First Edition 7 September 2016

SERVICE MANUAL
&
PARTS LIST

MODEL: DM7200

WHAT TO DO WHEN

Condition	Cause	How to fix	Reference
1. Skipping Stitches	1. Needle is not inserted properly.	Insert the needle properly.	
	2. Needle is bent or worn.	Change the needle.	
	3. Incorrectly threaded.	Rethread.	
	4. Needle or thread are inappropriate for the fabric being sewn.	Use the recommended sewing needle and thread.	
	5. Sewing on stretch fabric.	Use a HA x #11 blue tip needle.	
	6. Inappropriate needle bar height.	See mechanical adjustment “Needle bar height”.	P. 11
	7. Inappropriate needle to hook timing.	See mechanical adjustment “Adjustment of hook timing”.	P. 10
	8. Inappropriate needle to hook clearance.	See mechanical adjustment “Clearance between needle and tip of the rotary hook”.	P. 12
2. Fabric not moving	1. Incorrect feed dog height.	Adjust the presser bar level to make the pressure stronger. See mechanical adjustment “Feed dog height”.	P. 13
	2. Feed dog is in down position.	Raise the feed dog.	
	3. Thread on bottom side of fabric is jammed up.	Make sure to bring both needle and bobbin threads under the foot when start sewing.	
	4. Feed dog teeth are worn.	Change the feed dog.	

Condition	Cause	How to Fix	Reference
3. Breaking upper thread.	1. Initial sewing speed is too fast.	Start with medium speed.	
	2. Thread path is incorrect.	Use the proper thread path.	
	3. Needle is bent or dull.	Replace with a new needle.	
	4. Top tension is too strong.	Adjust top tension correctly.	
	5. Needle size is inappropriate for fabric.	Use appropriate needle for fabric and thread in use.	
	6. Needle eye is worn.	Change the needle.	
	7. Needle hole in needle plate is worn or burred.	Repair the hole or replace the needle plate.	
4. Breaking bobbin thread.	1. Bobbin holder is incorrectly threaded.	Set the bobbin thread correctly.	
	2. Too much thread is wound on the bobbin.	Adjust the position of bobbin winder stopper.	
	3. Lint is stuck inside the bobbin holder.	Clean the bobbin holder.	
	4. Thread quality is too low.	Change to a high quality sewing thread.	
	5. Thread is jamming around the bobbin holder.	Clear out the jamming thread.	
5. Needle breaks	1. Needle is hitting the needle plate.	See mechanical adjustment “Needle drop position”.	P. 9
	2. Needle is bent or worn.	Change the needle.	
	3. Needle is hitting the hook.	See mechanical adjustment “Clearance between needle and tip of the rotary hook”.	P. 12
	4. Fabric is being pulled too strongly while sewing.	Guide the fabric gently while sewing.	

Condition	Cause	How to fix	Reference
6. Noisy operation	1. Backlash between hook gear and lower shaft gear is too great.	Eliminate the backlash.	
	2. Lower shaft gear is loose.	Eliminate the looseness.	
	3. Inappropriate belt tension.	See part removal and replacement “driving motor (DC motor)”.	P. 31
	4. Not enough oil.	Oil all moving parts.	
	5. Upper shaft gear is loose.	Eliminate the looseness.	
7. Deformation pattern	1. Inappropriate feed balance.	Adjust the feed balancing screw.	P. 14
	2. Top tension is too strong.	See mechanical adjustment “Top tension”.	P. 15

CHANGING EXTERNAL PARTS

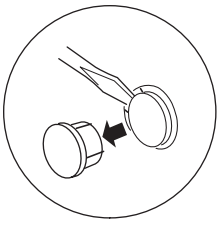
FACE COVER

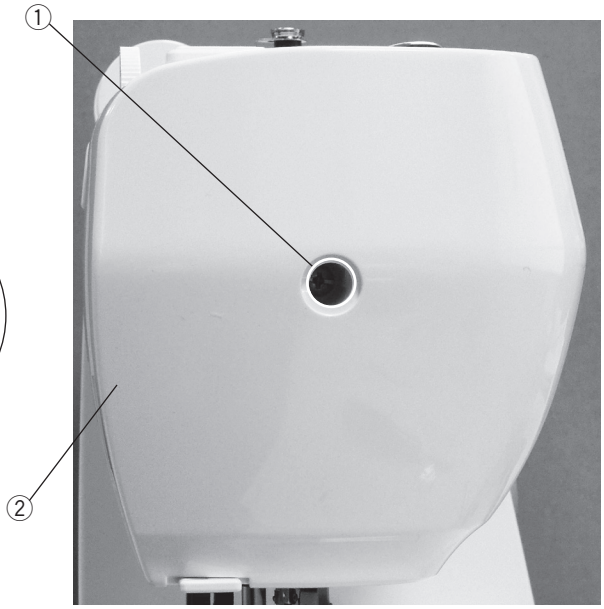
To remove:

1. Remove the cap and 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

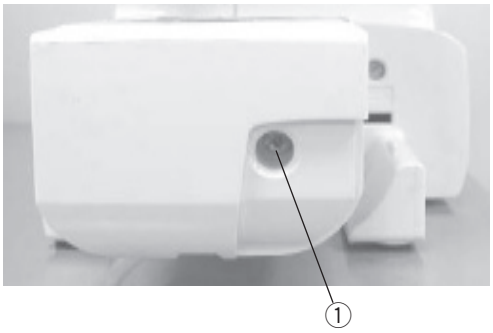
FREE-ARM COVER

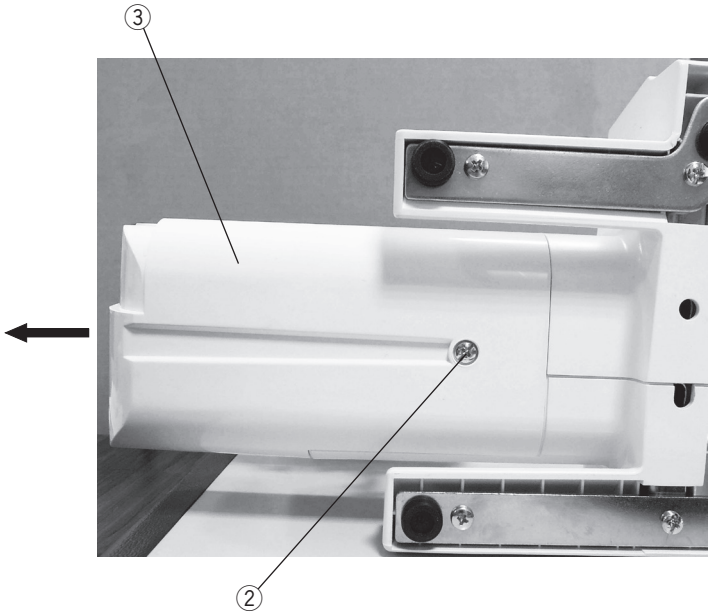
To remove:

1. Remove the setscrew ① and ②.
   Move the free-arm cover ③ to the left.
   Remove the free-arm cover.

To attach:

Follow the above procedures in reverse.





CHANGING EXTERNAL PARTS

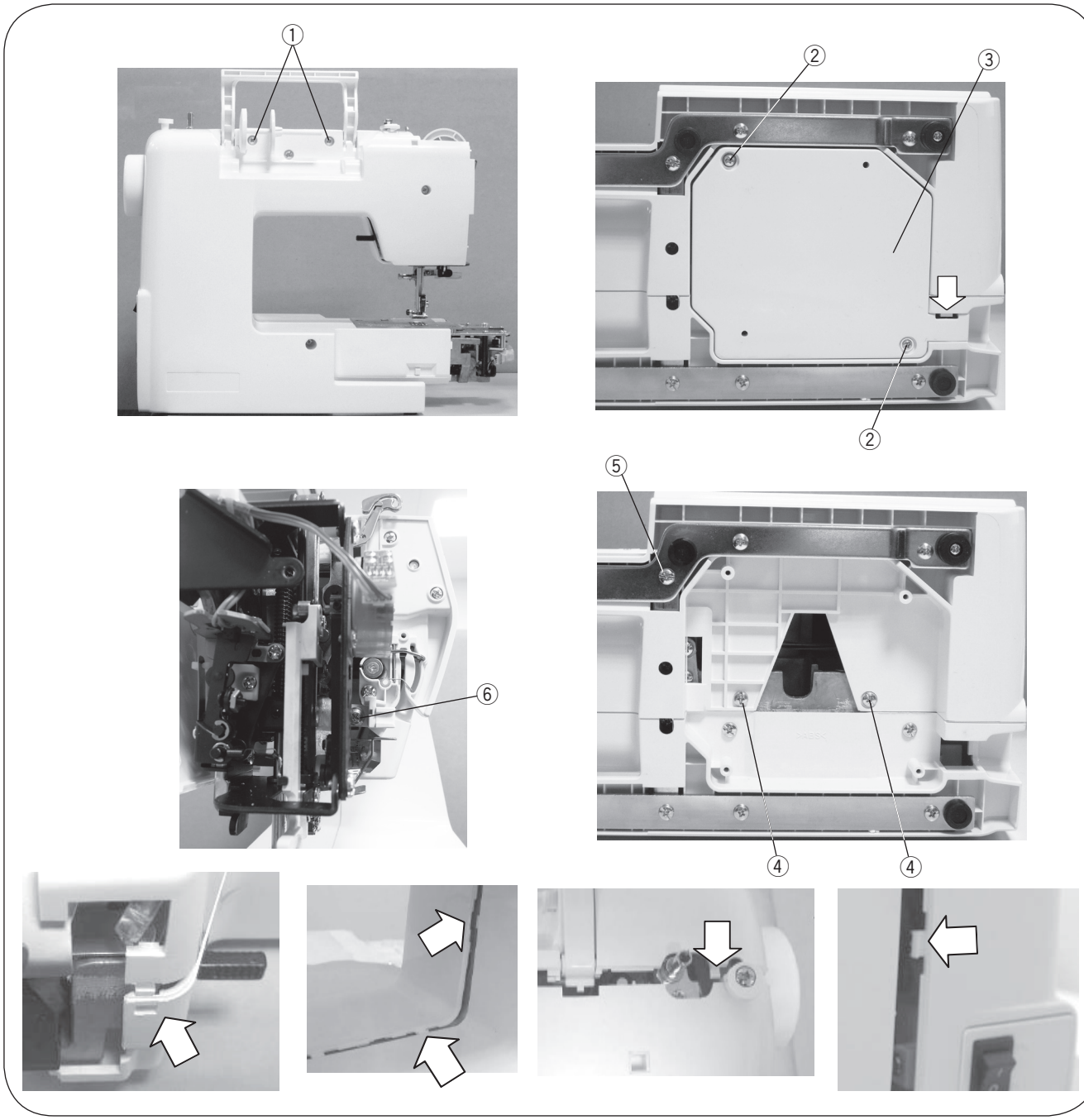
FRONT COVER

To remove:

1. Remove the face cover and free-arm cover (See page 4 and 5).
2. Remove the setscrews ① (2 pcs.).
3. Remove the setscrews ② (2 pcs.) and back cover ③. Disengage the front cover and rear cover hooks.
4. Remove the setscrews ④ (2 pcs.) and setscrew ⑤.
5. Loosen the setscrew ⑥.
6. Disengage the front cover and rear cover hooks.
7. Remove the front cover.
8. 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:
7. Follow the above procedures in reverse. See "PRINTED CIRCUIT BOARD A CONNECTION". (Page 25)



CHANGING EXTERNAL PARTS

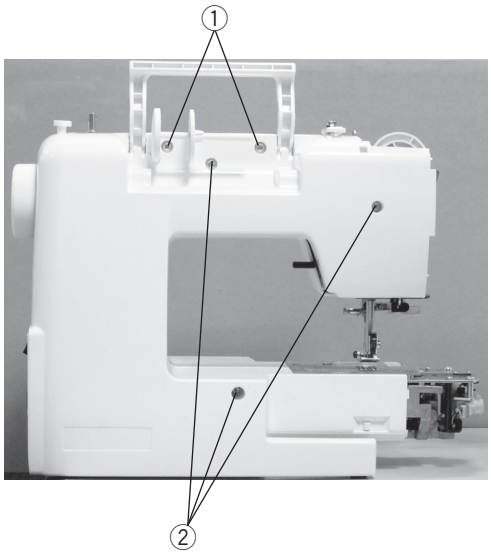
REAR COVER

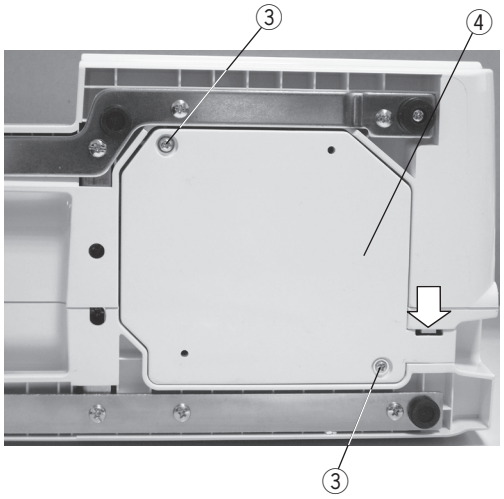
To remove:

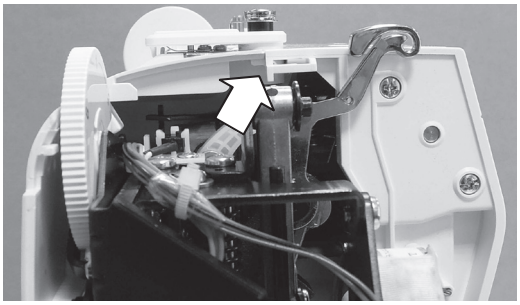
1. Remove the face cover and free-arm cover (See page 4 and 5).
2. Remove the setscrews ① (2 pcs.) and the setscrews ② (3 pcs.).
3. Remove the setscrews ③ (2 pcs.) and back cover ④. Disengage the rear cover and back cover hooks.
4. Remove the setscrews ⑤ (2 pcs.) and setscrew ⑥.
6. Disengage the front cover and rear cover hooks.
7. Remove the rear cover.

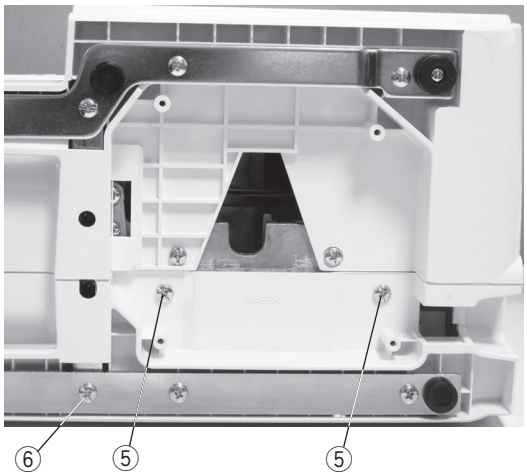
To attach:

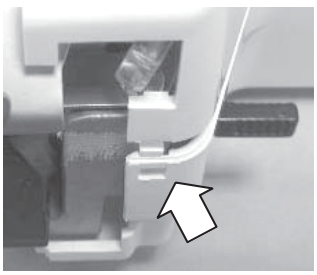
5. Follow the above procedures in reverse.

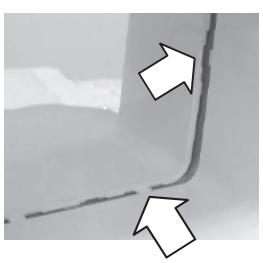


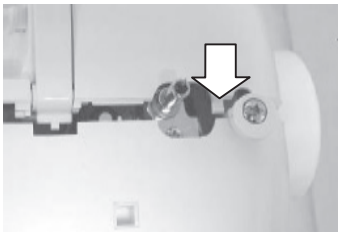












MECHANICAL ADJUSTMENT

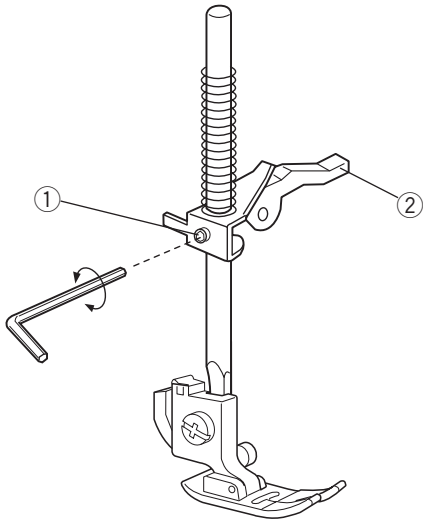
PRESSER BAR HEIGHT

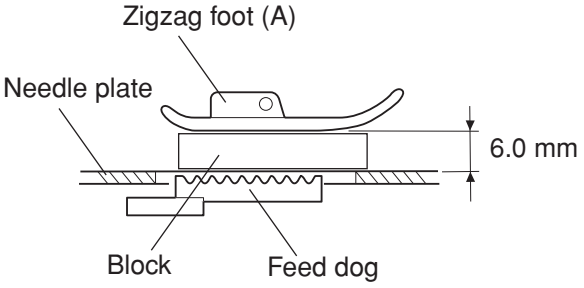
The distance between the bottom of the presser foot in up position and the needle plate should be 6.0 mm.

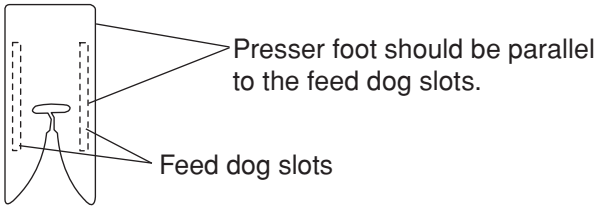
1. Remove the face plate and needle.
2. Lower the feed dog below the needle plate.
   Place a block 6 mm thick under the presser foot and lower the presser foot lifter ②.
3. Loosen the setscrew ①. Raise the presser foot lifter and tighten the setscrew ① firmly.
   Attach the needle and face plate.

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 " ". The standard needle drop position should be at center of the needle plate hole. Select zigzag stitch " ", 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 3 x 4 ①. 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.

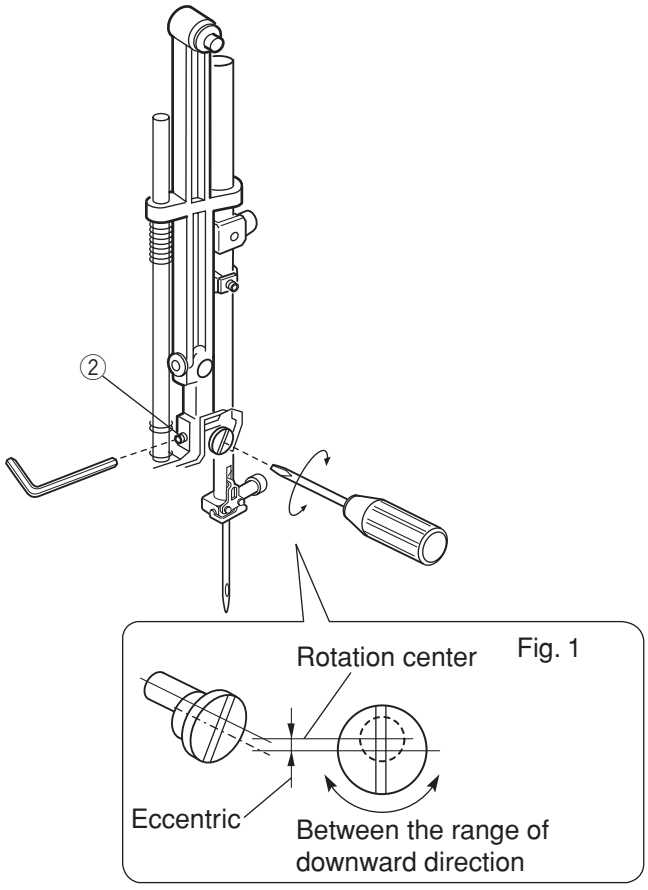
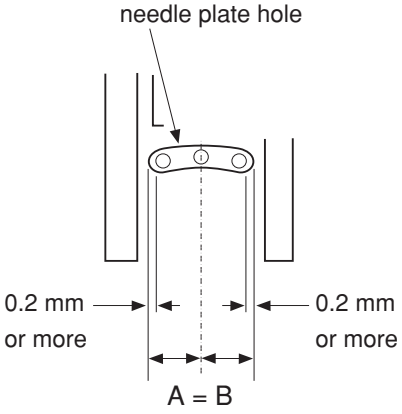


Fig. 1

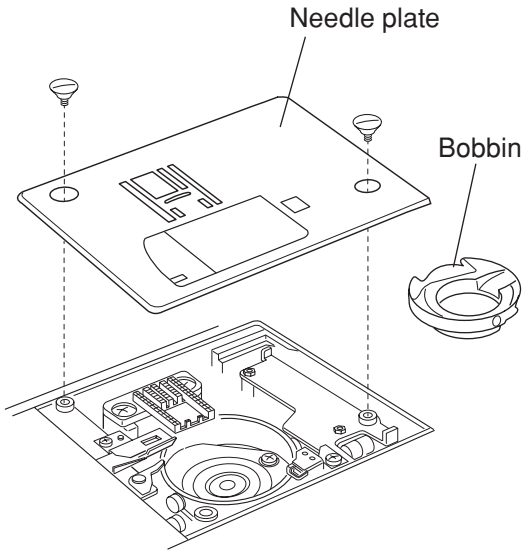


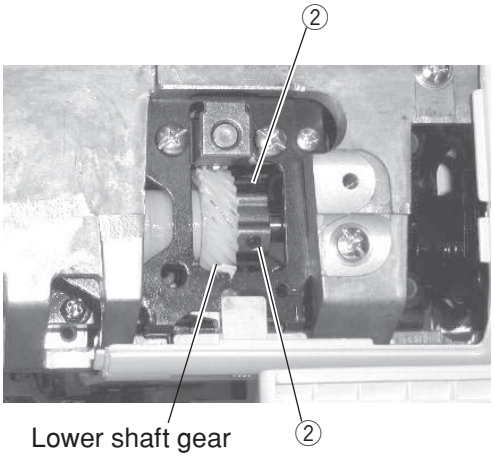
MECHANICAL ADJUSTMENT

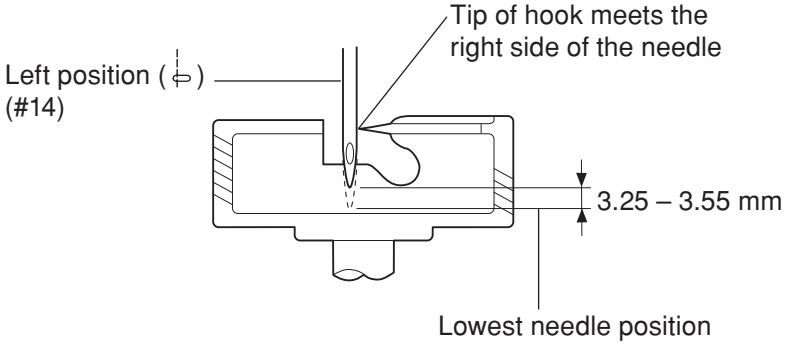
ADJUSTMENT OF HOOK TIMING

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. (See page 5.)
   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.





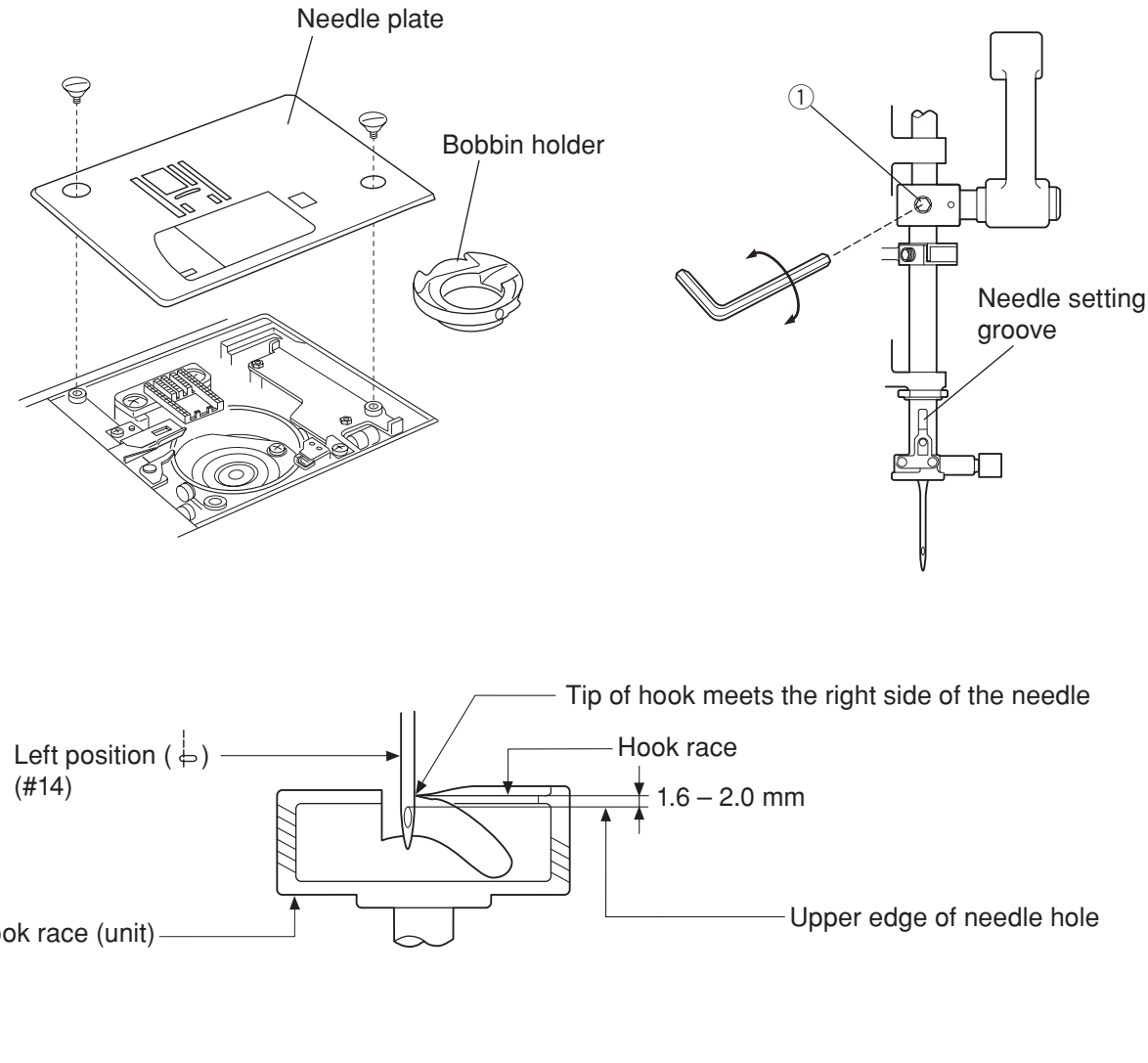


MECHANICAL ADJUSTMENT

ADJUSTMENT OF NEEDLE BAR HEIGHT

Before proceeding with this adjustment, check the hook timing (refer to page 10). 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. (See page 4.)
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.



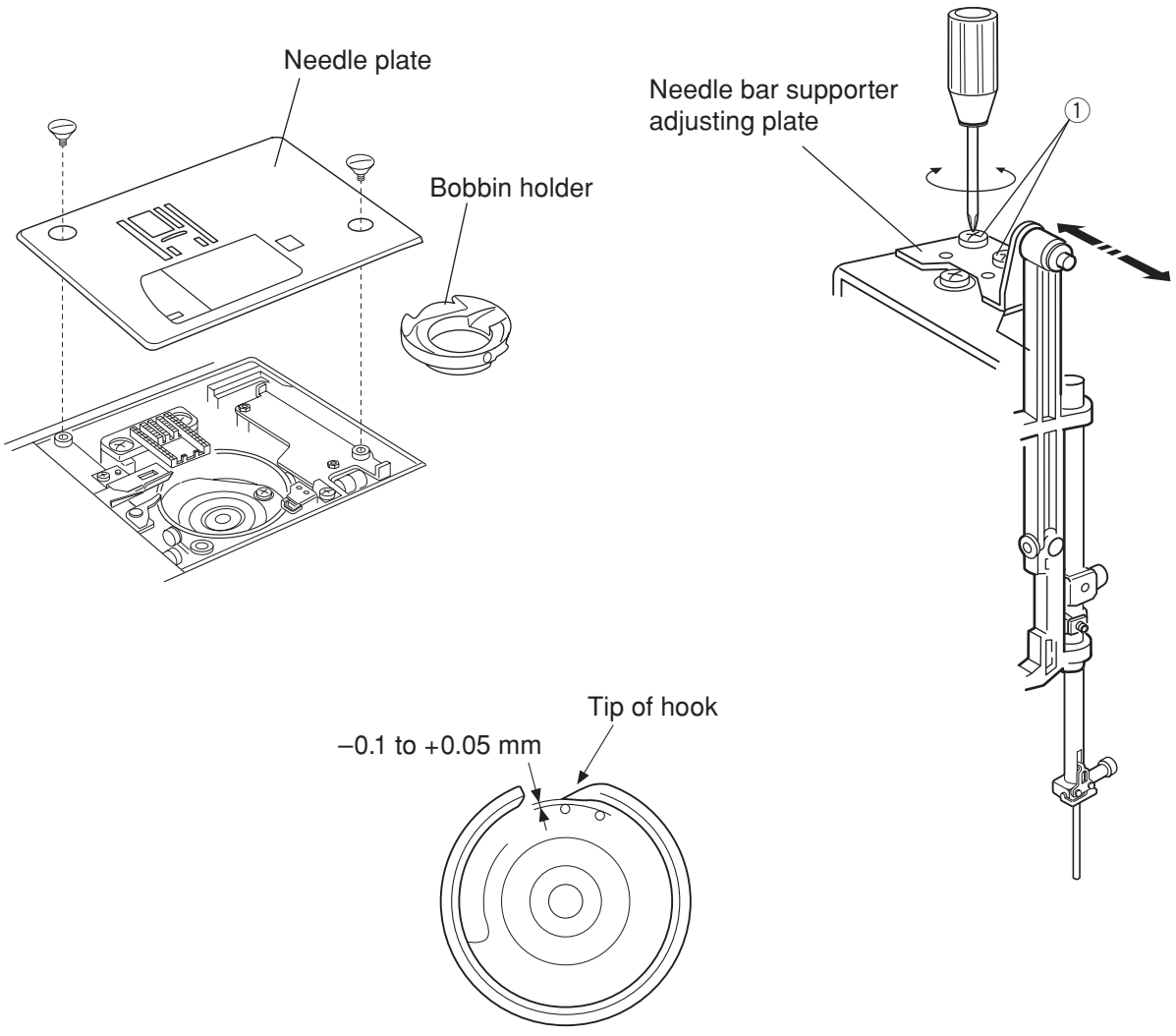
MECHANICAL ADJUSTMENT

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. (See page 4.)
3. Loosen the setscrews ① (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 setscrews ① (2 pcs.).
6. Attach the face cover. Remove the master needle. Attach the bobbin holder and needle pate.
7. Check the clearance between the needle and the edge of the needle hole in the needle plate (see page 9).

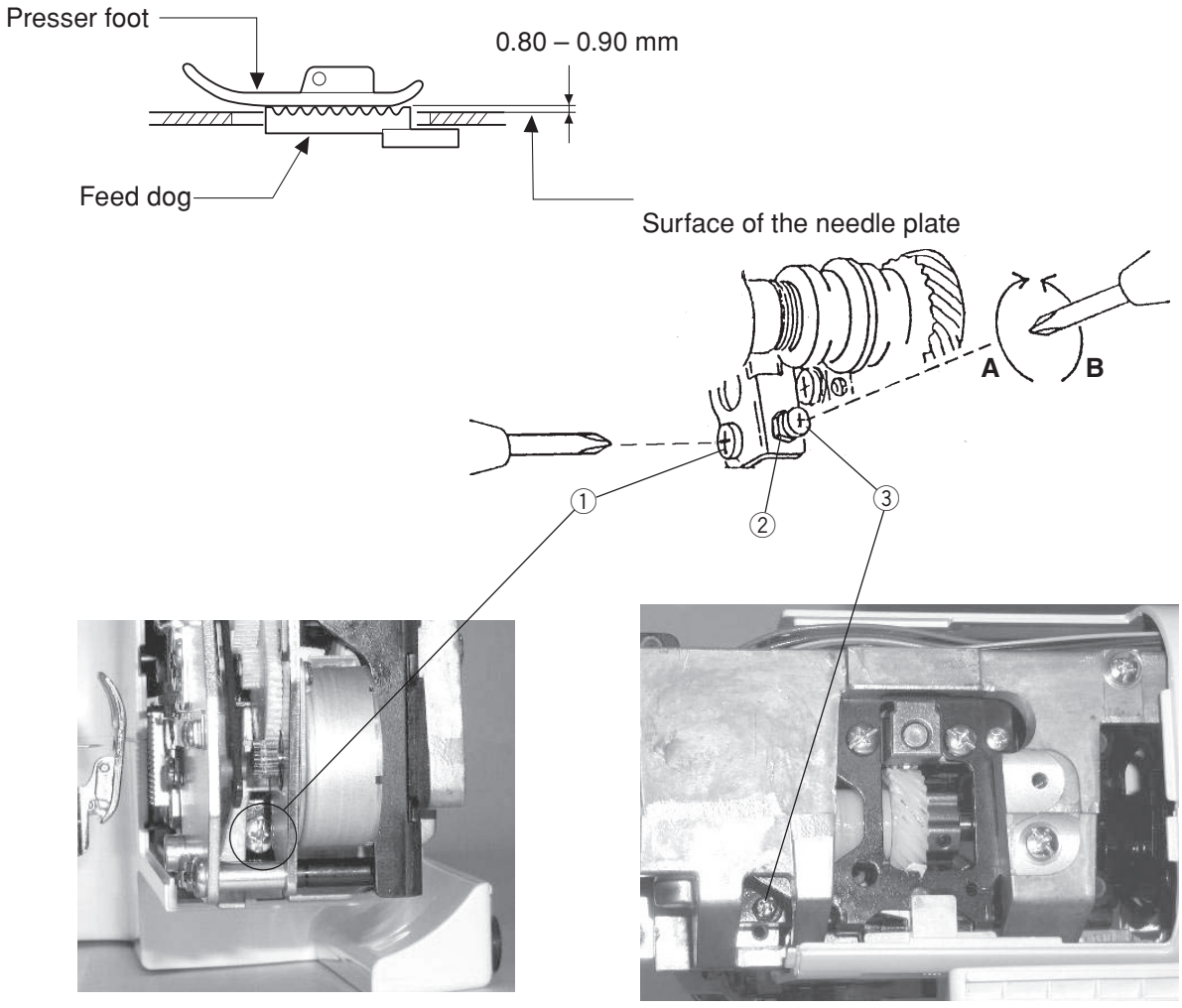


MECHANICAL ADJUSTMENT

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. (See page 5.)
4. Loosen the setscrew 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 ①.
7. Attach the free-arm cover.

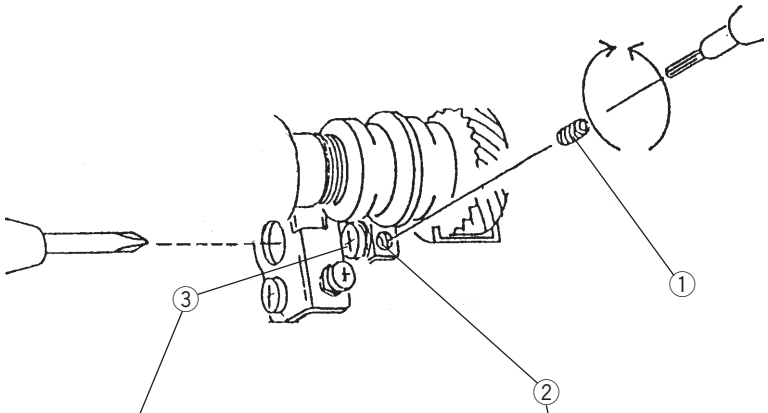


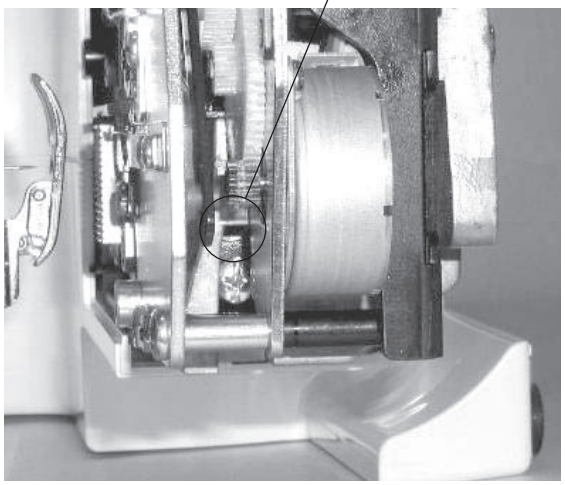
MECHANICAL ADJUSTMENT

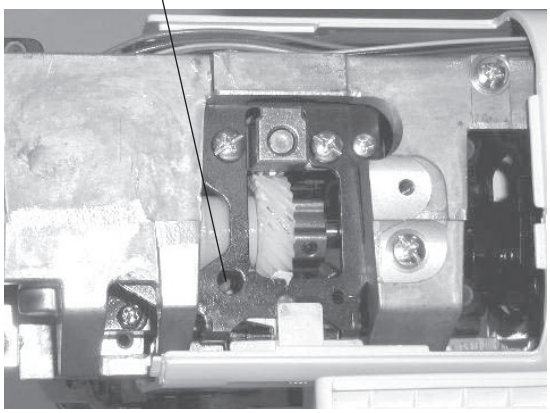
FEED DOG ADJUSTMENT

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

1. Use a hexagonal socket screw (4 x 6) ①.
   Insert the screw to the hole ②. Tighten the hexagonal socket screw as far as it goes.
2. Loosen the setscrew ③.(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 ③.(left screw)
5. Loosen the hexagonal socket screw and remove it.





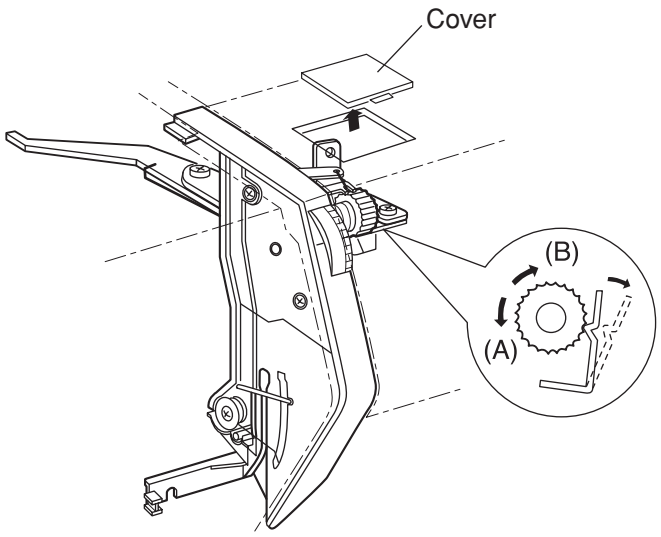


MECHANICAL ADJUSTMENT

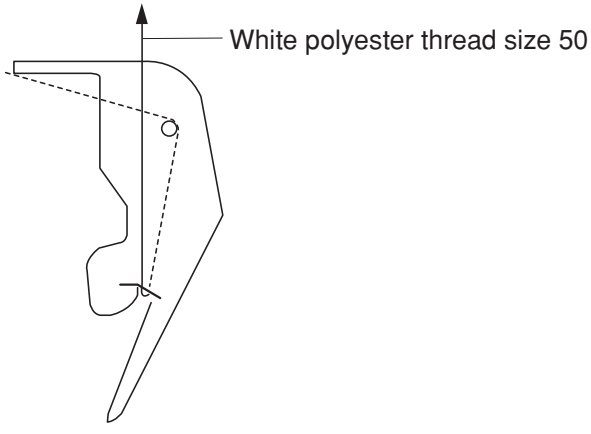
TOP TENSION

The top tension should be between 65 and 80 g 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 cover.
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:

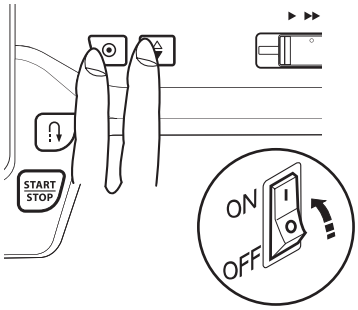
1. Enter the self-diagnostic mode (see below).
   Attach the Satin stitch foot F. Place a fabric under the presser foot. Lower the presser foot.
2. Press the locking stitch button to start test sew, and check the results (the standard figure length of 5 pieces of figure 8 is 33-39 mm).
3. If stretch 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.

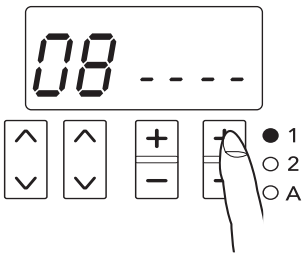
   Start the machine and check the movement of the fabric.
   Adjust the hexagonal socket screw position (gear position) until the fabric will not be fed with the stitch length setting at “0”.
3. Tighten the socket screw and attach the feed balancing dial cover.
   Enter the self-diagnostic mode and test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

TO ENTER SELF-DIAGNOSTIC MODE:

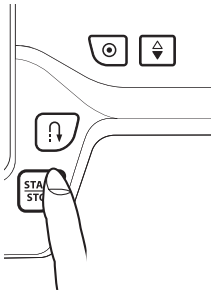


Turn the power switch on while simultaneously pressing auto-lock button and needle up/down button.

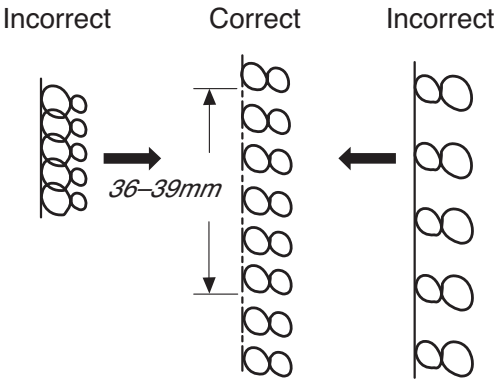
The LCD display will indicate “01”.



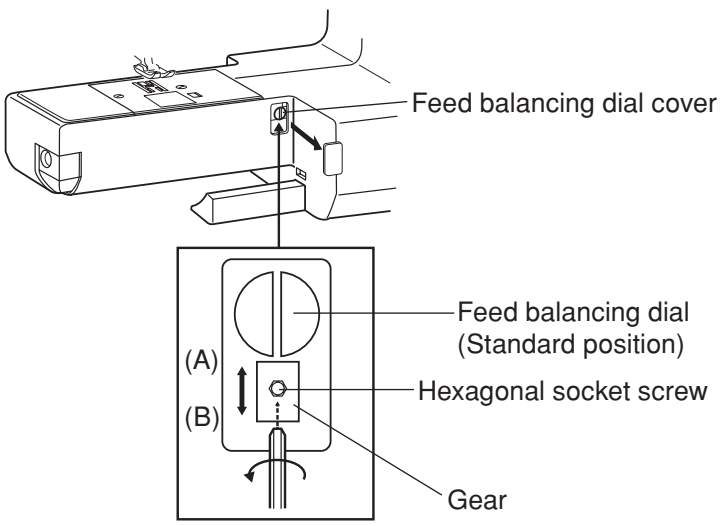
Press the stitch length adjusting key 7 times to display the “08”.



Press the start/stop button to display the “88” and to enter the stretch stitch test mode.



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



MECHANICAL ADJUSTMENT

REPLACEMENT AND ADJUSTMENT OF THE NEEDLE THREADER PLATE

If the hook of the threader plate is damaged, change and adjust the part as follows:

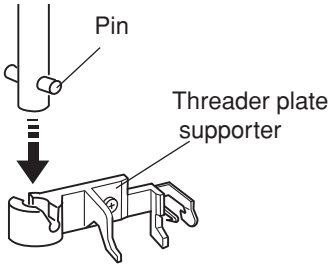
TO CHANGE THE THREADER PLATE:

1. Push down the needle threader knob and pull the threader plate supporter down to remove it (see FIG 1).
2. To install the needle threader plate, line the groove up with the pin and push it up to snap fit.

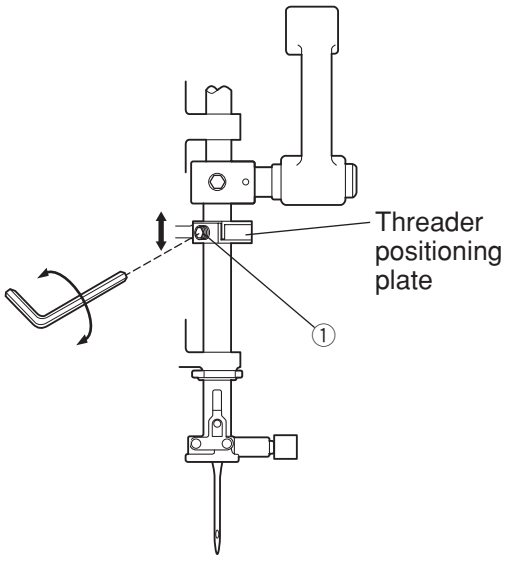
TO ADJUST THE THREADER PLATE POSITION:

1. If the hook on the threader positioning plate touches the top or bottom side of the needle hole, loosen setscrew ① and adjust the hook position (FIG.2).
2. If the hook on the threader plate touches the left or right side of the needle hole, loosen setscrew ② and adjust the hook position (FIG 3).

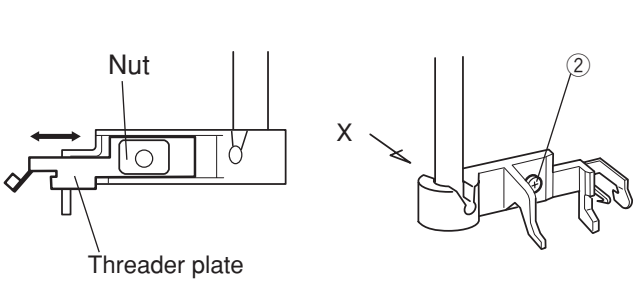
Replacing the threader plate supporter
(with the threader plate attached) FIG. 1



Vertical adjustment FIG. 2



Adjustment of left or right direction FIG. 3



MECHANICAL ADJUSTMENT

ADJUSTING BUTTONHOLE LEVER POSITION

TO ADJUST THE BUTTONHOLE LEVER GUIDE:

1. Enter the diagnostic test of buttonhole sensor mode. (See pages 18 and 19. The LCD should display 03 and BH symbol.)
2. Remove the face cover (see page 4) and loosen the setscrew ①.
3. Move the buttonhole lever guide so the BH symbol disappear when the buttonhole lever is lowered. Tighten the setscrew.

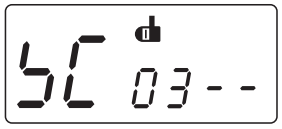
TO ADJUST THE BUTTONHOLE SENSOR POSITION:

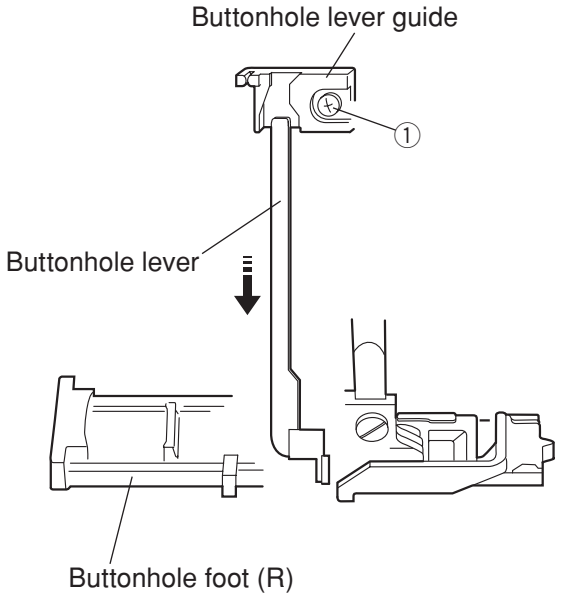
4. Attach the buttonhole foot (R).
5. Lower the buttonhole lever to its lowest position and open a 1.6 mm gap between the slider and the buttonhole foot.
6. Turn the adjusting screw ② to the left until the LCD display BH symbol.
7. Next, turn the adjusting screw to the right until the BH symbol disappears.
8. Turn off the power switch.
9. Attach the face cover.

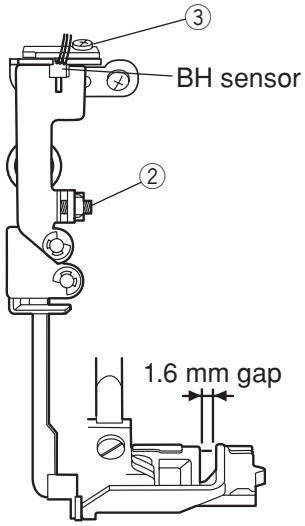
NOTE:

If there is any lint or dust in the buttonhole sensor slit, loosen the screw ③ and clean it out with a swab.

TO ENTER ADJUSTING MODE







MECHANICAL ADJUSTMENT

THREAD CUTTER

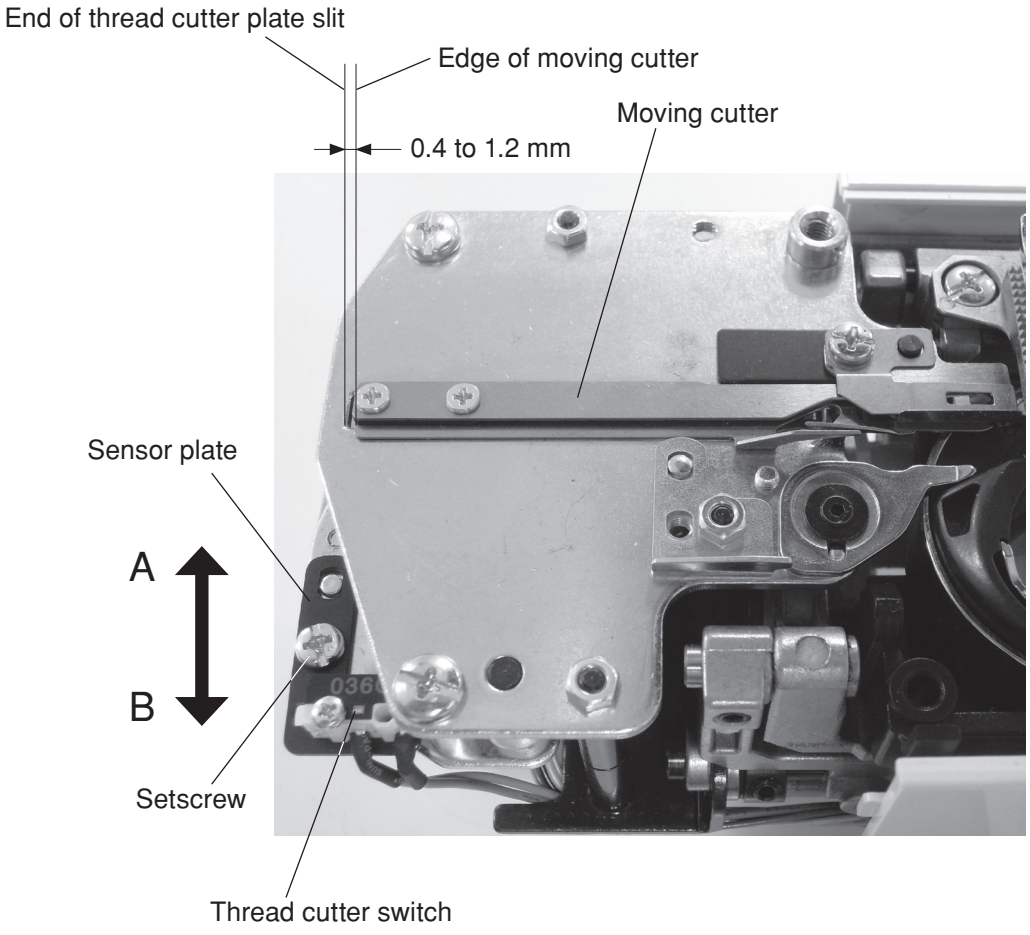
The distance between the end of thread cutter plate slit and the edge of moving cutter should be in the range of 0.4 to 1.2 mm.

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 0.4 to 1.2 mm.
   If not, follow the procedure below.

TO ADJUST:

1. Loosen the setscrew on the sensor plate.
2. Adjust the distance between the end of thread cutter plate slit and the edge of moving cutter to 0.8 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.

NOTE:

- 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.)

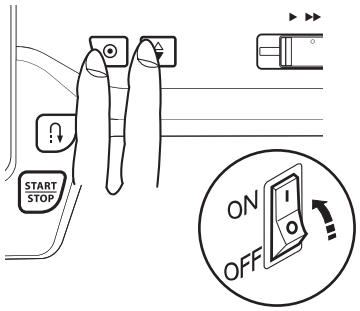
To begin:

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

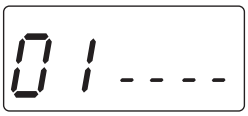
1. The machine does not respond when the power switch is turned on:
   - Check each connector connection
   - Replace the machine socket
   - Replace the switching regulator
   - Replace the printed circuit board A

2. The sewing machine lamp does not light up:
   - Replace the light bulb
   - Replace the printed circuit board A

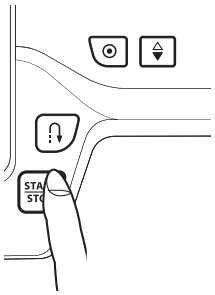
TO ENTER SELF-DIAGNOSTIC MODE:



1. Turn the power switch on while simultaneously pressing auto-lock button and needle up/down button.

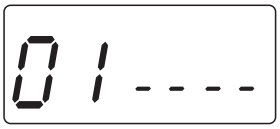
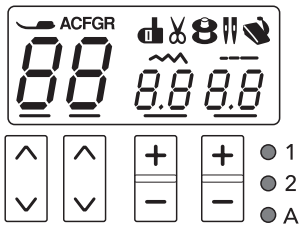
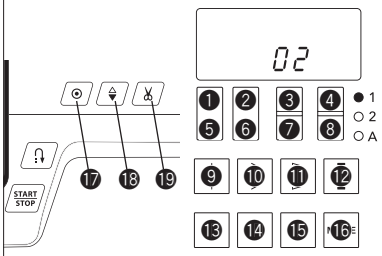
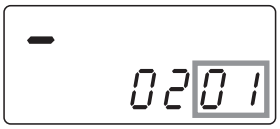
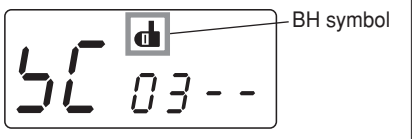
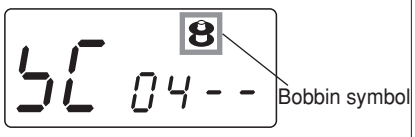


2. The LCD display will indicate “01”.

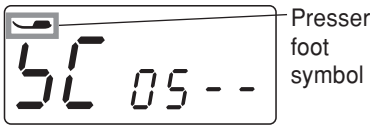
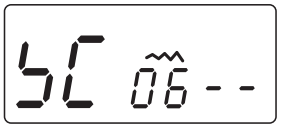
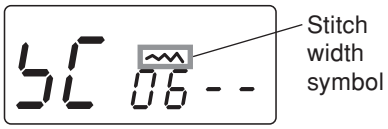
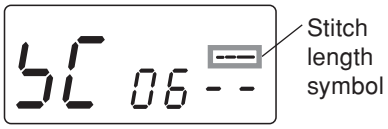
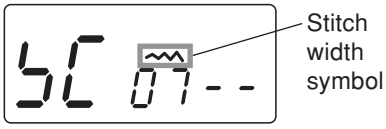
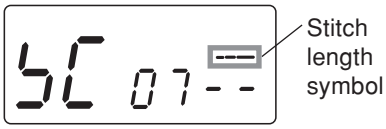


3. Press the start/stop button to enter the self-diagnostic mode.

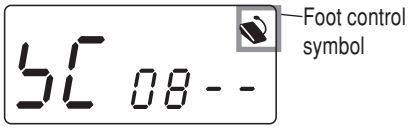
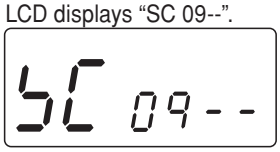
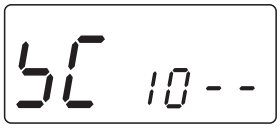
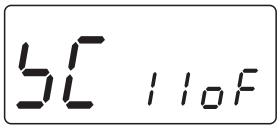
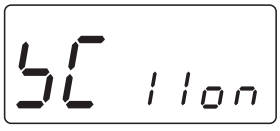
SELF-DIAGNOSTIC TEST

STEP AND ITEMS TO CHECK	PROCEDURE	CORRECT CONDITION	DEFECTIVE CONDITION
01) FUNCTION OF LCD, BUZZER AND LAMP	Turn on the power switch while simultaneously pressing the auto-lock button and needle up/ down button. Press the start/stop button to enter the self-diagnostic mode. 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.	Sewing lamp and LCD backlight lit. LCD displays “01 ----”.  Buzzer sounds. LCD displays symbols and numbers blinks. Three green selection lamp lights. 	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. **–REMEDY–** Replace the circuit board A. Replace the circuit board L.
02) BUTTON	 Press buttons 1– 19. 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 “ 02 ”. Buzzer sounds when button is pressed. Button number is displayed when the button is pressed.  LCD displays “01” when button ❶ is pressed. LCD displays “02” when button ❷ is pressed. ⋮ LCD displays “18” when button ⓲ is pressed. LCD displays “19” when button ⓳ is pressed. When ❶ - ⓰ are pressed, LCD displays “88 02”.	Buzzer does not sound. LCD does not display the number correctly. **–REMEDY–** Replace the circuit board A. Replace the circuit board F2.
03) BUTTONHOLE SENSOR	Lower the buttonhole lever. Move the buttonhole lever back and forth. 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 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.	Buzzer does not sound. BH symbol does not appear. **–REMEDY–** Adjust the BH lever sensor position. Replace the BH lever sensor. Replace the circuit board A.
04) BOBBIN WINDER SWITCH	Move the bobbin winder spindle to the right. Return it 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 “SC 04--”. When the bobbin winder spindle is moved to the right, buzzer sounds and LCD displays the bobbin symbol. When the bobbin winder spindle is moved to the left, buzzer sounds and bobbin symbol disappear. 	Buzzer does not sound. Bobbin symbol is not displayed. **–REMEDY–** Adjust the bobbin winder switch position. Replace the bobbin winder switch. Replace the circuit board A.

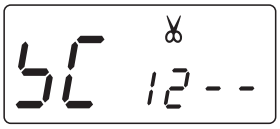
SELF-DIAGNOSTIC TEST

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--” and presser foot symbol. 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–** Adjust the presser foot lifter switch position. Replace the presser foot lifter switch. Replace the 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 “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 P. Replace the circuit board A.
07) ZIGZAG MOTOR (STEP MOTOR) AND FEED MOTOR	Turn the handwheel toward you. Lower the needle bar its highest to position (zigzag phase). Press the needle up/down button. Raise the needle bar from its lowest position to its highest 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 “SC 07--”.  Press the needle up/down button when LCD displays stitch width symbol. The Zigzag motor will be initialized and get its default position.  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 circuit board A. Feed motor does not get default position. buzzer does not sound. **–REMEDY–** Replace the feed motor. Replace the circuit board A.

SELF-DIAGNOSTIC TEST

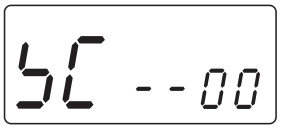
STEP AND ITEMS TO CHECK	PROCEDURE	CORRECT CONDITION	DEFECTIVE CONDITION
08) FOOT CONTROL	Attach the foot control to the machine. Depress the foot control as far as it goes, then release it. If the result is correct condition, press the start/stop button to proceed the next step. If the result is defective condition, press the reverse stitch button to proceed the next step.	LCD displays “SC 08--”.  The foot control symbol appears when the foot control is attached.  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 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 “SC 09--”.  Buzzer sounds at rightmost or leftmost position.	Buzzer does not sound. **–REMEDY–** Replace the circuit board F2. Replace the 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 “SC 10--”.  Machine runs slow, then fast, and the needle bar stops at its highest position.	The machine motor does not start. The motor stops immediately. The motor runs unstable. **–REMEDY–** Replace the DC motor. Replace the 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 “SC 11of”. Press the needle up/down position button to display “on” or “off”. Thread tension disc opens while the LCD displays “on”.   	The thread tension disc does not open. **–REMEDY–** Replace the solenoid. Replace the circuit board A.

SELF-DIAGNOSTIC TEST

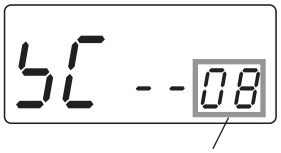
STEP AND ITEMS TO CHECK	PROCEDURE	CORRECT CONDITION	DEFECTIVE CONDITION
12) THREAD CUTTER MOTOR	Turn the handwheel toward you to raise the needle bar at its highest position. Press the needle up/down button. If the result is correct condition, press the start/stop button to proceed the next step. If the result is defective condition, press the reverse stitch button to proceed the next step.	LCD displays “SC 12--”. Thread cutter motor wii be initialized. Press the thread cutter button. The thread cutter icon will appear and blink as long as the thread cutter button is pressed. 	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. **–REMEDY–** Replace the thread cutter (unit). Replace the circuit board A.
13) EEPROM	LCD displays “OK” or “NG”, depending on the EEPROM condition. 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 “OK” when the EEPROM is correct condition.  LCD displays “NG” when the EEPROM is defective condition. 	LCD displays “NG”. **–REMEDY–** Replace the circuit board A.

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”

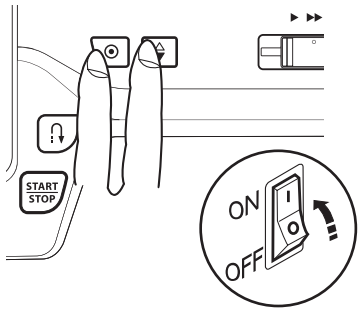


The defective part number.
See pages 21-24 “Steps and items” section.

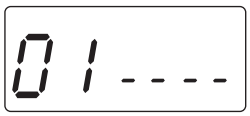
DEFECTIVE:
Caution buzzer sounds and LCD displays the defective part number. Refer to pages 21-24 and fix the defective part.
Each time you press the start/stop button, the defective part number(s) will be displayed.

Press the reverse stitch button to return to 01.
Turn the power switch off when the self-diagnostic test is finished.

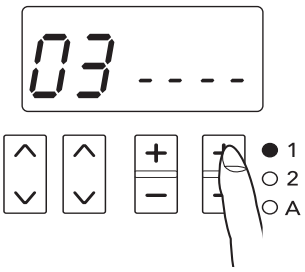
TO DISPLAY THE VERSION OF THE PROGRAM



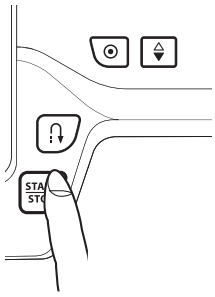
1. Turn the power switch on while simultaneously pressing auto-lock button and needle up/down button.



2. The LCD display will indicate “01”.



3. Press the value set key twice to display the “03”.



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

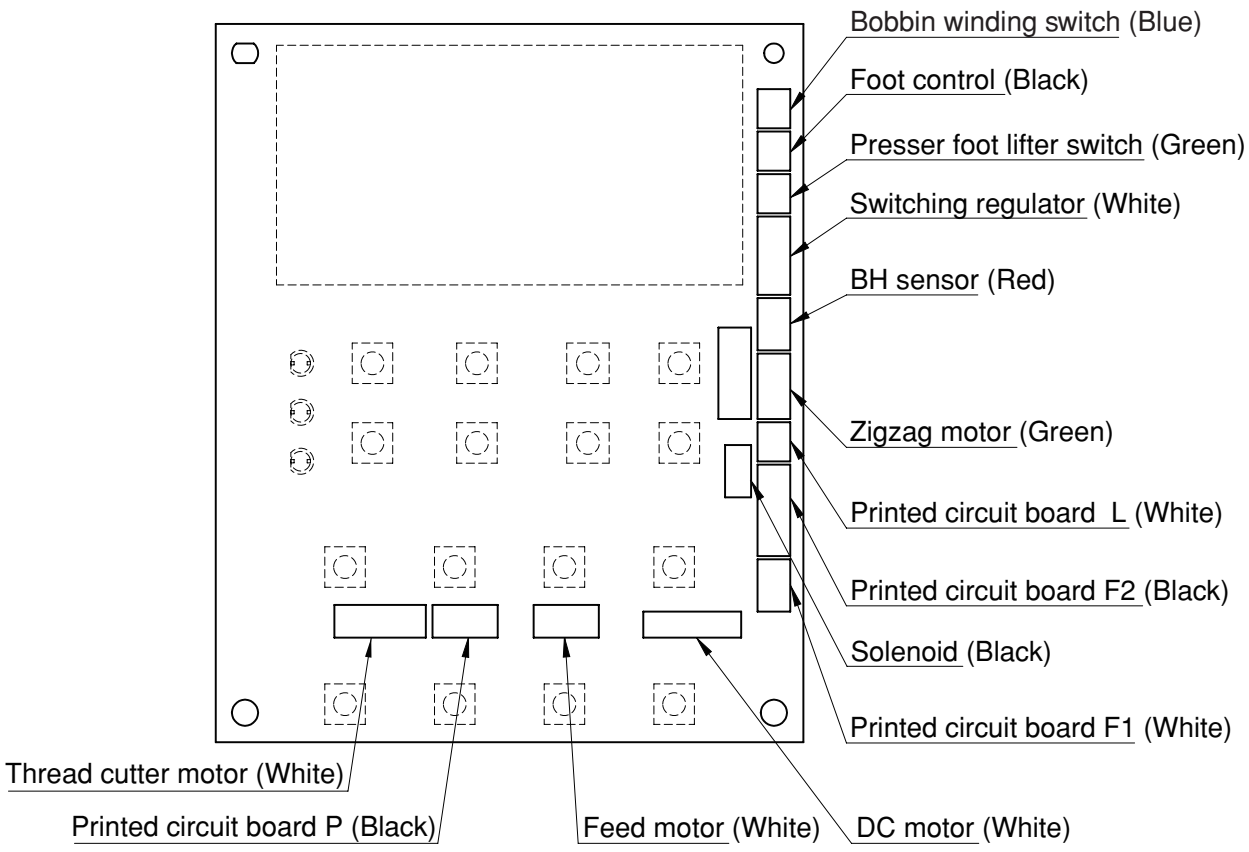
5. Each time you press the start/stop button, the version number will be partially displayed in sequence.
Example: 811ver.2-1-1.00-001

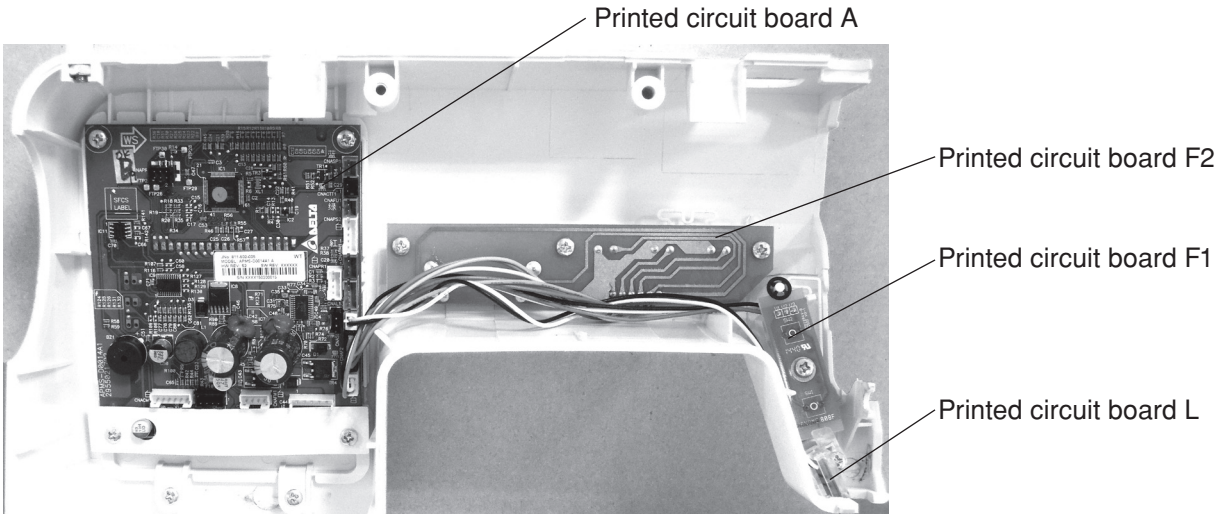
REPLACING THE ELECTRONIC COMPONENTS

PRINTED CIRCUIT BOARD A CONNECTION

NOTE:

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





REPLACING THE ELECTRONIC COMPONENTS

PRINTED CIRCUIT BOARD A

TO REMOVE:

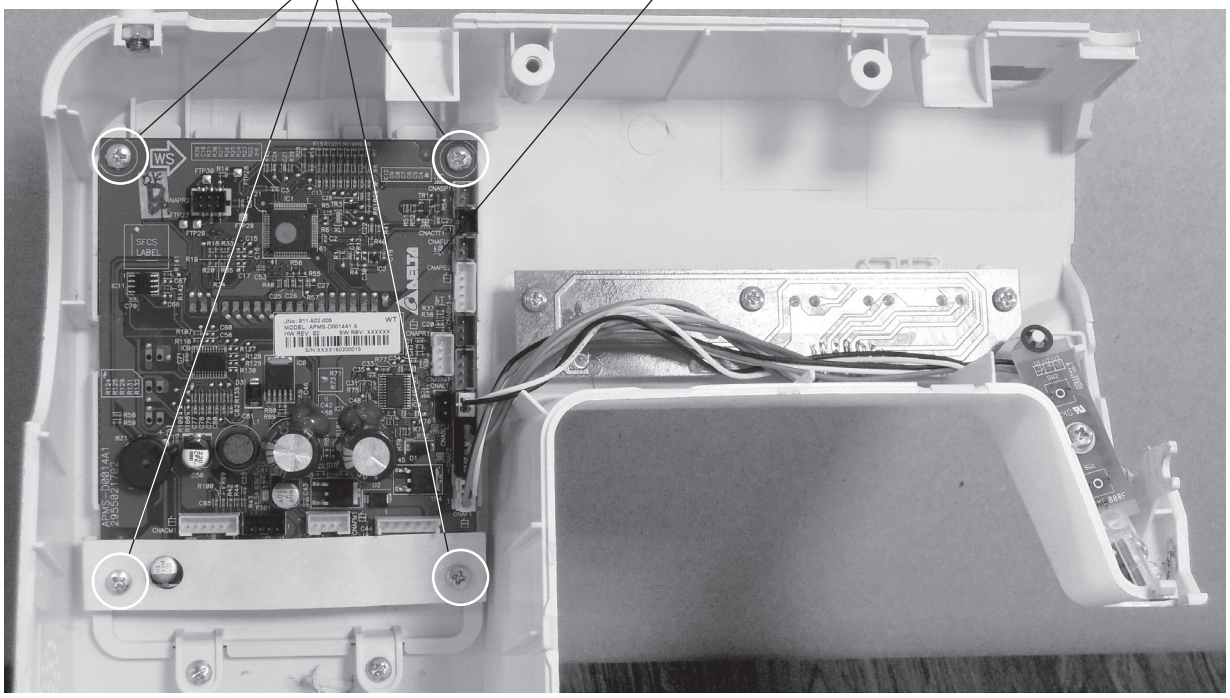
1. Remove the front cover. (See page 6.)
2. Pull out connectors from the printed circuit board A.
3. Remove the screws (4 pcs.) and the printed circuit board A.

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

PRINTED CIRCUIT BOARD F2

TO REMOVE:

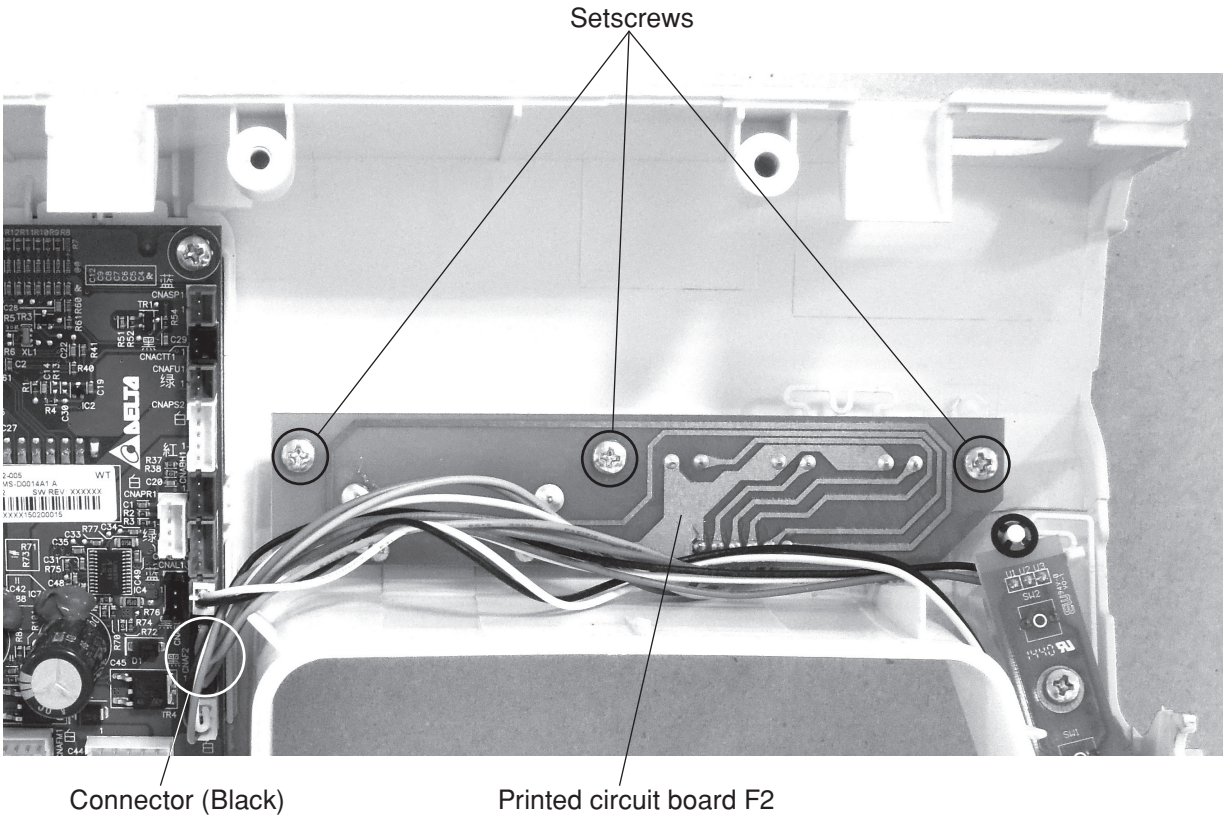
1. Remove the front cover. (See page 6.)
2. Pull out connectors from the printed circuit board A.
3. Remove the screws (3 pcs.) and the printed circuit board F2.

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

PRINTED CIRCUIT BOARD F

TO REMOVE:

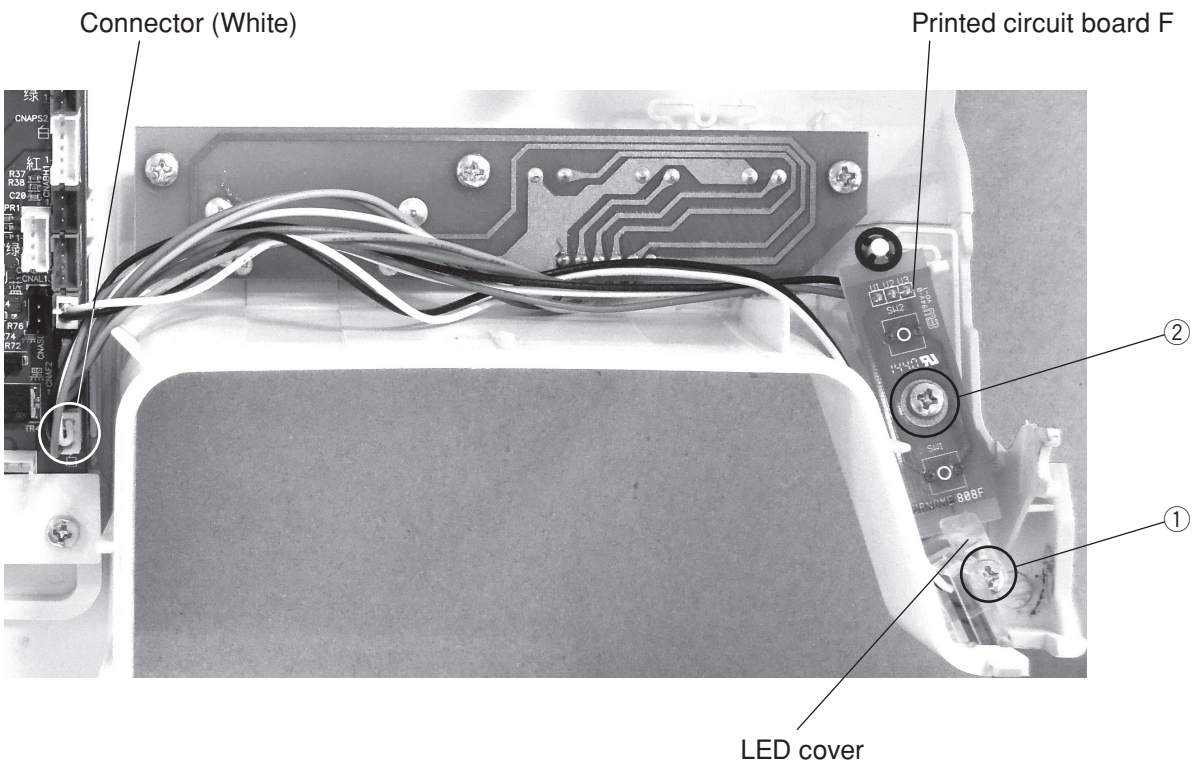
1. Remove the front cover. (See page 6.)
2. Pull out connectors from the printed circuit board A.
3. Remove the screw ① (1 pcs.) and LED cover.
4. Remove the screw ② (1 pcs.) and printed circuit board F.

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

PRINTED CIRCUIT BOARD L

TO REMOVE:

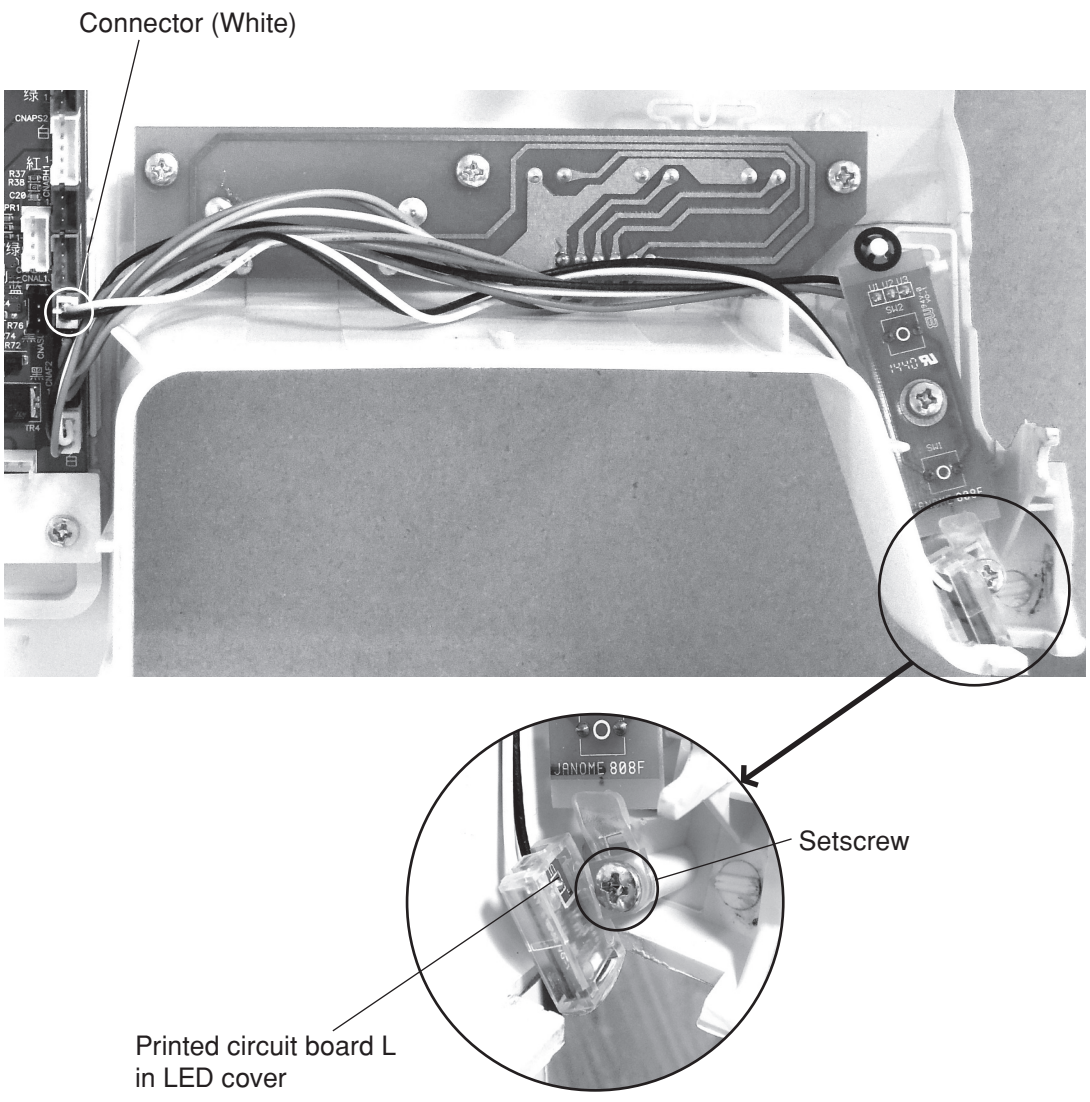
1. Remove the front cover. (See page 6.)
2. Pull out connectors from the printed circuit board A.
3. Remove the screw and LED cover.
4. Remove the printed circuit board L.

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

DRIVING MOTOR (DC MOTOR)

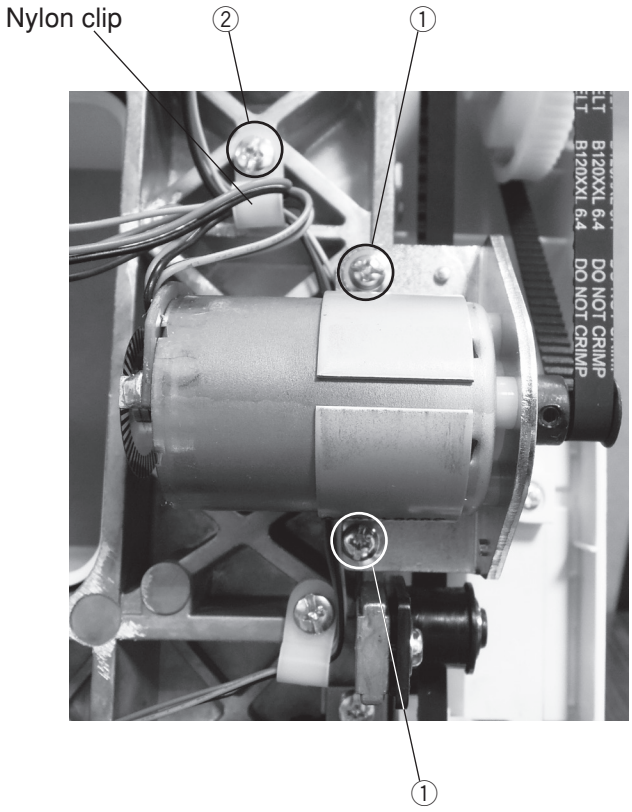
TO REMOVE:

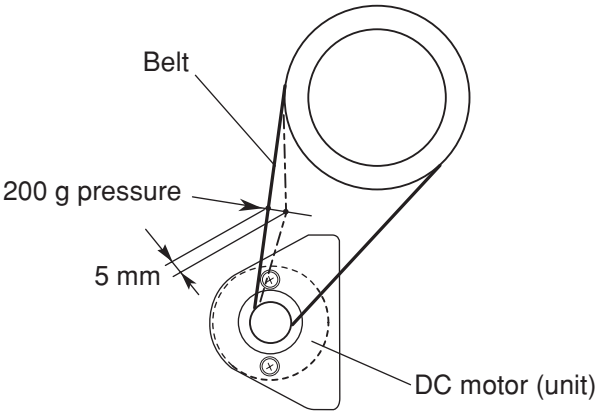
1. Remove the front cover. (See page 6.)
2. Remove the setscrews ① (2 pcs.), setscrew ② (1 pcs.), the driving motor and the belt.

TO ATTACH:

1. Install the driving motor and the motor belt. Tighten them with setscrews ① (2 pcs.) 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 ① (2 pcs.) firmly.

3. Secure the cables using the nylon clip and tighten the setscrew ② .
4. Attach the front cover.





REPLACING THE ELECTRONIC COMPONENTS

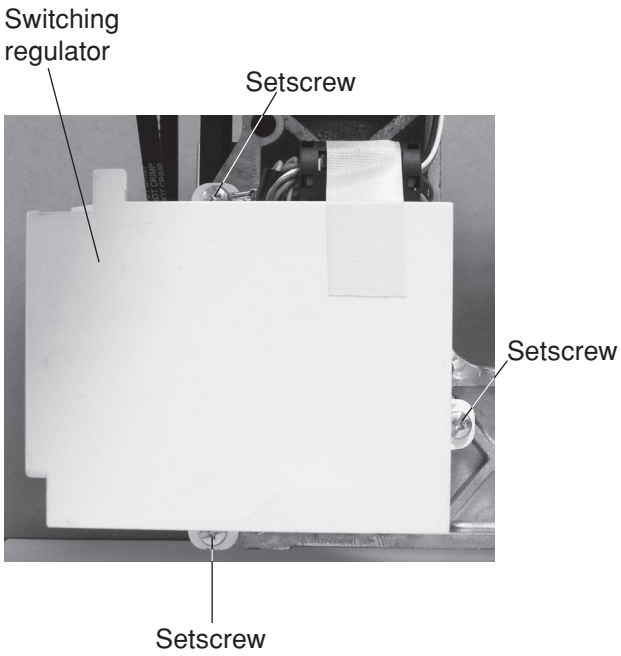
SWITCHING REGULATOR UNIT

TO REMOVE:

1. Remove the front cover and the rear cover. (See pages 6 and 7.)
2. Remove the setscrews (3 pcs.) and the switching regulator.

TO ATTACH:

4. Follow the above procedures in reverse.

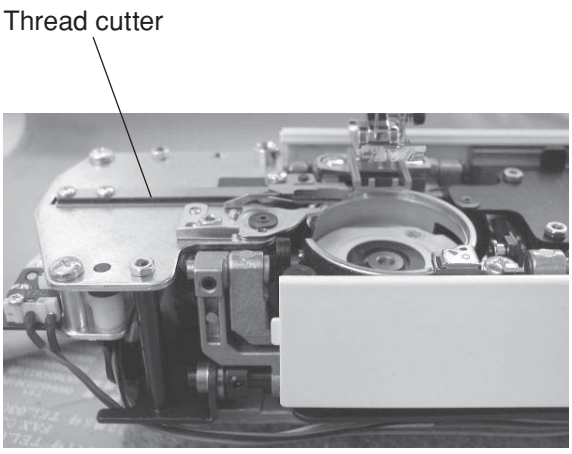


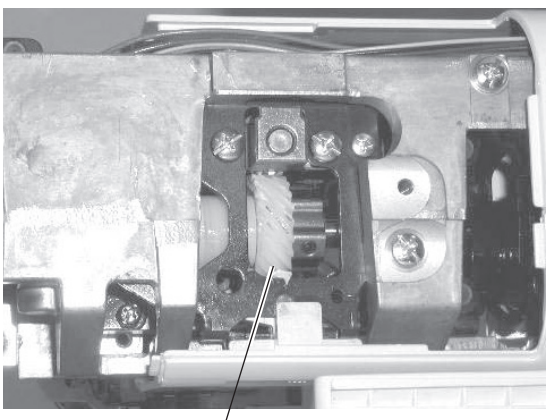
CLEANING AREA OF THREAD CUTTER AND LOWER SHAFT GEAR

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

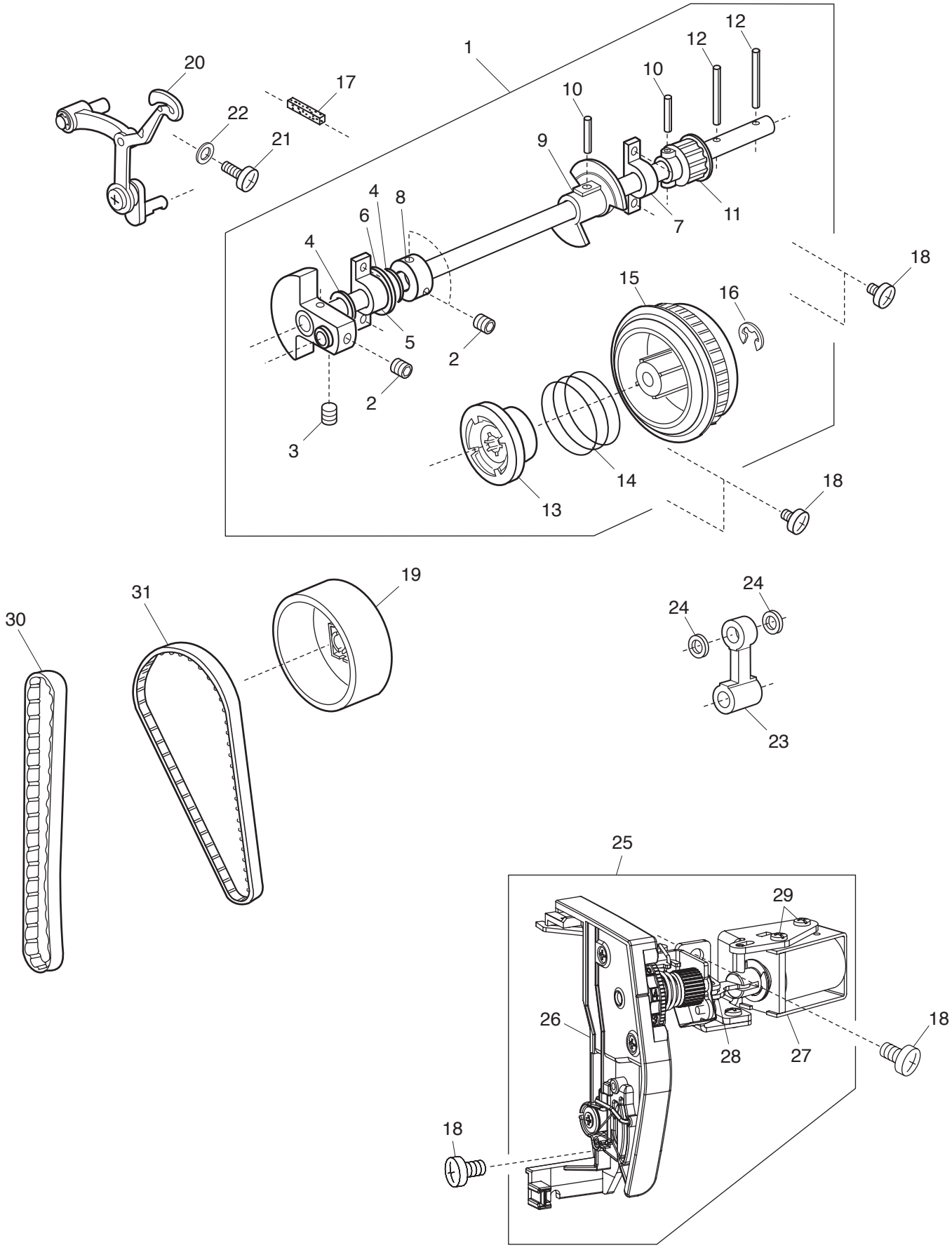
1. Remove the free arm cover. (See page 5)
2. Clean the area of the thread cutter and the lower shaft gear.

3. After cleaning, replace the free arm cover.





PARTS LIST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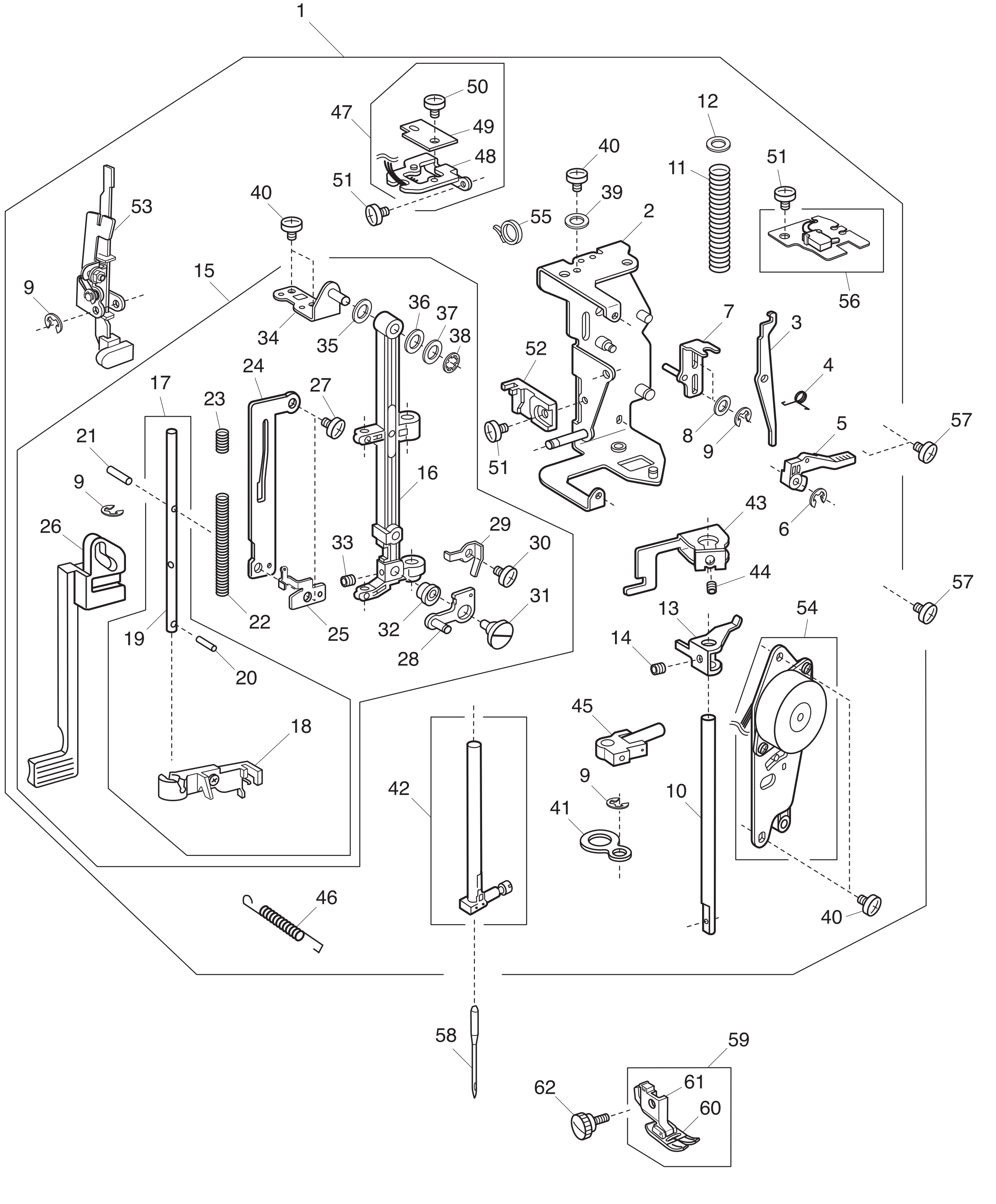
PARTS LIST

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 fixing metal
6	823110009	Felt
7	508054101	Shaft fixing metal
8	820166001	Lower shaft ring
9	808003001	Upper shaft shielding plate
10	000004200	Spring pin 3x18
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	808648107	Thread take-up lever (unit)
21	000103509	Setscrew 4x10
22	000072302	Washer 4
23	808005003	Needle bar crank rod
24	000036005	Washer FT60
25	811606000	Thread tension (unit)
26	811511007	Thread tension
27	808604101	Solenoid (unit)
28	000002105	Snap ring E-3
29	000101105	Setscrew 3x4
30	808037004	Syncro belt S5M
31	808021108	Timing belt 120

PARTS LIST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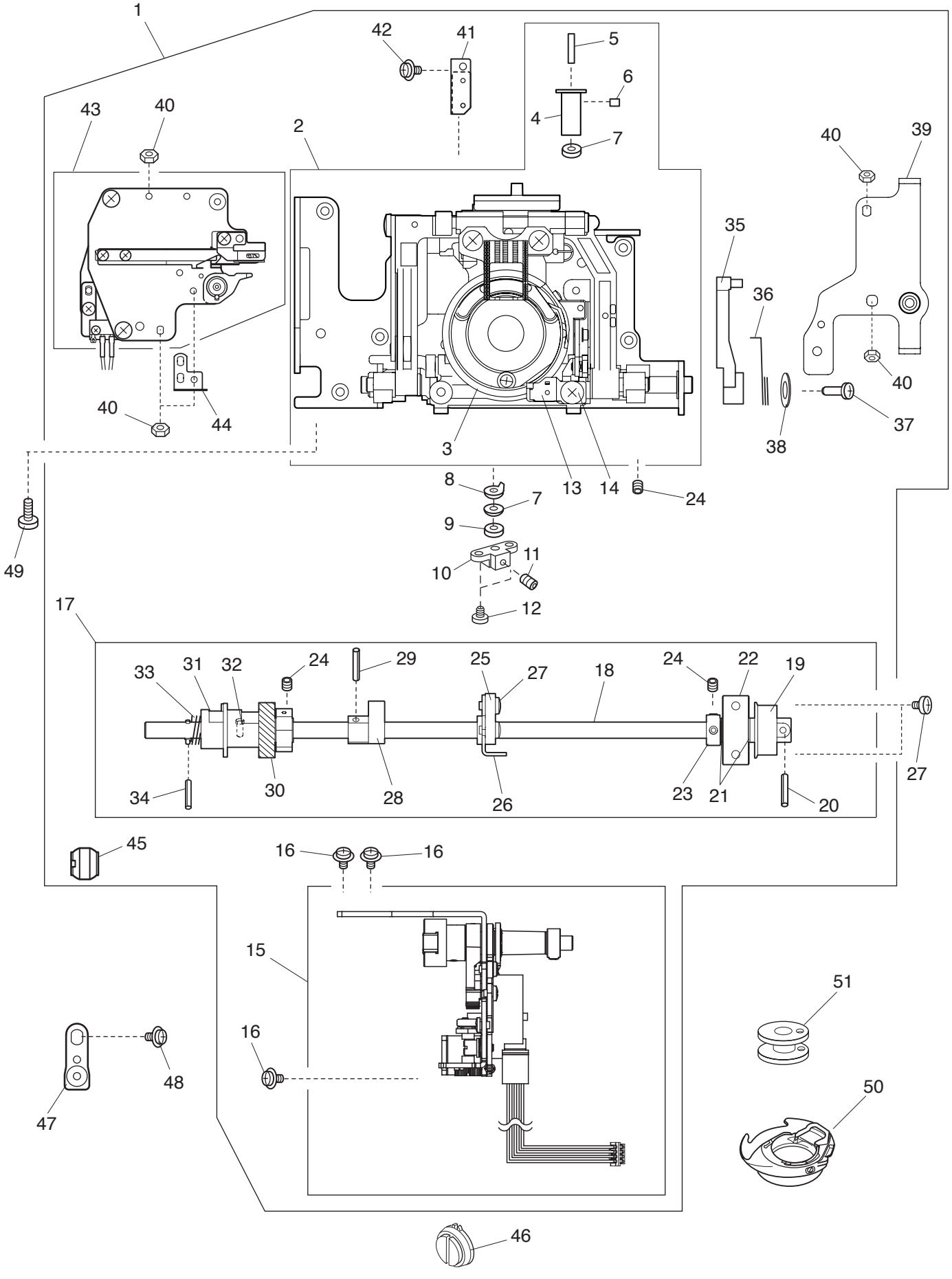
PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809614174	Presser bar base plate (unit)
2	808006406	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	809128006	Presser bar spring adjusting plate
8	000072508	Washer 4
9	000002105	Snap ring E-3
10	827021107	Presser bar
11	830030006	Presser bar spring
12	826055004	Washer
13	502026003	Presser bar supporter
14	000111500	Hexagonal socket screw 4x8
15	809615016	Needle bar supporter (unit)
16	809129007	Needle bar supporter
17	842637028	Threader shaft (unit)
18	846588014	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	751564006	Needle bar (unit)
43	807018006	Threader position set plate
44	000177205	Hexagonal socket screw 3x6
45	809509005	Needle bar connecting stud (unit)
46	844038018	Needle bar supporter spring
47	808606000	Buttonhole sensor (unit)
48	845002005	Sensor set plate
49	843502602	Printed circuit board E1 (unit)
50	000101105	Setscrew 3x4
51	000103808	Setscrew 3x5
52	830057021	Buttonhole lever guide
53	843625004	Buttonhole lever (unit)
54	808605607	Zigzag width motor (unit)
55	000053008	Cord binder
56	808611008	Presser foot lift switch (unit)
57	000081005	Setscrew 4x8
58	102408089	Needle
59	660509008	Presser foot (unit)
60	832523007	Zigzag foot
61	660806008	Presser foot holder
62	660106001	Setscrew

PARTS LIST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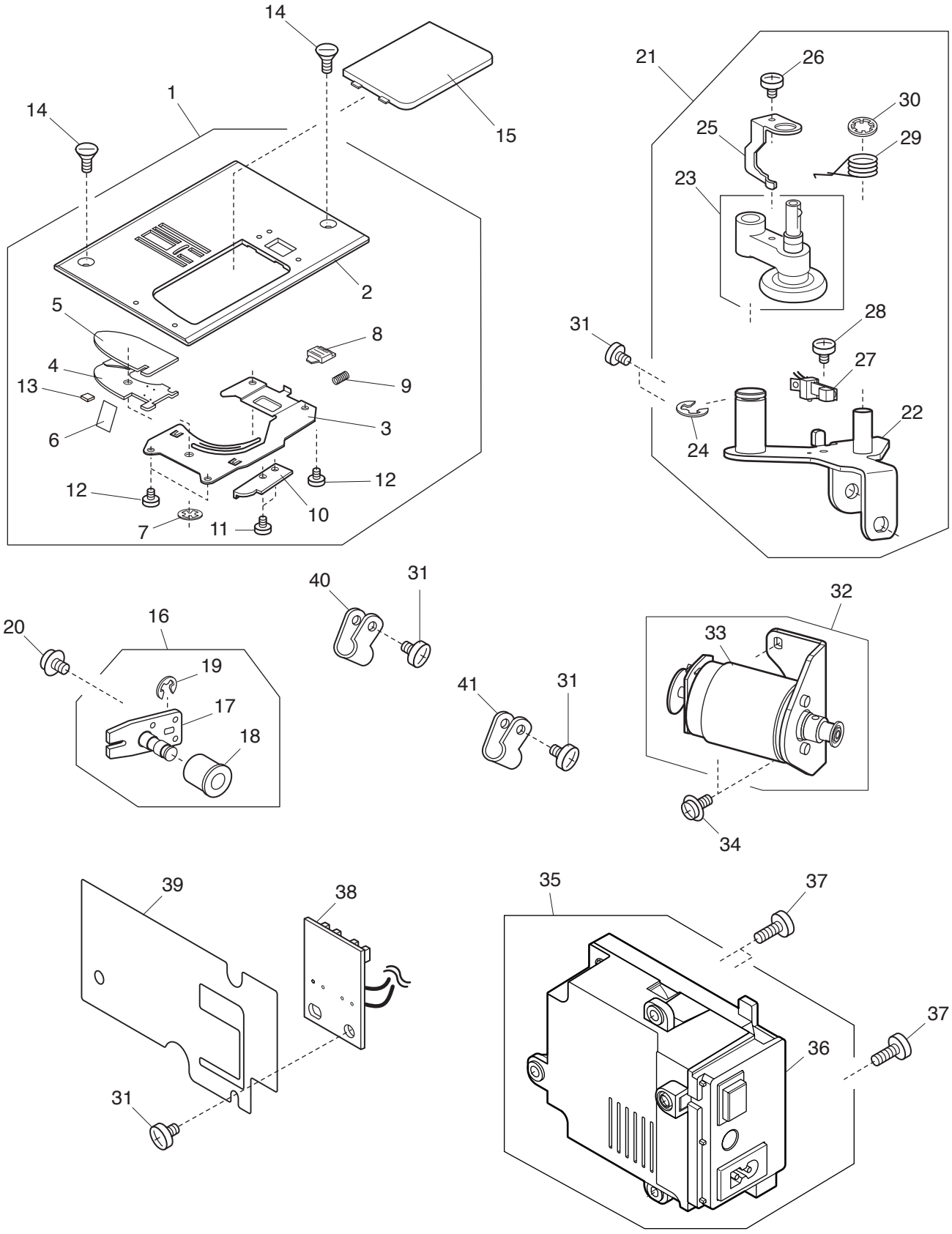
PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809620612	Hook race (whole unit)
2	809621015	Hook race (unit)
3	660536004	Hook body (unit)
4	820123006	Hook race shaft
5	820124007	Hook shaft oil wick (1)
6	820125008	Hook shaft oil wick (2)
7	000038409	Washer
8	627192001	Washer
9	625102008	Washer
10	508072002	Hook race shaft base
11	000111304	Hexagonal socket screw 5x5
12	000103705	Setscrew 4x5
13	627567104	Bobbin holder stopper (unit)
14	000101404	Setscrew 4x6
15	811611008	Feed regulator (unit)
16	000115205	Setscrew TP 4x6
17	809602009	Lower shaft (unit)
18	808027207	Lower shaft
19	508021006	Upper shaft gear
20	000004200	Spring pin 3x18
21	000038502	Washer
22	508054008	Shaft fixing metal
23	820166001	Lower shaft ring
24	000111201	Hexagonal socket screw 4x4
25	809017001	Lower shaft supporter
26	809016000	Lower shaft supporter plate
27	000081005	Setscrew 4x8
28	809014008	Feed cam
29	000005407	Spring pin 3x12
30	808137005	Lower shaft gear
31	846103000	Feed lifting cam
32	820161006	Feed lifting pin
33	808075004	Feed lifting cam spring
34	000022802	Spring pin 2x12
35	809013007	Feed fork
36	809015009	Feed fork spring
37	820172000	Pin
38	000071105	Washer 5
39	809064003	Needle plate set plate (right)
40	000063104	Nut 3-2-5.5
41	825515004	Feed base plate (unit)
42	825237009	Setscrew
43	809623305	Thread cutter (unit)
44	808105107	Slide position adjusting plate
45	732034003	Lower shaft bushing (rear)
46	809053009	Feed balancing dial 2
47	809042005	Lower shaft bushing set plate
48	000115607	Setscrew TP 4x8
49	000101703	Setscrew 4x12
50	858570009	Bobbin holder (unit)
51	102261103	Bobbin

PARTS LIST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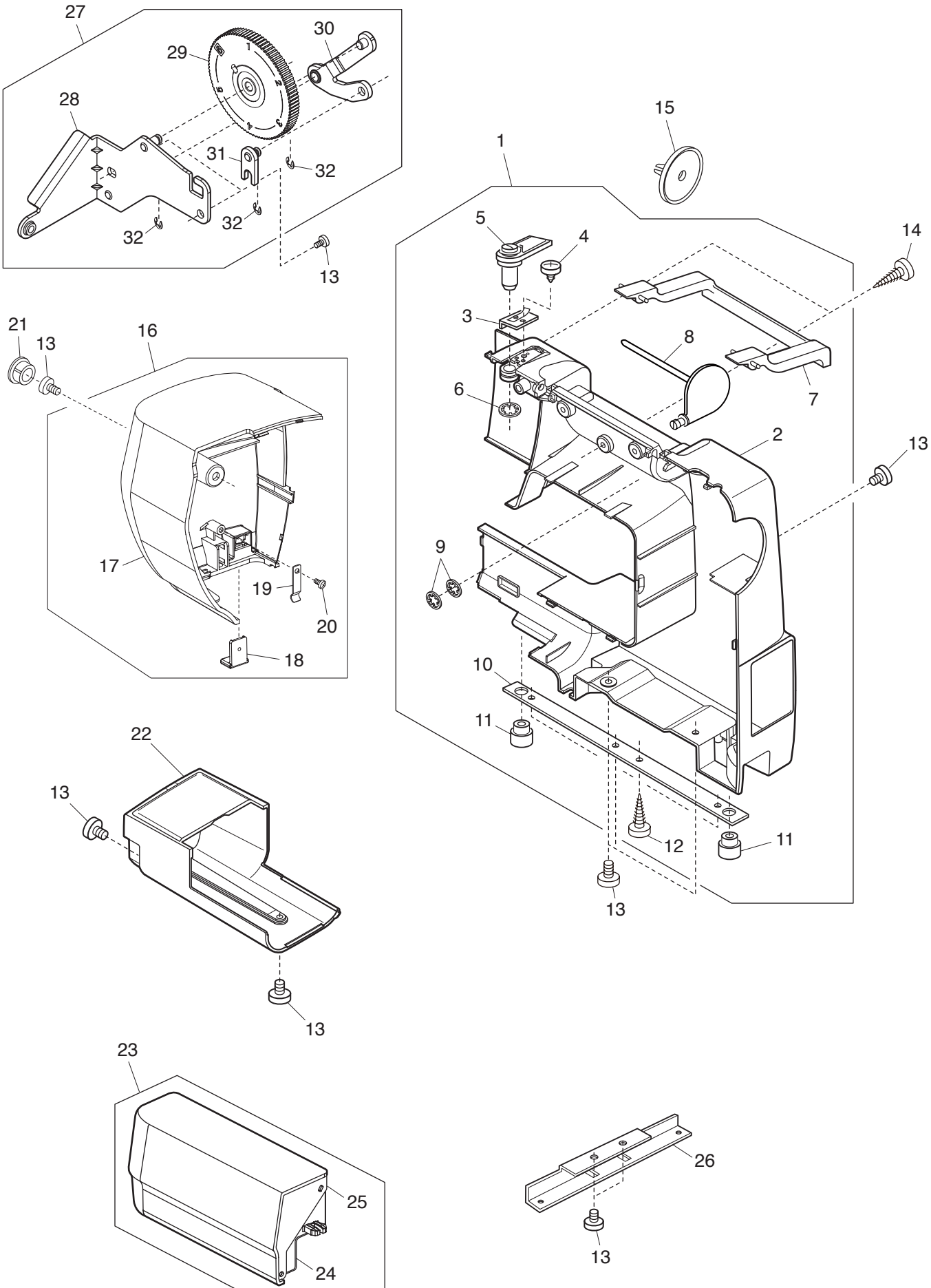
PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809616006	Needle plate (unit)
2	809132003	Needle plate
3	809133004	Hook cover plate supporter
4	809134005	Hook cover plate supporter base
5	809135006	Guide holder
6	809137008	Cutter
7	000014306	Snap ring CS-3
8	825016000	Hook cover plate release button
9	825017001	Spring
10	809050006	Rotation stopper
11	000163703	Setscrew 2x3.5
12	820374004	Setscrew 2x2.3
13	861152001	Felt
14	681009101	Setscrew
15	809136100	Hook cover plate
16	808614001	Idler (unit)
17	808038005	Idler set plate
18	625217100	Idler
19	000002806	Snap ring E-6
20	000115607	Setscrew TP 4x8
21	808615002	Bobbin winder (unit)
22	808039006	Bobbin winder set plate
23	508507001	Bobbin winder arm (unit)
24	000001609	Snap ring E-5
25	508111004	Clutch lever
26	000120203	Setscrew 3x8 (B)
27	856512100	Switch (unit)
28	000081706	Setscrew 2.5x5
29	808040000	Spring
30	000013903	Snap ring CS-5
31	000081005	Setscrew 4x8
32	808617004	DC motor (unit)
33	808502005	DC motor
34	000115700	Setscrew TP 4x10
35	808657017	Switching regulator (unit)
36	808525901	Switching regulator
37	000103509	Setscrew 4x10
38	808504007	Printed circuit board P (unit)
39	808093101	Cord guide
40	000188209	Nylon clip ACC-1.5
41	000188405	Nylon clip ACC-2

PARTS LIST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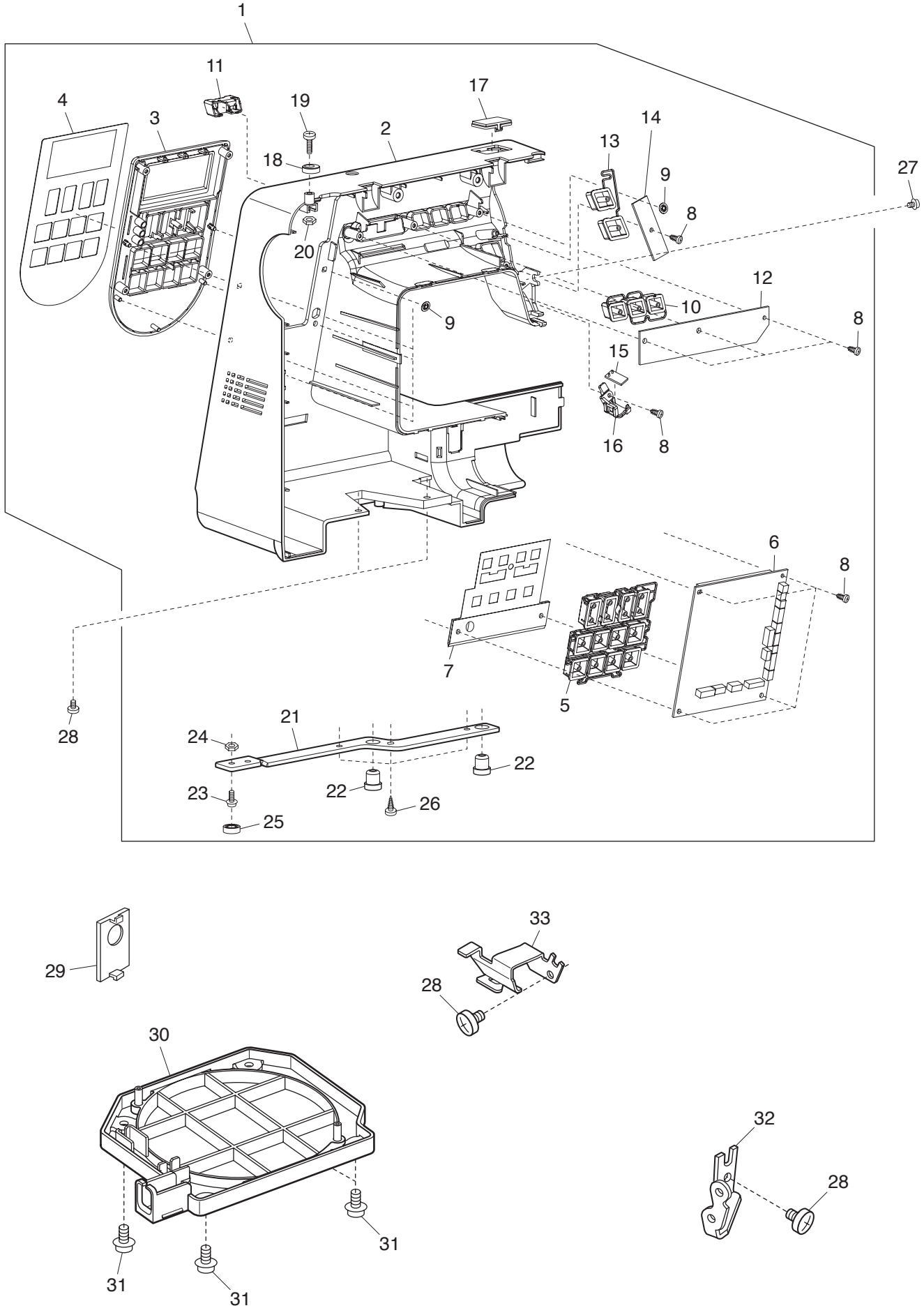
PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	809604126	Rear cover (unit)
2	809025806	Rear cover
3	827503108	Top cover thread guide (unit)
4	000162001	Setscrew 2.6x5 (B)
5	650503089	Thread guide (unit)
6	000014409	Snap ring CS-8
7	809026003	Carrying handle
8	809027004	Spool pin
9	000013800	Snap ring CS-6
10	809028005	Arm leg rear
11	735003002	Bed rubber cushion
12	000198604	Setscrew 4x14 (B)
13	000081005	Setscrew 4x8
14	000160401	Setscrew 4x16 (B)
15	822020503	Spool holder
16	812602009	Face plate (unit)
17	812010A01	Face plate
18	840602006	Thread cutter (unit)
19	859233000	Magnifier fixing plate
20	000161206	Setscrew 3x10 (B)
21	653006101	Cap
22	808061007	Free arm cover
23	812603000	Extension table (unit)
24	808062008	Extension table
25	812009000	Extension table lid
26	809024001	Arm sole set plate
27	811601005	Face plate set plate (unit)
28	811001102	Face plate set plate
29	808078203	Presser foot pressure dial
30	808079008	Adjusting arm 1
31	808080002	Adjusting arm 2
32	000002105	Snap ring E-3

PARTS LIST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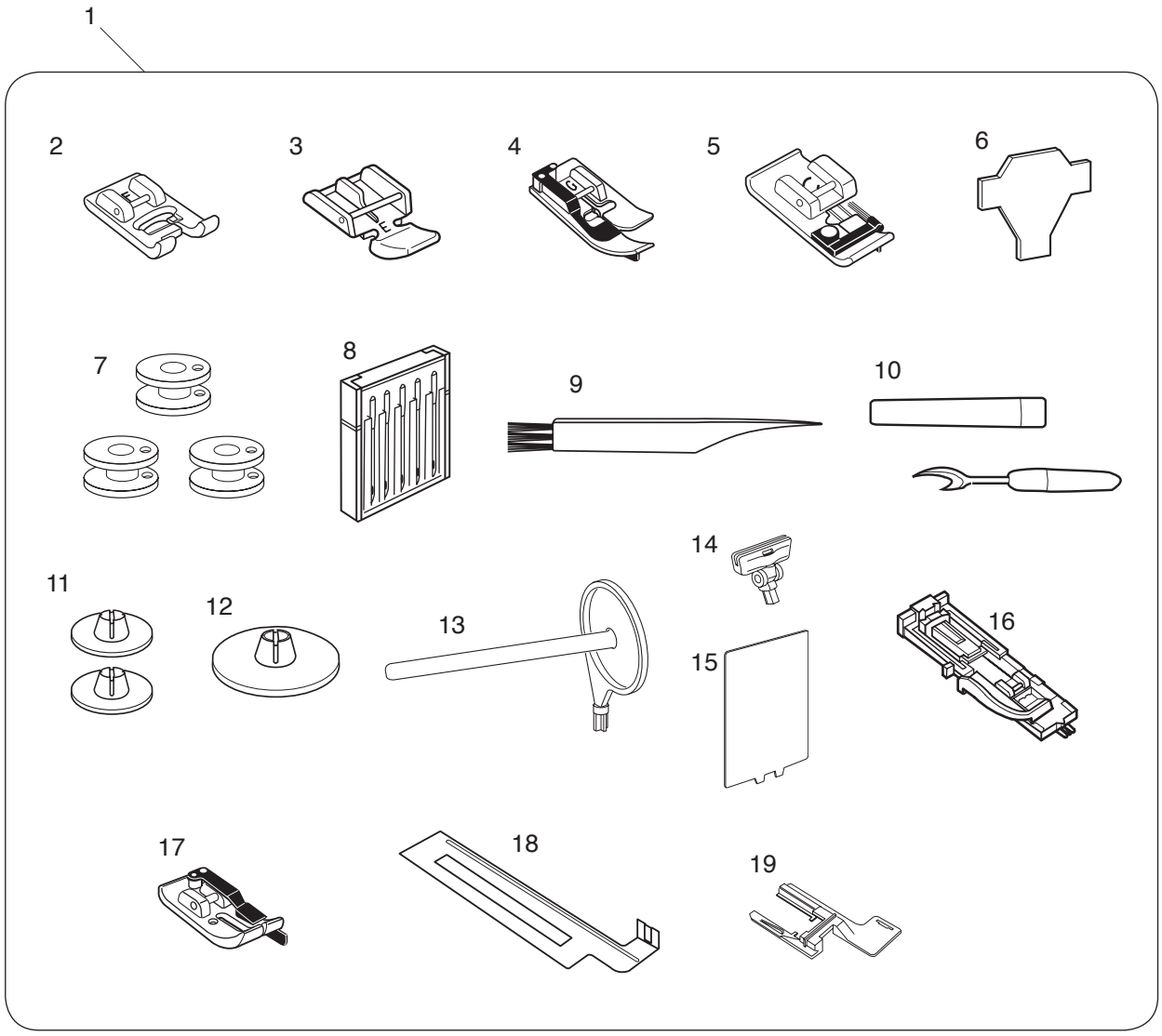
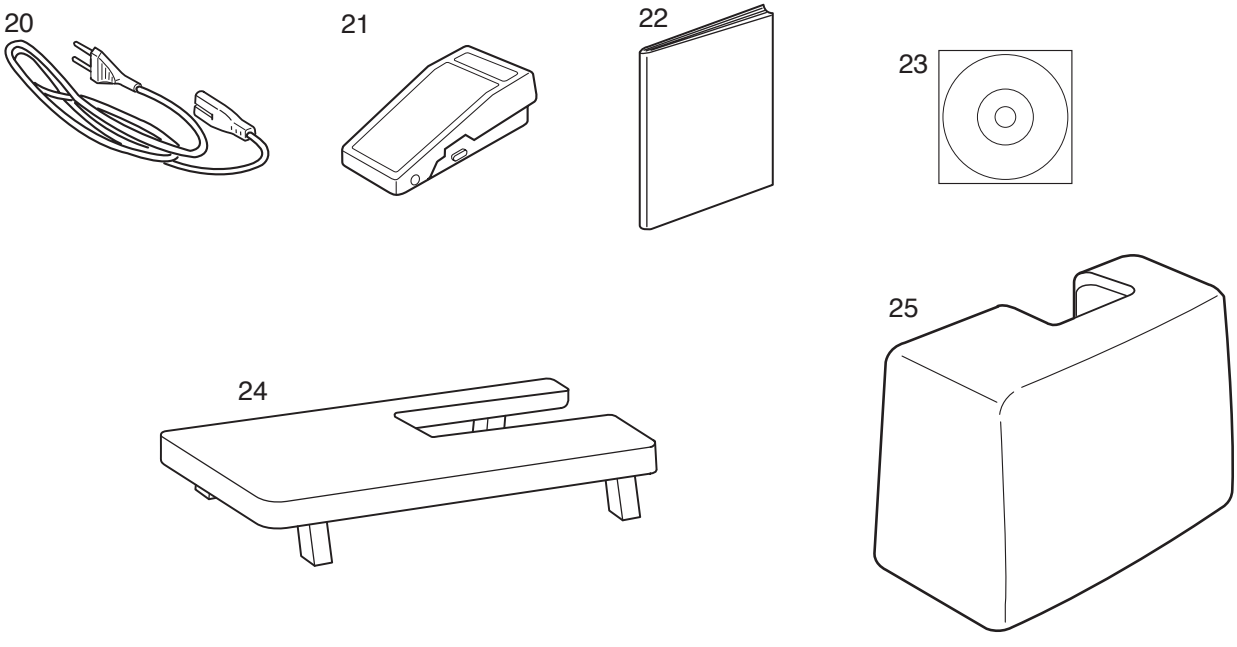
PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	812601307	Front cover (unit)
2	812002A02	Front cover
3	812003015	Ornamental panel
4	812004A02	Ornamental sheet
5	812006A01	Button 2
6	811401232	Printed circuit board A (unit)
7	811017008	Flame retardant insulating paper
8	000120203	Setscrew 3x8 (B)
9	000014306	Snap ring CS-3
10	812005A01	Button 1
11	812008009	Slide volume
12	811503006	Printed circuit board F2 (unit)
13	812007A01	Button 3
14	808507103	Printed circuit board F (unit)
15	858511301	Printed circuit board L (unit)
16	808118000	Lamp holder
17	808103002	Front cover lid
18	735016307	Bobbin winder stopper
19	000101828	Setscrew 4x16
20	000061205	Nut 4-3-7
21	809125003	Arm sole front
22	735003002	Rubber foot
23	000114802	Setscrew TP 4x12
24	000160102	Adjustable lock nut 4
25	639005003	Rubber foot
26	000198604	Setscrew 4x14 (B)
27	000115205	Setscrew TP 4x6
28	000081005	Setscrew 4x8
29	809039009	Cap
30	808059301	Bed cover
31	000149312	Setscrew 3x8
32	639080002	Front cover set plate
33	808016007	Arm thread guide

PARTS LIST





PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	812870011	Standard accessories
2	822804118	Satin foot (F) (unit)
3	829801002	Zipper foot (E) (unit)
4	825817009	Blind foot (G) (unit)
5	822801001	Overedge foot (C) (unit)
6	653802002	Screwdriver
7	102261103	Bobbin
8	540401026	Needle case (unit)
9	802424004	Lint brush
10	647808009	Seam ripper (Buttonhole opener)
11	822019509	Spool holder (small)
12	822020503	Spool holder (large)
13	809146000	Spool pin
14	809809008	Stitch chart base (unit)
15	809801A04	Stitch chart
16	753801004	Buttonhole foot (R) (unit)
17	200008037	1/4″ seam foot (O) (unit)
18	200428118	Stabilizer plate
19	200428406	Stabilizer plate holder
20	830335004	Power supply cord
21	C-1036	Foot control
22	812800021	Instruction book
23	811805001	Instructional DVD
24	811802008	Large extension table
25	404701404	Cover