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| TITLE Combo Lock WTB connector | | PAGE 1 of 12 | REVISION 1 |
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| | | CLASSIFICATION UNRESTRICTED | |

1.0 OBJECTIVE

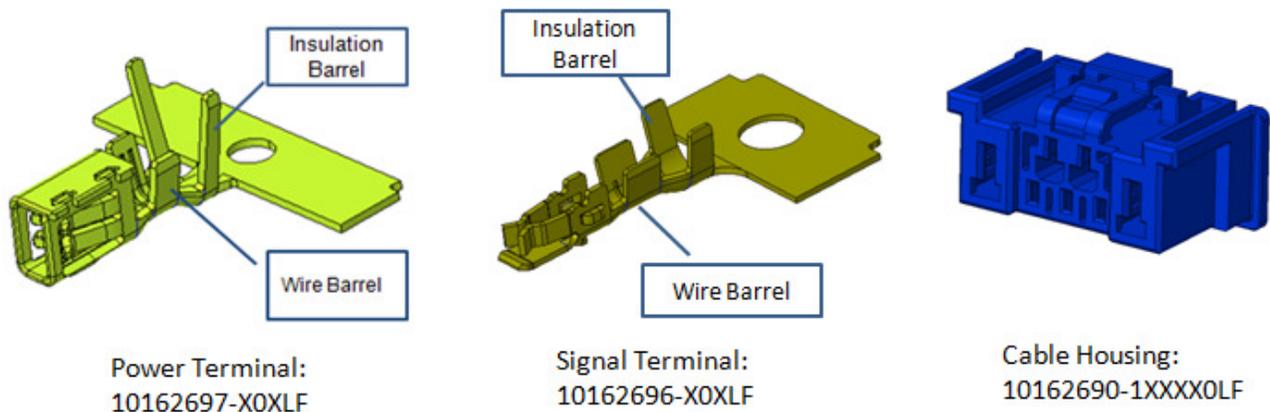
This specification provides information and requirements regarding customer application of Combo lock WTB series connector. This specification is intended to provide general guidance for application process development. It is recognized that no single application process will work under all customer scenarios and that customers will develop their own application processes to meet their needs. However, if these application processes differ greatly from the one recommended, AICC cannot guarantee results.

2.0 SCOPE

This specification provides information and requirements regarding customer application of Combo Lock WTB series connector .

3.0 GENERAL

This document is meant to be an application guide. If there is a conflict between the product drawings and specifications, the drawings take precedence.



4.0 DRAWINGS AND APPLICABLE DOCUMENTS

- AFCI PRODUCT SPECIFICATION GS-12-1702
- AFCI PRODUCT DRAWINGS
- APPLICATION MANUALS/INSTRUCTION SHEETS (IF NOT INCLUDED IN THIS DOCUMENT)

Product drawings and **AFCI's GS-12-1702** Product Specification are available at www.fci.com. In the event of a conflict between this application specification and the drawing, the drawing will take precedence. Customers are advised to refer to the latest revision level of AFCI product drawings for appropriate details.

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5.0 APPLICATION REQUIREMENTS

The wires in Table 1 are qualified for use with Signal Terminal 10162696.

Table 1

| AWG# | Conductor (mm2) | Insulation Diameter(mm) |
|---------|-----------------|-------------------------|
| #24~#30 | 0.05~0.2 | 0.8~1.2 |

The wires in Table 2 are qualified for use with Power Terminal 10162697.

Table 2

| AWG# | Conductor (mm2) | Insulation Diameter(mm) |
|---------|-----------------|-------------------------|
| #18~#26 | 0.13~0.8 | 1.3~2.4 |

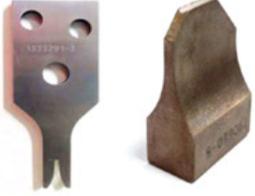
6.0 APPLICATION TOOLING

Application Tooling needed for installation of Combo lock WTB series connector is defined in Table 4:

Table 3

| Designation | Photo for information only |
|-----------------------------------------------|--------------------------------------------------------------------------------------|
| Mini applicator WTB AWG24~28 For 10162696; |  |
| Mini applicator WTB AWG18~26 For 10162697; |  |

Table 3(Continued)

| Designation | Photo for information only |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Spare parts for mini applicator WTB AWG24 For 10162696-24Awg |  |
| Spare parts for mini applicator WTB AWG30 For 10162696-30Awg | |
| Spare parts for mini applicator WTB AWG18 For 10162697-18Awg | |

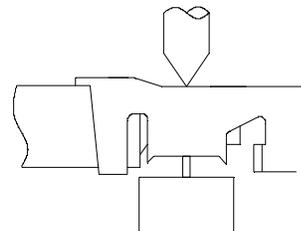
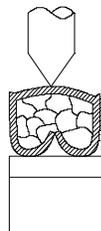
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|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hand tool for mini applicator WTB AWG24 For 10162696 |  Part number:10164147-001LF (Please contact with AFCI for the information of business) |
| Hand tool for mini applicator WTB AWG30 For 10162696 | |
| Hand tool for mini applicator WTB AWG18 For 10162697 |  Part number:10164148-001LF (Please contact with AFCI for the information of business) |
| Hand tool for mini applicator WTB AWG 20 For 10162697 | |

7.0 POST-APPLICATION INSPECTION PROCEDURES

7.1 Crimp height and width measurement:

7.1.1 Use Crimp Height Type Micrometers to measure crimping height.



7.1.2 Required crimping dimensions, crimp height and width for different wire AWG are defined in Table 4 for 10162696 & table 5 for 10162697.

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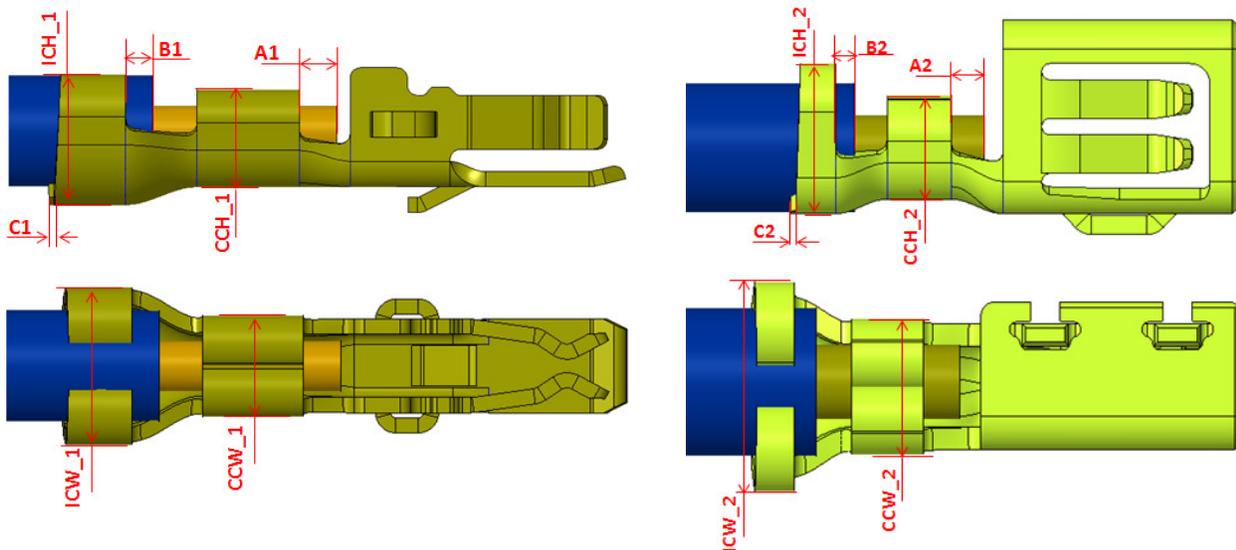
Table 4 (For signal terminal 10162696)

| Wire Gauge | Conductor Crimp Area | | | Insulator Crimp Area | | | | Terminal Tensile |
|------------|----------------------|---------------------|-----------------------------|----------------------|---------------------|--------------------------------|-----------------|------------------|
| (AWG #) | Width (CCW_1) (mm) | Height (CCH_1) (mm) | Extruded wire length A1(mm) | Width (ICW_1) (mm) | Height (ICH_1) (mm) | Insulation skins (DIM.B1) (mm) | Cut off C1 (mm) | Strength (N) |
| #24 | 1.20±0.04 | 0.58±0.03 | 0.5Max. | 1.34±0.04 | 1.40±0.04 | 0.35 | 0.15Max | 22.3Min. |
| #26 | 1.10±0.04 | 0.53±0.03 | | 1.34±0.04 | 1.40±0.04 | | 0.15Max | 15Min. |
| #30 | TBD | TBD | | TBD | TBD | | 0.15Max | 6.7 Min. |

Table 5 (For power terminal 10162697)

| Wire Gauge | Conductor Crimp Area | | | Insulator Crimp Area | | | | Terminal Tensile |
|------------|----------------------|---------------------|-----------------------------|----------------------|---------------------|--------------------------------|-----------------|------------------|
| (AWG #) | Width (CCW-2) (mm) | Height (CCH-2) (mm) | Extruded wire length A2(mm) | Width (ICW-2) (mm) | Height (ICH-2) (mm) | Insulation skins (DIM.B2) (mm) | Cut off C2 (mm) | Strength (N) |
| #18 | 2.20±0.04 | 1.30±0.03 | 0.5Max. | 2.47±0.04 | 2.78±0.04 | 0.35 | 0.15Max | 89Min. |

* When using hand crimping tool, crimping height in this table are reference only. Because the range of wires, strands, insulation OD will affect the actual crimping height.



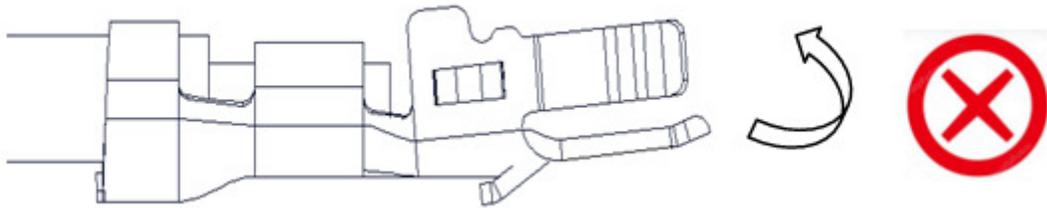
Note:

1. Conductor crimp width. CCW ;
2. Conductor crimp height. CCH ;
3. Insulator crimp width. ICW ;
4. Insulator crimp height. ICH ;
5. Conductor wire shall be dimension long (mm) out A1 & A2;
6. Naked part of sheathed wire must be located in the vicinity of center B1&B2;
7. The Crimp mouth must be equipped like Shell;
8. Cut off C1 & C2;

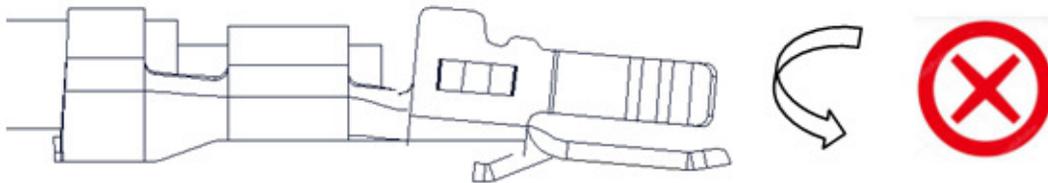
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7.2 Crimping failure (Including Signal terminal 10162696 & Power terminal 10162697):

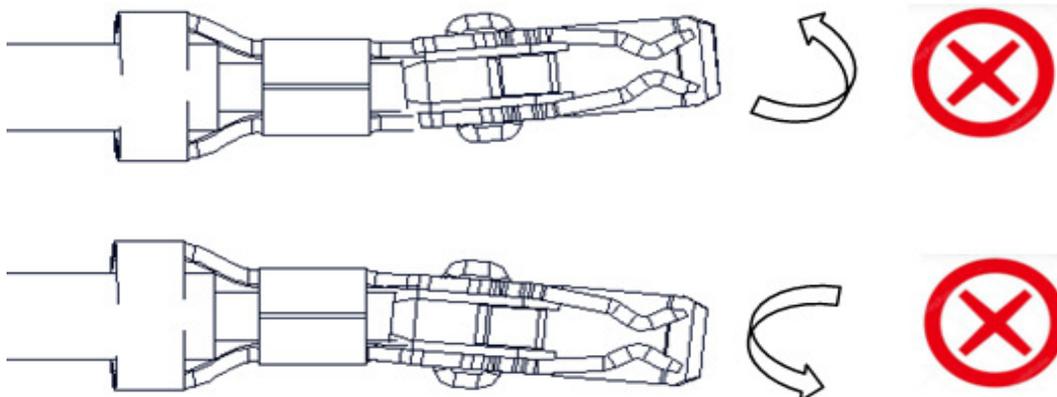
7.2.1. Bend Up : It may deteriorate insertion to housing and terminal retention force or cause contact failure.



7.2.2. Bend Down : It may deteriorate insertion to housing and terminal retention force or cause contact failure.

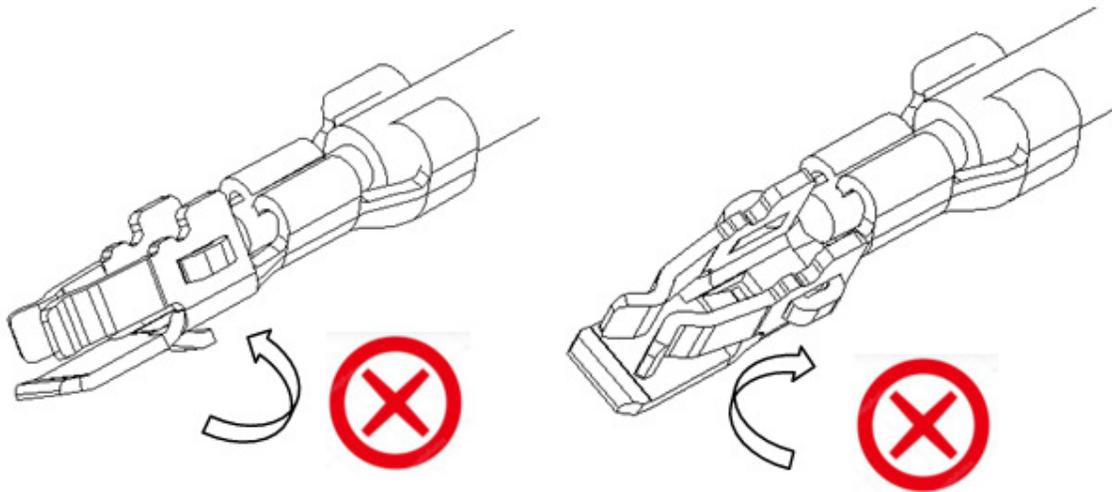


7.2.3. Twist: It may deteriorate insertion to housing and terminal retention force or cause contact failure.

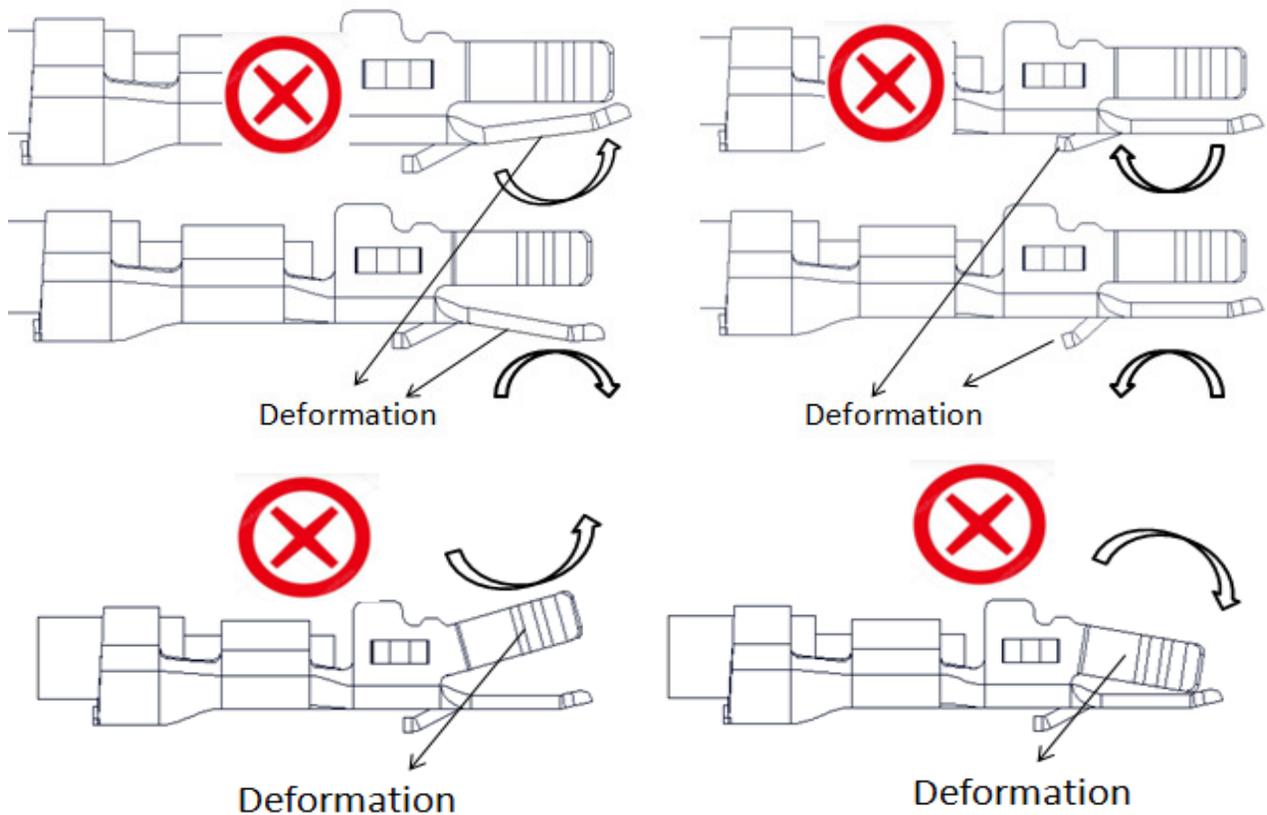


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7.2.4. Rolling: It may deteriorate insertion to housing and terminal retention force or cause contact failure.



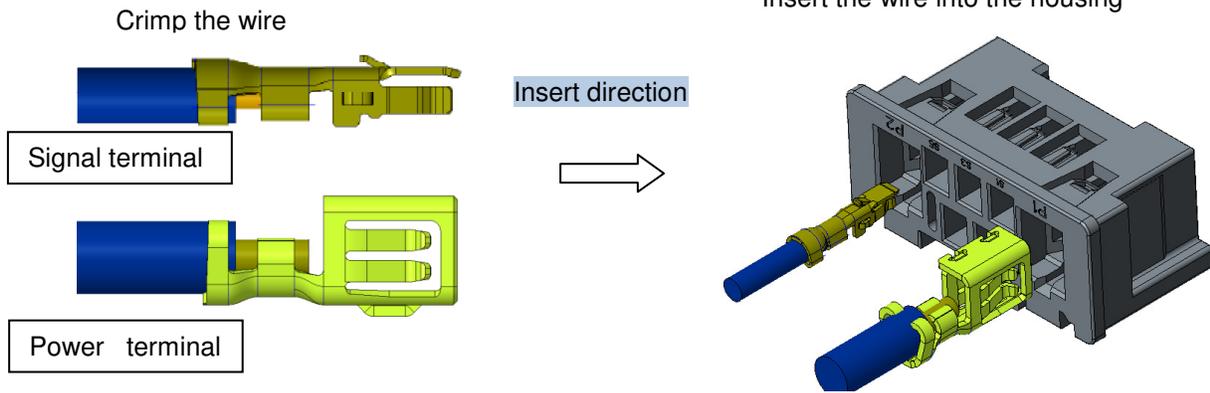
7.2.5. Crush and deformation: It may deteriorate insertion to housing and terminal retention force or cause contact failure.



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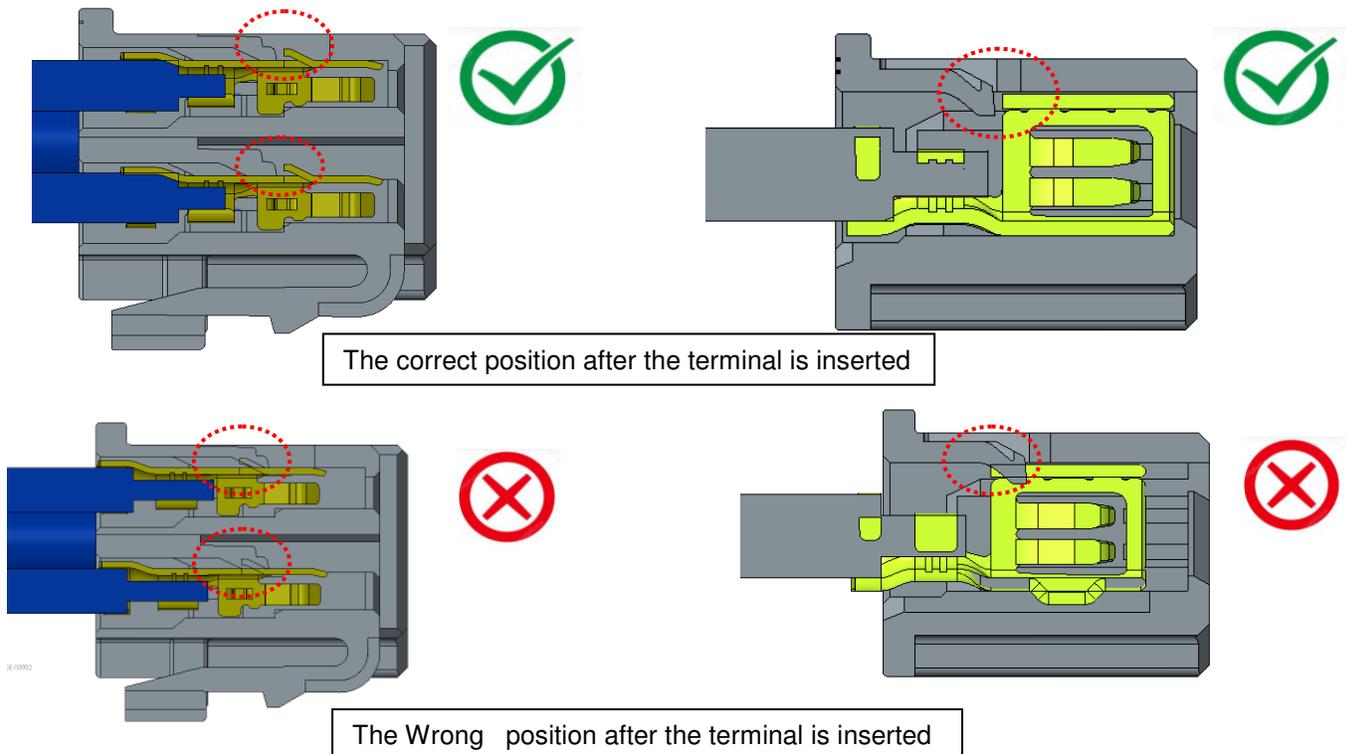
8.0 APPLICATION PROCEDURE

- 8.1 Strip the wire
- 8.2 Crimp the wire
- 8.3 Insert the wire into the housing



Note:

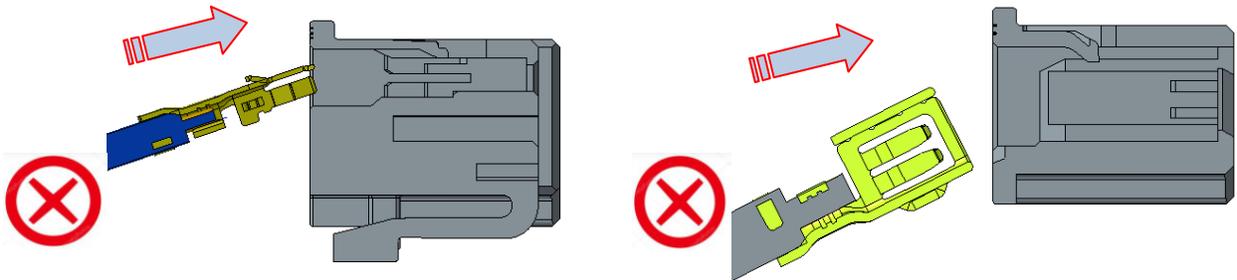
- a) Make sure the Receptacle terminal is well oriented for the insertion to the housing. Insert the terminal into HSG until the front is stopped by HSG. Then locking tab will be engaged the retention shoulder and prevent back out during mating. Pull back on the wire lightly and ensure the terminal is fully seated.



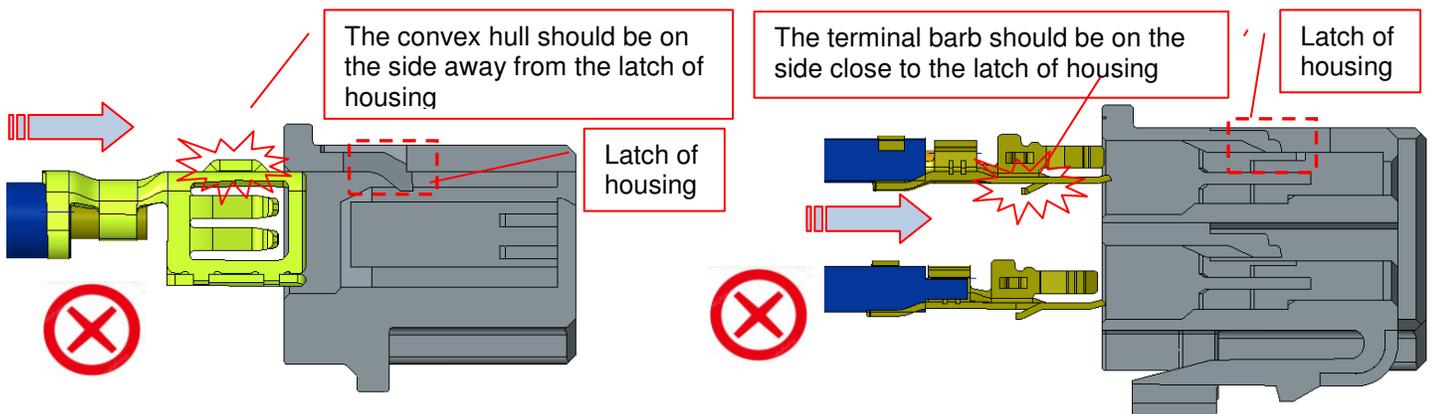
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b) The following incorrect assembly method will result in failure to insert and terminal distortion

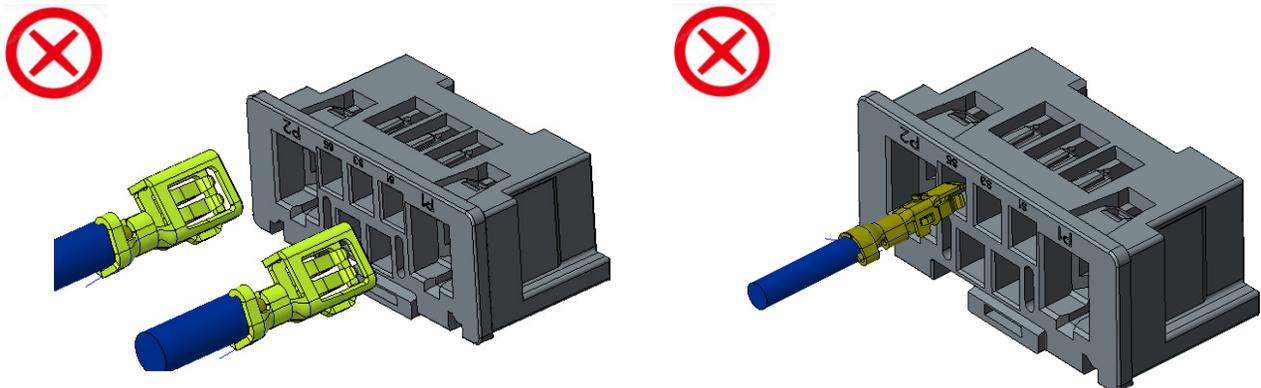
Error model_1: Tilt



Error model_2: Reverse



Error model_3: Rotary

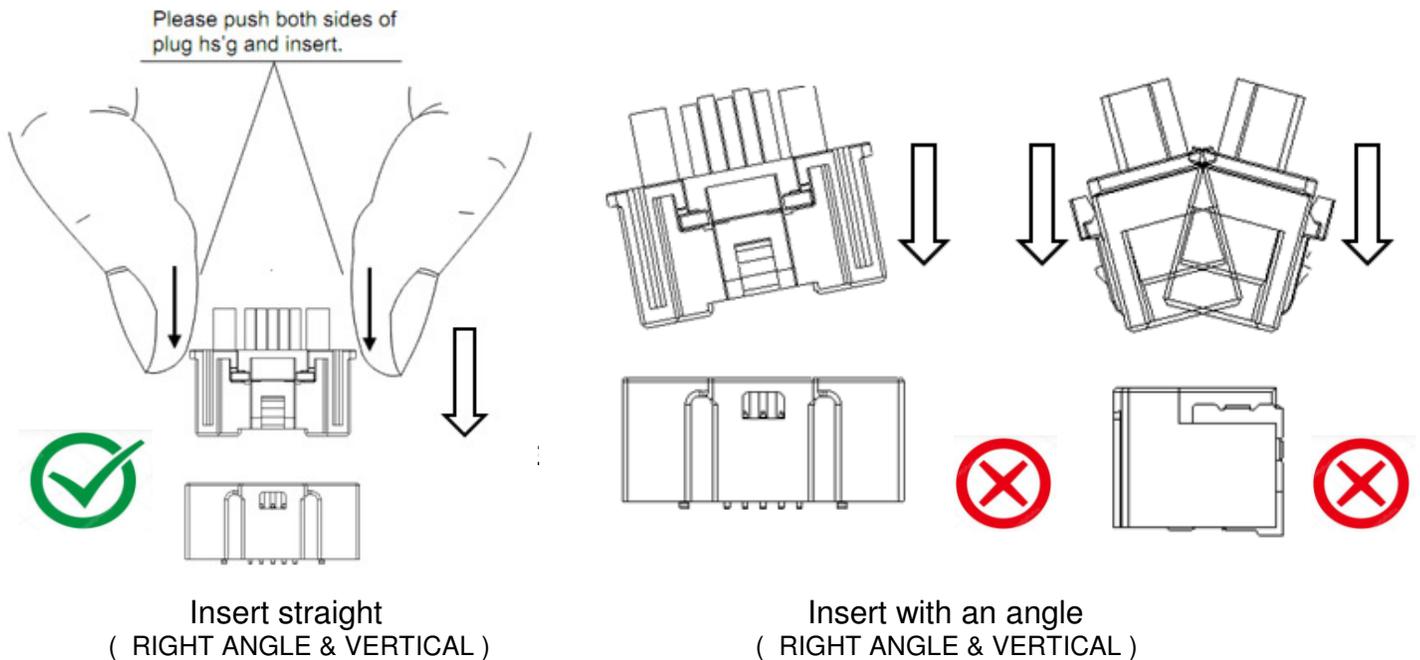


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9. Instruction when mating with Plug assembly

9.1. Mating process method

Please set mating direction of receptacle housing and plug housing , and push both side of receptacle housing to pitch direction (as shown with arrows) until both Conn. Complete mating position. After mating ,please confirm that friction locks are fastened completely.



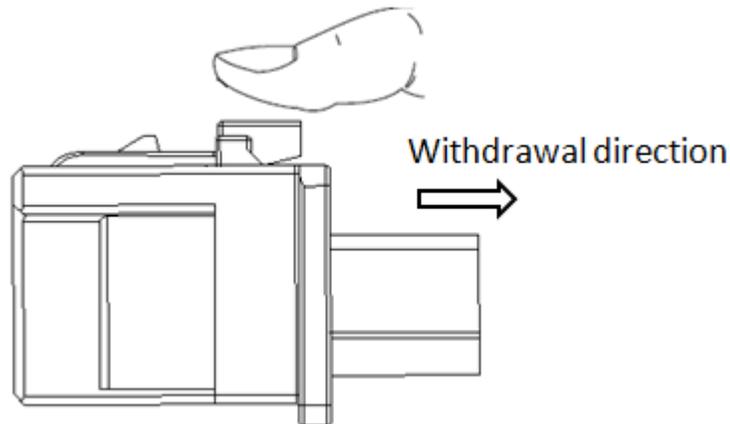
Instruction :

- When mating, please do not push positive lock of cable housing. It might cause damage by being applied excessive load by correct movement of lock part riding up the catching part is prevented.
- Please push cable housing and insert it straightly until they touch each other. Conn. Mating will end up straight direction even if it is inserted with an angle. However, if you insert it gradually with an angle intentionally, it may cause only one side locked as elastic cable housing is deformed during the insertion. (Especially in multiple circuits)
- If you can not insert smoothly , please insert again after confirming if there is no transformation of terminal And cable housing ect.

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9.2. Recommended un-mating method

Please hold wires all together lightly . After releasing lock completely by attaching fingers to the lock and push bar for releasing lock using flat part of finger, please withdraw cable housing slowly, axially and straightly . Please avoid withdrawing them with an angle and roughly. That might cause damage to connector.



Instruction:

- Please do not withdraw with holding only a few particular wires. As excessive force is applied to particular terminals, connector might be damaged or terminal might come off.
- When releasing lock, please push bar for releasing lock with flat part of finger, not only with fingertip (nail tip). If finger nail is too long, it might catch lock protection wall.

9.3 Wiring after mating

Inspection

- If you plan on pulling around wires inside machine, please take measures to prevent force from applying to connector directly, such as allowing wires to have enough flexibility.(Fig 9.3.1)
- When pulling wires around inside actual machine, please do not use under the condition that wires are bent excessively or tension is added. That might be reason for terminal to be pulled out because force is added to terminal crimping zone or terminal insertion portion of receptacle by wire tension. Especially, please prevent force from being applied to only a few particular wires. (Fig 9.3.2)
- If force is added to one particular wire, wire (crimp terminal) might be pulled off.
- Wire routing inside customer's device needs to avoid excessive stress. Please avoid pulling them toward more than two directions.(Fig 9.3.3)

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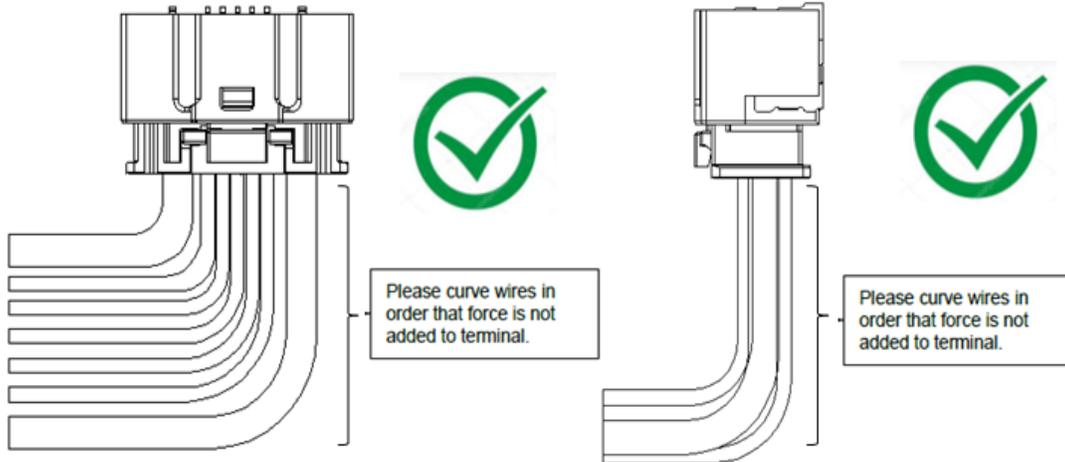


Fig 9.3.1 Condition wires are curved

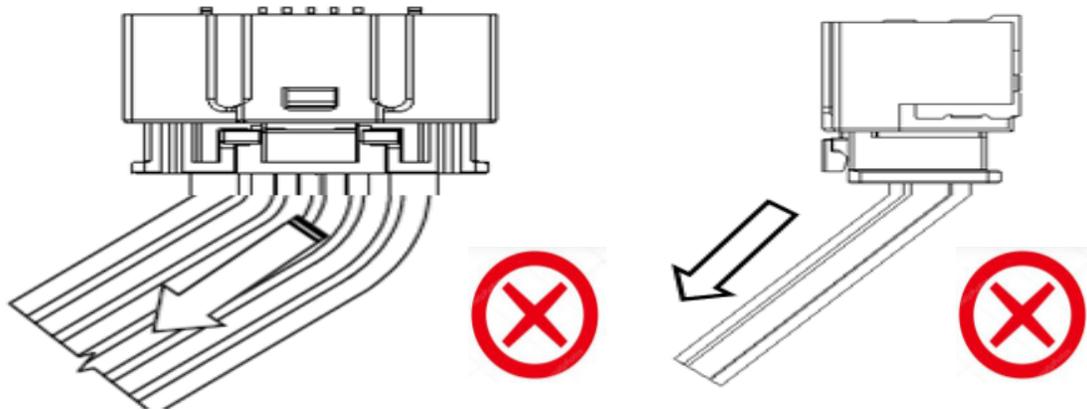


Fig 9.3.2 Condition wires are bend excessively or tension is added

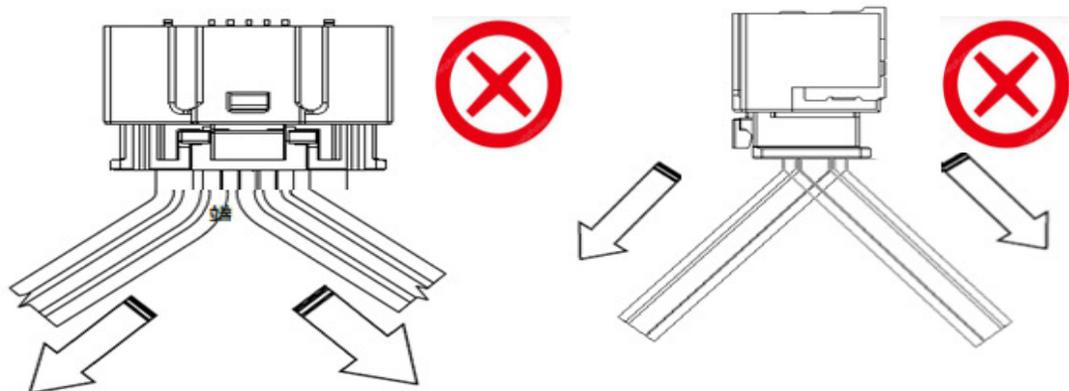


Fig 9.3.3 Wiring toward more than 2 directions

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10. REPAIR / REMOVAL PROCEDURE

Repairs are not recommended

11. RECORD RETENTION

| <u>REV</u> | <u>PAGE</u> | <u>DESCRIPTION</u> | <u>EC#</u> | <u>DATE</u> |
|------------|-------------|--------------------|------------|--------------|
| 1 | All | Preliminary | | 2021/Sep./27 |