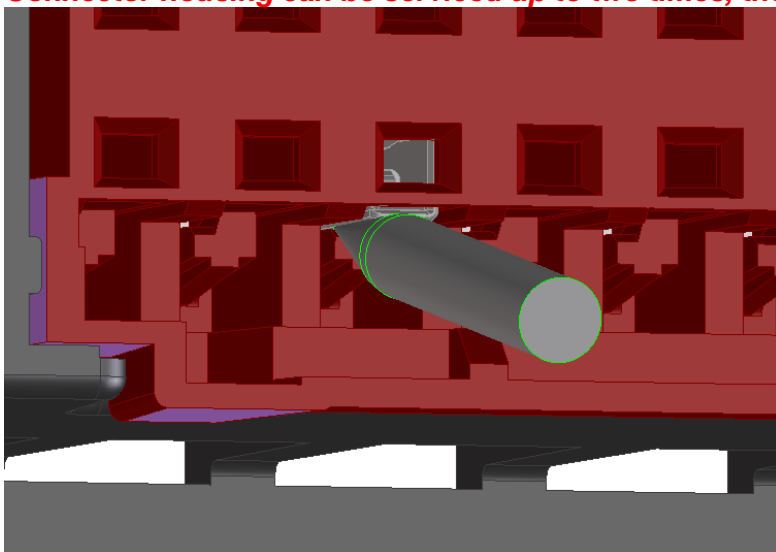
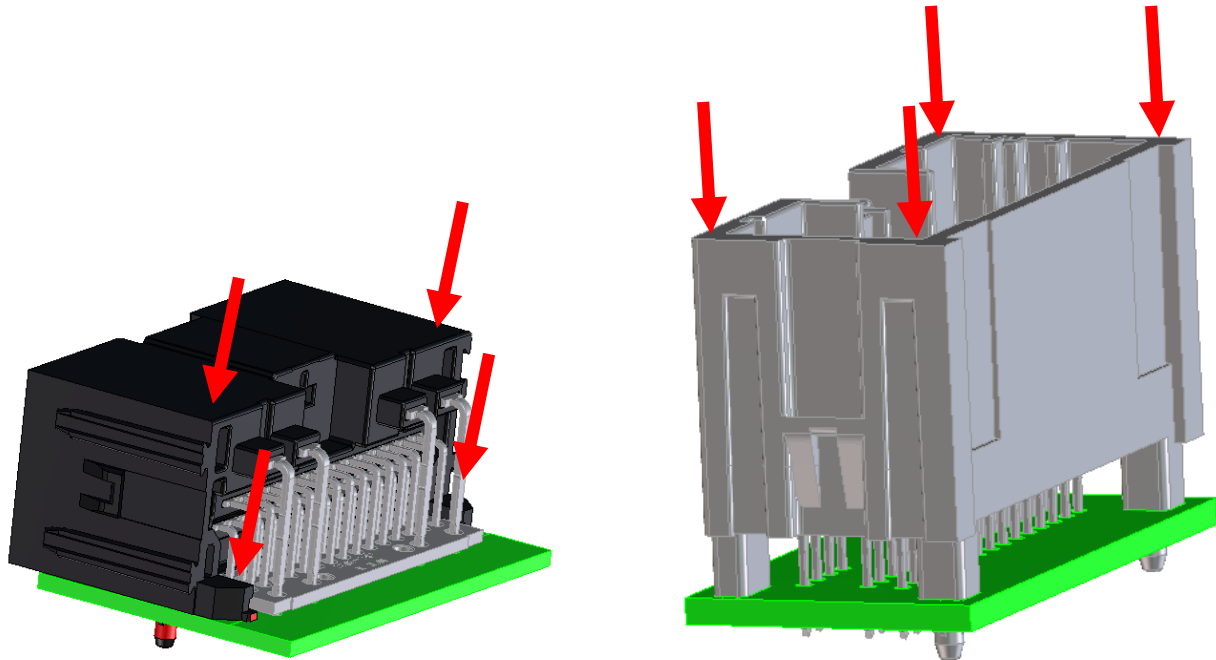   For 1.20mm Terminals
    > Using Tyco extraction tool 5-1579007-3, insert terminal servicing tool fully into the terminal servicing cavity like shown below. After confirming that service tool has been inserted fully, terminal can be removed from the connector.
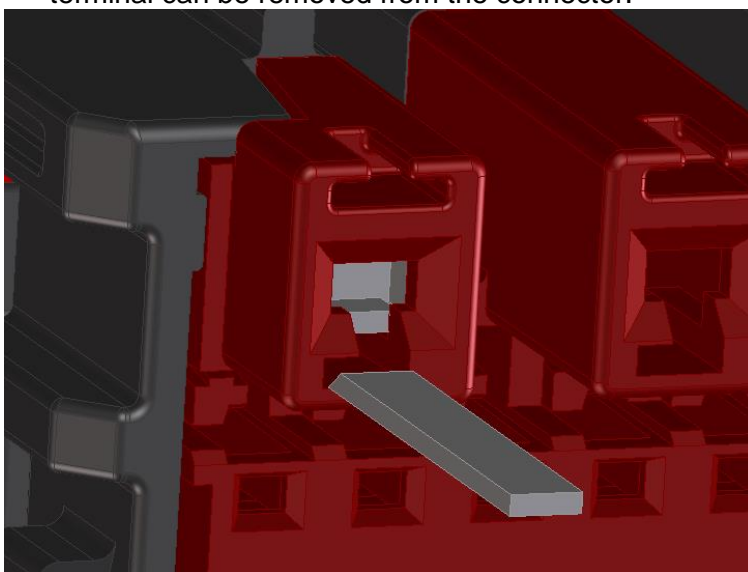
REVISION:	ECR/ECN INFORMATION:	TITLE:		SHEET No.
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J. Electrical probing, continuity checking
The method of probing used for this product is to use the throat of the terminal. Caution needs to be taken not to damage the terminals while probing.

4.1 ASSEMBLY INSTRUCTIONS:

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4.2 DRAWING DETAIL

BELOW ARE VIEWS FROM THE 2 BAY MINI50 STACKED HEADER DRAWING. 2 AND 3 BAY HEADERS WILL BE COVERED BY THE CORRESPONDING DRAWING.

WHEN LOOKING AT THE FRONT (MATE) SIDE OF THE HEADER IT CAN BE DETERMINED WHAT HEADER BAY'S ARE IN WHAT LOCATIONS. THE BAY LETTER REFERENCES (BAY 'A', BAY 'B', ECT.) ARE LOCATIONS ONLY AND DO NOT REPRESENT ANY PARTICULAR CIRCUIT SIZE OR KEY OPTION.

2-BAY MINI50 RIGHT ANGLE HEADER ASSEMBLY
(P/N 34960-0200 SHOWN)
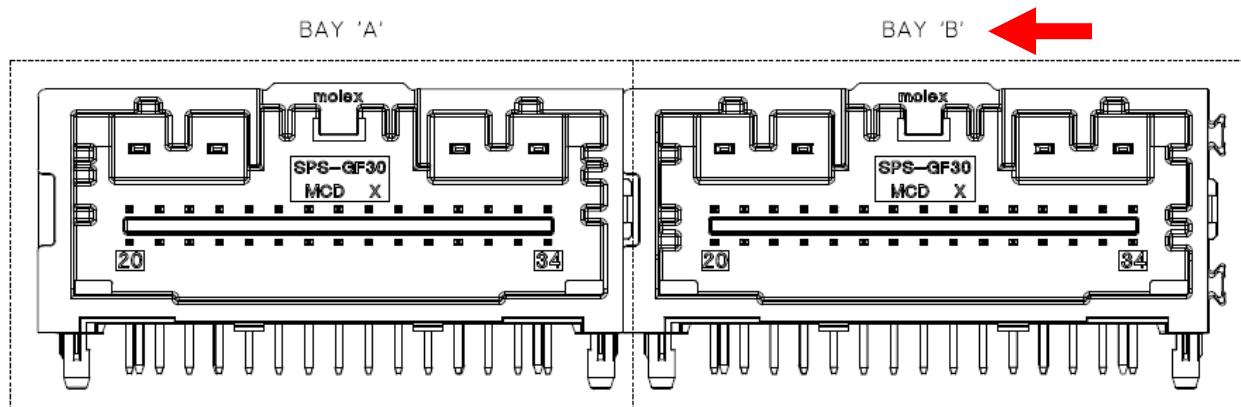
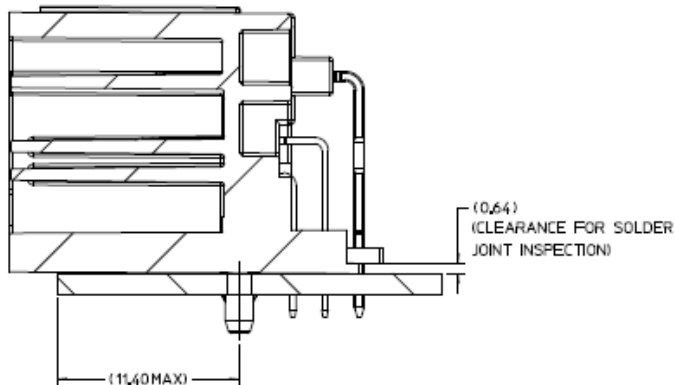DIMENSIONAL CHART FOR MULTIBAY CONFIGURATION:

2 BAY PART NUMBER (TUBE PKG)	2 BAY PART NUMBER (TRAY PKG)	BAY A			BAY B		
		CKT	TYPE	POL	CKT	TYPE	POL
TBD	34960-0200	34	HYBRID	A	34	HYBRID	B
TBD	34960-0210	38	0.50mm	A	38	0.50mm	B
TBD	34960-0220	34	HYBRID	A	38	0.50mm	B
TBD	34960-0230	38	0.50mm	A	34	HYRBID	B
TBD	34960-0240	38	0.50mm	B	38	0.50mm	A

THE HEADER 'BAY ID' SECTION ON THE CHART CORRESPONDS WITH THE LOCATION ON THE FRONT VIEW OF THE HEADER.

HEADER MOUNTING STRATEGY:

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(0,64)
(CLEARANCE FOR SOLDER JOINT INSPECTION)

(11,40 MAX)

FLUSH MOUNTING
HEADER-TO-PCB

BUILDING OF A PRINTED CIRCUIT BOARD LAYOUT:

NOTE: THE SAME BAY ID MUST BE USED FROM THE CHART

1. **REFERENCE CHART FOR WHAT CIRCUIT SIZE AND TYPE OF HEADER GO IN EACH 'BAY'**

RECOMMENDED PCB LAYOUT

⑧ 2X∅ 2,70 ±0,08
⑨ ⊕ ∅0,13 Ⓜ F-G

BAY 'A'

BAY 'B'

2x∅E ±0,08 ⑩
⊕ ∅0,13 Ⓜ F-G ⑪
REFER TO POST HOLE TABLE

REFER TO SD-34961-030
FOR INDIVIDUAL BAY LAYOUT

Partial1
SCALE 5:1

4,08

35,06

35,06

POST HOLE TABLE:

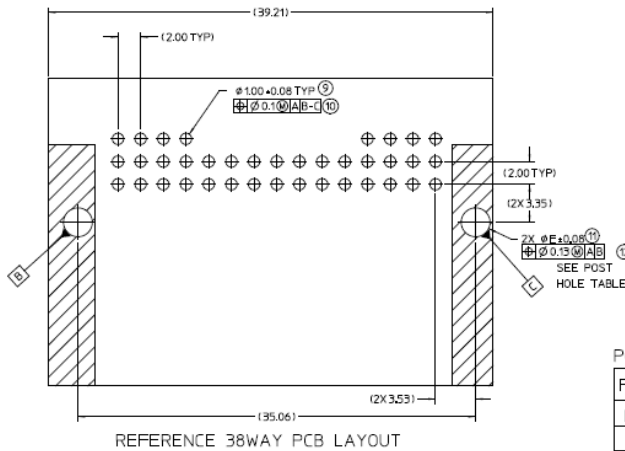| FOR DIM E:	
PRESS FIT:	2,30
DROP IN:	2,65

LOCATION.
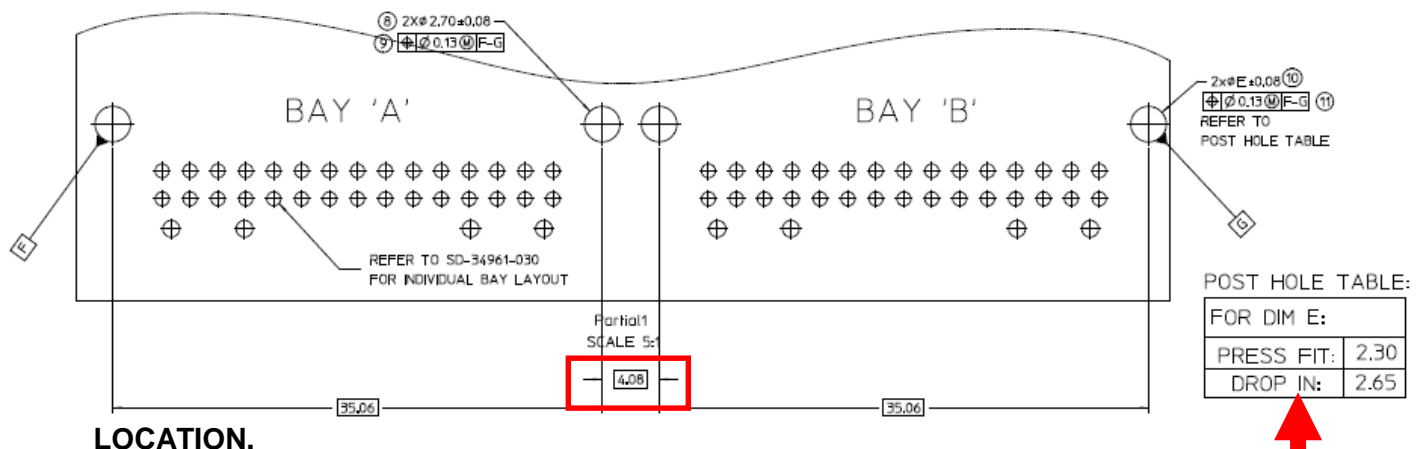
2. **DETERMINE IF HEADER MUST BE DROP IN CAPABLE OR IF PRESS FIT IS ACCEPTABLE. PRESS FIT IS RECOMMENDED AND WILL RETAIN HEADER DURING PROCESSING.**

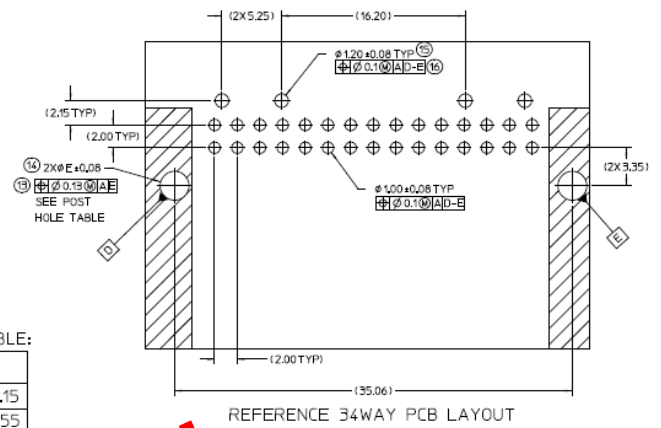3. **USING THE SINGLE HEADER LAYOUTS BELOW BUILD THE PCB LAYOUT OF THE MULTI-BAY**

HEADER BY SPACING ADJACENT POST HOLES AT 4.08mm.

POST HOLE TABLE:

FOR DIM E:	
PRESS FIT:	2.15
DROP IN:	2.55

REFERENCE 38WAY PCB LAYOUT

REFERENCE 34WAY PCB LAYOUT

4. PLACE NECESSARY PCB LAYOUT IN EACH 'BAY' LOCATION AT 4.08mm SPACING.

RECOMMENDED PCB LAYOUT

BAY 'A' BAY 'B' BAY 'C'

REFER TO SD-34961-030 FOR BAY PIN LAYOUT

POST HOLE TABLE:

FOR DIM E:	
PRESS FIT:	2.30
DROP IN:	2.65
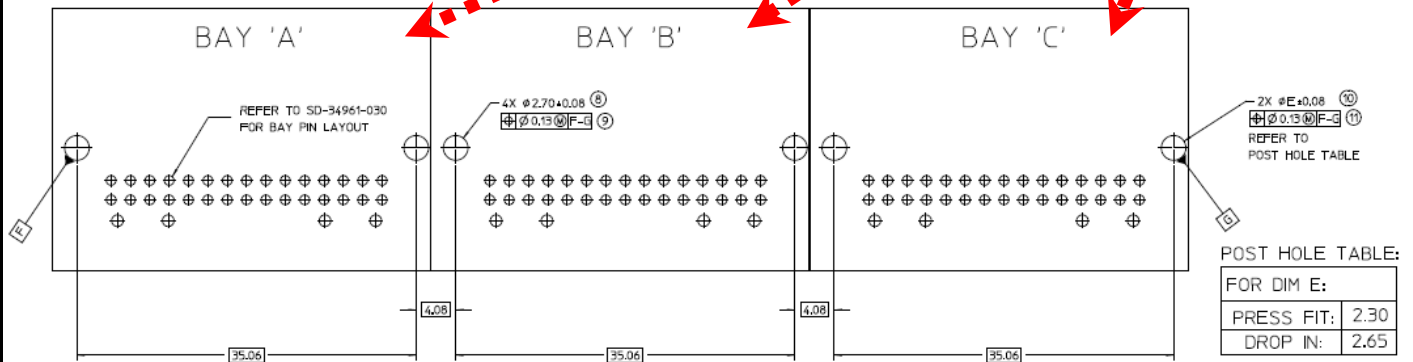
102CKT – 3 BAY HEADER FOOT PRINT – 34X34X34

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5.0 OTHER
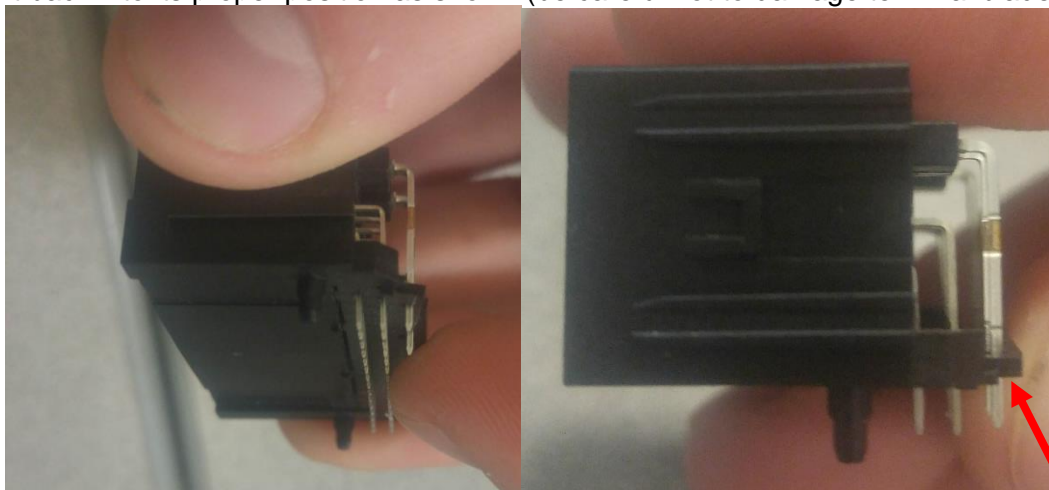
A. In some instances the PAP (Pin Alignment Plate) may become tilted during transit:
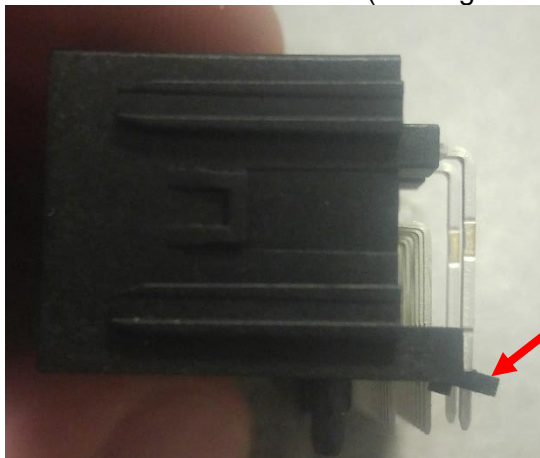
Tilted PAP

If the PAP shows evidence of tilting the part can be corrected by pressing on the PAP to push it back into its proper position as shown (be careful not to damage terminal blades):

Flat PAP

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A1	EC No: **114494** DATE: **2017 / 03 / 14**	**Molex 34 and 38 Way Mini50** **Application Specification**		**21** of **22**
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