MXP120 Sealed Connection System Application Specification

1.0 Scope: This manual contains supplemental information pertaining to the Molex 1.2mm Sealed product line, Molex series numbers 34899 and 34900

2.0 Product Description: The Molex 1.2 sealed system is a series of connectors with 1x2, 1x3, 1x4 and 1x6 terminal configurations, designed to be used with the following Tyco 1.2 MCON terminals

1452665-3	MCON-1.2 LL (Locking- Lance) Receptacle terminal (wire size 0.25 - 0.35mm²)
1452668-3	MCON-1.2 LL (Locking- Lance) Receptacle terminal (wire size 0.50 - 0.75mm²)
7-1452671-1	MCON-1.2 LL (Locking-Lance) Receptacle terminal (wire size 1.0 - 1.5mm²)
2141114-3	MCON-1.2 CB (Clean- Body) Blade terminal (wire size 0.25 - 0.35mm²)
2141116-3	MCON-1.2 CB (Clean- Body) Blade terminal (wire size 0.50 - 0.75mm²)
2177610-3	MCON-1.2 CB (Clean- Body) Blade terminal (wire size 0.75 - 1.0mm²) per TE DWG C-1718398

Or the following Kostal MLK 1.2 terminals

32124734110	MLK-1.2mm Single wire seal LL (Locking- Lance) receptacle terminal (wire size 0.35mm²)
32124734120	MLK-1.2mm Single wire seal LL (Locking- Lance) receptacle terminal (wire size 0.5mm²)
32124734130	MLK-1.2mm Single wire seal LL (Locking- Lance) receptacle terminal (wire size 0.75 - 1.0mm²)
ATS-638246300	Application Tooling Specification Sheet

Note: System is not approved for 1.5 mm² wire



Male Terminal Connector



Female Terminal Connector

3.0 Reference Documents:

3.1 Molex Drawings

SD-34899-2001	1.2mm Sealed Inline 1 x 2, 1 x 3 Blade Assembly
SD-34899-6001	1.2mm Sealed Inline 1 x 4, 1 x 6 Blade Assembly
SD-34900-2001	1.2mm Sealed Inline 1 x 2, 1 x 3 Receptacle Assembly
SD-34900-6001	1.2mm Sealed Inline 1 x 4, 1 x 6 Receptacle Assembly
SD-160091-0001	1.2mm Sealed Wire Dress Cover
PS-34900-0001	1.2mm Sealed Inline Product Specification
PK-31301-898	1.2mm Sealed Inline Packaging Specification
SD-34996-1501	Cavity Plug Pin
SD-34996-1901	Cavity Plug Seal





3.2 Tyco Drawings

C-1452674	Rev. C2	Single wire sealed receptacle terminals (Locking Lance)
C-1418754	Rev. C6	Single wire sealed blade terminals (Locking Lance)
C-1718398	Rev. B4	Single wire sealed blade terminals (Clean Body)
967056GEN	Rev. B1	Rubber plug for cavity DIA 3.45

3.3 Kostal Drawings

DOC00079128	Rev. 03	Single Wire sealed receptacle terminals (Locking Lance)

4.0 Procedure

4.1 General Requirements:

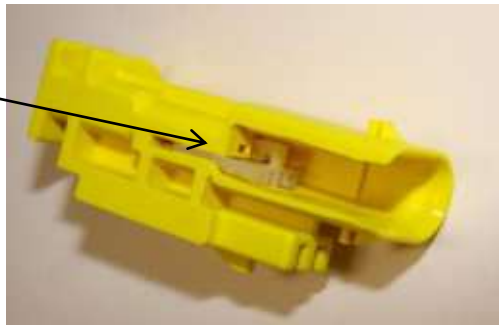
4.1.01 Receptacle Terminals

4.1.02 Blade Terminals

4.2 Assembly Instructions:

4.2.01 Connector Assembly, as shipped:

Cutaway view of male connector shown for clarity





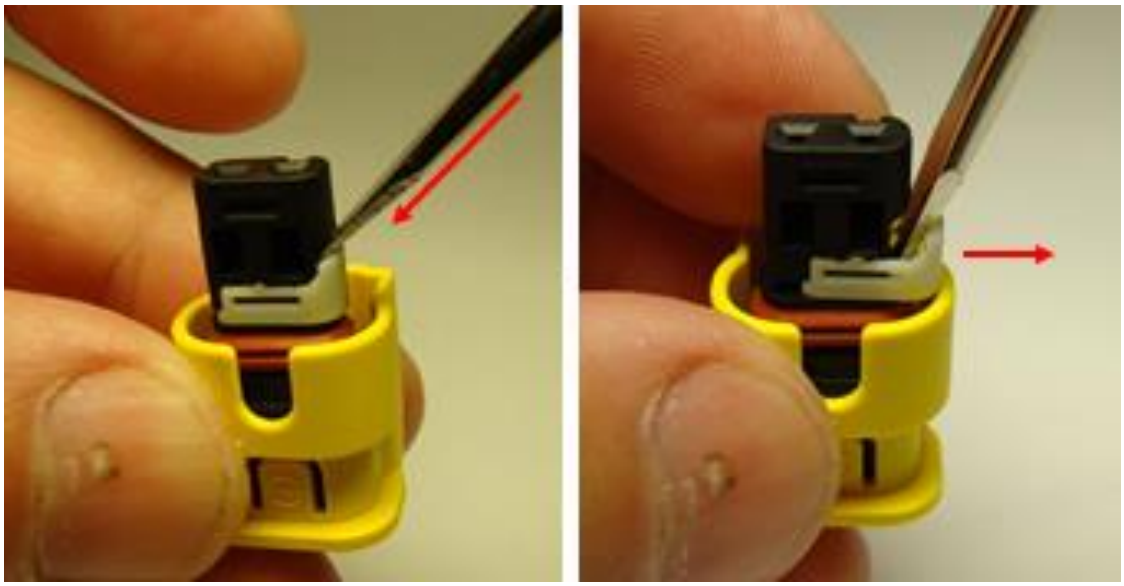
The PLR/ISL is shown in the as shipped position. The PLR/ISL should remain in the pre-lock position until all circuits are fully loaded.

THE PLR/ISL SHOULD NEVER BE REMOVED FROM THE ASSEMBLY!

4.2.02 ISL “slide to pre-lock”

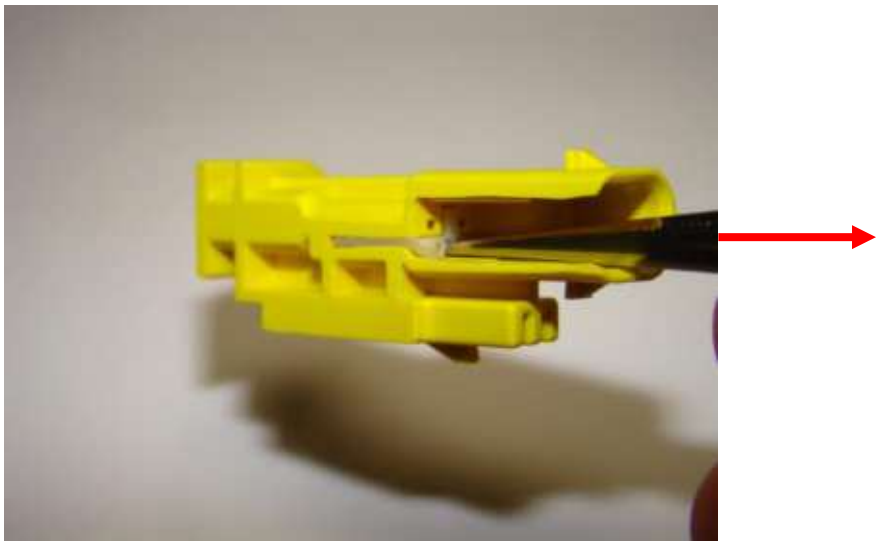
If during shipping the ISL of receptacle connector moves from its pre-lock position, it must be moved back to its pre-lock position. The ISL must be in pre-lock position to populate the connector. Slide a small (3.5mm maximum) flat tip blade screwdriver under the edge of the ISL on one side. Using the blade of the screwdriver gently slide the ISL out.

THE ISL SHOULD NEVER BE FULLY REMOVED!



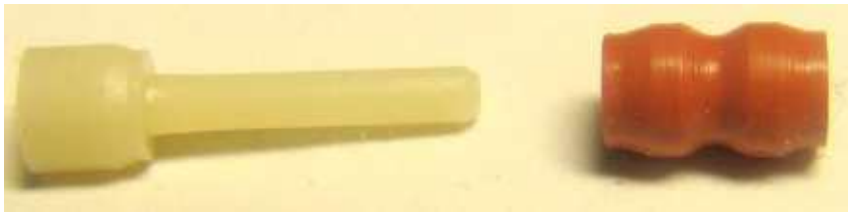
4.2.03 If during shipping the PLR of blade connector moves from its pre-lock position, it must be moved back to its pre-lock position. The PLR must be in pre-lock position to populate the connector. Using a set of serrated tip tweezers (refer to section 5.0 for details), grab the center rib feature of the PLR in order to lift the PLR to the pre-lock position.

The PLR should never be fully removed!

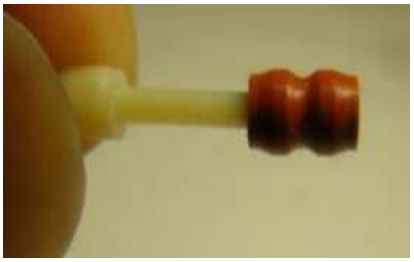
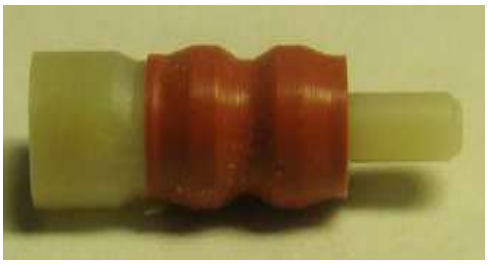


4.2.04 Molex Cavity Plug Installation

4.2.04.1 A 2-piece assembly is available for plugging un-used circuits in the connector assembly. This assembly consists of a seal, part number 349961902 and a plastic pin, Part Number 349961501. The cavity plug should be installed prior to terminal insertion.



4.2.04.2 The seal is to be installed over the long, cylindrical portion of the pin and pressed on until it contacts the head of the pin

4.2.04.3 The cavity plug assembly can then be installed into the connector.

- Insert the plug assembly into the circuit you wish to plug and carefully press the cavity plug in until the head of the pin is flush with the surface of the connector





NOTE: Care must be exercised while installing the cavity plug assembly such that the seal is not pinched. A pinched seal may increase the force required to completely seat the cavity plug.



4.2.05 TE Cavity Plug #967056-1

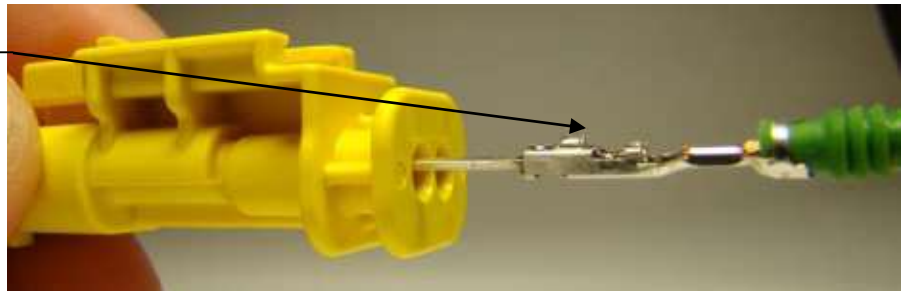
4.2.05.1 Installation per TE Application Specification 114-18025



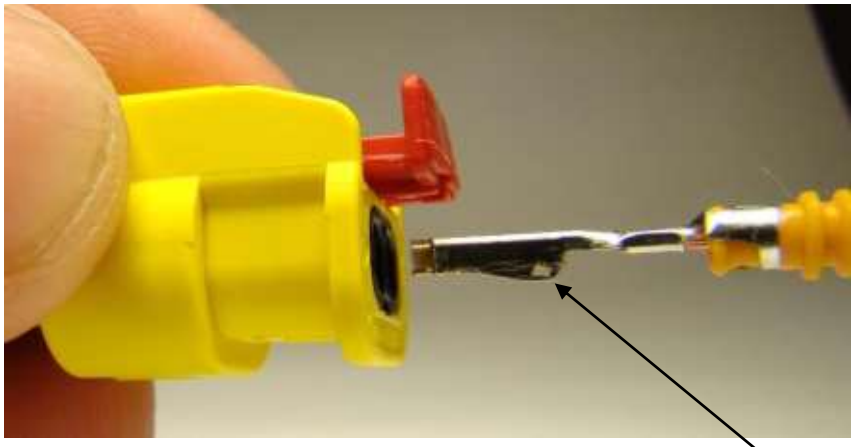
4.2.06 Terminal Installation – Blade and receptacle

4.2.06.1 With ISL/PLR in pre-lock position, orient terminal to rear of connector. Grip the wire no less than 1.25 inches from the terminal insulation crimp and insert through 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 and ensure by pulling the wire gently, following **"PUSH, CLICK, and PULL"**.

Cable seal terminal orientation feature (proper orientation)





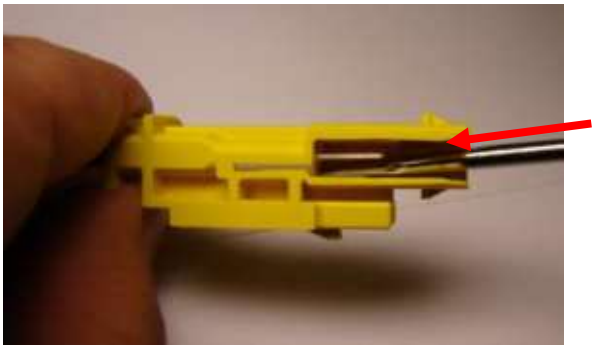




Cable seal terminal orientation feature (proper orientation)

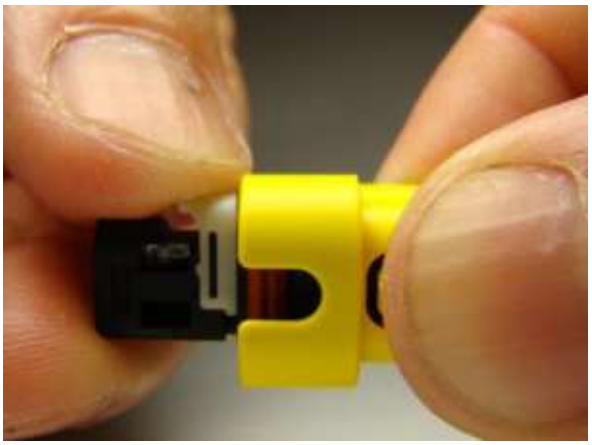
After installing the terminals, use a small (3.5mm maximum) flat tip screwdriver to seat the PLR. Care must be exercised to prevent damaging the terminal blades.





PLR Insertion Force (Max. Required)	30N Max.
PLR Insertion Force (Actual Recorded)	2.4N Max, (Avg. 2.16N)
PLR Insertion Force (Min. Required) (for improperly seated terminal)	40N Min.

After Installing the terminals, push the ISL into the lock position.



If the ISL is difficult to seat, verify that all terminals are seated properly.

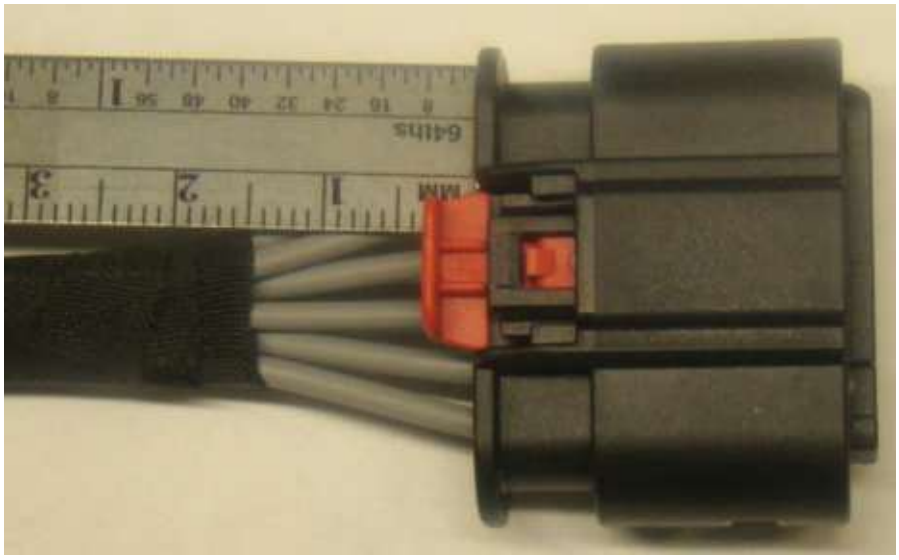
ISL Insertion Force (Max. Required)	30N Max.
ISL Insertion Force (Actual Recorded)	14.10 N Max, (Avg. 8.6N)
ISL Insertion Force (Min. Required) (Terminal not fully seated)	60N Min.

4.2.07 Harness taping recommendation

There should be a minimum of 15mm between the back of the connector and the tape used on the wire harness.

The PLR/ISL must be closed prior to the taping operation.

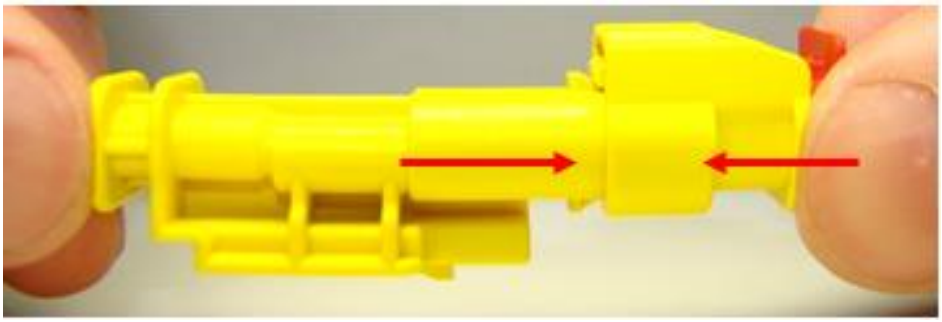
The tape must not contact the connector housing.

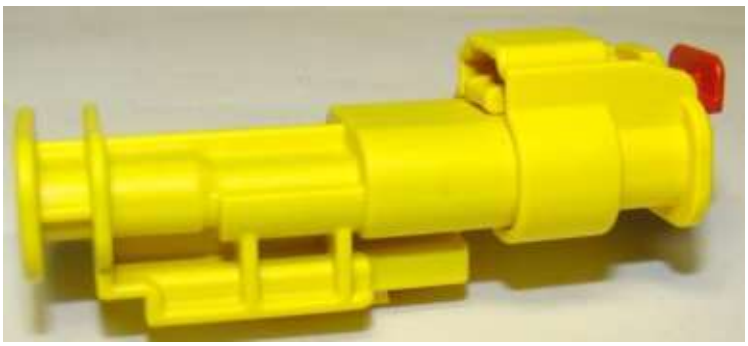


4.3 Connector Mating

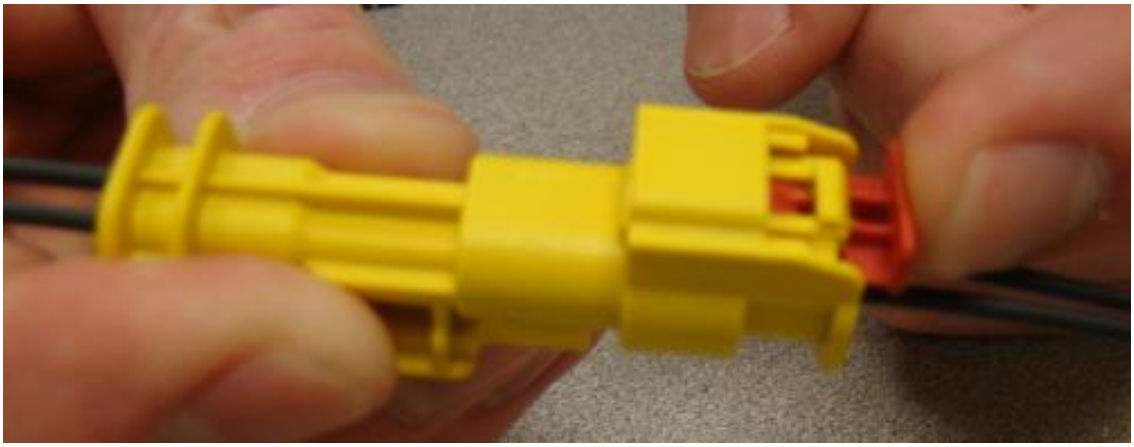
4.3.01 Begin mating procedure by sliding the connector and header together, press firmly until the connectors are fully mated and locked

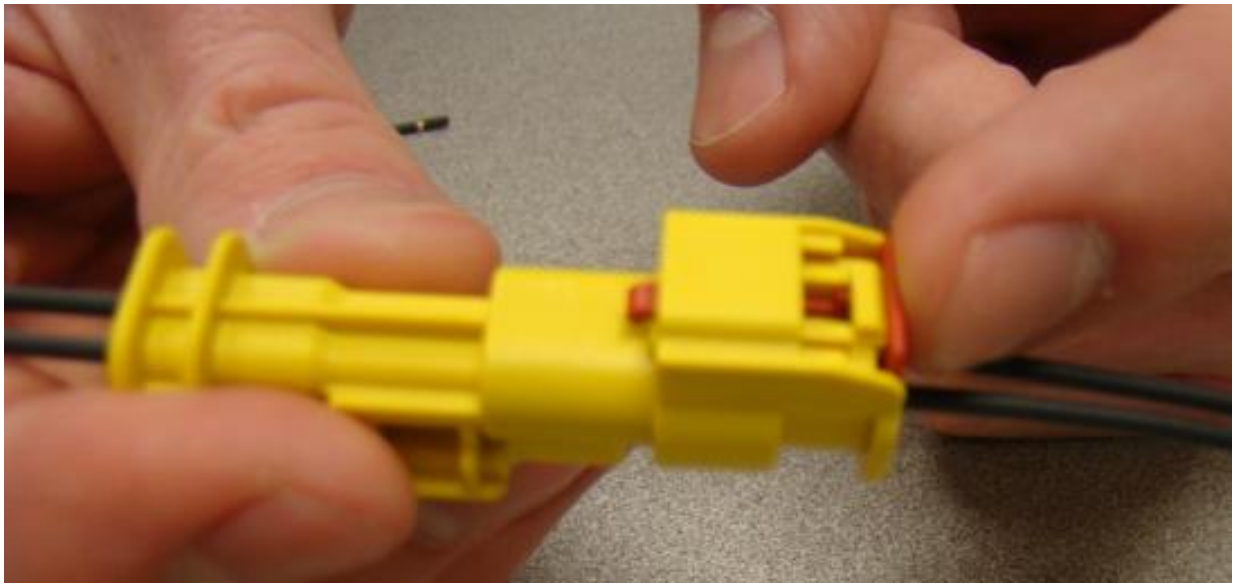






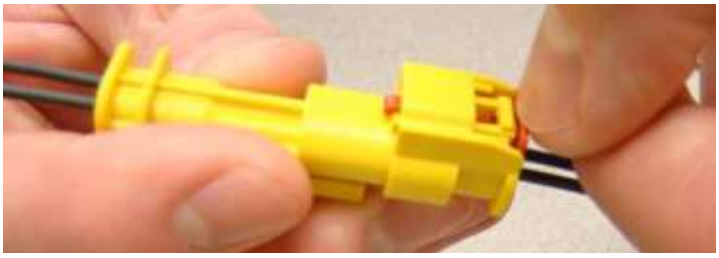
4.3.02 Once the connector halves are mated, seat the CPA by pressing in the center of the CPA until positive engagement is felt

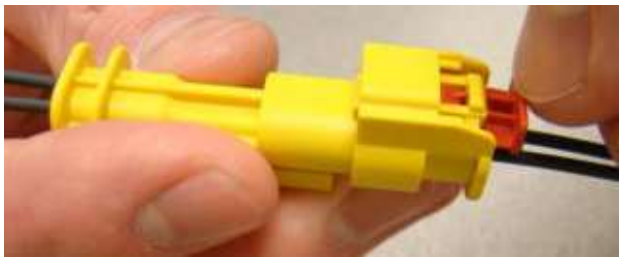




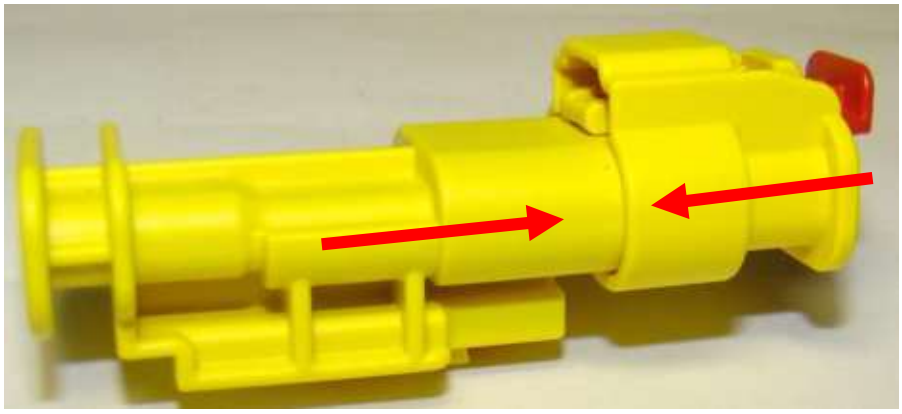
4.4 Connector Un-mating

4.4.01 Disengage the CPA by pulling back as shown

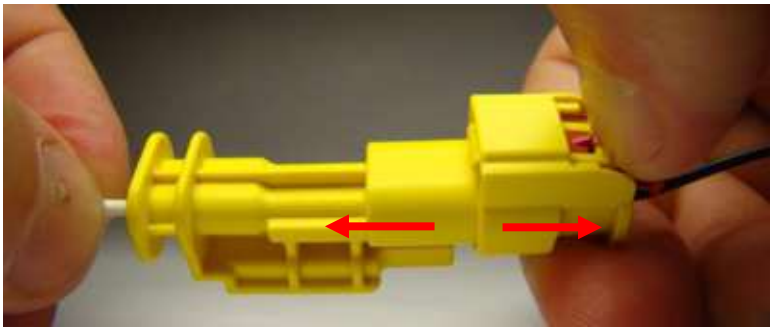




4.4.02 Push the connector halves together to unload the pressure on the latch system



4.4.03 Depress the latch with your thumb and hold it down while gently pulling the connector halves apart



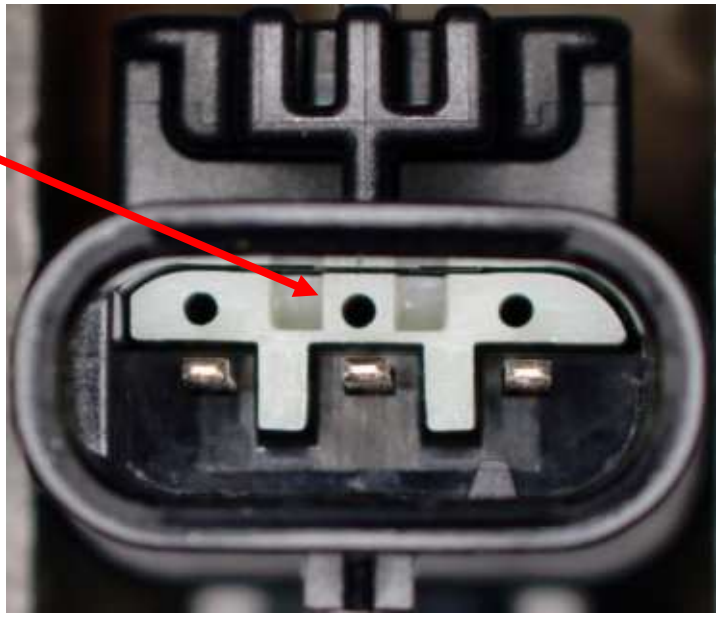
4.5 Terminal servicing

4.5.01 Male Connector

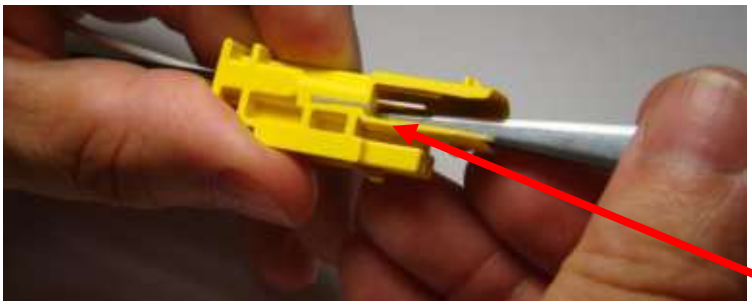
4.5.01.1 Lift the PLR to the pre-lock position using a set of serrated tip tweezers (refer to section 5.0 for details); grab the center rib feature of the PLR and lift the PLR to the pre-lock position.

THE PLR SHOULD NEVER BE FULLY REMOVED!

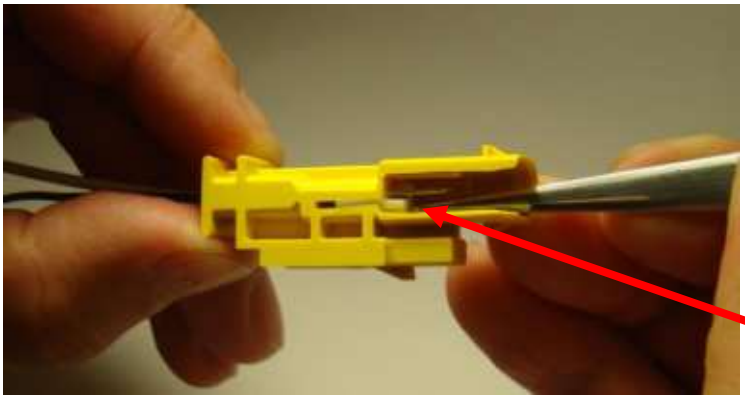
Use serrated, medium tweezers to lift PLR to pre-lock position. Grab the center rib feature of the of PLR



Magnified view (male connector)

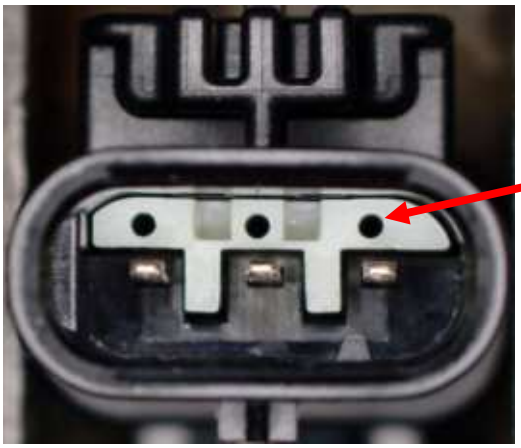


PLR in locked position

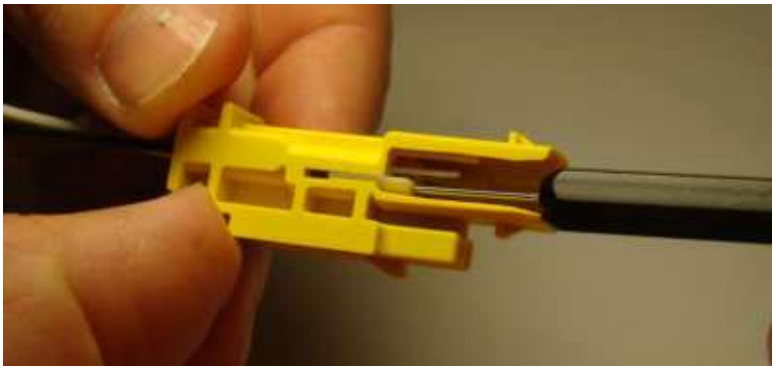


PLR in unlocked position

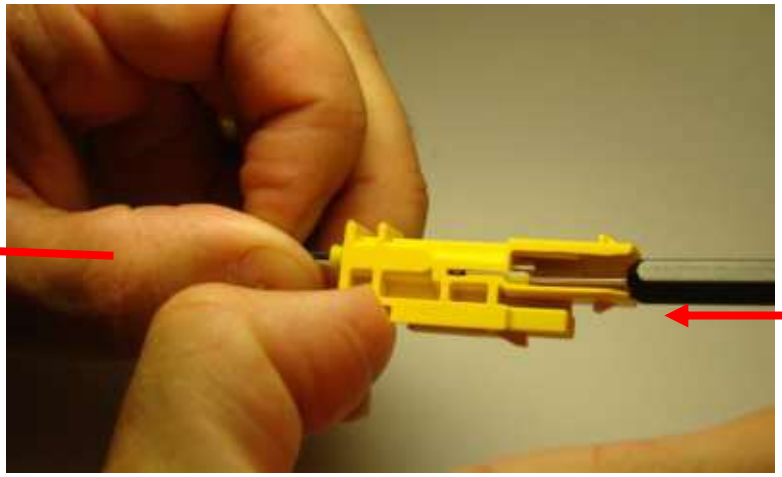
4.5.01.2 Disengage the terminal lock finger by inserting the service tool (Molex #63824-2900) through the service hole in the PLR. Push straight down gently and apply pressure to release the lock finger/ This motion will release the lock finger, “picking” is not required



Holes to insert service tool to disengage terminal



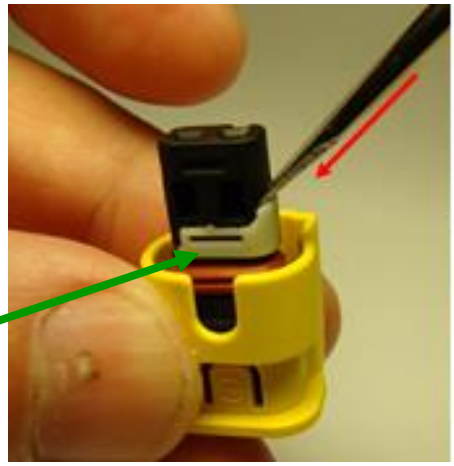
4.5.01.3 While holding pressure on the lock finger with the service tool, gently pull on the wire to remove the terminal



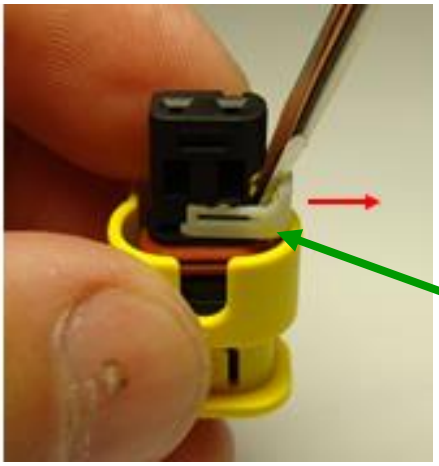
4.5.02 Female connector

4.5.02.1 Slide a small (3.5mm maximum) slotted tip screwdriver under the edge of the ISL on one side. Using the blade of the screwdriver gently slide the ISL out.

THE ISL SHOULD NEVER BE FULLY REMOVED!

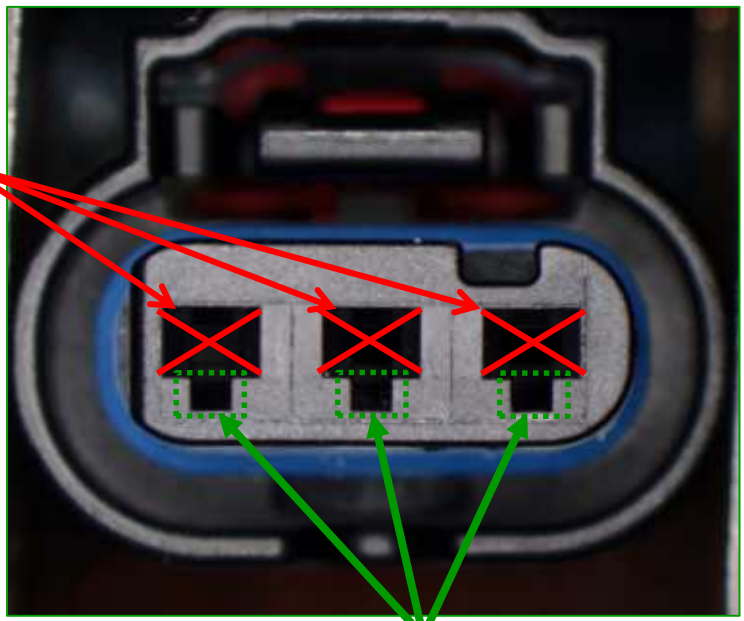


ISL in locked position



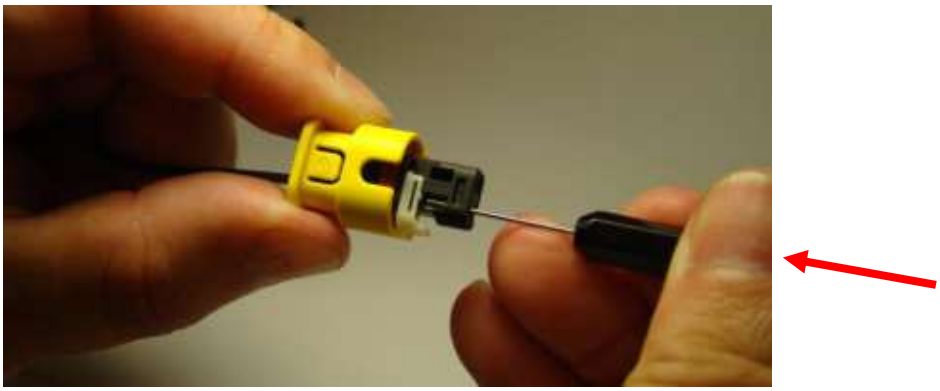
ISL in unlocked position

Do not insert the service tool in to the receptacle terminal; damage to the contact beam will occur

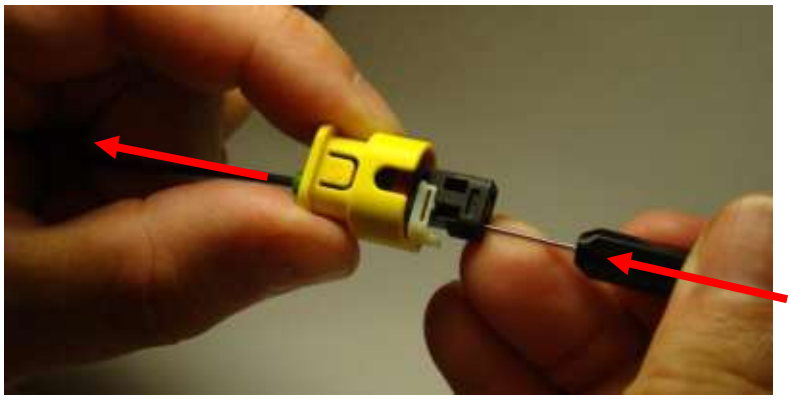


Magnified view showing Service hole to insert tool to disengage the terminal

4.5.02.2 Disengage the terminal by inserting the service tool (Molex #63824-2900) through the service hole in the PLR. Push straight down gently and apply pressure to release the terminal, “picking” is not required



4.5.02.3 While holding pressure on the terminal release feature with the service tool, gently pull on the wire to remove the terminal.



4.6 Electrical Continuity Checking

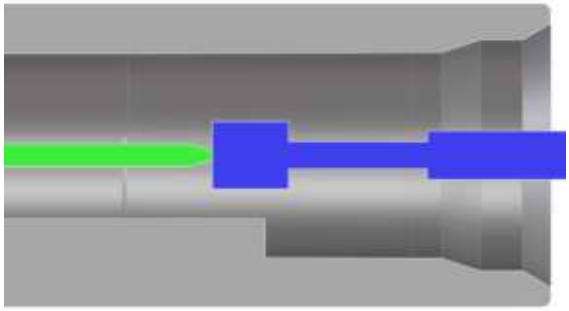
4.6.01 Male Connector

4.6.01.1 Recommended Pogo Pin

Lone Star Industrial part number LS054RS-318 with the standard spring force (3.7oz) option (or equivalent).

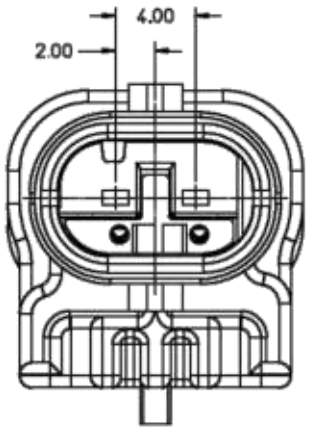
www.lonestarindustrial.com

4.6.01.2 Pogo Pin Contact Point

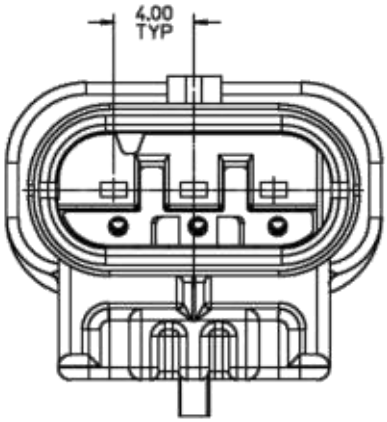


The pogo pin is positioned to contact the tip of the blade terminal.

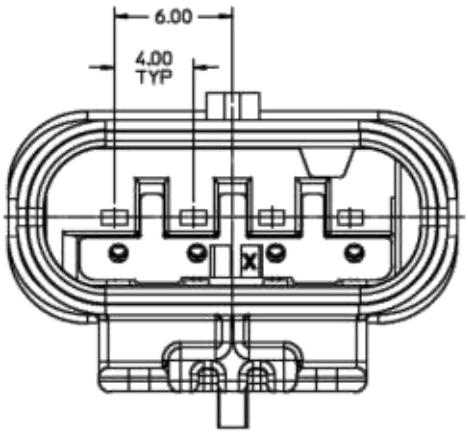
4.6.01.3 Pogo Pin Patterns



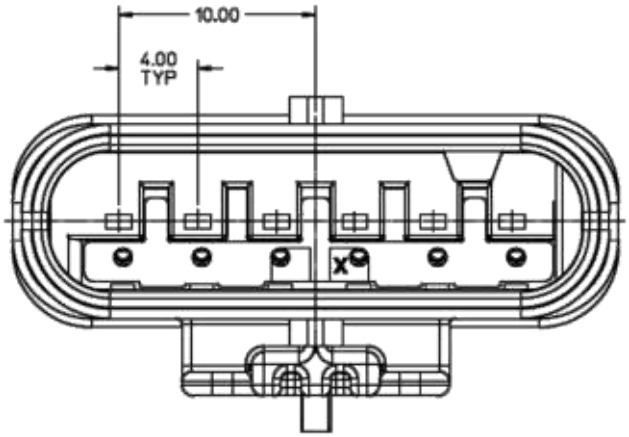
1 X 2



1 X 3



1 X 4



1 X 6

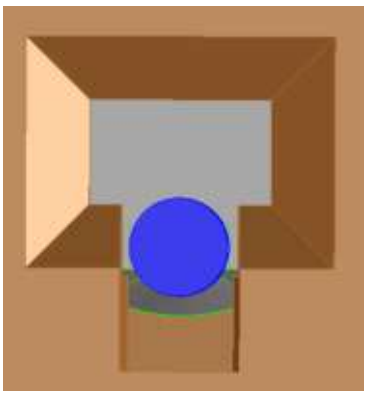
4.6.02 Female Connector

4.6.02.1 Recommended Pogo Pin

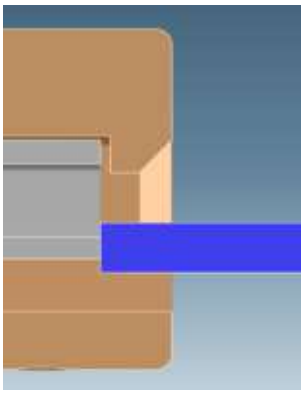
Lone Star Industrial part number LS054RS-312 with the standard spring force (3.7oz) option (or equivalent).

www.lonestarindustrial.com

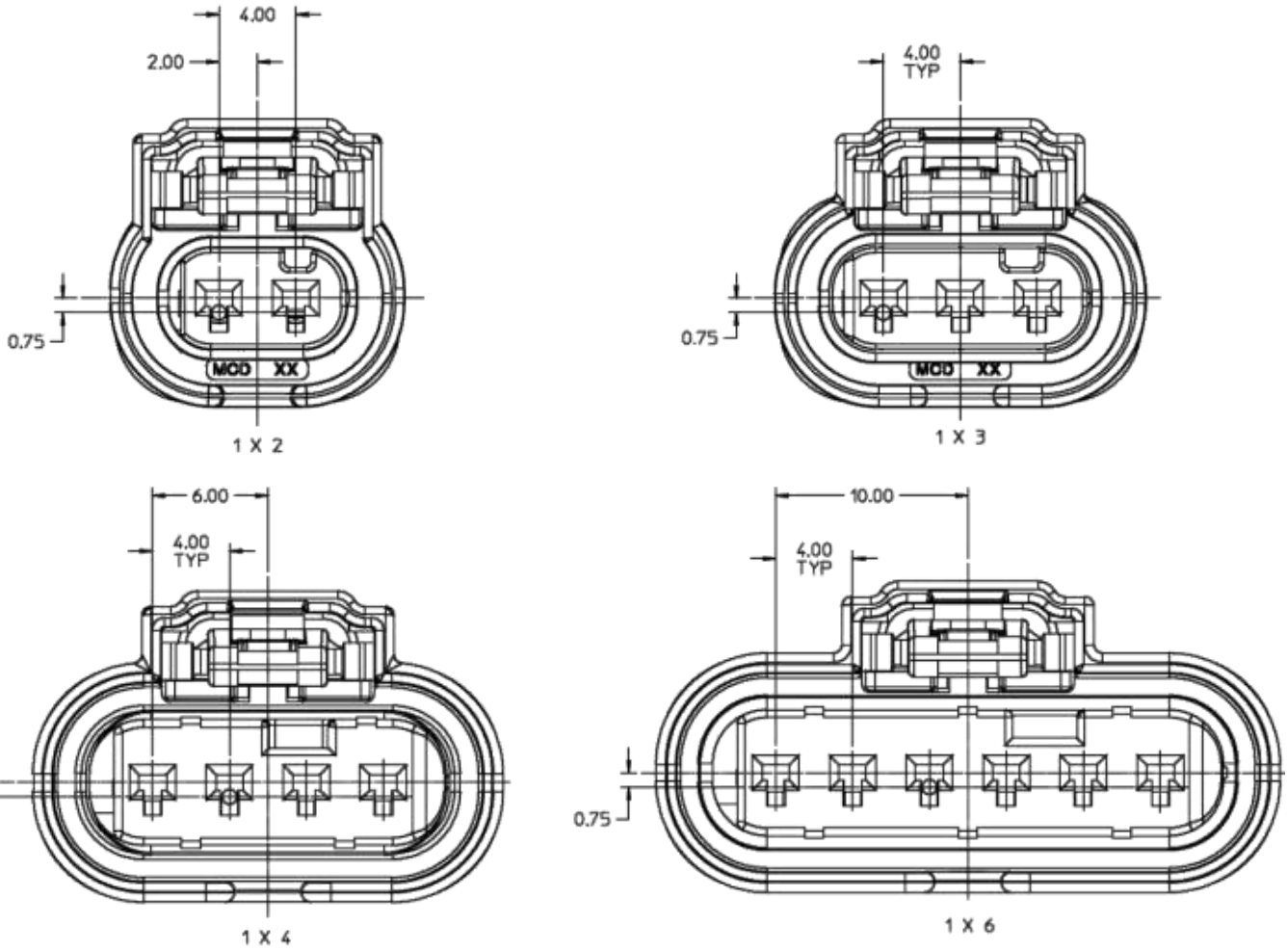
4.6.02.2 Pogo Pin Contact Point



The pogo pin is positioned to contact the visible edge of the terminal box located within the terminal service hole



4.6.02.3 Pogo Pin Patterns



NOTE: To design electrical counterpart to detect terminal pushed out (TPO) conditions, refer to PLR insertion force requirements table defined in section 4.2.06.1

5.0 Service tool information

5.1 Slotted tip screwdriver with a maximum tip width of 3.5 mm

5.2 Straight tip, serrated, medium point tweezers

5.2.01 Reference: http://www.excelta.com/product_categories/general-purpose-tweezers/products/straight-tip-medium-point-tweezer





5.3 Terminal service tool: Molex Part Number 638242900



5.4 Alternative Terminal Service tool: GM #J-38125-22



5.5 Application Tool Specification (ATS)

Kit P/N: 638246300 – Application Tooling Specification Sheet contains all service tools required for this product

6.0 Revision Information

Revision	Date	Description
1	8/1/2012	Initial draft
A	1/30/2014	Updated with 1x3, 1x4 CKT sizes and added Kostal terminal part#
B	6/27/2014	Removed Tyco 'Locking Lance' blade terminals, Added photos of service tools
C	1/21/2015	Removed USCAR interface drawing information; Added cavity plug installation procedure. Added GM service and probe tool information.
D	3/16/2015	Added fixture probing information. Removed GM probing tool information.
D1	4/27/2015	Added taping recommendation
D3	12/08/2015	LL terminal added for 1.0 – 1.5mm² wire size. Addition of TE Cavity Plug #967056-1.
D4	12/15/2016	Added dress cover drawing ref. - Section 3.1, Added PLR insertion force table - Section 4.2.06.1, Added ISL insertion reference note - section 4.6.02.3