INSTRUCTION MANUAL

FOR

SINGER®

MACHINE

1669U 101
102
200
300
400
500

PREFACE

Thank you for your purchase of this sewing machine.

To fully understand the safe operation of this machine, it is recommended that you read the entire instruction manual. Then familiarize yourself with the machine by following the manual page by page.
Save these instructions.

To ensure that you are provided with the most modern sewing capabilities, the manufacturer reserves the right to make changes to designs, dimensions or accessories when considered necessary without notification or obligation.

CONTENTS

1. Application

Singer 1669U **Industrial** machines are high speed, single needle, lockstitch, electric tacking machines designed for bar tacking on a range of light to heavy weight fabrics.

2. Notes on Safety

The machine must only be commissioned in full knowledge of the instruction manual and operated by persons with appropriate training.

The machine must be used only for the purpose intended. Use of the machine without the safety devices belonging to it is not permitted.

When gauge parts are exchanged (e.g. needle, presser foot, needle plate and bobbin), during threading, when the work place is left unattended, and during service work, the machine must be isolated from the mains by switching off the main switch or disconnecting the mains plug.

General servicing work must be carried out only by appropriately trained persons.

Repairs, conversion and special maintenance work must only be carried out by technicians or persons with appropriate training.

Work on the electrical equipment must be carried out only by electricians or appropriately trained persons.

Work on parts and systems under electric current is not permitted, except as specified in regulations EN50110.

Conversion or changes to the machine must be made only on adherence to all safety regulations.

For repairs, only replacement parts approved by us must be used.

Commissioning of the sewing head is prohibited until such time as the entire sewing unit is found to comply with EC regulations.

Be sure to replace the covers after making adjustments.

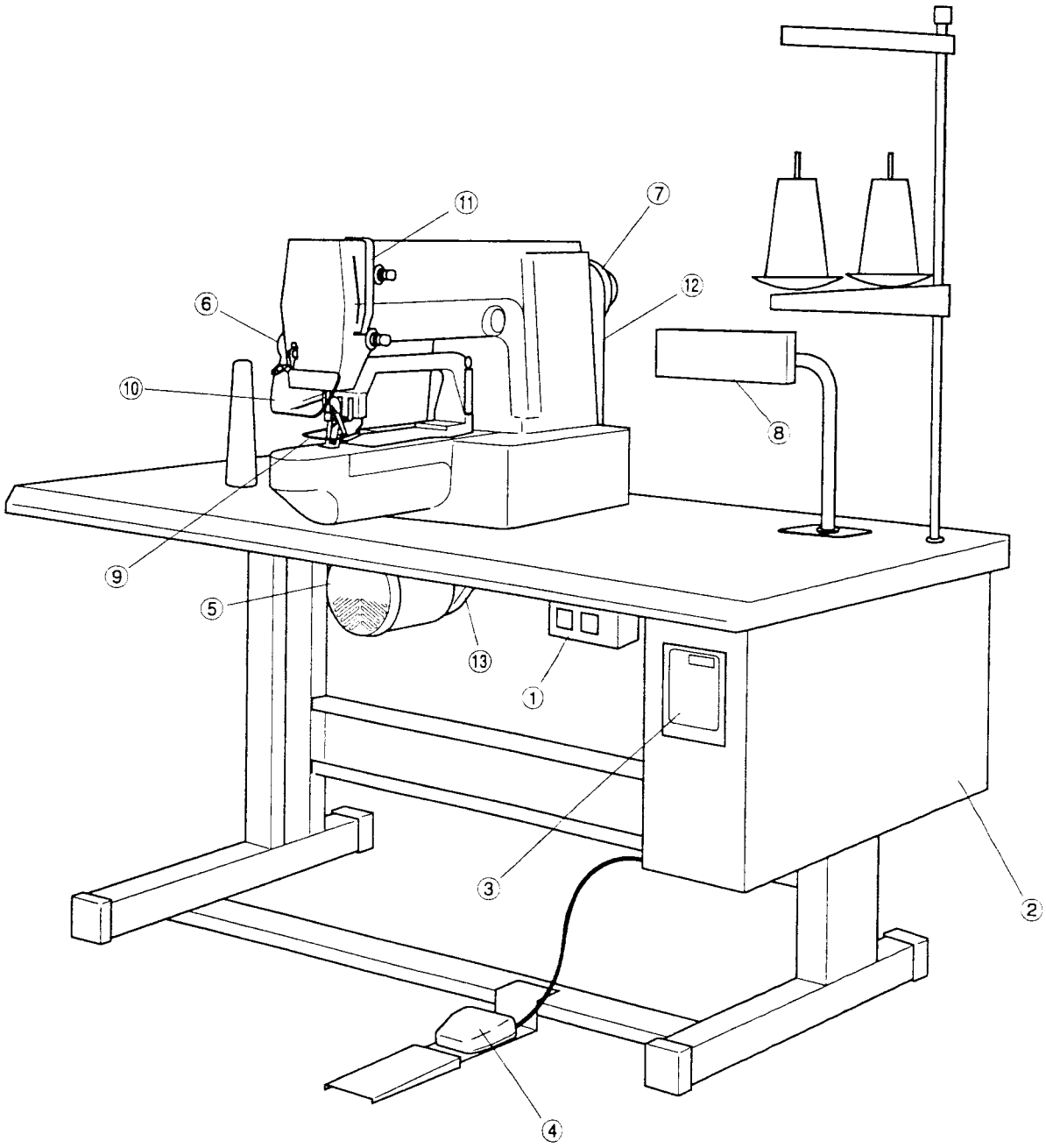
Meanings of the symbols:

Danger spot!
Items requiring special attention

Danger of injury to operative or service staff.
Be sure to observe and adhere to these safety notes

Earth

3. Principal Parts



① Power switch ② Control box ③ Control panel ④ Foot switch
⑤ Motor ⑥ Manual tension releasing lever ⑦ Machine pulley
⑧ Table top console

Safety device

⑨ Finger guard ⑩ Eye guard ⑪ Thread take-up lever guard
⑫ Belt cover ⑬ Motor cover

4. Specification

4-1. Specification

	1669U101	1669U102	1669U200	1669U300	1669U400	1669U500
Stitch type	Single needle lockstitch					
* Maximum speed	* 2,700 spm				* 2,500 spm	* 2,300 spm
Sewing area (X-Y)	30.0 x 30.0 mm		3.0 x 8.0 mm	30.0 x 30.0 mm	6.5 x 6.5 mm	30.0 x 30.0 mm
Feed system	Intermittent feed					
Stitch length	0.1 ~ 10.0 mm					
No. of stitches	Option (See①)		Option (See②)	Option (See①)	Option (See③)	Option
Maximum No.of stitches	10,000 stitches					
Clamp lift system	Electro-magnetic solenoid					
** Clamp foot lift	17 mm	12 mm (17 mm)			13mm	11 mm (17 mm)
Shuttle hook	1.7 times hook	Standard hook				1.7 times hook
Wiper	Standard fitting					
Thread trimmer	Standard fitting					
Bobbin counter	Indicates when to change bobbin					
Data memorizing system	EEP-ROM					
No. of patterns memorized	22 (28 data) patterns already input.				27 patterns already input	
	(Additional patterns up to 64 max. can be input. Total No. of stitches 10,000 max.)					
Motor	3 phase induction motor, 400W					
Weight	Machine head approximately 51kg Control box 11kg					
*** Electrical rating	Single phase 100 ~ 115V, 3 phase 200 ~ 240V					

① 21, 28, 29, 36 42 stitches already input.

② 21, 28, 36 stitches already input.

③ 9, 11, 13, 15, 16, 18, 19, 20, 22, 24, 26, 27 stitches already input.

Application

- For bar tacking on men's suit, slacks, jeans work clothes, light weight underwear and other apparel. (1669U101, 120, 300)
- For tacking eyelet buttonhole on men's suit, ladies suit, overcoat, etc. (166U200)
- For sewing 2-hole, 3-hole, 4-hole buttons. (1669U400)
- For decorative bar tacking, decorative sewing, etc. (1669U500)

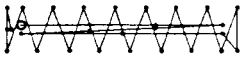
*Maximum efficient speed is determined depending on nature of operation and type of material being sewn.

**Numerals in parentheses indicate maximum clamp foot lift.

***Transformer is necessary when the machine is to be used at single phase 100 ~ 115V.

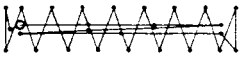
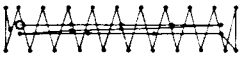
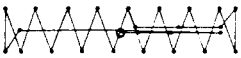
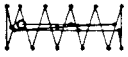
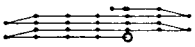
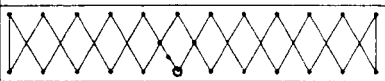
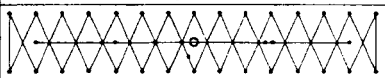
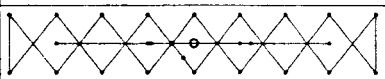
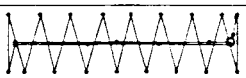
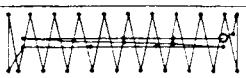
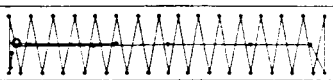
4-2. Pattern and attachment table

(1669U101)

NO.	STITCH PATTERN	NO.OF ST.	UP ARM	ACROSS ARM	MAX. SPEED	APPLICATION
1 1A		29	3.0	16.0	*2,700 SPM	HEAVY WEIGHT MATERIAL
2 2A		36	3.0	16.0		
3 3A		42	3.0	16.0		

* Maximum efficient speed is determined upon nature of operation and type of material being sewn.

(1669U102)

NO.	STITCH PATTERN	NO.OF ST.	UP ARM	ACROSS ARM	MAX. SPEED	APPLICATION
4		29	3.0	16.0	*2,700 SPM	MEDIUM/ LIGHT WEIGHT MATERIAL
5		36	3.0	16.0		
6		42	3.0	16.0		
7		28	3.0	16.0		
8		36	3.0	16.0		
9		42	3.0	16.0		
10		21	3.0	8.0		
11		28	3.0	8.0		
12		36	3.0	8.0		
13		42	3.0	22.2		
14		28	-	12.7		
17 17A	 (Ope)	28	25.4	4.0		LIGHT WEIGHT MATERIAL
18 18A	 (Ope)	42	25.4	4.0		
19 19A	 (Ope)	28	25.4	4.0		
20	 (Ope)	29	16	4		
21	 (Ope)	36	16	4		
22	 (Ope)	42	22	4		

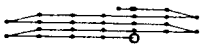
* Maximum efficient speed is determined upon nature of operation and type of material being sewn.

(1669U200)

NO.	STITCH PATTERN	NO.OF ST.	UP ARM	ACROSS ARM	MAX. SPEED	APPLICATION
10		21	3.0	8.0	*2,700 SPM	MEDIUM/ LIGHT WEIGHT MATERIAL
11		28	3.0	8.0		
12		36	3.0	8.0		LIGHT WEIGHT MATERIAL

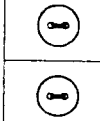
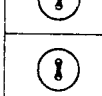
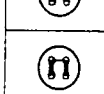
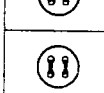
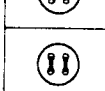
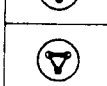
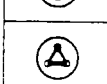
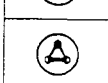
* Maximum efficient speed is determined upon nature of operation and type of material being sewn.

(1669U300)

NO.	STITCH PATTERN	NO.OF ST.	UP ARM	ACROSS ARM	MAX. SPEED	APPLICATION
14		28	-	12.7	*2,700 SPM	LIGHT WEIGHT MATERIAL
15		28	-	12.7		
16		28	-	25.4		

* Maximum efficient speed is determined upon nature of operation and type of material being sewn.

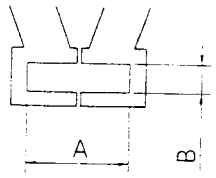
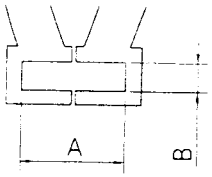
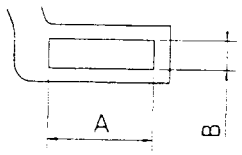
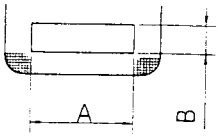
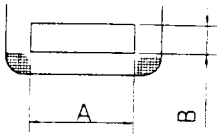
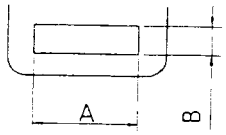
(1669U400)

PATERN NO.	NUMBER OF HOLE	STITCH PATTERN	STITCH	CROSS-OVER STITCH	TOTAL NUMBER OF STITCH	ACROSS ARM	UP ARM
1	4		6-6	1	16	3.4mm	3.4mm
2			8-8	1	20		
3			10-10	1	24		
4 *			6-6	0	18		
5 *			8-8	0	22		
6 *			10-10	0	26		
7			6-6	1	16		
8			8-8	1	20		
9			10-10	1	24		
10 *			6-6	0	18		
11 *			8-8	0	22		
12 *			10-10	0	26		
13	2		6	-	9	3.4mm	—
14			8	-	11		
15			10	-	13		
16			12	-	15		
17			16	-	19		
18	2		6	-	9	—	3.4mm
19			10	-	13		
20	4		6-6	1	16	3.4mm	3.4mm
21			10-10	1	24		
22 *			6-6	0	18		
23 *			10-10	0	26		
24	3		5-5-5	-	18	3.0mm	2.6mm
25			8-8-8	-	27		
26			5-5-5	-	18		
27			8-8-8	-	27		

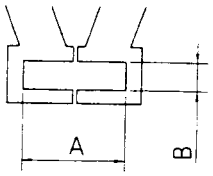
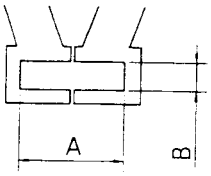
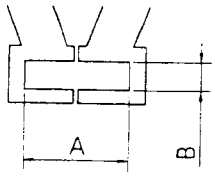
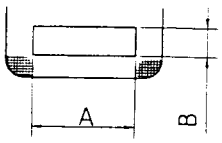
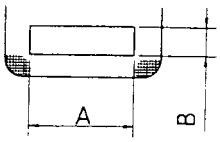
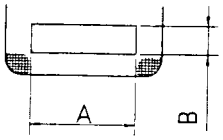
* Pattern Nos. 4, 5, 6, 10, 11, 12, 22 and 23 do not sew a cross over stitch. When foot switch is depressed at the beginning, the machine will sew the first side and the wiper (and clamp foot mechanism) will function after completing the first side. The machine will continue to sew the second side automatically to complete the cycle.

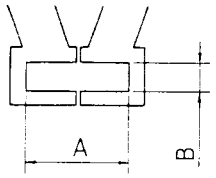
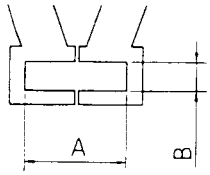
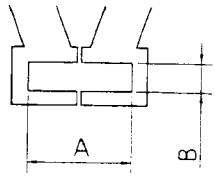
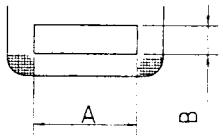
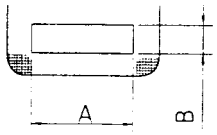
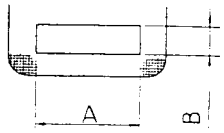
Fitting

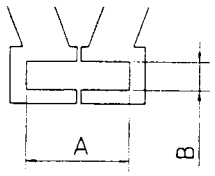
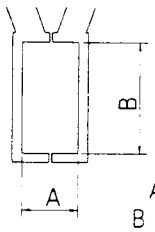
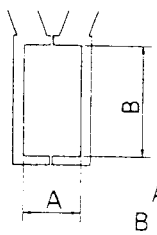
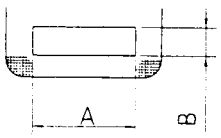
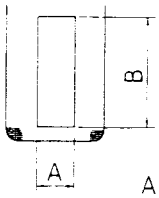
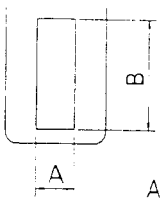
Standard

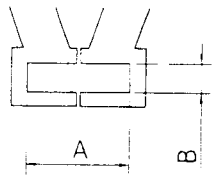
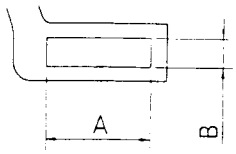
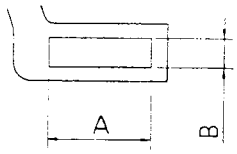
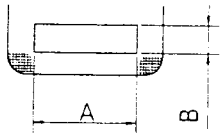
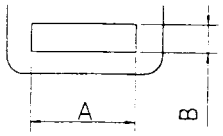
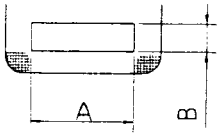
Variety		1669U 101	1669U 102	1669U 300
Fitting No.		0	1	2
Clamp foot	P/N	418095-002 (L)	418095-001 (L)	418638
	P/N	418096-002 (R)	418096-001 (R)	
	SIZE	 A = 22 B = 6.5	 A = 20 B = 5	 A = 14.3 B = 2.5
Feed plate	P/N	555543-002	555547	555565
	SIZE	 A = 20 B = 6.5	 A = 30 B = 19.5	(without serrations)  A = 22.3 B = 10.5
Finger guard		419873	555735	556505
Applicable Prog. No.		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15	←	14, 15

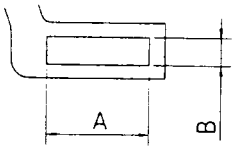
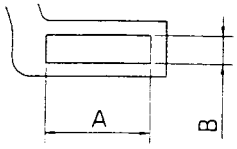
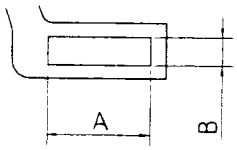
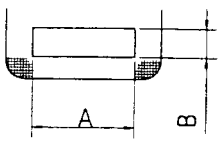
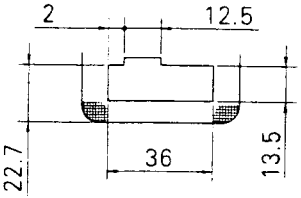
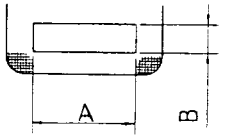
Option

Variety		1669U 101	1669U 102	←
Fitting No.		1	0	6
Clamp foot	P/N	418095-001 (L)	418095-002 (L)	418095-003 (L)
	P/N	418096-001 (R)	418096-002 (R)	418096-003 (R)
	SIZE	 A = 20 B = 5	 A = 20 B = 6.5	 A = 20 B = 4
Feed plate	P/N	555543-001	555547	555547
	SIZE	 A = 21 B = 5	 A = 30 B = 19.2	 A = 30 B = 19.2
Finger guard		419873	555735	555735
Applicable Prog. No.		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15	←	14, 15

Variety		1669U 102	←	←
Fitting No.		7	3	4
Clamp foot	P/N	418095-004 (L)	418623 (L)	418626 (L)
	P/N	418096-004 (R)	418624 (R)	418627 (R)
	SIZE	 A = 11 B = 3	 A = 10 B = 5	 A = 10 B = 3
Feed plate	P/N	555547 (standard)	555743	555743
	SIZE	 A = 30 B = 19.2	 A = 20 B = 18	 A = 20 B = 18
Finger guard		555735	555735	555735
Applicable Prog. No.		———	10, 11, 12	———

Variety		1669U 102	←	←
Fitting No.		5	12	12
Clamp foot	P/N	372905 (L)	281747 (L)	281747 (L)
	P/N	372906 (R)	281748 (R)	281748 (R)
	SIZE	 A = 10 B = 3	 A = 7 B = 28.2	 A = 7 B = 28.2
Feed plate	P/N	555744	555758	557115
	SIZE	 A = 11.8 B = 4.8	 A = 7.5 B = 29.2	 A = 19 (without serrations) B = 42.5
Finger guard		555735	555558	555558
Applicable Prog. No.		———	17, 18, 19, 20, 21, 22	17, 18, 19, 20, 21, 22

Variety		1669U 102	1669U 300	←
Fitting No.		11	8	8
Clamp foot	P/N	418861 (L)	418657	418657
	P/N	418862 (R)		
	SIZE	 A = 26 B = 4.5	 A = 28.4 B = 2.5	 A = 28.4 B = 2.5
Feed plate	P/N	555749	555750	555751
	SIZE	 A = 36 B = 19.2	(without serrations)  A = 36.4 B = 10.5	 A = 14.3 B = 2.5
Finger guard		555735	556505	556505
Applicable Prog. No.		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	14, 15, 16	14, 15, 16

Variety		1669U 300	←	←
Fitting No.		8	9	10
Clamp foot	P/N	418657	418676-001	418909
	SIZE	 A = 28.4 B = 2.5	 A = 24 B = 4.5	 A = 14.3 B = 2.5
Feed plate	P/N	555752	555555	555565
	SIZE	 A = 28.4 B = 2.5		 A = 22.3 B = 10.5
Finger guard		556505	556505	556505
Applicable Prog. No.		14, 15, 16	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	14, 15

Variety		1669U 101 / 102 / 500
Fitting No.		13
Clamp foot	P/N	
	SIZE	Foot: 556501 (2 pcs.) Foot plate: 556503 (for 1669U101/102) (2 pcs.) 556569 (for 1669U500) (2 pcs.) (BLANK)
Feed plate	P/N	BLANK
	SIZE	555767 (With Serrations) (Heavy) 555773 (With Serrations) (Light) 555774 (Without Serration) (Light)
Finger guard		556505
Applicable Prog. No.		———

5. Preparation

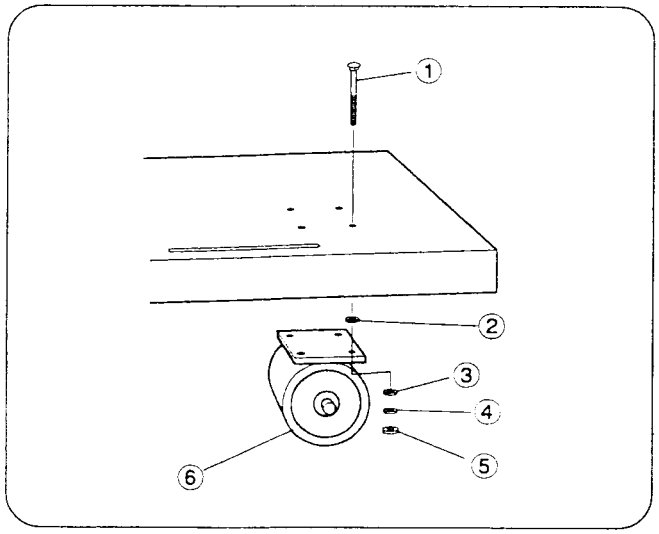
5-1. Table, stand and motor

5-1-1. Table P/N 600669 or equivalent

When using open market table, refer to table cut-out diagram or last page of this manual.

5-1-2. Stand P/N 602415-002

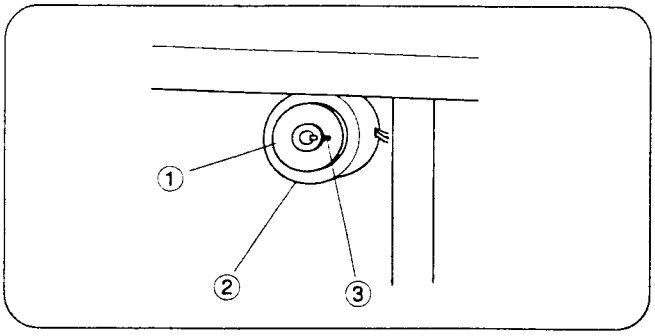
5-1-3. Motor



Fit bolts (1) into the four holes in the table and fasten motor (6) to underside of table with cushion (2), flat washer (3), spring washer (4) and nut (5) as shown in sketch on the left.

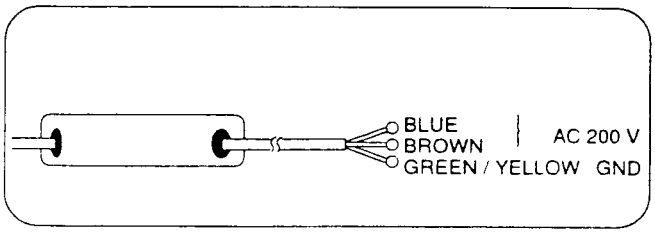
Temporarily tighten nut (5). The position of motor (6) will be adjusted when V-belt is attached to the motor (Page 18).

5-1-4. Motor pulley

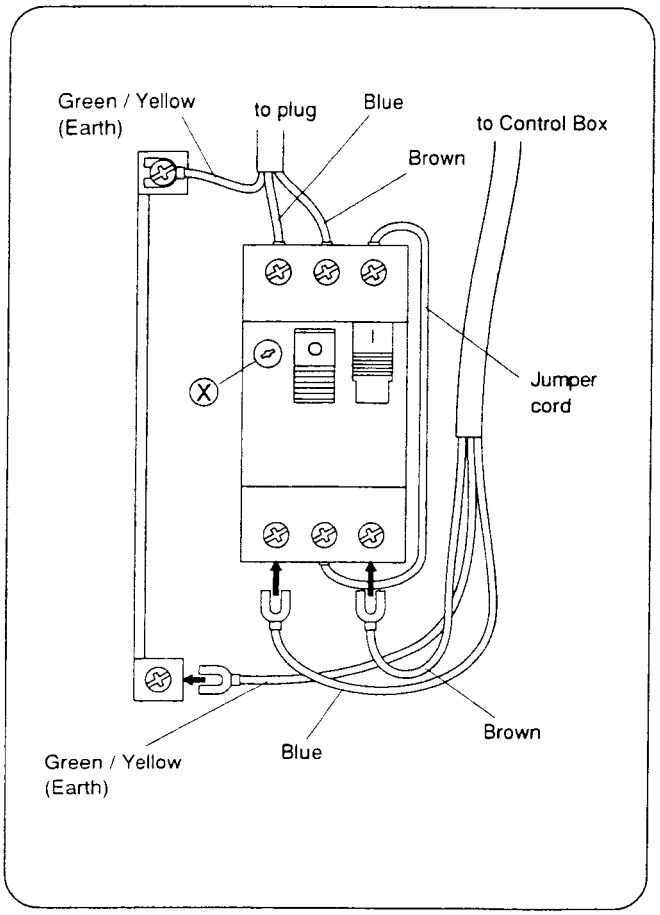


Insert motor pulley (1) into shaft of motor (2) with the key groove aligned with the shaft and position the motor pulley (1) so that the center of the V-groove in the pulley is almost aligned with the center of the belt hole in the table. Then tighten set screw (3).

5-2. Power switch



(200 ~ 240 V)
(Except "CE" Area)



(200 ~ 240 V)
("CE" Area)

Remove cover for power switch and connect power cable coming out of control box to power switch as shown in Fig. 3. Also, set breaker shut-off current for 4 amp. ((X) section)

(High-Voltage)(100 ~ 115V)
Use transformer.

5-3. Control Box

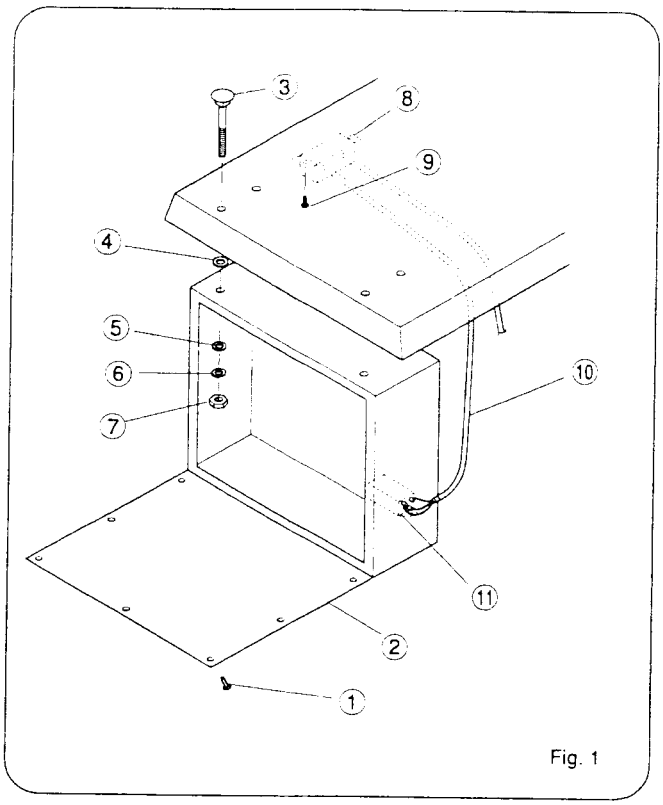


Fig. 1

5-3-1. Remove seven screws (1) and open cover (2) taking care not to drop the cover.

5-3-2. Fit bolts (3) into holes in table and fasten control box to underside of table with cushions (4), flat washers (5), spring washers (6) and nuts (7) as shown in Fig.1.

5-3-3. Fasten power switch (8) to table with two wood screws (9).

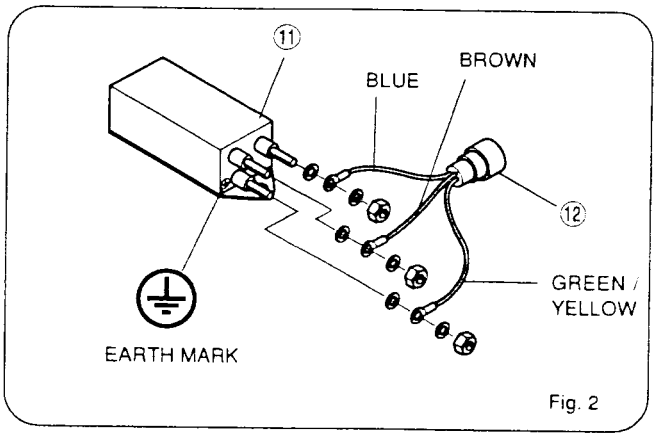


Fig. 2

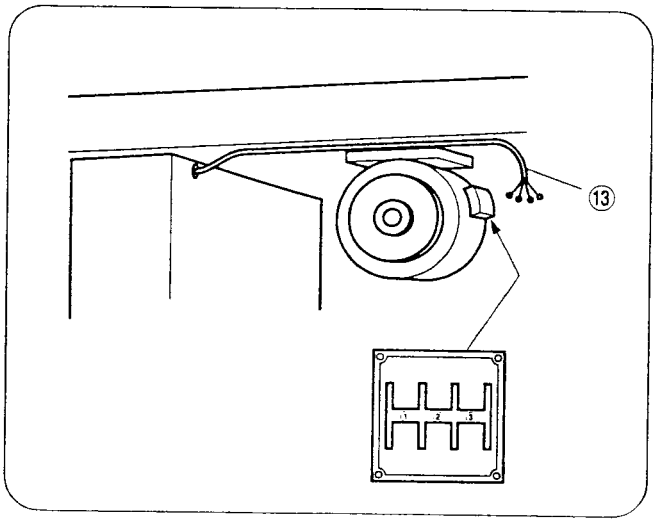
5-3-4. Connect output cable (10) of power switch (8) with noise filter (11) in the control box as shown in Fig.2.

5-3-5. Fasten power supply cable to control box with grommets (12).

5-3-6. Close cover and tighten screws (1) temporarily.

Note: Screws (1) to be tightened temporarily because cover will be opened again for wiring of PC board (Page 17).

Be sure to connect earth codes (green / yellow) to the specified places because of potential leak or damage to the factory power source unit.

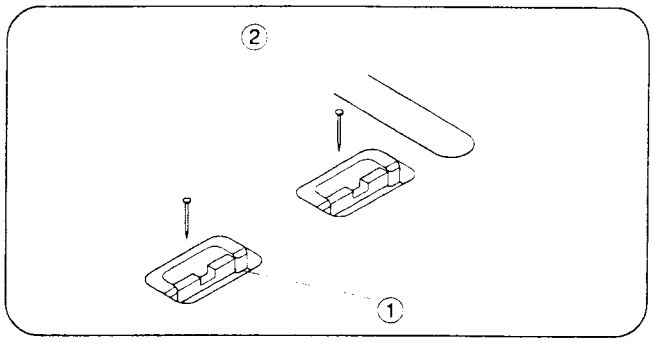


5-3-7. Remove the cover from motor terminal and connect lead wires of cable (13) as shown below. Also connect grounding wire to terminal marked "E" on the motor.

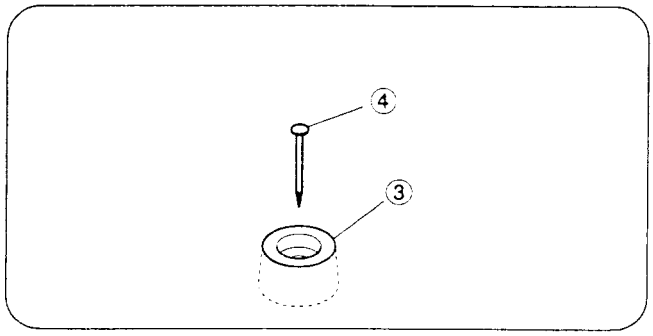
NO.	Cable (motor)	Cable ⑬
①	red/black	red
②	white/black	white
③	black	black
E	-	green/yellow

5-3-8. Fasten power supply cable and motor cable to underside of table with staples.

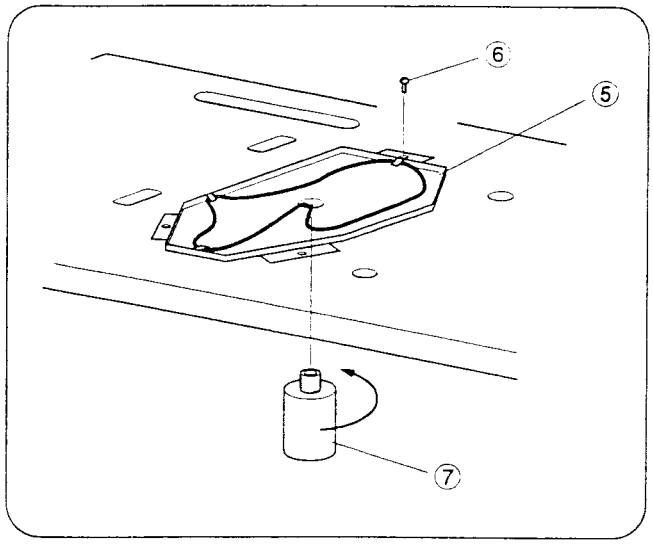
5-4. Machine head



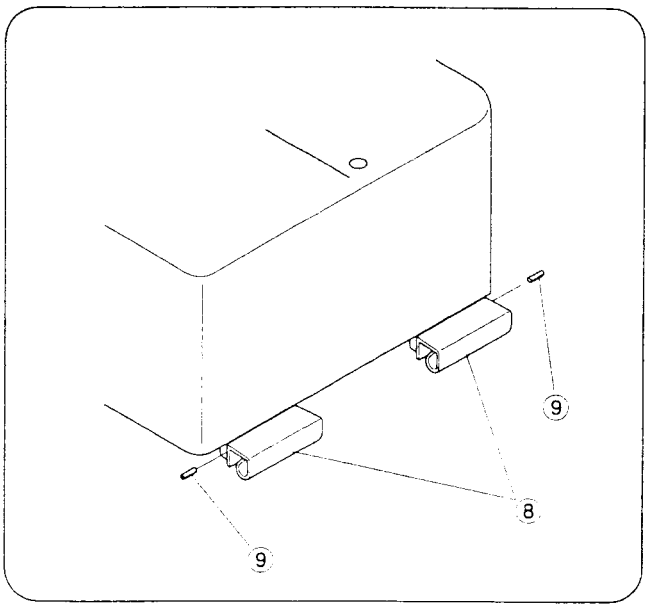
5-4-1. Fasten hinge cushion (1) to table with nails (2).



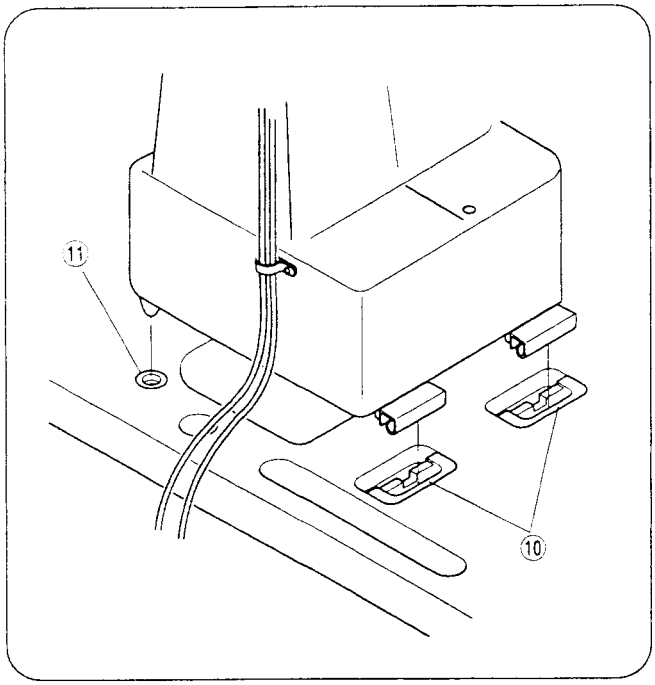
5-4-2. Fit cushions (3) to holes in table and fasten with nails (4).



5-4-3. Fasten oil pan (5) to table and wood screws (6).
5-4-4. Screw oil drain jar (7) into drip pan (5) from underside of table as shown.



5-4-5. Fit machine hinges (8) onto machine head in parallel and tighten set screws (9).

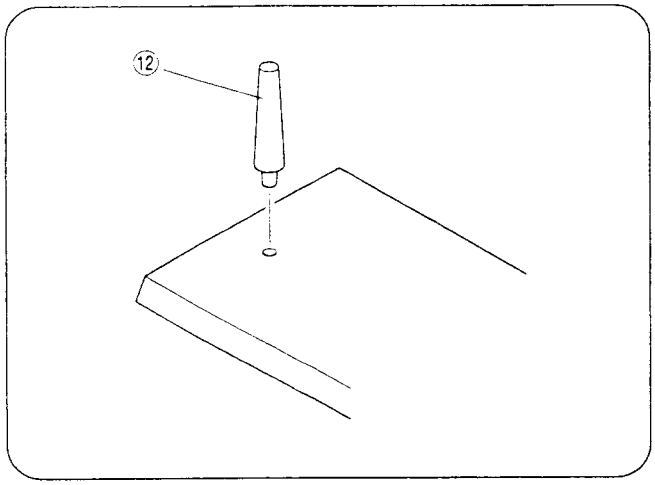


5-4-6. Place machine head on hinge cushions (10) and cushions (11).

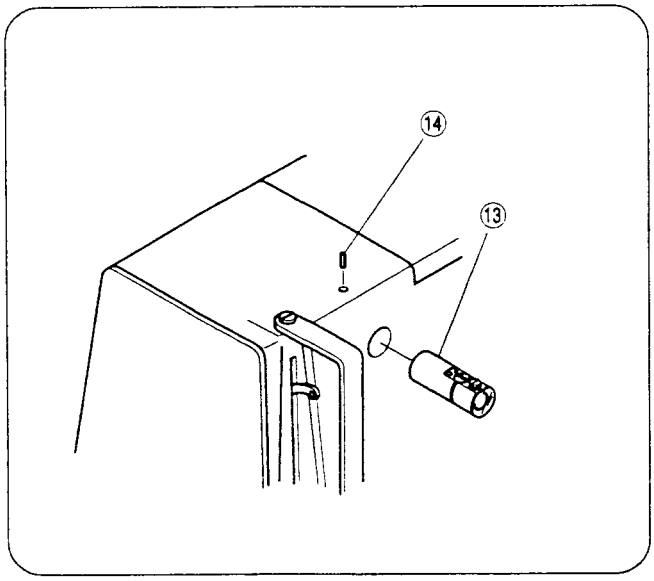
Note: Place cables on table to hang free from the edge in order to prevent it from being pinned under the machine head.

Danger or crushing between sewing head and table top.

When carrying the machine, it should be carried by two or more people.

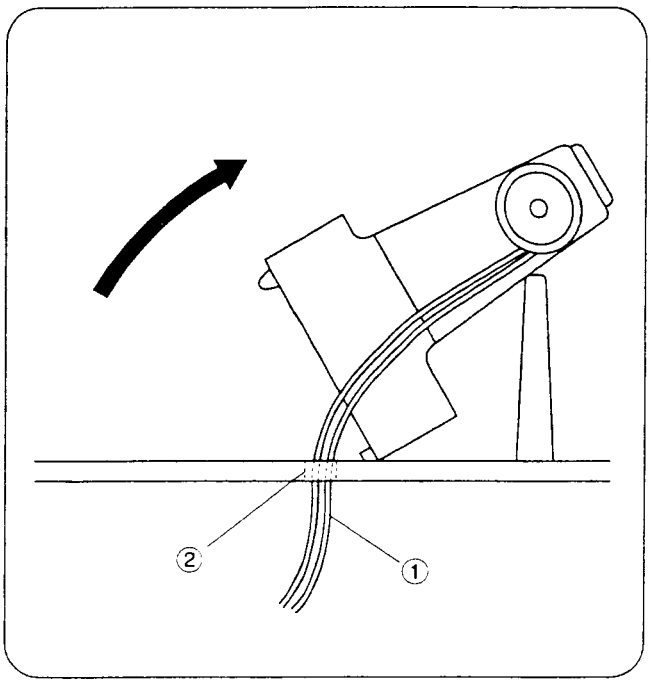


5-4-7. Insert rest pin (12) into hole in table as far as it will go.

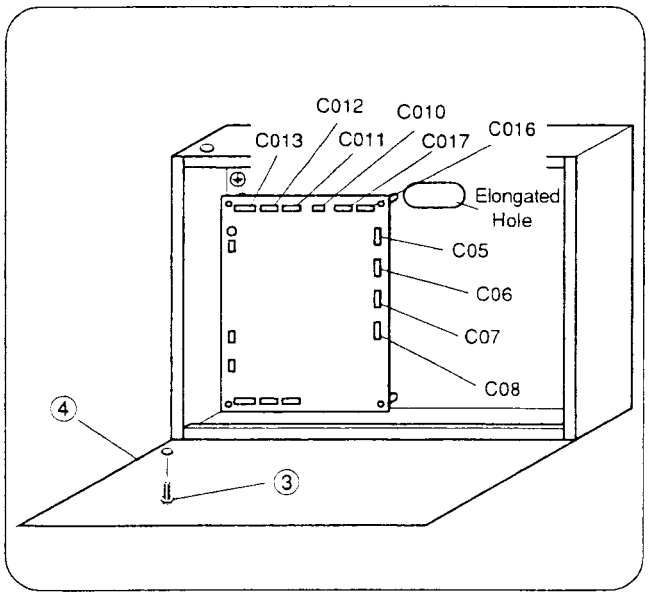


5-4-8. To install silicon tank (option), remove rubber cap, insert silicon tank (13) into hole in arm and fasten with screw(14).

5-5. Cable connection

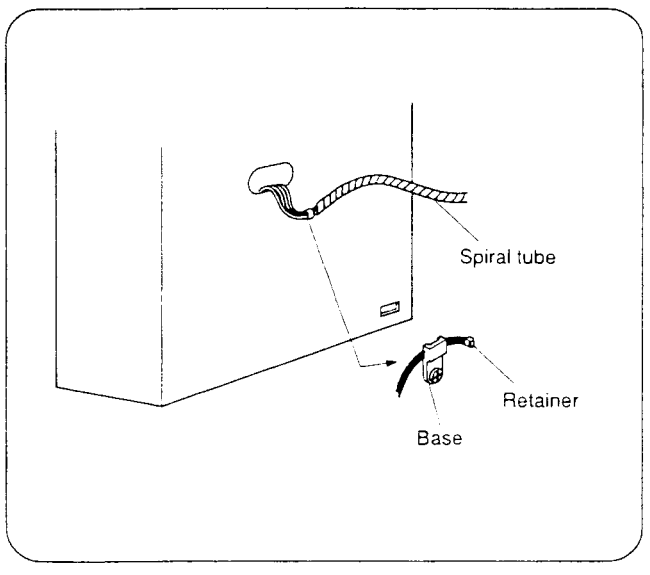


5-5-1. Tip machine head over on its side onto rest pin gently.
Note: Do not apply any force to head end or pulley end of machine head when it is tipped over on its side.
5-5-2. Pass cable (1) through hole (2) in table.
5-5-3. Set machine head upright gently.



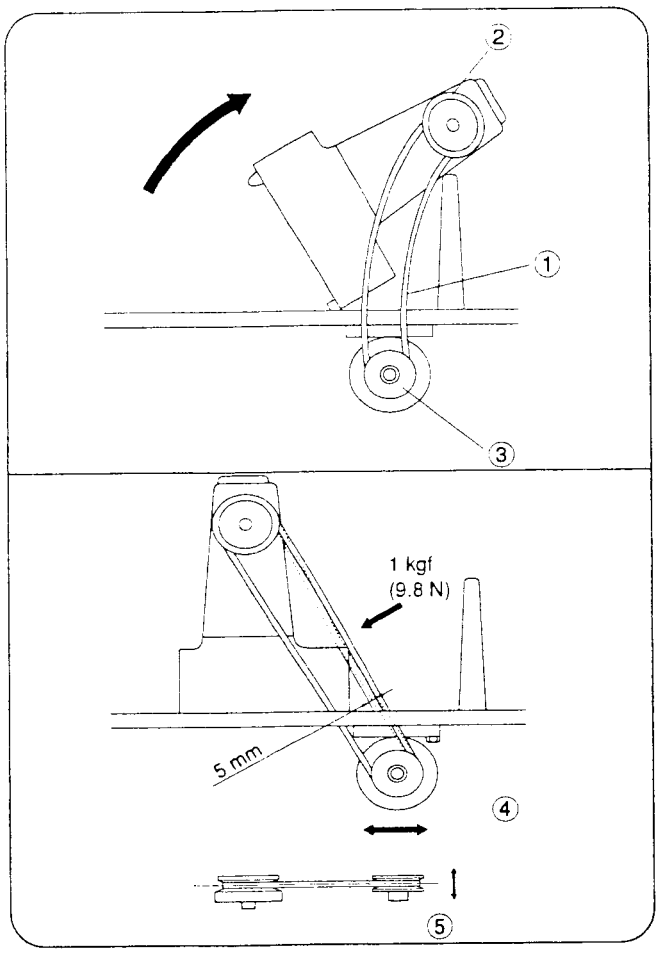
5-5-4. Remove screws (3) and open control box cover (4).
Note: Every care should be taken not to drop the cover when opening it.
5-5-5. Pass cable through elongated hole.
5-5-6. Connect each cable to connector as follows.

Cable No.	Connector No. (on PC board)	
5	C05	Clamp lift solenoid
6	C06	Trimmer solenoid
7	C07	Tension release solenoid
8	C08	Clamp foot guide solenoid (1669U200 only)
10	C010	Synchronizer
11	C011	Y-axis sensor
12	C012	X-axis sensor
13	C013	Clamp lift sensor
16	C016	X pulse motor
17	C017	Y pulse motor



5-5-7. Also, connect the earth wire of the machine head to the earth terminal on noise filter (see Page 14). Then secure the earth wire together with power switch cable to the control box by using the grommet furnished with the unit.
Note: Tip machine over on its side and make sure there is no tension applied to the cables.
5-5-8. Replace cover (4) and tighten seven screws (3).
5-5-9. Fix cables to the base with retainer furnished with accessories and then bind the cables into a bundle with spiral tube. (Re left figure.)

5-6. V-belt



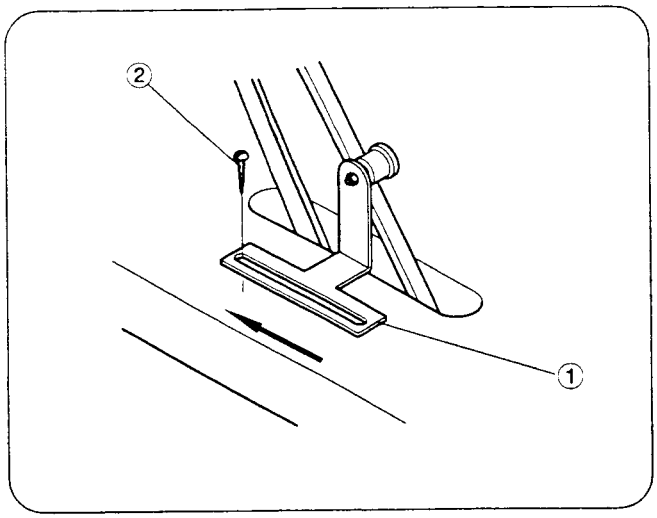
5-6-1. Tip machine head over on its side gently and install V-belt (1) on V-groove in machine pulley (2) and motor pulley (3).

Note: Do not apply any force to head end or pulley end of machine head when it is tipped over on its side.

5-6-2. Set machine head upright taking every care not to pin the cables under the machine head.

5-6-3. To adjust motor belt tension, move motor to the left or right as required so that the belt will deflect approximately 5mm when a load of 1kg is applied to the belt midway between machine pulley and motor pulley. Then tighten nut (4). If motor pulley (3) has shifted out of alignment with machine pulley (2) in the direction shown by arrow, loosen screw (5), adjust motor pulley (3) and tighten screw (5).

5-7. Tension pulley



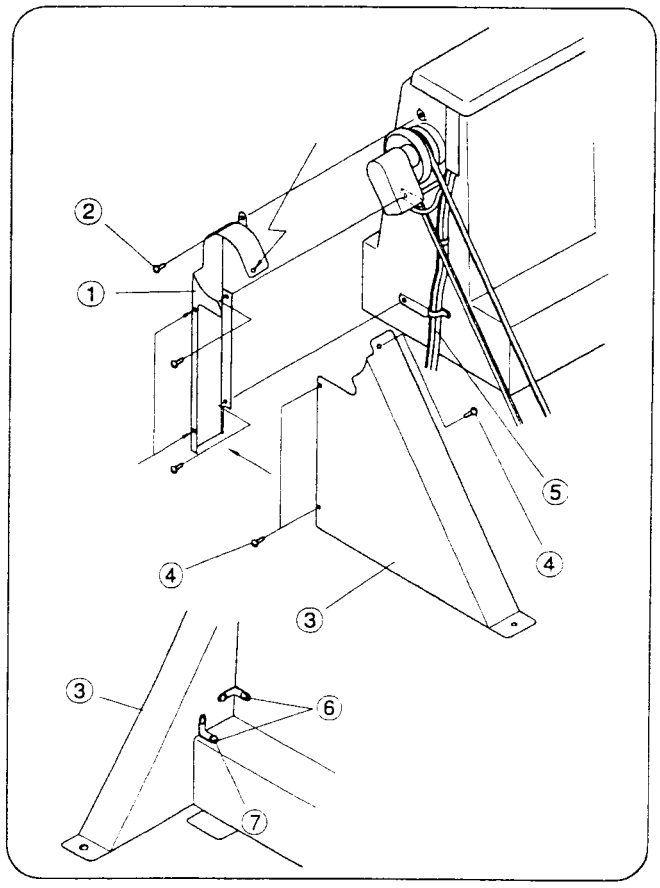
5-7-1. Fasten tension pulley (1) on the table with 2 wood screws (2).

Note: Check and re-adjust the belt tension a few days after starting use of the machine since new V-belt tends to stretch at the beginning.

If the belt tension is insufficient, it may result in causing excessive noise, vibration and move needle up stop position out of correct position.

5-7-2. Move the pulley to the direction shown with arrow mark to increase the tension.

5-8. Belt cover



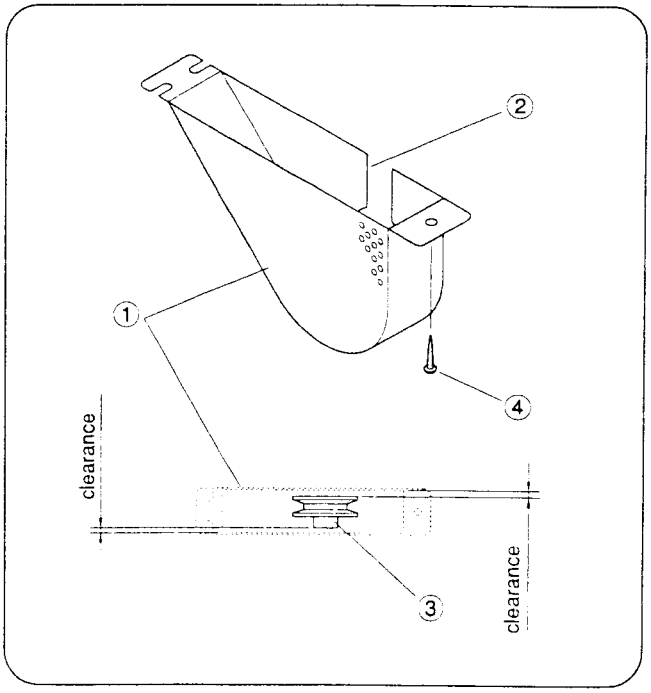
5-8-1. Fasten belt cover (right) (1) to machine head with three screws (2).

5-8-2. Fit belt cover (left) (3) onto belt cover (right) as indicated with arrow and fasten with screws (4) taking every care not to pinch the cables (5) between cover and machine head.

5-8-3. Fasten belt cover (3) to machine head with two brackets (6) and four screws as shown.

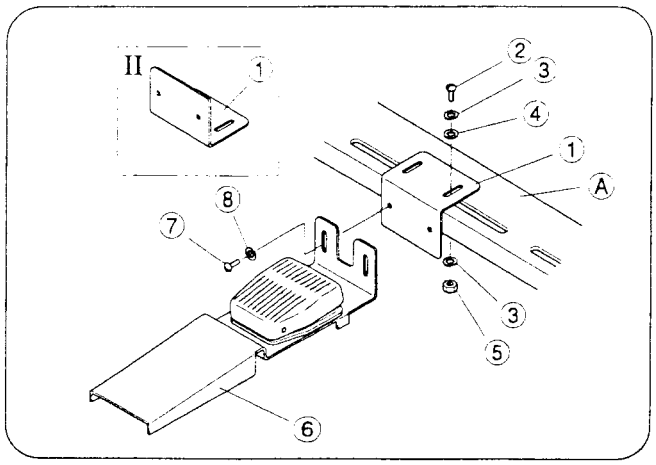
Note: When tipping the machine cover on its side, remove all belt covers in the reverse order of above installation procedure.

5-9. Motor cover



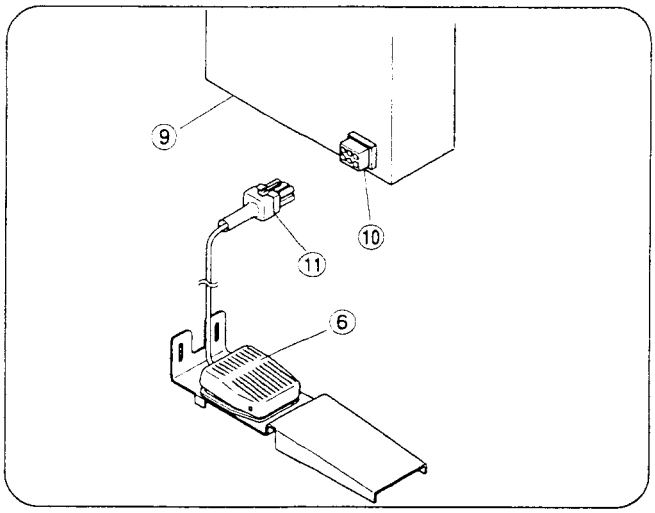
Cover motor pulley (3) with motor pulley cover (1) and fasten pulley cover to table with four screws making sure the motor shaft is located centrally in the recess of pulley cover (1) and the clearance between pulley (3) and cover (1) is equidistant.

5-10. Foot switch



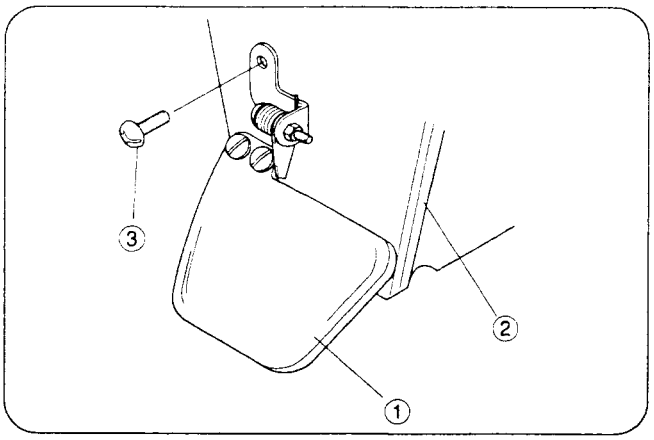
5-10-1. Fasten bracket (1) to table stand with two screws (2), four spring washers (3), two washers (4) and two nuts (5). If height of brace (A) is low, fasten bracket (1) to brace (A) as shown in Fig.II.

5-10-2. Fasten foot switch (6) to bracket (1) with two screws (7) and two spring washers(8).



5-10-3. Connect connectors (11) of foot switch (6) to connector (10) on control box (9).

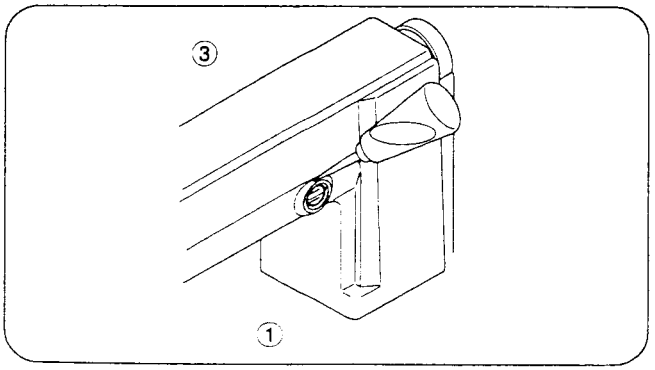
5-11. Eye guard



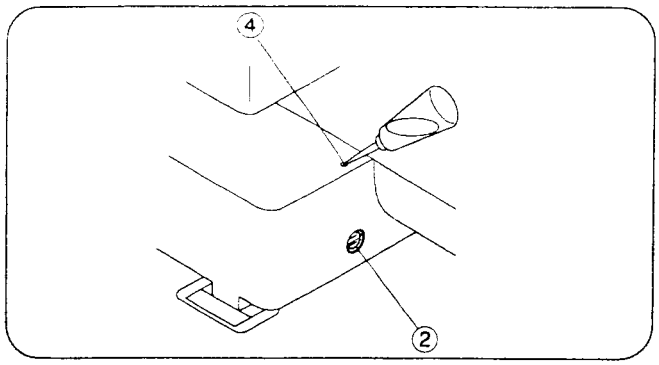
Attach eye guard (1) to face plate (2) with screw (3).

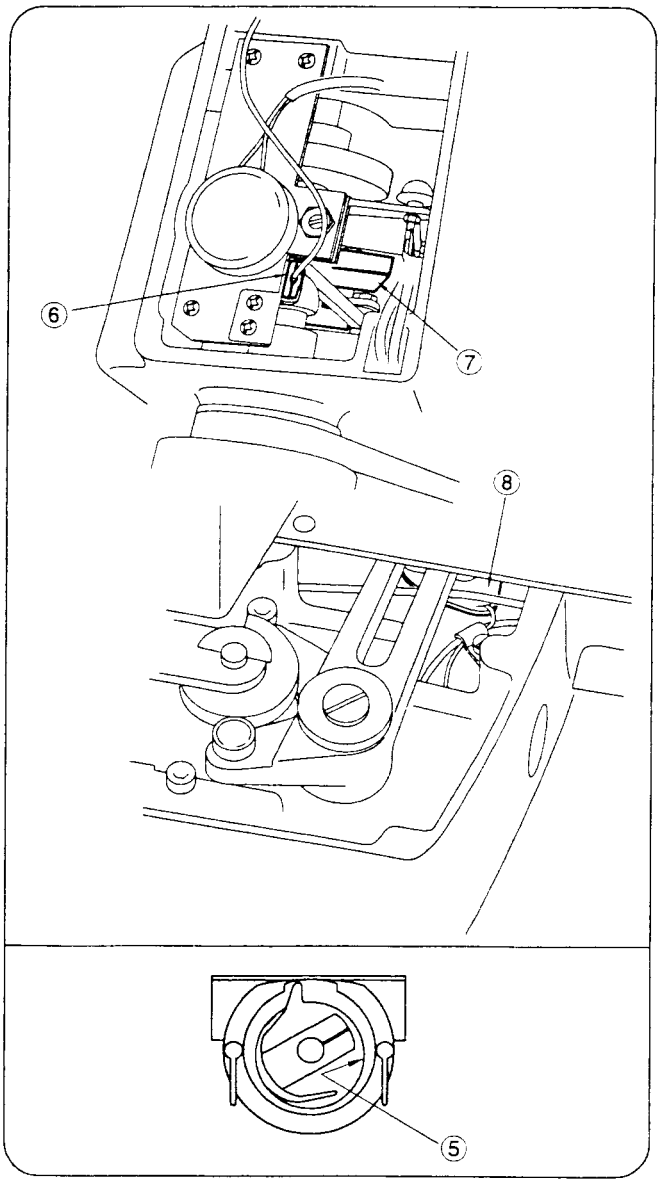
Switch off the machine.
Do not run machine without eye guard!
Danger of injury!

5-12. Lubrication



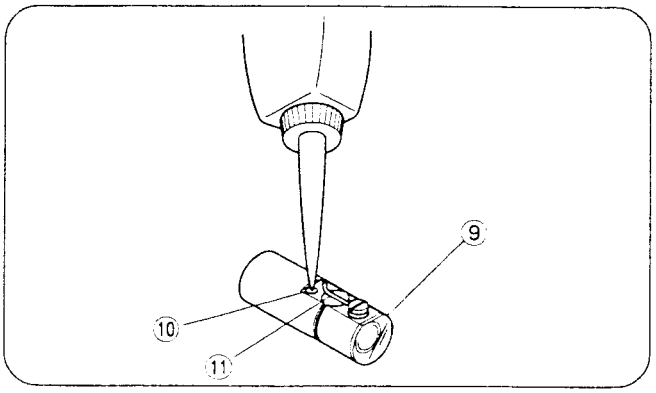
5-12-1. When oil level in gauge windows (1) and (2) is low, add oil from oil holes (3) and (4).





5-12-2. When machine is new or has been idle for several weeks, apply a drop of oil to shuttle hook raceway (5), and to crank connecting rod oil felt (6) , oscillating rock shaft oil felt (7), oil felt (8), needle bar and thread take-up lever oil wicks until the felts and wicks are soaked with oil. Oil with the following specifications must be used.
Viscosity 20.0mm²/sec. at 38 °C
Concentration 0.888g/cm³ at 15 °C
It is recommended that Singer type "C" oil be used.

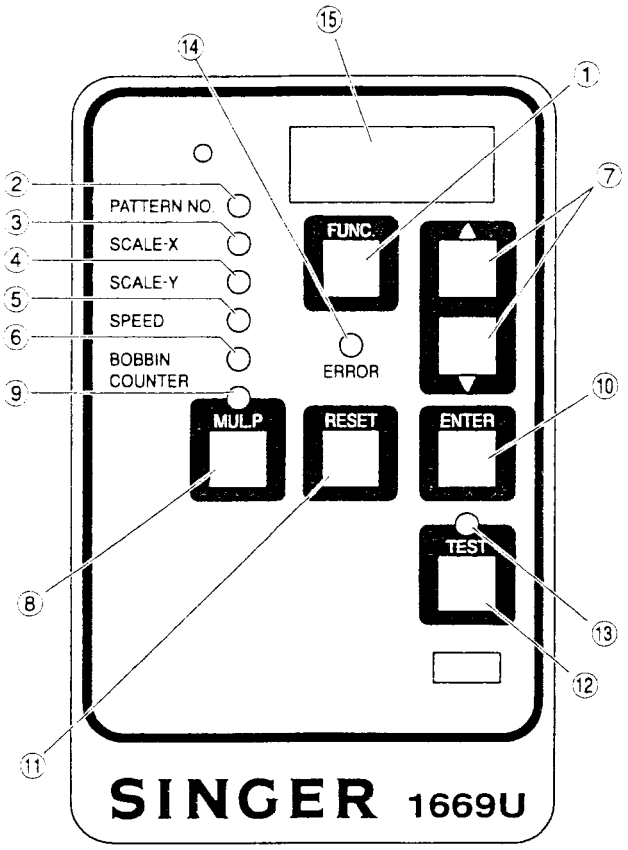
Be sure to turn main switch off.



5-12-3. When thread lubricator (9) is used, fill the lubricator with silicon oil through oil hole (10).
Make sure that silicon oil adheres to the thread which has passed through thread guide (11).

6. How to Use the Machine

6-1. Principal parts and function of control panel



① FUNC. Switch
Modes change as shown below each time this switch is presses.
Pattern No.→X-scale→Y-scale→Speed
↑__(Bobbin Thread Counter)___|

② Pattern No. LED
Lights up when pattern number is selected by FUNC. switch ①.

③ X-axis LED
Lights up when X-scale is selected by FUNC. switch ① .

④ Y-axis LED
Lights up when Y-scale is selected by FUNC. switch ① .

⑤ Speed LED
Lights up when speed is selected by FUNC. switch ① .

⑥ Bobbin Thread Counter LED
Lights up when bobbin thread counter is selected by FUNC. switch ① .

⑦ △ , ▽ Key
This key is used to change the contents of the menu selected by FUNC. switch ① .

⑧ MULTI-PROGRAM (sequential sewing) Key
This key is used for sequential sewing.

⑨ Sequential Sewing LED
Lights up when MULTI-PROGRAM key ⑧ is pressed.

⑩ SEQUENTIAL SEWING ENTER Key
This key is used to store a pattern for sequential sewing.

⑪ RESET Key
This key is used to return to ordinary sewing after sequential sewing and test sewing.

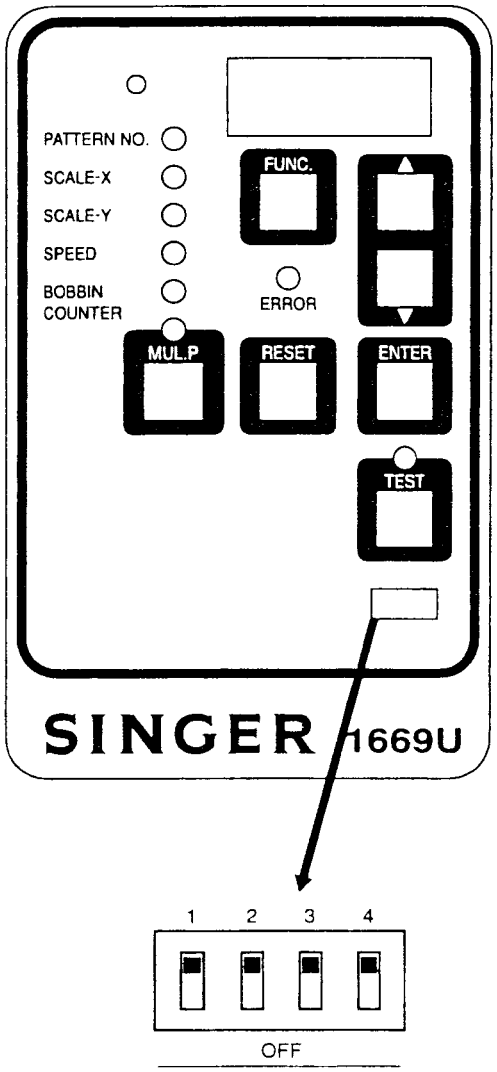
⑫ TEST Key
This key is used to verify pattern by operating only feed.

⑬ Test LED
Lights up when test key ⑫ is depressed.

⑭ Error LED
Lights up when various errors occurred.

⑮ Display Window
Menu, error message and various setting values, etc. are displayed on this window.

6-2. Function of dip switches



6-2-1. Interlock function (DIP SW No.2)

The function of interlock is to control patterns that can be recalled when a combination of fittings (clamp foot and feed plate) is exchanged. Be sure to follow the procedure described below whenever a combination of fittings is exchanged.

1. Turn power switch off.
2. Lower DIP SW No.2 located in the front of control box.

3. Turn power switch on.

Display window
(Fitting No. for the one which has been used up to now is displayed on the display window.)

4. Enter fitting No. for the one which has replaced the previous one by using △ / ▽ key. (See table on Page 8~11 for fitting Nos.) Then press ENTER key.

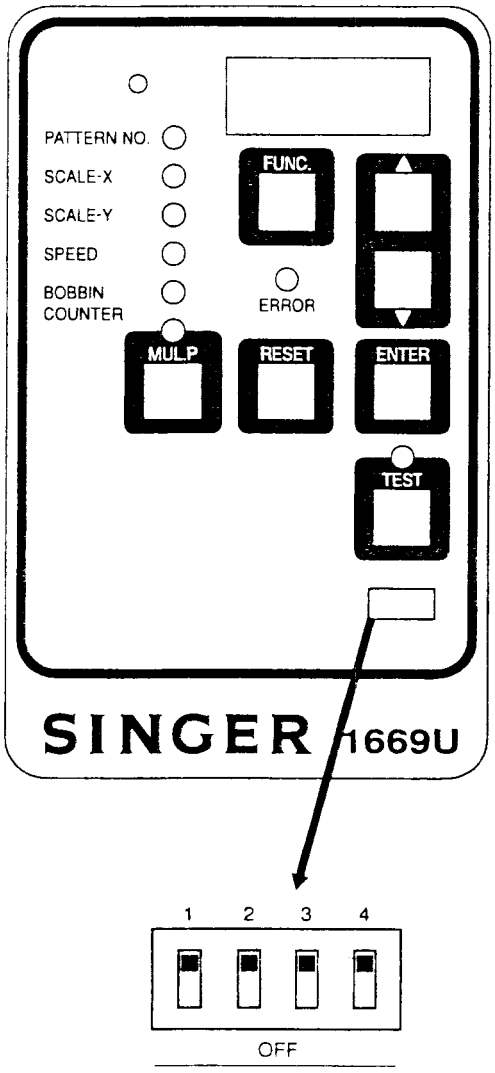
Note: For fitting Nos. 4, 5, 7 and 13, no data that can be sewn are included in the 22 patterns registered. Therefore, when selecting pattern, error LED lights up and the message "E-24" is indicated on the display window.

5. Turn power switch off and bring up DIP SW No.2
6. Turn power switch on again. The machine is now ready for sewing.

Note:(1) Interlock function not only controls the calling of patterns but also controls scale changes (scale up) which cause a pattern to go over the opening of clamp foot.

(2) Fitting No.13 is used for sewing patterns registered as monogramming among pattern data prepared by the user.

(3) Fitting No.14 is used for sewing patterns registered in EEP-ROM when it is possible to sew all these patterns.



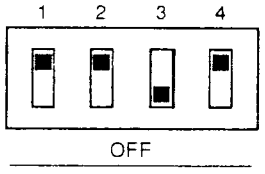
6-2-2. Slow Start

Select the machine speed for 1st stitch to 4th stitch from the table shown below.

	1 (SP-1)	*2 (SP-2)	3 (SP-3)
1st stitch	500	400	400
2nd stitch	1,500	700	500
3rd stitch	2,700	2,700	2,000
4th stitch	2,700	2,700	2,700

(unit: spm)

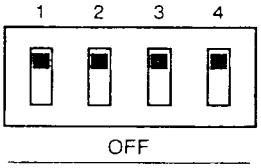
*Factory setting is as per column 2 (SP-2).



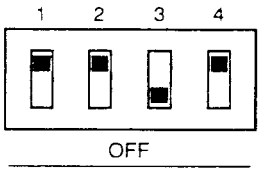
(ON: Speed table 2 (SP-2))

(OFF: Selecting speed table 1 (SP-1) or 3 (SP-3))

1. To set SP-2.
1-1 Turn power switch off.
1-2 Switch on DIP SW 3 (upward) and turn power switch on.



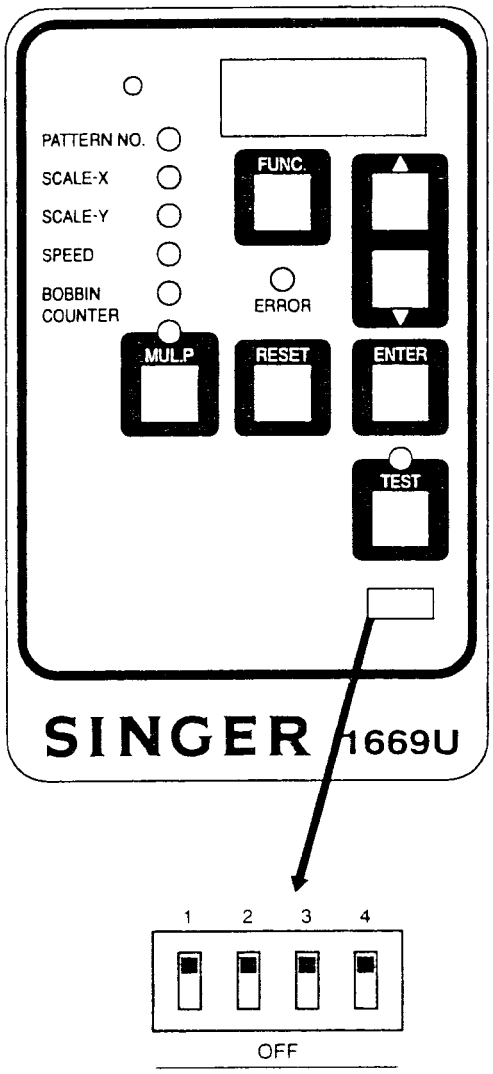
2. To change from SP-2 to SP-1/SP-3
2-1 Turn power switch off.
2-2 Switch off DIP SW. 3 (down) and turn power switch on.



2-3 Following is shown in the display window.

2-4 Select the desired speed table (SP-1 or SP-3) by using △ / ▽ key.
2-5 Press ENTER key. Speed table setting is completed. Display will be changed as follows.

Pattern No. is displayed.



1. To change from SP-1 (SP-3) to SP3 (SP-1)
   Speed table can not be changed directly from SP-1 (SP-3) to SP-3 (SP-1). Set the desired speed table (SP-1 or SP-3) after changing setting to SP-2.

SP-1 ←Changeable→ SP-2 ←Changeable→ SP-3
↑_____ Non changeable _____↑

Be sure to turn power switch off when switching on or off the DIP SW.

6-2-3. Bobbin counter
Bobbin counter can be changed to either "In Use" or "Not in Use" by means of DIP SW No. 4. on the front of control box.

Switch "On"	Bobbin counter "Not in Use".
Switch "Off"	Bobbin counter "In Use".

Be sure to turn power switch off when switching on or off the DIP SW.

How to use bobbin counter

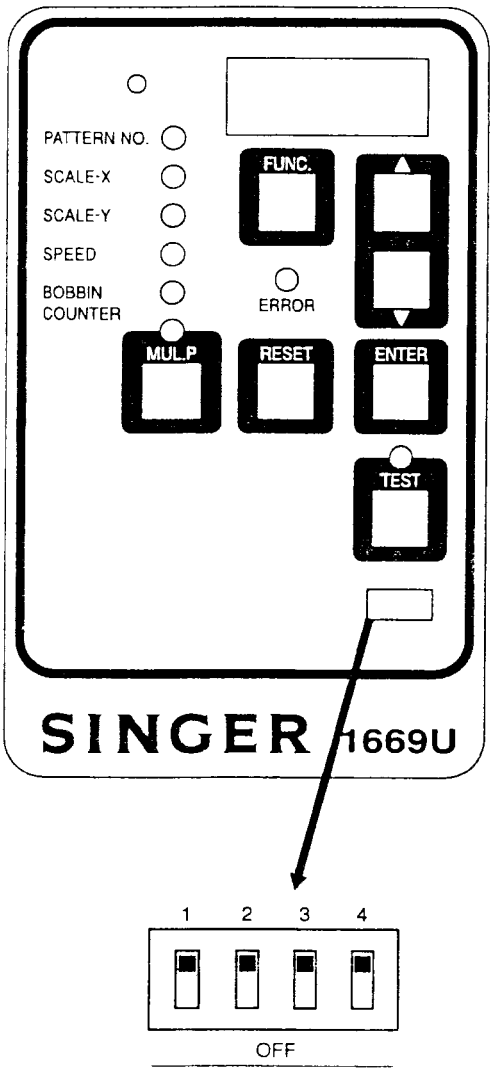
1. Turn power switch off.
2. Slide DIP SW No. 4 downward and turn power switch on.

3. Press FUNC. key to light up bobbin counter LED.
4. By using △ / ▽ key, set the numerals shown in the display window to the number of tacks that can be sewn with one bobbin.

   Press △ key to increase pre-set value.
   Press ▽ key to decrease pre-set value.

   Note: Input numbers other than "0" when using bobbin counter.
5. Press FUNC. key to light up pattern No. LED. The machine is ready for sewing.

6. When the pre-set No. of tacks have been sewn, the system buzzes and "bob" is displayed on the display window, signaling the need for replacing the bobbin.
   Note: As long as the system keeps buzzing and "bob" is indicated on the display window, the machine does not proceed to the next sewing operation. Change bobbin and press RESET key.



7. To change the pre-set value on bobbin counter, press FUNC. key to light up bobbin counter LED and set the desired number using △ / ▽ key.

8. To check how many tacks are left until bobbin counter reaches 0, light up bobbin counter LED by pressing FUNC. key and press ENTER key to display the balance number. This function is convenient in such case as stated below.

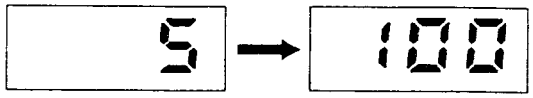
   Example: In case the bobbin thread run out after sewing 95 tacks against the pre-set value 100

   Display will show "5" when procedure stated in item 8) above is performed.

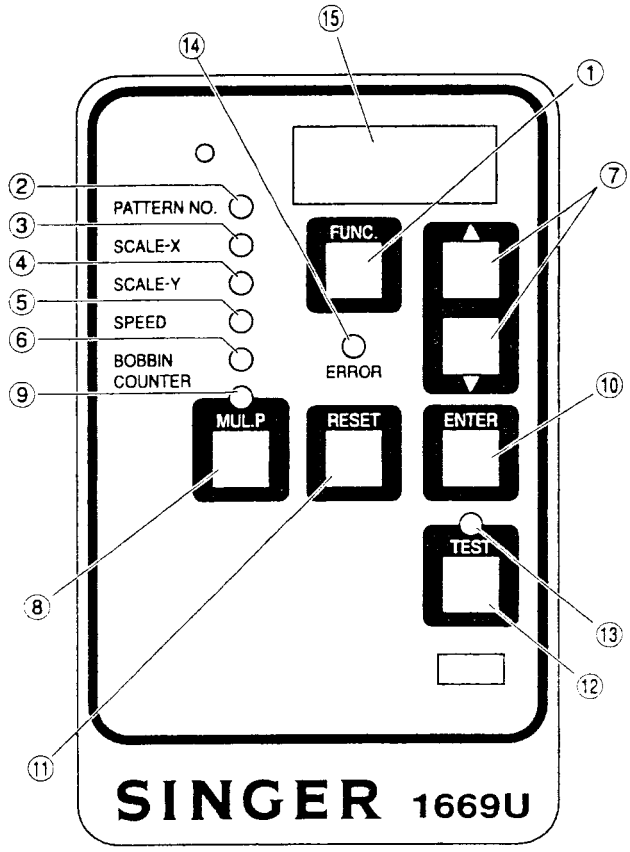
At this time;

① if ENTER key is pressed, display will change to set value 100 and this set value can be changed to correct number with the △ / ▽ key. (In this case input 95.)

② when RESET key is pressed, the display will return to set value 100.



6-3. General sewing operation



Turn main switch "ON". Pattern number is displayed on display window ⑮ .

(When MUL.P LED ⑨ is on, press RESET key ⑪ to light up PATTERN NO. LED ② .)

6-3-1. Pattern selection

1. Press FUNC key ① . Pattern number LED ② lights up.
2. Change pattern number shown on the display window ⑮ to the desired stitch pattern by pressing △, ▽ key ⑦.
3. Depress foot switch to its 2nd step position.

   Feed moves to the start point of sewing and pattern selection is completed.

Note: Pattern Nos. that can be called and displayed on the display window are controlled by the interlock function of DIP SW No. 2. When pattern No. cannot be called, input correct fitting No.

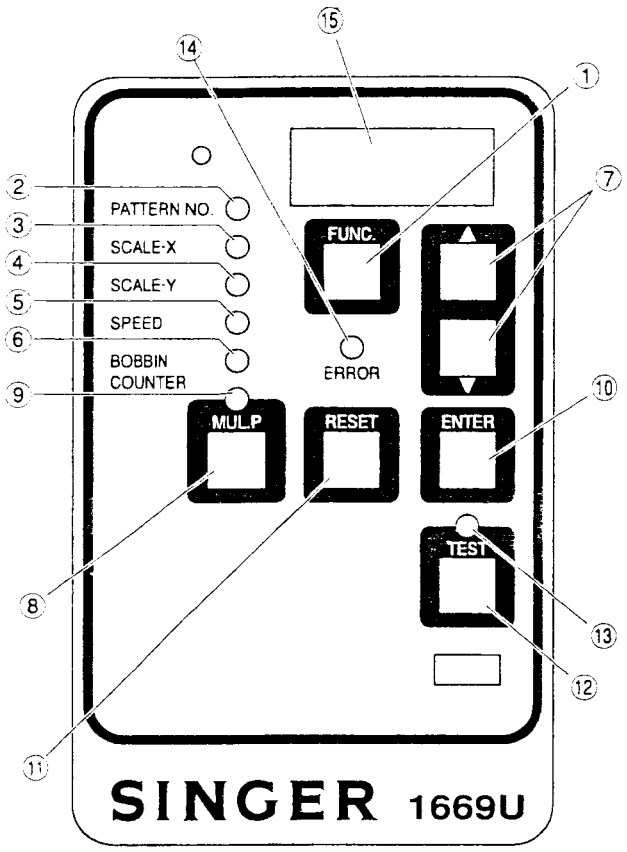
6-3-2. X-scale/Y-scale

1. Press FUNC key ① Either X-scale ③ or Y-scale LED ④ lights up.
2. Change scale displayed on display window ⑮ by pressing △,▽ key. ⑦ (Scale is indicated in %)
3. Press foot switch to its 2nd step position. Feed moves to the starting point of sewing and setting of scale is completed.

Note: Refer to the following table for the setting range of scale.

X-scale	20~200 (%)
Y-scale	20~200 (%)

Note: Since scaling up of a pattern beyond the size of the fitting being used is restricted by the interlock function, there are instances where a pattern cannot be scaled up to 200% depending on the pattern being sewn.



6-3-3. Speed adjustment

1. Press FUNC key ①. Speed LED ⑤ lights up.
2. Change value displayed on display window ⑮ to the desired speed by pressing △, ▽ key ⑦.

Speed is adjustable for a range of 200 - 2700spm. Speed can be adjusted in increments of 100spm.

Reference for the sewing speed to be applied

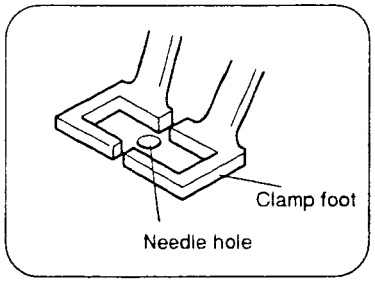
	Sewing speed (s.p.m.)
Denim 8 pcs.	2,200 to 2,700
Denim 12 pcs.	2,200 to 2,500
Clothes	2,200 to 2,700
Clothes (Synthetic thread used)	2,000 to 2,300
Knit	1,800 to 2,000
Foundation	1,800 to 2,000

Note: To prevent the thread breakage due to the needle heat, set the sewing speed referring to the above table in accordance with the sewing conditions.

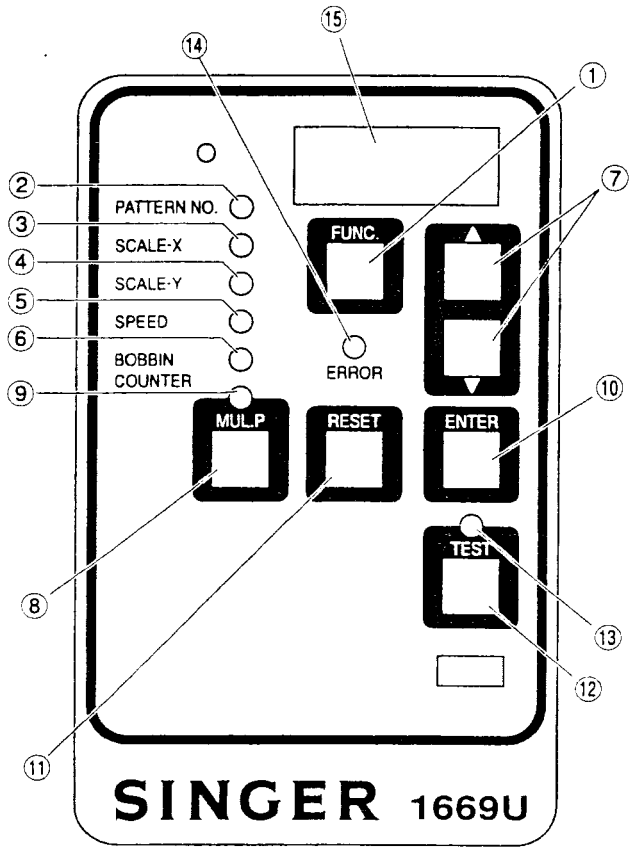
6-3-4. Test (Check stitch pattern by moving feed mechanism only.)

1. Turn power switch on. (Press RESET key if Sequential Sewing LED is on.)
2. Press TEST key. (TEST LED lights up.)
3. Depress foot switch to its 2nd step position. Clamp will descend and feed will function only while the pedal is depressed. Return pedal to the neutral position.

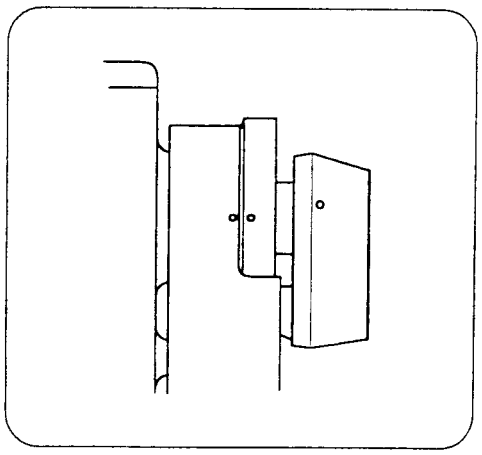
Press △ key and feed will move forward. (Clamp will rise when sewing comes to the end of stitch pattern.)
Press ▽ key and feed will move backward. (Buzzer will sound when feed returns to start of stitch pattern.)



At this point, check to see that needle hole is not shifted out of presser foot.



Note: Be sure to align the mark on machine pulley with mark on belt guard (needle up stop position) when moving feed by using △/▽ key



4. To complete the test, press RESET key after moving feed to the end of stitch pattern.

5. Depress foot switch to its 2nd step position. (Feed moves to the start point of sewing and machine is ready for sewing.)

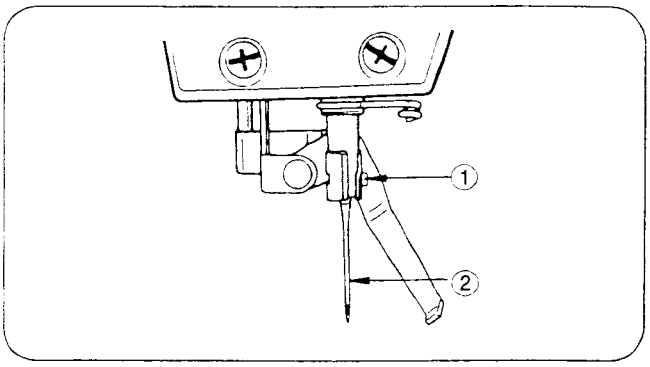
6-3-5. Needle

Needle has a direct effect on stitch and seam quality and consequently, the use of correct needle is very important to efficient sewing machine performance. Be sure to use the Singer needles shown in the table below for best sewing results.

Catalog No.	Size
1955-01 3355-01	8, 9, 10, 11, 12, 13, 14, 15, 16, 17 18, 19, 20, 21, 22, 23, 24, 25

Select the most suitable needle for your specific sewing job since different size needle must be used according to the size of thread and type of material being sewn. The use of a correct size needle allows free and smooth passage of thread through the needle eye without causing skipped stitching during sewing.
When the needle is bent, it causes skipped stitching. Also, if needle point is blunt or has burrs, it causes skipped stitching and damages the material being sewn.

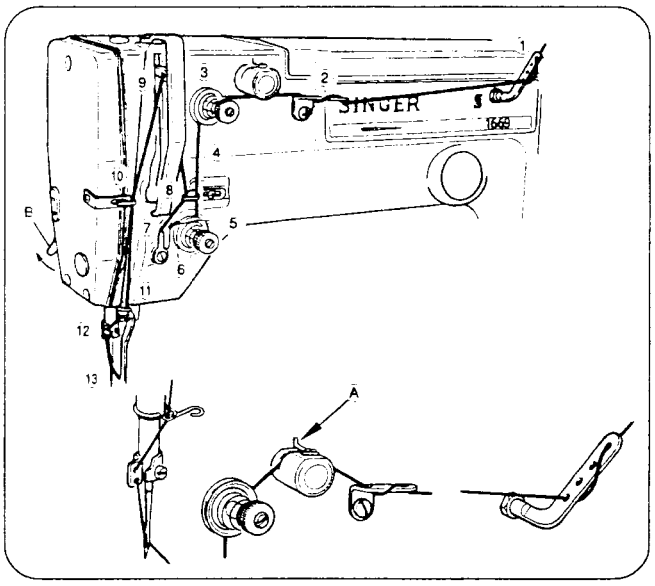
6-3-6. Inserting the needle



Loosen set screw (1) and insert needle into the needle bar as far as it will go with the long groove in needle (2) facing toward you. Then tighten set screw (1).

Be sure to turn main switch off.

6-3-7. Threading the machine



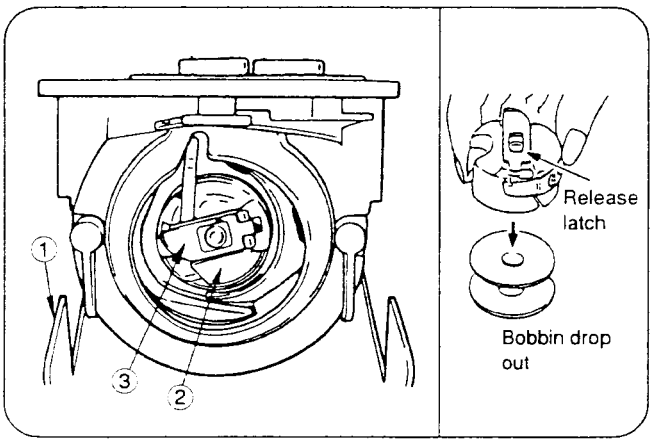
Pass needle thread in the order of threading shown in the sketch. Leave thread approximately 3.5cm from the needle.

Note: When silicon oil is used, pass thread through thread guide (A).

Be sure to turn main switch off.

When threading the machine, raise manual tension releasing lever (B) in the direction shown by arrow to release tension discs. This will make it easy to pull out the thread.

6-3-8. Removal and replacement of bobbin case

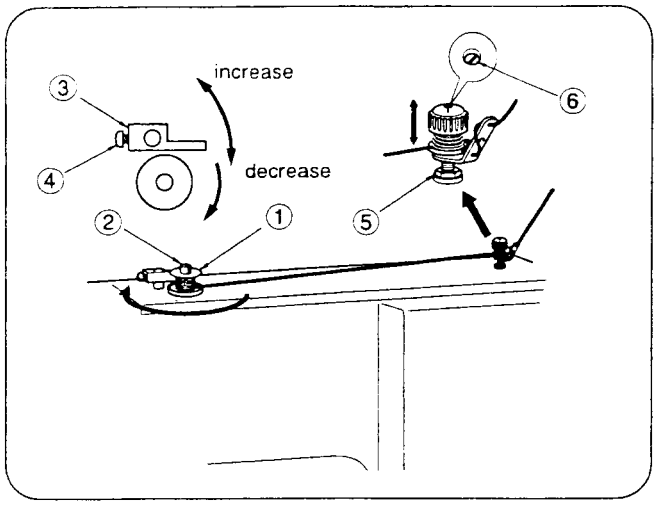


Open cylinder cover (1) by pulling it toward you, raise bobbin case latch (3) and remove bobbin case (2). Bobbin will not come off the bobbin case as long as the latch is lifted up.
To replace bobbin case, insert bobbin case into hook shaft as far as it will go and release the latch.

To remove bobbin from bobbin case, release the latch and turn the open end of the bobbin case downward. Bobbin will come off as shown in the sketch.

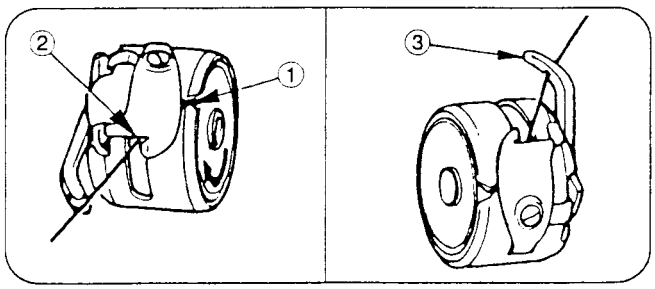
Be sure to turn main switch off.

6-3-9. Winding the bobbin



1. Insert bobbin ① into bobbin winder stud ② as far as it will go.
2. Pass thread as shown in the sketch on the left and wind the thread end around the bobbin several times in the direction shown with arrow.
3. Press bobbin winder latch lever ③ in the direction shown with arrow mark. Bobbin is wound automatically. Bobbin winding is stopped automatically after the bobbin has been wound with a certain amount of thread.
4. To adjust the amount of thread to be wound, loosen screw ④ and turn it upward to increase the amount of thread or turn it downward to decrease the amount of thread. In case the bobbin is wound unevenly, loosen nut ⑤ and adjust by turning bobbin winder stud ⑥.

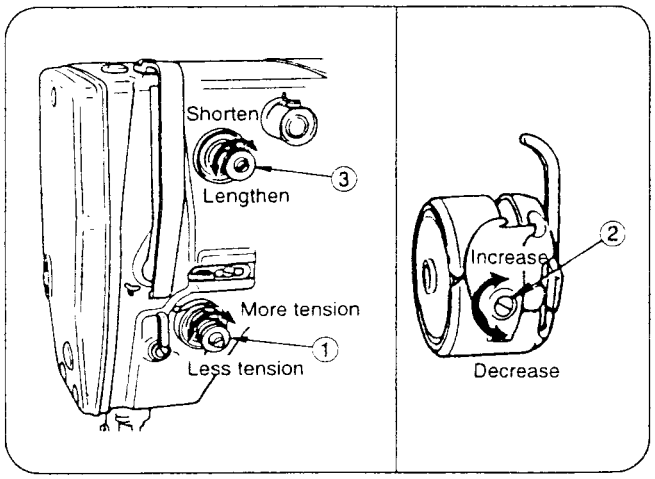
6-3-10. Threading the bobbin case



Place bobbin into bobbin case, pass thread through slot 1 and draw from hole 2. At this time, check to see bobbin rotates in the arrow direction.

Pass thread through hole 3 on tip of finger and draw about 4 cm of thread from the hole.

6-3-11. Thread tension



Needle thread tension

To increase needle thread tension, turn tension regulating thumb nut 1 to the right, and to decrease, turn to the left.

Bobbin thread tension

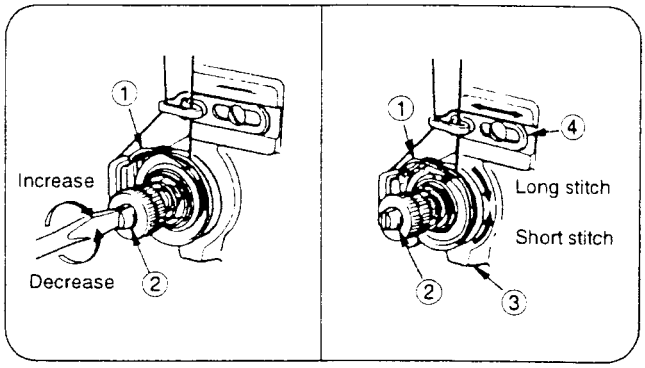
To increase bobbin thread tension, turn fulcrum tension regulating screw 2 to the right, and to decrease, turn to the left.

Needle thread end length after trimming

To shorten needle thread end after trimming, turn pre-tension regulating thumb nut 3 to the right, and to lengthen, turn to the left.

Thread end length should be as short as possible but should not pull out of needle eye.

6-3-12. Adjustment of thread take-up spring and thread retainer



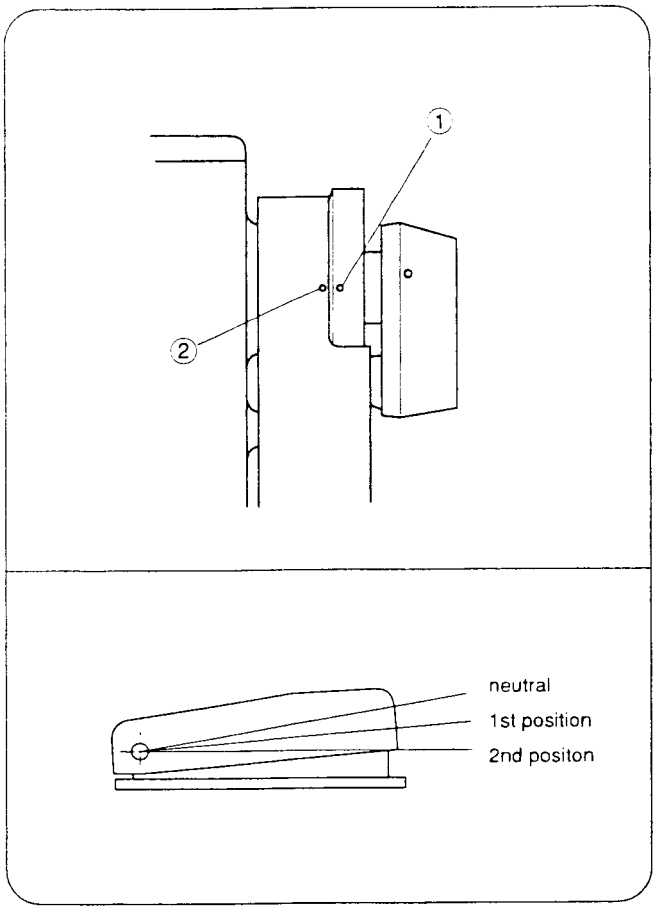
Tension and operating range of thread take-up spring 1 may require different settings depending upon the size of thread and material used. Heavier thread or material requires stronger tension, thin material requires less tension and longer operating range.

To adjust spring tension, insert a large screwdriver into slot of stud 2 and turn left to decrease or right to increase.

To adjust spring operating range, loosen screw 3 and turn entire assembly to left to decrease or right to increase.

To obtain good stitch tightness depending on the thickness of material or length of stitch, it may be necessary to adjust the thread guard 4 to the left or right. For heavy material or long stitches, move thread guard to the right and for light material or short stitches, move thread guard to left.

6-3-13. Sewing operation



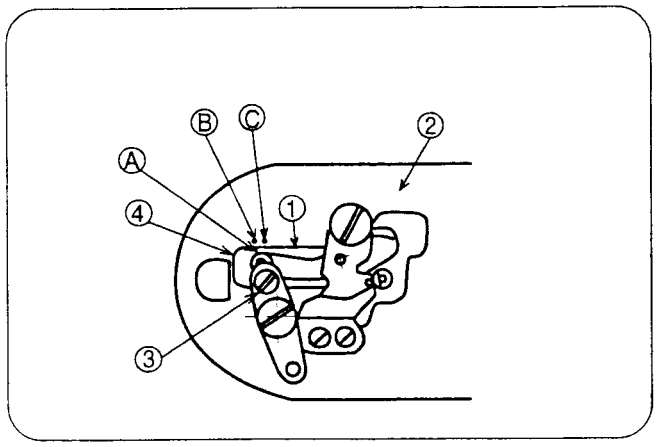
Getting the machine ready for sewing

- Check to make sure the needle bar is at its stop position.
- Turn machine pulley until the mark ① provided in ② the machine pulley is aligned with the mark provided in the belt guard.
- If power switch should be turned on and depress foot switch to its 2nd position without aligning the mark ① with the mark ② , the system buzzes and an error message (E10) is displayed on the display panel.

1. Turn power switch on.
   (When MUL.P LED ⑨ is on, press RESET key ⑪ to light up PATTERN NO. LED ② .)
2. Depress foot switch to its 2nd position. (Feed moves to the start point of sewing and clamp foot is raised.)
3. Place work under the clamp foot and depress foot switch.
   Clamp foot comes down when foot pedal is depressed to its 1st step.
   To reset work, raise clamp foot by releasing the foot switch.
   When foot switch is depressed to its 2nd step position, the machine starts to sew.
   Return the foot pedal to its original position quickly once the machine has started to sew.
4. When the pre-determined stitch pattern has been sewn and thread trimming has been completed, the clamp foot rises automatically. This completes one sewing cycle.

After finish of sewing, arch clamp foot stays at up position unless foot switch is depressed. Be sure to turn power switch off when the machine is not in use.

6-4. To time thread trimmer



Loosen screw ③ and adjust trimmer by moving lever (upper) ④ to the left or right ,as required,so that timing mark Ⓐ or knife (movable) link ① is aligned with timing mark Ⓑ on throat plate ② when the machine is in it's stop position.

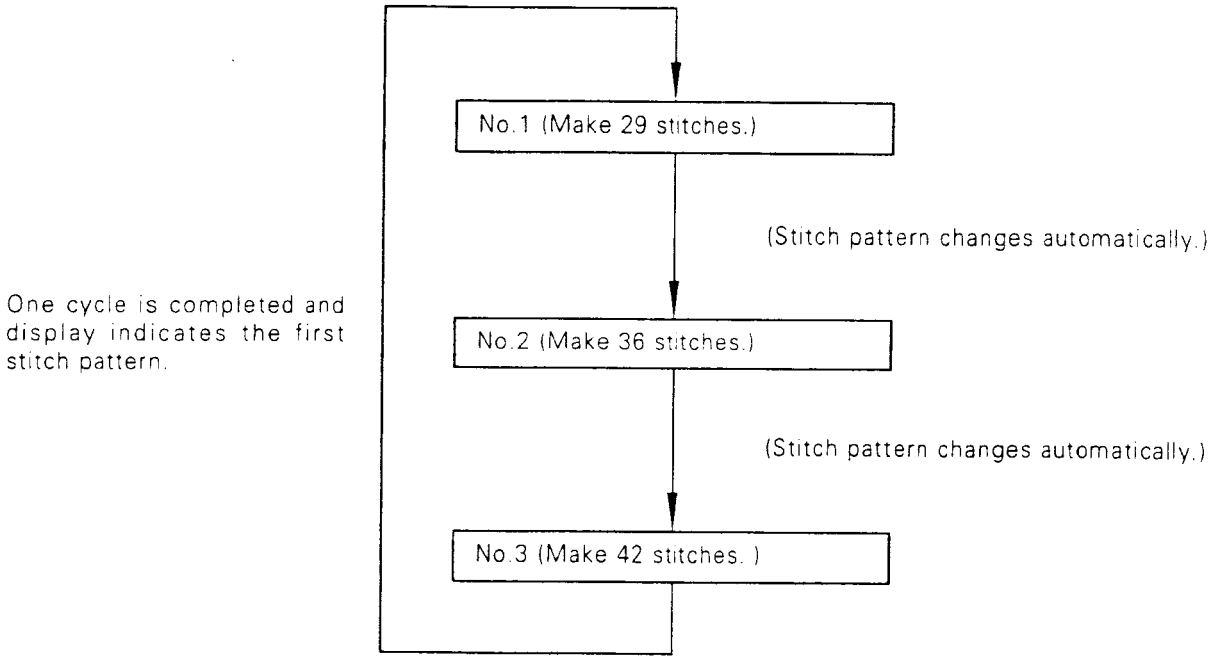
NOTE : Timing mark Ⓒ is used for 569.

Switch off the machine.

7. Sequential Sewing

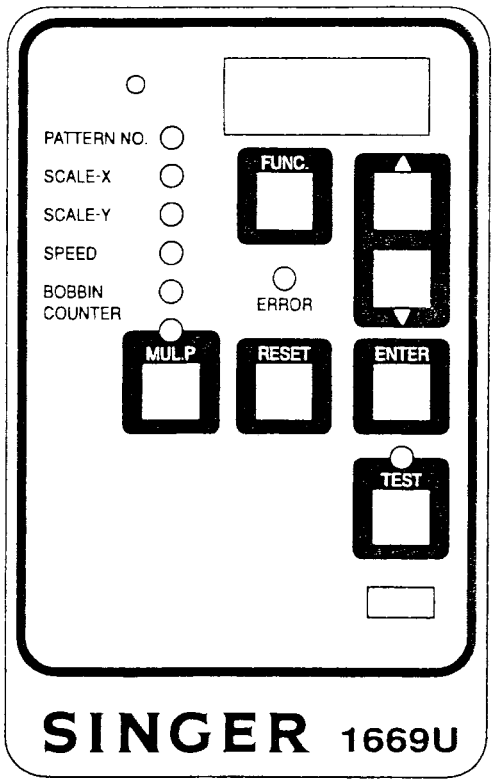
7-1. To make program for sequential sewing

The term "Sequential Sewing" is defined as a sewing procedure where necessary stitch patterns selected among those stored in the machine are sewn in the sequence desired.
(Example: Sewing of stitch patterns ①, ② and ③ in the sequence in one operation)



A programmed sewing of stitch patterns in the sequence as described above is called "Sequential Sewing Program".

7-2. To prepare sequential sewing program



1. Turn power switch on.
   (When MUL.P LED ⑨ is on, start setting procedure from item 3.)
2. Press MUL.P key.
   When sequential sewing program has been entered, the display indicates the following.

   (1st pattern No.)
   When sequential sewing program has not been entered, the display indicates the following.

3. Press ENTER key.
   Note: When a sequential sewing has been programmed, display changes to -01 and the current program goes out.

4. Press △ ,▽ key until the pattern No. to be entered is displayed.
5. Press ENTER key to enter the desired stitch pattern.
   Note: Data on pattern (X/Y scale, speeds) cannot be changed during sequential sewing mode.

6. Repeat steps in item 4 and 5 above.
   (Max No. of patterns that can be entered in a program is 9 patterns.)
7. Press MUL.P key to finish programming.
   When foot switch is pressed to its 2nd step position, feed moves to the start point of sewing the first stitch pattern and the machine is ready to sew.

Note:(1) To alter the program entered (addition or deletion of stitch patterns), prepare a program again in accordance with the procedures described above.

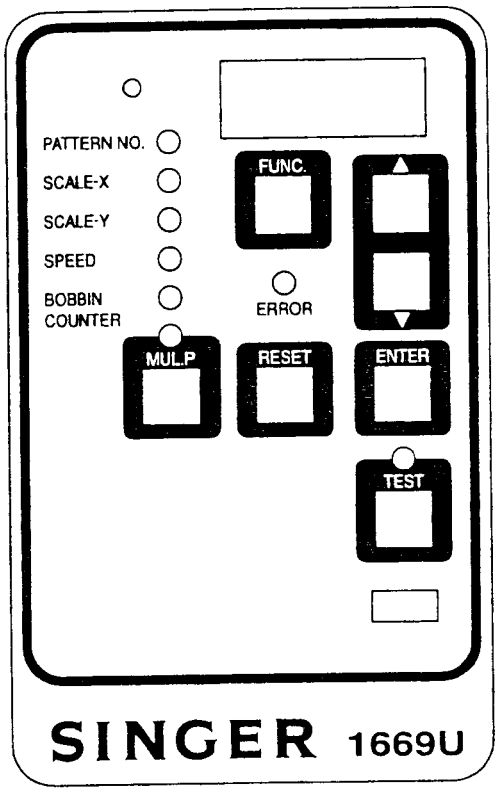
(2) Any pattern data cannot be registered in cycle sewing program as another pattern by changing the contents of data.

(Ex)

1 → 2 → 1 (X-Scale 105%)

Two data each for 6 stitch patterns for sewing heavy weight materials and up-arm bar tacks are stored in the EEP ROM when the machine is shipped from the factory.

7-3. Sequential sewing



1. Turn power switch on.
   (When MUL.P LED ⑨ is on, start setting procedure from item 3.)
2. Press MUL.P key. (LED lights up.)
   Display indicates 1st pattern
   Note: When sequential sewing program is not entered, display indicates P-00. In this case, prepare a program in the manner described above.
3. Depress foot switch to its 2nd step position.
   Feed moves to the start point of sewing the first stitch pattern.
4. Place work under the clamp foot and depress foot switch to its 2nd step position. The machine sews the first stitch pattern. After trimming thread, clamp foot is raised and then feed moves to the start point of sewing the next pattern. Display indicates the next stitch pattern number.
   (After the last stitch pattern has been sewn, the stitch pattern No. displayed on the display window returns to the first stitch pattern number.)
   The stitch pattern which has just been sewn can be repeated, if desired, by pressing ▽ key.

   The next stitch pattern can be skipped, if desired, by pressing △ key.

   Whenever, the sequence of stitch patterns has been changed by pressing △ or ▽ key, be sure to depress foot switch to its 2nd step position and move feed to the start point of sewing the desired stitch pattern.
5. To end sequential sewing, press RESET key.
   Display indicates the stitch pattern No. previous to sequential sewing.

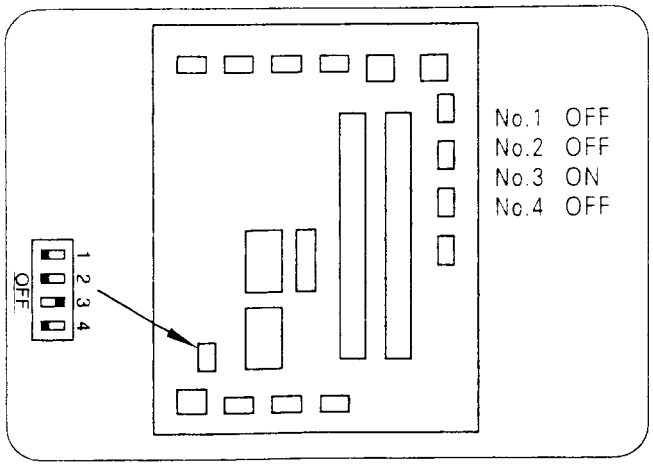
7-4. To clear sequential sewing program

To clear sequential sewing program already registered, press RESET key after performing the procedure described in items 1 thru 3 of 7-2 "To prepare sequential sewing program".

7-5. To change data of pattern (X/Y scale/speed)

To change data of the pattern registered in sequential sewing program, select the pattern to be changed after completing the sequential sewing. (See 6-3-1, 6-3-2 and 6-3-3.)

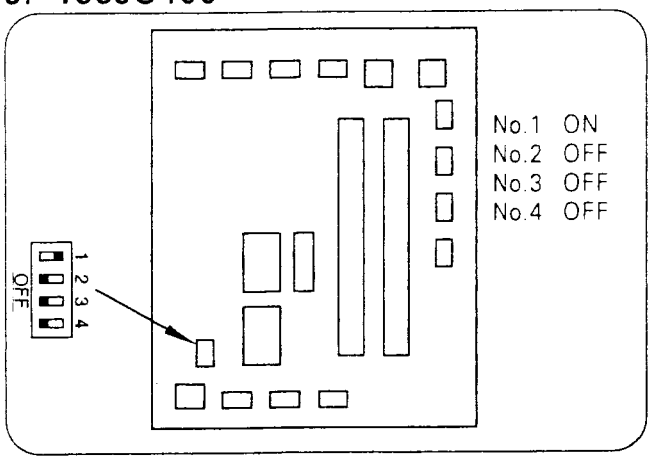
8. 1669U200



- Before turning the power switch on.
  Check and make sure the DIP switches on the main PC board are set as shown below. (The factory setting is as follows.)

- Before starting to sew
  Interlock function
  For 1669U200, set the fitting No. to "3". (See page 23 for details on setting.)

9. 1669U400



- Before turning the power switch on.
  Check and make sure the DIP switches on the main PC board are set as shown below. (The factory setting is as follows.)

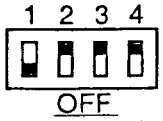
- Before starting to sew

1. Interlock function
   For 1669U400, set the fitting No. to "15". (See page 23 for details on setting.)

2. Position of the button clamp
   (Check and make sure of the button clamp position using the gauge furnished with the accessories.)

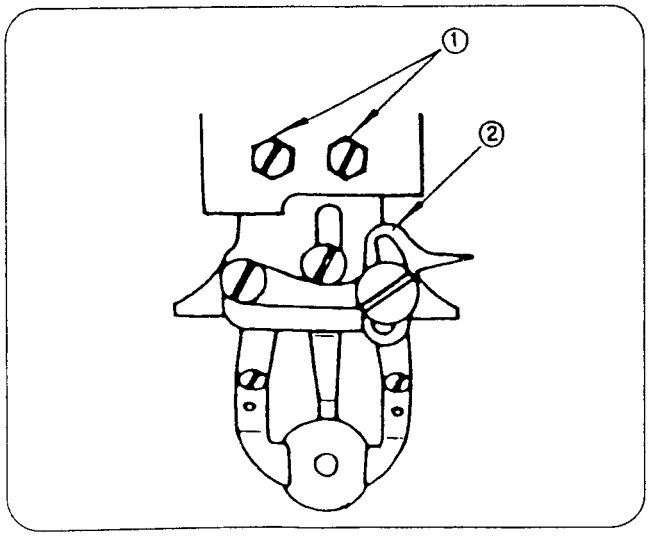
   1. Turn power switch off.

   2. Slide DIP switch No. 1 located in the front of control box downward.



   3. Turn power switch on and place a gauge in the button clamp.

   4. Press △ key. The button clamp unit will return to its original position. Then turn machine pulley by hand, and make sure the needle is located in the center of the hole in the gauge. If the needle is not located in the center of the hole, loosen two hex head screws ① and adjust the position of the button clamp ② as required. (The original position is adjusted at the factory before shipment.)



Be sure to turn power switch off when adjusting the clamp.

   5. Set DIP switch No. 1 to "ON" and turn on power switch. The machine is ready for sewing.

3. Adjustment of distance between the holes in the button

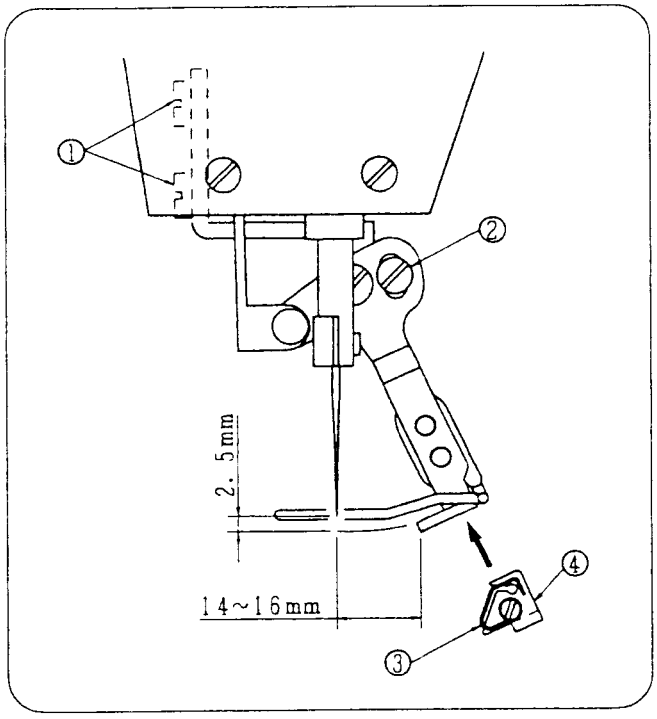
When the distance between holes in the button used does not correspond with the standard stitch width of the stitch pattern No., adjust the stitch width by enlarging/reducing the stitch width.

Refer to the table below for enlargement/reduction of the stitch width.

After changing the stitch pattern No. and the stitch width, make sure of the needle location. Refer to 6-3-4 Test for means of confirmation.

Table of stitch width X/Y scale

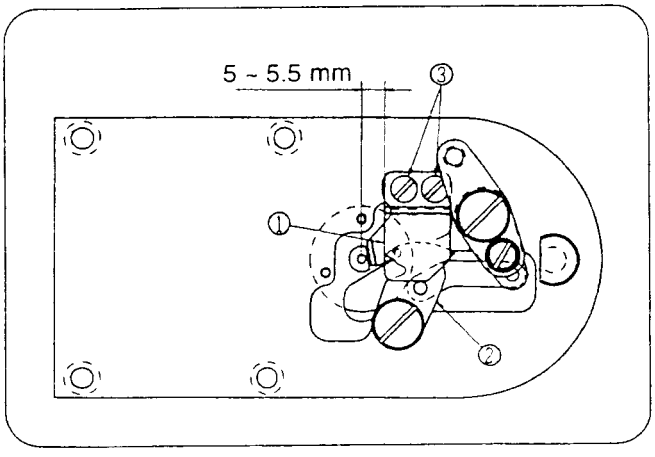
X・Y (mm)	2.4	2.6	2.8	3.0	3.2	3.4	3.6	4.0	4.3	4.5	4.7	5.2	5.6	6.0	6.2	6.4
%	71	76	82	88	94	100	106	118	126	132	138	153	165	176	182	188



4. Adjustment of wiper

1. Loosen screw ① and adjust clearance between the wiper and needle to 2.5mm.
2. Loosen screw ② and adjust the distance between the end face of the wiper and the needle point to 14 ~ 16mm and securely tighten the screw. (The needle should be located at machine stop position.)
3. The needle thread after thread trimming is held between wiper spring ③ and wiper ④ and the tension of wiper spring ③ should be adjusted to 20 to 30g (a little higher tension than that of the bobbin thread coming out of the bobbin case.)

Note: If thread holding strength of the wiper spring is too strong, the thread may protrude from the upper side of the button.

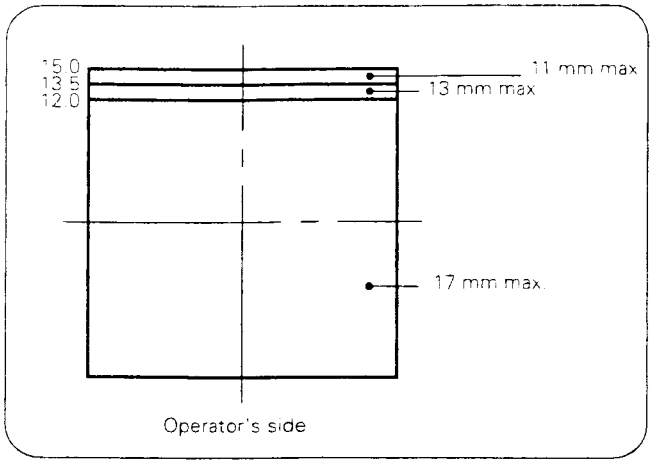


5. Adjustment of bobbin thread retaining plate

1. The bobbin thread after trimming is held between movable knife ② and the retaining plate ① and the tension of retaining plate ① should be adjusted to 10 to 20g.
2. Loosen screw ③ and adjust the distance between the end face of the retaining plate and the center of the needle hole in throat plate to 5 ~ 5.5mm.

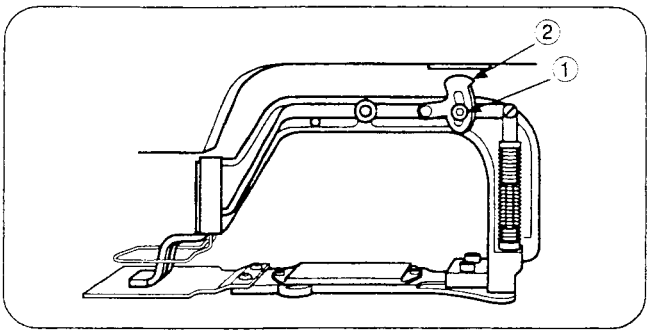
Note: If the thread holding strength of retaining plate is too strong, a long thread end may remain on the underside of the material.

10. 1669U500

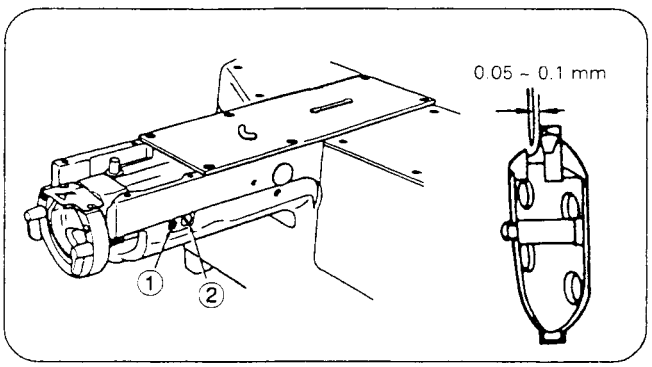


Note the following points when using 1669U500.

- Interlock function
  Set fitting No. to 13 for 1669U500.
  (Re page 23 for the details on setting.)
- Relation between needle stop position and clamp foot lift
  When sewing 30 mm x 30 mm area, wiper may interfere with arch clamp foot depending on needle stop position. In such case, adjust clamp foot lift as shown below.

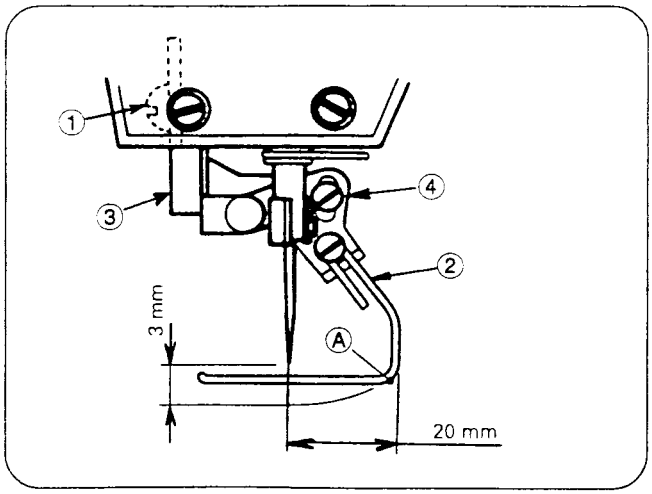


- Adjustment of clamp foot lift
  Loosen hexagon socket screw (1) and move arch clamp foot lifting lever adjusting plate (2) up or down, as required.



- Needle
  When skip stitching occurs during pattern sewing, change the needle to MR needle and readjust timing of needle and shuttle hook as per the following procedure.

  Adjustment of clearance between needle and hook point
  Turn machine pulley by hand and align the hook point with the center of needle. Loosen set screw (1) and turn shuttle race body adjusting stud (2) so that the clearance between the needle and the hook point is 0.05 - 0.1 mm.

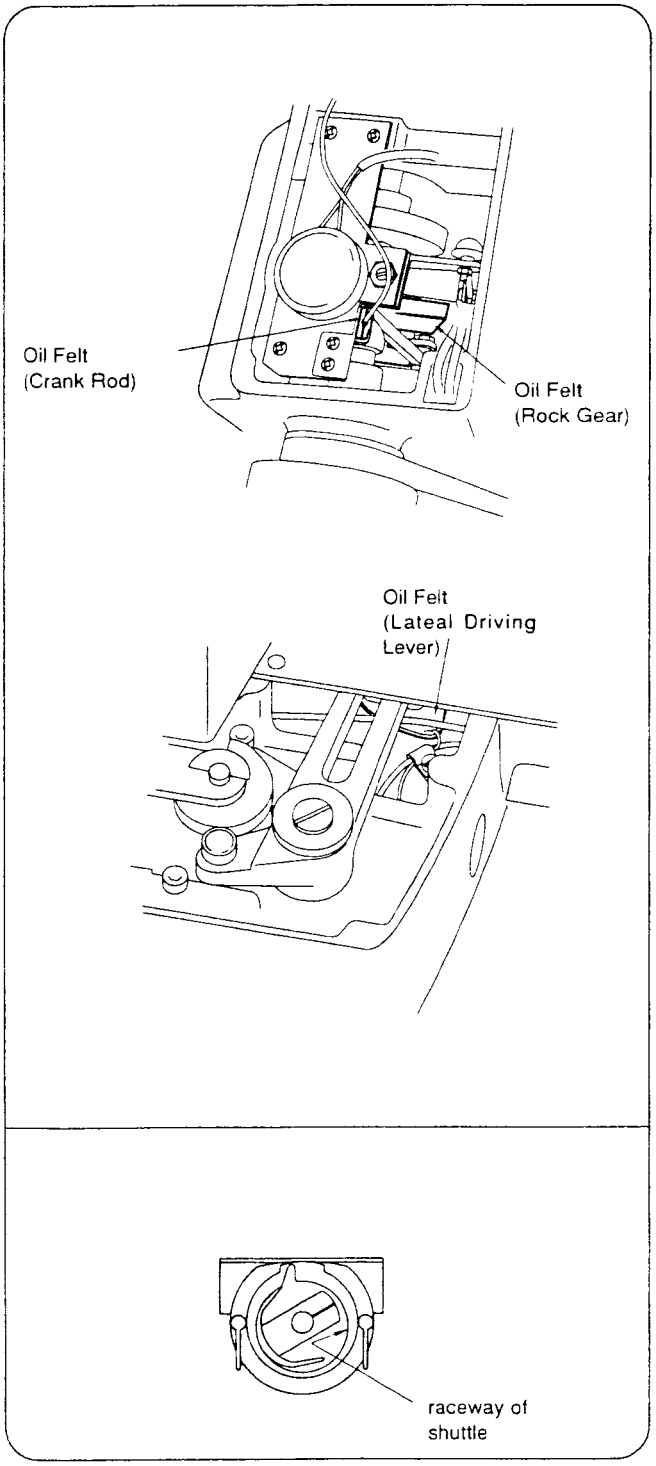


- Wiper
  Loosen screw (1) and move bracket (3) up or down, as required so that the clearance between portion A of finger guard (2) and the needle point is 3 mm when portion A of finger guard passes the needle point.
  Then, loosen screw (4) and move finger guard (2) to the left or right, as required, so that the distance between portion A and the needle point is 20 mm when the clamp is in down position.

- Arch Clamp Foot Spring
  When standard arch clamp foot spring is replaced with P/N 418513, spring P/N 555582 should also be replaced with P/N 556546.

11. Maintenance

Turn power switch off. When raising the machine upright, be sure to raise the machine by both hands. Take care not to pinch fingers between the machine and table.



11-1. Shuttle hook

Clean shuttle hook and hook areas every day for normal use. When the machine is used frequently, clean shuttle hook and hook areas several times a day.

11-2. Lubrication

When the oil remaining in the oil tank located in front of cylinder, on the side of arm, becomes lower than the oil level mark "L", fill the oil tank with oil up to the oil level mark "H" In machines that have been idle for several weeks or more, oil the points shown in the following sketch before use.

11-3. Oil drain jar

When oil accumulates in the oil drain jar, remove oil drain jar and drain off the oil.

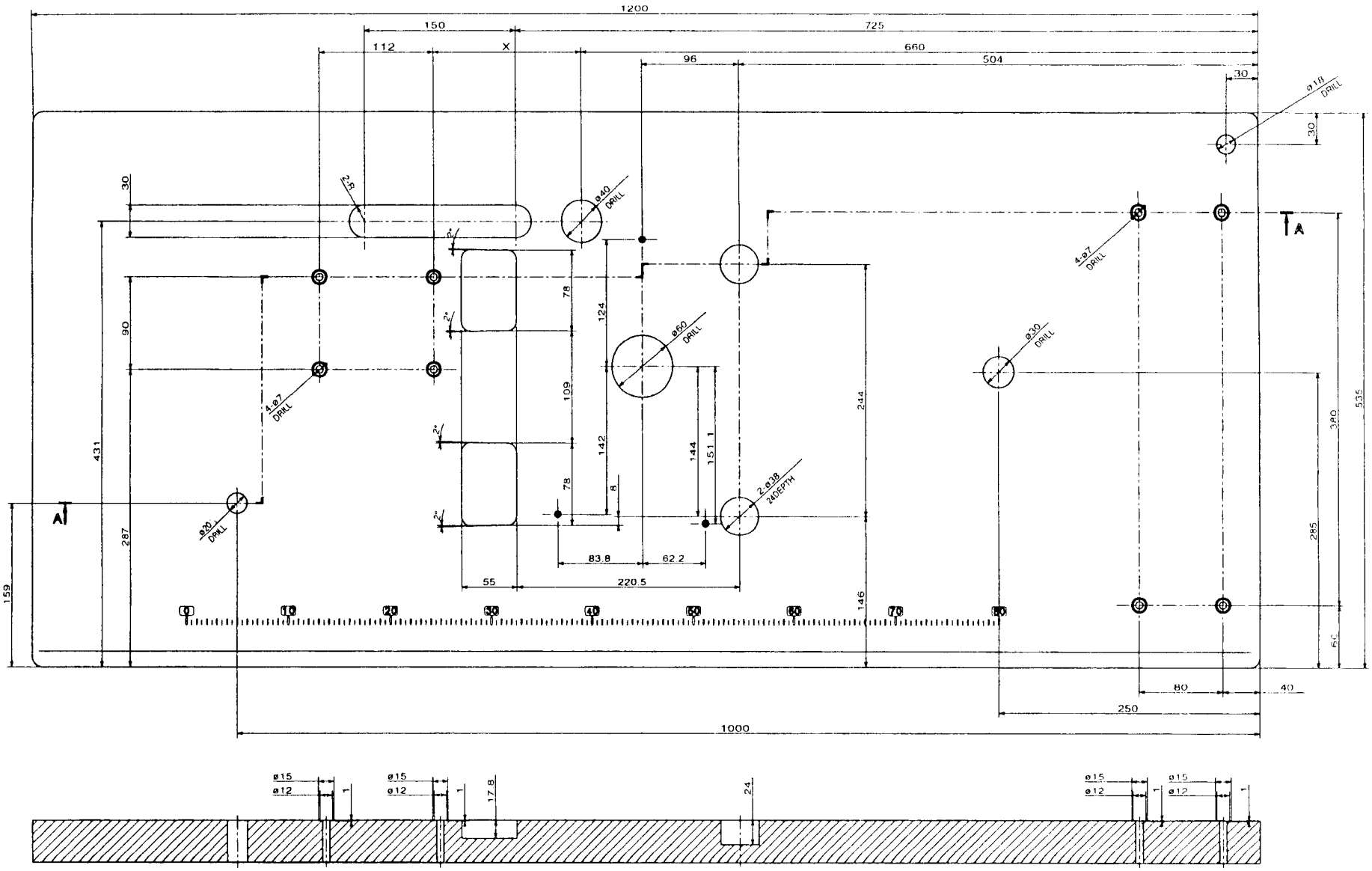
11-4. Eye guard

Clean eye guard by wiping it with a soft cloth.

Note: Do not use benzine or thinner.

11-5. Needle

Be sure to check whether needle point is blunt or not before running the machine.



SECTION **A-A**

Table Thickness	Dimension X
40 ~ 42	319
43 ~ 50	303

Provide a ø2mm, 3mm deep round recess at portion "•" for nailing drip pan to the table.

TABLE CUTOUT

Part No. 378573-002(799)(Rev.3)
Printed in Japan