

CABLINE®-CA PLUG

Part No. 20633

Assembly Manual

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Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose :

This manual explains the soldering method and assembly processes of the CABLINE- CA PLUG with shell-A and pull-bar.

2. Applicable Connector :

Name: CABLINE-CA PLUG

Parts No.:

Set P/N	Cable Assembly	20633-#**T-0#S
Discrete P/N	Housing Assembly	20634-#**T-02
	Shell-A	2764-0**1-###
	Pull-Bar	2766-0**1

3. Fixtures :

3.1 Components and Instruments Used in the Condition Confirmation

• Pulse Heater

Name	P/N	Manufacturer
Reflow head	NA-66	Nippon Avionics Co., Ltd.
Pulse heat power supply	TCW-215	Nippon Avionics Co., Ltd.

• Heater Tip

	10P	12P	20P	30P	40P	50P	60P
Thickness	0.5 ⁰ _{-0.05}	0.5 ⁰ _{-0.05}	0.5 ⁰ _{-0.05}	0.5 ⁰ _{-0.05}	0.5 ⁰ _{-0.05}	0.5 ⁰ _{-0.05}	0.5 ⁰ _{-0.05}
Width	4.2 ⁰ _{-0.03}	5.0 ⁰ _{-0.03}	8.2 ⁰ _{-0.03}	12.2 ⁰ _{-0.03}	16.2 ⁰ _{-0.03}	20.2 ⁰ _{-0.03}	24.2 ⁰ _{-0.03}

Unit: mm

• Recommended Solder Bar

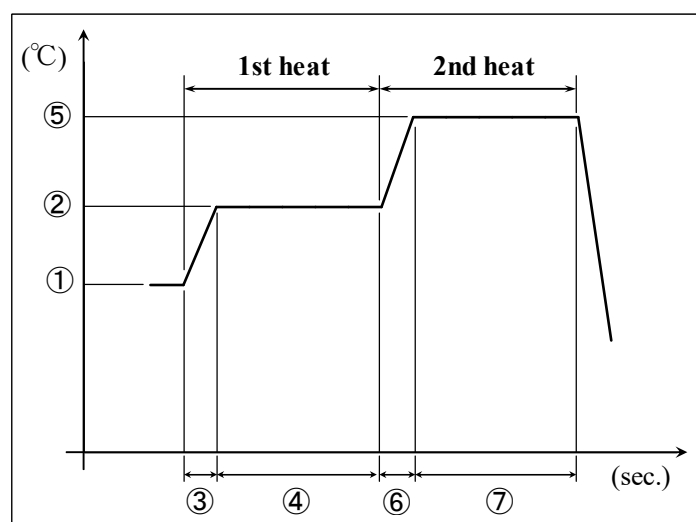
Resin-free solder made by Uchihashi Estec Co., Ltd.

Positions		10P	12P	20P	30P	40P	50P	60P
Solder Size	AWG#34,36	φ0.14	φ0.14	φ0.14	φ0.14	φ0.14	φ0.14	φ0.14
	AWG#40~#44	φ0.1	φ0.1	φ0.1	φ0.1	φ0.1	φ0.1	φ0.1
Length		4.0 mm	4.8 mm	8.0 mm	12.0 mm	16.0 mm	20.0 mm	24.0 mm
		Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.

Unit: mm

4. Recommended Pulse Heat Condition

① Idle Temp.	150 °C
② 1 st Heat Temp.	220 °C
③ " Rise Time	0.5sec.
④ " Holding Time	3.0sec.
⑤ 2 nd Heat Temp.	300~320 °C
⑥ " Rise Time	0.5sec.
⑦ " Holding Time	3.0sec.
Heater Tip Pressure	5~10N



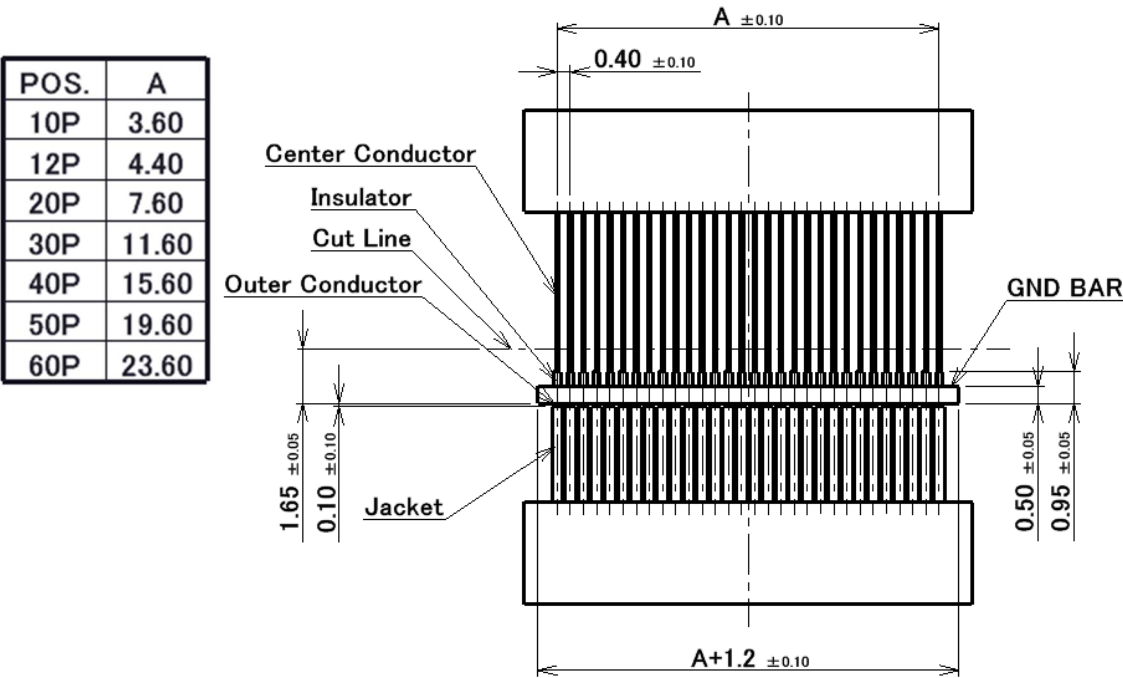
*This pulse heat condition was evaluated and confirmed by our pulse heat jig and instruments.

The most optimum condition may change based on the shapes of pulse heat jig and instruments, the environments, or other reason.

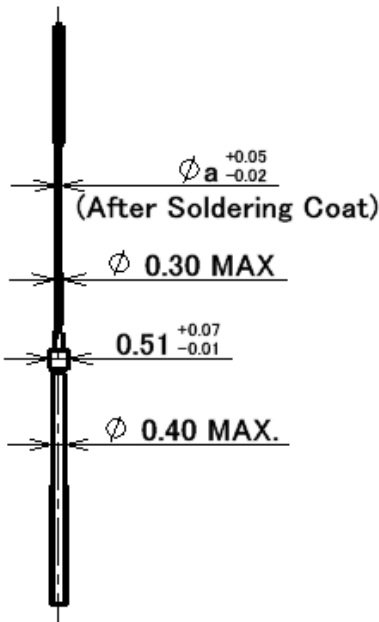
Therefore, please examine the pulse heat condition adequately in advance of use.

5. Work Procedures :
5-1. Soldering of Center-Conductor

① The cables have to be fabricated as shown below in advance of soldering.



Recommended Micro-Coaxial Cable Dimensions



Micro-Coaxial Cable AWG#**

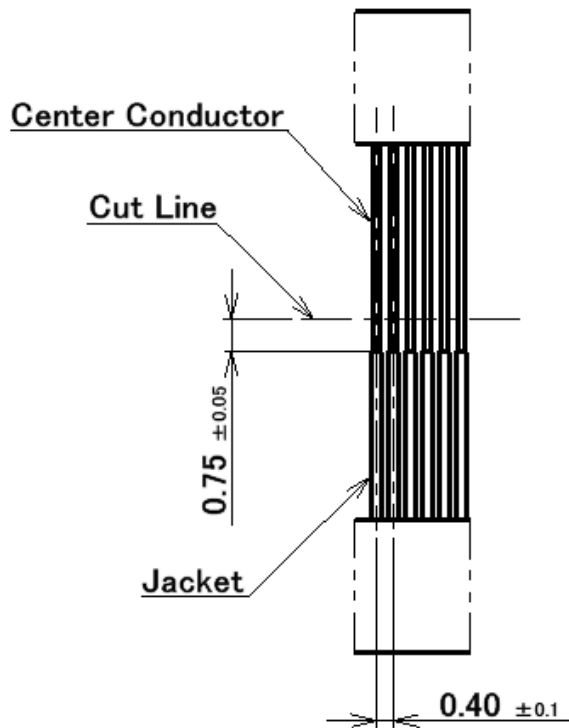
Characteristic Impedance Matching Micro-Coaxial Cable

	a
#38	0.12
#40	0.09
#42	0.075
#44	0.063

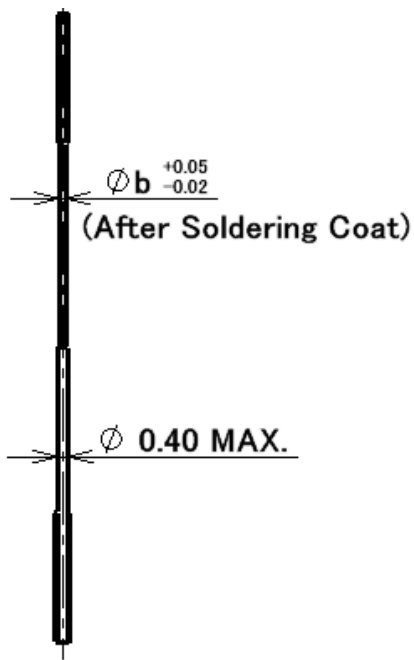
Characteristic Impedance Un-Matching Micro-Coaxial Cable

	a
#36	0.15

Micro-Coaxial Cable #36 : Not Recommended for
High Speed Signal Transfer



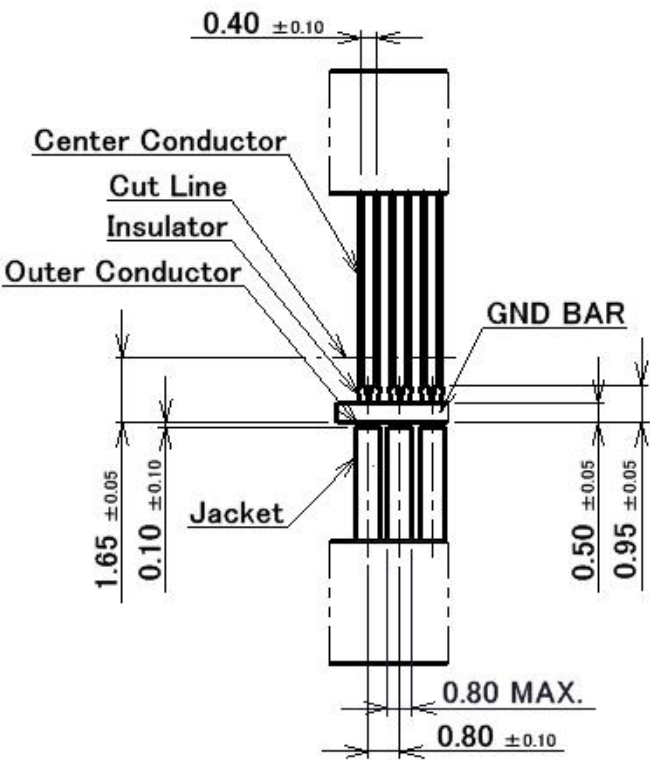
Recommended Discrete Wire Dimensions



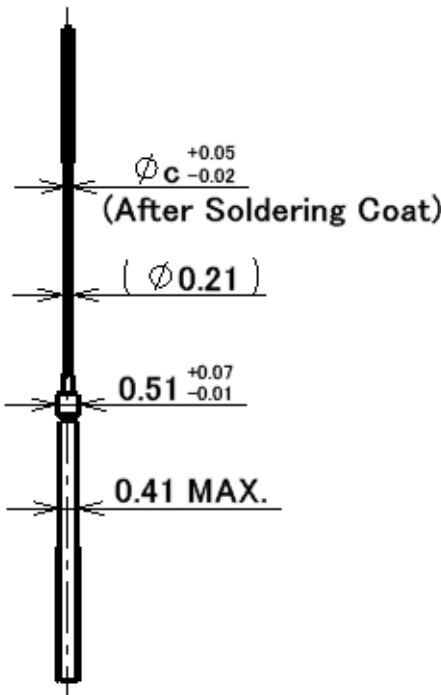
Discrete Wire Dimensions

	b
#34	0.192
#36	0.15

Discrete Wire AWG#**



Recommended Twinaxial Cable Dimensions



Twinaxial Cable Dimensions

	c
#40	0.09
#42	0.075

Twinaxial Cable AWG#**

- ② Apply flux to contact by the dispenser etc., and please confirm all contacts were applied flux.

Applying Flux Area

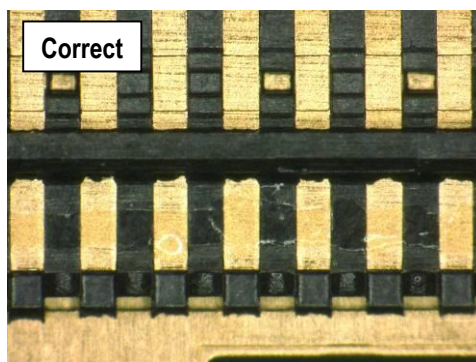
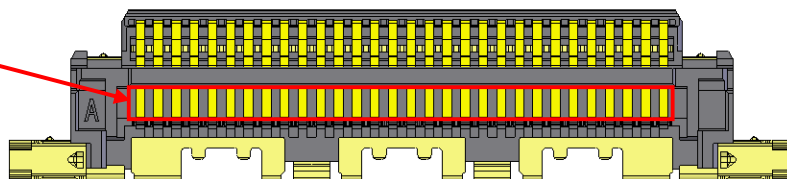


Photo.1 After Applying Flux

*Please do not apply flux too much like Photo.2. It can cause flux splash or leak to the mating area.

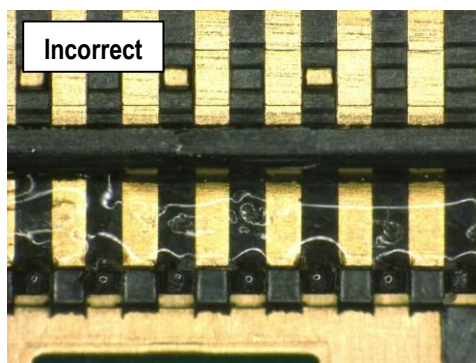


Photo.2 Extra Flux

*Do not use a cleaning machine or any other methods to clean the flux, or it may cause flux residue adhering to the mating parts.

- ③ Set the solder bar on the connector.

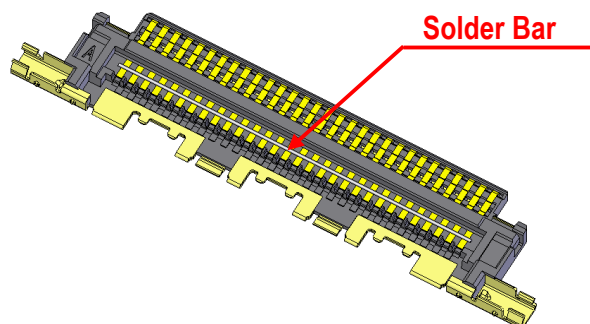


Fig.1 Set of Solder Bar

- ④ Set the cable or wire.

* To prevent potential contact between the core wire and the shell during discrete wire setting, ensure that a maximum of 0.2 mm is not exceeded, as illustrated in Figure 3.

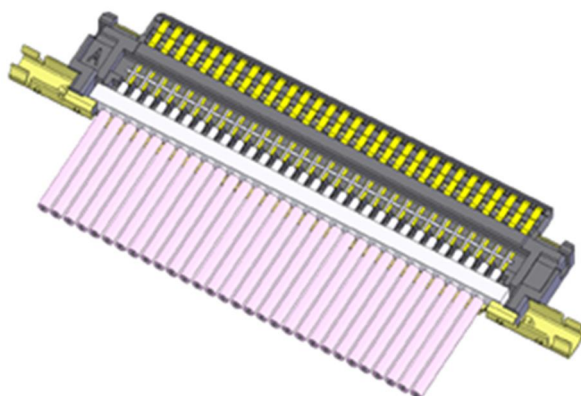


Fig.2 Set of Cable

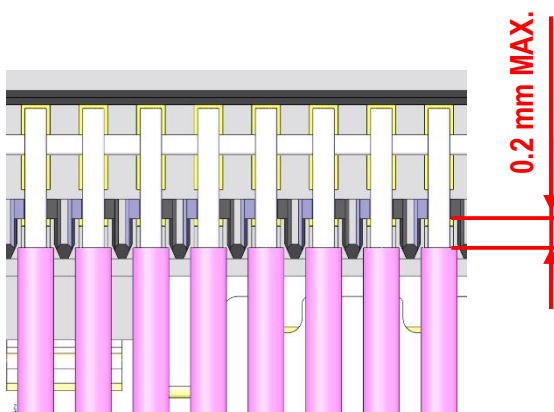


Fig.3 Setting Discrete Wire

⑤Center-conductors are soldered with pulse heater. See Photo.3 of soldering condition.

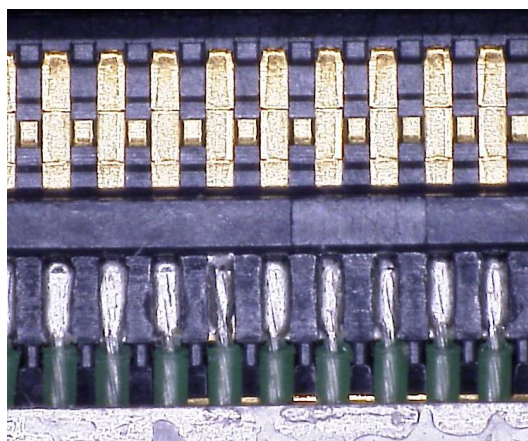


Photo.3 AWG#40

Caution: The shell bottom side of plug housing assembly has convex shape at the points shown in Fig.4, so please make escape shape on the receiving jig of the pulse heater to prevent interference.

	A	B
10P	3.4	9.4
12P	4.1	10.2
20P	—	13.4
30P	4.0	17.4
40P	8.0	21.4
50P	12.0	25.4
60P	16.0	29.4

Unit: mm

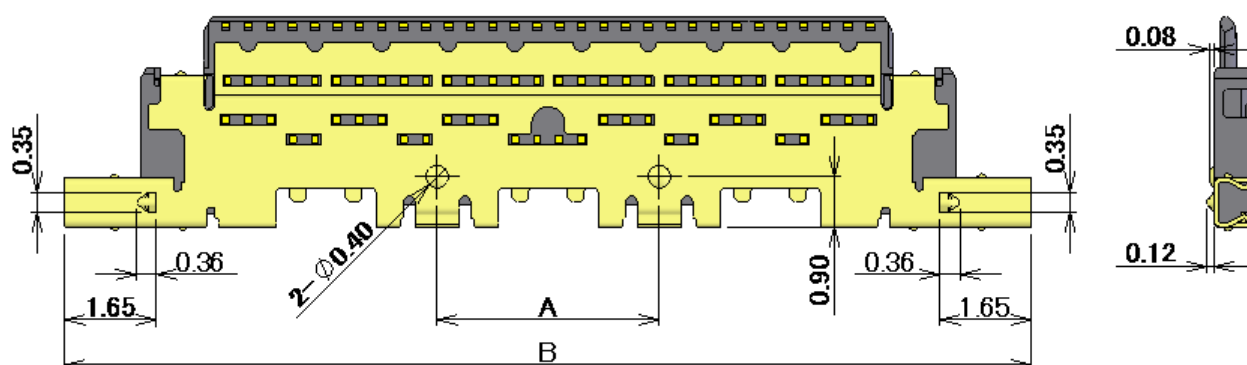


Fig.4 The Shell Bottom Side of Plug Housing Assembly

*When solder bridge is appeared between the terminal, try heating again with pulse heater only one time.

If the bridge isn't repaired, use the soldering iron only the failure point.

Condition of Soldering Iron : 50W

Operating Temperature : 350 °C

Application Time of Soldering Iron : Within 5sec.

*Do not agitate the cable after soldering the core wire, as this may damage the product.

5-2. Cautions in Treating Shell-A

Shell-A is delivered in the reel with a carrier. The following is the method to cut shell-A from carrier.

- ① Cut carrier on the cut line of the left below picture (green line) by a scissors for metal.

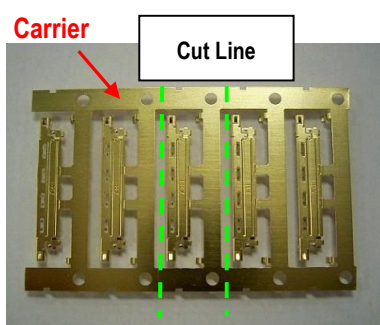


Photo.4 Before Cut

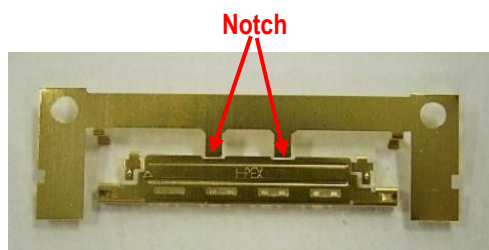


Photo.5 After Cut

- ② Hold the center of plug shell-A and cut it off from Notch by $\pm 45^\circ$ of reciprocating work.
When it does not be cut, try again this reciprocating work.
After separated, check there is no burr around the cut part. (Photo.7)

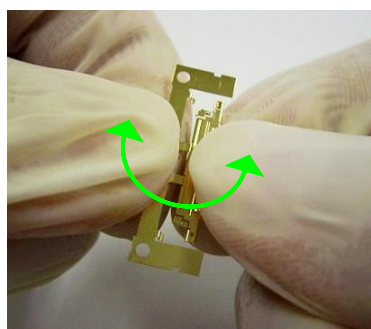


Photo.6 Cut Condition

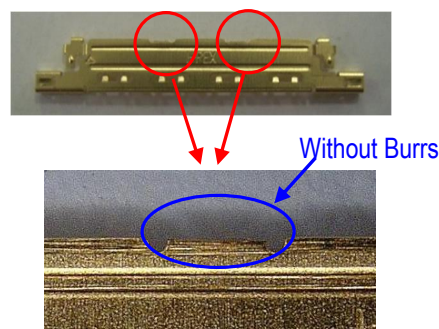
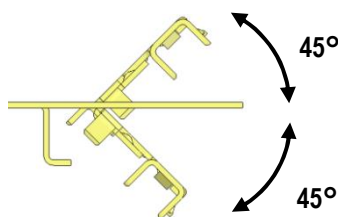


Photo.7 After Cut

Plug Shell-A Detail of Notch

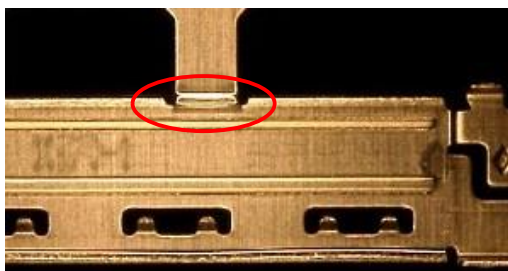


Photo.8 Bottom Side View

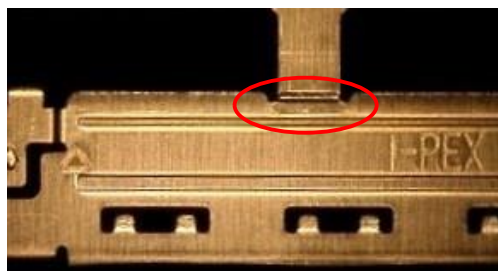


Photo.9 Upper Side View

Caution: By pulling like the photo below to cut off by force (red arrow direction), burrs and transformation can be caused.

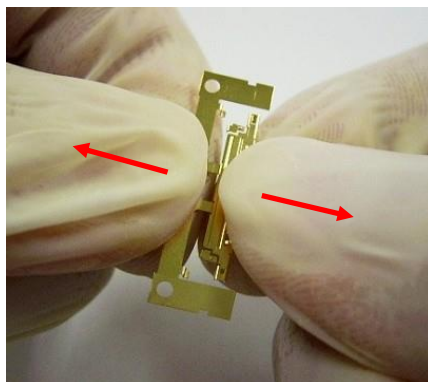


Photo.10 Cut by Force (Bad Example)

5-3. Assembly of Pull-Bar

Pull-bar is assembled to housing assembly.

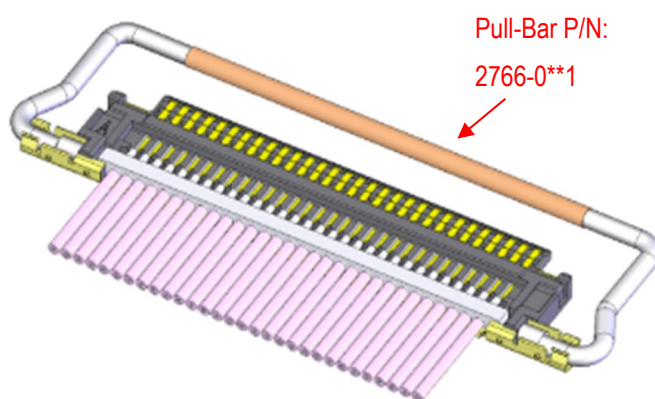


Fig.5 Assembly of Pull-Bar

5-4. Assembly of shell-A

①As show in Figure 6, shell-A is assembled from the upper side of housing assembly.

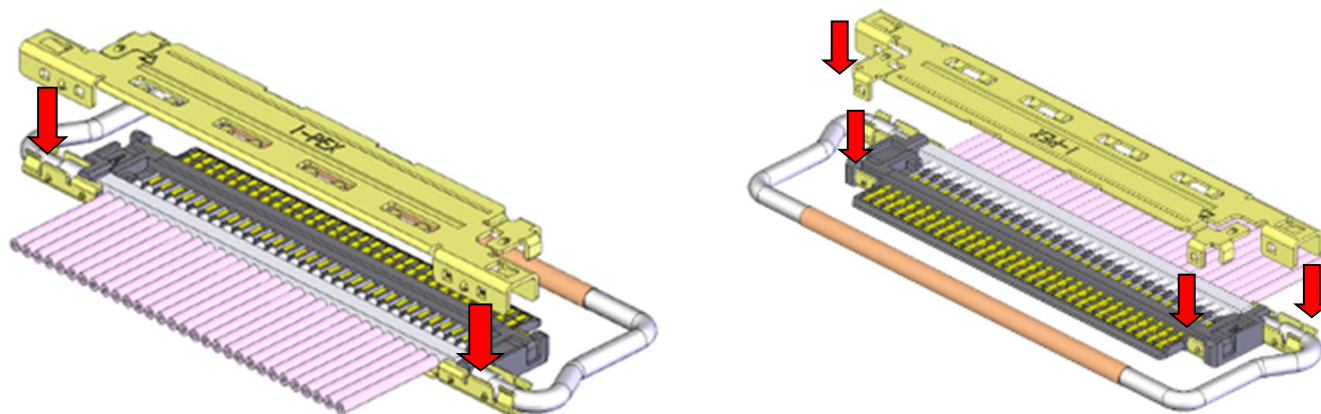


Fig.6 Assembly of Shell-A

②Confirms whether shell-A is assembled properly.

Whether shell locks are assembled properly. (Fig.7★ Point)

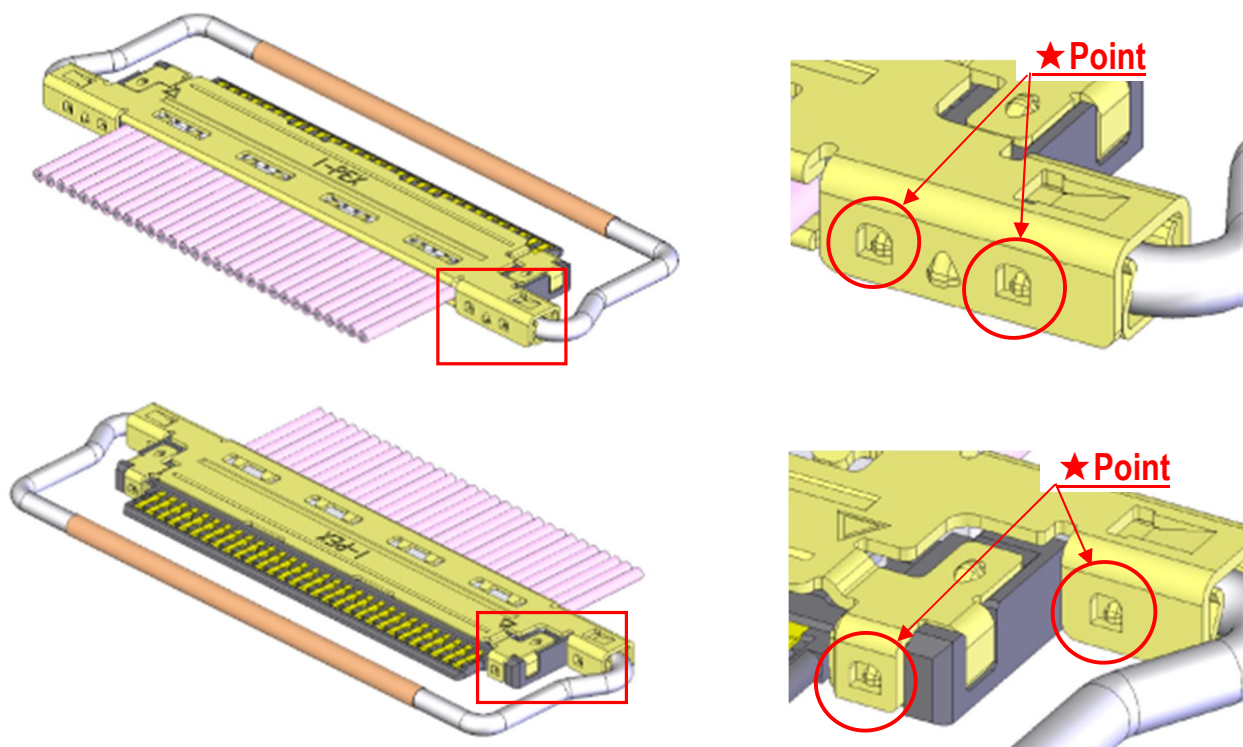


Fig.7 The Assembly Confirmation of Shell-A

- ③ Soldering shell-A, B and ground bar with the soldering iron at all designated points is recommended. (Fig.8,9 ◆Point)

Although soldering at all designated locations is recommended, some solder joints may be omitted provided that the product maintains its performance. Before production, several samples shall be assembled and confirmed to have no functional issues.

Refer to Fig.12 for a limit of the solder height.

For conditions of soldering iron refer to sheet 9.

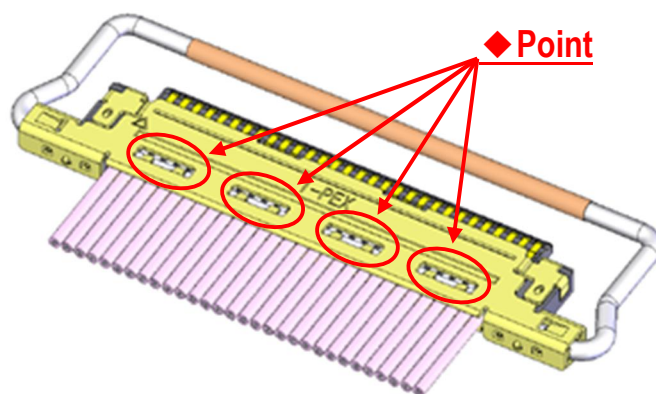


Fig.8 Soldering of Shell-A and Ground Bar

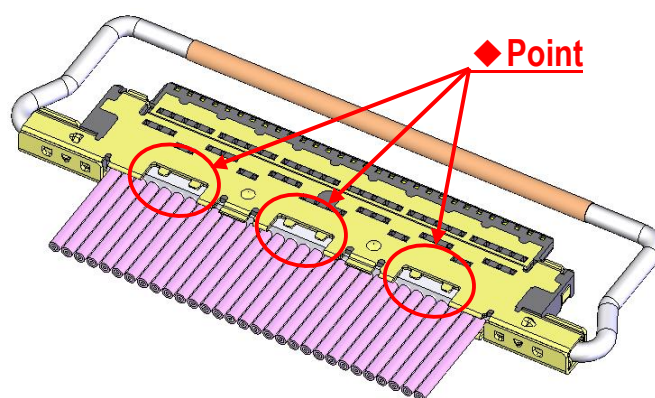


Fig.9 Soldering of Shell-B and Ground Bar

- ④ Soldering shell-A and shell-B with the soldering iron at all designated points is recommended. (Fig.10 ◆ point)

Although soldering at all designated locations is recommended, some solder joints may be omitted provided that the product maintains its performance. Before production, several samples shall be assembled and confirmed to have no functional issues.

Conditions of soldering iron refer to sheet 9.

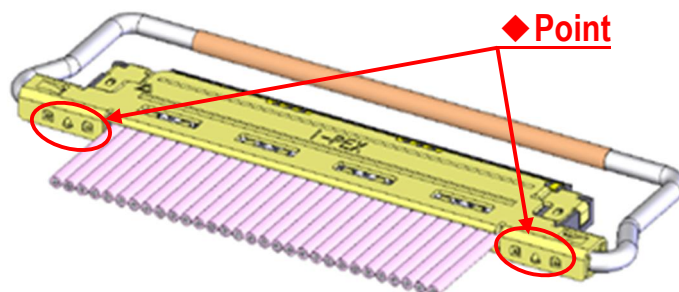


Fig.10 Soldering of Shell-A and Shell-B

5-5. Cable Fixation

Fix the cable terminal part with the bond.

Bond : LOCTITE 352

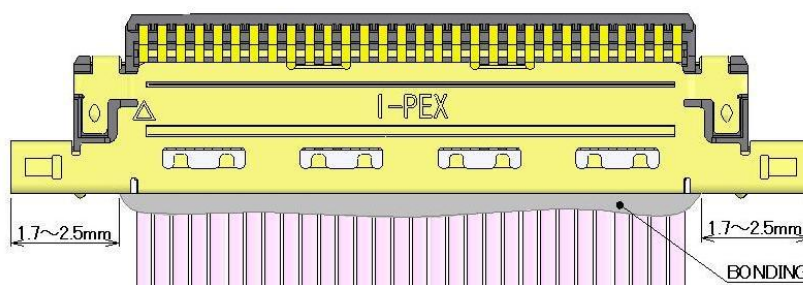


Fig.11 Bonding

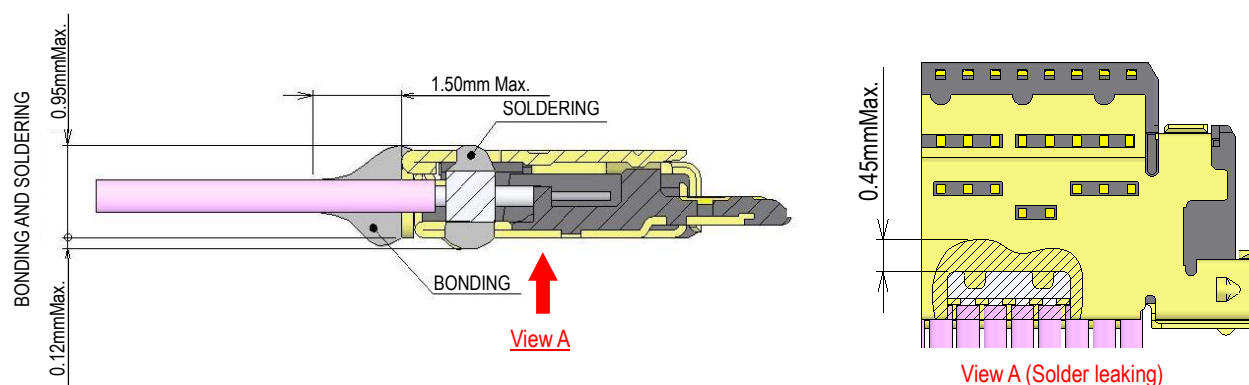


Fig.12 Soldering & Bonding