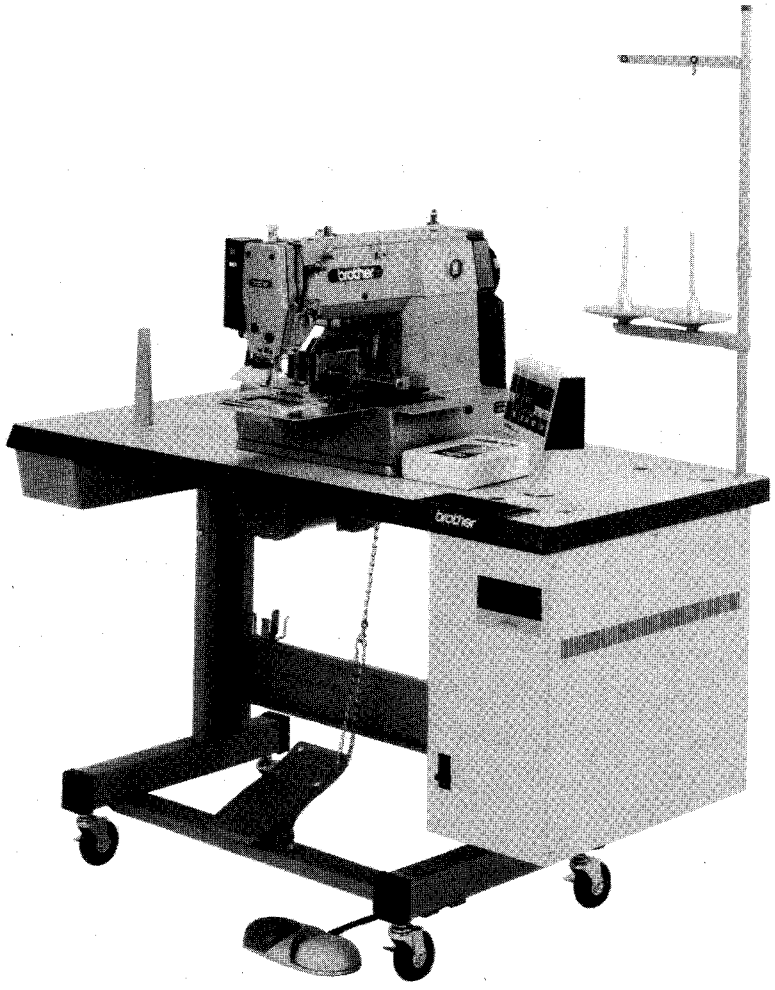
brother

ELECTRONIC PROGRAMMABLE PATTERN TACKER

BAS-310

INSTRUCTION MANUAL



SUMMARY OF MODEL BAS-310

★ Model BAS-310 is an automatic sewing machine with a wide variety of practical applications such as has long been desired by the sewing industry. For maximum applicability in a wide range of uses, Brother has incorporated into the BAS-310 carefully selected, in-house developed electronics technologies. One of the most important features of this machine is that its compact, easily operated programmer enables quick accurate input of new pattern data right on the factory floor.

★ Electronics have replaced the feed cam used by conventional embroidery machines for reduced energy consumption.

★ Stitch patterns can be kept indefinitely by storing them to floppy disk. Up to ten patterns can be stored on a single disk, and any pattern can be read into memory as desired for editing and reserving at any time.

The operator simply sets the work piece in the work clamp and presses the pedal. All stitching operations are performed automatically.

★ Changes in a stitch pattern can be stored by simply pressing PRO. No. (program number selection) to select the program number, and then pressing R/W (read/write) to write the pattern to disk.

Use of this machine realizes the objectives sought with automated machinery, including improved quality and productivity, rationalization of unskilled labor, and the ability to quickly adapt to changes in product designs.

FEATURES

1. All machine functions are electronically controlled for fully automated sewing and finish of stitch patterns. Special operator skills and labor are no longer needed.
2. Changes in stitch patterns can be completed in less time using the switches on the operation panel.
3. Stitch patterns can be programmed directly using the programmer by tracing the needle path of a pattern drawn to actual or enlarged size. Programming is thus completed much more simply and quickly than with conventional pattern sewing machines.
4. The feed mechanism is a pulse motor-driven, intermittent feed mechanism for precise pattern stitching in thin and thick materials alike.
5. Maximum pattern size is 100 mm wide (X axis) and 60 mm deep (Y axis). Even intricate, complicated patterns can be sewn with consistent quality throughout.
6. A manual presser foot lifter treadle is standard equipment, enabling more precise positioning of small pieces, and improving quality.
7. This high performance, general application machine is fully equipped with functions for a wide variety of applications.

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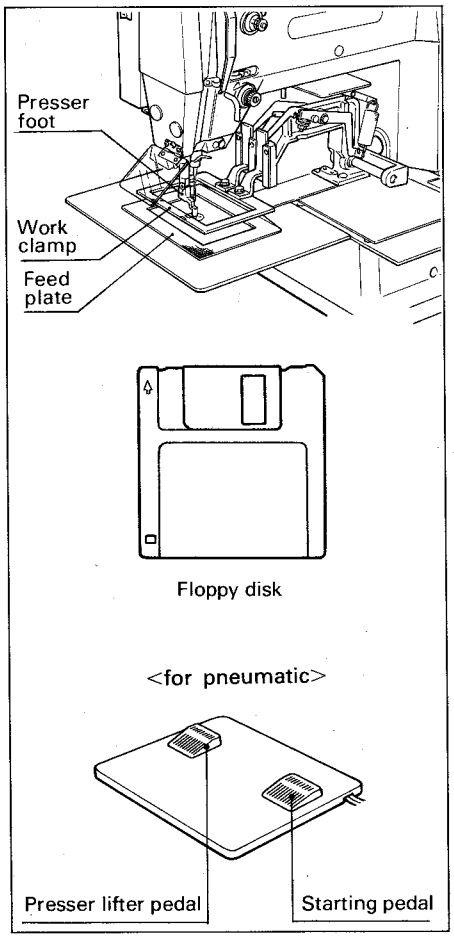
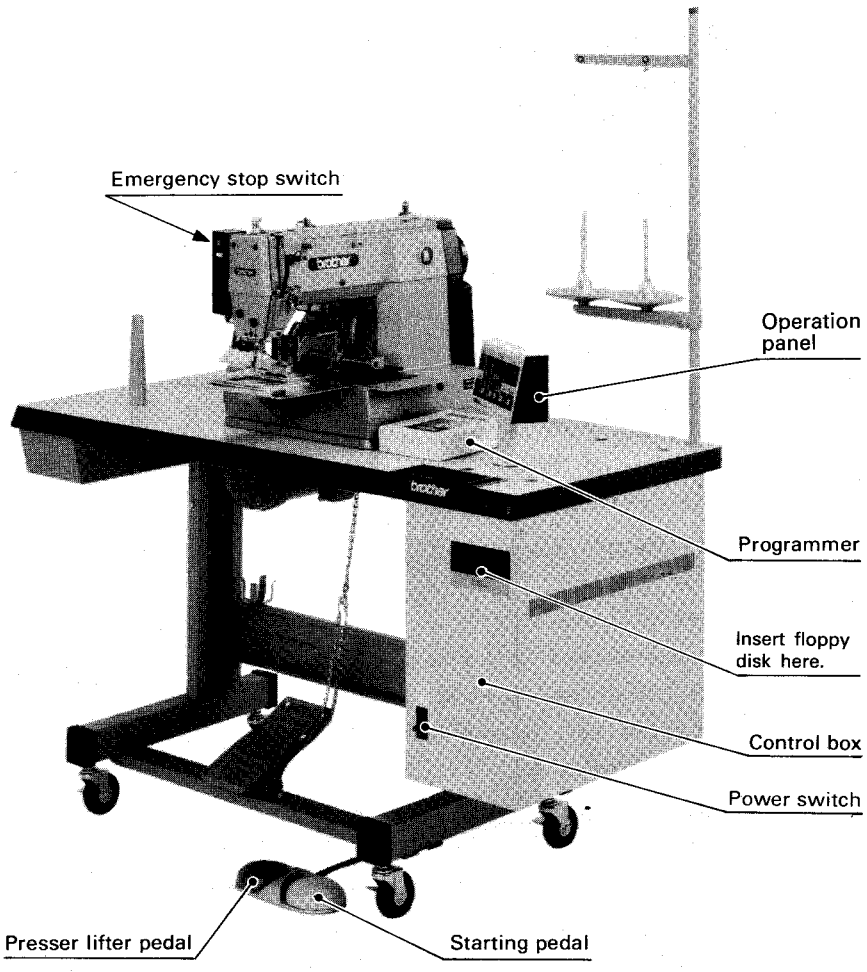
MAIN PART NAMES



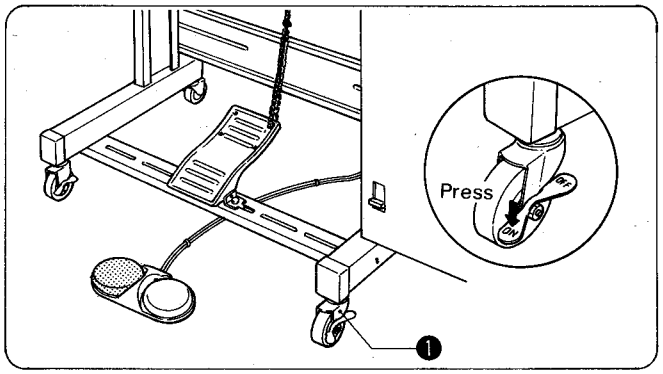


SPECIFICATIONS

Stitch type	Single needle, lock stitch			
Sewing machine	Lock stitch, pattern tacking sewing machine			
Stitch length and max. sewing speed	0.2 ~ 3.0 mm	3.2 ~ 4.4 mm	4.6 ~ 6.2 mm	6.4 ~ 8.0 mm
	1,000 ~ 2,000 spm	750 ~ 1,500 spm	600 ~ 1,200 spm	600 ~ 800 spm
Feed format	Intermittent feed, pulse motor drive			
Max. pattern size	100 mm wide (X axis) and 60 mm deep (Y axis)			
Number of stitches	Max. 2,000 (one pattern)			
Work clamp lift stroke	18 mm (foir solenoid), 20 mm (for pneumatic)			
2-step presser foot	Solenoid or pneumatic			
Intermittent feed	0, 4, 7 mm selectable (factory set to 4 mm; 10 mm optionally available)			
Test function	Operation test function provided for use with low speed drive			
Safety devices	Automatic stop function for activation in the event of misoperation realized with intermediate stop function and safety circuits.			
Machine dimensions	1200 W x 590 D x 1140 H mm (Sitting) ~ 1350 H mm (Standing)			
Power table	T-shaped for use sitting or standing			
Standard accessories	Floppy disks			
Power source	1-phase 100V 3-phase 200V			
Motor	Three phase induction motor 400W			

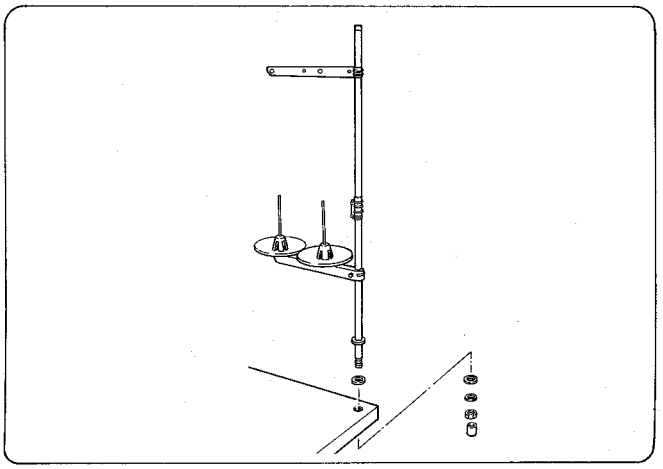
INSTALLATION

[1] Positioning



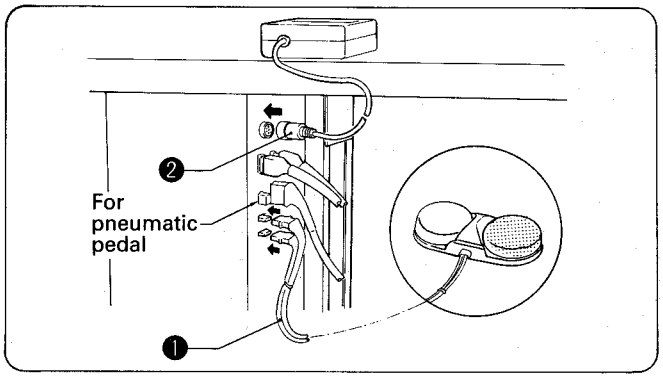
Determine the position for the sewing machine, and then lock the casters ❶ so that the sewing machine will not move.

[2] Installation of spool stand



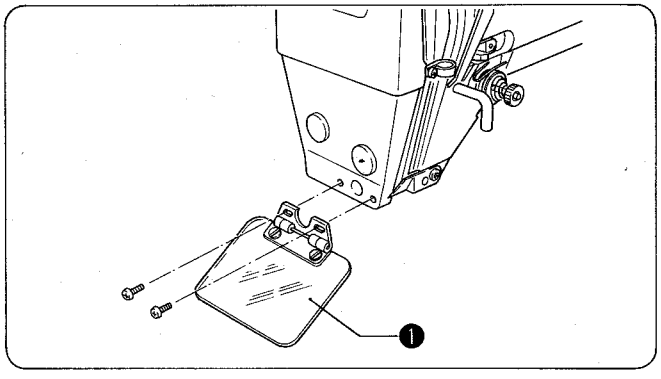
Install the spool stand to the table.

[3] Cord connections



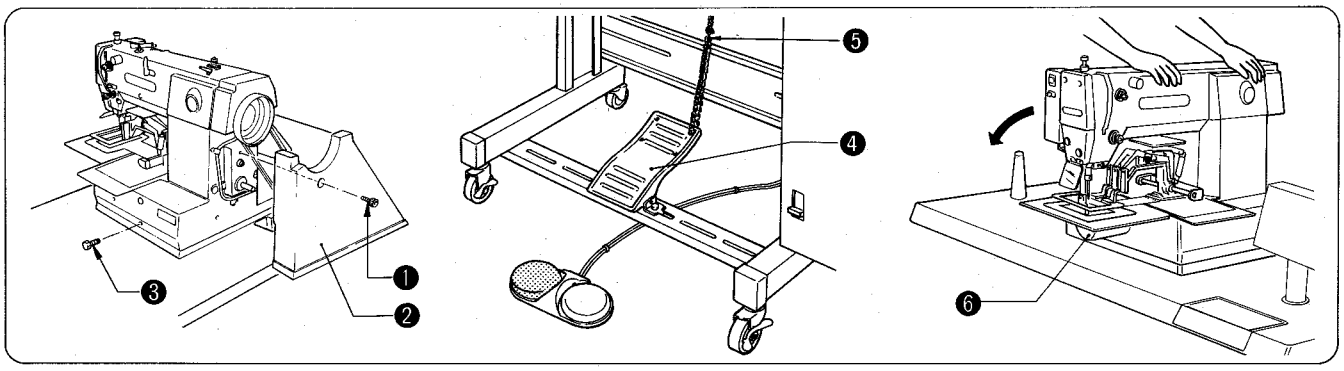
Connect the cords for the treadle ❶, disk drive unit ❷ and disk drive ground wire ❸, and the programmer ❹ tro their respective terminals.

[4] Installation of eye guard



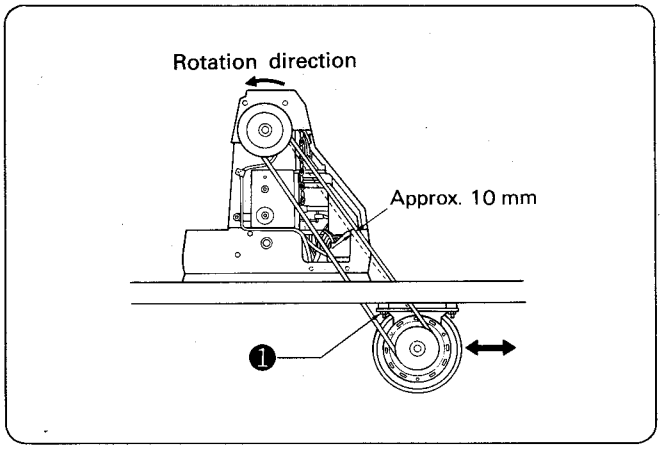
Install the eye guard ❶ on the machine head.

[5] Tilting the sewing machine head



(1) Remove bolt ❶ at the back of the work table, and remove belt cover D ❷.
(2) Remove head lock bolt ❸.
(3) Disconnect chain hook S ❺ hooked on treadle ❹.
(4) Stand at the left side of the table, and gently tilt the machine towards you. When returning the machine to the original position, be careful of the rotary hook cover ❻ and the cord.

6 V-belt tension

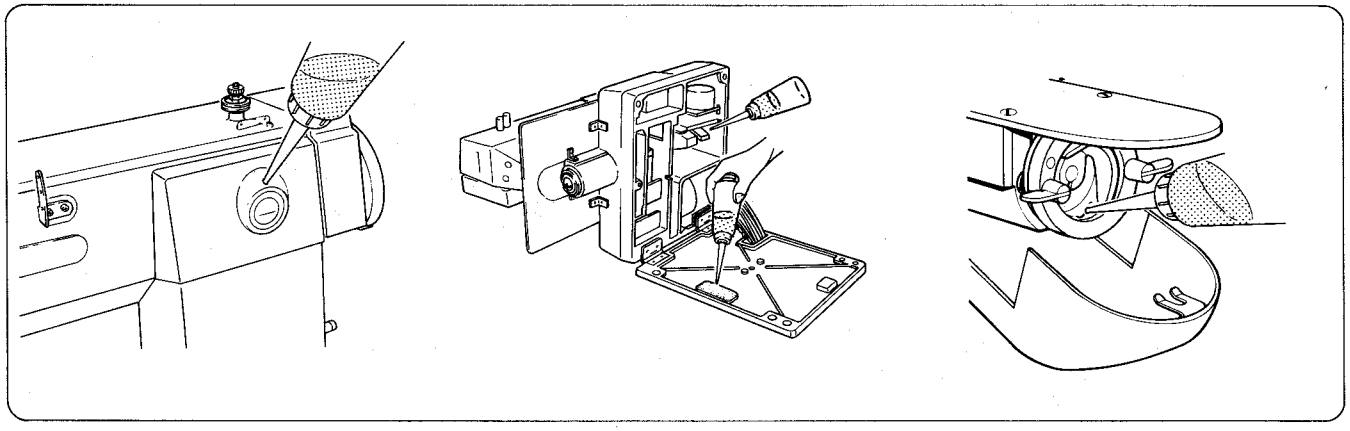


There should be approximately 10 mm of give when the V-belt is pressed at the center. To adjust, loosen the four bolts ❶, and shift the motor right or left.

LUBRICATION AND OIL DRAINING

1 Adding oil

★ Be sure to use Brother-specified machine oil (Nisseki Sewing Lub. 10).

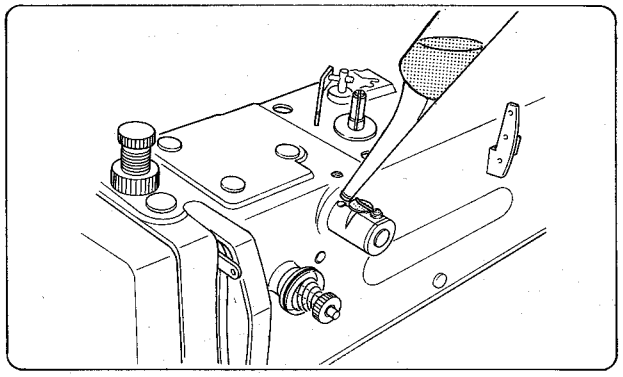


(1) Fill the oil tank with sewing machine oil.

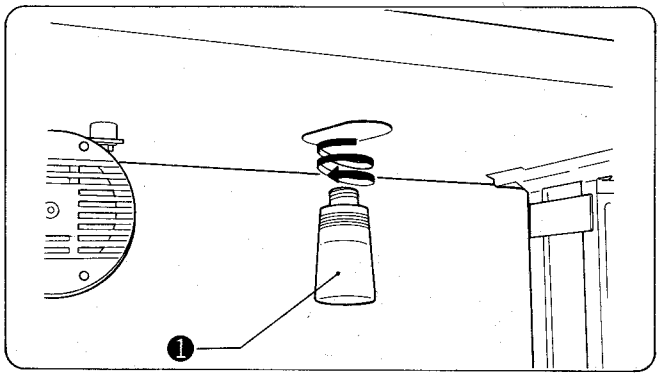
(2) Soak the rotary hook lubrication felt with oil.
Also add several drops of oil to the gear felt.

(3) Add a drop of oil to the rotary hook race.

2 Oil draining



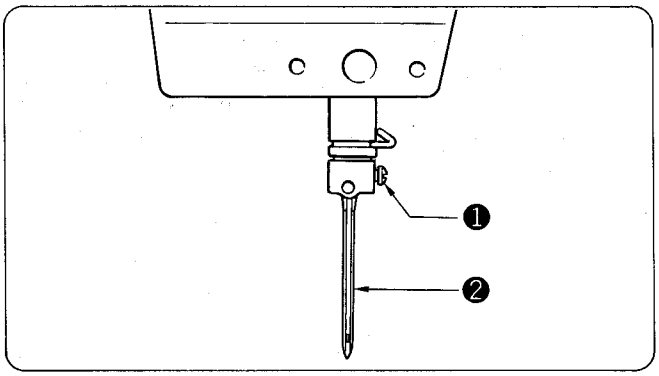
(4) Fill the cooling tank with silicon oil.



★ Remove and empty the oil drain ❶ wherever it is full.

CORRECT OPERATION

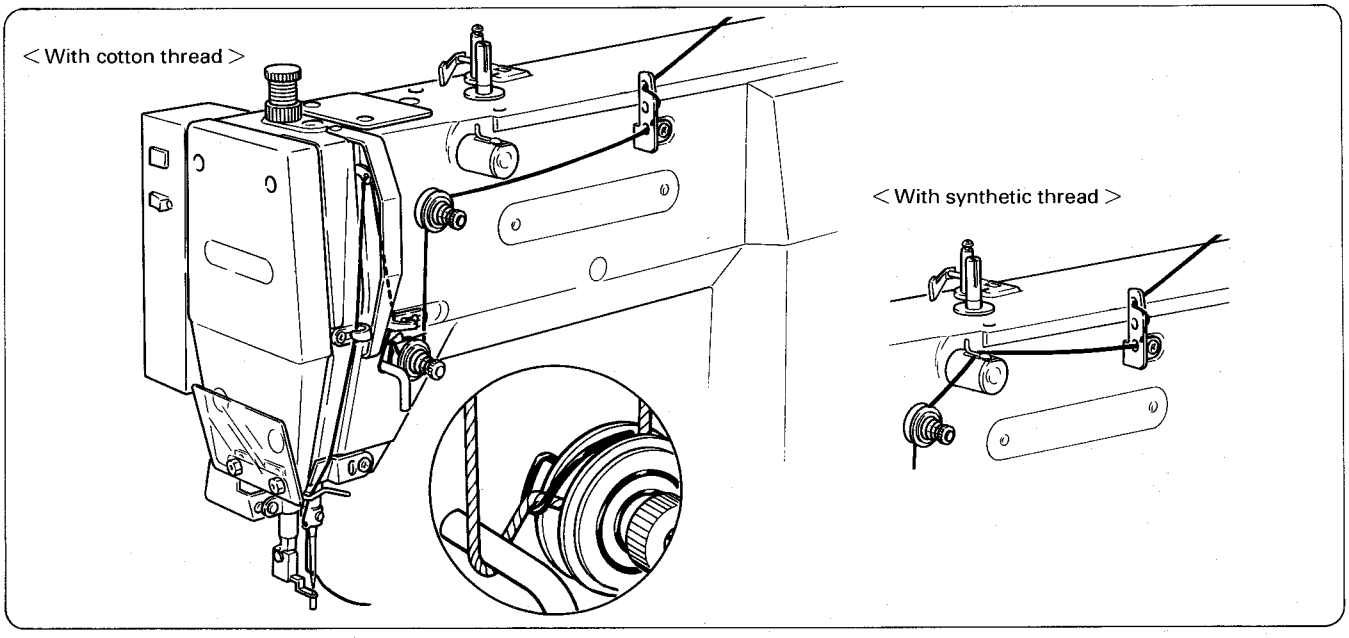
1 Needle installation



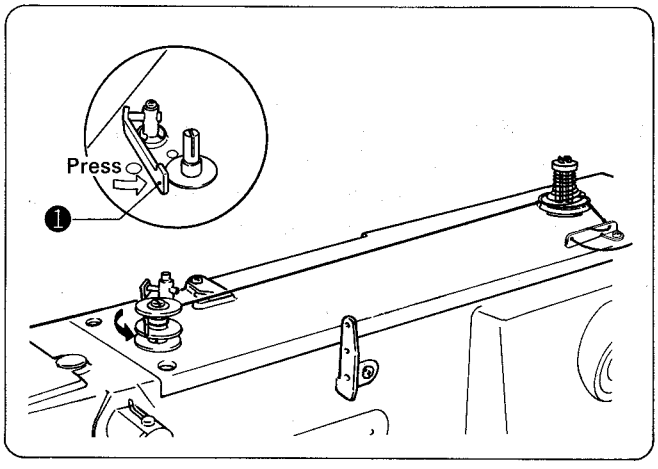
★ Loosen set screw ❶. Fully insert the needle ❷ with the groove facing the front, and then retighten set screw ❶.

2 Upper thread threading

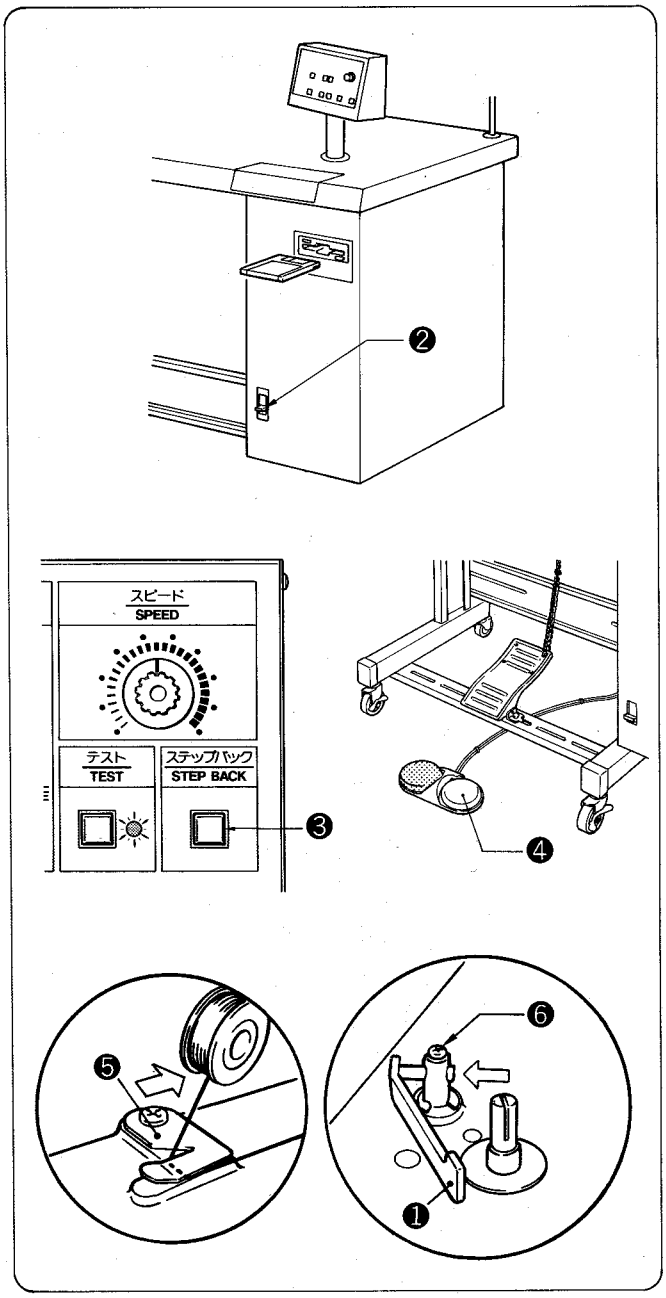
★ Thread the upper thread as shown in the diagrams below.



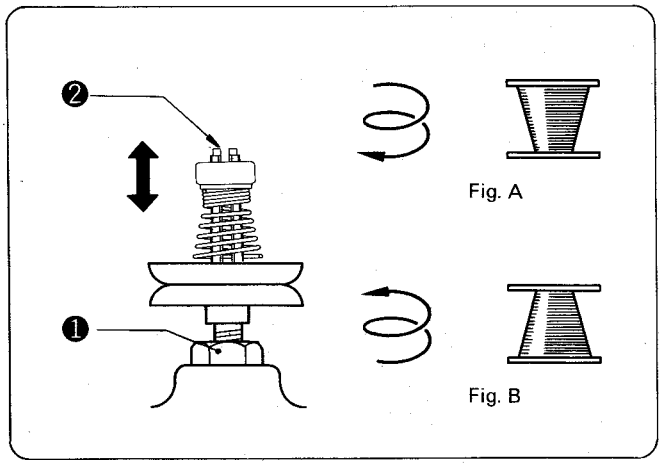
3 Bobbin thread winding



(1) Slide the bobbin ❶ all the way onto the spindle.
(2) Thread the thread as shown in the figures, and wind the thread around the bobbin ❶ several times in the direction of the arrow.



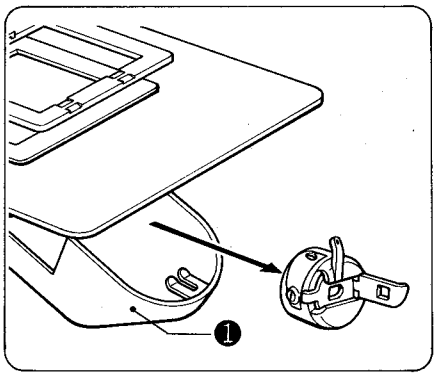
(3) Turn the power switch ❷ on. (The power indicator on the operation panel will light.)
(4) Press and hold the step-back switch ❸ on the operation panel, and depress the starting pedal ❹ to start the sewing machine. Keep the start switch depressed until the bobbin is fully wound. (Release the step-back switch ❸ when the sewing machine starts.)
(5) The bobbin holder ❶ will automatically return when the bobbin is filled to capacity (approximately 80 ~ 90% of the bobbin diameter.)
(6) Release the starting pedal ❹.
(7) Remove the bobbin, and pull the bobbin in the direction of the arrow to cut the thread on the thread cutter ❺.
(8) To wind more thread onto the bobbin, loosen set screw ❻ to move the bobbin holder ❶ out.



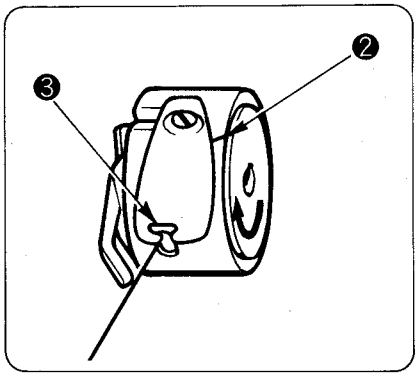
If the bobbin thread is wound unevenly onto the bobbin, loosen nut ❶, and turn thread tension stud ❷ to adjust so that the thread is wound evenly.

※ If the bobbin is wound as in Fig. A, turn the stud clockwise; if Fig. B, turn the stud counterclockwise.

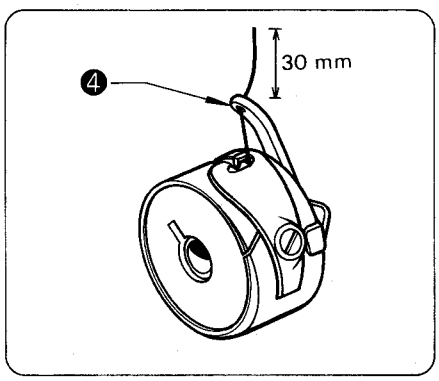
[4] Bobbin case installation and threading



(1) Pull the shuttle race cover ❶ forward and then open the cover.
(2) Lift the bobbin case latch and remove the bobbin case.



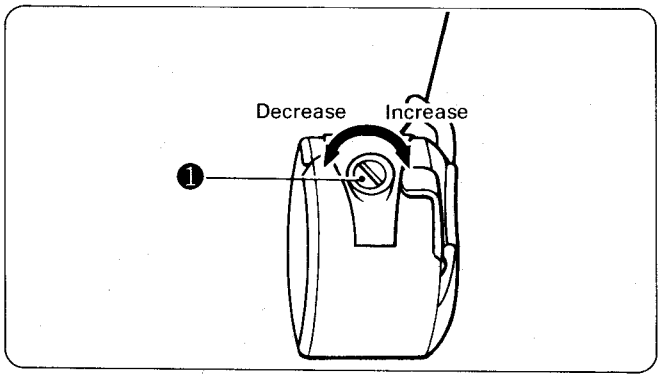
(3) Insert the bobbin into the bobbin case, pass the thread through the cut line ❷, and pull it out through the thread hole ❸. Make sure the bobbin turns in the direction of the arrow when the thread is pulled.



(4) Pass the end of the thread through the thread hole ❹ in the horn, and pull approximately 30 mm of thread out.

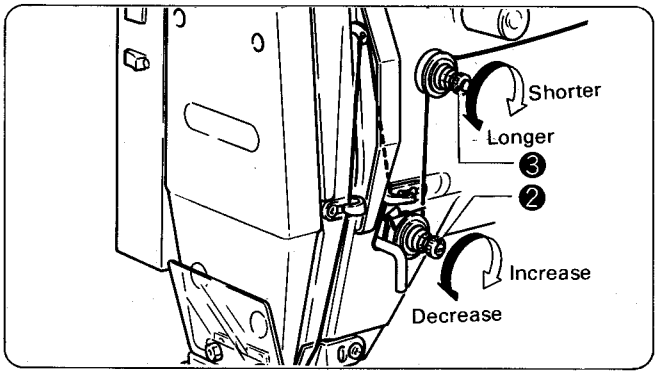
[5] Thread tension

1. Bobbin thread tension



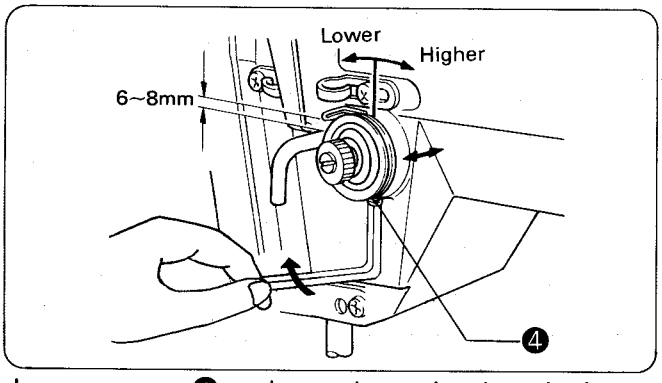
★ The bobbin thread tension should be adjusted so that the bobbin will not descend of its own weight when suspended by the bobbin thread. Turn adjustment screw ❶ to adjust.

2. Upper thread tension



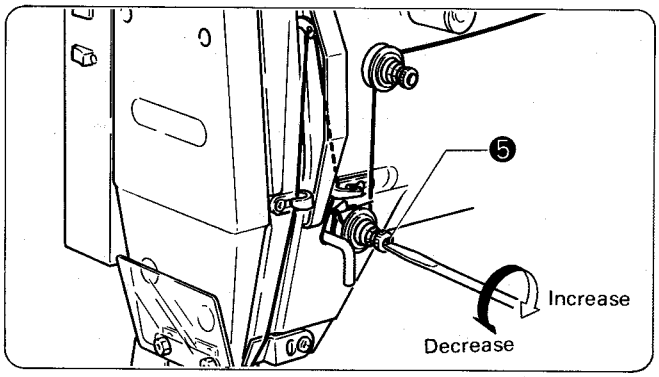
Turn the thread tension control nut ❷ to adjust the upper thread tension to the material being sewn. Adjust thread tension control nut ❸ so that the thread remainder is between 35 to 40 mm.

3. Thread take-up spring height



Loosen screw ❹ and turn the entire thread take-up unit to adjust so that the height of the thread take-up spring is 6 ~ 8 mm.

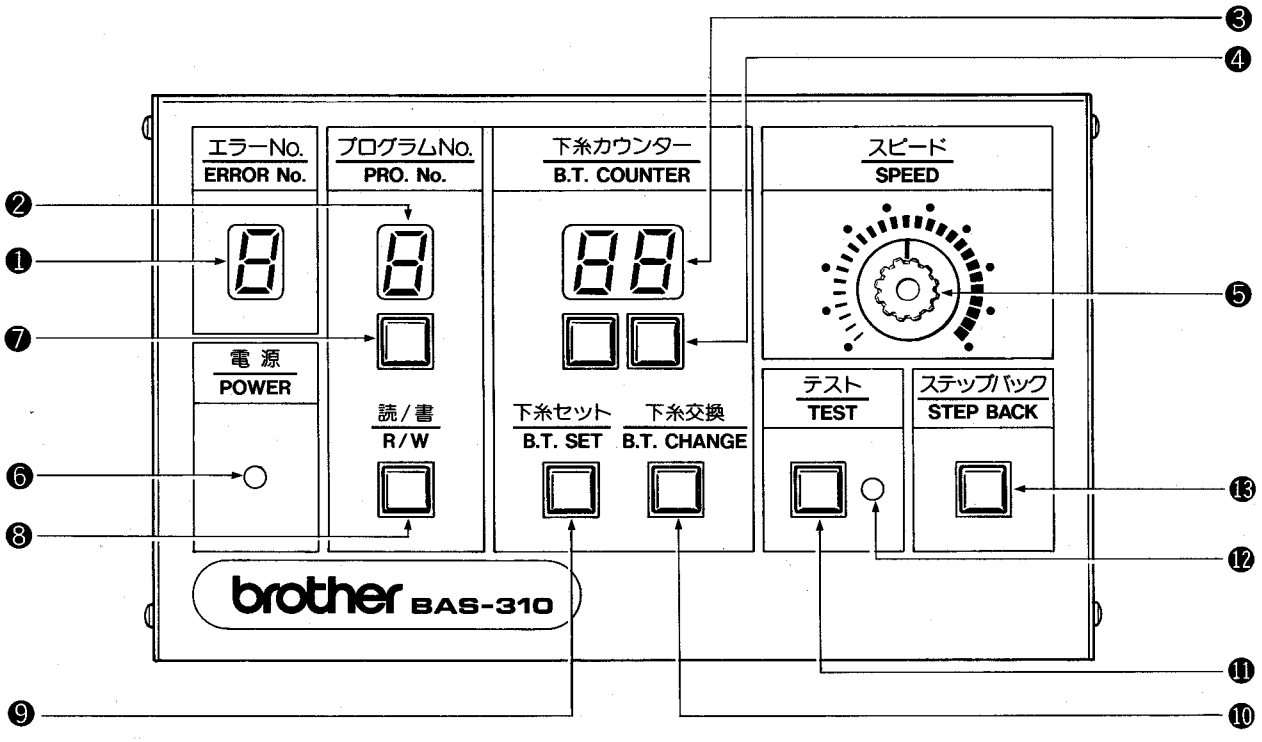
4. Thread take-up spring tension



Adjust the thread take-up spring tension by turning the tension stud ❺ with a screwdriver.

OPERATING PROCEDURE

1 Operation panel part names and functions



❶ ERROR No. display ..... Used to display error numbers 1 ~ 9 and A.

❷ PROGRAM No. display ..... Displays the program number 0 ~ 9.

❸ Bobbin Thread COUNTER ..... Shows the number (00 ~ 99) of pieces sewn.
(Decrementing type; the number decrements one each time a single stitch pattern is completed, indicating the remaining bobbin thread.)

❹ Bobbin thread counter switches .. Used to set the number of work pieces in the bobbin thread counter.

❺ SPEED control ..... Used to change the sewing speed.
(The sewing speed can be adjusted in ten steps according to the stitch length.)

❻ POWER indicator ..... Lights when the power is turned on.

❼ Program select switch ..... Used to select the program number when reading a program from or writing a program to disk.

❽ Program Read/Write switch ..... Used to read a program from floppy disk, or to write a newly programmed stitch pattern to floppy disk.
Up to ten patterns (0 ~ 9) can be stored on each disk.

❾ Bobbin Thread SET switch ..... Used to store the number of work pieces displayed in the bobbin thread counter to floppy disk.

❿ Bobbin Thread CHANGE switch ... Used to continue sewing after replacing the bobbin thread.
(An alarm will sound when the counter reads <00>. Sewing is not possible when the counter reads <00>.)

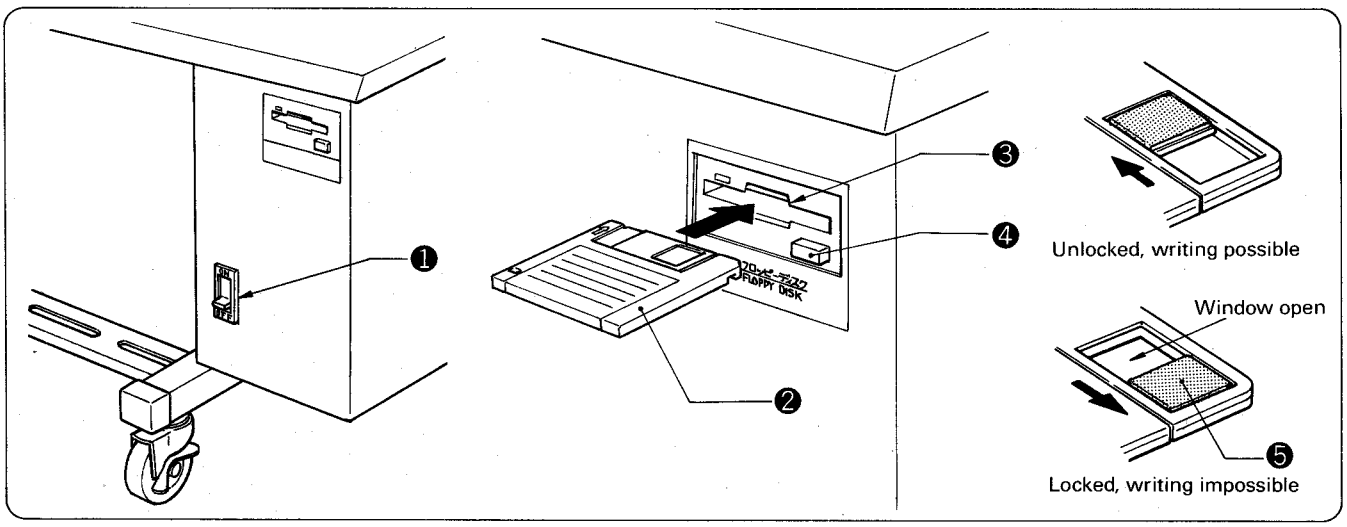
⓫ TEST switch ..... Used to confirm a programmed stitch pattern.

⓬ Test indicator ..... Lights when the TEST switch is pressed.

⓭ STEP BACK switch ..... Used when winding a fresh bobbin, or when correcting a stitch patten due to a broken needle thread.

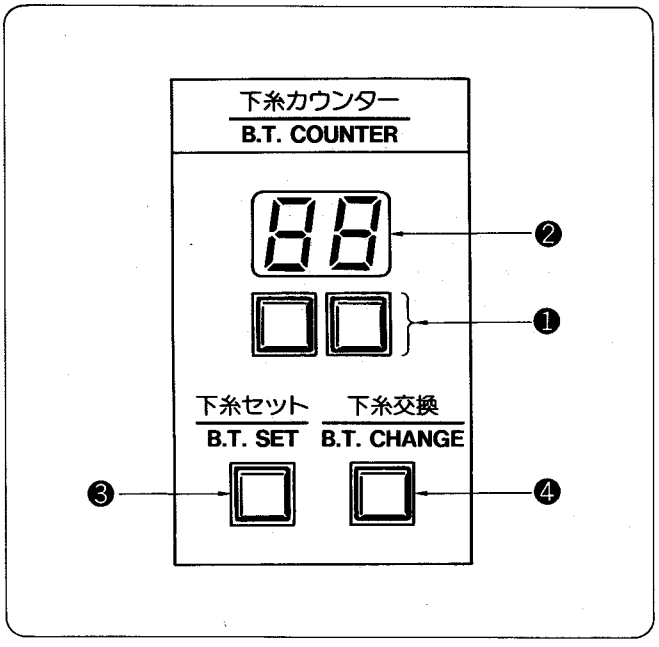
[2] Using the floppy disk

★ Programs for up to ten programs each containing up to a maximum 2,000 stitches can be stored on each floppy disk.



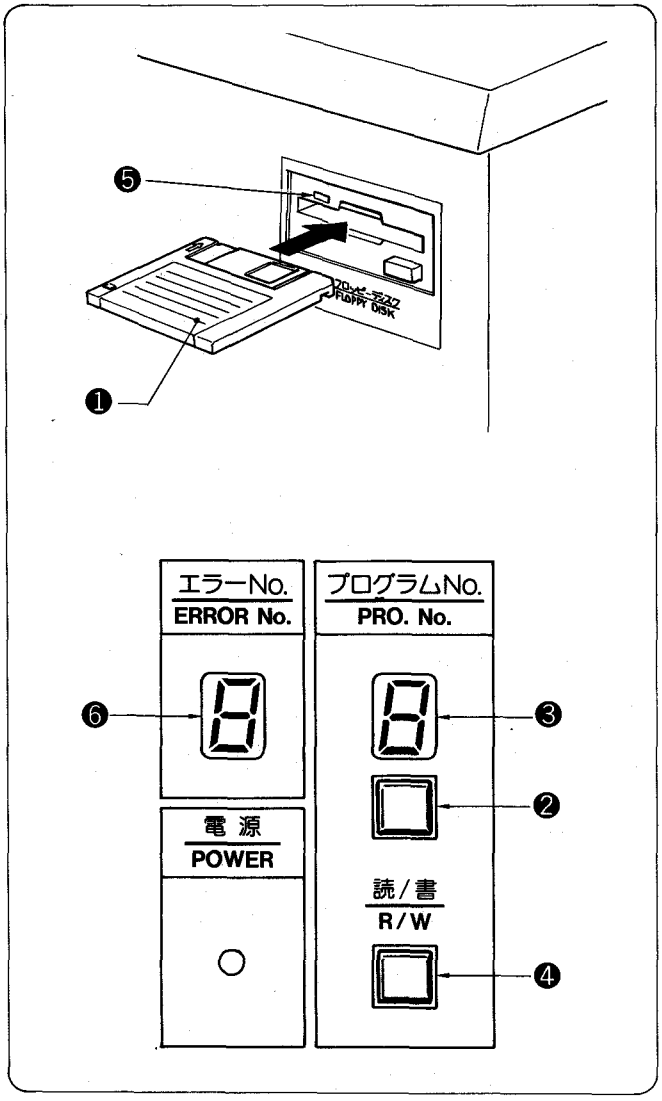
(1) Turn the power switch ❶ on.
(2) Hold the disk ❷ with the label up and the metal shutter to the front, and insert the disk into the drive ❸. It will click into place.
(3) To eject the disk, press the eject button ❹.
※ Slide the write protector ❺ on the back of the disk up (the window opens) to lock the disk and prevent accidental erasure of the disk contents.
※ Inserting the disk into the driven upside down or backwards may damage the driven and will prevent reading or writing of data.
※ Be sure to store your disks away from any magnets or magnetic sources, including radios, televisions, telephones, and other devices. Magnetism can erase or damage disk contents. Also, be careful to prevent exposure of the disk to oil or dust.

[3] Using the bobbin thread counter



★ Set the bobbin thread counter to display the number of pieces of the selected pattern which can be sewn with the amount of thread on the bobbin to avoid running out of bobbin thread in the middle of a pattern.
(1) Press the bobbin thread counter switches ❶ to display the number of work pieces in the bobbin thread counter ❷.
※ The bobbin thread counter can be set to any number from <01> to <99>. If the counter is set to <00>, sewing continues irrespective of the amount of bobbin thread remaining.
(2) Insert the floppy disk and press the bobbin thread SET switch ❸. An alarm will beep twice. This will record the number of work pieces shown in the bobbin thread counter ❷ to the disk.
(3) The number shown in the counter ❷ will decrement one each time the stitch pattern is completed. When the number of patterns shown in the counter is sewn, the counter ❷ will read <00>, and an alarm will sound. (The sewing machine will not start even if the start switch is pressed.)
(4) Press the bobbin thread CHANGE switch ❹ and replace the bobbin. The alarm will stop, and the number of work pieces set in step (2) will be displayed again in the bobbin thread counter ❷.

[4] Using the program R/W (Read/Write) switch



★ Programmed stitch patterns stored on floppy disk cna be read into memory, and newly programmed patterns can be written to disk for permanent storage and later recall.

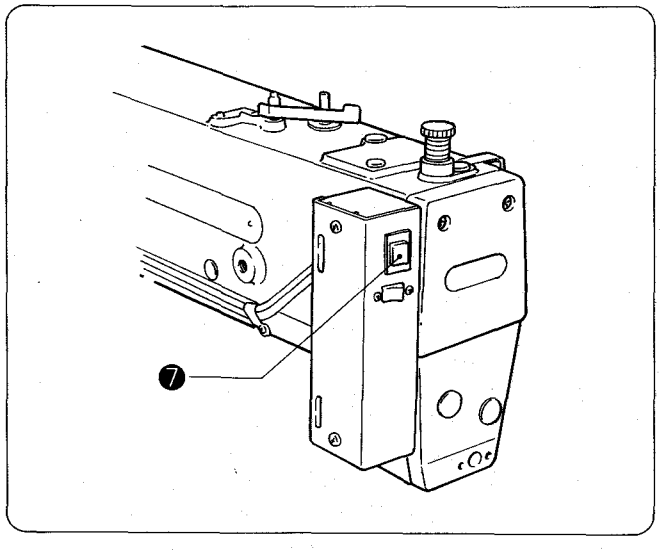
(1) Insert the floppy disk ❶ containing or which is to contain the programmed stitch pattern.

(2 — 1) **To READ a pattern to memory**

Press PRO. No. ❷ on the operation panel to display the number of the programmed stitch pattern in the program number display ❸. After selecting the desired program number, press the R/W switch ❹. The drive indicator ❺ will light, and the program will be read into memory. When the alarm sounds and the indicator ❺ goes out, reading is completed.

(2 — 2) **To WRITE a pattern to disk**

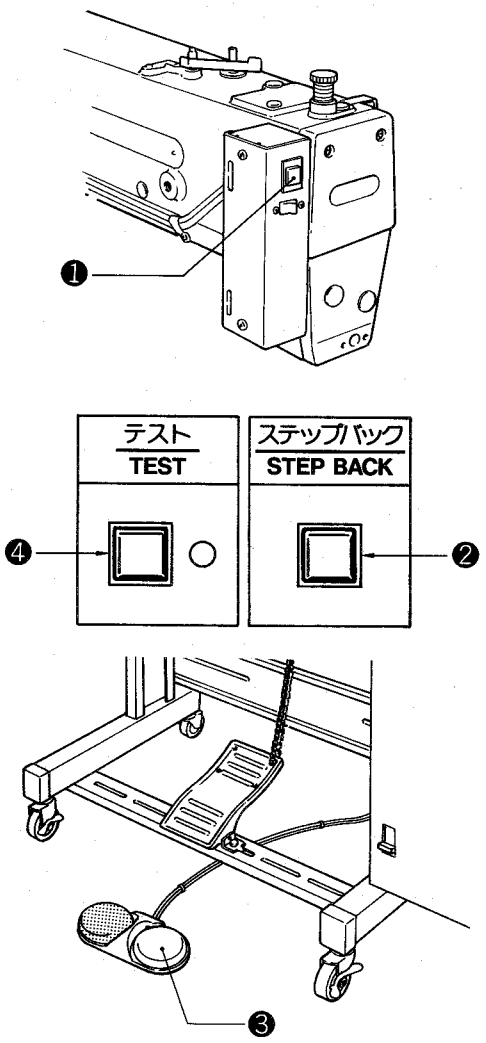
Press PRO. No. ❷ on the operation panel to display the number of the desired programmed stitch pattern. After programming the pattern with the stitch programmer, press the R/W switch ❹. The drive indicator ❺ will light, and the program will be written to disk. When the alarm sounds and the indicator ❺ goes out, writing is completed.



※ **If an error message is displayed**

If an error message code (1 ~ 9, A) is displayed in the ERROR No. display ❻, an alarm will sound. Press the emergency stop switch ❼ on the front of the machine to stop sewing machine operation, and then refer to and follow the error code list on page 22.

5 Step back switch use



★ This switch is used to move the machine one stitch at a time in the reverse sewing direction to enable resewing in the event the thread breaks or the bobbin thread runs out in mid-pattern. Use this switch to return to the point where the thread broke or ran out. This is especially useful with large patterns.

(1) Press the emergency stop switch ❶ while the machine is running. All operations will stop and the emergency stop lamp will illuminate.

(2) Press the emergency stop switch ❶ once again. The emergency stop lamp will go out.

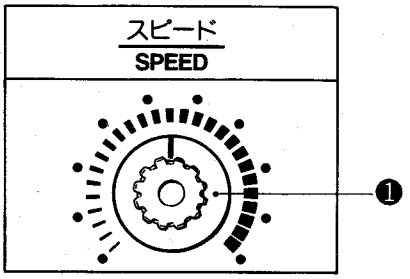
(3) Press the step back switch ❷. The presser foot will reverse one stitch at a time as long as the step back switch is depressed.

(4) When the presser foot has returned to the desired position, release the step back switch. If the presser foot is stopped too soon, simply press the step back switch again to resume reverse presser foot movement.

(5) The machine will start sewing when the starting pedal ❸ is pressed.

※ Turn the test switch ❹ on and press the starting pedal ❸ to move the presser foot one stitch at a time forward. The presser foot will advance in 100 stitch units if the step back switch is pressed at this time.

6 Adjusting the sewing SPEED control

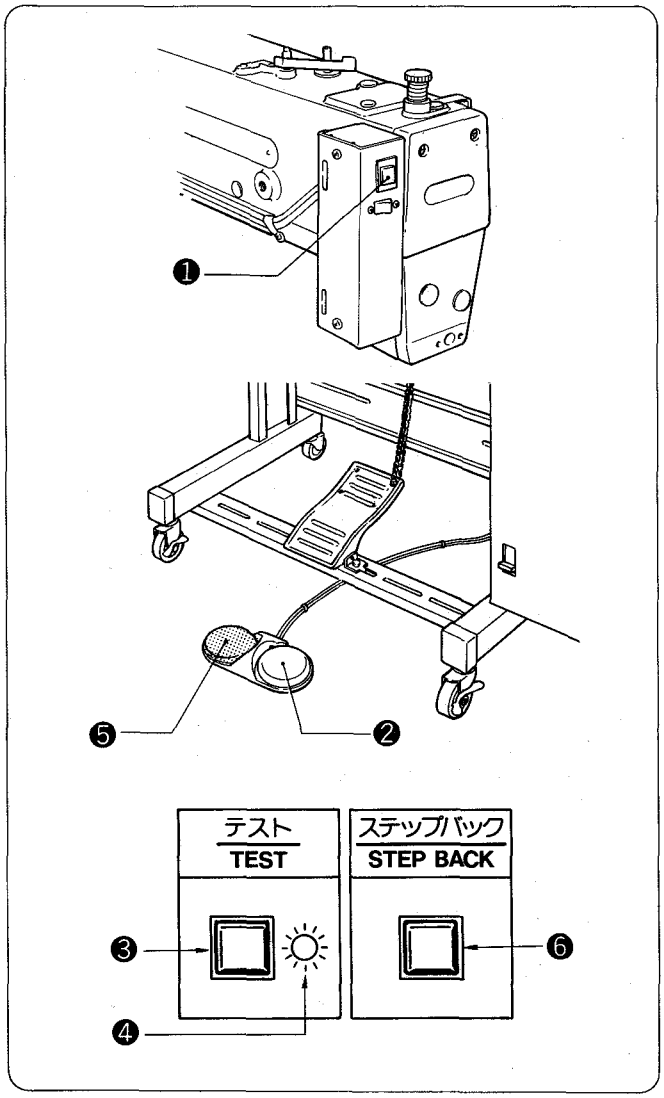


(1) The actual sewing speed can be adjusted in ten steps through the sewing speed range for each stitch length. Turn SPEED control ❶ to adjust.

(2) Refer to the table below for allowable sewing speeds.

Stitch lengh (mm)	Sewing speed (spm)
0.2~3.0	1,000~2,000
3.2~4.4	750~1,500
4.6~6.2	600~1,200
6.4~8.0	600~ 800

7 Using the TEST switch



★ Use the TEST switch to begin sewing again from any desired point when the thread breaks or the bobbin thread runs out.

(1) Press the emergency stop switch ❶ while the sewing machine is running. (All operations will stop, and an alarm will sound.)

(2) Press the emergency stop switch ❶ again. (The thread cutter will operate and the alarm will stop.)

(3) Press the starting pedal ❷.
The work clamp will move automatically to the sewing start position.

(4) Press the TEST switch ❸. The test indicator ❹ will light.

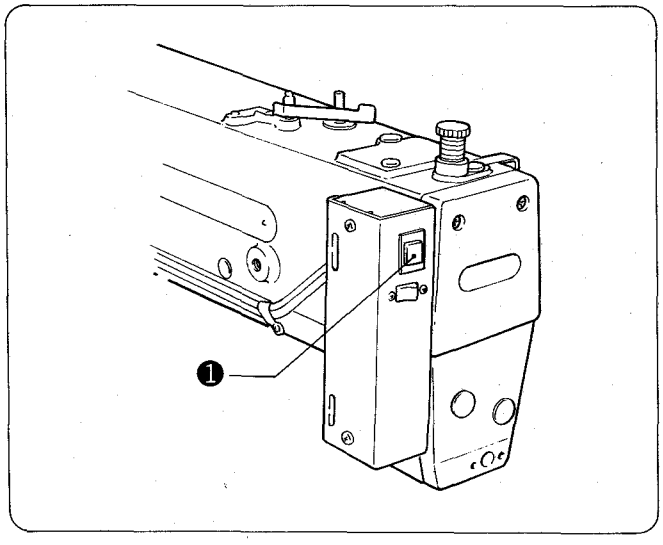
(5) Press the starting pedal ❷. (The needle will remain sationary as the work clamp advances through the pattern at low speed one stitch at a time. Press the presser lifter pedal ❺ to fast forward.)

(6) When the work clamp reaches the desired position, press the TEST switch ❸ twice. The work clamp will stop, and the test indicator ❹ will go out. If the work clamp was stopped too early, press the TEST switch ❸ again to proceed.

(7) Sewing will start when the start switch ❷ is pressed.

※ The work clamp can be forwarded in 100 stitch units by pressing the STEP BACK switch ❻ when the TEST switch ❸ is on. Also, pressing the STEP BACK ❻ switch after the TEST switch ❸ is turned off will advance the work clamp one stitch at a time. (Press the presser lifter pedal ❺ to fast forward.)

8 Using the emergency stop switch



★ Press the emergency stop switch to immediately stop the sewing machine during actual sewing or when in the test mode.

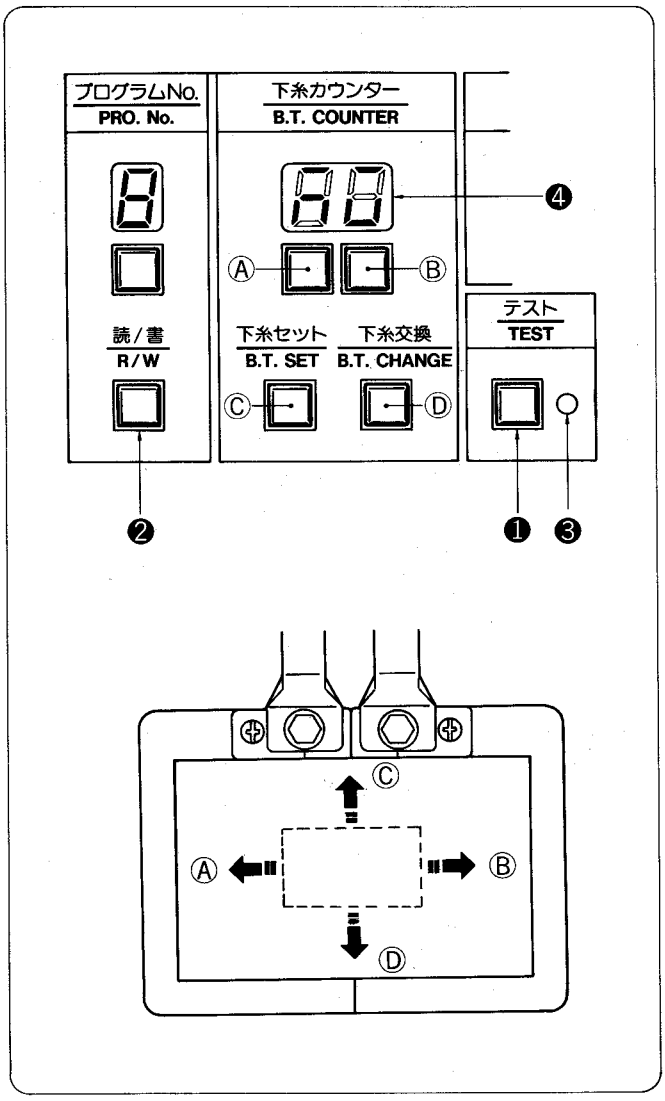
(1) If the emergency stop switch ❶ is pressed while sewing.
All operations will stop, and an alarm will sound. Correct the problem, and press the emergency stop switch ❶ again. The thread cutter will operate, the emergency stop function will be cancelled, and the alarm will stop.

※ There will be no response when either foot switch is pressed when the emergency stop switch ❶ is on (the alarm is sounding).

(2) If the emergency stop switch ❶ is pressed during the test mode.
All operations will stop, and an alarm will sound. The emergency stop function will be cancelled when the emergency stop switch ❶ is pressed.

(3) If a problem occurs
If an abnormal load is applied or a problem occurs during sewing, the emergency stop function is automatically activated, all operations stop, and the alarm sounds. Press the emergency stop switch ❶ to cancel the emergency stop mode.

9 Shifting a stitch pattern



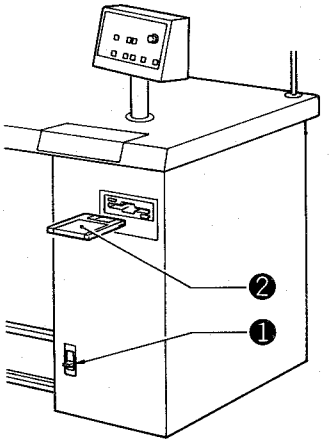
★ The relative position of a previously programmed stitch pattern can be shifted up/down and right/left.

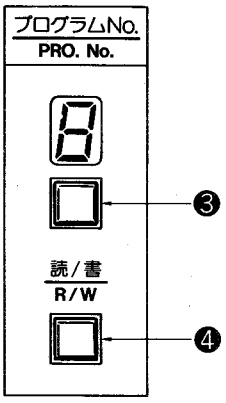
(1) Press and hold the TEST switch ❶ and press the R/W switch ❷. The test indicator ❸ will light, and <nU> will appear in the bobbin thread counter ❹.

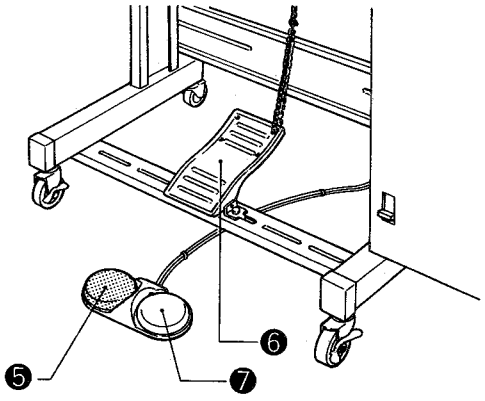
① Press bobbin thread counter switch A to shift the pattern 1 pulse (0.2 mm) left.
② Press bobbin thread counter switch B to shift the pattern 1 pulse (0.2 mm) right.
③ Press bobbin thread SET switch C to shift the pattern 1 pulse (0.2 mm) up.
④ Press bobbin thread CHANGE switch D to shift the pattern 1 pulse (0.2 mm) down.

(2) After fine adjustment of the pattern position is completed above, press TEST swtich ❶. The test indicator ❸ and bobbin thread counter ❹ will go out, and the stitch pattern shift mode will be cancelled.

(1) Turn the power switch ❶ on. The power indicator on the operation panel will light.
(2) Insert the floppy disk ❷.
(3) Press the PRO. No. selection switch ❸ to select the desired program number.
(4) Press R/W switch ❹.
(The floppy disk drive indicator will light while the program is being read. An alarm will sound and the indicator will go out when reading is completed.)
(5) Insert the work piece under the work clamp, and press the presser lifter pedal ❺ to lower the clamp.

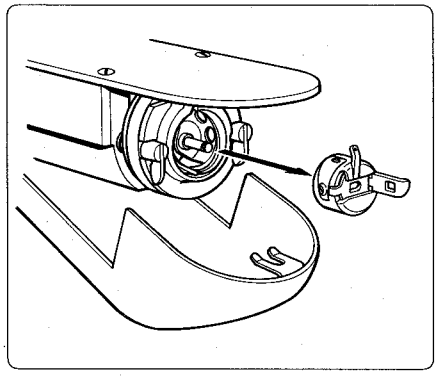




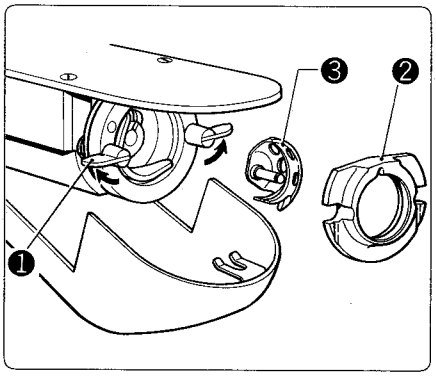


※ When working with small pieces which are hard to position, or when precise sewing is required, press the manual presser foot lifter pedal ❻ for precise positioning of the work piece, and then press presser lifter pedal ❺. (This is convenient when sewing while sitting.)
(6) Press the starting pedal ❼. (The work clamp will return to the origin, and will then advance to the sewing start position.)
(7) Press the starting pedal ❼ again to start sewing. (This is only required the first time a program is sewin.)
(8) When sewing is completed, the thread cutter will automatically operate and the work clamp will then rise.

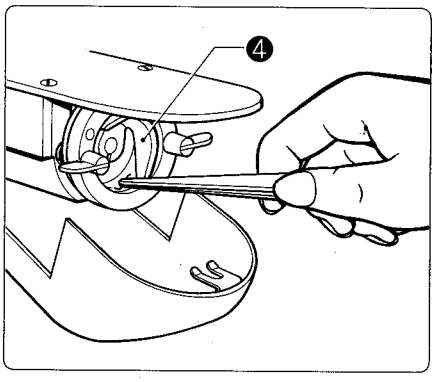
★ **Rotary hook lubrication**



(1) Pull the rotary hook cover forward to open, and then remove the bobbin case.



(2) Slide the tab ❶ in the direction of the arrow, and remove the shuttle race body ❷ and shuttle race ❸.

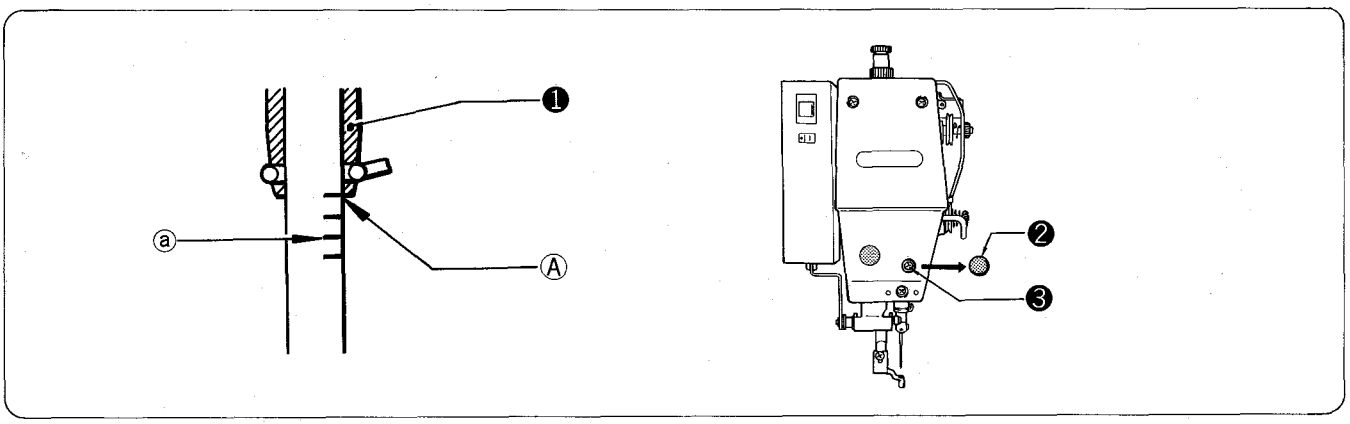


(3) Clean any dust and thread pieces from the driver ❹, the rotary hook thread guides and race.
After cleaning is completed, add a drop of oil to the race.

STANDARD ADJUSTMENTS

★ Turn the machine pulley by hand when making any adjustments

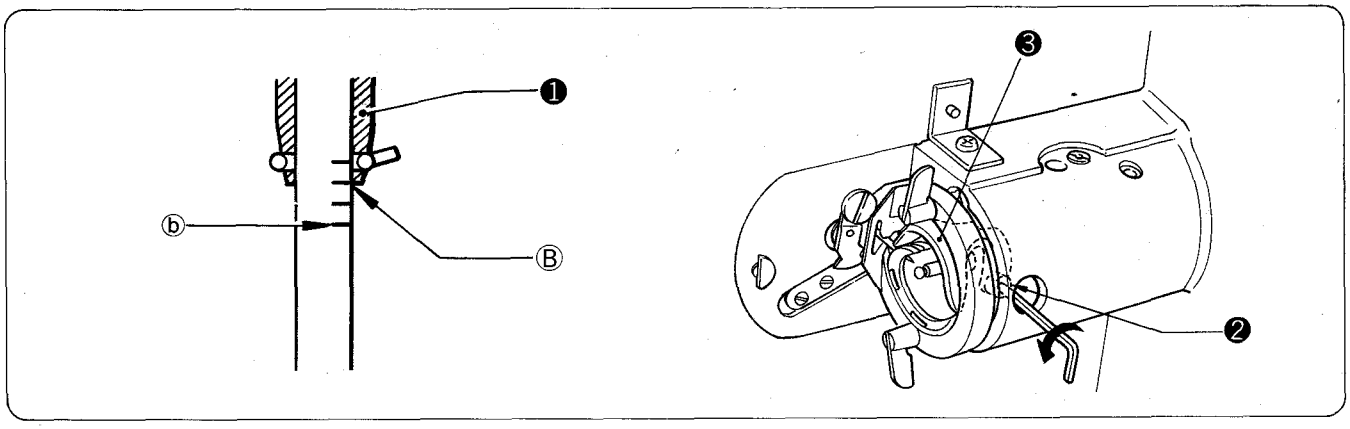
[1] Needle bar height adjustment



Turn the pulley to completely lower the needle bar. Remove cap ❷, loosen set screw ❸, and vertically adjust the needle bar so that reference line Ⓐ, the top reference line on the needle bar, is aligned with the bottom of the needle bar bushing ❶.

※ Align the second reference line, ⓐ, with the bottom of the needle bar bushing when using needle DP x 17.

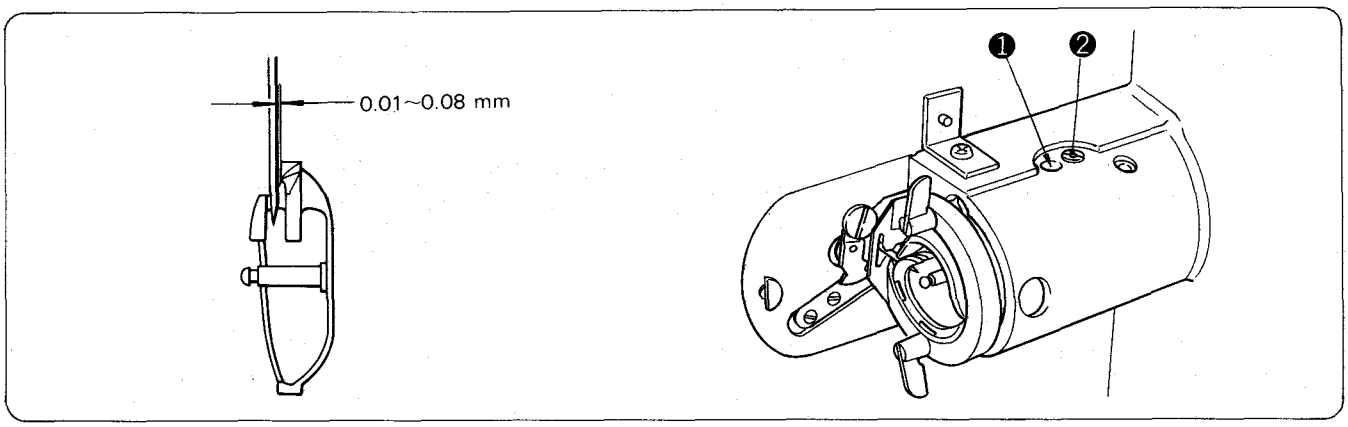
[2] Needle bar lift stroke adjustment



Turn the pulley to raise the needle bar from the needle lowest position and align reference line Ⓑ, second from top, with the bottom of the needle bar bushing ❶. Now, loosen Allen screw ❷ and turn the shuttle driver so that the shuttle hook point is aligned with the needle center.

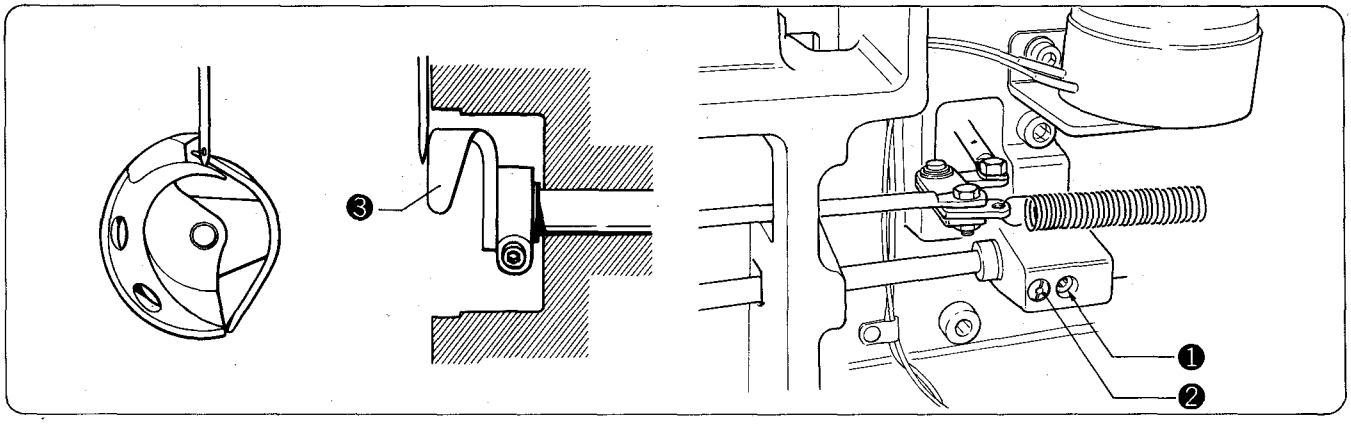
※ Align the bottom reference line, ⓑ, with the bottom of the needle bar bushing when using needle DP x 17.

[3] Needle to shuttle hook point gap adjustment



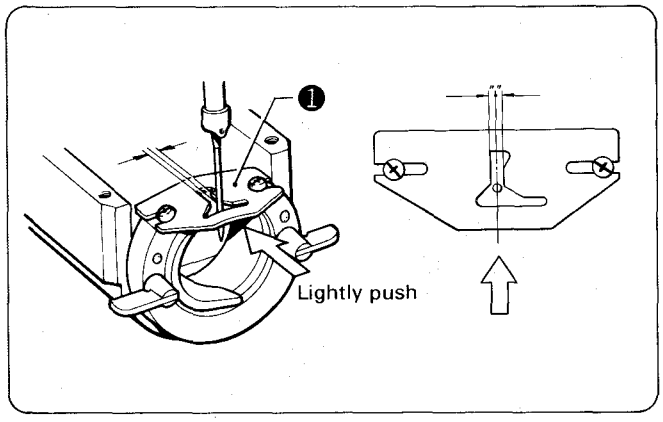
Turn the pulley and align the shuttle hook point with needle center. Loosen set screw ❶ and turn the eccentric connecting link stud ❷ to adjust the needle to shuttle hook point gap to 0.01~0.08 mm.

[4] Shuttle driver needle contact adjustment



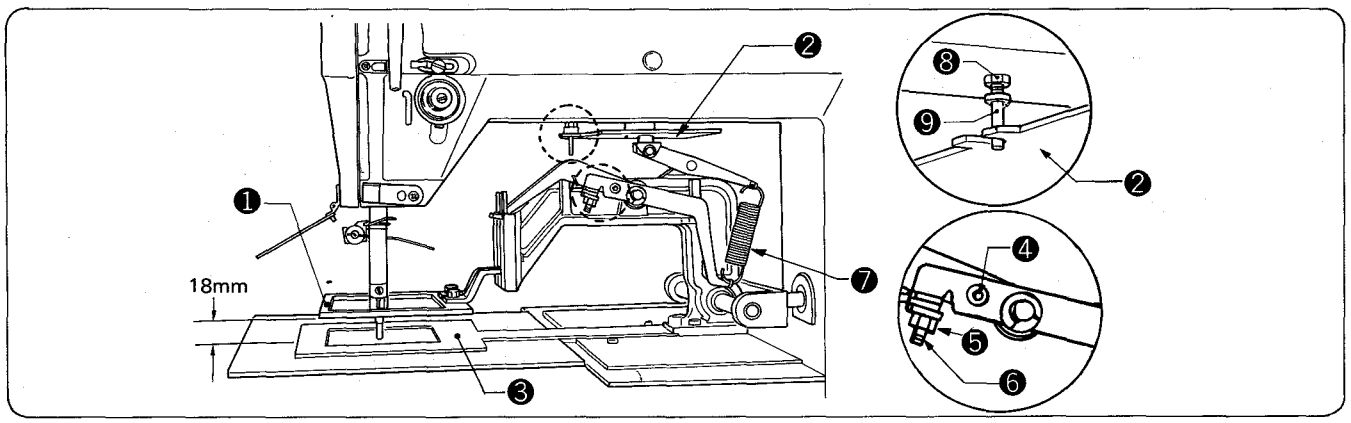
Turn the pulley and align the rotary hook popint with the needle center. Loosen set screw ❶ and turn the eccentric connecting link stud ❷ so that the needle meets the shuttle driver ❸. Note that excessive needle to driver contact will result in skipped stitches. Also, if the needle does not sufficiently contact the shuttle driver, the rotary hook point will interrupt the needle, resulting in abnormal abraison.

[5] Shuttle hook thread guide adjustment



Adjust so that the needle groove of the shuttle hook thread guide ❶ is at the middle of the needle zigzag width, slide the thread guide lightly in, and then retighten the screws.

[6] Two-step work clamp adjustment (independent presser foot solenoid type)

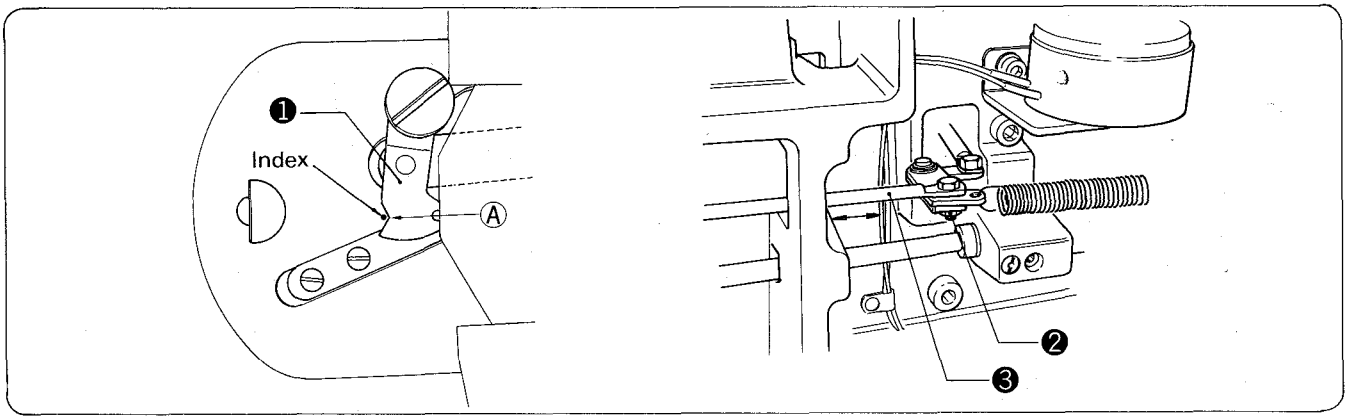


Maximum work clamp ❶ lift is 18 mm from the needle plate top to the work clamp ❶ when the machine is stopped.

(1) Lower the presser plate ❷. Loosen screw ❹ and nut ❺ to adjust the gap between the work clamp ❶ and feed plate ❸ to 0 mm, and then tighten screw ❻. Spring ❼ will be minimally tensioned at this time.
Now tighten screw ❹ and nut ❺.

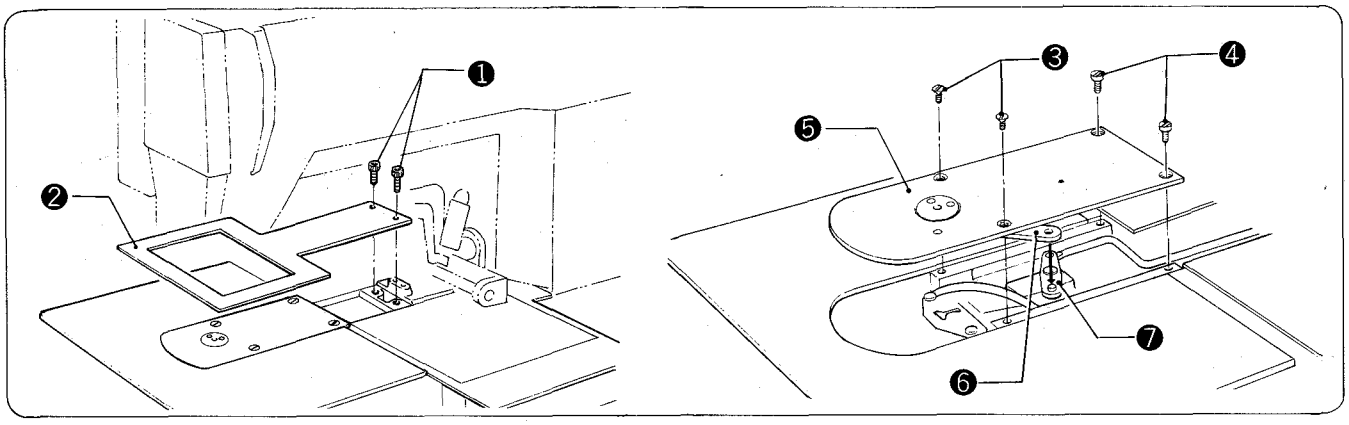
(2) Lift presser plate ❷ again, and loosen nut ❽. Adjust guide stud ❾ so that the height from the needle plate top to the work clamp ❶ is 18 mm.

7 Movable knife adjustment

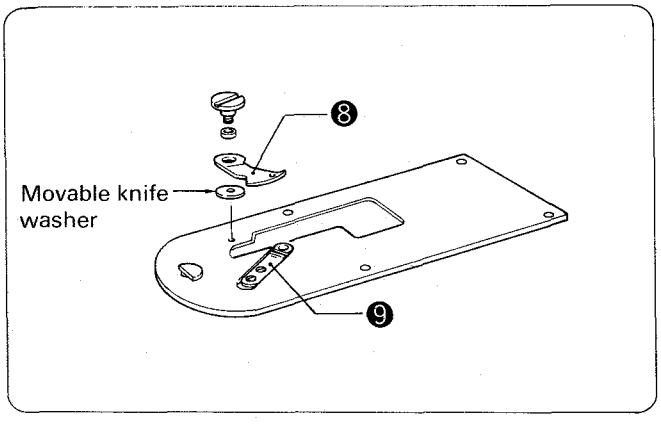


Loosen nut ❷ and move connecting rod L ❸ right or left so that the V-notch (A) of the movable knife ❶ is even with the index on the needle plate when the machine is stopped.

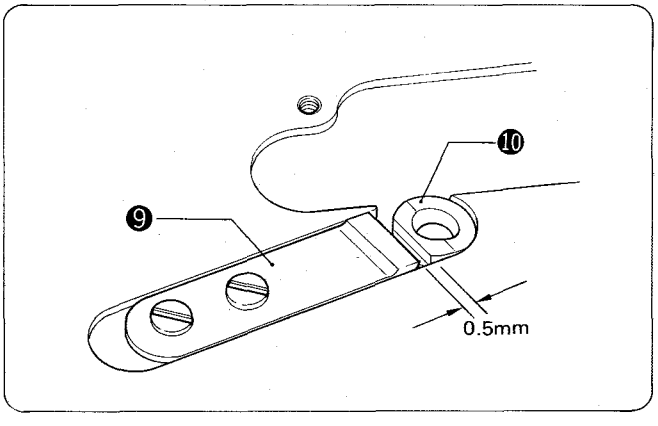
≪Replacing the movable and fixed knives≫



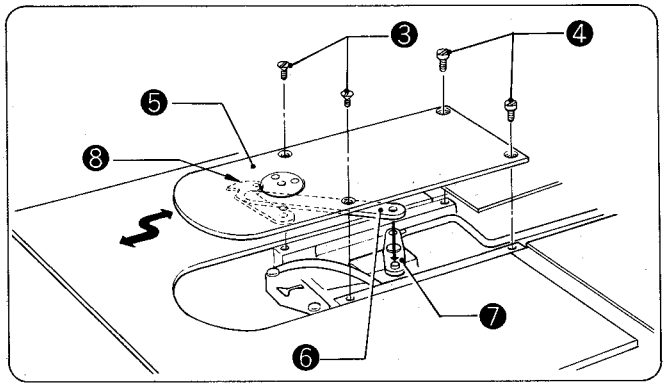
(1) Remove screws ❶, and remove feed plate ❷. Remove screws ❸ and ❹, and remove needle plate ❺. Now disconnect the thread cutter connecting rod ❻ from stud ❼.



(2) Remove the movable knife, and replace it with a new movable knife. Now check the cutting edge of the movable knife ❽ and the fixed knife ❾. If necessary, use the provided movable knife washer to adjust the knives so that they cut properly.



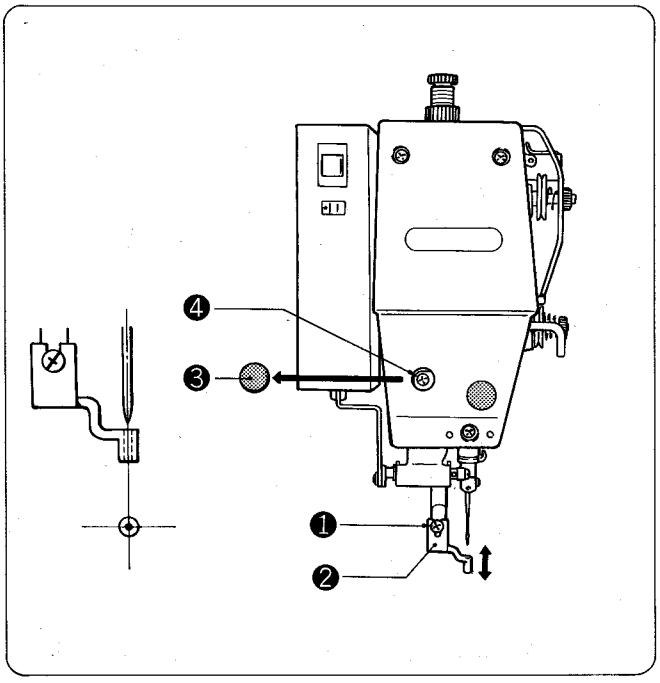
(3) Install the fixed knife ❾ 0.5 mm away from needle hole plate ❿.



(4) Fit the thread cutter connecting rod ❻ on connecting lever pin ❼, and install needle plate ❺.

※ When fitting the connecting rod ❻ on the connecting lever pin ❼ and before tightening screws ❸ and ❹, move the needle plate back and forth a little bit to confirm that the movable knife ❽ is pulled by the connecting rod ❻.

[8] Presser foot adjustment



★ Turn the pulley by hand to lower the presser foot to the down position, and then proceed with the steps below.

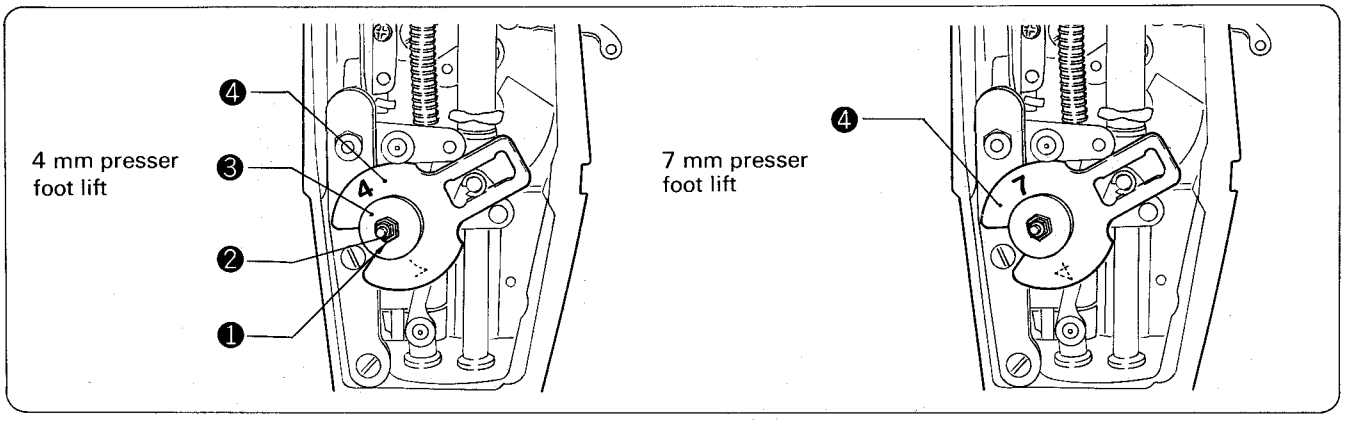
(1) Loosen screw ❶, set the bottom of the presser foot ❷ lightly against the work piece, and then tighten screw ❶.

※ If the presser foot is lowered too far, the work piece will shift when sewing. Also, if the presser foot is too high, skipped stitches may occur.

(2) Turn the pulley by hand, and make sure the needle enters the center of the needle hole in the pressure foot ❷. If the needle is not aligned with the center of the needle hole, remove cap ❸, loosen screw ❹, and turn the presser foot (presser bar) to adjust.

[9] Changing the presser foot lift

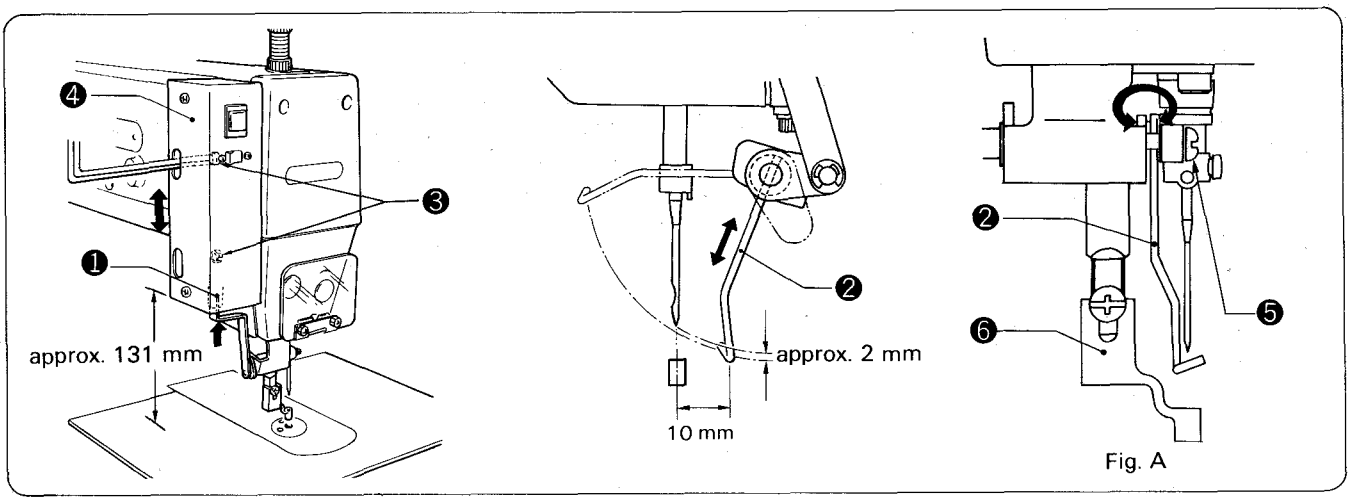
★ Maximum standard presser foot lift is 4 mm. Presser foot lift on this machine can be set to either 4 mm or 7 mm.



(1) To change the lift of the presser foot, remove nut (small) ❶, nut (large) ❷, and washer ❸, and then turn the intermittent presser foot cam ❹ over.
(There are two indexes, 4 and 7, on the cam. The number of the index indicates the lift in millimeters.)

(2) If vertical movement of the presser foot is not required, remove the cam ❹.

[10] Wiper adjustment

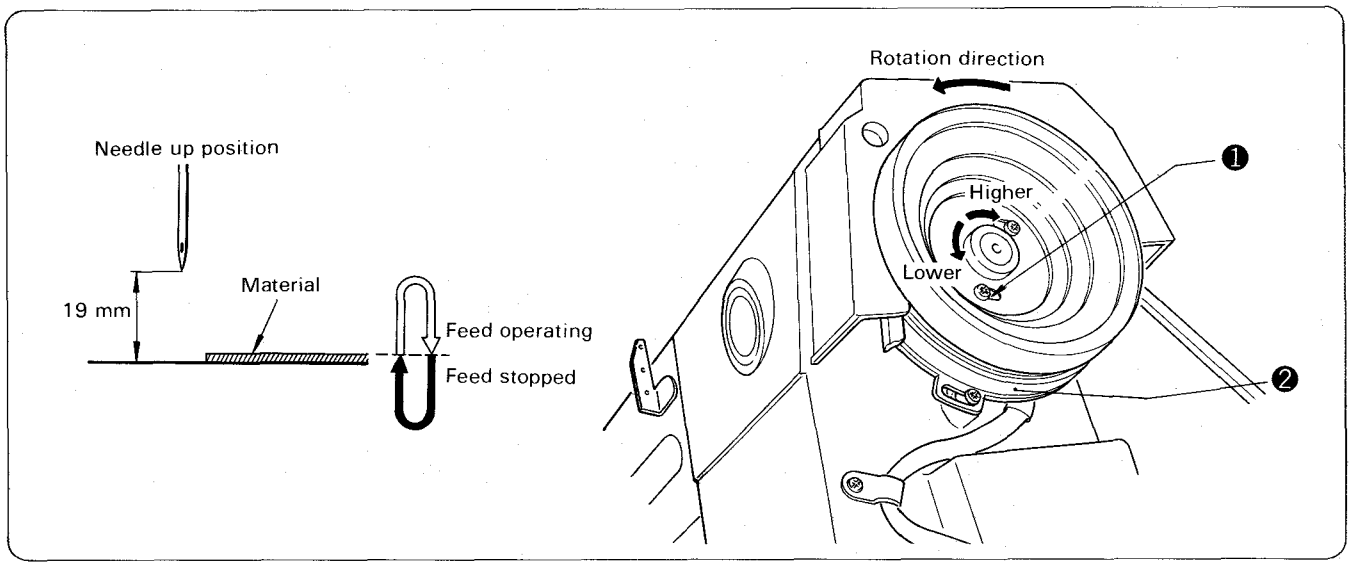


(1) When the thread wiper solenoid plunger ❶ is driven to the full stroke, the wiper ❷ should be 10 mm in front of the needle center. Loosen screws ❸ and shift the entire solenoid bracket ❹ up or down to adjust.

※ The standard height from the solenoid bracket ❹ bottom to the needle plate top is approximately 131 mm.

(2) When the wiper ❷ is operated and aligned with the center of the needle bar, the distance from the wiper ❷ to needle tip should be approximately 2 mm.
Loosen screw ❺ and move the wiper ❷ in or out to adjust. As shown in Fig. A, make sure the wiper ❷ does not strike the presser foot ❻ or needle.

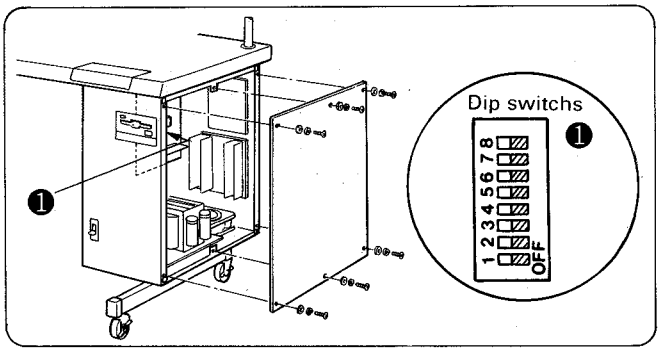
[11] Needle and feed timing adjustment



(1) Adjust reflector ❶ so that the needle tip is 19 mm above the needle plate when the needle is in the up position. Turn clockwise to raise, counterclockwise to lower the stop position.

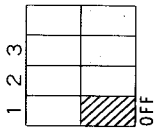
(2) Adjust the needle and feed timing with synchronizer ❷ so mechanism begins to operate after the needle has been removed from the material, and so that the feed mechanism stops before the needle enters the material.

12 2-step presser foot operation adjustment

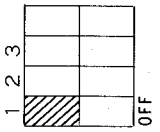


Turn the power off and then open the control box.

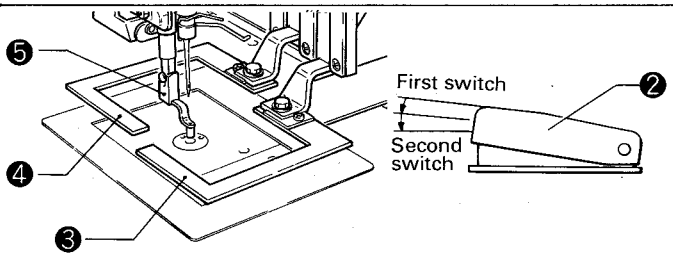
(1) Presser foot motion can be adjusted by adjusting the settings of DIP switches 1, 2, and 3 ❶ on the bottom left of the control circuit board.



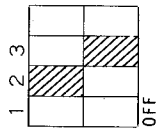
The presser foot will rise automatically when sewing is completed.



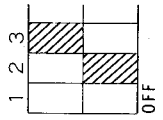
The presser foot will rise when the presser bar lifter treadle is pressed when sewing is completed.



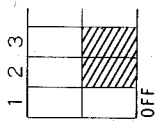
When the presser foot lifter treadle ❷ is pressed, presser right ❸, presser left ❹, and the presser foot ❺ will all rise simultaneously. The work clamp (pressers right and left) and the presser foot will appear as below when they descend. (The presser foot lifter treadle is a two position switch.)



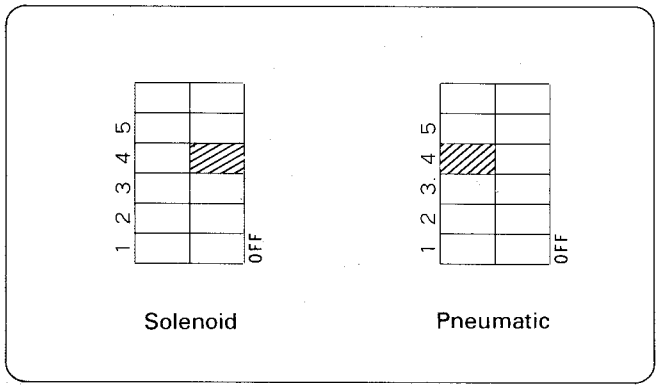
First switch ON:————Presser left ❹ descends.
Second switch ON:———Presser right ❸ and presser foot ❺ descend.



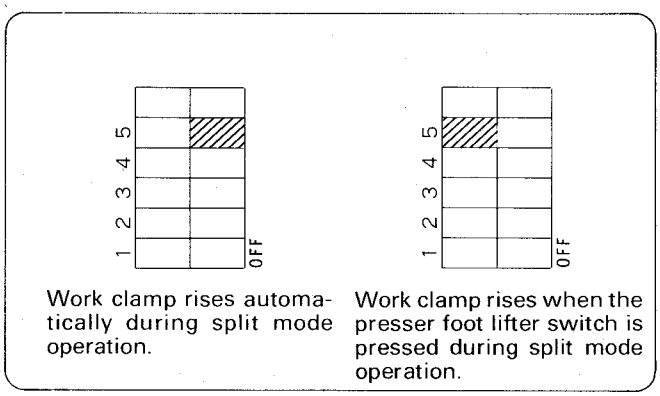
First switch ON:————Presser right ❸ descends.
Second switch ON:———Presser left ❹ and presser foot ❺ descend.



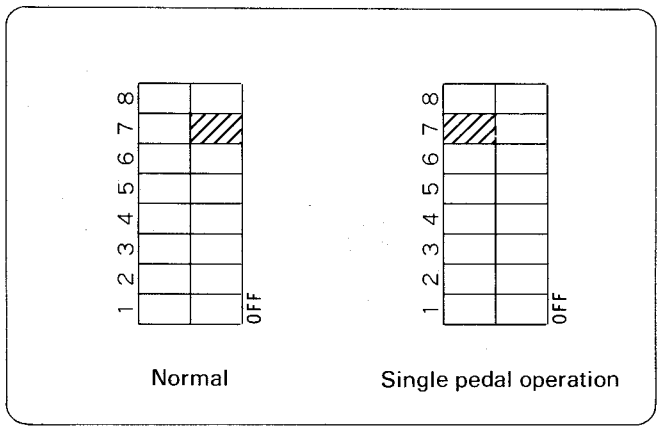
First switch ON:————Presser right ❸ and presser left ❹ descend.
Second switch ON:———Presser foot ❺ descends.



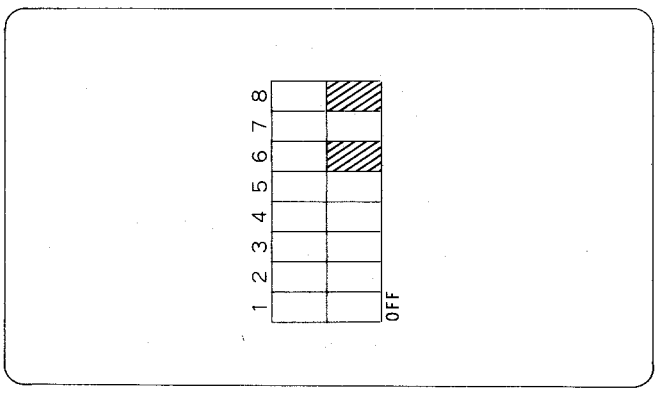
(2) DIP switch ❶ <4> is used for solenoid or pneumatic power selection.
Note:
Leaving DIP switch ❶ <4> on when the solenoid is used may damage the solenoid.



(3) The setting of DIP switch ❶ <5> determines the operation of the work clamp during split mode operation.

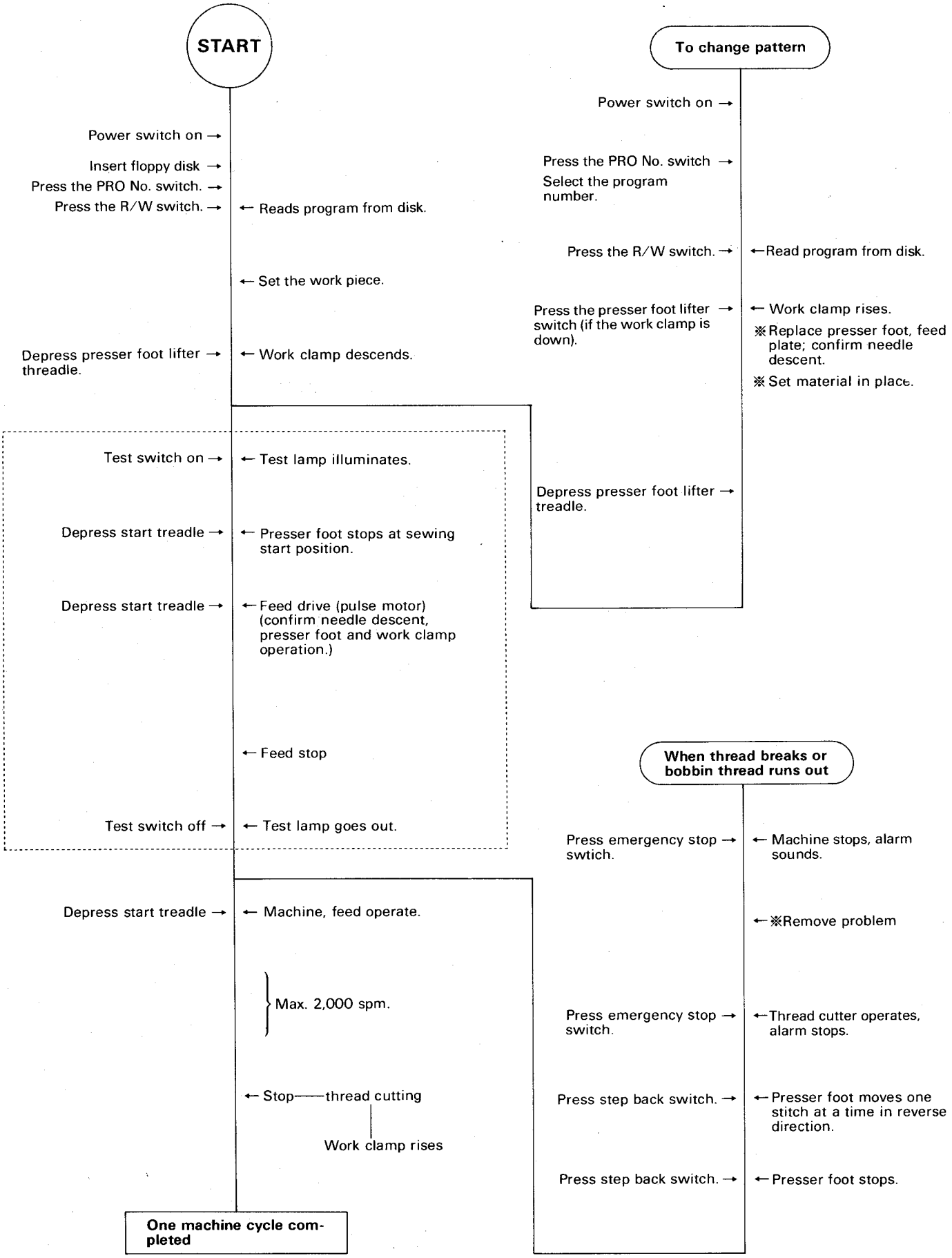


(4) DIP switch ❶ <7> is used to select single pedal operation.
When the start switch is pressed, the work clamp automatically drops, and sewing starts when the switch is released.



(5) DIP switches ❶ <6,8> should be off.

OPERATION FLOW CHART



ERROR NO. LIST

NO.	Cause
1	Emergency stop switch pressed
2	Trouble with the motor or synchronizer
3	
4	Floppy disk not inserted, or cable not properly connected
5	Floppy disk is locked (write protected).
6	No program registered
7	Problem with floppy disk drive
8	
9	
A	No usable pattern data on disk

DIP SWITCH SETTINGS

NO.	When ON
1	Work clamp does not rise when sewing completed
2	Pneumatic drive; Left → right two-step work clamp
3	Pneumatic drive: Right → left two-step work clamp
4	Pneumatic drive
5	Work clamp does not rise during split mode operation.
6	
7	Single pedal operation possible using the start switch
8	

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