Service Manual

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LEXMARK™

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Notices and Safety Information

Safety Information

- This product is designed, tested and approved to meet strict global safety standards with the use of specific Lexmark components. The safety features of some parts may not always be obvious. Lexmark is not responsible for the use of other replacement parts.
- The maintenance information for this product has been prepared for use by a professional service person and is not intended to be used by others.
- There may be an increased risk of electric shock and personal injury during disassembly and servicing of this product. Professional service personnel should understand this and take necessary precautions.

Consignes de Sécurité

- Ce produit a été conçu, testé et approuvé pour respecter les normes strictes de sécurité globale lors de l'utilisation de composants Lexmark spécifiques. Les caractéristiques de sécurité de certains éléments ne sont pas toujours évidentes. Lexmark ne peut être tenu responsable de l'utilisation d'autres pièces de rechange.
- Les consignes d'entretien et de réparation de ce produit s'adressent uniquement à un personnel de maintenance qualifié.
- Le démontage et l'entretien de ce produit pouvant présenter certains risques électriques, le personnel d'entretien qualifié devra prendre toutes les précautions nécessaires.

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- Il prodotto è stato progettato, testato e approvato in conformità a severi standard di sicurezza e per l'utilizzo con componenti Lexmark specifici. Le caratteristiche di sicurezza di alcune parti non sempre sono di immediata comprensione. Lexmark non è responsabile per l'utilizzo di parti di ricambio di altri produttori.
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- La informació pel manteniment d'aquest producte està orientada exclusivament a professionals i no està destinada a ningú que no ho sigui.
- El risc de xoc elèctric i de danys personals pot augmentar durant el procés de desmuntatge i de servei d'aquest producte. El personal professional ha d'estar-ne assabentat i prendre les mesures convenients.

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- 有些零件的安全功能可能不明显。因此，所替换零件的性能一定要与原有的零件一致。

Preface

This manual describes the Lexmark X7500 Scanner (4036-501) and contains maintenance procedures for service personnel only. It is divided into the following chapters:

1. **General Information** contains a general description of the scanner and the maintenance approach used to repair it. Special tools and test equipment are listed in this chapter, as well as general environmental and safety instructions.
2. **Diagnostic Information** contains error indicator tables, and troubleshooting tables used to isolate failing field replaceable units (FRUs).
3. **Diagnostic Aids** - this scanner does not contain diagnostic aids.
4. **Repair Information** provides instructions for making scanner adjustments and removing and installing FRUs.
5. **Connector Locations** uses illustrations to identify the connector locations and test points on the scanner.
6. **Preventive Maintenance** contains recommendations to prevent problems.
7. **Parts Catalog** contains illustrations and part numbers for individual FRUs.

4036-501

1. General Information

The Lexmark X7500 (4036-501) scanner option is a multifunction solution for the Lexmark W820 printer that adds copy, fax, and monochrome network scanning capabilities for increased corporate productivity.

With the X7500 scanner option you can:

- Copy:

    Up to 45 ppm, scan once print many, duplex in/out, job building, book copy, reduce/enlarge, brightness adjustment.
- Fax:

    33.6 KBS, JBIG, speed dial, memory send, retry, fax server support, memory send, fax from workstation, LDAP for fax number lookup.
- Scan:

    Up to 40 ppm mono simplex scanning, reversing duplex scanning, TIFF, JPEG, PDF file formats, scan to E-mail, scan to FTP, scan to workstation, LDAP for E-mail address lookup, ad hoc scanning.

Maintenance Approach

The diagnostic information in this manual leads you to the correct field replaceable unit (FRU) or part for the scanner. Use the error code tables, service checks, and symptom tables determine the corrective action necessary to repair a malfunctioning scanner system.

Tools Required for Service

The removal and replacement procedures described require the following tools and equipment:

- Magnetic tip Phillips screwdrivers, large and small
- Flat-blade screwdrivers
- Analog volt ohmmeter (a digital volt ohmmeter may also be used)

Acronyms

ADF	Automatic Direction Finder
AGC	Automatic Gain Control
AOC	Abnormal Operating Condition
APS	Automatic Paper Size
CCD	Charged Couple Device
CPU	Central Processing Unit
DADF	Duplex Automatic Document Feeder
DIMM	Dual Inline Memory Module
E	E-ring
FTP	File Transfer Protocol
GND	Ground
HDD	Hard Disk Drive
I/O	Input/Output
JBIG	Joint Bitonal Image Group
JPEG	Joint Photographic Experts Group
KBS	Knowledge Based System
KL	Clip
LDAP	Lightweight Directory Access Protocol
LVPS	Low Voltage Power Supply
MFD	Multifunction Device
MFP	Multifunction Product
PDF	Portable Document Format
PPM	Pages Per Minute
PWBA	Printed Wiring Board Assembly
ROM	Read Only Memory
S	Screw
SE	System Engineer
TIFF	Tagged Image File Format
TTY	Teletypewriter
UI	User Interface
VAC	Volts alternating current
VDC	Volts direct current

Preparing the scanner for shipping

The following procedure parks the carriages in a safe position to prevent damage, and clears memory of customer settings.

1. From the home screen of the scanner system enter the following sequence on the numeric keypad: **411
2. After a short pause the service engineer (SE) menu is displayed.
3. Press 9 on the numeric keypad to select the scanner menu.
4. Press 1 to select the Carriage Lock Screen.
5. Press the green Start button three times to move the carriage all the way to the left.
6. Press the red Stop button to leave the Carriage lock screen.
7. Press 2 to select the NVM Clear screen.
8. Press Start to clear NVM. The scanner resets.

Duplex Auto Document Feeder (DADF) Power Principles of Operation

The power cord carries AC line voltage to the external low voltage power supply (LVPS). The LVPS converts the 120/220VAC to regulated +5VDC, +12VDC, and +24VDC voltages. The LVPS sends these voltages to the main power switch in the Multifunction Device (MFD) controller cage. The voltage is then sent to the power distribution board. The +5VDC and +24VDC voltages are sent through the image processing board and onto the scanner through the 120 pin scanner cable. The voltage travels from the scanner cable into the scanner system board where it passes onto the DADF.
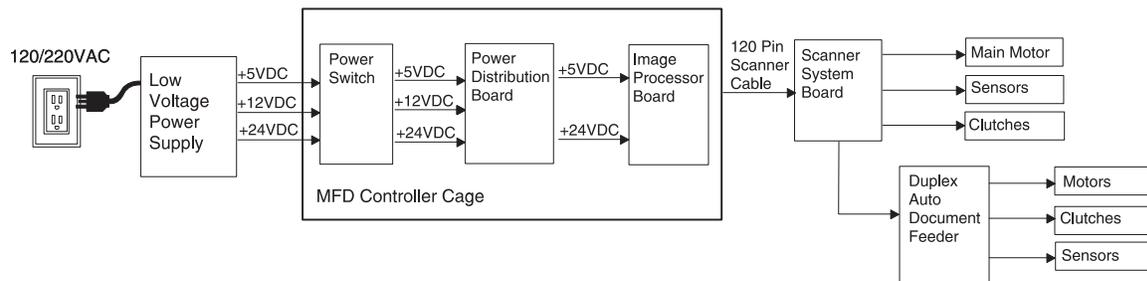
DADF Control

The DADF control card provides the logic and information processing that is necessary for the DADF to function. Every electrical component within the DADF is connected to the control card. Sensors in the DADF send status information to the control card. The control card processes that information, shares it with the MFD controller cage, and compares it to timing tables stored in ROM. Acting on the results of the processing, the control card sends commands to the various DADF components.

Exit/Reverse Solenoid	DADF Control PWB	Top Cover Open Switch
Pick Up Clutch		Pre Regi Sensor 1
Exit Reverse Clutch		Pre Regi Sensor 2
Large Roll Clutch		Size Sensor
Regi Roll Drive Motor		Encoder Sensor
		Document In Sensor
Large Roll Drive Motor		Pick Up Sensor
Scanner System Card		Regi Sensor
		Exit/Reverse Sensor
		Tray Sensor

DADF Control Components

Paper Present
Indicator

DADF Control PWB

Encoder Sensor   Paper Present Sensor

PWBA Tray Sensor

Pick Up Sensor PWB

Pre Registration
Sensor 2

Registration
Sensor PWB

Top Cover Open Switch

Exit/Reverse Sensor

Size Sensor

Pre-Registration Sensor 1   Exit/Reverse Solenoid

- DADF Control Card
  The card controls all DADF functions, executes commands sent from the MFD
  controller cage, and sends information back to the MFD controller cage.
- Top Cover Open Switch
  The switch detects the jam access door assembly in the DADF is either opened or
  closed.
- Pre-registration Sensor 1
  This sensor detects top of paper and sends a signal for making the paper standby
  just before the registration roll.
- Pre-registration Sensor 2
  This sensor detects top of paper and sends a signal for making the paper standby
  just before the large roll.
- Size Sensor
  The sensor detects paper size. The passing paper uses three actuators on the size
  sensor card and turns them on and off respectively. The originated signal is
  transmitted to the MCU card.
- Encoder Sensor
  The sensor detects the number of registration roll drive motor rotations.
- Paper Present Sensor
  This sensor detects the paper loaded in the DADF.
- Pick Up Sensor
  The sensor detects the existence of paper. This sensor utilizes a timing control of the
  paper conveyance as well as analyzes and recognizes the length of paper.

- Registration Sensor
  This sensor detects top of paper. The sensor uses the on/off control of the large roll clutch to match up the timing of paper scanning with the timing of paper conveyance.
- Exit/Reverse Sensor
  The sensor detects the paper passing it. This sensor also uses a timing control of the paper conveyance.
- PWBA Tray Sensor
  The tray sensor detects paper length set on the tray as being longer than the specified length.

Mechanical Drive

Mechanical drive describes both the rotation of the motor and the action of the gears, belts, and clutches that are used to transmit and control drive to the various components throughout the DADF. The major purpose of the drive is to provide the dynamic energy required for the paper conveyance throughout the DADF.

The registration roll drive motor provides the rotation power with the center gear of the frame assembly through the belt (6 mm). The center gear of the frame assembly delivers the rotation power to the gear (23T/48T) through the belt (6 mm). With the rotation of the gear (23T/48T), the rotation power is distributed to the gears of the registration roll gear and the pick 2 roller assembly respectively. The DADF pick up clutch distributes the drive power to the pick up gear when activated, and then the power is delivered to the roller engagement shaft assembly.

The DADF large roll drive assembly provides the rotation power with the each gear of the large roll drive motor assembly through the belt (6 mm) and the belt (4 mm). The drive power is delivered to the pulley 1 through the belt (6 mm) when the DADF large roll clutch is actuated, and also to the large gear through the belt (6 mm). The further drive power is delivered to the gear of the exit/reverse roll through the belt (4 mm) when the exit/ reverse clutch is actuated.
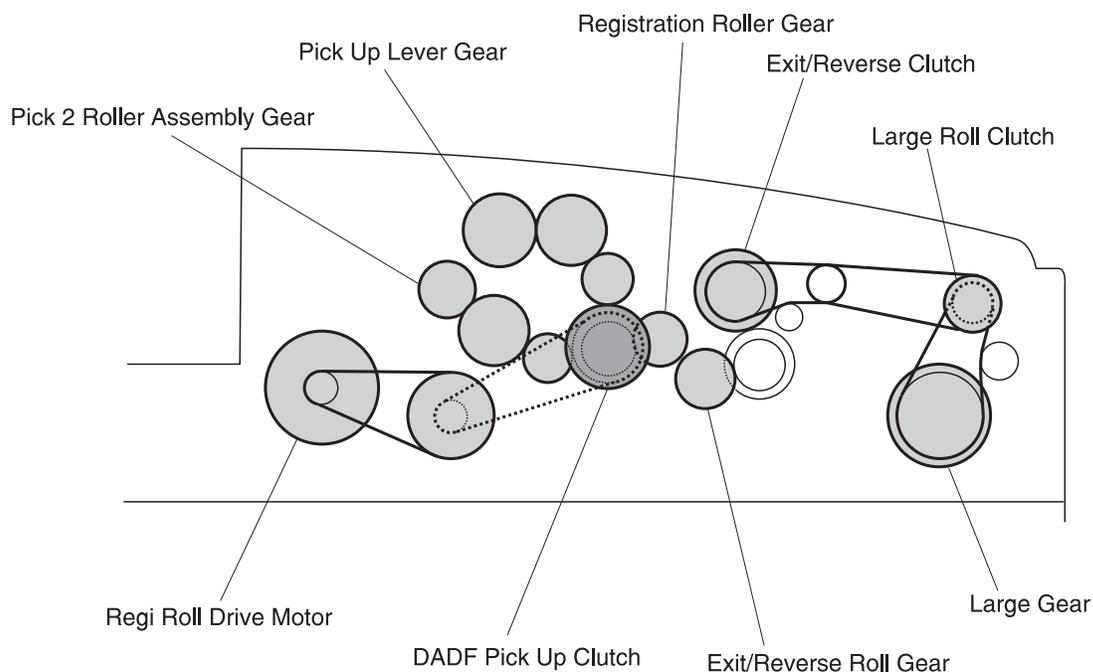
DADF Mechanical Drive Components

The DADF mechanical drive is one major component, with numerous belts, pulleys, and clutches that transmit drive to the various DADF transport rolls.

- DADF Registration Roll Drive Motor
  There is +24VDC on the registration roll drive motor. This motor is part of the DADF registration roll drive motor assembly.
- DADF Main Drive Motor
  There is +24VDC on the step motor. This motor provides drive power to the DADF main drive motor assembly.
- Pick Up Clutch
  The clutch delivers drive power from the roller engagement shaft to the gears.
- Exit/Reverse Clutch
  The clutch delivers drive power from the main drive motor to the exit/reverse roll.
- Large Roll Clutch
  The clutch delivers drive power from the main drive motor to the large roll.

DADF Paper Path

The DADF moves the paper along the paper path using a combination of rolls, solenoids, clutches and gears. The DADF adjusts the scanning timing to the specified paper movement speed and fixing the cartridges of the scanner at the DADF position. The DADF also allows the scanner to scan page 2 of the paper following page 1 using the gate change mechanism of the duplex function.

1. Simplex Paper Path
   - The rotation of the nudger roll, moves the paper on the DADF tray to the feed roll.
   - The paper moves to the registration roll by the rotation of the feed roll.
   - When the pre–registration sensor 1, located just in front of the registration roll, detects the passing of the top of the paper, the paper movement is interrupted for the specified time to synchronize with the paper feed timing.
   - The paper restarts toward the registration roll.
   - After passing on the DADF upper paper guide, the top of the paper reaches and actuates the paper present sensor of the pre-registration sensor.
   - At the position just in front of the large roll, the paper movement is interrupted again for the specified time to synchronize with the paper feed timing.
   - The paper is moved to the DADF platen glass by rotation of the large roll.
   - Along the way, the DADF registration sensor card interrupts the movement for the specified time to synchronize with the scanning timing of the scanner.
   - The sensor restarts to move the paper to the platen glass by the rotation of the large roll.
   - The image of the paper is scanned at the platen glass.
   - After scanning, the paper passes the gate through the lower path and is moved to the exit/reverse roll.
   - The rotation of the exit/reverse roll discharges the paper onto the DADF output tray.

Pick Roller Assembly

Registration Sensor

Pre Registration Sensor 1

Pre-Registration Sensor 2

Feed Roll

Nudger Roll

Exit Gate Up

Paper Side 1

Registration Roll

Holder Assembly
(Separation Pad)

Exit/Reverse Roll
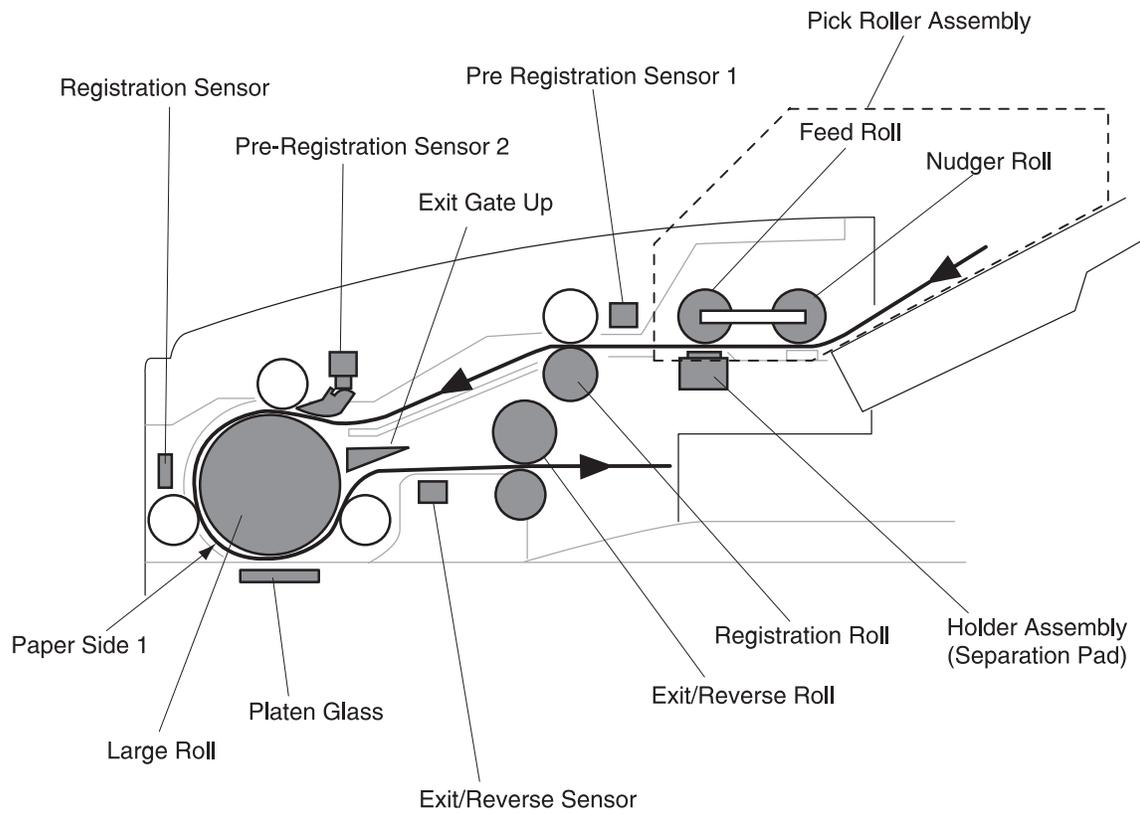
Platen Glass

Large Roll

Exit/Reverse Sensor
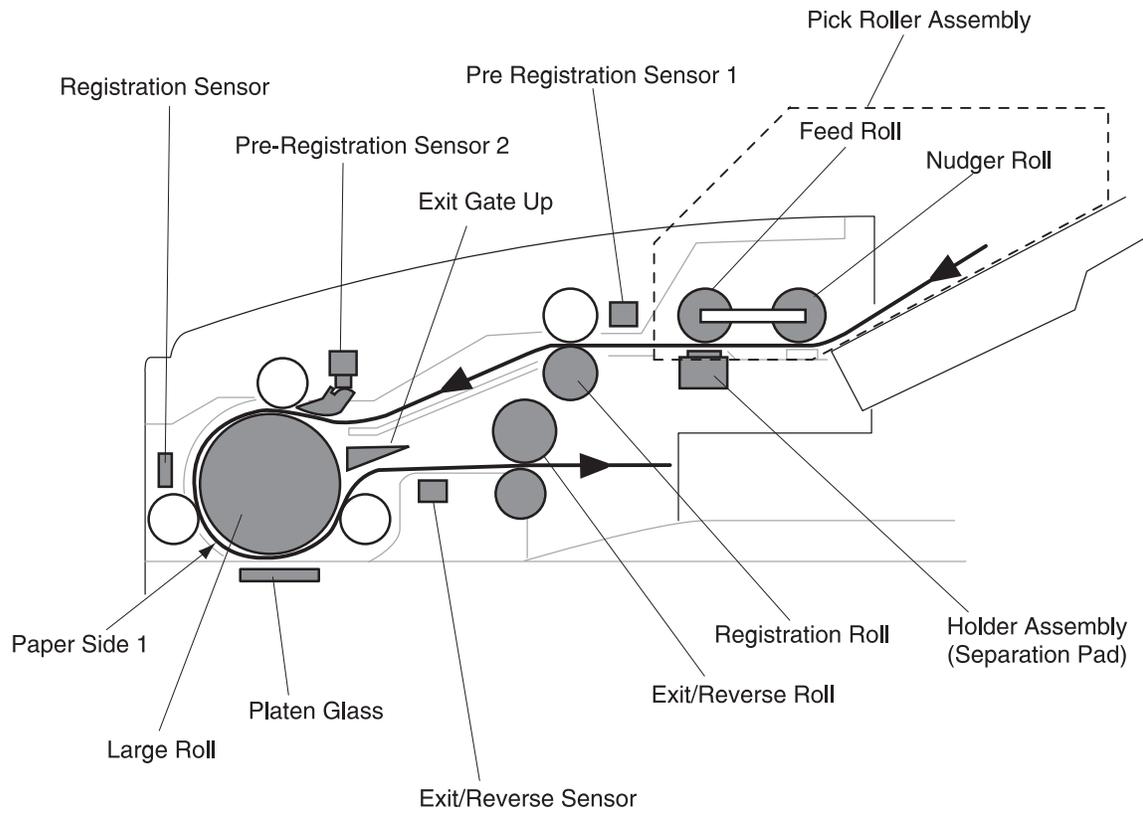
2. Duplex Paper Path

Note: The duplex paper path may be able to utilize two operational patterns due to its mechanical configuration design. Those patterns are described in this section.
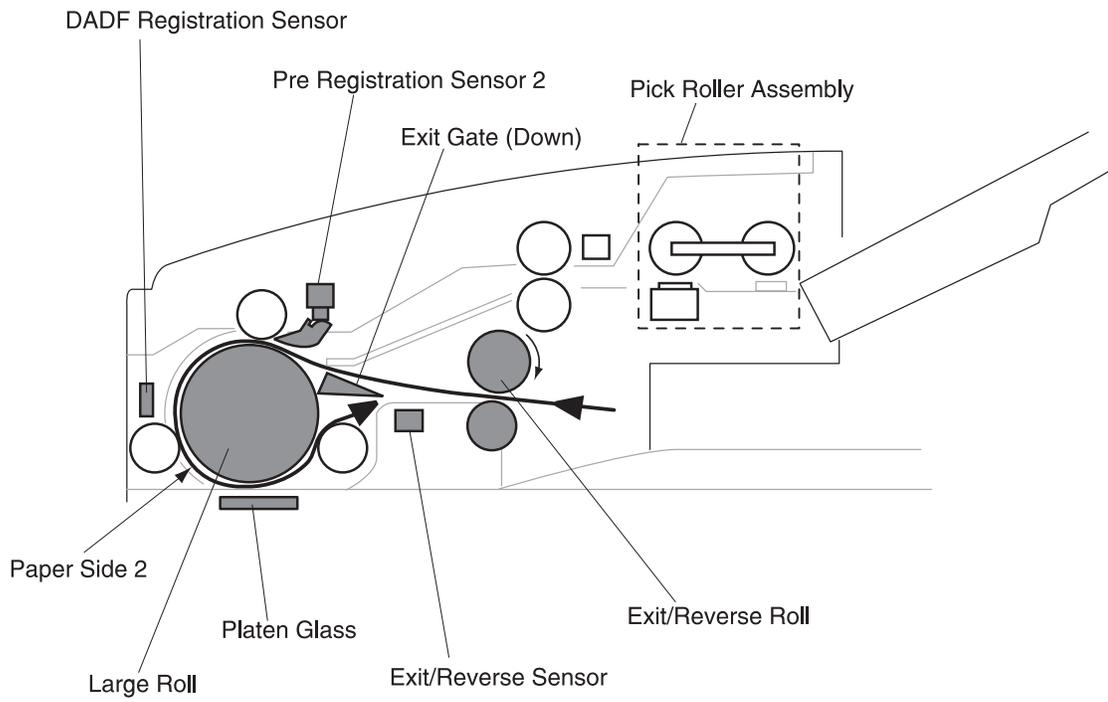
Operational Pattern 1

Step 1: Scan of side 1

- The rotation of the nudger roll moves the paper on the DADF tray to the feed roll.
- The paper moves to the registration roll by the rotation of the feed roll and the pad in the DADF individual separator pad.
- When the pre-registration sensor 1, located just in front of the registration roll, detects the passing of the top of the paper, the paper movement is interrupted for the specified time to synchronize with the paper feed timing.
- The paper restarts toward the registration roll.
- After passing the DADF upper paper guide, the top of the paper reaches and actuates the paper present sensor flag of the pre–registration sensor 2.
- At the position just in front of the large roll, the paper movement is interrupted again for the specified time to synchronize with the paper feed timing.
- The paper is moved to the DADF platen glass by rotation of the large roll.
- The DADF registration sensor card interrupts the movement for the specified time to synchronize with the scanning timing of the scanner.
- The scanner restarts to move the paper to the platen glass by rotation of the large roll. Utilizing the combined mechanism of the large roll rotation and the scanner full rate carriage, side 1 of the paper is scanned.
- After scanning, the paper passes the gate through the lower path and moves to the exit/reverse roll.
- Along the way, the timing of the exit/reverse sensor detects the pass of the top of the paper.
- The paper is stopped by the exit/reverse roll and the reverse roll.
- The paper movement is stopped at the time when the end of the paper passes on the exit/reverse sensor.

Registration Sensor

Pre-Registration Sensor 2

Exit Gate Up

Pre Registration Sensor 1

Pick Roller Assembly

Feed Roll

Nudger Roll

Paper Side 1

Platen Glass

Large Roll

Exit/Reverse Sensor

Registration Roll

Exit/Reverse Roll

Holder Assembly
(Separation Pad)

Step 2: Scan of side 2

- The paper is re–fed to the large roll by the counterclockwise rotation of the exit/reverse roll.
- After the paper passes the gate through the upper path and at the timing when the top of the paper actuates the paper present sensor flag of the pre–registration sensor 2, the movement is interrupted for the specified time to synchronize the paper feed timing and then restarted.
- The paper is moved toward the DADF platen glass.
- The paper it is interrupted to synchronize the feed timing with the scanning timing of the scanner by the command signal sent from the DADF registration sensor card.
- Paper is conveyed on to the platen glass by the rotation of the large roll, and side 2 of the paper is scanned at the platen glass.
- After scanning, paper is moved toward the exit/reverse roll passing the gate through its lower path.
- Paper movement is interrupted for a specified time when the end of the paper passes on the exit/reverse sensor.

DADF Registration Sensor

Pre Registration Sensor 2

Pick Roller Assembly

Exit Gate (Down)

Paper Side 2

Platen Glass

Exit/Reverse Roll

Large Roll

Exit/Reverse Sensor

Step 3: High speed reverse rotation

- The paper is re–fed to the large roll by the counterclockwise rotation of the exit/reverse roll.
- After passing over the upper side of the exit gate, the paper actuates the pre-registration sensor #2. Movement of the paper is then interrupted for a specific amount of time to synchronize paper feed timing.
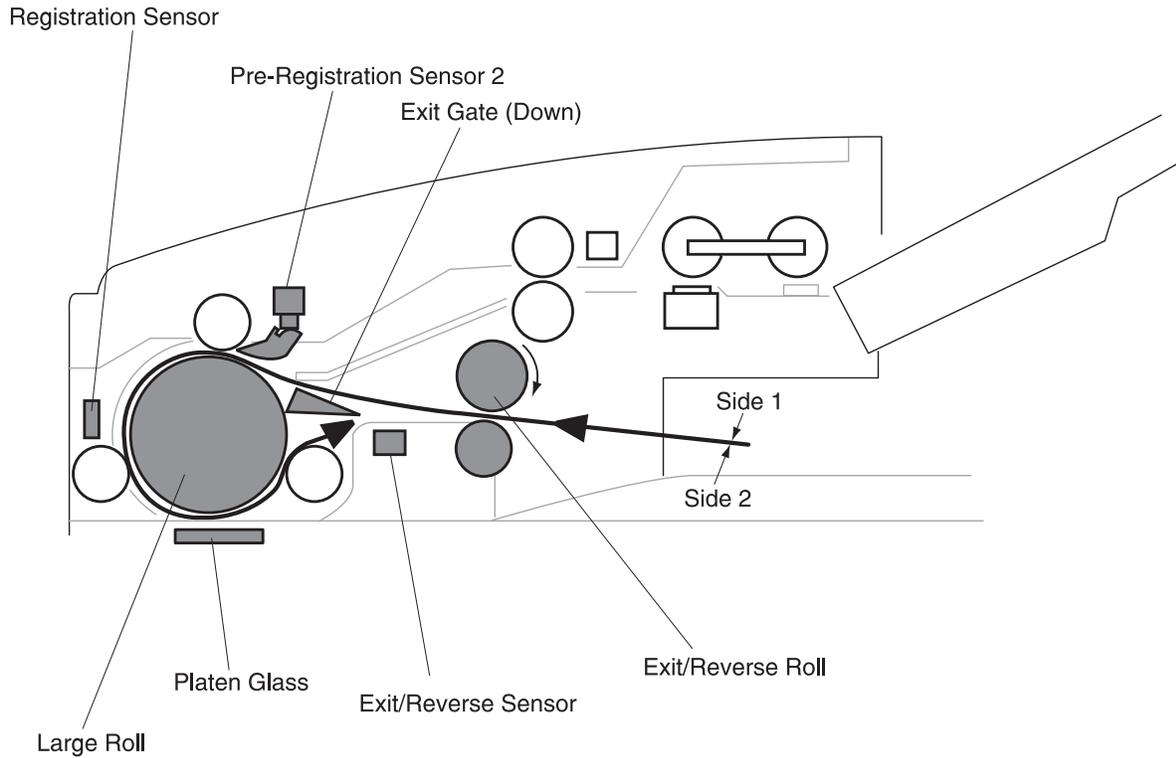
- The paper moves toward the DADF platen glass. The rotation of the exit/reverse roll stops.
- The paper moves toward the exit/reverse roll by the rotation of the large roll passing the gate through the lower path.
- Passing the exit/reverse sensor, paper discharges to the DADF output tray by the rotation of the exit/reverse roll.

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Side 2

Side 1

Exit/Reverse Sensor

Exit/Reverse Roll
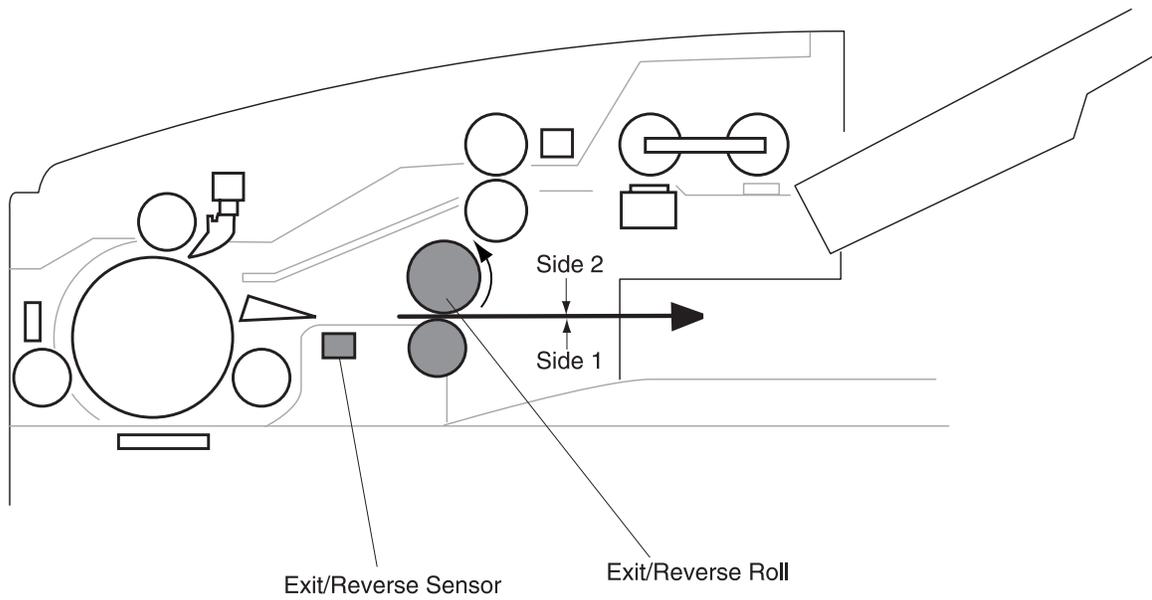
Operational Pattern 2

Step 1: High speed paper feed

- The rotation of the nudger roll causes the paper on the DADF tray to feed into the feed roll.
- A sheet of paper moves to the registration roll by the rotation of the feed roll. When the pre-registration sensor 1, located just in front of the registration roll, detects the passing the top of the paper, the paper movement is interrupted for the specified time to synchronize with the paper feed timing.
- After the timing adjustment, the paper restarts toward the registration roll.
- After passing the chute, the paper moves by the rotation of the large roll through the lower path of the gate toward the exit/reverse roll.
- When the exit/reverse sensor detects the passing of the top of the paper, the paper is nipped by the exit/reverse roll.
- The paper movement is interrupted for a specified time when the end of the paper passes to the exit/reverse sensor.

Pick Roller Assembly

Pre Registration Sensor 1

Pre Registration Sensor 2

Feed Roll

Nudger Roll

Exit Gate Up

Paper Side 1

Registration Roll

Holder Assembly
(Separation Pad)

Exit/Reverse Roll

Large Roll

Exit/Reverse Sensor

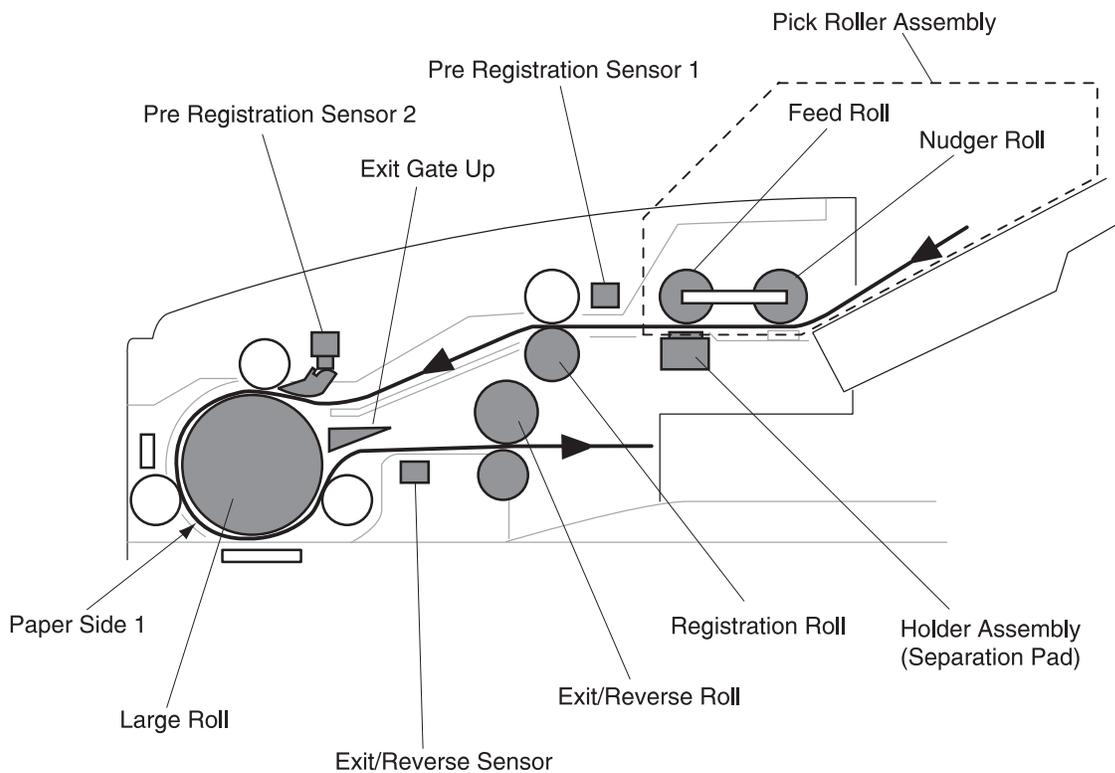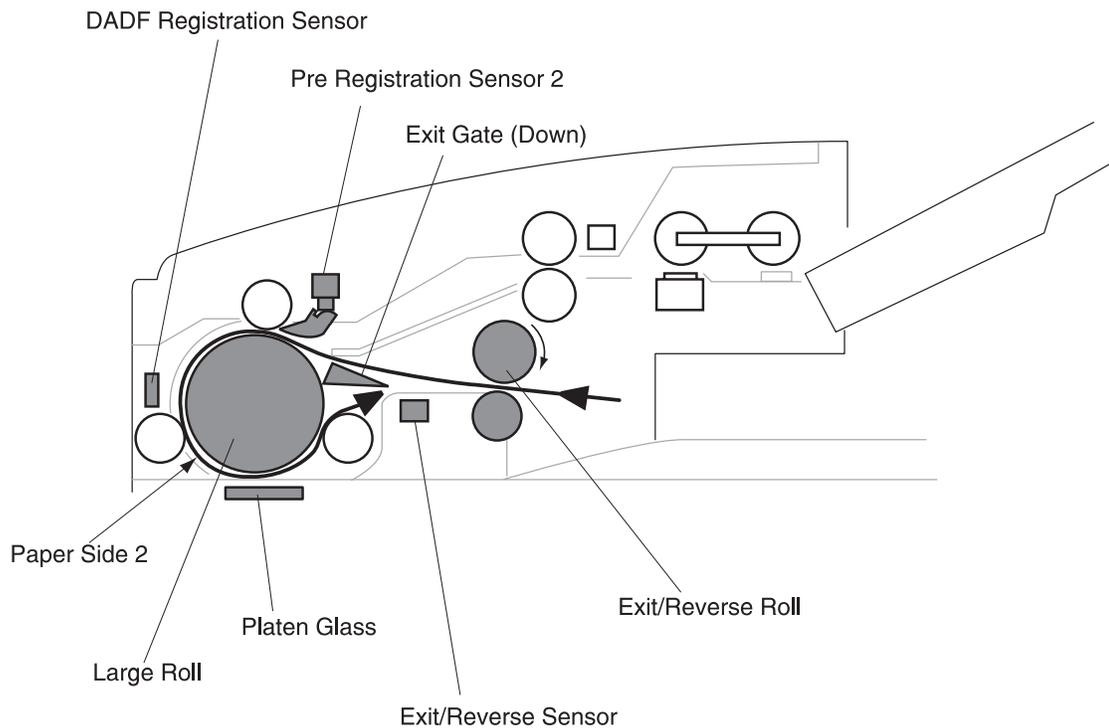**Step 2: Scan of side 2**

- The paper is re–fed to the large roll by the counterclockwise rotation of the exit/reverse roll.
- After passing over the upper side of the exit gate, the paper actuates the pre-registration sensor #2. Movement of the paper is then interrupted for a specific amount of time to synchronize paper feed timing.
- The paper moves toward the DADF platen glass. The paper is interrupted to synchronize the feed timing with the scanning timing of the scanner by the command signal sent from the DADF registration sensor card.
- The paper moves to the platen glass by the rotation of the large roll. Side 2 of the paper is scanned at the platen glass.
- After scanning, the paper moves toward the exit/reverse roll passing the gate through the lower path. The paper is nipped by the exit/reverse roll.
- The paper movement is interrupted for a specified time when the end of paper passes on the exit/reverse sensor.

DADF Registration Sensor

Pre Registration Sensor 2

Exit Gate (Down)

Paper Side 2

Platen Glass

Large Roll

Exit/Reverse Sensor

Exit/Reverse Roll

Step 3: Scan of side 1

- The paper is re–fed into the large roll by the CW rotation of the exit/reverse roll.
- After passing over the upper side of the exit gate, the paper actuates the pre-registration sensor #2. Movement of the paper is then interrupted for a specific amount of time to synchronize paper feed timing.
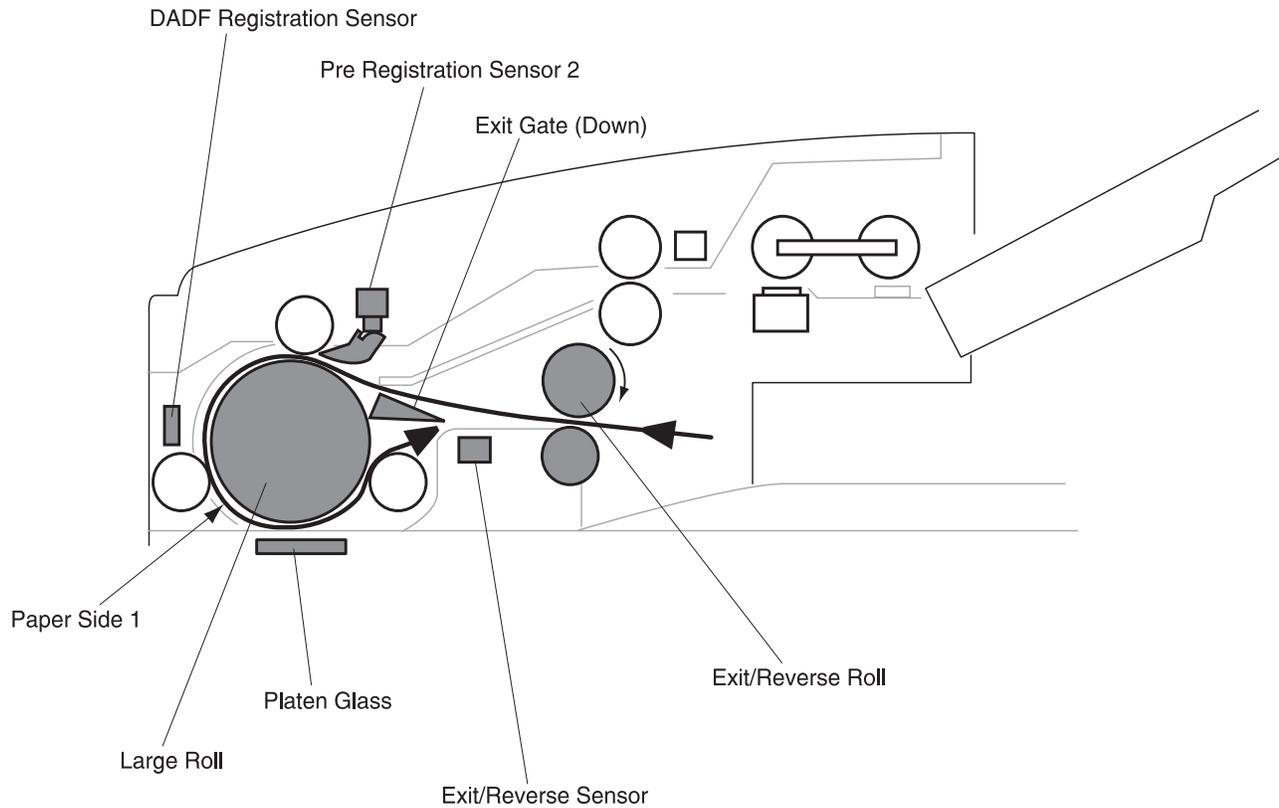
- The paper moves toward the DADF platen glass. The movement is interrupted for the specified time by the DADF registration sensor card in order to synchronize the paper feed timing with the scanning time.
- The paper is restarted toward the platen glass by the rotation of the large roll. The image of side 1 is scanned at the platen glass.
- The paper moves toward the exit/reverse roll by the rotation of the large roll passing the gate through the lower path.
- The paper discharges to the DADF output tray by the rotation of the exit/reverse roll.

Side 2

Side 1

Exit/Reverse Sensor

Exit/Reverse Roll
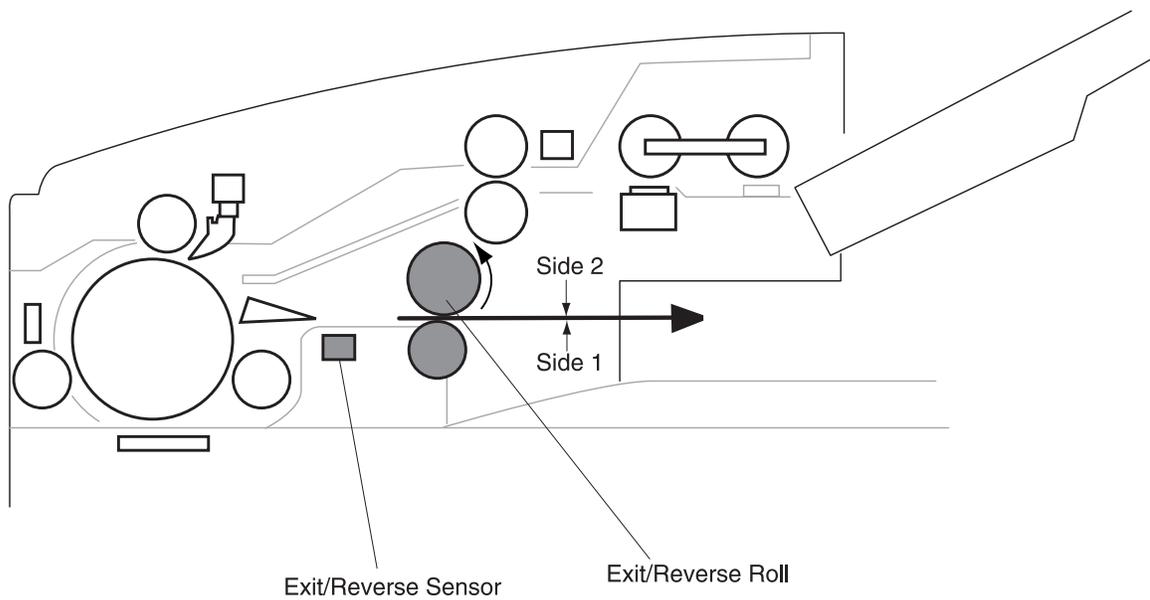
DADF Paper Path Components

The DADF paper path is made up of transport rolls and paper sensors.

- Nudger Roll (subassembly of pick roller assembly)
  The roll moves paper toward the feed roll utilizing a combination of mechanisms between the rotation of the roll and the friction of the separation pad.
- Feed Roll (subassembly of pick roller assembly)
  The roll moves a sheet of paper toward the registration roll utilizing a combination of mechanisms between the rotation of the roll and the friction of the separation pad.
- Registration Roll
  The roll moves paper toward the large roll by its rotation, after the skew correction.
- Large Roll
  The roll moves paper, by its rotation, toward the platen glass of the scanner for scanning, and then moves toward the exit/reverse roll.
- Exit/Reverse Roll
  The roll moves printed papers to the tray or turns over and sends the paper in the direction of the large roll to duplex.
- Exit/Reverse Solenoid
  This solenoid separates the reverse roll from the upper exit roll.

Scanner Principles of Operation

Scanner Power

The power cord carries AC line voltage to the external low voltage power supply (LVPS). The LVPS converts the 120/220VAC to regulated 5VDC, +12VDC, and +24VDC voltages. The LVPS sends these voltages to the main power switch in the Multifunction Device (MFD) controller cage. The voltage is then sent to the power distribution board. The +5VDC and +24VDC voltages are sent through the image processing board and onto the scanner through the 120 pin scanner cable. The voltage travels from the scanner cable into the scanner system board where it uses these voltages to run internal logic sensors, clutches, and the main motor assembly.
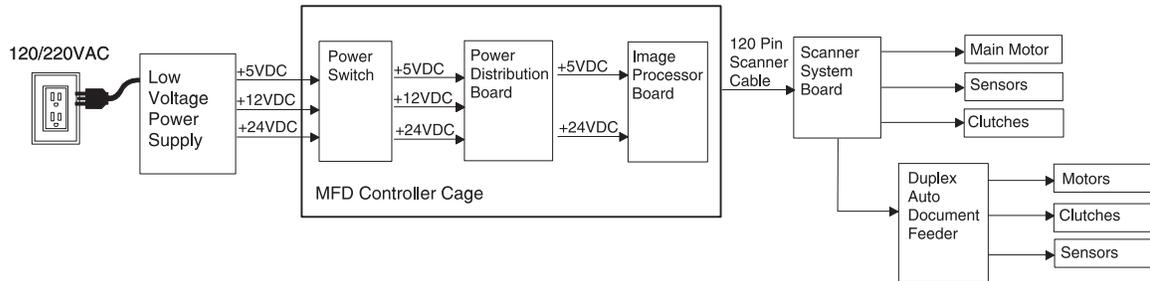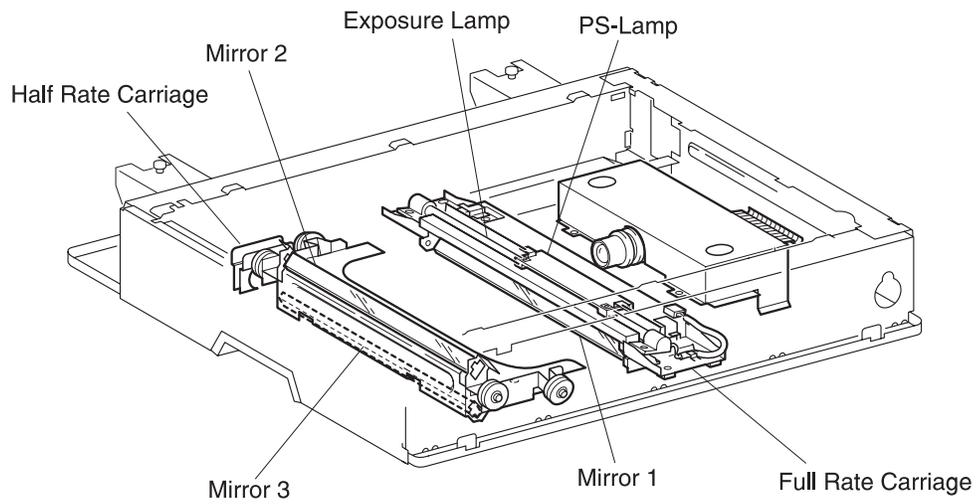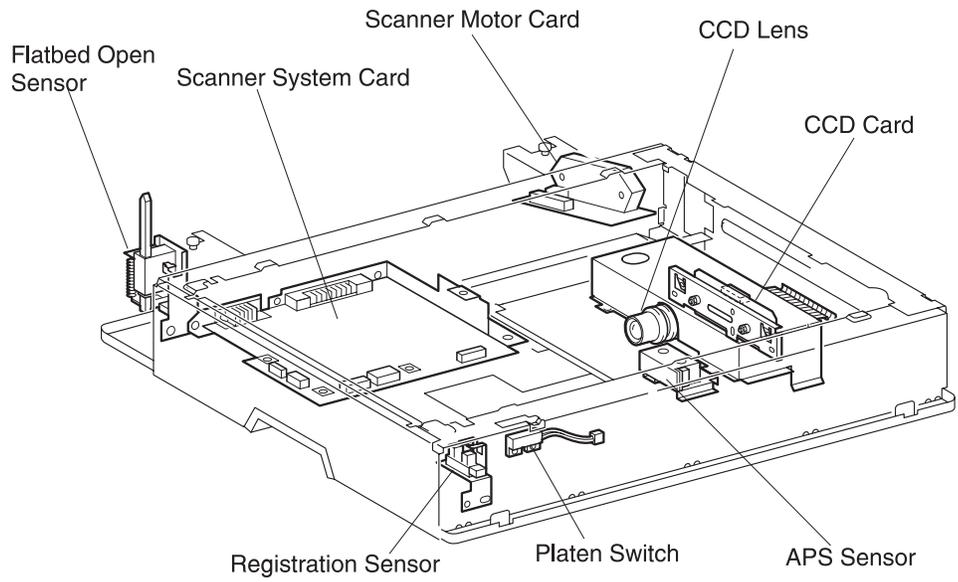
Scanner Control

The scanner system card provides the logic and information processing that is necessary for the scanner to function. Every electrical component within the scanner is connected to the scanner system card. Sensors in the scanner send status information to the system card. The system card processes that information, shares it with the MFD controller cage, and compares it to timing tables stored in ROM. Acting on the results of the processing, the system card sends commands to the various scanner components; switching on/off the motor and exposure lamp.
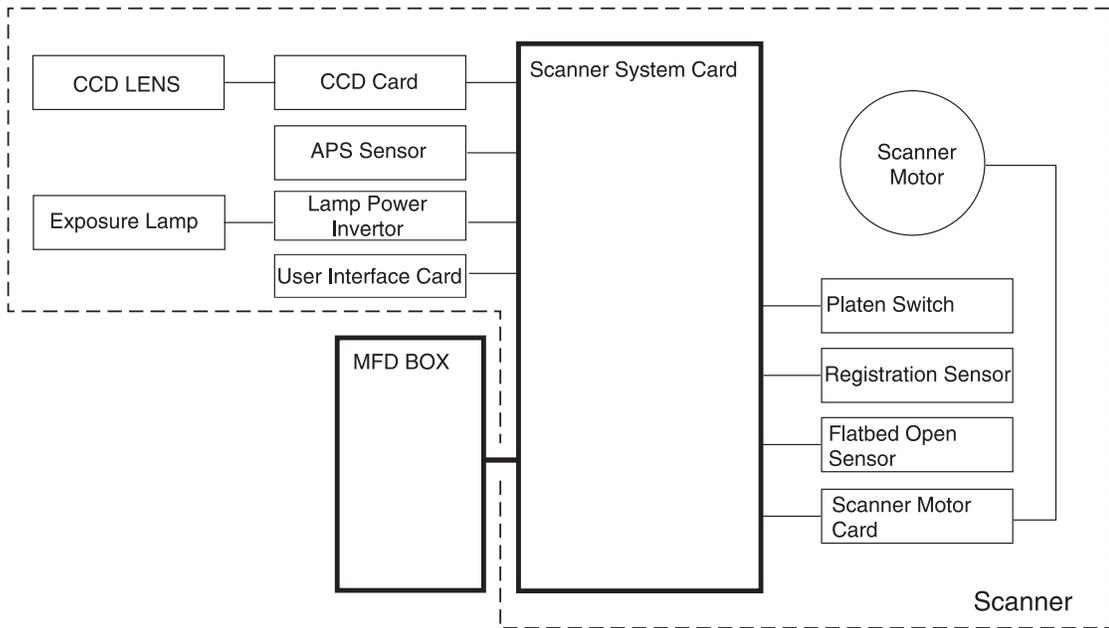
Scanner Control Components

- Scanner System Card
  The card controls all scanner functions, executes commands sent from the MFD box, and sends information back to the MFD box.
- Registration Sensor
  The sensor detects the paper present sensor flag at the side of the carriage and is used to detect carriage home position.
- Charged Couple Device (CCD) Card
  The card transmits video data read by the CCD card lens to the scanner system card.
- PS-Lamp
  The lamp provides the electric power to light the exposure lamp.
- Scanner Motor Card
  The card controls the rotation of the scanner motor.

Flatbed Open
Sensor

Scanner Motor Card

CCD Lens

Scanner System Card

CCD Card

Registration Sensor

Platen Switch

APS Sensor

Exposure Lamp

PS-Lamp

Mirror 2

Half Rate Carriage

Mirror 3

Mirror 1

Full Rate Carriage

Mechanical Drive

Mechanical drive describes both the rotation of the scanner motor assembly and the action of the gears, belts, and pulley that are used to transmit and control drive to the various components throughout the scanner. The purpose of the drive is to provide energy for movement of the full and half rate carriages while maintaining the focus distance to the CCD card lens.
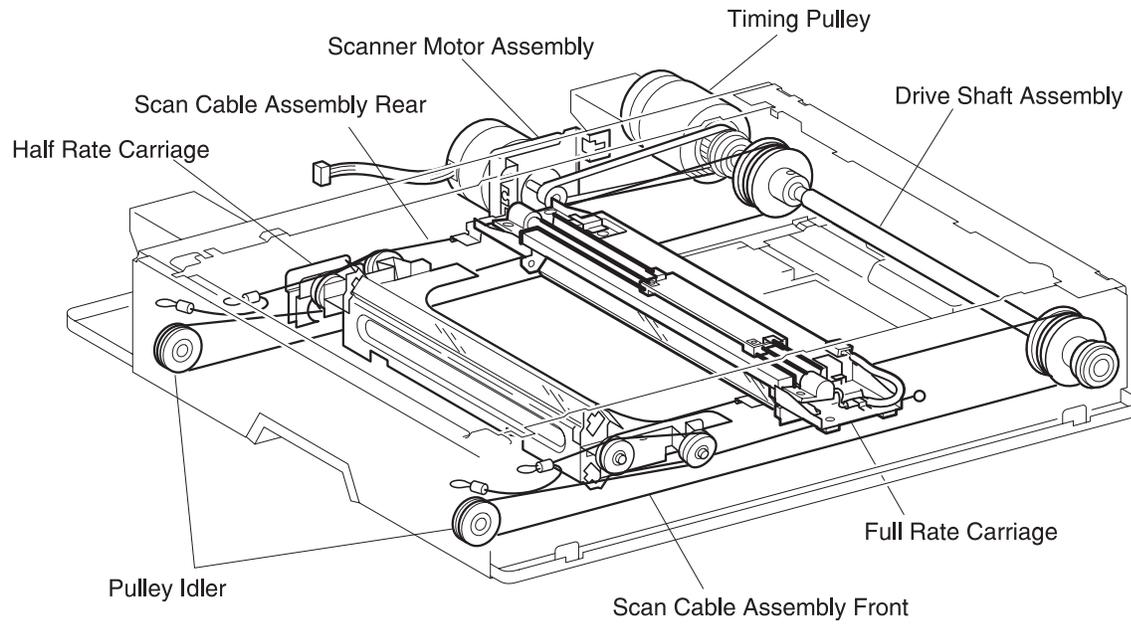
Mechanical Drive Components

- Scanner Motor
  The +24VDC motor provides the drive power to the timing pulley.
- Timing Pulley
  A pulley which dampens rotational pulses from the scanner motor while providing rotational energy to the drive shaft assembly.
- Scanner Cable Assemblies, Front And Rear
  Cables which move the full rate carriage by rotation of the drive shaft assembly. The cables also move the half rate carriage half the displacement of the full rate carriage.
- Half Rate Carriage
  A component which transfers the optical image from the full rate carriage to the CCD card lens using two mirrors.
- Full Rate Carriage
  A component used for scanning the image of the paper on the platen glass by turning on the exposure lamp and scanning the image through the mirror combination.

Scanning Methods

1. Platen Mode

Scans the document placed on the platen glass by movement of the full rate carriage. The half rate carriage moves at half the rate of the full rate carriage to maintain the proper focal length from the document to the CCD card lens.

2. DADF Mode

Scans the document being fed through the DADF through the left side DADF platen glass. The half and full rate carriages are in a fixed position during this type of scan. Only the image projected through the left side DADF platen glass is obtained.

Scanner Registration

DADF Platen Glass	White Reference	Platen Glass
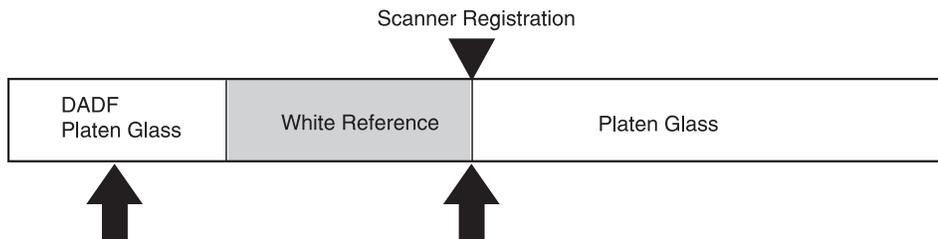
2. Diagnostic Information

Start

CAUTION: Remove power from the scanner system before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the scanner system.

Warning: It is extremely important not to connect or disconnect the 120-pin scanner cable to the MFD controller cage while the power is on as doing so greatly increases the chance of damaging the Low Voltage Digital Signaling devices in the image processor card and user interface cards.

Use the service error codes and service checks in this chapter to determine the corrective action necessary to repair a malfunctioning scanner system.

Service error codes for the printer attached to this scanner system can be viewed on the printer's operator panel display. Refer to the printer's service manual for appropriate repair actions.

The service error codes for the scanner system are divided into two main categories: Scanner errors and MFD errors.

Scanner errors detected by the MFD controller card are displayed to the user interface panel. If an error is reported to the user interface, go to **"Scanner Errors" on page 2-2** to determine the corrective action necessary to perform the repair.

MFD errors detected by the MFD controller card are displayed to the user interface panel along with an audible beep code and LED code visible on the MFD controller card. If the malfunction is associated with the user interface panel (preventing error messages to be displayed), the beep and LED codes can further assist the servicer in diagnosing the problem.

During a full Power-On Self Test, a beep and LED code are generated if a malfunction is detected. Refer to **"MFD Controller Cage Errors" on page 2-4** to read the codes and determine the corrective action necessary to perform the repair.

If a problem exists with the scanner system unrelated to any of the error codes, go to **"Symptom Tables" on page 2-7** to troubleshoot the problem and determine appropriate repair action.

Scanner Errors

Scanner Errors refers to errors detected within the flatbed scanner and duplexing auto-document feeder (DADF). These errors are displayed on the user interface touch screen.
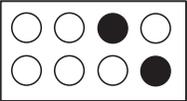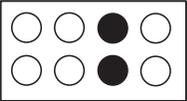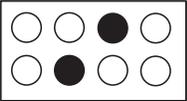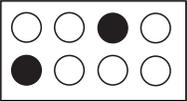
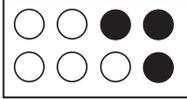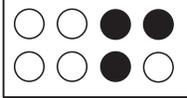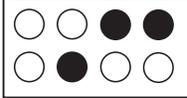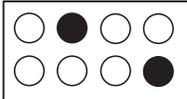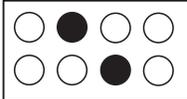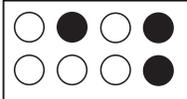| Error message displayed to user interface	Corrective action
Main scanner board memory error	Replace the main scanner board.
Scanner RAM R/W error	Replace the main scanner board.
Scanner EEPROM broken	Replace the main scanner board.
Scanner EEPROM R/W error	Replace the main scanner board.
Scanner to MFD cage framing/overrun/parity error	Check the connection of the scanner to MFD controller cage cable. Replace if defective.
Scanner to MFD cage BCC error	Check the connection of the scanner to MFD controller cage cable. Replace if defective.
Scanner to MFD cage No communication	Check the connection of the scanner to MFD controller cage cable. Replace if defective.
Scanner to MFD cage Communication not established	Check the connection of the scanner to MFD controller cage cable. Replace if defective.
Carriage registration sensor not cleared	Inspect/replace the registration sensor in the scanner.
Carriage registration sensor failed	Inspect/replace the registration sensor in the scanner.
Motor pulse gap between scan and return	Inspect/replace the scanner motor.
AGC fail	Replace the flatbed lamp. If problem persists, replace the lamp power inverter.
AOC fail 1	Replace the flatbed lamp. If problem persists, replace the lamp power inverter.
AOC fail 2	Replace the flatbed lamp. If problem persists, replace the lamp power inverter.
Shading calibration write failed	Replace the flatbed lamp. If problem persists, replace the lamp power inverter.

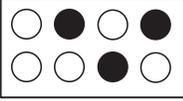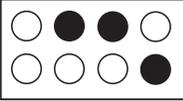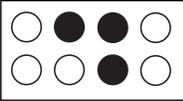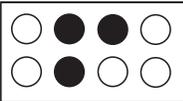| Error message displayed to user interface	Corrective action
DADF motor failed	Inspect/replace the registration motor in the DADF.
DADF pre-registration sensor 1 failed	Inspect/replace the pre-registration sensor 1 in the DADF.
DADF pre-registration sensor 2 failed	Inspect/replace the pre-registration sensor 2 in the DADF.
DADF registration sensor failed	Inspect/replace the registration sensor in the DADF.
DADF exit sensor failed	Inspect/replace the exit sensor in the DADF.
DADF memory error	Replace the DADF controller card assembly.
DADF EEPROM R/W error	Replace the DADF controller card assembly.
Scanner to DADF initial communication error	Check the connection of the scanner to DADF cable. Replace if defective.
Scanner to DADF framing/overrun/parity error	Check the connection of the scanner to DADF cable. Replace if defective.
Scanner to DADF BBC error	Check the connection of the scanner to DADF cable. Replace if defective.
Scanner to DADF no communication	Check the connection of the scanner to DADF cable. Replace if defective.
Scanner to DADF communication not established	Check the connection of the scanner to DADF cable. Replace if defective.
Scanner software error	This error occurs when the controller card in the MFD cage receives information from the scanner it doesn't expect. Turn off the power to the scanner system and restart. If the problem persists, replace the main scanner board in the flatbed scanner. If the problem continues, replace the image processor card in the MFD controller cage.

Error number	Number of beeps	LED pattern	Error message displayed to user interface	Corrective action
31	3	○ ○ ● ● ○ ○ ○ ●	(No Hard Drive Found) **Note**: Error code message not displayed on the user interface. Only beep code and LED patterns are generated for this error.	Check connections to the hard disk drive and associated cables for continuity. Check power going to the hard disk drive. Replace the power distribution card if no power is present. If power is present, replace the hard disk drive.
32	3	○ ○ ● ● ○ ○ ● ○	(Missing VM Linux) **Note**: Error code message not displayed on the user interface. Only beep code and LED patterns are generated for this error.	The Linux kernal is not found. Replace or reformat the hard disk drive.
34	3	○ ○ ● ● ○ ● ○ ○	Hard drive failure	There was an error writing to the hard drive or the Linux code is corrupt. Replace or reformat the hard disk drive.
41	4	○ ● ○ ○ ○ ○ ○ ●	Scanner interface not found	The scanner image processing board was not found. Check connections to the interface board. If connections are good, replace the image processor board.
42	4	○ ● ○ ○ ○ ○ ● ○	Scanner interface failed self-diagnostics	The image processor board is defective. Replace the image processor board.
51	5	○ ● ○ ● ○ ○ ○ ●	(No memory) **Note**: Error code message not displayed on the user interface. Only beep code and LED patterns are generated for this error.	The memory DIMM was not detected or non–functional. Replace the memory DIMM.

Error number	Number of beeps	LED pattern	Error message displayed to user interface	Corrective action
52	5	○●○● / ○○●○	Not enough memory	The memory DIMM was found, but not enough memory is present. Replace the memory DIMM.
61	6	○●●○ / ○○○●	Scanner communication fault	Check the connection and condition of the 120 pin scanner cable. Replace as necessary. If problem persists, check scanner and repair as necessary.
62	6	○●●○ / ○○●○	Scanner ADF failed	The DADF on the scanner failed. Check connection of the DADF cable to the scanner. Repair or replace the DADF as necessary.
64	6	○●●○ / ○●○○	Scanner main unit failed	The flatbed scanner experienced a failure. Repair or replace scanner as necessary.
71	7	○●●● / ○○○●	User interface failure	A problem was detected with the user interface. Check the connection of the 120 pin scanner cable and user interface cables. If cables are okay, replace the user interface. If problem persists, replace MFD controller board.
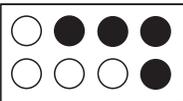
Symptom Tables

Power does not come on.

Cause	Relevant unit	Check method*	Maintenance method
Unplugged from outlet	None	Visual check	Insert the AC plug into the outlet.
AC power unplugged at power supply	None	Visual check	Insert the AC cable into power supply.
Power switch is off	MFD controller cage	Visual check	Turn the power switch on.
Power supply power distribution board connection failure	None	Visual check	Connect the connector.
Power supply output voltage failure	LVPS	Tester check the LVPS (+5V, +12V, +24V, GND)	Replace the power supply.
Power distribution board failure	Power distribution board	Tester check (+5V, GND)	Replace the failed power distribution board.
MFD controller board	MFD controller board	None	If problem persists, replace MFD controller board.

Note: *= check method explains how to check the failed item. T

- he visual check can be made by physically observing the part or observing the offline test display on the front panel.
- The tester check is made by checking the voltage levels of the relevant units.
- See **"Connector Locations" on page 5-1** for more information.

Strange sound generated (DADF)

Cause	Relevant unit	Check method	Maintenance method
Paper setting failure	Operation error	Is the paper correctly set in the upper paper guide?	Teach users to properly position the paper.
Paper failure	Operation error	Is the specified paper used?	None
ADF pick roller improperly installed	Pick roller assembly	Visual check of pick roller.	Re-install pick roller assembly.
Motor assembly failure	• DADF registration roll drive motor assembly • DADF main drive motor assembly	Visual check or motor rotation.	Replace the failure motor assembly.
Gear failure	DADF gear 1, 2, 2B, 3 or 4.	Visual check of gear rotation.	Replace the failing gear.
Main drive motor assembly	Main drive assembly	Visual check	Replace the motor.
Dirt on carriage guides	None	Visual check	Clean the carriage guides with isopropyl alcohol.

Frequent paper jam, double feed or skew

Cause	Relevant unit	Check method	Maintenance method
Paper setting failure	Operation error	Is the paper correctly set in the upper paper guide?	Teach users to properly position the paper.
Paper failure	Operation error	Is the specified paper used?	None
Paper debris	None	Check for paper fragments in paper path.	Clean paper path of dirt and debris.
DADF pick roller failure	ADF pick roller assembly	Check the pick roller assembly for dirt and wear.	Clean or replace the pick roller assembly. (See **"Maintaining Your Multifunction Product (MFP)" on page 6-1** for more information.
Separator pad assembly failure	Separator pad assembly	Check the pad for wear and tear.	Clean or replace the separator pad assembly.
Improper registration roller adjustment	Registration rollers	Is paper skewing inside the DADF?	Adjust for paper skew. See **"DADF Assembly Paper Skew Adjustment" on page 4-4** for more information.
Improper DADF assembly height adjustment	DADF hinge	Is the paper jamming at the flatbed-to-DADF interface?	Adjust hinges. See **"DADF Assembly Height Adjustment" on page 4-3** for more information.

Image unclear

Cause	Relevant unit	Check method	Maintenance method
Lamp too dark	Lamp	Visual check.	Replace lamp.
Dirt on calibration reference	Flatbed platen glass	Visual check of white calibration strip on underside of flatbed glass.	Clean the flatbed platen glass with isopropyl alcohol.
Dirt on the mirrors	Mirrors	Visual check.	Clean the mirrors with isopropyl alcohol.
Dirt on the lens	Lens	Visual check.	Clean the lens with isopropyl alcohol.

Large jitter

Cause	Relevant unit	Check method	Maintenance method
Main drive motor assembly connection failure	None	Visual check.	Connect the connector.
Main drive motor failure	Main drive motor	Visual check.	Replace the motor.
Dynamic motor damper failure	Dynamic motor damper	Visual check.	Replace the dynamic damper.

Image does not appear

Cause	Relevant unit	Check method	Maintenance method
Image processor board failure	Image processor board	Visual check.	Replace the image processor board.
Lamp power invertor failure	Lamp power invertor	Visual check.	Replace the lamp power invertor.
Lamp failure	Lamp	Visual check.	Replace the lamp.
CCD board-scanner system board connection failure	None	Visual check.	Connect the connector.
CCD board fails	CCD board	Visual check.	Replace the CCD board.

3. Diagnostic Aids

The Lexmark X7500 does not have any onboard diagnostic aids available.

4. DADF Repair Procedures

There are two sections containing the removal and replacement procedures for the major parts within the duplex automatic document feeder (DADF) and the scanner.

Preparation

Before you begin any removal and replacement procedure:

1. Switch off the power to the entire scanner system.
2. Disconnect the AC power cord from the electrical outlet.
3. Ensure that all external devices are powered off and unplugged from wall outlets.
4. Wear an electrostatic discharge wrist strap to protect sensitive parts from damage.

Warning: Never disconnect a cable while the power is on. This can easily damage sensitive circuit boards in the DADF, scanner, and MFD controller cage.

Notations in the Removal Replacement text

Locations, such as R (right), assumes you are facing the scanner user interface panel.

Rear

Right

Left

Front
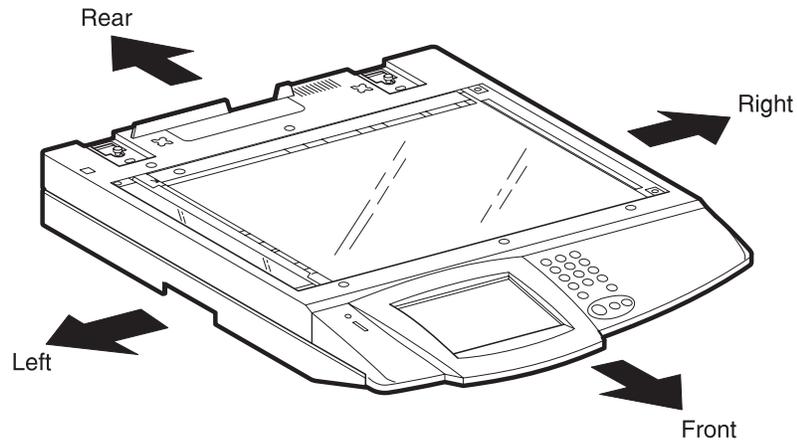
- Arrows in an illustration show direction of movement when removing a component.
- Slashes in a part name indicate that numerous components share the same heading and function. For example, "gears in/feed/out" refers to gear in, gear feed, and gear out.
- The notation (P/Jx) indicates a plug and jack connection with the number being 'x.'
- KL=clip
- E=E-ring
- S=screw

Adjustments

DADF Assembly Height Adjustment

Adjusts the height of the counterbalance to ensure correct paper feeds.

To ensure the adjustment is correct, make sure the two projections of the lower frame touch the DADF platen glass slightly when the DADF assembly is shut under its own weight.

Make sure there is no space between the DADF platen cushion and the platen glass when the DADF assembly is shut under its own weight.
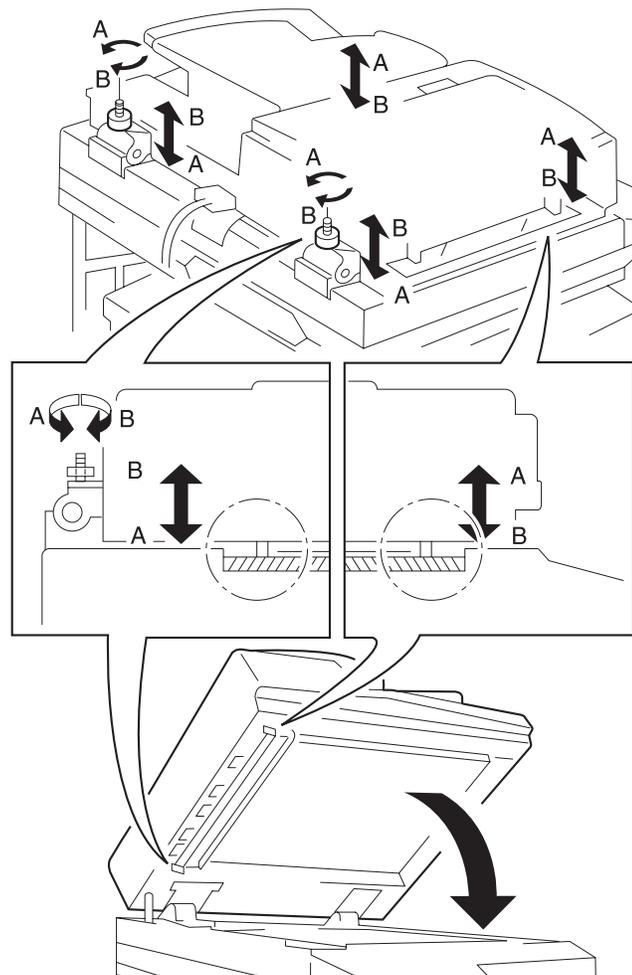

1. Loosen the nuts on both sides of the counterbalance.
2. Adjust the height and the slope of the DADF assembly by turning the set screws.
3. Turn the set screw in the direction of **A.**
   The front side of the DADF is up and the rear side is down.
4. Turn the set screw in the direction of **B.**
   The front side of the DADF is down and the rear side is up.
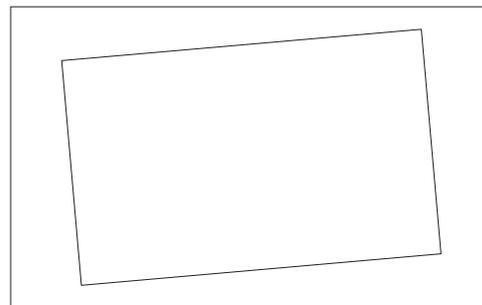
Note: After adjusting, tighten the nuts.

DADF Assembly Paper Skew Adjustment

Regi Roll 1

Regi Roll 2
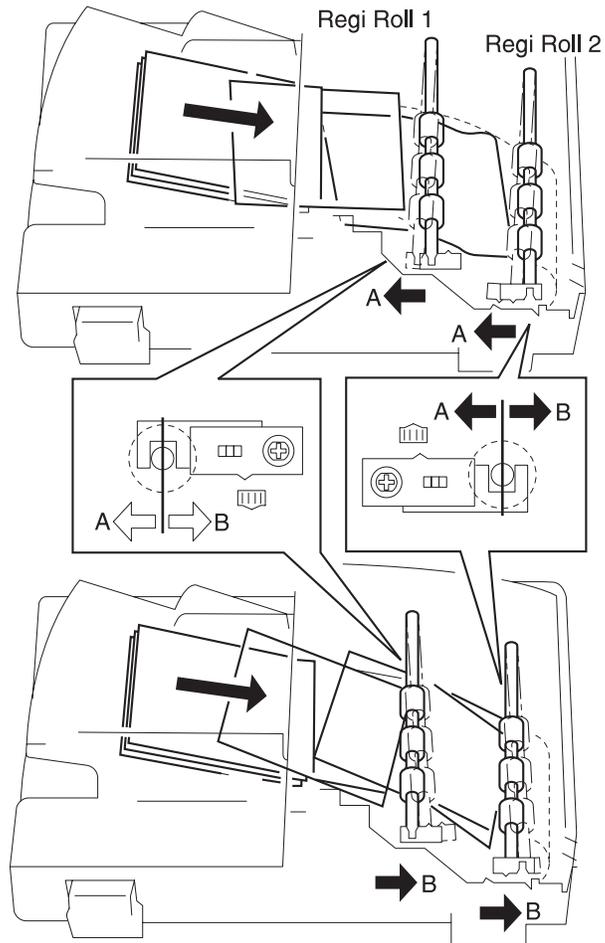
Moves the adjustment plate in direction **A**.
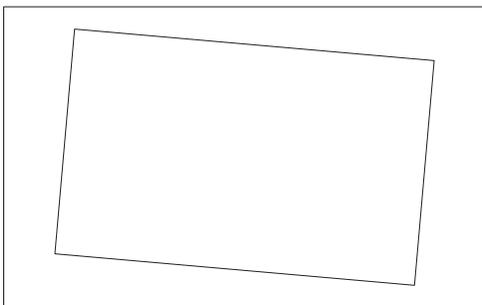
Moves the adjustment plate in direction **B**.

Adjusts the feeder which controls paper skew in the DADF assembly.

Note: Attach the adjustment plate by fitting its projection into the center of the feeder.

1. Move registration rollers 1 and 2 parallel to each other.
2. Loosen the screws in the adjustment plate and move the plate in the direction of **A** or **B** to adjust the paper skew.

**Note:** After adjusting, tighten the screws.

Adjusting the Position of Full Rate/Half Rate Carriages

1. Remove the flatbed center platen glass plate.

2. Loosen the two (2) screws that secure the full rate carriage.

3. Move the half rate carriage until it rests against the stopper.

Note: When the half rate carriage rests against the paper stop (2 pieces), a gap may be generated on either the In or Out side stopper. Before you move to the next step, loosen the two (2) screws on the rear pulley-capstan, and again tighten the screws with the carriage pushed against the paper stop on either the In or Out side.

4. While the half rate carriage rests against the steppers, move the full rate carriage until it rests against the right side frame.

5. Tighten the two (2) screws in the full rate carriage.

6. Mount the flatbed center platen glass plate.

Stopper

Set Screw
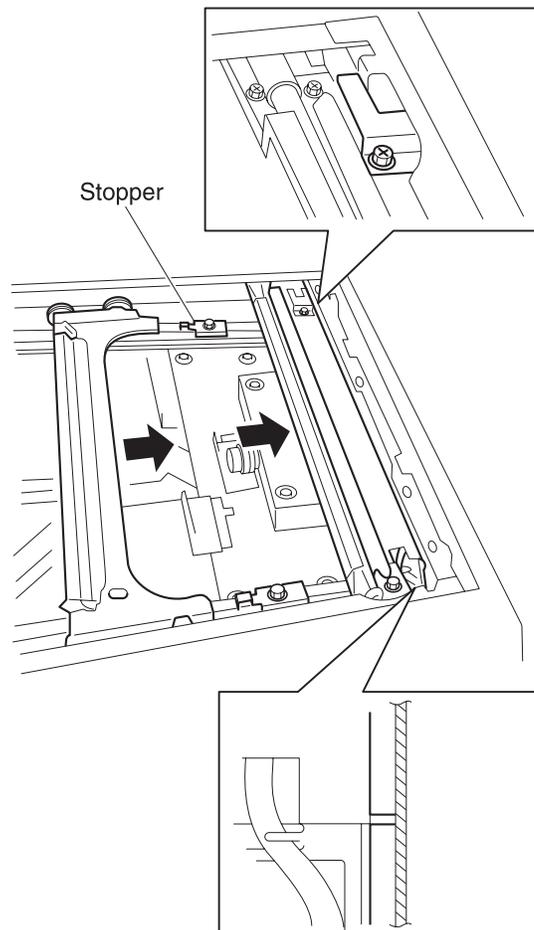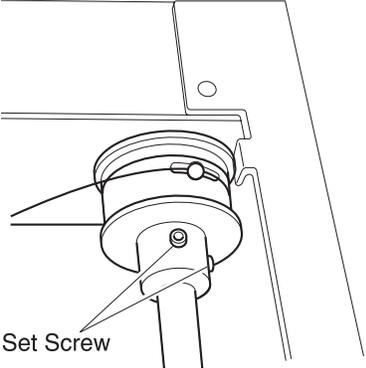
Configuring the MFD Controller Card

Anytime the MFD controller card is installed for the Lexmark X7500 and X4500, a geography configuration must be performed in order for the fax modem to work properly.

Once the card is installed, follow the instructions below to set the appropriate fax modem setting.

1. Turn on the power to the complete system.
   Allow the system to go through the initial booting procedure.
2. Enter the SE menu by pressing **441.
3. Select Fax Setting on the main SE menu.
4. Select Modem Type from the fax setting menu.
5. Select the appropriate geography from the list.
6. Reboot the system.
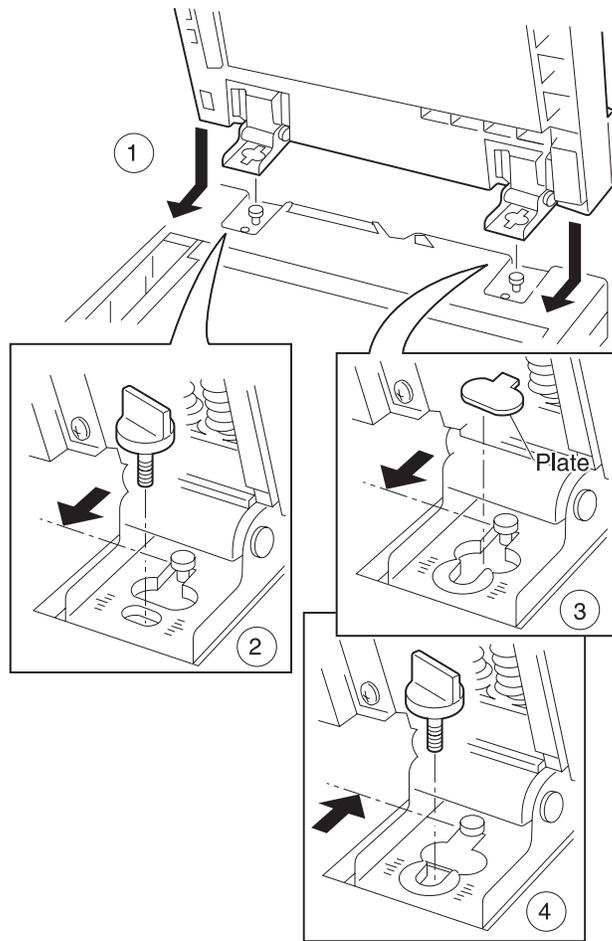
DADF Repair Procedures

DADF Assembly Removal

1. Remove the connector (P/J700), located at the rear side of the DADF assembly.
2. Open the DADF assembly.
3. Remove the two (2) thumbscrews.
4. Remove the black hinge loading plate from the right counterbalance.
5. Slide the DADF assembly toward the rear and lift up.
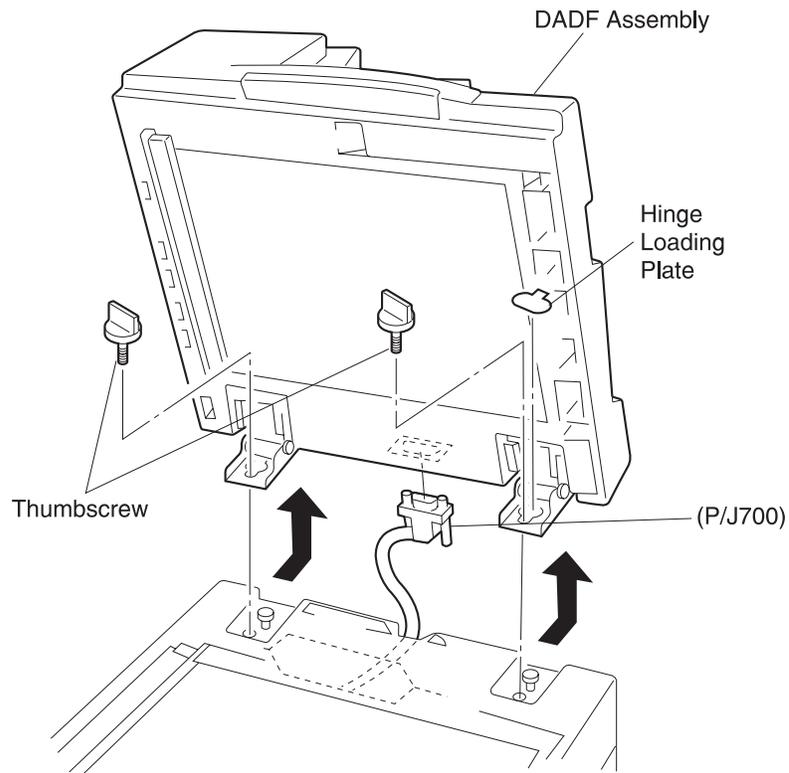
Note: Follow the steps in the order shown to install the DADF.

DADF Front Cover, Handle, and Magnet Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the two (2) screws in the DADF handle.

Note: The left screw, in the DADF handle, is shorter.

3. Remove the DADF handle.
4. Remove the two (2) screws in the DADF front cover.
5. Remove the DADF front cover.
6. Remove the screw in the DADF magnet.
7. Remove the DADF magnet.

Note: When reinstalling the DADF magnet, the white paint side must face out.

DADF Front Cover

Magnet

Handle
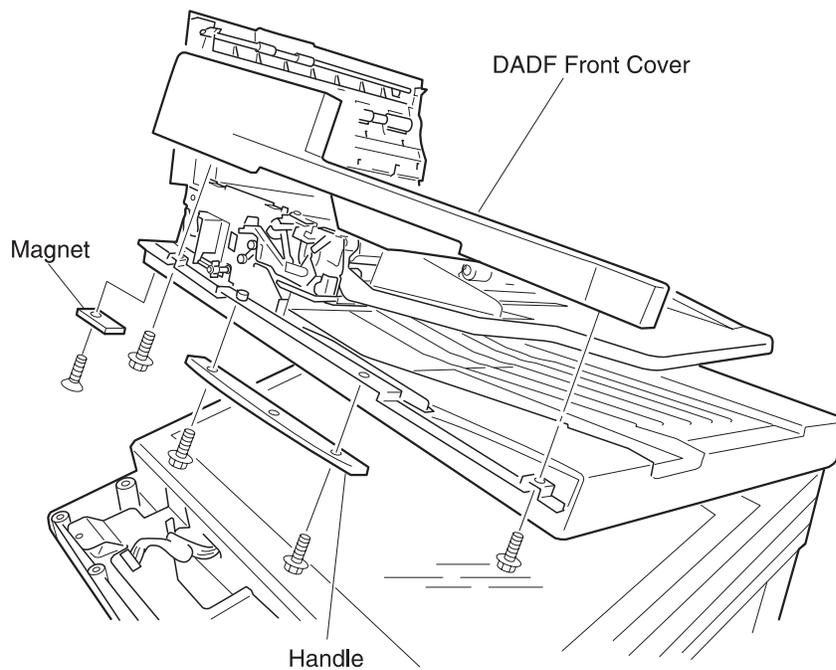
DADF Cushion Removal

1. Open the DADF Assembly.

Note: The DADF cushion is stuck with two-sided tape.

2. After removing the DADF cushion, completely remove the two-sided tape remaining.

3. Remove the DADF cushion.
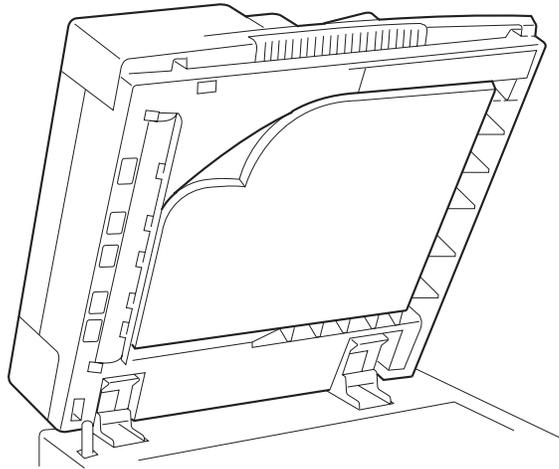
To replace the DADF cushtion:

1. Lay the DADF cushion, with seals facing up, on the platen glass of the scanner.
2. Peel the seals and align the DADF cushion to the rear of the scanner.
3. Lower the DADF assembly and push against the DADF cushion.

DADF Exit/Reverse Solenoid Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.

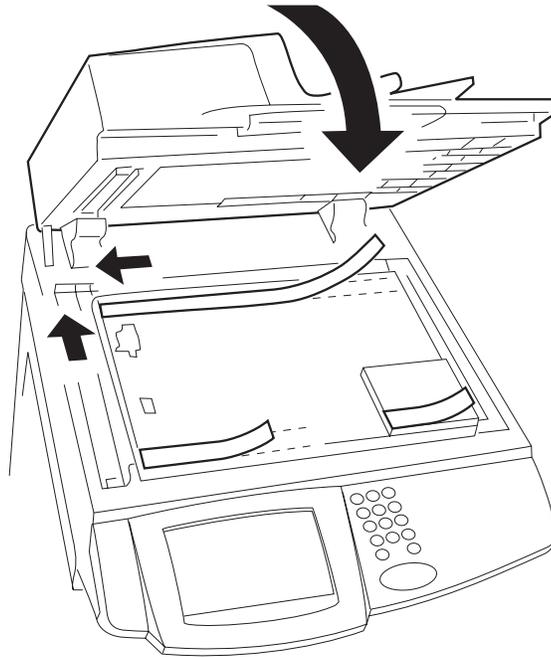**2.** Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.

3. Disconnect the two harnesses (P/J26).

4. Remove an E-ring.

5. Remove the screw.

6. Remove the exit/reverse solenoid.
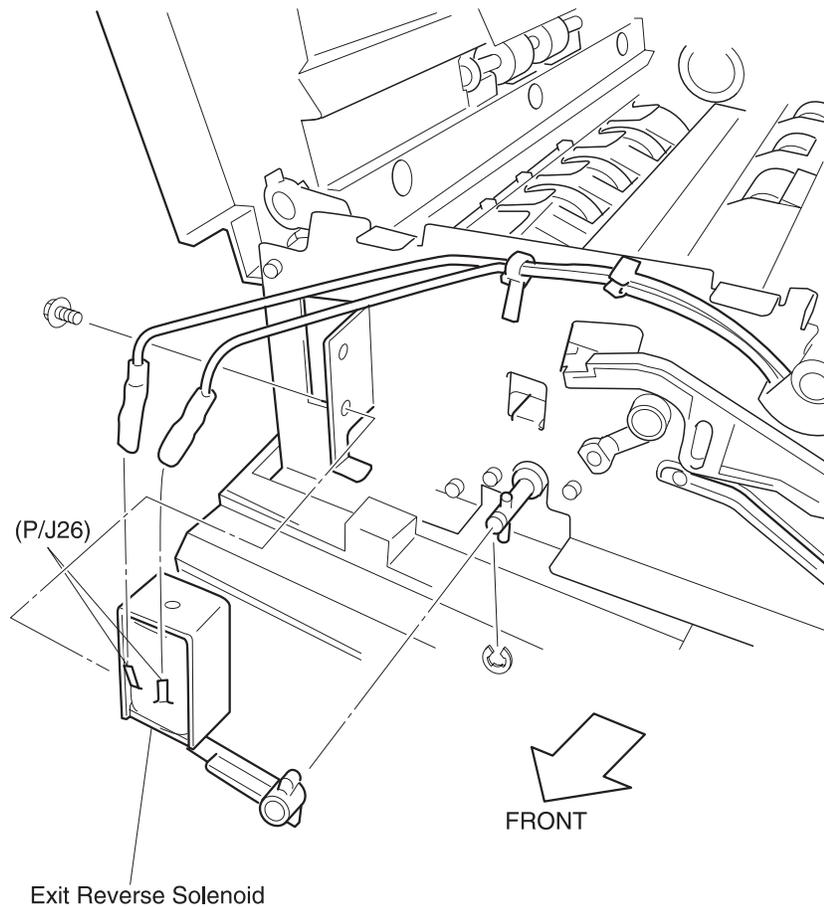
(P/J26)

FRONT

Exit Reverse Solenoid

DADF Input Tray Assembly Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Disconnect connector (P/J30).
4. Unclamp the input tray assembly harness from the frame.
5. Remove the screw and washer (toothed) from the ground wire.
6. Remove the screw from the retaining bracket.
7. Remove the retaining bracket.
8. Open the input tray assembly upward.
9. Remove the screw.

Note: This is a shorter screw.

10. Remove the plate.
11. Raise the front side of the input tray assembly, and pull out diagonally upward.

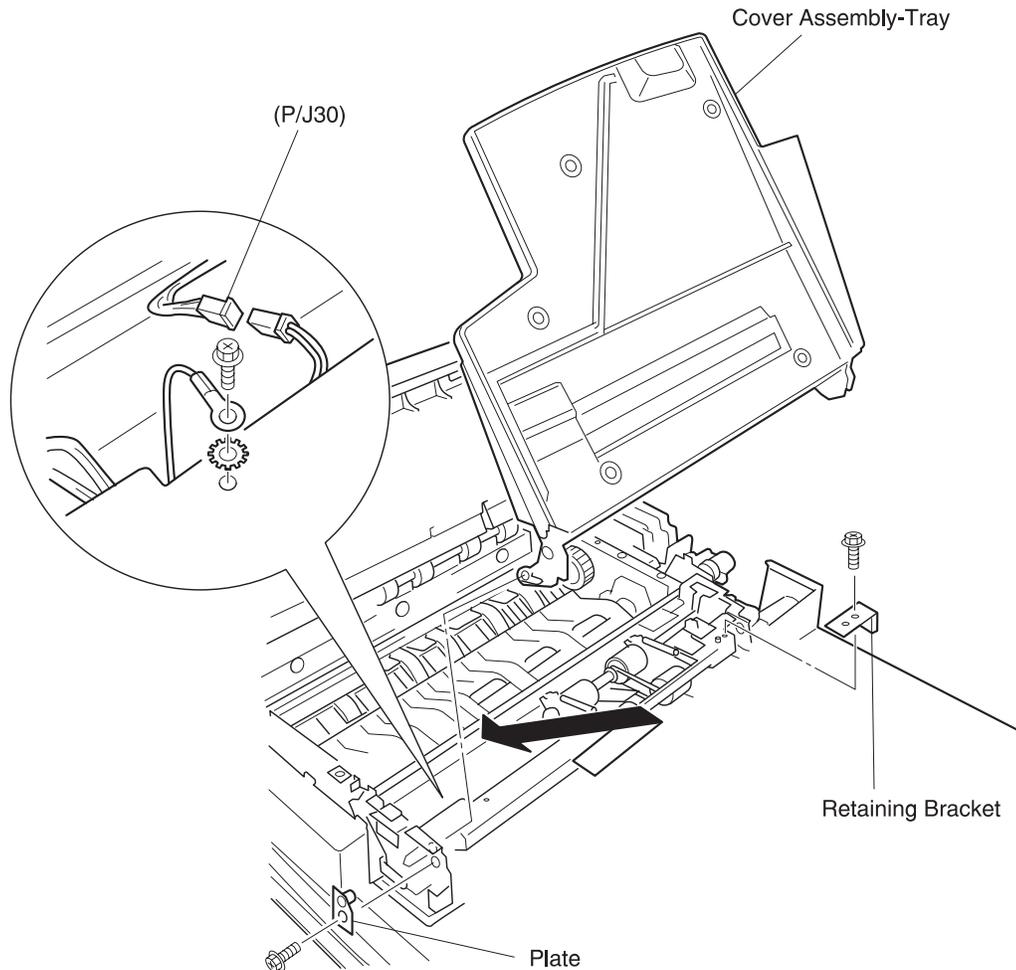Cover Assembly-Tray

(P/J30)

Retaining Bracket

Plate

DADF Jam Access Door Assembly Removal
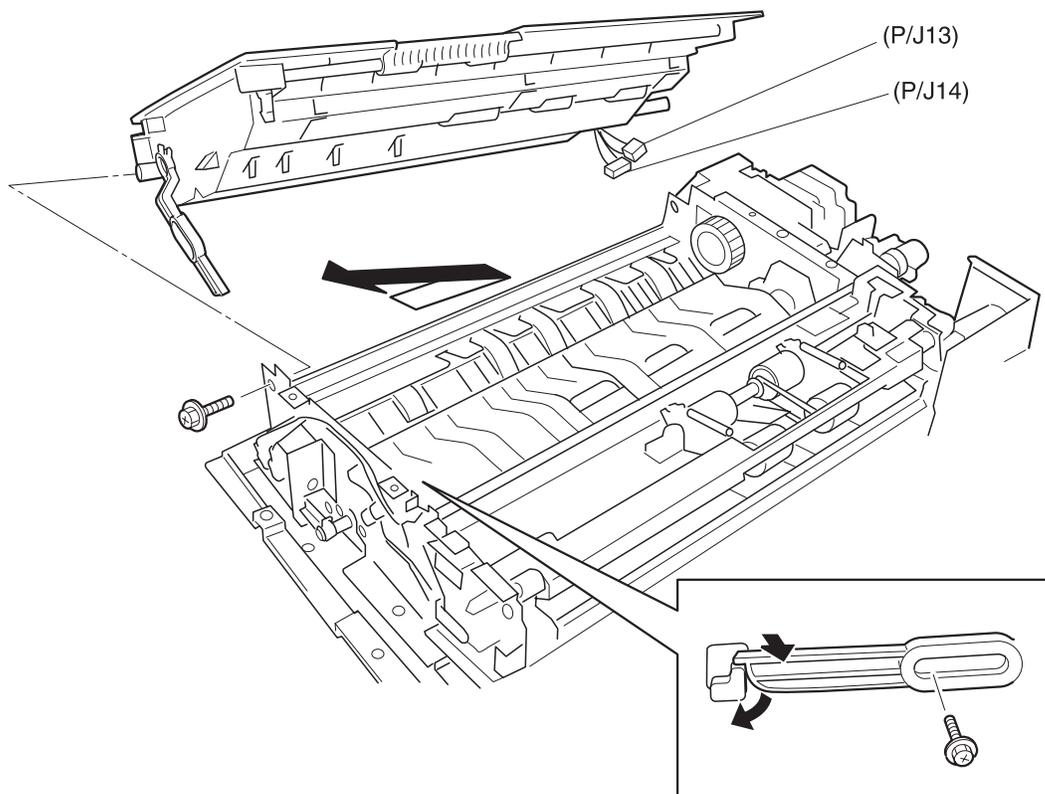
1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Disconnect (P/J13) and (P/J14).
4. Remove the screw from the jam access door lever.
5. Remove the screw from the jam access door assembly.
6. Push the door assembly toward the rear.
7. Raise the front side and pull out diagonally upward.

8. Remove six (6) screws in the lower cover of the door assembly as shown.

9. Remove the lower cover of the door assembly along with the jam access door lever.

Front
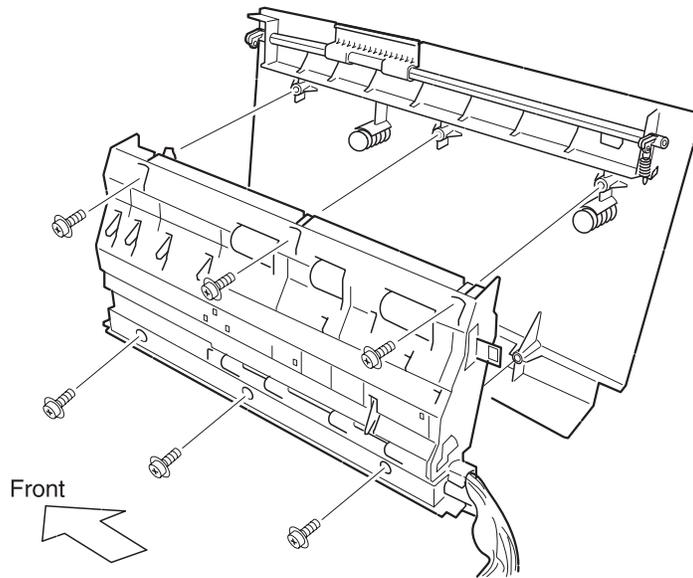
When replacing the jam access door lever, align the key with the keyway in the lower cover as shown.

Jam Access Door Lever

DADF Top Cover Removal

1. Open the jam access door assembly. See **"DADF Jam Access Door Assembly Removal" on page 4-16** for more information.

2. Remove four (4) screws in the DADF top cover.

3. Remove the top cover.
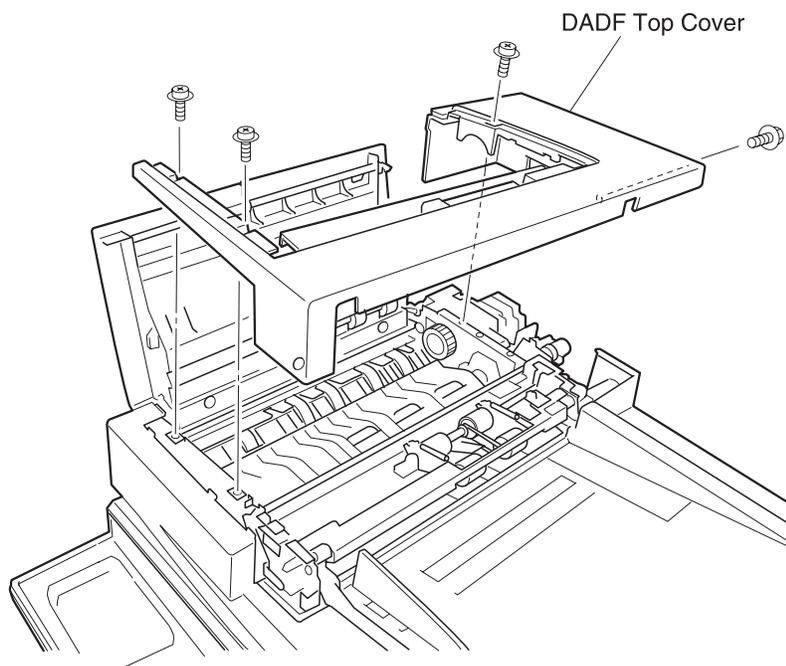
DADF Top Cover

DADF Rear Cover Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.

2. Open the input tray cover assembly. See **"DADF Input Tray Assembly Removal" on page 4-15** for more information.

3. Loosen the two (2) screws.

4. Remove the rear cover.

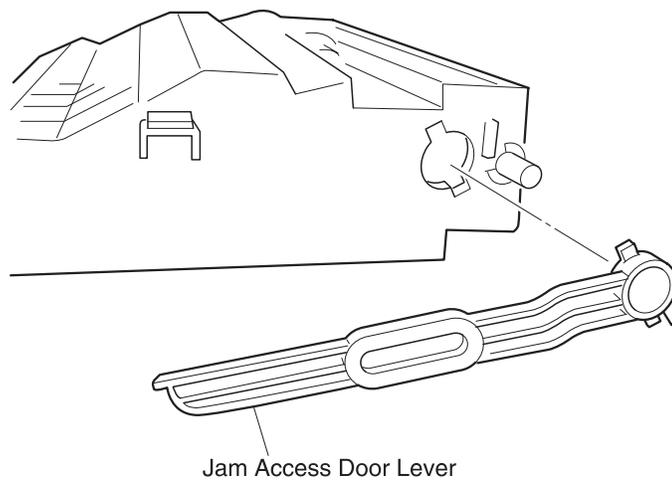Rear Cover

Rear
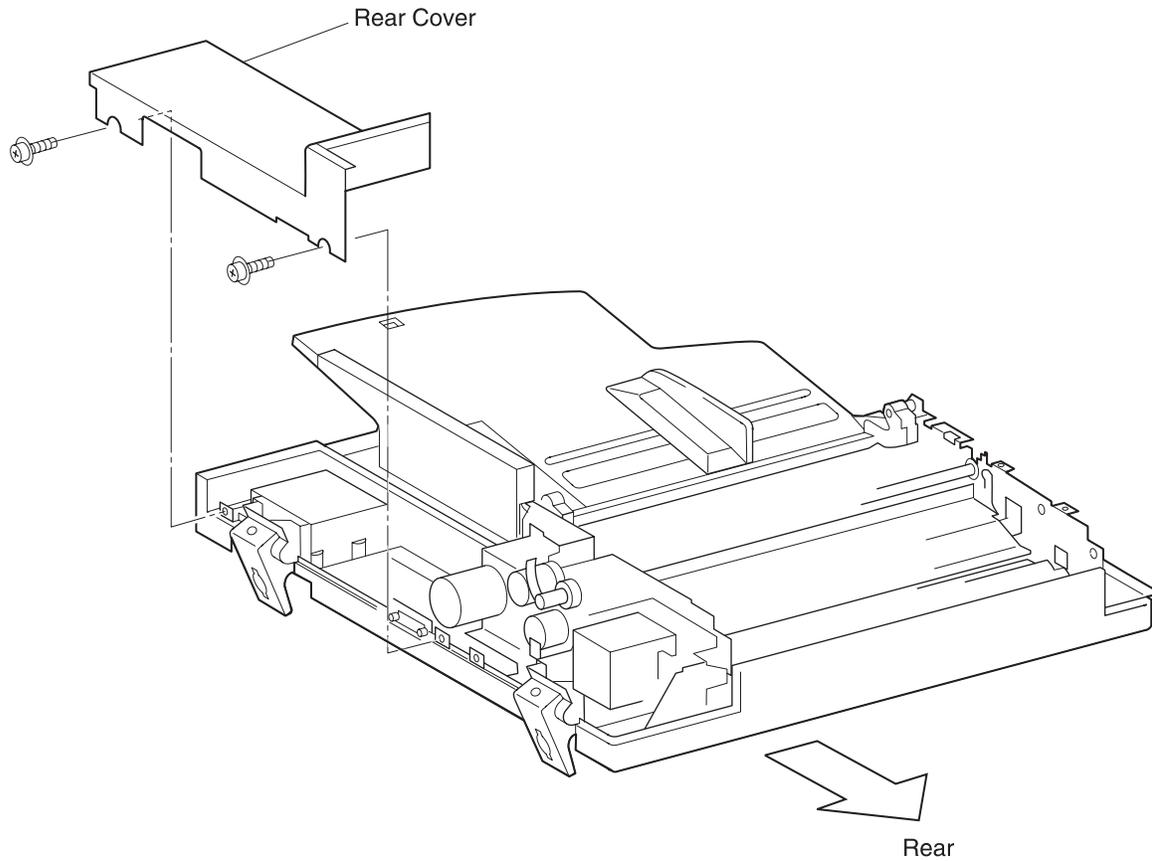
DADF Jam Door Open Switch Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Disconnect (P/J32).
4. Unclamp the harness.
5. Remove the screw from the switch bracket.
6. Remove the switch.

(P/J32)

Jam Door
Open Switch
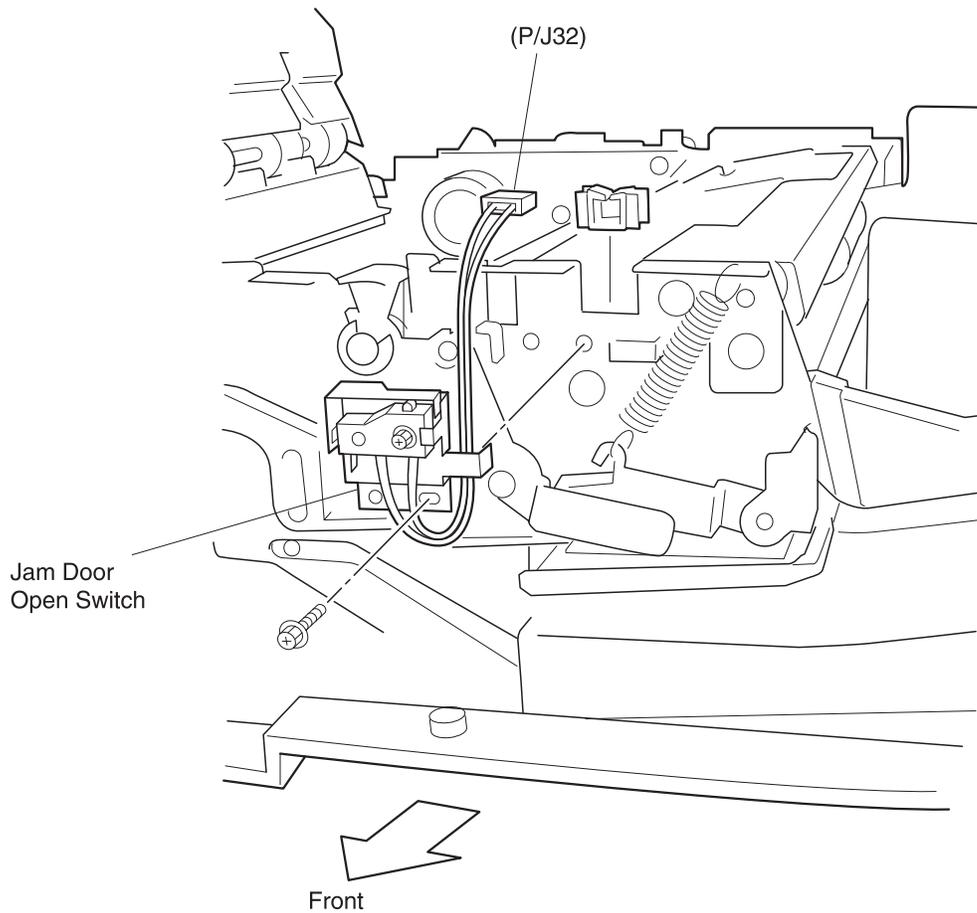
Front

Mylar Paper Guide Strip Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Remove the DADF rear cover. See **"DADF Rear Cover Removal" on page 4-19** for more information.
4. Remove the eight (8) screws in the top half of the DADF assembly.
5. Release the cables from the two (2) harnesses.
6. Disconnect all the cables from the DADF controller card.
7. Remove the top half of the DADF assembly from the DADF base.
8. Fold the input tray assembly up.
9. Tilt the top half of the DADF assembly up on end.
10. Remove the screw in the paper stop.
11. Remove the paper bracket.
12. With the spring attached, rotate the paper stop and set aside.
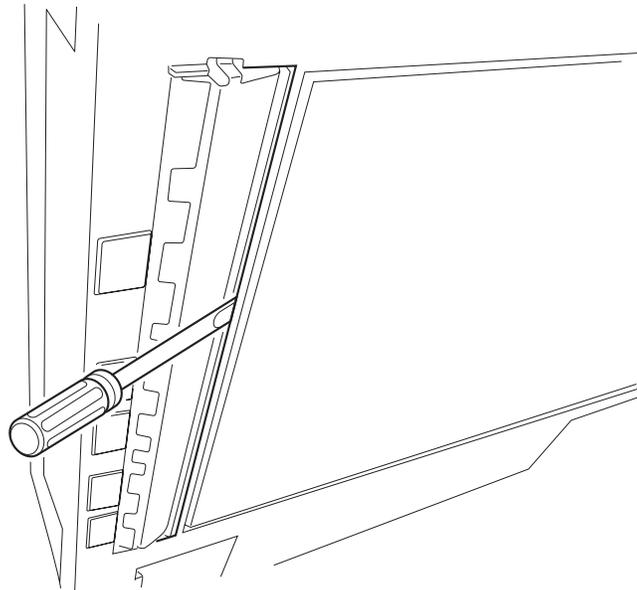13. Remove the mylar paper guide strip with a screwdriver.

DADF Left and Right Hinge Removals

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Remove the DADF rear cover. See **"DADF Rear Cover Removal" on page 4-19** for more information.
4. Remove the DADF main drive motor assembly. See **"DADF Main Drive Motor Assembly Removal" on page 4-28** for more information.
5. Remove the two (2) screws in the DADF left hinge.
6. Remove the DADF left hinge.

7. Place the DADF assembly upside down.

8. Remove four (4) screws in the DADF right hinge.

9. Remove the DADF right hinge.

DADF Controller Card Assembly Removal
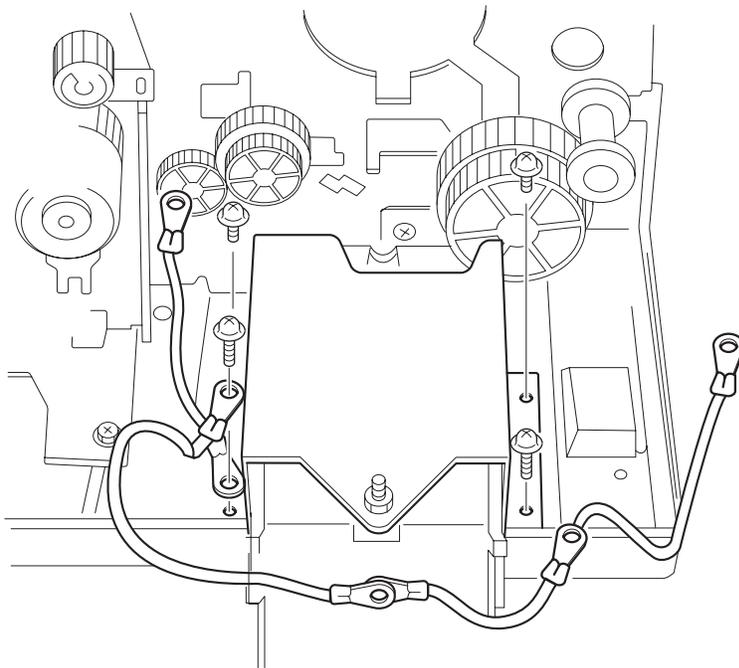
1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF rear cover. See **"DADF Rear Cover Removal" on page 4-19** for more information.
3. Unlatch the cables from harnesses.
4. Disconnect (P/J2) on the DADF control card.
5. Disconnect (P/J3).
6. Disconnect (P/J4).
7. Disconnect (P/J6).
8. Disconnect (P/J7).
9. Disconnect (P/J8).
10. Disconnect (P/J9).
11. Remove the four (4) screws from the DADF controller card.
12. To remove the controller card from the bracket, remove the two (2) screws on each side of the connector.
13. Remove the DADF controller card assembly.
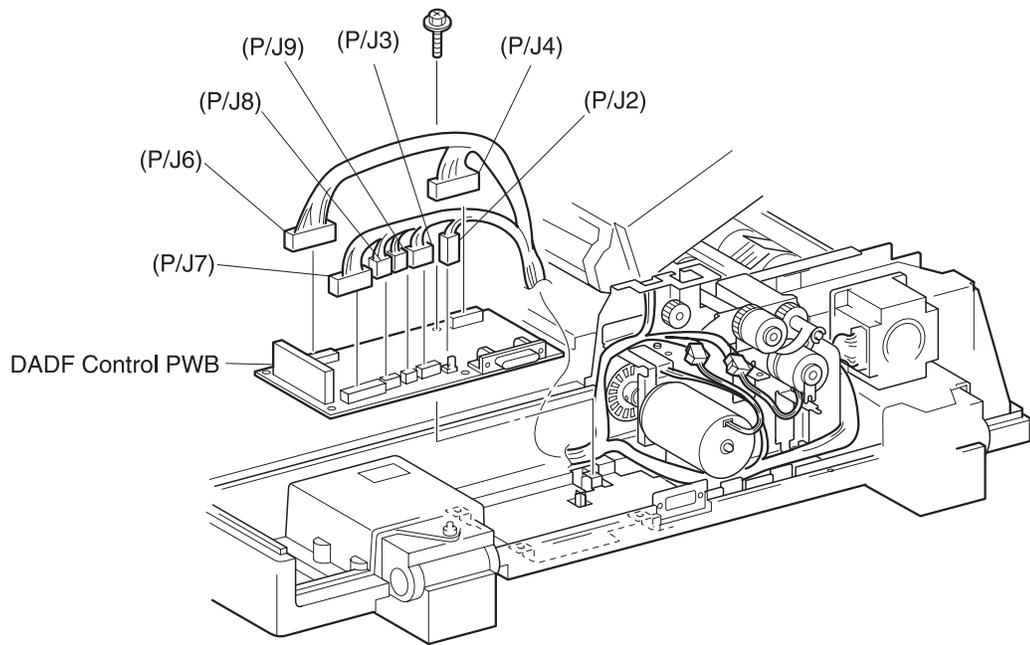
(P/J9) (P/J3) (P/J4)

(P/J8) (P/J2)
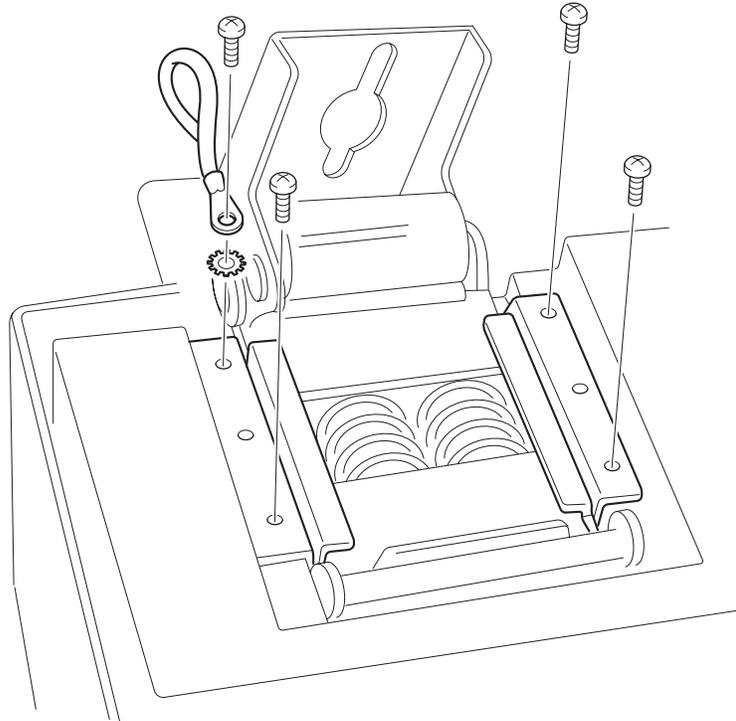
(P/J6)

(P/J7)

DADF Control PWB

DADF Registration Roll Drive Motor Assembly Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.

2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.

3. Remove the DADF rear cover. See **"DADF Rear Cover Removal" on page 4-19** for more information.

4. Remove the KL clip from the rear roller engagement shaft assembly.

5. Slide and remove the bearing from the registration roll drive motor assembly.

6. Raise the rear side of the roller engagement shaft assembly, and move it toward the left.

7. Disconnect the sensor connector (P/J25).

8. Disconnect the motor connector (P/J27).

9. Disconnect the clutch connector (P/J18).

10. Release all harnesses from the clamps on the DADF registration roll drive motor assembly.

11. Remove three (3) screws from the DADF assembly to the DADF registration roll drive motor assembly.

12. Remove the DADF registration roll drive motor assembly.

13. Remove the E-ring.

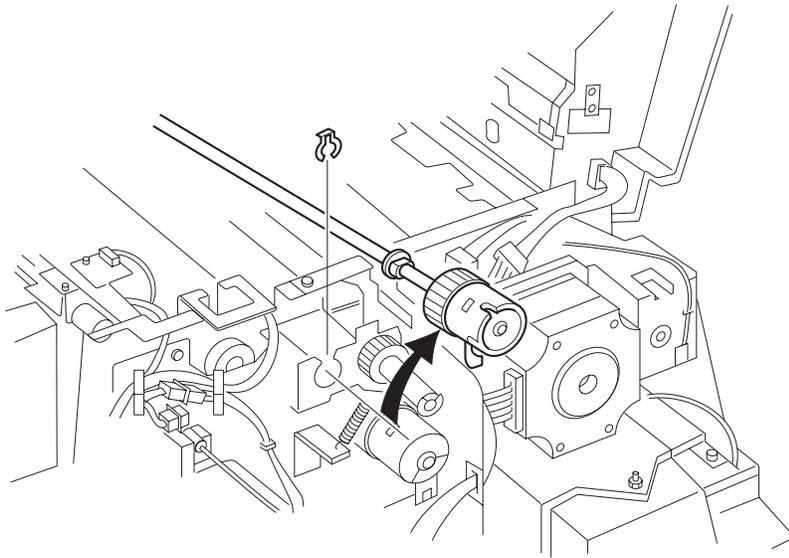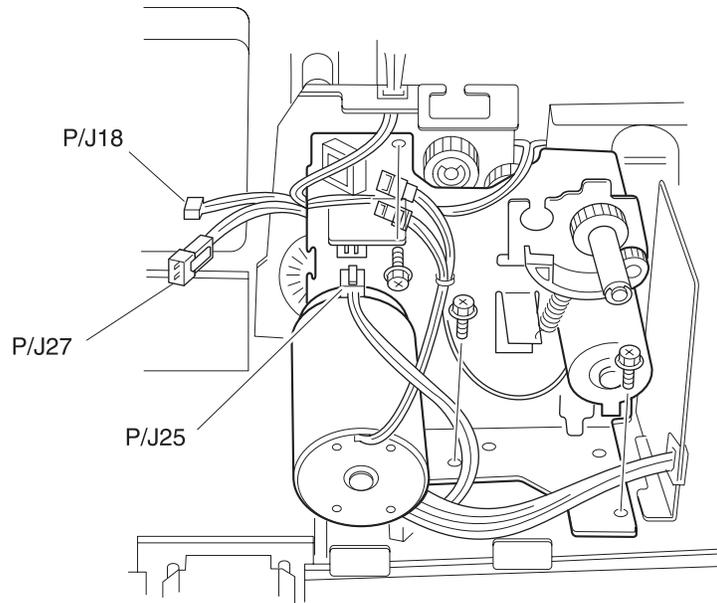**14.** Remove the (DADF #2) gear.

15. Remove the (DADF #1) gear.
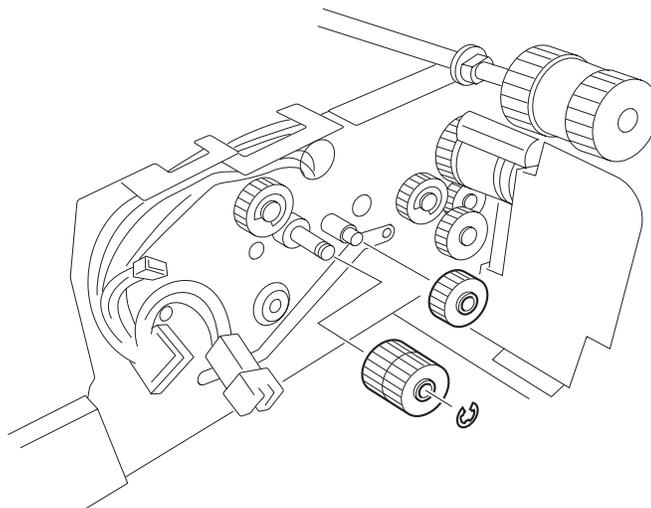
DADF Main Drive Motor Assembly Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF rear cover. See **"DADF Rear Cover Removal" on page 4-19** for more information.
3. Release all harnesses from 3 clamps from the DADF main drive motor assembly.
4. Loosen the screw that adjusts the tension roller.
5. Remove the tension spring, and shift the tension roller toward the slackened belt.
6. Disconnect the registration sensor.
7. Thread the cable through the drive motor bracket.
8. Disconnect (P/J20).
9. Disconnect (P/J19).
10. Disconnect (P/J28).
11. Remove the screw (left side) from the ground wire.
12. Remove the screw (right side) from the ground wire.
13. Remove five (5) screws from the DADF assembly.
14. Remove the assembly.

(P/J19)

Tension Spring

(P/J28)   (P/J20)

Rear
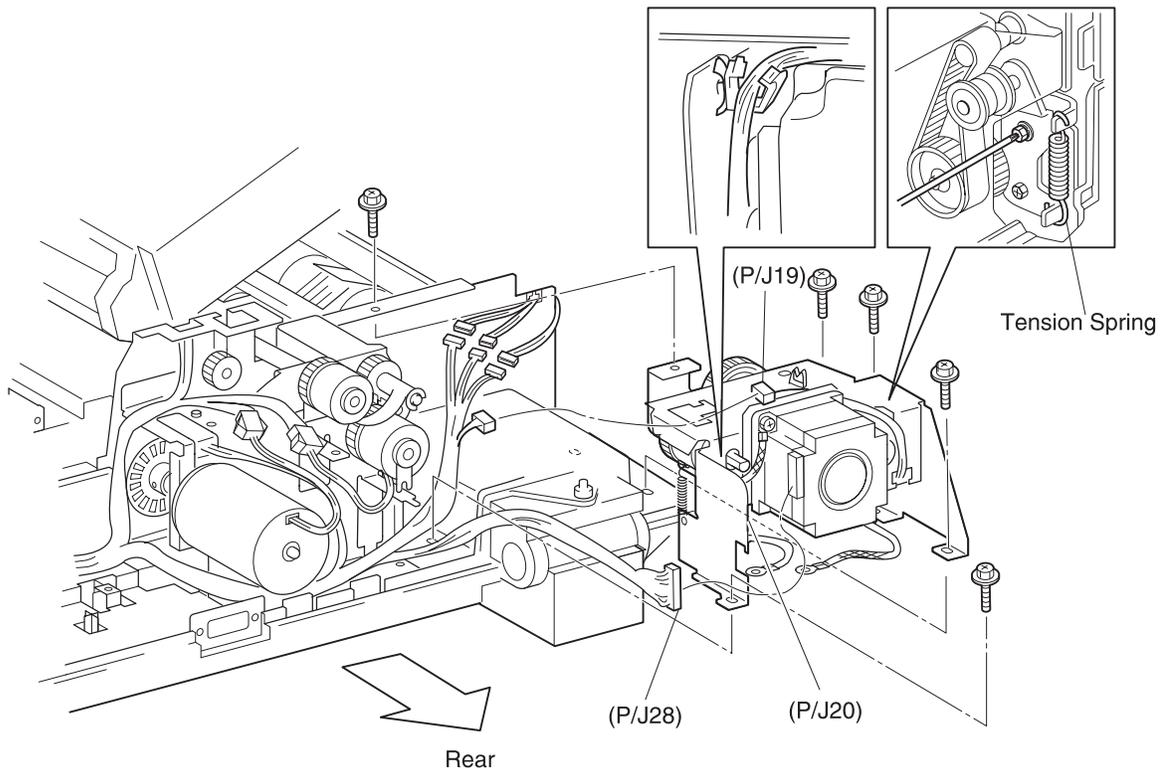
When replacing the assembly:

1. Leave the drive motor belt off the gear until the bearing mates with the hole in the frame.
2. Make sure the tension roller contacts the outside of the DADF main drive motor belt.
3. Mesh the teeth of the belt with the gear, and rotate the knob of the DADF main drive motor assembly to engage the belt with the gear.

DADF Separator Pad Assembly Removal

1. Open the input tray assembly.
2. Remove the two (2) screws from the separator pad assembly.
3. Pull out the assembly.
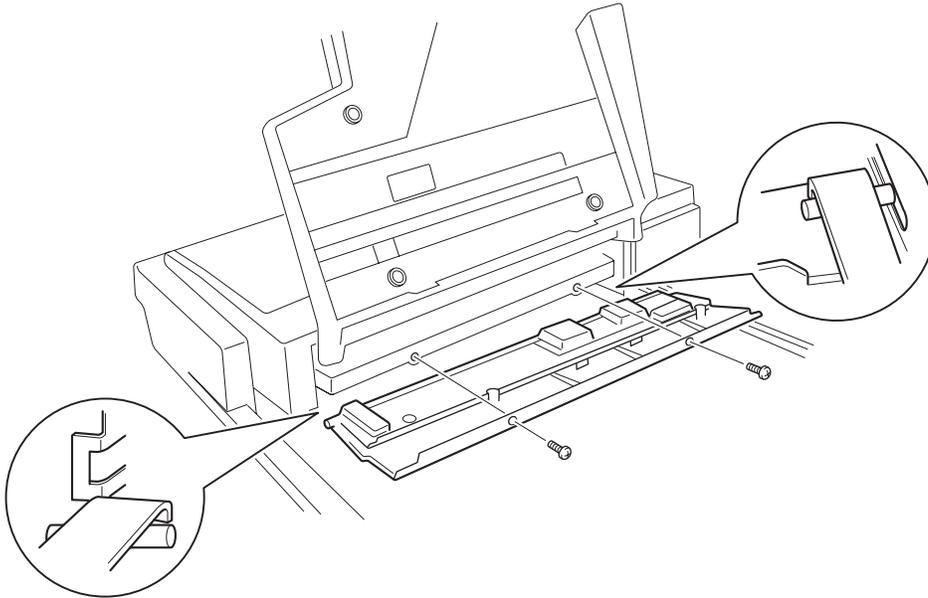
DADF Separator Pad Removal

1. Open the input tray cover. See **"DADF Input Tray Assembly Removal" on page 4-15** for more information.

2. Remove the two (2) screws from the assembly.

3. Slide the assembly to the right and out of the DADF assembly.
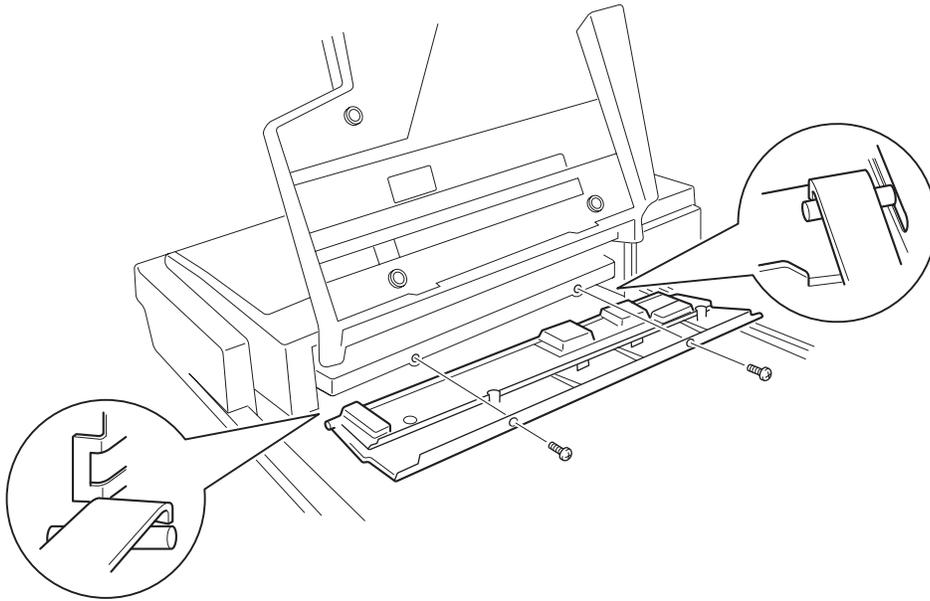
4. Remove the screw and slide the separator pad assembly toward the front, and raise to remove it.
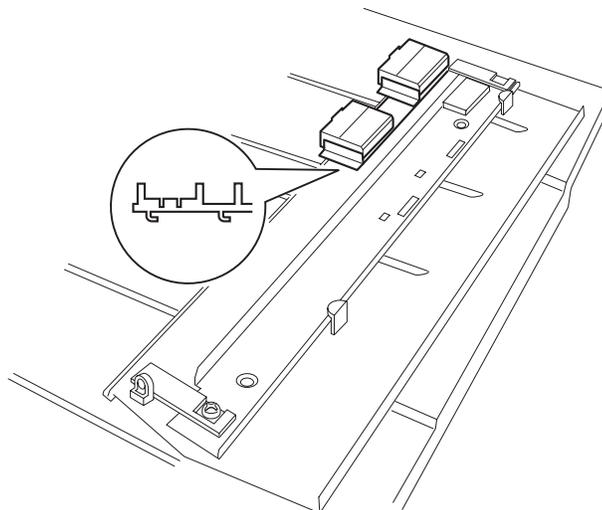
DADF #1 and #2 Linkage Removals

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Remove an E-ring from the DADF #1 linkage.
4. Pull out the linkage.
5. Remove an E-ring from the DADF #2 linkage.
6. Pull out the linkage.
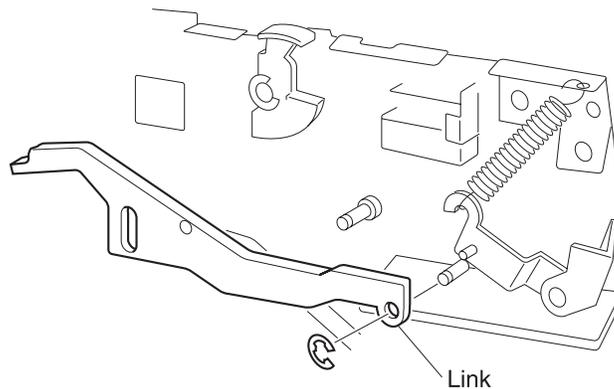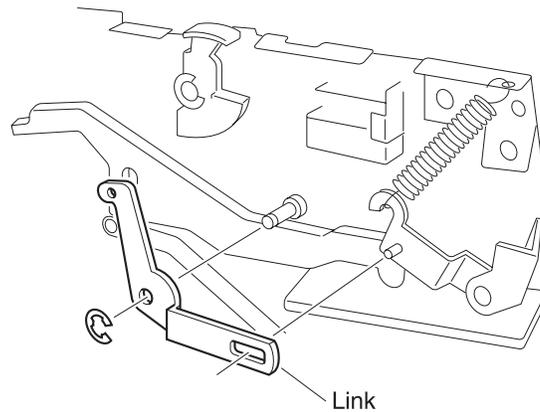
Link

Link

Linkage Cover Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Remove the screw from the frame.
4. Remove the cover.

Cover

Paper Stop Spring and Paper Stop Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Remove the two (2) screws to drop down the DADF individual separator pad. See **"DADF Separator Pad Removal" on page 4-31** for more information.
4. Remove the linkage cover. See **"Linkage Cover Removal" on page 4-33** for more information.
5. Unhook the paper stop spring at both lower ends.
6. Remove the spring.
7. Fold the DADF input tray assembly up.
8. Remove the E-ring from the rear shaft of the paper stopper.

Spring

9. Slide the paper stop toward the rear until the front shaft of the stop is released from the bearing.
10. Pull the paper stop out diagonally.
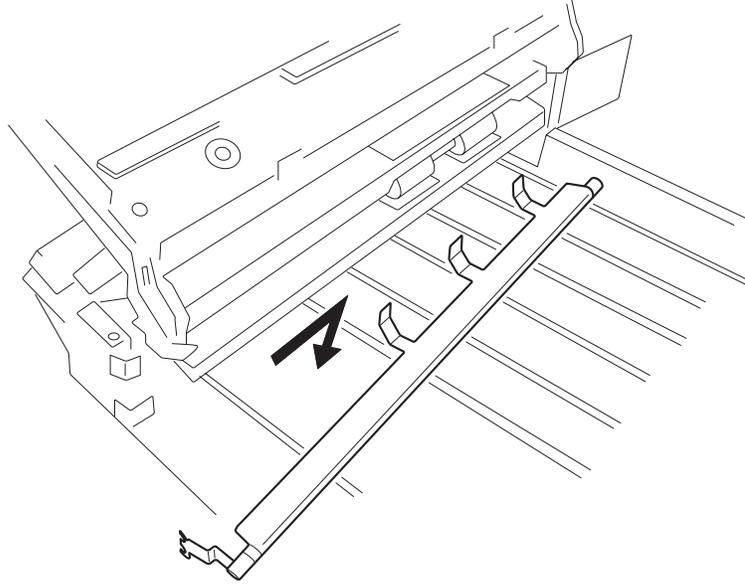
DADF Roller Engagement Shaft Assembly Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.

2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.

3. Unhook the tension spring from the roller engagement shaft assembly.
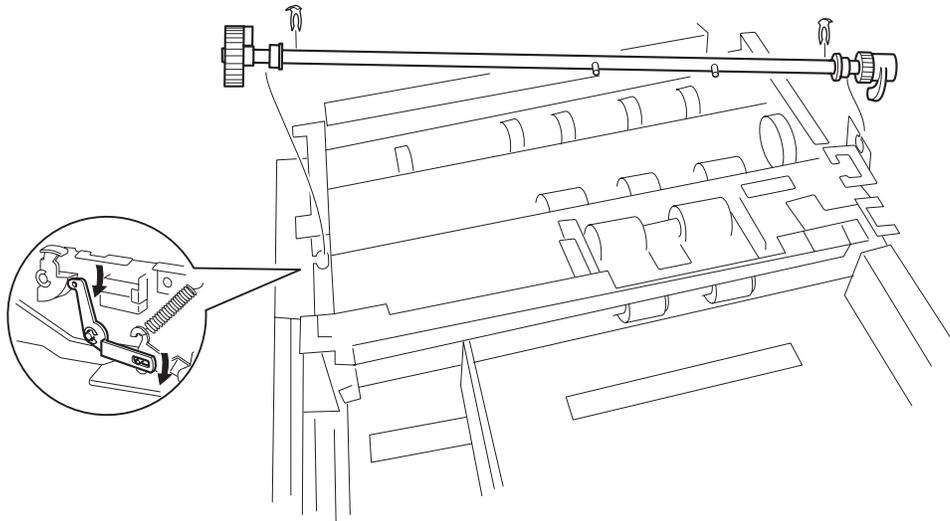
4. Remove the KL clip from the front side of the shaft assembly to the bearing.

5. Remove the KL clip from the rear side of the shaft assembly to the bearing.

6. Slide the bearings on both sides of the shaft assembly toward the inside to release.

7. Remove the shaft assembly.

When replacing the shaft assembly, ensure it is oriented correctly.
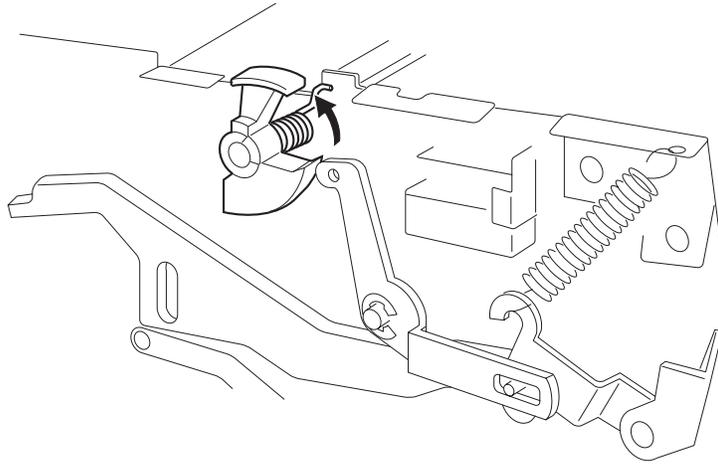
DADF Paper Present Sensor Removal
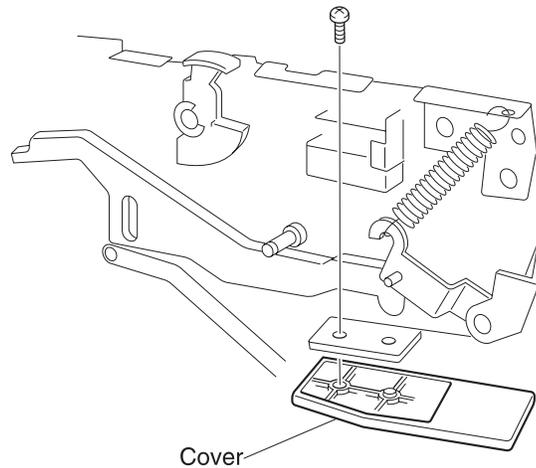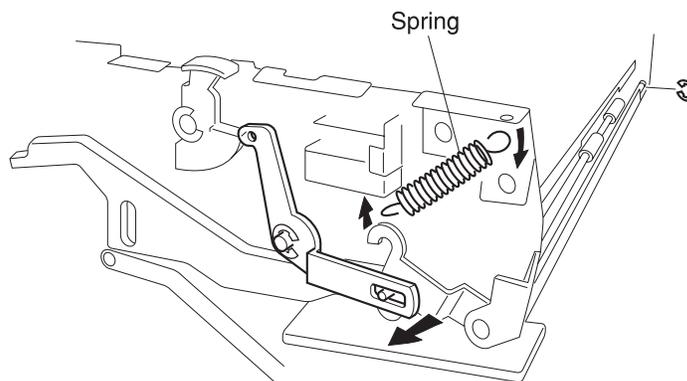
1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the screw from the DADF paper present sensor card and mylar cover.
3. Disconnect the paper present sensor connector (P/J15).
4. Remove the sensor.
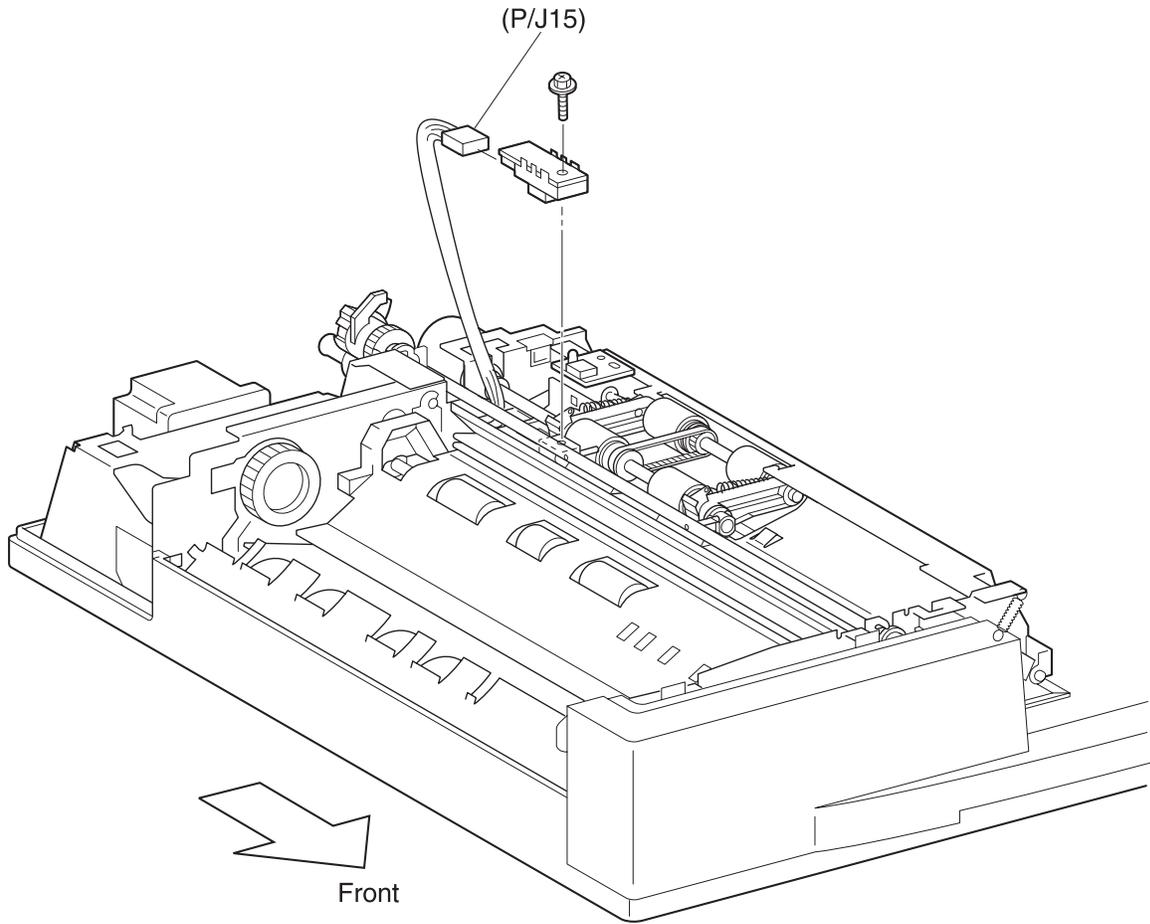
(P/J15)

Front

DADF Paper Present Indicator Card Assembly Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Disconnect the connector (P/J29) from the DADF paper present indicator card.
3. Remove the screw.
4. Remove the indicator card.

(P/J29)

Front

Paper Present Sensor Flag Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.

2. Remove the DADF paper present indicator card assembly. See **"DADF Paper Present Indicator Card Assembly Removal" on page 4-39** for more information.

3. Remove the KL clip from the paper present sensor flag.

4. Raise the input tray assembly to 90° angle.

5. Slide the sensor toward the rear to remove.

Front
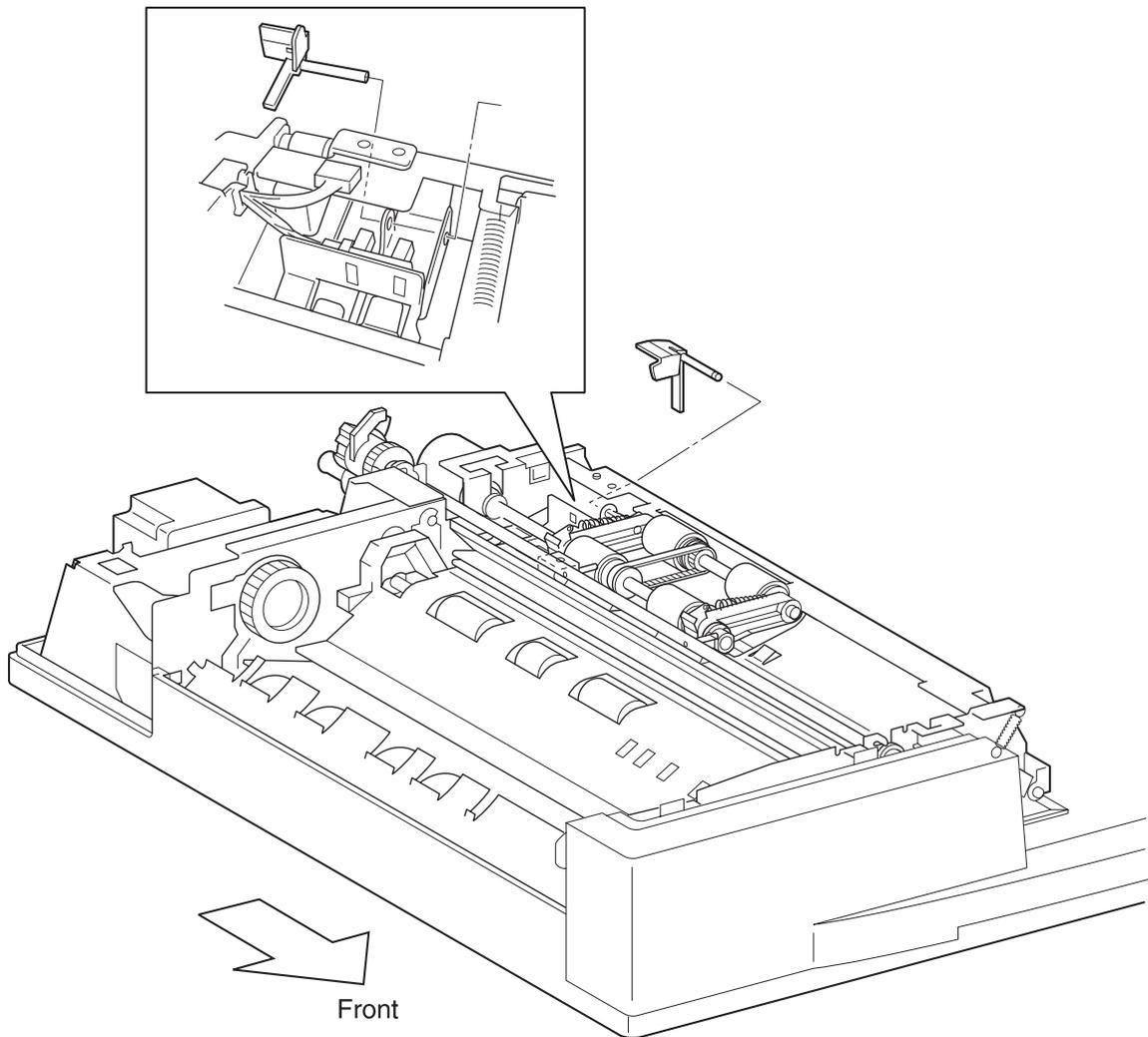
DADF Pick Roller with Separator Pad Kit Assembly Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.

Note: Ensure the roller engagement shaft assembly pins are in the up position.

2. Remove two (2) KL clips from the shaft of the pick roller.
3. Release the two (2) springs.
4. Slide the rear bearing toward the inside.
5. Slightly lift the DADF pick roller assembly.
6. Slide the front bearing toward the inside until it releases from the frame.
7. Pull out the shaft toward the rear.
8. Lift the roller assembly from the left side and remove.
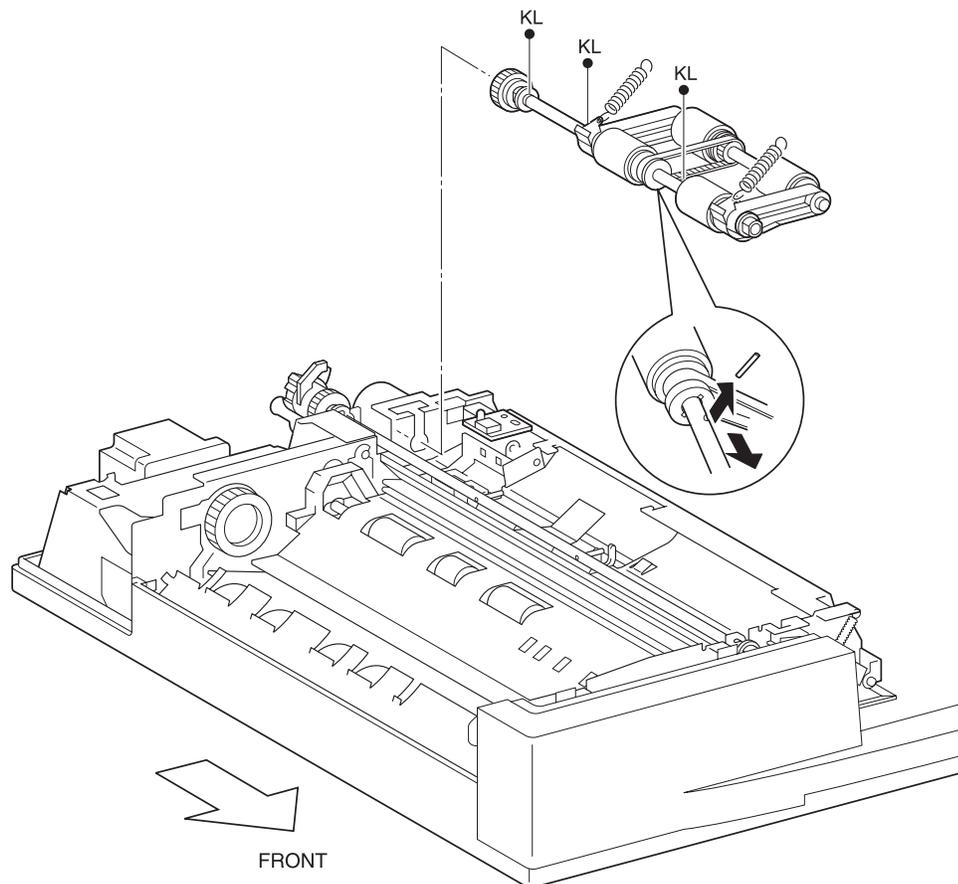
Registration Sensor Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF front cover. See **"DADF Front Cover, Handle, and Magnet Removal" on page 4-11** for more information.
3. Remove the DADF jam access door assembly. See **"DADF Jam Access Door Assembly Removal" on page 4-16** for more information.
4. Disconnect the connector (P/J24) in the DADF registration sensor.
5. Release the harness from the three (3) clamps.
6. Remove the screw from the bracket.
7. Remove the bracket together with the DADF registration sensor.
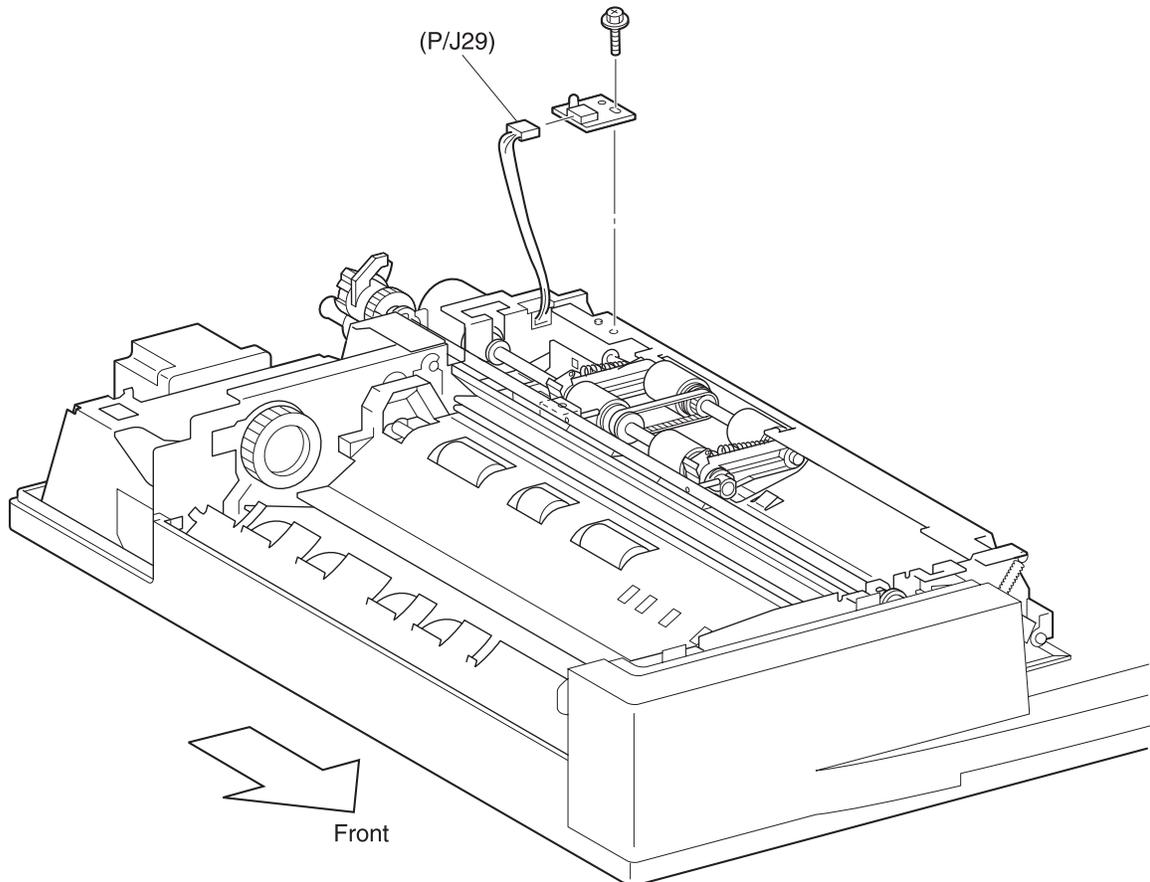

Registration Sensor

(P/J24)

Front
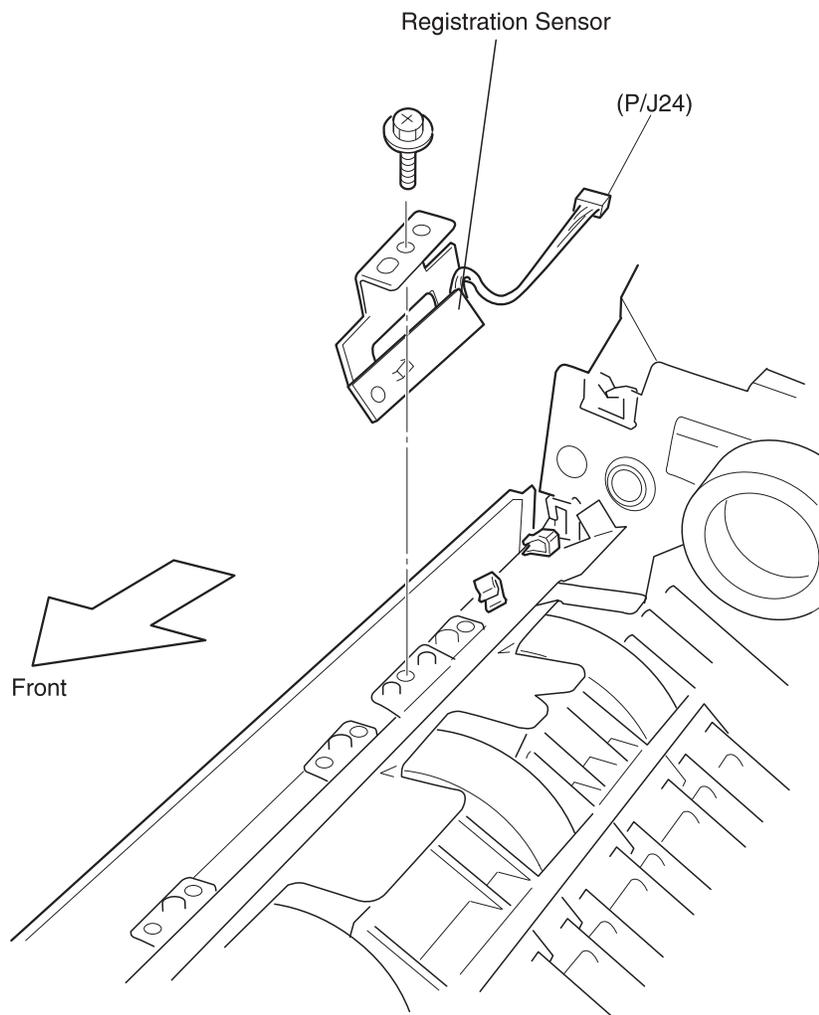
DADF Gear #3 Bearing Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF rear cover. See **"DADF Rear Cover Removal" on page 4-19** for more information.
3. Remove the DADF main drive motor assembly. See **"DADF Main Drive Motor Assembly Removal" on page 4-28** for more information.
4. Remove the DADF left hinge. See **"DADF Left and Right Hinge Removals" on page 4-22** for more information.
5. Press the large roll from the upper side,
6. Remove the screw and a toothed washer from the DADF #3 gear.
7. Pull the gear off the shaft.
8. Pull the bearing off the shaft.
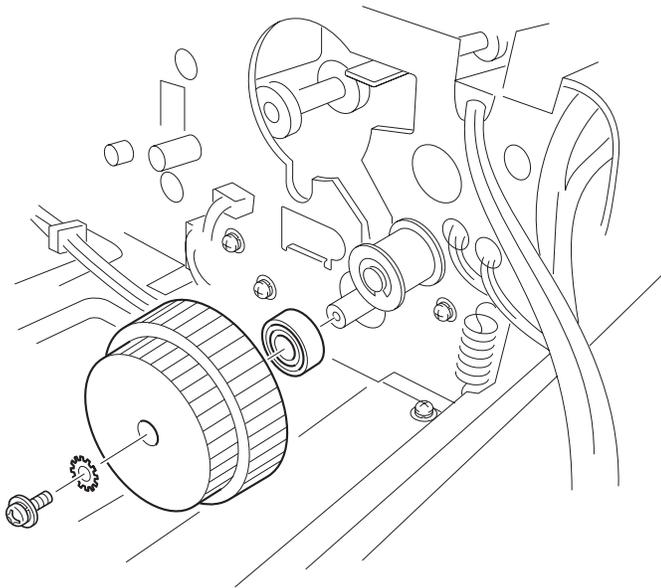
Tension Roller Spring and Tension Roller Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Remove the DADF rear cover. See **"DADF Rear Cover Removal" on page 4-19** for more information.
3. Unhook the tension roller spring.
4. Remove the spring.
5. Remove the two (2) screws from the tension roller.
6. Remove the roller.
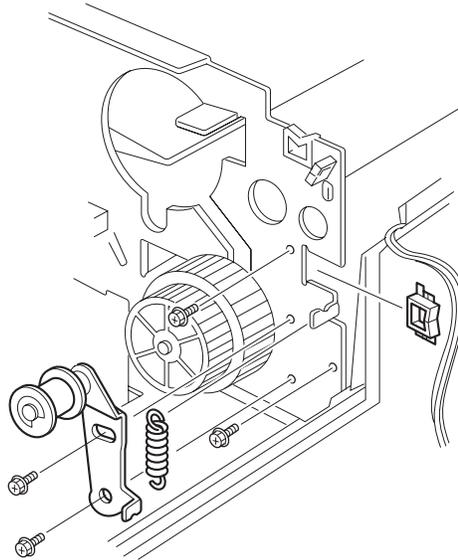
DADF Upper Paper Guide Removal

1. Open the DADF jam access door assembly. See **"DADF Jam Access Door Assembly Removal" on page 4-16** for more information.
2. Open the DADF upper paper guide to a 90° angle.
3. Pull the front hook of the paper guide out of the stud.
4. Slide the rear hook of the paper guide, and pull it out of the stud.
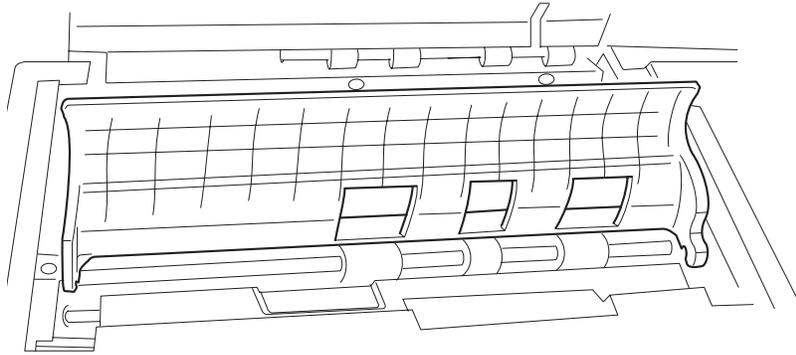
DADF #4 Gear Removal

1. Remove the DADF top cover. See **"DADF Top Cover Removal" on page 4-18** for more information.
2. Open the DADF upper paper guide. See **"DADF Upper Paper Guide Removal" on page 4-45** for more information.
3. Remove the screw from the plate to the DADF assembly.
4. Remove the plate.
5. Remove the KL clip from the roller in the upper front side of the DADF assembly.
6. Slide the upper roller toward the front.
7. Remove the roller along with the bearing.

   Note: Pass through an opening on the rear side of the DADF assembly between the bearing and the gear.
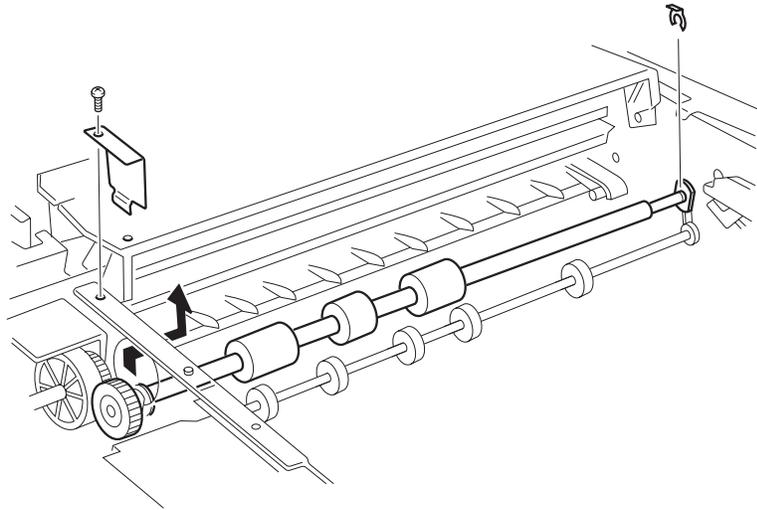
8. Remove the KL clip from the roller.
9. Slide the lower roller toward the front.
10. Remove the roller along with the bearing.

    Note: Pass through an opening on the rear side of the DADF assembly between the bearing and the gear.

11. Remove the main drive motor assembly.
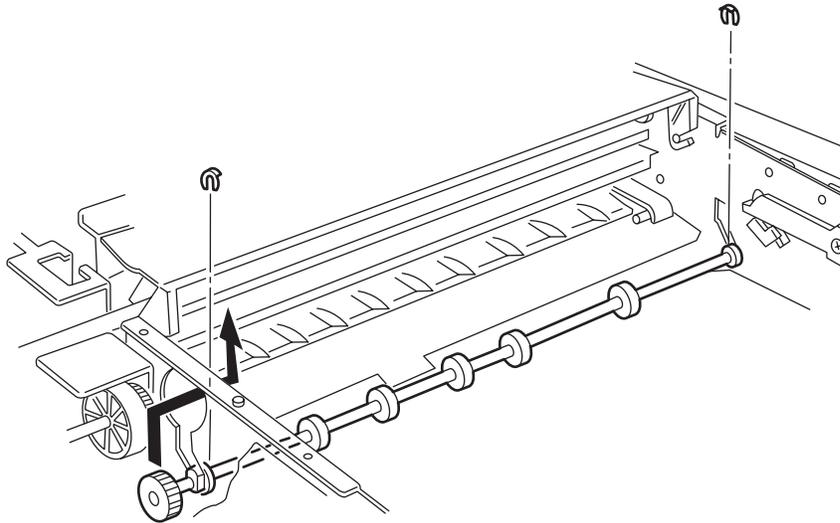
12. Remove the E-ring.
13. Pull out the gear.
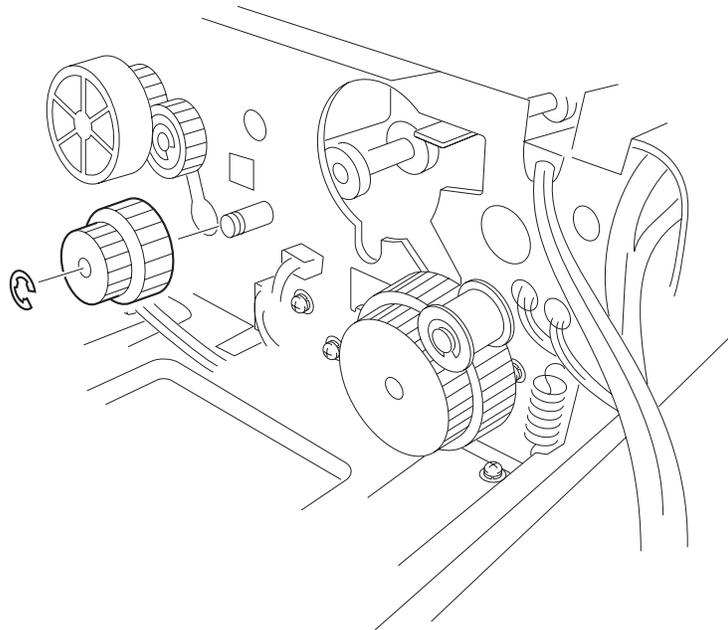
Scanner Repair Procedures

This section contains the removal and replacement procedures for major parts within the printer Scanner.

Warning: The scanner contains a number of screws painted red. Do not loosen or remove.

User Interface Panel Removal

CAUTION: Ensure the scanner power is off before the user interface panel is removed. The back light of the touch screen is powered with high voltage and could harm a servicer, if touched.

Warning: Ensure that all external devices are powered off and unplugged from wall outlets.

1. Remove the five (5) screws from the user interface panel.
2. Raise the user interface from the front side.
3. Disconnect P/J25 from the user interface card.

UI

Bottom Extension Cover

(P/J25)
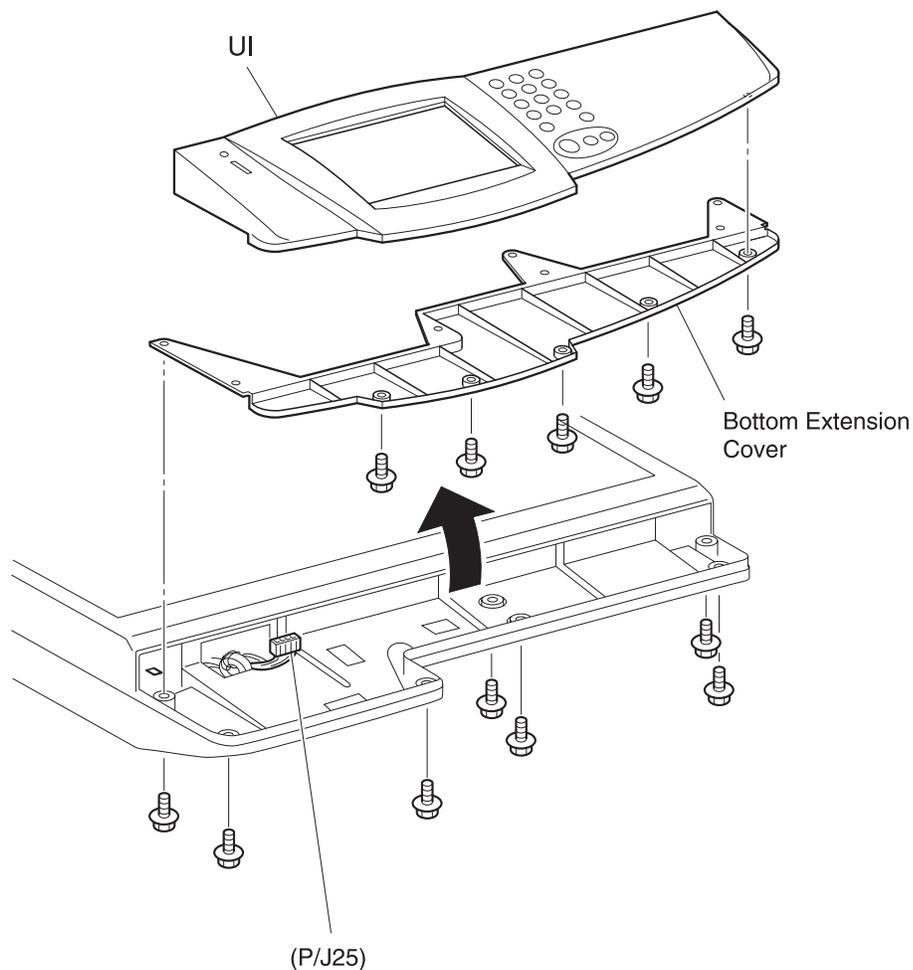
Note: When replacing the user interface panel, ensure the DIP switches on the bottom of the user interface panel are set correctly. Position 1 and 2 should be **On**, while the other positions are set to **Off**.

4036-501

Flatbed Scanner Top Cover Assembly Removal

1. Remove the DADF assembly. See **"DADF Assembly Removal" on page 4-9** for more information.
2. Remove the user interface panel. See **"User Interface Panel Removal" on page 4-49** for more information.
3. Remove the six (6) screws.
4. Release the latches on the sides.
5. Remove the cover assembly by shifting it to the front while raising the rear.

Note: Disengage the notch on the front side.

Warning: Take care not to damage the flatbed open sensor assembly.

Cover Asembly
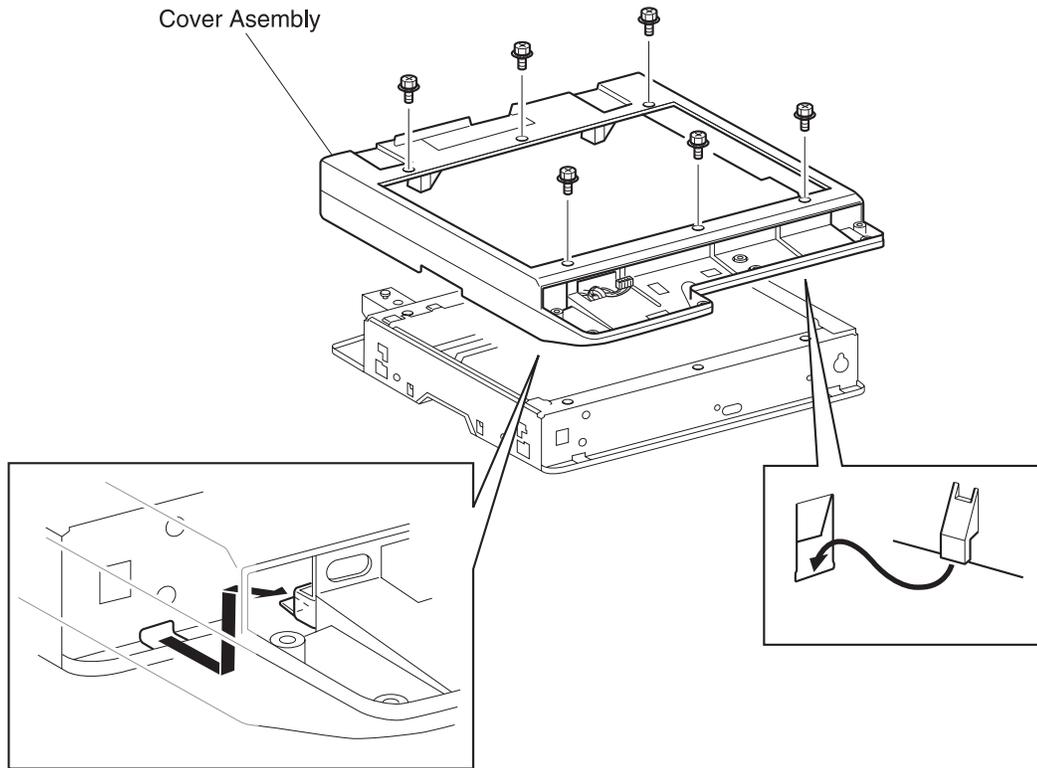
Flatbed Center Platen Glass Plate Removal

1. Remove the two (2) screws.
2. Remove the right side plate.
3. Remove the flatbed center platen glass plate.

Flatbed Center
Platen Glass Plate

Right Side Plate

4036-501
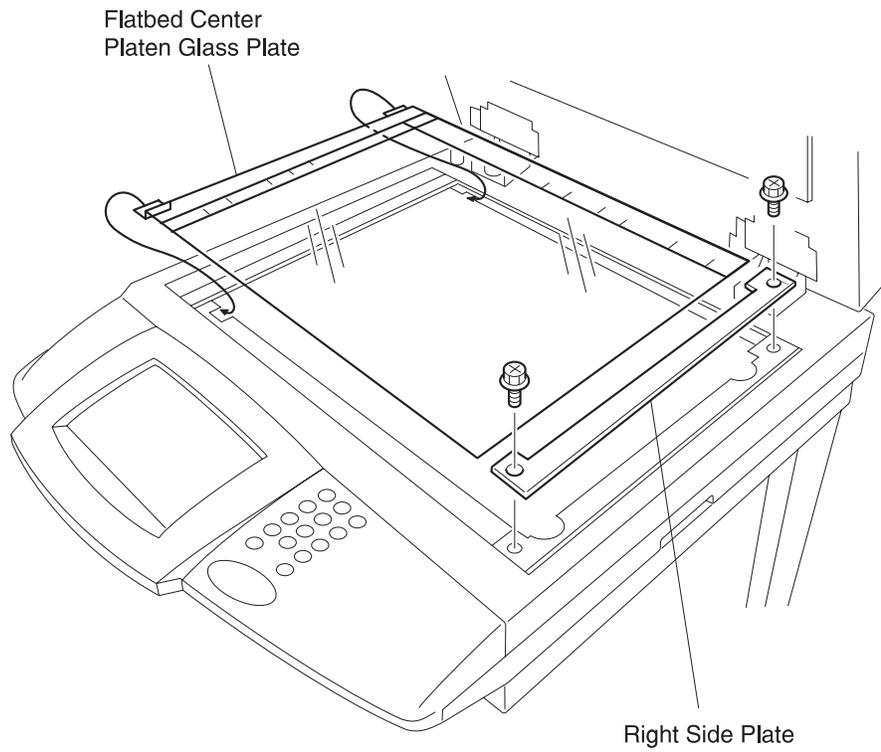
When replacing the flatbed center platen glass plate:

- Push the flatbed center platen glass plate in the arrow A direction.
- Push the right plate in the arrow B direction.
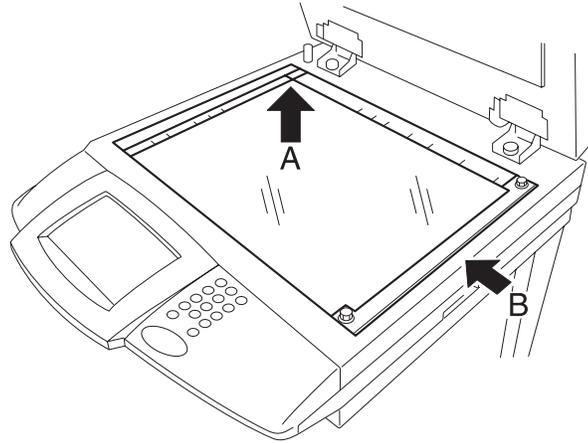
Left DADF Platen Glass Plate Removal

1. Remove the DADF assembly. See **"DADF Assembly Removal" on page 4-9** for more information.
2. Remove the user interface panel. See **"User Interface Panel Removal" on page 4-49** for more information.
3. Remove the flatbed scanner top cover assembly. See **"Flatbed Scanner Top Cover Assembly Removal" on page 4-50** for more information.
4. Remove two (2) screws.
5. Remove the two (2) brackets.
6. Remove the left DADF platen glass plate.
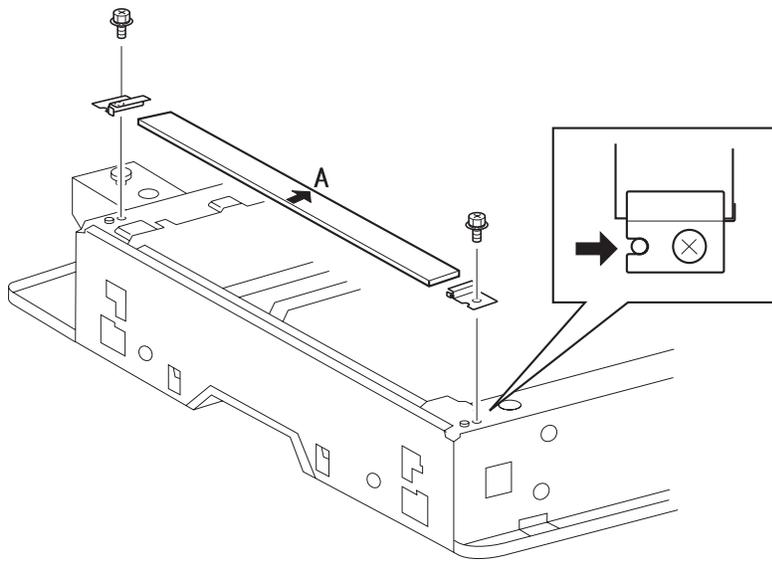
When reinstalling the DADF platen glass place, ensure the white stripe on the glass is positioned toward the rear of the scanner.

4036-501

Scanner Main Drive Motor Assembly Removal

1. Remove the DADF assembly. See **"DADF Assembly Removal" on page 4-9** for more information.
2. Remove the user interface panel. See **"User Interface Panel Removal" on page 4-49** for more information.
3. Remove the flatbed scanner top cover assembly. See **"Flatbed Scanner Top Cover Assembly Removal" on page 4-50** for more information.
4. Release the harness, and disconnect P/J749.
5. Unhook the motor spring from the base of the frame.
6. Mark the position of the screws that secure the scanner motor assembly.
7. Loosen the four (4) screws.
8. Slide the scanner main drive motor to the left to remove.

(P/J749)

In replacing the scanner motor assembly, secure it with the screws aligned with the marked positions.

Scanner Motor Card Assembly Removal

1. Remove the DADF assembly. See **"DADF Assembly Removal" on page 4-9** for more information.
2. Remove the user interface panel. See **"User Interface Panel Removal" on page 4-49** for more information.
3. Remove the flatbed scanner top cover assembly. See **"Flatbed Scanner Top Cover Assembly Removal" on page 4-50** for more information.
4. Release the harness from the clamp on the scanner motor card.
5. Disconnect P/J749 and P/J748.
6. Remove the screw in the scanner motor card.
7. Remove the card assembly by shifting it to the rear.

(P/J748)

(P/J749)
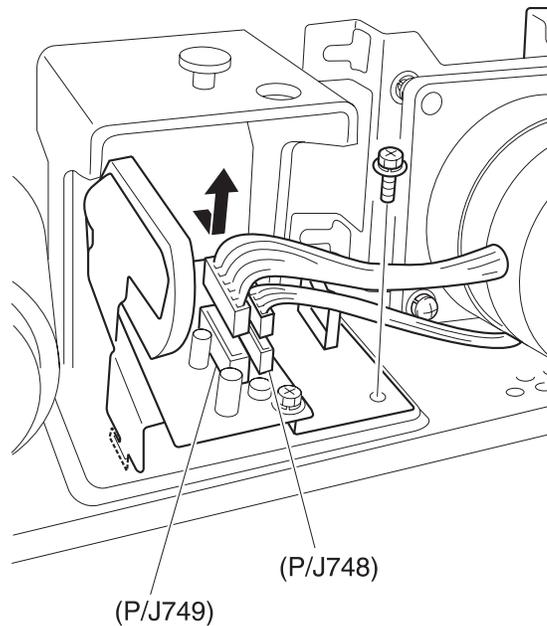
Flatbed Open Sensor Removal

1. Remove the DADF assembly. See **"DADF Assembly Removal" on page 4-9** for more information.
2. Remove the user interface panel. See **"User Interface Panel Removal" on page 4-49** for more information.
3. Remove the flatbed scanner top cover assembly. See **"Flatbed Scanner Top Cover Assembly Removal" on page 4-50** for more information.
4. Disconnect P/J746.
5. Remove the screw.
6. Remove the flatbed open sensor by shifting upward.

(P/J746)
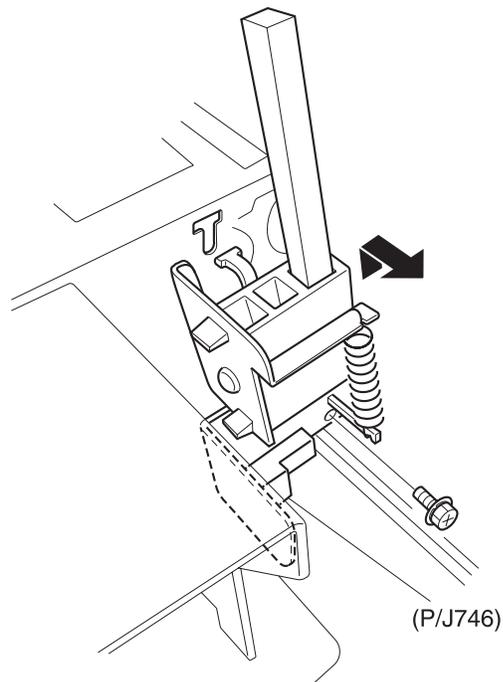
Registration Sensor Assembly Removal

1. Remove the DADF assembly. See **"DADF Assembly Removal" on page 4-9** for more information.
2. Remove the user interface panel. See **"User Interface Panel Removal" on page 4-49** for more information.
3. Remove the flatbed scanner top cover assembly. See **"Flatbed Scanner Top Cover Assembly Removal" on page 4-50** for more information.
4. Shift the full rate carriage away from the registration sensor by rotating the timing pulley.

Timing Pulley
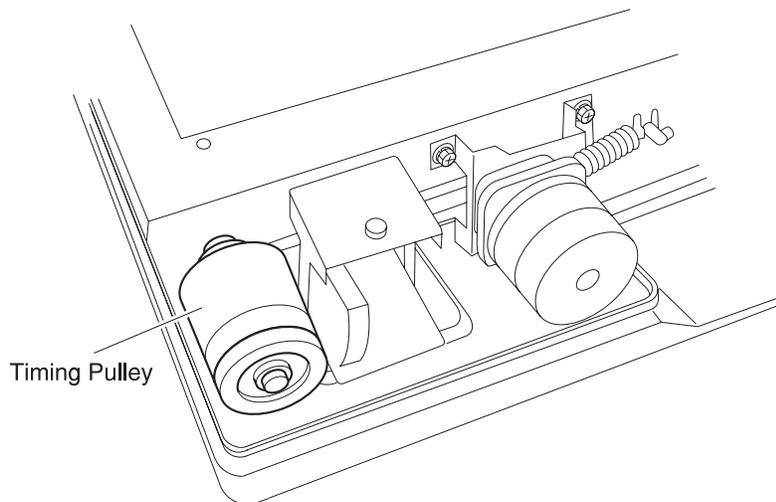
5. Disconnect P/J745.
6. Remove the screw from the bracket.
7. Remove the registration sensor assembly.
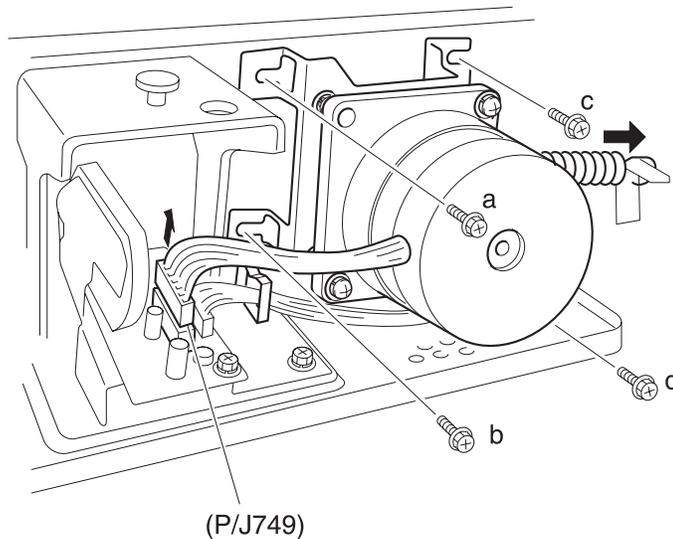
(P/J745)
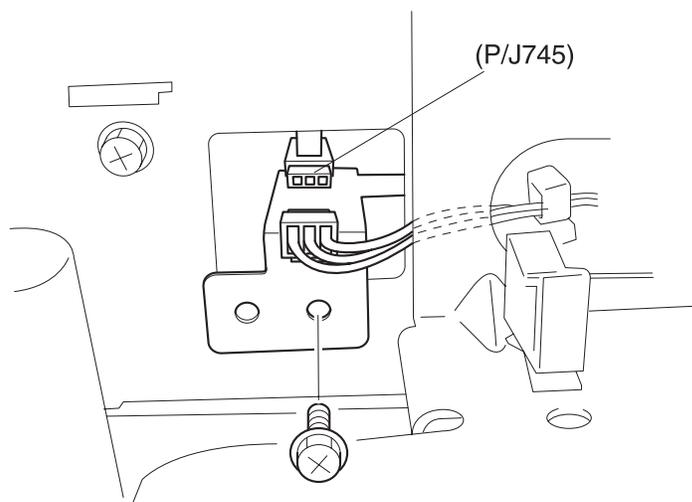
Plate Switch Assembly Removal

1. Remove the DADF assembly. See **"DADF Assembly Removal" on page 4-9** for more information.
2. Remove the user interface panel. See **"User Interface Panel Removal" on page 4-49** for more information.
3. Remove the flatbed scanner top cover assembly. See **"Flatbed Scanner Top Cover Assembly Removal" on page 4-50** for more information.
4. Unclamp the harness in the plate switch assembly.
5. Disconnect the P/J747.
6. Remove the screw.
7. Remove the plate switch assembly.

(P/J747)
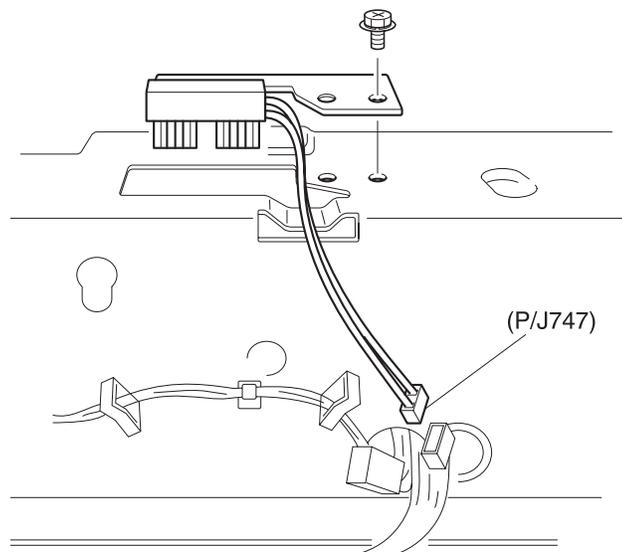
Scanner System Card Assembly Removal

1. Remove the flatbed center platen glass plate. See **"Flatbed Center Platen Glass Plate Removal" on page 4-52** for more information.

Warning: The scanner contains a number of screws painted red. Do not loosen or remove.

2. Disconnect the P/J730 and P/J736.

3. Remove the three (3) screws.

(P/J736)

(P/J730)
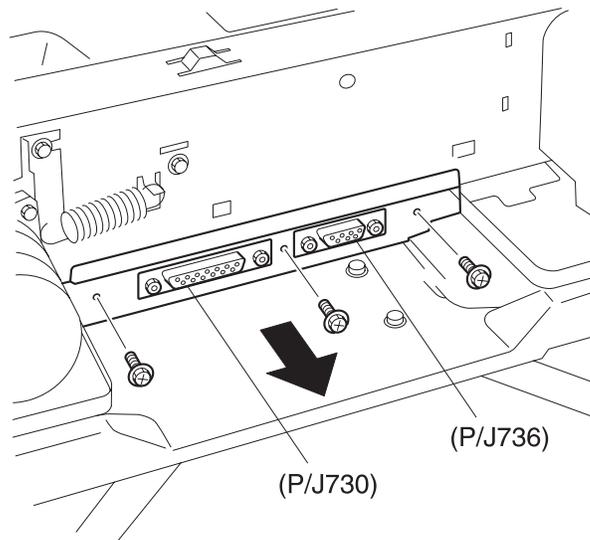
4. Move the full rate carriage to the left side of the scanner.
5. Remove the six (6) screws.
6. Remove the cover.
7. Disconnect the P/J731, P/J732, P/J733, P/J734, and P/J735.

(P/J733)

(P/J732)

(P/J734)

(P/J731)   (P/J735)

8. Remove 5 screws.
9.

A
B
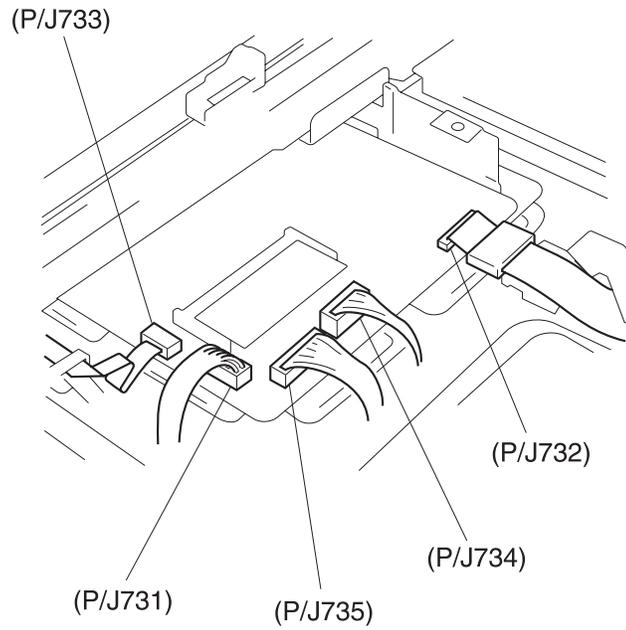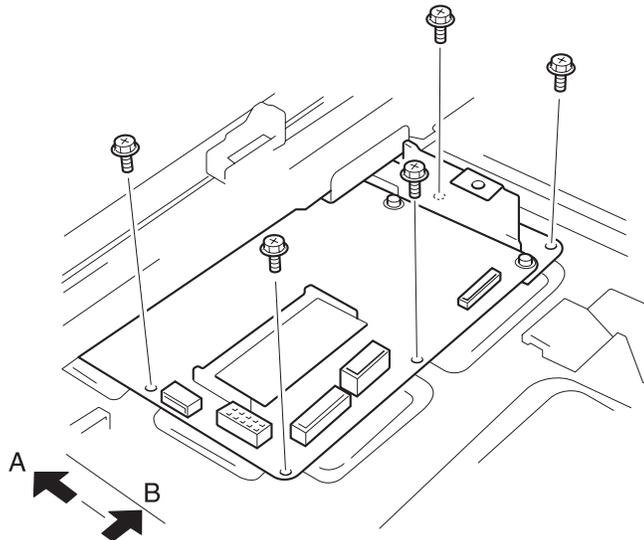
10. Remove the scanner system card.

Charge Couple Device Card Assembly Removal

1. Remove the flatbed center platen glass plate. See **"Flatbed Center Platen Glass Plate Removal" on page 4-52** for more information.

Warning: The scanner contains a number of screws painted red. Do not loosen or remove.

2. Remove the two (2) screws from the cover.
3. Remove the cover.
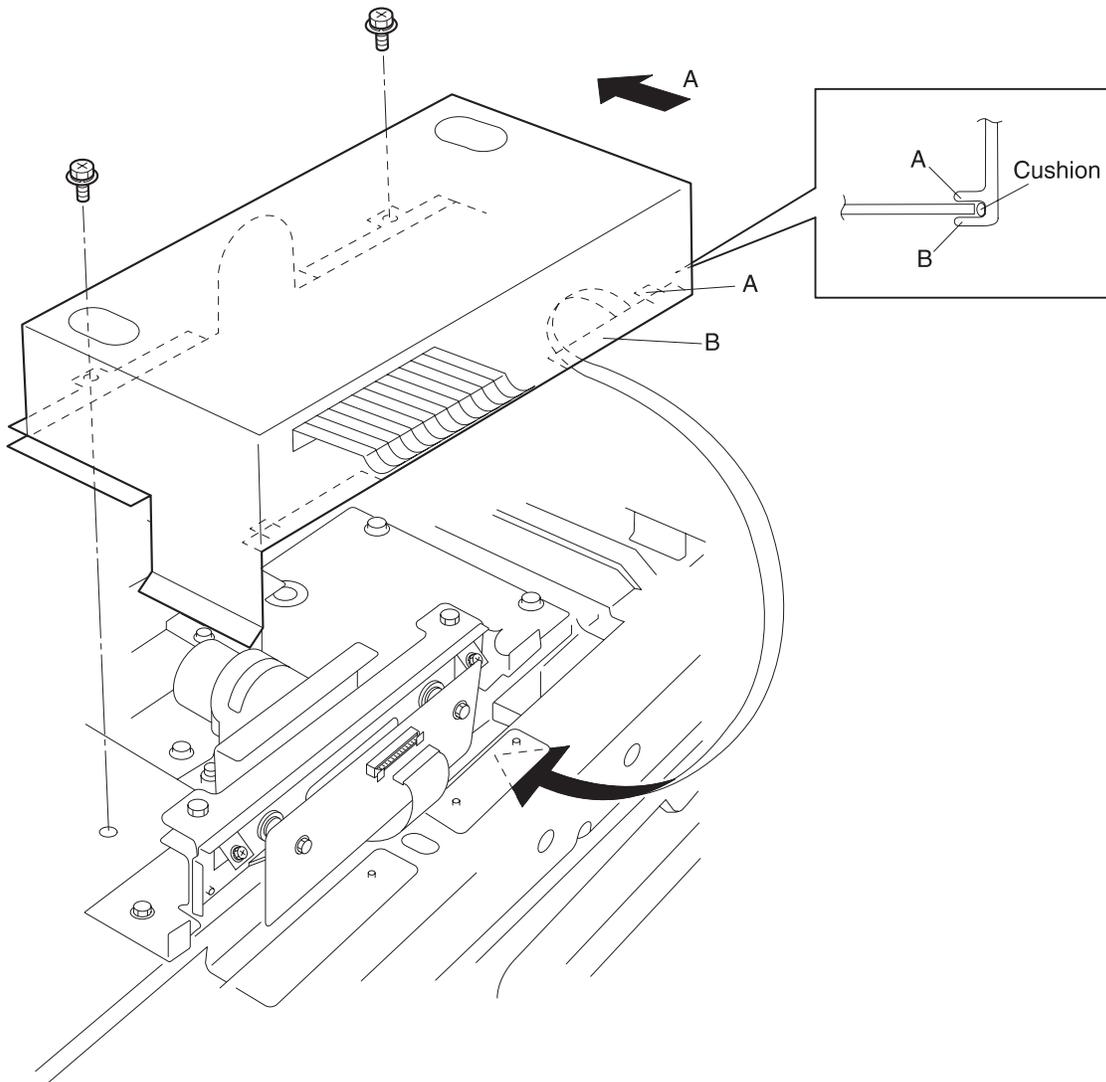
4. Disconnect the CCD card lens and the charge couple device card.

5. Remove the two (2) screws.

6. Remove the charge couple device card.

PWB Assembly F Dual

(J741)

Automatic Paper Size Sensor Removal

1. Remove the flatbed center platen glass plate. See **"Flatbed Center Platen Glass Plate Removal" on page 4-52** for more information.

Warning: The scanner contains a number of screws painted red. Do not loosen or remove.

2. Mark the position of the screws from the automatic paper size sensor.
3. Disconnect P/J744.
4. Remove the screw.
5. Remove the automatic paper size sensor.

(P/J744)
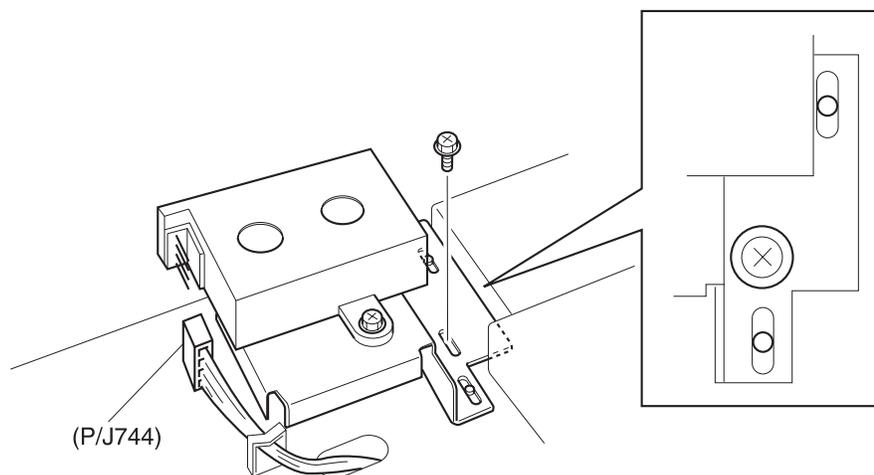
Full Rate Carriage Lamp Assembly Removal

1. Remove the flatbed center platen glass plate. See **"Flatbed Center Platen Glass Plate Removal" on page 4-52** for more information.

Warning: The scanner contains a number of screws painted red. Do not loosen or remove.

2. Slide the full rate carriage lamp assembly to the cutout in the frame.
3. Disconnect P/J743.
4. Remove the two (2) screws.
5. Release the cable from the harness.
6. Remove the full rate carriage lamp assembly.
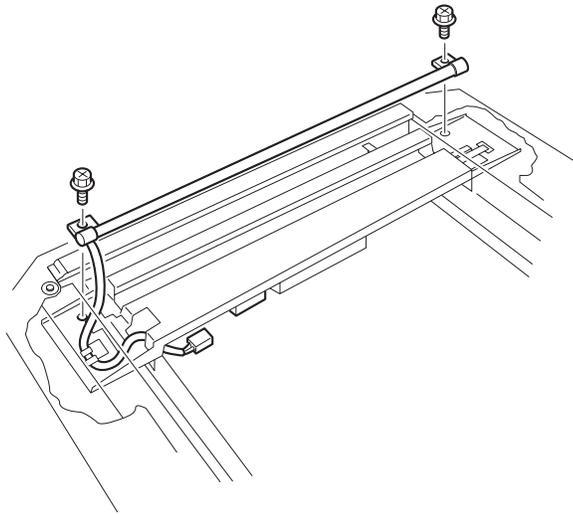
Cable Assembly-Scan, Rear Removal

1. Remove the DADF assembly.
2. Remove the user interface.
3. Remove the flatbed center platen glass plate.
4. Remove the cover assembly.
5. Remove the DADF platen glass.
6. Move the full rate carriage to the center.
7. Remove the screw to release the full rate carriage from the cable assembly-scan, rear.
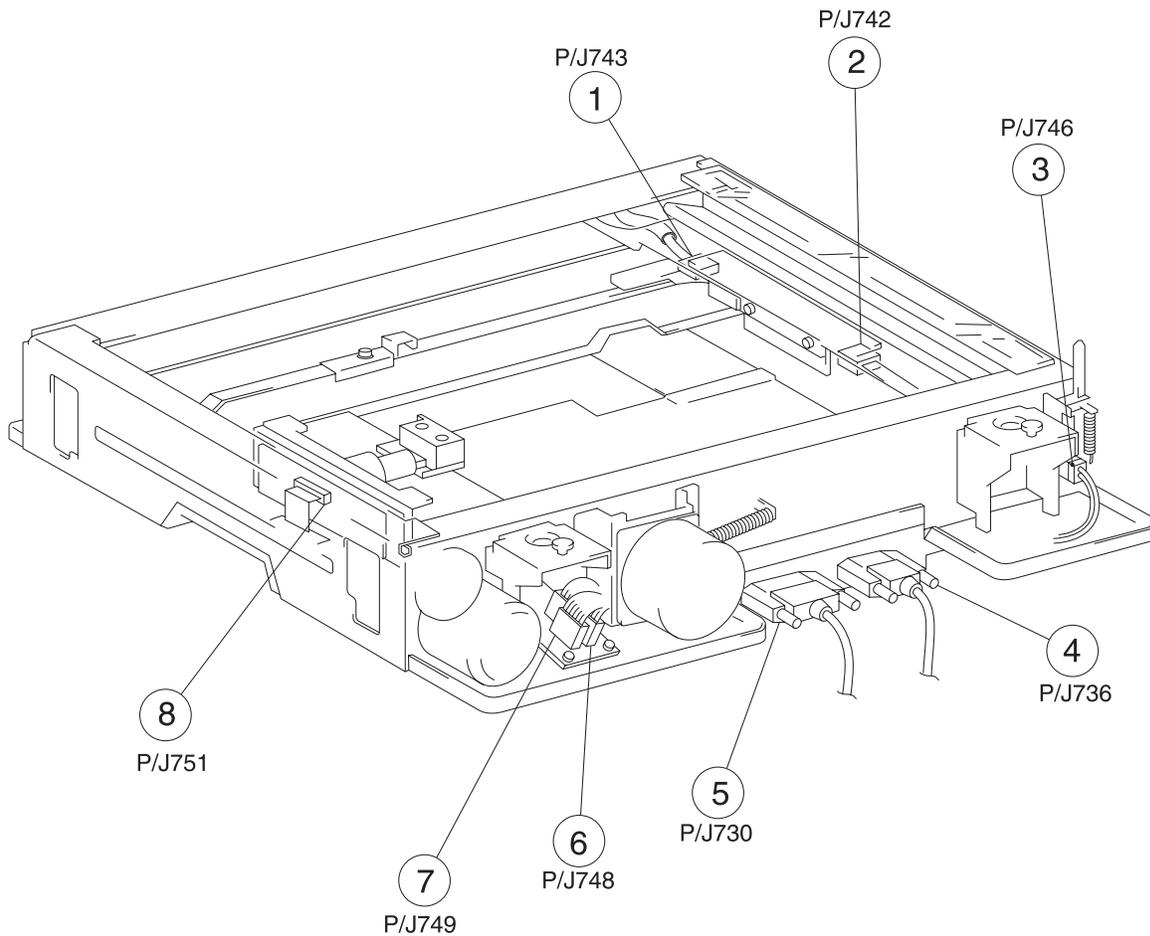
8. Remove the spring-exit.
9. Remove the cable assembly-scan, rear.
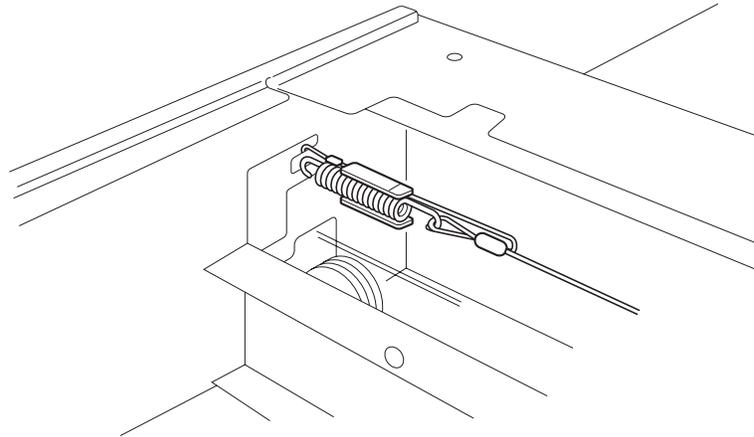
In replacing the cable assembly, scan, rear:

Note: The replacement procedures for the cable assembly-scan is similar on the front side and the rear side. Therefore, only the rear side replacement is mentioned. Perform replacement on the front side in the same manner.

Note: Replace the cable assembly-scan on either side; do not remove it on the front side and the rear side simultaneously.

FRONT
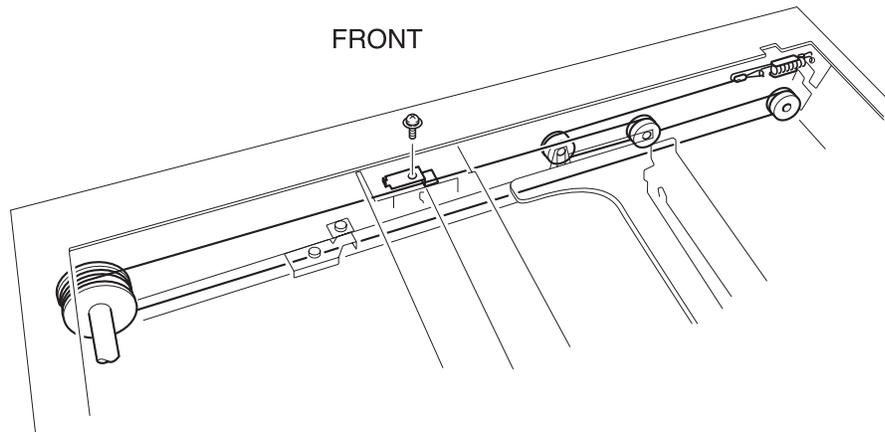
10. Move the full rate carriage to the center.
11. Insert the ball of the cable assembly-scan, rear into the groove in the pulley-capstan, rear.
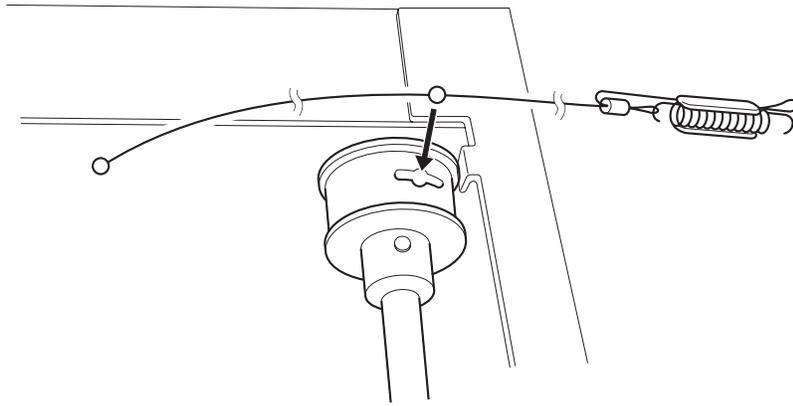
12. Wind the spring-exit hooking side of the cable assembly-scan, rear around the pulley-capstan, rear by 1.5 turns.
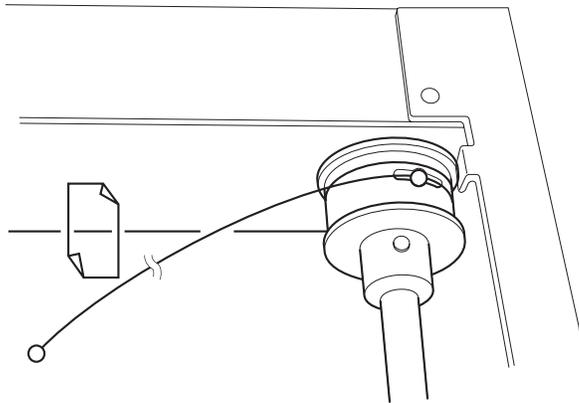
13. Secure the spring-exit hooking side of the cable assembly-scan, rear to the frame with gum tape.
14. Wind the ball side of the cable assembly-scan, rear around the pulley-capstan, rear by 2 turns.

REAR

FRONT
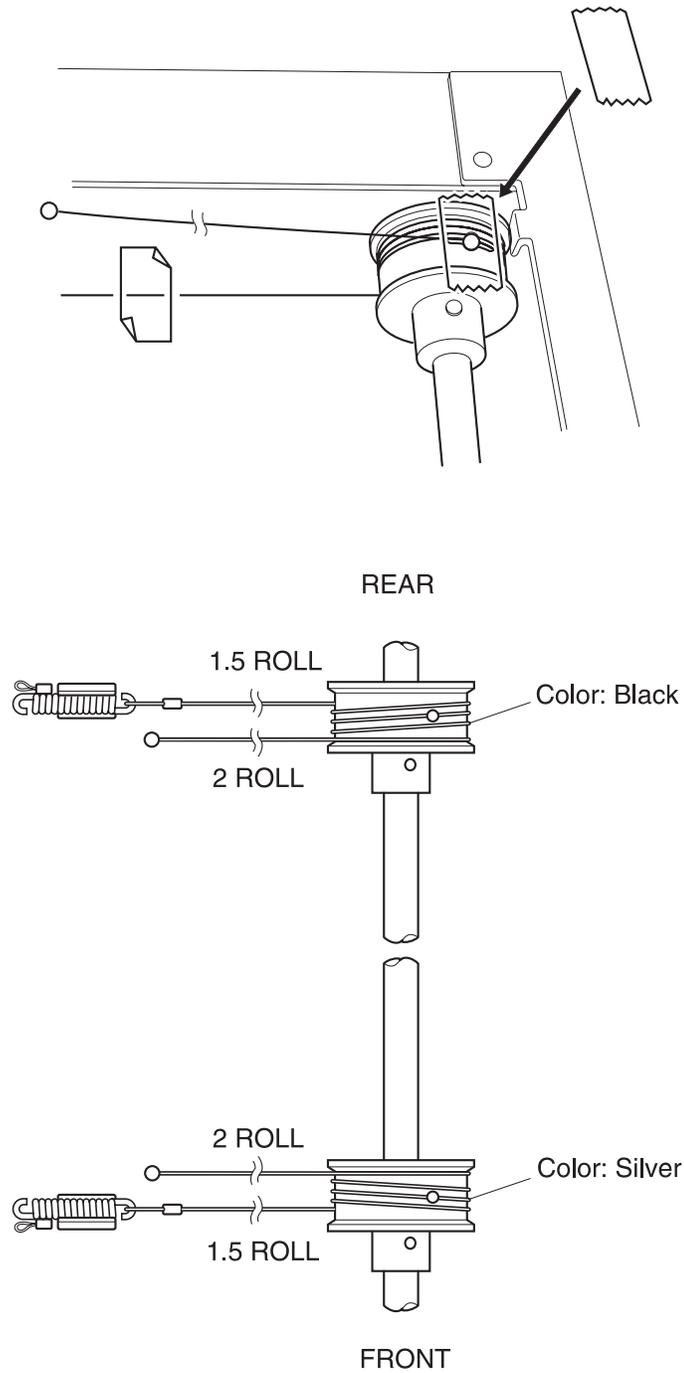
15. Fasten the cable assembly-scan, rear wound to the pulley-capstan, rear with a gum tape.

16. Engage the spring-exit and the cable assembly-scan, rear to the pulley on the left side of the half rate carriage.

17. Insert a ball of the cable assembly-scan, rear into a notch of the frame.
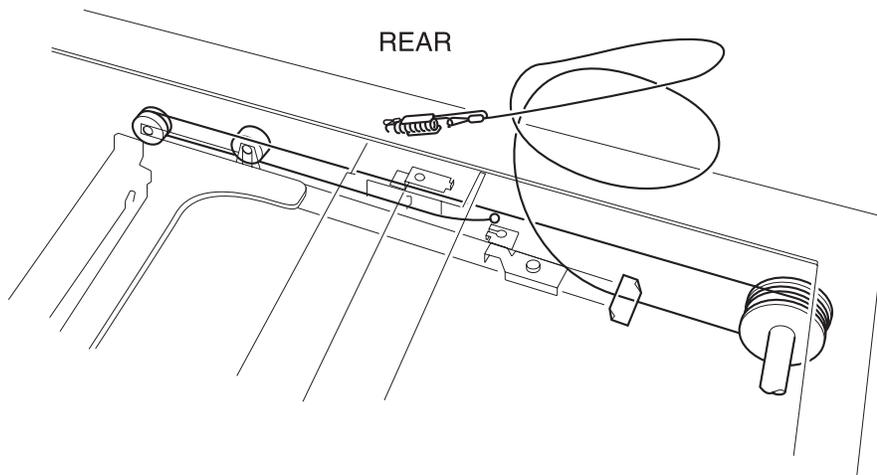
18. Engage the cable assembly-scan, rear to the pulley-idler.
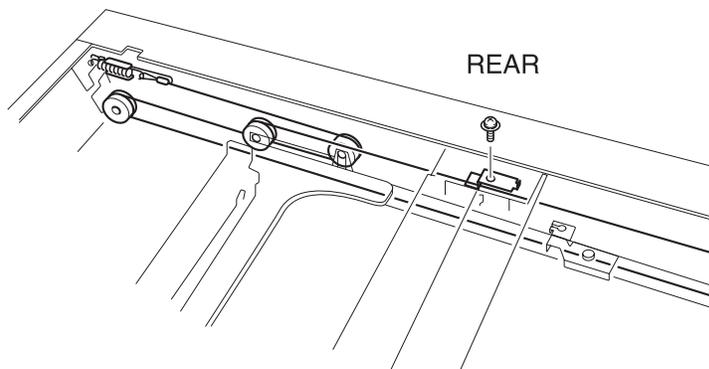
19. Engage the pulley on the right side of the half rate carriage.
20. Engage the spring-exit and auxiliary part of the cable assembly-scan, rear to the hook on the frame.
21. Secure the cable assembly-scan, rear to the full rate carriage.
22. Peel off the gum tape used.
23. Adjust the position and parallelism of the full rate carriage and half rate carriage.
24. Move the full rate carriage to check for smooth motion.
25. Mount the DADF platen glass.
26. Mount the cover assembly.
27. Mount the flatbed center platen glass plate.
28. Mount the user interface.
29. Mount the DADF assembly.

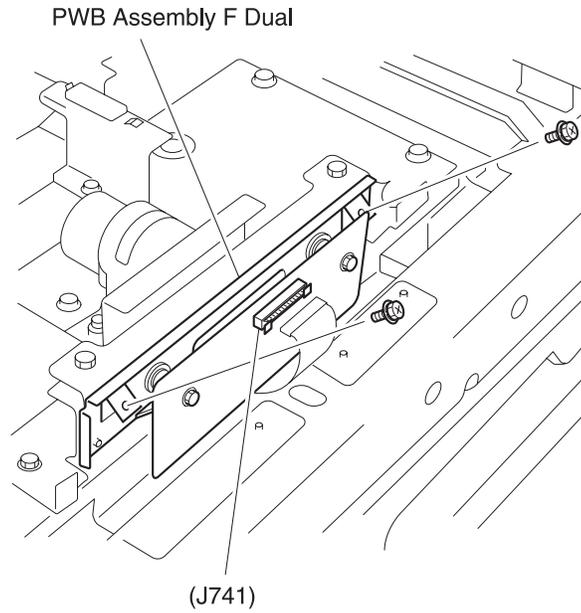## Full Rate Carriage Lamp Cable Removal

1. Remove the flatbed center platen glass plate and cover-card. See **"Flatbed Center Platen Glass Plate Removal" on page 4-52** for more information.

2. Remove the two (2) screws that secure the full rate carriage.
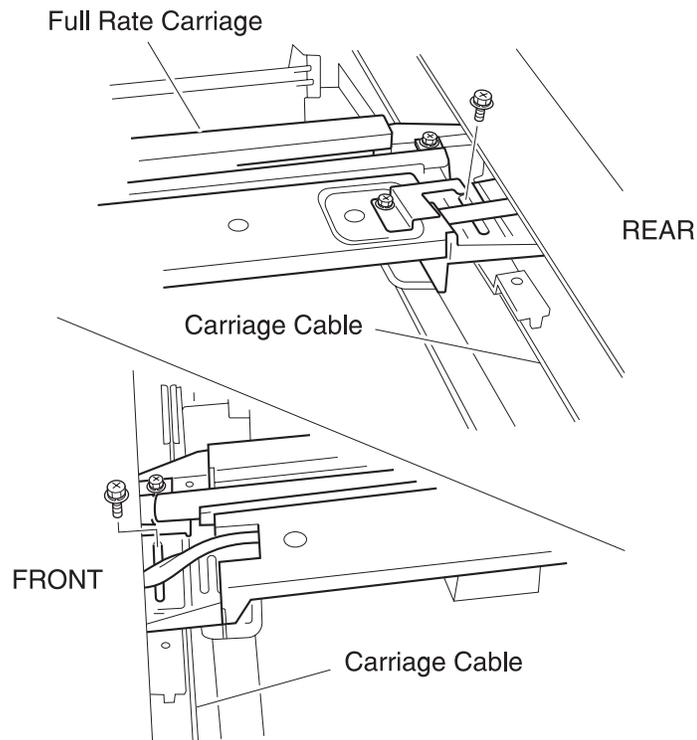
3. Reverse the full rate carriage.
4. Remove the screw, and then the guide.

Guide

Holder

(P742)

Full Rate Carriage   (P733)

Front
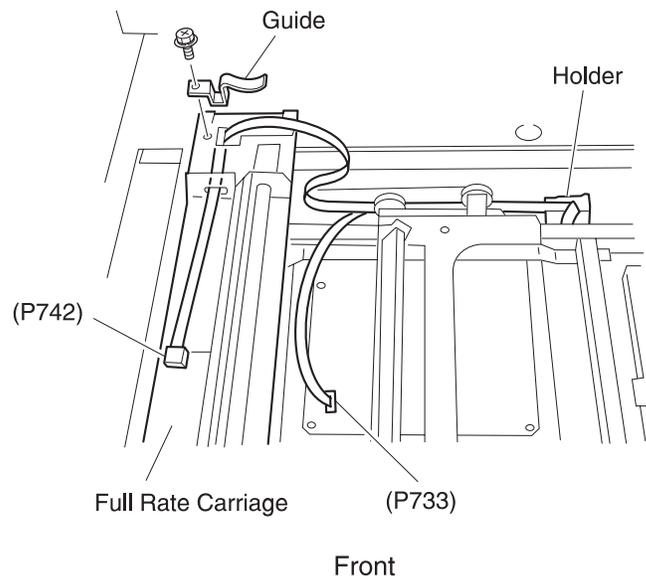
5. Remove the full rate carriage lamp cable.
6. Disconnect the P742 and P733.
7. Remove the full rate carriage lamp cable.

5. Connector Locations

Use the table and maps in this section to locate specific P/J connectors within the scanner.

To find the location of a P/J:

1. Locate the P/J connector number in the first column of the table.
2. Locate the corresponding map and location number, such as M1-24, in the second column.
3. Go to the map (M1) number and locate item number (24).

Location Maps
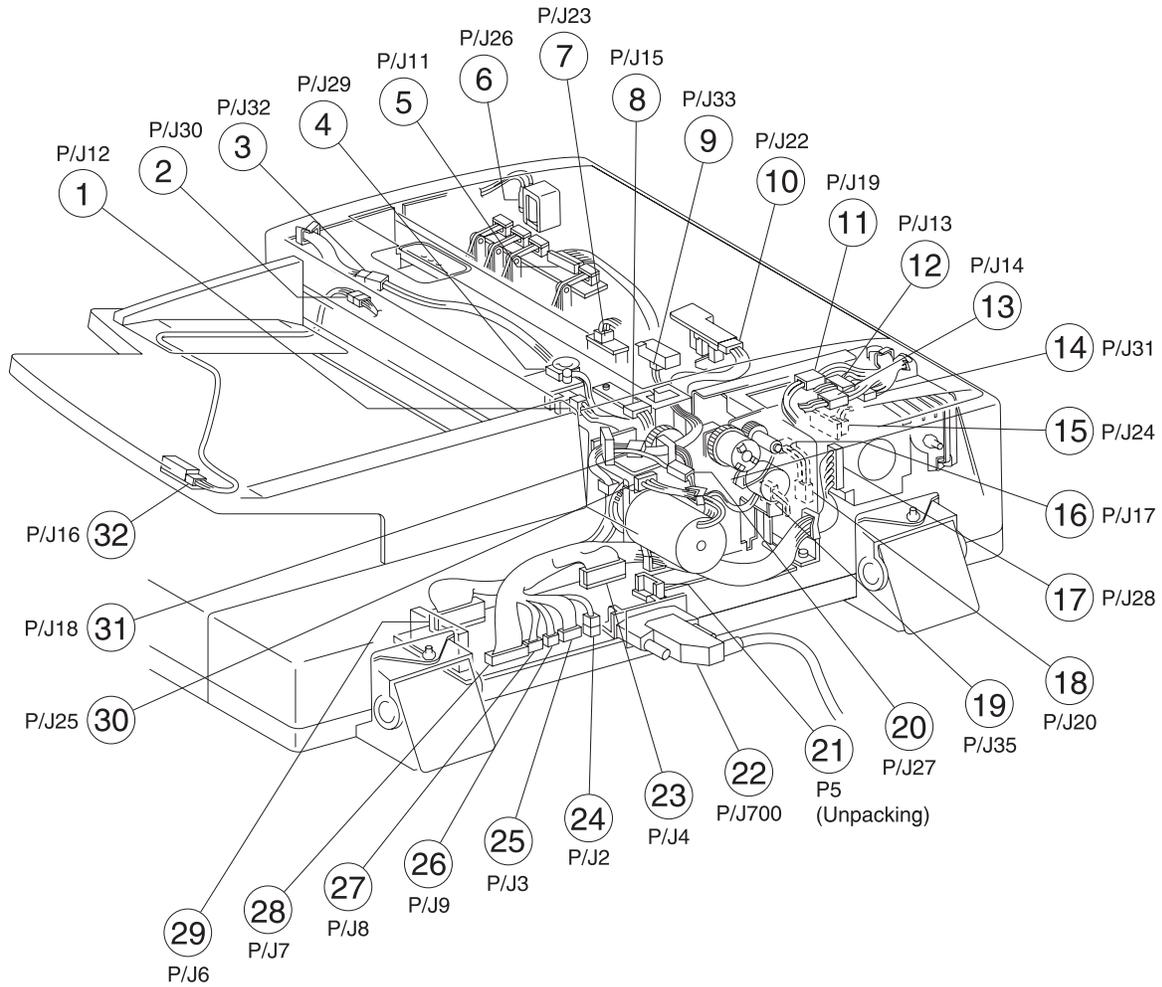
P/J	Connected to...	Other end connected to...
P/J2	DADF controller card assembly	
P/J3	DADF controller card assembly	
P/J4	DADF controller card assembly	
P/J5	Test tool (unpacking)	
P/J6	DADF controller card assembly	

P/J	Connected to...	Other end connected to...
P/J7	DADF controller card assembly	
P/J8	DADF controller card assembly	
P/J9	DADF controller card assembly	
P/J11	PWBA size	P/J4 DADF controller card assembly
P/J12	DADF document in sensor	P/J4 DADF controller card assembly
P/J13	PWBA size	P/J4 DADF controller card assembly
P/J14	P/J22 DADF pre-registration 2 sensor P/J23 DADF pre-registration 1 sensor	P/J6 DADF controller card assembly
P/J15	DADF pickup sensor	P/J8 DADF controller card assembly
P/J16	PWBA tray sensor	P/J6 DADF controller card assembly
P/J17	Stamp solenoid	P/J3 DADF controller card assembly
P/J18	DADF pick up clutch	P/J3 DADF controller card assembly
P/J19	DADF large roll clutch	P/J3 DADF controller card assembly
P/J20	DADF exit/reverse clutch	P/J3 DADF controller card assembly
P/J22	DADF pre-registration 2 sensor	P/J6 DADF controller card assembly
P/J23	DADF pre-registration 1 sensor	P/J6 DADF controller card assembly
P/J24	DADF registration sensor PWB	P/J6 DADF controller card assembly
P/J25	DADF encoder sensor	P/J6 DADF controller card assembly
P/J26	DADAF exit/reverse solenoid	P/J7 DADF controller card assembly
P/J27	DADF registration roll drive motor	P/J7 DADF controller card assembly
P/J28	Main drive motor assembly	P/J7 DADF controller card assembly
P/J29	DADF LED PWD	P/J4 DADF controller card assembly
P/J30	P/J16 PWBA tray sensor	P/J9 DADF controller card assembly
P/J31	P/J24 DADF registration sensor PWB	P/J6 DADF controller card assembly
P/J32	DADF jam cover open switch	P/J2 DADF controller card assembly
P/J33	DADF exit/reverse sensor	P/J6 DADF controller card assembly
P/J35	P/J33 DADF exit/reverse sensor	
P/J700	DADF controller card assembly	

P/J732

P/J734

3

P/J737

2

1

10

P/J733

9

P/J731

8

P/J735

7

P/J745

6

P/J25

5

P/J747

4

P/J744
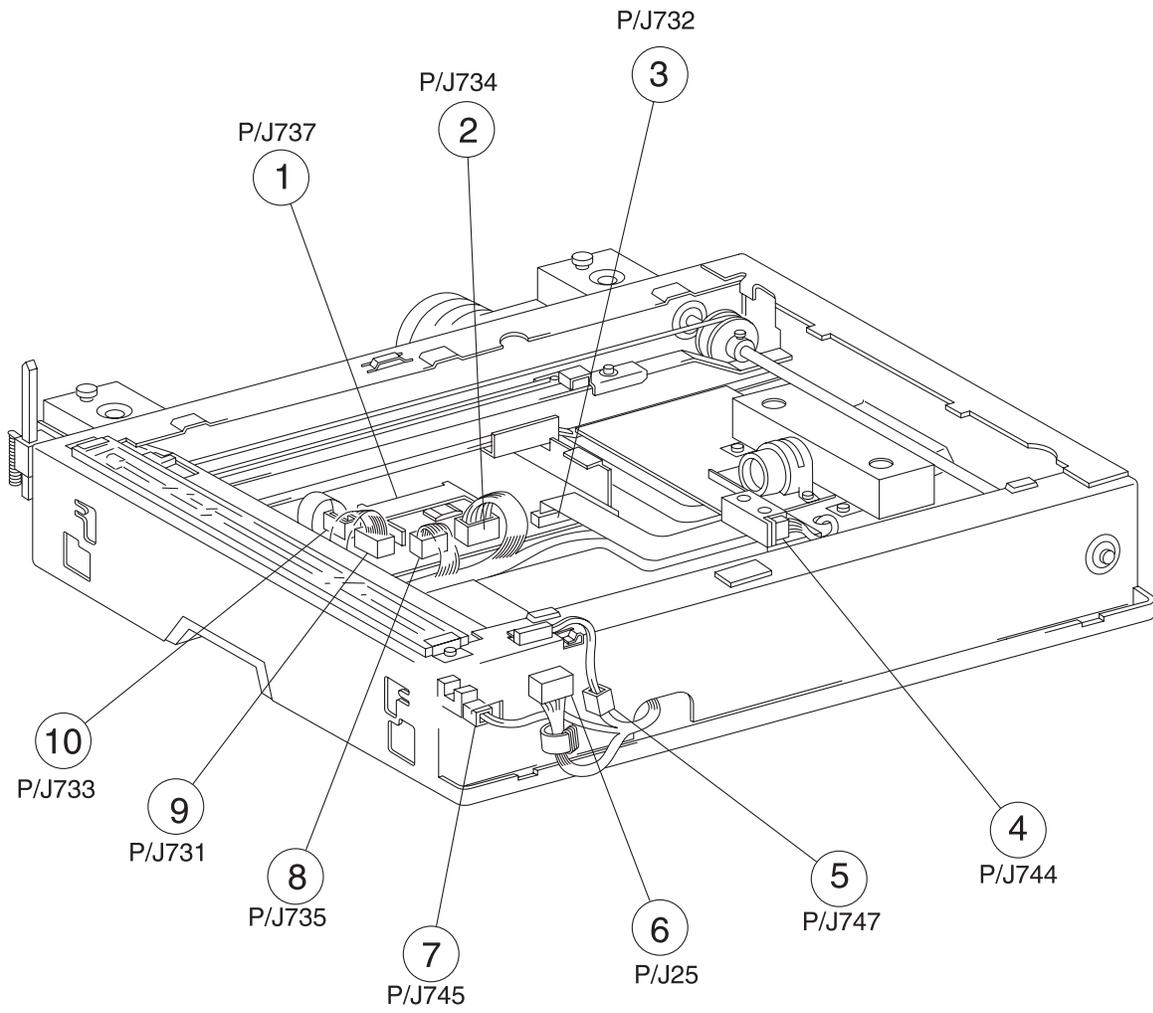
P/J	Connected to...	Other end connected to...
P/J25	User interface	P/J731 scanner system board
P/J731	Scanner system board	P/J25 user interface
P/J732	Scanner system card assembly, LMK	P/J751 PWB assembly-F, Dual
P/J733	SCANNER system card assembly, LMK	P/J742 power supply–lamp
P/J734	SCANNER system card assembly, LMK	P/J744 sensor, paper position P/J745 sensor assembly-registration. P/J746 sensor assembly-platen P/J747 switch assembly-platen
P/J735	Scanner system card assembly, LMK	P/J748 PWB assembly-scan
P/J737	scanner system card assembly, LMK	PROM assembly scanner system board
P/J744	Sensor, paper position	P/J734 PWBA scanner system board
P/J745	Sensor assembly-registration.	P/J734 PWBA scanner system board
P/J747	Switch assembly-platen	P/J734 PWBA scanner system board

P/J742

P/J743

1

2

P/J746

3

8

P/J751

4

P/J736

7

6

5

P/J730

P/J748

P/J749
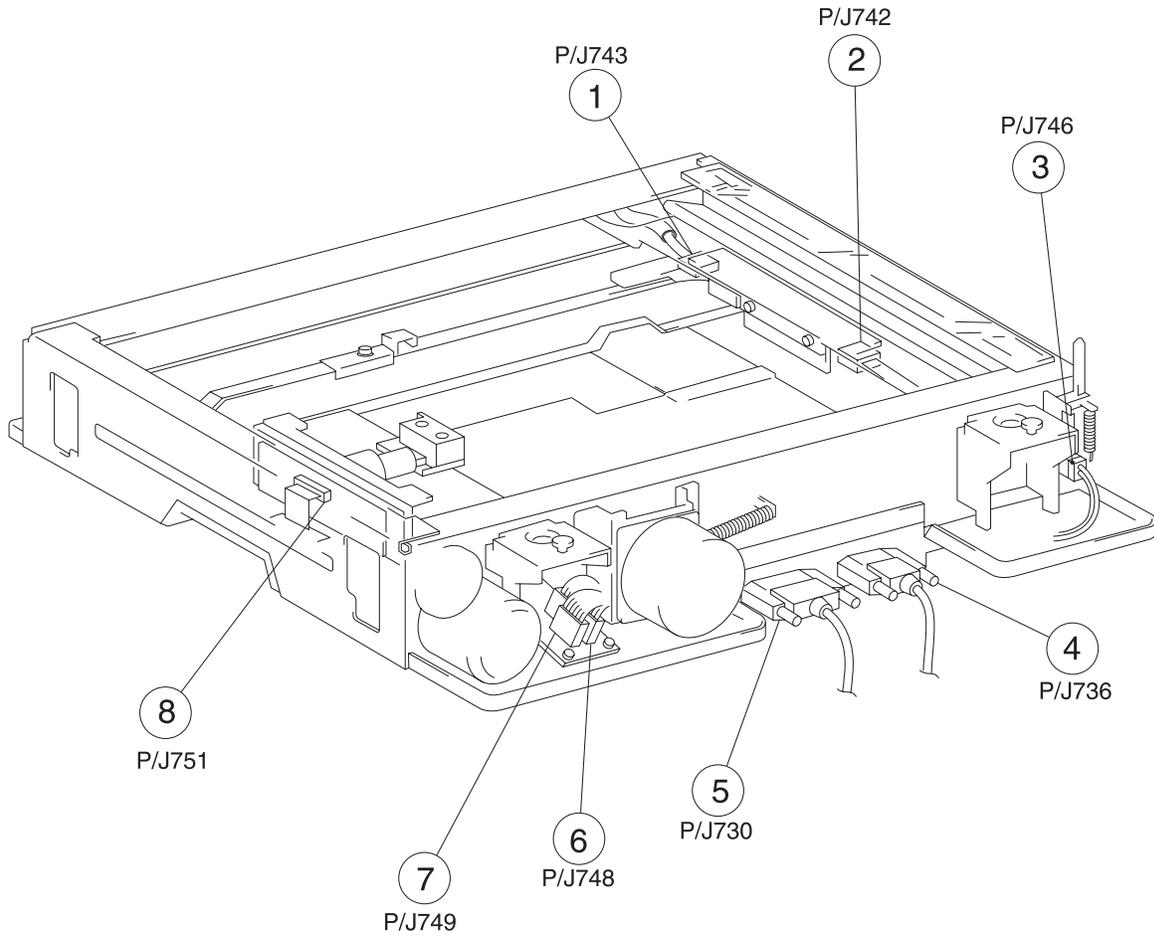
P/J	Connected to...	Other end connected to...
P/J730	Scanner system board	
P/J736	Scanner system board	P/J700 DADF control PWB
P/J742	Power supply–lamp	P/J733 scanner system board
P/J743	Power supply–lamp	Lamp assembly-XE FL
P/J746	Sensor assembly-platen	P/J734 scanner system board
P/J748	PWB assembly-scan	Scanner system board
P/J749	PWB assembly-scan	P/J735 scanner system board
P/J751	PWB assembly-F, Dual	P/J732 scanner system board

Wiring Diagrams and Signal Information

This section of the manual contains block diagrams (BD) to better illustrate the electrical relationships between components and assemblies within the Scanner Module. Each wire in the diagrams is tagged with a signal name, and each wire is terminated at both ends with a pin number.

Wiring Diagram Notations

The wiring diagrams in this manual use the following circuit notations to describe components and signal paths within the printer.

A plug

A jack

Connection of pin 15 between P28 and J28

P28   J28   15

The signal name of a wire   5V INTLK

Voltage measured with the negative probe of the meter on SG   24VDC

Voltage value of a signal   /HEAT ON
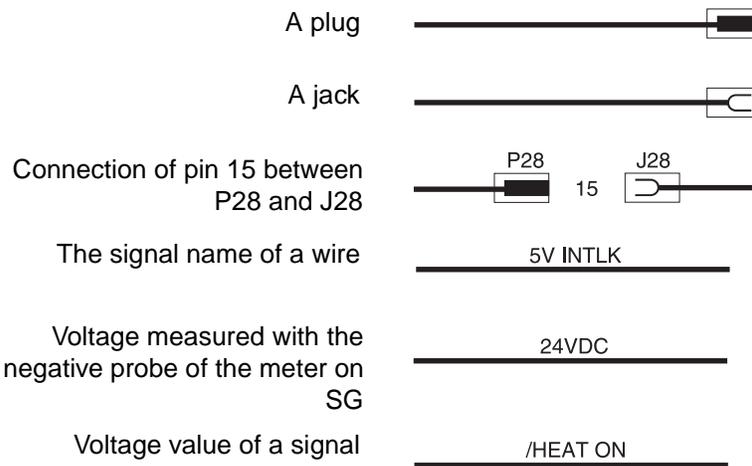
/ = The voltage goes LOW when the signal is ON.

In this case, the HEAT signal is ON, so the normal voltage of 4.2VDC drops to 0VDC.

There is continuity between SG and RTN. Continuity between FG and SG depends on circuit specifications.

GND=GROUND

SGND=SIGNAL GROUND

PGND=FRAME GROUND

RTN=RETURN

$$ in a signal name indicates the signal is coming from the MCU CPU.

in a signal name indicates the signal is going to the MCU CPU.

#$Interactive communication signal

##Analog signal

DADF Master Wiring Diagram
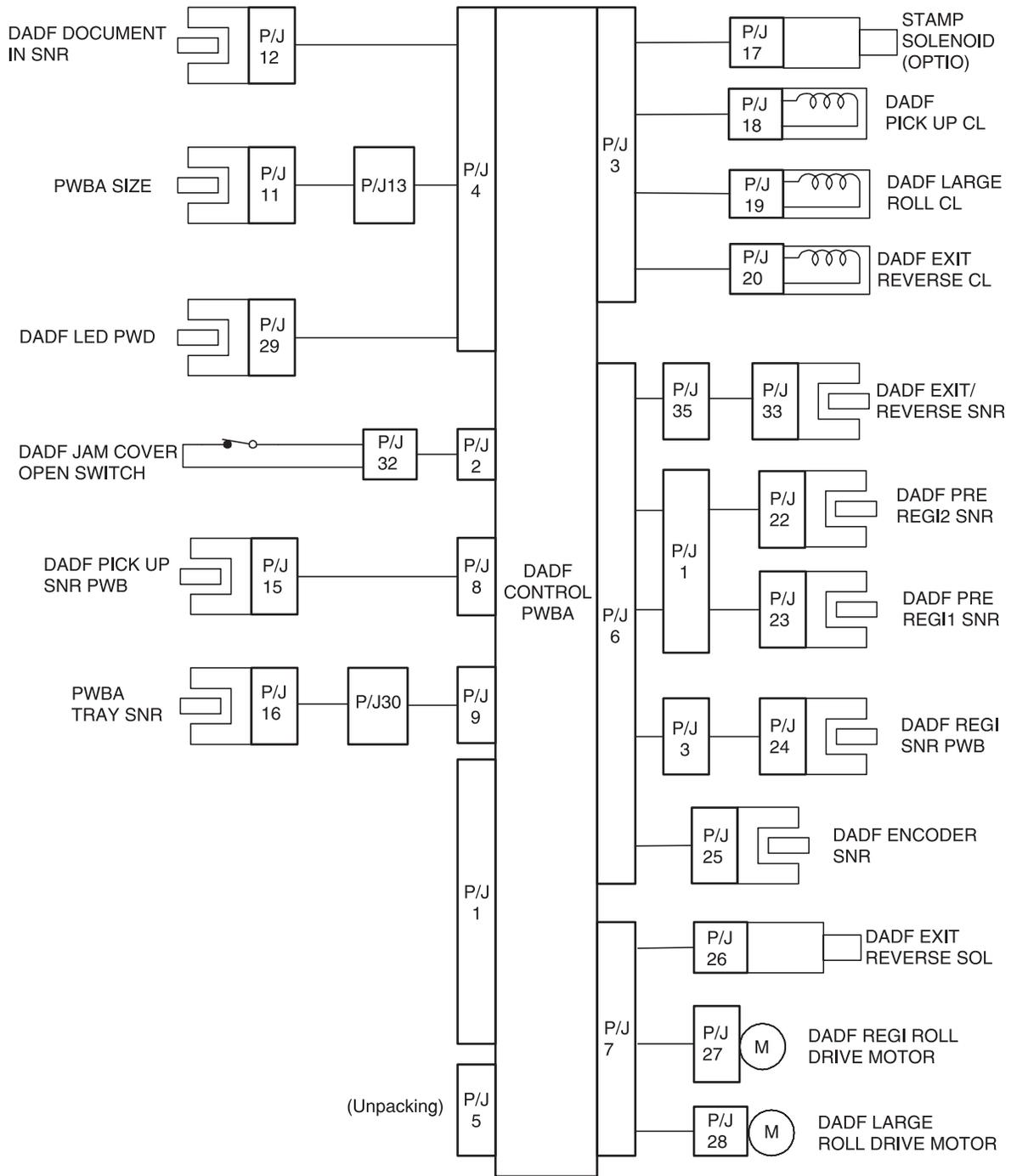
DADF Controller Card Assembly ↔ DADF Document In Sensor ↔ PWBA Size ↔ DADF LED PWD
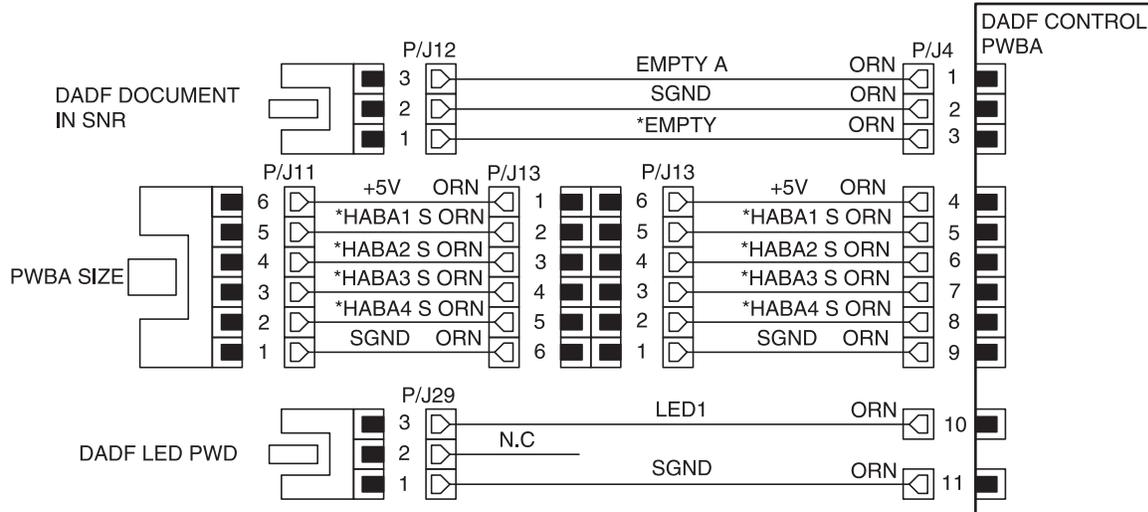
Signal name	Description
*EMPTY	Detects paper setting. 5V= not ready, 0V= ready
EMPTY A	Supplies the power from 5V terminal through the current limiter to the LED on the DADF paper present sensor (photo–transistor type). Normally on.
*HABA4 S	Detects the paper size. 5V= proper paper is not loaded. 0V= proper paper loaded.
*HABA3 S	Detects the paper size. 5V= proper paper is not loaded. 0V= Proper paper is loaded.
*HABA2 S	Detects the paper size. 5V= proper paper is not loaded. 0V= proper paper is loaded.
*HABA1 S	Detects the paper size. 5V= proper paper is not loaded. 0V= proper paper is loaded.
LED1	Supplies the power through the current limiter to light the LED of the DADF LED PWD. Whenever the LED lights, this turns on.

DADF Controller Card Assembly $\leftrightarrow$ DADF Jam Cover Open Switch
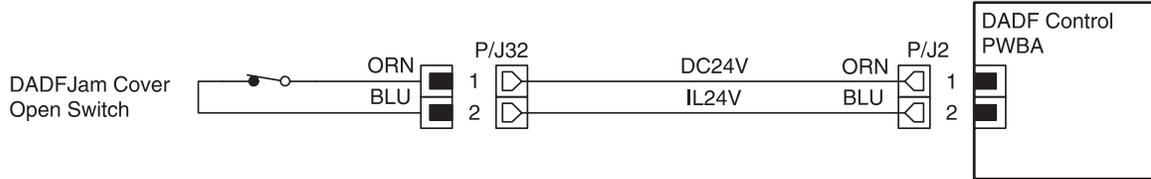
Signal name	Description
IL24V	Supplies 24V through the jam door open switch (24V through the interlock switch).

DADF Controller Card Assembly ↔ DADF Pick Up Sensor PWD
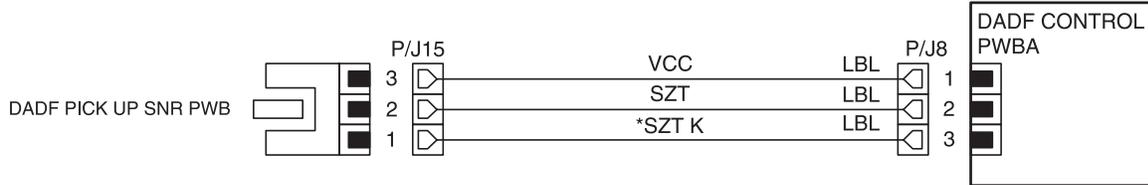
Signal name	Description
*SZT K	LED return of the DADF pick up sensor.
SZT	Monitor the level of paper. Sensor output >Threshold: paper present. Sensor output < Threshold: paper not present.

DADF Controller Card Assembly↔PWBA Tray Sensor
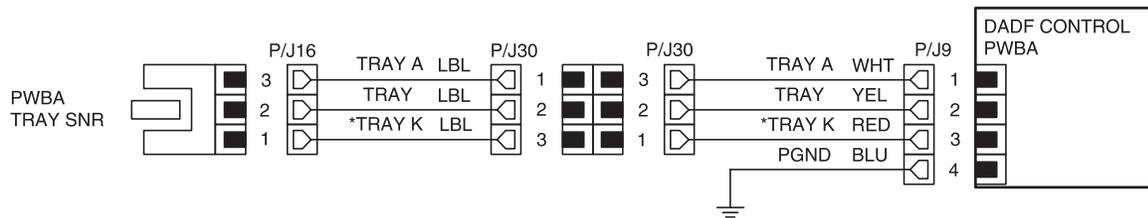
Signal name	Description
*TRAY K	LED return of the PWBA tray sensor.
TRAY	Monitor the level of paper. Sensor output >Threshold: paper present. Sensor output < Threshold: Paper not present.

DADF Controller Card Assembly ↔ Stamp Solenoid
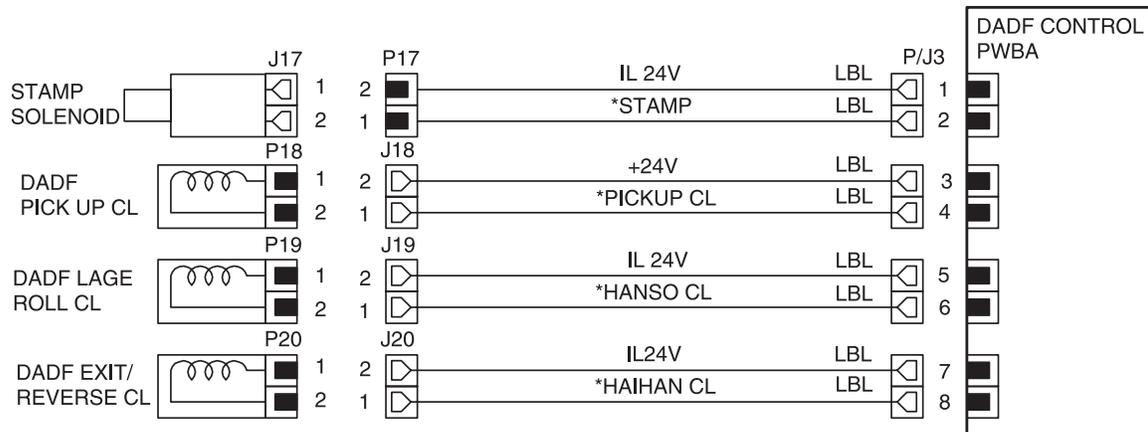
Signal name	Description
*STAMP	Controls on/off of the stamp solenoid and also detects the installation of the stamp. Control logic: 0V=On 24V=OffÅ@ Detection logic (effective when the control logic is off.) 0V=the stamp is not installed. Å@24V=The stamp is installed.
IL24V	Supplies 24V through the DADF top cover open switch (24V through the interlock switch).
*PICKUP CL	Controls the drive power transmission of the DC motor. 24V=disable to transmit. 0V=enable to transmit.
*HANSO CL	Controls the drive power transmission of the large roll drive motor. 24V=disable to transmit. 0V=enable to transmit.
*HAIHAN CL	Controls the drive power transmission of the large roll drive motor. 24V=Disable to transmit. 0V=enable to transmit.

DADF Controller Card Assembly ↔ DADF Reverse Sensor
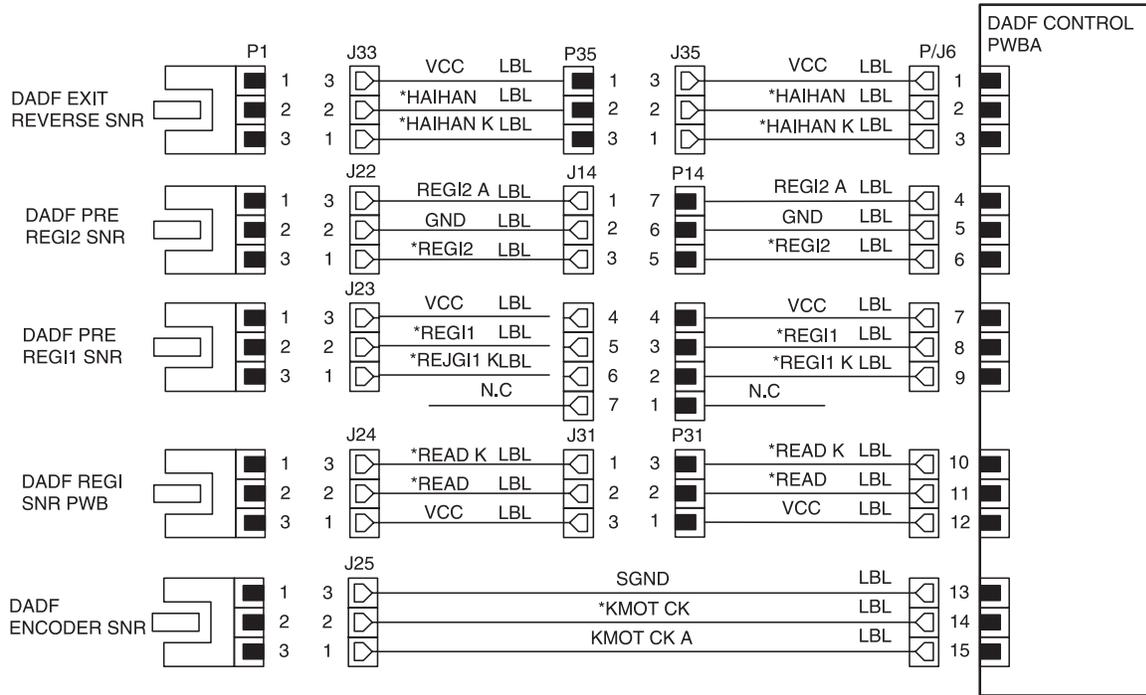
The following table shows the signal names for this board.

Signal name	Description
*HAIHAN K	LED return of the DADF exit/reverse sensor.
*HAIHAN	Detects whether paper exists or not. Sensor output < Threshold: paper exists. Sensor output > Threshold: no paper exists.
*REGI2	Detects top of paper. 5V=Top of paper is detected. 0V=Top of paper is not detected.
REGI2 A	Supplies the power from 5V terminal through the current limiter for the LED of the DADF pre-registration 2 sensor (photo-transistor type). Normally on.
*REGI1 K	LED return of the DADF pre-registration 1 sensor.
*REGI1	Detects which paper exists or not. Sensor output < Threshold: paper exists. Sensor output > Threshold: no paper exist.
*READ	Detects which paper exists or not. Sensor output < Threshold: paper exists. Sensor output > Threshold: no paper exist.
*READ K	LED return of the DADF registration sensor.
*KMOT CK	The hole of the rotating disk goes to be low level.

DADF Controller Card Assembly ↔ DADF Exit/Reverse Solenoid
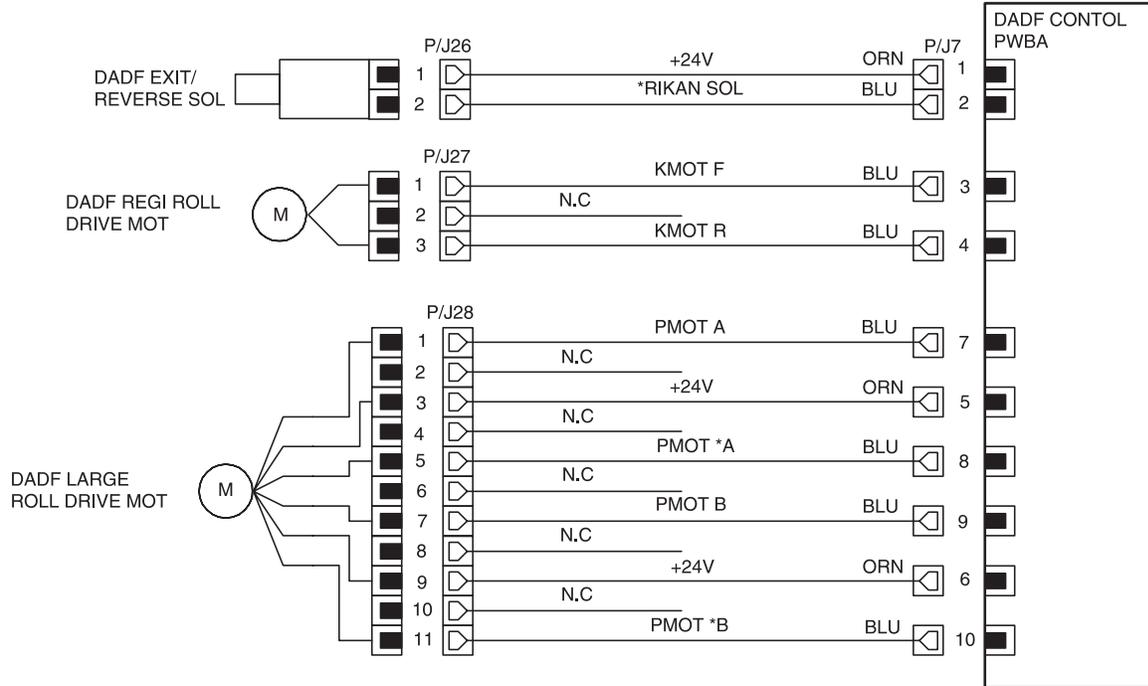
The following table shows the signal names for this board.

Signal name	Description
*RIKAN SOL	Controls on/off of the separation solenoid. High = Inactive. Low = Active
KMOT F	Controls on/off of the clockwise rotation.
KMOT R	Controls on/off of the counterclockwise rotation.
PMOT A	Pulse that controls motor rotation.
PMOT *A	Pulse that controls motor rotation.
PMOT B	Pulse that controls motor rotation.
PMOT *B	Pulse that controls motor rotation.

Scanner Master Wiring Diagram
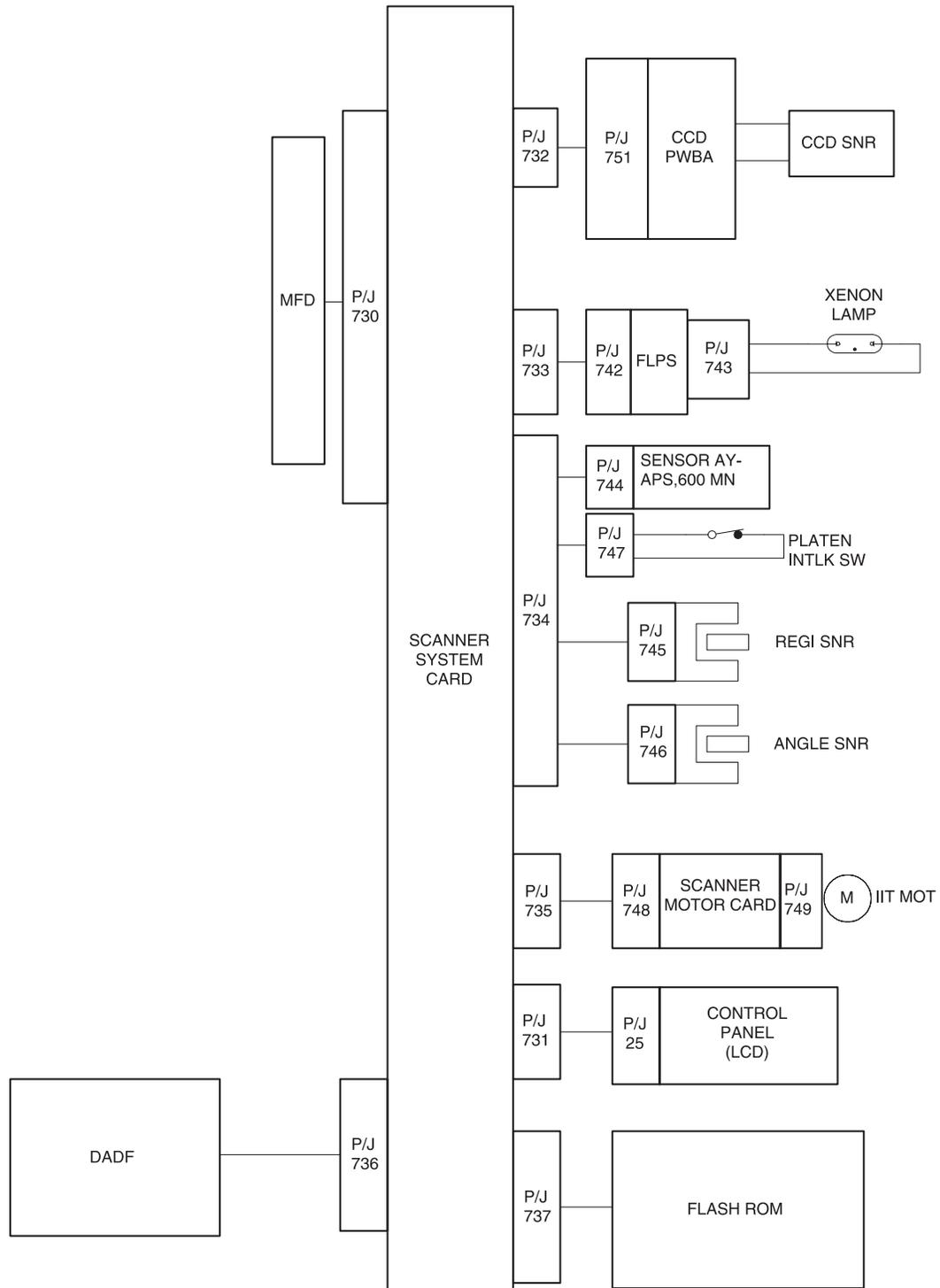
Scanner System Card IPS LX ↔ CCD PWBA ↔ CCD SNR
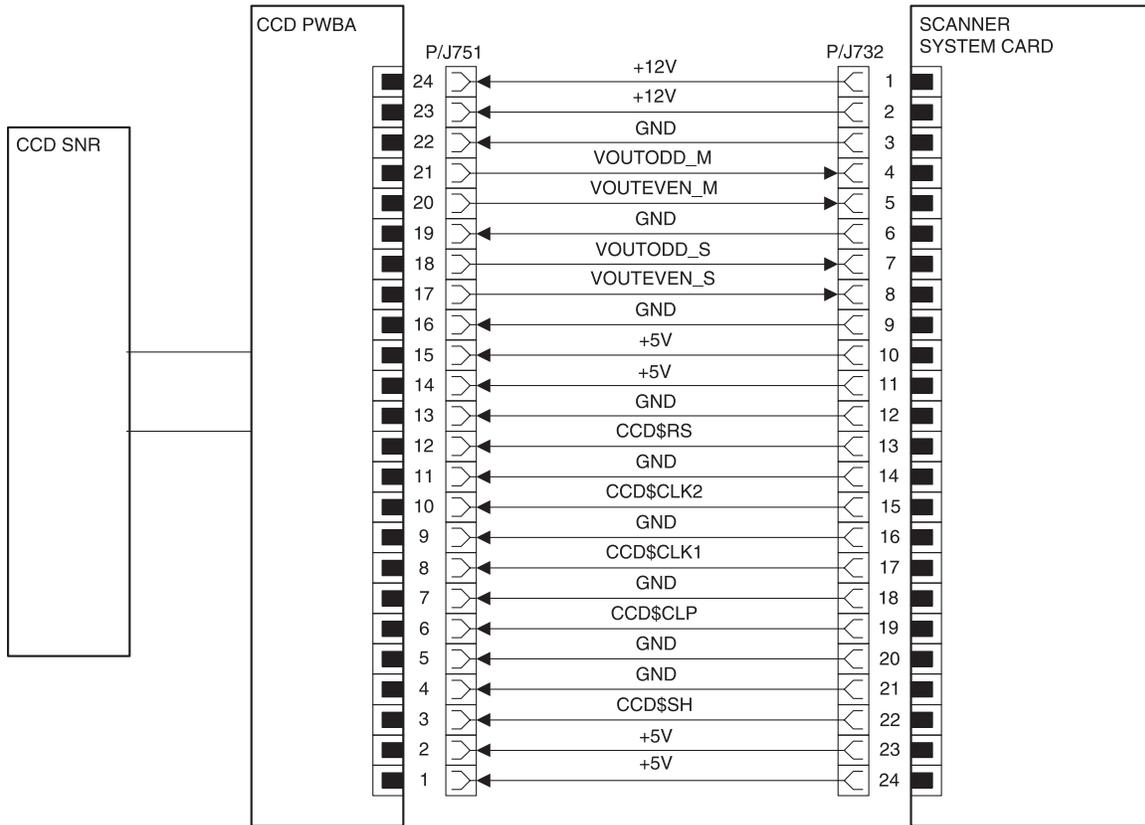
The following table shows the signal names for this board.

Signal name	Description
CCD$SH	Shift pulse signal to operate the CCD.
CCD$CLP	Clamping signal to operate the CCD.
CCD$CLK1	Clock 1 signal to operate the CCD.
CCD$CLK2	Clock 2 signal to operate the CCD.
CCD$RS	Reset signal to operate the CCD.
VOUTEVEN_S	EVEN signal from the CCD sub-output.
VOUTODD_S	ODD signal from the CCD sub-output.
VOUTEVEN_M	EVEN signal from the CCD main-output.
VOUTODD_M	ODD signal from the CCD main-output.

Scanner System Card LX ↔ Lamp Invertor Power Supply
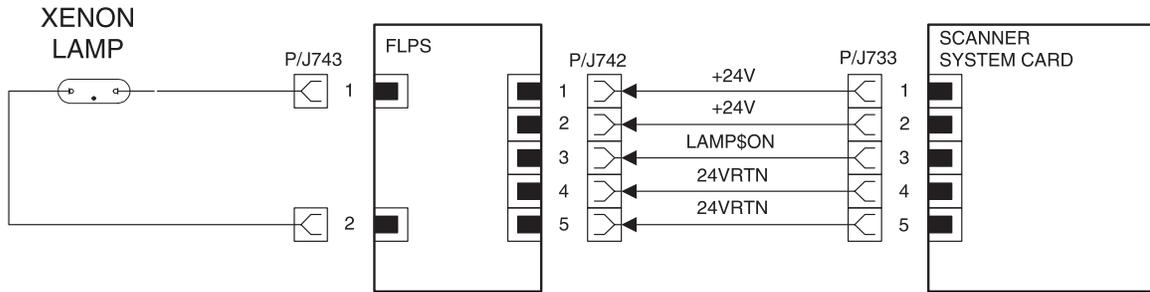
Signal name	Description
LAMP$ON	Controls on/off of the lamp.

Scanner System Card IPS ↔ Size Detect
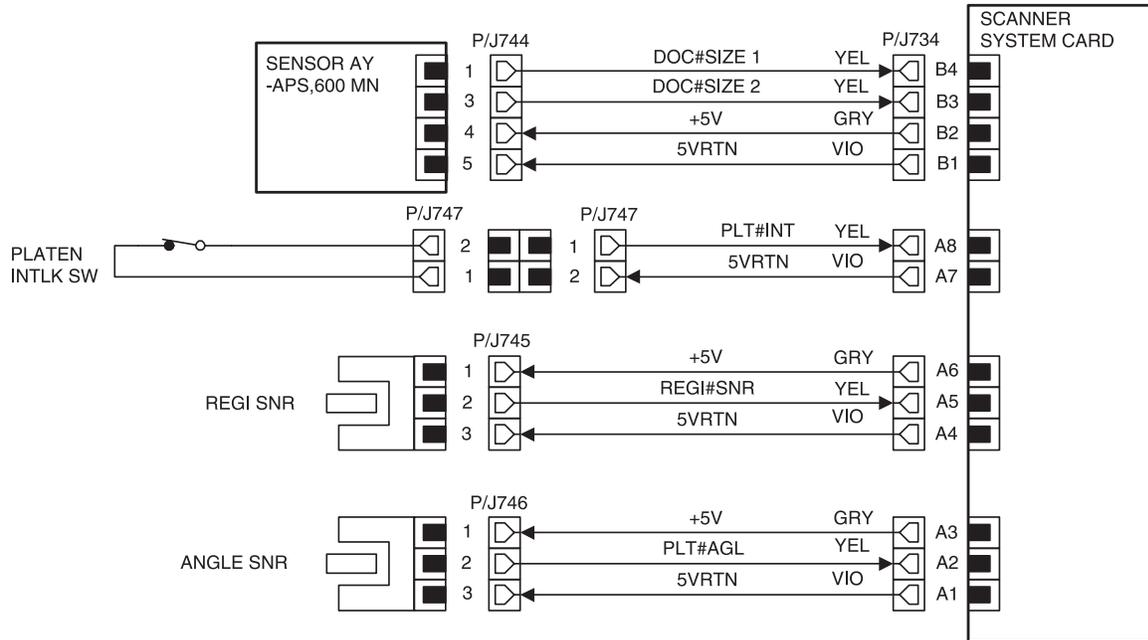
Signal Name	Description
DOC#SIZE1	Detects the long edge of the paper on the flatbed center platen glass plate.
DOC#SIZE 2	Detects the long edge of the paper on the flatbed center platen glass plate.
PLT#INT	Detects on/off of the platen.
REGI#SNR	Detects the home positions of the carriage assembly -F and -R.
PLT#AGL	Detects open/close of the DADF.

Scanner System Card IPS ↔ Scan Drive ↔ IIT Motor
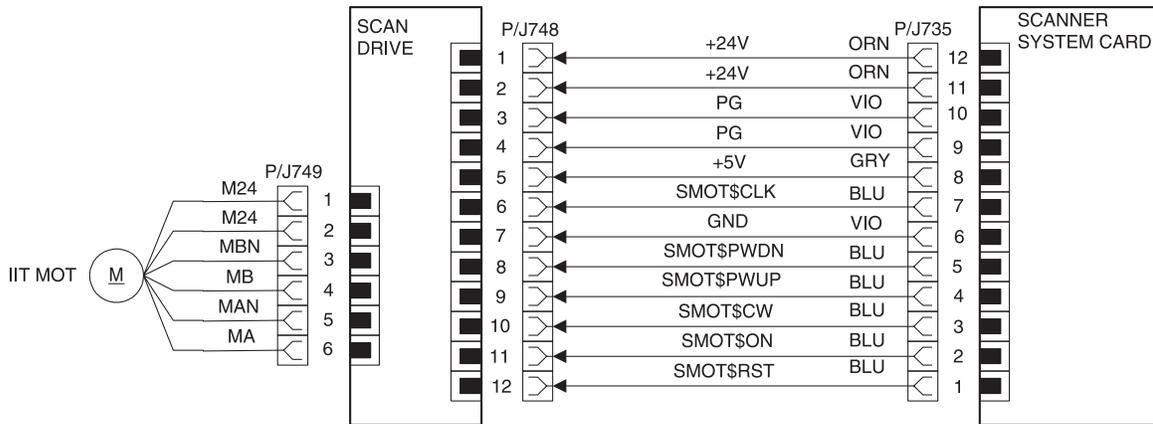
Signal Name	Description
MBN	Motor drive signal B -.
MB	Motor drive signal B.
MAN	Motor drive signal A -.
MA	Motor drive signal A.
SMOT$CLK	Pulse signal to drive the scan motor.
SMOT$PWDN	Current value selecting signal for the scan motor (power up).
SMOT$PWUP	Current value selecting signal for the scan motor (power down).
SMOT$CW	Controls the drive direction of the scan motor. High= reverse. Low= forward.
SMOT$ON	Switches the scan motor on and off. 5V= Stop. 0V= Drive.
SMOT$RST	Resets the energizing sequence.

Scanner System Card IPS ↔ Control Panel (LCD)

CONTROL
PANEL
(LCD)

P/J25

SCANNER
SYSTEM CARD

P/J731

CP Pin	Signal	Color	SSC Pin
A9	+5V	GRY	A1
A8	+5V	GRY	A2
A7	GND	VIO	A3
A6	SPARE1+	YEL	A4
A5	SPARE1-	BLU	A5
A4	SPARE2+	YEL	A6
A3	SPARE2-	BLU	A7
A2	UISTS+	YEL	A8
A1	UISTS-	BLU	A9
B9	UICMD-	YEL	B1
B8	UICMD+	BLU	B2
B7	UIRESET-	YEL	B3
B6	UIRESET+	BLU	B4
B5	GND	VIO	B5
B4	GND	VIO	B6
B3	GND	VIO	B7
B2	+5V	GRY	B8
B1	+5V	GRY	B9
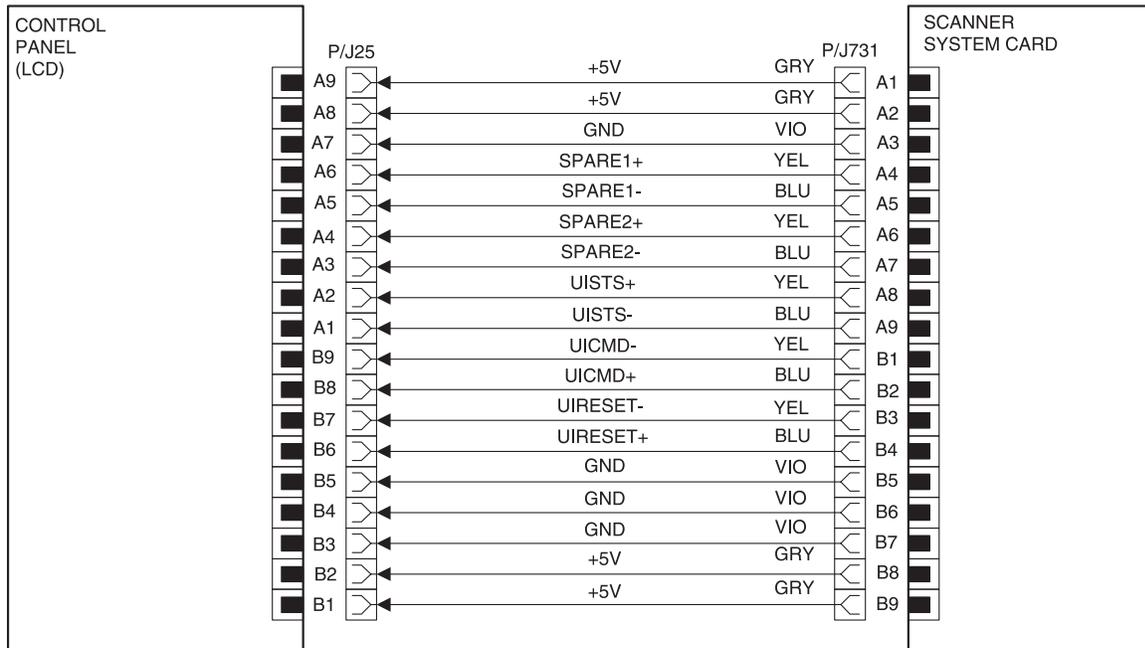
Signal name	Description
SPARE1+	User interface communication signal + (spare 1)
SPARE1-	User interface communication signal - (spare 1)
SPARE2+	User interface communication signal + (spare 2)
SPARE2-	User interface communication signal - (spare 2)
User interface STS+	User interface communication signal + (user interface status)
User interface STS-	User interface communication signal - (user interface status)
User interface CMD-	User interface communication signal - (user interface command)
User interface CMD+	User interface communication signal + (user interface command)
User interface RESET-	User interface communication signal - (user interface reset)
User interface RESET+	User interface communication signal + (user interface reset)

Scanner System Card IPS ↔ Flash ROM (1/2)

FLASH ROM(1/2)		P/J737	SCANNER SYSTEM CARD

+5V	1	
+5V	2	
+5V	3	
+5V	4	
GND	5	
GND	6	
D0	7	
D1	8	
D2	9	
D3	10	
D4	11	
D5	12	
D6	13	
D7	14	
GND	15	
GND	16	
N.C	17	
N.C	18	
N.C	19	
N.C	20	
N.C	21	
N.C	22	
N.C	23	
A0	24	
GND	25	
GND	26	
MROMCS	27	
CRKTCS	28	
FLASHATC	29	
N.C	30	
RD	31	
WR	32	
N.C	33	
CRKTINT	34	
GND	35	
GND	36	
N.C	37	
A1	38	
A2	39	
A3	40	
A4	41	
A5	42	
A6	43	
A7	44	
GND	45	
GND	46	
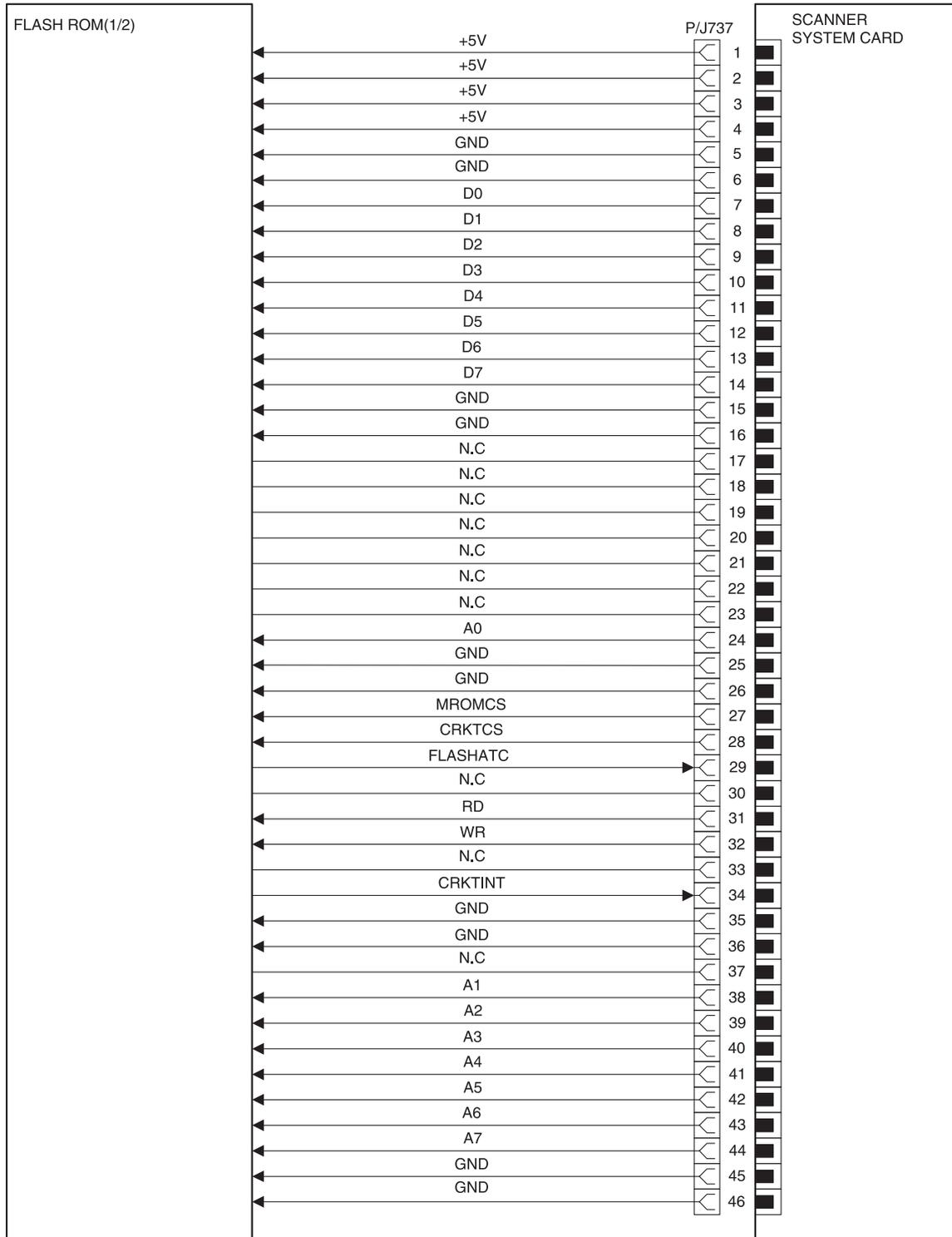
Signal name	Description
D0	CPU data bus 0
D1	CPU data bus 1
D2	CPU data bus 2
D3	CPU data bus 3
D4	CPU data bus 4
D5	CPU data bus 5
D6	CPU data bus 6
D7	CPU data bus 7
A0	CPU address bus 0
MROMCS	ROM chip selection
CRKITCS	Creation kit chip selection
FLASHATC	Flash ROM attachment signal
RD	Read signal from the CPU
WR	Write signal from the CPU
CRKTINT	Interruption signal to the creation kit
A1	CPU address bus 1
A2	CPU address bus 2
A3	CPU address bus 3
A4	CPU address bus 4
A5	CPU address bus 5
A6	CPU address bus 6
A7	CPU address bus 7

Scanner System Card IPS ↔ Flash ROM (2/2)

FLASH ROM(2/2)		P/J737	SCANNER SYSTEM CARD
	A8	47	
	A9	48	
	A10	49	
	A11	50	
	A12	51	
	A13	52	
	A14	53	
	A15	54	
	A16	55	
	A17	56	
	N.C	57	
	CRKTSTS+	58	
	GND	59	
	GND	60	
	BYTE	61	
	FROMBUSY	62	
	RST	63	
	CRKTSTS-	64	
	CRKTCMD+	65	
	CRKTCMD-	66	
	GND	67	
	GND	68	
	+5V	69	
	+5V	70	
	+5V	71	
	+5V	72	
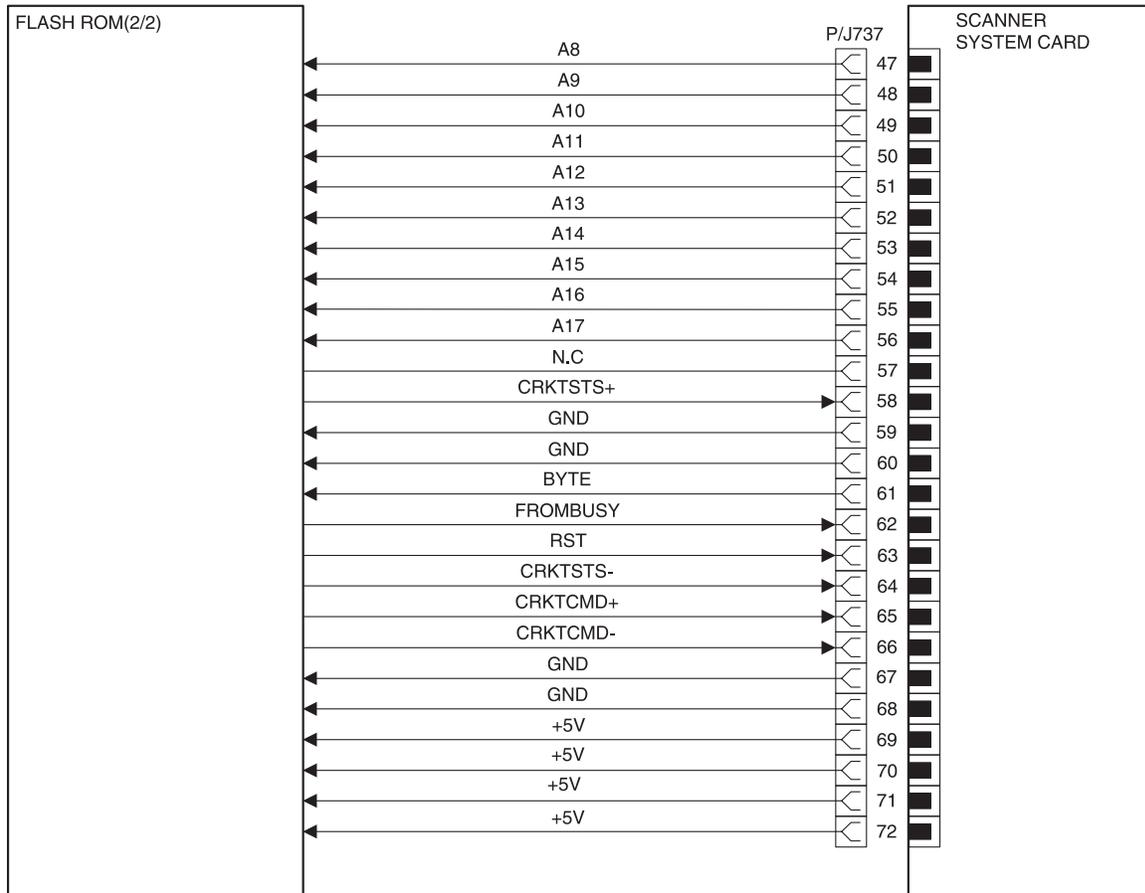
Signal name	Description
A8	CPU address bus 8
A9	CPU address bus 9
A10	CPU address bus 10
A11	CPU address bus 11
A12	CPU address bus 12
A13	CPU address bus 13
A14	CPU address bus 14
A15	CPU address bus 15
A16	CPU address bus 16
A17	CPU address bus 17
CRKTSTS+	Creation kit status signal +
BYTE	Flash ROM switching signal between 8 bits and 16 bits
FROMBUSY	Flash ROM busy signal
RST	Flash ROM reset signal
CRKSTS-	Creation kit status signal -
CRKTCMD+	Creation kit command signal +
CRKTCMD-	Creation kit command signal -

Scanner System Card IPS ↔ DADF

SCANNER SYSTEM CARD	P/J736		P/J700	DADF
	1	+24V	1	
	14	+24V	14	
	2	+24V	2	
	15	+24V	15	
	3	+24V	3	
	16	+24V	16	
	4	CMD+	4	
	17	CMD-	17	
	5	STA+	5	
	18	STA-	18	
	6	SCAN#RDY	6	
	19	GND	19	
	7	SCAN#START	7	
	20	GND	20	
	8	DADF#ATC	8	
	21	GND	21	
	9	+5V	9	
	22	GND	22	
	10	+5V	10	
	23	GND	23	
	11	+5V	11	
	24	GND	24	
	12	+5V	12	
	25	GND	25	
	13	GND	13	
	26	GND	26	

4036-501
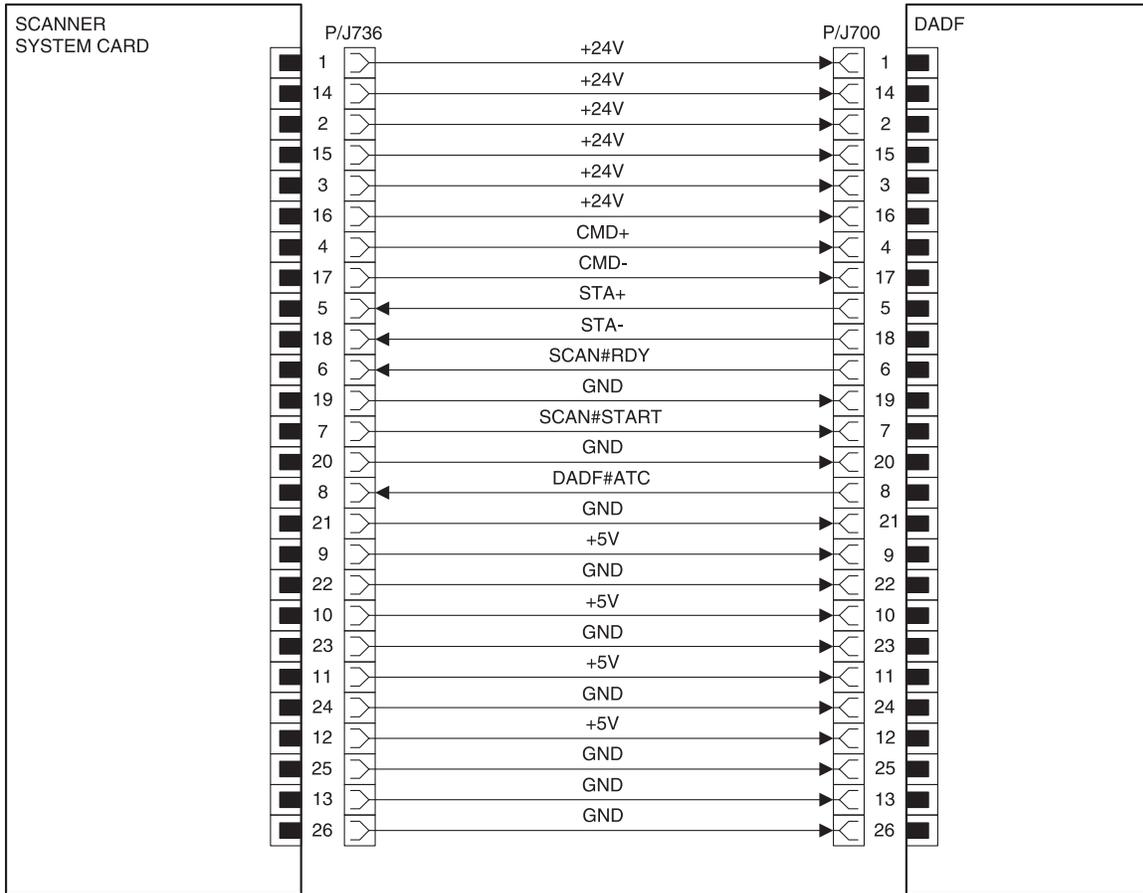
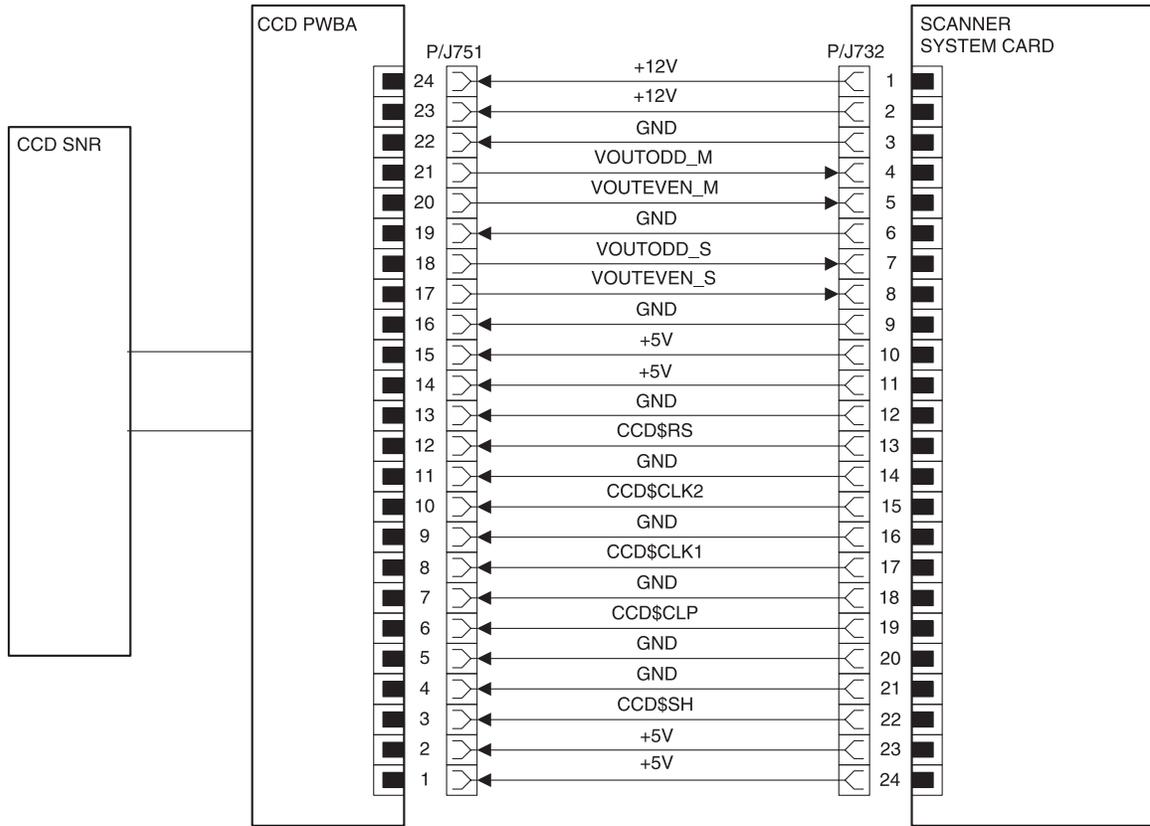| Signal Name	Description
CMD+	DADF command signal +
CMD-	DADF command signal -
STA+	DADF status signal +
STA-	DADF status signal -
SCAN#RDY	DADF ready of scan signal
SCAN#START	DADF start of scan signal
DADF#ATC	DADF attachment signal

Scanner System Card IPS ↔ MFD (1/4)

	P/J730		P/J460	
SCANNER SYSTEM CARD	1	UISTS+	1	MFD
	2	UISTS-	2	
	3	SPARE1+	3	
	4	SPARE1-	4	
	5	UIRESET+	5	
	6	UIRESET-	6	
	7	SCNRESET+	7	
	8	SCNRESET-	8	
	9	SCNSTS+	9	
	10	SCNSTS-	10	
	11	SCNCMD+	11	
	12	SCNCMD-	12	
	13	PRTLSYNC+	13	
	14	PRTLSYNC-	14	
	15	SCNVCLK+	15	
	16	SCNVCLK-	16	
	17	SCNPSYC+	17	
	18	SCNPSYC-	18	
	19	SCNVVALD+	19	
	20	SCNVVALD-	20	
	21	SCNVD0+	21	
	22	SCNVD0-	22	
	23	SCNVD1+	23	
	24	SCNVD1-	24	
	25	SCNVD2+	25	
	26	SCNVD2-	26	
	27	SCNVD3+	27	
	28	SCNVD3-	28	
	29	SCNVD4+	29	
	30	SCNVD4-	30	
	31	UICMD+	31	
	32	UICMD-	32	
	33	SPARE2+	33	
	34	SPARE2-	34	

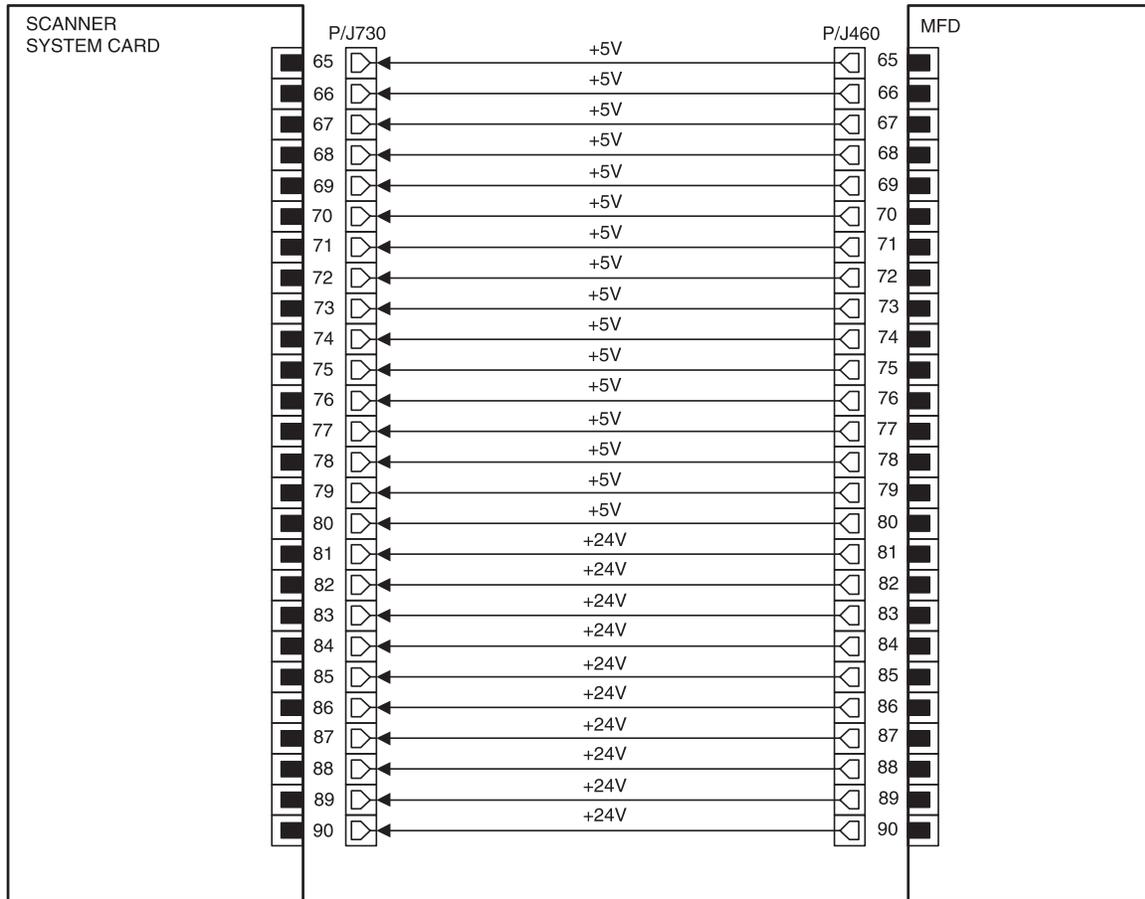| Signal Name	Description
User interface STS+	User interface communication signal + (user interface status)
User interface STS-	User interface communication signal - (user interface status)
SPARE1+	User interface communication signal + (spare 1)
SPARE1-	User interface communication signal - (spare 1)
User interface RESET+	User interface communication signal + (user interface reset)
User interface RESET-	User interface communication signal - (user interface reset)
SCNRESET+	IIT communication signal + (IIT reset)
SCNRESET-	IIT communication signal - (IIT reset)
SCNSTS+	IIT communication signal + (IIT status)
SCNSTS-	IIT communication signal - (IIT status)
SCNCMD+	IIT communication signal + (IIT command)
SCNCMD-	IIT communication signal - (IIT command)
PRTLSYNC+	Fast scan synchronized signal + from the IOT
PRTLSYNC-	Fast scan synchronized signal - from the IOT
SCNVCLK+	IIT video scanning clock +
SCNVCLK-	IIT video scanning clock -
SCNPSYC+	IIT slow scan synchronized signal +
SCNPSYC-	IIT slow scan synchronized signal -
SCNVVALD+	IIT fast scan synchronized signal +
SCNVVALD-	IIT fast scan synchronized signal -
SCNVD0+	IIT scanning video data 0+
SCNVD0-	IIT scanning video data 0-
SCNVD1+	IIT scanning video data 1+
SCNVD1-	IIT scanning video data 1-
SCNVD2+	IIT scanning video data 2+
SCNVD2-	IIT scanning video data 2-

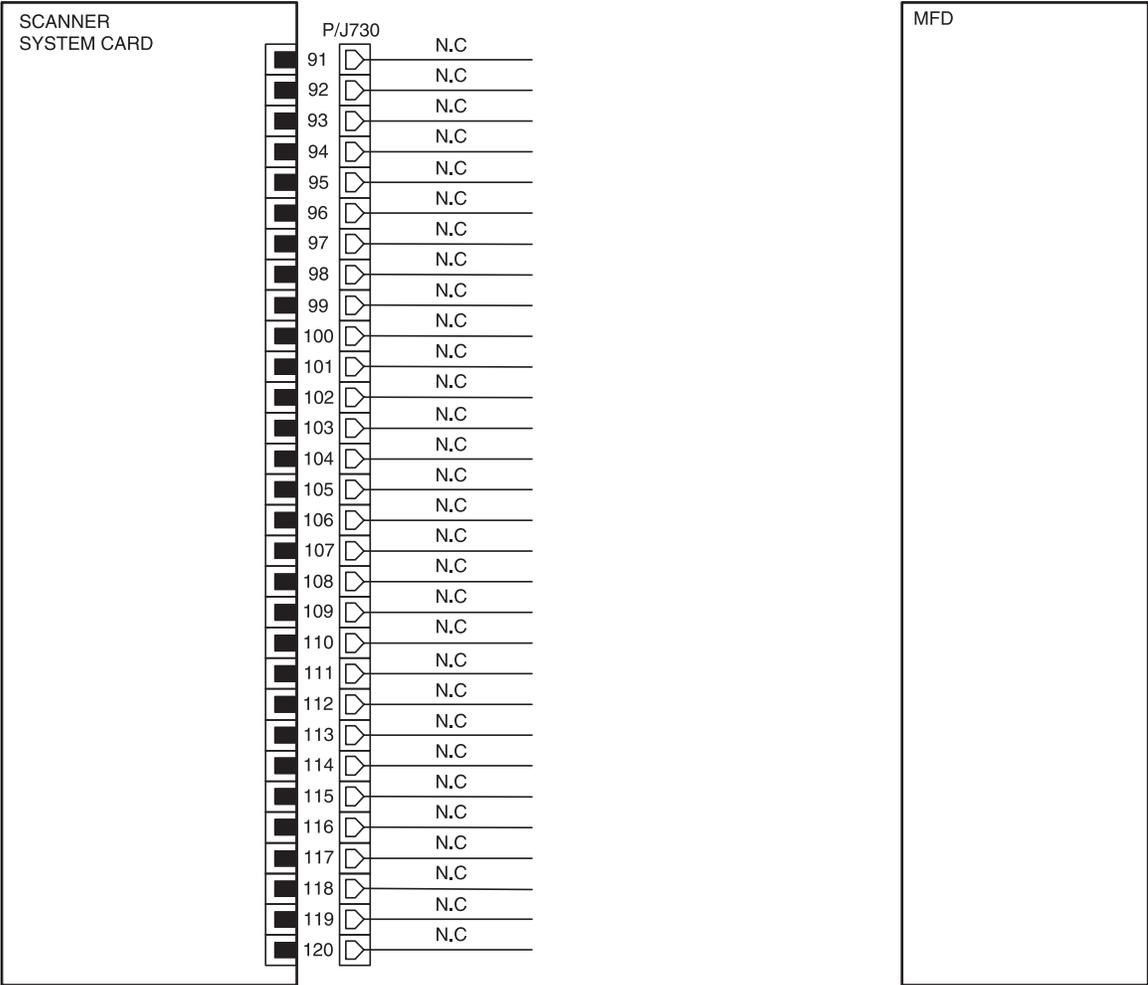| Signal Name	Description
SCNVD3+	IIT scanning video data 3+
SCNVD3-	IIT scanning video data 3-
SCNVD4+	IIT scanning video data 4+
SCNVD4-	IIT scanning video data 4-
User interface CMD+	User interface communication single + (user interface command)
User interface CMD-	User interface communication single - (user interface command)
SPARE2+	User interface communication single + (spare 2)
SPARE2-	User interface communication single - (spare 2)

Scanner System Card IPS ↔ MFD (2/4)

CCD PWBA		P/J751			P/J732		SCANNER SYSTEM CARD

```
CCD PWBA                    P/J751                          P/J732      SCANNER
                                                                        SYSTEM CARD
              24  ▷◀───────── +12V ──────────◁  1
              23  ▷◀───────── +12V ──────────◁  2
CCD SNR       22  ▷◀───────── GND ───────────◁  3
              21  ▷──────── VOUTODD_M ───────►◁  4
              20  ▷──────── VOUTEVEN_M ──────►◁  5
              19  ▷◀───────── GND ───────────◁  6
              18  ▷──────── VOUTODD_S ───────►◁  7
              17  ▷──────── VOUTEVEN_S ──────►◁  8
              16  ▷◀───────── GND ───────────◁  9
              15  ▷◀───────── +5V ───────────◁ 10
              14  ▷◀───────── +5V ───────────◁ 11
              13  ▷◀───────── GND ───────────◁ 12
              12  ▷◀───────── CCD$RS ─────────◁ 13
              11  ▷◀───────── GND ───────────◁ 14
              10  ▷◀───────── CCD$CLK2 ───────◁ 15
               9  ▷◀───────── GND ───────────◁ 16
               8  ▷◀───────── CCD$CLK1 ───────◁ 17
               7  ▷◀───────── GND ───────────◁ 18
               6  ▷◀───────── CCD$CLP ────────◁ 19
               5  ▷◀───────── GND ───────────◁ 20
               4  ▷◀───────── GND ───────────◁ 21
               3  ▷◀───────── CCD$SH ─────────◁ 22
               2  ▷◀───────── +5V ───────────◁ 23
               1  ▷◀───────── +5V ───────────◁ 24
```

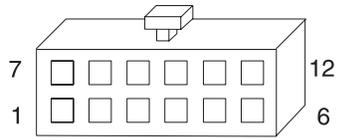| Signal name	Description
SCNVD5+	IIT scanning video data 5+
SCNVD5-	IIT scanning video data 5-
SCNVD6+	IIT scanning video data 6+
SCNVD6-	IIT scanning video data 6-
SCNVD7+	IIT scanning video data 7+
SCNVD7-	IIT scanning video data 7-
SCAN-STRT+	IIT start of scan signal +
SCANSTRT-	IIT start of scan signal -
SCANRDY+	IIT ready of scan signal +
SCANRDY-	IIT ready of scan signal -

Scanner System Card IPS ↔ MFD (3/4)

SCANNER SYSTEM CARD	P/J730		P/J460	MFD
	65	+5V	65	
	66	+5V	66	
	67	+5V	67	
	68	+5V	68	
	69	+5V	69	
	70	+5V	70	
	71	+5V	71	
	72	+5V	72	
	73	+5V	73	
	74	+5V	74	
	75	+5V	75	
	76	+5V	76	
	77	+5V	77	
	78	+5V	78	
	79	+5V	79	
	80	+5V	80	
	81	+24V	81	
	82	+24V	82	
	83	+24V	83	
	84	+24V	84	
	85	+24V	85	
	86	+24V	86	
	87	+24V	87	
	88	+24V	88	
	89	+24V	89	
	90	+24V	90	

Scanner System Card IPS ↔ MFD (4/4)

SCANNER
SYSTEM CARD

P/J730

MFD

Pin	
91	N.C
92	N.C
93	N.C
94	N.C
95	N.C
96	N.C
97	N.C
98	N.C
99	N.C
100	N.C
101	N.C
102	N.C
103	N.C
104	N.C
105	N.C
106	N.C
107	N.C
108	N.C
109	N.C
110	N.C
111	N.C
112	N.C
113	N.C
114	N.C
115	N.C
116	N.C
117	N.C
118	N.C
119	N.C
120	

External Low Voltage Power Supply

Pin	Wire color	Voltage
1	Black	GND
2	Black	GND
3	Black	GND
4	Black	GND
5	Black	GND
6	Black	GND
7	White	+24V dc
8	Red	+5V dc
9	Yellow	+12V dc
10	Red	+5V dc
11	Red	+5V dc
12	Red	+5V dc

6. Preventive Maintenance

Maintaining Your Multifunction Product (MFP)

Warning: Do not spray the touch screen with water or glass cleaner. Liquid can damage the MFP.

CleaNing the touch screen

1. Dampen a clean, lint-free cotton cloth with water.
2. Wipe the touch screen.

Cleaning the scanner bed

1. Dampen a clean, lint-free cotton cloth with water.
2. Open the cover. Wipe the scanner bed glass.

Cleaning the scanner rollers

Clean the rollers if documents do not feed smoothly or easily, or if several documents feed at one time. The rollers may be contaminated with ink, toner particles, or paper coating. We recommend cleaning rollers every 30,000 scans.

1. Turn off and unplug the control unit.
2. Dampen a clean, lint-free cotton cloth with water.
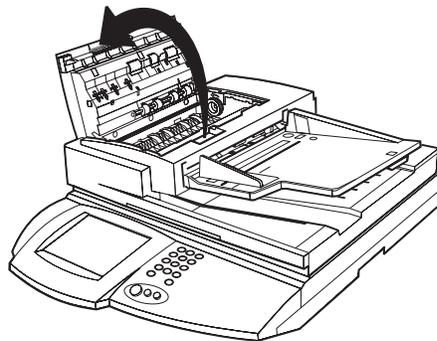
3. Open the ADF lid.
4. Rotate the set of pick rollers forward with your finger and wipe each one with the cloth until the entire roller is cleaned.

Pick
Rollers
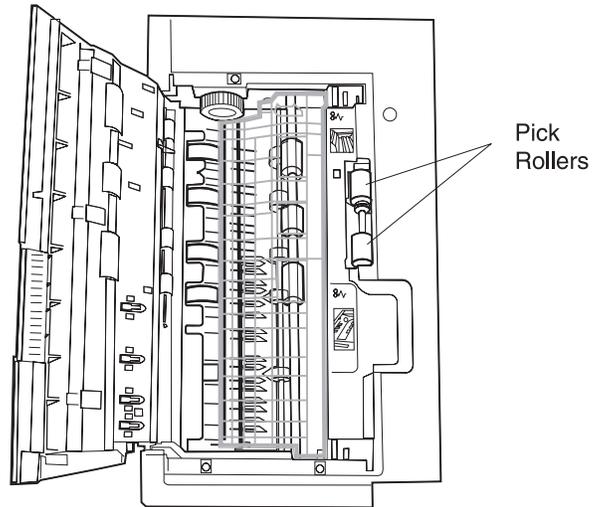
5. Lift the paper guide.
6. Rotate the three sets of feeding rollers forward with your finger and wipe each one with the cloth until the entire roller is cleaned.
7. Lower the paper guide and the ADF cover.
8. Plug in the control unit and turn it on.

Feed Rollers

Paper Guide
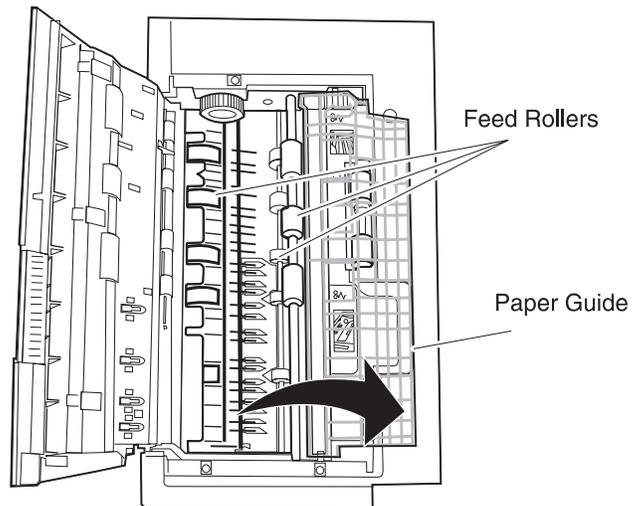
Cleaning the scanner pick pads

1. Lift the input tray.
2. Remove the two screws.
3. Lower the roller plate and pull it straight out.
4. Dampen a clean, lint-free cotton cloth with water.
5. Wipe the two pick pads.
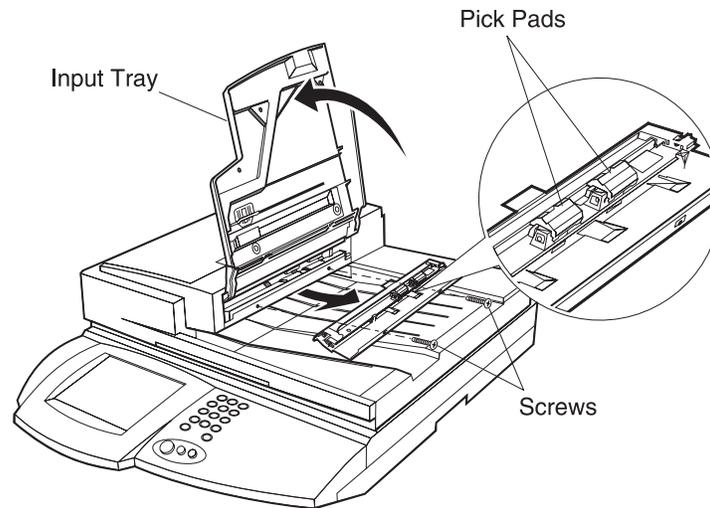
6. Align the tabs on either side of the roller plate with the grooves inside the paper exit area.

7. Insert the right tab into the right groove, and then slip the left tab into the left groove.

8. Tilt the roller plate up and slanted slightly down on the right side.

9. Slide the plate back until it *snaps* into place.

10. Install the two screws to secure the plate.

For instructions on maintaining the printer, refer to the printer publications CD.
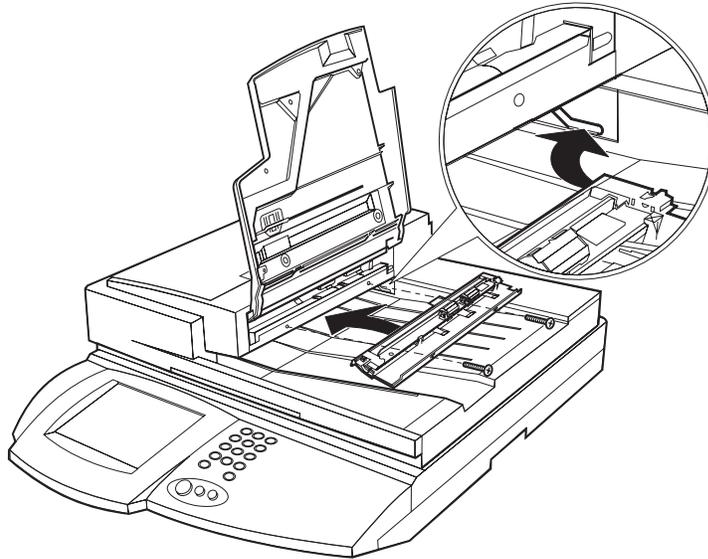
7. Parts Catalog

How to Use This Parts Catalog

- SIMILAR ASSEMBLIES: If two assemblies contain a majority of identical parts, they are shown on the same list. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.
- NS: (Not Shown) indicates that the part is procurable but is not shown in the illustration.
- The capital letters "E", "KL", and "S" shown in an illustration stand for E-ring, KL Clip, and Screw.
  Note: To obtain any of these parts not included in a FRU assembly, refer to the Lexmark W820 printer parts catalog for a screw parts pack, clamp kit pack or E clip kit pack.

Assembly 1: DADF Cover and Solenoid
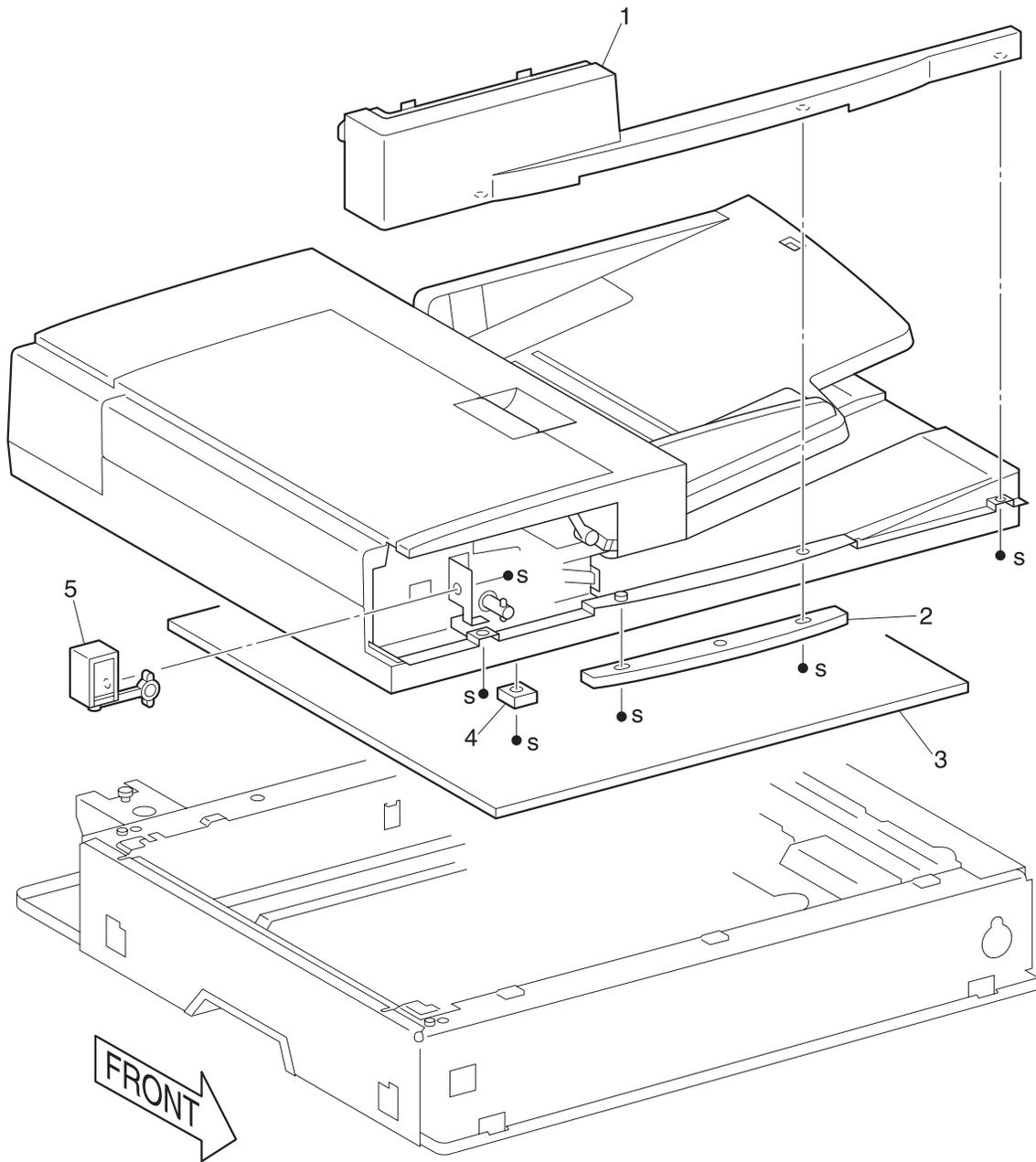
Assembly 1:

Ref	Part number	Units	Description
1	12G6841	1	Cover, DADF Front
2	12G6842	1	Handle, DADF
3	12G6843	1	Cushion, DADF
4	12G6844	1	Magnet, DADF
5	12G6845	1	Solenoid, DADF Exit/Reverse

Assembly 2: DADF Cover, Switch, and Hinge (Rear)
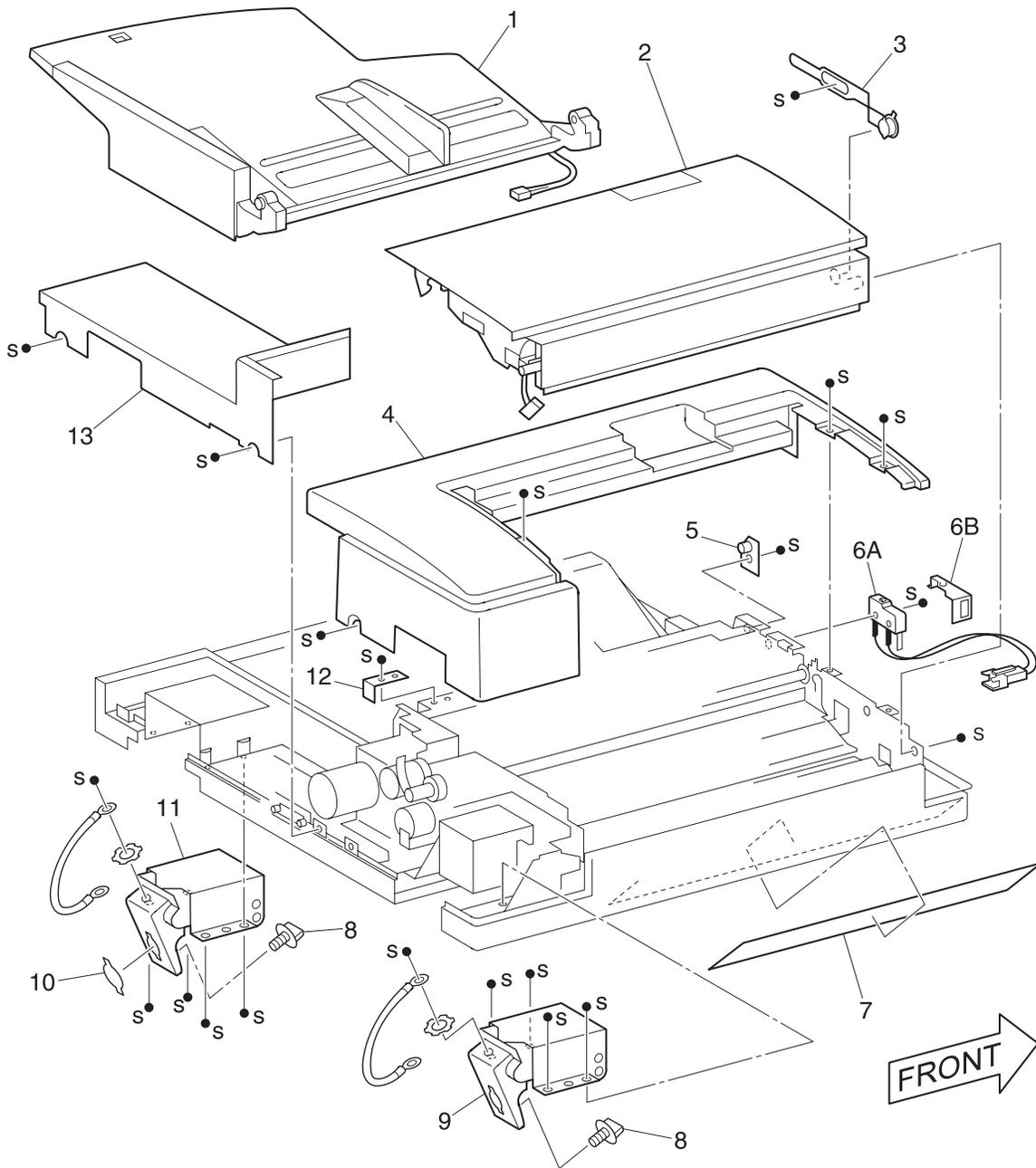
Assembly 2:

Ref	Part number	Units	Description
1	12G6846	1	Tray Assembly, DADF Input
2	12G6847	1	Door Assembly, DADF Jam Access
3	12G6848	1	Lever, Jam Access Door
4	12G6849	1	Cover, DADF Top
5	12G6851	1	Plate, Lever
6A	12G6852	1	Actuator, Jam Door Open Switch
6B	12G6853	1	Switch, Jam Door Open
7	12G6854	1	Strip, Mylar Paper Guide
8	12G4191	1	DADF Thumbscrew
9	12G6856	1	Hinge, Left DADF
10	12G6858	1	Plate, Hinge Loading
11	12G6857	1	Hinge, Right DADF
12	12G6859	1	Bracket, Retaining
13	12G6850	1	Cover, DADF Rear

Assembly 3: DADF Control Board and DADF Registration Roll Drive Motor Assembly
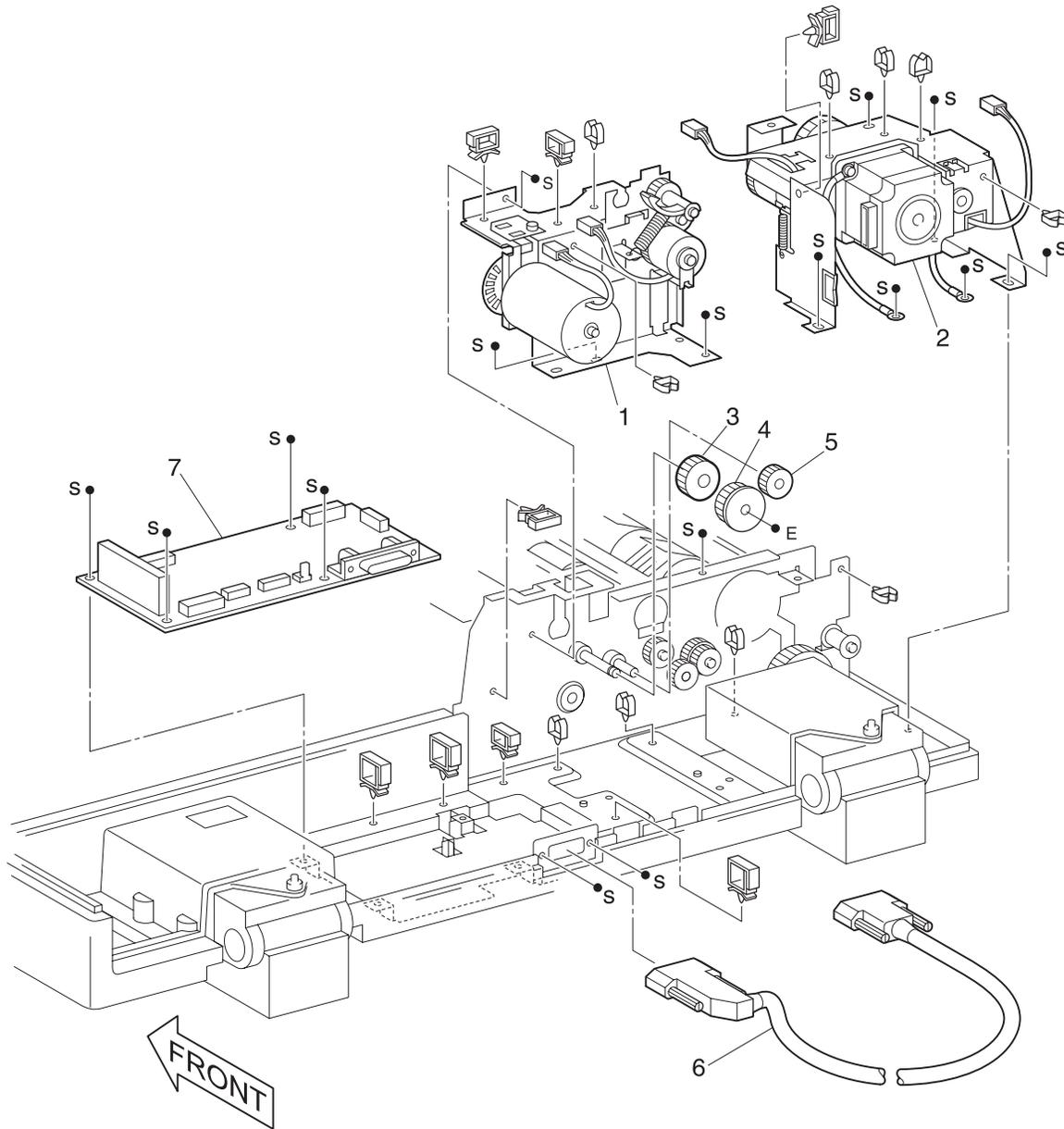
Assembly 3:

Ref	Part number	Units	Description
1	12G6864	1	Motor Assembly, DADF Registration Roll Drive
2	12G6865	1	Motor Assembly, DADF Main Drive
3	12G9058	1	Gear, DADF #2B
4	12G6863	1	Gear, DADF #2
5	12G6862	1	Gear, DADF #1
6	12G6861	1	Cable, Scanner to DADF
7	12G6860	1	Card Assembly, DADF Controller

Assembly 4: DADF Separator Pad Asm. and Paper Stop
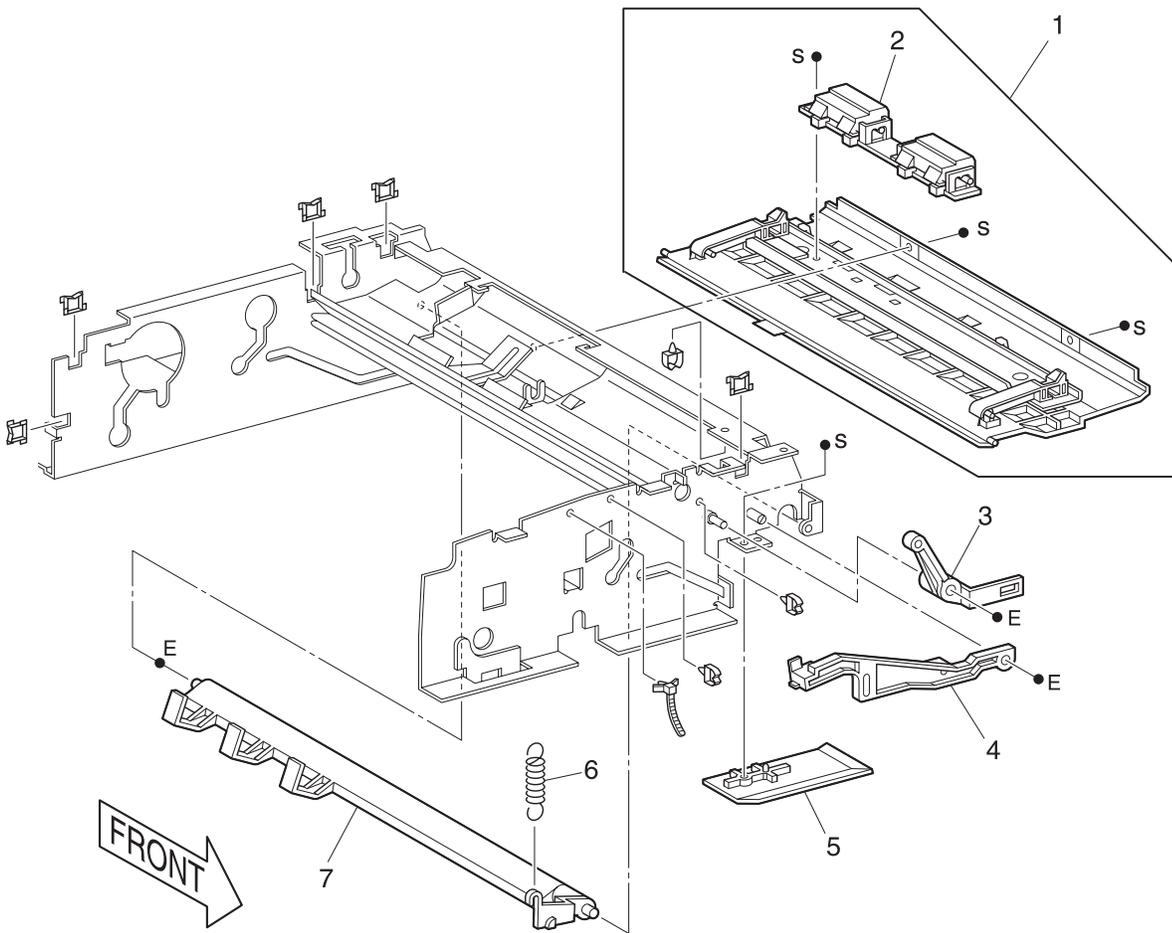
Assembly 4:

Ref	Part number	Units	Description
1	12G6866	1	Pad Assembly, DADF Separator
2	12G6867	1	Pad, DADF Individual Separator
3	12G6868	1	Linkage, DADF #1
4	12G6869	1	Linkage, DADF #2
5	12G6870	1	Cover, DADF Linkage
6	12G6872	1	Spring, Paper Stop
7	12G6871	1	Stop, Paper

Assembly 5: DADF Pick Roller
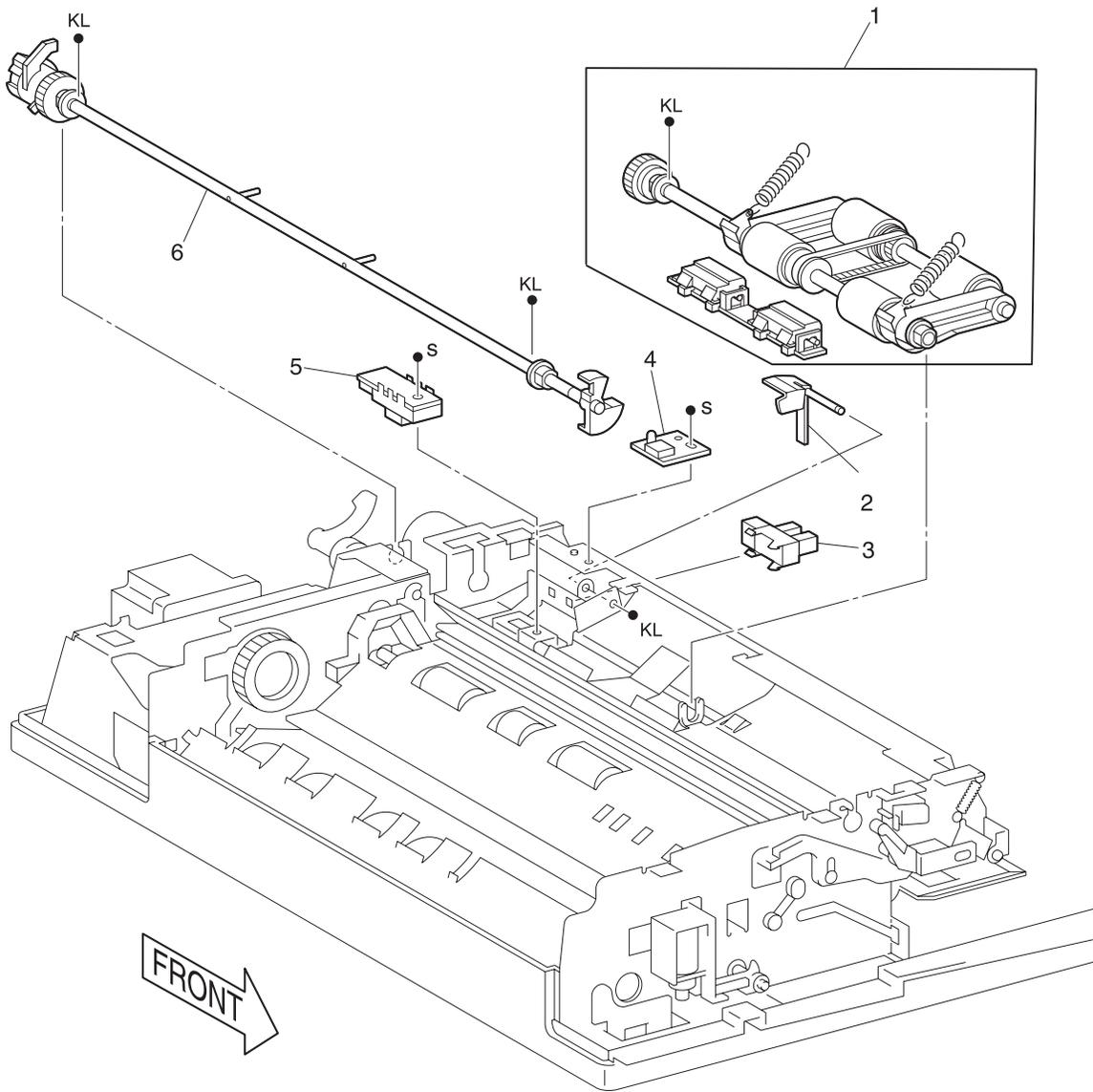
Assembly 5:

Ref	Part number	Units	Description
1	12G6878	1	Kit Assembly, DADF Pick Roller with Separator Pad
2	12G6877	1	Flag, Paper Present Sensor
3	12G6876	1	Sensor, DADF Paper Present
4	12G6875	1	Card Assembly, Paper Present Indicator
5	12G6874	1	Sensor, Pre Registration1
6	12G6873	1	Shaft Assembly, Roller Engagement

Assembly 6: DADF Document Registration
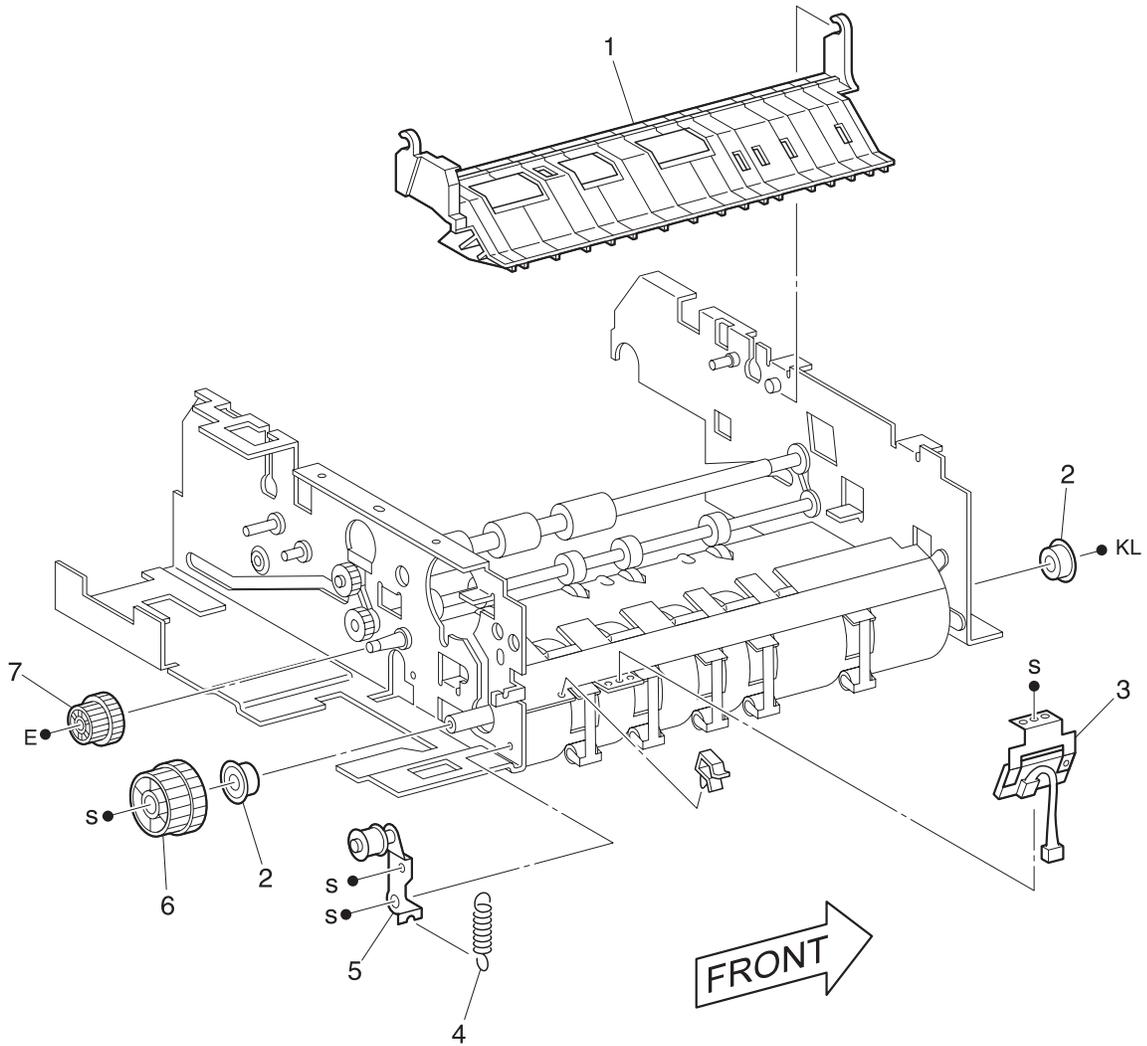
Assembly 6:

Ref	Part number	Units	Description
1	12G6879	1	Guide, DADF Upper Paper
2	12G6883	2	Bearing, Roller Shaft
3	12G6880	1	Sensor, Registration
4	12G6881	1	Spring, Tension Roller
5	12G6882	1	Roller, Tension
6	12G6884	1	Gear, DADF #3
7	12G6885	1	Gear, DADF #4

Assembly 7: DADF Wiring Harness
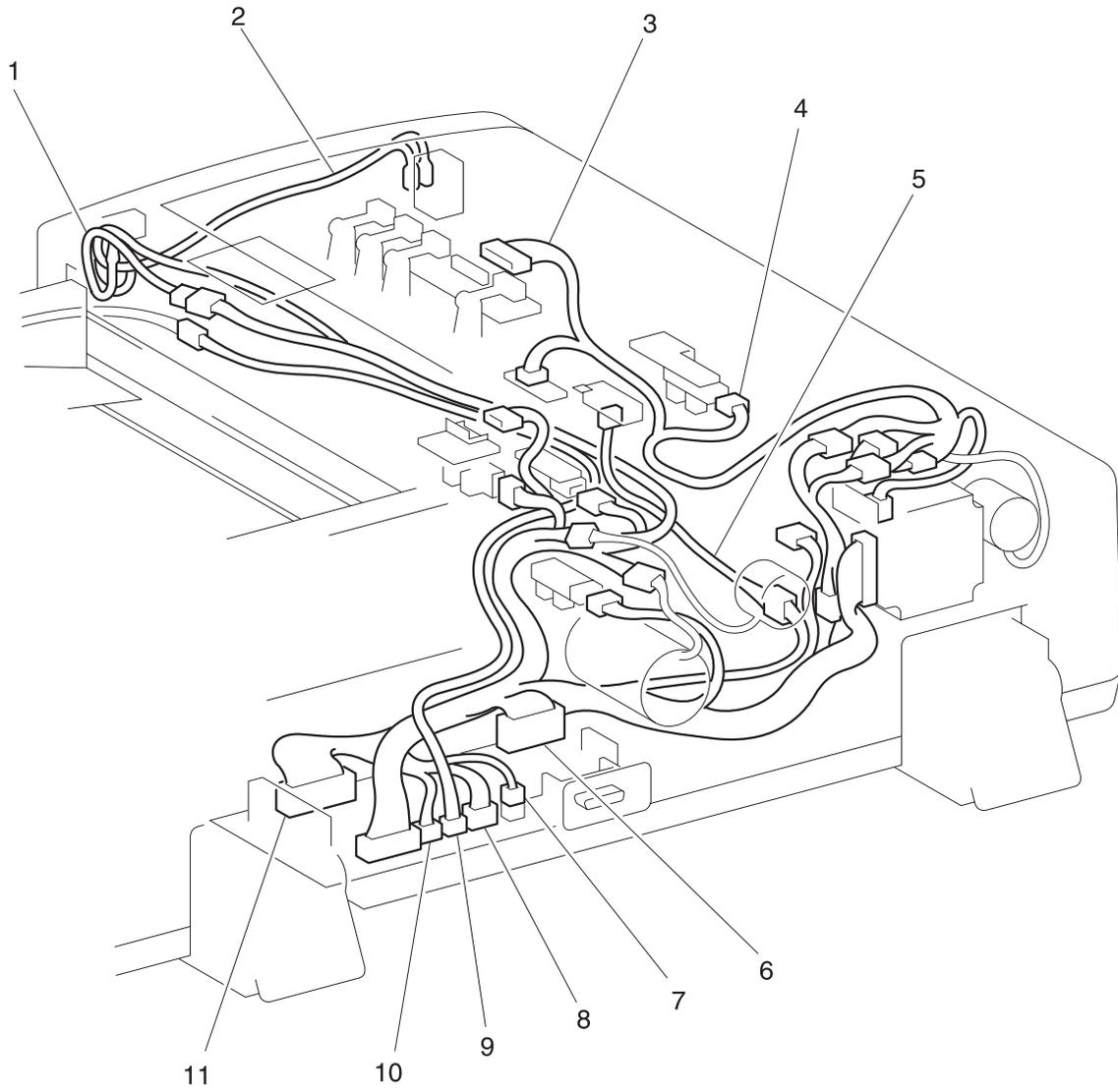
Assembly 7:

Ref	Part number	Units	Description
1	12G6896	1	(J16, J30) Wiring Harness
2	12G6893	1	(J7, J26, J27, J28) Wiring Harness
3	12G6889	1	(J11, J13) Wiring Harness
4	12G6888	1	(J14, J22, J23) Wiring Harness
5	12G6894	1	(J33, J35) Wiring Harness
6	12G6890	1	(J4, J12, J13, J29) Wiring Harness
7	12G6887	1	(J2, J32) Wiring Harness
8	12G6891	1	(J3, J17, J13, J19, J20) Wiring Harness
9	12G6836	1	(J9, J30) Wiring Harness
10	12G6895	1	(J8, J15) Wiring Harness
11	12G6892	1	(J6, J14, J25, J31, J35) Wiring Harness

Assembly 8: Scanner Platen Glass and IPS PWB
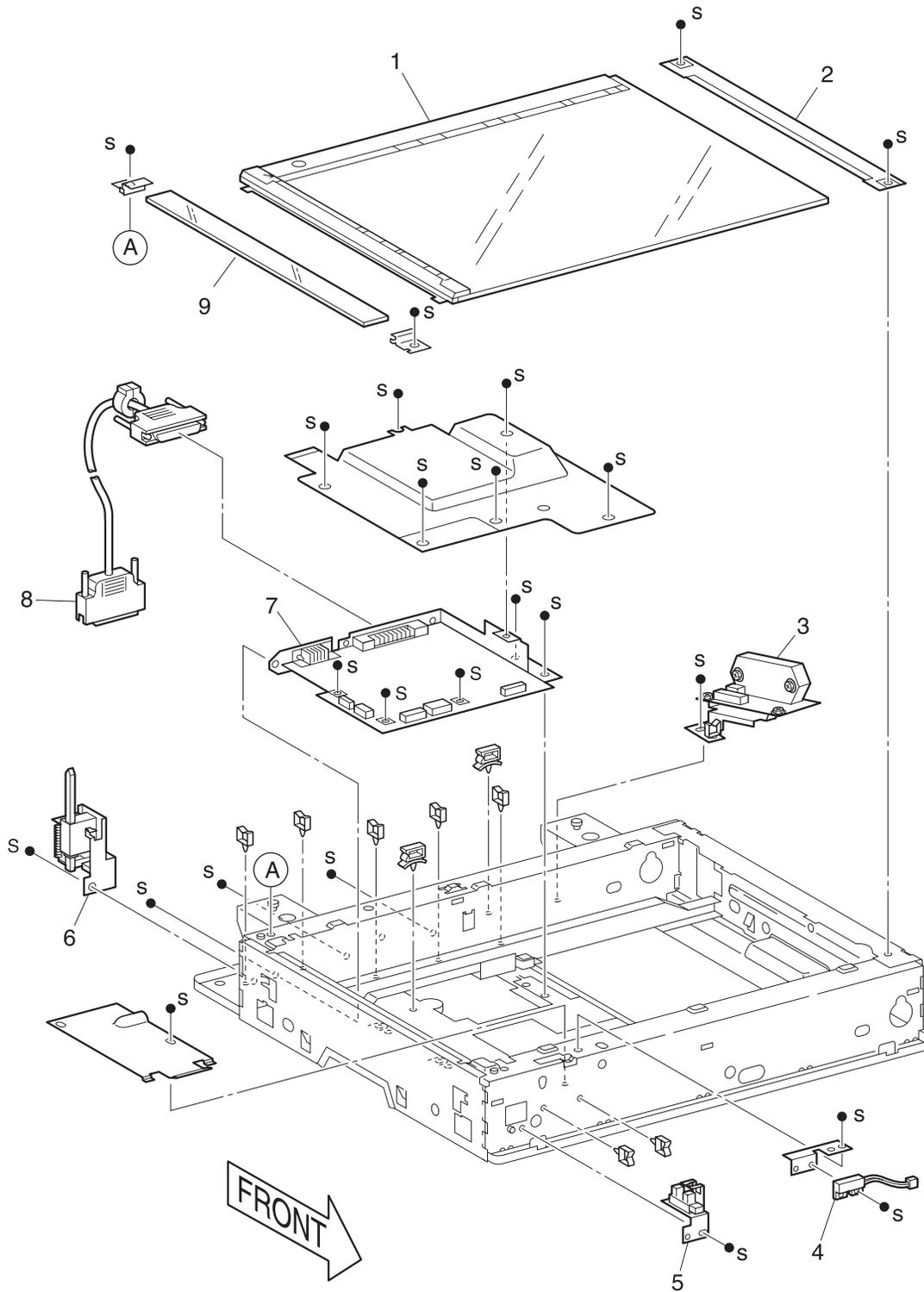
Assembly 8:

Ref	Part number	Units	Description
1	12G6807	1	Plate, Flatbed Center Platen Glass
2	12G6808	1	Plate, Right
3	12G6809	1	Card Assembly, Scanner Motor
4	12G6810	1	Switch Assembly, Plate
5	12G6811	1	Sensor Assembly, Registration
6	12G6812	1	Sensor Assembly, Flatbed Open
7	12G6813	1	Card Assembly, Scanner System
8	12G6814	1	Cable, Scanner to Controller
9	12G6815	1	Plate, Left DADF Platen Glass

Assembly 9: Scanner Lens Assembly and CCD Card
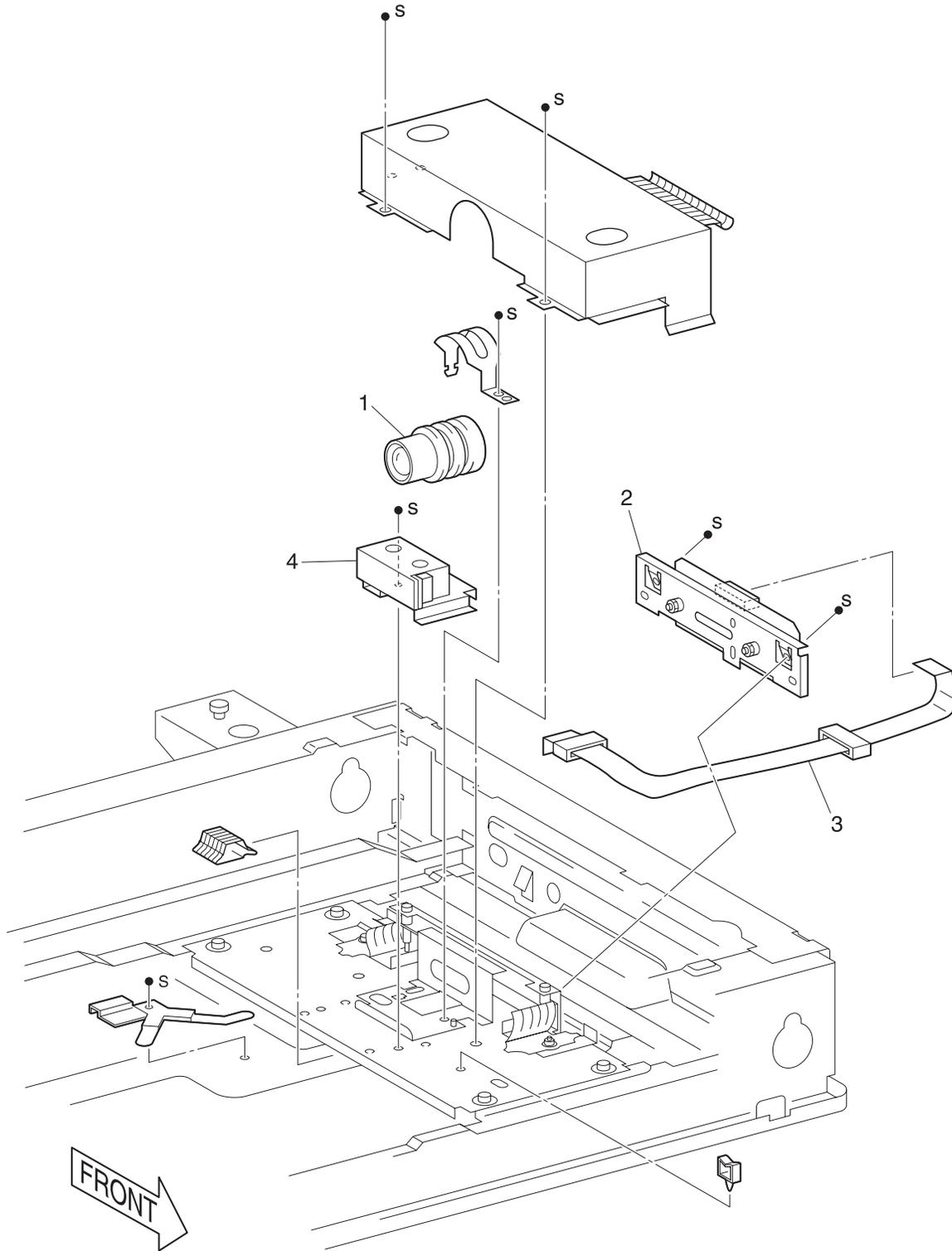
Assembly 9:

Ref	Part number	Units	Description
1	12G6819	1	Lens, CCD Card
2	12G6816	1	Card Assembly, Charged Couple Device
3	12G6817	1	Cable, CCD
4	12G6818	1	Sensor, Automatic Paper Size (APS)

Assembly 10: Scanner Carriage Motor and Cable
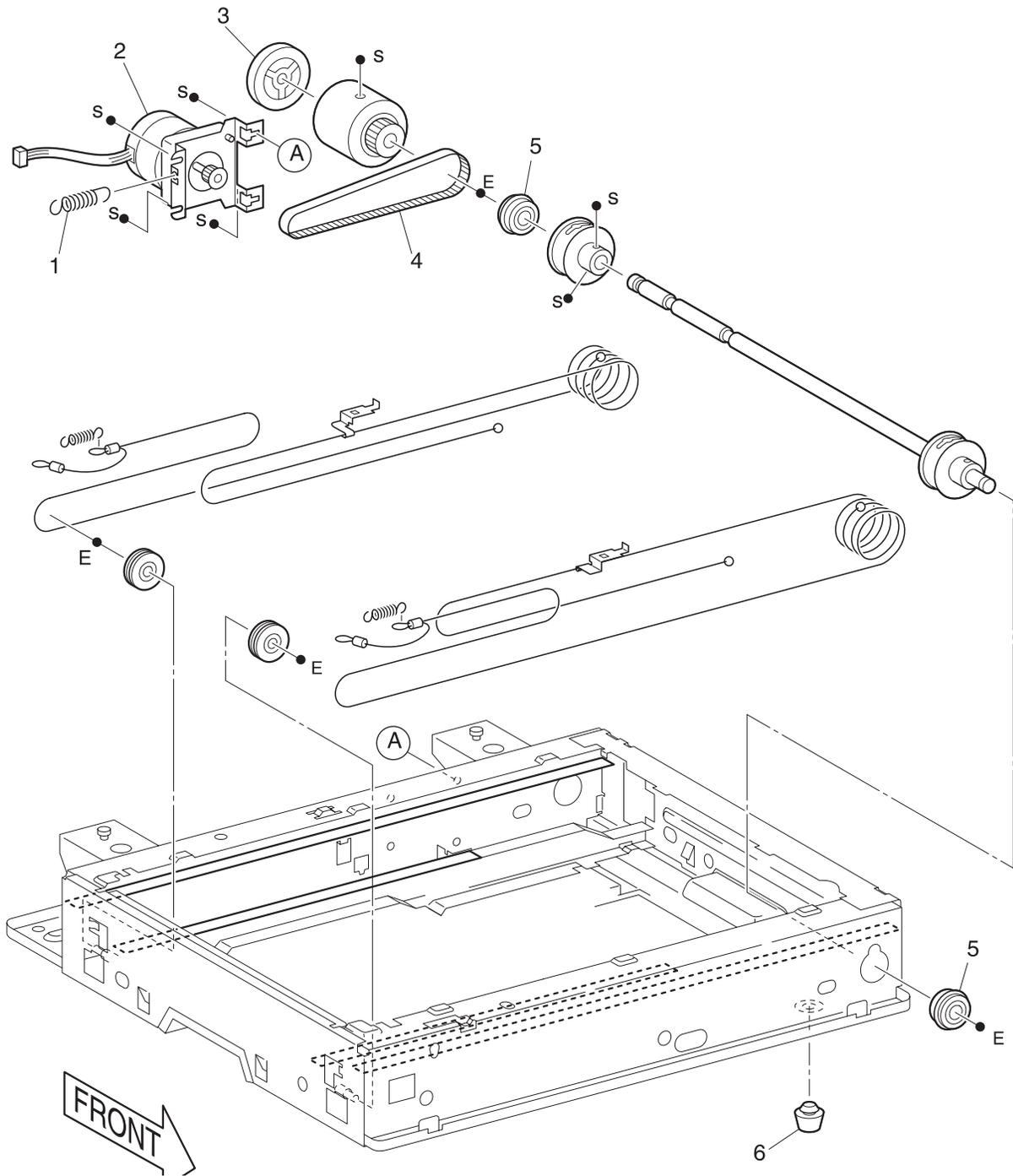
Assembly 10:

Ref	Part number	Units	Description
1	12G6829	1	Spring, Motor
2	12G6828	1	Motor Assembly, Main Drive
3	12G6824	1	Damper, Dynamic Motor
4	12G6827	1	Belt, Main Drive
5	12G6826	2	Bearing, Pulley Shaft
6	12G6830	4	Foot, Scanner Base

Assembly 11: Scanner Full Rate and Half Rate Carriage
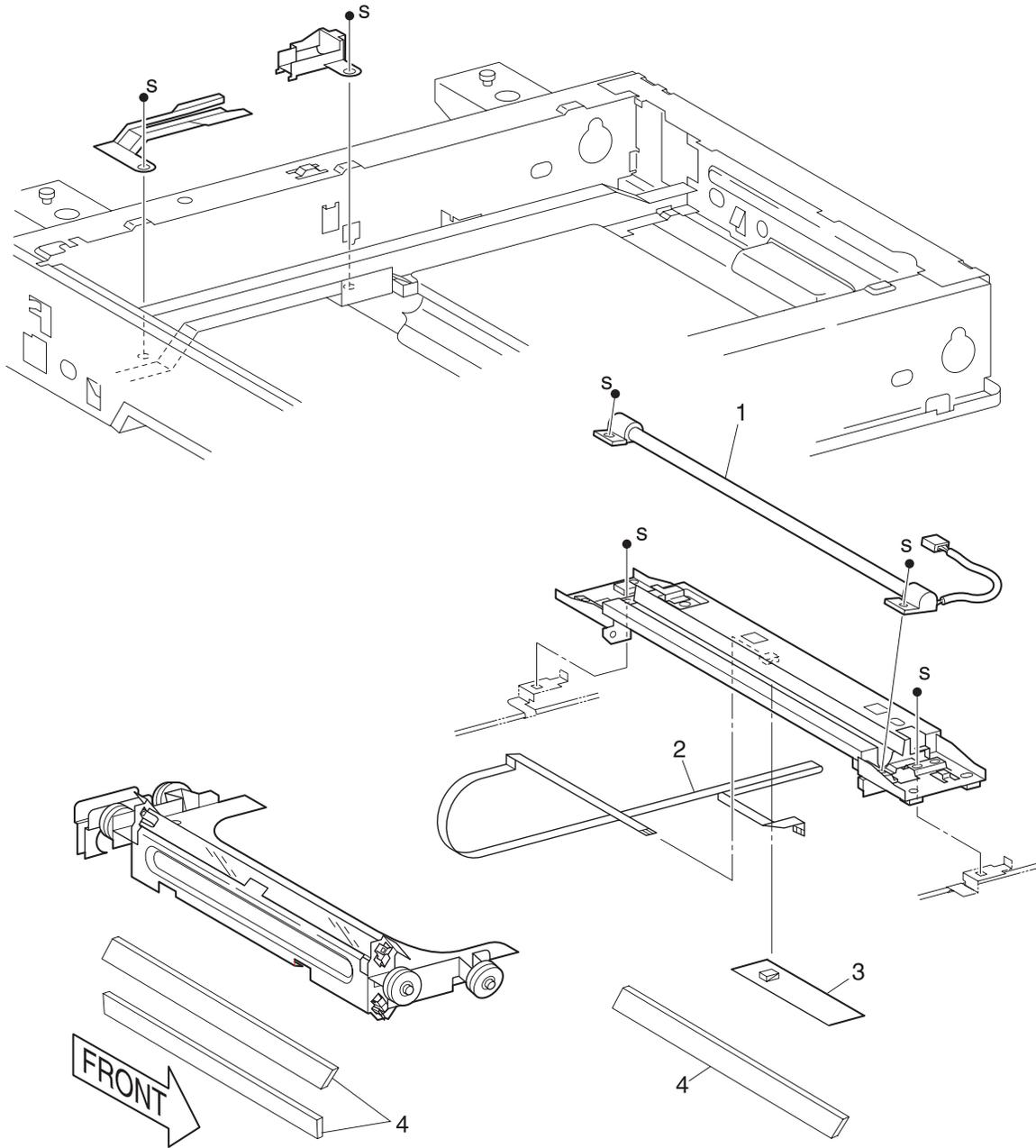
Assembly 11:

Ref	Part number	Units	Description
1	12G6834	1	Lamp Assembly, Full Rate Carriage
2	12G6835	1	Cable, Full Rate Carriage Lamp
3	12G6833	1	Power Invertor, Lamp
4	12G6886	3	Mirror, Carriage

Assembly 12: Scanner Top Cover
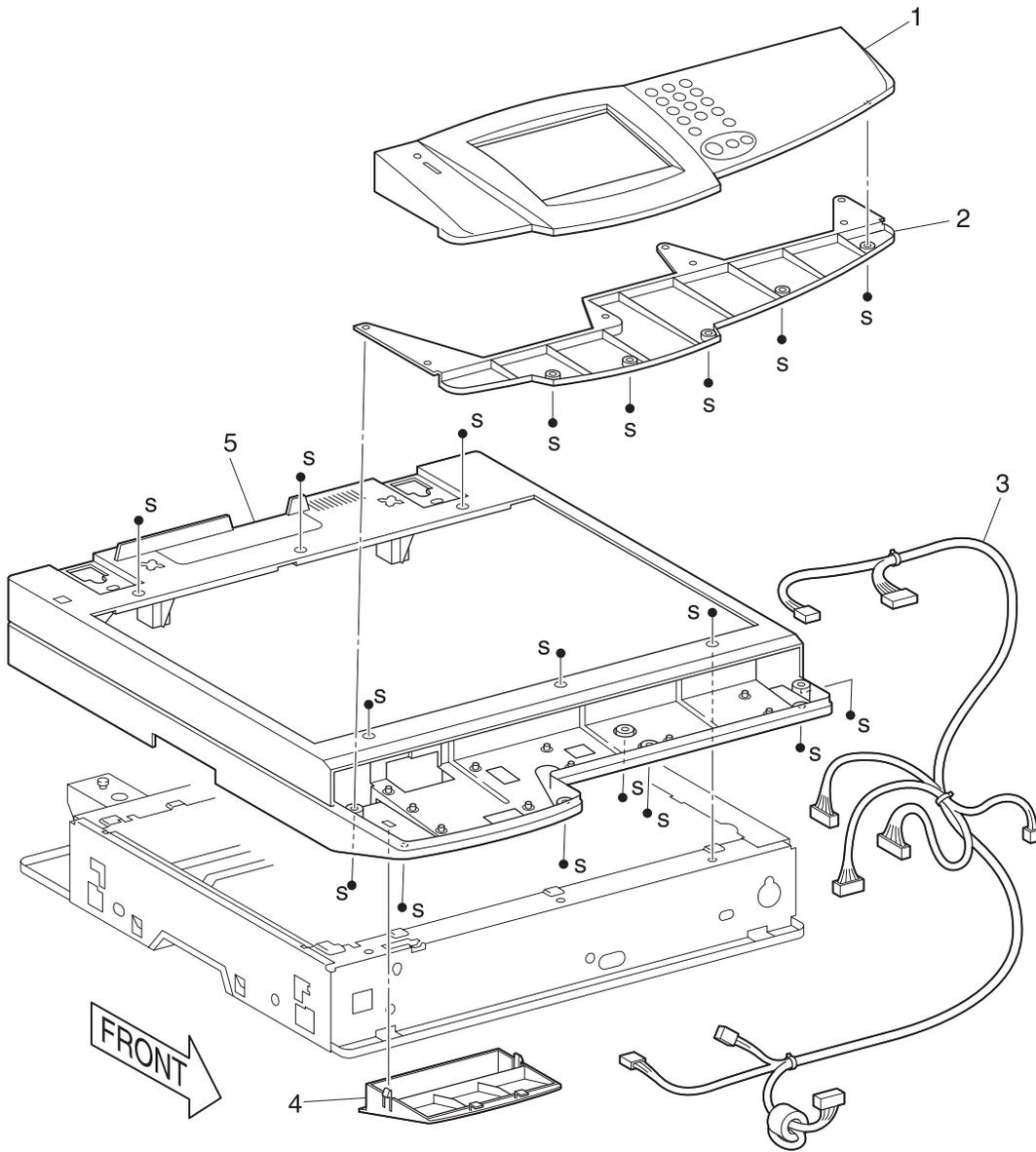
Assembly 12:

Ref	Part number	Units	Description
1	12G6839	1	Panel Assembly, User Interface
2	12G9080	1	Cover, User Interface Extension
3	12G6837	1	Main Scanner Wiring Harness, (J731<>J390, J734<>J744/J745/J746/P747, J735<>J748)
4	12G6840	1	Cover, Under Top Cover
5	12G6838	1	Cover Assembly, Flatbed Scanner Top

Assembly 13: Multifunction Device Controller Cage Electronics
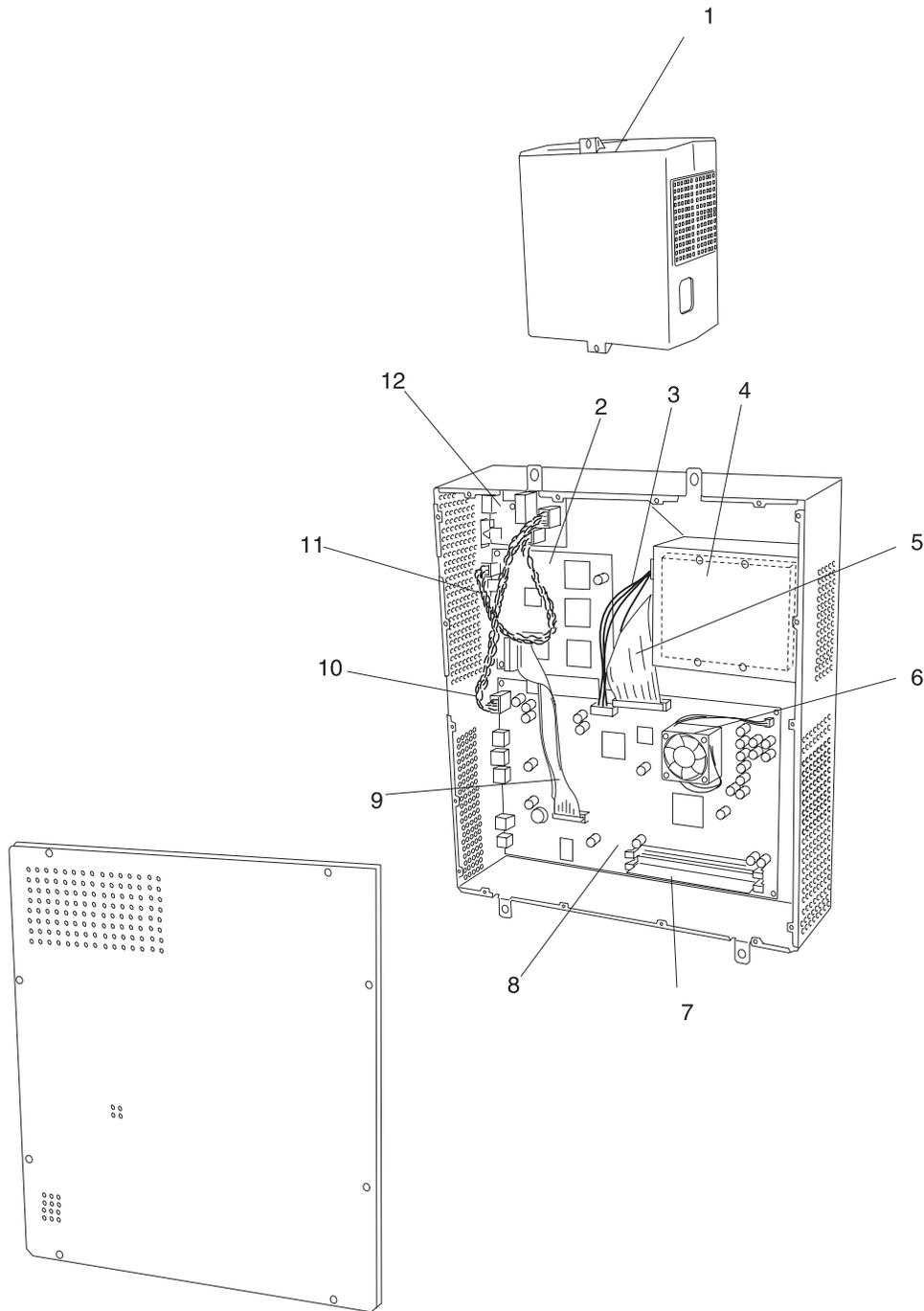
Assembly 13:

Ref	Part Number	Units	Description
1	12G6918	1	Power Supply, Universal, External
2	12G6907	1	Card Assembly, Image Processor
3	12G6912	1	Cable, HDD to Controller–4 Pin
4	56P0076	1	Drive Assembly, Hard Disk
5	12G6911	1	Cable, HDD to Controller–40 Pin
6	12G9063	1	Fan, CPU Cooling
7	56P9910	1	Card Assembly, 128MB DIMM
8	56P0064	1	Card Assembly, Controller, (all countries except Australia/New Zealand)
8	56P0065	1	Card Assembly, Controller, (Australia/New Zealand)
9	12G6913	1	Cable, Controller to Image Processor
10	12G6909	1	Cable, Power Distribution to Controller
11	12G6910	1	Cable, Power Distribution to Image Processor
12	12G6908	1	Card Assembly, Power Distribution
N/S	12G9061	1	Parts Pack, Controller Card Standoff
N/S	12G9062	1	Parts Pack, Screw
N/S	12G4368	1	Parts Pack, Clamp Kit (Lexmark W820 printer - 4025)
N/S	12G4369	1	Parts Pack, E-Clip Kit (Lexmark W820 printer - 4025)
N/S	12G4375	1	Parts Pack, Screw (Lexmark W820 printer - 4025)
N/S	56P0558	1	Cable, RJ11 with Toroids
N/S	56P0559	1	Cable, RJ45 with Toroid
N/S	11D0328	1	Line Cord, US, Canada, APG (LV), LAD (LV)
N/S	11D0329	1	Line Cord, Peru
N/S	11D0330	1	Line Cord, Argentina
N/S	11D0331	1	Line Cord, Brazil
N/S	11D0332	1	Line Cord, Chile
N/S	11D0333	1	Line Cord, Denmark
N/S	11D0334	1	Line Cord, France, Germany, Spain, Belgium, England, Europe
N/S	11D0335	1	Line Cord, Italy
N/S	11D0336	1	Line Cord, Switzerland
N/S	11D0337	1	Line Cord, UK, Ireland, Egypt
N/S	11D0338	1	Line Cord, Israel
N/S	11D0339	1	Line Cord, South Africa
N/S	99A0471	1	Line Cord, PRC
N/S	56P1806	1	Kit Asm., X820e Operator Panel Conversion

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