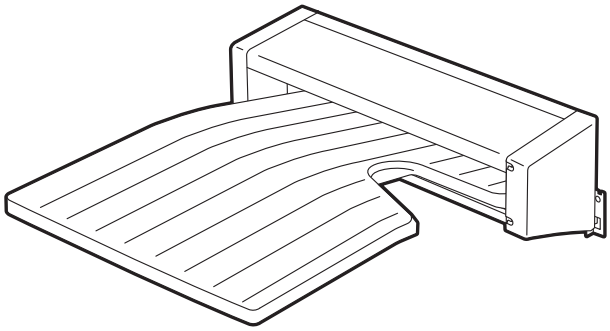
TOSHIBA

SERVICE MANUAL

JOB SEPARATOR

MJ-5004/5009/5014



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Ver08 F_2016-03

General Precautions for Installation/Servicing/Maintenance for the equipment

The installation and service shall be done by a qualified service technician.

1) When installing the equipment to the MFP, be sure to follow the instructions described in the "Unpacking/Set-Up Procedure for the equipment" booklet which comes with each unit of the equipment.

2) The equipment should be installed by an authorized/qualified person.

3) The equipment must be grounded for safety.

4) Before starting installation, servicing or maintenance work, be sure to turn off and unplug the equipment first.

5) The equipment shall be installed near the socket outlet and shall be easily accessible.

6) Be sure to fix and plug in the power cable securely after the installation so that no one trips over it.

7) Unplug the power cable and clean the area around the prongs of the plug and socket outlet once a year or more. A fire may occur when dust lies on this area.

8) The equipment should be grounded to the specified position on the machine frame.

9) When servicing or maintaining the equipment, be careful about the rotating or operation sections such as gear, pulleys, sprockets, cams, belts, etc.

10) When parts are disassembled, reassembly is basically the reverse of disassembly unless otherwise noted in this manual or other related materials. Be careful not to reassemble small parts such as screws, washers, pins, E-rings, toothed washers to the wrong places.

11) Basically, the machine should not be operated with any parts removed or disassembled.

12) When servicing the equipment with the power turned ON, be sure not to touch live sections and rotating/operating sections.

13) Delicate parts for preventing safety hazard problems (such as breakers, thermofuses, fuses, door switches, sensors, etc. if any) should be handled/installed/adjusted correctly.

14) Use suitable measuring instruments and tools.

15) During servicing or maintenance work, be sure to check the serial No. plate and other cautionary labels (if any) to see if they are clean and firmly fixed. If not, take appropriate actions.

16) The PC board must be stored in an anti-electrostatic bag and handled carefully using a wristband, because the ICs on it may be damaged due to static electricity. Before using the wrist band, pull out the power cord plug of the equipment and make sure that there is no uninsulated charged objects in the vicinity.

17) For the recovery and disposal of used equipment, consumable parts and packing materials, follow the relevant local regulations/rules.

18)After completing installation, servicing and maintenance of the equipment, return the equipment to its original state, and check operation.

19)Check the procedures and perform them as described in the Service Manual.

20)Make sure you do not lose your balance.

21)Avoid exposure to your skin and wear protective gloves as needed.

22)Do not leave plastic bags where children can get at them. This may cause an accident such as suffocation if a child puts his/her head into a bag. Plastic bags of options or service parts must be brought back.

CONTENTS

1. SPECIFICATIONS

Item		MJ-5004	MJ-5009	MJ-5014	Remarks
Function		Gate open/close type job separator			
Paper	Size	Size A3 to A5-R/LD to ST-R			
	Upper stacker	64 to 105 g/m^2 (17 to 28 lb. Bond)			
	Lower stacker	50 to 209 g/m^2 (13 lb. Bond to 110 lb. Index)			
Loading capacity	Upper stacker	25 mm (Approx. 150 sheets: 80 g/m^2 (21.3 lb. Bond))			
	Lower stacker	40 mm (Approx. 250 sheets: 80 g/m^2 (21.3 lb. Bond))			
Dimensions		498 (W) mm x 415 (D) mm x 153 (H) mm			
Weight		Approx. 3.3 kg			
Power supply		5VDC, 24VDC (Supplied from equipment)			
Appearance color	Tray	New polite gray	Fair white	Jet black	The difference of MJ-5004, MJ-5009 and MJ-5014 is an appearance color and materials of the JSP upper roller / JSP lower roller.
	Cover	New polite gray	Sky gray	Jet black	

Where to exit paper
The tray to exit the paper is switched (between the upper tray and lower tray) only in the Printer Mode and e-Filing Mode.
This switching is operated from the control panel of the equipment or printer driver.
Since the paper weight supported by the upper tray and lower tray is different, be careful when selecting the tray for ejecting paper.

Tray	Mode/Function				
	Copier	Printer	FAX	e-Filing	List Print
Upper tray	○	○	◎	○	◎
Lower tray	◎	◎	X	◎	X

◎: Selected at the default value
○: Selectable by the setting
X : Not selectable

2. OUTLINE

2.1 Names of Various Components

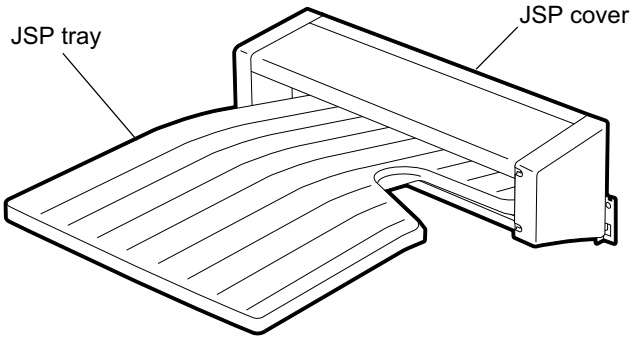

Fig. 2-1

2.2 Layout of Electrical Parts

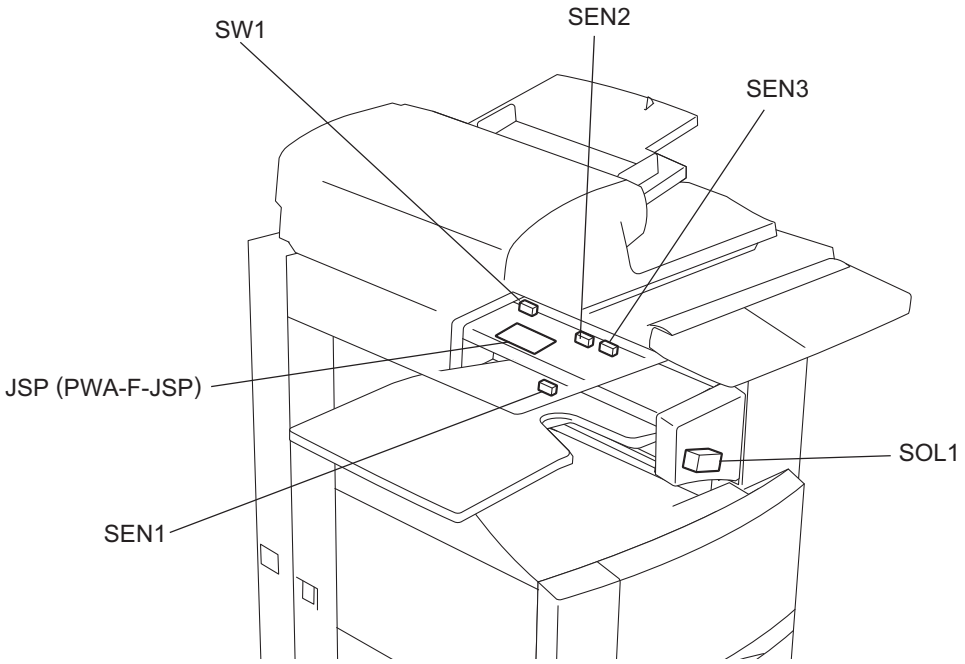

Fig. 2-2

Symbols and functions of various devices

Symbol	Name	Function
SW1	JSPCOV-SW JSP cover switch	Detects the open/close state of the JSP cover during jam processing, etc.
SEN1	PF1-SEN JSP stack sensor (Lower)	Detects the limit number of sheets in the lower tray.
SEN2	PF2-SEN JSP stack sensor (Upper)	Detects the limit number of sheets in the upper tray.
SEN3	JSPFED-SEN JSP feed sensor	Detects the presence or absence of transport paper.
SOL1	JSPGATE-SOL JSP solenoid	Switches the transport path (flap).
JSP	PWA-F-JSP JSP board	JSP board which relays the sensor signals and solenoid drive signals.

2.3 Harness Connection Diagram

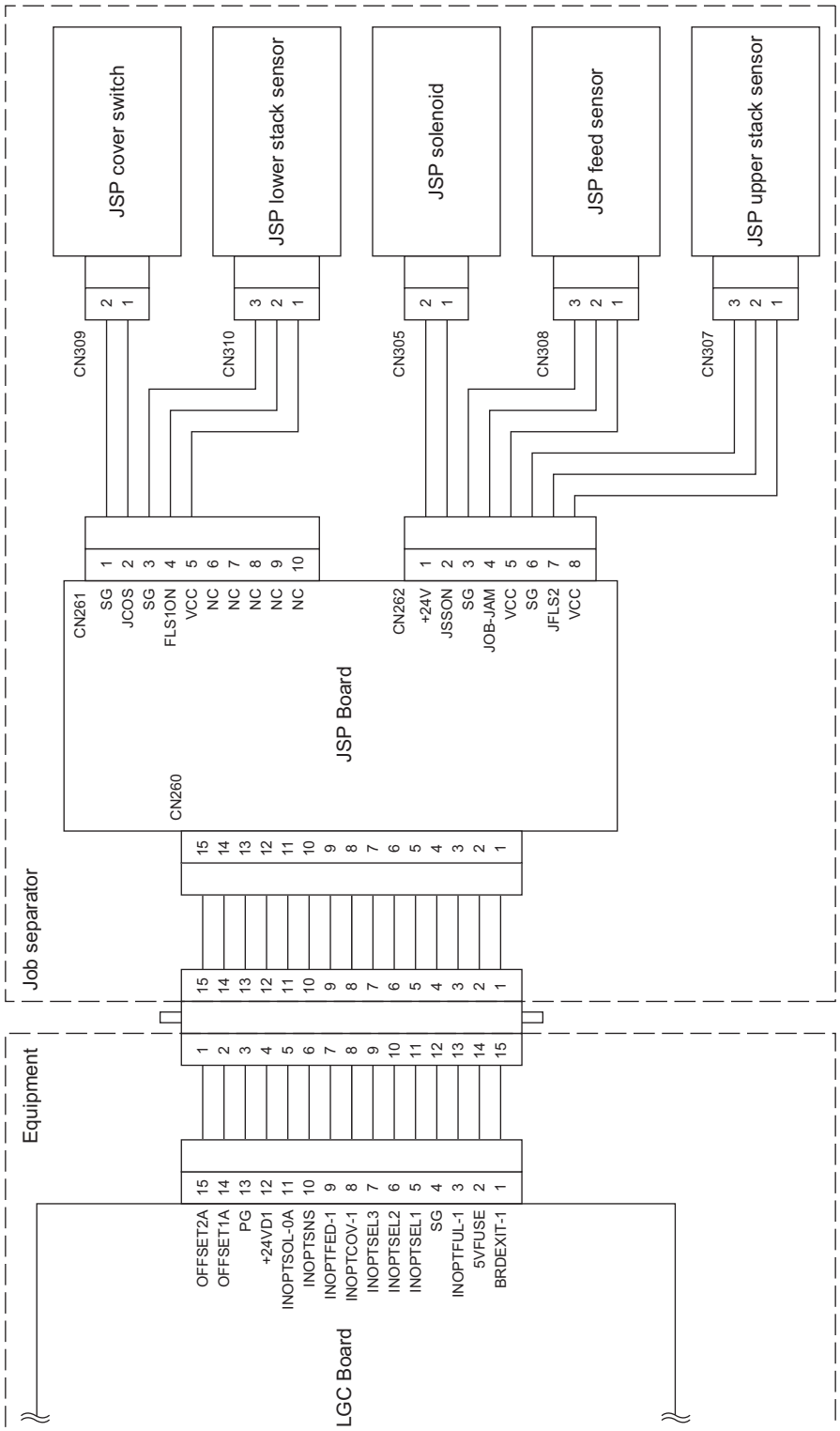

Fig. 2-3

2.4 Board Assembly

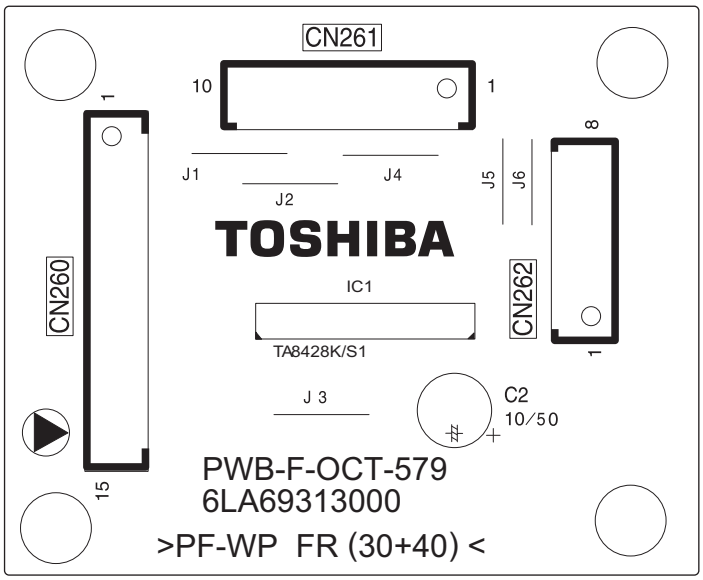

Fig. 2-4

3. OPERATIONAL DESCRIPTION

3.1 General Description

The Job separator has a function to stack printed sheets of paper by putting them in the upper tray and lower tray. When fed to the Job separator, printed paper can be stacked by putting it in the upper or lower tray. Printed sheets of paper are put in the upper or lower tray by changing the transfer path with the flap.

3.2 Block Diagram

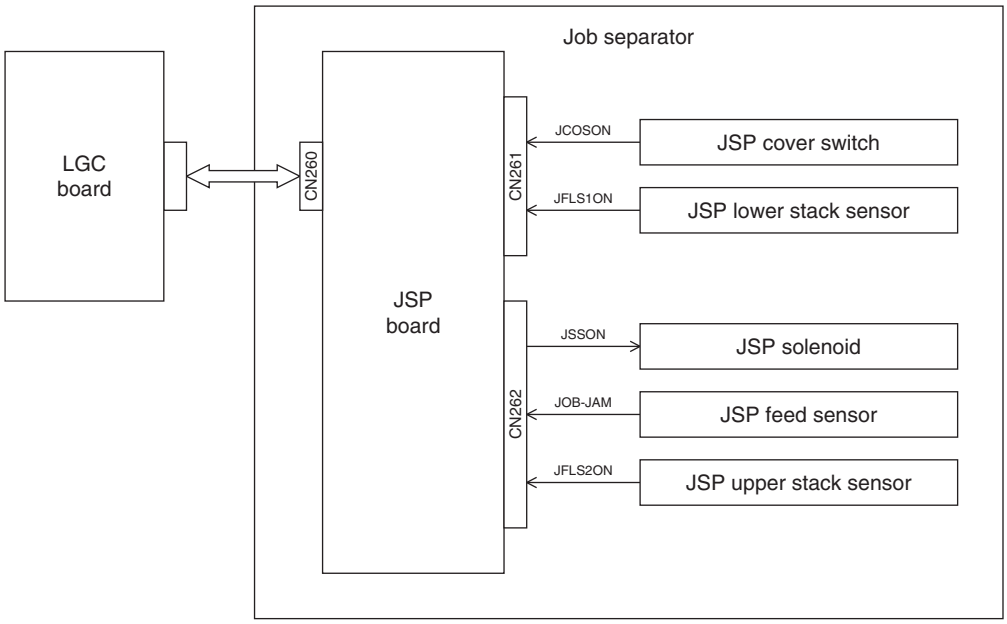

Fig. 3-1

1 cover switch, 3 photo sensors and 1 solenoid are connected to the JSP board.
These detection signals and drive signals are directly connected to the LGC board.

3.3 Detection of Abnormal Status

3.3.1 Cover open/close detection

When the JSP cover switch detects the open state of the cover, the equipment detects it and stops the transport of paper.

3.3.2 Paper jam detection

The Job separator has a sensor for detecting paper jamming for the upper tray only. If the paper fed from the equipment is left stopped in the middle of the transport path for the upper tray, the JSP feed sensor detects paper jamming. The signal is at “High” level while the paper is passing. If the “High” level time is too long, the equipment will judge it to be paper jamming. The paper jamming can be cleared by opening the cover and removing the paper.

3.3.3 Tray full detection

When the stackers are full of paper, a tray full state is detected by the JSP upper stack sensor for the upper tray, and by the JSP lower stack sensor for the lower tray. The stacker full state can be cleared by removing the paper from the tray.

4. MECHANICAL DESCRIPTION

4.1 Paper Feed

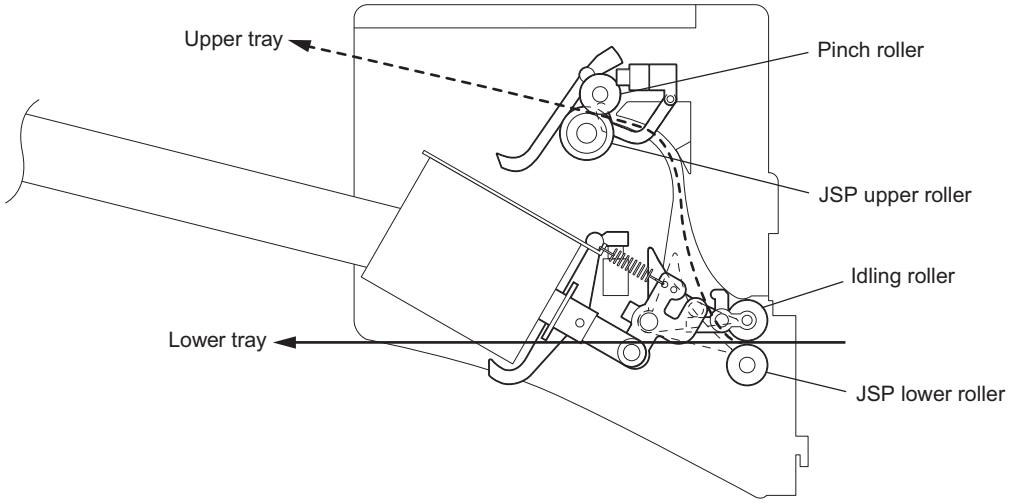

Fig. 4-1

There are the following two paths for paper transport, upper and lower, as indicated by the arrows in the figure above. When exiting to the lower side, the paper is driven by the JSP lower roller and stacked as it is (indicated by the solid line arrow). When exiting to the upper side, the solenoid is turned ON to lower the flap as indicated by the dotted line so that the paper passes through the upper transport path and is driven by the JSP upper roller before beings stacked (indicated by the dotted line arrow). Also, when the solenoid is turned ON, the idling roller is lifted to open the upward transport path, thereby facilitating paper passing.

4.2 Flap

The flap is driven by the JSP solenoid. Usually, when exiting the paper to the lower side, the flap is lifted up by the spring so that the paper is stacked on the lower side (solenoid OFF). When exiting the paper to the upper side, the JSP solenoid is driven to draw the plunger into the solenoid and lower the flap so that the paper is fed to the upper transport path.

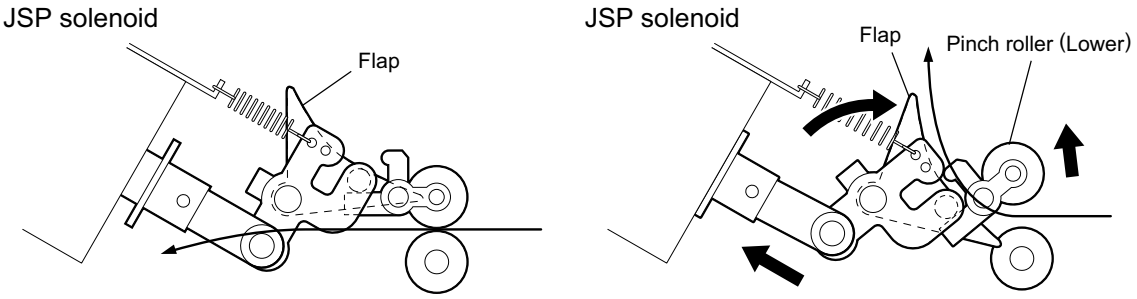

Fig. 4-2

4.3 Drive System

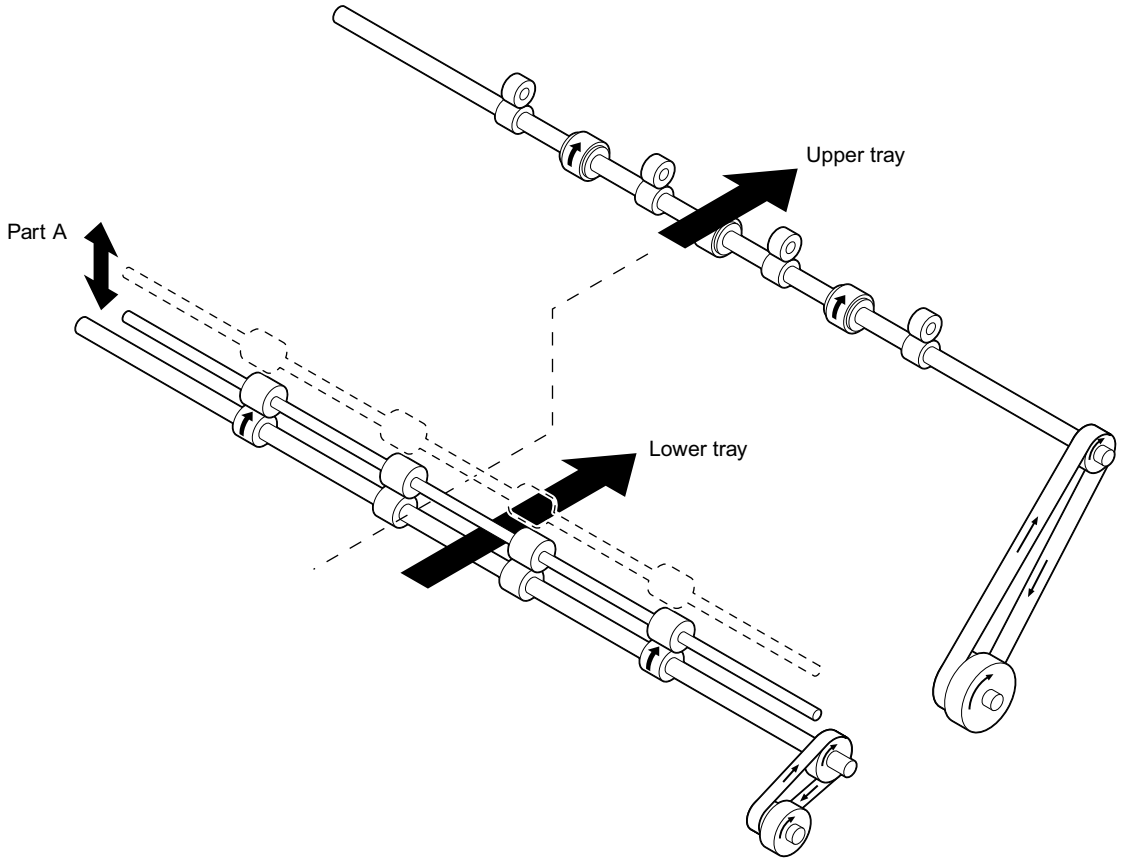

Fig. 4-3

Since there is no motor in the Job separator, the drive mechanism is given driving force from the equipment through the gears to turn the JSP upper roller and JSP lower roller. When exiting the paper to either upper or lower side, the drive mechanism is driven by the gears of the equipment but the gears on the equipment side for connecting the upper and lower feed rollers are separately provided for the upper and lower sides.

When exiting the paper to the upper side, the drive input from the equipment is transmitted from the gear to the belt to turn the JSP upper roller. Also, when exiting the paper to the upper side, the idling roller moves upward (part A).

When exiting the paper to the lower side, the drive mechanism receives driving force from the gear on the same shaft as that for the exit roller and drives the JSP lower roller through 1 gear and 1 belt.

5. CIRCUIT DESCRIPTION

5.1 Block Diagram

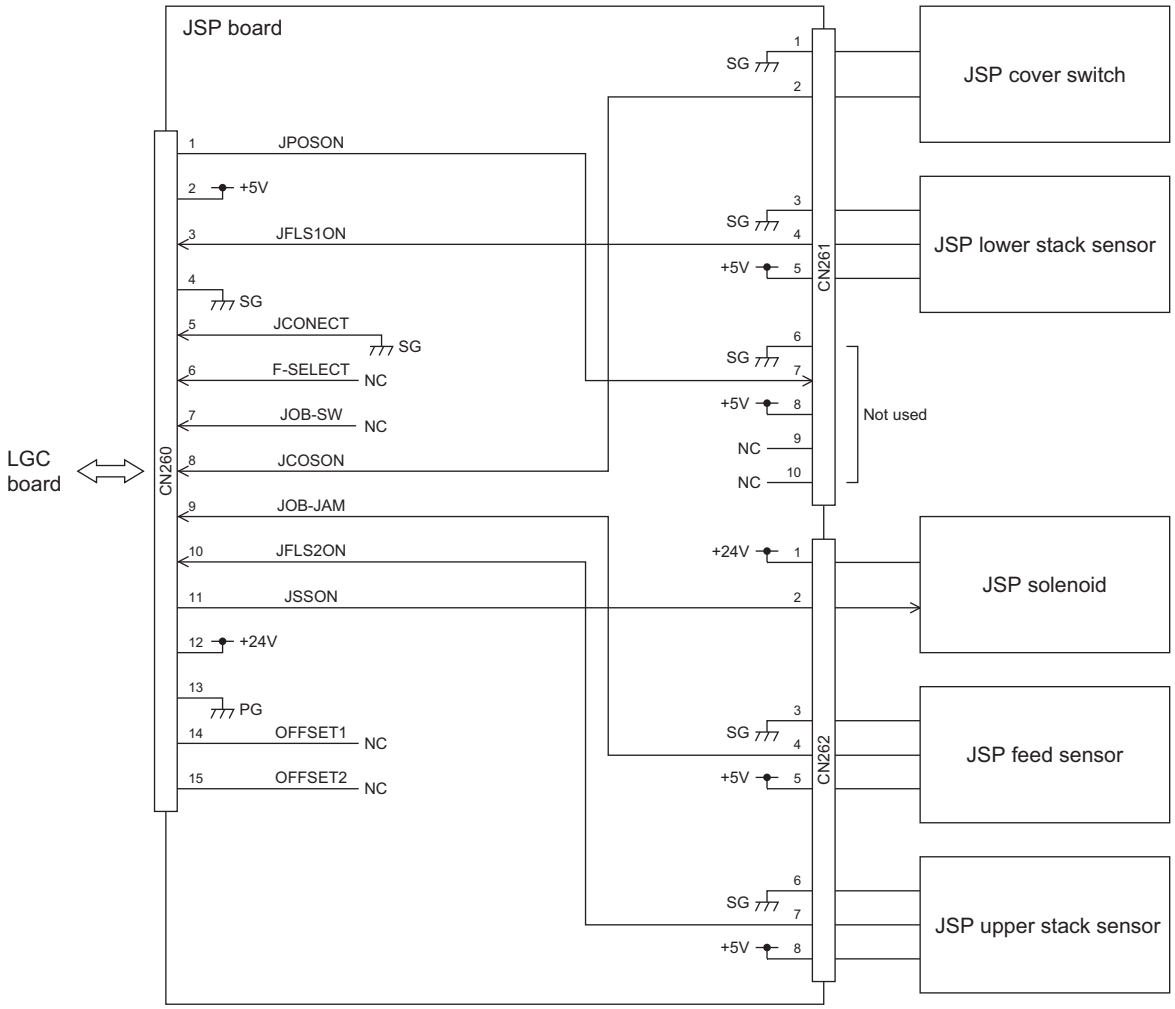

Fig. 5-1

The signals only pass through the JSP board.

JCONECT is connected to GND, and F-SECRET and JOB-SW are unconnected. The Offset tray, finisher, etc. can be connected to the equipment in addition to the JSP. Those signals are used to identify the option connected. A combination of the signals indicates the type of an option connected to the equipment.

5.2 Meaning of Signals

Signal Name	Part Name	Functional Description	Status	Note
JCOVON	JSP cover switch	Detects the open/close state of the cover during jam processing, etc.	High: Cover open	Push switch
FLS1ON	JSP stack sensor (Lower)	Detects the limit number of sheets in the lower tray.	High: Paper full	Photo sensor
JFLS2ON	JSP stack sensor (Upper)	Detects the limit number of sheets in the upper tray.	High: Paper full	Photo sensor
JOB-JAM	JSP feed sensor	Detects the presence or absence of transport paper.	High: Paper present	Photo sensor
JSSON	JSP solenoid	Switches the transport path (flap)	Low: Lower tray exit High: Upper tray exit	Plunger solenoid

The JSP cover switch detects the open or close state of the cover. A push switch is used for the switch. The signal goes LOW when the cover is closed, and HIGH when it is open.

The JSP lower stack sensor detects the limit number of sheets in the lower tray. A photo sensor is used for the sensor. When the stacked number of sheets increases, the detection arm rises to turn on the sensor.

The JSP upper stack sensor detects the limit number of sheets in the upper tray. A photo sensor is used for the sensor. When the stacked number of sheets increases, the detection arm rises to turn on the sensor.

The JSP feed sensor detects the presence or absence of paper in the upper transport path. A photo sensor is used for the sensor. The signal goes HIGH while paper is passing over the sensor (paper present), and LOW when no paper is present. If the paper present time (“High” level) does not change even after a fixed time, paper jamming will be assumed.

The JSP solenoid switches the transfer path to control the flap. The solenoid is usually OFF where the paper passes through the lower transport path before being stacked. For stacking paper in the upper tray, the OCT solenoid turns ON to lower the flap so that the paper passes through the transport path for the upper tray before being stacked.

6. DISASSEMBLY AND REPLACEMENT

[A] Job separator

(1) Release 4 hooks and remove JSP tray.

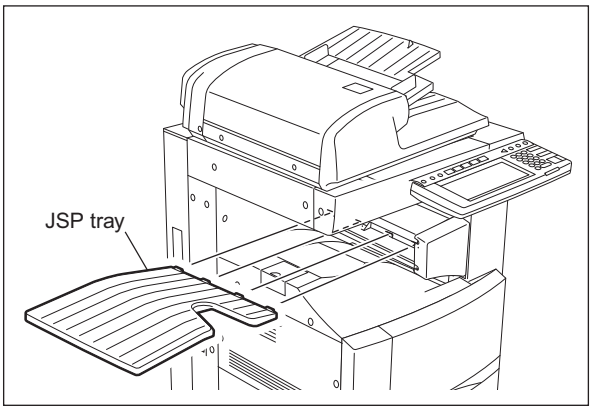

Fig. 6-1

(2) Loosen 2 screws and detach JSP right cover.

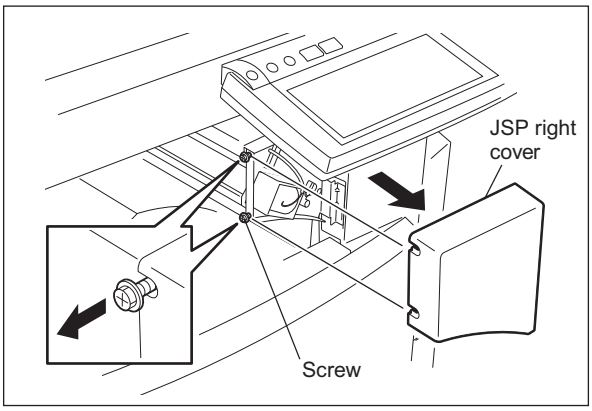

Fig. 6-2

(3) Remove 2 screws and detach connector cover.

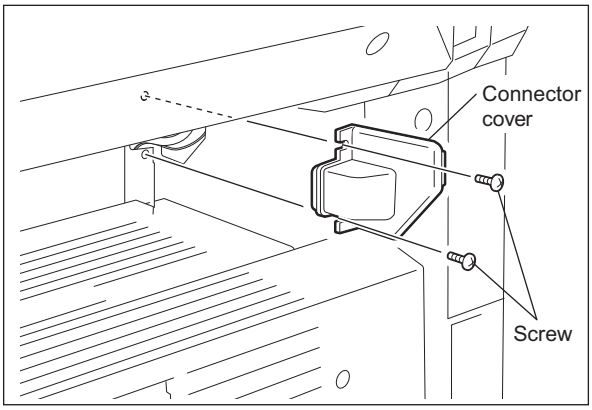

Fig. 6-3

(4) Detach the ground wire and the connector.

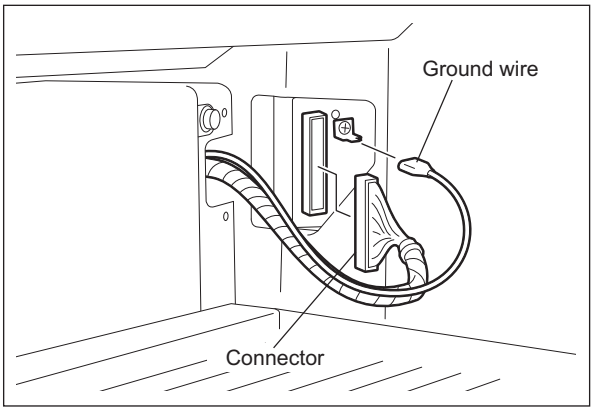

Fig. 6-4

(5) Remove 1 screw, release 1 hook, and remove Job separator.

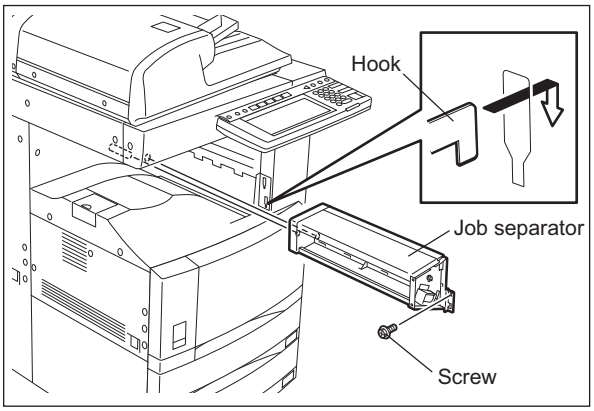

Fig. 6-5

[B] JSP left cover

(1) Loosen 3 screws, detach the harness, and detach JSP left cover.

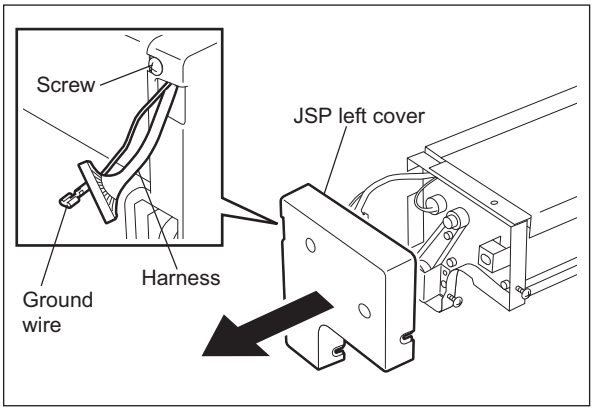

Fig. 6-6

[C] JSP top cover

(1) Remove Job separator (P. 6-1 "[A] Job separator").
(2) Detach JSP left cover (P. 6-2 "[B] JSP left cover").
(3) Remove 2 screws and detach JSP top cover.

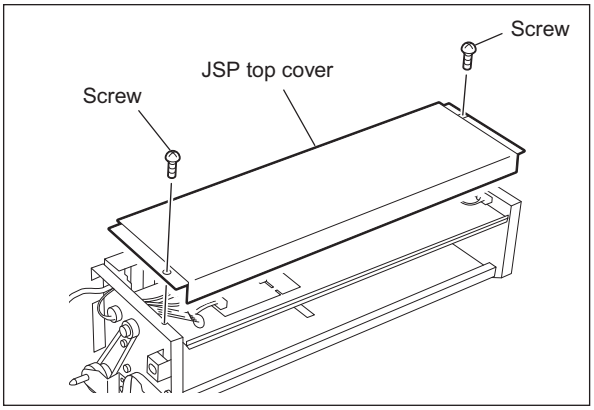

Fig. 6-7

[D] JSP board

(1) Remove Job separator (P. 6-1 "[A] Job separator").
(2) Detach JSP left cover (P. 6-2 "[B] JSP left cover").
(3) Detach JSP top cover (P. 6-3 "[C] JSP top cover").
(4) Detach all the connectors, release 3 locking supports, and remove JSP board.
(5) Remove locking supports.

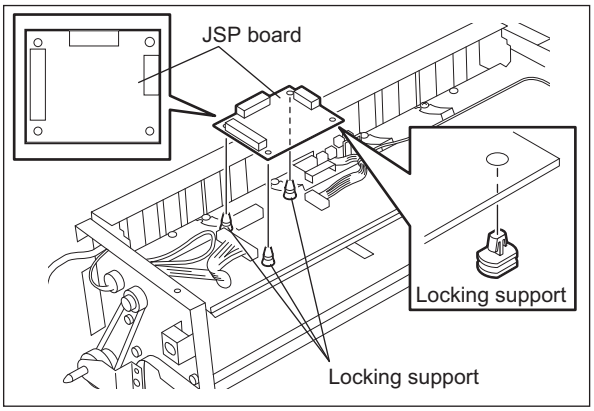

Fig. 6-8

[E] JSP solenoid/JSP solenoid arms

(1) Remove Job separator (📖 P. 6-1 "[A] Job separator").
(2) Detach spring and detach the connector.

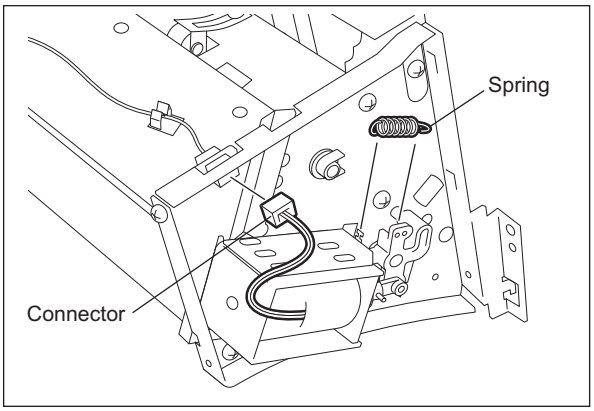

Fig. 6-9

(3) Remove 2 screws, and remove JSP solenoid.
(4) Remove JSP solenoid arm 2 from plunger.
(5) Remove the E-ring and detach the JSP solenoid arm 1.

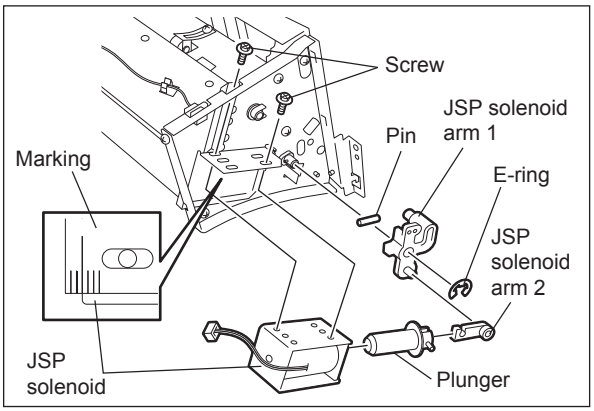

Fig. 6-10

Notes:

The confirmation procedure required when the JSP solenoid is attached is as follows.

1. Attach the JSP solenoid so that the edge of the JSP solenoid is placed at the center of the marks.
2. Remove 1 screw and remove hinge.
3. Release 1 hook and detach JSP cover assembly.
4. Release 2 hooks and detach idle roller assembly.

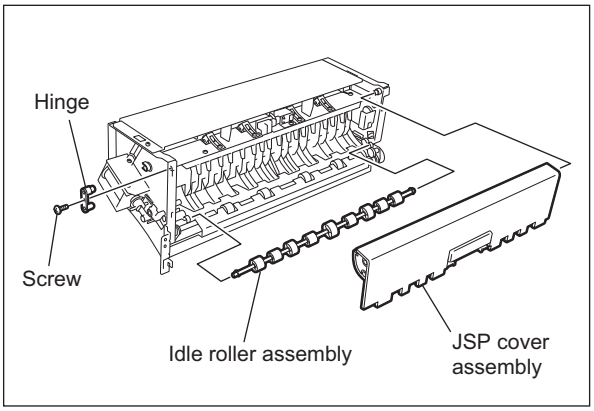

Fig. 6-11

5. Pull the plunger and confirm that the gap between the guide plate and the flapper is 0.5 to 2.0 mm at 2 places on the central portion.

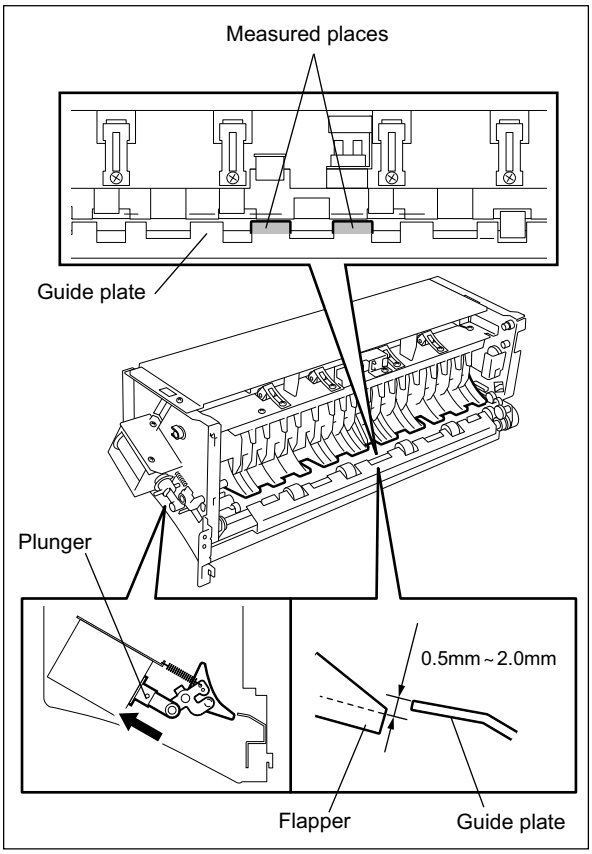

Fig. 6-12

6

[F] JSP open cover assembly

(1) Remove Job separator (📖 P. 6-1 "[A] Job separator").
(2) Remove 1 screw and remove hinge.
(3) Release 1 hook and detach JSP cover assembly.

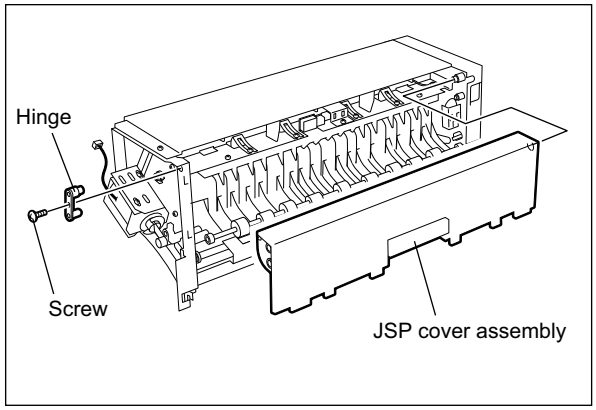

Fig. 6-13

[G] JSP upper roller

(1) Remove Job separator (📖 P. 6-1 "[A] Job separator").
(2) Detach JSP left cover (📖 P. 6-2 "[B] JSP left cover").
(3) Remove 1 screw and detach the drive gear plate.
(4) Remove drive gear and timing belt 240.
(5) Detach clip, and remove pulley and bushing.

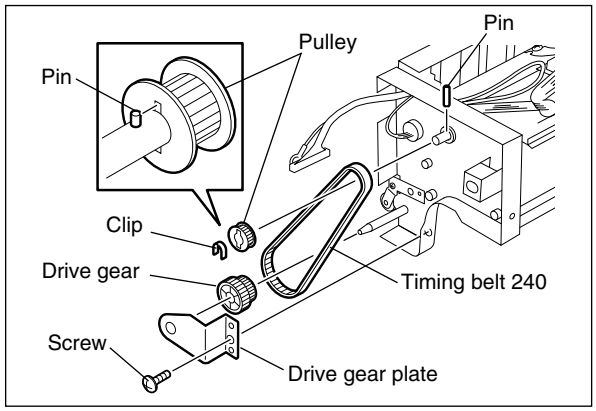

Fig. 6-14

(6) Remove 1 clip, remove 2 bushings on both sides, and detach the JSP upper roller.

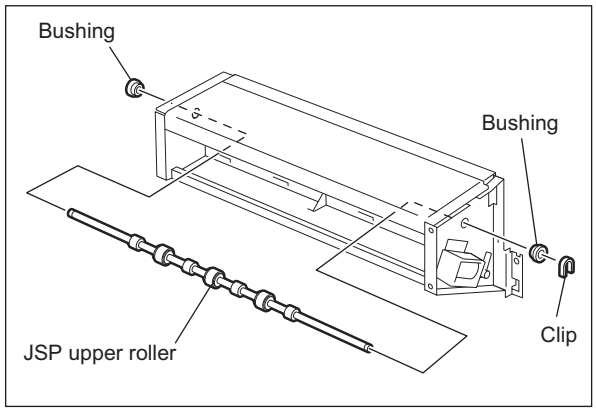

Fig. 6-15

[H] JSP lower roller

(1) Remove Job separator (📖 P. 6-1 "[A] Job separator").
(2) Detach JSP open cover assembly (📖 P. 6-6 "[F] JSP open cover assembly").
(3) Remove 2 screws and detach the guide plate.

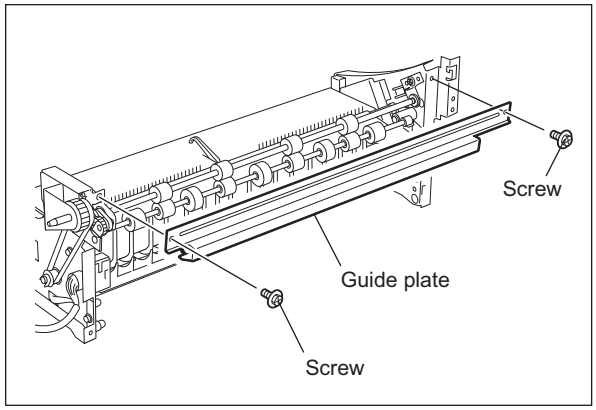

Fig. 6-16

(4) Remove 3 screws and detach the JSP lower roller assembly.
(5) Remove the clip and detach the bracket and the bushing.

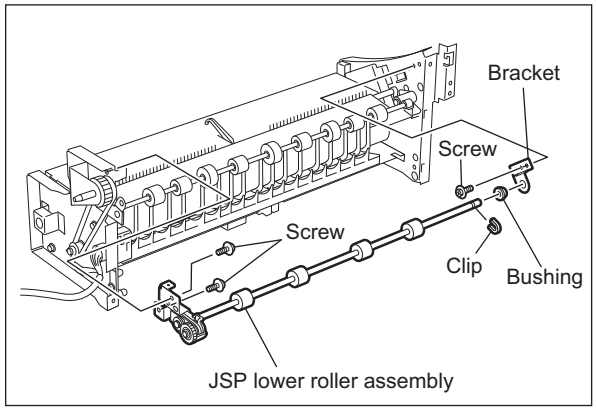

Fig. 6-17

(6) Remove the spring, E-ring-1, and bushing-1.
(7) Remove the gear assembly, pin, bracket, bushing-2, and E-ring-2.

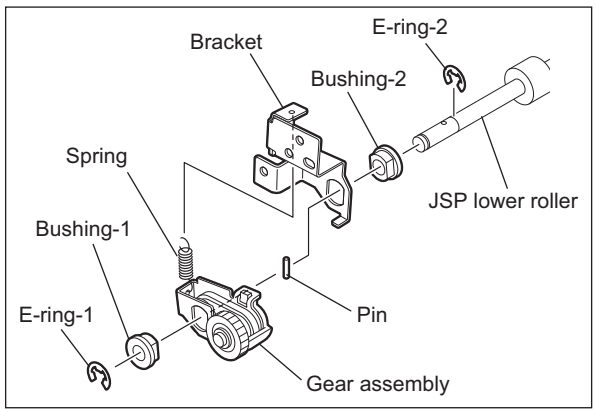

Fig. 6-18

6

7. PREVENTIVE MAINTENANCE (PM)

Perform preventive maintenance for the equipment at the same interval as for the MFP to which the equipment is connected.

Symbols used in the checklist

Cleaning	Coating
A: Clean with alcohol	W1: White grease (Molykote EM-30L)
O: Clean with soft pad, cloth or vacuum cleaner	

[Preventive Maintenance Checklist]

Items to check	Cleaning	Coating	Replacement (X 1000 sheets)	Operation check	Parts List (P-I)	Remarks
1. idling roller	○ or A	W1				Refer to P. 7-2 "Fig. 7-2"
2. Other rollers	○ or A					
3. Paper guide	○ or A					
4. JSP upper stuck sensor	○			○	(1-11)	
5. JSP lower stuck sensor	○			○	(1-11)	
6. JSP feed sensor	○			○	(1-16)	

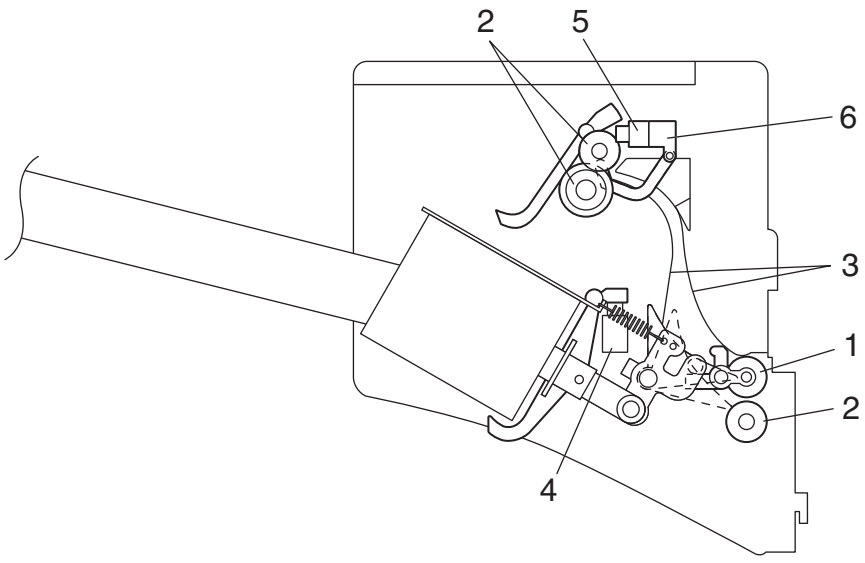

Fig. 7-1

Apply each one-rice-grain amount of the white grease (Molykote EM-30L) at the point A (2 points) in Figure 7-2.

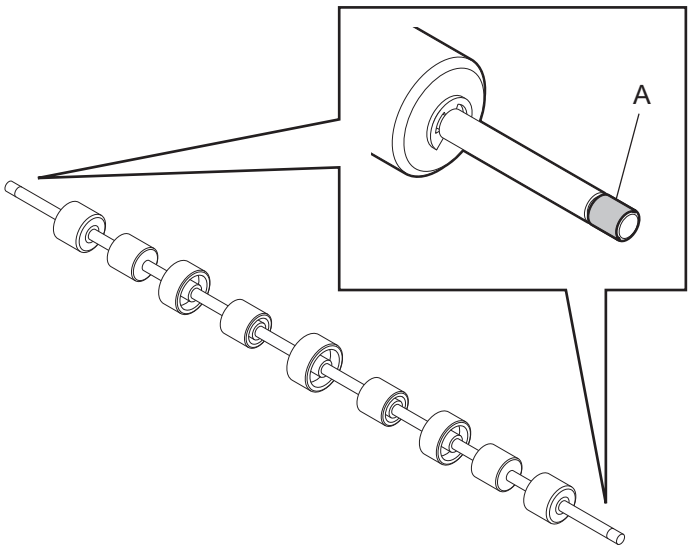

Fig. 7-2

TOSHIBA

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