Transmittal Page

Product	Title	Part Number
Document WorkCenter 150	Service Manual	701P06973
Status		Date
Partial Revision To: 701P06972 Service Manual		March 1998

Change Highlights

Added / Changed in Section 3:
- IQ Rap 10, added Initial Action.
- IQ Rap 18, added to Initial Actions.
- IQ Rap 23, added to Initial Actions.

Added / Changed in Section 4:
- REP 3.4, added step 3 in Replacement Procedure.

Added / Changed in Section 5:
- PL 8.1 part numbers updated, tag info added.
- Part Number Index updated

Added / Changed in Section 6:
- Numbered Table 1 and changed descriptopn of CIS Tuning.
- Soft Switch Definition tables updated.
- Tags updated and added.
- Factory default settings updated.

Please use this change package to update your service manual.
Replace the pages listed below:

Title page Thru i
3-4, 3-10 and 3-11
4-10
5-19 and 5-20
6-5, 6-7, 6-9, 6-10, 6-11, 6-17 Thru 6-19, 6-21 and 6-22

XEROX

Document WorkCenter 150
Service Manual

CAUTION

The Main PWB has a lithium battery which is not a spared item. If the Main PWB fails, return the assembly to the Xerox premises for disposal in accordance with local regulations. DO NOT SHORT CIRCUIT THE BATTERY TERMINALS.

Certain components in this product are susceptible to damage from electrostatic discharge. Observe all ESD procedures to avoid component damage.

701P06973
March 1998

NOTICE

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Revision Control List

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Document WorkCenter 150	SERVICE MANUAL	701P06973

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Introduction

About this manual

This manual is part of the multinational documentation that is structured in a specified Xerox format.

Organization

The Xerox Document WorkCenter 150 Series Service Manual is the primary document used for repairing and maintaining the family of products. The manual contains this information divided into the following sections:

Section 1 Service Call Procedures

This section is used to identify the first audible or visual symptom for the problem. The procedures will then direct you to a RAP or they identify a faulty component or subassembly.

Section 2 Status Indicator Repair Analysis Procedures

This section contains Repair Analysis Procedures (RAPs). You will be directed to this section to isolate a faulty component or subassembly.

Section 3 Image Quality Repair Analysis Procedures

This section contains Image Quality Repair Analysis Procedures (IQ RAPs) and Image Quality samples. You will refer to this section to identify test pattern samples or isolation procedures for common image quality defects.

Section 4 Repair / Adjustment

This section contains the instructions for removal, replacement, and adjustment of the spared parts within the machine.

Section 5 Parts List

This section consists of illustrations and part number lists. Any part that is spared or any part that must be removed to access a spared part is illustrated. Common hardware is shown as a letter callout.

Section 6 General Procedures / Information

This section contains general procedures, product specifications, supplemental tools and supplies, Tag/MOD information, and installation instructions.

Section 7 Wiring Data

This section contains illustrations and lists of the signals and connectors. The illustrations show the power, ground, and the control signal distribution. The lists show the signals and pin assignments for all connectors.

How to use this manual

Start all service calls and end all service calls with the Service Call Procedures, Section 1. Perform Initial Actions and the System Check to identify a symptom.

Follow the instructions provided within the Service Call Procedures and proceed to the appropriate section of the manual.

After the repair is complete, verify the repair with the System Check.

Manual Revision Symbols

Revision pages containing the latest service information will be sent to you so that you can update your service manual. When a partial revision is distributed, the changes will be identified on each page.

Text — Black vertical bar at the beginning of the text for partial revisions.

When a partial revision or a complete manual revision is distributed, the changes will also be identified as follows:

Page — The date of issue on the bottom of each page.

Manual — An updated revision control list. This list will identify the latest date for each page.

Model Distinction

TEXT

If different parts or actions exist because of different models, the model distinction (xxx) will identify the appropriate part or action.

Example 1). - - - - - - - xxx: The sequence is . . . .

Example 2) - - - - - - - The sequence is . . . (xxx) .

Tag/MOD Distinction

TEXT

If different parts or actions exist because of a modification, the Tag/MOD number will identify the appropriate part or action.

Example 1). - - - - - - - - - - - Tag/MOD 1: PWB . . .

Example 2) - - - - - - - - - - - PWB (Tag/MOD 1) . . .

Terminology and Symbols

The following is the terminology and symbols that are used in this manual for Warnings, Electrostatic Device or general Cautions, and Notes.

Electro Static Discharge

Certain components in this product are susceptible to damage from electrostatic discharge. Observe all ESD procedures to avoid component damage.

WARNING

Improper operation may result in injury to a person.

CAUTION

Improper operation may result in machine damage.

NOTE: Hints or other information that may assist the user.

Additional Product Safety Information

The following is additional product safety information for the Document WorkCenter 150.

CAUTION

The Main PWB has a lithium battery which is not a spared item. If the Main PWB fails, return the assembly to the Xerox premises for disposal in accordance with local regulations. DO NOT SHORT CIRCUIT THE BATTERY TERMINALS.

Section Contents

Introduction

The Service Call Procedures section is used to identify a suspected problem. This section contains Call Flow, Initial Actions, System Checks, Additional Checks, Subsystem Maintenance, and Final Actions.

Initial Actions are used to gather information regarding the performance of the machine and prepare the product for servicing.

System Checks are used to verify the normal operation of the machine. In the Y/N (Yes/No) steps of the system checks, a Yes response will lead you to the next step. A No response will indicate the next step to perform or will direct you to a Repair Analysis Procedure (RAP).

Additional Checks test various machine functions not directly tested by system checks.

RAPs will provide the instructions to isolate the faulty part or provide a list of suspect parts, when isolation is not appropriate. Wire harnesses are not included in the repair actions and problems with loose connections or damaged harnesses should be isolated using visual inspection and the wiring data in section 7.

Subsystem Maintenance contains routine maintenance procedures.

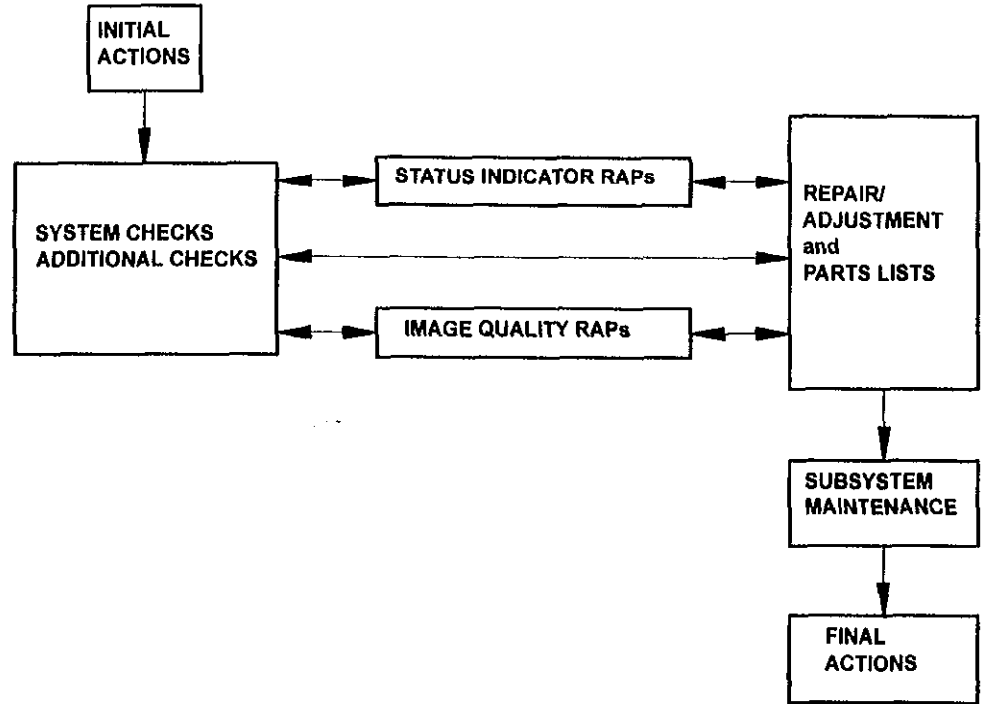
Final Actions are used to evaluate the total operation of the system and to identify the actions required to complete the service call.

Call Flow

The call flow diagram shows the relationship of actions during a typical service call. The functions in Call Flow correspond to service manual sections as follows:

Section 1	Initial Actions
	System Checks / Additional Checks
	Subsystem Maintenance
	Final Actions
Section 2	Status Indicator Repair Analysis
	Procedures (RAPs)
Section 3	Image Quality Repair Analysis
	Procedures (IQ RAPs)
Section 4	Repair / Adjustment (REPs)
Section 5	Parts Lists (PLs)

All service calls start with **INITIAL ACTIONS** and all service calls end with **FINAL ACTIONS.**



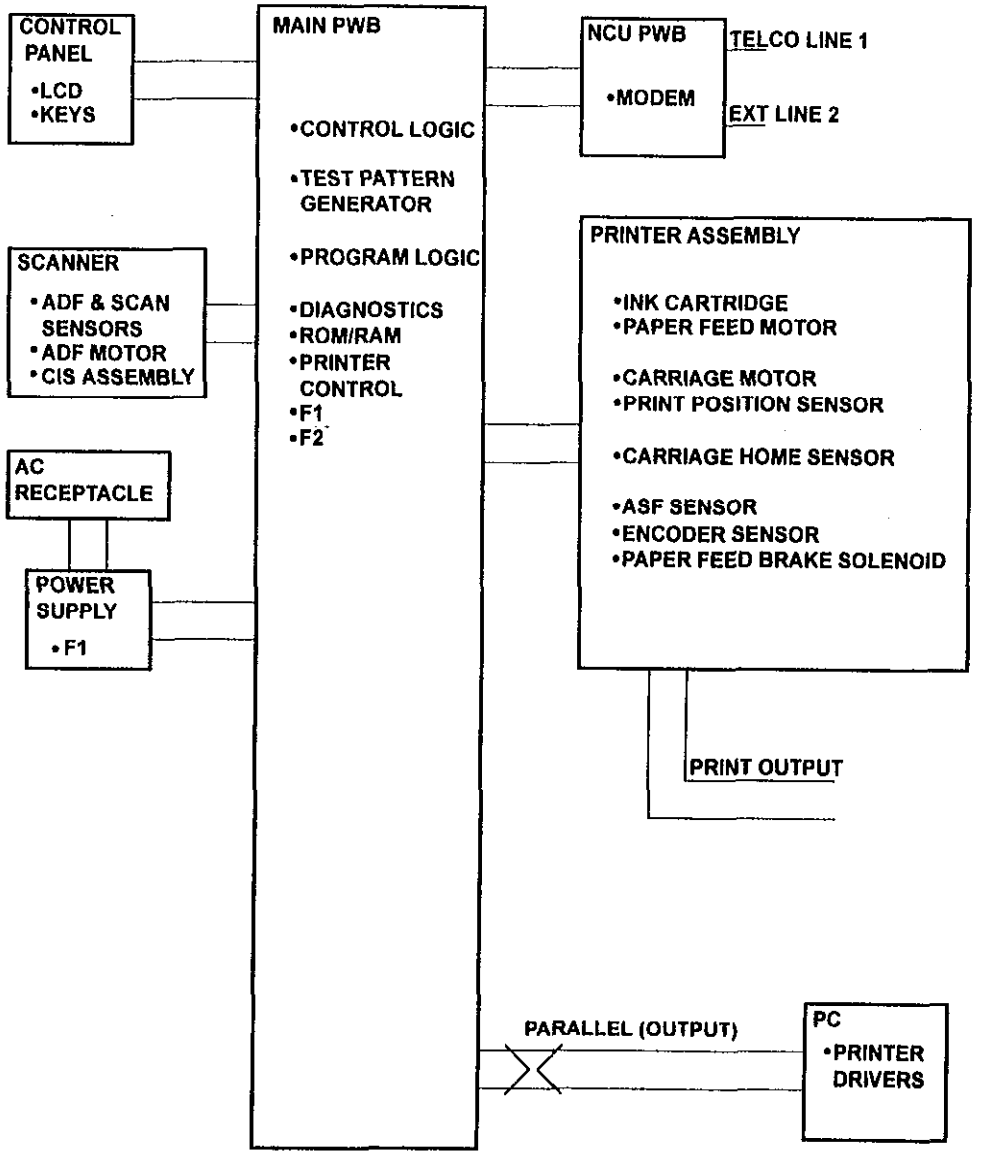
Initial Actions

Description

Initial Actions are used to gather information from the operator concerning problems at the local machine. Make note of symptoms, error messages, error codes or other information concerning the problem that the operator may provide. This information may help identify an intermittent or unusual problem.

Procedure

1. Ask the operator to describe, or if possible, demonstrate the problem.
2. If the problem is the result of incorrect operator action, refer the operator to the User documentation or to another customer support function.
3. If possible, print the Menu Map to review the configuration.
4. Use the block diagram to identify any possible related components. If the problem is evident, go to System Checks.



System Checks

Initial conditions

Inspect for the following conditions:

- Ensure the telephone is connected properly.
- Ensure that the telephone line cable is connected correctly at the machine line jack and the wall jack.
- Ensure that the power cord is connected to the wall outlet and to the machine.
- No documents are loaded and scanner is free of foreign particles.
- The scanner is correctly closed.
- The paper is loaded correctly in the printer.
- Ensure the parallel cable is not connected.

Off-Line System Checks

*NOTE: If an **ERROR MESSAGE** appears at any time, do not continue. Refer to section 2, table 1 display messages or table 2 error codes and perform the procedure indicated.*

NOTE: The displays shown in the system checks may vary from those on the machine being tested in the following areas:

- Time
- Local ID
- Telephone numbers
- Original and resolution selections
- CCITT operation modes (9600, ECM)

Differences in the above items should not be interpreted as a problem.

1. Unplug the WorkCenter from the outlet. Wait 10 seconds, then plug the WorkCenter in.

   All LEDs light, the self test performs, then the Standard LED remains lit.

   Y N

   | Rap 10

2. **The display indicates the following:**

09:11AM AUTO

   NOTE: Display may vary if mode is set to Manual, Fax Tel, or Fax/Tam.

   Y N

   | Rap 13

3. During the self test the carriage and paper feed motors run briefly and sound normal.

   Y N

   | Rap 18

4. Three beeps are heard when the *Copy* key is pressed.

   Y N

   | Rap 16

5. Print an Activity report, press

   The report prints and feeds out of the machine.

   Y N

   | Rap 18

6. Image quality of the print is acceptable.

   Y N

   | IQ Rap 1

7. Insert the standard test pattern (82P151) into the scanner.

   Document feeds into the scanner.

   Y N

   | Rap 21

8. Press the *Copy* key.

   The Fine LED is on, The Standard LED is off and the display indicates the following:

Copies : 01 ▶

   Y N

   | Rap 21

9. Press the *Start* key.

   The document feeds through the scanner and a copy is printed. The display indicates the following:

Copying 01/01

   Y N

   | Rap 21

10. The display returns to Standby mode, The Standard LED is on and the Fine LED is off.

    Y N

    | Replace Main PWB (REP 8.1).

11. Image quality of the copy is acceptable.

    Y N

    | IQ Rap 1

12. Open the scanner.

    A beep is heard, the Error LED lights and the display indicates the following:

Door Open

    Y N

    | Rap 17

13. Close the scanner.
14. Go to On-Line System Checks.

On-Line System Checks

NOTE: Perform these checks only after the Off-Line System Checks have been performed.

1. Insert a document in the scanner.
2. Use the keypad on the control panel to dial a nearby telephone number, press ***Start***.

   The WorkCenter dials the telephone number and the display indicates the following.

   Dialing

   Y N

   Rap 24

3. Ringing is heard from the remote telephone.

   Y N

   Rap 25

4. Press ***Stop*** when ringing is heard.

   NOTE: For the next step ensure the WorkCenter is set to "Auto Receive" answer on the first ring. (Refer to Chapters 4 & 9 in the Users Guide).

5. Dial the WorkCenter from a remote telephone.

   Ringing is heard and the display indicates the following after 1 ring.

   CONNECTING

   Y N

   NCU PWB (REP8.3)

- For Fax problems, perform RAP 26.
- For PC printing problems, verify the correct printer driver is installed in the PC and a parallel cable is connected. If OK, replace the Main PWB (REP8.1).
- For all other problems, go to Additional Checks on the next page.

Additional Checks

Description

This section is used to identify specific problems which did not occur during system checks. Many times the decision will have to be based on the customers explanation of the problem.
Always complete the Off-Line and On-Line system checks before using these procedures.

Procedure

Refer to table 1 for a list of problem descriptions. Follow the procedure that was recommended in Table 1.
If the problem still exists, go to the Service Mode in Section 6, and perform any of the tests which seem related to the problem.

Table 1 Problem Descriptions

Symptom	Procedure
Customer options do not program correctly.	Replace the control panel assembly (REP 2.1). Replace the Main PWB (REP 8.1).
Error Correct Mode (ECM) does not operate.	Ensure that ECM is enabled, refer to Chapter 9 in the Users Guide. If ECM still fails to function correctly with a compatible remote ECM machine, replace the Main PWB (REP 8.1), then the NCU PWB (Rep 8.3).
Error messages or communications error codes.	Find the error message or communications error code in section 2 and follow the recommended procedure.
Intermittent failures	Go to Rap 12.
Loss of the time, date, telephone list, local ID, etc.	Replace the Main PWB (REP 8.1).
Mechanical problems	Go to RAP 28.
Memory operations do not perform correctly.	Replace the Main PWB (REP 8.1).

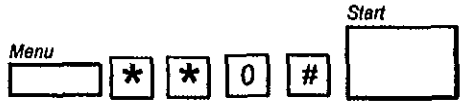
Service Menus

The Service Mode provides additional service tests for diagnosis of problems. The complete procedure for the Service Mode tests can be found in section 6.
Refer to section 5 for adjustment procedures or section 6 for the detailed descriptions and procedures for these tests.

Procedure

The service mode is cancelled automatically after approximately 3 minutes of no machine activity.

1. Enter Service Mode, Press:



The display indicates the following.

SERVICE (1-6) X.X

2. Press ***1- 6*** to select the desired Service Mode (see Table 1).
3. Press the appropriate selection number.

Table 1 Service Mode Menu

Service Mode	Selections
1. Monitoring	1. Error Line Monitor 2. Communication Sequence Code
2. Backup All Clear	ALL
3. S/W Switch	1. S.W Switch Initialization 2. S/W Switch Value Change
4. Test Mode	1. Modem Tone Test 2. RAM Data Printing
5. CIS Tuning	1. White Level Adjust 2. Dither Level Adjust 3. Contrast Level Adjust
6. Printer	1. Font Print 2. Test Pattern (portrait/landscape) 3. Test for Service 4. Printer Setup 5. Hex Dump 6. Grid Adjust 7. Select Ink Save 8. Loading Adjust 9. Checker Board Print

Subsystem Maintenance

Description

This section contains a check list and a detailed procedure for subsystem maintenance. The parts should be inspected and cleaned as required. The printer should be cleaned and lubricated if accessed for the repair of a problem.

Check list

Inspect / clean the following components. Replace parts that are worn or cannot be cleaned.

- retard pad (PL 4.1)
- ADF roller (PL 4.1)
- scan roller (PL 4.1)
- eject roller (PL 4.1)

Inspect, clean and lubricate the printer components (Figures 1-10). Replace parts that are worn or cannot be cleaned.

- maintenance station (PL 5.1)
- carriage shaft (PL 5.1)
- drive pulley (PL 5.1)
- wipers (PL 5.1)
- paper feed roller (PL6.1)
- paper guide lever assembly (PL 6.1)
- slip spring (PL 6.1)
- ASF cam and trays (PL 6.1)
- ink tank, tube, and seal (PL 6.1)
- side frame (PL 7.1)
- paper feed pinch rollers (Figure 9)
- base frame (Figure 7)

Detailed procedure

1. Disconnect the power cord.
2. Open the Front Cover.
3. Inspect or clean the scanner with a clean-up or film remover .
   - retard pad (replace)(REP 4.2)
   - ADF roller
   - scan roller
   - eject roller
4. Clean using figures 1 - 10, and lubricate using figures 2 - 7, as necessary to maintain the correct printer operation. You should perform these actions as you access the printer for the repair of problems. Lubricate the printer as indicated with the materials listed in the following table.

Printer Maintenance Lubricating Materials

Lubricant	Type	USCO/ XCL/AO	RXL
1	Silicon Grease	70P53	600T90429
2	General Purpose Grease	70H44	600T90340
3	Light Oil	70P95	70P95

5. Clean the paper feed rollers (figure 8) and paper feed guide assembly and paper feed pinch rollers (figure 9) with a soft cloth moistened with water.
6. Clean the maintenance station with a soft cloth moistened with water (figure 10).

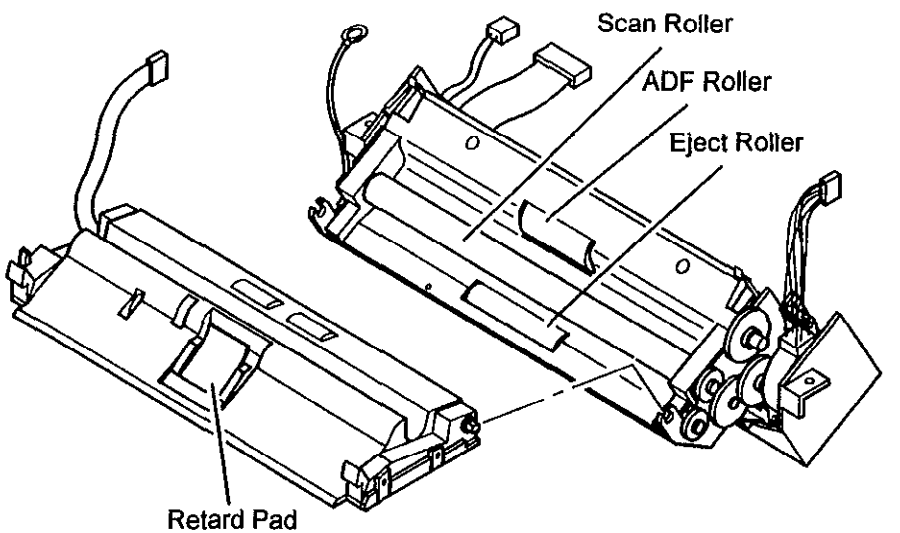


Figure 1 Scanner Feed Path

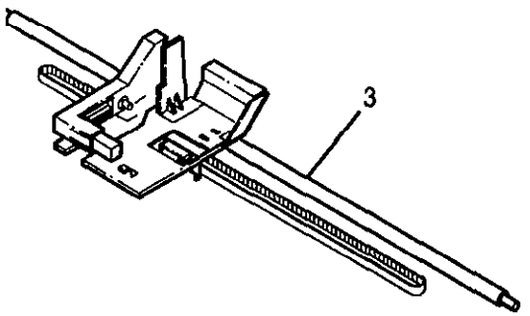


Figure 2 Lubricating the Carriage shaft

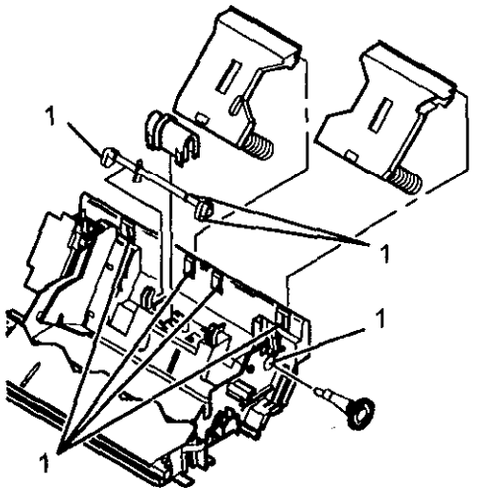


Figure 4 Lubricating the ASF cam and tray

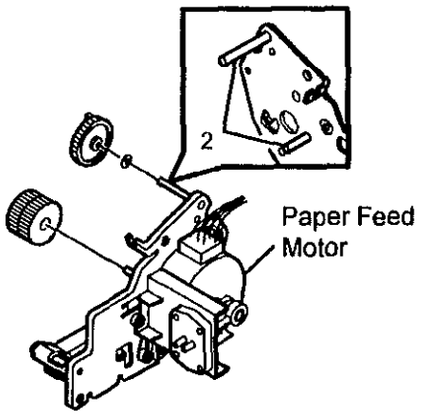


Figure 6 Lubricating the side frame

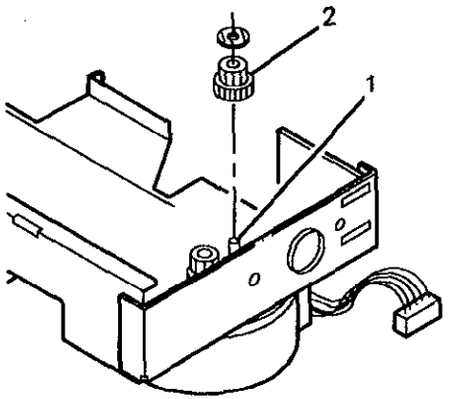


Figure 3 Lubricating the drive pulley

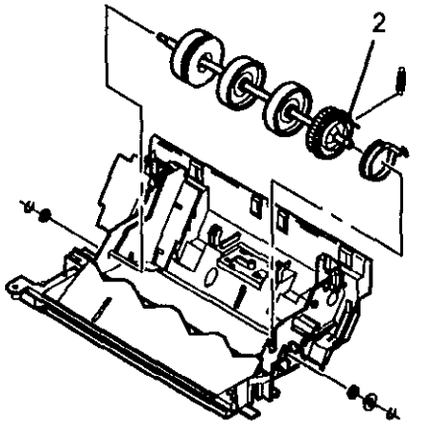


Figure 5 Lubricating the Slip Spring

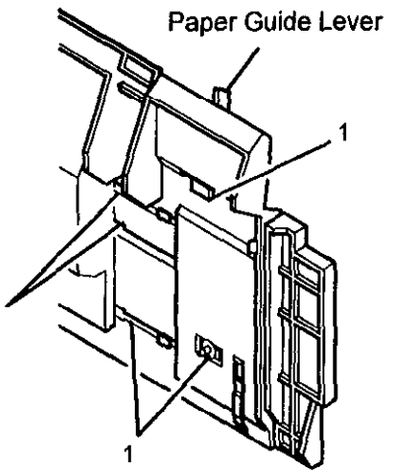


Figure 7 Lubricating the base frame

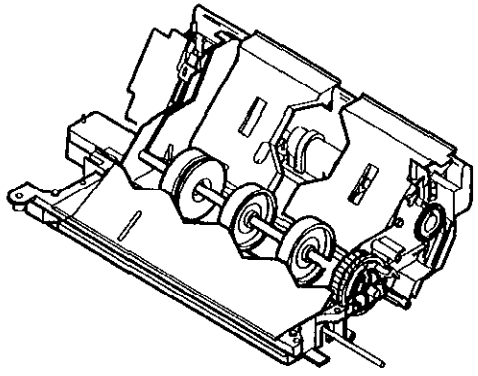


Figure 8 Paper Feed Rollers

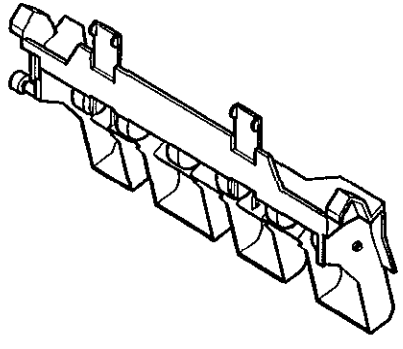


Figure 9 Paper feed guide assembly and paper feed pinch rollers.

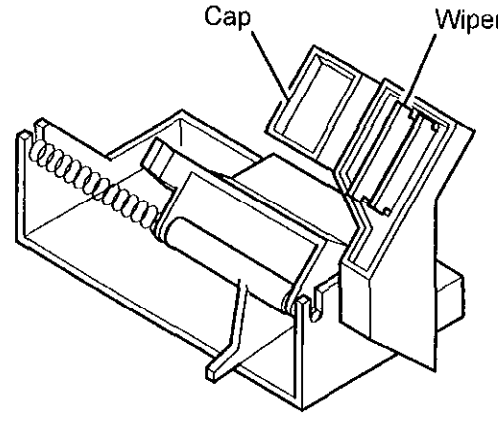


Figure 10 Maintenance Station

NOTE: Do not touch the wiper and cap.

Final Actions

Procedure

1. Perform the following operations:
   - Copy
   - send
   - receive

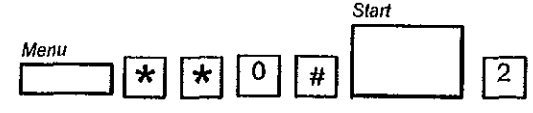
   All of the above operations were completed without errors and the image quality was acceptable.

   Y **N**

   Y: Go to System Checks.
2. All the software switches are set properly.

   Y **N**

   N: Refer to the reports printed during initial actions. If you are returning the machine to the customer set the switches, otherwise perform an all backup clear and go to step 3.



3. Reinstall all the covers removed during the service call and complete all required administrative tasks.
   - Update the tag matrix as required.
   - Clean the covers and ensure all labels are readable

2 Status Indicator Repair Analysis Procedures

Section Contents

Introduction

The Repair Analysis Procedures section is used to isolate and identify problems to a faulty component or subassembly. It contains the Introduction, display message table, communication error code table and the Repair Analysis Procedures (RAPs).

The various tables include all operator messages indicated in the display and their meanings. The tables will also list the Transmit and Receive error codes and associated messages.

Use the Display Messages and Communication Error Codes tables when messages are displayed or error codes are printed in a report.

The Repair Analysis Procedures (RAPs) are accessed from Section 1, system checks or additional checks. There are two types of RAPs: Status Indicator (SI) RAPs, contained in this section, and Image Quality (IQ) RAPs, located in Section 3.

RAPs will normally isolate a problem to a specific component or subassembly, excluding the wire harnesses.

In the Y/N (Yes/No) steps of the RAPs, a Yes response will lead you to the next step. A No response will indicate a corrective action. When the indicated corrective action has been completed, go to Section 1 and restart the System Check to verify that the problem has been corrected.

Measurements

Power and signal grounds are connected to frame ground, therefore all circuit troubleshooting can be performed using the metal frame (chassis) as the grounding point. If more information is needed to locate connectors or test points, refer to section 7.

NOTE: Make all voltage to ground unless instructed to measure from "XX" to "XX".

Unless otherwise specified , the following voltage tolerances are used within this section:

Stated	Measured
+ 5.0 VDC	+ 4.75 VDC to + 5.25 VDC
+12.0 VDC	+ 10.8 VDC to + 13.2 VDC
–12.0 VDC	–10.8 VDC to –13.2 VDC
+ 42.3 VDC	+37.8 VDC to +46.2 VDC
0.0 VDC	+ 0.5 VDC

Display Messages and Communication error codes

If an error code is available, refer to Table 2. If no error code, refer to Table 1 for the message and the procedure. If no error code is available and the message is not listed, return to section 1, additional checks.

Table 1 Display Messages

Display messages	Description	Procedures
ADD PAPER	The paper tray is empty or there is a paper jam in the printer	Add more paper to the tray, if the tray is empty. Clear any paper jam. If the problem continues, go to RAP 18, Paper Feeding.
Check Printer...	There is a printer problem or paper jam.	Clear the paper jam. If the problem continues, go to RAP 18, Paper Feeding.
Check remote	Remote machine had no document to poll	Check remote machine and main PWB (REP 8.1).
Comm Error	There is a communications problem.	Refer to Table 2, Communications Error Codes.
Door Open	The scanner is open	Close the scanner. If the problem continues, go to RAP 17, Scanner Interlock.
Feeder Jam	The documents are not being fed correctly or they exceed the maximum length.	Clear the document jam. If the problem continues, go to RAP 21, Document Feeding.
No Cartridge	There is a problem detecting the print head position.	Go to RAP 20, Ink Cartridge
Load Documents	The document sensor does not sense that a document was inserted.	Remove and reinsert the document. If the problem continues, go to RAP 21, Document Feeding.
Long Original	The document is longer than 1 meter.	Go to RAP 21, Document feeding.
OUT OF MEMORY	Memory full	Print the documents in memory, or divide the documents into smaller batches.
PRINTER PROBLEM	There is a printer problem or paper jam.	Clear the paper jam. If the problem continues, go to RAP 18, Paper Feeding.
Remote no answer	The remote machine did not respond	Go to RAP 25, Dialing and connecting.
Will Redial	Dial tone not detected or remote did not answer.	Go to RAP 25, dialing and connecting.

Table 2 Communication Error Codes

Error code	Description	Procedures
A0	T1 timeout at transmitter	Check remote unit, TELCO line, perform RAP 25..
A1	DCN received at phase B	Check remote unit, TELCO line, perform RAP 25..
A2	Line disconnect at phase B	Check remote unit, TELCO line, perform RAP 25.
A3	No response from remote terminal while waiting for CFR	Check remote unit, TELCO line, perform RAP 25.
A4	DCN detected while waiting for CFR	Check remote unit, TELCO line, perform RAP 25.
A5	Line dropped while waiting for CFR	Check remote unit, TELCO line, perform RAP 25.
A6	Invalid signal received three times while waiting for CFR	Check remote unit, TELCO line, perform RAP 25.
A7	Traindown speeds expired. Fall back impossible	Check remote unit, TELCO line, perform RAP 25.
A8	No response from remote terminal while waiting for MCF	Check remote unit, TELCO line, perform RAP 25.
A9	DCN detected while waiting for MCF	Check remote unit, TELCO line, perform RAP 25.
B0	Line dropped while waiting for MCF	Check remote unit, TELCO line, perform RAP 25.
B1	Invalid signal received while waiting for MCF	Check remote unit, TELCO line, perform RAP 25.
B2	Invalid signal received while waiting for CFR	Check remote unit, TELCO line, perform RAP 25.
B3	Transmitter has no document	Check that remote machine has a document loaded. Try the operation again.
B4	Irregular signal received or no response while waiting for the DIS	Check remote unit, TELCO line, perform RAP 25.
B5	T1 timeout while waiting for DCS	Check remote unit, TELCO line, perform RAP 25.
B6	DCN detected while waiting for DCS	Check remote unit, TELCO line, perform RAP 25.
B7	Line dropped while waiting for DCS	Check remote unit, TELCO line, perform RAP 25.
B8	No document to be polled	Check remote unit. Instruct remote to set up polling.
C0	Not compatible with remote receiver	Check remote unit for available features.
C1	Communication speed mismatch or RTN occurred at transmitting	Check remote unit, TELCO line, perform RAP 25.
C2	5 second line drop while receiving facsimile image	Check remote unit, TELCO line, perform RAP 26.
C3	Line dropped while receiving post message	Check remote unit, TELCO line, perform RAP 26.
C4	Post message not received after receiving facsimile image	Check remote unit, TELCO line, perform RAP 26.
C6	Irregular or no signal received	Check remote unit, TELCO line, perform RAP 26.
C7	DCN or RTN detected after facsimile image reception	Check remote unit, TELCO line, perform RAP 26.
C8	Telephone line disconnected while receiving in ECM.	Turn off ECM correct mode and ask the remote operator to try the operation again.
D9	Receiver can not receive Superfine mode.	Try the operation again in fine or standard mode.
F0	Communication aborted when cover opened	Close cover and repeat operation.
F1	Communication aborted	Check remote unit, TELCO line, then repeat the operation.
F2	Communication aborted	Check remote unit, TELCO line, then repeat the operation.
F3	Communication aborted due to out of memory condition.	Call the remote machine and receive the pages not previously received.
F5	Communication aborted due to Feeder Jam condition	Check remote unit, TELCO line, then repeat the operation.

RAP 10 Input Power

WARNING

Incorrect connection of the grounding conductor can result in the risk of electrical shock. The following must be observed:

- **Never use a ground adapter plug to connect the machine to a power source which does not have a ground connection.**
- **Never attempt any maintenance function which is not specifically called out in the service procedures.**
- **Never remove any covers which are .astened with screws, unless so instructed in the service procedures.**

CAUTION

If any of the voltage measurements are not as specified, a licensed electrician must correct the wiring. Do not attempt to correct the wiring yourself.

Initial Actions

- Check that the correct voltage is being supplied at the outlet (Table 1 and Figure 1 through Figure 4).
- Ensure that the power cord is not damaged.

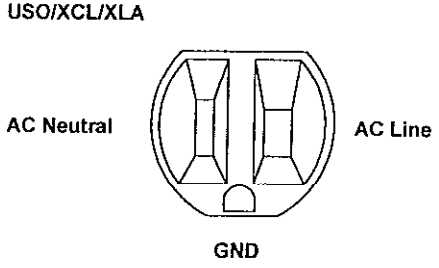


Figure 1 USO and XLA (115 VAC)

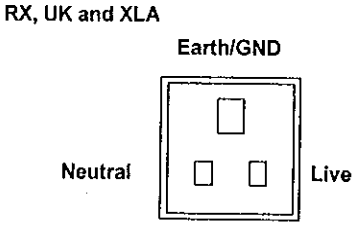


Figure 2 RX, UK and XLA (220 VAC)

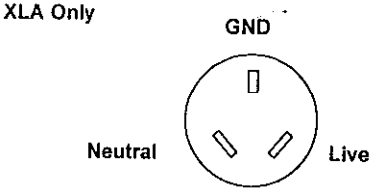


Figure 3 RX, Europe (220 VAC)

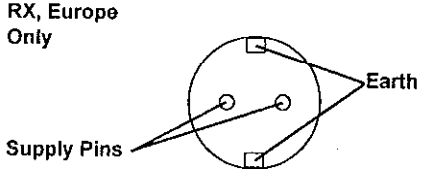


Figure 4 XLA (220 VAC)

Table 1 AC Voltages

	ACH to ACN (VAC)	ACN to GND/ Earth (VAC)
USO/XCL /XLA	104 to 107	<3
XLA	216 to 264	<3
RX	216 to 264	<3
UK	216 to 264	<3
Europe	196 to 244	<3
Europe	196 to 244 (one supply pin to earth)	<3 (other supply pin to earth)

1. Unplug the machine. Access the power supply (REP 8.4). Check for an open fuse on the power supply.

   The Fuse is good.
   Y N
   |

   Replace the fuse (PL 8.1). If the fuse fails again, replace the power supply (REP 8.4).

2. Access the CN1 connector on the power supply. Plug in the machine.

   The input voltage across the two pins of CN1 is correct.
   Y N
   |

   Replace the Power Supply (REP 8.4).

3. Access the CN1 connector on the main PWB. Plug in the machine.

   Measure the voltage at the following pins of CN1 on the main PWB.

   CN1-1 & 2 ---------- +42 VDC

   CN1-5 & 6 ---------- +5 VDC

   CN1-9 ---------- +12 VDC

   CN1 -11 ---------- -12VDC

   The voltages are correct.

   Y **N**

   | Go to step 5.

4. Perform RAP 15.

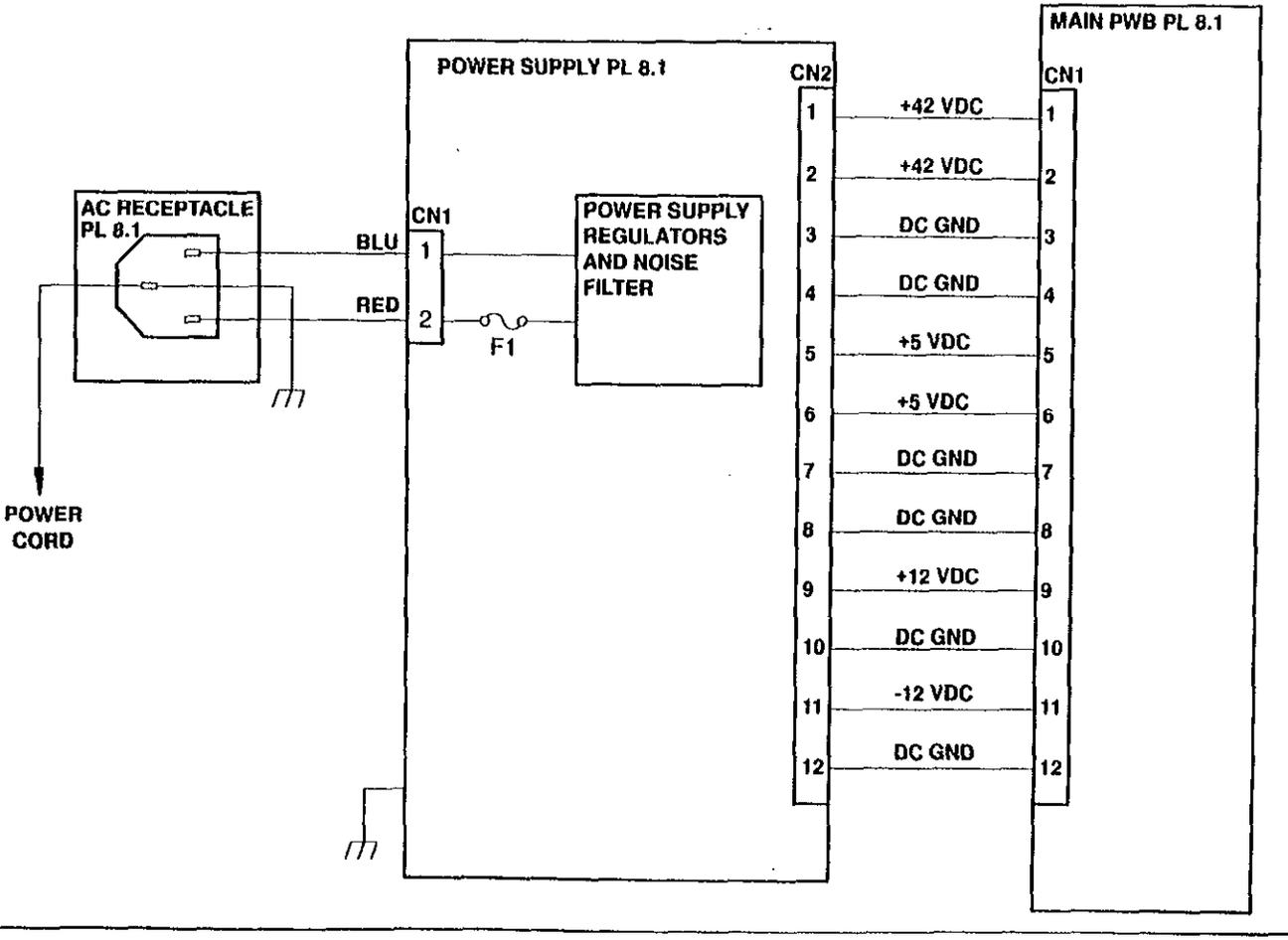
5. Unplug the machine and disconnect CN1 from the main PWB. Plug in the machine. Measure the voltages at CN2 on the power supply.

   The voltages are correct.

   Y **N**

   | Replace the Power Supply (REP 8.4).

6. Refer to the DC Power Distribution drawings in Section 7. Determine which component was loading the power supply.



RAP 12 Intermittent Failures

Intermittent problems may appear as copy quality defects, feeding problems, error conditions, or other random visual indications. Bad ground connections can produce these types of failures.

Initial Actions:

- Disconnect the power cord from the machine.
- Visually check the cable harnesses for loose connectors.
- Visually check the cable harnesses for damage or rubbing on sharp metal edges.

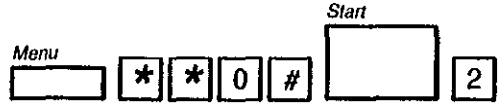
Procedure

NOTE: Ground distribution faults are identified by continuity checks and visual inspection.

1. Refer to the power distribution diagrams in Section 7. Check for loose connections to the components shown in the section 7 diagrams.

   Connections are good.
   Y N
   | Repair and continue to step 2.

2. Plug in the machine. Enter the service mode and perform the Backup All Clear test



   Problem still occurs.
   Y N
   | Complete the call.

3. Replace the following parts in sequence:
   - Main PWB (REP 8.1).
   - Head ribbon cable (PL 5.1)
   - Cartridge Support/Sensor Assembly (REP 5.7)
   - Control panel harness (PL 2.1)
   - Power supply (REP 8.4).

   Problem still occurs.
   Y N
   | Complete the call.

4. Contact your next level of support for assistance.

RAP 13 Blank or Garbled Display

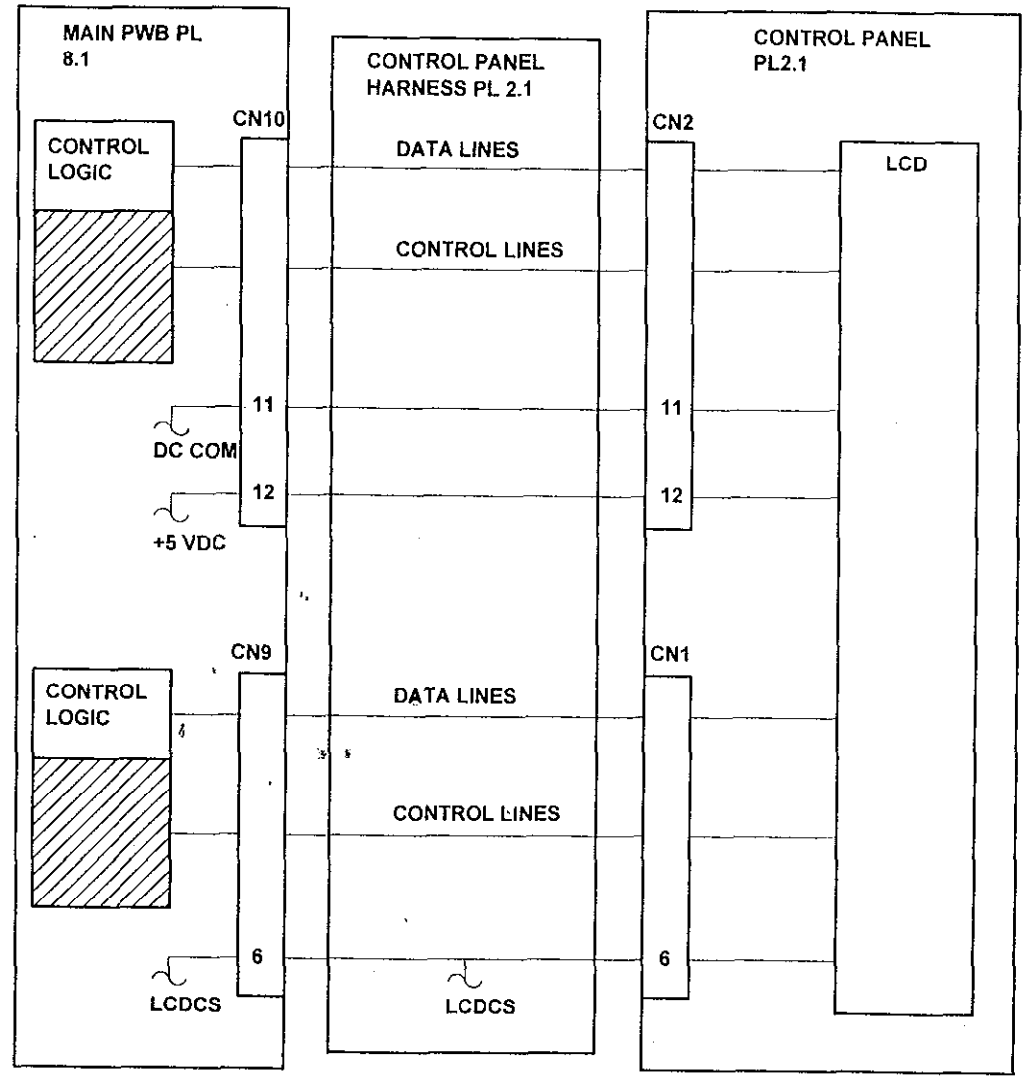
This procedure is used for the conditions of blank or garbled display. It does not apply to displays which are legible, but incorrect.

Initial Actions:

- Ensure that the connectors on the main PWB and the control panel are correctly seated.
- Ensure that the connectors and the harness are not damaged.

Procedure

1. **The control panel harness is good.**
   Y N
   | Replace the control panel harness (PL 2.31).
2. Access connectors CN1 and CN2 on the control panel. Disconnect the connectors and measure the voltages at the following pins.
   CN1-6 ---------- +5VDC
   CN2-1, 2, 3, 6 & 12 ---------- +5VDC
   The voltages are correct.
   Y N
   | Replace the Main PWB (REP 8.1).
3. Replace the Control Panel Assembly (REP 2.1).



RAP 15 Control Panel LEDs

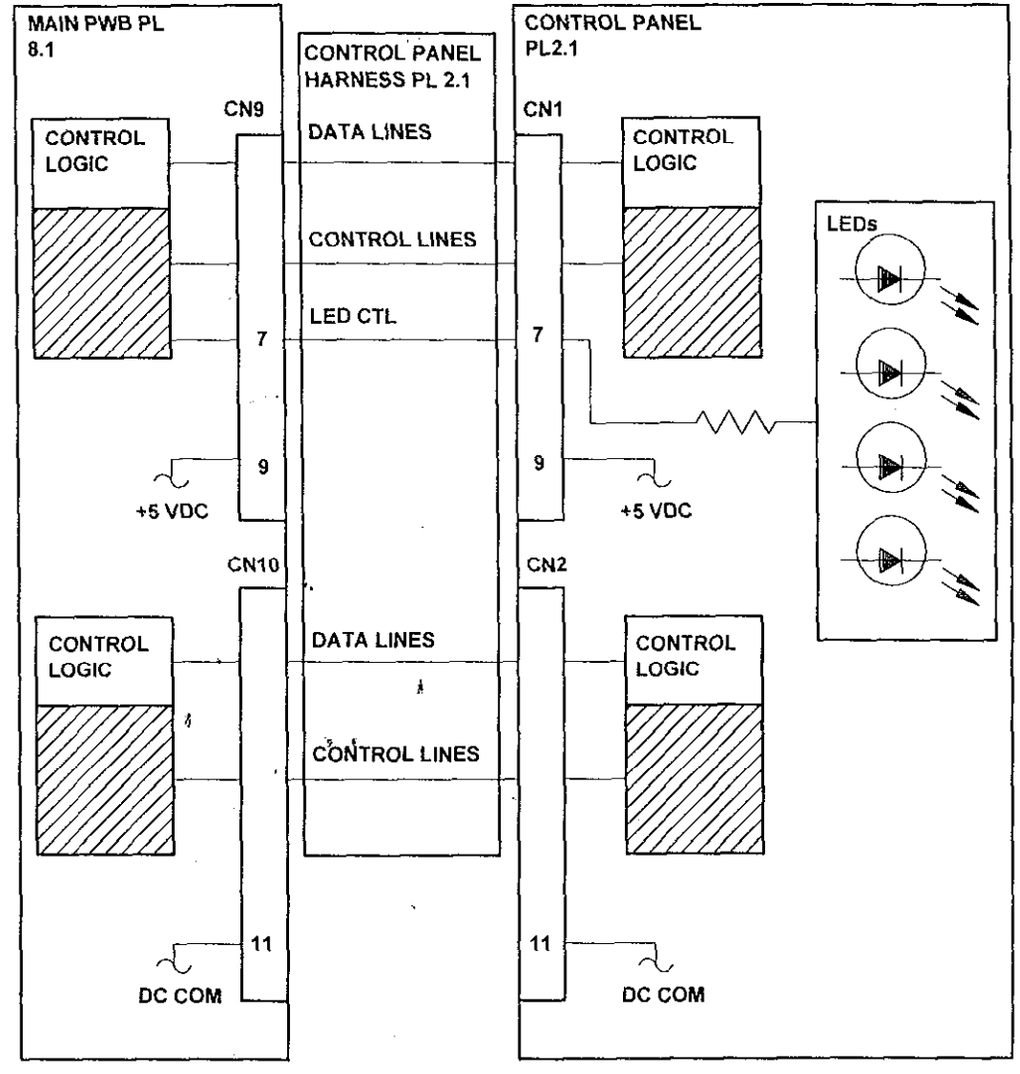
This procedure is used to troubleshoot the LEDs on the control panel.

Initial Actions:

- Ensure that the connectors on the main PWB and the control panel are correctly seated.
- Ensure that the connectors and the harness are not damaged.

Procedure

1. The control panel harness is good.
   Y N
   | Replace the control panel harness (PL 2.1).
2. Access connector CN2 on the display PWB. Disconnect the connector and measure the voltage at CN1 pin 7.
   Voltage is ≈ +5VDC.
   Y N
   | Replace the main PWB (REP 8.1).
3. Replace the control panel assembly (REP 2.1).



RAP 16 Control Panel Keys

This procedure is used to troubleshoot the speaker and the keys on the control panel.

Initial Actions:

- Ensure that the control panel connectors CN9 and CN10 on the main PWB are correctly seated and the harness is not damaged.
- Ensure that the speaker connector CN13 on the main PWB is correctly seated.

Procedure

1. Press each control panel key.

   Speaker beeps when keys are pressed.
   Y N
   | Go to step 6.

2. **Control panel keys function correctly.**
   Y N
   | Go to step 3.

   Complete Call

3. **The control panel harness and connector are good.**
   Y N
   | Replace the control panel harness (PL 2.1).

4. Access the control panel connectors CN1 and CN2. With the connectors disconnected measure the voltage on the following pins.

   CN1-1, 2 & 3 - - - - - - - - - - - - - - - - - +5VDC
   CN2-7, 9, 10 & 12 - - - - - - - - - - - - - +5VDC

   Voltages are correct.
   Y N
   | Replace the main PWB (REP 8.1).

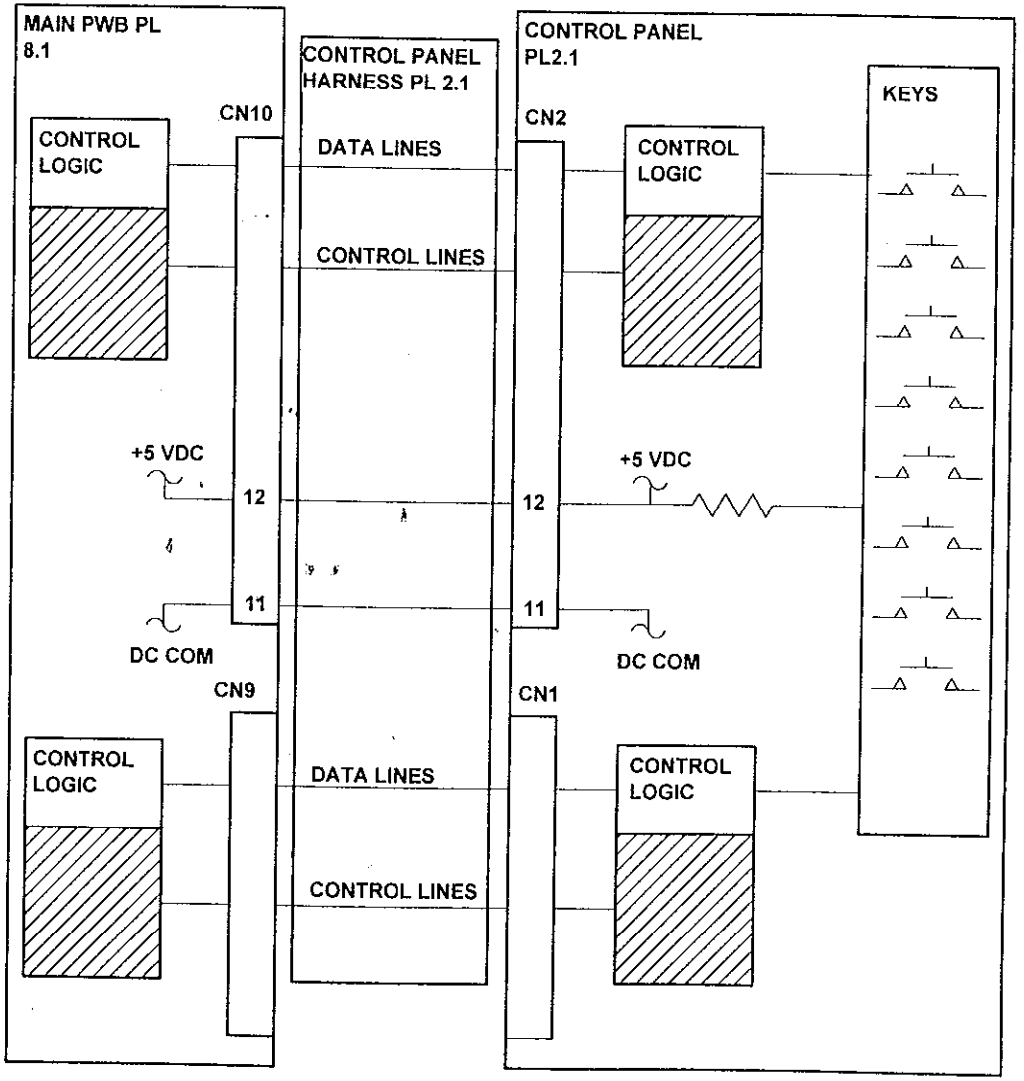
5. Replace the control panel assembly (REP 2.1).

6. Disconnect CN1 on the main PWB and measure the voltages at the following pins.

   CN1-9 - +12VDC
   CN1-11 -12VDC

   Voltages are correct.
   Y N
   | Replace the power supply (REP 8.4).

7. Replace the NCU PWB (REP 8.3) and go to step 2.



RAP 17 Scanner Interlock

This procedure is used to troubleshoot the scanner interlock circuit.

Initial Actions:

Open the scanner and ensure that the scanner interlock switch is not damaged.

Procedure

1. Check for a mechanical problem between the switch actuator and the switch.

   The actuator closes the switch when the scanner panel is closed.

   Y N

   | Replace the upper guide assembly (PL 4.1).

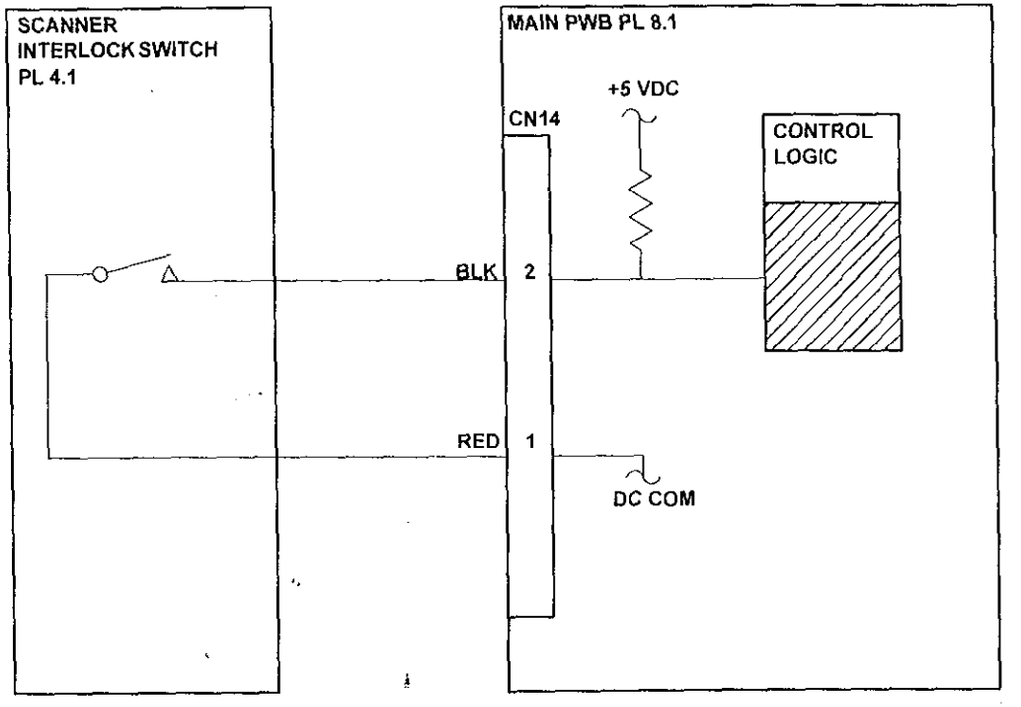
2. Access the scanner interlock connector CN14 on the main PWB. Use a meter to verify the operation of the scanner interlock switch.

   The switch is OK.

   Y N

   | Replace the scanner interlock switch (REP 4.5).

3. Replace the main PWB (REP 8.1).



RAP 18 Paper Feeding

This procedure is used to troubleshoot printer paper feed problems.

Initial Actions

- Disconnect the power cord and ensure that there is no obstruction in the paper path.
- Clean the paper feed roller.

Procedure

NOTE: The circuit diagrams are on the following two pages.

1. Check fuse F1 on the main PWB.

   F1 is OK.
   Y N
   | Replace the fuse (PL 8.1). If the new fuse fails, go to step 7.

2. Check fuse F2 on the main PWB.

   F2 is OK.
   Y N
   | Replace the fuse (PL 8.1). If the new fuse fails, go to step 9.

3. Disconnect CN3 and CN4 from the main PWB. Measure the voltage at the following pins on the main PWB.

   CN3-1 & 2 - - - - - - - - - - - - - - - - - +42VDC
   CN4-1 & 2 - - - - - - - - - - - - - - - - - +42VDC

   Voltages are correct.
   Y N
   | Perform RAP 10.

4. With connectors CN3 and CN4 disconnected, measure the resistance between the pins. Refer to Tables 4 and 5.

   Resistance is OK.
   Y N
   | Replace the defective motor (REP 7.2 or REP 5.2).

5. Check the following components and connections.
   - ASF sensor and harness connector CN6 (REP 6.2).
   - Encoder and harness connector (REP 5.4).
   - Paper feed brake solenoid (RAP 27).
   - Head ribbon cable and connectors (PL 5.1).

   Components and connections are OK.
   Y N
   | Repair or replace part

6. Replace the main PWB (REP 8.1).
7. Check the paper feed motor for mechanical binding or incorrect resistance (Table 2).

   Motor is OK.
   Y N
   | Replace the paper feed motor (REP 7.2).

8. Replace the main PWB (REP 8.1).
9. Check the carriage motor for mechanical binding or incorrect resistance (Table 1).

   Motor is OK.
   Y N
   | Replace the carriage motor (REP 5.2)

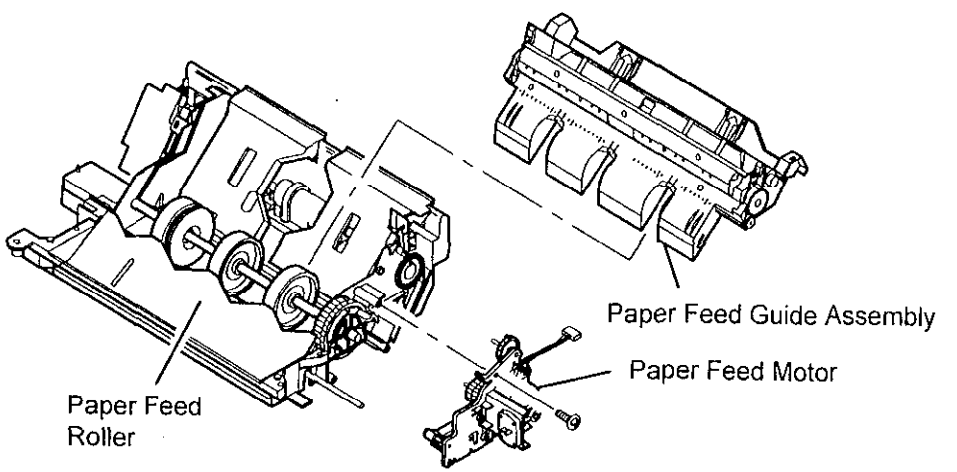
10. Replace the main PWB (REP 8.1).

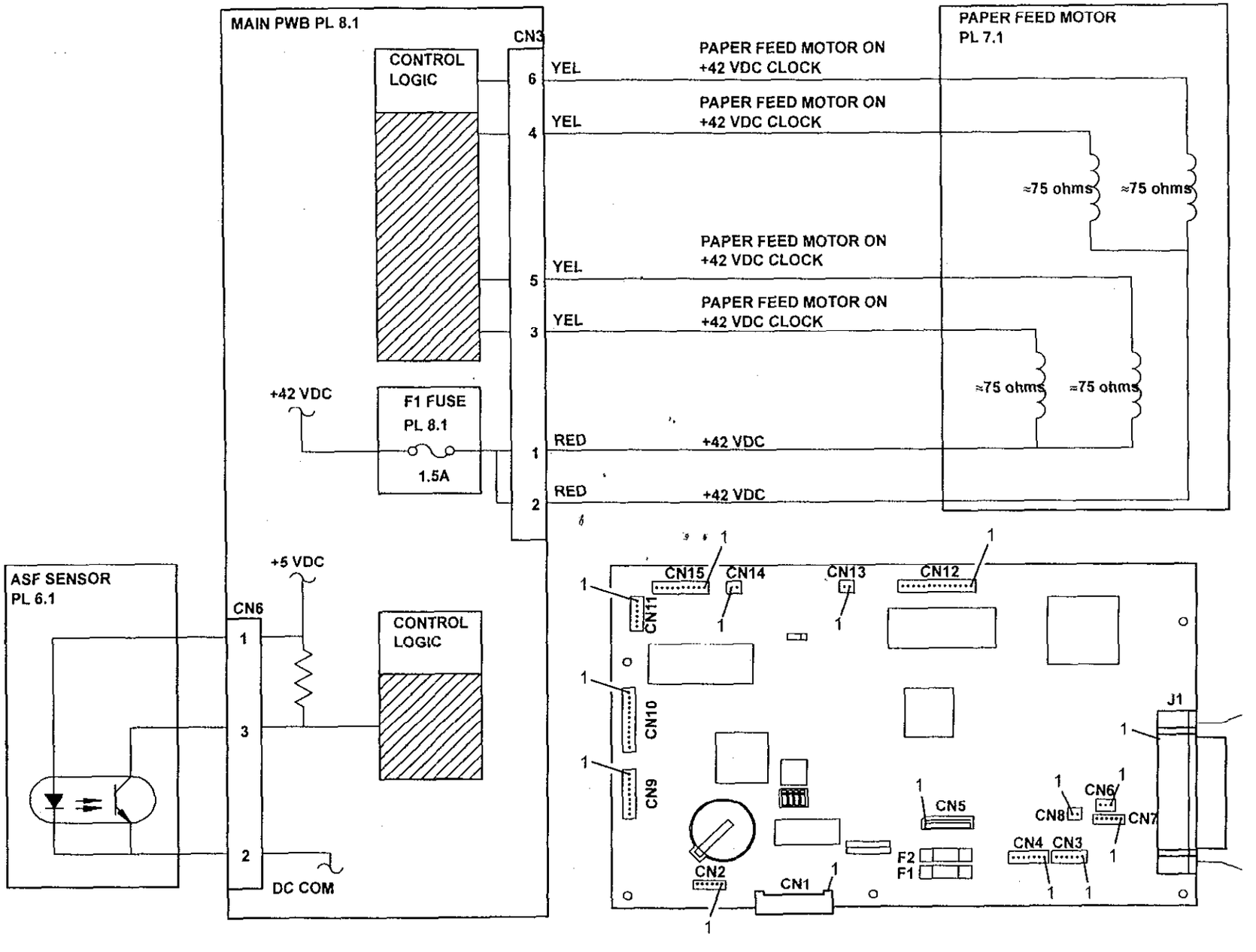
Table 1 Carriage Motor

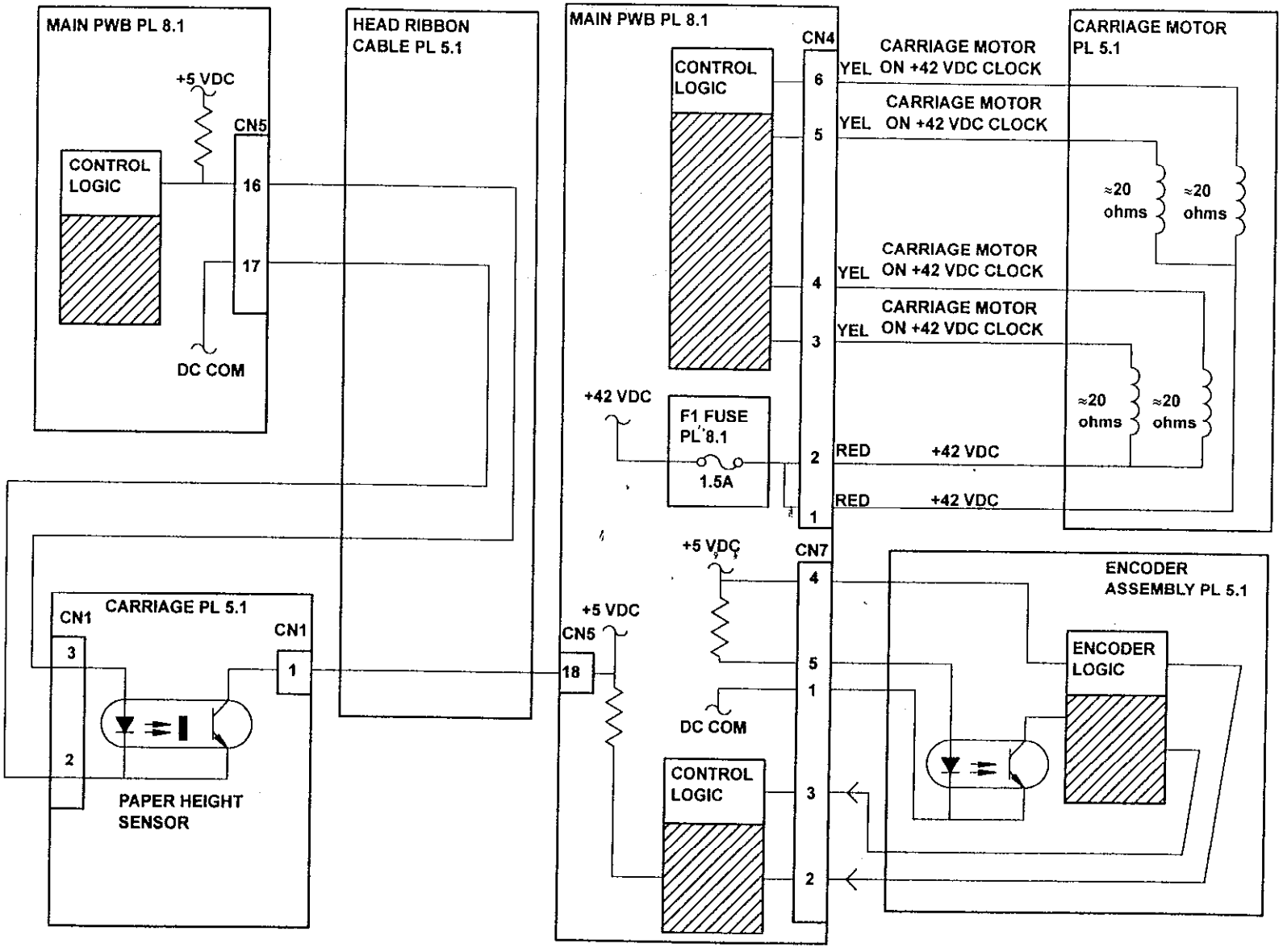
CN4	Resistance
Pin 1 to 3 or 5	≈ 20 ohms
Pin 2 to 4 or 6	≈ 20 ohms
Pin 3 to 5	≈ 40 ohms
Pin 4 to 6	≈ 40 ohms

Table 2 Paper Feed Motor

CN3	Resistance
Pin 1 to 3 or 5	≈ 75 ohms
Pin 2 to 4 or 6	≈ 75 ohms
Pin 3 to 5	≈ 150 ohms
Pin 4 to 6	≈ 150 ohms




MAIN PWB PL 8.1
CN3
CONTROL LOGIC
6
4
5
3
1
2
YEL
YEL
YEL
YEL
RED
RED
PAPER FEED MOTOR ON
+42 VDC CLOCK
PAPER FEED MOTOR ON
+42 VDC CLOCK
PAPER FEED MOTOR ON
+42 VDC CLOCK
PAPER FEED MOTOR ON
+42 VDC CLOCK
PAPER FEED MOTOR
PL 7.1
≈75 ohms
≈75 ohms
≈75 ohms
≈75 ohms
+42 VDC
F1 FUSE
PL 8.1
1.5A
+42 VDC
+42 VDC
+5 VDC
ASF SENSOR
PL 6.1
CN6
1
3
2
CONTROL LOGIC
DC COM
CN15
CN14
CN13
CN12
CN11
CN10
CN9
CN5
CN2
CN1
CN8
CN6
CN7
CN4
CN3
F2
F1
J1


MAIN PWB PL 8.1
+5 VDC
CN5
CONTROL LOGIC
16
17
DC COM
HEAD RIBBON CABLE PL 5.1
MAIN PWB PL 8.1
CN4
CONTROL LOGIC
6
5
4
3
2
1
CARRIAGE MOTOR PL 5.1
YEL CARRIAGE MOTOR ON +42 VDC CLOCK
YEL CARRIAGE MOTOR ON +42 VDC CLOCK
≈20 ohms
≈20 ohms
YEL CARRIAGE MOTOR ON +42 VDC CLOCK
YEL CARRIAGE MOTOR ON +42 VDC CLOCK
≈20 ohms
≈20 ohms
+42 VDC
F1 FUSE PL 8.1
1.5A
RED +42 VDC
RED +42 VDC
+5 VDC
CN7
4
5
1
3
2
ENCODER ASSEMBLY PL 5.1
ENCODER LOGIC
+5 VDC
CN5
18
DC COM
CONTROL LOGIC
CARRIAGE PL 5.1
CN1
3
2
CN1
1
PAPER HEIGHT SENSOR

RAP 20 Ink Cartridge

This procedure is used to troubleshoot the ink cartridge.

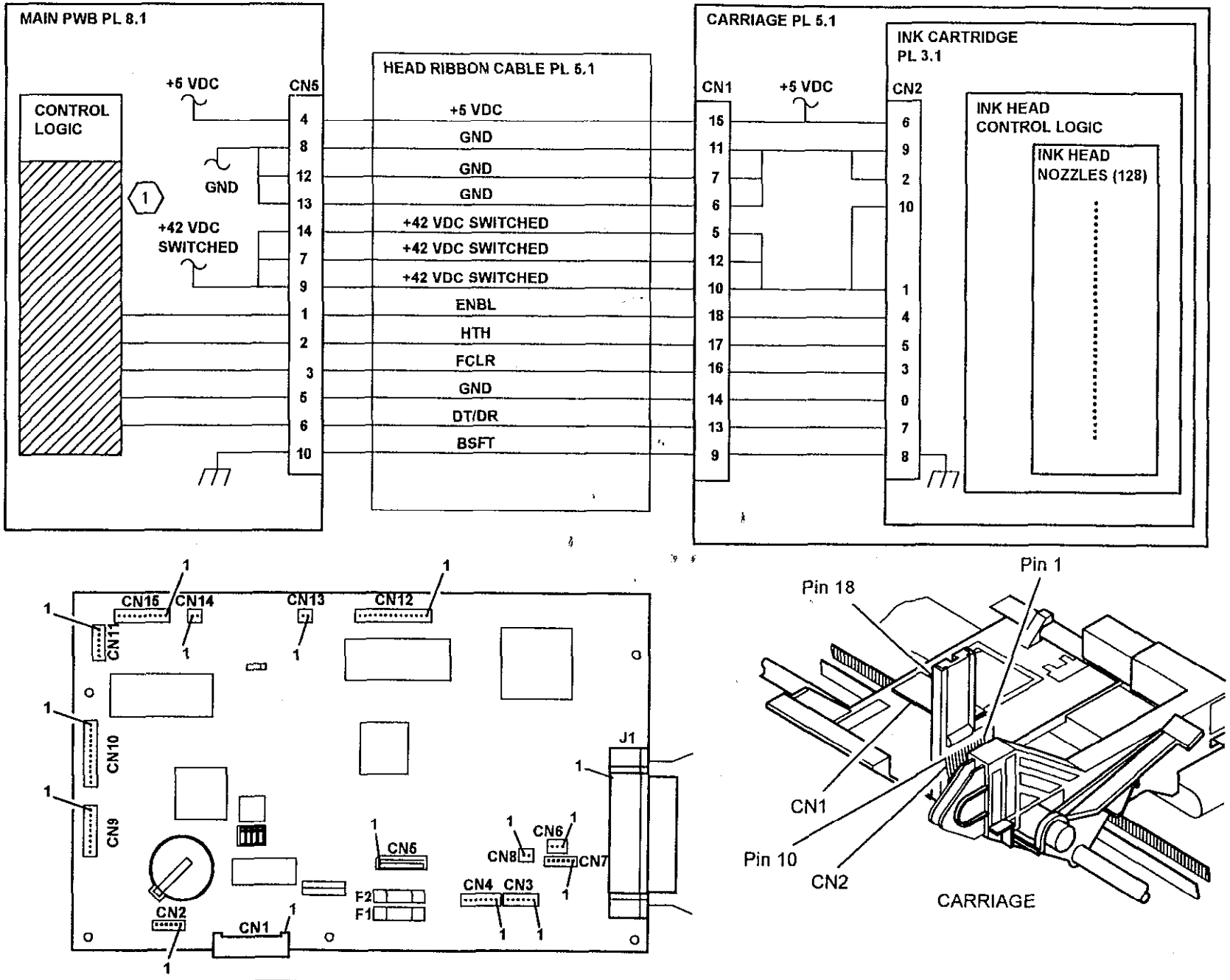
CAUTION

Do not the touch or put any adhesive (i.e.: tape) on the nozzles of the ink cartridge. They can be blocked or misaligned.

Procedure

1. Move the cartridge to the center (replacement) position.

2. Open the front cover and move the cartridge lock lever to the rear of the machine.
3. Ensure that the head ribbon cable (PL 5.1) between the main PWB and the carriage is correctly seated and is not damaged.
4. Carefully reseat the ink cartridge and move the lock lever toward the control panel.
5. If the problem still exists, replace the ink cartridge (PL 3.1).


MAIN PWB PL 8.1
CONTROL LOGIC
+5 VDC
GND
+42 VDC SWITCHED
CN5
4
8
12
13
14
7
9
1
2
3
5
6
10
HEAD RIBBON CABLE PL 5.1
+5 VDC
GND
GND
GND
+42 VDC SWITCHED
+42 VDC SWITCHED
+42 VDC SWITCHED
ENBL
HTH
FCLR
GND
DT/DR
BSFT
CARRIAGE PL 5.1
CN1
+5 VDC
15
11
7
6
5
12
10
18
17
16
14
13
9
INK CARTRIDGE PL 3.1
CN2
6
9
2
10
1
4
5
3
0
7
8
INK HEAD CONTROL LOGIC
INK HEAD NOZZLES (128)
CN16
CN14
CN13
CN12
CN11
CN10
CN9
CN6
CN8
CN7
CN4
CN3
CN2
CN1
F2
F1
J1
Pin 1
Pin 18
CN1
Pin 10
CN2
CARRIAGE

RAP 21 Document Feeding

This procedure is used to troubleshoot a document detection or a feed problem.

Initial Actions

- Ensure that there is no document or other obstruction in the document path.
- Open the scanner and ensure that the actuator for the scan sensor is not binding.

Procedure

1. Use a meter to verify the operation of the document sensors.

   The sensors are good.
   Y N
   | Replace the sensor board PWB assembly (REP 4.1).

2. Make a copy.

   Document feeds through the scanner.
   Y N
   | Go to step 6.

3. **The image on the copy is good.**
   Y N
   | Clean or replace the retard pad (REP 4.2) and clean the ADF, scan, and eject rollers (PL 4.1).

4. Load 5 sheets into the ADF and press ***Copy*** then ***Start***.
   Observe operation for a mechanical problem with the ADF feeder such as:
   - A broken or damaged gear
   - Binding switch actuator
   - Contaminated feed rolls.

   Operation is good.
   Y N
   | Repair or replace appropriate part.

5. Clean or replace the retard pad (REP 4.2) and clean the ADF and eject rollers (PL 4.1).

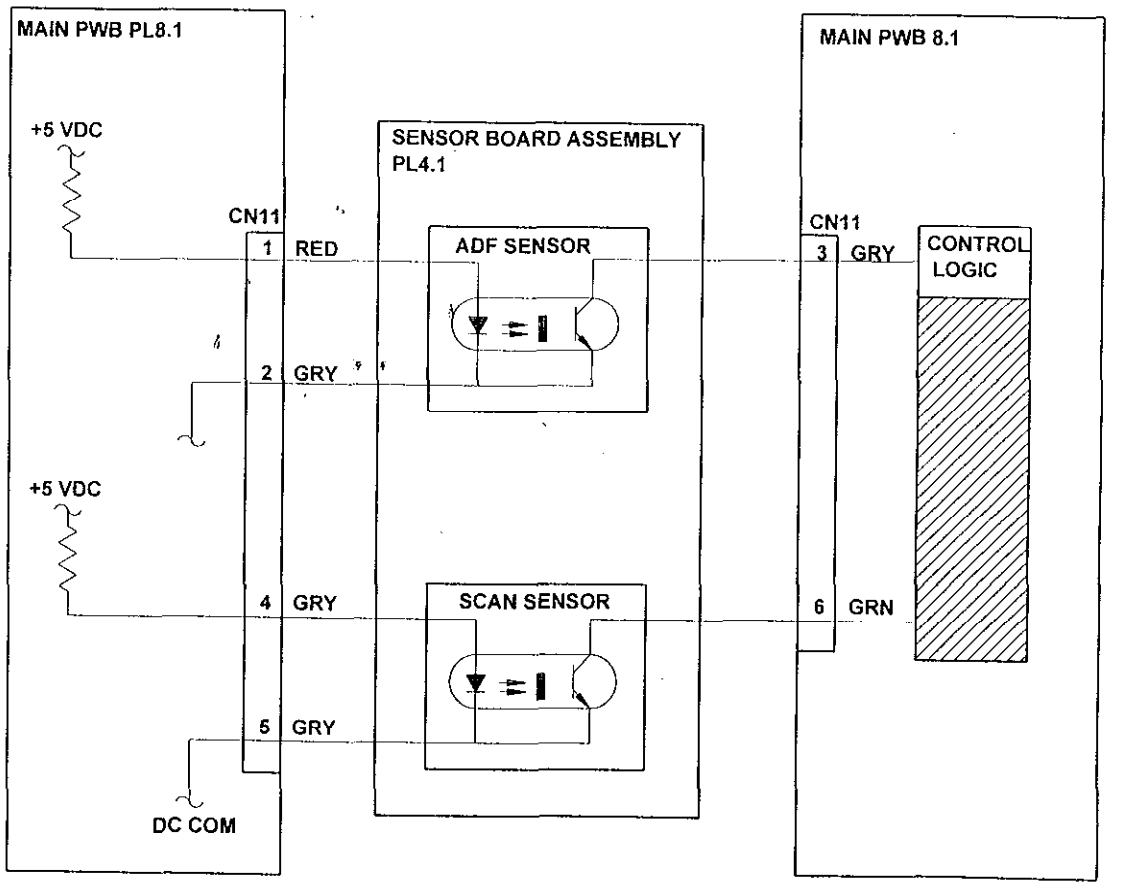
6. Check the ADF motor for mechanical binding or incorrect resistance (Table 1).

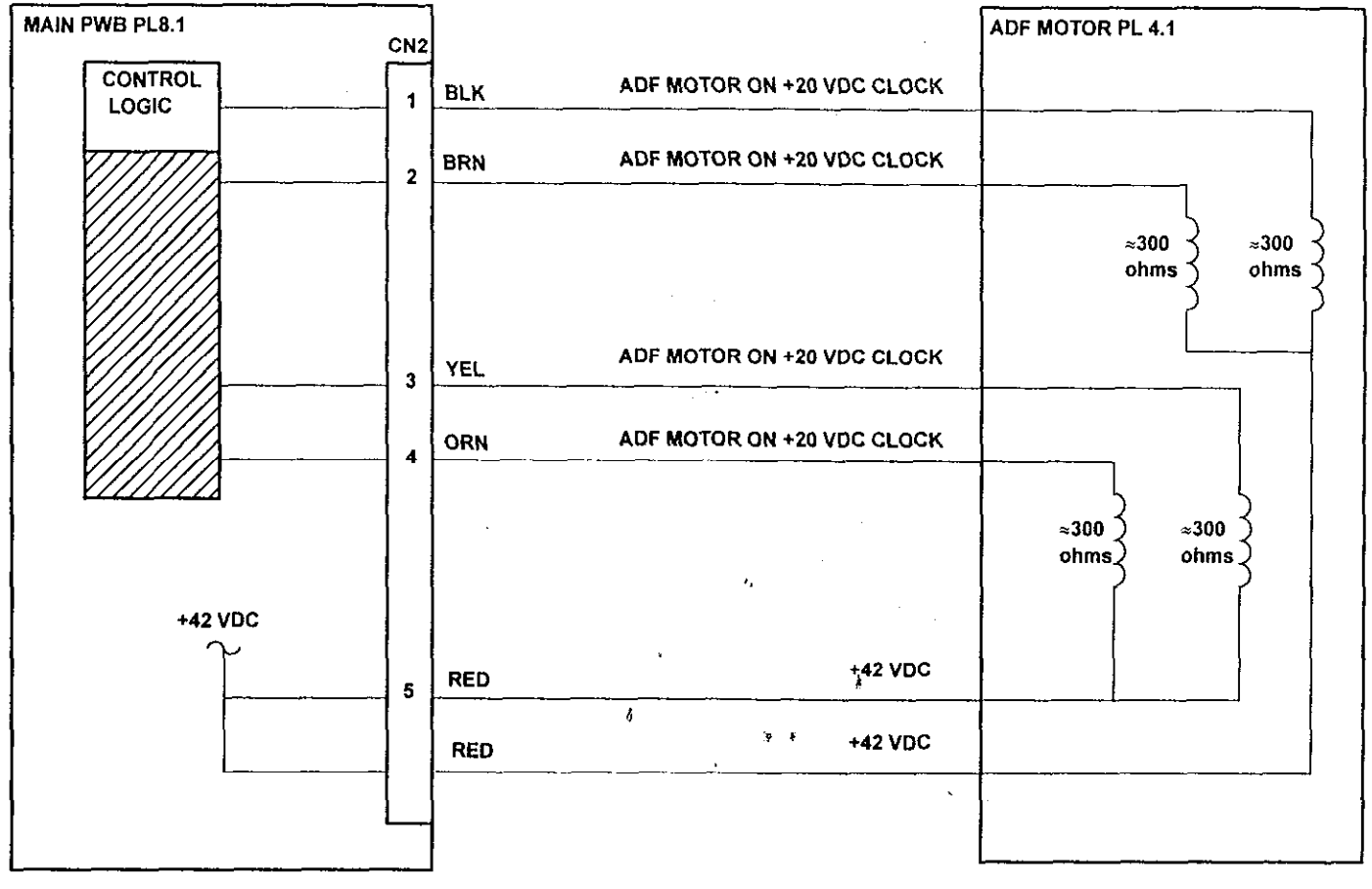
   The motor is OK.
   Y N
   | Replace the ADF motor (REP 4.3).

7. Replace the main PWB (REP 8.1).

Table 1 ADF Motor

CN2	Resistance
Pin 5 to 1 or 2	≈ 300 ohms
Pin 6 to 3 or 4	≈ 300 ohms
Pin 1 to 2	≈ 600 ohms
Pin 3 to 4	≈ 600 ohms




MAIN PWB PL8.1
CN2
CONTROL LOGIC
1
2
3
4
5
BLK
BRN
YEL
ORN
RED
RED
ADF MOTOR ON +20 VDC CLOCK
ADF MOTOR ON +20 VDC CLOCK
ADF MOTOR ON +20 VDC CLOCK
ADF MOTOR ON +20 VDC CLOCK
+42 VDC
+42 VDC
+42 VDC
≈300 ohms
≈300 ohms
≈300 ohms
≈300 ohms
ADF MOTOR PL 4.1

RAP 23 Printer Comm Error

This procedure is used to troubleshoot printer communication errors.

Procedure

1. Unplug the machine. Disconnect CN1 from the main PWB. Connect the meter across pins 1 and 3 of the disconnected harness connector. Plug in the machine.

   There is +42 VDC present.

   Y **N**

   | Replace the power supply (REP 8.4).

2. Replace the main PWB (REP 8.1).

RAP 24 Dial Tone

This procedure is used to troubleshoot failures which do not provide dial tone at the telephone handset.

Initial Actions:

Check that the telephone and telephone line cables are correctly connected.

Ensure that the cables are not damaged.

Procedure

1. Dial a telephone number and press ***Start***.

   A dial tone is heard before the number is dialed.

   Y **N**

   | Connect a telephone directly to the telephone wall outlet.

2. Replace the main PWB (REP 8.1).

RAP 25 Dialing and Connecting

This procedure is used to troubleshoot failures of a send operation from the machine. It does not include image quality problems.

Initial Actions

- Check that the telephone line cable is correctly connected.
- Ensure that the cable is not damaged.
- Ensure that the machine is set to the correct dial mode; tone or pulse.

Procedure

1. Use the external telephone to manually dial the remote machine.

   The remote machine answers and sends a ready tone.
   Y N
   | Go to step 6.

2. Locate the NCU PWB connector CN12 on the main PWB. Measure the voltages at the following pins.

   CN12-4 - - - - - - - - - - - - - - - - - - - +12VDC
   CN12-2 - - - - - - - - - - - - - - - - - ≈ .2VDC
   CN12-9, 10, 11 & 12 - - - - - - - - - - - +5VDC
   CN12-13 - - - - - - - - - - - - - - ≈1.5VDC

   Voltages are correct.
   Y N
   | Go to step 4.

3. Replace the NCU PWB (REP 8.3).

4. Disconnect connector CN12 and measure the voltages at the following pins on the main PWB.

   CN12-4, 5, 6 & 13 - - - - - - - - - - - - - +5VDC
   CN12-2 - - - - - - - - - - - - - - - - - - ≈ .2VDC
   CN12-9 - - - - - - - - - - - - - - - - - - - +12VDC
   CN12-10, 11 & 12 - - - - - - - - - - - ≈.4VDC

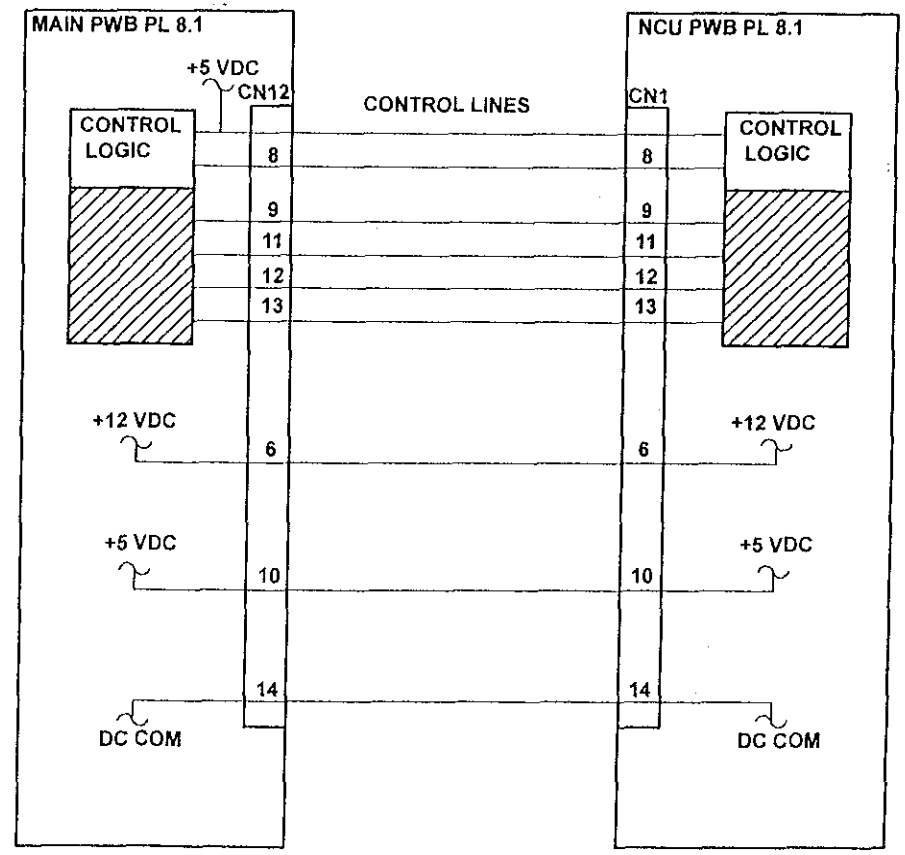
   Voltages are correct.
   Y N
   | Replace Main PWB (REP 8.1).

5. Replace NCU PWB (REP 8.3).

6. Connect another telephone to this telephone line at the wall outlet. Use this telephone to manually dial the remote machine.

   The remote machine answers and sends a ready tone back.
   Y N
   | Inform the customer of the telephone line problem.

7. Replace the first telephone.



RAP 26 Transmit and Receive Errors

This procedure is used to isolate system components which contribute to on line communications failures.

Initial Actions

- All normal system checks have been completed successfully.

Procedure

1. **The problem occurs during a send operation.**
   Y N
   Y: Go to step 4.
2. Send a two page test document to a known good machine.

   The test completes normally without communications error codes.
   Y N
   Y: Contact the next level of support for additional assistance.
3. Repeat the two page test with the machine that caused the original problem. If the problem still exists, contact the next level of support for additional assistance.
4. Receive two test copies from a known good machine.

   The test completes normally without communications error codes.
   Y N
   Y: Go to step 8.
5. Repeat the two page test with the machine that caused the original problem.

   Test completes normally without communications error codes.
   Y N
   Y: The remote operator should call for service.
6. Problem occurs only when remote machine initiates the transmission.
   Y N
   Y: The remote operator should call for service.
7. Ask the remote customer to contact the TELCO vendor for assistance.
8. Turn off ECM and try the test again.

   The test completes normally without communications error codes.
   Y N
   Y: Contact the next level of support for additional assistance.
9. Go to step 5.

RAP 27 Paper Feed Brake Solenoid

Procedure

1. Measure the voltage at CN8, pin 1.

   Voltage measures ≈ +5VDC.
   Y N
   | Go to step 4.

2. Make a copy

   The voltage at CN8-1 decreased to approximately 0 VDC when the paper was feeding.
   Y N
   | Replace the main PWB (REP 8.1).

3. Ensure the solenoid actuator mechanism is operating properly.

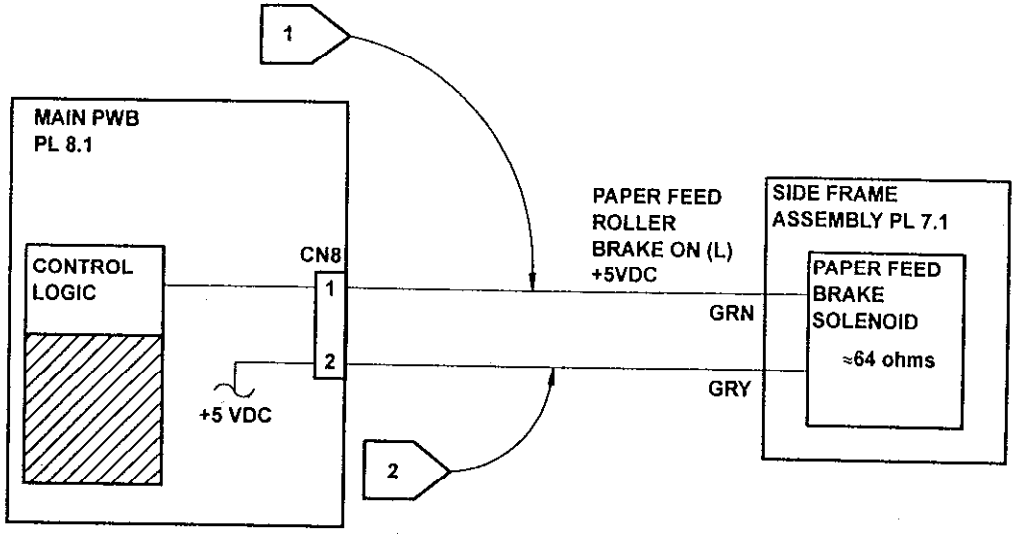
4. Measure the voltage at CN8, pin 2.

   Voltage measures ≈ +5VDC.
   Y N
   | Replace the main PWB (REP 8.1).

5. Disconnect CN8. Set the meter to measure 64 ohms. Connect the meter across pins 1 and 2 of the disconnected connector CN8.

   There is approximately 64 ohms present.
   Y N
   | Go to Flags 1 and 2 and check for an open connection. If OK, replace the paper feed roller brake solenoid (P/O Side Frame) (PL 7.1).

6. Go to Flag 1 and check for a short circuit. If shorted replace the paper feed roller brake solenoid (P/O Side Frame) (PL 7.1).



RAP 28 Mechanical Checkout

The following procedure applies to all gears, shafts, rollers, springs, and bearings in these areas:

- Upper and lower scanner
- Printer

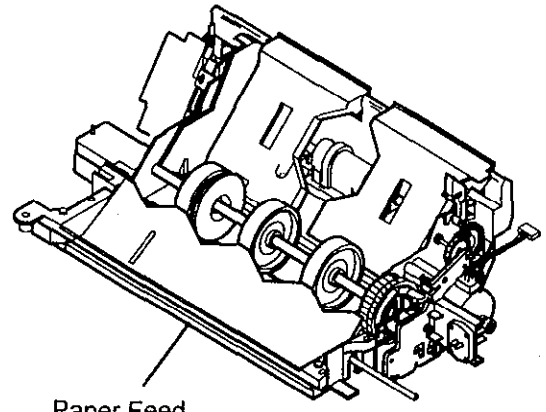
Initial Actions

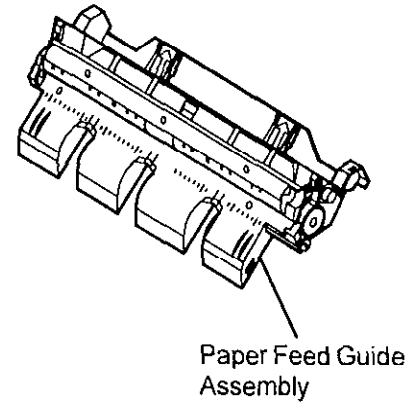
Disconnect the power cord.

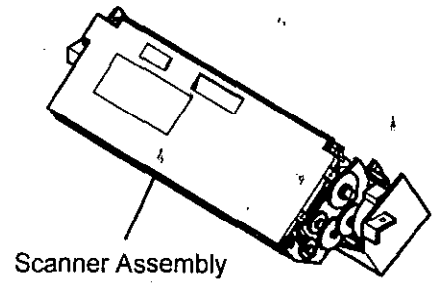
Procedure

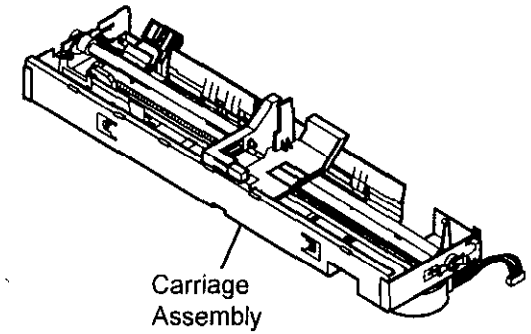
NOTE: Lubrication is only added or replaced on those components which were originally lubricated as manufactured.

1. Inspect all of the following. Replace any part that is binding or damaged.
   - shafts, shaft supports, or bearings.
   - gears.
   - rollers.
   - cover latch spring or latches.









3 Image Quality Repair Analysis Procedures

Section Contents

Introduction

The Image Quality (IQ) section is used to identify image quality problems. It contains the Introduction, Image Quality samples, and Image Quality RAPS.

The sample is a reproduction of the image quality test pattern 82P151.

Compare the image quality of the samples produced in section 1, System Checks, with the 82P151 test pattern in your kit. This will identify any image quality defects which may have been produced during Off-line or On-line System Checks.

Use the Image Quality RAPS to further diagnose machine problems.

In the Y/N (Yes/No) steps of the RAPs, a Yes response will lead you to the next step. A No response will indicate a corrective action, or will direct you to another step. When the indicated corrective action has been completed, go to Section 1 and restart the System Check to verify that the problem has been corrected.

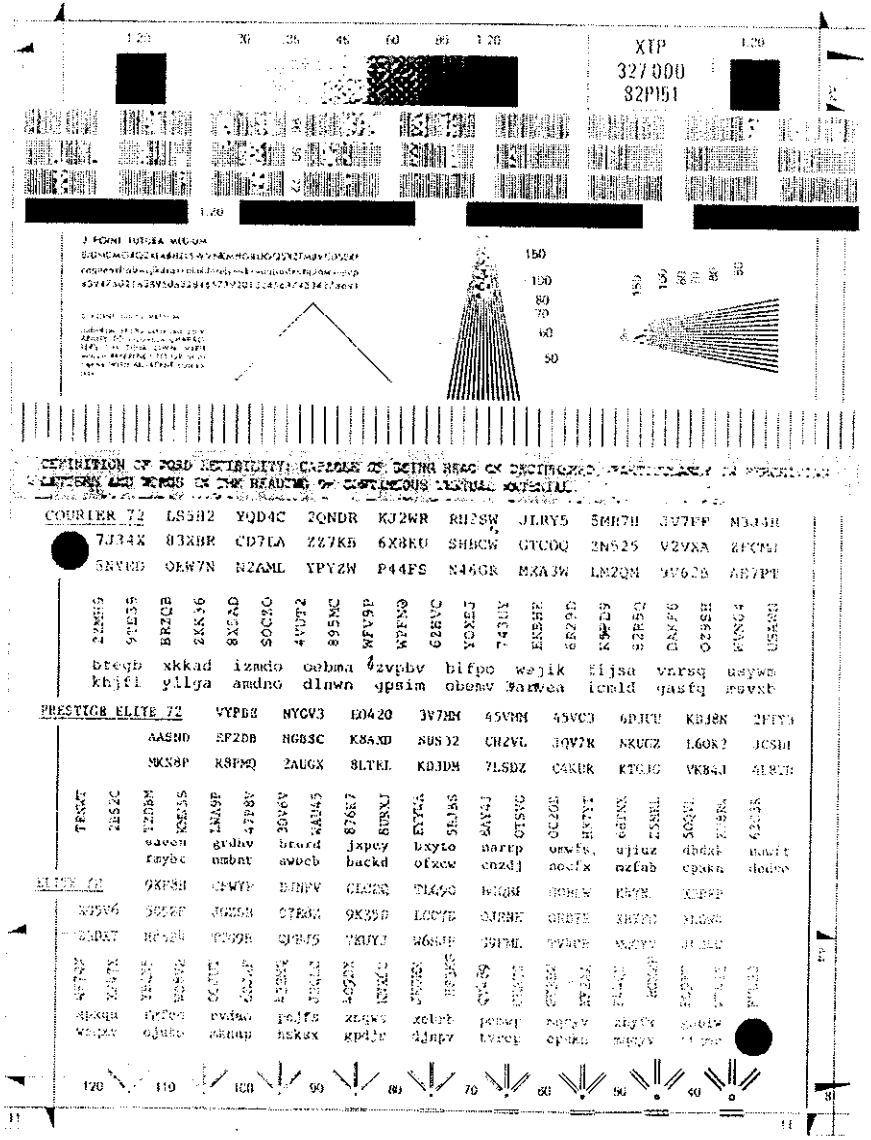
Measurements

Power and signal grounds are connected to frame ground, therefore all circuit troubleshooting can be performed using the metal frame (chassis) as the grounding point. If more information is needed to locate connectors or test points, refer to section 7.

NOTE: Make all voltage measurements to ground unless instructed to measure from "XX" to "XX".

Unless specified otherwise, the following voltage tolerances are used within this section:

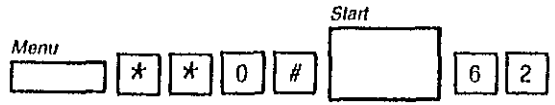
Stated	Measured
+ 5.0 VDC	+ 4.75 VDC to + 5.25 VDC
+12.0 VDC	+ 10.8 VDC to + 13.2 VDC
–12.0 VDC	–10.8 VDC to –13.2 VDC
+ 42.3 VDC	+37.8 VDC to +46.2 VDC
0.0 VDC	+ 0.5 VDC


XTP
327000
82P151
COURIER 72
PRESTIGE ELITE 72

IQ RAP 1 Entry Image Quality RAP

Procedure

1. Enter the service mode and print the internal test pattern.



2. Make a copy of test pattern 82P151.
3. Determine which mode caused the defect.
4. Read through the list of defects and select the best description of the defect.
5. Go to the RAP or IQ RAP indicated in Table 1.

Table 1 Image Quality Defects

IMAGE QUALITY DEFECTS	RAP
Blank or mostly blank print	IQ RAP 10
Vertical / Horizontal deletions / lines	IQ RAP 12
Dark image 2 inches wide	IQ RAP 14
Black with thin deletions	IQ RAP 15
Black print	IQ RAP 16
Misregistration/Skew	IQ RAP 17
Print density	IQ RAP 18
Stretched copy	RAP 21
Gray or mostly gray copy	IQ RAP 23
V-bars	IQ RAP 30
Blurry, fuzzy or smudged image	IQ RAP 31
Image quality is unacceptable	IQ RAP 32

IQ RAP 10 Blank or mostly blank print

Initial Action

- Check CIS tuning (see Section 6).

Procedure

1. **The internal test pattern is good.**
   Y N
   |
   - Ensure that the ink cartridge is installed correctly.
   - Prime the Ink Cartridge.

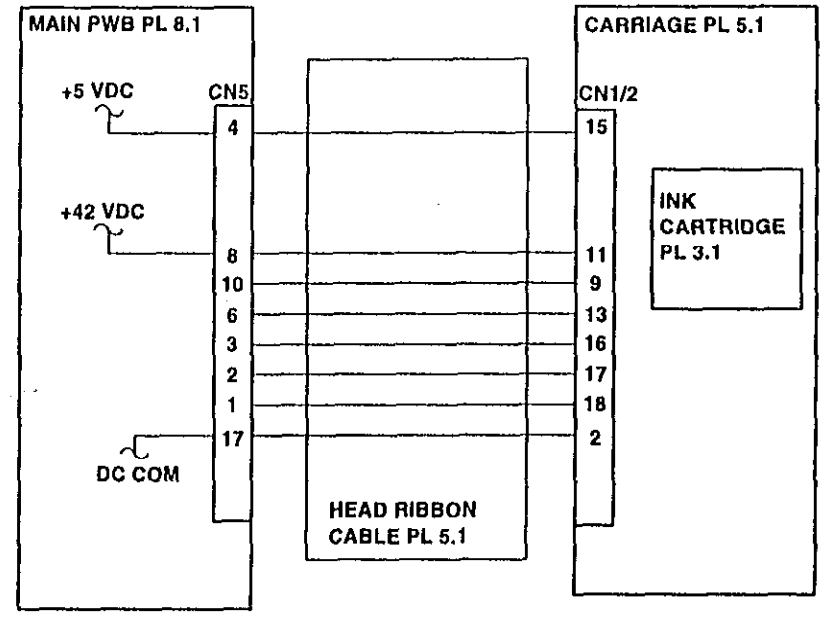
   - Ensure that the head ribbon cable (PL 5.1) is not damaged.
   - Ensure that all connections are correct on the main PWB.
   - Ensure that the maintenance station (PL 5.1) seals correctly to the ink cartridge.
   - Ensure that the pump system (PL 6.1 / 7.1) is working correctly.
   - If the problem still exists, replace the following parts in sequence:
     - ink cartridge (PL 3.1).
     - main PWB (REP 8.1).

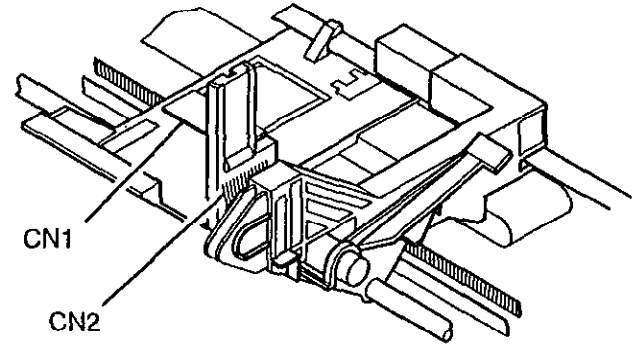
2. Ensure that connections CN5 & CN15 are correct on the main PWB.
   Connection is correct.
   Y N
   |
   Repair or reconnect CN15.

3. Perform the following actions:
   - Clean the scan, ADF, and eject rollers.
   - Remove the scanner assembly and check for an obstruction in the optical path. Clean or repair as required.

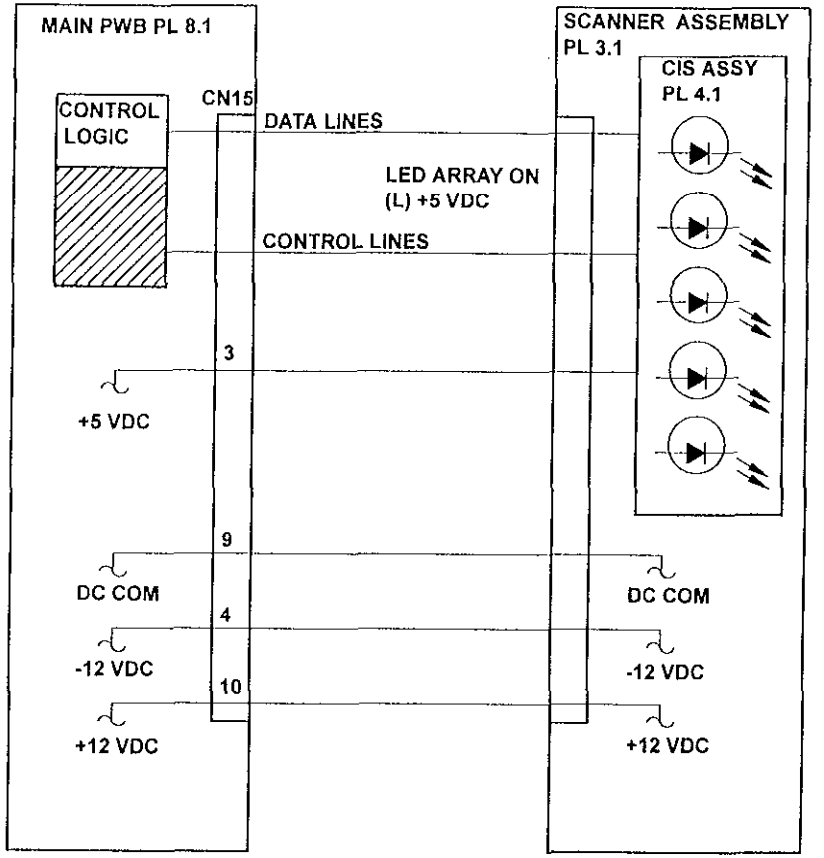
   The problem has been corrected.
   Y N
   |
   Replace the scanner assembly (REP 3.4).

4. Complete the call.





CARRIAGE


MAIN PWB PL 8.1
CONTROL LOGIC
CN15
DATA LINES
LED ARRAY ON (L) +5 VDC
CONTROL LINES
3
+5 VDC
9
DC COM
4
-12 VDC
10
+12 VDC
SCANNER ASSEMBLY PL 3.1
CIS ASSY PL 4.1
DC COM
-12 VDC
+12 VDC

IQ RAP 12 Vertical / horizontal deletions / lines

Procedure

1. The internal test pattern is good.

   Y N

   ▌ • Ensure that the reverse spring is attached to the slip spring and frame.

   • Ensure that the ink cartridge is installed correctly.

   • Ensure that the connectors are not damaged and are correctly seated on the main PWB.

   • If the problem exists after periods of non use, check that the Maintenance Station to cartridge seal is not damaged and the Prime function/pump system is working correctly (PL 5.1 - PL 7.1).

   • Prime the cartridge. More than one time may be required.

   • If the problem still exists, replace the ink cartridge (PL 3.1).

   • Perform RAP 27 Paper Feed Brake Solenoid.

2. Perform the following actions:

   • Clean the scan, ADF, and eject rollers.

   • Remove the scanner assembly and check for an obstruction in the optical path. Clean or repair as required.

   ▌ • Ensure that the earth spring is making contact with the ends of the ADF roller, scan roller and eject roller.

   The problem has been corrected.

   Y N

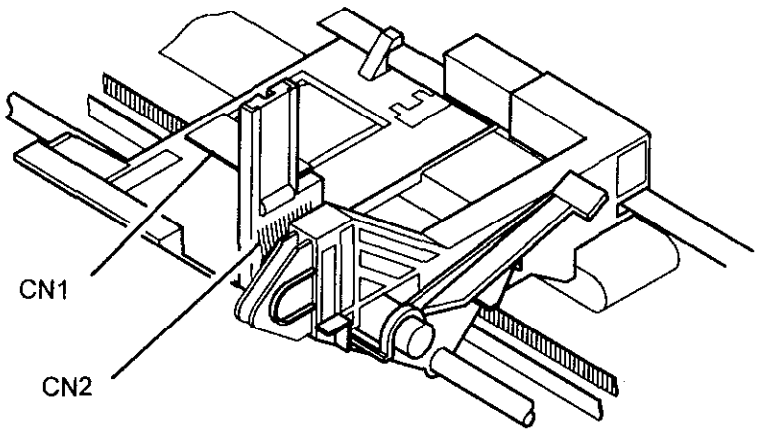
   Replace the scanner assembly (REP 3.4).

3. Complete the call.

IQ RAP 14 Dark image 2 inches wide

Initial Action:

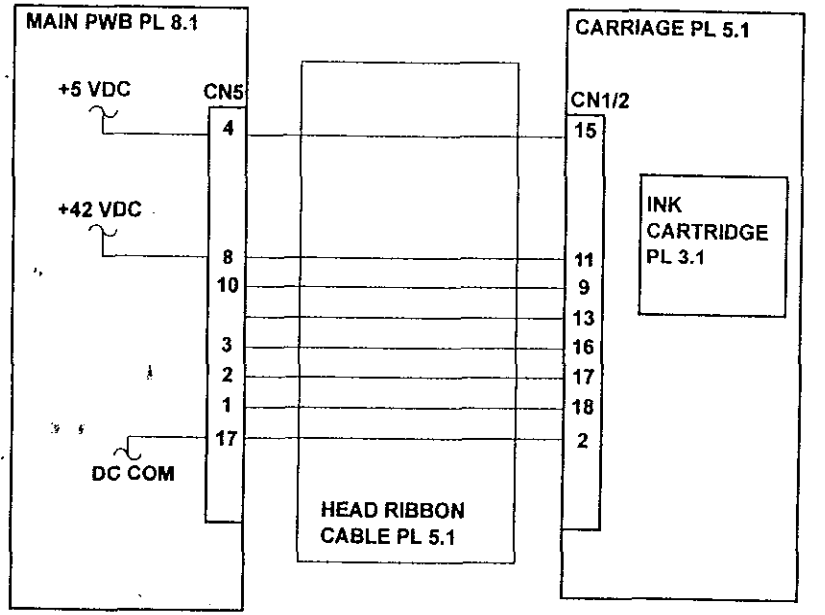
- Ensure that the ink cartridge is installed correctly.
- Ensure that all connectors are correctly seated on the main PWB.
- If the problem still exists, replace the ink cartridge (PL 3.1).



IQ RAP 15 Black with thin deletions

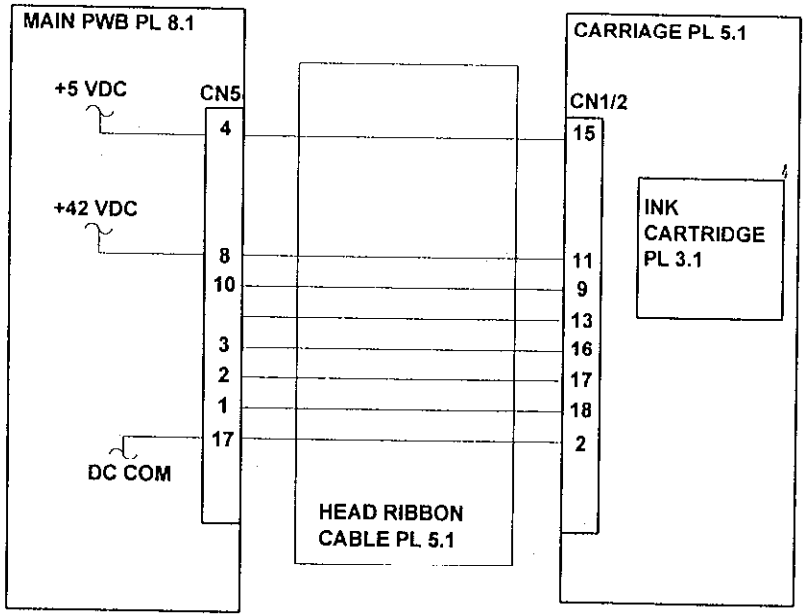
Initial Action:

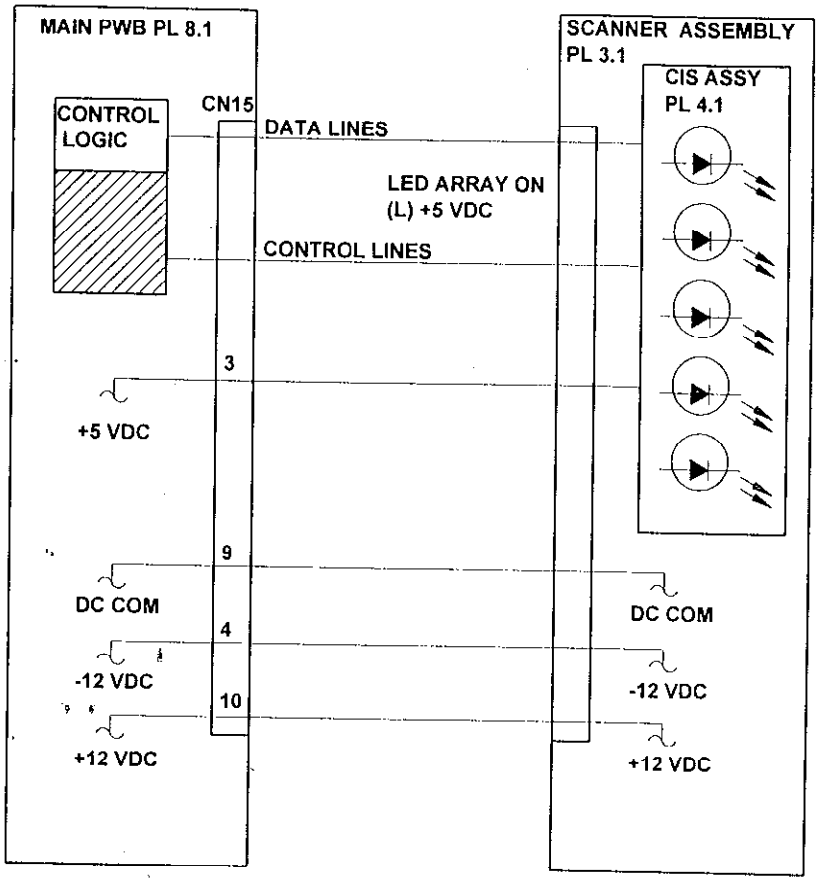
- Ensure that the ink cartridge is installed correctly.
- Ensure that all connectors are correctly seated on the main PWB.
- If the problem still exists, replace the ink cartridge (PL 3.1).



Procedure

1. **The internal test pattern is good.**
   Y N
   |
   - Ensure that the ink cartridge is installed correctly.
   - Ensure that all connectors are correctly seated on the main PWB.
   - If the problem still exists, go to step 3.
2. Ensure that connection CN15 is correct on the main PWB.
   Connection is correct.
   Y N
   |
   Repair or reconnect CN15.
3. Replace the parts in the sequence listed:
   - ink cartridge (PL3.1).
   - main PWB (REP 8.1).





IQ RAP 17 Misregistration / Skew

This RAP is used if the image is not correctly positioned on the paper either top - to - bottom or side - to - side.

Procedure

1. The internal test pattern is good.
   Y N
   - Ensure that there is no obstruction in the paper path.
   - Ensure that the copy paper is loaded correctly. The edges are even, the paper guides do not interfere with the paper movement, and there are less than 100 sheets in the tray.
   - If the problem still exists, go to step 4.
2. Clean the scan, ADF, and eject rollers. Check that the document guides are adjusted against the document and that the guides hold the documents, but do not interfere with the document movement.
   Y N
   Repair and retry the operation.
3. Ensure that there no obstruction in the document feeder. Ensure that the document guide, document deflector, and document stop are not interfering with the correct movement of the documents. Check that the document and scan sensors are installed correctly and that the sensor actuators move freely.
   Y N
   Repair and retry the operation.
4. Perform the grid adjust (ADJ 5.1) procedure.
5. If the problem still exists, replace the main PWB (REP 8.1).

IQ RAP 18 Print density

This RAP is used if the image density is not uniform.

Initial Actions:

- Check CIS Tuning (see Section 6).
- Set the graphic density to 300 dpi (Refer to the Dos Print Setup Options in the users guide Chapter 6, "Printer Control and Configuration").
- Set draft mode off (Refer to the users guide Chapter 6, "Printer Control and Configuration").
- Inspect the paper quality and install fresh paper.
- Check that the head gap arm is positioned in the gap lever on the front cover, and that the gap lever is correctly positioned for the print material.

Procedure:

1. The internal test pattern is good.
   Y N
   | Go to step 3.
2. Ensure the scanner slot is clean and replace the scanner assembly (REP 3.4).
3. Prime the ink cartridge and reprint the internal test pattern.

   The internal test pattern is good.
   Y N
   | Go to step 5.
4. Check that the maintenance station to cartridge seal is not damaged and the prime function/pump system is working correctly.
   Y N
   | Replace parts as required (PL 5.1 - PL 7.1)
5. Verify the ink cartridge latch is not damaged.

   The ink cartridge latch is good.
   Y N
   | Replace the cam pin (REP 5.6), then the cartridge support/sensor assembly (REP 5.7), then the carriage assembly (REP 3.5).
6. Check the head gap adjustment (ADJ. 5.2).

   The adjustment is correct.
   Y N
   | Adjust the head gap.
7. Enter the service mode and perform the all backup clear procedure.

CAUTION
The programmed data and any documents in memory will be deleted.

The internal test pattern is good.
Y N
| Replace the following parts in sequence:
- main PWB (REP 8.1).
- printer assembly (REP 3.2).

8. Complete the call.

IQ RAP 23 Gray or mostly gray copy

Initial Actions

- Ensure that CN15 is correctly connected to the main PWB.
- Check CIS Tuning (see Secton 6).

Procedure

1. **The Internal test pattern is good.**
   Y N
   | Go to step 4.
2. **The scan roller and the scanner slot are clean.**
   Y N
   | Clean the areas.
3. Replace the CIS assembly (REP 4.4).
4. Replace the ink cartridge (PL 3.1).
   The Internal test pattern is good.
   Y N
   | Replace the main PWB (REP 8.1).
5. Complete the call.

IQ RAP 30 V-bars

This RAP is used if the image is missing with black vertical lines or bars and relates only to copy quality of a fax operation .

Initial Actions

Ensure that the telephone line cord is connected correctly.

Procedure

1. Transmit a document over a known good telephone line.
   The Image is good.
   Y N
   | Replace the main PWB (REP 8.1).
2. The transmission line needs to be tested.

IQ RAP 31 Blurry, Fuzzy, or Smudged Image

Procedure

1. **The Internal test pattern is good.**
   Y N
   | Go to step 5.
2. Inspect the original document and check that the document guides are adjusted correctly against the document.

   Document and guides are okay.
   Y N
   | Replace original or adjust the guides.
3. Inspect the document feeder and ensure that there is no obstruction in the scanner area.

   Document feeder and scanner are clean.
   Y N
   | Clean the scanner area and the scan, ADF, and eject rollers.
4. Replace the ADF motor (REP 4.3).
5. Inspect the following items:
   - Ensure the print paper has a smooth surface.
   - Ensure that the ink cartridge is installed correctly.
   - Ensure the Gap Lever is set correctly.
   - Perform ADJ 5.3 Head Gap.
   - Check that the maintenance station to cartridge seal is not damaged and the prime function / pump system is working correctly (PL 5.1 - PL 7.1).
   - Prime the printer.
   - Replace the ink cartridge (PL 3.1).
   - If problem still exists, perform RAP 27 Paper Feed Brake Solenoid.

IQ RAP 32 Image Quality is Unacceptable

Initial Actions

1. Establish voice contact using the same telecommunication link used to transmit the document, if possible.

   The line is quiet and a normal voice can be heard clearly.
   Y N
   | The telephone company must verify the quality of the telecommunication link.

2. **The original document that was transmitted is clean and has no defects.**
   Y N
   | Use a good document.

3. **The document was transmitted with Superfine resolution selected.**
   Y N
   | Retransmit the document with Superfine resolution selected.

4. Print the phone book

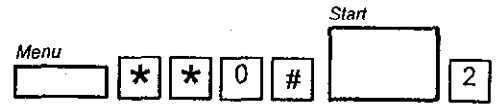
   

5. Print the menu map

   NOTE: Do not perform a memory clear unless absolutely necessary.

6. Enter service mode and perform the all backup clear procedure.

   The programmed data and any documents in memory will be deleted.

Notes

Section Contents

Introduction

Covers and Trays

Control Panel

Scanner and Printer Systems

ADF and Scanner Assembly

Carriage Assembly

Paper Feed Assembly

Side Frame

Electrical Components

Adjustments

Introduction

Overview

The Repair / Adjustment section, Section 4 of the Service Manual, provides information that enables the Service Representative to restore the product to within specification after fault isolation.

Section Contents

The Section Contents lists, in sequence, all the items of the section, with page references. Each entry in the section contents appears exactly as it appears in the manual.

Repair Procedures

This repair subsection contains instructions for removal and replacement tasks. A removal and/or replacement task is included when it is not obvious how components are removed and replaced, or when special conditions (such as an adjustment) must be met during these tasks.

Step-by-step removal procedures for a specific component or assembly are provided.

A good, general procedure to follow for most repairs is to remove the handset and cradle. Also, disconnect all the modular cables from the machine.

Illustrations are used to assist you with the procedures. You should refer to the specific Parts List illustration (listed under the repair title) for locating most components within a procedure.

Adjustment

The adjustment subsection consists of a complete set of instructions for performing independent adjustment tasks.

The title of each independent adjustment is in boldface type. Under the title, the adjustment task contains the following sections:

Purpose

The Purpose of the adjustment task states the reason for performing the adjustment.

Check

The Check defines the quickest way to determine whether the adjustments are within specification. A check is used only when it is possible to determine that the component is within specification without disturbing the adjustment.

Adjustment

The Adjustment contains complete instructions for performing the adjustment task,

REP 1.1 Front Cover

Parts List on PL 1.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Disconnect the Power Cord from the outlet.
2. Remove the Paper Tray.
3. Remove the Front Cover (Figure 1).
4. Note the position of the Gap Lever, front or rear position.
5. Open Front Cover and remove the E-Ring from each of the Front Cover pivot posts.
6. Slide the Front Cover off of the pivot posts one side at a time.

Replacement

CAUTION
Ensure the Gap Lever is engaged with the Printer Gap Arm and the Gap Lever is returned to the position noted in step 4.

1. Reinstall the components in the reverse order.

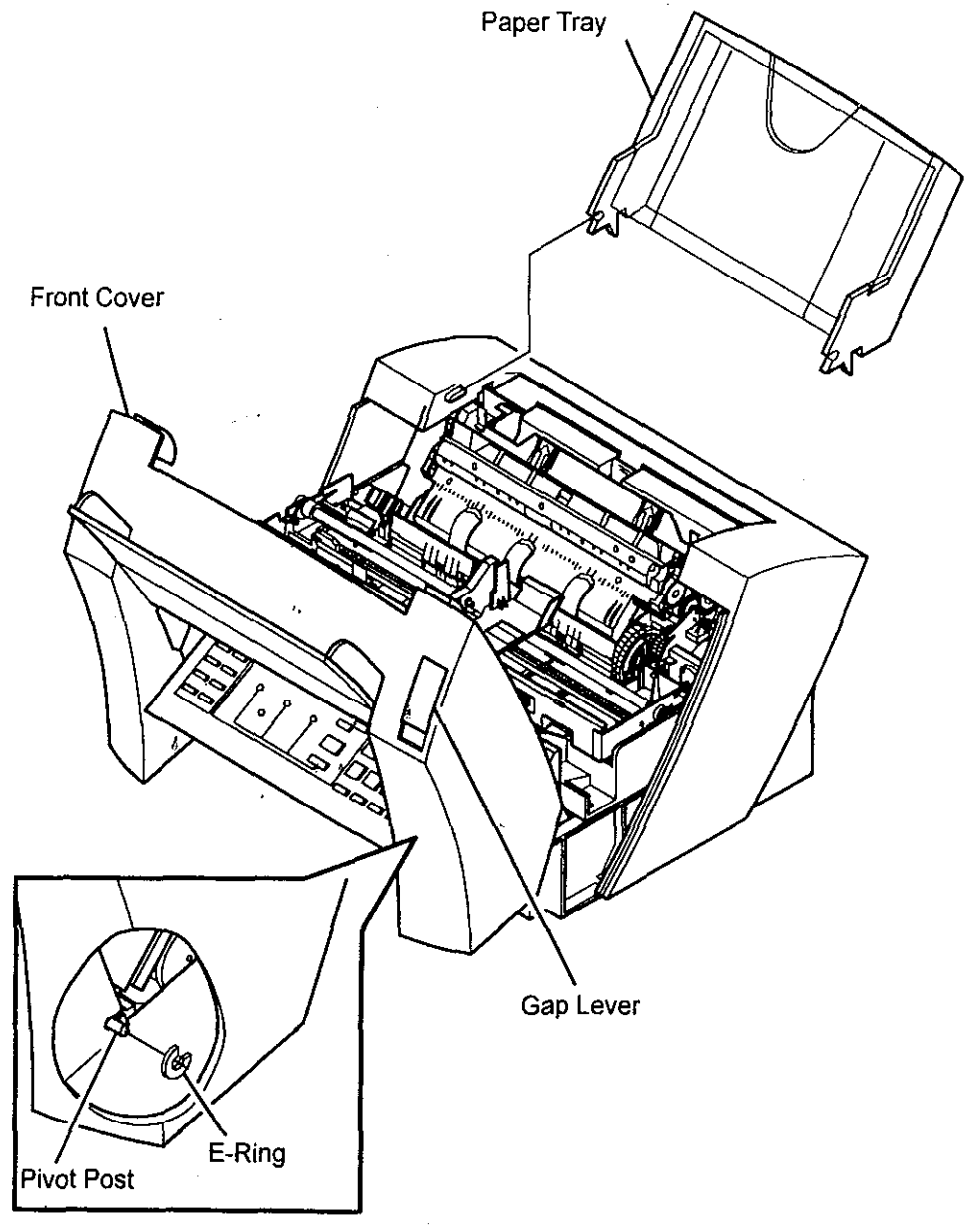


Figure 1 Removing the Front Cover

REP 1.2 Rear Cover

Parts List on PL 1.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Disconnect the following:
   a. Power Cord.
   b. Parallel Cable.
   c. Telephone Cables.
2. Remove the Paper Tray.
3. Remove the 3 screws retaining the Rear Cover.
4. Slide the Rear Cover off, disengaging the 4 tabs from the Bottom Pan (Figure 1).

Replacement

1. Ensure the 4 tabs engage the Bottom Pan slots.

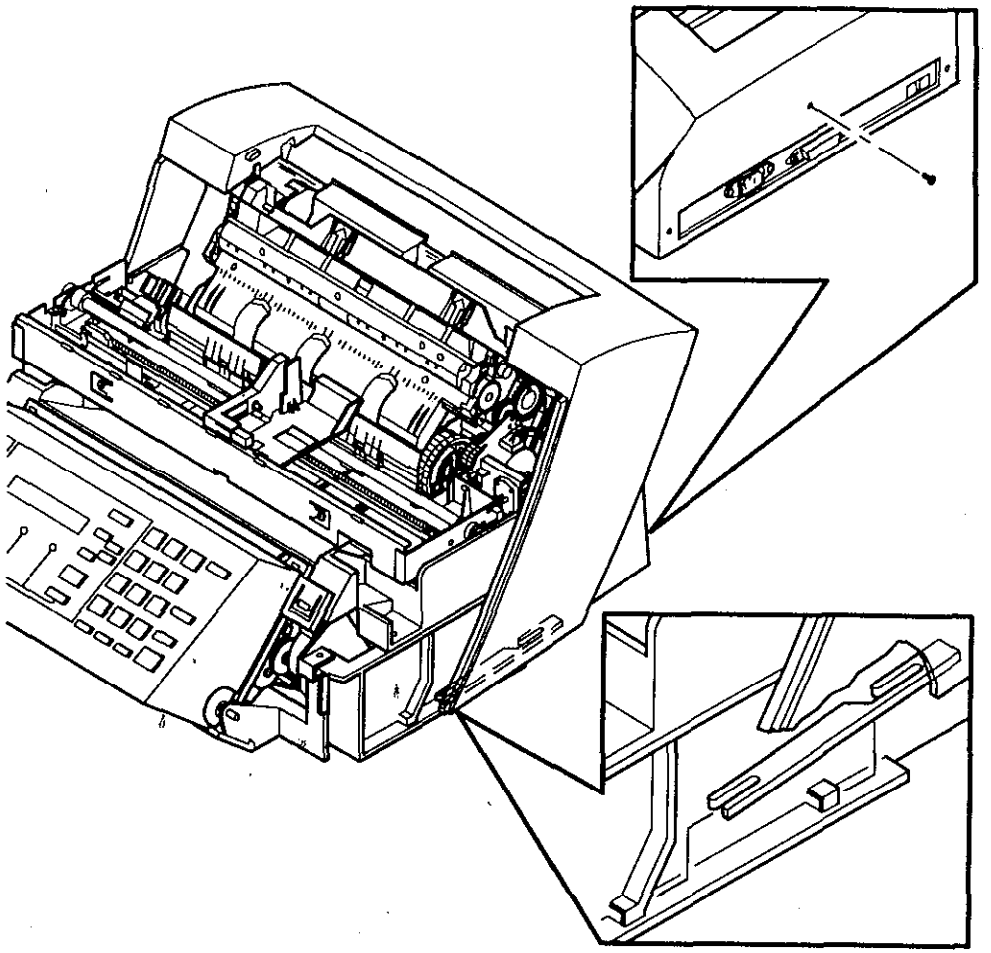


Figure 1 Disengaging the tabs

REP 2.1 Control Panel Assembly

Parts List on PL 2.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove Front Cover (REP 1.1).
2. Remove the Control Panel (Figure 1).
   a. Open the Control Panel.

CAUTION
The flexible tab on the right side pivot will break if overflexed.

   b. Slide the Control Panel to the right.
   c. Slide the Control Panel off of the left pivot.
   d. Slide the Control Panel off of the right pivot.
3. Disconnect the cable connector.

Replacement

1. Reinstall the components in the reverse order.

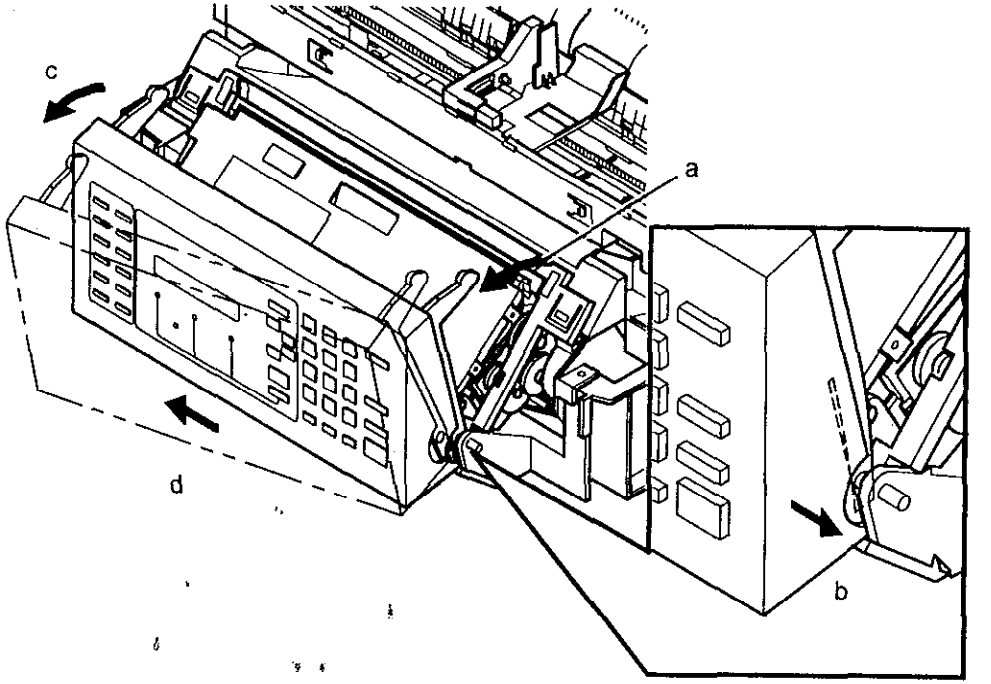


Figure 1 Removing the Control Panel Assembly

REP 2.2 Document Exit Guide

Parts List on PL 2.1

Removal

WARNING

Disconnect the Power Cord from the outlet.

1. Remove the Front Cover (REP 1.1).
2. Remove the Control Panel Assembly (REP 2.1).
3. Remove the Document Exit Guide (Figure 1).

   NOTE: Lift the Front of the machine to grip the lower edge of the Exit Guide.

   a. Grip the lower edge of the Exit Guide and pull down.

   b. Gently rotate up to disengage the tabs (both sides).

   c. Disengage the upper tabs.

   d. Remove the Document Exit Guide.

Replacement

1. Reinstall the components in the reverse order.

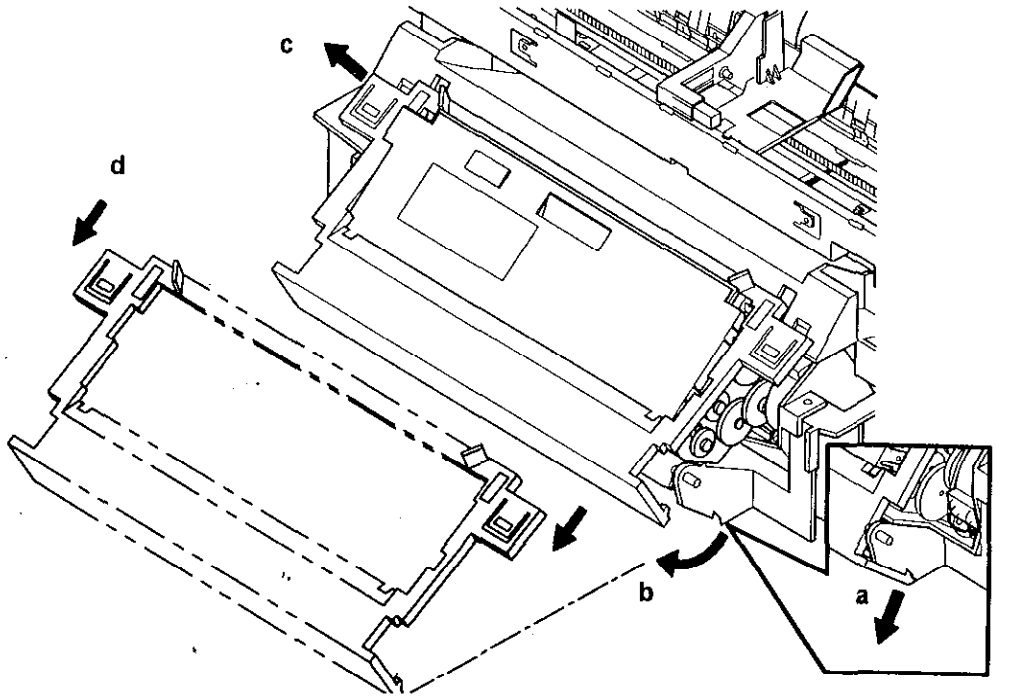


Figure 1 Removing the Document Exit Guide

REP 3.1 Printer and Tray Assembly

Parts List on PL 3.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the Rear Cover (REP 1.2).
2. Remove the Printer and Tray Assembly (Figure 1).
   a. Remove the two (2) mounting screws — one on each side.
   b. Open the Control Panel.
   c. Slide the Printer and Tray Assembly toward the Document Exit Guide to disengage the tabs.

NOTE: Cables to the Main PWB may become disconnected during the next step. Observe cable connector locations and polarity of the flex cable CN5 during disassembly.

   d. Lift the rear of the Printer and Tray Assembly and tilt to access the cables.
   e. Disconnect cables at CN3, CN4, CN5, CN6, CN7, and CN8.

Replacement

1. Ensure all cable connections are fully seated.
2. Reinstall the components in the reverse order.

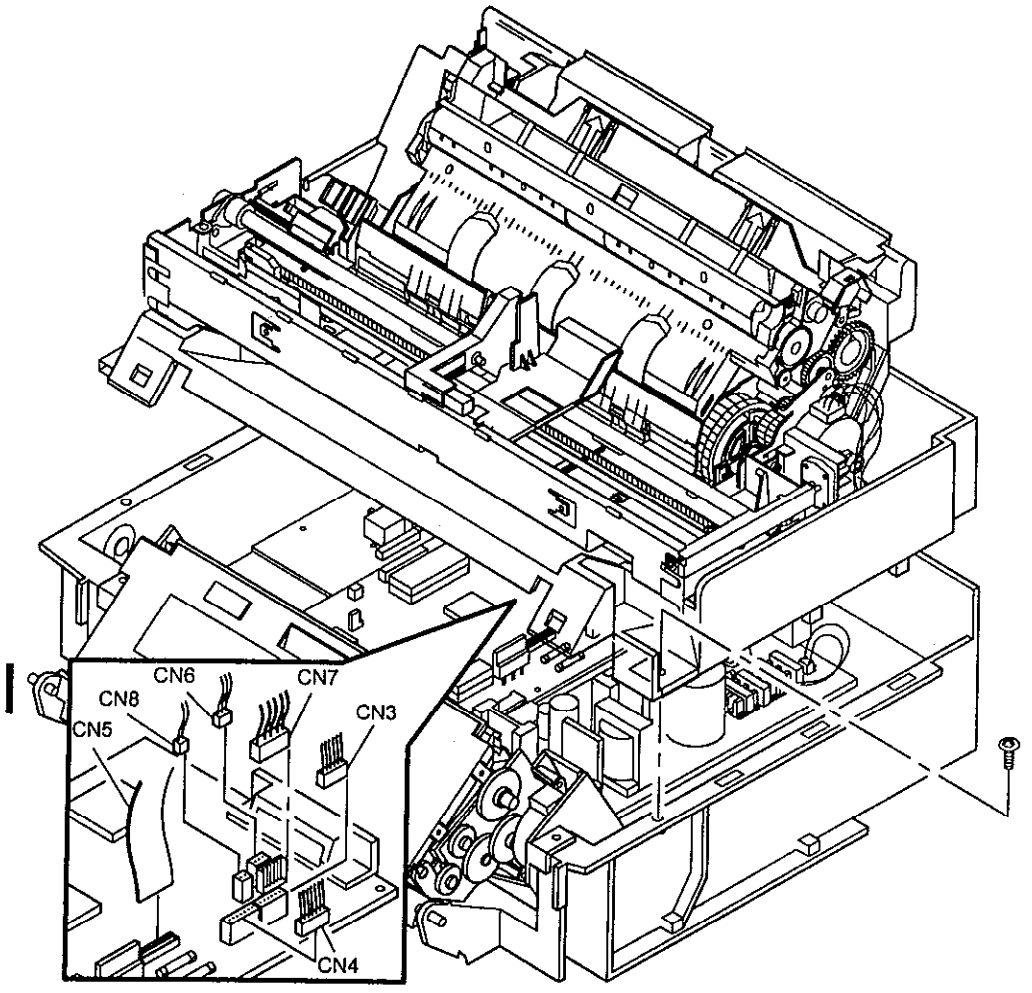


Figure 1 Removing the Printer and Tray Assembly

NOTE: For clarity, the Front Cover and Control Panel are not shown.

REP 3.2 Printer Assembly

Parts List on PL 3.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Rear Cover (REP 1.2).
   b. Printer and Tray Assembly (REP 3.1).
   c. Paper Feed Guide.
2. Remove the Printer Assembly (Figure 1).
   a. Loosen the screws and remove the Lever Stop Plate.
   b. Loosen the screws and remove the Left and Right Ground Clips.

Replacement

1. Route all of the Printer Assembly cables through the openings in the Printer Tray.
2. Reinstall the remaining components in the reverse order.

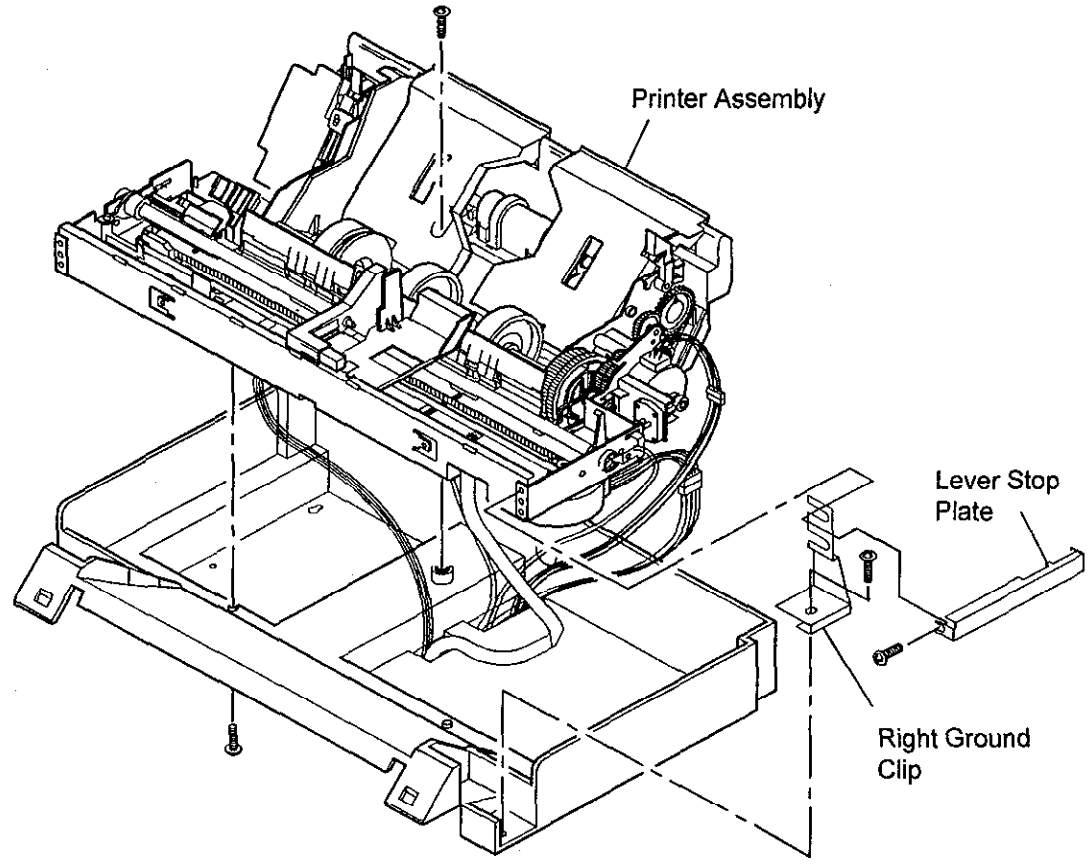


Figure 1 Removing the Printer Assembly

REP 3.3 Scanner and Guide Assembly

Parts List on PL 3.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Control Panel Assembly (REP 2.1).
   d. Document Exit Guide (REP 2.2).
   e. Printer and Tray Assembly (REP 3.1).
2. Remove the Scanner and Guide Assembly from the Bottom Pan (Figure 1).
   a. Disconnect connectors CN2, CN11, CN14, and CN15.
   b. Remove the two (2) ground cable screws.
   c. Remove the two (2) mounting screws.
   d. Lift the Scanner and Guide Assembly.

Replacement

1. Ensure that the Scanner Motor harness is dressed away from the Scanner gears.
2. Reinstall the components in the reverse order.

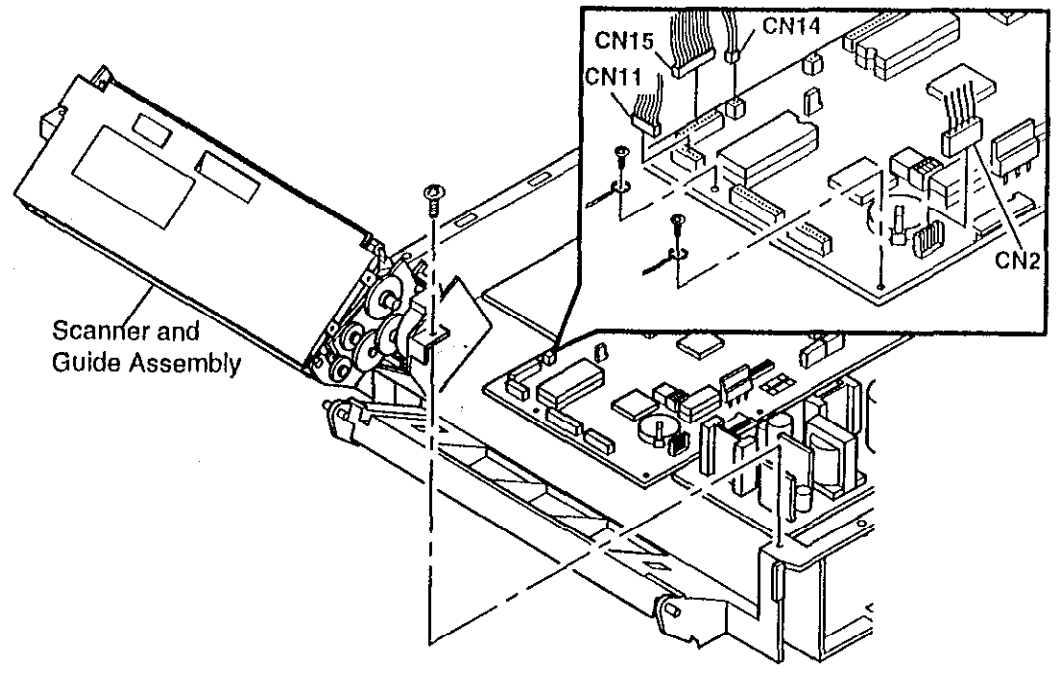


Figure 1 Removing the Scanner and Guide Assembly

REP 3.4 Scanner Assembly

Parts List on PL 3.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Control Panel Assembly (REP 2.1).
   d. Document Exit Guide (REP 2.2).
   e. Printer and Tray Assembly (REP 3.1).
   f. Scanner and Guide Assembly (REP 3.3).
2. Remove the Scanner from the Left and Right Guides (Figure 1).

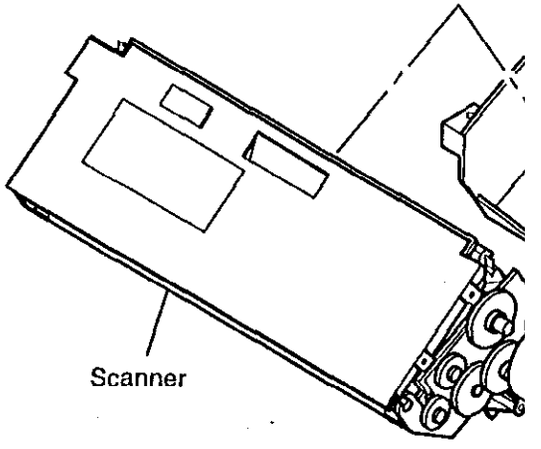


Figure 1 Removing the S

Replacement

1. Ensure that all cables on the left side are routed between the Left Guide mounting bosses.
2. Reinstall the components in the reverse order.
3. Check copy quality and accomplish CIS Tuning if necessary (see Section 6).

REP 3.5 Carriage Assembly

Parts List on PL 3.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
3. Disconnect the maintenance tube from the tank (Figure 1).

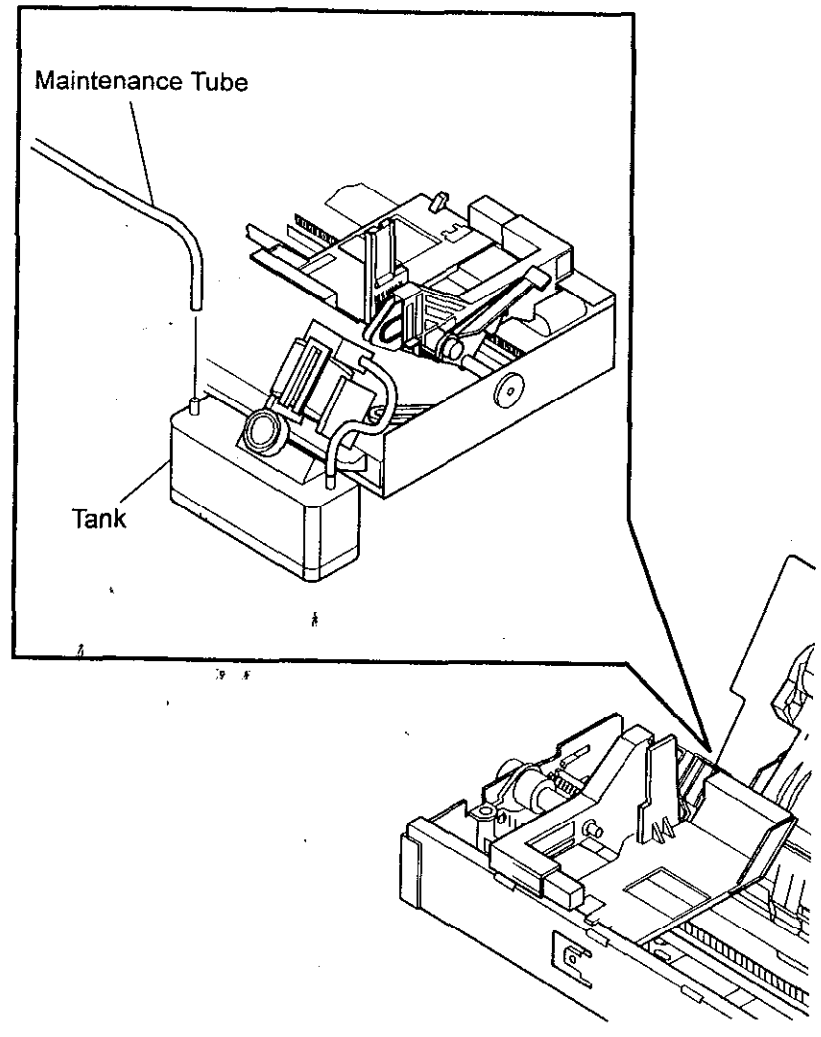


Figure 1 Disconnecting the Maintenance Tube

4. Turn the Printer Assembly over.
5. Release the cable from the clamp (Figure 2).

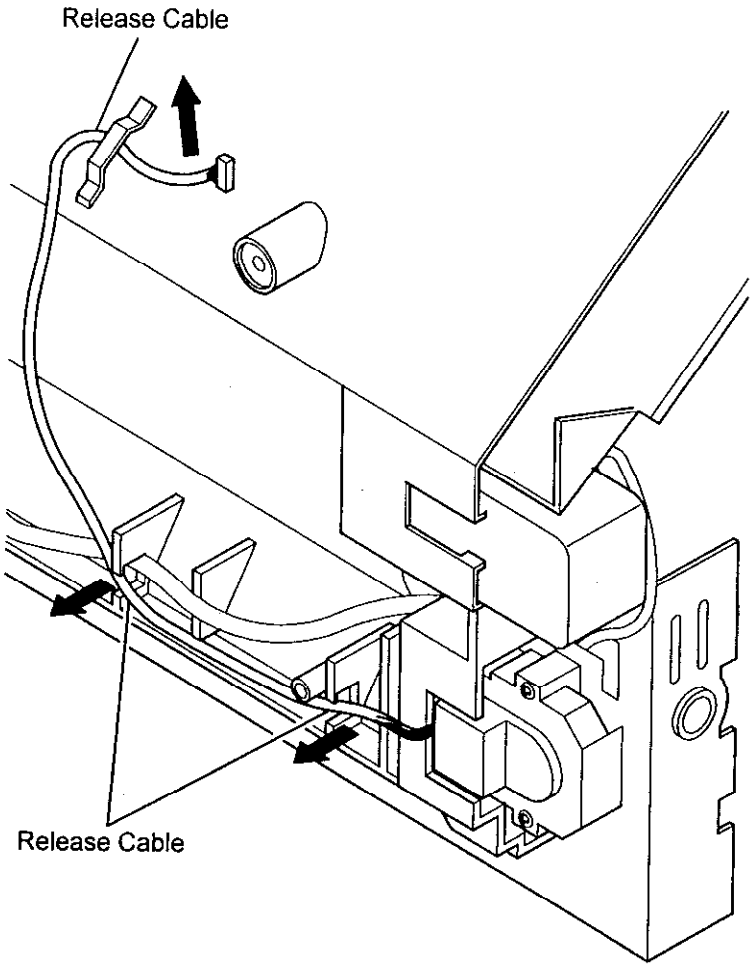


Figure 2 Releasing the Cable

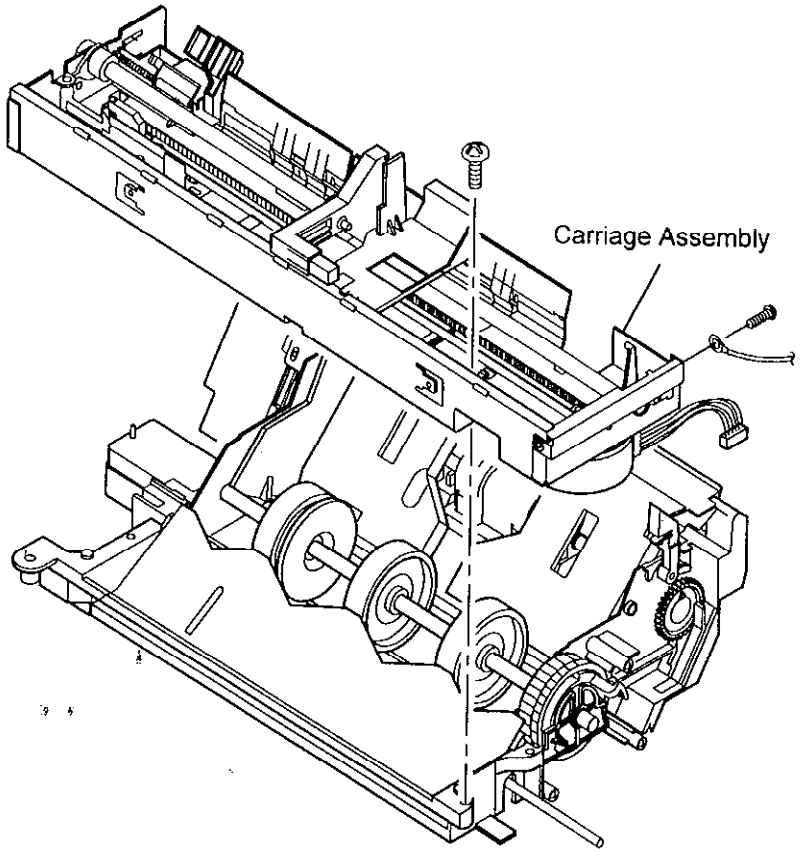


Figure 3 Removing the Carriage Assembly

6. Turn the Printer Assembly over.
7. Remove the Carriage Assembly (Figure 3).

Replacement

1. Ensure the Carriage Assembly engages the slot in the Printer Assembly which is located just above the Tank (Figure 4).
2. Ensure that the Pump Tube is routed to avoid restrictions.
3. Reinstall the remaining components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2).
2. Grid Adjust (ADJ 5.1).

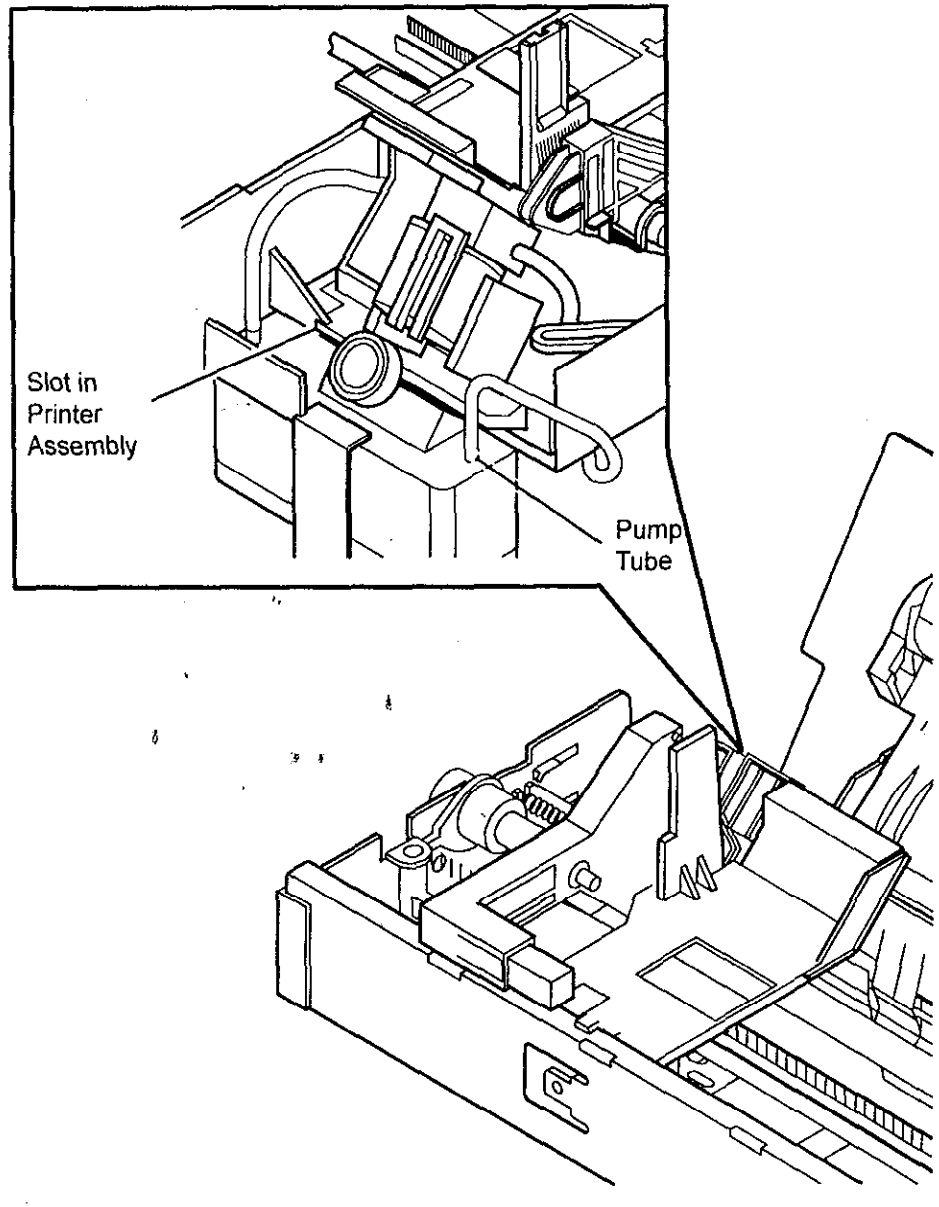


Figure 4 Engaging slot in Printer Assembly

REP 3.6 Side Frame Assembly

Part List on PL 7.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
3. Remove the Side Frame Assembly (Figure 1).
   a. Disconnect the Pump tube.
   b. Remove the three (3) Side Frame Assembly mounting screws.
   c. Carefully pull the Side Frame Assembly out to access the Reverse Spring.
   d. Disconnect the Reverse Spring.
   e. Remove the Side Frame Assembly.

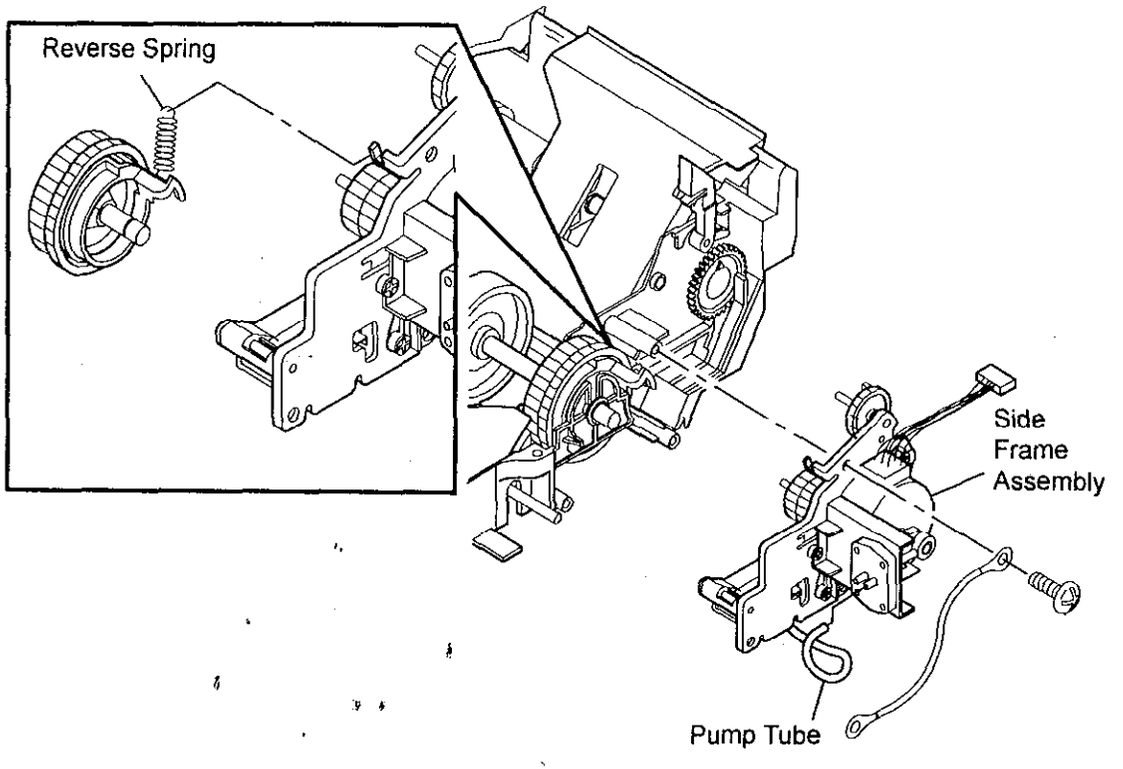


Figure 1 Removing the Side Frame Assembly

Replacement

1. Rotate the Paper Feed Roller and Slip Ring Spacer to the front towards the Carriage Assembly (Figure 2).

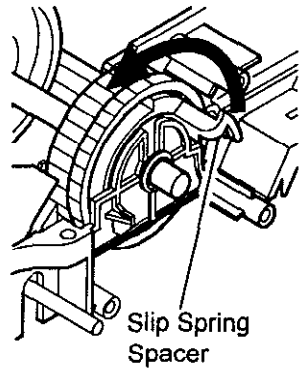


Figure 2 Rotate Paper Feed Roller and Slip Ring Spacer

2. Rotate the ASF Cam Gear until the ASF Trays are in the down position and the ASF Cam Gear is as shown (Figure 3).

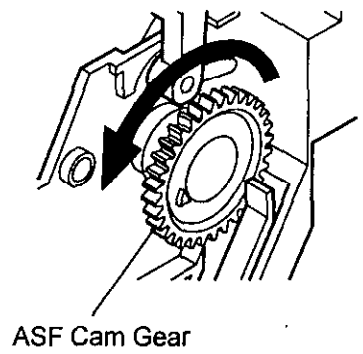


Figure 3 Rotate ASF Cam Gear

3. Install the Side Frame Assembly.
   a. Carefully insert the Side Frame Assembly.
   b. Slide the Side Frame Assembly back out just far enough to allow alignment of the Lift Gear to the ASF Cam Gear.
   c. Align the marks on the gears as shown (Figure 4).
   d. Secure the Side Frame Assembly with the three (3) screws.
   e. Install the Reverse Spring oriented as shown (Figure 5).
   f. Reinstall the Pump tube to the inlet port (Figure 6).
4. Reinstall the remaining components in the reverse order.

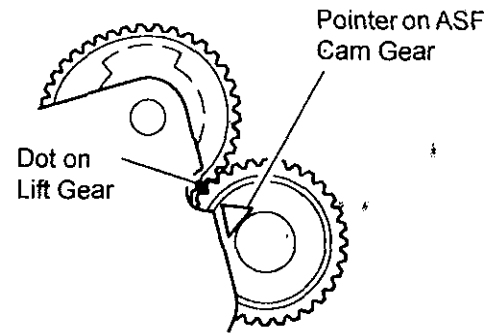


Figure 4 Align marks on gears

Adjustments

5. Head Gap (ADJ 5.2)
6. Grid Adjust (ADJ 5.1)

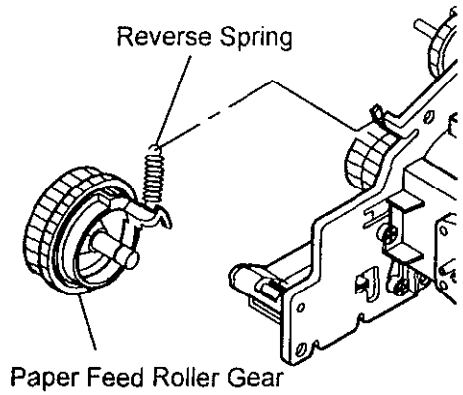


Figure 5 Install Reverse Spring

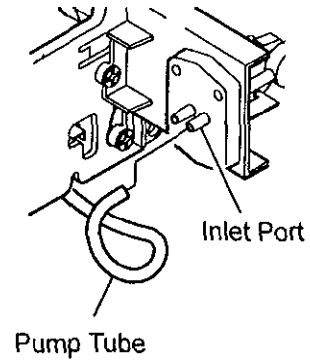


Figure 6 Install Pump Tube

REP 4.1 Sensor PWB

Parts List on PL 4.1

Removal

WARNING
Disconnect the Power Cord at the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Control Panel Assembly (REP 2.1).
   c. Document Exit Guide (REP 2.2).
2. Remove the Scanner Cover from the Upper Guide (Figure 1).
   a. Open the Upper Scanner Guide.
   b. Release the tabs and remove the Scanner Cover.
3. Remove the Sensor Board PWB Assembly (Figure 1).
   a. Disconnect the Sensor Board Cable connector, CN1.
   b. Remove the board.

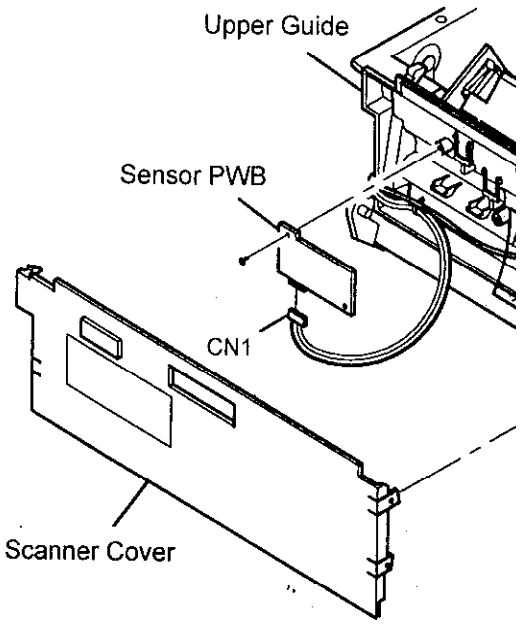


Figure 1 Removing the

Replacement

4. Reinstall the components in the reverse order.

REP 4.2 Retard Pad

Parts List on PL 4.1

Removal

1. Open the Control Panel.
2. Remove the Retard Pad Assembly (Figure 1).
   a. Remove the mounting screw.
   b. Open the Scanner Cover.
   c. Press tabs and remove the Retard Pad assembly.

Replacement

1. Reinstall the components in the reverse order.

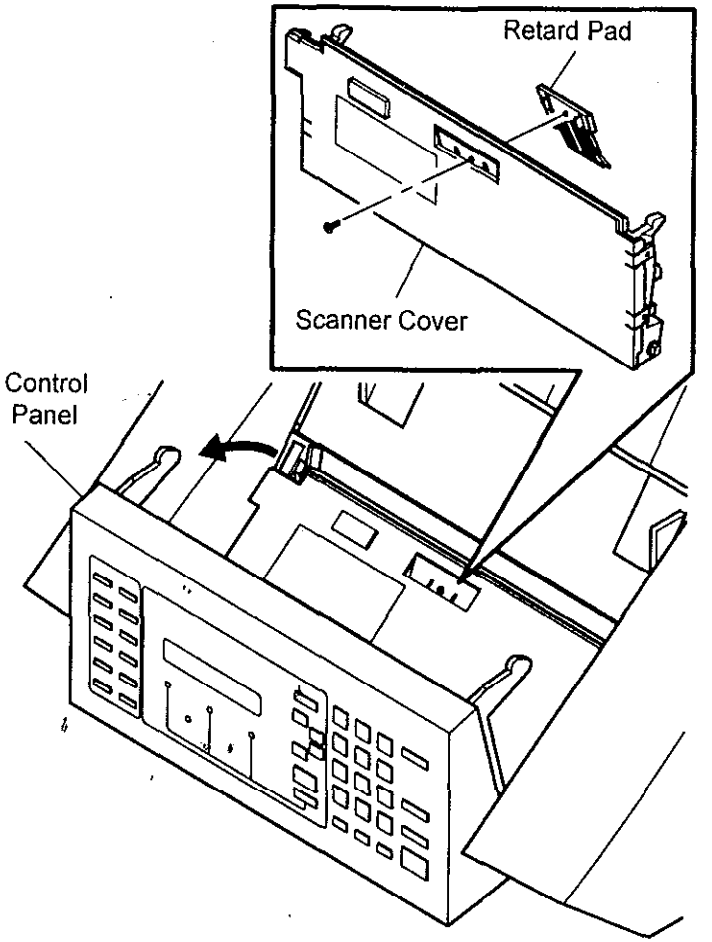


Figure 1 Removing the Retard Pad

REP 4.3 ADF Motor

Parts List on PL 4.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Control Panel Assembly (REP 2.1).
   d. Document Exit Guide (REP 2.2).
   e. Printer and Tray Assembly (REP 3.1).
   f. Scanner and Guide Assembly (REP 3.3).
   g. Scanner Assembly (REP 3.4).

   NOTE: The ADF Motor flange is used to hold the gears in place. Use care when removing the motor so that the gears and spacer stay in place.

2. Remove the ADF Motor (Figure 1).

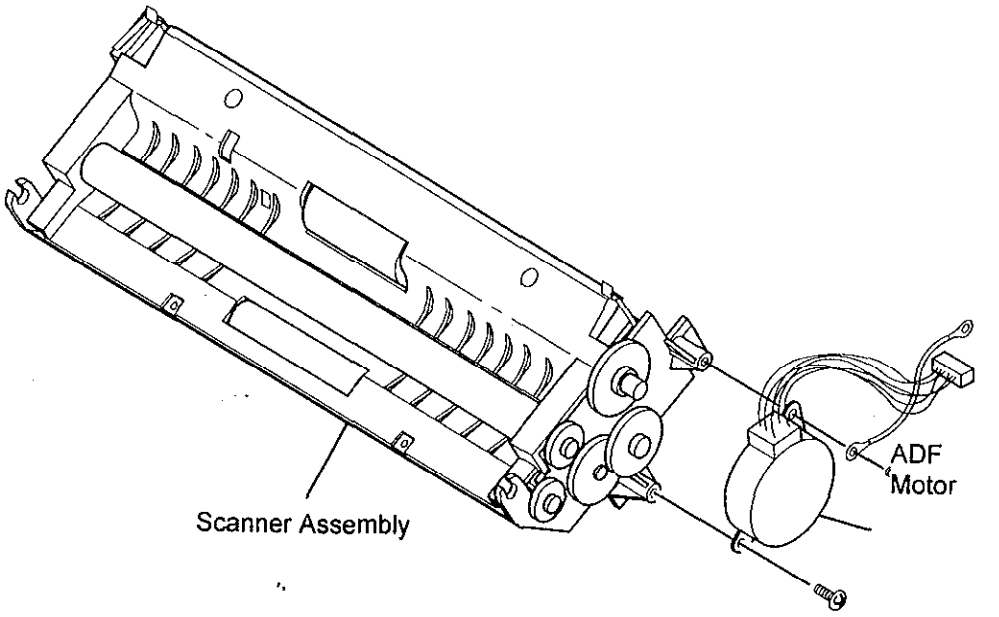


Figure 1 Removing the ADF Motor

Replacement

1. Reinstall the ADF Motor with the wires toward the front of the machine.
2. Reinstall the remaining components in the reverse order.

REP 4.4 CIS Assembly

Parts List on PL 4.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Control Panel Assembly (REP 2.1).
   d. Document Exit Guide (REP 2.2).
   e. Printer and Tray Assembly (REP 3.1).
   f. Scanner and Guide Assembly (REP 3.3).
   g. Scanner Assembly (REP 3.4).
2. Remove the CIS Assembly (Figure 1).
   a. Open the Scanner and remove the Upper Guide Assembly.
   b. Remove the four (4) mounting screws.
   c. Remove the Lower Guide.

   NOTE: Do not touch the glass surface of the CIS Assembly. Scratches or residue will compromise scanned image quality.

   d. Lift the Scan Roller Bushing tabs inward and rotate them up to remove the Scan Roller.
   e. Turn the Scan Frame Assembly over.
   f. Using a screwdriver, carefully push the CIS Assembly endplates to unsnap them from the pivots.
   g. Disconnect the CIS cable.
   h. Remove the CIS Assembly.

Replacement

1. Reinstall the components in the reverse order.

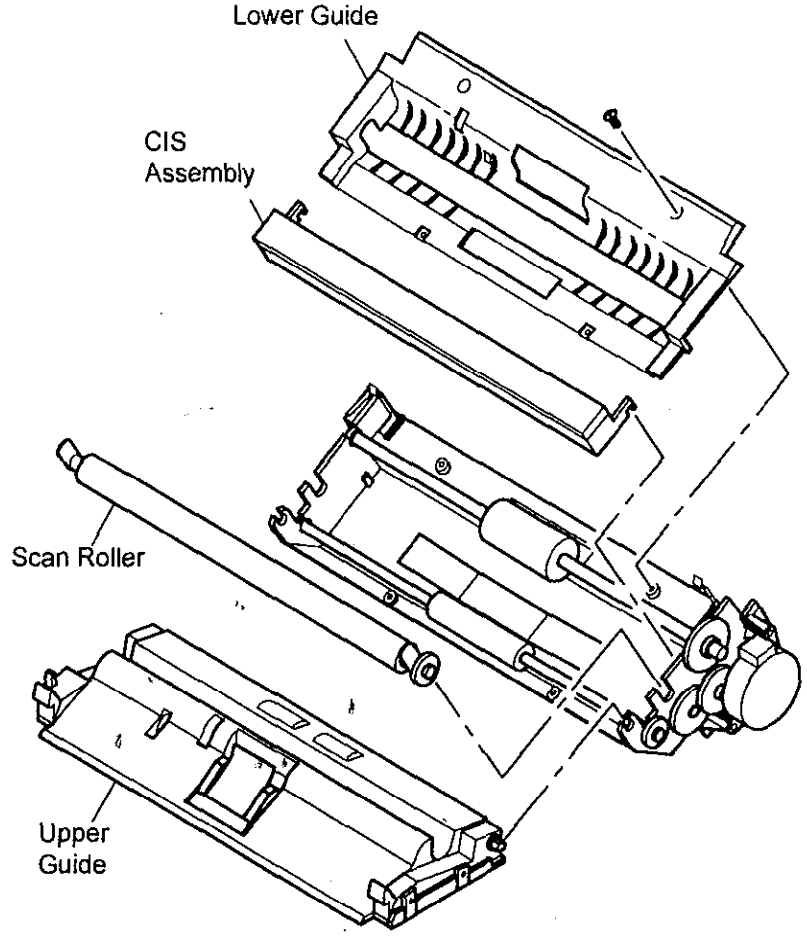


Figure 1 Removing the CIS Assembly

REP 4.5 Scanner Interlock Switch

Parts List on PL 4.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Control Panel Assembly (REP 2.1).
   d. Document Exit Guide (REP 2.2).
   e. Printer and Tray Assembly (REP 3.1).
   f. Scanner and Guide Assembly (REP 3.3).
   g. Scanner Assembly (REP 3.4).
2. Remove the Scanner Interlock Switch (Figure 1).

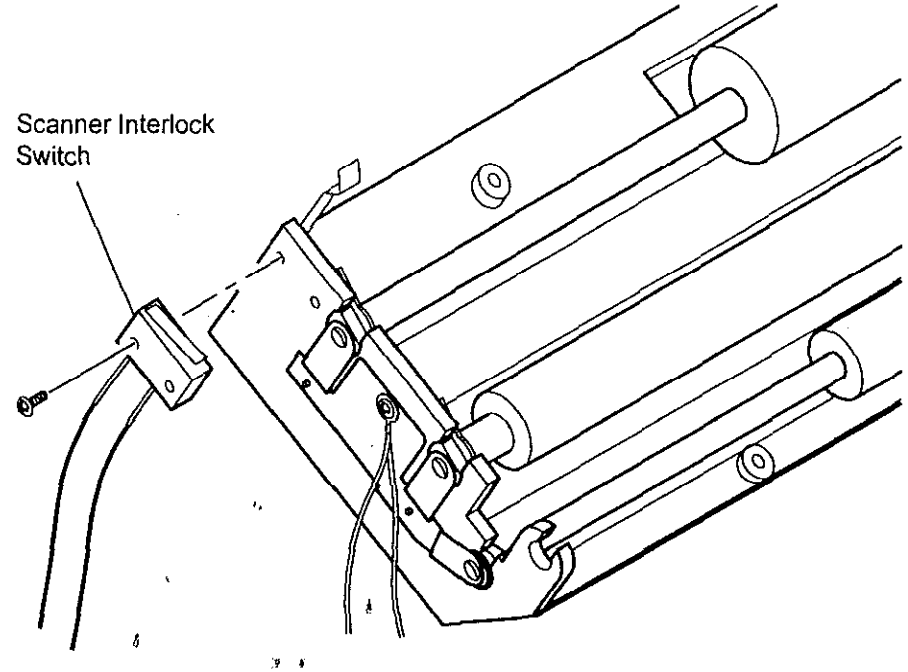


Figure 1 Removing the Scanner Interlock Switch

Replacement

NOTE: Ensure the scanner interlock switch cable is routed around the ferrite core.

1. Reinstall the components in the reverse order.

REP 4.6 ADF, Scan and Eject Rollers

Parts List on PL 4.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Control Panel Assembly (REP 2.1).
   d. Document Exit Guide (REP 2.2).
   e. Printer and Tray Assembly (REP 3.1).
   f. Scanner and Guide Assembly (REP 3.3).
2. Remove the ADF Roller and the Scan Roller (Figure 1).
   a. Open the Scanner and remove the Upper Guide Assembly.
   b. Remove the four (4) mounting screws.
   c. Remove the Lower Guide.

   NOTE: Do not touch the glass surface of the CIS Assembly. Scratches or residue will compromise scanned image quality.

   d. Lift the ADF Roller and Scan Roller bushing tabs inward and rotate them up to remove the rollers.
3. Remove the Eject Roller (Figure 1).
   a. Remove the E-ring
   b. Lift the tab on the Platen Roller Gear and remove the Gear.
   c. Remove the Bushing.
   d. Slide the left Bushing out and remove the Eject Roller.

Replacement

1. Reinstall the components in the reverse order.

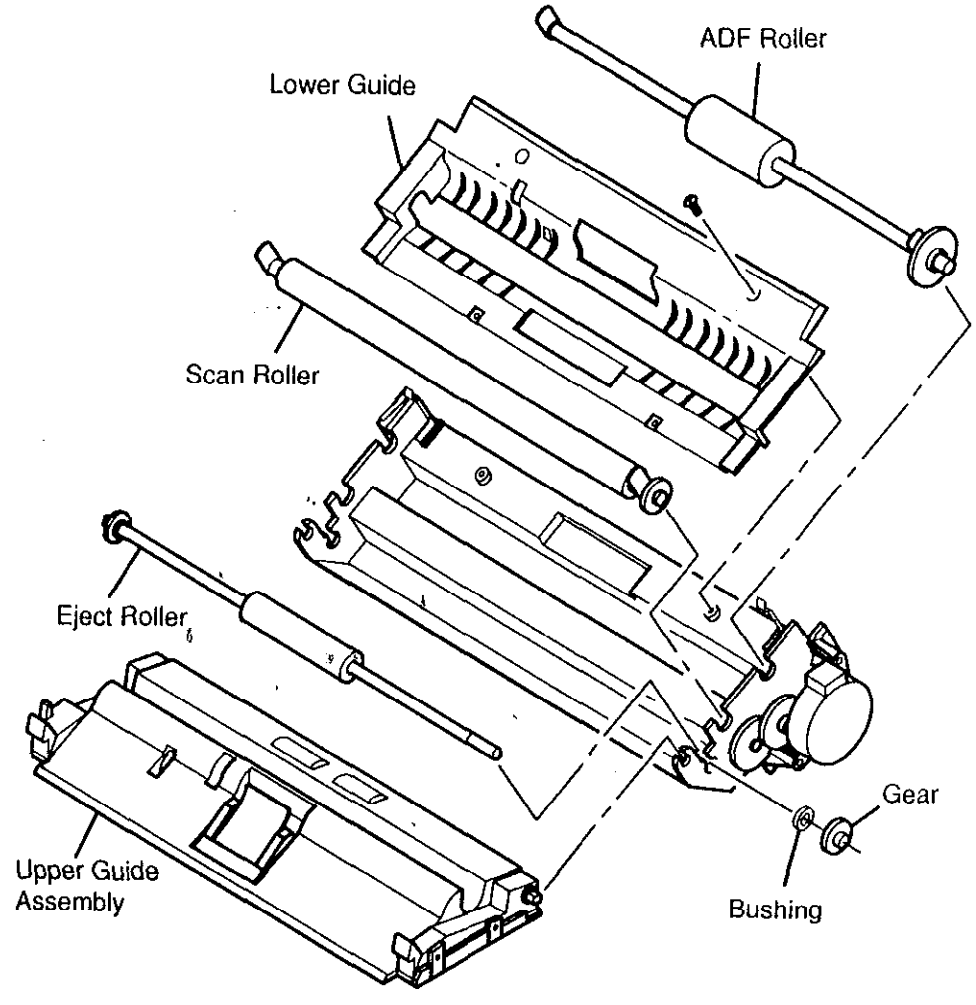


Figure 1 Removing the ADF, Scan and Eject Rollers

REP 5.1 Wiper Blades and Blotter(s)

Parts List on PL 5.1

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

Removal

1. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Paper Tray.
   d. Paper Feed Guide Assembly.
2. Disconnect the Power Cord from the outlet.
3. Remove the Wiper Blades from the Maintenance Station (Figure 1).

CAUTION

Use care when removing the Blotter(s). The plastic clip will break if overflexed.

NOTE: One or two Blotter(s) may be used, depending on the configuration.

4. Remove the Blotter(s) from the clip on the Carriage (Figure 1).

Replacement

1. Ensure the Wiper Blades are fully seated.
2. Ensure the Blotter(s) are fully seated.
3. Reinstall the remaining components in the reverse order.

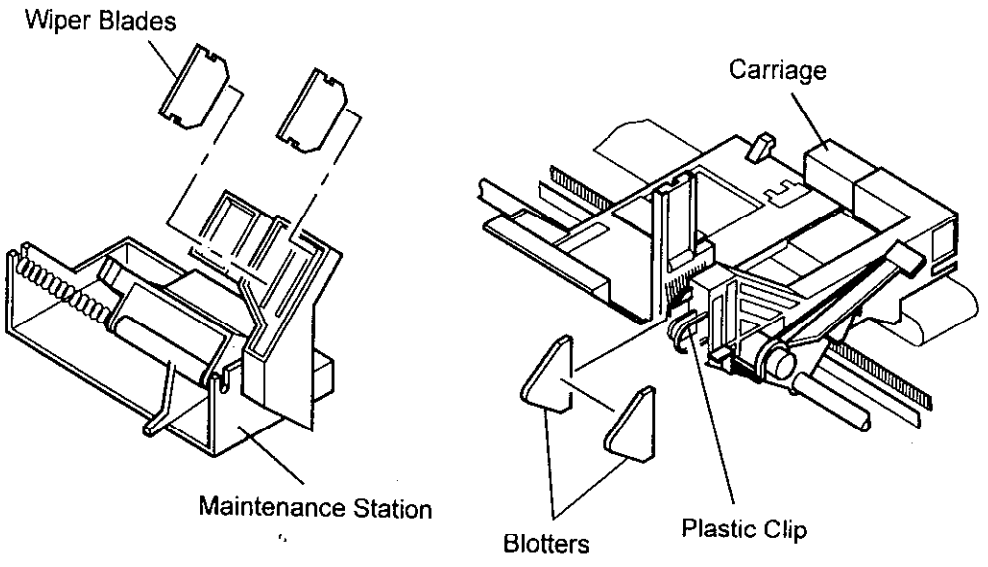


Figure 1 Removing the Wiper Blades and Blotter(s)

REP 5.2 Carriage Motor

Part List on PL 5.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
   f. Carriage Assembly (REP 3.5).
3. Turn the Carriage Assembly over.
4. Remove the Carriage Motor (Figure 1).

Replacement

1. Reinstall the components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2).
2. Grid Adjust (ADJ 5.1).

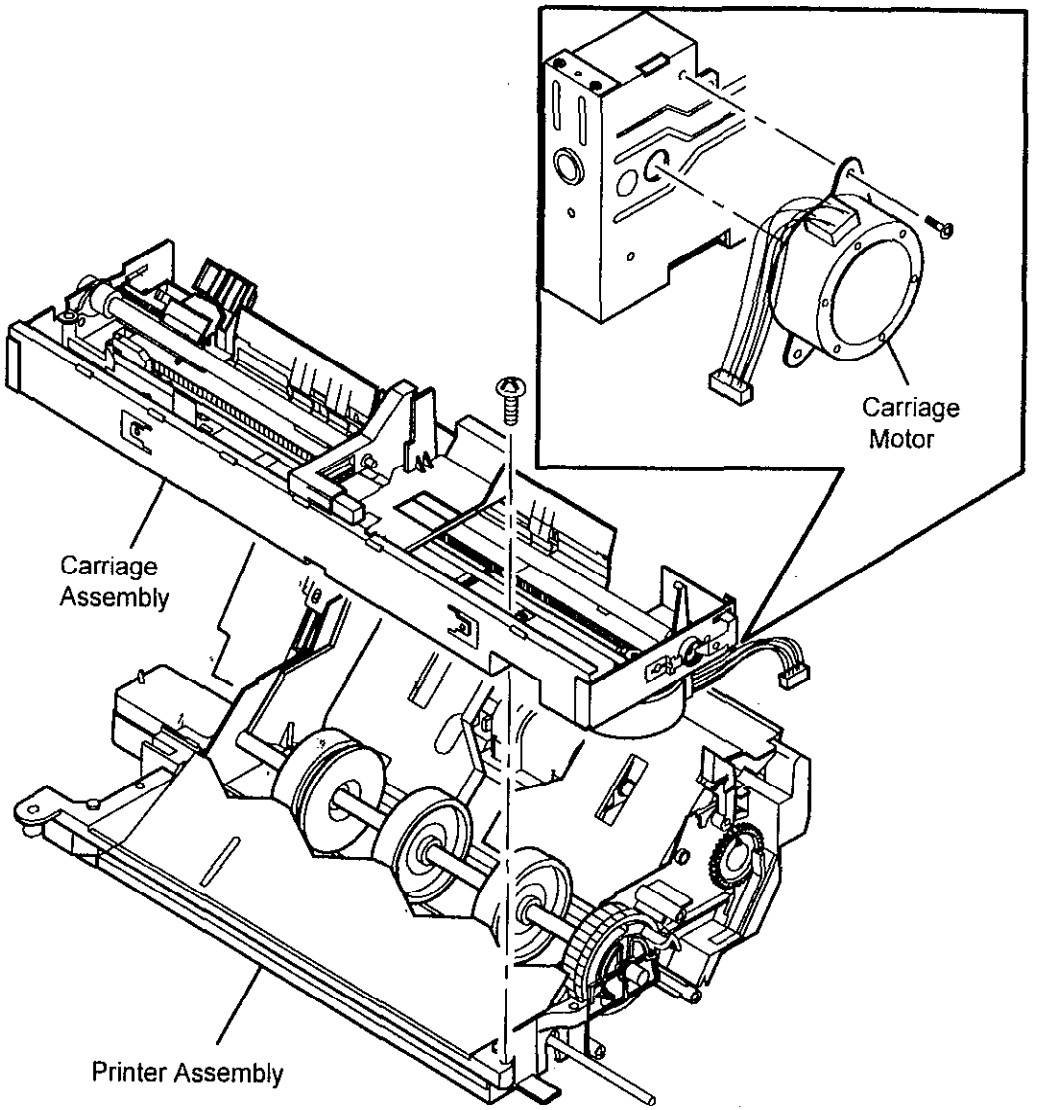


Figure 1 Removing the Carriage Motor

REP 5.3 Maintenance Station

Part List on PL 5.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
   f. Carriage Assembly (REP 3.5).
3. Remove the Maintenance Station (Figure 1).
   a. Place the Carriage Assembly on its side.
   b. Push the tab.
   c. Remove the Maintenance Station.

Replacement

1. Ensure the four (4) guides and the locking tab are engaged (Figure 1).
2. Ensure the Maintenance Tube is positioned in the clamp behind the arm (Figure 1).
3. Reinstall the remaining components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2)
2. Grid Adjust (ADJ 5.1)

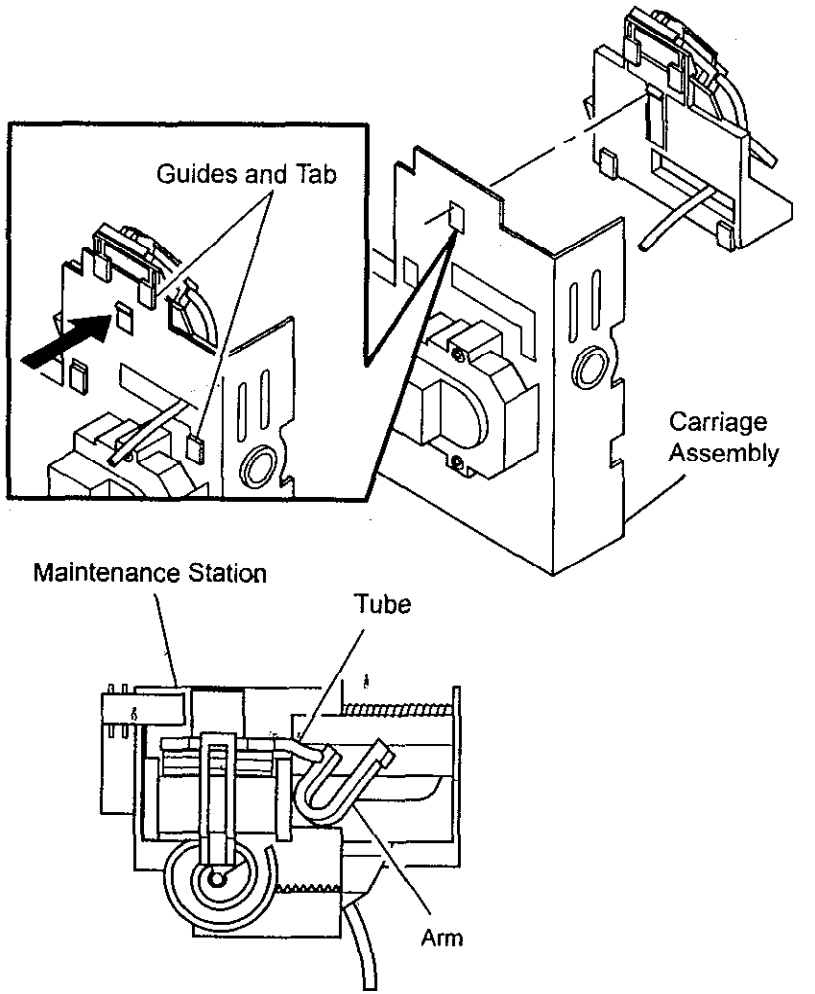


Figure 1 Replacing the Maintenance Station

REP 5.4 Encoder Assembly

Part List on PL 5.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
   f. Carriage Assembly (REP 3.5).
3. Turn the Carriage Assembly over and remove the Encoder Assembly (Figure 1).
   a. Disconnect the two (2) Belt Tension Springs.
   b. Disconnect CN7.
   c. Remove the Encoder Assembly.

Replacement

1. Reinstall the Encoder Assembly.
   a. Reinstall the belt around the pulleys.
   b. Finger tighten the two (2) screws.
   c. Connect the two (2) Belt Tension Springs.
   d. Move the Carriage horizontally to ensure there is no backlash.
   e. Tighten the two (2) mounting screws.
2. Reinstall the remaining components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2)
2. Grid Adjust (ADJ 5.1)

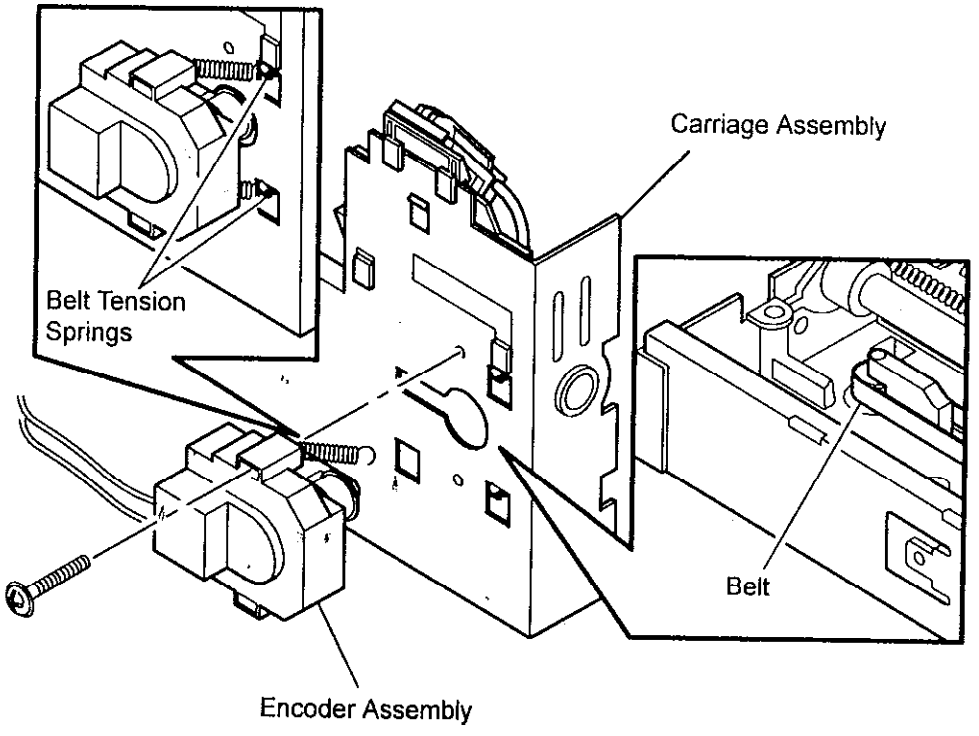


Figure 1 Removing the Encoder Assembly

REP 5.5 Carriage

Part List on PL 5.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
   f. Carriage Assembly (REP 3.5).
   g. Encoder Assembly (REP 5.4).
3. Remove the Carriage (Figure 1).
   a. Open the cable clamps.
   b. Remove the Carriage Shaft Ground Plates from both sides.
   c. Remove the E-ring.
   d. Remove the screw and the Right Gap Adjust Plate.
   e. Move the Carriage Shaft to the right to release the Carriage from the Carriage Frame.
   f. Remove the Micro Gap Adjusters (2), Gap Adjust Lever, and Gap Set Bushing.
   g. Remove the Carriage from the Shaft.

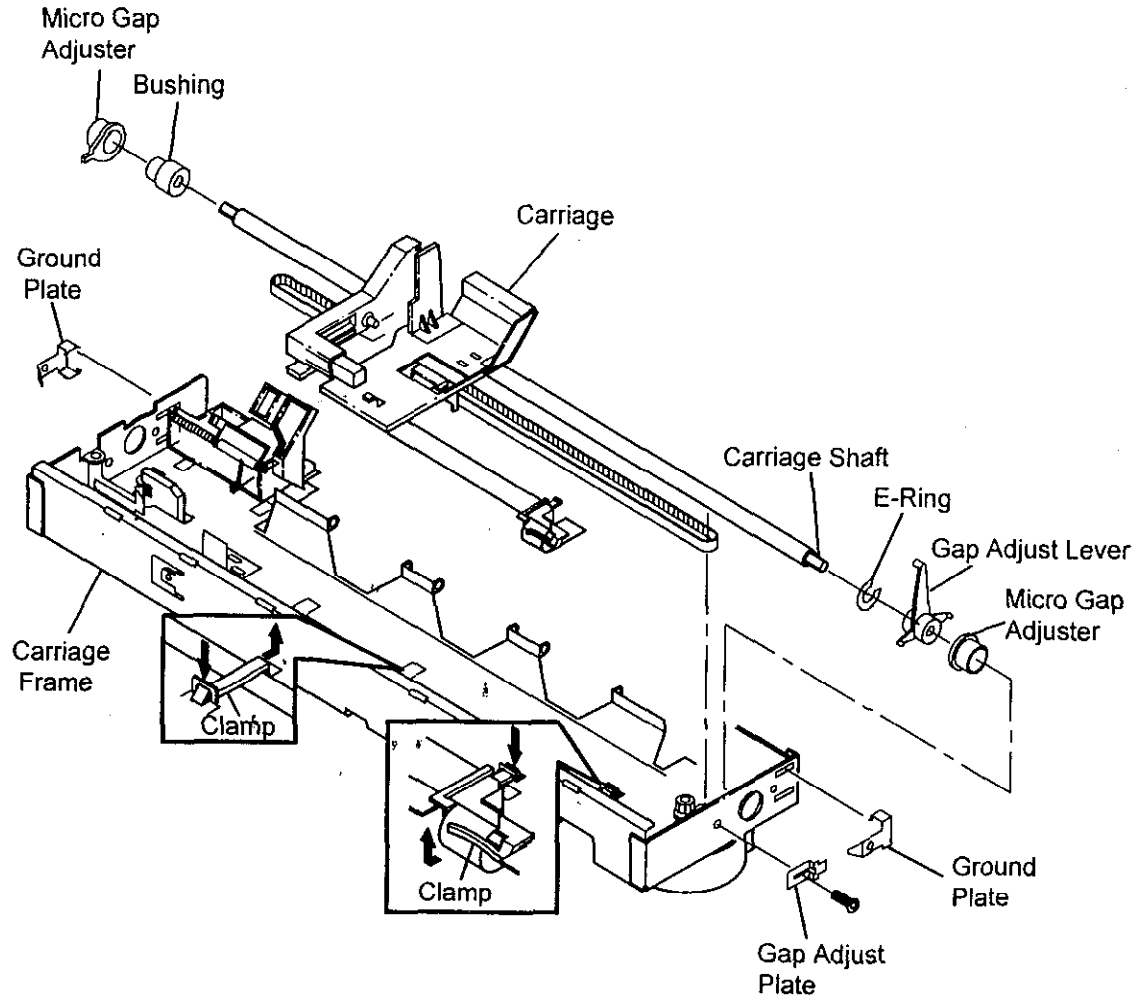


Figure 1 Removing and Replacing the Carriage

Replacement

1. Reinstall the Micro Gap Adjusters.
2. Reinstall the Carriage onto the Shaft.
3. Reinstall the Bushing and Gap Adjust Lever onto the Shaft.

   NOTE: Ensure the Belt and Cable are routed correctly before reinstalling the Shaft.

4. Reinstall the Carriage (Figure 1).
   a. Engage the front of the Carriage with the Carriage Frame.
   b. Reinstall the right end of the Shaft assembly into the Micro Gap Adjuster.
   c. Reinstall the left end of the Shaft assembly into the Micro Gap Adjuster.
   d. Reinstall the Right Gap Adjust Plate.
   e. Reinstall the E-ring.
   f. Reinstall the Ground Plates (2).
   g. Secure the flex cable with the cable clamps.
5. Reinstall the remaining components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2)
2. Grid Adjust (ADJ 5.1)

REP 5.6 Cam Pin

Parts List on PL 5.1

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could results. If necessary, prime the Ink Cartridge after reinstallation.

Removal

1. Select Change Ink Cartridge, press:

2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
3. Remove the Cam Pin. (Figure 1, A-C)
   a. Compress the Carriage
   b. Rotate the Lever 90° clockwise.
   c. Remove the Lever and Cam Pin.

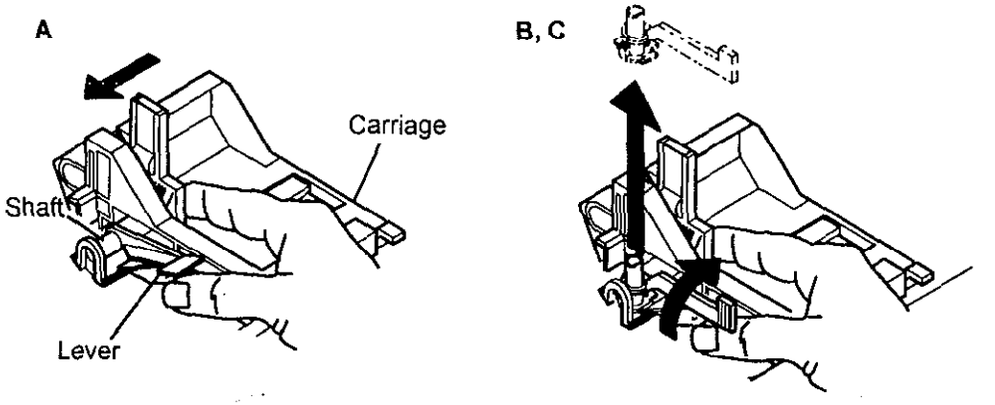


Figure 1 Removing the Cam Pin

Replacement

1. Reinstall the Cam Pin (Figure 2, A-D)
   a. Compress the carriage and insert the Cam Pin and Lever into the Carriage.
   b. Rotate the Lever 90° counterclockwise.
   c. Ensure the Cam Pin and Lever is located in the correct position.
   d. Release the Carriage.
2. Reinstall the Ink Cartridge and Ink Cartridge Cover.

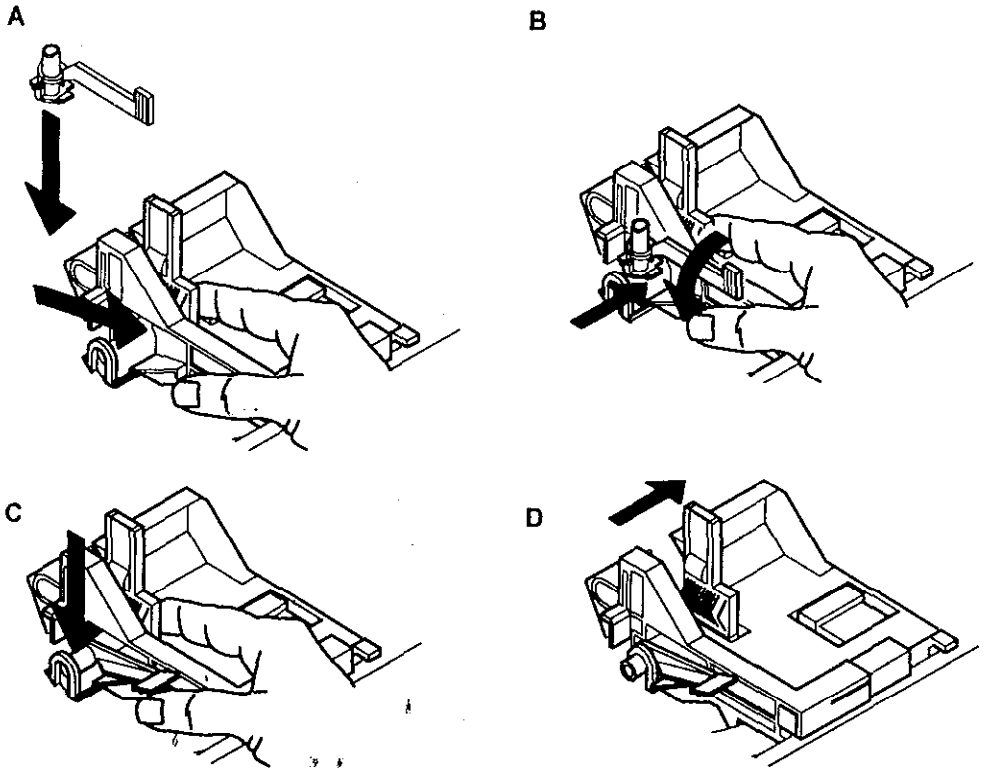


Figure 2 Replacing the Cam Pin

REP 5.7 Cartridge Support/Sensor Assembly

Parts List on PL 5.1

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could results. If necessary, prime the Ink Cartridge after reinstallation.

Removal

1. Remove the Cam Pin (REP 5.6).
2. Remove the Carriage Support/Sensor Assembly (Figure 1).
   a. Disconnect the Head Ribbon Cable at the carriage connector by sliding the connnector locking tab away from the connector on both sides.
   b. Slide the cable out of the connector.
   c. Remove the Carriage Support/Sensor Assembly.

Replacement

1. Engage the tab on the front of the Carriage Support/Sensor Assembly with the carriage frame (Figure 1).
2. Ensure the coil spring is fully seated.
3. Reinstall the remaining components in the reverse order.

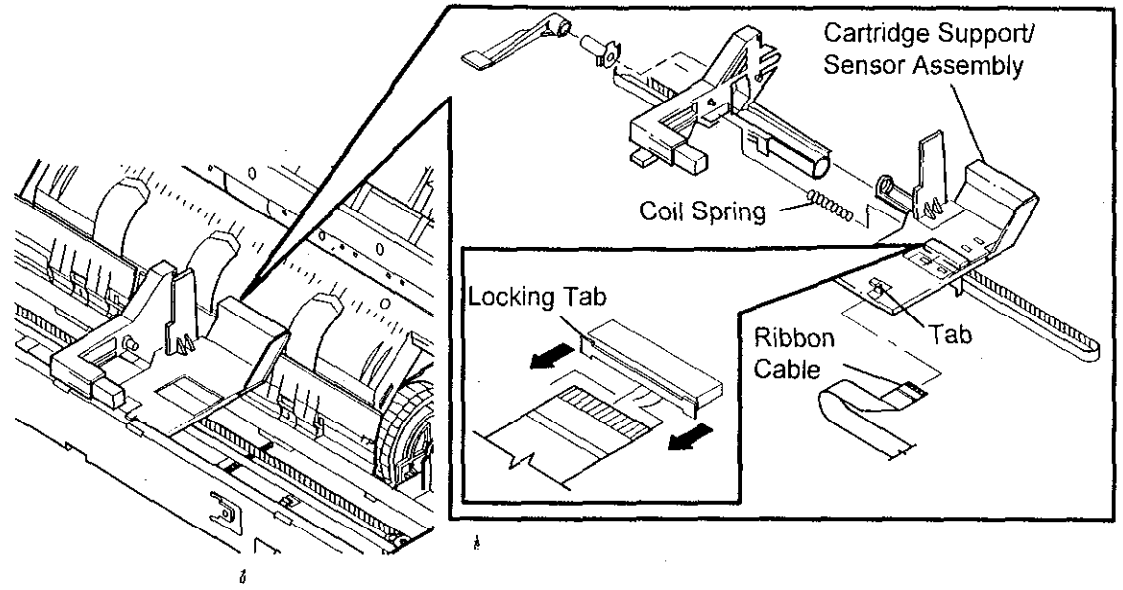


Figure 1 Removing the Carriage Support/Sensor Assembly

REP 6.1 Paper Feed Roller

Part List on PL 6.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
   f. Carriage Assembly (REP 3.5).
   g. Side Frame Assembly (REP 3.6).
3. Remove the Paper Feed Roller (Figure 1).
   a. Remove the Reverse Spring.
   b. Remove the E-rings (2), Bushings (2), and washer (1).
   c. Slide off the Gear Guard.
   d. Remove the Paper Feed Roller, Slip Spring Spacer, and Slip Spring.

Replacement

1. Reinstall the components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2)
2. Grid Adjust (ADJ 5.1)

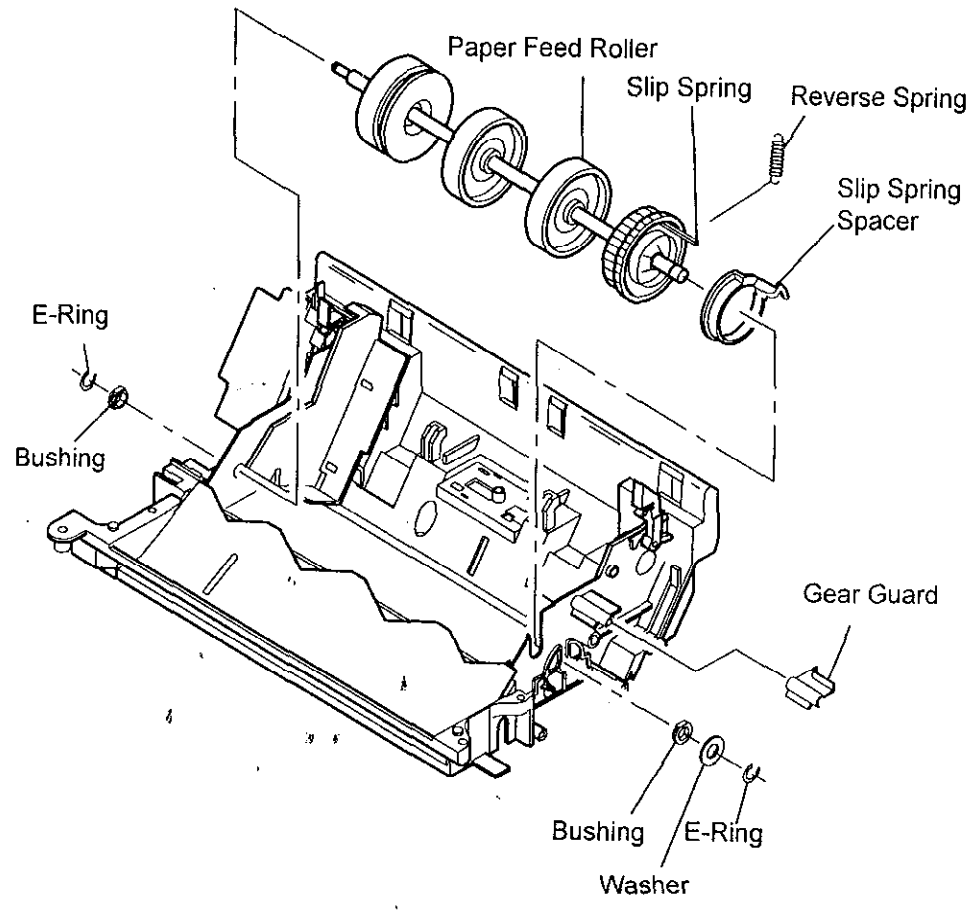


Figure 1 Removing the Paper Feed Roller

REP 6.2 ASF Sensor Cam and ASF Trays

Part List on PL 6.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
   f. Carriage Assembly (REP 3.5).
   g. Side Frame Assembly (REP 3.6).
   h. Paper Feed Roller (REP 6.1).
3. Remove the ASF Sensor Cam and the ASF Trays (Figure 1).
   a. Push the lever while removing the ASF Cam Gear.
   b. Remove the screw and the ASF Sensor.
   c. Push the four (4) tabs and remove the ASF Sensor Cover.
   d. While pushing down on the ASF Trays, move the ASF Cam up and remove it.
   e. Bring the ASF Trays to a horizontal position and remove them.

Replacement

1. Ensure the ASF Springs are positioned in their recesses when installing the ASF Cam.
2. Reinstall the remaining components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2)
2. Grid Adjust (ADJ 5.1)

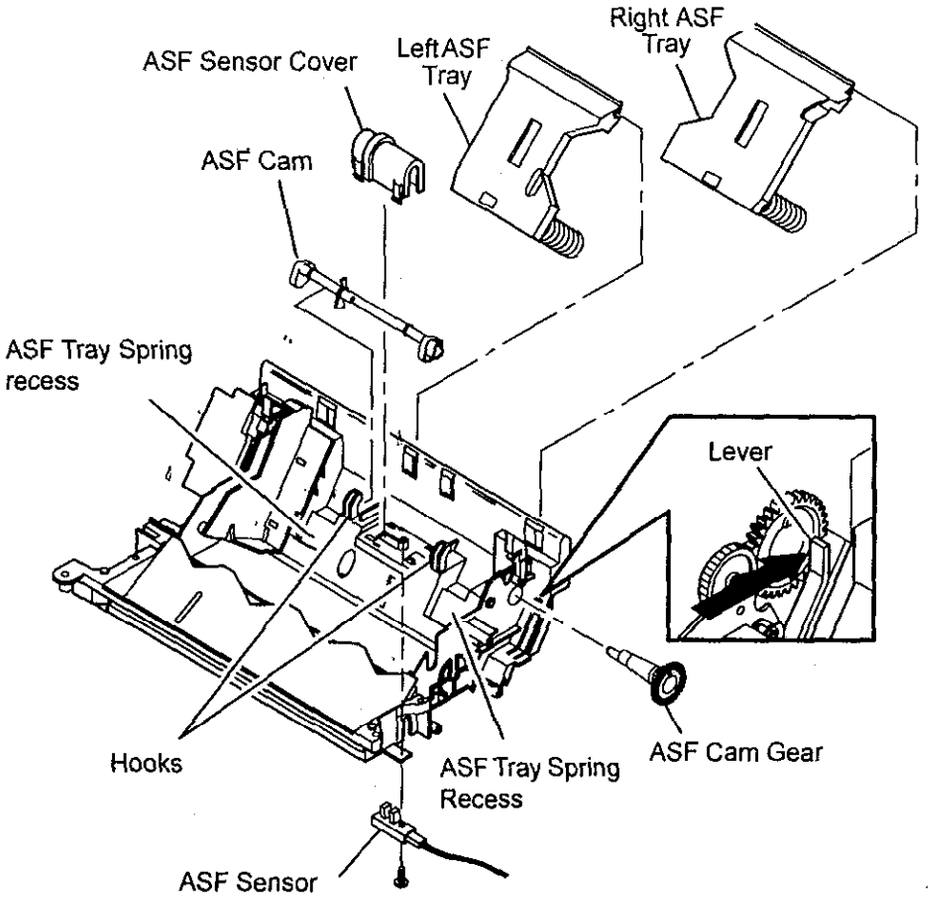


Figure 1 Removing the ASF Sensor Cam and the ASF Trays

REP 6.3 Tank and Seal

Part List on PL 6.1

Removal

CAUTION

Leaving the Ink Cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the Ink Cartridge after reinstallation.

1. Disconnect the Power Cord from the outlet.
2. Remove the following:
   a. Ink Cartridge Cover (PL 3.1).
   b. Ink Cartridge.
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
   f. Carriage Assembly (REP 3.5).

CAUTION

The Seal is inside the Tube. The Seal allows air to pass until it comes in contact with ink. If Ink contacts the Seal, replace the Tube and Seal.

3. Remove the Tank (Figure 1).
   a. Disconnect the Pump Tube.
   b. Carefully remove the Tank by pulling it in the direction shown.
4. Carefully remove the Tube and Seal.

Replacement

1. Ensure that the Pump Tube is routed to avoid restrictions.
2. Reinstall the remaining components in the reverse order.

Adjustments

1. Head Gap (ADJ 5.2)
2. Grid Adjust (ADJ 5.1)

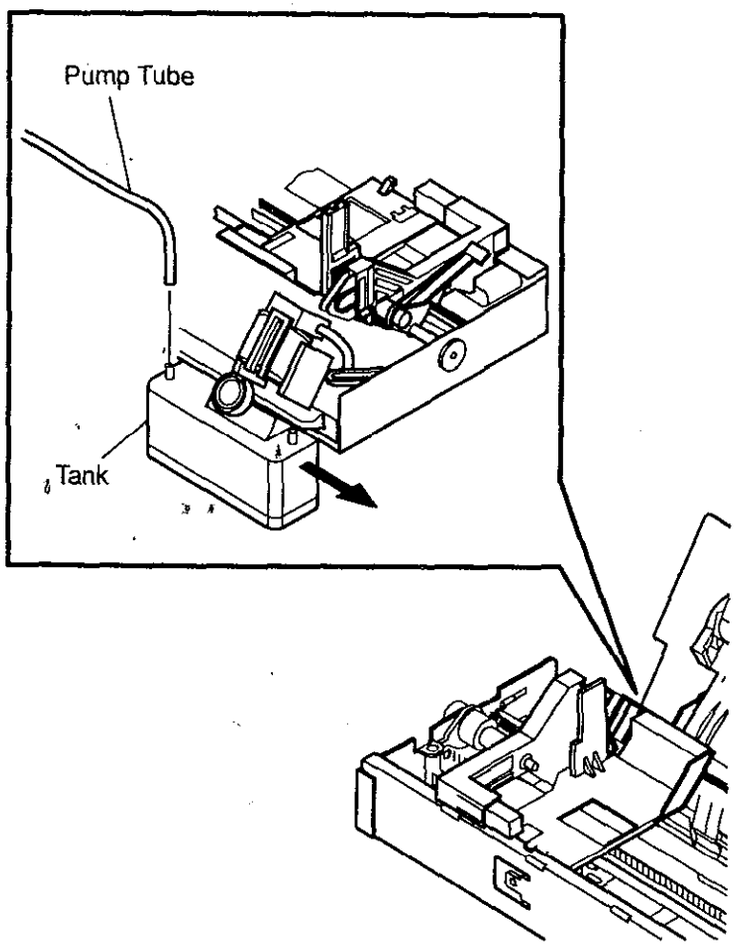


Figure 1 Removing the Tank

REP 7.1 Pump

Parts List on PL 7.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   c. Rear Cover (REP 1.2).
   d. Printer and Tray Assembly (REP 3.1).
   e. Printer Assembly (REP 3.2).
2. Remove the Pump (Figure 1).
   a. Disconnect the Pump Tube.
   b. Remove the Pump.

Replacement

1. Ensure that the locating pin on the Pump mounting surface engages the motor flange slot.
2. Ensure that the Pump tube is routed to avoid restrictions and is connected to the inlet port.
3. Reinstall the remaining components in the reverse order.

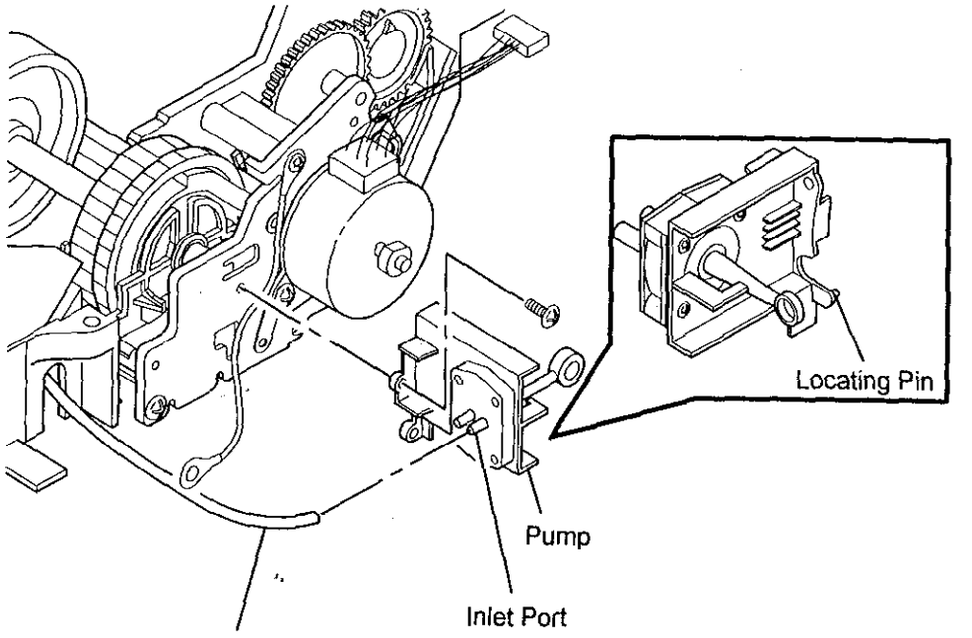


Figure 1 Removing the Pump

REP 7.2 Paper Feed Motor

Parts List on PL 7.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Front Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Control Panel Assembly (REP 2.1).
   d. Document Exit Guide (REP 2.2).
   e. Printer and Tray Assembly (REP 3.1).
   f. Printer Assembly (REP 3.2).
   g. Pump (REP 7.1).
2. Remove the Paper Feed Motor (Figure 1).

Replacement

1. Rotate the Paper Feed Motor fully counterclockwise before tightening the screws.
2. Reinstall the remaining components in the reverse order.

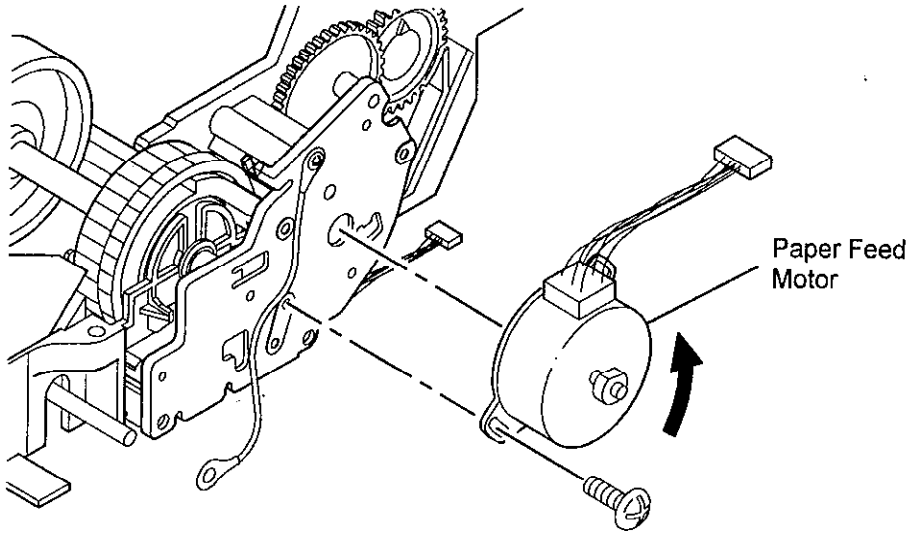


Figure 1 Removing the Paper Feed Motor

REP 8.1 Main PWB

Parts List on PL 8.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Rear Cover (REP 1.2).
   b. Printer and Tray Assembly (REP 3.1).

CAUTION
Follow electrostatic discharge precautions. Static electricity can damage this part.

2. Remove the Main PWB (Figure 1).
   a. Disconnect the cables from the Main PWB.
   b. Remove the Main PWB.

CAUTION
The Main PWB has a lithium battery which is not a spared item. If the Main PWB fails, return the assembly to the Xerox premises for disposal in accordance with local regulations. DO NOT SHORT CIRCUIT THE BATTERY TERMINALS.

Replacement

1. Reinstall U26, and U28 on the new Main PWB.
2. Set the DIP switches on the new Main PWB to the same positions as the old PWB.
3. Perform the Total Memory Clear procedure (Section 6).
4. Ensure connectors CN13 (Speaker) and CN14 are connected correctly.
5. Reinstall the remaining components in the reverse order.

Adjustments

1. After complete reassembly, adjust the Grid Adjust (ADJ 5.1).
2. Ensure the original customer options are programmed.

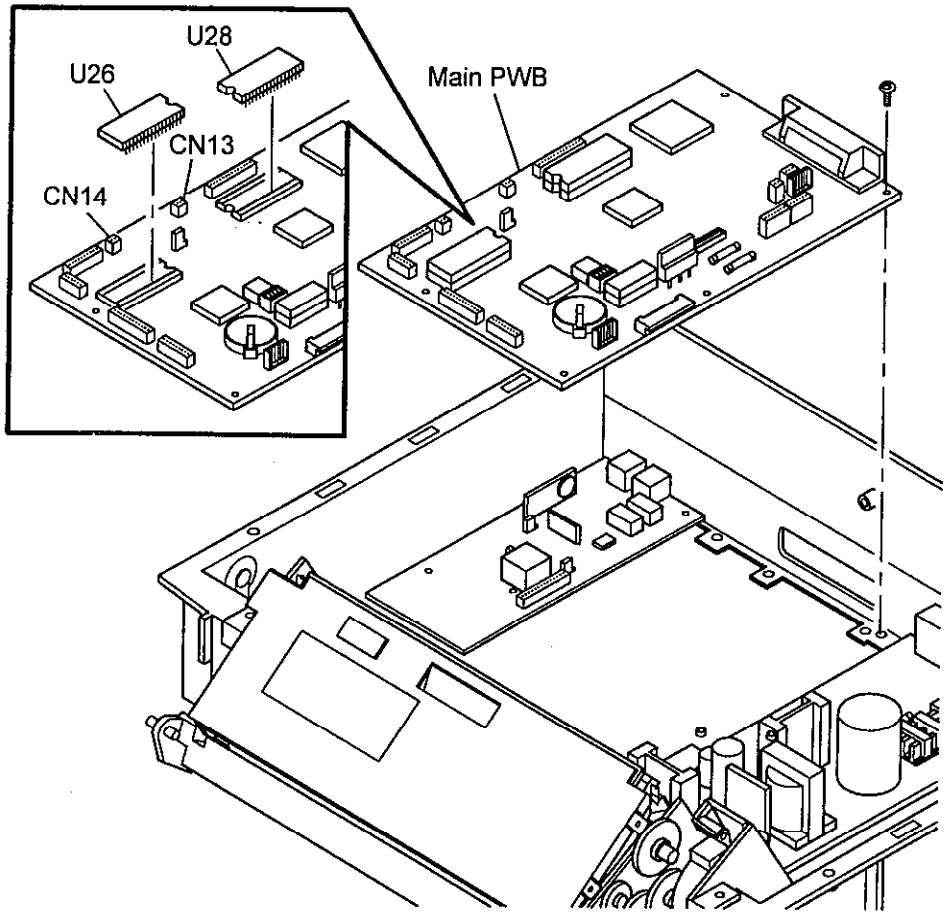


Figure 1 Removing the Main PWB

REP 8.2 EPROMs

Parts List on PL 8.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Rear Cover (REP 1.2).
   b. Printer and Tray Assembly (REP 3.1).

CAUTION
Follow electrostatic discharge precautions. Static electricity can damage this part.

2. Remove the EPROMs U26 and U28 (Figure 1).

Replacement

CAUTION
Ensure that the pins on each EPROM is aligned properly with the socket before insertion.

1. Install the EPROMs. Ensure proper orientation (observe the Pin 1 locator). Ensure U26 and U28 are installed in their proper locations.
2. Perform the Total Memory Clear procedure (Section 6).
3. Reinstall the remaining components in the reverse order.

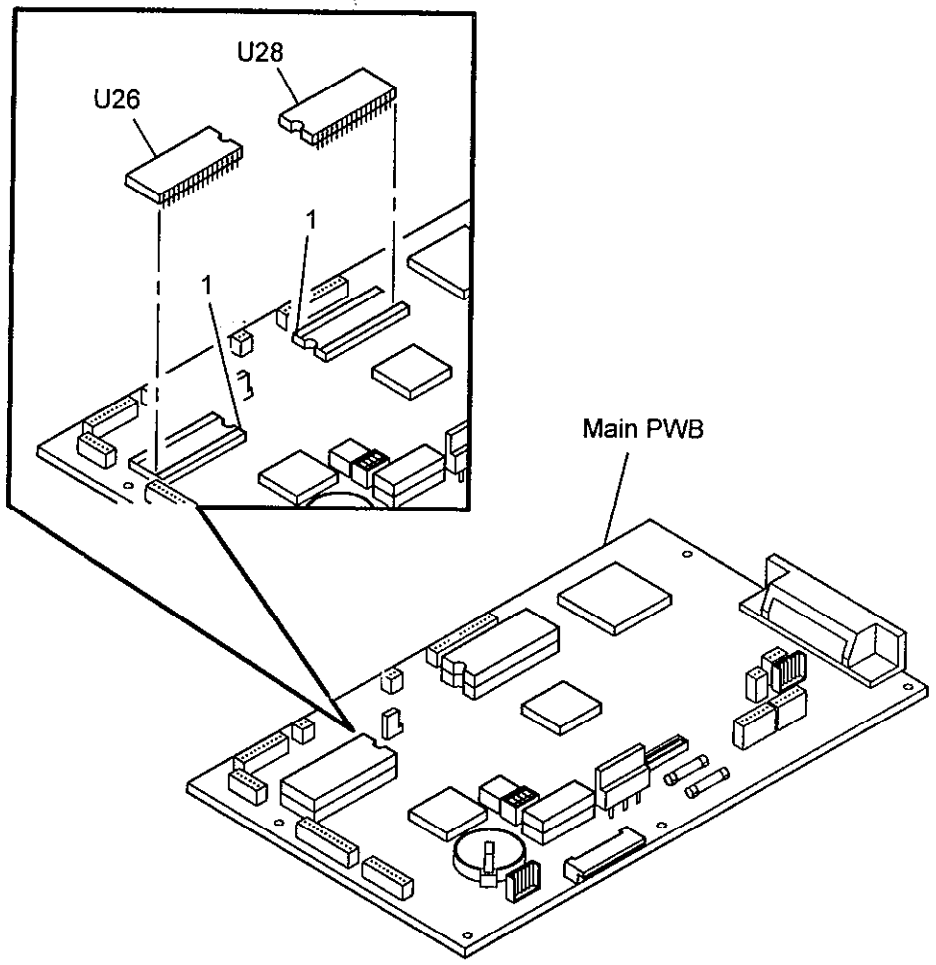


Figure 1 Removing the EPROMs

REP 8.3 NCU PWB

Parts List on PL 8.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Rear Cover (REP 1.2).
   b. Printer and Tray Assembly (REP 3.1).

CAUTION
Follow electrostatic discharge precautions. Static electricity can damage this part.

2. Remove the NCU PWB (Figure 1).
   a. Disconnect the cables CN1 and CN13.
   b. Remove the NCU PWB.

Replacement

1. Reinstall the components in the reverse order.

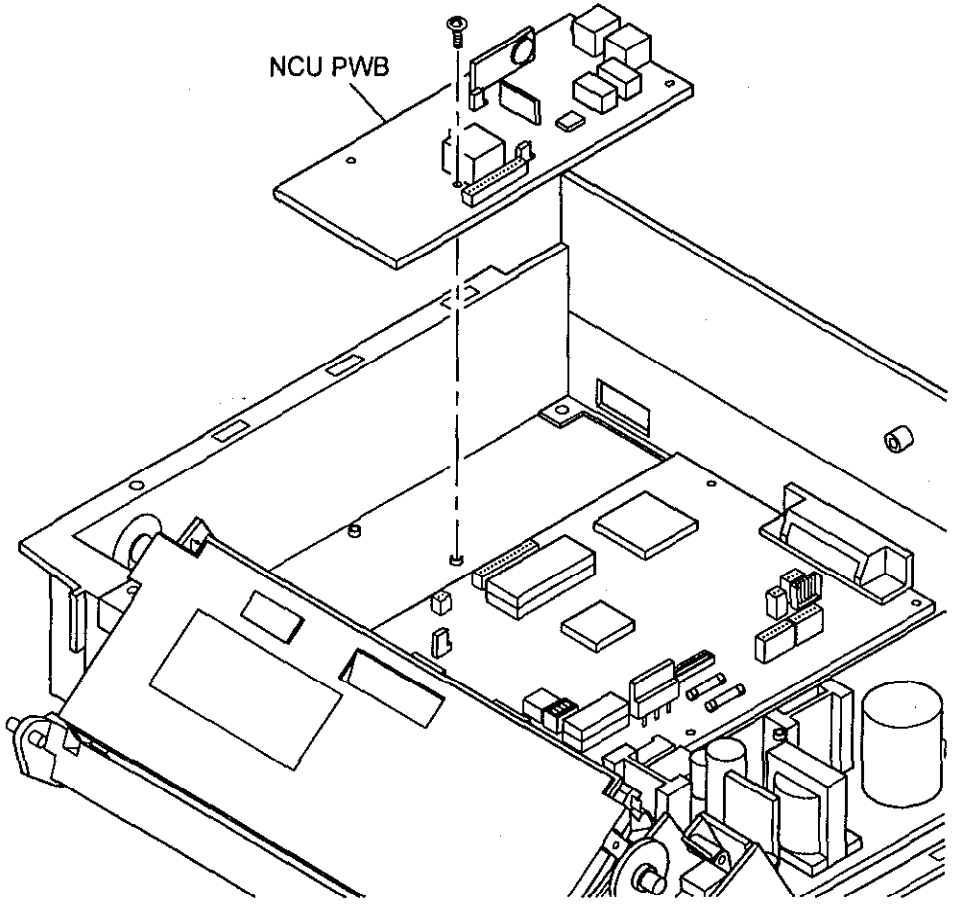


Figure 1 Removing the NCU PWB

REP 8.4 Power Supply PWB

Parts List on PL 8.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Rear Cover (REP 1.2)
   b. Printer and Tray Assembly (REP 3.1)

CAUTION

Follow electrostatic discharge precautions. Static electricity can damage this part.

1. Remove the Power Supply (Figure 1).
   a. Disconnect cable CN1 at the Power Supply.
   b. Remove the five (5) mounting screws.
   c. Disconnect the Power Supply from the Main PWB.
   d. Remove the Power Supply.

Replacement

1. Reinstall the components in the reverse order.

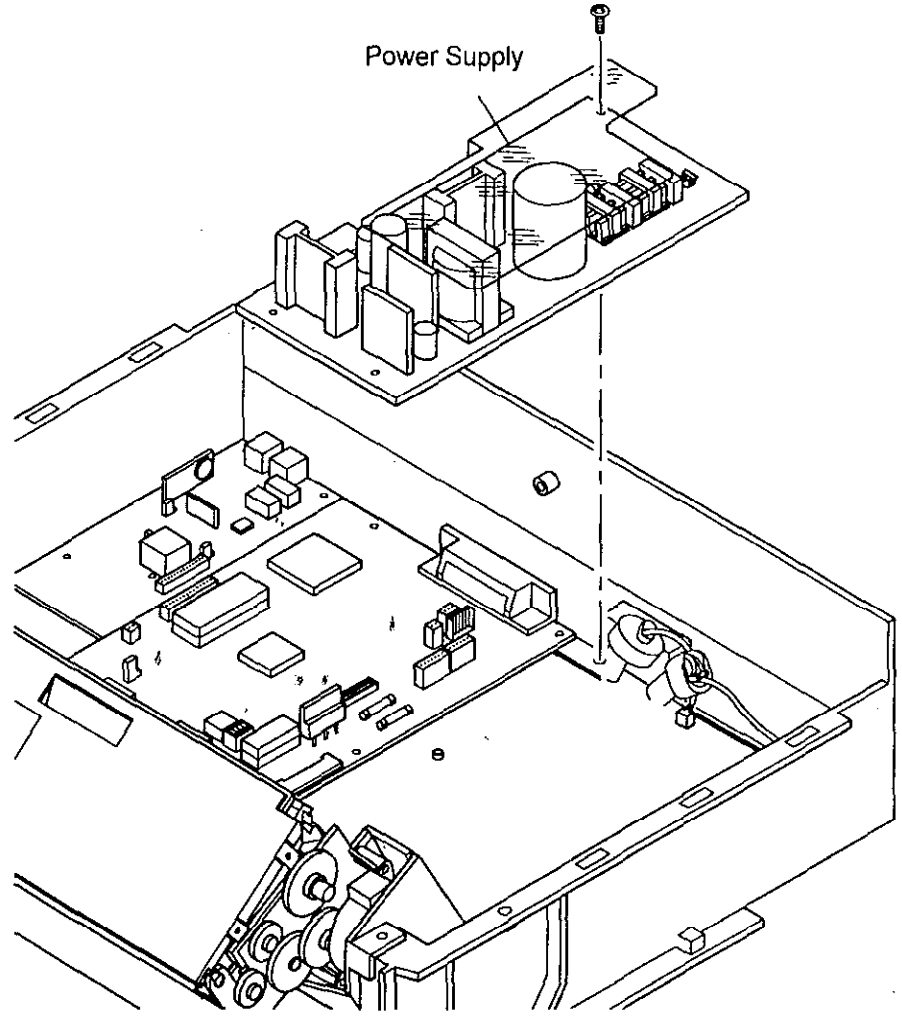


Figure 1 Removing the Power Supply

REP 8.5 Speaker

Parts List on PL 8.1

Removal

WARNING
Disconnect the Power Cord from the outlet.

1. Remove the following:
   a. Rear Cover (REP 1.2).
   b. Printer and Tray Assembly (REP 3.1).

CAUTION

Follow electrostatic discharge precautions. Static electricity can damage this part.

2. Remove the Speaker (Figure 1).
   a. Disconnect the cable CN13.
   b. Remove the Speaker.

Replacement

1. Reinstall the components in the reverse order.

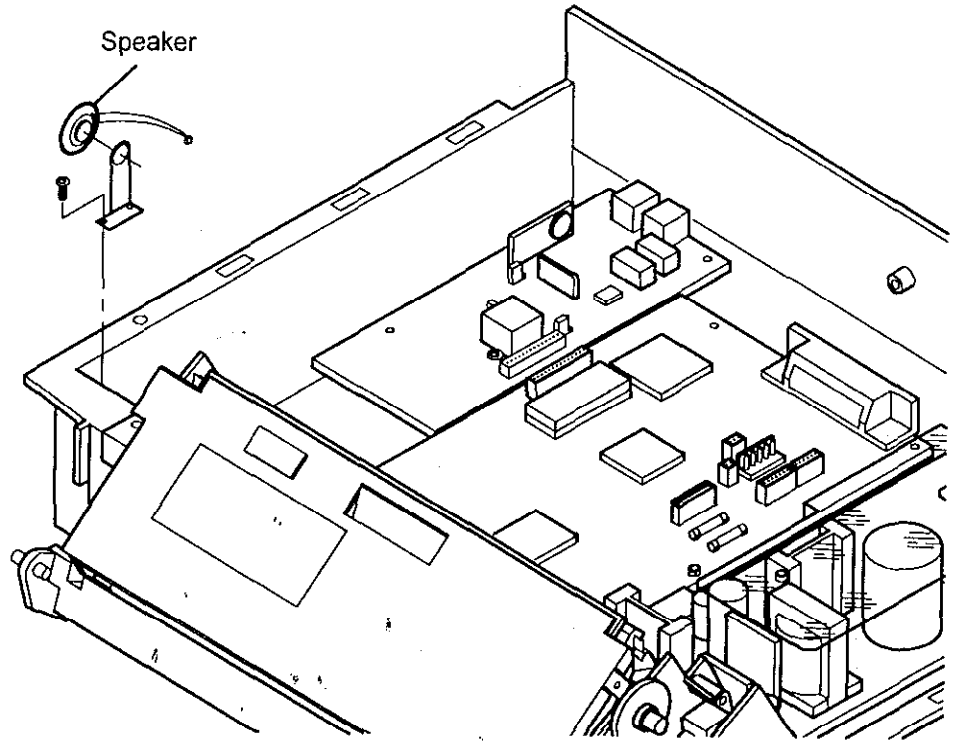


Figure 1 Removing the Speaker

ADJ 5.1 Grid Adjust

Purpose

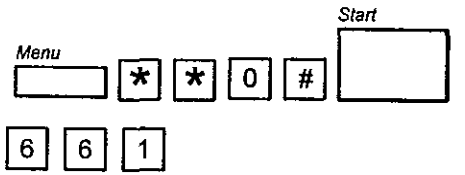
Ensures that the horizontal print alignment is within specification.

NOTE: Figure 1 is an example of the test pattern printed in the Grid Adjust Mode. The center Grid Line Set represents the current horizontal print alignment. The sets of Grid Lines above and below the center Grid Line Set are printed to assist in determining whether the current value should be changed in the pos (+) or the neg (-) direction.

Each vertical line is formed by three short lines. If the three lines are properly aligned, perfectly straight lines will be printed. The adjustment moves only the middle line of the three lines. The adjustment range is ±32.

Adjustment

1. Enter the service mode and print the Grid Adjust pattern (Figure 1).



2. Check for correct vertical alignment of the center Grid Line Set. If the check is good, exit the procedure.
3. Change the current value to a setting that will align the three short lines of the center grid line set.
   a. Press 1 to decrease the current value.
   b. Press 2 to increase the current value.
   c. Store the new value by pressing 3.
4. Repeat the adjustment.

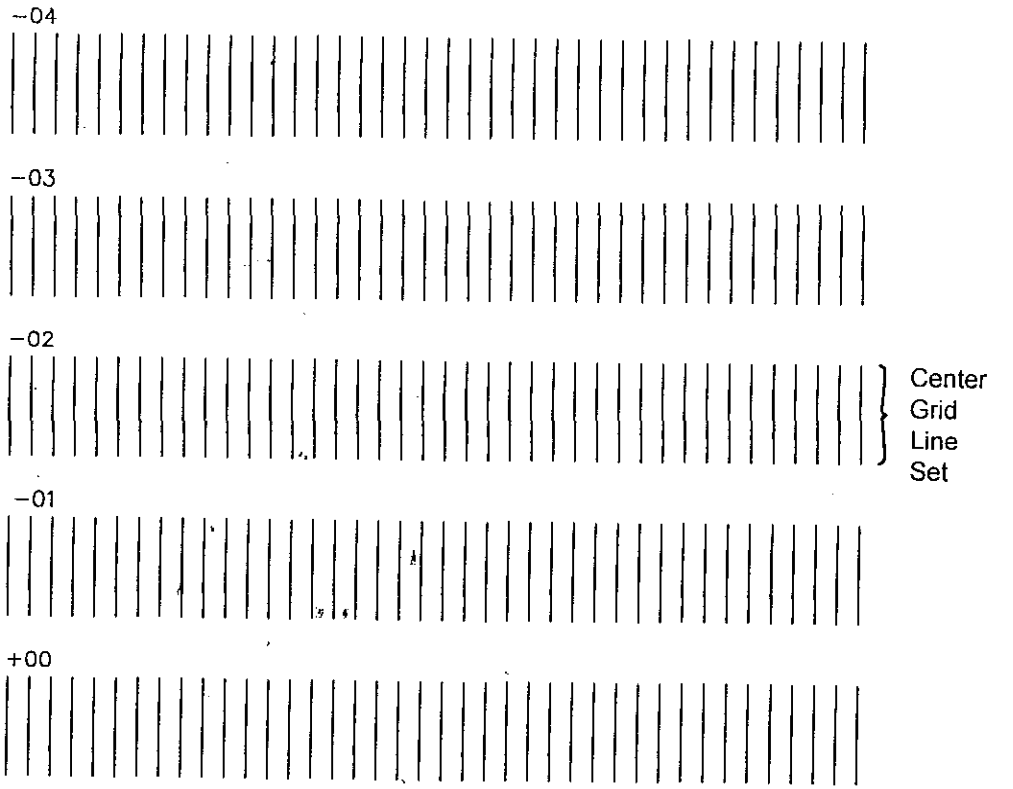


Figure 1 Grid Adjust pattern

ADJ 5.2 Head Gap

Purpose

The purpose is to set the distance from the print head to the printing surface to ensure even image quality from side to side.

NOTE: Head Gap Tool 600T1997 is required to perform this procedure.

Check

WARNING
Disconnect the power cord.

CAUTION
Leaving the ink cartridge removed for long periods of time will cause the ink nozzles to dry out. Image quality problems or a blank print could result. If necessary, prime the ink cartridge after reinstallation.

1. Remove the ink cartridge.
2. Install the Head Gap Tool into the Carriage (Figure 1).

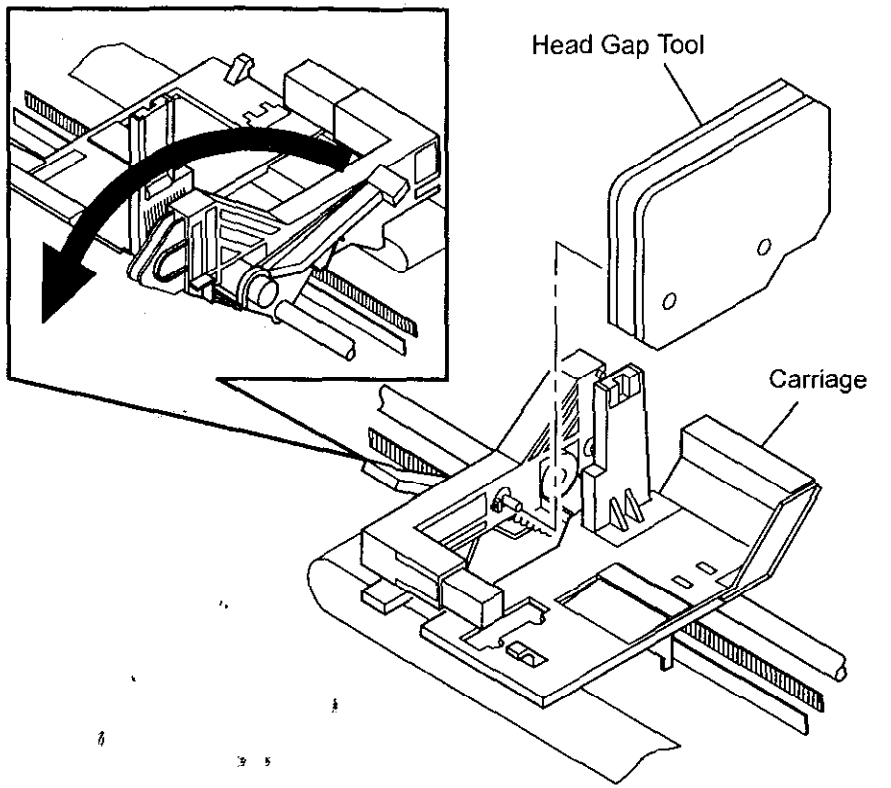


Figure 1 Installing the Head Gap Tool

3. Move the Gap Adjust Lever to the Paper position (detent in carriage frame) (Figure 2).

   NOTE: Move the carriage left and right by pushing on the carriage directly above the carriage shaft. This minimizes rocking and will provide the most accurate head gap check.

4. Check the head gap on the right side.
   a. Move the carriage to the right side.
   b. Align the Head Gap Tool with a large rib on the Paper Feed Guide (Figure 2).
   c. Check that the Head Gap Tool just touches the rib.
   d. Check that the carriage moves left and right with minimal contact between the Head Gap Tool and the ribs.
5. Check the head gap on the left side.
   a. Move the carriage to the left side.
   b. Align the Head Gap Tool with a large rib on the Paper Feed Guide (Figure 2).
   c. Check that the Head Gap Tool just touches the rib.
   d. Check that the carriage moves left and right with minimal contact between the Head Gap Tool and the ribs.
6. If the gap at either end is out of specification, perform the adjustment.

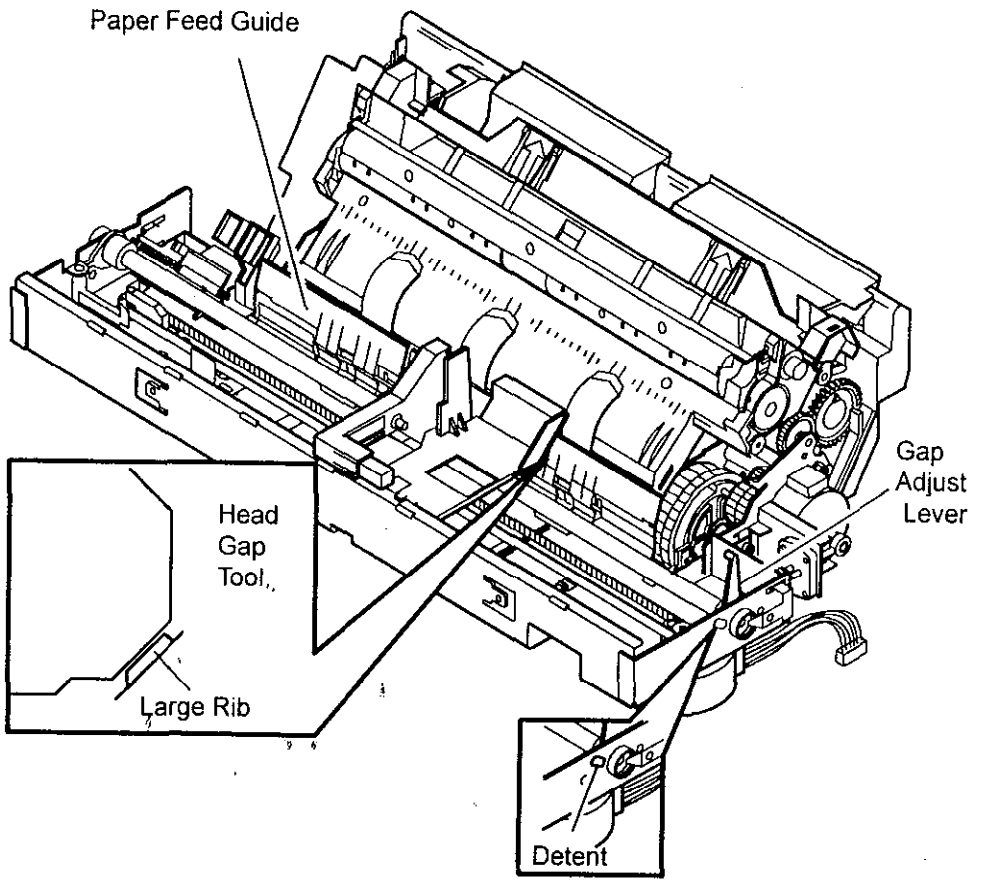


Figure 2 Checking the Head Gap

NOTE: Lever Stop Plate not shown for clarity.

Adjustment

NOTE: Ensure that the Gap Adjust Lever is in the Paper (detent) position when performing the adjustment (Figure 2).

1. Perform the check.
2. Set the head gap on both ends of the Carriage Assembly (Figure 1).
   a. Remove the Lever Stop Plate.
   b. Remove the Gap Adjust Plates.
   c. Rotate the Micro Gap Adjuster until no gap is observed (both ends).
   d. Reinstall the Gap Adjust Plates.
   e. Reinstall the Lever Stop Plate.
3. Repeat the check.

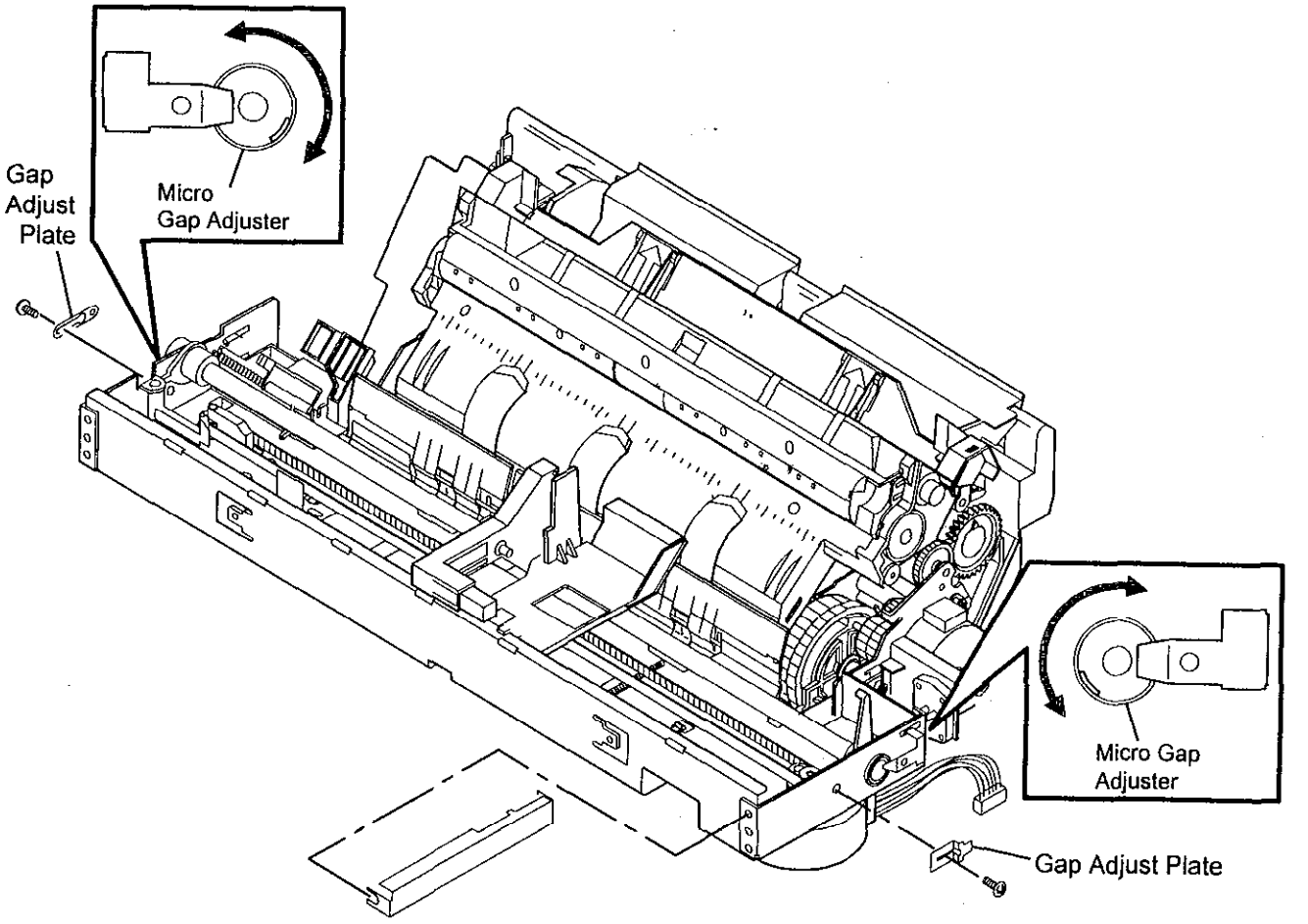


Figure 1 Setting the Head Gap

ADJ 5.3 Home Position Sensor Plate

Purpose

Ensures the Home Position Sensor Plate is positioned properly to allow the Home Sensor to detect the Carriage at power on or following a cleared error condition.

Adjustment

1. Position the Home Position Sensor Plate with the right edge aligned with the left most alignment mark (third line from the center line) (Figure 1).

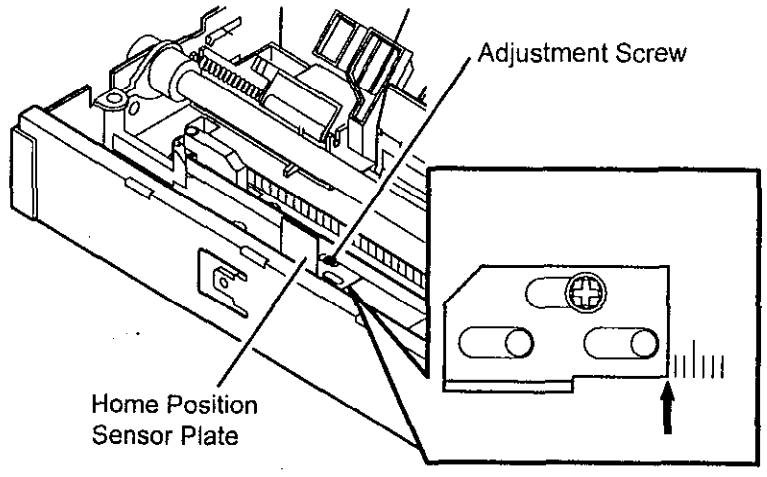


Figure 1 Positioning the Home Position Sensor Plate

Notes

Section Contents

Introduction

Overview

The Parts List section provides exploded view illustrations of all spared subsystem components and a listing of the corresponding part numbers. The illustrations show the relationships between parts.

Organization of this Section

The following elements make up the Parts List section:

Parts Lists (PL)

Each item number in the part numbers listing corresponds to an item number in the illustration. All the parts in a given subsystem of the machine will be located in the same illustration or in a series of associated illustrations. The parts which are not spared are indicated by "- -" in the Part column.

Exploded View Illustrations

An item that is called out on an illustration has a corresponding listing within this section.

Components are given item numbers that correspond to the part number listings.

Hardware items are lettered. Refer to the Common Hardware listing towards the end of this section to identify the item.

Assemblies and kits are a combination of several separate components. A bracket is used on the illustration when an assembly or kit is spared but is not shown. The item number of the assembly or kit precedes the bracket; the item numbers of the piece parts follow it.

Part Number Index

This index lists all the spared parts in the system in numerical order. Each number is followed by a reference to the parts list on which the part may be found.

Common Hardware

The common hardware is listed in alphabetical order by the letter or letters used to identify each item in the hardware listing and in the illustrations. All hardware dimensions are in millimeters unless otherwise noted.

Tag

A Tag is used when a part or area of the system has been modified. The Change Tag Index, which is found in the General Procedures/Information Section, lists the name and purpose of the Tag. In some cases, you will go to the parts lists and find a part number listed as "with Tag." Go to the Change Tag Index for a description of what the Tag is and what you need to install the Tag. The Change Tag Index will either list a kit number or indicate "piece part." If "piece part" is indicated, the parts lists reference(s) will be given and all parts associated with the Tag will have to be individually located, ordered, and installed.

The notation "P/O Tag" after a part number indicates that the item is part of a Tag. The notation "Tag" after a part number will be used only to indicate the entire Tag, whether that is a kit number or an individual part.

Whenever you install a Tag kit or all the piece parts that make up a Tag, mark the appropriate number on the Tag matrix.

Other Information

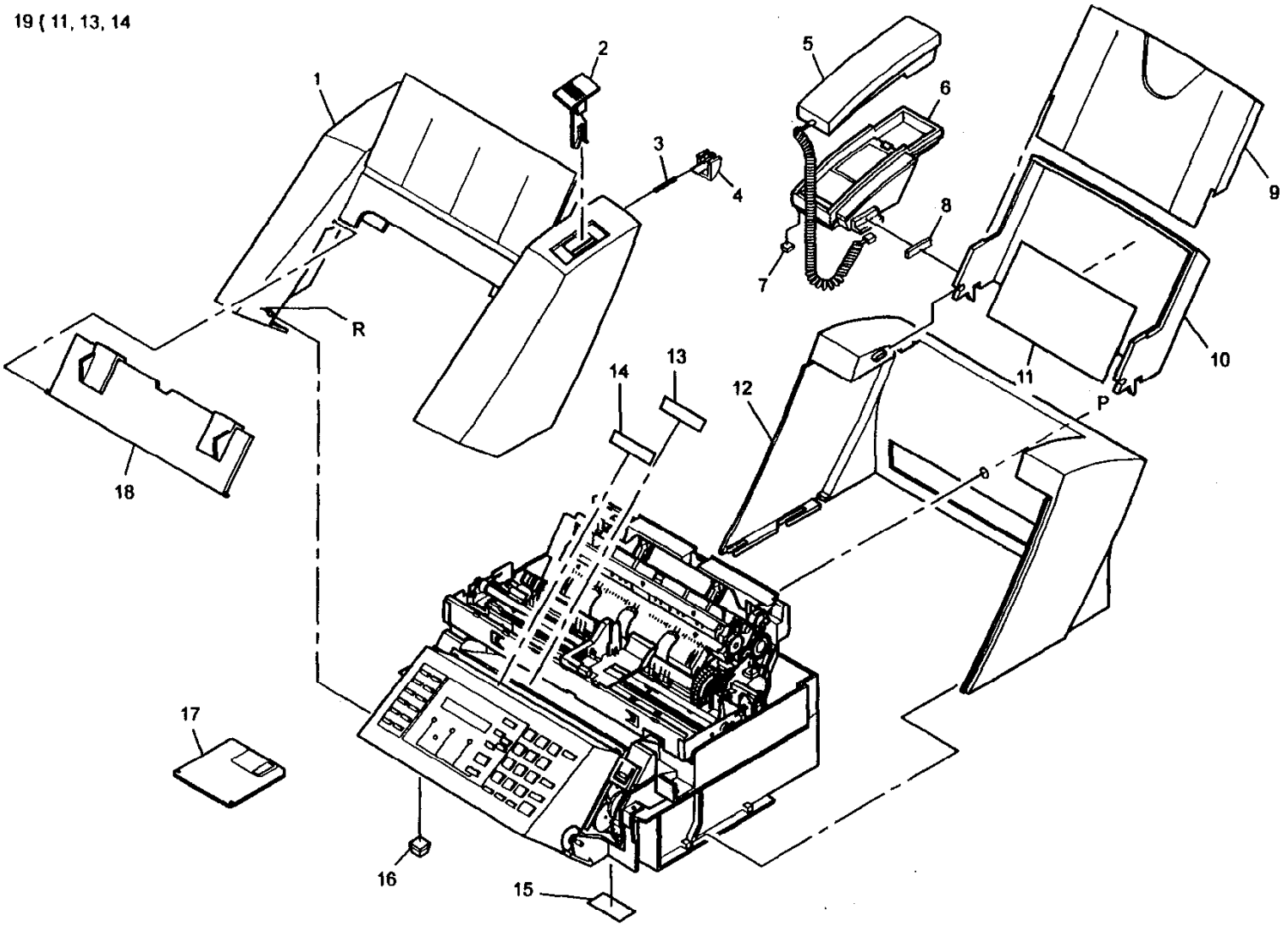
Abbreviations

Abbreviations which may be used in the parts lists text or illustrations are as follows:

RXI	Region B
XBRA	Brazil
XCL	Xerox Canada Limited
XLA	Xerox Latin America
AO	XBRA, XLA, XCL
RX	Rank Xerox
P/J	Plug/Jack
P/O	Part of
Tag/MOD	Tag/Modification
W/	With
W/O	Without

PL1.1 Covers and Trays

19 (11, 13, 14

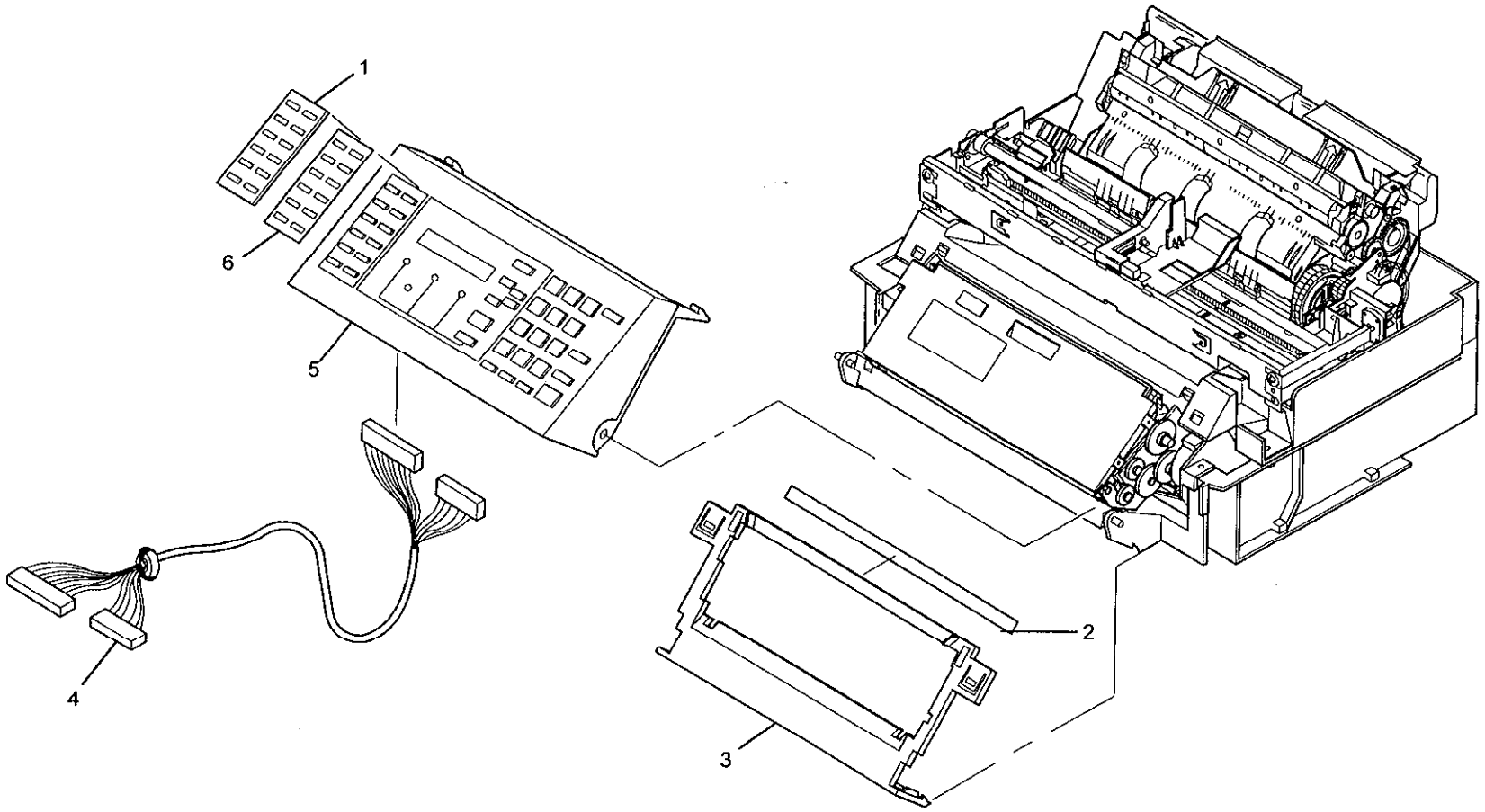


PL1.1 Covers and Trays

Item	Part	Description
1.	048K52060	Front Cover (REP 1.1)
2.	011E05380	Gap Lever
3.	009E64810	Compression Spring
4.	120E08640	Latch
5.	110K07490	Telephone
	110K09500	Telephone (China/Hong Kong)
6.	068K12470	Telephone Cradle
7.	017E07561	Telephone Cradle Feet (Qty 4)
8.	029E24810	Locking Strips (Qty 2)
9.	048E10140	Paper Tray Cover
10.	050E10650	Paper Tray (also order label kit, item 19)
11.	- -	Paper Loading Label (P/O item 19)
12.	048E10150	Rear Cover (RX) (REP 1.2)
13.	- -	Paper Jam Label (P/O item 19)
14.	- -	Cartridge Change Label (P/O item 19)
15.	091P80361	Tag Matrix
16.	017E06241	Foot
17.	300K57421	Printer Driver Disk (Windows 3.1)
	300K71010	Windows 95 (English/French)
	300K71020	Windows 95 (English/German)
	300K71030	Windows 95 (English/Spanish/Portuguese)
	300K71040	Windows NT (English/French)
	300K71050	Windows NT (English/German)
	300K71060	Windows NT (English/Spanish/Portuguese)
18.	048K52070	Manual Feeder Door
19.	600K56850	Label Kit

PL 2.1 Control Panel

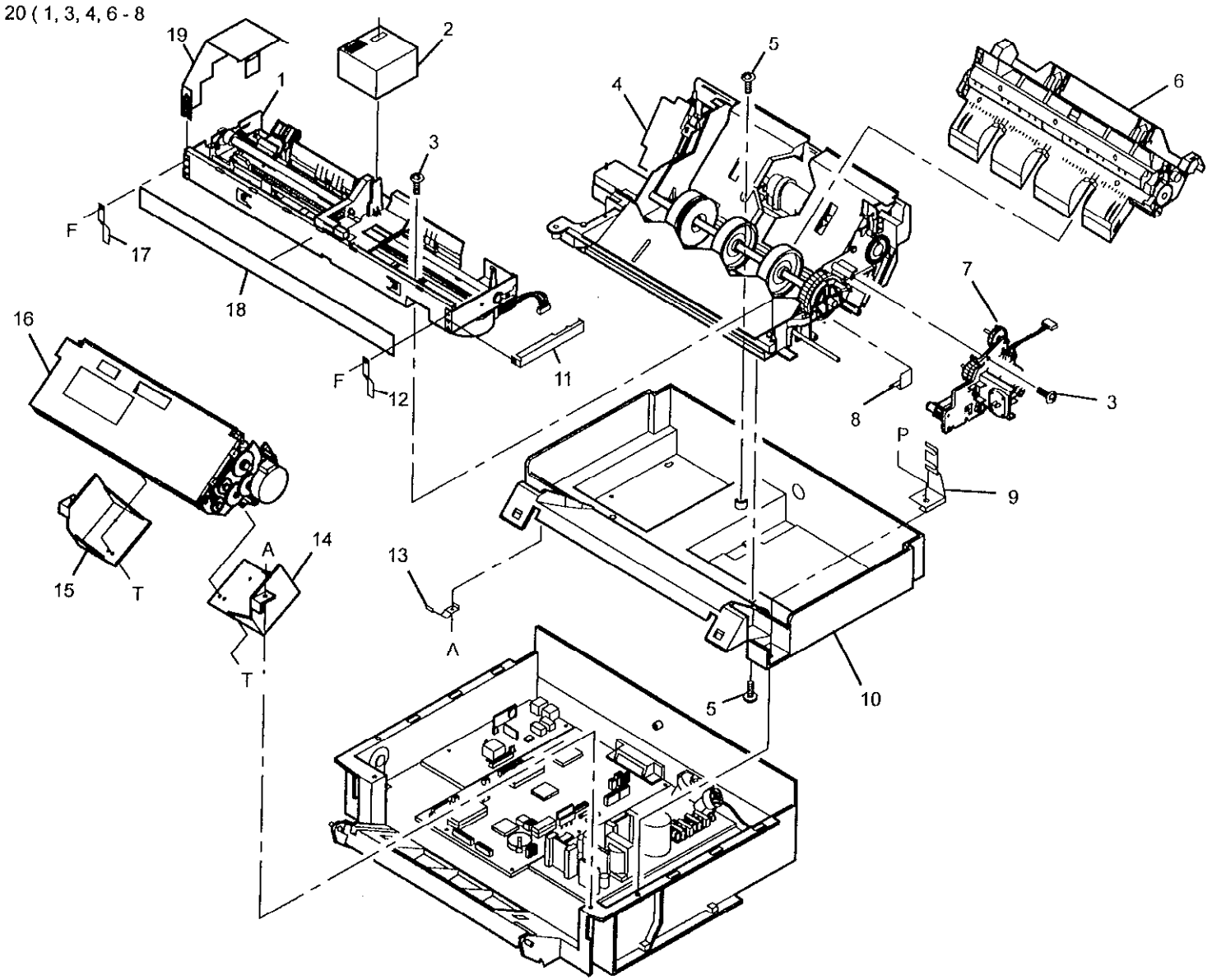
7{1, 5, 6



PL 2.1 Control Panel

Item	Part	Description
1.	048E10110	One Touch Dial Cover (P/O item 7)
2.	063E01830	Pad
3.	048E41581	Document Exit Guide (REP 2.2)
4.	162K26160	Control Panel Harness
5.	- -	Control Panel (P/O item 7)
6.	096E88620	One Touch Dial Card (RXI)
	096E87520	One Touch Dial Card (XLA)
	096E88610	One Touch Dial Card (XBRA)
7.	056K02111	Control Panel Assembly (RXI) (REP 2.1)
	056K02081	Control Panel Assembly (XLA)
	056K02101	Control Panel Assembly (XBRA)

PL 3.1 Scanner and Printer Systems

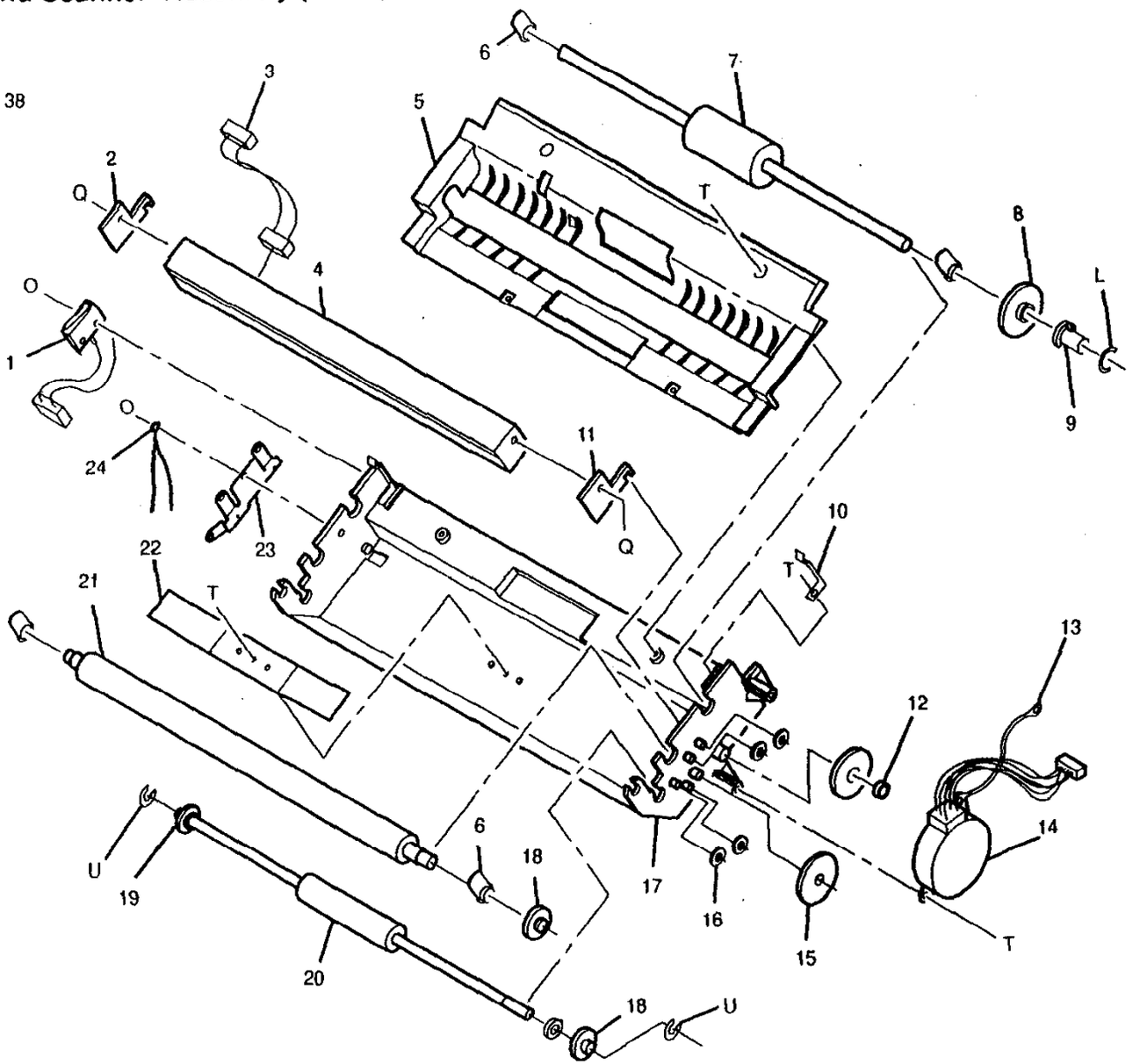


PL 3.1 Scanner and Printer Systems

Item	Part	Description
1.	- -	Carriage Assembly (REP 3.5)(See PL 5.1) (P/O item 20)
2.	008R07638	Ink Cartridge (Supply Item)
3.	026E35830	Screw (P/O item 20)
4.	- -	Paper Feed Assembly (See PL 6.1)(P/O item 20)
5.	026E35840	Screw
6.	038K09280	Paper Feed Guide (P/O item 20)
7.	- -	Side Frame Assembly (REP 3.6)(See PL 7.1) (P/O item 20)
8.	- -	Ground Spring (P/O item 20)
9.	- -	Right Ground Clip
10.	050E10641	Printer Tray
11.	- -	Lever Stop Plate
12.	- -	Right Ground Bracket
13.	009E61850	Control Panel Latch Spring
14.	- -	Scan Guide RH
15.	- -	Scan Guide LH
16.	- -	Scanner Assembly (See PL 4.1)(REP 3.4)
17.	- -	Left Ground Bracket
18.	015E52340	Decorative Cover
19.	- -	Ink Cartridge Cover (may not be available in all mkts).
20.	046K00210	Printer Assembly (also order item 19)(REP 3.2)

PL 4.1 ADF and Scanner Assembly (1 of 2)

40 (1 - 34, 36 - 42
41 (2 - 4, 11
42 (24, 26, 29 - 34, 36 - 38

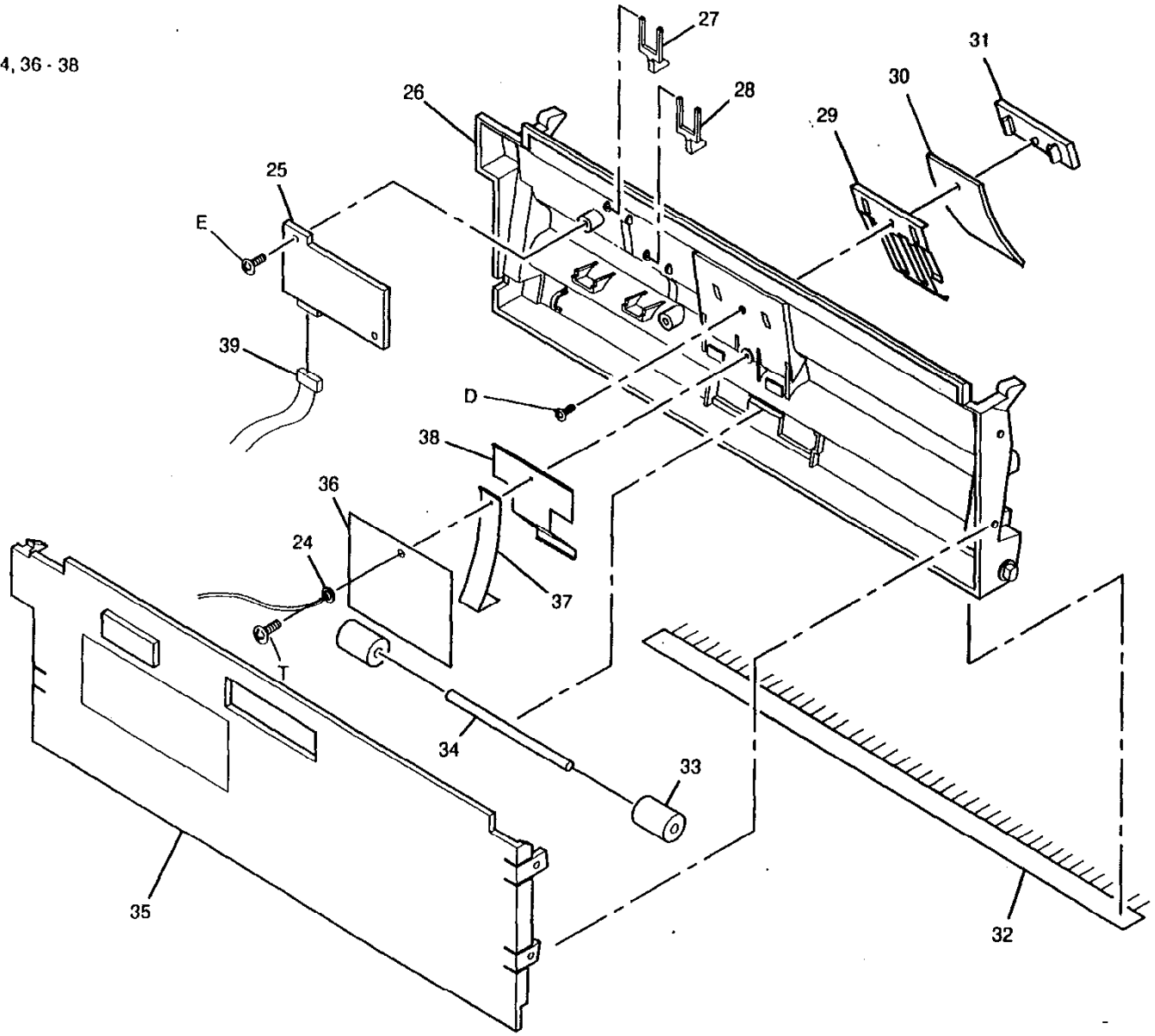


PL 4.1 ADF and Scanner Assembly (1 of 2)

Item	Part	Description
1.	107K01570	Scanner Interlock Switch (REP 4.5)
2.	- -	CIS Guide LH
3.	- -	CIS Connector Assembly
4.	- -	CIS
5.	032K02640	Lower Guide
6.	- -	TX Roller Bushing
7.	022E20380	ADF Roller (REP 4.6)
8.	- -	ADF Gear
9.	016E12030	One Way ADF Bushing
10.	- -	Upper Spring Plate
11.	- -	CIS Guide RH
12.	- -	Gear Bushing
13.	- -	Ground Terminal Assembly
14.	127K19740	ADF Motor (REP 4.3)
15.	- -	Idle Gear 18/48
16.	- -	Idle Gear Z =18
17.	- -	Frame
18.	- -	Platen Roller Gear
19.	- -	Cam Shaft Bushing LH
20.	022E20400	Eject Roller (REP 4.6)
21.	022E20390	Scan Roller (REP 4.6)
22.	- -	CIS Spring Plate
23.	- -	Earth Roller Plate
24.	- -	ADF & Ground Terminal Assembly

PL 4.1 ADF and Scanner Assembly (2 of 2)

40 { 1 - 34, 36 - 42
41 { 2 - 4, 11
42 { 24, 26, 29 - 34, 36 - 38

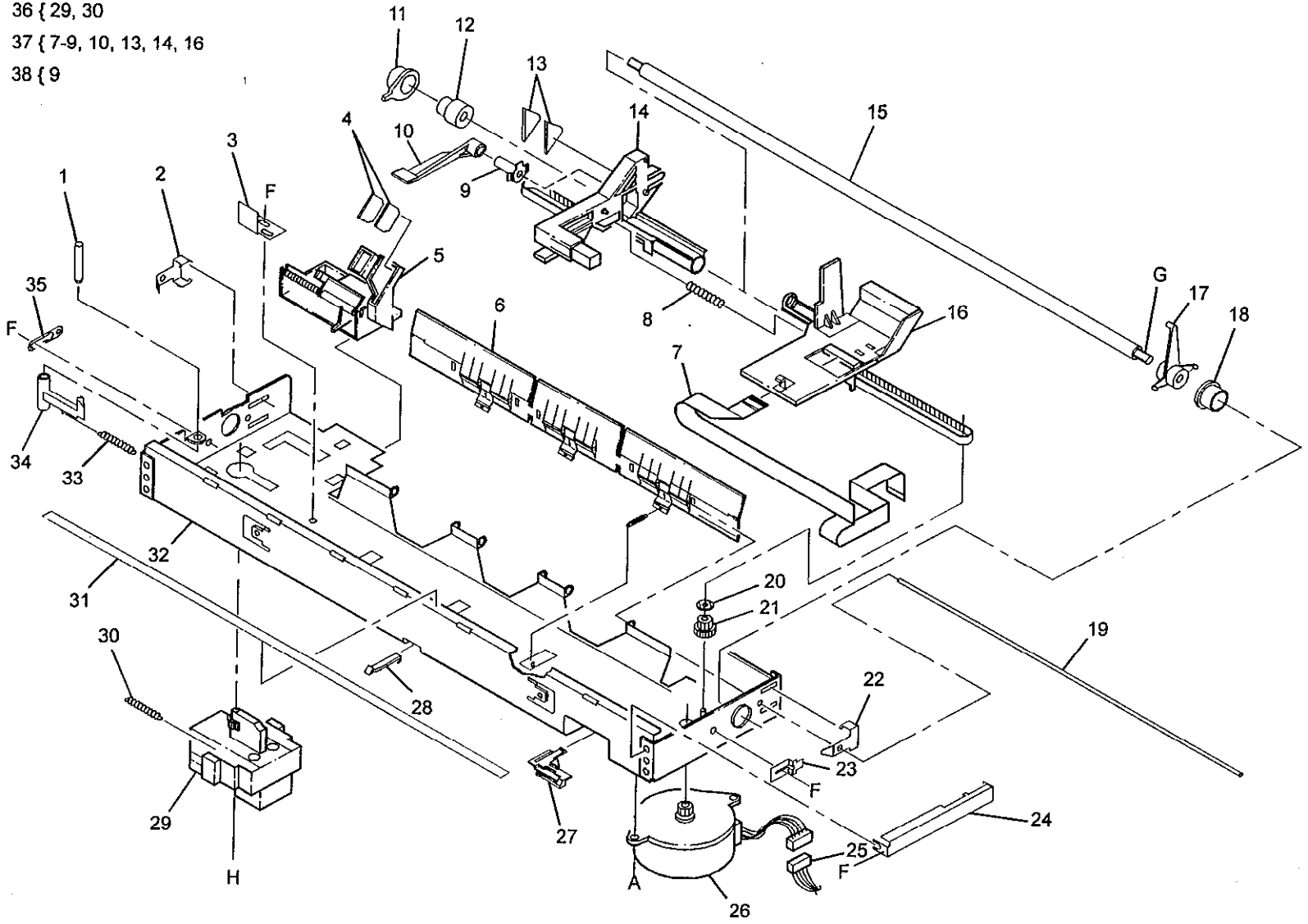


PL 4.1 ADF and Scanner Assembly (2 of 2)

Item	Part	Description
25.	160K27140	Sensor PWB (REP 4.1)
26.	- -	Upper Guide
27.	031E08160	ADF Arm
28.	031E08150	RPS Arm
29.	009E79920	ADF Spring Plate
30.	019E35150	Retard Pad (REP 4.2)(also order items 29 and 31)
31.	019E35140	Retard Pad Clamp
32.	- -	Anti-static Brush
33.	- -	Pinch Roller
34.	- -	Pinch Roller Shaft
35.	048E39180	Scan Cover
36.	- -	Anti-Static Plate
37.	- -	Earth Brush Spring Plate
38.	- -	Pinch Spring Plate
39.	162K26120	ADF/RPS Connector Assembly
40.	062K08190	Scanner Assembly (REP 3.4)
41.	062K08201	CIS Assembly (REP 4.4)
42.	032K02630	Upper Guide Assembly

PL 5.1 Carriage Assembly

36 { 29, 30
37 { 7-9, 10, 13, 14, 16
38 { 9



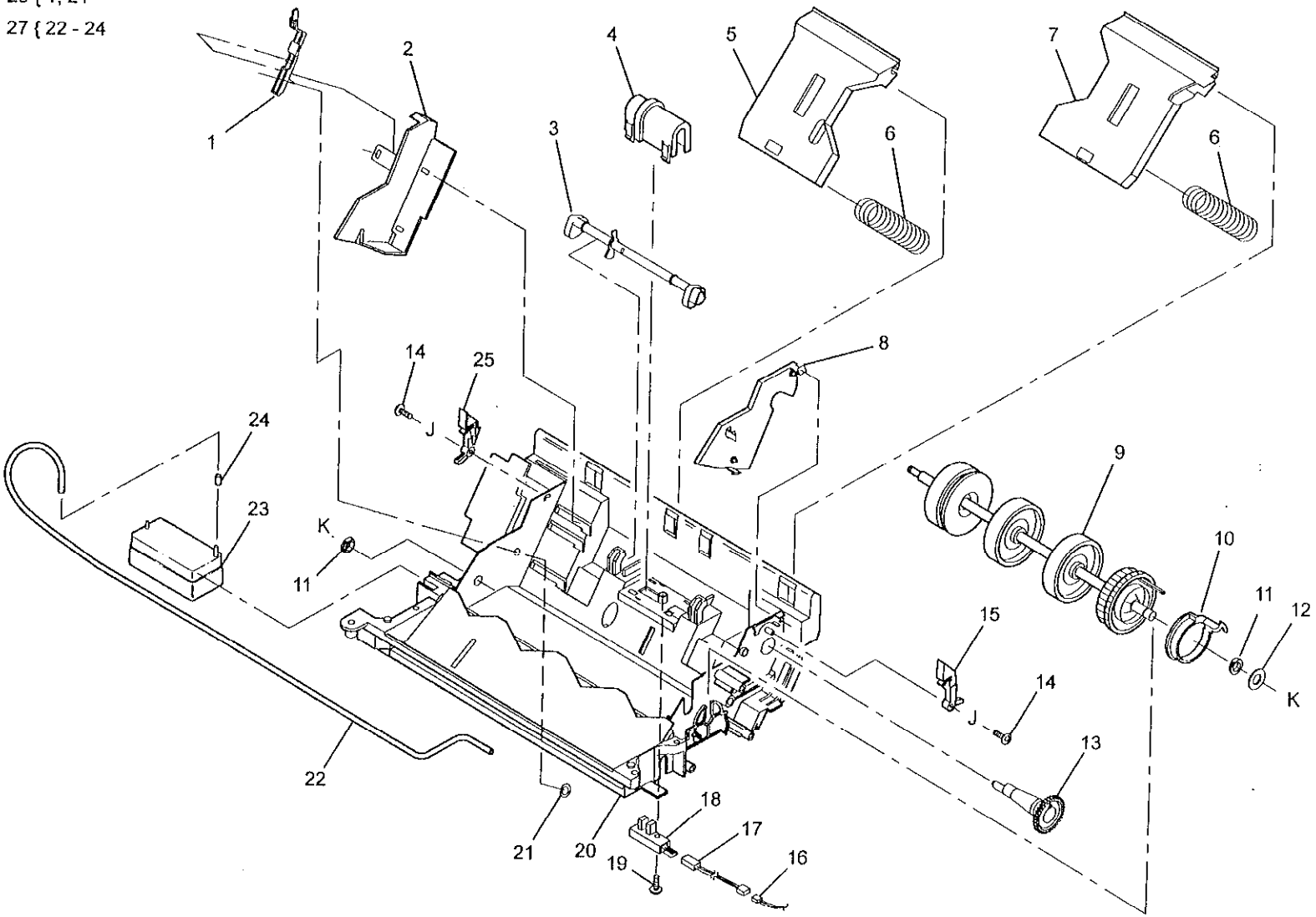
PL 5.1 Carriage Assembly

Item	Part	Description
1.	- -	Carriage Lock Shaft
2.	- -	Carriage Shaft Ground Plate
3.	- -	Home Position Sensor Plate (ADJ 5.3)
4.	033E02442	Wipers (REP 5.1)
5.	094K02066	Maintenance Station (REP 5.3)
6.	- -	Leaf Plate
7.	012E06690	Head Ribbon Cable
8.	- -	Coil Spring
▌9.	019E35221	Cam Pin Tag 3 USE THIS
10.	- -	Lever
11.	- -	Micro Gap Adjuster (ADJ 5.2)
12.	- -	Gap Set Bushing
13.	033E03050	Blotters (REP 5.1)(See Note)
▌14.	- -	Carriage/Belt
15.	- -	Carriage Shaft
16.	130K56480	Cartridge Support/Sensor Assembly NOT AVAILABLE
17.	011E05140	Gap Adjust Lever
18.	- -	Micro Gap Adjuster (ADJ 5.2)
19.	- -	Leaf Plate Shaft
20.	- -	Belt Stopper
21.	- -	Drive Pulley
22.	- -	Carriage Shaft Ground
23.	- -	Gap Adjust Plate Right (ADJ 5.2)
24.	- -	Lever Stop Plate
25.	162K26150	Carriage/Paper Feed Motor Cable Ext.
26.	127K11970	Carriage Motor (ADJ 5.1)(ADJ 5.2)(REP 5.2)
27.	029E18870	Cable Corner Fastener
28.	029E18860	Cable Fastener
29.	- -	Encoder (P/O Item 34)
30.	- -	Belt Tension Spring (P/O item 34)
31.	- -	Carriage Rail Tape
32.	- -	Carriage Frame
33.	- -	Carriage Lock Spring
34.	003E26260	Carriage Lock
35.	- -	Gap Adjust Plate Left (ADJ 5.2)
36.	146K00320	Encoder Assembly (REP 5.4)
▌37.	041K04270	Carriage (ADJ 5.1)(ADJ 5.2)(REP 3.5)
▌38.	600K57360	Cam Pin (Qty. 50) $9.58

NOTE: Depending on the printer configuration, 1 or 2 blotters may be required.

PL 6.1 Paper Feed Assembly

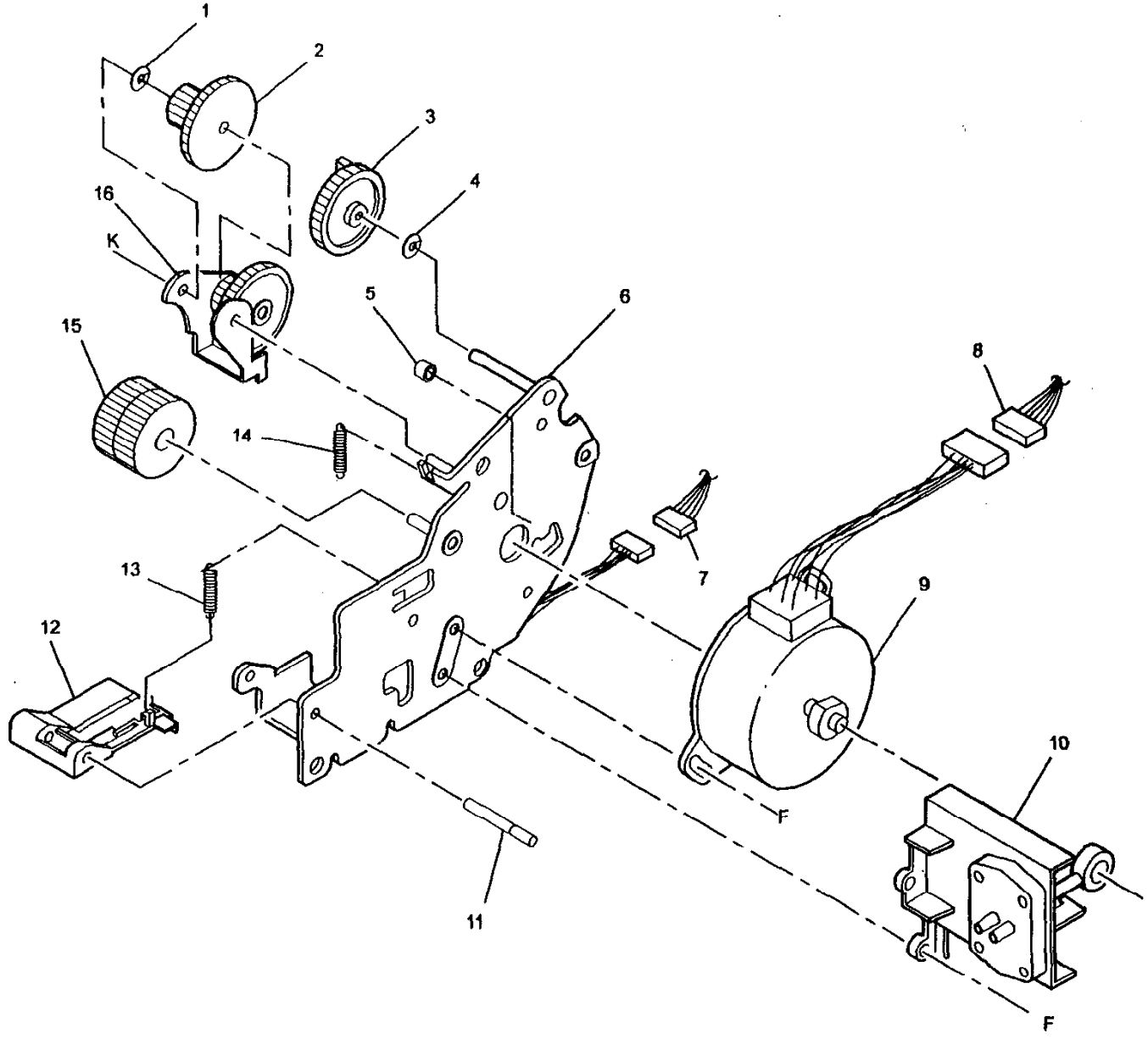
26 { 1, 21
27 { 22 - 24



PL 6.1 Paper Feed Assembly

Item	Part	Description
1.	- -	Paper Guide Lever (P/O item 26)
2.	- -	Left Paper Guide
3.	008E04730	ASF Cam (REP 6.2)
4.	- -	ASF Sensor cover
5.	- -	Left ASF Tray (REP 6.2)
6.	- -	ASF Tray Spring
7.	- -	Right ASF Tray (REP 6.2)
8.	- -	Right Paper Guide
9.	022K32490	Paper Feed Roller (REP 6.1)
10.	- -	Slip Spring and Spacer
11.	- -	Paper Feed Roller Bushing
12.	028E09910	Washer
13.	- -	ASF Cam Gear
14.	026E35820	Screw
15.	011E05170	Right Paper Feed Guide Lever
16.	162K26130	ASF Sensor Cable Ext.
17.	- -	ASF Sensor Cable
18.	130K53550	ASF Sensor (REP 6.2)
19.	026E35840	Screw
20.	- -	Paper Feed Frame
21.	- -	Push Nut (P/O item 26)
22.	- -	Pump Tube (P/O item 27)
23.	- -	Tank (P/O item 27)
24.	- -	Seal (P/O item 27)
25.	011E05160	Left Paper Feed Guide Lever
26.	011E05150	Paper Guide Lever Assembly
27.	051K00540	Tank, Tube and Seal Kit (REP 6.3)

PL 7.1 Side Frame

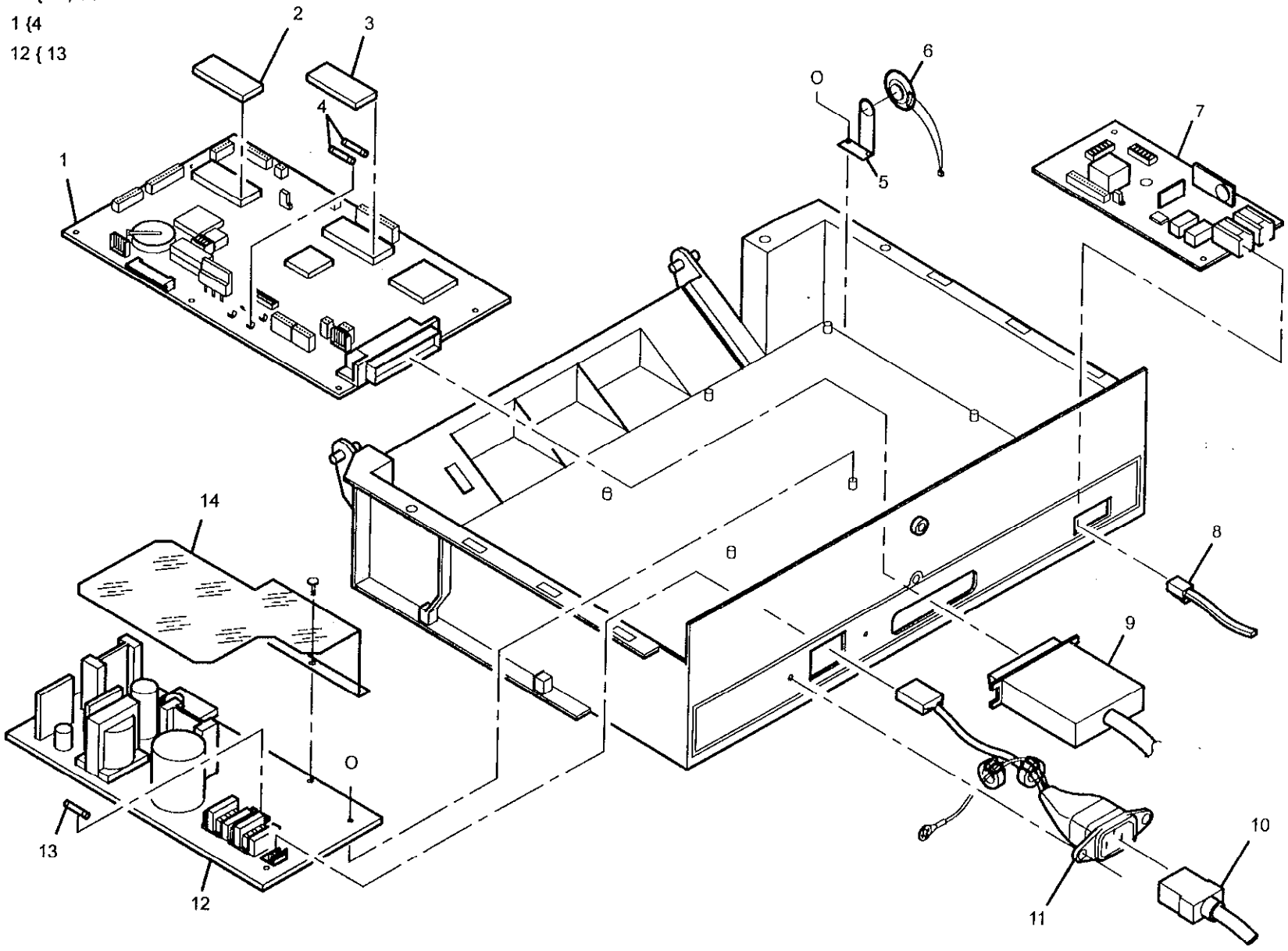


PL 7.1 Side Frame

Item	Part	Description
1.	- -	Nylon Washer
2.	- -	Toggle Gear
3.	007E26350	Lift Gear
4.	028E09920	Washer
5.	- -	Link Damper
6.	001K36300	Side Frame (includes Paper Feed Brake Solenoid) (REP 3.6)
7.	162K27890	Magnet Extension Harness
8.	162K26150	Carriage/Paper Feed Motor Cable Ext.
9.	127K11990	Paper Feed Motor (REP 7.2)
10.	127K11980	Pump (REP 7.1)
11.	- -	Detent Arm Shaft
12.	031K04890	Detent Arm
13.	- -	Detent Arm Spring
14.	- -	Reverse Spring
15.	- -	One Way Gear
16.	- -	Toggle Link

PL 8.1 Electrical Components

15 { 13, 14
1 {4
12 { 13



PL 8.1 Electrical Components

Item	Part	Description
1.	160K27131	Main PWB (W/O EPROMs)(REP 8.1) Tag 4 (XLA,XBRA)
	160K39180	Main PWB (W/O EPROMs), Tag 8 (RXI)
2.	537E53035	XLA EPROM (REP 8.2)Tag 17 (inc. Tag 1,6,13,15,16)
	537E53046	XBRA EPROM Tag 17 (inc. Tag 1,5,7,13,15,16)
	537E53054	RXI EPROM Tag 17 (inc. Tag 1,5,9,11)
3.	537E53060	Printer EPROM
4.	108E04070	Fuse (F1 and F2) 125V 1.5A (P/O item 1)
5.	113E26000	Speaker Holder
6.	130E07720	Speaker
7.	160K27150	NCU PWB (XLA, XBRA)(REP 8.3)
	160K27161	NCU PWB (RX) Tag 10
8.	162K06530	Data Cable (XBRA, XLA)
	162K27880	Data Cable (RX)
9.	162K27220	Printer Parallel Cable
10.	117E13660	Power Cord (XBRA, XLA)
	117E17070	Power Cord (RX)
11.	- -	AC Receptacle
12.	105K15972	Power Supply PWB (REP 8.4)(P/O 14) includes Tag 2
13.	108E04150	Fuse (F1) 250V 3A (P/O item 15)
14.	- -	Mylar Cover (P/O item 15)
15.	- -	Power Supply Assembly
16.	- -	Power Cord Adapter (XBRA)(Not shown)
17.	113E26770	RJ-11 Adapter (XBRA)(Not shown)

Part Number Index/Common Hardware

Part Number Index

Part Number	PL	Part Number	PL	Part Number	PL	Part Number	PL
001K36300	7.1	026E35840	3.1,6.1	056K02101	2.1	130K56480	5.1
003E26260	5.1	028E09910	6.1	056K02111	2.1	146K00320	5.1
007E26350	7.1	028E09920	7.1	062K08190	4.1	160K27130	8.1
008E04730	6.1	029E18860	5.1	062K08201	4.1	160K27140	4.1
008R07638	3.1	029E18870	5.1	063E01830	2.1	160K27150	8.1
009E61850	3.1	029E24810	1.1	068K12470	1.1	160K27161	8.1
009E64810	1.1	031E08150	4.1	091P80361	1.1	160K39180	8.1
009E79920	4.1	031E08160	4.1	094K02066	5.1	162K06530	8.1
011E05140	5.1	031K04890	7.1	096E87520	2.1	162K26120	4.1
011E05150	6.1	032K02630	4.1	096E88620	2.1	162K26130	6.1
011E05160	6.1	032K02640	4.1	096E88610	2.1	162K26150	5.1,7.1
011E05170	6.1	033E02442	5.1	105K15972	8.1	162K26160	2.1
011E05380	1.1	033E03050	5.1	107K01570	4.1	162K27220	8.1
012E06690	5.1	038K09280	3.1	108E04070	8.1	162K27880	8.1
015E52340	3.1	041K04270	5.1	108E04150	8.1	162K27890	7.1
016E12030	4.1	046K00210	3.1	110K07490	1.1	300K57421	1.1
017E06241	1.1	048E10110	2.1	110K09500	1.1	300K71010	1.1
017E07561	1.1	048E10140	1.1	113E26000	8.1	300K71020	1.1
019E35140	4.1	048E10150	1.1	113E26770	8.1	300K71030	1.1
019E35150	4.1	048E39180	4.1	117E13660	8.1	300K71040	1.1
019E35221	5.1	048E41581	2.1	117E17070	8.1	300K71050	1.1
022E20380	4.1	048K52060	1.1	120E08640	1.1	300K71060	1.1
022E20390	4.1	048K52070	1.1	127K11970	5.1	537E53035	8.1
022E20400	4.1	050E10641	3.1	127K11980	7.1	537E53046	8.1
022K32490	6.1	050E10650	1.1	127K11990	7.1	537E53054	8.1
026E35820	6.1	051K00540	6.1	127K19740	4.1	537E53060	8.1
026E35830	3.1	056K02081	2.1	130E07720	8.1	600K56850	1.1
				130K53550	6.1	600K57360	5.1

Common Hardware

A	M 3X8 Tapping screw
B	M 3X10 Tapping screw
C	M 4X16 Tapping screw
D	M 2X5 Tapping screw
E	M 2.6X5 Tapping screw
F	M 3X6 Tapping screw
G	E-5 E- Ring
H	M 3X20 Tapping screw
J	W 2.9 Washer
K	E-3 E- Ring
L	E-2.5 E-Ring
M	M 3X8 Tapping screw
N	M 3X12 Tapping screw
O	M 2X10 Tapping screw
P	M 4X10 Machine screw
Q	M 2.6X8 C-sunk screw
R	E-Ring
S	M 3X10 Flat Hd screw
T	H 3X8 Binding screw
U	D 4.0 E-ring

6 General Procedures/Information

Section Contents

Introduction

The following is a description of the information contained within this section.

General Procedures includes the Operations Menu Map and the Service Mode Menu Map. It includes all unique service operations and the machine soft switch parameters and defaults.

When you suspect a machine is functioning outside the range of its specifications, refer to product specifications. If the problem is a result of space, electrical, or environmental problems, call for management or sales assistance as needed.

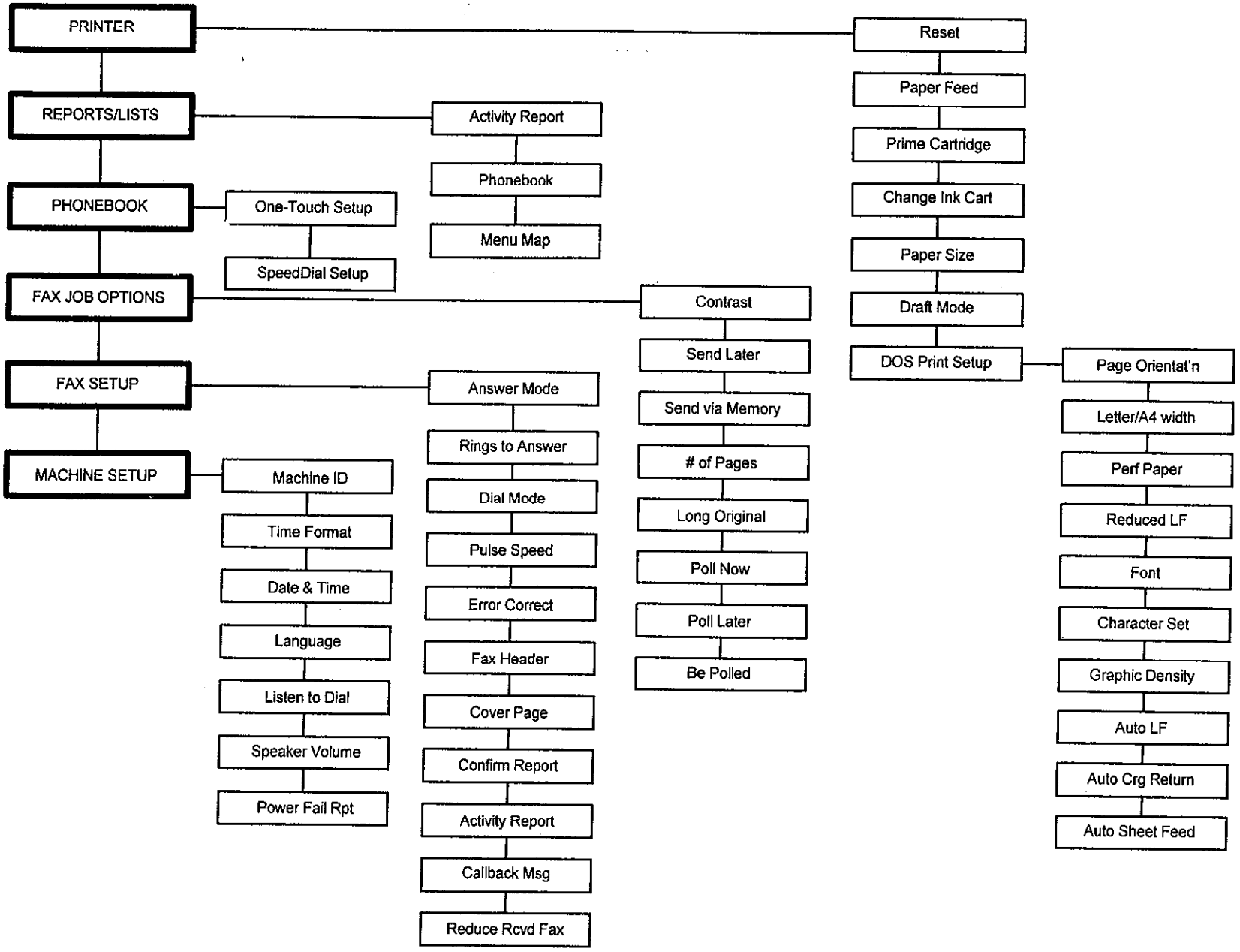
Special tools and consumables contains a listing of the required tools and supplies needed to correctly repair and maintain the machine.

Changes in configuration to the machine are assigned a Tag number. Information about a specific modification is found in the Tag Index within Tag Information.

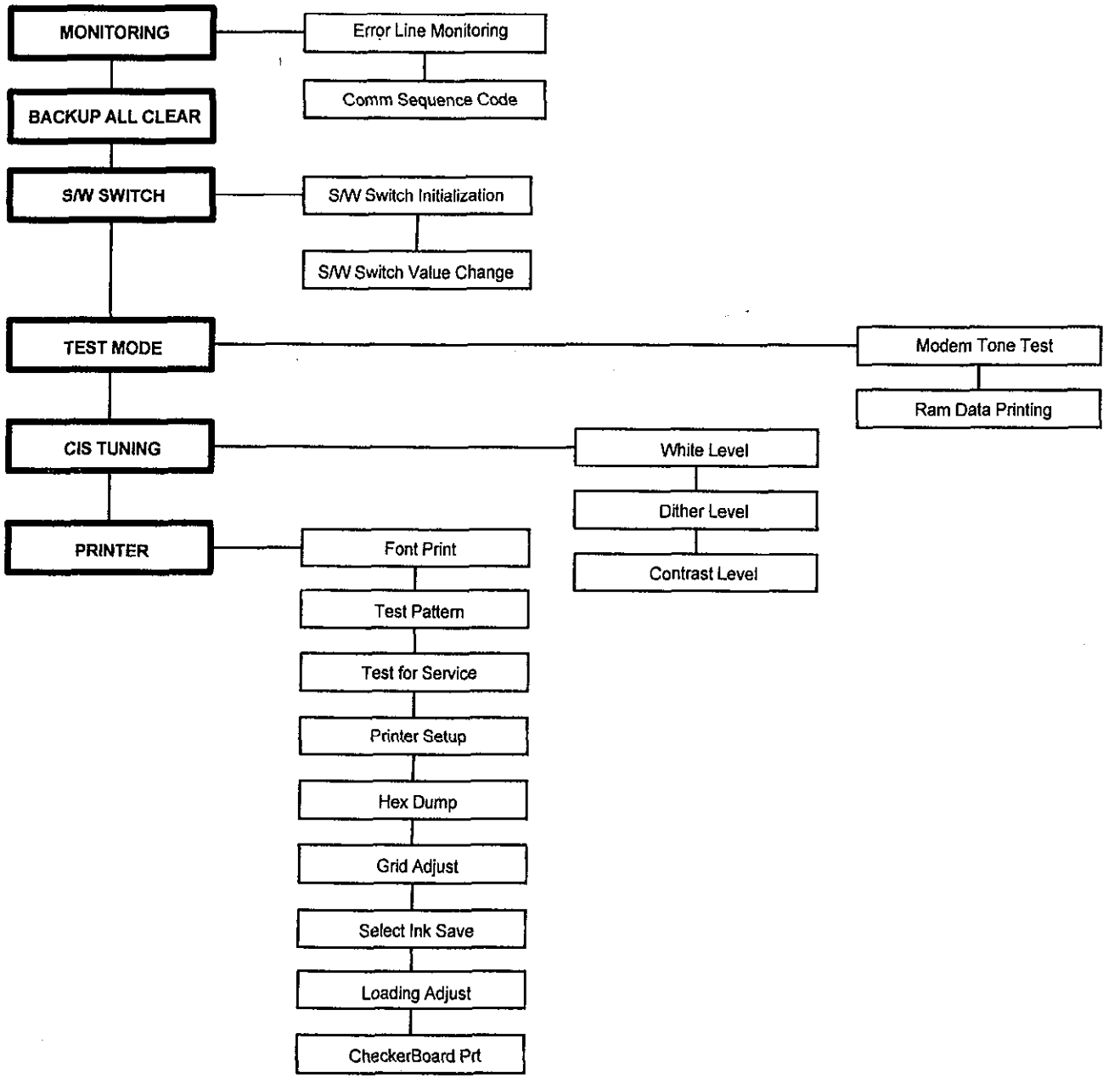
General Information contains signal name mnemonics and the machine setup log.

Install provides the procedures required to install the machine.

User Menu Map



Service Mode Menu Map



Total Memory Clear

Description

The Total Memory Clear procedure resets the memory on the Main PWB. Upon power up the machine will rebuild the configuration table based on the installed firmware.

This procedure should be performed after firmware is replaced, or anytime the machine requires reset due to incorrect operation or intermittent performance.

Procedure

1. Unplug the machine.
2. Locate diode CR7 or CR17 on the Main PWB, located next to the battery.
3. Connect a jumper from the cathode of diode CR7 or CR17 (black striped end) to one of the grounding screws on the Main PWB for at least one second.
4. Disconnect jumper.
5. Plug in the machine and perform the check out steps per Section 1.

Service Mode

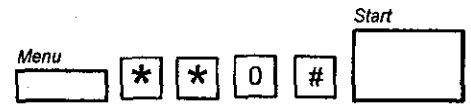
Description

The Service Mode consists of 6 different menus:

- Menu 1 can be used to monitor the line for error information.
- Menu 2 clears the system ram.
- Menu 3 sets or initializes the soft switches.
- Menu 4 allows access to special tests including tone, TPH pattern and ram data.
- Menu 5 can be used to tune the CIS white, dither and contrast levels.
- Menu 6 can be used to select or change printer configurations.

Procedure

1. Enter the Service Mode, press:



The display indicates the following.

SERVICE (1-6) X.X

2. Press ***1-6*** to select the Service Mode.
3. Press the appropriate menu selection number (Table 1).
4. Press ***Stop*** to exit the service mode.

   NOTE: The service mode is cancelled automatically after approximately 3 minutes of no machine activity.

Table 1 Service Mode Menus

FUNCTION	MENU	DESCRIPTION
1. Monitoring	1. Error Line Monitor	1. Monitors and displays the number of error lines during a transmission. Backup all clear to release.
	2. Communication Sequence Code	2. Monitors the sequence of a communication in operation. See the Sequence Code table in this section.
		Note: Cycle power to exit monitor mode.
2. All Backup Clear	All	Clears the machine ID, One-touch and speed dial numbers, DRAM and all report data. The software table and printer parameters are set to default values.
3. S/W Switch	1. S.W. Switch Initialization	1. Resets the soft switch settings to the default values
	2. S/W Switch Value Change	2. Allows the fax and printer parameters to be changed. See Soft Switch Setup procedure in this section.
4. Test Mode	1. Test Tone Transmission	1. Press ***Start*** to listen to each tone generated by the machine.
	2. TPH Pattern Printing	2. Prints the test pattern to check the thermal sensing record head.
	3. RAM Data Printing	3. Prints the stored data.
5. CIS Tuning	1. White Level Adjust	1. Checks the white reference level for the output video signal of the CIS.
	2. Dither Level Adjust	2. Adjusts the reference contrast level for the dither pattern.
	3. Contrast Level Adjust	3. Adjusts the reference level for general contrast.
6. Printer	1. Font Print	1. Prints the available fonts.
	2. Test Pattern	2. Prints the character set in each font; both portrait and landscape.
	3. Test for Service	3. Runs a continuous burn in test. Disconnect power to exit.
	4. Print Setup	4. Modifies the printer setup configuration.
	5. Hex Dump	5. Clears the Hex registers.
	6. Grid Adjust	6. Adjusts the horizontal print alignment.
	7. Select Ink Save	7. Selects the ink save mode.
	8. Loading Adjust	8. Adjusts the top page margin.
	9. Checker Board Print	9. Enables the checker board print.

Soft Switch Setup

Description

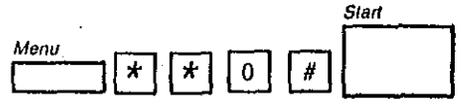
This procedure sets or initializes soft switches.

NOTE: Softswitch settings may vary by location.

Procedure

Set S/W Switches

1. Enter the Service Mode, press:



The display indicates the following.

SERVICE (1-6) X.X

2. Press 3 to select the S/W Switch menu.

3. Press 2 to change the soft switch settings.

The first soft switch setting displays.

SW1 : 11110000

4. Using the left or right arrow keys, select the bit to change.
5. Enter either a 1 or 0 in the bit position to change.
6. Press *Start* when finished.

NOTE: Soft switch bit definitions are provided in Softswitch Definition Tables 1 through 8.

Initialize S/W Switches

1. Enter Service Mode
2. Press 3 to select the S/W Switch menu.
3. Press 1 to initialize the soft switch settings.

The S/W Switch settings are initialized and the display returns to the standby mode.

Table 1 Softswitch 01

Bit	Name	Logic	Description	Dflt
7	Blind Dial Time	11: 3s 10: 5s 01: 7s 00: X		1
6				1
5	DP Speed	1: 10PPS 0: 20PPS	Speed selection of pulse dialing	1
4	Automatic Receive Disable	1: Off 0: On		1
3	Long Original (Document Length)	11: X 10: Free 01: 5m 00: 1m	To limit original length	0
2				0
1	Line Monitoring Enable	1: Prohibited 0: Allowed		0
0	Line Monitor Time	1: Off 0: On		0

Table 2 Softswitch 02

Bit	Name	Logic	Description	Dflt
7	Line Usage	1: Leased Line 0: PSTN		0
6	TCF EQM	1: Display Off 0: Display On		1
5	Activity Report Registration	1: Allowed 0: Prohibited	Choose to have activity report automatically print after each communication	1
4	Automatic Output Of Activity Report	1: Allowed 0: Prohibited	Choose to have Activity Report automatically print after 30 activities	1
3	Header Recording Position	1: Inside paper 0: Outside paper		0
2	Header Transmission	1: Prohibited 0: Allowed	Choose send /not send header	0
1	ID Registration	1: Off 0: On	1: Hungary, Czech, Other countries: 0	See Desc.
0	Select Listen to Dial	1: Enable 0: Disable	Choose listen to dial sound	1

Table 3 Softswitch 03

7	Language selection XBRA, XLA	1: 0:	Bit 7 6 Language 0 0 English 0 1 Spanish 1 0 Portuguese 1 1 English	Bit 7 6 XBRA 1 0 XLA 0 1
6		1: 0:		
7	Language selection RXI	1: 0:	Bit 7 6 Language 0 0 English 0 1 Numbering 1 0 French	Bit 7 6 RXI 0 0
6		1: 0:		
5	Coding Method	1: 0:	00 : MH 01 : MR 10 : MMR 11: X	0
4		1: 0:		0
3	Not Used			0
2	RTN Transmission Flag Hold Time	1: RTN 0: RTP	RTN or RTP sent when 32 ≤ lines in error ≤ 64	0
1	Flag Hold Time	1: 180 sec 0: 90 sec	Waiting time for frame reception after flag reception	0
0	Select ECM	1: 0:	1: Enable ECM 0: Disable ECM	1

Table 4 Softswitch 04

Bit	Name	Logic	Description	Dflt
7	Modem Speed	1: 0:	Bit 7 6 Speed 1 1 9600 1 0 7200 0 1 4800 0 0 2400	1
6		1: 0:		1
5	Echo Countermeasure 1	1: 50 msec 0: 0 msec	Delay from DIS reception to DCS transmission	0
4	Echo Countermeasure 2	1: 500 msec 0: 60 msec	Delay from CED transmission to DIS transmission	0
3	V.29 EPT	1: Allowed 0: Prohibited	Transmit EPT in V.29 mode	0
2	Selection Reduction for received FAX	1: Manual 0: Auto	Manual : select 100, 92, 75%	0
1	Minimum Reception Level (LRTH)	1: -47 dB 0: -43 dB	Only -43 dB is allowed	0
0	Cable Equalizer	1: ON 0: OFF		0

Table 5 Soft Switch 05

Bit	Name	Logic	Description	Dflt
7	Transmit Level	1: 0:	Bit 76543 / Bit 76543 01100 -12 01011 -11 01010 -10 01001 -9 10101 -21dB / 01000 -8dB 10100 -20dB / 00111 -7dB 10011 -19dB / 00110 -6dB 10010 -18dB / 00101 -5dB 10001 -17dB / 00100 -4dB 10000 -16dB / 00011 -3dB 01111 -15dB / 00010 -2dB 01110 -14dB / 00001 -1dB 01101 -13dB / 00000 0dB	0
6		1: 0:		1
5		1: 0:		0
4		1: 0:		1
3		1: 0:		0
2	V.29 3 dB down	1: Prohibited 0: Allowed	3 dB down in case of V.29	XLA 0 XBRA 0 RXI 1
1	Select Memory Send	1: Enable 0: Disable	To select memory transmission	0
0	Select Confirmation Report	1: Enable 0: Disable	To print a confirmation report after transmission	0

Table 6 Softswitch 06

Bit	Name	Logic	Description	Dflt
7	Fax/Tel Time 1	1: 15 sec 0: 10 sec	Silent time after ring detection in fax/tel mode	0
6	Fax/Tel Time 2	1: 25 sec 0: 10 sec	Operator call time after silent time	0
5	Not Used			1
4	Total Page Send	1: Allowed 0: Prohibited	Total page send at right top of page	0
3	Call Back Message Transmission	1: Allowed 0: Prohibited	Transmit to the remote terminal when there is no response to the voice request after transmission of document	0
2	Password RCV Enable	1 : On 0 : Off	DO NOT CHANGE	0
1	Password TRAN Enable	1 : On 0 : Off	DO NOT CHANGE	0
0	Dynamic Fill Control	1: Prohibited 0: Allowed	Special coding method to reduce communication speed	1

Table 7 Softswitch 07

Bit	Name	Logic	Description	Dflt
7	Time Mode	1: 24 Hour 0: 12 Hour	XLA : 0 XBRA : 0 Hong Kong/China : 0 RXI : 1	See Desc.
6	Date Mode	1: 0:	Bit 6 5 Date Mode 0 0 : Y-M-D 0 1 : D-M-Y 1 0 : M-D-Y 1 1 : D-M-Y	Bit 6 5 XBRA 0 1 XLA 1 0
5		1: 0:		
6	Date Mode	1: 0:	Bit 6 5 Date Mode 1 1 : Y-M-D 1 0 : D-M-Y 0 1 : M-D-Y	Bit 6 5 RXI 0 1 Hong Kong 1 0 China 1 0
5		1: 0:		
4	Rings before answer	1: 0:	Bit 4 3 2 # of rings 0 0 1: 1 times 0 1 0: 2 times 0 1 1: 3 times 1 0 0: 4 times 1 0 1: 5 times 1 1 0: 6 times 1 1 1: 7 times	0
3		1: 0:		1
2		1: 0:		0
1	Billing Protect Time	1: 3 sec 0: 0 sec	Delay time before signal transmission after ring detection	0
0	Power Failure Report	1: Enable 0: Disable	To print power failure report if data in memory is erased after a power cycle	1

Table 8 Softswitch 08

Bit	Name	Logic	Description	Dflt
7	Make Break Ratio	1: 40% 0: 33%	Other Countries : 33% XLA : 40% Russia : 40% Bulgaria : 40% Czech : 40% XBRA : 40% Romania : 40%	See Desc.
6	Dial Type	1: Pulse 0: Tone	To select dial type	XLA 0 XBRA 0 Hong Kong 0 China 0 RXI 1
5	Dial Tone Detection Period	1: Unlimited 0: 5 Second	To select dial tone detection period	XLA 0 XBRA 0 RXI 1
4	Dial Tone Detection	1: Enable 0: Disable	To select dial tone detection before dialing	XLA 0 XBRA 0 Czech 0 RXI 1
3	Receive Mode	1: 0:	Bit : Receive Mode 32 00 : Manual 01 : Auto 10 : TEL/FAX 11 : TAD Interface	XLA 00 XBRA 00 RXI 01
2		1: 0:		
1	Fax Lock	1: On 0: Off	DO NOT CHANGE	0
0	Cover Note	1: Enable 0: Disable	Select to send a cover note	0

Table 9 Softswitch 09 (RX)

Bit	Name	Logic	Description	Dflt
7	Not used			0
6				0
5				0
4	Country Select		Bit Country 43210 00000 : India, Egypt, UK, Generic 00001 : Russia, Bulgaria 00010 : Turkey 00011 Poland 00100 : Hungary 00101 : Czech 00110 : Romania 00111 : South Africa 01000 : UK 01001 : Australia 01010 : Hong Kong 01011 : China	
3				
2				
1				
0				

Softswitch 09 (XLA/XBRA)

Bit	Name	Logic	Description	Dflt
7	CNG_ON_OFF	1:CNG off 2:CNG on	Transfer CNG tone	0
6	Not Used			0
5				0
4				0
3	T1_Time_60	1:	Select CNG time intervals mode Bit 3 2 0 0 : 38 secs 1 0 : 60 secs 0 1 : 90 secs	00
2				
1	Not Used			0
0				0

Table 10 Softswitch 10 (RX Only, XLA/XBRA not used)

Bit	Name	Logic	Description	Dflt
7	Busy Tone Detect Enable	1: On 0: Off		0
6	Digit Interval Select	1: 600 msec 0: 900 msec	1 : Turkey 0 : Other countries	0
5	DTMF Level	00 : -6, -8 01 : -8, -10 10 : -9, -11 11 : X	00 : Russia, Bulgaria, Poland, Czech 01: Hungary, Romania 10 : India, Turkey, S. Africa, UK Generic, Australia, Hong Kong, China	See Desc.
4				
3-1	Not Used			1
0	Not Used			0

Table 11 Softswitch 11 (RXI only, XLA/XBRA not used)

Bit	Name	Logic	Description	Dflt
7	CNG on/off	0 : On 1 : Off	Ability to select CNG on/off	0
6-4	Not Used			0
3	T1 Timer (CNG time intervals)	00 : 38 sec 10 : 60 sec 01 : 90 sec	10 : Czech 00 : Other countries	See Desc.
2				
1-0	Not Used			0

Table 1. Initial Transmission

Code	Description
20	Stand-by after CNG transmitted
21	Initial identification signal reception stand-by
22	DCS transmitted
23	TCF transmitted
24	CFR received
25	FTT received while waiting for CFR

Table 2 G3 Transmission

Code	Description
30	Picture signal transmitted
31	EOM transmitted
32	EOP transmitted
33	MPS transmitted
34	PRI-EOM transmitted
35	PRI-EOP transmitted
36	PRI-MPS transmitted
37-3F	Reserved
40	MCF received while waiting for post-message
41	RTP received while waiting for post-message
42	RTN received while waiting for post-message

Table 2 G3 Transmission

Code	Description
43	PIP received while waiting for post-message
44	PIN received while waiting for post-message

Table 3 Initial Reception

Code	Description
50	Stand-by after CED transmitted
51	DIS transmitted
52	Initial identification signal reception stand-by
53	DCS received
54	Stand-by for receiving TCF
55	Stand-by after TCF received
56	CFR transmitted
57	FTT transmitted

Table 4 G3 Reception

Code	Description
60	Picture signal received
61	Stand-by for receiving post-message
62	EOM received while waiting for post-message
63	EOP received while waiting for post-message
64	MPS received while waiting for post-message

Table 4 G3 Reception

Code	Description
65	PRI-EOM received while waiting for post-message
66	PRI-EOP received while waiting for post-message
67	PRI-MPS received while waiting for post-message

Table 5 G3 Common

Code	Description
70	DTC transmitted
71	DTC received
72	CRP received

Product Specifications

Product Code

XLA ---------- 1YL
XBRA ---------- 2YL
RXI ---------- 3YL

Electrical Power

Voltage: ------100 to 240 VAC (Auto switched)
---------- 50 Hz to 60 Hz
Phase: ------- Single phase, three wire system
Current ---------- 2 amperes

Power Consumption

----------Standby: 14 Watts
----------Operating: 140 Watts
Branch Circuit Protection -------- 15 amperes

Heat Emission*

Running ----------< 40 BTU/Hr.
Standby ---------- <10 BTU/Hr.
* Calculated -20% duty cycle

Emmision/Exposure

Light Source ------ Light Emitting Diode(s) LED
Electromagnetic Emissions------ FCC: Class B
Audible Noise ---------- TLV: 85 dB(A)
----------Running: <50 dB(A)
----------Standby: <50 dB(A)
Ozone---------- TLV: 0.1 ppm
---------- Measured: Not Applicable

Environment

Temperature
60°F to 85°F (10°C to 32°C)
Relative Humidity
20 to 80% (non condensing)
Elevation:0 to 7,900 feet (2,400 meters) above sea level.

Dimensions

(Installed, With Trays and cables)
Width: ----------20.5 in. (52 cm)
Depth: ----------29.5 in. (75 cm)
Height: ----------14.5 in. (37 cm)

Weight

Unpacked: ---------- 23 lb (10.5 kg)

Documents

Maximum Size: ------8.5 X 14 (216 X 356 mm)
Minimum Size: ----- 5.0 X 4.01 (128 X 105 mm)
Maximum Length:---------- 400 (10000 mm)
ADF Capacity: ----------20 pages (A4/Letter)
---------- 15 pages (Legal)
Document Weight: -- 13 to 36 lb (48 to 135 gms)

Paper

Plain paper, A4/ US letter/ legal size
ASF Capacity: 100 sheets
SSF Capacity: 1 sheet

Scanning Method

This scanning unit uses a CIS device.

Scanning Speed

10 seconds per page (CCITT document #1)

Scanning Width

8.1 inches (203 mm)

Resolution

Scan resolution---------- 200 x 200 dpi
Print resolution:---------- 300 x 300 dpi
Fax resolution
---------- Superfine:300 x 300 dpi
---------- Fine:200 x 200 dpi
----------Standard:100 x 200 dpi

Printing Method

Printing uses ink jet technology with a 128 nozzle print head.

Ink Cartridge Life

Quality mode:
--------1397 copies @ area coverage of 3.8%
Draft mode:
-------- 2794 pages @ area coverage of 3.8%

Communication Mode

Compatibility: CCITT Group 3 recommendations T.4, T.30, T.6, and others
Modem Speed: 9600, 7200, 4800, and 2400 BPS.
CCITT compliance: ---------- V.21, V.27, V.29

Memory Capacity

256 Kb Memory

Data Compression

MH/MR/MMR

Telephone Requirements

The machine comes equipped with its own telephone; a separate telephone is not necessary for operation of the machine. The telephone wall jack should be within 5 feet (1.5 meters) of the machine. It should be a 6 position, 4 pin modular jack (USOC RJ11C). A single line (no key set or multiple locations on the same extension number) is recommended. The wall jack can be part of a PABX (Private Automatic Branch Exchange) system or CO (Central Office) telephone lines, but it must be RJ11 compatible.

US: FCC regulations

Part 6. Data coupler notice

This machine contains an internal data coupler and a hearing aid compatible handset. Its use is restricted by the FCC (Federal Communications Commission). To comply with the FCC rules, you must carefully read and follow the instructions listed below:

1. If requested, you must give the telephone company the following information:
   - The telephone number connected to this machine.
   - The FCC registration number for this machine.
   - The registration number is issued by the FCC, under part 68 of its Rules and Regulations, for direct connection to a telephone line. The number is printed on a label on the rear of the machine.
   - The REN (Ringer Equivalence Number) of the machine is printed on a label at the rear of the machine.

   NOTE: The REN is used to determine the sum total of the devices you may connect to one telephone line and still have all of them ring when your telephone number is called. In many areas, the sum total of the REN of all devices connected to one line should not exceed five (5.0). To be certain, you should call your local telephone company to determine their maximum allowed REN for your calling area.

WARNING

Ask your local telephone company for the modular jack type installed on your line. Connecting this machine to an unauthorized jack can severely damage telephone company equipment. You, not Xerox, assume all responsibility and/or liability for any damage caused by the connection of this machine to an unauthorized jack.

2. You may safely connect this machine to the following standard modular jack: USOC RJ11C. Use the standard line cord (with modular plugs) provided with the installation kit to connect it.
   Do not connect this machine to a party or coin operated phone line.
3. Repairs to the machine should only be made by Xerox or an authorized Xerox service agency. This applies at any time during or after the service warranty period. If unauthorized repair is performed, the remainder of the warranty period is null and void.
4. If you find the telephone line is damaged or the telephone company notifies you that your machine is causing damage, disconnect the machine from the telephone line and call for service. Do not reconnect the machine until necessary repairs are made.
5. The telephone company will, where practical, notify you when they need to temporarily disconnect your service. However, if action is reasonable and necessary, but prior notice is not practical, they may still temporarily disconnect your service. In such cases they must:
   - Immediately notify you of their temporary action.
   - Reconnect service when the source of damage is removed.
   - Inform you of your rights to bring a complaint to the FCC under FCC rules.
6. The telephone company may make changes to its communications facilities, equipment, operations, or procedures. Such action must be reasonable, required in the operation of their business, and consistent with FCC rules. They must give you prior written notification if the changes can:
   - Make your machine incompatible with their equipment,
   - Require modification or alteration of the machine,
   - Otherwise physically affect performance of the machine.

US: Part 15: Class B computing device notice

WARNING

This machine generates radio frequency energy. It complies with Class B computing device limits defined in Subpart J of Part 15 of FCC Rules.

Class B limits provide reasonable protection in a residential environment against interference with radio communications. Reasonable protection is not a guarantee against radio or television interference. Operation of this equipment in a residential area or with other peripherals not licensed as Class B can also cause interference (determined by turning the machine on and off). If this machine is not installed or used as instructed in this manual, it may cause interference.

You should try to correct the interference by changing the position of the machine, the other device, the receiving antenna, or the power cords. If that does not work, try connecting the machine to another wall outlet on a different line circuit. An experienced radio television technician may be able to provide additional suggestions. If this does not correct the interference, you will be required at your own expense to correct the interference. An FCC booklet, "HOW TO IDENTIFY AND RESOLVE RADIO-TV INTERFERENCE PROBLEMS" (stock number 004-000-00345-4) is available from the U.S. Government Printing Office, Washington, D.C., 20402.

Tools, Consumables, Tag Information

The following tools and consumables are required to service the machine.

Tools

Part No.	Description
082P00151	Test pattern (XTP327.000)
600T01997	Head Gap Tool

Consumables

Part No.	Description
035P02162	Cotton swabs
043H00012	Lens and Mirror Cleaner
043P00067	Clean-ups
008R07638	Ink Cartridge
050K32760	Document Catch Tray

Tag Information

The manual is revised to include the latest machine changes listed on the following page.

Tag Matrix

The Tag matrix is located on the bottom of the machine. All important modifications to the machine that are installed in the factory or in the field, are identified by a number marked on this matrix. The appropriate Tag number should be marked off or removed from the matrix whenever a Tag is installed.

Determine the Tag level of the machine by the Tag matrix on the machine.

If the matrix is illegible, refer to the factory and field install serial numbers to determine which Tag(s) were installed at the factory and which are designated for installation in the field. If the serial number is designated as Field Install. Read the description to determine how to identify the Tag.

Tag Index

Read the description to determine how the machine will benefit from the Tag. Refer to the classification for each Tag and the explanation of each classification for information as to when to use the Tag. Refer to the bulletin number for additional Tag information.

Refer to the kit number to order the modification kit.

Tag Classification

Classification of Tag (s) are identified below by a letter (M, R, O, or N). The list below defines the degree of importance assigned to each letter:

M - Mandatory

R - Install at time of repair

O - Optional

N - Not for field retrofit. Factory retrofit only

EPROM Label Information

The EPROM label contains the model name, firmware version, IC number and the checksum.

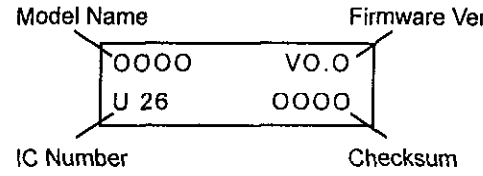


Table 1 Tag Index

Tag and Classification	Description	Kit and Bulletin Numbers	Factory Install (Listed Serial Number and above)	Field Install (Listed Serial Number and below
1R	Firmware Revision XLA - Ver 1.1 - 537E53030 XBRA - Ver 1.1 - 537E53040 RXI - Ver 5.1 - 537E53050	--	1YL000001 2YL000076 3YL000001	-- 2YL000075 --
2R	Power Supply Resistor Change to reduce audible noise, 105K15971	--	1YL000001 2YL001013 3YL000001	-- 2YL001012 --
3R	Ink Cartridge Cam Pin changed to increase reliability 019E35221	--	1YL000001 2YL001676 3YL000001	-- 2YL001675 --
4R	Main PWB changed to increase reliability Version 3.7, 160K27131	--	1YL000001 2YL001676 3YL000001	-- 2YL001675 --
5R	Firmware Revision XBRA - Ver 1.4, 537E53041 RXI - Ver 5.4, 537E53051	--	2YL008876 3YL000031 229000031	2YL008875 3YL000030 229000030
6R	Firmware Revision XLA - Ver. 1.5, 537E53031	--	1YL002276	1YL002275
7R	Firmware Revision XBRA - Ver. 1.5, 537E53042	--	2YL011606	2YL011605

Table 1 Tag Index

Tag and Classification	Description	Kit and Bulletin Numbers	Factory Install (Listed Serial Number and above)	Field Install (Listed Serial Number and below
8R	Main PWB (Version 3.7) changed to meet multiple PTT approvals in RXI 160K39180	--	3YL002231 229002231	3YL002230 229002230
9R	Firmware Revision to meet multiple PTT approvals and for communication problems with some Panasonic HXF-90 and KX-90B machines. RXI - Ver. 5.5, 537E53052	--	3YL002231 229002231	3YL002230 229002230
10R	RXI NCU change to meet multiple PTT approvals Ver 1.4, 160K27161	--	229002231 3YL002231	229002230 3YL002230
11R	Communication fix for Panasonic & Toshiba, fixes: Polling, EA8 to Toshiba, Lock-up, Command Repeat, Power Failure Report, Complete ID, Quite period between carriers, + character in phone ID for Czech, Restricted phone ID for Hungary & Czech (SWT 2-1), 20pps Czech, DTMF Czech (high 6+/- 2dB / low 8+/- 2dB), Make/break 33%/67% Hungary. 100S06405 for RXI - ver. 5.8, 537E53053. Includes Russia, Egypt, Romania, Bulgaria, Hong Kong, India, South Africa, Turkey, Hungary, Czech, and Poland. 100S06406 for China/Hong Kong - ver. 5.8, Approved telephone for use in China	--	-- 3YL008131 3YL007731	-- 3YL008130 3YL007730
12R	Not Used	--	--	--
13R	Communication fix for Panasonic XLA - Ver. 1.6, 537E53032 XBRA - Ver. 1.6, 537E53043	--	1YL003476 2YL016706	1YL003475 2YL016705

Table 1 Tag Index

Tag and Classification	Description	Kit and Bulletin Numbers	Factory Install (Listed Serial Number and above)	Field Install (Listed Serial Number and below
14R	New CIS - (62K08201) Cut into production	--	N/A	N/A
15R	Communication fix for Panasonic and Toshiba, fixes: Polling, EA8 to Toshiba, Lock-up, Command Repeat, Power Failure Report, Complete ID, Quite period between carriers. Corrects B5 error printing problem with voice calls. CNG can be turned on/off and time out can be 38, 60 or 90 seconds. Fax/Tel default changed to auto answer. XLA - Ver. 1.8, 537E53033 XBRA - Ver. 1.8, 537E53044	--	1YL009276 2YL024806	1YL009275 2YL024805
16	Printing, Sending, connecting display lockup corrected. Rings before answer changed to default of 2 rings. Remote ID for Activity and Confirmation Reports, CIS Tuning, default Dither changed from 0 to 1. Cannon 9500 communications fix. XLA - Ver 1.9, 537E53034 XBRA - Ver 1.9 537E53045	--	N/A	N/A
17	Panasonic KFX 1000, KFX 1100 and Cannon 9500 communications fix. Printing, Sending, connecting display lockup corrected. Rings before answer changed to default of 2 rings. Remote ID for Activity and Confirmation Reports, CIS Tuning, default Dither changed from 0 to 1. Corrects B5 error printing problem with voice calls. CNG can be turned on/off and time out can be 38, 60 or 90 seconds. Fax/Tel default changed to auto answer. XLA - Ver 2.0, 537E53035 XBRA - Ver 2.0, 537E53046 RXI - Ver 6.0, 537E53054	-- --	N/A	N/A
18				
19				
20				

Installation

1. Unpack the machine and verify the contents.
   - Power cord
   - Telephone cable
   - Paper tray
   - Document WorkCenter 150 Literature kit
   - Printer driver disk
   - Ink Cartridge
   - Telephone
   - Telephone Cradle
   - Printer Cable
2. The parallel cable should be secured to centronics connector on the machine with the wire clips.
3. Ensure the PC is off and connect the other end of the cable to the parallel printer port on the PC.
4. Insert one end of the telephone cable into the Telco line jack (inside jack) on the rear of the machine.
5. Insert the other end of the telephone cable into the Telco wall jack.
6. Connect the telephone to the telephone jack (outside jack) on the rear of the machine.
7. Use approximately 30 sheets of paper to set the green paper width adjuster so the paper guides are against the sides of the paper.
8. Remove the paper.
9. Align the two slots in the paper tray with the tabs on the rear cover. Install the tray and rotate the tray toward the rear of the machine. A tab on the rear of the tray will latch the tray onto the cover.
10. Load paper as follows.
    - Remove the clear cover from the tray.
    - Install sheets of paper into the tray.
    - Reinstall the clear cover on the tray.
11. Plug the power cord into the machine.
12. Plug the other end of the power cord into a non-switched, grounded outlet.
13. Install the ink cartridge as follows.
    - Remove the cartridge from the box.
    - Peel off the foil cover and remove the cartridge from the container.
    - Remove the protective tab and the protective tape from the ink nozzle.
    - Ensure the carriage is in the center position. If a cartridge is installed or the carriage is not in the center position, press

    - Open the front cover.
    - Pull the green lever toward the control panel.
    - Put the open slot over the post on the carriage and install the ink cartridge.
    - Push the green lever toward the rear of the machine to lock the cartridge.
    - Close the front cover as you ensure the gap adjust lever on the printer fits into the notch on the front cover.

Factory Default Settings

NOTE: Softswitch settings may vary by location.

Item	Options	RXI	Hong Kong/ China	XLA	XBRA
Paper Size	Letter/legal/A4	A4	A4	Letter	Letter
Draft Mode	no/yes	No	No	No	No
DOS PRINT SETUP					
Page Orientation	portrait/landscape	Portrait	Portrait	Portrait	Portrait
Page Width (rc. sensor)	no/yes	No	No	No	No
Perforated Paper	no/yes	No	No	No	No
Reduced Line Feed	no/yes	No	No	No	No
Font	(see User's Guide)	Courier 10	Courier 10	Courier 10	Courier 10
Character Set	(see User's Guide)	PC-8	PC-8	Spanish	Portuguese
Graphic Density	75/100/150/300	300 dpi	300 dpi	300 dpi	300 dpi
Auto Line Feed	no/yes	No	No	No	No
Auto Carriage Return	no/yes	No	No	No	No
Auto Sheet Feed	no/yes	Yes	Yes	Yes	Yes
FAX JOB OPTIONS					
Contrast	norm/darken/photo	Normal	Normal	Normal	Normal
Send via Memory	no/yes	No	No	No	No
Long Original	no/yes	No	No	No	No
FAX SETUP					
Answer Mode	auto/manual/FAX-TEL/TAD	Auto	Auto	AUTO	AUTO
Rings to Answer	1 - 7	2	2	2	2
Dial Mode	tone/pulse	Pulse	Tone	Tone	Tone
Pulse Speed	10/20	10	10	10	10
Error Correct	no/yes	Yes	Yes	Yes	Yes
Fax Header	no/yes	Yes	Yes	Yes	Yes

Item	Options	RXI	Hong Kong/ China	XLA	XBRA
Cover Page	no/yes	No	No	No	No
Confirmation Report	no/yes	No	No	No	No
Activity Report	no/yes	Yes	Yes	Yes	Yes
Callback Message	no/yes	No	No	No	No
Reduced Received Fax	auto/100/92/75	Auto	Auto	Auto	Auto
MACHINE SETUP					
Date Format	DMY/MDY/YMD	MDY	DMY	MDY	DMY
Time Format	12hr/24hr	24hr	12hr	12hr	12hr
Language	Eng/Fr/#'s Eng/Sp/Port	Eng -	Eng -	- Spanish	- Portuguese
Listen to Dial	no/yes	Others = Yes Czech = no	Yes	No	No
Speaker Volume	lo/med/hi	Low	Low	Low	Low
Power Failure Report	no/yes	Yes	Yes	Yes	Yes

Country Switch Settings

DIP switchs and jumpers on the Main PWB and NCU PWB are used to set the country configuration. Refer to the Connector Locational Drawings in Section 7 for jumper and switch locations.

Country	Main PWB - SW1				Main PWB - CN16			NCU PWB - SH1			NCU PWB - SW1					NCU PWB - SW2					
	1	2	3	4	1	2	3	1	2	3	1	2	3	4	5	1	2	3	4	5	6
India	ON	ON	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Russia	OFF	ON	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Turkey	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Poland	OFF	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Hungary	ON	ON	OFF	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Czech	OFF	ON	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Romania	ON	OFF	OFF	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
S. Africa	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF	ON	OFF	ON	OFF	OFF	ON
U.K.	ON	ON	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Australia	OFF	ON	ON	OFF	ON	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	OFF	ON	OFF	ON	OFF	OFF	ON
Hong Kong	ON	OFF	ON	OFF	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
China	OFF	OFF	ON	OFF	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Egypt	ON	ON	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
Bulgaria	OFF	ON	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
XBRA	OFF	OFF	OFF	OFF	OFF	ON	ON														
XLA	OFF	OFF	OFF	OFF	OFF	ON	ON														

Notes

Section Contents

Introduction

This section contains connector and PWB locational drawings, power and ground circuit diagrams, and pin assignment information. This information is not specific to individual procedures but is provided for general reference.

Connector Location List

Locate the component name and the connector number (Conn. No.) in (Table 1) below. Refer to the fig. column to locate the appropriate locational drawing and to the Pin List Pg. column to locate the connector/pin assignment.

Table 1 Connector Location List

Component	Fig.	Conn. No.	Destination/Source	Pin List Pg.
Main PWB	Figure 1	CN1	Power Supply CN2 (Fig. 3)	7-9
Main PWB	Figure 1	CN2	Scan Motor	7-9
Main PWB	Figure 1	CN3	Paper Feed Motor	7-9
Main PWB	Figure 1	CN4	Carriage Motor	7-9
Main PWB	Figure 1	CN5	Printer Assembly	7-9
Main PWB	Figure 1	CN6	ASF Sensor	7-9
Main PWB	Figure 1	CN7	Encoder	7-9
Main PWB	Figure 1	CN8	Paper Feed Brake Solenoid	7-9
Main PWB	Figure 1	CN9	Control Panel CN1	7-9
Main PWB	Figure 1	CN10	Control Panel CN2	7-10
Main PWB	Figure 1	CN11	Document Sensors	7-10
Main PWB	Figure 1	CN12	NCU PWB CN1 (Fig. 2)	7-10
Main PWB	Figure 1	CN13	Speaker	7-10
Main PWB	Figure 1	CN14	Scanner Interlock	7-10
Main PWB	Figure 1	CN15	CIS Assembly	7-10
Main PWB	Figure 1	J1	Ext Parallel Port	7-11
NCU PWB	Figure 2	CN2	Telephone Line	7-11
NCU PWB	Figure 2	CN3	Telephone Extension	7-11
PWR SUP	Figure 3	CN1	AC Receptacle	---
PWR SUP	Figure 3	CN2	Main PWB CN1 (Fig. 1)	7-9

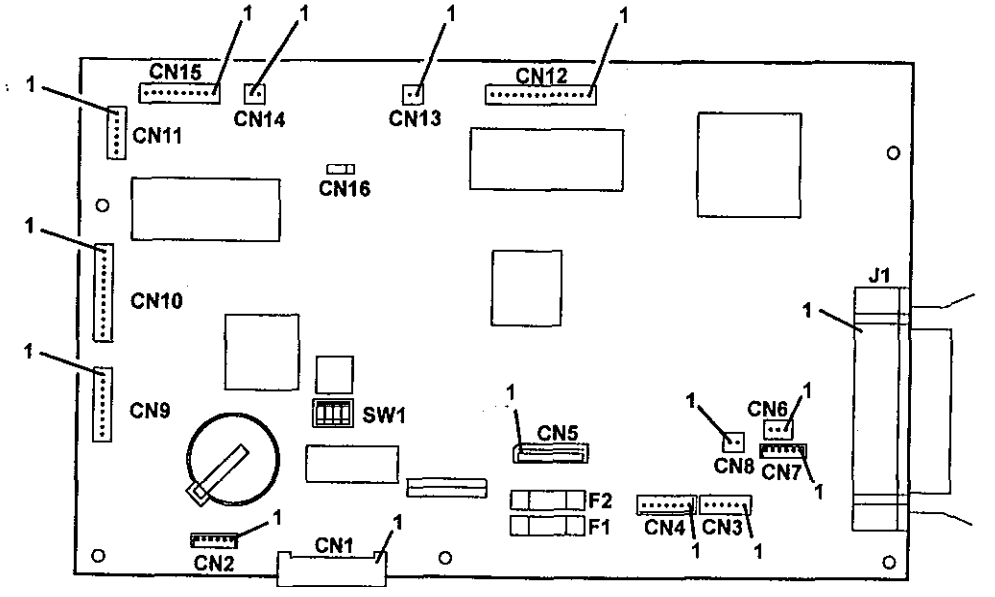


Figure 1 Main PWB

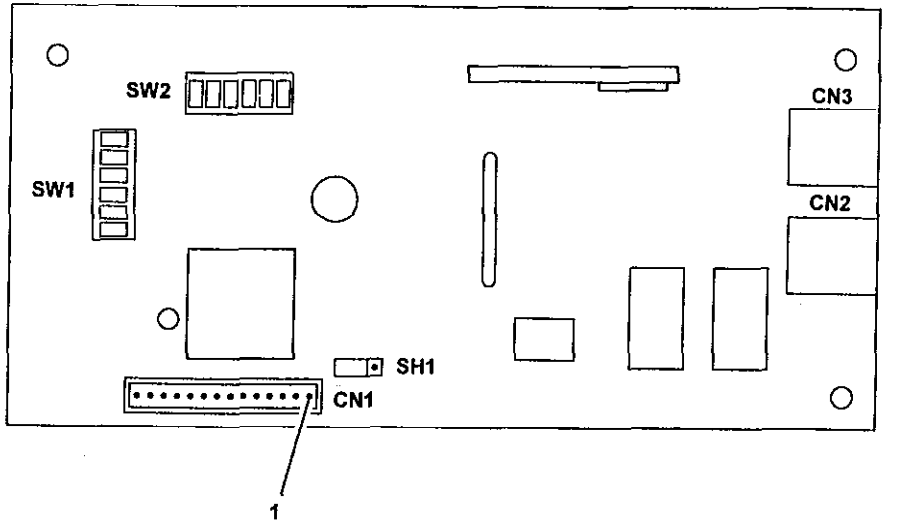


Figure 2 NCU PWB *Note: SH1, SW1, SW2 only on RXI version.*

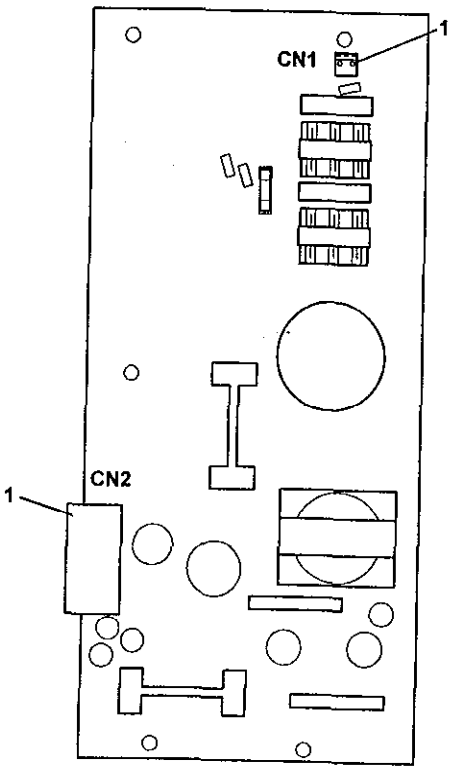
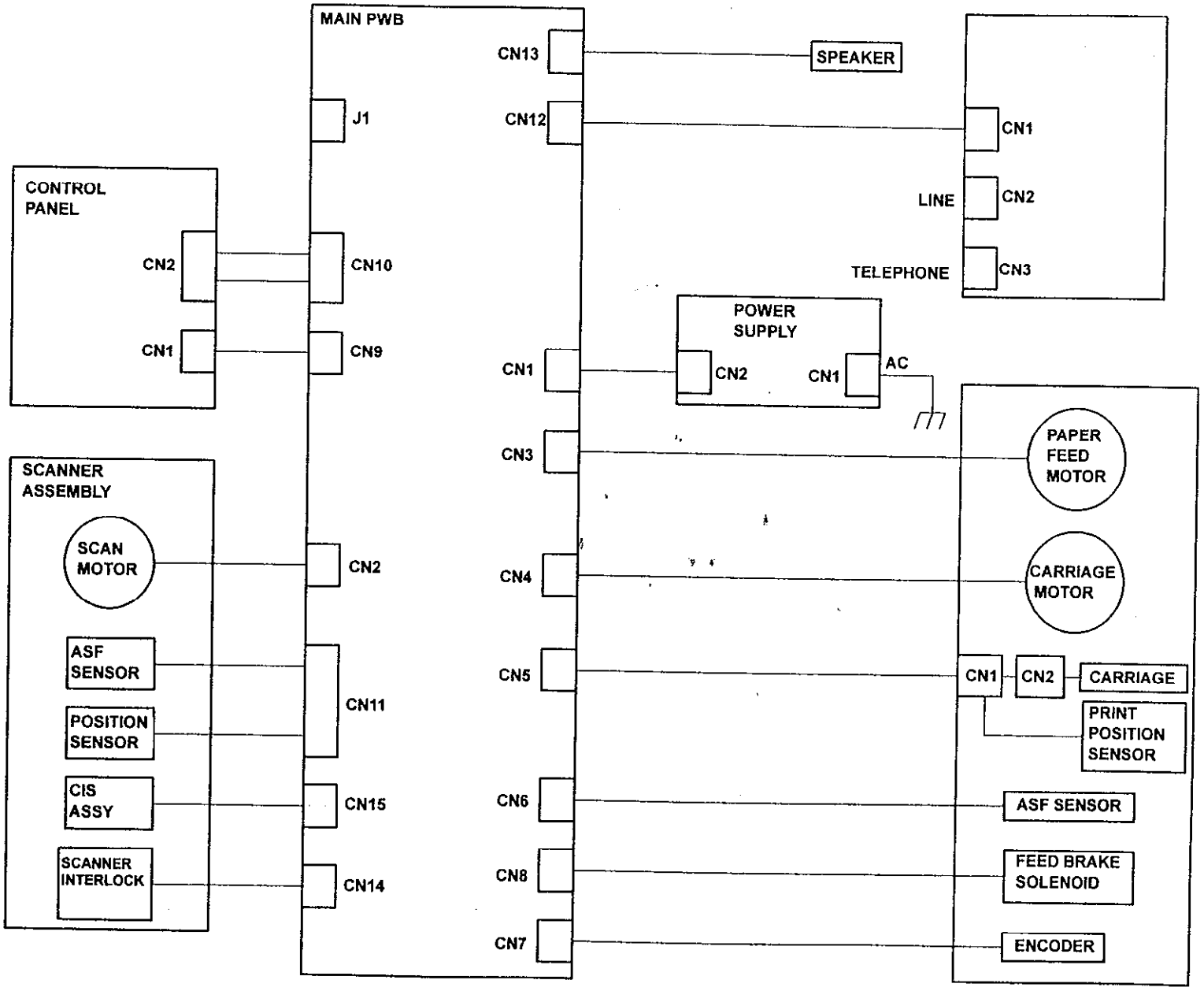
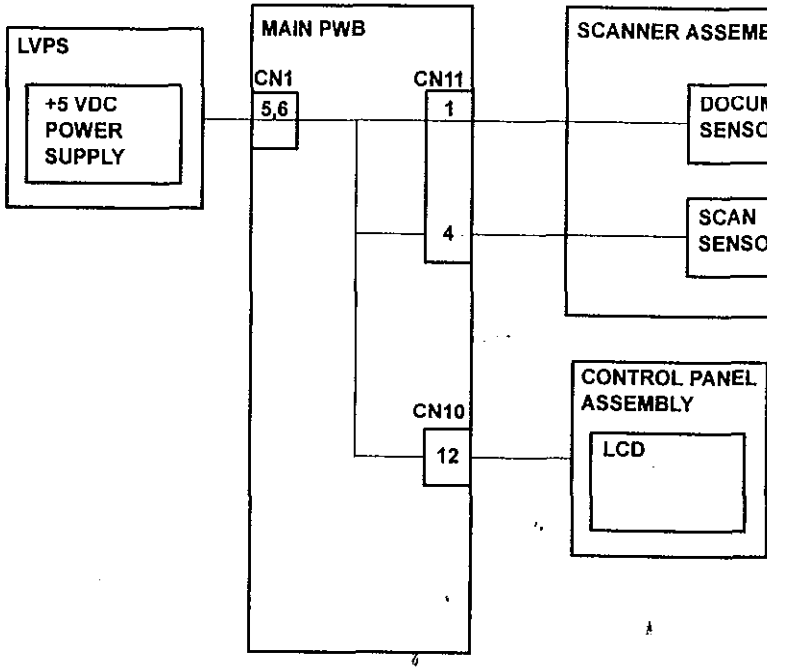


Figure 3 Power Supply

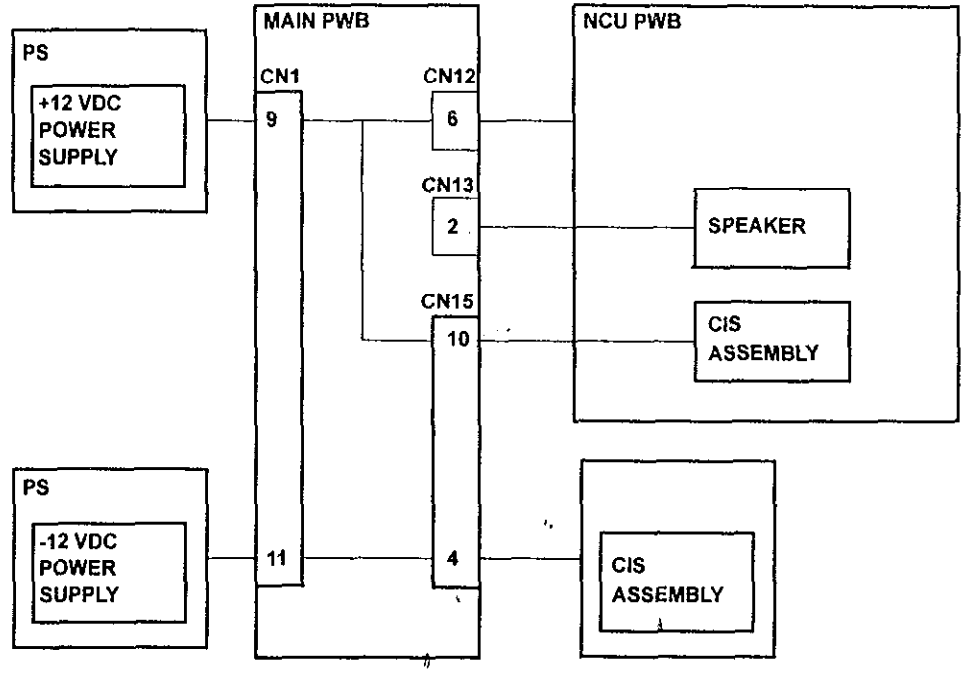
Interconnect Diagram



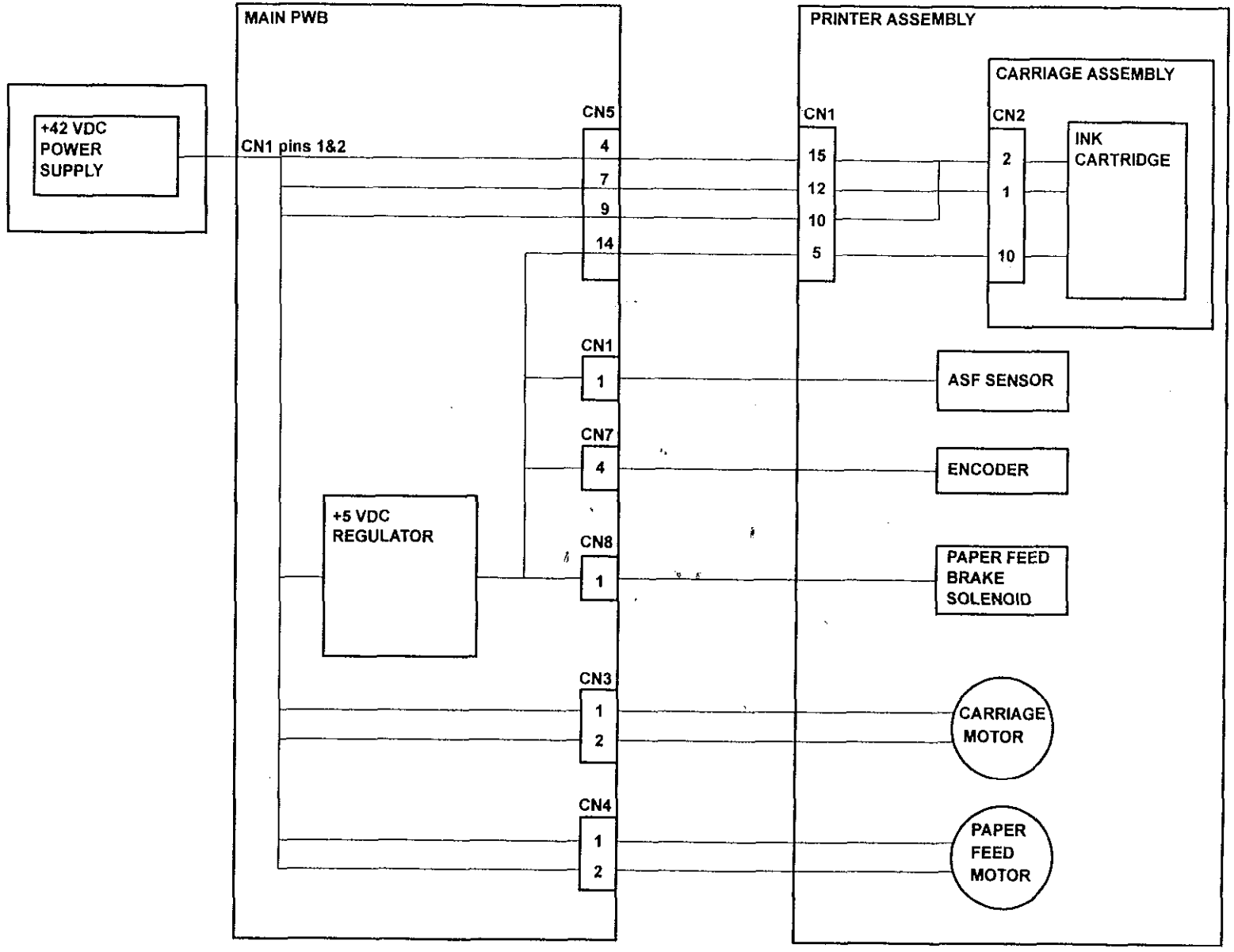
+ 5 VDC Power Distribution



+ 12 VDC, -12 VDC Power Distribution



+ 42 VDC Power Distribution



Connector/Pin Assignment

CN1 - Main PWB

Pin	Signal
1	+ 42 VDC
2	+ 42 VDC
3	42V GND
4	42V GND
5	+ 5 VDC
6	+ 5 VDC
7	GND
8	GND
9	+ 12 VDC
10	GND
11	- 12 VDC
12	GND

NOTE: Connects to the Power Supply, CN2.

CN2 - Main PWB

Pin	Signal
1	SMotor(0)
2	SMotor(1)
3	SMotor(2)
4	SMotor(3)
5	42V GND
6	+ 42V

NOTE: Connects to the Scanner Motor.

CN3 - Main PWB

Pin	Signal
1	+ 42 VDC
2	+ 42 VDC
3	PFA
4	PFB
5	PFC
6	PFD

NOTE: Connects to the Paper Feed Motor.

CN4 - Main PWB

Pin	Signal
1	+ 42 VDC
2	+ 42 VDC
3	CAA
4	CAB
5	CAC
6	CAD
7	Not Used

NOTE: Connects to the Carriage Motor.

CN5 - Main PWB

Pin	Signal
1	ENBL
2	HTH
3	FCLR
4	+ 5 VDC
5	Not Used
6	DT/DR
7	VH
8	42V GND
9	VH
10	BSFT
11	PHA
12	42V GND
13	42V GND
14	VH
15	P5SW
16	P5SW
17	GND
18	PE +

NOTE: Connects to the Printer.

CN6 - Main PWB

Pin	Signal
1	P5 (+ 5 VDC)
2	GND
3	CAM

NOTE: Connects to the ASF Sensor.

CN7 - Main PWB

Pin	Signal
1	GND
2	ENCA
3	ENCB
4	+ 5 VDC
5	P5SW

NOTE: Connects to the Encoder.

CN8 - Main PWB

Pin	Signal
1	+ 5 VDC
2	DMAG

Connects to the Paper Feed Brake Solenoid.

CN9 - Main PWB

Pin	Signal
1	OPI0
2	OPI1
3	OPI2
4	GND
5	GND
6	LCDCS
7	LEDCTL
8	GND
9	GND

NOTE: Connects to the Control Panel, CN1.

CN10 - Main PWB

Pin	Signal
1	OP0
2	OP1
3	OP2
4	GND
5	OP3
6	OP4
7	OP5
8	GND
9	OP6
10	OP7
11	GND
12	+5 VDC

NOTE: Connects to the Control Panel, CN2.

CN11 - Main PWB

Pin	Signal
1	+ 5 VDC
2	GND
3	ADF +
4	+ 5 VDC
5	GND
6	RPS +

NOTE: Connects to the Sensor Board Assembly.

CN12 - Main PWB

Pin	Signal
1	GND
2	DP +
3	HKDTR
4	CMLR
5	RECALL +
6	+ 12 VDC
7	GND
8	FAXSIGNAL
9	RING +
10	+ 5 VDC
11	HOOK1 +
12	HOOK2 +
13	DTMF
14	GND

NOTE: Connects to the NCU PWB, CN1.

CN13 - Main PWB

Pin	Signal
1	GND
2	Speaker

NOTE: Connects to the Speaker.

CN14 - Main PWB

Pin	Signal
1	GND
2	Cover Open (+ 5 VDC)

NOTE: Connects to the Scanner Interlock Switch.

J1 - Main PWB (Parallel Input)

Pin	Signal
1	STROB
2	PPD0
3	PPD1
4	PPD2
5	PPD3
6	PPD4
7	PPD5
8	PPD6
9	PPD7
10	ACK
11	BUSY
12	PE
13	SELECT
14	AUTFED
15	Not Used
16	GND
17	CHASSIS GND
18	+5V
19	GND
20	GND
21	GND
22	GND
23	GND
24	GND
25	GND
26	GND
27	GND
28	GND
29	GND
30	GND
31	INPRM
32	ERROR
33	GND
34	Not Used
35	Not Used
36	SELIN

NOTE: Connects to the External Parallel Port.

CN2 - NCU PWB

Pin	Signal
1	L1
2	L2

NOTE: Connects to the Telephone Line.

CN3 - NCU PWB

Pin	Signal
1	L3
2	L4

NOTE: Connects to the Telephone Extension.