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1.0mm PITCH I/O CABLE SHELL CRIMP TOOL

(Tool Number: 578xx-5000)

OPERATING MANUAL



Molex Japan Co., Ltd.

Molex Japan Co., Ltd.		Contents of Update	Instruction Manual No.	IS-8024E
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<Safety Precautions>

Please read the following before operating the tool.

1. Introduction

Thank you for choosing our **1.0mm Pitch I/O Cable Shell Crimp Tool**.

This instruction manual is prepared so that the tool is properly used. Please take the time to read this manual, making sure you understand the operating procedures described herein before attempting to operate the tool.

2. To operation supervisors

- 1) Operators should fully understand the contents of this manual before operation.
- 2) If operators do not understand English, translate this manual into the proper language.
- 3) Keep this manual near the tool so that operators can refer to it anytime.

3. Dangerous operations

Observe the following precautions to prevent a life-threatening accident.

- 1) Don't insert a part of your body or other foreign materials into the tool when you are using the lever of a tool
- 2) Don't place the tool on an unstable, off-balanced worktable from which the tool might fall down.
- 3) If more than two operators are engaged in operation or checkup at the same time, even slight miscommunication might lead to a serious accident.

Caution

- 1) Unauthorized reproduction of this document in part or in whole is prohibited.
- 2) The contents of this document are subject to change without notice.
- 3) Molex Japan Co., Ltd. assumes no responsibility for losses resulting from use or misuse of this document.

<Safety Precautions>

Please read the following before operating the tool.

4. Careful handling

Keep the items below to use the tool safely and properly.

* Please contact our application-tooling group if something's wrong with the tool.

1) Tool malfunctions

If you notice any unusual sound or movement in the tool, stop the operation immediately and check the suspicious parts.

2) Foreign materials entering

If foreign materials such as water or metals accidentally get inside the tool, stop the operation immediately and remove those materials.

5. Installation site

Be careful about the following items when you install the tool.

1) Temperature and humidity

Don't operate the tool in extremely high/low temperature or extremely high humidity.

* Place it where the temperature is stable around 23 degrees centigrade and the air is well ventilated.

2) Dust and corrosive gas

It will become the cause of failure if dust, corrosive gas, etc. are in the circumference of this tool.

* Please don't install this tool to such a place.

3) Unstable work table

When this tool is set up in an unbalance worktable, it not only becomes a dangerous operation but also there is a case to cause the tool damage and it is dangerous.

* Please fix the tool on a stable table horizontally.

<Quality Precautions>

You surely carry out the following for defect-free production.

1. Introduction

In order not to produce a defective article with this tool, this chapter has described “Must be carried out”, and “Must not be carried out” as an important matter on operation.

Keep in mind that there is a possibility that a defective article will be produced when not protecting this.

2. Must be carried out

Please be sure to perform the following matter to maintain product quality.

1) Enforcement of startup check

Please check the tool in accordance with the “startup checklist” described in this document before an operation start, and start operation after confirming nothing is wrong with the tool.

* If the check is neglected, there is a possibility that a defective article will be produced.

2) Confirmation of quality

Please start the production after confirming the quality of a product picked up from the first operation, and it passes all of the claims required in the ITD (termination) specifications and the I/O harness drawing of a corresponding connector.

* It is recommended to initiate the operation on the preferable condition that enough margins for the standard are identified.

3. Must not be carried out

Please don't perform the following matter by any means to maintain product quality.

1) Too much low crimping of shell

Please don't crimp the shell body too much low. There is a possibility of causing the cutting of the conductor of the wire, and the damage of the crimp punch and the anvil.

* Please crimp by the crimping height of the standard.

2) Crimping in positional defect cable

It is a prohibition because it becomes defective in which the connector cover cannot be installed if it is crimped without matching the copper foil edge of the cable to the barrel edge of the shell body.

* Please set the cable at a prescribed position of the shell body and crimp it.

1. Description

This tool is a manual crimp tool that is used to crimp a shell body to the cable terminated the plug in the process of 1.0mm pitch I/O cable assembly of Molex.

As the procedure, a shell body is set in the guide of the table in the beginning and the plug with the cable is set on it. Next, after the cable edge is set to the prescribed position of the shell body, the cable is fixed to the table with the lever.

Next, the table is pushed in the tool and the crimping is executed by depressing the handle of the tool.

2. Tool Configuration and Applicable Products

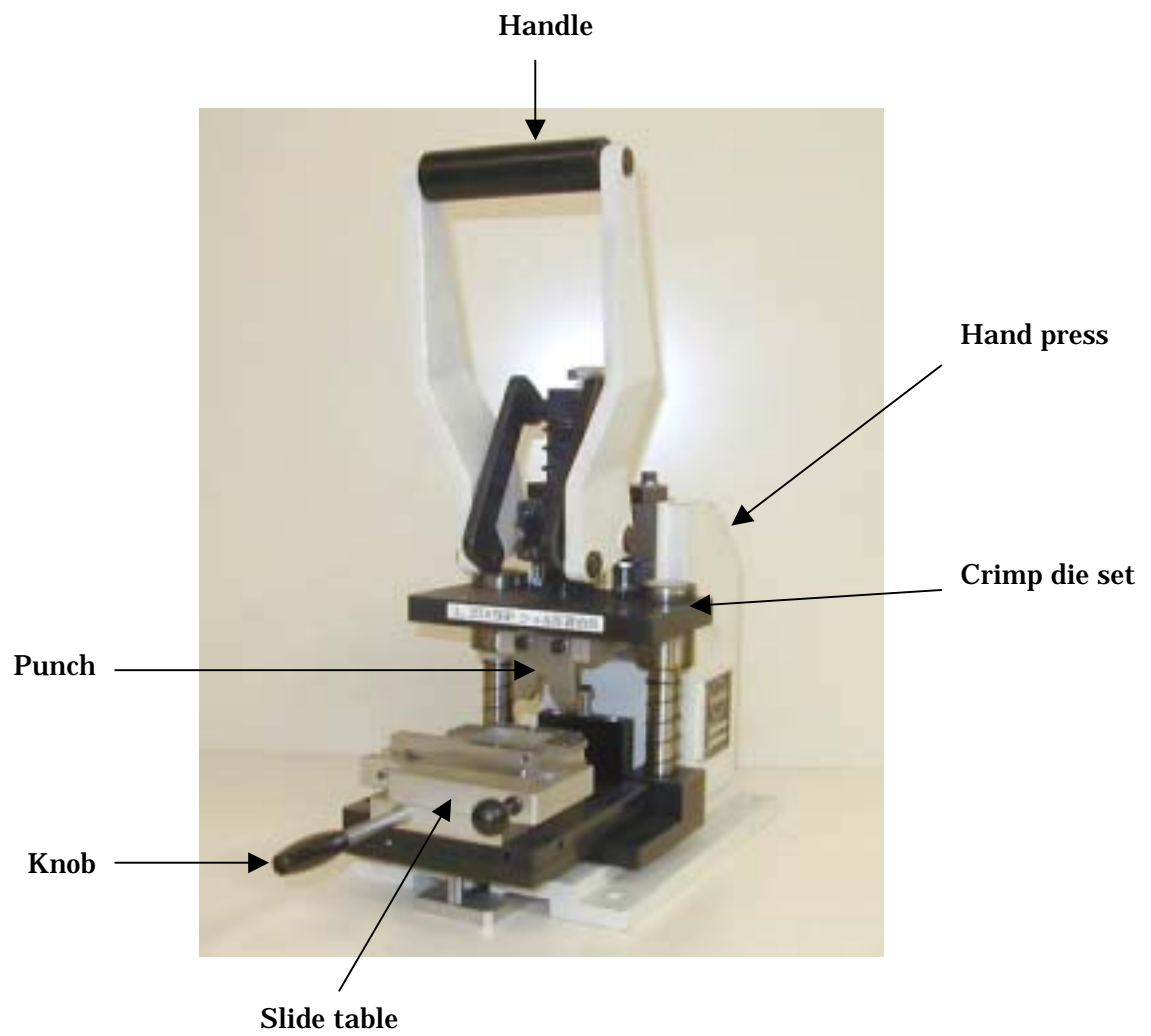
2.1. Tool Name and Configuration

- 1) Tool name: 1.0mm Pitch I/O Cable Shell Crimp Tool
- 2) Tool number:
 - 57861-5000: 10P Shell Crimp Tool
 - 57882-5000: 20P Shell Crimp Tool
 - 57851-5000: 26P Shell Crimp Tool
 - 57885-5000: 50P Shell Crimp Tool
 - 57886-5000: 68P Shell Crimp Tool
 - 57877-5000: 68P R/A Shell Crimp Tool
- 3) Tool configuration:
 - (1) Crimp die set assembly:
 - Crimp unit of a shell body to the cable terminated the plug.
 - (2) Hand press:
 - Toggle system hand press (Maximum crimping force: 600kgf or more)

2.2. Applicable Connector and Cable

- 1) Connector:
 - Molex 1.0mm pitch I/O Connector (** = Circuit number)
 - 52661-**-11: 1.0mm pitch I/O **P plug shell cover kit (Shell body and Shell cover)
- 2) Cable:
 - UL20276, AWG#28, Multi-pair braid shield cable, or other Molex qualified cable, Wire insulation diameter = ϕ 0.50- ϕ 0.58 mm, Cable outer diameter = ϕ 7.0mm or less

2.3. Tool Appearance and Unit Name



3. Specifications

3.1. Tool Specifications

- 1) **Crimping:** The slide table that sets the cable terminated the plug to the shell body is pushed into the tool, and the crimping is executed by depressing the tool handle.
- 2) **Crimping method:** It is the method that lowers the punch to the bottom dead point of the hand press for the anvil and crimps it in the “O-crimp” shape.
- 3) **Crimping height:** The crimping height is the height size of the center part of the barrel of the crimped shell body.
- 4) **Standard value of crimping height:** The crimping height is different depending on the cable specification. Therefore the standard value of the crimping height of the description in this document is assumed to be a reference value.

3.2. Outer Dimensions and Weight

- 1) **Outer dimensions:** 180 (width) x 380 (depth) x 440 (height) mm
- 2) **Weight:** Approx. 16 kgf

3.3. Operating Environment Conditions

- 1) **Operating ambient temperature:** 5- 35 degrees centigrade (Away from direct sunlight)
- 2) **Operating ambient humidity:** 35% - 85% RH (No condensation)
- 3) **Operating atmosphere:** Atmosphere should be free of corrosive gases and contaminants such as dust or lint.

3.4. Installation Space

Tool installation space on a worktable required for the purposes of performing operation and maintenance checkups.

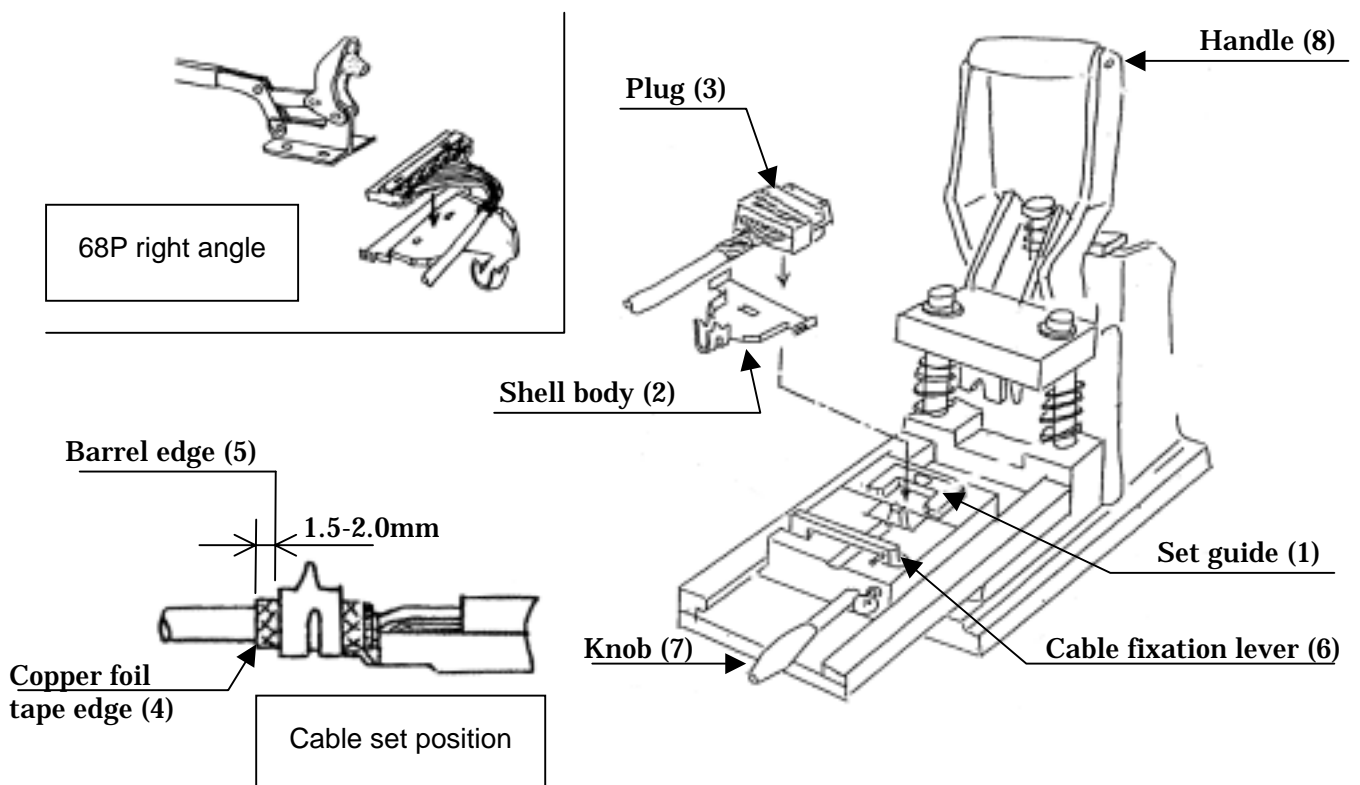
900 (width) x 900 (depth) x 1600 (height) mm

4. Operation Method

4.1. Crimping of Shell

- 1) Draw out the table forward and set a “shell body (2)” in the “set guide (1)” of the table.
- 2) Match the “convex” on the length hand side of D-shape of the “plug (3)” to the “square socket” at the center of the “shell body (2)” and set it.
- 3) Match the “copper foil tape edge (4)” of the cable and the “barrel edge (5)” of the shell body to the standard (1.5-2.0mm) in the state, and fix the cable with the “cable fixation lever (6).”
- 4) Grasp the “knob (7)” of the table by one hand and push it into the interior of the tool completely.
- 5) Grasp the “knob (5)” of the table by one hand, push it into the interior of the tool completely, and depress the “handle (6)” of the tool enough to the operation edge by the other hand and the termination is executed.

“**Note**” Please put each hand certainly on the “knob” and the “handle” for safety and operate it.



5. Maintenance and Checkups

5.1. Daily Maintenance

1) Management of tool

Before a work start, please carry out the tool check in accordance with the “startup checklist” in this manual, and start work after checking that it satisfies a standard.

* Please record each check result simultaneously.

2) Removal of foreign substances

Since foreign substances such as dust and wire scrap adhere to “punch”, “anvil” and “inside of set guide”, etc. during operation, please remove a foreign substance timely.

* Neglect may become the cause of a defective termination.

3) Cleaning of work end

Please wipe with a dry cloth lightly after cleaning the tool with compression air every day at the time of a work end. There is an effect that prevents rusting.

4) Lubrication

Please supply proper amount of “Lithium family grease” (JIS No. 2) to the shaft of a die set and the ram of a hand press with the frequency of once a month.

5.2. Check of Tool

Please confirm the standard value with 1.0mm pitch I/O IDT (termination) specifications of the latest version before it works.

1) Crimping height of shell

The crimping height of the shell body of a standard harness is based on the following standard.

* However, because the standard of the crimping height is different depending on the cable specification, the following standard is assumed to be a reference value.

<Standard>

Circuit number	Crimping height of shell (mm)	Standard cable outer diameter (mm)	Copper foil part outer diameter (mm)
10-circuit	5.5 +/-0.1	5.1	5.81-5.88
20-circuit	5.8 +/-0.1	5.5	6.31-6.38
26-circuit	6.5 +/-0.1	6.4	7.21-7.28
50-circuit	6.7 +/-0.1	6.5	7.51-7.58
68-circuit	6.9 +/-0.1	6.7	7.15-7.22

2) Crimping position of cable

The cable must be terminated to the shell body in the standard size.

<Standard> Size between barrel edge and copper foil edge = 1.5-2.0mm

3) Crack of punch and anvil

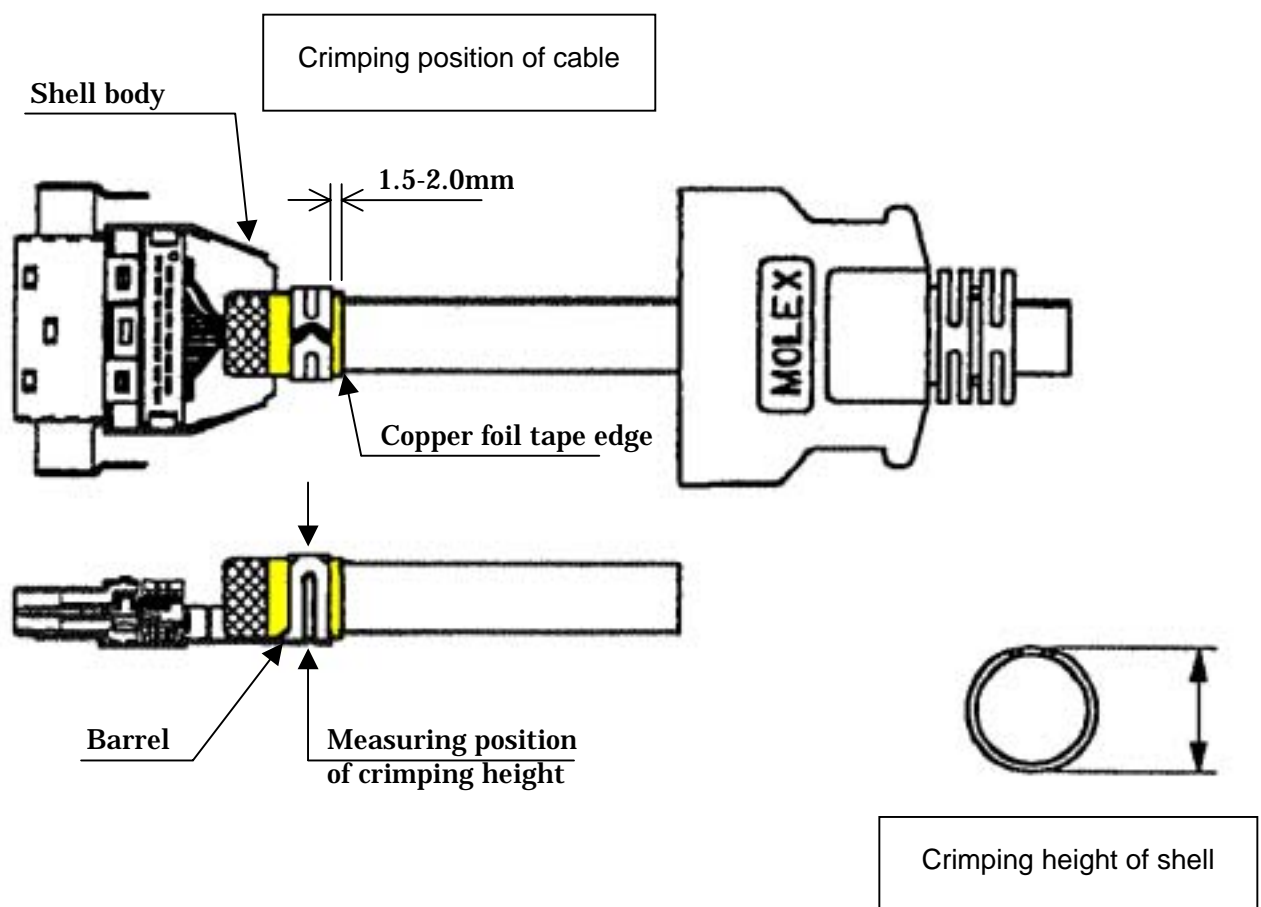
There must be neither crack nor adhesions of the foreign article in the punch and the anvil.

4) Breakage of conductor

There must be no breakage of the conductor of the wire by crimping of the shell body.

5.3. Measurement Method of Crimping Height

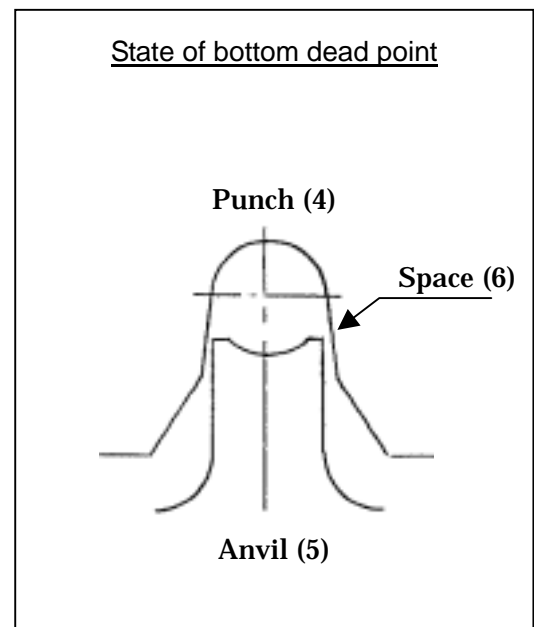
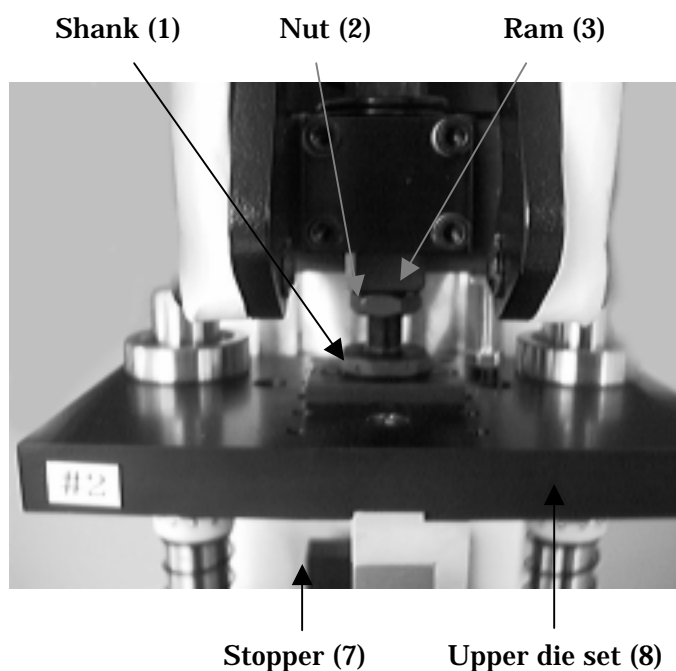
- 1) The crimping height of the shell body is the “height size” of the barrel center part” of the shell body that is terminated.
- 2) It is necessary to note the following respect though the crimping height is measured with calipers.
 - (1) The vertical direction of the barrel center is measured in right-angled direction to the cable.
 - (2) It measures by using the vicinity of the root of calipers to prevent interference with the U-ditch of the barrel.
 - (3) The crimping height is decided from several-time measurements, because the crimping part is transformed a little when measuring it.



5.4. Adjustment Method of Crimping Height

- 1) Loosen the “nut (2)” of the “shank (1)” on the hand press and adjust the bottom dead point turning the shank. Tighten the nut after it adjusts and the shank is fixed to the “ram (3).”
- 2) Amount of adjustment and direction
 - [Amount of adjustment]
One scale = about 0.17mm (One rotation = 1.0mm)
 - [Direction of adjustment]
The wire is deeply pushed: Shank is turned left.
The wire is shallowly pushed: Shank is turned right.
- 3) Confirm that there is a “space (6)” between the “punch (4)” and the “anvil (5)” at the bottom dead point.
- 4) Adjust the “stopper (7)” in the position with the space of 0.5mm from the “upper die set (8)” at the bottom dead point.
 - * The stopper is for interference prevention of the upper and lower when the die set is removed from the hand press.

“Note” Please readjust the bottom dead point if there is no space between the punch and the anvil.

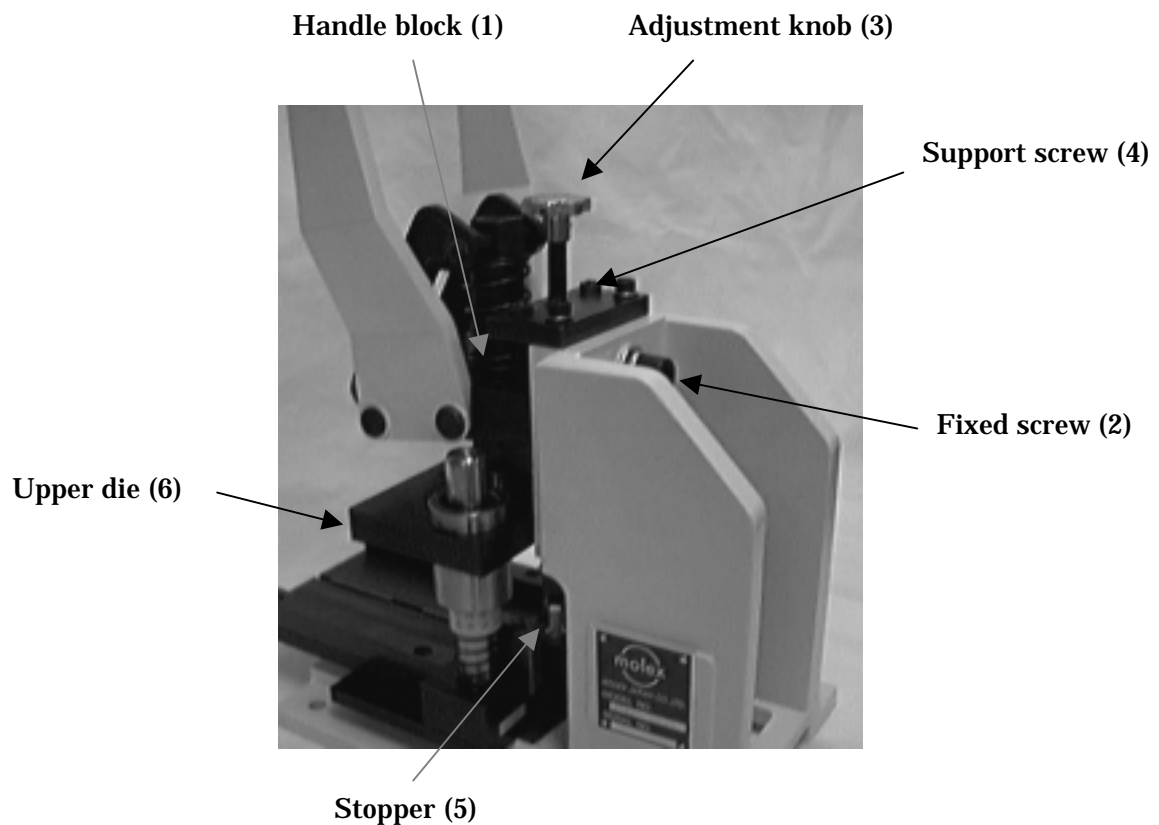


5.5. Adjustment Method of Hand Press Bottom Dead Point

When the adjustment of the bottom dead point is not good enough by the shank alone, the bottom dead point of the main body of the hand press is adjusted according to the following procedure.

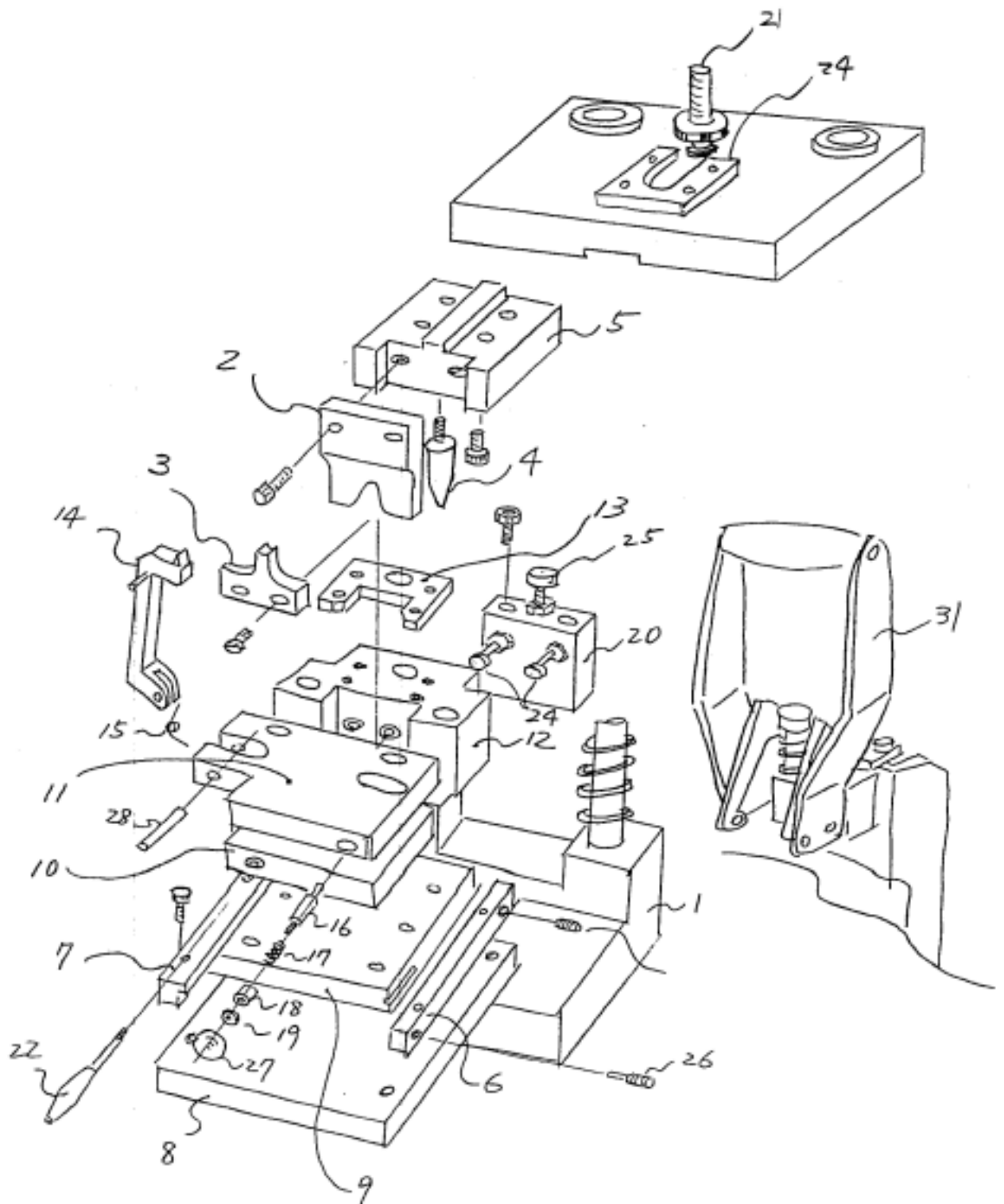
- 1) Loosen the “fixed screw (2)” of the “handle block (1)” of the hand press and adjust the bottom dead point of the main body of the hand press moving the handle block with the “adjustment knob (3).”
- 2) Adjust the screw at the same time when there is a “support screw (4)” in the handle block.
- 3) Set the space of about 0.5mm at the bottom dead point position between the “upper die (6)” and the “stopper (5).”

“Note” Please note that there is a case of the tool damage when the bottom dead point of the main body of the hand press is adjusted low too much.



6. Parts List

6.1. Shell Crimp Tool Development (1.0mm pitch I/O Cable)



6.3. Parts List (1.0mm pitch I/O Cable Shell Crimp Tool) (1 of 2)

[Applicable Model]

57861-5000: 10P Shell Crimp Tool
 57882-5000: 20P Shell Crimp Tool
 57851-5000: 26P Shell Crimp Tool
 57885-5000: 50P Shell Crimp Tool
 57886-5000: 68P Shell Crimp Tool
 57877-5000: 68P Shell Crimp Tool

[Remarks] 1) The figure of “xx” has the following relationship.

(1) For 10-circuit: xx = 61

(2) For 20-circuit: xx = 82

(3) For 26-circuit: xx = 51

(4) For 32-circuit: xx = 85

(5) For 50-circuit: xx = 86

(6) For 68-circuit R/A: xx = 77

2) The “**” shows the number of circuit.

No.	Parts No.	Parts Name	Q'ty	Maker: Parts No.
	[Perishable Parts]			
2	578xx-2001	**P Punch	1	
3	578xx-2002	**P Anvil	1	
	[Standard Parts]			
1	57828-1001	Die Set	1	
4	57823-0003	Locating Pin	1	
5	57823-1005	Punch Holder	1	
6	57823-1006	Guide Rail-R	1	
7	57823-1007	Guide Rail-L	1	
8	57823-1008	Slide Base	1	
9	57828-1009	Slider	1	
10	578xx-1010	**P Middle Slider	1	
11	578xx-1011	**P Cable Clamp Block	1	
12	578xx-1012	**P Anvil Block	1	
13	578xx-1013	**P Work Set Guide	1	
14	57827-1011	Cable Clamp Lever	1	
15	57827-1012	Spring, Clamp Lever	1	
16	57827-1013	Latch Finger	1	
17	57827-1014	Spring, Latch Finger	1	
18	57827-1015	Nut, Latch Finger	1	
19	57827-1016	Spacer, Latch Finger	1	
20	57827-1017	Dead Point Block	1	
21	57850-1018	Shank	1	
23	57850-1020	Shank Plate	1	
35	57877-1035	68p Work Set Guide-L	1	
36	57877-1036	68p Work Set Guide-R	1	
37	57877-1037	68p Clamp	1	
38	57877-1038	68p Clamp Base	1	

7. 1.0mm Pitch I/O Cable Shell Crimp Tool Startup Checklist

[Applicable Tool]: 57861-5000: 10P Shell Crimp Tool
 57882-5000: 20P Shell Crimp Tool
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 57885-5000: 50P Shell Crimp Tool
 57886-5000: 68P Shell Crimp Tool
 57877-5000: 68P R/A Shell Crimp Tool

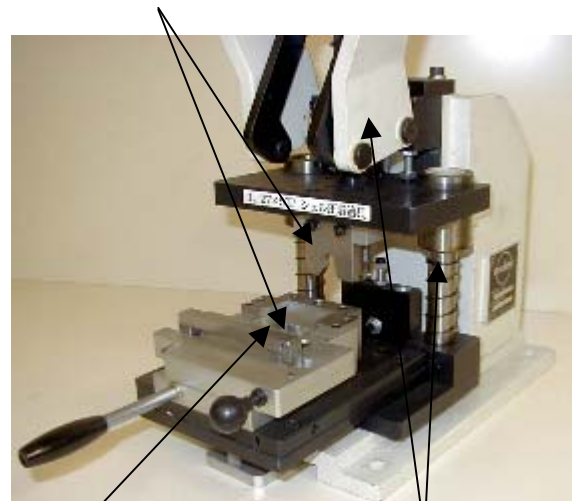
“Note” Please check the following matter before the commencement of work, and start operation after checking those without a problem. Please record check results simultaneously.

No.	Check point	Standard	Method/equipment	Record	Startup	Monthly
1	Crimping height of shell	Within the standard value	Measure with calipers	Data	O	
2	Crimping position of cable	1.5-2.0mm from barrel edge	Visual check	-	O	
3	Crack of punch and anvil	No crack and adhesions of foreign article	Visual check	-	O	
4	Shell body setting part	No foreign article	Cleanup	-	O	
	[Monthly Checking]					
5	Ram and die set shaft	No dry up	Grease supplying	-		O

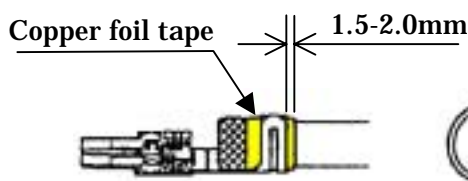
Crimping height of shell (1)

Circuit number	Crimping height standard (mm)	Standard cable outer diameter (mm)
10P	5.5+/-0.1	5.1
20P	5.8+/-0.1	5.5
26P	6.5+/-0.1	6.4
50P	6.7+/-0.1	6.5
68P	6.9+/-0.1	6.7

Crack of punch and anvil (3)



Crimping position of cable (2)



Shell body setting part (4) Ram and die set shaft (5)