

Japan Aviation Electronics Ind., Ltd. CONNECTOR DIVISION	No.	J A H L - 1 5 9 4 - E				PAGE 1/10
TITLE: MX19 CONNECTOR HANDLING MANUAL	REV	DATE	DCN No.	Chk.	Sup.	Mgr.
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REFERENCE ONLY

JAE

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1 . Scope

This manual covers how to handle MX19 connectors manufactured by JAE.

2 . The specification apply to the following connectors

Type		Name of Product	
Housing	Pin Housing	MX19002P5	2
		MX19004P5	2
	Socket Housing	MX19002S5	2
		MX19004S5	2
Terminal	Pin Contact	MX19P10K451	
	Socket Contact	MX19S10K451	

3 . Crimping operation

3-1 . Applicable Wire ³

Terminal (Contact type)	適用電線	
Pin Contact (MX19P10K451)	CAVS 0.3 mm ² Construction[No./Shape]: 7/Round Compressed Calculated area : 0.3717 mm ² Overall diameter : 1.4 ~ 1.5 mm	CAVS 0.5 mm ² Construction[No./Shape]: 7/Round Compressed Calculated area : 0.5630 mm ² Overall diameter : 1.6 ~ 1.7 mm
Socket Contact (MX19S10K451)	GPTL 22 Construction[No.]:7 Calculated area(Ref.) : (0.3717 mm ²) Overall diameter(Ref.) : (1.57 mm)	AVSS 0.5 mm ² Construction[No.]:7 Calculated area : 0.5630 mm ² Overall diameter : 1.6 ~ 1.7 mm

3-2 . Applicable wire and insulation stripping length

Make sure that the stripped length of wire insulation is within the dimensions in the chart below.
At this time, inspect the conductors to ensure that they are not damaged, missing, or deformed.
(If the conductors are damaged, missing, or deformed, they are defective.)

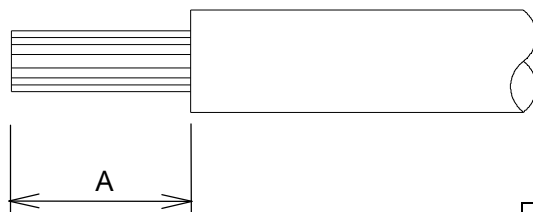


Figure-1 Stripping length

Contact type	A(mm)
MX19P10K451	2 ~ 2.5mm
MX19S10K451	

3-3 . Parts description

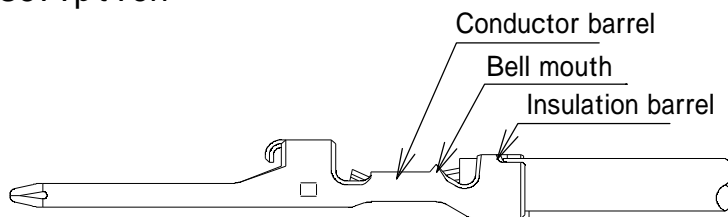


Figure-2 Good product (MX19P10K451)

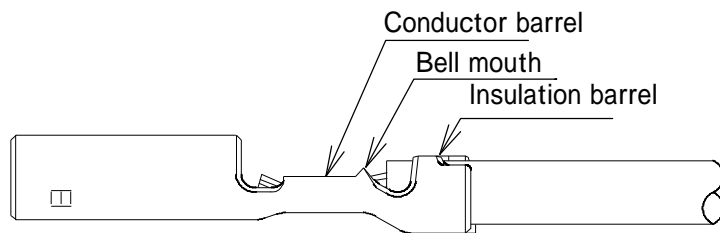


Figure-3 Good product (MX19S10K451)

3-4 . Definition of 'good' product

A properly crimped socket contact is shown in Figure-2, Figure-3 with crimp dimensions per table 1 below.

Table 1 Crimp height and crimp width ³

Contact type	Applicable Wire	Crimp height (Conductor barrel)	Crimp width (For reference only)	Crimp height (Insulation barrel)
MX19P10K451	CAVS 0.3mm ²	0.73 ~ 0.83mm	1.48 ~ 1.54mm	1.6 ~ 1.8mm
MX19S10K451	GPTL 22	0.73 ~ 0.83 mm	1.48 ~ 1.54 mm	1.6 ~ 1.8 mm
	CAVS 0.5 mm ²	0.75 ~ 0.85 mm	1.52 ~ 1.58 mm	1.7 ~ 1.9 mm
	AVSS 0.5mm ²	0.75 ~ 0.85mm	1.52 ~ 1.58mm	1.7 ~ 1.9mm

[Note] • Crimp height and width dimensions can be assured only with the use of application tools made by JAE shown in Table 2.

• This crimp width shows the value for the reference when the respective crimp height is set.

Additionally, good crimps also meet the following criteria:

- Bell mouths are evident.
- The conductor tip is beyond the conductor barrel.
- No conductors are protruding outside of the conductor barrel.
- The insulation on the wires is captured in the insulation barrel and does not intrude into the conductor barrel.
- There are no cracks or burrs in the crimp area.

Table2 Applicable application tools made by JAE

Contact type	Fully-automated Applicator	Semi-automated Applicator
MX19P10K451	350-MX19-3B	350-MX19-2
MX19S10K451		

3-5 . Definition of 'hot good 'product

(1) Inserted wires too short

The conductors are not inserted far enough into the conductor barrel.

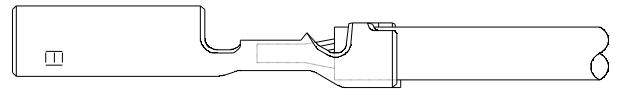


Figure-4 Inserted wires too short

(2) Stripped insulation length too short

The insulation is inserted into the conductor barrel because the length of the stripped insulation is shorter than specified.

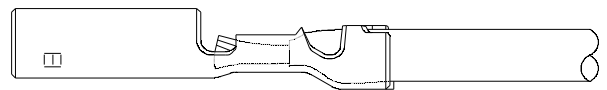


Figure-5 Stripped insulation too short

(3) Extruded conductors

The conductors extrude from the conductor barrel.

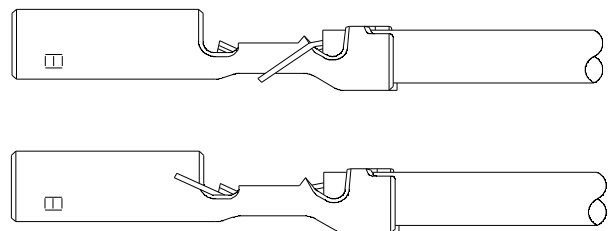
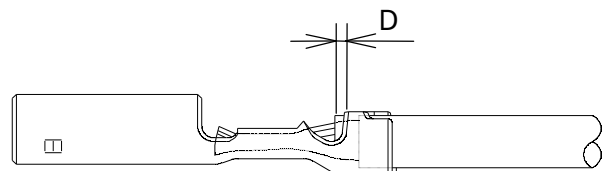


Figure-6 Conductors extrude from the conductor barrel

(4) Stripped insulation length too long

The insulation is not inserted into the insulation barrel far enough because the length of the stripped insulation is longer than specified.

Or even it is inserted,
D dimension is less than 0.3 mm.



The conductors extend too far beyond the tip of the conductor barrel because the length of the stripped insulation is longer than specification.

E dimension is more than 0.7 mm.

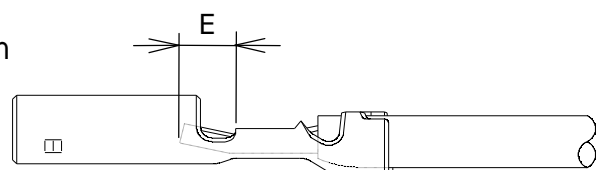


Figure-7 Stripped insulation too long

(5) Tilted insulation barrel

The insulation barrel is tilted more than 0.3 mm (shown as X) from the vertical on either side.

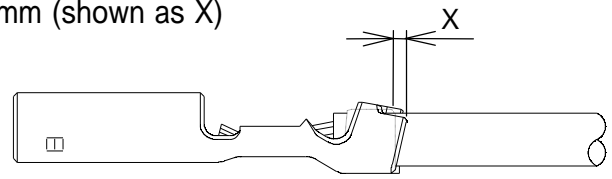


Figure-8 Tilted stabilizer barrel

(6) Bent contact

The mating portion of the contact is bent more than 3 degrees (shown as P) in either direction from the center line.

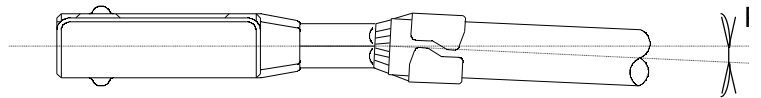


Figure-9 Bent contact

(7) Twisted contact

The conductor barrel and the insulator barrel are twisted more than 2.5 degrees (shown as R) in either direction

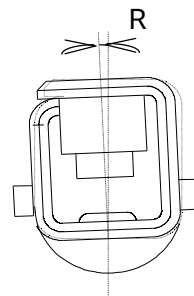


Figure-10 Twisted contact

(8) Carrier strip cut burr and bell mouth

The carrier strip cut burr is more than 0.2 mm (shown as Z) and there is no bell mouth.

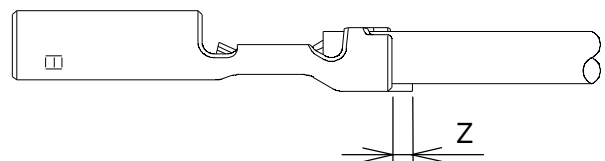


Figure-11 Missing bell mouth, excessive carrier cut off burr

(9) Misalignment of the insulation barrel

The amount of misalignment in the insulation barrel is more than 0.3mm (shown as K).

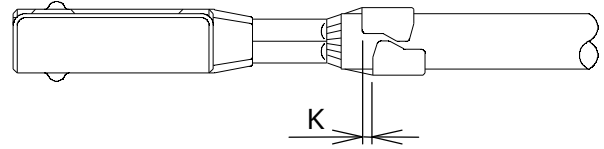


Figure-12 Excessive misalignment

(10) Mating tip bent up or down

The mating tip bent up or down compared to the conductor crimp area is

$$Y1 > C1 \text{ mm}$$

$$Y2 > C2 \text{ mm}$$

$$C1 \text{ (Bend up) } : 0.1\text{mm}$$

$$C2 \text{ (Bend down) } : 0.2\text{mm}$$

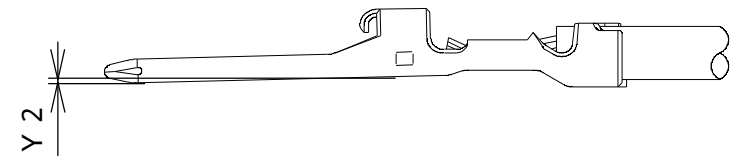
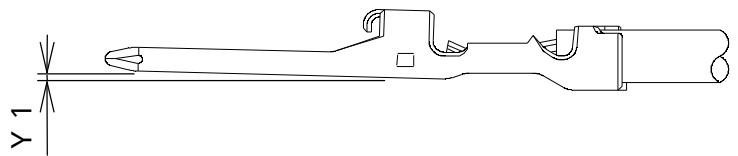


Figure 13 – Mating tip bent (MX19P10K451)

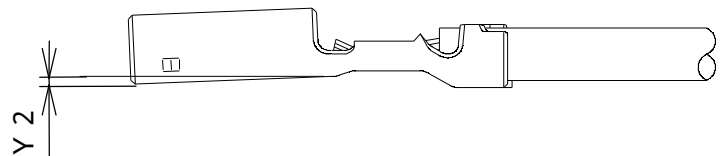
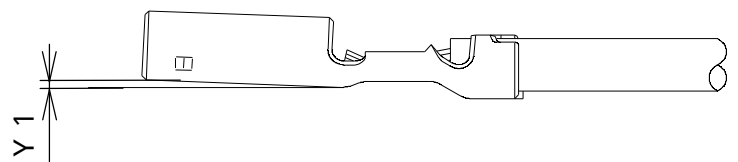


Figure 14 – Mating tip bent (MX19S10K451)

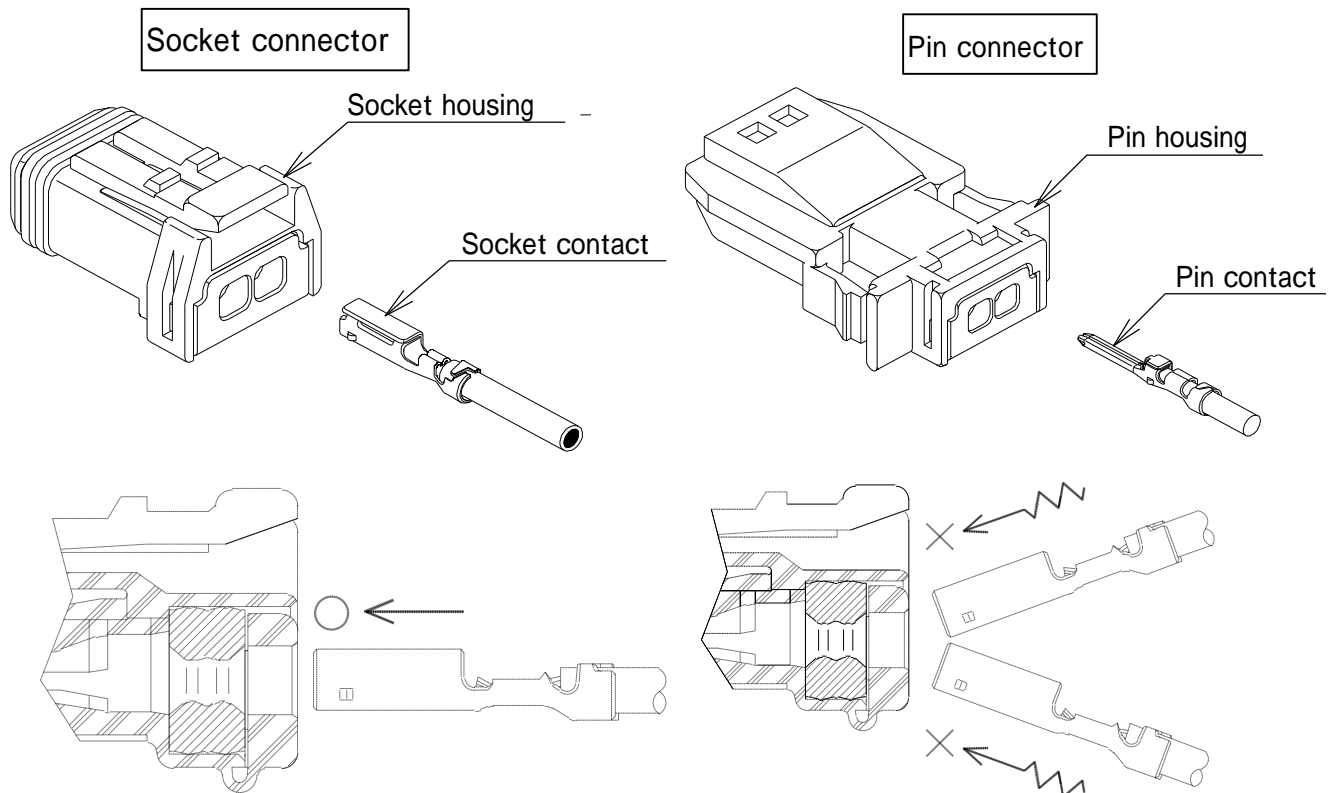
4 . Contact insertion method

The contact should be inserted parallel to the axis of the connector. and continue inserting the contact until a click is heard and felt. (With the sound, the insertion is completed.)

The place to hold the wire should be as close as the contact, so that the wire will not be bend.

After insertion, pull the wire gently to ensure that the contact is fully inserted and locked.

Note- If the contact cannot be inserted smoothly, check whether it is inverted.



2 Figure 15 – Inserting a socket contact

If the contact is forced into the contact hole, the contact will be damaged and deformed so that the contact connection failure might be caused. If the contact is deformed, please renew that contact.

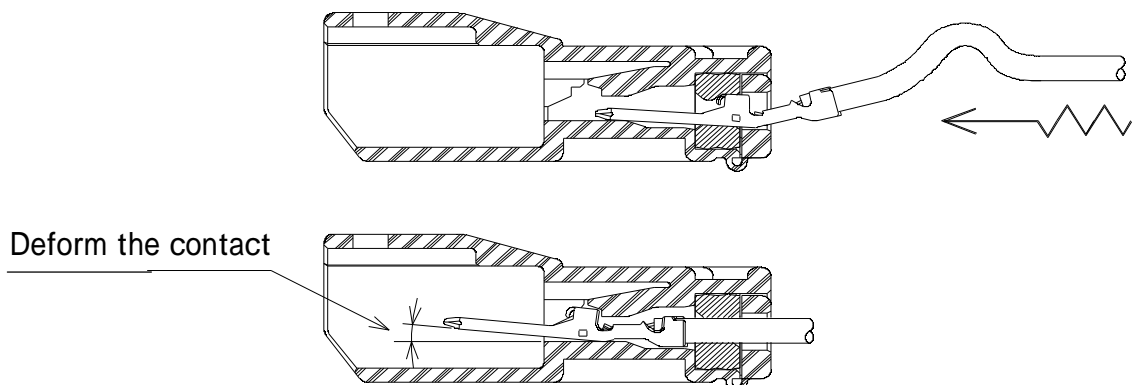


Figure 16 – Deformation of contact

5. Contact extraction

Confirm that the retainer has been removed before attempting to extract any contacts.
Hold the wire for the contact to be extracted and insert the contact extraction tool (ET-MX19) firmly into the contact extraction cavity against the housing wall.
Hold the extraction tool in position and pull the wire gently to remove the contact.
(Refer to the section picture).

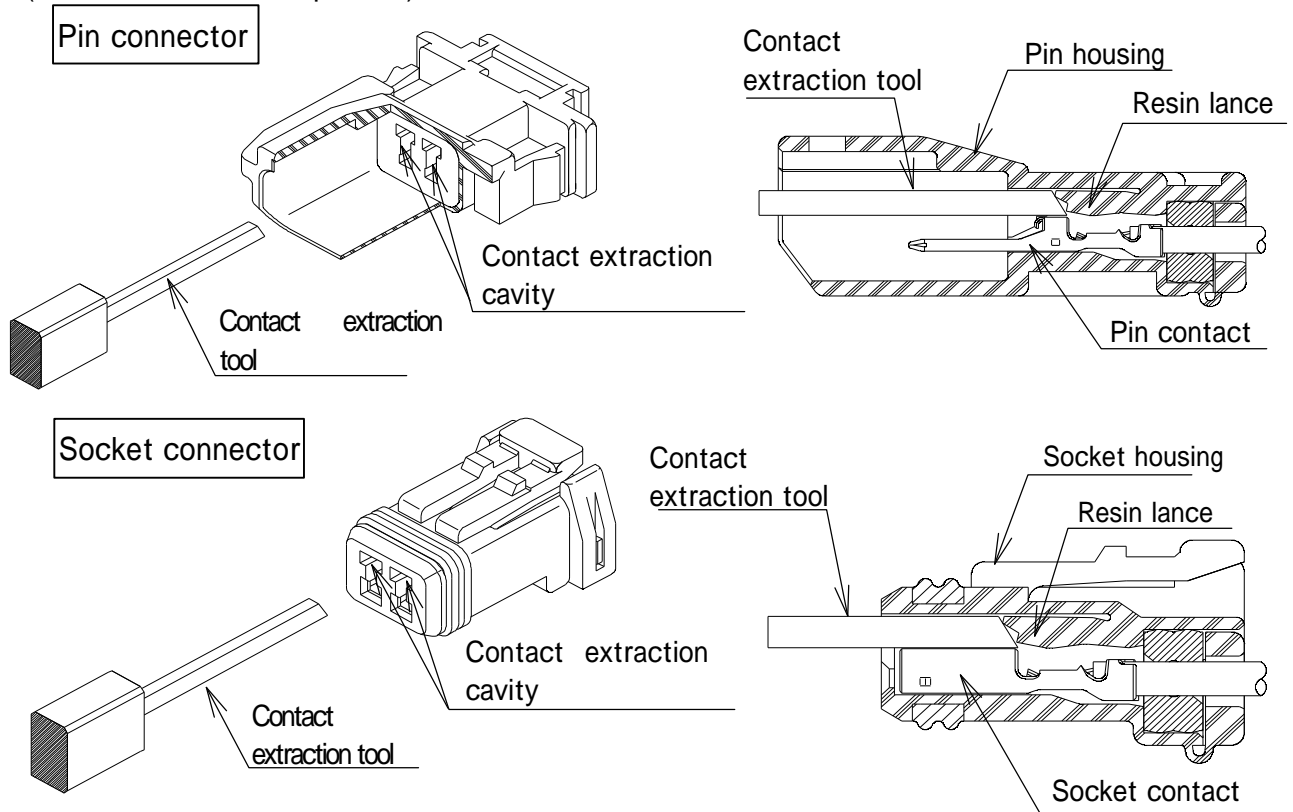


Figure 17 – Contact extraction

[NOTE]

- (1) Contact extraction tool :
ET- MX19

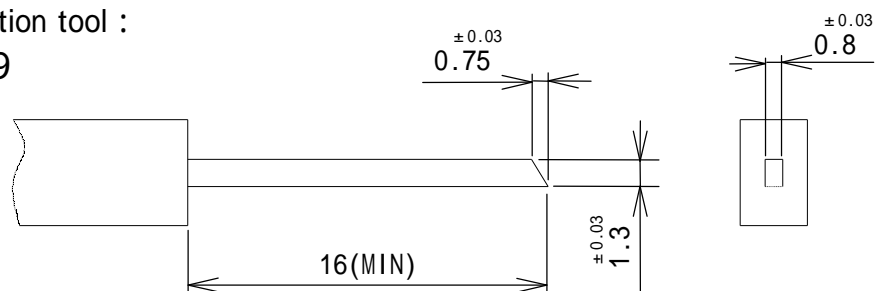


Figure 18 – Contact extraction tool

- (2) If the contact is forced out, the grommet seal might be damaged.
- (3) Do not extract any contact more than three times. If the connector (grommet seal) is damaged, Please renew that connector.
- (4) Keep the contact extraction tool parallel when extracting the contact.
- (5) Always insert the extraction tool into correct position. Do not damage or deform the contact extraction cavity, contact, resin lance, etc.

6 . Connector insertion and separation method

6-1 . connector insertion method

Insert socket connector into pin connector horizontally; continue inserting socket connector until a click is heard and felt. (With the sound, the insertion is completed.)

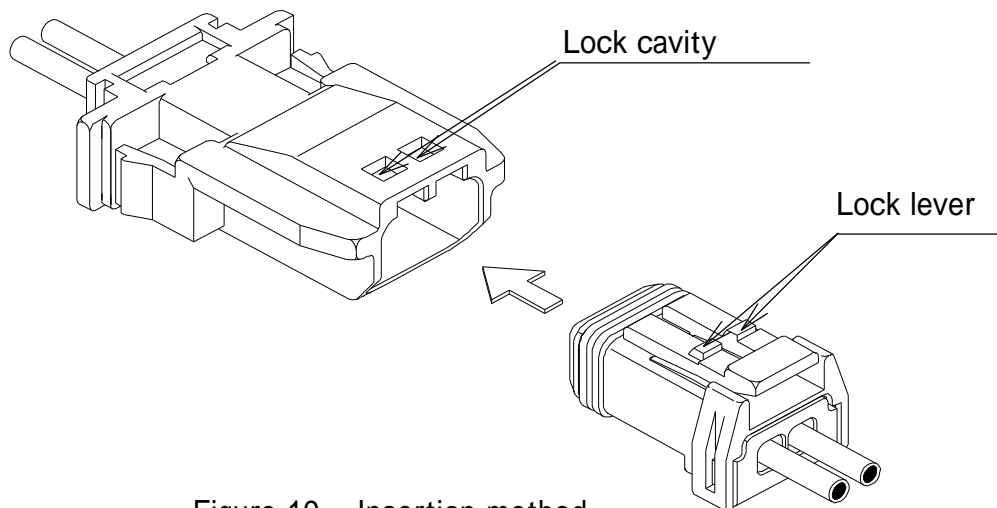


Figure 19 – Insertion method

6-2 . Connector separation method

As shown in the Figure 20, push down the Lock lever by finger until the lock latch is completely released, and the contact should be separated parallel to the contact axis direction without abusing the contact.

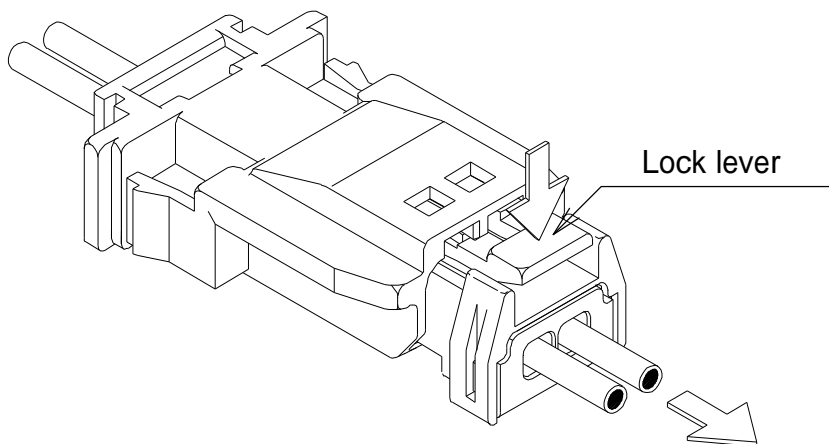


Figure 20 – Separation method

(NOTE) When the contact is inserted into, or separated from the contact hole, the contact should be treated carefully without abusing it. (There should no force applied to the contact other than the insertion/separation axis.)

! CAUTION

(Follow the instructions below to prevent from physical injury or connector damages.)

- Ensure that the connectors to be inserted are in the same orientation during inserting.
- Be careful not to injure your fingers while applying force during connector inserting and separating.
- Do not pull the wires on the connectors during separating
- Do not touch or place a foreign substance on the contact portion of the pin contacts of the connector.
- Always use the specified tooling when extracting a contact from a connector.
- Be careful not to injure your hands or other body parts when handling tools for crimping, soldering, wire handling, etc.
- Do not disassemble the components of the housing.
- The contact other than specified for this housing should not be used.
The grommet seal might be damaged.
- The sealing ring inside the socket housing should be handled carefully, not to be damaged.
- Follow all specifications when using the connectors.