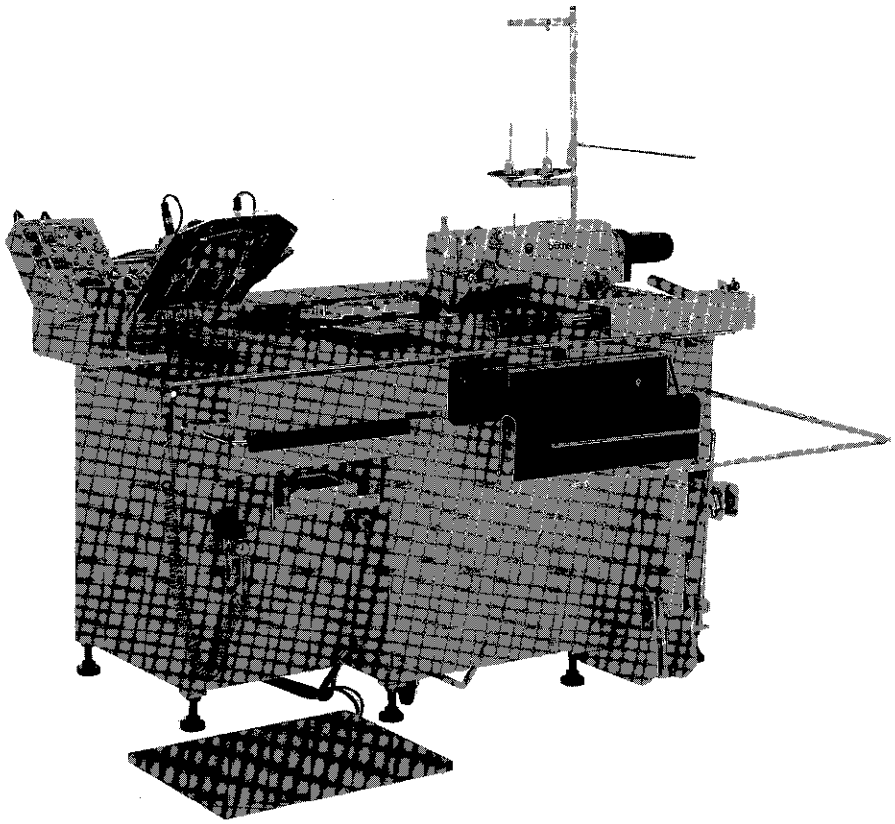
brother

AUTOMATIC POCKET SETTER

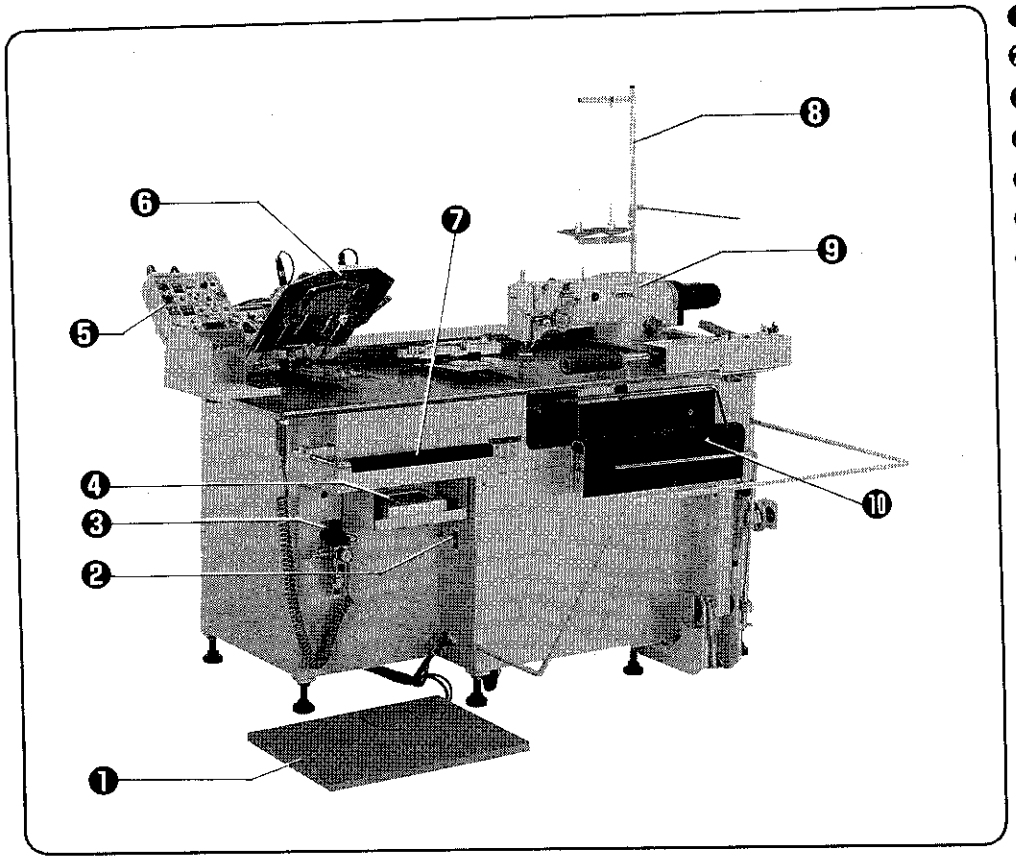
BAS-760

INSTRUCTION MANUAL



CONTENTS

NAMES OF THE PARTS



❶ Foot-switch
❷ Power switch
❸ Air unit valve
❹ Programmer
❺ Control box
❻ Folding group assembly
❼ Front supporter
❽ Spool stand
❾ Machine head
❿ Stacker

Model	BAS-760	Automatic pocket setter (for jeans)	
Applicable machine type	Lock stitch and special cross stitch sewing machine with automatic thread trimmer	Memory medium	3.5-inch floppy disk (64 patterns)
Use	Sewing pockets on the various types of jeans		Maximum of 1,000 stitches for each pattern
Cycle time	11 seconds approx. (depending on the pitch and spm)	Pattern memory selection	Digital selector switch
Sewing speed	2,200 to 4,000 spm (The maximum spm may be lower than this, depending on the pitch.)	Jig attaching/detaching method	Pneumatic chuck; one-touch operation requiring less than 2 minutes
	(5-step selection)	Stacker	Included (50 sheets)
Sewing range	220 mm(W) × 250 mm(D)	Programmer	Included
Sewing pitch	0.1 to 6.0 mm	Power source	3-phase 220V, 380V, 415V 700W
Needle racking width at first bar tacking	Maximum of 3.5 mm	Air pressure	5 kgf/cm²
Cloth setting	Overlapping possible	Machine dimensions	1,930mm(W) × 1,930mm(L) × 1,020mm(H)
Machine head drive	AC servo direct motor type	Weight	370 kg
Machine body drive	X-axis for a clamp shift, Y-axis for a machine shift	Upper-thread breakage detector	Included
	AC servo motor	Label attachment device	Included (option)

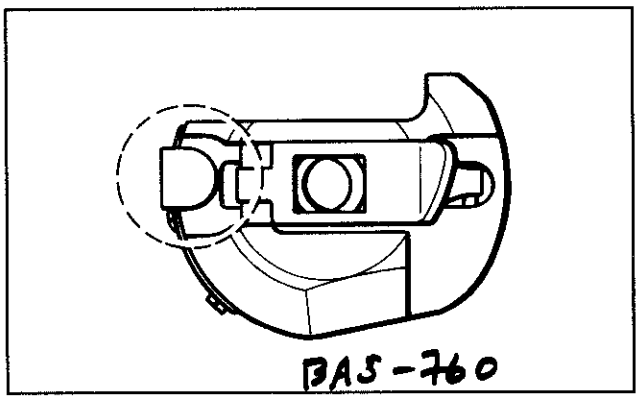
Caution

Be sure to always use a rotary hook and bobbin case that are specially designed for the BAS-760. If parts other than these are used, sewing may not be possible.
Furthermore, the bobbin used can be the DB2-B737 bobbin which can also be used together with the double hook.

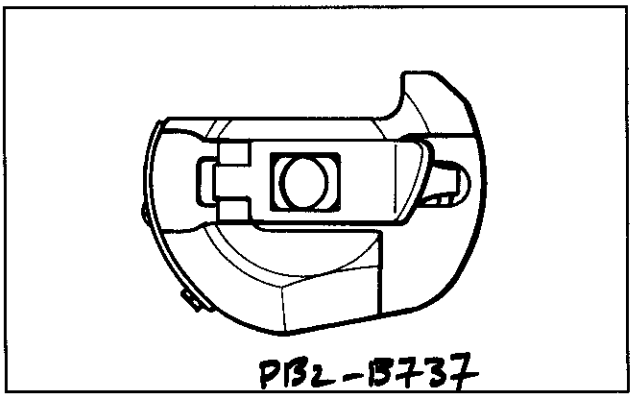
- **Rotary hook**

Parts code S24903-001	Parts code S23845-001
For BAS-760	For DB2-B737

- **Bobbin case assembly**



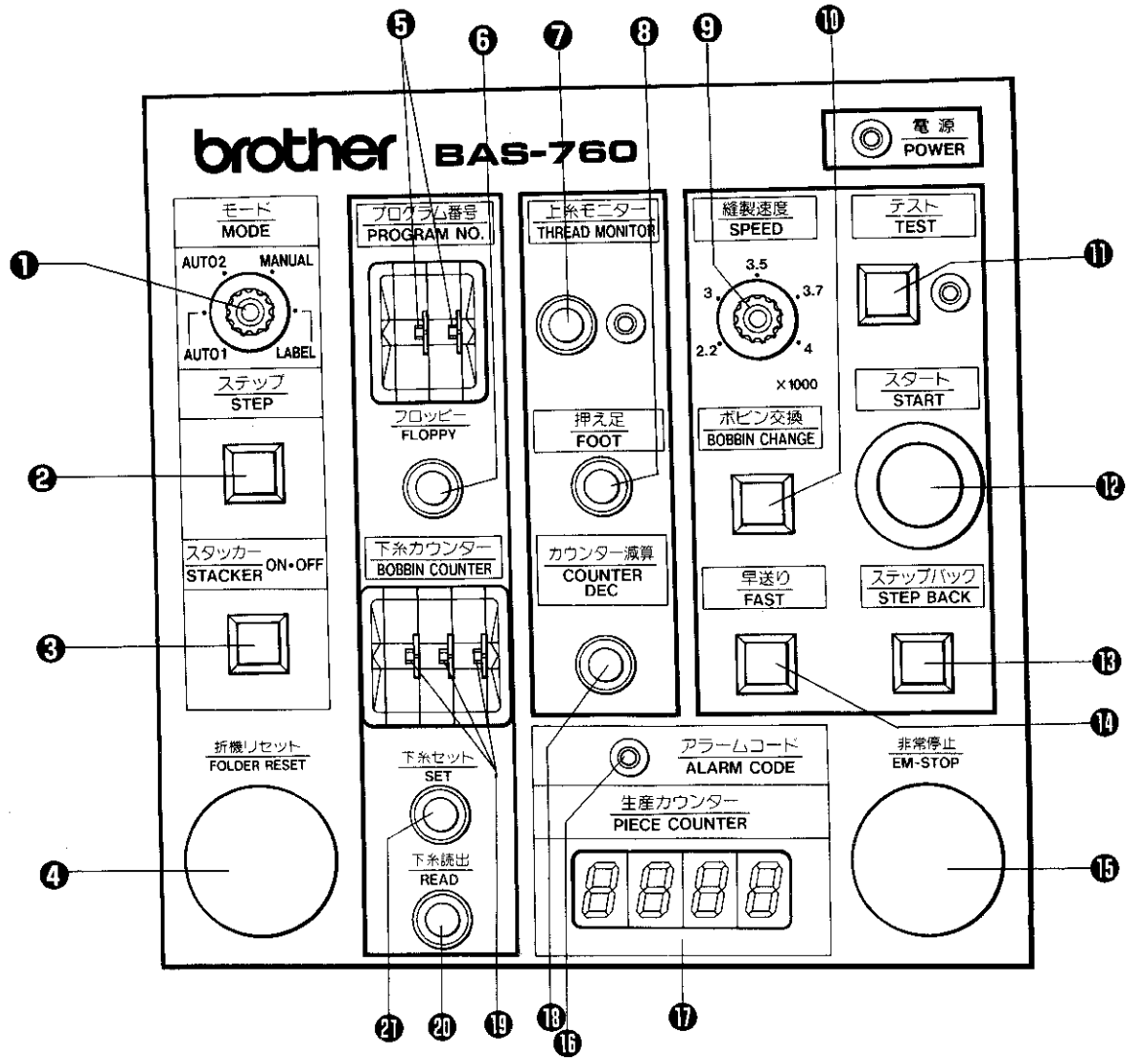
~~For DB2-B737~~
(S24904-001)



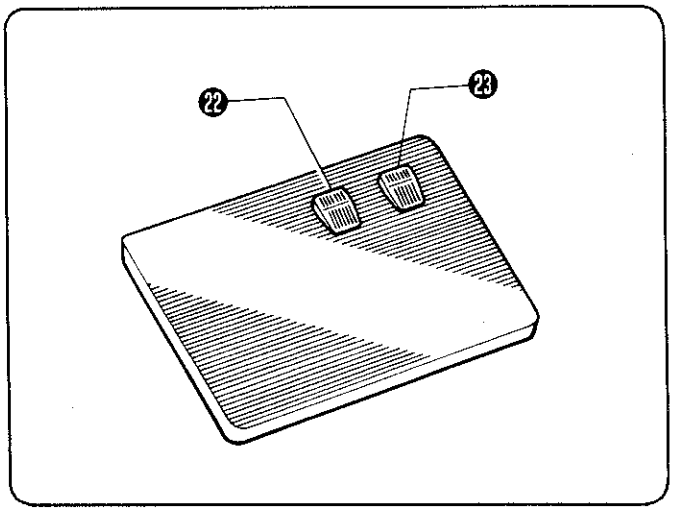
~~For BAS-760~~
(S23847-001)

※ When inserting the bobbin case into the rotary hook, press down the tab on the bobbin case with your thumb until it clicks. Do not lift it up.
This will prevent insertion mistakes.

NOTES ON THE CONTROL BOX AND THE FOOT-SWITCHES



★ **Foot-switches**



Use foot-switch ㉑ to fold pocket material with the folder unit.
Use the right foot switch ㉒ when sewing after aligning the pocket material pattern and when attaching labels. (Refer to P.18.)

❶ MODE

LABEL ..... Pressing the right foot switch twice enables label setting, and if the left foot switch is pressed once, folding starts.
By changing the setting of DIP switch 2-1, the mode where labels are always attached or the mode where labels are attached in alternating steps can be selected.

MANUAL ..... The automatic folding action order starting from pocket folding can be monitored. (The procedure order will be that for label attachment.)

AUTO1 ..... One press on the left foot-switch starts folding (plain pattern material).

AUTO2 ..... The first press on the right foot-switch enables pattern alignment and the second press on the left foot-switch starts folding.

❷ STEP ..... When the MANUAL mode is selected, each time the button is pressed one step of the folding actions can be monitored.

❸ STACKER ON · OFF ..... Press the button to turn it on when using a stacker after sewing, and to turn it off when a stacker is not used.
By changing the setting of DIP switch 2-1, the roller operation can be changed from the mode whereby the roller always moves to the right to the mode whereby the roller moves to the right on each alternating step (for both pockets).

❹ FOLDER RESET ..... For resetting the folder to set new pocket material.

❺ PROGRAM NO. ..... For calling a program number corresponding to the folder. For setting a program number when writing programs.

❻ FLOPPY ..... For writing and reading programs.

❼ THREAD MONITOR ..... Press this to light the lamp and the machine will stop automatically at a thread breakage.

❽ FOOT ..... For lifting and lowering the presser foot.

❾ SPEED ..... The spm of the sewing machine can be set to up to 5 stages, from 2,200 to 4,000 spm.

❿ BOBBIN CHANGE ..... Press this button to move the machine towards you when changing a bobbin. (U99 flash on the display.) After cjanging a bobbin, repress this button and press the START button. The machine will move back to the standby position.

⓫ TEST ..... Press this button to see the needle action when the machine is idling (except during feeding). To restart sewing, repress this button to out the light.

⓬ START ..... Press this to restart sewing.
(For restarting, when U51, U52, U53, U60 or U99 has been displayed after checking causes).

⓭ STEP BACK ..... For continuing stitches after thread breakage (reverse step-feeding while the button is pressed).

⓮ FAST ..... Faster feeding is available if this button is pressed in the test mode (fast feed while the button is pressed).

⓯ EM STOP ..... If the emergency stop button is pressed, all machine actions will stop.

⓰ ALARM lamp ..... This lamp will come on in the case of abnormality or when the emergency stop button has been pressed.

⓱ ALARM CODE and PIECE COUNTER ..... Necessary information, such as error messages or a production piece number will be displayed. Normally the production piece amount is displayed.

⓲ COUNTER DEC ..... Each time this is pressed it will decrease the production piece counter by one.

⓳ BOBBIN COUNTER ..... Input the number of pieces to be sewn into this counter.

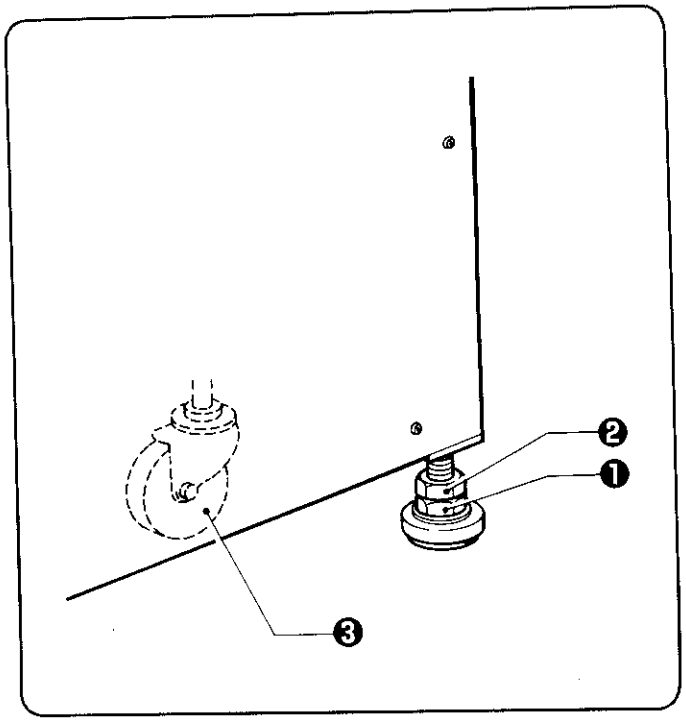
⓴ SET ..... Press to enter the piece number set at the bobbin counter to store the number. (From 0 to 399 can be set.)

㉑ READ ..... Press this button to display the number of pieces to be sewn.

INSTALLATION

★ Supply power directly from a receptacle for the machine's exclusive use.
※ Be sure to power off when installating.

[1] Installation of the machine table

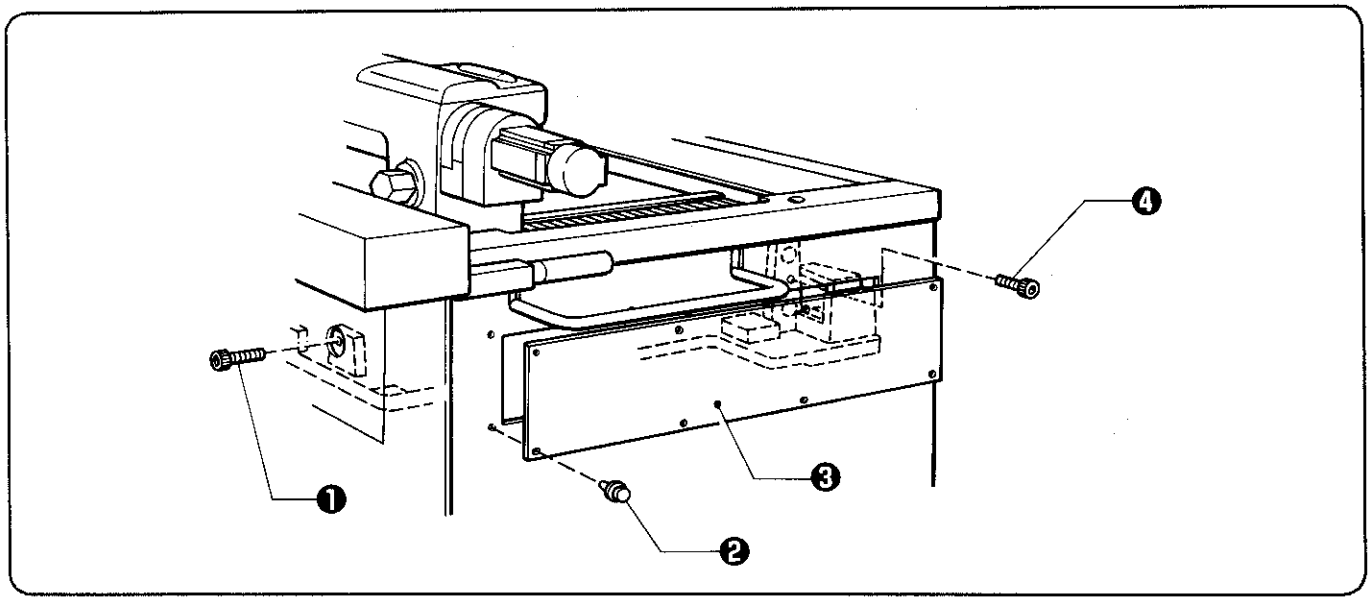


1. Secure the level adjusters ❶ so that the table top remain level.
2. The table has eight level adjusters. If the table does not sit well, loosen nuts ❷ and turn the level adjusters ❶ to level the table. (There are eight adjusting points.)

To move the machine, turn up adjusters ❶, and the table can be moved on its machine body casters ❸.

[2] Removal of the fixing bolts from the machine

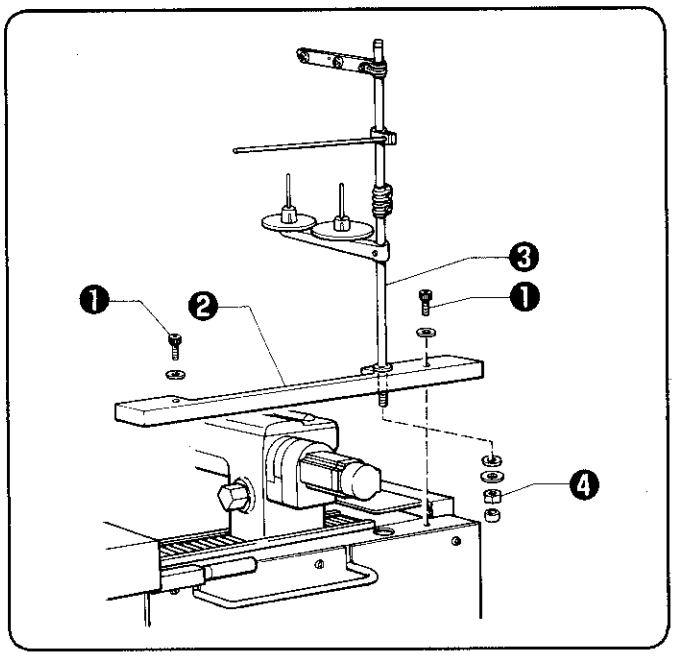
★ The machine head and the sewing clamp arm are fixed with bolts to secure them during transportation.



1. Remove fixing bolt ❶ on the machine head through the hole in the front cover.
2. Remove nylatch ❷ and then remove frame side cover (R) upper cap ❸.
3. Remove the fixing bolt ❹ on the sewing clamp.
4. Return frame side cover (R) upper cap ❸ to its original location.
5. Save removed fixing bolts ❶ and ❹ for future use.

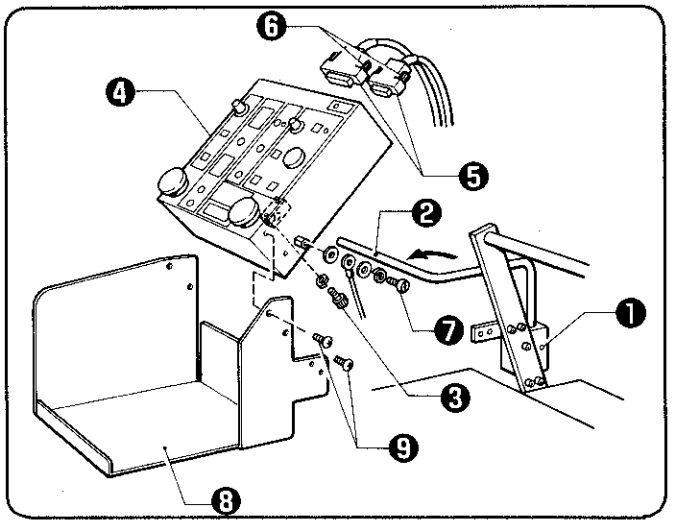
※ Before transporting the machine, be sure to secure it with the fixing bolts.

3 Installation of the spool stand



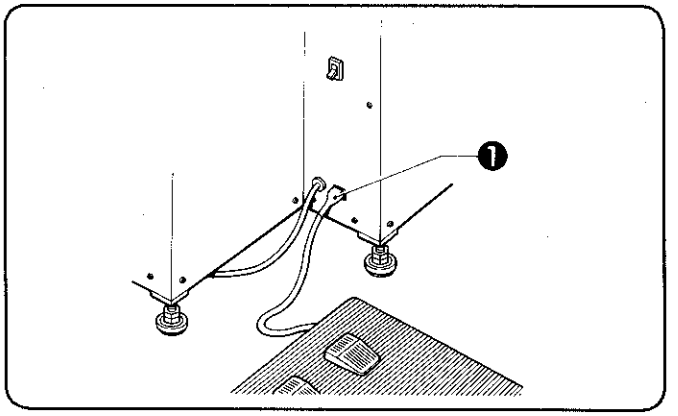
1. Loosen screws ❶ and remove side cover (S) ❷.
2. Install spool stand ❸ and tighten nut ❹ and the cap.
3. Attach side cover (S) ❷.

4 Installation of the control box



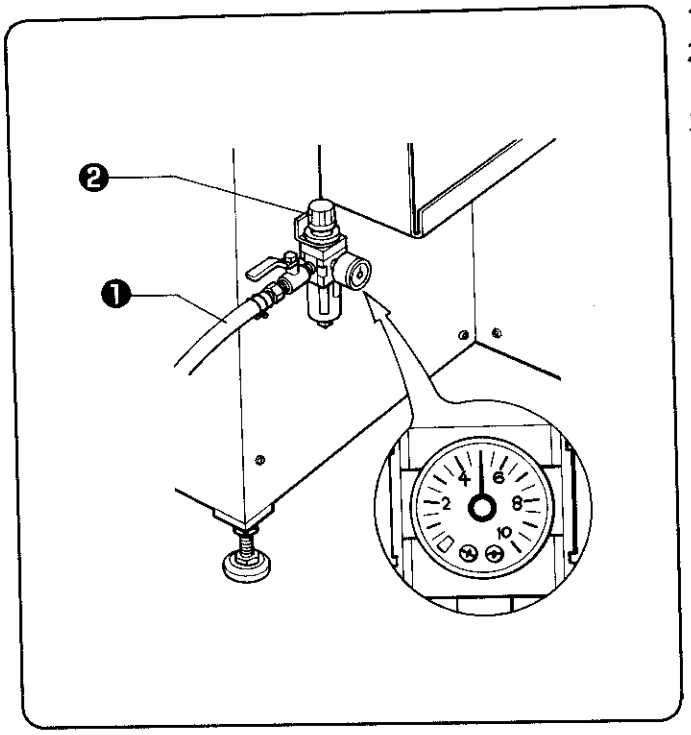
1. Loosen screw ❶ and turn panel supporting stud ❷ to the left.
2. Loosen bolt ❸ and insert panel supporting stud ❷ into control box ❹ and tighten bolt ❸.
3. Connect two connectors ❺ to control box ❹ and tighten screws ❻.
4. Remove clamping screw ❼.
5. Attach a grounding wire and tighten clamping screw ❼.
6. Secure panel supporting stud ❷ with screw ❶.
7. Install pocket bearing ❽ on control box ❹ with screws ❾.

5 Connection of the foot-switch connector



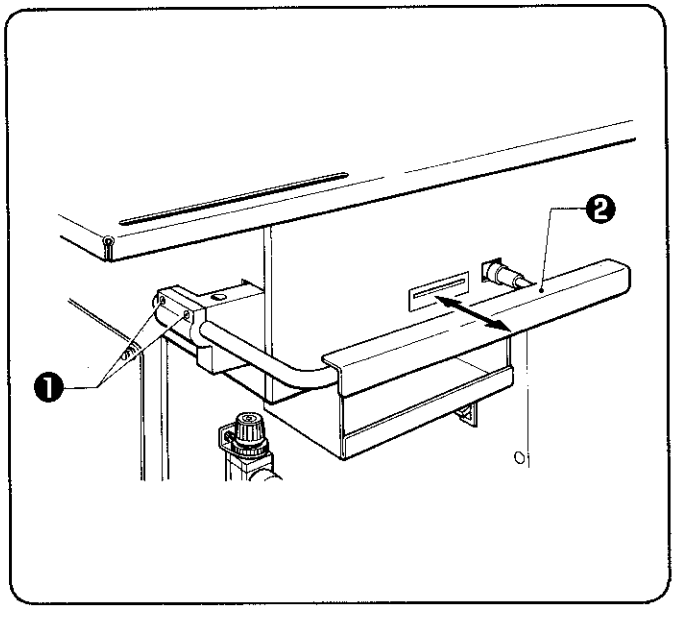
1. Connect connector ❶ securely.

6 Connection of the air hose



1. Attach air hose ❶ to air unit valve ❷.
2. Move the upper cap of air unit valve ❷ upward and adjust the air pressure to 5 kgf/cm^2.
3. After adjustment, move the cap downward and lock.

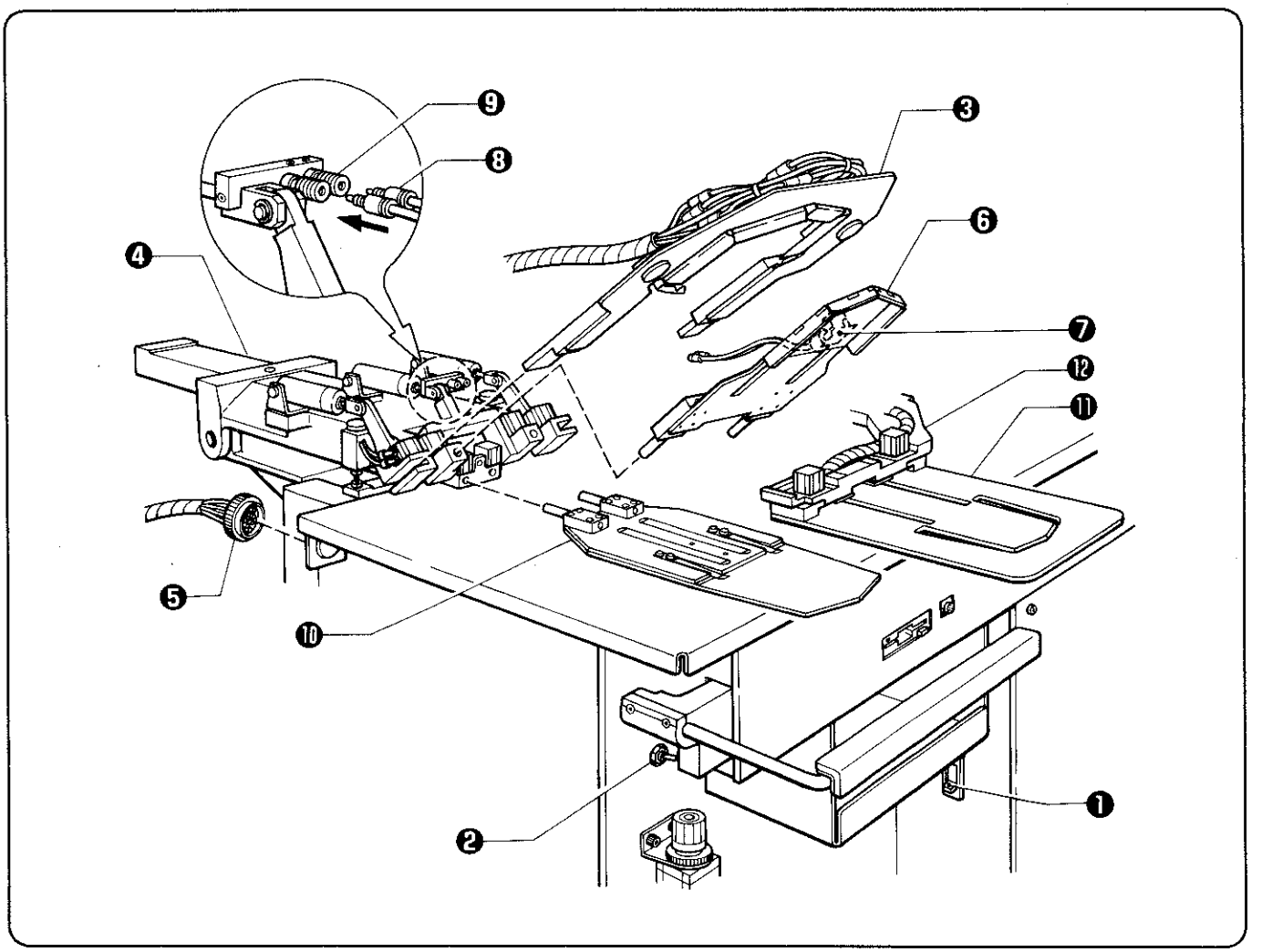
7 Positioning of the front supporter



1. Loosen bolts ❶ and position front suppoter ❷ in the most appropriate position.
2. Tighten bolts ❶ to secure the supporter ❷.

[8] Installation of the folding group assembly

★Apply air pressure.
★Turn on power switch ❶ to return the machine to the home position.
★Turn valve switch ❷ to OFF (lower) side and "U82" will flash on the display.

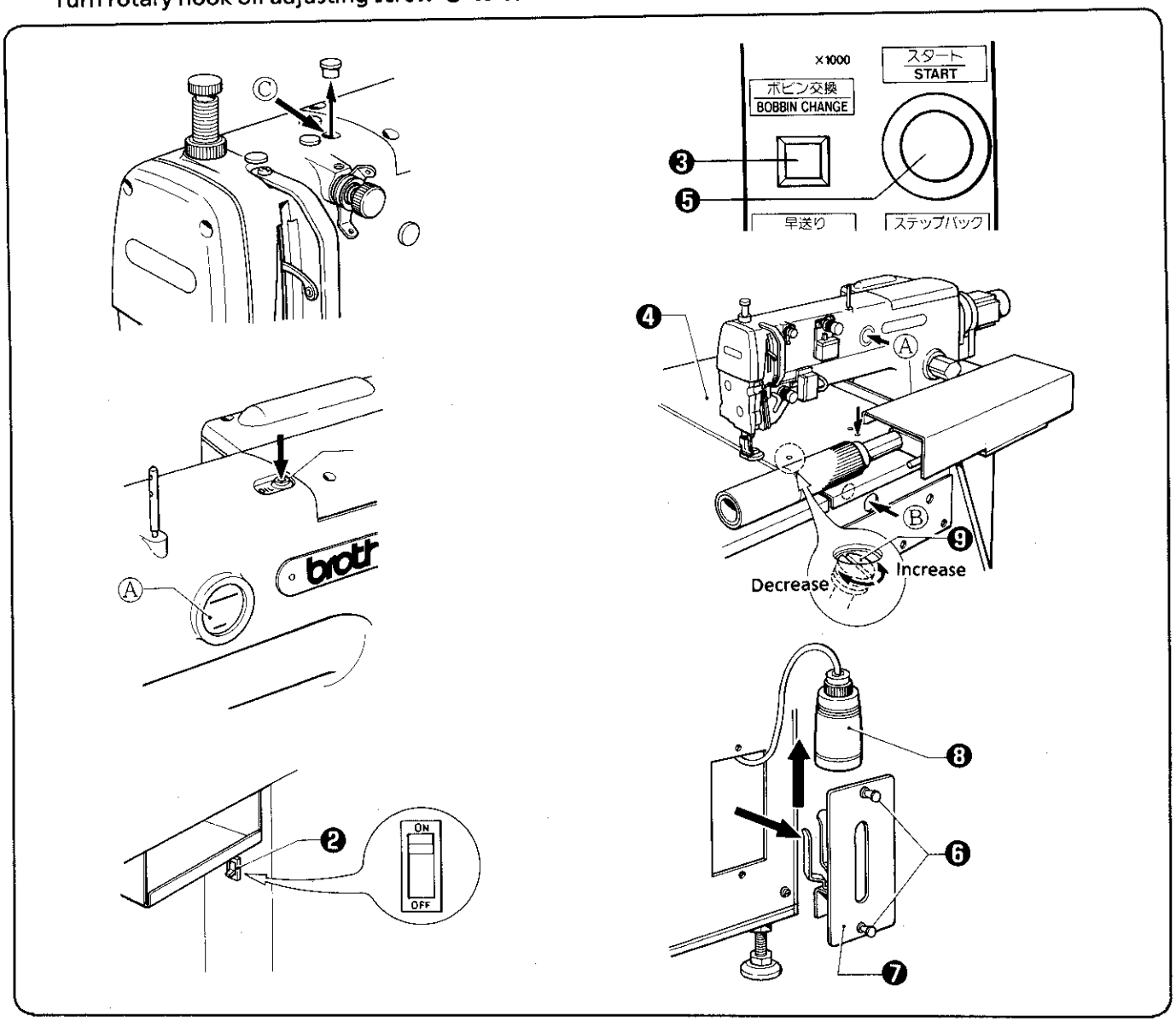


1. Install folding clamp assembly ❸ onto folding base ❹.
2. Attach multi-connector ❺.
3. While pushing the folding clamp assembly ❸ downwards with your hand, install the inner clamp assembly ❻ to the folding base ❹. For models with a label attachment device ❼, install the plug ❽ of the label attachment device ❼ to the socket ❾.
   At this time, set the label attachment device ❼ so that it is in a ready condition on top of the inner clamp assembly. (Refer to page 18.) If it is reversed, it will turn downward.
4. Install center blade assembly ❿ on folding base ❹.
5. Install sewing clamp assembly ⓫ on sewing clamp assembly arm base ⓬.
6. Turn valve switch ❷ to ON (upper) side, when "U82" goes off to display the production piece number.
7. Move folding clamp assembly ❸, inner clamp assembly ❻, center blade assembly ❿ and sewing clamp assembly ⓫ back and forth, and right and left, to ensure they are secured.

LUBRICATION

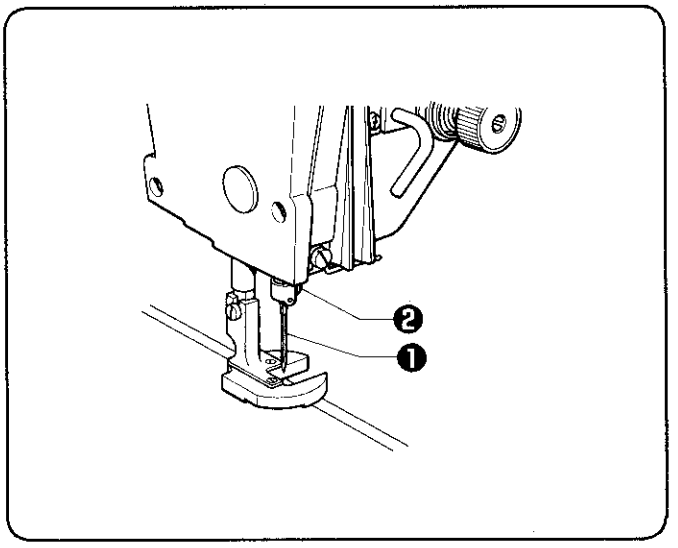
★ Check for sufficient oil through oil gauge windows Ⓐ and Ⓑ on the machine head and the table. If the oil amount is not sufficient, be sure to replenish it.

1. **How to oil the machine head**
   Replenish the oil through oil port ❶.
2. **How to oil the machine table**
   (1) Apply air pressure and turn on power switch ❷.
   (2) Press BOBBIN CHANGE button ❸ and the machine head will move toward you and stop.
   (3) Replenish the oil through the oil port to the right of needle plate ❹.
   (4) After replenishing the oil, press the BOBBIN CHANGE button ❸ and the START button ❺.
   Note: Before initial operation of the machine or after a long interval, be sure to drip a few drops of oil onto the arrowed lubrication point Ⓒ.
3. **How to drain oil from the machine body**
   (1) Check the oil amount through the oil gauge window.
   (2) Pull open Nylatches ❻ and remove oiler setting plate ❼.
   (3) Remove poly-oiler ❽ and drain the oil.
4. **Rotary hook lubrication control**
   Turn rotary hook oil adjusting screw ❾ to control the lubrication amount.



CORRECT OPERATION

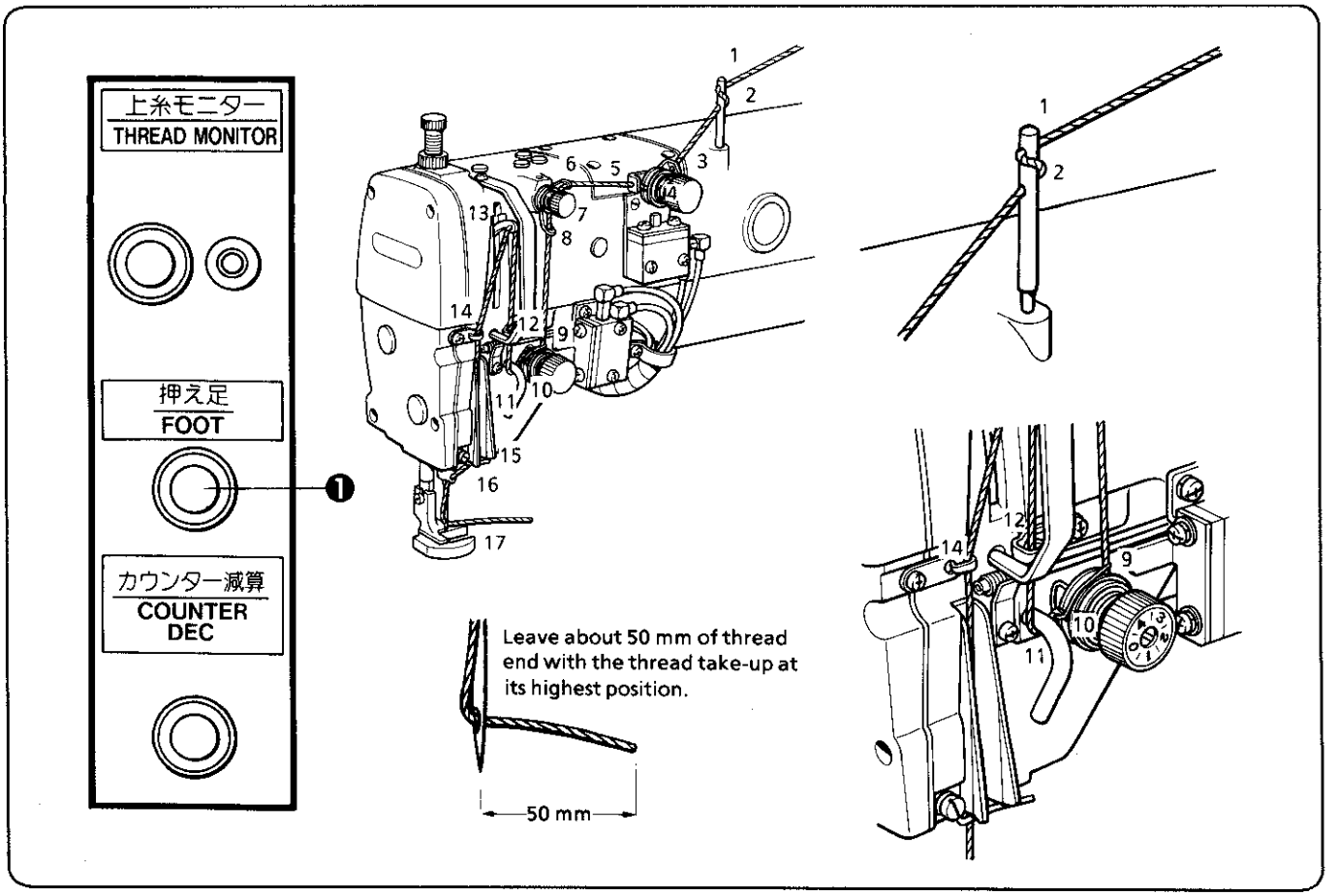
1 Needle attachment



★ Fully insert needle ❶, with its long groove to the left, and secure it with screw ❷.

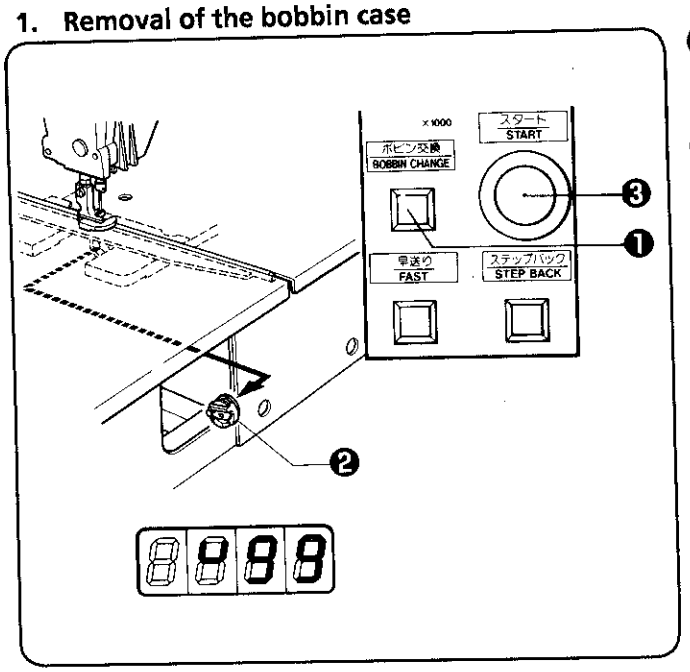
2 Upper threading

1. Apply air pressure and turn on power switch. The machine will move to the home position. Press FOOT button ❶ and lower presser foot ❷.
2. Pass the upper thread as illustrated below. After threading, be sure to press FOOT button ❶ and lift presser foot ❷.
3. After threading, turn the pulley and lift the needle-bar to the uppermost position.



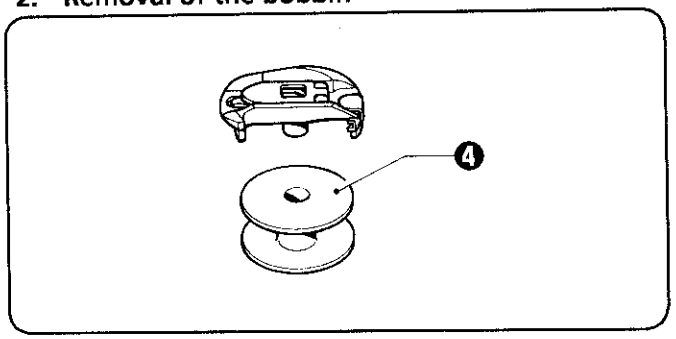
3 Bobbin case threading

1. Removal of the bobbin case



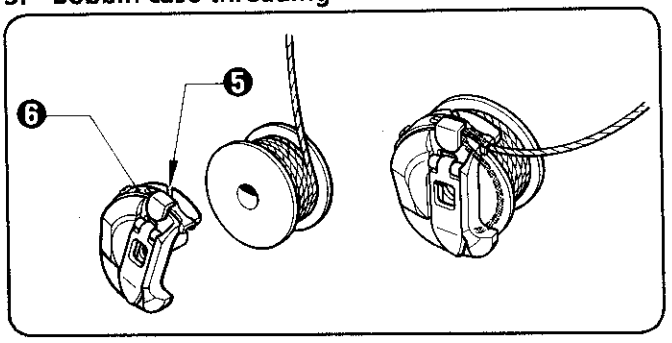
(1) Press BOBBIN CHANGE button ❶ and the machine will move toward you and stop; "U99" will flash on the display.
(2) Take out bobbin case ❷.
Replace the bobbin.
After replacing bobbin case ❷, press BOBBIN CHANGE button ❶. The display will show "U99" which has now stopped flashing.
(3) Press START button ❸.

2. Removal of the bobbin



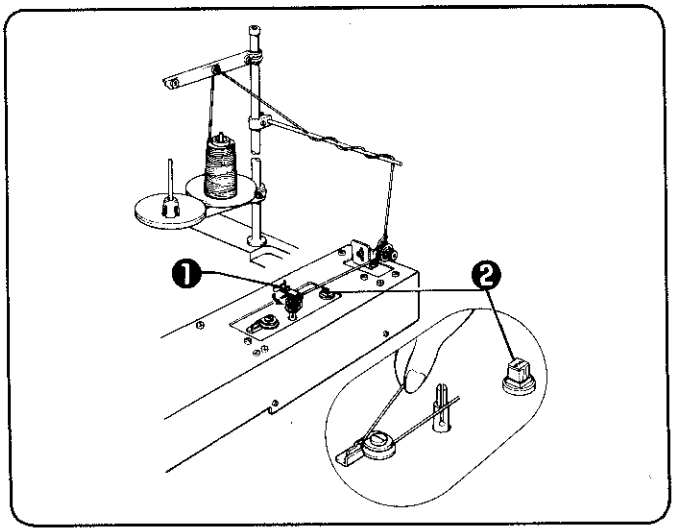
★Bobbin ❹ can be removed when the latch is released.

3. Bobbin case threading



(1) Insert the bobbin into the bobbin case.
(2) Pass the thread through slot ❺ and under adjustment spring ❻.
(3) Pull the thread out from adjustment spring ❻.

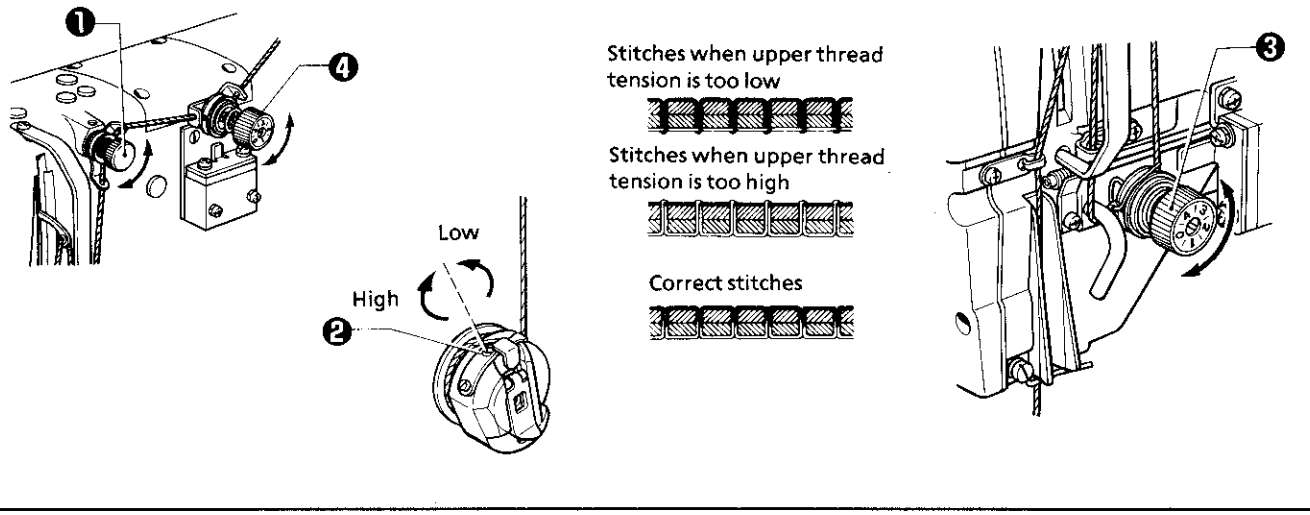
4 Bobbin thread winding



1. Pass the bobbin thread from the spool stand as illustrated below.
2. Wind the thread around the bobbin as arrowed.
3. Press lever ❶ against the bobbin.
4. After completing bobbin thread winding, cut the thread.

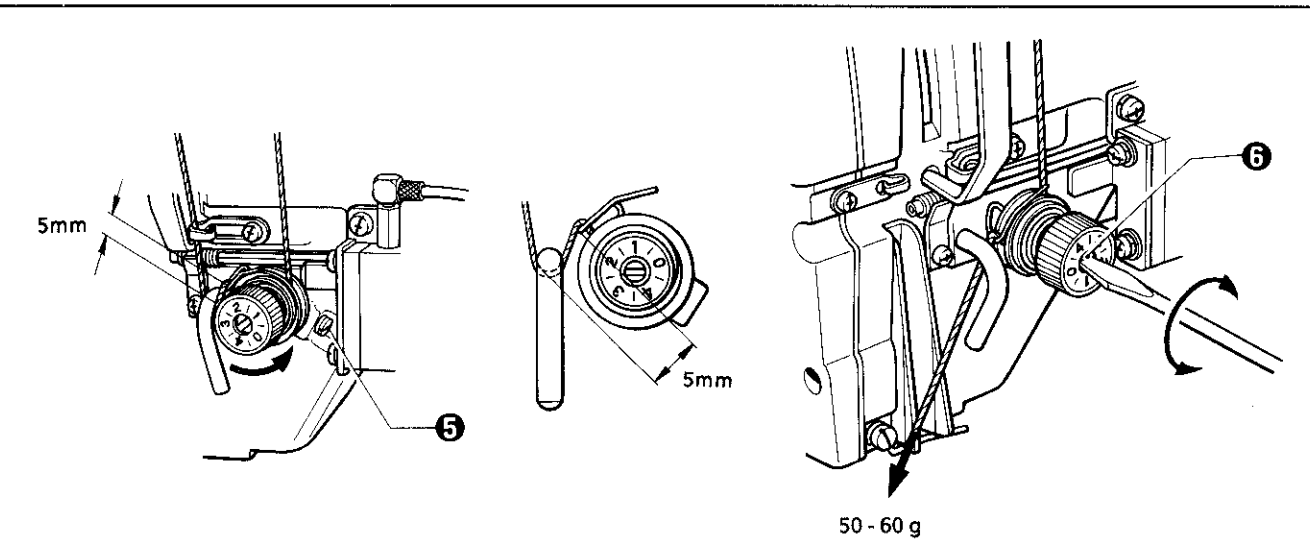
※ Check for any idle rotation of the bobbin. The motor may overheat, if the bobbin idles for a long time or if it rotates without a bobbin. At this time, protector ❷ will go up and the bobbin thread winding motor will not start. If protector ❷ is pressed after about 20 seconds has elapsed, bobbin theread winding can be restarted.

5 Thread tension



1. When the thread take-up lever is in the highest position after thread trimming, adjust the upper thread beyond the needle eye so as it is 35 to 40 mm long, by turning tension nut ❶.
2. Adjust the lower thread tension by turning tension regulating screw ❷.
3. Adjust the upper thread tension by turning tension nut ❸ and ❹ after lowering the presser foot.
   ※ Then adjust the tension 30 - 40 g by turning tension nut ❹.
   Main adjust is performed by using tension nut ❸.

★ **Thread take-up spring**

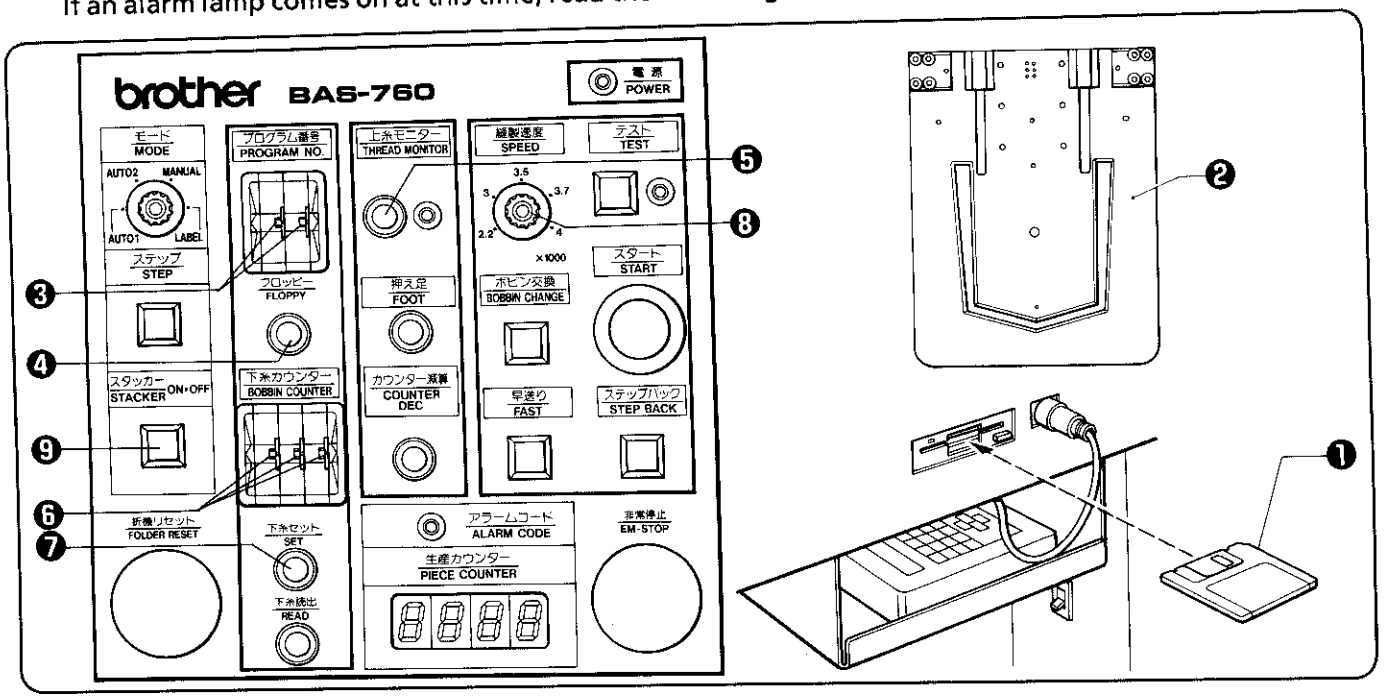


1. The standard thread take-up spring height is 5 mm from the lower end of the thread guide. The standard thread take-up spring force is 50 to 60 g.
2. To adjust the thread take-up spring height, loosen set-screw ❺ and turn the whole unit of the tension regulator assembly.
3. To adjust the thread take-up spring force, insert a screwdriver tip into the groove of tension stud ❻ and turn it as much as is appropriate.

SEWING

1 Preparation for sewing

1. Apply air pressure and turn on power switch.
   The machine will move to the home position and stop at the shunting position.
   If an alarm lamp comes on at this time, read the following notes:



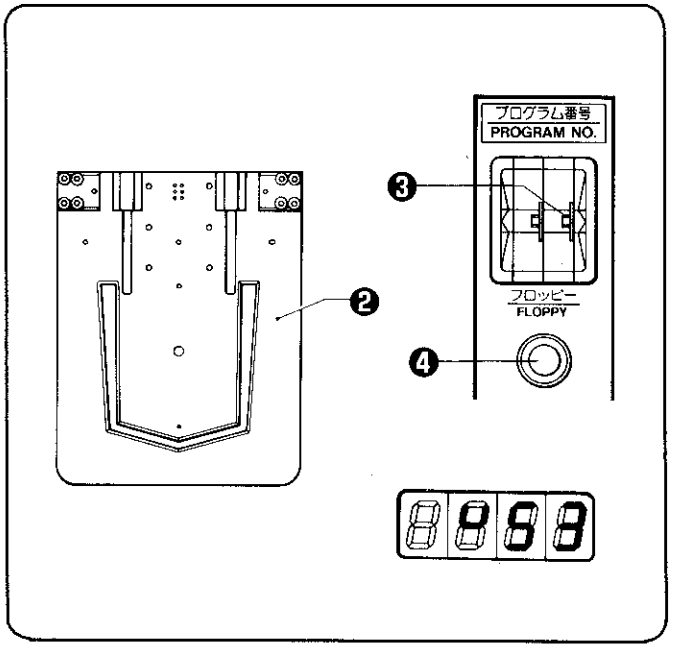
※ An alarm code for an error message not describing an abnormality can be cancelled by pressing the emergency stop button.

※ When alarm code, U87, U88, U89, U94 or U95, is displayed, turn the power switch to OFF and then turn it to ON again.
In addition, if error codes U94 or U 95 are displayed, move the sewing clamp or the machine head by hand to the normal standby position, and then turn the power back on. If the same alarm code is displayed, a photo sensor, a motor or a PCB may need replacement. The same holds for alarm code U90 also, but if this code is not erased after turning the power back ON again, the reason is probably a malfunction in the solenoid valve or the cylinder sensor.

2. Insert floppy disk ❶.
3. Match the number of sewing clamp assembly ❷ and the program number by PROGRAM No. switch ❸.
   Refer to page 48 for the sewing clamp assembly numbers.
4. Press FLOPPY button ❹.
5. Make sure that the THREAD MONITOR lamp is on. If the lamp is off, press THREAD MONITOR button ❺ to turn it on.
6. To start sewing with a new bobbin, set the BOBBIN COUNTER switch ❻ and press the SET button ❼.
7. Display "0" on the PIECE COUNTER (refer to page 15).
8. Turn SPEED selector ❽ to set the sewing speed.
9. Press STACKER button ❾ to turn it on.

Alarm code	Error message	Alarm code	Error message
U51	Needle-bar drop → Turn the machine pulley to raise the needle-bar	U82	No air pressure or air zipper has been turned off
U52	Upper thread breakage → Pass the upper thread	U83	X-right over-travel switch has been operated
U53	Discrepancy between the folder and the program	U84	X-left over-travel switch has been operated
U54	Machine synchronism sensor wire break or malfunction	U85	Y-above over-travel switch has been operated
U55	Needle lift sensor	U86	Y-under over-travel switch has been operated
U56	Presser foot cylinder malfunction or sensor wire break	U87	X-axis motor system fault
U58	Needle zigzag cylinder malfunction or sensor wire break	U88	Y-axis motor system fault
U60	No data → Check the floppy disk	U89	Machine motor system fault
U61	Sensor connector connection check alarm	U90	Folder fault
U62	Pattern number check alarm	U91	X-axis positioning error
U70	Try again → Floppy disk fault	U92	Y-axis positioning error
U71	No data available from designated program	U93	Over-area during programming operation
U72	No disk in the FDD	U94	X-origin switch fault, or the X origin switch has been turned on when the power switch was turned on
U73	Write protected → Change the disk window	U95	Y origin switch fault or the Y origin switch has been turned on when the power switch was turned on
U74	Designated number unavailable	U96	X origin switch has been turned on
U78	Key word error	U97	Sewing clamp malfunction
U80	Emergency stop button has been pressed	U99	Bobbin change on-going is being displayed

[Setting of the folding group assembly number and the program number]



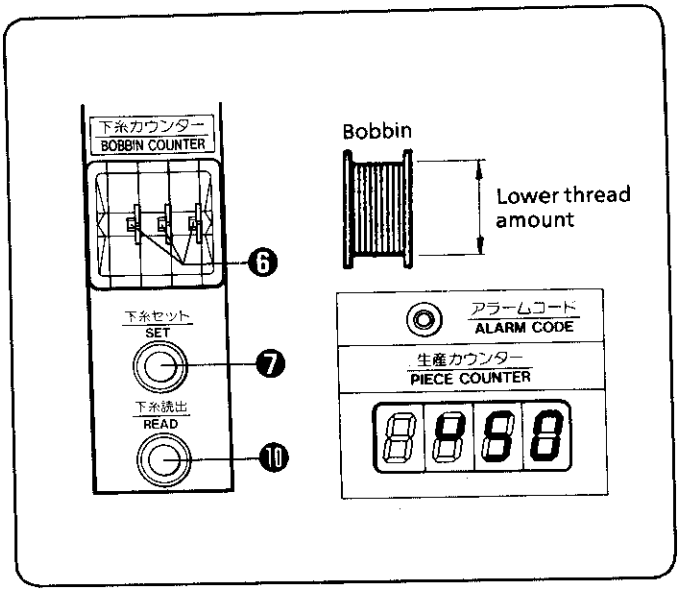
(1) Check the folding group assembly number.
(2) Input the number of sewing clamp assembly ❷ with PROGRAM No. switch ❸.
(3) Press FLOPPY button ❹.
(4) At the end of floppy disk reading, the ALARM CODE/PIECE COUNTER will display the program number.
(5) Check if the number of sewing clamp assembly ❷ is identical to the displayed number.
※ If it is not, repeat procedures (2) to (4).
※ If you try to sew with discrepant numbers, "U53" will be displayed and the machine operation will be interrupted.

[Bobbin counter setting]

★Set up the producible quantity with the lower thread amount wound on the bobbin in the case.

★Modification is possible only when the production quantity is displayed in the shunting position.

★The producible piece number can be monitored by using the READ button.



(1) Press READ button ⑩, and the producible piece number will be displayed.

(2) Set up the producible number at BOBBIN COUNTER switch ⑥.

(3) Press SET button ⑦ to complete setting.

※ Press SET button ⑦ when setting the same quantity after changing the bobbin.
Check if the display shows the set-up quantity.

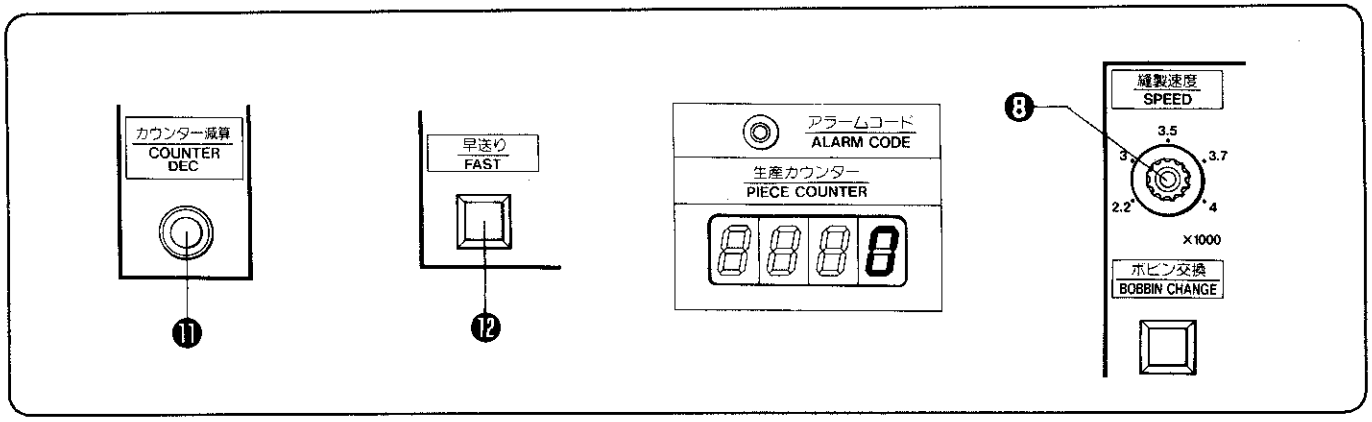
※ The maximum setting valve is 399; even if a larger valve is input, the setting is fixed at 399.

(4) When the bobbin counter setting display "0" after sewing, the machine head moves toward you (bobbin change position). After changing the bobbin, the counter will be set automatically.

[Setting the PIECE COUNTER and the sewing speed]

★Settings can be modified only when the production quantity is displayed with the machine in the shunting position.

★The bobbin counter setting and piece counter setting are stored even after the power switch is turned off.



Setting the production quantity

(1) The PIECE COUNTER is reset to display "0" when COUNTER DEC button ⑪ and FAST button ⑫ are pressed simultaneously.

(2) Each time COUNTER DEC button ⑪ is pressed once, the displayed value will decrease.
※ Additions to the value are not available.

Sewing speed

Set sewing speed by turning the SPEED selector ⑧ before starting.

Ex. Maximum speed for core-spun thread: 4,000 spm
Maximum speed for polyester, spun thread: 3,500 spm

※ The sewing speed cannot be changed during the sewing operation, except after an interruption.

2 Sewing

★Set MODE switch ❶.

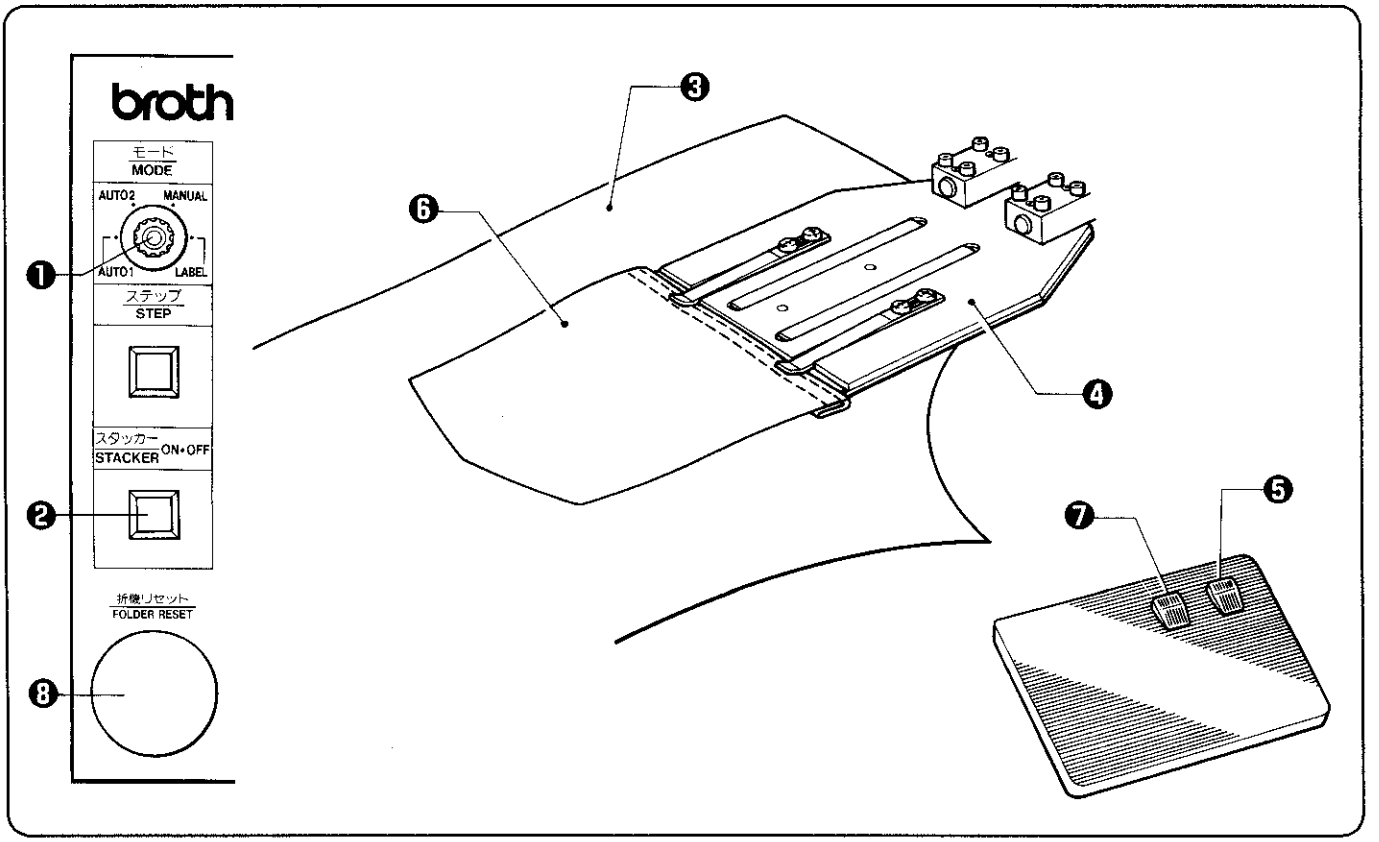
LABEL: For label attaching
AUTO1: For standard sewing
AUTO2: For sewing with pattern alignment operation
MANUAL: For folder action checking

★Set STACKER ON・OFF button ❷.

Lamp is on: The stacker is connected.
Lamp is off: The stacker is disconnected.

[Standard sewing: Select AUTO1]

1. Select AUTO1 on MODE switch ❶.
2. Press STACKER button ❷, and the lamp will come on.
3. Place front material ❸ under center blade assembly ❹.
4. Press right foot-switch ❺. The front material ❸ will be holded.
5. Place pocket material ❻ over center blade assembly ❹.
6. Press left foot-switch ❼. The pocket material ❻ will be folded on the folding group assembly and the front material ❸ and the pocket material ❻ will be carried to the machine side to be sewn.
7. After completing sewing, the machine will return to the shunting position.



[In a case of mis-folding]

・Press FOLDER RESET button ❽ twice and the state before folding will be regained.

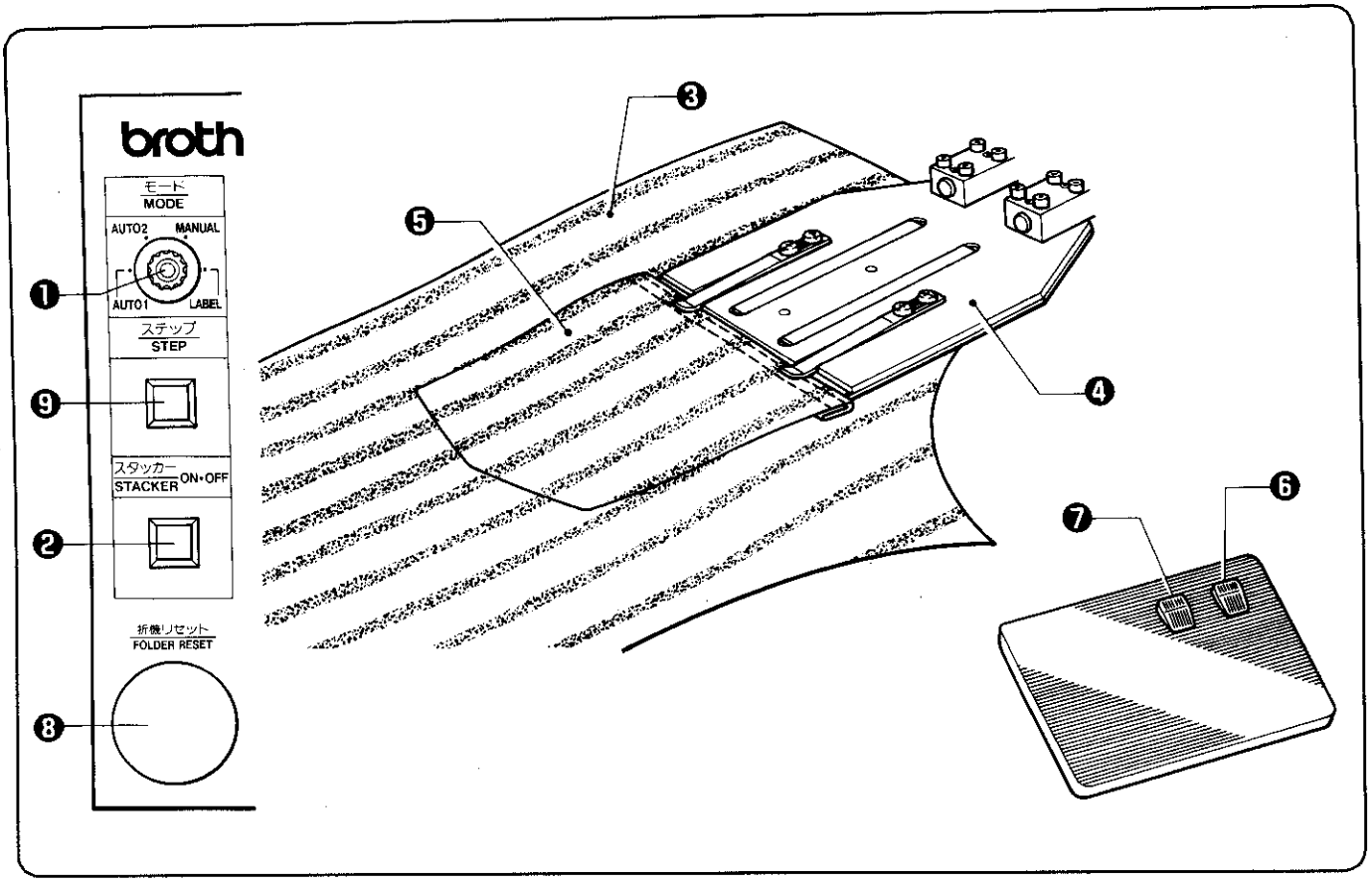
[In a case of upper thread breakage]

・If the ALARM CODE lamp comes on with a display of U52, refer to "To continue sewing and To return to the shunting position" on page 22.

※ The machine cannot be operated when the lamp is on.

[Pattern-alignment sewing: Select AUTO2]

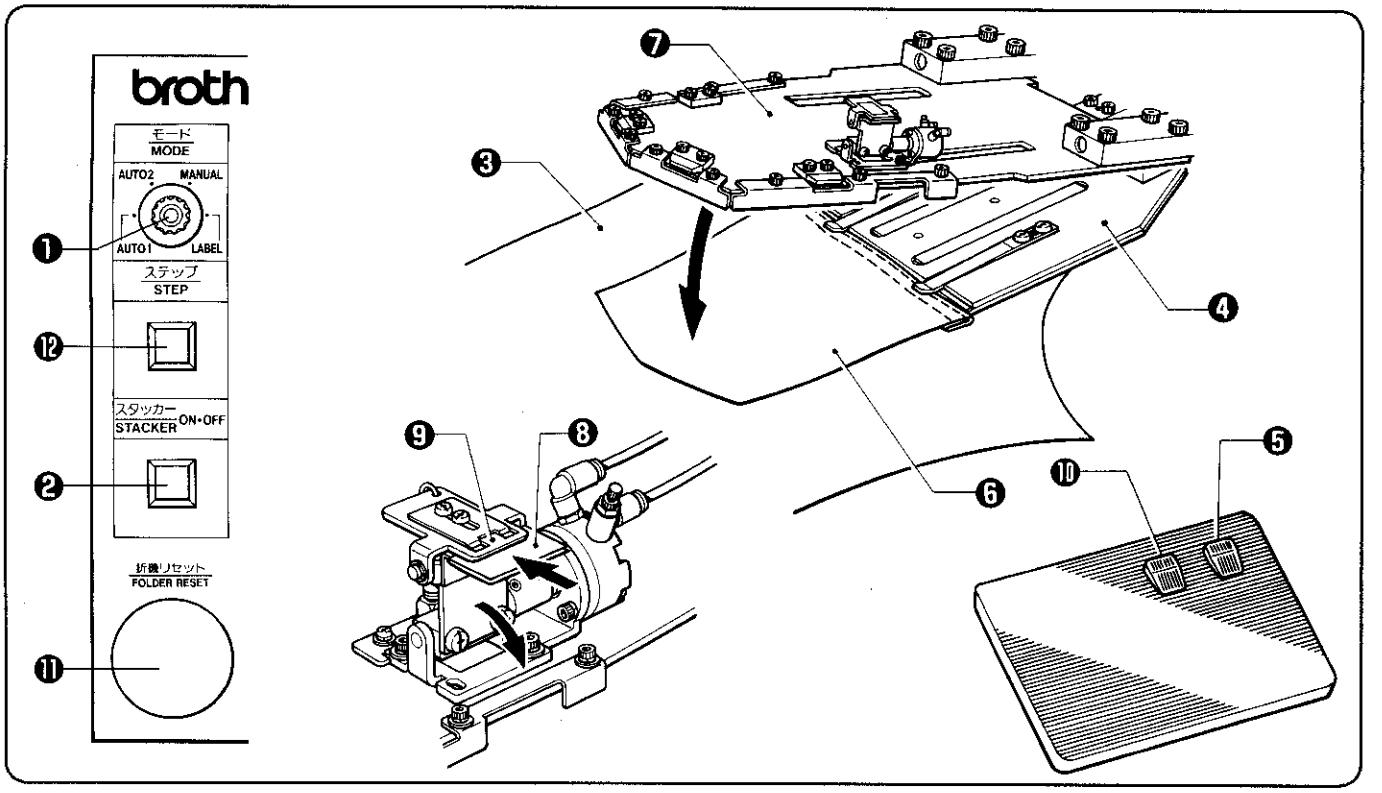
1. Select AUTO2 with MODE switch ❶.
2. Press STACKER button ❷ and the lamp will come on.
3. Place front material ❸ under center blade assembly ❹.
4. Place pocket material ❺ over center blade assembly ❹.
5. Press right foot-switch ❻ and maintain foot pressure.
   The center blade assembly ❹ will descent a little further. If the pocket pattern and the front material ❸ are not in alignment, move the front material ❸ to align. After alignment, release right foot-switch ❻ to the neutral position.
   Center blade assembly ❹ will descend further more to check pattern-alignment.
   If alignment is not correct, press the right foot-switch ❻ again so that the center blade assembly ❹ is raised, and more the front material ❸ to align.
6. Press left foot-switch ❼. The pocket material ❺ will be folded on the folding group assembly. After the sewing clamp assembly moves, the front material ❸ and the pocket material ❺ are carried to the machine and sewing will start.
7. After completing sewing, the machine will return to the shunting position.



※ If the STEP switch ❾ is pressed at the same time as the FOLDER RESET ❽ button is being pressed, the mode can be switched to the check mode for pocket folding. After the pocket material ❺ is folded by the folder in step 6 above, the machine will return to standby mode. If alignment is not correct, press FOLDRE RESET button ❽ twice to retern the foler to the former state. If it is correct, press left-foot switch ❼ again. After the sewing clamp assembly moves, the front material ❸ and the pocket material ❺ are carried to the machine and sewing will start.
(RESET mode is entered when the power is switched on.)

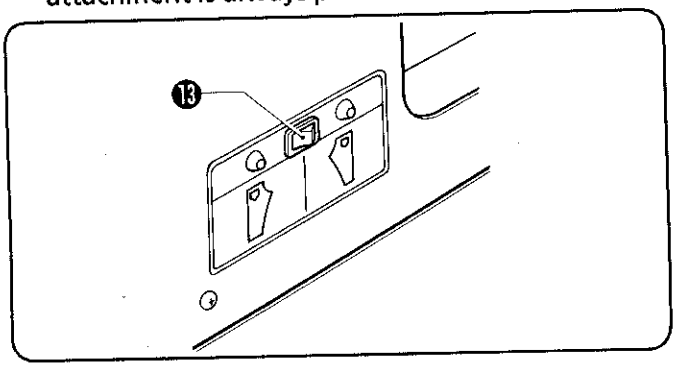
[Label attachment: Select LABEL]

1. Set the MODE switch ❶ to LABEL.
2. Press the STACKER button ❷ so that the lamp illuminates.
3. Place the main material ❸ under the center blade assembly ❹.
4. Depress the right foot switch ❺. The main material will be clamped.
5. Place the pocket material ❻ over the center blade assembly ❹.
6. Depress the right foot switch ❺ once more and keep it pressed down.
   The inner clamp assembly ❼ will cover the top of the center blade assembly ❹, and label setting will be possible.
   Set the label ❽ in the clamp section ❾ of the label attachment device.
   After setting the label ❽, release the right foot switch ❺.
   Clamp the label ❽ in the clamp section ❾ and turn the label attachment device to the folding position. (If you wish to re-clamp the label ❽ depress the right foot switch ❺ and keep it pressed down. The label can then be reset.)
7. Depress the left foot switch ❿ The pocket material ❻ will be folded by the folder assembly. After the presser oot assembly has moved, the main material ❸ and the pocket material ❻ are carried to the machine and sewing starts.
8. After sewing is completed, the machine will return to the standby condition.



※ If the STEP switch ⓫ is pressed at the same time as the FOLDER RESET ⓬ button is being pressed, the mode can be switched to the check mode for pocket folding. After the pocket material ❻ is folded by the folder in step 7 above, the machine will return to standby mode. If the label ❽ is poorly positioned, press the FOLDER RESET button ⓫ twice to return the folder assembly to the former state. If the label ❽ has been folded properly, depress the left foot switch ❿. After the presser foot assembly has moved, the main material ❸ and the pocket material ❻ are carried to the machine and sewing starts.
(RESET mode is entered when the power is switched on.)

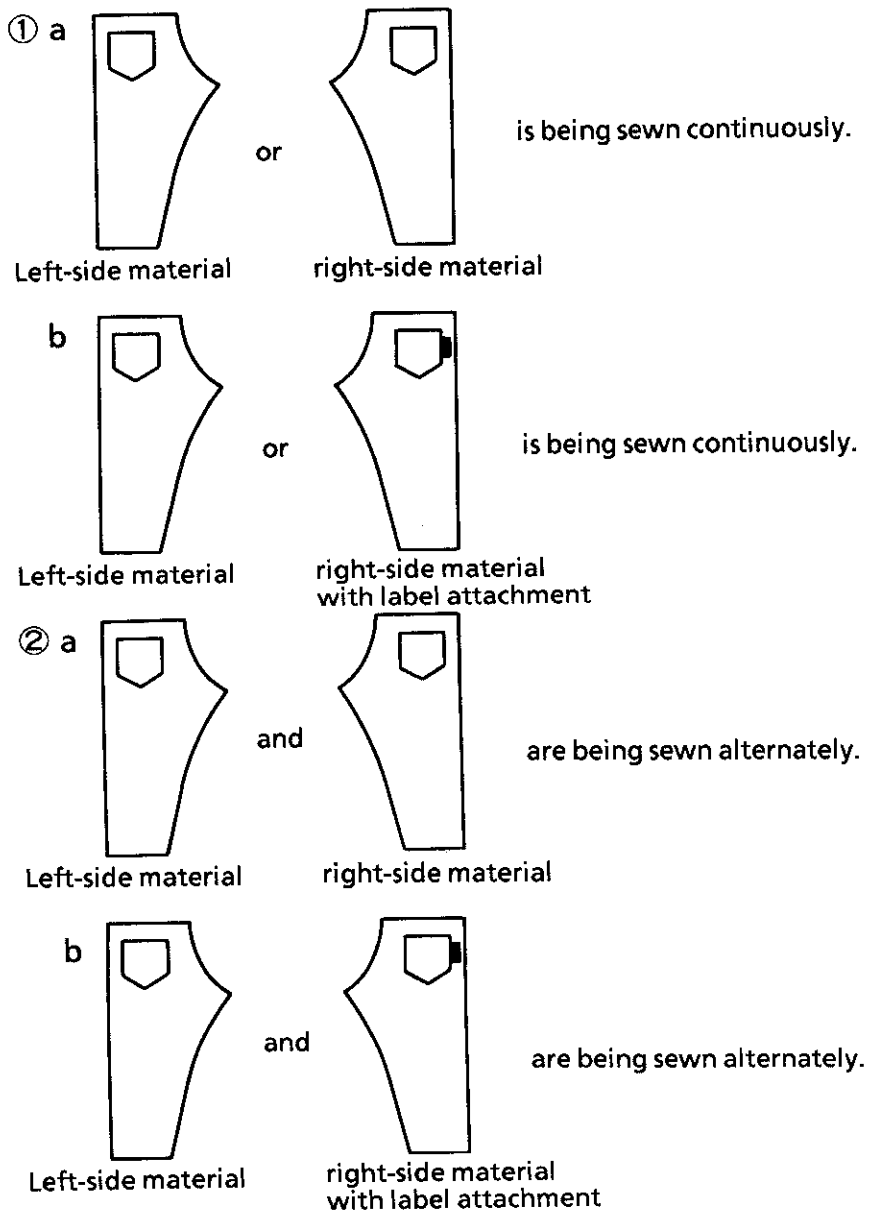
※ When attaching labels in alternating steps, setting DIP switch 2-1 on the folder circuit board to OFF will enable the machine to be set to alternating label attachment mode. (If the DIP switch is ON, label attachment is always performed in continuous label attachment mode.)

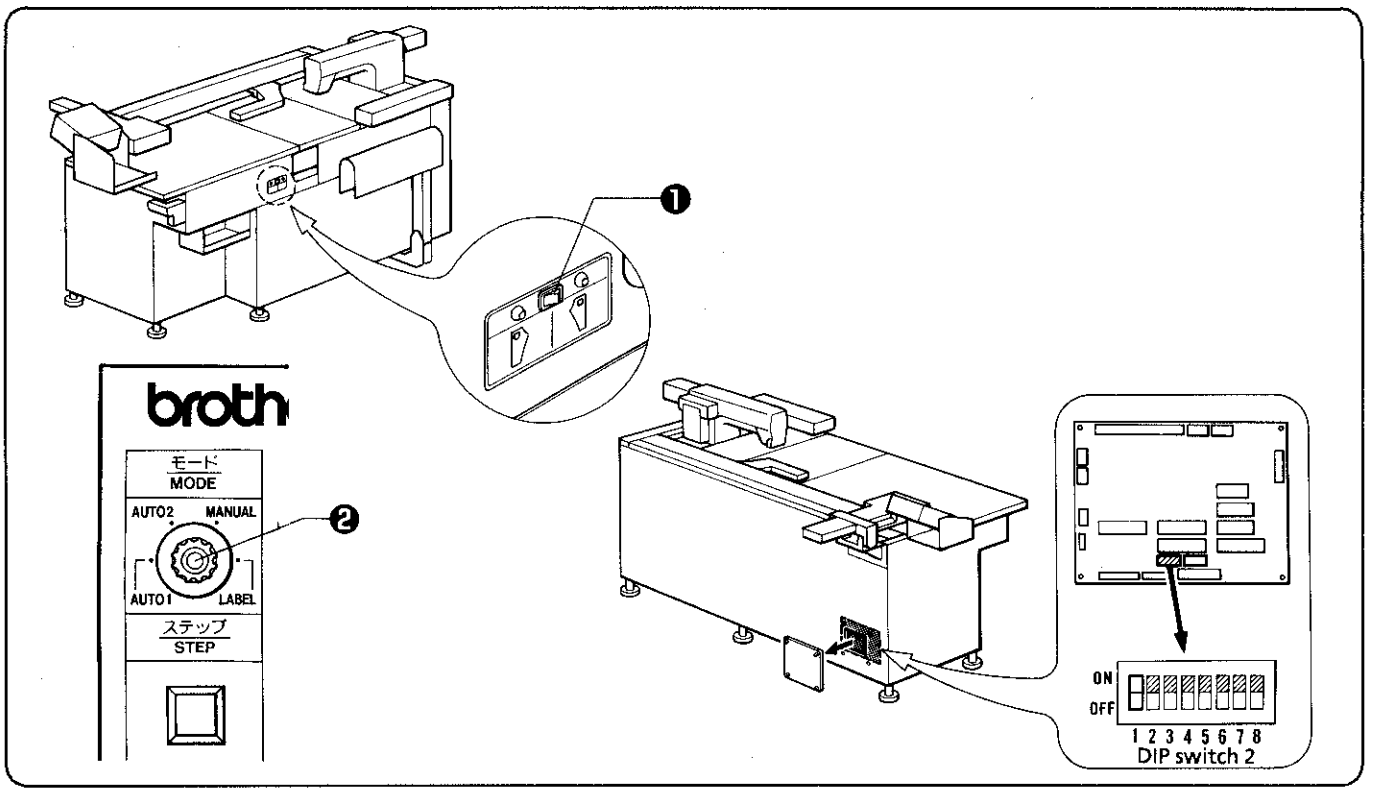


※ When the power supply is turned ON, with alternating label attachment mode, the order is as determined by the switch ⑬. If the right-side lamp is illuminated, the stacker roller moves to the right. If the left-side lamp is illuminated, the stacker roller does not move to the right and label attachment is not performed.

◆Examples of actual mode setting (stacking and label attachment)

The modes shown below can be selected.





For ①

For ①, set the DIP switch 2-1 on the folder circuit board to ON. The stacker roller will move to the right at all times.

(The selector switch ❶ is always at the right-side material side, and cannot be changed.)

①a .... Set the mode ❷ on the control box to AUTO1.

①b .... Set the mode ❷ on the control box as follows:
For left-side material - AUTO1
For right-side material with label attachment - LABEL

For ②

For ②, set the DIP switch 2-1 on the folder circuit board to OFF.

The stacker roller will move to the right when sewing the right- side material only.

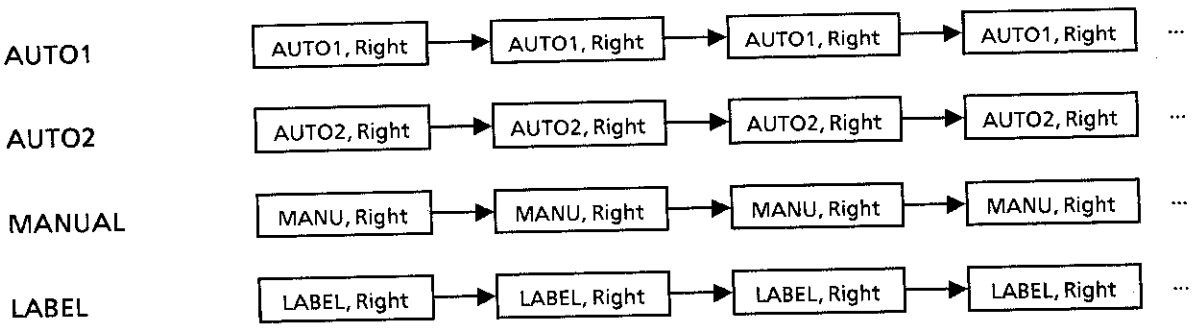
②a .... Set the mode ❷ on the control box to AUTO1.
Set the selector switch ❶ at the lower center of the front cover to the position corresponding to the desired material for sewing (the LED at that side will illuminate).
After this, the side to be sewn will change automatically. (If you wish to re-sew or change the order of sewing, re-set the selector switch while the machine is in the standby position.)

②b .... Set the mode ❷ on the control box to LABEL.
Set the selector switch ❶ at the lower center of the front cover to the position corresponding to the desired material for sewing (the LED at that side will illuminate).
When sewing the right side material and attaching a label, the folder will operate to attach a label, and when sewing the left-side material, the folder will operate in AUTO1 mode.
(If you wish to re-sew or change the order of sewing, re-set the selector switch ❶ while the machine is in the standby position.)

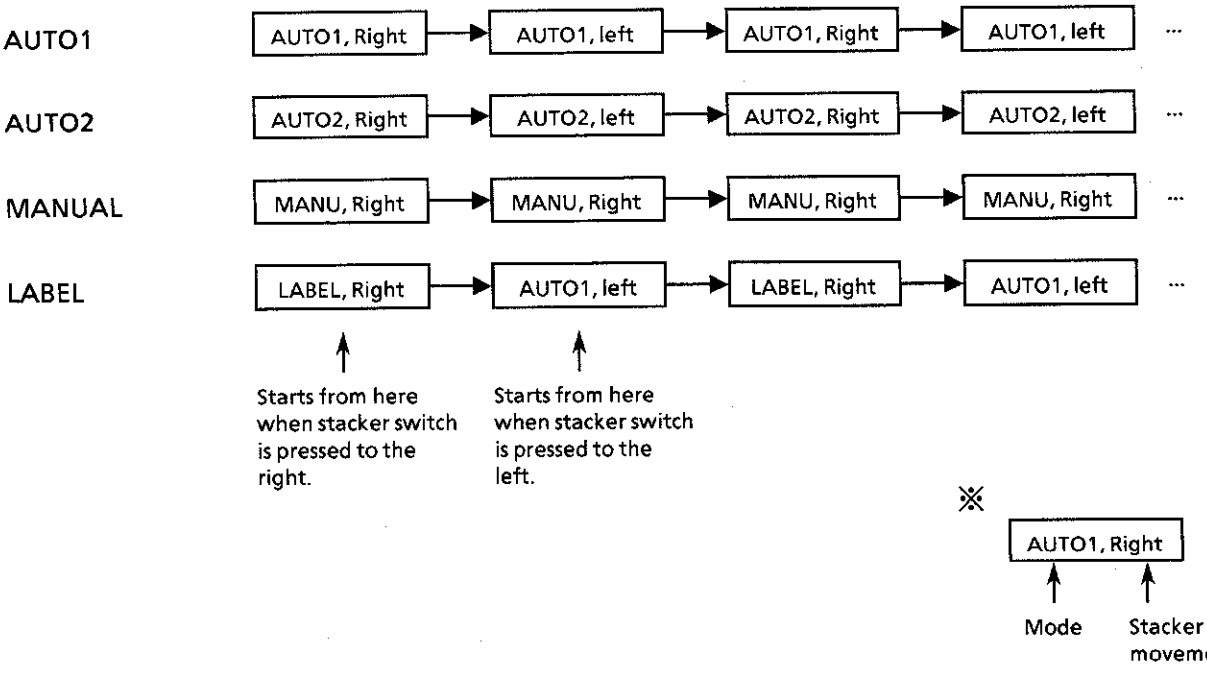
◆Mode and stacker roller movement

DIP SW 2-1 (Folder circuit board)
ON ..... Continuous mode
OFF .... Alternating mode

- **DIP SW 2-1 ON** ... Use when sewing continuously on one side of the material only.
The stacker roller selector switch is ignored.
The selector switch LED for the right side stays illuminated.
(The stacker roller always moves to the right side.)



- **DIP SW 2-1 OFF** ... Use when sewing alternately on the left and right of the material.
The LED of the selector switch will illuminate to indicate the side on which the material is set.
The labels will be attached to the right side material.
The stacker operation will not alternate in MANUAL mode.
The mode and stacker roller movement are reset when either the MODE switch or stacker switch is operated, and alternating mode commences from this point.

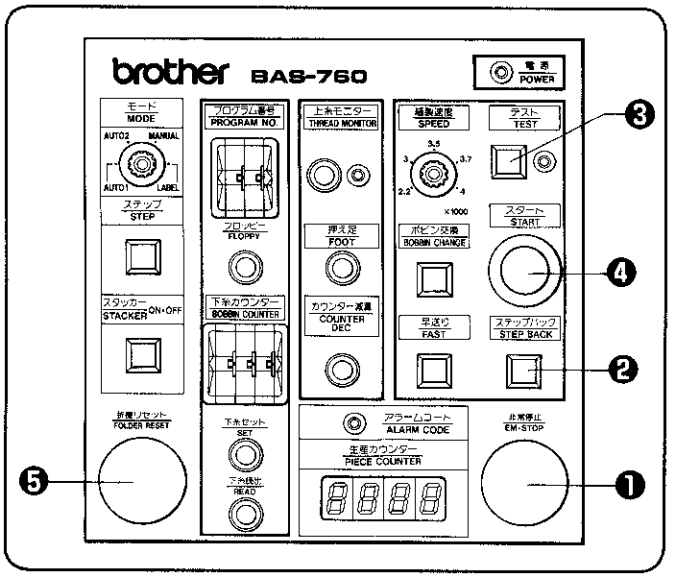


3 Emergency stop

EM STOP button uses

[To stop the machine during sewing]

To stop the machine during sewing, press EM STOP button ❶.
The machine will stop and display "U80". Find the cause of the trouble.



To continue sewing:

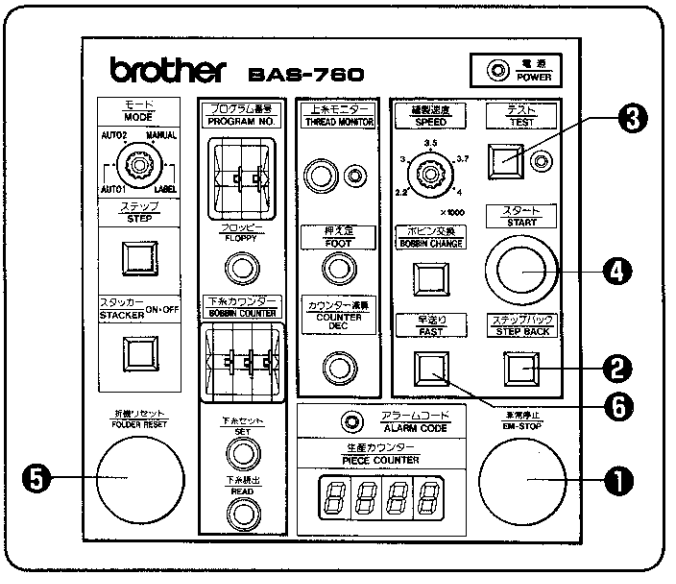
1. Press the EM STOP button ❶ again for alarm release. U80 will go off after thread trimming.
2. While STEP BACK button ❷ is being pressed, the needle drop is carried backward. To feed forward after excessive carry-back, press TEST button ❸ once. The test lamp will come on and feed forward.
   When the needle reaches the required position to resume sewing, press the button once again; the test lamp will go off.
3. Press START button ❹.

To return to the shunting position:

1. Press EM STOP button ❶ again for the second time for alarm release. U80 will go off after thread trimming.
2. Press EM STOP button ❶ for the third time to display U80.
3. Press EM STOP button ❶ and then FOLDER RESET button ❺.
   The machine will return to the shunting position after locating the origin.

[Thread breakage during sewing]

★ The display will indicate U52 at a thread breakage.
The ALARM CODE lamp will come on.

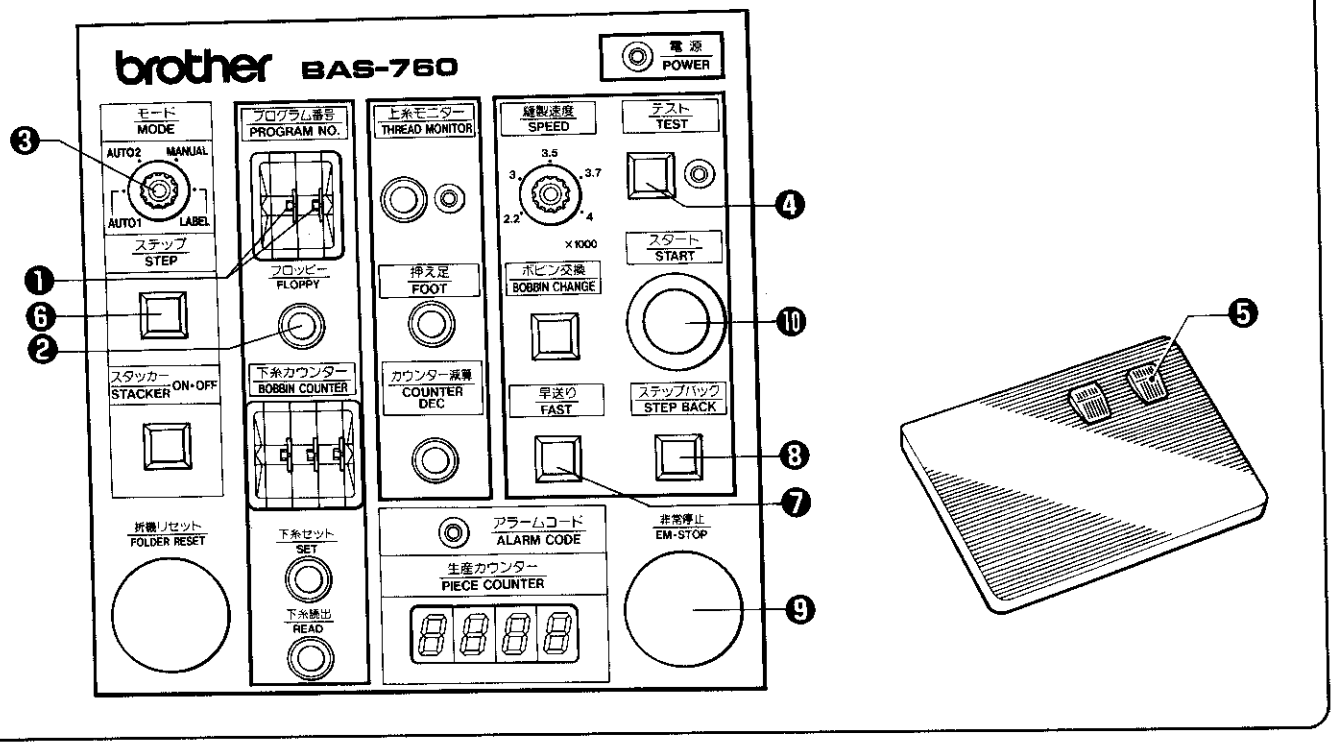


1. Press EM STOP button ❶ and the machine will stop after thread trimming. The alarm lamp will go off.
2. Pass the upper thread with the thread take-up at its highest position.
3. Press STEP BACK button ❷ and return to where the thread was broken.
4. Press START button ❹.
5. The machine will start sewing and return to the shunting position on completion of sewing.

STEP BACK button:	Use this button to return to where the thread was broken.
TEST button:	When using STEP BACK button ❷, press TEST button ❸ once to move forward after moving backward to far backward. The forward feeding action will stop when the TEST button ❸ is pressed again.
[To fast feed]	
Forward feeding:	Hold down FAST button ❺ while the TEST lamp is on after pressing TEST button ❸ forward feeding will then become fast.
Reverse feeding:	Hold down FAST button ❺ while STEP BACK button ❷ is pressed; and the (reverse) feeding will then become fast.

4 Test operation

★ When using a new sewing clamp assembly with user's own program, conduct a test operation to ensure that the needle will not contact sewing clamp.



1. Apply air pressure and turn on the power switch.
2. Set up PROGRAM No. digital switch ❶ to match the folding group assembly number with the program data number and then press FLOPPY button ❷.
   Check if the display matches the folding assembly number.
3. Select MANUAL on MODE switch ❸.
4. Press TEST button ❹ and the lamp will come on.
5. Depress and release the right foot switch ❺. The main material will be clamped.
6. Depress the right foot switch ❺ once more and keep it pressed down. The label can then be set. If the pedal is released, the label attachment device will enter standby mode. (If the right foot switch ❺ is depressed once more, the label can then be set, and if it is released, the machine will enter standby mode.)
   ※ When using a folder that has no label attachment device, this operation will not occur.
7. Press the STEP button ❻. Each time this button is pressed, the folder will conduct one step. Observe the tucking blade action this while.
8. After folding, the pocket and front pieces will be carried to the machine head side.
9. The feeder will move for one stitch but nothing will be sewn.
10. On completion of the last stitch, the machine will return to the shunting position.

Fast feed is possible if FAST button ❼ is pressed during feed operation.
Feeding will stop if TEST button ❹ is pressed to turn off the TEST lamp. If TEST button ❹ is pressed again, feeding will proceed; if STEP BACK button ❽ is pressed, feeding will reverse.
Fast feed back is possible if FAST button ❼ is pressed during the backward operations.
Notes: If the needle has descended too much during the above checking operation, press EM (emergency stop) button ❾ to release the alarm when "U51" has been displayed, and turn the machine pulley to raise the needle. After the production quantity has been displayed, press START button ❿ to finish the remaining actions and to return to the shunting position.

※ At a corner, as there is inertia influence, the needle drop position may deviate a little from the position at the time of a test.

OPERATION OF THE PROGRAMMER

1 Key switches and the displays

Feed key
This key is used for skipped start sewing after thread trimming.

Mirror key
This key is used to program a smoothing operation.

Cancel key
This is used to cancel a stitch position in a programmed pattern.

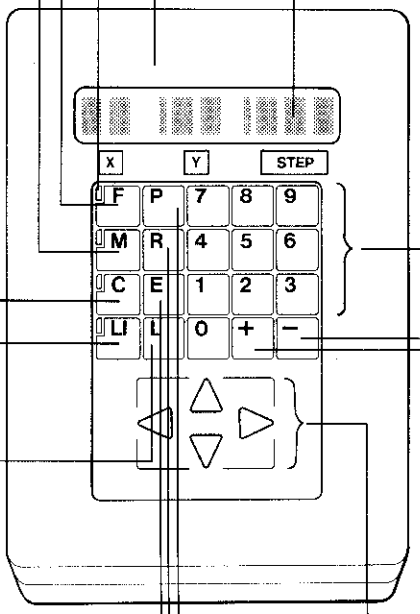
Line key
This key facilitates programming of the straight lines.

Load key
Press this to program the current needle position. The input command will be programmed only once even if this key is pressed more than once while the needle remains in the same position.

End key
On completion of pattern programming, press this key after inputting "111" on the STEP display, to enter a pattern end command.

Reset key
If this key is pressed while in the program mode, the sewing clamp assembly will return to the shunting point (dwelling position). If the key is pressed after inputting "222" the STEP display, the program will be erased completely.

Command lamps
After pressing the Feed key, the Mirror key, the Cancel key or the Line key, the corresponding lamp will come on if the input key command is valid.



Program key
Use this key to switch between sewing and program mode.

X · Y displays
These displays indicate the amount of sewing clamp assembly movement on the X and Y axes, input by the Feed key.

STEP display
- This display indicates the number of steps when the Plus or Minus key is used.
- Commands are numerically converted and displayed here.

Ten keys
The keys in use are displayed in sequential order on the STEP display.

Minus key
- Use this key to move the sewing clamp assembly, for the amount the STEP display indicates, in the direction reverse to that programmed.
- Use this key to clear a wrong input command.

Plus key
- Use this key to move the sewing clamp assembly, for the amount the STEP display indicates, in the programmed direction.
- Use this key to clear a wrong input command.

Jog keys
Use these direction keys to move the needle in the arrowed directions.
The needle will move no more than 6.1 mm when the command lamp F or LI is off.

2 Command list

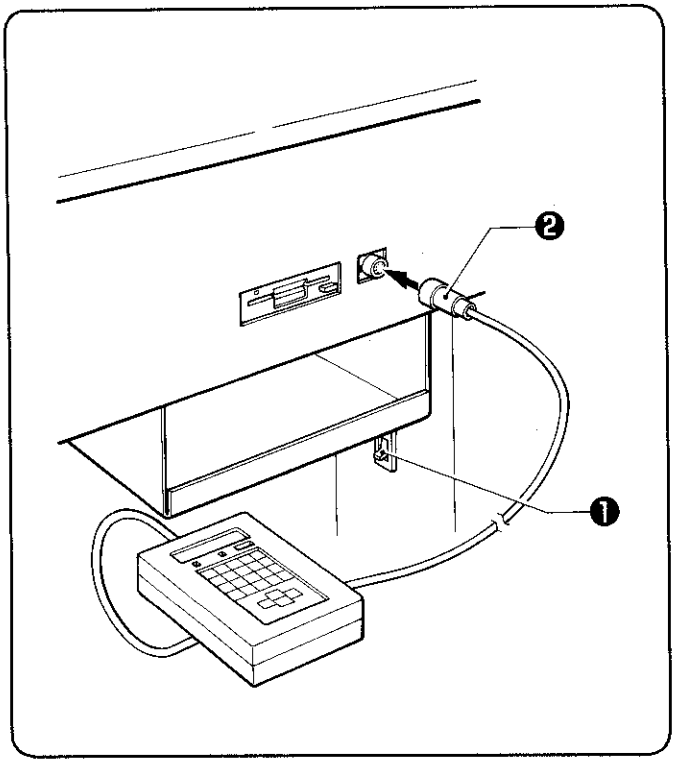
· Refer to this command list for using exact commands when programming.

1 1 1 E	END	□□□M	SMOOTHING (Specify the stitch length.) Ex. 030M: A stitch length of 3 mm If not specified: 3 mm
2 2 2 R	DATA CLEAR	7 8 9 L	SMOOTHING END (Be sure to press at a corner stitch position.)
2□□M	DOUBLE-ROW SEWING (Specify the width.)	9YYLI	YY=01~10 NEEDLE ZIGZAG OPERATION YY is X direction stitch length
5 5 5 L	TRACE		
7 7 7 F	PARALLEL SHIFT		

4 4 4 L	Y feed timing change	6 2 5 L	Low speed changeover 2,500 spm (2 forward, 2 back, total 5 needles)
4 4 5 L	Reset for 444 L	6 2 6 L	Reset for 625 L
6 2 0 L	Low speed changeover 2,000 spm (2 forward, 2 back, total 5 needles)	6 3 0 L	Low speed changeover 3,000 spm (1 forward, 1 back, total 3 needles)
6 2 1 L	Reset for 620 L	6 3 1 L	Reset for 630 L

※ Specify TRACE first when using TRACE and other commands, such as SMOOTHING, at the same time.
※ To program the above commands (enclosed in the box), first program the sewing data once, send by means of the programmer as far as the necessary points, and then input.

3 Programmer connection



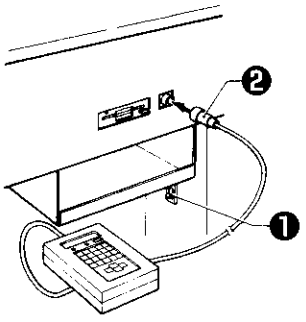
(1) Turn power switch ❶ to OFF and connect programmer plug ❷ to the connector on the front cover.
(2) Turn power switch ❶ to ON. Set the sewing clamp assembly in the shunting position.
Press the P (program) key. The sewing clamp assembly will come down and the program mode will be established.
Insert a piece of material under the assembly to facilitate its movement.
(3) On completion of programming, press the P (program) key to switch to the sewing mode.
※ Do not press the panel keys of the programmer unit with finger nails or other pointed objects.

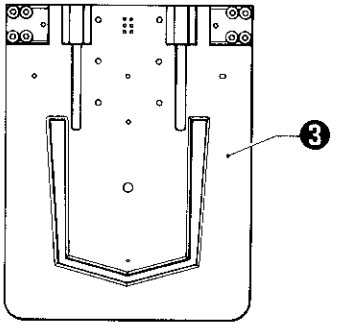
PROGRAMMING PROCEDURES

<Conditions>

- Outline the pattern to the actual size.
- Design the pattern with a maximum stitch length of 6.0 mm.
- The maximum number of stitches is 1,000.
- The maximum pattern size is 220 mm in the X direction and 250 mm in the Y direction.
- There are no limits in establishing the initial stitch position, performing a back stitch operation or the sewing direction.

[1] Preliminary procedure

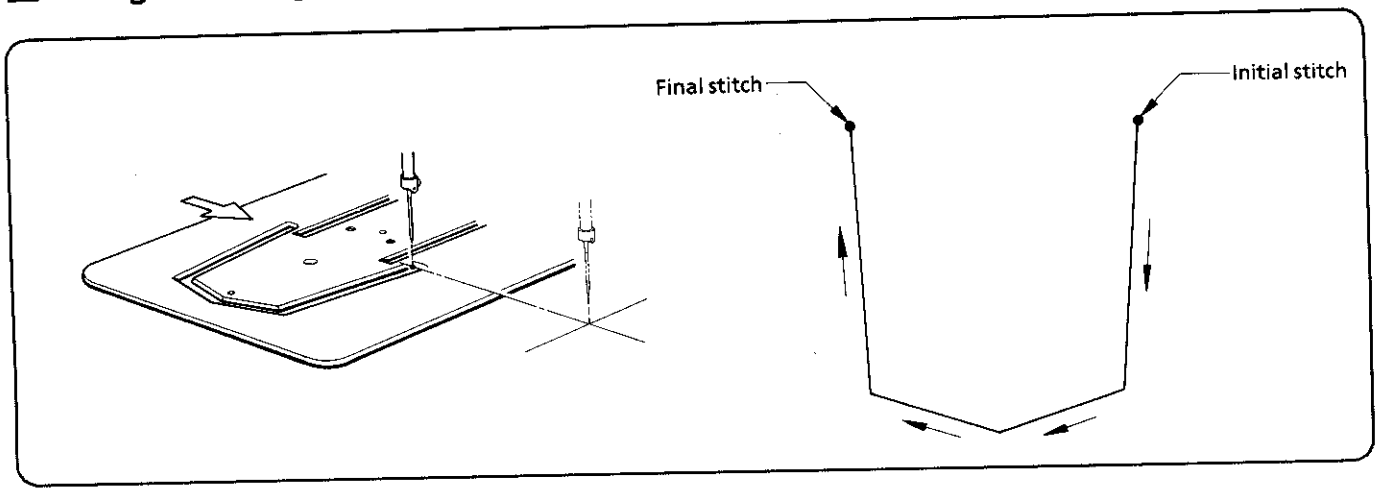




(1) Turn power switch ❶ to OFF.
(2) Connect programmer plug ❷ to the connector on the front cover.
(3) Turn power switch ❶ to ON. The sewing clamp assembly will move in the X and Y feed directions to the sewing origin.
(4) Set sewing clamp assembly ❸ and be sure to insert a piece of material under the assembly.
(5) Press the [P] (program) key. The sewing clamp assembly ❸ will come down and the program mode will be established.

※ Be sure to connect the programmer to the power source only when the power switch is turned to OFF. Do not disconnect the programmer while programming. If disconnected, erroneous actions will result or programming will be disabled.

[2] Programming a pattern one stitch at a time

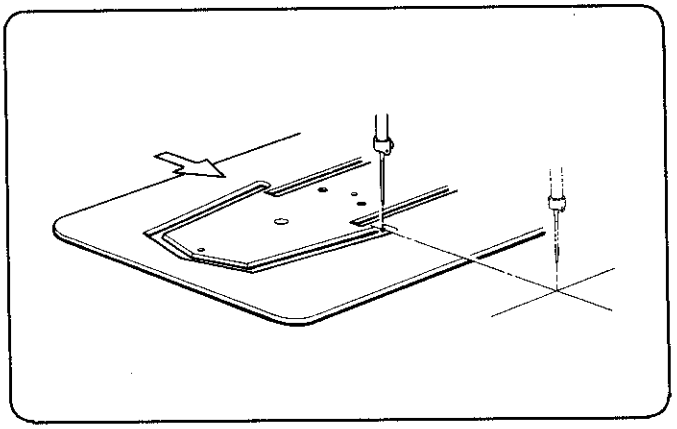


Example: Program the pattern at above.

(1) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(2) Use the jog keys to move the sewing clamp assembly to the initial stitch position.
(3) Turn the pulley and bring the needle tip as close as possible to the groove on the sewing clamp assembly.
(4) When the needle tip is aligned with the initial stitch position, press the [L] key. This will program the initial stitch.
Program the remaining stitches using the jog keys and the [L] key.
(5) After pressing the [L] key to program the final stitch, turn the pulley to raise the needle bar to the highest position and press ten-key [1] three times to indicate "111" on the STEP display; then press the [E] key.
When U51 comes on, reset the alarm by pressing the EM STOP button and turn the pulley to raise the needle bar to the highest position once more. At the point where the flashing U51 goes off for production piece display, press the START button.
(6) The sewing clamp assembly will return to the sewing origin.
(7) Write the program to the floppy disk (refer to page 38).
(8) Press the [P] key. After the sewing clamp assembly returns to the shunting position and goes up, the displays X, Y and STEP will go off.

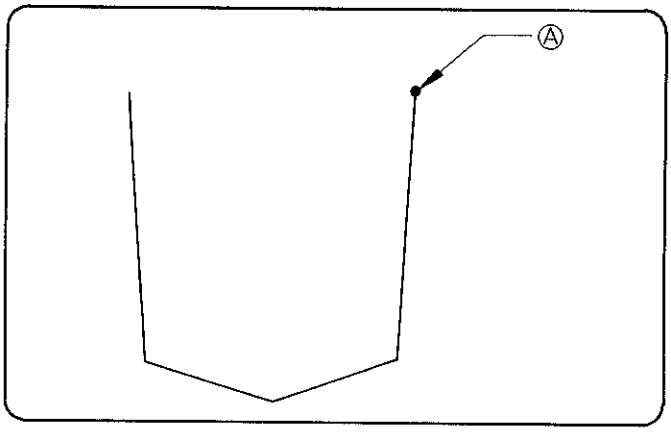
[3] Programming a pattern containing numerous straight lines

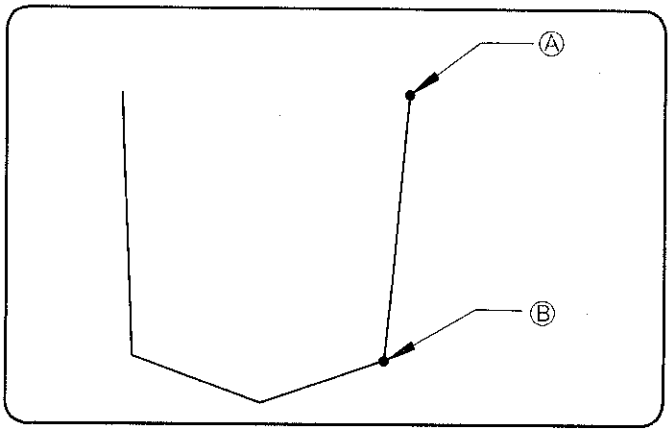
· To program straight lines easily and quickly, use the [LI] key.

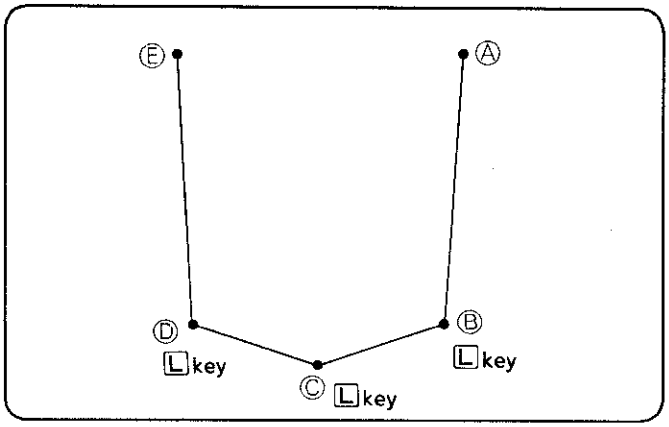


Example: Program the pattern illustrated at left.

(1) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(2) Use the jog keys to move the sewing clamp assembly to the initial stitch position.







(3) When the needle tip is aligned with initial stitch position Ⓐ, press the L key. This will program the initial stitch.

(4) Use the ten-keys to specify the stitch length and indicate it on the STEP display. To input the stitch length, divide the actual stitch length (mm) by 0.1 mm to obtain the pitch value.
For example, if the desired stitch length is 3 mm, 3 mm ÷ 0.1 mm = 30, therefore, "030" is to be input on the STEP display.
※ If the stitch length is not specified or if it is longer than 6.0 mm, it will automatically be set to 3 mm. Once the pitch has been specified, if it is not subsequently re- specified, the pitch initially specified will continue to be used.

(5) Press the LI key and command lamp [LI] will come on.

(6) Use the jog keys to move the sewing lamp assembly to final stitch position Ⓑ.

Note 1: When more than the specified number of stitches are required between point Ⓐ and point Ⓑ (which depends on the sewing pitch), the relative speeds of the sewing clamp assembly and needle will suddenly decrease, and the operator's attention will be required. Press the L key and the LI key between points Ⓐ and Ⓑ to program the remaining stitches on the straight line.

(7) When the needle tip is aligned with point Ⓑ, press the L key to program a straight line from point Ⓐ to point Ⓑ.
Follow the above procedures to program the remaining straight lines from point Ⓑ→ Ⓒ, Ⓒ→Ⓓ, Ⓓ→Ⓔ.

Note 2: For diagonal lines, such as Ⓑ→ Ⓒ, there are instances in which the line may not turn out to be straight without a subdivision.

(8) After pressing the L key at point Ⓔ, press ten-key 1 three times to indicate "111" on the STEP display; then press the E key.
Be sure to raise the needle bar to the highest position for this procedure.
When U51 comes on, reset the alarm by pressing the EM STOP button and turn the pulley to raise the needle bar to the highest position once more.
At the point where the flashing U51 goes off for production piece display, press the START button.

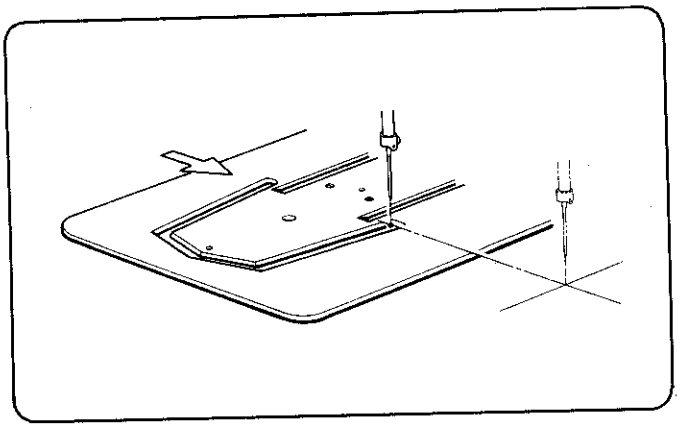
(9) The sewing clamp assembly will return to the sewing origin.

(10) Write the program to the floppy disk (refer to page 38).

(11) Press the P key and the sewing clamp assembly will return to the shunting position and go up.
The displays X, Y and STEP will go off.

4 Programming a skipped start sewing

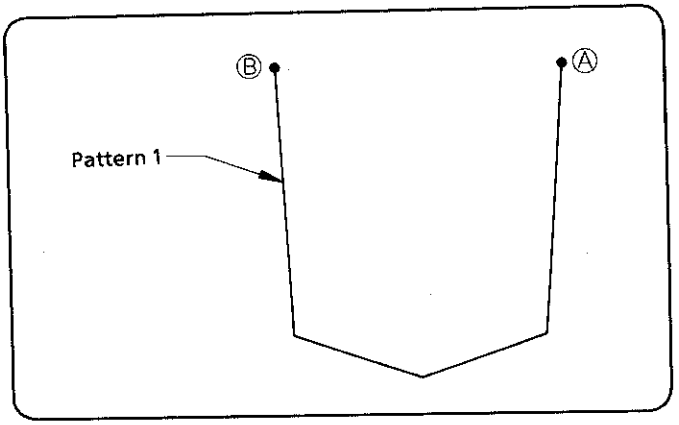
· To continue sewing after trimming, use the F key for easier programming.



Example: Program the pattern illustrated at left.

(1) Press the P key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.

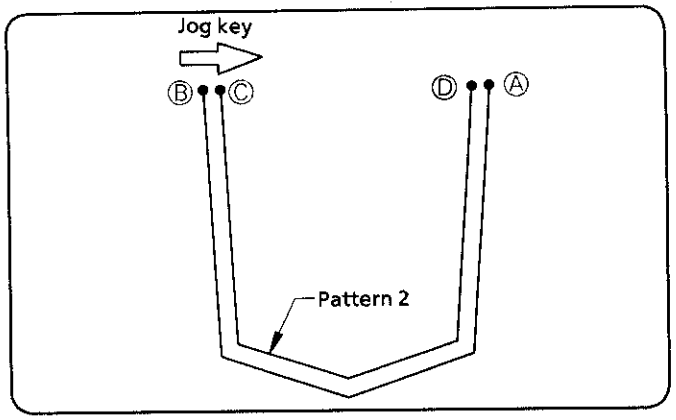
(2) Use the jog keys to move the sewing clamp assembly to the initial stitch position.



(3) When the needle tip is aligned with initial stitch position Ⓐ, press the L key. This will program the initial stitch.

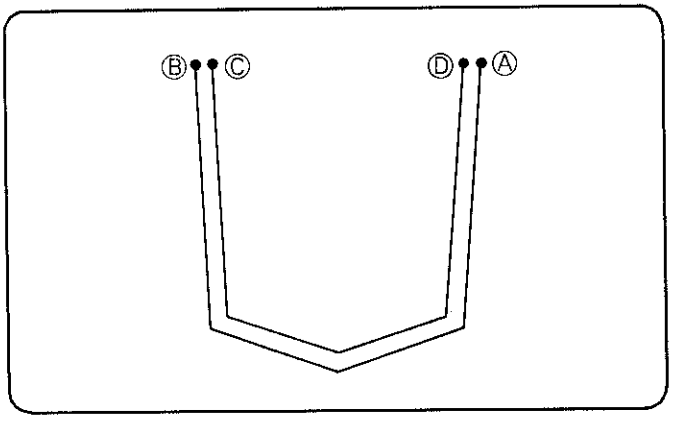
(4) Program the remaining stitches of pattern 1.

(5) After pressing the L key at the final stitch of pattern 1, at point Ⓑ, press the F key; command lamp [F] will come on. Be sure to raise the needle-bar to highest position for this procedure.



(6) Use the jog keys to move the sewing clamp assembly to the initial stitch position of pattern 2.

(7) When the needle tip is aligned with initial stitch position Ⓒ, press the L key. This will program skipped sewing after thread trimming from position Ⓑ to position Ⓒ.



(8) Program the remaining stitches of pattern 2.

(9) After the L key is pressed at final stitch position Ⓓ, press ten-key 1 three times to indicate "111" on the STEP display; then press the E key.
When U51 comes on, reset the alarm by pressing the EM STOP button and turn the pulley to raise the needle bar to the highest position once more. At the point where the flashing U51 goes off for production piece display, press the START button.

(10) The sewing clamp assembly will return to the sewing origin.

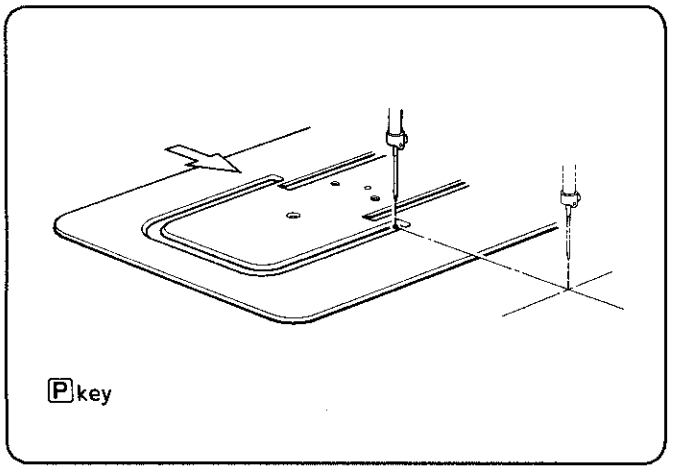
(11) Write the program to the floppy disk (refer to page 38).

(12) Press the P key. After the sewing clamp assembly returns to the shunting position and goes up, the displays X, Y and STEP will go off.

5 Programming a pattern by employing the smoothing operation

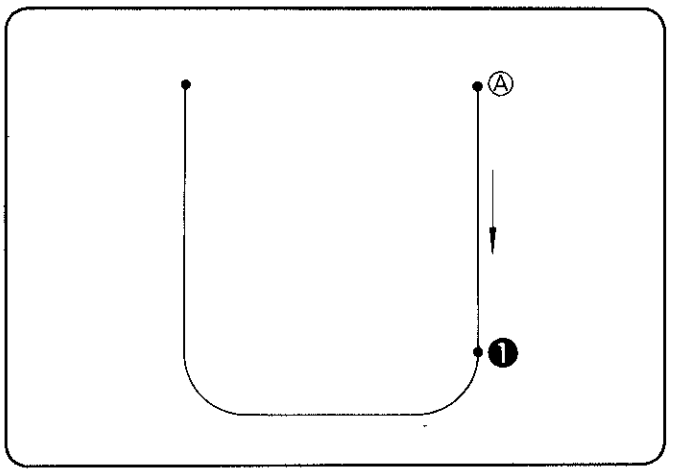
· To program a pattern smoothly by utilizing a smoothing function, instead of programming one stitch at a time, use the ten-keys and the [M] key.

Example: Program the pattern illustrated below.



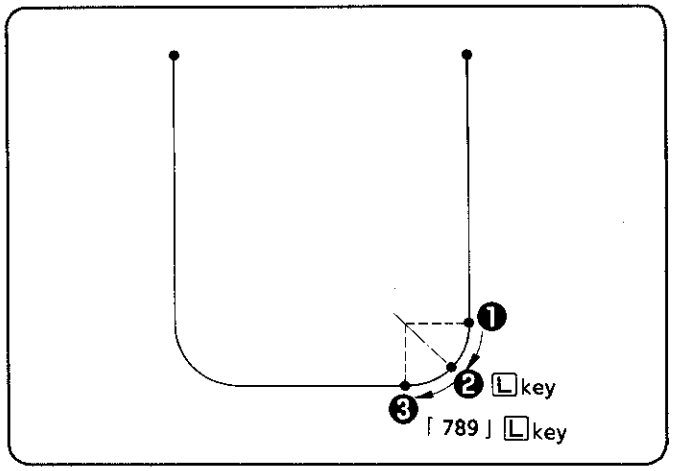
(1) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.

(2) Use the jog keys to move the sewing clamp assembly to the initial stitch position.



(3) When the needle tip is aligned with initial position Ⓐ, press the [L] key. This will program the initial stitch.

(4) Program the stitches from Ⓐ to ❶, as shown by the arrows, by the method in Section 3: Programming a pattern containing numerous straight lines, on page 27. (Position ❶ is the starting point of the arc.)

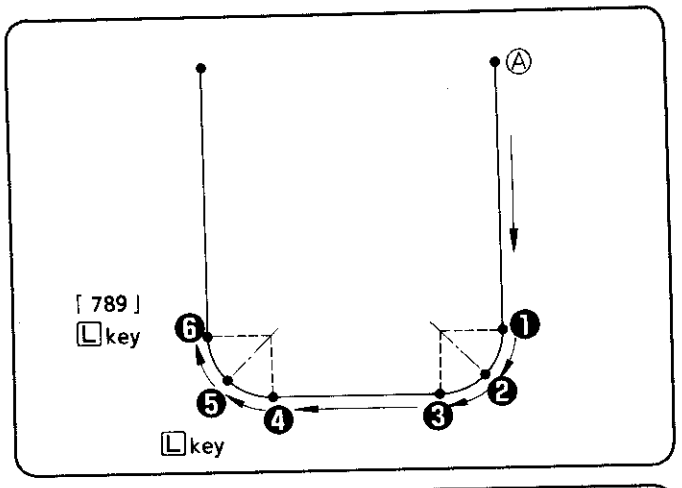


(5) Utilizing the smoothing function, program the curve ❶-❸.
Use the ten-keys to specify the stitch length on the STEP display.
Obtain the pitch value by dividing the required stitch length (mm) by 0.1 mm.
(For example, if the required stitch length is 3 mm, 3 mm ÷ 0.1 mm = 30, therefore input "030" in the STEP display.)
※ If the stitch length is not specified or if it is longer than 6.0 mm (060), it will automatically be set to 3 mm.

(6) Press the [M] key and then both command indicator lamps [F] and [M] will come on.

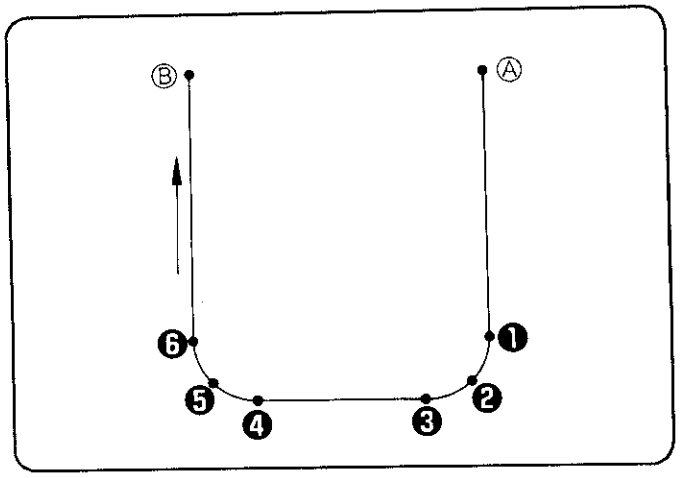
(7) Operate the jog keys, and when the needle tip is aligned with position ❷, the variable point on the curve (as close as possible to the center of the arc), and then press the [L] key. This programs position ❷.

(8) Use the jog keys and, when the needle tip is aligned with position ❸, the end point of the smoothing function (❸ is the end point of the arc), use the ten-keys to input "789" in the STEP display; then press the [L] key.
This will program the stitches from position ❶ to ❸.



(9) Program the straight line ❸- ❹ by the method for programming a pattern containing numerous straight lines (position ❹ is the starting point of the arc), on page 27.

(10) Utilizing the smoothing function, specify the stitch length for the curve ❹- ❺- ❻ in the same way as described in steps (5) to (8) on the previous page.



(11) Program the three straight lines from point ❻ to final stitch Ⓑ by the method for programming a pattern containing numerous straight lines, on page 27.

(12) Press ten-key 1 three times to indicate "111" on the STEP display, and then press the E key. At this time, the needle bar must be raised to the highest position.
When U51 comes on, reset the alarm by pressing the EM STOP button and turn the pulley to raise the needle bar to the highest position once more.
At the point where the flashing U51 goes off for production piece display, press the START button.

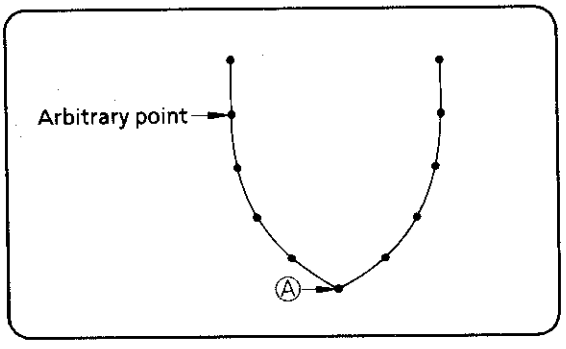
(13) The sewing clamp assembly returns to the initial stitch position Ⓐ.

(14) Ensure that the sewing clamp assembly and the program number coincide, and write the program to the floppy disk (refer to page 38).

(15) Press the P key; the sewing clamp assembly will return to the shunting position and then ascend. The displays X, Y and STEP will go off.

Note 1: At steps (4), (9) and (11), instead of the procedures in Section 3, the lines may be programmed by utilizing the smoothing function between two points.

Note 2:



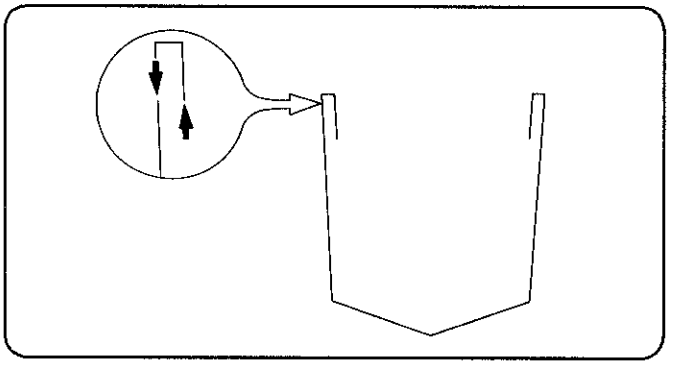
When programming a pattern as illustrated on the left, be sure to press end-command keys 7, 8, 9 and L for an acute angle such as at point Ⓐ. If the end keys are not pressed, the corner will be round.

Note 3: The maximum number of positions that can be loaded at a time is 60. If this is exceeded, the program will shift automatically into a stage where keys 7, 8, 9 and L have been pressed, and the computer will start processing.

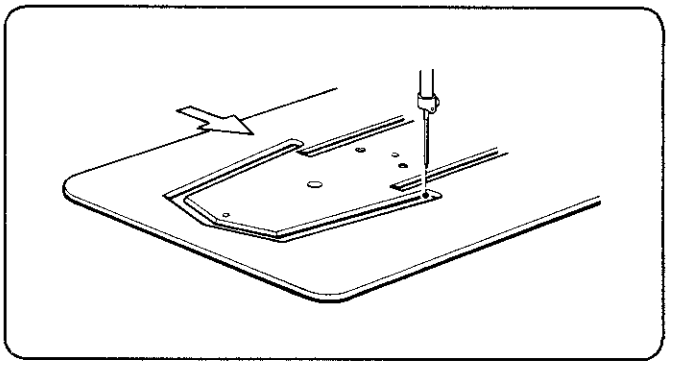
Note 4: If a smoothing position close to the sewing area border is loaded, the sewing data may exceed the range. In this case, press keys 7, 8, 9 and L to sound the buzzer; the needle will return to the position where the M key was pressed and the loaded stitches will be canceled.

[6] Programming a pattern by tracing the design

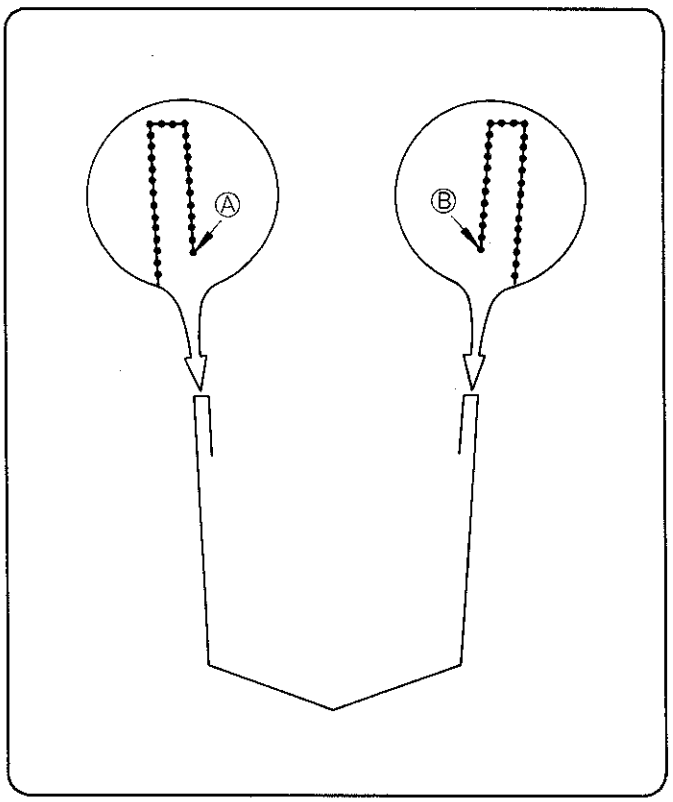
· A stitch pattern can be easily programmed by operating the ten-keys and the jog keys to trace the pattern with the needle tip.



Example: Program the pattern illustrated at left.



(1) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(2) Use the jog keys to move the sewing clamp assembly to the initial stitch position.

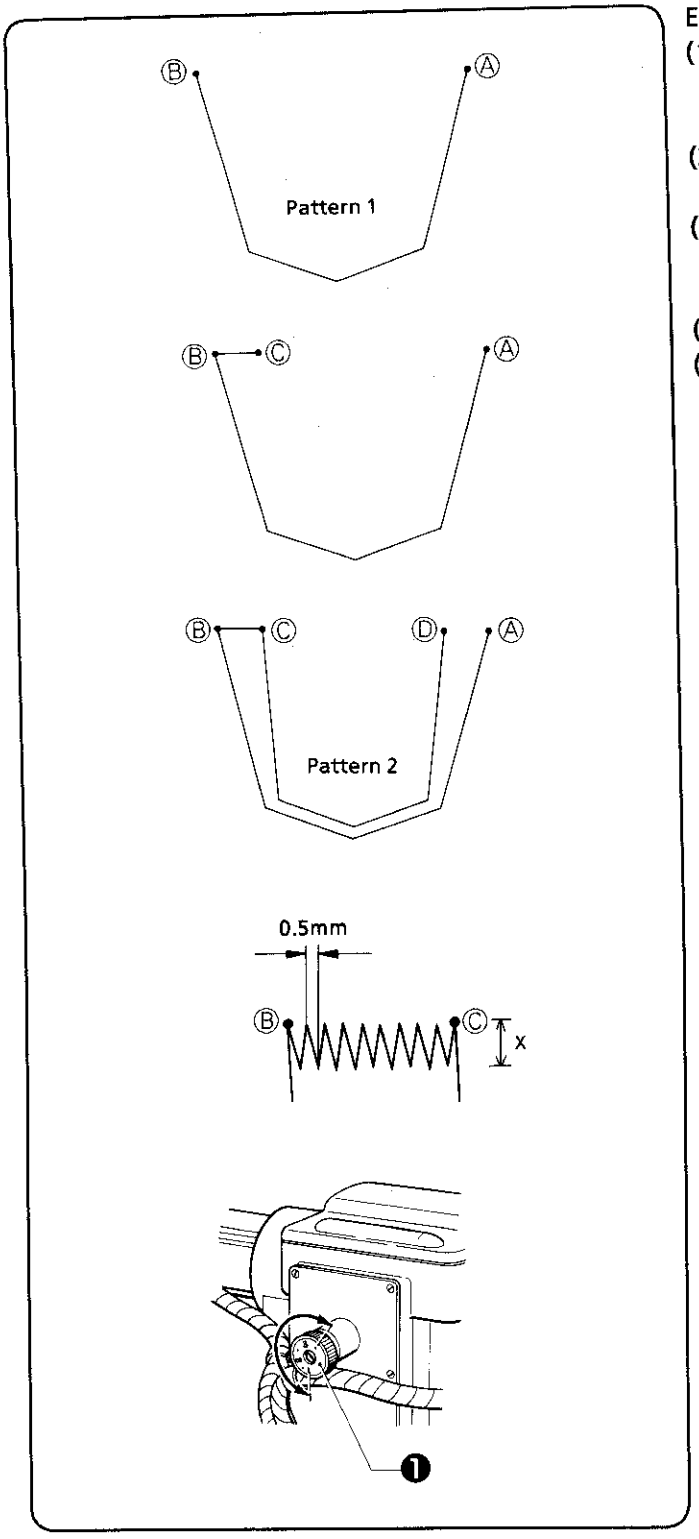


(3) Align the needle tip with initial position .
(4) After pressing ten-key [5] three times to indicate "555" on the STEP display, press the [L] key.
(5) Use the jog keys to specify the stitch length on the STEP display.
To input the stitch length, divide the actual stitch length (mm) by 0.1 mm to obtain the pitch value.
For example, if the desired stitch length is 3 mm, 3 mm ÷ 0.1 mm = 30, therefore, "030" is to be input on the STEP display.
※ If the stitch length is not specified or if it is longer than 6.0 mm (60), it will automatically be set to 3 mm.
(6) Use the jog keys to trace the pattern with the needle tip starting from initial stitch position Ⓐ.
(7) Press the [L] key at the final stitch position Ⓑ.
(8) After pressing ten-key [1] three times to indicate "111" on the STEP display press the [E] key.
Be sure to raise the needle bar to the highest position for this procedure.
When U51 comes on, reset the alarm by pressing the EM STOP button and turn the pulley to raise the needle bar to the highest position once more.
At the point where the flashing U51 goes off for production piece display, press the START button.
(9) The sewing clamp assembly will return to the sewing origin.
(10) Write the program to the floppy disk (refer to page 38).
(11) Press the [P] key. The display will go off.

Note 1: To perform areas requiring careful attention, such as acute angles, press the [L] key for better results.
Note 2: During programming, the [F], [LI], and [M] keys may be used. If they are used, press the [L] key at the beginning and end of the feed and lines.
Note 3: Using TRACE to read and make corrections to the data that has already been programmed is not possible.

7 Programming bar tacking

· Programming of bar tacking can be easily carried out by using the LI key.



Example: Program the pattern illustrated at left.

(1) Press the P key. The sewing clamp assembly will lower and the X, Y and STEP displays will indicate "0"; the command lamp [F] will illuminate.

(2) Use the jog keys to move the sewing clamp assembly to the sewing start position Ⓐ.

(3) When the needle tip is aligned with the sewing start position Ⓐ in the sewing pattern, press the L key. This will program the first stitch.

(4) Program pattern 1 shown below.

(5) After pressing the L key at the sewing end position Ⓑ in the numeric keypad to display "9□□". "□□" is the sewing pitch. (For example, to specify the sewing pitch to be 0.5 mm, set the STEP display to show "905".) The setting range for the sewing pitch is 0.1 mm - 1.0 mm.

(6) Press the LI key.

(7) Operate the jog keys to align the needle tip to the final bar tacking position Ⓒ, and then press the L key.

(8) Program pattern 2 shown below.

(9) After pressing the L key at the final bar tacking position Ⓓ, press the 1 key on the numeric keypad three times to set the "STEP" display to show "111", and then press the E key. At this time, make sure that the needle bar is in the fully raised position.
If U51 is displayed, after resetting the machine by pressing the EMERGENCY STOP button, turn the pulley to move the needle bar to the fully raised position. At the point where the display changes from U51 flashing to display of the production counter value, press the start switch.

(10) The sewing clamp assembly will return to the sewing origin.

(11) Write the program to the floppy disk. (Refer to page 38.)

(12) Press the P key. The display will go off.

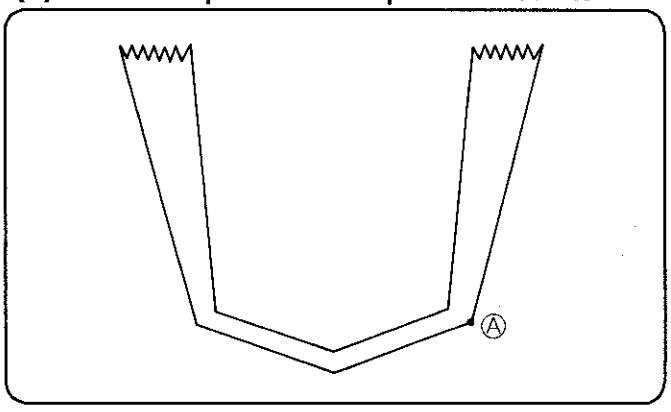
The above will program bar tacking from position Ⓑ to position Ⓒ at a feed pitch of 0.5 mm.

※ By adjusting the bar tacking width X using the dial ❶ at the rear of the machine head, the width can be set within a range of 1 - 3.5 mm.

[8] Partial low speed

In the partial low speed program, the speed of the variable points in the initially created program can be reduced.

(A) To reduce speed to 3000 spm for 3 needles

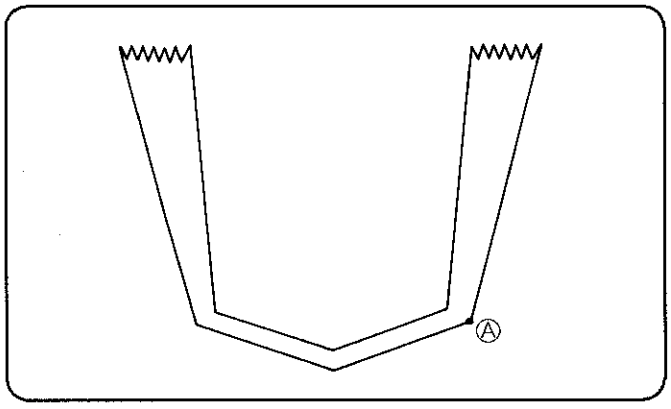


(1) Press the [P] key. The sewing clamp assembly will lower and the X, Y and STEP displays will indicate "0"; the command lamp [F] will illuminate.
(2) Insert the original floppy disk into the floppy disk drive so it can be read.
(3) Press the [9] key on the numeric keypad three times to display "999" on the STEP display, and then press the [P] key.
The sewing clamp assembly will start to move needle by needle from the sewing start position.
If the fast key at the top of the operation panel is pressed at this time, the sewing clamp assembly will move faster.

(4) When the needle tip is aligned with the point Ⓐ where you wish to decrease the speed, press the [+] or [−] key. The sewing clamp assembly will stop. If the sewing clamp assembly has moved too far, press the keys on the numeric keypad to show only the number of needles that have moved too far on the STEP display, and then press the [−] key.
The sewing clamp assembly will move in the reverse direction by the number of needles shown on the display.
(5) Press the keys on the numeric keypad to display "630" on the STEP display, and then press the [L] key.
" ⊏ 3" will be displayed on the piece number counter. The three needles including the needle at point Ⓐ and one needle on each side will change to 3000 spm.

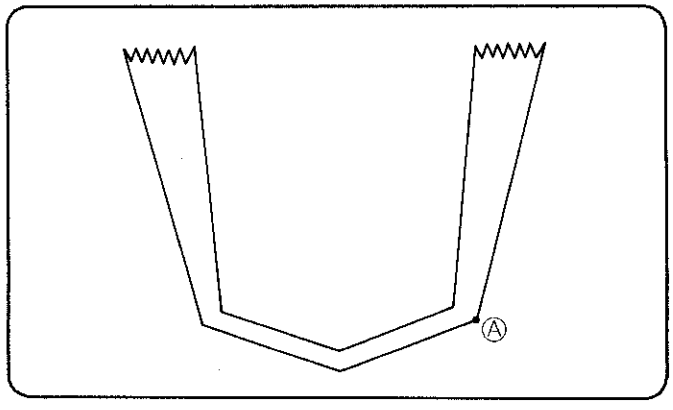
Note: If you wish to set more than three needles at 3000 spm, input "630" [L] for each of the three needles. Also, after checking to be sure that " ⊏ 3" is displayed on the counter display, input "631" [L] to cancel the speed reduction.

(B) To reduce speed to 2500 spm for 5 needles



The method is basically the same as in "(A) To reduce speed to 3000 spm for 3 needles". In step ❺, input "625" [L].
" ⊏ 5" will be displayed on the piece number counter. The five needles including the needle at point Ⓐ and two needles on each side will change to 2500 spm. "626" [L] will cancel.

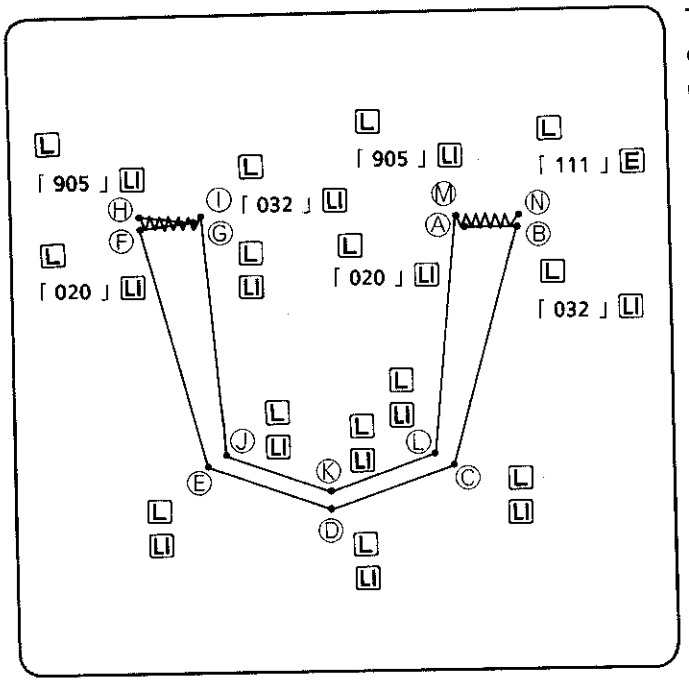
(C) To reduce speed to 2000 spm for 5 needles



The method is basically the same as in "(A) To reduce speed to 3000 spm for 3 needles". In step ❺, input "620" [L].
" ⊏ 2" will be displayed on the piece number counter. The five needles including the needle at point Ⓐ and two needles on each side will change to 2000 spm. "621" [L] will cancel.

[9] Example of program

[Example 1]



The program as shown in the illustration at left will be created.

(1) Press the [P] key. The sewing clamp assembly will lower and the X, Y and STEP displays will show "0"; the command lamp [F] will illuminate.

(2) Press the jog keys to move the sewing clamp assembly to the sewing start position.

(3) When the needle tip is aligned with point Ⓐ, press the [L] key. This will program the first needle.

(4) Input "020" [L], use the jog keys to align the needle tip with point Ⓑ, and then press the [L] key. The pitch between Ⓐ-Ⓑ will be tied at 3.2 mm. (Sew Ⓐ-Ⓑ and Ⓕ-Ⓖ-Ⓗ to securely fasten the bar tacking section.)

(5) Next, input "032" [LI] move the needle to point Ⓒ, and then press the [L] key. The pitch between Ⓑ-Ⓒ will be tied at 3.2 mm.

(6) In the same way, tie the pitch between Ⓒ-Ⓓ, Ⓓ-Ⓔ and Ⓔ-Ⓕ at 3.2 mm in a straight line.

(7) At point Ⓕ, input "020" [LI] and at point Ⓖ, press the [L] key. This will tie the pitch between Ⓕ-Ⓖ at 2 mm.

(8) In the same way, tie the pitch between Ⓖ-Ⓗ at 2 mm.

(9) At point Ⓗ, input "905" [LI] and at point Ⓘ, press the [L] key. The pitch between Ⓗ-Ⓘ will be tied at 0.5 mm of needle racking.

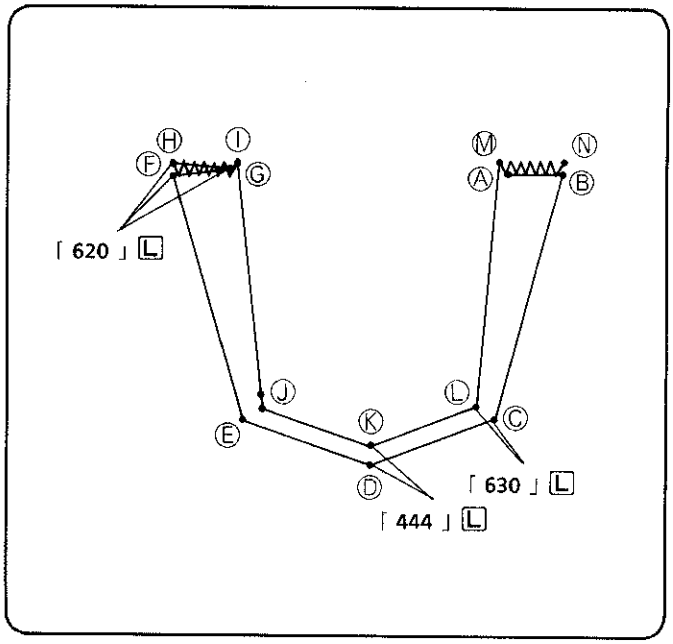
(10) At point Ⓘ, input "032" [LI] and at point Ⓙ, press the [L] key. This will tie the pitch between Ⓘ-Ⓙ at 3.2 mm.

(11) In the same way, tie the pitch between Ⓙ-Ⓚ, Ⓚ-Ⓛ and Ⓛ-Ⓜ at 3.2 mm.

(12) At point Ⓜ, input "905" [LI] and at point Ⓝ, press the [L] key. The pitch between Ⓜ-Ⓝ will be tied at 0.5 mm of needle racking.

(13) Input "111" [E]. This completes the needle racking program.

Next, add the speed reduction mode.



(14) Read the program that is completed up to step ⓯. Input "999" ⊞ to continue moving the needles to the points below. When they reach the desired position, press the ⊞ and ⊟ keys to stop the feed operation. If the sewing clamp assembly moves too far and you wish to move it back, input "999" ⊟, and press either the ⊞ or ⊟ key to stop the sewing clamp assembly in the desired position.

(15) Move the needles to Ⓒ and Ⓛ points and input "630" L. The three needles which center on Ⓒ and Ⓛ points will change to 3000 spm. This is to give stable sewing at the corners where speed decreases.

(16) Move the needles to Ⓓ and Ⓚ points and input "444" L. The Y feed timing of the needles at points Ⓓ and Ⓚ will become faster.

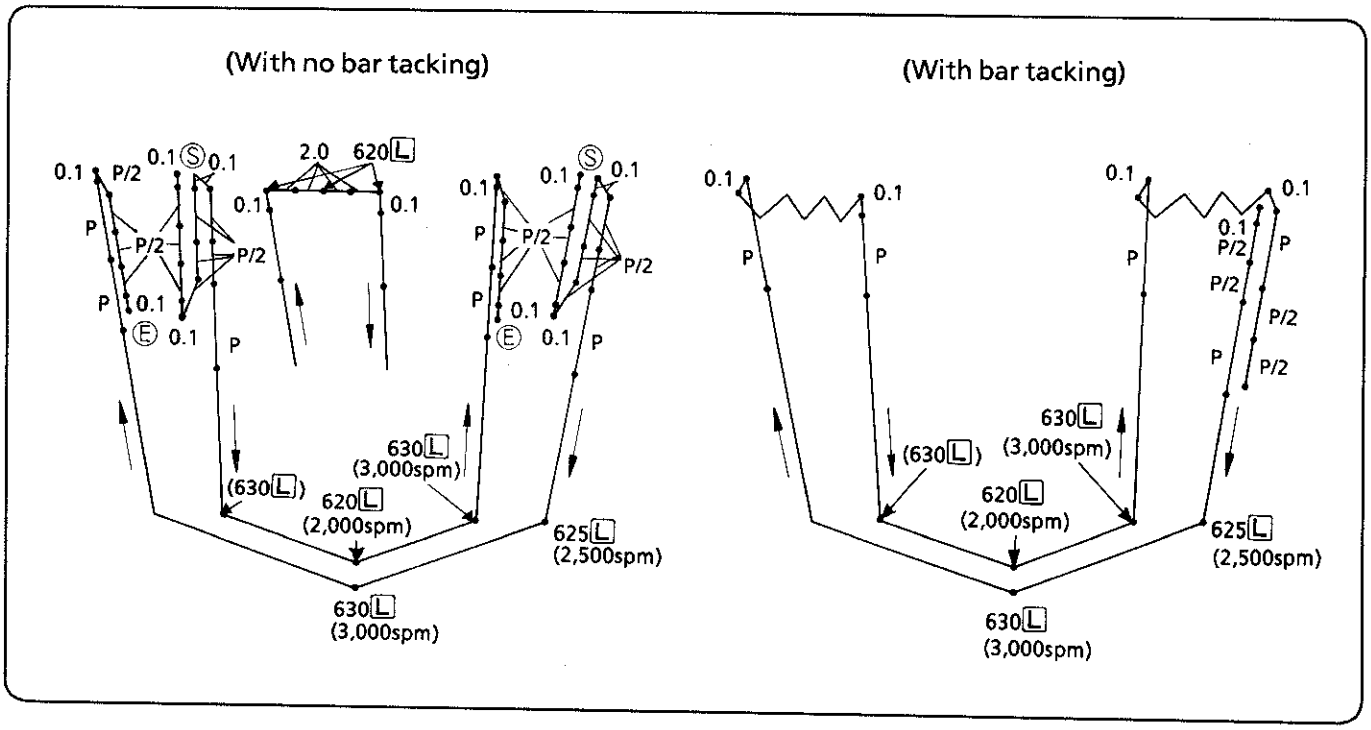
(17) Move the needles to between Ⓕ-Ⓗ and input "620" for each of the 5 needles. The speed between Ⓕ-Ⓗ will change to 2,000 spm.

Note: The speeds in steps (14) and after are intended to provide stable sewing quality, and are not necessarily improvements. Because they vary depending on the shape of the sewing pattern and also have an effect on cycle time, they can be set to any desired values.

[Example 2]

The program as shown in the illustration below will be created.

If this example is used as a reference when programming, problems with lifting of the bobbin thread, incorrect cutting of the needle thread and uneven needle distribution on corners in the needle down position can be avoided.

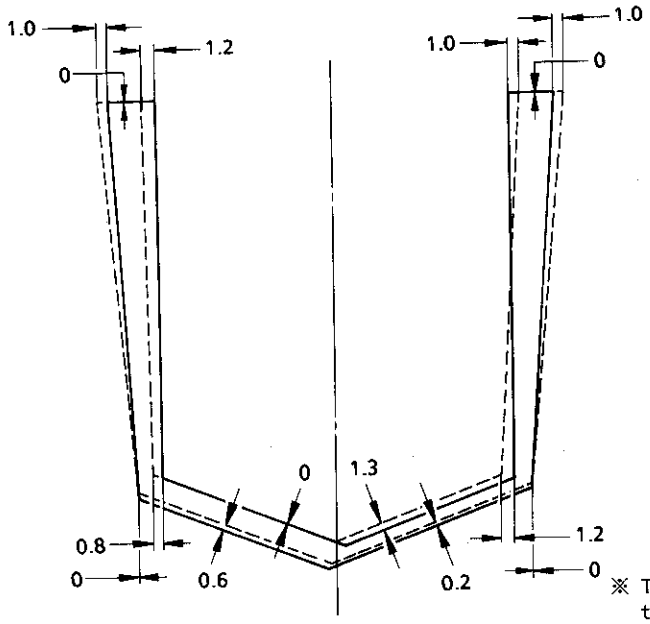


10 Notes when programming

★ Because the BAS-760 has a continuous-feed sewing clamp, there may be differences between the created program and the number of stitches actually sewn. (This tendency is shown in the illustration below.)

★ This difference is always consistent, and does not vary when the same type of material is being sewn.

★ Differences will occur because of differences in the type of material, sewing pitch and pocket shape, so carry out test sewing to adjust the program as required.



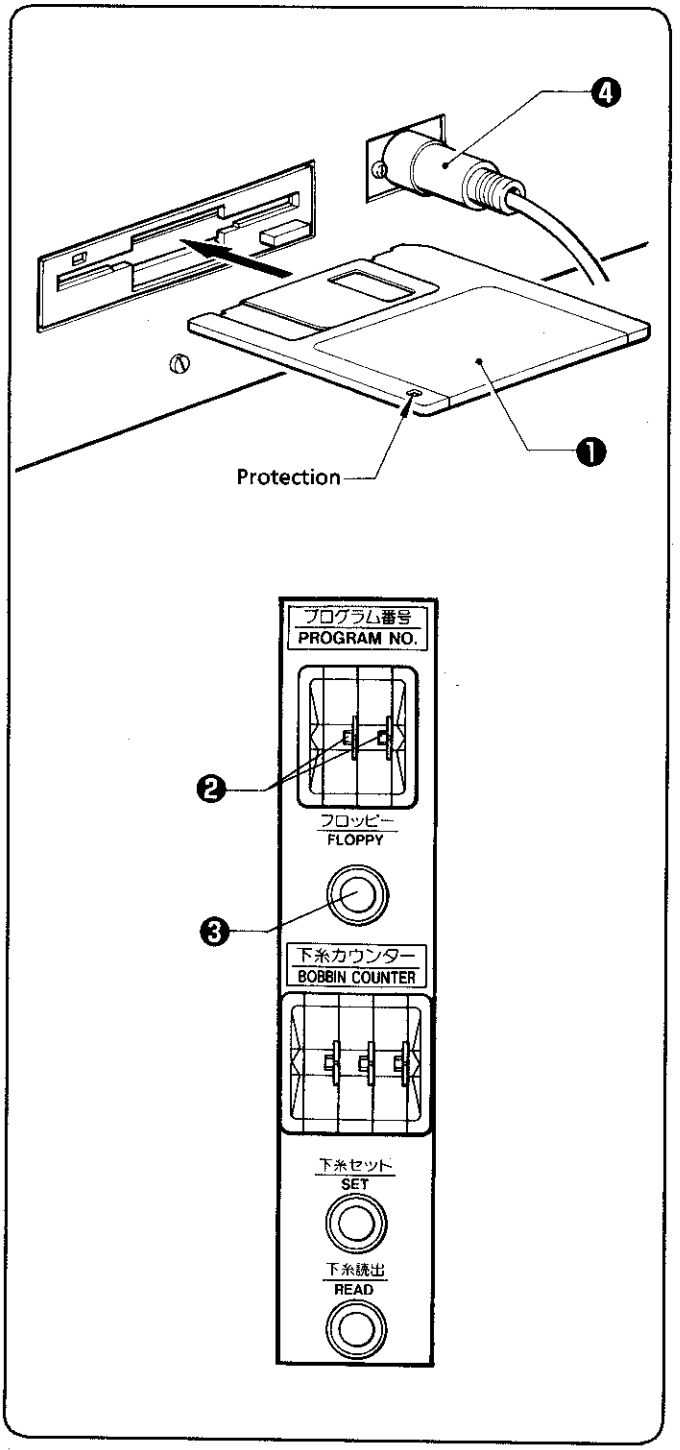
※ The solid line indicates the stitches programmed, and the broken line indicates the final stitches sewn.

11 Erroneous command key operation

· The program will remain unchanged even if the command keys are pressed in error. To cancel an erroneous command, simply press the ⊞ or the ⊟ key.

12 Data storage on a floppy disk

· Follow the procedures below to write data to a floppy disk.



※ Perform these procedures right after programming.

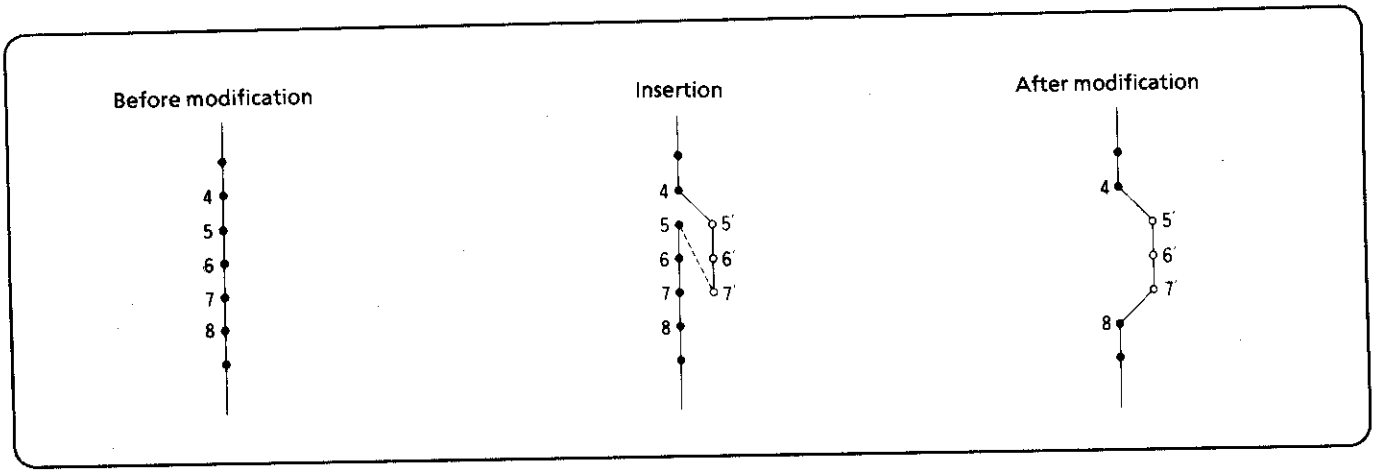
※ Release the write protection for the floppy disk before writing (close the window).
After inputting data, write protect the floppy disk.

1. Insert floppy disk ❶.
2. Set the sewing clamp assembly number to PROGRAM No. switch ❷.
3. Press FLOPPY button ❸.
   Data will be written to the floppy disk.
4. Press the [P] key. The display will go off.
5. Disconnect plug ❹.
6. Sewing is possible.
   ※ If unfinished program data is to be written (the keys [1], [1], [1] and [E] have not been pressed), U78 (key word error) will be displayed.
   The data has been written to the floppy disk but it is not available for sewing.
   To continue programming, follow the procedures under Program Modification (page 39) to move the needle to the final stitch position and continue programming (U78 will be displayed if such a program is read; release the alarm and continue).

PROGRAM MODIFICATION

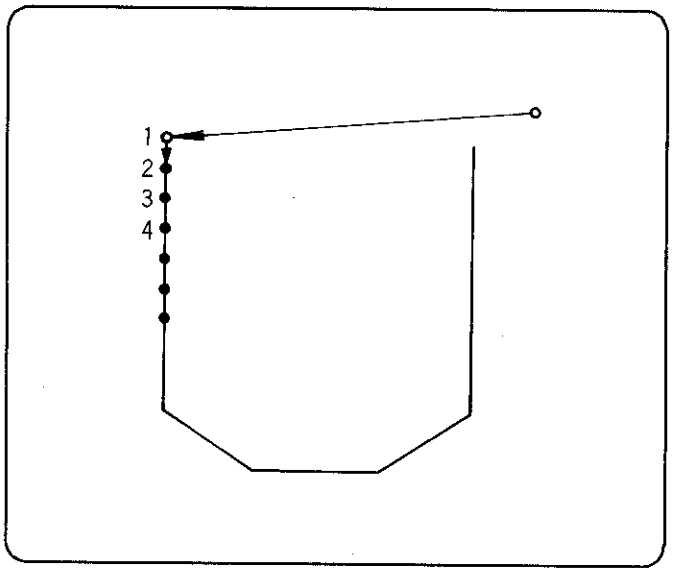
★ Use the [C] (clear) key when modifying a written program pattern due to a design change or when correcting an in-process program due to erroneous operation.
★ The smoothing function is not effective during modification work.
Modify the program using any function except smoothing.

[1] Partially revising a pattern due to a design change: 5, 6 and 7 to 5′, 6′ and 7′



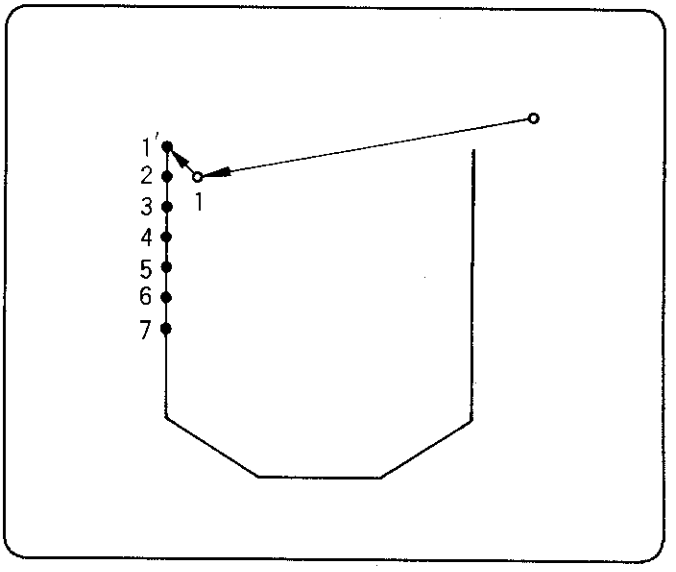
(1) Turn the power switch to ON.
(2) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) After pressing ten-key [9] three times to indicate "999" on the STEP display, press the [+] key.
The sewing clamp assembly will start moving one stitch after another from the initial stitch position.
The FAST button on the control panel may be pressed to fast feed at this time.
(5) When the needle tip is aligned with position 4, press the [+] or the [−] key and the sewing clamp assembly will stop moving.
If the assembly has moved too far, use the ten-keys to indicate the number of excess stitches on the STEP display and press the [−] key. The assembly will move in reverse for the indicated number of stitches.
(6) Use the jog keys to move the sewing clamp assembly till it is aligned with position 5′ and then press the [L] key. This will program the stitch position 5′.
(7) Follow the above procedures to program positions 6′ and 7′.
(8) After pressing ten-key [1] to indicate "001" on the STEP display, press the [+] key. The needle tip will move to position 5. This will insert 5′, 6′ and 7′ between 4 and 5.
(9) Press the [C] key and command lamp [C] will come on.
(10) Use the ten-keys to indicate on the STEP display the number of steps to be erased. (Indicate "003" in this case because 5, 6 and 7 are three steps.)
(11) Press the [+] key. The needle tip will move from 6 to 7 to 8; this will cancel 5, 6 and 7 and the sequence after modification will be 4, 5′, 6′, 7′ and 8.
(12) Write the modified program to the floppy disk (refer to page 38).
(13) Press the [P] key and the display will go off.
[Note] If the distance between 4-5′ exceeds 6.0 mm, feed will occur, so keep this distance within 6.0 mm.

2 Cancelling the initial sewing stitch in a programmed stitch pattern



(1) Turn the power switch to ON.
(2) Press the P key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press ten-key 1 and the + key. The needle tip will move to the initial stitch position.
(5) Press the C, 1 and + keys in this sequence. The initial sewing position will be cancelled and the needle tip will move to the second stitch position.
(6) Write the modified program to the floppy disk (refer to page 38).
(7) Press the P key and the display will go off.

3 Cancelling the initial sewing stitch in a programmed stitch pattern and reprogramming a new initial sewing stitch

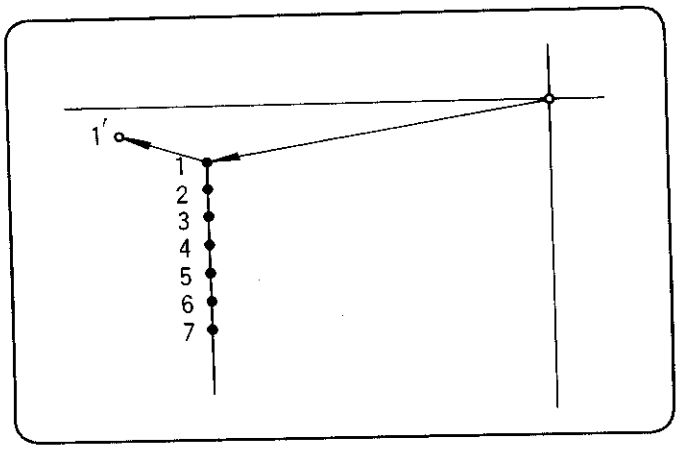


(1) Turn the power switch to ON.
(2) Press the P key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press ten-key 1 and the + key. The needle tip will move to initial stitch position 1.
(5) After using the jog keys to move the needle tip from initial stitch position 1 to new initial stitch position 1′, press the L key.

Note: If the distance between initial stitch position 1 and new initial stitch position 1′ is more than 6.0 mm, use the jog keys after pressing the F key or the L key to move the needle tip to position 1′; then press the L key.

(6) Press ten-key 1 and the − key. The needle tip will return to initial stitch position 1.
(7) Press the C, 1 and + keys in this sequence. Initial stitch position 1 will be cancelled and the needle tip will move to new initial stitch position 1′.
(8) Write the modified program to the floppy disk (refer to page 38).
(9) Press the P key and the display will go off.

4 Adding a sewing operation before an initial sewing stitch in a programmed stitch pattern

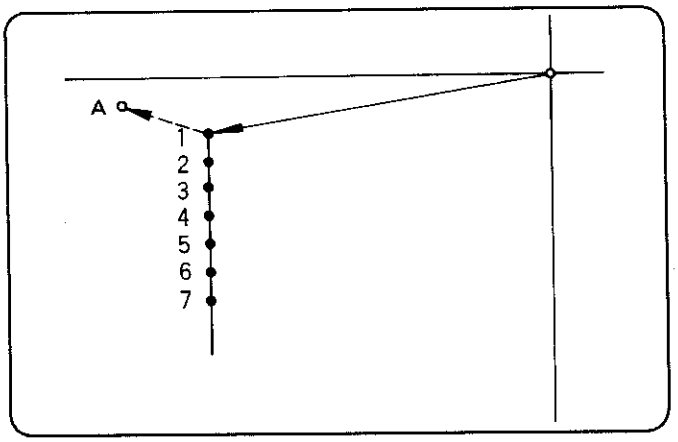


(1) Turn the power switch to ON.
(2) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press ten-key [1] and the [+] key. The needle tip will move to initial stitch position 1.
(5) After pressing the [LI] key or the [F] key, use the jog keys to move the needle tip from initial stitch position 1 to a new initial stitch position 1′. After taking a note of the coordinate values (X and Y display readings) and press the [L] key.
(6) Use the jog keys and [L] key to program additional sewing point(s) between positions 1 and 1′.

Note: Determine the number of additional sewing points according to the distance from 1′ to 1 and the stitch length.

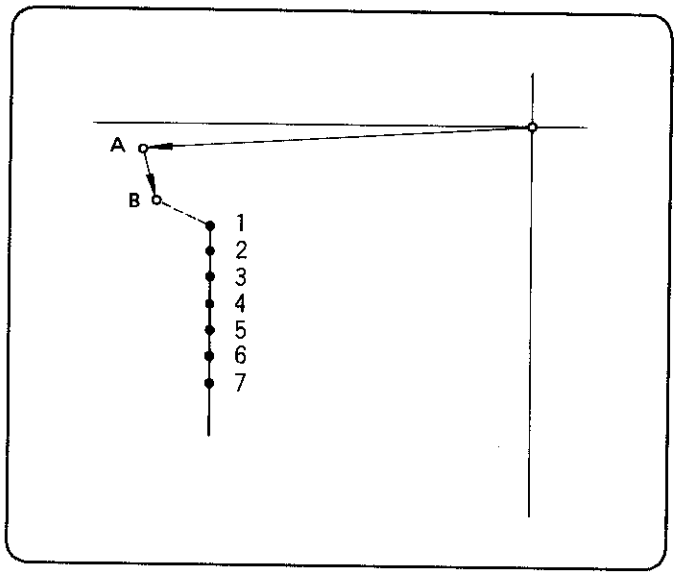
(7) Program the number of sewing points for the coordinate values (X and Y display readings).
(8) Press the [R] key to return the sewing clamp assembly to the shunting position.
(9) Press the keys [1] and [+]. The needle tip will return to initial stitch position 1.
(10) Press the [C], [1] and [+] keys in this sequence. The needle tip will move to new initial stitch position 1′ and the sewing points will be added before initial sewing position 1.
(11) Write the modified program to the floppy disk (refer to page 38).
(12) Press the [P] key and the display will go off.

5 Reprogramming a shunting point before the initial sewing stitch in a programmed stitch pattern



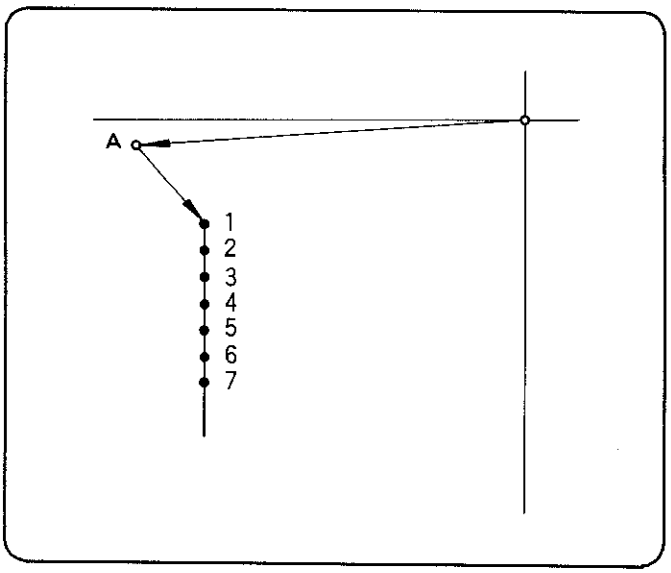
(1) Turn the power switch to ON.
(2) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press ten-key [1] and the [+] key. The needle tip will move to initial stitch position 1.
(5) After pressing the [F] key, use the jog keys to move the needle tip to point A (shunting point A). Take a note of the coordinates values (X and Y display readings) and then press the [L] key.
(6) After pressing the [F] key, use the jog keys to move the needle tip for the distance of the coordinates values (X and Y display readings); then press the [L] key.
(7) Press the keys [2] and [−] and the needle tip will move from initial stitch position 1 to point A and then to position 1.
(8) Press the [C], [1] and [+] keys in this sequence. The needle tip will move to point A and the shunting position will be added before initial stitch position 1.
(9) Write the modified program to the floppy disk (refer to page 38).
(10) Press the [P] key and the display will go off.

[6] Shifting a shunting point from point A to point B



(1) Apply air pressure and turn on the power switch.
(2) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press ten-key [1] and the [+] key. The needle tip will move to shunting point A.
(5) After pressing the [F] key, use the jog keys to move the needle tip to point B, the desired new shunting position; press the [L] key.
(6) Press ten-key [1] and the [−] key to move the needle tip to shunting point A.
(7) Press the [C], [1] and [+] keys in this sequence to cancel shunting point A; the needle tip will move to shunting point B.
(8) Write the modified program to the floppy disk (refer to page 38).
(9) Press the [P] key and the display will go off.

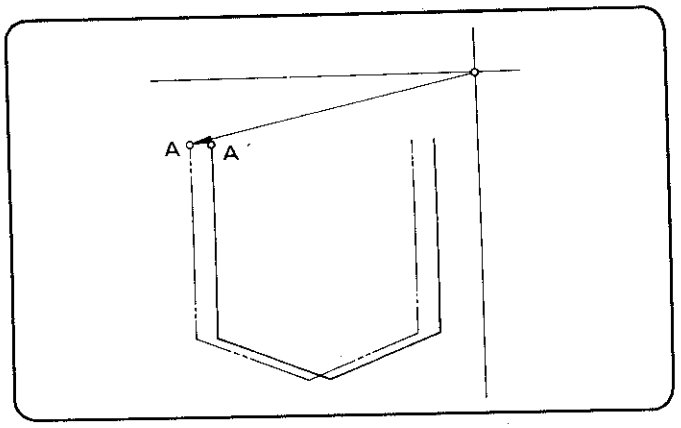
[7] Cancelling shunting point A



(1) Apply air pressure and turn on the power switch.
(2) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press ten-key [1] and the [+] key. The needle tip will move to shunting point A.
(5) Press the [C], [1] and [+] keys in this sequence. Shunting point A will be cancelled and the needle tip will move to the initial stitch position.
(6) Write the modified program to the floppy disk (refer to page 38).
(7) Press the [P] key and the display will go off.

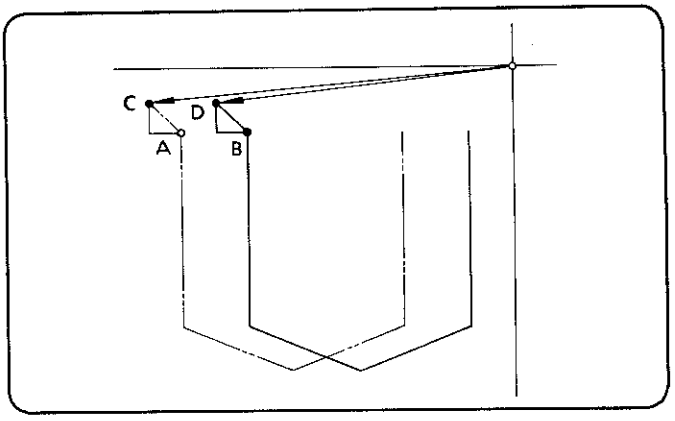
[8] Parallel-shifting a programmed stitch pattern

A. When the initial stitch is a programmed sewing point



(1) Turn the power switch to ON.
(2) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press keys [1] and [+]; the needle tip will move to the first stitch position A.
(5) Press ten-key [7] three times to indicate "777" on the STEP display, and then press the [F] key.
(6) Use the jog keys to move the needle tip from point A to the required shift point A´, and then press the [L] key.
(7) Press keys [1] and [−]; the needle tip will return to point A.
(8) While pressing keys [C] and [1], press the [+] key; the needle tip will move to point A´. Point A´ is then newly programmed as the first stitch position, in place of point A.
(9) Write the program to the floppy disk (refer to page 38).
(10) Press the [P] key and the display will go off.

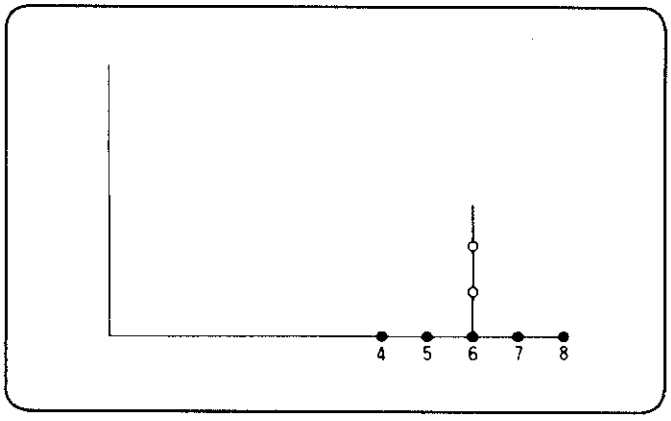
B. When the initial stitch is a programmed shunting point



(1) Turn the power switch to ON.
(2) Press the [P] key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
(3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
(4) Press ten-key [2] and the [+] key.
The needle tip will move to point A.
(5) Use the jog keys to move the needle tip to desired point B (do not press the [L] key in this case).

Note: If the desired shift distance (from point A to point B) is more than 6.0 mm, after pressing the [L] key or the [F] key, use the jog keys to move the needle tip to point B.
(6) Take a note of the coordinate values (X and Y display readings).
(7) Press the [R] key to return the sewing clamp assembly to the shunting point.
(8) Press ten-key [1] and the [+] key to move the needle tip to point C.
(9) Use the jog keys to move the needle tip to point D for the distance of the coordinate values (X and Y display readings).
(10) Turn the pulley by hand and mark point D with the needle tip (stick a piece of tape or paper beforehand to facilitate the work).
(11) Turn the pulley by hand to raise the needle bar to the highest position.
(12) Press the [R] key and the sewing clamp assembly will return to the shunting point.
(13) Use the jog keys to move the needle tip to the marked point D and press the [L] key.
(14) Write the modified program to the floppy disk (refer to page 38).
(15) Press the [P] key and the display will go off.

[9] Cancelling points 7 and 8 after locating an error



(1) Press the [C] key; the command lamp [C] will come on.

(2) Use the ten-keys to indicate on the STEP display the number of steps to be cancelled (in this case, indicate "002" on the STEP display since points 7 and 8 are to be cancelled).

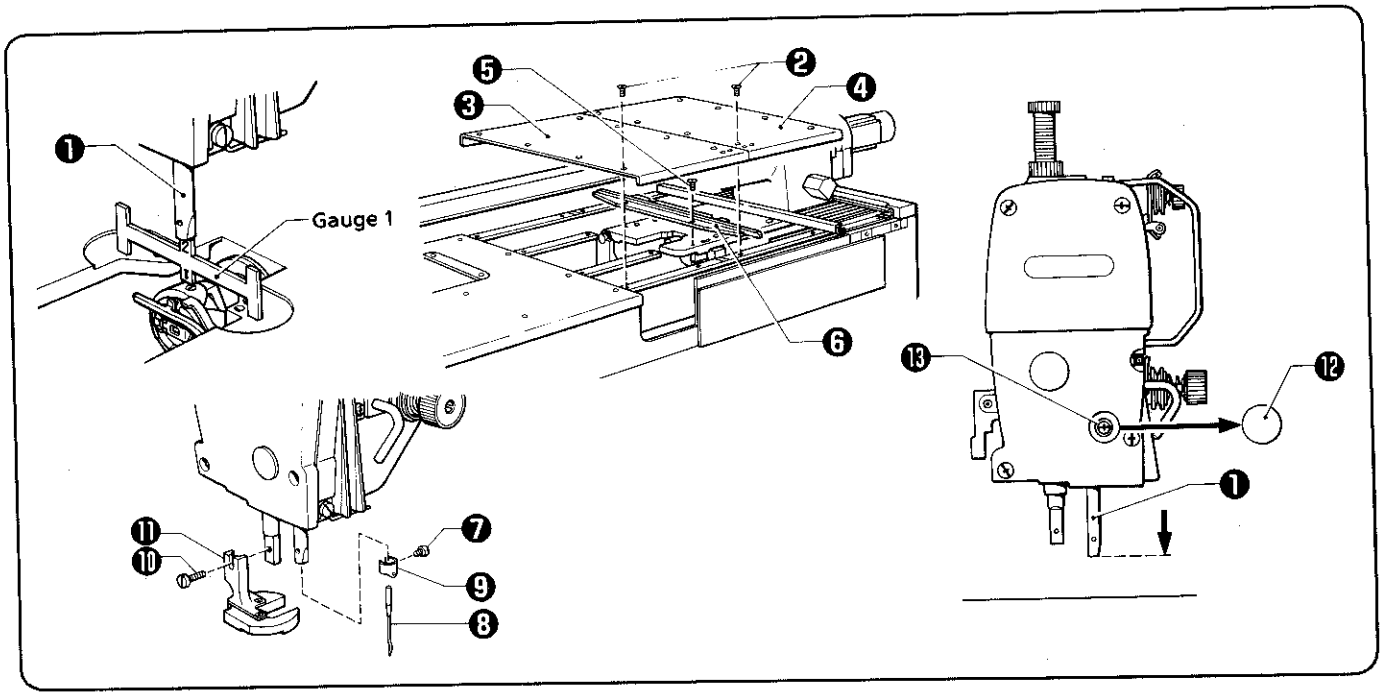
(3) Press the [−] key.
The needle will move from 8 to 7 and then to 6; the two points 8 and 7 will be cancelled.

(4) Reprogram the stitch pattern from point 6.

STANDARD ADJUSTMENTS

Turn the power switch off if the adjustment does not need power to be supplied.
If the power switch is turned on, take sufficient safety measures, such as to make U80 (emergency stop) come on in the manual mode.

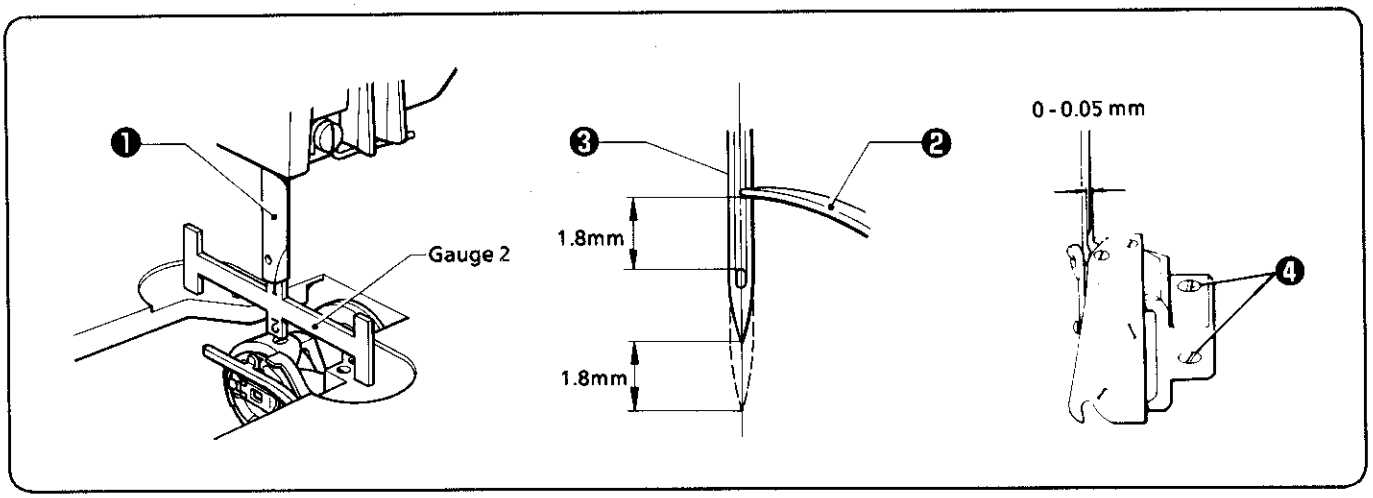
[1] Needle-bar height adjustment



※ When needle-bar ❶ is at its lowest position, the lower end of needle-bar ❶ must be matched the end of gauge 1.

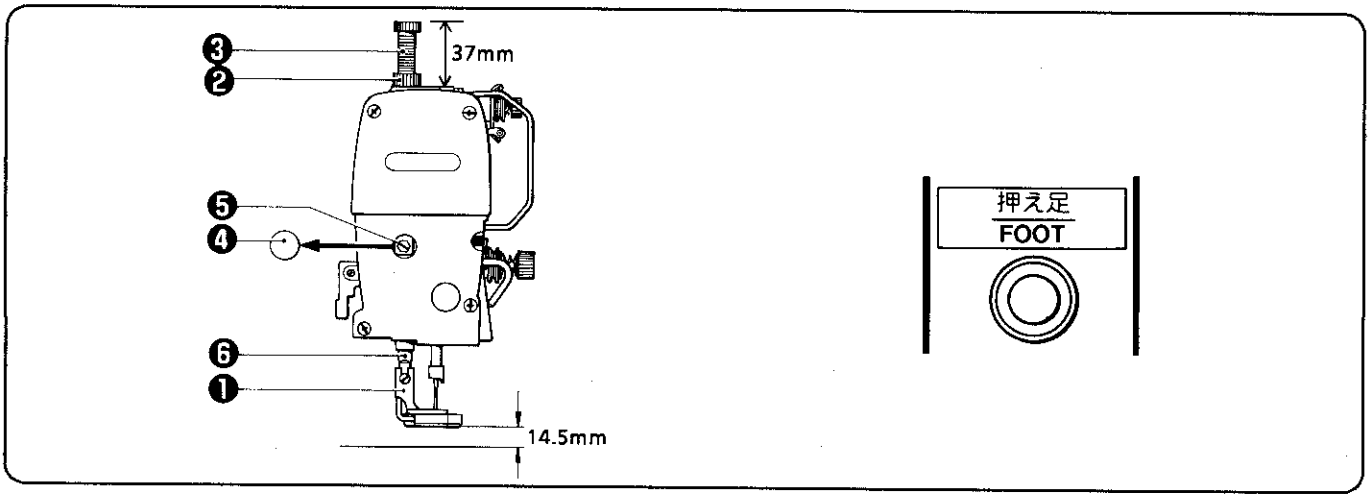
1. Remove flat-head screws ❷ and then needle plate RR ❸ and needle plate RL ❹.
2. Remove screws ❺ and then bottom-plunger ❻.
3. Remove screw ❼ and then needle ❽ and needle thread guide ❾.
4. Remove screw ⓾ and then work clamp assembly ⓫.
5. Remove oil cap ⓬ and screw ⓭, adjust the height by moving needle-bar ❶ up and down.

[2] Needle and rotary hook timing



1. After needle-bar ❶ is raised from its lowest position, rotary hook point ❷ must be aligned with the center of needle ❸ when the lower end of needle-bar ❶ is matched the end of gauge ❷.
2. If rotary hook point ❷ is not aligned with the center of needle ❸, loosen screws ❹ and align the center of needle ❸ with rotary hook point ❷.

3 Presser foot height adjustment



The standard presser foot height is 14.5 mm above the needle plate when presser foot ❶ is raised.

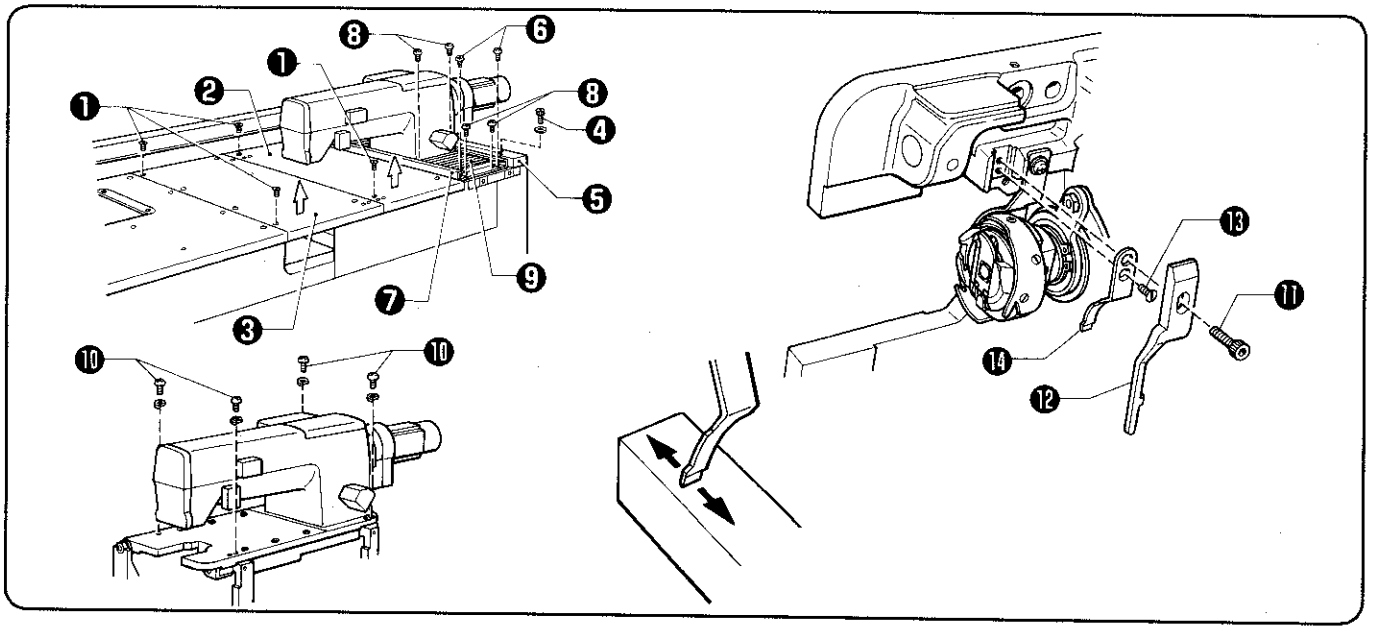
1. Loosen nut ❷ and then pressure adjusting screw ❸.
2. Press the FOOT button to raise working presser foot ❶.
3. Remove face-plate oil cap ❹ and loosen screw ❺. Adjust the height by moving presser bar ❻.

※ The standard spring tension for the sewing clamp spring is 37 mm.

4 Removal of the fixed knife and the movable knife

Turn off the power switch.

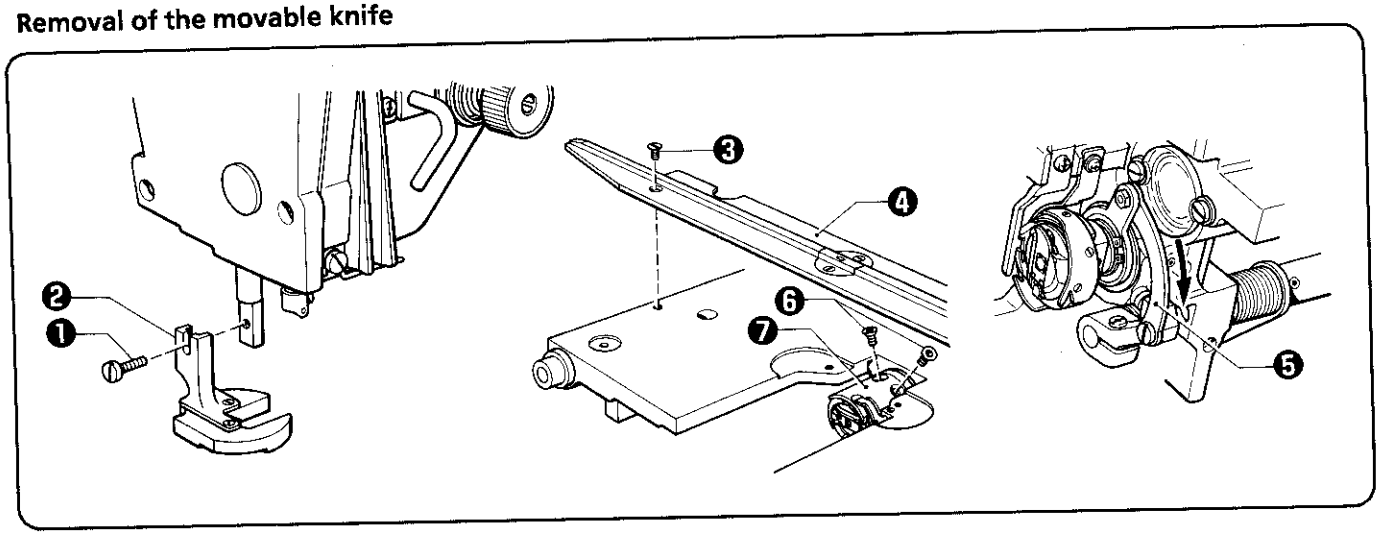
Removal of the fixed knife



1. Remove flat-head screws ❶ and then needle plate RR ❷ and needle plate RL ❸.
2. Remove clamping bolt ❹ and then side cover S ❺.
3. Remove clamping screws ❻ and then rail ❼.
4. Remove clamping screws ❽ and then bellows assembly ❾.
5. Remove clamping screws ❿ and then tilt the machine head.
6. Remove clamping bolt ⓫ and then bobbin case holder position bracket ⓬.
7. Remove flat-head screw ⓭ and then fixed knife ⓮.

※ When the fixed knife ⓮ becomes blunt, sharpen it as illustrated at right.

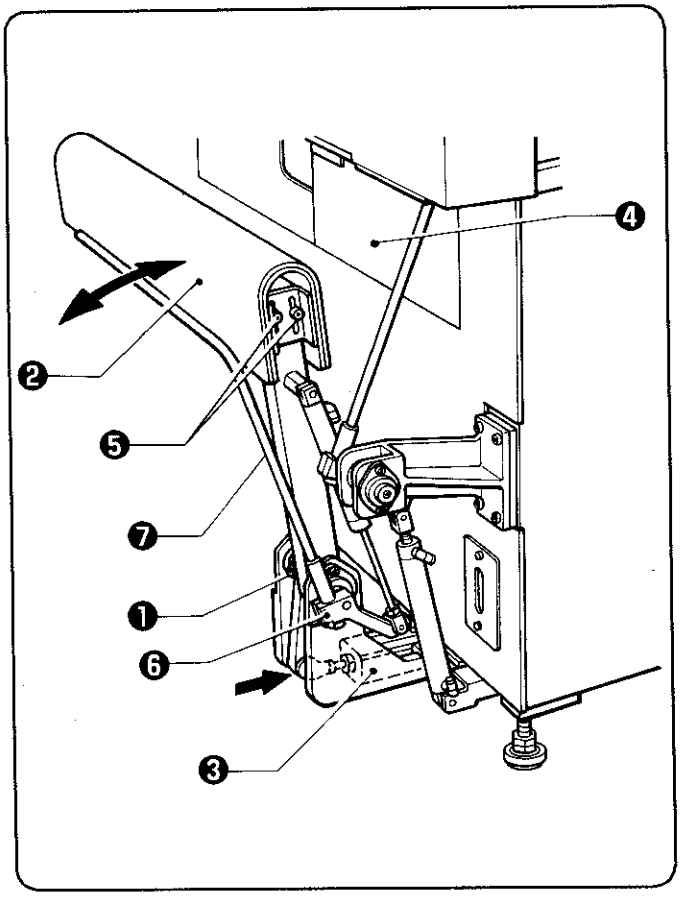
Removal of the movable knife



1. Remove clamping screw ❶ and then presser foot assembly ❷.
2. Turn the pulley and stop the needle bar at its highest position.
3. Remove clamping screws ❸ and then bottom-plunger ❹.
4. Push thread trimming rod ❺ in the arrowed direction and stop where flat-head screws ❻ can be seen.
5. Remove flat-head screws ❻ and then movable knife ❼.

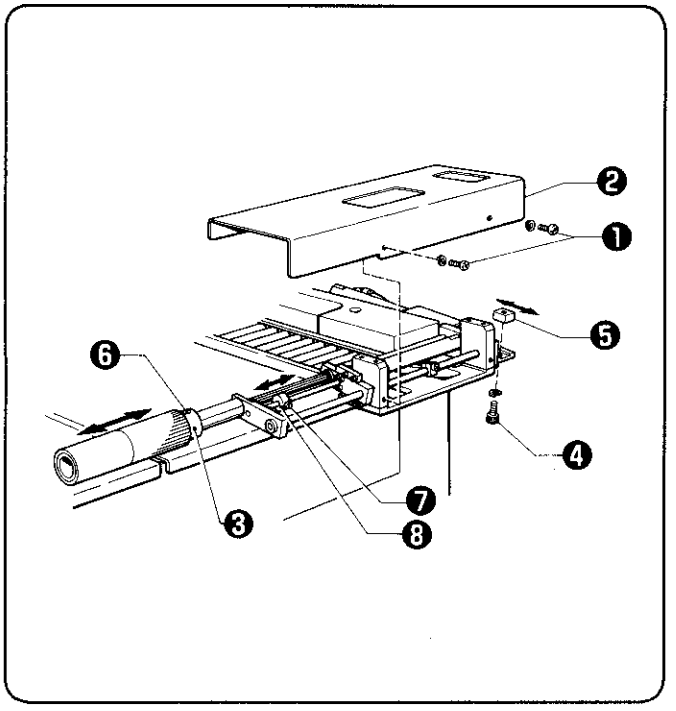
Note 1: Remove bottom-plunger ❹ and movable knife ❼ after removing the needle.
Note 2: To reassemble, reverse the above procedures.

5 Stacker position adjustment



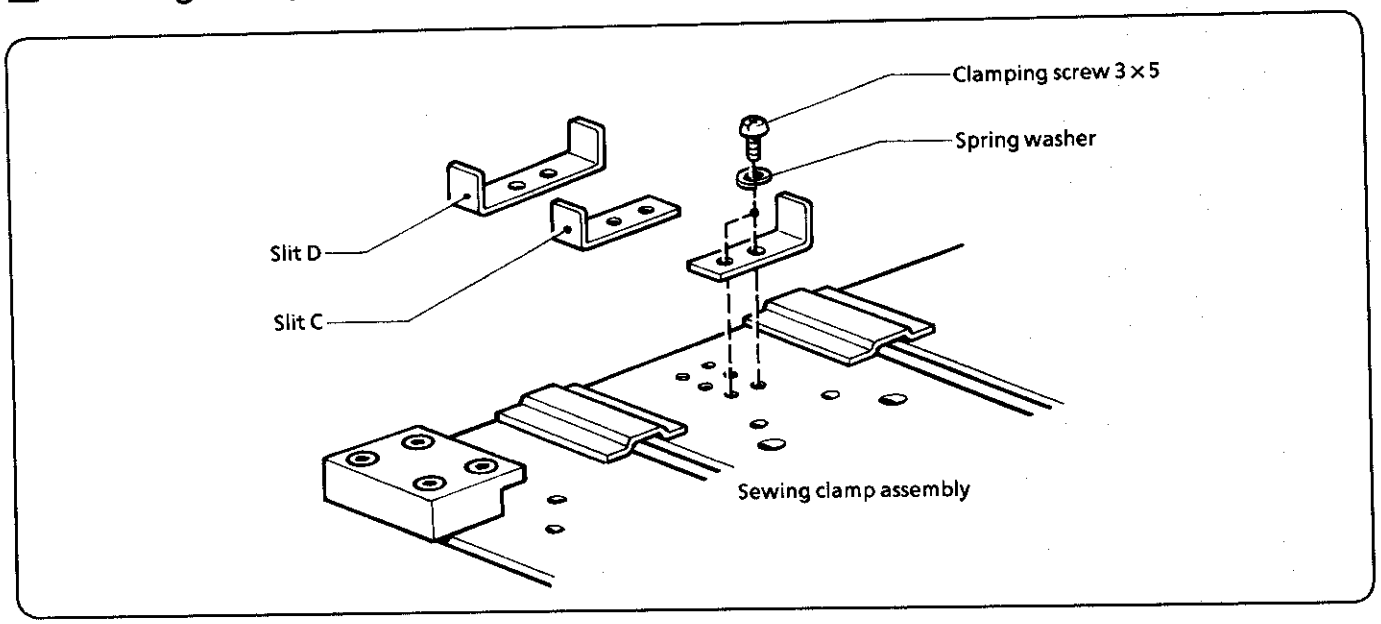
1. Release the air. Loosen bolt ❶ and adjust stacker table ❷ to the best position.
   Conduct this with cylinder ❸ retracted.
2. Tighten bolt ❶.
3. Make sure that the stacker table ❷ will contact cover ❹ when it is pushed toward cover ❹.
4. Loosen the four bolts ❺ and adjust the height of stacker table ❷ so that the front pieces will be in a well-balanced stack.
5. Tighten bolts ❺.
6. Loosen bolt ❻ and adjust the height of presser bar ❼.
7. Tighten bolt ❻.

6 Stacker roller adjustment



1. Remove clamping screws ❶ to remove roller cover ❷.
2. To adjust the roller ❸ rotation amount, remove bolt ❹ and change the position of the rack stopper ❺; tighten bolt ❹.
3. To adjust the roller ❸ position sideways, loosen setscrews ❻ and re-tighten after adjustment.
4. To adjust to a variation of front piece width, loosen bolt ❼ and then stopper ❽. Tighten bolt ❼ after adjustment.

[7] Sewing clamp assembly number selection



※ Attach slit C and slit D to the sewing clamp assembly by a clamping screw and a spring washer.
See the table below for the sewing clamp assembly numbers.

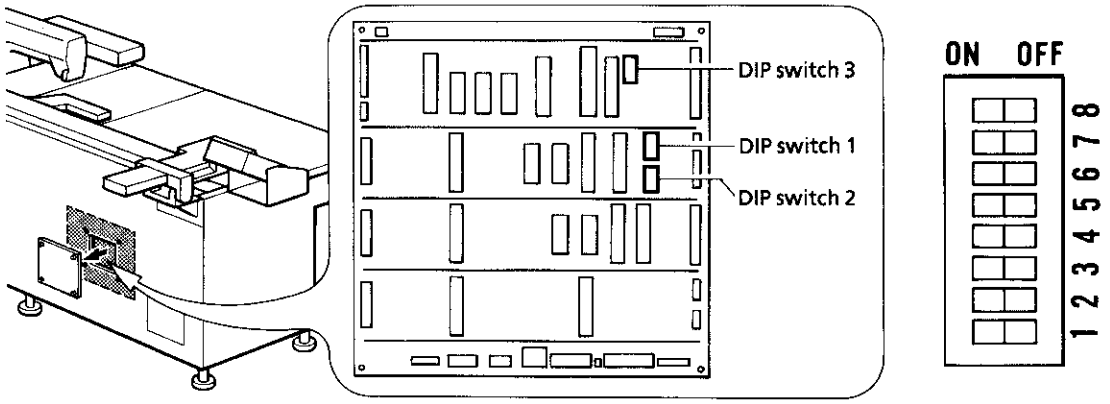
Sewing clamp assembly number

0	1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31				
32	33	34	35	36	37	38	39	40	41	42	43
44	45	46	47	48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63				

USING THE DIP SWITCHES

※ Always be sure to turn the power OFF when changing the settings of the DIP switches.
※ The functions of the DIP switches are subject to changes without notification.

1. Functions of DIP switches on main circuit board



- **DIP switch 1**

No.	Functions when ON
1	Model number and program number are not checked.
*2	0.2 second wait after completion of sewing.
3	
*4	Operation of sewing clamp sensor is enabled.
5	
6	If ON when power is ON, low machine speed is set for each needle at sewing start and end.
7	X-Y variation is displayed.
8	If ON when power is ON, machine speed is set to TEST mode.

* Normally ON; all others are normally OFF.

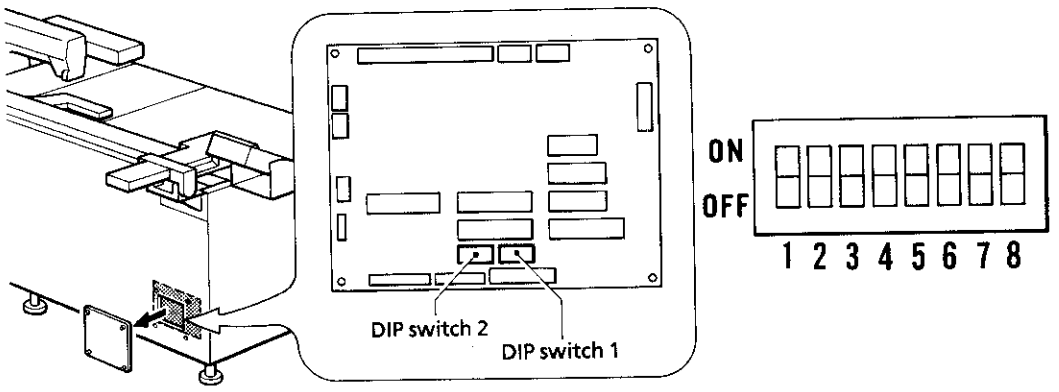
- **DIP switch 2**

No.	Functions when ON				
1	Operation of needle racking cylinder sensor is enabled.				
2	Tack speed setting:	2-OFF 3-OFF	2,000spm	2-OFF 3-ON	2,500spm
3		2-ON 3-OFF	2,800spm	2-ON 3-ON	3,000spm
4	X right direction feeding speed (folder machine) is reduced by 20%.				
5					
6					
7					
8	Y direction feed timing is increased for all data.				

※ Blank DIP switches are spare.

- DIP switch 3: Nos. 1-8 are currently all spare.

2. Functions of DIP switches on folder circuit board



- **DIP switch 1**

No.	Functions when ON
1	
2	
3	
4	
5	
6	
7	
8	

- **DIP switch 2**

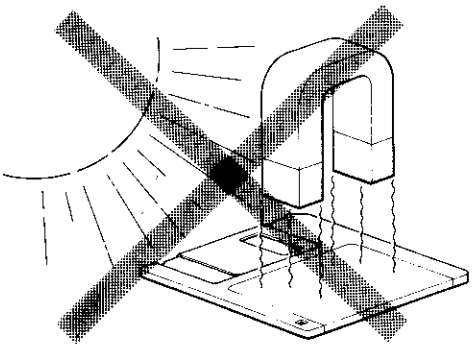
No.	Functions when ON
1	Continuous label and stacker mode
2	
3	
4	
5	
6	
7	
8	

※ Blank DIP switches are spare.

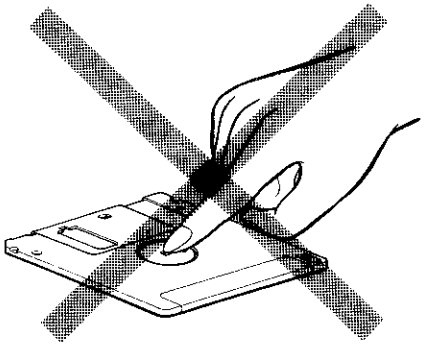
FLOPPY DISK USE AND CARE

※ Observe the following for the longer life of floppy disks.

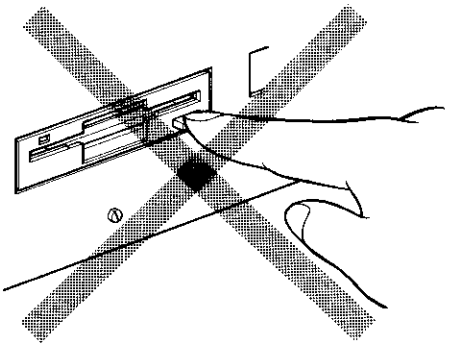
When using a floppy disk pay careful attention to its magnetic properties. When handling a disk, hold it close to the label, and draw it out of the envelope. Do not touch the magnetic surface with your bare hand or fingers. If a finger print is left on a disk, the registered document may not be read correctly by the machine.
Slide a disk gently into the floppy disk drive of the main unit.
After ejecting a disk from the drive, put it immediately into the protective envelope.



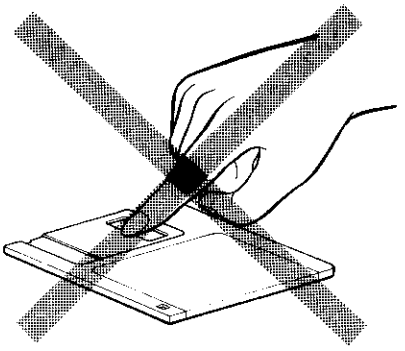
Do not store disks in direct sunlight or near a strong magnetic field.
(Operational temperature: 4°C to 53°C)



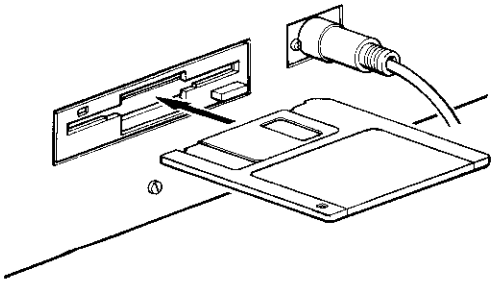
Do not touch the center hub.



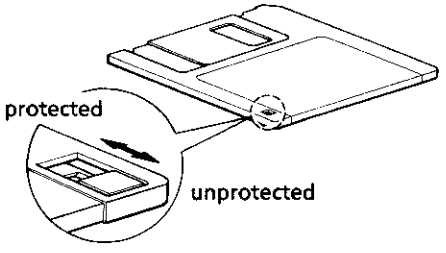
Do not press the eject button while the access lamp is on.



Do not slide the reading port cover, the magnetic surface may be touched.



Pay careful attention to the floppy disk setting directions.



If the tab on the back is slid to uncover the write protect hole, writing and erasing will be disabled, to protect the floppy disk data.
If the tab is slid to cover the write protect hole, writing and erasing will be enabled.

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