

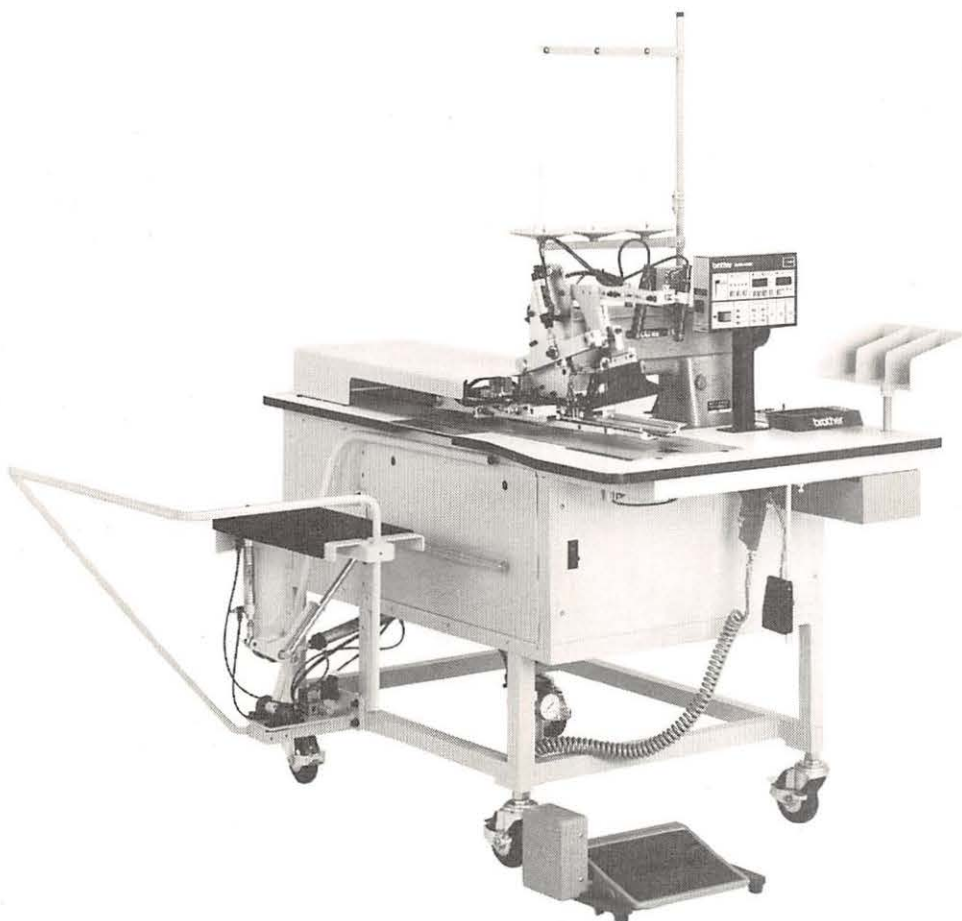
brother

AUTOMATIC LOCK STITCH POCKET WELTING SEWING MACHINE FOR FLAP ATTACHMENT



BAS-600
BAS-601

INSTRUCTION MANUAL

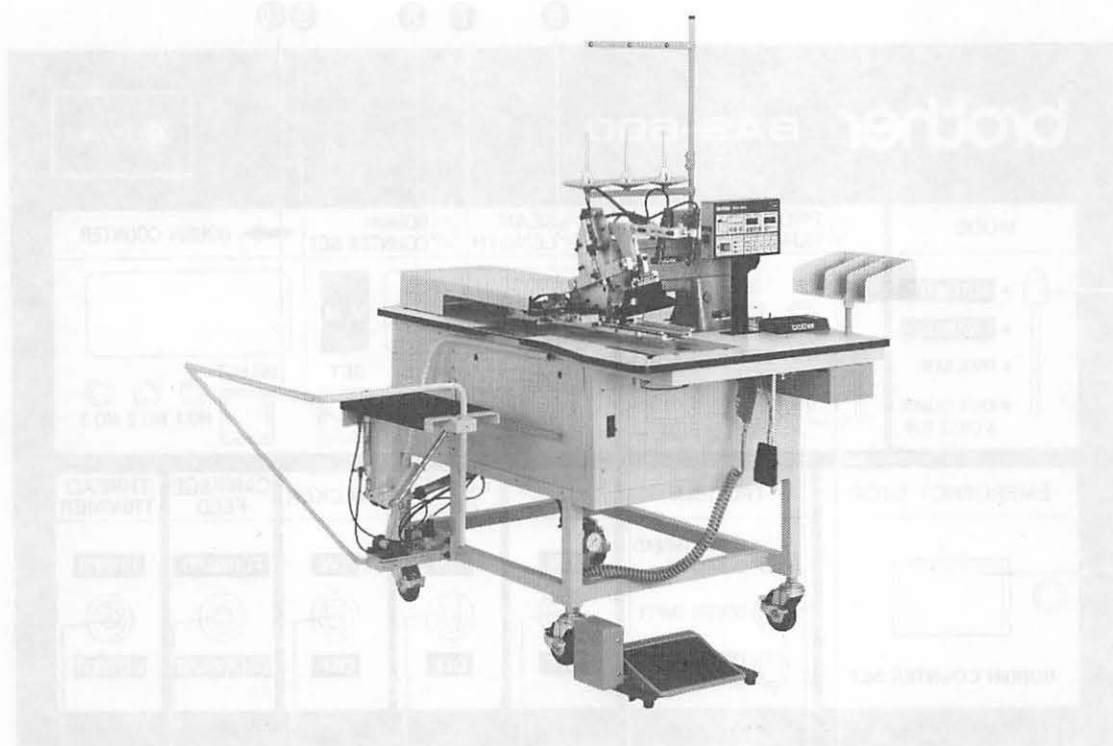


Contents

1. SPECIFICATIONS	1
2. CONTROL PANEL DESCRIPTION	2
3. INSTALLATION	6
1. Table set-up	6
2. Treadle installation	6
3. Spool stand installation	6
4. Material holder installation	6
5. Bar type stacker installation	7
6. Pickup type stacker installation	8
7. Air pressure adjustment	9
4. LUBRICATION	9
< Adding oil >	9
< Regular lubrication >	10
5. CORRECT OPERATION	11
< Winding the bobbin thread >	11
< Threading the needle thread >	12
< Threading the bobbin thread >	14
< Holding the needle and bobbin threads >	15
6. TREADLE AND START SWITCH DESCRIPTION	16
< Treadle operation >	16
< Setting the material >	17
7. ADJUSTING THE MARKING LIGHT	18
8. PROGRAMMING (Entering a standard sewing program)	19
9. PROGRAMMING (Entering a flap sewing program)	20
10. PROGRAMMING (Entering a cycle sewing program)	22
< Checking the sewing cycle >	23
11. PROGRAM CONFIRMATION	24
12. SEWING	25
< Setting the bobbin counter >	26
< Checking the number of work pieces >	26
< Clearing the work piece counter display >	26
< Stitch tension >	27
13. CENTER KNIFE POSITION ADJUSTMENT	28
14. CORNER KNIFE POSITION ADJUSTMENT	29
15. < FLAP SENSOR SENSITIVITY ADJUSTMENT (BAS-601) >	30
16. TROUBLE	32
< UPPER THREAD BREAKAGE indicator lights >	32
< BOBBIN EMPTY indicator lights >	32
< PROGRAMMING ERROR indicator lights >	33
< EMERGENCY STOP >	33
17. OPERATING THE STACKER DURING CYCLE SEWING	34

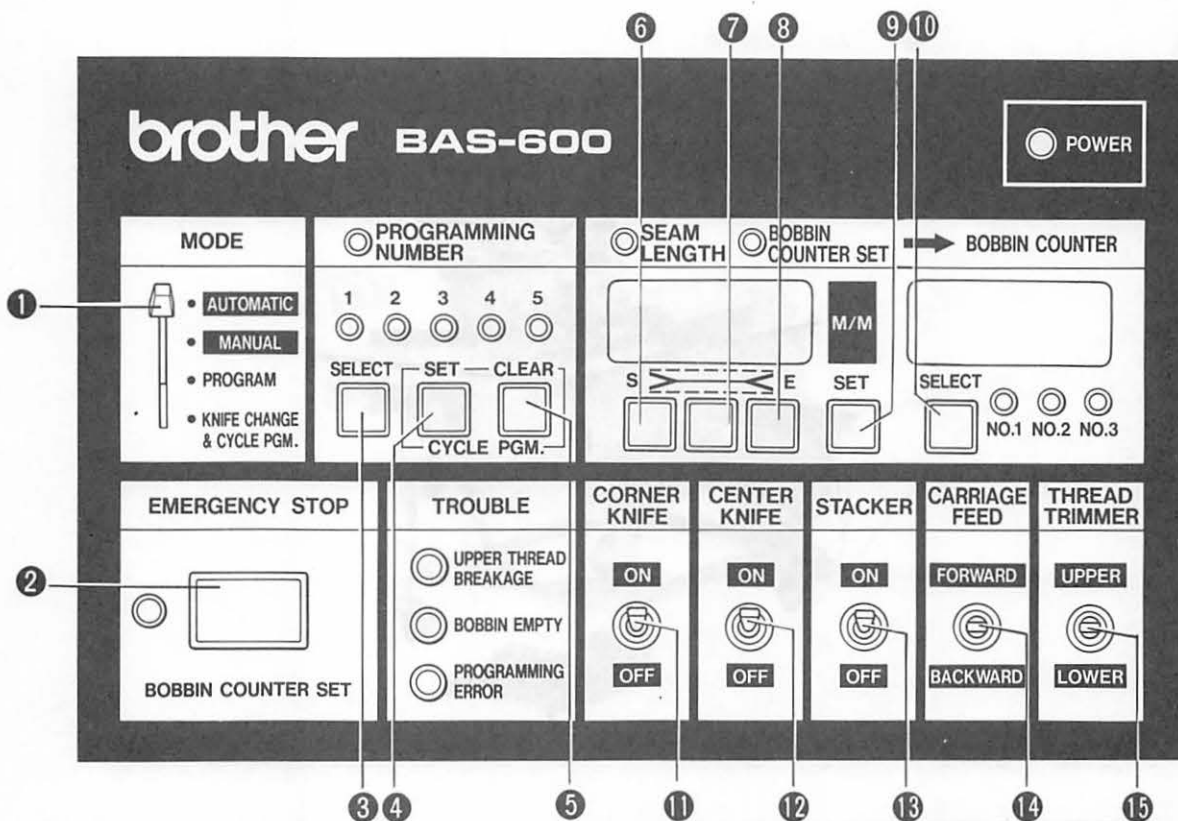
18. STANDARD ADJUSTMENTS	35
< Needle installation >	35
< Upper and lower shaft timing adjustment >	35
< Needle and rotary hook timing adjustment >	35
[Needle to rotary hook point gap]	35
[Rotary hook to needle plate gap]	36
[Needle bar lift stroke and needle bar height]	36
[Rotary hook and bobbin case opener gap]	36
19. CARRIAGE FEED ADJUSTMENT	37
< Parallel adjustment of needle and carriage feed >	37
< Carriage feed angle adjustment >	37
< Carriage feed height adjustment >	38
< Folding plate position adjustment >	38
< Binder position adjustment >	39
20. SENSOR ADJUSTMENT	40
< Needle thread knife sensor adjustment >	40
< Corner knife adjustment >	41
21. STACKER ADJUSTMENT	42
< Bar stacker >	42
< Pickup stacker >	43
22. KNIFE REPLACEMENT	44
< Corner knife replacement >	44
< Needle thread trimmer knife replacement >	45
< Bobbin thread knife replacement >	46
< Center knife replacement >	47
< Fixed knife replacement >	47
23. DOUBLE WELTING → SINGLE WELTING (DEFORMED WELTING) REPLACEMENT	48
< Changing from double to single welting >	48
< Changing from double to deformed welting >	48
24. ERROR MESSAGES	49
25. MAIN CIRCUIT BOARD DIP SWITCH DESCRIPTIONS	50
26. MEMORY INITIALIZATION	52
27. TROUBLESHOOTING	53

SPECIFICATIONS

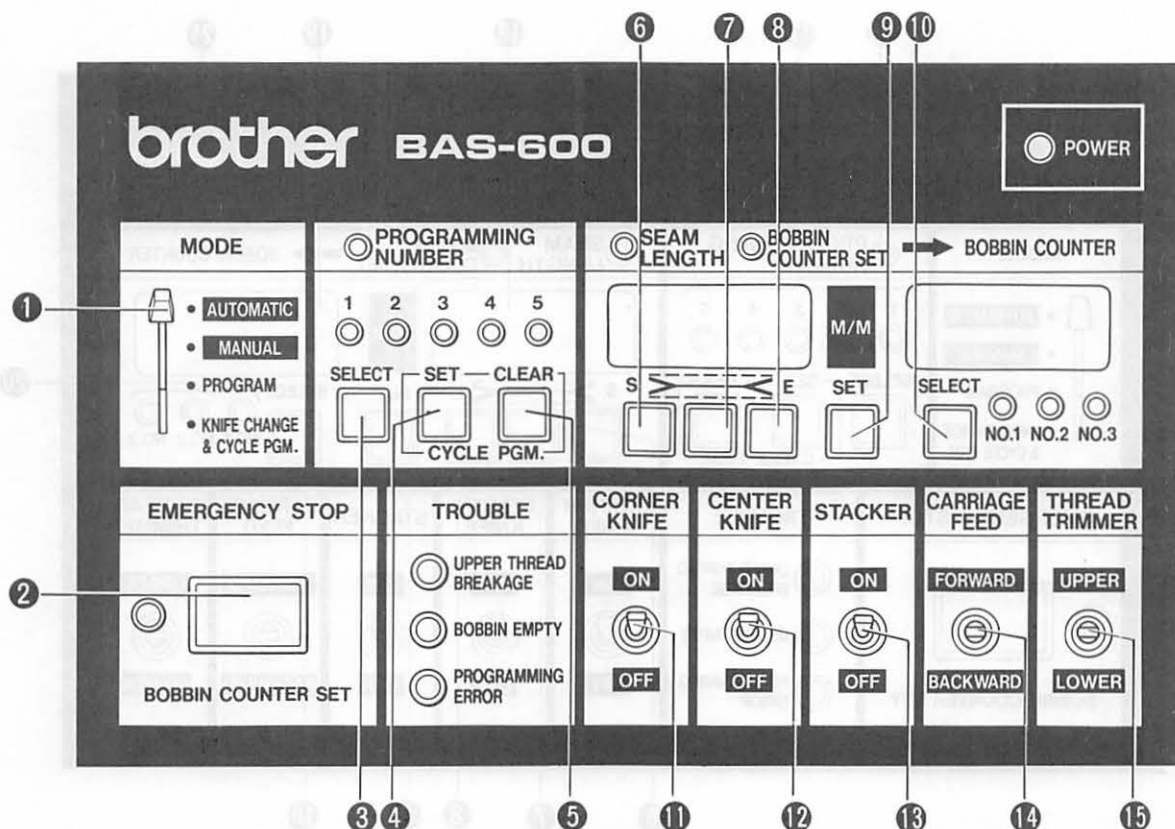


Model	151-600	151-601
Machine head	LT2-B833 twin needle, lock stitch	
Sewing speed	2500 spm (variable to 2200 spm with DIP switch setting)	
Flap sewing	No	Yes
Needle	MtX190 #16 (#16~#18)	
Gauge size	Standard 10 mm (8, 12, 14, 16, 18, 20 mm)	
Seam length	Gauge size to 14mm 28~190 mm from 16 mm 36~190 mm ※ Flap stitch 80~180 mm	
Stitch length	Lock stitch 1.4~2.8 mm Backstitch { Condensed 0.8~1.4 mm { Backtack Same as lock stitch (stitch length at sewing start is 1/2 lockstitch stitch length.) (Adjusted with DIP switch setting.)	
Power supply	3-phase 200V, 50/60Hz, 500W (2 lines of 3-phase supply used)	
Dimensions	820 D × 1300 W × 1155 H mm	

CONTROL PANEL DESCRIPTION [1]



- ① **MODE** switch
Used to select the operating mode: AUTOMATIC, MANUAL, PROGRAM, or KNIFE CHANGE & CYCLE PGM.
- ② **EMERGENCY STOP**, **BOBBIN COUNTER SET**
Used to stop the sewing machine in an emergency, and to set the bobbin counter (p.26)
- ③ **PROGRAMMING NUMBER SELECT** switch
Press to change the program number. Program number advances one (1 → 2 → 3 → 4 → 5 →) each time the button is pressed. (p.19)
- ④ **CYCLE PGM, SET** switch
Used to program cycles of sewing programs. (p.22)
- ⑤ **CYCLE PGM, CLEAR** switch
Used to clear a programming cycle. (p.22)
- ⑥ • ⑦ • ⑧ **SEAM LENGTH and BOBBIN COUNTER** switches (p.22)
 - ⑥ ×100 (0, 1, f (flap stitch))
 - ⑦ × 10 (0~9, —)
 - ⑧ × 1 (0~9, (right flap), (left flap))
 See P.20 for F-□, F-□ displays.
- ⑨ **BOBBIN COUNTER SET** switch
Used to set the bobbin counter (p.26)
Also used to correct the corner knife position (p.29)



10 BOBBIN COUNTER SELECT switch

Press to select bobbin counter 1, 2, or 3. (p. 26) The bobbin counter selection advances one (1 → 2 → 3)

Each time the switch is pressed.

11 CORNER KNIFE switch

Set to ON to use the corner knife. (The corner knife will not function if the CENTER KNIFE switch is off.)

The knife will rise when replacing the corner knife even if the switch is off. (p. 29)

12 CENTER KNIFE switch

Set to ON to use the center knife.

13 STACKER switch

Set to ON to use the stacker.

14 CARRIAGE FEED forward / backward switch

Set to FORWARD to move the carriage feed away from the operator. (The carriage moves at high speed when the thread trimmer switch is activated.)

Set to the center position to stop the carriage.

Set to BACKWARD to move the carriage feed towards the operator.

15 THREAD TRIMMER switch

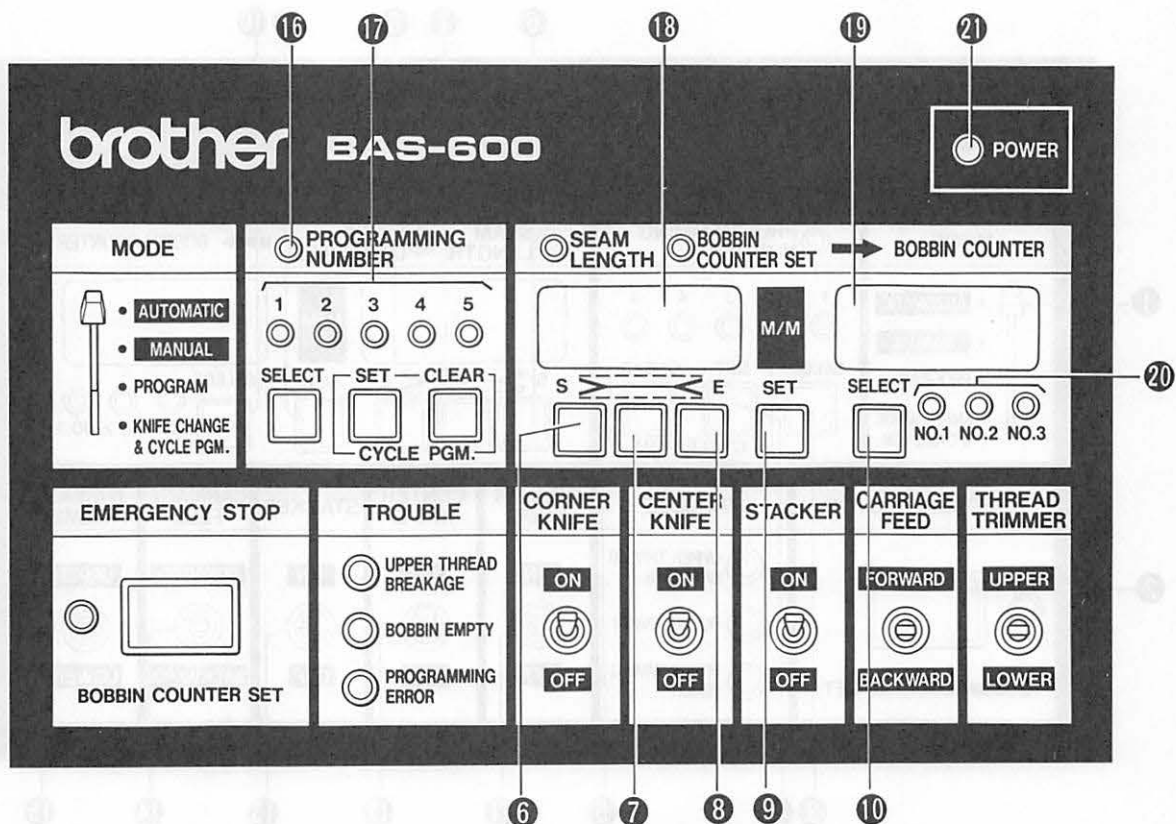
Can be used in either AUTOMATIC or MANUAL mode when the carriage is at the thread trimming position.

When THREAD TRIMMER is set to UPPER, the needle thread trimmer knife will descend, and rises, cuts, and holds the needle thread when reset to neutral (center position).

When at LOWER, the bobbin thread trimmer releases the bobbin thread, and cuts and holds the thread reset to the center position.

When in the AUTOMATIC mode and the carriage feed is at the home position, the number of work pieces will be displayed if the switch is set to UPPER.

CONTROL PANEL DESCRIPTION



16 PROGRAM indicator

When the indicator is blinking, the program number can be changed by pressing SELECT.

17 PROGRAMMING NUMBER indicators

The indicator of the currently selected program number will blink.

During cycle sewing in the AUTOMATIC mode, the blinking indicator tells what program is currently being executed, and the steady indicator tells what program(s) will be executed next.

[Ex. 1] If programs 1 → 2 → 3 are to be sewn in that order, the indicators will light as shown below.

1	2	3	4	5
Blinking	Steady	Steady	Off	Off

If programming number SELECT is then pressed to select program #2, or if program #1 is completed, the indicators will light as below.

1	2	3	4	5
Steady	Blinking	Steady	Off	Off

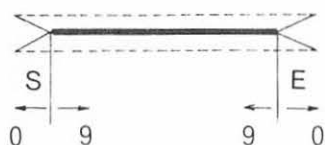
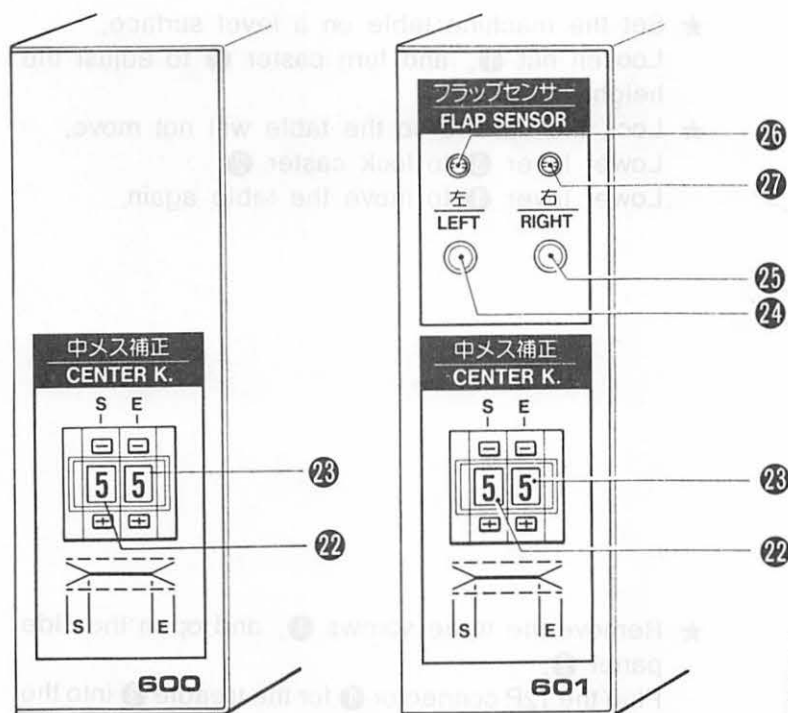
18 SEAM LENGTH, BOBBIN COUNTER SET, corner knife position correction display

This display shows the seam length (unit: mm) or flap selection when the SEAM LENGTH indicator is on; the bobbin thread remainder (unit: number of work pieces) is shown when the BOBBIN COUNTER SET indicator is on.

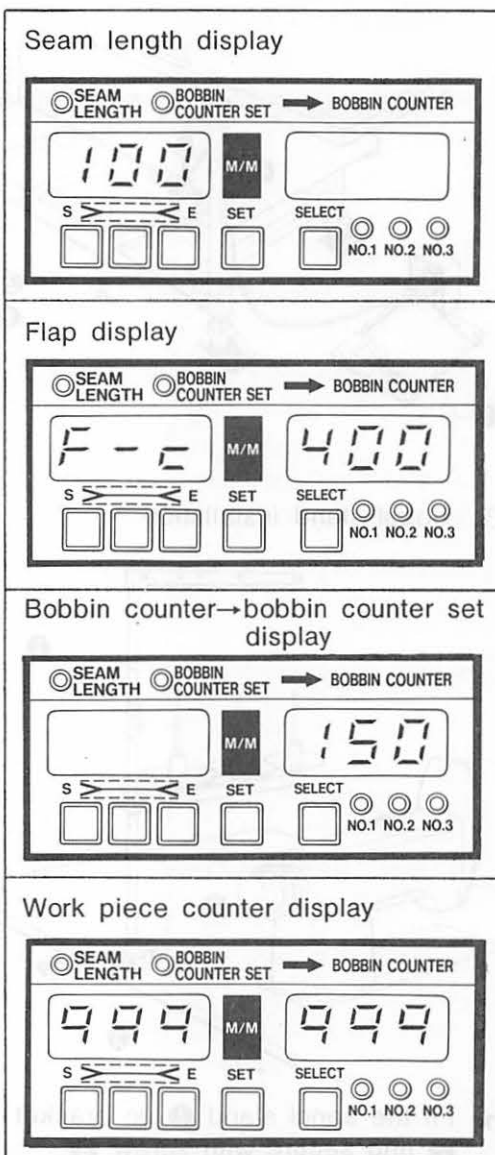
Settings can be changed using switches 6, 7, 8 when the display is blinking.

19 BOBBIN COUNTER display

Shows the bobbin counter remainder for the counter indicated by bobbin counter indicators No. 1, No. 2, No. 3 20.

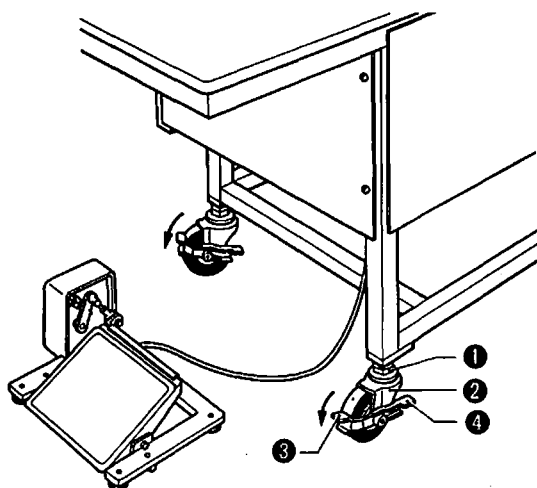


- 20 **BOBBIN COUNTER** indicators
The indicator for the bobbin counter selected by bobbin counter SELECT lights.
- 21 **POWER** indicator
Lights when the power switch is on.
- 22 • 23 **CENTER Knife position** correction
[S] 22 is the sewing Start, and [E] 23 is the sewing End correction counter switch.
The center knife moves to the very outside when [0] is displayed.
The center knife moves to the very inside when [9] is displayed.
The following are for BAS-601 only.
- 24 **LEFT FLAP SENSOR** indicator
Lights when the left flap sensor detects the material.
- 25 **RIGHT FLAP SENSOR** indicator
Lights when the right flap sensor detects the material.
- 26 **LEFT FLAP SENSOR** sensitivity control
- 27 **RIGHT FLAP SENSOR** sensitivity control



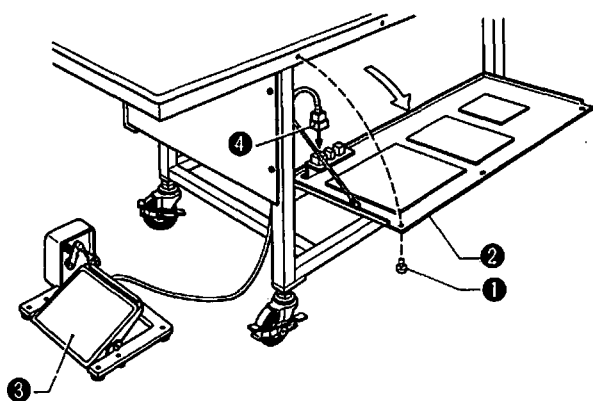
INSTALLATION [1]

1. Table set-up



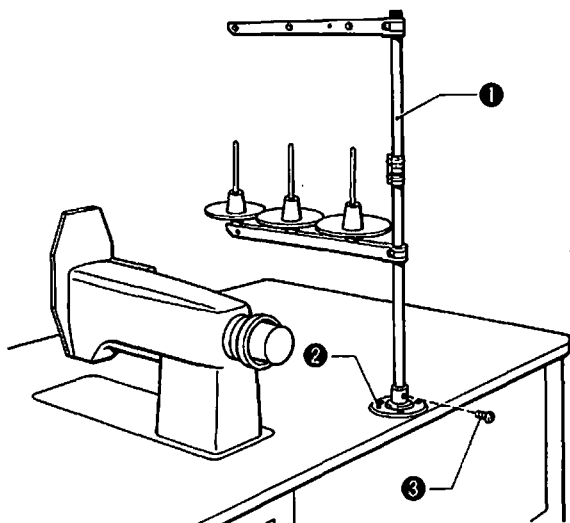
- ★ Set the machine table on a level surface. Loosen nut ①, and turn castor ② to adjust the height.
- ★ Lock the casters so the table will not move. Lower lever ③ to lock castor ②. Lower lever ④ to move the table again.

2. Treadle installation



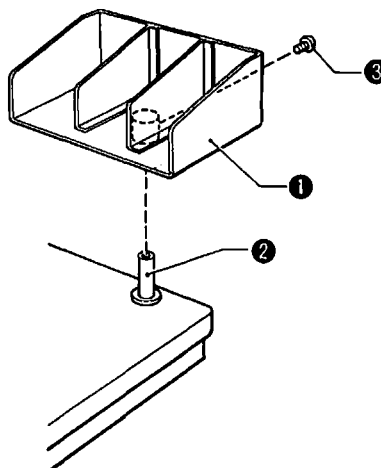
- ★ Remove the three screws ①, and open the side panel ②. Plug the 12P connector ④ for the treadle ③ into the side panel connector block.

3. Spool stand installation



- ★ Fit the spool stand ① on bracket ② and secure with screw ③.

4. Material holder installation

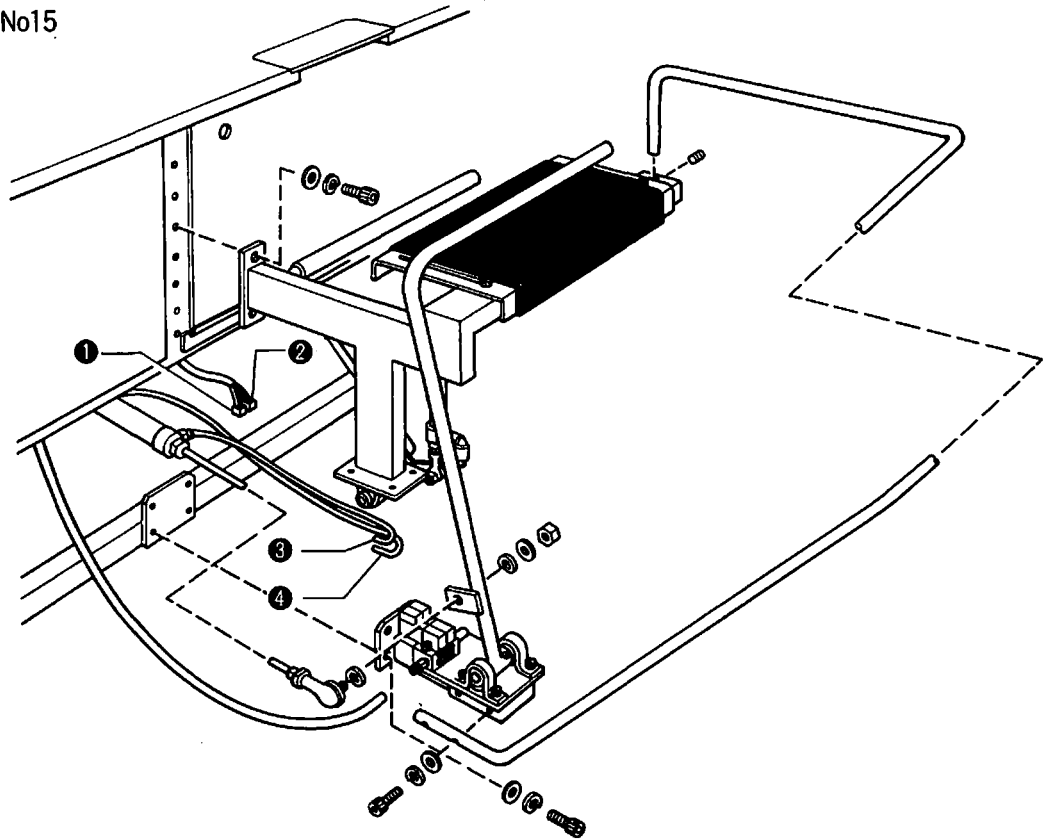


- ★ Set the material holder ① onto stud ② and secure with screw ③.

5. Bar type stacker installation

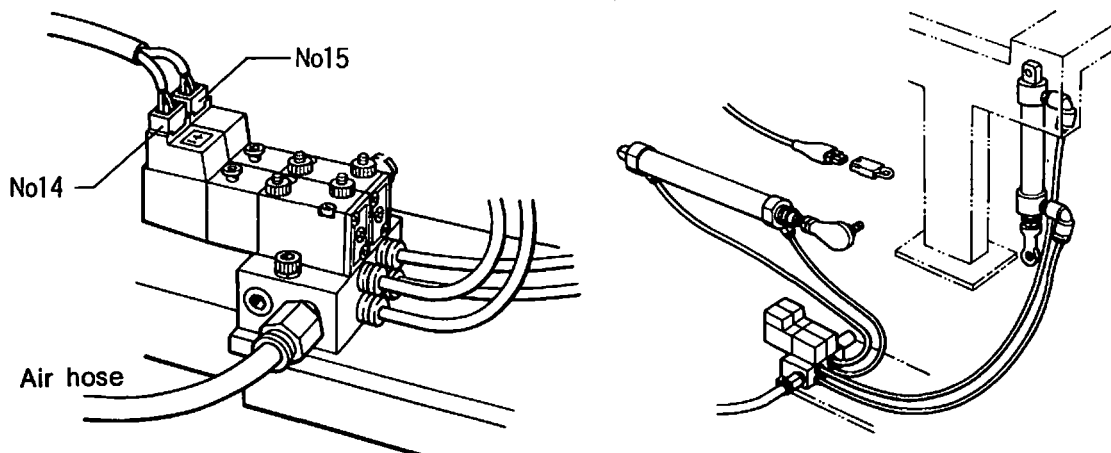
※ Refer to the figure below to install the stacker.

- ① Connector No14
- ② Connector No15
- ③ Air hose
- ④ Air hose



Connecting the power supply connector and air hoses

※ Connect the connectors as numbered.

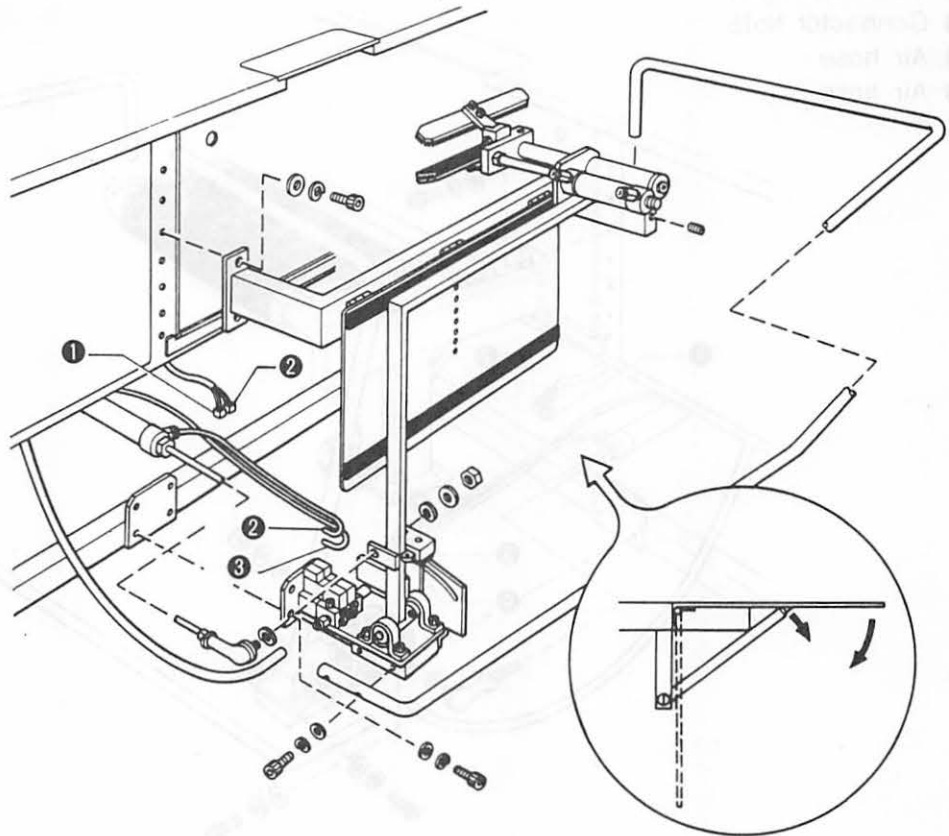


INSTALLATION [2]

6. Pickup type stacker installation

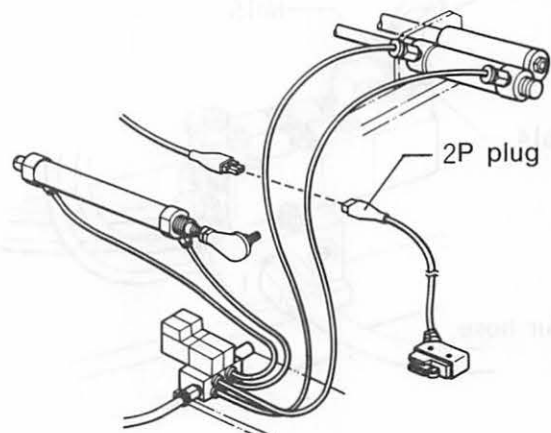
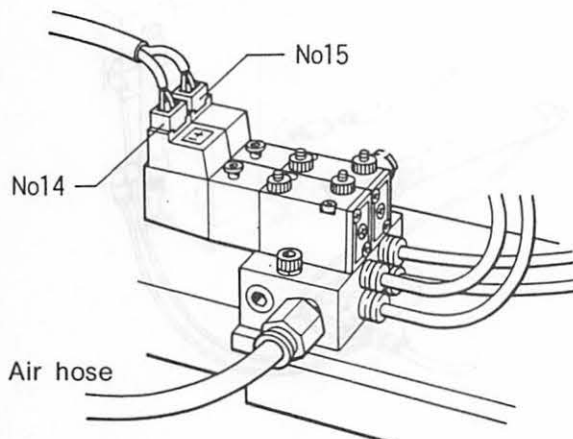
Refer to the figure below to install the stacker.

- ① Connector No14
- ② Connector No15
- ③ Air hose
- ④ Air hose

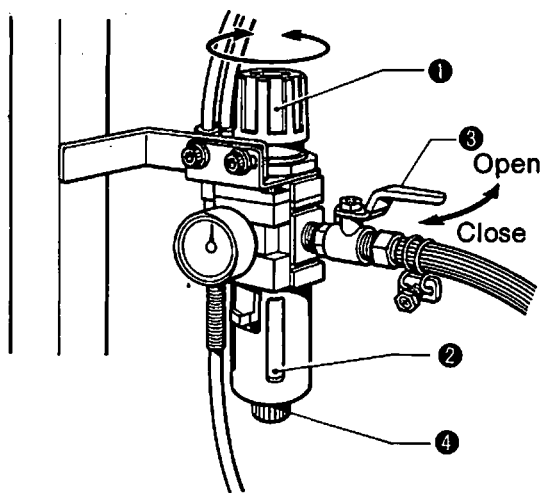


Connecting the power supply connector and air hoses

※ Connect the connectors as numbered.



7. Air pressure adjustment



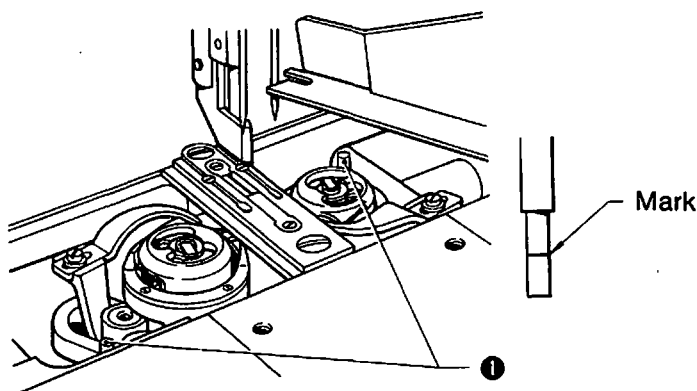
1. The standard operating air pressure is 5 kg/cm². Turn handle ① to adjust.
2. If water collects in bottle ②, close air cock ③, and turn drain cock ④ slowly in the direction of the arrow to drain the water.
※ Be sure to close the drain cock ④ after letting the water out.

LUBRICATION [1]

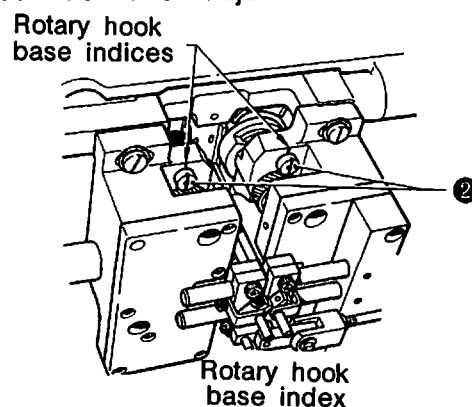
- ★ Be sure to use Brother-specified machine oil (High White #70 or equivalent).
- ★ Advance the carriage feed when lubricating and adding oil to the rotary hook to make work easier.
- ★ The carriage feed should be forward when lubricating the rotary hook. (P.12)

< Adding oil >

1. Add oil to the rotary hook oil tank.
2. Rotary hook lubrication adjustment



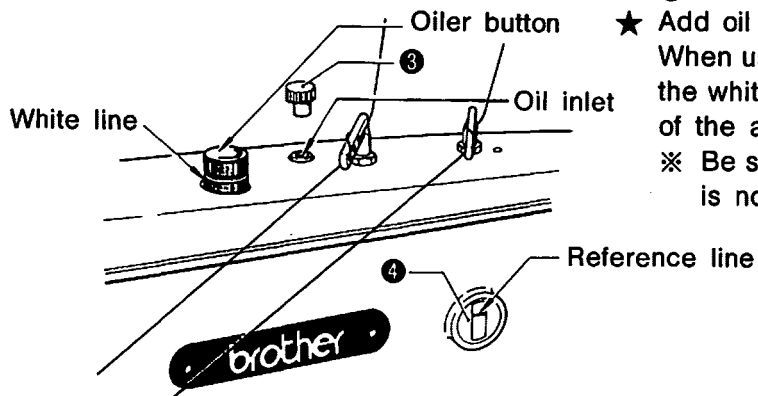
- ★ Remove oil gauges ①, and add oil from the gauge hole until the oil reaches the full mark on the gauge.
- ★ When the oil level reaches the end of the oil gauge ①, no more oil will be supplied to the rotary hook.



- ★ Turn the oil adjusting screws ② from the rotary hook base indices as shown in the figure to adjust.

LUBRICATION [2]

3. Filling the arm top oil tank



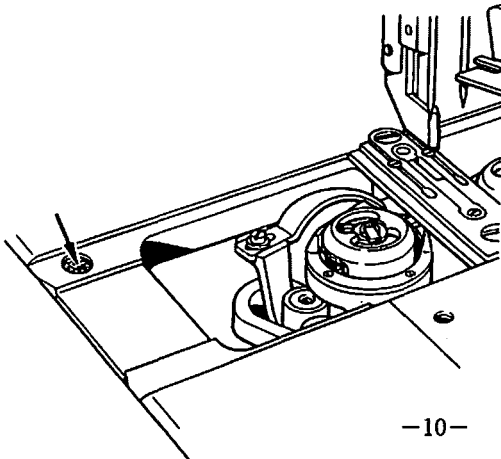
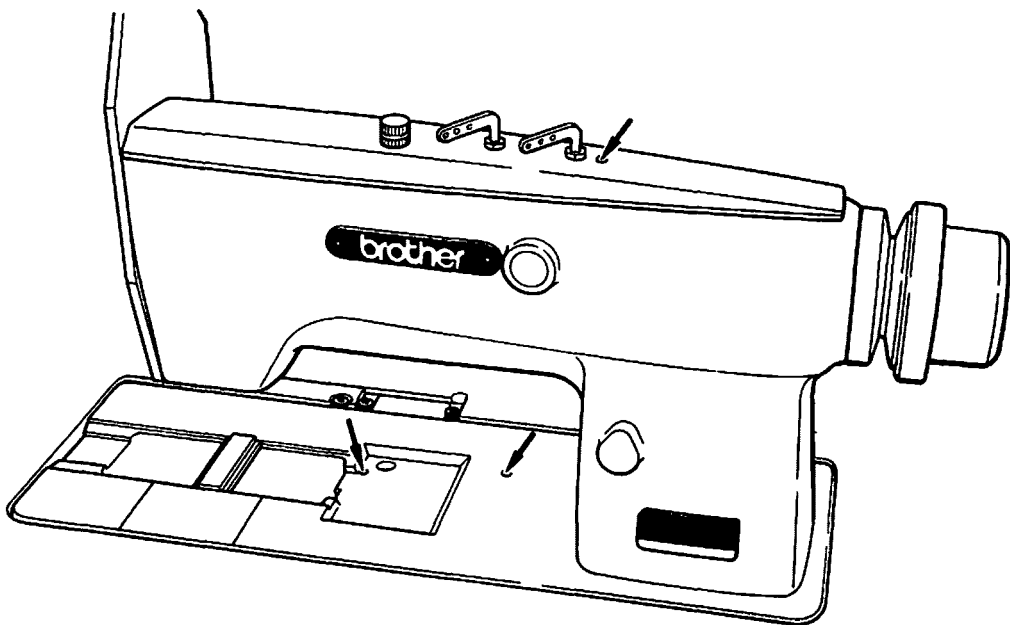
★ Remove oil inlet cap ③ and add oil until the tank is filled to the reference line on the oil gauge window ④.

★ Add oil if the oil cannot be seen in the window. When using the machine, push the oiler button to the white line, and turn the button in the direction of the arrow.

※ Be sure to return the button when the machine is not in use.

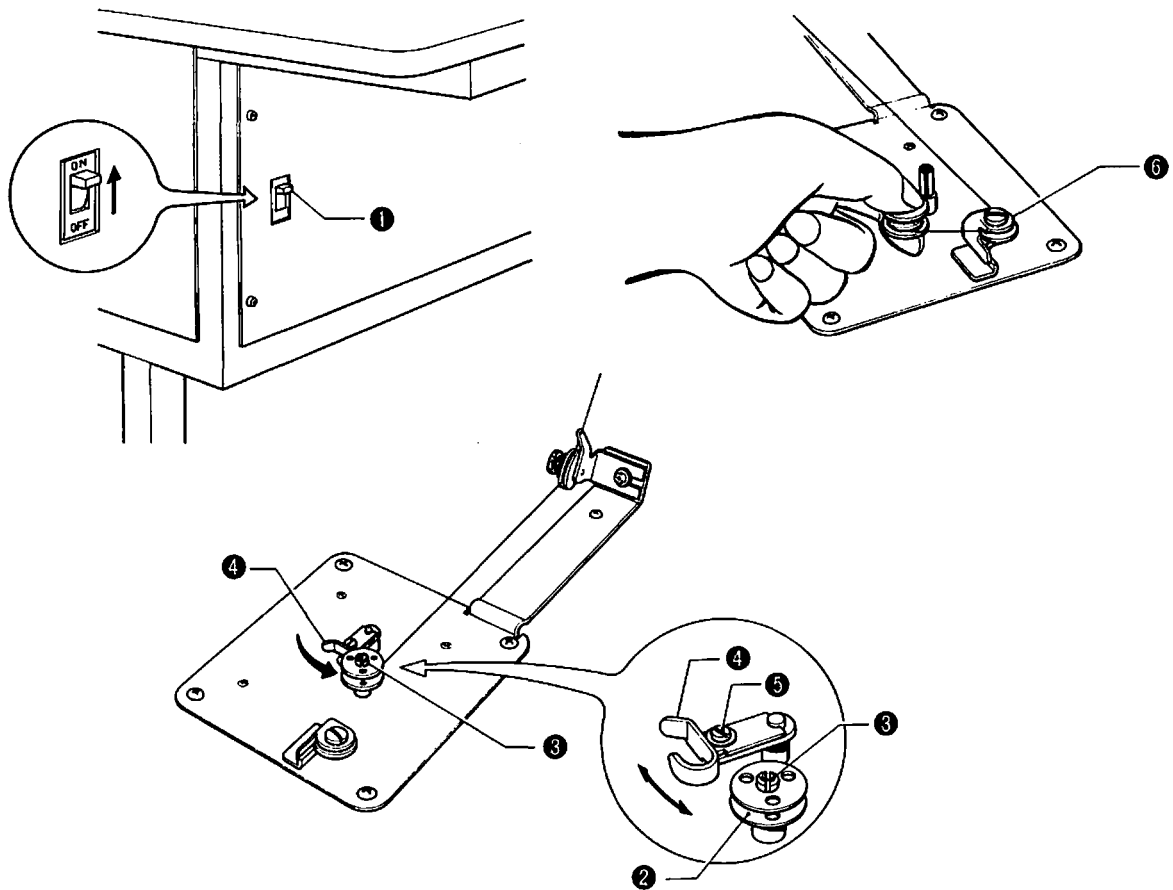
< Regular lubrication >

Be sure to add a drop or two of oil at each of the points indicated by an arrow in the figure before sewing.



CORRECT OPERATION [1]

< Winding the bobbin thread >



1. Set the power switch ① to ON.
2. Slide an empty bobbin ② onto the bobbin winder shaft ③.
3. Thread the thread from the spool stand as shown in the figure, and wrap the thread around the bobbin ② 5~6 times.
4. Move lever ④ in the direction of the arrow.
The power will come on automatically, and the bobbin winder shaft ③ will begin winding the bobbin.
5. When the bobbin is full, the lever will automatically return, and the bobbin winder shaft ③ will stop.
6. To adjust the amount of thread wound onto the bobbin ②, loosen screw ⑤ and shift lever ④ right or left.
7. Remove the bobbin ② from the bobbin winder shaft ③, and wrap the thread onto the thread holder ⑥ to cut.
To wind the next bobbin, take the thread from the thread holder ⑥ and wrap it onto a fresh bobbin ②.

CORRECT OPERATION [2]

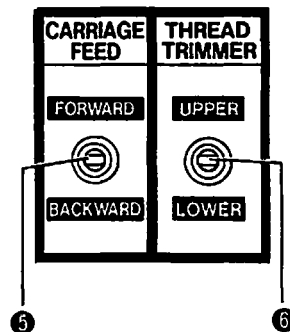
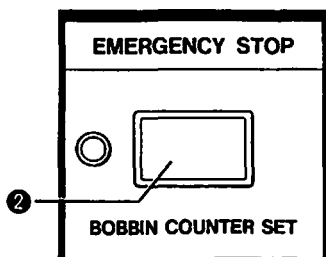
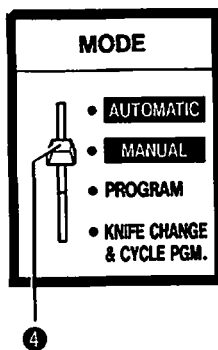
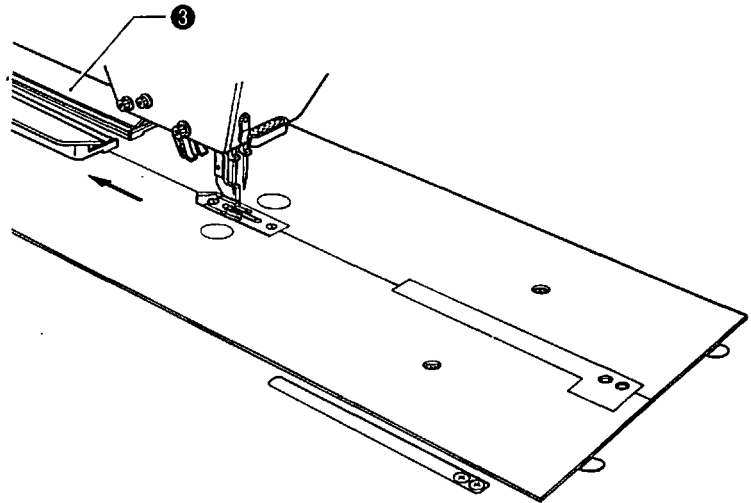
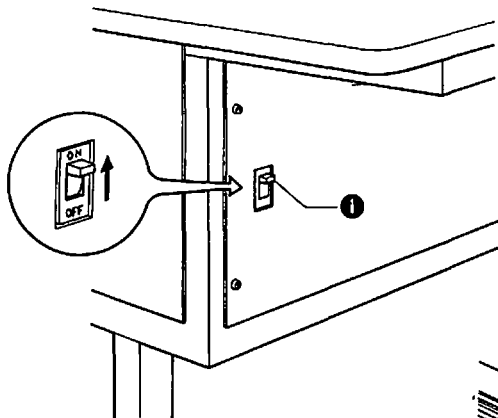
< Threading the needle thread >

★ Threading is easier if the carriage feed is forwarded to give more space around the needle.

Before threading

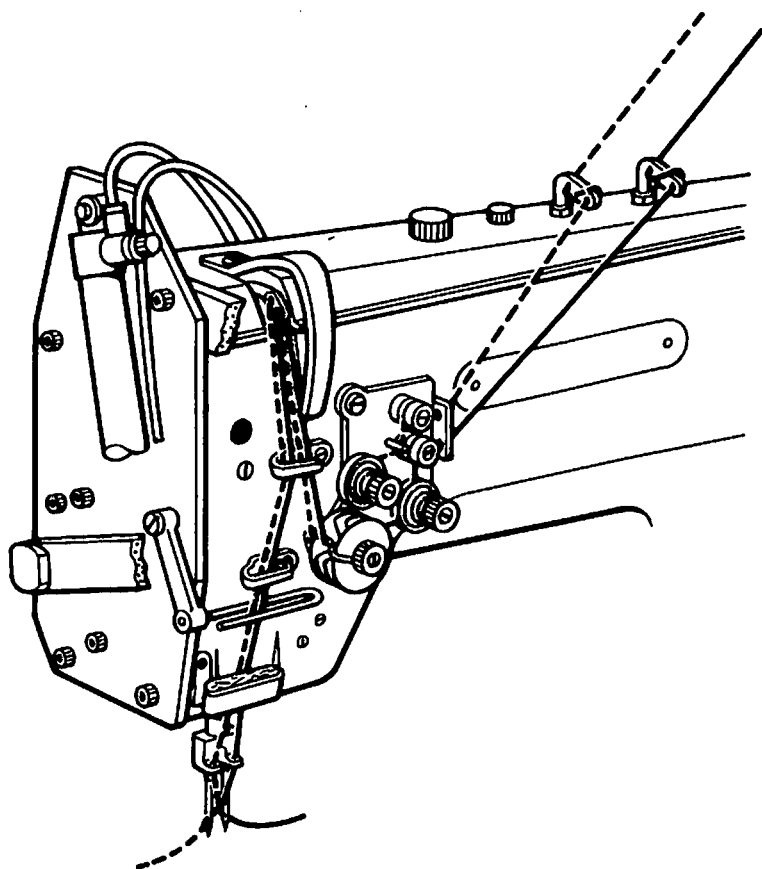
[To forward the carriage feed]

1. Set the power switch ① to ON. (An alarm will sound once.)
The EMERGENCY STOP indicator will blink.
2. Press EMERGENCY STOP ② twice. (An alarm will sound twice.)
The carriage feed ③ will move to the home position.
3. Press MODE ④ to select MANUAL.
4. Set CARRIAGE FEED ⑤ to FORWARD to advance the carriage feed.
※ Set THREAD TRIMMER ⑥ to UPPER and CARRIAGE FEED ⑤ to FORWARD to fast-forward the carriage feed to the thread trimmer position.

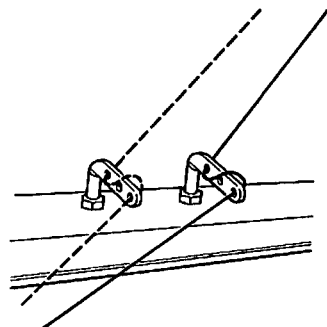


[Threading the needle thread]

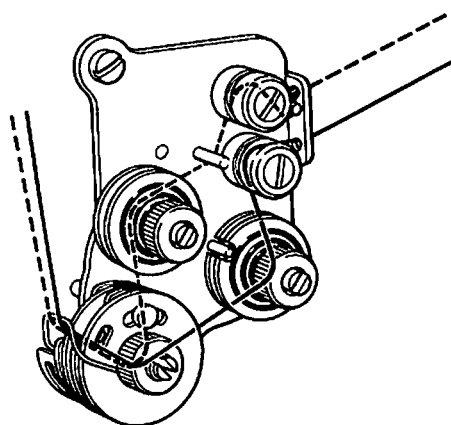
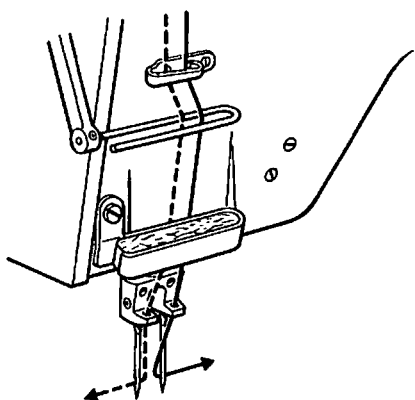
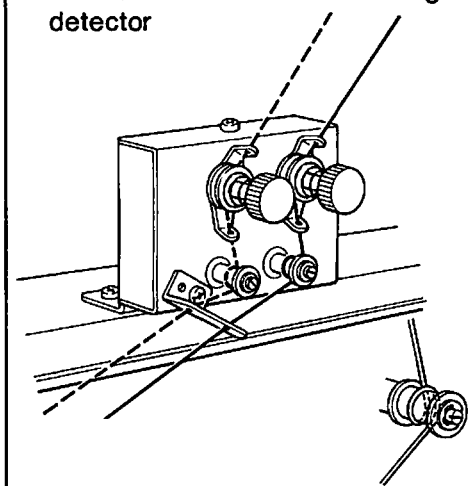
★ Thread the needle thread as shown in the figures below.



Without needle thread breakage detector



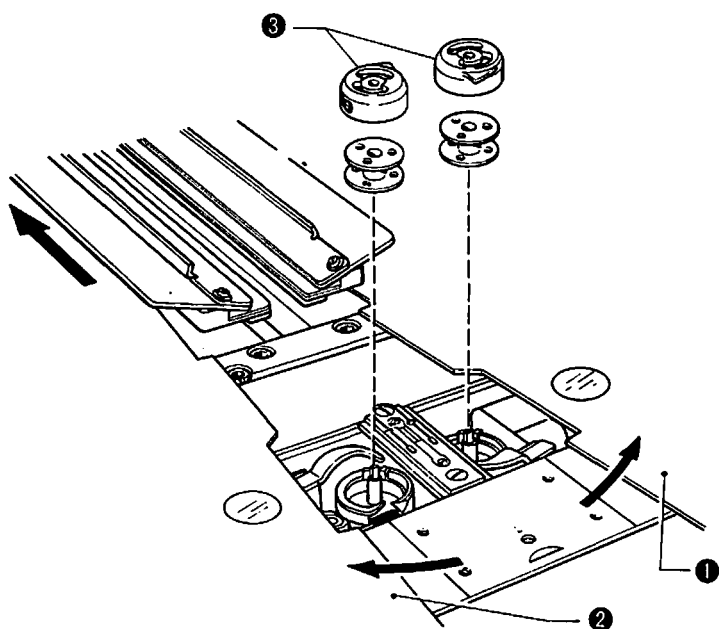
With a needle thread breakage detector



CORRECT OPERATION [3]

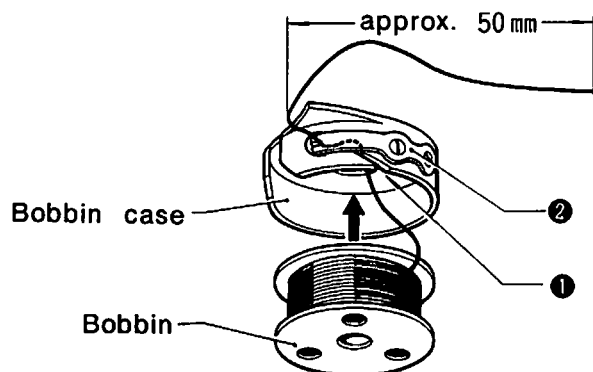
< Threading the bobbin thread >
[Remove the bobbin case]

- (1) Open slide plates R ① and L ②.
- (2) Hold the corners of the bobbin cases ③ and remove the bobbin case ③.



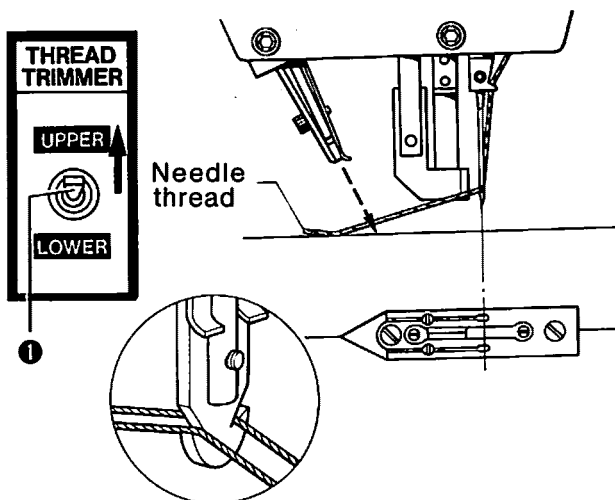
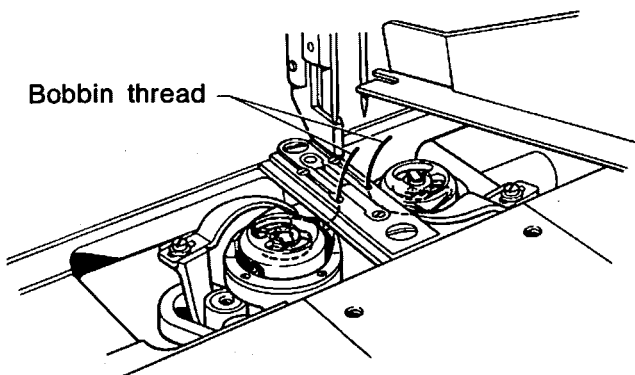
[Threading the bobbin case]

1. Insert the bobbin into the bobbin case.
2. Pass the thread through the notch ①, and under the tension spring ②.
3. Pull approximately 50 mm of thread from the hole at the end of the tension spring ②.
4. Insert the bobbin case into the rotary hook.



< Holding the needle and bobbin threads >

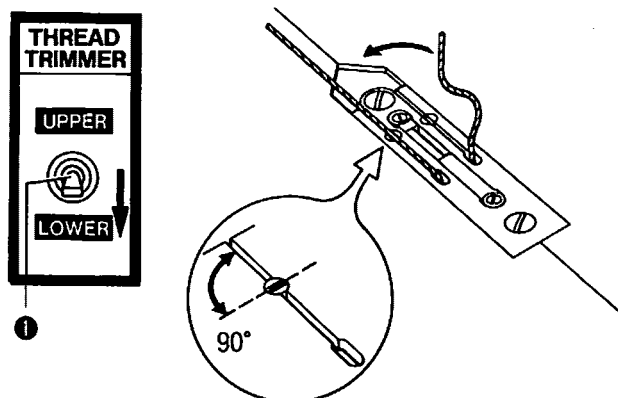
★ Insert the bobbin case (bobbin) into the rotary hook, and close the handle.



1. Hold the needle thread by hand, and turn the pulley by hand to bring the bobbin thread up.
2. Set THREAD TRIMMER ① to NEEDLE to lower the needle thread trimmer knife.

Note. Be careful to keep the hands and other articles away from the knife when it operates.

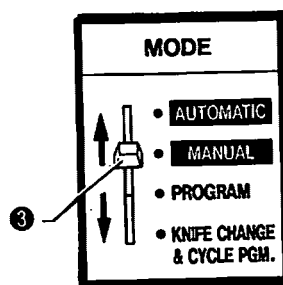
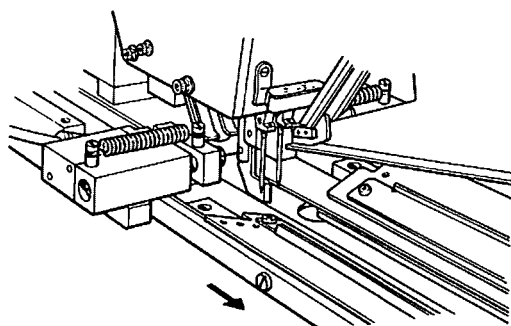
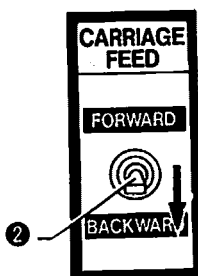
3. Set the two needle threads on the needle thread trimmer knife.
4. Return THREAD TRIMMER ① to raise the needle thread trimmer knife and hold the needle threads.
5. Set THREAD TRIMMER ① to LOWER to turn the bobbin thread knife 90° as shown in the figure below.
6. Insert the thread into the groove in the needle plate, and reset THREAD TRIMMER ① to cut and hold the bobbin thread with the bobbin thread knife.



[To reverse the carriage feed]

1. Return the slide plates.
2. Set CARRIAGE FEED ② to BACKWARD to retract the carriage feed.

※ If MODE ③ is set to any position other than MANUAL, the carriage feed will retract to the home position quickly.

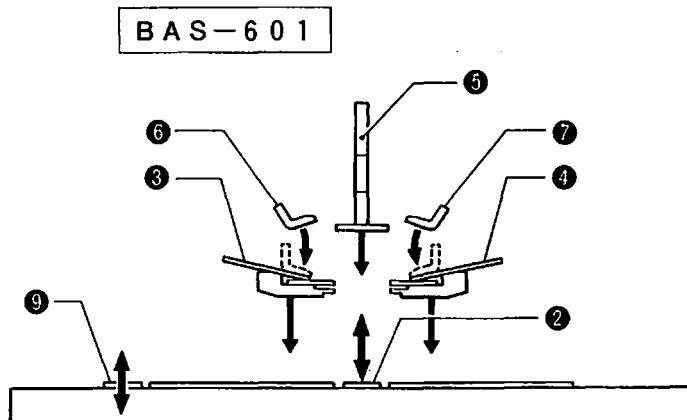
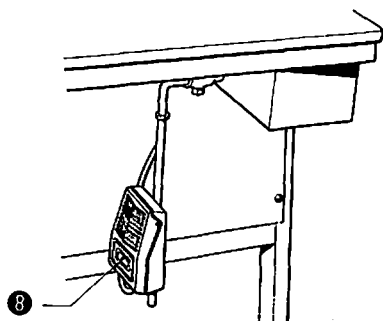
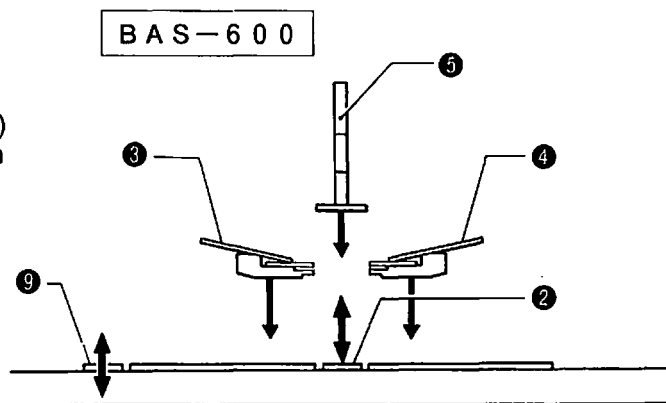
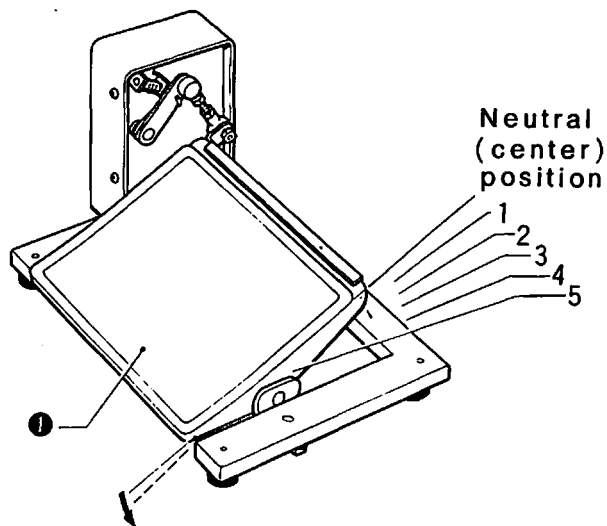


TREADLE AND START SWITCH DESCRIPTION

- ★ When running a flap sewing program, the machine will not operate when the start switch is pressed unless the flap presser is down.
- ★ During normal sewing, the machine will operate when the start switch is pressed after the folding plate operates.
- ★ Set MODE to either AUTOMATIC or MANUAL.

< Treadle operation >

1. When the treadle ① is pressed, padding cloth presser foot spring R ② and padding cloth presser foot spring L ⑨ will rise.
2. When the treadle ① is released, padding cloth presser foot spring R ② and padding cloth presser foot spring L ⑨ will descend.
3. When the treadle ① is pressed to position 1, carriage feed (L) ③ will descend.
4. When the treadle ① is pressed to position 2, carriage feed (R) ④ will descend.
5. When the treadle ① is pressed to position 3, binder ⑤ will descend, and the folding plate will operate.
 ※ The folding plate will operate 0.25~0.35 sec. after the binder operates.
6. When the treadle ① is pressed to position 4, flap presser (L) ⑥ will descend.
7. When the treadle ① is pressed to position 5, flap presser (R) ⑦ will descend.
8. Press the start switch ⑧ and the carriage feed will operate.
 ※ When MODE is at MANUAL, the carriage feed will move without actually sewing.
 ※ The order in which the carriage feed and flap pressers operate (3, 4, 6, 7 above) can be changed by resetting the DIP switches. (p.50)

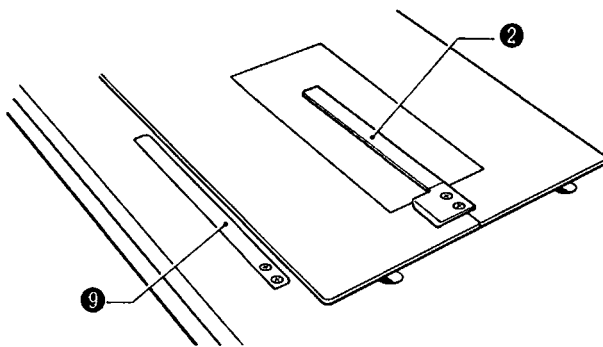


< Setting the material >

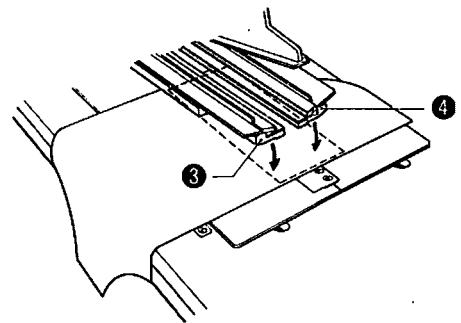
- ★ When running a flap sewing program, the machine will not operate when the start switch is pressed unless the flap presser is down.
- ★ During normal sewing, the machine will operate when the start switch is pressed after the folding plate operates.

1. When the treadle ❶ is pressed, padding cloth presser foot spring R ❷ and padding cloth presser foot spring L ❸ will rise.
2. Set the padding (or material) in place.
3. When the treadle ❶ is released, padding cloth presser foot spring R ❷ and padding cloth presser foot spring L ❸ will descend to secure the padding.
※ If the padding is sewn to the material already, steps 1~3 are unnecessary.
4. Set the bodice in place.
5. When the treadle ❶ is pressed to position 1, carriage feed (L) ❹ will descend.
6. When the treadle ❶ is pressed to position 2, carriage feed (R) ❺ will descend.
7. Set the welting in place.
8. When the treadle ❶ is pressed to position 3, binder ❻ will descend, and the folding plate will operate.
(The binder ❻ will descend to hold the welting, and the welting will then be folded.)
※ The folding plate will operate 0.25~0.35 sec. after the binder operates.
9. Set one of the flaps, right or left.
10. When the treadle ❶ is pressed to position 4, flap presser (L) ❼ will descend.
11. When the treadle ❶ is pressed to position 5, flap presser (R) ❽ will descend.
12. This completes material setting.

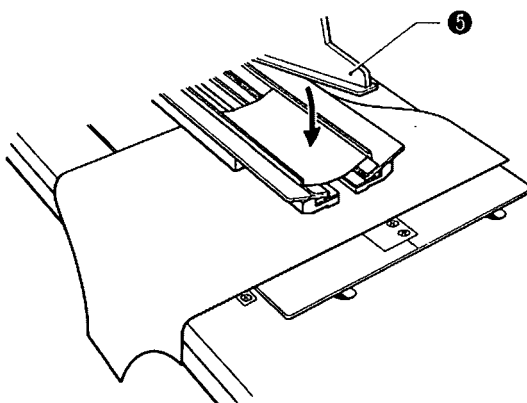
1. Padding presser



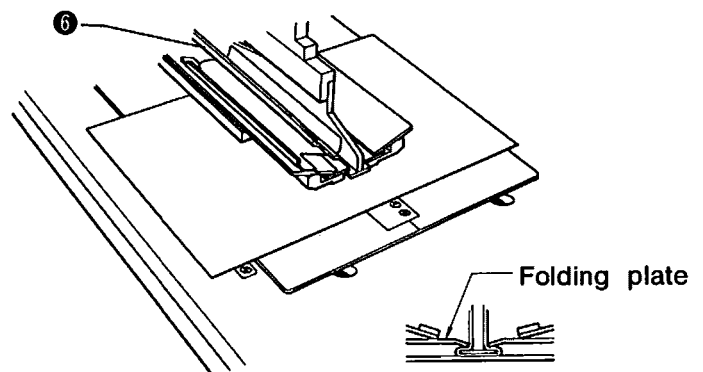
2. Bodice



3. Welting material



4. Flap



ADJUSTING THE MARKING LIGHT

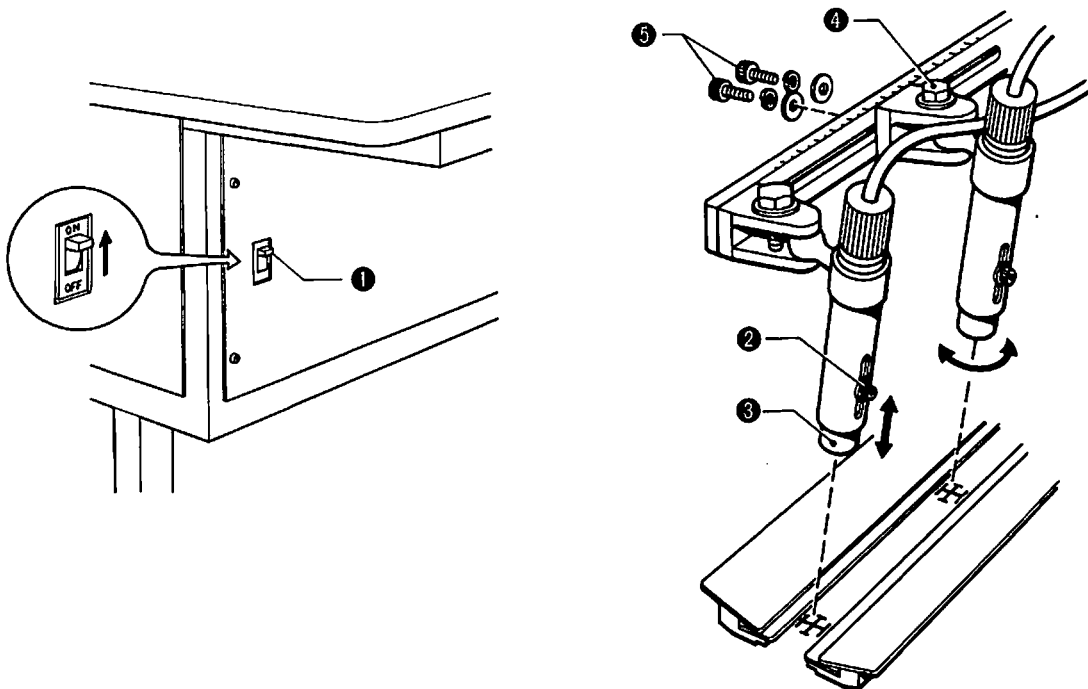
Adjust the focus before setting the material in place.

Focus adjustment

1. The marking light will come on when the power switch ❶ is set to ON.
2. Loosen screw ❷ and raise or lower the lens hood ❸ so that the crosshairs 「 H 」 projected on the material are sharply focused.

Loosen bolt ❹ and adjust the crosshairs 「 H 」 so that they are focused precisely at the sewing start and sewing end positions.

※ Use Allen bolts ❺ to adjust the sewing start position forward or back.



※ Three marking lights can be installed with option S08367-000.

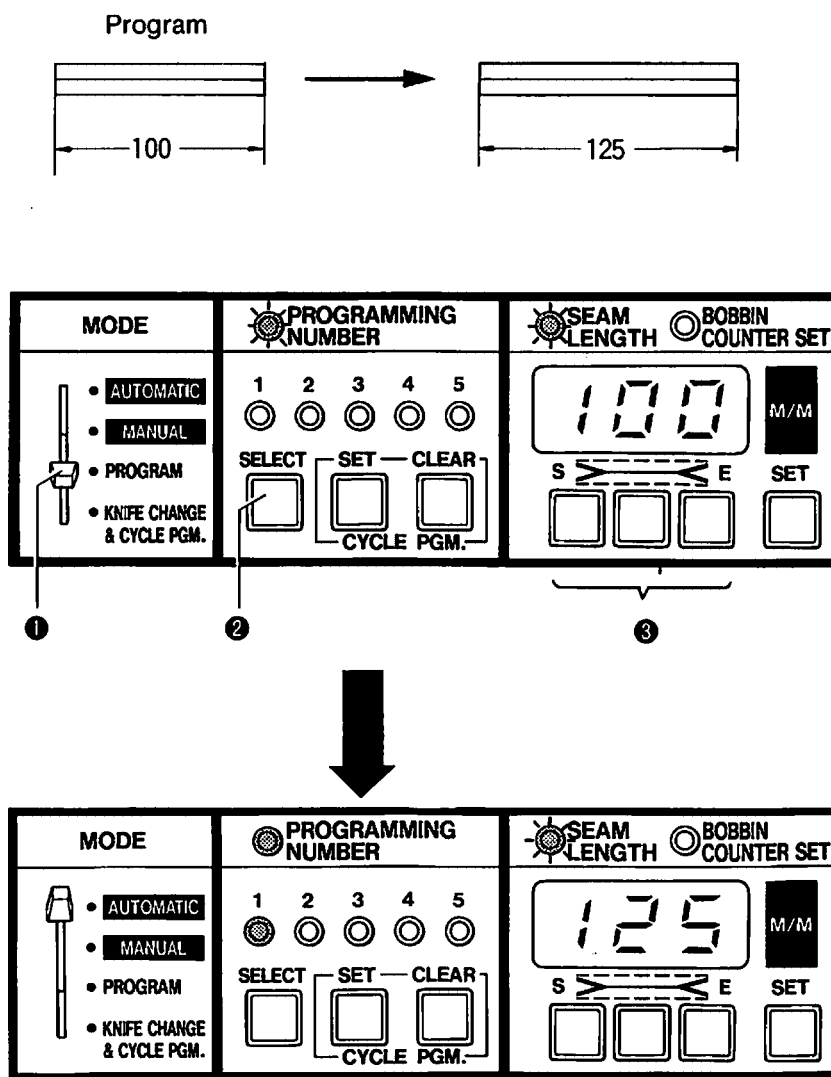
PROGRAMMING (Entering a standard sewing program)

- ★ Set MODE to PROGRAM. The PROGRAMMING NUMBER and SEAM LENGTH indicators will blink.
- ★ Flap sewing is selected if F-□ or F-□ are displayed.

< Entering a standard sewing program >

Change the seam length of programming number 1 from 100 to 125.

1. Set MODE ① to PROGRAM.
2. Press SELECT ② so that programming number indicator 1 lights.
3. Enter the seam length for the standard sewing program.
Press switches ③ to change the seam length display from 100 to 125.
4. Change MODE ① to any position other than PROGRAM.
※ Changes in the program settings are stored when the MODE switch is reset. If the power is turned off before resetting MODE, the changes will not be stored in the program.
5. Set MODE ① to AUTOMATIC to sew.



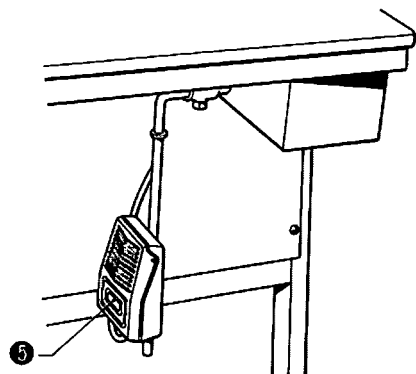
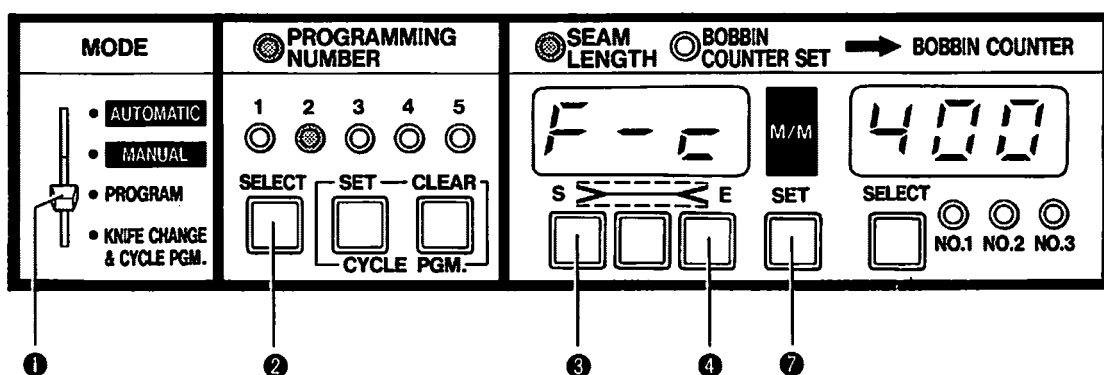
PROGRAMMING (Entering a flap sewing program)

- ★ Flap sewing programming is not possible on BAS-600.
- ★ Set MODE to PROGRAM. The PROGRAMMING NUMBER and SEAM LENGTH indicators will blink.
- ★ Flap sewing is selected if F-□ or F-□ are displayed.
F-□ indicates right flap, F-□ indicates left flap sewing.
- ★ Correct the sewing start position (correction data).

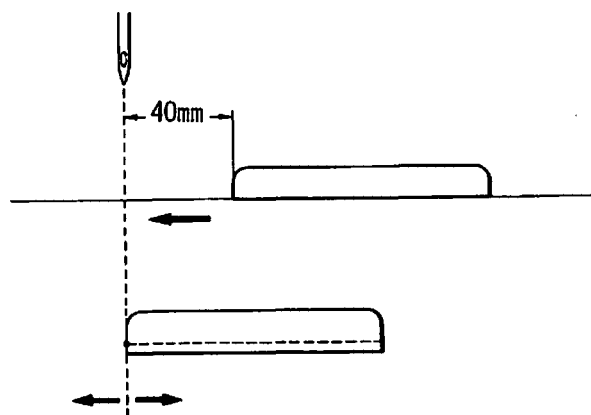
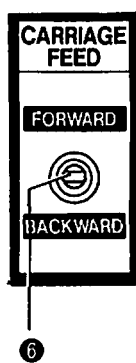
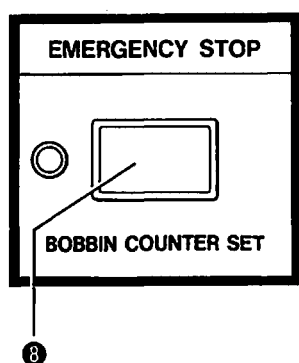
< Entering a flap sewing program >

Change programming number 2 to right flap sewing, and correct the sewing start position.

1. Set MODE ① to PROGRAM.
2. Press SELECT ② so that programming number indicator 2 lights.
3. Select flap sewing and either right or left flap.
Press switch ③ (100s place) to display F.
Press switch ④ (1's place) to display □.
4. Set the flap. (See page 17 for setting the flap.)
5. Press the start switch ⑤.



6. The flap sensor will detect the flap edge, and the carriage feed will move forward 40 mm and stop.
The distance moved after material edge detection will appear in the BOBBIN COUNTER display:40.0.
 7. Set CARRIAGE FEED switch ⑥ to FORWARD or BACKWARD to move the carriage feed so that the flap edge is at the sewing start (needle) position.
The carriage feed can be moved in 0.2 mm steps.
 8. Press SET switch ⑦ after the sewing start position is located.
The carriage feed will return to the home position, and the correction data shown in the BOBBIN COUNTER display will be stored.
If EMERGENCY STOP ⑧ is pressed without pressing SET switch ⑦, the carriage feed will return to the home position but the correction data will not be stored.
 9. Changes in the program will be stored when MODE switch ① is reset to any position other than PROGRAM.
- ※ Changes in the program settings are stored when the MODE switch ① is reset. If the power is turned off before resetting MODE, the seam length will not be changed.
- ※ If the only change to be made is the right or left flap selection, steps 4~8 can be skipped.



PROGRAMMING (Entering a cycle sewing program)

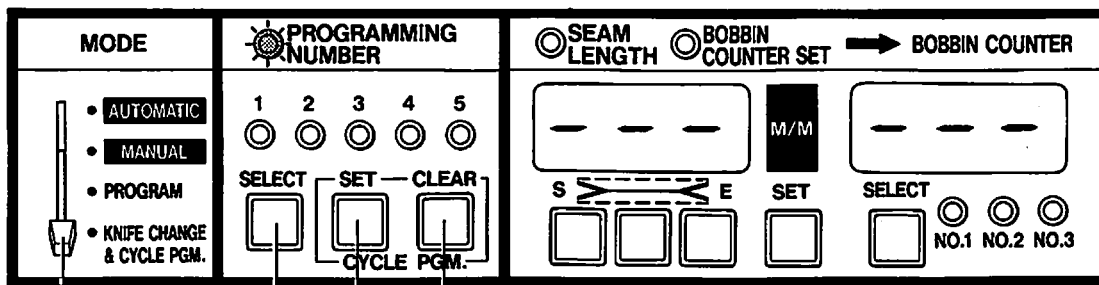
★ CYCLE PGM allows up to six selections from any of program numbers 1~5 to be combined in any order.

★ See the preceding pages to set a standard or flap sewing program in program numbers 1~5.

< Entering a cycle sewing program >

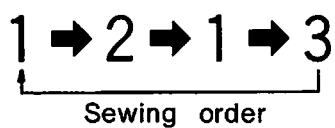
Set a 1 → 2 → 1 → 3 sewing cycle.

1. Set MODE ❶ to KNIFE CHANGE & CYCLE PGM.
2. Press CYCLE PGM. CLEAR ❷.
3. Press SELECT ❸ to select program number 1.
4. Press CYCLE PGM. SET ❹ to store program number 1.
5. Press SELECT ❸ to select program number 2.
6. Press CYCLE PGM. SET ❹ to store program number 2.
7. Press SELECT ❸ to select program number 1.
8. Press CYCLE PGM. SET ❹ to store program number 1.
9. Press SELECT ❸ to select program number 3.
10. Press CYCLE PGM. SET ❹ to store program number 3.
11. Reset MODE ❶ to any position other than KNIFE CHANGE & CYCLE PGM.
 - ⊙ If stacker operation is not programmed, stacker operation will be automatically programmed after the last program number (3 above) to program stacker operation at that time.
 - ⊙ If stacker operation is not programmed, a period “.” will be automatically entered after the last program number (3 above) to program stacker operation at that time.
 - ⊙ See page 34 to operate the stacker independently.
 - ※ The changes in the sewing cycle are stored when MODE ❶ is reset. No changes in the sewing cycle will be stored if the power is turned off without resetting MODE.
 - ※ If a mistake is made in the order, press CLEAR ❷ and reprogram from the beginning.

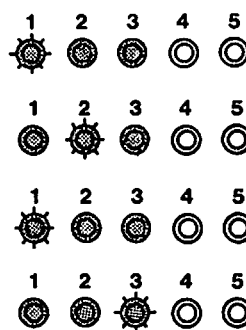


① ③ ④ ②

Cycle sewn repeatedly

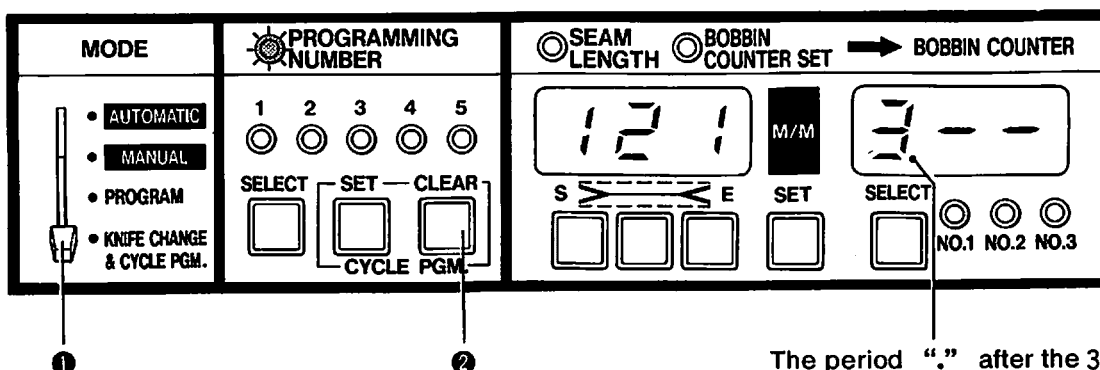


⊙ Program number



< Checking the sewing cycle >

1. Set MODE ① to KNIFE CHANGE & CYCLE PGM.
The order of the program cycle will be displayed.

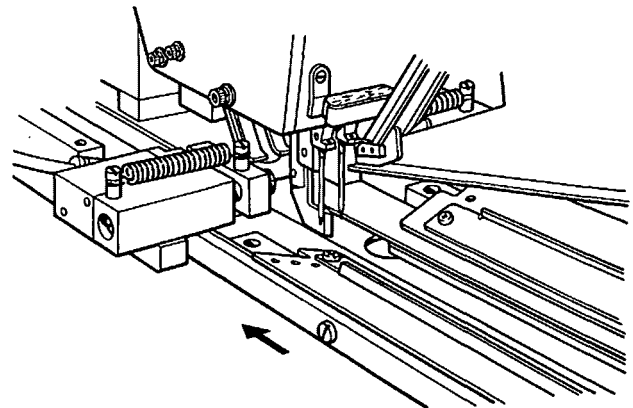
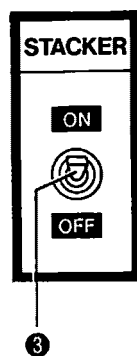
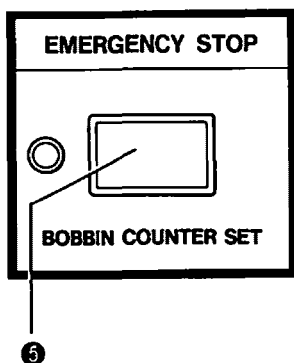
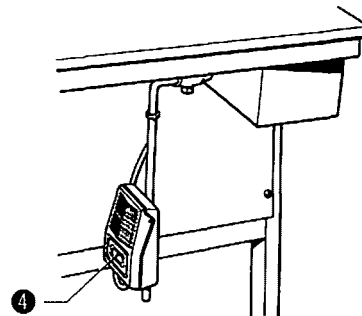
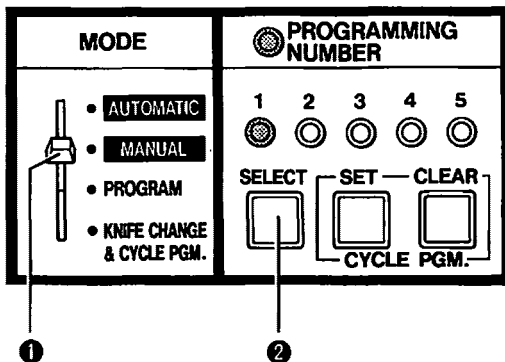


The period "." after the 3 indicates stacker operation.

PROGRAM CONFIRMATION

★ The carriage feed can be moved to check the sewing operation without actually sewing.

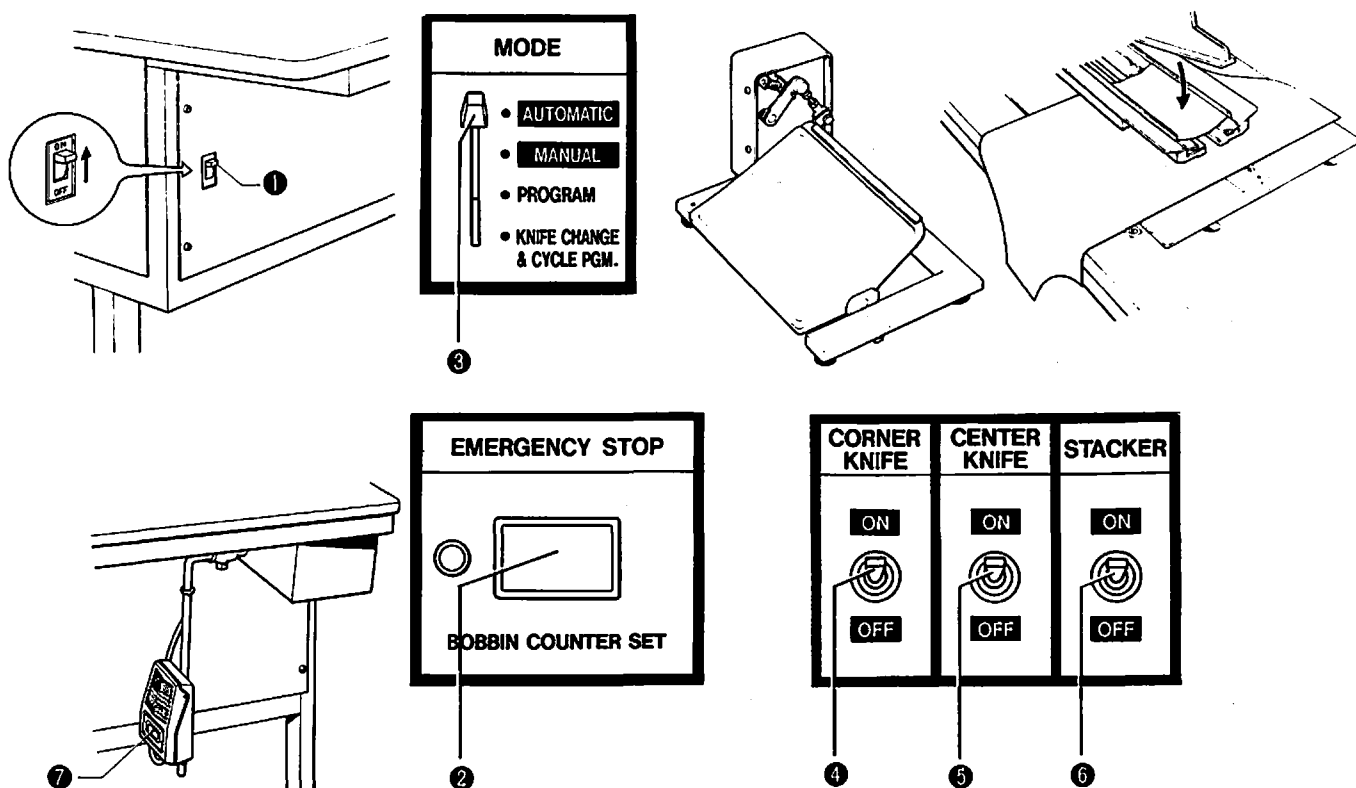
1. Set MODE ① to MANUAL.
2. Press SELECT ② to select program number 1~5.
Set STACKER ③ to ON to operate the stacker.
Set STACKER ③ to OFF if stacker operation is not necessary.
3. Set the material in place.
4. Press the start switch ④.
The carriage feed will advance to the sewing start position.
5. Press the start switch ④ again.
The carriage feed will advance to the end point of the condensed seam (stitch length is shortened) or backstitch seam.
6. Continue pressing the start switch ④ to advance the carriage feed to the next step.
※ If the start switch ④ is pressed at the 5th stitch in condensed seam sewing or the 7th stitch in backstitch sewing, the carriage feed will move to the corner knife position.
7. The carriage feed, flap presser, and binder will rise, and the stacker will operate.
The stacker will not operate if STACKER ③ is off.
8. Press the start switch ④ again.
The carriage feed will return to the home position.
※ If EMERGENCY STOP ⑤ is pressed between steps 5 and 7 above, the carriage feed will stop and return to the home position.



SEWING

★ If the temperature is below 5°C, sewing machine operation will be sluggish at first. Test sew 2~3 work pieces before beginning regular operation.

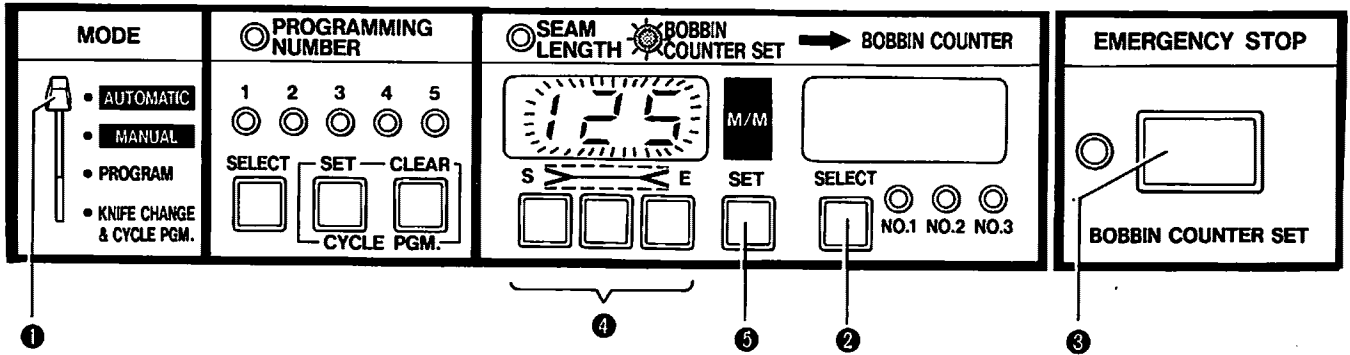
1. Set the power switch ① to ON.
2. Press EMERGENCY STOP ②.
3. Set MODE ③ to AUTOMATIC.
To use the corner knife, turn CORNER KNIFE ④ and CENTER KNIFE ⑤ on.
To use the center knife, turn CENTER KNIFE ⑤ on.
※ When CENTER KNIFE ⑤ is off, the corner knife will not operate even if CORNER KNIFE ④ is on.
4. To use the stacker, turn STACKER ⑥ on.
If the stacker is not used, turn STACKER ⑥ off.
※ When in the cycle sewing mode, the stacker will not operate even if STACKER ⑥ is on if the selected program number is not one included in the sewing cycle. (See p.22, 34.)
5. Set the material in place.
6. Press the start switch ⑦.
The selected automatic sewing procedure will begin.



- ★ The carriage feed can be moved to provide more working space on the table when setting the material in place.
- ※ When DIP switch 3-3 on the main circuit board is on, the timing at which the carriage feed returns to the home position after sewing is completed is regulated by the start switch ⑦. Press the start switch ⑦.
- ※ If the treadle is pressed back when the carriage feed is at the corner knife position, the carriage feed can be returned to the home position with the start switch, regardless of the ON-OFF setting of the above DIP switch.

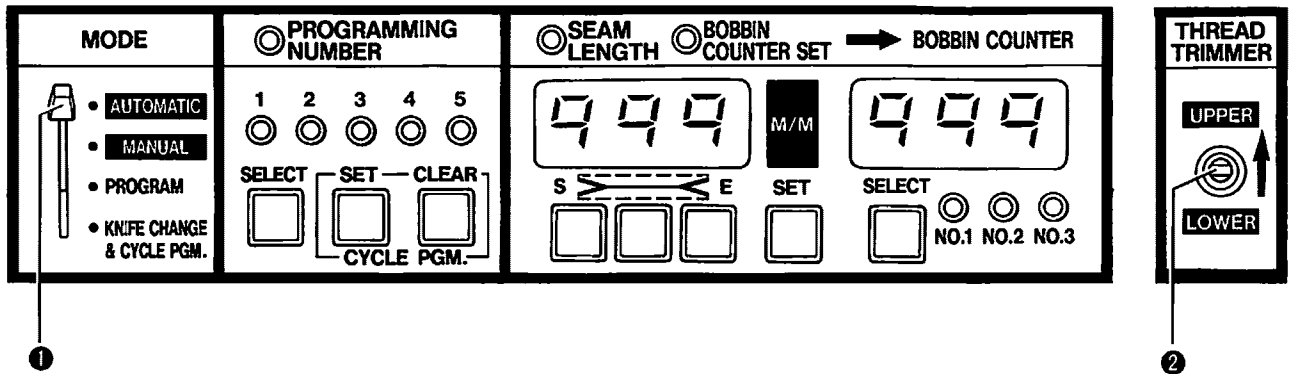
< Setting the bobbin counter >

1. Set MODE ❶ to AUTOMATIC.
2. Press SELECT ❷ to select the bobbin number 1~3.
3. Press BOBBIN COUNTER SET ❸. The BOBBIN COUNTER SET indicator will blink.
The number of work pieces previously set for that bobbin will be shown in the BOBBIN COUNTER SET display.
4. Use switches ❹ to change the setting.
5. Press SET ❺ when the changes are completed or if no changes are made.
(The number shown in the BOBBIN COUNTER SET display will appear in the BOBBIN COUNTER display.)
The BOBBIN COUNTER SET indicator will go out.



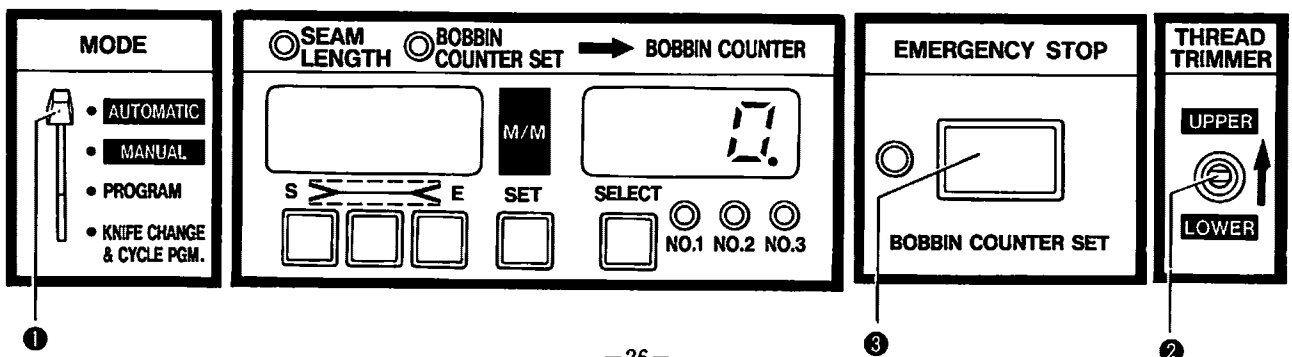
< Checking the number of work pieces >

1. Set MODE ① to AUTOMATIC.
2. Set THREAD TRIMMER ② to NEEDLE.
The counter will increase by one each time a piece is completed. From 0~999,999 work pieces can be counted.



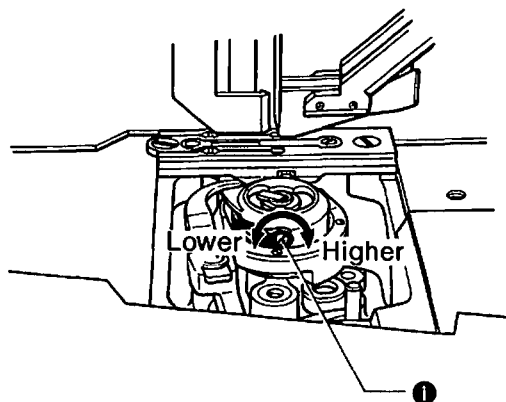
< Clearing the work piece counter display >

1. Set MODE ❶ to AUTOMATIC.
2. With THREAD TRIMMER ❷ set to UPPER, press BOBBIN COUNTER SET ❸. The counter will be set to 0.



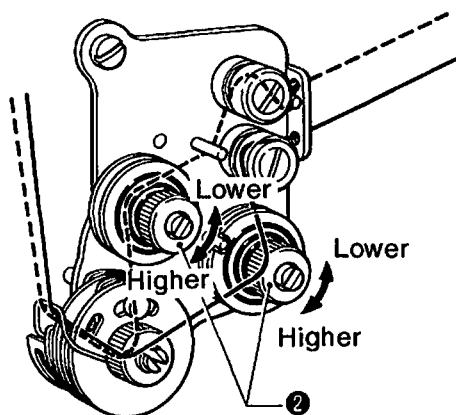
< Stitch tension >

1. Bobbin thread tension

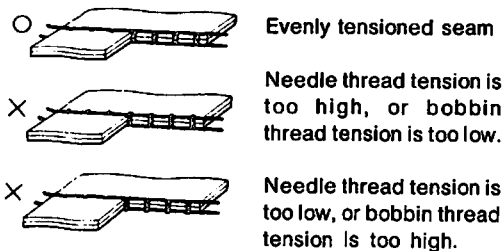


- ★ The bobbin thread tension varies with material and thread. Turn adjusting screw ① to adjust the tension. Standard tension is 40~50 g for medium-thick to thick materials when working with a #50 spun yarn.

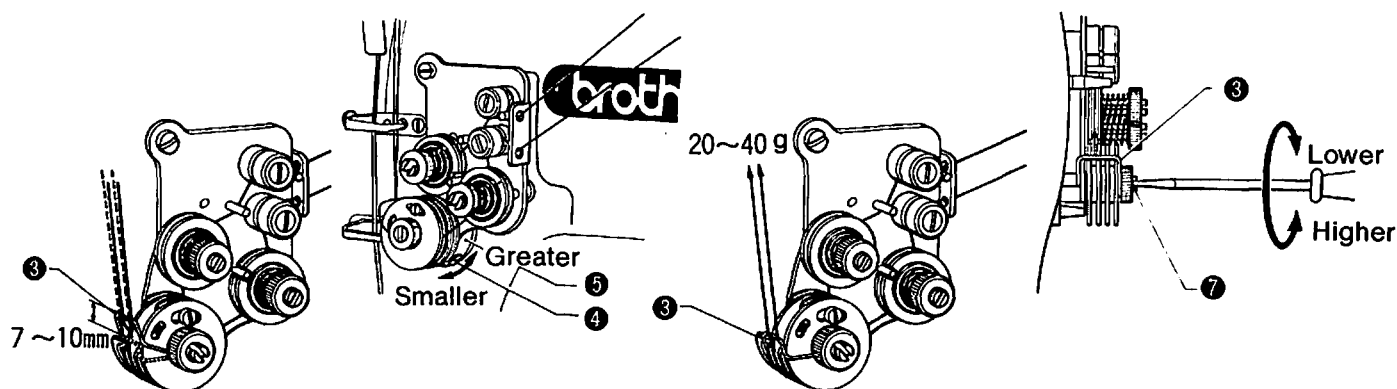
2. Needle thread tension



- ★ Turn tension control nut ② to adjust the needle thread tension. Once the bobbin tension has been adjusted, adjustment of the needle thread tension alone can provide a clean, even seam.



3. Thread take-up spring



- ★ Range of thread take-up spring operation
Standard range of thread take-up spring operation is 7~10 mm.
To adjust the range of thread take-up spring ③ operation, adjust stopper ⑤.
- ★ Thread take-up spring tension
Standard thread take-up spring tension is 20~40 g.
To adjust, loosen screw ⑥ and turn tension stud ⑦.

CENTER KNIFE POSITION ADJUSTMENT

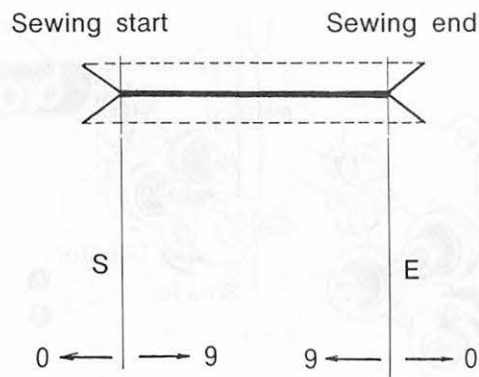
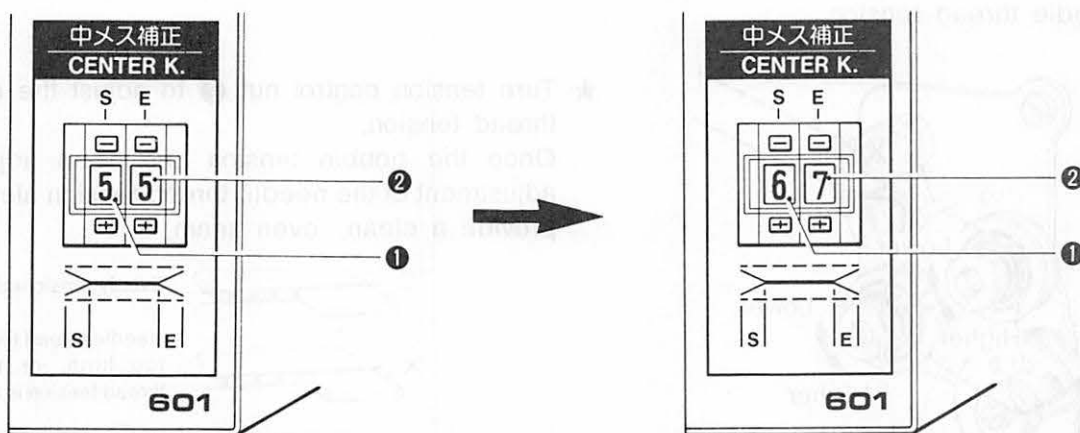
★ Adjustment of the center knife position should be done according to the thickness of the material.
The higher the number of the center knife position, the farther inside the corner knife is positioned.

Ex. Change the sewing start [S] value from 5 to 6, and the sewing end [E] value from 5 to 7.

1. Press the switch ① for the sewing start [S] position to change the 5 to a 6.

2. Press the switch ② for the sewing end [E] position to change the 5 to a 7.

※ If the above change is made before sewing starts, the machine may be in any mode.



CORNER KNIFE POSITION ADJUSTMENT

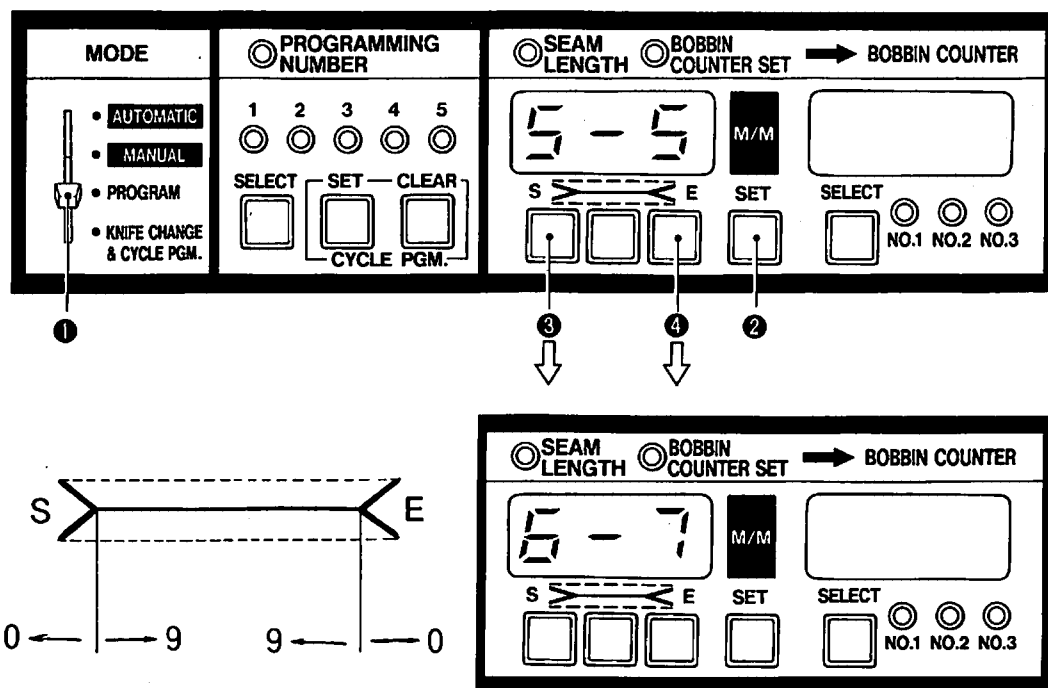
- ★ Adjustment of the corner knife position should be done according to the thickness of the material.
The higher the number of the corner knife position, the farther inside the corner knife is positioned.

Ex. Change the sewing start value from 5 to 6, and the sewing end value from 5 to 7.

1. Set MODE ① to PROGRAM.
2. Press SET ②.
3. Press SEAM LENGTH switch ③ to display a 6.
4. Press SEAM LENGTH switch ④ to display a 7.
5. The new corner knife position will be stored when SET ② is pressed or MODE ① is reset to any other position from PROGRAM.

If the power is turned off without pressing SET or changing the MODE position, the change will not be stored.

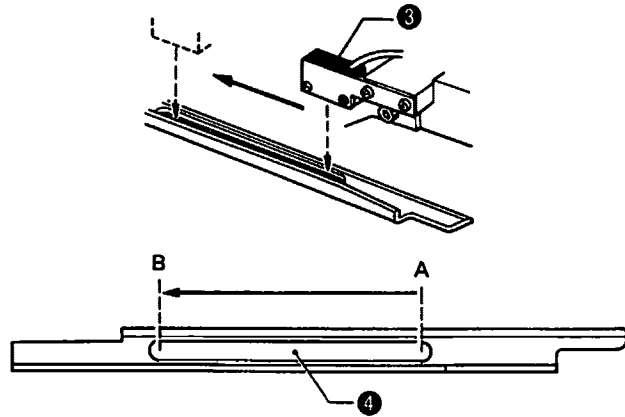
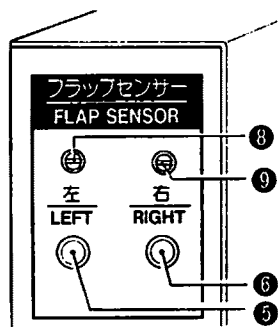
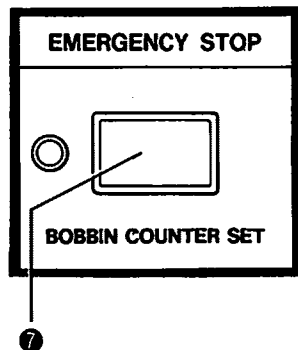
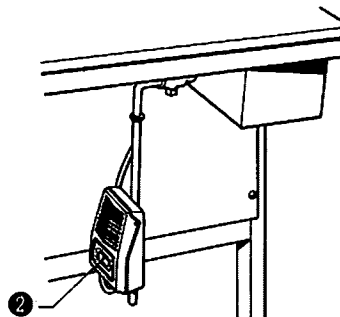
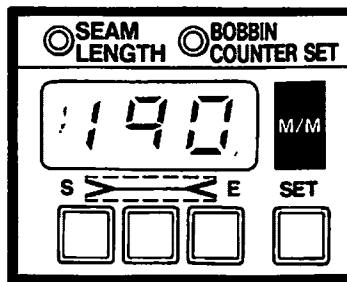
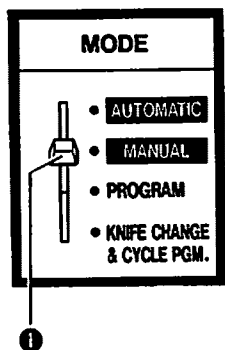
※ The corner knife will not operate when the center knife is off (even if the corner knife switch is on).



FLAP SENSOR SENSITIVITY ADJUSTMENT

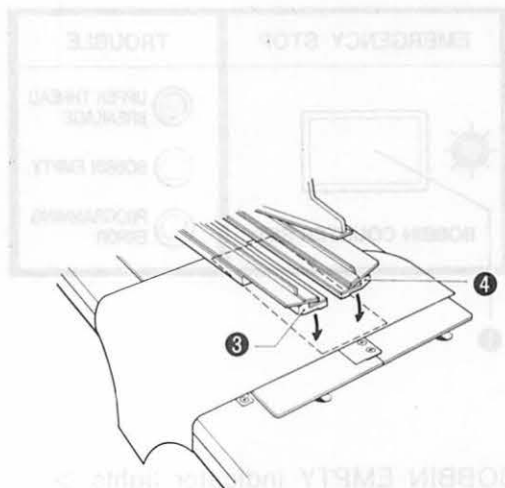
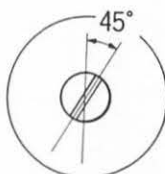
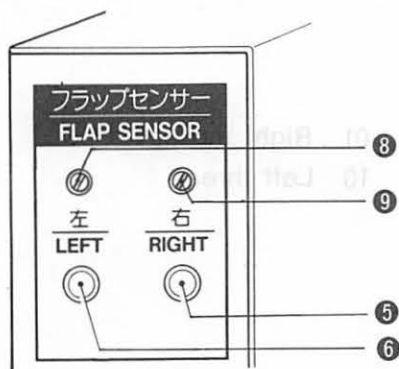
< Adjusting flap sensor sensitivity >

1. Set MODE ❶ to PROGRAM, and set a seam length of 190 mm.
2. Set MODE ❶ to MANUAL.
3. Set a piece of material in place so the rubber padding on the back of the carriage feed does not wear.
4. Press the start switch ❷.
The carriage feed will move to the sewing start position, and flap sensor ❸ (both right and left) sensitivity will be monitored.
5. Move the carriage feed by hand forward from the position at which it stopped so that the window ❹ for the flap sensor is under the sensor ❸.
Sensor sensitivity can now be adjusted as described under "Sensitivity adjustment" on the next page.
6. Move the carriage feed by hand from position A to B (the full length of the sensor window), and make sure the FLAP SENSOR indicators ❺, ❻ do not light.
7. When adjustment is completed, press EMERGENCY STOP ❼.
The carriage feed will return to the home position.

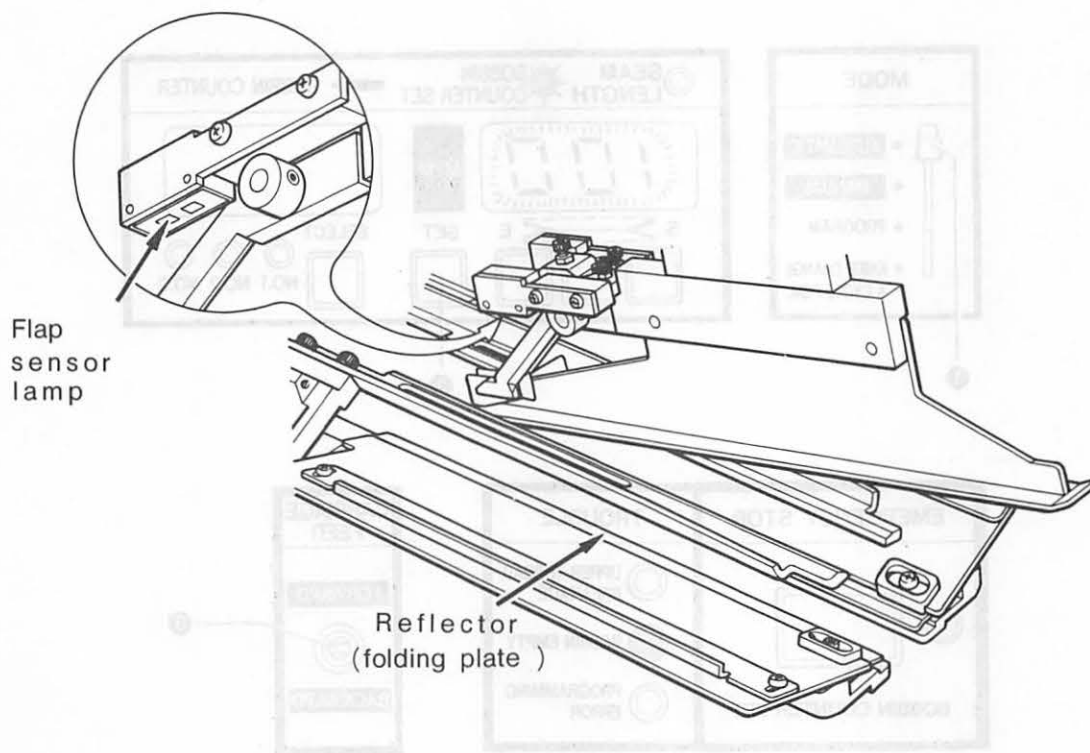


< Sensitivity adjustment >

1. With the reflector positioned below the sensor, turn sensitivity controls ⑧ and ⑨ so that FLAP SENSOR indicators ⑥ and ⑤ are between on and off.
2. Turn the controls another 45° clockwise from this position.
3. Set a piece of material over the reflector now, and make sure the FLAP SENSOR indicator lights.



Be sure to clean the lamp behind the flap sensor and the reflector (folding plate) top before sewing.

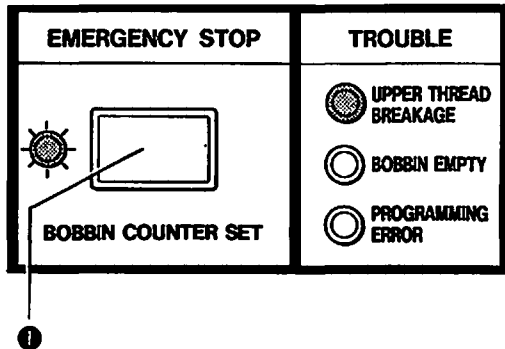


TROUBLE

★ The machine will stop automatically if trouble develops while sewing.

< UPPER THREAD BREAKAGE indicator lights >

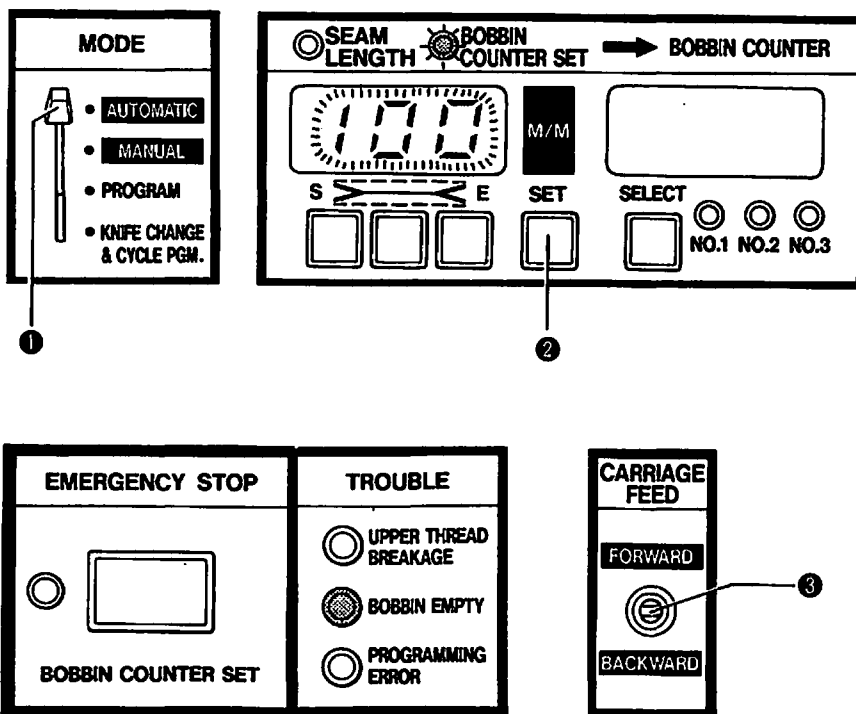
1. Press EMERGENCY STOP ①. The carriage feed will advance.
2. Thread the needle thread.



01 Right thread
10 Left thread

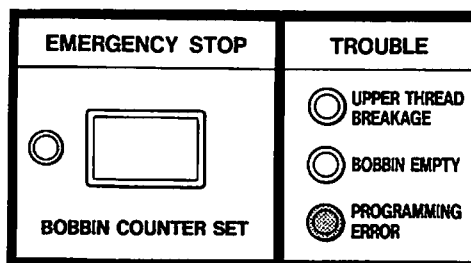
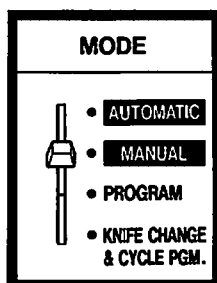
< BOBBIN EMPTY indicator lights >

1. Set MODE ① to AUTOMATIC, and set the number of work pieces for the bobbin in the BOBBIN COUNTER SET ① display. (p. 26)
 2. Set MODE ① to MANUAL.
 3. Set CARRIAGE FEED ③ to FORWARD. The carriage feed will advance.
 4. Replace the bobbin with a full bobbin.
- ※ See page 26 for resetting the bobbin counter.



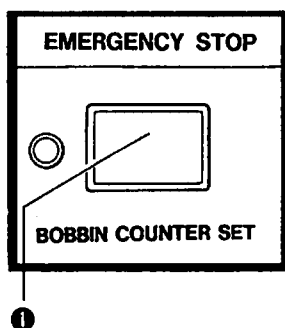
< PROGRAMMING ERROR indicator lights >

- ★ If the sewing range exceeds 28~190 mm while programming, or if the flap seam is set to more than 50 mm, re-enter the correct value. (Range is 36~190 mm for a gauge width of 16~20 mm.)
- ★ If the indicator lights in the AUTOMATIC or MANUAL mode
There is an error in the data. Re-enter the data in the PROGRAM mode.



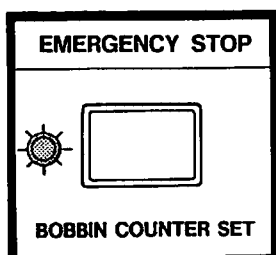
< EMERGENCY STOP >

Press EMERGENCY STOP ❶ to stop carriage feed movement.



Resetting after an emergency stop

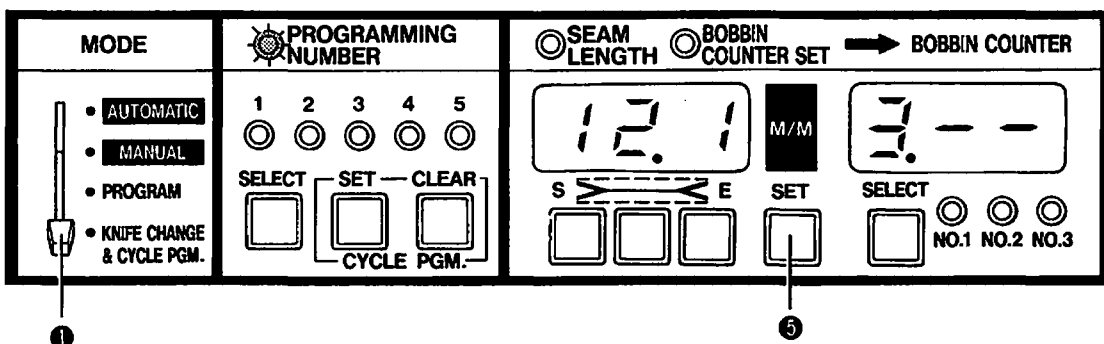
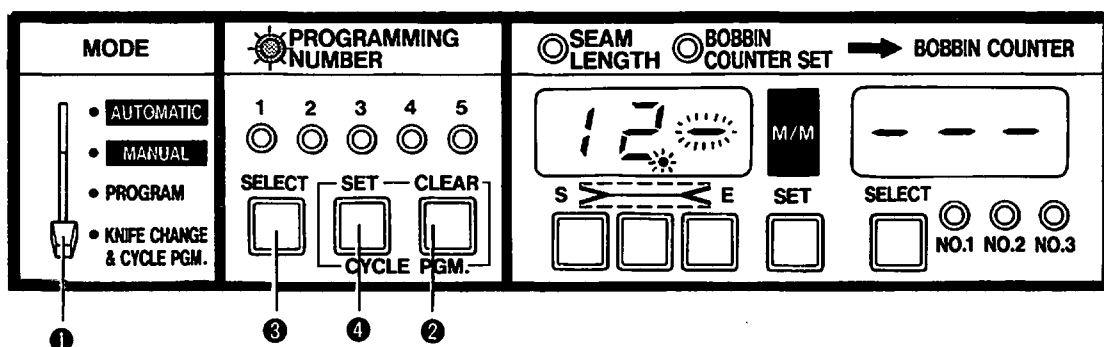
- ★ When EMERGENCY STOP is pressed again, the needle thread will be cut, the carriage feed will move to the thread trimming position, and the carriage feed will rise. The needle and bobbin thread trimmer knives can be operated at this time.
Press EMERGENCY STOP again, and press the start switch on. The carriage feed will return to the home position. Sewing is possible.



OPERATING THE STACKER DURING CYCLE SEWING

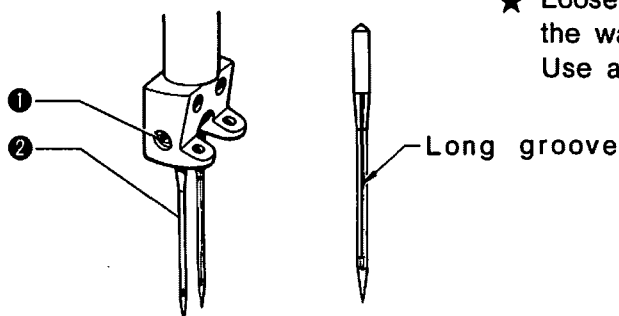
Ex. Program the following cycle: program #1 → 2 → stacker operation → 1 → 3 → stacker operation.

1. Set MODE ① to KNIFE CHANGE & CYCLE PGM.
2. Press CYCLE PGM, CLEAR ②.
3. Press SELECT ③ to select program number 1.
4. Press CYCLE PGM, SET ④ to store program number 1.
5. Press SELECT ③ to select program number 2.
6. Press CYCLE PGM, SET ④ to store program number 2.
7. Press bobbin counter SET ⑤. A period "." will be displayed to store stacker operation in the program cycle.
 ※ The stacker does not operate while the period "." is blinking.
8. Press SELECT ③ to select program number 1.
9. Press CYCLE PGM, SET ④ to store program number 1.
10. Press SELECT ③ to select program number 3.
11. Press CYCLE PGM, SET ④ to store program number 3.
12. Press bobbin counter SET ⑤. A period "." will be displayed to store stacker operation in the program cycle.
13. Reset MODE ① to any position other than KNIFE CHANGE & CYCLE PGM.
 ※ Changing the MODE ① selection stores the order of the sewing cycle. No changes in the sewing cycle will be stored if the power is turned off without resetting MODE.
 ※ If a mistake is made in the order, press CLEAR ② and reprogram from the start.



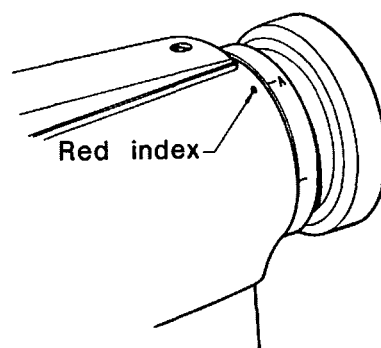
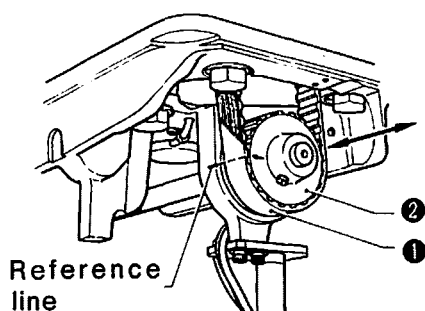
STANDARD ADJUSTMENTS (Sewing machine head)

< Needle installation >



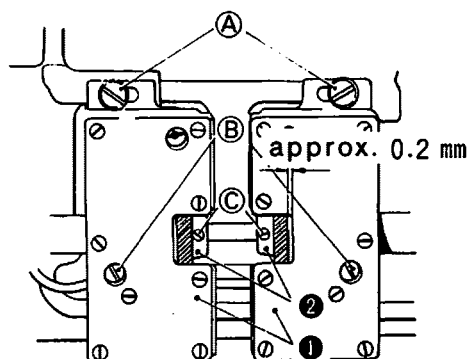
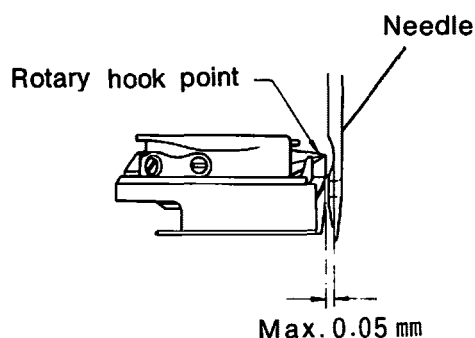
- ★ Loosen Allen screw ①, and insert the needle ② all the way in with the long groove to the inside. Use an MtX190 needle.

< Upper and lower shaft timing adjustment >



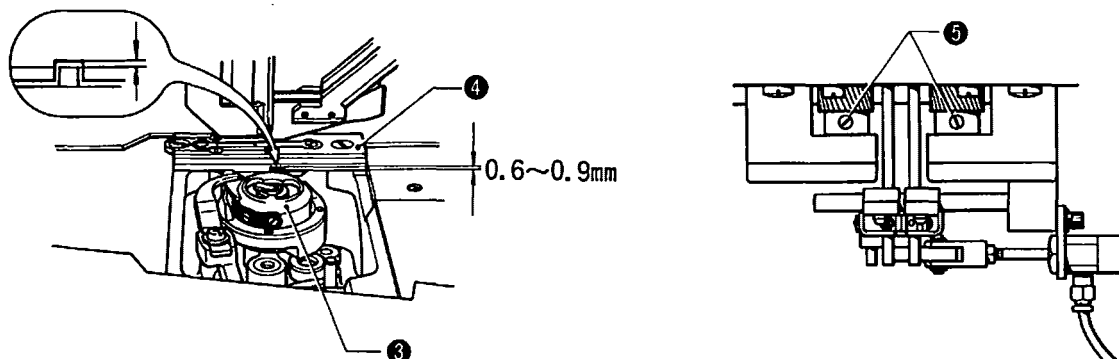
1. Remove the needle.
2. Tilt the machine and remove the timing belt ①.
3. Align marker A on the pulley with the red index.
4. Without moving the upper shaft, align the arrow on the lower belt ② with the arm bed reference line, and remount the timing belt.
5. Right the machine and install the needle.

< Needle and rotary hook timing adjustment > [Needle to rotary hook point gap]



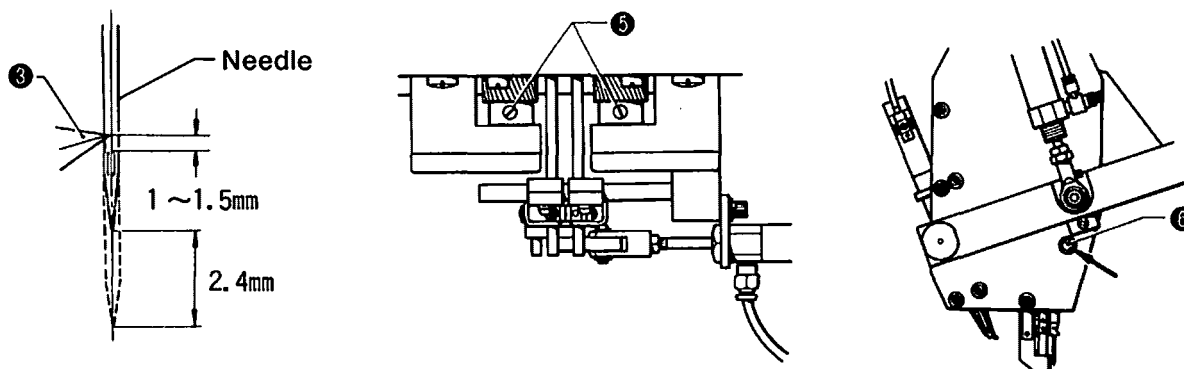
1. The gap between the needle and rotary hook point should be 0.05 mm. Loosen screws ①, ②, and ③, and shift the rotary hook base ④ right or left to adjust.
 2. The gap between the rotary hook base ① inside and the lower shaft gear ② should be approximately 0.2 mm. Shift the lower shaft gear ② right or left to adjust.
- ※ Be sure that the screw stop does not change when screws ③ are tightened to gear ②.

[Rotary hook to needle plate gap]



- ★ The gap between the rotary hook ③ and needle plate ④ should be 0.6~0.9 mm. Loosen screw ⑤ and raise or lower rotary hook ③ to adjust.

[Needle bar lift stroke and needle bar height]



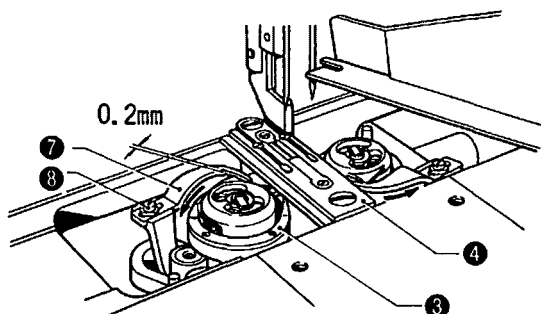
Needle bar lift stroke

1. The rotary hook point should be aligned with the needle center when the needle is raised 2.4 mm from the bottom point. Loosen screw ⑤ and turn rotary hook ③ to adjust.

Needle bar height

1. The gap between the top of the needle hole and the rotary hook point should be 1~1.5 mm when the rotary hook point is aligned with the needle center. Loosen screw ⑥ and raise or lower the needle bar to adjust.

[Rotary hook and bobbin case opener gap]



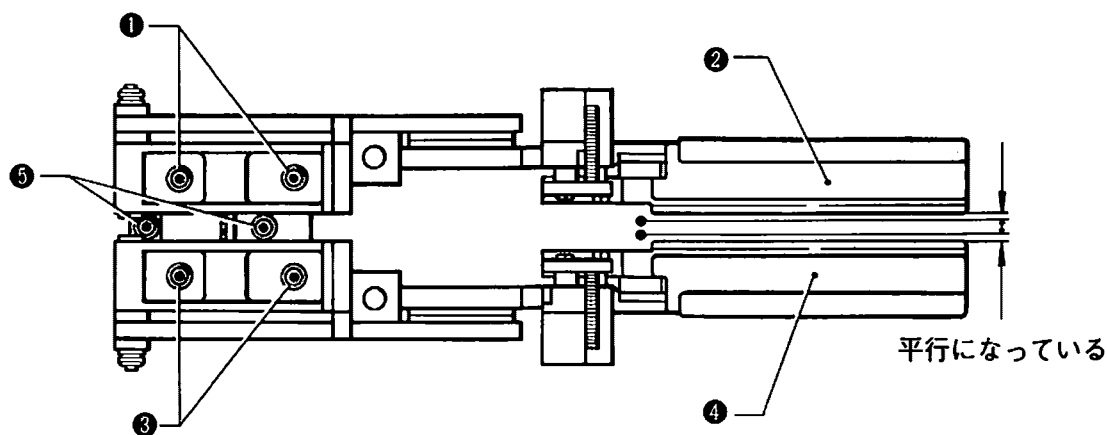
- ★ The rotary hook ③ to bobbin case opener ⑦ gap should be 0.2 mm when the bobbin case opener ⑦ is shifted all the way in the direction of the arrow. Loosen screw ⑧, and shift the bobbin case opener ⑦ right or left to adjust.

CARRIAGE FEED ADJUSTMENT

< Parallel adjustment of needle and carriage feed >

1. Set the carriage feed to the stop position.

Move the carriage feed and make sure the needle and carriage feed are parallel as shown in the figure below.



Adjustment

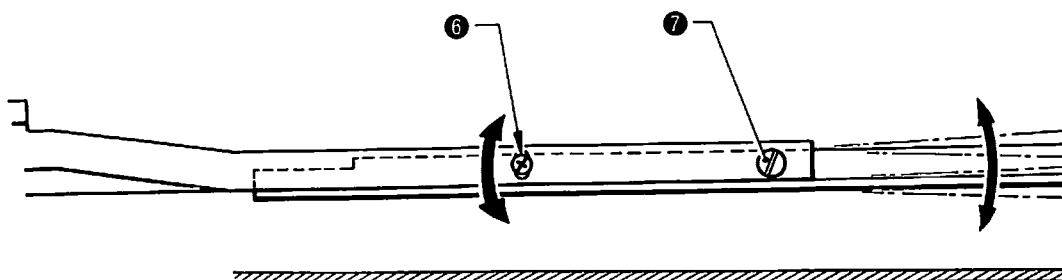
Loosen screws 6 and 7, and adjust the angle of carriage feed arms 2 and left 4. Place a piece of material below carriage feed arms 2 and 3, and lower the carriage feed to clamp the material. Now pull on the material to make sure the carriage feed evenly clamps the material at front and back.

< Carriage feed angle adjustment >

- ★ Make sure the carriage feed angle is properly adjusted for the material in use.

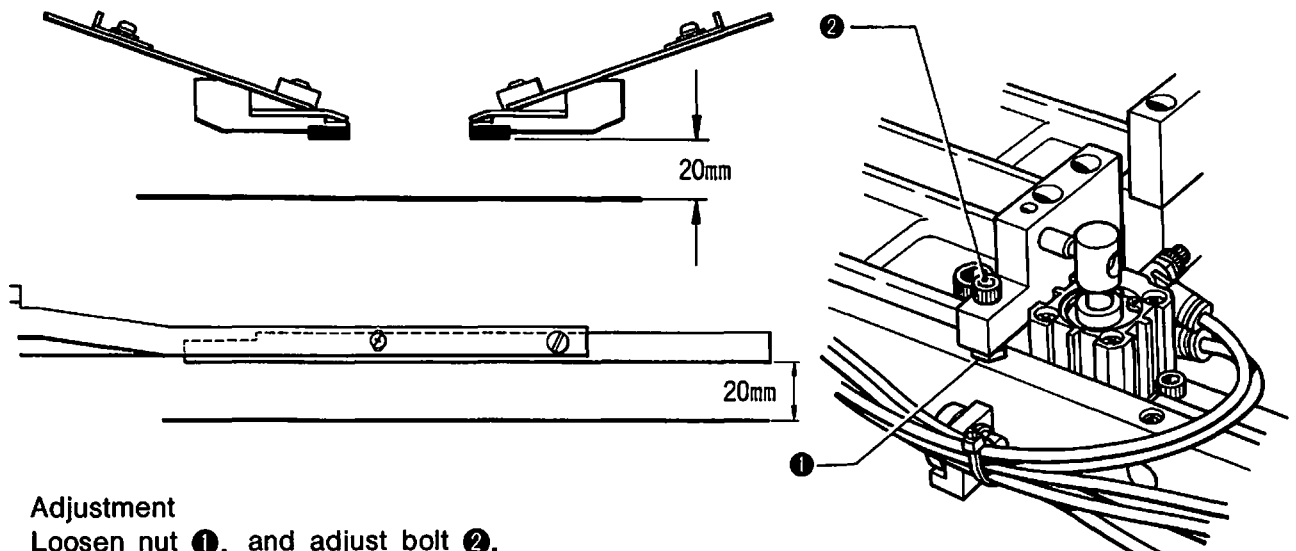
Adjustment

Loosen screws 6 and 7, and adjust the angle of carriage feed arms 2 and left 4.



< Carriage feed height adjustment >

★ The front edge of the carriage feed should be approximately 20 mm high at the home position.



Adjustment

Loosen nut ①, and adjust bolt ②.

Loosen bolt ② to raise the carriage feed, tighten the bolt to lower the carriage feed.

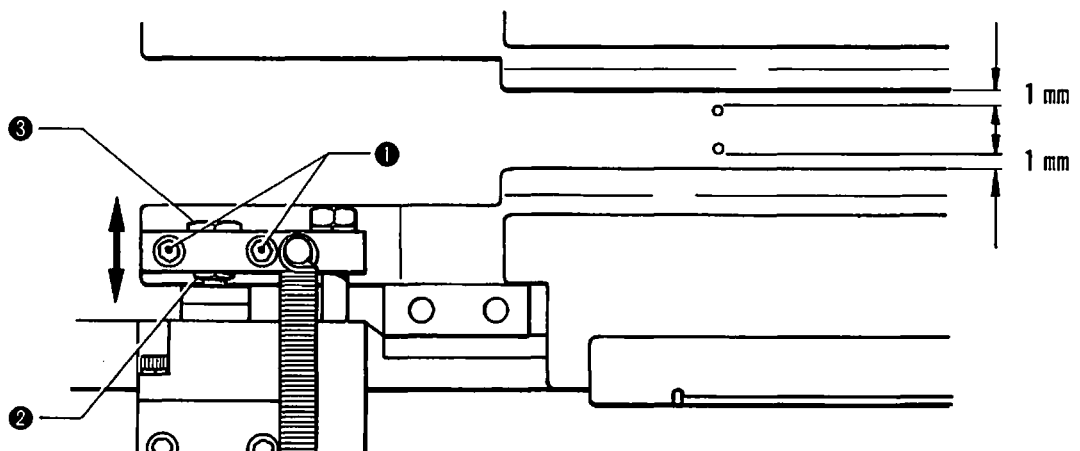
Before adjusting, turn the power switch off, move the carriage feed forward and back by hand, and make sure the flap presser does not strike the machine.

< Folding plate position adjustment >

Move the carriage feed, and make sure the edge of the carriage feed and the edge of the folding plate are flush.

Also, the gap between the folding plate and needle should be approximately 1 mm when the folding plate is fully extended.

※ Move the carriage feed, and make sure the gap between the folding plate and needle is approximately 1 mm.



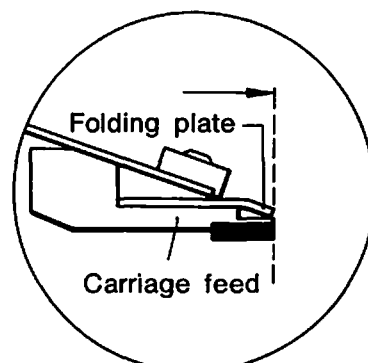
Adjustment

- Loosen bolts ①, and bring the edge of the carriage feed flush with the edge of the folding plate.

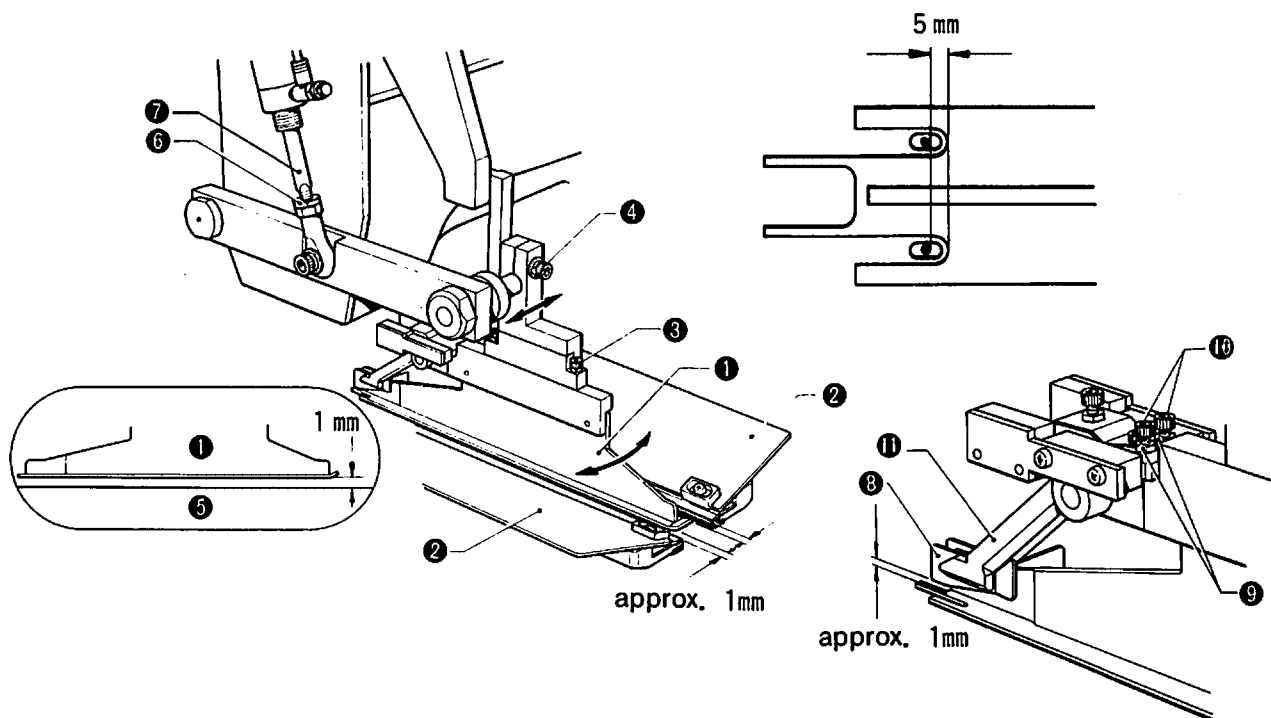
- Loosen nut ②, turn nut ③, and adjust the stroke of the folding plate.

Loosen nut ③ to increase the stroke.

Tighten nut ③ to decrease the stroke.



< Binder position adjustment >



1. When the binder ① is down, the gap between the edge of the binder ① and the edge of the carriage feed ② should be approximately 1 mm (on both sides), and the edges should be parallel.

Adjustment

- (1) Loosen bolt ③ and adjust the binder ① so the edge of the binder and carriage feed ② are parallel.
- (2) Loosen bolt ④ and adjust the gap between the edge of the binder ① and the edge of the carriage feed ② to approximately 1 mm (on both sides).

2. When the binder ① is down, the gap between the bottom of the binder ① and the top of the slide plate ⑤ should be approximately 1 mm.

Adjustment

Loosen nut ⑥, and turn shaft ⑦ so the gap between the bottom of the binder ① and the top of the slide plate ⑤ is approximately 1 mm. The gap at both ends of the binder ① must be the same.

3. The gap between the bottom of the cloth guides ⑧ and the top of the binder ① should be approximately 1 mm.

Adjustment

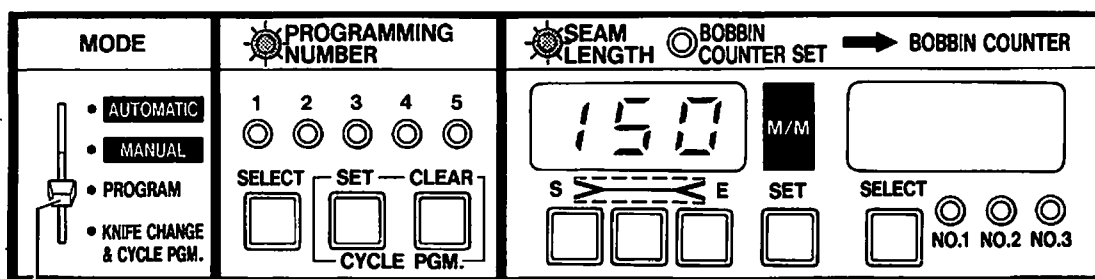
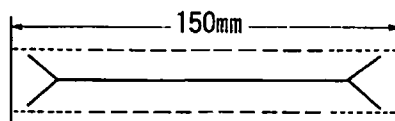
Loosen nut ⑨, and adjust bolts ⑩. Tighten bolts ⑩ to raise, loosen the bolts to lower the height.

Now lift the material guide arm ⑪ by hand to make sure the arm is returned by the spring pressure.

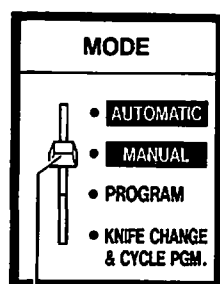
SENSOR ADJUSTMENT

< Needle thread knife sensor adjustment >

1. Set MODE ❶ to PROGRAM.
Set a seam length of 150 mm.
 2. Set MODE ❶ to MANUAL.
 3. Set a piece of material in place so the cushion on the back of the carriage feed does not wear.
 4. Press the start switch ❷.
The carriage feed will move to the sewing start position.
 5. Set THREAD TRIMMER ❸ to UPPER.
The needle thread trimmer knife ❹ will descend.
 - Adjust the timing at which the thread trimmer becomes off with needle thread knife sensor ❺.
 6. Slide needle thread knife sensor ❺ up or down and secure where the needle thread trimmer knife ❹ will not strike the flap presser (folding plate).
- ※ When the needle thread trimmer knife ❹ is off, the needle thread trimmer knife ❹ will not operate if the needle thread trimmer knife sensor indicator ❻ is already on.



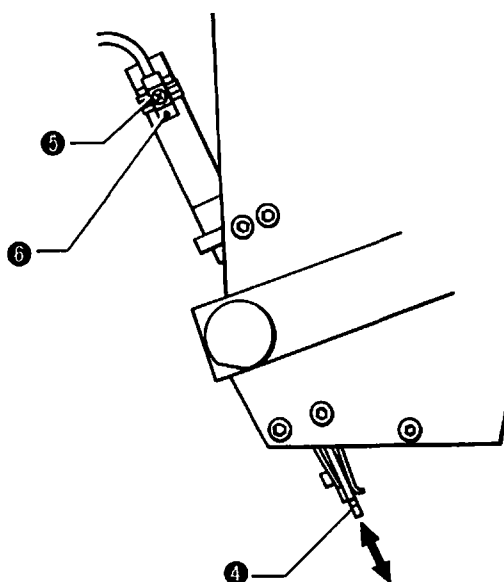
❶



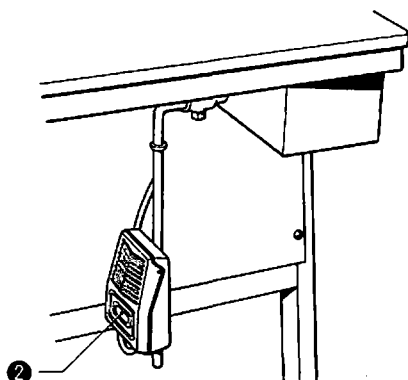
❶



❸



❹



❷

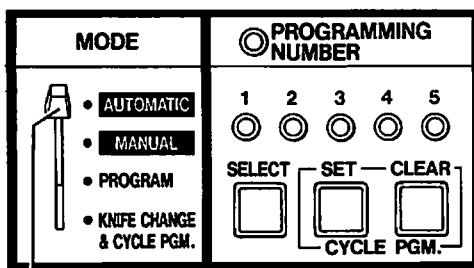
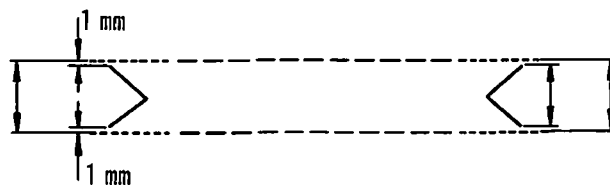
< Corner knife adjustment >

1. Set MODE ① to AUTOMATIC.
2. Set CORNER KNIFE ② and CENTER KNIFE ③ to ON.
3. Set a piece of material in place, and press the start switch ④.
4. When the corner knife operates after sewing, adjust the position of the sensor ⑤ where the alarm stops.

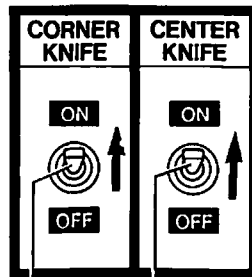
Make sure the blade of the corner knife cuts the material at this time.

If the sensor position is too low, the corner knife will not rise enough.

The amount cut by the corner knife is dimension B, approximately 2 mm less than dimension A of the gauge. Make sure there is a 1 mm allowance inside the seams.

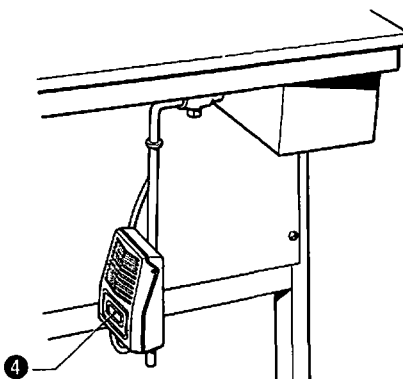
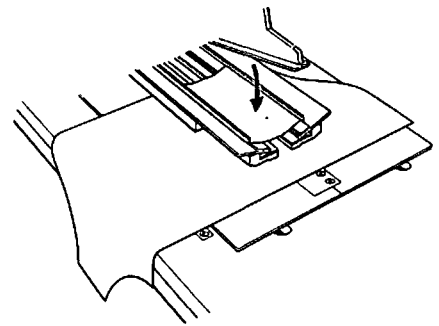


①

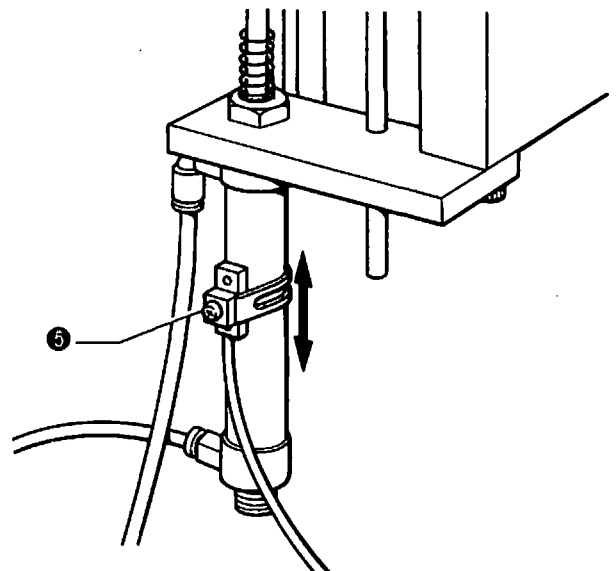


②

③



④

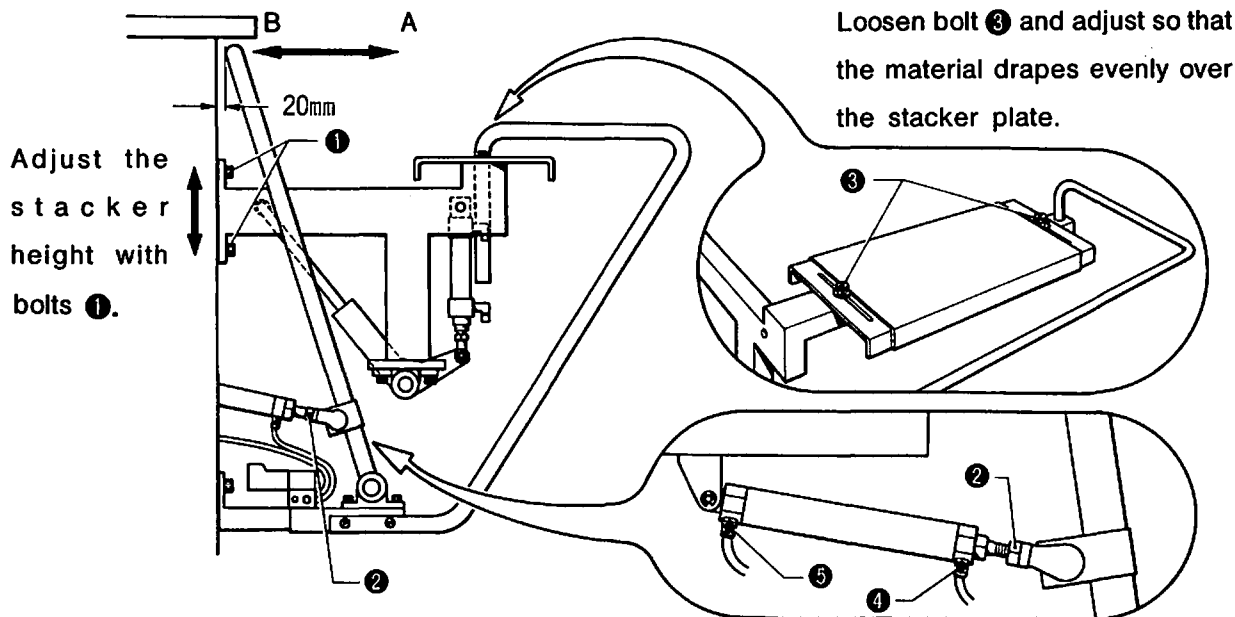


⑤

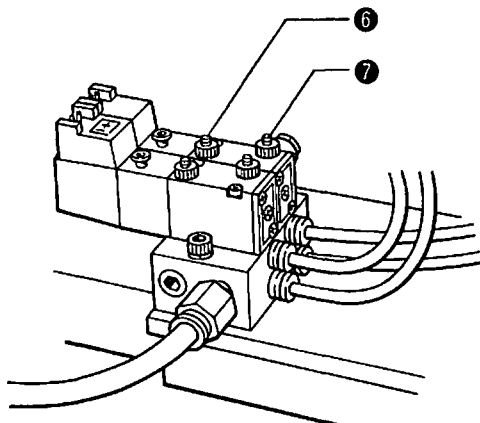
STACKER ADJUSTMENT

< Bar stacker >

Make sure the stacker bar does not extend beyond the table.



Adjust the stacker stop position with nut ②.



Cushion adjustment when stopping towards A

Tighten speed controller screw ④ to decrease the stop speed.

Loosen speed controller screw ④ to increase the stop speed.

Cushion adjustment when stopping towards B

Tighten speed controller screw ⑤ to decrease the stop speed.

Loosen speed controller screw ⑤ to increase the stop speed.

※ Adjust so that the recoil of the stacker bar does not cause the bar to strike the machine when it stops.

Speed adjustment in direction A

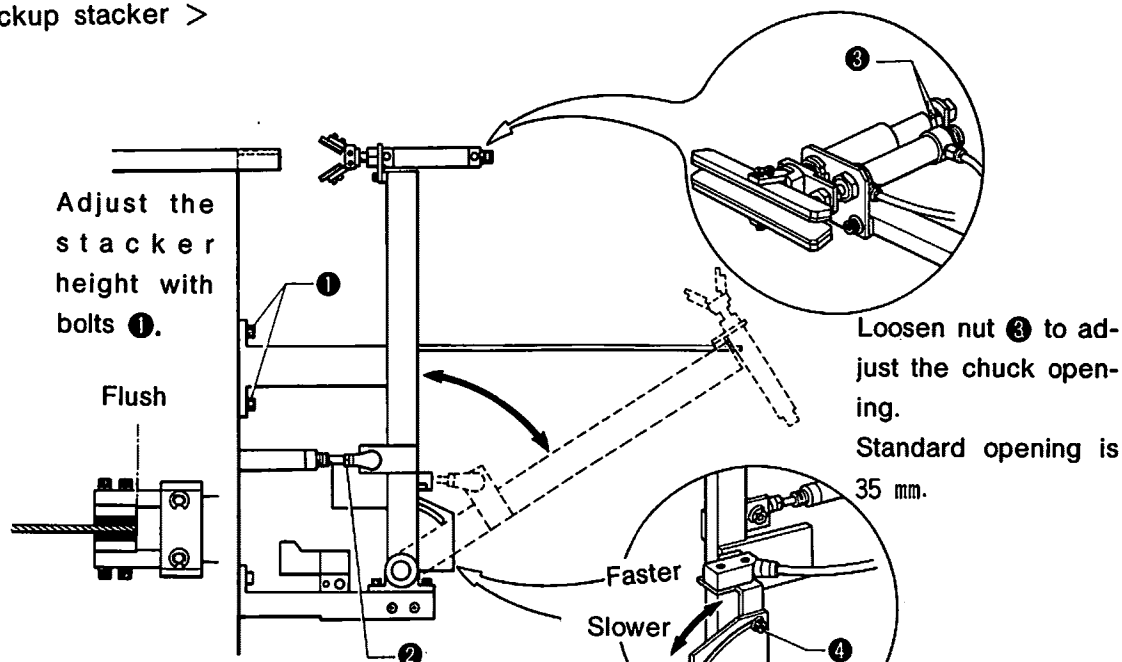
Screw valve speed control screw ⑥ in (turn right) to decrease air cylinder speed.
Loosen to increase the speed.

Speed adjustment in direction B

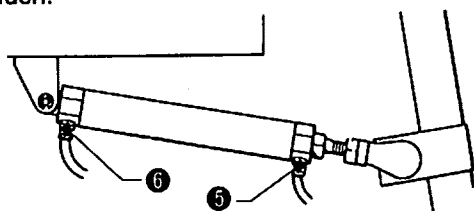
Adjust valve speed control screw ⑦ as above.

※ If the stacker bar returns before the end of the cylinder ② stroke when the stacker is operated in the AUTOMATIC or MANUAL mode, increase the speed so that the bar travels all the way to the end of the stroke.

< Pickup stacker >



Adjust the stacker stop position with nut ② so that the edge of the table and the edge of the chuck are flush.

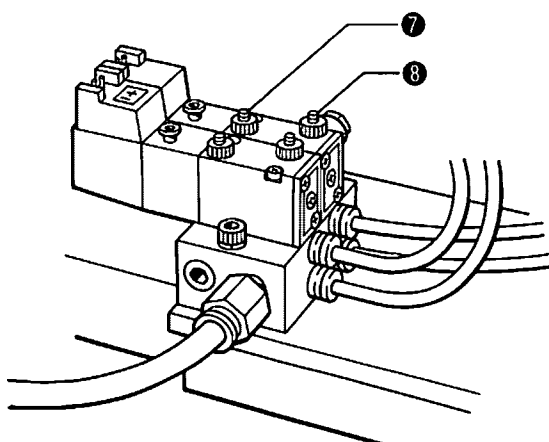


Cushion adjustment when stopping towards A
Tighten speed controller screw ⑤ to decrease the stop speed.

Loosen speed controller screw ⑤ to increase the stop speed.

Cushion adjustment when stopping towards B
Tighten speed controller screw ⑥ to decrease the stop speed.

Loosen speed controller screw ⑥ to increase the stop speed.



Speed adjustment in direction A

Screw valve speed control screw ⑦ in (turn right) to decrease air cylinder speed.
Loosen to increase the speed.

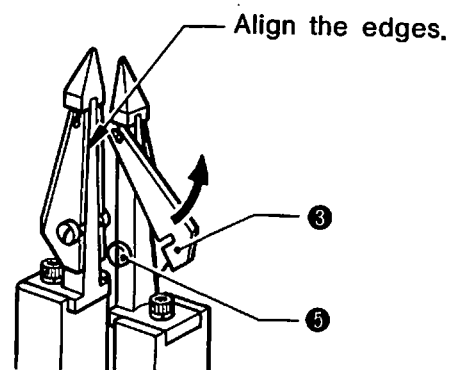
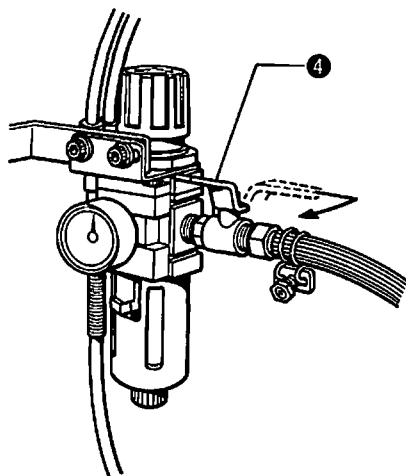
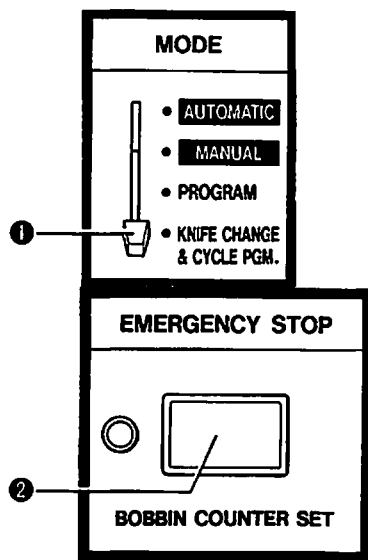
Speed adjustment in direction B

Adjust valve speed control screw ⑧ as above.

KNIFE REPLACEMENT

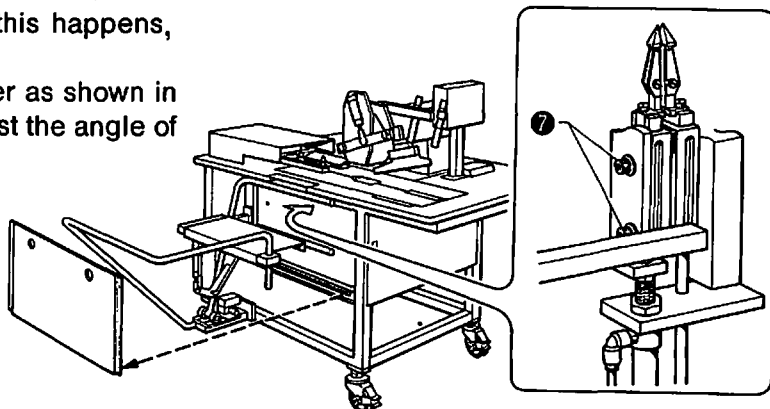
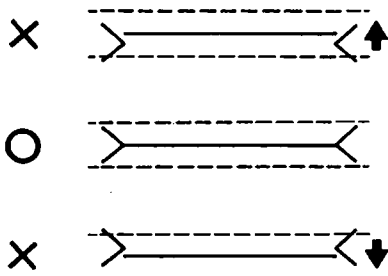
< Corner knife replacement >

1. Set MODE ① to KNIFE CHANGE & CYCLE PGM.
2. Press EMERGENCY STOP ②.
An alarm will sound once, and the carriage feed will move to the knife replacement position.
The alarm will sound once more when the carriage feed stops.
3. Press EMERGENCY STOP ② once more.
The alarm will sound twice, the carriage feed and flap presser will descend, and the corner knife will rise above the table.
※ Keep your hands away from the knife.
AIR OFF will be displayed.
4. Turn air cock ④ to stop the air supply. (Bleed the air line.)
The corner knife will be locked in the up position.
5. Loosen screw ⑤, and replace corner knife ③.
※ Align the edge of the corner knife ③ with the edge of the knife bracket ⑥.
6. After replacing the knife, turn air cock ④ to restore the air supply.
7. Press EMERGENCY STOP ② again.
The alarm will sound twice, the carriage feed and flap presser will rise, and the corner knife will descend.
The carriage feed will move to the stop position, and the alarm will sound once.

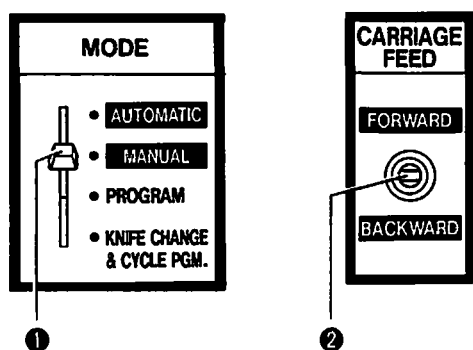


Cautions on installation

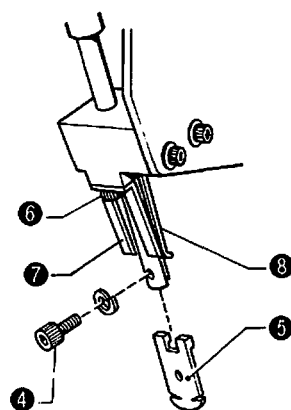
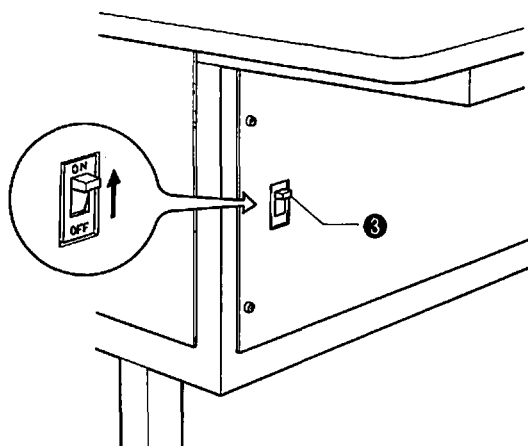
- If the air supply is not turned on again in step 6 above, the corner knife will not descend even if the air supply is restored later. If this happens, repeat steps 1 through 7 above.
- If the corner knife is not in the center as shown in the figure, loosen screw ⑦ and adjust the angle of the corner knife.



< Needle thread trimmer knife replacement >



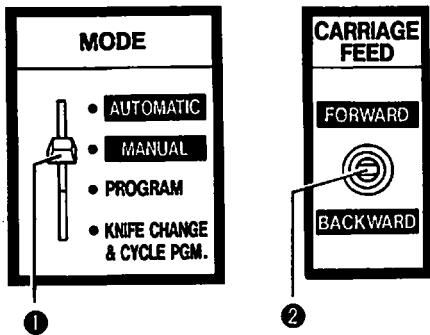
1. Set MODE ① to MANUAL.
 2. Set CARRIAGE FEED to FORWARD to move the carriage feed out of the way so that knife replacement is easier.
 3. Set the power switch ③ to OFF.
 4. Remove screw ④, and remove movable knife ⑤.
 5. Remove screw ⑥, and remove fixed knife ⑦.
- ※ Installation is the reverse of removal.



Cautions on installation

- Adjust fixed knife ⑦ and spring ⑧ so that there is no gap and pressure is applied by the spring.
※ Increase the pressure if the knives do not cut properly.
- If the pressure is increased too much, movable knife operation will become sluggish and the needle thread will not be properly released.

< Bobbin thread knife replacement >

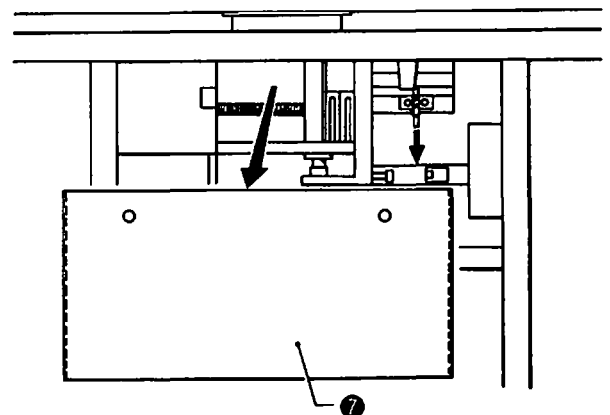
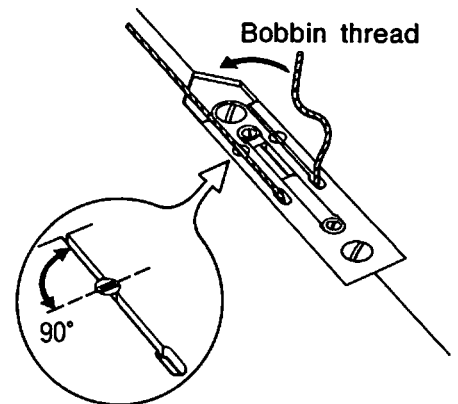
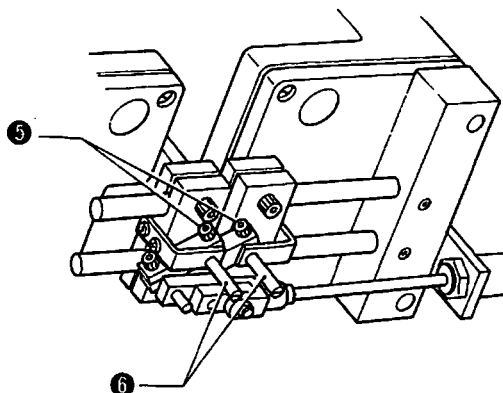
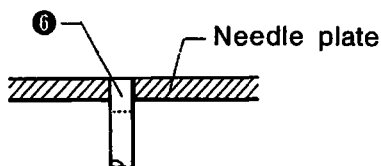
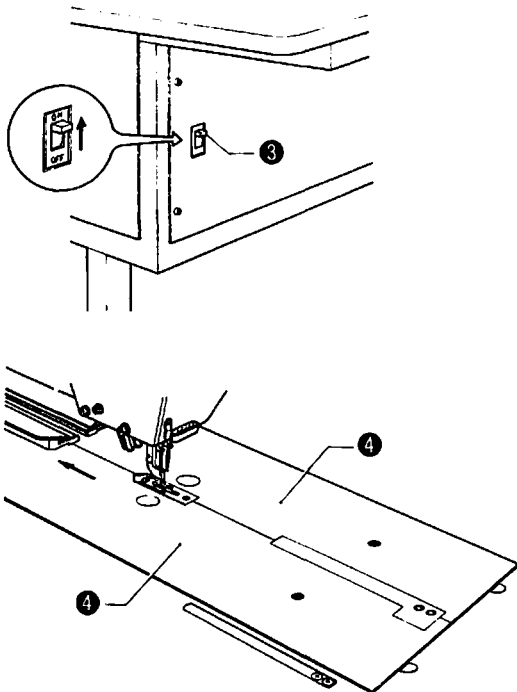


1. Set MODE ❶ to MANUAL.
2. Set CARRIAGE FEED ❷ to FORWARD. The carriage feed will advance.
3. Set the power switch ❸ to OFF.
4. Remove slide plates right and left ❹.
5. Tilt the machine.
6. Loosen screw ❺, and right the machine.
7. Remove the right front cover ❷, and then remove the bobbin thread knife ❻ from the underside of the table.

※ Installation is the reverse of removal.

Cautions on installation

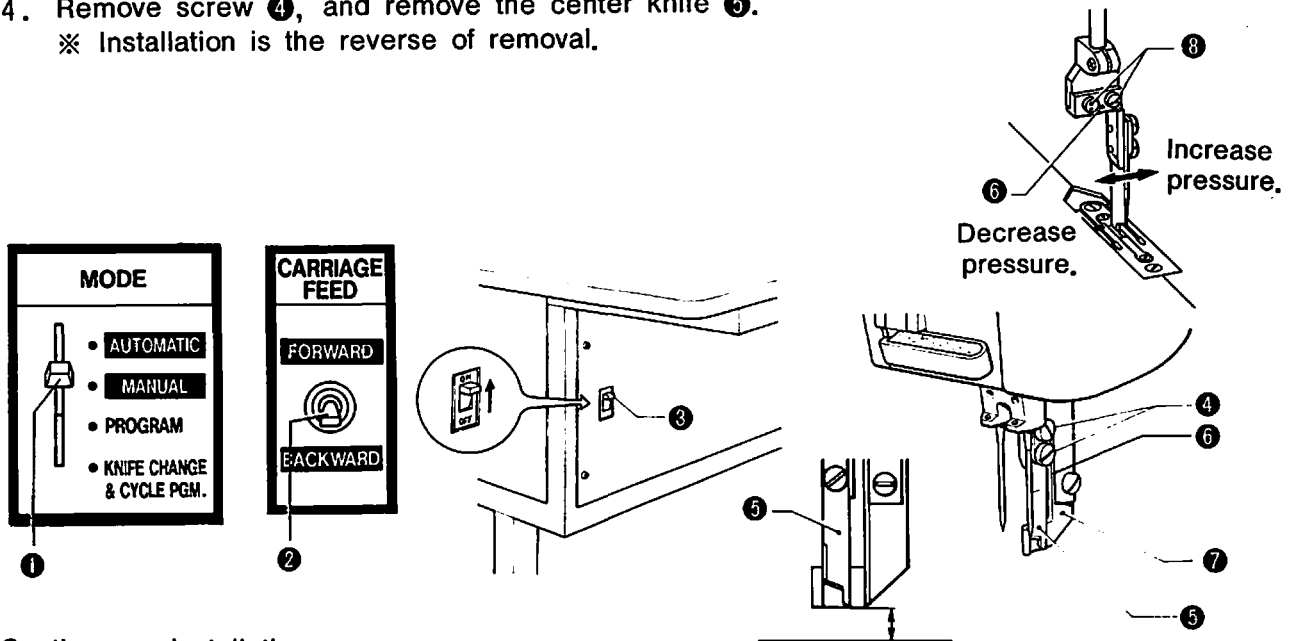
- Be sure the bobbin thread knife ❻ does not extend above the top of the needle plate.
- When the cylinder rod is fully retracted, the groove in the bobbin thread knife ❻ should be aligned with the groove in the needle plate.



< Center knife replacement >

1. Set MODE ① to MANUAL.
2. Set CARRIAGE FEED ② to FORWARD. The carriage feed will advance.
3. Set the power switch ③ to OFF.
4. Remove screw ④, and remove the center knife ⑤.

※ Installation is the reverse of removal.



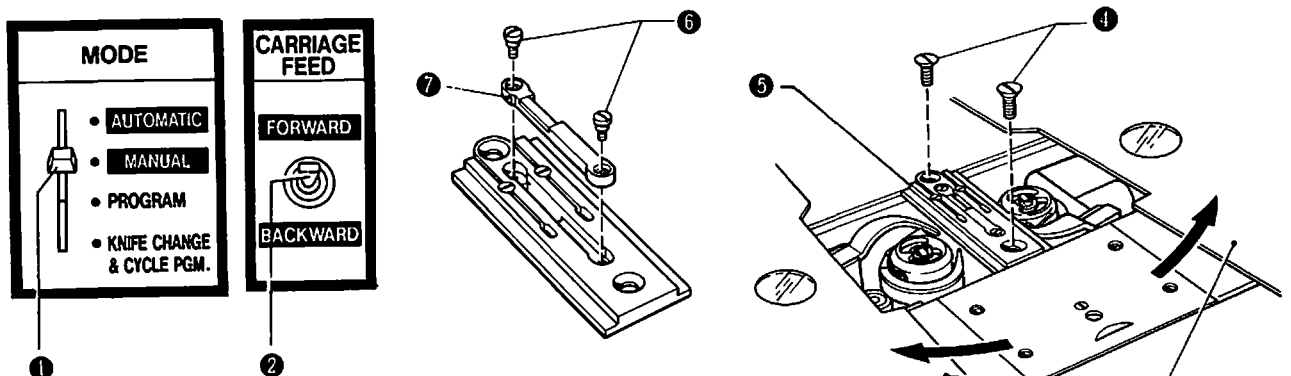
Cautions on installation

- Align the center knife ⑤ with the screw hole in the center knife bracket ⑥, and secure with screw ④.
- The tip of the center knife should be 8 mm above the top of the needle plate. (Align the knife with the bottom of the center knife guide.)
- Set the power switch to ON, and make sure the center knife tip does not protrude from the center knife guide ⑦.
- Adjust center knife pressure by loosening screws ⑧ and adjusting center knife bracket ⑥. Increasing the pressure too much will decrease center knife durability.

< Fixed knife replacement >

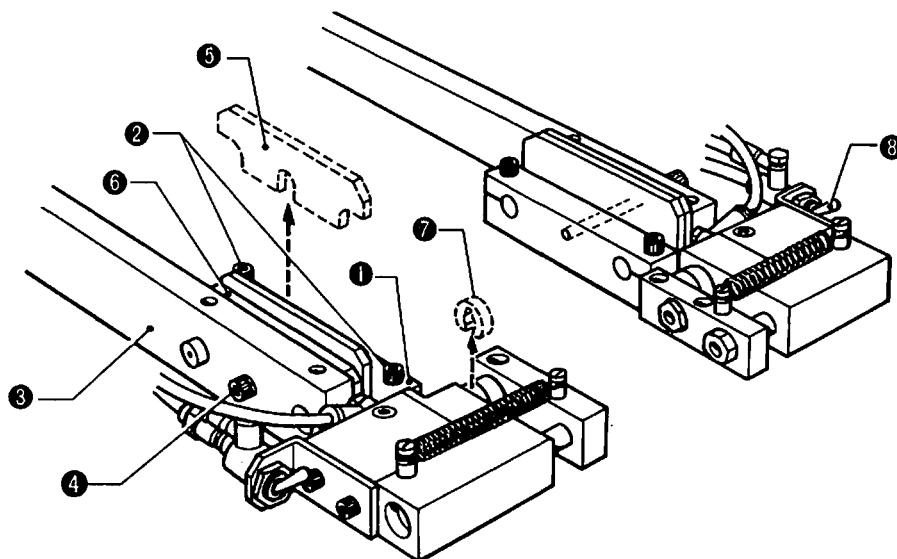
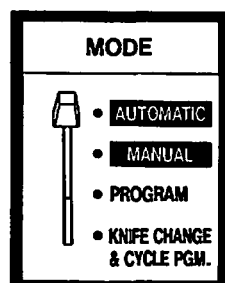
1. Set MODE ① to MANUAL.
2. Set CARRIAGE FEED ② to FORWARD. The carriage feed will advance.
3. Set the power switch ③ to OFF.
4. Remove slide plates right and left ③.
5. Remove screw ④, and needle plate ⑤.
6. Remove screw ⑥, and fixed knife ⑦.

※ Installation is the reverse of removal.



DOUBLE WELTING → SINGLE WELTING REPLACEMENT

< Changing from double to single welting >



1. Set MODE to MANUAL, and forward the carriage feed to the thread trimming position.
2. Change the binder assembly from a double welting to a single welting binder. Press the treadle, work the binder assembly, and adjust the height.
3. Loosen ruler fitting plate ① screws ② and carriage feed arm L ③ screw ④, and remove spacer W ⑤.
4. Slide ruler fitting plate ① towards carriage feed arm L ③, and firmly tighten screw ④. Make sure there are no gaps between ruler fitting plate ①, spacer S ⑥, and carriage feed arm L ③, and then tighten screw ②.
5. Drain the air line, and remove spacer W ⑦ on the cylinder rod for folding plate L.
6. Turn manual valve ⑧ for folding plate L off (down).

< Changing from double to deformed welting >

ERROR MESSAGES

- ★ The machine will not operate when an error message (characters unrelated to the program) is shown in the LED either when the power is turned on or during sewing.
Should an error message be displayed, contact your Brother dealer. A list of error messages is given below.

- E-1-※※ Switch-related error
E-2-※※ Machine-related error
E-3-※※ Carriage feed-related error
E-4-※※ Sensor-related error
E-6-※※ Thread breakage-related error

	Error Contents	How to reset
E-0-00	Pressed EMERGENCY STOP while carriage feed moving	Refer to the following.
E-1-00	Start switch depressed when power turned on.	Release the start switch.
E-1-01	Padding cloth presser foot assembly switch depressed when power turned on.	Release the treadle.
E-1-02	Treadle depressed when power turned on.	Release the treadle.
E-2-00	Machine motor does not stop at needle up position.	Turn the pulley to raise the needle.
E-2-01	Needle not at up position at sewing start.	Turn the power off.
E-2-02	Needle does not stop at up position at sewing end.	Turn the power off.
E-3-00	Feed home position is overrun (home side).	Turn the power off.
E-3-01	Feed is overrun.	Turn the power off.
E-3-02	Increase feed time	Turn the power off.
E-3-03	Feed command wait	Turn the power off.
E-3-04	Feed error at error reset	Turn the power off.
E-3-05	Abnormal feed stop	Turn the power off.
E-3-06	Overrun to home side when power turned on.	Move the carriage feed away from the operator by hand.
E-4-01	Right flap sensor defect	Same as emergency stop.
E-4-10	Left flap sensor defect	Same as emergency stop.
E-5-00	Cycle program interrupted.	Cycle program will be cleared and automatically reset.
E-6-01	Right thread breakage	Same as emergency stop.
E-6-10	Left thread breakage	Same as emergency stop.
E-7-00	Memory read error	Replace the circuit board.

<Emergency stop>

If EMERGENCY STOP is pressed while the carriage feed is moving, the feed motor and machine motor will stop immediately. The machine will now be in the same status as when the power is first turned on. The carriage feed will be in the same position as when EMERGENCY STOP is pressed. (See p.33)

MAIN CIRCUIT BOARD DIP SWITCH DESCRIPTIONS

Be sure the power switch is OFF before resetting any DIP switches.

SW 1

ON

sw11	12	13	14	15	16	17	18
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OFF

Lock stitch pitch	PSW-11	OFF	ON	OFF	ON	OFF	ON	OFF	ON
	PSW-12	OFF	OFF	ON	ON	OFF	OFF	ON	ON
	PSW-13	OFF	OFF	OFF	OFF	ON	ON	ON	ON
	(mm)	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8

Fraying prevention	PSW-14	ON: Backstitch	OFF: Condense
--------------------	--------	----------------	---------------

Backstitch or condense stitch seam length	PSW-15	OFF	ON	OFF	ON
	PSW-16	OFF	OFF	ON	ON
	(mm)	4.0	5.0	6.0	7.0

Condense stitch pitch	PSW-17	OFF	ON	OFF	ON
	PSW-18	OFF	OFF	ON	ON
	(mm)	0.8	1.0	1.2	1.4

SW 2

ON

sw21	22	23	24	25	26	27	28
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OFF

Machine speed	PSW-21	ON: 2500 spm	OFF: 2200 spm
---------------	--------	--------------	---------------

Carriage feed speed to sewing start position	PSW-22	ON : 20 m/min.
		OFF: 15 m/min.

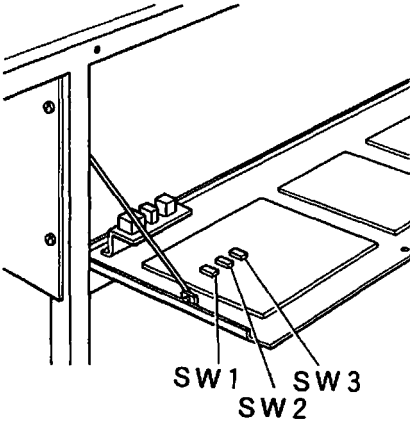
Carriage feed speed to corner knife position	PSW-23	ON : 20 m/min.
		OFF: 15 m/min.

Folding timer	PSW-24	ON : 250 mSEC	OFF: 350 mSEC
---------------	--------	---------------	---------------

Carriage feed operating order	PSW-25	OFF	ON	OFF	ON
	PSW-26	OFF	OFF	ON	ON
		Right → left	Left → right	Synchronized to carriage feed	Synchronized to carriage feed, flap presser

Flap presser operating order	PSW-27	ON	Right flap : Right → left	Left flap : Left → right
		OFF	Right flap: Left → right	Left flap : Right → left

Switch operation	PSW-28	ON : FOOT	OFF: Timer start
------------------	--------	-----------	------------------



SW 3

ON

sw31	32	33	34	35	36	37	38
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OFF

Gauge	PSW-31	ON : 8, 10, 12, 14 mm OFF: 16, 18, 20 mm			
Thread breakage monitor	PSW-32	ON : Exists OFF: None			
Carriage feed position	PSW-33	ON : Start switch monitor exists			
Stacker type	PSW-34	OFF	ON	OFF	ON
	PSW-35	OFF	OFF	ON	ON
		Pickup	Bar	Roller	
CHECK ROUTINE	PSW-36	ON : Sensor INITI.			
	PSW-37	ON : Memory INITI. W-CYCLE			

MEMORY INITIALIZATION

- ★ Used to initialize or clear the memory of sewing data required for a sewing procedure.
- 1. Set the power switch to OFF.
Turn switch 3-7 on the main circuit board to ON.
 - 2. Set the power switch to ON.
The memory will be completely cleared, and standard data will be written to memory.
When writing is completed, the alarm will sound once, and program number indicators 1~5 and bobbin counter indicators 1~3 will light.
 - 3. Set the power switch to OFF.
Turn switch 3-7 on the main circuit board to OFF.

< Standard data contents >

Cycle sewing	1 → 2 → 3
Program ①	28 mm (36mm)
Program ②	50 mm
Program ③	100 mm
Program ④	150 mm
Program ⑤	190 mm
Flap correction ①	40.0 mm
Flap correction ②	40.0 mm
Flap correction ③	40.0 mm
Flap correction ④	40.0 mm
Flap correction ⑤	40.0 mm
Corner knife correction ①	5 — 5
Corner knife correction ②	5 — 5
Corner knife correction ③	5 — 5
Corner knife correction ④	5 — 5
Corner knife correction ⑤	5 — 5
Bobbin thread ①	100
Bobbin thread ②	150
Bobbin thread ③	200

TROUBLE SHOOTING

Phenomenon	Cause	Where to check	Solution	Page
Needle thread breaks	Bent needle, blunt tip	Needle	Replace.	35
	Poor needle installation.	Needle alignment	Reinstall correctly.	35
	Not threaded correctly.	Threading	See "Threading the needle thread"	13
	Excessive needle thread tension	Needle thread tension	See "Stitch tension"	27
	Wrong rotary hook to bobbin case opener gap		See "Needle and rotary hook timing adjustment"	35
	Poor needle to rotary hook timing		See "Needle and rotary hook timing adjustment"	35
Bobbin thread breaks	Not threaded correctly.	Threading	See "Threading the needle thread"	13
	Excessive bobbin thread tension	Bobbin thread tension adjusting screw is too tight.	Readjust.	27
	Oil, thread trimmings in bobbin case.		Clean away all thread trimmings and oil.	
Uneven stitches	Bent needle, blunt tip	Needle	Replace.	35
Skipped stitches	Bent needle, blunt tip	Needle	Replace.	35
	Incorrect needle installation.	Needle facing, height	See "Needle installation"	35
	Not threaded correctly.	Needle thread threading	See "Threading the needle thread"	13
	Poor needle to rotary hook timing		See "Needle and rotary hook timing adjustment"	35
Stitches do not tighten.	Threaded pieces collected near rotary hook		Clean around the rotary hook.	
	Thread take-up spring is weak, or range is too small.	Thread take-up spring strength, action	See "Stitch tension".	27
	Needle thread tension is weak.	Needle thread tension	See "Stitch tension".	27
	Bobbin thread tension is weak.	Bobbin thread tension	See "Stitch tension".	27
Needle breaks	Needle installation is wrong.	Needle facing, height	See "Needle installation".	35
	Bent needle, blunt tip	Needle	Replace.	35
	Poor needle to rotary hook timing		See "Needle and rotary hook timing adjustment".	35
Needle doesn't stop at up position.	Needle up stop element problem	Position of needle up stop element	See "Position detector adjustment"	