ADDITIONAL SERVICE MANUAL AND PARTS LIST FOR MODEL MC12000 EMBROIDERY UNIT

- X-MOTOR REPLACEMENT
- Y-MOTOR REPLACEMENT
- PRINTED CIRCUIT BOARD S1 REPLACEMENT
- PRINTED CIRCUIT BOARD S2 REPLACEMENT
- EMBROIDERY UNIT DETECTING SWITCH REPLACEMENT
- FILM REPLACEMENT
- X-SENSOR REPLACEMENT
- Y-SENSOR REPLACEMENT
- X-BELT REPLACEMENT
- Y-BELT REPLACEMENT
- PARTS LIST (EMBROIDERY UNIT)

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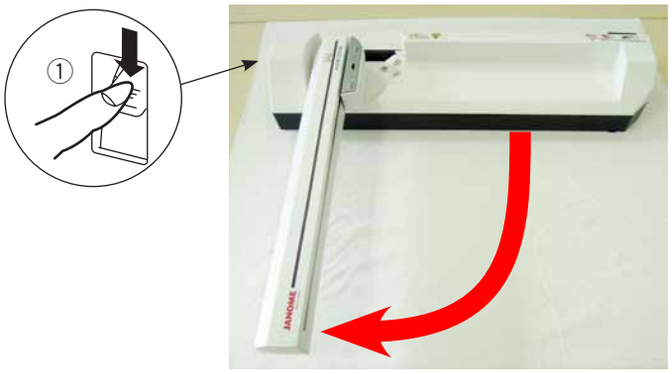


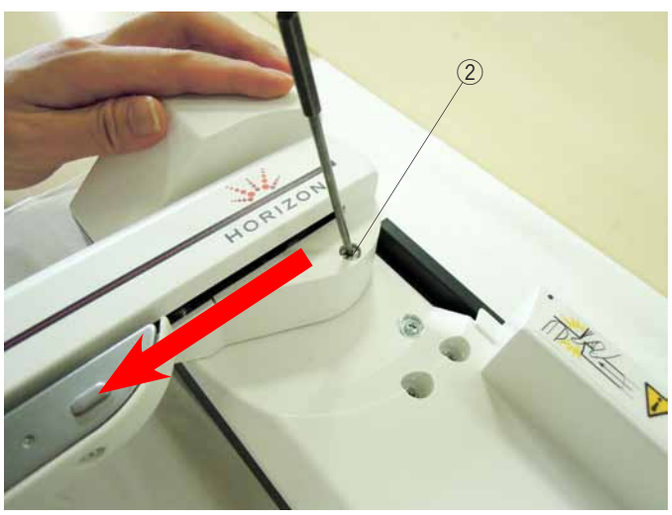
Preparation

Remove Y-carriage cover (upper), X-carriage cover and Embroidery unit cover before replacing to access carriage parts.

• Removing Y-carriage cover (upper)

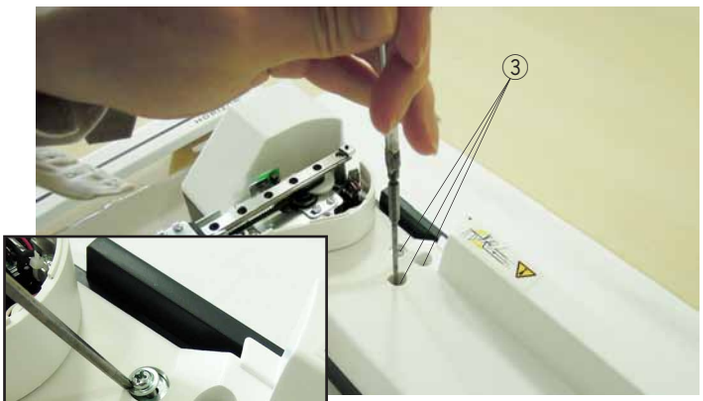
1 Push down the carriage arm release lever ①.
Extend the carriage arm. Swing out the carriage arm until it locks in fully extended position.

2 Pry up the lock tab of the carriage arm with a slotted screwdriver.



3 Slide the carriage in the direction of the arrow.
Remove the setscrew ②.

4 Remove the Y-carriage cover (upper).

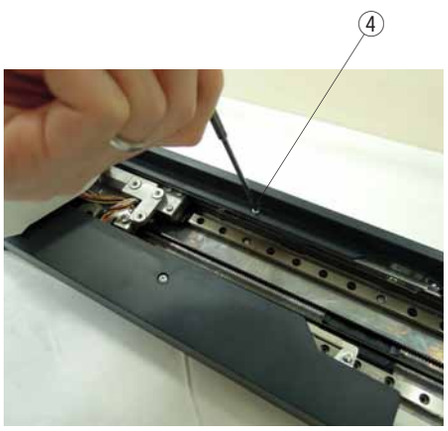


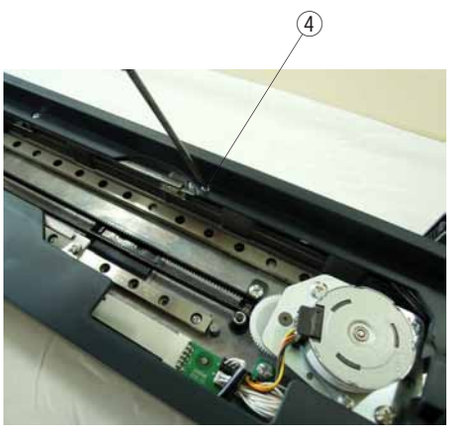
- **Removing X-carriage cover and Embroidery unit cover**

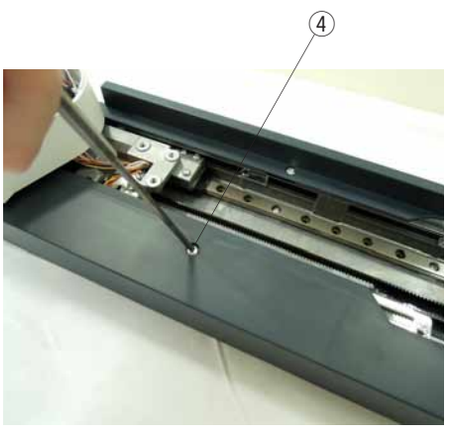
5 Remove the setscrews ③ (3 pcs.).

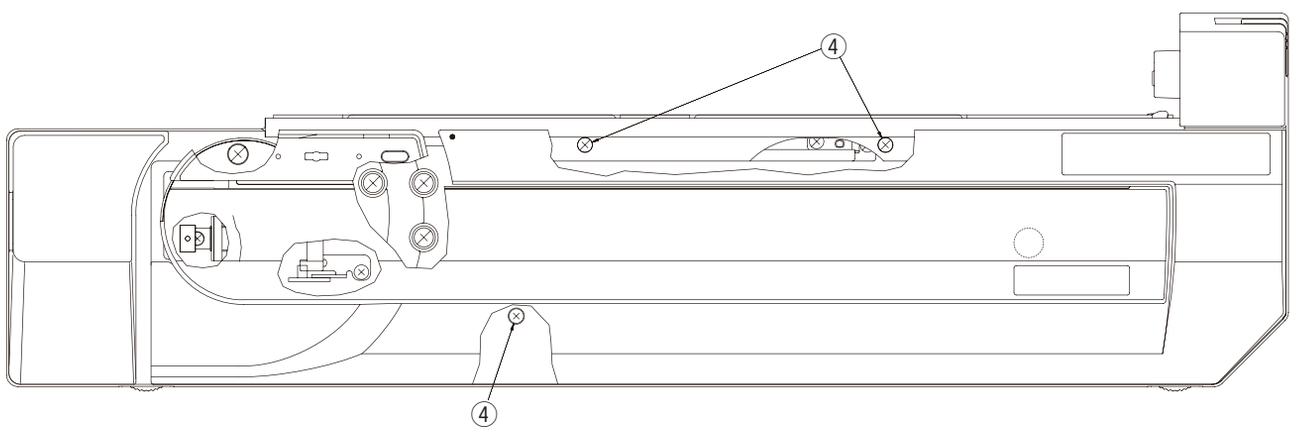
6 Remove the X-carriage cover (unit).

7 Remove the setscrews ④.

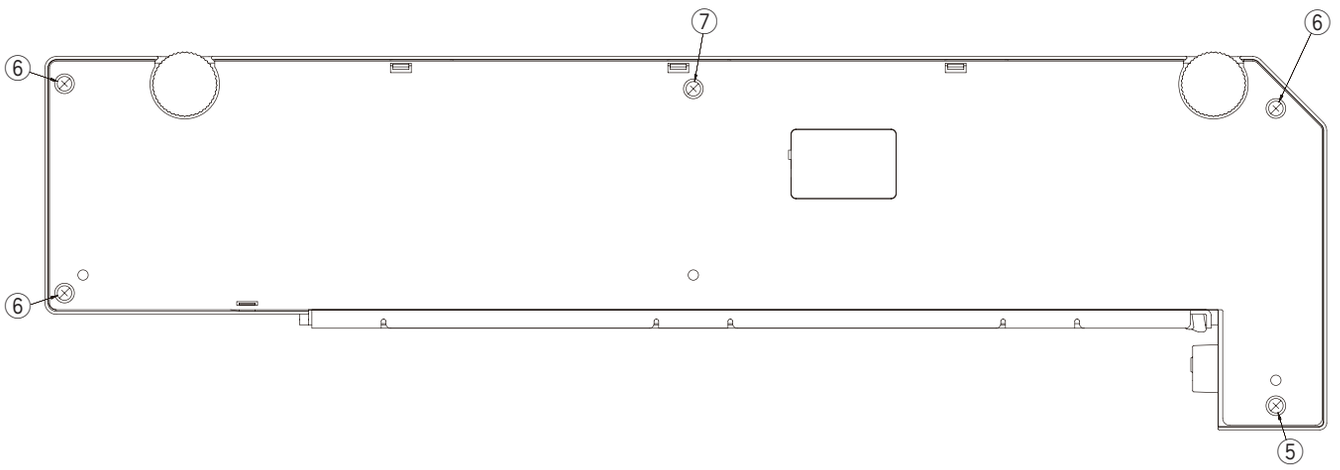


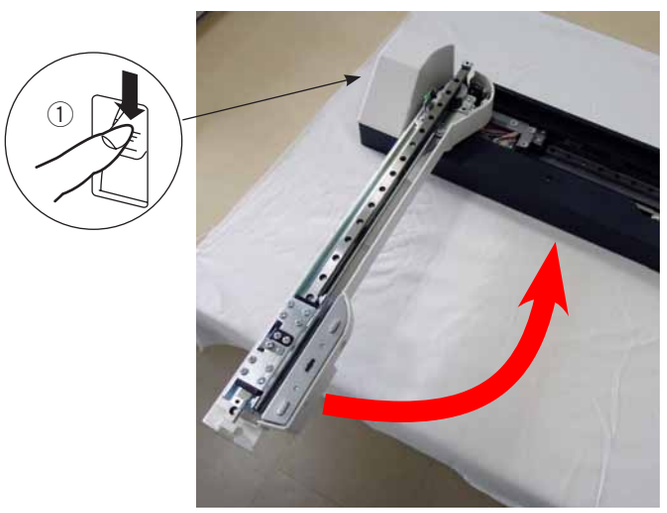




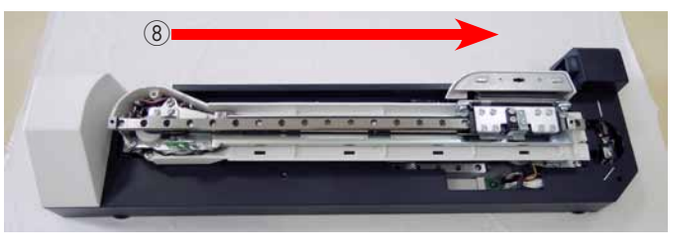


8 Turn the embroidery unit upside down.
Remove the setscrews ⑤, ⑥ and ⑦.

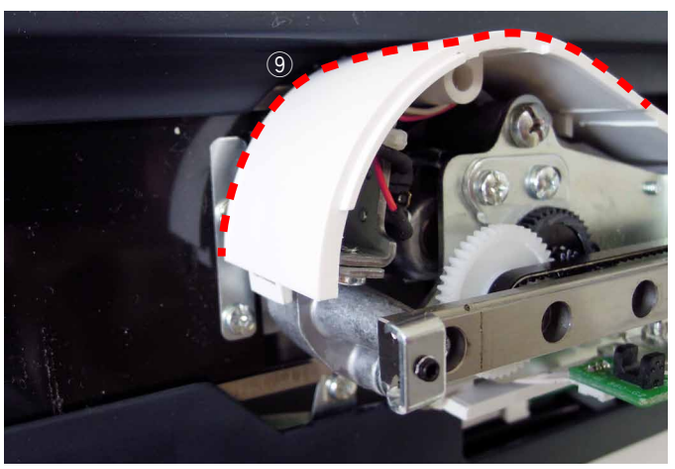




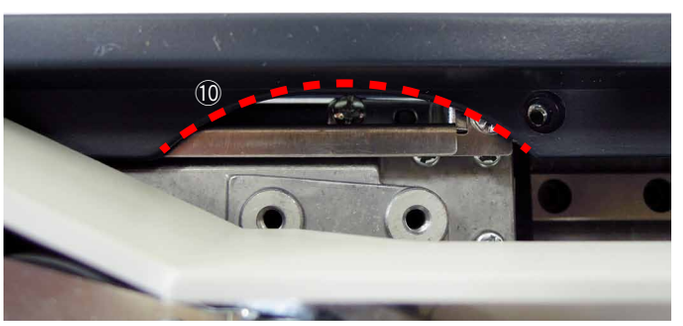
9 Turn the embroidery unit again.
Push down the carriage arm release lever ①.
Retract the carriage arm to the stored position.



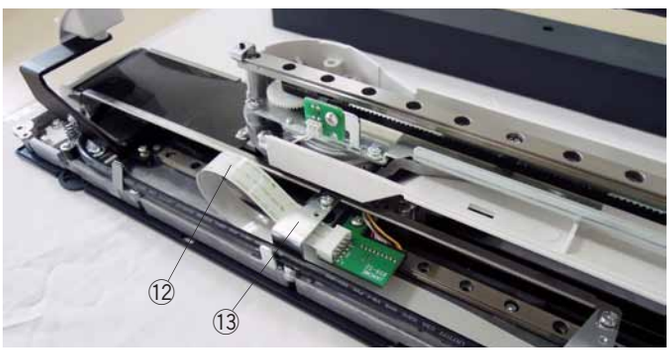
10 Move the carriage arm as far as it goes in the direction of arrow ⑧.



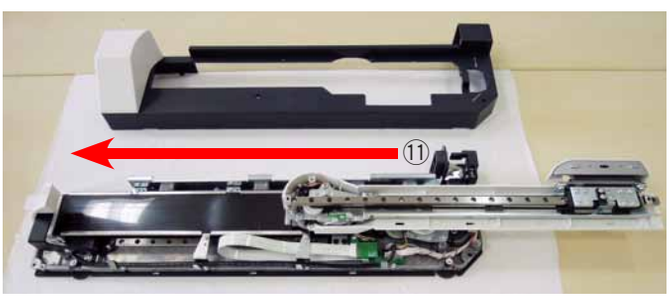
11 Move back the carriage arm slightly (approximately 5 mm) so the rounded part of the carriage arm ⑨ meets the hole of the embroidery unit cover ⑩.



12 Remove the embroidery unit cover (unit).



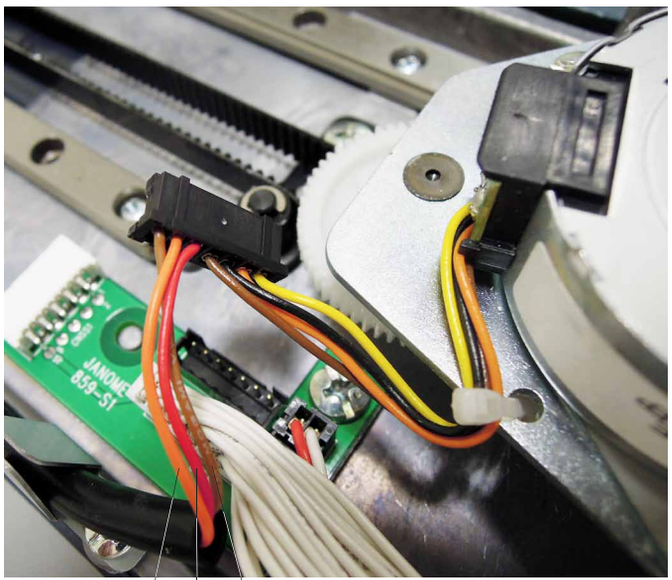
13 Position the flexible cable ⑫ under the guide plate ⑬ so the cable will not be damaged when moving.

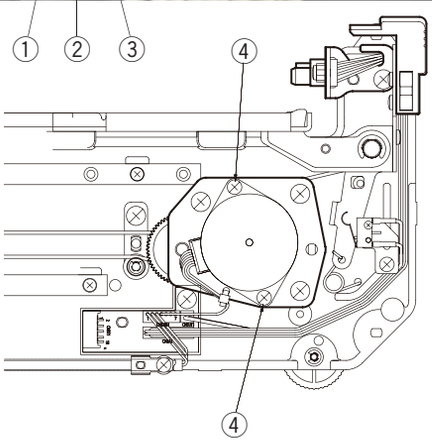


14 Move the carriage arm in the direction of arrow ⑪.

15 Push down the carriage arm release lever ①.
Extend the carriage arm.

To attach the Y-carriage cover (upper), X-carriage cover and Embroidery unit cover, follow the above procedure in reverse.

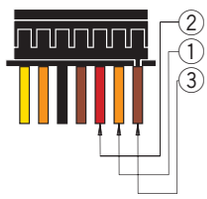


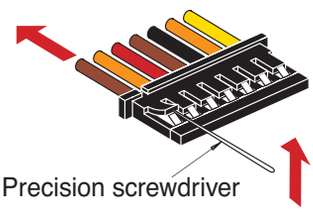


Replacing X-motor

• Removing X-motor

1 Disconnect the connector from printed circuit board S1.
Pry up the lock tab of the connector with a precision driver and pull out the brown ③, orange ① and red ② cords.

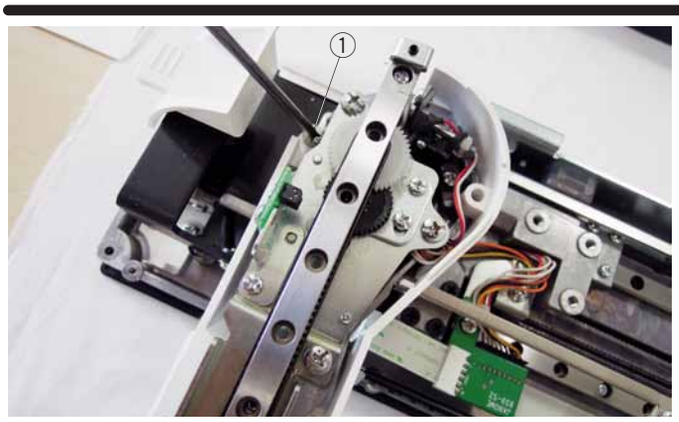




2 Remove the setscrews ④ to remove the X-motor.

• Attaching X-motor

Follow the above procedure in reverse.

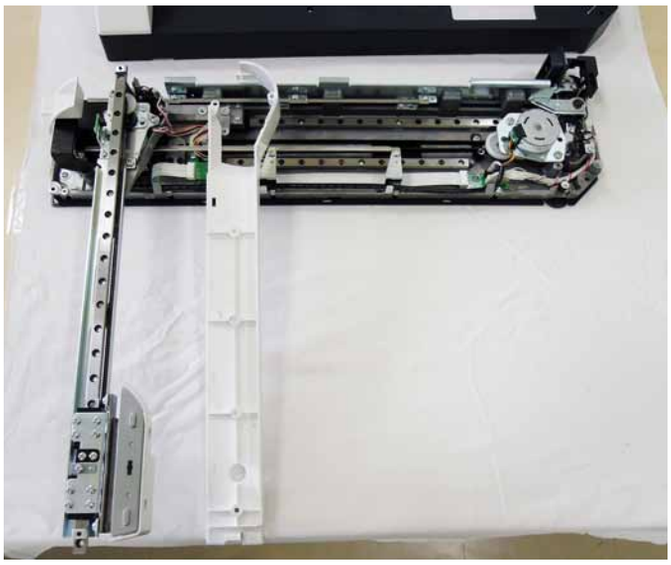


Replacing Y-motor

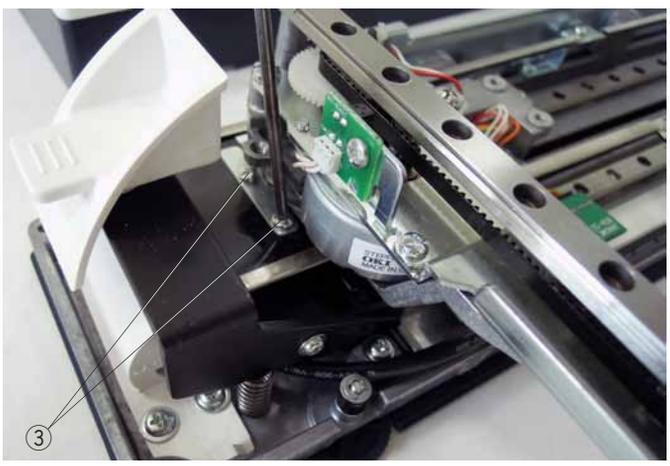
• Removing Y-carriage cover (lower)

1 Remove the setscrew ①.

2 Turn the embroidery unit upside down.
Remove the setscrews ② (4 pcs.).



3 Remove the Y-carriage cover (lower).



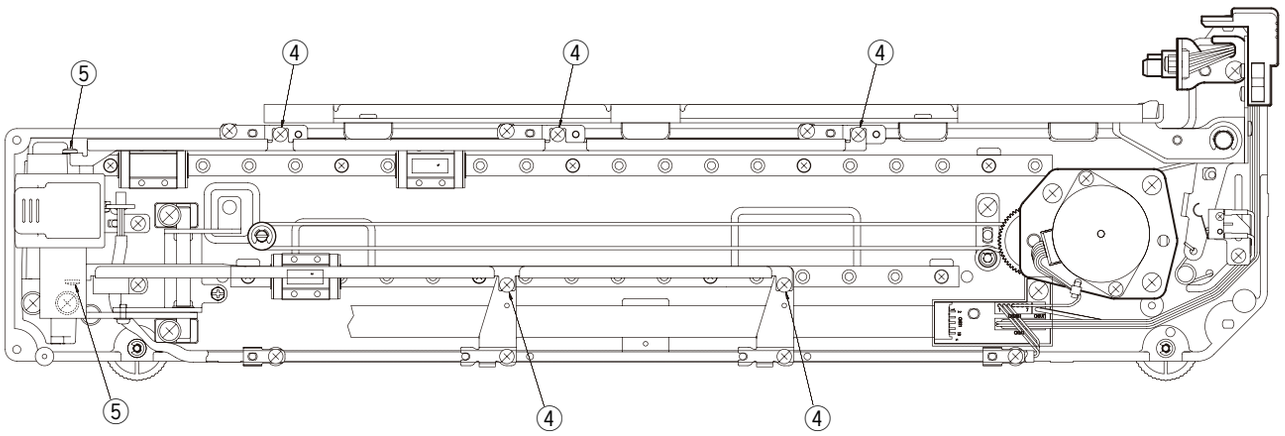
• Removing Film

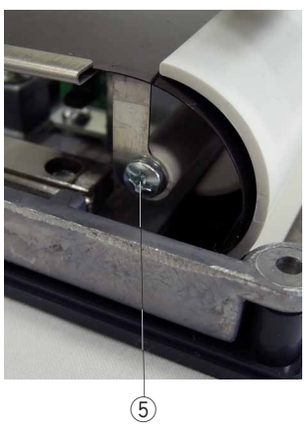
4 Remove the setscrews ③ (2 pcs.) on the film holder.

5 Remove the film holder and the film.

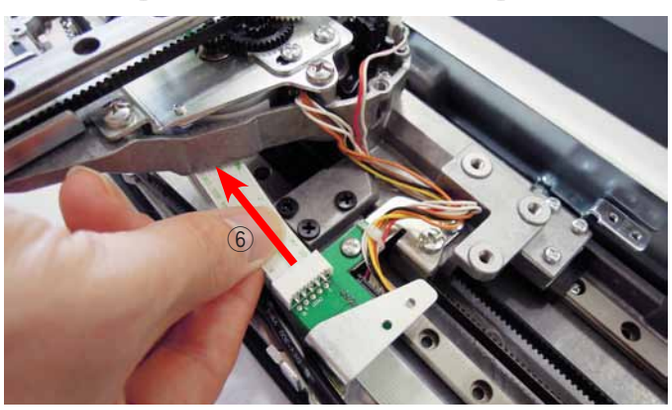
• Removing Film guides

6 Remove the setscrews ④ on the film guides.



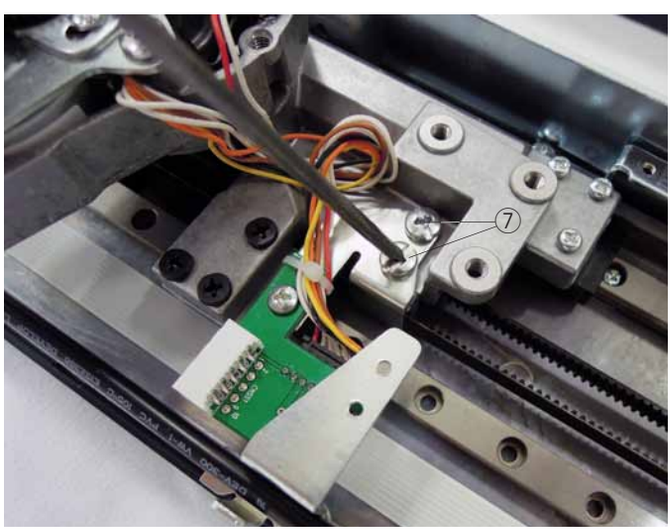


7 Remove the setscrews ⑤ (2 pcs.) on the film guides.

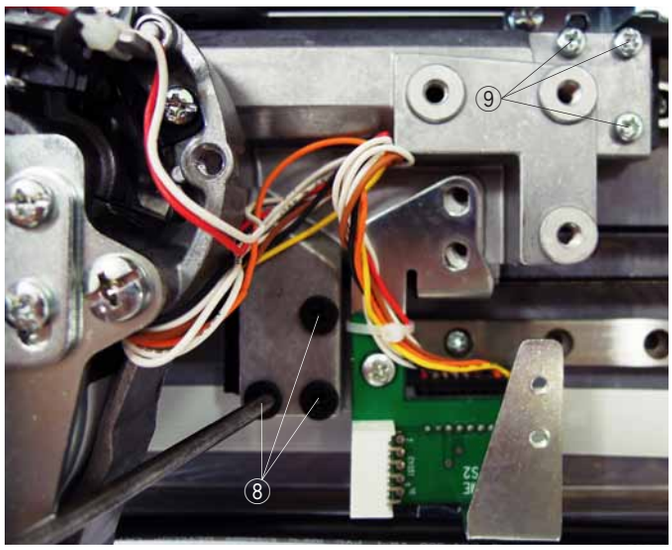


• Removing Y-carriage

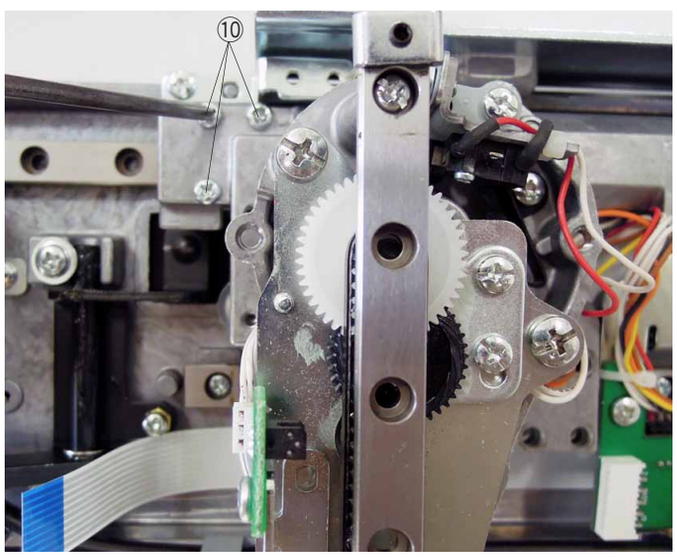
8 Pull the cable in the direction of arrow ⑥ to disconnect the flexible cable from the printed circuit board S2.



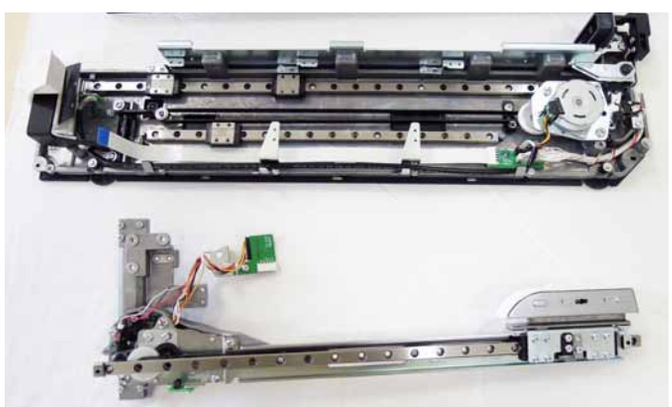
9 Remove the setscrews ⑦ (2 pcs.).



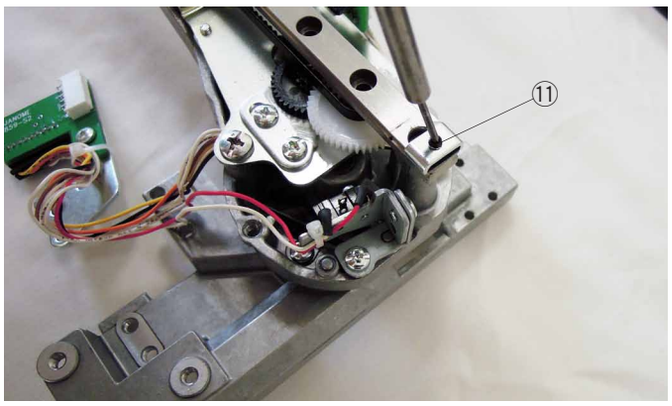
10 Remove the setscrews ⑧ (3 pcs.) and ⑨ (3 pcs.).



11 Remove the setscrews ⑩ (3 pcs.).

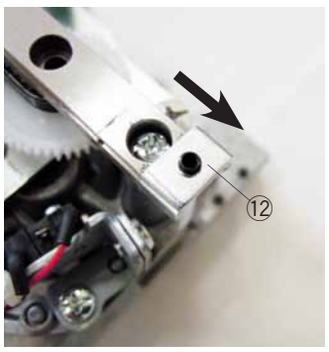


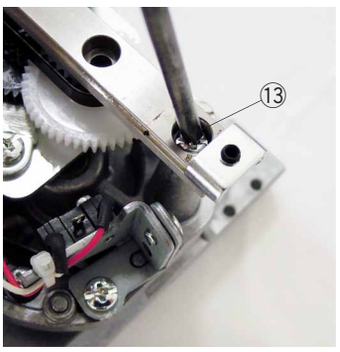
12 The Y-carriage is removed.



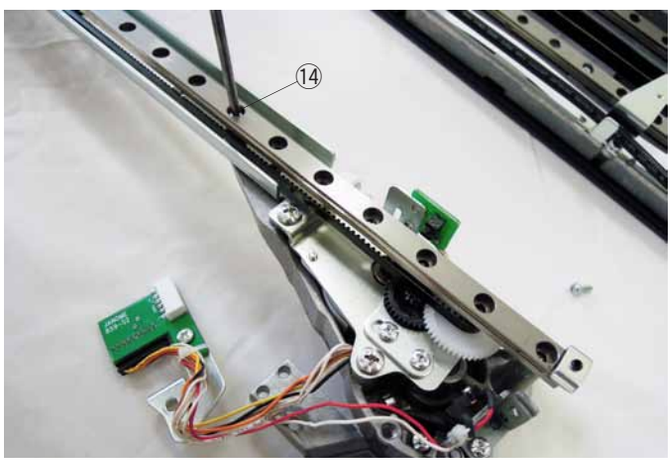
• Removing Y-motor

13 Loosen the hexagonal socket screw ⑪.

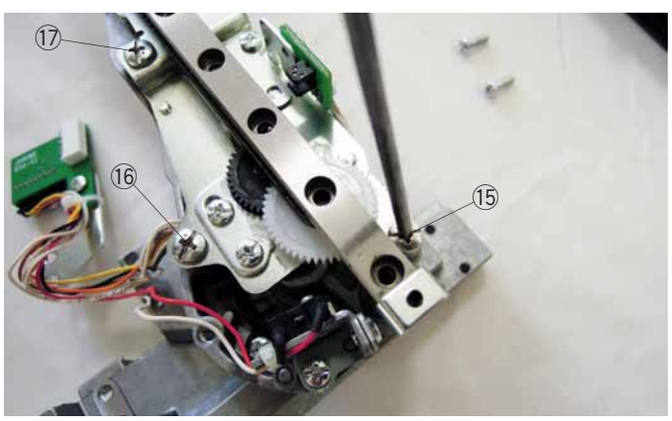


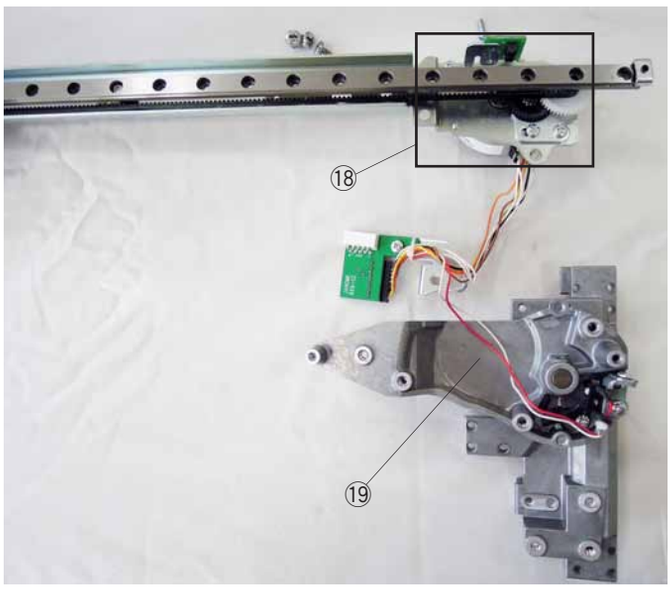


14 Slide the stopper ⑫ in the direction of arrow to access the setscrew ⑬.
Remove the setscrew ⑬

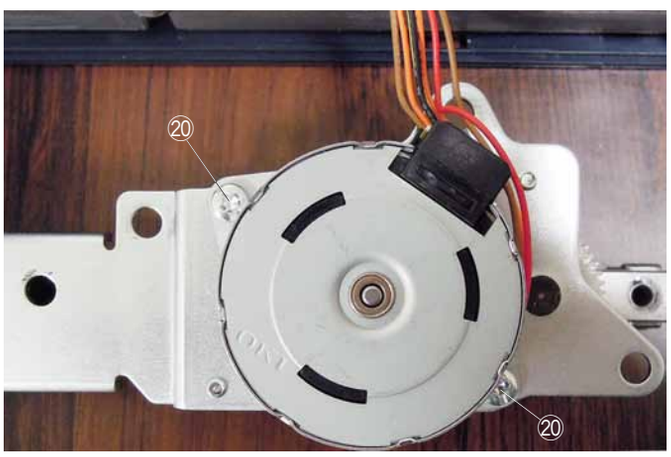


15 Remove the setscrew ⑭, ⑮, ⑯ and ⑰.

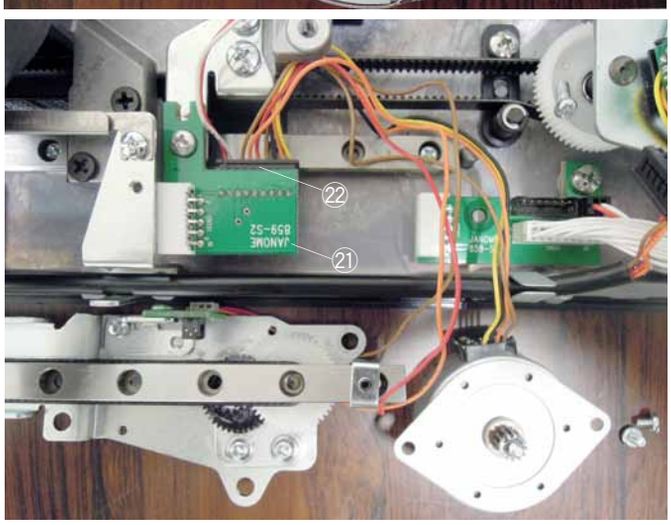




16 The Y-motor ⑱ is separated from the base ⑲.

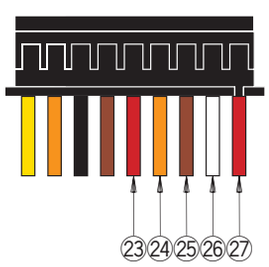


17 Remove the setscrews ⑳ (2 pcs.).

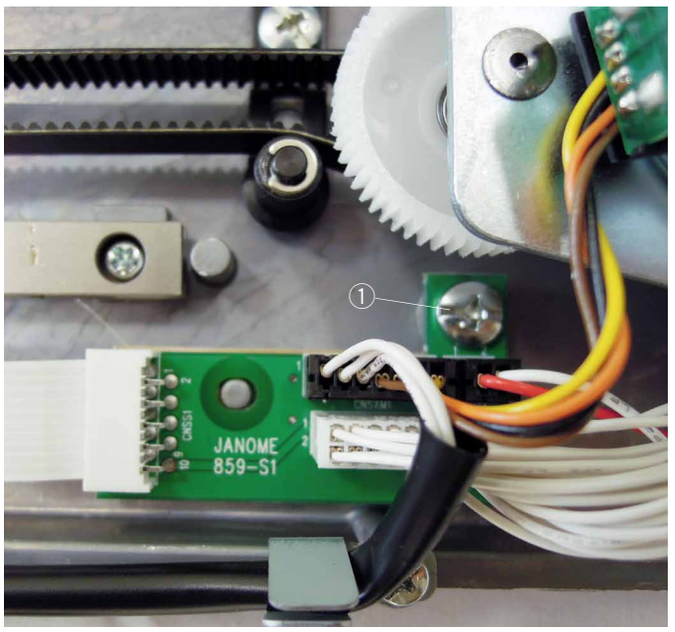


18 Remove the cord binder and disconnect the connector ㉒ from the printed circuit board S2 ㉑.

19 Pry up the lock tab of the connector with a precision driver and pull out the red ㉓, orange ㉔, brown ㉕, white ㉖ and red ㉗ cords.
Remove the Y-motor.



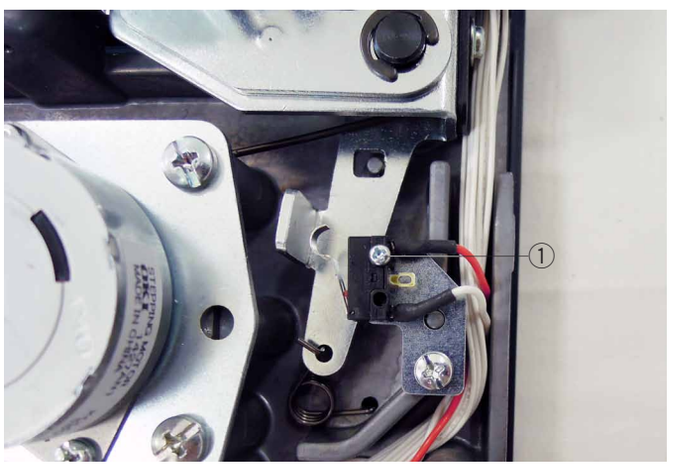
- **Attaching Y-motor**
  Follow the above procedure in reverse.



Replacing Printed Circuit Board S1

1 Remove the Y-carriage cover (lower) (refer to page 6-7.).
Remove the setscrew ①.
Disconnect the connectors from the printed circuit board S1.
Remove the printed circuit board S1.

To attach, follow the above procedure in reverse.



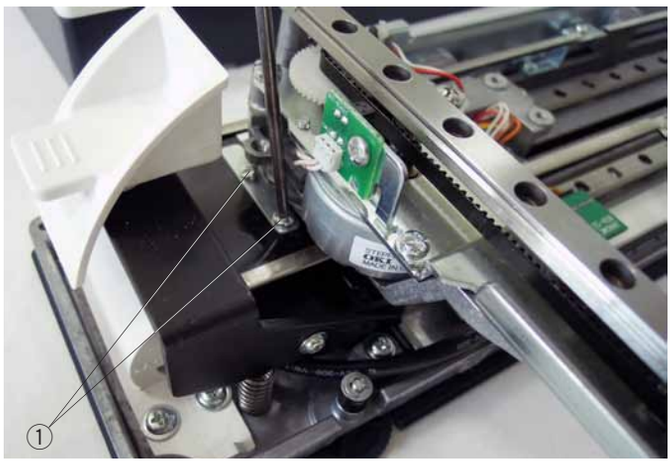
Replacing Embroidery Unit Detecting Switch

1 Remove the setscrew ①.

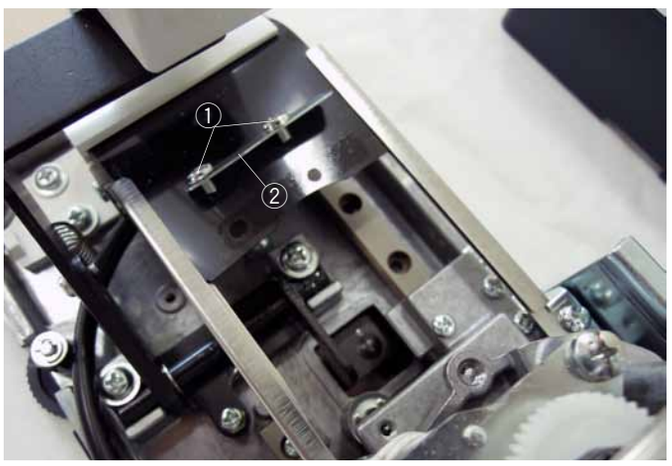
2 Disconnect the connector ② from the printed circuit board S1.
Remove the Embroidery unit detecting switch.

Replacing Film

• Removing film

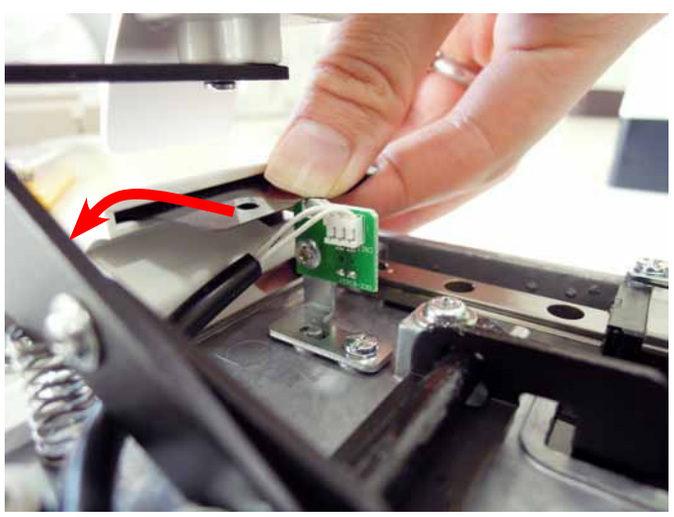


1 To remove the film, remove the setscrews ① (2 pcs.) on the film holder.

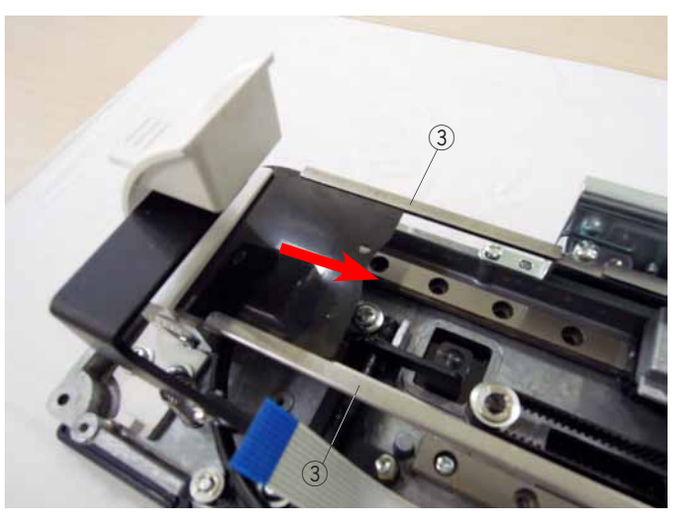


2 Remove the film holder ② and the film.

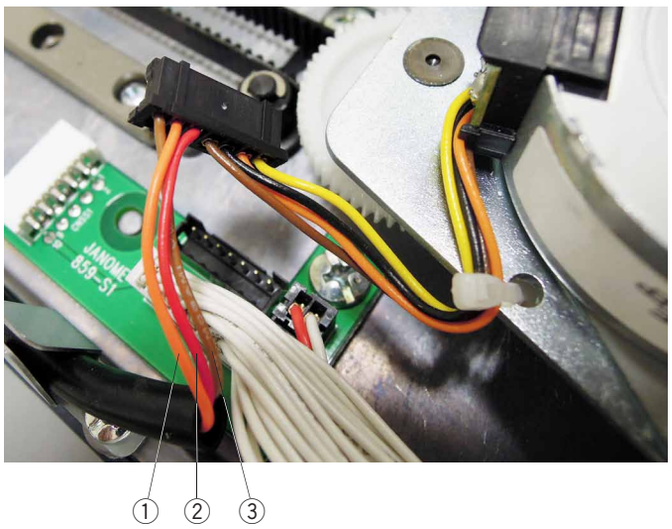
• Attaching film



3 Replace the film.
Insert the film in the film cover.



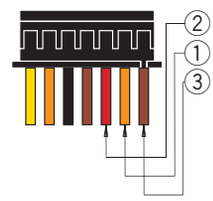
4 Insert the both edges of the film in the guides ③, then move the film in the direction of arrow.
Tighten the setscrews ① (2 pcs.) with the film holder ②.

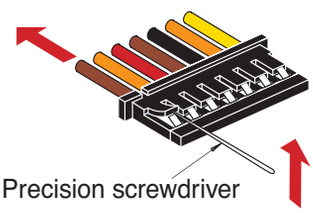


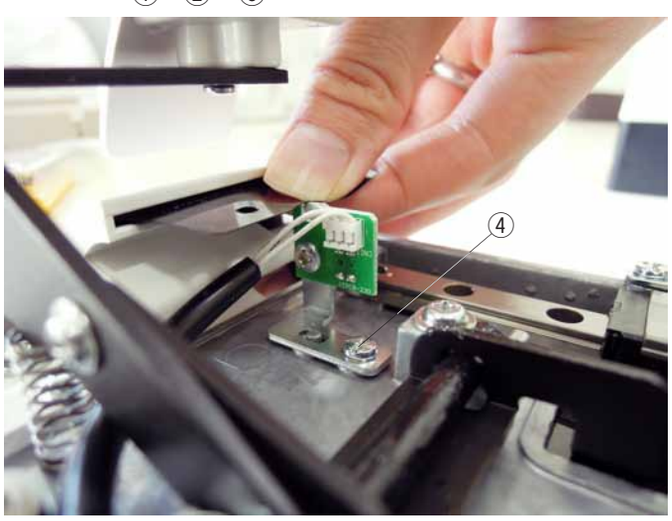
Replacing X-sensor

• Removing X-sensor

1 Disconnect the connector from printed circuit board S1.
Pry up the lock tab of the connector with a precision driver and pull out the brown ③, orange ① and red ② cords.

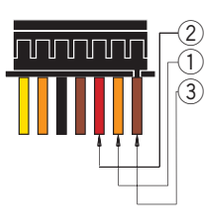




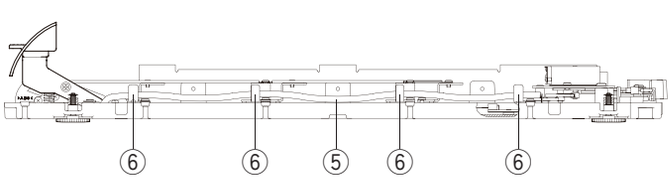


2 Remove the setscrew ④.
Remove the X-sensor.

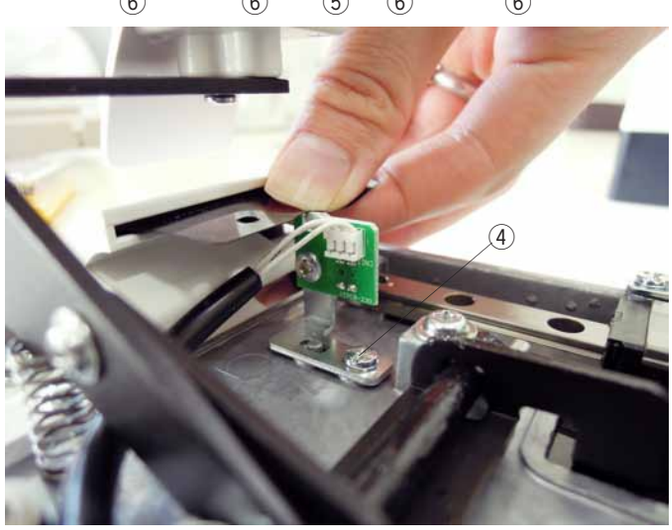
• Attaching X-sensor



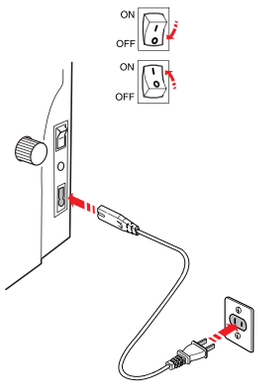
3 Insert the brown ③, orange ① and red ② cords to the connector. Be sure that the cords are firmly locked to the connector.



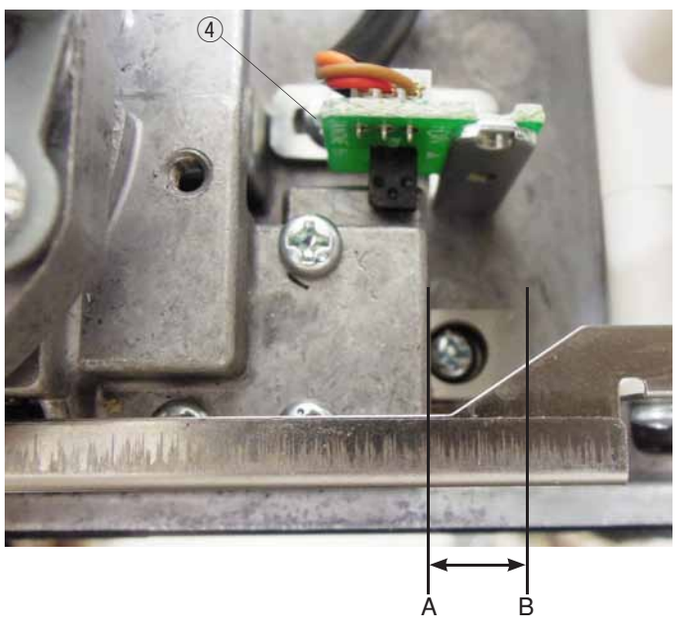
4 Attach the connector to the printed circuit board S1.
Place the tube ⑤ in the guides ⑥.



5 Attach the X-sensor.
Tighten the setscrew ④ temporarily.

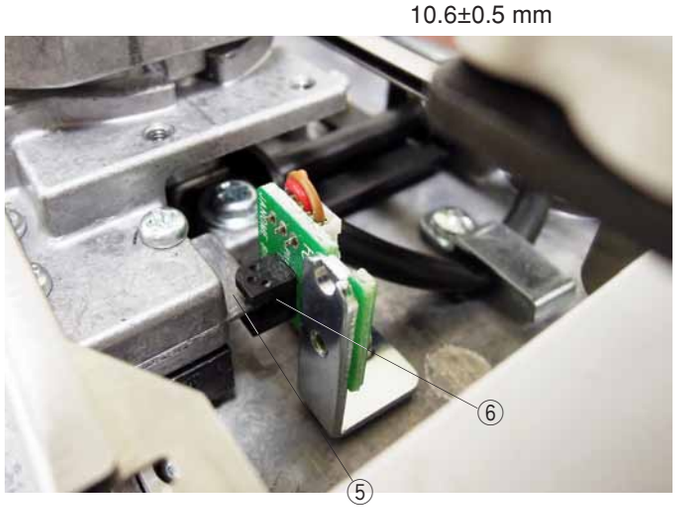


6 Attach the embroidery unit to the MC12000.
Insert the machine plug into the power inlet.
Insert the power supply plug into the wall outlet and turn the power switch on.

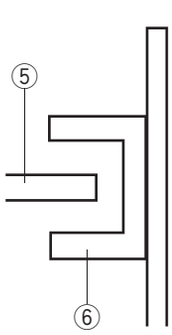


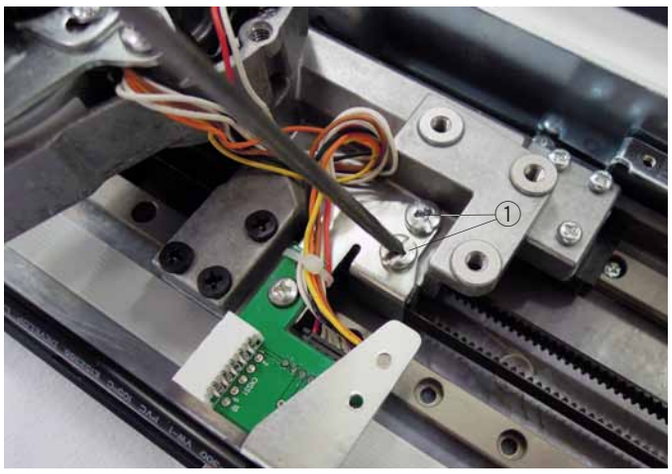
7 The embroidery unit carriage position is initialized.
The range between A and B should be in the range of 10.1 mm to 11.1 mm.
If the range between A and B is smaller than 10.1 mm, loosen the setscrew ④ and move the X-sensor position to the left.
If the range between A and B is larger than 11.1 mm, loosen the setscrew ④ and move the X-sensor position to the right.
Initialize the embroidery unit again and be sure the range between A and B is in the range of 10.1 mm to 11.1 mm. If not, repeat the procedure and adjust the range again.

8 Tighten the setscrew ④ firmly.



9 The shielding plate ⑤ should be positioned at the middle of the sensor ⑥ as illustrated.
If not, loosen the setscrew ⑦ and adjust the sensor height.
Tighten the setscrew ⑦ after the adjustment.

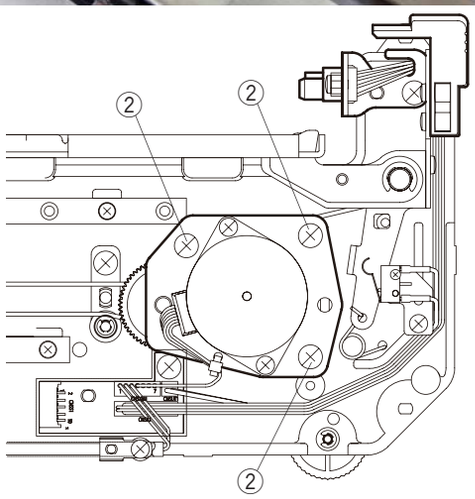




Replacing X-belt

• Removing X-belt

1 Remove the setscrews ① (2 pcs.).
Remove the X-belt base plate.



2 Remove the setscrews ② (3 pcs.).
Replace the X-belt.

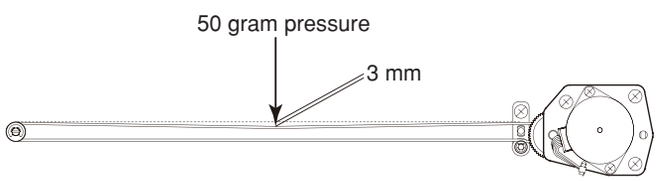
• Attaching X-belt

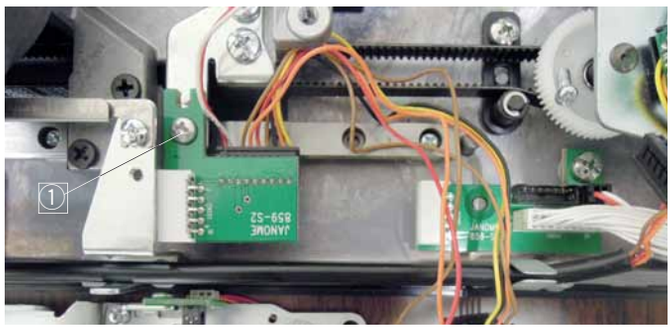
3 Hook the X-belt to the pulley under the X-belt base plate.

4 Hook the X-belt to the pulley of X-motor.
Adjust the X-motor position and tighten the setscrews ② (3 pcs.) temporarily.
Adjust the X-belt deflection to about 3 mm by pressing the middle of X-belt with approximately 50 grams of pressure.

5 Tighten the setscrews securely ②.

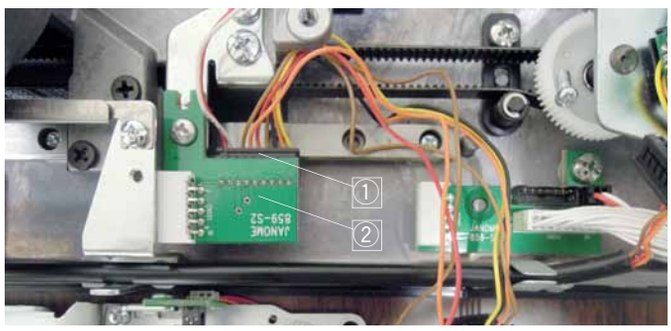
6 Attach the X-belt base plate.
Tighten the setscrews ① (2 pcs.).





Replacing Printed Circuit Board S2

1 Remove the Y-carriage cover (lower) (see page XX).
Remove the setscrew ①.
Disconnect the connector and flexible cable from the printed circuit board S2.
Remove the printed circuit board S2.

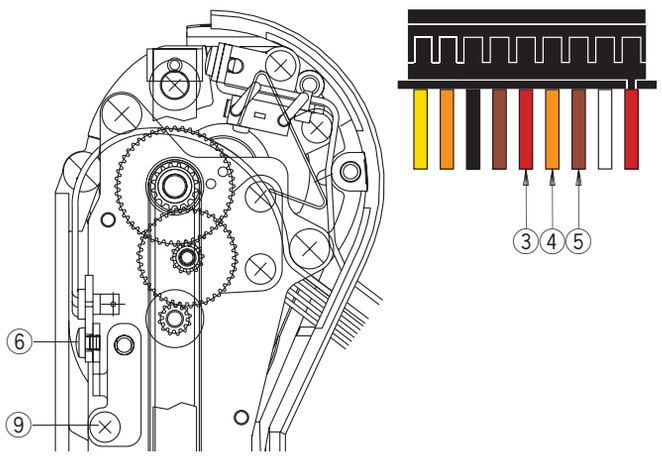


Replacing Y-sensor

• Removing Y-sensor

1 Remove the Y-carriage cover (lower) (see page XX).
Disconnect the connector ① from the printed circuit board S2 ②.

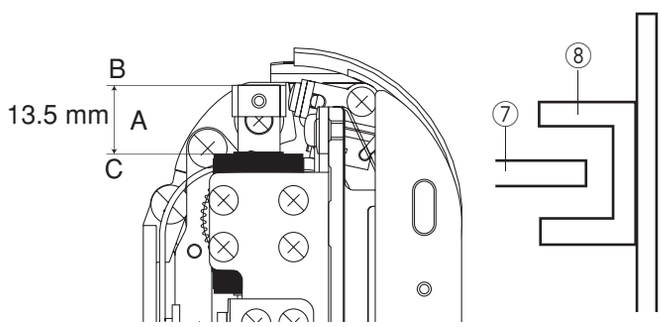
2 Pry up the lock tab of the connector with a precision driver and pull out the red ③, orange ④ and brown ⑤.



3 Remove the setscrew ⑥.
Remove the Y-sensor.

• Attaching Y-sensor

1 Adjust the Y-sensor height so the shielding plate ⑦ should be positioned at the middle of the sensor ⑧ as illustrated.
Tighten the setscrew ⑥ to attach the Y-sensor.
Insert the cords ③, ④ and ⑤ to the connector.
Plug the connector to the printed circuit board S2.



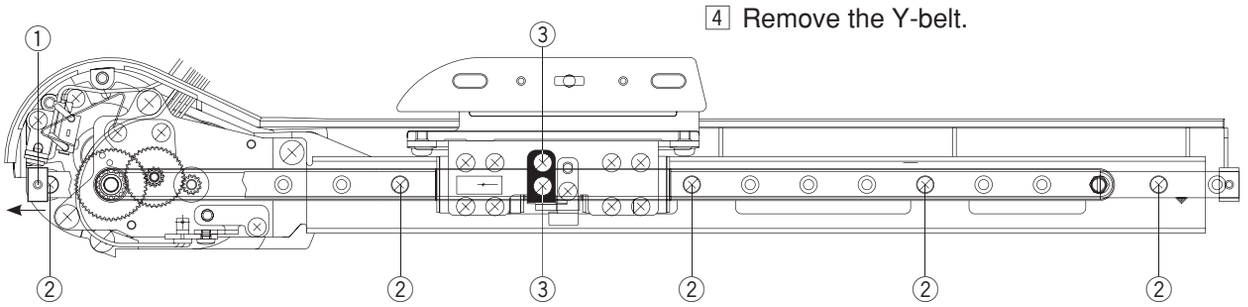
2 Attach the embroidery unit to the MC12000.
Insert the machine plug into the power inlet.
Insert the power supply plug into the wall outlet and turn the power switch on.

3 The embroidery unit carriage position is initialized.
The range A (between the edge of Y-carriage LM guide and the edge of carriage) should be 13.5 mm.
If not, turn the setscrew ⑨ and adjust the Y-sensor position.
If the range A is larger than 13.5 mm, move the Y-sensor set plate in the direction of “B”.
If the range A is smaller than 13,5 mm, move the Y-sensor set plate in the direction of “C”
Initialize the embroidery unit again and be sure the range between A and B is in the range of 10.1 mm to 11.1 mm. If not, repeat the procedure and adjust the range again.

Replacing Y-belt

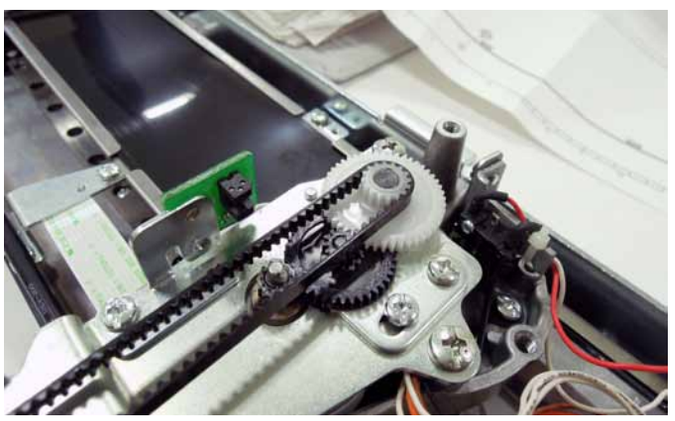
• Removing Y-belt

1 Remove the hexagonal socket screw ①.
Slide the stopper in the direction of arrow.
2 Remove the setscrews ②.
3 Remove the setscrews ③.
4 Remove the Y-belt.



• Attaching Y-belt

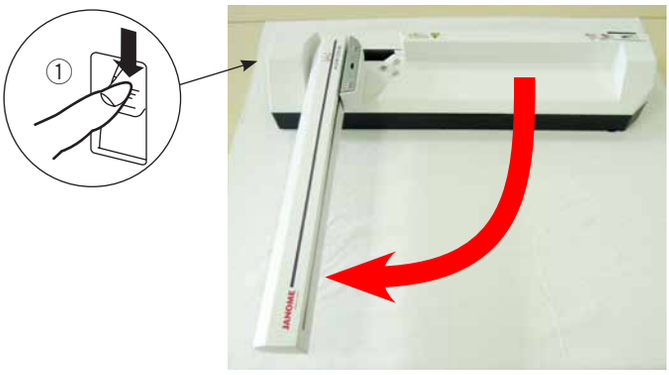
6 Attach the Y-belt.



6 Be sure that the Y-belt deflection to about 3 mm by pressing the middle of Y-belt with approximately 30 grams of pressure.
If not, turn the Y-carriage upside down.
Loosen the nut ④, and turn the eccentric pin to adjust the belt tension, then tighten the nut.
7 Follow the “removing Y-belt” procedure in reverse.

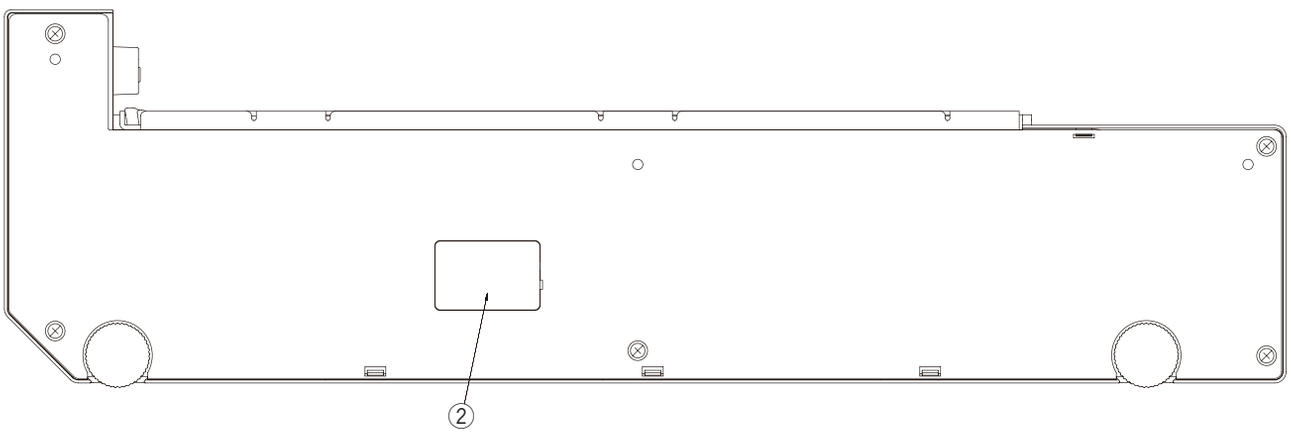
Y-carriage adjustment

If there is a play at Y-carriage, follow the procedure below.

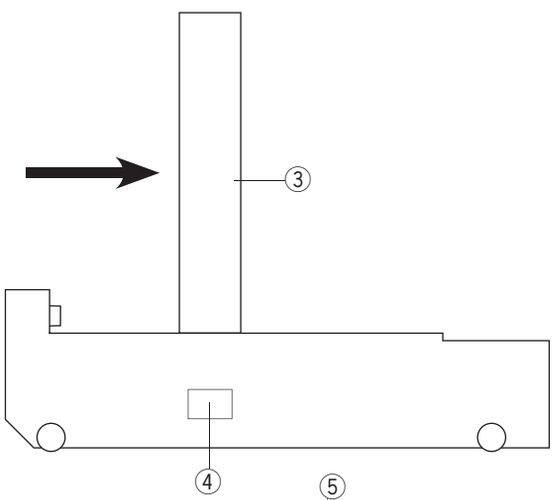


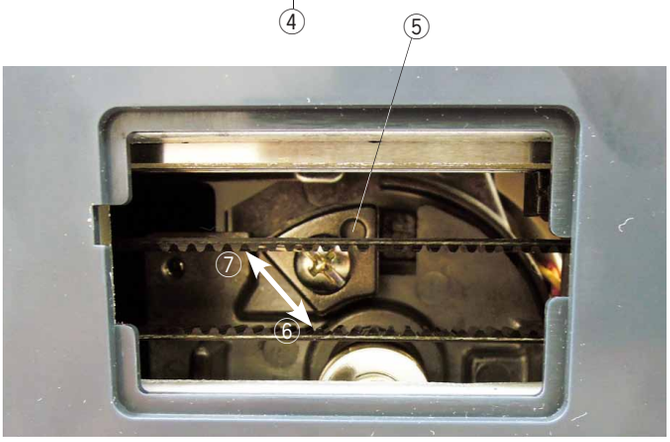
1 Push down the carriage arm release lever ①.
Extend the carriage arm. Swing out the carriage arm until it locks in fully extended position.

2 Turn the embroidery unit upside down.
Remove the cover ②.



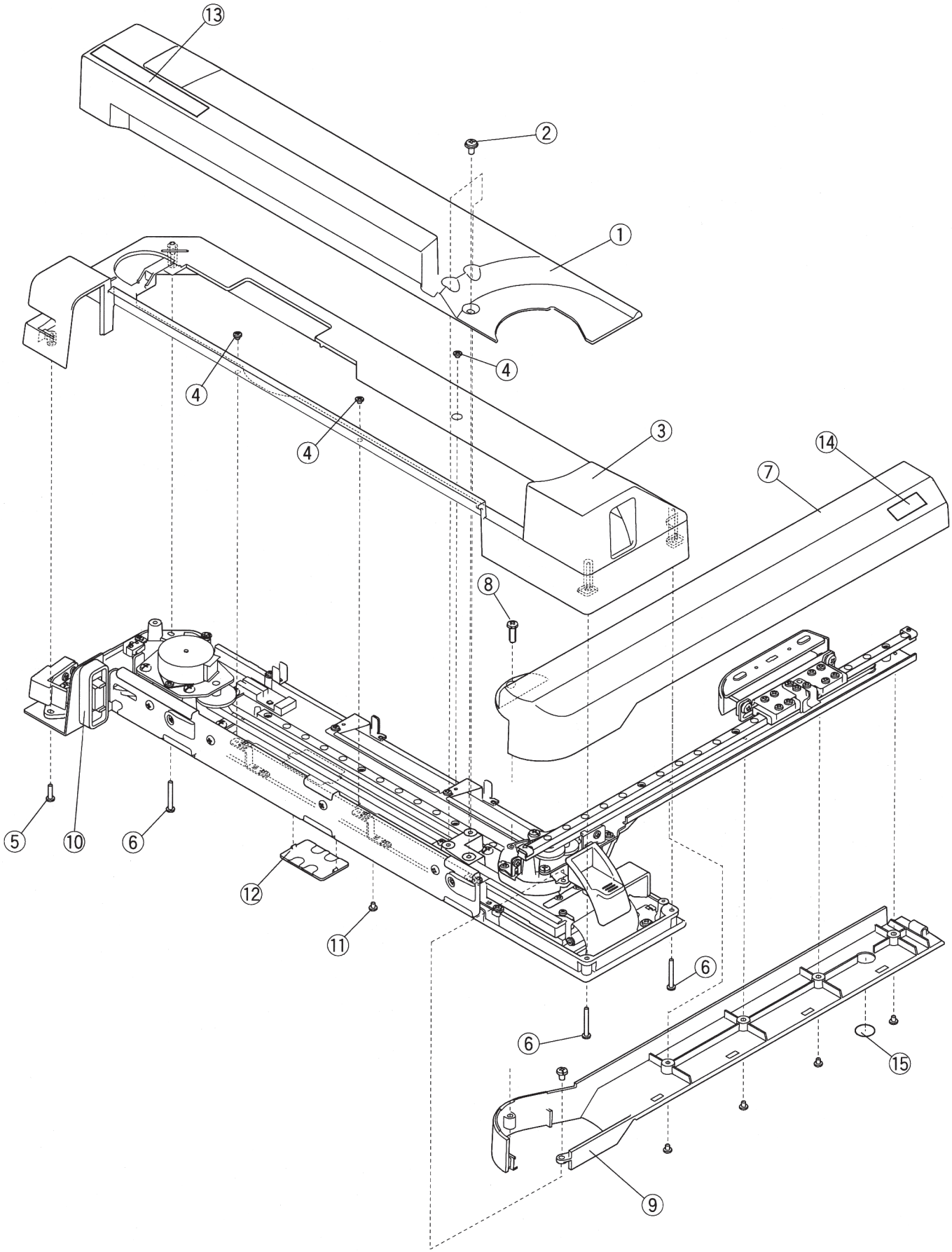
3 Move the Y-carriage ③ under the hole ④.





4 Hook a slotted driver to the hole ⑤.
To tighten the carriage, move the fin-shaped metal to the direction of arrow ⑥.
To loosen the carriage, move the fin-shaped metal to the direction or arrow ⑦.

Be sure that there is no play at the Y-carriage.
Attach the cover ②.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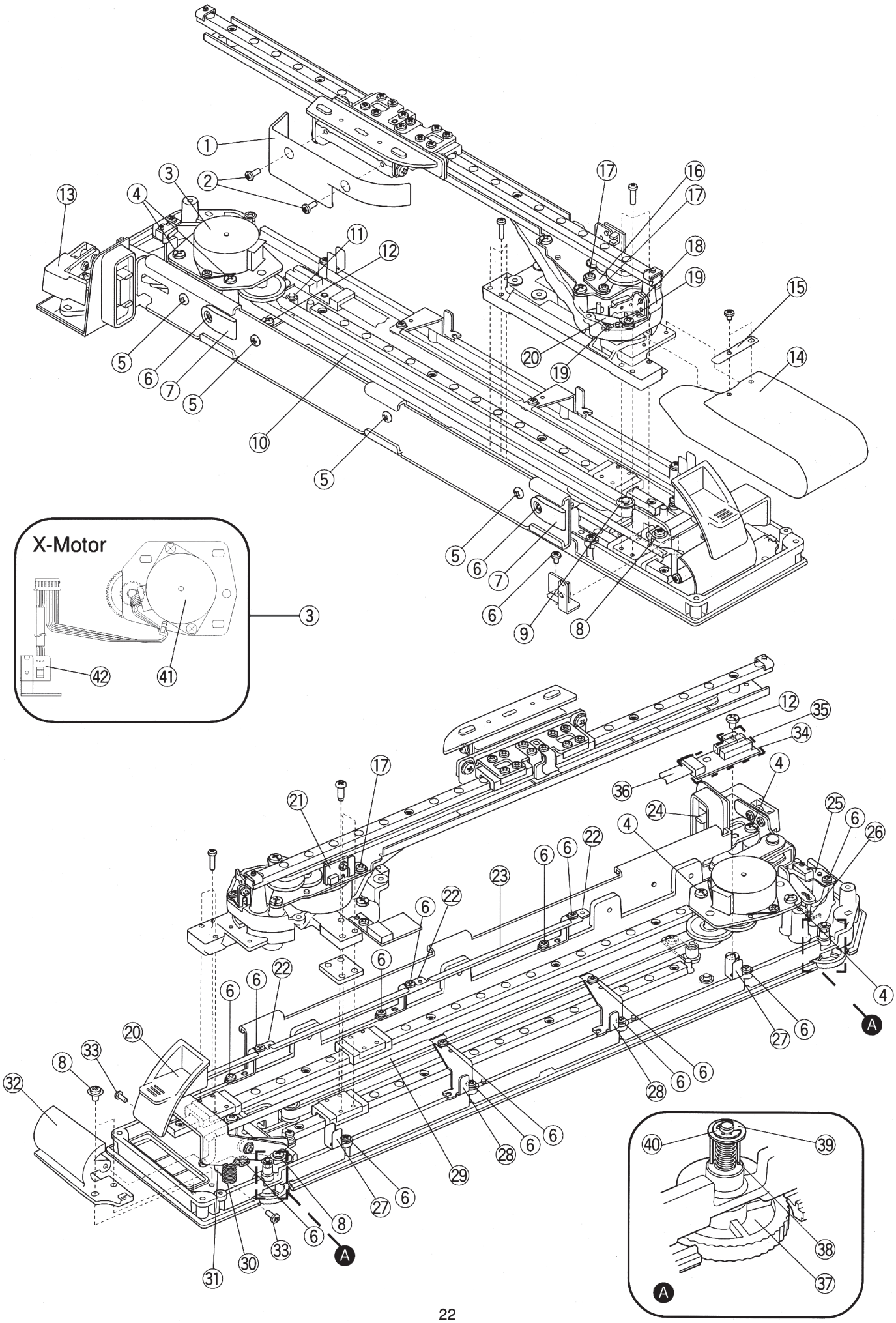
PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	859663003	Embroidery unit cover (upper) (unit)
2	000115607	Setscrew 4x8
3	859673006	X-carriage cover (unit)
4	000097406	Setscrew 3x3
5	000161309	Setscrew 3x12
6	000171405	Setscrew 3x25
7	859199106	Y-carriage cover (upper)
8	000080901	Setscrew 4x25
9	859198002	Y-carriage cover (lower)
10	859192006	Embroidery unit cover (bottom)
11	000066705	Setscrew 4x8
12	850156207	Cover plate
13	859262008	Carriage sticker
14	859276005	Y-carriage sticker
15	797141201	Cap


X-Motor
A

PARTS LIST

KEY NO.	PARTS NO.	DESCRIPTION
1	859172000	Carriage side cover
2	000066727	Setscrew 3x8
3	859653000	X-Motor (unit)
4	000081005	Setscrew 4x8
5	810220106	Setscrew
6	000101105	Setscrew 3x4
7	859182003	Rail spring
8	000115205	Setscrew 4x6
9	859667007	X-pulley shaft (unit)
10	859167105	Syncro belt 710
11	859669009	Idler base (unit)
12	000101404	Setscrew 4x6
13	859661001	Hook (unit)
14	859193007	Film
15	859201009	Film holder
16	860122102	Y-gear set plate
17	000097406	Setscrew 3x3
18	859670003	Swing switch (unit)
19	000101105	Setscrew 3x4
20	859208006	Swing spring
21	860515209	Y-sensor (printed circuit board G2)
22	859202000	Film guide support plate
23	859195009	Film guide 2
24	859659006	Connector (unit)
25	859662002	Embroidery unit release hook attaching plate
26	859186007	Spring
27	859239006	Cord guide 2
28	859203001	Film guide support plate 2
29	859196000	Film guide 3
30	858097007	Knee lifter shaft spring
31	770414009	Cord guide plate
32	859194008	Film guide
33	000120203	Setscrew 3x8 (B)
34	859520007	Printed circuit board S1
35	859154006	Insulation paper S1
36	859523000	Flexible cable (S1 to S2)
37	859209007	Adjusting foot
38	856801408	Slide spring
39	000070104	Washer 3
40	000001207	Snap ring E 2.5
41	860553106	Motor (unit)
42	859654001	X-sensor (unit)