

**SERVICE MANUAL
&
PARTS LIST**

**MODEL: Dream Maker 120
(Third specification)**

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WHAT TO DO WHEN

CONDITION	CAUSE	HOW TO FIX	REFERENCE
1. Skipping Stitches	<ol style="list-style-type: none"> 1. Needle is not inserted properly. 2. Needle is bent or worn. 3. Incorrectly threaded. 4. Needle or thread are inappropriate for the fabric being sewn. 5. Sewing on stretch fabric. 6. Inappropriate needle bar height. 7. Inappropriate needle to hook timing. 8. Inappropriate needle to hook clearance. 	<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 #11 blue tip needle.</p> <p>See mechanical adjustment "Adjustment of 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>
2. Fabric not moving	<ol style="list-style-type: none"> 1. Incorrect feed dog height. 2. Feed dog is in down position. 3. Thread on bottom side of fabric is jammed up. 	<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>P. 14</p>

WHAT TO DO WHEN

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>	P. 16
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 breaks	<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 tip of the rotary hook".</p> <p>Guide the fabric gently while sewing.</p>	<p>P. 10</p> <p>P. 13</p>

WHAT TO DO WHEN

CONDITION	CAUSE	HOW TO FIX	REFERENCE
6. Noisy operation	<ol style="list-style-type: none"> 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. 	<p>Eliminate the backlash.</p> <p>Eliminate the looseness.</p> <p>See part removal and replacement "Driving motor (DC motor)".</p> <p>Oil all moving parts.</p> <p>Eliminate the looseness.</p>	P. 28
7. Deformation pattern	<ol style="list-style-type: none"> 1. Inappropriate feed balance. 2. Top tension is too strong. 	<p>Adjust the feed balancing screw.</p> <p>See mechanical adjustment on "Top tension".</p>	<p>P. 17</p> <p>P. 16</p>

CHANGING EXTERNAL PARTS

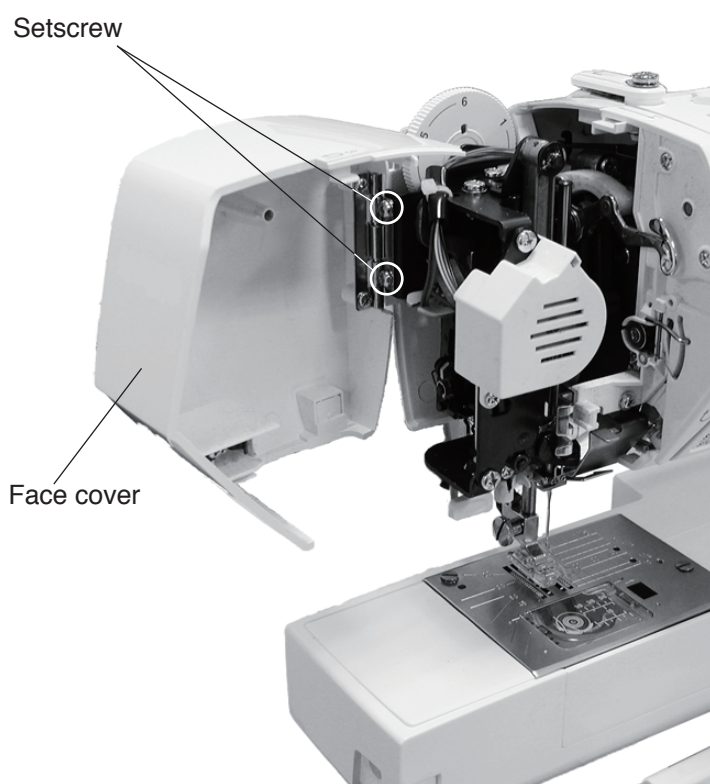
FACE COVER

To remove:

1. Remove the setscrews (2 pcs.).
Remove the face cover.

To attach:

2. Follow the above procedures in reverse.



CHANGING EXTERNAL PARTS

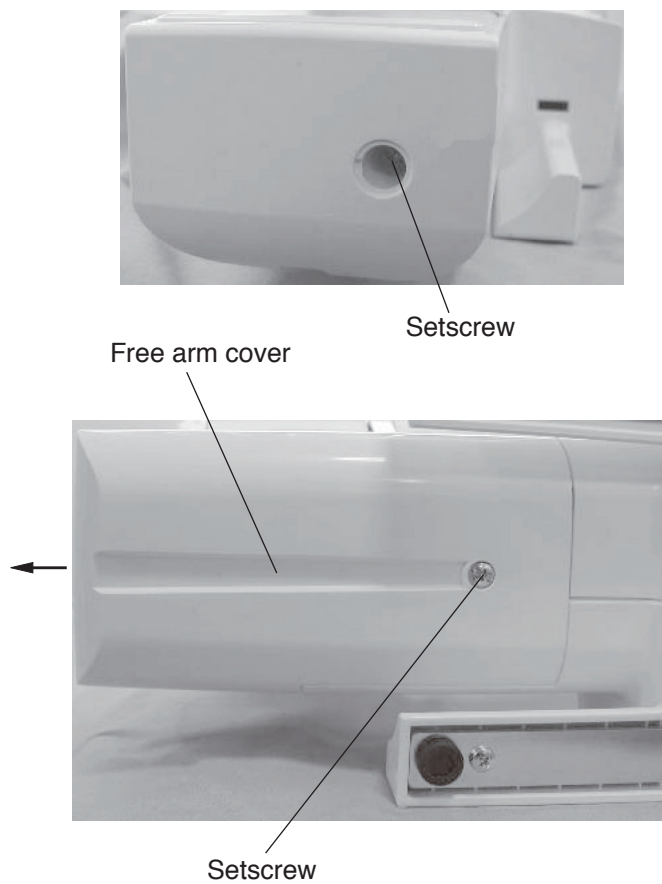
FREE ARM COVER

To remove:

1. Remove the extension table.
Loosen the setscrews (2 pcs.) and move the free arm cover to the left.
Remove the free arm cover.

To attach:

2. Follow the above procedures in reverse.

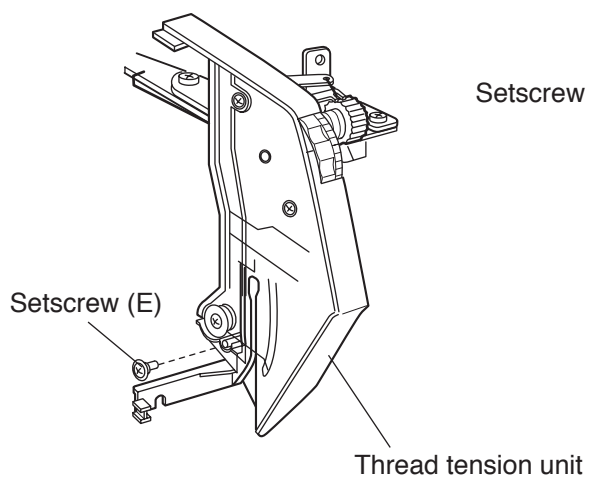
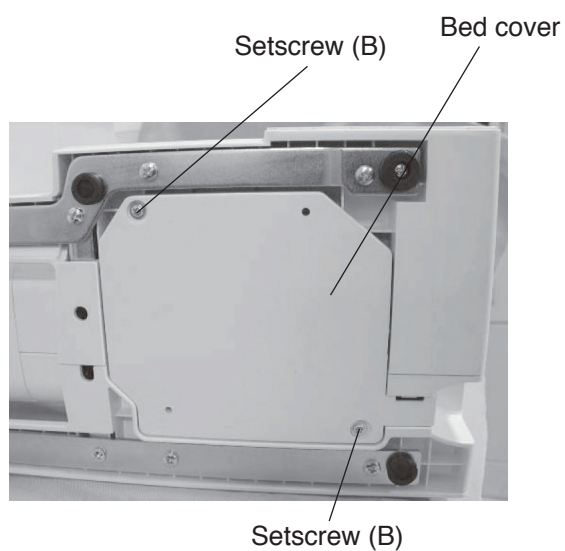
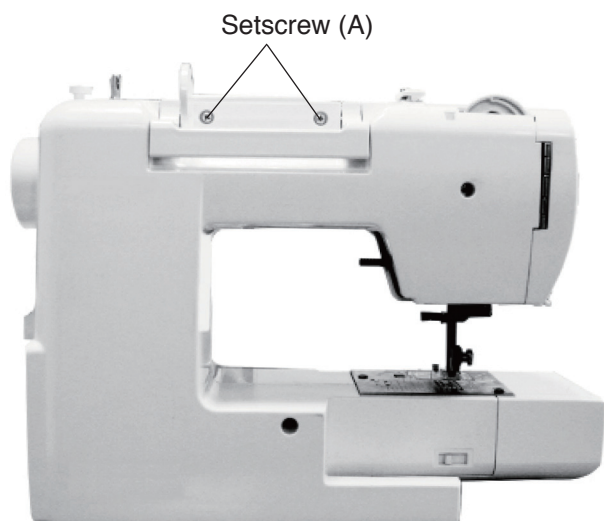


CHANGING EXTERNAL PARTS

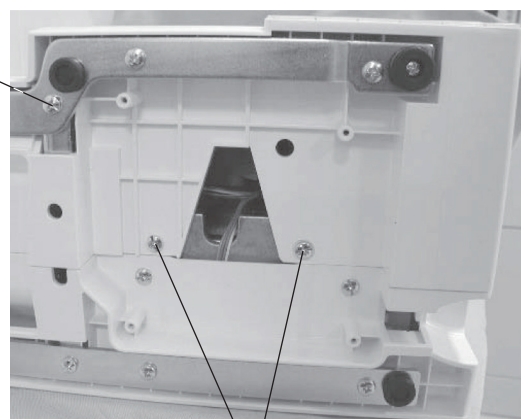
FRONT COVER (1)

To remove:

1. Remove the face cover and free arm cover (see page 4 and 5).
2. Remove the setscrews (A) (2 pcs.).
3. Remove the setscrews (B) (2 pcs.), and bed cover.
4. Remove the setscrews (C) (2 pcs.).
5. Remove the setscrew (D).
6. Loosen the setscrew (E).



Setscrew (D)



Setscrew (C)

CHANGING EXTERNAL PARTS

FRONT COVER (2)

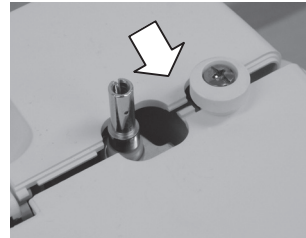
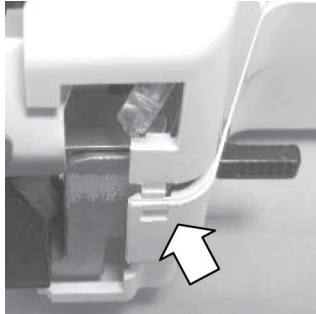
7. Disengage the front cover and rear cover hooks.
8. Disconnect all the connectors from the printed circuit board A.

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

9. Remove the front cover.

To attach:

10. Follow the above procedures in reverse.



CHANGING EXTERNAL PARTS

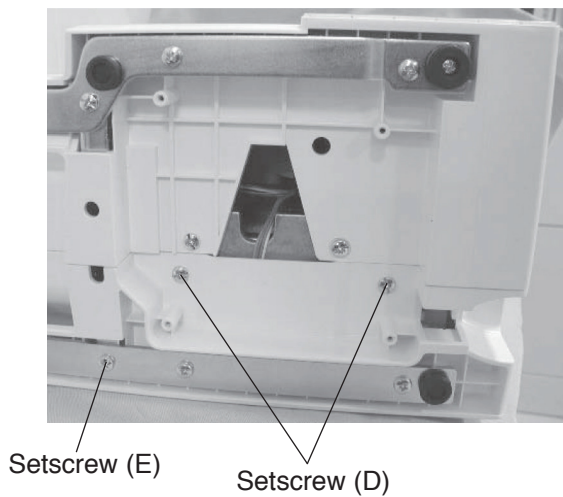
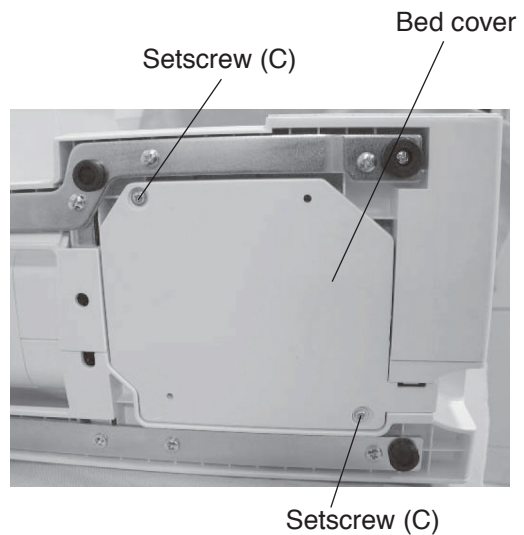
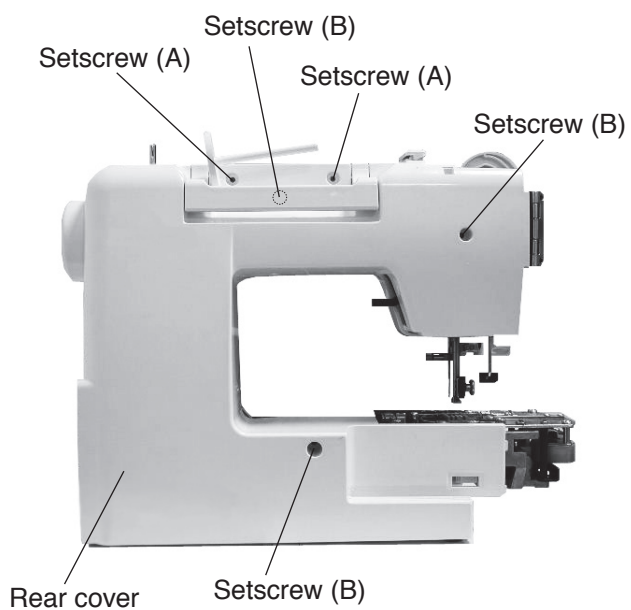
REAR COVER

To remove:

1. Remove the face cover and free arm cover (see pages 4 and 5).
2. Remove the setscrews (A) (2 pcs.).
3. Remove the setscrews (B) (3 pcs.).
4. Remove the setscrews (C) (2 pcs.) and bed cover.
5. Remove the setscrews (D) (2 pcs.).
6. Remove the setscrew (E). Remove the rear cover.

To attach:

7. Follow the above procedures in reverse.



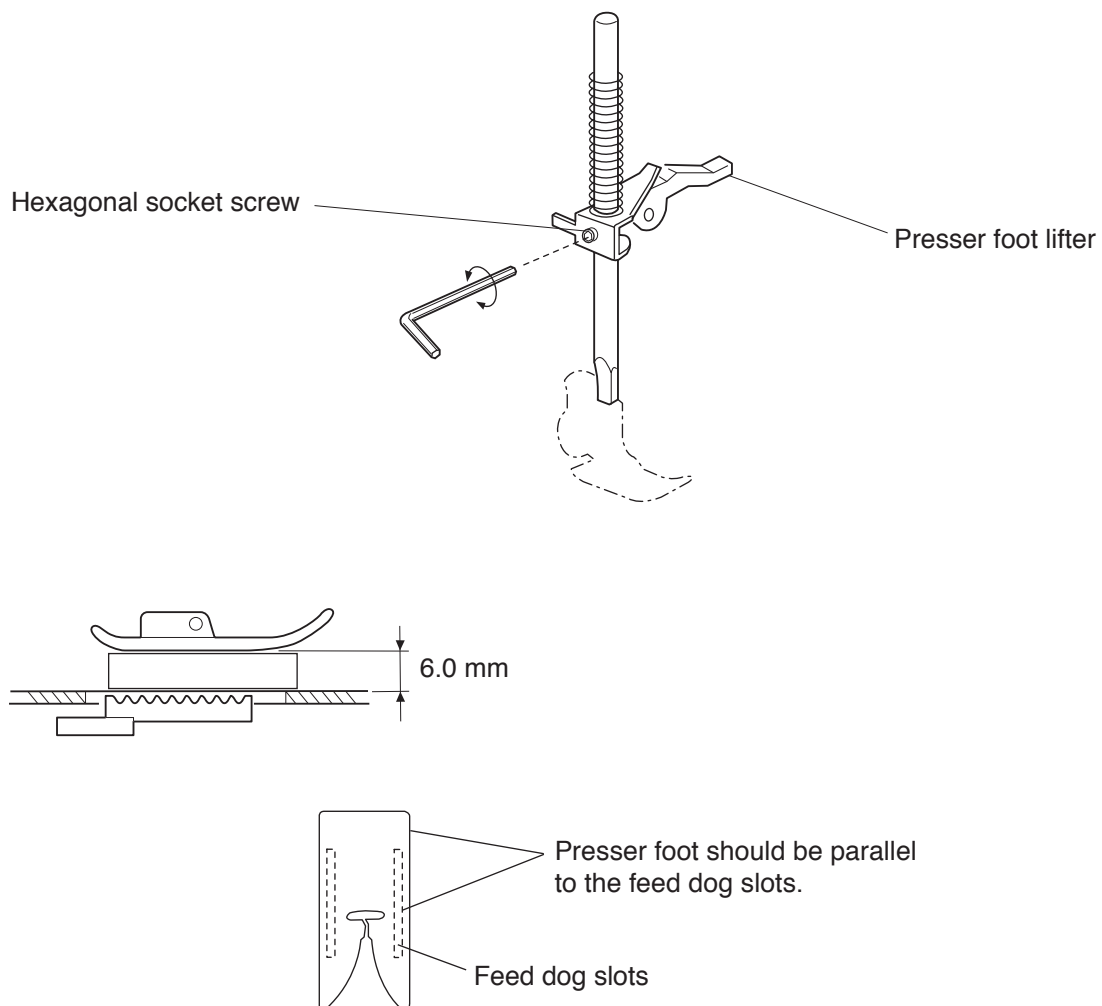
MECHANICAL ADJUSTMENT

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 cover (see page 4) 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.
3. Loosen the hexagonal socket screw. Raise the presser foot lifter and tighten the hexagonal socket screw 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.



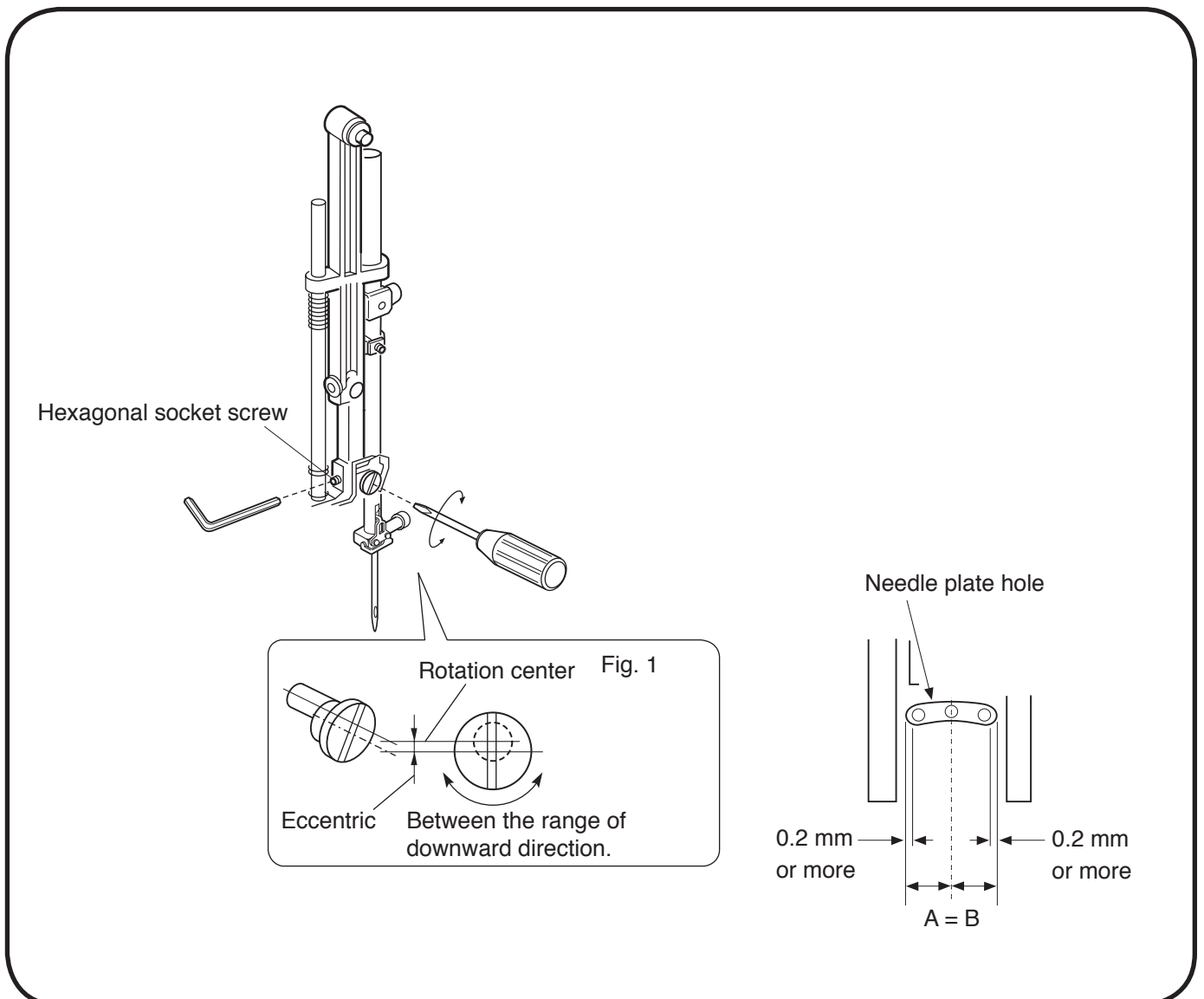
MECHANICAL ADJUSTMENT

NEEDLE DROP POSITION

Set the stitch pattern to “ \oplus ”. The standard needle drop position should be at center of the needle plate hole. Select zigzag stitch “ \sim ”, and set the stitch width at “7.0”. The clearance between the needle and the edge of the needle hole 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. Adjust the needle drop position by turning the eccentric pin. 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.

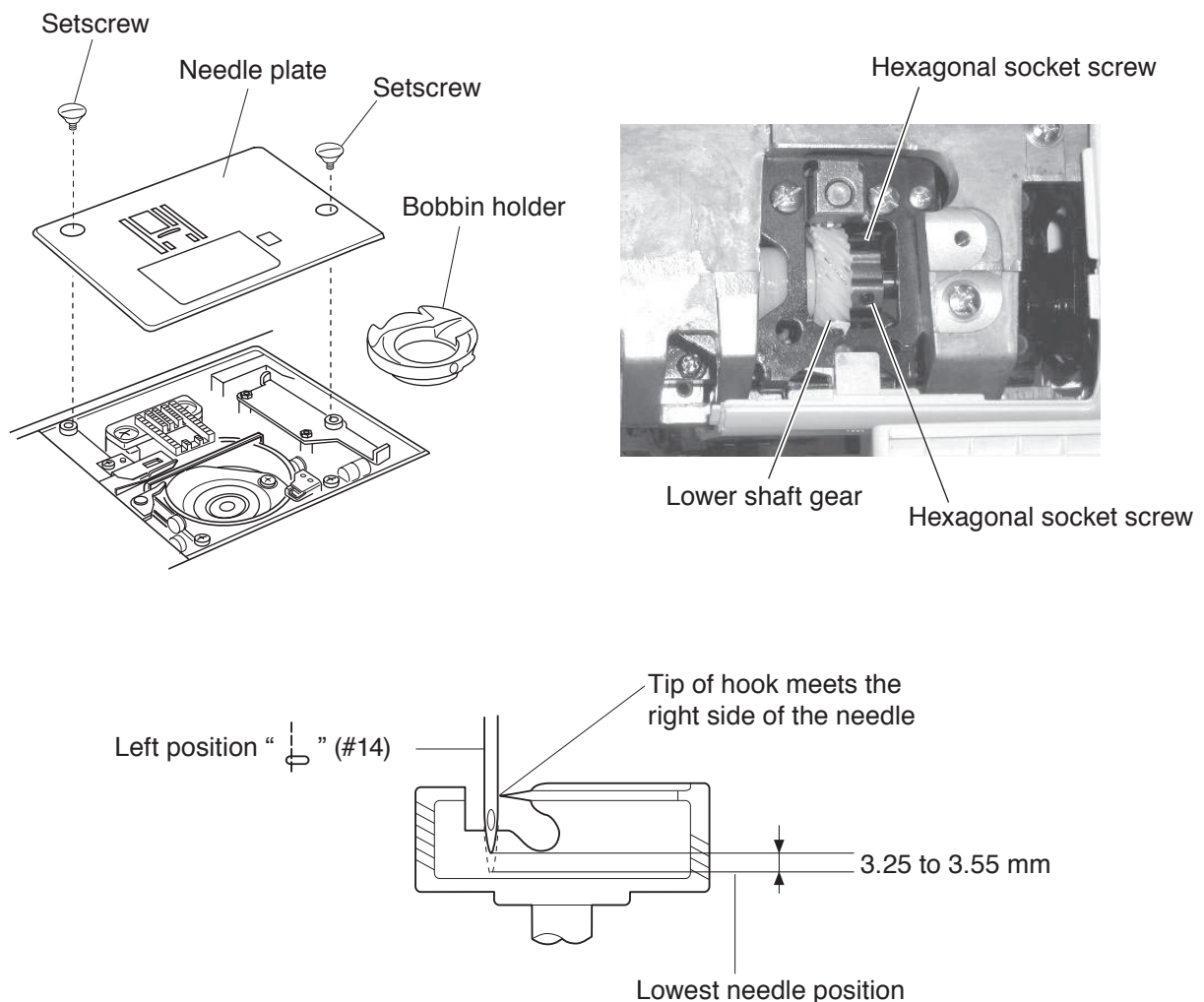


MECHANICAL ADJUSTMENT

ADJUSTMENT OF HOOK TIMING

The amount of ascending travel of the needle bar from its lowest position to the position “ $\frac{1}{4}$ ” 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 setscrews (2 pcs) on the needle plate, the needle plate and the bobbin holder.
2. Remove the free arm cover (see page 5).
3. Turn the power switch on.
4. Select the pattern “ $\frac{1}{4}$ ” (left position). Set the zigzag width at 0.0.
Turn the handwheel toward you to lower the needle at its lowest position.
5. Loosen the hexagonal socket screw (2 pcs.).
6. Move the needle bar 3.25 to 3.55 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 pcs.).
9. Attach the free arm cover, bobbin holder and needle plate.

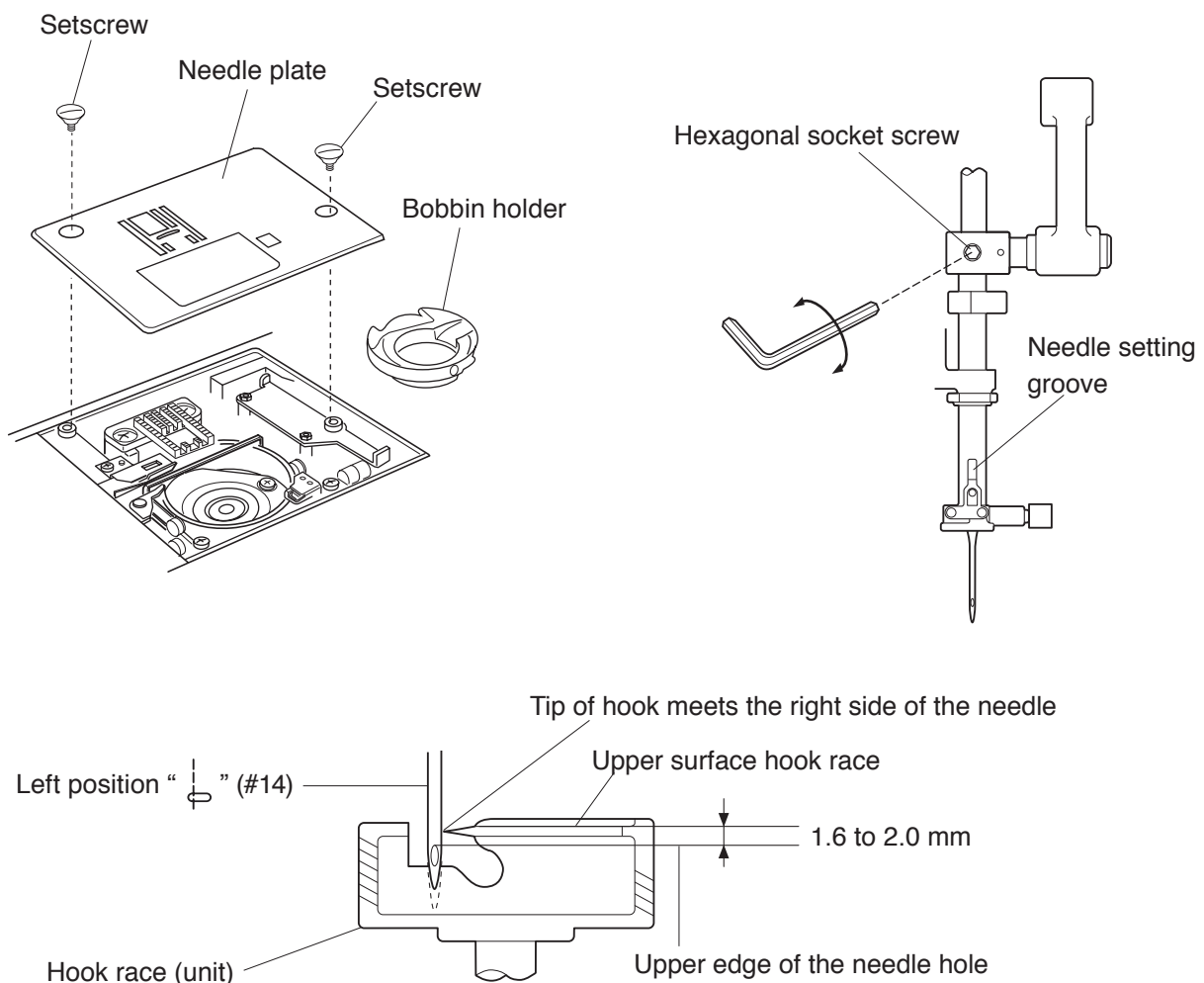


MECHANICAL ADJUSTMENT

ADJUSTMENT OF NEEDLE BAR HEIGHT

Before proceeding with this adjustment, check the hook timing (see 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 “ \leftarrow ” as the needle ascends from its lowest position.

1. Remove the setscrews (2 pcs) on the needle plate, the needle plate and the bobbin holder.
2. Turn the power switch on.
3. Select the pattern “ \leftarrow ” (left position). Set the zigzag width at 0.0.
4. Turn the handwheel toward you until the tip of hook meets the right side of the needle.
5. Open the face cover.
6. Loosen the hexagonal socket screw.
7. Move the needle bar to adjust the needle bar height, and tighten the hexagonal socket screw.
Be careful not to turn the needle bar.
8. Attach the bobbin holder, needle plate and face cover.



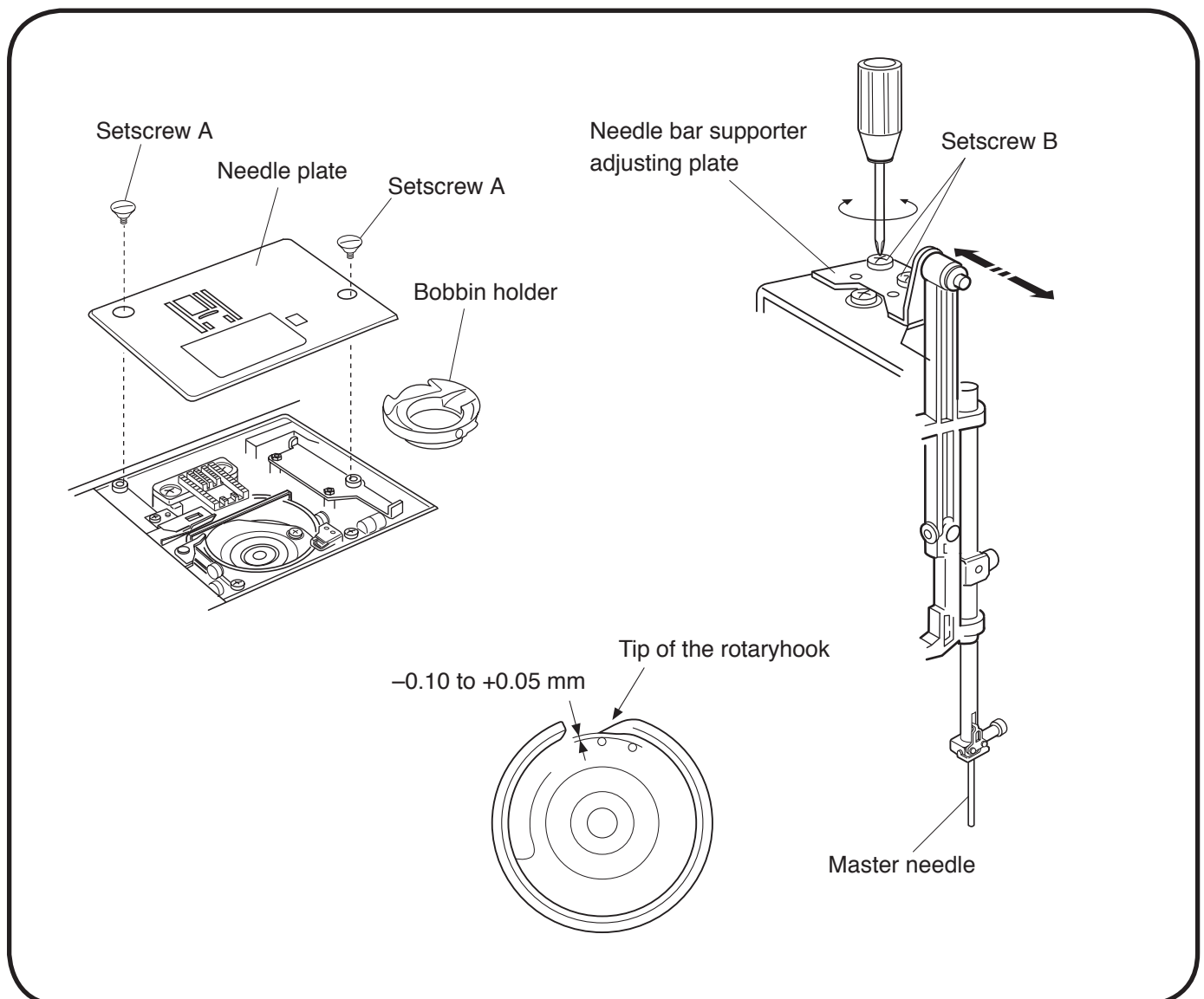
MECHANICAL ADJUSTMENT

CLEARANCE BETWEEN NEEDLE AND TIP OF THE ROTARY HOOK

* The clearance between the needle and the point of hook should be -0.10 to $+0.05$ mm.

Adjustment procedure:

1. Remove the setscrews (2 pcs) on the needle plate, the needle plate and the bobbin holder.
2. Attach the master needle. Turn the power switch on and set the zigzag width at maximum.
3. Open the face cover.
4. Loosen the setscrews B (2 pcs.).
5. Turn the handwheel toward you. Adjust the clearance between the needle and the tip of the rotary hook, by moving the needle bar supporter adjusting plate up or down, to within -0.10 to $+0.05$ mm at the left and right needle position.
6. Tighten the setscrews (2 pcs.).
7. Attach the face cover. Remove the master needle. Attach the bobbin holder and needle plate.
8. Check the clearance between the needle and the edge of the needle hole in the needle plate (see page 10).

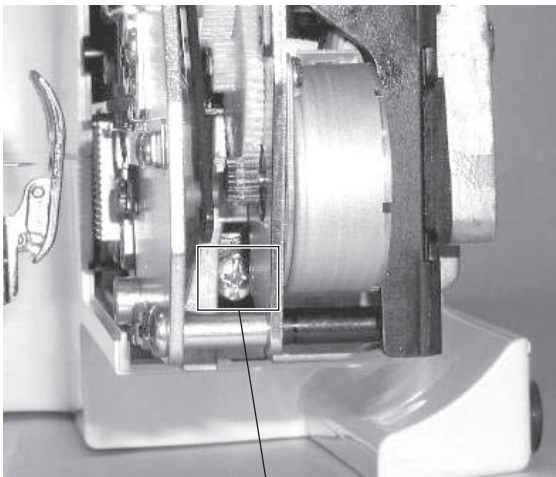
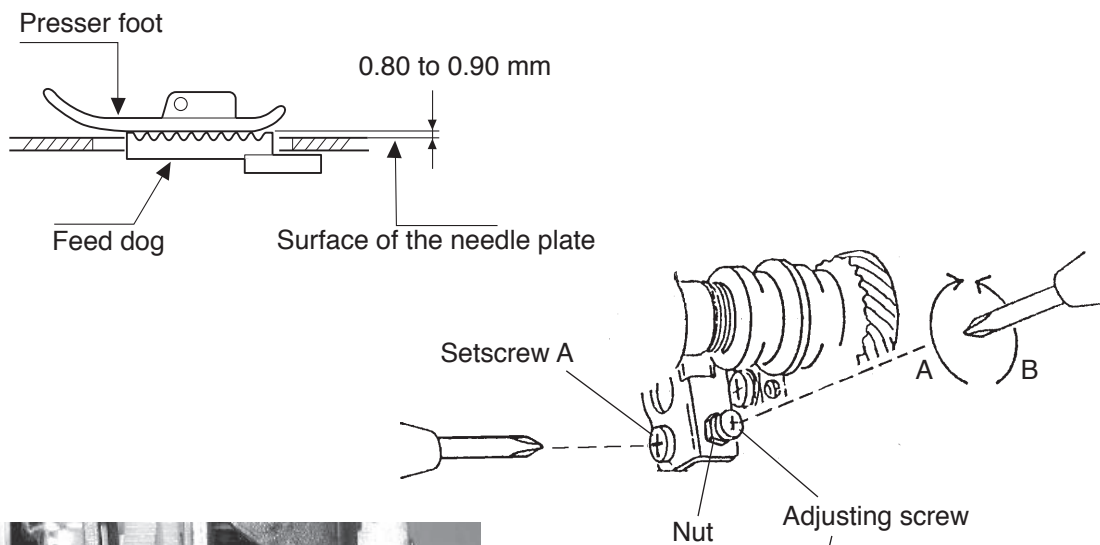


MECHANICAL ADJUSTMENT

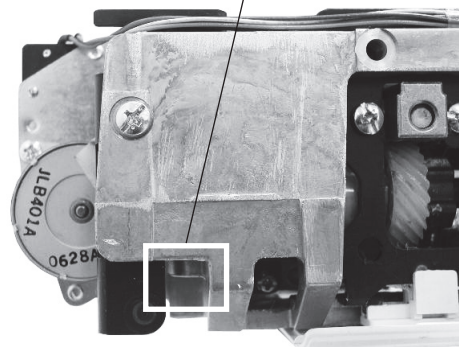
FEED DOG HEIGHT

The highest position of the feed dog should be between 0.80 to 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 (see page 5).
4. Loosen the setscrew A and nut.
5. Adjust the feed dog height by turning the setscrew B. The highest position of the feed dog should be between 0.80 to 0.90 mm from the surface of the needle plate.
6. Tighten the nut and setscrew A.
7. Attach the free arm cover.



Setscrew A

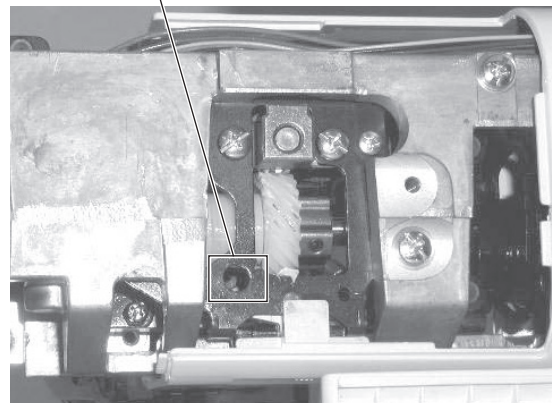
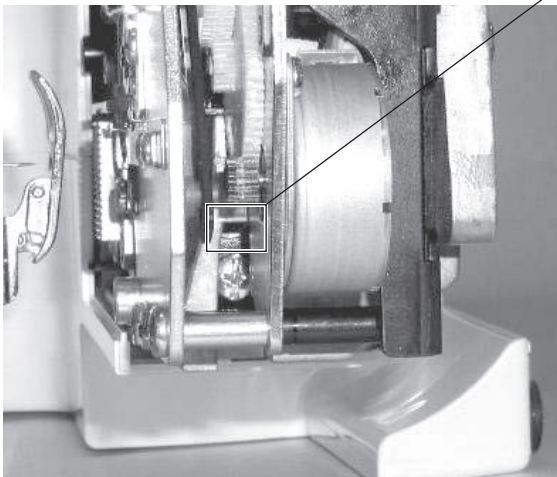
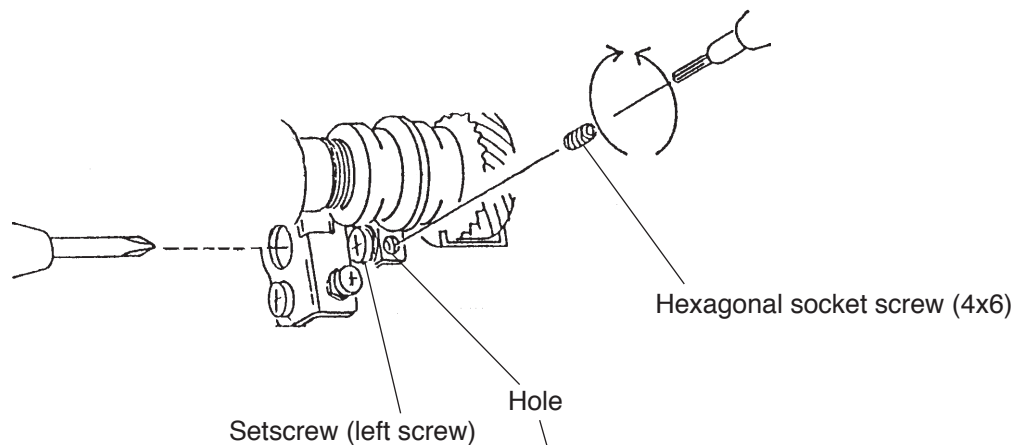


MECHANICAL ADJUSTMENT

FEED DOG ADJUSTMENT

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

1. Insert the hexagonal socket screw (4x6) to the hole. Tighten the screw as far as it goes.
2. Loosen the setscrew (left screw).
3. Turn hexagonal socket screw (4x6) to adjust the feed dog (should be parallel to the surface of the needle plate).
4. Tighten the setscrew (left screw).
5. Loosen the hexagonal socket screw (4x6) and remove it.



MECHANICAL ADJUSTMENT

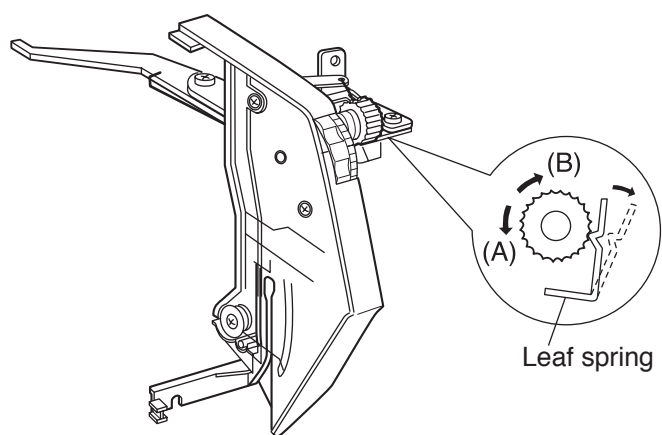
TOP TENSION

The top tension should be between 65 to 80 grams-force when pulling the thread up in the direction of arrow.

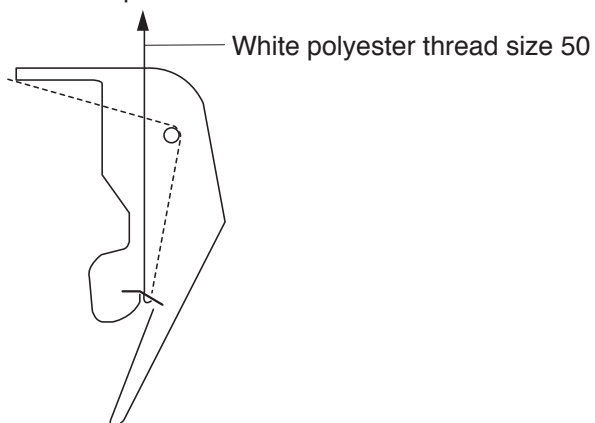
* Use polyester sewing thread #50 (White).

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

1. Set the tension dial "4".
2. Remove the front cover (see pages 6 and 7).
3. Lower the presser foot.
 - If the top tension is too tight, turn the lead screw in the direction (A).
 - If the top tension is too loose, turn the lead screw in the direction (B).
4. Check the top tension and attach the cover.



Pull the thread at the speed of 110 mm/sec in the direction of arrow



MECHANICAL ADJUSTMENT

STRETCH STITCH FEED BALANCE

To check:

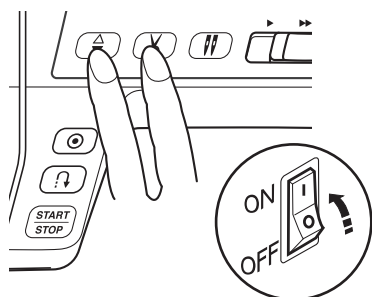
1. Enter the self-diagnostic mode (see below).
Attach the Satin stitch foot F. Place a fabric under the presser foot. Lower the presser foot.
2. Press the locking stitch button to start test sew, and check the results (the standard figure length of 5 pieces of figure 8 is 33 to 39 mm).
3. If stretch patterns are distorted, correct them with the feed balancing dial.
If stretch patterns are too deformed and cannot be corrected with the feed balancing dial, adjust as follows.

To adjust:

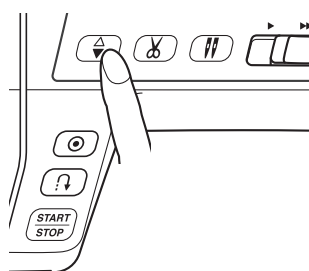
1. Remove the feed balancing dial cover. Turn the dial at standard position as illustrated.
Turn the power switch ON.
Select the straight stitch and set the stitch length at "0". Place a fabric under the presser foot.
Lower the presser foot. (Do not set bobbin and needle threads)
2. Turn the hexagonal socket screw to the left to loosen it.
Move the gear up (A) or down (B) to adjust the feed.
* Do not move the gear right or left when adjusting.

Start the machine and check the movement of the fabric.
Adjust the hexagonal socket screw position (gear position) until the fabric will not be fed with the stitch length setting at "0".
3. Tighten the socket screw and attach the feed balancing dial cover.
Enter the self-diagnostic mode and test sew again. Check that the standard length of 5 pieces of figure 8 is 33 to 39 mm. If not, turn the feed balancing dial to correct it.

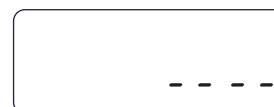
TO ENTER SELF-DIAGNOSTIC MODE:



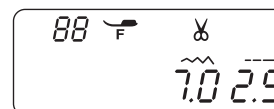
Turn the power switch on while simultaneously pressing needle up/down button and thread cutter button.



Press the needle up/down button within the 1.5 seconds to enter the self-diagnostic mode.

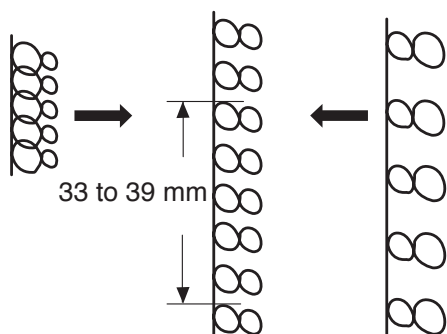


The LCD will indicate "----".

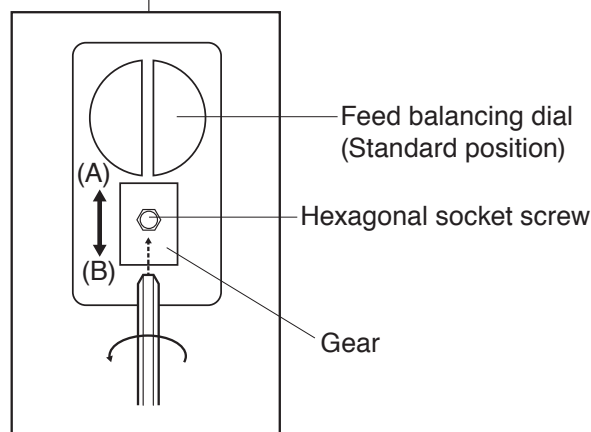
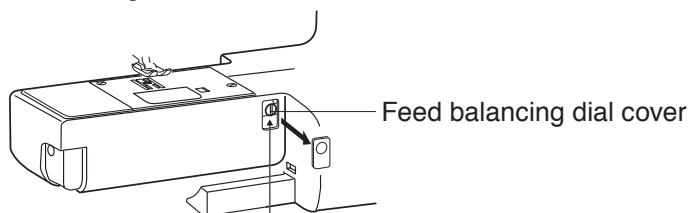


Press "8" to enter the stretch stitch test mode.

Incorrect Correct Incorrect



The standard figure length of 5 pieces of figure 8 is 33 to 39 mm



MECHANICAL ADJUSTMENT

ADJUSTING BUTTONHOLE LEVER POSITION

To adjust the buttonhole lever guide:

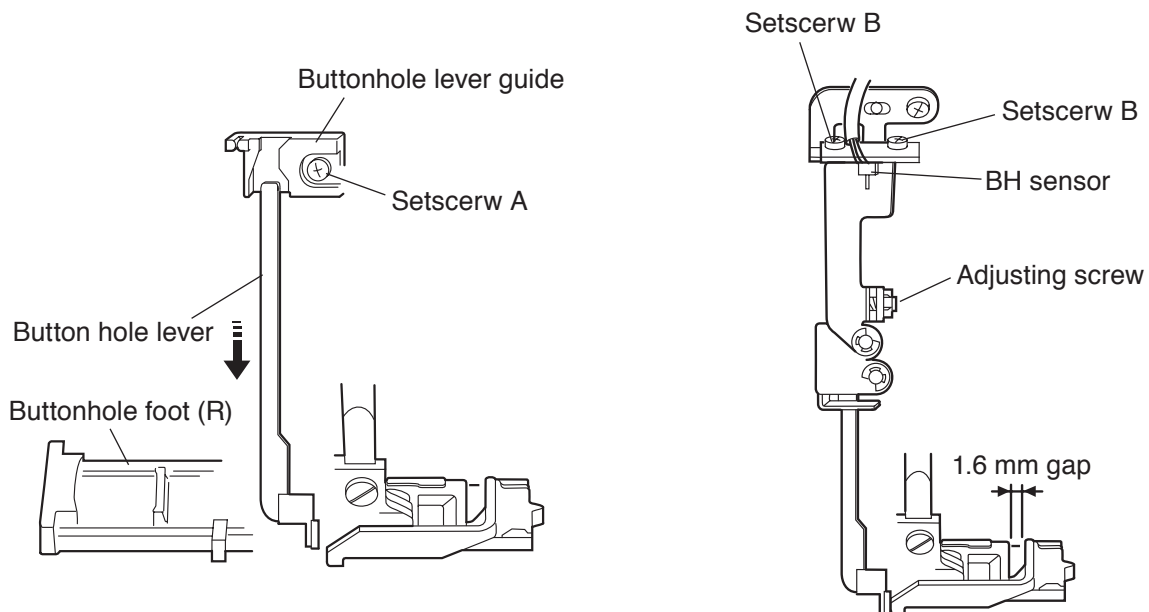
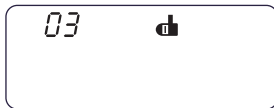
1. Enter the diagnostic test of buttonhole sensor mode (see pages 20 and 21. The LCD should display 03 and BH symbol.).
2. Remove the face cover (see page 4) and loosen the setscrew.
3. Move the buttonhole lever guide so the BH symbol disappears when the button hole lever is lowered. Tighten the setscrew.

TO ADJUST THE BUTTONHOLE SENSOR POSITION.

4. Attach the buttonhole foot (R).
5. Lower the buttonhole lever to its lowest position and open a 1.6 mm gap between the slider and the buttonhole foot.
6. Turn the adjusting screw 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 setscrews B and clean it out with a swab.

TO ENTER ADJUSTING MODE



MECHANICAL ADJUSTMENT

THREAD CUTTER

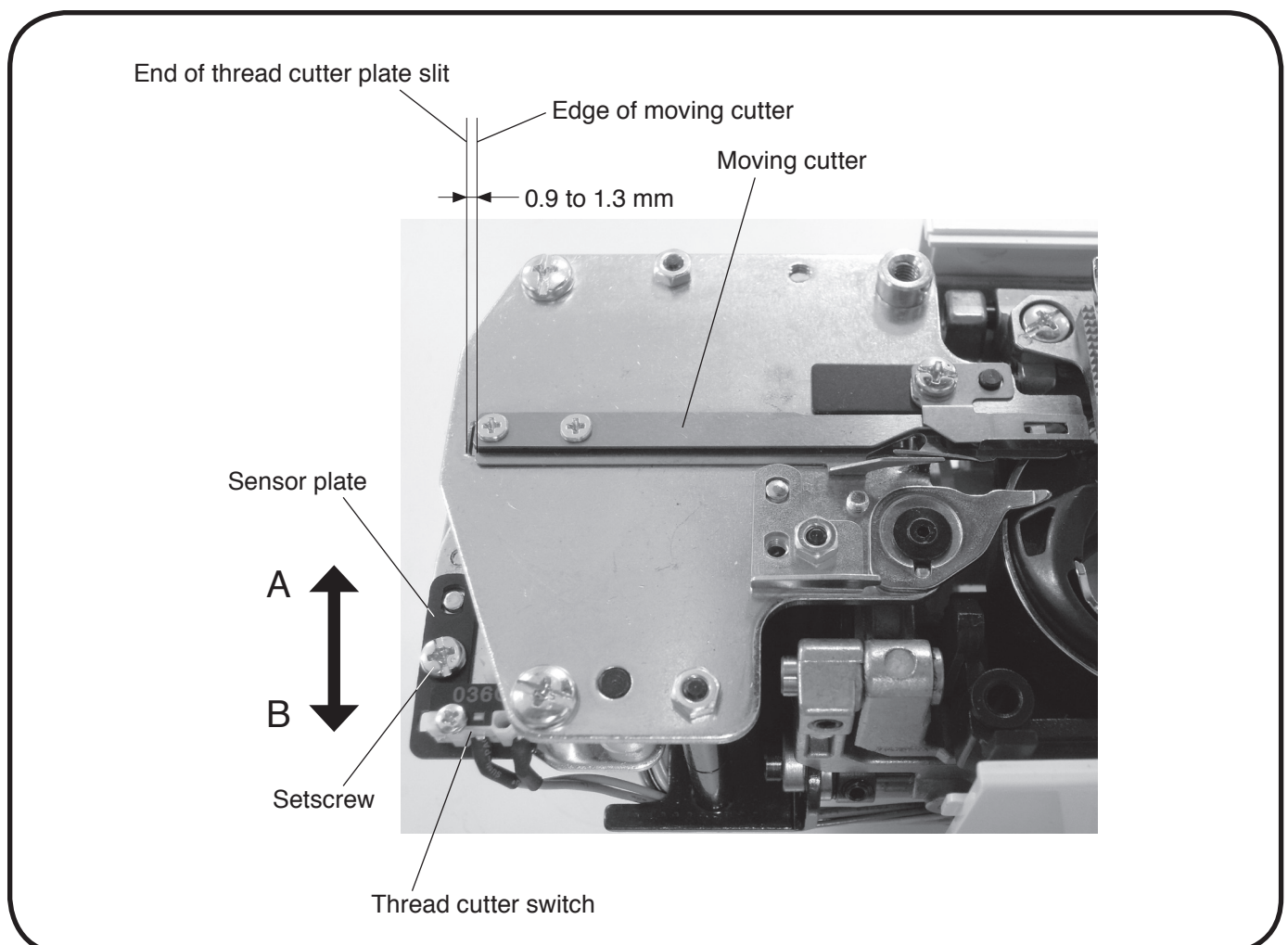
The distance between the end of thread cutter plate slit and the edge of moving cutter should be in the range of 0.9 to 1.3 mm.

To check:

1. Remove the free arm cover (see page 5).
2. Turn the power switch off. Slide the moving cutter to the right with your finger.
3. Turn the power switch on.
The moving cutter motor is initialized, and moving cutter moves to its home position automatically.
4. The distance between the edge of moving cutter and the end of thread cutter plate slit should be 0.9 to 1.3 mm.
If not, follow the procedure below.

To adjust:

5. Loosen the setscrew on the sensor plate.
6. Adjust the distance between the end of thread cutter plate slit and the edge of moving cutter to 1.1 mm by moving the sensor plate in the direction of A or B.



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.

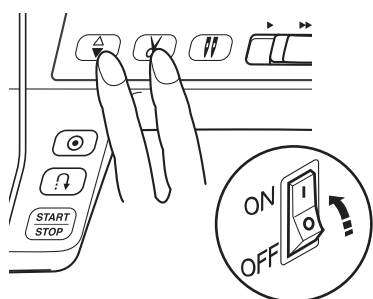
- NOTES:**
- Be careful: the sewing machine may start running in its own while in test mode.
 - Turn off the power switch before replacing any parts.
 - Repeat the diagnostic test until the problem has been resolved.
 - You can skip steps in the diagnostic procedure and go directly to the test you want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

To begin:

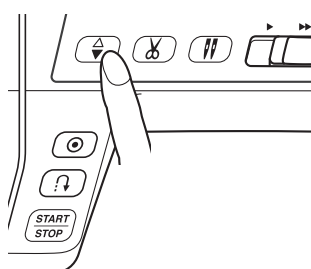
Turn on the switch. if any of the following problems occur, take the recommended actions in the order they are shown.

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

TO ENTER SELF-DIAGNOSTIC MODE:



Turn the power switch on while simultaneously pressing needle up/down button and thread cutter button.


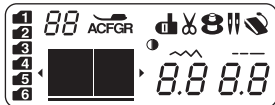
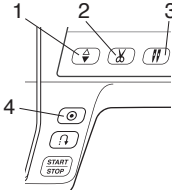
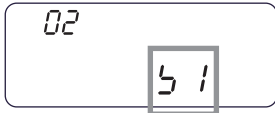




Press the needle up/down button within the 1.5 seconds to enter the self-diagnostic mode.

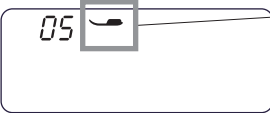




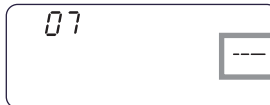


The LCD will indicate "----".







SELF-DIAGNOSTIC TEST

STEP AND ITEMS TO CHECK	PROCEDURE	CORRECT CONDITION	DEFECTIVE CONDITION
<p>01) FUNCTION OF LCD, BUZZER AND LAMP</p>	<p>Turn on the power switch while simultaneously pressing the needle up/down button and thread cutter button.</p> <p>Press the needle up/down button within the 1.5 seconds to enter the self-diagnostic mode.</p> <p>Press "1" 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 lit. LCD displays "----".</p> <div style="text-align: center;">  </div> <p>Buzzer sounds. LCD displays symbols and numbers and blinks.</p> <div style="text-align: center;">  </div>	<p>Sewing lamp does not lit. LCD backlight does not lit. LCD does not display. Buzzer does not sound. LCD does not turned on. LCD does not display any symbols or not in order.</p> <p>–REMEDY– Replace the printed circuit board A. Replace the machine lamp. Replace the touch panel. Replace the printed circuit board F.</p>
<p>02) BUTTON</p>	<div style="text-align: center;">  </div> <p>Press buttons 1 to 4.</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 "02".</p> <p>Buzzer sounds when button is pressed. Button number is displayed when the button is pressed.</p> <div style="text-align: center;">  </div> <p>LCD displays "S1" when button 1 is pressed. LCD displays "S2" when button 2 is pressed. LCD displays "S3" when button 3 is pressed. LCD displays "F3" when button 4 is pressed.</p>	<p>Buzzer does not sound. LCD does not display the number correctly.</p> <p>–REMEDY– Replace the printed circuit board A. Replace the printed circuit board F.</p>
<p>03) BUTTONHOLE SENSOR</p>	<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 "03".</p> <p>When the buttonhole lever is pulled, buzzer sounds and LCD displays BH symbol.</p> <div style="text-align: center;">  </div> <p>When the buttonhole lever is pushed, buzzer sounds and LCD displays BH symbol.</p>	<p>Buzzer does not sound. BH symbol does not appear.</p> <p>–REMEDY– Adjust the BH lever sensor position. Replace the BH lever sensor. Replace the printed circuit board A.</p>
<p>04) BOBBIN WINDER SWITCH</p>	<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 "04".</p> <p>When the bobbin winder spindle is moved to the right, buzzer sounds and LCD displays the bobbin symbol.</p> <p>When the bobbin winder spindle is moved to the left, buzzer sounds and LCD displays "04".</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Bobbin symbol</p>	<p>Buzzer does not sound. Bobbin symbol is not displayed.</p> <p>–REMEDY– Adjust the bobbin winder switch position. Replace the bobbin winder switch. Replace the printed circuit board A.</p>

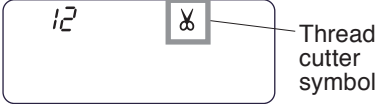
SELF-DIAGNOSTIC TEST

STEP AND ITEMS TO CHECK	PROCEDURE	CORRECT CONDITION	DEFECTIVE CONDITION
05) PRESSER FOOT LIFTER SWITCH	Move the presser foot lifter up and down. 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 "05". When the presser foot lifter is lowered, buzzer sounds and LCD displays presser foot symbol.  Presser foot symbol When the buttonhole lever is raised, buzzer sounds and the presser foot symbol disappears.	Buzzer does not sound. Presser foot symbol does not appear. –REMEDY– Adjust the presser foot lifter switch position. Replace the presser foot lifter switch. Replace the printed circuit board A.
06) UPPER SHAFT POSITIONING SENSOR	Turn the handwheel toward you. Lower the needle bar from its highest to lowest position. Raise the needle bar from its lowest position to 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 "06".  Turn the handwheel. LCD displays stitch width symbol when the needle bar is at zigzag phase.  Stitch width symbol LCD displays stitch length symbol when the needle bar is at feed phase.  Stitch length symbol	Buzzer does not sound. Stitch width or length symbol does not appear. –REMEDY– Replace the printed circuit board A. Replace the printed circuit board P.
07) ZIGZAG MOTOR (STEP MOTOR) AND FEED MOTOR	Turn the handwheel toward you. Raise the needle bar its highest to position (zigzag phase). Press the needle up/down button. Lower the needle bar from its highest position to its lowest position (feed phase). Press the needle up/down button. 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 "07".  Stitch width symbol Press the needle up/down button when LCD displays stitch width symbol. The Zigzag motor will be initialized and get its default position.  Stitch length symbol Press the needle up/down button when LCD displays stitch length symbol. The feed motor will be initialized and get its default position.	Zigzag motor does not get default position. Buzzer does not sound. –REMEDY– Replace the zigzag motor. Replace the printed circuit board A. Feed motor does not get default position. buzzer does not sound. –REMEDY– Replace the feed regulator. Replace the printed circuit board A.

SELF-DIAGNOSTIC TEST

STEP AND ITEMS TO CHECK	PROCEDURE	CORRECT CONDITION	DEFECTIVE CONDITION
08) FOOT CONTROL	Attach the foot control to the machine. Depress the foot control as far as it goes, then release it. 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 "08".  The foot control symbol appears when the foot control is attached.  Foot control symbol Buzzer sounds when the foot control is deeply depressed. Buzzer sounds when the foot control is released.	The foot control symbol does not appear. Buzzer does not sound. -REMEDY- Replace the foot control. Replace the machine socket (foot control socket). Replace the printed circuit board A.
09) SLIDE VOLUME	Shift the slide volume from left to right, then return to the left. 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 "09".  Buzzer sounds at rightmost or leftmost position.	Buzzer does not sound. -REMEDY- Replace the printed circuit board A.
10) DC MOTOR	Press the needle up/down button. 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 "10".  Machine runs slow, then fast, and the needle bar stops at its highest position. LCD displays "OK".	The machine motor does not start. The motor stops immediately. The motor runs unstable. LCD displays "NG". -REMEDY- Replace the DC motor. Replace the printed circuit board A.
11) THREAD TENSION RELEASE SOLENOID	Lower the presser foot. Press the needle up/down button. 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 "11" and "-off". Press the needle up/down button to switch the solenoid on or off. [ON] Buzzer sounds and the thread tension disk opens, and LCD displays "--on" while the thread tension disk opens. The thread tension disk will be closed automatically 5 seconds after the thread tension released.  [OFF] Buzzer sounds and the thread tension disc closes, and LCD displays "-off". 	The Thread tension disk does not open. -REMEDY- Replace the solenoid. Replace the printed circuit board A.

SELF-DIAGNOSTIC TEST

STEP AND ITEMS TO CHECK	PROCEDURE	CORRECT CONDITION	DEFECTIVE CONDITION
12) THREAD CUTTER MOTOR, THREAD CUTTER SOLENOID	<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 displays "12".</p> <p>The thread cutter symbol will blink, and thread cutter motor will be initialized.</p> <div style="text-align: center;">  </div>	<p>Thread cutter motor does not work.</p> <p>The thread cutter symbol does not appear when thread cutter is at its initialized position.</p> <p>Thread cutter position is not initialized and caution. Buzzer sounds.</p> <p>-REMEDY-</p> <p>Replace the thread cutter motor.</p> <p>Adjust the thread cutter initialize switch.</p> <p>Replace the printed 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. See pages 21 to 24 and fix the defective part.

The defective part number.
See pages 21 to 24 "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 thread cutter button.

Press the needle up/down button within the 1.5 seconds to enter the self-diagnostic mode. The LCD will indicate "----".

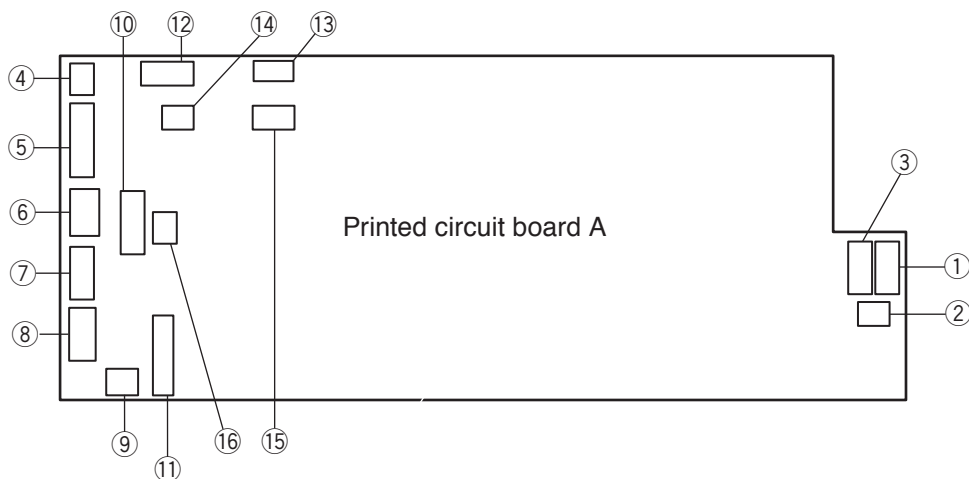
Press the touch panel "3" to display the version of the program.

REPLACING ELECTRONIC COMPONENTS

PRINTED 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 F (white) | ⑨ Controller (black) |
| ② Printed circuit board L (white) | ⑩ Power switch (white) |
| ③ Program (black) | ⑪ DC Motor (white) |
| ④ Bobbin winding switch (blue) | ⑫ Stitch width motor (green) |
| ⑤ Thread cutter motor (white) | ⑬ Solenoid (thread tension release control) (black) |
| ⑥ Touch panel (white) | ⑭ Micro switch (presser foot lifter sensor) (green) |
| ⑦ Feed motor (white) | ⑮ Printed circuit board E1 (BH sensor) (red) |
| ⑧ Printed circuit board P (black) | ⑯ No connection |



REPLACING THE ELECTRONIC COMPONENTS

PRINTED CIRCUIT BOARD A

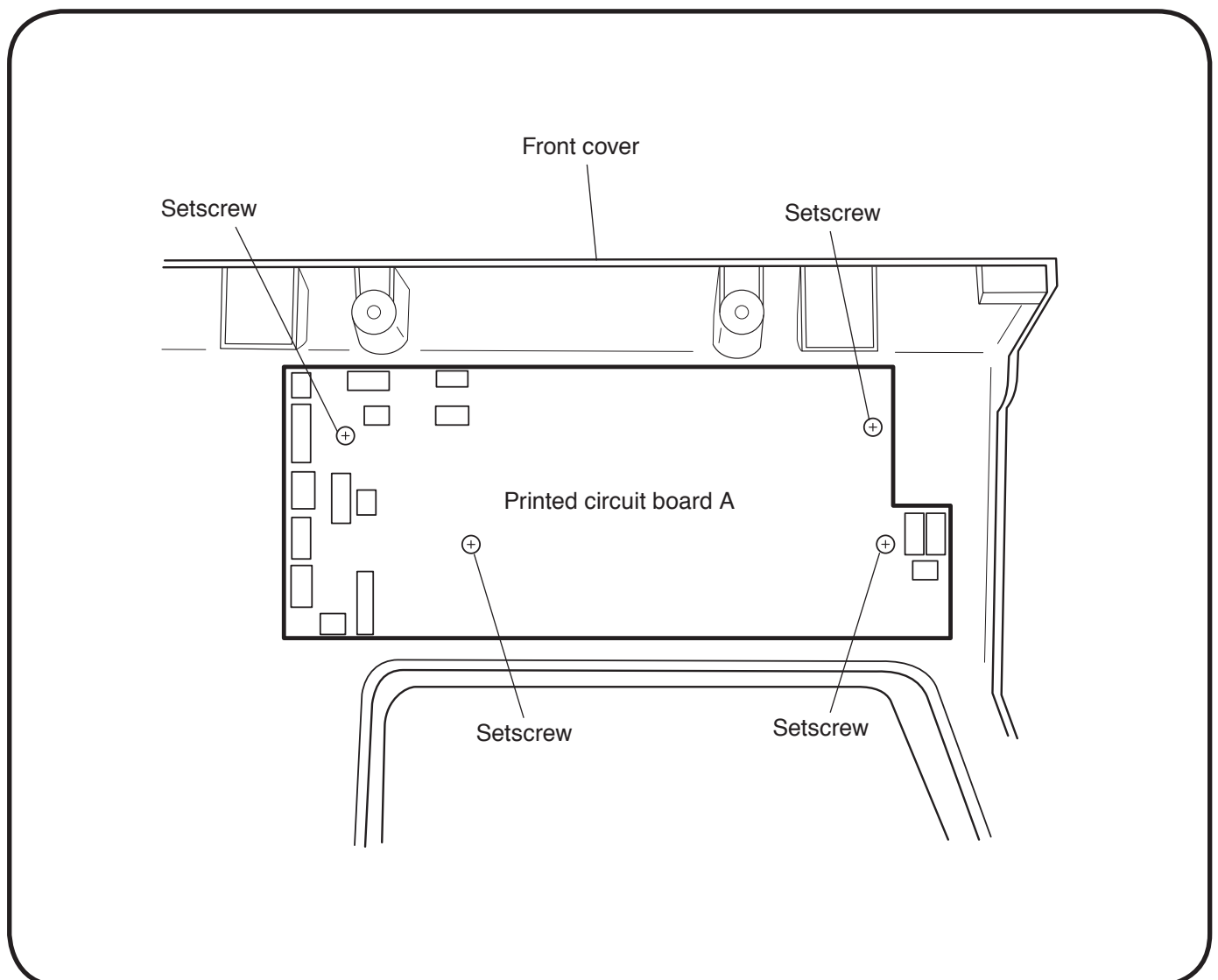
To remove:

1. Remove the front cover (see pages 6 and 7).
2. Pull out connectors from the printed circuit board A.
3. Remove the setscrews (4 pcs.) and the printed circuit board A.

To attach:

4. 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

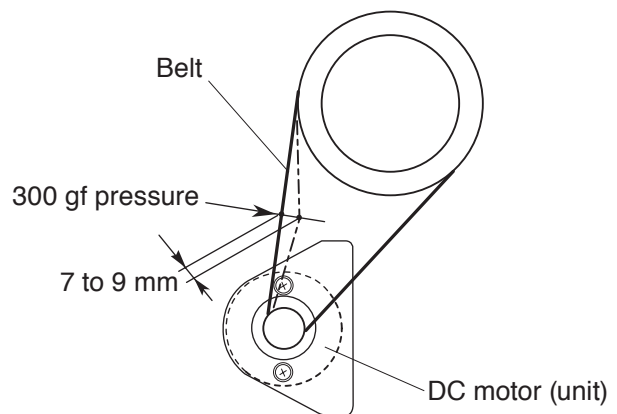
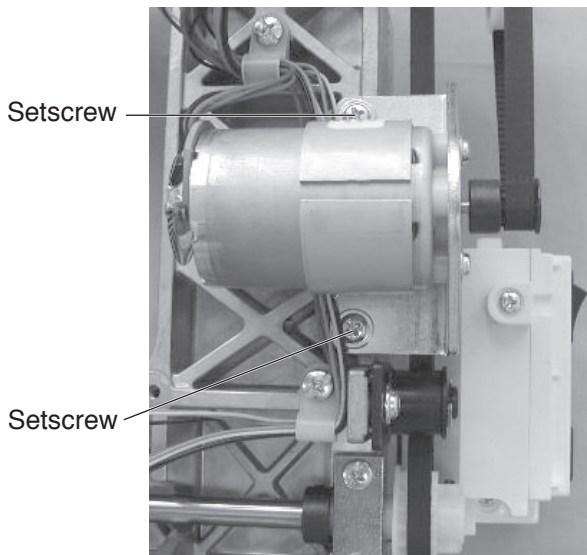
DRIVING MOTOR

To remove:

1. Remove the front cover (see pages 6 and 7).
2. Remove the setscrews (2 pcs.) and the driving motor and the belt.

To attach:

3. Install the driving motor and the motor belt. Tighten them with setscrews (2 pcs.) lightly.
4. Move the motor up or down to adjust the motor belt tension.
The belt should deflect 7 to 9 mm when applying 300 grams-force of load to the middle of the belt.
Tighten the setscrews (2 pcs.) firmly.
5. Attach the rear cover and the front cover.



REPLACING THE ELECTRONIC COMPONENTS

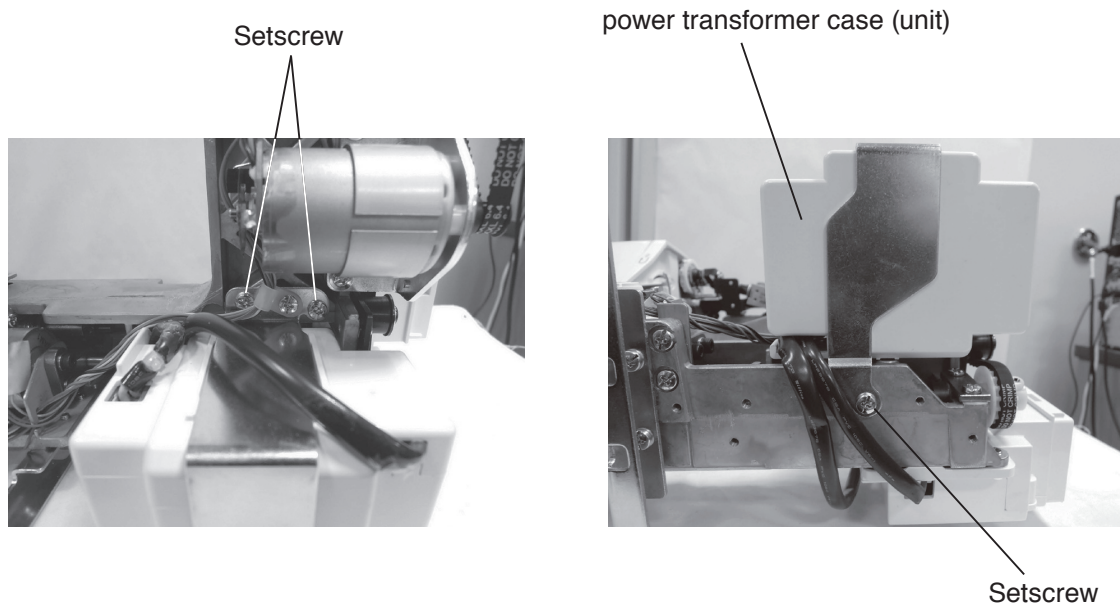
POWER TRANSFORMER CASE (UNIT)

To remove:

1. Remove the front cover and the rear cover (see pages 6 to8).
2. Remove the setscrews A (3 pcs.) and the power transformer case (unit).

To attach:

3. Follow the above procedures in reverse.



REPLACING THE ELECTRONIC COMPONENTS

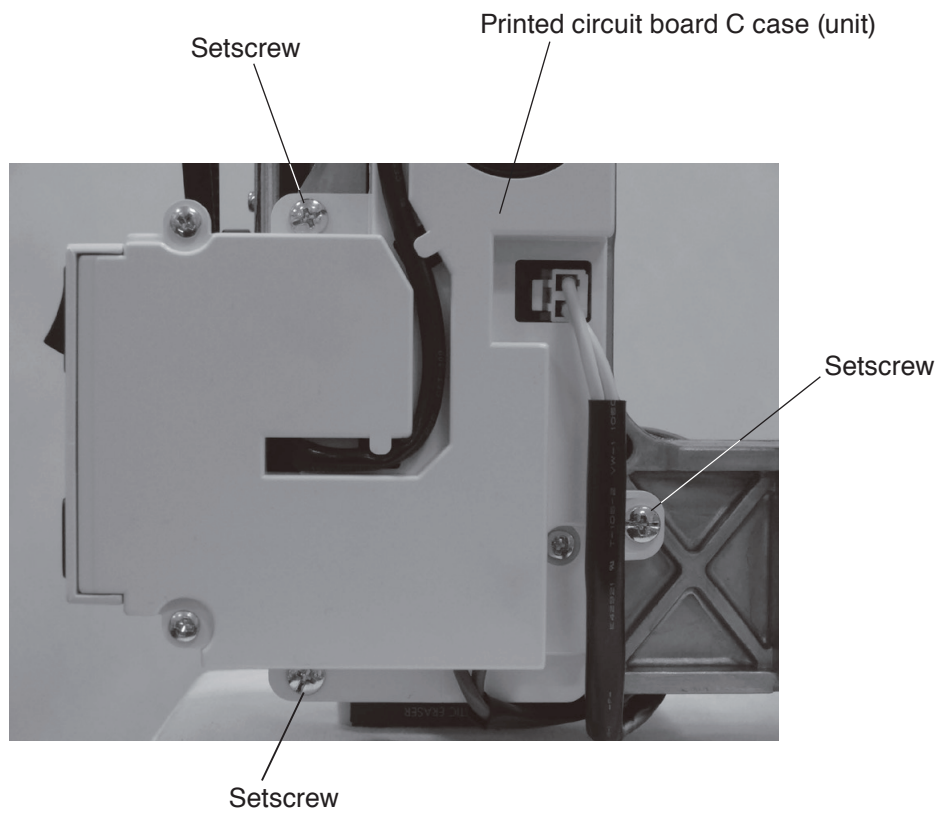
PRINTED CIRCUIT BOARD C CASE (UNIT)

To remove:

1. Remove the front cover and the rear cover (see pages 6 to8).
2. Remove the setscrews A (3 pcs.) and the printed circuit board c case (unit).

To attach:

3. Follow the above procedures in reverse.

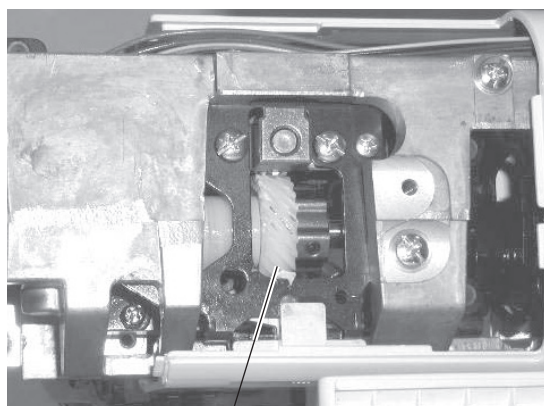
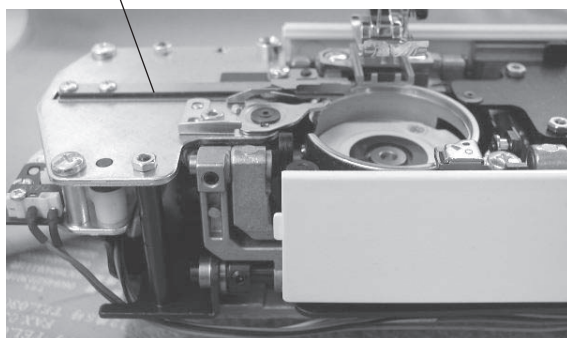


CLEANING AREA OF THREAD CUTTER AND LOWER SHAFT GEAR

Remove the dust on the area of the thread cutter and the lower shaft gear as follow.

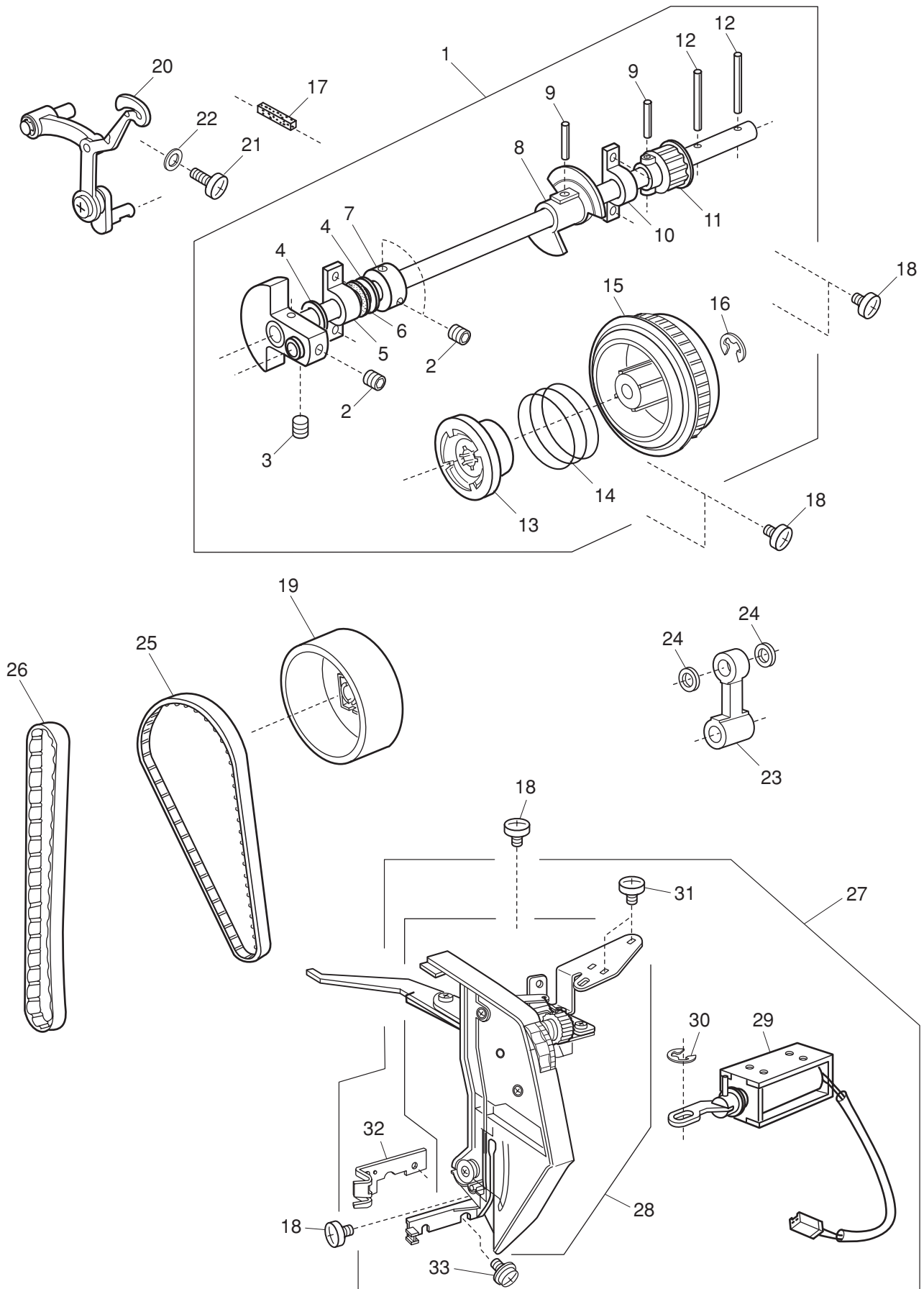
1. Remove the free arm cover (see page 5).
2. Clean the area of the thread cutter and the lower shaft gear.
3. After cleaning, attach the free arm cover.

Thread cutter



Lower shaft gear

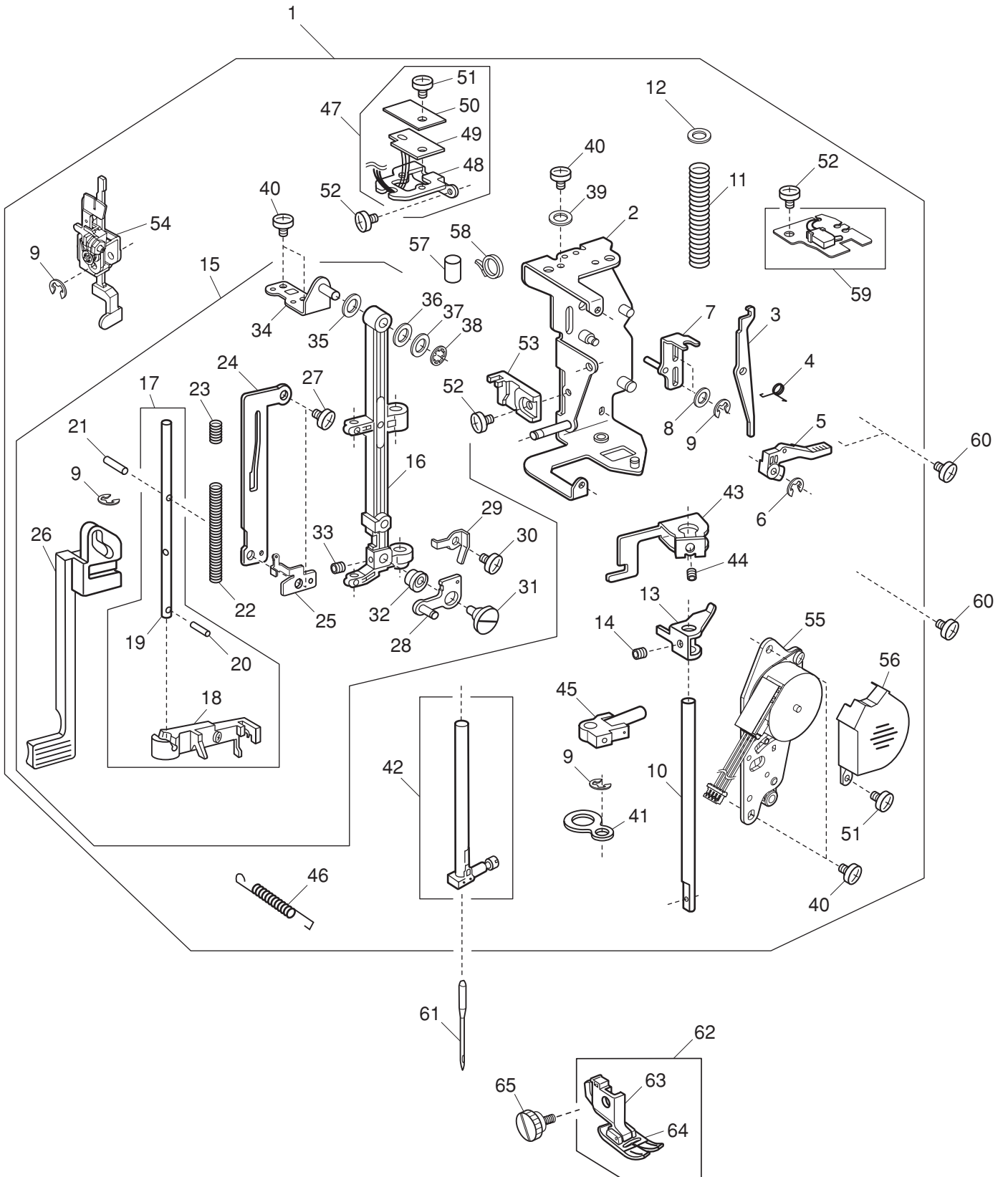
PARTS LIST



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	508120006	Shaft supporter plate
6	823110009	Felt
7	820166001	Lower shaft ring
8	808003001	Upper shaft shielding plate
9	000004200	Spring pin 3x18
10	508054101	Shaft supporter plate
11	508021006	Upper shaft gear
12	000024206	Spring pin 3x30
13	502064003	Clutch ring
14	661024007	Clutch spring
15	508055009	Belt wheel
16	000002806	Snap ring E-6
17	650040005	Felt
18	000081005	Setscrew 4x8
19	508056000	Handwheel
20	808648004	Thread take-up lever (unit)
21	000103509	Setscrew 4x10
22	000072302	Washer 4
23	808005003	Needle bar crank rod
24	000036005	Washer FT60
25	808021005	Timing belt 120
26	808037004	Syncro belt S5M
27	808616106	Thread tension (unit)
28	808501004	Thread tension
29	808604008	Solenoid (unit)
30	000002105	Snap ring E-3
31	000101105	Setscrew 3x4
32	809023000	Face plate spring supporter
33	000114709	Setscrew TP 3x6

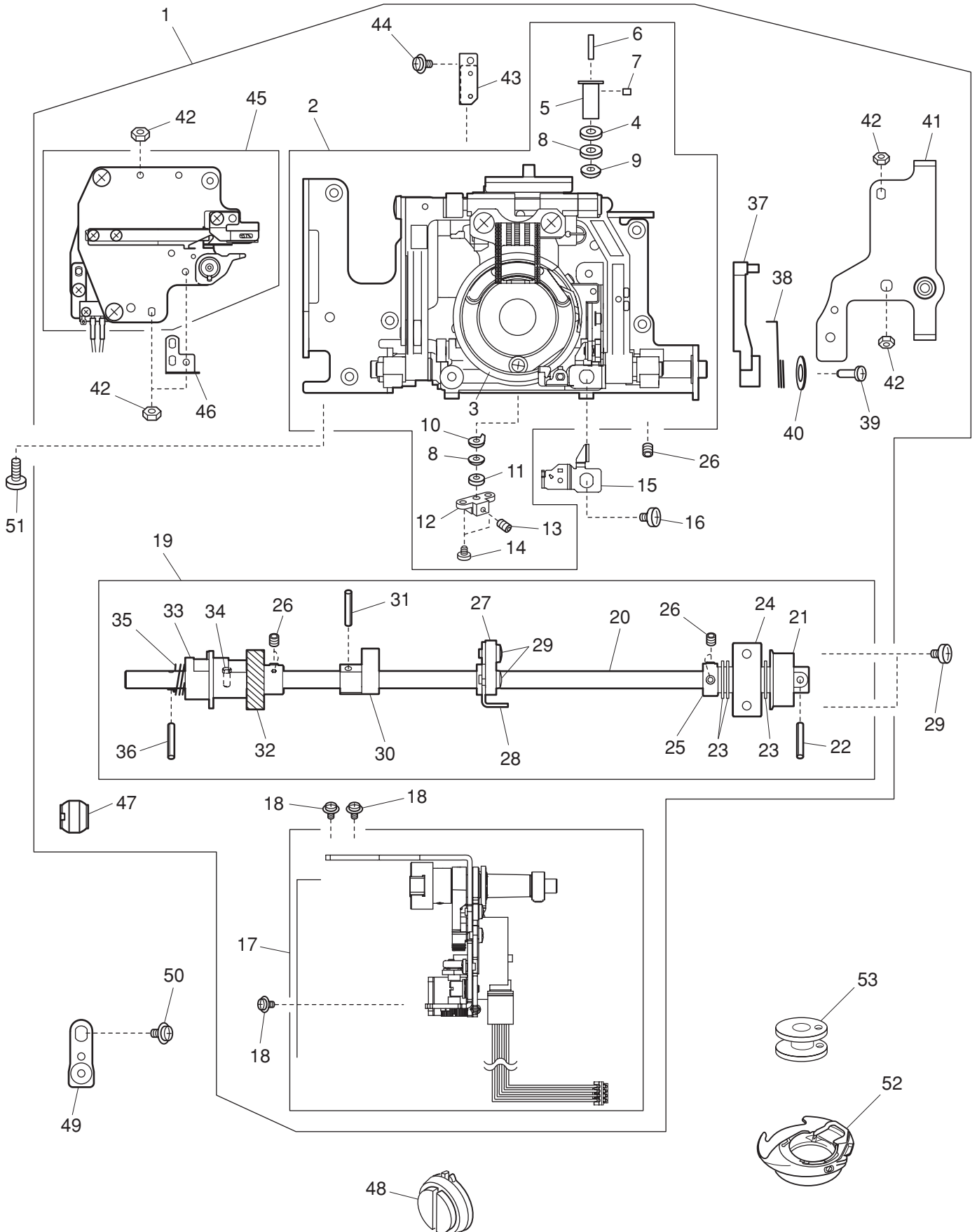
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	808640615	Presser bar base plate (unit)
2	808006107	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	625102008	Washer
13	508039007	Presser bar supporter
14	000111500	Hexagonal socket screw 4x8
15	808603007	Needle bar supporter (unit)
16	808008006	Needle bar supporter
17	842637006	Threader shaft (unit)
18	842638007	Threader plate (unit)
19	840036025	Threader shaft
20	000003508	Spring pin 2x8
21	000125105	Guide pin E-2x16-CH
22	842090001	Threader shaft spring
23	842096007	Threader lever spring
24	842091002	Threader guide plate
25	844036027	Threader lever plate
26	842092003	Threader lever
27	000078319	Setscrew 3x6
28	808015006	Zigzag width rod
29	827088009	Zigzag width rod spring
30	820373003	Setscrew 2x3
31	678084007	Eccentric pin
32	808074003	Washer
33	000111902	Hexagonal socket screw 3x4
34	808009007	Supporter adjusting plate
35	000036500	Washer FT60
36	673022002	Spring washer
37	000070609	Washer 6
38	000013903	Snap ring CS-5
39	000072003	Washer 5
40	000101404	Setscrew 4x6
41	808010001	Supporter guide plate
42	508607105	Needle bar (unit)
43	808011002	Threader position set plate
44	000177205	Hexagonal socket screw 3x6
45	508509003	Needle bar connecting stud (unit)
46	844038018	Needle bar supporter spring
47	808606103	Buttonhole sensor (unit)
48	845002005	Sensor set plate
49	843502602	Printed circuit board E1 (unit)
50	845029008	Insulation paper
51	000101105	Setscrew 3x4
52	000103808	Setscrew 3x5
53	830057021	Buttonhole lever guide
54	808673008	Buttonhole lever (unit)
55	808605803	Zigzag width motor (unit)
56	809019014	Motor cover
57	809046009	Tube
58	000053008	Cord binder
59	808611008	Presser foot lift switch (unit)
60	000081005	Setscrew 4x8
61	102408089	Needle
62	660509008	Presser foot (unit)
63	660806008	Presser foot holder (unit)
64	832523007	Zigzag foot (unit)
65	647112009	Thumbscrew

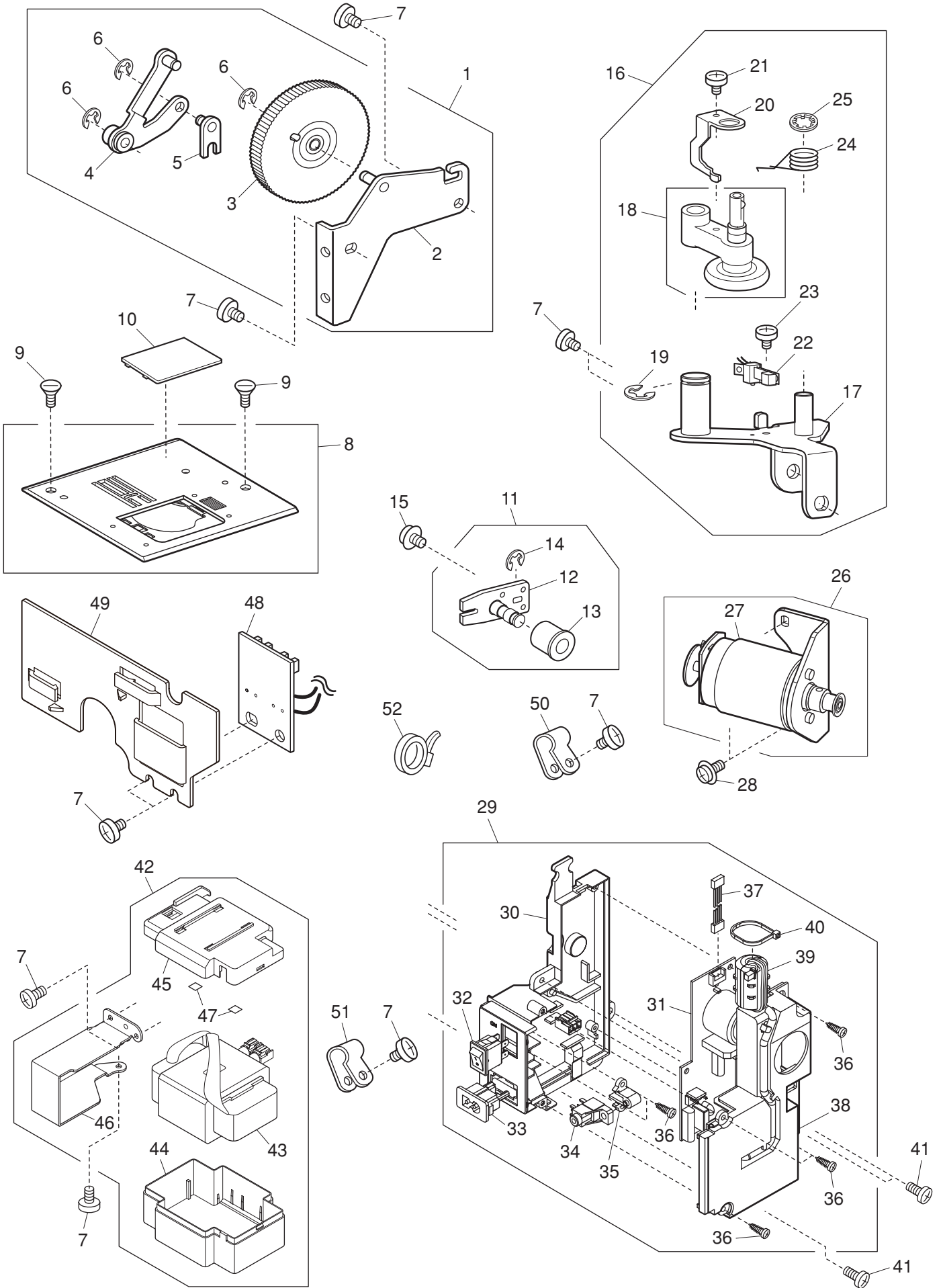
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809620704	Hook race (whole unit)
2	809621015	Hook race (unit)
3	660536004	Hook body (unit)
4	508118001	Washer
5	820123006	Hook race shaft
6	820124007	Hook shaft oil wick (1)
7	820125008	Hook shaft oil wick (2)
8	000038409	Washer
9	508139008	Magnet set plate
10	627192001	Washer
11	625102008	Washer
12	508072002	Hook race shaft base
13	000111304	Hexagonal socket screw 5x5
14	000103705	Setscrew 4x5
15	627567104	Bobbin holder stopper (unit)
16	000101404	Setscrew 4x6
17	809607509	Feed regulator (unit)
18	000115205	Setscrew TP 4x6
19	809602009	Lower shaft (unit)
20	808027207	Lower shaft
21	508021006	Upper shaft gear
22	000004200	Spring pin 3x18
23	000038502	Washer
24	508054008	Shaft supporter plate
25	820166001	Lower shaft ring
26	000111201	Hexagonal socket screw 4x4
27	809017001	Lower shaft supporter
28	809016000	Lower shaft supporter plate
29	000081005	Setscrew 4x8
30	809014008	Feed cam
31	000005407	Spring pin 3x12
32	808137005	Lower shaft gear
33	846103000	Feed lifting cam
34	820161006	Feed lifting pin
35	808075004	Feed lifting cam spring
36	000022802	Spring pin 2x12
37	809013007	Feed fork
38	809015009	Feed fork spring
39	820172000	Pin
40	000071105	Washer 5
41	809064003	Needle plate set plate (right)
42	000063104	Nut 3-2-5.5
43	825515004	Feed base plate (unit)
44	825237009	Setscrew
45	809623305	Thread cutter (unit)
46	808105107	Slide position adjusting plate
47	732034003	Lower shaft rear bushing
48	809053009	Feed balancing dial 2
49	809042005	Lower shaft bushing set plate
50	000115607	Setscrew TP 4x8
51	000101703	Setscrew 4x12
52	858570009	Bobbin holder (unit)
53	102261103	Bobbin

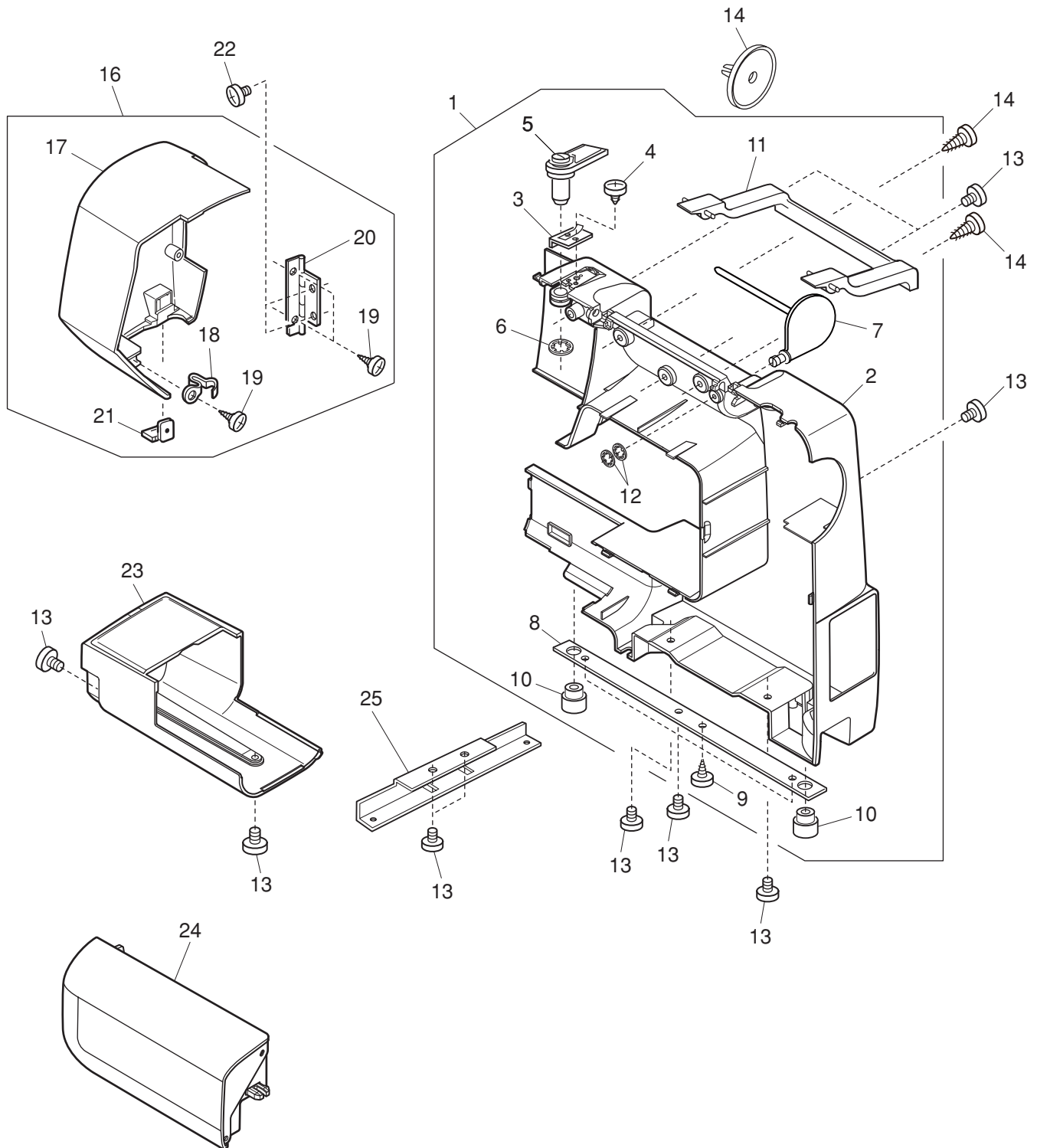
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809608005	Presser foot pressure adjustment (unit)
2	809018002	Presser foot pressure adjusting set plate
3	808078203	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	809511000	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	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
28	000115700	Setscrew TP 4x10
29	808650009	Printed circuit board C case (unit)
30	808129004	Printed circuit board C case
31	808535007	Printed circuit board C (unit)
32	808541202	Power switch (unit)
33	808518004	Machine socket (unit)
34	858516904	Jack (unit)
35	808131009	Jack set supporter
36	000161309	Setscrew 3x12 (B)
37	808536008	Cable (unit)
38	808130008	Printed circuit board C case cover
39	000595007	Ferrite core
40	000053101	Cord binder
41	000103509	Setscrew 4x10
42	808651000	Power transformer case (unit)
43	808534006	Power transformer (unit)
44	808126001	Trans case
45	808127002	Trans case lid
46	808128003	Transformer set plate
47	808133001	Sheet
48	808504007	Printed circuit board P (unit)
49	808181004	Cord guide
50	000188209	Nylon clip ACC-1.5
51	000188405	Nylon clip ACC-2
52	000053008	Cord binder

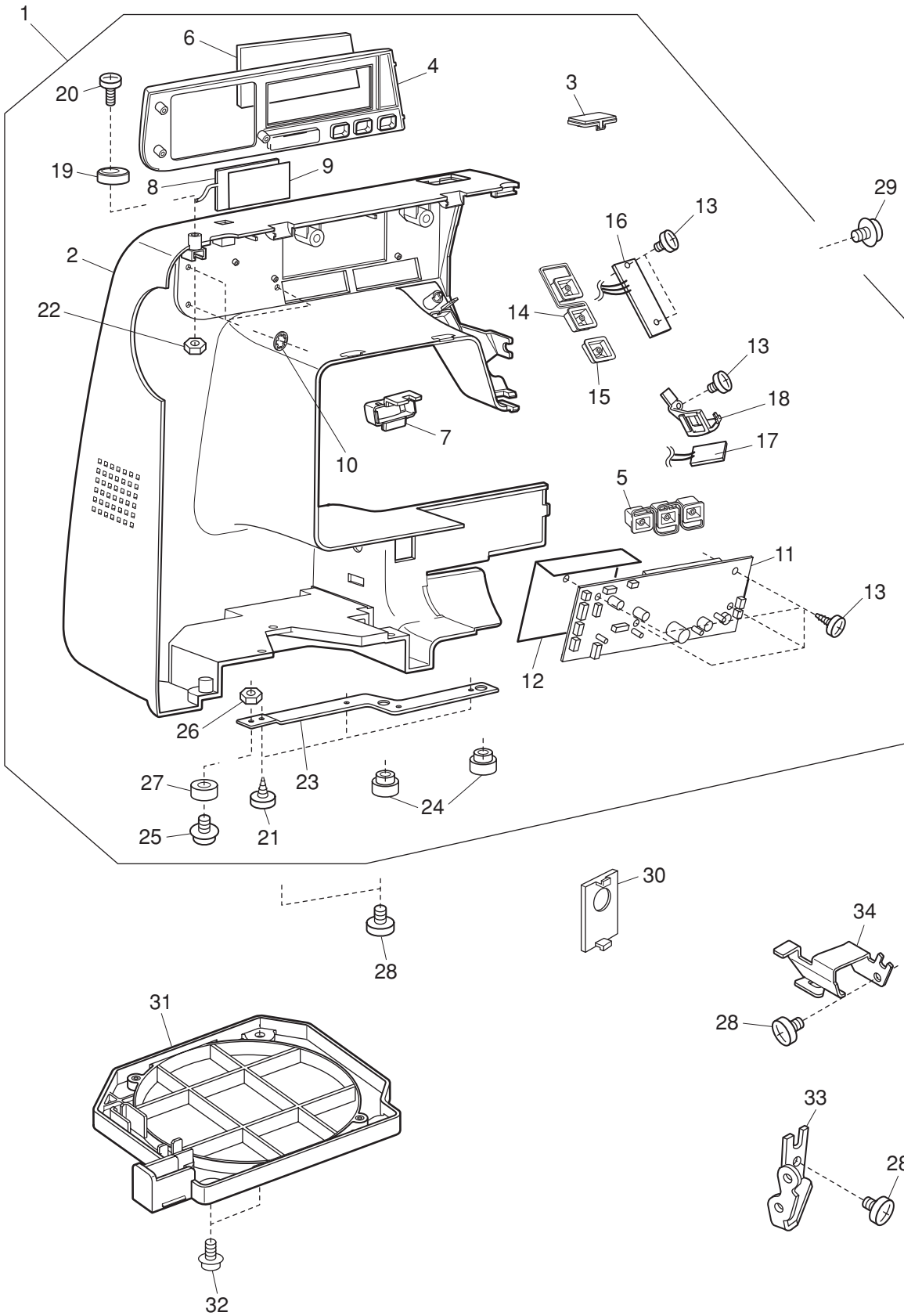
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809604609	Rear cover (unit)
2	809025600	Rear cover
3	827503108	Top cover thread guide (unit)
4	000162001	Setscrew 2.6x5 (B)
5	650503403	Thread guide (unit)
6	000014409	Snap ring CS-8
7	809027004	Spool pin
8	809028005	Arm leg rear
9	000198604	Setscrew 4x14 (B)
10	735003002	Bed rubber cushion
11	809026003	Carrying handle
12	000013800	Snap ring CS-6
13	000081005	Setscrew 4x8
14	000160401	Setscrew 4x16 (B)
15	822020503	Spool holder (large)
16	809606025	Face plate (unit)
17	809040014	Face plate
18	731067002	Face plate spring
19	000161206	Setscrew 3x10 (B)
20	851503103	Face plate hinge (unit)
21	840602006	Thread cutter (unit)
22	000081119	Setscrew 4x6
23	808061007	Free arm cover
24	808508001	Extension table (unit)
25	809024001	Arm sole set plate

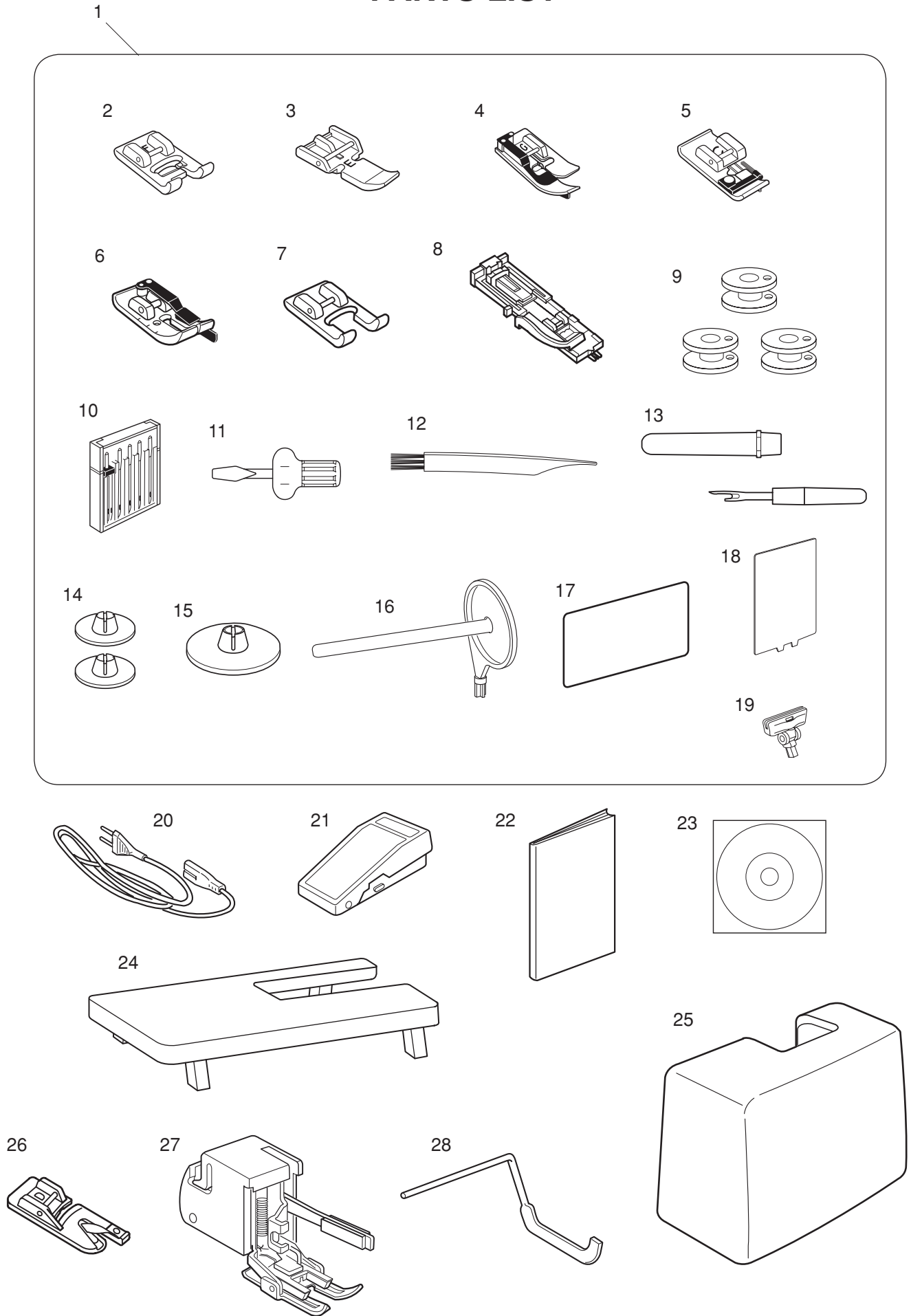
PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809605839	Front cover (unit)
2	809030125	Front cover
3	808103002	Front cover lid
4	809031229	Panel 1
5	809033128	Button 1
6	809032301	Panel 2
7	809036202	Slide volume
8	809501007	Touch panel (unit)
9	809043109	Touch panel seat
10	000140007	Snap ring CS-4
11	809405033	Printed circuit board A (unit)
12	809048001	Flame retardant insulating paper
13	000120203	Setscrew 3x8 (B)
14	809034129	Button 2
15	809035120	Start/stop button
16	809502008	Printed circuit board F (unit)
17	858511116	Printed circuit board L (unit)
18	808118000	Lamp holder 2
19	735016307	Bobbin winder stopper
20	000101828	Setscrew 4x16
21	000198604	Setscrew 4x14 (B)
22	000061205	Nut 4-3-7
23	809038008	Arm sole front
24	735003002	Bed rubber cushion
25	000114802	Setscrew TP 4x12
26	000160102	Adjustable lock nut 4
27	639005003	Rubber foot
28	000081005	Setscrew 4x8
29	000115205	Setscrew TP 4x6
30	809039009	Cap
31	808059301	Bed cover
32	000149312	Setscrew 3x8
33	639080002	Front cover set plate
34	808016018	Arm thread guide

PARTS LIST



PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809870103	Standard accessories (unit)
2	822804118	Satin foot (F)
3	808852003	Zipper foot (E)
4	825817009	Blind hem foot (G)
5	822801001	Overedge foot (C)
6	200008037	1/4" seam foot
7	832427103	Open toe satin stitch foot
8	753801004	Buttonhole foot (R)
9	102261103	Bobbin
10	820827007	Needle case (unit)
11	820832005	Screwdriver
12	802424004	Lint brush
13	647808009	Seam ripper (Buttonhole opener)
14	822019509	Spool holder (small)
15	822020503	Spool holder (large)
16	809041004	Spool pin
17	809806005	Caution sticker
18	809801206	Stitch chart
19	809809008	Stitch chart base
20	864100003	Power supply cord
21	C-1036	Foot control
22	809851061	Instruction book
23	809808007	Instructional DVD
24	808401302	Large extension table
25	404701404	Hard cover
26	820840006	Rolled hem foot (D)
27	214510007	Even feed foot
28	214015007	Quilting bar