

CABLINE®-VS II PLUG

Part No. 20846

Assembly Manual

2	S22439	October 5, 2022	K.Baba	R.Takei	H.Ikari
1	S19446	July/22/'19	M.Nakamura	T.Masunaga	H.Ikari
0	S17557	Aug./02/'17	K.Baba	T.Kurachi	Y.Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1.Purpose :

This manual is to explain the soldering method / process of the CABLINE-VS II PLUG with cable, and assembly of LOCK BAR ASS'Y, SHELL A.

2.Applicable connector :

Name: CABLINE-VS II PLUG

Parts No.:

Set P/N	CABLE ASS'Y	20846-030T-01
Discrete P/N	HOUSING ASS'Y	20847-030T-01
	LOCK BAR ASS'Y	20848-030T-01
	SHELL A	3427-0301

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

	30P
Thickness	0.5 $\begin{smallmatrix} 0 \\ -0.05 \end{smallmatrix}$
Width	15.0 $\begin{smallmatrix} 0 \\ -0.03 \end{smallmatrix}$

Unit: mm

- Recommended solder bar

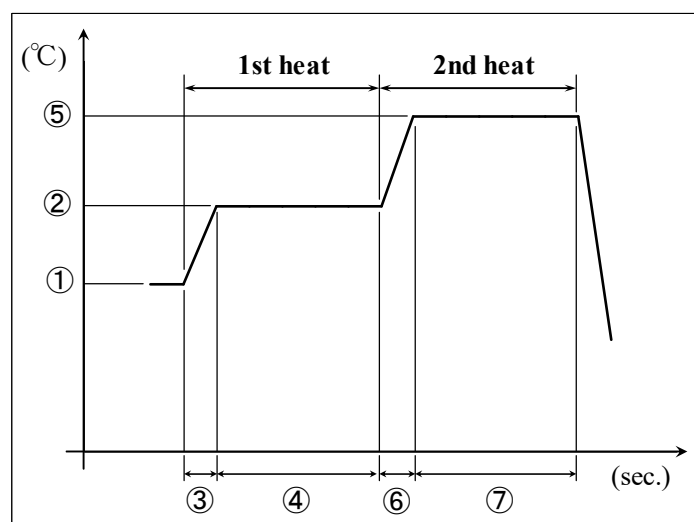
Resin-free solder made by Uchihashi Estec Co., Ltd. was used.

Positions		30P
Solder size	AWG#32~#38	φ0.14
	AWG#40~#44	φ0.1
Length		15.0mm Ref.

Unit: mm

4. Recommended pulse heat condition

	MICRO-COAX
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



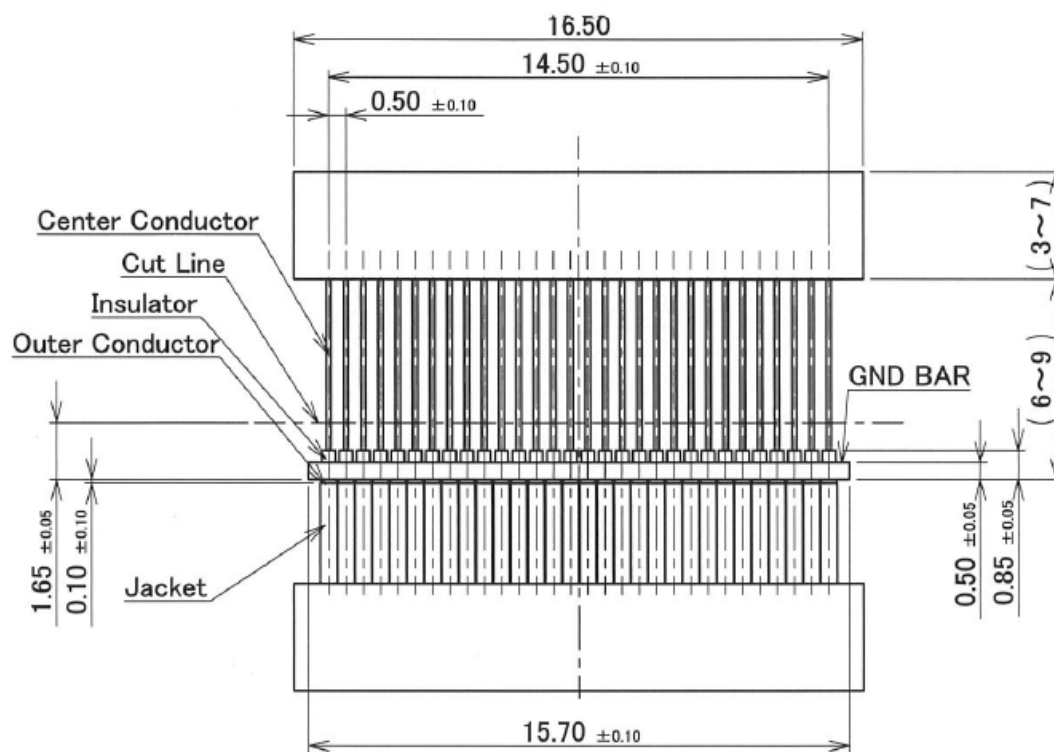
※ This pulse heat condition was evaluated and confirmed by our pulse heat jig and instruments. The most optimum condition may change based on the shapes of pulse heat jig and instruments, the environments, or other reason.

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

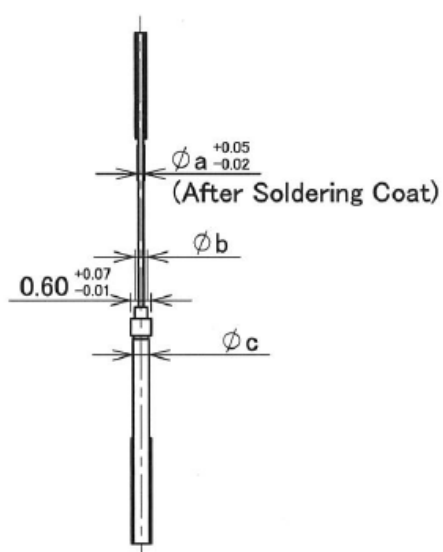
5. Work procedures :

5-1. Soldering of center-conductor

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



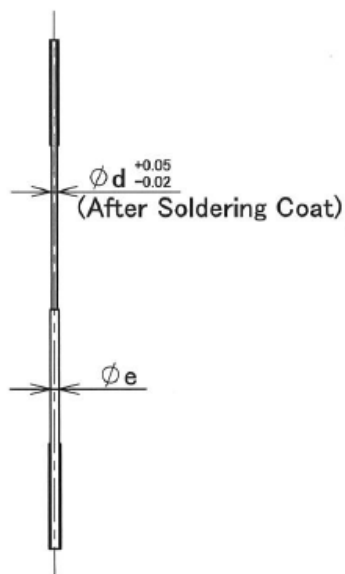
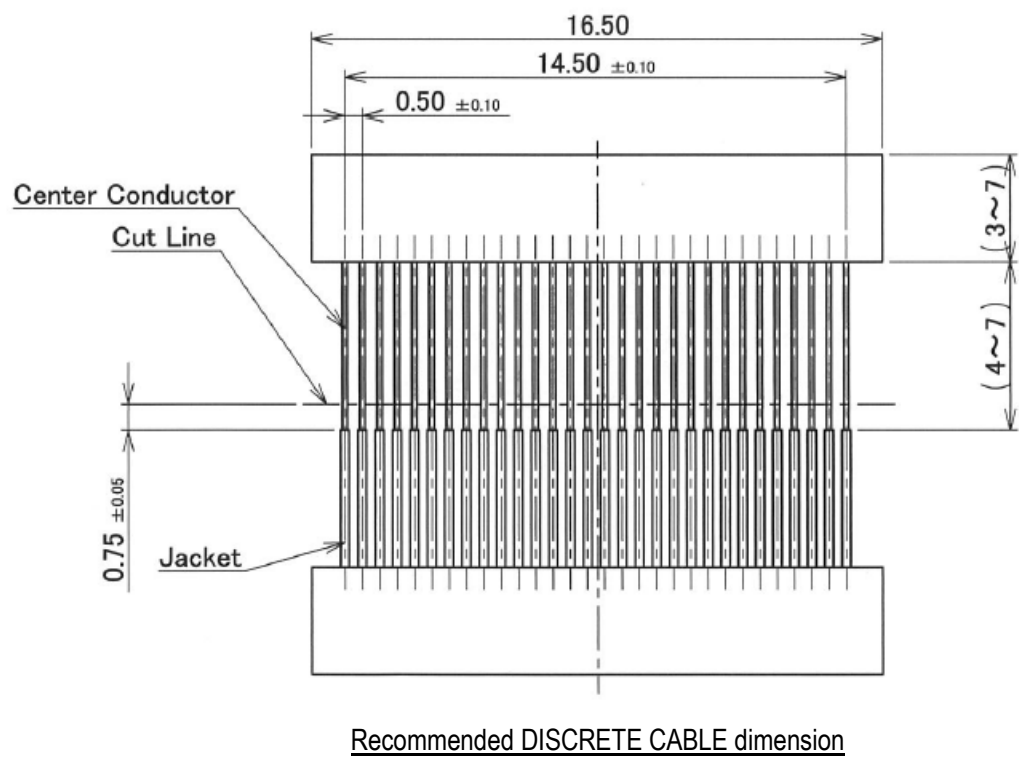
Recommended MICRO-COAX CABLE dimension



MICRO-COAX AWG#**

MICRO-COAX dimension

	a	b	c
#36	0.15	0.38	0.48
#38	0.12	0.30	0.40
#40	0.09	0.22	0.32
#42	0.075	0.20	0.28
#44	0.063	0.18	0.26



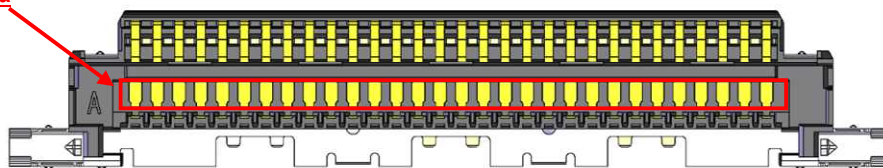
DISCRETE dimension

	d	e
#32	0.24	0.41
#34	0.192	0.32
#36	0.15	0.25

DISCRETE AWG#**

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

Applying Flux area



OK

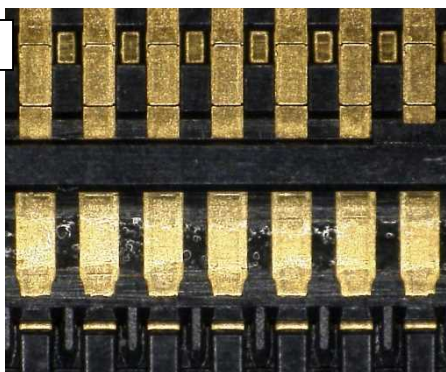


Photo.1 After applying flux

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

NG

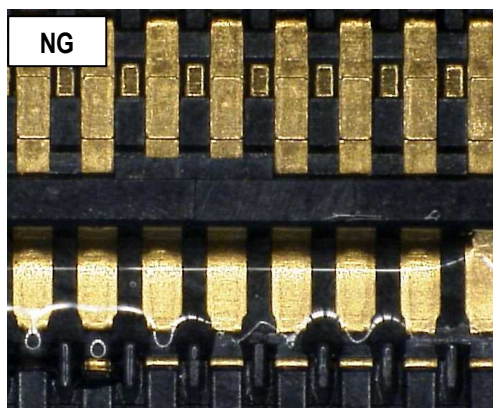


Photo.2 Extra flux

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

③Pre-set and locate solder bar at center of connector (HSG ASS'Y).

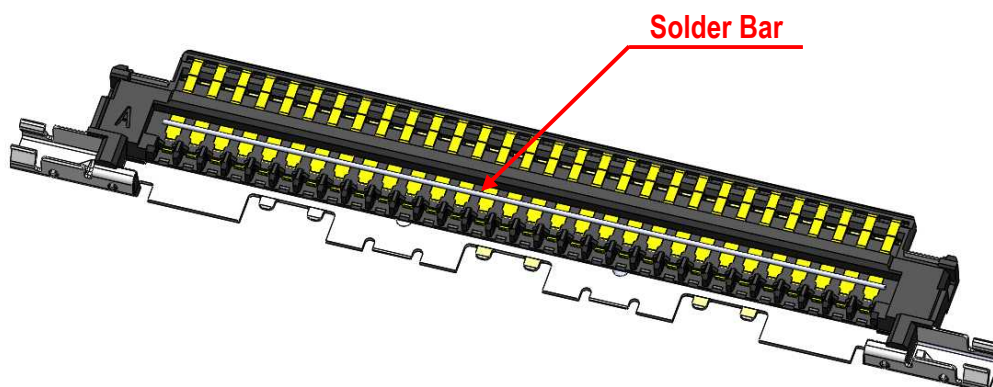


Fig.1 Set of solder bar

④Set the cable.

※Setting discrete cable is to protect 0.2MAX. as Fig.3. There is danger that Center Conductor touch SHELL.

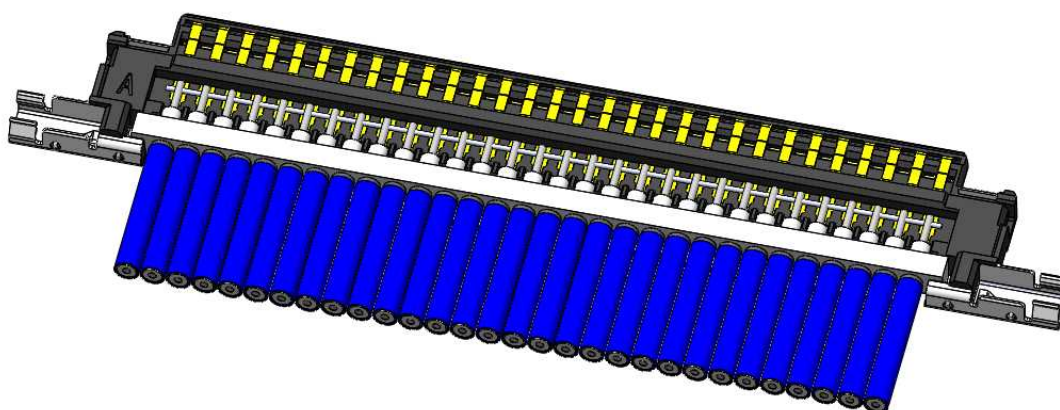


Fig.2 Set of cable

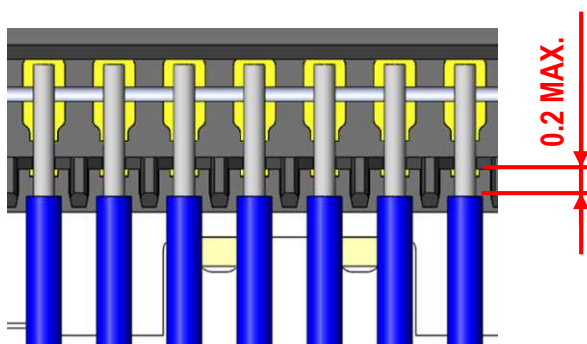


Fig.3 Setting Discrete Cable

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

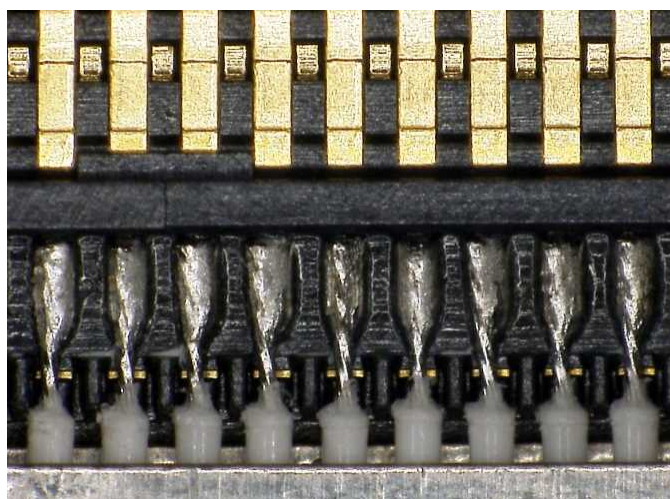


Photo.3 AWG#40

Caution: The SHELL bottom side of PLUG HSG ASS'Y 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.

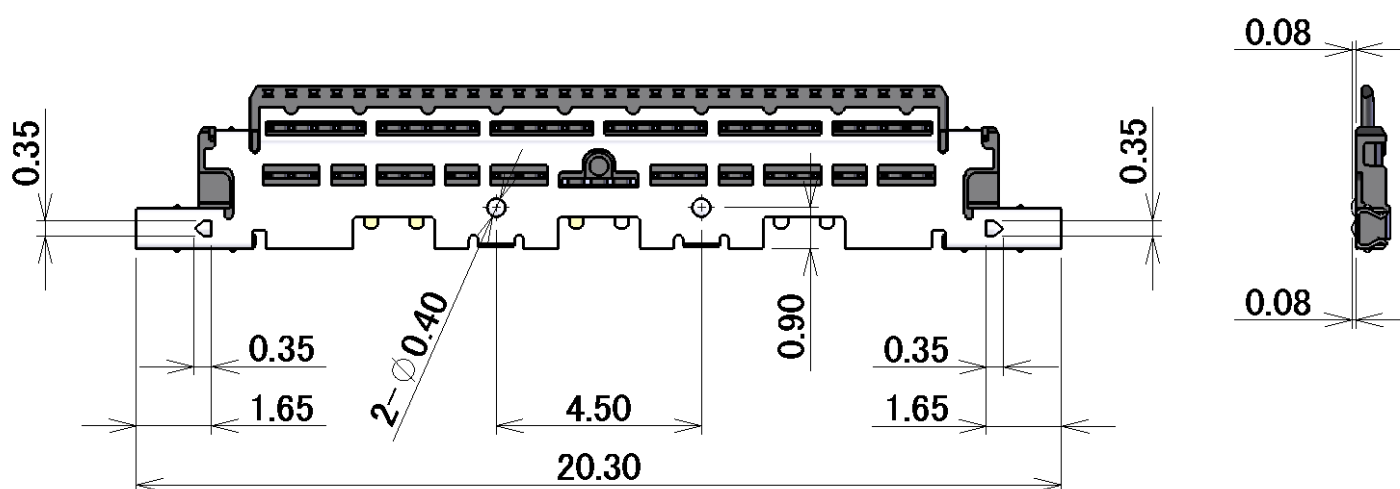


Fig.4 The SHELL bottom side of PLUG HSG ASS'Y

※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 NG point.

Condition of Soldering iron : 50W

Operating temperature : 350℃

Application time of soldering iron : Within 5sec.

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

※When there might be the short circuit with SHELL-A, put an insulating tape in SHELL-A before assembly of SHELL-A.

Caution: Do not forcibly pull the cable toward red arrow direction after soldering or apply excessive load on the soldered area, or it may peel the solder. [Fig. 5]

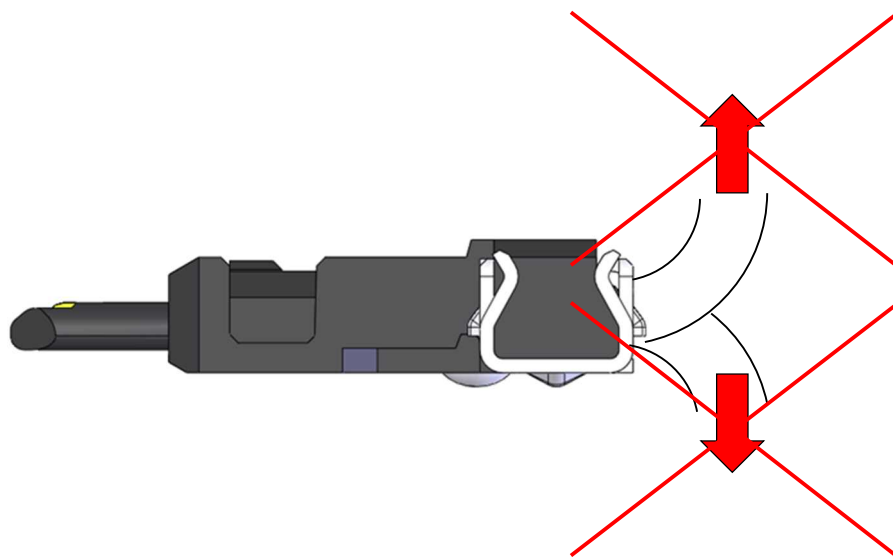
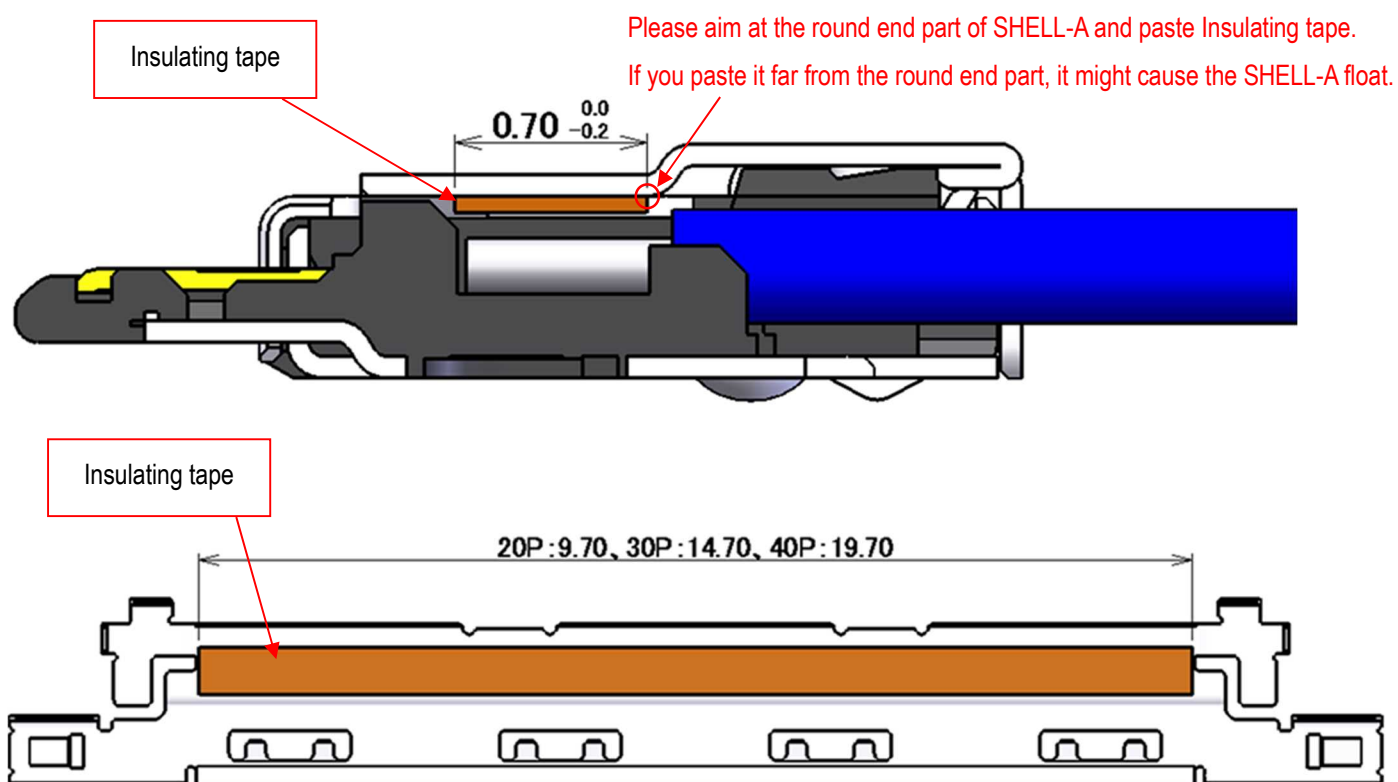


Fig.5 Cause of solder peeling

◆ Insulating tape thickness $t=0.06\text{mm}$



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.

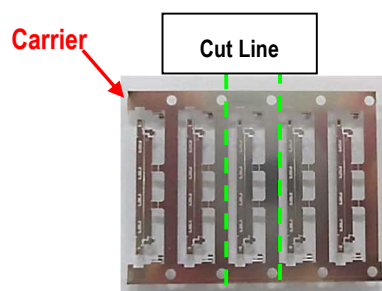


Photo.4 Before cut

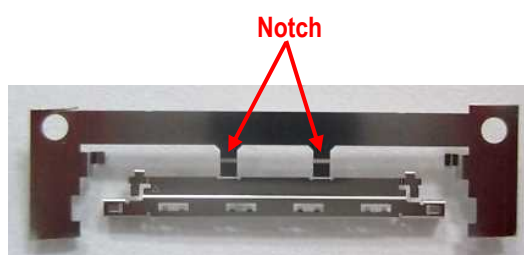


Photo.5 After cut

- ② Hold the center of Plug shell-A and cut it off from Notch by $\pm 45^\circ$ 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

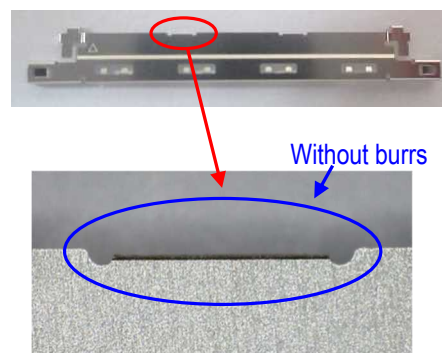
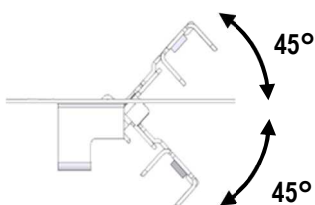


Photo.7 After cut

Plug SHELL A Detail of Notch

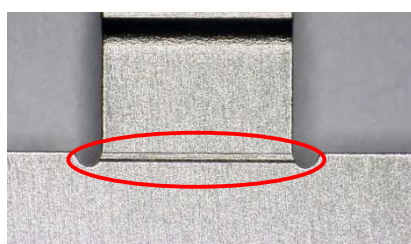


Photo.8 Bottom side view

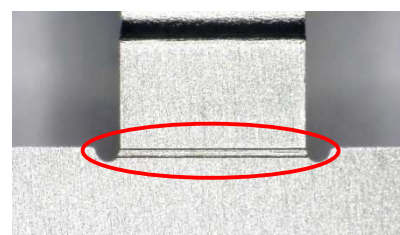


Photo.9 Upper side view

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

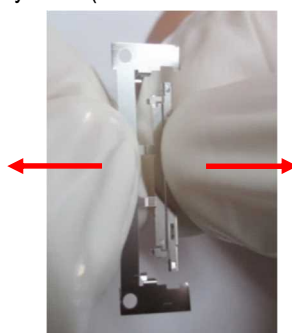


Photo.10 Cut by force (Bad example)

5-3. Assembly of LOCK BAR ASS'Y

LOCK BAR ASS'Y is assembled to HOUSING ASS'Y.

※I-PEX logo mark side of LOCK BAR ASS'Y facing the cable side.

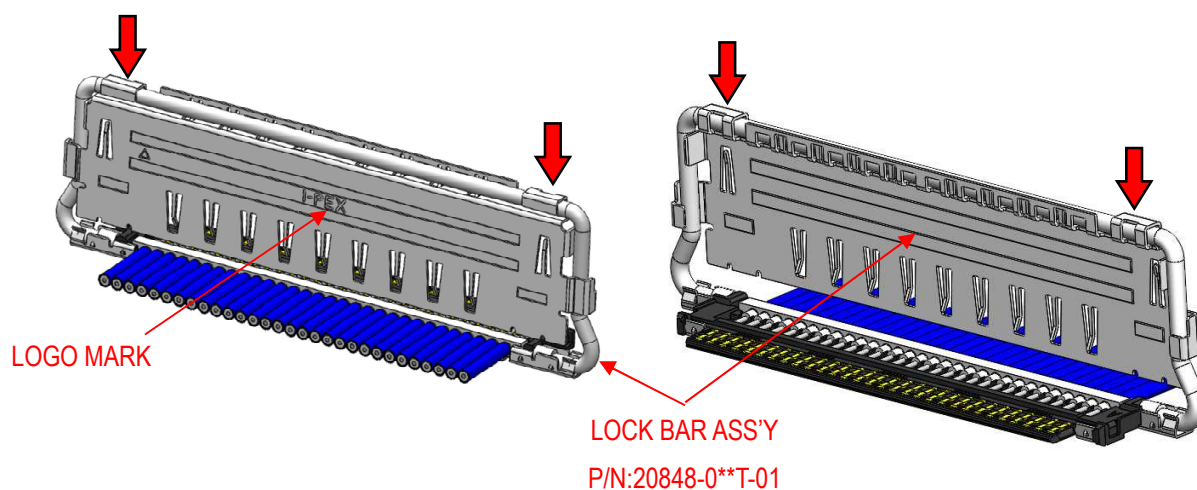


Fig.6 Assembly of LOCK BAR ASS'Y

5-4. Assembly of SHELL A

① LOCK BAR ASS'Y is tilted to the cable side 45 deg.

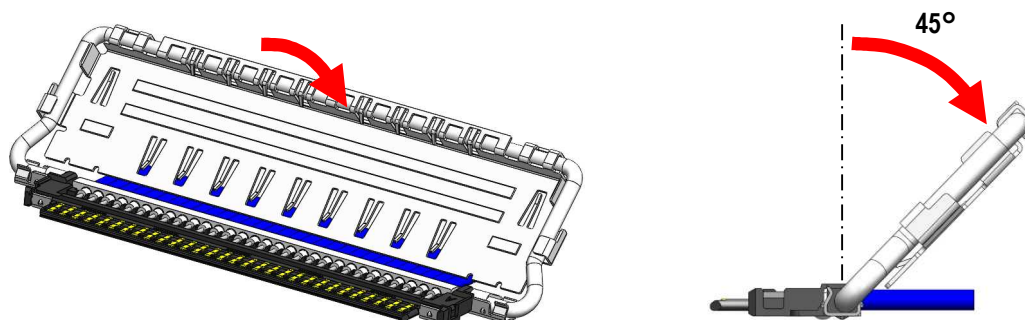


Fig.7 Tilt LOCK BAR ASS'Y

② SHELL A is assembled from the upper side of HOUSING ASS'Y.

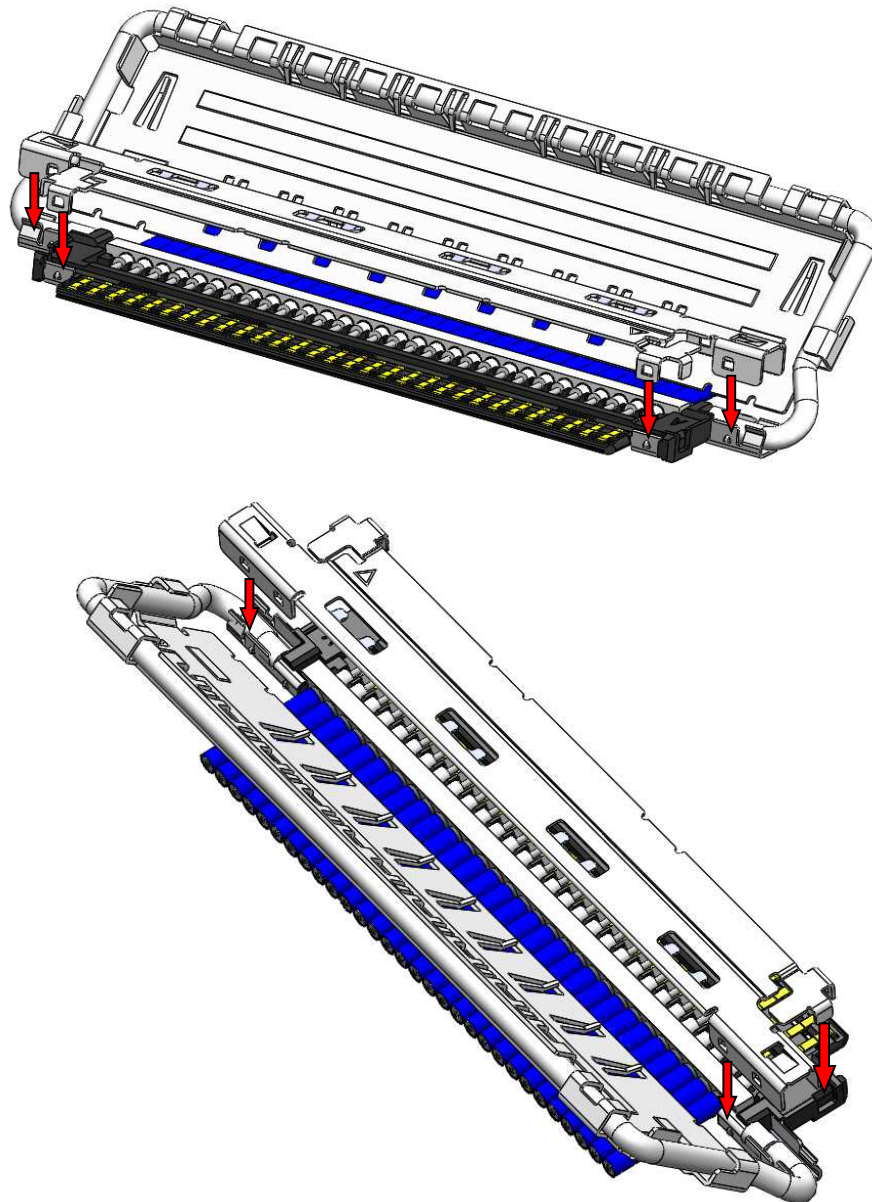


Fig.8 Assembly of SHELL-A

③ Confirms whether SHELL A is assembled properly.

Whether SHELL locks are assembled properly. (Fig.9 ★ point)

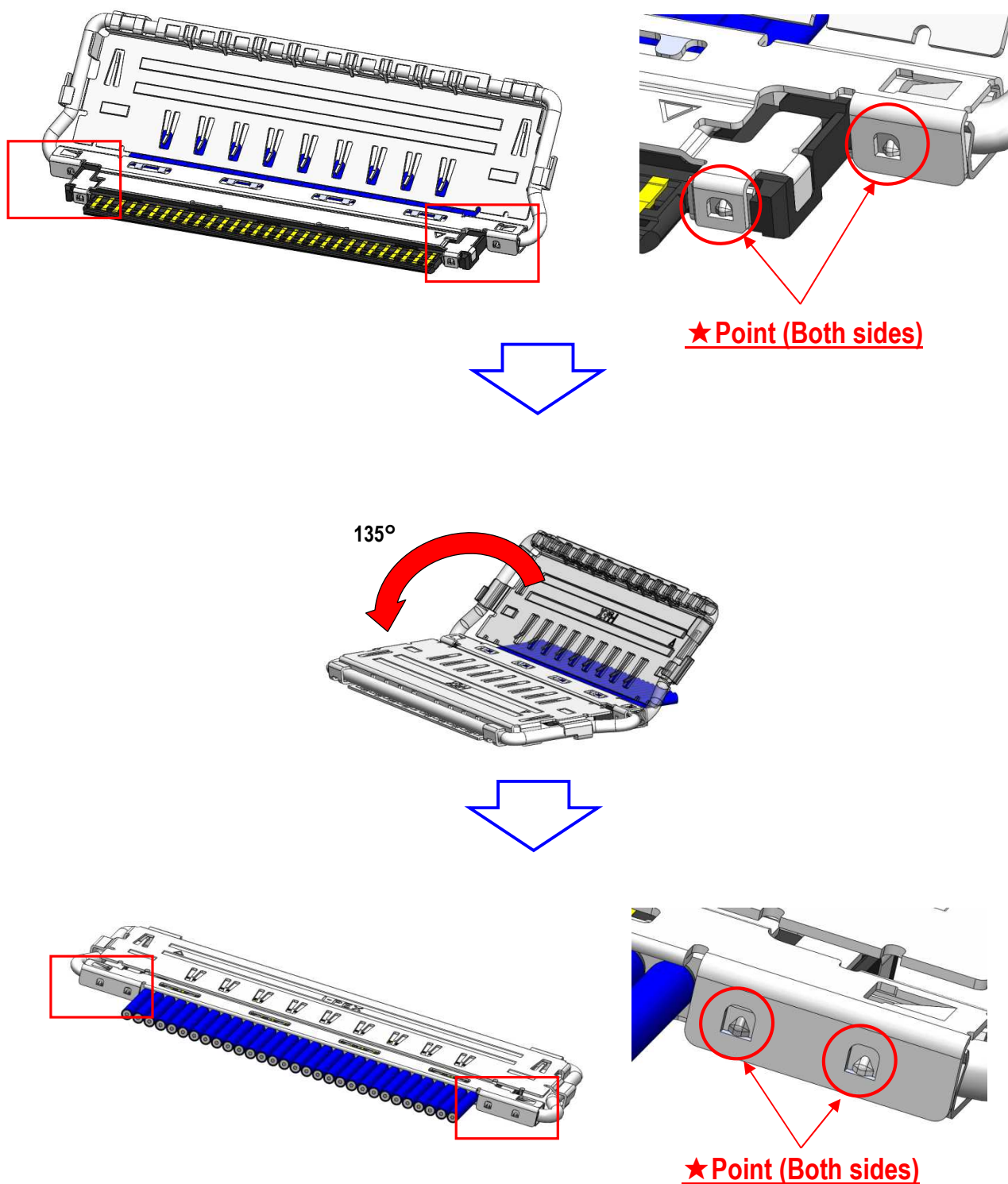


Fig.9 The assembly confirmation of SHELL-A

- ④ Soldering SHELL A, B and GND BAR with the soldering iron at all designated points is recommended. (Fig.10,12 ◆point)

Refer to Fig.16 for a limit of the solder height.

For conditions of Soldering iron refer to sheet 8.

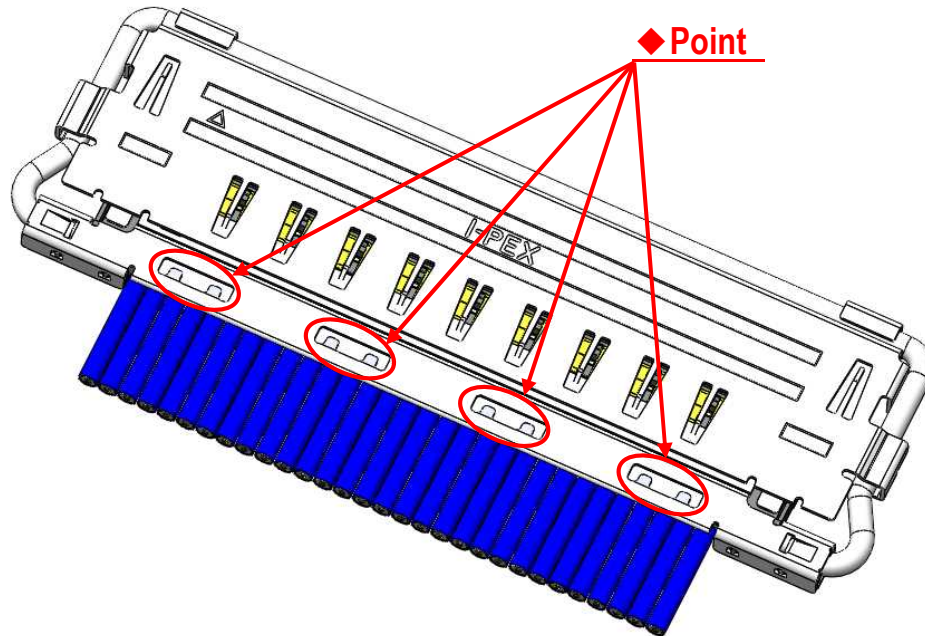


Fig.10 Soldering of SHELL-A and GND BAR

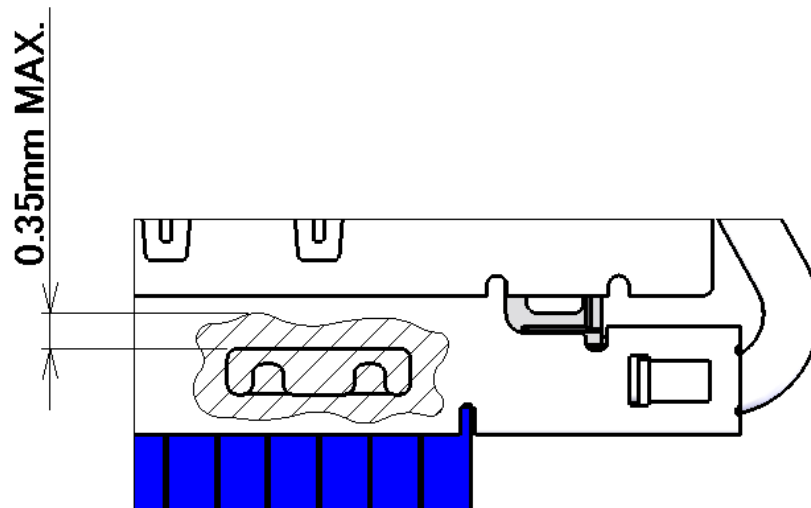


Fig.11 Solder leaking

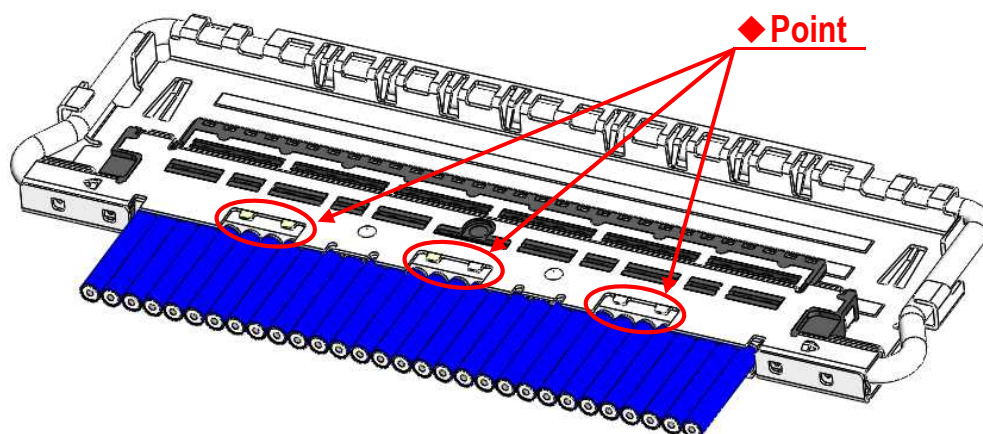


Fig.12 Soldering of SHELL-B and GND BAR

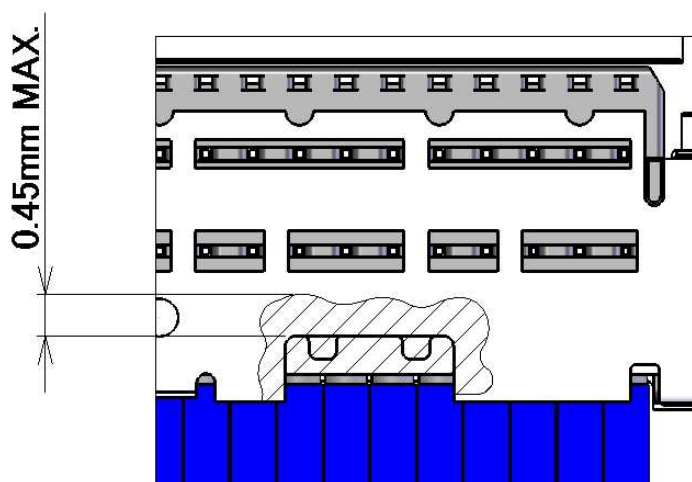


Fig.13 Solder leaking

- ⑤ Soldering SHELL A and SHELL B with the soldering iron at all designated points is recommended. (Fig.14 ♦ point)
Conditions of Soldering iron refer to sheet 8.

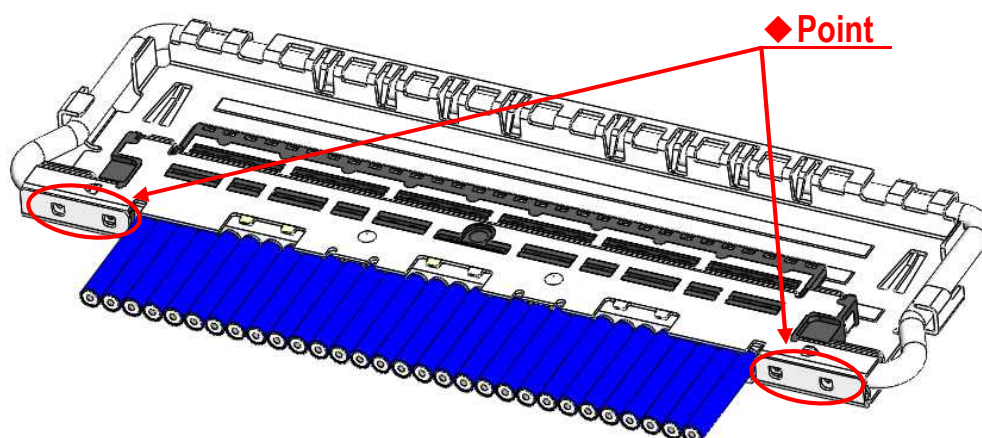


Fig.14 Soldering of SHELL-A and SHELL-B

5-5. Cable fixation

Fix the cable terminal part with the bond.

Recommended Bond: LOCTITE 352

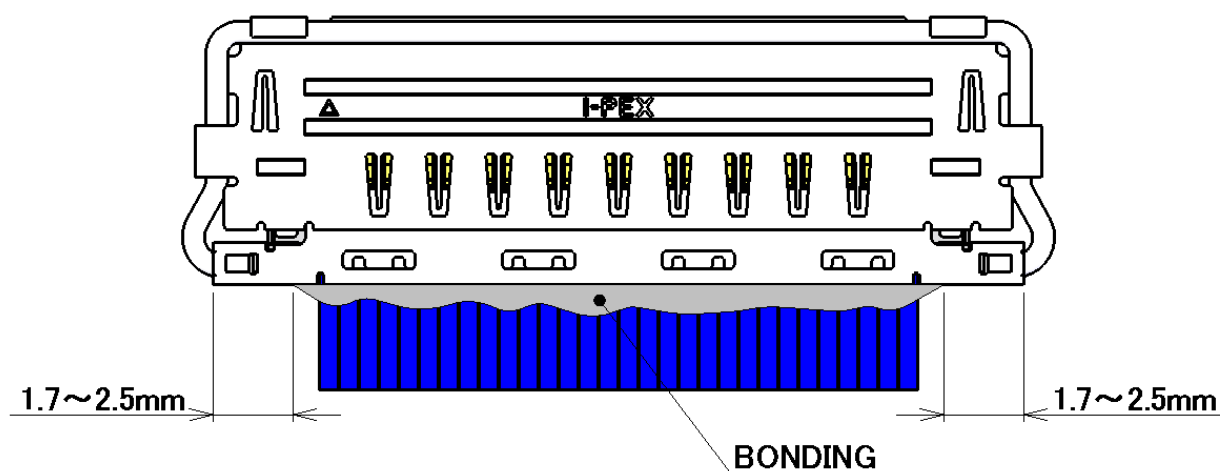


Fig.15 Bonding

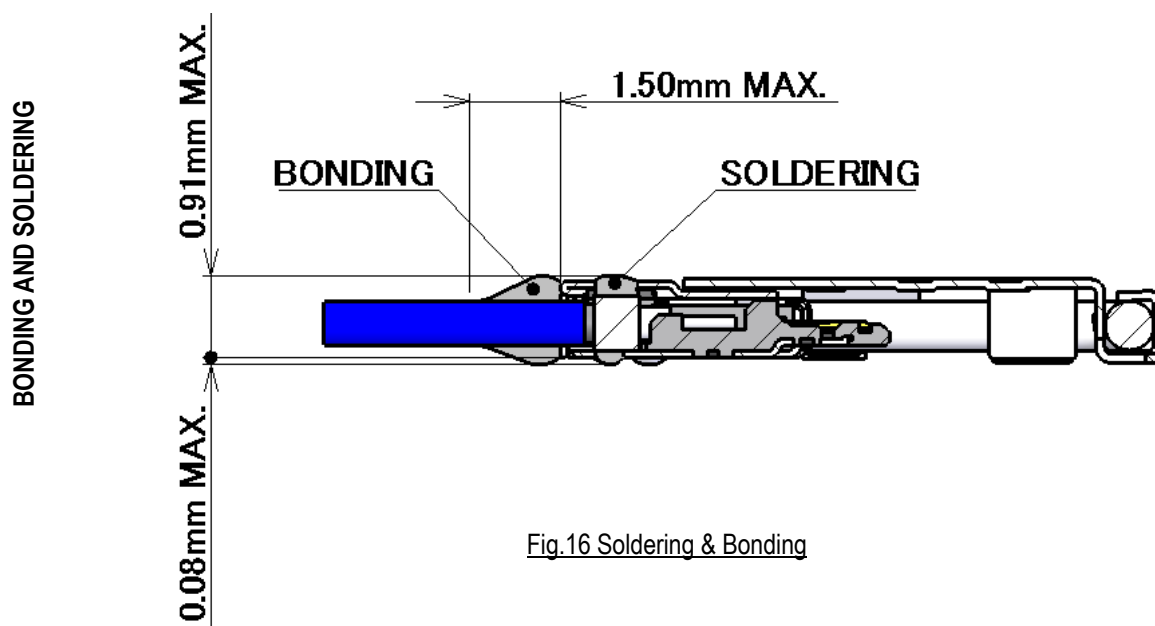


Fig.16 Soldering & Bonding