TOSHIBA

SERVICE MANUAL

JOB SEPARATER

MJ-5001



File No. 31100014

General Precautions for Installation/Servicing/Maintenance for the MJ-5001

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

1. When installing the MJ-5001 to the Plain Paper Copier, be sure to follow the instructions described in the “Unpacking/Set-Up Procedure for the MJ-5001” booklet which comes with each unit of the MJ-5001.
2. The MJ-5001 should be installed by an authorized/qualified person.
3. Before starting installation, servicing or maintenance work, be sure to turn off and unplug the copier first.
4. When servcing or maintaining the MJ-5001, be careful about the rotating or operation sections such as gear, pulleys, sprockets, cams, belts, etc.
5. 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.
6. Basically, the machine should not be operated with any parts removed or disassembled.
7. Delicate parts for preventing safety hazard problems (such as breakers, thermofuses, fuses, door switches, sensors, etc. if any) should be handled/installed/adjusted correctly.
8. Use suitable measuring instruments and tools.
9. 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.
10. 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 copier and make sure that there is no uninsulated charged objects in the vicinity.
11. For the recovery and disposal of used MJ-5001, consumable parts and packing materials, it is recommended that the relevant local regulations/rules should be followed.
12. After completing installation, servicing and maintenance of the MJ-5001, return the MJ-5001 to its original state, and check operation.

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CONTENTS

1. SPECIFICATIONS 1-1

2. OUTLINE 2-1

2.1 Names of Various Components 2-1

2.2 Layout of Electrical Parts 2-2

2.3 Harness Connection Diagram 2-3

2.4 Board Assembly 2-4

3. OPERATIONAL DESCRIPTION 3-1

3.1 General Description 3-1

3.2 Block Diagram 3-1

3.3 Detection of Abnormal Status 3-2

3.3.1 Cover open/close detection 3-2

3.3.2 Paper jam detection 3-2

3.3.3 Stacker full detection 3-2

3.4 Flow Charts 3-3

4. MECHANICAL DESCRIPTION 4-1

4.1 Paper Feed System 4-1

4.2 Paper Feed 4-1

4.3 Flap 4-1

4.4 Drive System 4-2

5. CIRCUIT DESCRIPTION 5-1

5.1 PWA Block Diagram 5-1

5.2 Meaning of Signals 5-2

5.3 Timing Charts 5-3

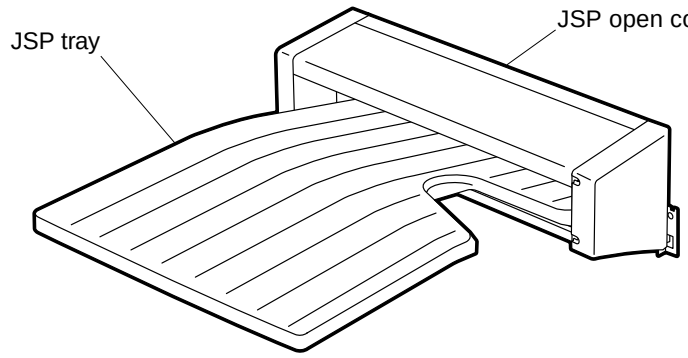
6. DISASSEMBLY AND REPLACEMENT 6-1

1. SPECIFICATIONS

Function	:	Gate open/close type job separator
Paper	: Size	A3 to A5-R/LD to ST-R
	: Upper stacker	64 to 80g/m^2 (17 to 22 lbs)
	: Lower stacker	64 to 163g/m^2 (17 to 43 lbs)
Transfer speed	:	91.6 mm/sec. (DP1600)
(Driven by copier)	:	124.4 mm/sec. (DP2500)
Loading capacity	: Upper stacker	25 mm (Approx. 150 sheets)
	: Lower stacker	40 mm (Approx. 250 sheets)
Dimensions	:	498 (W) x 415 (D) x 153 (H) mm
Weight	:	Approx. 2.5 kg
Power supply	:	5VDC, 24VDC (Supplied from copier)

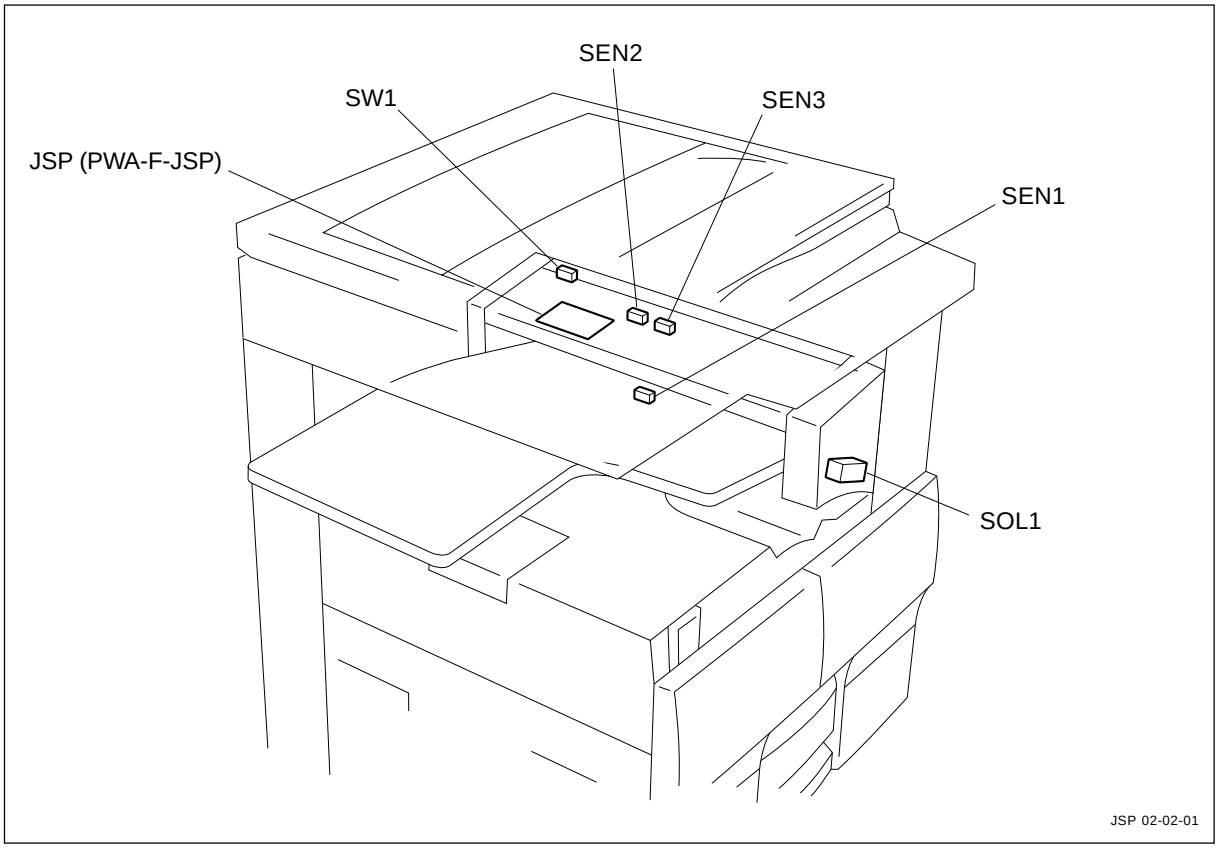
2. OUTLINE

2.1 Names of Various Components



JSP 02-01-01

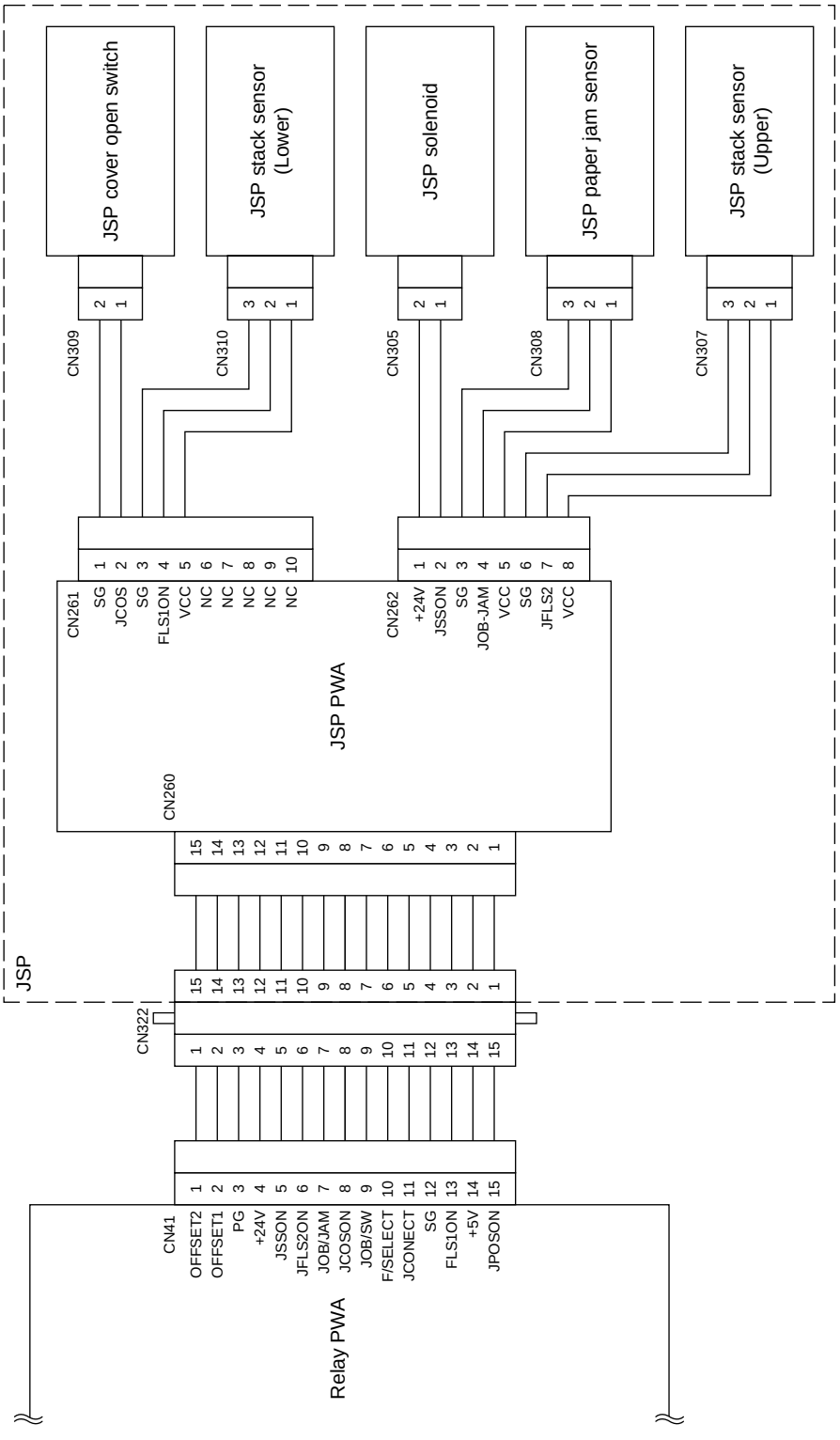
2.2 Layout of Electrical Parts



Symbols and functions of various devices

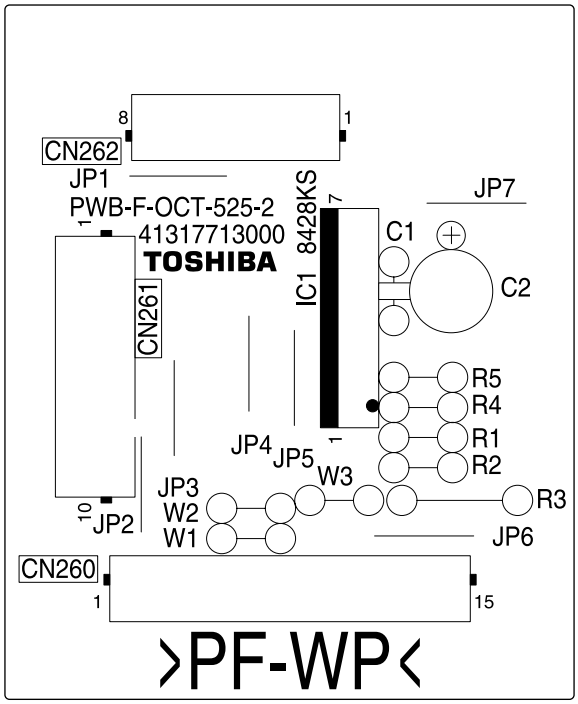
Symbol	Name	Function
SW1	JSPCOV-SW JSP cover open switch	Detects the open/close state of the cover during jam processing, etc.
SEN1	PF1-SEN JSP stack sensor (Lower)	Detects the limit number of sheets in the lower stacker.
SEN2	PF2-SEN JSP stack sensor (Upper)	Detects the limit number of sheets in the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

2.3 Harness Connection Diagram



JSP 02-03-01

2.4 Board Assembly



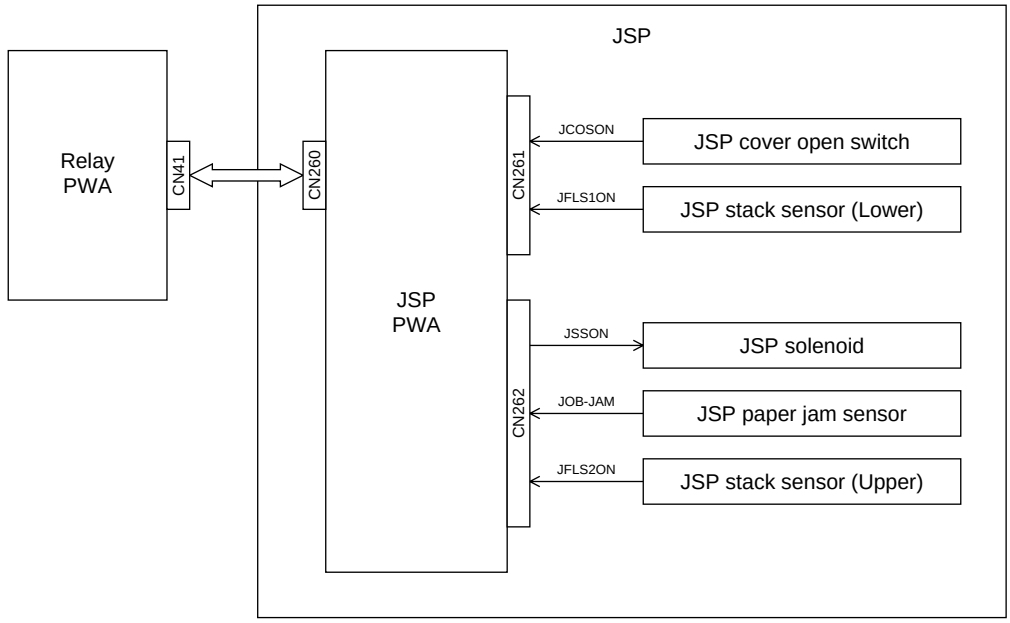
JSP 02-04-01 PPS2

3. OPERATIONAL DESCRIPTION

3.1 General Description

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

3.2 Block Diagram



JSP 03-02-01

Four sensor switches and one solenoid are connected to the JSP PWA. The signals go through the RELAY PWA as they are and are connected to the MAIN PWA.

3.3 Detection of Abnormal Status

3.3.1 Cover open/close detection

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

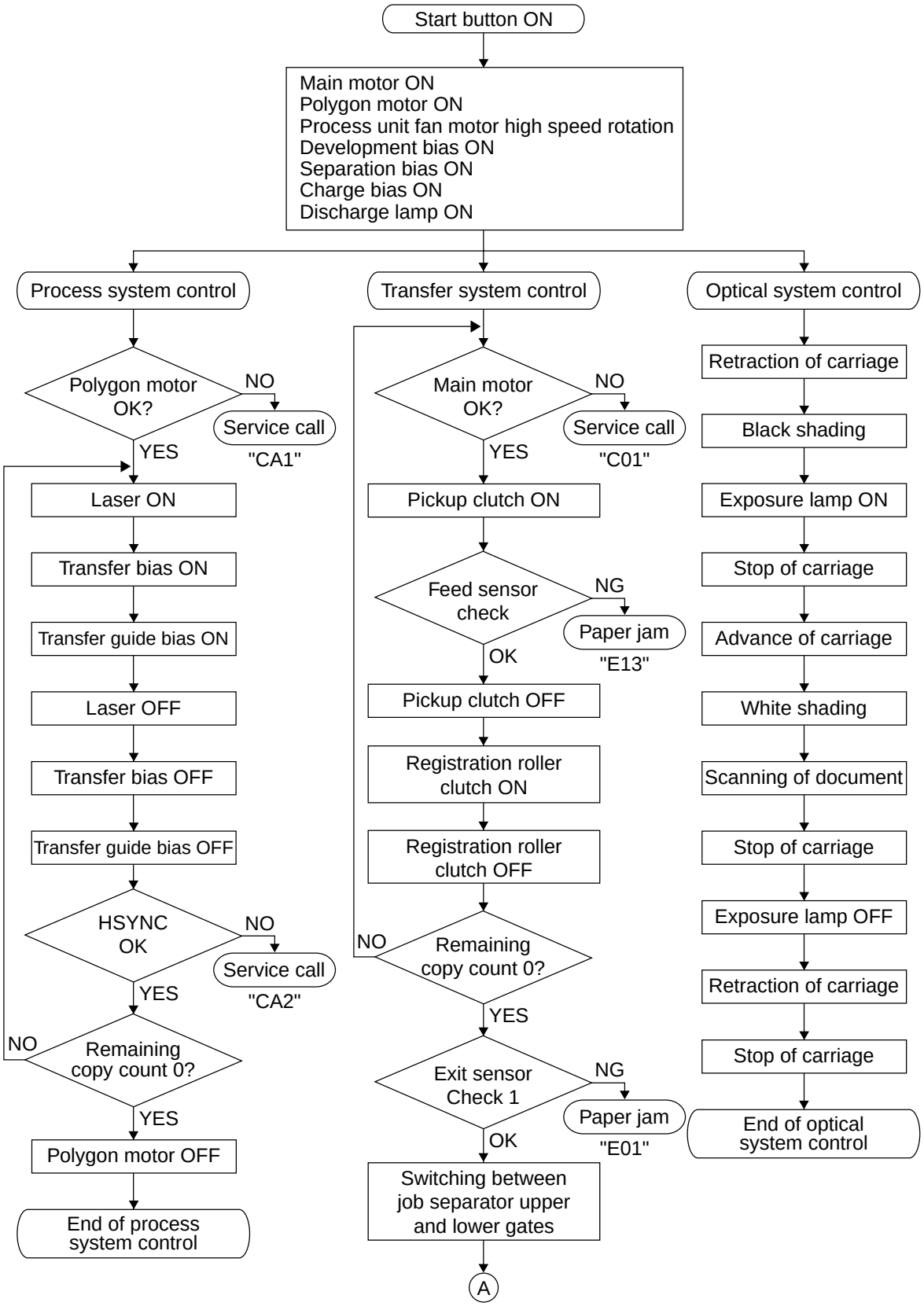
3.3.2 Paper jam detection

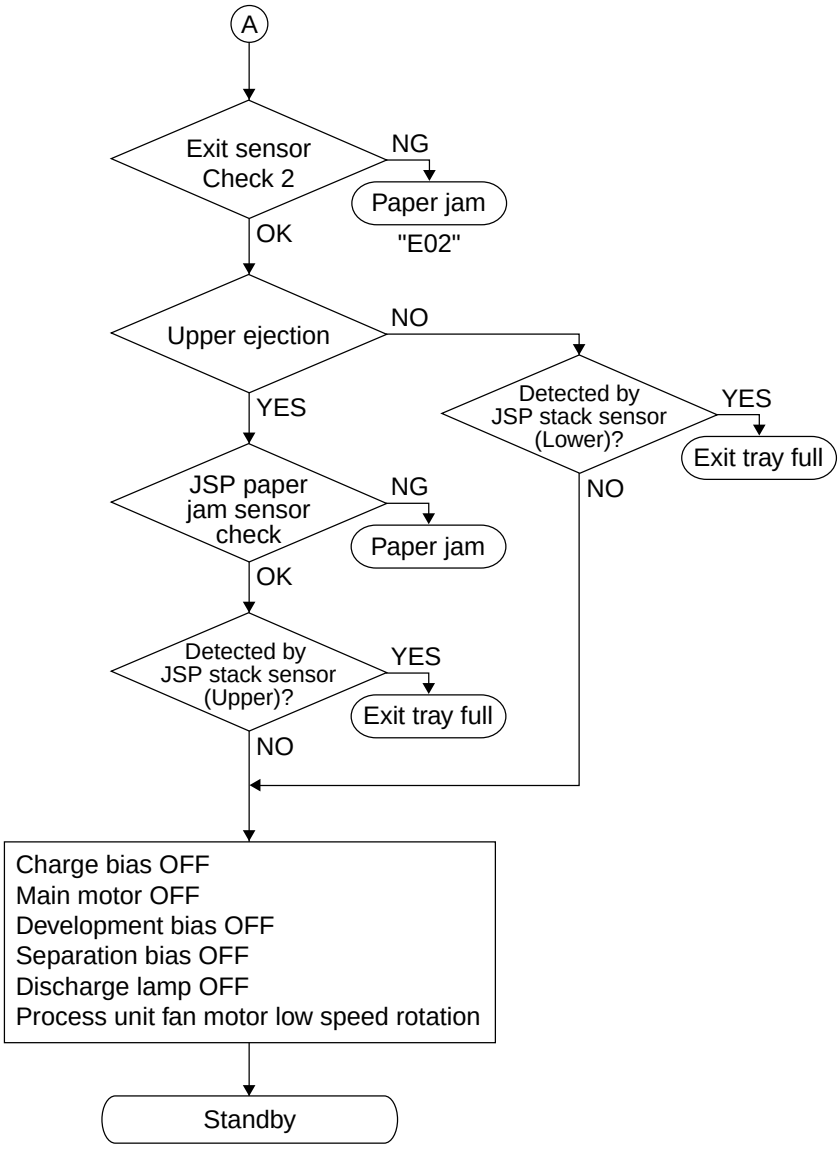
The JSP has a sensor for detecting paper jamming for the upper stacker only. If the paper fed from the copier is left stopped in the middle of the transport path for the upper stocker, the JSP paper jam sensor detects paper jamming. The signal is at "High" level while the paper is passing. If the "High" level time is too long, the copier will judge it to be paper jamming. The paper jamming can be cleared by opening the cover and removing the paper.

3.3.3 Stacker full detection

When the stackers are full of paper, a stacker full state is detected by the JSP stack sensor (Upper) for the upper stocker, and by the JSP stack sensor (Lower) for the lower stocker. The stacker full state can be cleared by removing the paper from the stacker. This detection is effective only when the JSP is operating so that no stacker full state occurs when the sensor is turned on while taking out the paper from the stacker.

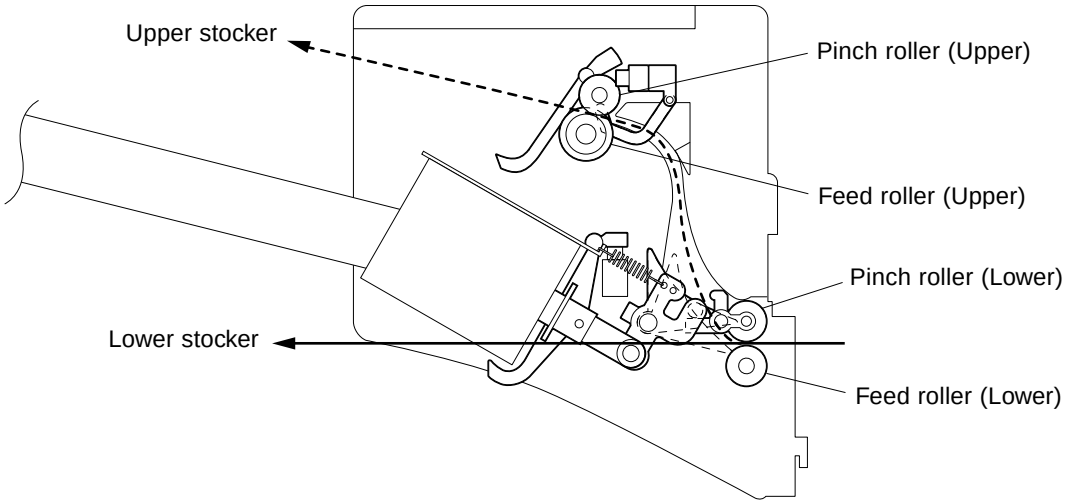
3.4 Flow Charts




A
Exit sensor Check 2
NG
Paper jam
"E02"
OK
Upper ejection
NO
Detected by JSP stack sensor (Lower)?
YES
Exit tray full
YES
JSP paper jam sensor check
NG
Paper jam
OK
NO
Detected by JSP stack sensor (Upper)?
YES
Exit tray full
NO
Charge bias OFF
Main motor OFF
Development bias OFF
Separation bias OFF
Discharge lamp OFF
Process unit fan motor low speed rotation
Standby

4. MECHANICAL DESCRIPTION

4.1 Paper Feed System



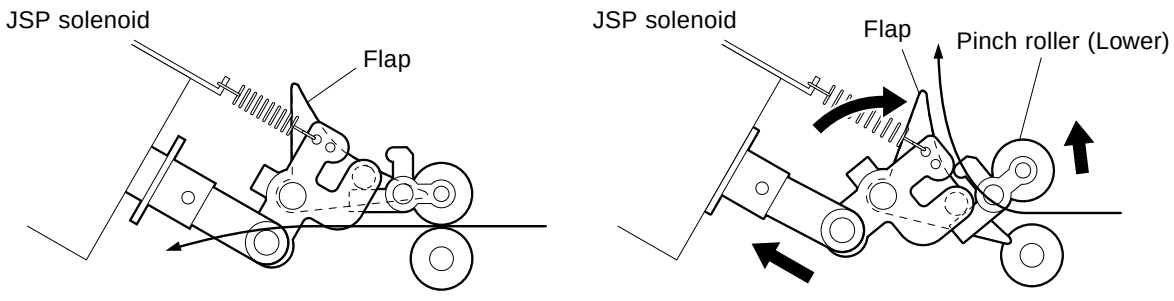
JSP 04-01-01 PPS2

4.2 Paper Feed

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

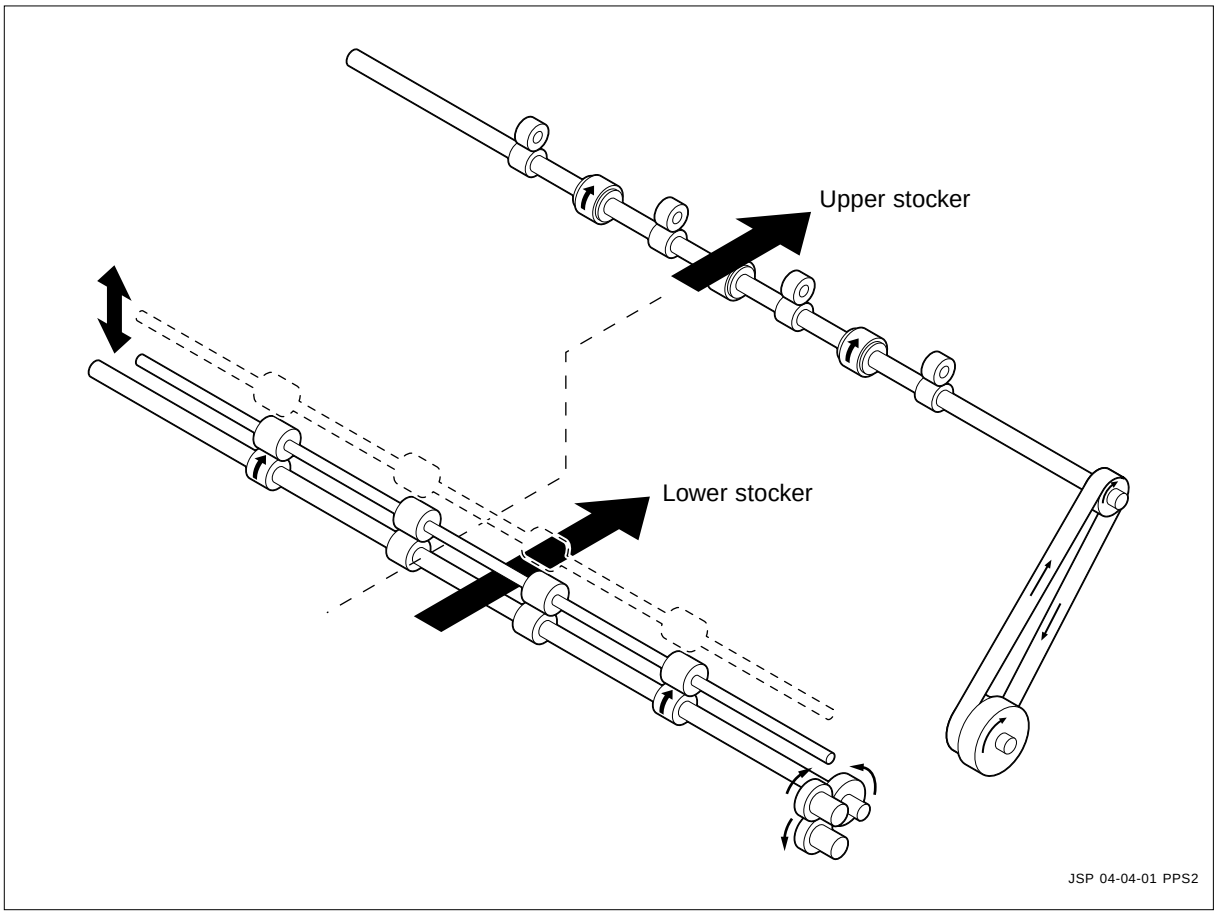
4.3 Flap

The flap is driven by the JSP solenoid. Usually, when unloading the paper from the lower side, the flap is lifted up by the spring so that the paper is stacked on the lower side (solenoid OFF). When unloading the paper from 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.



JSP 04-03-01 PPS2

4.4 Drive System



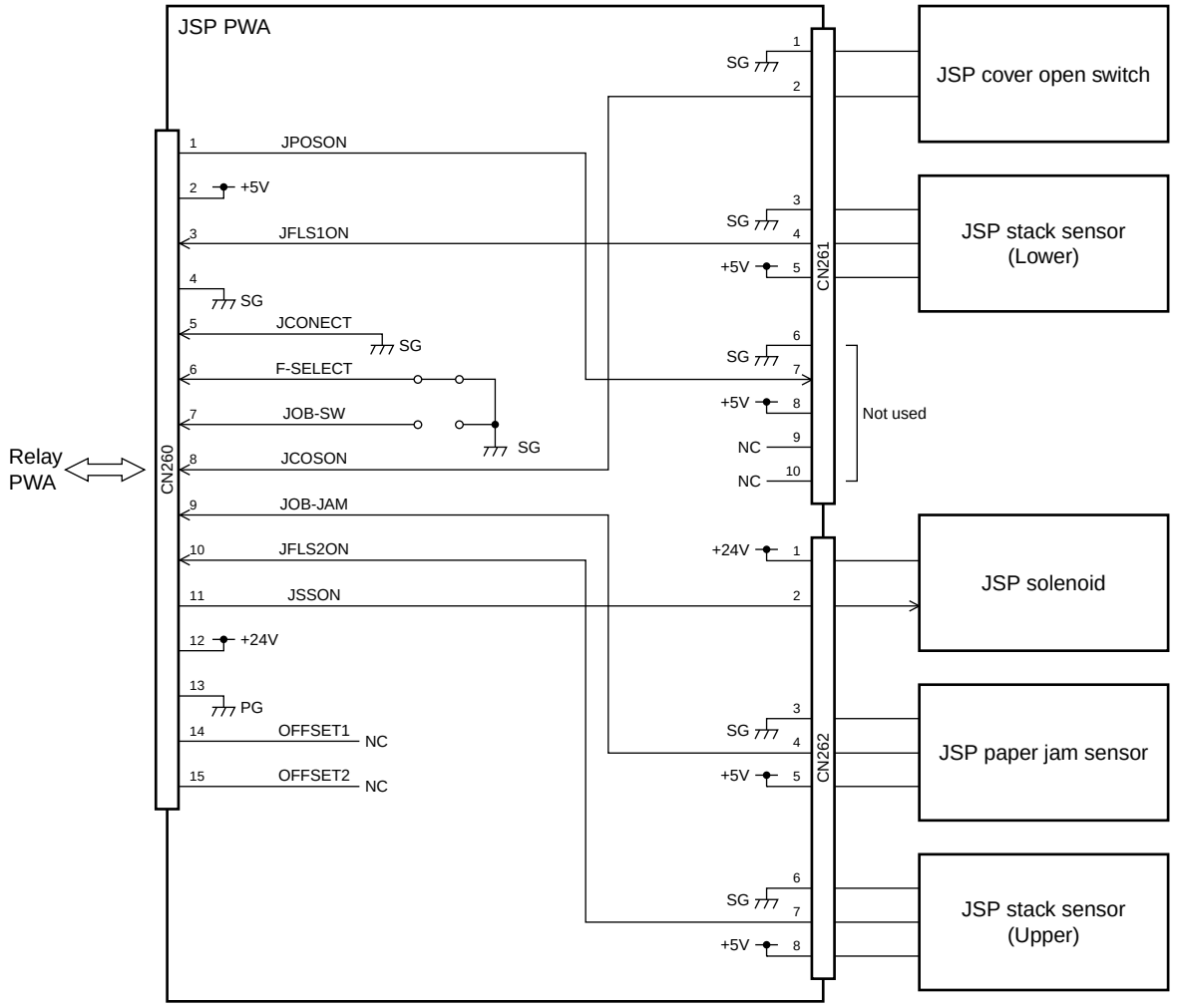
Since there is no motor in the JSP, the drive mechanism is given driving force from the copier through the gears to turn the feed rollers (upper/lower). When unloading the paper from either upper or lower side, the drive mechanism is driven by the gears of the copier but the gears on the copier side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

When unloading the paper from the upper side, the drive input from the copier is transmitted from the gear to the belt to turn the feed roller (upper). Also, when unloading the paper from the upper side, the pinch roller (lower) moves upward (part A).

When unloading the paper from 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 feed roller (lower) through the three gears.

5. CIRCUIT DESCRIPTION

5.1 PWA Block Diagram



JSP 05-01-01

The signals only pass through the JSP PWA.

JCONECT and F-SECRET connect to GND and JOB-SW is open. The OCT, finisher, etc. can be connected to the copier 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 copier.

5.2 Meaning of Signals

Signal Name	Part Name	Functional Description	Status	Note
JCOVON	JSP cover open switch	Detects the open/close state of the cover during jam processing, etc.	High: Open	Push switch
FLS1ON	JSP stack sensor (Lower)	Detects the limit number of sheets in the lower stacker.		Photo sensor
JFLS2	JSP stack sensor (Upper)	Detects the limit number of sheets in the upper stacker.		Photo sensor
JOB-JAM	JSP paper jam sensor	Detects the presence or absence of transport paper.	High: Paper present	Photo sensor
JSSON	JSP solenoid	Switches the transport path (flap)		Plunger solenoid

The JSP cover open 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.

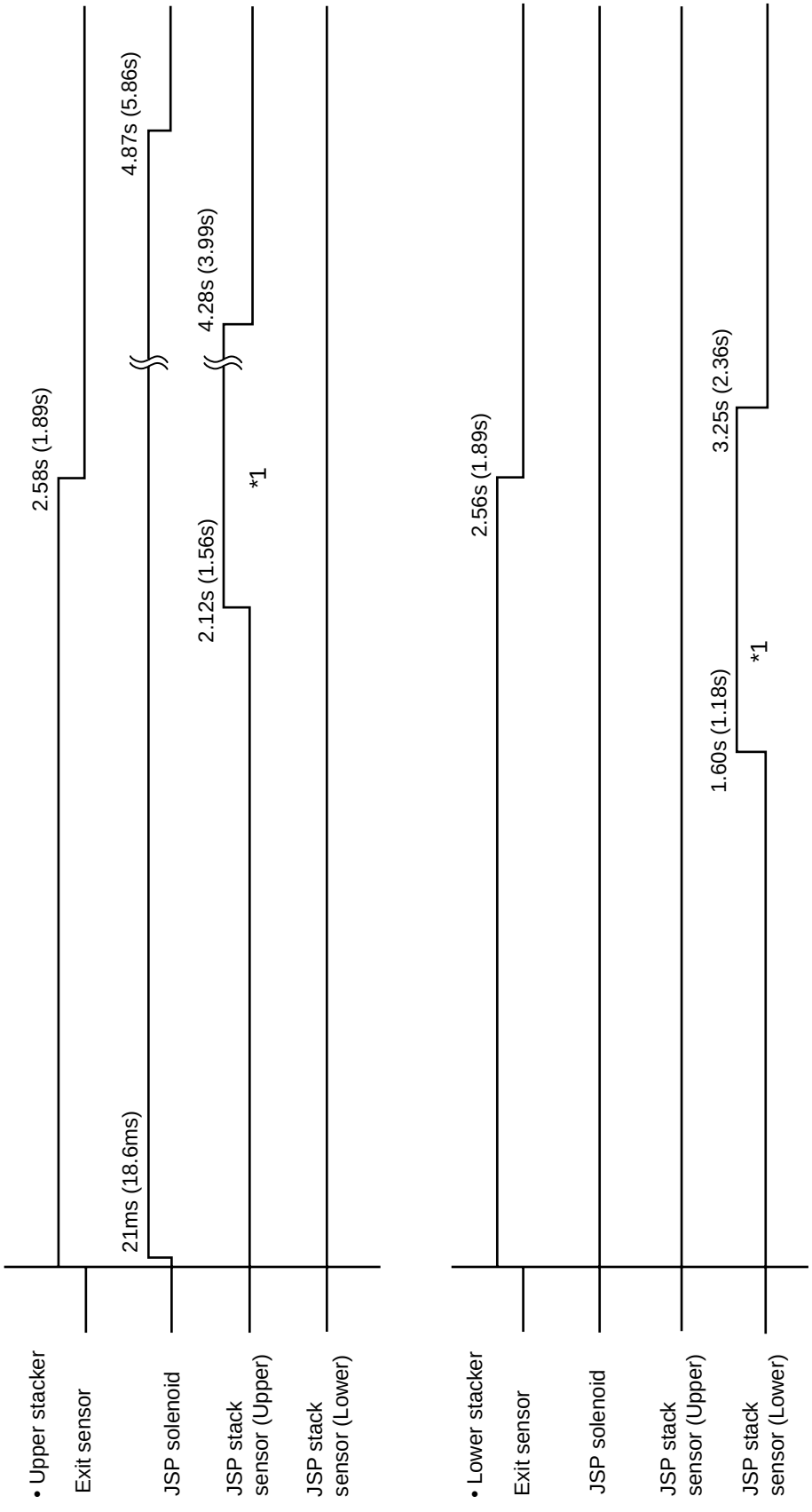
The JSP stack sensor (Lower) detects the limit number of sheets in the lower stacker. A photo sensor is used for the sensor. When the stacked number of sheets increases, the detection arm rises to turn on the sensor.

The JSP stack sensor (Upper) detects the limit number of sheets in the upper stacker. 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 paper jam 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 stocker, the OCT solenoid turns ON to lower the flap so that the paper passes through the transport path for the upper stocker before being stacked.

5.3 Timing Charts



The values are data (reference values) applicable when the A4 size paper is used.

*1 Also turns on when ejecting the paper (detected when it is ON for more than a fixed time).

The values in brackets is for the DP2500 machine.

JSP 05-03-01

6. DISASSEMBLY AND REPLACEMENT

[A] JSP tray

1. Release 4 hooks and remove JSP tray.

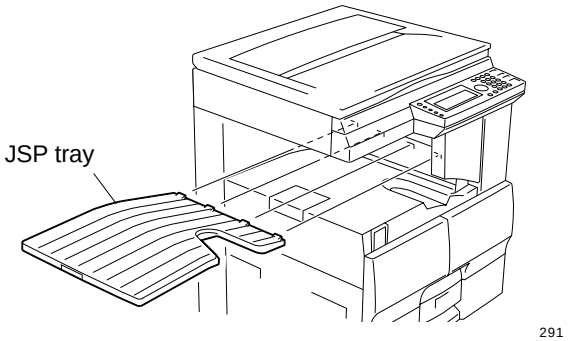


Fig. 6-1

[B] JSP right cover

1. Loosen 2 screws and detach JSP right cover.

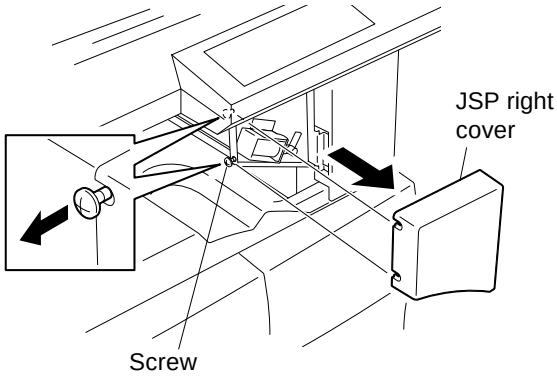


Fig. 6-2

[C] Connector cover

1. Remove 2 screws and detach connector cover.

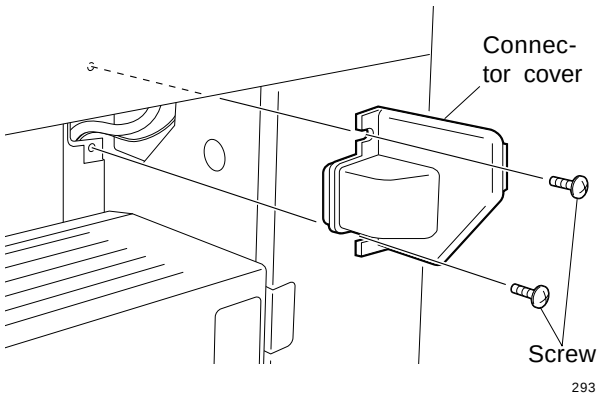


Fig. 6-3

[D] JSP left cover

1. Remove JSP tray. (See Fig. 6-1)
2. Detach JSP right cover. (See Fig. 6-2)
3. Detach connector cover. (See Fig. 6-3)
4. Detach the ground wire and the connector.

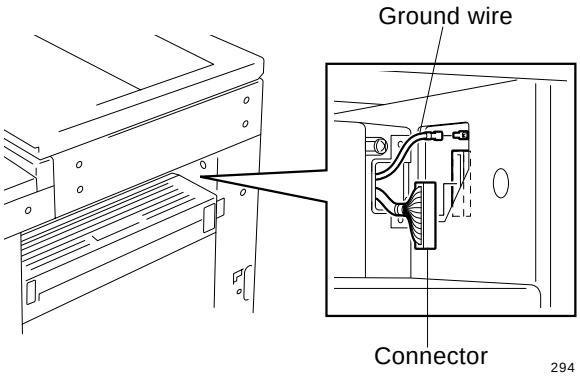


Fig. 6-4

5. If an ADU (MD-0101) is attached to the copier, open it.
6. Open side cover.
7. Open exit cover.

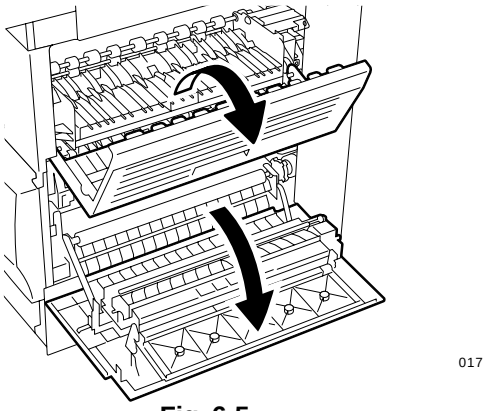


Fig. 6-5

8. Remove one screw, release one hook, and remove JSP.

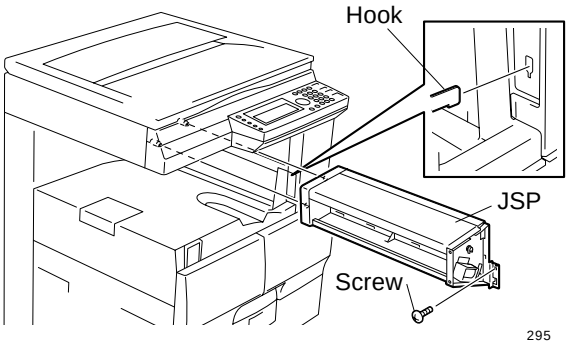


Fig. 6-6

9. Loosen 3 screws, detach the harness, and detach JSP left cover.

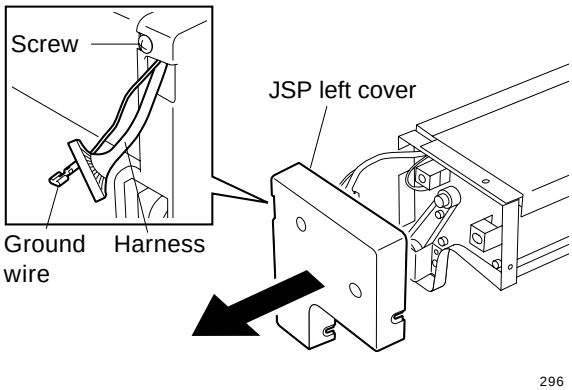
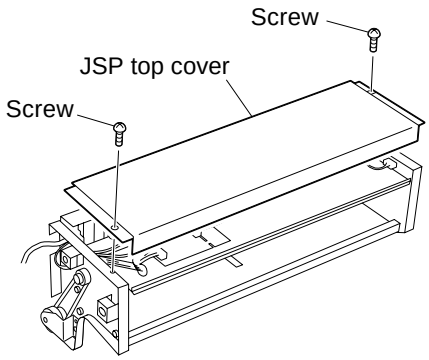


Fig. 6-7

[E] JSP Top Cover

1. Remove JSP. (See Fig. 6-1 and 6-6)
2. Detach JSP left cover. (See Fig. 6-7)
3. Remove 2 screws and detach JSP top cover.

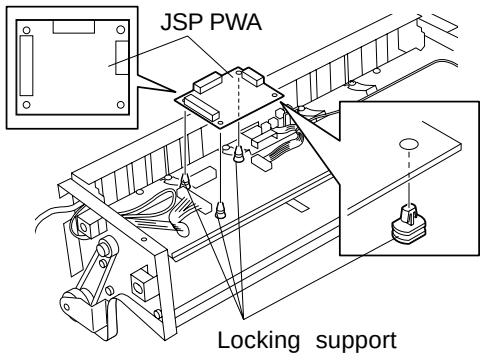


297

Fig. 6-8

[F] JSP PWA

1. Remove JSP. (See Fig. 6-1 and 6-6)
2. Detach JSP left cover. (See Fig. 6-7)
3. Detach JSP top cover. (See Fig. 6-8)
4. Detach all the connectors, release 3 locking supports, and remove JSP PWA.
5. Remove locking supports.

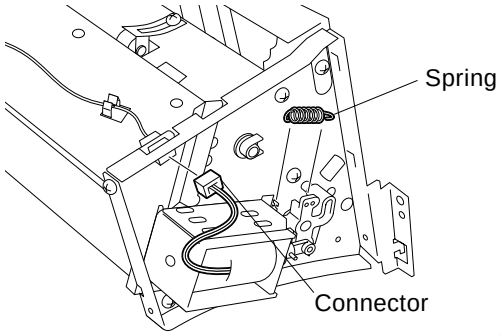


298

Fig. 6-9

[G] Solenoid/Solenoid Arms

1. Remove JSP. (See Fig. 6-1 and 6-6)
2. Detach JSP top cover. (See Fig. 6-8)
3. Detach spring and detach the connector.

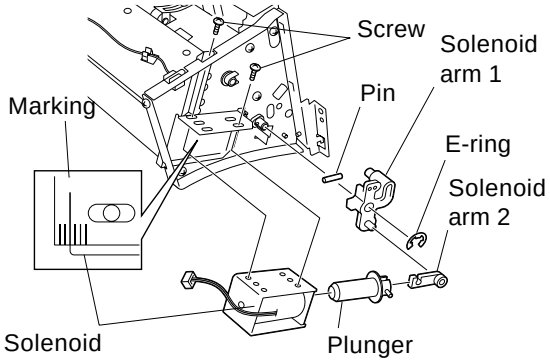


299

Fig. 6-10

4. Remove 2 screws, and remove solenoid.
5. Remove solenoid arm 2 from plunger.
6. Remove the E-ring and detach the solenoid arm 1.

Note: For adjustment when installing solenoid, the edge of solenoid must be in the center of the marking.



300

Fig. 6-11

[H] JSP open cover assembly

1. Remove JSP. (See Fig. 6-1 and 6-6)
2. Remove one screw and remove hinge.
3. Release one hook and detach JSP open cover assembly.

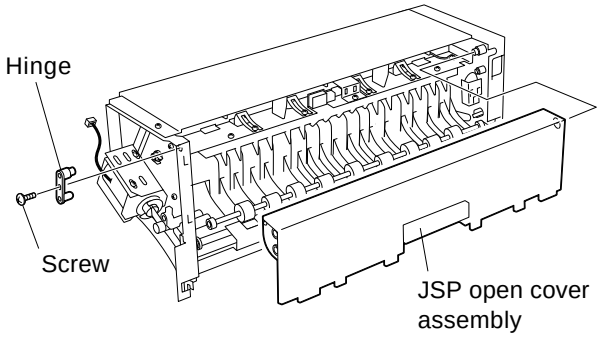


Fig. 6-12

[I] JSP Roller

1. Remove JSP. (See Fig. 6-1 and 6-6)
2. Detach JSP left cover. (See Fig. 6-7)
3. Remove 2 screws and detach the drive gear plate.
4. Remove drive gear and timing belt 240.
5. Detach stop ring, and remove pulley and bushing.

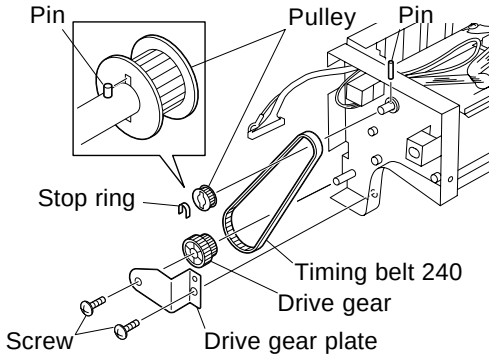


Fig. 6-13

6. Remove one stop ring, remove 2 bushings on both sides, and detach the JSP upper roller.

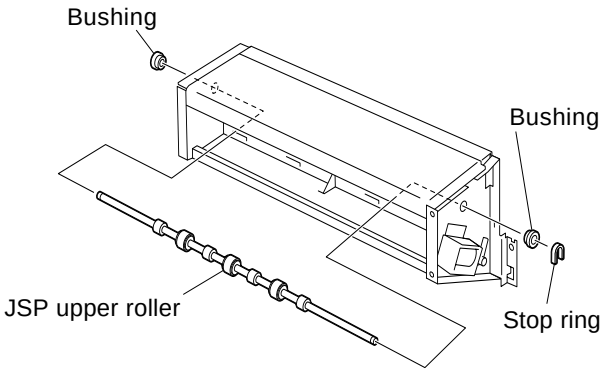


Fig. 6-14

[J] JSP Lower Roller

1. Remove JSP. (See Fig. 6-1 and 6-6)
2. Detach JSP open cover assembly. (See Fig. 6-12)
3. Remove 2 screws and detach the guide plate.

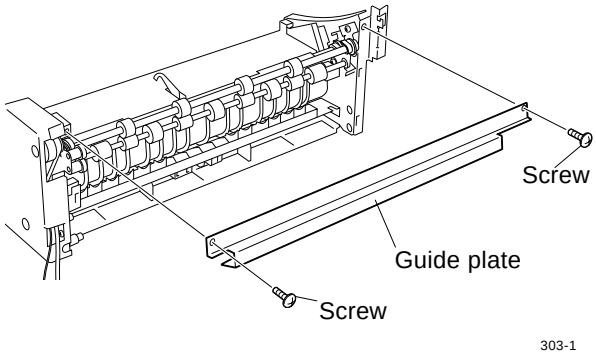


Fig. 6-15

4. Remove one stop ring and detach the JSP lower roller assembly.
5. Remove 2 bushings on both sides and remove the E-ring. Then detach the JSP lower roller gear.

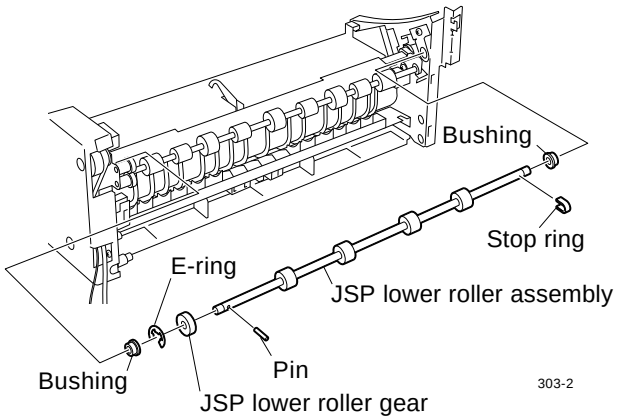


Fig. 6-16

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