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FP50 WIRING TOOL

(Tool Number: 57823-5000)

OPERATING MANUAL



Molex Japan Co., Ltd.

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<Safety Precautions>

Please read the following before operating the tool.

1. Introduction

Thank you for choosing our **FP50 WIRING 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

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- 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 housing too much deeply is a cause the damage of the upper housing and it is a prohibition.

* Please work by an appropriate amount of the wire pushing.

2) Setting of upper housing in different direction

It is a prohibition because it causes the damage of the termination punch and the upper housing when the upper housing is set in a direction different from a prescribed direction.

* Please set the upper housing 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 housing as the pre-work of the termination of FP50 I/O cable assembly of Molex.

As the procedure, the upper housings are set in the tool, and the wires in the cable are arranged in the outside wire comb by the hand sequentially.

Next, the table is pushed in the tool, the wires are pushed and the batch is pushed into the upper housing by depressing the handle of the tool. At that time, the excess wire is cut on the upper housing edge.

2. Tool Configuration and Applicable Products

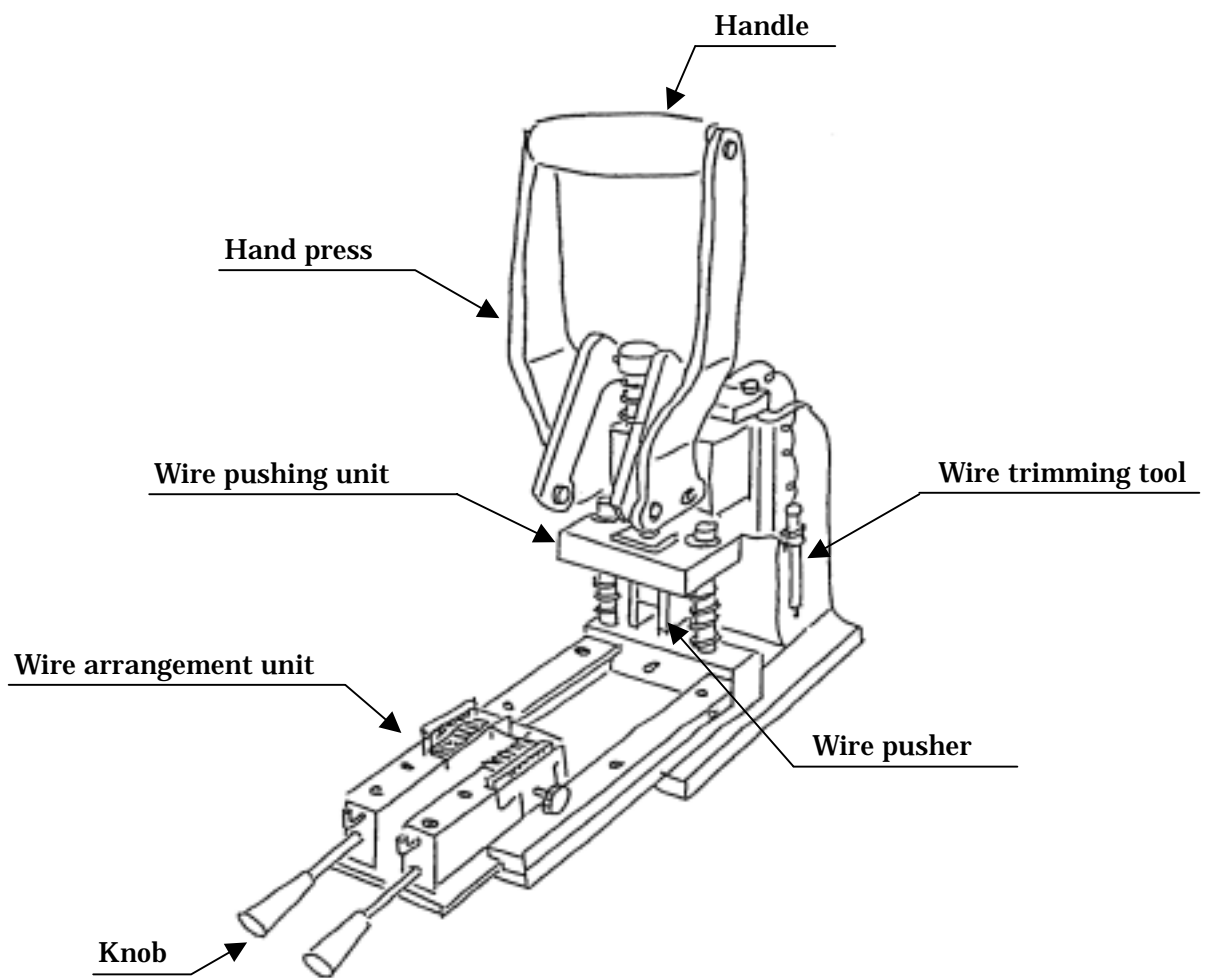
2.1. Tool Name and Configuration

- 1) Tool name: FP50 Wiring Tool
- 2) Tool number: 57823-5000
- 3) Tool configuration:
 - (1) Wire arrangement unit:
Wire arrangement unit of wire to upper housing
 - (2) Wire pushing unit:
Wire pushing into upper housing and cutting of excess wire
 - (3) Hand press:
Toggle system hand press (Maximum termination force:
600kgf or more)

2.2. Applicable Connector and Cable

- 1) Connector: Molex FP50 (1.27mm pitch 20-circuit) Connector
52620-1011: FP50 Upper housing
- 2) Cable: UL20276, AWG#28, 10-pairs braid shield cable, Wire insulation diameter = $\phi 0.58\text{mm}$, Cable outer diameter = $\phi 6.8\pm 0.3\text{mm}$

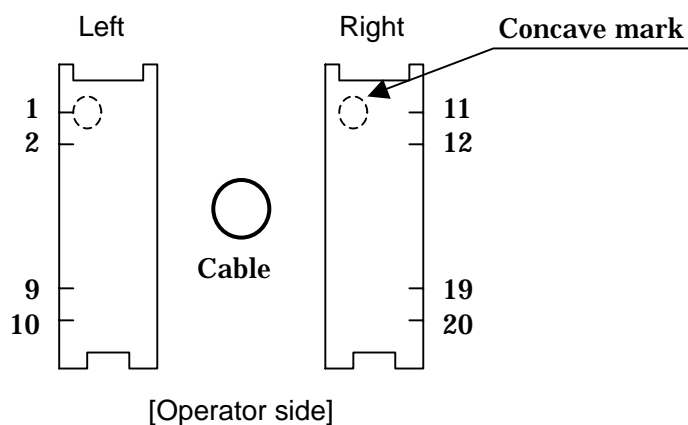
2.3. Tool Appearance and Unit Name



3. Specifications

3.1. Tool Specifications

- 1) Arrangement of wire: Wire is arranged one by one by with the hand in the prescribed circuit number of the wire guide comb on the wire arrangement unit that sets the upper housing.
- 2) Wire pushing: The wire arrangement unit that completed the wire arrangement is set in the tool, and pushing the wire into the upper housing is executed by depressing the handle of the tool.
- 3) Cutting of excess wire: The wire cut blade cuts the excess wire by the wire pushing operation on the upper housing edge.
- 4) Setting of upper housing: The concave mark of an upper housing is adjusted to the tip side and set it in the wire arrangement unit. (The tool is directionality having)
- 5) Setting of cable: The sheath edge of the cable is matched to the cable stopper and set it in the wire arrangement unit.
- 6) Standard circuit number assignment: The circuit number assignment of the standard is the following.



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

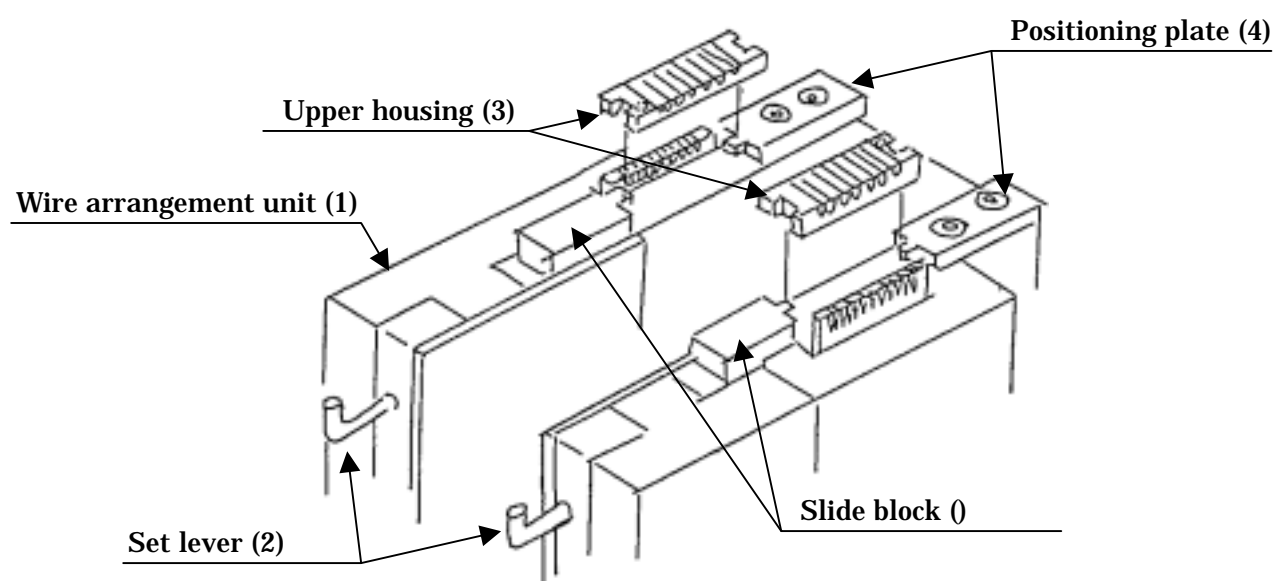
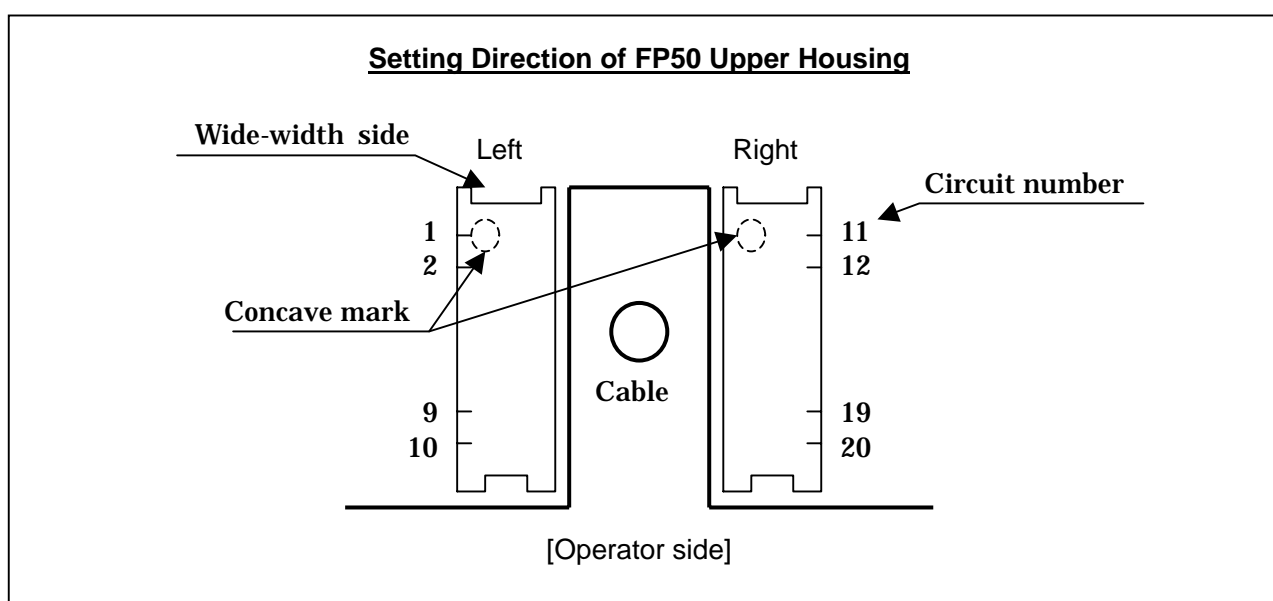
Tool installation space on a worktable required for the purposes of performing operation and maintenance checkups.

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

4. Operation Method

4.1. Setting of Upper Housing

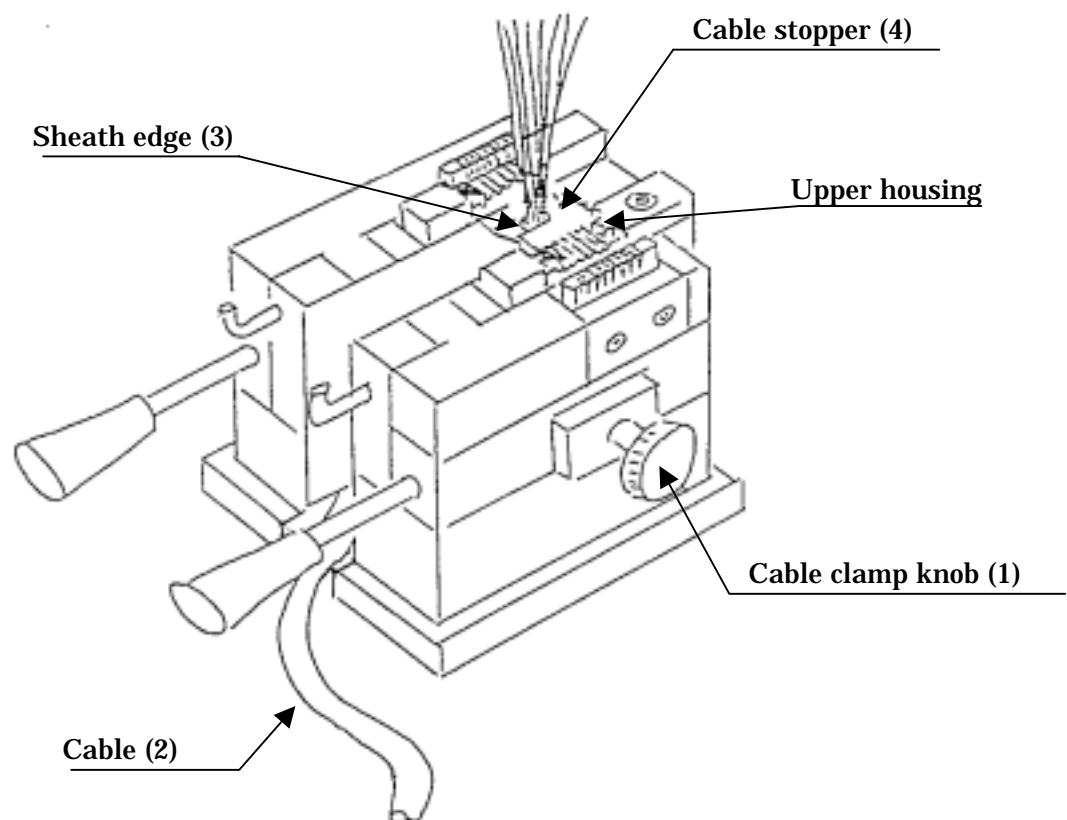
- 1) Draw out the “wire arrangement unit (1)” from the main body of the tool to the operator side.
- 2) Pull the “setting lever (2)” of the wire arrangement unit toward you, and set the “upper housing (3)” between the “positioning plate (4)” and the “slide block (5)” in the prescribed direction.
- 3) Next, release the “setting lever (2)” slowly and fix the “upper housing (3).”



4.2. Setting of Cable

- 1) Pull the “cable clamp knob (1)” of the wire arrangement unit in the direction of the outside, and the clamber is held in the state of opening.
- 2) Put the “cable (2)” that has processed the edge side between the cable clamber.
- 3) Set the “sheath edge (3)” of the cable under the cable stopper, and the cable is clamped by releasing the “cable clamp knob (1).”

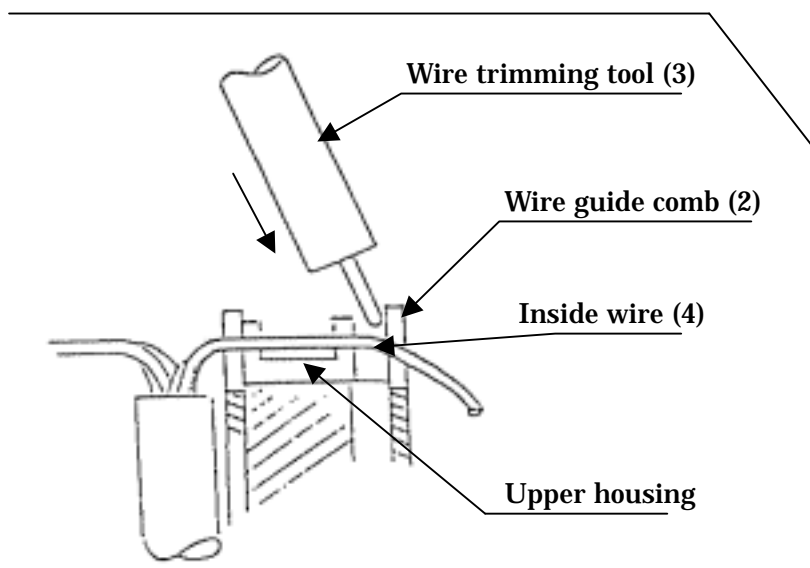
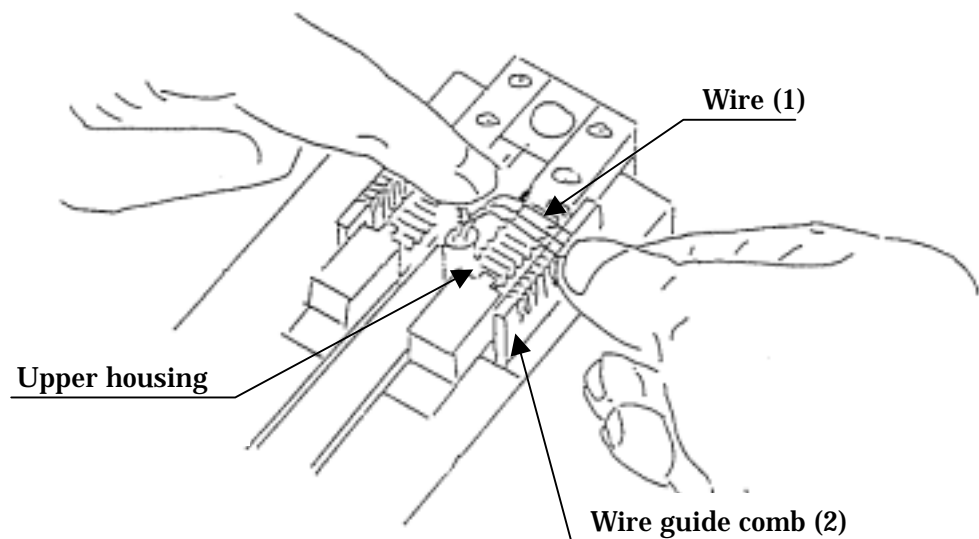
“**Note**” Please note that the size between the sheath edge of the cable and the upper housing changes at the position where the cable is set.



4.3. Wire Arrangement

- 1) Set the “wire (1)” in the ditch of a prescribed circuit number of the “wire guide comb (2)” according to the wiring 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 trimming tool (3).”

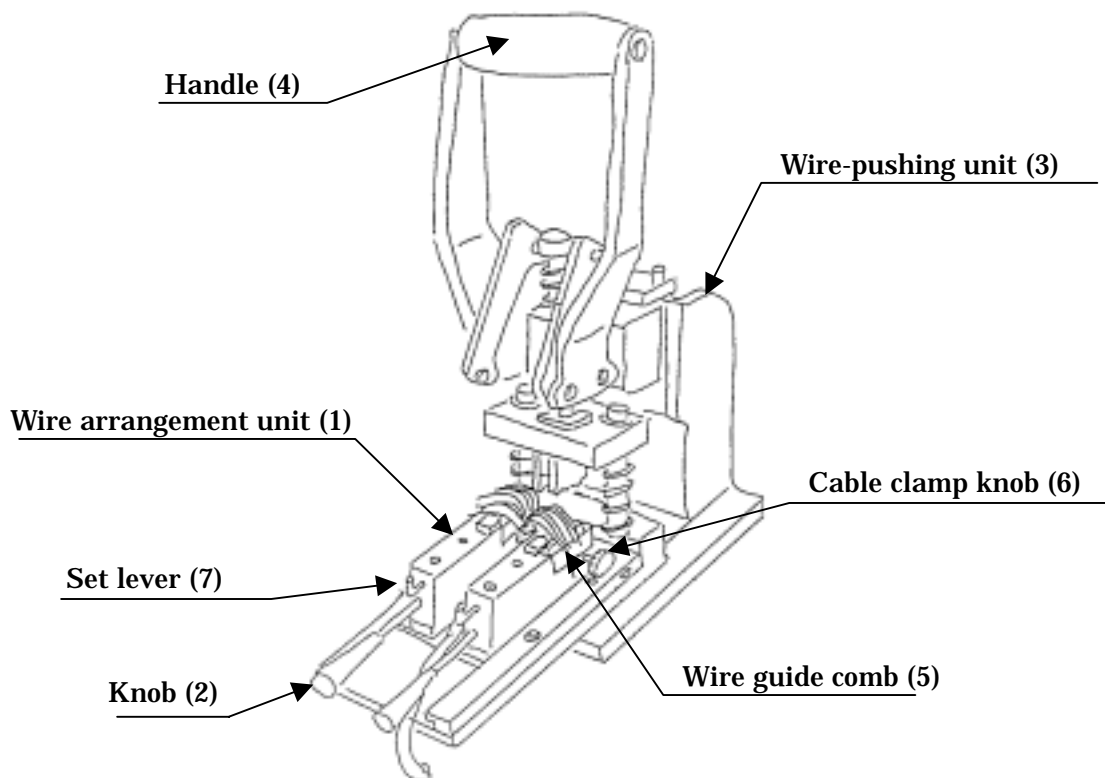
“Note” It is a prohibition because the wire pushing in the state that there is slack in the wire causes a defective cutting. Please take the slack of the arranged wire surely.



4.4. Wire Pushing and Cutting

- 1) 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.
- 2) Depress the “handle (4)” of the “wire-pushing unit (3)” while the “knob (6)” of the wire arrangement unit grasped by one hand, and the wire pushing and the cutting of the excess wire are executed.
- 3) Draw out forward the “wire arrangement unit (1)” and remove the cut “wire scraps” from the “wire guide comb (5).”
- 4) Remove the cable from the clamp pulling the “cable clamp knob (6).”
- 5) Next, incline the cable lightly back and forth after two “set levers (7)” are pulled at the same time and the upper housing is put into the state of opening, and detach the cable assembly from the “wire arrangement unit (1).”

“Note” Please put each hand on the “knob” and the “handle” without fail for safety and operate it.



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 confirm the standard value with FP50 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 housing edge.

<Standard> Wire protruding length = 0.3mm or less

2) Conductor shear drop

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.

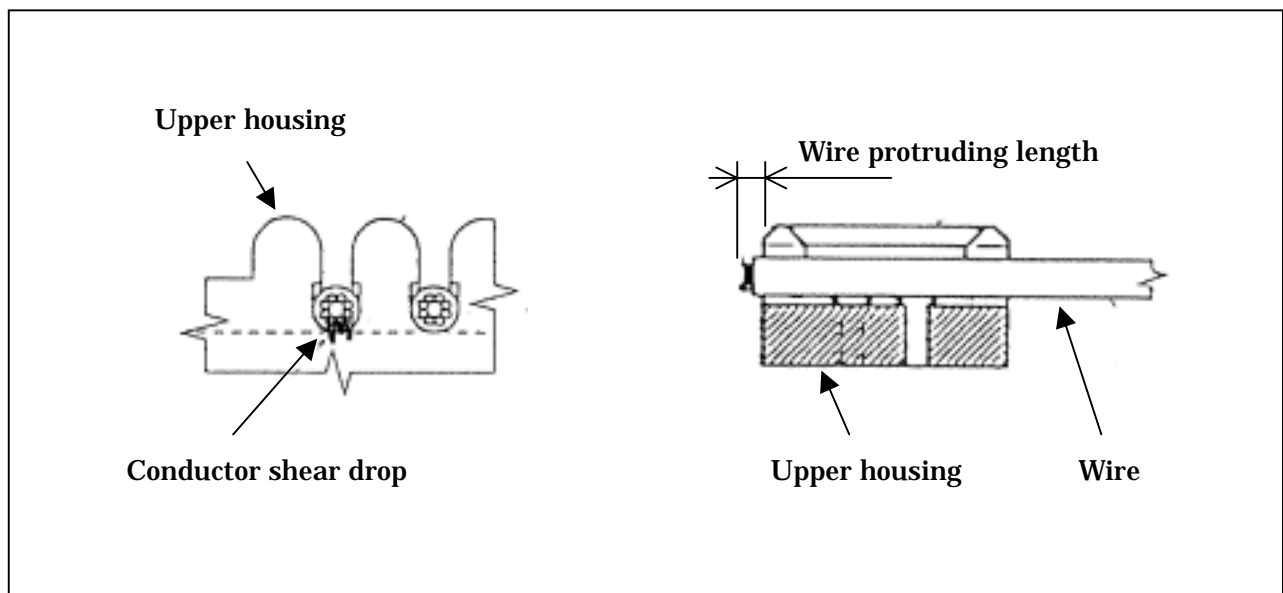
<Standard> Conductor shear drop amount = Within the outside diameter of the wire insulation.

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 housing

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



5.3. Exchange Method of Wire Cut Blade and Wire Pusher

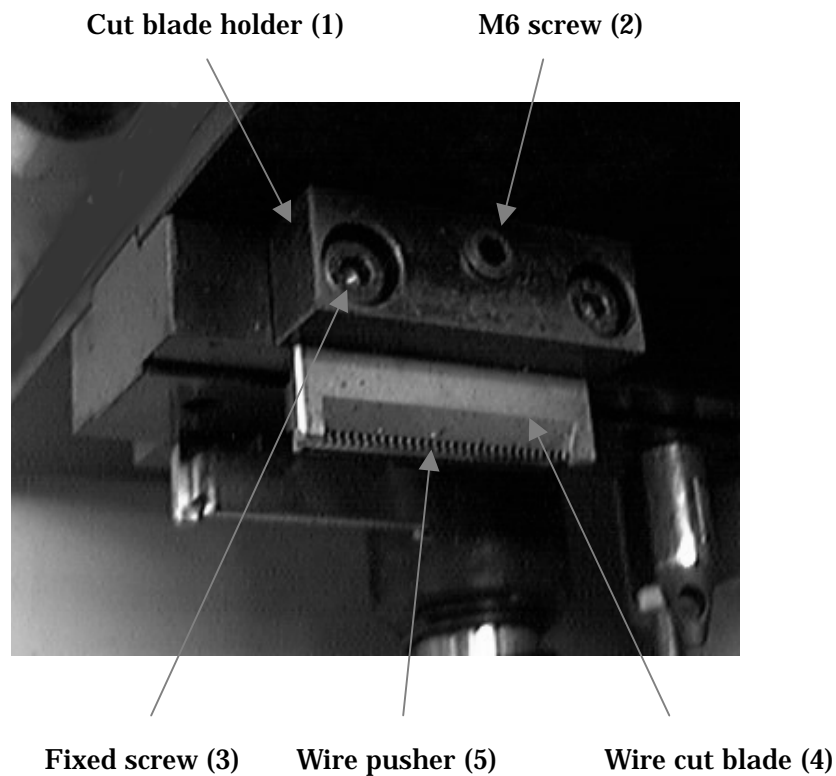
1) [Exchange of wire cut blade]

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.

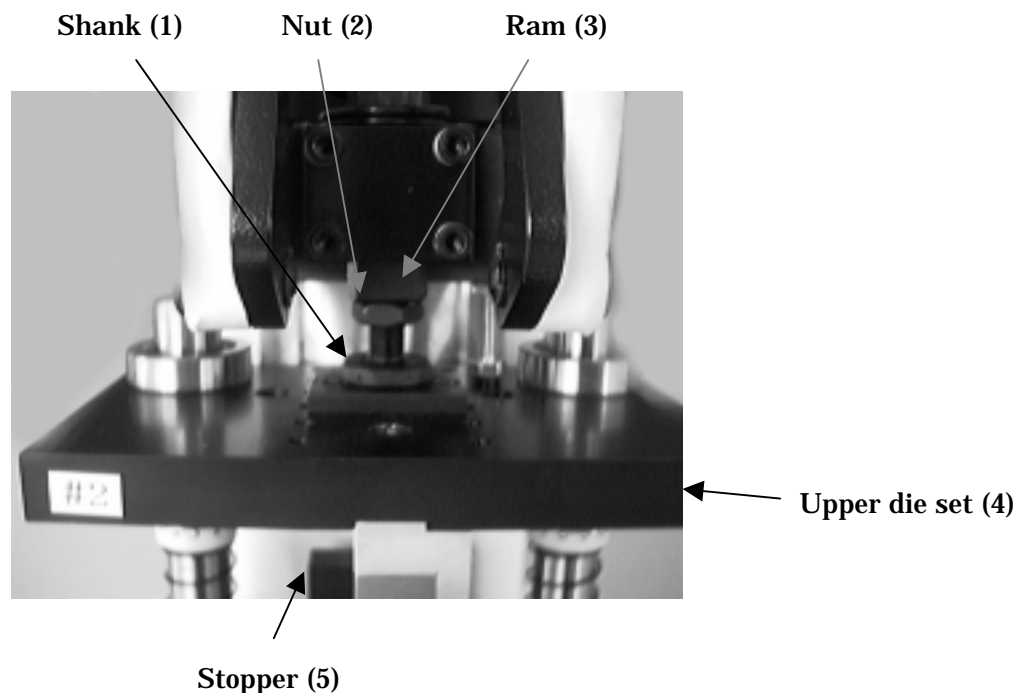
“**Note**” Please note that the “internal compression spring” falls simultaneously with the wire pusher when you exchange the pusher.



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 housing without crushing after adjustment.

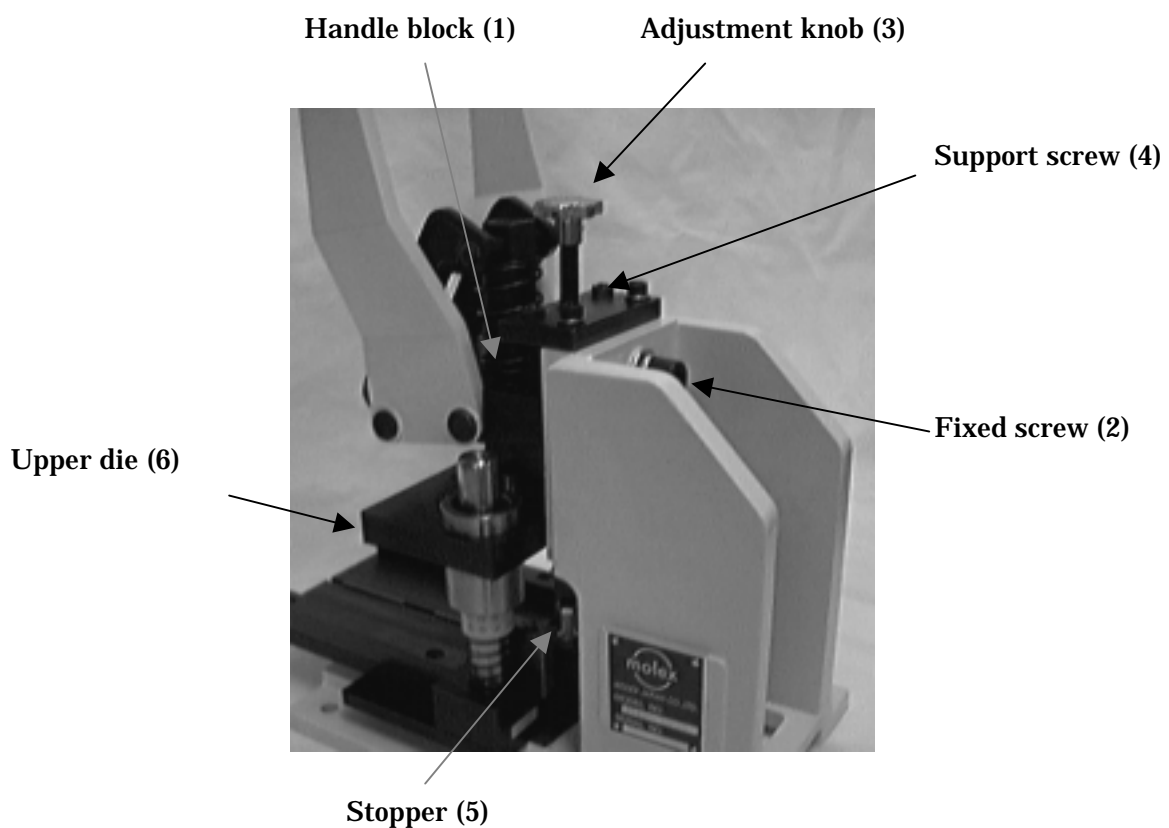


5.5. Adjustment Method of Hand Press Bottom Dead Point

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.

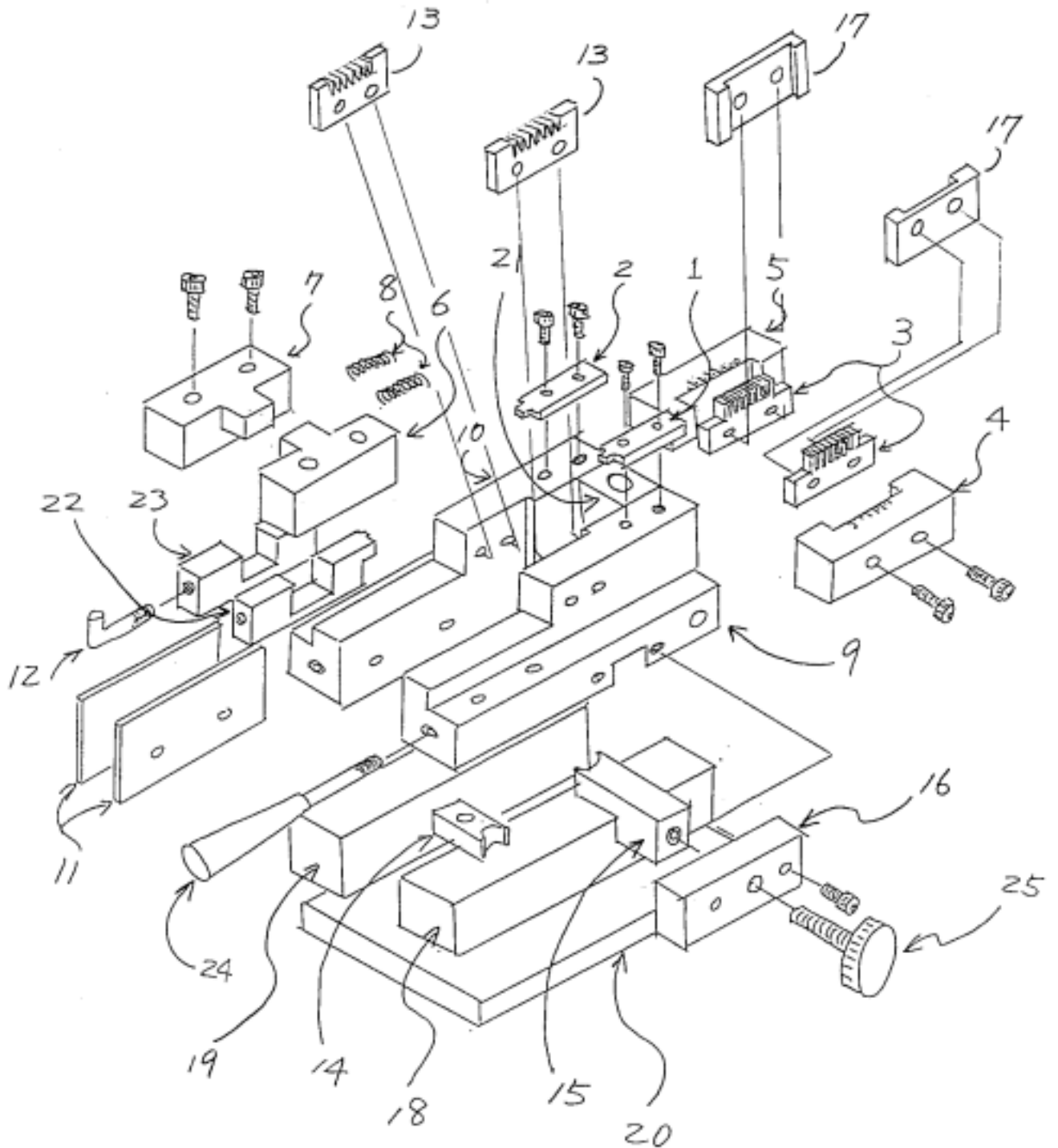
- 1) Loosen the “fixed screw (2)” of the “handle block (1)” of the hand press and adjust the bottom dead point of the main body of the hand press moving the handle block with the “adjustment knob (3).”
- 2) Adjust the screw at the same time when there is a “support screw (4)” in the handle block.
- 3)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

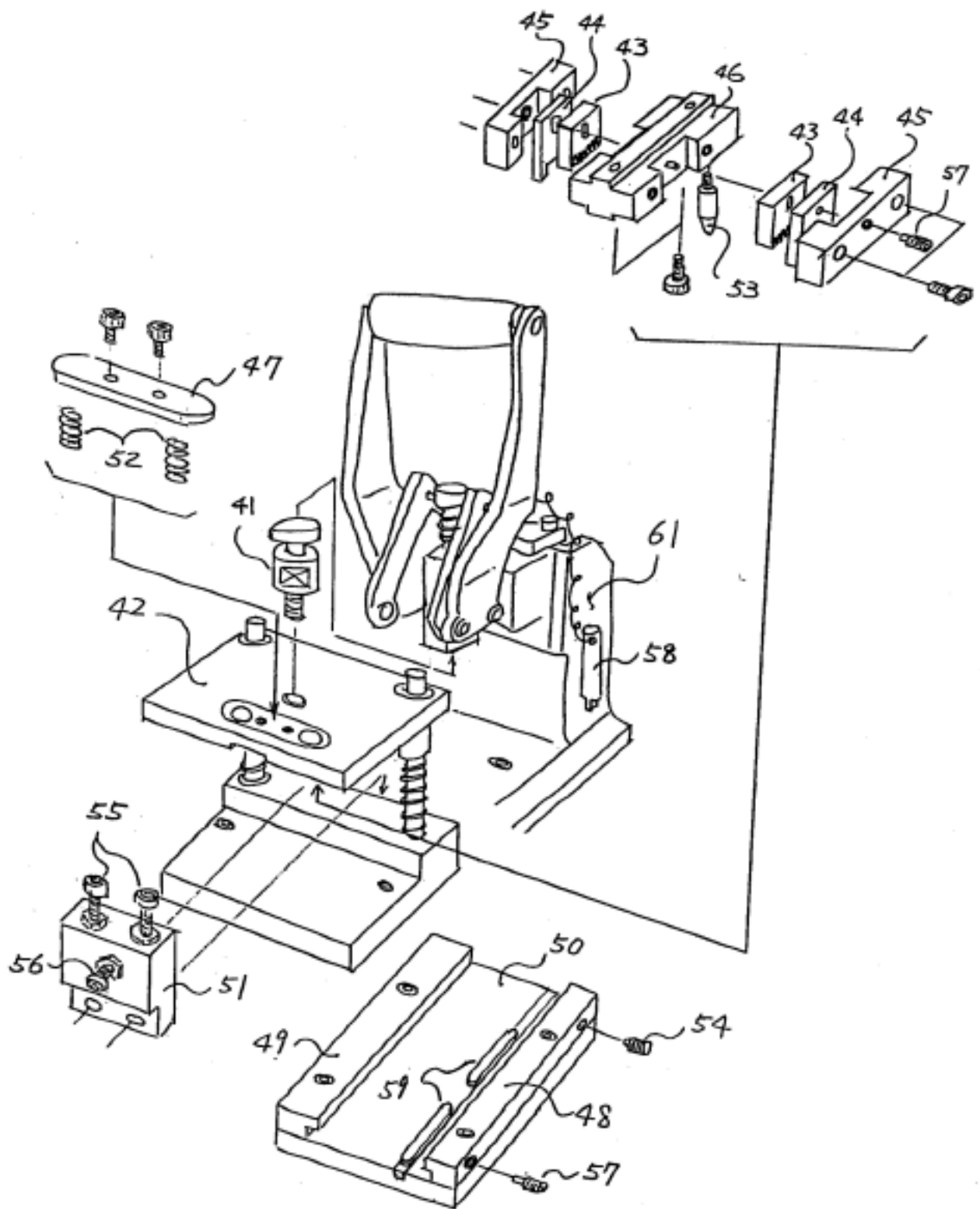


6. Parts List

6.1. Wire Arrangement Unit Development (FP50)



6.2. Wire Pushing Unit Development (FP50)



6.3. Parts List (FP50 Wiring Tool) (1 of 2)

[Applicable Model] 57823-5000: FP50 WIRING TOOL

No.	Parts No.	Parts Name	Q'ty	Maker: Parts No.
-	57823-5100	Wire Arrangement Unit ASS'Y	(1)	
-	57823-5200	Wire Pushing Unit ASS'Y	(1)	
	[Perishable Parts]			
3	57823-2005	Wire Guide Comb-Out	2	
13	57823-2004	Wire Guide Comb-In	2	
17	57823-2003	Blade Receiver	2	
43	57823-2002	Wire Pusher	2	
44	57823-2001	Wire Cut Blade	2	
	[Circuit Number Limited Parts]			
1	57823-1001	Position Plate-R	1	
2	57823-1002	Position Plate-L	1	
4	57823-1003	Ckt Number Block-R	1	
5	57823-1004	Ckt Number Block-L	1	
22	57823-1019	Slide Finger-R	1	
23	57823-1020	Slide Finger-L	1	
26	57823-1021	Cable Stopper	1	
45	57823-1043	Cut Blade Holder	2	
46	57823-1044	Pusher Set Block	1	
52	57823-1050	Spring, Pusher	2	
	[Standard Parts]			
6	57826-1005	Slide Guide-R	1	
7	57826-1006	Slide Guide-L	1	
8	57826-1007	Spring, Slide Block	2	
9	57849-1008	Tool Block-R	1	
10	57849-1009	Tool Block-L	1	
11	57826-1010	Side Plate	2	
12	57826-1011	Set Lever	2	
14	57826-1012	Cable Clamp-L	1	
15	57826-1013	Cable Clamp-R	1	
16	57826-1014	Cable Set Plate	1	
18	57826-1015	Tool Lower Block-R	1	
19	57826-1016	Tool Lower Block-L	1	
20	57826-1017	Slide Base	1	
21	57849-1018	Tool Spacer	1	
27	57826-1022	Screw, Position Plate	2	
40	57826-1047	Guide Rail-L	1	
41	57826-1041	Shank	1	
42	57826-1042	Die Set	1	

7. FP50 Wiring Tool Startup Checklist

[Applicable Tool]: 57823-5000: FP50 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 magnifier	Data	○	
2	Conductor shear drop	Within the outer diameter of wire insulation	Checking with a magnifier	-	○	
3	Wire pusher	No foreign article	Cleanup	-	○	
4	Wire guide comb	No damage	Visual check	-	○	
5	Work set part	No foreign article	Cleanup	-	○	
6	Scratch on wire and connector	No remarkable scratch	Visual check	-	○	
	[Monthly Checking]					
7	Ram and die set shaft	No dry up	Grease supplying	-		○

