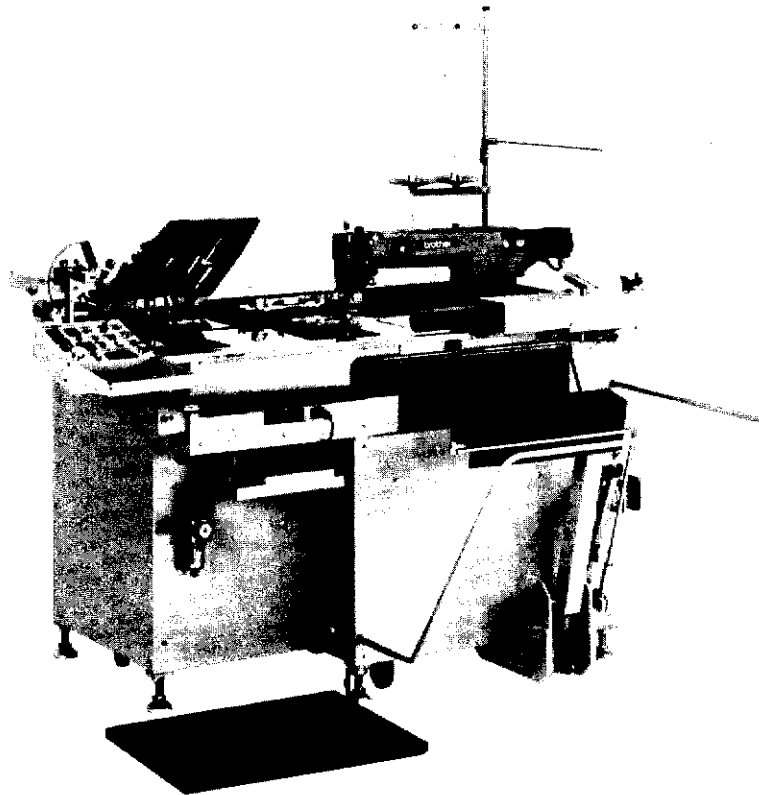


brother

AUTOMATIC POCKET SETTER

BAS-750

INSTRUCTION MANUAL

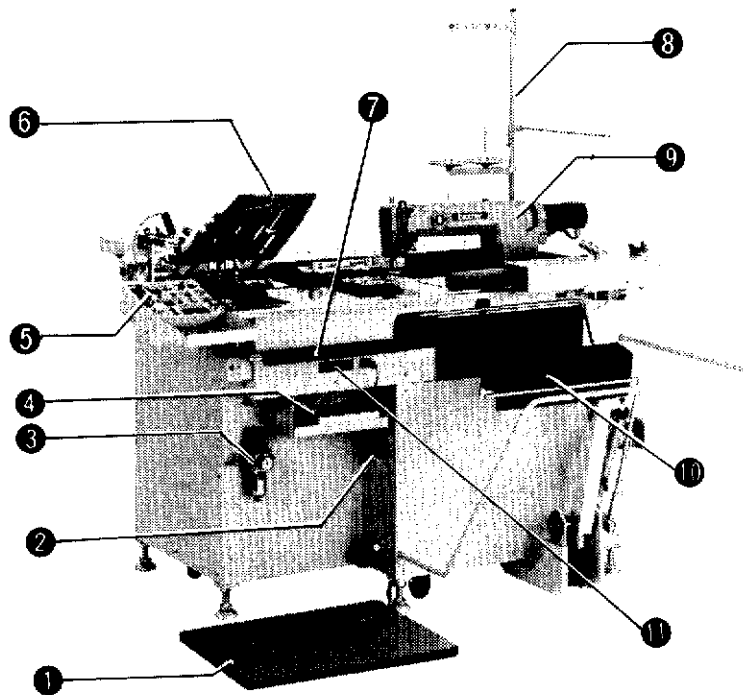


Contents

Names of the Parts	1
Notes on the Control Box and the Foot Switches	2
Installation	4
1 Installation of the machine table	4
2 Removal of the fixing bolts from the machine	4
3 Installation of the spool stand	5
4 Installation of the control box	5
5 Connection of the foot-switch connector	5
6 Connection of the air hose	6
7 Positioning of the front supporter	7
8 Installation of the folding group assembly	7
Lubrication	8
Correct Operation	9
1 Needle Attachment	9
2 Upper threading	9
3 Bobbin case threading	10
4 Bobbin-thread winding	10
5 Thread tension	11
Sewing	12
1 Preparation for sewing	12
2 Sewing	14
3 Emergency stop	16
4 Test operation	17
Operation of the Programmer	18
1 Key switches and the displays	18
2 Command list	18
3 Programmer connection	19

Programming Procedure	20
1 Preliminary procedure	20
2 Programming a pattern one stitch at a time	20
3 Programming a pattern containing numerous straight lines	21
4 Programming a skipped start sewing	23
5 Programming a pattern by employing the smoothing operation	24
6 Programming a pattern by tracing the design	26
7 Erroneous command key operation	27
8 Data storage on a floppy disk	27
Program Modification	28
1 Partially revising a pattern due to a design change: 5, 6 and 7 to 5', 6' and 7'	28
2 Cancelling the initial sewing stitch in a programmed stitch pattern	29
3 Cancelling the initial sewing stitch in a programmed stitch pattern and reprogramming a new initial sewing stitch	29
4 Adding a sewing operation before an initial sewing stitch in a programmed stitch pattern	30
5 Reprogramming a shunting point before the initial sewing stitch in a programmed stitch pattern	30
6 Shifting a shunting point from point A to point B	31
7 Cancelling shunting point A	31
8 Parallel-shifting a programmed stitch pattern	32
9 Cancelling points 7 and 8 after locating an error	33
10 Parallel-shifting pattern B within consecutively-programmed patterns	33
Standard Adjustments	34
1 Needle-bar height adjustment	34
2 Needle and rotary hook timing	34
3 Bottom-plunger height adjustment	35
4 Presser foot height adjustment	35
5 Removal of the fixed knife and the movable knife	36
6 Stacker position adjustment	37
7 Stacker roller adjustment	37
Floppy Disk Use and Care	38

Names of the Parts

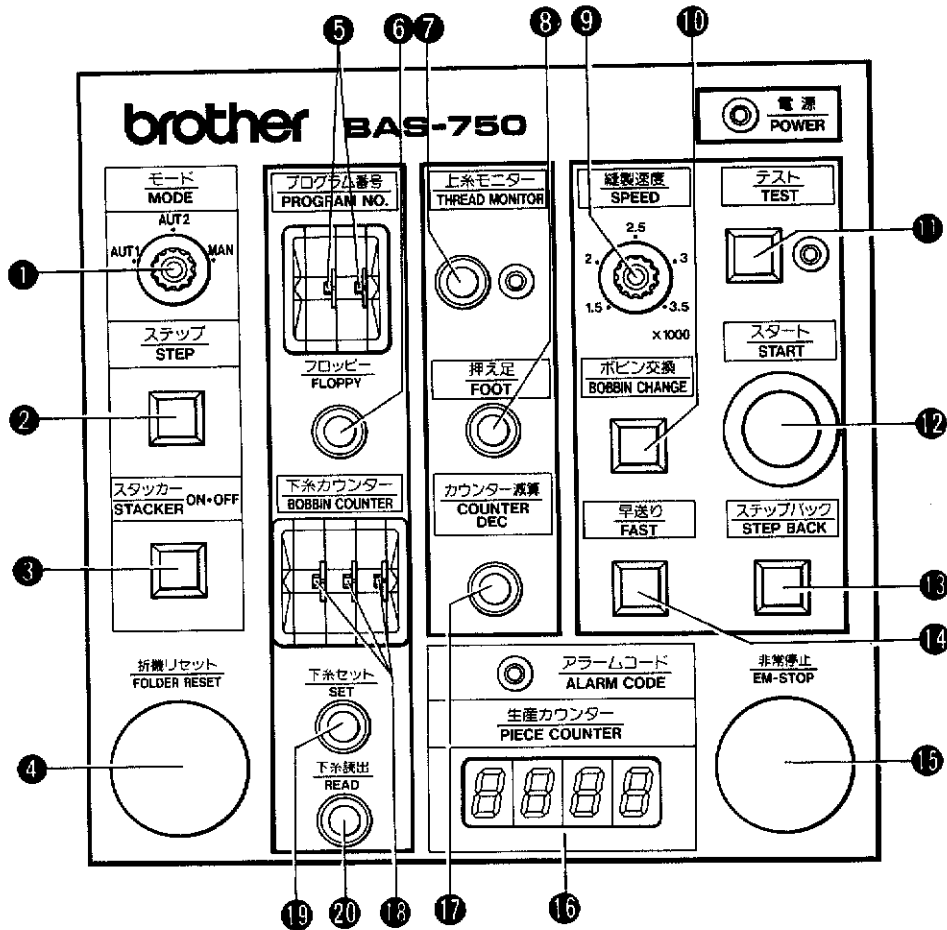


- | | | | |
|----------------|--------------------------|---------------------|---------------|
| ① Foot switch | ② Power switch | ③ Air unit valve | ④ Programmer |
| ⑤ Control box | ⑥ Folding group assembly | ⑦ Front supporter | ⑧ Spool stand |
| ⑨ Machine head | ⑩ Stacker | ⑪ Floppy disk drive | |

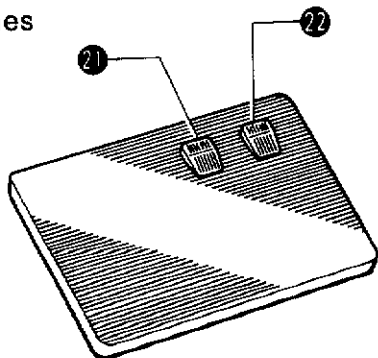
◆ Specifications

Applicable machine type	Lock-stitch sewing machine with an automatic thread trimmer		3.5-inch floppy disk (64 patterns)
Use	Sewing pockets on the various types of shirt	Memory medium	Maximum of 1,000 stitches for each pattern
Cycle time	8.5 seconds approx. (depending on the pitch and rpm)	Pattern memory selection	Digital selector switch
Sewing speed	1,500 to 3,500 spm	Jig attaching/detaching method	pneumatic chuck; one-touch operation requiring less than 2 minutes
	(5-step selection)	Stacker	Included (70 sheets)
Sewing range	220 mm (W)×250 mm (D)	Programmer	Included
Sewing pitch	0.1 to 3.3 mm	Power source	3-phase 220V, 380V, 415V
Cloth setting	Overlapping possible	Air pressure	5 kgf/cm ²
Machine head drive	AC-servo direct motor type	Machine dimensions	1,700 mm (W)×1,870 mm (L)×1,020 mm(H)
Machine body drive	X-axis for a clamp shift, Y-axis for a machine shift	Weight	350 kg
	AC servo motor	Upper-thread breakage detector	Included

Notes on the Control Box and the Foot-Switches



Foot-switches



Use foot-switch ②① to fold pocket material with the folder unit.

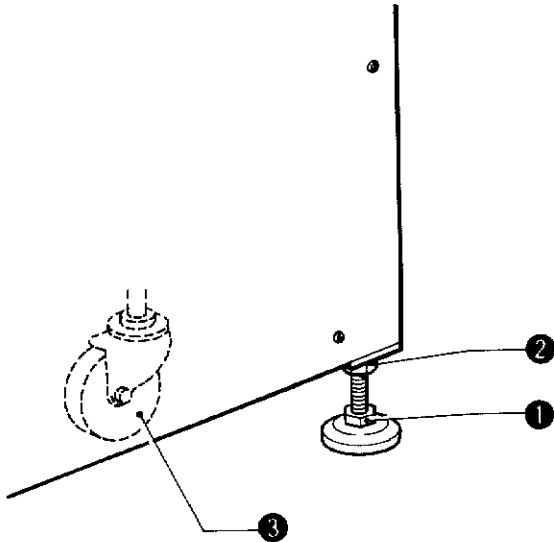
Use foot-switch ②② to sew after aligning the pocket material pattern.

①	MODE		
	MAN	.....	The automatic folding action order starting from pocket folding can be monitored
	AUT1	.....	One press on the left foot-switch starts folding (plain pattern material)
	AUT2	.....	The first press on the right foot-switch enables pattern alignment and the second press on the left foot-switch starts folding.
②	STEP	.....	When the MAN (manual) mode is selected, each time the button is pressed one step of the folding actions can be monitored.
③	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.
④	FOLDER RESET	.....	For resetting the folder to set new pocket material.
⑤	PROGRAM NO.	.....	For calling a program number corresponding to the folder.
⑥	FLOPPY	.....	For writing and reading programs.
⑦	THREAD MONITOR	.....	Press this to light the lamp and the machine will stop automatically at a thread breakage.
⑧	FOOT	.....	For lifting and lowering the presser foot.
⑨	SPEED	.....	The rpm of the sewing machine can be set to up to 5 stages, from 1,500 to 3,500 rpm.
⑩	BOBBIN CHANGE	.....	Press this button to move the machine towards you when changing a bobbin.
⑪	TEST	.....	Press this button to see the needle action when the machine is idling (except during feeding).
⑫	START	.....	Press this to restart sewing. (For restarting with the bobbin counter showing "0", and when U51, U53 or U99 has been displayed or after reading floppy disk data).
⑬	STEP BACK	.....	For continuing stitches after thread breakage (reverse feeding while the button is pressed).
⑭	FAST	.....	Faster feeding is available if this button is pressed in the test mode (fast feed while the button is pressed).
⑮	EM STOP	.....	If the emergency stop button is pressed, all machine actions will stop. Press this button for a second time to continue the interrupted folding action. The folder will not stop during sewing operation.
	ALARM lamp	.....	This lamp will come on in the case of abnormality or when the emergency stop button has been pressed.
⑯	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.
⑰	COUNTER DEC	.....	Each time this is pressed it will decrease the production piece counter by one.
⑱	BOBBIN COUNTER	.....	Input the number of pieces to be sewn into this counter.
⑲	SET	.....	Press to enter the piece number set at the bobbin counter to store the number.
⑳	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.

1 Installation of the machine table



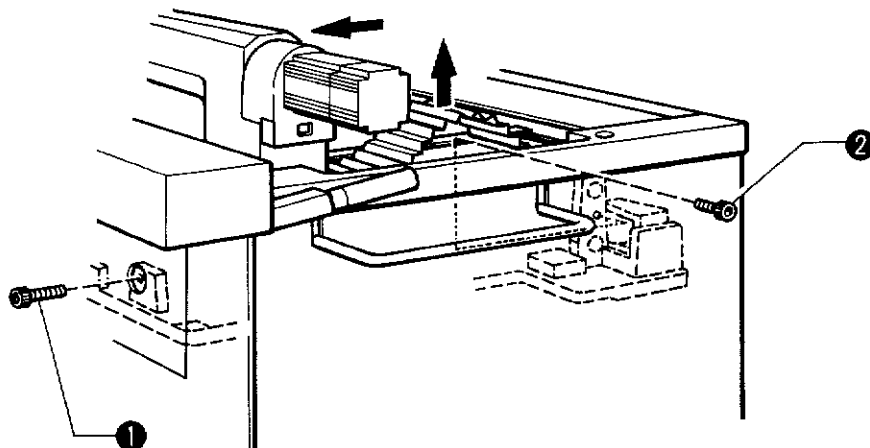
1. Secure the level adjusters ① so that the table top remain level.
2. The table has six level adjusters. If the table does not sit well, loosen nut ② and turn the level adjusters ① to level the table.

To move the machine, turn up adjusters ①, and the table can be moved on its machine body casters ③.

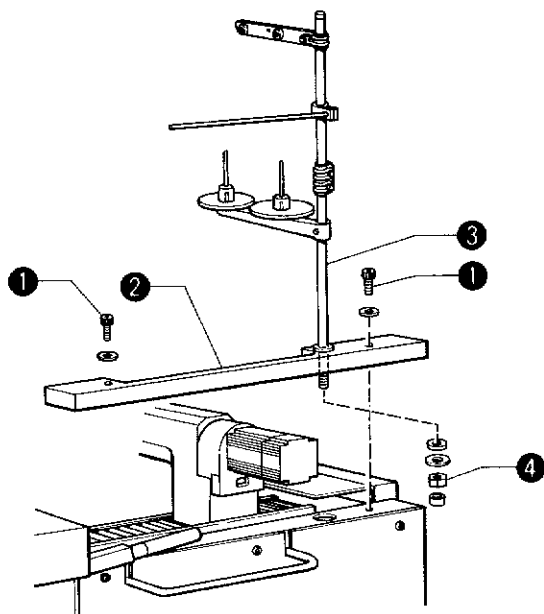
2 Removal of the fixing bolts from the machine

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

1. Remove fixing bolt ① on the machine head through the hole in the front cover.
2. Draw out the bellows to remove fixing bolts ② on the supporter.
3. Return the bellows.
4. Save removed fixing bolts ① and ② for future use.

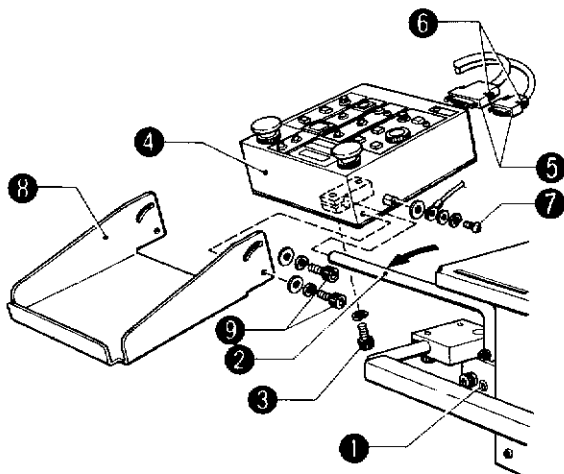


3 Installation of the spool stand



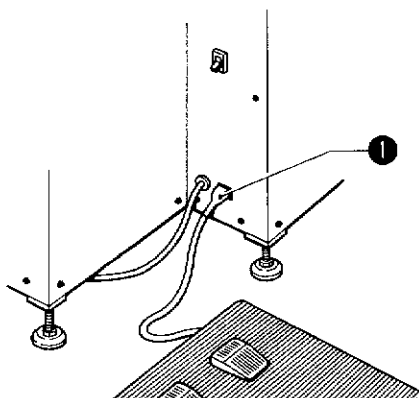
1. Loosen screws ① and remove right side cover ②.
2. Install spool stand ③ and tighten nut ④ and the cap.
3. Attach right side cover ②.

4 Installation of the control box



1. Loosen screw ① and turn panel supporting stud ② to the left.
2. Loosen bolts ④ and insert panel supporting stud ② into control box ③ and tighten bolt ④.
3. Connect two connectors ⑤ to control box ③ and tighten screws ⑥.
4. Remove clamping screw ⑦.
5. Attach a grounding wire and tighten clamping screw ⑦.
6. Secure panel supporting stud ② with screw ①.
7. Install pocket bearing ⑧ on control box ③ with bolt ⑨.

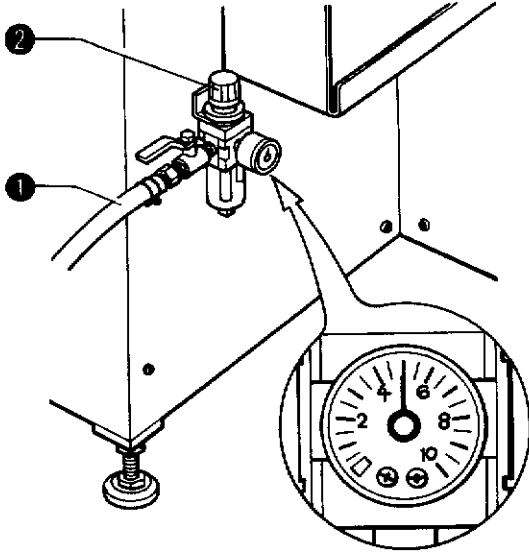
5 Connection of the foot-switch connector



1. Connect connector ① securely.

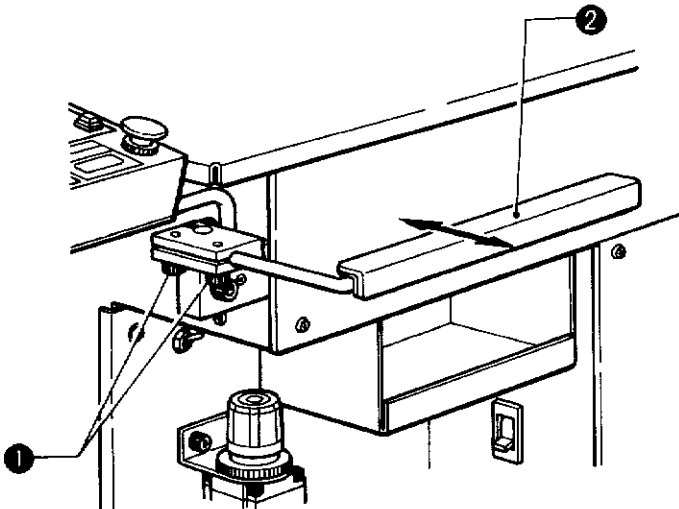
6 Connection of the air hose

1. Attach air hose ① to air unit valve ②.
2. Move the upper cap of air unit valve ② upward and adjust the air pressure to 5 kgf/cm².
3. After adjustment, move the cap downward.



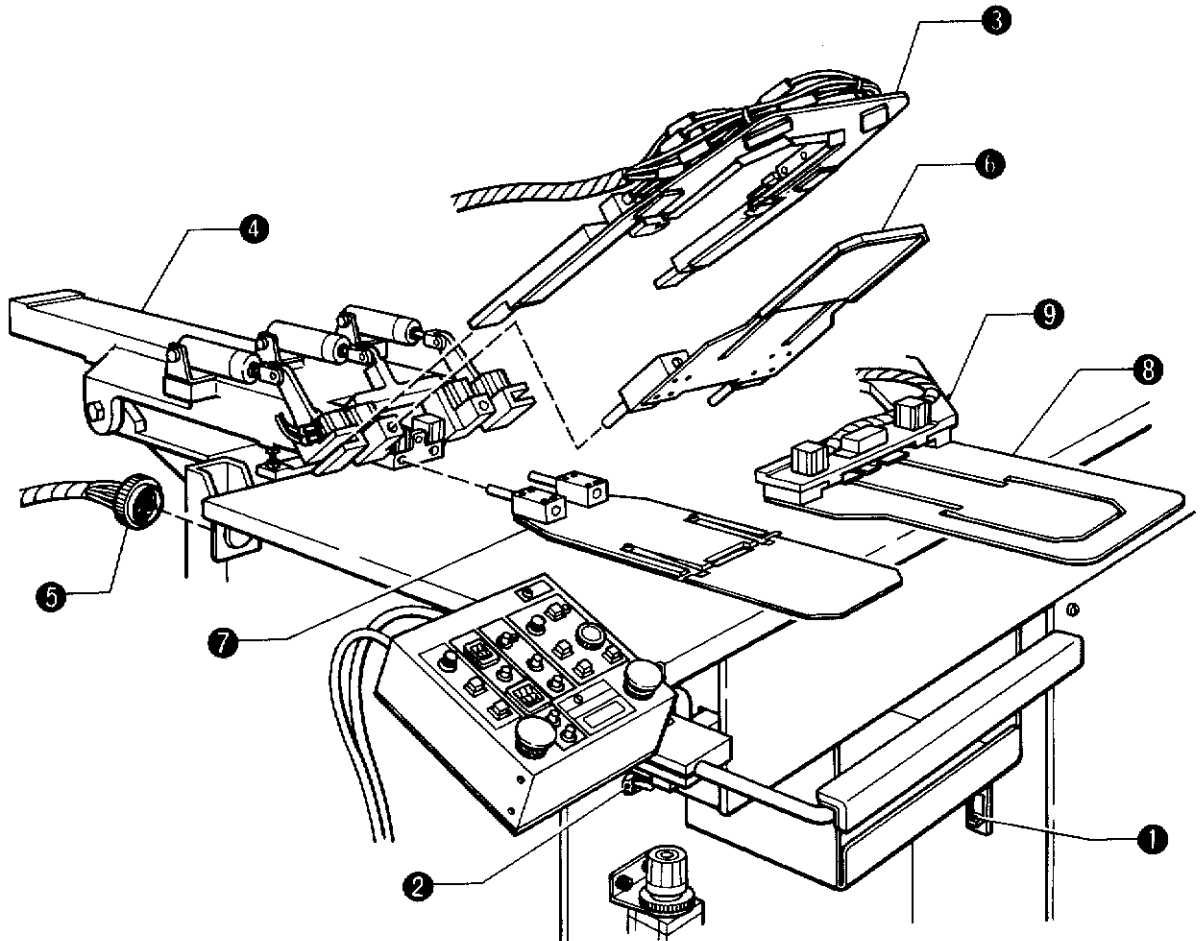
7 Positioning of the front supporter

1. Loosen bolt ① and position front supporter ② in the most appropriate position.
2. Tighten bolt ① to secure the supporter.



8 Installation of the folding group assembly

- ★ Turn on power switch ① to return the machine to the home position.
- ★ Turn valve switch ② to OFF (lower) side and “U82” will flash on the display.



1. Install folding clamp assembly ③ onto folding base ④.
2. Attach multi-connector ⑤.
3. Hold folding clamp assembly ③ with one hand and install inner clamp assembly ⑥ on folding base ④.
4. Install center blade assembly ⑦ on folding base ④.
5. Install sewing clamp assembly ⑧ on sewing clamp assembly arm base ⑨.
6. Turn valve switch ② to ON (upper) side, when “U82” goes off to display the production piece number.
7. Move folding clamp assembly ③, inner clamp assembly ⑥, center blade assembly ⑦ and sewing clamp assembly ⑧ back and forth, and right and left, to ensure they are secured.

Lubrication

★ Check for sufficient oil through oil gauge windows (A) and (B) 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 (1).

2. How to oil the machine table

(1) Turn power switch (2) to ON.

(2) Press BOBBIN CHANGE button (3) and the machine head will move toward you and stop.

(3) Replenish the oil through the oil port to the right of needle plate (4).

(4) After replenishing the oil, press the BOBBIN CHANGE button (3) and the START button (5).

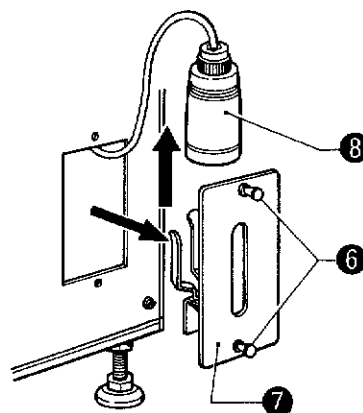
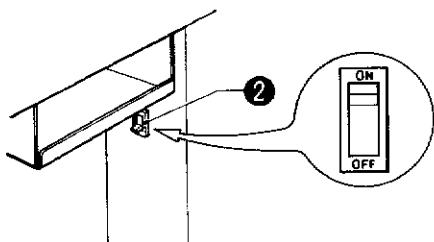
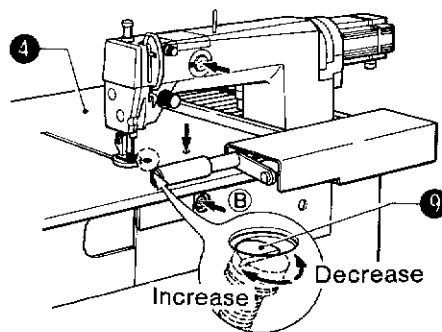
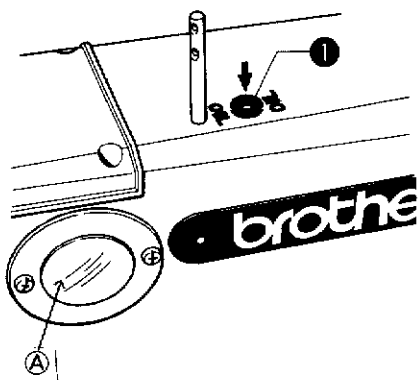
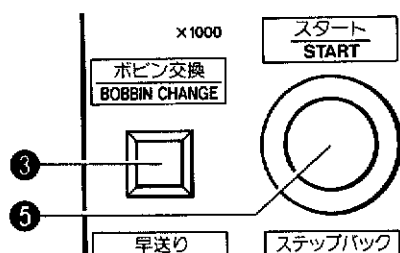
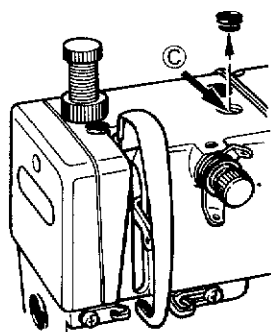
Note: § Before initial operation of the machine or after a long interval, be sure to drip a few drops of oil onto the arrowed lubrication point (C).

3. How to drain oil from the machine body

(1) Check the oil amount through the oil gauge window.

(2) Pull open Nylatches (6) and remove oiler setting plate (7).

(3) Remove poly-oiler (8) and drain the oil.

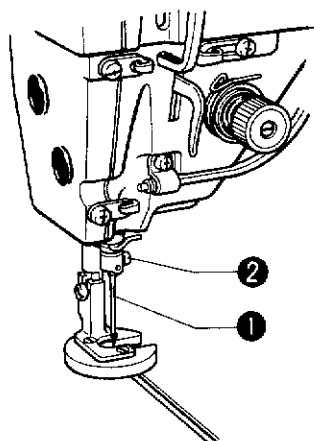


4. Rotary hook lubrication control

Turn rotary hook oil adjusting screw (9) to control the lubrication amount.

Correct Operation

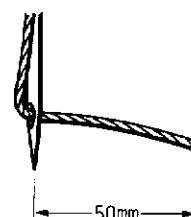
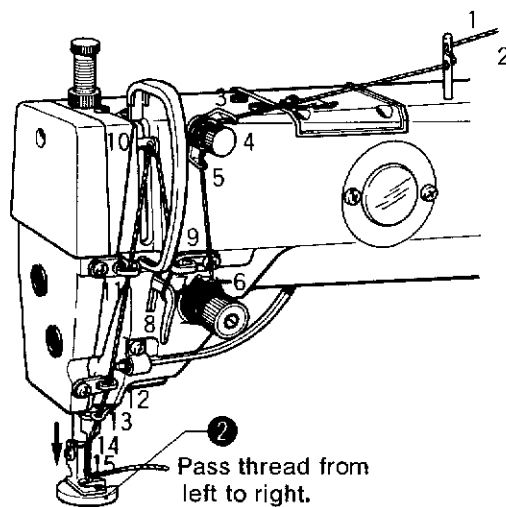
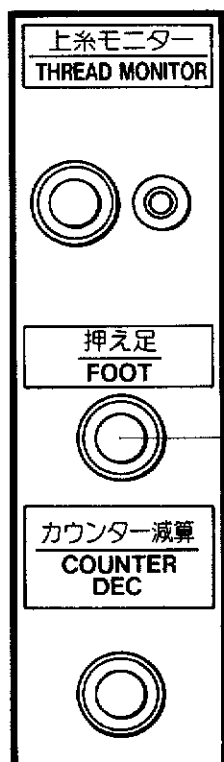
1 Needle attachment



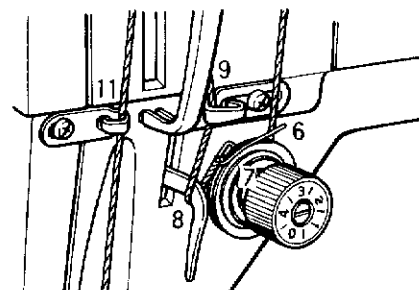
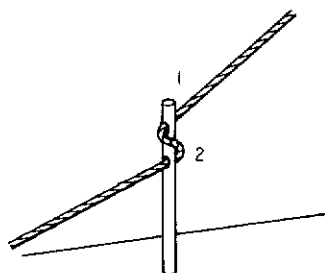
Fully insert needle ①, with its long groove to the left, and secure it with screw ②.

2 Upper threading

1. Turn on the power switch; the machine will return to the home position. Press FOOT button ① and lower presser foot ②.
2. Pass the upper thread as illustrated below. After threading, be sure to press FOOT button ① and lift presser foot ②.
3. After threading, turn the pulley and lift the needle bar to the uppermost position.

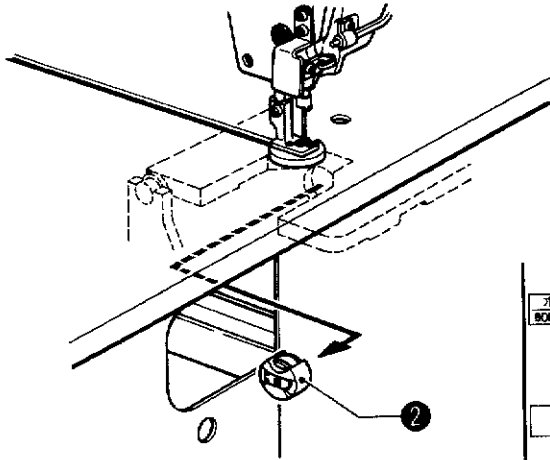


Leave about 50mm of thread end with the thread take-up at its highest position.

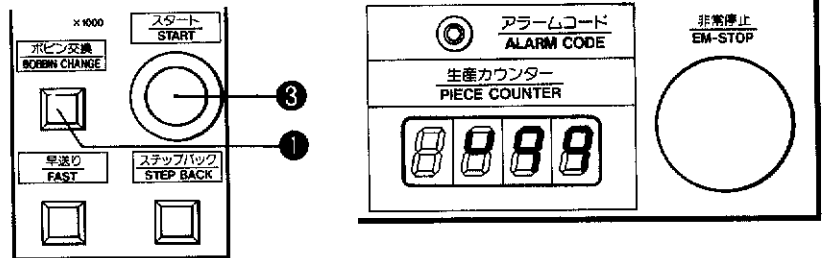


3 Bobbin case threading

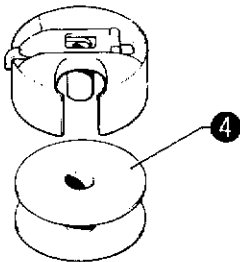
1. Removal of the bobbin case



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

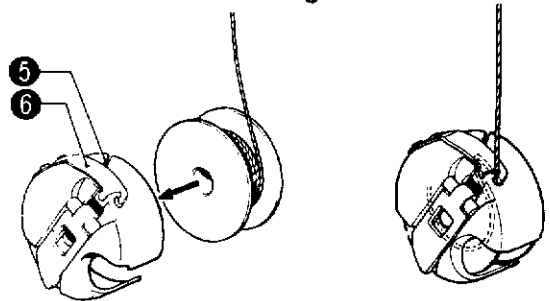


2. Removal of the bobbin



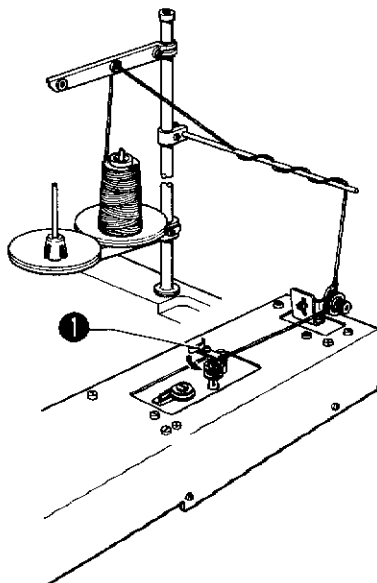
Bobbin ④ can be removed when the latch is released.

3. Bobbin case threading



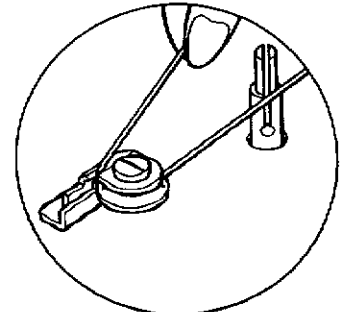
- (1) Insert the bobbin into the bobbin case.
- (2) Pass the thread through slot ⑤ and under adjustment spring ⑥.
- (3) Pull the thread out from adjustment spring ⑥.

4 Bobbin thread winding

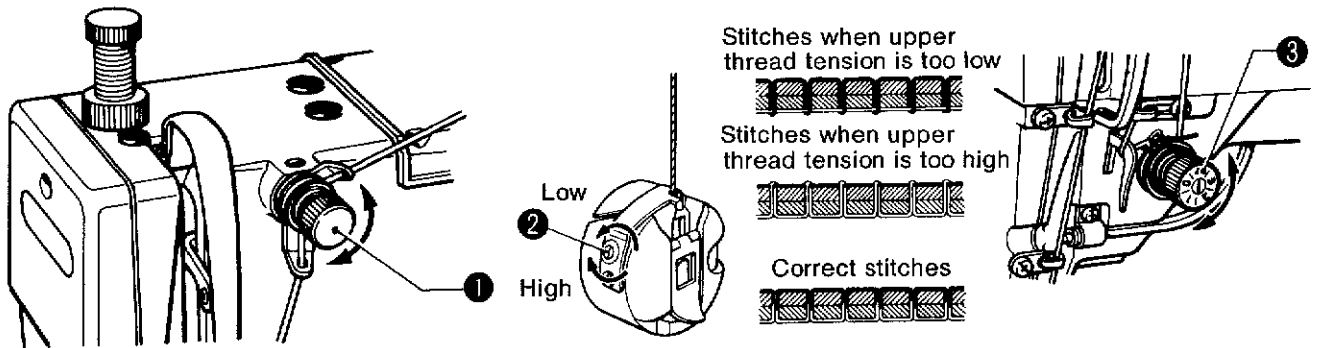


1. Pass the bobbin thread from the spool stand as illustrated below.
2. Wind the thread around the bobbin as arrowed.
3. Press lever ① against the bobbin.
4. After completing bobbin thread winding, cut the thread.

※ 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.

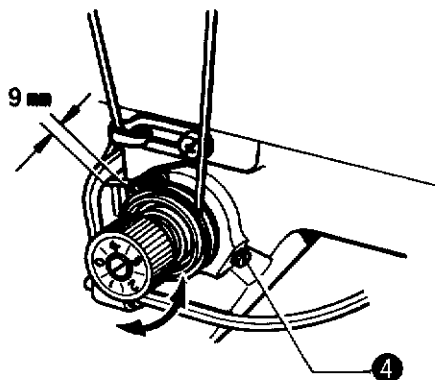


5 Thread tension

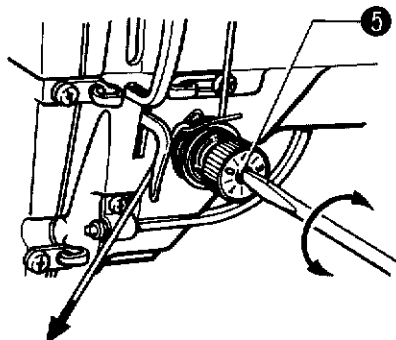


1. When the thread take-up lever is in the highest position after thread trimming, adjust the upper thread beyond the needle eye so as it is 35 to 40 mm long, by turning tension nut ①.
2. Adjust the lower thread tension by turning tension regulating screw ② so there is enough tension for it to slide down the bobbin case of its own weight when suspended at the thread end.
- 3 Adjust the upper thread tension by turning tension nut ③ after lowering the presser foot.

◆ Thread take-up spring



1. The standard thread take-up spring height is 9 mm when the presser foot is placed on the sewing clamp assembly. The standard thread take-up spring force is 15 to 30 g.
2. To adjust the thread take-up spring height, loosen set-screw ④ 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 ⑤ and turn it as much as is appropriate.



15~30 g

Sewing

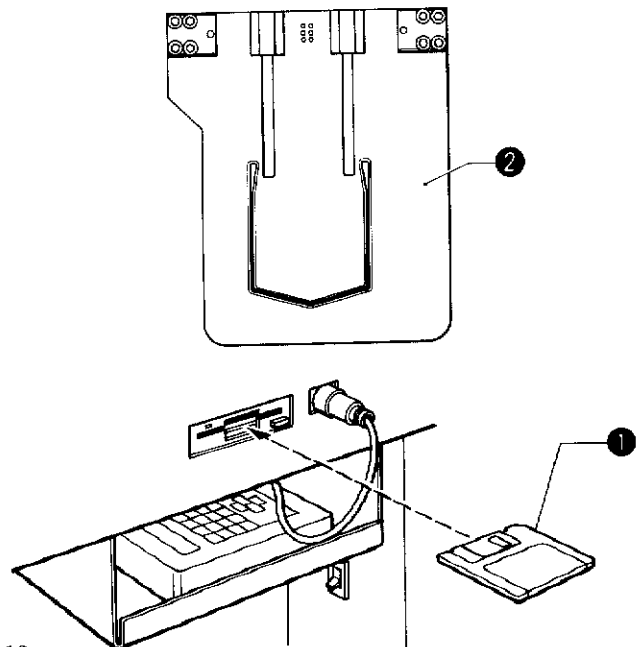
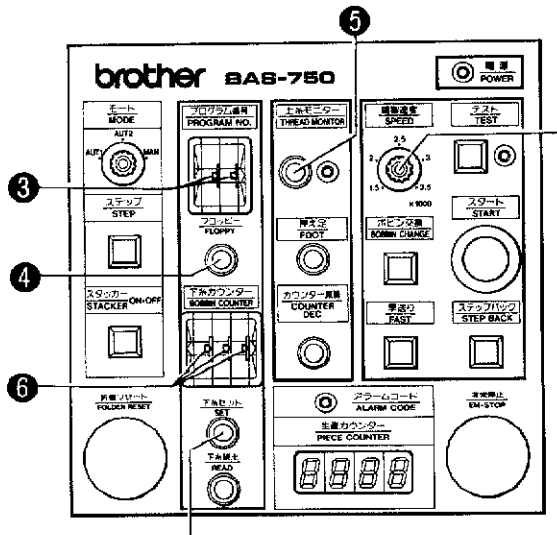
1 Preparation for sewing

1. Turn the power switch to ON and the machine will return to its home position.
See the table below if the alarm lamp comes on at this time, and during sewing operation.

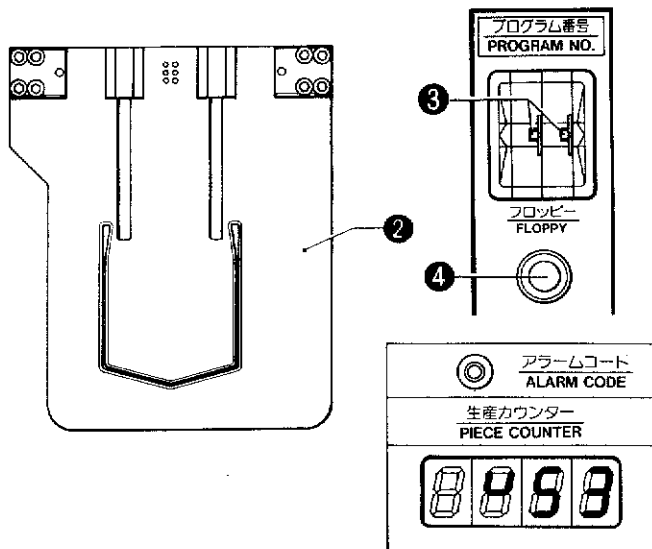
Alarm code	Error message	Alarm code	Error message
U50	No lower thread → Change the bobbin	U84	X-left over-travel switch has been operated
U51	Needle bar drop → Turn the machine pulley to raise the needle bar	U85	Y-above over-travel switch has been operated
U52	Upper thread breakage → Pass the upper-thread	U86	Y-under over-travel switch has been operated
U53	Discrepancy between the folder and the program	U87	X-axis motor system fault
U60	No data → Check the floppy disk	U88	Y-axis motor system fault
U70	Try again → Floppy disk fault	U89	machine motor system fault
U71	No data available from designated program	U90	Folder fault
U72	No disk in the FDD	U91	X-axis positioning error
U73	Write protected → Change the disk window	U92	Y-axis positioning error
U74	Designated number unavailable	U93	Over-area during programming operation
U78	Key word error	U94	X origin switch fault, or the X origin switch has been turned on when the power switch was turned on
U80	Emergency stop button has been pressed	U95	Y origin switch fault
U82	No air pressure or air zipper has been turned off	U96	X origin switch has been turned on
U83	X-right over-travel switch has been operated	U99	Bobbin change on-going is being displayed

- ※ 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. If the same alarm code is displayed, a photo sensor, a motor or a PCB may need replacement.

2. Insert floppy disk ①.
3. Match the number of sewing clamp assembly ② and the program number by digital switch ③.
4. Press FLOPPY button ④.
5. Make sure that the THREAD MONITOR lamp is on.
If the lamp is off, press THREAD MONITOR button ⑤ to turn it on.
6. To start sewing with a new bobbin, set the BOBBIN COUNTER button ⑥ and press the SET button ⑦.
7. Display "0" on the PIECE COUNTER.
8. Turn SPEED selector ⑧ to set the sewing speed.



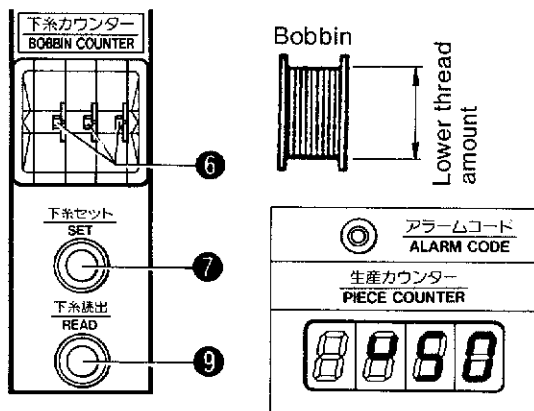
[Setting of the folding group assembly number and the program number]



- (1) Check the folding group assembly number.
- (2) Input the number of sewing clamp assembly ② with digital switch ③.
- (3) Press FLOPPY button ④.
- (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 ② 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]

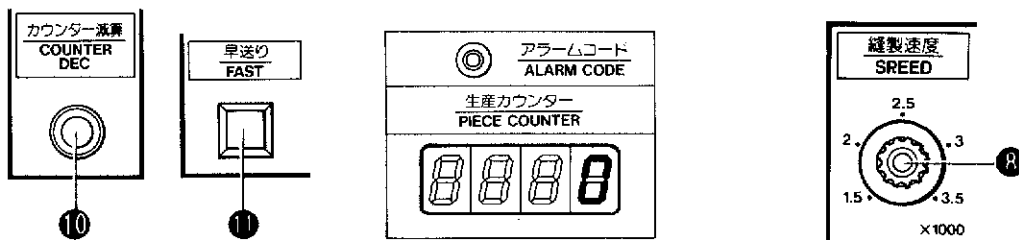
- ★ Set up the producible quantity with the lower thread amount wound on the bobbin in the case.
- ★ Modification is possible only when the production quantity is displayed in the shunting position.
- ★ The producible piece number can be monitored by using the READ button.



- (1) Press READ button ⑨, and the producible piece number will be displayed.
- (2) Set up the producible number at BOBBIN COUNTER digital 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 lower thread will be set automatically if the bobbin is changed after a U50 display.

[Setting the PIECE COUNTER and the sewing speed]

- ★ Modification is possible only when the production quantity is displayed.



Setting the production quantity

- (1) The PIECE COUNTER is reset to display "0" when COUNTER DEC button ⑩ and FAST button ⑪ are pressed simultaneously.
- (2) Each time COUNTER DEC button ⑩ 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: 3,500 spm

Maximum speed for polyester, spun thread: 3,000 spm

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

2 Sewing

★ Set MODE switch ①.

AUT 1: For standard sewing

AUT 2: For sewing with pattern alignment operation

MAN : For folder action checking

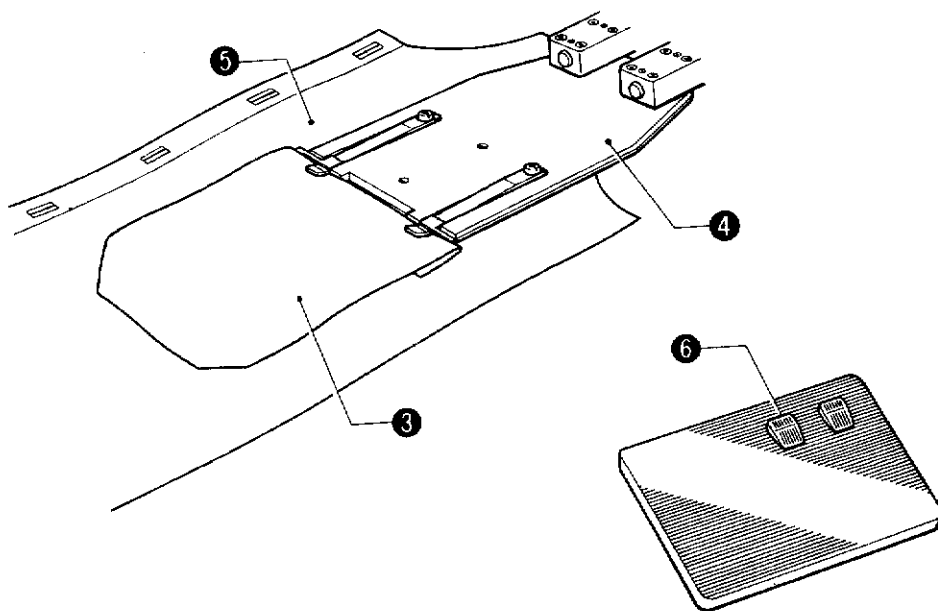
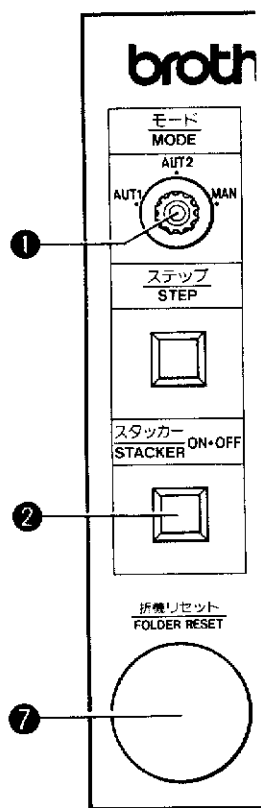
★ Set STACKER ON•OFF button ②.

Lamp is on : The stacker is connected.

Lamp is off: The stacker is disconnected.

[Standard sewing]

1. Select AUT 1 on MODE switch ①.
2. Press STACKER button ②, and the lamp will come on.
3. Place pocket material ③ over center blade assembly ④.
4. Place front material ⑤ under center blade assembly ④.
5. Press left foot-switch ⑥. The pocket material will be folded on the folding group assembly and the front and pocket material pieces will be carried to the machine side to be sewn.
6. After completing sewing, the machine will return to the shunting position.



[In a case of mis-folding]

• Press FOLDER RESET button ⑦ twice and the state before folding will be regained.

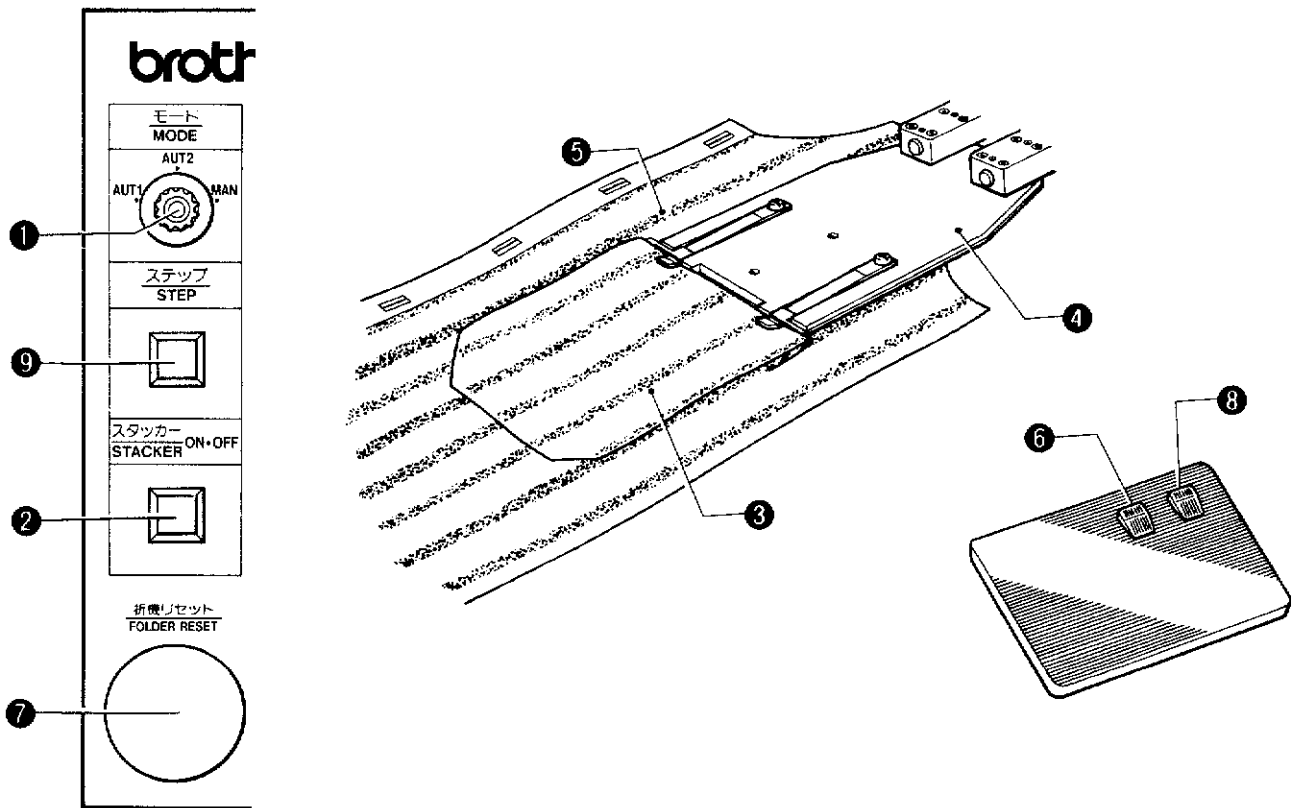
[In a case of upper thread breakage]

• If the ALARM CODE lamp comes on with a display of U52, refer to "To restart sewing" and "To return to the shunting position" on page 16.

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

[Pattern-alignment sewing: Select AUT2]

1. Select AUT2 with MODE switch ①.
2. Press STACKER button ② and the lamp will come on.
3. Place pocket material ③ over center blade assembly ④.
4. Place front material ⑤ under center blade assembly ④.
5. Press right foot-switch ⑧ and maintain foot pressure.
The center blade assembly ③ will descend a little further. If the pocket pattern and the front material are not in alignment, move the front material to align. After alignment, release foot-switch ⑧ to the neutral position.
6. Press left foot-switch ⑥. The pocket material will be folded on the folding group assembly. Check for proper pattern alignment.
If alignment is not correct, press FOLDER RESET button ⑦ twice to return the folder to the former state. If it is correct, press left-foot switch ⑥ again and the front and pocket material pieces will be carried to the machine to be sewn.
7. After completing sewing, the machine will return to the shunting position.



※ When accustomed to the pattern alignment operation and there is no need for alignment checking, keep pressing FOLDER RESET button ⑦ and press STEP button ⑨.
If FOLDER RESET button ⑦ and STEP button ⑨ are pressed in the same sequence as above, the CHECK mode is selected. Follow the same procedures to switch between the CHECK mode and the CANCEL mode. (The CHECK mode is selected on turning power on.)

The further-descended position of the center blade assembly can be cancelled during procedure 5 above.

Press FOLDER RESET button ⑦ twice to cancel.

If left foot-switch ⑥ is pressed during procedure 6 above, the pocket material will be folded and carried to the machine for immediate sewing.

3 Emergency stop

EM STOP button uses

[To stop the machine during sewing]

To stop the machine during sewing, press EM STOP button ①.

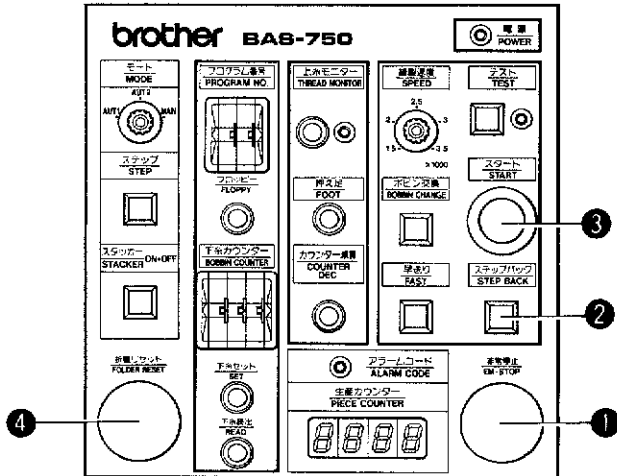
The machine will stop and display "U80". Find the cause of the trouble.

To continue sewing:

1. Press the EM STOP button ① again for alarm release. U80 will go off after thread trimming.
2. When STEP BACK button ② is pressed a few times, the machine feed reverses a few stitches.
3. Press START button ③.

To return to the shunting position:

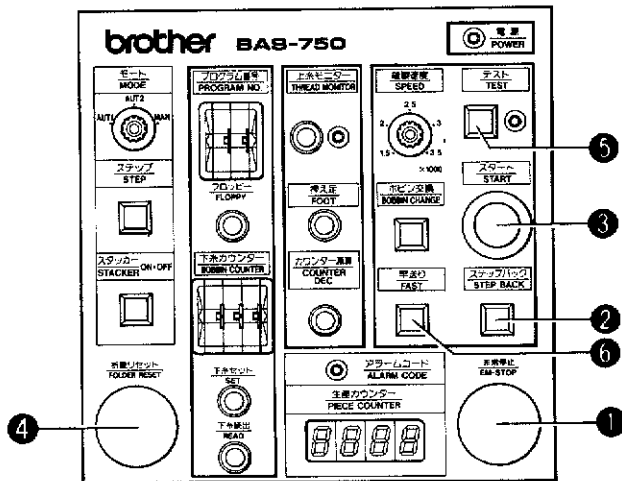
1. Press EM STOP button ① again for the second time for alarm release. U80 will go off after thread trimming.
 2. Press EM STOP button ① for the third time to display U80.
 3. Press EM STOP button ① and then FOLDER RESET button ④.
- The machine will return to the shunting position after locating the 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 ① 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 ② and return to where the thread was broken.
4. Press START button ③.
5. The machine will start sewing and return to the shunting position on completion of sewing.

STEP BACK button:
TEST button:

Use this button to return to where the thread was broken.

When using STEP BACK button ②, press this button once to move forward after moving backward to far backward.

Use TEST button ⑤ to feed forward.

The forward feeding action will stop when the TEST button ⑤ is pressed again.

[To fast feed]

Forward feeding:

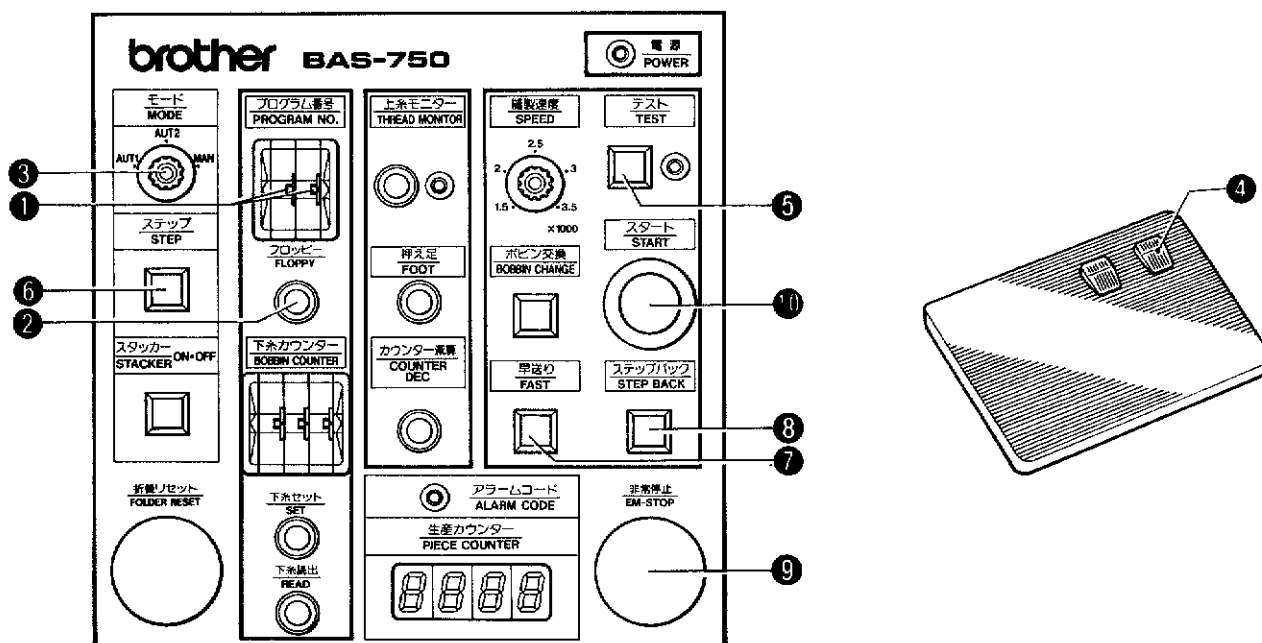
Hold down FAST button ⑥ while the TEST lamp is on after pressing TEST button ⑤; forward feeding will then become fast.

Reverse feeding:

Hold down FAST button ⑥ while STEP BACK button ② 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.
- ★ Use this button when starting sewing halfway.
- ★ Select MAN (manual) on the mode switch. Folder operation is possible with the MODE switch either at AUT1 or AUT2.



1. Turn the power switch to ON.
2. Set up PROGRAM No. digital switch ● to match the folding group assembly number with the program data number and then press FLOPPY button ●.
Check if the display matches the folding assembly number.
3. Select MAN (manual) on MODE switch ●.
4. Press right foot-switch ● and the center blade will descend.
Press foot-switch ●.
5. Press TEST button ● and the lamp will come on.
6. Press the STEP button ●. Each time this button is pressed, the folder will conduct one step. Observe the tucking blade action this while.
7. After folding, the pocket and front pieces will be carried to the machine head side.
8. The feeder will move for one stitch but nothing will be sewn.
9. On completion of the last stitch, the machine will return to the shunting position.

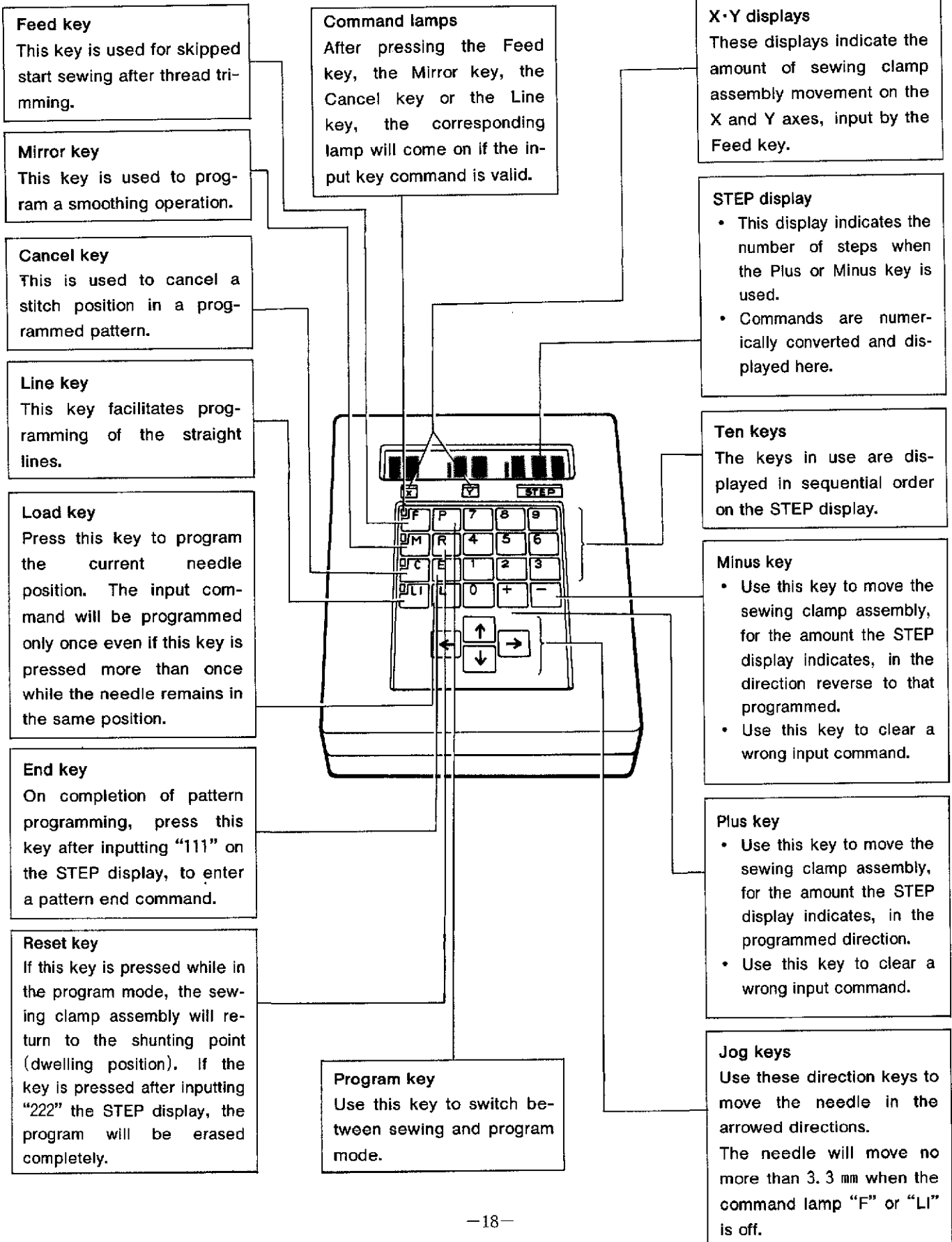
Fast feed is possible if FAST button ● is pressed during procedure 8. above.

Feeding will stop if TEST button ● is pressed to turn off the TEST lamp. If TEST button ● is pressed again, feeding will proceed; if STEP BACK button ● is pressed, feeding will reverse. FAST feed is possible if FAST button ● is pressed during the above operations.

Notes If the needle has descended too much during the above checking operation, press EM : (emergency stop) button ● 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 ● to finish the remaining actions and to return to the shunting position.

Operation of the Programmer

1 Key switches and displays



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 3mm
If not specified: 2 mm

2 2 2 **R** DATA CLEAR

7 8 9 **L** SMOOTHING END

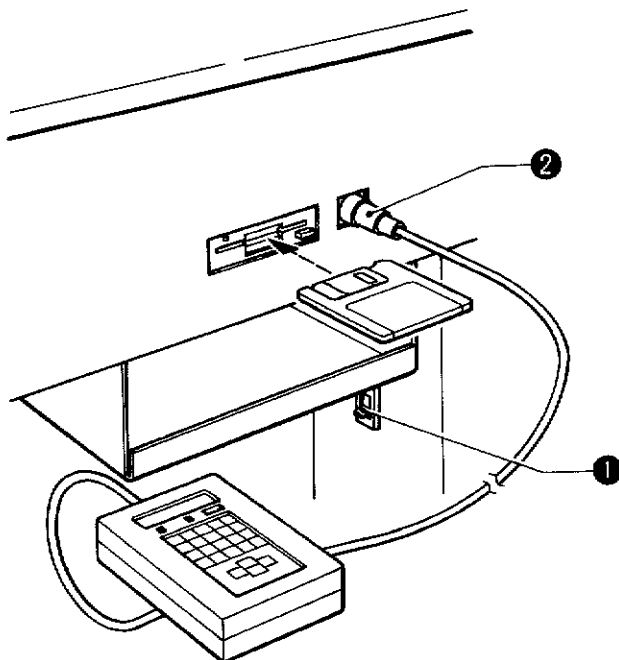
Be sure to press at a corner
stitch position.

5 5 5 **L** TRACE

7 7 7 **F** PARALLEL SHIFT

※ Specify TRACE first when using TRACE and other commands, such as SMOOTHING,
at the same time.

3 Programmer connection



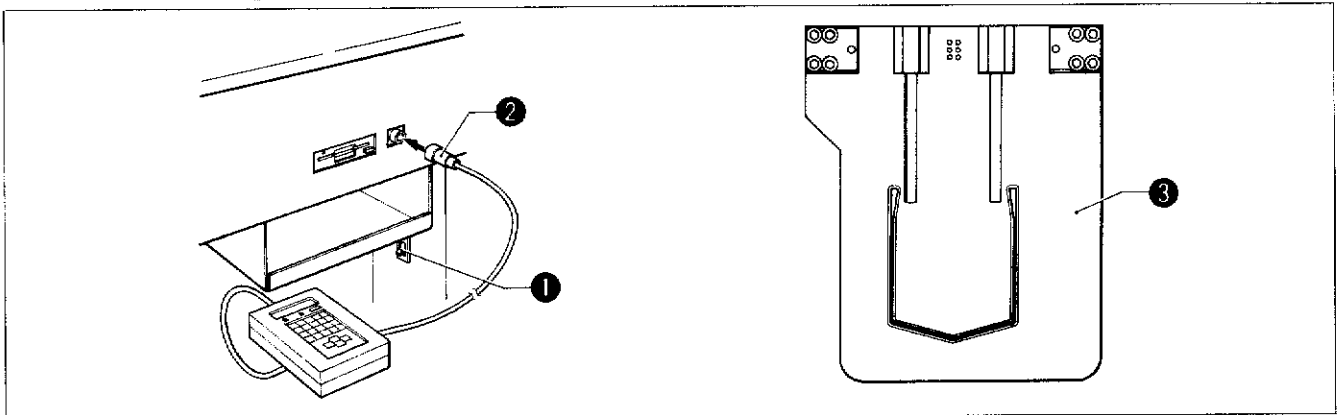
- (1) Turn power switch **1** to OFF and connect programmer plug **2** to the connector on the front cover.
- (2) Turn power switch **1** to ON. Set the sewing clamp assembly in the shunting position. Press the **P** (program) key. The sewing clamp assembly will come down and the program mode will be 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 on the panel or keys with a nail end or other pointed objects.

Programming Procedures

《Conditions》

- Outline the pattern to the actual size.
- Design the pattern with a maximum stitch length of 3.3 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 except that zigzag stitches are not possible.

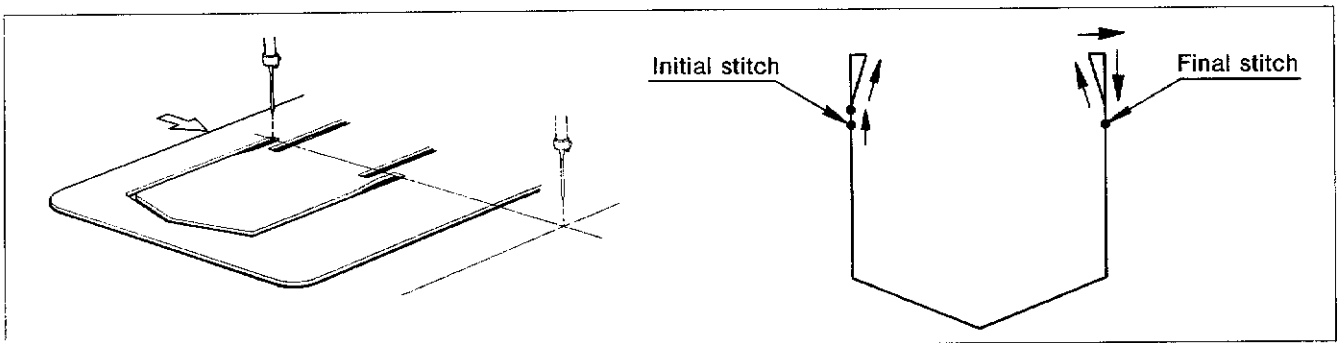
1 Preliminary procedures



- (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.
- (4) Set sewing clamp assembly ❸ and insert a piece of material under the assembly.
- (5) Press the [P] (program) key. The sewing clamp assembly 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



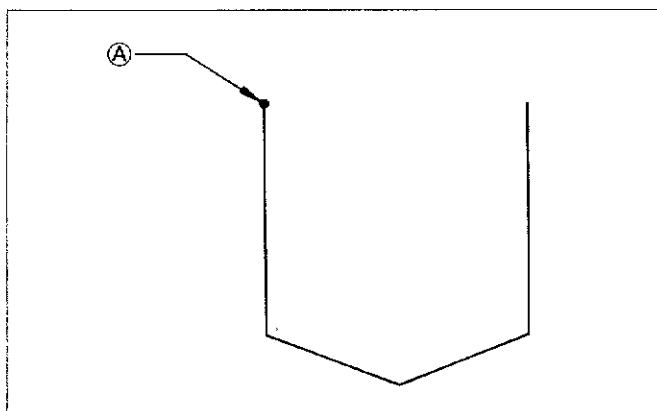
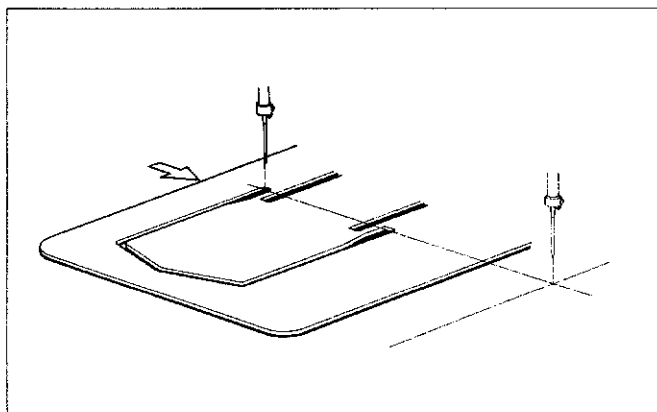
Example: Program the pattern at above.

- (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 toward the upper dead point.
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 27).
- (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.

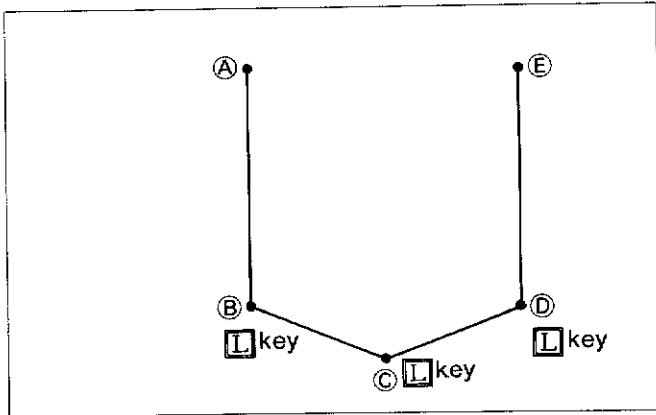
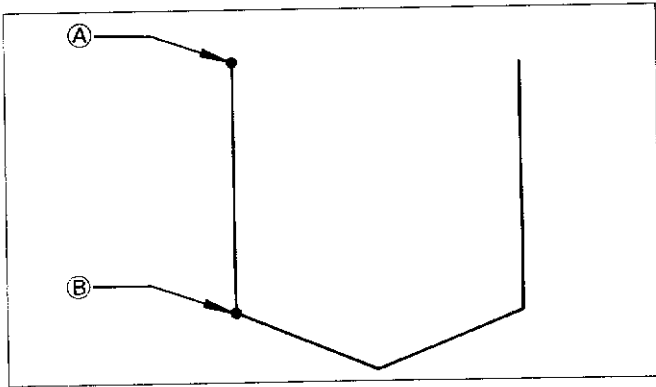
3 Programming a pattern containing numerous straight lines

- 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 **(A)**, 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,
 $3 \text{ mm} \div 0.1 \text{ mm} = 30$
therefore, "030" is to be input on the STEP display.
※ If the stitch length is not specified or if it is longer than 3.3 mm (33) or shorter than 0.4 mm (04), it will automatically be set to 2 mm.
- (5) Press the **[LI]** key and command lamp **[LI]** will come on.



- (6) Use the jog keys to move the sewing clamp assembly to final stitch position ②.

Note 1: When more than the specified number of stitches are required between point ① and point ②, the speed will suddenly be decreased for operator attention. Press the **L** key and then the **L** key between points ① and ② to program the remaining stitches on a straight line.

- (7) When the needle tip is aligned with point ②, press the **L** key to program a straight line from point ① to point ②.

Follow the above procedures to program the remaining straight lines from point ② → ③, ③ → ④, ④ → ⑤.

Note 2: For diagonal lines, such as ② → ③, 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 ⑤, 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.

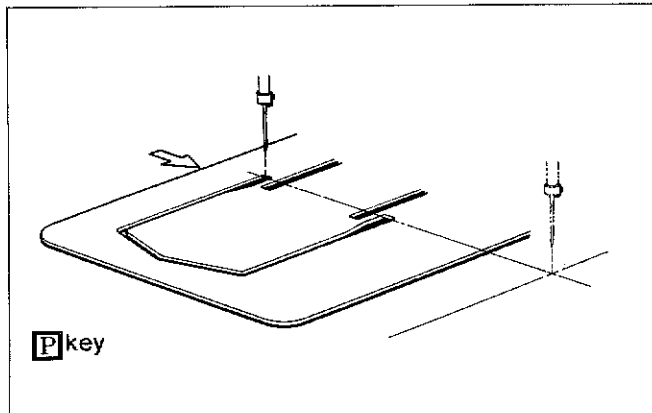
- (9) The sewing clamp assembly will return to the sewing origin.

- (10) Write the program to the floppy disk (Refer to page 27).

- (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.

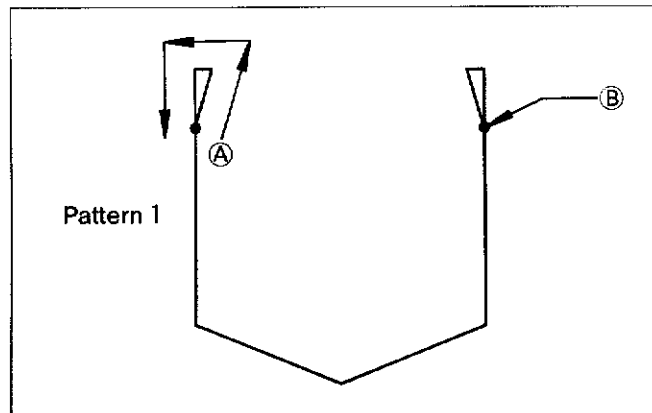
4 Programming a skipped start sewing

- To continue sewing after trimming, use the **[F]** key for easier programming.

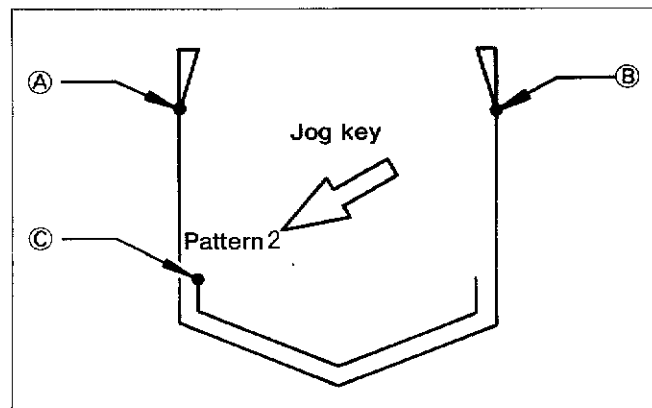


Example: Program the pattern illustrated at left.

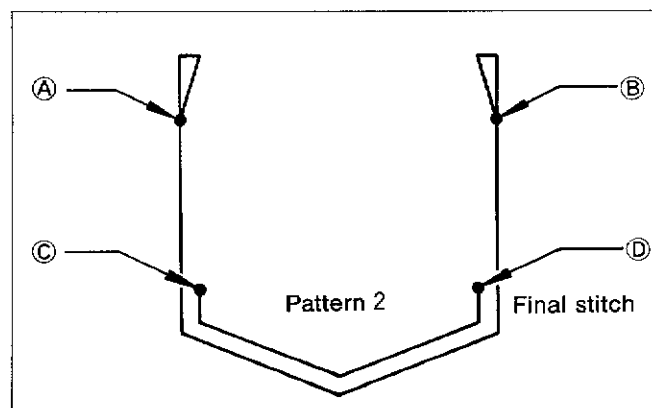
- (1) Press the **[P]** key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp **[F]** will come on.
- (2) Use the jog keys to move the sewing clamp assembly to the initial stitch position.



- (3) When the needle tip is aligned with initial stitch position **(A)**, 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 **(B)**, press the **[F]** key; command lamp **[F]** will come on.



- (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 **(C)**, press the **[L]** key. This will program skipped sewing after thread trimming from position **(B)** to position **(C)**.

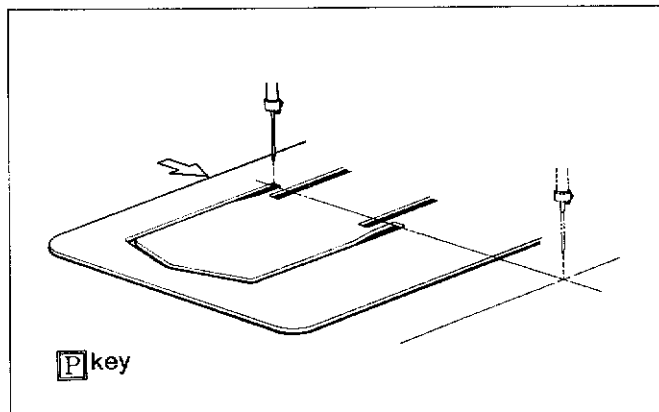


- (8) Program the remaining stitches of pattern 2.
- (9) After the **[L]** key is pressed at final stitch position **(D)**, press ten-key **[111]** three times to indicate "111" on the STEP display; then press the **[E]** key.
- (10) The sewing clamp assembly will return to the sewing origin.
- (11) Write the program to the floppy disk (refer to page 27).
- (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.

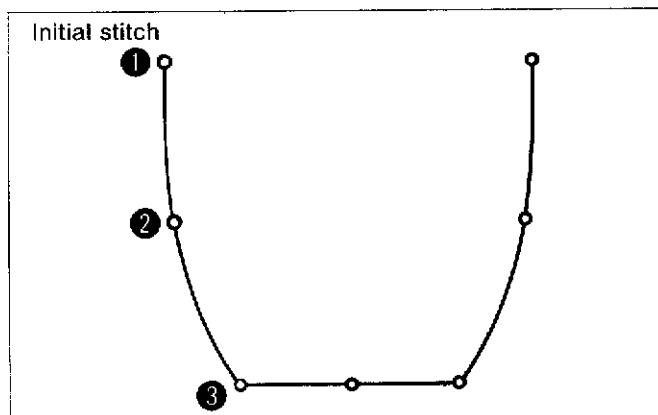
5 Programming a pattern by employing the smoothing operation

- 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.



- 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.
- Use the jog keys to move the sewing clamp assembly to the initial stitch position.



- When the needle tip is aligned with initial position **1**, press the **[L]** key. This will program the initial stitch.

- Use the ten-keys to specify the stitch length on the STEP display.

To input the stitch length, obtain the pitch value by dividing the actual stitch length by 0.1 mm.

For example, if the desired stitch length is 3 mm,

$$3 \text{ mm} \div 0.1 \text{ mm} = 30$$

therefore "030" is to be input on the STEP display.

※ If the stitch length is not specified or if it is longer than 3.3 mm (33) or shorter than 0.4 mm (04), it will automatically be set to 2 mm.

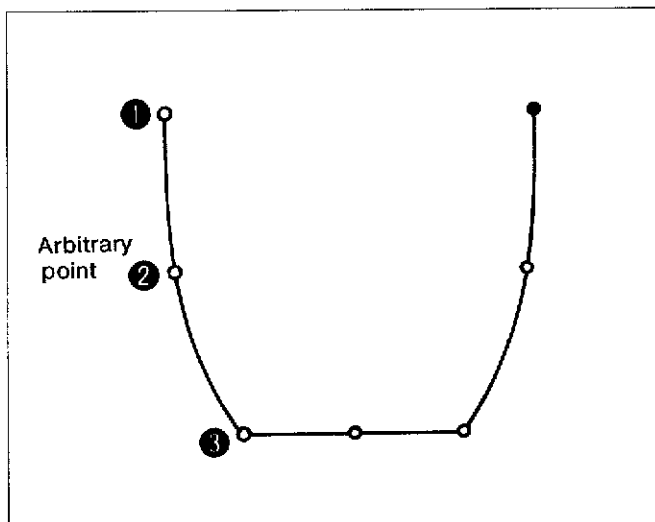
- Press the **[M]** key and then both command indicator lamps **[F]** and **[M]** will be on.

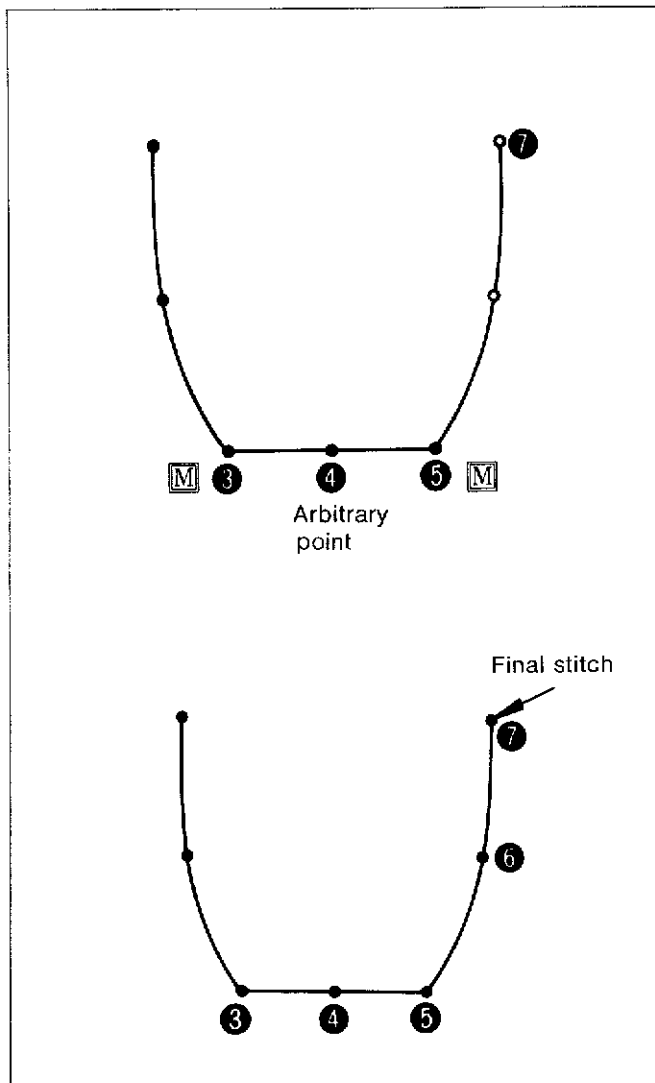
- Use the jog keys and, when the needle tip is aligned with the stitch position at arbitrary point **2**, press the **[L]** key to program the position **2**.

- Use the jog keys and, when the needle tip is aligned with position **3**, press the **[L]** key to program position **3**.

- Conclude the smoothing operation at a corner stitch position as **3**.

Use the ten-keys to indicate "789" on the STEP display and press the **[L]** key. This will program the stitches from position **1** to **3**.





- (9) Specify the stitch length as in (4) and press the **[M]** key.
- (10) Use the jog keys and, when the needle tip is aligned with position 4, press the **[L]** key. This will program position 4.
- (11) Use the jog keys and, when the needle tip is aligned with position 5, press the **[L]** key. This will program position 5.
- (12) In the same way as in (8), use the ten-keys to indicate "789" on the STEP display and press the **[L]** key. This will program the stitch positions from 3 to 7.
- (13) In the same way as in (4), specify the stitch length and press the **[M]** key.
- (14) Use the jog keys to program positions 6 and 7.
- (15) In the same way as in (8), use the ten-keys to indicate "789" on the STEP display and press the **[L]** key. This will program the stitches from positions 5 to 7.
- (16) Press the ten-key **[1]** three times to indicate "111" on the STEP display and then press the **[E]** key.
Be sure to raise the needle bar to the highest position.
- (17) The sewing clamp assembly will return to the sewing origin.
- (18) Write the program to the floppy disk (refer to page 27).
- (19) Press the **[P]** key. The display will go off.

Note 1: Be sure to program 2 or more positions after pressing the **[M]** key and before pressing the "7, 8, 9" **[L]** key. If the number of positions between these is less than 2, the programming after pressing the **[M]** key will be annulled, clearing the loaded stitch position, if any.

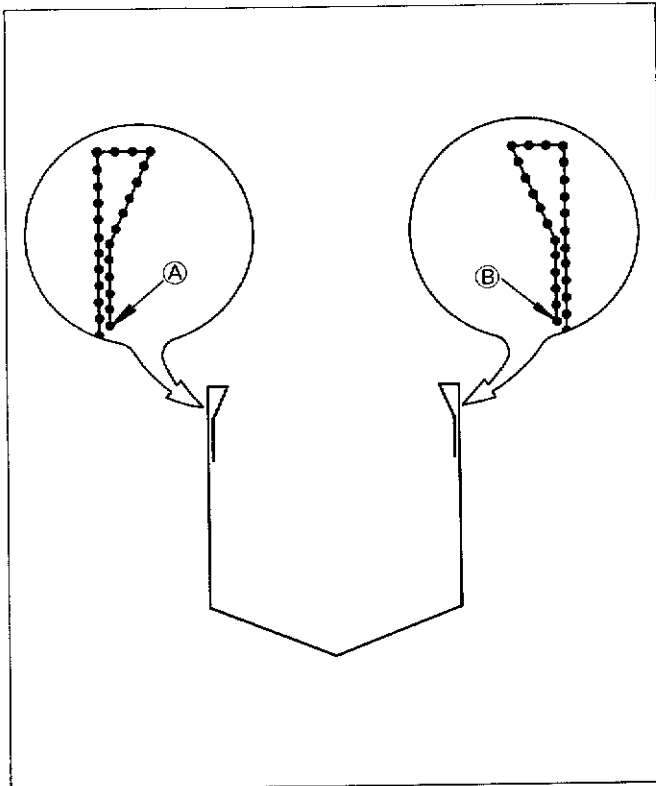
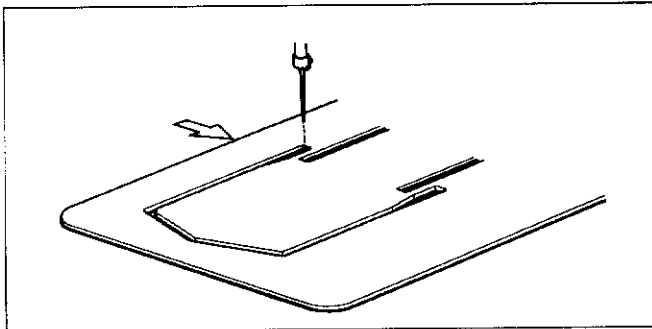
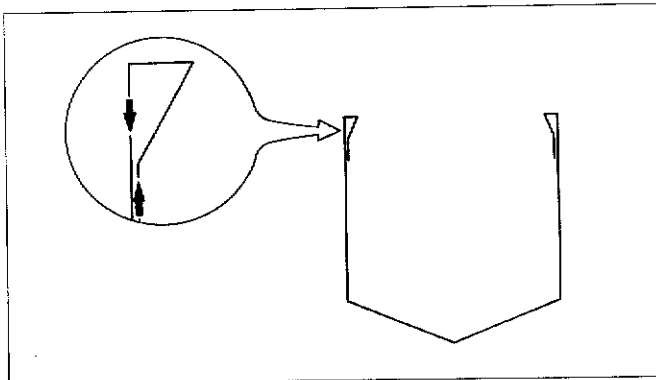
Note 2: Be sure to conclude a smoothing operation at the corner stitch positions as in 3 and 5, or an angled corner will become round.

Note 3: The maximum number of positions that can be loaded at a time is 60. If this is exceeded, the programmer will shift automatically into the stage where "7, 8, 9" **[L]** has been pressed to start computing.

Note 4: If a smoothing position close to the sewing range border is loaded, the sewing data may exceed the range. In this case, a buzzer will sound when the "7, 8, 9" **[L]** key is pressed; the programming after pressing the **[M]** key will be annulled, clearing the loaded stitch positions.

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 **(A)**.
- (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,
 $3 \text{ mm} \div 0.1 \text{ mm} = 30$

therefore, "030" is to be input on the STEP display.



※ If the stitch length is not specified or if it is longer than 3.3 mm (33) or shorter than 0.4 mm (04), it will automatically be set to 2 mm.

- (6) Use the jog keys to trace the pattern with the needle tip starting from initial stitch position **(A)**.
- (7) Press the **[L]** key at the final stitch position **(B)**.
- (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.
- (9) The sewing clamp assembly will return to the sewing origin.
- (10) Write the program to the floppy disk (refer to page 27).
- (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.

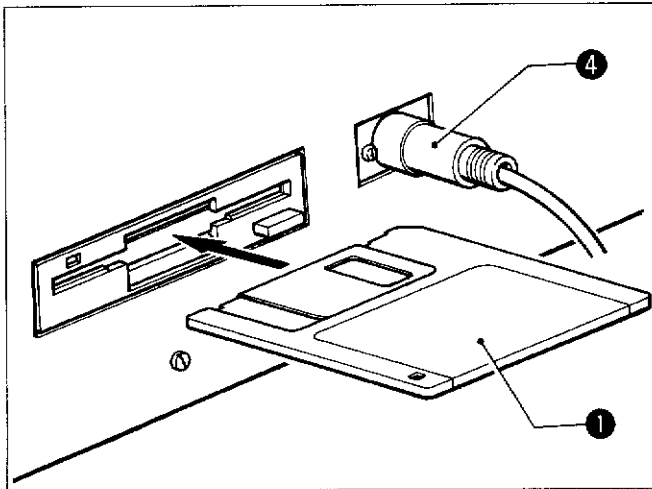
Note 2: During programming, the **[F]**, **[LI]**, and **[M]** keys may be used. If they are used, press the **[L]** key at the beginning and end of the feed and lines.


7 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.


8 Data storage on a floppy disk

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



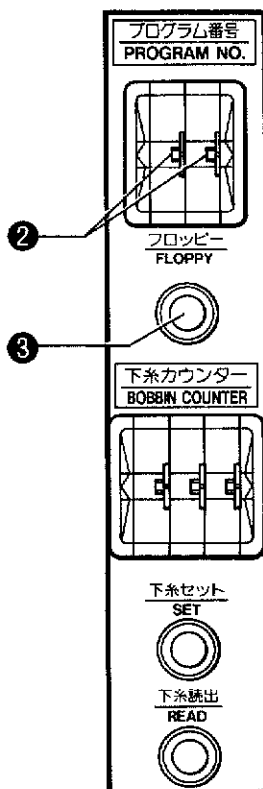
- (1) Insert floppy disk ①.
- (2) Set the sewing clamp assembly number to PROGRAM No. switch ②.
- (3) Press FLOPPY button ③.
Data will be written to the floppy disk.
- (4) Press the  key. The display will go off.
- (5) Disconnect plug ④.
- (6) Sewing is possible.

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

If unfinished program data is to be written (the keys 1, 1, 1 and  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.

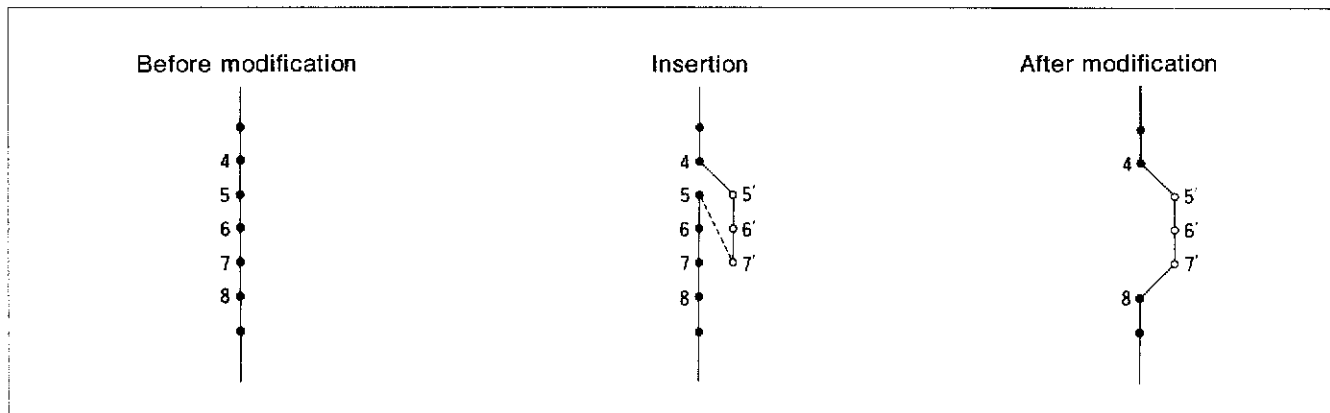
To continue programming, follow the procedures under Program Modification (page 28) to move the needle to the final stitch position and continue programming (U78 will be displayed if such a program is read; release the alarm and continue).



Program Modification

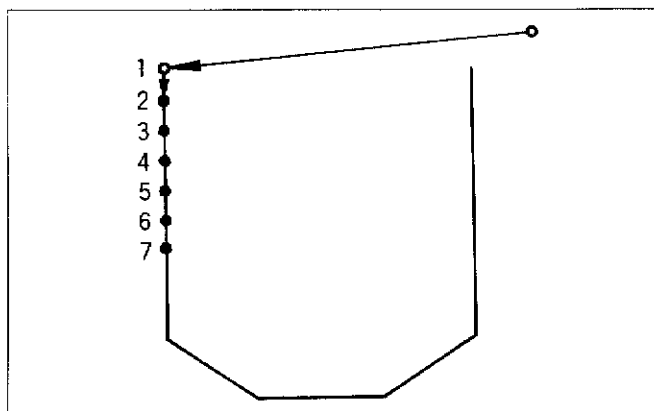
- ★ Use the **[C]** (clear) key when modifying a written program pattern due to a design change or when correcting an in-process program due to erroneous operation.
- ★ The smoothing function is not effective during modification work. Modify the program using any function except smoothing.

1 Partially revising a pattern due to a design change: 5, 6 and 7 into 5' 6' and 7'



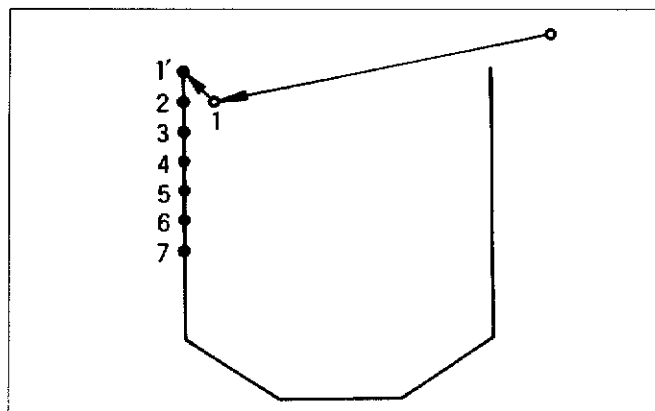
- (1) Turn the power switch to ON.
- (2) Press the **[P]** key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp **[F]** will come on.
- (3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
- (4) After pressing 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 27).
- (13) Press the **[P]** key and the display will go off.

2 Cancellng 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 27).
- (7) Press the **[P]** key and the display will go off.

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

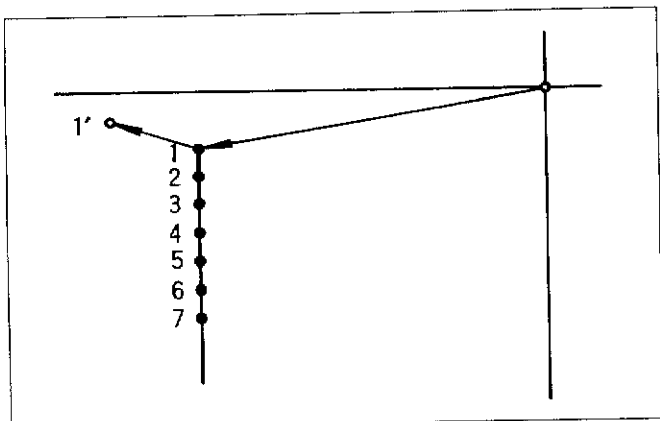


- (1) Turn the power switch to ON.
- (2) Press the **[P]** key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
- (3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
- (4) Press ten-key **[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 3.3 mm, use the jog keys after pressing the **[F]** key or the **[LI]** key to move the needle tip to position 1'; then press the **[L]** key.

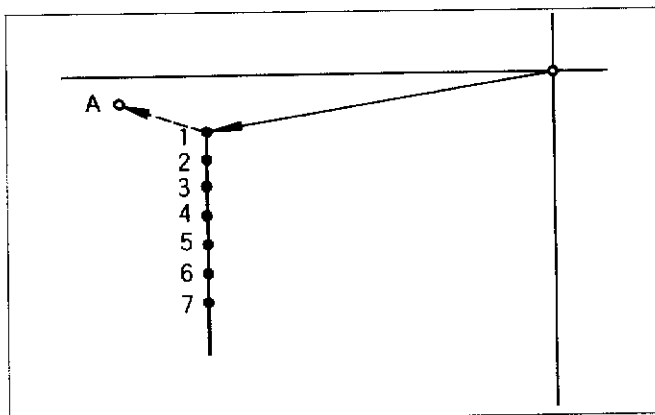
- (6) Press ten-key **[1]** and the **[=]** key. The needle tip will return to initial stitch position 1.
- (7) Press the **[C]**, **[1]** and **[+]** keys in this sequence. Initial stitch position 1 will be cancelled and the needle tip will move to new initial stitch position 1'.
- (8) Write the modified program to the floppy disk (refer to page 27).
- (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



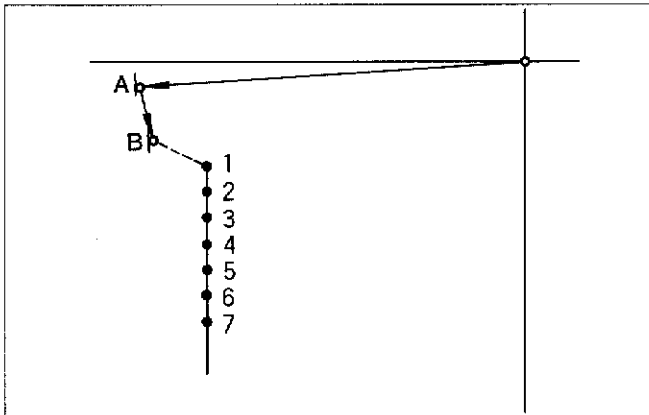
- (1) Turn the power switch to ON.
- (2) Press the **[P]** key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp **[F]** will come on.
- (3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
- (4) Press ten-key **[1]** and the **[+]** key. The needle tip will move to initial stitch position 1.
- (5) After pressing the **[L1]** 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 27).
- (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 coordinate 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 reading); 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 27).
- (10) Press the **[P]** key and the display will go off.

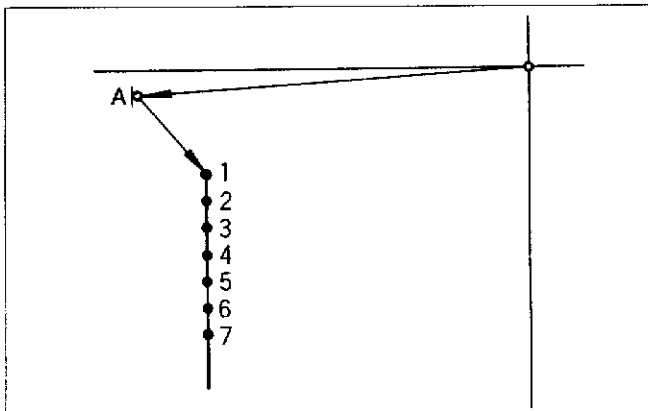
6 Shifting a shunting point from point A to point B



- (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 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 27).
- (9) Press the **[P]** key and the display will go off.

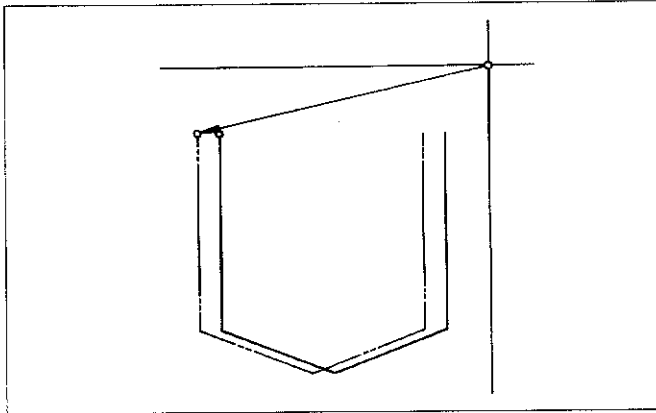
7 Cancelling shunting point A



- (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 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 27).
- (7) Press the **[P]** key and the display will go off.

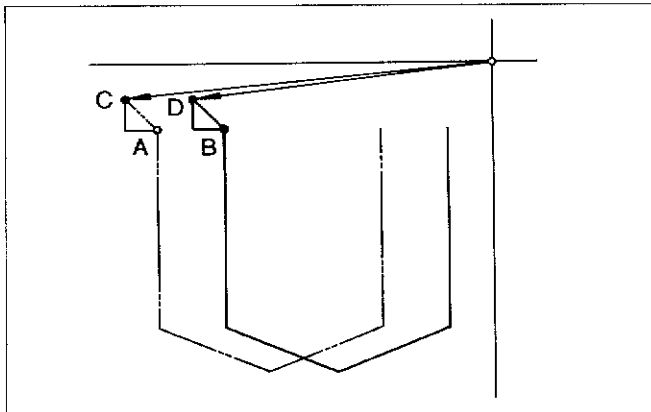
8 Parallel-shifting a programmed stitch pattern

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) After using the jog keys to move the needle tip to the desired sewing start position, press the **[L]** key.
- (5) Write the modified program to the floppy disk (refer to page 27).
- (6) Press the **[P]** key and the display will go off.

B. When the initial stitch is a programmed shunting point

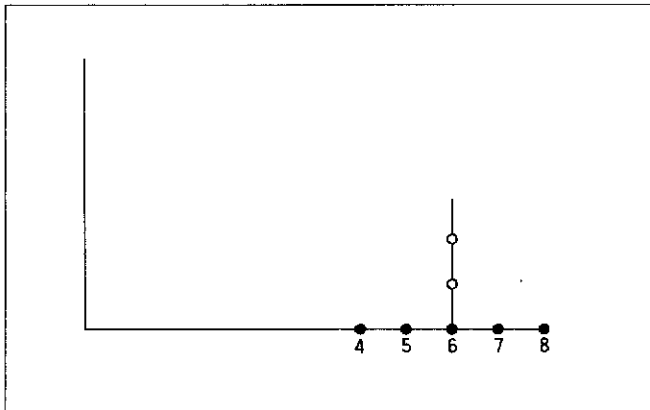


- (1) Turn the power switch to ON.
- (2) Press the **[P]** key. The sewing clamp assembly will come down and the displays X, Y and STEP will indicate "0"; command lamp [F] will come on.
- (3) Insert the floppy disk containing the program into the floppy disk drive and start reading.
- (4) Press ten-key **[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 3.3 mm, after pressing the **[L]** key or the **[P]** key, use the jog keys to move the needle tip to point B.

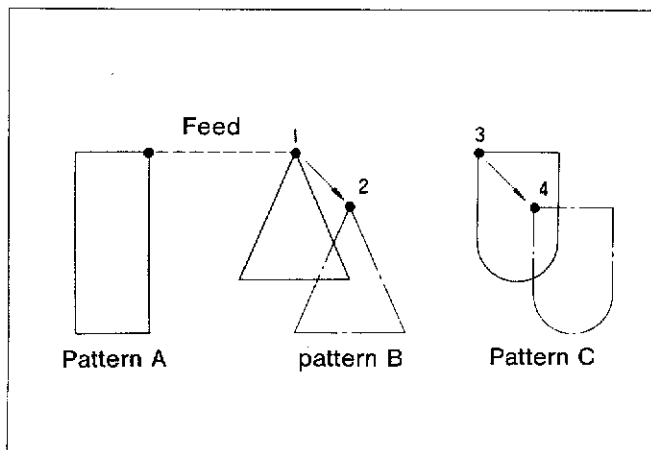
- (6) Take a note of the coordinate values (X and Y display readings).
- (7) Press the **[R]** key to return the sewing clamp assembly to the shunting point.
- (8) Press ten-key **[1]** and the **[+]** key to move the needle tip to point C.
- (9) Use the jog keys to move the needle tip to point D for the distance of the coordinate values (X and Y display reading).
- (10) Turn the pulley by hand and mark point D with the needle tip (stitch 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 27).
- (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.

10 Parallel-shifting pattern B within consecutively-programmed patterns



- (1) Turn the power switch to ON.
- (2) Press the **[F]** 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 needle tip will trace pattern A one stitch after another.
- (5) Press the keys **[+]** and **[←]** key to align the needle tip with point B. The sewing clamp assembly will stop moving.

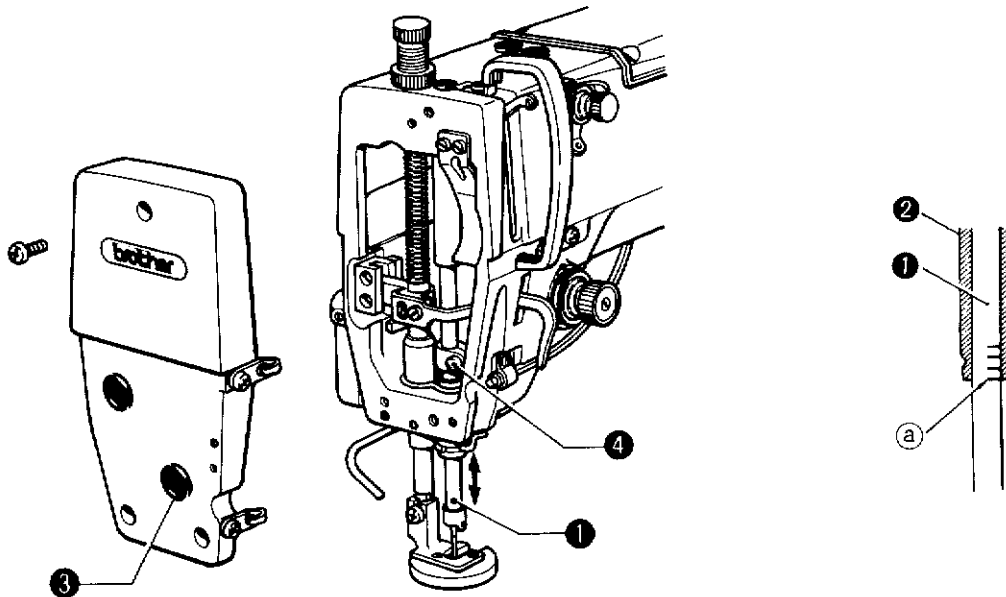
(If the assembly has moved too far, use the ten-keys to indicate on the STEP display the number of excessive stitches and press the **[←]** key. The assembly will move in reverse for the indicated stitches.)

- (6) After pressing ten-key **[7]** three times to indicate "777" on the STEP display press the **[F]** key.
- (7) Use the jog keys to move the needle point from point 1 to point 2; press the **[L]** key.

Note: If a third pattern C follows pattern B, pattern C will also be moved. If this is undesirable, move the needle tip to the point in pattern C and correct this using the "777" **[F]** command as in procedures (4) to (7) above.

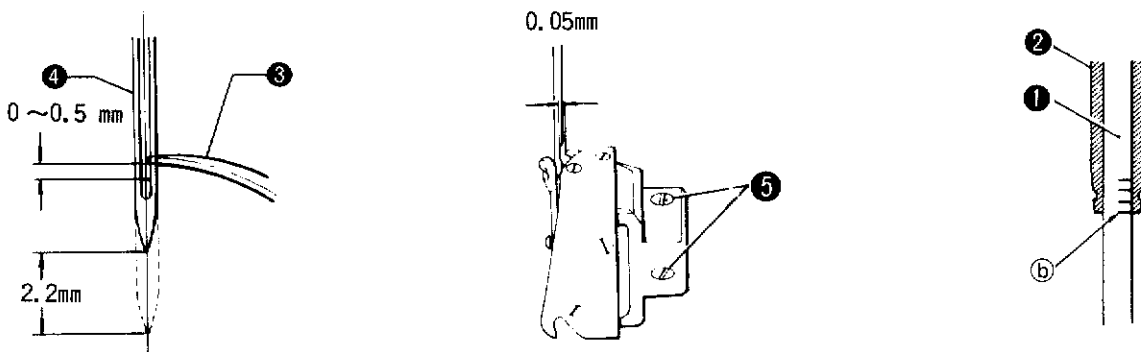
Standard Adjustments

1 Needle-bar height adjustment



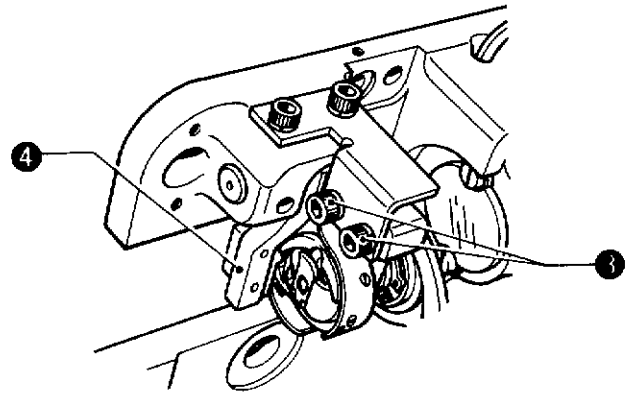
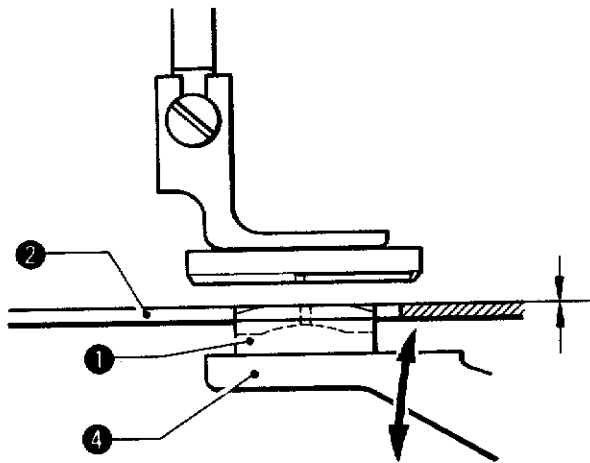
1. When needle bar ① is at its lowest position, reference line (a) on needle bar ① must be aligned with the lower end of needle bar bushing ②, as illustrated above.
2. If the reference line (a) on needle bar ① is not aligned with the lower end of needle bar bushing ②, remove rubber oil cap ③ and loosen clamping screw ④. Adjust the height by moving needle bar ① up and down.

2 Needle and rotary-hook timing



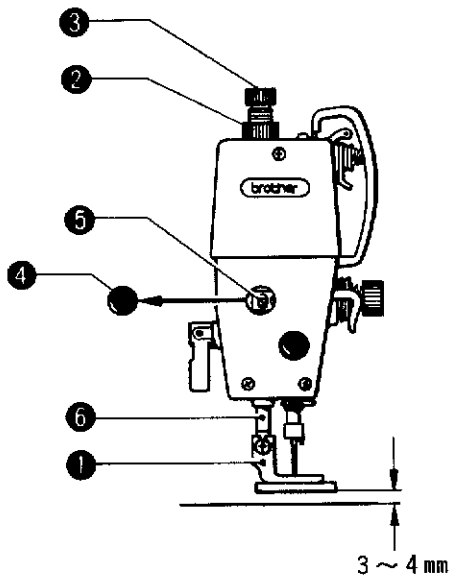
1. After needle bar ① is raised from its lowest position, rotary hook point ③ must be aligned with the center of needle ④ when reference line (b) is aligned with the lower end of needle bar bushing ②.
2. If rotary hook point ③ is not aligned with the center of needle ④, loosen screws ⑤ and align the center of needle ④ with rotary hook point ③.

3 Bottom-plunger height adjustment



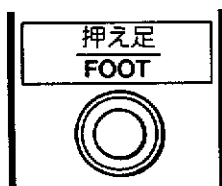
1. The standard position of bottom plunger ① is flush with needle plate ②.
2. Loosen bolt ③ and adjust the height by moving bottom lever ④.

4 Presser foot height adjustment



The standard presser foot height is 3 to 4 mm above the needle plate when presser foot ① is lowered.

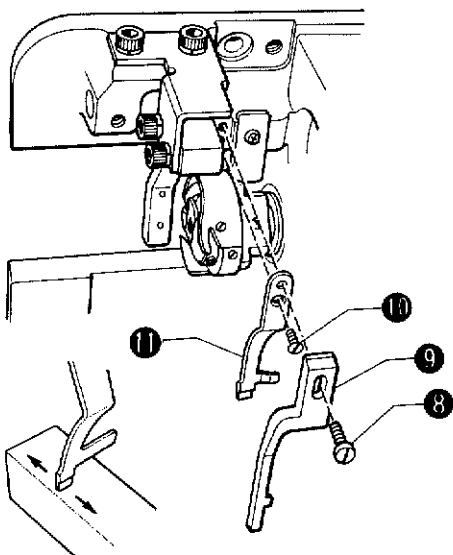
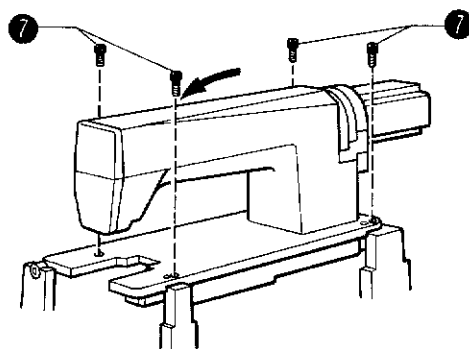
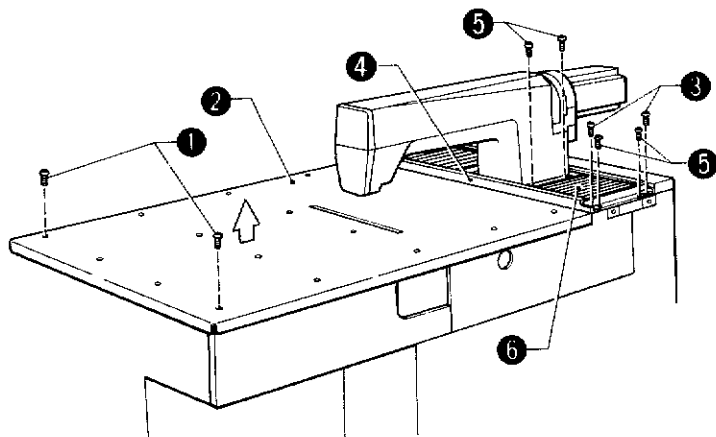
1. Loosen nut ② and then pressure adjusting screw ③.
2. Press the FOOT button to lower working presser foot ①. Insert a block gauge or such with a height 3 to 4 mm under presser foot ①.
3. Remove face-plate oil cap ④ and loosen screw ⑤. Adjust the height by moving presser bar ⑥.



5 Removal of the fixed knife and the movable knife

Turn off the power switch.

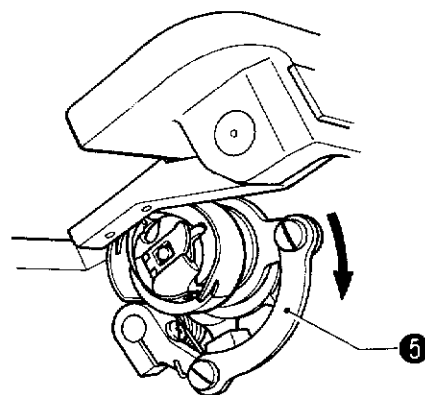
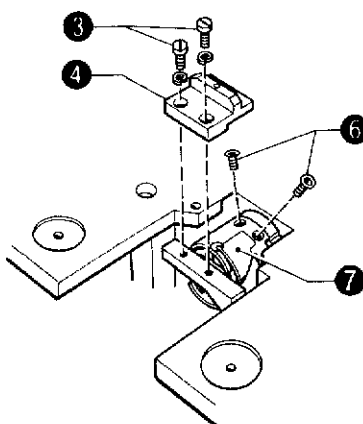
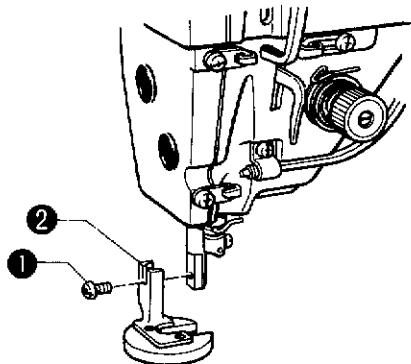
Removal of the fixed knife



1. Remove flat-head screws ① and then needle plate ②.
2. Remove clamping screws ③ and then rail ④.
3. Remove clamping screws ⑤ and then bellows assembly ⑥.
4. Remove clamping screws ⑦ and then tilt the machine head.
5. Remove clamping screw ⑧ and then bobbin case holder position bracket ⑨.
6. Remove flat-head screw ⑩ and then fixed knife ⑪.

※ When the fixed knife ⑪ becomes blunt, sharpen it as illustrated at right.

Removal of the movable knife

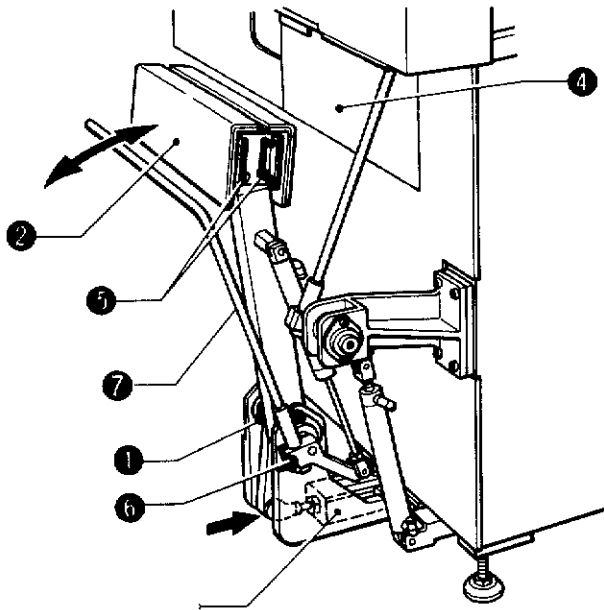


1. Remove clamping screw ① and then presser foot assembly ②.
2. Turn the pulley and stop the needle bar at its highest position.
3. Remove clamping screws ③ and then bottom plunger ④.
4. Push thread trimming rod ⑤ in the arrowed direction and stop where flat-head screws ⑥ can be seen.
5. Remove flat-head screws ⑥ and then movable knife ⑦.

Note 1: Remove bottom plunger ④ and movable knife ⑦ after removing the needle.

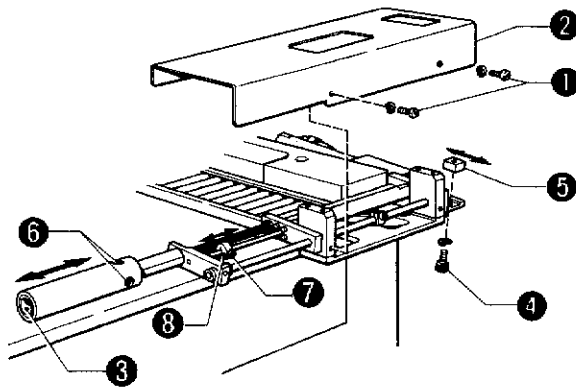
Note 2: To reassemble, reverse the above procedures.

6 Stacker position adjustment



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

7 Stacker roller adjustment



1. Remove clamping screw ① to remove roller cover ②.
2. To adjust the roller ③ rotation amount, remove bolt ④ and change the position of the rack stopper; tighten bolt ④.
3. To adjust the roller ③ position sideways, loosen setscrew ⑥ and re-tighten after adjustment.
4. To adjust to a variation of front piece width, loosen bolt ⑦ and then stopper ⑧. Tighten bolt ⑦ after adjustment.

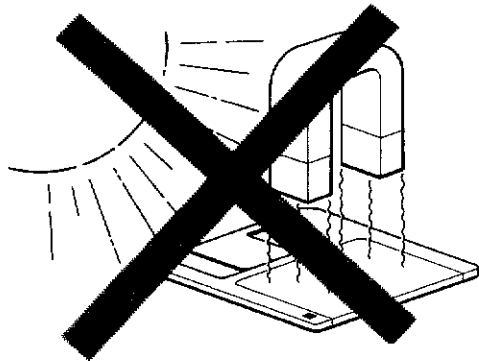
Floppy Disk Use and Care

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

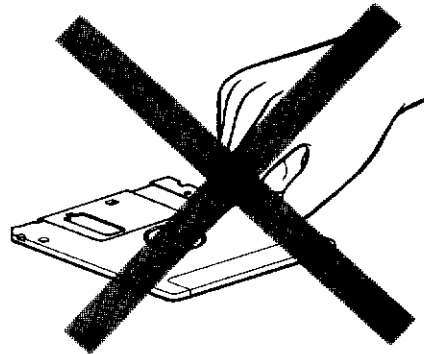
When using a floppy disk pay careful attention to its magnetic properties. When handling a disk, hold it close to the label, and draw it out of the envelope. Do not touch the magnetic surface with your bare hand or fingers. If a finger print is left on a disk, the registered document may not be read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

Slide a disk gently into the floppy disk drive of the main unit.

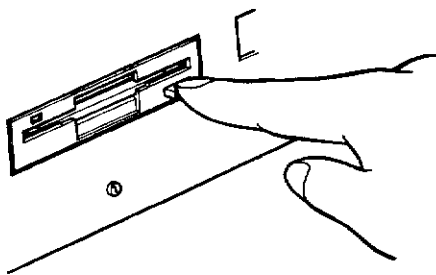
After ejecting a disk from the drive, put it immediately into the protective envelope.



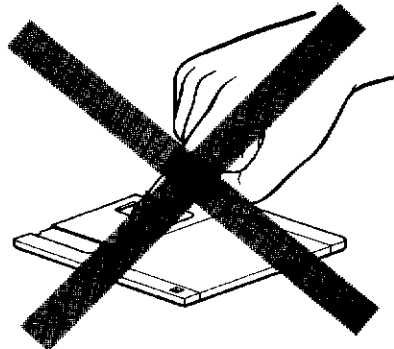
Do not store disks in direct sunlight or near a strong magnetic field. (Operational temperature: 4°C to 53°C)



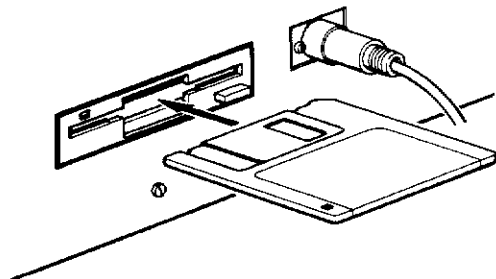
Do not touch the center hub.



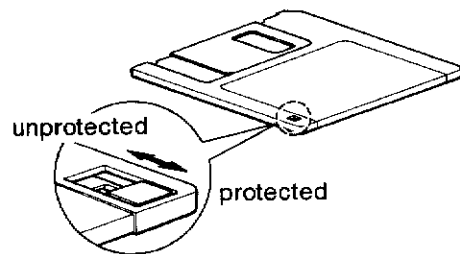
Do not press the eject button while the access lamp is on.



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.

