yamato®

Set-up manaul
with parts list

COMPACT SERVOMOTER

Y-KIT(VE CLASS)

VE, VES Classes

Thank you for purchasing the Y-KIT(VE CLASS)
This set-up manual explains how to set up the Y-KIT(VE CLASS).
Before installing and using your Y-KIT(VE CLASS), please read this set-up manual and understand the contents well. After reading the set-up manual, please keep it in a location where it is easily accessible to the operator.

YAMATO SEWING MACHINE MFG. CO.,LTD.

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*****ILLUSTRATED SPARE PARTS LIST *****

Attention

The description in this instruction manual is subject to change for improvements of the commodity without notice.

1. Introduction

This Instruction Manual explains how to install the Y motor to the VE series and VES series.
Please read instruction manuals for using sewing machine and devices together.

Y

A compact servomotor

Applicable Models

VE2700 class
VES2700-8 class

2. Table cutting diagram

2.1 Table top type (Type A)

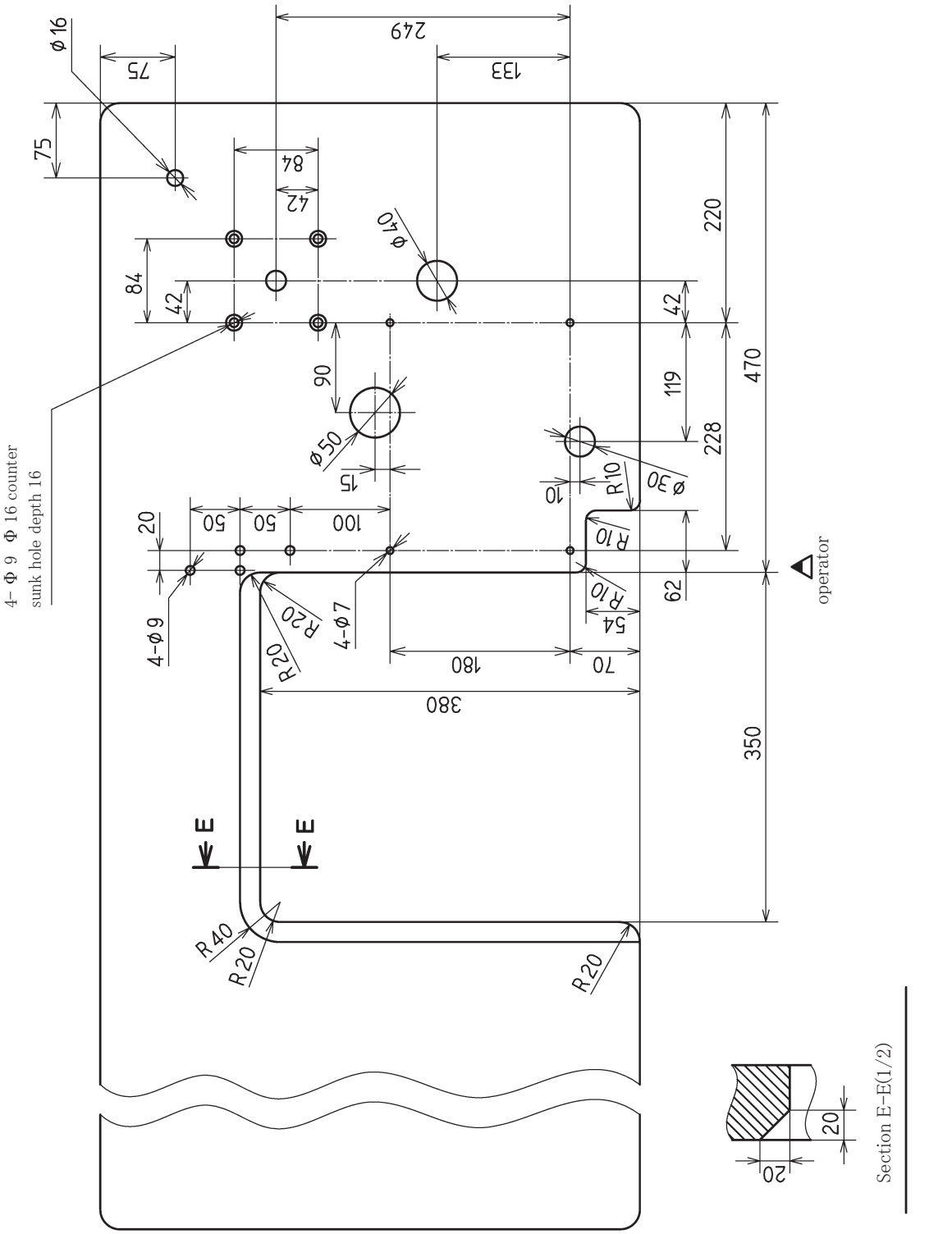


Fig. 2-1

2.2 Table top type (Type B)

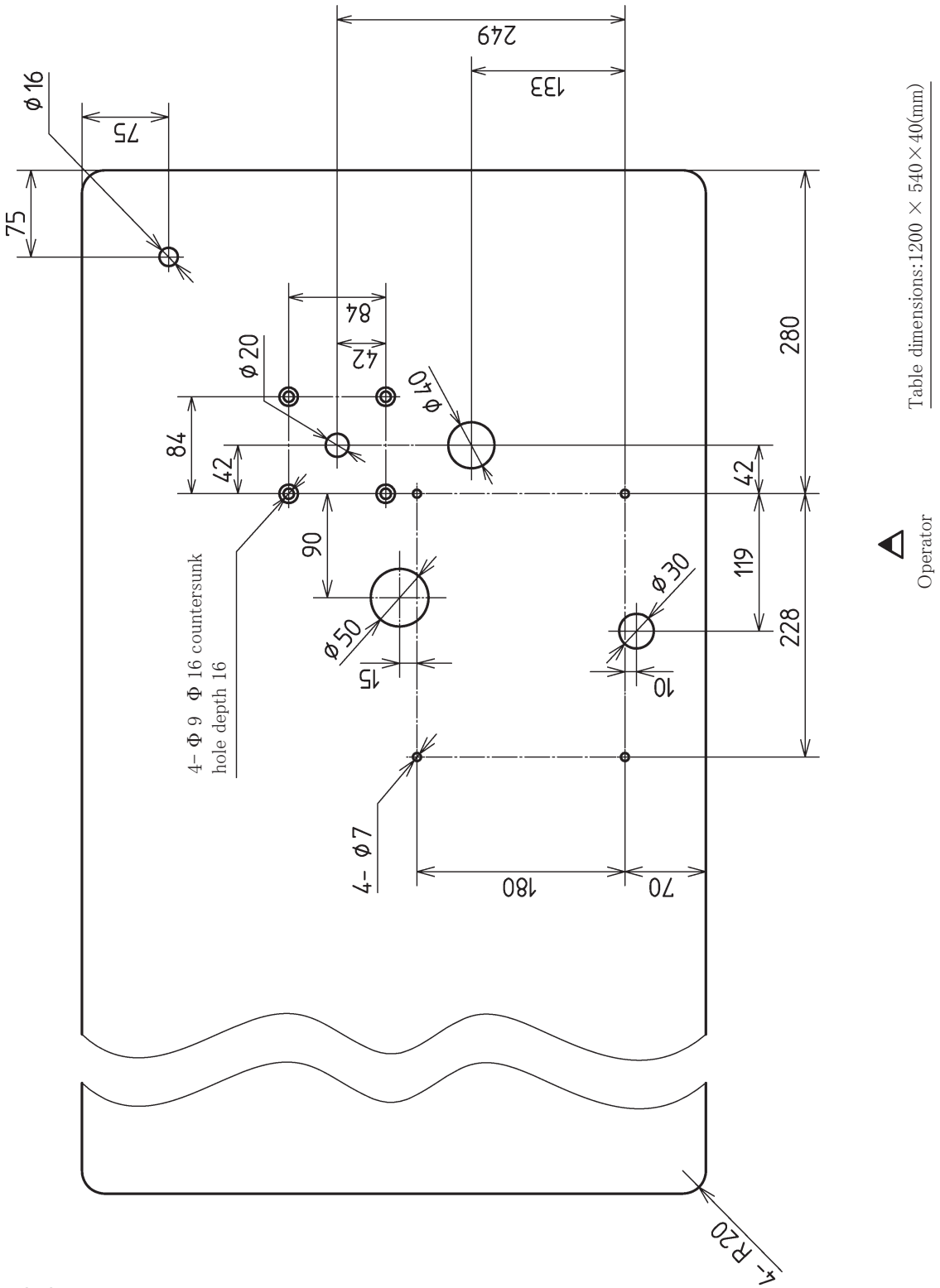


Fig. 2-2

2.3 Semi-submerged type

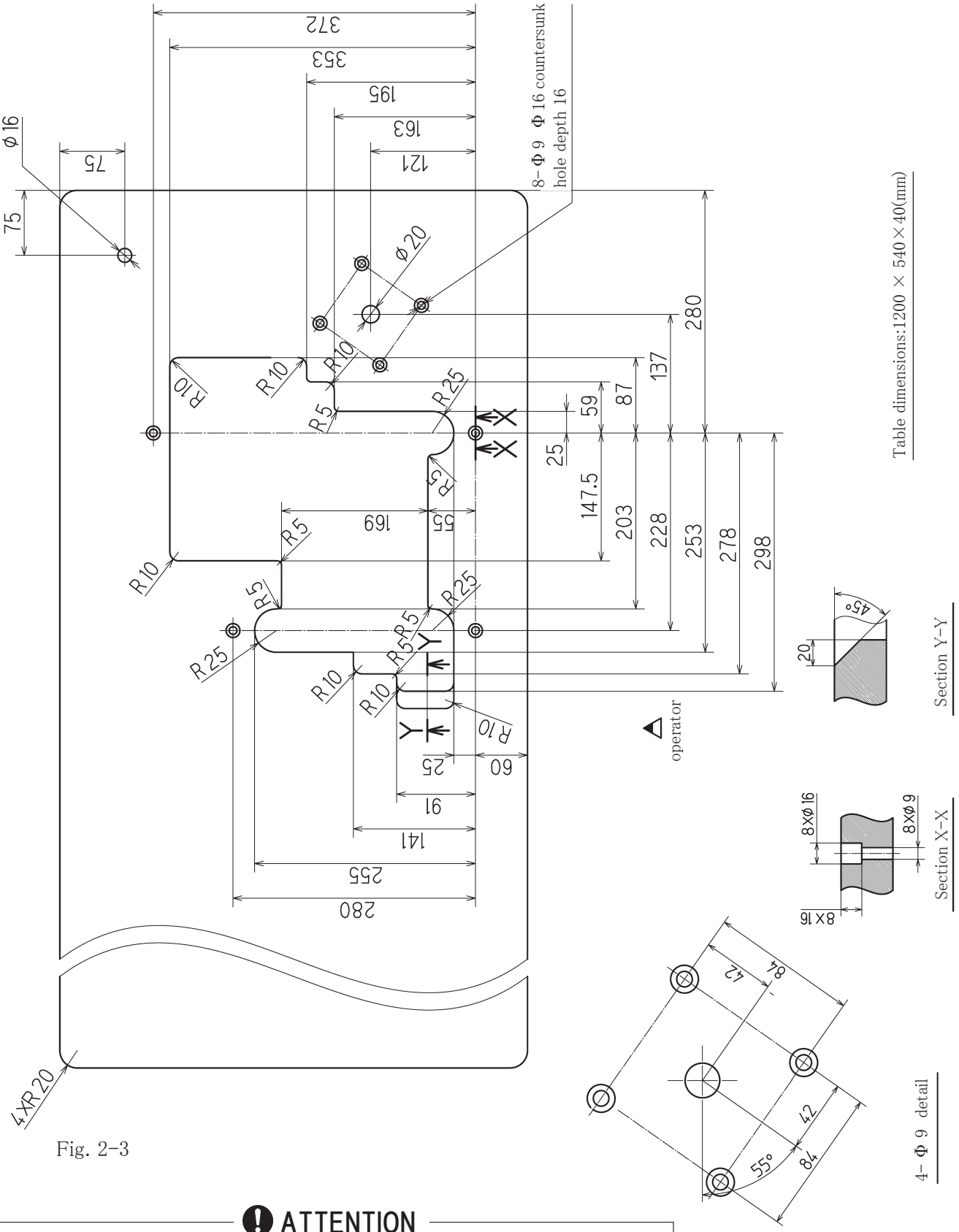


Fig. 2-3

ATTENTION

For supporting board on the pulley side, change it with the attached Y-KIT.

3. Assembly

3.1 Remove

3.1.1 In case of except UT-A devise

Remove the belt cover (small) ① and the pulley ② .

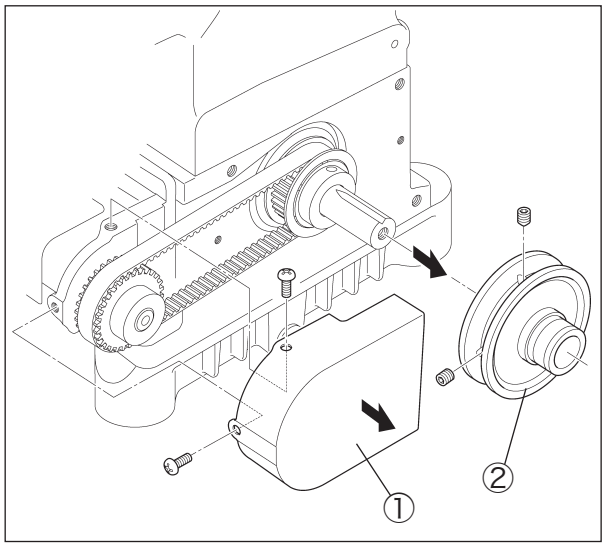


Fig. 3-1

3.1.2 In case of with UT-A devise

(1) Remove the belt cover (small) ① and the pulley ② .

(2) Remove the solenoido valve, c. set ③ from solenoido valve holder ④ .

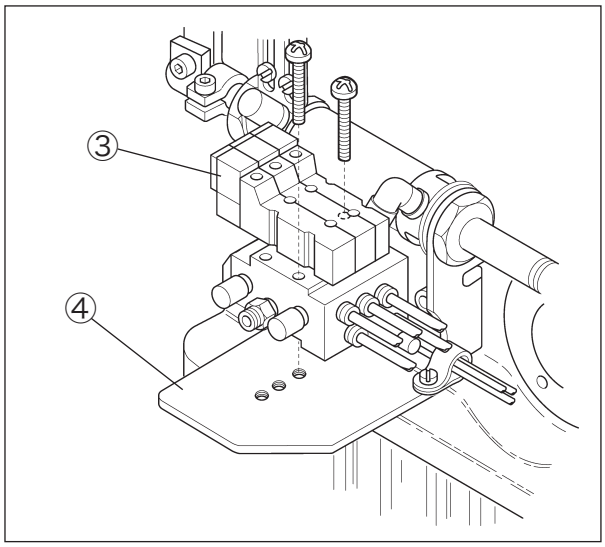


Fig. 3-2

(3) Remove the solenoido valve holder ④ from the sewing machine.

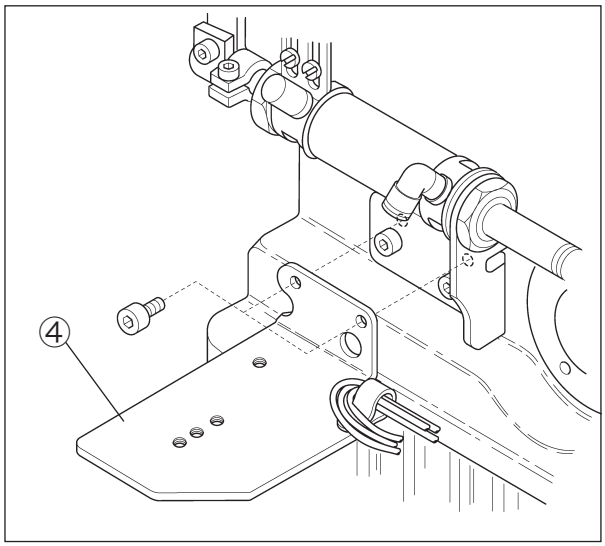


Fig. 3-3

3.2 Installing Y motor

1.Put two pin screws ①② into the screw holes on the bed.

2.Install the attached pulley ③ .

Tighten the first screw in the direction of rotation at the position that the screw fit the V groove on the lower shaft. Then, tighten the other one.

3.Installing the timing belt ④ and the motor bracket ⑤ .

(1) Hang the timing belt ④ onto the pulleys ③⑥ while lifting the motor bracket ⑤ .

(2) Fit the holes on the motor bracket ⑤ with the pin screws ① ② on the sewing machine.

(3) Install the motor bracket ⑤ with 3 screws ⑦⑧ .

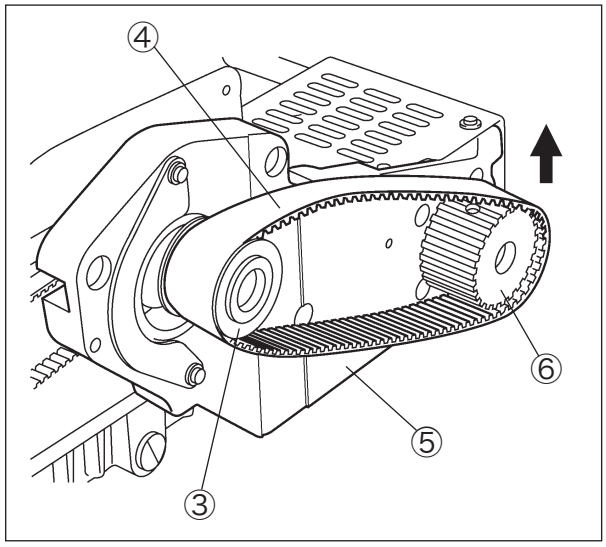


Fig. 3-5

4.Install the belt cover ⑨ with screws ⑩ and washers (each 2 pcs.).

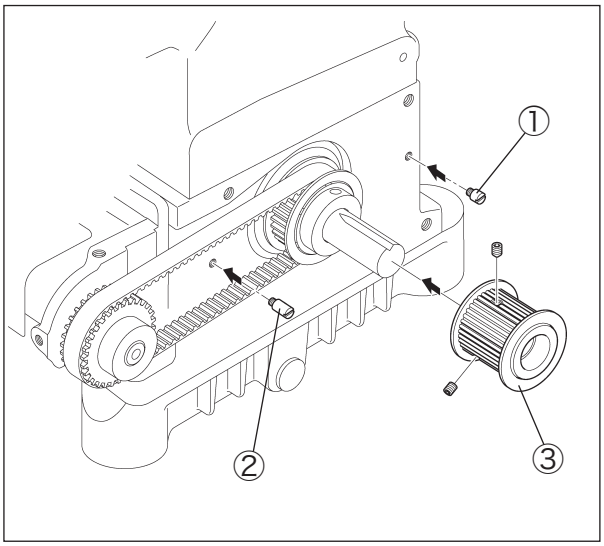


Fig. 3-4

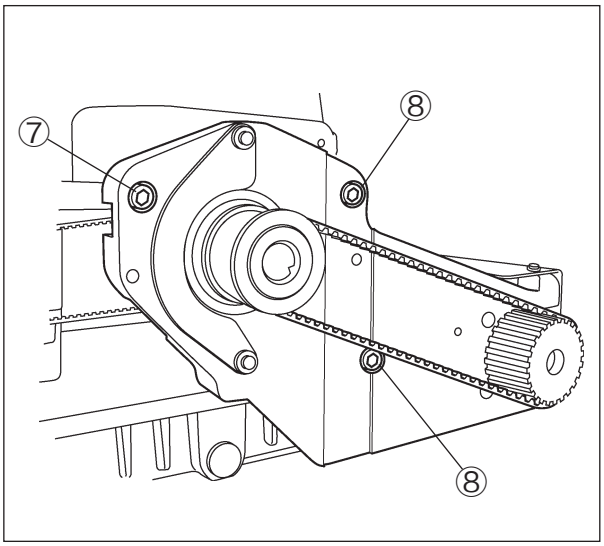


Fig. 3-6

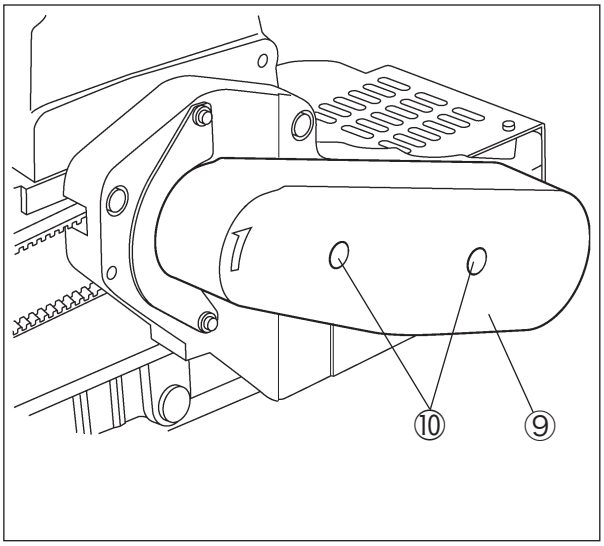


Fig. 3-7

5.Install the belt cover (small) ⑪ .

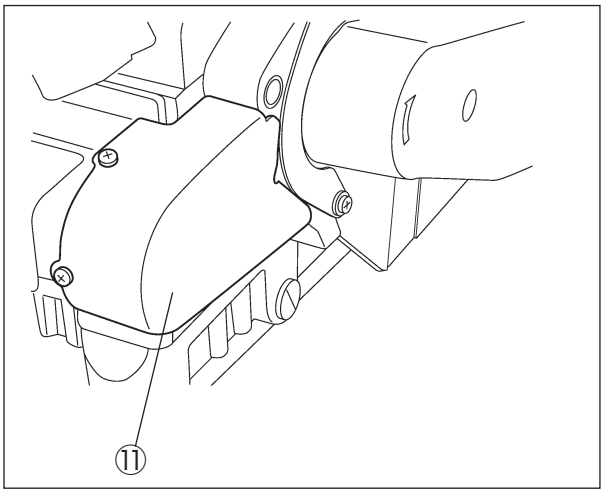


Fig. 3-8

6.Change the handwheel ⑫ . (VE series only)

7.Install the rotation detector unit ⑬ by the screws ⑭ .

In case of sewing machine with UT and UT-A device, adjust the installation position of the rotation detector unit to make the sewing machine stop at the position that the mark on the handwheel aligns with the mark on the machine arm. (For details, refer to "7. Adjusting needle position" .)

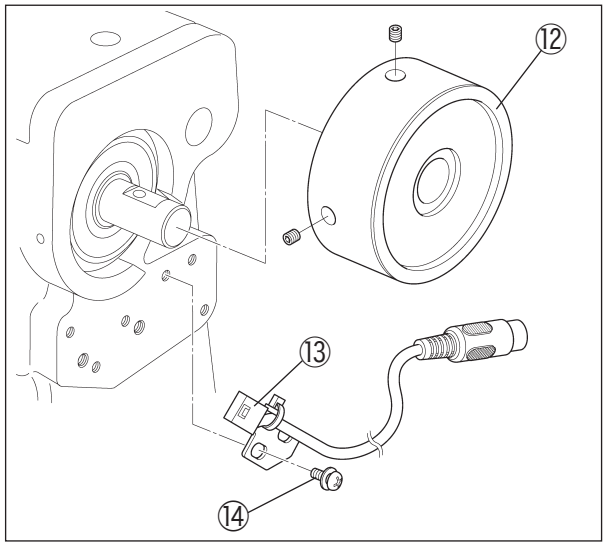


Fig. 3-9

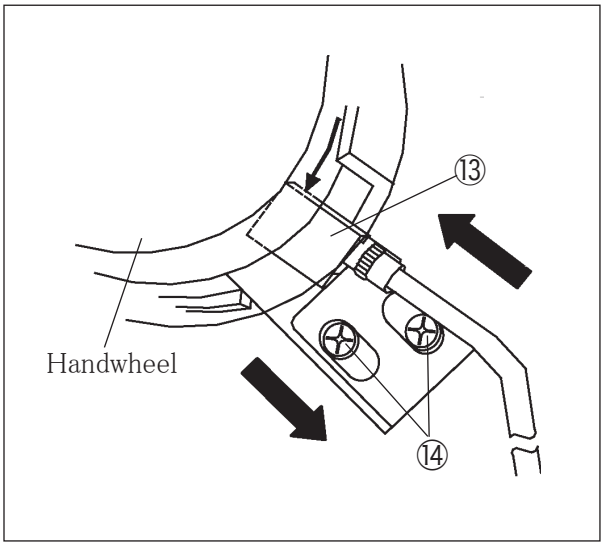


Fig. 3-10

8.Change to the attached rubber cushion ⑮ .

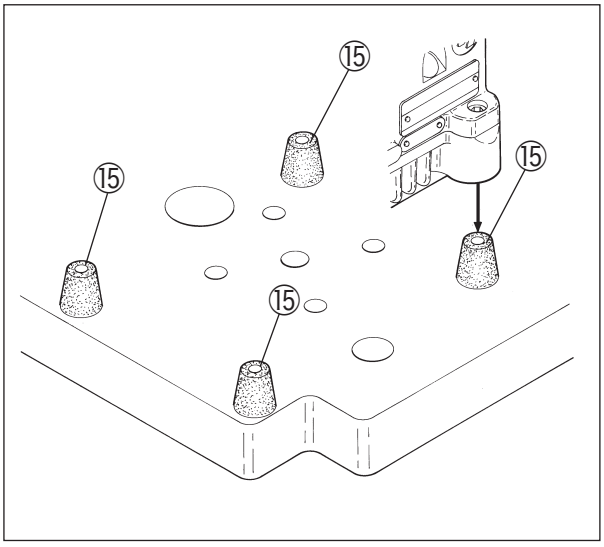


Fig. 3-11

3.3 Installing solenoid valve (with UT-A device)

(1) Install the solenoid valve holder ① on the motor cover ② .

(2) Install the solenoid valve, c. set ③ on the solenoid valve holder ① .

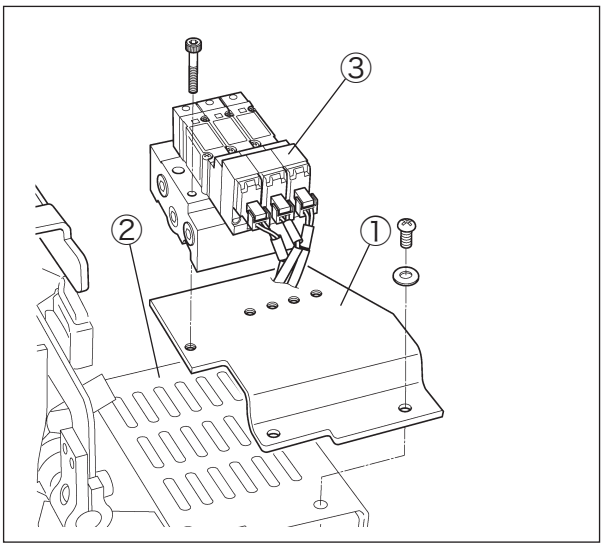


Fig. 3-12

3.4 Installing lifter connecting link

The models with UT-A device have pneumatic presser foot lifter device, so that there is no need to install the lifter connecting link.

3.4.1 VE series (except UT-A and UT device)

(1) The sewing machine install onto the sewing table.
(2) Insert the lifter connecting link ① into the groove of the motor bracket ② .
(3) Install the lifter connecting link holder ③ and the lifter connecting auxiliary plate ④ to the lifter lever ⑤ referring to the Fig. 3-13.
(4) Hook the chain ⑥ in the hole of the lifter connecting link ① which is stuck out the bottom of the sewing table.

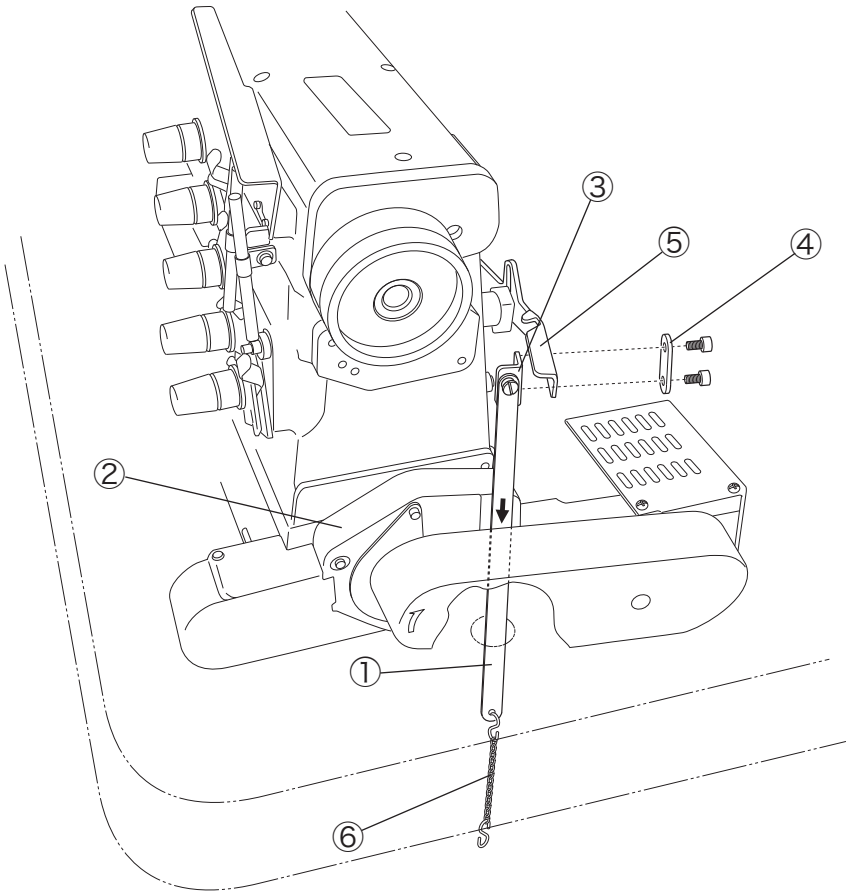


Fig. 3-13

ⓘNOTICE

Remove the lifter connecting link when the sewing machine is moved from the sewing table for oil replacements, maintenance and so on.

3.4.2 VE series (with UT device)

(1) The sewing machine install onto the sewing table.
(2) Insert the lifter connecting link ① into the groove of the motor bracket ② .
(3) Install the lifter connecting link holder ③ and the lifter connecting auxiliary plate ④ to the lifter lever ⑤ referring to the Fig. 3-14.
(4) Hook the chain ⑥ in the hole of the lifter connecting link ① which is stuck out the bottom of the sewing table.

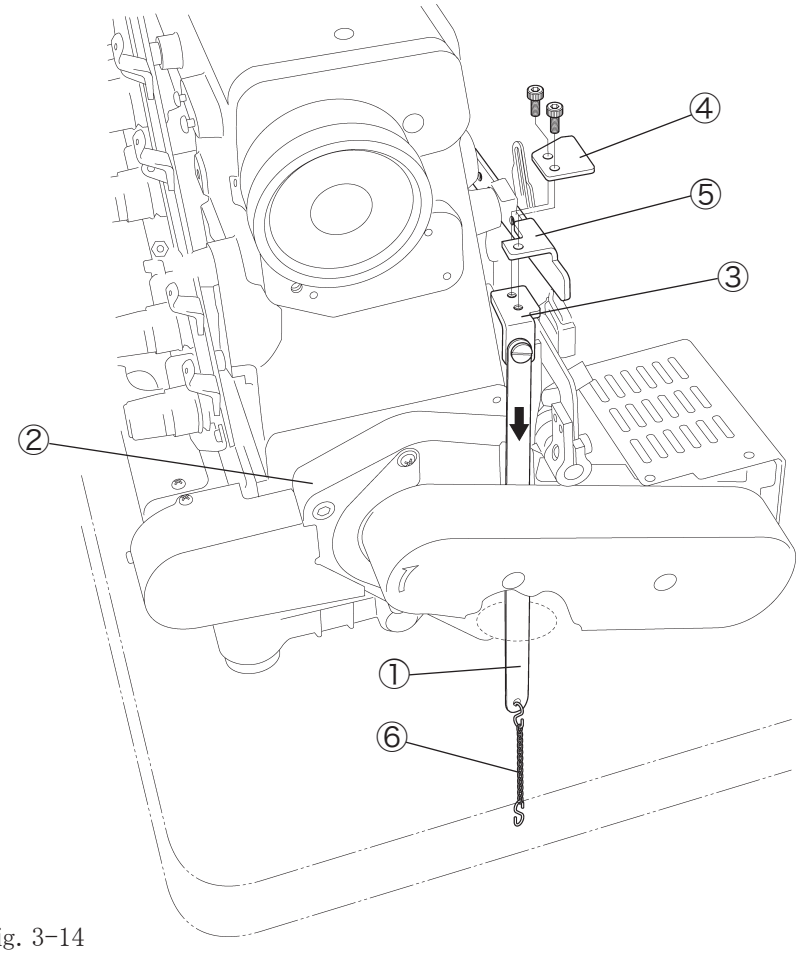


Fig. 3-14

NOTICE

Remove the lifter connecting link when the sewing machine is moved from the sewing table for oil replacements, maintenance and so on.

3.4.3 VES series (except UT-A device)

(1) The sewing machine install onto the sewing table.
(2) Insert the lifter connecting link ① into the groove of the motor bracket ② .
(3) Install the lifter connecting link holder ③ on the lifter lever ④ .
(4) Hook the chain ⑤ in the hole of the lifter connecting link ① which is stuck out the bottom of the sewing table.

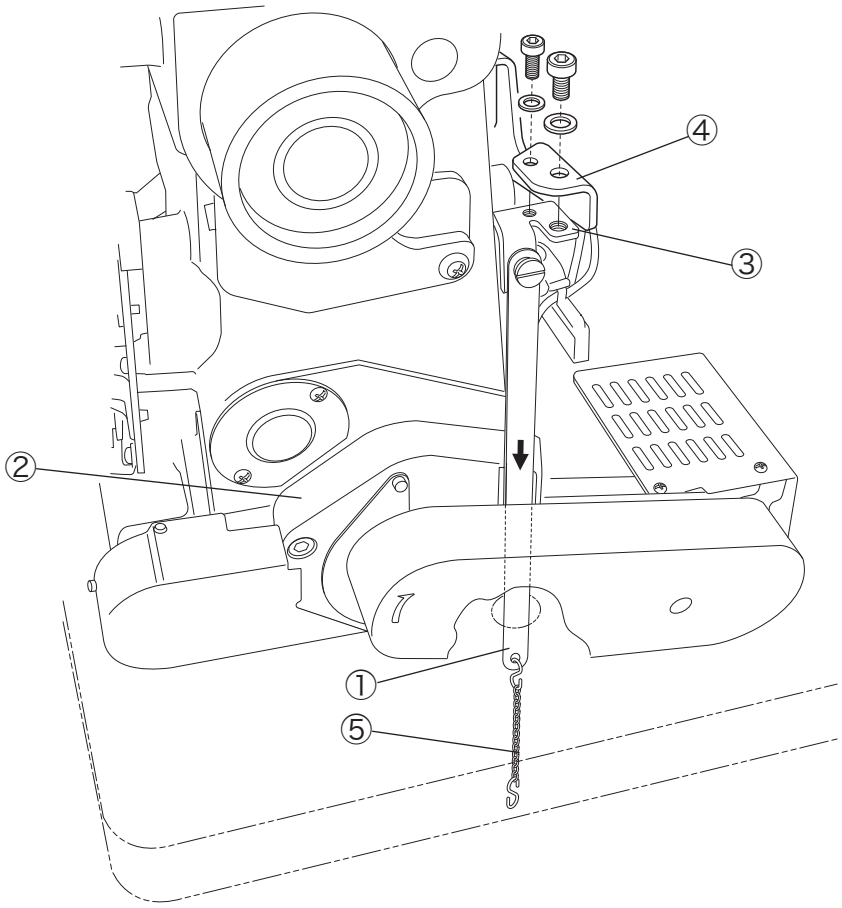


Fig. 3-15

NOTICE

Remove the lifter connecting link when the sewing machine is moved from the sewing table for oil replacements, maintenance and so on.

4. Installing motor control box

⚠ CAUTION

To avoid electrical hazard, unplug the control box during wiring.

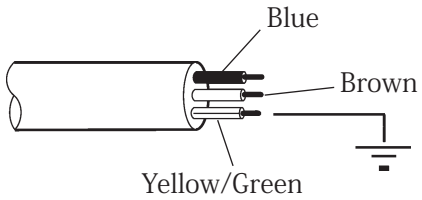
○ Install the control box and the pedal unit onto the machine table by referring to the instruction manual for the motor.

4.1 Power source

A plug that matches the outlet needs to be prepared separately.

⚠ CAUTION

Use a single phase AC200 - 240V power source.
Do not pull the cords strongly when banding them.
Fix the cords to a place away from rotating parts and moving parts.



Power cord of Y motor

Fig. 4-1

⚠ CAUTION

The earth line is yellow and green. Wire for the earth line securely.

4.2 Connecting to a 3-phase/380V power source

3-phase 5-line type

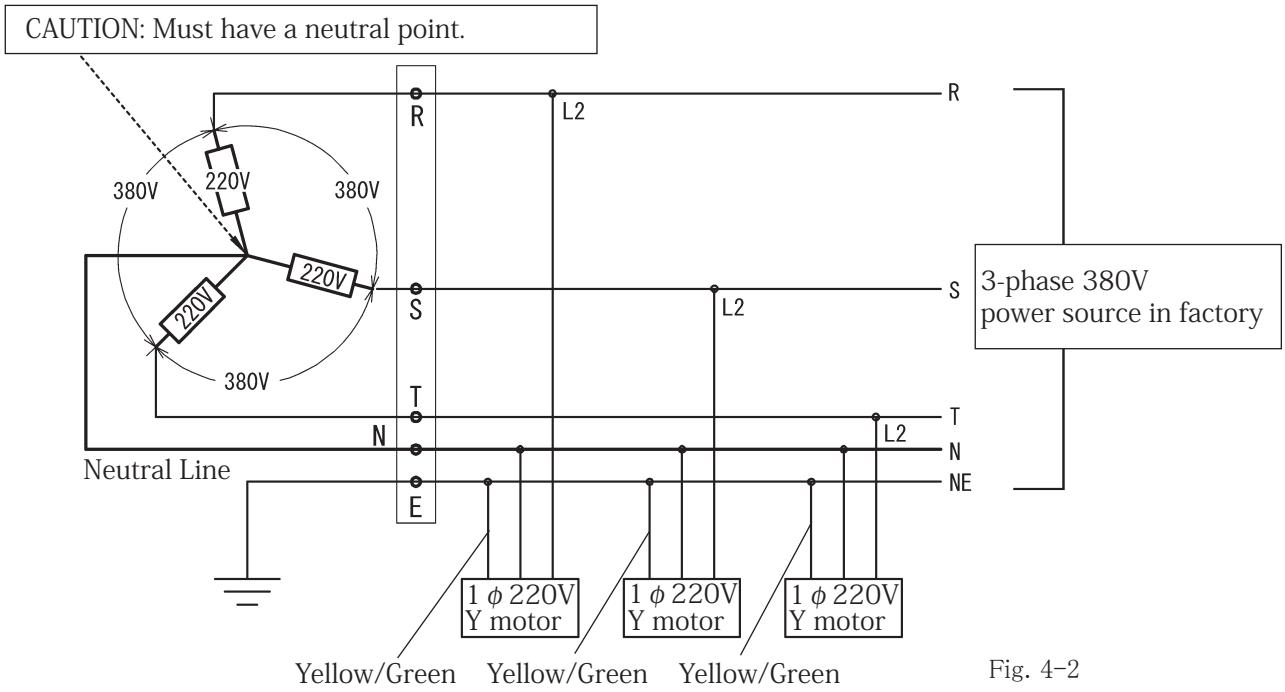


Fig. 4-2

3-phase 4-line type

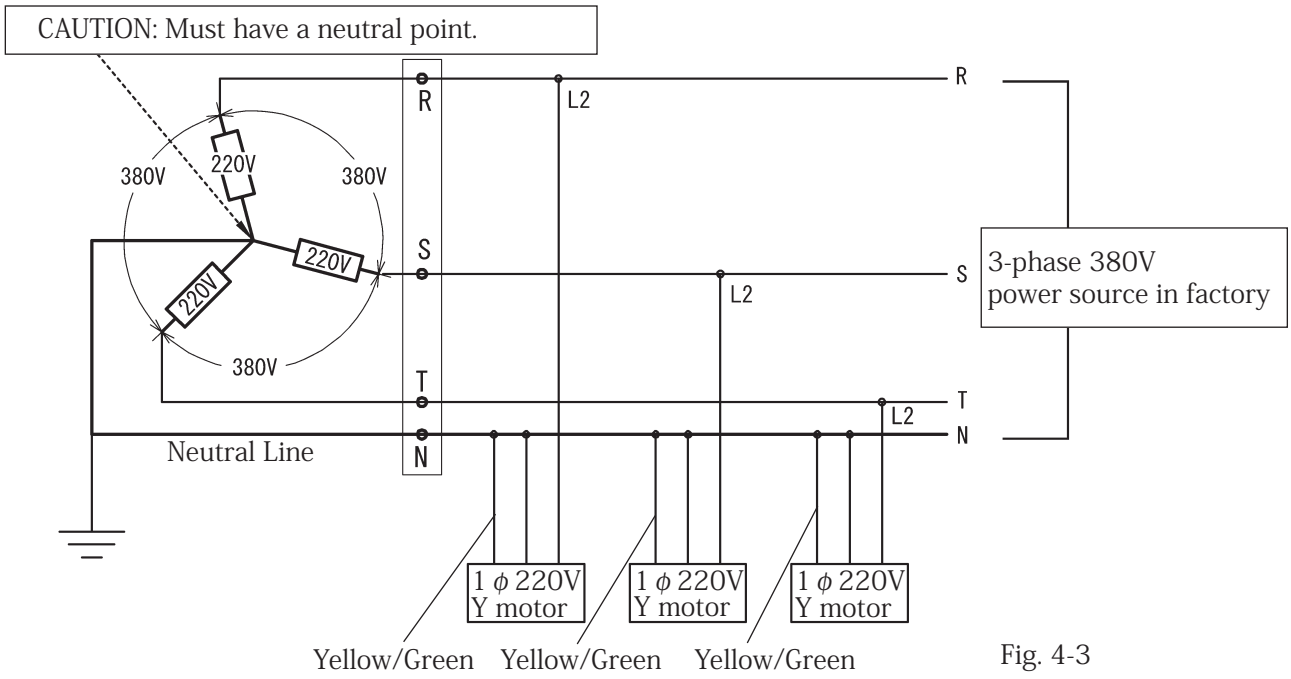


Fig. 4-3

⚠ CAUTION

If the system has no neutral point, then the Y motor is not suitable for this connection.

5. Wiring motor

Be sure to connect the connectors each other with same color and same shape.

Connecting lamp

⚠ CAUTION

Never use other kind of lamp except for the LED lamp (DC12V, 50mA). If used, it can cause damage to the control box.
When the R-connector is not connected, maximum sewing speed will be 2000 sti/min. And the functions will be limited for giving consideration to safety.

5.1 In case of standerd model (except UT-A and UT device)

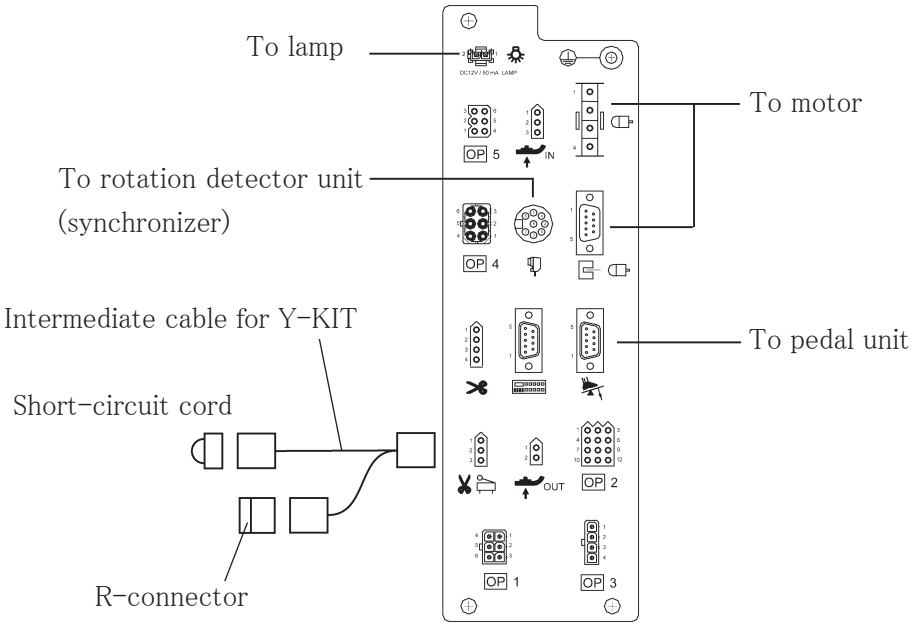


Fig. 5-1

5.2 In case of with UT-A device

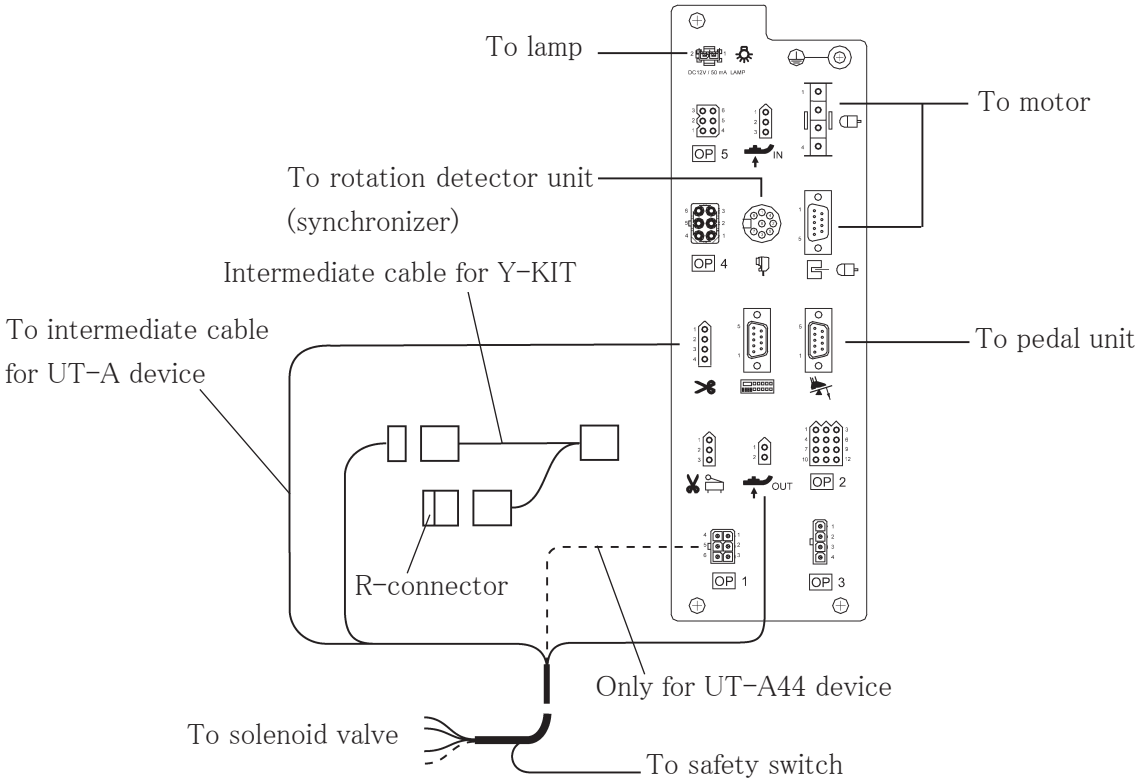


Fig. 5-2

5.3 In case of with UT device

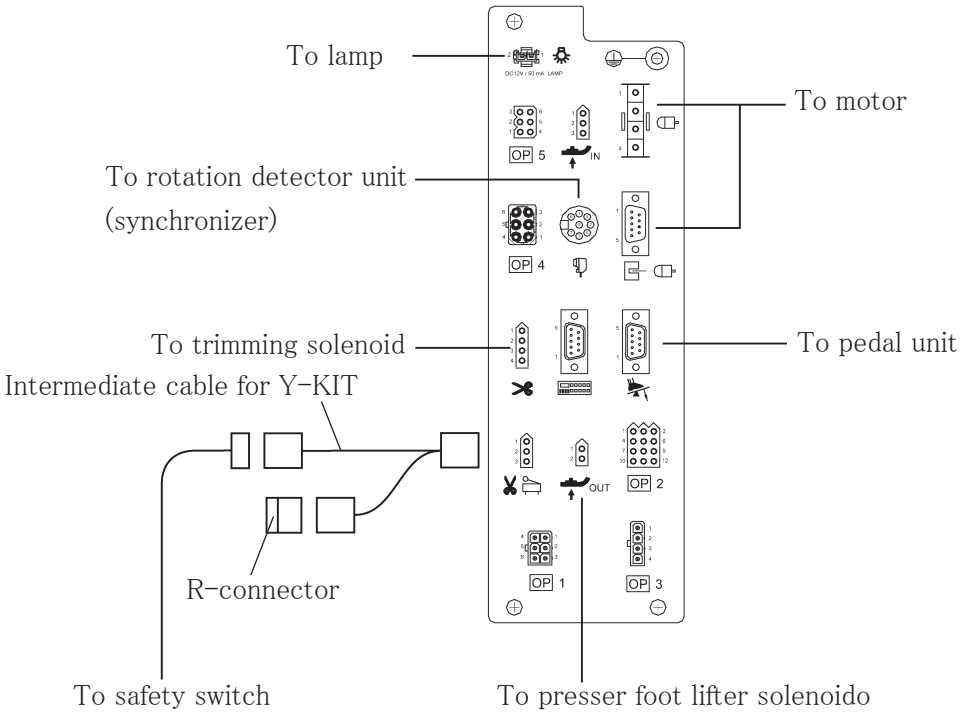


Fig. 5-3

6. Setting motor

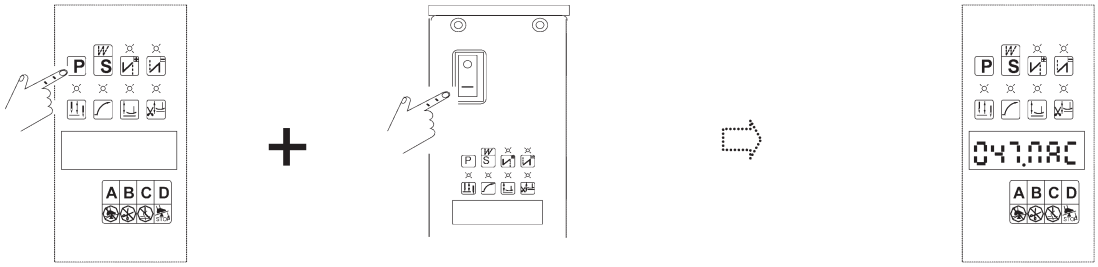
⚠ CAUTION

Set the motor properly depending on the machine model or device. Improperly setting motor can cause the machine damage or breakdown.

6.1 Simple setting

On the main models, change the motor setting as following steps referring to Table 1.

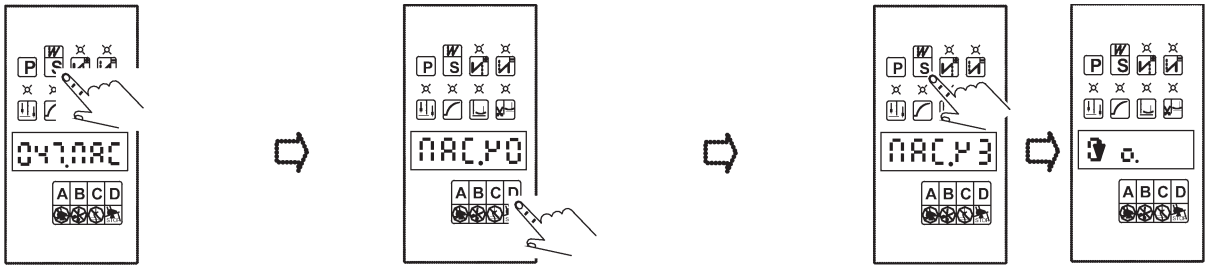
1. While pressing [P] key, turn the power switch ON. LED displays "047MAC".



2. Press [S] key to display current simple setting.

3. Press [C] or [D] key to enter a cord for the new simple setting.

4. Press [S] key to change the new setting. Then automatically return to normal mode.



Code	Display	Machine applied
Y 0		VE and VES series at shipment (except below)
Y 2		With UT device on VE and VES series
Y 3		With UT-AXX device on VE and VES series
Y 5		With UT-AXX/ST2-A device on VE and VES series
Y 14		With UT-AXXF device on VE and VES series
Y 15		With UT-AXXF/ST2-A device on VE and VES series

Table 1

Note: Normal mode is a mode possible to operate normally.

⚠ CAUTION

Be sure to set the cord in Table 1. If set other cords, it can cause the damage or breakdown.

Other machines and devices:

1. Set UT-AXXF or UT-AXXF/ST2-A device with CS device referring to "10.2 Setting CS device".
2. Set BF6 device referring to "10.1 Setting BF device".

6.2 Changing sewing speed

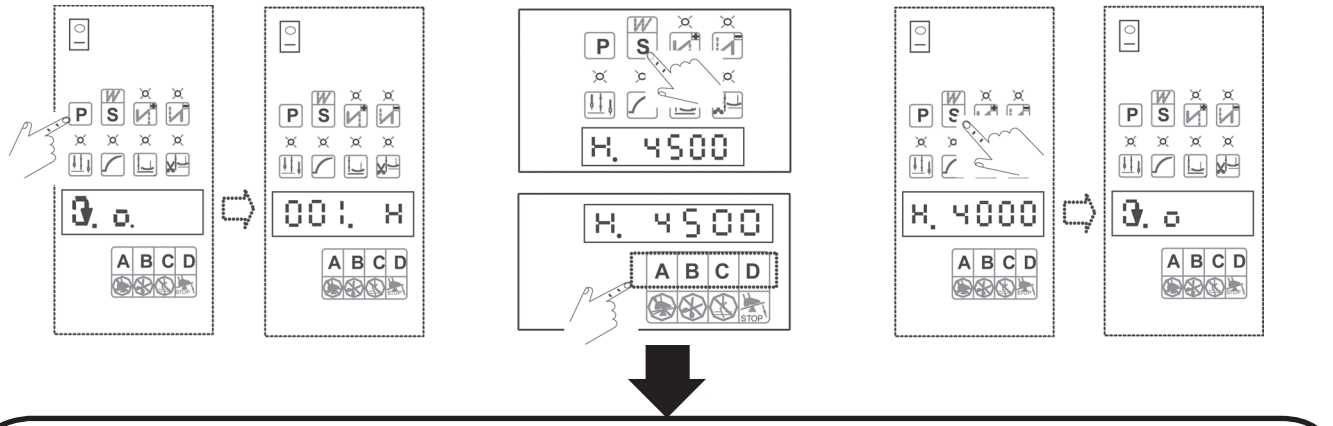
Set the appropriate sewing speed for each machine.

(Example) Changing the speed from 4,500rpm to 4,000rpm.

1.Press key [P] ,LED displays "001. H" .

2.Press key [S] ,LED displays "H.4,500" .
3.Press key [A] [B] [C] [D] to set the sewing speed.

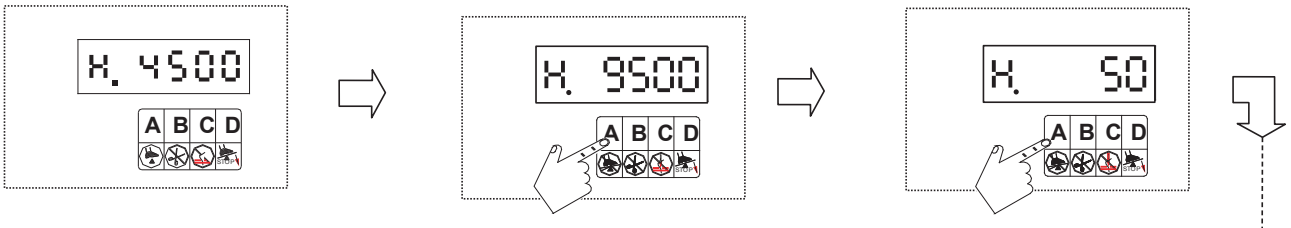
4.When displayed as "H. 4,000" , press key [S] .
5.It return to "normal mode" . Finished.



The numerical value cannot be decreased, when changing a speed setting.
Do the setting change as follows.

1. The speed setting is displayed.

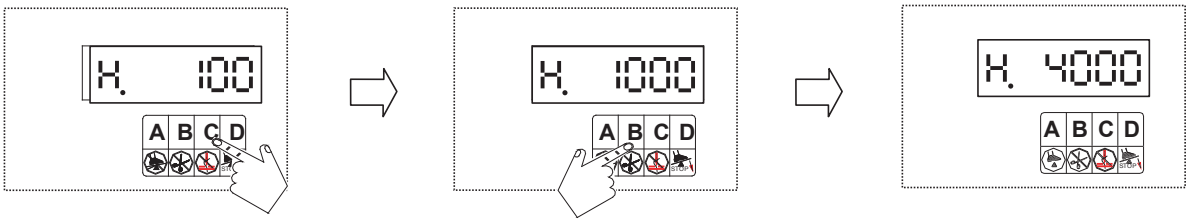
2. Press key [A] several times,lowest value "50" is displayed next to highest value "9xxx" .



3. Press key [C] , the numerical value is turned over and raises it.

4.Press key [B] , the numerical value is turned over and raises it.

5. The numerical value is set with [A] key.



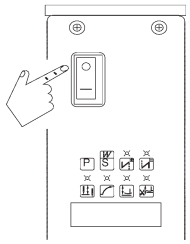
⚠ CAUTION

Do not set the speed over the maximum rotation of the machine. It causes the breakdown and damage.

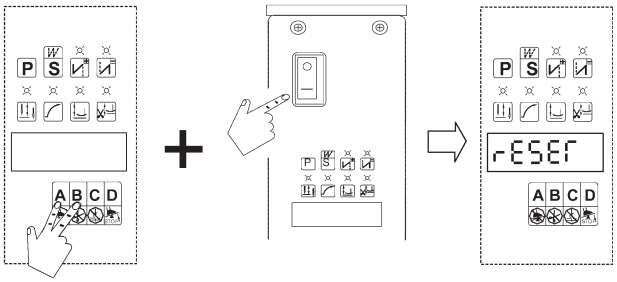
6.3 Reset

This section describes the procedures used to return the settings at the shipment if the wrong parameters have been set in the control box of the motor.

1.Turn off the power.

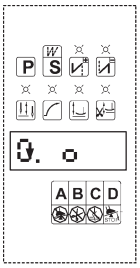


2. While holding down the [A] and [B] keys, Turn on the power. When "RESET" is displayed, release the keys.

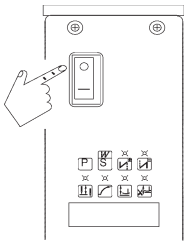


3. The "SAVE. OK" flashes on the display.

4. Normal mode is displayed, and the initial values are restored.



5. Turn off the power. (resetting complete.)



6. Set the motor setting. (refer to "6.1" and " 6.2 ")

6.4 Explanation of A, B and C key (D key is not use)

6.4.1 Disabling half heeling function (A key)

Half heeling in pedal(motor speed control) can be disabled by pressing [A] key.
While「o」over [A] key lights up, the half heeling function is disabled.

When used the half heeling function, press the [A] key again.
While「o」over [A] key lights out, the half heeling function is activated.

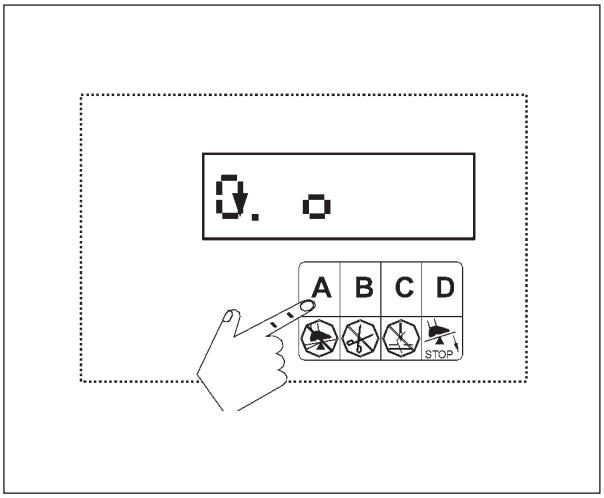


Fig. 6-1

6.4.2 Disabling thread cutting operation (B key)

Press the B key to disable the thread cutting operation.
While 「o」 over the B key lights up, the thread cutting operation is disabled.

When used the thread cutting operation, press the B key again.
While 「o」 over B key lights out, the thread cutting operation is activated.

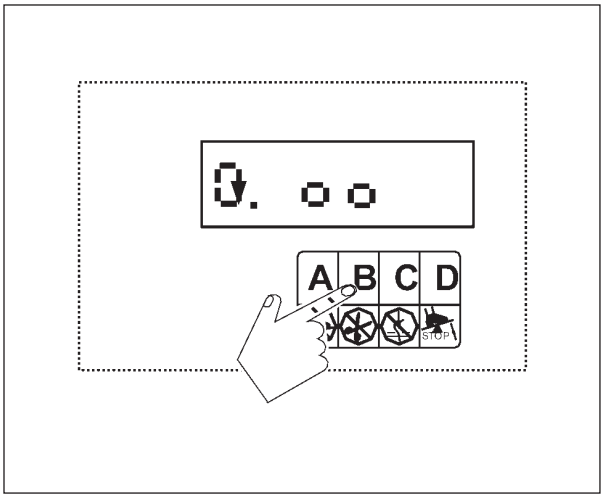


Fig. 6-2

6.4.3 Disabling wiper mechanism or ST2 (-A) device (with UT-A, UT device) (C key)

Press the C key to disable the wiper mechanism or the ST2(-A) device.
While 「o」 over the C key lights up, the wiper mechanism or the ST2(-A) device is disabled.

When used the wiper mechanism or the ST2(-A) device, press the C key again.
While 「o」 over C key lights out, the wiper mechanism or the ST2(-A) device is activated.

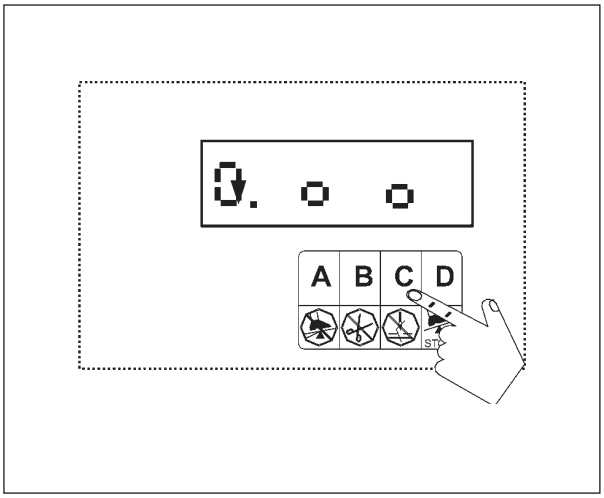


Fig. 6-3

7. Adjusting needle position

⚠ CAUTION

Unplug all intermediate cables from the solenoid valves. If not, they may be scratched by the parts and be damaged.

Make sure that the needle stops at the position between the highest point and the point 0.5 ㎜ below the highest point.

(1) Loosen the screws ① .

(2) Adjust the rotation detector ② right and left.

(3) Again, run the sewing machine to check if the needle stops at the appropriate position.

Adjust it to the left, in case the needle stops before to come to the highest point.

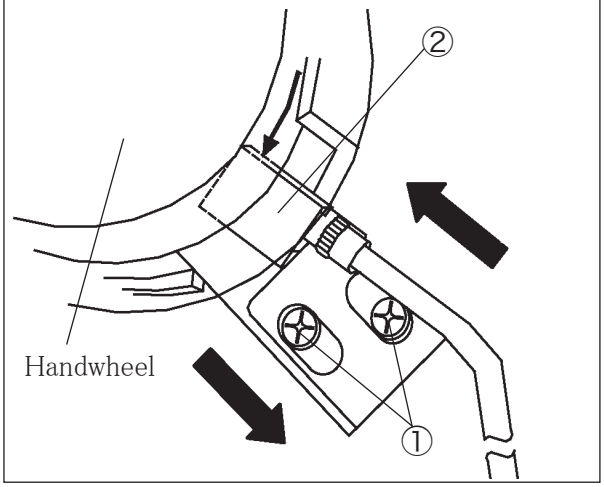


Fig. 7-1

Adjust it to the right, in case the needle stops after to come to the highest point.

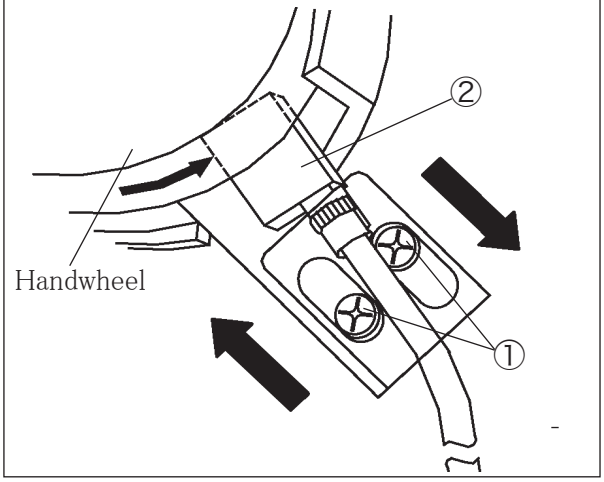


Fig. 7-2

8. Timing belt

8.1 Regular maintenance

Remove the belt cover ① to clean the around once a week.

⚠ CAUTION

If dust clogs up between the timing pulleys ②③ and the timing belt ④, it can cause belt breakage.

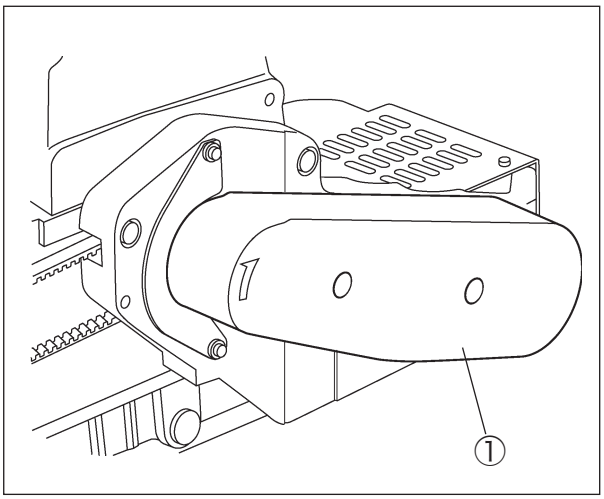


Fig. 8-1

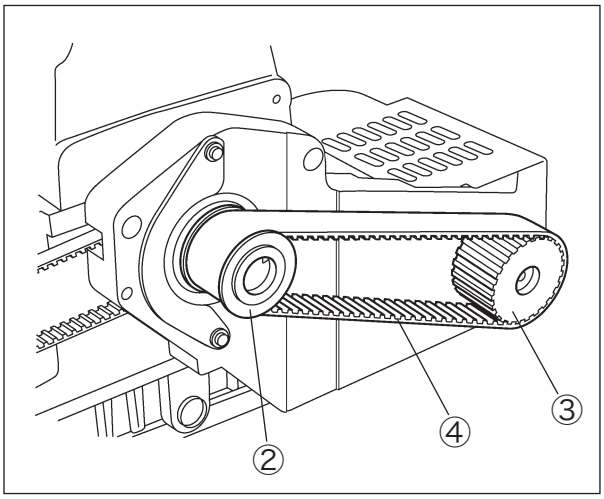


Fig. 8-2

8.2 Changing timing belt

Disassembly

(1) Loosen the screws ① to remove the belt cover(small) ② .

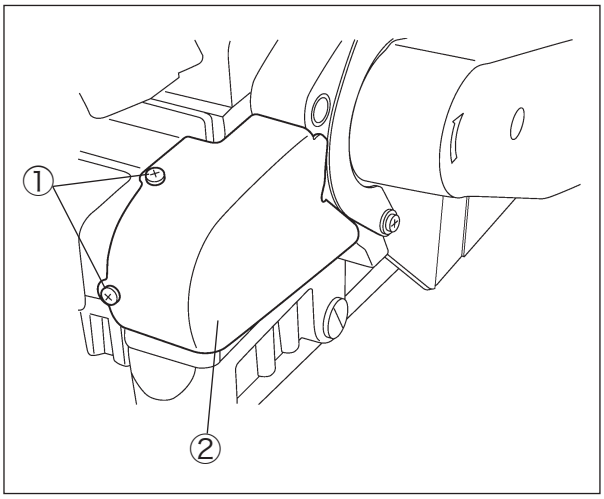


Fig. 8-3

(2) Loosen the screws ③ to remove the belt cover ④ .

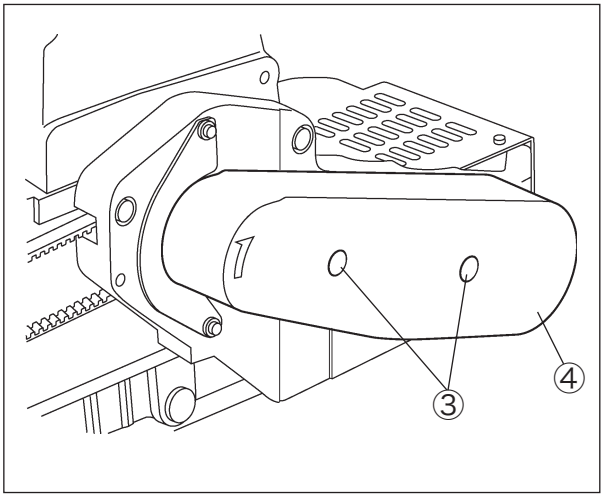


Fig. 8-4

(3) Remove three screws ⑥⑦ of the motor bracket ⑤ .
(If the machine without UT-A device, remove the lifter connecting link.)

(4) Remove the old timing belt ⑧ .

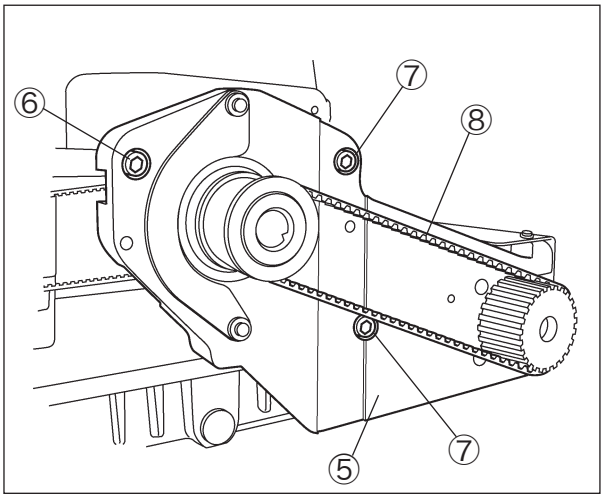


Fig. 8-5

Installation

(1) While holding up the motor bracket ① , set a new timing belt.

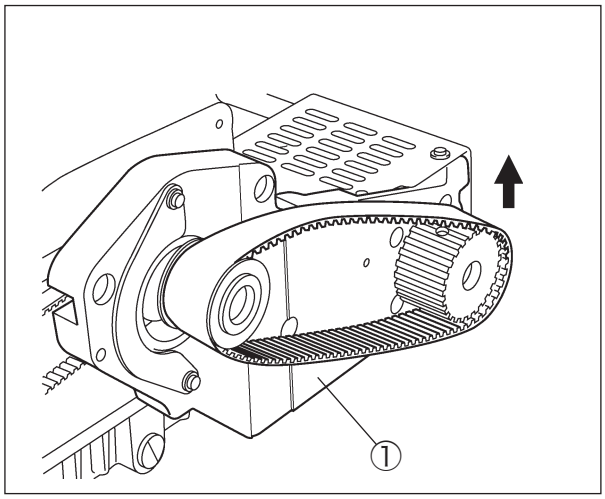


Fig. 8-6

(2) Align the eyes of the motor bracket ① with two pins ② ③ on the machine and fix them with three screws ④⑤. (If the machine without UT-A device, reinstall the lifter connecting link.)

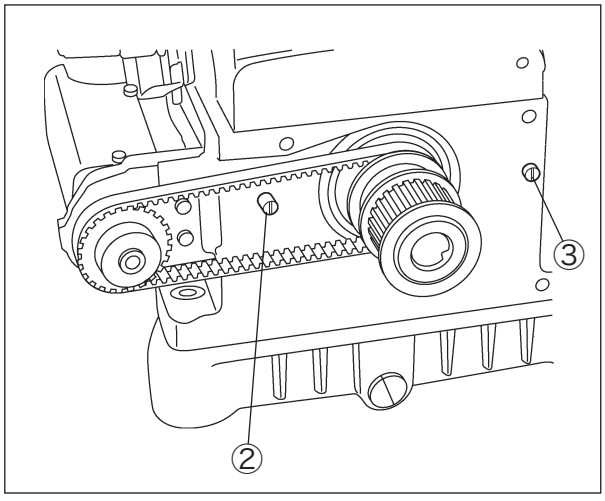


Fig. 8-7

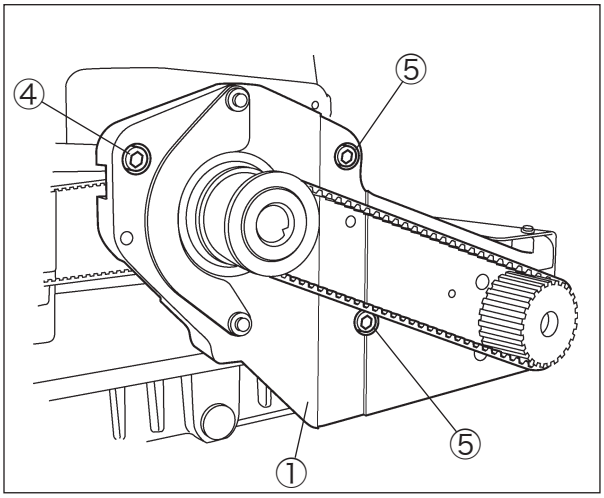


Fig. 8-8

(3) Reset the belt cover ⑥ .(Fig. 8-9)

(4) Reset the belt cover(Small) ⑦ .(Fig. 8-10)

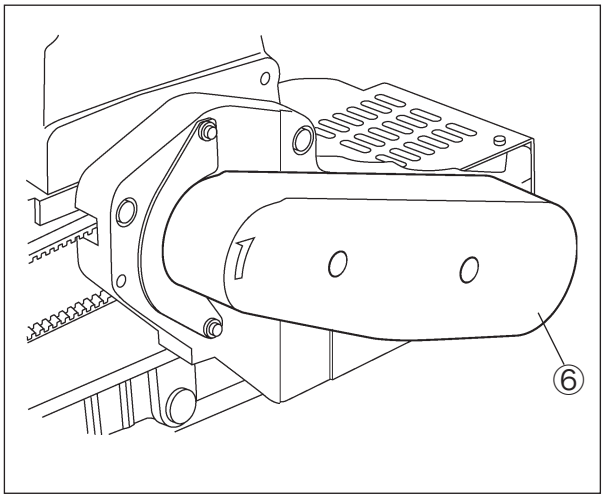


Fig. 8-9

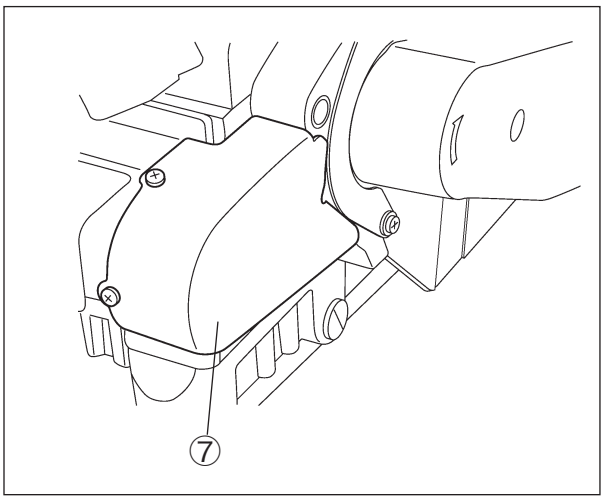


Fig. 8-10

9. Troubleshooting

9.1 Error code and measure

Error code	Cause of the problem	Status and measure
ERO. 1	1. Power module detected error. 2. Abnormal over current or voltage occurred. 3. Resistor for the LV is damaged or F2 fuse open.	Motor will be shut down. 1. Please check the power module. 2. Please check the main board over current circuitry. 3. Please check the resistor (220Ω 30W) for the limited voltage or F2 fuse.
ERO. 2	EEprom (IC7) r/w malfunction.	Motor will be shut down. Replace the IC7 memory unit.
ERO. 4	1. Connect the wrong voltage, too high. 2. Parameter【130. OVD】setting is wrong, too low.	Motor will be shut down. 1. Please check the AC power. (Too high.) 2. Please check the parameter【130. OVD】setting value of the main board. Note : 1. Don't adjust this parameter unless is really necessary. Wrong setting may cause problem. 2. If set wrong and ERO. 4 shown. The only solution is to reset. ＊ When reset, please check the machine code that need to match the machine head currently used.
ERO. 5	1. Connect the wrong voltage, too low. 2. Parameter【131. LVD】setting is wrong, too low.	Motor will be shut down. 1. Please check the AC power. (Too low.) 2. Please check the parameter【131. LVD】setting value of the main board.
ERO. 7	1. Bad connection at the motor connector. 2. Rotation detector unit signal error. 3. Rotation detector unit is single position type, and parameter set wrong type. 4. Machine locked or object stuck in the motor pulley. 5. Circuitry of power module is faulty.	Motor will be shut down. 1. 2. Please check the motor or motor connectors' connection. 3. Please check the rotation detector unit and its signal. Please check the parameter【177. SIN】setting. (set「OFF」for 2 position type synchronizer.) 4. Please check machine head to see if objects stuck in the motor pulley, or rotate not smoothly. 5. Check the circuitry of power module.
ERO. 8	Operation box linked to CPU interface had communication error.。	Motor will be shut down. Please check the Operation Box and its connection.

Table 2

Error code	Cause of the problem	Status and measurement
ERO. 9	1. Machine solenoid shorted. 2. Main board' s power transistor is faulty.	Motor still can run, but all output signals and Operation box' s pattern sewing function will be invalid 1. Please check the machine' s solenoids, if any resistance value is 2 Ω less. 2. Please check all the power transistors, which related to machines' solenoids.
ERO. 11	If parameter【121.ANU】is set ON, but Auto Needle Up is malfunction when the power turned on.	Motor still can run, but it automatic starts the clutch mode. All Constant-stitch sewing pattern and trimmer wiper function will be invalid. Check Synchronizer' s up position' s signal. Check main board' s Synchronizer circuitry.
ERO. 14	Using PSU signal without sewing material when【106. PSN】= OFF	Motor stops. Please check PSU sensor circuitry and its signal.
ERO. 15	Using PSD signal without sewing material when【106. PSN】= OFF	Motor stops. Please check PSD sensor circuitry and its signal.
ERO. 51	1. Motor overloads for more than 20 seconds during one sewing. 2. Motor' s coil is defective. 3. Machine head is too crude to rotate smoothly.	Motor stops. 1. Please check to see if the sewing material is too thick to sew. 2. Please check the motor' s coils to see if defective. 3. Please check the machine head to see if too crude to rotate smoothly.
	Motor rotation icon in display is halting & not moving: 1. Safety switch is either faulty or bad connection. 2. Parameter【075. SFM】setting not match the machine head model.	Motor stops. Please check the safety switch. Please check parameter【075. SFM】setting, make sure it match machine head' s safety switch

Table 3

Digital Alphabet	English Alphabet	Cause of The Problem	Status and Measurement
	POWER OFF	1. AC power shut down or bad connection. 2. Main board OI 1detect circuitry faultiness.	Motor stops Please check AC power and connection. Please check the main board OI circuitry.
	EM STOP	An emergency stop signal activated when Parameter【149. IND】= ES.	Motor stops emergently Please check condition of「IND」signal. Only restarting power can normally run (it).

Table 4

9.2 Instruction of fuse replacement

⚠ CAUTION

Turn off the power and wait 10 minutes before opening box cover

Fuse type and location

When fuse fused, find out the cause and fix it befor replace the new one.

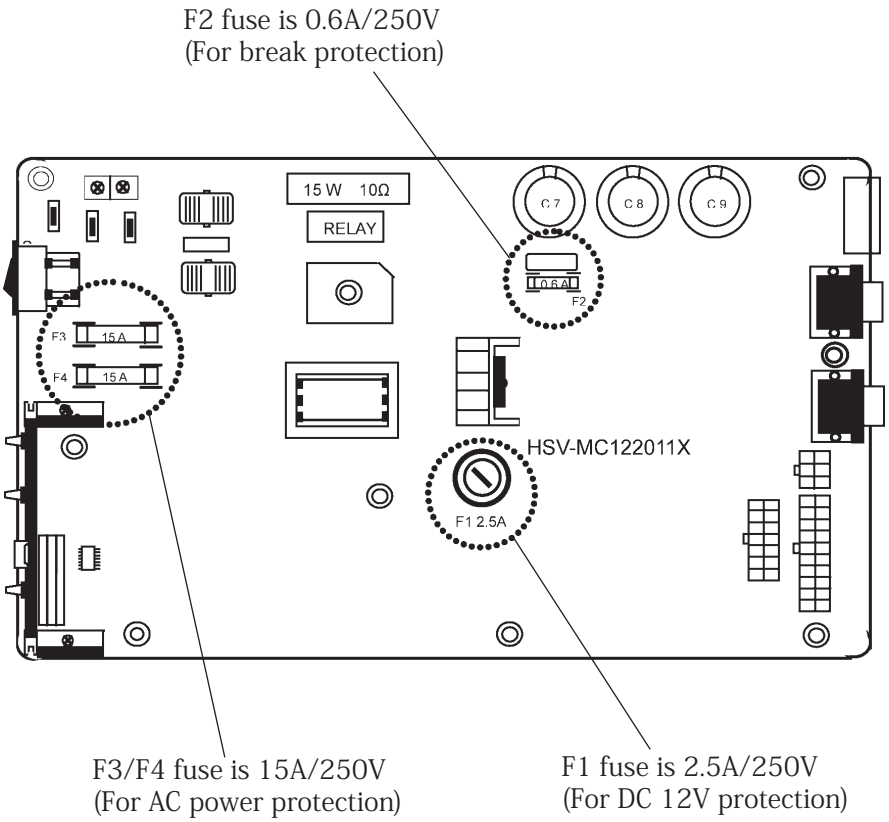


Fig. 9-1

9.3 Others

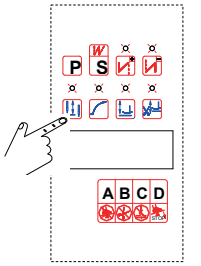
During the machine's operation, if the rotation detector unit felt out or the belt snapped. The motor will rotate few stitches then stop, and ERO.7 will be shown in the display. Turn off the power and troubleshooting first then restart the power.

If other technical issues occur, beside the fuse replacement, don't try to change any parts in the control box. Please ask supplier or trained technician for technical support.

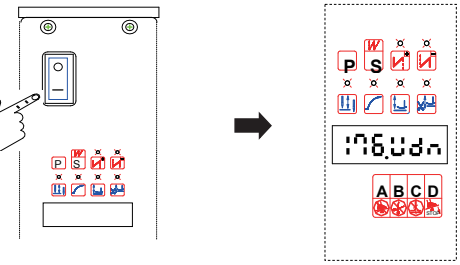
10. Appendix

10.1 Setting BF device

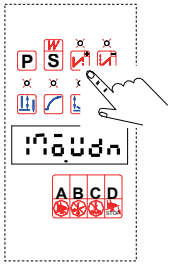
1. While pressing key, turn the power switch “ON” .



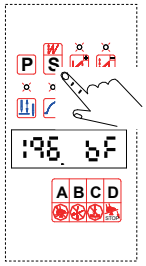
2. Mode【D】will be changed.



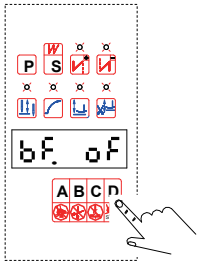
3. Press key several times to display “196. bF” .



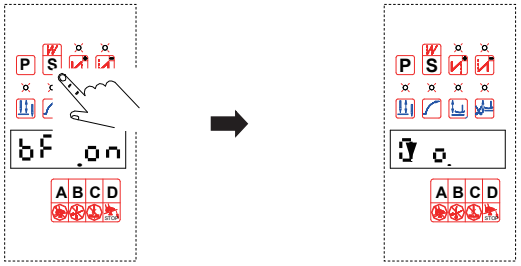
4. Press S key.



5. Press D key to change “OFF” to “ON” .



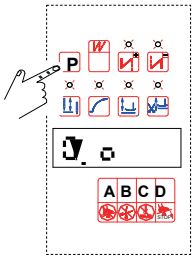
6. Press S key to return “normal mode” . Finished.



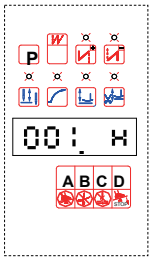
10.2 Setting CS device

To sew one stitch of normal sewing after four stitches of condensed stitch sewing:

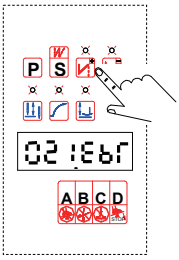
1.Press [P] key.



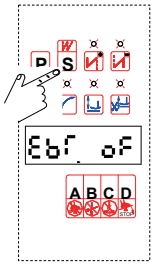
2. Mode【A】will be changed.



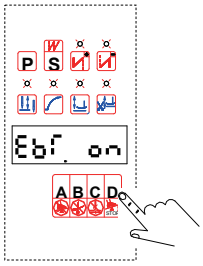
3. Press key (or keep pressing it) several times to display “021.Ebt” .



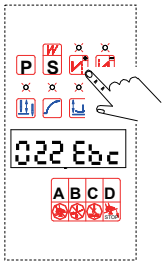
4. Press [S] key.



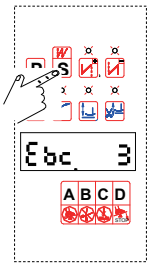
5. Press [D] key to change “off” to “on” .



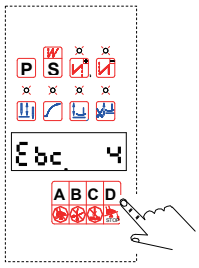
6. Press key to display “022.EbC” .



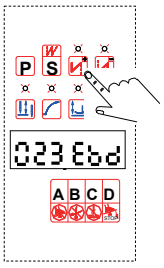
7. Press [S] key.



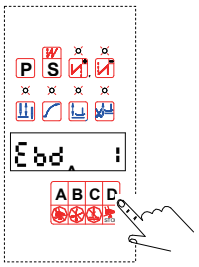
8. Press [D] key to change “3” to “4”. (“4” is number of stitch of condensed stitch sewing)



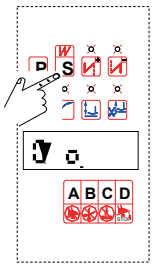
9. Press key to display “023.Ebd” .



10.Press [D] key to change “3” to “1” . (“1” is number of stitch of normal sewing)



11.Press [S] key to return “normal mode” . Finished.

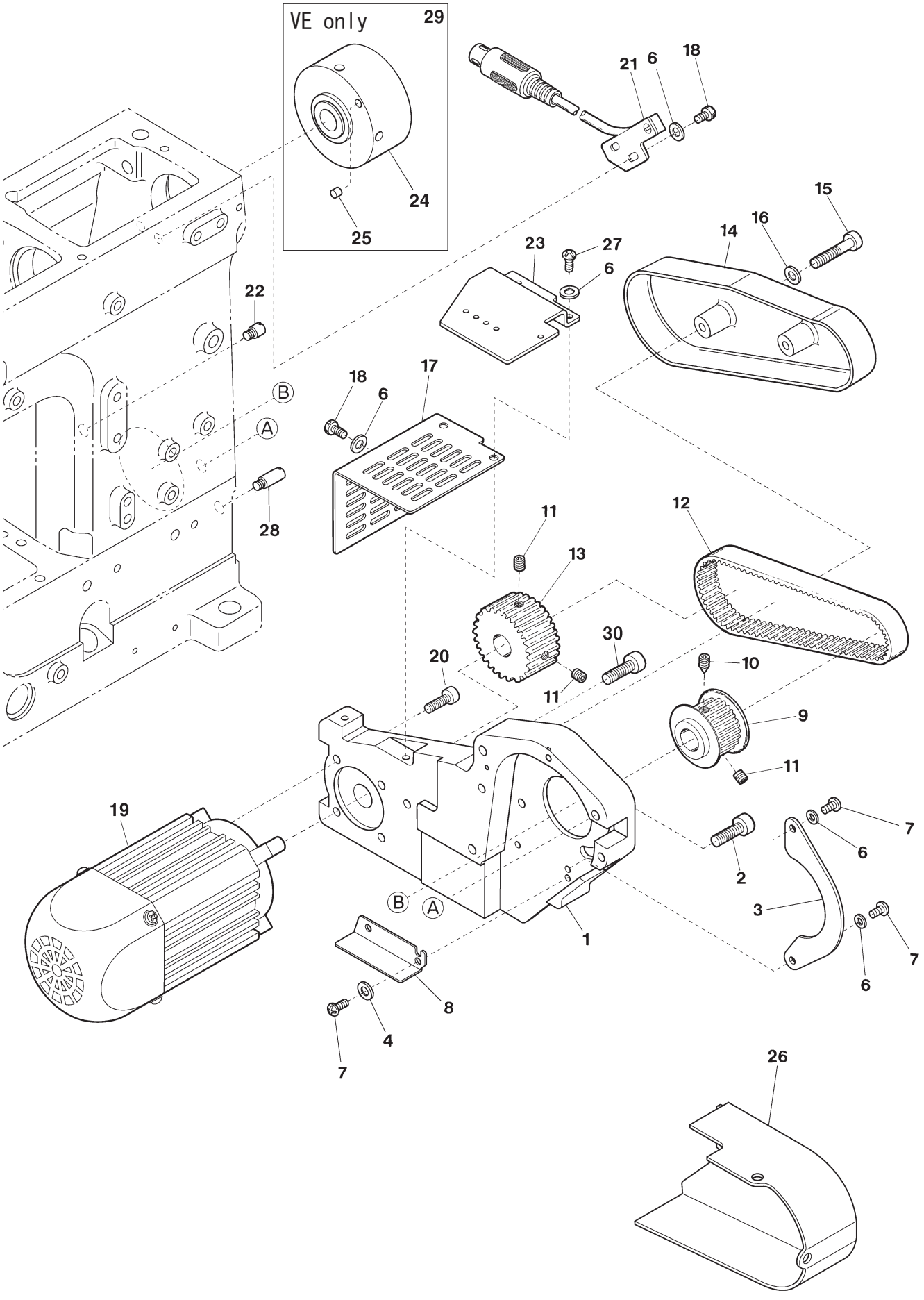


ILLUSTRATED
SPARE PARTS LIST

Y-KIT(VE CLASS)

1

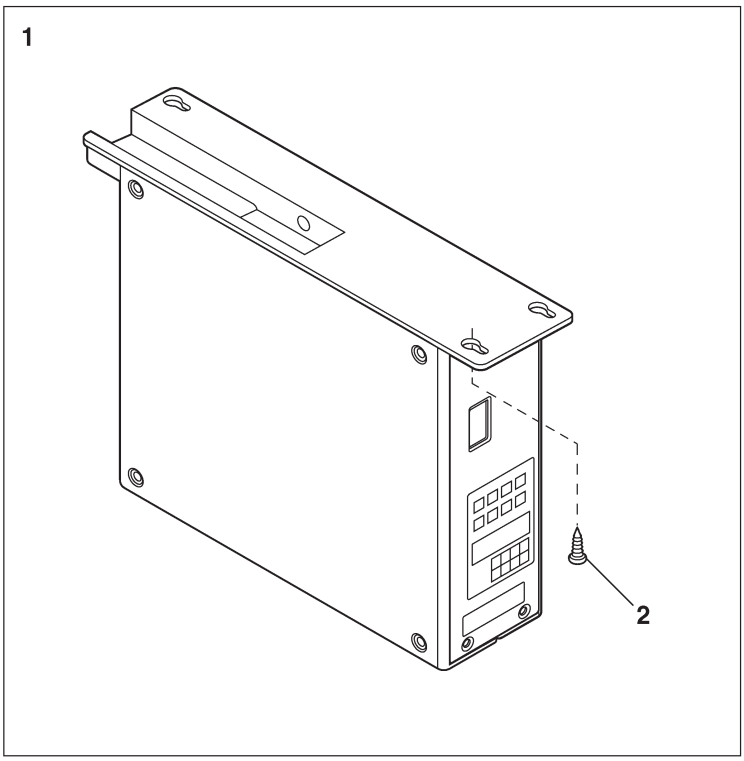
Y-KIT(VE CLASS)(1)

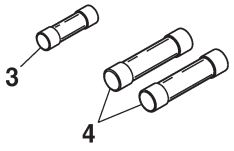


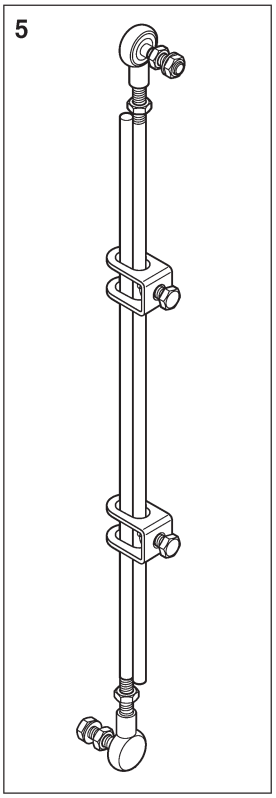
Ref.No	Parts No.	Description	品　名	Amt. Req
1	3151110	Motor Bracket	モータ取付台	1
2	009977	Screw(M6-1 × 25)	止ネジ	1
3	3101841	Dust Proof Lid	防塵蓋	1
4	001123	Washer	ワッシャ	2
5				
6	000538	Washer	ワッシャ	7
7	110012	Screw(M4-0.7×5)	止ネジ	4
8	3101840	Dust Proof Cover	防塵カバー	1
9	3501414	Pulley(Small)	プーリ (小)	1
10	160005	Screw(M6-1×8)	止ネジ	1
11	160007	Screw(M6-1×6)	止ネジ	3
12	3501411	Timing Velt	タイミングベルト	1
13	3501415	Pulley(Large)	プーリ (大)	1
14	3501412	Velt Cover	ベルトカバー	1
15	009935	Screw(M5-0.8×20)	止ネジ	2
16	300043	Washer	ワッシャ	2
17	3501413	Motor Cover	モータカバー	1
18	110013	Screw(M4-0.7×8)	止ネジ	6
19	9613360	Motor	モータ	1
20	120030	Screw(M5-0.8×12)	止ネジ	4
21	1200451	Rotation Detector Unit	ホール IC(組)	1
22	180012	Screw(M4-0.7×3)	止ネジ	2
23	3101844	Solenoid Valve Support	電磁弁取付板	1
24	3101490	Handwheel	ハンドホイール	1
25	0092305	Magnet	マグネット	1
26	3151111	Belt Cover(Small)	ベルトカバー (小)	1
27	110045	Screw(M4-0.7×12)	止ネジ	2
28	180005	Screw(M4-0.7×6)	止ネジ	1
29	3101499	Handwheel, C, Set	ハンドホイール (組)	1
30	009970	Screw(M6-1×20)	止ネジ	2

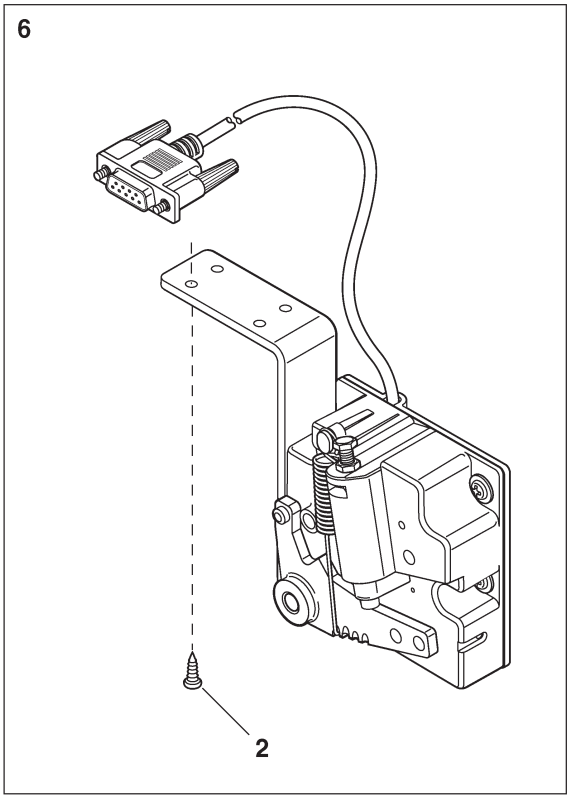
2

Y-KIT(VE CLASS)(2)





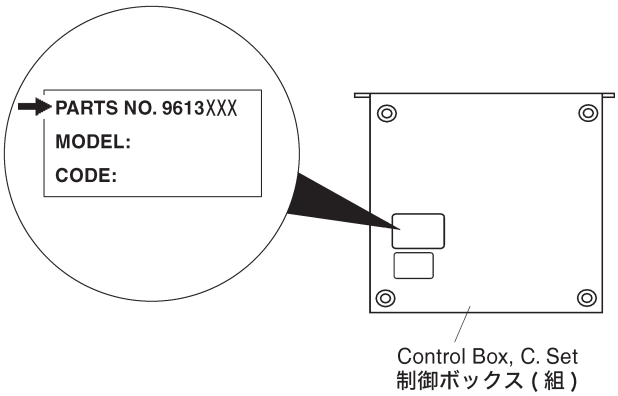




Ref.No	Parts No.	Description	品　名	Amt. Req
1	ーーーーー	Control Box, C. Set(Note)	制御ボックス (組)(注)	1
2	350014	Wood Screw(φ5×25)	木ネジ	7
3	1670181	Fuse(0.6A)	ヒューズ (0.6A)	1
4	1070182	Fuse(15A)	ヒューズ (15A)	2
5	9611077	Pitman	ピットマン	1
6	9613362	Pedal Sensor, C. Set	ペダルセンサ (組)	1

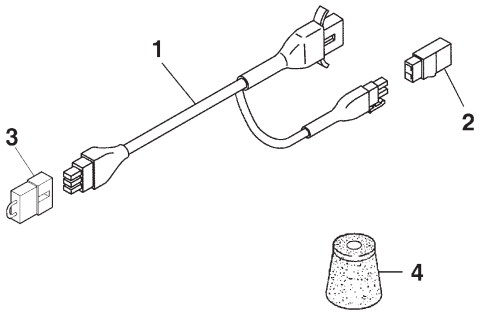
Note: When ordering the Ref. No. 1 please inform us of the PARTS NO. that describes to the sticker on the back of the Control Box, C. Set.

(注) Ref. No. 1 をご注文の際は、制御ボックス (組) 裏面のステッカーに記載しております PARTS NO.(品番) をお知らせください。

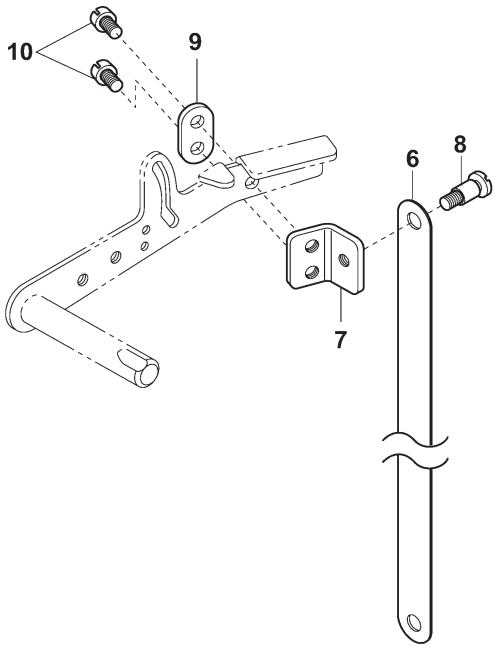


3

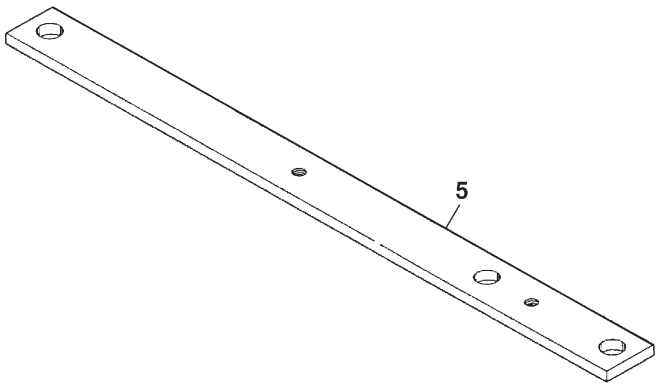
Y-KIT(VE CLASS)(3)



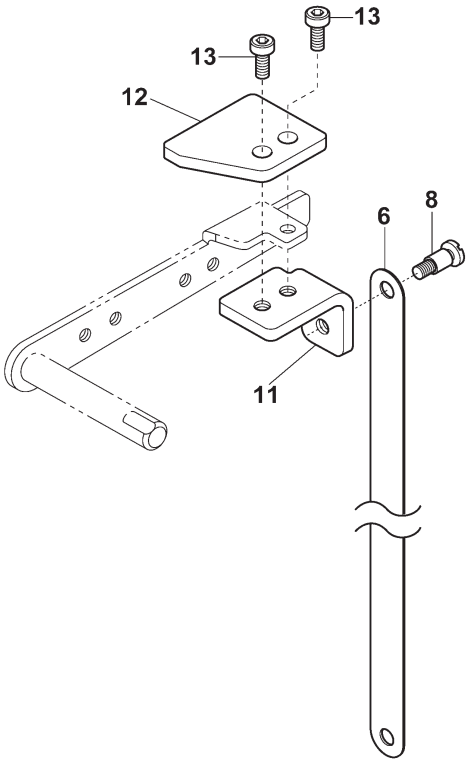
Except VE/UT-A,UT （VE/UT-A,UT 以外）



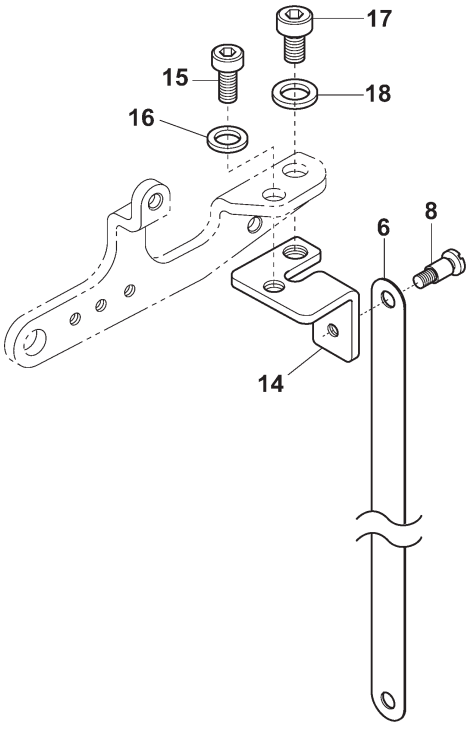
For semi-submerged type （半沈式用）



VE/UT



VES(Except UT-A)(UT-A 以外）



Ref.No	Parts No.	Description	品　名	Amt. Req
1	1200546	Intermmediate cable	中継ケーブル	1
2	1070199	R Connector	R コネクタ	1
3	1200547	Short-circuit Cord	短絡コード	1
4	3500614	Oil Reservoir Rubber Cushion	ゴム座	4
5	3501416	Supporting Board	受ケ板	1
6	3501190	Lifter Connecting Link	押エ揚ゲ連結桿	1
7	3151114	Lifter Connecting Link Holder	連結桿取付台	1
8	170000	Screw(M4-0.7×7.5)	止ネジ	1
9	3201477	Lifter Connecting Auxiliary Plate	押エ揚ゲ補助板	1
10	110011	Screw(M5-0.8×10)	止ネジ	2
11	3151112	Lifter Connecting Link Holder	連結桿取付台	1
12	3151113	Lifter Connecting Auxiliary Plate	押エ揚ゲ補助板	1
13	009747	Screw(M4-0.7×10)	止ネジ	2
14	3501191	Lifter Connecting Link Holder	連結桿取付台	1
15	009751	Screw(M5-0.8×10)	止ネジ	1
16	000669	Washer	ワッシャ	1
17	009980	Screw(M6-1×10)	止ネジ	1
18	000663	Washer	ワッシャ	1

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