

COM[®] JD II Series

JD II -240·JD II -150F
Tabletop model automatic taping machine

MAINTENANCE MANUAL



Introduction

This Maintenance Manual explains how to replace and adjust the major components of the Automatic Taping Machine when required in daily operation.

Placing emphasis on enabling users to identify the causes of problems during actual use, this Manual presents typical problems that may occur, and concisely explains how to identify their causes and how to solve them.

We hope that this Manual will be of assistance to you as servicing guidelines in the inspection, adjustment, disassembly and assembly of the Taping Machine.

The specifications of the Automatic Taping Machine may be changed for improvement. Please note that there may be difference between machine description in this Manual and the design of your machine.

TAIYO SEIKI CO.,LTD.



Warnings

Always when performing the replacement or adjustment of parts, unplug the power cord from the main body.

Perform maintenance carefully to avoid machine trouble or injury.

Before servicing components near the heater, check that the heater temperature is sufficiently low to avoid burns.

Taiyo Seiki is not liable for any accidents or injury incurred during the maintenance of this machine.



Cautions

This Maintenance Manual is not intended to include every detail concerning maintenance. Persons who do not have general knowledge and skills regarding machine maintenance are not allowed to inspect, adjust, disassemble or assemble this machine. For servicing, refer to both this Maintenance Manual and the Instruction Manual..

Machine functions

The COM JD II series operate banding of product and forming of tape loop, completing one cycle run. When the loop is ready in the machine, the machine is in the ORIGIN (home position) of functioning. When you press the START button, the banding action starts. After the product in the machine is banded, the heater unit works to seal the tape. Completion of banding is the MIDDLE point of one cycle run. When you remove the banded product, the work sensor (product sensor) is automatically turned one and the loop is formed again (coming back to the ORIGIN).

As soon as the machine run is started from the ORIGIN, the following sequence will start -

1. the beak grips the tape;
2. the tape reverse click is lowered to release and grip the tape'
3. the rubber rollers pull the tape to tighten the loop (the product is banded securely now);
4. the right and tape clamps grip the tape (the tape is in the state of being pulled now);
5. the cutter unit moves up;
6. the tape reverse click moves forward to re-grip the tape. At this time the cutter cuts off the tape;
7. the heater seals the tape.

When the tape reverse click turns 90 degrees from the MIDDLE position, the rollers run to feed the tape. The tape reverse click rotates to move up. When it reaches to the position where the click opening is parallel to the spacer, the spacer moves forward. The beak returns to the ORIGIN being ready to grip the tape again.

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1. Trouble shooting

1-1. Tape cannot be sealed completely

Problem: Tape cannot be sealed at all or sometimes sealed, sometimes not

CAUSE 1: Cartridge heater wire failure.

REMEDY: Replace the heater.

CAUSE 2: Heater spring failure.

REMEDY: Replace the spring.

CAUSE 3: Temperature cannot be adjusted due to PCB (printed circuitboard) failure.

REMEDY: Check heater temperature control.

The control PCB will have to be replaced.

CAUSE 4: Tape tail after sealing is too short and tape sealing is incomplete due to tape reverse click failure.

REMEDY: Replace the tape reverse click.

CAUSE 5: Tape-end seal tape on tape roll is adhered in tape path causing that the tape sealing area is too small.

REMEDY: Clean and check the tape path.

Problem: Sealed area is peeled off after banding

CAUSE 1: Peeling off due to rebounding of the banded product.

REMEDY: Loosen the tensioning knob, adjust the positions of the attachments for placing the product toward the right.

The banding tension becomes higher when the product is more placed toward the right side when tension is set to a fixed level.

Problem: Sealed area is peeled off due to over-heating

CAUSE 1: After turning off the POWER switch, it is turned on again when heater temperature is still high.

This causes that heater plate temperature is raised beyond the specified level.

REMEDY: Do not turn on and off the POWER switch often.

If you want to start operations again in one hour after switch off, this switch should be kept turned on.

Problem: One sealing area has sealed points and unsealed points

CAUSE 1: Spacer and heater plate contact angle adjustment failure.

REMEDY: Adjust the heater plate angle to meet the spacer completely.

1-2. Tape cut failure

Problem: Tape cannot be cut away

CAUSE 1: Right clamp spring or heater spring failure.

REMEDY: Replace springs.

Problem: Irregular tape cut (cut points and uncut points in one cutting action)

CAUSE 1: Cutter blade wearing.

REMEDY: Replace cutter blade.

CAUSE 2: Spacer and right clamp meeting angle failure causing that tape is not clamped evenly.

REMEDY: Adjust the right clamp angle to meet the spacer.

CAUSE 3: Upper tape clamp and tape clamp meeting angle failure causing that tape is not clamped evenly.

REMEDY: Adjust the upper right clamp angle to meet the tape clamp.

1-3. Tape looping failure

Problem: Irregular tape loop size

CAUSE 1: Tape feeding failure.

REMEDY: Feed the tape in the correct way. Make sure the tape is fed between the tape width setting pin and the tape width setting parallel pin.

CAUSE 2: Narrower tape is used.

REMEDY: Adjust the tape width setting pin to meet the tape width.

Problem: Tape is caught in rollers and tape clamping area when feeding tape

CAUSE 1: Tape-end seal tape is adhered to rollers (when feeding a new roll of tape).

REMEDY: Remove this seal tape.

CAUSE 2: Tape is meandering due to roller wear.

REMEDY: Replace the rollers.

Problem: Tape can be fed into machine but loop cannot be formed

CAUSE 1: The spacer spring is failed and the spacer cannot move

back to its position, so that tape cannot be fed enough to form a loop.

REMEDY: Replace the spring.

CAUSE 2: Tape head is not gripped in tape reverse click due to tape reverse click failure.

REMEDY: Replace the tape reverse click.

1-4. Banding tension failure

Problem: Banding tension is not high enough even when tensioning knob is turned (toward higher level)

CAUSE 1: Attachment is placed too much toward left.

REMEDY: Adjust the attachment position toward the right.

CAUSE 2: Banding tension cannot be increased due to rubber roller wearing.

REMEDY: Replace the rubber rollers.

Problem: Tape loop is formed but tape cannot be pulled

CAUSE 1: Thrust bearing failure.

REMEDY: Replace the bearing.

1-5. Machine start failure

Problem: Main switch can be turned on but POWER switch cannot be turned on causing start failure

CAUSE 1: Fuse is blown by short-circuit due to cartridge heater wire failure.

REMEDY: Replace the cartridge heater and fuse.

Problem: POWER switch can be turned on but START and AUTO switches cannot be turned on

CAUSE 1: The safety microswitch on the front cover failure.

REMEDY: Adjust this switch position or replace it with a new one.

1-6. Machine control failure

Problem: Cycling cannot be stopped

Making a stop slowly at the stop position

Over-run

Heater temperature adjustment failure

CAUSE 1: Control PCB failure.

REMEDY: Replace this PCB.

2. Preparation for Maintenance

※Caution:

When the main switch is turned ON, the READY LED flashes, voltage is applied to the heater, and the temperature of the heater increases until the temperature set point is reached. However, if the safety micro switch is OFF, voltage will not be applied to the heater, and therefore, the temperature of the heater will not increase.

When the main switch is turned OFF, the heater voltage quickly drops to 0 V; however, the temperature of the heater does not decrease quickly.

It takes approximately 60 min for the heater to cool completely.

The heater temperature is controlled with a thermocouple and is maintained at the temperature set point.

※If the safety micro switch is not ON, the machine will not operate.

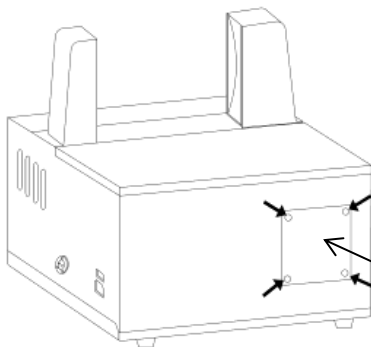
When operating the machine or confirming the adhesion of the heater, ensure that the safety micro switch is ON.

※Preliminary preparation before maintenance:

Please perform maintenance from the dip switch 6 of the control board to ON.

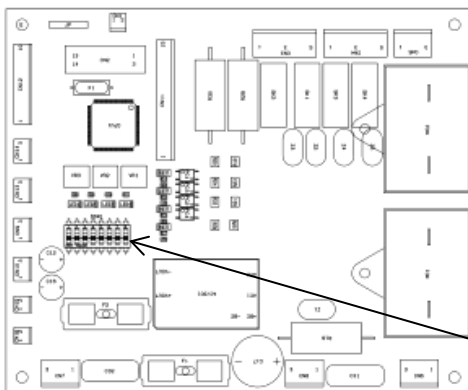
In the left DIP switch 6 is OFF, 2. Because it does not allow the setting of the 4 ~ 7 of maintenance preparation of, Please to ON the dip switch 6 sure.

If you have the end maintenance, please refer to the dip switch 6 to OFF.



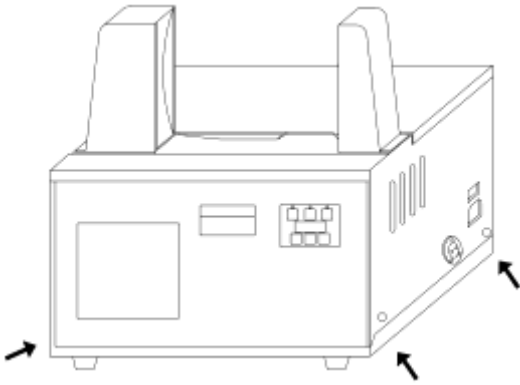
Remove the screws pointed by the arrow for dismounting the PCB cover.

PCB cover

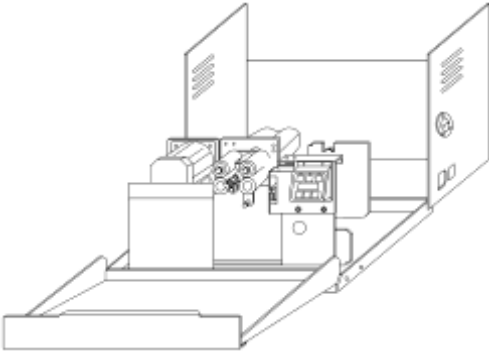


DIP switch has become a 1,2,3,4,5,6,7,8 th from the left.
Please do not touch except No. 6.

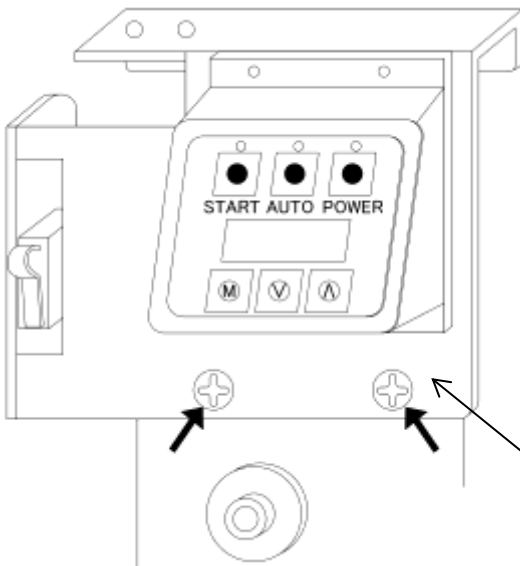
DIP switch



1. Loosen the four screws
(2 screws at each side) used to fix the machine cover.

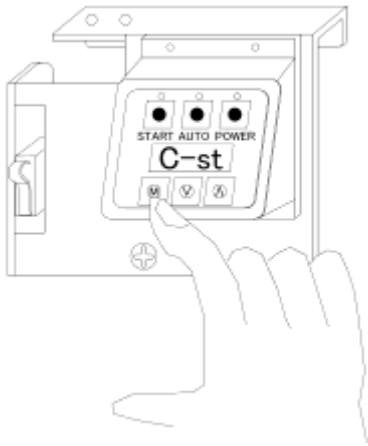


2. Open the front cover and open the main body cover, so that access to the mechanism can be permitted.

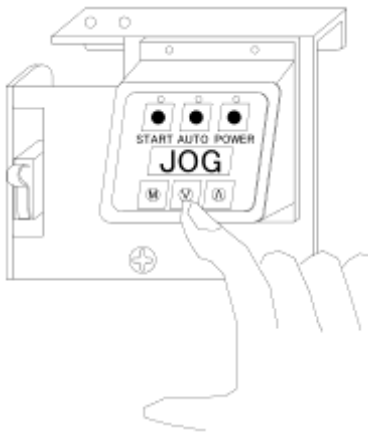


3. Remove the two screws and dismount the switch box assembly.

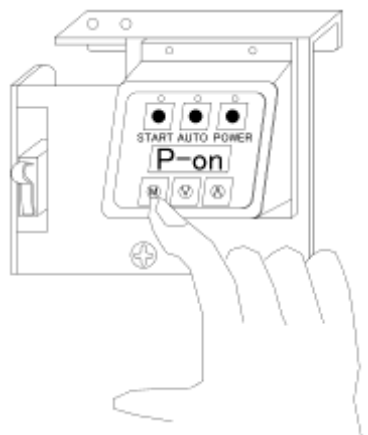
Switch box mounting plate



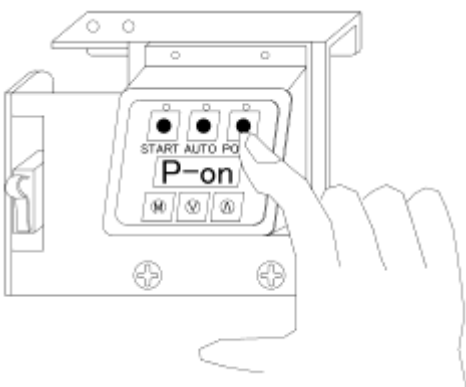
4. Press and hold the MODE switch until the display switches to [C-st].
Then, release the MODE switch.



5. Press the DOWN (V) switch once to switch the display to [JOG].

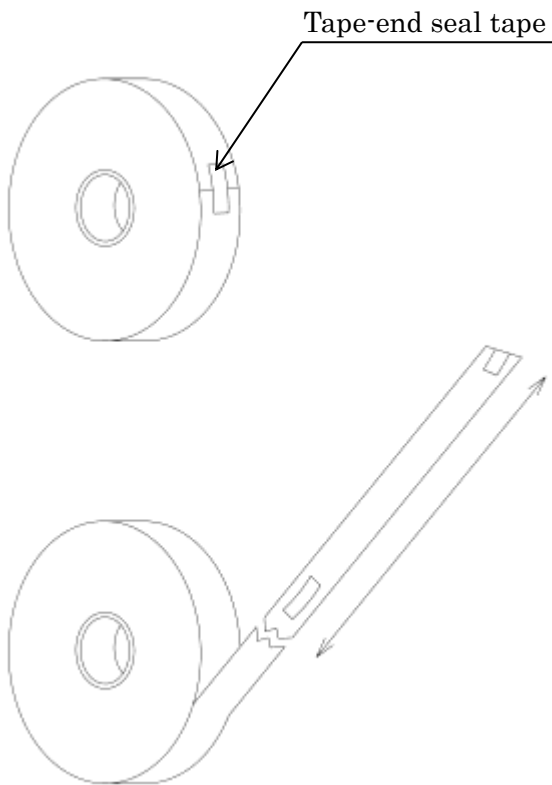


6. Press the MODE switch once to switch the display to [P-on].



7. When the READY switch is pressed simultaneously with the safety micro switch, the machine jogs, and when the READY switch is released, the machine stops.
Jog the machine until it is in a position where adjustments can be easily performed.
※ The machine will not move without pressing the safety micro switch.

3. Tape-end seal tape

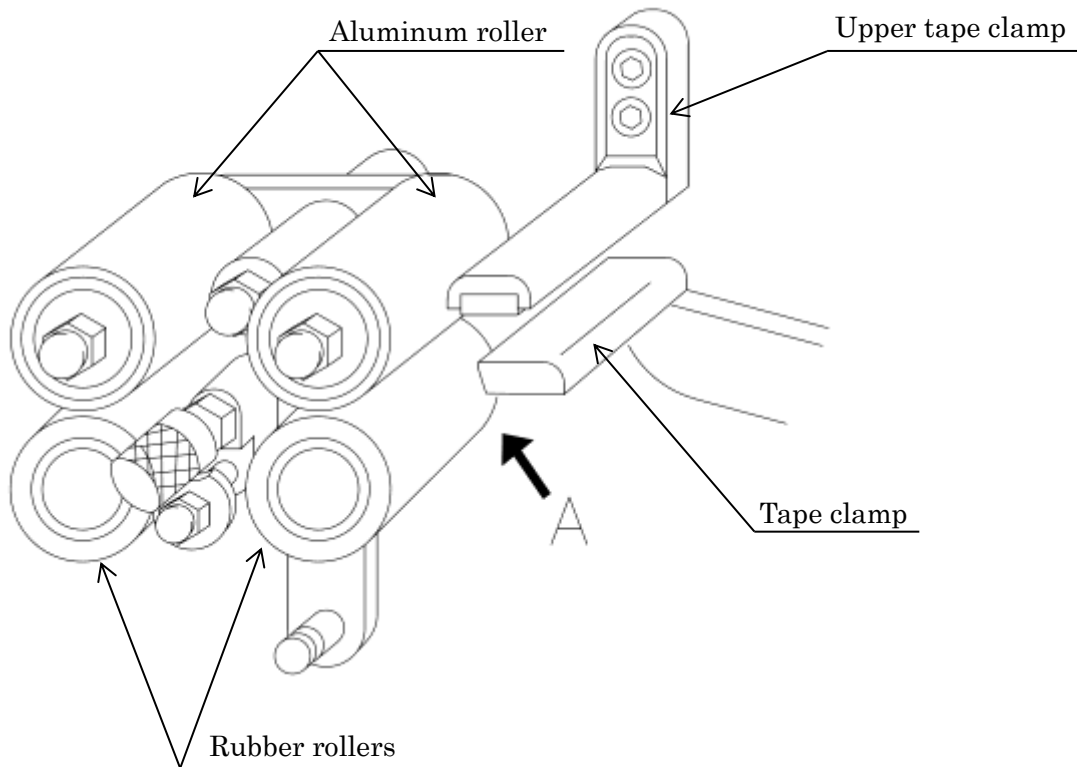


Every new roll of tapes has a seal tape for keeping the tape roll in good shape.

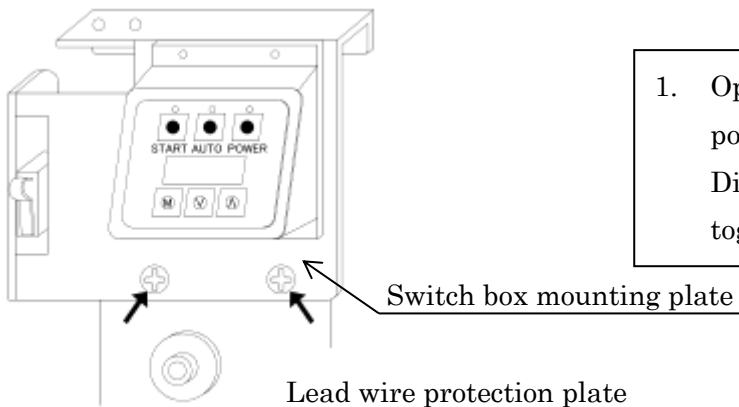
When setting a new roll of tape in the machine, the tape feeding head having this seal tape must be cut away.

If the tape roll is used without cutting away this area, the seal tape will be adhered to the rollers, clamping areas, etc. causing tape feeding failure.

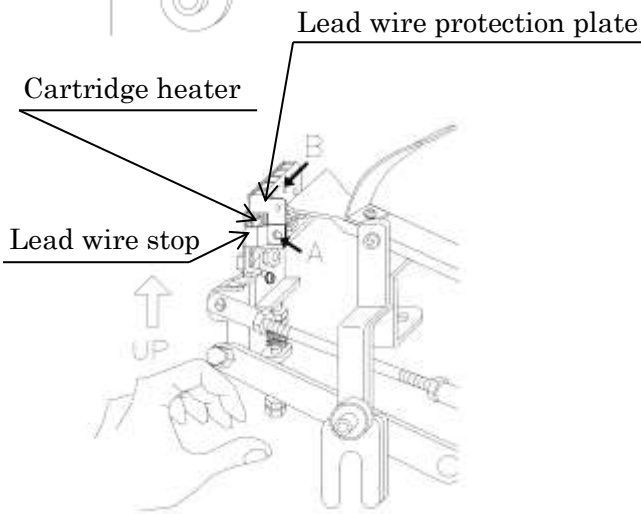
If you find the tape feeding head jammed in the point A, there is high possibility that this seal tape is adhered to the upper tape clamp or tape clamp lever. Remove this seal tape completely and clean the surface using cleaning liquid (lacquer thinner, etc.)



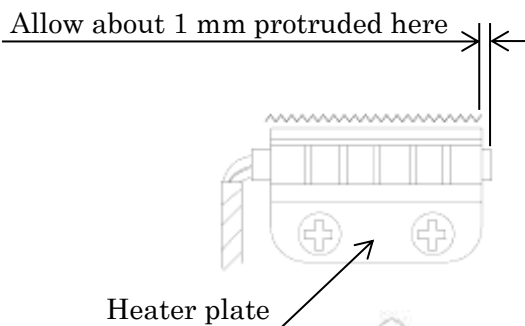
4. Replacement of cartridge heater



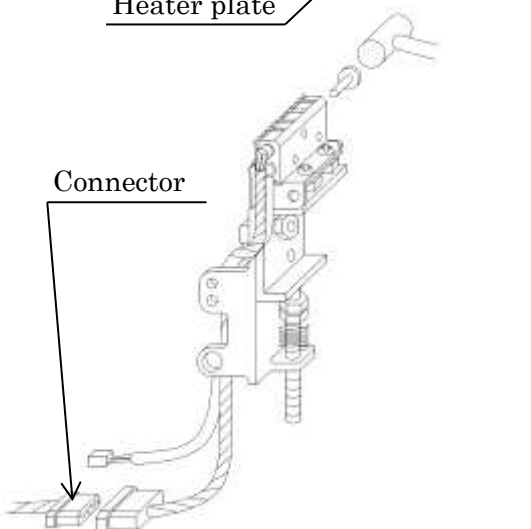
1. Open the front panel. Remove the screw pointed by the arrow.
Dismount the switch box mounting plate together.



2. Lift the lower part of the heater by hand, remove the screw indicated by the arrow A, and then remove the lead wire stop and the lead wire protection plate.
Remove the screw indicated by the arrow B, and then pull out the cartridge heater. If you face difficulty while pulling out the cartridge filter, hold a thin rod against the opposite side of the heater and tap gently on the rod with a hammer to remove the cartridge heater.

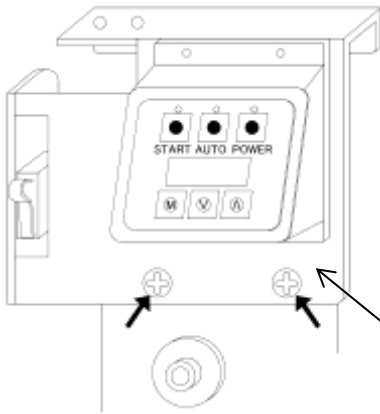


3. Insert a new heater into the heater plate.
(For 30 mm machine: The heater head must be protruded about 1 mm from the heater plate edge.)

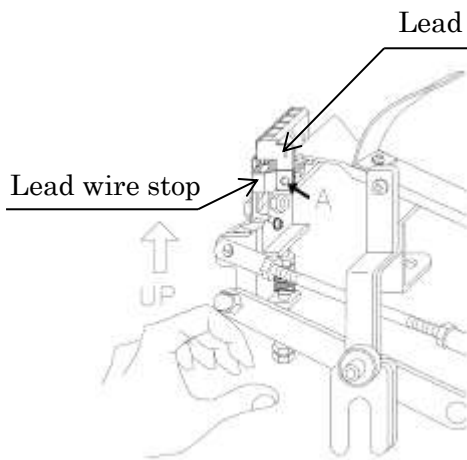


4. Secure the cartridge heater using the screw indicated by the arrow B, and then attach and secure the lead wire stop and lead wire protection plate using the screw indicated by the arrow A. Pass the wire of the cartridge heater between the lead wire stop and the lead wire protection plate, manipulate it as shown in the figure, and then insert it into the connector.

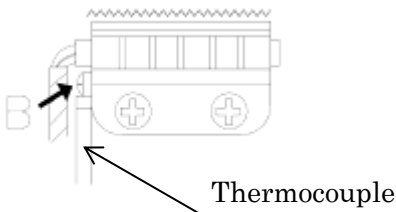
5. Replacement of thermocouple



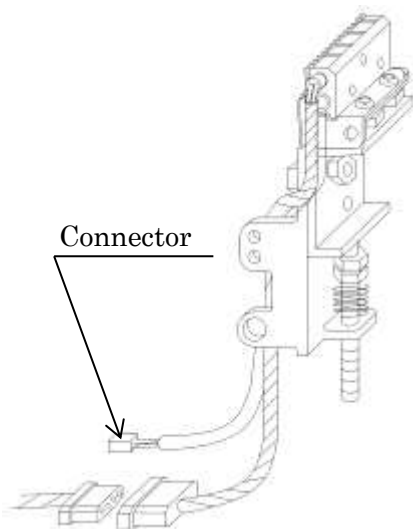
1. Open the front panel. Remove the screw pointed by the arrow.
Dismount the switch box mounting plate together.



2. Lift the lower part of the heater by hand, remove the screw indicated by the arrow A, and then remove the lead wire stop and the lead wire protection plate.

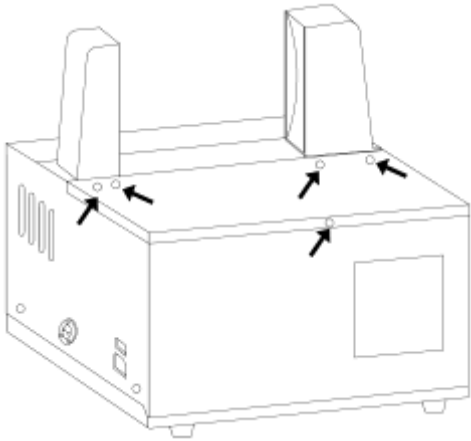


3. Remove the screw B, remove the thermocouple, and then attach a new thermocouple.

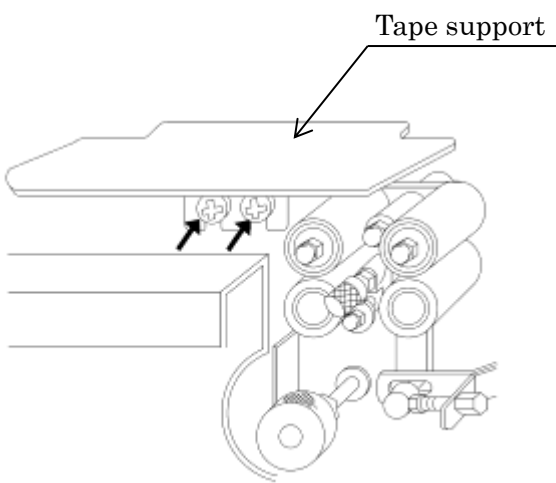


4. Attach and secure the lead wire stop and the lead wire protection plate using the screw indicated by the arrow A. Manipulate the thermocouple wire as shown in the figure, and then insert it into the circuit board.

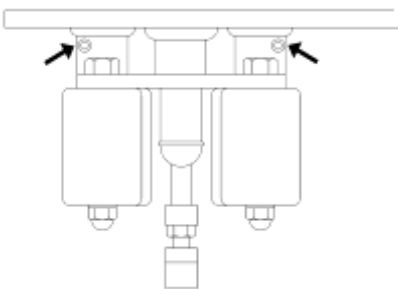
6. Replacement of rubber rollers



1. Remove the screws pointed by the arrow and remove the rear table.
(Or you can remove the machine cover.)

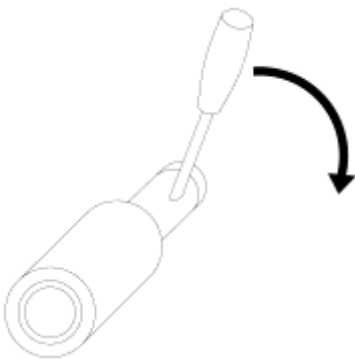


2. Open the front door, loosen the screws pointed by the arrow, and remove the tape support.

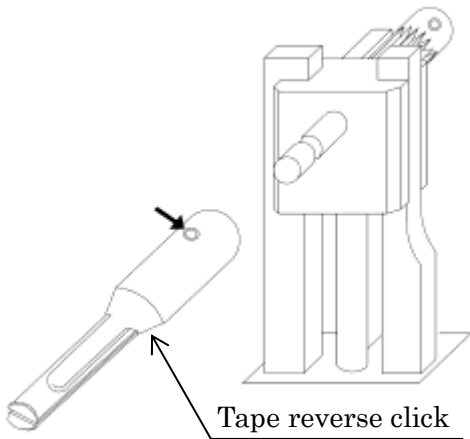


3. Loosen the bolts pointed by the arrow, remove worn rubber rollers and remount the new rubber rollers.

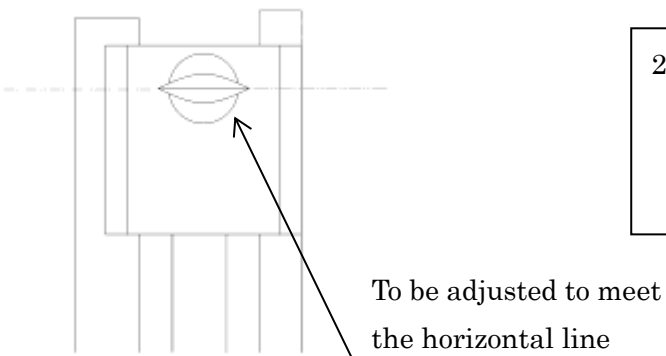
If these rubber rollers cannot be removed easily, insert a small rod into the bolt hole and lever the rod so that the rubber roller can be pushed toward you for easy dismounting.



7. Replacement of tape reverse click

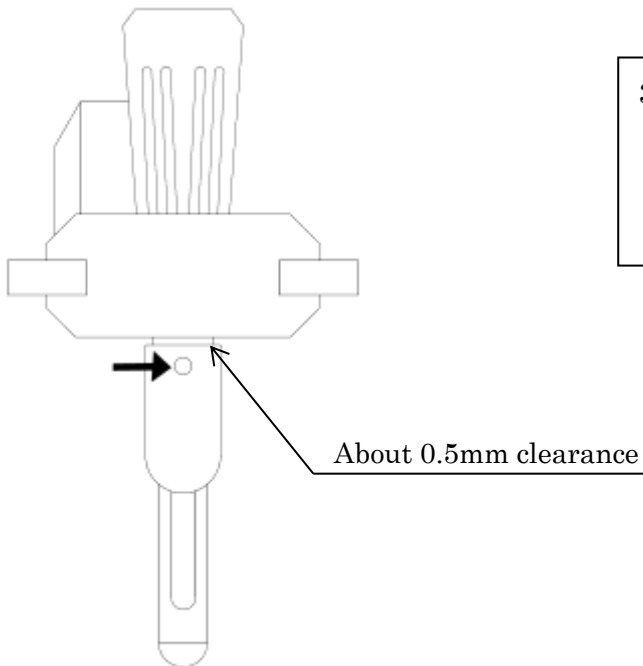


1. Holding the tape reverse click lifted up, loosen the screw pointed by the arrow, and dismount the used tape reverse click.



Front view

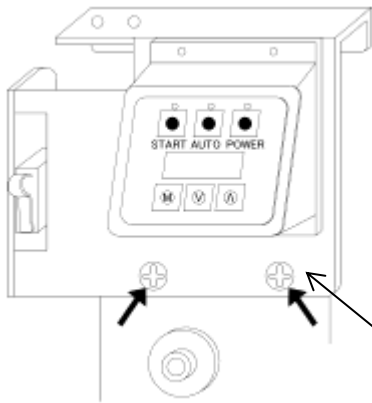
2. Remount the new tape reverse click. Make sure the opening of the tape reverse click meets the horizontal line when mounting this unit.



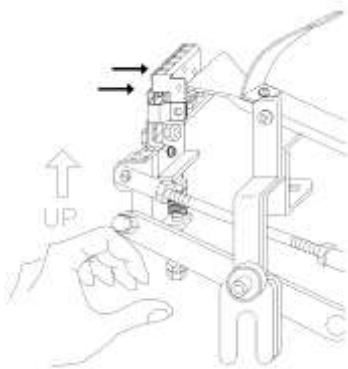
Top view

3. Maintain a clearance of about 0.5 mm between the reverse metal and the tape reverse click. Then tighten toe screw pointed by the arrow.

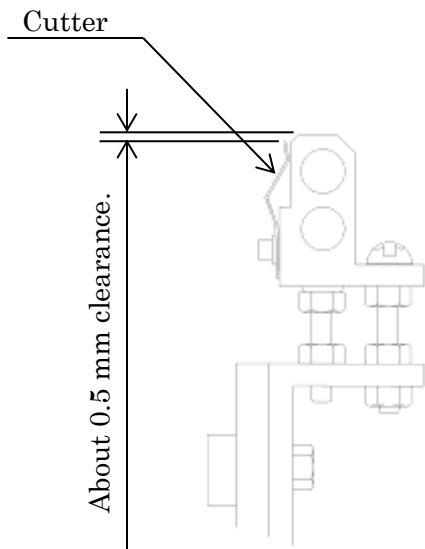
8. Replacement of cutter blade



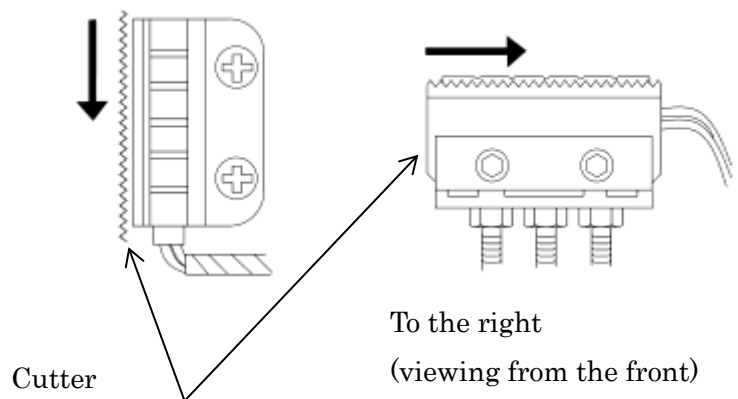
1. Open the front door, remove the screws pointed by the arrow, and dismount the switch box mounting plate together with the switch box.



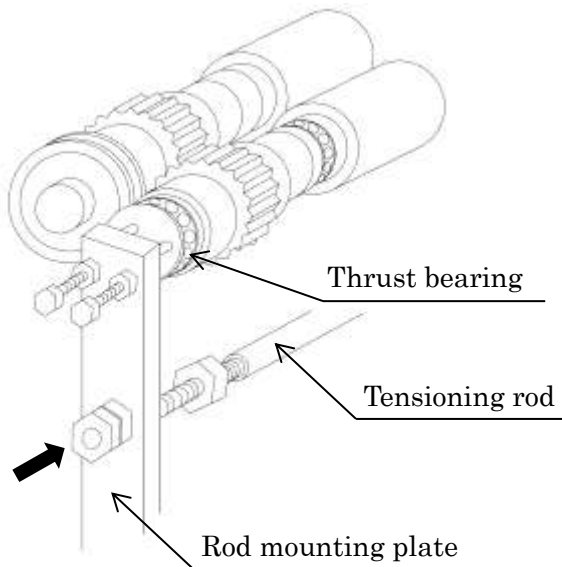
2. Hold the spacer plate drawn back, lift the heater supporting it at the lower part, loosen the screws pointed by the arrow, and pull up the cutter blade.



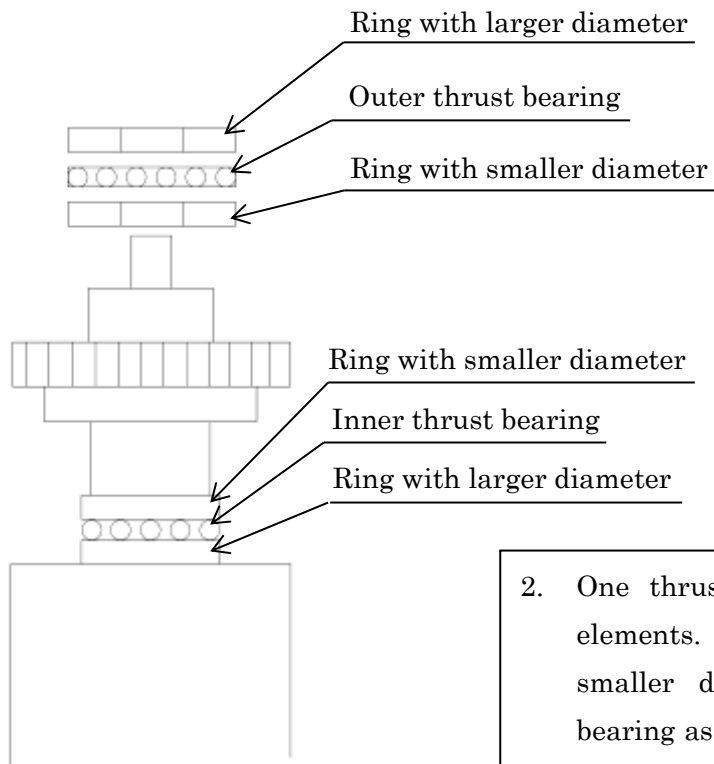
3. Mount the new cutter blade keeping about 0.5 mm pushed down from the heater plate surface, adjust its position to the right (viewing from the front), and tighten the screws.



9. Replacement of thrust bearing

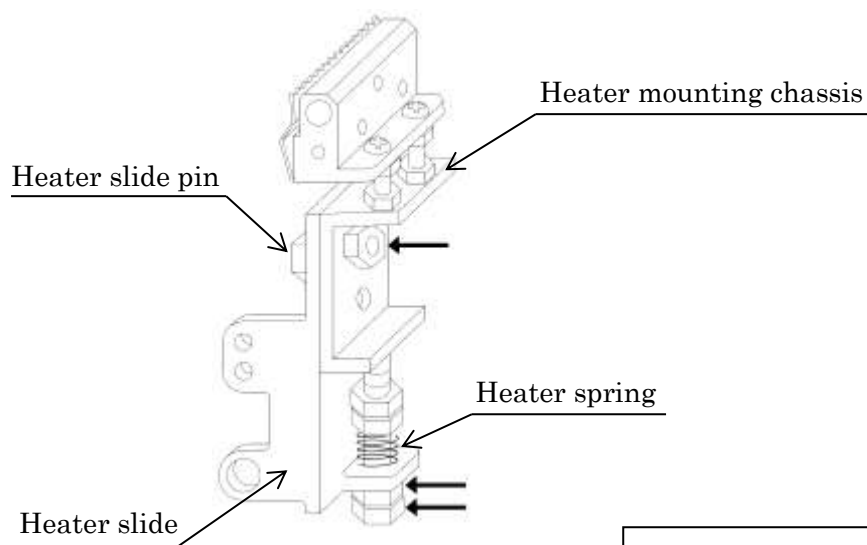


1. Remove the nut pointed by the arrow, dismount the tensioning rod, and dismount the thrust bearing.

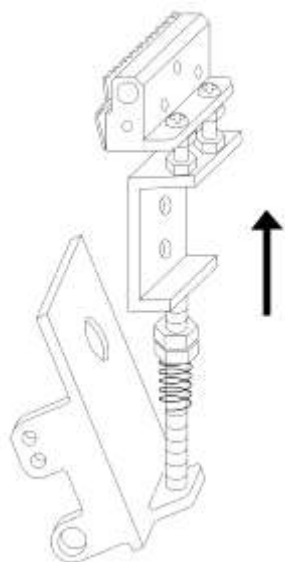


2. One thrust bearing is composed with 3 elements. Insert the inner ring (with smaller diameter) first, insert the ball bearing assembly, and then insert the outer ring (with larger diameter). Usually the outside thrust bearing more often fails comparing with the inner thrust bearing.

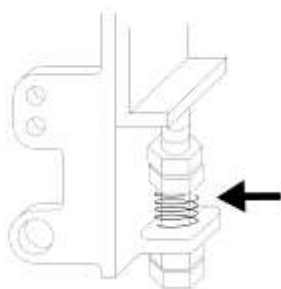
10. Replacement of heater spring



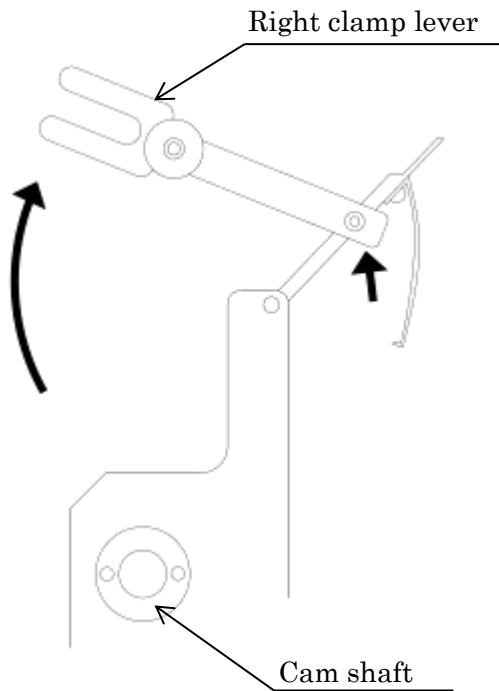
1. Hold the spacer plate drawn back, dismount the nuts and the heater slide pin pointed by the arrow, dismount the heater mounting chassis and dismount the heater spring.



2. Mount the new spring allowing that the heater spring is not loose and that the nut can be turned by hand, and then tighten the nuts.

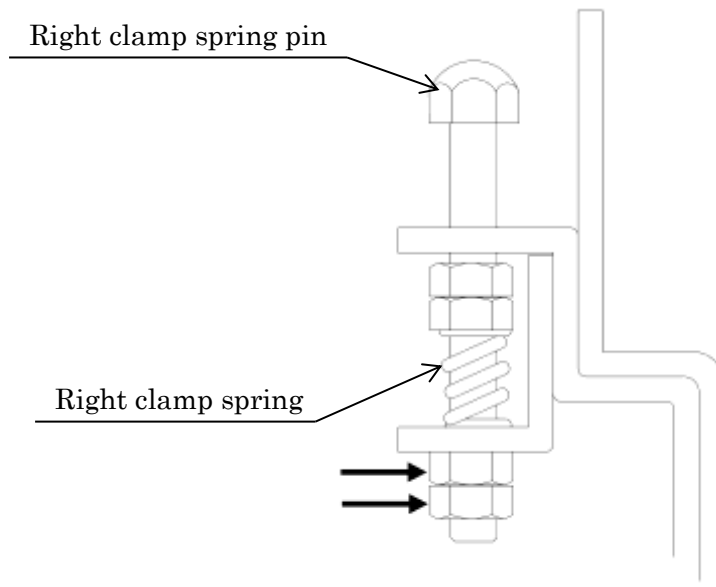


11. Replacement of right clamp spring

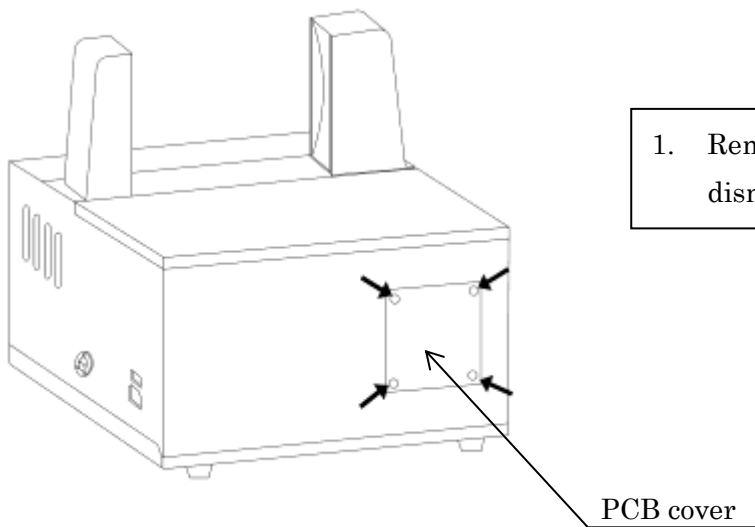


1. Hold the spacer plate drawn back and dismount the right clamp lever from the cam shaft. Loosen the screw pointed by the arrow and dismount the right clamp lever.

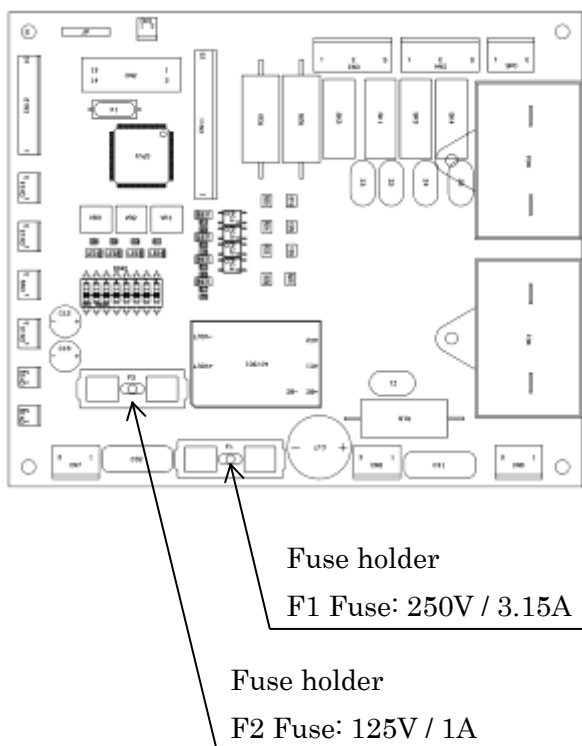
2. Remove the nuts pointed by the arrow. Pull out the right clamp spring pin, replace the used right clamp spring with the new spring, and remount the nuts.



12. Replacement of control PCB(printed circuit board) and fuse

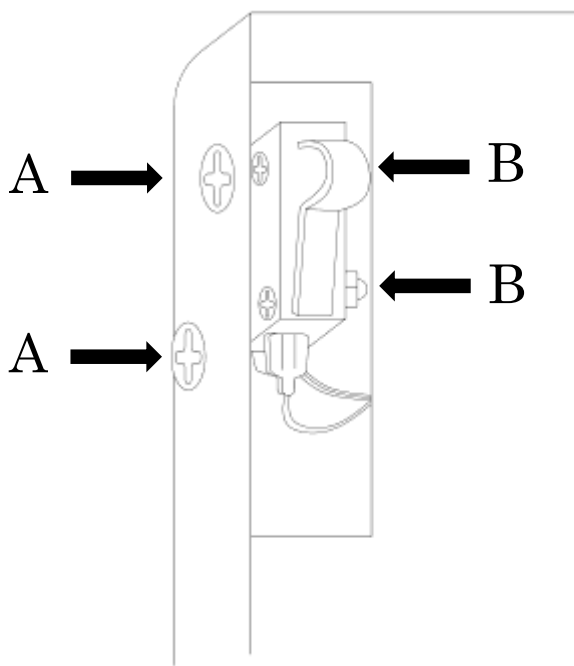


1. Remove the screws pointed by the arrow for dismantling the PCB cover.



- Replacing the control board:**
Remove the connector from the control board, remove the screws from the four corners, and then remove the control board. Then, attach the new control board.
- Replacing the fuse:**
Remove the fuse from the fuse holder, and then attach a new fuse.
There are two types of fuses; therefore, ensure that the replacement fuse has the proper rating.

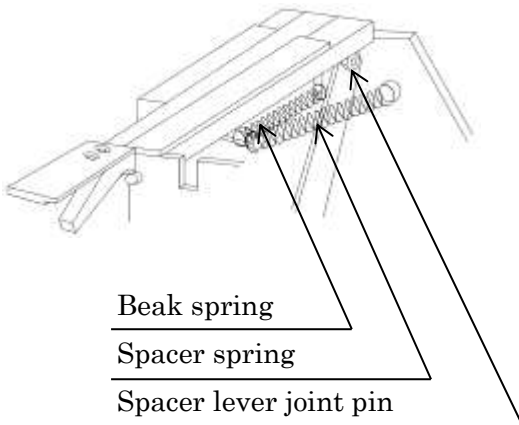
13. Adjustment and replacement of safety micro switch



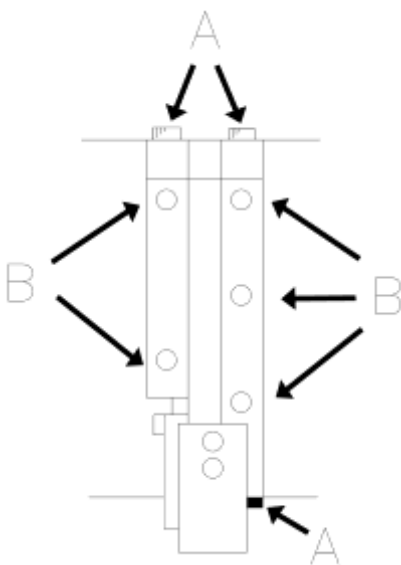
This micro switch is located on the side face of the switch box. The machine can run when this switch is turned on by pushing it with the front door. If the front door is not pushing this switch, loosen the screws (A) so that the front door can push the switch.

If this switch is damaged, loosen the screws (B) for replacement of the switch. This switch is a "normal open" type.

14. Replacement of spacer assy and spacer



1. Hold the spacer plate drawn back and dismount the spacer spring and the spacer lever joint pin.



Spacer Assy

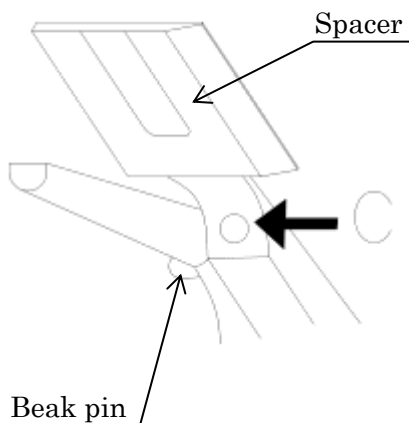
Replacement of spacer assy

Check the spacer assy position (height) before starting this step.

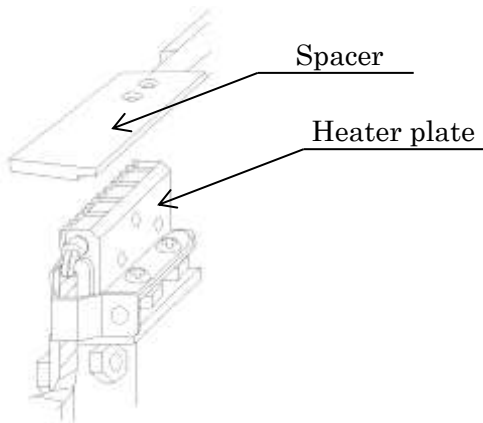
Remove the bolt (A), dismount the spacer assy, and then mount the new spacer assy in the same position which has been checked first. Do not allow this assy to hit the rear table. Spacer pressure or heater angle will have to be adjusted.

Replacement of spacer

Remove the screw (B). Remove the screw (C), remove the beak pin, dismount the spacer, and mount the new spacer. If the spacer is frictioned with the slide metal, smoothen the spacer surface using a file. Smoothing of the beak or heater angle adjustment will be required when mounting the new spacer.

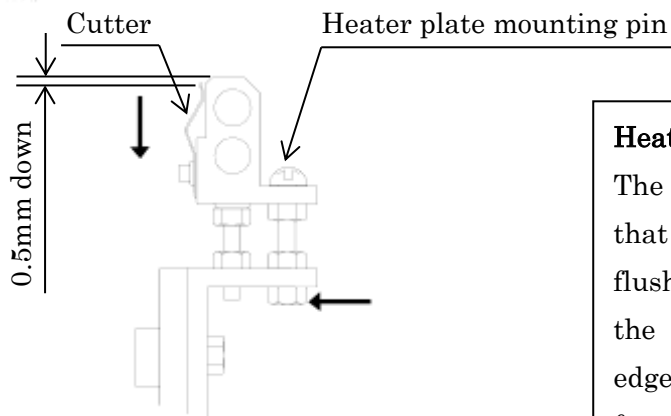


15. Adjustment of heater



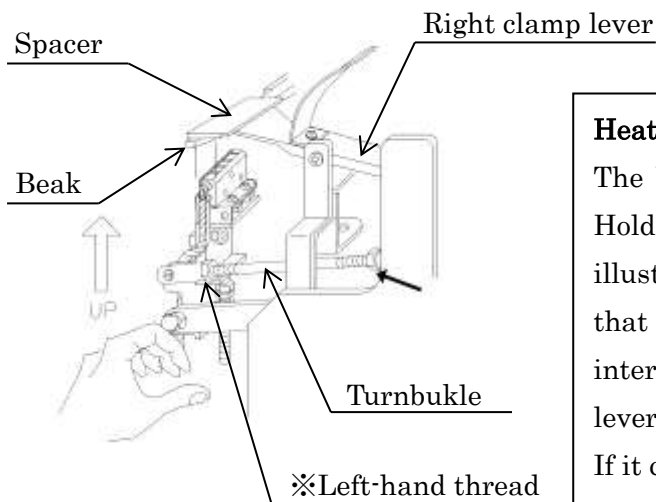
Feature of tape sealing

The COM tapes are heat-sealed when gripped between the spacer and the heater plate. If the spacer face and the heater plate face are not parallel, complete heat-sealing will not be secured. In this case some adjustments must be operated.



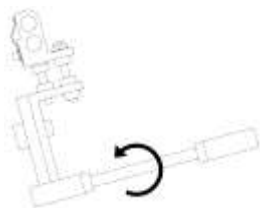
Heater plate mounting

The heater plate must be mounted permitting that the heater plate mounting pin end-face is flush with the end-face of the bolt pointed with the arrow. Make sure that the cutter blade edge is 0.5 mm lowered from the heater plate face.

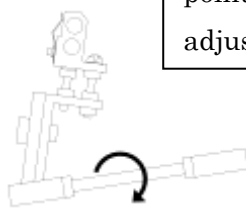


Heater plate position

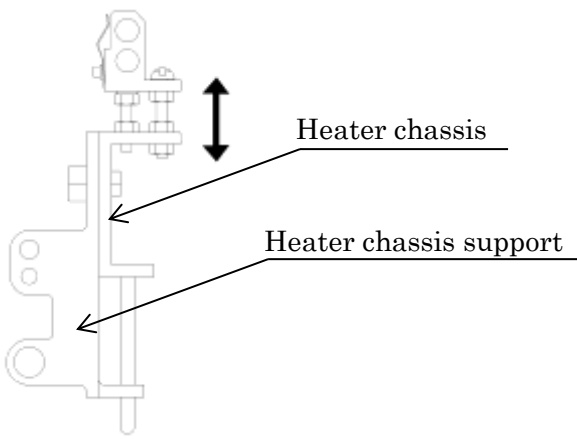
The heater plate requires accurate positioning. Hold the heater unit in the position as illustrated and lift it up by hand. Make sure that the unit can contact the spacer without interference with the beak or the right clamp lever. If it contacts either of these units, loosen the nut pointed by the arrow and turn the turnbuckle for adjusting the heater unit position.



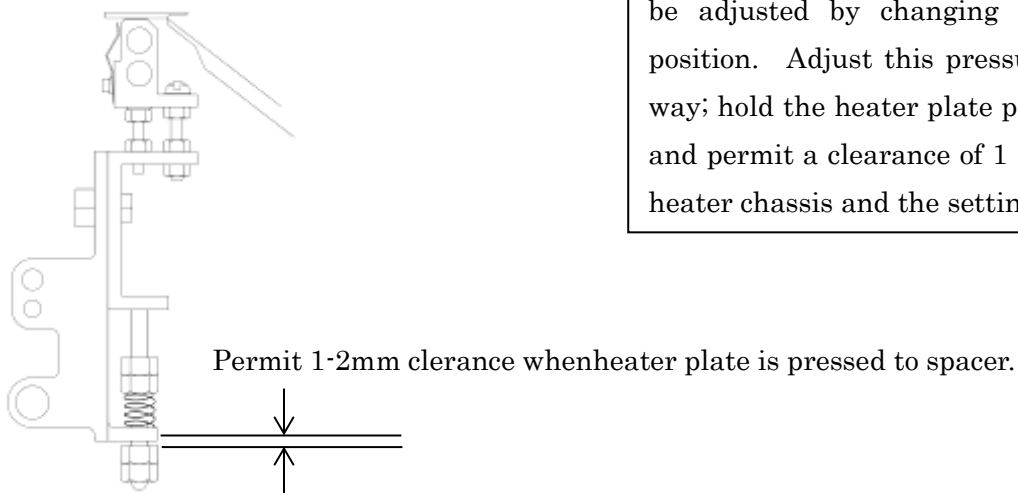
Slanting toward left



Slanting toward right

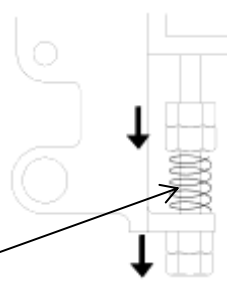
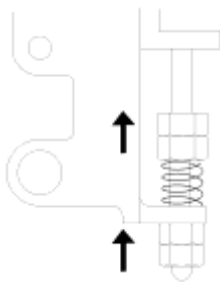


Adjustment of pressure against tape
 The heater chassis has an allowance to slide up and down along the heater slide vertically. The heater plate pressure for pressing the tape can be adjusted by changing the heater chassis position. Adjust this pressure in the following way; hold the heater plate pressed to the spacer and permit a clearance of 1 - 2 mm between the heater chassis and the setting nut.



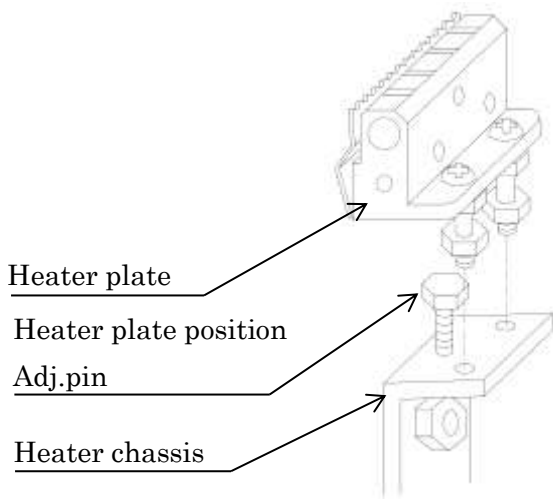
※In case of pressure too high

※In case of pressure too low

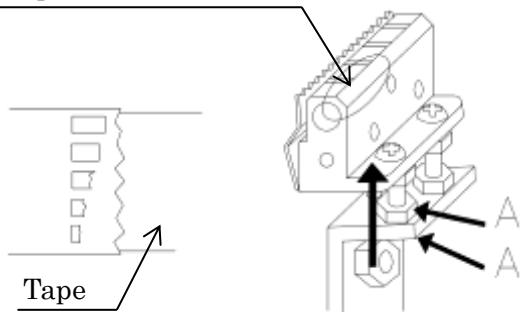


Turn the setting nuts clockwise so that that heater chassis slide pin can slide down.
 The heater chassis position is lowered and the pressure to the spacer is also lowered.

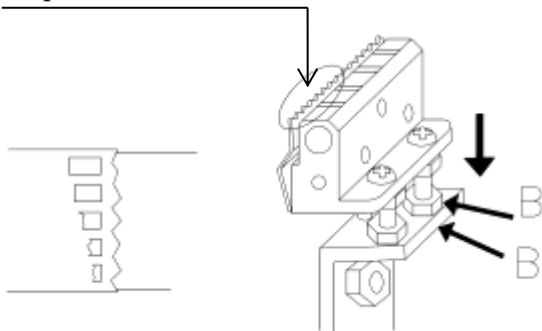
Turn the setting nuts counterclockwise so that the heater chassis slide pin can slide up. The heater chassis position is adjusted to a higher position. Carefully adjust this position so that the heater spring cannot be damaged when the heater plate is pressed to the spacer.



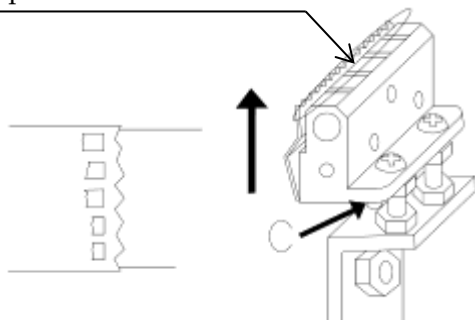
This part is not pressed to spacer



This part is not pressed to spacer



This part is not pressed to spacer



Adjustment of heater plate angle

The contacting surface of the spacer and that of the heater plate must be parallel accurately to secure complete sealing of the tape. Adjust the heater plate angle by manipulating the heater plate mounting pins.

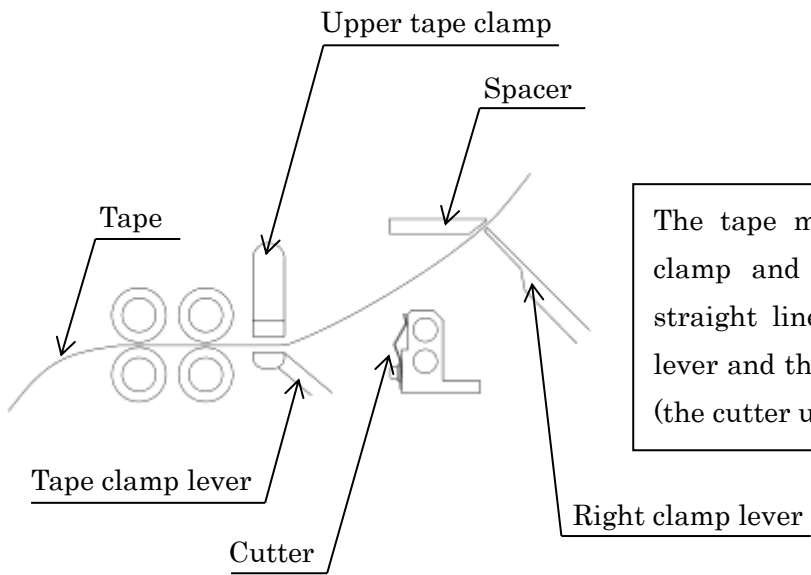
The parallelism of the heater plate surface with the spacer can be adjusted in this way. After the heater plate temperature reaches to the designed level, try to seal the tape and peel off it for making sure that sealing is fair (complete sealing lengthwise and crosswise of the sealed area).

In case of sealing failure at lower-right side of sealed area Increase the gap between the heater chassis top surface and the heater plate by manipulating the setting nuts (A) so that the unsealed area can be pressed to the spacer.

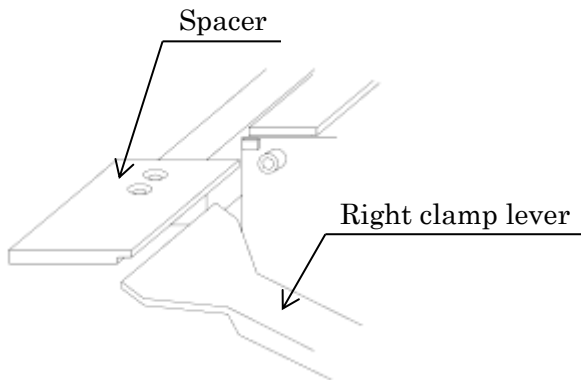
In case of sealing failure at lower-left side of sealed area Reduce the gap between the heater chassis top surface and the heater plate by manipulating the setting nuts(B) so that the unsealed area can be pressed to the spacer.

In case of sealing failure at left side edge Increase the gap between the heater chassis top surface and the heater plate by manipulating the setting nuts(C) so that the unsealed area can be pressed to the spacer.
(You can use the turnbuckle for making this adjustment.)

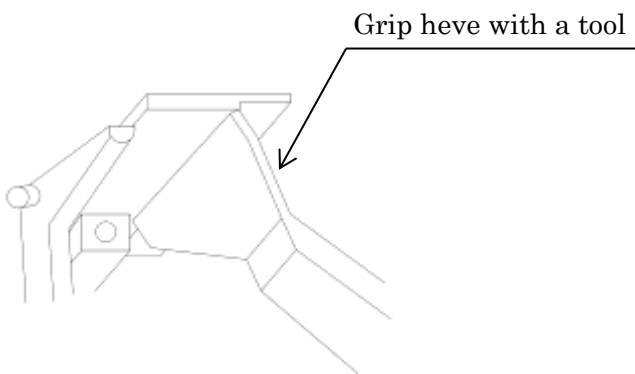
16. Adjustment of right clamp lever



The tape must pass between the upper tape clamp and the tape clamp lever, forming a straight line to pass between the right clamp lever and the spacer, so that the tape can be cut (the cutter unit travels up at this time.)

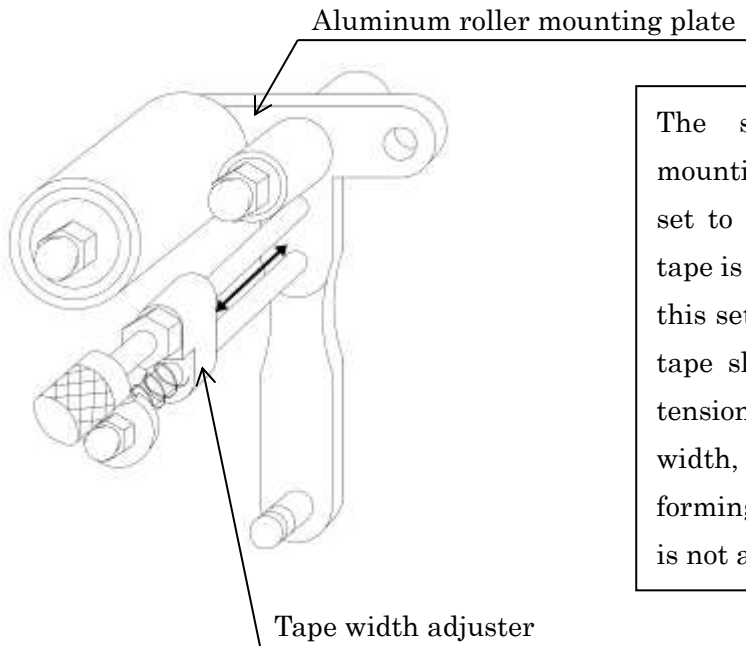


The right clamp lever edge and the spacer side edge must be parallel. If not, the tape cannot be gripped between these two units causing a problem of incomplete cutting.

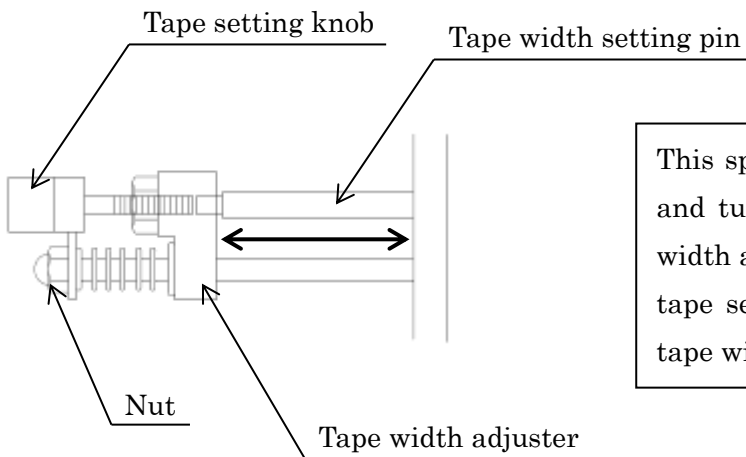


Grip the right clamp lever with a tool (adjustable angle wrench, pliers, etc.) and adjust the parallelism with the spacer side edge.

17. Adjustment of tape width adjuster

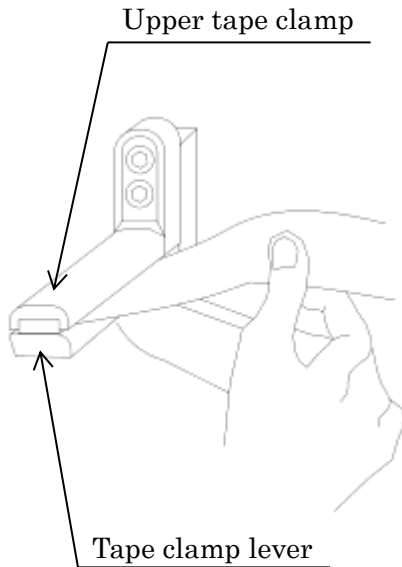


The span between the aluminum roller mounting plate and the tape width adjuster is set to "tape width less 1 mm". When 30 mm tape is used, this span is to be set to 29 mm. By this setting, the tape width adjuster presses the tape slightly for stable loop forming and tape tensioning. When you use a tape of different width, this span must be adjusted. Tape loop forming and tensioning will not be stable if this is not adjusted.

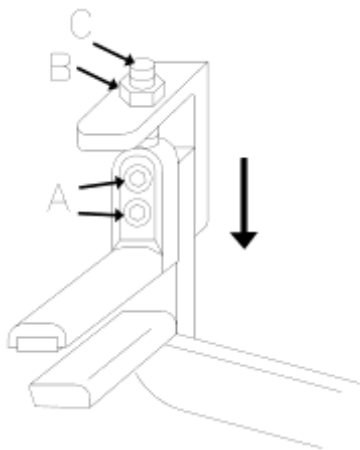


This span can be adjusted by loosening the nut and turning the tape setting knob. If the tape width adjuster is not pressing the tape, turn the tape setting knob counterclockwise so that the tape width adjuster travels inward.

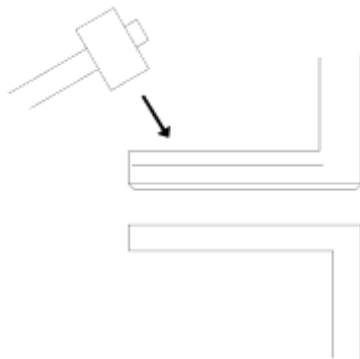
18. Adjustment of tape clamp



Stop cycling of the machine as soon as the tape is gripped between the upper tape clamp and the tape clamp lever. Pull the tape by hand for checking the condition of tape gripping.



In case of gripping not enough Loosen the cap bolt (A) about 90 degrees not allowing the upper tape clamp to slide down. Loosen the nut (B). Lower the upper tape clamp position by tightening the set screw (C) 90 degrees at one time. The tape gripping pressure is increased.



In case of low gripping pressure at upper tape clamp edge Hammer the edge of the upper tape clamp carefully. The gripping pressure of the tape crosswise will be made even in this way. However, careful hammering is required as over-hammering will cause damage of the upper tape clamp.



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