

CABLINE®-CA II PLUS PLUG

Part No. 20788 / 21096

Assembly Manual

3	S25023	December 27, 2024	K. Hara	T. Tanigawa	H. Ikari
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Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose :

This manual is to explain the soldering method / process of the CABLINE-CA II PLUS plug with cable, and assembly of lock bar assembly, shell-A.

2. Applicable Connector :

Name: CABLINE-CA II PLUS plug

Parts No.:

Set P/N	Cable Assembly	20788-060T-0# / 21096-060T-01
Discrete P/N	Housing Assembly	20680-060T-01 / 21067-060T-01
	Lock Bar Assembly	20789-060T-0# / 21097-060T-01
	Shell A	3204-0601 / 3858-0601

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 chip

	60P
Thickness	0.5 ⁰ _{-0.05}
Width	24.2 ⁰ _{-0.03}

Unit: mm

- Recommended solder bar

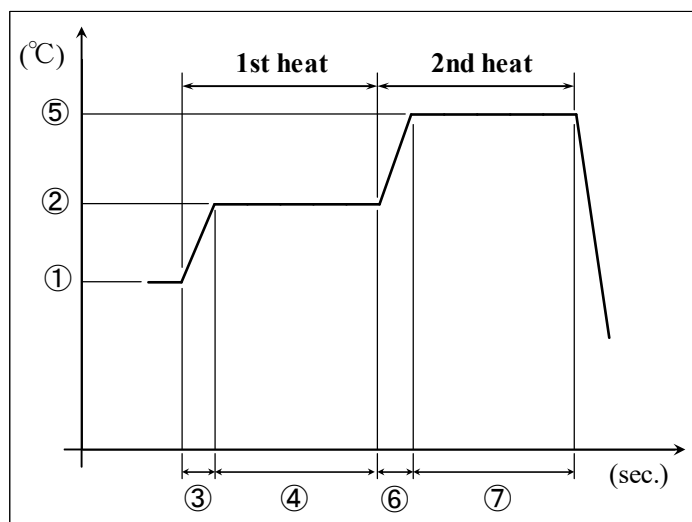
Resin-free solder made by Uchihashi Estec Co., Ltd. was used.

Positions	60P	
Solder size	AWG#34,36,38	φ0.14
	AWG#40~#44	φ0.1
Length	24.0mm	
	Ref.	

Unit: mm

4. Recommended Pulse Heat Condition

	Small gauge coaxial
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.

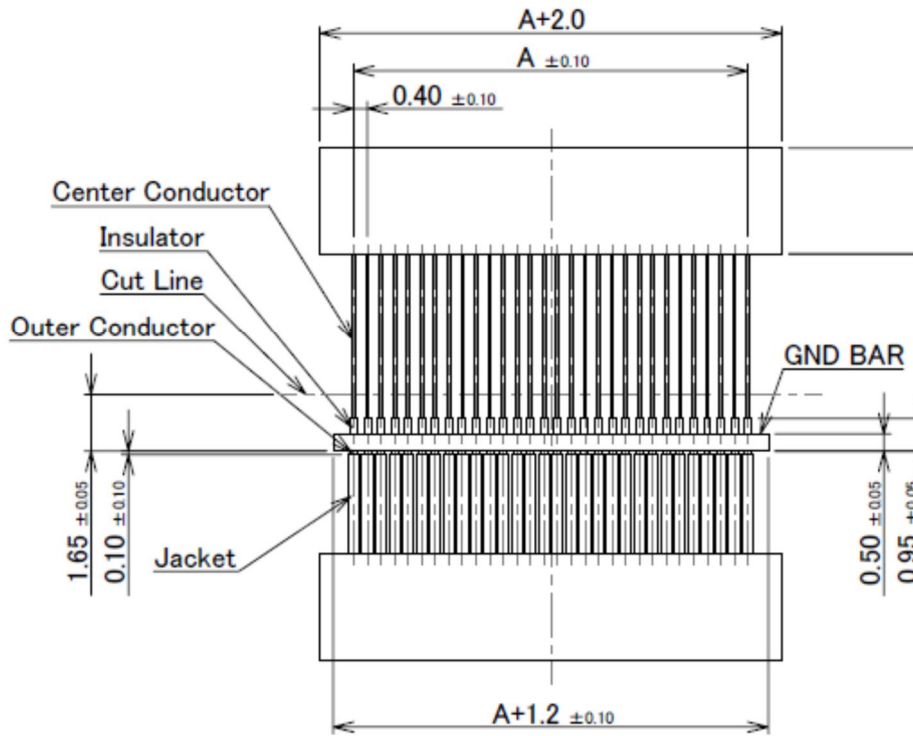
Therefore, please examine the pulse heat condition adequately in advance of use.

5. Work Procedures :

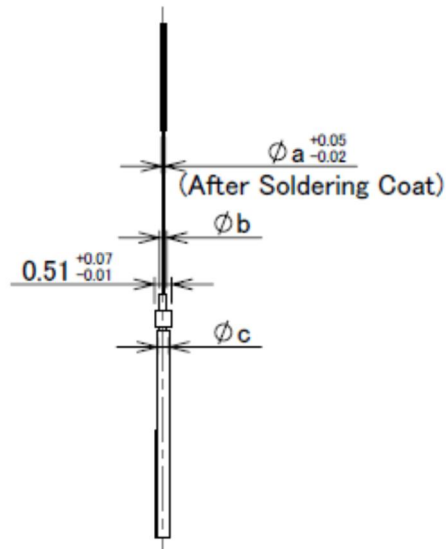
5-1. Soldering of Center-Conductor

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

Pos.	A
60P	23.60



Recommended Micro-Coaxial Cable Dimensions

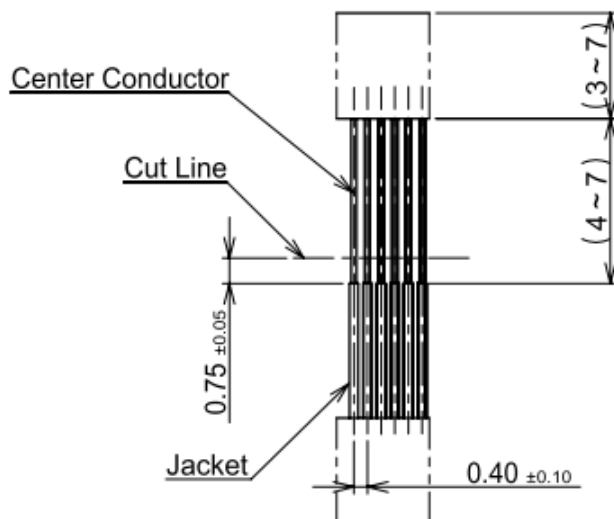


Micro-Coaxial Cable Dimensions

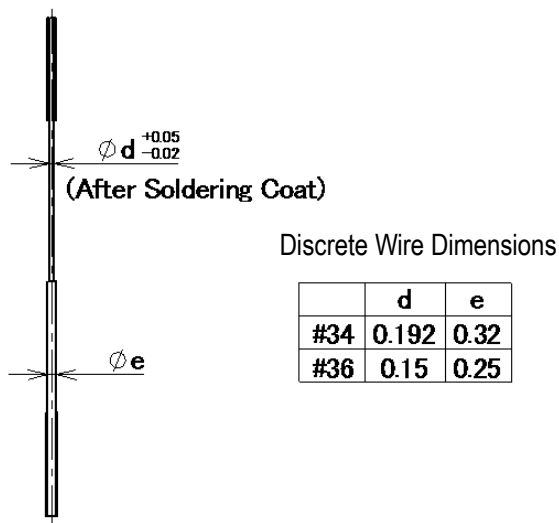
	a	b	c
#36	0.15	0.29	0.39
#38	0.12	0.29	0.39
#40	0.09	0.21	0.33
#42	0.075	0.20	0.28
#44	0.063	0.18	0.26

Micro-Coaxial Cable #36:
Power only

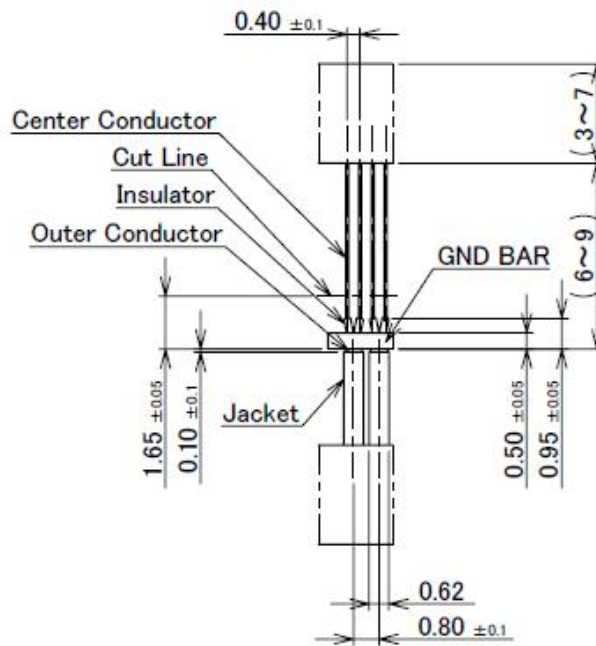
Micro-Coaxial Cable AWG#**



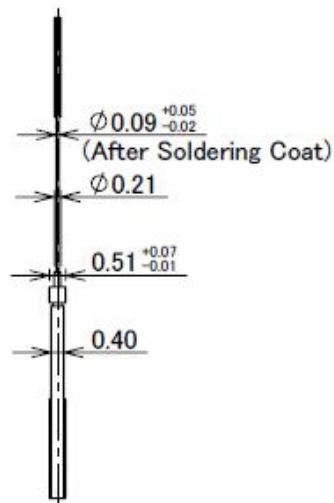
Recommended Discrete Wire Dimensions



Discrete Wire AWG#**



Recommended Twinax Cable Dimensions



Twinax Cable AWG#40

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

Applying Flux area

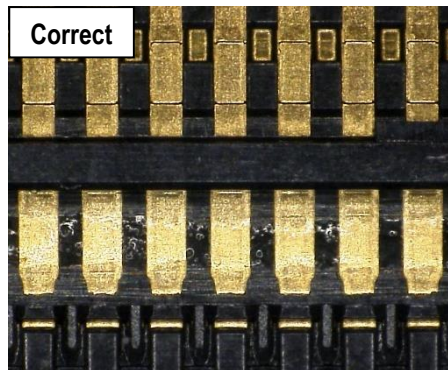
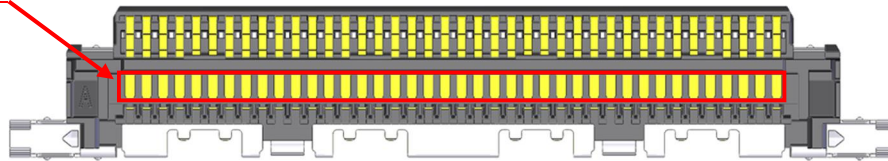


Photo.1 After Applying Flux

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

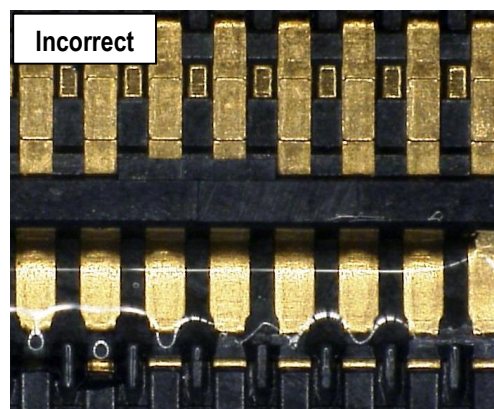


Photo.2 Extra Flux

※Washer must not be used to take flux off because it may cause flux attached to mating area.

- ③ Pre-set and locate solder bar at center of connector (Housing assembly).

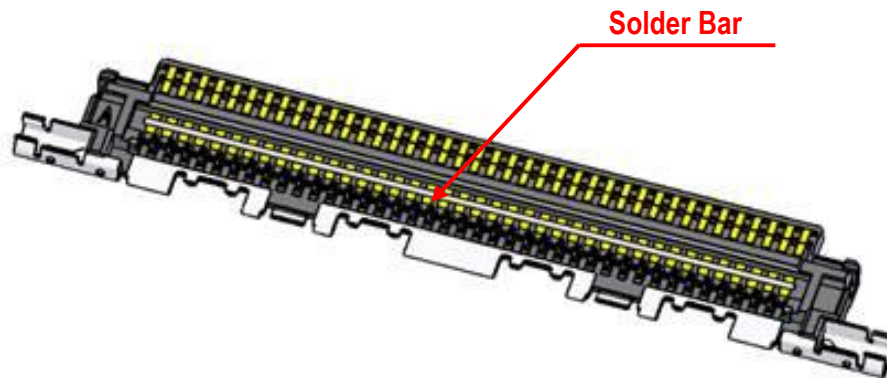


Fig.1 Set of Solder Bar

- ④ Set the cable.

※Setting discrete wire is to protect 0.2max. as Fig.3. There is danger that center conductor touch shell.

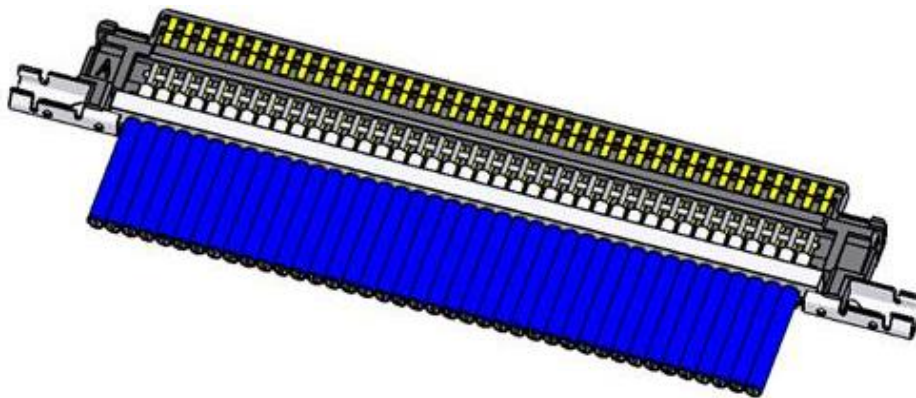


Fig.2 Set of Cable

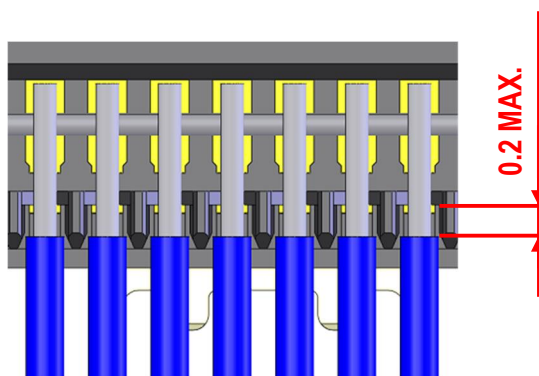


Fig.3 Setting Discrete Wire

- ⑤ Center-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
60P	16.0	29.4

Unit: mm

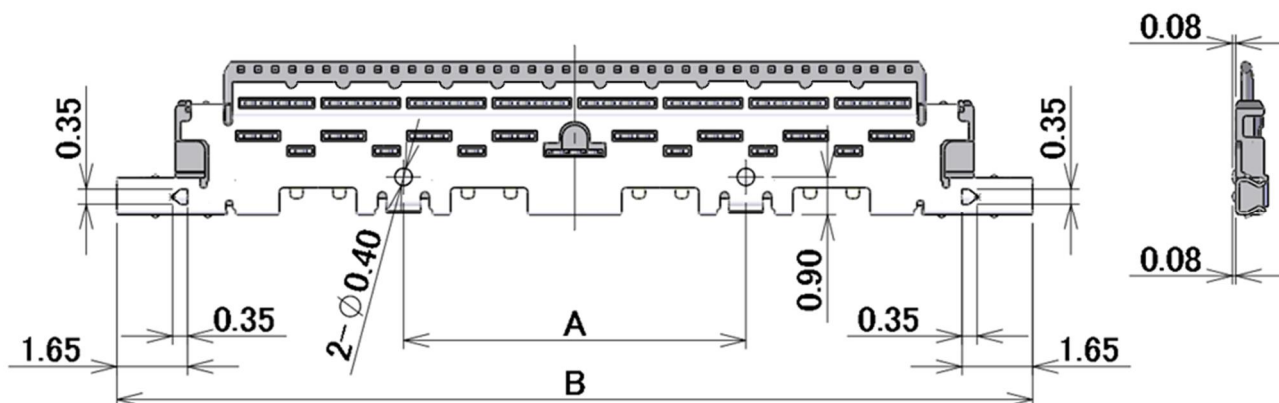


Fig.4 The Shell Bottom Side of Plug Housing Assembly

※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 a incorrect point.

Condition of Soldering iron : 50W

Operating temperature : 350°C

Application time of soldering iron : Within 5sec.

※Because it might give product damage, please do not instigate a cable after soldering.

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.

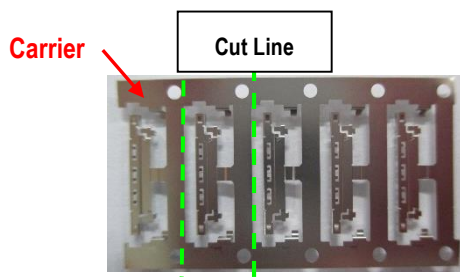


Photo.4 Before Cut

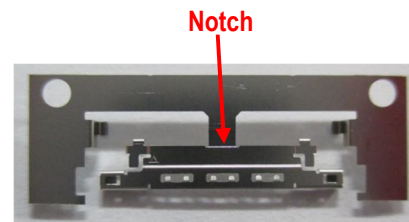


Photo.5 After Cut

- ② Hold the center of plug shell-A and cut it off from notch by ± 45 deg 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)

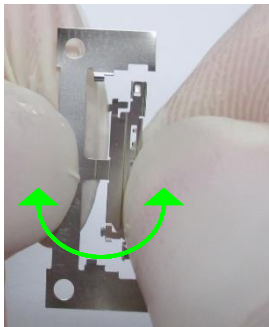


Photo.6 Cut Condition

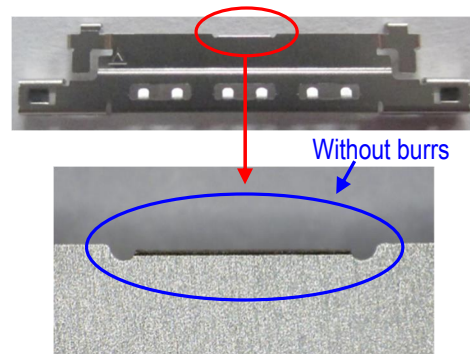
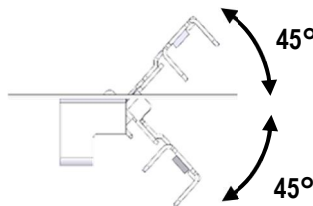


Photo.7 After Cut

Plug shell-A (Detail of notch)

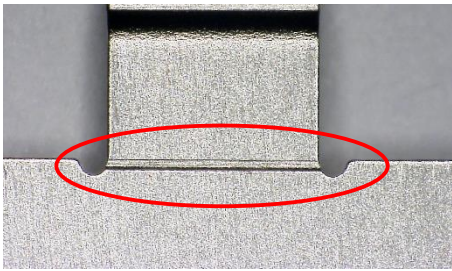


Photo.8 Bottom Side View

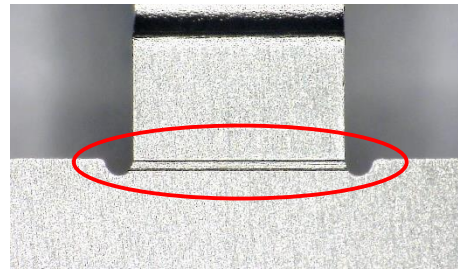


Photo.9 Upper Side View

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

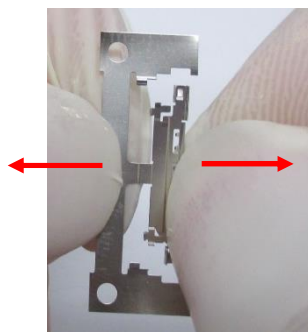


Photo.10 Cut by Force (Bad example)

5-3. Assembly of Lock Bar Assembly

One side of lock bar assembly is assembled to housing assembly. (Photo.11)

※I-PEX logo mark side of lock bar assembly facing the cable side.

Assemble the other while pulling the lock bar assembly. (Photo.12)

※Do not pull too much as the lock bar assembly will be deformed. (Photo.13)



Photo.11 Assembly of Lock Bar Assembly



Photo.12 Assembly of Lock Bar Assembly

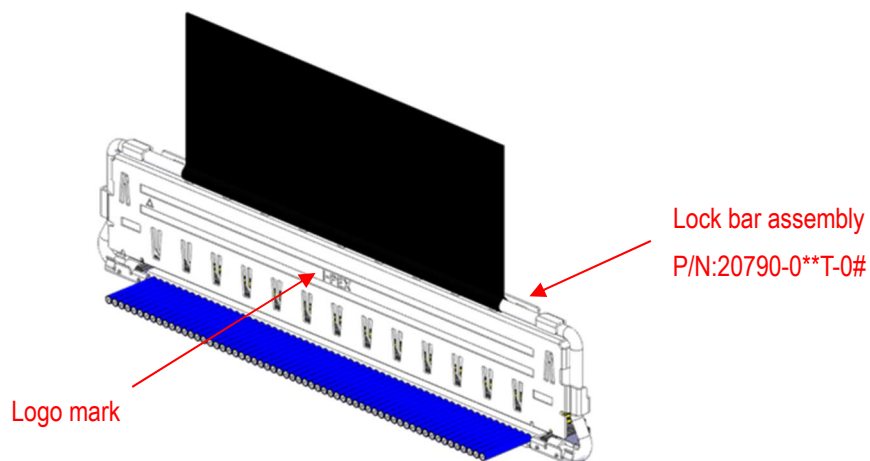


Fig.5 Assembly of Lock Bar Assembly

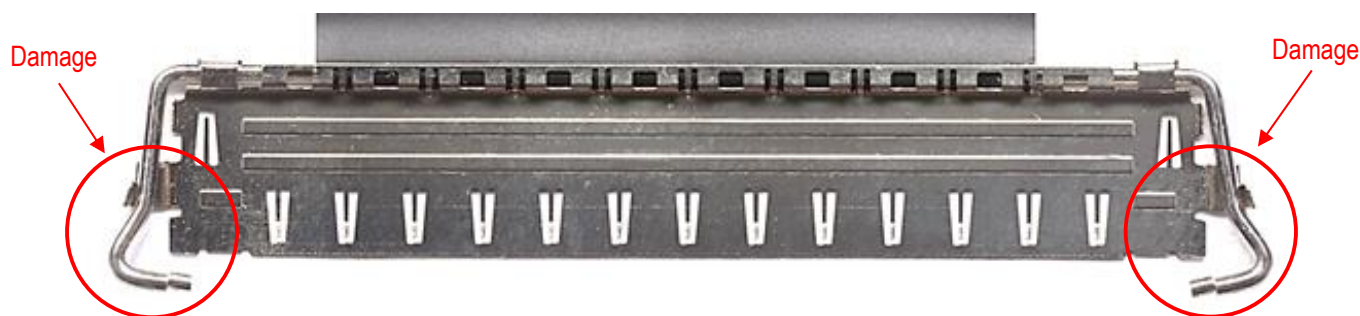


Photo.13 After Deformation Lock Bar Assembly

5-4. Assembly of Shell

- ① Lock bar assembly is tilted to the cable side 45 deg.

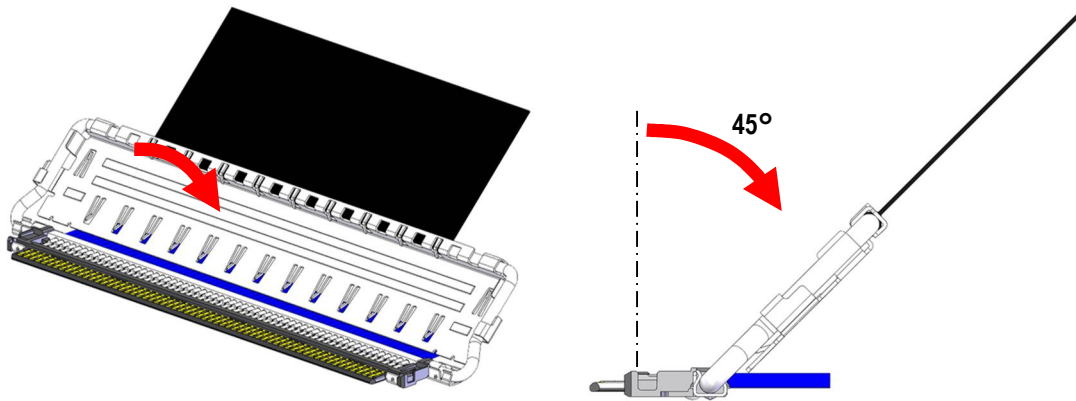


Fig.6 Tilt Lock Bar Assembly

- ③ Shell-A is assembled from the upper side of housing assembly.

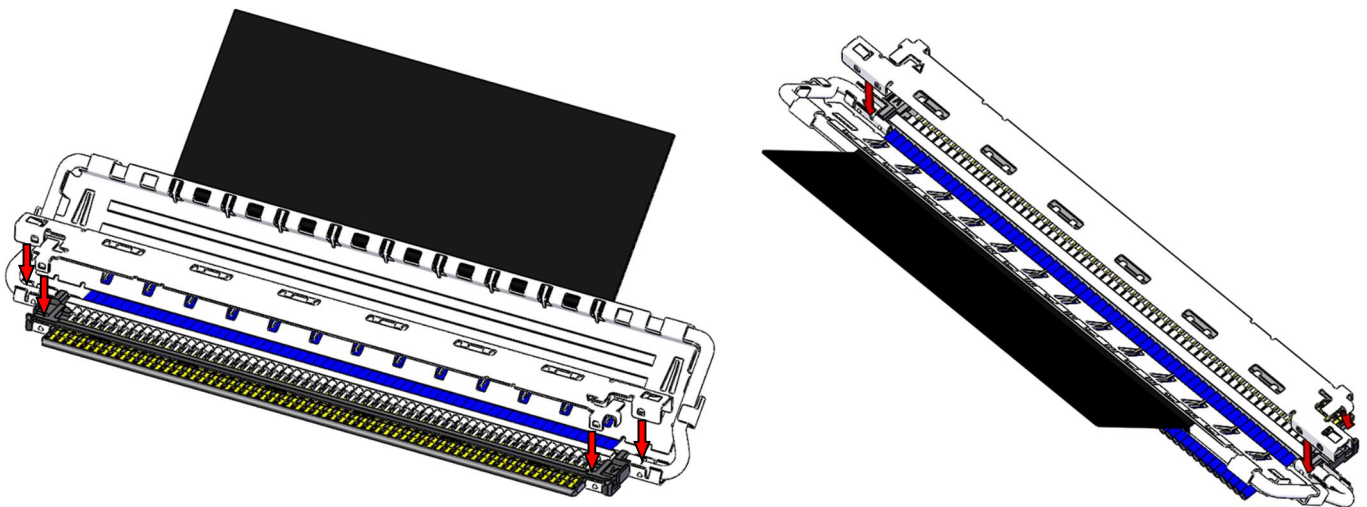


Fig.7 Assembly of Shell-A

- ④ Confirms whether shell A is assembled properly.
Whether shell locks are assembled properly. (Fig.8★ point)

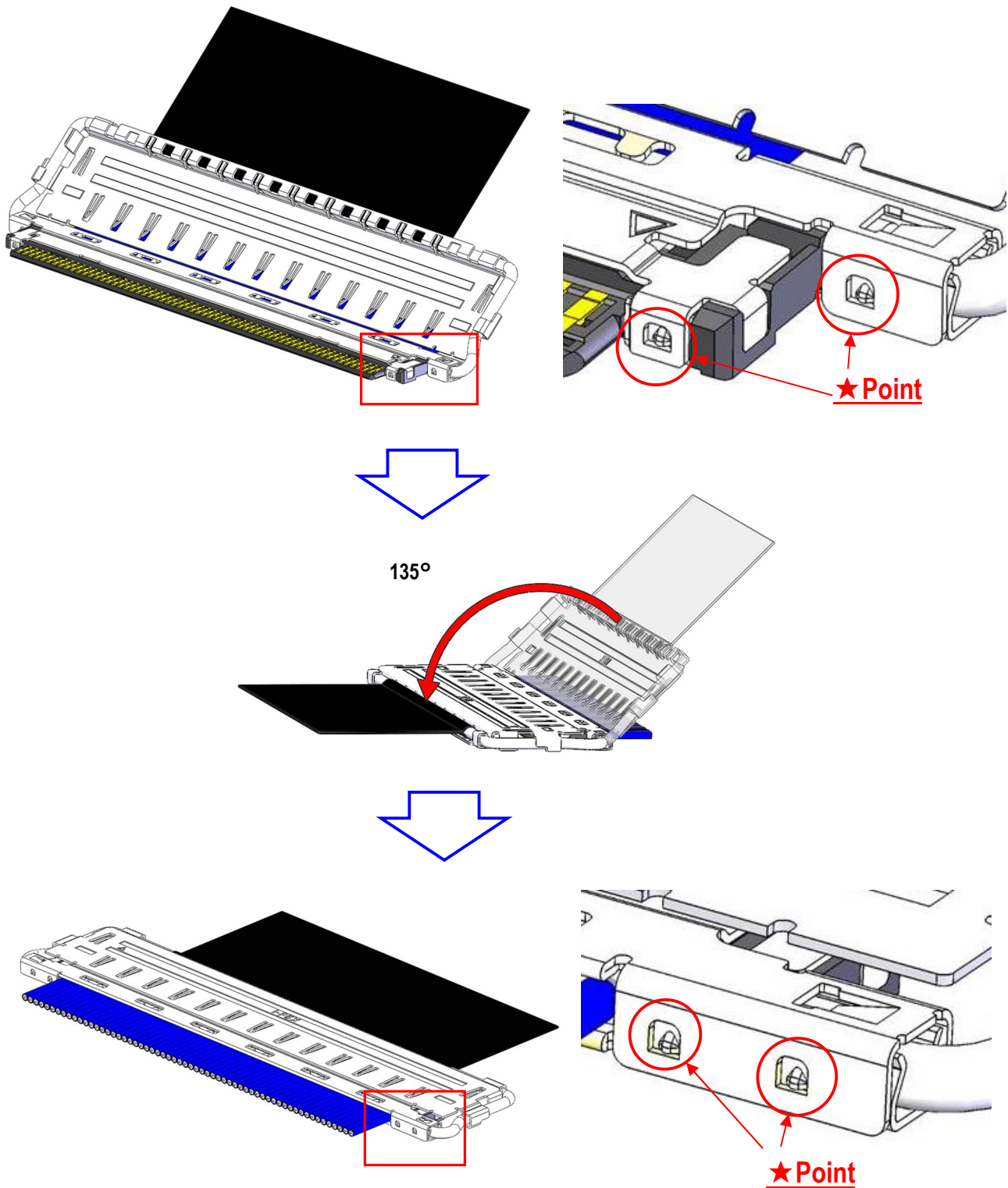


Fig.8 The Assembly Confirmation of Shell-A

- ⑤ Soldering shell A, B and ground bar with the soldering iron at all designated points is recommended. (Fig.9,10 ◆ point)

Refer to Fig.13 for a limit of the solder height.

For conditions of Soldering iron refer to sheet 10.

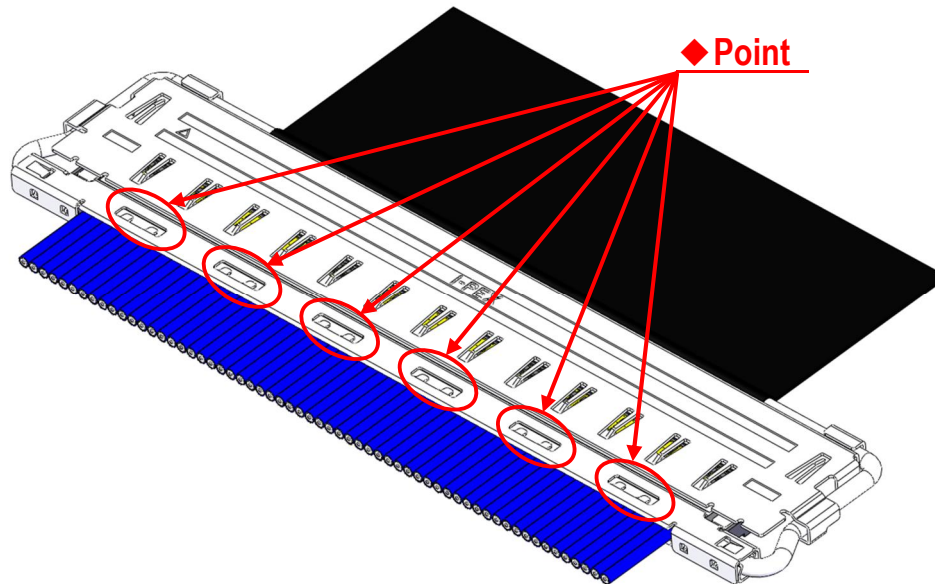


Fig.9 Soldering of Shell-A and Ground Bar

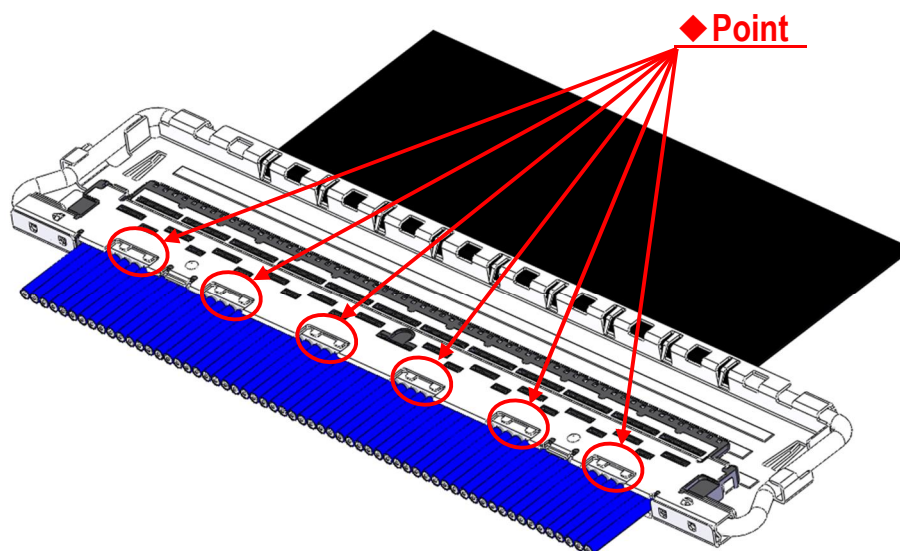


Fig.10 Soldering of Shell-B and Ground Bar

- ⑥ Soldering shell-A and Shell-B with the soldering iron at all designated points is recommended. (Fig.11 ◆point)
Conditions of Soldering iron refer to sheet 10.

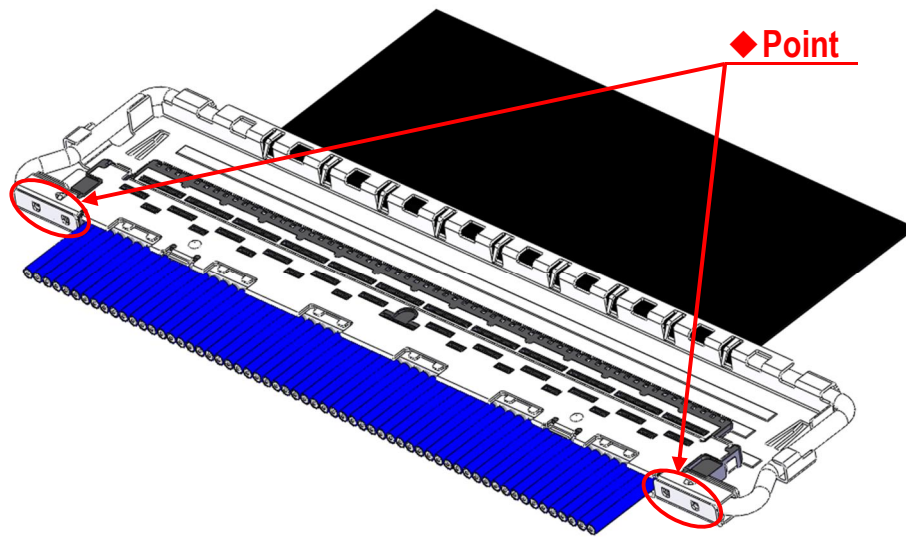


Fig.11 Soldering of Shell-A and Shell-B

5-5. Cable Fixation

Fix the cable terminal part with the bond.

Bond: LOCTITE 352

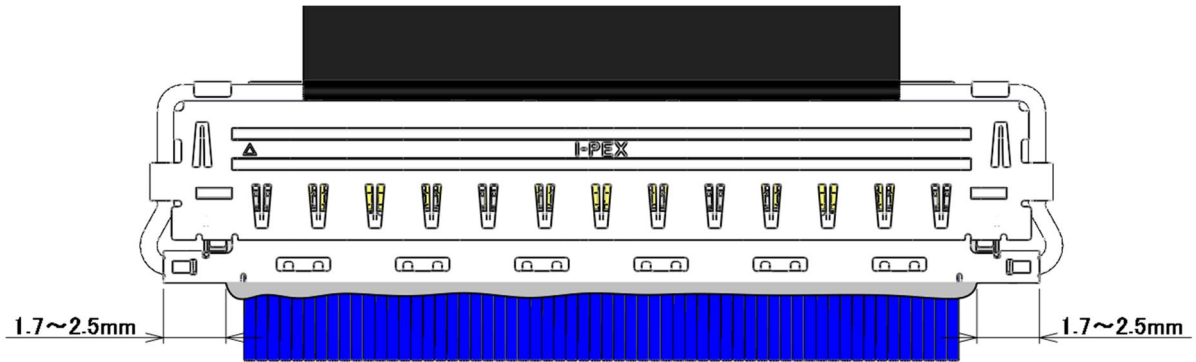


Fig.12 Bonding

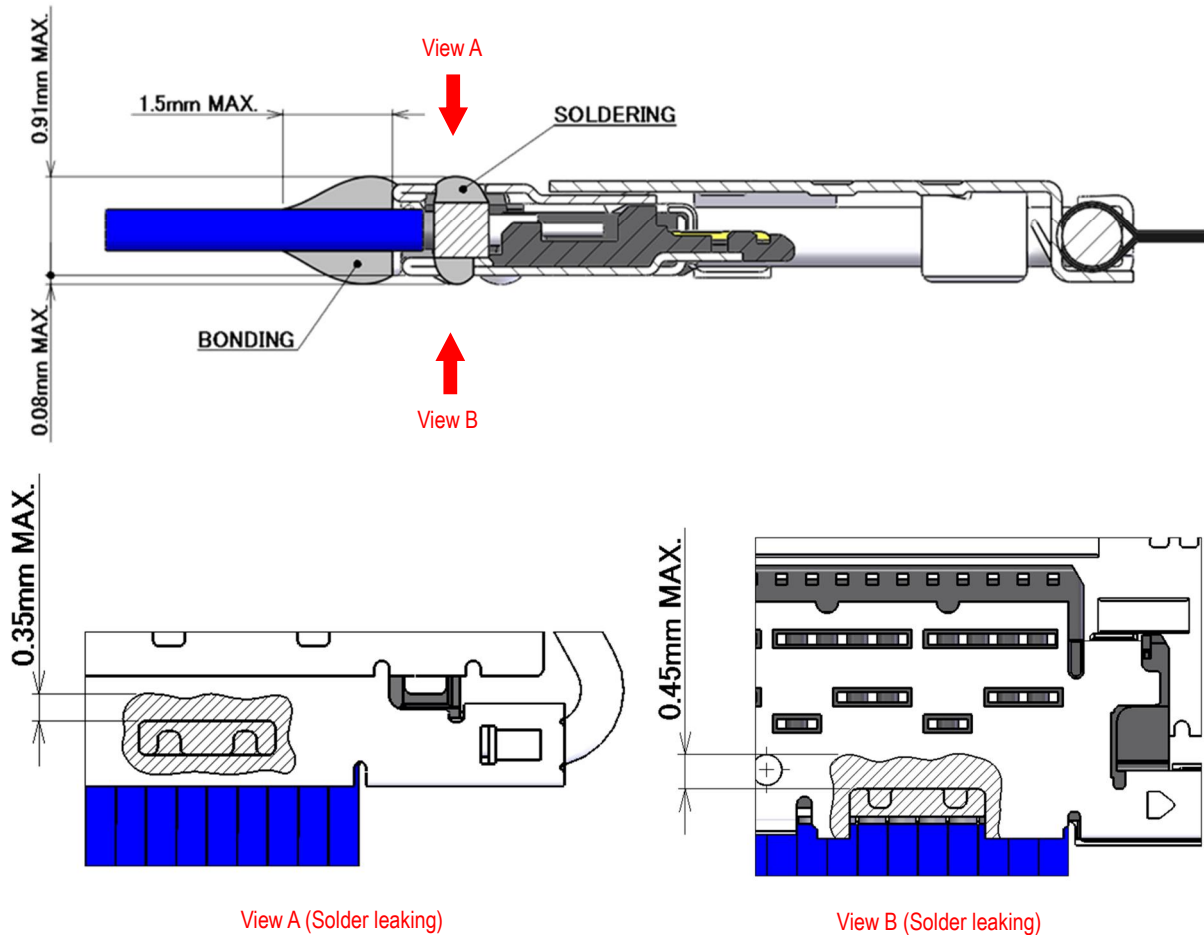


Fig.13 Soldering & Bonding