

SERVICE MANUAL

3160QDC

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What to do when

Condition	Cause	How to fix	Reference
<p>1. Skipping Stitches</p>	<p>1. Needle is not inserted properly.</p> <p>2. Needle is bent or worn.</p> <p>3. Incorrectly threaded.</p> <p>4. Needle or thread are inappropriate for the fabric being sewn.</p> <p>5. Sewing on stretch fabric.</p> <p>6. Inappropriate needle bar height.</p> <p>7. Inappropriate needle to hook timing.</p> <p>8. Inappropriate needle to hook clearance.</p>	<p>Insert the needle properly.</p> <p>Change the needle.</p> <p>Rethread.</p> <p>Use the recommended sewing needle and thread.</p> <p>Use a HA x #11 blue tip needle.</p> <p>See mechanical adjustment "Needle bar height".</p> <p>See mechanical adjustment "Adjustment of hook timing".</p> <p>See mechanical adjustment "Clearance between needle and tip of the rotary hook".</p>	<p>P. 12</p> <p>P. 11</p> <p>P. 13</p>
<p>2. Fabric not moving</p>	<p>1. Incorrect feed dog height.</p> <p>2. Feed dog is in down position.</p> <p>3. Thread on bottom side of fabric is jammed up.</p> <p>4. Feed dog teeth are worn.</p>	<p>Adjust the presser bar level to make the pressure stronger. See mechanical adjustment "Feed dog height".</p> <p>Raise the feed dog.</p> <p>Make sure to bring both needle and bobbin threads under the foot when start sewing.</p> <p>Change the feed dog.</p>	<p>P. 14</p>

Condition	Cause	How to Fix	Reference
3. Breaking upper thread.	<ol style="list-style-type: none"> 1. Initial sewing speed is too fast. 2. Thread path is incorrect. 3. Needle is bent or dull. 4. Top tension is too strong. 5. Needle size is inappropriate for fabric. 6. Needle eye is worn. 7. Needle hole in needle plate is worn or burred. 	<p>Start with medium speed.</p> <p>Use the proper thread path.</p> <p>Replace with a new needle.</p> <p>Adjust top tension correctly.</p> <p>Use appropriate needle for fabric and thread in use.</p> <p>Change the needle.</p> <p>Repair the hole or replace the needle plate.</p>	
4. Breaking bobbin thread.	<ol style="list-style-type: none"> 1. Bobbin holder is incorrectly threaded. 2. Too much thread is wound on the bobbin. 3. Lint is stuck inside the bobbin holder. 4. Thread quality is too low. 5. Thread is jamming around the bobbin holder. 	<p>Set the bobbin thread correctly.</p> <p>Adjust the position of bobbin winder stopper.</p> <p>Clean the bobbin holder.</p> <p>Change to a high quality sewing thread.</p> <p>Clear out the jamming thread.</p>	
5. Needle breakes	<ol style="list-style-type: none"> 1. Needle is hitting the needle plate. 2. Needle is bent or worn. 3. Needle is hitting the hook. 4. Fabric is being pulled too strongly while sewing. 	<p>See mechanical adjustment "Needle drop position".</p> <p>Change the needle.</p> <p>See mechanical adjustment "Clearance between needle and tiip of the rotary hook".</p> <p>Guide the fabric gently while sewing.</p>	<p>P. 10</p> <p>P. 13</p>

Condition	Cause	How to fix	Reference
6. Noisy operation	1. Backlash between hook gear and lower shaft gear is too great. 2. Lower shaft gear is loose. 3. Inappropriate belt tension. 4. Not enough oil. 5. Upper shaft gear is loose.	Eliminate the backlash. Eliminate the looseness. See part removal and replacement "driving motor (DC motor)". Oil all moving parts. Eliminate the looseness.	P. 25
7. Deformation pattern	1. Inappropriate feed balance. 2. Top tension is too strong.	Adjust the feed balancing screw. See mechanical adjustment "Top tension".	P. 16

Changing External Parts

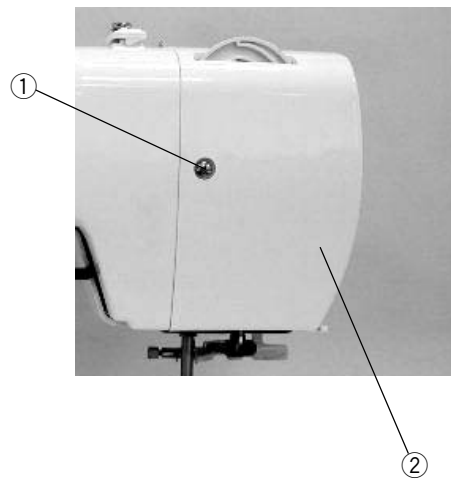
Face cover

To remove:

1. Loosen the setscrew ① and lift the face cover to disengage the rib on the inside. Remove the face cover ②.

To attach:

2. Follow the above procedures in reverse.



Changing External Parts

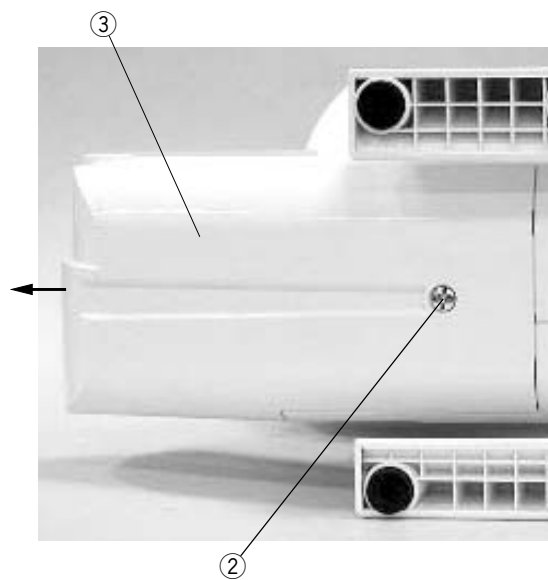
Free-arm cover

To remove:

1. Loosen the setscrew ① and ②. Move the free-arm cover to the left. Remove the free-arm cover.

To attach:

Follow the above procedures in reverse.



Changing External Parts

Front cover (1)

To remove:

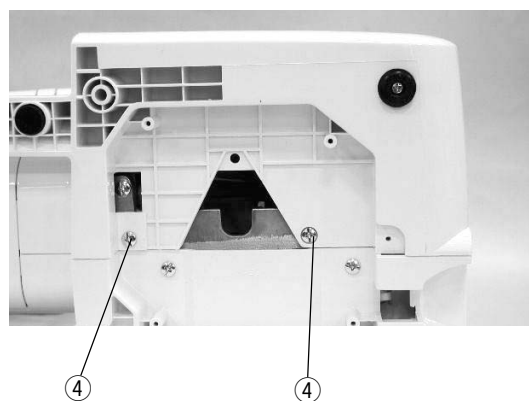
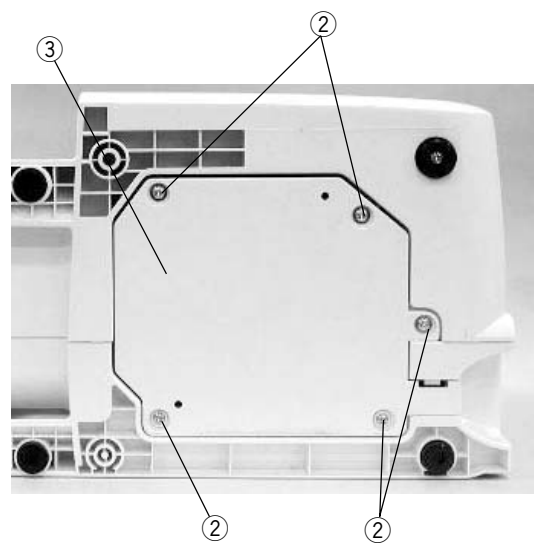
1. Remove the face cover and free-arm cover (See page 4 and 5).
2. Remove the setscrews (A) ① (2 pcs.).
3. Remove the setscrews (B) ② (5 pcs.), back cover ③.
4. Remove the setscrews (C) ④ (2 pcs.).
5. Disconnect all the connectors from the circuit board A.

NOTE:

Do not disconnect the connectors by pulling on cord.
To disconnect, grasp the connector, not the cord.

To attach:

6. Follow the above procedures in reverse.



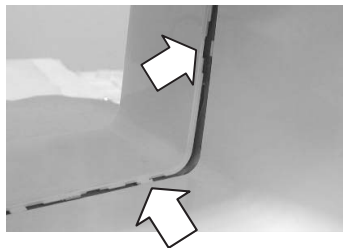
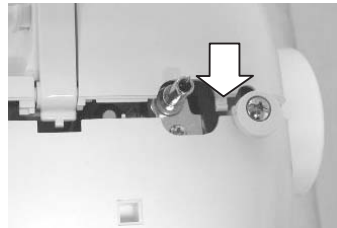
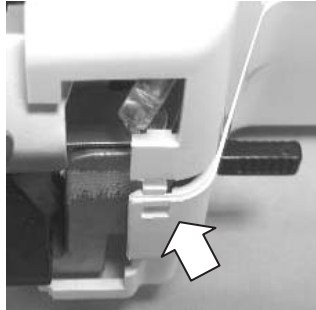
Changing External Parts

Front cover (2)

4. Disengage the front cover and rear cover hooks.
5. Remove the front cover.

To attach:

Follow the above procedures in reverse.



Changing External Parts

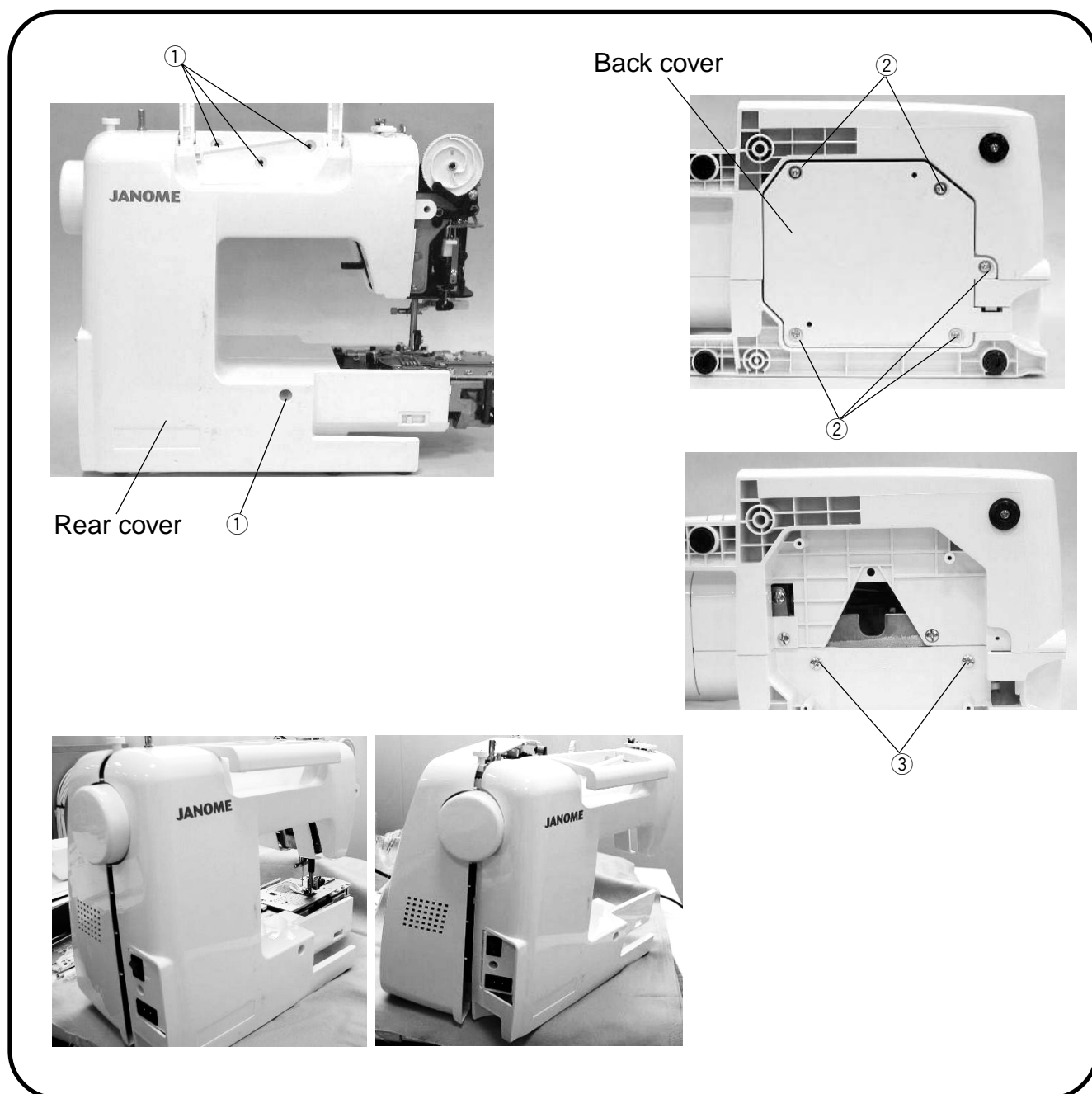
Rear cover

To remove:

1. Remove the face cover and free-arm cover (See page 4 and 5).
2. Remove the setscrews (A) ① (4 pcs.).
3. Remove the setscrews (B) ② (5 pcs.) and back cover.
4. Remove the setscrews (C) ③ (2 pcs.). Remove the rear cover.

To attach:

5. Follow the above procedures in reverse.



Mechanical Adjustment

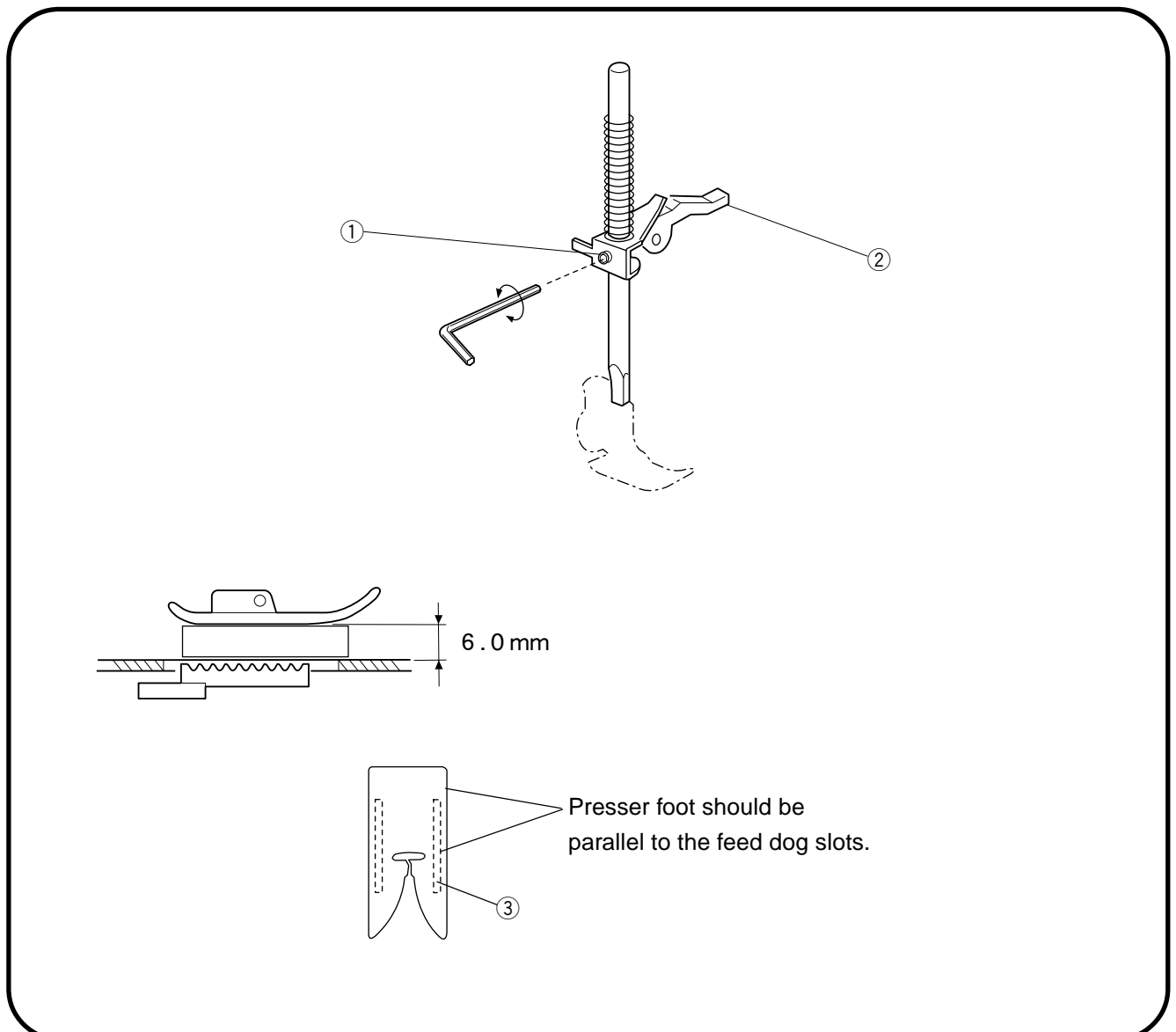
Presser bar height

The distance between the bottom of the presser foot in up position and the needle plate should be 6.0 mm.

1. Remove the face plate and needle.
2. Lower the feed dog below the needle plate. Place a block 6 mm thick under the presser foot and lower the presser foot lifter ②.
3. Loosen the setscrew ①. Raise the presser foot lifter and tighten the setscrew ① firmly.
Attach the needle and face plate.

NOTE:

Make sure that the presser foot should be parallel to the feed dog slots in the needle plate.



Mechanical Adjustment

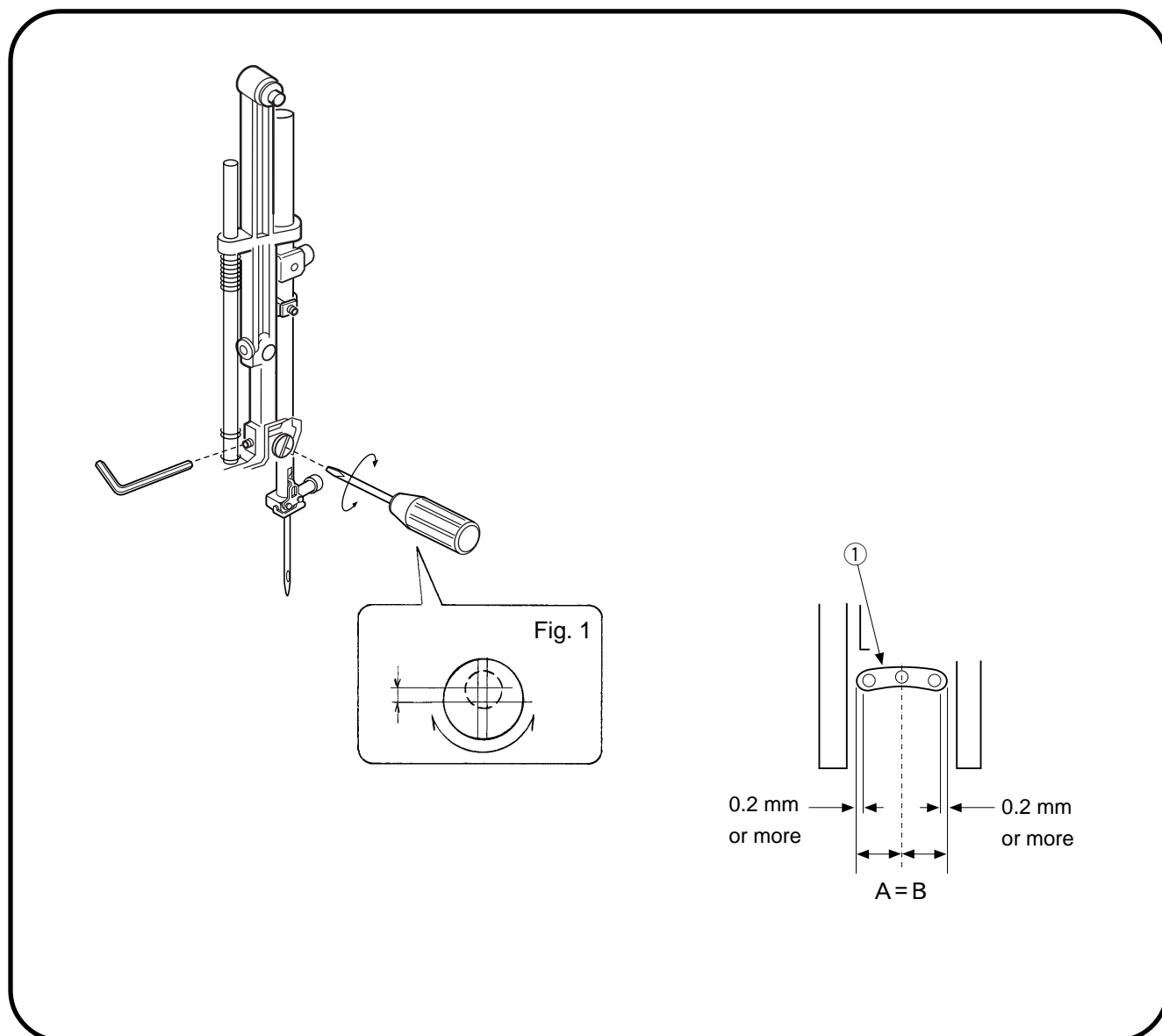
Needle drop position

Set the stitch pattern to “ \oplus ”. The standard needle drop position should be at center of the needle plate hole ①. Select zigzag stitch “ \approx ”, and set the stitch width at “5.0”. The clearance between the needle and the edge of the needle hole in the needle plate should be at least 0.2 mm on either side. If not, adjust as follows:

1. Turn the power switch off. Remove the face cover. (See page 4.)
2. Loosen the hexagonal socket screw 3 x 4 ②. Adjust the needle drop position by turning the eccentric pin ③. The direction of eccentric pin should be as shown in Fig. 1.
3. Attach the face cover.


NOTE:


Check the hook timing after this adjustment.



Mechanical Adjustment

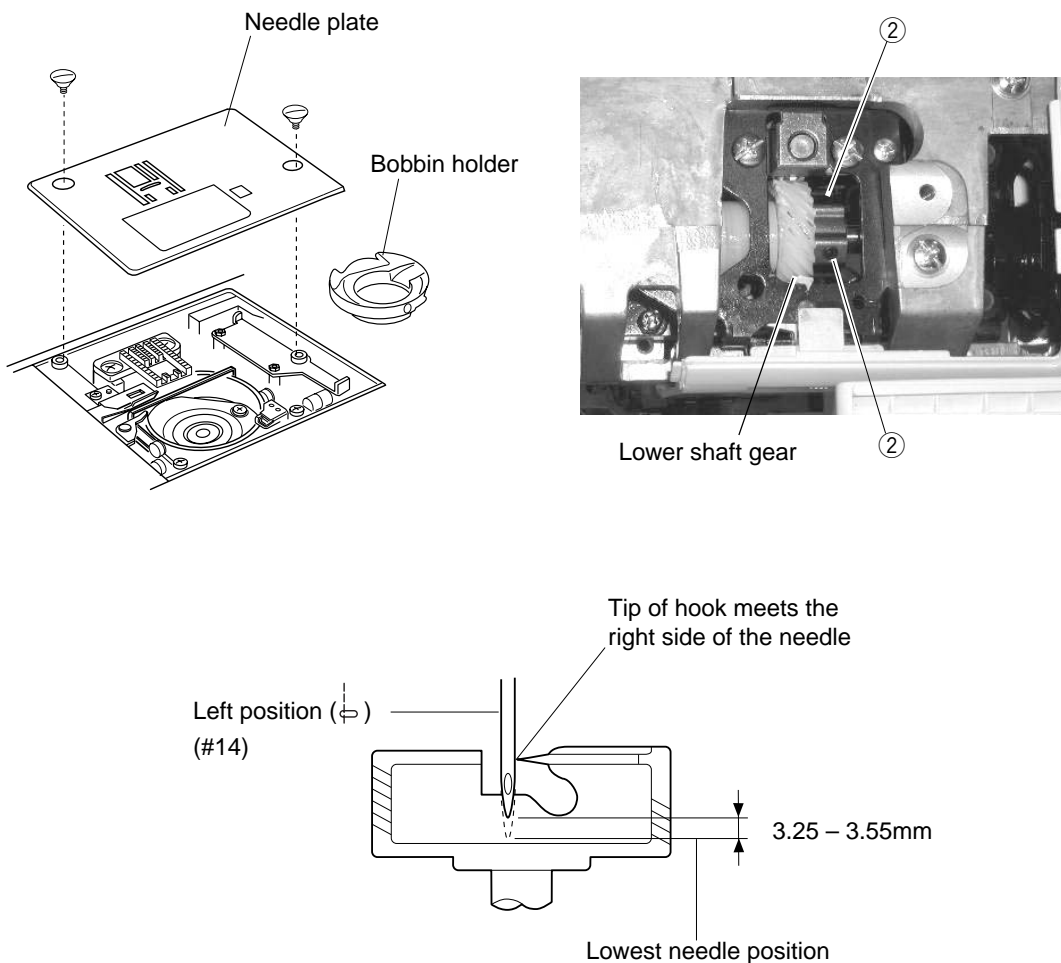
Adjustment of hook timing

The amount of ascending travel of the needle bar from its lowest position to the position () where the tip of the rotary hook exactly meets the right side of the needle should be 3.25 to 3.55 mm.

1. Remove the needle plate and bobbin holder.
2. Turn the power switch on.
3. Select the pattern  (left position). Set the zigzag width at 0.
4. Remove the free-arm cover.

Turn the handwheel toward you to lower the needle at its lowest position.

5. Loosen the hexagonal socket screw ② (2 pcs.).
6. Move the needle bar 3.4 mm from the lowest position.
7. Turn the lower shaft gear until the tip of hook meets the right side of the needle while holding the handwheel.
8. Tighten the hexagonal socket screw ② (2 pcs.).
9. Attach the free-arm cover, bobbin holder and needle plate.

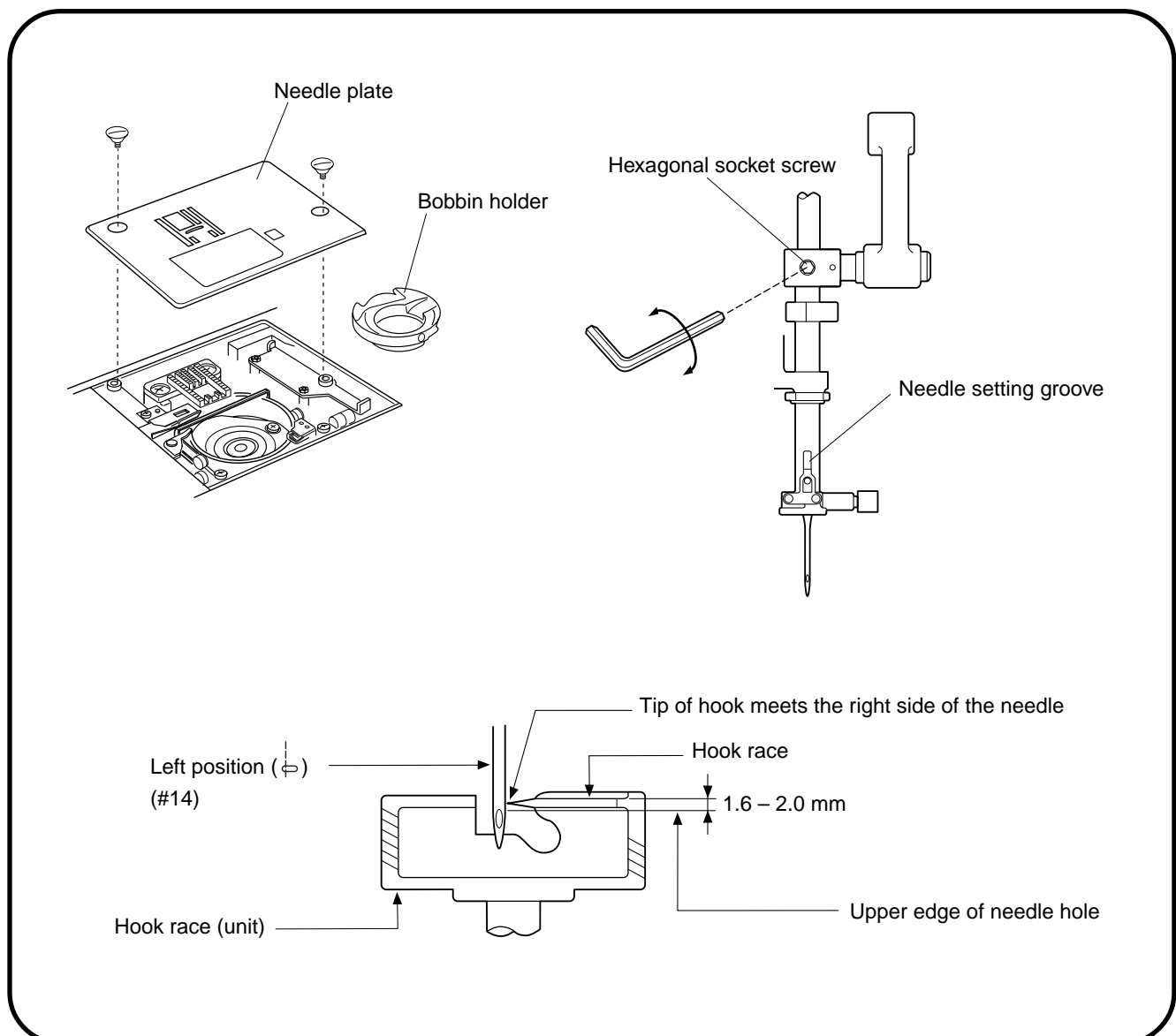


Mechanical Adjustment

Adjustment of needle bar height

Before proceeding with this adjustment, check the hook timing (refer to page 11). The distance between the upper edge of the needle eye and the tip of the hook should be in the range of 1.6 to 2.0 mm when the tip of the hook timing meets right side of the needle in the left needle position (⊖) as the needle ascends from its lowest position.

1. Remove the needle plate, bobbin holder and face plate.
2. Turn the power switch on.
3. Select the pattern ⊖ (left position). Set the zigzag width at 0.
4. Turn the handwheel toward you until the tip of hook meets the right side of the needle.
5. Loosen the hexagonal socket screw ①.
6. Move the needle bar to adjust the needle bar height, and tighten the hexagonal socket screw ①.
Be careful not to turn the needle bar.
7. Attach the bobbin holder, needle plate and face cover.



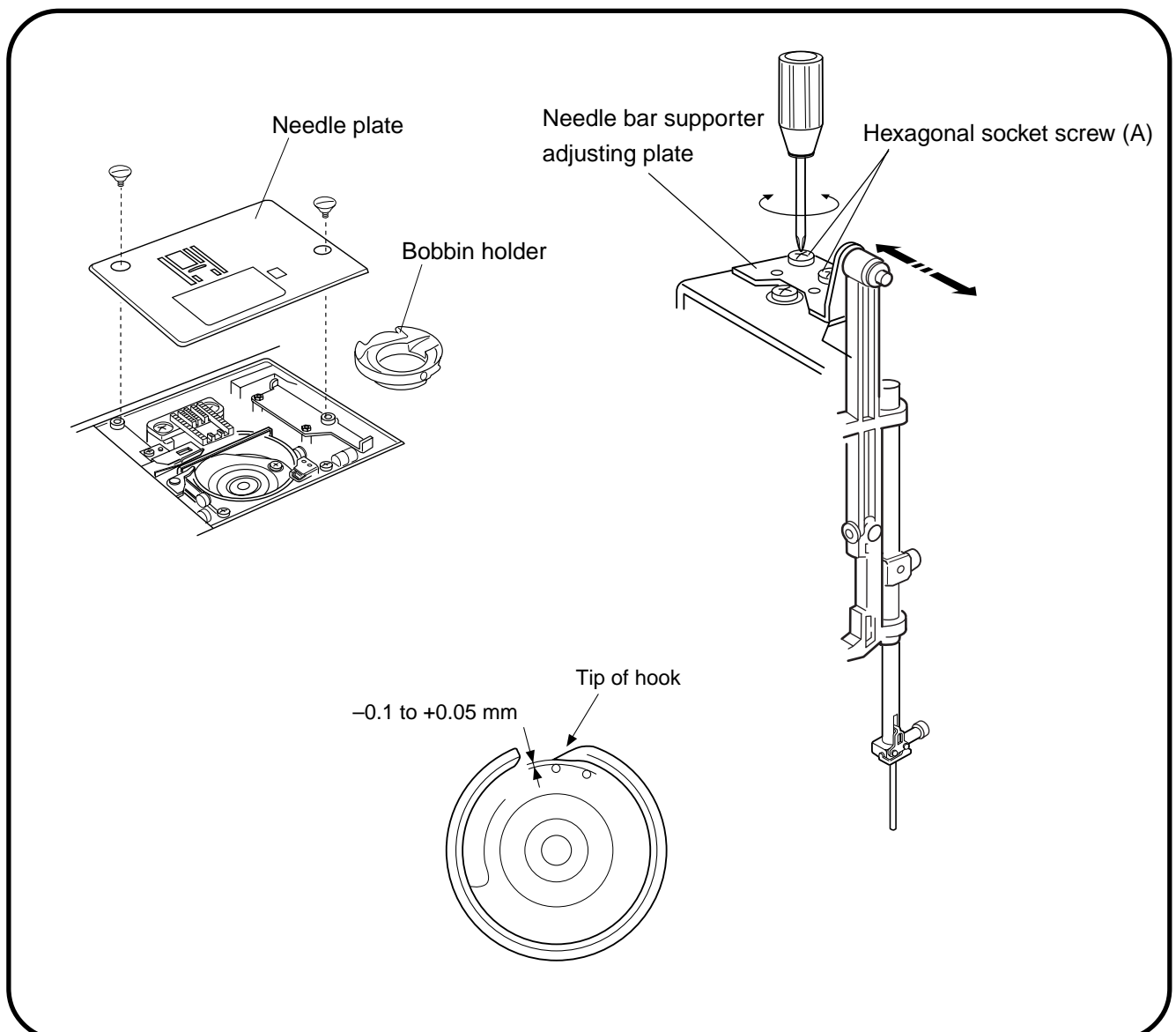
Mechanical Adjustment

Clearance between needle and tip of the rotary hook

* The clearance between the needle and the point of hook should be -0.1 to $+0.05$ mm.

Adjustment procedure:

1. Remove the needle plate and bobbin holder. Attach the master needle. Turn the power switch on and set the zigzag width at maximum.
2. Remove the face cover.
3. Loosen the setscrew A (2 pcs.).
4. Turn the handwheel toward you. Adjust the clearance between the needle and the tip of the rotary hook, by moving the hook base plate up or down, to within -0.1 to $+0.05$ mm at the left and right needle position.
5. Tighten the setscrew A (2 pcs.).
6. Attach the face cover. Remove the master needle. Attach the bobbin holder and needle plate.
7. Check the clearance between the needle and the edge of the needle hole in the needle plate (see page 10).

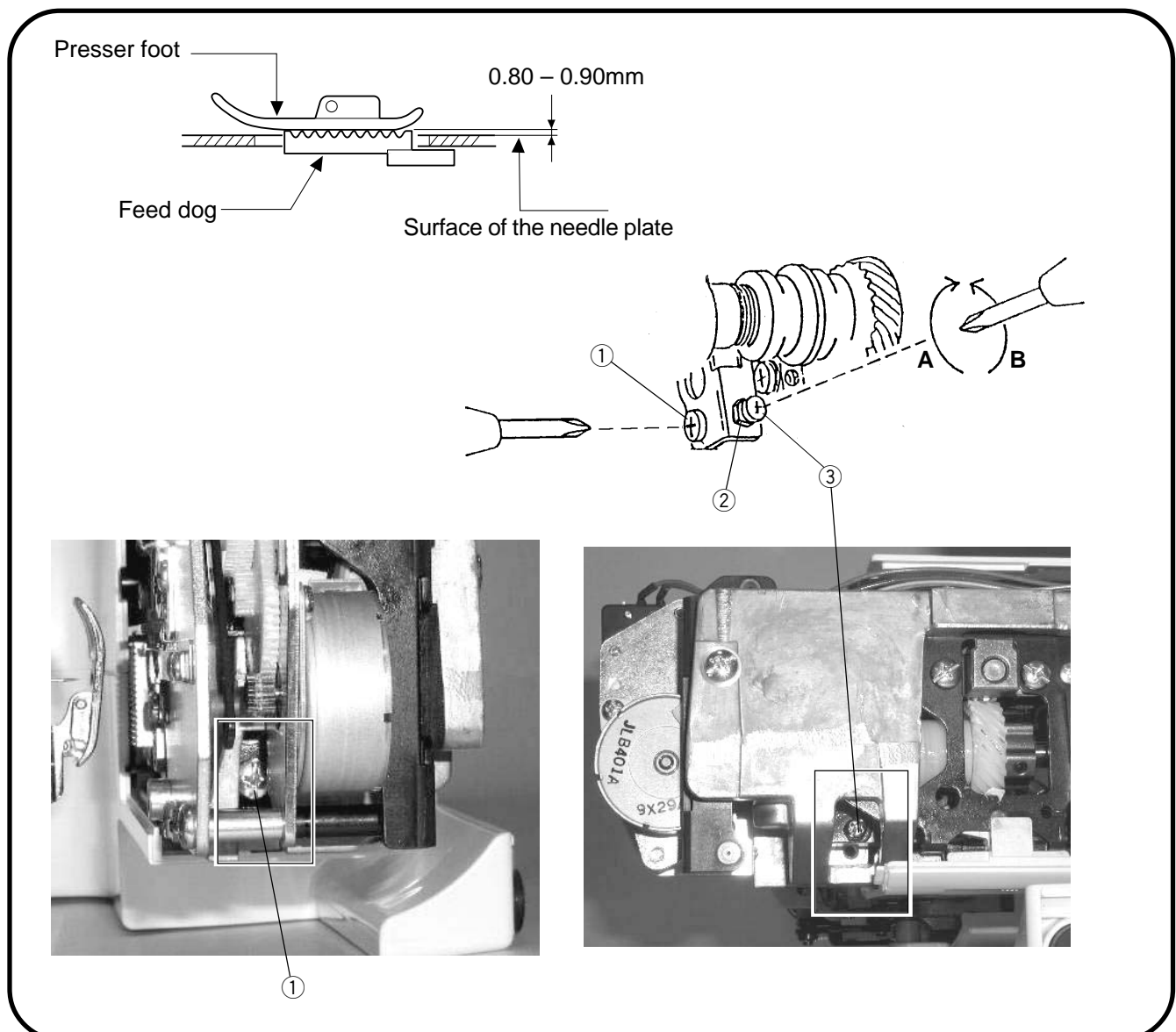


Mechanical Adjustment

Feed dog height

The highest position of the feed dog should be between 0.80 and 0.90 mm from the surface of the needle plate.

1. Lower the presser foot and turn the power switch on.
2. Turn the handwheel toward you to set the feed dog at the highest position.
3. Remove the free-arm cover.
4. Loosen the setscrew (A) ① and nut ②.
5. Adjust the feed dog height by turning the adjusting screw ③. The highest position of the feed dog should be between 0.80 and 0.90 from the surface of the needle plate.
6. Tighten the nut ② and setscrew (A) ①.
7. Attach the free-arm cover.

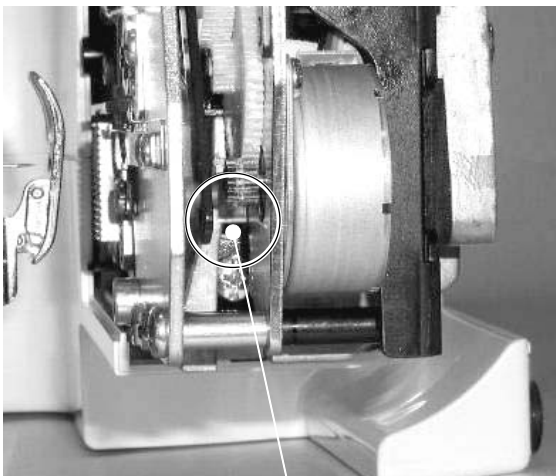
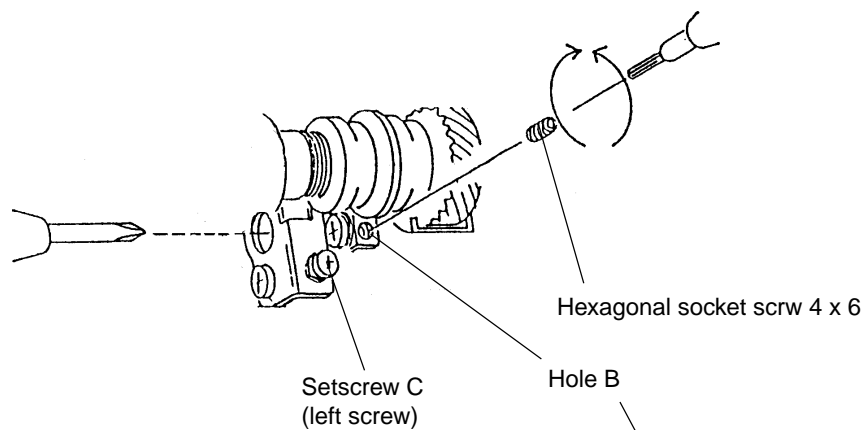


Mechanical Adjustment

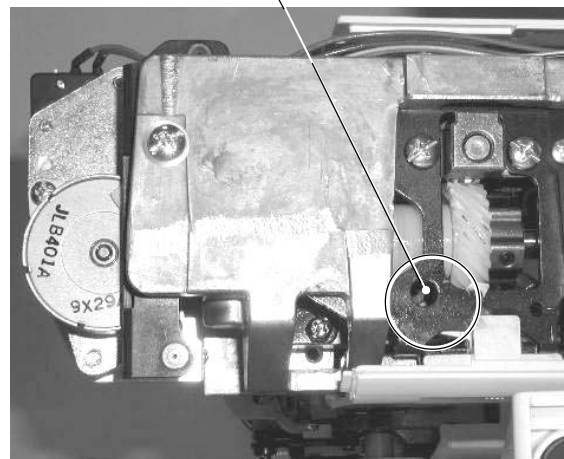
Feed dog adjustment (Only for model 3160QDC)

The highest position of the feed dog should be parallel to the surface of the needle plate. If not, adjust as follows.

1. Use a hexagonal socket screw (4 x 6).
Insert the screw to the hole B. Tighten the hexagonal socket screw as far as it goes.
2. Loosen the setscrew C.(left screw)
3. Turn hexagonal socket screw to adjust the feed dog (should be parallel to the surface of the needle plate).
4. Tighten the setscrew C.(left screw)
5. Loosen the hexagonal socket screw and remove it.



Setscrew C



Mechanical Adjustment

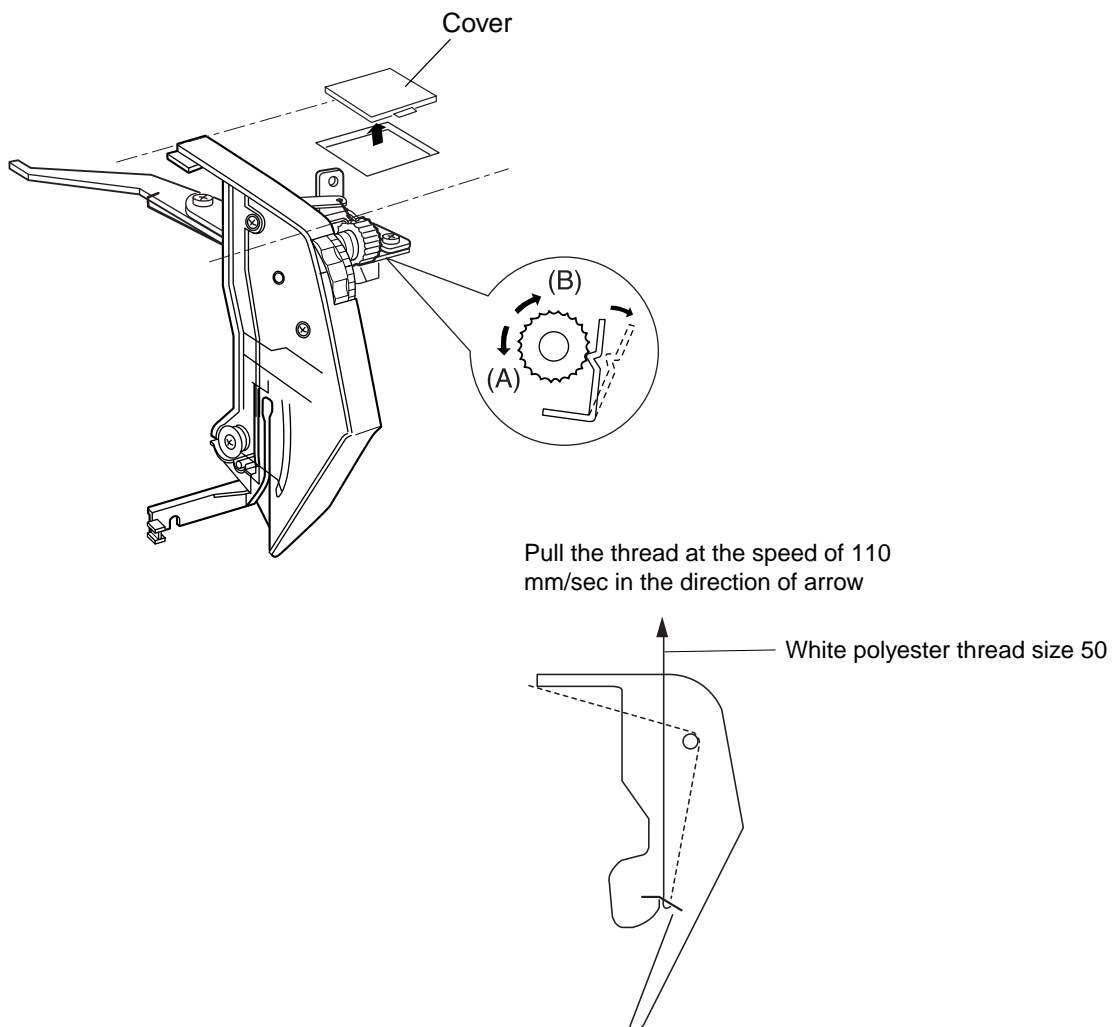
Top tension

The top tension should be between 65 and 80g when pulling the thread ① up in the direction of C.

* Use polyester sewing thread #50 (White).

* If it is not within the above limit, adjust as follows.

1. Set the tension dial "Auto".
2. Remove the cover.
3. Lower the presser foot.
 - If the top tension is too loose, turn the lead screw in the direction (A).
 - If the top tension is too tight, turn the lead screw in the direction (B).
4. Check the top tension and attach the cover.



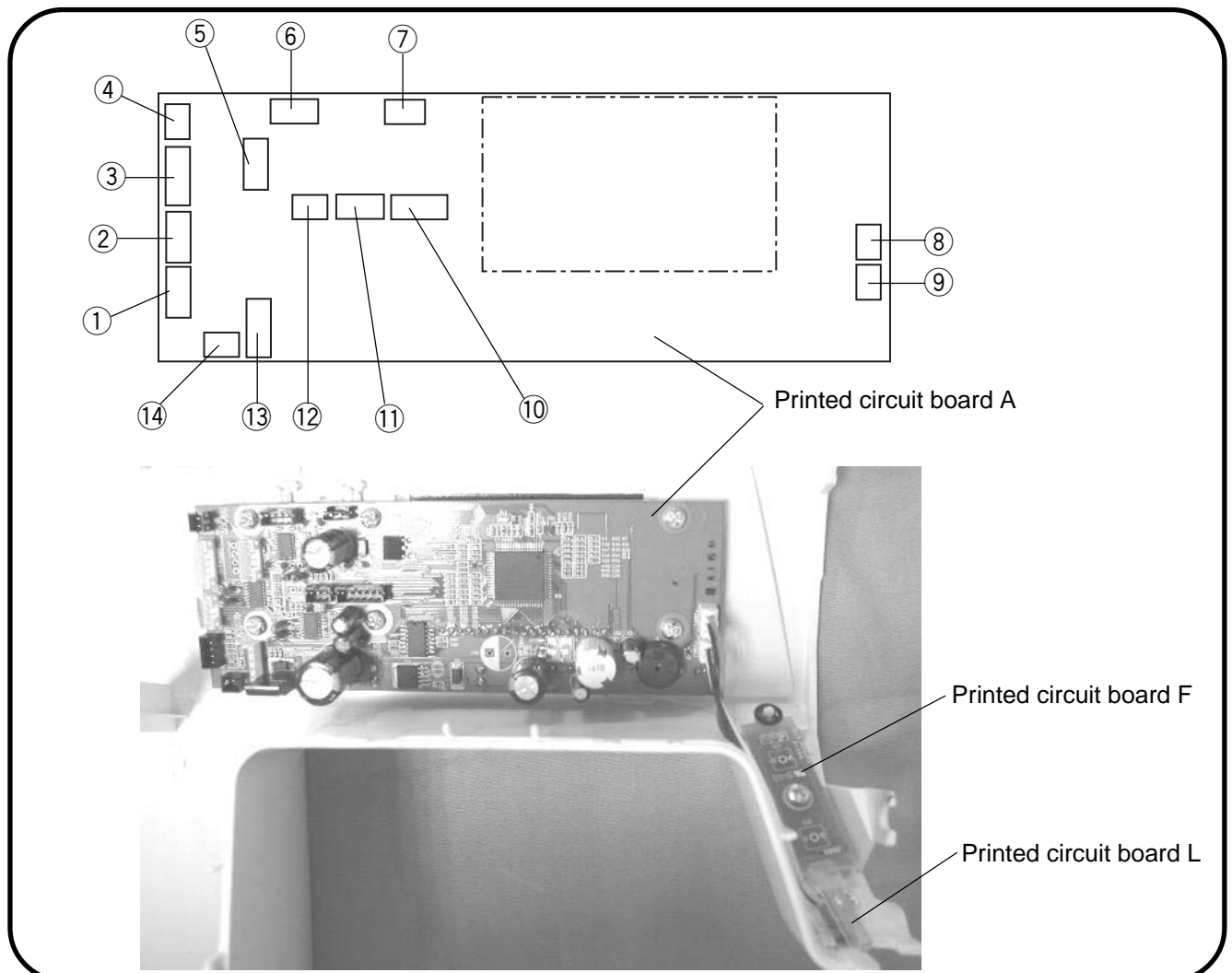
Replacing the Electronic Components

Circuit board-A Connection

NOTE:

Do not disconnect the connectors by pulling on cord.
To disconnect, grasp the connector, not the cord.

- | | | |
|---|-----------------------------------|--------------------------------------|
| ① Printed circuit board P (Black) | ⑥ Zigzag width motor (Green) | ⑪ Buttonhole sensor program (Red) |
| ② Feed motor (White) | ⑦ Solenoid | ⑫ Presser foot lifter switch (Green) |
| ③ Thread cutter motor (3160QDC exclusive) (White) | ⑧ Printed circuit board F (White) | ⑬ DC motor (White) |
| ④ Bobbin winding switch (Blue) | ⑨ Printed circuit board L (White) | ⑭ Controller (Black) |
| ⑤ Power switch (White) | ⑩ Program (Red) | |



Self-diagnostic Test

Preparation:

1. Turn the power switch off.
2. Move the bobbin winder spindle to the left.
3. Raise the feed dog.
4. Set the speed control lever to the left.
5. Remove the presser foot and raise the presser foot lifter.
6. Turn the hand wheel toward you to raise the needle to its highest position.

Notes:

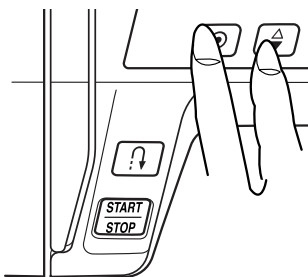
- Be careful: the sewing machine may start running in its own while in test mode.
- Turn off the power switch before replacing any parts.
- Repeat the diagnostic test until the problem has been resolved.
- You can skip steps in the diagnostic procedure and go directly to the test you want to perform.
(Enter self-diagnostic mode, then select the step number of the diagnostic test you require by pressing the start/stop button)

To begin:

Turn on the switch, if any of the following problems occur, take the recommended actions in the order they are shown.

1. The machine does not respond when the power switch is turned on:
 - Check each connector connection
 - Replace the machine socket
 - Replace the Switching regulator.
 - Replace the A-board
2. The sewing machine lamp does not light up:
 - Replace the light bulb
 - Replace the A-board

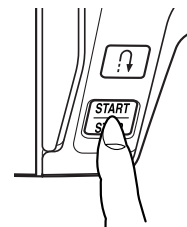
To enter self-diagnostic mode:



Turn the power switch on while simultaneously pressing needle up/down button and the locking stitch button.


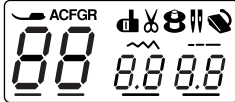
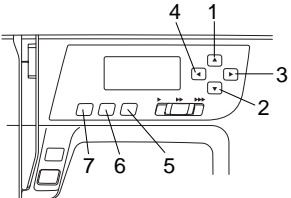
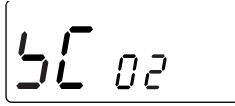
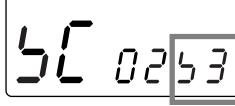

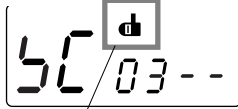
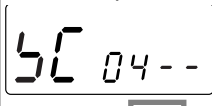
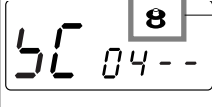


The LCD display will indicate "01".

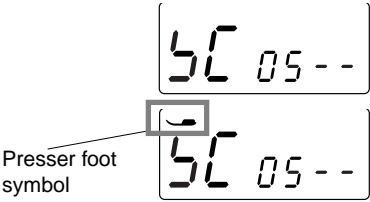

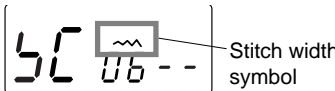
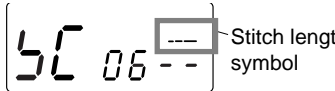

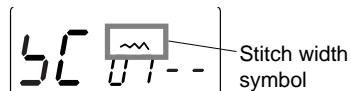



Press the start/stop button to enter the self-diagnostic mode.





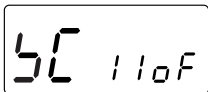
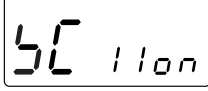
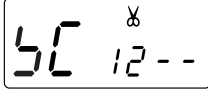
Self-diagnostic Test

Step and items to check	Procedure	Correct Condition	Defective Condition
01) Function of LCD, buzzer and lamp	<p>Turn on the power switch while simultaneously pressing the start/stop button and locking stitch button.</p> <p>Press the start/stop button.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>Sewing lamp and LCD backlight lits. LCD displays "01".</p>  <p>Buzzer sounds. LCD displays symbols and numbers in order. LCD repeats displaying after all symbols and numbers are shown.</p> 	<p>Sewing lamp does not lit. LCD backlight does not lit. LCD does not display "01". Buzzer does not sound. LCD does not turned on. LCD does not display any symbols or not in order.</p> <p>–REMEDY– Replace the circuit board A.</p>
02) Button	<p>Press buttons 1– 7.</p>  <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD displays "SC 02". Buzzer sounds when button is pressed. Button number is displayed when the button is pressed.</p>   <p>LCD displays "S3" when button 1 is pressed. LCD displays "S4" when button 2 is pressed. LCD displays "S5" when button 3 is pressed. LCD displays "S6" when button 4 is pressed. LCD displays "S7" when button 5 is pressed. LCD displays "S8" when button 6 is pressed. LCD displays "S9" when button 7 is pressed.</p>	<p>Buzzer does not sound. LCD does not display the number correctly.</p> <p>–REMEDY– Replace the circuit board A. Replace the circuit board F.</p>
03) Buttonhole Sensor	<p>Lower the buttonhole lever. Move the buttonhole lever back and forth.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD displays "SC 03". When the buttonhole lever is pulled, buzzer sounds and LCD displays BH symbol. When the buttonhole lever is pushed, buzzer sounds and LCD displays BH symbol.</p>   <p>BH symbol</p>	<p>Buzzer does not sound. BH symbol does not appear.</p> <p>–REMEDY– Replace the circuit board A. Replace the circuit board F.</p>
04) Bobbin winder switch	<p>Move the bobbin winder spindle to the right. Return it to the left.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD displays "SC 04". When the bobbin winder spindle is moved to the left, buzzer sounds. When the bobbin winder spindle is moved to the right, buzzer sounds and LCD displays the bobbin symbol.</p>   <p>Bobbin symbol</p>	<p>Buzzer does not sound. Bobbin symbol is not displayed.</p> <p>–REMEDY– Replace the circuit board A. Replace the circuit board F.</p>

Self-diagnostic Test

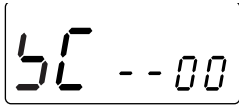
Step and items to check	Procedure	Correct Condition	Defective Condition
05) Presser foot lifter switch	Raise or lower the preser foot lifter. If the result is correct condition, press the start/stop button to proceed the next step. If the result is defective condition, press the reverse stitch button to proceed the next step.	LCD displays "SC 05". Buzzer sounds when presser foot lifter is raised or lowered. The presser foot symbol appears when the foot lifter is lowered. 	Buzzer does not sound. The presser foot symbol does not appear when the presser foot is lowered, or does not disappear when the presser foot is raised. -REMEDY- Replace the circuit board A. Replace the presser foot lifter switch. Adjust the presser foot lifter switch position.
06) Upper shaft positioning sensor	Turn the handwheel toward you. Lower the needle bar from its highest to its lowest position. Raise the needle bar from its lowest position to its highest position. If the result is correct condition, press the start/stop button to proceed the next step. If the result is defective condition, press the reverse stitch button to proceed the next step.	LCD displays "SC 06".  Turn the handwheel. LCD displays stitch width symbol when the needle bar is at zigzag phase.  LCD displays stitch length symbol when the needle bar is at feed phase. 	Buzzer does not sound. Stitch width or length symbol does not appear. -REMEDY- Replace the circuit board A. Replace the circuit board P.
07) Zigzag motor (Step motor) Feed motor	Turn the handwheel toward you. Lower the needle bar from its highest to its lowest position. Raise the needle bar from its lowest position to its highest position. If the result is correct condition, press the start/stop button to proceed the next step. If the result is defective condition, press the reverse stitch button to proceed the next step.	LCD displays "SC 07".  LCD displays stitch width symbol when the needle bar is at middle position. (Zigzag motor get default position.)  LCD displays stitch length symbol when feed motor gets default position.  Bobbin symbol	Zigzag motor does not get default position. -REMEDY- Replace the zigzag motor. Replace the circuit board A. Feed motor does not get default position. -REMEDY- Replace the feed motor. Replace the circuit board A.

Self-diagnostic Test

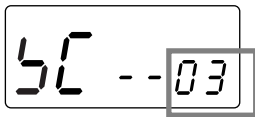
Step and items to check	Procedure	Correct Condition	Defective Condition
08) Foot control	<p>Attach the foot control to the sewing machine. Depress the foot control as far as it goes, then release it.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD displays "SC 08".</p>  <p>The foot control symbol appears when the foot control is attached.</p>  <p>Buzzer sounds when the foot control is deeply depressed. Buzzer sounds when the foot control is released.</p>	<p>The foot control symbol does not appear. Buzzer does not sound.</p> <p>–REMEDY– Replace the foot control. Replace the machine socket. Replace the circuit board A.</p>
09) Slide volume	<p>Shift the slide volume from left to right, then return to the left.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD displays "SC 09".</p>  <p>Buzzer sounds at right or left position.</p>	<p>Buzzer does not sound.</p> <p>–REMEDY– Replace the circuit board A.</p>
10) DC motor	<p>Press the needle up/down button.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD displays "SC 10".</p>  <p>Machine runs slow, then fast, and the needle bar stops at its highest position.</p>	<p>The machine motor does not start. The motor stops immediately. The motor runs unstable.</p> <p>–REMEDY– Replace the DC motor. Replace the circuit board A.</p>
11) Solenoid (Applicable for only model 3160QDC)	<p>Lower the presser foot. Press the needle up/down button.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD displays "SC 11".</p> <p>Press the needle up/down position button to display "on" or "of"(off). Thread tension disc opens while the LCD displays "on".</p>  	<p>The thread tension disc does not open.</p> <p>–REMEDY– Replace the solenoid Replace the circuit board A.</p>
12) Thread cutter motor, Thread cutter button (Applicable for only model 3160QDC)	<p>Turn the handwheel toward you to raise the needle bar at its highest position. Press the needle up/down button.</p> <p>If the result is correct condition, press the start/stop button to proceed the next step.</p> <p>If the result is defective condition, press the reverse stitch button to proceed the next step.</p>	<p>LCD display "12". Thread cutter motor will be initialized. Press the thread cutter button. The thread cutter icon will appear and blink as long as the thread cutter button is pressed.</p> 	<p>The thread cutter motor does not work. Thread cutter symbol does not appear when the thread cutter button is pressed. Thread cutter symbol appears when the thread cutter button is not pressed.</p> <p>–REMEDY– Replace the thread cutter motor. Replace the thread cutter switch. Replace the circuit board A.</p>

Self-diagnostic Test

Buzzer sounds after few seconds when the self-diagnostic test has been finished. The test result has been determined.



Correct:
Buzzer sounds and LCD displays "00"



Defective:
Caution buzzer sounds and LCD displays the defective part number. Refer to page 19-21 and fix the defective part.

The defective part number. See page 19-21 "Steps and items" section.

Turn the power switch off when the self-diagnostic test is finished.

To display the version of the program

Turn the power switch on while simultaneously pressing needle up/down button and the locking stitch button.

The LCD display will indicate "01".

Press the cursor button "▲" twice to display the "03".

Press the start/stop button to display the version of the program.

Replacing the Electronic Components

Circuit board-A (1)

To remove:

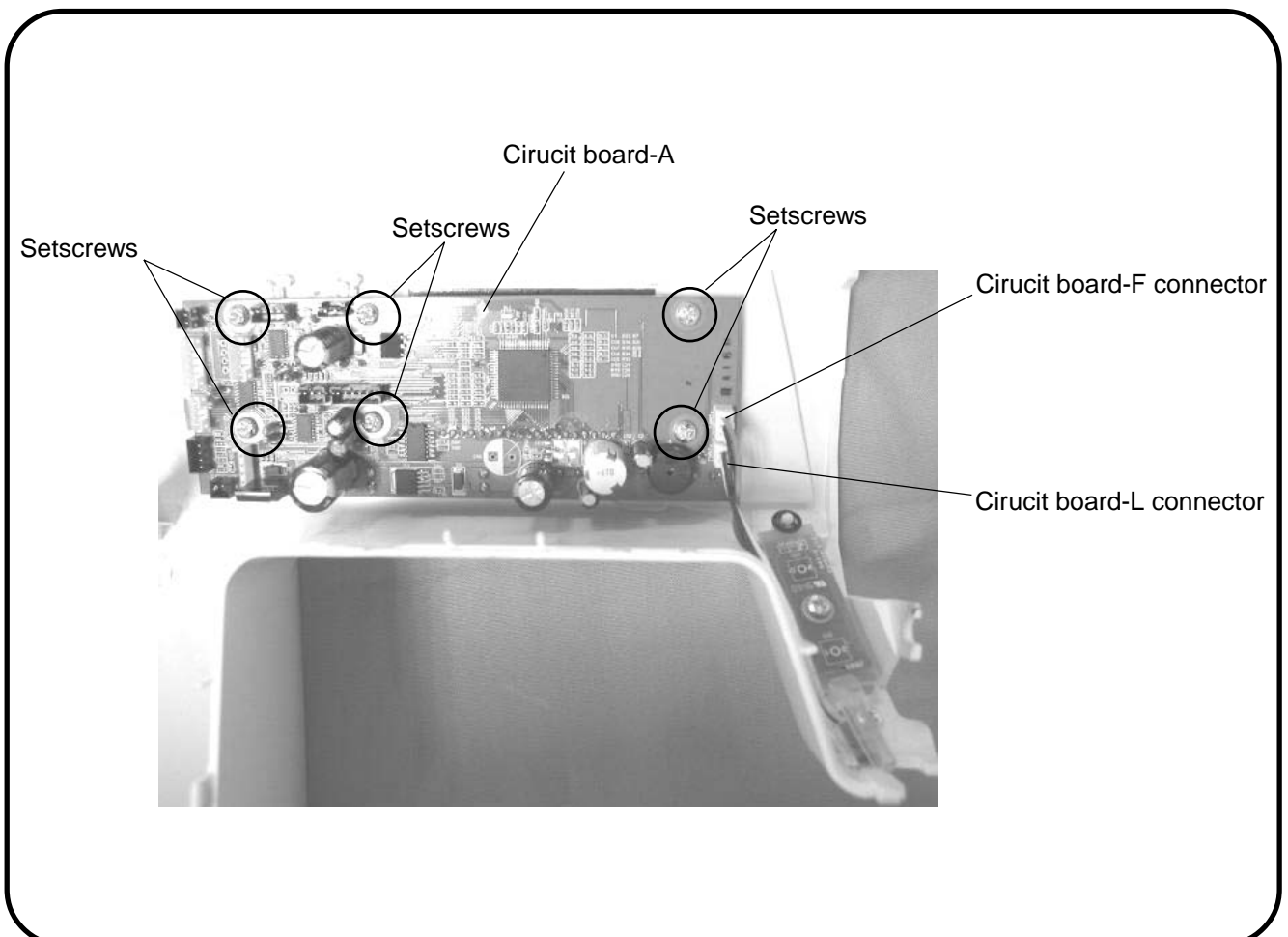
1. Remove the front cover. (See pages 6 – 7)
2. Pull out connectors from the circuit board-A.
3. Remove the screws (6pcs.) and the circuit board-A.

To attach:

1. Follow the above procedures in reverse.

NOTE:

Do not disconnect the connectors by pulling on cord.
To disconnect, grasp the connector, not the cord.



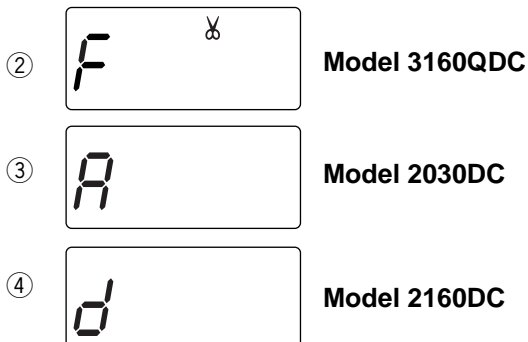
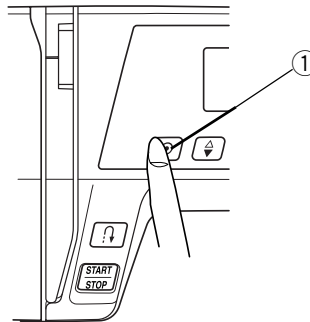
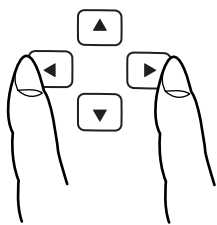
Replacing the Electronic Components

Circuit board-A(2)

Setting the Circuit board A

After install the circuit board A, select the appropriate setting of the circuit board A.

1. Turn the power switch on while simultaneously pressing left cursor button “◀” and the right cursor button “▶” button.
2. After the buzzer sounds, press the locking stitch button ① within 2.5 seconds.
The LCD displays “F”, “A” or “d”.
3. Press the locking stitch button to select the appropriate setting of the circuit board A:
 - Model 3160QDC: Press locking stitch button to select “F” ②.
 - Model 2030DC, XL601: Press locking stitch button to select “A” ③.
 - Model 2160QDC, 2160DC, DXL603: Press locking stitch button to select “d” ④.
4. Press the start/stop button to determine the setting.
A long buzzer sounds when the setting correctly finished.
5. Turn the power switch off.



Replacing the Electronic Components

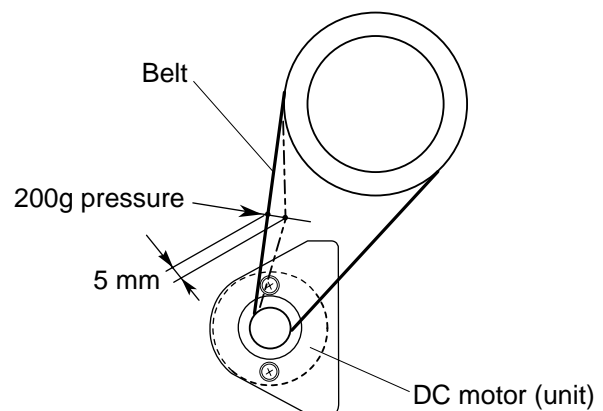
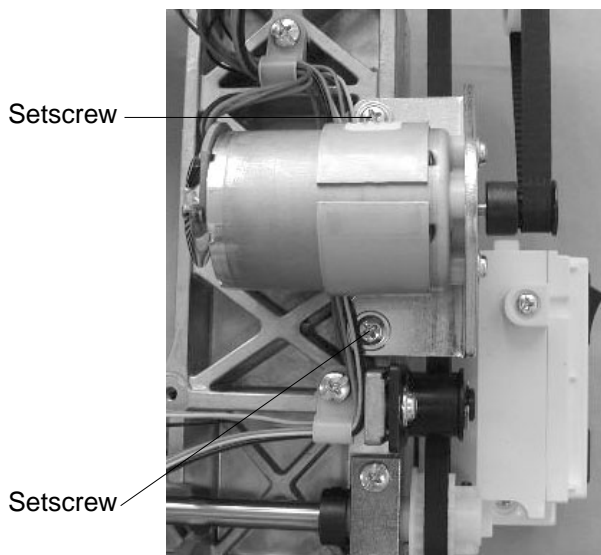
Driving motor

To remove:

1. Remove the front cover.
2. Remove the setscrews (2pcs.) and the driving motor and the belt.

To attach:

1. Install the driving motor and the motor belt. Tighten them with setscrews (2pcs.) lightly.
2. Move the motor up or down to adjust the motor belt tension.
The belt should deflect 5 mm when applying 200 grams of load to the middle of the belt.
Tighten the setscrews (2pcs.) firmly.
3. Attach the rear cover and the front cover.



Replacing the Electronic Components

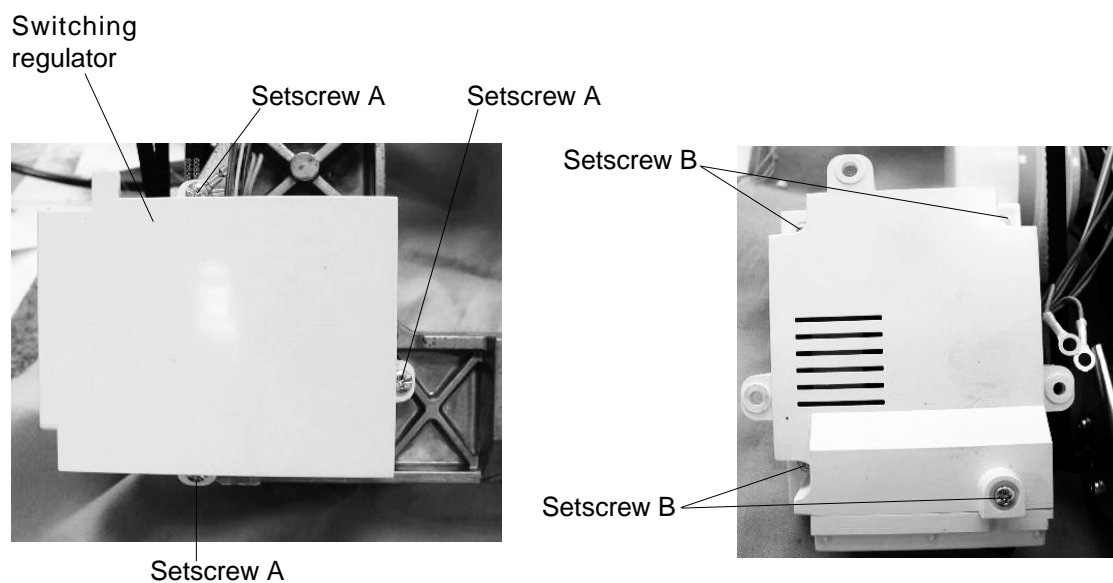
Switching regulator unit

To remove:

1. Remove the front cover and the rear cover.
2. Remove the setscrews A (3 pcs.) and the switching regulator.
3. Remove the setscrews B (4 pcs.).

To attach:

4. Follow the above procedures in reverse.



Mechanical Adjustment

Adjusting buttonhole lever position

To adjust the buttonhole lever guide:

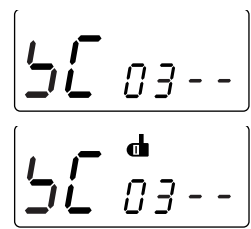
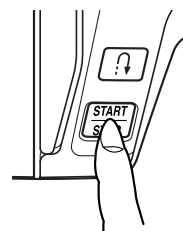
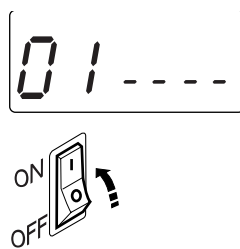
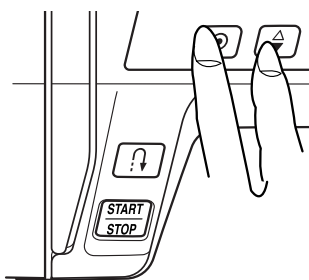
1. Enter the buttonhole sensor adjusting mode. (See below. The LCD should display BH symbol.)
2. Remove the face cover (see page 4) and loosen the setscrew (A) ①.
3. Move the buttonhole lever guide ② so the BH symbol disappears when the buttonhole lever ④ is lowered. Tighten the setscrew .

To adjust the buttonhole sensor position.

4. Attach the buttonhole foot (R) ③.
5. Lower the buttonhole lever ④ to its lowest position and open a 1.6 mm gap between the slider and the buttonhole foot.
6. Turn the adjusting screw ⑤ to the left until the LCD display BH symbol.
7. Next, turn the adjusting screw to the right until the BH symbol disappears.
8. Turn off the power switch.
9. Attach the face cover.

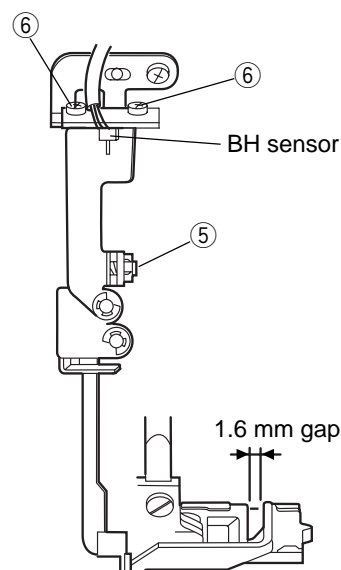
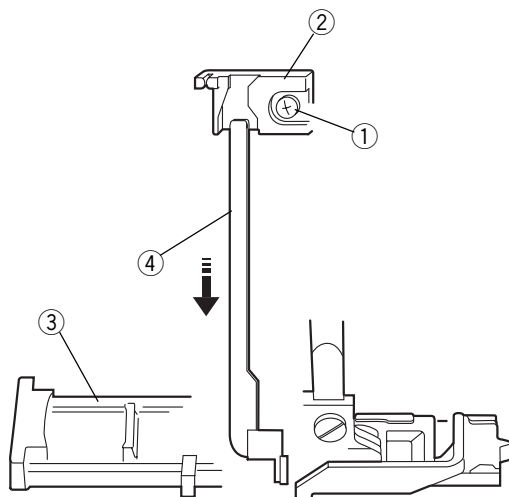
Note: If there is any lint or dust in the buttonhole sensor slit, loosen the 2 screws (B) ⑥ and clean it out with a swab.

To enter adjusting mode



Turn the power switch ON while pressing the needle up/down button and locking stitch button simultaneously.

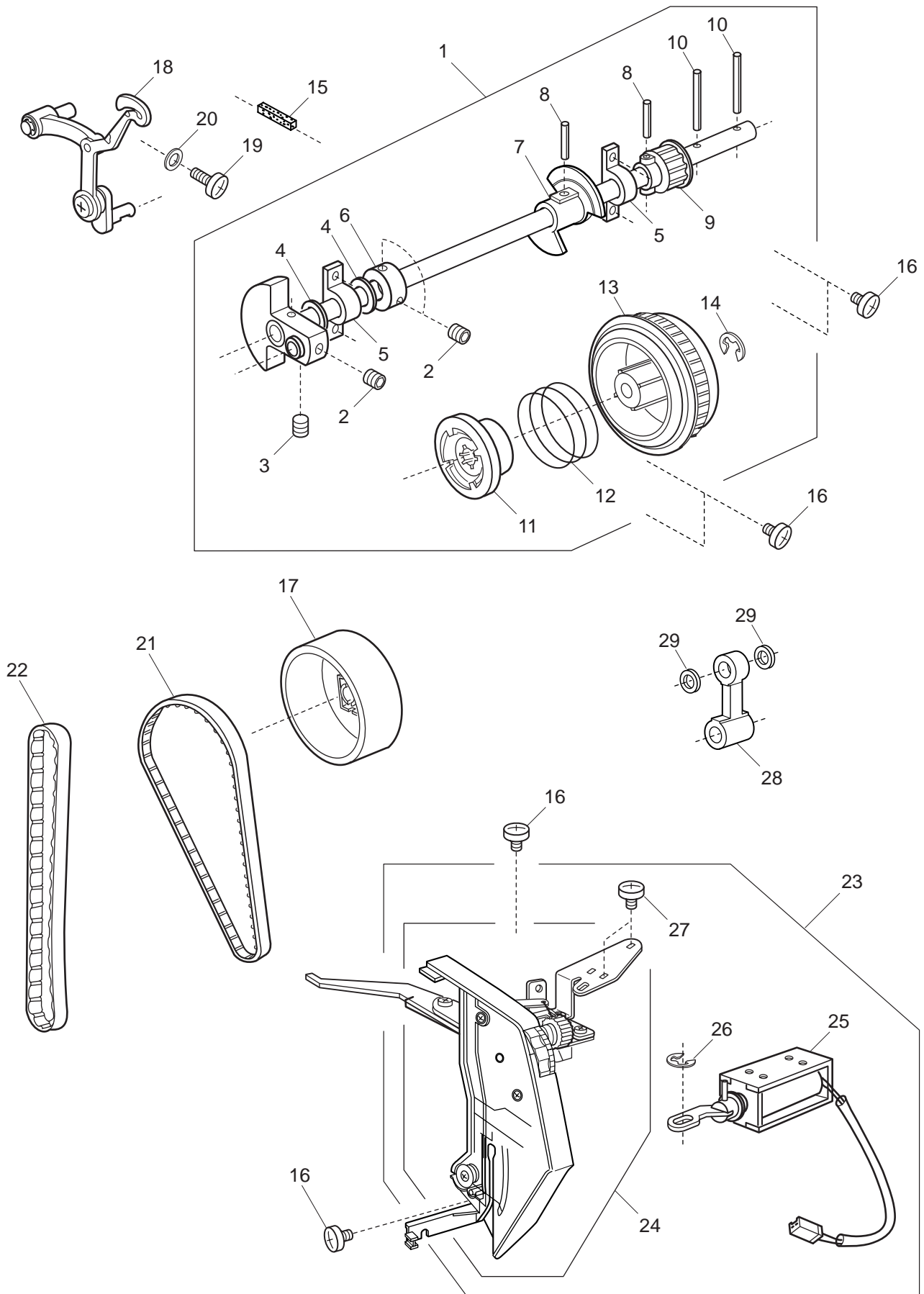
Press the start/stop button to select the step "SC 03".



PARTS LIST

MODEL:3160QDC

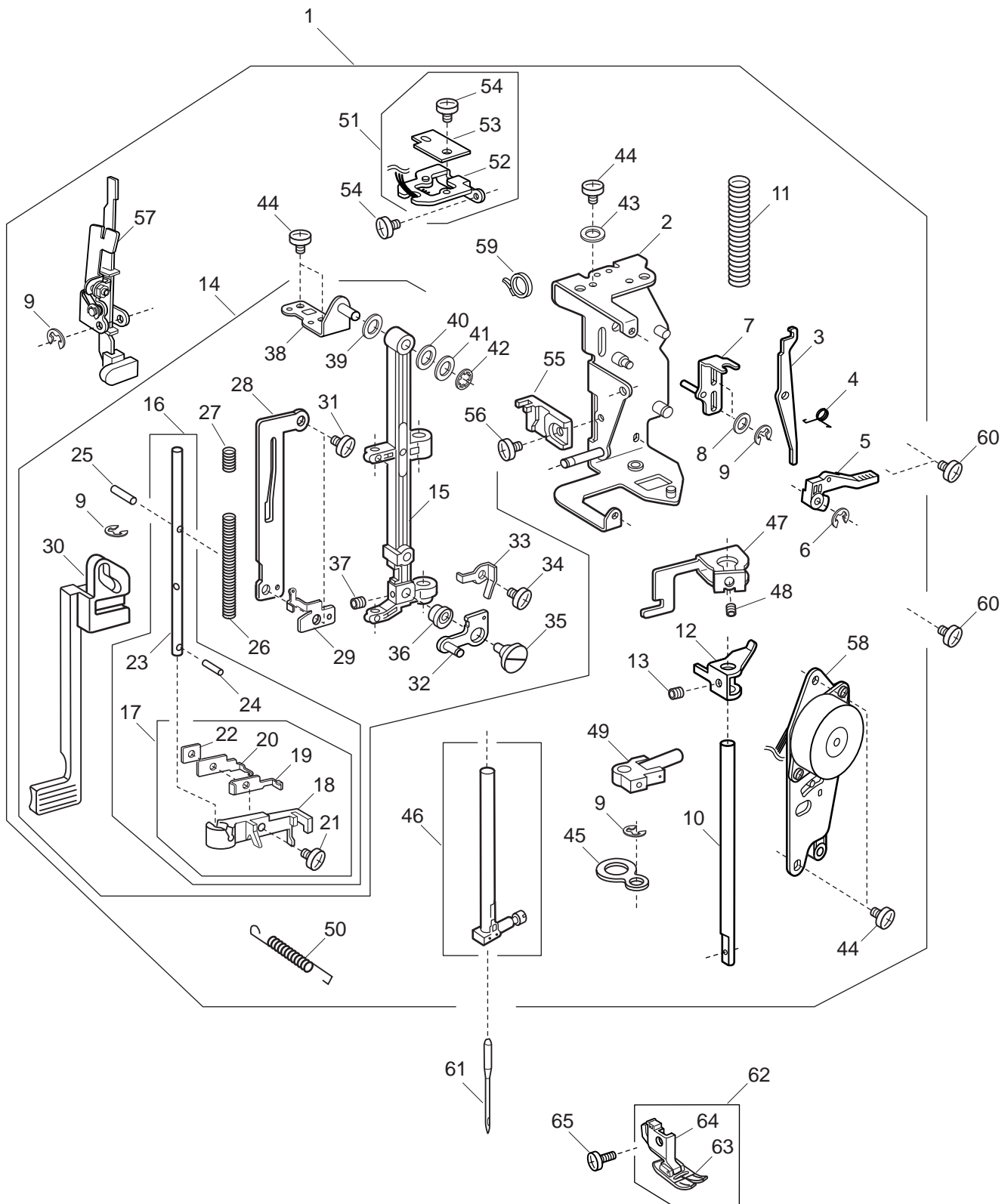
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808601005	Upper shaft (unit)
2	000111201	Hexagonal socket screw 4x4
3	000112800	Hexagonal socket screw 4x6
4	000036201	Washer FT80
5	508054008	Shaft fixing metal
6	820166001	Lower shaft ring
7	808003001	Upper shaft shielding plate
8	000004200	Spring pin 3x18
9	508021006	Upper shaft gear
10	000024206	Spring pin 3x30
11	502064003	Clutch ring
12	661024007	Clutch spring
13	508055009	Belt wheel
14	000002806	Snap ring E-6
15	731312005	Felt
16	000081005	Setscrew 4x8
17	508056000	Handwheel
18	508634101	Thread take-up lever (unit)
19	000103509	Setscrew 4x10
20	000072302	Washer 4
21	808021005	Timing belt
22	808037004	Syncro belt
23	808616003	Thread tension (unit)
24	808501004	Thread tension (unit)
25	808604008	Solenoid (unit)
26	000002105	Snap ring E-3
27	000103808	Setscrew 3x5
28	808005003	Needle bar crank rod
29	000036005	Washer FT60

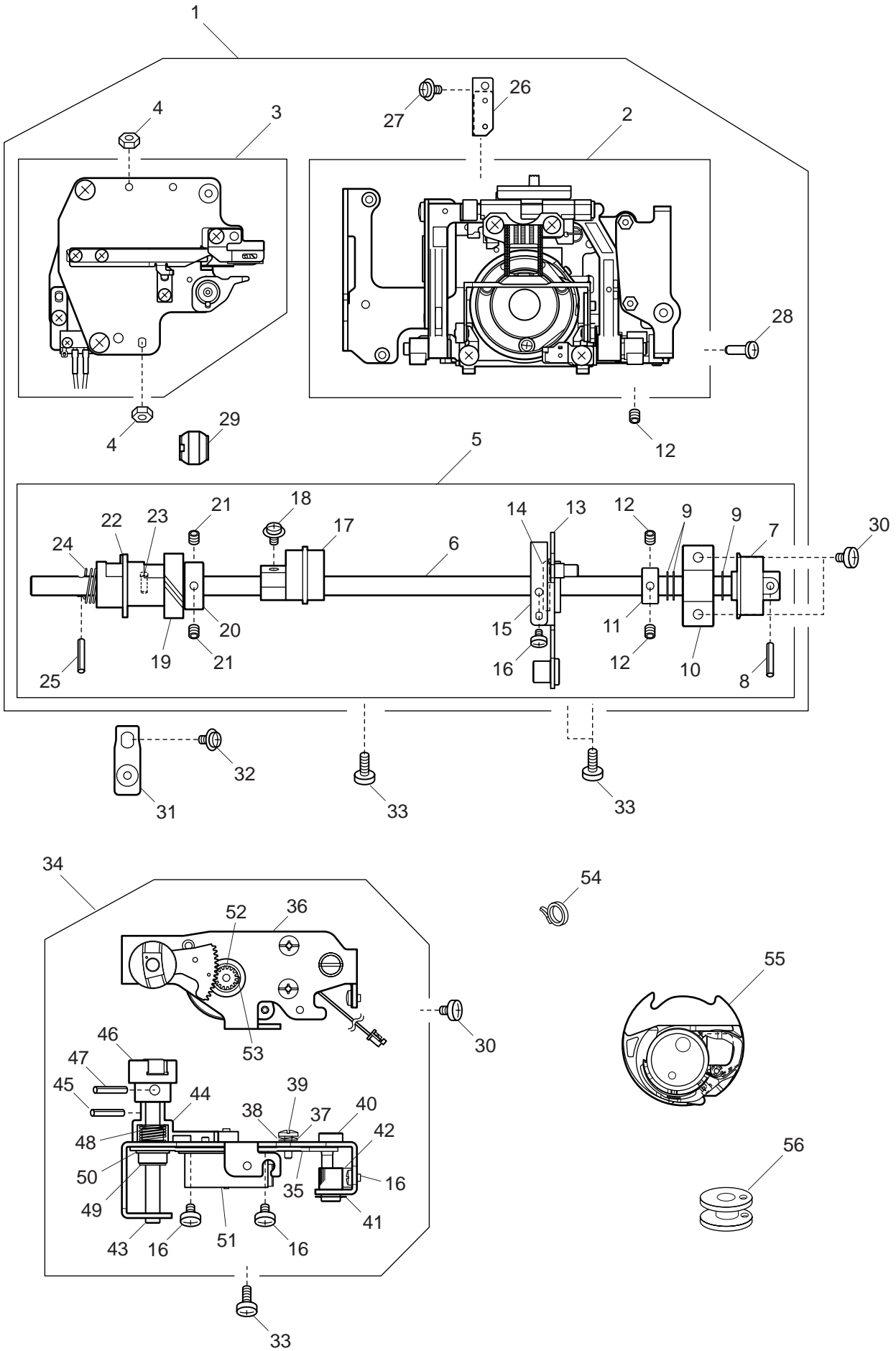
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808640006	Presser bar base plate (unit)
2	808006200	Presser bar base plate
3	808007005	Thread tension release lever
4	503041007	Thread tension release spring
5	502024001	Presser foot lifter
6	000001609	Snap ring E-5
7	808076005	Presser bar spring adjusting plate
8	000072508	Washer 4
9	000002105	Snap ring E-3
10	508002104	Presser bar
11	808081003	Presser bar spring
12	508039007	Presser bar supporter
13	000111500	Hexagonal socket screw 4x8
14	808603007	Needle bar supporter (unit)
15	808008006	Needle bar supporter
16	842637006	Threader shaft (unit)
17	842638007	Threader plate (unit)
18	755064106	Threader guard plate
19	842088006	Thread retension plate
20	844095002	Threader plate
21	755096004	Setscrew
22	755095003	Nut
23	840036025	Threader shaft
24	000003508	Spring pin 2x8
25	000125105	Guide pin E-2x16-CH
26	842090001	Threader shaft spring
27	842096007	Threader lever spring
28	842091002	Threader guide plate
29	844036027	Threader lever plate
30	842092003	Threader lever
31	000078319	Setscrew 3x6
32	808015006	Zigzag width rod
33	827088009	Zigzag width rod spring
34	820373003	Setscrew 2x3
35	678084007	Eccentric pin
36	808074003	Washer
37	000111902	Hexagonal socket screw 3x4
38	808009007	Supporter adjusting plate
39	000036500	Washer FT60
40	673022002	Spring washer
41	000070609	Washer 6
42	000013903	Snap ring CS-5
43	000072003	Washer 5
44	000101404	Setscrew 4x6
45	808010001	Supporter guide plate
46	508607105	Needle bar (unit)
47	808011002	Threader position set plate
48	000177205	Hexagonal socket screw 4x4
49	508509003	Needle bar connecting stud (unit)
50	844038018	Needle bar supporter spring
51	808606000	Buttonhole sensor (unit)
52	845002005	Sensor set plate
53	843502602	Printed circuit board E1 (unit)
54	000101105	Setscrew 3x4
55	830057021	Buttonhole lever guide
56	000103808	Setscrew 3x5
57	843625004	Buttonhole lever (unit)
58	808605009	Zigzag width motor (unit)
59	000053008	Cord binder
60	000081005	Setscrew 4x8
61	102408089	Needle HA1-14
62	660509008	Presser foot (unit)
63	832523007	Zigzag foot
64	660806008	Presser foot holder
65	660106001	Setscrew

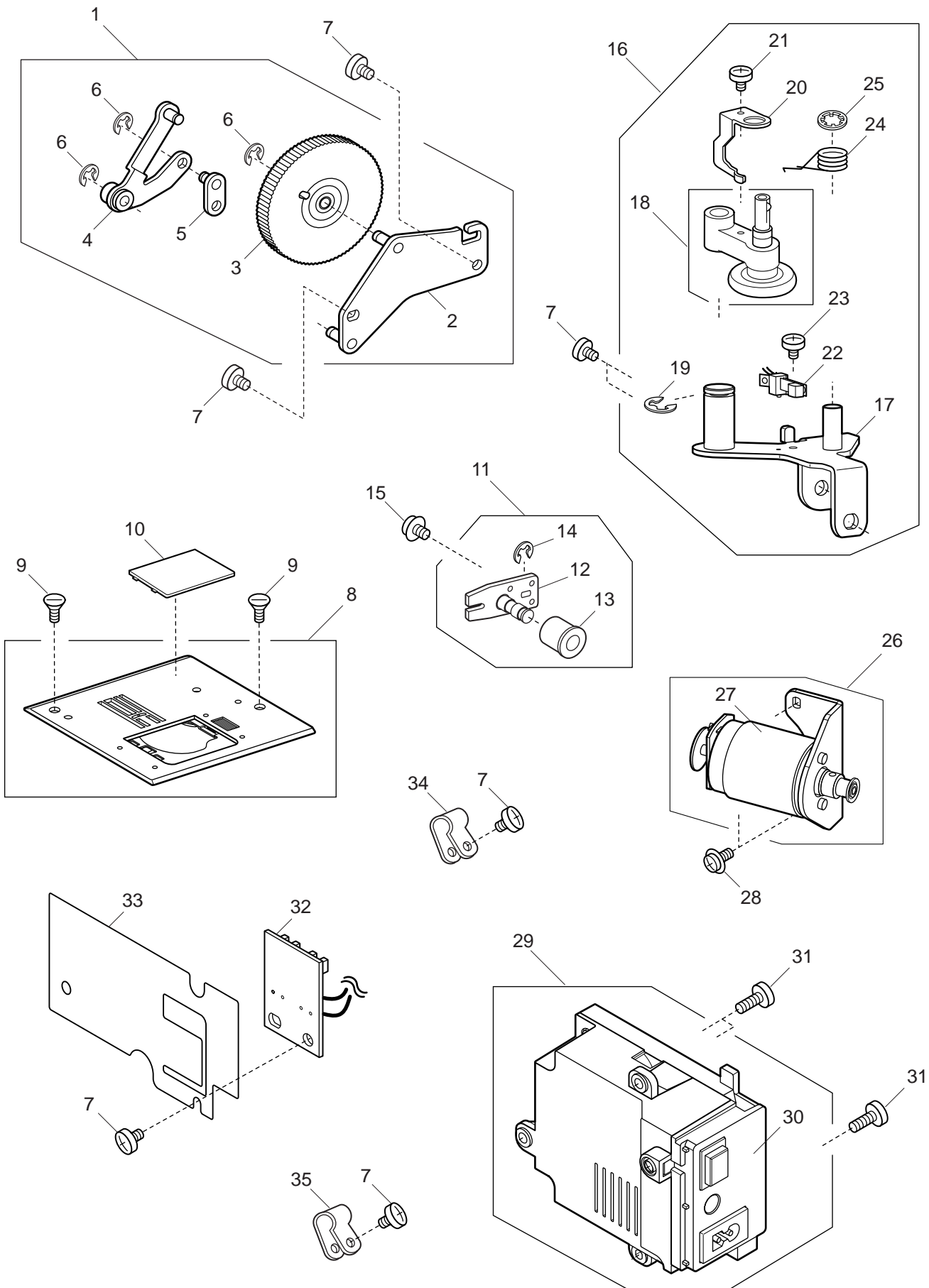
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808631004	Hook race (whole unit)
2	808607001	Hook race (unit)
3	808610007	Thread cutter (unit)
4	000063104	Nut 3-2-5.5
5	808612009	Lower shaft (unit)
6	808027104	Lower shaft
7	508021006	Upper shaft gear
8	000004200	Spring pin 3x18
9	000038502	Washer
10	508054008	Shaft fixing metal
11	820166001	Lower shaft ring
12	000111201	Hexagonal socket screw 4x4
13	808028002	Feed fork
14	751150005	Actuator plate
15	808026000	Feed fork spring
16	000101105	Setscrew 3x4
17	808029003	Feed cam
18	000115009	Setscrew TP 3x8
19	508023008	Lower gear
20	508020005	Ring
21	000111108	Hexagonal socket screw 4x6
22	846103000	Feed lifting cam
23	820161006	Feed lifting pin
24	808075004	Feed lifting cam spring
25	000022802	Spring pin 2x12
26	825515004	Feed base plate (unit)
27	825237009	Setscrew
28	820172000	Pin
29	732034003	Lower shaft bushing
30	000081005	Setscrew 4x8
31	808098003	Lower shaft bushing set plate
32	000115607	Setscrew TP 4x8
33	000101703	Setscrew 4x12
34	808613000	Feed motor (unit)
35	808030007	Feed motor set plate
36	808031008	Feed regulator shaft supporter
37	000071013	Washer 4
38	000116103	Spring washer 4
39	823038002	Setscrew
40	808033000	Feed regulator shaft
41	000014409	Snap ring CS-8
42	808096001	Feed regulator shaft spring
43	808034001	Feed regulator shaft
44	808035002	Feed regulator
45	000004004	Spring pin 2.5x10
46	625508204	Feed regulator (unit)
47	000004107	Spring pin 3x14
48	808094009	Feed regulator spring
49	000001609	Snap ring E-5
50	000013501	Snap ring CS-12
51	808509105	Stepping motor (unit)
52	808013004	Gear
53	000110406	Hexagonal socket screw 3x4 (WP)
54	000053008	Cord binder
55	846652009	Bobbin holder (unit)
56	102261000	Bobbin

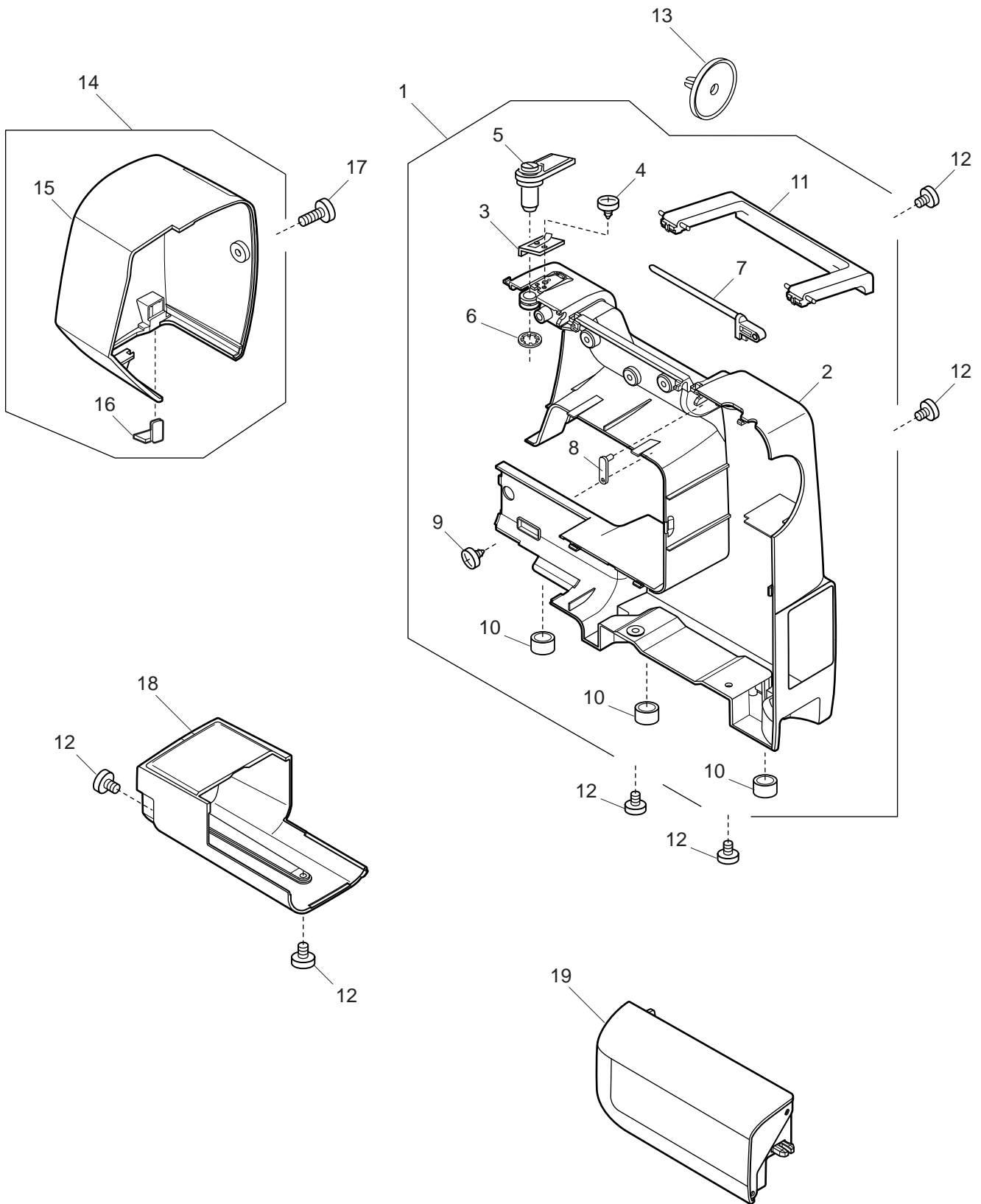
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808618005	Presser foot pressure adjustment (unit)
2	808077006	Presser foot pressure adjusting set plate
3	808078100	Presser foot pressure dial
4	808079008	Adjusting arm 1
5	808080002	Adjusting arm 2
6	000002105	Snap ring E-3
7	000081005	Setscrew 4x8
8	860544104	Needle plate (unit)
9	681009101	Setscrew
10	846271103	Hook cover plate
11	808614001	Idler (unit)
12	808038005	Idler set plate
13	625217100	Idler
14	000002806	Snap ring E-6
15	000115607	Setscrew TP 4x8
16	808615002	Bobbin winder (unit)
17	808039006	Bobbin winder set plate
18	508507001	Bobbin winder arm (unit)
19	000001609	Snap ring E-5
20	508111004	Clutch lever
21	000120203	Setscrew 3x8 (B)
22	856512100	Reef switch (unit)
23	000081706	Setscrew 2.5x5
24	808040000	Spring
25	000013903	Snap ring CS-5
26	808617004	DC motor (unit)
27	808502005	DC motor (unit)
28	000115700	Setscrew TP 4x10
29	808639002	Switching regulator (unit)
30	808525004	Switching regulator (unit)
31	000103509	Setscrew 4x10
32	808504007	Printed circuit board P (unit)
33	808093008	Cord guide
34	000188209	Nylon clip ACC-1.5
35	000188405	Nylon clip ACC-2

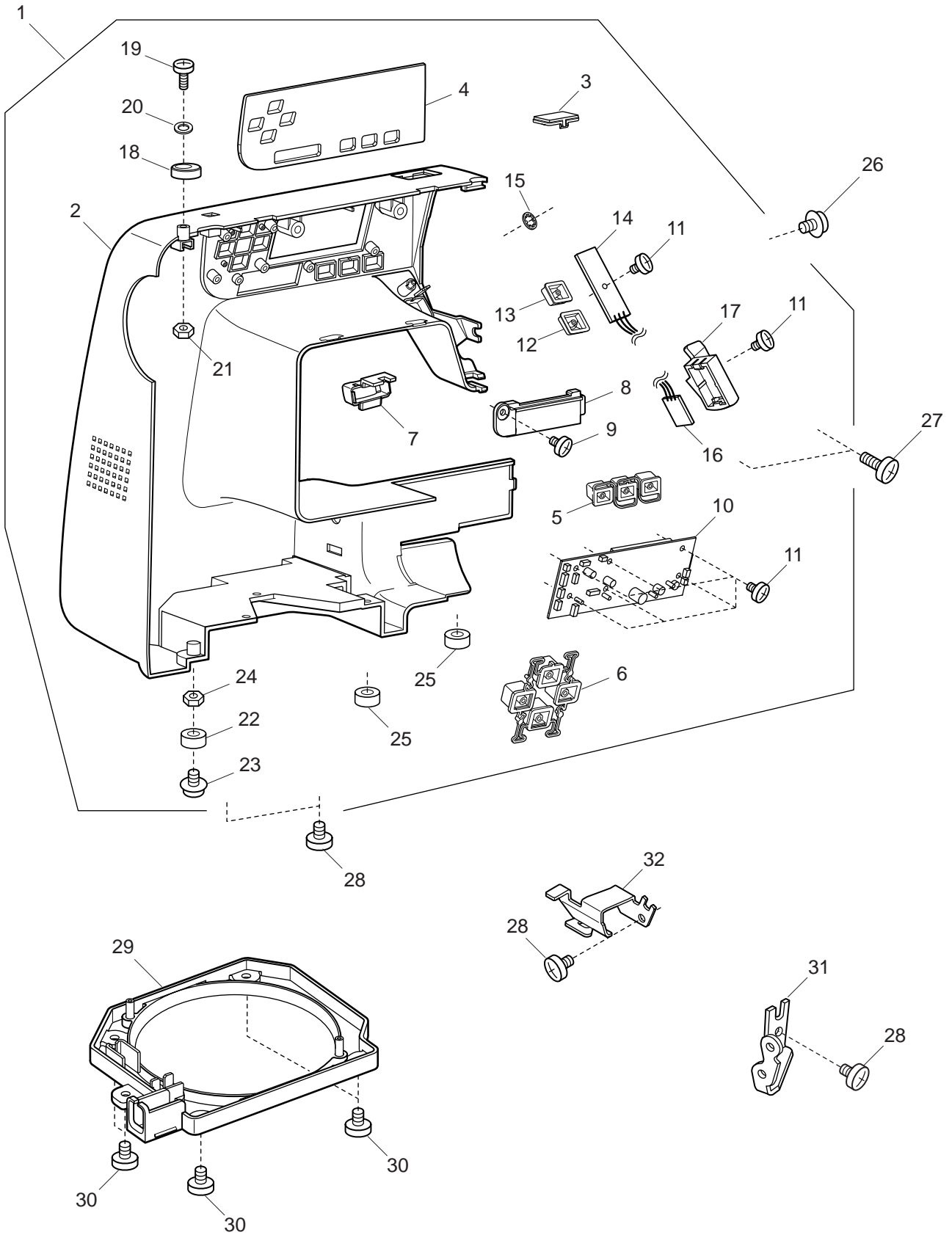
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808619006	Rear cover (unit)
2	808050106	Rear cover
3	827503108	Top cover thread guide (unit)
4	000162001	Setscrew 2.6x5
5	650503403	Thread guide (unit)
6	000014409	Snap ring CS-8
7	502007008	Spool pin
8	502008009	Spool pin support plate
9	000120203	Setscrew 3x8 (B)
10	739064003	Bed rubber cushion
11	502009000	Carrying handle
12	000081005	Setscrew 4x8
13	822020503	Spool holder
14	808622105	Face plate (unit)
15	808060202	Face plate
16	840602006	Thread cutter (unit)
17	000104108	Setscrew 4x20
18	808061007	Free arm cover
19	808508001	Extension table (unit)

PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808620000	Front cover (unit)
2	808051303	Front cover
3	808103002	Front cover lid
4	808052108	Panel
5	808053109	Button 1
6	808054100	Button 2
7	808055008	Slide volume
8	808056102	Slide volume set plate
9	000160700	Setscrew 2.6x6 (B)
10	808505101	Printed circuit board A (unit)
11	000120203	Setscrew 3x8 (B)
12	808058104	Start/stop button
13	808070102	Button 4
14	808507000	Printed circuit board F (unit)
15	000014306	Snap ring CS-3
16	808506009	Printed circuit board L (unit)
17	808057000	Lamp holder
18	735016307	Bobbin winder stopper
19	000101828	Setscrew 4x16
20	000071013	Washer
21	000061205	Nut 4-3-7
22	639005003	Rubber foot
23	000201405	Setscrew TP 4x16
24	000160102	Adjustable lock nut 4
25	739064003	Bed rubber cushion
26	000115205	Setscrew TP 4x6
27	000160401	Setscrew 4x16 (B)
28	000081005	Setscrew 4x8
29	808059105	Bed cover
30	000149312	Setscrew 3x8
31	639080002	Front cover set plate
32	808016007	Arm thread guide

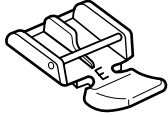
PARTS LIST

1

2



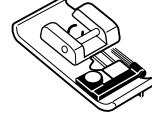
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4



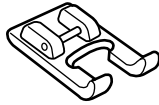
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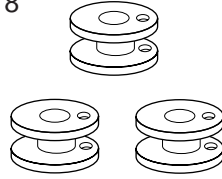
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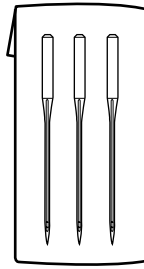
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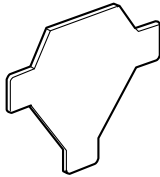
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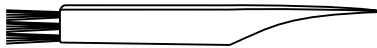
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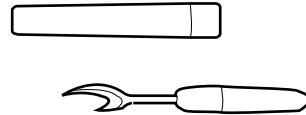
10



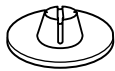
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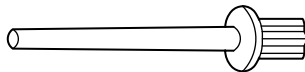
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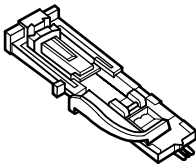
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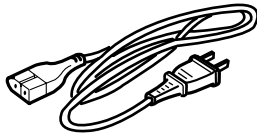
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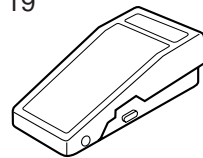
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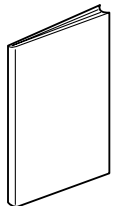
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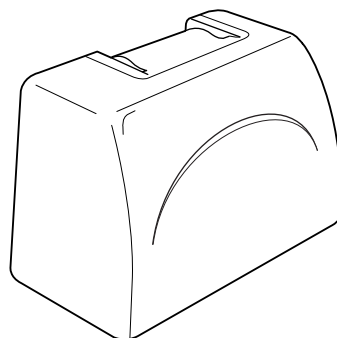
19



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PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808870100	Attachment (unit)
2	822804118	Satin foot
3	829801002	Zipper foot
4	825817009	Blind hem foot
5	822801001	Overedge foot
6	200008037	1/4" seam foot
7	832427103	Satin stitch foot
8	102261000	Bobbin
9	639804000	Assorted needle set
10	653802002	Screw key
11	802424004	Lint brush
12	647808009	Seam ripper (Buttonhole opener)
13	822019509	Spool holder
14	829803004	Spool stand
15	625031500	Spool pin
16	102403109	Felt
17	753801004	BH foot
18	856519004	Power supply cord (U.S.A.)
	830314018	Power supply cord (Australia)
	830335004	Power supply cord (Continental Europe)
	830377008	Power supply cord (UK)
19	C-1036	Foot control
20	808800006	Instruction book (English)
	808800017	Instruction book (French)
	808800028	Instruction book (Dutch)
	808800039	Instruction book (German)
	808800040	Instruction book (Spanish)
	808800051	Instruction book (Italian)
	808800062	Instruction book (Russian)
	808808073	Instruction book (Swedish)
	808800084	Instruction book (Norwegian)
	808800095	Instruction book (Danish)
21	484701000	Cover