

Wire connection jig

# H.FL-DFS111A/CR-AD

**HRS**®

Others, machine tools and jigs

CM-105

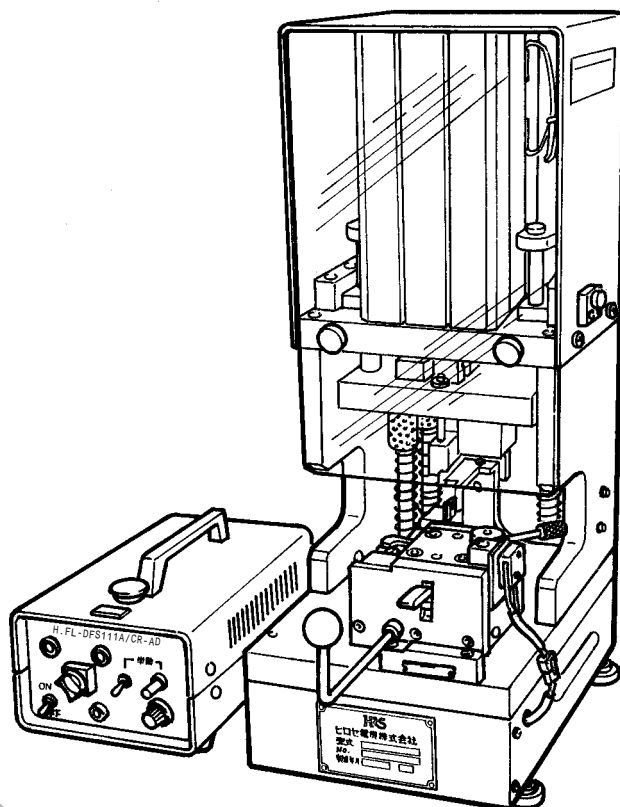
AP105-H/FL

## 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.**

# FOR SAFE OPERATION

Because of the machine`s design, there is always a possibility of contact with moving parts. The operators of the machine and the maintenance personnel who are in charge of maintenance and repair work are required to read the following **SAFETY INSTRUCTIONS** so as to avoid injury.

To fully understand the descriptions given in this Instruction Manual and the warning labels attached on the machine, the warning messages are used in accordance with the below-stated classification. Please be sure to thoroughly understand the messages and follow the instructions.

## (I) Description of warning messages

 <b>DANGER</b>	Used in the case where it is assumed that misuse of the machine will expose the operator to immediate danger of major injury or death.
 <b>WARNING</b>	Used in the case where it is assumed that misuse of the machine can expose the operator to danger of major injury or death.
 <b>CAUTION</b>	Used in the case where it is assumed that misuse of the machine can expose the operator to danger of injury and can cause damage to property.

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

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

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

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

# SAFETY INSTRUCTIONS



## CAUTION

### Basic safety instructions

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

### Safety device and warning labels

1. To avoid possible accidents due to lack of the safety device, be sure to operate the machine after ascertaining that the safety device is properly installed at the predetermined position. Refer to page iv for detailed description of the safety device.
2. Once the safety device is detached from the machine, replace it to its original position and check to be sure that it properly functions.

### Application

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

### Operating environment

1. To avoid possible accidents caused by maloperation of the machine, use the machine under the environment that is not affected by a substantial noise source (electromagnetic wave) such as a high-frequency welder.
2. To avoid possible accidents caused by maloperation of the machine, never use the machine under the environment where the voltage exceeds  $\pm 10\%$  of the rated voltage.
3. To avoid possible accidents caused by maloperation of the machine, put any device such as an air cylinder that operates by the pneumatic pressure into service after checking to ascertain that the specified pressure is provided.
4. To ensure safety in operation, use the machine under the following environment.  
Ambient temperature during operation:  $5^{\circ}\text{C}$  to  $35^{\circ}\text{C}$   
Relative humidity during operation: 35 % to 85 %
5. When the operating environment of the machine is suddenly changed such as in the case where it is moved from a cold place to a warm place, dew condensation can occur. To avoid possible accidents caused by breakage or maloperation of the electrical parts due to dew condensation, be sure to wait for a sufficient period of time until there is no possibility of presence of water drops inside the machine before turning the power on.
6. To avoid possible accidents caused by breakage or maloperation of the electrical parts, be sure to stop operation and disconnect the power plug for safety in case of thunder and lightning.

### Training

1. To prevent possible accidents caused by unfamiliarity with the operation of the machine, the machine shall only be allowed to be used by the operators who have been trained for proper operation and provided with sufficient knowledge of safe operation by the employee. For this purpose, the employer shall establish a training plan and implement it for the operators beforehand.

### Working wear

1. To protect against possible accidents resulting in personal injury by your cloths being caught in the machine, be sure wear a work uniform and securely fasten buttons on the sleeve cuffs and close the zipper on the top center plait of the uniform, if any. Avoid wearing loosely fitted clothing.
2. The operator should fasten hair securely to avoid his/her hair from being caught in the machine.
3. The operator should wear close toe, rubber sole shoes.

### Cases which require the power to be turned off

Turn-off of the power means the state where the power switch is turned off and power plug is detached from the receptacle. This will also apply to the following.

1. If there is any sign of abnormal conditions or failure, or in the case of power failure, be sure to immediately turn the power off.
2. To avoid possible accidents due to an abrupt start of the machine, be sure to turn the power off in prior to inspection, repair or cleaning of the machine or before leaving from the machine.
3. Where it is necessary to detach the power plug, be sure to pull it out while holding, by hand, the plug instead of the cord.

## **SAFETY INSTRUCTIONS IN EACH CATEGORY OF WORK FOLLOWING THE DELIVERY OF THE MACHINE**

### **Transportation**

1. The machine shall be moved in such a way that secures safety avoid falling and dropping.
2. To protect against unexpected accidents or drop accidents, the machine shall be repackaged, if necessary, to achieve the originally delivered state or better. Prior to repackaging, wipe off oil gathering on the machine.

### **Unpacking**

1. The machine is shipped in a corrugated cardboard box. Be sure to take the machine out from the box while cautiously avoiding dropping the machine.

### **Setup**

#### **(i) Cable and wiring**

1. To avoid electric shock, leakage and fire, take care not to apply any extra load to the cables in service.
2. To avoid possible accidents caused by electric shock, leakage and fire, never put many loads on one electrical outlet.
3. Be sure to securely connect connectors. In addition, be sure to detach a connector while holding the connector section by hand.

#### **(ii) Grounding**

1. To avoid possible accidents caused by leakage or electrical strength, be sure to have an expert engineer who have the electrical expertise to install an appropriate power plug to the machine. In addition, be sure to connect the power plug to a grounded receptacle.

### **Before operation**

1. To avoid possible personal injuries, be sure to check to ascertain that connectors and cables are not damaged, dropped off or loosened.
2. To avoid possible personal injuries, keep your hands away from the moving parts of the machine.

### **Lubrication**



1. Use oil of the kind designated by us or an equivalent for the machine.
2. In the event that oil should get in your eye or contact your skin, immediately wash to remove it to protect against irritations and rashes.
3. In the event that you should swallow oil by mistake, immediately consult a doctor to prevent diarrhea and emesis.

### **Maintenance**

1. To prevent possible accidents caused by unfamiliarity with the operation of the machine, repair and adjustment of the machine shall be conducted only by maintenance personnel who have a full knowledge of the machine. 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 avoid possible accidents due to unfamiliarity with the operation of the machine or electric shock hazards, be sure to ask an expert engineer who have the electrical expertise or our technical personnel to conduct repair and maintenance (including wiring) of electrical parts.
3. To avoid possible accidents caused by an abrupt start of the machine in the case of repair and maintenance of any device such as an air cylinder that operates by the pneumatic pressure, be sure to detach the compressed air supply pipe to expel the remaining air from the device.
4. To protect against personal injury, check to be sure that screws and nuts are not loosened after the completion of repair/adjusting works and replacement of parts.
5. Periodically clean the machine as long as it is commissioned. To prevent possible accidents caused by abrupt start of the machine during cleaning, be sure disconnect the machine prior to cleaning.
6. In the event that your machine fails to perform normally after repair or adjusting immediately stop operation and contact us for service so as to protect against personal injury.

# **SAFETY PRECAUTIONS FOR WIRE CONNECTION JIG**

## **H.FL-DFS111A/CR-AD**

 <b>DANGER</b>	<ol style="list-style-type: none"><li>1. To protect against shock hazards, open the cover, if necessary, after turning the power off and waiting for five minutes or more.</li></ol>
 <b>CAUTION</b>	<ol style="list-style-type: none"><li>1. To protect against personal injuries due to entanglement, keep fingers, hair and clothing away from any of moving parts and vicinity of them. In addition, do not place anything that is not necessary for work near any of them.</li><li>2. To protect against personal injuries, when turning the power on, keep fingers, hair and clothing away from any of moving parts and vicinity of them. In addition, do not place anything that is not necessary for work near any of the moving parts.</li><li>3. To protect against shock hazards and accidents caused by damaged electrical parts, be sure to turn off the power switch in prior to inserting/disconnecting the power plug.</li><li>4. To protect against accidents caused by damaged electrical parts, be sure to stop operation and disconnect the power plug in case of lightning.</li><li>5. In the case where moving the unit suddenly from a cold place to a warm place, dew condensation may be observed. To protect against accidents caused by damaged electrical parts due to dew condensation, be sure to turn the power on when there is no sign of dewdrops.</li></ol>

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# 1. Model

Product number	HRS No.
H.FL-DFS111A/CR-AD	CL902-3032-0
CM-105	CL901-0005-4
AP105-H・FL	CL901-3002-2

# 2. Specifications

## H.FL-DFS111A/CR-AD (main unit of external conductor caulking jig)

Item	Specification
Applicable connector	H.FL-LP-DFS111-A
Function	Caulks an external conductor between a cable of which center terminal is crimped and an LP shell.
Outside dimensions (main unit of jig)	220(W) x 450(D) x 480(H)
Outside dimensions (electrical box)	200(W) x 220(D) x 140(H)
Weight (main unit of jig)	Approx. 40kg
Weight (electrical box)	Approx. 3.5kg
Power supply	100VAC(50/60Hz)
Pneumatic pressure setting range	0.5 - 0.6 MPa
Press capacity weight	4KN (for 0.5 MPa)
Production capacity	35sec/1 terminal (varies depending on the operator's skill)

## CM-105 (main body of crimping machine)

Item	Specification
Pressure applied	14 x 10 <sup>3</sup> N (1.5 Ton)
Stroke	30 mm
1 cycle (machine tact)	0.3 sec.
Power consumption	Motor 200 W, work light 40 W
Power supply	AC100V 50/60Hz
Outside dimensions (With the reel terminal attached)	900 mm (length/height) x 640 mm (width) x 410 mm (depth)
Weight	Approximately 75 kg
Applicable applicator	Model AP105 series

## AP105-H・FL (Center terminal crimping applicator)

Item	Specification
Applicable connector	H・FL-LP Female terminal
Adjustment of wire crimping height	Adjustable in 16 steps by turning dial
Adjustment of insulation crimping height	Adjustable in 8 steps by turning dial
Outside dimensions (with the ram positioned at the bottom dead center)	170 mm (length/height) x 170 mm (width) x 80 mm (depth)
Weight	Approximately 5 kg
Main unit of applicable crimping machine	Model CM-105

### 3. Applicable connector

Manufacturer Name	Part No.
Hitachi Cable,Ltd.	C06-FH-SB

### 4. Jig to be used for wire connection

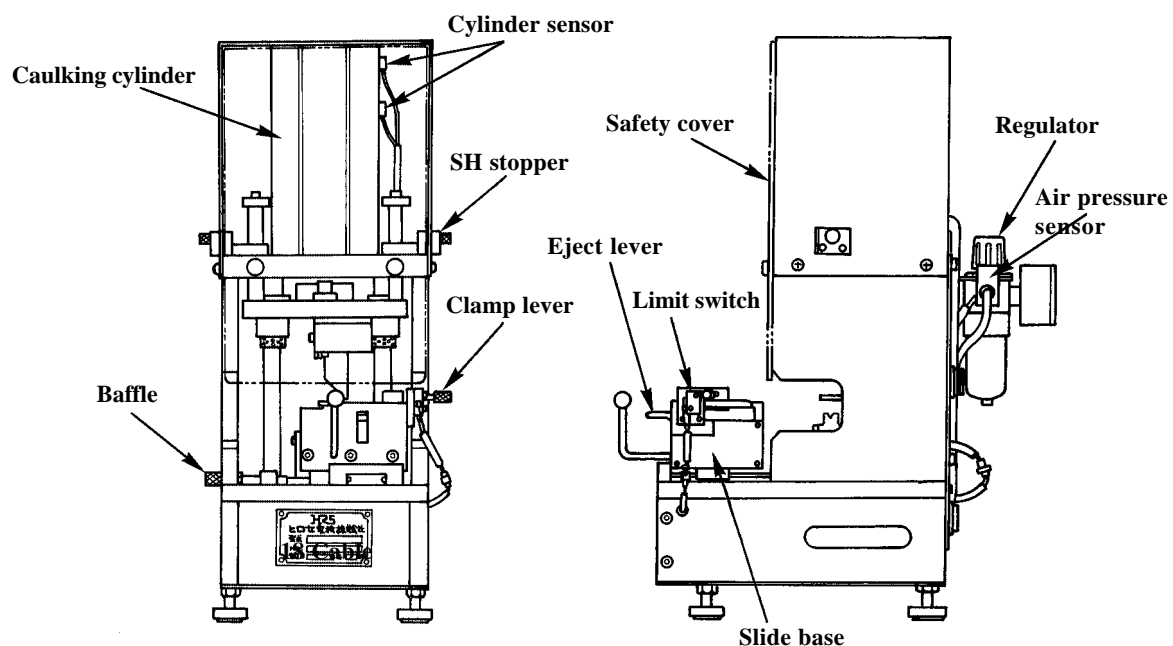
Process	Jig to be used
Terminal finishing	Jig equivalent to Model 207 manufactured by Shuroniga Japan Corporation (commercially available).
Center terminal crimping	CM-105 Model of main unit of crimping device (CL901-0005-4) AP-105-H ・ FL (CL901-3002-2)
External conductor caulking	H.FL-DS111A/CR-AD (CL902-3032-0)

### 5. Structure and configuration of jig

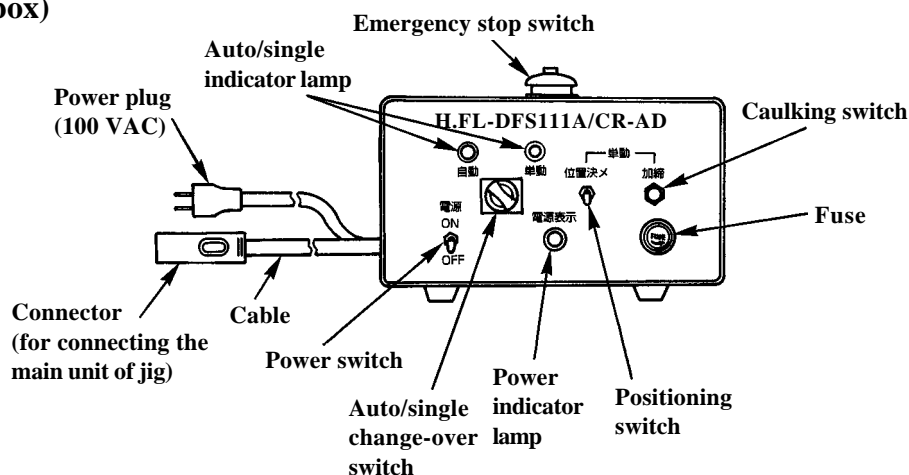
#### H.FL-DFS111A/CR-AD (External conductor caulking jig)

This jig consists of the main unit of jig and an electrical box.

##### (Main unit of external conductor caulking jig)

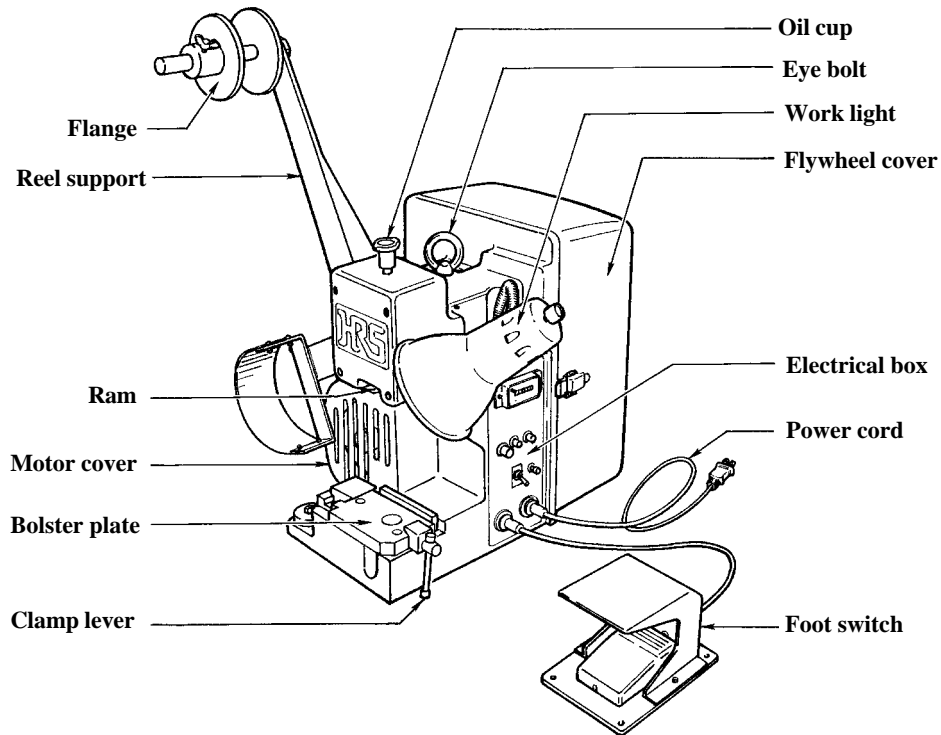


##### (Electrical box)

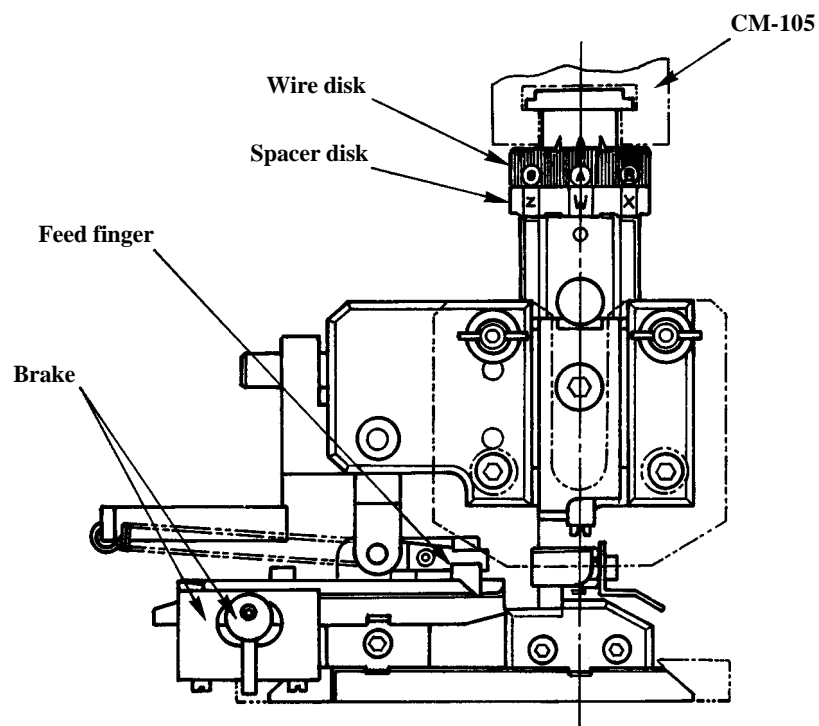




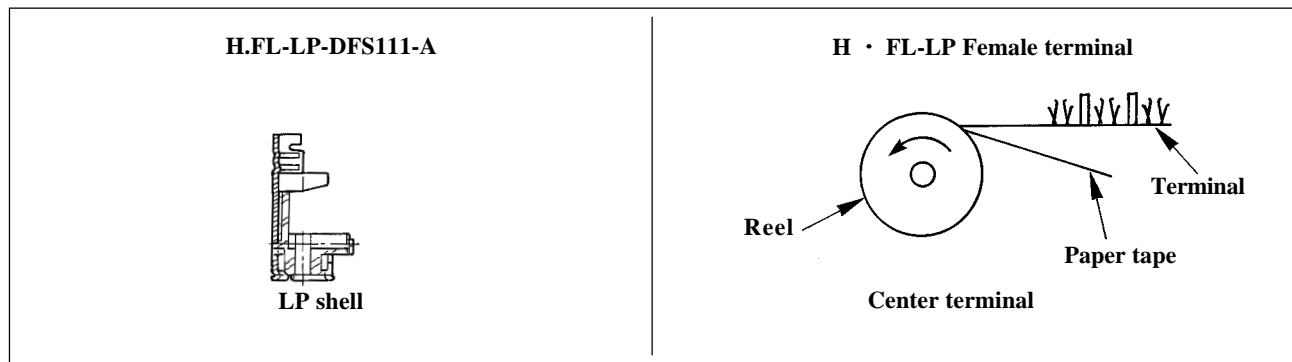
### CM-105 (main unit of crimping machine)



### AP-105-H · FL (Center terminal crimping applicator)



## 6. Connector components



## 7. Installation



### CAUTION :

This machine is heavy in weight. Installation shall be carried out deliberately by two or more persons while exercising care not to allow the machine to fall or drop so as to secure safety.

### Installation

Place the main unit of caulking jig and electrical box on a flat workbench.

The legs of main unit of caulking jig are used as height adjusters.

Be sure to install the jig eliminating a play.

**(Precautions)** Avoid installation of the jig in any of the following locations.

- (1) Location that is exposed to the direct sunlight
- (2) Dusty and particulate-laden location
- (3) Location with sudden changes in temperature and humidity
- (4) Location where fire or flame is present
- (5) Location where volatile substances are placed
- (6) Location that vibrates
- (7) Location that is likely to be wet



### CAUTION :

To protect against possible accidents due to abrupt start of the machine, carry out works after turning the power off.

### Connecting the cable

Connect the main unit of caulking jig to the electrical box using a cable.

Check to ascertain that they are securely connected with the cable.

### Connecting the air supply

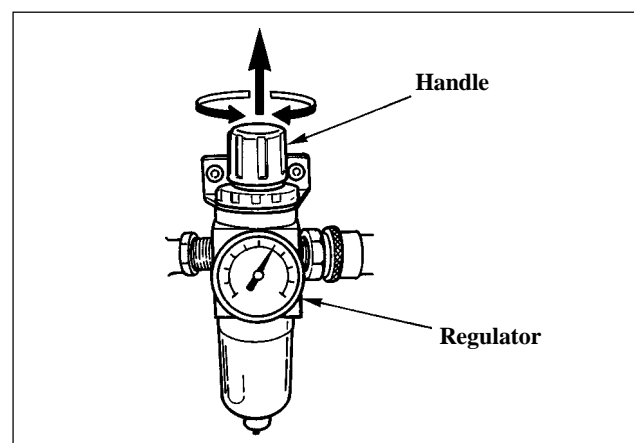
Connect the air hose to the regulator of main unit of caulking jig. Check to ascertain that they are securely connected.

### Adjusting the air pressure

Pull up the regulator handle as illustrated in the sketch given right, and turn the handle to adjust the air pressure indicated on the pressure gauge to 0.5 to 0.6 MPa (5 to 6 kg/cm<sup>2</sup>).

Actuate the jig to check to be sure that the air pressure is stabilized.

**(Caution)** If the air pressure drops below the prescribed pressure, the air pressure sensor will actuate to disable the jig operation.



## 8. Operating procedure

### (1) Items to be checked in prior to the operation

#### Setting of the electrical box

#### (1) Automatic operation

Turn on the power switch. The power indicator lamp will light up.

Set the auto/single change-over switch to the "auto" side.

**(Caution)** If the emergency stop switch is held pressed, the jig will not operate.

Turn the emergency stop switch clockwise by a 90-degree angle to reset it.



#### **WARNING :**

Exercise care not to allow hands, fingers, head, hair or clothing to be entangled or caught in any of the moving parts.

#### (2) Single operation

This operation mode is used to check performance of the jig.

Change over the auto/single change-over switch to the "single" side.

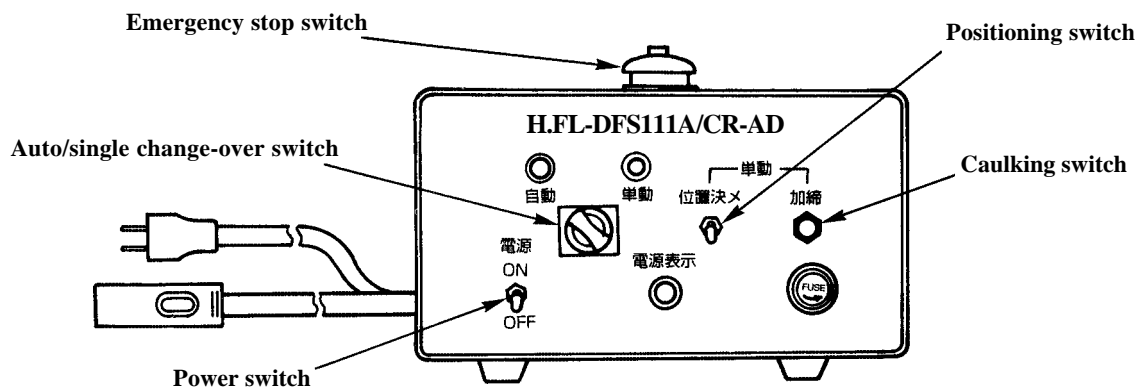
Set the clamp bar of slide base of the jig to the clamp state.

Slide the slide base of jig until it is pressed against the stopper.

Set the positioning switch mounted on the electrical box to the ON state. This will actuate the positioning cylinder.

Press the caulking switch. This will lower the caulking cylinder.

**(Caution)** To actuate the caulking cylinder, set a connector that has already been crimped in position to avoid false placement of crimper and anvil.



\* **Positioning** : Used to actuate the positioning cylinder of the slide base when the change-over switch is set to the "single."

\* **Caulking** : Used to actuate the caulking cylinder as long as the switch is held pressed when the change-over switch is set to the "single."

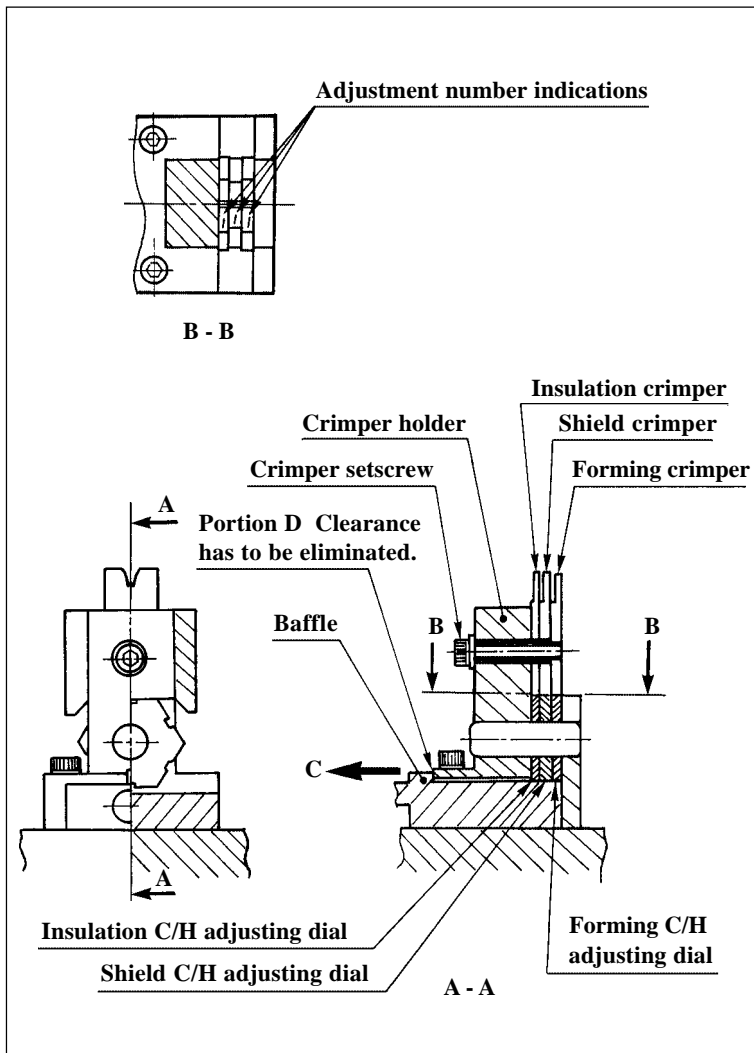
\* **Emergency stop switch** : If pressed in the event that any fault arises during operation, the origin will be retrieved.

## Adjusting C/H



### WARNING :

To adjust the dial, be sure to set the power switch to the "OFF" state in prior.



Remove the setscrew from the crimper and remove the crimper from the jig.

Pull the baffle in direction C.

Pulling the baffle, turn the dial of the part to be adjusted appropriately. The number shown when observing the dial directly above it indicates the adjusted position. The C/H can be lowered by approximately 0.03 mm by turning the dial from number 1 through number 6.

When the dial is set to the proper adjustment position, release the baffle. At this time, check to be sure that the baffle is properly fitted in the dial groove. If the baffle is not fitted in the dial groove, a clearance will be formed in portion C.

Pressing down the crimper, tighten the setscrew. The screw is tightened in the crimper on the side on which the indication is given.

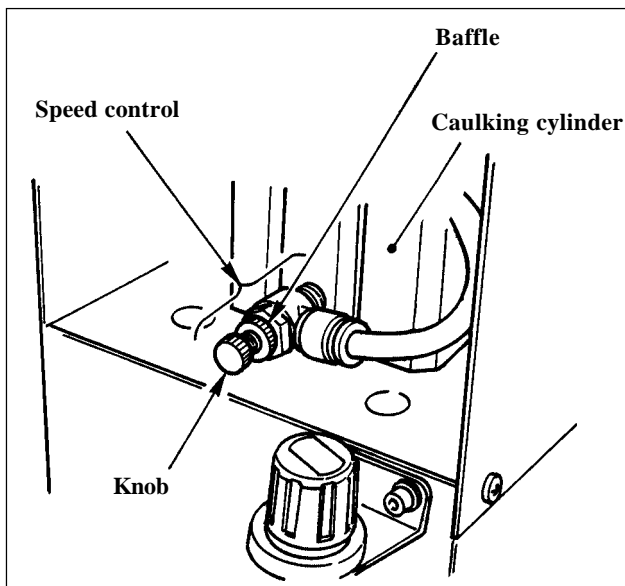
**(Caution)** Take care not to install the crimper in an improper order and in a wrong direction. If installed incorrectly, the crimper and anvil can be broken.

## Adjusting the caulking speed



### WARNING :

Exercise care not to allow hands, fingers, head, hair or clothing to be entangled or caught in any of the moving parts.



Loosen the baffle of the speed controller mounted on the rear face of the caulking cylinder.

Turn the knob clockwise to decrease the caulking speed or counterclockwise to increase it.

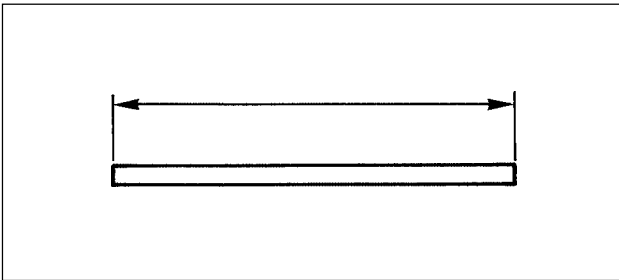
## (2) Wire-connecting procedure



### **WARNING :**

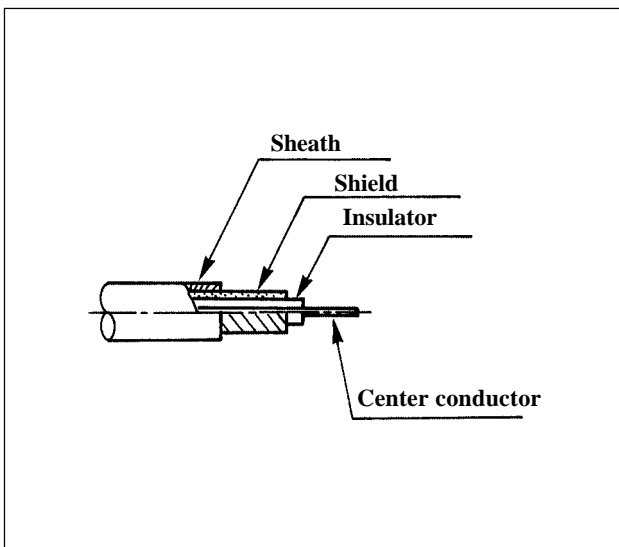
Exercise care not to allow hands, fingers, head, hair or clothing to be entangled or caught in any of the moving parts.

### **Cutting cable to a constant length**



Cut the cable to a predetermined length.

### **Finishing terminals**

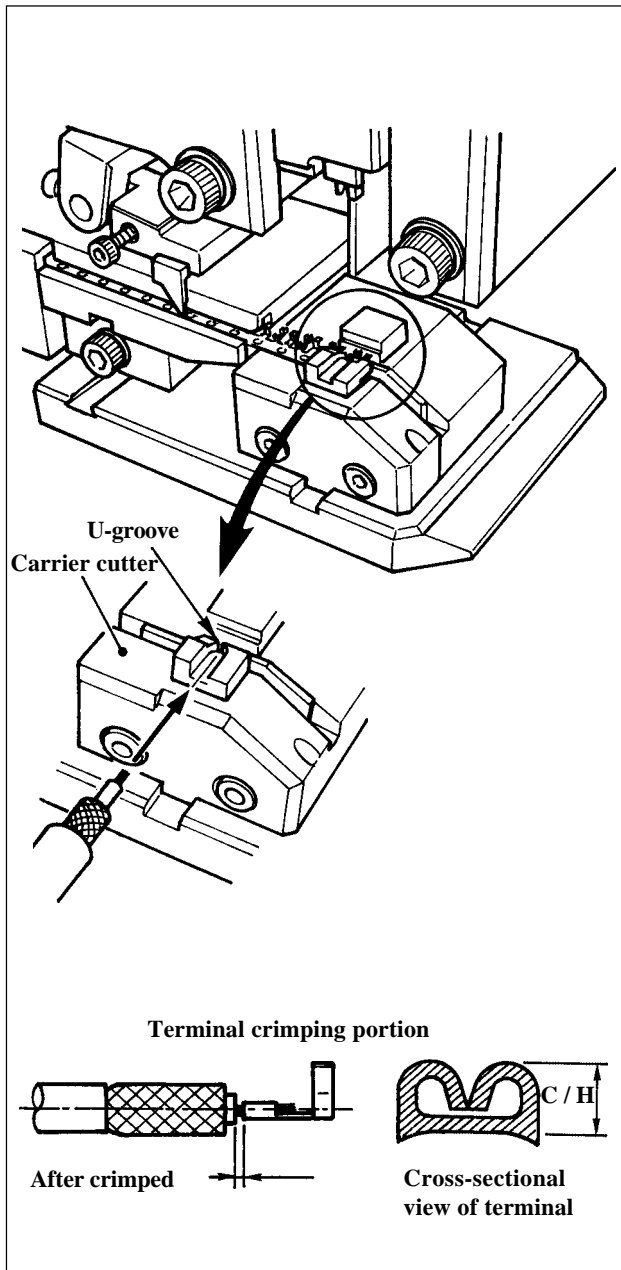


Finish the terminal of the cable using a terminal finishing machine.

Refer to "Wire connection diagram" (DA3-050219) for a terminal finishing dimensions.

**(Caution)** After finishing the terminal, check the cable to be sure that the center conductor has neither flaws nor disconnected portion, that the shield has neither flaws, disconnected portion nor a portion remained uncut and that the insulator has no flaws.

## Crimping the center terminal



### 1) Setting the center terminal

Set the center terminal to the applicator referring to the Instruction Manual for AP105.

### 2) Crimping the terminal

Place the cable so that the end face of the insulator properly is pressed against the end face of the U-groove in the carrier cutter of applicator.

Depress the foot switch of the press to crimp the terminal referring to the Instruction Manual for CM-105.

**Note) If the top end of the cable is bent, straighten it first.**

### 3) Inspection

Check to be sure that the terminal has been normally crimped.

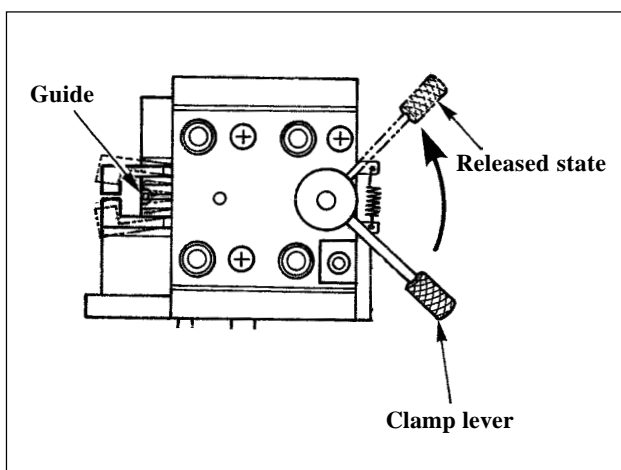
**Note) Refer to "Wire connection diagram" (DA3-050219) for the C/H value.**



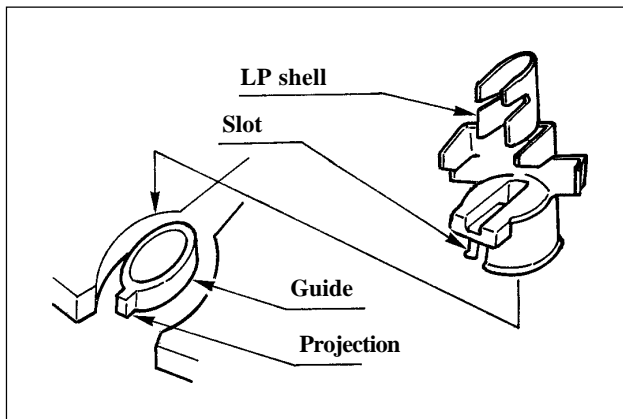
### WARNING :

Exercise care not to allow hands, fingers, head, hair or clothing to be entangled or caught in any of the moving parts.

## ■ Placing the LP shell and caulking the external conductor

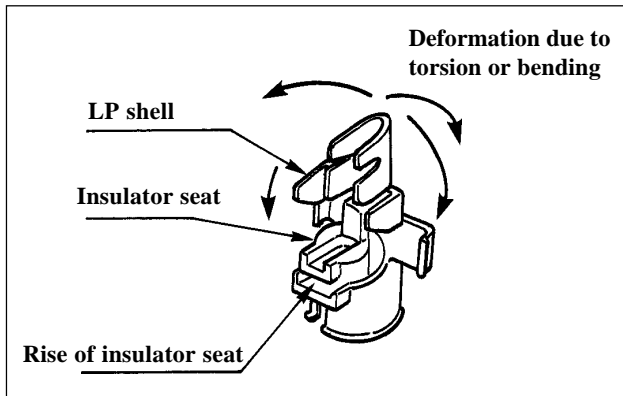


Release the slide base clamp lever of the main unit of the jig.



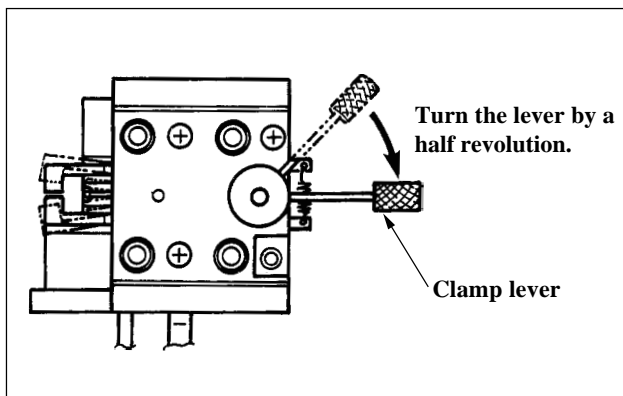
Set the LP shell to allow the slot in the fitting part of the LP shell to fit over the projection of the slide base.

**(Caution)** Position the LP shell so that it is perpendicular to the guide. If the LP shell is placed with tilted, a faulty caulking can



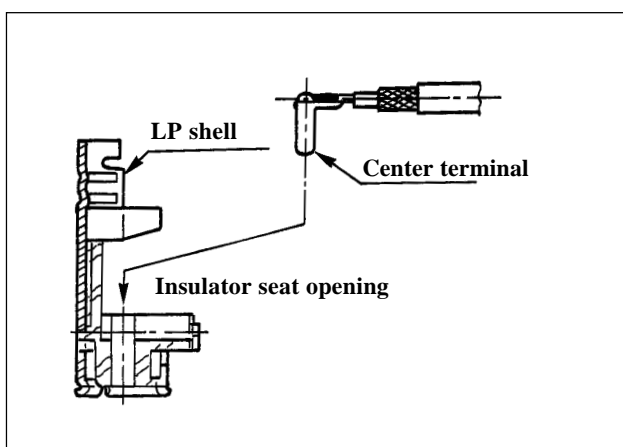
arise.

**(Caution)** If the insulator seat rises after the LP shell has been placed, re-place a new LP shell. If the LP shell of which insulator seat has risen

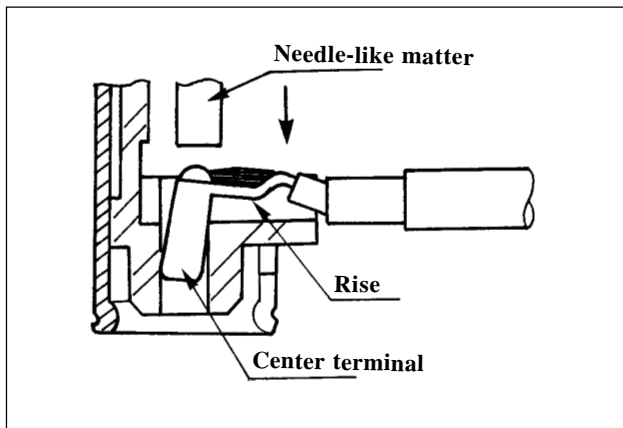


is used, faulty caulking can occur.

Turn the clamp lever by a half revolution, and the work clamp will secure the LP shell.

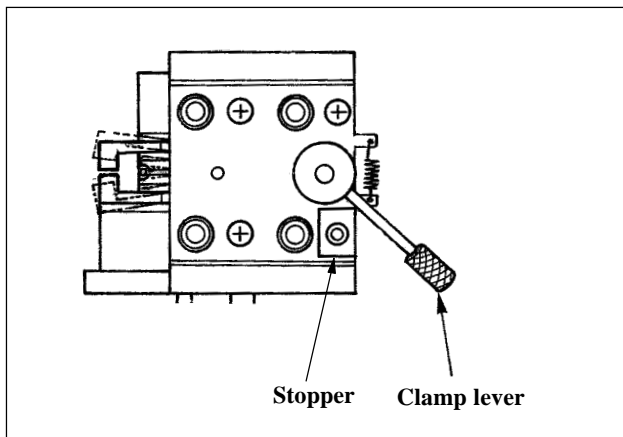


Insert the soldered center terminal of the cable block perpendicularly into the opening of the insulator seat of the LP shell.



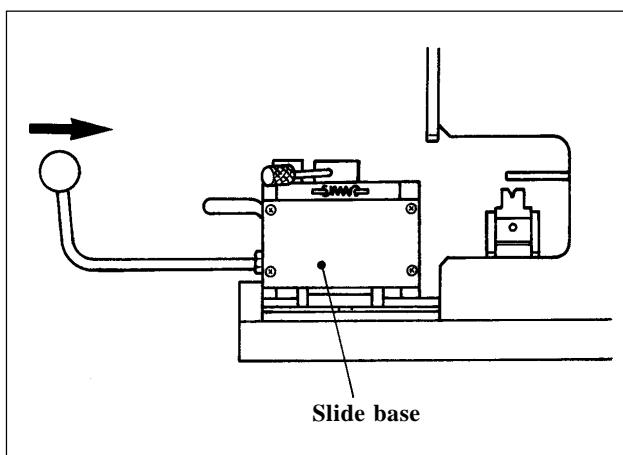
Press, with a thin needle-like matter, the center terminal into the insulator seat opening so that the terminal does not rise.

**(Caution)** If the center terminal rises above the LP shell, faulty caulking can arise.



If you turn the clamp lever until it comes in contact with the stopper, the cable clamp will clamp the cable.

**(Caution)** If the cable bends vertically and fails to be clamped after you have turned the clamp lever, properly re-clamp the cable.



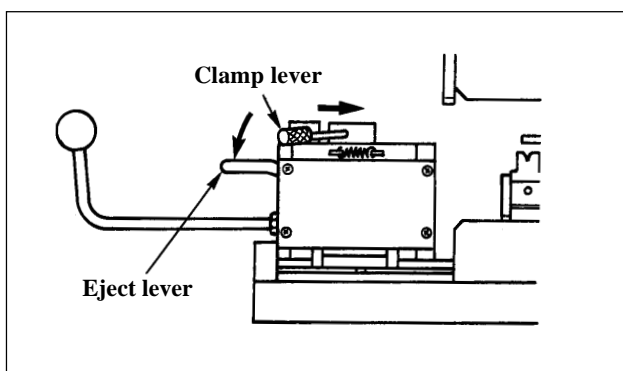
#### **WARNING :**



1. Exercise care not to allow hands, fingers, head, hair or clothing to be entangled or caught in any of the moving parts.
2. Be sure to conduct works with the safety cover mounted on the machine.

After clamping the LP shell and cable, slide the slide base into the main unit of the jig until it is pressed against the stopper.

This will cause the jig to operate to perform caulking.



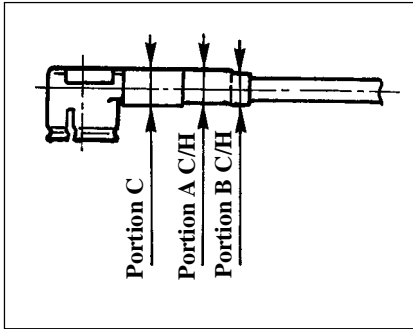
Upon completion of caulking, pull the slide base toward you. Release the clamp lever and press down the eject lever.

This will cause the LP shell guide to come down. Now, take out the LP shell.



## Inspection

Conduct inspection of crimping portion dimension, continuity, withstand voltage and instantaneous breakage.



Item	Testing method	Specification
Contact resistance less	Measure at 10 mA (DC or 1000 Hz)	Center contact: 20 m or less / External contact : 10 m or
Insulation resistance	Measure at 250 VDC.	Min. 500 M
Withstand voltage	Apply 300 VAC for one minute.	Neither shear fracture nor electrical breakdown should take place.
Instantaneous breakage	Frequency of 10 to 100 Hz, amplitude of 3 mm	Electrical instantaneous breakage of 1 μ S or more should not take place.

Check DA3-050219 for the C/H.

## 9. Maintenance



### CAUTION :

To prevent possible accidents caused by unfamiliarity with the operation of the machine, repair and adjustment of the machine shall be conducted only by maintenance personnel who has a full knowledge of the machine. Any repair and adjustment beyond the range covered by the instructions given in this Instruction Manual is prohibited. Our genuine part(s) shall be used in the replacement of part(s) of the machine. We assume no responsibility for accidents caused by improper repair or adjustment or the use of non-genuine part(s).

### (1) Daily maintenance

Through the continued daily use of this jig, shield wire fly-off and peeled-off plating can accumulate around the connector guide of the main unit of the jig or around the crimper. They are produced when caulking the external conductor and can adhere on the connector, causing the LP shell to be caught in the crimper. This can invite a fault of the crimper. Be sure to wipe off the foreign matters with soft cloth or the like from the aforementioned portions before and after daily works.

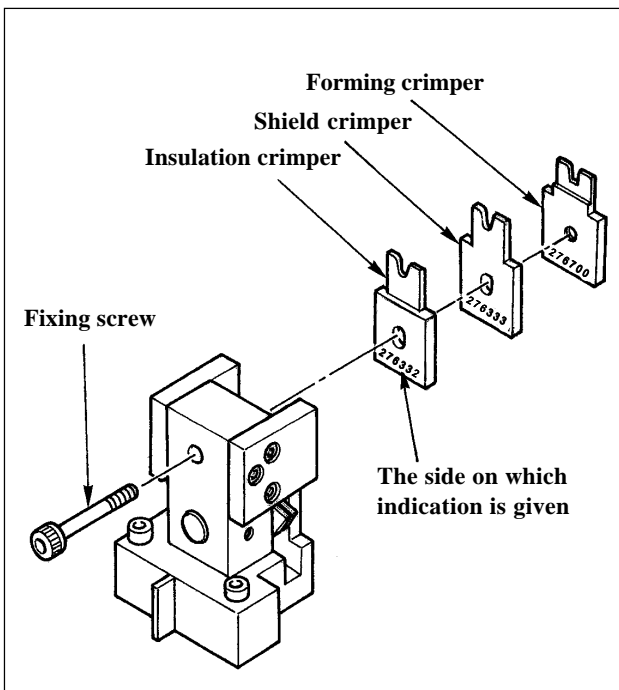


### WARNING :

Be sure to replace the expendable part(s) after turning off the power switch.

### (2) Replacing the expendable parts (H.FL-DFS111A/CR-AD)

Crimper and anvil of the jig are expendable parts. If a faulty crimp height and improper caulking shape arises due to worn-out or damaged expendable part(s), replace such part(s) with a new one.



### Replacing the crimper

Turn off the power to the jig.

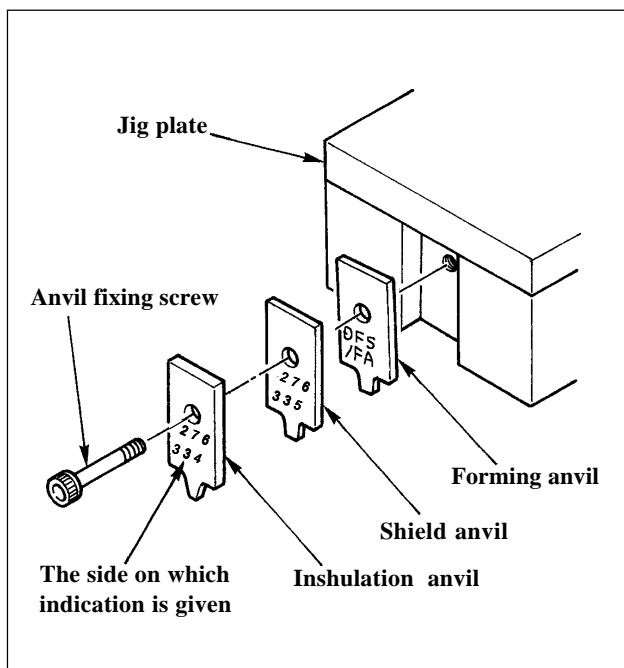
Remove the safety cover from the jig.

Remove the crimper fixing screw to dismount the crimper.

Replace the crimper with a new one. Mount the new crimper by tightening the crimper fixing screw with pressed downward to eliminate a gap between the undersurface of the crimper and the crimp height adjusting dial.

Attach the safety cover to the jig.

**(Caution)** After you have replaced the crimper with a new one, be sure to check the crimp height. If the crimp height does not fall within the specification, correct it properly using the adjusting dial. False punching could damage the knife edge. Do not conduct a false punching.



### Replacing the anvil

Turn off the power to the jig.

Remove the safety cover from the jig.

Remove the anvil fixing screw to dismount the anvil.

Replace the anvil with a new one. Mount the new anvil by tightening the anvil fixing screw with pressed upward to eliminate a gap between the topsurface of the anvil and the jig plate.

Attach the safety cover to the jig.

**(Caution)** After you have replaced the anvil with a new one, be sure to check the crimp height. False punching could damage the knife edge. Do not conduct a false punching.

### (3) Periodic inspection (external conductor caulking jig)

No.	Description	Period
1	Thoroughly wipe off fly-off and dust produced by caulking.	At the completion of work
2	Wipe off plating fly-off gathered on the caulking unit of the lower punch with a cloth stuck with blue bar.	Once a week

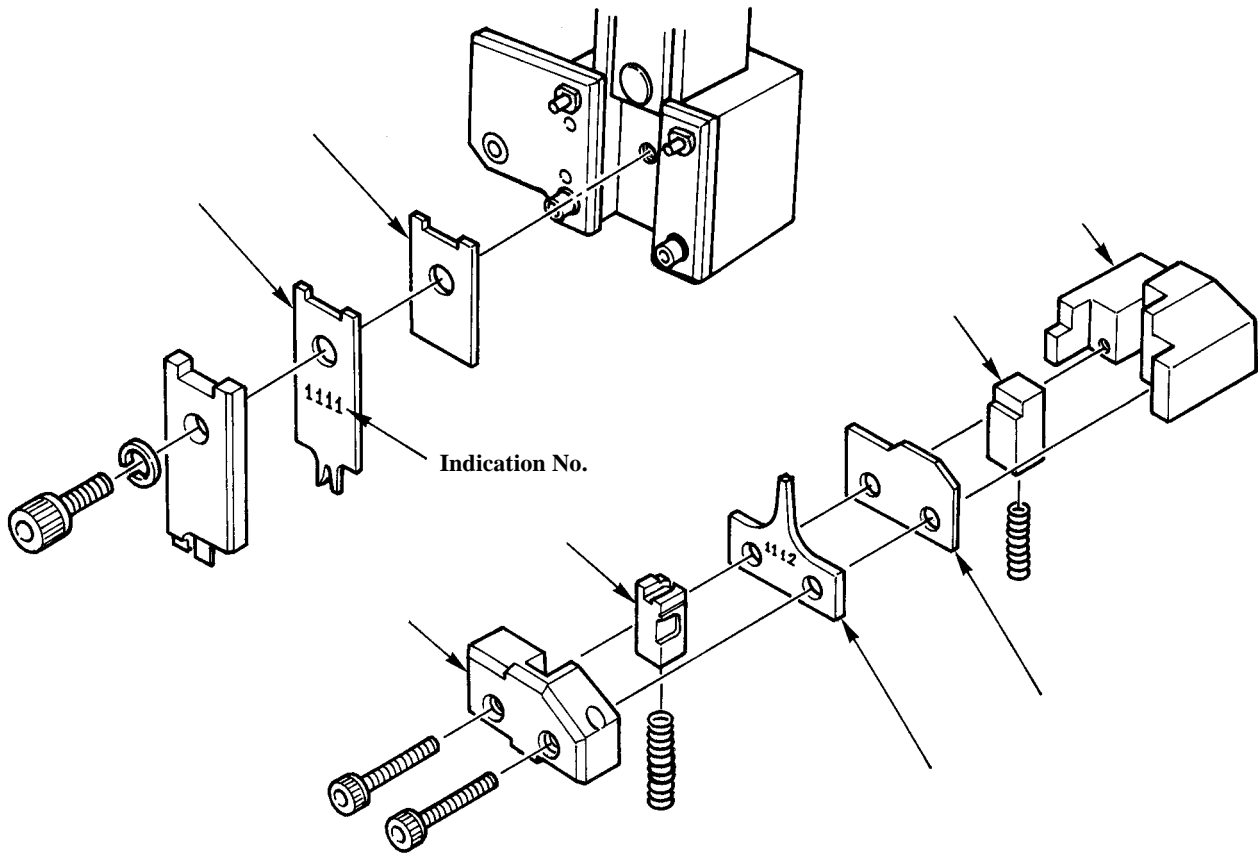
### (4) Listing of expendable parts

When you place an order for an expendable part with us, specify the relevant HRS No. of the part in need after checking the identification No.

No.	Name	Product number	HRS No.	Identification No.
①	Insulation crimper	H.FL-DFS111A/CR-AD (61)	902-3032-0 (61)	276332
②	Shield crimper	H.FL-DFS111A/CR-AD (62)	902-3032-0 (62)	276333
③	Forming crimper	H.FL-DFS111A/CR-AD (63)	902-3032-0 (63)	276700
④	Insulation anvil	H.FL-DFS111A/CR-AD (64)	902-3032-0 (64)	276334
⑤	Shield anvil	H.FL-DFS111A/CR-AD (65)	902-3032-0 (65)	276335
⑥	Forming anvil	H.FL-DFS111A/CR-AD (66)	902-3032-0 (66)	DFS/FA

## List of spare parts of the applicator (reference)

See Instruction Manual for AP-105 for replacing the spare parts.



No.	HRS No.	Part name	Indication No.	Old indication No.
	901-3002-2 (61)	Wire crimper	275852	1111
	901-3002-2 (62)	Wire anvil	275853	1112
	901-3002-2 (63)	Cut-off punch	275216	1148
	901-3002-2 (64)	Cut-off die	278206	0584
	-	Shear plate	-	-
	-	Terminal guide	-	-
	-	Anvil holder	-	-
	-	Crimper spacer	-	-

## 10. Troubleshooting

Before starting troubleshooting, the following has to be checked.

- 1) Have normal crimper and anvil been installed?
- 2) Is the connector used an applicable one?
- 3) Is the power used an applicable one?



### CAUTION :

To protect against possible accidents caused by an abrupt start of the machine, conduct troubleshooting after turning the power off.

### Possible causes and corrective measures in the event that abnormal conditions are encountered

#### External caulking jig (H.FL-DFS111A/CR-AD)

Description of trouble	Possible cause	Item to be checked	Corrective measure
Slide base will not actuate even if the slide base is slid.	Fuse has blown out.	Take out the fuse to check whether it has blown out.	Replace the fuse with a new one.
	The switch in the electrical box is not changed over to the correct position.	Check that the auto/single change-over switch mounted on the electrical box is set to the auto state.	Change over the switch to the auto state.
	No response of the slide base end limit switch	Check whether the limit switch has slipped out of position due to loosened fixing screw.	Correct the position of the limit switch.
		Check, with a tester, whether the limit switch has failed or whether the cable is disconnected.	Replace the limit switch with a new one, or re-wire the cable properly.
	No response of SH stopper mounting checking limit switch	Check whether the limit switch has slipped out of position due to loosened fixing screw.	Correct the position of the limit switch.
		Check, with a tester, whether the limit switch has failed or whether the cable is disconnected.	Replace the limit switch with a new one, or re-wire the cable properly.
	Air pressure fault (the air pressure sensor has actuated)	Check whether or not the air pressure is 0.5 to 0.6 MPa.	Re-adjust the air pressure, using the regulator, to 0.5 to 0.6 MPa.
Faulty caulking shape	Faulty installation of the crimper and anvil	Check whether the installing procedure and installing manner of the crimper and anvil are correct.	Properly re-install the crimper and anvil.
		Check whether the crimper and anvil are installed with raised.	
		Check whether the crimper and anvil are installed with inclined.	
	Crimper and anvil have worn out.	Check the crimper and anvil for flaws and damages.	Replace the crimper and anvil with new ones.
	Faulty placement of the connector.	Check up the procedure followed to place the connector referring to "8. Procedure" of this Instruction Manual.	Train the workers to strictly follow the correct procedure.

Crimp height fault	The crimp height adjusting dial has been improperly positioned.	Check whether the adjusting dial has been adjusted to a correct location.	Re-adjust the adjusting dial properly.
		Check whether the baffle of the crimp height adjusting dial has been normally placed.	
	Crimper and anvil have worn out.	Check the crimper and anvil for flaws and damages.	Replace the crimper and anvil with new ones.
	Faulty location of the sensor of cylinder	Check whether the lower sensor lights up when the cylinder has not reached to the bottom dead center.	Adjust the sensor location to allow the sensor to respond when the cylinder reaches the bottom dead center.
	Improper installation of the crimper/anvil.	Check whether or not the crimper/anvil has been installed with raised or inclined.	Re-install the crimper/anvil properly.
The cylinder stops at the bottom dead center and will not move from there.	Faulty location of the sensor of cylinder	Check whether the lower sensor lights up when the cylinder reaches the bottom dead center.	Adjust the sensor so that it lights up when the cylinder reaches the bottom dead center.
The slide base fails to slide to reach the prescribed location.	The crimper has been installed at an improper location. This causes the crimper to interfere with the slide base.	Check whether the crimper is installed with raised.	Re-install the crimper and anvil properly.
The positioning cylinder actuates when sliding the slide base. However, the caulking cylinder does not actuate.	Cylinder sensor fault	Check whether the upper cylinder sensor of the positioning cylinder lights up when the cylinder reaches the top dead center.	Adjust the position of the cylinder sensor. (If the sensor fails to light up even if it has been re-positioned properly, replace it with a new one.)
	Air pressure fault (the air pressure sensor has actuated)	Check whether or no the air pressure is 0.5 to 0.6 MPa.	Re-adjust the air pressure, using the regulator, to 0.5 to 0.6 MPa.

### Center crimping applicator (AP105-H • FL)

Description of trouble	Possible cause	Item to be checked	Corrective measure
The terminal has been deformed.	Faulty crimper/anvil	Check whether or not the crimper/anvil has worn out.	Replace the worn-out crimper/anvil with a new one.
	Improper mounting of crimper/anvil.	Check whether or not the crimper/anvil is mounted with inclined or raised.	Re-mount the crimper/anvil.
	Faulty feeding position of terminal	Check whether or not a crimp terminal pressure is applied to the center of anvil.	Re-adjust the feeding position of terminal properly.
	Improper setting of the terminal	Check whether or not a crimp terminal pressure is applied to the carrier cutter.	Re-set the terminal properly.
	Chips have clogged.	Check whether or not cut chips of carrier are clogged around the crimped portion.	Clean up the terminal to remove the chips.
C/H fault	Improper setting of the disk	Check whether or not the disk is positioned at the specified location.	Re-adjust the disk.
	Improper setting of the crimper/anvil.	Check whether or not the crimper/anvil has been installed with raised or inclined.	Re-set the crimper/anvil properly. Face the lever downward.
The crimp terminal cannot be crimped since it returns at the time of crimping.	The brake is not applied.	Check whether or not the terminal brake lever of the applicator is put on (faced downward).	

MEMO

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# HR5®

## HIROSE ELECTRIC CO.,LTD.

5-23, OSAKI 5-CHOME, SHINAGAWA-KU, TOKYO 141-8587, JAPAN

TELEX: J2468237 HRSELE TELE FAX: 03-3493-2933

CABLE: BESELECONHIROSE TOKYO, PHONE: 03-3491-9741

### **Hirose Electric (U.S.A.), Inc.**

2688 Westhills Court, Simi Valley, Calif. 93065-6235

Phone : (805) 5227958

Tele-Fax : (805) 5223217

### **Hirose Electric GmbH**

Zeppelinstraze 42 73760 Ostfildern-Kemnat

Phone : 0711-4560021

Tele-Fax : 0711-4560729

### **Hirose Electric UK Ltd.**

Crownhill Business Centre, 22, Vincent Avenue,  
Crownhill, Milton Keynes, MK8 0AB

Phone : (0908) 260616

Tele-Fax : (0908) 563309

### **HIROSE KOREA Co., Ltd.**

472-5, Mok Nae-Dong, Ansen-City Seoul

Phone : (02) 864-5075

Tele-Fax : (0345) 491-9886

### **Hirose Electric Co., Ltd., Hong Kong Branch**

2102 Emperor Group Center, 288 Hennessy Road, Wanchai

Phone : 2803-5338

Tele-Fax : 2591-6560