ZH05 SERIES INSTRUCTION SHEET
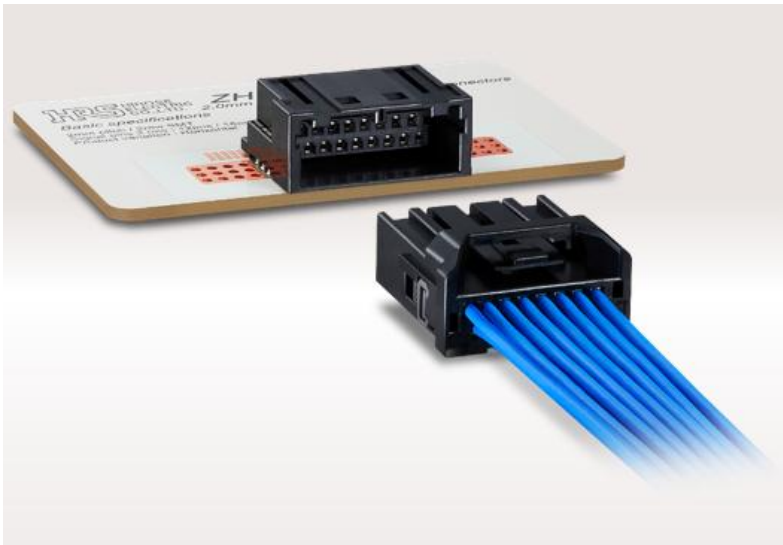
1. PURPOSE
2. COMPONENTS
3. ASSEMBLY PROCESS
4. REPAIR PROCESS
5. INSERTION/EXTRACTION PROCEDURE
6. OTHER / NOTES

⚠ Completely revised

⚠	COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
⚠	1	DIS-T-00019789	TY.MOGI	AH.EDASHIGE	20231218

名 称　TITLE	**HRS**	HIROSE ELECTRIC CO.,LTD.	
ZH05 SERIES Instruction Sheet	APPROVED	HH.TSUKUMO	20190826
	CHECKED	HH.TSUKUMO	20190826
	DESIGNED	KH.MARUNO	20190826
	WRITTEN	MN.SATOH	20190823

| 技 術 指 定 書　TECHICAL SPECIFICATION	ETAD-T0841-01	⚠	1 / 13

FORM HC0011-9-1

1. PURPOSE OF THIS DOCUMENT

This document provides explanations about Hirose part name ZH05-*DP-HU(*),

compatible terminal crimping, harness assembly, and how to mate.

Please read carefully before using connector.

Also, please keep it in a place where you can view it at any time, while using the connector.

Pictures and diagrams used in this document are of representative products.

The contents of this document are subject to change without any notice.

# 2. COMPONENTS
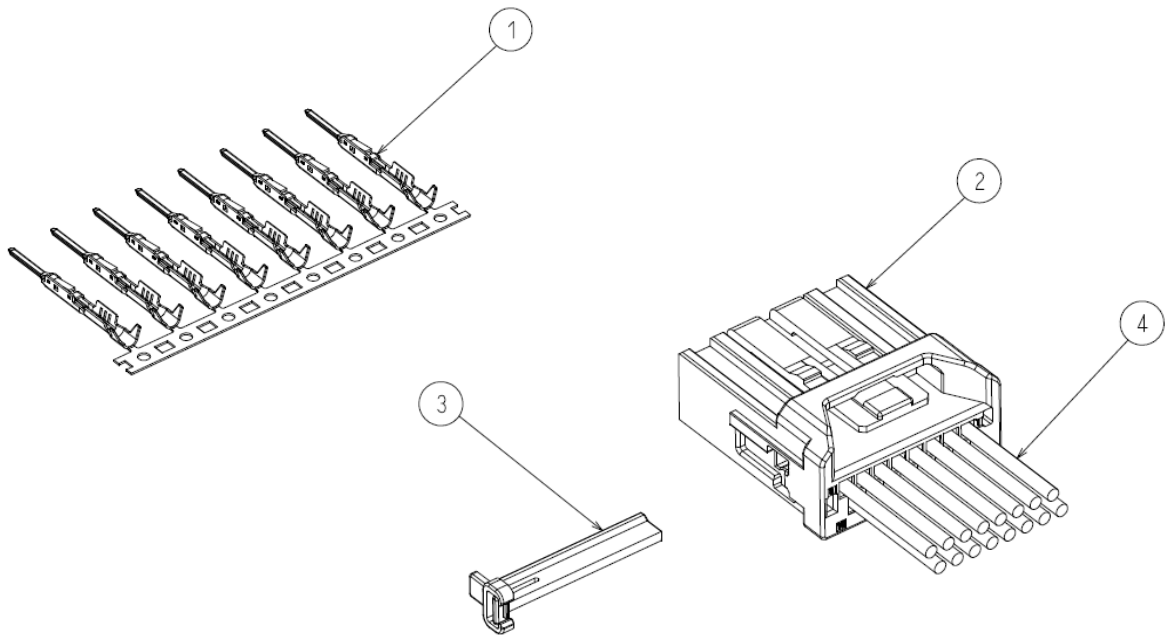
COMPONENT PART SUMMARY

PART	PART DESCRIPTION	HIROSE PART NAME	NOTE
1	CRIMP TERMINAL	ZH05-2224PCF(*)	For 0.22～0.35sq, tin plating
2	HOUSING	ZH05-16DP-HU(*)	Applicable cable outer diameter φ0.9～1.4㎜
		ZH05-20DP-HU(*)	
		ZH05-24DP-HU(*)	
		ZH05-32DP-HU(*)	
3	RETAINER	ZH05-16DP-R	
		ZH05-20DP-R	
		ZH05-24DP-R	
		ZH05-32DP-R	
4	CABLE	－	－

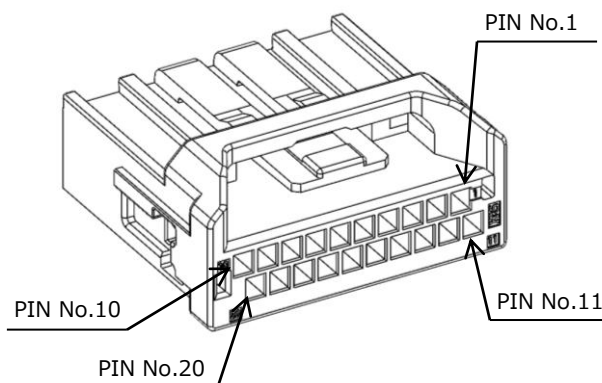※For products not listed above, please contact our sales department.

Example of pin number
(Terminal numbers for other numbers of pins will also have the same arrangement)

Number of cores : 16

Number of cores : 20

PIN No.1

PIN No.8

PIN No.9

PIN No.16

PIN No.1

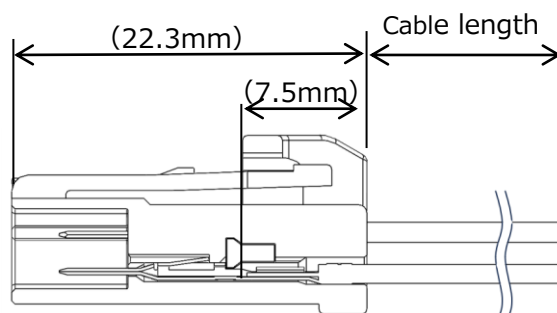PIN No.10

PIN No.11
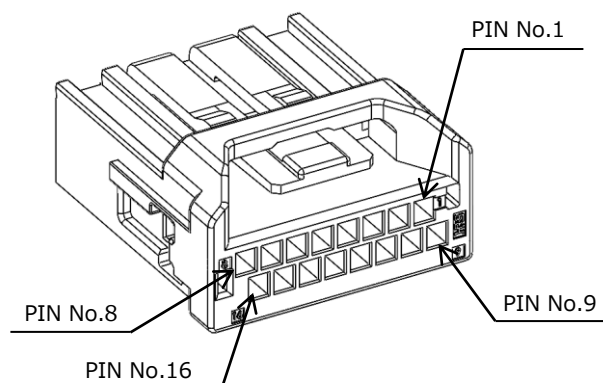
PIN No.20

3. ASSEMBLY PROCESS

Note: For information regarding crimping, please refer to
'ETAD-T0857-00' ZH05-2224PCF CRIMP QUALITY STANDARD.
Wires and crimping conditions confirmed using our tools can be found
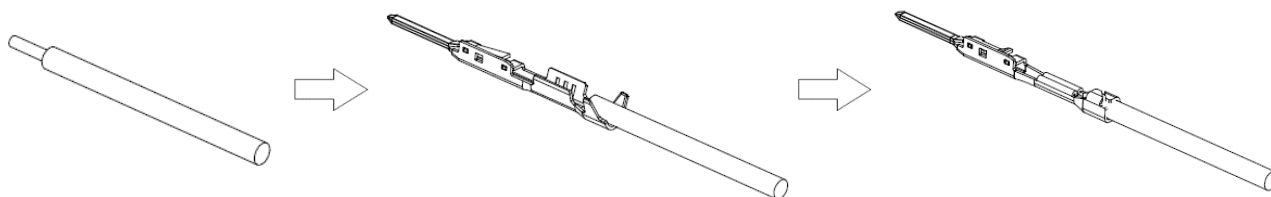in the crimping conditions table.

①Cut the cable.
Please set the cut length referring to the dimensions below.

(22.3mm)

Cable length

(7.5mm)

Estimated cable cut length = cable length above +7.5mm

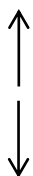②Strip and crimp the cable according to the crimp quality standards and crimp conditions table.

Note: Please use our company's crimping tool.

List of crimping tool part number

Part No.	Crimping tool P/N		HRS No.
ZH05-2224PCF	Applicator	AP105-ZH05-2224P	901-5253-0
	Hand tools	–	–

③ Insert contact and push until a click is heard.

Upper side

OK

NG

Lower side

Insert both the upper and lower rows with the seams of the crimp parts facing inward.

Seams of the crimp parts in both the upper and lower rows are facing outward.

Note 1 : Please be careful not to insert the contacts in the opposite direction.
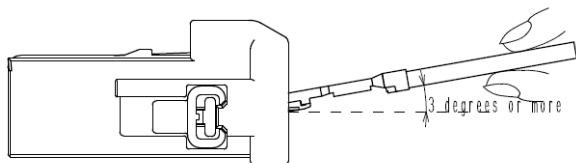
○The correct position to hold the cable is as follows.

More than 10mm

OK

NG

Near crimp part
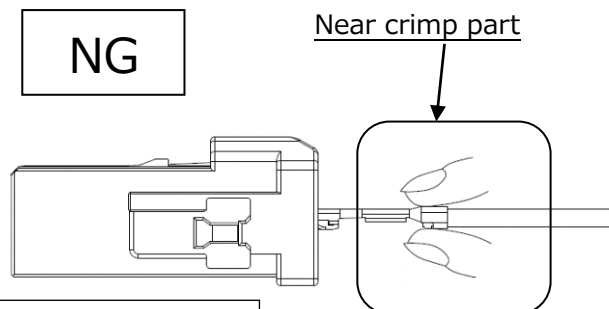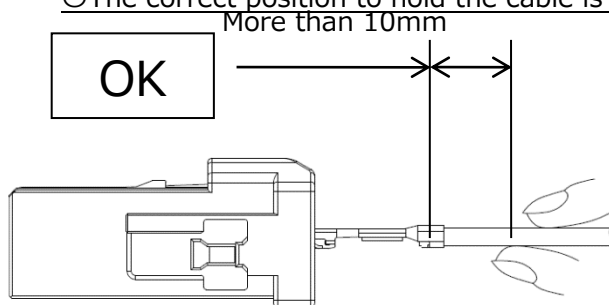
Note: To prevent excessive load from being applied to the terminal, it is recommend holding the wire at least 10mm away from the terminal, unless there is a problem with workability such as the wire bending.
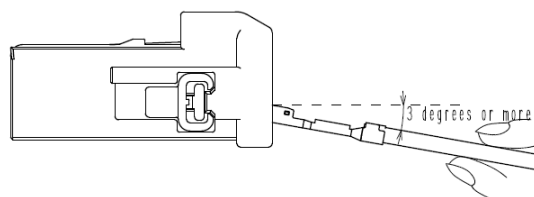
NG

Inserted from an oblique angle.
(in case of upper row)

NG

Inserted from an oblique angle.
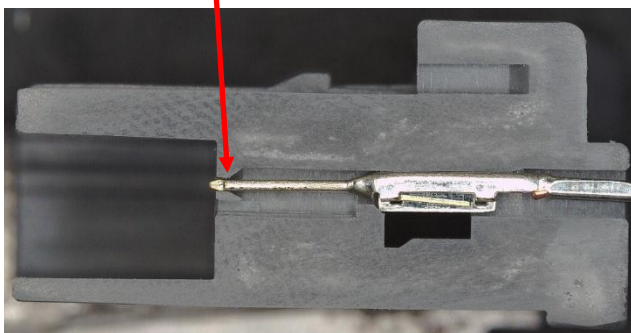(in case of lower row)

3 degrees or more

3 degrees or more

Note: If the terminal is inserted at an extreme angle, the terminal may be inserted in the wrong place and deformed as shown in the photo in the next section (P.5).
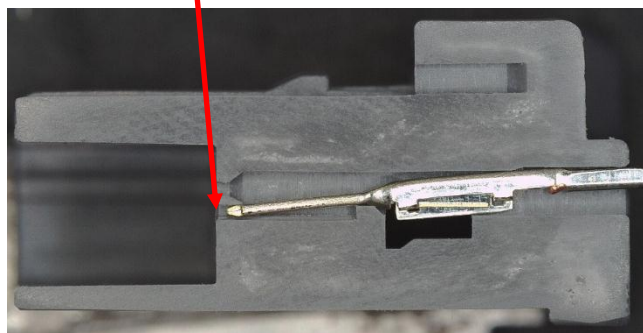
○Correct position to insert contacts

【Cross section】

| Position which is OK | Position which is NG |

【Cross section (enlarged)】

| Position which is OK | Position which is NG |

⇩   ⇩ ※Insert with a force of 10N or more

※Contact is deformed

Note 2 : Hold the cable and insert the contact in the correct position.
Also, do not insert the contact with more than 10N of force as it may deform the contact.
※If you hold the crimp terminal and insert it with a force of 10N or more,
the terminal may become deformed, so please use a new terminal instead of reusing it.

Note 3 : If you feel something getting stuck when inserting the crimp terminal, pull the terminal
out once. After confirming that the terminal is not deformed, insert the crimp terminal again.
④ After inserting the crimp terminal, check that the terminal is inserted correctly.
Also, pull the cable lightly (10N or less) to check crimp terminal is locked with the lance.
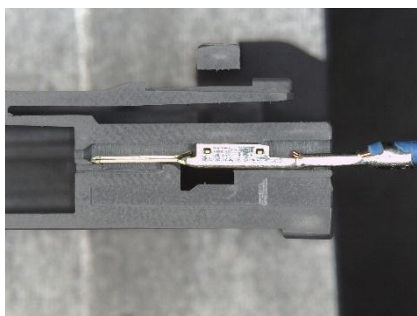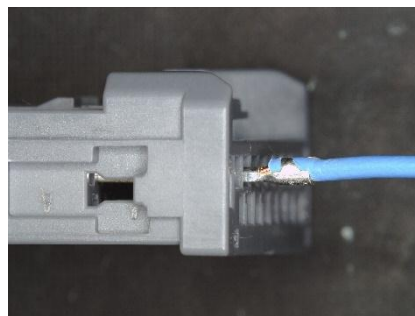
【OK】Terminal is inserted correctly
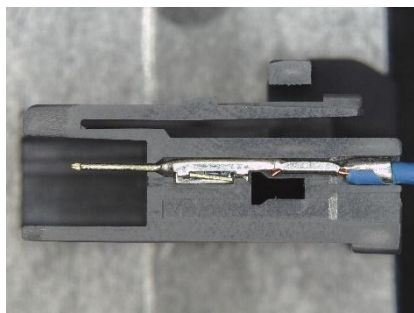
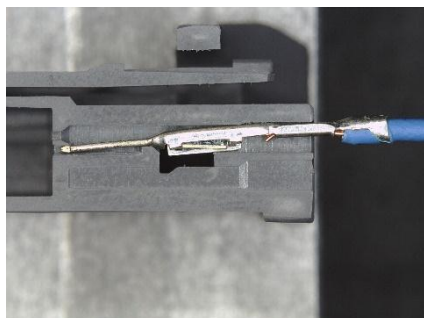※Barrel is not visible from the outside.
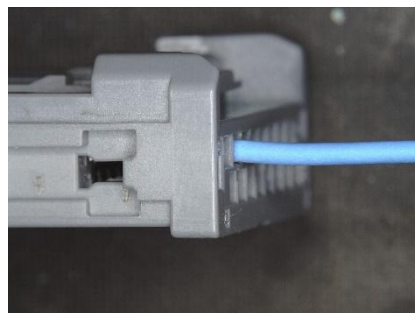
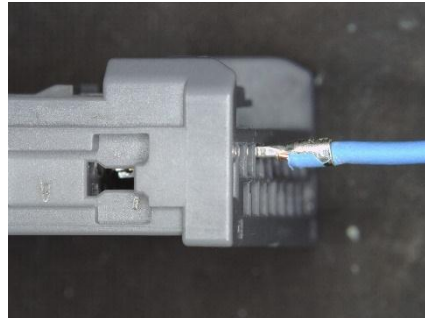
【NG】Terminal is inserted upside down

※Barrel visible from the outside

【NG】Inserted to a different hole

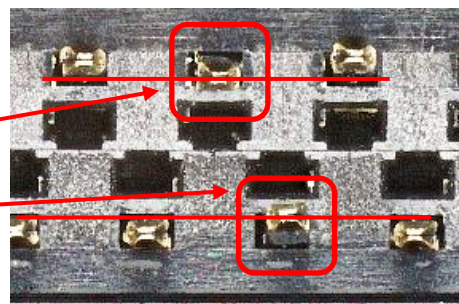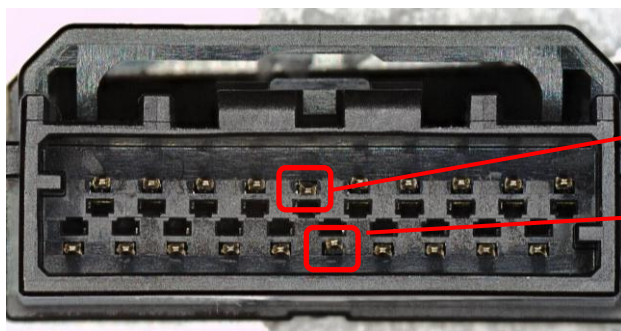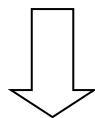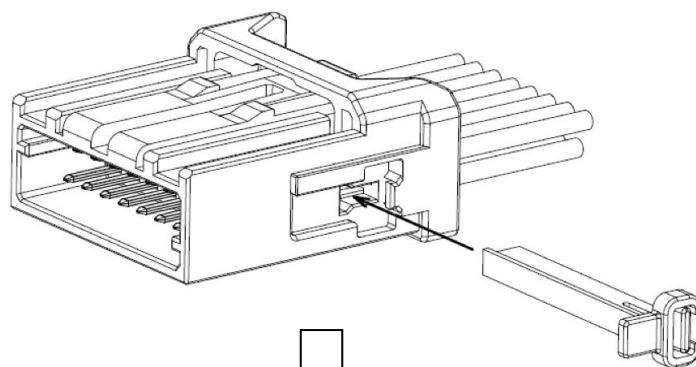※Barrel visible from the outside

⑤Inspection

After inserting the terminal, look at the connector from the mating side.

Make sure the terminal is inserted without any problems.

【Example for NG : Deformed terminals】

⑥Push the retainer into the housing in the direction of the arrow until you hear click.

The set state is as following

After installing the retainer, look from the front and check that the retainer does not protrude.
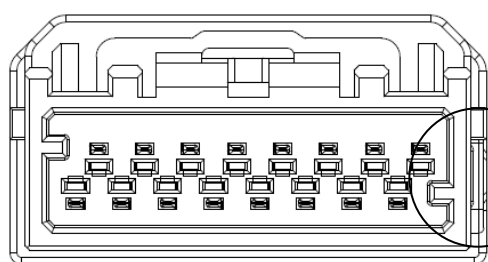
※With retainer attached
【OK】

※Retainer partially attached
【NG】

Make sure your retainer is visible.

Cross section

Cross section

※Correct retainer is installed
【OK】

※Incorrect retainer is installed
【NG】

HIROSE ELECTRIC CO., LTD.　　　ETAD-T0841-01　⚠ 7 / 13

FORM HC0011-9-2

⑦Electrical inspection
  Holding part of connector
  During electrical inspection, plug is able to hold the following parts:
  （Example : ZH05-20DP-HU（A））

Plug

Holding part of plug

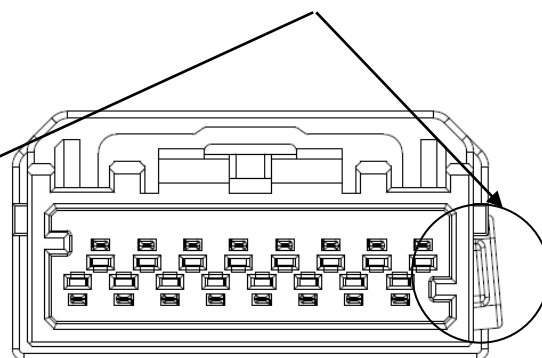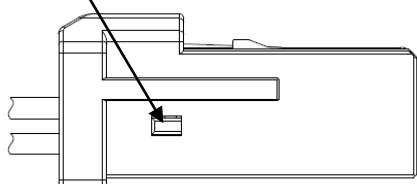⑧Location of test probes
  The test probes should be located in front face as described below.
  (to avoid any damage to the terminal)
    （Example:ZH05-20DP-HU(A)）

8.5   9.5
6.5   7.5
4.5   5.5
2.5   3.5
0.5   1.5

(0.8)

Tolerance area of
probe position

(0.5)

(0.5)

4.4

2

(0.8)

1.5   0.5
3.5   2.5
5.5   4.5
7.5   6.5
9.5   8.5

21.5

Center of 21.5

HRS   HIROSE ELECTRIC CO., LTD.   ETAD-T0841-01   ⚠ 8 / 13
FORM HC0011-9-2

⑨ Definition of test probe
    The recommended probe should have the following characteristics
    ・ Diameter: φ1.0 +0/-0.1mm
    ・ Plating: Gold plated

    Tip shape: flat or inverse cone

    ・Spring force: 1N maximum
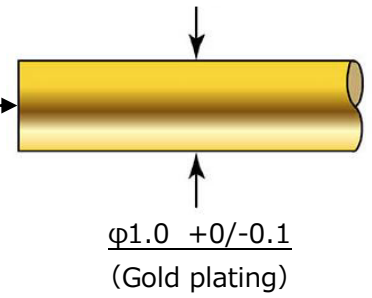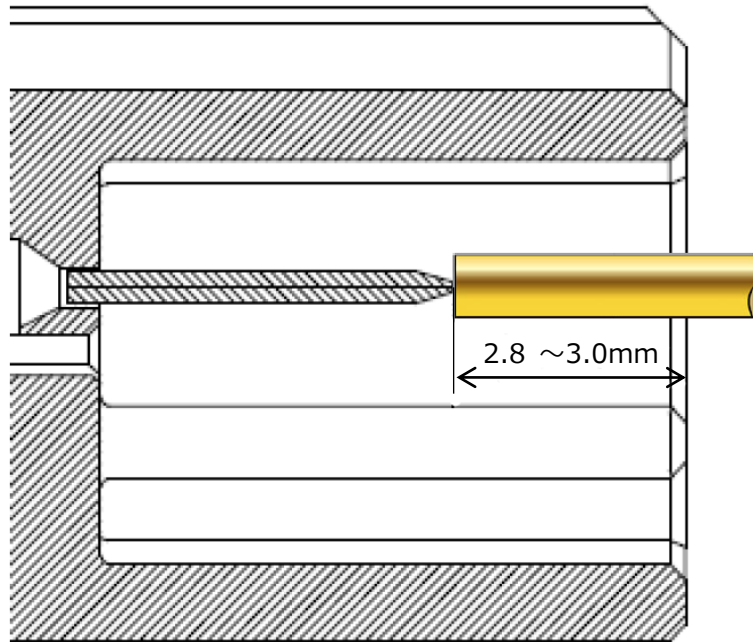   ・Stroke: see section below
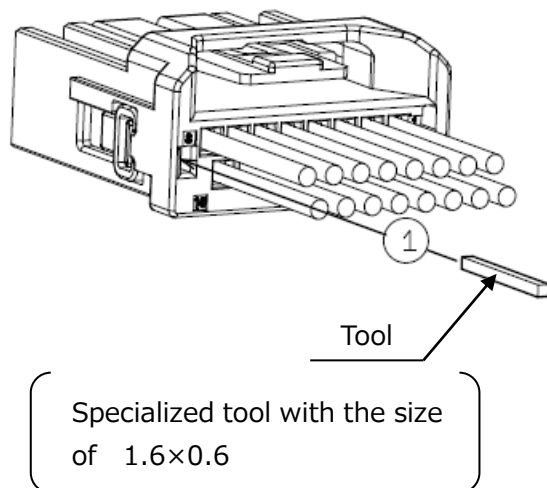
φ1.0 +0/-0.1
（Gold plating）

2.8 ～3.0mm

⑩Tips for electrical inspection
    ・Perform electrical inspection after installing the terminal and retainer.
    ・Be careful and please do not damage the housing, terminals, or retainer
    during the electrical inspection.
    ・If the housing, terminal, or retainer is damaged, please discard it and use a new product.

4. Repair process

Ⅰ. Insert the tool in direction ① to release the retainer lance,
and then remove the retainer from direction ②.

Note : For repair tools, please refer to the section Ⅲ (P.12).

Cross section
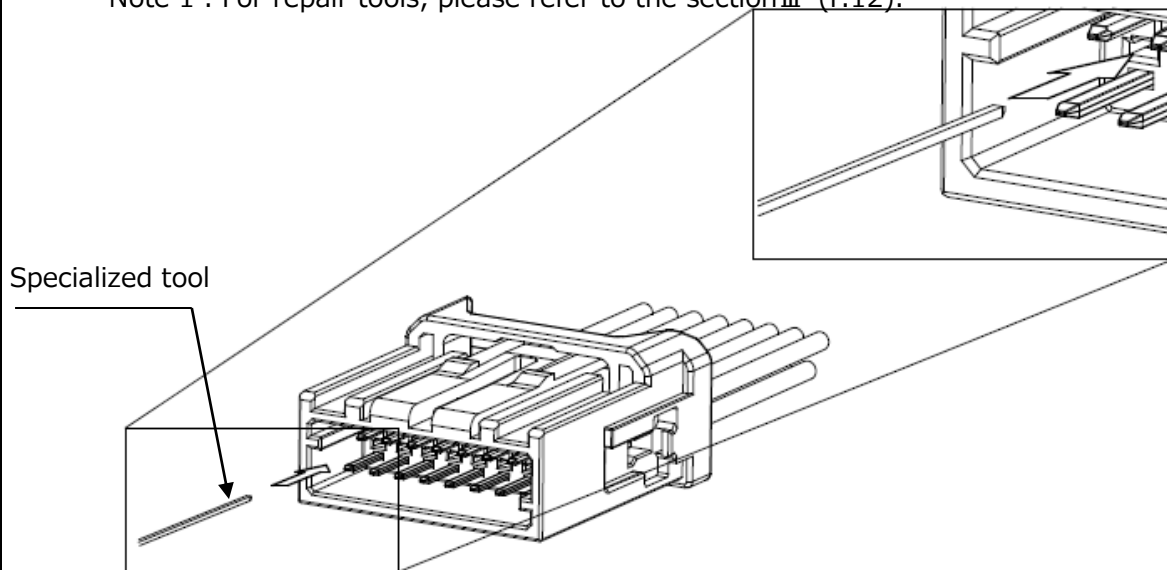
Tool

Specialized tool with the size
of　1.6×0.6

①

General tools less than □1mm can be used

（Specialized tool is not prepared）

Cross section

②

HRS   HIROSE ELECTRIC CO., LTD.   ETAD-T0841-01   ⚠ 10 / 13

FORM HC0011-9-2
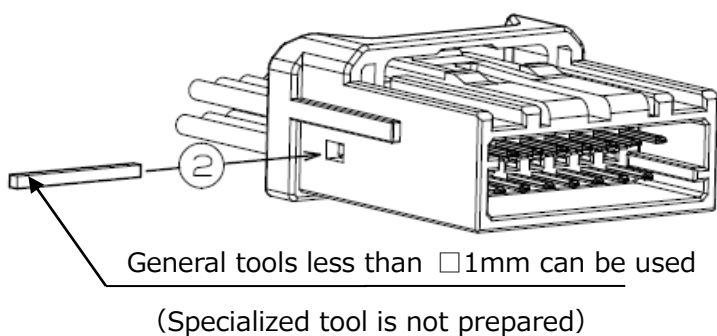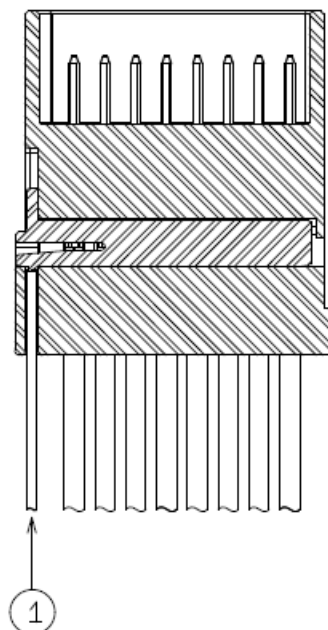
Ⅱ. Insert the repair tool into the terminal removal hole and push it in until it stops.
After pushing it in, pull out the terminal while holding it in that position.
Note 1 : For repair tools, please refer to the sectionⅢ (P.12).

Specialized tool

【Insertion diagram of repair tool】

②Pull the cable

① Insert the repair tool
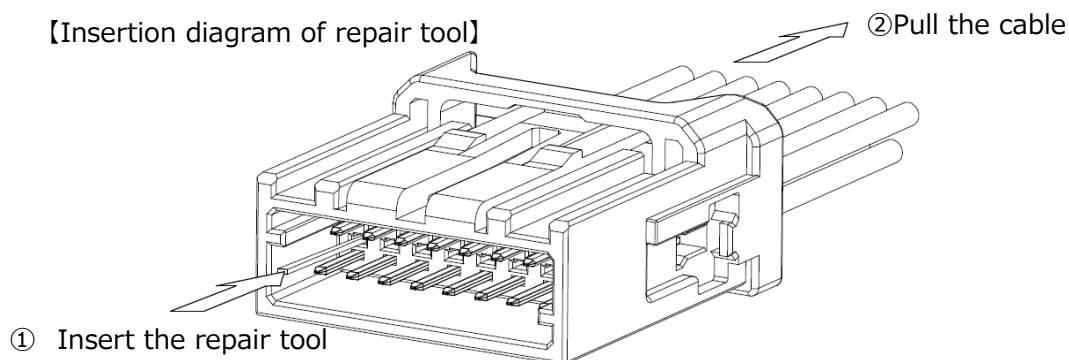
Note 2 : When using repair tool, the terminal lance/retainer can be reused up to 3 times.
If the terminal lance or retainer is deformed, do not reuse it; use a new product.

Normal state
【OK】

Deformation state of lance
【NG】

Lance of terminal

More than 1.42

More than 3.31

Retainer lance
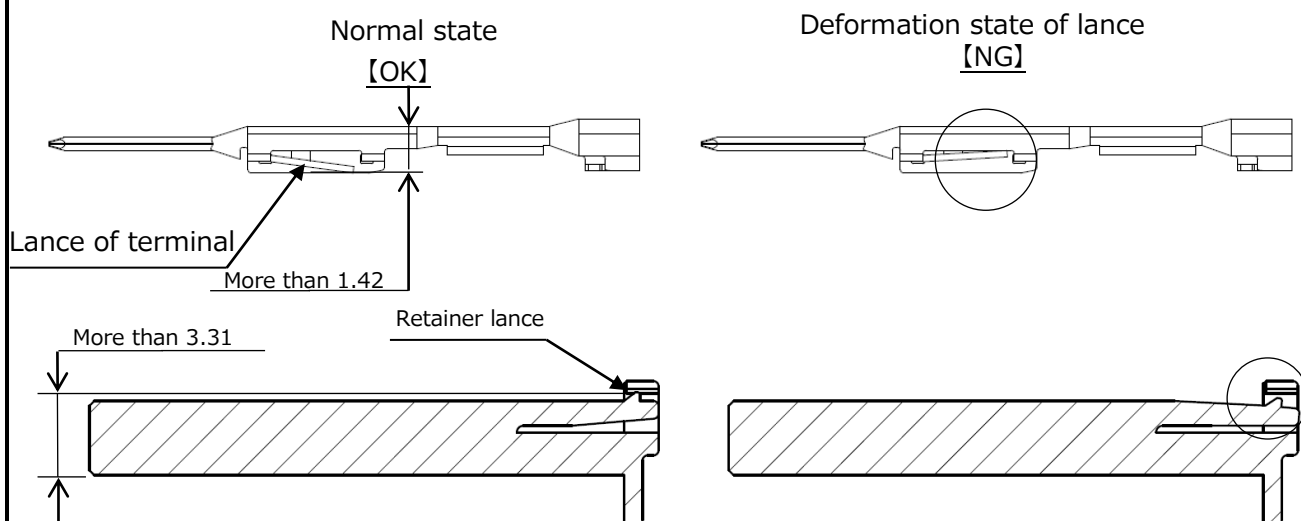
Ⅲ．Repair Tools

【Retainer Repair Tool】

Applicable Part	Repair Tool Name	Repair Tool Part Number
ZH05-16DP-HU(*)	ZH05/R/RE-MD	902-5162-0
ZH05-20DP-HU(*)		
ZH05-24DP-HU(*)		
ZH05-32DP-HU(*)		

【Contact repair tool】

Applicable Part	Repair Tool Name	Repair Tool Part Number
ZH05-2224PCF	ZH05/RE-MD	902-5161-0

5. Procedure of insertion and extraction

①Prepare the board with the receptacle attached and plug of harness.
Make sure the keys on the receptacle and plug are the same.
Align the locking directions of the receptacle and plug, and insert them
straight in the mating direction.
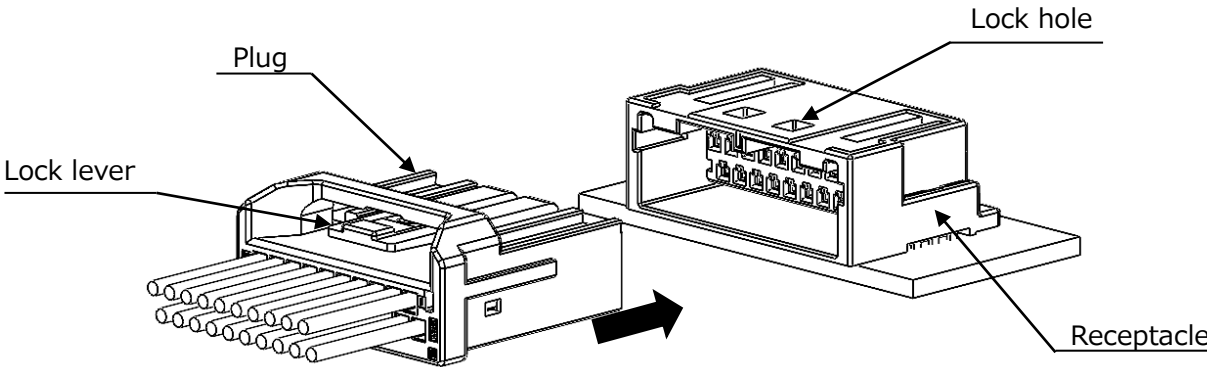
②Insert the connectors until they touch each other and locked.
　※Please do not touch the lock lever of the plug while inserting the connector.
　　It becomes difficult to feel the lock and may cause half-insertion.
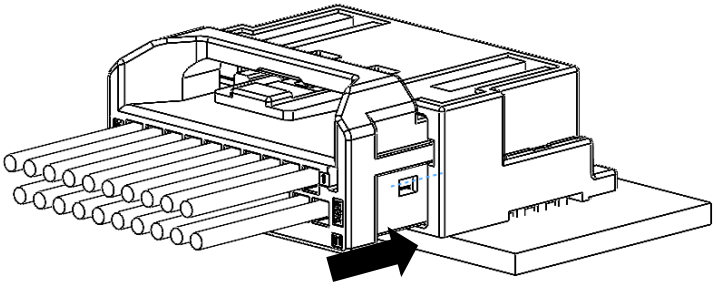
③When removing the connector, press down until the lock lever of the plug reaches the end (①),
then grasp the plug housing and pull it out straight in the mating direction (②).
※If you remove the plug while the lock lever is not pushed down enough,
 the lock part may be damaged.
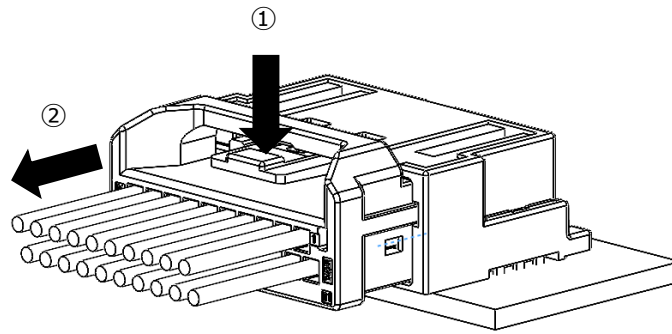
6. Other / Notes

1) Do not touch the terminal contact points or the interior of the barrel.
2) When handle terminals, please wear gloves in order to prevent corrosion.
3) Placing items on top of a terminal or dropping a terminal may result
    in shape deformities or contamination. Please handle terminals with care.
4) In the event of terminals becoming tangled, please do not forcibly pull or bend them apart,
    but disentangle them carefully.
5) Use caution when handling terminals so as to avoid deformation.
6) Make sure that the crimped cables do not become entangled.
    When bundling or stacking cables, please prevent the terminals from being subjected
    to any external force.
7) Use caution to ensure that the part is not subjected to any large impacts.
8) Avoid storing in dusty areas.
9) Do not place wire harnesses on the floor.
10) Refrain from any handling that may result in terminal damage or deformation.
11) If the retainer is out of the housing, do not use either the housing or the retainer.
12) Do not pull the cable with a force of 20N or more when the retainer is not installed.