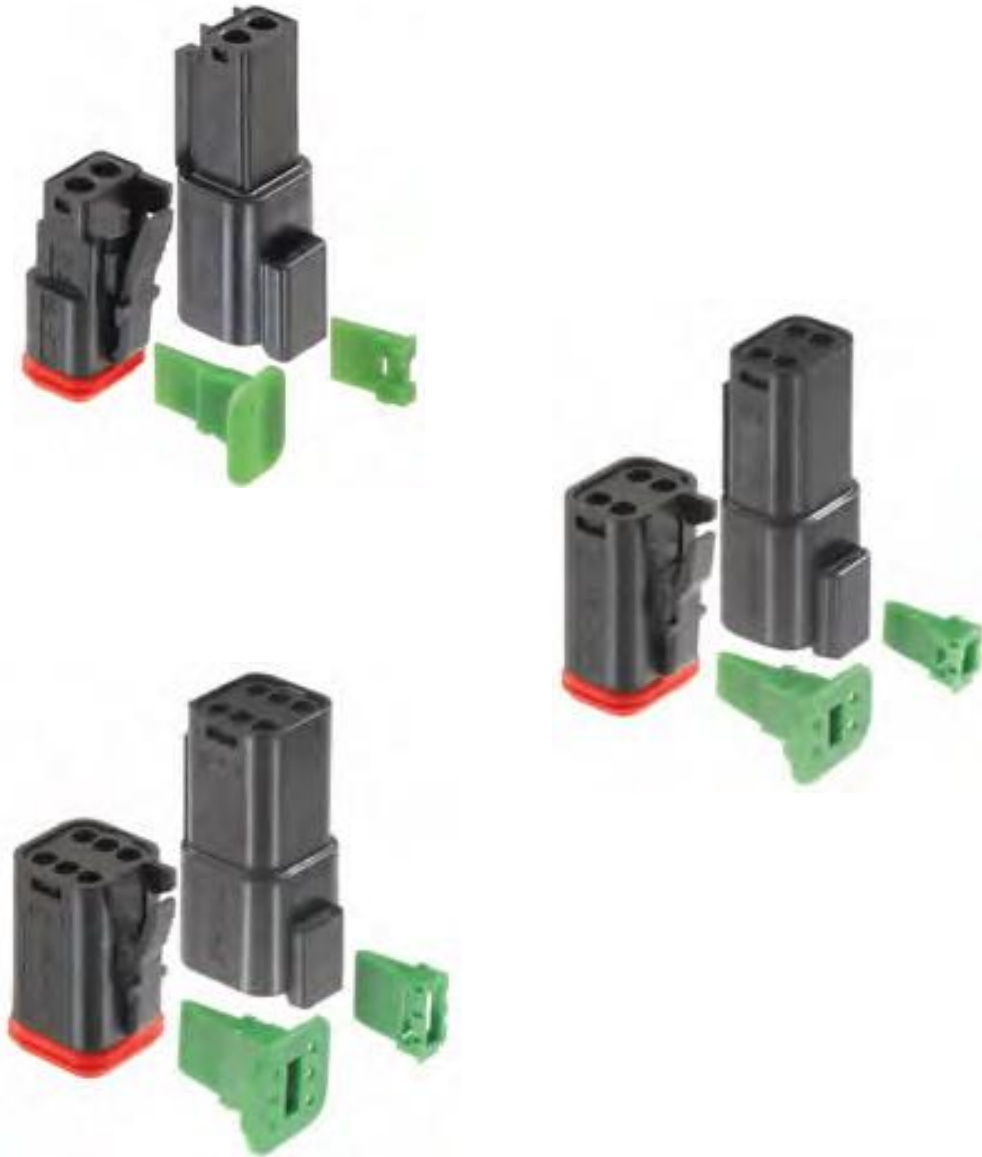


ML-XT™ SEALED CONNECTOR SYSTEM



REVISION: A4	ECR/ECN INFORMATION: EC No: 120537 DATE: 20170825	TITLE: ML-XT™ Assembly Guide	SHEET No. 1 of 13
DOCUMENT NUMBER: 934430010 PS A	CREATED / REVISED BY: JFLETCHER/FDUGGAN	CHECKED BY: JFLETCHER	APPROVED BY: JDWALLACE

1.0 SCOPE

This document describes the correct procedure for the assembly of the ML-XT connector system, including contact insertion, wedgelock insertion/withdrawal, contact removal and connector mating/unmating.

2.0 PRODUCT INFORMATION

DESIGN CHARACTERISTICS

PERFORMANCE CHARACTERISTICS

One-piece plug housing and seal design, permanently bonded by two-shot LSR (liquid silicone rubber) molding technology

Prevents fluid ingress; system is IP68-rated and J2030 power-wash test capable Prevents loss/ misalignment of seal; ensures repeatable retention during unmating and mating of plug and receptacle

Drop in replacement for de-facto industry standard connectors

Achieves superior reliability without the need for costly re-design

Rear seals made from HCR (high consistency rubber)

Provides greater tear-resistance over LSR material; prevents damage to rear seal during terminal insertion/ extraction

Latched rear covers

Locks in rear HCR seals Allows for flexible cable exits and cable movement whilst maintaining optimum seal position to prevent leak paths

Plug and receptacle housings are supplied pre-assembled with internal HCR rear seals locked-in by rear covers

Reduces inventory, assembly time and costs for harness manufacturers and prevents loss of rear seals for a cost-competitive mated system

Utilises Molex proven XRC™ terminals with current ratings up to 13.0A

Supports tooling widely used at harness makers

High terminal retention force; exceeds 111N (Subject to use of cable with sufficient tensile strength to sustain 111N load)

Withstands high axial pull-out forces per J2030 specification

Wedgelock / TPA (Terminal Position Assurance) loaded after terminals

Locks terminals in position for secure electrical contact

Plug housing features integral locking latch

Ensures secure mating of plug and receptacle

9 colour-coded housings available

Enables easy visual mating of harnesses to prevent mis-mating

Keying options available across multiple circuit sizes

Prevents mis-mating of different circuits

Unmating features present on terminal retention fingers

Enables easy extraction of terminals

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3.0 REFERENCE DOCUMENTS

This instructions manual contains supplemental information pertaining to the Molex ML-XT sealed connector system. Additional information such as keying, colours etc... can be found on the Sales & Assembly drawings:

93443**** PSD (multiple documents)
 84525**** PSD (multiple documents)
 84524**** PSD (multiple documents)
 936400020 PSD
 936410010 PSD
 ATS-63824-5300

Plug & Receptacle Sales Drawings
 Socket Contact, (Stamped & Formed), Sales Drawings
 Pin Contact, (Stamped & Formed), Sales Drawings
 Socket Contact, (Solid), Sales Drawings
 Pin Contact, (Solid), Sales Drawings
 ML-XT Removal Tool Specification

4.0 PRODUCT SUMMARY

4.1 CONNECTOR ASSEMBLY

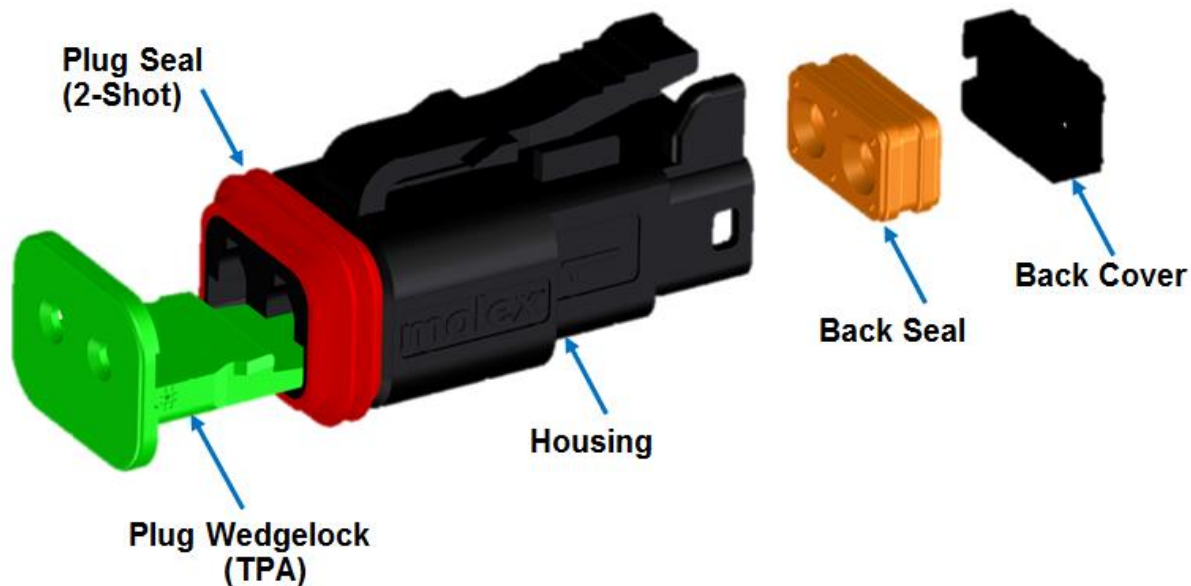


Figure 1: 2cct Plug Connector

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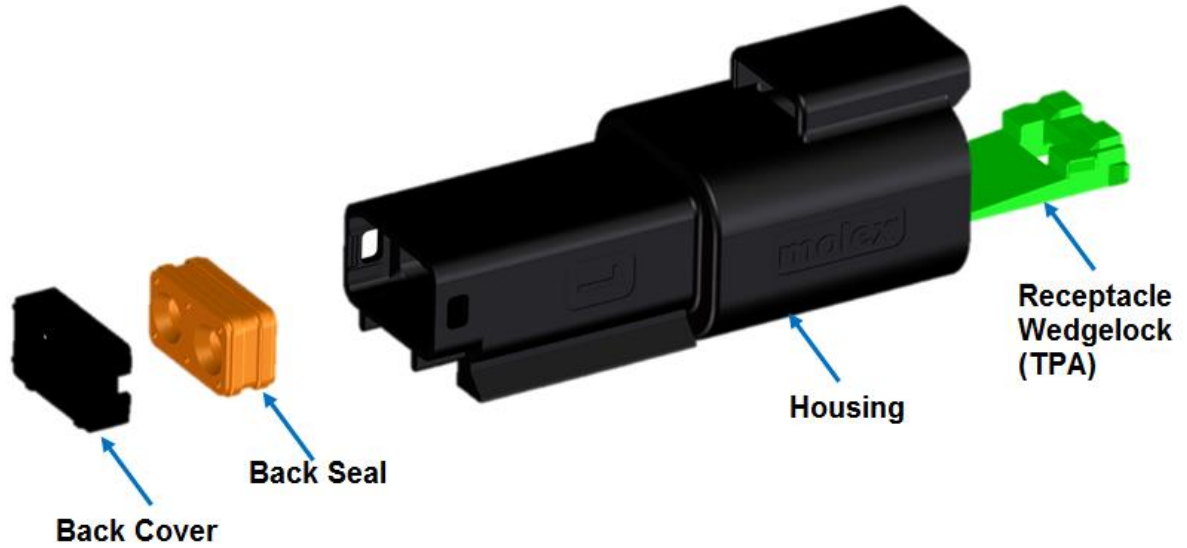


Figure 2: 2cct Receptacle Connector

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4.2 PIN/SOCKET TERMINAL



Figure 3a: Pin Terminal, Stamped & Formed



Figure 1b: Pin Terminal, Solid

Terminal Features

Base Material - Copper Alloy
 Plating Options - Nickel, Gold
 Wire Sizes: 14, 16, 18, 20 AWG
 1.5, 1.0, 0.8, 0.75, 0.5 mm²



Figure 4a: Socket Terminal, Stamped & Formed



Figure 2b: Socket Terminal, Solid

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4.3 PRODUCT IDENTIFICATION

All parts are laser etched with:

- Date Code (D WW YY)
 - D = DAY of the week (1 To 7)
 - WW = Week of the year (01 to 52)
 - YY = Last two digits of the Year (01 – 99)

Note – Location for Date Codes can be found on Customer Drawings



MOLEX DATE CODE

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4.4 CONNECTOR ASSEMBLY

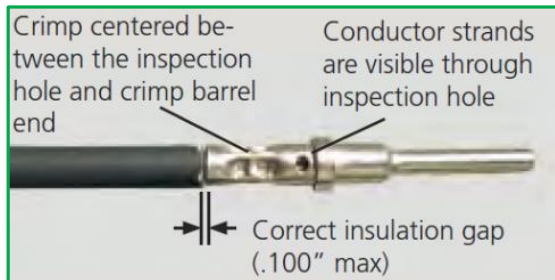
4.4.1 TERMINAL CRIMPING

Crimping tools provide lower total installation and maintenance costs. However, controls are required to help ensure that the proper crimp tools designed for the type and size contact are used, the pin or socket is properly inserted into the tool, the wire insulation is stripped properly, and the wire fully inserts into the contact.

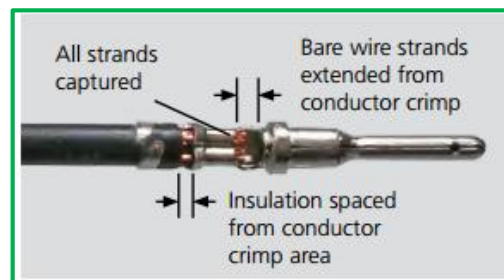
When a crimp is completed, the crimp can be visually inspected. The inspector should check for:

- The removed insulation should expose a conductor length that is specified in the application tooling specification.
- Wire strands intact.
- All wire strands are in the conductor crimp barrel.
- Wire is inserted to the correct depth in the terminal.
- The Insulation crimp heights and width should be equal to or less than that of the cable it is crimped to **(Note: Bad Insulation crimps can lead to difficult terminal extraction)**

ACCEPTABLE CRIMPS



Solid Contact (Cable Strip Length 6.35 to 7.92mm Reference)

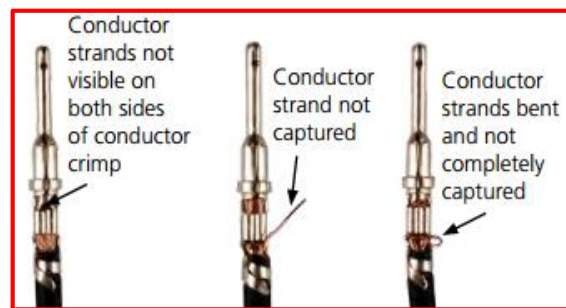


Stamped & Formed Contact

UNACCEPTABLE CRIMPS



Solid Contact

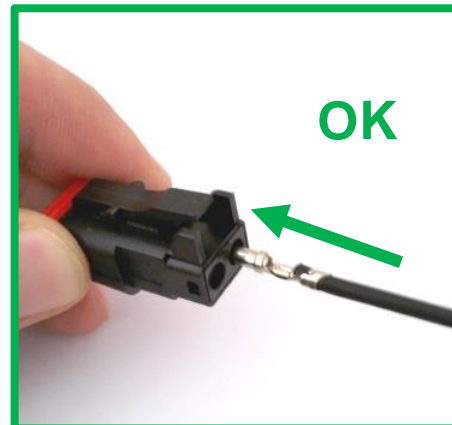


Stamped & Formed Contact

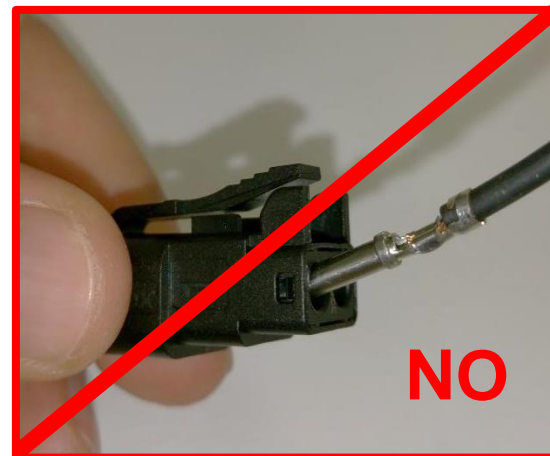
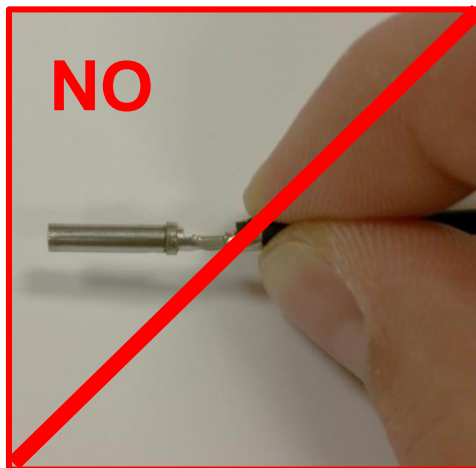
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4.4.2 TERMINAL INSTALLATION

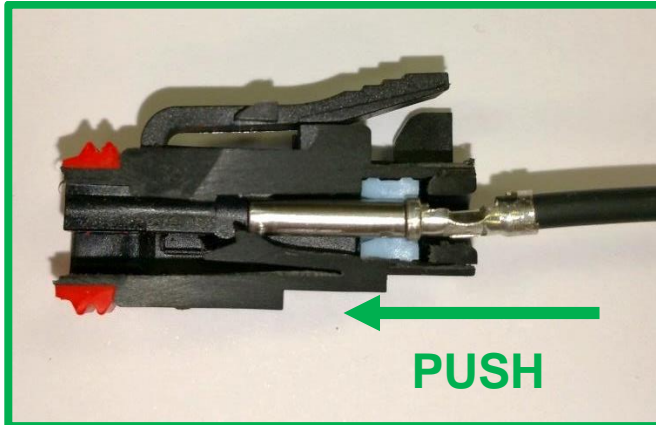
Grip the wire no less than 10mm for smaller diameter cable (1.4mm to 2.4mm) & no less than 20mm for larger diameter cable (2.4mm to 3.6mm) from the terminal insulation crimp align terminal on centre with the appropriate opening in the back cover and insert through the circuit opening in the back seal. 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. Once the connector is fully populated insert the wedgelock/TPA. The wedgelock should 'click' into position. Plug Connector/Socket Terminal shown – use same method for Receptacle/Pin.



!!!!!!DO NOT INSTALL THE TERMINATED CABLES AT AN ANGLE!!!!!!

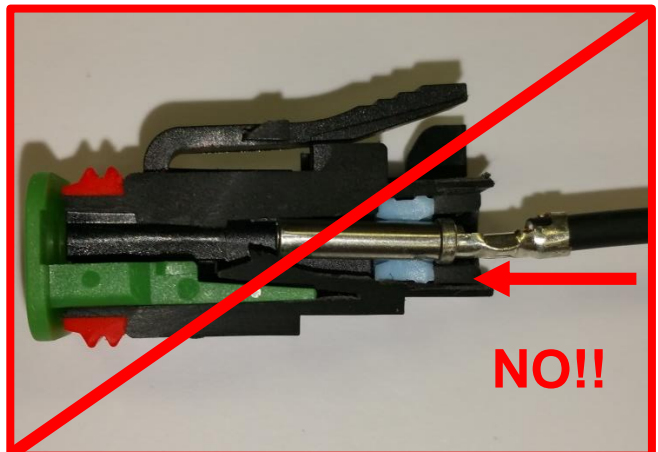
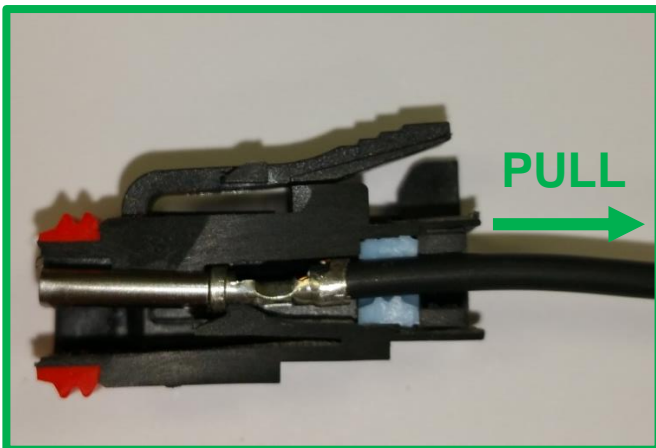
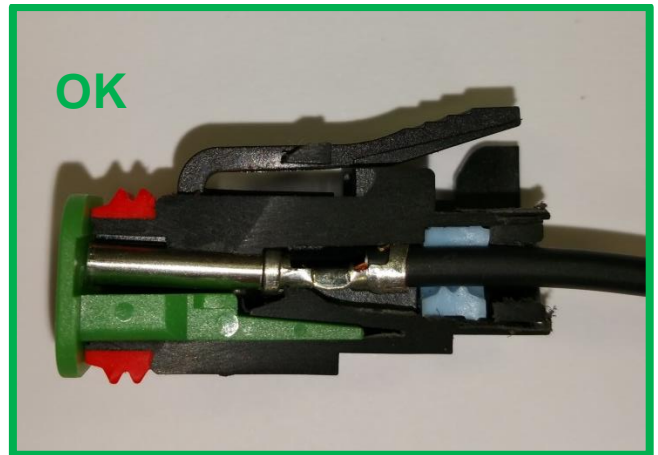


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To ensure secure terminal insertion:
Follow the Push, Click, Pull Method of terminal insertion

Never try insert the terminal when wedgelock (TPA) is already in position.

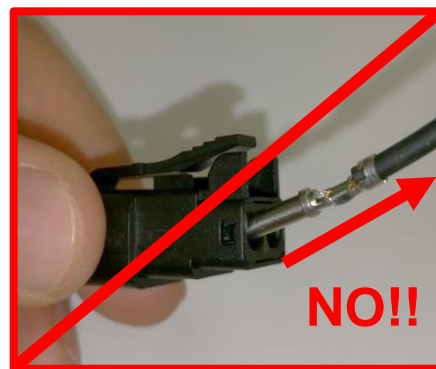
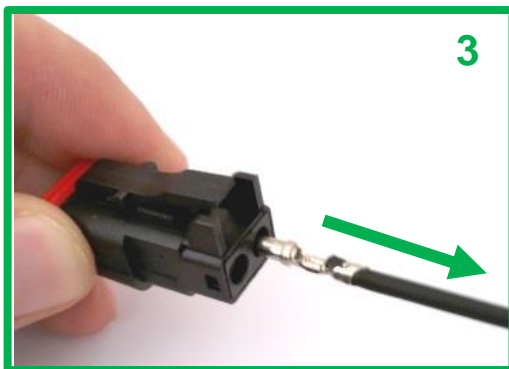
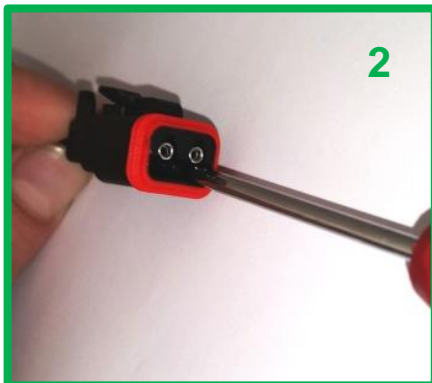
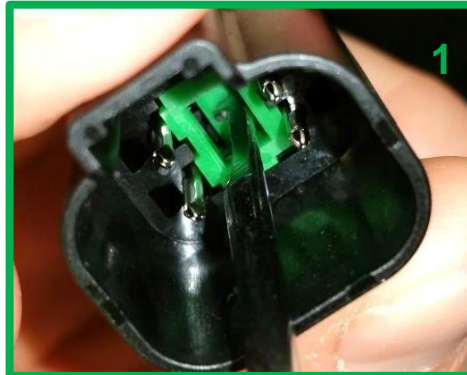
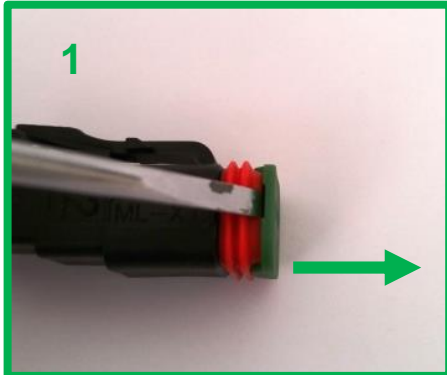


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4.4.2 TERMINAL EXTRACTION

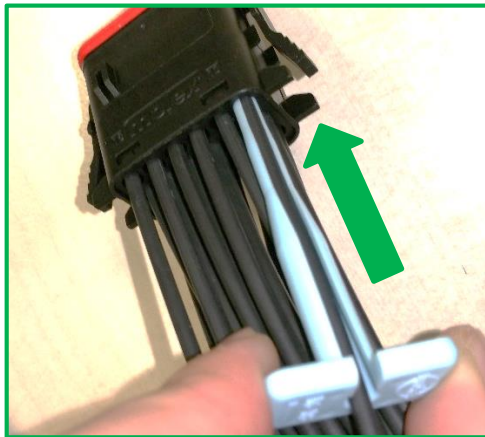
1. Lever the Wedgelock from the housing using the flathead screwdriver end of the removal tool (63824-5300) – Take care not to damage the 2-shot seal (For Receptacle wedgelock use hooked end of tool).
2. To remove the contacts, gently pull the cable backwards while at the same time releasing the locking finger by moving it away from the terminal/contact with the flathead screwdriver end of the removal tool. (For 3cct Receptacle wedgelock removal use needle nose pliers)
3. Simply pull out the terminated cable slowly and on centre.

DO NOT PULL OUT CABLES AT AN ANGLE – ONLY EXTRACT ONE CABLE AT A TIME!



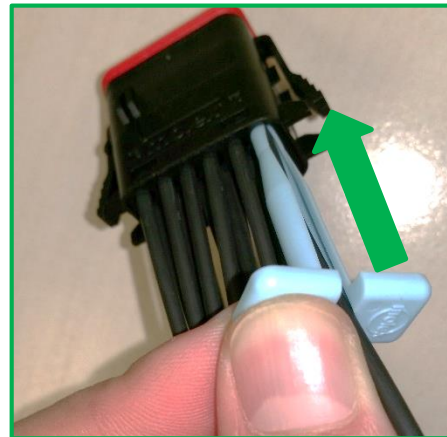
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4.4.3 TERMINAL EXTRACTION – 18cct CONNECTOR



STEP 1:

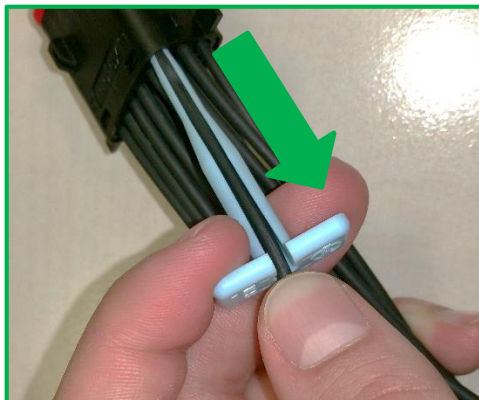
With rear of connector pointed towards you, snap the removal tool (p/n: 63813-1900) over the cable of the contact to be removed



STEP 2:

Slide tool along the wire and carefully insert the tool into the cavity until it engages contact and resistance is felt.

NOTE: DO NOT TWIST OR INSERT TOOL AT AN ANGLE



STEP 3:

Keeping the cable pressed against the removal tool gently pull out the cable.



STEP 4:

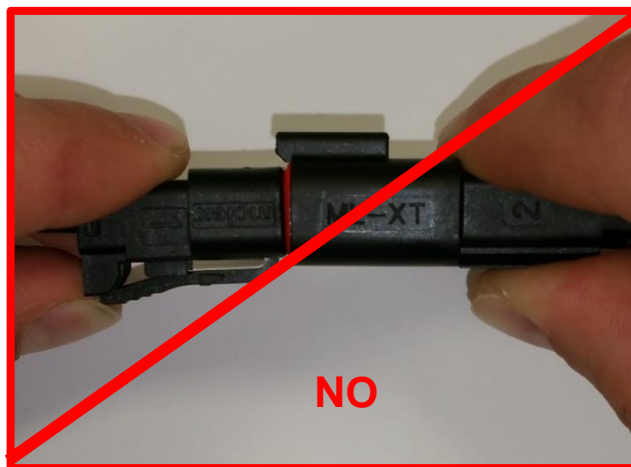
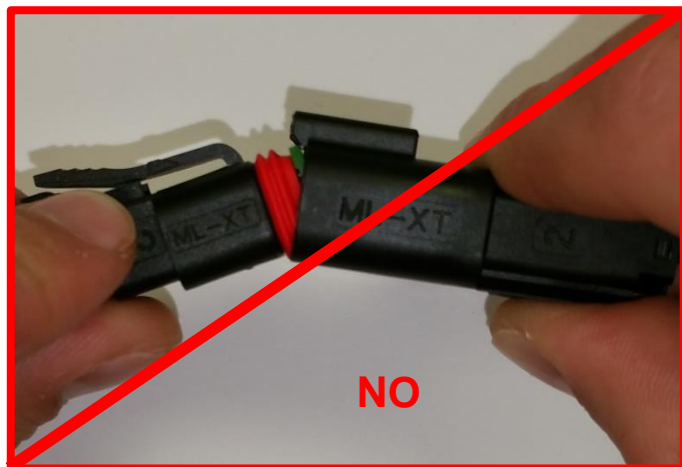
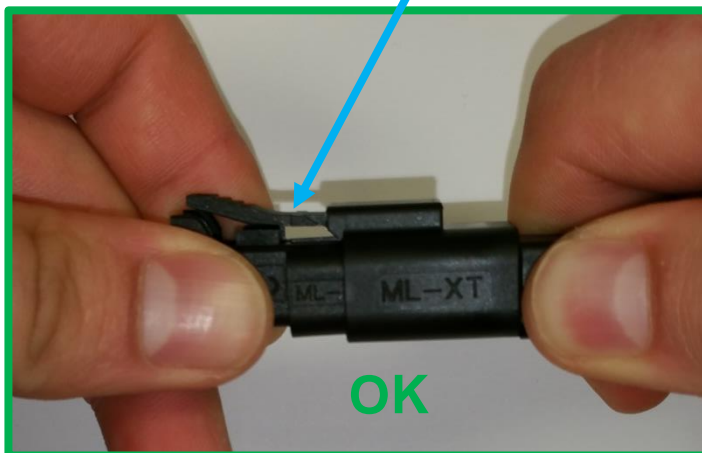
Pull contact wire assembly out of connector, taking care not to pull too quickly.

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4.5 CONNECTOR MATING

Note and align both plug and receptacle connectors and keying features (if present). Begin mating procedure by sliding the two connectors together, press firmly until you hear an audible click from the primary latch.

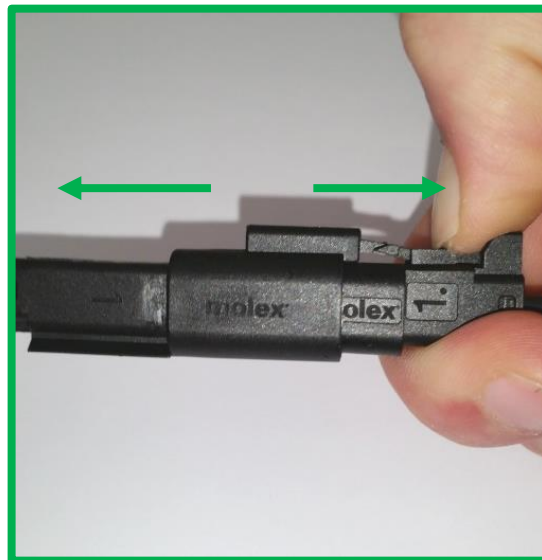
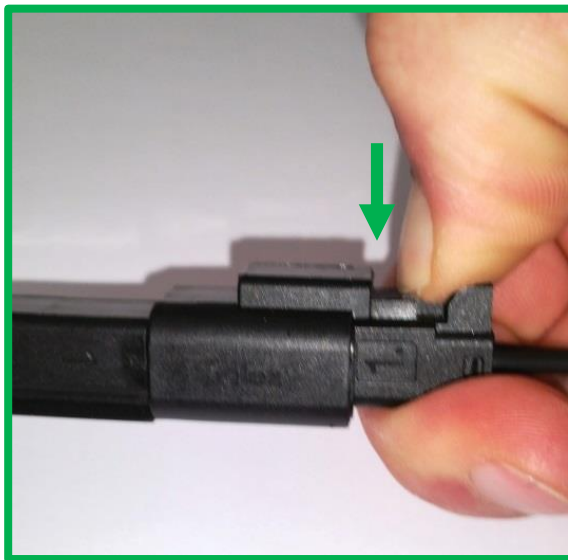
Primary Latch



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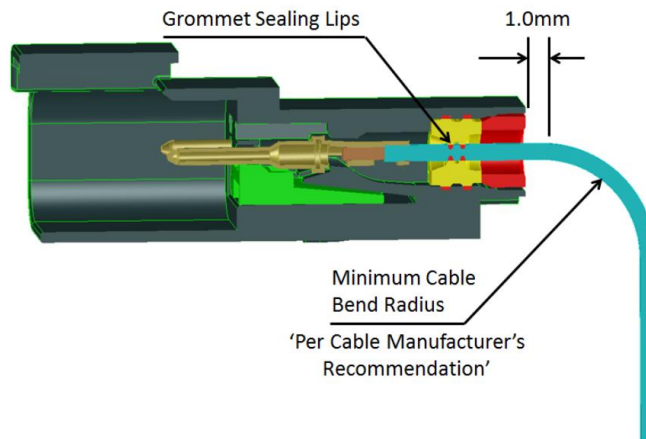
4.6 CONNECTOR UNMATING

Depress the primary latch on the plug connector to fully disengage locking mechanism and then pull the plug connector out from the receptacle connector while keeping the primary latch depressed.



4.7 HARNESS ROUTING

The cable shall exit 1.0mm beyond the connector housing, co-axial with the grommet sealing lips. Bending of the cable shall be performed beyond this point to the recommended cable manufacturer's bend radius.



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