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REV.	D

# 1.0mm PITCH I/O 120P WIRING TOOL

(Tool Number: 57832-5000)

**OPERATING MANUAL**



Molex Japan Co., Ltd.

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Molex Japan Co., Ltd.		Contents of Update	Instruction Manual No.	IS-8020E
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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 120P Wiring Tool**.

This instruction manual is prepared so that this 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 handle 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 deeply pushing of wire  
Pushing the wire to the upper cover too much deeply is a cause the damage of the upper cover and it is a prohibition.  
\* Please work by an appropriate amount of the wire pushing.
- 2) Setting of upper cover in different direction  
It is a prohibition because it causes the damage of the termination punch and the upper cover when the upper cover is set in a direction different from a prescribed direction.  
\* Please set the upper cover in a prescribed direction and work.
- 3) Shear drop of conductor  
The tool where shear drop of the conductor that exceeds the insulation outside diameter of the wire has been occurred is dangerous for short-circuit and it is a prohibition of use.  
\* Please work after the wire cut blade is exchanged and it puts it into the state without shear drop of the conductor.

## 1. Description

This tool is a manual wire arrangement tool that is used to arrange the wire of I/O cable into the upper cover as the pre-work of the termination of 1.0mm pitch I/O 120P cable Assembly of Molex.

As the procedure, the wire is arranged in upper cover B in the beginning by “wire arrangement unit B”, and, next, the wire is arranged in upper cover A by “wire arrangement unit A”.

As the wire arrangement work, the upper cover is set in the tool, and the wire in the cable is arranged in the outside wire comb by the hand sequentially.

Next, the table is set in the wire-pushing unit, and pushing the wire into the upper cover and cutting the excess wire are executed by depressing the handle of the tool.

## 2. Tool Configuration and Applicable Products

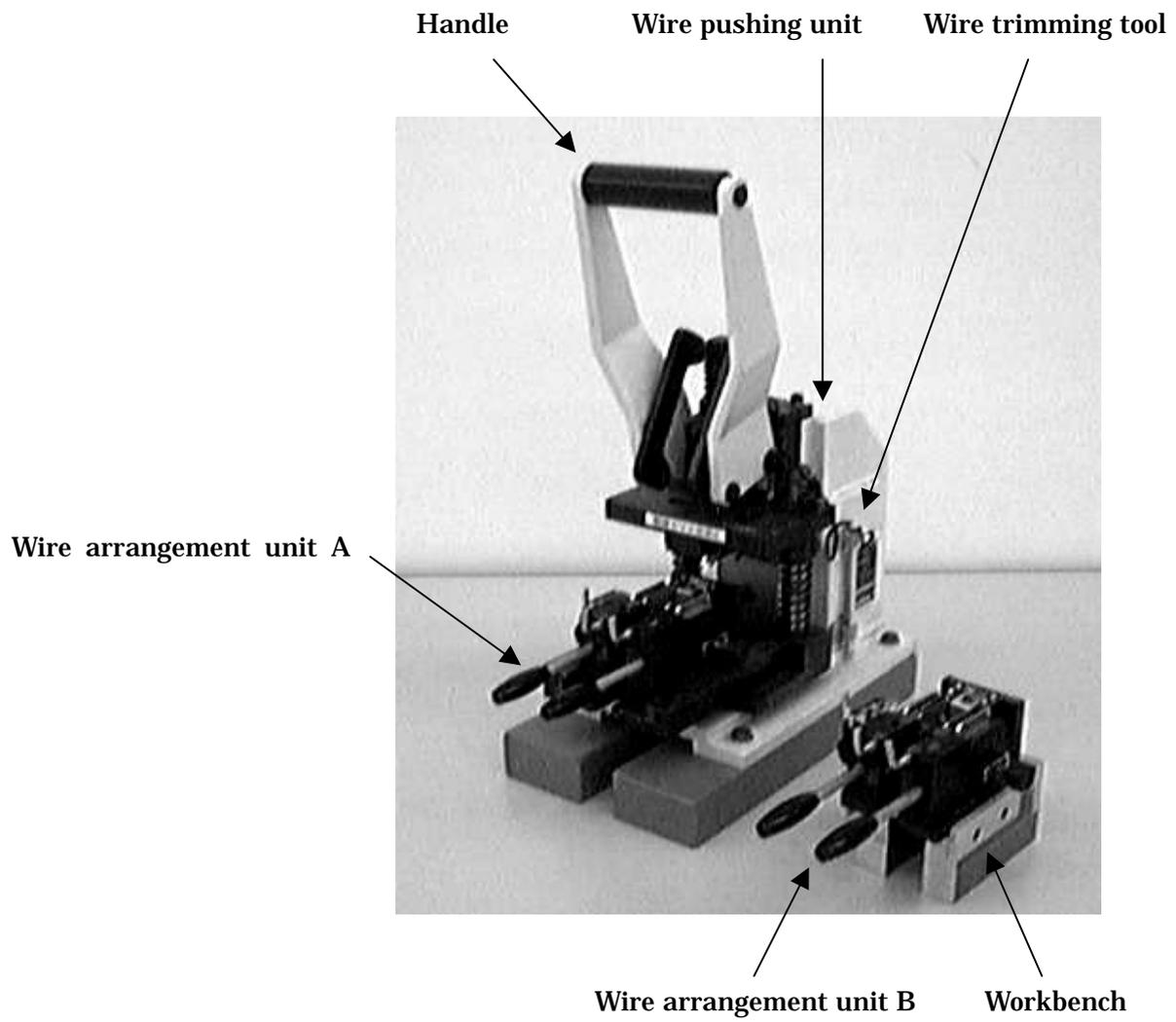
### 2.1. Tool Name and Configuration

- 1) Tool name: 1.0mm Pitch I/O 120P Wiring Tool
- 2) Tool number: 57832-5000
- 3) Tool configuration:
  - (1) Wire arrangement unit A:  
Wire arrangement unit for upper cover A
  - (2) Wire arrangement unit B:  
Wire arrangement unit for upper cover B
  - (3) Wire pushing unit:  
Pushing the wire into the upper cover and cutting the excess wire
  - (4) Hand press:  
Toggle system (Maximum termination force: 600kgf or more)

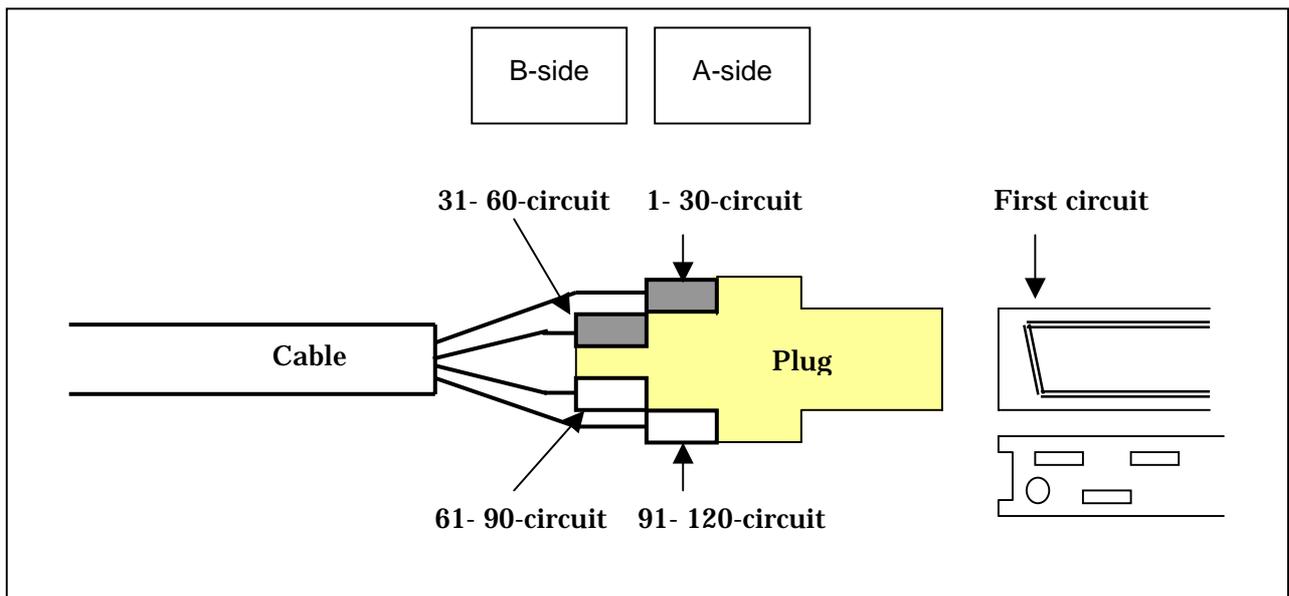
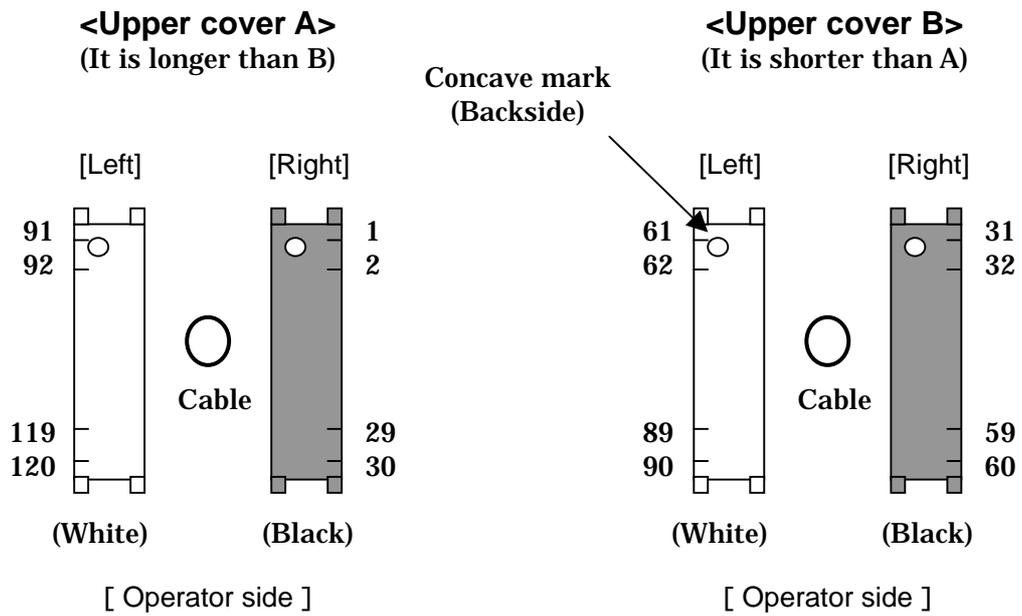
### 2.2. Applicable Connector and Cable

- 1) Connector: Molex 1.0mm pitch I/O 120P connector
  - 53577-1200: Upper Cover A (White)
  - 53577-1201: Upper Cover A (Black)
  - 53578-1200: Upper Cover B (White)
  - 53578-1201: Upper Cover B (Black)
- 2) Cable: UL20276, #28 AWG, Multi-pair braid shielded cable or other Molex quality cables.  
Insulation diameter =  $\phi$ 0.58mm,  
Cable outer diameter =  $\phi$ 14.0mm or less

2.3. Tool Appearance and Unit Name



2.4. Circuit Number Assignment



### 3. Specifications

#### 3.1. Tool Specifications

- 1) Arrangement of wire: Wire is arranged one by one in a prescribed circuit number of the wire guide comb of the wire arrangement unit by the hand.
- 2) Kind of wire arrangement unit: The following two kinds of wire arrangement units are used.
  - (1) Wire arrangement unit A: 1- 30-circuit and 91- 120-circuit
  - (2) Wire arrangement unit B: 31- 60-circuit and 61- 90-circuit
- 3) Wire pushing: The wire arrangement unit that completed the wire arrangement is set in this tool, and pushing the wire into the upper cover is executed by depressing the handle of the tool.
- 4) Cutting of excess wire: The wire cut blade cuts the excess wire at the upper cover edge by the wire pushing operation.
- 5) Setting of upper cover: The concave mark of an upper cover is adjusted to the tip side and set it in the wire arrangement unit.  
(The tool is directionality having)
- 6) Kind of upper cover: The relation between the circuit number and the upper cover is shown.
  - (1) 1- 30-circuit: Upper cover A (Black /long type)
  - (2) 31- 60-circuit: Upper cover B (Black /short type)
  - (3) 61- 90-circuit: Upper cover B (White /short type)
  - (4) 91- 120-circuit: Upper cover A (White /long type)
- 7) Setting of cable: The sheath edge of the cable is matched to the cable stopper and sets in the wire arrangement unit.

### 3.2. External Dimensions and Weight

- 1) External dimensions: 180 (width) x 380 (depth) x 440 (height) mm
- 2) Weight: Approx. 25kgf  
(Wire pushing unit + wire arrangement unit x 2 + workbench)

### 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.

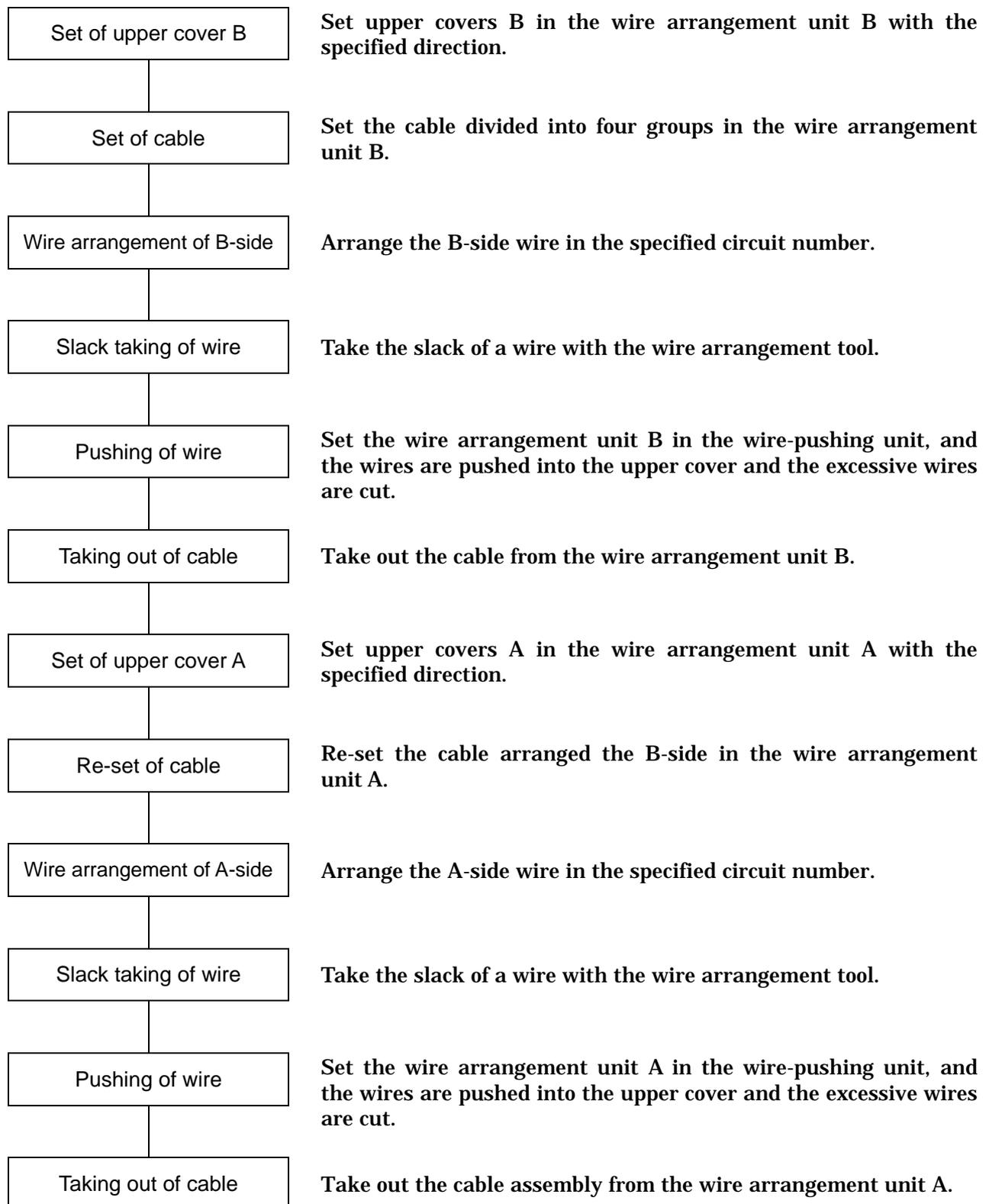
### 3.4. Installation Space

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. Wire Arrangement Procedure

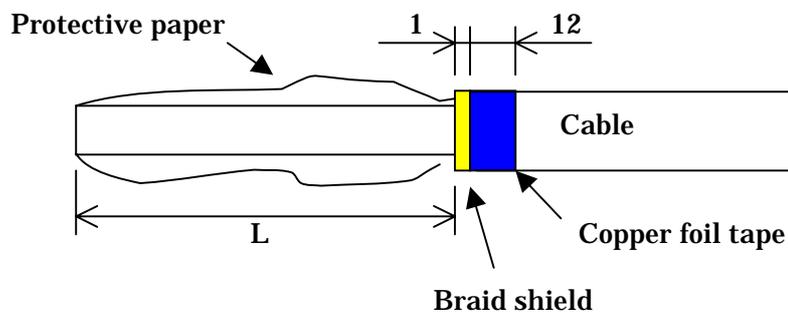


## 4.2. Processing of Cable Edge

### 1) Removal of jacket

Remove the jacket of a cable by 100mm or more.

L = 100mm or more



Unit: mm

### 2) Processing of shield wire

(1) Cut the braid shield with 12mm length, and turn up to the jacket side.

(2) Wrap the copper foil tape of the 12mm width 1.5 times around the 1mm position from the sheath edge.

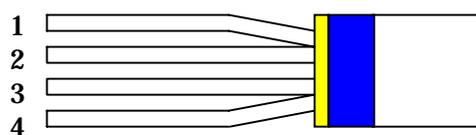
(3) Cut the protective paper at the jacket end.

[Copper foil tape specification]: Type 2245 of 3M or equivalent

### 3) Grouping of Wire

Eliminate the twisting of a wire carefully and divide into four groups of the following.

No.	Wire group
1	A-side right (1- 30-circuit)
2	B-side right (31- 60-circuit)
3	B-side left (61- 90-circuit)
4	A-side left (91- 120-circuit)



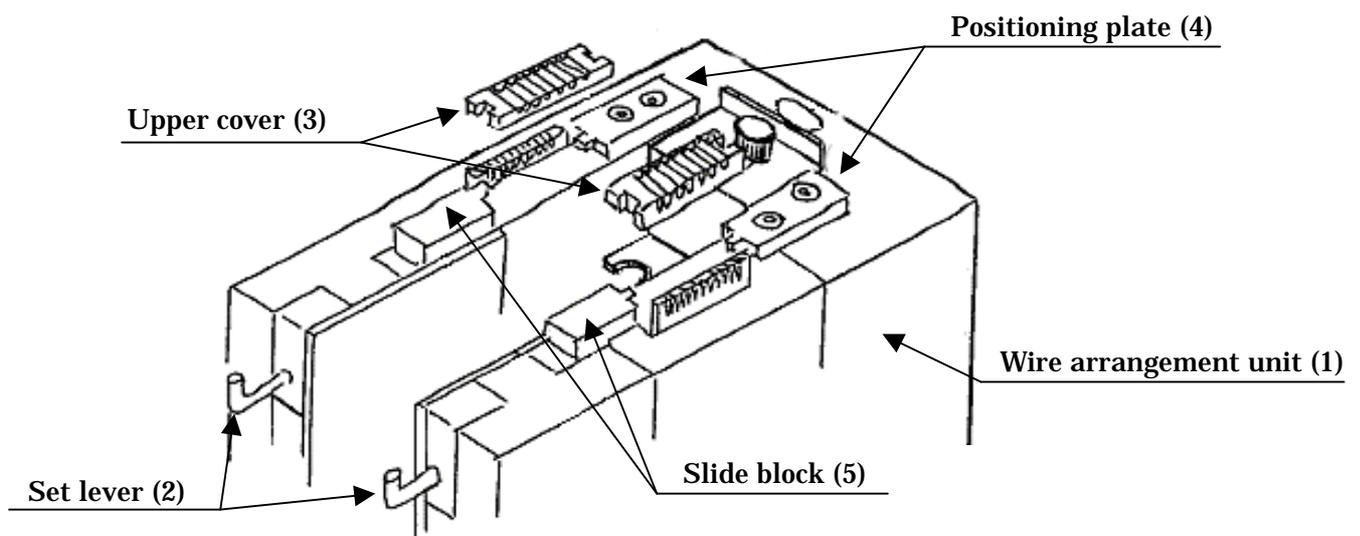
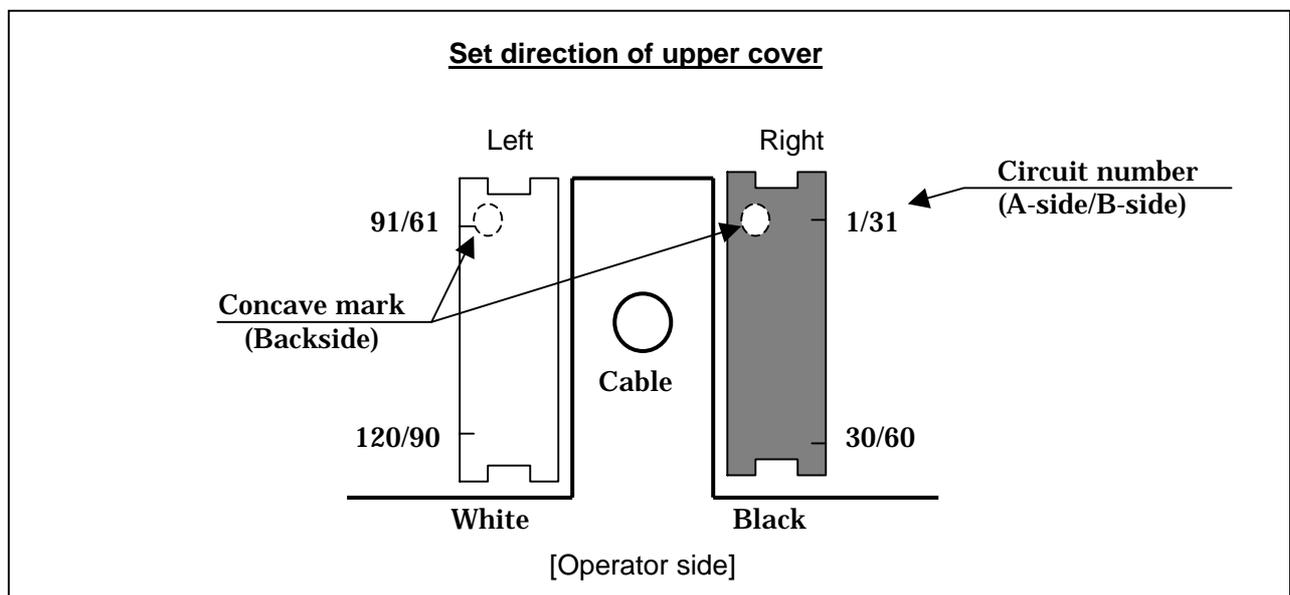
### 4.3. Set of Upper Cover

- 1) Set the “wire arrangement unit (1)” on the workbench.
- 2) Pull the “set lever (2)” of the wire arrangement unit on this side, and set the “upper cover (3)” between the “positioning plate (4)” and the “slide block (5)” in the prescribed direction.

**\*The identification of the upper cover: Upper cover A is longer than B.**

- 3) Next, release the “set lever (2)” slowly, and the “upper cover (3)” is fixed.

**“Note”** Please note that there are four kinds of upper covers. (The difference of length and color is contained)

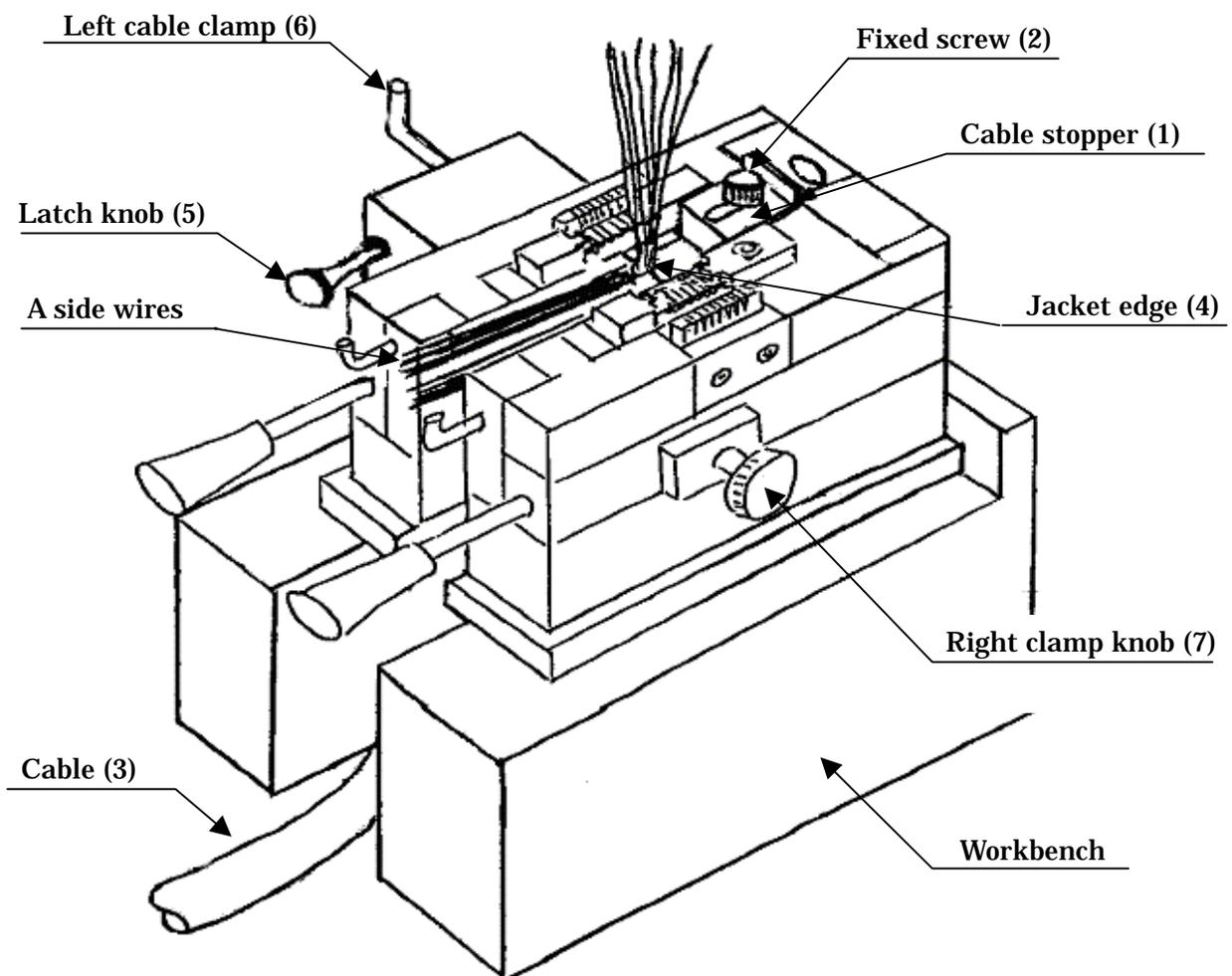


## 4.4. Set of Cable

- 1) Slide the “cable stopper (1)” on this side and fix it with the “fixed screw (2)”.
- 2) Set a “cable (3)” in the wire arrangement unit, bump the “jacket edge (4)” to the bottom of the “cable stopper (1)”, and pull forward the “latch knob (5)” at the left of the unit by the hand on the other side.
- 3) When the “left cable clamp (6)” operates completely, release the “latch knob (5)”, and the “left cable clamp (6)” is latched again.
- 4) Turn clockwise the “right clamp knob (7)”, and clamp the “cable (3)”.

“Note” Please begin the wire arrangement work after saving the wire not arranged forward.

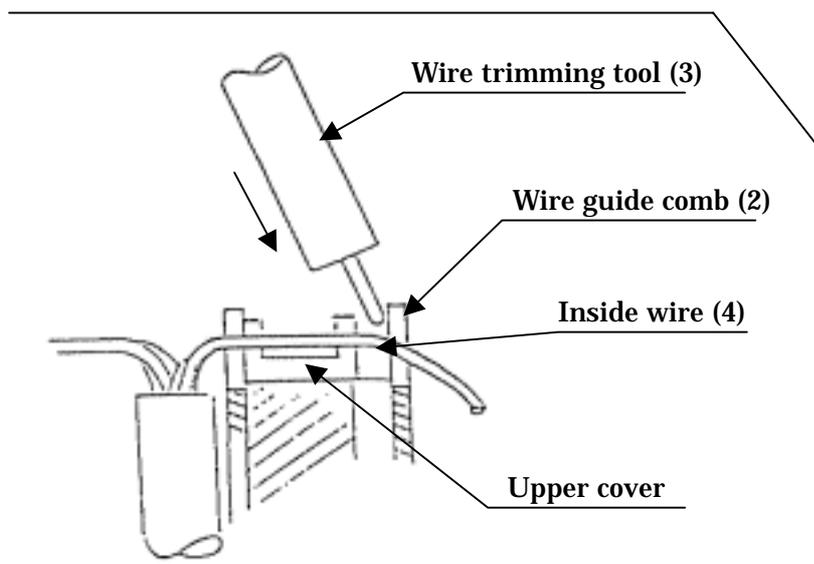
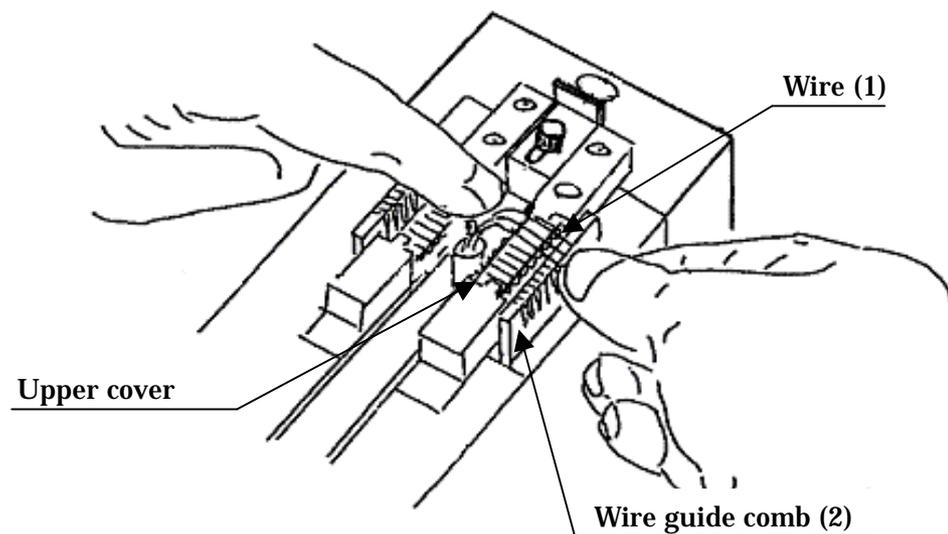
At B-side wire arrangement



#### 4.5. Wire Arrangement

- 1) Arrange a “wire (1)” in the ditch of a prescribed circuit number of the “wire guide comb (2)” according to the wire arrangement table.
- 2) At this time, push the “wire (1)” firmly from both sides into the ditch of the “wire guide comb (2)” while giving a tension light so that the wire should not slacken.
- 3) When the arrangement of all wires is finished, take the slack of the wire depressing an “inside wire (4)” of the wire guide comb with the “wire arrangement tool (3).”

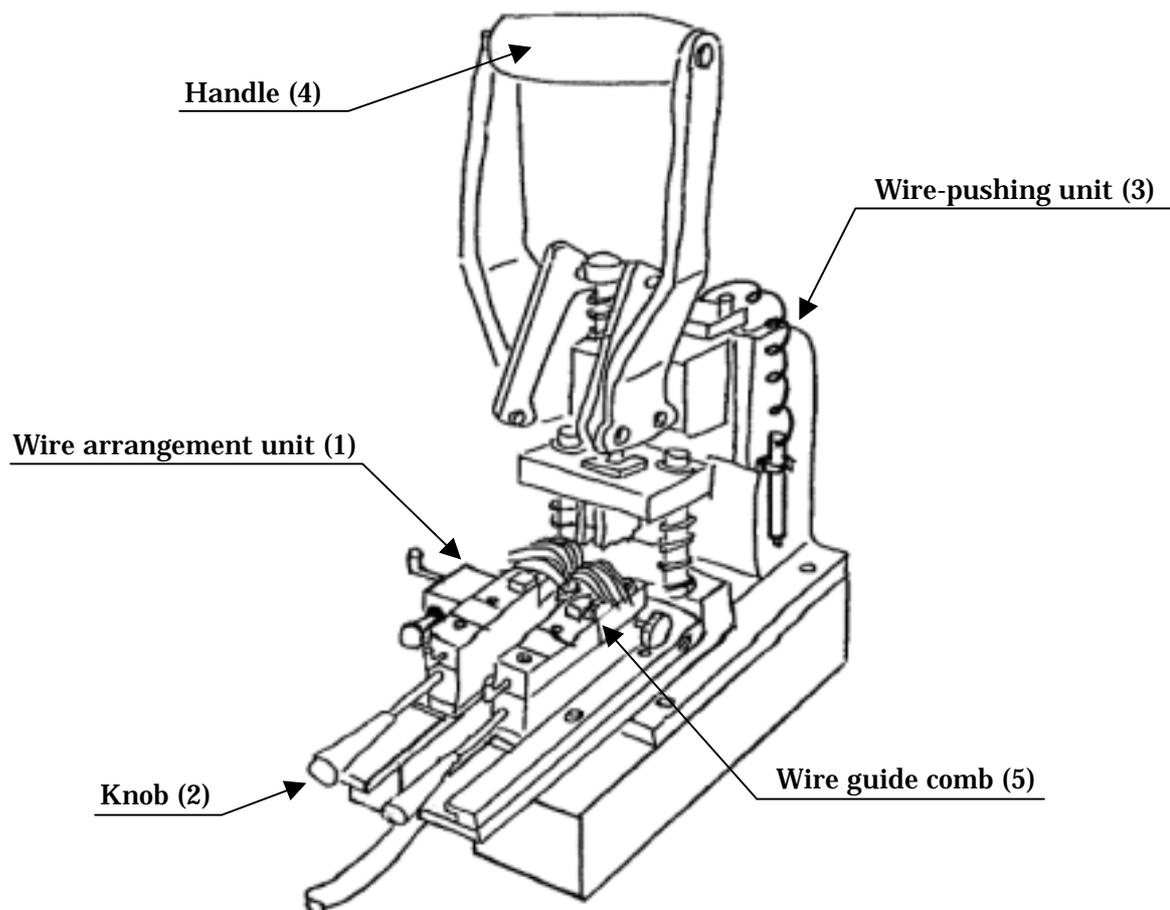
**“Note”** It is a prohibition because the wire pushing in the state that there is slack in the wire causes a defective cutting.  
Please take the slack of the arranged wire surely.



#### 4.6. Wire Pushing and Cutting

- 1) First of all, arrange so that neither the un-processing wire nor the upper cover that has been arranged may interfere.
- 2) Grasp the “knob (2)” of a “wire arrangement unit (1)” by one hand and push it into the interior of the “wire-pushing unit (3)” completely.
- 3) Depress the “handle (4)” of the “wire-pushing unit (3)” while the “knob (2)” of the wire arrangement unit grasped by one hand, and the wire pushing and the cutting of the excess wire are executed.
- 4) Draw out forward the “wire arrangement unit (1)” and remove the cut “wire scraps” from the “wire guide comb (5)”.

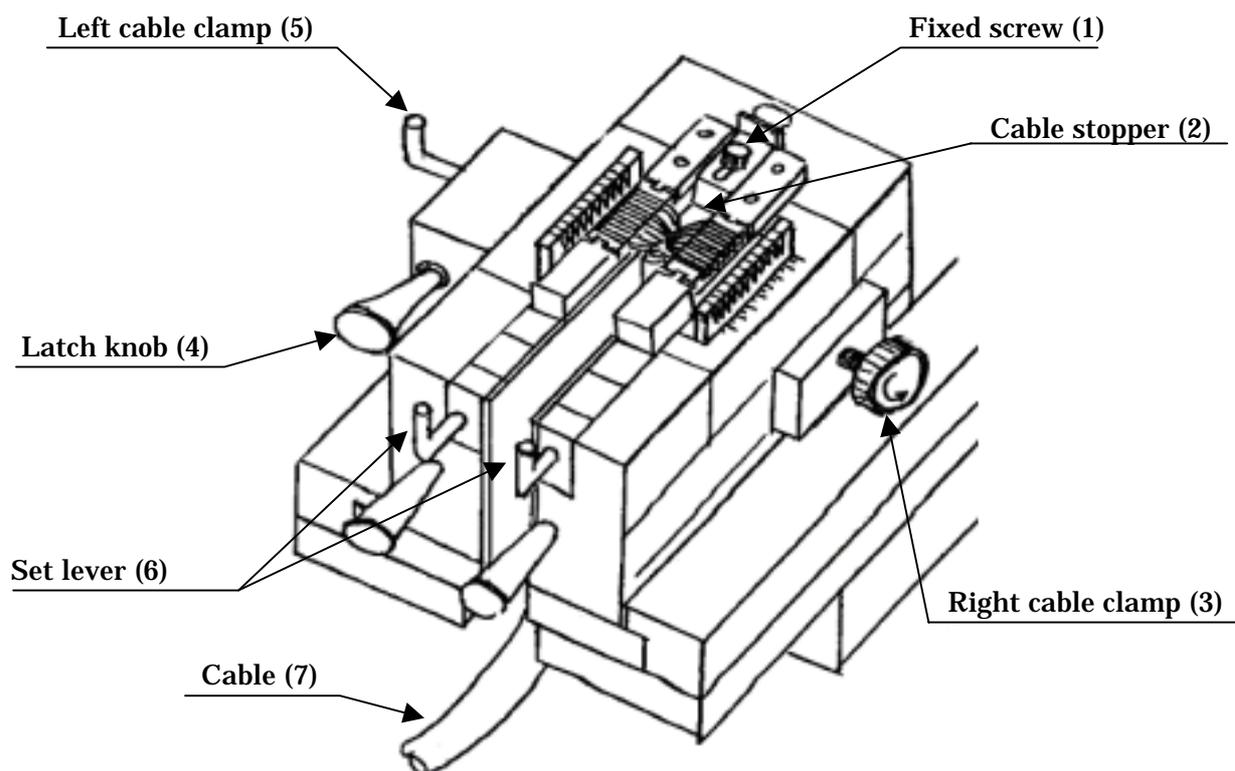
**“Note”** Please put each hand certainly on the “knob” and the “handle” for safety and operate it.



#### 4.7. Taking Out of Cable

- 1) Loosen the “fixed screw (1)” of the wire arrangement unit and slide backward the “cable stopper (2)”.
- 2) Next, turn the “right cable clamp (3)” counterclockwise, and the clamp jaw is drawn back in the frame completely.
- 3) Pull the “left cable clamp (5)” outside while pulling the “latch knob (4)”, and release the “latch knob (4)” after the clamp jaw is drawn back completely.
- 4) Pull forward the right and left “set lever (6)” at the same time, and the fixation of the upper cover is released.
- 5) Incline lightly for upward gripping the “cable (7)”, the upper cover is removed from the fixation of the point, and detach the cable Assembly from the wire arrangement unit.

**“Note”** Please confirm there is neither wire crushing nor upper cover damage.



## **5. Maintenance and Check**

### **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 adheres to the “wire pushing blade, “wire cut blade”, and “wire guide comb”, etc. during operation, please remove a foreign substance timely.

\* Neglect may become the cause of a defective wire arrangement.

#### **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 reconfirm the standard value with 1.0mm pitch I/O 120P IDT (termination) specifications of the latest version before it works.

### 1) Wire protruding length

It must be a standard value or less that the protruding length of the wire from the upper cover edge.

<Standard> Wire protruding length = 0.3mm or less

### 2) Shear drop of conductor

The amount of conductor shear drop of the cut wire shall be in the standard value or less, and it is not short-circuited between pitches.

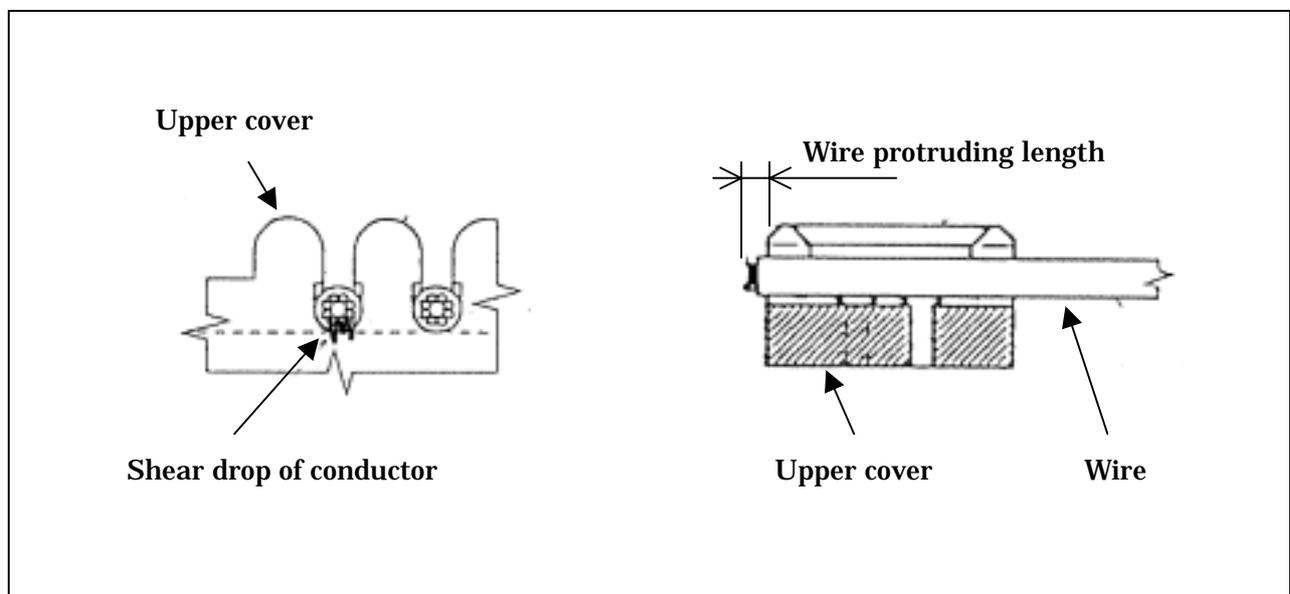
<Standard> Shear drop amount of conductor = Within the outside diameter of the wire insulation.

### 3) Scratch on wire insulation

There must not be remarkable scratch on the wire insulation with the wire guide comb and the wire pusher, etc.

### 4) Damage of upper cover

There must not be remarkable damage to the upper cover with the wire pusher.



### 5.3. Exchange Method of Wire Cut Blade and Wire Pusher

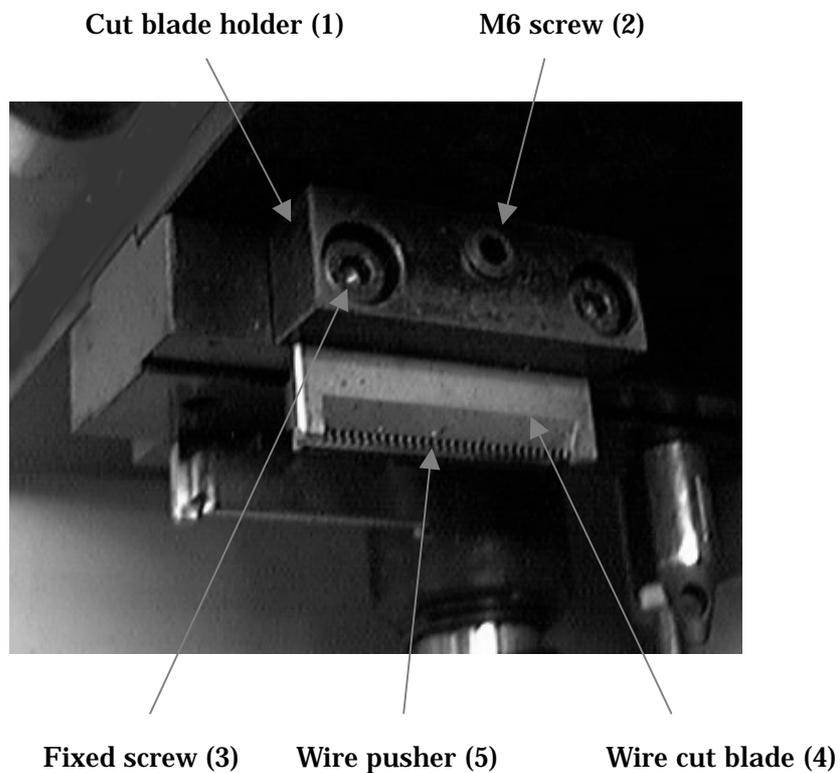
#### 1) Exchange of wire cut blade

The “wire cut blade (4)” can be removed below by removing the “M6 screw (2)” at the center of the “cut blade holder (1)” of the wire pushing unit” and loosening the “fixed screw (3).”

#### 2) Exchange of wire pusher

The “cut blade holder (1)”, “wire cut blade (4)”, and “wire pusher (5)” come off from the tool when the “fixed screw (3)” is removed.

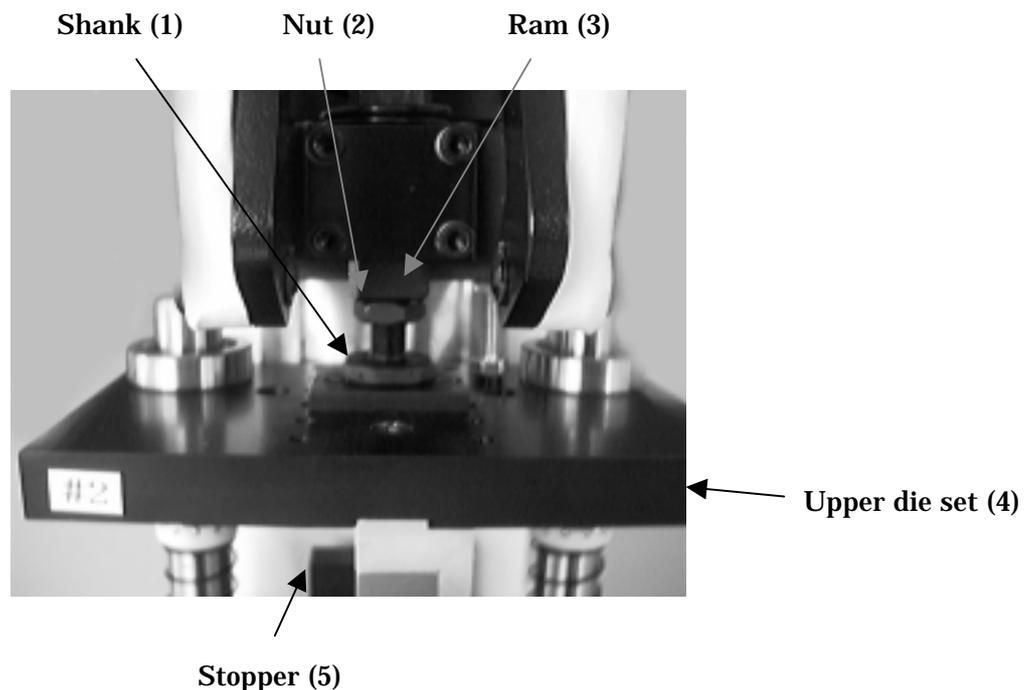
“**Note**” Please note that the “internal compression spring” falls simultaneously with the wire pusher when you exchange the pusher.



#### 5.4. Adjustment Method of Wire Pusher Bottom Dead Point

- 1) Loosen the “nut (2)” of the “shank (1)” on the hand press and adjust the bottom dead point of the wire pusher turning the “shank (1).” 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) The “stopper (4)” is adjusted in the position with the space of 0.5mm from the “upper die set (5)” at the bottom dead point of the tool.
  - \* The stopper is for interference prevention of the upper and lower when the die set is removed from the hand press.

“Note” Please start the work after confirming that the wires are surely pushed into the upper cover without crushing after adjustment.

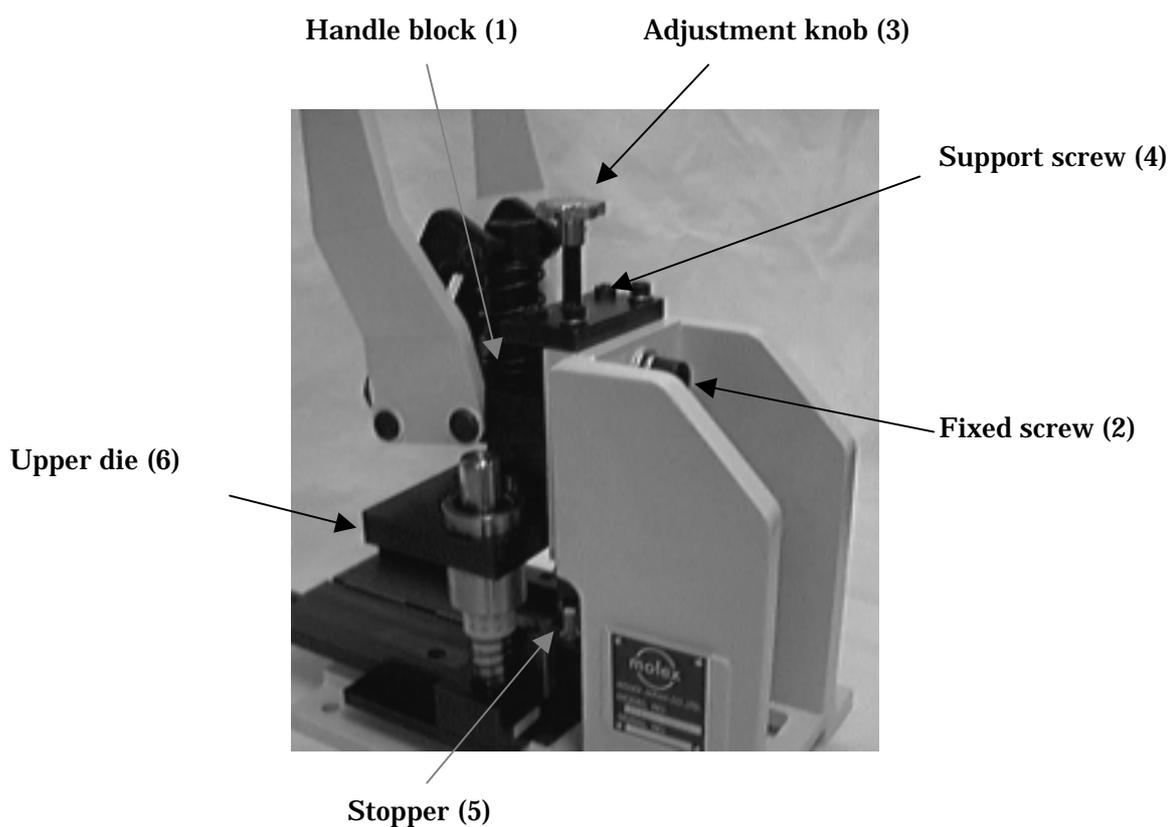


## 5.5. Adjustment Method of Hand Press Bottom Dead Point

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.

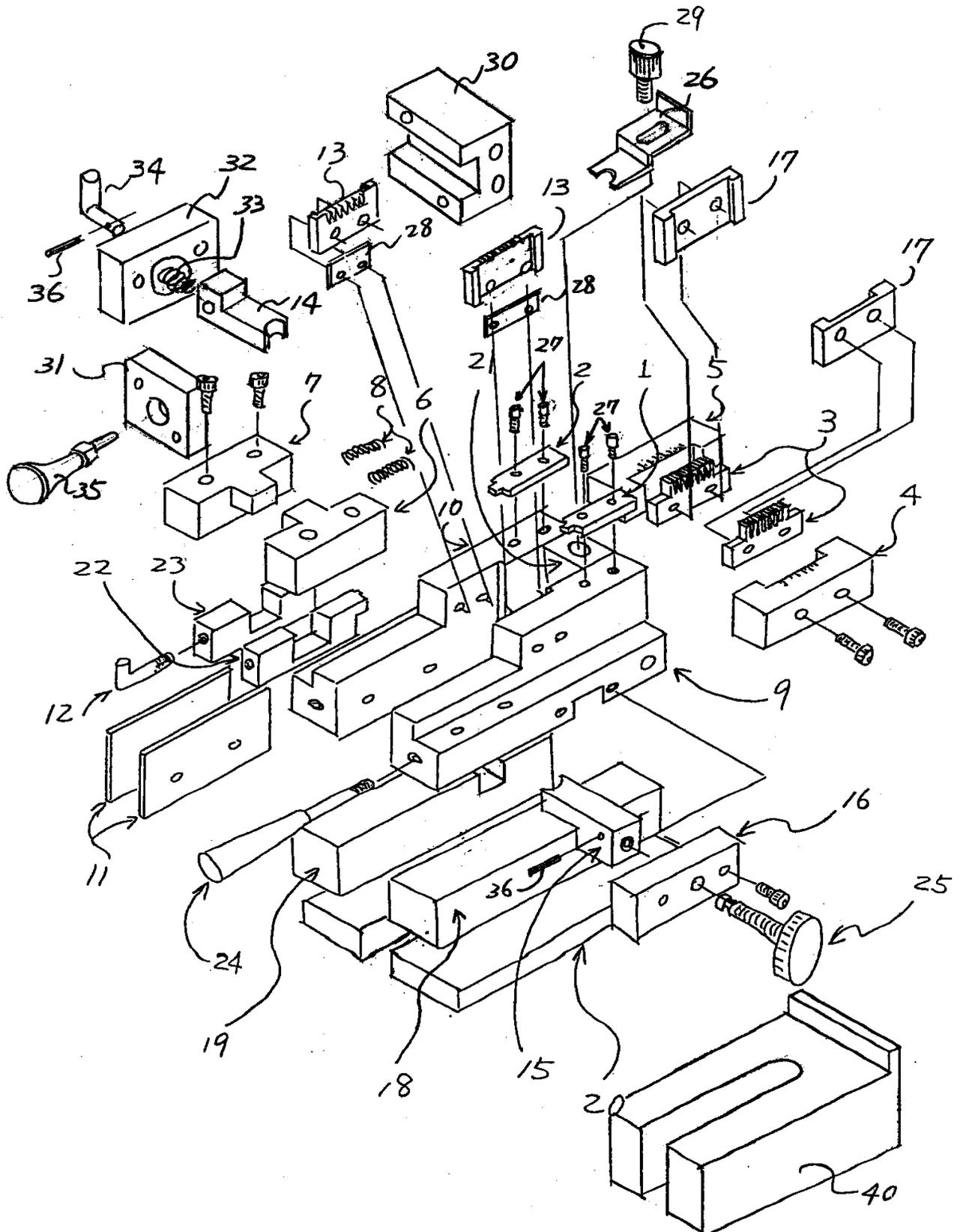
- 1) Loosen the “fixed screw (2)” of the “handle block (1)” of the hand press and adjust the bottom dead point of the main body of the hand press moving the handle block with the “adjustment knob (3).”
- 2) Adjust the screw at the same time when there is a “support screw (4)” in the handle block.
- 3) 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.

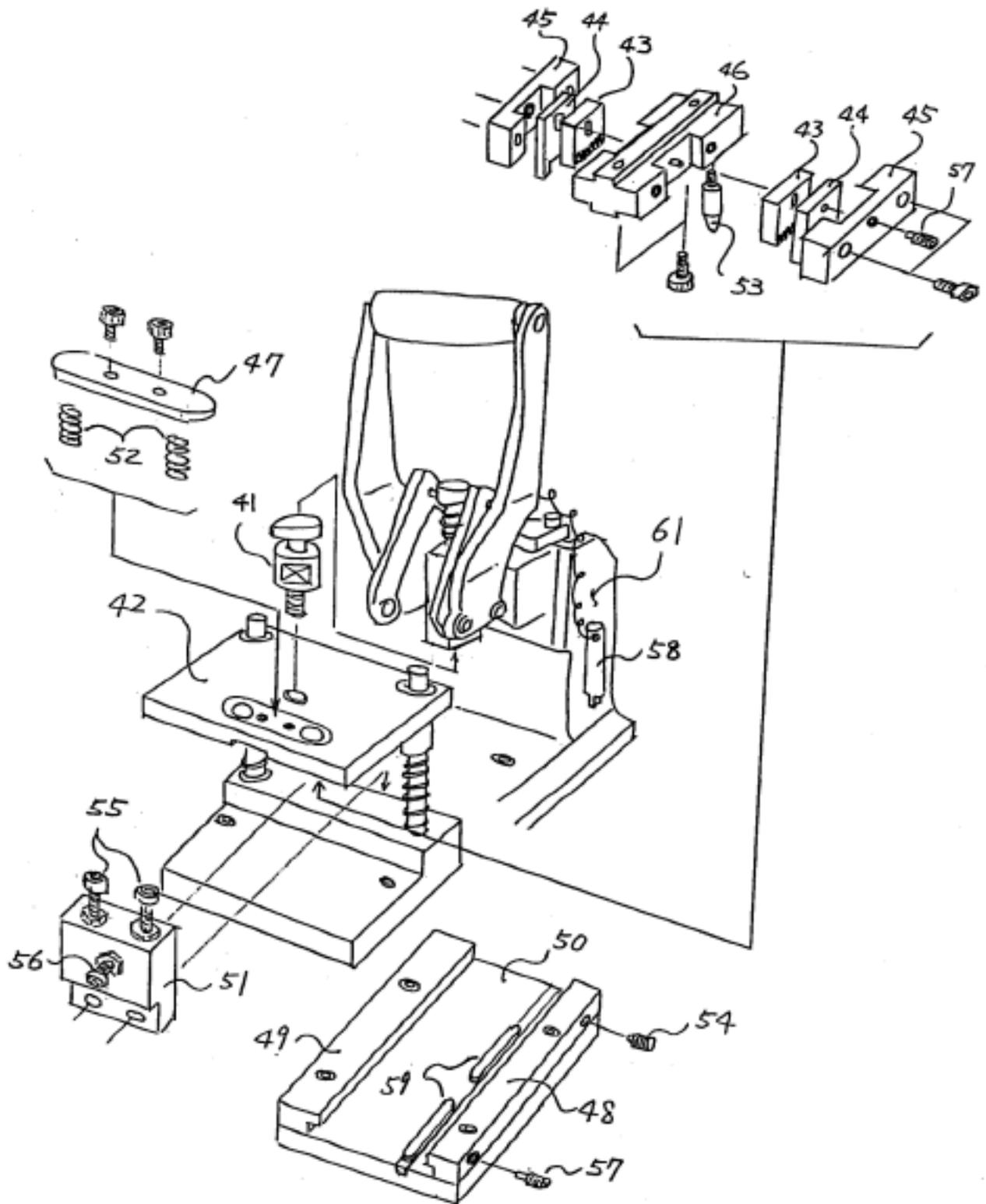


## 6. Parts List

### 6.1. Wire Arrangement Unit Development (1.0mm pitch I/O 120P)



6.2. Wire Pushing Unit Development (1.0mm pitch I/O 120P)



## 6.3. Parts List (1.0mm Pitch I/O 120P Wiring Tool) (1 of 2)

[Applicable Model] 57832-5000: 1.0mm Pitch I/O 120P Wiring Tool

No.	Parts No.	Parts Name	Q'ty	Maker: Parts No.
-	57832-5100	120P Wire Arrangement Unit A Assembly	(1)	
-	57832-5200	120P Wire Arrangement Unit B Assembly	(1)	
-	57832-5300	Termination Unit Assembly	(1)	
		[Perishable Parts]		
3	57832-2005	120P Wire Guide Comb-out	4	
13	57832-2004	120P Wire Guide Comb-in	4	
17	57832-2003	120P Blade Receiver	4	
43	57832-2002	120P Wire Pusher	2	
44	57832-2001	120P Wire Cut Blade	2	
		[Wire Arrangement Unit A]		
1	57832-1001	120P(A) Position Plate-R	1	
2	57832-1002	120P(A) Position Plate-L	1	
4	57832-1004	120P(A) CKT NBR Block-R	1	
5	57832-1005	120P(A) CKT NBR Block-L	1	
22	57832-1022	120P(A) Slide Finger-R	1	
23	57832-1023	120P(A) Slide Finger-L	1	
26	57832-1026	120P(A) Cable Stopper	1	
		[Wire Arrangement Unit B]		
1	57832-1201	120P(B) Position Plate-R	1	
2	57832-1202	120P(B) Position Plate-L	1	
4	57832-1204	120P(B) CKT NBR Block-R	1	
5	57832-1205	120P(B) CKT NBR Block-L	1	
22	57832-1222	120P(B) Slide Finger-R	1	
23	57832-1223	120P(B) Slide Finger-L	1	
26	57832-1226	120P(B) Cable Stopper	1	
		[Standard Parts]		
6	57832-1006	Slide Guide-R	2	
7	57832-1007	Slide Guide-L	2	
8	57832-1008	Spring, Slide Block	4	
9	57832-1009	Tool Block-R	2	
10	57849-1010	Tool Block-L	2	
11	57832-1011	Side Plate	4	
12	57832-1012	Lever, Conn. Setting	4	
14	57832-1014	Cable Clamp-L	2	
15	57832-1015	Cable Clamp-R	2	
16	57832-1016	Cable Set Plate	2	
18	57832-1018	Tool Lower Block-R	2	

## 6.3. Parts List (1.0mm Pitch I/O 120P Wiring Tool) (2 of 2)

[Applicable Model] 57832-5000: 1.0mm Pitch I/O 120P Wiring Tool

No.	Parts No.	Parts Name	Q'ty	Maker: Parts No.
	[Standard Parts] (Continuation)			
19	57832-1019	Tool Lower Block-L	2	
20	57832-1020	Slide Base	2	
21	57832-1021	Tool Spacer	2	
27	57832-1027	Screw, Position Plate	4	
28	57832-1028	Work Guide	4	
29	57832-1029	Knurl Screw	2	
30	57832-1030	Guide, Clamper-L	2	
31	57832-1031	Plate, Clamper-L	2	
32	57832-1032	End Plate, Clamper-L	2	
33	57832-1033	Spring, Clamper-L	2	
34	57832-1034	Lever, Clamper-L	2	
40	57832-1040	Work Bench	2	
41	57832-1041	Shank	1	
42	57832-1042	Die Set	1	
45	57832-1045	Cut Blade Holder	2	
46	57832-1046	Pusher Set Block	1	
47	57832-1047	Spring Hold Plate	1	
48	57832-1048	Guide Rail-R	1	
49	57832-1049	Guide Rail-L	1	
50	57832-1050	Guide Base	1	
51	57832-1051	Dead Point Block	1	
52	57832-1052	Spring, Pusher	2	
58	57832-1058	Wire Trimming Tool	1	
60	57832-1060	Pedestal	2	
	[Commercial Parts]			
24	57823-0001	Handle	4	MISUMI: LOG6-100
25	57823-0002	Knob, Cable Clamp	2	MISUMI: KRF-6
35	57832-0009	Index Plunger	2	MISUMI: PXA-10
36	57832-0010	Spring Pin /Phi2x10L	4	Phi2x10L
53	57823-0003	Locating Pin	1	MISUMI: TLDS-8
55	57823-0005	Stopper Bolt /5-20	1	MISUMI: UTS5-20
56	57823-0006	Stopper Bolt /6-40	1	MISUMI: UTS6-40
57	57823-0007	Dog Head Screw /M6-12	1	MISUMI: M6-12L
59	57823-0008	Guide Key	2	MISUMI: KES6-50
61	57823-5300	Hand Press ASS'Y	1	STE: FX-004

## 7. 1.0mm Pitch I/O 120P Wiring Tool Startup Checklist

[Applicable Model] 57832-5000: 1.0mm Pitch I/O 120P Wiring 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	Wire protruding length	0.3mm or less	Checking with a magnifying glass	Data	○	
2	Shear drop of conductor	Within the outer diameter of wire insulation	Checking with a magnifying glass	-	○	
3	Wire pusher	No foreign article	Cleanup	-	○	
4	Wire guide comb	No damage	Visual check	-	○	
5	Work set part	No foreign article	Cleanup	-	○	
6	Damage on wire and connector	No remarkable damage	Visual check	-	○	
	[Monthly Checking]					
7	Ram and die set shaft	No dry up	Grease supplying	-	-	○

