

MANUAL INSULATION  
DISPLACEMENT TOOL

**HRS**®

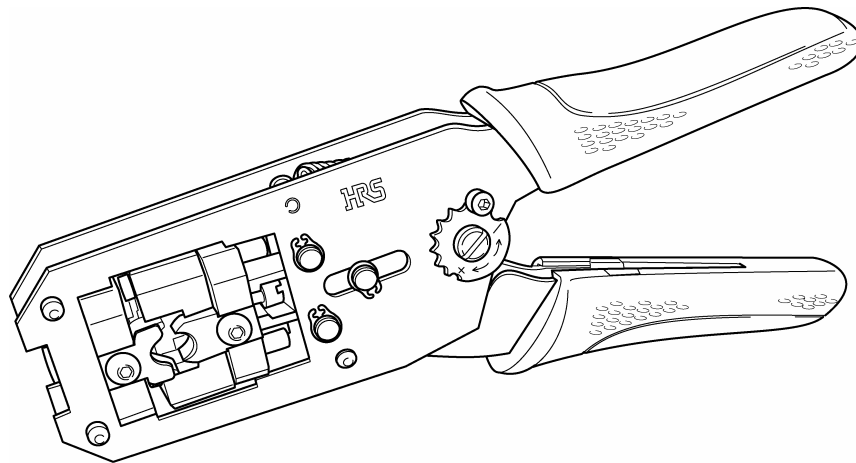
# HT601/TM21P-88P

INSTRUCTION MANUAL



**CAUTION :**

Be sure to read this Instruction Manual carefully before using it to secure safety in operation. In addition, save this Instruction Manual so that it is available whenever necessary for review.



**HIROSE ELECTRIC CO., LTD.**

## **PREFACE**

Congratulations on your purchase of Manual Tool, HT601/TM21P-88P for the modular plugs TM21P-88P and TM11P-88P.

This tool is the tool to perform the connection of TM21P-88P and TM11P-88P connectors.




Be sure to read this Instruction Manual carefully before using it to secure safety in operation.

## FOR SAFE OPERATION

The operators of the tool and the maintenance personnel who are in charge of maintenance and repair work are required to read the following **SAFETY INSTRUCTIONS**.

Fully understand and follow the descriptions given in this Instruction Manual and the warning symbols attached to the tool.

### (I) Description of warning messages

 <b>DANGER</b>	Misuse of the tool will expose the operator to immediate danger of major injury or death.
 <b>WARNING</b>	Misuse of the tool may expose the operator to danger of major injury or death.
 <b>CAUTION</b>	Misuse of the tool may expose the operator to danger of injury and may cause damage to property.

\* Determine the degree of impairment referring to the below-stated classification.

**Major injury** : Loss of eyesight, wounds, burns (hyperthermal and hypothermal burns), electric shocks, fracture of a bone, poisoning, etc. requiring emergency treatment or extended medical care.

**Injury (Minor injury)** : Wounds, burns, electric shocks, etc. requiring medical treatment.

**Damage to property** : Damage to the machinery and or the surrounding area.

## SAFETY INSTRUCTIONS



### **CAUTION**

#### Basic safety instructions

1. Be sure to read understand and follow all the instructions and other materials supplied with the unit as before using the tool. Save this Instruction Manual and make it available for review whenever necessary.

#### Safe operation

1. Be sure to use the tool as instructed so that your fingers or are not part of clothing caught in the tool during crimping operation.

#### Application

1. This tool shall only be used for its originally intended purpose while following the instructions specified in this Instruction Manual. Hirose assumes no responsibility for any misuse of the tool other than the intended use.
2. Modifications to this tool is prohibited. We assume no responsibility for accidents resulting from modifications.

#### Maintenance

1. To prevent possible accidents caused by unfamiliarity with the operation of the tool, repair and adjustment of the tool shall be conducted only by maintenance personnel who have a full knowledge of the tool. Any repair and adjustment beyond the range covered by the instructions given in this Instruction Manual is prohibited. We assume no responsibility for accidents caused by improper repair or adjustment or the use of non-genuine part(s).
2. To protect against personal injury, check to be sure that screws and nuts are properly tightened after the completion of repair/adjustment works or replacement of the parts.
3. Periodically cleaning of the tool is recommended.
4. In the event that your tool fails to perform normally after repair or adjusting immediately stop the work and contact us for service so as to protect against personal injury.

# CONTENTS

<b>CHAPTER 1 SPECIFICATIONS AND CONFIGURATION.....</b>	<b>1</b>
1-1. Model.....	1
1-2. Specifications.....	1
1-3. Shape of tool and names of components.....	2
<b>CHAPTER 2 OPERATING PROCEDURE.....</b>	<b>3</b>
2-1. Cable end finish.....	3
2-2. Installing crimper and anvil .....	7
2-3. Wire connecting operation.....	8
2-4. Quality standard .....	9
<b>CHAPTER 3 MAINTENANCE AND INSPECTION .....</b>	<b>10</b>
3-1. Matters that demand special attention when handling.....	10
3-2. Daily maintenance.....	10

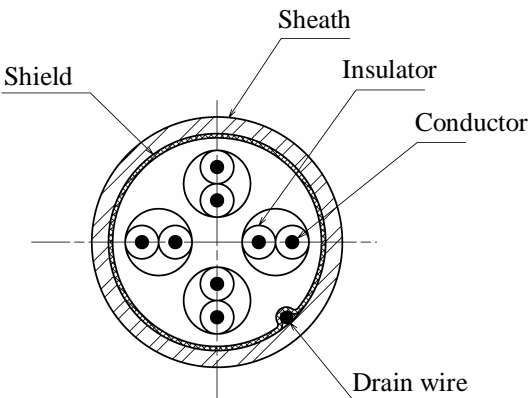
# CHAPTER 1 SPECIFICATIONS AND CONFIGURATION

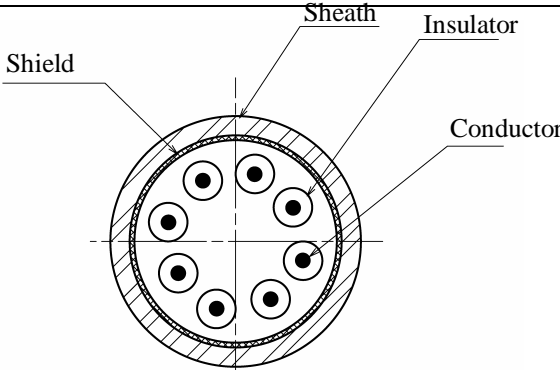
## 1-1. Model

Product No.	HRS. No.
HT601/TM21P-88P	CL902-2133-1

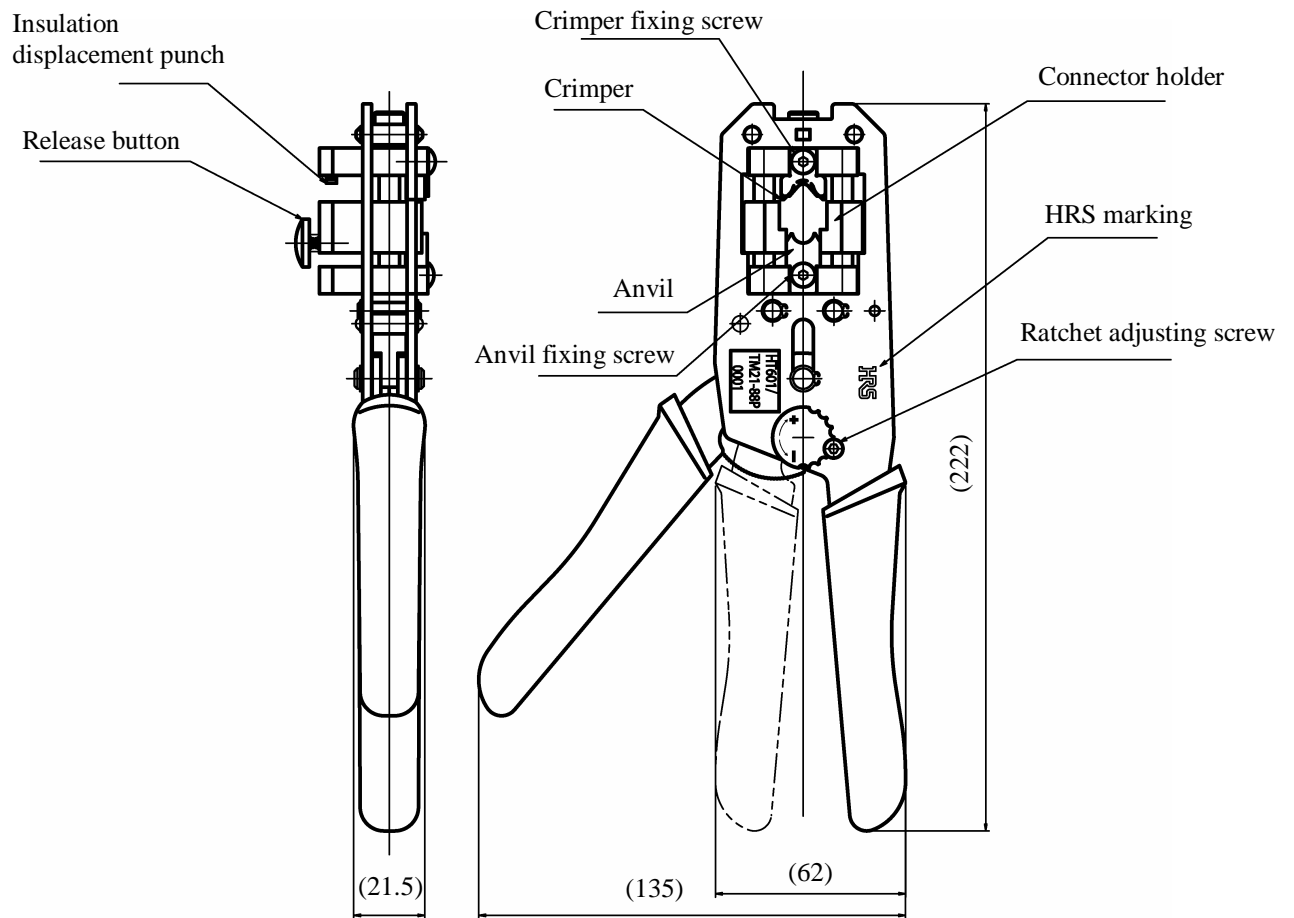
## 1-2. Specifications

Item	Specification
External dimensions	Length 222 mm X width 62 mm X thickness 21.5 mm
Weight	1.0 kg
Applicable plug	TM21P-88P (CL222-2862-9) TM21CP-88P (CL222-2884-1-03) TM21DP-TM-88P (CL222-2941-3) TM11AP-88P (CL222-2780-6)

TM21P-88P applicable cable specifications		
	Conductor	$\phi$ 0.5 mm solid wire AWG#24 stranded wire ( $\phi$ 0.2 mm X 7 wires)
	Insulator external diameter	( $\phi$ 0.9 mm to 1.0 mm)
	Drain wire	AWG#26 (Tin plated wire)
	Sheath external diameter	( $\phi$ 6.6 mm)

TM11P-88P applicable cable specifications		
	Conductor	Equivalent to AWG#26
	Insulator external diameter	( $\phi$ 0.9 mm to 1.0 mm)
	Sheath external diameter	( $\phi$ 5.0 mm)

### 1-3. Shape of tool and names of components



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## CHAPTER 2 OPERATING PROCEDURE

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### 2-1. Cable end finish

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Peel the cable sheath by approximately 30 mm.

(Fig.-1)

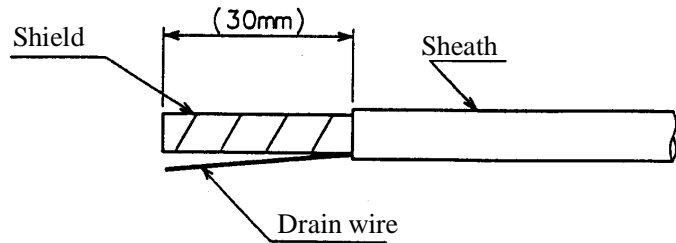


Fig.-1

**[Caution]** When peeling the sheath, be careful not to damage the inside signal wire. When the wire is damaged, defective compression proofing or the like will be caused.

Cut the shield at the end of the sheath.

(Fig.-2)

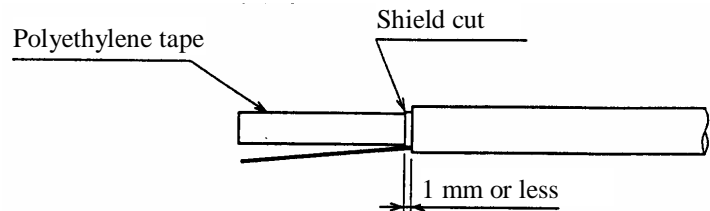


Fig.-2

Cut the polyethylene tape at the end of sheath.

(Fig.-3)

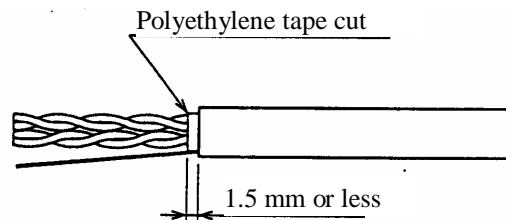


Fig-3

Slacken the twist of the twist pair up to the end of the cable sheath and stretch to correct the way.

At this time, bend the drain wire on the outside of the cable.

(Fig.-4)

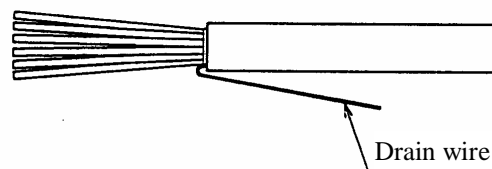


Fig-4

**[Caution]** When the correction of the twist of the twist pair is not sufficient, the work of the post-process will be difficult. So securely slacken the cable contact wires.

Spread out the cable contact wires from the root in all directions in the order of the pin assignment of the connector.

(Fig.-5)

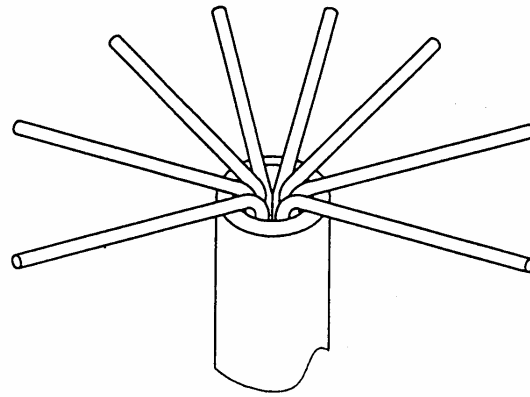


Fig-5

**[Caution] When spreading out the cable contact wires, be careful not to allow the contact wires to intersect with one another. When they are intersected with one another, the guide plate may be deformed at the post-process.**

Line up the cable contact wires in accordance with the pin assignment.

(Fig.-6)

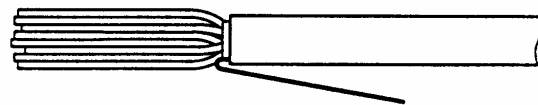


Fig-6

Cut and arrange the top ends of the cable contact wires with nippers or the like so that the guide plate can be easily placed.

(Fig.-7)

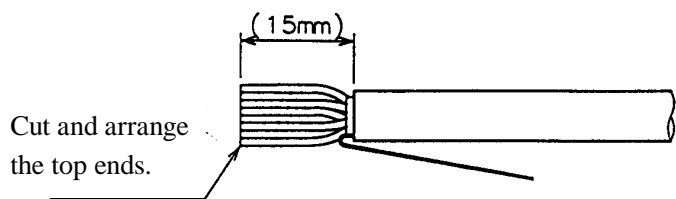


Fig-7

Insert the guide plate into the position of 3 to 5 mm from the end of the sheath.

(Fig.-8)

**[Caution] Be careful not to allow the guide plate to be deformed by passing the cable contact wires. When the guide plate is deformed, perform again the forming of the contact wires.**

At this time, cut and arrange the top ends of the cable contact wires with nippers or the like so that the guide plate can be easily placed.

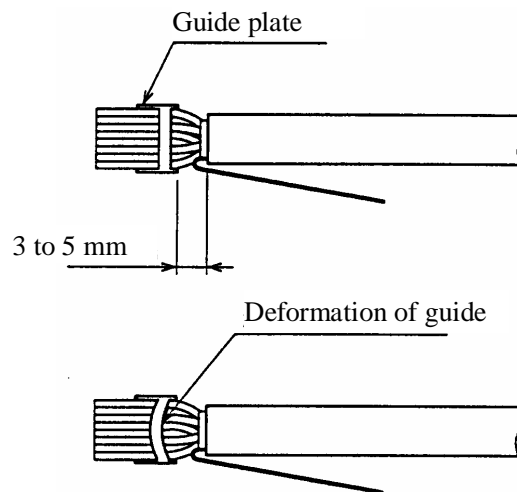


Fig-8



Peel the cable sheath up to the place of  $14 \pm 1$  mm from the guide plate. At this time, leave the shield without cutting.

(Fig.-9)

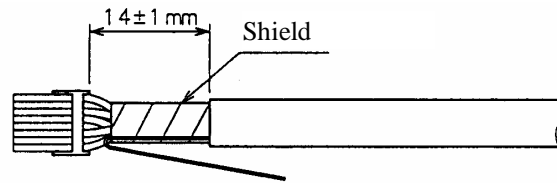


Fig-9

Cut and arrange the cable contact wires at the position of approximately 0.5 mm from the top end of the guide plate.

(Fig-10)

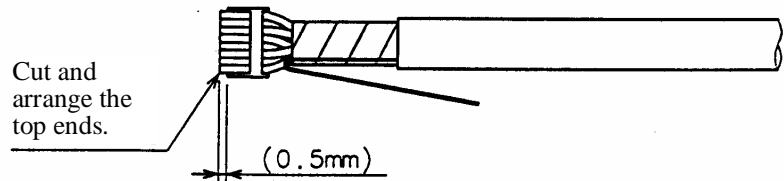


Fig-10

Turn the copper tape of approximately 12.7 mm wide once around the sheath of the cable. (Fig.-11)

For the length of the copper tape, make as the standard the length that the external diameter is approximately 6.8 mm in the state that it is turned around the cable.

(Reference : In case of  $\phi 6.5$  cable, the length is 32 mm.)

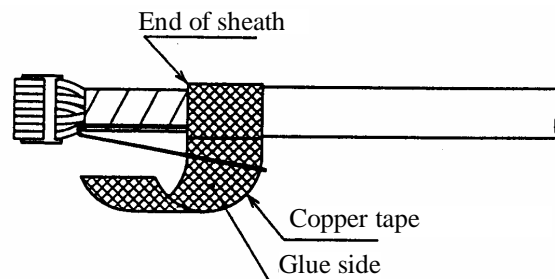


Fig-11

Perform forming so that the drain wire enters the width of the copper tape.

(Fig.-12)

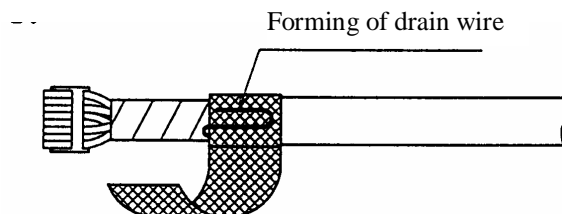


Fig-12

Turn the remaining copper tape around the sheath.

(Fig.-13)

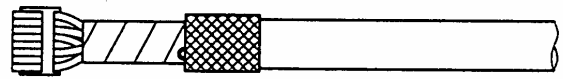


Fig-13

Insert the cable from the upper aslant direction so that it does not come in contact with the cable clamp section of the connector main unit. When the top end of the guide plate has entered in the connector main unit, insert it to the position where the top end section of the cable comes in contact with the inside of the connector main unit.

(Fig.-14)

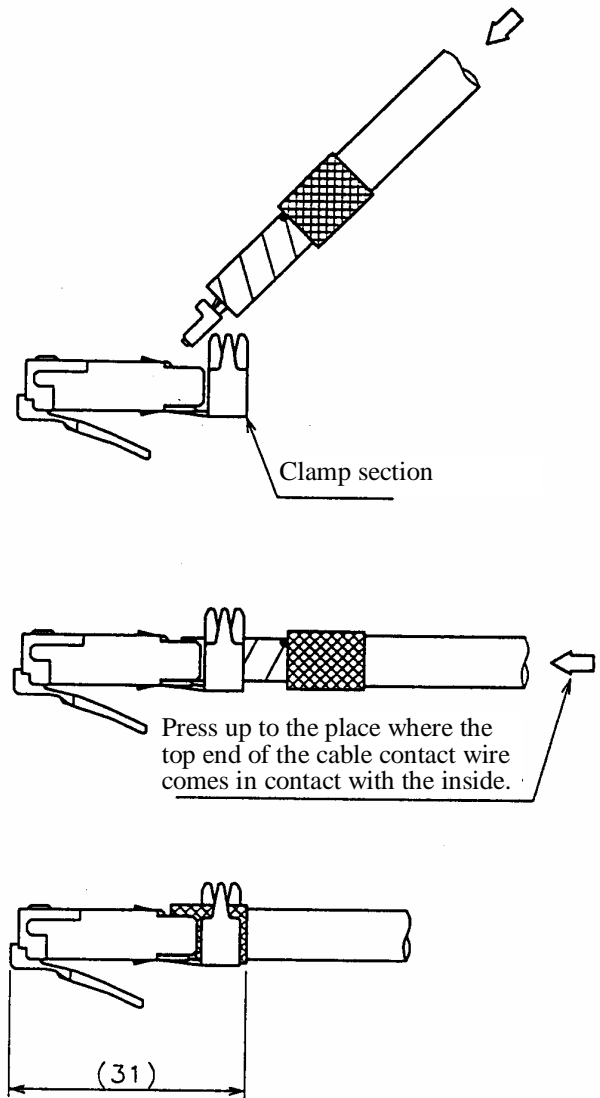


Fig-14

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## 2-2. Installing crimper and anvil

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Two pieces each of crimper and anvil are provided with this tool.

One or two wires are provided with each.

Select the proper combination following the table below. (Fig.-15)

	Cable diameter	Crimper	Anvil
TM11	ø5.5 mm	I	I
TM11	ø 6.5 mm	II	II
TM21		II	II

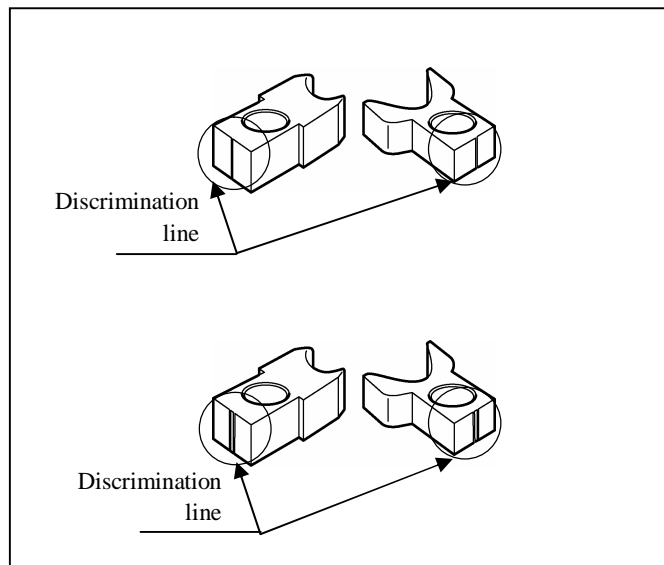


Fig-15

## 2-3. Wire connecting operation

Open the handle of HT601/TM-21P-88P to the maximum after closing once and releasing the ratchet.

Insert the connector into the insertion opening of the tool until it “snaps”. Now, the connector is locked to the holder. (Fig.-16)

**[Caution]** When inserting, be careful not to mistake the direction of the connector.

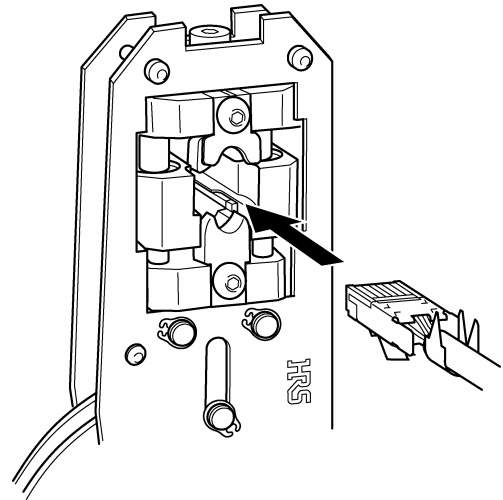


Fig-16

Hold the handle up to the position where the ratchet is released and perform the wire connecting operation.

**[Caution]** When performing the insulation displacement of the connector, be careful not to apply any load inclining to the right or left to the connector in terms of the holder.

Press the release button and take out the connector from the connector holder. (Fig.17)

**[Caution]** When taking out the connector, be careful not to apply strong force to the cable.

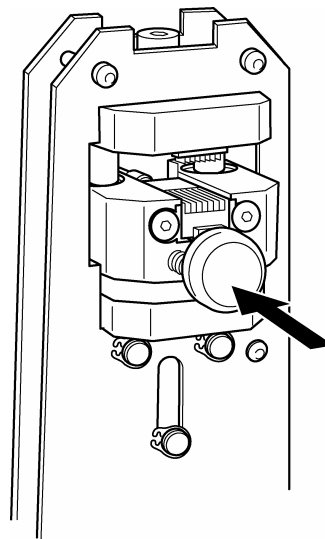


Fig-17

## 2-4. Quality standard

Confirm that the connector after the insulation displacement satisfies the standard below.

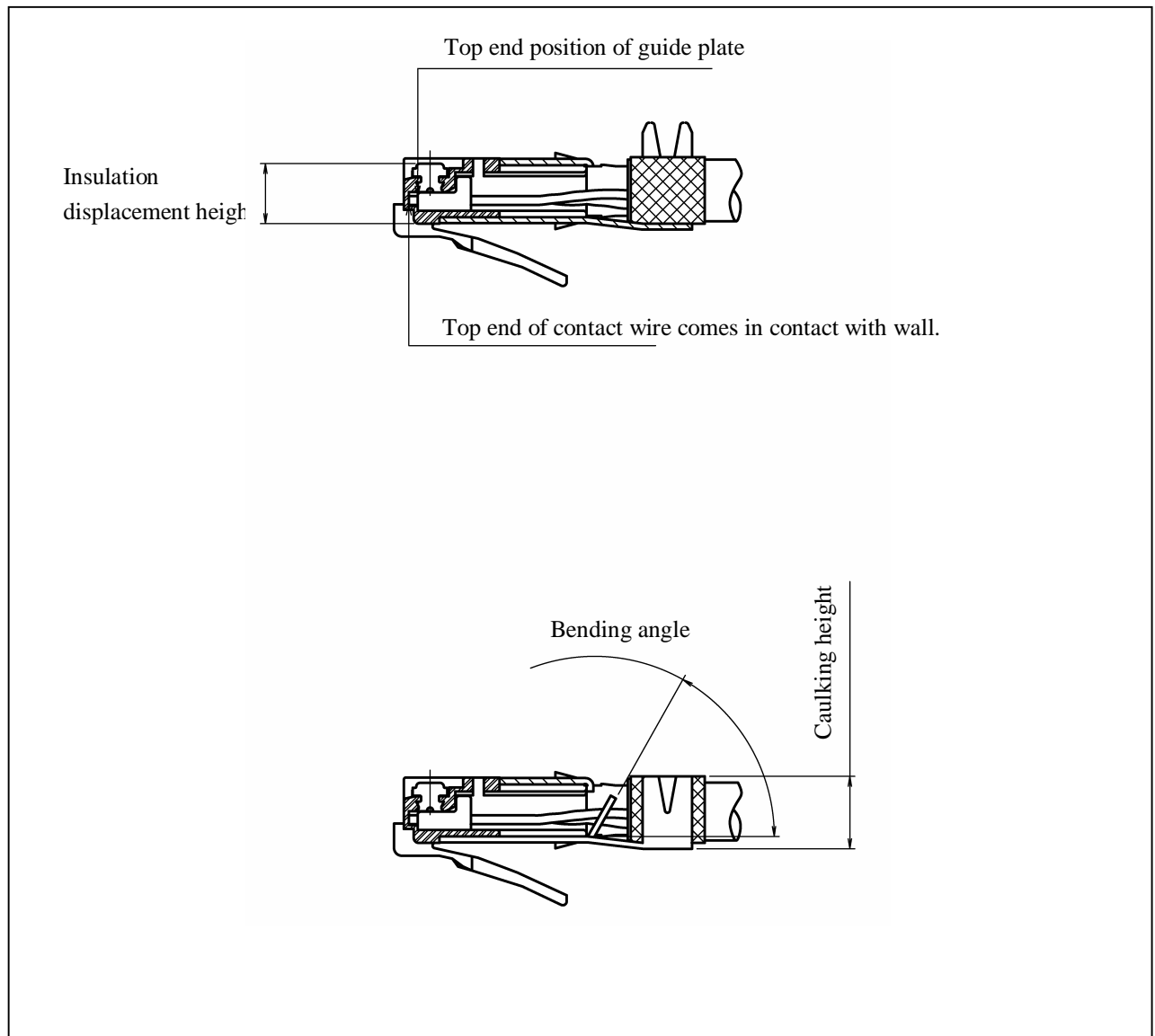
The top end of the contact wire comes in contact with the wall of the plug.

The top end of the guide plate is pressed up to the stopper section.

Insulation displacement height has to be  $6.02 \pm 0.1$  mm.

Cable caulking height has to be 6.5 to 6.9 mm.

The bending angle of the ground plate has to be  $45^\circ$  or more.



## CHAPTER 3 MAINTENANCE AND INSPECTION

### 3-1. Matters that demand special attention when handling

Never apply shocks such as tapping, dropping the tool from a high place, etc.

Never perform insulation displacement of anything other than the applicable connector and applicable cable described in this Manual.

Handle cannot be opened before the ratchet is released.

When trouble of the tool occurs, contact our office while informing us of the trouble state and leaving the tool as it is without disassembling.

### 3-2. Daily maintenance

When the work has been completed, wipe dirt, dust, moisture, etc. with a piece of soft cloth.

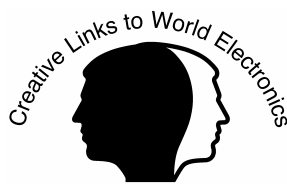
When opening/closing the handle, check that the handle smoothly moves without galling or the like.

**[Caution] When dirt, dust, etc. adhere to the jig, the proper insulation displacement cannot be performed. In addition, those foreign matters may adhere to the connector.**

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## CAUTION

- (1) No part of this manual may be reproduced without the permission of Hirose Electric Co., Ltd.
- (2) Description in this manual is subject to change without notice.
- (3) This Instruction Manual has been prepared for clarify. Should you find any unclear portion, error, or omission, please, for the safety of other, contact our Marketing Department.
- (4) It should be understood that, notwithstanding the aforementioned item (3), we assume no liability to any claim for loss or failure to earn profit resulting from the use of the machine.
- (5) We assume no responsibility for any damage resulting from your improper use of the machine including your failure to follow the instructions given in this Instruction Manual. This includes repair or modification conducted by any third party other than Hirose Electric Co., Ltd.
- (6) Please note that servicing of the machine is not available in any country other than Japan.
- (7) Illustrations in this Instruction Manual represent the U.FL series. They may be different from the products of this Instruction Manual.



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