# CABLINE®-UY PLUG

Part No. 20857

## Assembly Manual

| Rev. | ECN | Date | Prepared by | Checked by | Approved by |
|---|---|---|---|---|---|
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| 10 | S25395 | September 30, 2025 | R. Hatano | T. Tanigawa | H. Ikari |
| 9 | S25351 | August 29, 2025 | R. Hatano | T. Tanigawa | H. Ikari |
| 8 | S25347 | August 21, 2025 | R. Hatano | T. Tanigawa | H. Ikari |

1. Purpose：

This manual is to explain the soldering method / process of the CABLINE-UY PLUG with cable, and assembly of SHELL A.

2. Applicable connector：

Name: CABLINE-UY PLUG

Parts No. :

| | | |
|---|---|---|
| Set P/N | CABLE ASS'Y | 20857-0**T-##-# |
| Discrete P/N | HOUSING ASS'Y | 20907-0**E-##-# |
| | SHELL A | 3568-0**1-# |

** : 05 = 5P , 10 = 10P , 12 = 12P , 16 = 16P ## : variation

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

Unit: mm

| Positions | 5P | 10P | 12P | 16P |
|---|---|---|---|---|
| Thickness | $0.3_{\pm 0.05}$ | $0.3_{\pm 0.05}$ | $0.3_{\pm 0.05}$ | $0.3_{\pm 0.05}$ |
| Width | $2.0_{\pm 0.05}$ | $4.0_{\pm 0.05}$ | $4.8_{\pm 0.05}$ | $6.4_{\pm 0.05}$ |

・Recommended solder bar

Resin-free solder is used.

Unit: mm

| Positions | 5P | 10P | 12P | 16P |
|---|---|---|---|---|
| Solder size | φ0.06 | φ0.06 | φ0.06 | φ0.06 |
| Length | 1.6mm Ref. | 3.4mm Ref. | 4.12mm Ref. | 5.56mm Ref. |

・Recommended solder flux

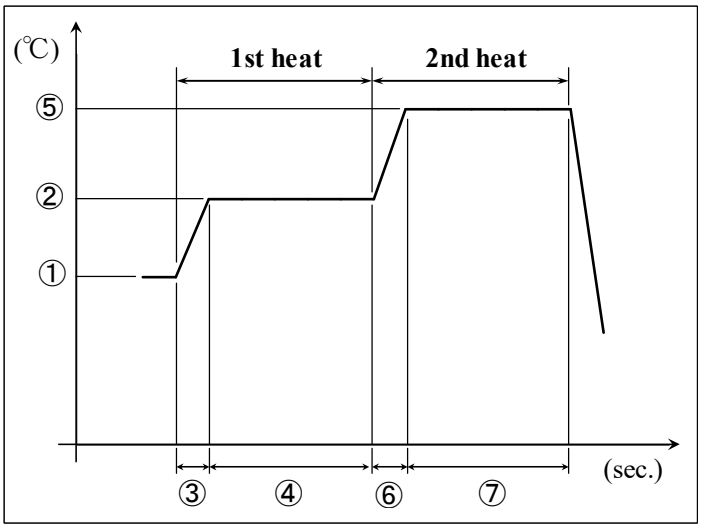
ES-Z-15 / Senju Metal Industry Co., Ltd.

※・ UV irradiator

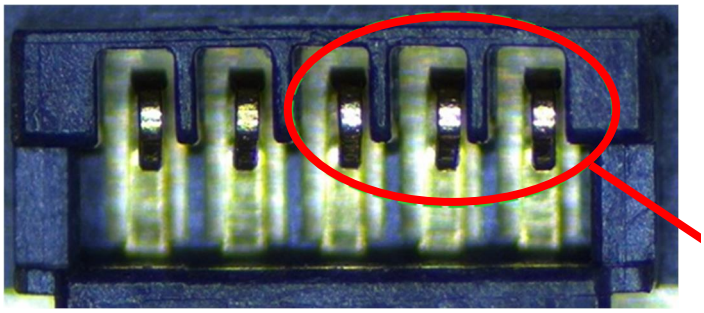
※・ bond: LOCTITE 352 (UV glue)

4. Recommended pulse heat condition

| | MICRO-COAXIAL CABLE |
|---|---|
| ① Idle temp. | 150℃ |
| ②1st heat temp. | 220℃ |
| ③ 〃 rise time | 0.5sec. |
| ④ 〃 holding time | 3.0sec. |
| ⑤2nd heat temp. | 240℃ |
| ⑥ 〃 rise time | 0.5sec. |
| ⑦ 〃 holding time | 1.5sec. |
| Heater tip Pressure | 3~8 N |




※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.
Excessive heater chip pressure or heat setting temperature may cause misalignment of the contact terminals.
Therefore, please examine the pulse heat condition adequately in advance of use.

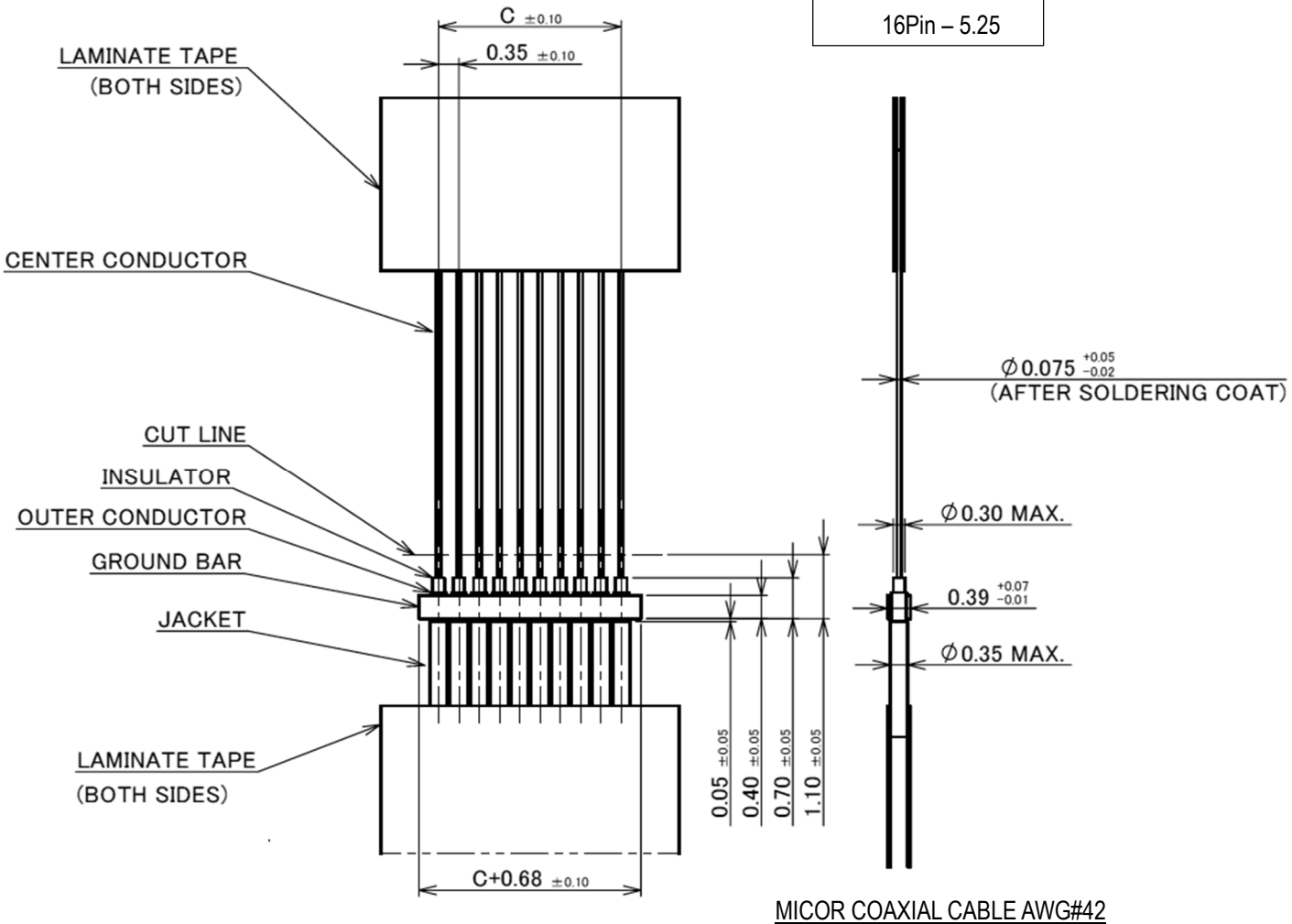


5.Work procedures：

5-1. Soldering of center-conductor

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

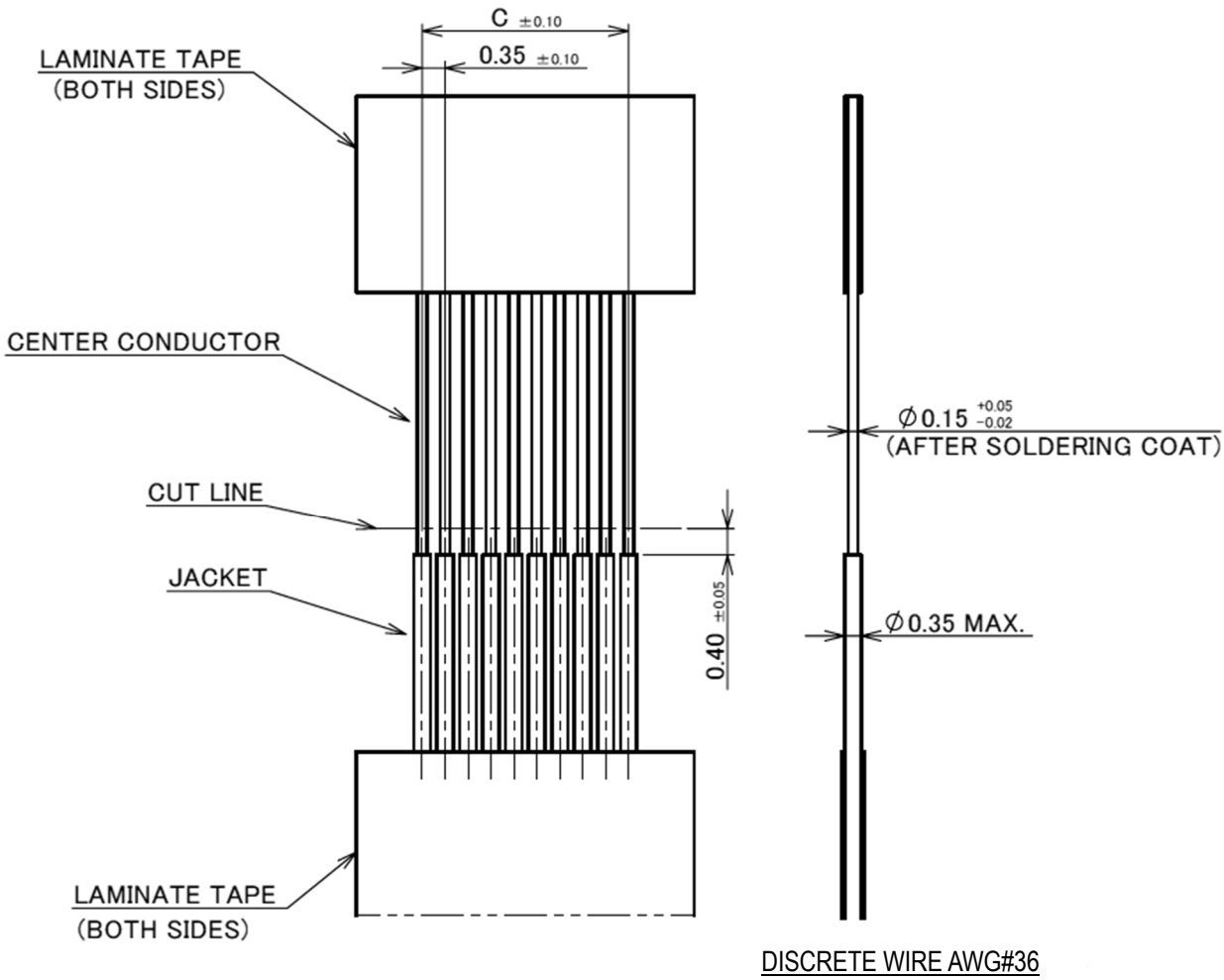
※C : 5Pin – 1.4
10Pin - 3.15
12Pin – 3.85
16Pin – 5.25




MICOR COAXIAL CABLE AWG#42

RECOMMENDED MICOR COAXIAL CABLE DIM.

※C : 5Pin – 1.4
10Pin - 3.15
12Pin – 3.85
16Pin – 5.25




DISCRETE WIRE AWG#36

RECOMMENDED DESCRETE WIRE DIM.

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

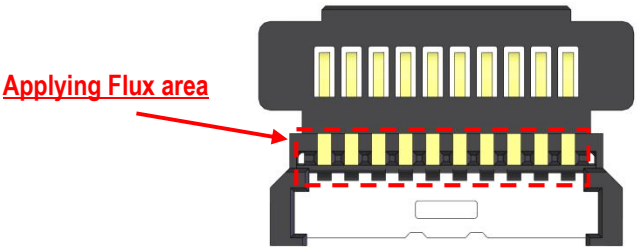




Photo. 1 After applying flux

※Please do not apply flux too much as shown in Photo.2. It may cause flux splash or leak to the mating area.

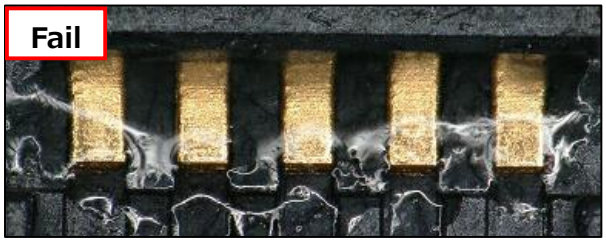
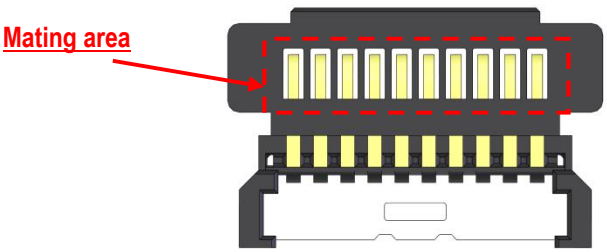



Photo. 2 Extra flux

※If flux applied too much and modification is needed, please remove excessive flux so that flux does not adhere to mating area.



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

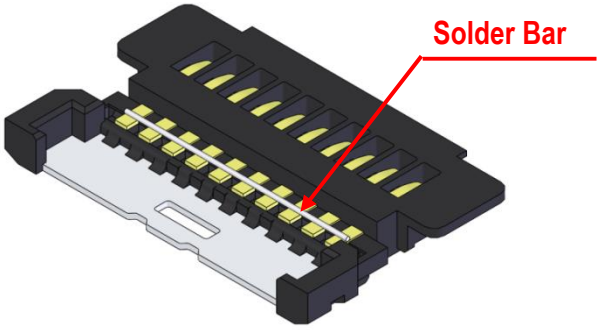



Fig. 1 Set of solder bar

④Set the cable.

<Caution>

Center conductor must be fit on Pad. (The tip of cable should be exceed the center of pad)

Ground Bar should be contained in housing part.

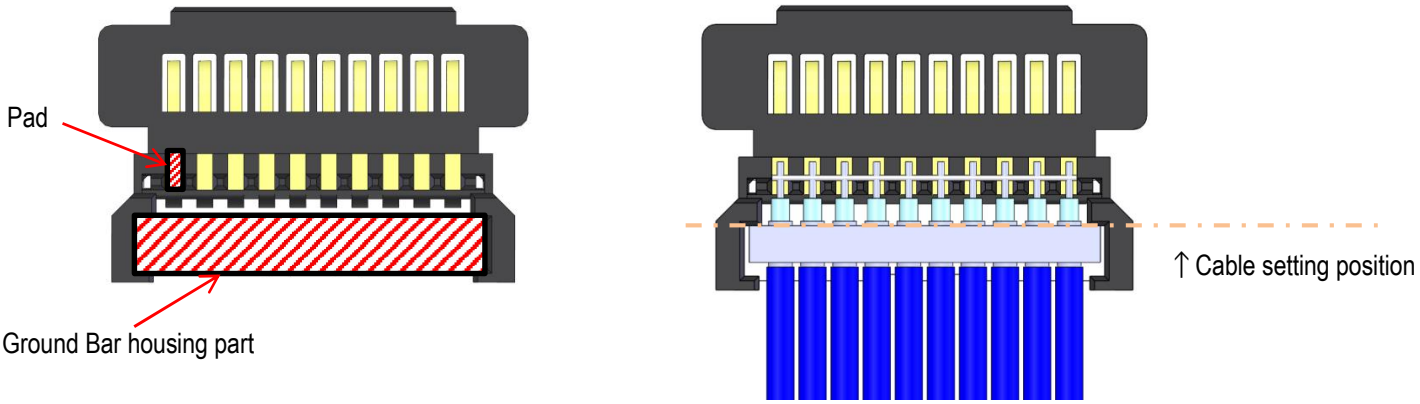



Fig. 2-1 Set of cable (Micro coaxial cable)

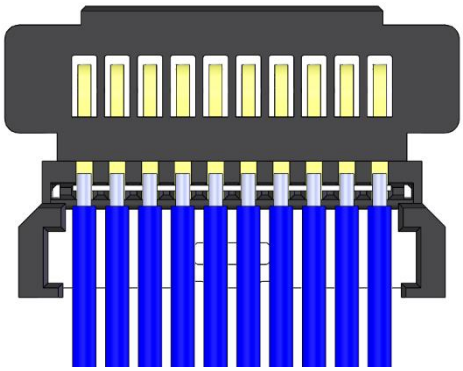


Fig. 2-2 Set of cable (Discrete wire)

If the length of center conductor is not the length indicated in 5-1, pulse heat may not be performed normally.

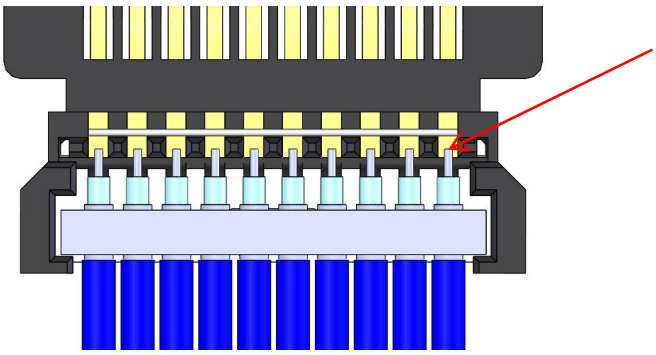



Fig. 3 The length of center conductor NG

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

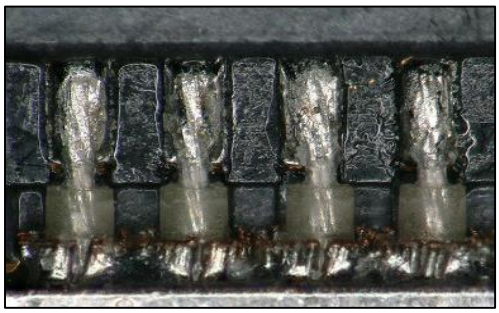


Photo. 3 AWG#42

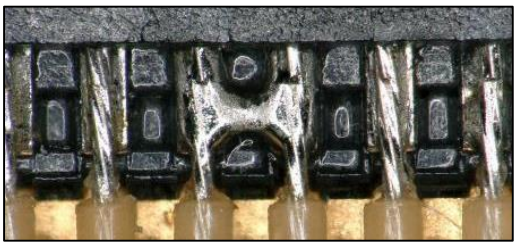


Photo. Short-circuit NG

※When solder bridge is appeared between the terminal, try heating again with pulse heater only one time.
Do not rework more than two times to avoid causing damage on product.
If the bridge isn't repaired, use the soldering iron only for error points.

Condition of Soldering iron ： 50W
Operating temperature ： 350℃
Application time of soldering iron ： Within 5sec.

※Moving cable with excessive force after soldering, center conductor may peel soldering part.

⑥For Discrete wire specifications, it is recommended to apply UV resin to the soldered part

Photo.5 Discrete UV Apply resin

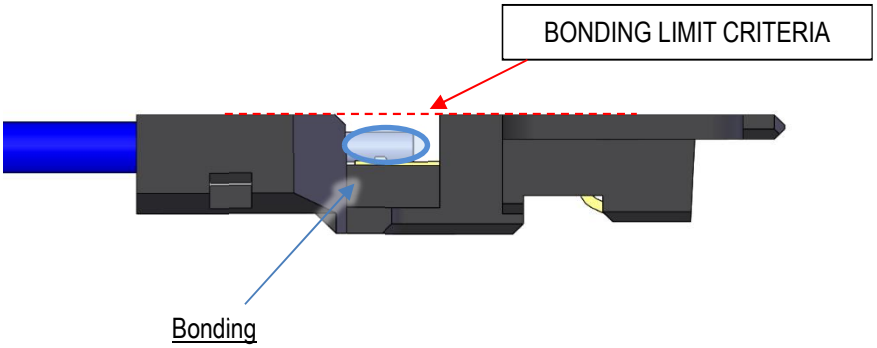
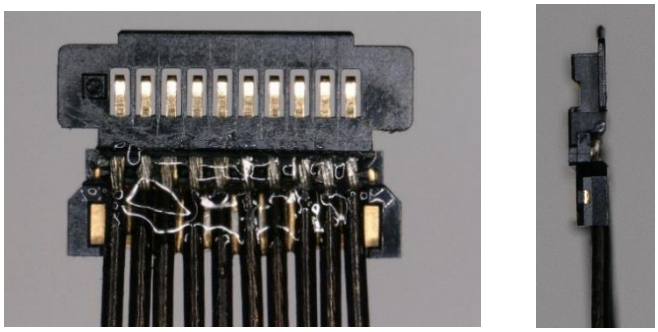
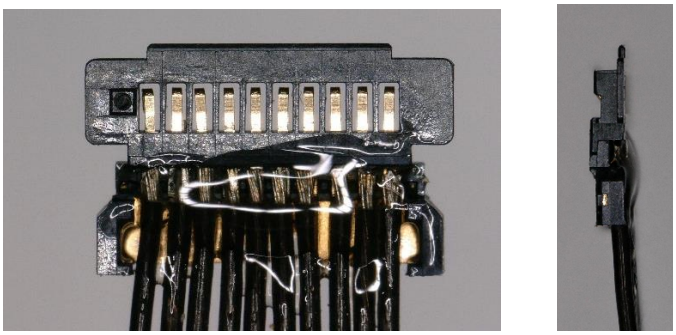



Fig.4 Bonding

| OK | NG |
| --- | --- |
|  Photo.6 UV Apply resin appearance OK |  Photo.7 UV Apply resin appearance NG |

6.SHELL A crimping procedure

6-1. 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.

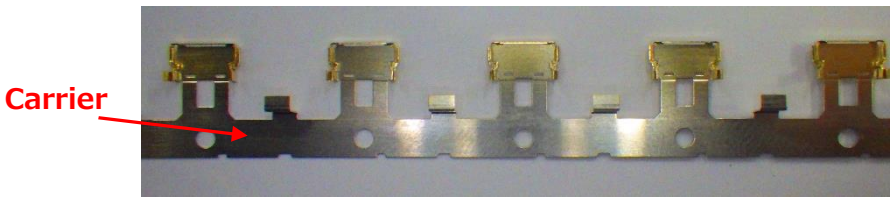



Photo. 8 SHELL A from Carrier.

Hold the center of 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.10）

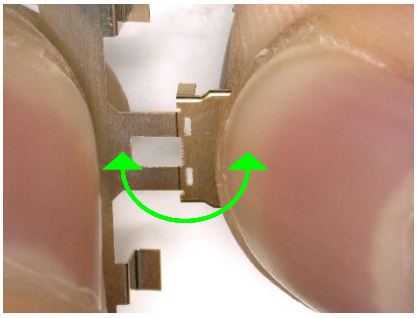
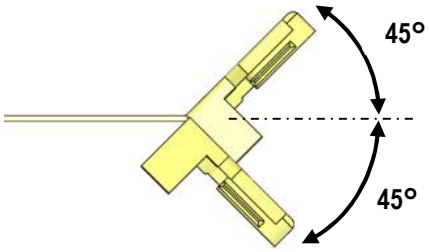


Photo. 9 Cut condition



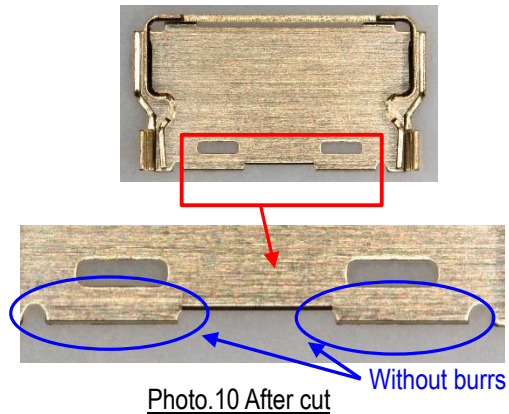




Photo.10 After cut

Details of Notch

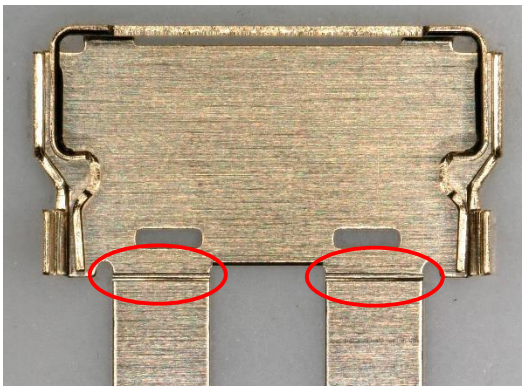


Photo.11 背面側

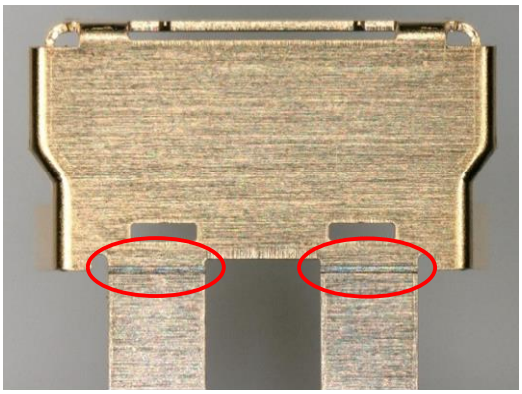


Photo.12 上面側

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

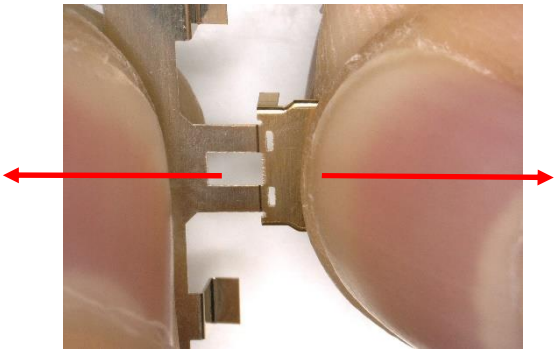


Photo. 13 Cut by force (Bad example)

6-2 Shell-A カシメ工程

When using the HAND TOOL Type (P/N : 91159-0**), refer to pages 11 to 14.

When using the CYLINDER TYPE Type (P/N : 91669-0**), refer to page 15 ~ 19.

6-2-1(1) HAND TOOL Type (P/N : 91159-0**)

Photo. 14 HAND TOOL Type

| | |
|---|---|
| Name | CABLINE-UY HAND TOOL 5/10/12/16 P |
| JIG Parts number | 5P:91159-005 / 10P:91159-010<br>12P:91159-012 / 16P:91159-016 |
| Conform PLUG CABLE ASS'Y<br>P/N | CABLINE-UY PLUG CABLE ASS'Y<br>P/N:20857-0**T-##-# |
| Conform PLUG HOUSING ASS'Y<br>P/N | CABLINE-UY PLUG HOUSING ASS'Y<br>P/N:20907-0**E-##-# |
| Conform SHELL A<br>P/N | CABLINE-UY PLUG SHELL A<br>P/N:3568-0**#-# |
| Crimp Height | 0.68~0.74[mm] |
| Length | (W) 150[mm] × (D) 180[mm] ×(H) 310[mm] |
| Weight | Approx.6.8[kg] |
| Productive capacity (Crimping process only) | 120 plug / h (Reference value) |
| Recommended number of shots for part replacement | 500,000 to 1,000,000 SHOT<br>(Exchange parts：CRIMPER / WORK GUIDE / ANVIL) |

6-2-1(2) SHELL A crimping procedure

① Set the SHELL A that cut it off in 6-1 on receive JIG of crimping Jig as shown in photo15.
Back surface side (Refer to photo.12) shall be below and carrier cut side shall be front.

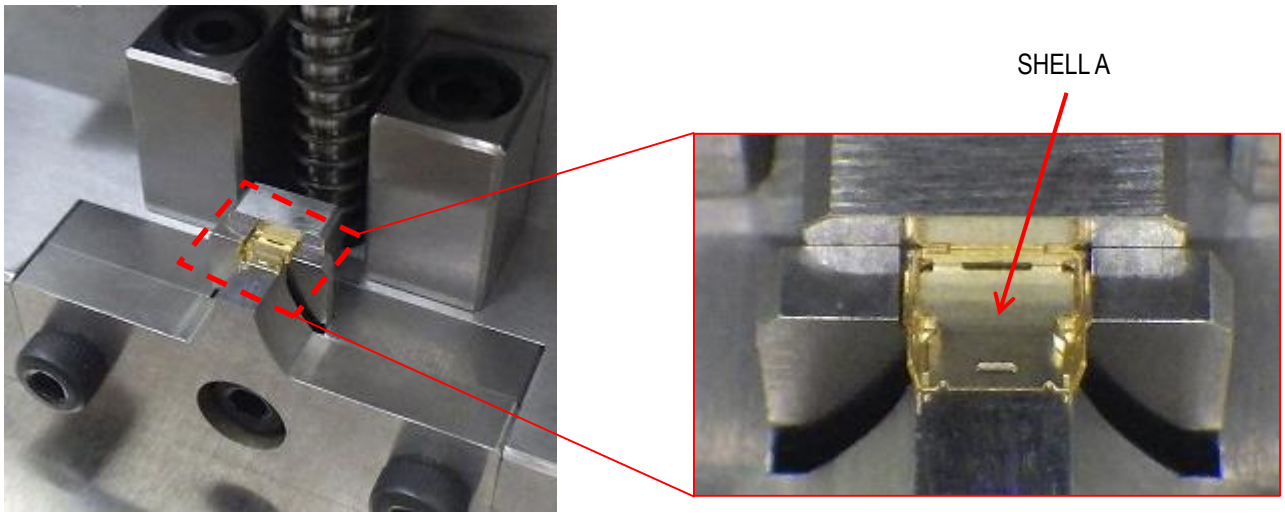



Photo. 15 Setting SHELL A

Assemble the HSG ASS'Y to SHELL A so that crimping side shall be below and cable shall be front. (Photo 16)
Do not lift or excessively pull the cable during this process. Doing so may cause the inner conductor at the pulse heat section to break. (Photo 17)

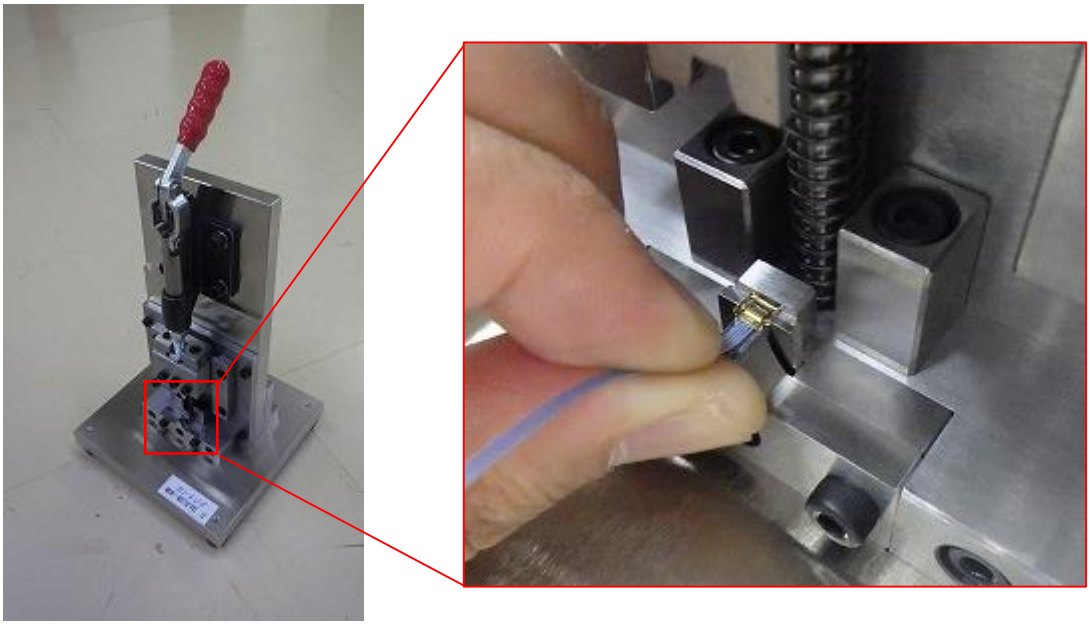


Photo. 16 Setting HSG ASS'Y

Insert the HSG ASS'Y TO the slit part of SHELL A.

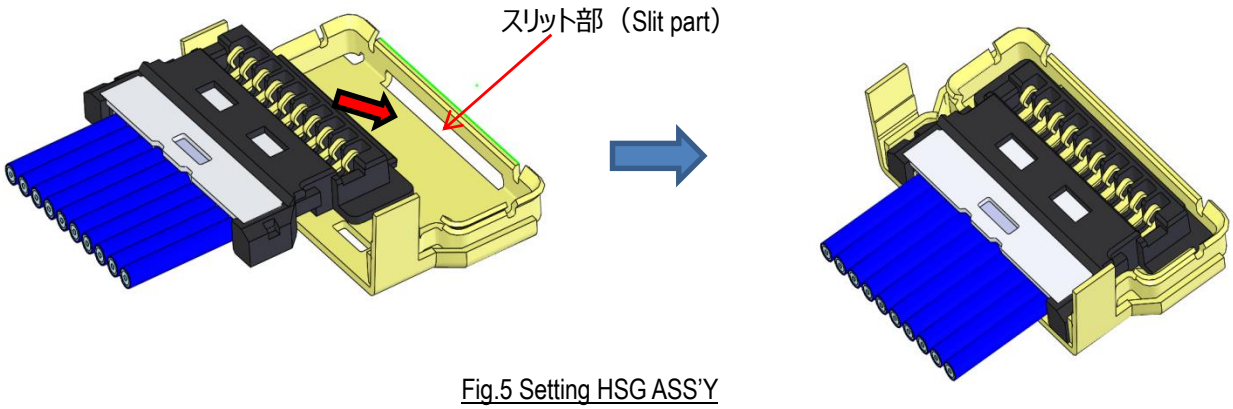



Fig.5 Setting HSG ASS'Y

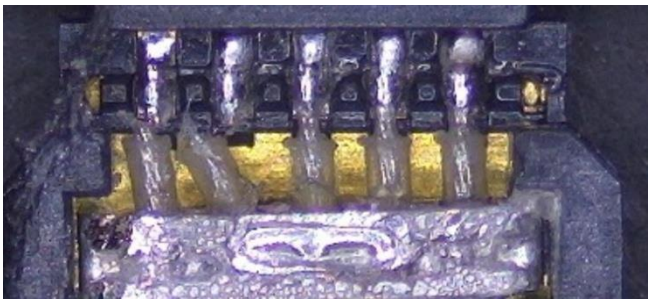
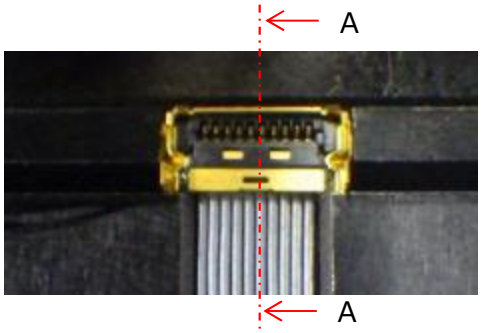
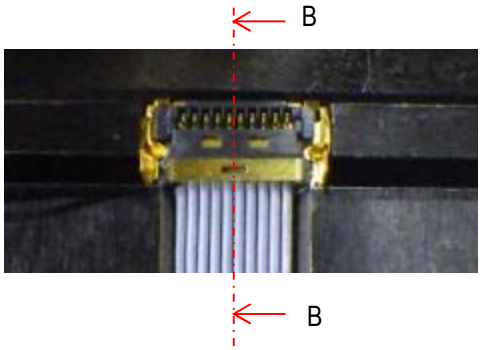
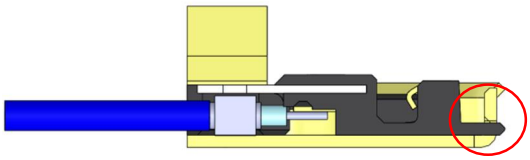
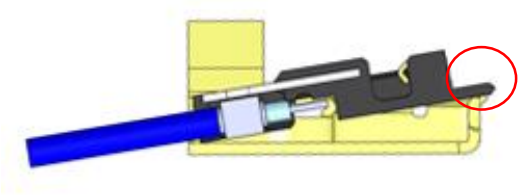


Photo. 17 Example of Conductor Breakage in the Pulse Heating

| Setting position OK | Setting position NG |
|---|---|
|  Photo. 18 Setting position OK |  Photo. 19 Setting position NG |
|  Fig.6 SECT A-A<br>HSG ASS'Y is set in the slit part of SHELL A. |  Fig.7 SECT B-B<br>HSG ASS'Y is mounting on the SHELL A.<br>Be caution if crimp in this condition, HSG will be broken.<br>(Refer to photo. 19) |

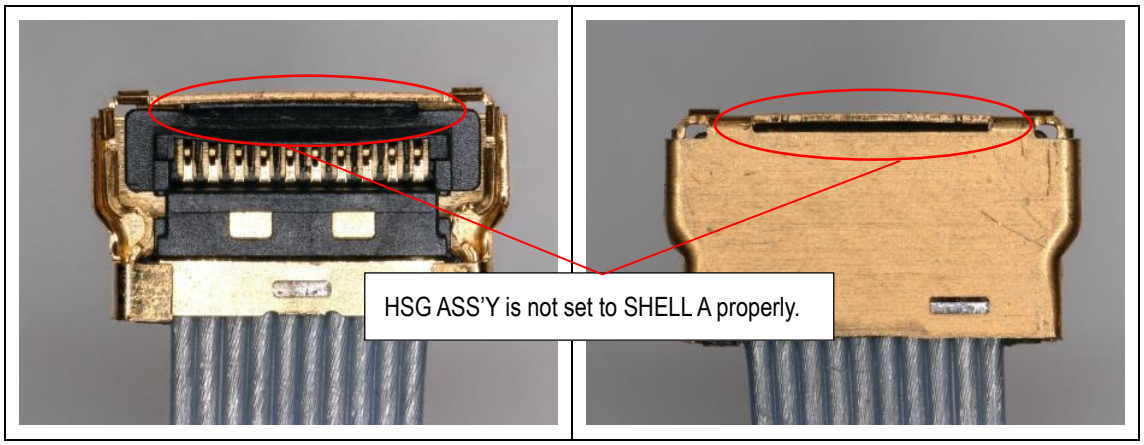



Photo. 20 crimping NG

③Pull down the lever of crimping machine and crimp the product.(Photo.21)

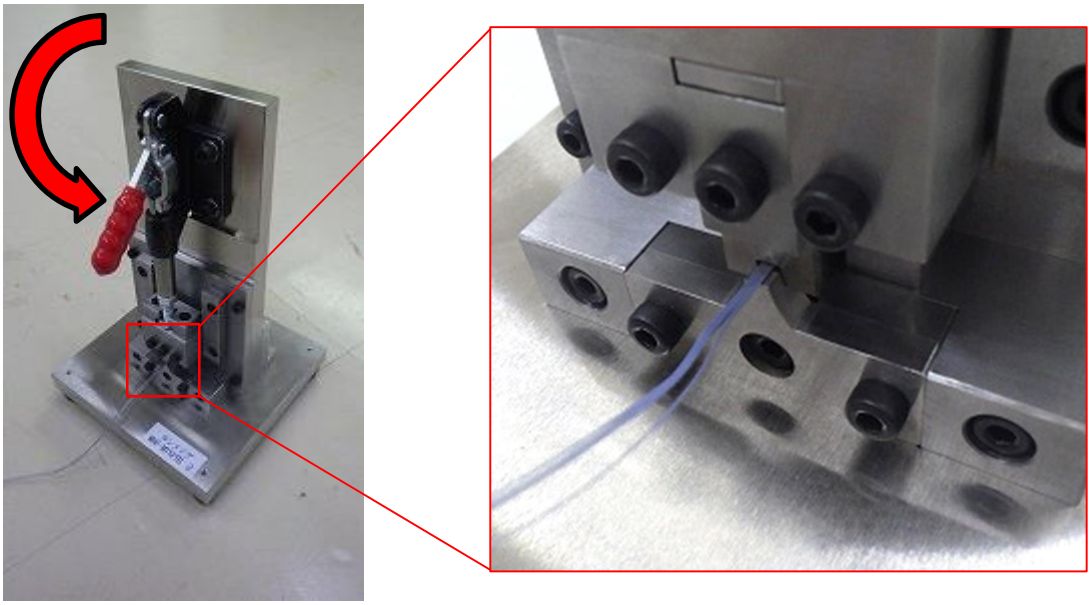


Photo.21 Crimping

④Up the lever and pull out the product.

6-2-1(3). Cautions and Maintenances

- This Semi Auto machine is a jig for harnessing I-PEX CABLINE-UY(P/N:3568-0**1-#) to a specially processed coaxial cable. Therefore, non-specified connectors and cables are not allowed. Failure to do so may damage the jig.
- With the exception of the specified replacement area, loosen or removing bolts are prohibited. Modifying is prohibited to avoid the defect of the jig. Failure to do so may affect the quality of the product.
- For the jig maintenance, use brushes and air pressure regularly to remove cable chips and dusts on the jig. Apply sewing machine oil or the rust preventing oil (store-bought) to the sliding surfaces regularly.

6-2-2(1) CYLINDER TYPE Type (P/N : 91669-0**)

* When using the HAND TOOL Type (P/N : 91159-0**), refer to pages 11 to 14.


| | |
|---|---|
| Name | CABLINE-UY HARNESS JIG 5/10/12/16P |
| JIG Part Number | 5P:91669-0051 / 10P:91669-0101<br>12P:91669-0121 / 16P:91669-0161 |
| Applicable Plug Cable Ass'y Part Number | CABLINE-UY PLUG CABLE ASS'Y<br>P/N:20857-0**T-##-# |
| Applicable Plug Housing Ass'y Part Number | CABLINE-UY PLUG HOUSING ASS'Y<br>P/N:20907-0**E-##-# |
| Applicable Shell A Part Number | CABLINE-UY PLUG SHELL A<br>P/N:3568-0**1-# |
| Crimp Height Dimension | 0.68~0.74[mm] |
| External Dimensions / Weight | (W) 650[mm] × (D) 650[mm] ×(H) 600[mm] 約 37.0[kg] |
| Production Capacity (Crimping Process Only) | 240 plug / h (For reference) |
| Recommended Number of Shots per Part Replacement | 50,000 to 1,000,000 Shots<br>(Parts subject to replacement: CRIMPER, ANVIL) |

Photo. 22 : Crimping JIG Appearance

6-2-2(2). S Shell A Crimping Procedure

① Set the Shell A, which was separated in step 6-1 as shown in Photo B, on the two receiving JIGs of the crimping JIG.
At this time, press the lever to release the clamp on Shell A, set it in place, then release your hand from the lever and hold Shell A.

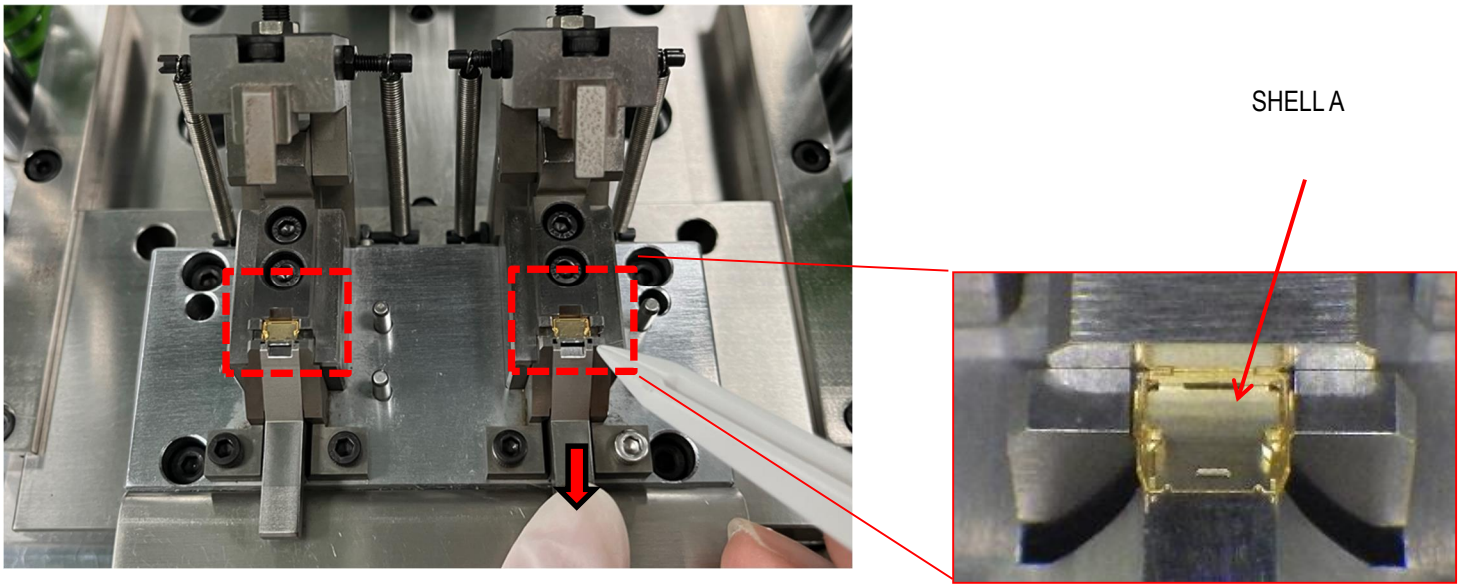



Photo. 23 Shell A Positioned

② Assemble the Housing Ass'y, which was soldered in page 8, onto Shell A with the wiring side facing down and the cable side facing you (Photo 24).

Be careful not to lift or twist the cable, as this may break the core wire in the pulse heat section (Photo 25).

After setting the Housing Ass'y, hold the product with the pressing part.

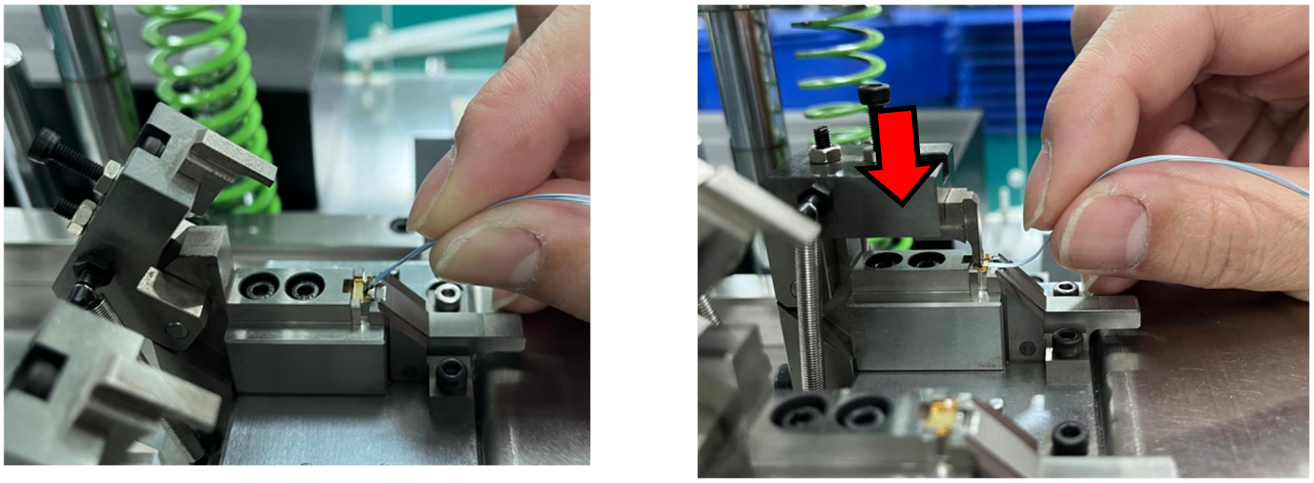


Photo. 24 Housing Ass'y Positioned

Insert the Housing Ass'y into the slit of Shell A

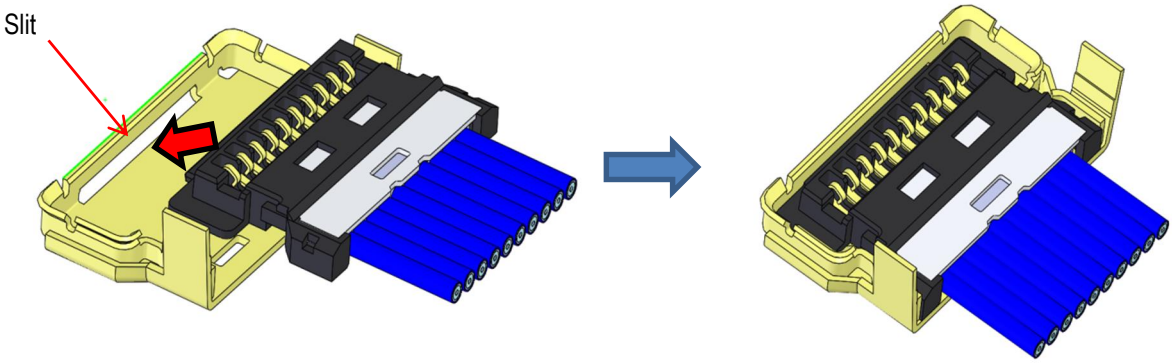



Fig.8 Housing Ass'y - Shell A Assemble

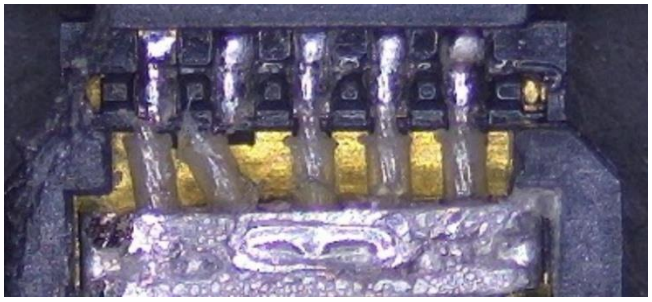
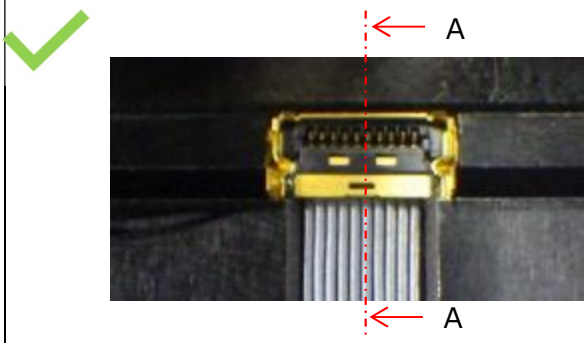
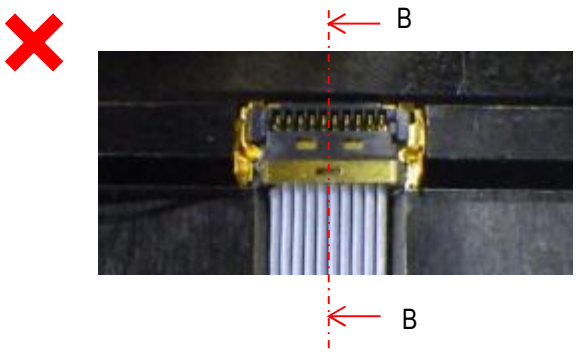
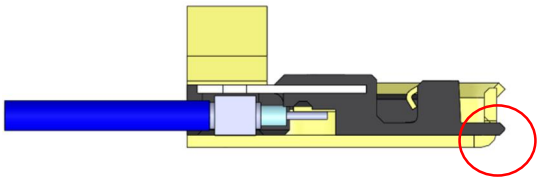
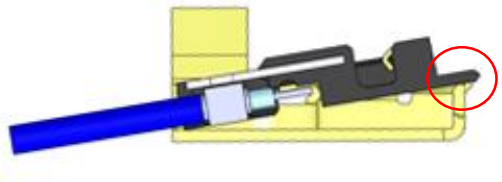


Photo. 25 Example of Core Wire Break in Pulse Heat Section

| Correct Set Method | Incorrect Set Method |
|---|---|
|  Photo. 26 Correct Set Method |  Photo. 27 : Incorrect Set Method |
|  Fig.9 SECT. A-A<br>The Housing Ass'y is set into the slit of Shell A. |  Fig.10 SECT. B-B<br>The Housing Ass'y is riding on Shell A.<br>Be careful not to perform crimping in this state, as it may damage the Housing (see Photo 27). |

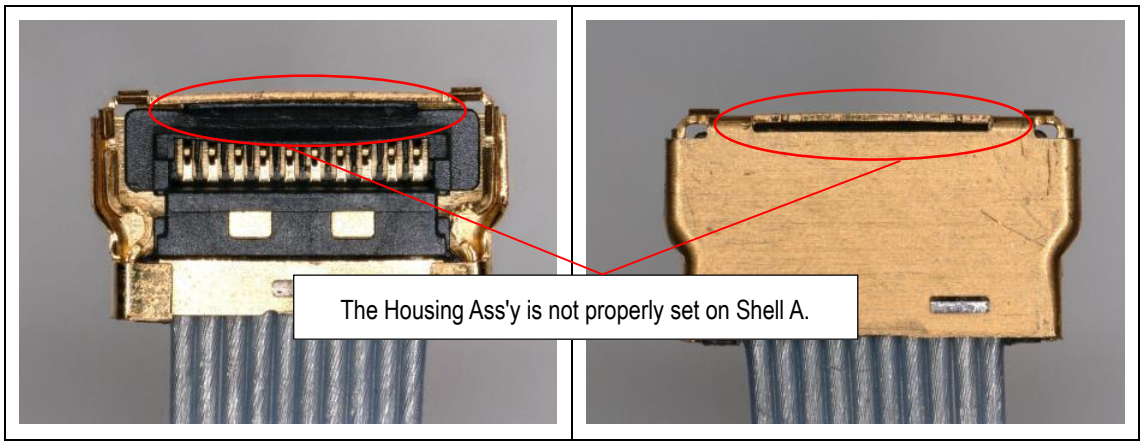
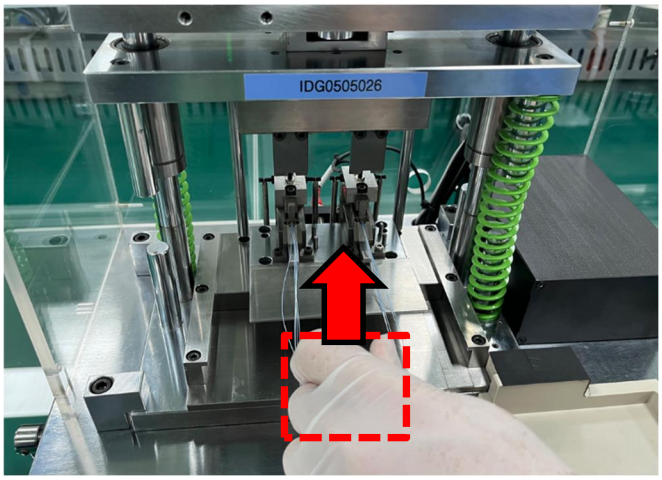



Photo. 28 Improper crimping

③ Move the holder of the crimping machine forward until it stops, then press the button to perform the crimping (Photo 29).



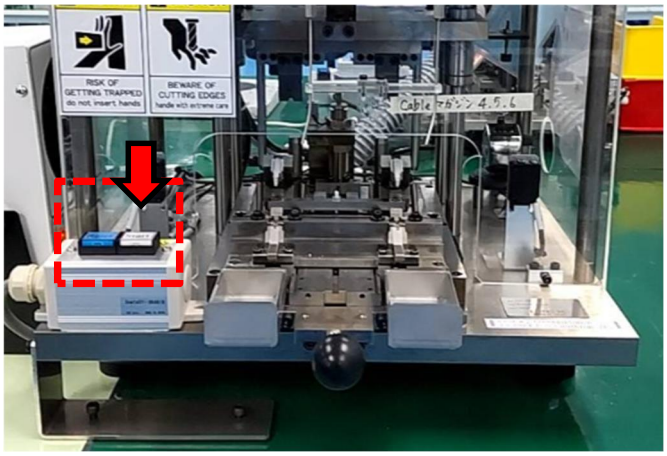




Photo. 29

④ Return the holder, lift the hold, and remove the product (Photo 30).

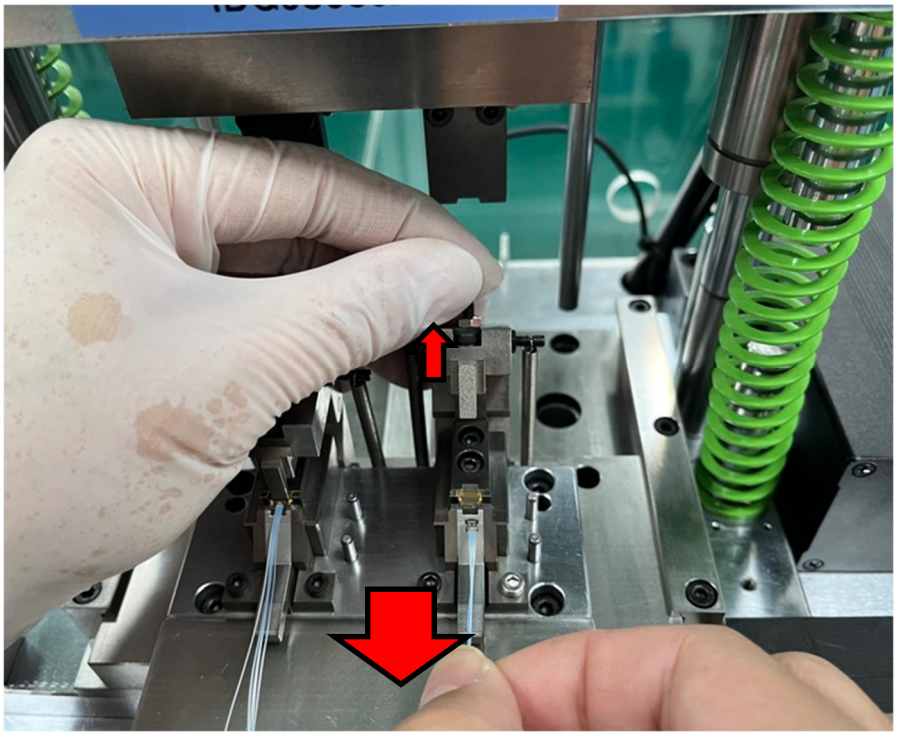


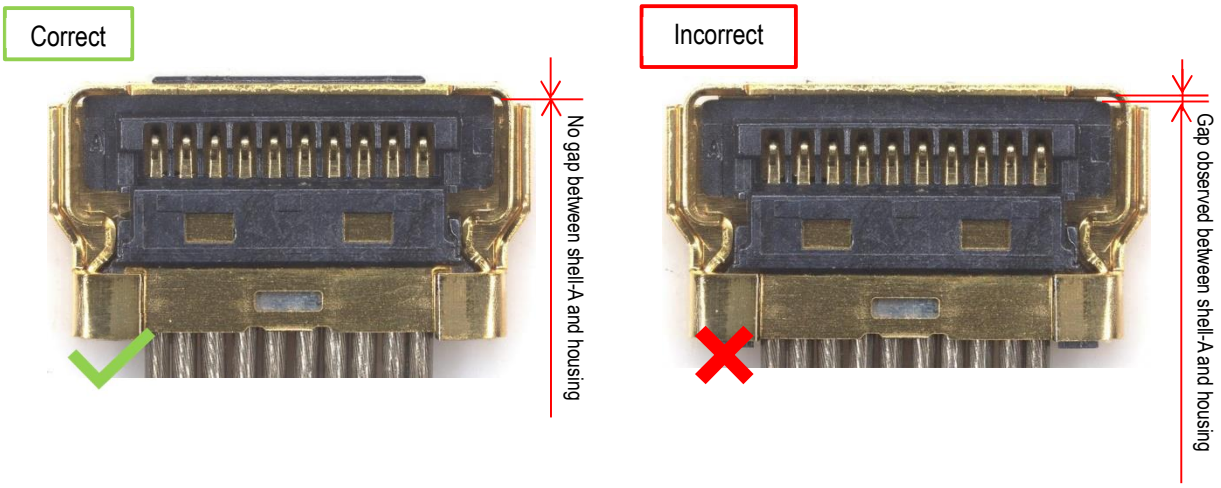
Photo.30 Crimping

6-2-2(3). Precautions and Maintenance for Crimping Machine

- This JIG is a crimping machine designed to harness I-PEX's terminal CABLINE-UY(P/N:3568-0**1-#) with cables that have been specially processed for these terminals. Therefore, harnessing with other terminals or non-specified (incompatible) coaxial cables may damage the JIG. Do not use terminals other than those specified.
- Do not loosen or remove bolts except for the parts intended to be disassembled. Also, do not modify any parts, as this may affect the JIG's settings and compromise the quality of assembled products. Modification is strictly prohibited.
- For maintenance, regularly clean any cable debris or dust adhering to parts related to the product using a brush or compressed air. Also, apply sewing machine oil or commercially available anti-rust oil to sliding parts before storage.

7. Appearance inspection

Make sure that no gaps have in the figure below.




Make sure that the product is properly wired and crimped.

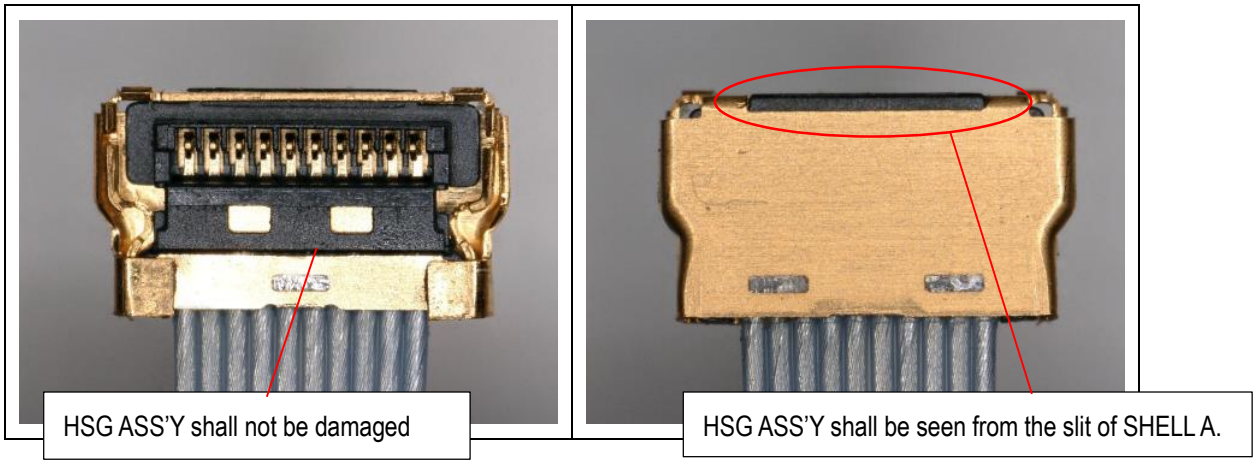
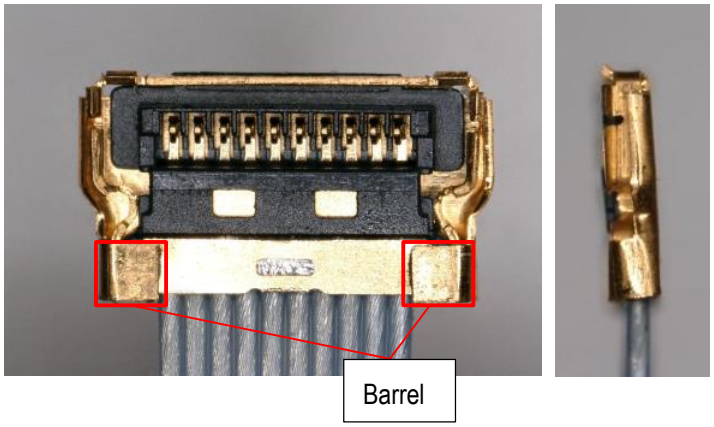



Photo.31 crimping appearance OK

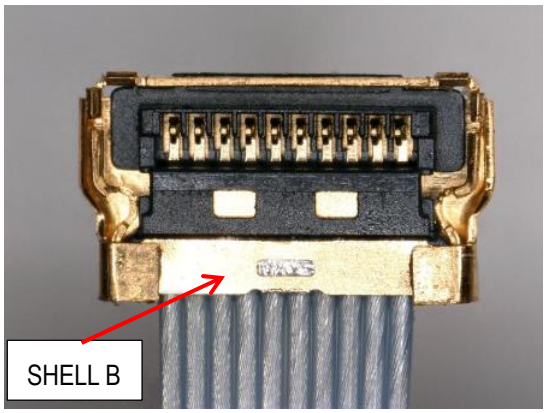
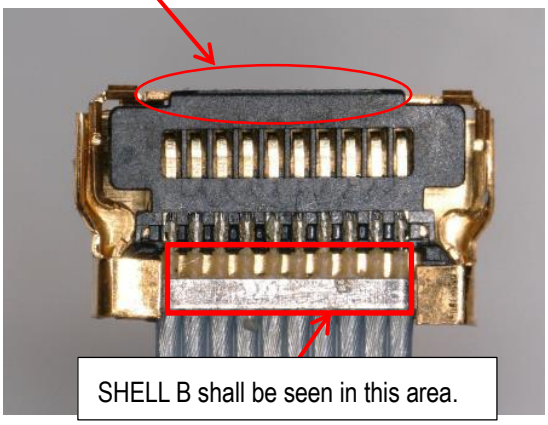
7-1. SHELL A crimping appearance OK/NG

| OK | NG |
|---|---|
|   |   |
| Photo.32 crimping appearance OK | Photo. 33 crimping appearance NG |

7-2. HSG ASS'Y Setting NG

Crimped in the condition that crimping side of HSG ASS'Y was set to top.

HSG ASS'Y shall be seen from the slit of SHELL A.

| OK | NG |
|---|---|
|   |   |
| Photo. 34 setting OK | Photo. 35 setting NG |

7-3 Dimension of crimping height

Measure both end of the barrel at a time.

Crimp height: 0.68~0.74mm

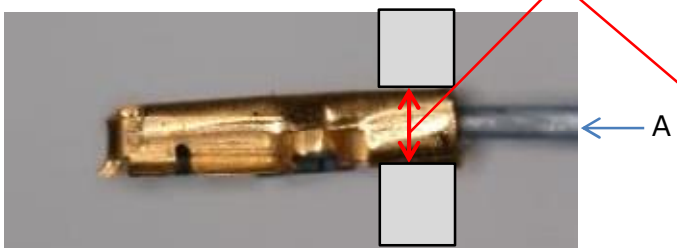



Photo. 36 Dimension of crimping height

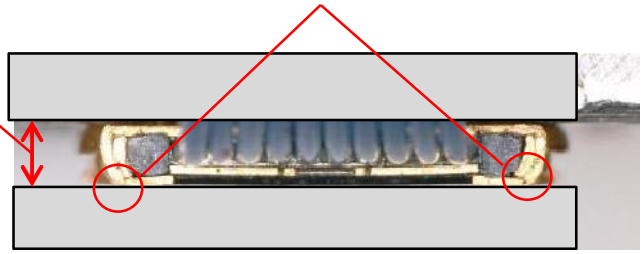


Photo. 37 View A

If the crimp height is not appropriate, it may not be able to mate normally with Receptacle

<Crimping height OK>

Photo. 38 Crimping height OK

<Crimping height NG>

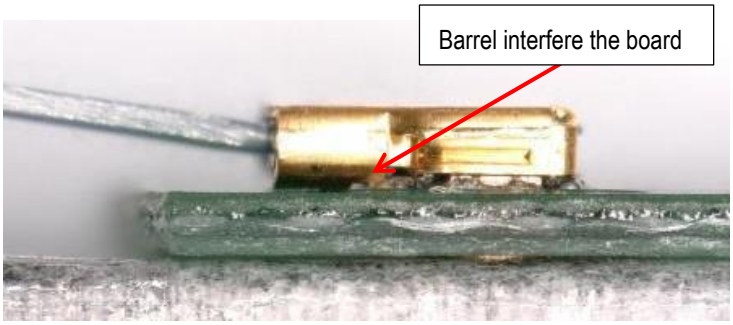



Photo. 39 Crimping height NG

8. Soldering SHELL A and GND BAR with the soldering iron at all designated points is recommended. (Fig.9◆point)
   For conditions of Soldering iron refer to sheet 8.

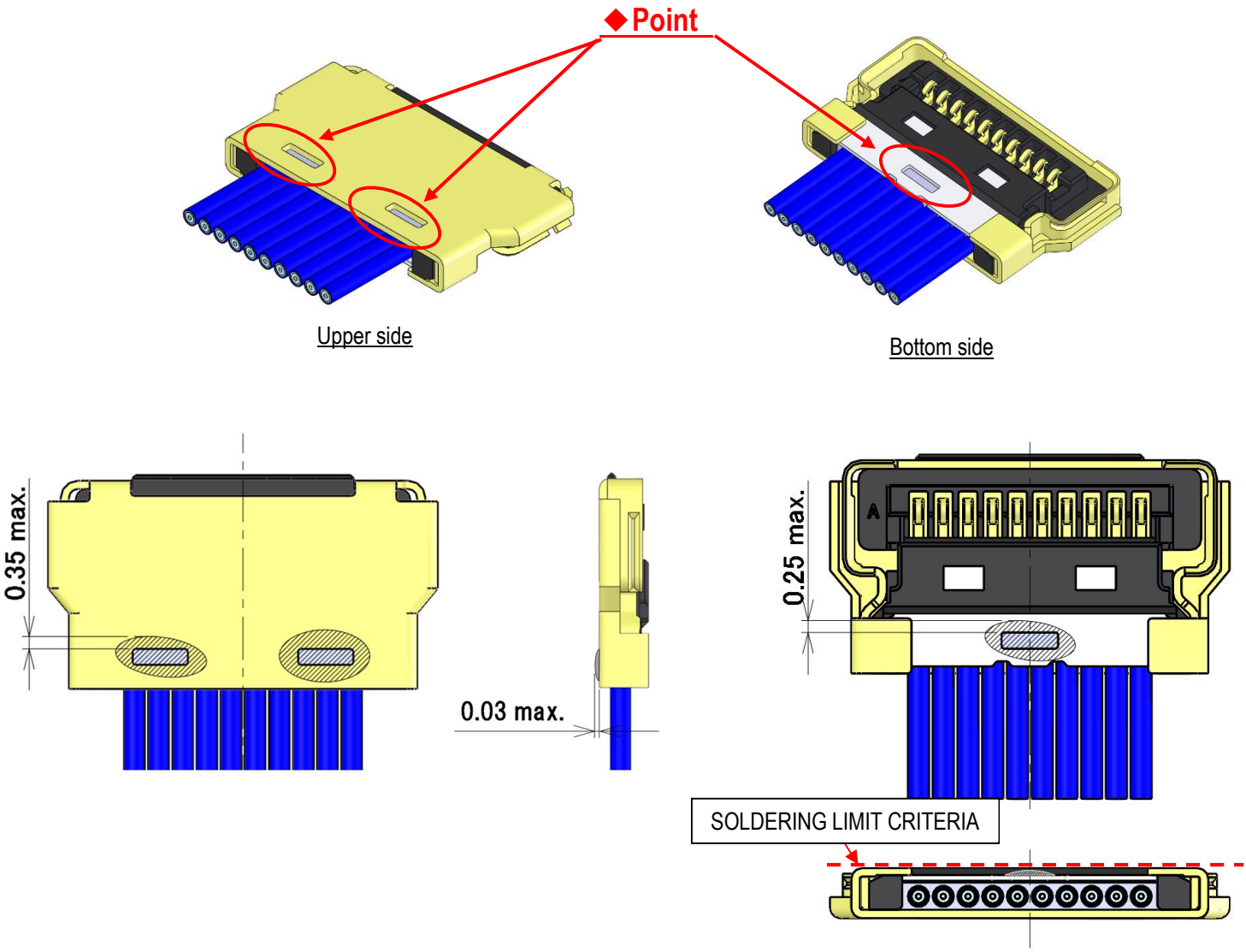
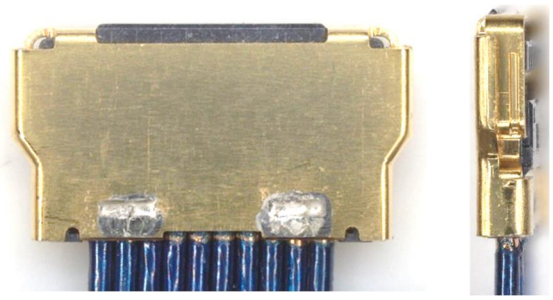
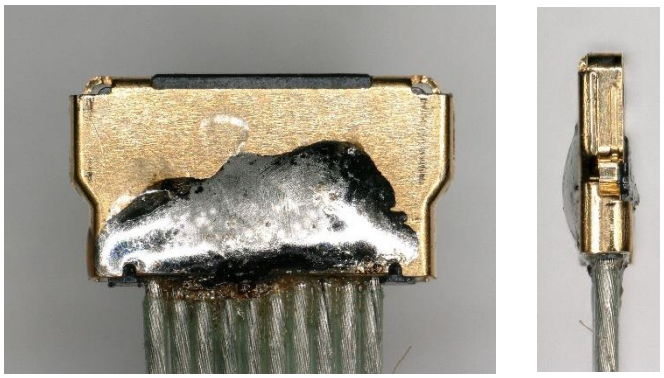
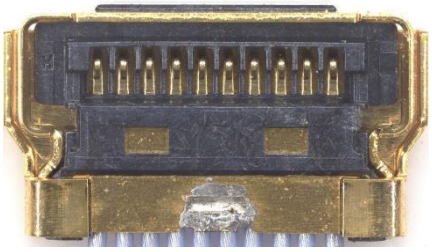
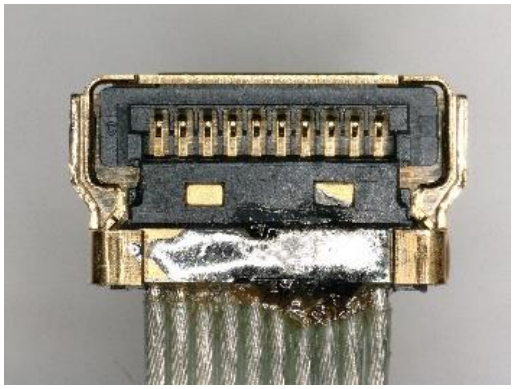



Fig. 11 Soldering of SHELL A and GND BAR

8-1. Soldering of SHELL A and GND BAR appearance OK/NG

| OK | NG |
|---|---|
|  Photo. 40 Soldering of SHELL A and GND BAR appearance OK |  Photo. 41 Soldering of SHELL A and GND BAR appearance NG |
|  Photo. 42 Soldering of SHELL A and GND BAR appearance OK |  Photo. 43 Soldering of SHELL A and GND BAR appearance NG |

9. Cable fixation

Fixing the cable terminal part with the bond is recommended.

Bond：LOCTITE 352

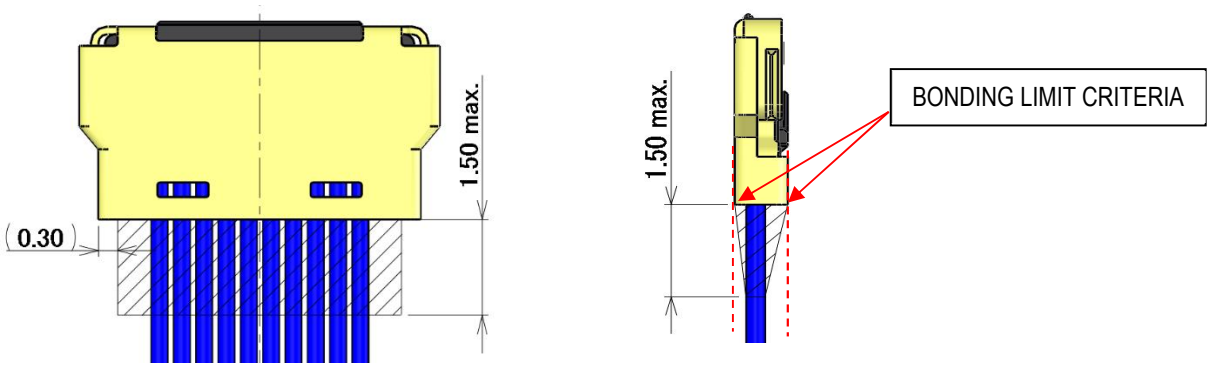
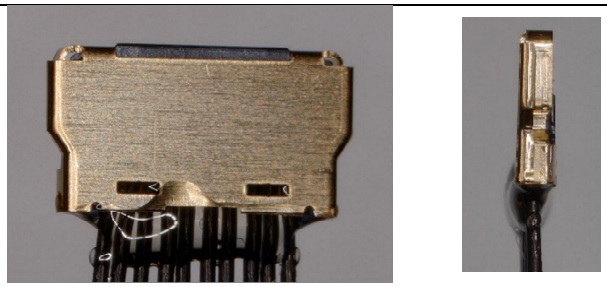
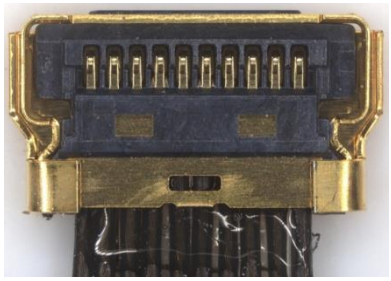
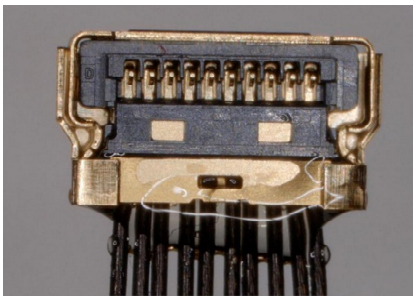



Fig.12 Bonding

- Bonding shall not exceed the limit criteria.
- Immediately after application of Bonding, expose and solidify.

  If left unattended, the adhesive will penetrate into the connector and cause malfunctions.

| OK | NG |
|---|---|
|  Photo. 44 Bonding appearance OK |  Photo. 45 Bonding appearance NG |
|  Photo. 46 Bonding appearance OK |  Photo. 47 Bonding appearance NG |

10. Finished product appearance example.

MICRO-COAXIAL CABLE

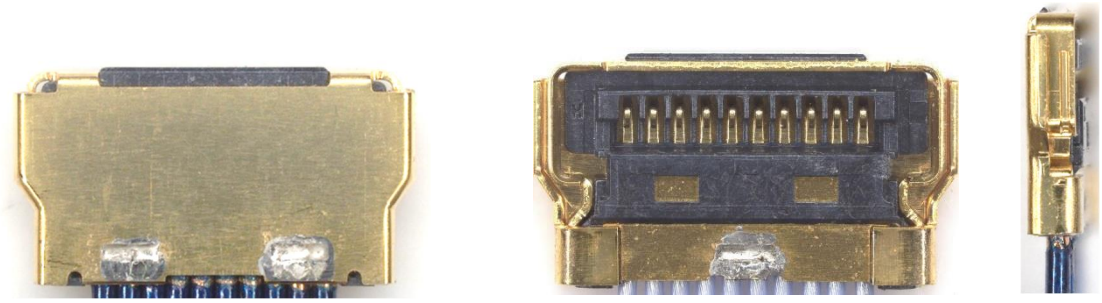


Photo. 48 Finished product appearance OK

DISCRETE WIRE

Photo. 49 Finished product appearance OK