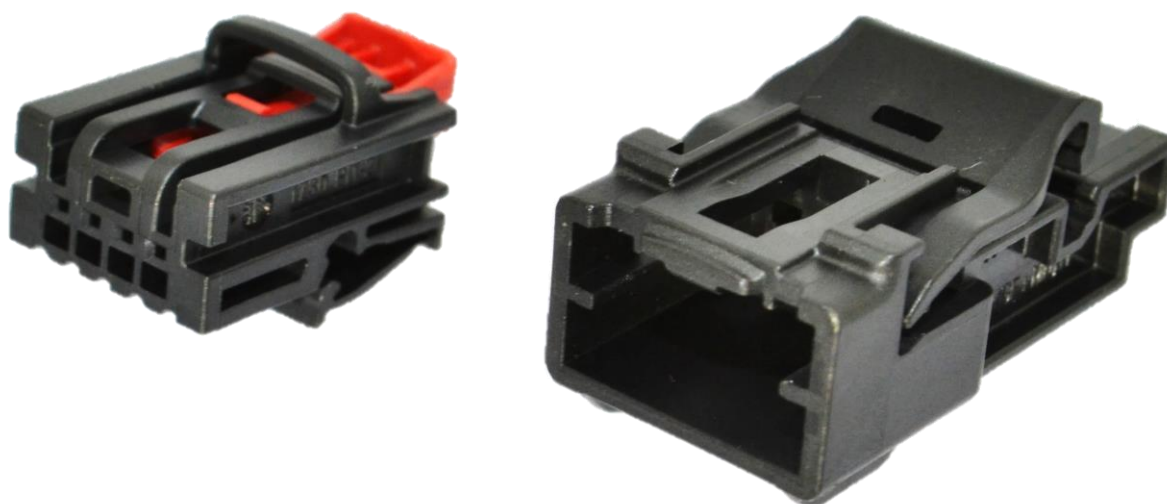
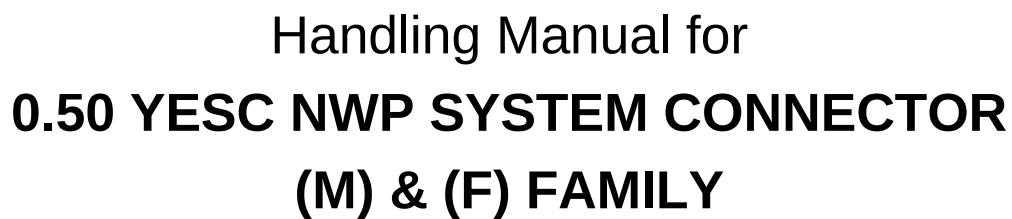




Prepared M. Mandir	Sign	Checked M. Valjak	Sign	Approved G. Greguric	Sign		
Date 25.08.2022.		Date		Date		Doc.No. YPES-15-1877E	Rev. 3
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1 Revision List

REVISION	DESCRIPTION	NAME	DATE
0	Creation	A. Spoljaric	02.01.2019.
1	Part numbers added and information updated	M. Mandir	07.05.2020.
2	12P & 16P female connectors image update. Terminal insertion procedure update. Added Electrical Check on Male Terminals. 2P Male & Female connectors part numbers updated.	M. Mandir	13.10.2021.
3	Male & Female connectors colors & PNs update. Added procedure for closing of multiple hinged secondary lock. Taping details added.	M. Mandir	25.08.2022.

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2 Product Overview

This handling manual contains the guidelines for the application of the YAZAKI male and female 0.50 YESC NWP system connector families.

Male and female connector families are consisted of 2P, 4P, 6P, 8P, 12P, 16P, 20P & 24P system connectors.

4P, 8P, 12P, 16P, 20P & 24P male and female connectors are designed according to standard USCAR interfaces.

2P and 6P connectors are designed according to Yazaki interfaces.

Connectors are designed as inline connectors and also to fit headers designed according to USCAR standard interfaces (4P, 8P, 12P, 16P, 20P & 24P) and Yazaki interfaces (2P & 6P).

All female connectors use the same CPA.

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2.1 Delivery Condition

Female connectors can be delivered with or without CPA. In case when female connector is delivered with the CPA than the CPA will be in pre-set position.

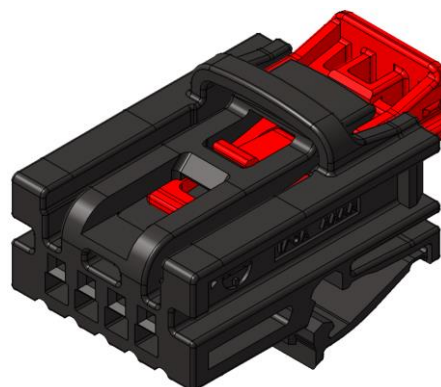
Male connectors are delivered as single parts.

Pictures below show delivery condition of female connectors, male connectors and header assembly. Hinged secondary locks shall be in pre-set position.

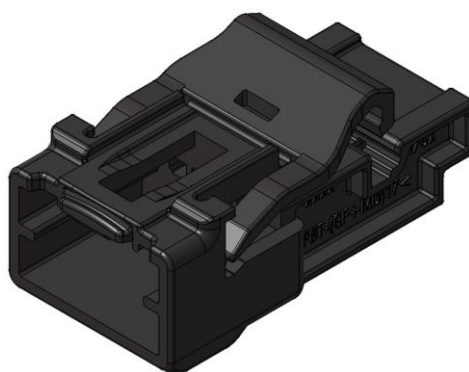


**FEMALE CONNECTOR WITHOUT
CPA**

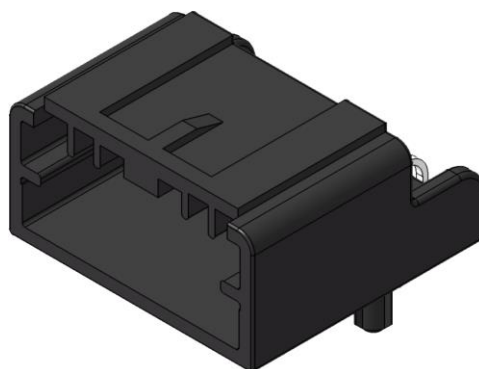
OR



FEMALE CONNECTOR WITH CPA



MALE CONNECTOR

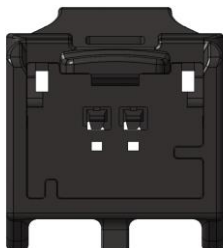
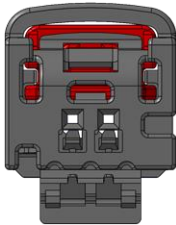
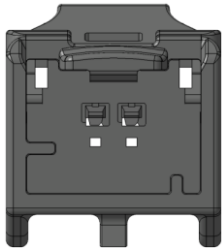
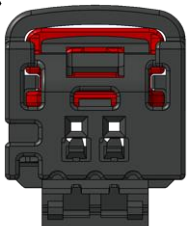
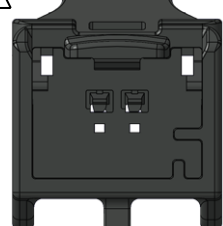
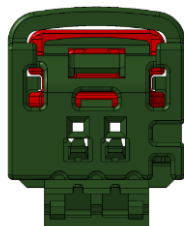
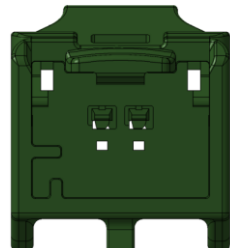


HEADER ASSEMBLY

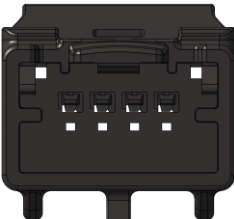
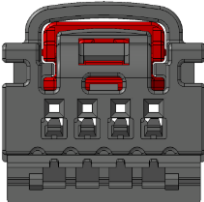
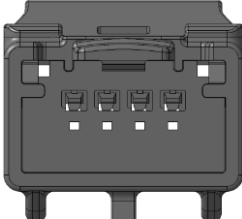
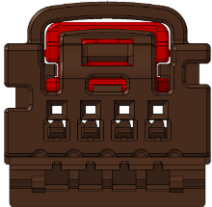
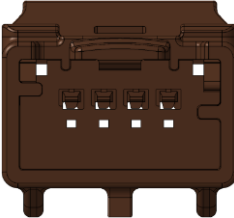
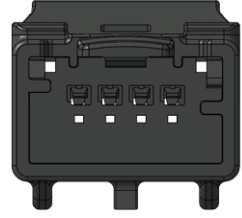
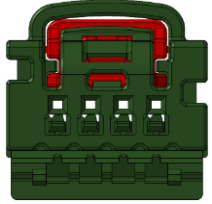
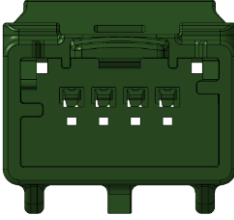
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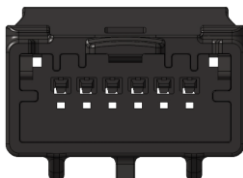
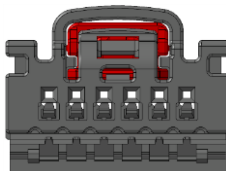
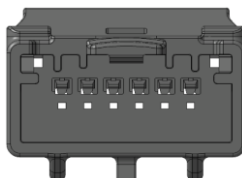
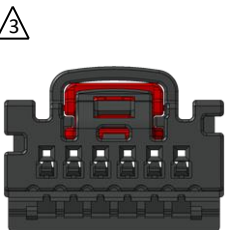
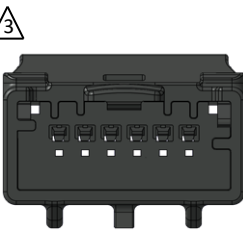
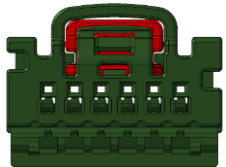
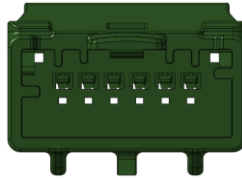
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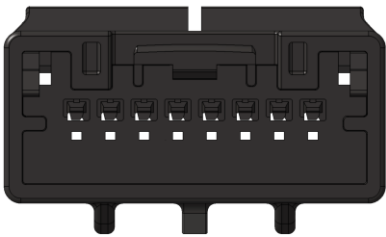
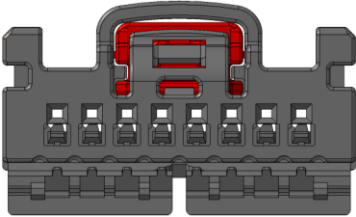
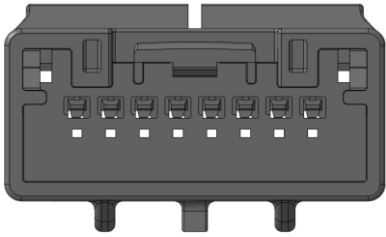
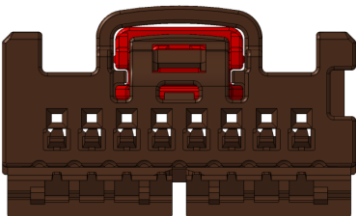
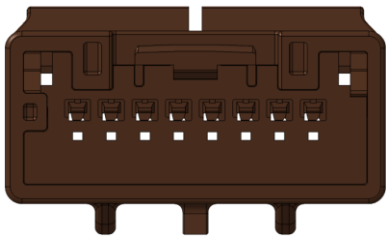
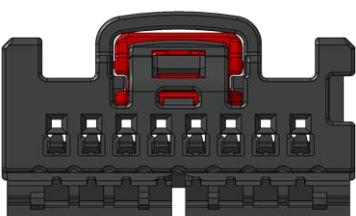
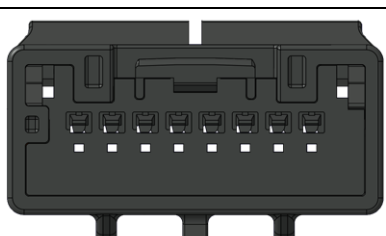
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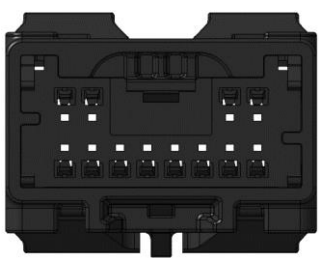
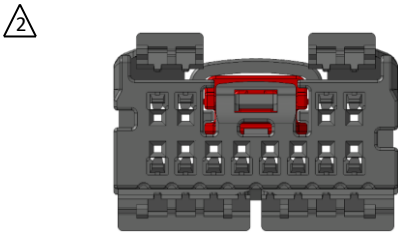
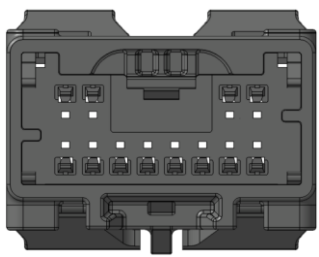
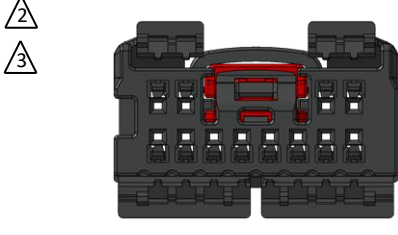
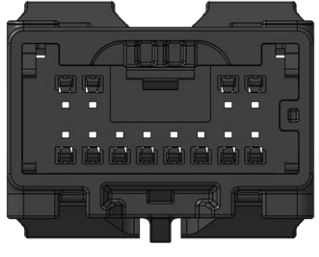
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CODE	A		B	
GENDER	FEMALE	MALE	FEMALE	MALE
VIEW				
PART NO.	 7298-8321-30	 7197-8322-30	 7298-8324-40	 7197-8323-40
COLOR	BLACK	BLACK	LIGHT GRAY	LIGHT GRAY
CODE	C		D	
GENDER	FEMALE	MALE	FEMALE	MALE
VIEW	 	 		
PART NO.	 7298-8326-10 	 7197-8325-10 	 7298-8328-60	 7197-8327-60
COLOR	DARK GRAY 	DARK GRAY 	GREEN	GREEN

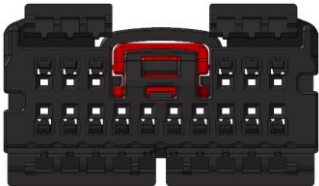
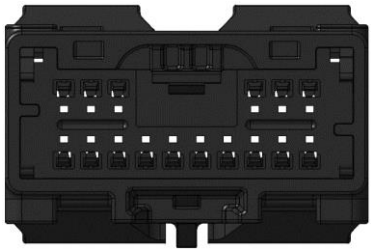
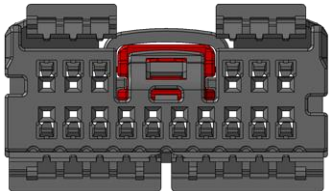
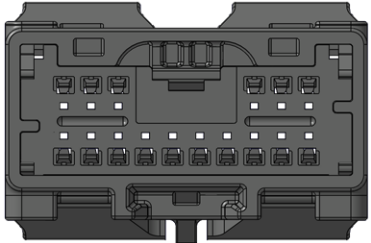
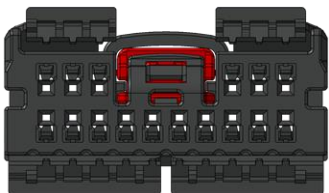
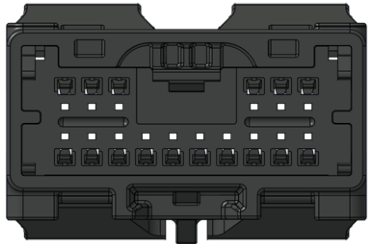
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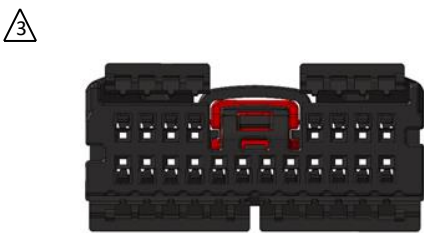
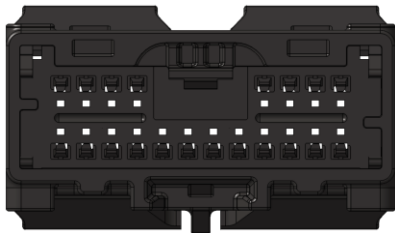
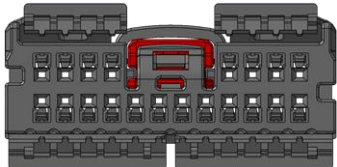
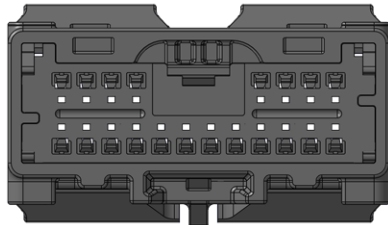
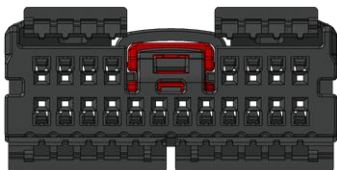
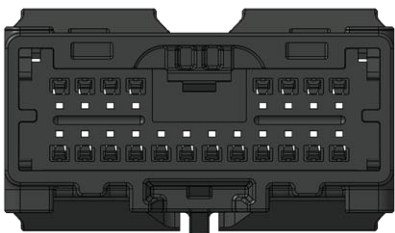
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CODE	A		B	
GENDER	FEMALE	MALE	FEMALE	MALE
VIEW				
PART NO.	7298-1730-30	7197-1754-30	7298-1731-40	7197-1755-40
COLOR	BLACK	BLACK	LIGHT GRAY	LIGHT GRAY
CODE	C (COLOR OPTION 1)		△ ₃ C (COLOR OPTION 2)	
GENDER	FEMALE	MALE	FEMALE	MALE
VIEW				
PART NO.	7298-1732-80	7197-1756-80	7298-1732-10	7197-1756-10
COLOR	BROWN	BROWN	DARK GRAY	DARK GRAY
CODE	D			
GENDER	FEMALE	MALE		
VIEW				
PART NO.	7298-1733-60	7197-1757-60		
COLOR	GREEN	GREEN		

6P FEMALE AND MALE CONNECTORS				
CODE	A		B	
GENDER	FEMALE	MALE	FEMALE	MALE
VIEW				
PART NO.	7298-1706-30	TBD	7298-1709-40	TBD
COLOR	BLACK	BLACK	LIGHT GRAY	LIGHT GRAY
CODE	C		D	
GENDER	FEMALE	MALE	FEMALE	MALE
VIEW				
PART NO.	7298-1711-10 [△]	TBD	7298-1712-60	TBD
COLOR	DARK GRAY [△]	DARK GRAY [△]	GREEN	GREEN

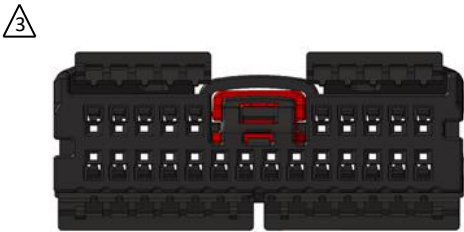
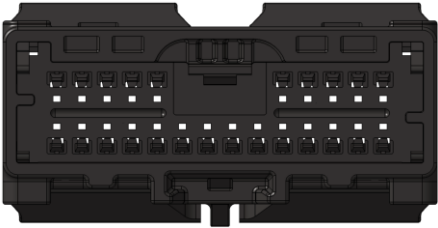
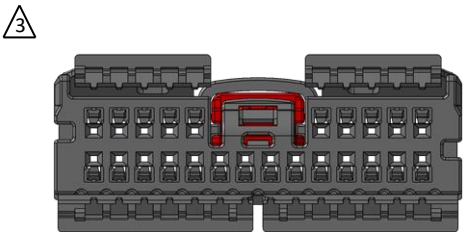
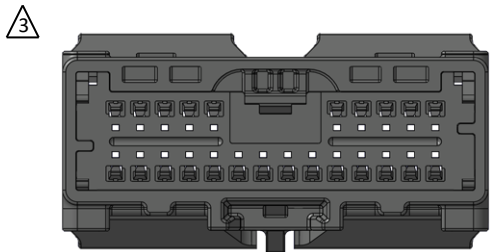
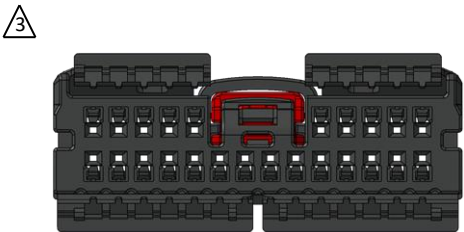
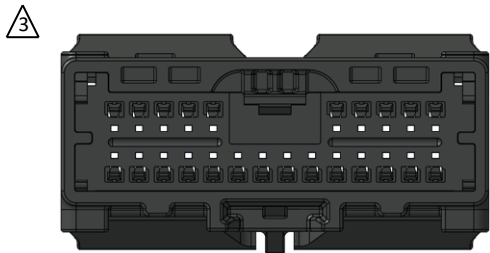
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GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-1713-30	7197-2002-30
COLOR	BLACK	BLACK
CODE	B	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-1714-40	7197-2003-40
COLOR	LIGHT GRAY	LIGHT GRAY
CODE	C (COLOR OPTION 1)	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-1715-80	7197-2004-80
COLOR	BROWN	BROWN
CODE	△ C (COLOR OPTION 2)	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-1715-10	7197-2004-10
COLOR	DARK GRAY	DARK GRAY

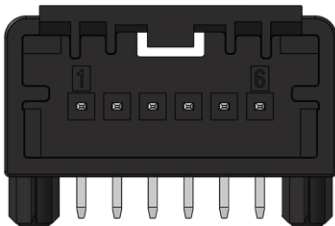
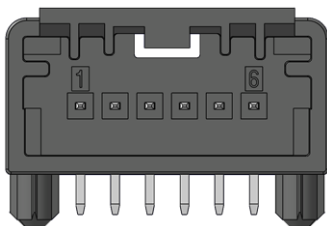
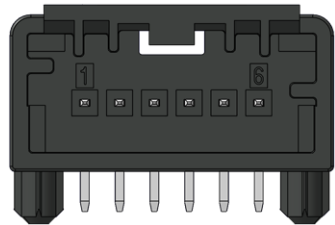
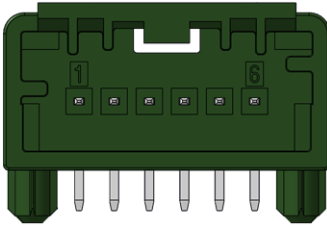
12P FEMALE AND MALE CONNECTORS		
CODE	A	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-1734-30	TBD
COLOR	BLACK	BLACK
CODE	B	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-1735-40	TBD
COLOR	LIGHT GRAY	LIGHT GRAY
CODE	C	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-1736-10 	TBD
COLOR	DARK GRAY 	DARK GRAY 

16P FEMALE AND MALE CONNECTORS		
CODE	A	
GENDER	FEMALE	MALE
VIEW	² 	
PART NO.	¹ 7298-4945-30	TBD
COLOR	BLACK	BLACK
CODE	B	
GENDER	FEMALE	MALE
VIEW	² ³ 	³ 
PART NO.	¹ 7298-4946-40	TBD
COLOR	LIGHT GRAY	LIGHT GRAY
CODE	C	
GENDER	FEMALE	MALE
VIEW	² ³ 	³ 
PART NO.	¹ 7298-4947-10	TBD
COLOR	DARK GRAY ³	DARK GRAY ³

20P FEMALE AND MALE CONNECTORS		
CODE	A	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-8491-30 	7197-2005-30
COLOR	BLACK	BLACK
CODE	B	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-8492-40 	7197-2006-40
COLOR	LIGHT GRAY	LIGHT GRAY
CODE	C	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-8493-10 	7197-2007-10
COLOR	DARK GRAY 	DARK GRAY 

Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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24P FEMALE AND MALE CONNECTORS		
CODE	A	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-8495-30 [△]	7197-1716-30
COLOR	BLACK	BLACK
CODE	B	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-8496-40 [△]	7197-1717-40
COLOR	LIGHT GRAY	LIGHT GRAY
CODE	C	
GENDER	FEMALE	MALE
VIEW		
PART NO.	7298-8497-10 [△]	7197-1718-10
COLOR	DARK GRAY [△]	DARK GRAY [△]

6P HEADER ASSEMBLY		
CODE	A	B
VIEW		
PART NO.	7225-4386-30	7225-4387-40
COLOR	BLACK	LIGHT GRAY
CODE	C	D
VIEW		
PART NO.	7225-4388-10 	7225-4389-60
COLOR	DARK GRAY 	GREEN

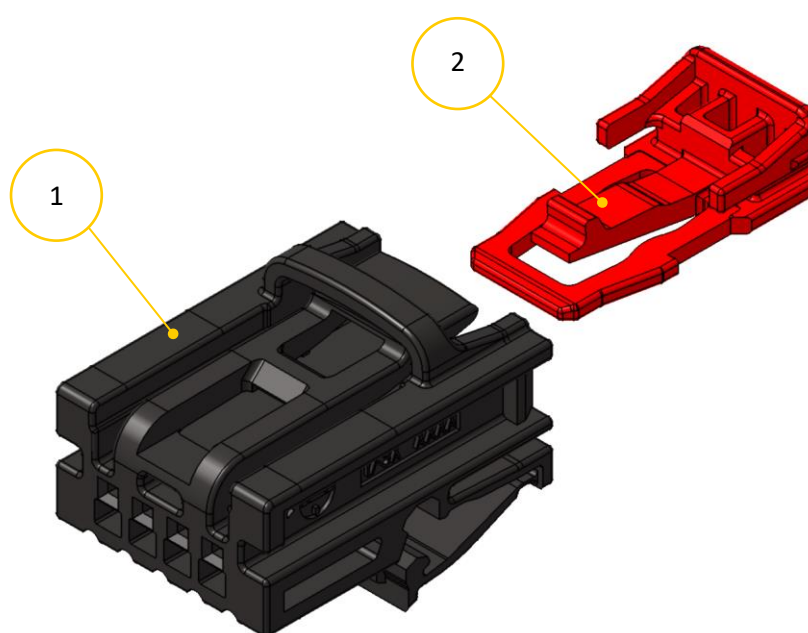
2.3 Mechanical Properties

Temperature Class	T2 (- 40 °C / 100 °C) ^{△1}
Vibration Class	V1 (chassis profile)
Sealing Class	S1 (unsealed)
Terminal to Connector Insertion Force	15 N max.
Terminal Retention Force (Primary + Secondary Lock after moisture)	≥ 40 N ^{△1}
CPA Engage Force/Disengage Force	5 N ≤ F ≤ 25 N / 10 N ≤ F ≤ 30 N
Connector Mating/Unmating Force	75 N max.

^{△1} Requirements According to USCAR-2, Rev 7, dated February 2020, and USCAR-25, Rev 3, dated March 2016

2.4 Exploded View

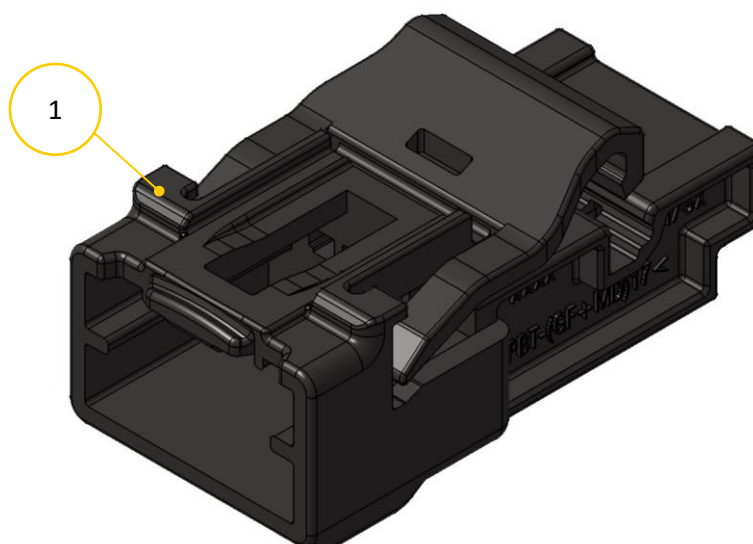
2.4.1 0.50 YESC NWP System Connector (F) Subassembly



POSITION	NAME
1	HOUSING
2	CPA

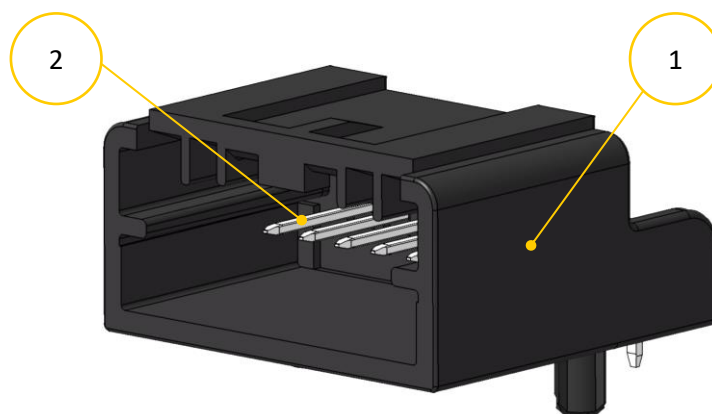
Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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2.4.2 0.50 YESC NWP System Connector (M) Housing



POSITION	NAME
1	HOUSING

2.4.3 0.50 YESC NWP System Connector Header Assembly



POSITION	NAME
1	HEADER HOUSING
2	PCB TERMINAL

2.5 Bill of Material

2.6 0.50 YESC NWP System Connector (F) Subassembly components

	NAME	POSITION	DESCRIPTION	YAZAKI PART NUMBER	MATERIAL	COLOR
ONE ROW	2P	1	HOUSING	$\triangle_2$ 7198-8321-30 $\triangle_2$ 7198-8324-40 $\triangle_2$ 7198-8326-10 $\triangle_3$ $\triangle_2$ 7198-8328-60	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$ GREEN
	4P	1	HOUSING	7198-1730-30 7198-1731-40 7198-1732-80 7198-1732-10 $\triangle_3$ 7198-1733-60	PBT-(GF+MD)17	BLACK LIGHT GRAY BROWN DARK GRAY $\triangle_3$ GREEN
	6P	1	HOUSING	7198-1706-30 7198-1709-40 7198-1711-10 $\triangle_3$ 7198-1712-60	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$ GREEN
	8P	1	HOUSING	7198-1713-30 7198-1714-40 7198-1715-80 7198-1715-10 $\triangle_3$	PBT-(GF+MD)17	BLACK LIGHT GRAY BROWN DARK GRAY $\triangle_3$
TWO ROWS	12P	1	HOUSING	7198-1734-30 7198-1735-40 7198-1736-10 $\triangle_3$	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$
	16P	1	HOUSING	$\triangle_1$ 7198-4945-30 $\triangle_1$ 7198-4946-40 $\triangle_1$ 7198-4947-10	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$
	20P	1	HOUSING	7198-8491-30 $\triangle_3$ 7198-8492-40 $\triangle_3$ 7198-8493-10 $\triangle_3$	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$
	24P	1	HOUSING	7198-8495-30 $\triangle_3$ 7198-8496-40 $\triangle_3$ 7198-8497-10 $\triangle_3$	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$
ALL	CPA	2	CPA	7172-1596-50	PBT-GF30	RED

Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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2.6.1 0.50 YESC NWP System Connector (M) Housing

	NAME	POSITION	DESCRIPTION	YAZAKI PART NUMBER	MATERIAL	COLOR
ONE ROW	2P	1	HOUSING	$\triangle_2$ 7197-8322-30 $\triangle_2$ 7197-8323-40 $\triangle_2$ 7197-8325-10 $\triangle_3$ $\triangle_2$ 7197-8327-60	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$ GREEN
	4P	1	HOUSING	7197-1754-30 7197-1755-40 7197-1756-80 7197-1756-10 $\triangle_3$ 7197-1757-60	PBT-(GF+MD)17	BLACK LIGHT GRAY BROWN DARK GRAY $\triangle_3$ GREEN
	6P	1	HOUSING	TBD TBD TBD TBD	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$ GREEN
	8P	1	HOUSING	7197-2002-30 7197-2003-40 7197-2004-80 7197-2004-10 $\triangle_3$	PBT-(GF+MD)17	BLACK LIGHT GRAY BROWN DARK GRAY $\triangle_3$
TWO ROWS	12P	1	HOUSING	TBD TBD TBD	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$
	16P	1	HOUSING	TBD TBD TBD	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$
	20P	1	HOUSING	7197-2005-30 7197-2006-40 7197-2007-10	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$
	24P	1	HOUSING	7197-1716-30 7197-1717-40 7197-1718-10	PBT-(GF+MD)17	BLACK LIGHT GRAY DARK GRAY $\triangle_3$

2.6.2 0.50 YESC NWP System Connector Header Assembly

NAME	POSITION	DESCRIPTION	YAZAKI PART NUMBER	MATERIAL	COLOR/PLATING
6P	1	HEADER HOUSING	7225-4386-30 7225-4387-40 7225-4388-10 [△] ₃ 7225-4389-60	PA4T-GF30	BLACK LIGHT GRAY DARK GRAY [△] ₃ GREEN
	2	PCB TERMINAL	7125-1629-02	CuNi1ZnSi	TIN

Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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2.7 Associated Products



YAZAKI PART NAME	YAZAKI PART NUMBER	SPECIFICATION
0.50 MM CONTACT SYSTEM (YESC) FEMALE TERMINAL	7196-0069-02	Wire range: 0.13 ~ 0.22 mm ² (Cu)
	7196-0070-02	Wire range: 0.35 ~ 0.50 mm ² (Cu)
	7196-0073-02	
	7196-0073-06	
	7196-1348-02	Wire range: 0.50 mm ² (Al)
0.50 MM CONTACT SYSTEM (YESC) MALE TERMINAL	7195-1199-02	Wire range: 0.13 ~ 0.22 mm ² (Cu)
	7195-1202-06	Wire range: 0.35 mm ² (Cu)
	7195-1200-02	Wire range: 0.35 ~ 0.50 mm ² (Cu)
		Wire range: 0.50 mm ² (Al)

Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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2.8 Associated Documents

- YAZAKI DRAWINGS

DRAWING NAME	DRAWING NUMBER
0.50 MM CONTACT SYSTEM (YESC) FEMALE TERMINAL	7196-0069-02:R
0.50 MM CONTACT SYSTEM (YESC) MALE TERMINAL	7195-1199-02:R
0.50 YESC NWP SYSTEM CONNECTOR 2P INTERFACE CODE A, B, C & D	△ 7298-8321-30:A
0.50 YESC NWP SYSTEM CONNECTOR 6P INTERFACE CODE A, B, C & D	7298-1706-30:A
0.50 YESC NWP SYSTEM CONNECTOR 2P (F) SUBASSEMBLY CODE A, B, C & D	△ 7298-8321-30:R
0.50 YESC NWP SYSTEM CONNECTOR 4P (F) SUBASSEMBLY CODE A, B, C & D	7298-1730-30:R
0.50 YESC NWP SYSTEM CONNECTOR 6P (F) SUBASSEMBLY CODE A, B, C & D	7298-1706-30:R
0.50 YESC NWP SYSTEM CONNECTOR 8P (F) SUBASSEMBLY CODE A, B & C	7298-1713-30:R
0.50 YESC NWP SYSTEM CONNECTOR 12P (F) SUBASSEMBLY CODE A, B & C	7298-1734-30:R
0.50 YESC NWP SYSTEM CONNECTOR 16P (F) SUBASSEMBLY CODE A, B & C	△ 7298-4945-30:R
0.50 YESC NWP SYSTEM CONNECTOR 20P (F) SUBASSEMBLY CODE A, B & C	△ 7298-8491-30:R
0.50 YESC NWP SYSTEM CONNECTOR 24P (F) SUBASSEMBLY CODE A, B & C	△ 7298-8495-30:R
0.50 YESC NWP SYSTEM CONNECTOR 2P (M) HOUSING CODE A, B, C & D	△ 7197-8322-30:R
0.50 YESC NWP SYSTEM CONNECTOR 4P (M) HOUSING CODE A, B, C & D	7197-1754-30:R
0.50 YESC NWP SYSTEM CONNECTOR 6P (M) HOUSING CODE A, B, C & D	TBD
0.50 YESC NWP SYSTEM CONNECTOR 8P (M) HOUSING CODE A, B & C	7197-2002-30:R
0.50 YESC NWP SYSTEM CONNECTOR 12P (M) HOUSING CODE A, B & C	TBD
0.50 YESC NWP SYSTEM CONNECTOR 16P (M) HOUSING CODE A, B & C	TBD
0.50 YESC NWP SYSTEM CONNECTOR 20P (M) HOUSING CODE A, B & C	7197-2005-30:R
0.50 YESC NWP SYSTEM CONNECTOR 24P (M) HOUSING CODE A, B & C	7197-1716-30:R

Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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- USCAR - EWCAP DRAWINGS

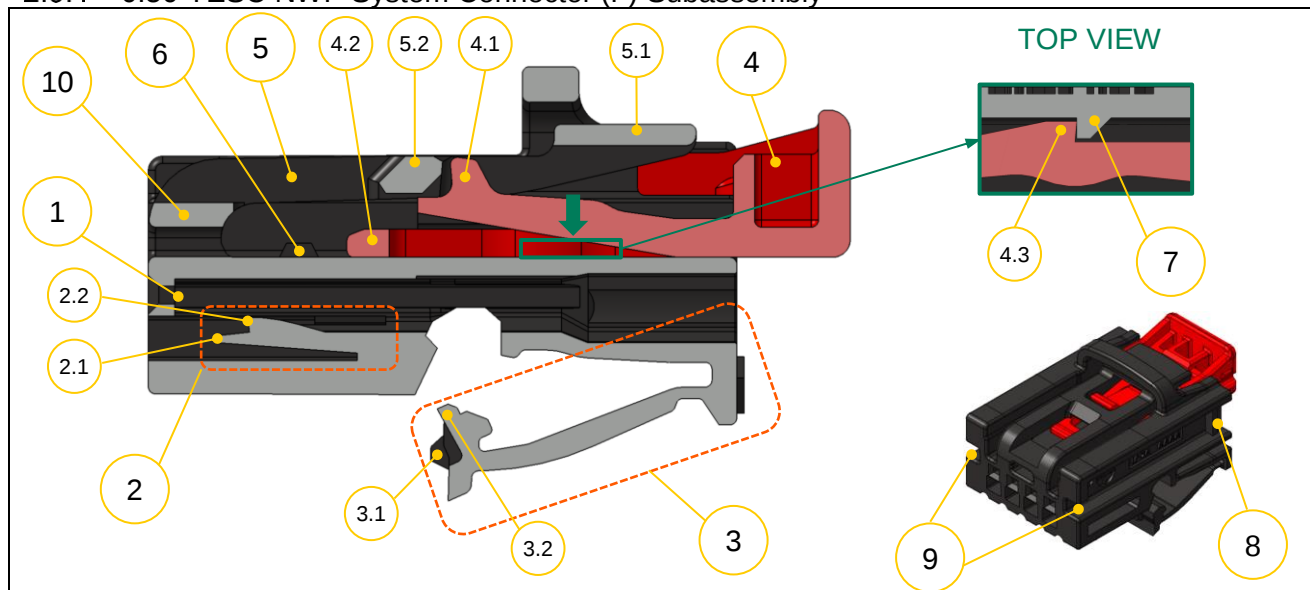
DRAWING NAME	DRAWING NUMBER
4 WAY (1X4) UNSEALED INTERFACE 0.50MM CONNECTORS	050-U-004-1-Z02
8 WAY (1X8) UNSEALED INTERFACE 0.50MM CONNECTORS	050-U-008-1-Z02
12 WAY UNSEALED INTERFACE 0.50MM CONNECTORS	050-U-012-1-Z02
UNSEALED INTERFACE 0.50MM CONNECTORS 16 WAY (2X3), (1X10)	050-U-016-2-Z01
UNSEALED INTERFACE 0.50MM CONNECTORS 20 WAY (2X3), (1X10)	050-U-020-2-Z01
UNSEALED INTERFACE 0.50MM CONNECTORS 24 WAY (2X3), (1X10)	050-U-024-2-Z01

- TERMINAL HANDLING MANUAL: YPES -15 -1389E ¹
- 6P HEADER ASSEMBLY HANDLING MANUAL: YPES-15-1843 ¹
- SPECIFICATIONS: USCAR-2 Rev 7, dated February 2020 ¹
USCAR-25 Rev 3, dated March 2016
- CLIP MOUNTING FEATURE: 7 mm clip slot (EWCAP-005-7) ¹

Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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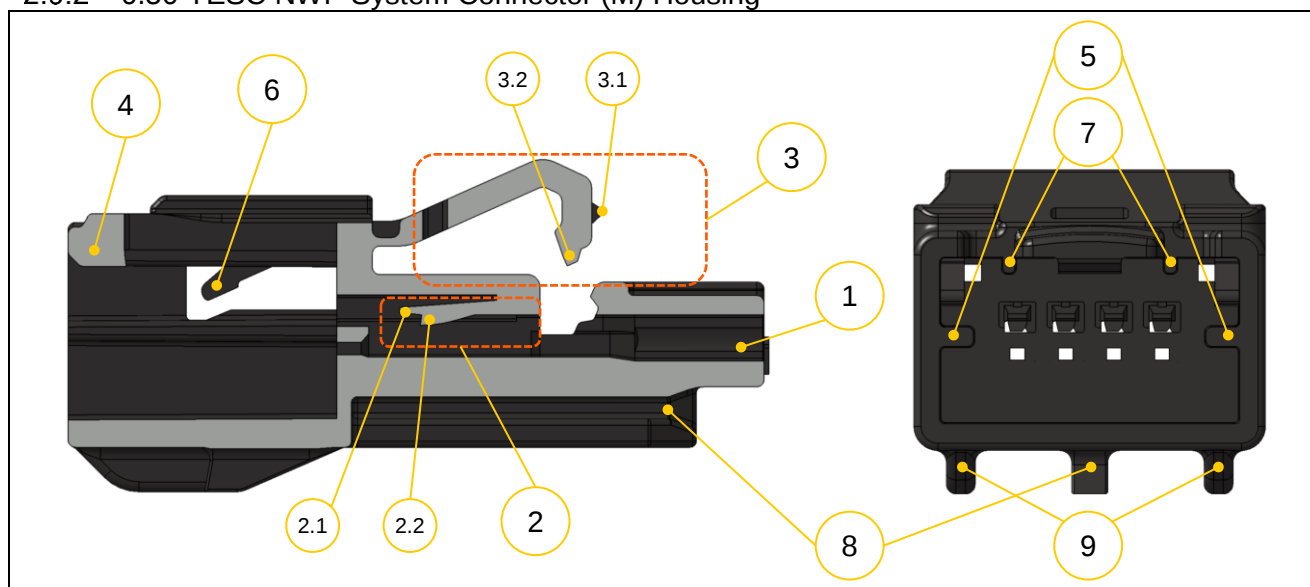
2.9 Features and Functions of Components

2.9.1 0.50 YESC NWP System Connector (F) Subassembly



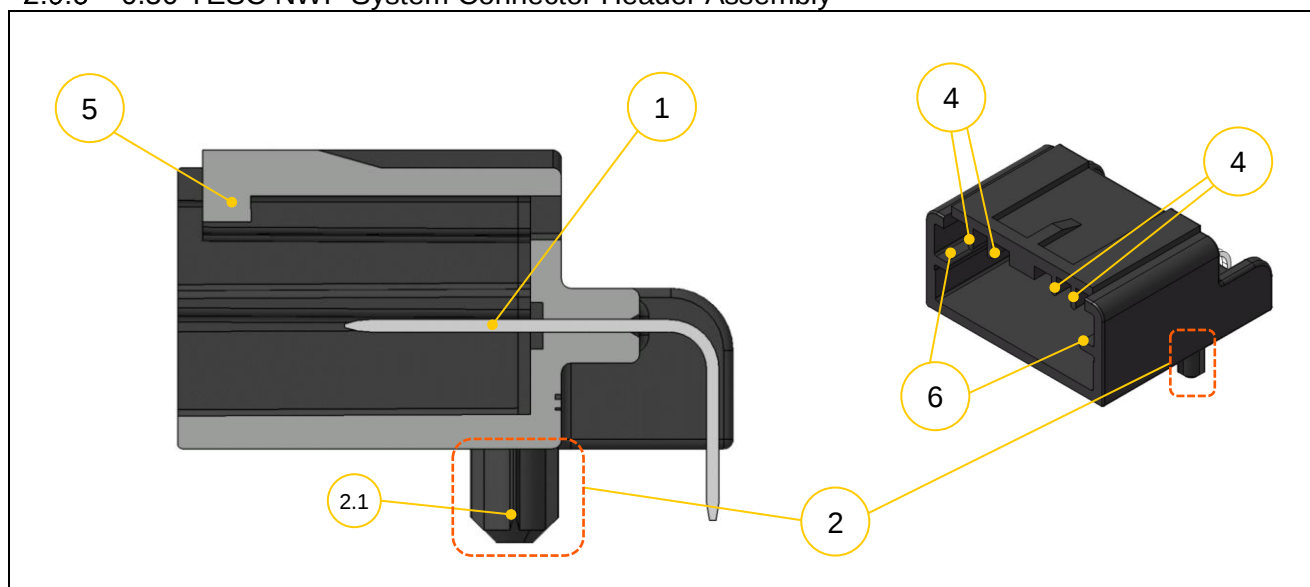
No.	FEATURE	DESCRIPTION/FUNCTION
1	0.50 System Terminal Cavity	Location for female terminal
2	Primary Lock (Lance)	Locks terminal in correct position inside cavity
2.1	Service Operation Tab	Release of primary lock
2.2	Lance Beak	Lock/Retention of female terminal
3	Hinged Secondary Lock	Detects full terminal insertion and secures terminal lock
3.1	Locking Hook on Hinged Secondary Lock	Locks hinged secondary lock in proper position inside cavity
3.2	Improper Terminal Insertion Detection Feature	Checks if terminal is properly inserted into the cavity
4	Connector Position Assurance (CPA)	Secures proper connection
4.1	Pre-set - Set Activating Feature	Enables proper CPA insertion into set position
4.2	Set Hook	Locks CPA in set position
4.3	Pre-set Hook	Secures CPA in pre-set position and prevents CPA from falling out
5	Housing Lock	Secures proper connection of mated connectors
5.1	Locking Finger Pad	Feature for unlocking connectors
5.2	Locking Feature	Locks male connector or header
6	CPA Set Hook on Housing	Locks CPA in set position
7	CPA Pre-set Hook on Housing	Locks CPA in pre-set position and prevents CPA from falling out
8	Hooks for Wire Routing Cover	Fixing wire routing cover to connector
9	Coding	Prevents miss mating
10	Kojiri Rib (Scoop Proofing)	Prevents pin damage due to miss orientation of connectors

2.9.2 0.50 YESC NWP System Connector (M) Housing



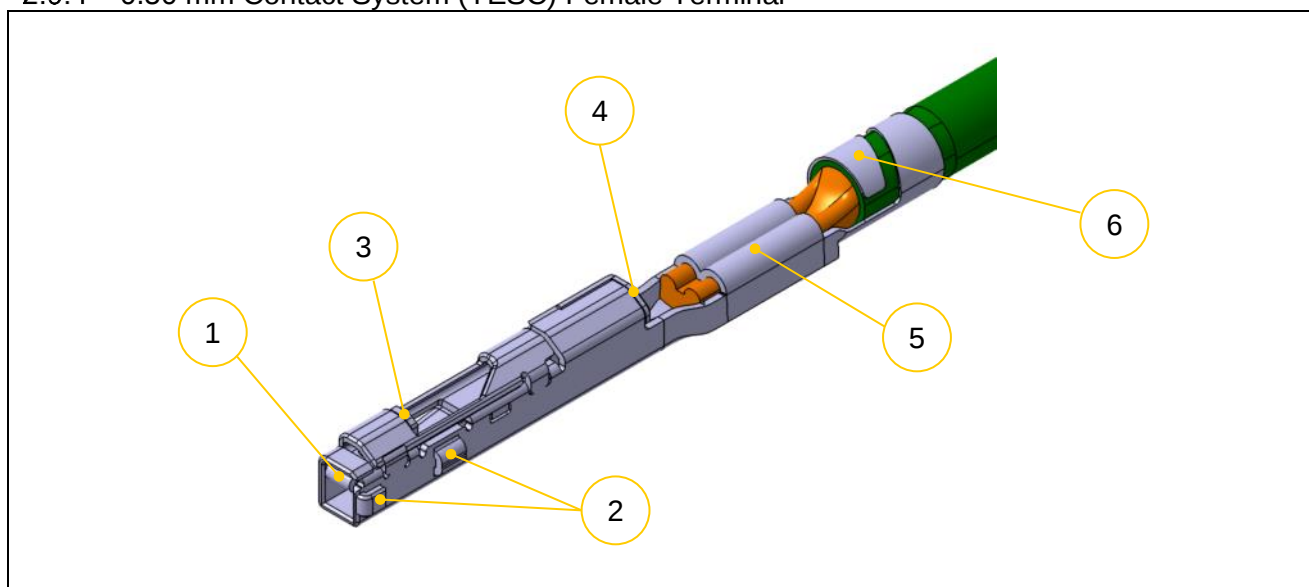
No.	FEATURE	DESCRIPTION/FUNCTION
1	0.50 System Terminal Cavity	Location for male terminal
2	Primary Lock (Lance)	Locks terminal in correct position inside cavity
2.1	Service Operation Tab	Release of primary lock
2.2	Lance Beak	Lock/Retention of male terminal
3	Hinged Secondary Lock	Detects full terminal insertion and secures terminal lock
3.1	Locking Hook on Hinged Secondary Lock	Locks hinged secondary lock in proper position cavity
3.2	Improper Terminal Insertion Detection Feature	Checks if terminal is properly inserted into the cavity
4	Locking Hook	Locks male and female housing
5	Coding	Prevents mismating
6	Securing Feature on Male Hinged Secondary Lock	Blocks insertion of female housing if male hinged secondary lock is in pre-set position
7	Kojiri Ribs (Scoop proofing)	Prevent pin damage due to miss orientation of connectors
8	Clip Feature	Mating with clip (EWCAP-005-7)
9	Finger Protection Ribs	Prevents from injury during handling

2.9.3 0.50 YESC NWP System Connector Header Assembly



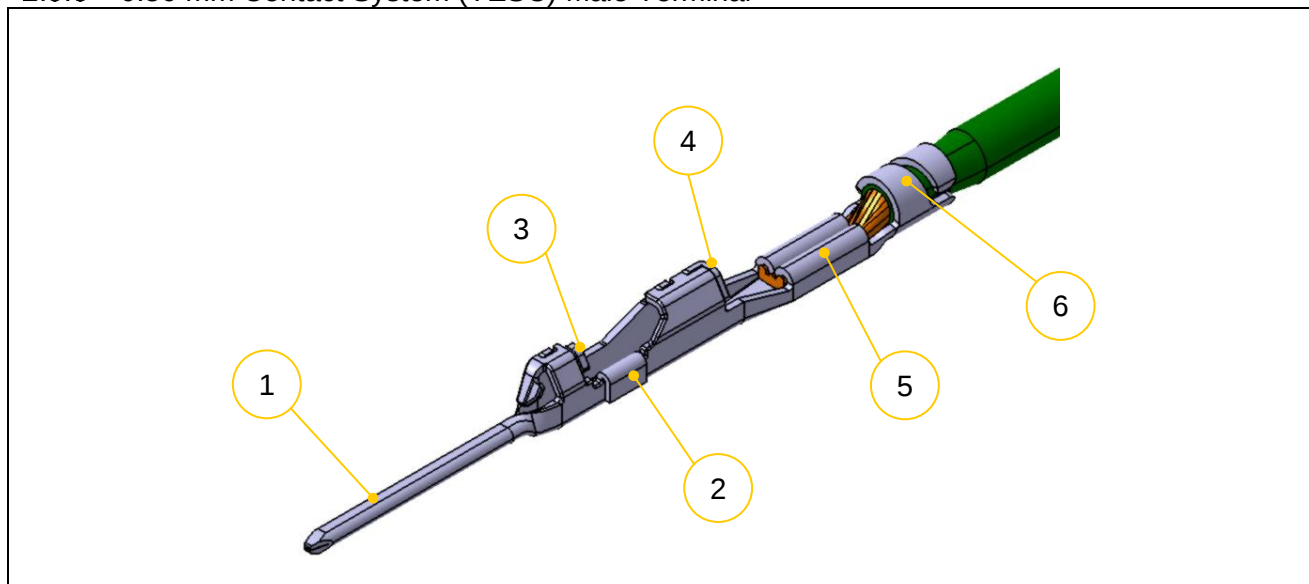
No.	FEATURE	DESCRIPTION/FUNCTION
1	PCB Terminal	Contact with female terminal
2	PCB Position Assurance Pins	PCB position assurance pins enter into the holes on a PCB and guide terminals in its holes on the PCB
2.1	PCB Locking Feature	Feature that assures relative position between PCB and header before soldering
4	Kojiri Ribs (Scoop proofing)	Prevents pin damage due to miss orientation of connectors
5	Locking Hook	Locks together female connector and header
6	Coding	Prevents mismatching

2.9.4 0.50 mm Contact System (YESC) Female Terminal



No.	FEATURE	DESCRIPTION/FUNCTION
1	Contact Spring	Contact with male terminal
2	Polarization Feature	Prevents improper insertion of the terminal
3	Terminal Primary Lock	Edge provides primary locking with cavity lance
4	Terminal Secondary Lock	Edge provides locking with hinged secondary lock to support greater forces
5	Wire Crimp	Conductor crimping
6	Insulation Crimp	Insulation crimping

2.9.5 0.50 mm Contact System (YESC) Male Terminal



No.	FEATURE	DESCRIPTION/FUNCTION
1	Tab	Contact with female terminal
2	Polarization Feature	Prevents improper insertion of the terminal
3	Terminal Primary Lock	Edge provides primary locking with cavity lance
4	Terminal Secondary Lock	Edge provides locking with hinged secondary lock to support greater forces
5	Wire Crimp	Conductor crimping
6	Insulation Crimp	Insulation crimping

3 Handling of Components

3.1 Inspection of Received Items

3.1.1 To be Inspected upon Receipt of Terminals

1. Appropriate part number.
2. Parts must be free of foreign objects, cracks, deformation, burrs, rust, unclean parts, peeling or any flaw and all other apparent abnormalities.
3. Parts display no apparent discoloration and/or oxidation.
4. No entangled or loosened terminals from reel.

3.1.2 To be Inspected upon Receipt of Female and Male Subassembly (Including CPA)

1. Appropriate part number.
2. Parts must be free of foreign objects, cracks, deformation, burrs, rust, unclean parts, peeling or any flaw and all other apparent abnormalities.
3. Parts must be free of foreign objects or inappropriate products.
- △ 4. If hinged secondary lock is accidentally engaged during shipment but not damaged, proceed to chapter 5 for disengagement procedure.

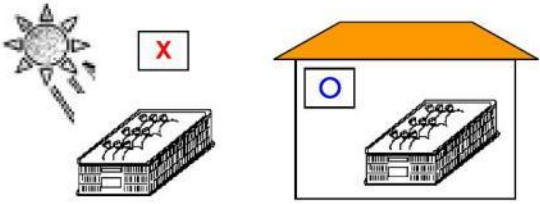
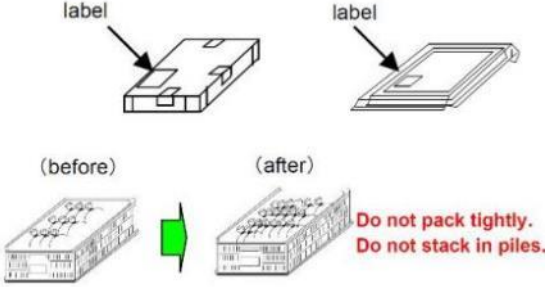
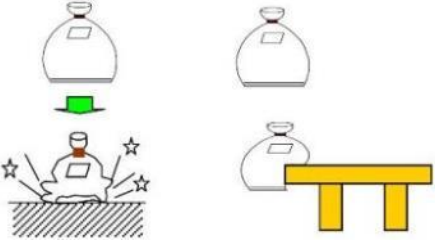
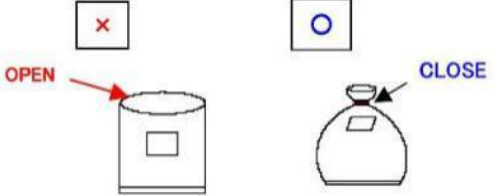
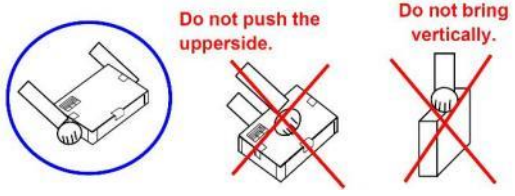
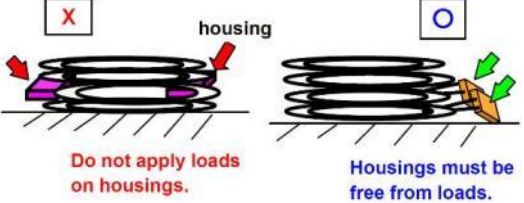
3.1.3 To be Inspected upon Receipt of other Associated Parts

1. Appropriate part number.
2. Parts must be free of foreign objects, cracks, deformation, burrs, rust, unclean parts, peeling or any flaw and all other apparent abnormalities.
3. Parts must be free of foreign objects or inappropriate products.

3.2 Storage Conditions

STORAGE CONDITIONS	
Storage Time	12 months max.
Storage Temperature	+10 °C to +35 °C
Relative Humidity	10 % to 75 %

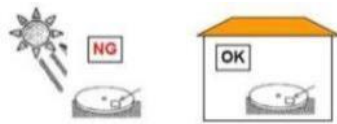
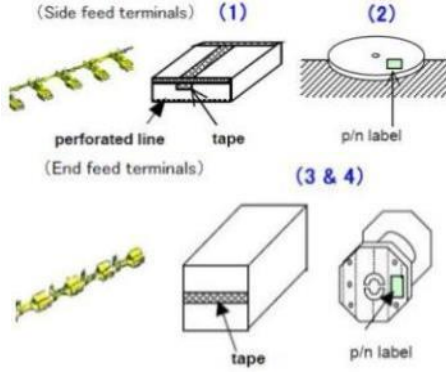
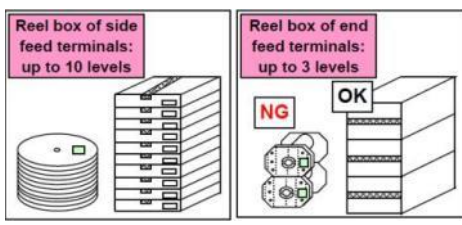
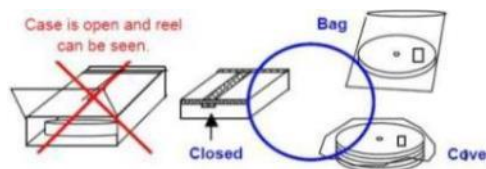
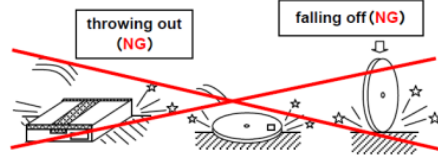
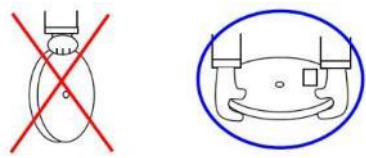
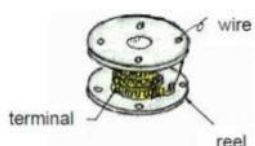
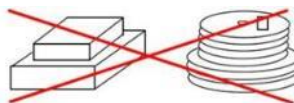
3.3 Handling and Storage for Connectors

No.	CONTROL PROCESS	ILLUSTRATION	INFLUENCE ON QUALITY
1	1) Please store plastic and carton cases used for housing storage at room temperature, avoiding moisture and direct sunlight. 2) Please equalize housing temperature with room temperature.		1) There are risks of breakage and discoloration due to housing material degradation. 2) There are risks of damage on lance, hinge and breakage of lock or other problems.
2	1) Please turn the label on packages upward during storage. 2) Please do not apply pressure to housings in bag packages during storage. Please do not replace plastic cases and carton boxes with storage boxes.		There are risks of incorrect position of child parts, deformation or other problems.
3	When carrying housings, please pay attention in order to avoid damage or impact to the products.		There are risks of deformation, breakage, incorrect position of child parts or loss of parts.
4	Please put a cover or close the bag to prevent dust accumulation.		There is a risk of contact defect due to adherence of dust. There is also a possibility of a sealing defect.
5	When carrying housings, please hold the underside of the container with both hands. Do not position the box vertically and not push the upper side of the box.		There are risks of deformation, damage or loss of parts.
6	Please store your products in a way that does not apply a load on housings.		There are risks of deformation due to the pressure from the weight and risks of breakage due to shock.

*Since the products have different handling methods, please refer to the instructions of each product for details.

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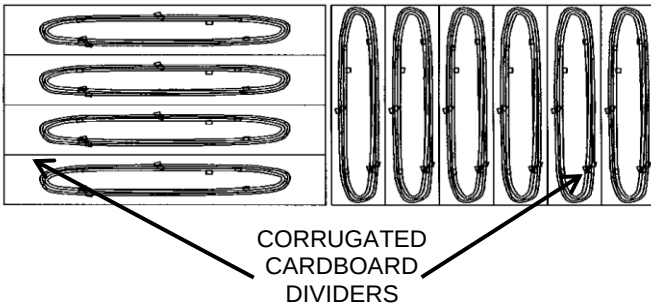
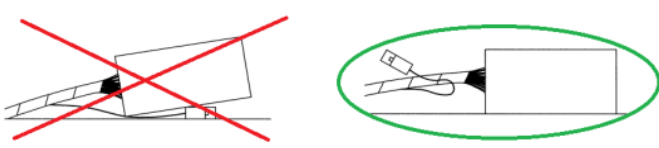
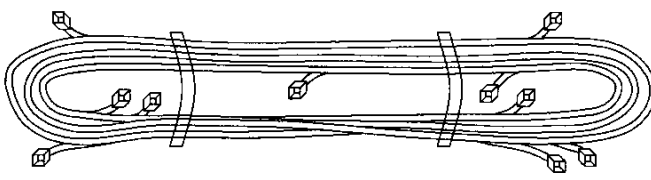
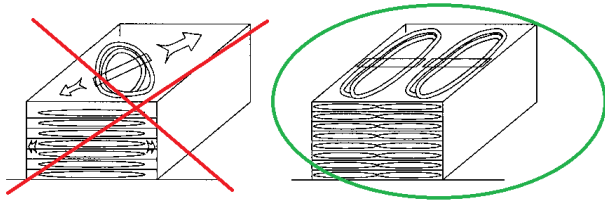
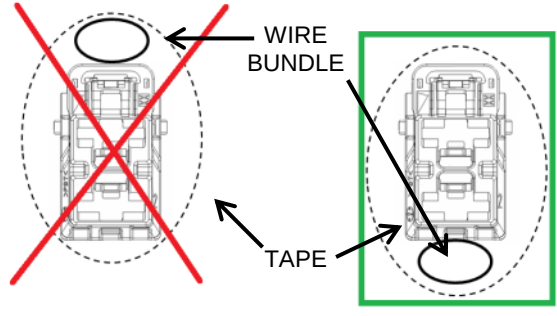
3.4 Handling and Storage for Terminals

No.	CONTROL PROCESS	ILLUSTRATION	INFLUENCE ON QUALITY
1	Please store carton cases at room temperature, avoiding moisture and direct sunlight.		There are risks of deformation on reels, rust and discoloration.
2	1) For side feed terminals, please turn the taped surface of the cases upwards during transportation and storage. 2) For side feed terminals, please turn the p/n label of the cases upwards and position them horizontally during storage. 3) For end feed terminals, please position the cases with the taped surface positioned on the right side during transportation and storage. 4) For end feed terminals, please place the carton cases in the vertical direction, so that the p/n label can be seen on the right side during storage.	 Side feed terminals placed vertically End feed terminals placed horizontally	There are risks of deformation, entanglement and loose winding.
3	1) For reels of side feed terminals, please limit the height of reel packages piled-up up to 10 levels and turn the label side up during storage. 2) For reels of end feed terminals, please limit the height of reel packages piled-up up to 3 levels at storage. Please do not pile-up vertical chained reels without carton cases.		There are risks of deformation of reels and terminals due to its own weight.
4	Please cover the containers or put them in a bag to prevent dust accumulation during storage.		There are risks of contact defect due to adherence of dirt or dust to the terminals.
5	When carrying terminals, please pay attention in order to avoid damage or impact to the products.		There are risks of deformation, entanglement and loose winding.
6	When carrying a reel of terminals, please hold the underside of reel with both hands to avoid deformation.		There are risks of deformation, entanglement and loose winding.
7	When storing reels currently in use, please fix the end of the chain to the reel with wires so that the terminals do not come loose.		There is a risk of loose winding.
8	Please do not pile up different sized reels or boxes.		There are risks of deformation of terminals and breakage of the reel due to the pressure from the weight.

*Since the products have different handling methods, please refer to the instructions of each product for details.

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3.5 Handling and Storage for Wire Harness

No.	CONTROL PROCESS	ILLUSTRATION	INFLUENCE ON QUALITY
1	When layering an individual wire harnesses in the shipping carton, it is recommended that corrugated cardboard layer dividers, vertical dividers, internal supports, and/or partitions be used to assure the weight of the wire harnesses is equally distributed.		There are risks of deformation or damage to the parts.
2	Heavier harness components (such as junction blocks, power distribution centers, protectors, brackets, etc.) should be positioned on the bottom of the carton or divider to prevent the weight of these parts from being applied on the smaller sized components / connectors.		There are risks of deformation or damage to the parts.
3	The connectors should be positioned on the outside or in the center of the W/H bundle to prevent the weight of the harness from being transferred to the connector.		There are risks of deformation or damage to the parts.
4	The W/H bundle size should be compatible with the shipping carton to prevent shifting of the W/H during transportation and/or storage.		There are risks of deformation or damage to the parts.
5	If the connector housing is 'taped back' on the wire harness bundle, assure that the housing lock or other flexible members of the connector are positioned away from the wire harness bundle.		
6	Extra care must be taken to prevent tangling the wire harnesses.		There are risks of damage to the connector during vehicle assembly.

* Since the products have different handling methods, please refer to the instructions of each product for details.

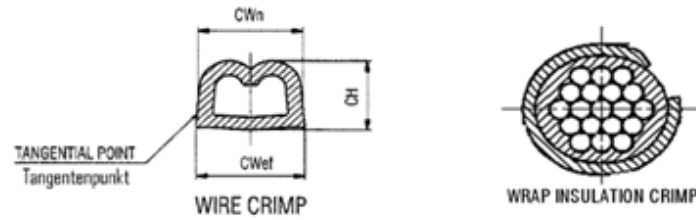
- After transportation or storage, the connector must be checked for damage.
- ⚠ • Accidentally engaged hinge shall be disengaged according to procedure described in chapter 5 and after that connector could be used.

4 Wiring Harness Assembly

4.1 Crimp Parameters

Crimp Parameters are used for reference only.

Refer to Terminals handling manual YPES-15-1389E for valid Crimp Parameters.



4.1.1 0.50 mm Contact System (YESC) Female Terminal

FOR REFERENCE ONLY
The latest information should be checked with Terminal Handling Manual YPES-15-1389E.

PART NO.	WIRE SIZE [mm ²]	WIRE TYPE	CONDUCTOR		INSULATION	
			CW [mm]	CH [mm]	CW _i [mm]	CH _i [mm]
7196-0069-02	0.13	CIVUS	0.90 ± 0.05	0.60 ± 0.03	1.25 ± 0.10	1.15 ± 0.05
		FLCuAg01RY		0.66 ± 0.03		1.25 ± 0.05
		FL CuMg		0.57 ± 0.03		1.15 ± 0.05
		FLCuSn03Y		0.60 ± 0.03		1.20 ± 0.05
	0.17	FLCuAg01RY		0.66 ± 0.03		1.25 ± 0.05
	0.22	FLRYA		0.72 ± 0.03		1.30 ± 0.05
7196-0070-02	0.35	CIVUS	1.20 ± 0.05	0.75 ± 0.03	1.40 ± 0.10	1.30 ± 0.10
		FLRYA		0.78 ± 0.03		1.35 ± 0.10
		FLRYB		0.78 ± 0.03		1.25 ± 0.10
		FLUYA		0.85 ± 0.05		1.40 ± 0.10
	0.50	CIVUS		0.92 ± 0.03		1.50 ± 0.10
		FLRYB		0.92 ± 0.03		1.50 ± 0.10
7196-0073-02	0.35	A39Y TAD T3	1.20 ± 0.05	0.75 ± 0.03	1.40 ± 0.10	1.35 ± 0.10
	0.50	A39Y TAD T3		0.89 ± 0.03		1.60 ± 0.10
7196-0073-06	0.35	FLR2X-B T4	1.20 ± 0.05	0.75 ± 0.03	1.40 ± 0.10	1.35 ± 0.10
		FLR2X-A T4		0.75 ± 0.03		1.35 ± 0.10
	0.50	FLR2X-A T4		0.89 ± 0.03		1.60 ± 0.10
		FLR2X-B T4		0.89 ± 0.03		1.60 ± 0.10
7196-1348-02	0.50	ALVUS 0.5	1.31 ± 0.10	0.81 ± 0.03	1.45 ± 0.10	1.50 ± 0.05

- Terminal must be in compliance with all validation criterias stated in Terminal Handling Manual YPES-15-1389E.

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4.1.2 0.50 mm Contact System (YESC) Male Terminal

FOR REFERENCE ONLY

△ The latest information should be checked with Terminal Handling Manual YPES-15-1389E.

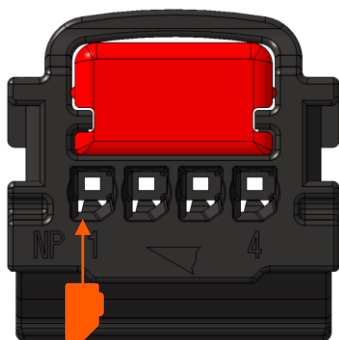
PART NO.	WIRE SIZE [mm ²]	WIRE TYPE	CONDUCTOR		INSULATION	
			CW [mm]	CH [mm]	CW _i [mm]	CH _i [mm]
7195-1199-02	0.13	FLCuSn03Y	1.15 ± 0.05	0.68 ± 0.03	1.30 ± 0.10	1.30 ± 0.05
		CIVUS				1.20 ± 0.05
	0.17	FLCuAg01RY		1.30± 0.05		
	0.22	FLRYA		1.40± 0.05		
7195-1201-02	0.13	FLRYA	TBD	TBD	TBD	TBD
	0.22	FLRYA				
7195-1200-02	0.35	FLRYA	1.35 ± 0.04	0.78 ± 0.03	1.60 ± 0.10	1.55 ± 0.05
		A39YA				1.45 ± 0.05
		CIVUS		0.81 ± 0.03		1.80 ± 0.10
	0.50	FLRYA				1.50 ± 0.10
	A39YA	0.75 ± 0.03				1.55 ± 0.05
	CIVUS					
	ALVUS					
7195-1202-06	0.35	FLRYA	TBD	TBD	TBD	TBD
	0.50	FLRYA				

- △ • Terminal must be in compliance with all validation criterias stated in Terminal Handling Manual YPES-15-1389E.

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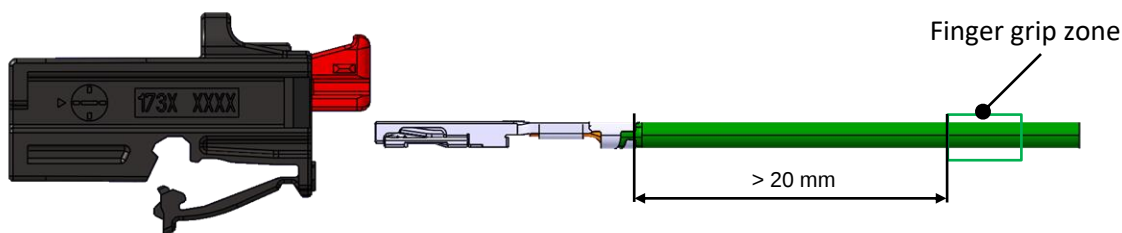
4.2 Connector Assembly Process

4.2.1 Insertion of Female Terminals – One Row Connectors



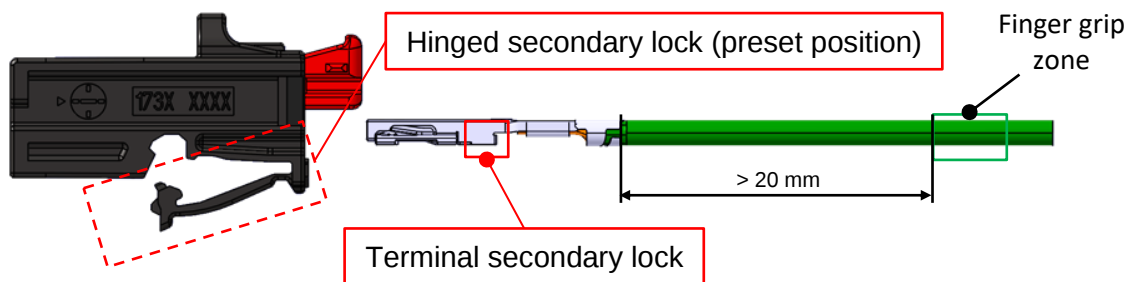
1. Check that hinged secondary lock is in pre-set position. If not, refer to chapter 5.1 and follow steps for disengagement.
- Make sure that the orientation of the terminal with respect to the connector is correct.
- Check that all terminals have the same orientation with polarization on right side and with terminal secondary lock facing to the hinged secondary lock.

2.

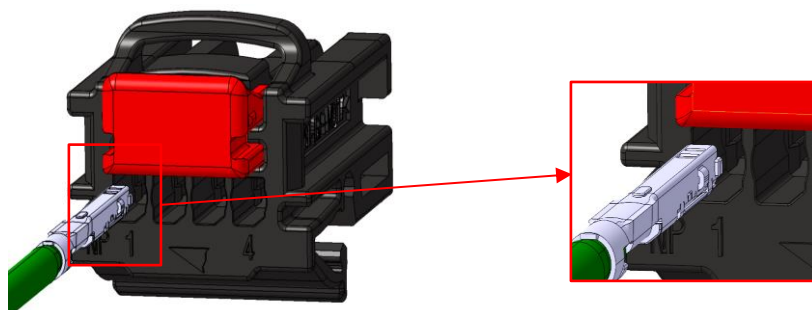


1. Hold the wire with finger grip at least 20 mm from terminal insulation crimp. Hold the wire at the grip zone location during the whole terminal insertion procedure.

3.

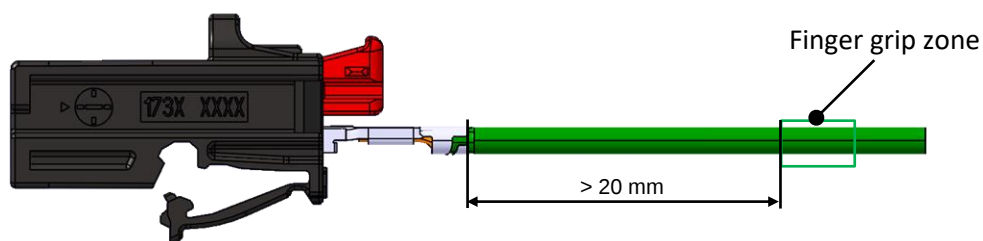


2. Position terminal in proper straight orientation.



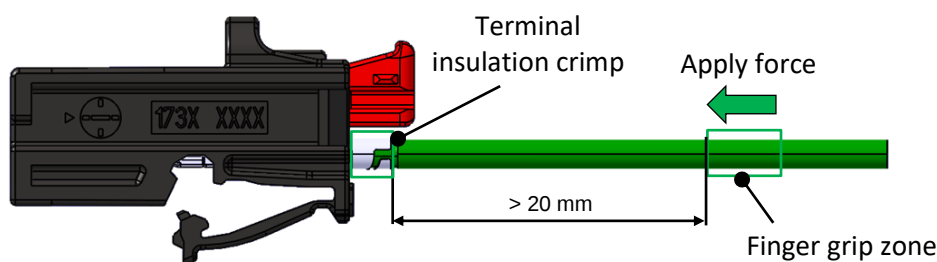
3. Position terminal in front of appropriate cavity.

2

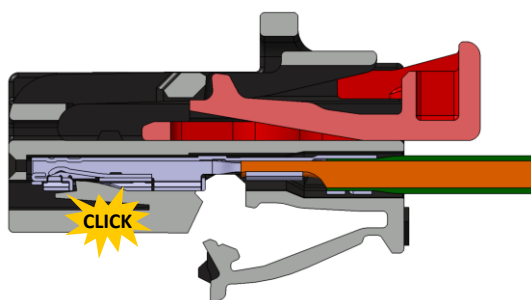


4. Guide terminal in cavity with lightly force applied while holding on proper grip zone, in straight position without tilting, until only the terminal insulation crimp can be seen.

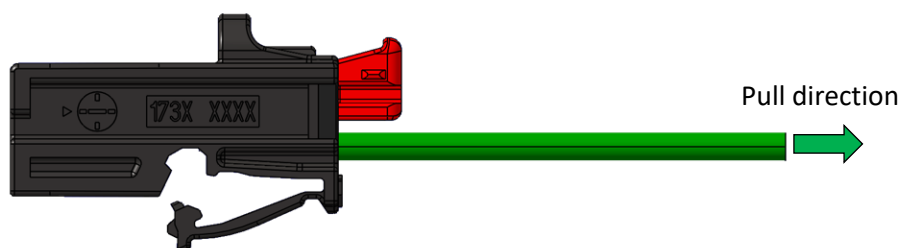
2



5. When the terminal is guided without encountering resistance and only terminal insulation crimp is seen, apply force until a click sound confirms proper terminal locking.

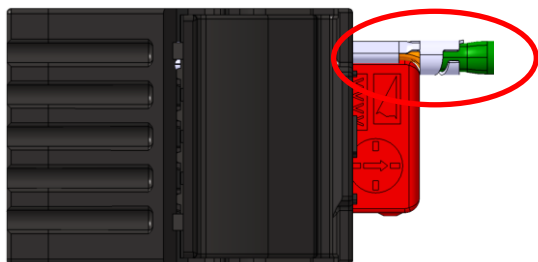


2



6. Pull the wire slightly to confirm proper terminal lock-up.

- ⚠ • After complete terminal insertion, make visual inspection to confirm proper terminal position and orientation.



WRONG TERMINAL INSERTION
⚠ Retract terminal and replace it with a new one.



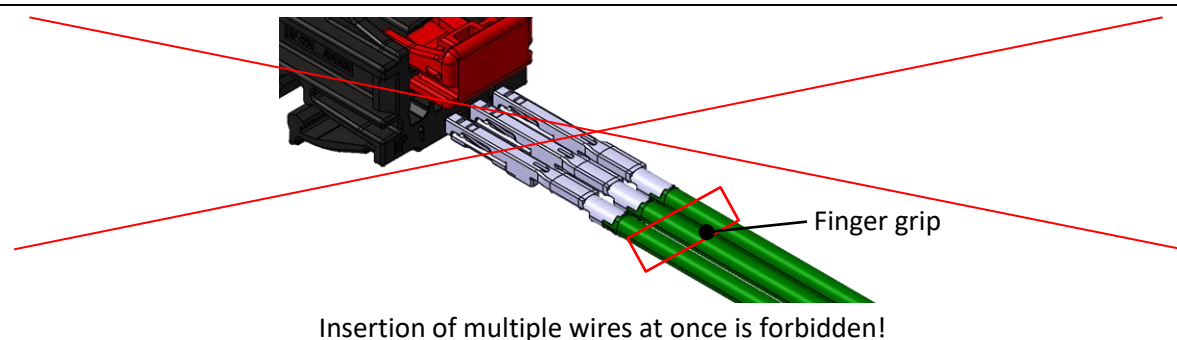
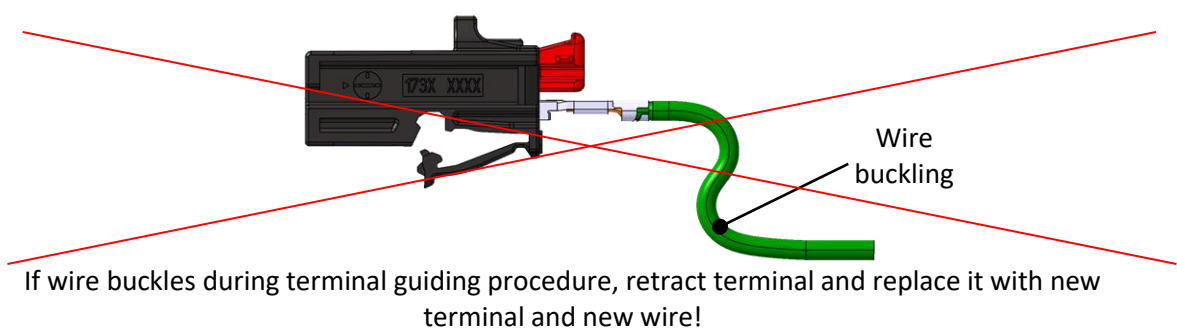
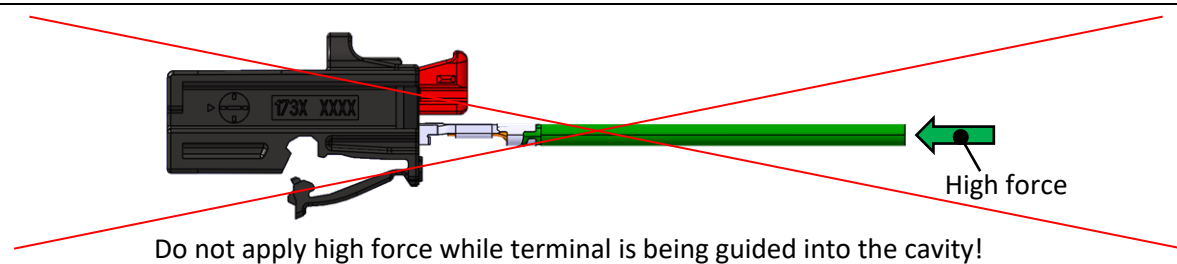
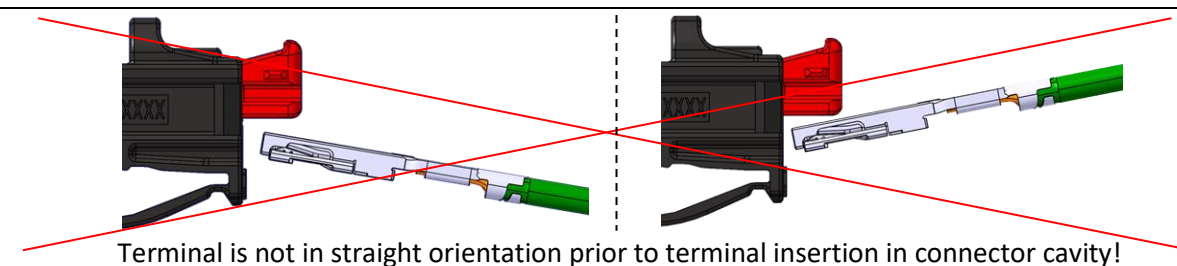
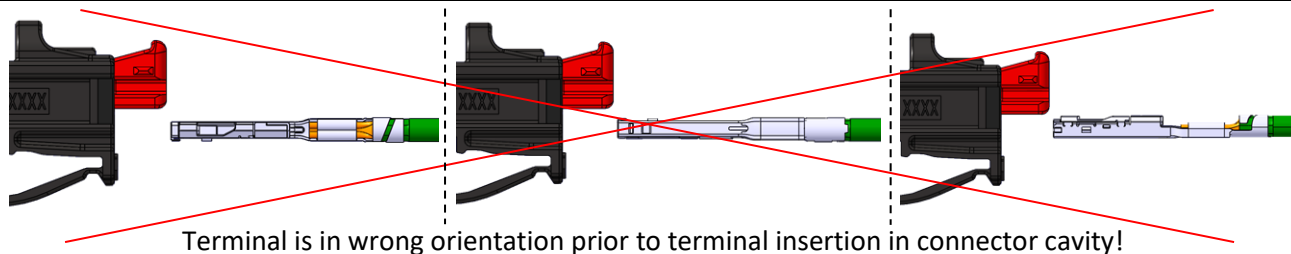
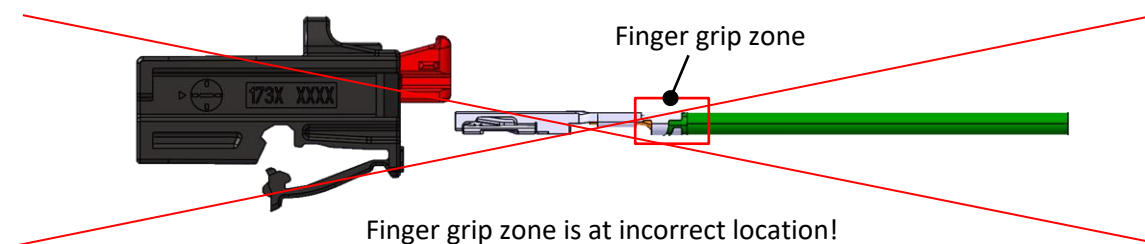
PROPER TERMINAL INSERTION

⚠ Notes and precautions:

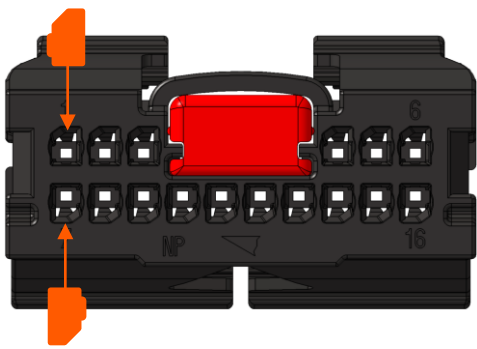
- Described procedures are valid for terminals crimped on all wire sizes.
- Insert one by one terminal, do not insert multiple terminals in one inserting operation.
- Apply minimal force for guiding terminal into the connector cavity. Do not apply high force.
- If any resistance is encountered during terminal guiding into the connector cavity, stop procedure and check terminal for damage. Replace terminal if it is damaged.
- If wire buckles during terminal guiding into the connector cavity, stop procedure, retract terminal and replace terminal and wire with new one.
- If terminal is pulled out in step 6 of terminal insertion procedure, retract terminal and replace terminal with new one. Check housing for possible damages and replace if necessary.

2

WRONG FEMALE TERMINAL INSERTION PROCEDURE



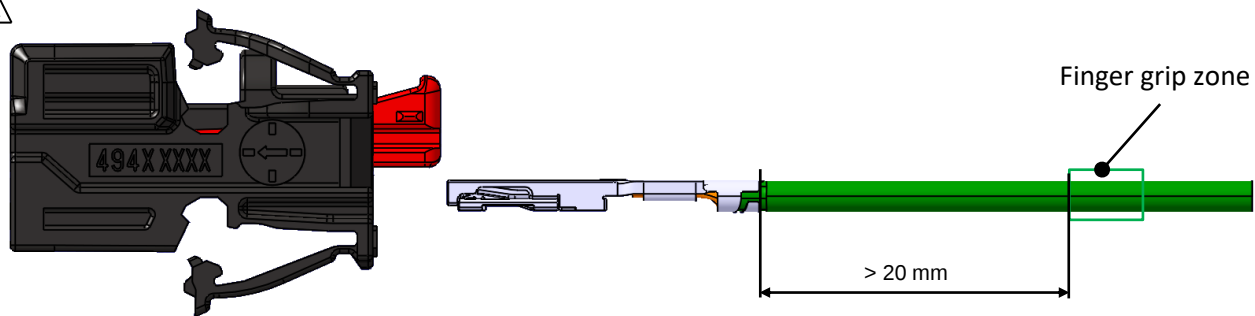
4.2.2 Insertion of Female Terminals – Two Rows Connectors



1

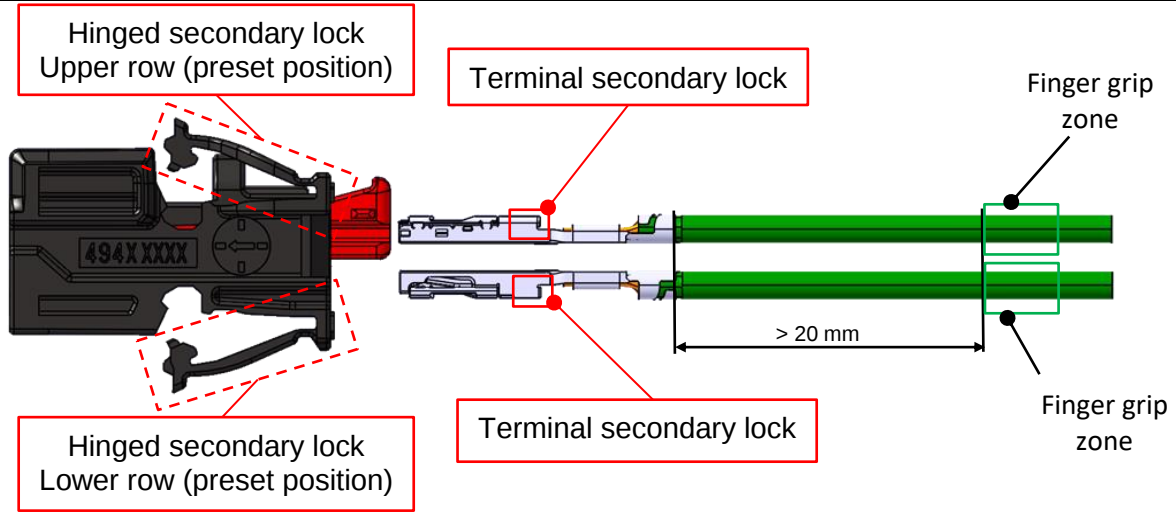
- Check that hinged secondary lock is in pre-set position. If not, refer to chapter 5.1 and follow steps for disengagement.
- Make sure that the orientation of the terminal with respect to the connector is correct.
- Check that upper terminals have polarization on left side and lower terminals on the right side.
- Check that terminal secondary lock is facing to the hinged secondary lock.

2



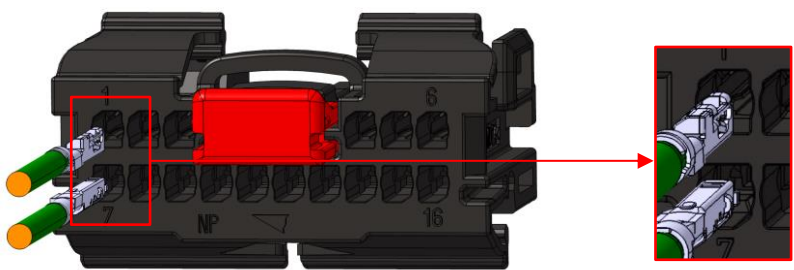
1. Hold the wire with finger grip at least 20 mm from terminal insulation crimp. Hold the wire at the grip zone location during the whole terminal insertion procedure.

2



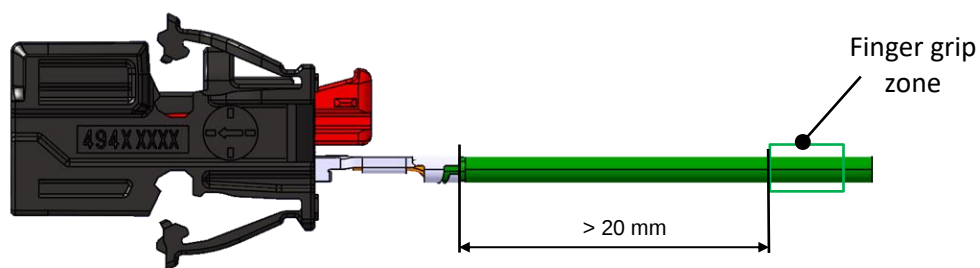
2. Position terminal in proper orientation

2



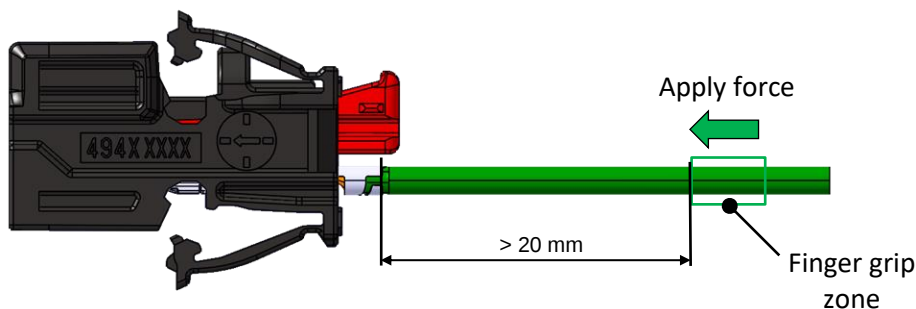
3. Position terminal in front of appropriate cavity

2

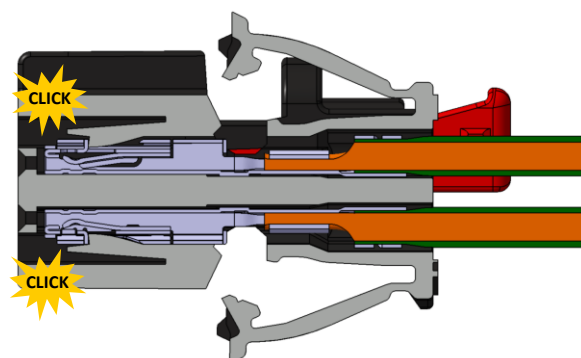


4. Guide terminal in cavity with lightly force applied while holding on proper grip zone, in straight position without tilting, until only the terminal insulation crimp can be seen.

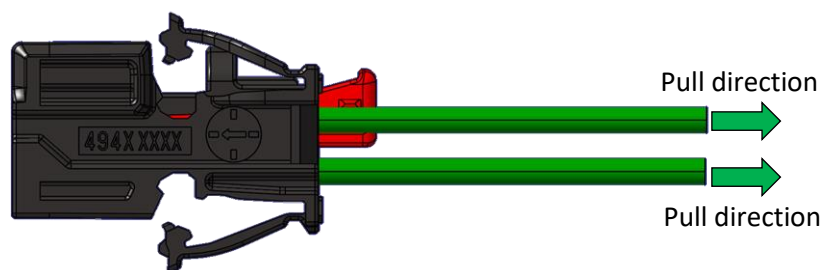
2



5. When the terminal is guided without encountering resistance and only terminal insulation crimp is seen, apply force until a click sound confirms proper terminal locking.

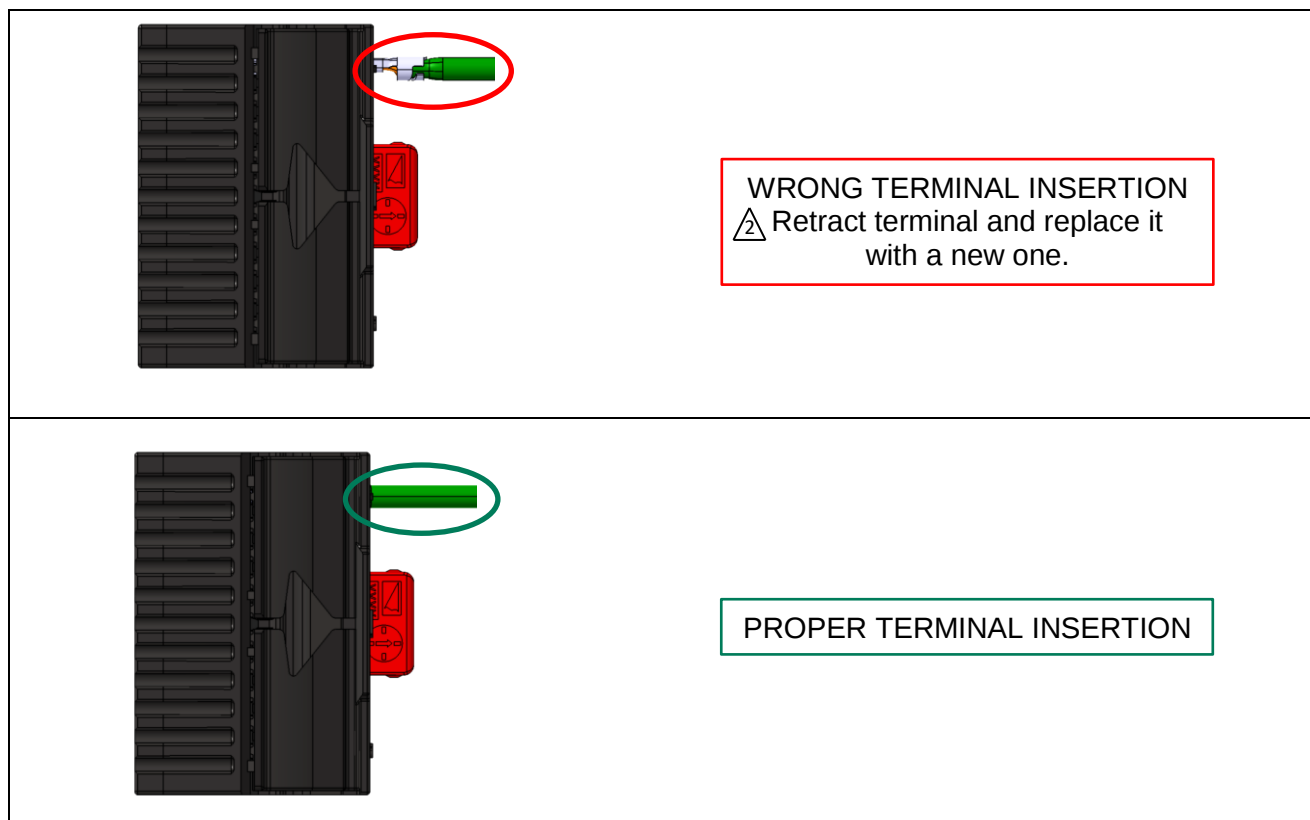


2



6. Pull the wire slightly to confirm proper terminal lock-up.

- ① • After complete terminal insertion, make visual inspection to confirm proper terminal position and orientation.
- ②

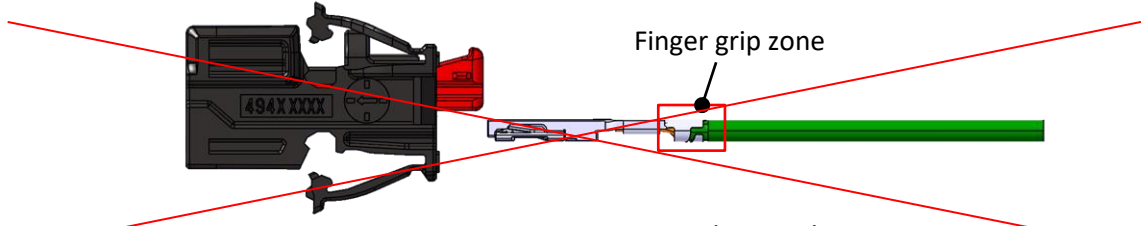


② Notes and precautions:

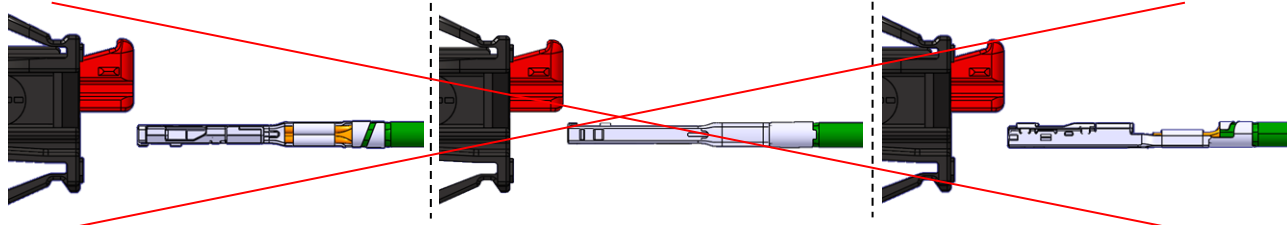
- Described procedures are valid for terminals crimped on all wire sizes.
- Insert one by one terminal, do not insert multiple terminals in one inserting operation.
- Apply minimal force for guiding terminal into the connector cavity. Do not apply high force.
- If any resistance is encountered during terminal guiding into the connector cavity, stop procedure and check terminal for damage. Replace terminal if it is damaged.
- If wire buckles during terminal guiding into the connector cavity, stop procedure, retract terminal and replace terminal and wire with new one.
- If terminal is pulled out in step 6 of terminal insertion procedure, retract terminal and replace terminal with new one. Check housing for possible damages and replace if necessary.

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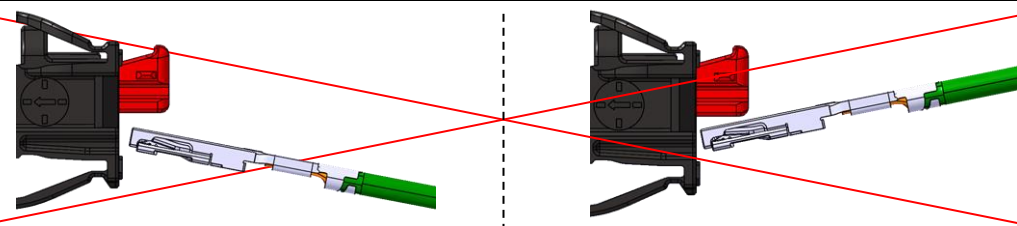
2
WRONG FEMALE TERMINAL INSERTION PROCEDURE



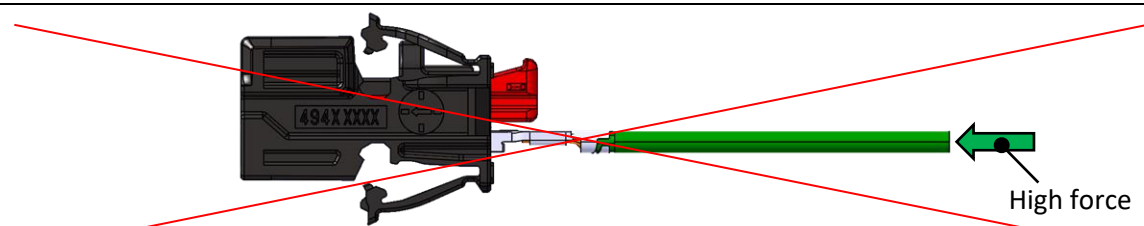
Finger grip zone is at incorrect location!



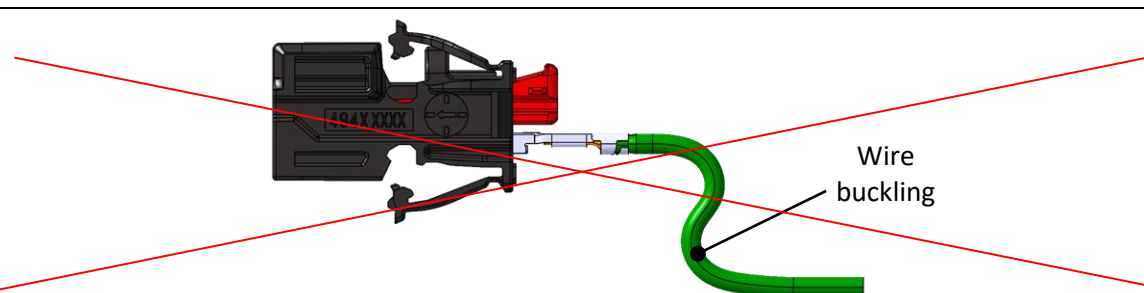
Terminal is in wrong orientation prior to terminal insertion in connector cavity!



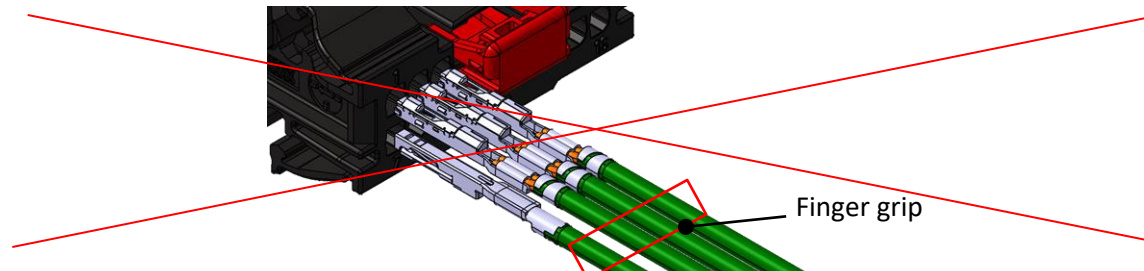
Terminal is not in straight orientation prior to terminal insertion in connector cavity!



Do not apply high force while terminal is being guided into the cavity!



If wire buckles during terminal guiding procedure, retract terminal and replace it with new terminal and new wire!

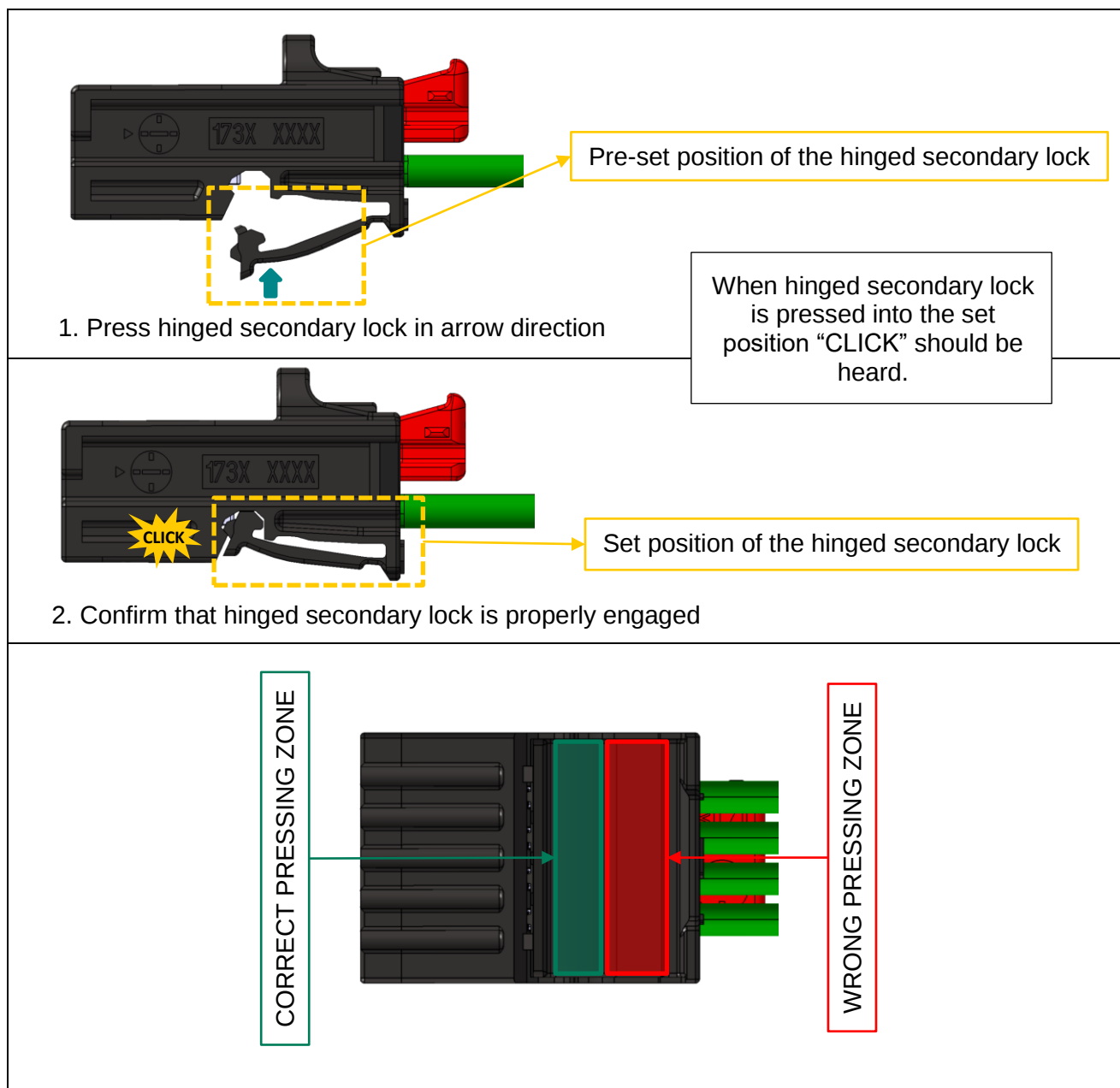


Insertion of multiple wires at once is forbidden!

4.2.3 Female Housing Hinged Secondary Lock Engagement

In order to ensure that terminals are properly inserted, female housing hinged secondary lock should be in the set position.

- Prior to closing the hinged secondary lock, check if all terminals are properly inserted.
- ⚠ • Described procedures and precautions are valid for one row and two row connectors.

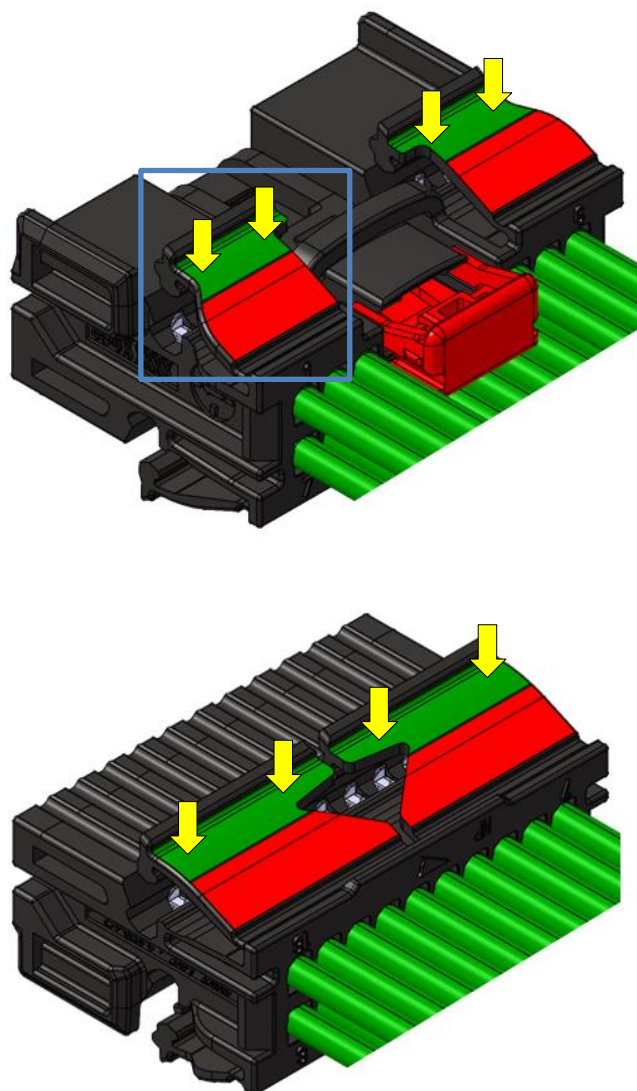
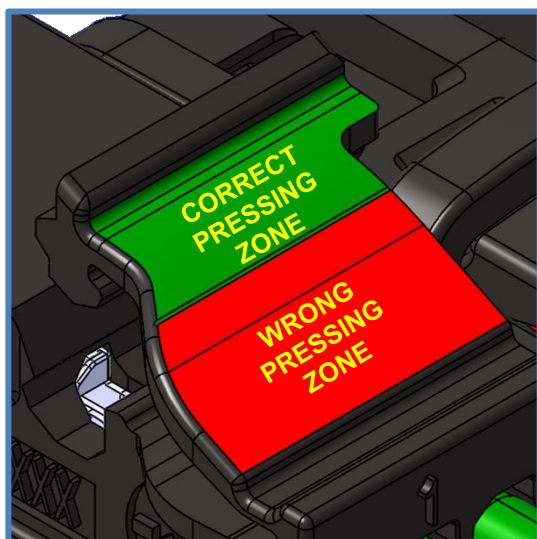


Precautions:

- Confirm that hinged secondary lock is in set position.
- If hinged secondary lock cannot be fully pressed one of the following conditions may exist:
 - Terminals are not fully inserted into the cavity (refer to chapter 4.2.1 and 4.2.2),
 - Terminals are improperly oriented (refer to chapter 4.2.1 and 4.2.2).
- Hinged secondary lock can be reopened two times the most.

3 Closing hinged secondary lock on connectors with multiple secondary locks.

3



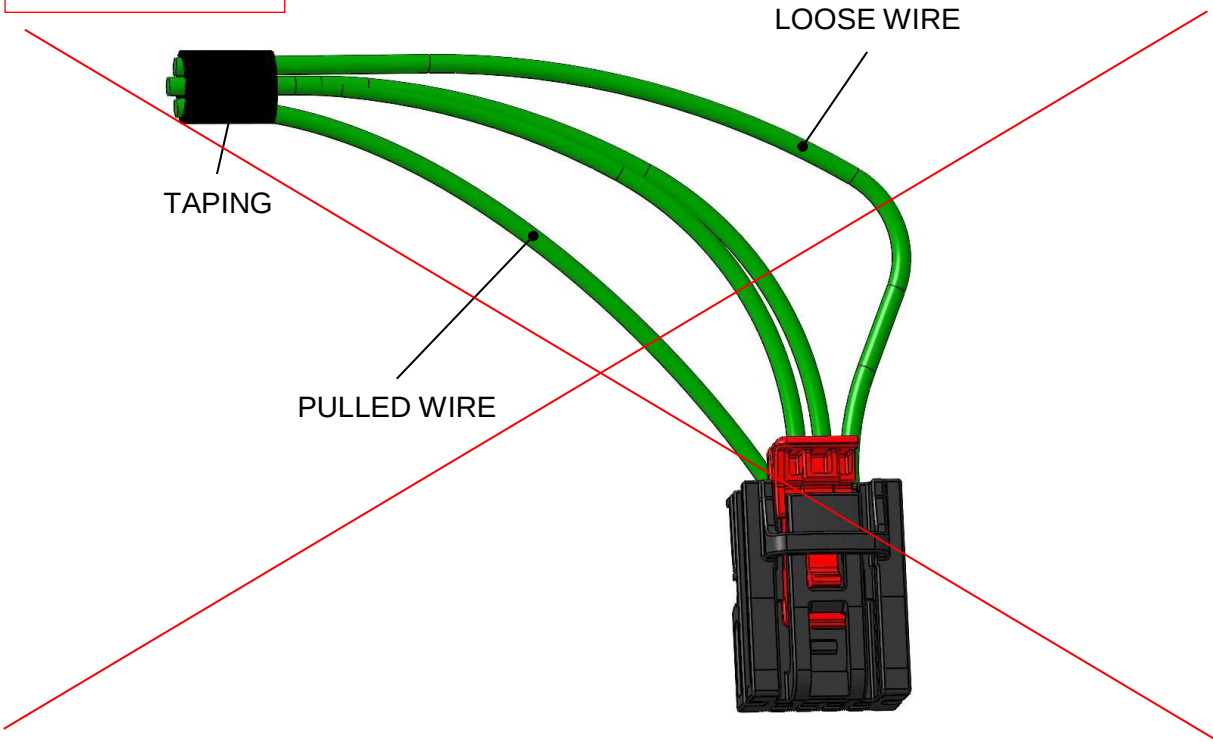
Push on correct pressing zone in arrow direction. It is recommended to push near locking hooks.
 Every hinged secondary lock has two locking hooks.
 After closing, check that hinged secondary lock is properly seated.

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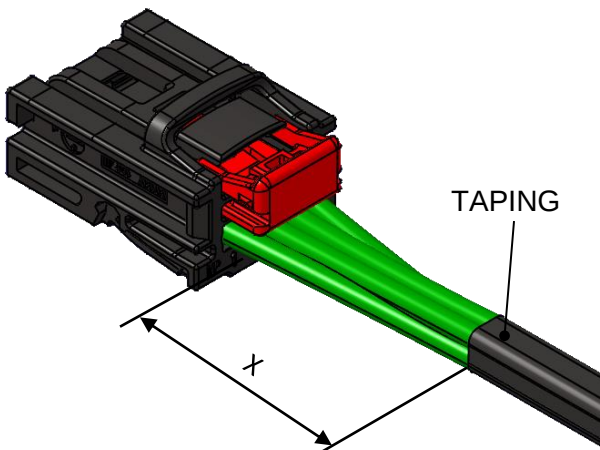
4.2.4 Taping – Female Connector Subassembly

- ⚠ • Described procedures and precautions are valid for one row and two row connectors.

⚠ UNACCEPTABLE



⚠ ACCEPTABLE



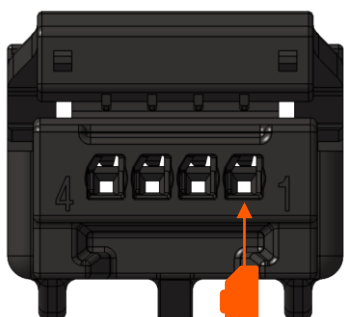
Number of poles	X [mm]
2 – 8	20
12 - 16	25
20 - 24	30

Table 1. Taping distance

Precautions:

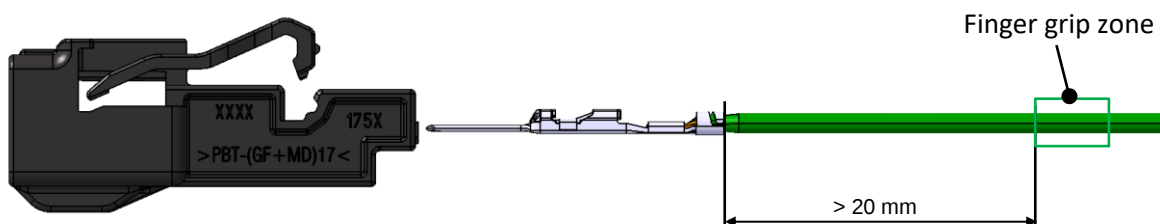
- Apply the tape in such manner that every individual wire is subjected approximately to an equal tensile force. Concentration of tensile force on a particular wire may cause a harmful effect such as inadvertent disengagement of a terminal.
 - Care shall be taken not to deform the parts. Replace any damaged or deformed parts with the new parts.
- ⚠ • Recommended minimum taping distance from the connector end is according to Table 1.

4.2.5 Insertion of Male Terminals – One Row Connectors



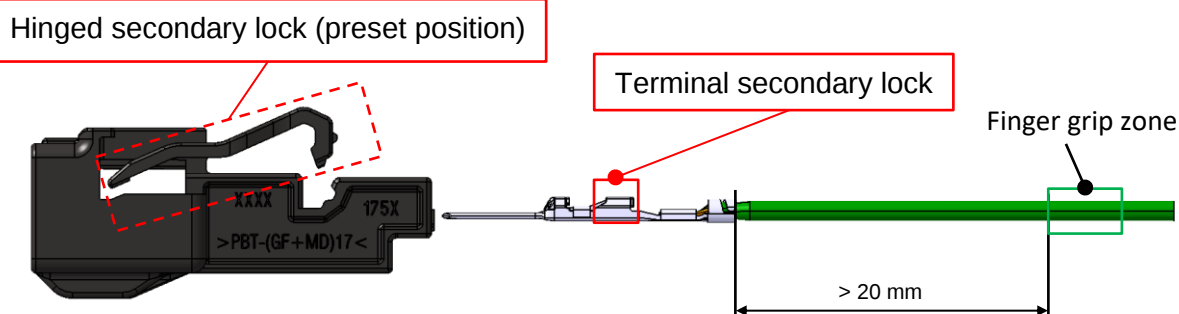
- ⚠
- Check that hinged secondary lock is in pre-set position. If not, refer to chapter 5.2 and follow steps for disengagement.
 - Make sure that the orientation of the terminal with respect to the connector is correct.
 - Check that all terminals have the same orientation with polarization on left side and with terminal secondary lock facing to the hinged secondary lock.

⚠

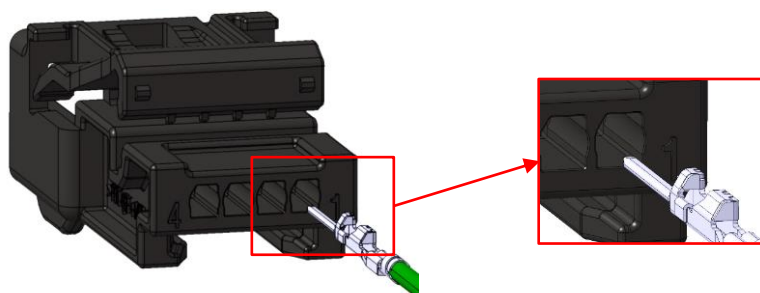


1. Hold the wire with finger grip at least 20 mm from terminal insulation crimp. Hold the wire at the grip zone location during the whole terminal insertion procedure.

⚠



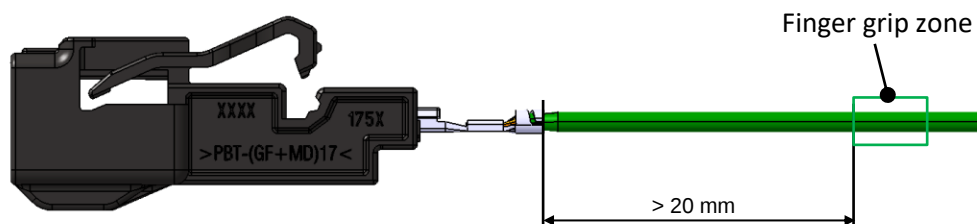
2. Position terminal in proper straight orientation



3. Position terminal in front of appropriate cavity

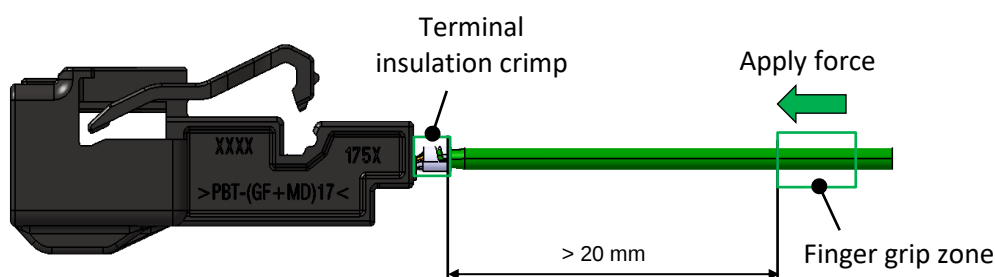
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2

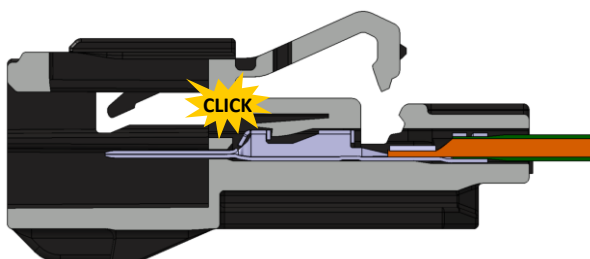


4. Guide terminal in cavity with lightly force applied while holding on proper grip zone, in straight position without tilting, until only the terminal insulation crimp can be seen.

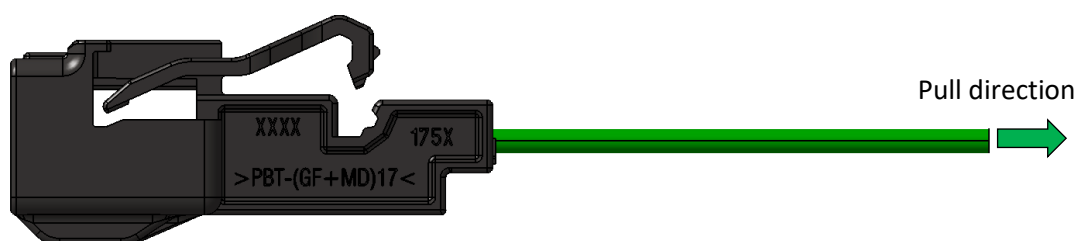
2



5. When the terminal is guided without encountering resistance and only terminal insulation crimp is seen, apply force until a click sound confirms proper terminal locking.

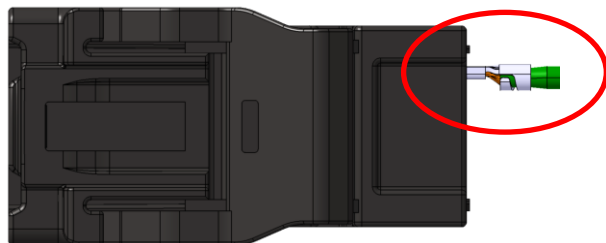


2



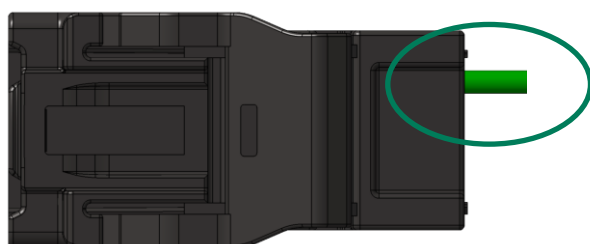
6. Pull the wire slightly to confirm proper terminal lock-up.

- ⚠ • After complete terminal insertion, make visual inspection to confirm proper terminal position and orientation.



WRONG TERMINAL INSERTION

- ⚠ Retract terminal and replace it with a new one.



PROPER TERMINAL INSERTION

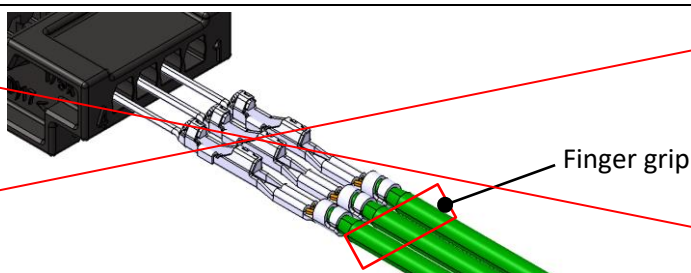
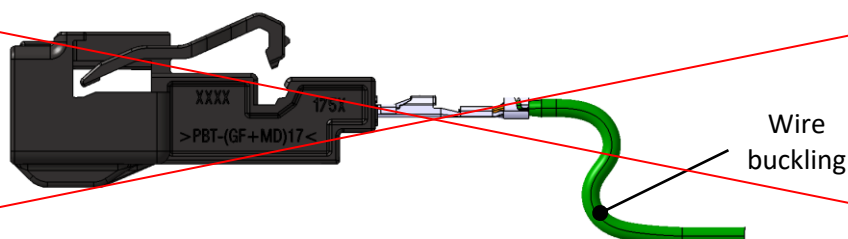
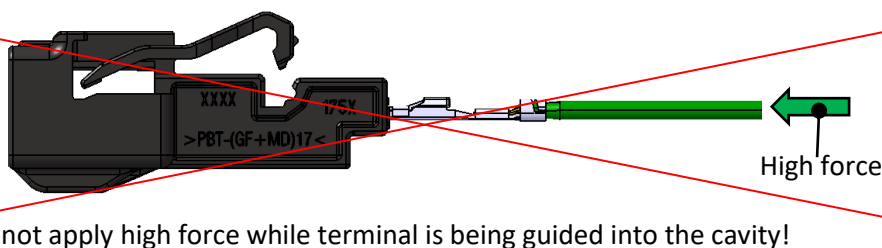
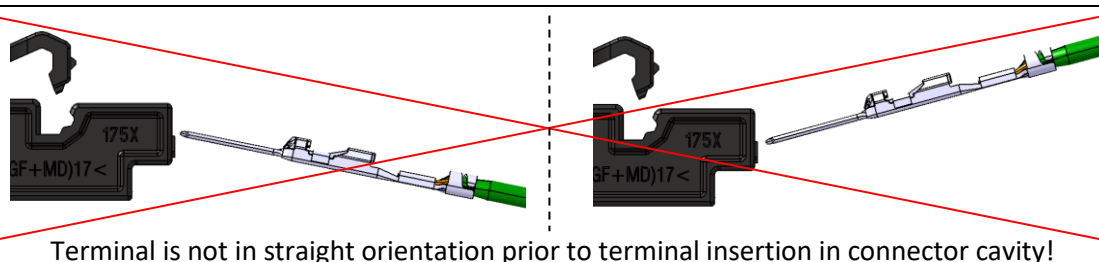
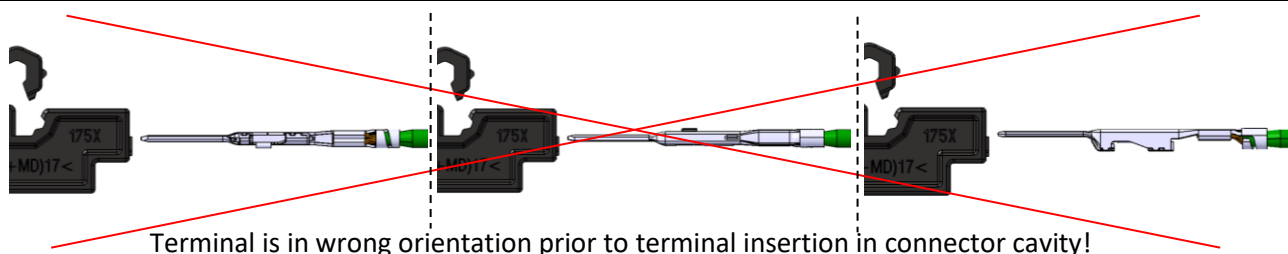
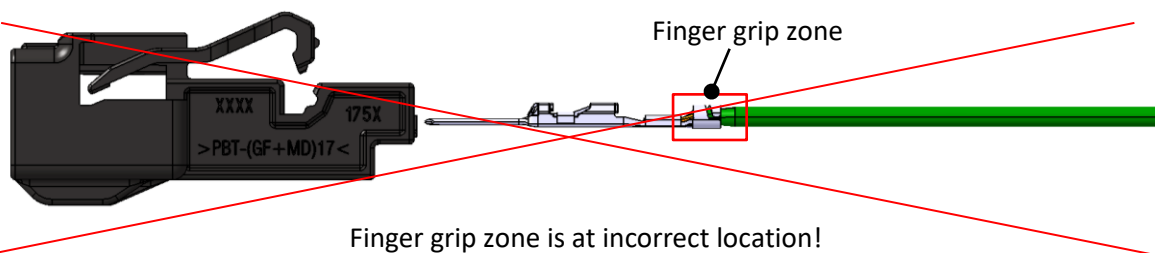
⚠ Notes and precautions:

- Described procedures are valid for terminals crimped on all wire sizes.
- Insert one by one terminal, do not insert multiple terminals at once.
- Apply minimal force for guiding terminal into the connector cavity. Do not apply high force.
- If any resistance is encountered during terminal guiding into the connector cavity, stop procedure, retract terminal and replace terminal with new one.
- If wire buckles during terminal guiding into the connector cavity, stop procedure, retract terminal and replace terminal and wire with new one.
- If terminal is pulled out in step 6 of terminal insertion procedure, retract terminal and replace terminal with new one. Check housing for possible damages and replace if necessary.

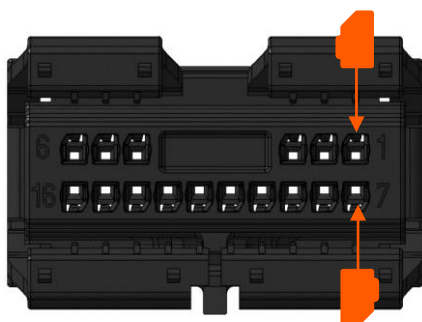
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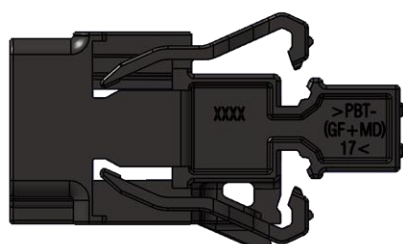
WRONG MALE TERMINAL INSERTION PROCEDURE



4.2.6 Insertion of Male Terminals – Two Rows Connectors



- Check that hinged secondary lock is in pre-set position. If not, refer to chapter 5.2 and follow steps for disengagement.
- Make sure that the orientation of the terminal with respect to the connector is correct.
- Check that upper terminals have polarization on left side and lower terminals on the right side.
- Check that terminal secondary lock is facing to the hinged secondary lock.



Finger grip zone

> 20 mm

1. Hold the wire with finger grip at least 20 mm from terminal insulation crimp. Hold the wire at the grip zone location during the whole terminal insertion procedure.



Hinged secondary lock
Upper row (preset position)

Terminal secondary lock

Finger grip zone

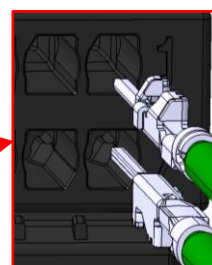
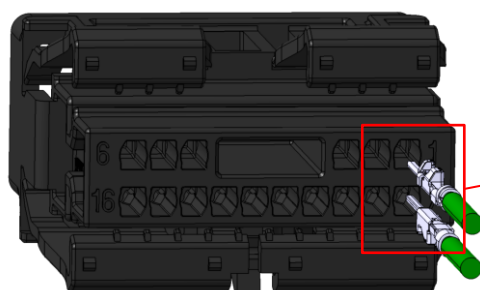
Hinged secondary lock
Lower row (preset position)

Terminal secondary lock

Finger grip zone

> 20 mm

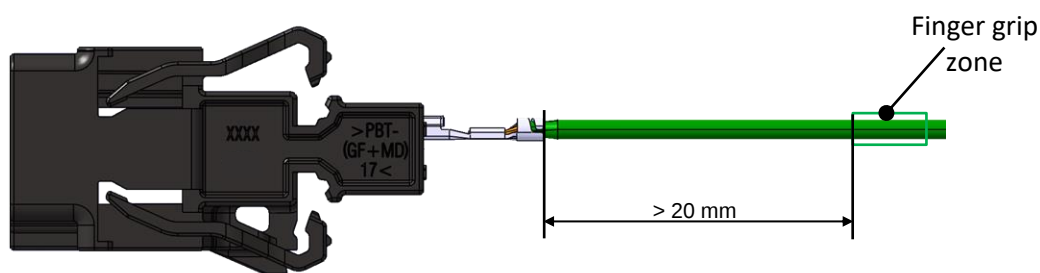
2. Position terminal in proper straight orientation.



3. Position terminal in front of appropriate cavity.

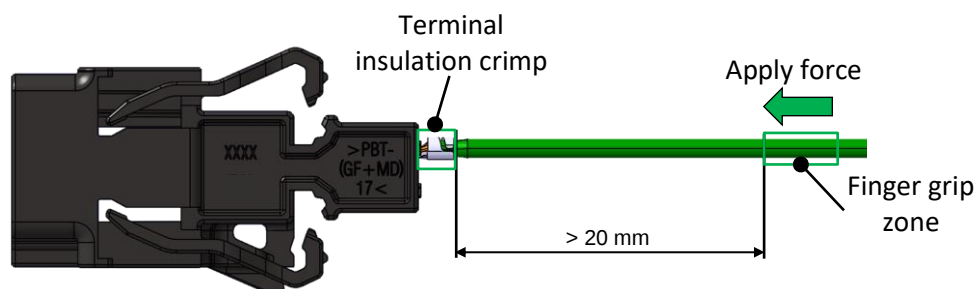
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2

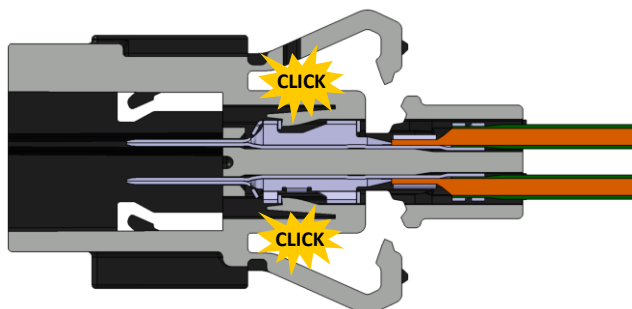


4. Guide terminal in cavity with lightly force applied while holding on proper grip zone, in straight position without tilting, until only the terminal insulation crimp can be seen.

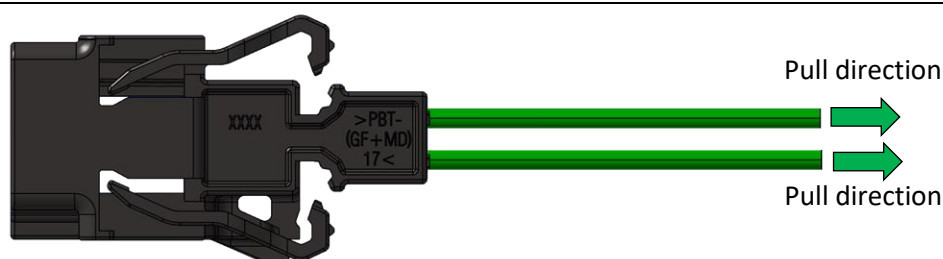
2



5. When the terminal is guided without encountering resistance and only terminal insulation crimp is seen, apply force until a click sound confirms proper terminal locking.

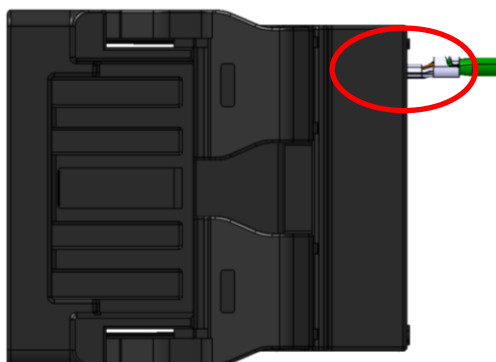


2

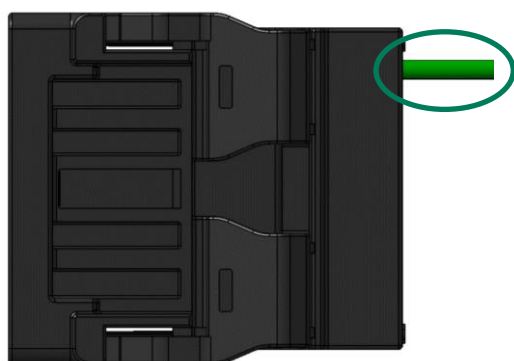


6. Pull the wire slightly to confirm proper terminal lock-up.

- 1 • After complete terminal insertion, make visual inspection to confirm proper terminal position and orientation.
- 2



WRONG TERMINAL INSERTION
 ⚠️ Retract terminal and replace it with a new one.



PROPER TERMINAL INSERTION

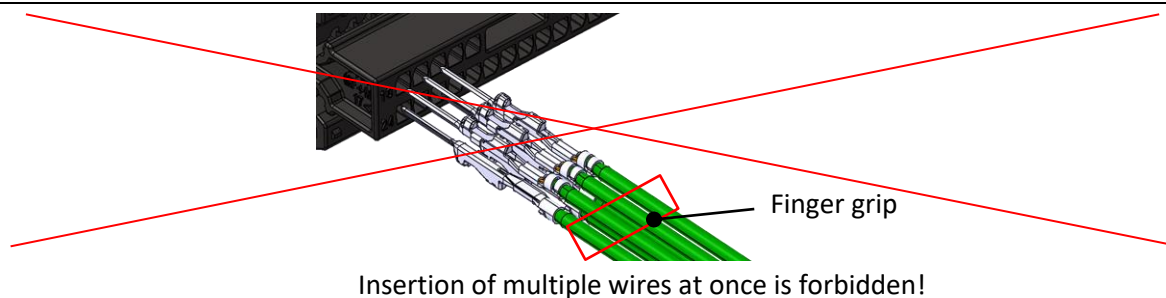
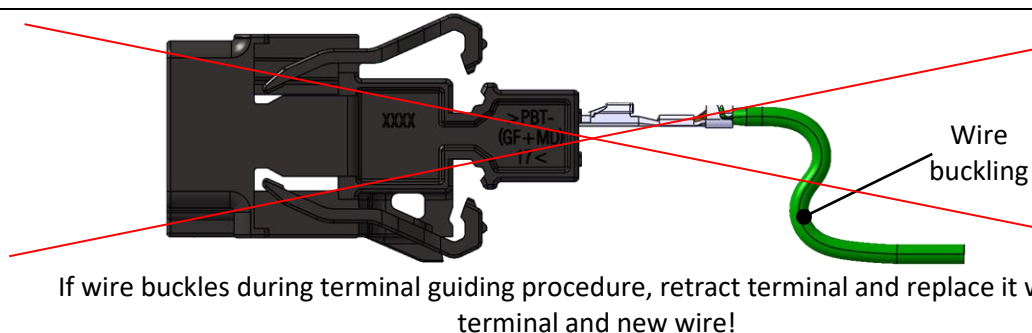
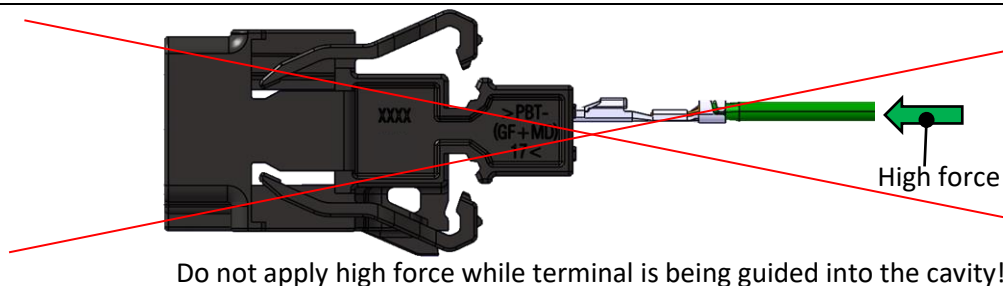
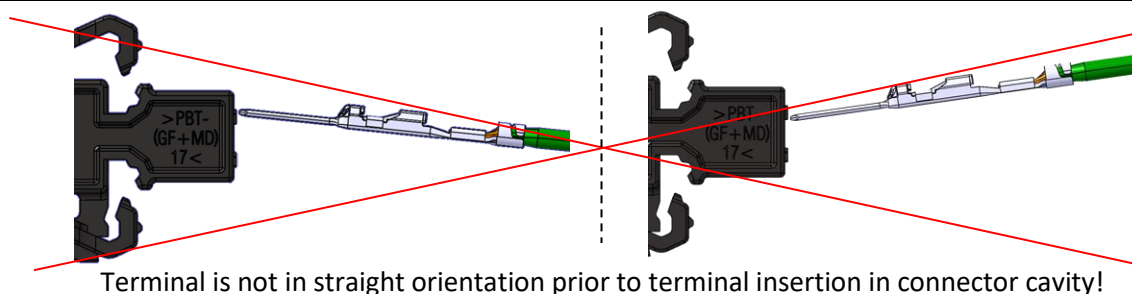
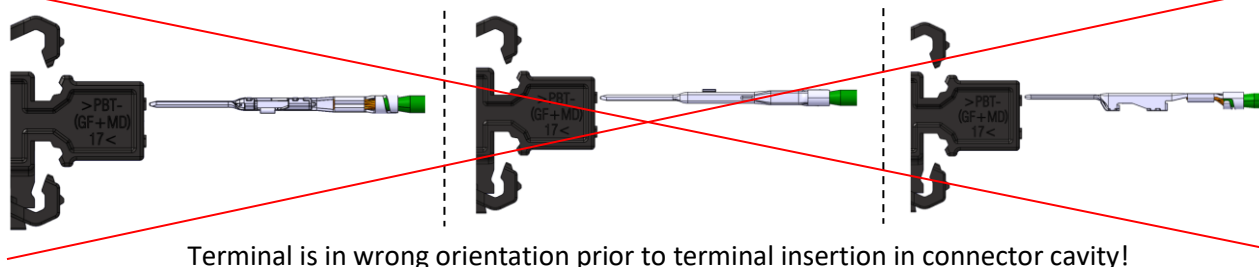
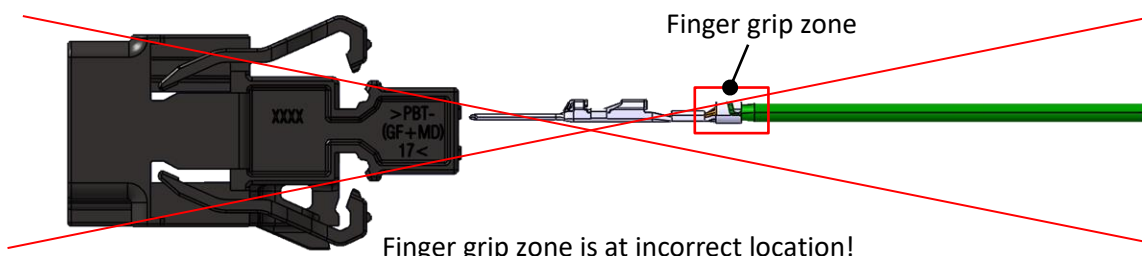
⚠️ Notes and precautions:

- Described procedures are valid for terminals crimped on all wire sizes.
- Insert one by one terminal, do not insert multiple terminals at once.
- Apply minimal force for guiding terminal into the connector cavity. Do not apply high force.
- If any resistance is encountered during terminal guiding into the connector cavity, stop procedure, retract terminal and replace terminal with new one.
- If wire buckles during terminal guiding into the connector cavity, stop procedure, retract terminal and replace terminal and wire with new one.
- If terminal is pulled out in step 6 of terminal insertion procedure, retract terminal and replace terminal with new one. Check housing for possible damages and replace if necessary.

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2

WRONG MALE TERMINAL INSERTION PROCEDURE

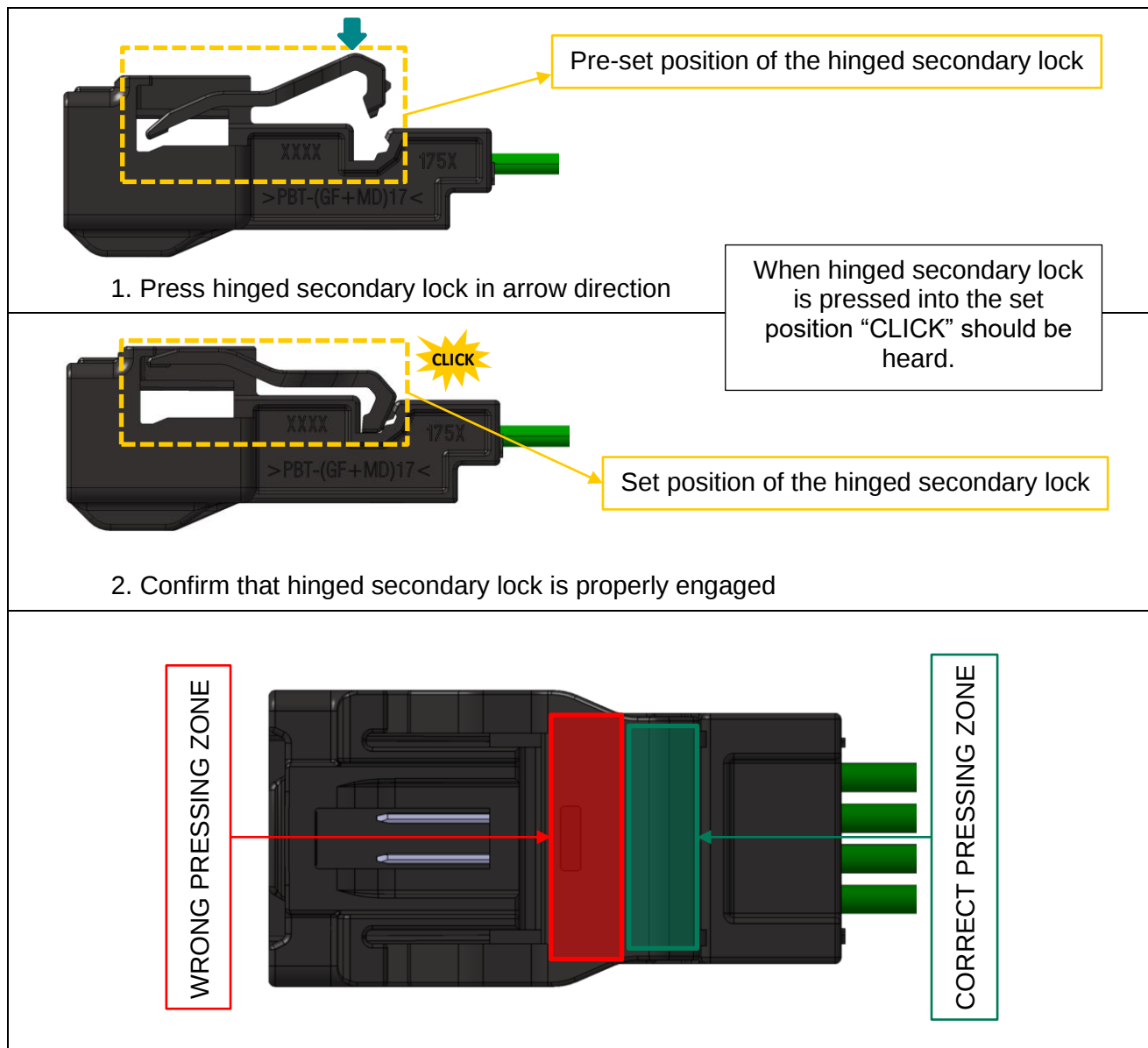


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4.2.7 Male Housing Hinged Secondary Lock Engagement

In order to ensure that terminals are properly inserted, male housing hinged secondary lock should be in a set position.

- Before closing check if all terminals are properly inserted.
- ⚠ • Described procedures and precautions are valid for one row and two row connectors.



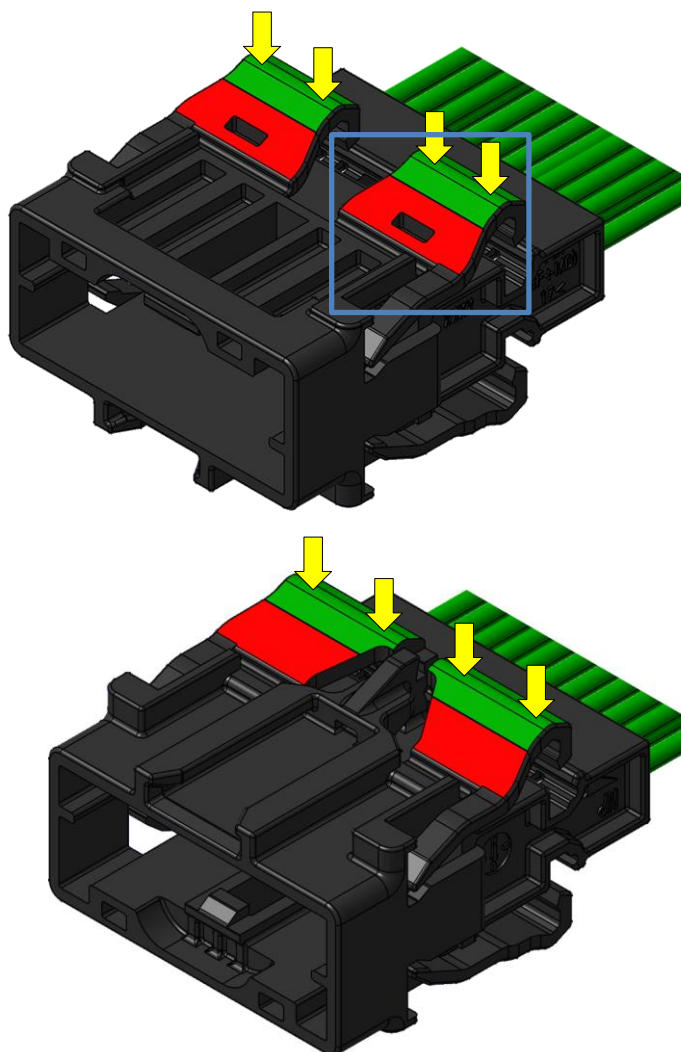
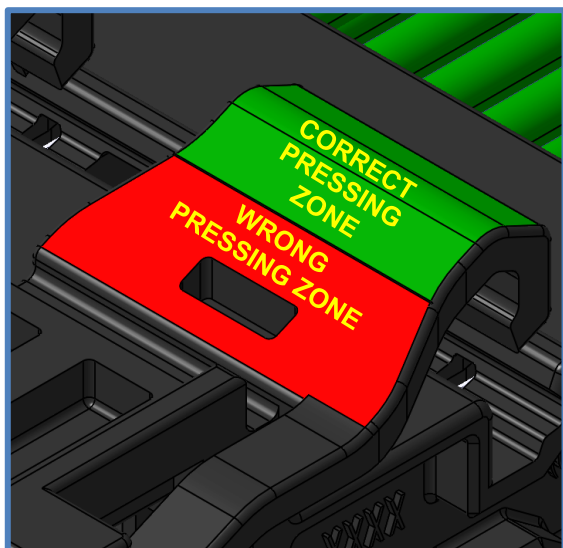
Precautions:

- Confirm that hinged secondary lock is in set position.
- If hinged secondary lock cannot be fully pressed one of the following conditions may exist:
 - Terminals are not fully inserted to the cavity (refer to chapter 4.2.5 and 4.2.6),
 - Terminals are improperly oriented (refer to chapter 4.2.5 and 4.2.6).
- Hinged secondary lock can be reopened two times the most.
- If hinged secondary lock is open (pre-set position), connectors can't be mated.

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3 Closing hinged secondary lock on connectors with multiple secondary locks.

3



Push on correct pressing zone in arrow direction. It is recommended to push near locking hooks.
 Every hinged secondary lock has two locking hooks.
 After closing, check that hinged secondary lock is properly seated.

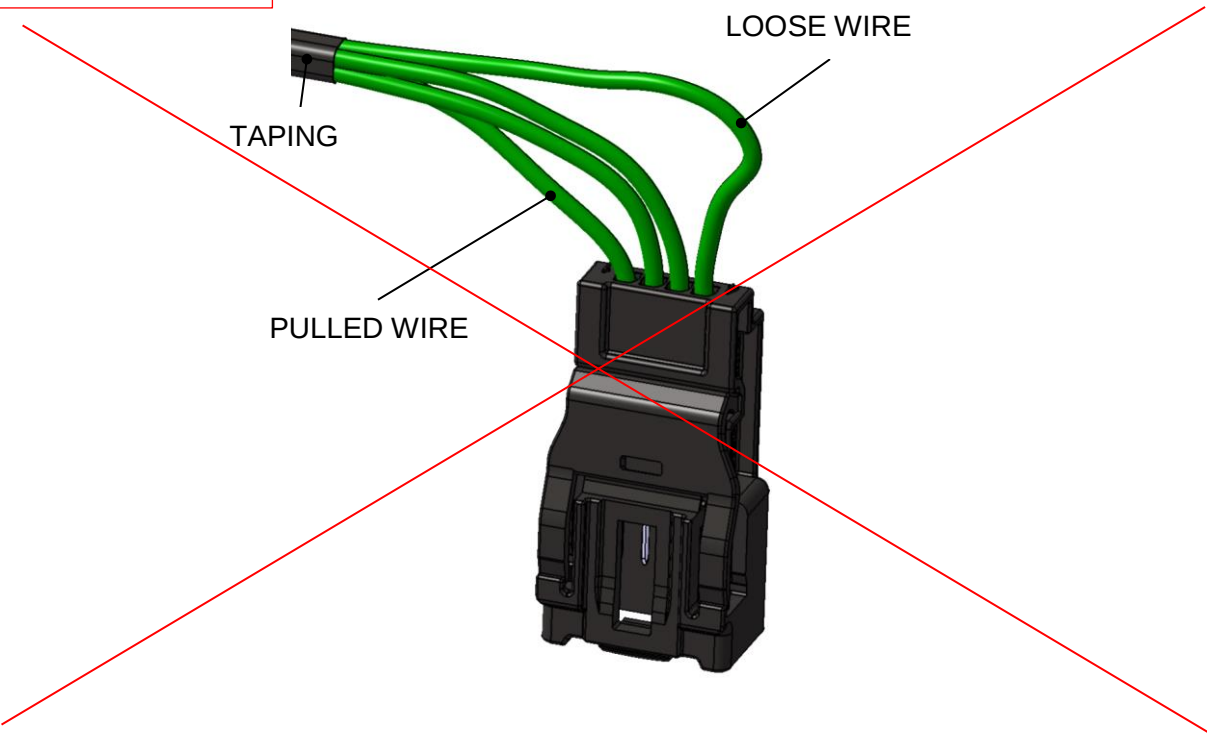
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4.2.8 Taping – Male Connector Subassembly

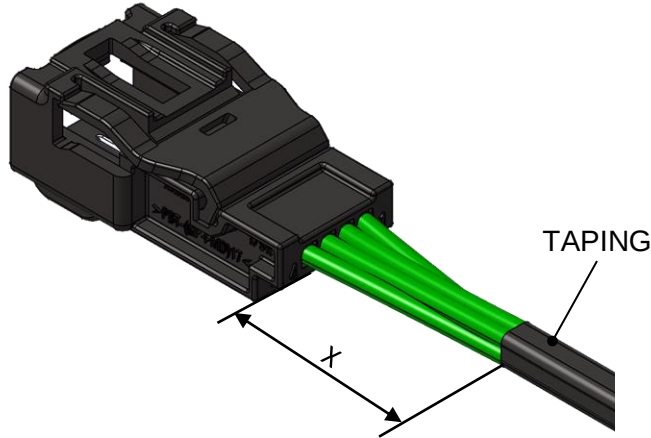
- ⚠ • Described procedures and precautions are valid for one row and two row connectors.

⚠ UNACCEPTABLE

⚠



⚠ ACCEPTABLE



Number of poles	X [mm]
2 – 8	20
12 - 16	25
20 - 24	30

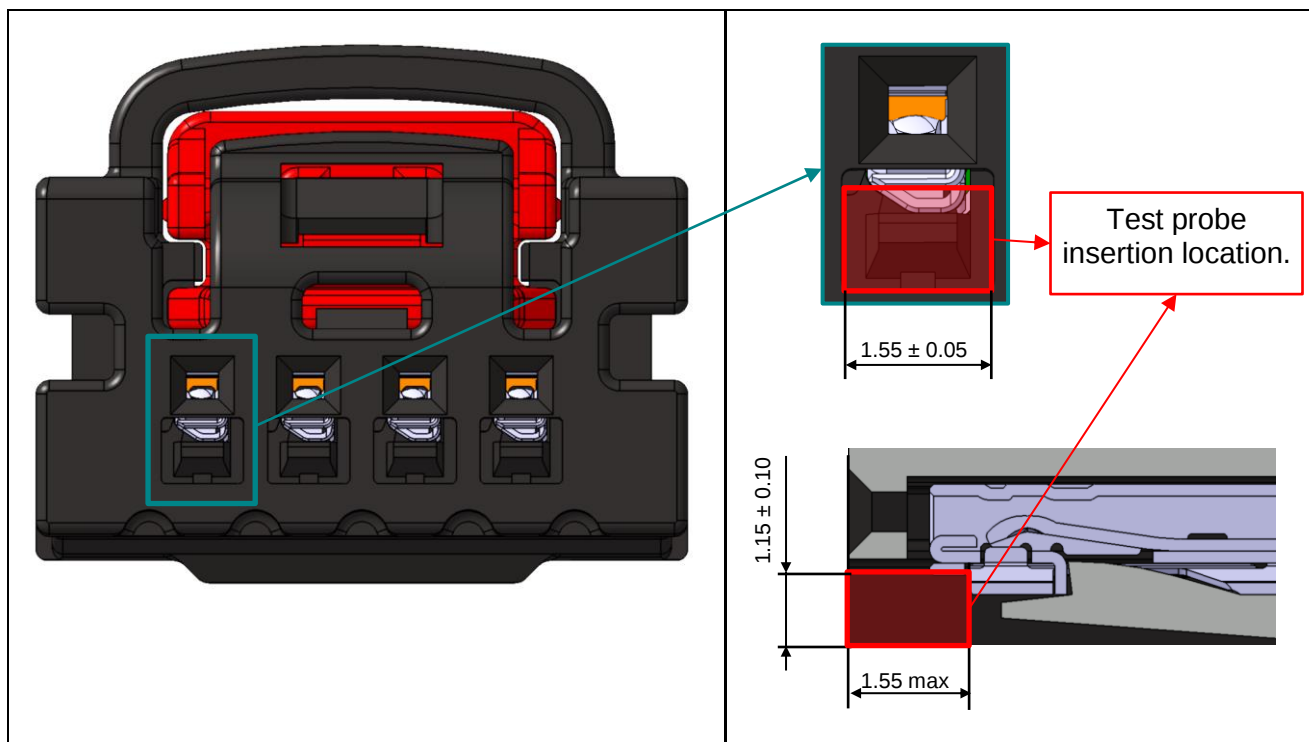
Table 2. Taping distance

Precautions:

- Apply the tape in such manner that every individual wire is subjected approximately to an equal tensile force. Concentration of tensile force on a particular wire may cause a harmful effect such as inadvertent disengagement of a terminal.
 - Care shall be taken not to deform the parts. Replace any damaged or deformed parts with the new parts.
- ⚠ • Recommended taping distance from the connector end is according to Table 2.

4.2.9 Electrical Check of Female Terminals

- ⚠ • Described procedures and precautions are valid for one row and two row connectors.



Precautions:

- Any tool used for wiring and continuity inspections shall have an accuracy equivalent to that of the mating connector in order to avoid deforming the housing and/or terminals.
- Care shall be taken not to deform the parts. Replace any damaged or deformed parts with new parts.
- Probes shall not touch the contact zone area.
- Damaged and/or deformed housing/terminal should be replaced regardless the degree of damage/deformation.

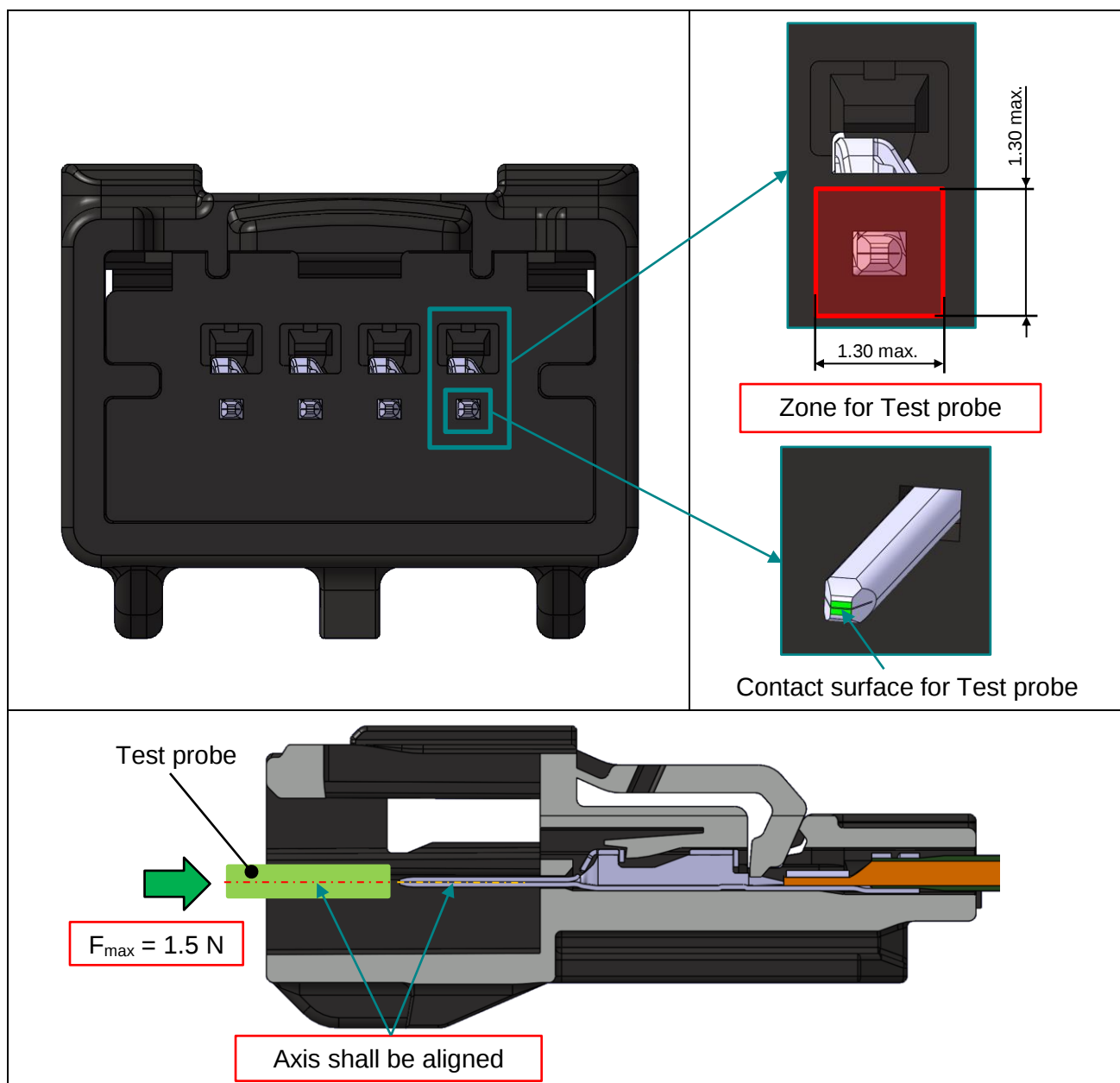
⚠ Probe details:

- Recommended plating: gold.
- Max. contact force: 1.5 N.

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△ 4.2.10 Electrical Check of Male Terminals

- Described procedures and precautions are valid for one row and two row connectors.



Precautions:

- Any tool used for wiring and continuity inspections shall have an accuracy equivalent to that of the mating connector in order to avoid deforming the housing and/or terminals.
- Care shall be taken not to deform the parts. Replace any damaged or deformed parts with new parts.
- Probe shall touch only male terminal tip (Contact surface for probe).
- Probe shall fit inside defined Zone for Test probe.
- Probe axis and terminal tab axis shall be aligned (Approach under angle is not allowed).
- Damaged and/or deformed housing/terminal should be replaced regardless the degree of damage/deformation.

△ Probe details:

- Recommended plating: gold.
- Max. contact force: 1.5 N.

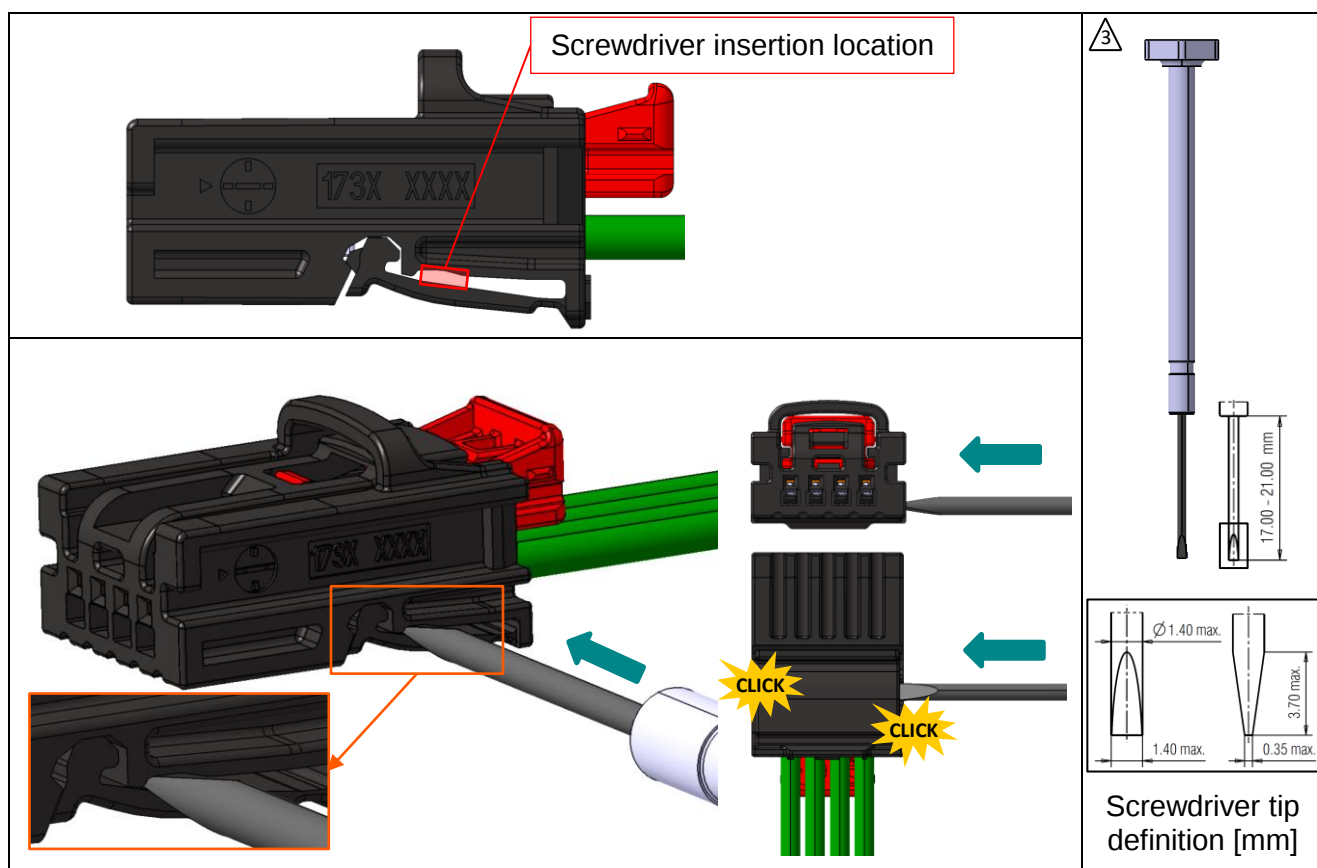
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5 Repairing

5.1 Female Housing Hinged Secondary Lock Disengagement

To disengage female housing hinged secondary lock from set to pre-set position please use screwdriver (see screwdriver specification at the bottom of the page). Insert screwdriver in recommended location and slightly push in arrow direction (see image below).

- ⚠ • Described procedures and precautions are valid for one row and two row connectors.



Precautions:

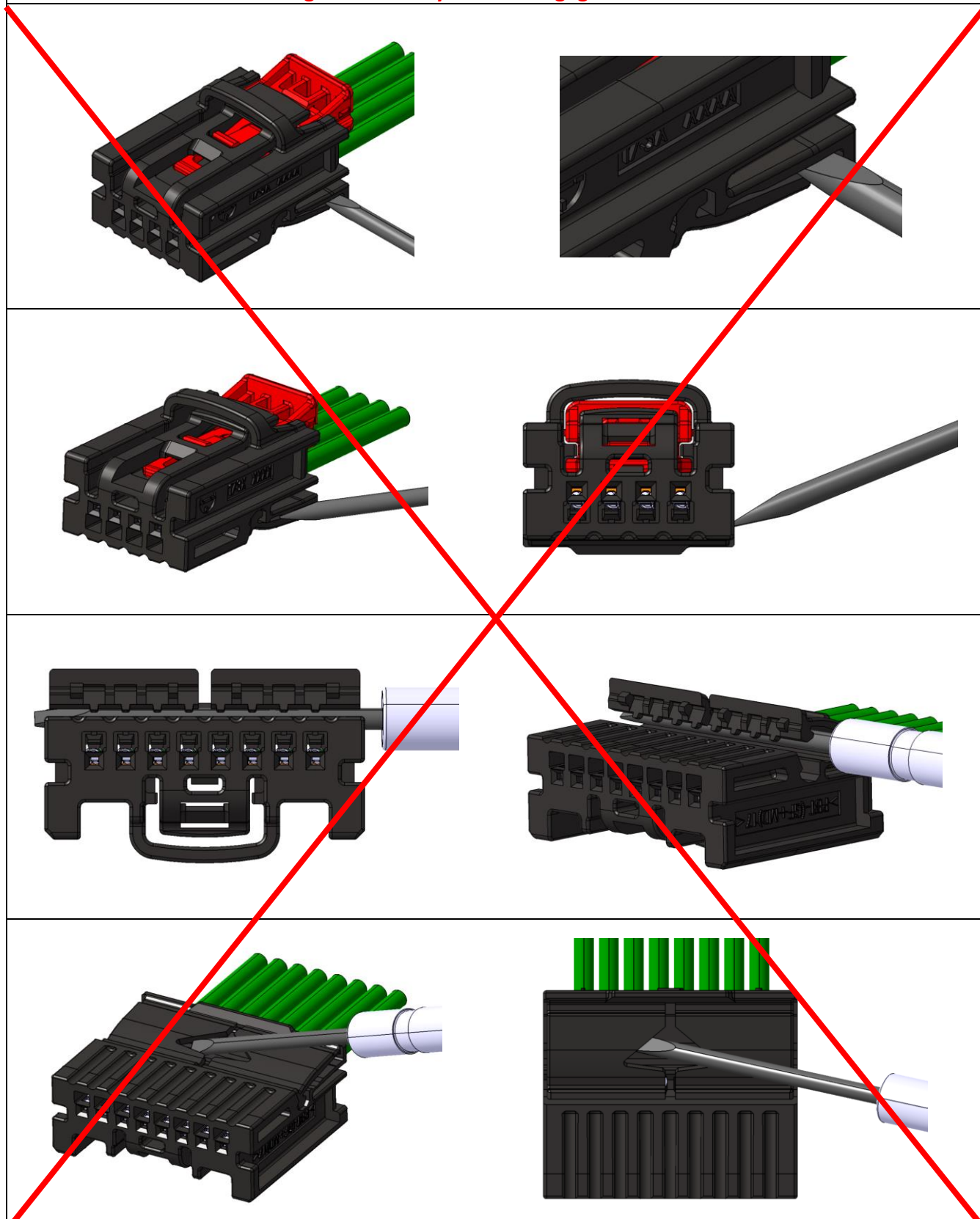
- Don't pull hinged secondary lock more than pre-set position, because then it will be damaged and detached from the housing. It is enough to hear "CLICK" because too much pressure on it can cause permanent damage. Two "CLICKS" per hinged secondary lock should be heard.
- Don't twist screwdriver during disengagement.
- Use only defined screwdriver, wrong removal tool could cause damage.
- Screwdriver must be perpendicular to terminals during disengagement and must be put at defined location (see picture above).
- Hinged secondary lock can be disengaged only two times.
- In case of multiple hinged secondary locks, disengage each separately.
- If hinged secondary lock is damaged, connector should be replaced.

Screwdriver specification:

- ⚠ • Tip width: 1.40 mm max.
- Tip shape: flat only.

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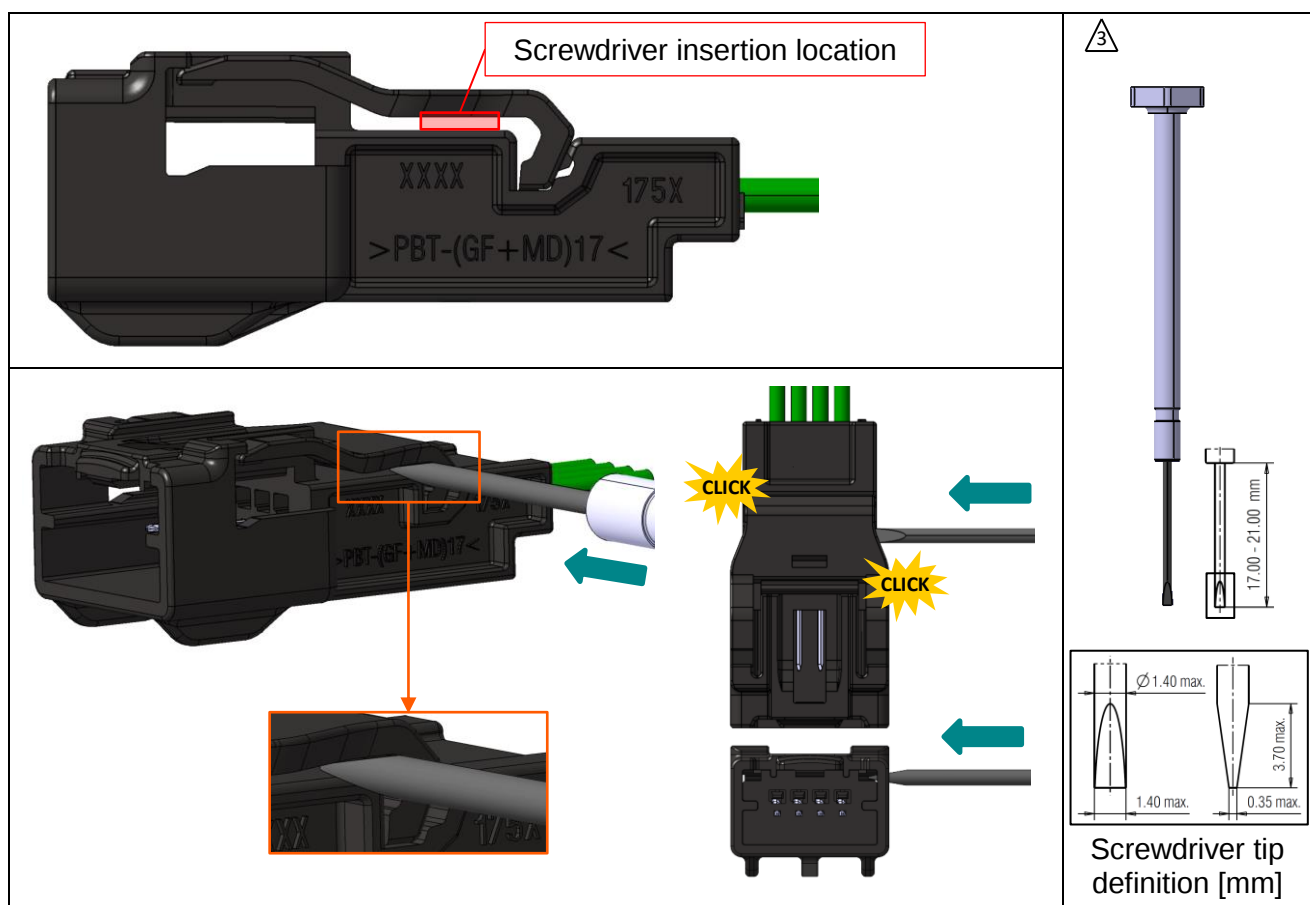
WRONG Hinged Secondary Lock Disengage – Female Connectors



5.2 Male Housing Hinged Secondary Lock Disengagement

To disengage male housing hinged secondary lock from set to pre-set position please use screwdriver (see screwdriver specification at the bottom of the page). Insert screwdriver in recommended location and slightly push in arrow direction (see image below).

- ⚠ • Described procedures and precautions are valid for one row and two row connectors.



Precautions:

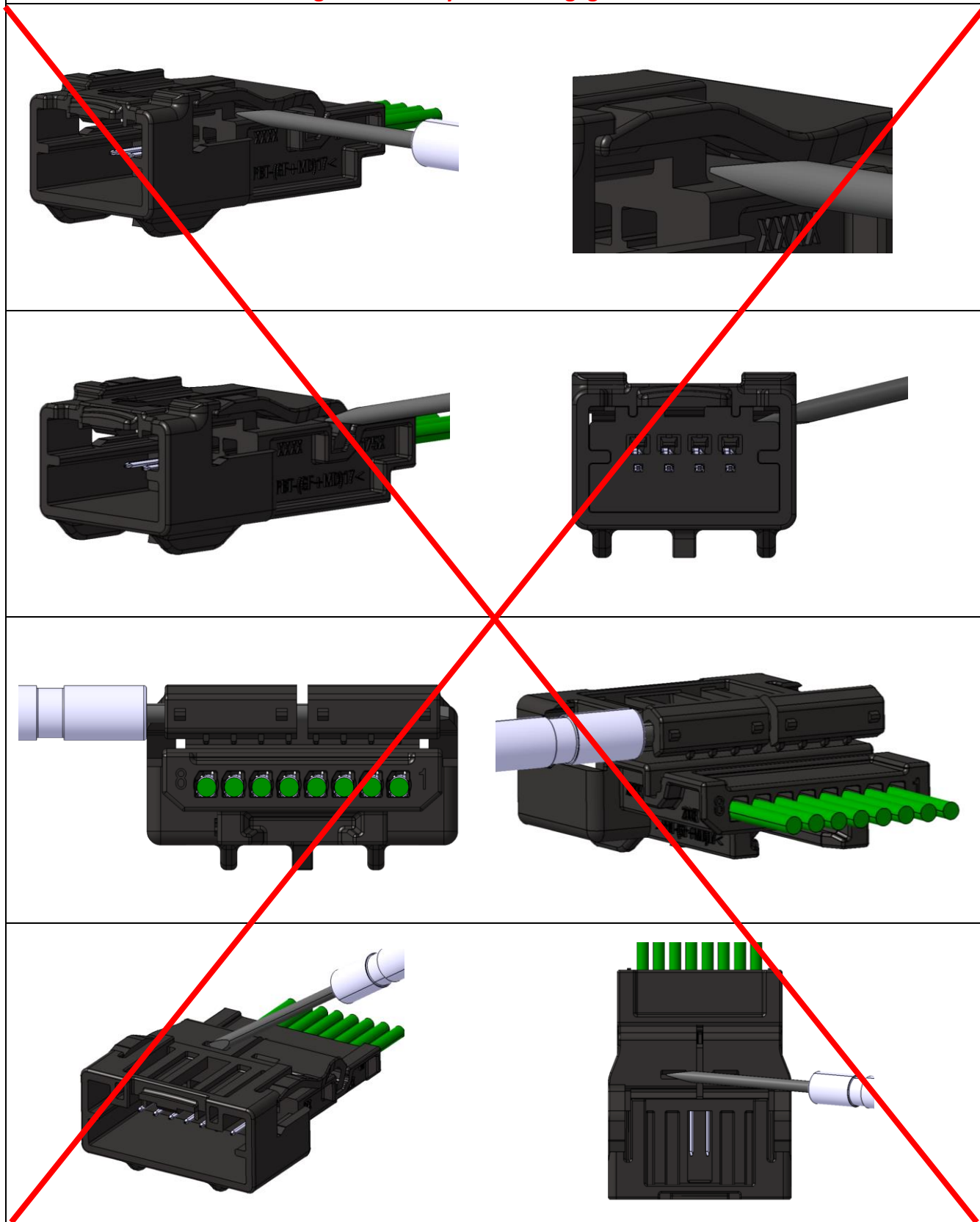
- Don't pull hinged secondary lock more than pre-set position, because then it will be damaged and detached from the housing. It is enough to hear "CLICK" because too much pressure on it can cause permanent damage. Two "CLICKS" per hinged secondary lock should be heard.
- Don't twist screwdriver during disengagement.
- Use only defined screwdriver, wrong removal tool could cause damage.
- Screwdriver must be parallel with connector during disengagement and must be put at defined location (see picture above).
- Hinged secondary lock can be disengaged only two times.
- In case of multiple hinged secondary locks, disengage each separately.
- If hinged secondary lock is damaged, connector should be replaced.

Screwdriver specification:

- ⚠ • Tip width: 1.40 mm max.
• Tip shape: flat only.

Title	Doc. No.	Rev.
0.50 YESC NWP SYSTEM CONNECTOR (M) & (F) FAMILY	YPES-15-1877E	3
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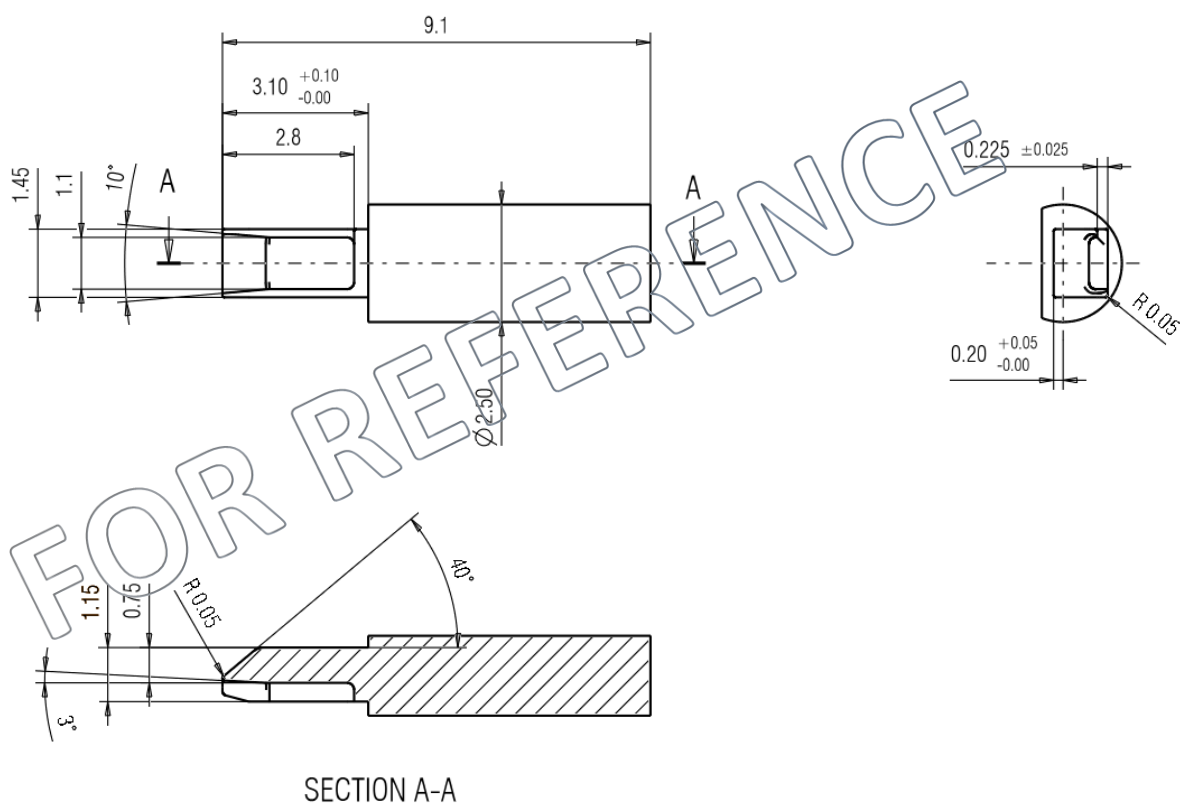
WRONG Hinged Secondary Lock Disengage – Male Connectors



5.3 Terminal Removal Tool

For the removal of female and male terminals there is designed removal tool specified on the drawing below. This drawing is for reference only.

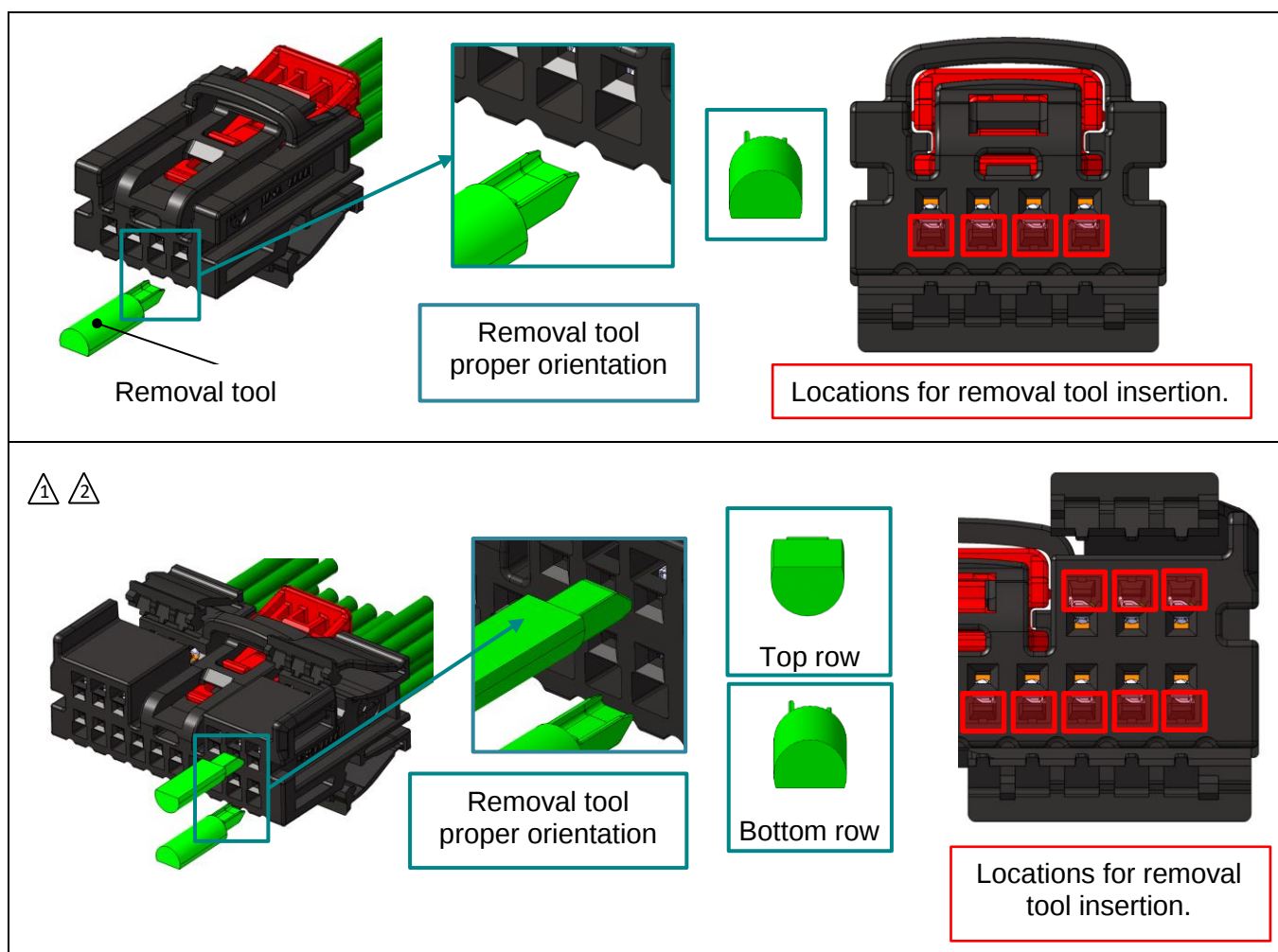
For the latest tool information see Terminal Handling Manual YPES-15-1389E.



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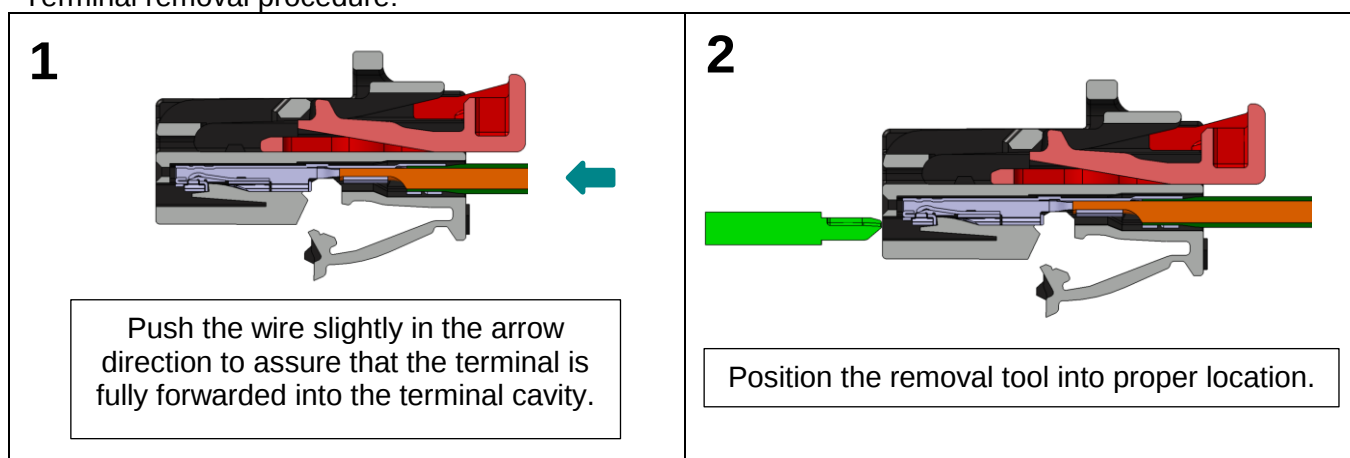
5.3.1 Female Terminal Removal

- ⚠ Before starting terminal removal procedure, confirm that Housing Hinged Secondary Lock is in preset position. If Housing Hinged Secondary Lock is in the set position, proceed to chapter 5.1 and disengage it.

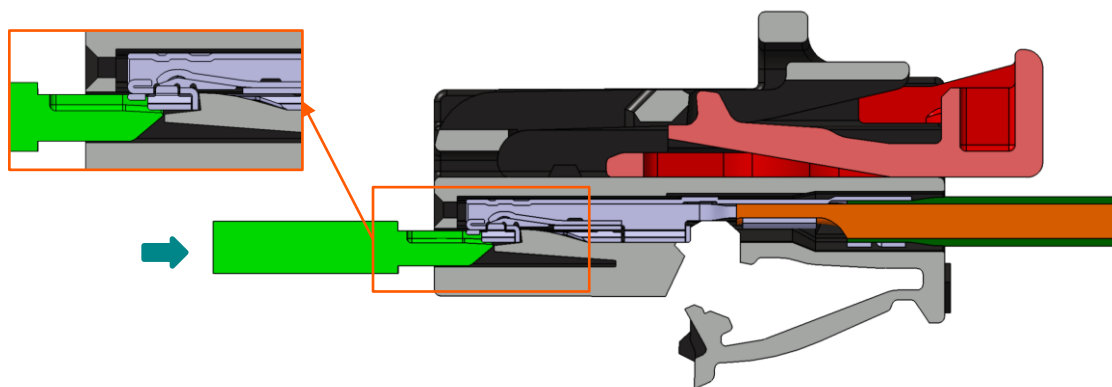


- ⚠ • Described procedures and precautions are valid for one row and two row connectors.

Terminal removal procedure:

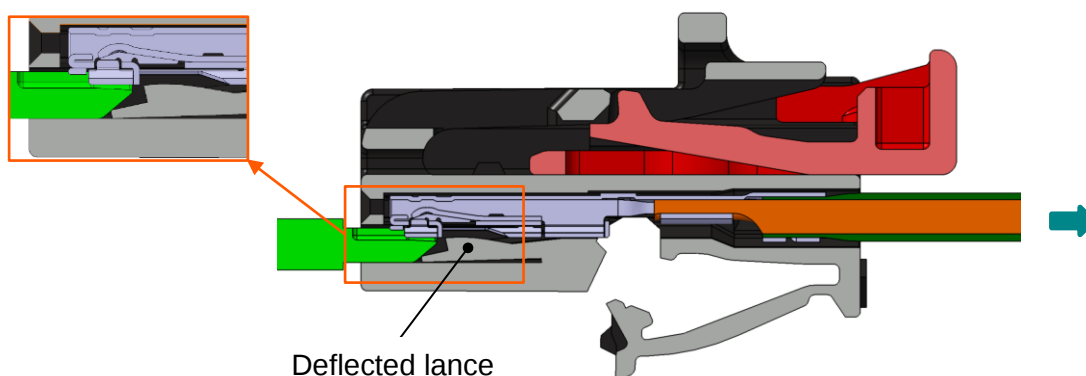


3



Push the removal tool in the arrow direction until it touches the service operation tab on lance.

4



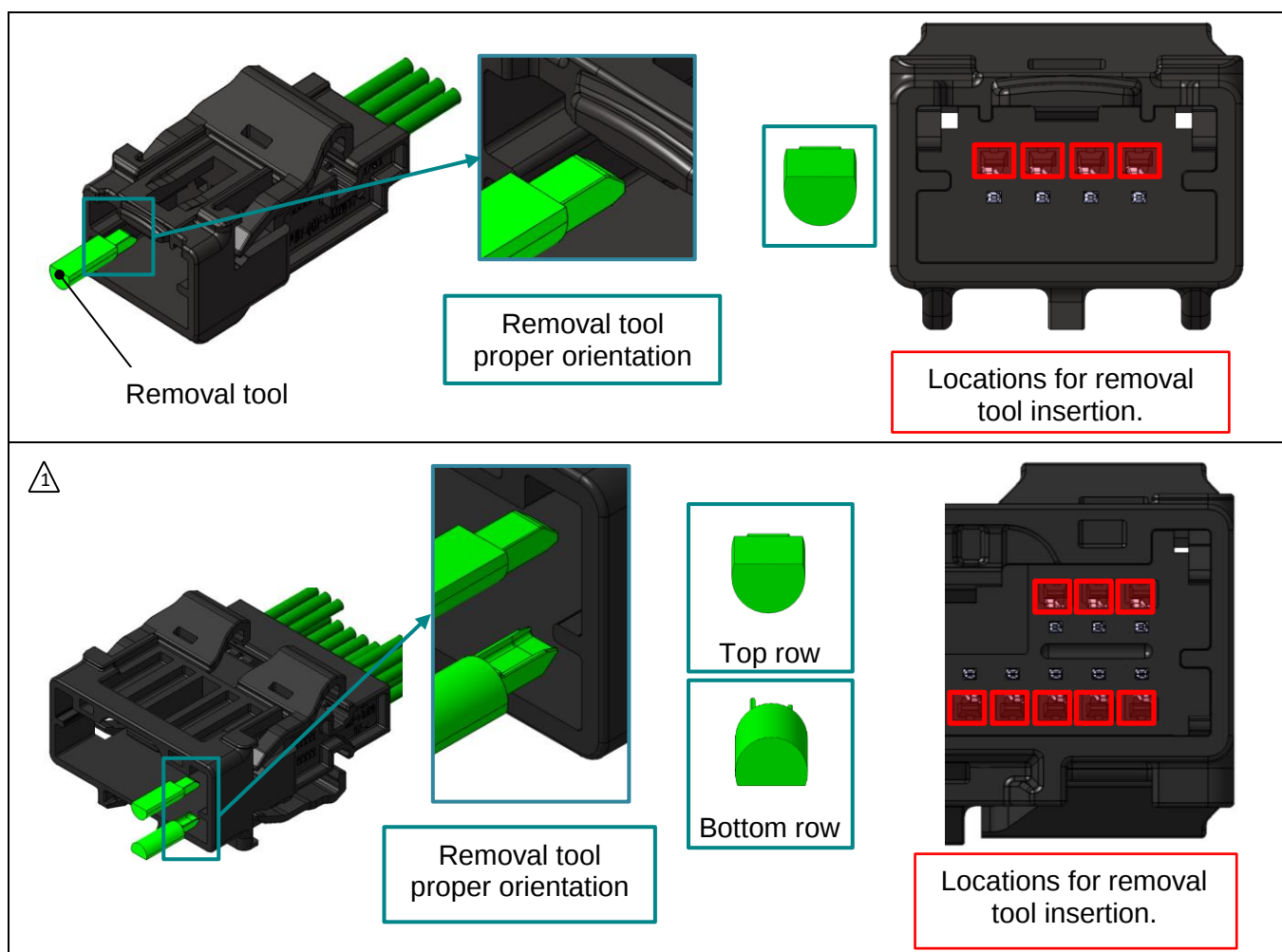
With the cavity lance deflected (lance beak disengaged from terminal primary lock), pull the wire to remove the terminal from the cavity in the arrow direction until it is completely outside the cavity.

Precautions:

- Insert removal tool straight, and do not push too much. This may cause damage on the lance.
- Do not scoop with the tool, because deformation of the terminal may occur.
- Do not remove the same terminal more than 3 times.
- Only trained technicians should perform the terminal removal operation; probing of the terminal/cavity by personnel not familiar with the removal process could result in damage to the terminal and/or connector.

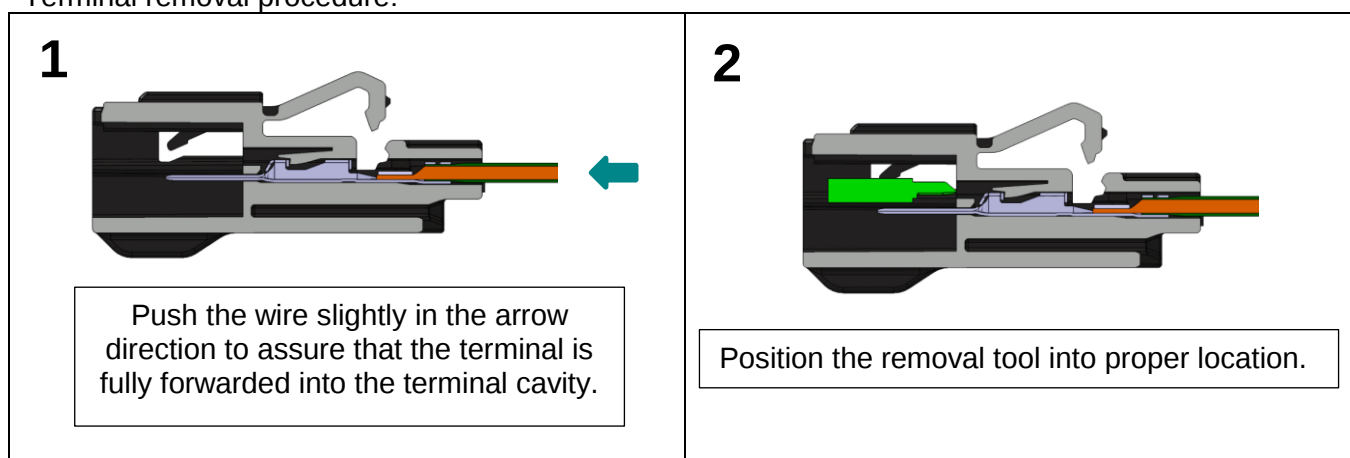
5.3.2 Male Terminal Removal

- ⚠ Before starting terminal removal procedure, confirm that Housing Hinged Secondary Lock is in preset position. If Housing Hinged Secondary Lock is in the set position, proceed to chapter 5.2 and disengage it.

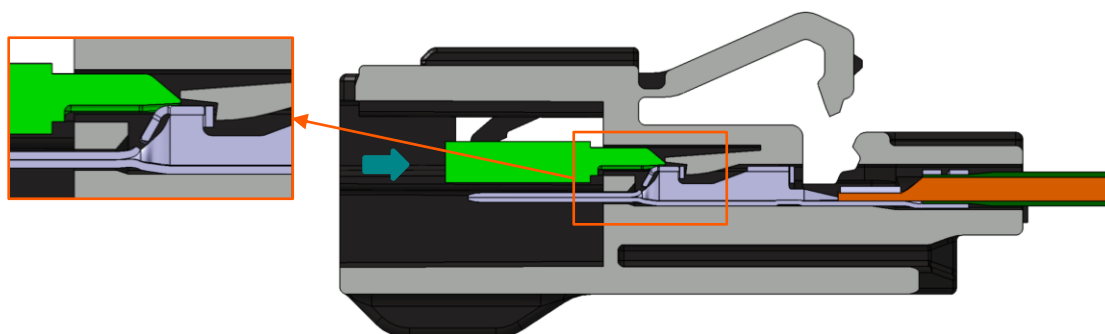


- ⚠ • Described procedures and precautions are valid for one row and two row connectors.

Terminal removal procedure:

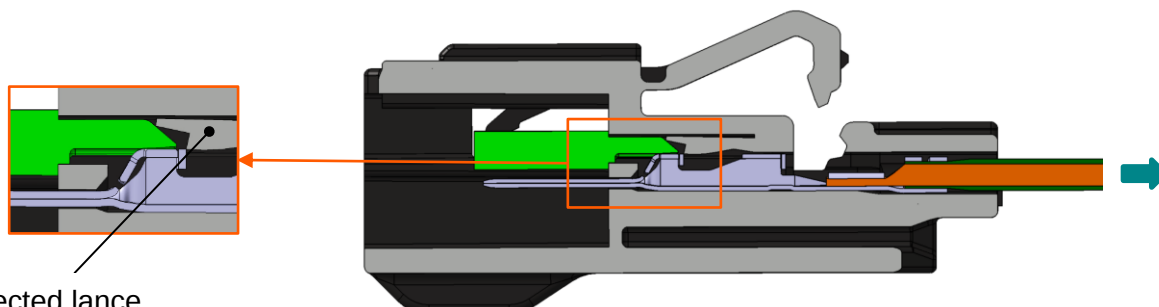


3



Push the removal tool in the arrow direction until it touches the service operation tab on lance.

4



Deflected lance

With the cavity lance deflected (lance beak disengaged from terminal primary lock), pull the wire to remove the terminal from the cavity into the arrow direction until it is completely outside the cavity.

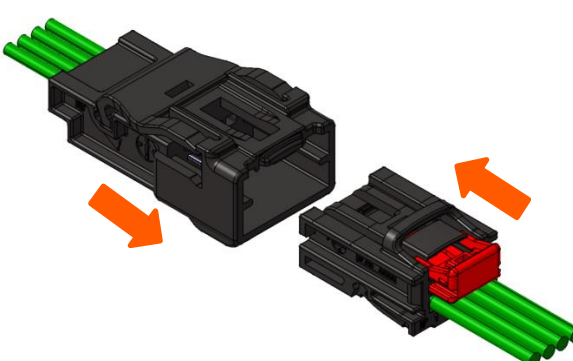
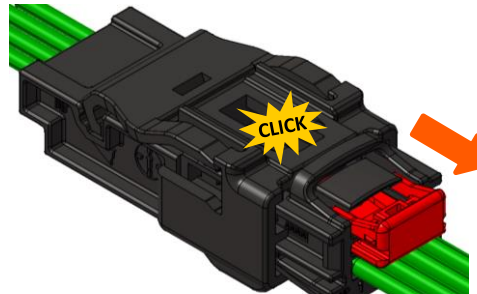
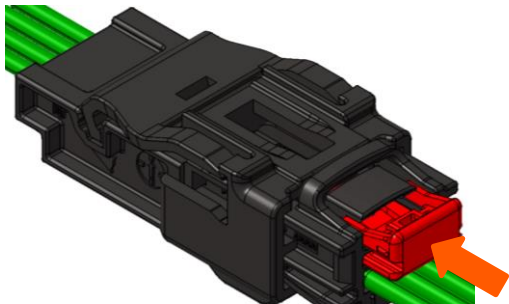
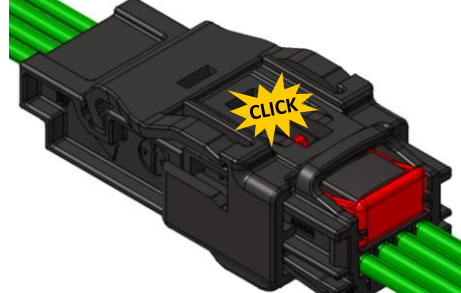
Precautions:

- Insert removal tool straight, and do not push too much. This may cause damage on the lance.
- Do not scoop with the tool, because deformation of the terminal may occur.
- Do not remove the same terminal more than 3 times.
- Do not touch terminal tab because it can band.
- Only trained technicians should perform the terminal removal operation; probing of the terminal/cavity by personnel not familiar with the removal process could result in damage to the terminal and/or connector.

6 Assembly on the Car Maker's Line

6.1 Mating Male and Female Connectors

- ⚠ • Described procedures and precautions are valid for one row and two row connectors.

	1. Position the male and female connector in-line. 2. Then push them in arrow direction.
	Connectors are mated when audible "CLICK" is heard. 3. Pull the female connector slightly in opposite direction to confirm a secure locking.
	4. Push CPA from pre-set to set position in arrow direction. If male and female connectors are not properly mated it is not possible to push CPA from pre-set to set position.
	When audible "CLICK" is heard, CPA is in set position and final product is completely assembled.

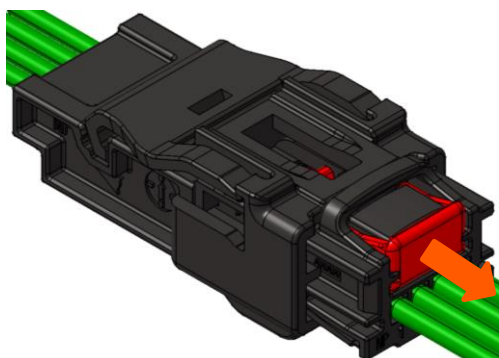
Precautions:

- Do not wrench when mating the connectors.
- Do not mate by pushing the locking of the housing.
- Do not use a tool to engage the CPA.

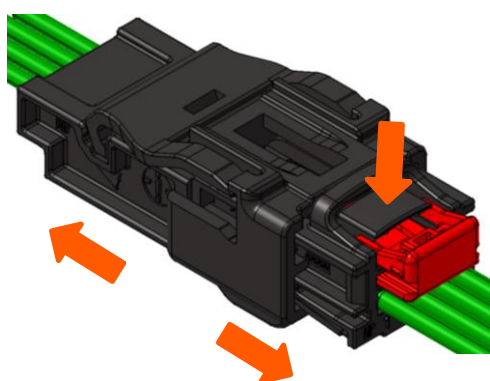
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6.2 Unmating Male and Female Connector

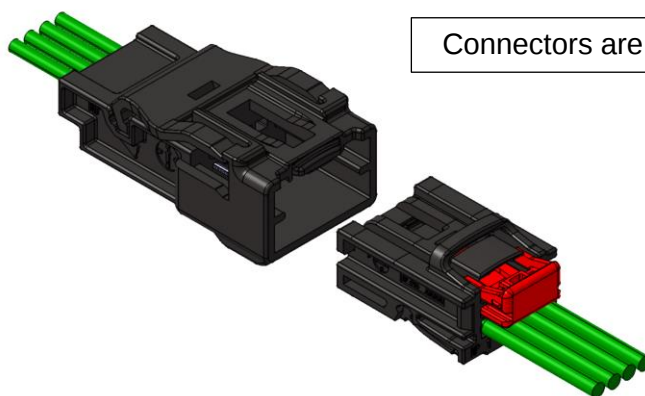
- ⚠ • Described procedures and precautions are valid for one row and two row connectors.



1. Move the CPA from set to pre-set position in arrow direction.



2. Push the locking finger pad down to disengage the female housing.
3. While holding the locking finger pad, pull the connectors in opposite direction to unmate them.



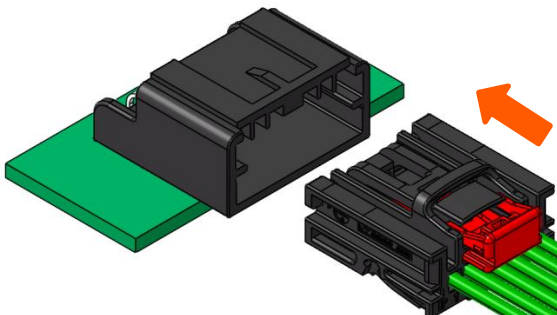
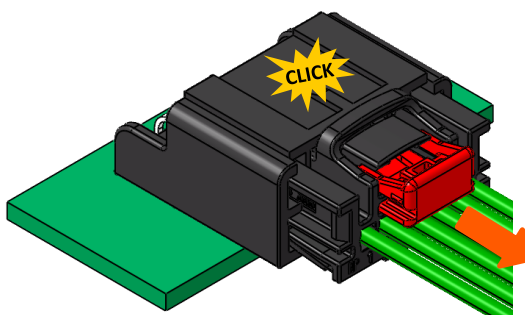
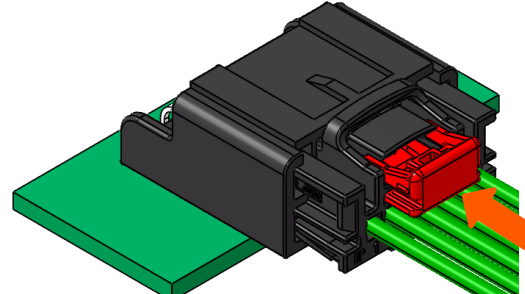
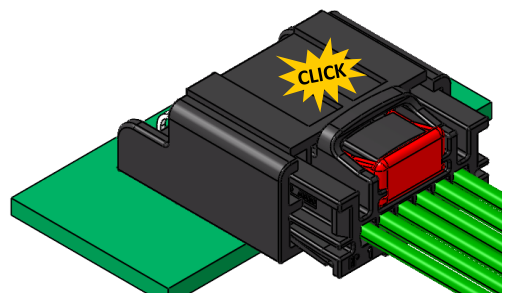
Connectors are unmated.

Precautions:

- Do not pull by the separate wire.
- Do not use a tool to disengage the CPA.

6.3 Mating Header Assembly and Female Connector

- ⚠ • Described procedures and precautions are valid for one row and two row connectors.

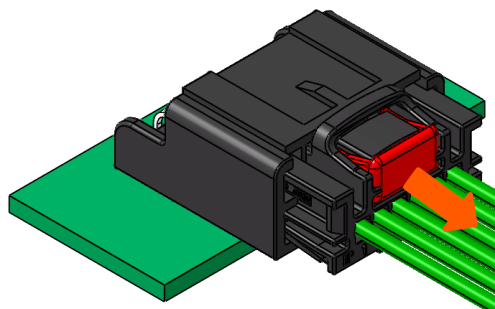
	1. Position the female connector in-line with header. 2. Push female connector in arrow direction.
	Connectors are mated when audible "CLICK" is heard. 3. Pull the female connector slightly in opposite direction to confirm a secure locking.
	4. Push CPA from pre-set to set position in arrow direction. If header and female connectors are not properly mated it is not possible to push CPA from pre-set to set position.
	When audible "CLICK" is heard, CPA is in set position and final product is completely assembled.

Precautions:

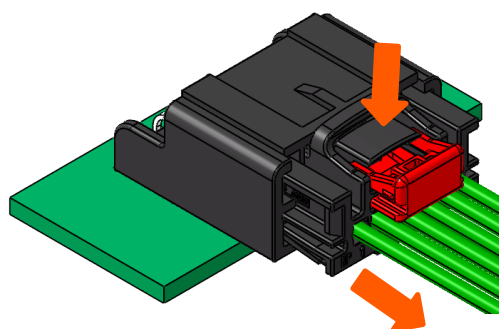
- Do not wrench when mating the connectors.
- Do not mate by pushing the locking of the housing.
- Do not use a tool to engage the CPA.

6.4 Unmating Header Assembly and Female Connector

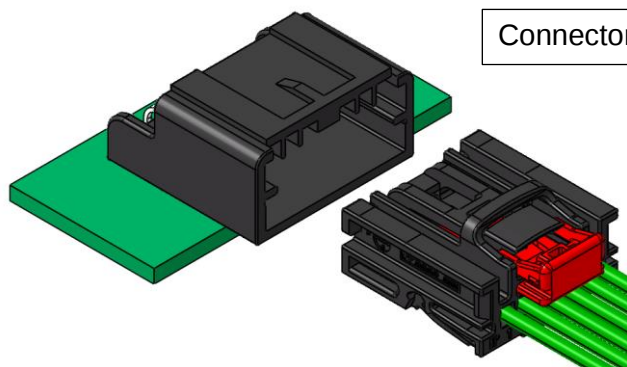
-  • Described procedures and precautions are valid for one row and two row connectors.



1. Move the CPA from set to pre-set position in arrow direction.



2. Push the locking finger pad down to disengage the female housing.
3. While holding the locking finger pad, pull the female connector in the arrow direction to unmate them.



Connectors are unmated.

Precautions:

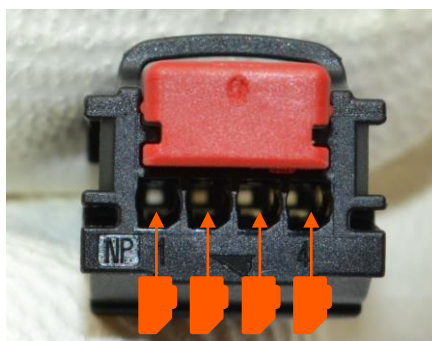
- Do not pull by the separate wire.
- Do not use a tool to disengage the CPA.

7 Appendix

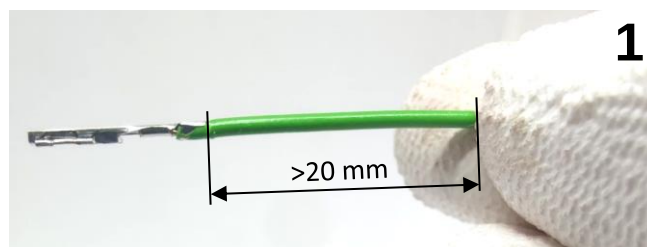
7.1 Female Terminals Insertion Procedure

- ⚠ • Described procedures and precautions are valid for one row and two row connectors

Take care to properly orient the terminals prior to insertion into cavities.



Hold the wire with finger grip at least 20 mm from terminal insulation crimp.



Position terminal in proper straight orientation in front of appropriate cavity.

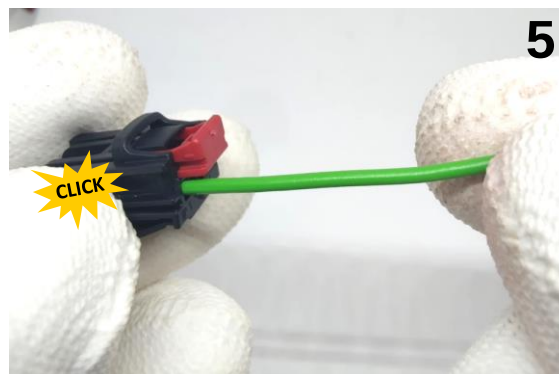
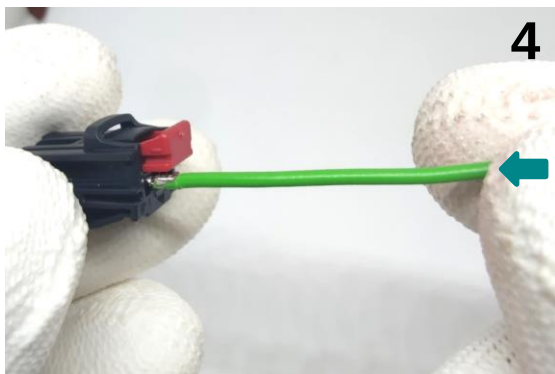


Guide terminal in cavity applying only a light force while holding on proper grip zone.





When only terminal insulation crimp is seen, apply force until “click” is heard.



Pull terminal slightly to check proper locking.



Do the same procedure (1-6) with required terminals.



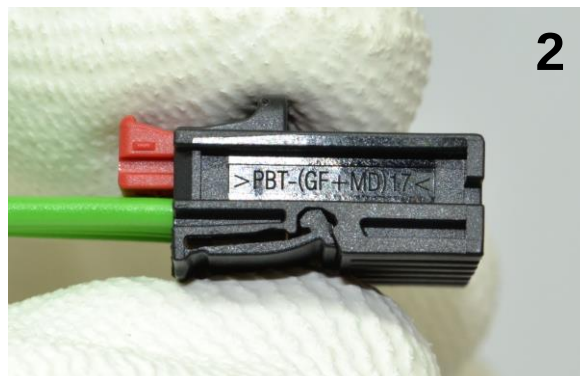
7.2 Female Housing Hinged Secondary Lock Engagement Procedure

- ⚠ • Described procedures and precautions are valid for one row and two row connectors

Single hinged secondary lock closing procedure



Housing hinged secondary lock in pre-set position.



Housing hinged secondary lock in set position.

Multiple hinged secondary lock closing procedure

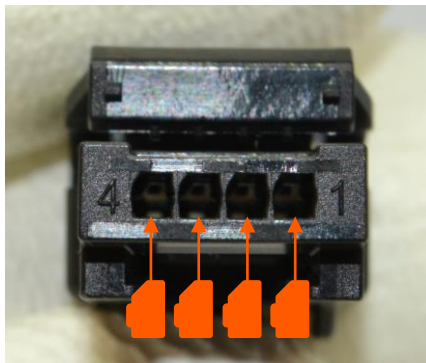


Recommended procedure for female housing hinged secondary lock engagement.

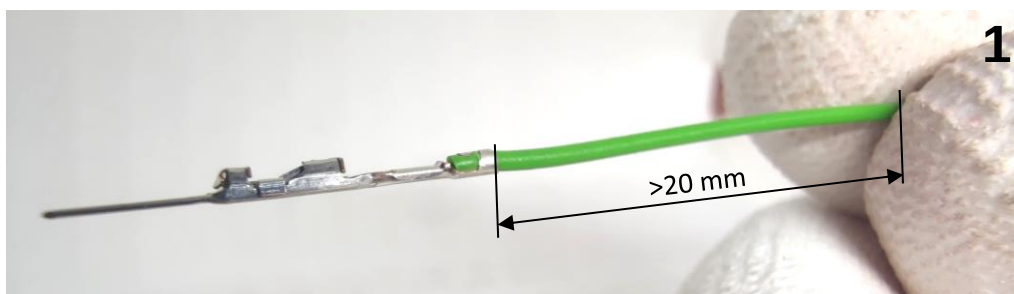
7.3 Male Terminals Insertion Procedure

- ⚠ • Described procedures and precautions are valid for one row and two row connectors

Take care to properly orient the terminals prior to insertion into cavities.



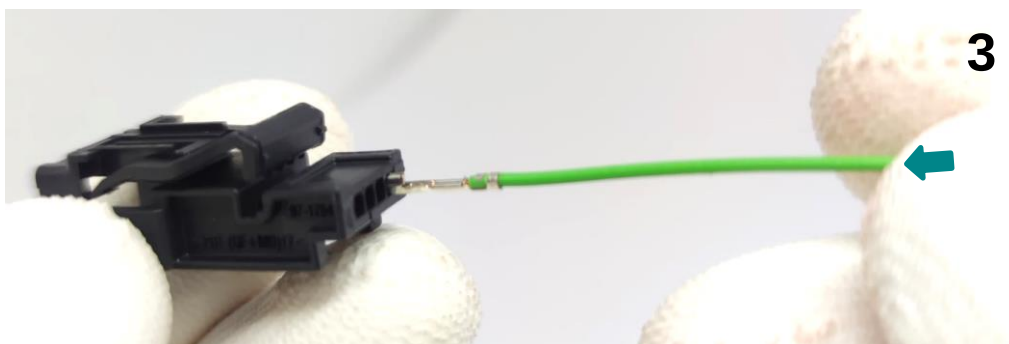
Hold the wire with finger grip at least 20 mm from terminal insulation crimp.



Position terminal in proper straight orientation in front of appropriate cavity.

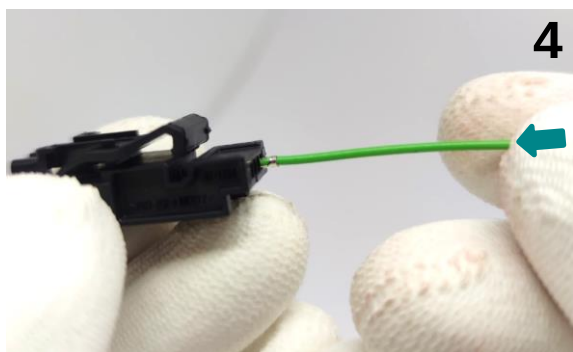


Guide terminal in cavity applying only a light force while holding on proper grip zone.

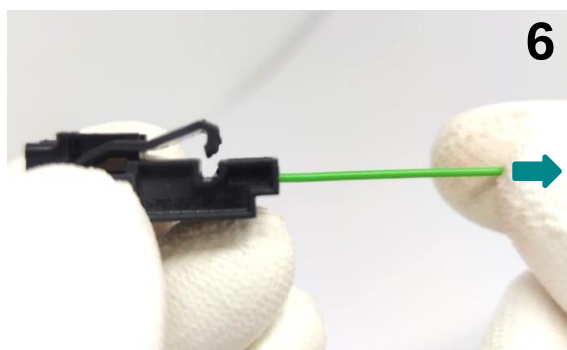




When only terminal insulation crimp is seen, apply force until “click” is heard.



Pull terminal slightly to check proper locking.



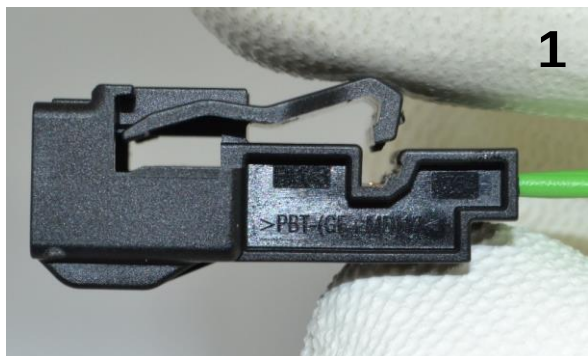
Do the same procedure (1-6) with required terminals.



7.4 Male Housing Hinged Secondary Lock Engagement Procedure

- ⚠ • Described procedures and precautions are valid for one row and two row connectors

Single hinged secondary lock closing procedure



Housing hinged secondary lock in pre-set position.



Housing hinged secondary lock in set position.

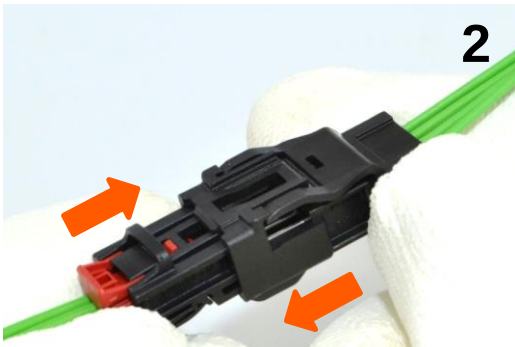
Multiple hinged secondary lock closing procedure



Recommended procedure for male housing hinged secondary lock engagement.

7.5 Male and Female Connector Mating Procedure

- ⚠ • Described procedures and precautions are valid for one row and two row connectors

 1 Position the male and female connector in-line.	 2 Push connectors in arrow direction.
 3 When "CLICK" is heard, connectors are mated.	 4 Pull the female connector in arrow direction to confirm a secure locking.
 5 Engage CPA by pushing it into arrow direction.	 6 When "CLICK" is heard, CPA is engaged.
 7 Connectors are mated.	

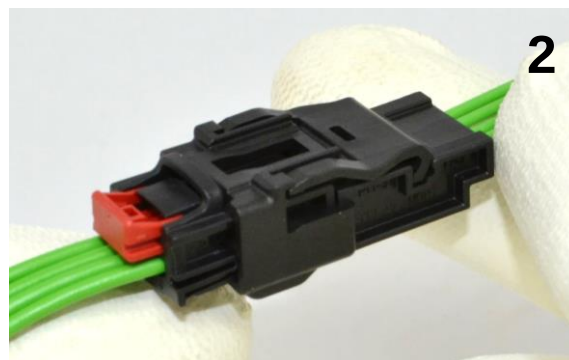
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7.6 Male and Female Connector Unmating Procedure

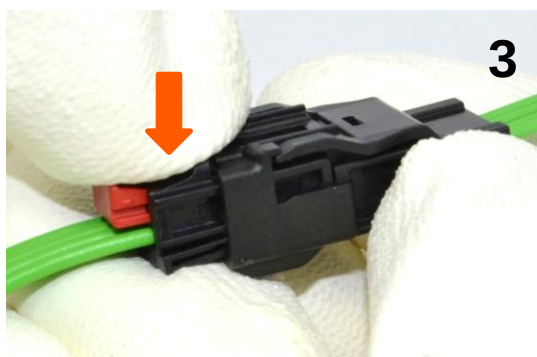
- ⚠ • Described procedures and precautions are valid for one row and two row connectors



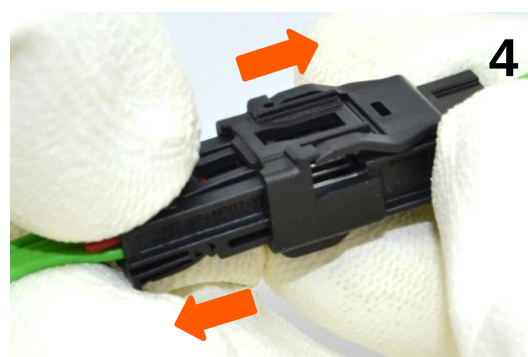
Put a finger on the CPA and pull it in the arrow direction.



CPA is in pre-set position.



Push the locking finger pad on female connector.



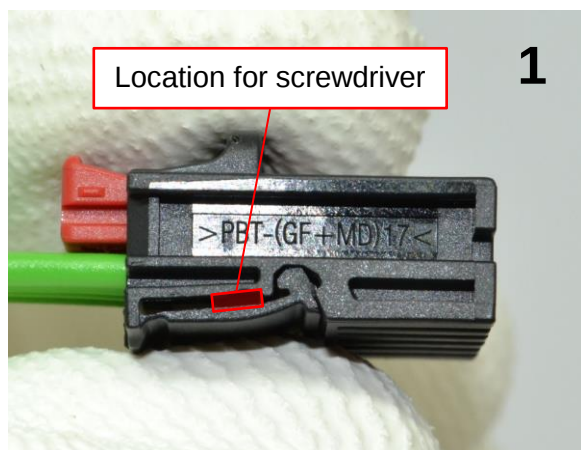
While holding the locking finger pad, pull the connectors in opposite (arrow) directions to unmate them.



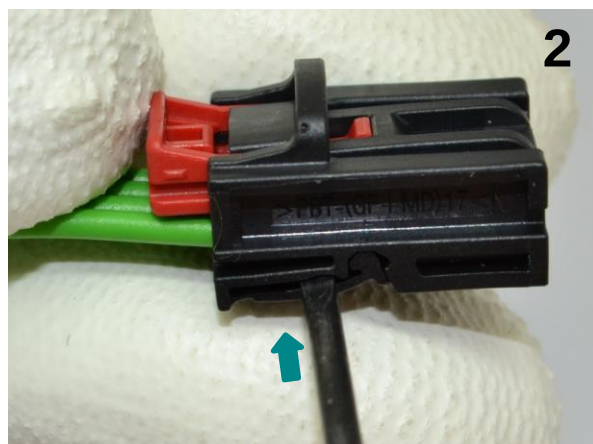
Connectors are unmated.

7.7 Female Housing Hinged Secondary Lock Disengagement Procedure

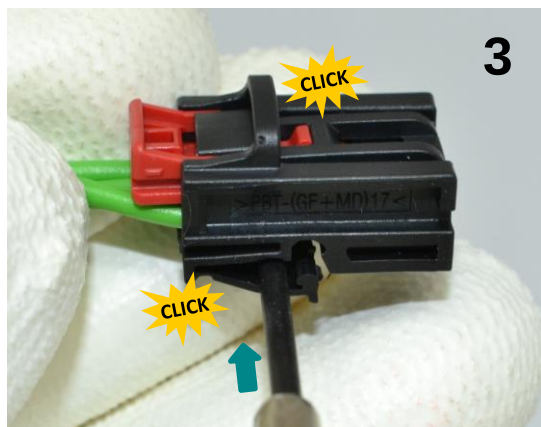
- ⚠ • Described procedures and precautions are valid for one row and two row connectors



Insert screwdriver into the marked location.



Push screwdriver gently in the arrow direction to disengage housing hinged secondary lock.

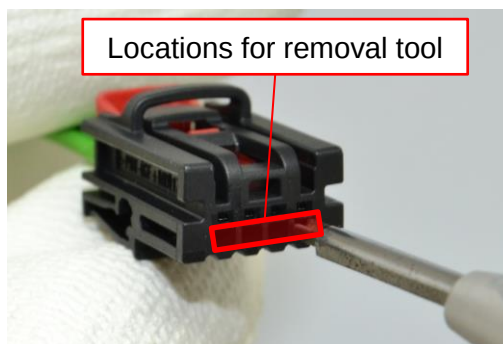


Keep pushing screwdriver in the arrow direction until "CLICK" is heard.



Hinged secondary lock is in pre-set position.

7.8 Female Terminals Removal Procedure



Position the removal tool into proper location.



Locations for removal tool-Bottom row

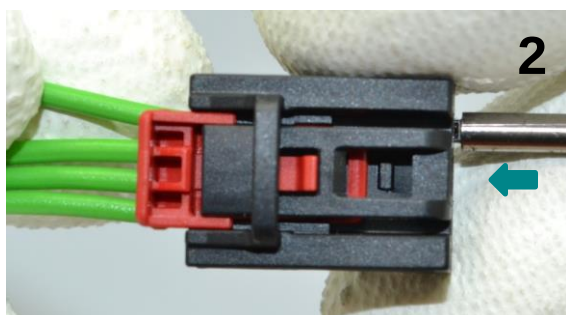


Locations for removal tool-Upper row

-  • Described procedures and precautions are valid for one row and two row connectors



Insert removal tool into the marked location.



Push removal tool in the arrow direction to release terminal.

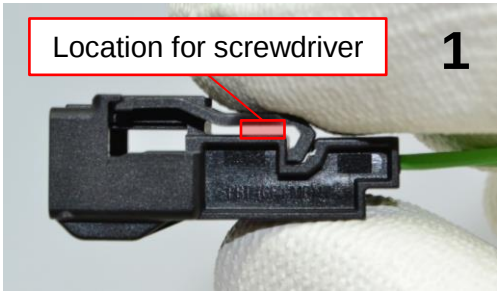
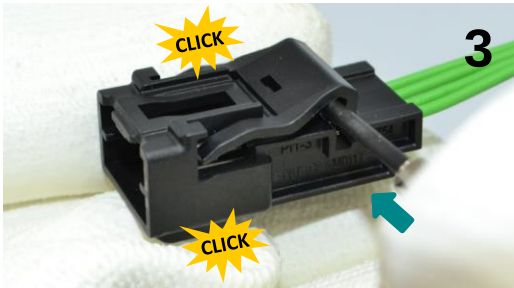
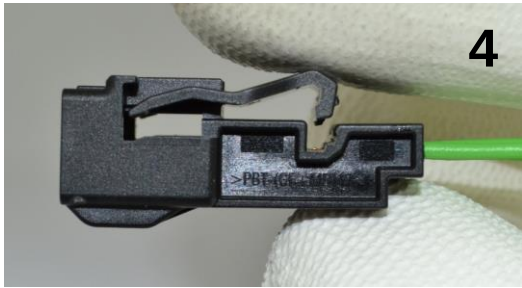


Start pulling the terminal from the cavity in arrow direction until the terminal is completely outside the cavity.

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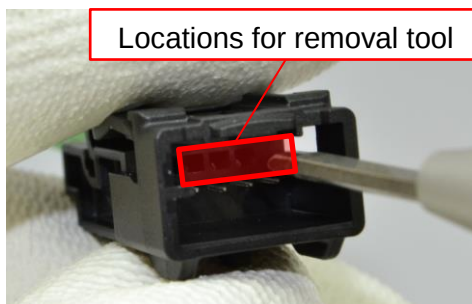
7.9 Male Housing Hinged Secondary Lock Disengagement Procedure

- ⚠ • Described procedures and precautions are valid for one row and two row connectors

 1 Location for screwdriver Insert screwdriver into the marked location.	 2 Push screwdriver gently in the arrow direction to disengage housing hinged secondary lock.
 3 CLICK CLICK Keep pushing screwdriver in the arrow direction until "CLICK" is heard.	 4 Hinged secondary lock is in pre-set position.

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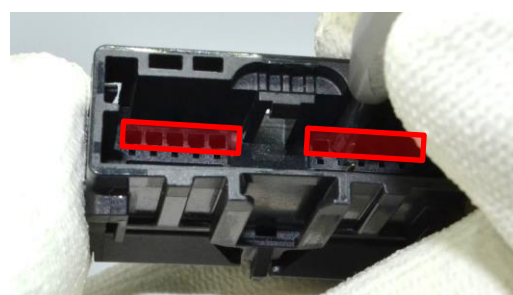
7.10 Male Terminals Removal Procedure



Position the removal tool into proper location.



Locations for removal tool-Bottom row



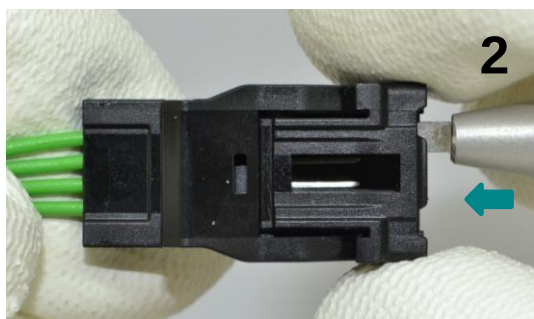
Locations for removal tool-Upper row



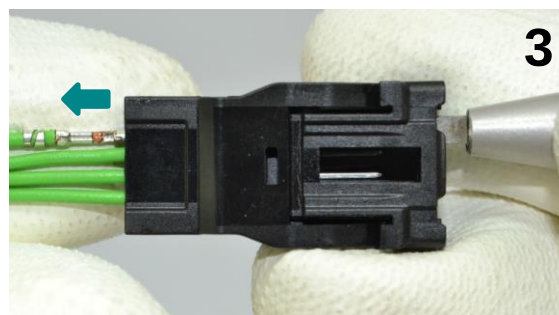
- Described procedures and precautions are valid for one row and two row connectors



Insert removal tool into the marked location.



Push removal tool in the arrow direction to release terminal.



Start pulling the terminal from the cavity in arrow direction until the terminal is completely outside the cavity.