Service Manual

Lexmark J110

4085-001

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Table of Contents

Preface

This manual describes the Lexmark J110 printer (4085-001) and contains maintenance procedures for service personnel only. It is divided into the following chapters:

1. **General Information** contains a general description of the printer and the maintenance approach used to repair it. Special tools and test equipment are listed in this chapter, as well as general environmental and safety instructions.
2. **Diagnostic Information** contains an error indicator table, symptom tables, and service checks used to isolate failing field replaceable units (FRUs).
3. **Diagnostic Aids** contains tests and checks used to locate or repeat symptoms of printer problems.
4. **Repair Information** provides instructions for making printer adjustments and removing and installing FRUs.
5. **Connector Locations** uses illustrations to identify the connector locations and test points on the printer.
6. **Preventive Maintenance** contains the lubrication specifications and recommendations to prevent problems.
7. **Parts Catalog** contains illustrations and part numbers for individual FRUs.

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

1. General Information

The Lexmark™ J110 printer is a high-performance, narrow-format, thermal inkjet printer designed to print high quality text, graphics, and images on a wide variety of media. It is intended for use by single users or by small workgroups shared using an external network solution or peer-to-peer networking. This printer features parallel and USB standard connectivity. The printheads provide color and true black printing. The number and size of inkjets or nozzles, in the printhead, determines the overall quality and capability of the printer. The black printhead has 640 nozzles and the color printhead has 320 nozzles for each color.

Power Consumption

- 2 Watts - Off Mode (conforms to Blue Angel power specifications in the Off Mode)
- <20 Watts - Power Saver including options (conforms to Energy Star Sleep Mode specification in Power Saver). The printer goes to low power mode when not printing.
- 50 Watts - Printing Mode Maximum Average (approximately)
- 90 Watts - Printing Mode Peak (approximately)

Internal Power Supply Specifications

Built-in Universal Power Supply, 40 Watts Output (50 Watts input)
Outputs:

Output Name	Nominal Voltage	Minimum Voltage	Maximum Voltage	Load Range
+5 V	+ 5.1 V	+4.8 V	+5.25 V	0.5 Amps Min. 1.6 Amps Max. 2.0 Amps Peak
+36 V	+36.0 V	+32.4 V	+39.6 V	0.1 Amps Min. 1.0 Amps Max. Avg. (1) 2.1 Amps Peak (1) 3.2 Amps Max. Peak (1)

Note: Current of 1.0 A is long term average current. The +36 V output can supply peak currents of 2.1 A for 100ms or less and 3.2 A for 30 ms or less.

Maintenance Approach

The diagnostic information in this manual leads you to the correct field replaceable unit (FRU) or part. Use the error indicator charts, symptom index, service checks, and diagnostic aids to determine the symptom and repair the failure.

This printer can be serviced without being connected to a host computer. The user is directed, in the Printer Control program, to perform the head to head and bidirectional alignment adjustments after replacing a print cartridge.

After you complete the repair, perform tests as needed to verify the repair.

Tools Required For Service

- Analog or digital multimeter
- Parallel wrap plug P/N 1319128
- Pliers: diagonal and needle-nose
- Screwdrivers: #1 and #2 Phillips
- Magnet

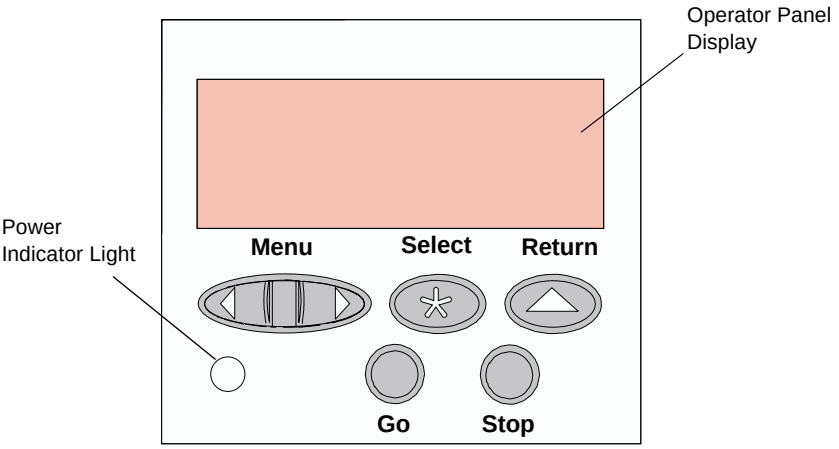
Abbreviations

EOF	End of Forms
ESD	Electrostatic Discharge
FRU	Field Replaceable Unit
LED	Light-Emitting Diode
MPF	Multi-Purpose Feeder
NPA	Network Printer Alliance
POR	Power-On Reset
POST	Power-On Self Test
SIMM	Single In-line Memory Module
RAM	Random Access Memory
ROM	Read Only Memory
V ac	Volts alternating current
V dc	Volts direct current

Operator Panel and Menus

Using the Operator Panel

The operator panel, on the front right side of your printer, has a 2-line by 16-character liquid crystal display (LCD), six buttons (Menu is actually two buttons), and one power indicator light. The buttons have fixed functions, which are designated on the front cover.



Power Indicator States

The power indicator light gives information about the status of your printer.

Power Indicator	Meaning
Off	Printer is powered off.
On	Printer is powered on and the printer is idle.
Flashing	Printer is powered on and the printer is busy.

Operator Panel Button Functions

Use the six operator panel buttons to open a menu, scroll through a list of values, change printer settings, and respond to printer messages. The following table describes the functions of each button.

Note: Buttons act upon the information that appears on the second line of the operator panel.

Button	Function
Go	Press the **Go** button. This button is used to place the printer in the Ready state after an off line situation. For instance, **Go** can be used to exit the menus, and it can also be used to clear most Attendance messages.
Menu>	Press **Menu>** to enter a menu group. The first menu in the menu group is displayed. Once a menu group is active, press **Menu>** to step to the next selection. To automatically increment a numerical printer setting, press and hold **Menu>.** Release **Menu>** when the number you want is displayed.
Menu<	Press **Menu<** to enter a menu group. The last menu group is displayed. Once a menu group is active, press **Menu<** to step to the previous selection. To automatically decrement a numerical printer setting, press and hold **Menu<.** Release **Menu<** when the number you want is displayed.
Select	Press the **Select** button. Select the menu selection displayed on the second line of the display. If a menu is displayed, such as Paper Menu, then **Select** opens the menu and displays the first printer setting contained in the menu. If a menu item such as Paper Source is displayed, then **Select** opens the item and displays the default setting. If a menu item setting such as Tray 2 is displayed, then **Select** saves the selection as the new default setting for Paper Source. The printer displays the *Saved* message momentarily and then returns to the menu item level.

Button	Function
Return	Press the **Return** button. Returns to the previous menu level. If at the top level of the menus, then it functions like **Go**.
Stop	Press the **Stop** button. **Stop** suspends job activity and displays the Not Ready message. Job activity resumes when **Go** is pressed.

Printer Messages

The operator panel displays three types of messages:

- Status messages provide information about the current state of the printer.
- Attendance messages indicate printer errors that you must resolve.
- Service messages indicate printer failures that may require servicing.

When the **Ready** status message displays, the printer is ready to receive a print job.

While a job is printing, the **Busy** status message appears on the first line of the operator panel display.

Operator Panel Menus

Menus make it easy for you to change printer settings. Some menus appear only if a specific option is installed in the printer. Other menu items may only be effective for a particular printer language. You can select these values at any time, but they only affect printer function when you use the specified printer language.

An asterisk (*) next to a value indicates the original factory default setting and may vary for different countries. When you select a new setting from the operator panel, the asterisk moves next to the selected setting to identify it as the current user default. These settings are active until new ones are stored or the factory defaults are restored. Changes made from a software application or driver override the user default settings made from the printer operator panel.

Printing the Menu Settings Page

The menu settings page shows current settings for the menus and a list of installed options. You can use this page to verify that the printer options are properly installed and the printer settings are properly set.

Note: Before printing the menu settings page, make sure the Paper Type setting for the source is Plain Paper.

To print a menu settings page:

1. Make sure the printer is plugged in and the **Ready** status message appears on the display.
2. Press **Menu>** or **<Menu** to enter the menus.
3. Continue to press and release **Menu>** until you see **Utilities Menu.**
4. Press **Select**.
   Utilities Menu appears on the first line and **Print Menus** is on the second line.
5. Press **Select** to select **Print Menus.**
   The message **Printing Menu Settings** appears and remains on the operator panel display until the page prints. The printer returns to the **Ready** state after the menu settings page prints.
6. If you installed options, verify that they are listed on the menu settings page under “Installed Features.” If an option you installed does not appear on the page, unplug the power cord and reinstall the option.

Changing Printer Settings

You can use the operator panel to change printer settings and customize your printer to meet your specific needs. To select a new value as the default setting:

1. From the **Ready** state, press **Menu>** or **<Menu** to enter the menus.
2. Continue to press and release **Menu>** or **<Menu** until the menu you need appears on the second line of the display.
3. Press **Select**.
   The menu opens and the first menu item in the menu appears on the second line of the display.
4. Press **Menu>** or **<Menu** until the menu item you need appears on the display.
5. Press **Select**.
   An asterisk (*) appears beside the current user default setting for that menu item.

Note: Some menu items have sub-menus. You must select another menu (such as **Tray 1 Type**) before the available values display.

6. Press **Menu>** or **<Menu** until the value you need appears on the second line of the display.
7. Press **Select**.
   An asterisk (*) appears beside the value to indicate that it is now the user default setting. The display shows the new setting for one second and then clears. The **Saved** message displays, then the previous list of menu items appears on the operator panel display.
8. Press **Return** to go back to previous menus or menu items and set new default settings.
9. Press **Go** to return to **Ready** if this is the last printer setting you want to change.

Note: User default settings remain in effect until you save new settings or restore the factory defaults. Changes made from a software application override the user default settings made from the printer operator panel.

Disabling the Operator Panel Menus

To disable the menus so that changes cannot be made to the printer default settings:

1. Turn off power.
2. While pressing **Go** and **Stop**, turn on the printer.
3. Release the buttons when **Performing Self Test** appears. When the printer self test completes, the **Ready** status message appears. If you press **Menu>** or **<Menu**, the **Menus Disabled** message appears.

2. Diagnostic Information

Use the error indicator table, symptom tables, service checks, and diagnostic aids to determine the printer failure.

Start

Service error indications are displayed on the operator panel. If your printer displays an error indication, locate the error number in the “Error Indicator Table” on page 2-3 . and take the indicated action. Turn the printer off and then back on to clear service errors.

Service Messages

These messages are displayed whenever the printer is in the Operator Intervention state, and the printer needs servicing. In general, service errors are non-recoverable. However, it may be possible to power the printer off and back on to temporarily recover from the error condition if it is intermittent in nature.

When a Service Message occurs, the printer stops printing. The only recovery is to turn off the printer.

Accessing Additional Debug Information for Service Errors

Additional debug information may be available for the specific service error being displayed. This information may help the Customer Support Center, customer engineer, and support engineer resolve the problem.

To access this information, complete the following steps:

1. Press and hold **Return** and then press and release **Select**. The first screen of debug information appears. Write down this information.
2. Continue pressing **Return**+**Select** until each screen of debug data is obtained. Once the end of the debug data is reached, the original service message is displayed.

Jam Jog Function

When in any 9XX error condition, you can press the **Menu>** button to implement the jam jog function. The jam jog function helps clear any pages that have been stopped mid-way through the paper path.

Note: Jam Jog will not work while debug data is displayed on the panel. The original 9XX or 2XX error message must be displayed for this function to operate.

Error Indicator Table

Error	Symptom	Action
900	RIP Software	Perform the "RIP Card Service Check" on page 2-64 .
902	Engine Software	Replace the engine board. See the "Engine Board / Cover Removal" on page 4-14 .
903	RIP Software	Check RIP/Engine cable. Replace the RIP card. See the "RIP-EMC Shield Assembly/RIP Card Removal" on page 4-24 .
904	Service Options Interface	Check cables. Replace the board in the optional tray.
905	Engine Flash XX 80 Flash Erase failure 81 Flash Programming failure 82 Flash - Invalid checksum on input data. 83 Flash - A failure occurred when programming this block.	Replace the engine board. See the "Engine Board / Cover Removal" on page 4-14 .
906	Engine Board XX 10 ASIC RAM failure 20 Engine Processor failure 21 Boot Code Checksum failure 22 Engine ASIC failure 23 Boot / Engine Card incompatibility	Replace the engine board. See the "Engine Board / Cover Removal" on page 4-14 .

Error	Symptom	Action
907	Engine NVRAM 10 Invalid data in flash memory 20 NVRAM checksum failure 30 Flash data programming failure 40 Engine NVRAM is not present or is not responding 50 Password rejected by engine NVRAM **Note:** When the index card and encoder dial FRU needs replacing, and a 907-10 error code is present, the engine board must be replaced.	Check cabling to index board. 10 - Replace engine board. See “Engine Board /Cover Removal” on page 4-14 . 20 - Replace index board. See “Index Card Assembly Removal” on page 4-22 . 30 - Replace engine board. 40 and 50 - Replace index board.
908	Engine NVRAM 90 Decompression / Rebuild Failure	Check cabling to index board. Replace index board. See “Index Card Assembly Removal” on page 4-22 .
910	Carrier System 10 Carrier Motor stall or loss of encoder signals 20 Encoder Quadrature error 30 Temperature Sense--------> Calibration failure 40 Carrier running backward 50 Carrier Velocity Overshoot 60 Starfire ASIC Reset failure 70 Printhead and Index Voltage Level failure	Perform the “Carrier System Test” on page 3-32 . This would be caused by printhead contacts or carrier card. Note: “Carrier Systems Test” would not find this.

Error	Symptom	Action
915	Index System 10 Index Motor Stall or loss of Encoder signals 20 Encoder Wheel “once-per-revolution” sensor failure 30 Unable to calibrate Analog Sensor 40 Index Motor wired backward	Perform the “Index System Test” on page 3-33 . See “Index Motor Service Check” on page 2-56 . If problem still exists, go to “Index System Test” on page 3-33 .
920	“Feed Motor” - Pick Motor stall or loss of Encoder signals	See “Index Card/Sensor Service Check” on page 2-67 .
921	PerfectFinish™ System - Motor stall or loss of Encoder signals	Check Motor and Encoder. See “Index Motor Service Check” on page 2-56 . If problem still exists, go to “Index System Test” on page 3-33 .
922	Multi-Purpose Feeder Motor - Motor stall or loss of Encoder signals	Check Multi-Purpose Feeder Motor. See “Multi-Purpose Feeder (MPF) Motor and Sensor Service Check” on page 2-57 .
923	“Exit System” - Cam Motor Homing failure	See “Entering CE Diagnostics Mode” on page 3-2 .
925	“Maintenance System” - Maintenance Motor Homing failure	See “Entering CE Diagnostics Mode” on page 3-2 and “Maintenance Sled Test” on page 3-33 .
928	Ink Level System - Ink Float Sensing Calibration failure	Perform “Ink Level Sensor Test” on page 3-31 .
Note: Many of the 930-938 are communication failures between the printheads and the carrier contacts as noted. If contact failures are suspected, check alignment between the pogo pins and printhead tab circuit. This can be done by lightly placing a piece of low tack tape on the printhead tab circuit and inserting it in the carrier. If contamination is suspected, remove the printhead and clean the contacts with a low-lint damp cloth. Clean the pogo pins only with a clean, lint-free cloth.		

Error	Symptom	Action
930	Black Printhead - P-lines shorted or Substrate Heater shorted Color Printheads - P-lines shorted or Substrate Heater shorted Both Printheads - P-lines shorted or Substrate Heater shorted	Check all contacts and cables. If tests fail, replace the printheads. If failure still occurs, replace engine board.
931	Black Printhead - Engine cannot communicate with Printhead Memory Color Printhead - Engine cannot communicate with Printhead Memory Both Printheads - Engine cannot communicate with Printhead Memory	Check the printhead and tank contacts.Check the carrier to engine cables. Check the printhead and tank memory chip placement. If the problem remains, replace the engine board. See the “Engine Board / Cover Removal” on page 4-14 .
932	Black Printhead - Contents of Printhead Memory are invalid Color Printhead - Contents of Printhead Memory are invalid Both Printheads - Contents of Printhead Memory are invalid	Replace printheads. See “Change Printheads” on page 3-4 . If contents of printhead memory are still invalid, replace engine board. See “Engine Board /Cover Removal” on page 4-14 . Check carrier cables.
933	Printhead System - Failure measuring a calibration resistor. The debug data identifies the resistor being measured and the type of failure: value too low, value too high, or value=zero.	Check the printhead/ carrier contacts. Try replacing the printheads before replacing the carrier. Check the carrier cable. If cable is OK, replace carrier. See “Carrier/Cable Retainer Removal” on page 4-48 . Try replacing both printheads. If problem remains, replace engine board. See “Engine Board /Cover Removal” on page 4-14 .

Error	Symptom	Action
934	Black Printhead - Color Printheads - Both Printheads - TSR measurement indicates a cracked / open TSR or open connection. The debug data identifies the TSR that is open.	Check the carrier/ printhead contacts. Try replacing both printheads before replacing carrier. Check the carrier cable. If cable is OK, replace carrier. See “Carrier/Cable Retainer Removal” on page 4-48 . If problem remains, replace engine board. See “Engine Board /Cover Removal” on page 4-14 .
935	Black Printhead - Color Printheads - Both Printheads - Failure measuring a TSR value. The debug data identifies the TSR being measured and the type of failure: value too low, or value too high.	Try replacing the printheads before replacing carrier. Check the carrier cable. If cable is OK, replace carrier. See “Carrier/Cable Retainer Removal” on page 4-48 . If problem remains, replace engine board. See “Engine Board /Cover Removal” on page 4-14 .
936	Service Printhead System - Failure zeroing the TSR measurement system.	Try replacing the printheads before replacing carrier. Check the carrier cable. If cable is OK, replace carrier. See “Carrier/Cable Retainer Removal” on page 4-48 . If problem remains, replace engine board. See “Engine Board /Cover Removal” on page 4-14 .
938	Printhead Thermal System error	Check the printhead contacts. Overheated. Replace printhead. See “Change Printheads” on page 3-4 . If problem remains, replace carrier assembly.

Error	Symptom	Action
939	RIP to Engine communications failure	Unplug and replug the AC power cord to see if the problem goes away. Check the RIP card cable connections. If the connections are good, replace the engine board. See “Engine Board /Cover Removal” on page 4-14 . If the problem remains, replace the RIP card. See the “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 . **Note:** The RIP software can cause a 939 error.
953	NVRAM Failure - NVRAM Chip failure	Replace the RIP card. See the “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 .
954	NVRAM Failure - NVRAM CRC failure	Replace the RIP card. See the “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 .
955	Code ROM error	Replace the RIP card. See the “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 .
956	RIP Card - Processor failure	Replace the RIP card. See “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 .
957	RIP ASIC failure	Replace the RIP card. See “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 .

Error	Symptom	Action
960	RAM Memory Error - RAM soldered on the card is bad	Replace the RIP card. See the “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 .
980	Tray 2 Communication Error - Communication between Tray 2 and the Engine is unreliable.	Check connection between engine board and optional card.
985	Tray 2 Error	Check engine to tray 2 cable and contacts. Replace tray 2 card. Look for PerfectFinish leaks.

User Status Messages

User Status Message	Status	Action
Ready	The printer is ready to receive and process data from a host system.	Press **Menu>** or **Menu<** to take the printer offline and access the Ready Menu group. The following function may be available via the Busy/ Waiting Menu group: -Reset Printer **Note:** The ready menu group is not accessible if Menu Lockout is turned on. Instead, access is automatically granted to the Busy/Waiting menu group. Press **Stop** to take the printer offline. The Not Ready message appears. No more data is processed from the host computer. Press **Go** to return the printer to the previous state.

User Status Message	Status	Action
Busy	The printer is processing data and/or printing pages. The Power indicator blinks while the printer is processing data.	Press **Stop** to take the printer offline. The Not Ready message appears. No more data is processed from the host computer; however, the printer processes all of the paper currently in motion in the printer's paper path. Press **Go** to return the printer to the previous state. **Note:** Press **Menu>** or **Menu<** to access the Busy/Waiting Menu group. The printer is online while the Busy/Waiting Menu group is active. The following functions may be available using the Busy/Waiting Menu group: -Cancel Job -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when you press **Menu>** or **Menu<**.

User Status Message	Status	Action
Waiting	The Waiting is displayed until the current job is terminated or until additional data is received on the active link.	Press **Go** to print the contents of the printer's buffer. **Note:** The **Go** press is ignored when Print Buffer Control is Off. Selection of **Go** does not terminate the current print job. Press **Stop** to take the printer offline. The Not Ready message appears. No more data is processed from the host computer; however, the printer processes all the paper in the printer's paper path. Press **Go** to return the printer to the previous state. Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The printer will be online while the Busy/Waiting Menu group is active. The following functions may be available using the Busy/Waiting Menu group: -Cancel Job -Reset Printer -Print Buffer

Warning Messages

As shown in each of the Status Screens, only one warning message can be displayed at any one time. Once the current warning condition is cleared, the printer automatically shows the next highest priority warning message. If an event occurs which causes a higher priority warning, the higher priority warning message replaces the lower priority warning message.

Panel Message	Description	Available on Status Screen
Supplies	One or more of the printer supply items has either reached its life warning or is exhausted and/or one of the paper sources is low, empty, or missing.	• Ready • Hex Trace Ready • Power Saver • Busy • Resolution Reduced • Waiting
Parallel USB<*x*>	The host interface from which the printer is currently drawing and processing data. Those messages which are not designated by a <*x*> imply the active host interface is a standard interface. Those messages designated by <*x*> indicate the active interface is connected to the printer by PCI connector x. Those messages designated by <*x*><*y*> indicate the active interface is connected to the printer by a channel *y* on PCI connector *x*, or if *x*=0 on the standard network interface. The copying message is shown when the printer is drawing and processing data originating from an OptraImage™ scanner connected to the printer by a network adapter. **Note:** There is no *Copying* host interface. The associated network interface which exists between the printer and network adapter is used for data transmission.	• Ready • Hex Trace Ready • Power Saver • Busy • Resolution Reduced • Waiting

Status Messages

These messages provide the operator with information on the current state of the printer.

Status Message	Status	Action
Activating Menu Changes	The printer is being reset to activate a printer setting changed in the menus.	No buttons are active while this message is displayed.
Canceling Job	Appears after the Cancel Job operation is selected. This message is displayed until the cancel operation is complete.	Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The printer is online while the Busy/Waiting Menu group is active. **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.
Cleaning Printheads	Appears after Cleaning Printheads is selected.	No buttons are active while this message is displayed.

Status Message	Status	Action
Disabling/Enabling Menus	A representation of the operator panel when the user has modified the Menu Lockout printer setting using the Configuration Menu Group. If the Menu Lockout value is changed to On (Panel Menus=Disable), then the *Disabling* message is displayed. If the Menu Lockout value is changed to Off (Panel Menus=Enable), then the *Enabling* message is displayed.	No buttons are active while this message is displayed.
Flushing Buffer	A representation of the operator panel when the printer is flushing a print job. The interpreter is flushing the currently active job until an End Of Job is found or until no data has been received on the active host interface for 5 seconds.	No buttons are active while this message is displayed.

Status Message	Status	Action
Activating Menu Changes	The printer is being reset to activate a printer setting changed in the menus.	No buttons are active while this message is displayed.

Status Message	Status	Action
Cancelling Job	Appears after the Cancel Job operation is selected. This message is displayed until the cancel operation is complete.	Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The printer is online while the Busy/Waiting Menu group is active. **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.
Cleaning Printheads	Appears after Cleaning Printheads is selected.	No buttons are active while this message is displayed.

Status Message	Status	Action
Printer Calibrating	A representation of the operator panel when the printer is initializing the mechanical sub-systems at POR (Power-On Reset), following the “Performing Self Test” message or during printing. The duration of this message varies depending on the level in the lower PerfectFinish vessel. The **Stop** button is available; however, the printer will post “Not Ready.” The printer will not post “Ready” until **Go** is pressed.	Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group for menu details. Typically this menu is used to access the Reset functions of view the printer Supplies status. The printer is online while the Busy/Waiting Menu group is active.

Status Message	Status	Action
Invalid Engine Code	A representation of the operator panel when either the engine code has not been programmed or has been programmed but is invalid. Once this condition occurs, the Ready and Busy messages will not be displayed until valid Engine code exits. Engine code can still be downloaded to the printer when this message is on the display.	No buttons are active while this message is displayed.

Status Message	Status	Action
Menus Disabled	Appears when the **Menu>** or **Menu<** button is pressed to access the Busy/ Waiting Menu group and all the available selections in the menu group have been disabled.	No buttons are active while this message is displayed.

Status Message	Status	Action
Not Ready	A representation of the operator panel when the printer is in the Not Ready state. All host links are marked as busy when the printer is Not Ready. In addition, all timeouts are stopped.	Press **Go** to take the printer out of the Not Ready state. Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The printer is online while the Busy/Waiting Menu group is active. The following functions may be available using the Busy/ Waiting Menu group: -Cancel Job -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.

Status Message	Status	Action
Performing Self Test	A representation of the operator panel during Power-On Self Test (POST). When the test is complete, the printer enters the Ready state.	No buttons are active while this message is displayed.
Powering Down	A representation of the operator panel during power-down cycle, after the user has turned the machine off. In the event that no errors are found, this is the last message shown before power is cut off to the RIP and engine. It is possible that an error condition could be detected that causes the printer to go into a different state. The error conditions that could cause this are: -Paper Jams -Service Messages	No buttons are active while this message is displayed.

Status Message	Status	Action
Printing Menu Settings	A representation of the operator panel when Print Menu Settings is selected from the menu. This message appears until the Print Menus page or pages are formatted and submitted to the print engine and then Busy is shown.	Press **Stop** to take the printer offline. The Not Ready message appears. No more data is processed from the host computer; however, the printer processes all of the paper in the printer's paper path. Press **Go** to return the printer to the previous state. Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The printer is online while the Busy/Waiting Menu group is active. The following functions may be available using the Busy/ Waiting Menu group: -Cancel Job -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.

Status Message	Status	Action
Printing Alignment Page	A representation of the operator panel when Align Printheads is selected from the menu. This message appears until the Alignment page is formatted and submitted to the print engine and then Busy is shown.	Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The printer is online while the Busy/Waiting Menu group is active. The following functions may be available using the Busy/ Waiting Menu group: -Cancel Job -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.

Status Message	Status	Action
Printing Test Page	A representation of the operator panel when Clean Printheads is selected from the menu. This message appears until the Clean Printheads test page is formatted and submitted to the print engine and then Busy is shown.	Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The printer is online while the Busy/Waiting Menu group is active. The following functions may be available using the Busy/ Waiting Menu group: -Cancel Job -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.
Prog Engine Code DO NOT POWER OFF **Note:** This message may display after replacing the index card and encoder disk FRU.	A representation of the operator panel whenever new code is programmed in the engine flash. When the programming is complete, the printer returns to the Ready screen. I	No buttons are active while this message is displayed.

Status Message	Status	Action
Programming System Code	A representation of the operator panel when new code is programmed in the RIP code flash. This message is shown until the programming is complete. When the programming is complete, the printer performs a Power-On Reset.	No buttons are active while this message is displayed.
Resetting Printer	A representation of the operator panel during a Printer Reset. The printer resets with the Power-On Reset defaults.	No buttons are active while this message is displayed.
Restoring Factory Defaults	A representation of the operator panel after the operator has initiated one or two Factory Defaults operations.	No buttons are active while this message is displayed.

Attendance Messages

These messages are displayed when the printer is in the Operator Intervention state. The operator is provided with a description of the operator intervention condition. When an operator intervention condition occurs, all host links are notified about the intervention required condition. All timeouts are stopped while the printer is in an operator intervention state. The only exception is the PostScript Feed timeout. This timeout starts when the Load Paper message is displayed for the manual source.

Attendance Message	Description	Action
A Alignment = 8*	A representation of the operator panel when Align Printheads is selected from the Utilities Menu and the printer is prompting the user for the “A” alignment value. A similar message is displayed for B...G alignment values.	Press **Go** or **Return** to end the alignment operation. Enter the alignment value and press **Select** to continue to the next alignment value.
89 Cartridge Empty XXXX	A representation of the operator panel when cyan ink empty occurs. A similar message displays when the black, magenta, and yellow inks are empty.	This is a Type 4 error and can only be cleared by inserting a new ink cartridge. In this representation, XXXX is a placeholder for some combination of C,M,Y, and K.

Attendance Message	Description	Action
88 Cartridge Low XXXX	A representation of the operator panel when cyan ink low occurs and the Ink Alarm is activated. A similar message appears when the black, magenta and yellow inks are low. The XXXX is a placeholder for some combination of C,M,Y, and K.	Press **Go** to clear the message.
Cartridge LIfe Expired XXXX	A representation of the operator panel when an ink cartridge life expires. This means that although ink remains in the cartridge, the useful life of the cartridge is expired and the cartridge must be replaced. XXXX is a placeholder for some combination of C,M,Y, and K.	Open the cover and replace the expired ink cartridge(s).

Attendance Message	Description	Action
Change<input source> <size> Change<input source> <type><size>	A representation of the operator panel when the printer is requesting the operator to change the media installed in one of the input sources. The input source is displayed on line 1 and could be one of the following: Tray 1, Tray 2, MP Feeder. If the requested type matches the type that is installed in the tray and the type is one of the custom types which has not been named, then only the size is displayed. One of the following sizes is left-justified on line 2: Letter, Legal, B2, A4, Executive, Universal, A5, 7 3/4 Envelope, 9 Envelope, 10 Envelope, DL Envelope, C5 Envelope, B5 Envelope, Other Envelope	Sources equipped with both size-sensing and media-present hardware: Load the requested size and/or paper type in the source indicated in the message. If media is present in the source and the sensed size is correct, then the printer automatically clears the message and continue the job. If the source already contains the correct size and paper type, then press **Go.** This situation occurs when the user changes the media in the source, but forgets to change the paper type setting in the menus. **Go** is ignored if the sensed size is incorrect or media is not present in the tray. **Note:** The printer assumes the user loaded the correct paper type. The new paper type, paper size, and custom string settings are stored in NVRAM.

Attendance Message	Description	Action
Change<input source> <size> Change<input source> <type><size> (CONTINUED)	In all other cases, both the type and size are displayed on line 2. The requested type could be one of the following: Bond, Card Stock, Coated, Colored, Envelope, Glossy, IronOn, Labels, Letterhead, Photo, Plain, Preprint, Transparency The requested size could be one of the following: Letter, Legal, B5, A4, Executive, Universal, A5, 7 3/4, 9, 10, DL, C5, B5, Other	Sources equipped media-present hardware ONLY: Load the requested size and/or type in the source indicated in the message. The printer automatically clears the message and continues the job. If the source already contains the correct paper size and type, press **Go.** This occurs when the user changes the media in the source, but forgets to change the paper size and/or paper type settings in the menus. **Go** is ignored if media is not present in the tray. To ignore the request and print on the media installed in the tray, press **Select.** Some clipping may occur. Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The following functions may be available using the Busy/Waiting Menu group: -Cancel Job -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.

Overriding Change Prompts

The *size override* function lets you override Change Prompts for any source for the remainder of a job. By overriding the prompt, the user is requesting the printer to do the following:

- Print the page, as it is formatted, on the paper installed in the tray. Therefore, some clipping may occur. In addition, the color tables used to create the bitmap are for the requested media, not necessarily the media in the tray.
- Do not post any further Change Paper prompts for this source for the remainder of the job. That is for subsequent pages from this source, automatically override to the size and/or type installed in the source.

  Note: Change Prompts is shown for other sources, unless they have been overridden for the job as well.

Note: When a change prompt is overridden, the page is printed as it is formatted. This means that all print quality parameters related to page formatting are selected based on the type requested by the interpreter, not the installed type. However, print quality parameters related to the print process are selected based on the *installed* type.

Attendance Message	Description	Action
Check Tray x Connection Check MPF Connection	A representation of the operator panel when the printer loses communications with one of the following devices: -Tray 2 -Multi-Purpose Feeder This error could occur in two ways. The specified device could have been removed from the printer (for instance, to clear a paper jam or to uninstall the device). Otherwise, the device could still be attached to the printer, but is experiencing a communications problem (Not fully connected or hardware failure).	If the device was temporarily removed or not connected properly, reattach or reconnect it. When the device is recognized, the printer automatically clears the attendance condition and continues. If the device is experiencing a hardware problem, then turn the printer off and back on. If the error occurs again, then turn the printer off, remove the option, and call for service.

Attendance Message	Description	Action
Clean 1? =Go/Stop	A representation of the operator panel when a Long Clean is requested and the printer is asking the user if the printhead that printed the bar label “1” needs to be cleaned. A similar message is shown if the printheads associated with bars 2, 3, and 4 need to be cleaned.	Press **Go** if the long clean needs to be performed on the printhead represented by bar 1. Press **Stop** if the long clean does not need to be performed on the printhead represented by bar 1. Press **Return** to stop the cleaning operation.
Close Cover	A representation of the operator panel when the printer’s upper front door is open. If the cover is open while printing, the printer continues to print, but at a lower carrier velocity.	Close the upper front door. The printer automatically clears the message and continues printing.

Attendance Message	Description	Action
31 Defective Cartridge XXXX	A representation of the operator panel when the printer detects a defective ink cartridge. In this representation, the XXX is a placeholder for some combination of C,M,Y, and K. The defective cartridge is identified in the XXXX string. The engine firmware was either unable to communicate with the ink cartridge EEPROM or the ink cartridge EEPROM was corrupted. This could be the case if the ink cartridge has a missing or defective smart chip.	Open the cover and replace the defective ink cartridge(s). The carrier appears at the *ink cartridge* change location. Press and hold **Select,** and then press **Return** to display debug data for the engine microcode and the applicable smart options. The service engineer should use this function to help diagnose the problem. 1. Try POR. 2. Remove and reinstall the defective cartridge. 3. Inspect pogo pins for damage.

Attendance Message	Description	Action
54 Std Par ENA Connect Lost	A representation of the operator panel when the printer detects during its power-on cycle that the connection to an External Network Adapter has been lost. Once a connection is initially established, a printer setting is modified to note a connection exists. Then, each time the power is cycled on, if the setting states a connection exists, the printer attempts to communicate with the adapter. If the adapter does not respond, this message is shown. **Note:** This error is only detected during the printer's power-on cycle. The External Network Adapter connection is lost after the power-on cycle is complete, this error is not detected. The printer cannot distinguish between an adapter which is not sending any data and an adapter which has been disconnected.	Press **Go** to clear the message. The printer clears the setting stating an external network adapter connection exists and restarts.

Attendance Message	Description	Action
81 Engine Code CRC Failure	A representation of the operator panel when microcode to be programmed in the engine flash code module has failed a CRC check.	Press **Go** to clear the message. The microcode data is discarded and must be re-transmitted from the host computer.
Flushing Buffer	A representation of the operator panel when the printer is flushing a print job. The interpreter is flushing the currently active job until an End Of Job is found or until no data has been received on the active host interface for 5 seconds. This message is commonly displayed when the Lexgear interpreter receives a print job with data corruption. It can also be displayed when a print job is sent to the printer in PostScript or PCL 5 emulations.	No buttons are active while this message is displayed.

Attendance Message	Description	Action
56 Std Parallel Port Disabled	A representation of the operator panel when data is sent to the printer across a parallel port, but the parallel port is disabled. Once the error has been displayed for the first time, reporting of further errors is suppressed until the menus are entered, or the printer is reset.	Press **Go** to clear the message. The printer discards any data received on the parallel port. Enable the parallel port. Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The following function may be available using the Busy/ Waiting Menu group: -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.
Insert Duplex Pages & Press Go	A representation of the operator panel when a manual duplex job has been sent to the printer and the printer has completed printing the front sides of the pages. The user should remove the manual duplex sheets and reinsert them (face up) into tray 1.	Reinsert pages into tray 1 (face up) and press **Go** to continue printing the back sides.

Attendance Message	Description	Action
Load <input source> <size> Load <input source> <type><size>	A representation of the operator panel when the indicated source is out of media. The input source is displayed on line 1 and could be one of the following: Tray 1, Tray 2, MP Feeder. One of the following items is shown on line 2: In all cases, both the type and size are displayed on line 2. The requested type could be one of the following: Bond, Card Stock, Coated, Colored, Envelope, Glossy, IronOn, Labels, Letterhead, Photo, Plain Preprint, Transparency The requested size could be one of the following: Letter, Legal, B5, A4, Executive, Universal, A5, 7 3/4, 9, 10, DL, C5, B5, Other	Sources equipped with both size-sensing and media-present hardware: Load the requested size and/or paper type in the source indicated in the message. If media is present in the source and the sensed size is correct, then the printer automatically clears the message and continues the job. Sources equipped media-present hardware ONLY: Load the requested size and/or type in the source indicated in the message. The printer automatically clears the message and continues the job. Press **Go** to request that the printer check the sources again for the prompted size and type. Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The following functions may be available using the Busy/Waiting Menu group: -Cancel Job -Reset Printer

Attendance Message	Description	Action
Load Manual <size> Load Manual <type><size>	A representation of the operator panel when the printer receives a request to manually feed paper or envelopes in the Manual Slot or MP Feeder. The request may have come through a print job or from the operator panel. One of the following items is shown on line 2. In all cases, both the type and size are displayed on line 2. The requested type could be one of the following: Bond, Card Stock, Coated, Colored, Envelope,Glossy, IronOn, Labels, Letterhead, Photo, Plain, Preprint, Transparency The requested size could be one of the following: Letter, Legal, B5, A4, Executive, Universal, A5, 7 3/4, 9, 10, DL, C5, B5, Other	If no media exists in the Manual Slot or MP Feeder, then manually feed a sheet. The printer automatically clears the message and continues the job. **Note:** The printer assumes the user loaded the correct paper size and type. The paper size, paper type, and custom string settings are stored in NVRAM for the requested manual source. If the MP Feeder is installed and if the correct media is already present in the MP Feeder, then press **Go.** The printer clears the message and continues the job. **Note:** If the MP Feeder is not installed and if the correct media is already present in the Manual Slot, this is an unsolicited manual feed. The printer does not post a Load Media prompt and continues the job without any action from the user.

Attendance Message	Description	Action
Load Manual <size> Load Manual <type><size> (CONTINUED)		To request the printer to pick the sheet from an automatic source, press **Select**. Press **Menu>** or **Menu>** to access the Busy/ Waiting Menu group. The following functions may be available using the Busy/Waiting Menu group: -Cancel Job -Reset Printer **Note:** Menu Lockout does not prevent access to the Busy/Waiting group. If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu>** is pressed.

Attendance Message	Description	Action
31 Missing Cartridge XXXX	A representation of the operator panel when the printer detects a missing ink cartridge. In this representation, XXXX is a placeholder for some combination of C,M,Y, and K. The missing ink cartridge(s) is identified in the XXXX string.	Open the cover and insert an ink cartridge where an ink cartridge is missing. Press and hold **Select** and then press **Return** to display debug data for the engine microcode and the applicable smart options. 1. POR. 2. Reinstall the missing cartridge or remove and reinstall a cartridge that is already in place. 3. Check for bent or damaged ink tank pogo pins. 4. This message will be posted if the carrier handle stalls against the covers while printing. Ensure that the carrier handle snaps into the detents.

Attendance Message	Description	Action
31 Missing Printhead XXXX	A representation of the operator panel when the printer detects a missing printhead. In this representation, XXXX is a placeholder for either: YMC,K or YMCK. The missing printhead(s) are identified in the XXXX string.	Check printhead to carrier contacts. Open the cover and replace the defective printhead. Press and hold **Select** and then press **Return** to display debug data for the engine microcode and the applicable smart options.
Open Cover	A representation of the operator panel when the user has requested an ink cartridge change or a printhead change.	Open the door and change the supply item. Press **Go** or **Return** to cancel the operation.
38 Memory Full	A representation of the operator panel when the printer is processing an incoming job and there is not enough memory available to continue processing the job.	Press **Go** to clear the message and continue processing the job. Some data loss occurs. Determine how to make more memory available to your print job: • Delete fonts, macros, and other data in RAM. • Simplify your print job. • Install additional memory. Press **Menu>** or **Menu<** to access the Busy/ Waiting Menu group. The following functions may be available using the Busy Waiting Menu group: -Cancel Job -Reset Printer

Paper Jams

Multiple paper jam messages exist for this printer. Most paper jam messages have a unique error number. Each message also instructs the customer what action to take to resolve the jam or where in the printer to look to find the jammed paper.

The following actions can be taken while this message is displayed:

- Once all the jammed pages are cleared from the paper path, press **Go** to resume printing.
- Press and hold **Select** and then press **Return** to display debug data for the engine microcode and the applicable smart options. The service engineer should use this function to help diagnose the problem. The Customer Support Center may request the user to complete this function as well.

Note: Press **Menu>** to perform a "jog" function to help free the jammed sheet. This applies to the following paper jams:

200 Paper Jam (Printer Staging Sensor)

Paper is jammed prior to the printer staging sensor. Remove tray 1 and clear the jam.

201 Paper Jam (Printer Input Roller Sensor)

Paper is jammed prior to the printer input roller sensor (non-PerfectFinish path). Remove tray 1 and clear the jam.

203 Paper Jam (Printer Input Sensor)

Paper is jammed over the input sensor. Open the cover and clear the jam.

204 Paper Jam (Printer Staging Sensor)

Paper is jammed over the staging sensor. Open the cover and clear the jam.

205 Paper Jam (Printer Input Roller Sensor)

Paper is jammed prior to the printer input roller sensor (PerfectFinish path). Open the cover and clear the jam.

206 Paper Jam (Fail to make Input Roller Sensor - Non PerfectFinish)

Paper is jammed prior to the printer input roller sensor (non PerfectFinish path). Check Tray 2.

207 Paper Jam (Fail to make Input Roller Sensor - PerfectFinish)

Paper is jammed prior to the printer input roller sensor (PerfectFinish path).

208 Paper Jam (Fail to make Staging Sensor - Tray 2 (PerfectFinish)

Paper is jammed prior to the staging sensor (PerfectFinish).

209 Paper Jam (Printer Input Roller Sensor)

Paper is jammed prior to the printer input roller sensor. Remove tray 1 and clear the jam.

220 Paper Jam -Tray 2

Paper was picked from tray 2 but did not arrive at the feed sensor in tray 2.

221 Paper Jam -Tray 2

Paper was picked from tray 2 and is jammed over the feed sensor in tray 2.

222 Paper Jam -Tray 2

Paper is jammed in tray 2.

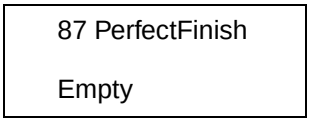
250 Paper Jam (MPF)

Paper was picked from the MPF but did not arrive at the input roller sensor.

251 Paper Jam (MPF)

Paper was picked from the MPF but did not arrive at the input roller sensor.

PerfectFinish Empty

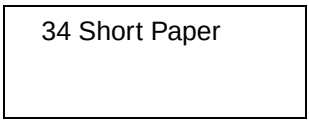


The above is a representation of the operator panel when PerfectFinish empty occurs. This message indicates that the supply item must be replaced.

The following actions can be taken while this message is displayed:

- Press **Go** to clear the message and override the message. For the rest of the current job, the printer prints without PerfectFinish. The message appears again at the beginning of every subsequent job until the empty condition is cleared.
- Replace the PerfectFinish supply item. Press **Go** to clear the message and override the message.

Short Paper



The above is a representation of the operator panel when the paper length is too short to print the data as formatted.

This error can only occur when the printer does not know the actual paper size that is loaded in a tray. If the tray has auto-size capabilities, then the paper stop could be in the wrong position. If the tray is not capable of auto-size sensing, then the operator may have entered the wrong size in the paper size menu.

The following actions can be taken while this message is displayed:

- Press **Go** to clear the error and continue printing pages.
- Press **Menu>** or **Menu<** to access the Busy/Waiting Menu group. The following functions may be available using the Busy/ Waiting Menu
  - Cancel Job

– Reset Printer

Note: Menu Lockout does **not** prevent access to the Busy/Waiting Menu group.

Note: If no function in the Busy/Waiting group is available, the Menus Disabled message is temporarily shown when **Menu>** or **Menu<** is pressed.

Unsupported Ink Cartridge

32 Unsupported Cartridge XXXX

The above is a representation of the operator panel when the top cover is closed and an unsupported ink cartridge is detected (for example, the software keys of the printer and ink cartridge do not match). It may take the printer several seconds to determine if the ink cartridge is supported. XXXX indicates which of the C, M, Y or K ink cartridges are unsupported.

The following actions can be taken while this message is displayed:

- Remove the unsupported ink cartridge. See “Change Ink Cartridges” on page 3-4 .

Unsupported Printhead

32 Unsupported Printhead XX

The above is a representation of the operator panel when the top cover is closed and an unsupported printhead is detected (for example, the software keys of the printer and printhead do not match). It may take the printer several seconds to determine if a print head is supported. XX indicates which of the K or C(MY) printheads are unsupported.

The following actions can be taken while this message is displayed:

Remove the unsupported printhead. See “Change Printheads” on page 3-4 .

Error Recovery from Attendance Conditions

The following table indicates how the printer acts when each of the attendance/error conditions occurs. Attendance conditions can be categorized into these distinct groups:

- **Type 1** - When a Type 1 condition occurs during a job, the printer finishes printing all pages in the paper path. Furthermore, it may pick a few additional pages if they had already been committed to be printed. Depending on the specific condition, some data loss may occur on the pages. See “Error Recovery from Attendance Conditions” on page 2-45 . Once the pages are printed, the printer displays the attendance message. After the condition is cleared, the printer resumes printing the next page in sequence. In other words, none of the pages printed before the attendance message will be reprinted.
- **Type 2** - When a Type 2 condition occurs during a job, the printer finishes printing all pages in the paper path before displaying the attendance message. After the condition is cleared, the printer resumes printing the next page in sequence. In other words, none of the pages printed before the attendance message will be reprinted.
- **Type 3** - When a Type 3 condition occurs, the printer immediately stops and an attendance message is displayed. All pages in the paper path must be manually cleared by the user. After the condition is cleared, the printer resumes printing the pages that were left in the paper path.

Error Recovery from Attendance Conditions

Attendance Condition	Error Type	Auto Continue Available	Sound Alarm (if Enabled)
A Alignment	Type 1	No	No
Cartridge Life Expired <cart(s)>	Type 1	No	Yes
Cartridge Life Warning <cart(s)>	Type 1	No	Yes
Change <src> <size> Change <src> <type> <size>	Type 1	No	Yes
Clean X? Go/Stop	Type 1	No	No
Load <src> <size> Load <src> <type> <size>	Type 2	No	Yes
Load Manual <size> Load Manual <type> <size>	Type 2	No	Yes
Insert Duplex Pages & Press Go	Type 1	No	Yes
Close Cover [a]	N/A	N/A	N/A
Open Cover	Type 1	No	No
Check Tray x Connection	Type 3	No	No
Install Tray x or Cancel Job	Type 3	No	Yes
31 Defective Ink Cartridge	Type 1	No	Yes
31 Missing Ink Cartridge	Type 1	No	Yes
31 Missing Printhead	Type 1	No	Yes
32 Unsupported Print Head	Type 1	No	Yes
32 Unsupported Cartridge	Type 1	No	Yes
34 Short Paper	Type 1 [b]	Yes	Yes
38 Memory Full	Type 1 [b]	Yes	Yes
54 Std Par ENA Connection Lost	Type 1	Yes	Yes
56 Std Parallel Port Disabled	Type 1 [b]	Yes	Yes

Attendance Condition	Error Type	Auto Continue Available	Sound Alarm (if Enabled)
81 Engine Code CRC Failure	Type 1	No	Yes
87 PerfectFinish Empty	Type 1	No	Yes
88 Cartridge Low <cart(s)>	Type 1	Yes	Yes (Ink Low Alarm)
89 Cartridge Empty <cart(s)>	Type 2	No	Yes
200 Paper Jam Check Tray 1 201 Paper Jam Check Tray 1 203 Paper Jam Open Cover 204 Paper Jam Open Cover 205 Paper Jam Check Tray 1 206 Paper Jam Check Tray 2 207 Paper Jam Check Tray 2 208 Paper Jam Check Tray 2 209 Paper Jam Check Tray 1 220 Paper Jam Check Tray 2 221 Paper Jam Check Tray 2 222 Paper Jam Check Tray 2 250 Paper Jam Check MPF 251 Paper Jam Check MPF	Type 3	No	Yes

[a]The printer continues to print (if it was printing) when the cover is open. However the carrier moves at a lower velocity.

[b]Expect data loss when this condition occurs.

Power-On Self Test (POST) Sequence

1. Turn on power switch.
2. The operator panel displays one row of rectangles followed by two rows of diamonds.
3. The printer indicator (green light) comes on.
4. **“Performing Self Test”** is displayed on the operator panel and then turns off.
5. The maintenance motor cycles and then stop.
6. The index motor cycles and then stops.
7. The printer indicator (green light) stays on.
8. **Ready** is displayed indicating that POST is complete.

If your printer completes POST with no errors, go to the “Symptom Tables” on page 2-50 . Locate the symptom and take the indicated action.

If your printer does not complete POST, locate the symptom in the following table and take the indicated action.

Post Symptom Table

Symptom	Action
Blank display, carrier moves, paperfeed motor turns	See the “Operator Panel (LCD) Display Service Check” on page 2-59 .
All diamonds on display	See the “Operator Panel (LCD) Display Service Check” on page 2-59 .
Performing Self Test remains on display, no motors turn	See the “Power Supply Service Check” on page 2-63 .
Index motor does not turn	See the “Index Motor Service Check” on page 2-56 .
Maintenance motor does not turn	See the “Maintenance Station Service Checks” on page 2-55 .
Carrier drives into side frame	See the “Carrier System Test” on page 3-32 . If carrier system test fails, replace the carrier assembly.
Printer indicator light does not come on or fails to stay on	See the “Operator Panel (LCD) Display Service Check” on page 2-59 .
POST is incomplete, printer indicator light is on, no motors turn and performing self-test is displayed	See the “Power Supply Service Check” on page 2-63 .
Printer inoperable	See the “Power Supply Service Check” on page 2-63 .

Symptom Tables

Locate the symptom in the following tables and take the appropriate action.

Carrier Transport Problems

Symptom	Action
• No carrier movement • Slow carrier movement • Carrier stops • Carrier does not move to cartridge load position when opening access door • Carrier strikes left side frame. See page 2-48.	See the “Transport Service Check” on page 2-67 . See the “Carrier System Test” on page 3-32 .

Communications Problems

Symptom	Action
Printer not communicating with host computer	See the “Parallel Wrap Test” on page 3-25 .
Not able to print test page	Check the USB cable and engine board cable connection. If okay, replace RIP card.

Maintenance Station Problems

Symptom	Action
• Fails to cap the printhead • Fails to clean the printhead • Pump fails to work • Maintenance assembly does not move • Maintenance assembly moves to forward position, then will not return • Access door switch does not work • Peristalic pump or motor does not work.	See the “Maintenance Station Service Checks” on page 2-55 . See the “Maintenance Sled Test” on page 3-33 .

Operator Panel Problems

Symptom	Action
Printer indicator light does not: • Turn on • Flash • Turn off • All diamonds	See the “Operator Panel (LCD) Display Service Check” on page 2-59 .
One or two pels missing	Replace the operator panel assembly.
Only one button inoperative	Replace the operator panel assembly.
More than one button inoperative	See the “Operator Panel (Buttons) Service Check” on page 2-58 .
All diamonds on display	See the “Operator Panel (LCD) Display Service Check” on page 2-59 .

Paper Feed Problems

Symptom	Action
Paper fails to stop at first print line • Fails to pick paper • Picks more than one sheet of paper • Picks paper but fails to feed • Paper jams • Paper fails to exit • Noisy paper feed • Paper skews	See the “Paper Feed Service Check” on page 2-60 .
• Paper does not feed, motor does not turn • Paper does not feed - motor attempts to turn	See “Paper feed pick assembly does not feed, paper feed pick motor does not turn” on page 2-61 .

Power Problems

Symptom	Action
Printer inoperable	See the “Power Supply Service Check” on page 2-63 .

Print Quality Problems

Symptom	Action
• Voids in characters • Light print • Prints off the page • Fuzzy print • Carrier moves but does not print • Printhead drying prematurely • Vertical alignment off • Excessive ink flow (flooding) • Horizontal banding	See the “Print Quality Service Check” on page 2-65 .
• Ink smearing • Vertical streaks on paper • Print lines crowded	See the “Paper Feed Service Check” on page 2-60 .

Service Checks

Maintenance Functions

The maintenance station's function is to maintain the printhead jetting over the life of the head. It also manages the waste ink used during the nozzle spitting maintenance routine. Most functional parts (except motor, pump and drivetrain) are mounted on a maintenance carrier that is driven front to back in the printer. This action is perpendicular to the printhead movement. The maintenance carrier moves to positions that actuate the various maintenance functions. These functions include: capping, wiping, spitting, purging and wet wiping. The maintenance carrier moves in concert with the printheads to accomplish the maintenance routines.

Function	Description
Cap	The maintenance station caps and protects the printheads from drying and subsequent failure of the nozzles for up to six months. The customer may be required to initiate a "clean printhead" routing to fully recover dried or clogged nozzles following a six-month capping period. A clean printhead test page will be incorporated into this function to allow the customer to qualify print quality before and after the nozzle recovery procedure. The caps should last the 100K page life of the printer.
Wipe	The maintenance station wipes the nozzle plates to remove ink buildup and debris. Following the wipe function, a jetting function is performed to completely recover the nozzles from any debris left by the wiping process.
Spit	The maintenance station provides an area (bottle) to collect the ink from the jetting function of the printheads. This area also serves to minimize mist creation and promotes evaporation of the ink.
Purge	The maintenance station provides a purging function to remove bubbles and soft plugs that clog the printhead nozzles. Customer initiated purge is available in the "long clean" operation initiated from the operator panel.

Function	Description
Wet Wipe	The maintenance station applies a cleaning solvent to the edge of the printhead that will be wiped across the entire bottom surface of the printhead. This will occur several time during the life of the printhead to facilitate the removal of ink debris. This solvent also serves to lubricate the wipers to reduce wear and prevent ink from drying on the wiper edge, which can reduce wiper efficiency.
Maintenance Sump Capacity	The maintenance station will collect the waste ink in a container (bottle) with sufficient volume for the 100,000 page life of the printer. The container will provide spill protection for a 15-degree tilt at maximum waste volume.

Maintenance Station Service Checks

	FRU	Action
1	Maintenance Station Assembly	The maintenance carrier is driven in a front to rear motion by the maintenance stepper motor. A homing sensor is provided at the rear of the maintenance station to home the maintenance carrier during power up. Engine code software controls the step count from the home position to the various positions the maintenance carrier must move to accomplish the various maintenance tasks on the printheads. Utilizing cams and linkages, the various components on the maintenance carrier are actuated by the carrier motion. Check the maintenance carrier moves through its complete forward to back motion without binds. Check the maintenance station for worn, broken or dislodged parts. Check that the maintenance sensor is snapped securely into the maintenance station frame.
2	Maintenance Motor Assembly	Check for approximately +1.8 V dc at pins 1, 2, 3, and 4 on connector (J3) on the engine board. If voltage is incorrect, replace the engine board. If voltage is correct, check connector and voltage at the motor. Check for a short in motor and for binds. If a short or bind is found, replace the motor.
3	Peristalic Pump	Check the hose connections. If okay, replace the pump. See “Peristaltic Pump Removal” on page 4-49 .
4	Maintenance Homing Sensor	If the access door switch does not work or carrier does not move, check (J3) connector pin number 7 for approximately +5 V. If voltage is correct, check connection at the sensor. If connection is good, replace sensor. See “Maintenance Sled Test” on page 3-33 .
5	Wiper	A worn wiper can cause degraded print quality just after a maintenance cleaning. Check for a loose or worn wiper.
6	Cap	A worn cap can cause the printhead nozzles to dry and clog. Check for a loose or worn cap.

Index Motor Service Check

	FRU	Action
1	Index Motor	Check the following motor pins for approximately 12.5 ohms: **(J16-1) and (J16-2)** If reading is incorrect, replace the index motor. See the “Index Motor Assembly Removal” on page 4-33 .
2	Gears	Check the gears for proper alignment, chipped teeth, loose motor, missing gear clip or worn gears.
3	Sensor	See “Index System Test” on page 3-33 .

Sensor Checks

See “Diagnostics (Mode 2) - Input Tray Tests” on page 3-27 and “Diagnostics (Mode 2) - Base Sensor Tests” on page 3-29 .

Multi-Purpose Feeder (MPF) Motor and Sensor Service Check

1. Remove the rear cover from the printer.
2. Remove the engine board cover.
3. Install the multi-purpose feeder.
4. Check for a voltage reading at connector (J10) pin 1 for approximately +36 V dc on the engine board. If the voltage is incorrect, replace the engine board. If the voltage is correct, go to step 5.
5. Remove the feeder from the printer.
6. Remove the left cover.
7. To check the motor, check between pins 1 and 5 on the motor connector for approximately 16.8 ohms. If the reading is incorrect, replace the multi-purpose feeder motor. If the reading is correct, check the continuity between each pin 1 and 5 to the motor case. If continuity exists, replace the motor. If the symptom remains, go to “Power Supply Service Check” on page 2-63 . To check the sensor, check pins 7 and 8 to ground at connector (J10) for a voltage reading of approximately 5 V dc each, with MPF installed and power on. If the voltage is incorrect, replace the engine board. If the voltage is correct, remove the multi-purpose feeder and check between the motor connector pins 4 and 8 with the negative meter lead on pin 4 and positive lead on pin 8. Check for a reading of approximately 3.7 ohm. If ohm reading is not correct, replace sensor. See “MP Feeder Sensor Test” on page 3-28 .

Top view of the multi-purpose feeder connector pin numbers:

4	8
3	7
2	6
1	5

Operator Panel (Buttons) Service Check

	FRU	Action
1	Operator Panel Assembly	If any button fails the button test, replace the operator panel assembly. See “Button Test” on page 3-23 .
2	Engine Board Operator Panel Assembly	With the operator panel connected to the engine board, be sure the voltage at (J4) pins 1, 2, 3 and 5 measures +5 V dc. If the voltage is incorrect, replace the engine board. If the voltage is correct, check the continuity of the operator panel cable. Replace the operator panel cable if continuity is incorrect. If correct, replace the operator panel assembly.

Operator Panel (LCD) Display Service Check

Note: Be sure the operator cable is properly installed at the engine board (J4) and at the operator panel. Check the continuity of the cable and replace if necessary.

- Operator panel display blank - printer indicator light Off, paper feed motor turns, carrier moves.
- Operator panel display blank - printer indicator light On.

	FRU	Action
1	Engine Board	Disconnect connector (J4) from the engine board and verify the voltage at approximately +9 V dc at pins 1, 2, 3 and 5. If the voltage is correct, replace the operator panel. If incorrect, replace the engine board.
2	LCD	To check LCD, see “LCD Hardware Test” on page 3-22 .

Options Service Check

DRAM Memory Option(s)

This service check is the same as the flash memory option service check. Run the “DRAM Memory Test” on page 3-23 . If the test fails, replace the RIP card. See the “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24 .

Paper Feed Service Check

Note: Be sure the printer is unplugged from the AC outlet before performing this service check.

If you are experiencing a paper jam:

1. Check the 200 error code paper jams. See “Paper Jams” on page 2-40 .
2. Check the entire paper path for obstructions.
3. Be sure the input tray contains not more than 150 sheets of paper and the manual tray not more than 100.
4. Be sure the correct type of paper is being used.
5. Check for static in the paper.
6. Ensure the correct position of the left paper adjuster guide assembly.

	FRU	Action
1	Gears	Check for binds in the gear train and paper feed mechanism by rotating the large feed roll by hand. Check all gears for correct installation and signs of wear or damage. If there is a bind, isolate it by removing one of the small idler gears on the inside of the left side frame. Replace any worn or binding gears or rollers.
2	Paper Path	See “Paper Jams” on page 2-40 .

Paper feed pick assembly does not feed, paper feed pick motor does not turn

Note: A noisy or chattering motor or a motor that fails to turn can be caused by:

- A defective motor
- A bind in the paper feed mechanism
- Defective gears
- Defective engine board
- Defective power supply

	FRU	Action
1	Power Supply	Check the power supply. See the "Power Supply Service Check" on page 2-63 . If the power supply voltage is incorrect, replace the power supply.
2	Engine Board	Disconnect (J6) from the engine board. With the power on, check the voltage between pins 6, 10, and ground. The voltage at pin 6 should be approximately +35 V dc. The voltage at pin 10 should be approximately +5 V dc. If either of these readings are incorrect, replace the engine board. Check continuity between (J2) on the RIP card and (J14) on the engine board. If correct, replace the engine board. If incorrect, go to step 3.
3	Paper Feed Pick Motor Index Motor	Disconnect (J6). Check between 6 and 7 on the connector for approximately 27.8 ohms. If reading is incorrect, replace the paper feed pick motor assembly. If reading is correct, check the continuity between each 6 and 7 to the motor case. If continuity exists, replace the paper feed pick motor assembly. Check the index motor connector J16 pin 2 to ground for approximately 27 volts. If voltage is incorrect, replace the system board. If reading is correct, check the continuity. See "Index Motor Service Check" on page 2-56 . If symptom remains, go to step 4. **Note:** If a short exists in the paper feed motor, damage to the engine board drivers and power supply may occur.
4	Tray 1 Sensor Check	See "Tray 1 Sensor Test" on page 3-27 . If test fails, replace sensor.

	FRU	Action
5	RIP Card Cable	Check the continuity of the RIP card cable. If incorrect, replace the cable. If correct, replace the RIP card.

Optional tray 2 paper feed pick assembly does not feed, paper feed pick motor does not turn

Note: A noisy or chattering motor or a motor that fails to turn can be caused by:

- A defective motor
- A bind in the paper feed mechanism
- Defective gears
- Defective engine board
- Defective power supply (+62 V dc)

	FRU	Action
1	Power Supply	Check the power supply. See the "Power Supply Service Check" on page 2-63 . If the power supply voltage is incorrect, replace the power supply. Check the position of tray 2 to insure that the paper port connectors are attached correctly.
2	Tray 2 Card	With the power on, check for the following readings: (J4) pin 1 to ground = 35 V dc (J4) pin 3 to ground = 5 V dc (J4) pin 5 to ground = 5 V dc (J4) pin 7 to ground = 5 V dc If voltage is incorrect, check the engine board and replace if needed. If voltage is correct, go to step 3.

	FRU	Action
3	Paper Feed Pick Motor	With the power on, check for the following readings: (J3) pin 3 to ground = 5 V dc (J3) pin 6 to ground = 35 V dc (J3) pin 7 to ground = 35 V dc (J3) pin 10 to ground = 5 V dc If voltage is incorrect, replace tray 2 card. If voltage is correct, disconnect (J3). Check between 6 and 7 on the connector for approximately 11.8 ohms. If reading is incorrect, replace the paper feed pick motor assembly. If reading is correct, check the continuity between each 6 and 7 to the motor case. If continuity exists, replace the paper feed pick motor assembly.
	Paper Feed Motor	With the power on, check the voltage at (J1) paper feed motor connector. The voltage at each pin should read approximately 34 V dc. If voltage is correct check continuity. If continuity is incorrect, replace the paper feed motor. If symptom remains, go to step 4. **Note:** If a short exists in the paper feed motor, damage to the engine board drivers and power supply may occur.
4	Tray 2 Sensor Check	See “Tray 2 Sensor Test” on page 3-27 . If test fails, replace the sensor.
5	RIP Card Cable	Check the continuity of the RIP card cable. If incorrect, replace the cable. If correct, replace the RIP card.

Power Supply Service Check

Dead Machine

Note: Remove paper from printer prior to performing the dead machine service check. Observe all necessary ESD precautions when removing and handling the RIP card, engine board, or any of the installed option cards or assemblies.

	FRU	Action
1	AC Outlet	Check the AC outlet for correct line voltage. If incorrect, inform the customer.

	FRU	Action
2	Power Line Cord	Check the power line cord for damage. Check the continuity of the line cord and replace if necessary.
3	Power Switch	Check the continuity on the power switch. If incorrect, replace the power switch.
4	Power Supply	With the power switch turned on, verify the voltage readings at RIP card connector (J1) and engine board connector (J1). The RIP card voltage at J1-1 and J1-2 should be approximately +5 V dc at each pin. Check the engine board connector (J1) voltage to verify that J1-3 and J1-4 have approximately +35 V and J1-11, J2-12 read 5 volts each. **Note:** If any of the voltage readings are not correct, replace the power supply.

RIP Card Service Check

	FRU	Action
1	Parallel or USB does not work	Check parallel or USB cables and J2 connection. If OK, check the voltage reading at connector J1 for +5 V dc at pins 1 and 2. If the voltage reading is correct, replace the RIP card. If voltage is not correct, replace the power supply.

Print Quality Service Check

Note: Before troubleshooting any print quality problem, be sure the cartridge is in good condition. Set print quality to normal and be sure the correct paper type is selected in the Paper Menu.

	FRU	Action
		The machine print quality can look poor as a result of either faulty printheads or poor carrier to printhead electrical contact. Generally random missing nozzles indicate a printhead failure. However, more patterned print quality defects may be caused by poor carrier to printhead electrical contact or electrical interface problems with the carrier cable, carrier card, or engine card. Print the 'Contacts Page' in diagnostics to evaluate for electrical interface errors.
1	Printhead Carrier Assembly	Print the 'Contacts Page' in diagnostics. Look for breaks in the diagonal lines that are printed on the page. If the missing nozzles are patterned, the problem could be pogo pin to printhead tab circuit contact. Remove the printhead and clean the tab circuit with a clean, lint-free, damp cloth. Inspect the carrier for bent pogo pins, or for contamination on the pogo pins. Clean the pogo pins only with a clean, lint-free cloth. (care should be taken to avoid contact with the pogo pins that contact the ink tank memory chips. These pins are lubricated with a grease to minimize wear and prevent pogo pin damage. This grease should not be smeared on the surrounding pogo pins as it may trap contamination and cause contact failures). **Note:** Unplug the printer before cleaning contacts.
2	Printheads	If the error is random missing nozzles, conduct a clean as described on page 3-8. Try cleaning the printhead nozzle plate by holding a damp cloth against the nozzle plate for about three seconds. Gently blot and wipe dry. Replace if necessary.
3	Carrier Cable	If the missing nozzles are patterned, the problem could be the carrier cable. Inspect for damage and replace if necessary. Check that the carrier cable connections are clean and secure.

	FRU	Action
4	Engine Board Carrier Card	If the missing nozzles are patterned, the problem could be the engine board or carrier card. First try replacing the engine board, then the carrier card.
5	Paper Feed	Ink smudging and smearing can be caused by paper problems or problems in the paper feed area. Check the following: • Correct type of paper is being used. • Paper for curl or wrinkles. • Feed rollers for wear, dirt, or looseness. • Gears for wear or binds. • Paper path for obstructions. • Distance between print media and printheads.
6	Transport	Blurred print and voids can be caused by problems in the transport area. Check the following: • Transport belt for wear and full engagement into the carrier grip. • Carrier guide rod for wear or dirt. • Carrier to carrier frame engagement should be lubricated with grease P/N 99A0394. Lubricate the carrier guide rod and carrier frame on both sides where the two surfaces ride on the frame. • Idler pulley parts for wear, damage, or looseness. • Encoder strip for wear or dirt.
7	Alignment	Characters having uneven or jagged edges, or uneven vertical, horizontal, bidirectional (black or color) alignment can be checked by entering Diagnostics Mode and selecting Align Printheads. See “Aligning the Printheads” on page 3-5 .
8	Ink Cartridges	Check the ink cartridges.

Index Card/Sensor Service Check

	FRU	Action
1	Index motor does not work.	If the index motor does not work, see “Index Motor Service Check” on page 2-56 . If the index motor is working correctly see “Index System Test” on page 3-33 . If the test fails, replace the index/ encoder disk assembly. See “Encoder Disk Feed Roller Assembly Removal” on page 4-34 .
2	Index Sensor	To check the sensor, see the “Index System Test” on page 3-33 .

Transport Service Check

Note: If the carrier strikes the left side frame and continues to drive into the frame, then see page 2-48. Go to the “Carrier System Test” on page 3-32 .

	FRU	Action
1	Transport Motor	Check the motor for binds, or loose motor pulley. Disconnect the transport motor (J5) from the engine board. Check for approximately 12 ohms between pins 1 and 2 on the motor cable. If the reading is incorrect, replace the motor. Check for motor pins shorted to the motor housing. If you find a pin shorted to the housing, replace the motor. If the failure remains, replace the engine board.
2	Maintenance Homing Sensor	If access door switch does not work or carrier does not move, see the “Maintenance Station Service Checks” on page 2-55 .
3	Engine Board	Disconnect (J2) from the engine board and check for approximately +29 V dc between (J2-1) and ground. If incorrect, replace the engine board.
4	Carrier Guide Rod	Clean the carrier rod. **Note:** Lubricate the rod and the carrier rod bearing surface. Do not use excess lubricant. Take care to protect the encoder strip from grease.

	FRU	Action
5	Carrier Belt Idler Pulley Parts Carrier Frame	Check for worn, loose or broken parts. Check for obstructions blocking carrier movement.
6	Encoder Strip	Check the encoder strip for wear, dirt, and grease. See the “Carrier System Test” on page 3-32 .
7	Printhead Cable	Be sure all connectors are fully seated. Check the cables for damage.
8	Maintenance Station	A problem with the maintenance station can cause carrier movement problems at the right margin. See the “Maintenance Station Service Checks” on page 2-55 .

Cam System Motor/Sensor Service Check

	FRU	Action
1	Motor does not work. Bat Wings do not move.	Check the voltage at connector (J8) on the engine board. At pins 1, 2, 3, and 4 with the power on. There should be approximately +34 V dc on each pin to ground. If the voltage is incorrect, replace the engine board. If the voltage is correct, disconnect (J8) and check between pins 2 and 4 on the connector for approximately 7.5 ohms. If the reading is incorrect, check the continuity between pins 2 and 4 to the motor case. If continuity exists, replace the cam system motor. To check the sensor, check connector (J8) at pin 5 for approximately +4.9 volts. If voltage is incorrect, replace the engine board. If the voltage is correct, disconnect (J8) from the engine board and check for an ohm reading of 6.95 between pins 5 and 7. If the reading is not correct, replace the sensor. **Note:** If a short exists in the cam system motor, damage to the engine board drivers and power supply may occur.

User Error Messages

Message	Explanation
30 Cartridges Missing: • Color • Black	Press **Go** to clear the error. Supplies status appears on the display and the cartridge missing shows in the supplies menus. This remains until the user accesses the Tests Menu to install a cartridge and fill the empty slots.

Message	Explanation
38 Memory Full	Press **Go** to clear the message and continue processing the job. Some data will be lost. You must allow additional memory to complete your print job by: • Deleting fonts, macros, and other data in RAM. • Simplifying your print job. • Installing additional memory. Press **Menu>** or **Menu<** to access the reset function in the Busy/Waiting Menu group. Menu Lockout does not prevent access to the Busy/Waiting Menu group. The menu buttons are not active when Reset Control is Off.
51 Defective Flash	Press **Go** to clear the message and continue processing the job. All downloaded fonts and macros not written to flash will be deleted. Press **Menu>** or **Menu<** to access the reset function in the Busy/Waiting Menu group. Menu Lockout does not prevent access to the Busy/Waiting Menu group. The menu buttons are not active when Reset Control is Off.
53 Unformatted Flash	Press **Go** to clear the message. The flash is marked as bad and normal operation continues. Flash operations will not be allowed until the flash is formatted.

Message	Explanation
54 Parallel Error	An IEEE 1284 protocol error is detected on the parallel host interface, or due to a faulty cable. Once a host interface error has been displayed for the first time, reporting of further host interface errors for the associated port is suppressed until the interface parameters are changed, or the printer is powered off. Press **Go** to clear the message and continue processing the print job. The job may not print correctly. Verify that the correct cable is used. If a serial error has occurred, be sure the serial interface parameters (protocol, baud, parity and data bits) are set correctly on the printer and the host computer. If a parallel error has occurred, check the cable connection between the host and printer. Press **Menu>** or **Menu<** to access the reset function in the Busy/Waiting Menu group. Menu Lockout does not prevent access to the Busy/Waiting Menu group. The menu buttons are not active when Reset Control is Off. Press and hold **Select** and then press **Return** to determine the exact cause of host interface error. If a serial error has occurred, a 16-bit error code displays in hexadecimal on the second line of the LCD. If bit 15 is on, a framing error has occurred. If bit 14 is on, an overrun error has occurred. If bit 13 is on, a parity error has occurred.

Message	Explanation
56 Parallel Port Disabled	Once the error has been displayed for the first time, reporting of further errors is suppressed until the menus are entered, or the printer is reset. Press **Go** to clear the message. The printer discards any data received on the serial port. Enable the serial port. Press **Menu>** or **Menu<** to access the reset function in the Busy/Waiting Menu group. **Note:** The menu buttons are not active when Reset Control is Off. **Note:** Menu Lockout does not prevent access to the Busy/Waiting Menu group.
200 Paper Jam	This message indicates that a paper jam has occurred. If the error does not clear after cleaning the paper jam, see the “Paper Feed Service Check” on page 2-60 .

3. Diagnostic Aids

Printer Operations

Operations Initiated by Pressing Buttons at Power-On Reset

The table below contains a list of the printer operations that are activated by pressing a sequence of buttons while powering on the printer.

Power-On Reset Button Functions

Function	POR Key Sequence	Reference Section
Enter Configuration Menu	**Select** and **Return**	
Disable/Enable Panel Menus	**Go** and **Stop** **Note:** POR key sequence gains entry to Configuration Menu from which setting may be modified.	See "Disable/Enable Operator Panel Menus" on page 3-2.
Enter CE Diagnostics Mode (Mode 1)	**Go** and **Return**	See "Entering CE Diagnostics Mode" on page 3-2.
Enter CE Diagnostics Mode (Mode 2)	**Go** and **Select**	See "Entering CE Diagnostics Mode" on page 3-2.
Clear NVRAM	**Menu>** and **Select** and **Go**	See "Clear NVRAM (non-critical sections only)" on page 3-3.
Enter Flash Engine Mode	**Menu>** and **Select** and **Return**	See "Enter Flash Engine Code Mode" on page 3-3.

Disable/Enable Operator Panel Menus

To prevent users from accessing the Ready Menu group and modifying default printer settings, follow these steps:

Note: These steps do not prevent access to the Busy Menu group and the Diagnostics Menu group.

1. Turn off the printer.
2. Press and hold the buttons identified in the “Power-On Reset Button Functions” on page 3-1 to gain access to the Configuration Menu Group.
3. Turn on the printer. Release the buttons once the Performing Self Test message is displayed. The printer performs its normal POR cycle and shows the first entry in the Configuration Menu.
4. Select the Panel Menu setting and modify the value to Disable. The Disabling Menus message is temporarily shown.

Note: These steps do not prevent access to other menu groups.

To unlock, that is, enable the menus, repeat the above steps except modify the Panel Menus value to Enable. To indicate the menus are being unlocked, the Enabling Menus message is shown.

Note: This method of locking/unlocking the Operator Panel Menus may ONLY be used when the PJL PASSWORD Environment Variable is set to zero. If PASSWORD is set to any non-zero value, the Panel Menus selection is NOT available in the Configuration Menu Group.

If a user attempts to access the Ready Menu Group while the menus are locked, the printer instead automatically provides access to the Busy/Waiting Menu group. Access to the Busy/Waiting Menu group permits the user to execute operations available in this menu when the printer is not busy.

Entering CE Diagnostics Mode

Caution: The Customer Support Center should never instruct users how to access Diagnostics Mode.

Use the following steps to access the Diagnostics printer settings and operations.

1. Turn off the printer.
2. Press and hold the buttons identified in “Power-On Reset Button Functions” on page 3-1.
3. Turn on the printer. Release the buttons once the Performing Self Test message is displayed.

Clear NVRAM (non-critical sections only)

This operation restores factory default values for most printer settings.

Warning: Extreme caution should be used when using this operation as it cannot be undone. The Customer Support Center should only instruct customers to use this function as a last resort.

Use the following steps to restore the factory default values for all affected settings:

1. Turn off the printer.
2. Press and hold the buttons identified in “Power-On Reset Button Functions” on page 3-1.
3. Turn on the printer. Release the buttons once the Performing Self Test message is displayed.To indicate factory defaults are being restored, the Restoring Factory Defaults message is displayed.

Note: This operation can also be initiated from the Configuration Menu Group by selecting the Factory Defaults = Restore All option. The restoration of the factory default values occurs after the user exits the Configuration Menu Group.

Enter Flash Engine Code Mode

This operation lets you POR the printer into a mode that disables the Engine Code, and lets you program new code in the Engine card. Typically this function is used to reprogram defective Engine code.

Use the following steps to enter Flash Engine Code mode:

1. Turn off the printer.
2. Press and hold the buttons identified by the “Power-On Reset Button Functions” on page 3-1.
3. Turn on the printer. Release the buttons once the performing self Test message is displayed.
4. Begin programming the Engine code when the Invalid Engine Code message is displayed.

Change Ink Cartridges

When the cover is opened, the carrier moves to the far left. The user can then replace any combination of ink cartridges. (In this position, the printheads cannot be removed -- only the ink cartridges can be replaced.) When the cover is closed, the carrier returns to the print position. The ink level is on the ink cartridges, so the reported ink level (using NPA or the Menus Page) is automatically updated.

Alternatively, there is a menu item in the Utilities Menu which can be selected to replace an ink cartridge. Select Change Ink Cartridge from the Utilities Menu. Open the cover and the carrier moves to the far left and any combination of cartridges can be replaced.

If an unsupported ink cartridges is installed, an Attendance Message is shown. This can occur if the software keys in the printer and ink cartridge are incompatible, as in the case of an OEM printer using Lexmark-branded ink cartridges.

Change Printheads

Select **Change Printhead** from the Utilities Menu. Open the cover and the carrier moves to the middle and any combination of printheads can be replaced.

If there is a defective or missing printhead when the cover is open, the carrier automatically moves the printhead change location (without the selection of the menu item).

The printhead life count is kept on the printhead itself, so the reported life level (using NPA or the Menus Page) is automatically updated.

If an unsupported printhead is installed, an Attendance Message is shown. This can occur if the software keys in the printer and printhead are incompatible, as in the case of an OEM printer using Lexmark-branded printheads.

Following a printhead replacement, the printer automatically initiates an alignment procedure.

Aligning the Printheads

User Alignment

The printheads come from the factory pre-aligned and do not need to be aligned. However, certain customers may want to align printheads to achieve real or perceived optimal print quality. To align the printheads, select **Align Printheads** from the Utilities Menu. An alignment page prints. From each section of the alignment page, the user is required to pick a selection that “lines up” the best. Enter each selection on the operator panel.

Coarse Alignment

User Alignment should suffice for aligning the printheads. However, for manufacturing, CE personnel and other cases, Coarse Alignment may be used. The purpose of the Coarse Alignment is to get the printheads roughly aligned - User Alignment is for fine tuning. Select **Coarse Alignment** from the Configuration Menu. A coarse alignment page prints. From each section of the alignment page, the user is required to pick a selection that “lines up” the best. Enter each selection on the operator panel.

Alignment Page Fixed Settings (User Alignment and Coarse Alignment)

Printer Setting	Value Used for Menus Page
Separator Sheets	None
Orientation	Portrait
Paper Source	If the User Default Paper Source contains letter, legal, or A4, the alignment page is printed from the User Default Paper Source. If not, another source is automatically chosen.
Paper Size	If the User Default Paper Source contains letter, legal, or A4, the alignment page is printed on the User Default Paper Source's installed size. If not, the alignment page is formatted for letter or A4 based on the value of the US/NonUS printer setting.
Paper Type	The selected source's installed paper type.

Note: The User Default Setting is used for any setting NOT listed in the table.

Cleaning Printheads

The Clean Printheads operation is used to clean and maintain the printheads. This mechanical operation performed by the print engine is recommended when print quality becomes degraded.

There are two classes of cleaning that can be performed:

- Short Clean is a “spit and wipe” cycle followed by a Print Quality test page. Short Clean should be used first.
- Long Clean consists of printing a Print Quality test page, prompting the user for “bad” printheads, selective priming of “bad” printheads, printing the Print Quality test page, and then prompting the user to see if print quality has improved. If print quality improves and is acceptable on all printheads, the Ready prompt appears. If print quality has not improved, the process repeats. Long Clean can result in the disposal of a significant amount of ink and as such should be used only when Short Clean does not correct the problem.

Print Quality Test Page Fixed Settings

Printer Setting	Value Used for Menus Page
Separator Sheets	None
Orientation	Portrait
Paper Source	If the User Default Paper Source contains letter, legal, or A4, the alignment page is printed from the User Default Paper Source. If not, another source is automatically chosen.
Paper Size	If the User Default Paper Source contains letter, legal or A4, the alignment page is printed on the User Default Paper Source's installed size. If not, the alignment page is formatted for letter or A4 based on the value of the US/NonUS printer setting.
Paper Type	The selected source's installed paper type.

As the operation is performed, Cleaning Printheads is displayed.

Linking Input Trays

Most network printers offered by Lexmark support an input tray linking feature. In all cases, the feature can be turned on and off by the user. For instance, some previous Lexmark laser printers let the user set tray linking to one of the following values: Off, Tray 1+2, Tray 1+3, Tray 1+2+3. In general, to turn tray linking on, the user had to decide which group of trays should be linked. Furthermore, only *one* set of trays could be linked. With the tray linking feature turned on, the specified trays would be linked if they contained the same media size.

Input tray linking description:

- Input sources which contain the same *paper size, custom string, and paper type* are linked automatically. Tray linking is always active. To prevent sources with the same media from being linked, the user must set the corresponding paper type settings to different values.
- PerfectFinish capability affects the ability of trays to link. For instance, in the following example, all the trays have the same size, type, and custom string, which for the traditional Lexmark network printer would mean the trays are all linked. However, the MP Feeder does not support PerfectFinish, so it would not automatically be linked with the other trays.

Input Source	**Media Size**	**Media Type**	**Custom String**	**PerfectFinish Capability**
Tray 1	Letter	Plain Paper	Null	Yes
Tray 2	Letter	Plain Paper	Null	Yes
MP Feeder	Letter	Plain Paper	Null	No

- Any combination of trays that support the same media size and media type can be linked by setting the paper size, paper type, and custom string alike.
- Input sources which support paper (Letter, Legal,..., not envelopes) are linked in the following order. The printer only uses this search order when the input source requested by the print job is empty. In general, the input source requested by the print job has priority.
  - MP Feeder (if configured as Cassette and if PerfectFinish has not been requested by the print job)
  - Tray 1
  - Tray 2

Unsolicited Manual Feed

When configured without a MP Feeder, a user may perform an unsolicited manual feed. Prior to sending a job (or before the first page of the job is picked), a user sticks a piece of paper in the manual slot. The engine “grabs” the paper and pulls it into the nip. The engine waits for the RIP to submit the print page. Regardless of which source the RIP requests for that page, it prints on the page that was inserted. Furthermore, the RIP and engine assumes that the media that was inserted is the requested size and type that were selected through the data stream.

Note: Unsolicited manual feed is not available when the MP Feeder is installed. The MP Feeder functions exactly like the Lexmark Optra™ T MP Feeder.

Manual Duplex

Through the driver, this printer supports manual duplex. Select manual duplex from the driver UI and the printer forces all sheets (front and back sides) to be printed from tray 1 (this eases the confusion related to sequencing of sides). After the driver has sent the front sides of the job, a data stream command sent from the driver prompts the user to reinsert the sheets (face up) into tray 1. After pressing **Go**, the printer continues and prints the back sides from tray 1.

Printing Menu Settings Page

Select **Print Menus** from the Utilities Menu. The printer automatically exits the control panel menus and prints the menus page. The Printing Menu Settings message appears and the Power indicator blinks while the page formats and prints.

Note: The menus page must be printed on Letter, Legal, or A4 paper. The menus page contains the following information:

- List of all the printer settings in the control panel menus, and their default values.
- List of the installed features such as RAM memory SIMMs, optional input trays, flash, and disk.
- Printer information such as serial number, page count, installed RAM, Engine code level, RIP code level, tray code levels,

Control Panel code level, Font ROM Version, and SRAM availability.

- The RIP code level is appended with ":F" or ":R" to indicate whether the board is running code from flash (re programmable) or ROM (not re programmable). This may be useful for product engineers or Customer Support.
- Miscellaneous supplies information that can be used by the Customer Support Center.

Note: The menus page is printed in the language specified by the Display Language printer setting, unless the Display Language printer setting is Japanese, in which case the menus page is printed in English.

Menus Page Fixed Settings

Printer Setting	Value Used for Menus Page
Separator Sheets	None
Orientation	Portrait
Paper Source	If the User Default Paper Source contains letter, legal, or A4, the menus page is printed from the User Default Paper Source. If not, another source is automatically chosen.
Paper Size	If the User Default Paper Source contains letter, legal, or A4, the menus page is printed on the User Default Paper Source's installed size. If not, the menus page is formatted for letter or A4 based on the value of the US/NonUS printer setting.
Paper Type	The selected source's installed paper type.

Note: The User Default Setting is used for any setting NOT listed in the preceding table.

TSC fields on the Print Menus Page

The following fields are on the Print Menus page under the “Printer Information” heading. The fields are intended to aide the TSC or a CE in diagnosing problems.

Field	Definition
TS1	Concatenation of C,M,Y, and K ink levels.
TS2	Concatenation of C, M, Y, and K PH life remaining.
E1	Concatenation of C, M, Y, and K expiration dates in mmyy format.
R1	Concatenation of C, M, Y, and K tanks (0 indicates non-refilled, 1 indicates refilled.)

Restoring Factory Defaults

The Factory Defaults operation returns *most* of the operator panel settings in the Ready Menu Group back to their factory settings.

As the operation is performed, the Restoring Factory Defaults message is shown.

The following settings in the Ready Menu Group do ***NOT*** reset to factory default values:

- Display Language (SETUP MENU),
- All settings in the PARALLEL MENU, SERIAL MENU, NETWORK MENU, INFRARED MENU, LOCALTALK MENU, USB MENU and FAX MENU.

Canceling a Print Job using the Operator Panel

The *Cancel Job* control panel function is used to cancel printing of the current job. Since the printer is capable of storing many pages associated with one or more print jobs from any installed host interface at the time this operation is selected, users need to understand the printer’s algorithm for determining which print job is canceled.

When each sheet is printed and the engine has placed the sheet in a printer bin, the print engine sends a “Print Complete” signal to the printer controller to indicate the associated sheet is *complete*. However, since most printer bins are not equipped with sensors to detect when a sheet has arrived in a bin, many printers use an existing sensor in the printer’s paper path located closest to the selected bin as a trigger for this signal. For example, many laser printer engines send the “Print Complete” signal when the trailing edge of a sheet crosses the sensor located in the area of the fuser.

When the Cancel Job operation is selected, the printer identifies the next sheet for which “Print Complete” will be received and cancels the print job associated with the identified sheet.

Note: The sheet that is currently printing and any other sheets in the path are canceled and ejected.

Note: Unlike a operator panel reset, the host application should not be instructed to stop sending printer data when a cancel job operation is selected.

The cancel job operation is in the control panel JOB MENU. This menu can be accessed while the printer is in the ready (or idle state), the waiting state, the busy state, and while many intervention conditions as well as status conditions are displayed.

When a job is canceled:

- After the printer identifies which job is canceled, the printer determines whether the canceled job has ended or has been terminated.
- If the canceled job has ended or has been terminated, all sheets belonging to the canceled job for which the physical printing process has not yet begun are canceled, and the printer immediately begins processing the next print job.
- If the canceled job has neither ended nor been terminated:
  - A user may stop the canceled job by executing a Front Panel Reset operation. After reset processing is complete, the printer begins processing the next print job.
  - If the host computer continues to send data which belongs to the canceled job, the printer discards the data until the job ends or is stopped. Once the cancellation processing is complete, the printer begins processing the next print job.

– If the host computer stops sending data without ending the canceled job, the printer initiates a timer which stops the canceled job. (For PCL emulation, the printer uses the Flushing timer value.)

Note: If the host computer resumes sending data which belongs to a canceled job, then the timer value used to stop the job is reset and the printer resumes looking for a data stream command which indicates the job has ended. However, if the host computer stops sending data again, the procedure to stop the job is repeated, meaning the appropriate timer is restarted from the beginning. When the expiration of the applicable timer occurs, the canceled job is stopped and the printer begins processing the next print job.

Note: If a user has disabled the Print timeout timer which is used to terminate a **PPDS** job, and the cancel operation is used on a **PPDS** job which does not contain an end of job command, the printer's ability to complete the cancellation operation is suppressed. In other words, the printer is deadlocked waiting for an end of job command which will never be sent. When this situation occurs, the user must explicitly execute a Front Panel Reset to terminate the canceled **PPDS** job. (This is not an issue for PCL emulation since the Flushing timer is used to terminate a canceled PCL job.)

Invoking Cancel Job

1. While the printer is in a state which permits the cancel job operation, press **Menu>** or **Menu<**. The following screen is displayed.

JOB MENU
Cancel Job

2. Press **Select**. The printer automatically exits the control panel menus and performs the job cancel operation. As the job is canceled, the Canceling Job message appears.

Resetting the Printer using the Operator Panel

The *Reset Printer* control panel function is used to reset the active port and restore the printer's user default settings.

Warning: Use care when invoking this function. Other print jobs buffered in the printer may also be fully or partially lost!

Note: Before performing a operator panel reset, instruct the host application to stop sending printer data.

The reset printer function is in the operator panel JOB MENU. This menu is available in both the Ready Menu Group and the Busy/ Waiting Menu Group.

Note: Some operations are restricted at certain times in the Busy/ Waiting Menu Group.

Note: The sheet that is currently printing and any other sheets in the path are canceled and ejected.

When the printer is reset from the operator panel, the printer is initialized as follows:

- A maximum of one page is launched; all other queued pages are discarded.
- If an interpreter is currently processing data for a page, the data and partially completed page are discarded.
- Fixed default settings are reset to the factory set values.
- PJL current environment is restored to the user default environment.
- Variable default settings for paper sizes become the active default formatting sizes.
- Data on only the active port is discarded in the following manner:
  - Parallel - the host computer stops sending data and link data is discarded until data has not been received for a half of a second.
  - USB - the host computer stops sending data and link data is discarded until data has not been received for a half of a second.

Invoking Reset Printer (from the Ready message)

1. Press **Menu>** or **Menu<** to enter the menus. The following screen is displayed.

SUPPLIES MENU

2. Press **Menu>** or **Menu<** until JOB MENU is displayed on the second line. Press **Select**. The following screen is displayed.

JOB MENU Reset Printer

3. Press **Select**. The printer automatically exits the operator panel menus and performs the reset operation. As the operation is performed, the Resetting the Printer message appears.

Invoking Reset Printer (from Hex Trace mode, and all other messages)

1. Press **Menu>** or **Menu<** to enter the menus. Since the JOB MENU is the only menu active, the printer automatically selects it and displays the following screen.

JOB MENU Reset Printer

2. Press **Select**. The printer automatically exits the operator panel menus and performs the reset operation. As the operation is performed, the Resetting the Printer message appears.

Note: The system administrator can disable the Reset Printer function by turning the Reset Control setting off. Reset Printer is not displayed when Reset Control is set to off.

Other Resets

Power On Reset -- and similar resets

When the printer is turned on, the following events occur:

- Fixed default settings are set to factory set values.
- Portions of printer memory that store page, font, and macro information are cleared.

Other resets which cause similar events:

- NPA Cold Start (Front Panel, 01 or 03).
- INA Hard Reset

For these resets, currently active pages are discarded and emulators are reset.

INIT * -- Parallel Interface Initialization

The INIT * signal causes the printer to be initialized as follows (unless the INIT * signal is disabled by its variable default setting):

- Data received before reception of an INIT * signal is printed, and then initialization takes place.
- Variable default settings are returned to values stored in NVRAM.
- Fixed default settings are reset to factory set values.
- Downloaded fonts and macros with permanent status are retained.
- Downloaded fonts and macros with temporary status are deleted.
- Variable default settings for paper sizes become the active default formatting sizes.
- The link buffer is left intact.

INIT * is not honored while Hex Trace is active. Receiving INIT * causes the parallel interface to go busy. The INIT * is processed when the parallel interface becomes active and all preceding characters have been processed.

NPA Response

Any reset conditions that cause the loss of resources or a change in emulation requires an NPA response to inform the host computer. See separate specifications on NPA implementation. NPA responses are only given if NPA bidirectional communication is active in the printer.

Loss of Link Data and Link Response

An operator panel reset is the only reset condition which causes the loss of link data.

For all other reset cases, the link remains active and takes data until the link buffer fills.

When an intervention required error condition occurs, the error is fed back immediately to the attached host computer. The link immediately goes busy on intervention required conditions.

Printing Buffer Contents

The print buffer operation is used to print any partial page that is waiting to be printed. This situation occurs when a PCL 5 emulation or PPDS job is sent to the printer, but it doesn't contain a Form Feed command after the last page. When this situation occurs, the Waiting message is displayed.

To invoke the Print Buffer operation while the Waiting status screen is displayed, follow these steps.

1. Press **Menu>** or **Menu<** to enter the menus. The following screen is displayed.

JOB MENU
Reset Printer

2. Press **Menu>** until the following screen is displayed.

JOB MENU
Print Buffer

3. Press **Select**. The printer automatically exits the operator panel menus and prints the partial page.

Note: If the Print Buffer operation is selected while the printer is not in the Waiting state, the printer automatically exits the operator panel menus, but no page is printed.

Note: The system administrator can disable the Print Buffer function by turning the Print Buffer Control setting Off. Print Buffer is not displayed when Print Buffer Control is set to Off.

Activating Hex Trace Debug Mode

The Hex Trace menu function puts the printer in a mode that is used to isolate print job problems. Each byte of information contained in the job is printed in both hexadecimal and character formats. Therefore, all emulation commands (PCL 5, PS 2, PJL, and so on) are printed rather than processed, as is normally done.

To activate hex trace mode, select Hex Trace from the UTILITIES MENU.

To exit hex trace mode, select Reset Printer from the JOB MENU or turn the printer off.

Diagnostics (Mode 1) - Print Tests

Registration

Upon selection, this item will first cause a page to be printed from the requested source, then proceed to a menu screen where the registration can be entered. While the page is printing, the Power indicator should blink and the following screen will be displayed:

Registration Page
Printing

The printer prints the registration page from the requested source. It is assumed that either Letter or A4 is loaded into the requested source.

No buttons are active while the registration page is printing. Once complete, the registration screen is displayed.

The Registration menu is formatted so that all menu items fit on a single screen as shown. This allows manufacturing to quickly set and verify the registration setting.

```
Tray 1

T= sxx* L= sxx*
```

Terminology:

- *T* represents Top Margin and *L* represents Left Margin.
- *s* represents the sign for negative values. This space is blank for positive values.
- *xx* represents the margin value.
- An asterisk (*) is displayed next to the default value.

Upon first entering the Registration menu, the Left margin sign/value pair flashes. This indicates it is the margin value being changed. To change the value, press either **Menu>** or **Menu<**. Once the value you want is displayed, press **Select** to save the value and move to the next margin value. The margin values are traversed in this order: Top, then Left. If you need to skip a margin value (that is its value is OK), press **Select**. The default value remains the same.

If **Return** is pressed to exit the Registration menu after a margin value has been incremented or decremented (but not saved via **Select**), then the default value is not changed.

To exit the Registration menu, press **Return.**

Input Source Print Tests

The Diagnostic Input Source PRINT TESTS verifies that the printer can print on media from each of the installed input sources. Each of the installed sources is available as a selectable option within the PRINT TESTS menu. For each source, there are two choices:

- Single (print the Print Test page once).
- Continuous (continue printing the Print Test page until **Return** or **Stop** is pressed).

The content of the Print Test page varies depending on the media installed in the selected input source. If a source is selected that contains paper (that is, letter, legal, and so on), then a page similar to the Quick Test page is printed. However, it does not contain the Print Registration diamonds. If a source is selected which contains envelopes, then an Envelope Print Test pattern is printed. This pattern only contains text, which consists of continuous prints of each character in the selected symbol set.

If Continuous is selected, all sources printing with paper sizes prints the same page continuously until the test is stopped. If Continuous is selected for a source which contains envelopes, then the envelope print test pattern is printed on the first envelope and subsequent envelopes are blank.

Note: The Print Test page can be printed on any paper or envelope size. However, more than one sheet of some media sizes may be required.

While the page is printing the following message is displayed. The Power indicator also blinks while the page is printing.

<Input source> Printing

If Single is selected, no buttons are active while the Print Test page is printing. However, if Continuous is selected, **Return** or **Stop** can be pressed to cancel the test. While the test is being canceled, the following message is displayed.

<Input source> canceling...

Note: <input source> represents the input source selected for the Print Test. One of the following sources is displayed: Tray 1, Tray 2, or MP Feeder.

Contacts Page Print Test

This test prints the Contacts Page, which can be used by the Customer Support Center or CE to diagnose problems involving printheads, printhead cables, pogo pins, or electrical interfaces between the printheads and the carrier.

Prt Contacts Pg Printing

Contacts Page Fixed Settings

Printer Setting	Value Used for Menus Page
Separator Sheets	None
Orientation	Portrait
Paper Source	If the User Default Paper Source contains letter, legal, or A4, the alignment page is printed from the User Default Paper Source. If not, another source is automatically chosen.
Paper Size	If the User Default Paper Source contains letter, legal, or A4, the alignment page is printed on the User Default Paper Source's installed size. If not, the alignment page is formatted for letter or A4 based on the value of the US/NonUS printer setting.
Paper Type	The selected source's installed paper type.

Diagnostics (Mode 2) - Hardware Tests

LCD Hardware Test

Select this test to continually execute the LCD display test. To cancel the test, press **Return** or **Stop**.

Button Test

The Button Test verifies the operation of each button on the operator panel. When Button Test is selected, the following screen is displayed.

```
OP OP OP OP

    OP OP
```

While a button is pressed, **CL** (Closed) is displayed. Likewise, while a button is not pressed, **OP** (Open) is displayed. If the wrong message is displayed, then the button is malfunctioning.

To exit the button test, press **Return** or **Stop**. The previous menu screen will be displayed when the button is released.

DRAM Memory Test

The DRAM Memory Test checks the validity of DRAM (both standard and optional DRAM). The test involves writing patterns of data to DRAM to verify that each bit in memory can be set and read correctly. When this test is selected from the control panel, the following screen is displayed and the printer begins testing DRAM memory for the first time.

```
DRAM Memory Test

P:###### F:#####
```

Terminology:

- *P:######* represents the number of times the memory test has passed (finished successfully). Initially 000000 is displayed for ######. The maximum pass count is 999,999.
- *F:#####* represents the number of times the memory test has failed (finished with errors). Initially 00000 is displayed for #####. The maximum fail count is 99,999.

The power indicator blinks indicating the memory test is in process. The printer continually runs the same test until canceled from the operator panel (by pressing **Return** or **Stop**).

Each time the test finishes, the screen is updated with the result. If the test passes, the *Pass Count* is incremented by 1. However, if the test fails, a failure message is displayed for approximately 3 seconds and the *Fail Count* is incremented by 1.

- DRAM Error

Once the maximum pass count or fail count is reached, the test is stopped and the final test results are displayed. Press **Return** or **Stop** to exit the test.

ROM Memory Test

The ROM Memory Test checks the validity of the RIP code and fonts. When this test is selected from the operator panel, the following screen is displayed and the printer begins testing ROM memory for the first time.

ROM Memory Test
P:###### F:#####

Terminology:

- *P:######* represents the number of times the memory test has passed (finished successfully). Initially 000000 is displayed for ######. The maximum pass count is 999,999.
- *F:#####* represents the number of times the memory test has failed (finished with errors). Initially 00000 is displayed for #####. The maximum fail count is 99,999.

The power indicator blinks indicating the memory test is in process. The printer continually runs the same test until canceled from the operator panel (by pressing **Return** or **Stop**).

Each time the test finishes, the screen is updated with the result. If the test passes, the *Pass Count* is incremented by 1. However, if the test fails, one of the following failure messages is displayed for approximately 3 seconds and the *Fail Count* is incremented by 1:

- ROM Checksum Error
- ROM Burst Read Error

Once the maximum pass count or fail count is reached, the test is stopped and the final test results are displayed. Press **Return** or **Stop** to exit the test.

Parallel Wrap Test

The Parallel Wrap Test checks the operation of the parallel port hardware using a wrap plug. Each parallel signal is tested.

To perform the wrap test:

1. Disconnect the parallel interface cable, and install the parallel wrap plug (1319128).
2. Select HARDWARE TESTS from the Diagnostics Menu.
3. Select Parallel Wrap to initiate the Parallel Wrap Test.
4. Select the appropriate Parallel Wrap Test (Parallel Wrap, Parallel 1 Wrap, Parallel 2 Wrap, or Parallel 3 Wrap).

The following screen is displayed and the printer begins testing the parallel hardware for the first time.

```
Parallel Wrap

P:###### F:#####
```

Terminology:

- *P:######* represents the number of times the test has passed (finished successfully). Initially 000000 is displayed for ######. The maximum pass count is 999,999.
- *F:#####* represents the number of times the test has failed (finished with errors). Initially 00000 is displayed for #####. The maximum fail count is 99,999.

The power indicator blinks indicating the test is in process. The printer continually runs the same test until canceled from the operator panel (by pressing **Return** or **Stop**).

Each time the test finishes, the screen is updated with the result. If the test passes, the *Pass Count* is incremented by 1. However, if the test fails, one of the following failure messages is displayed for approximately 3 seconds and the *Fail Count* is incremented by 1.

- Sync Busy Error
- Byte Interrupt Request Error
- Strobe Interrupt Request Error
- Init Fall Error
- Init Busy Error
- Init Rise Error
- Host Busy Error
- RAM Data FF Error
- RAM Data AA Error
- RAM Data 00 Error
- RAM Data 55 Error
- DMA Count Error
- DMA Address Error
- DMA Interrupt Error
- DMA Memory Error
- DMA Background Error
- Clear Init Rise Error
- False Init Rise Error
- False Init Fall Error
- Autofeed Rising Interrupt Error
- Clear Autofeed Rise Error
- False Autofeed Rise Error
- Autofeed Falling Interrupt Error
- Clear Autofeed Fall Error

Once the maximum pass count or fail count is reached, the test is stopped and the final test results are displayed. Press **Return** or **Stop** to exit the test.

Diagnostics (Mode 2) - Input Tray Tests

Tray 1 Sensor Test

This test determines whether or not the Tray 1 input sensor is working correctly. To run the test, select Tray 1 from the INPUT TRAY TESTS menu. The following screen is displayed:

Terminology:

- **PO** or Paper Out refers to the empty sensor.

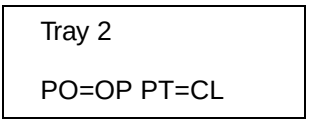
Once this screen is displayed, the sensor can be manually actuated. When the sensor is closed, **CL** is displayed. When the sensor is open, **OP** is displayed. If the wrong message is displayed, the sensor is malfunctioning.

OP = Empty Tray
CL = Not Empty

To exit the test, select **Return** or **Stop**.

Tray 2 Sensor Test

This test determines whether or not the Tray 2 input sensor is working correctly. To run the test, select Tray 2 from the INPUT TRAY TESTS menu. The following screen will be displayed:



Terminology:

- **PO** or Paper Out refers to the empty sensor.
- **PT** or Pass-through refers to the pass-through sensor.

Once this screen is displayed, the sensors can be manually actuated. When the sensor is closed, **CL** is displayed. When the

sensor is open, **OP** is displayed. If the wrong message is displayed, the sensor is malfunctioning.

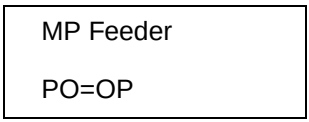
PO=OP = Empty
PO=CL = Not Empty

PT=OP = Media Clear
PT=CL = Media Present

To exit the test, select **Return** or **Stop**.

MP Feeder Sensor Test

This test determines whether or not the MP Feeder input sensor is working correctly. To run the test, select *MP Feeder* from the INPUT TRAY TESTS menu. The following screen is displayed:



Terminology:

- **PO** or Paper Out refers to the empty sensor.

Once this screen is displayed, the sensor can be manually actuated. When the sensor is closed, **CL** is displayed. When the sensor is open, **OP** is displayed. If the wrong message is displayed, the sensor is malfunctioning.

OP = Empty
CL = Not Empty

To exit the test, select **Return** or **Stop**.

Diagnostics (Mode 2) - Base Sensor Tests

Paper Path Sensors

This test determines if a group of sensors related to the paper path are working correctly. To run the test, select *Paper Path Sensors* from the BASE SENSOR TESTS menu. The following screen is displayed:

```
Paper Path

TC=C IS=C CO=C
```

Terminology:

- **TC** refers to the PerfectFinish path pass-through sensor.
- **IS** or Input Sensor refers to the input (grit roll) sensor.
- **CO** or Cover Open refers to the cover open sensor.

Once this screen is displayed, the sensor can be manually actuated. When the sensor is closed, **C** is displayed. When the sensor is open, **O** is displayed. If the wrong message is displayed, the sensor is malfunctioning.

TC or **IS=O** = Media Clear
TC or **IS=C** = Media Present

CO=O = Cover Open
CO=C = Cover Closed

To exit the test, select **Return** or **Stop**.

Supplies Sensors

This test is used to determine if a group of sensors related to the supplies are working correctly. To run the test, select *Supplies Sensors* from the BASE SENSOR TESTS menu. The following screen will be displayed:

```
Supplies Sensors

TP=O TF=C
```

Terminology:

- **TP** refers to the PerfectFinish tank presence sensor.
- **TF** refers to the PerfectFinish fluid level sensor state.

Once this screen is displayed, the sensor can be manually actuated. When the sensor is closed, **C** is displayed. When the sensor is open, **O** is displayed. If the wrong message is displayed, the sensor is malfunctioning.

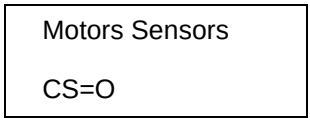
TP=O = Tank Missing
TP=C = Tank Present

TF=O = Cartridge Full
TF=C = Not Full

To exit the test, select **Return** or **Stop**.

Miscellaneous Sensors

This test is used to determine if a group of miscellaneous sensors is working correctly. To run the test, select *Misc Sensors* from the BASE SENSOR TESTS menu. The following screen is displayed:



Terminology:

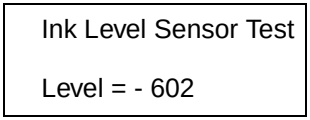
- **CS** refers to the cam stepper home sensor state.

Once this screen is displayed, the sensor can be manually actuated. When the sensor is closed, **C** is displayed. When the sensor is open, **O** is displayed. If the wrong message is displayed, the sensor is malfunctioning.

To exit the test, select **Return** or **Stop**.

Ink Level Sensor Test

This test determines if the ink level sensor is working correctly. To run the test, select *Ink Level Sensor Test* from the BASE SENSOR TESTS menu. The following screen is displayed:



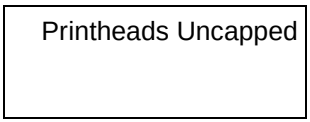
First the printheads are uncapped. The printheads move to the middle of the frame so that the servicer has unobstructed access to the ink-level sensor. Once the printheads have been presented, the analog ink-level sensor value begins updating in real time. The servicer can affect this value by waving a magnet in front of the sensor.

When the test is ended using the operator panel (**Return** or **Stop)**, the carrier is homed and the printheads are capped.

Diagnostics (Mode 2) - Subsystem Tests

Uncap Printheads

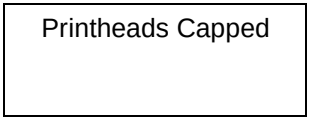
Selection of this operation initiates a printhead uncapping. After selecting this, the following screen is displayed for 1 second:



After uncapping, this test will automatically exit.

Cap Printheads

Selection of this operation initiates a printhead capping. After selecting this, the following screen is displayed for 1 second:



After capping, this test automatically exits.

Carrier System Test

This test determines if the carrier system sensor is working correctly. To run the test, select *Carrier System Test* from the SUBSYSTEM TESTS menu. The following screen is displayed:

Carrier System Test Position = 1050

Once the test is initiated, the printhheads are uncapped and the carrier attempts an “open-loop” safe move to the middle of the printer without use of any feedback signals from the encoder strip. The goal is to first isolate a problem with the motor or drive. If there is no motion, then the problem is with the DC motor or motor driver, and not the encoder / feedback system. If there is no problem with the motor drive, then the carrier is somewhere out in the middle. If there is a problem, then the servicer can still drag the carrier out to the middle, since the printheads are uncapped. After the engine has finished the open-loop move attempt, no further attempts are made to drive the carrier using the motor and the carrier position begins updating real time on the panel. The servicer can now move the carrier back and forth over the entire carrier shaft. The servicer should move the carrier back and forth at a constant speed to determine if there are any noticeable skips or lags in positional count. A skip or lag in the far left or right regions could indicate a cable connection problem or strip contamination. Typical symptoms include shifting margins on previously printed pages. The encoder strip should be inspected with a light for signs of excessive mist, shaft grease, and fingerprints. It is preferable to replace the strip if it is contaminated. However, the strip can be wiped carefully with a deionized, water moistened lint-free cloth if a replacement strip is unavailable. A check should be made to ensure that the strip is clean and is not loose when installed or re-installed. The operator panel displays real time information that corresponds to the relative position of the carrier as it is moved back and forth. At the completion of testing, the servicer should manually move the carrier back to the right frame before exiting the test by selecting **Return** or **Stop**. This moves the maintenance station to the cap position to cap the printheads.

Index System Test

This test determines if the index system sensor is working correctly. To run the test, select *Index System Test* from the SUBSYSTEM TESTS menu. The following screen is displayed:

```
Index System Test

Position = 823
```

The index system is run open loop and the real time position count is displayed on the panel.

To exit the test, select **Return** or **Stop**.

Maintenance Sled Test

This test determines if the maintenance sled sensor system is properly functioning. To run the test, select Maint Sled Test from the SUBSYSTEMS TESTS menu. The printheads are uncapped. This utilizes the maintenance sled motor. The printheads move to the middle of the frame to give the servicer access to the maintenance homing sensor. The status of the homing sensor now begins updating real time on the panel. The servicer can toggle this status by blocking or unblocking the optical sensor. The following screen is displayed:

```
Maint Sled Test

State = O
```

The state of the maintenance sled sensor is indicated by “O” for open or “C” for closed.

To exit the test, select **Return** or **Stop**. When the test is ended, the carrier is homed and the printheads are capped.

Diagnostics (Mode 2) - Supplies Tests

For each of the following four tests, the sequence of events is the same:

1. The printheads are uncapped when the test is invoked.
2. The printheads moves to the middle of the frame to give the servicer access to the printheads and tanks under test. The data corresponding to the test being run begins updating real time on the panel as described.
3. When the test is ended by pressing **Return** or **Stop**, the carrier is homed and the printheads are capped.

Ink Tank Memories

This test determines the status of the electrical connection to the ink tank memories. The status is indicated real time by either “+” (good) or “-” (bad). The following screen is displayed:

Ink Tank Mem Test
K=+ C=+ M=+ Y=+

To exit the test, select **Return** or **Stop**.

Printhead Memories

This test determines the status of the electrical connection to the printhead memories. The status is indicated real time by either “+” (good) or “-” (bad). The following screen is displayed:

Printhead Mem Test
K=+ CMY=+

To exit the test, select **Return** or **Stop**.

K&C TSR Test

This test determines the status of the printhead TSR (thermal sense resistor). The resistance is displayed real time. The following screen is displayed:

```
K & C TSR Test

K=104B3 C=104A1
```

To exit the test, select **Return** or **Stop**.
Note: If zero is displayed on “K”= or “C”=, replace the printhead.

M&Y TSR Test

This to determines the status of the printhead TSR (thermal sense resistor). The resistance is displayed real time. The following screen is displayed:

```
M & Y TSR Test

K=104B3 C=104A1
```

To exit the test, select **Return** or **Stop**.
Note: If zero is displayed on “K”= or “C”=, replace the printhead.

Diagnostics (Mode 2) - Printer Setup

Setting the Page Count

The printer’s page count can be changed using the Diagnostics menus. This menu is used by the CE to reset the Page Count setting whenever the engine card is replaced. The engine card contains the printer’s NVRAM memory. When *Page Count* is selected from the PRINTER SETUP menu, the current page count is displayed as follows:

```
Page Count

=1234567*
```

The left-most digit (‘1’ in this example) blinks, indicating it is the first digit to be changed. To change the value, press either **Menu>** or **Menu<** until the value you want is displayed. Press **Select** to move to the next digit. The next digit (‘2’ in this example) blinks. Continue modifying each digit using this method. To skip a digit (that is, and keep its current value), press **Select**.

When **Select** is pressed after the final digit (‘7’ in this example), the new page count is stored in NVRAM.

Viewing the Permanent Page Count

The permanent page count setting cannot be modified using the operator panel. It can only be viewed using the Diagnostics menus. When Permanent Page Count is selected, the following screen is displayed.

Perm Page Count =1234567*

Viewing and Resetting the Maintenance Page Count

The maintenance page counter is incremented when a page is printed and incremented by two when a duplex sheet is printed. The counter is used to track printer usage. When the counter reaches 250,000, a maintenance intervention and a status indicator appears on the panel. The maintenance page count cannot be specifically set using the operator panel. However, the count may be reset back to zero which indicates a service person performed scheduled maintenance on the printer.

If a user wants to view the current value of the maintenance page counter, the user may select “Maint Cnt Value.” When the current maintenance counter value is displayed, pressing **Return** causes the printer to return to the previous menu. All other operator panel keys are ignored. The following screen illustrates the current maintenance counter value.

Maint Cnt Value =1234567*

To reset the maintenance page counter, the user selects “Reset Maint Cnt.” Pressing **Select** causes the maintenance page counter to be reset back to zero. The following screen is displayed momentarily to indicate the counter is changing.

Reset Maint Cnt SAVED

When the reset operation is complete, the printer returns to the “PRINTER SETUP Reset Maint Cnt” screen.

Diagnostics (Mode 2) - Error Log

Viewing the Error Log

The Error Log aids the Customer Engineer by providing a history of printer errors. It contains the 12 most recent errors. The most recent error is displayed in position 1, and the oldest error is displayed in position 12 (assuming 12 or more errors have occurred). If fewer than 12 errors have occurred, then the oldest error is displayed in the position before the empty log entries begin. Empty log entries are identified with an error number of *000*. Occupied log entries contain the error number for the message that is displayed on the operator panel. For example, 925 is contained in the log when a 925 Service Error occurs.

If an error occurs after the log is full, the oldest error in the log is discarded to make room for the new error. The printer stores identical errors in consecutive positions in the log. In other words, error log position *N* and position *N+1* could contain the same error code if the same error occurs twice in a row.

The following error messages are stored in the error log.

- All 2xx paper jam messages
- All 9xx service messages

To view the error log, select the *Display Log* operation from the Diagnostics ERROR LOG menu. The entire error log cannot be displayed on a single screen. Four error log entries are displayed per screen. Therefore, the entire error log takes up 3 screens. To move

forward in the log, press **Menu>**. To move backward in the log, press **Menu<**.

Here is an example of the error log screens:

```
1-200 2-920

3-928 4-922
```

```
5-250 6-990

7-230 8-230
```

```
9-953 10-000

11-000 12-000
```

To exit the error log, press **Return** or **Stop**.

Clearing the Error Log

To clear the error log, select the *Clear Log* operation from the ERROR LOG menu. The following message is displayed.

```
Clear Log

=Yes
```

Select *Yes* to confirm that you really want to clear the log. The error log is cleared and the empty log is displayed:

```
1-000 2-000

3-000 4-000
```

Select *No* to exit the Clear Log menu. Pressing **Return** or **Stop** also exits the Clear Log menu.

Exiting Diagnostics Mode

To exit diagnostics mode and POR the printer into normal user mode, press Exit Diagnostics.

Menus

This section describes the printer settings and operations that are accessible using the operator panel. In addition, it describes the format of the display and the operation of the buttons while the menus are active.

See "Using the Operator Panel" on page 1-4 for an illustration of the operator panel and a description of the buttons and indicator lights.

Understanding the Menu Display and Menu Buttons

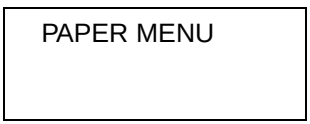
The printer settings and operations that are accessible using the operator panel are organized into a list of *menu*s. The contents of each menu relate to a common subject.

- PAPER MENU - Printer settings that relate to paper handling.
- SUPPLIES MENU - Printer settings that relate to the supplies.
- COLOR MENU - Printer settings that relate to color, and so on.

List of menus in the Ready Menu Group:

SUPPLIES MENU, COLOR MENU, PAPER MENU, FINISHING MENU, UTILITIES MENU, SETUP MENU, PCL EMUL MENU, PARALLEL MENU, USB MENU.

Menu List Display



Initially the user is presented with the list of available menus. Only one menu can be displayed at a time, so the first menu in the list is displayed as shown. If the **Menu>** button is pressed to gain access into a menu group, then the menu displayed is the last menu in the first menu in the associated group.

The buttons *always* act on the information displayed on the second line of the display.

The buttons act as follows while the PAPER MENU screen is displayed:

- **Menu>** displays the next menu in the list.
- **Menu<** displays the previous menu in the list.
- **Return** returns to the previous menu level displayed on line 1. Since there is no previous level in this case (that is, line 1 is blank), pressing this button exits the menus and returns the printer to its previous state.
- **Select** chooses the PAPER MENU. The display changes as shown.

Printer Setting Display

PAPER MENU
Paper Source

After a specific menu is selected (PAPER MENU in this example), the menu name is displayed on line 1 and the first printer setting in the menu is displayed on line 2. (In some menus, printer settings are grouped together into another menu. For these menus another menu could be displayed instead of a printer setting.)

The buttons *always* act on the information displayed on the second line of the display.

The buttons act as follows while the screen is displayed:

- **Menu>** displays the next menu or printer setting in the menu.
- **Menu<** displays the previous menu or printer setting in the menu.
- **Return** returns to the previous menu level displayed on line 1. The display changes as shown in “Menu List Display” on page 3-39.
- **Select** chooses the menu or printer setting. For this example, the display changes as shown.

Printer Setting Value List Display

```
Paper Source

=Tray 1*
```

After a specific printer setting is selected (Paper Source in this example), the active printer setting is displayed on the first line and the default value (Tray 1) is displayed on the second line. An equal sign indicates it is assigned to the printer setting. An asterisk is displayed next to the currently selected or default value.

The buttons *always* act on the information displayed on the second line of the display.

The buttons act as follows while the screen is displayed:

- **Menu>** displays the next value in the printer setting's value list.
- **Menu<** displays the previous value in the printer setting's value list.
- **Return** returns to the previous menu level displayed on line 1. For this example, the display changes as defined in "Printer Setting Display" on page 3-40.
- **Select** saves the new value currently displayed for the printer setting. The Saved message is displayed momentarily on the second line, and then the printer returns to the previous menu level as shown in "Printer Setting Display" on page 3-40.

Example of Modifying a Printer Setting Using the Operator Panel

Use the following to modify any printer setting or initiate any operation in the Busy/Waiting Menu Group, Ready Menu Group, or Diagnostic Menu Group. The only variation is the action required to access the Diagnostics Menu Group (see “Entering CE Diagnostics Mode” on page 3-2 for details).

To change the PCL Orientation setting in the Ready Menu Group:

1. Press **Menu>** when the Ready message is displayed to access the Ready Menu Group. The printer is offline and the first menu (SUPPLIES MENU) is displayed on the second line.

   ```
   SUPPLIES MENU
   ```

2. Press **Menu>** or **Menu<** repeatedly until the menu you want to access is displayed on the second line. Press **Select** to display the first setting or menu contained in that menu.

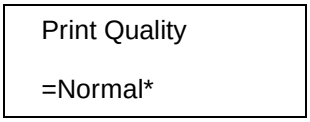
COLOR MENU is displayed on line 1, and the first entry in the menu is the Font Source printer setting and it is displayed on line 2.

```
COLOR MENU
Print Quality
```

3. Press **Menu>** or **Menu<** repeatedly until the printer setting that you want to change is displayed on the second line. Press **Select** to display the default value for that printer setting. (If the printer setting you want to modify is in another menu, then press **Menu>** or **Menu<** repeatedly until the menu which contains the printer setting you want to change is displayed on the second line, and press **Select** to enter the menu.

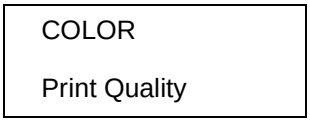
Note: The Print Quality printer setting is displayed on line 1, and the default value (Normal) is displayed on line 2. An asterisk is always displayed next to the default or currently selected value. An equal

sign precedes each value, indicating the entry on line 1 is a printer setting and it can be *assigned* to the value on line 2.



4. Press **Menu>** or **Menu<** repeatedly until the value that you want to select is displayed on the second line, then press **Selec**t. (Printer settings with a numeric value list let you scroll through the setting's value list by pressing and holding **Menu>** or **Menu**<.)

Note: A **'Saved'** message is displayed on line 2, indicating a new default value has been saved into NVRAM. This message is displayed momentarily, and then the setting just changed is displayed again.



5. Exit the menus and continue processing print jobs, then press **Go**.
6. To change a printer setting in another menu, repeatedly press **Return** until you reach the menu list level. Repeat the preceding steps to find and modify the next printer setting.

Operator Panel Menu Definition

The operator panel settings and operations are divided into 4 menus groups, which are described in the following table.

Menu Groups

Busy/Waiting Menu Group	The Busy/Waiting menu group contains the operations that are accessible when the printer is receiving or processing data, waiting for additional data, or actually printing a job. One or more operations in this menu group may also be accessible with some error conditions or with certain status messages. To access this menu group, press **Menu>** or **Menu<** while the printer is busy processing a job, waiting for additional data, or has posted a particular message which allows access to this menu group. See "Busy/ Waiting Menu Group" on page 3-45 for a description of the operations contained in the Busy/Waiting menu group.
Ready Menu Group	The Ready menu group contains the settings and operations that are accessible when the printer is idle (that is, no jobs being received, processed, or printed). To access this menu group, press the **Menu>** or **Menu<** button while the printer is idle. See "Ready Menu Group" on page 3-48 for a description of the settings and operations contained in the Ready menu group. **Note:** The Ready menu group is not accessible if Menu Lockout is turned on. Instead, access is automatically granted to the Busy/Waiting menu group.

Configuration Menu Group	The Configuration menu group contains a set of menus, settings, and operations which are infrequently required by a user. Generally, the options made available in this menu group are used to configure a printer for operation. Use the **Select** and **Return** POR key sequence to access this menu. For additional information, see "Configuration Menu Group" on page 3-60.
Diagnostic Menu Group	**Note:** The Diagnostics Menu group should **not** be documented in any end-user documentation. The Diagnostic menu group contains the settings and operations used while manufacturing and servicing the printer. See "Entering CE Diagnostics Mode" on page 3-2 for a description of how to enter the Diagnostics menus. See "Diagnostics Menu Group (Mode 1: Printing)" on page 3-62 for a description of the settings and operations contained in the Diagnostic menu group.

Busy/Waiting Menu Group

The Busy/Waiting Menu group contains two menus: JOB MENU and SUPPLIES MENU. Press **Menu>** from the BUSY screen and the following screen is displayed.

The following table shows the menus in the Busy/Waiting Menu group.

Top-Level Menu	Intermediate Menus or Menu Items
JOB MENU	See "Job Menu" on page 3-46 for a list of the menu items.
SUPPLIES MENU	See "SUPPLIES MENU" on page 3-48. for a list of the menu items.

Job Menu

Job Menu Operations	Operation Value or Description
Cancel Job **Note:** This operation is only displayed in the JOB MENU when the menu is accessed through the Busy/Waiting Menu Group if Cancel Control is ON. (If a job is active, then the printer checks the value selected by the job. Otherwise, it checks the printer default value). This operation is not available in the JOB MENU when the menu is accessed through the Ready Menu Group.	No selection exists for this operation. Press **Select to** initiate the cancel print job function. For additional information, see"Canceling a Print Job using the Operator Panel" on page 3-12.

Job Menu Operations	Operation Value or Description
Reset Printer **Note:** This operation is only displayed in the JOB MENU when the menu is accessed through the Busy/Waiting Menu Group if Reset Control is On. (If a job is active, then the printer checks the value selected by the job. Otherwise, it checks the printer default value). This operation is always displayed in the JOB MENU when the menu is accessed through the Ready Menu Group. For additional information regarding the Ready Menu Group, see "Ready Menu Group" on page 3-48.	No selection exists for this operation. Press **Select** to initiate the reset function. For additional information, see "Resetting the Printer using the Operator Panel" on page 3-14.
Print Buffer **Note:** This operation is only displayed in the JOB MENU when the menu is accessed through the Busy/Waiting Menu Group if Print Buffer Control is On and if the printer is waiting for additional data from the host computer. (The printer checks the value selected by the job. Otherwise, it checks the printer default value). This operation is not available in the JOB Menu when the menu is accessed through the Ready Menu Group.	No selection exists for this operation. Press **Select** to initiate printing the contents of the printer's buffer. For additional information, see "Printing Buffer Contents" on page 3-18.

If no function is available in the JOB MENU at the time the JOB MENU is accessed, the printer prohibits entry into the JOB MENU, and the key press used to gain entry into the JOB MENU is ignored. To provide the user with some feedback, the **Menus Disabled** message is shown. For example, if Cancel Control is set to off, *and* Reset Control is set to off, *and* no optional bins are installed, *and* assuming the printer is not “Waiting”, then the JOB MENU is not available for selection except using the Ready Menu Group. Furthermore, if the printer is “Waiting” *and* Cancel Control is set to off, *and* Reset Control is set to off, *and* Print Buffer Control is set to off, *and* no optional output bins are installed, then the JOB MENU is not available for selection except via the Ready Menu Group.

SUPPLIES MENU

The SUPPLIES MENU in the Busy/Waiting Menu group is identical to the SUPPLIES MENU in the Ready Menu group.

Ready Menu Group

The Ready Menu group contains multiple menus. They are displayed on the operator panel in the order shown. The names of the top-level menus are capitalized and end with “MENU.” Whereas, the names of the intermediate menus (for example, SERIAL OPTION 1) are just capitalized.

Top-Level Menu	Intermediate Menu, Setting, or Operation
SUPPLIES MENU	See “SUPPLIES MENU” on page 3-49 for a list of the menus or settings.
COLOR MENU	See “COLOR MENU” on page 3-50 for a list of the menus or settings.
PAPER MENU	See “PAPER MENU” on page 3-51 for a list of the menus or settings.
FINISHING MENU	See “FINISHING MENU” on page 3-51 for a list of the menus or settings.
UTILITIES MENU	See “UTILITIES MENU” on page 3-52 for a list of the operations.

Top-Level Menu	Intermediate Menu, Setting, or Operation
JOB MENU	See “JOB MENU” on page 3-54 for a list of the operations.
SETUP MENU	See “SETUP MENU” on page 3-54 for a list of the menus or settings.
PCL EMUL MENU	See “PCL EMUL MENU” on page 3-56 for a list of the menus or settings.
PARALLEL MENU	See “PARALLEL MENU” on page 3-58 for a list of the menus or settings.
USB MENU	See “USB MENU” on page 3-59 for a list of the menus or settings.

SUPPLIES MENU

The Supplies Menu updates as changes occur even if you are viewing it.The list is only status for the items which are near or past replacement.

Intermediate Menu or Setting	Value
Black Cartridge	=Low =Refilled =Life Warning
Cyan Cartridge	=Low =Refilled =Life Warning
Magenta Cartridge	=Low =Refilled =Life Warning

Intermediate Menu or Setting	Value
Yellow Cartridge	=Low =Refilled =Life Warning
Black Printhead	=Life Warning
Color Printhead	=Life Warning
PerfectFinish	=Empty
Tray 1	=Empty
Tray 2	=Empty

COLOR MENU

The following table lists the settings in the COLOR MENU and their corresponding value choices. The factory default setting for each item is indicated with an asterisk.

Intermediate Menu or Setting	Value
Print Quality	=Ink Saver =Normal* =Best

PAPER MENU

The following table lists the menus and settings in the PAPER MENU, and their corresponding values. The factory default value for each setting is indicated with an asterisk.

Intermediate Menu or Setting	Value
Paper Source	=Tray 1* =Tray 2 =MP Feeder =Manual Paper =Manual Env

If the Paper Source, Separator Source, or Staple Prime Source is set to MP Feeder when Configure MP is changed to Manual or First, then the setting is changed to Tray 1.

FINISHING MENU

The following table lists the menus and settings in the FINISHING MENU, and their corresponding values. The factory default value for each setting is indicated with an asterisk.

Intermediate Menu or Setting	Value
Blank Pages	=Do Not Print* =Print

Intermediate Menu or Setting	Value
Separator Sheets	=None* =Between Jobs =Between Pages
Separator Source	**Note:** Only installed paper sources are displayed. MP Feeder is only displayed when Configure MP is set to Cassette. =Tray 1* =Tray 2 =MP Feeder

UTILITIES MENU

The following table lists the operations in the TESTS MENU. For a detailed description of each operation, see “Printer Operations” on page 3-1.

Operation	Value
Print Menus	No selections exist for this operation. Press **Select** to initiate this operation. See “Printing Menu Settings Page” on page 3-10.
Align Printheads	No selections exist for this operation. Press **Select** to initiate this operation. See “Aligning the Printheads” on page 3-5. After the alignment page is printed, the user enters alignment values for each of the sections of the alignment page. • A Alignment • B Alignment • C Alignment =1...15 (8*) • D Alignment • E Alignment =1...9 (5*) • F Alignment • G Alignment =1...15 (8*)
Clean Printheads	See “Cleaning Printheads” on page 3-7. = Short Clean = Long Clean
Change Ink Cartridges	See “Change Ink Cartridges” on page 3-4.
Change Printheads	See “Change Printheads” on page 3-4.

Operation	Value
Factory Defaults	See “Restoring Factory Defaults” on page 3-12. =Restore =Do Not Restore
Hex Trace	No selections exist for this operation. Press **Select** to initiate this operation. See “Activating Hex Trace Debug Mode” on page 3-19.

JOB MENU

The following table lists the operations in the JOB MENU.

Operation	Value
Reset Printer	Printer For information regarding this operation, see “Job Menu” on page 3-46.

SETUP MENU

The following table lists the menus and printer settings in the SETUP MENU, and their corresponding values. The factory default value for each setting is indicated by an asterisk.

Setting or Operation	Value
Print timeout	=Disabled =1...255 (90*)
Auto Continue	=Disabled* =5...255

Setting or Operation	Value
Display Language	Default set by country **Note:** Languages in this value list are only displayed if the printer's operator panel ROM supports the required encoding for the specific language. =English =French =German =Italian =Spanish =Danish =Norwegian =Dutch =Swedish =Portuguese =Finnish =Japanese
Alarm Control	=Off =Single* =Continuous

Setting or Operation	Value
Ink Low Alarm	=Off =Single* =Continuous
Dry Time Delay	=Disabled* =Auto =3...30

PCL EMUL MENU

The following table lists the menus and settings in the PCL EMUL MENU, and their corresponding values. The factory default value for each setting is indicated by an asterisk.

Note: Saving Font Source, Font Name, Point Size, Pitch, or Symbol Set has the affect of saving the selected font as the default.

Intermediate Menu or Setting	Value
Font Name	=list of available font names for the default font source (R0 Courier*) **Note:** See “Font Name Display Format” on page 3-57 for details on the Font Name display format.
Symbol Set	=list of symbol sets available for the default font (US=PC-8* / NonUS=PC-850*) **Note:** See “Symbol Set Display Format” on page 3-58 for details on the Symbol Set display format. **Note:** Saving Font Source, Font Name, Point Size, Pitch, or Symbol Set has the affect of saving the selected font as the default.

Intermediate Menu or Setting	Value
Orientation	=Portrait* =Landscape
Lines per Page	=1... 255 (US=60* / NonUS=64*)
Auto CR after LF	=Off* =On
Auto LF after CR	=Off* =On

Font Name Display Format

The font names are shown on both lines of the operator panel using the following format.

```
=S##### ThisIsThe-
FontName*
```

An equal sign precedes the font name, signifying the value list level of the menus.

S represents the font source abbreviation (R for resident, D for download, F for flash, and K for disk).

represents the font ID. The maximum length is five digits.

ThisIsTheFontName represents the font name from the font data. If the font name is too long to fit on the display, then it is truncated.

An asterisk is displayed after the factory default font name.

Symbol Set Display Format

The symbol sets are shown on both lines of the operator panel using the following format.

```
=SSID ThisIsSym-
bolSetName
```

An equal sign precedes the symbol set ID, signifying the value list level of the menus.

SSID represents the symbol set ID (that is, 8U for Roman-8 symbol set).

PARALLEL MENU

The following table lists the menu and settings in the parallel port menus and their corresponding values. The factory default value for each setting is indicated by an asterisk.

Setting	Value
NPA Mode [a]	=On =Off =Auto*
Parallel Buffer [a]	=Disabled =Auto* =3 K ... (max size allowed)
Advanced Status	=Off =On*
Protocol	=Standard =Fastbytes*
Honor Init	=Off* =On

Setting	Value
Parallel Mode 1 **Note:** Only displayed when the associated Parallel Port supports this feature.	=Off* =On
Parallel Mode 2 **Note:** Only displayed when the associated Parallel Port supports this feature.	=Off =On*

[a] Whenever the value of NPA Mode, Parallel Buffer, or Job Buffering is changed from the operator panel, the printer automatically restarts upon exiting the menus to reconfigure memory.

USB MENU

The following table lists the menus and printer settings contained in the USB port menus and their corresponding values. The factory default value for each printer setting is indicated by an asterisk.

Operation	Value
NPA Mode [a]	=On =Off =Auto*
USB Buffer [a]	=Disabled =Auto* =3K ... (max size allowed)

[a] Whenever the value of NPA Mode, USB Buffer, or Job Buffering is changed from the operator panel, the printer will automatically reboot upon exiting the menus in order to reconfigure memory.

Configuration Menu Group

The Configuration Menu group contains a set of menus, settings and operations which are infrequently required by a user. Generally, the options made available in this menu group are used to configure a printer for operation. Each option is displayed on the operator panel in the order shown. The names of the top-level menus are capitalized. For a detailed description of each operation, follow the reference contained in the following table. Access to the Configuration Menu Group is gained by using a POR key sequence. For additional information regarding these sequences, see “Printer Operations” on page 3-1.

To indicate that the Configuration Menu Group is currently active, the CONFIG MENU is shown as a top level menu on the first line of the display.

Note: Access is gained into the Configuration Menu Group using **Select** and **Return** POR key sequence. For additional information, see “Printer Operations” on page 3-1.

Note: While the Configuration Menu Group is active, all host interfaces are offline.

Intermediate Menu, Setting or Operation	**Value**
Panel Menus Only displayed when the PJL PASSWORD Environment variable is set to zero.	=Disable =Enable* For additional information regarding modification of this printer setting, see “Disable/Enable Operator Panel Menus” on page 3-2.
Factory Defaults	=Restore All For additional information regarding this operation see “Clear NVRAM (non-critical sections only)” on page 3-3.

Intermediate Menu, Setting or Operation	Value
Coarse Alignment	No selections exist for this operation. Press **Select** to initiate this operation. See “Aligning the Printheads” on page 3-5. After the alignment page is printed, the user enters alignment values for each of the sections of the alignment page. - D =1...15 (8*) - E =1...27 (13*)
Enable PHCE Mode	=Disable* =Enable
Exit Config Menu	No selections exist for this operation. Press **Select** to exit the CON-FIG MENU and restart the printer.

Diagnostics Menu Group (Mode 1: Printing)

The Diagnostics Menu group contains multiple menus. They are displayed on the operator panel in the order shown. The names of the top-level menus are capitalized. For a detailed description of each Diagnostic test, follow the reference contained in the following table.

Note: Access is gained into the Diagnostics Menu Group (Mode 1) using the **Go** and **Return** POR key sequence. For additional information, see "Printer Operations" on page 3-1.

Note: While the Diagnostic Menu Group is active, all host interfaces are offline.

Top-Level Menu	Intermediate Menu, Setting, or Operation	Value
REGISTRATION The following printer settings are in the REGISTRATION menu. However, they are not displayed as shown. See "Registration" on page 3-19 for a description of how the settings are displayed		
	• Tray1 • Tray 2 **Note:** Only displayed if Tray 2 is installed. • MP Feeder **Note:** Only displayed if the printer is configured with a Multi-Purpose Feeder Top Margin Left Margin	 =20...20 (0) =20...20 (0

Top-Level Menu	Intermediate Menu, Setting, or Operation	Value
PRINT TESTS		
	Tray 1	=Single =Continuous
	Tray 2 Only displayed if Tray 2 is installed.	=Single =Continuous
	MP Feeder **Note:** Only displayed if the printer is configured with a Multi-Purpose Feeder	=Single =Continuous
	Prt Contacts Pg	See "Contacts Page Print Test" on page 3-22.
EXIT DIAGNOSTICS See "Exiting Diagnostics Mode" on page 3-39.		

Diagnostics Menu Group (Mode 2: Non-printing)

The Diagnostics Menu group contains multiple menus. They will be displayed on the operator panel in the order shown. The names of the top-level menus are capitalized. For a detailed description of each Diagnostic test, follow the reference in the following table.

Note: Access the Diagnostics Menu Group (Mode 2) using the **Go** and **Select** POR key sequence. For additional information, see "Printer Operations" on page 3-1.

Note: While the Diagnostic Menu Group is active, all host interfaces are offline.

Top-Level Menu	Intermediate Menu, Setting, or Operation	Value
INPUT TRAY TESTS		
	Tray 1	See "Tray 1 Sensor Test" on page 3-27.
	Tray 2	See "Tray 2 Sensor Test" on page 3-27.
	MP Feeder	See "MP Feeder Sensor Test" on page 3-28.
HARDWARE TESTS		
	LCD Test	See "LCD Hardware Test" on page 3-22.
	Button Test	See "Button Test" on page 3-23.
	DRAM Memory Test	See "DRAM Memory Test" on page 3-23.
	ROM Memory Test	See "ROM Memory Test" on page 3-24.
	Parallel Wrap	See "Parallel Wrap Test" on page 3-25.
BASE SENSOR TESTS		
	Paper Path Sensors	See "Paper Path Sensors" on page 3-29.
	Supplies Sensors	See "Supplies Sensors" on page 3-29.
	Miscellaneous Sensors	See "Miscellaneous Sensors" on page 3-30.
	Ink Level Test	See "Ink Level Sensor Test" on page 3-31.

Top-Level Menu	Intermediate Menu, Setting, or Operation	Value
SUBSYSTEM TESTS		
	Uncap Printheads	See “Uncap Printheads” on page 3-31.
	Cap Printheads	See “Cap Printheads” on page 3-31.
	Carrier System Test	See “Carrier System Test” on page 3-32.
	Index System Test	See “Index System Test” on page 3-33.
	Maintenance Sled Test	See “Maintenance Sled Test” on page 3-33.
SUPPLIES TESTS		
	Ink Tank Memories	See “Ink Tank Memories” on page 3-34.
	Printhead Memories	See “Printhead Memories” on page 3-34.
	K&C TSR	See “K&C TSR Test” on page 3-35.
	M&Y TSR	See “M&Y TSR Test” on page 3-35.
PRINTER SETUP		
	Defaults	=U.S.* =Non-U.S.
	Page Count	=0 to 9999999 (0)
	Perm Page Count	=0 to 9999999 (0)
	Serial Number	=*xxxxxxxx* (printer serial number) where *x* = A-Z or 0-9
	Par S Strobe Adj	=-4 to 6 (0)

Top-Level Menu	Intermediate Menu, Setting, or Operation	Value
ERROR LOG		
	Display Log	See “Viewing the Error Log” on page 3-37.
	Clear Log	See “Clearing the Error Log” on page 3-38. =Yes =No
EXIT DIAGNOSTICS See “Exiting Diagnostics Mode” on page 3-39.		

4. Repair Information

This chapter explains how to make adjustments to the printer and how to remove defective parts.

CAUTION: Read the following before handling electronic parts. When working on the printer, always unplug the printer from the electrical outlet. High voltage is present in the power supply as long as it is plugged into the electrical outlet.

Handling ESD-Sensitive Parts

Many electronic products use parts that are known to be sensitive to electrostatic discharge (ESD). To prevent damage to ESD-sensitive parts, follow the instructions below in addition to all the usual precautions, such as turning off power before removing logic boards:

- Keep the ESD-sensitive part in its original shipping container (a special “ESD bag”) until you are ready to install the part into the printer.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put the ESD wrist strap on your wrist. Connect the wrist band to the engine ground point. This discharges any static electricity in your body to the printer.
- Hold the ESD-sensitive part by its edge connector shroud (cover); do not touch its pins. If you are removing a pluggable module, use the correct tool.
- Do not place the ESD-sensitive part on the printer cover or on a metal table; if you need to put down the ESD-sensitive part for any reason, first put it into its special bag.
- Printer covers and metal tables are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)
- Prevent ESD-sensitive parts from being accidentally touched by other personnel. Install printer covers when you are not working on the printer, and do not put unprotected ESD-sensitive parts on a table.
- If possible, keep all ESD-sensitive parts in a grounded metal cabinet (case).
- Be careful in working with ESD-sensitive parts when cold weather heating is used because low humidity increases static electricity.

Adjustments

The user is directed, in the Printer Control program, to perform the printhead to printhead and bidirectional alignment adjustments after replacing a print cartridge.

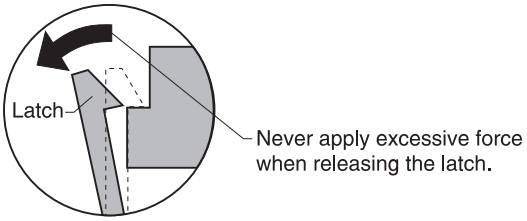
Removal Procedures

The following procedures are arranged according to the name of the printer part discussed.

CAUTION: Unplug the power cord before removing any parts.

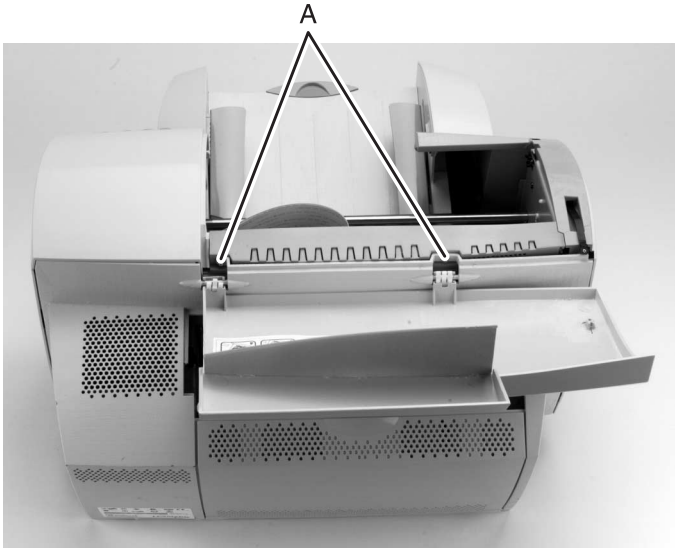
Releasing Plastic Latches

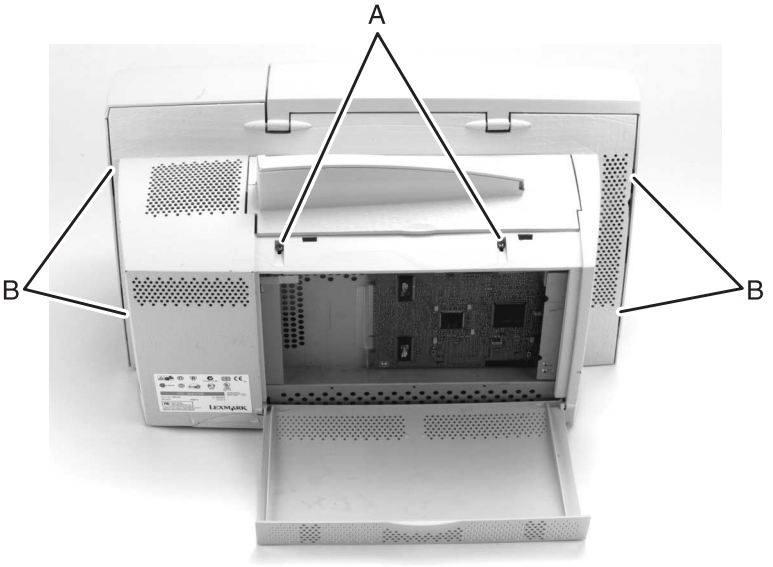
Many of the parts are held in place with plastic latches. The latches break easily; release them carefully. To remove such parts, press the hook end of the latch away from the part to which it is latched.



Rear Cover Removal

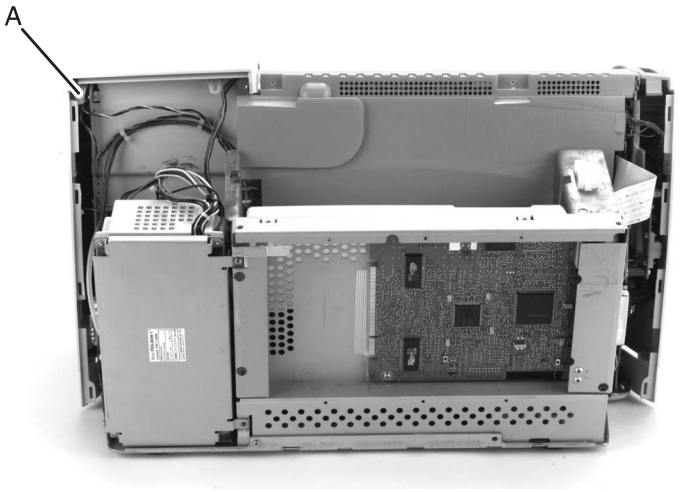
1. Open the rear door.
2. Remove Multi-Purpose Feeder.
3. Remove two clips and remove the top door.
4. Remove the four screws {A}.
5. Depress the four latches {B}.
6. Remove the rear cover.




A
B
B

Operator Panel Cover/Operator Panel Removal

1. Remove the rear cover.
2. Remove the screw {A}.
3. Lift the cover and unplug the operator panel from the engine board.
4. Remove the four screws located on the rear operator panel housing.
5. Remove the operator panel.



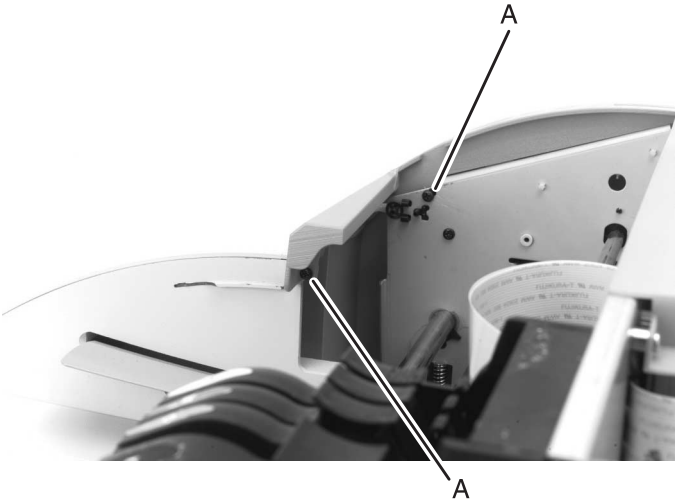
Exit Tray Removal

1. Remove the paper tray.
2. Depress the latch on the bottom of the tray.
3. Lift the front of the exit tray and pull forward to remove.

Note: Use care not to damage the bat wings.

Left Frame Cover Removal

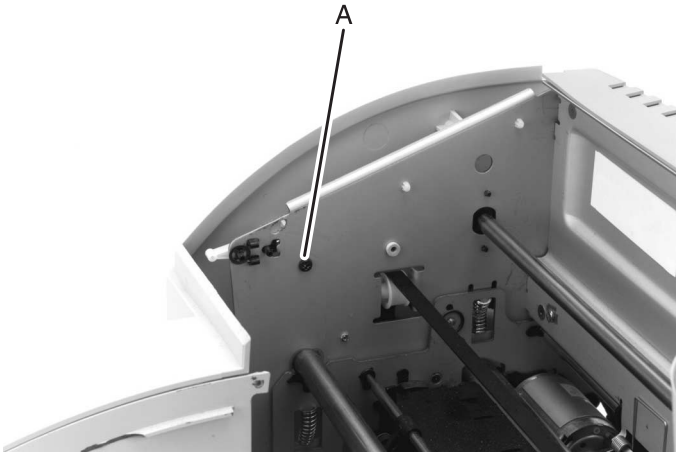
1. Open the top door.
2. The restraint screw does not have to be removed. The restraint has a T-end which can be twisted and removed. Partially close the top cover, twist the end of the strap that is in the machine and remove.
3. Remove the two screw {A} from the left frame cover.
4. Remove the cover.

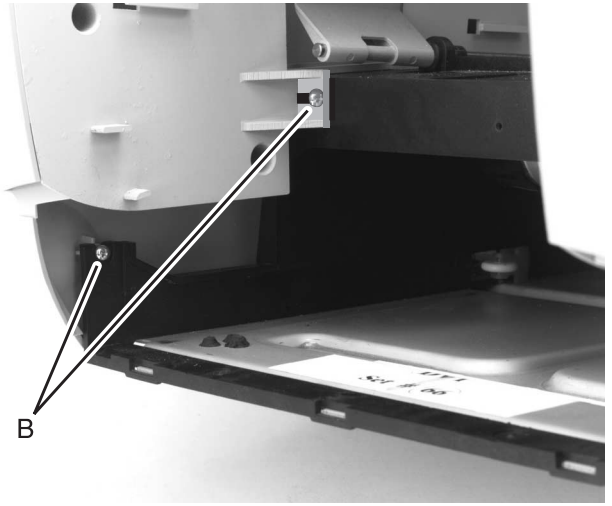


Left Cover Removal

1. Remove the rear cover.
2. Remove the exit tray cover.
3. Move carrier to the right.
4. Remove the screw {A} from the left side of the carrier frame.
5. Remove the two screws {B} from the left front side of the paper tray frame.
6. Remove the cover.

Note: When reinstalling, reinsert cover guides before installing the screws. Cover guides are located on the bottom edge of the cover.

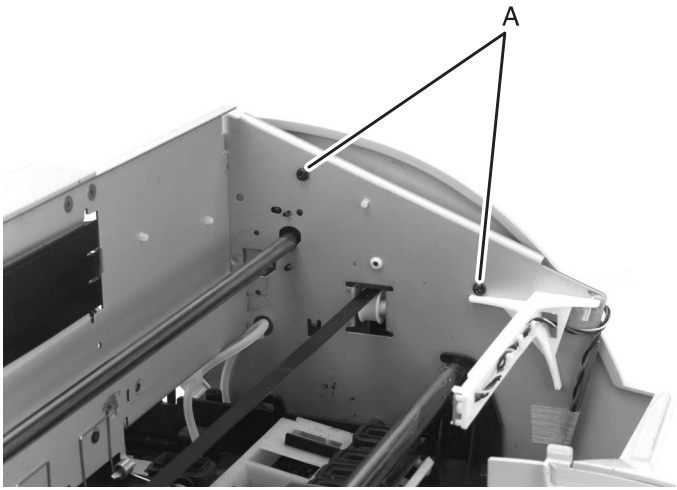


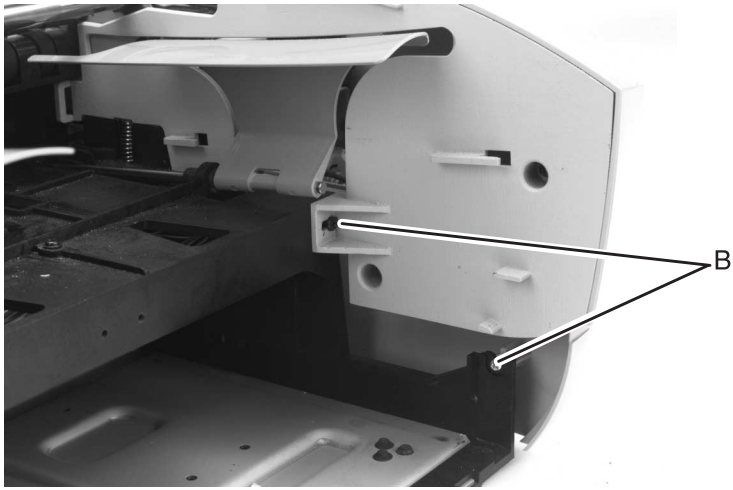

B

Right Cover/Power Switch Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the exit tray. Refer to “Exit Tray Removal” on page 4-5.
3. Remove the operator panel cover. Refer to “Operator Panel Cover/Operator Panel Removal” on page 4-5.
4. Move the carrier to the left.
5. Disconnect the power switch from the power supply. Note the wire routing.
6. Remove two screws {A} from the right carrier frame.
7. Remove the two screws {B} from the lower right front side of the paper tray frame.
8. Remove the cover.

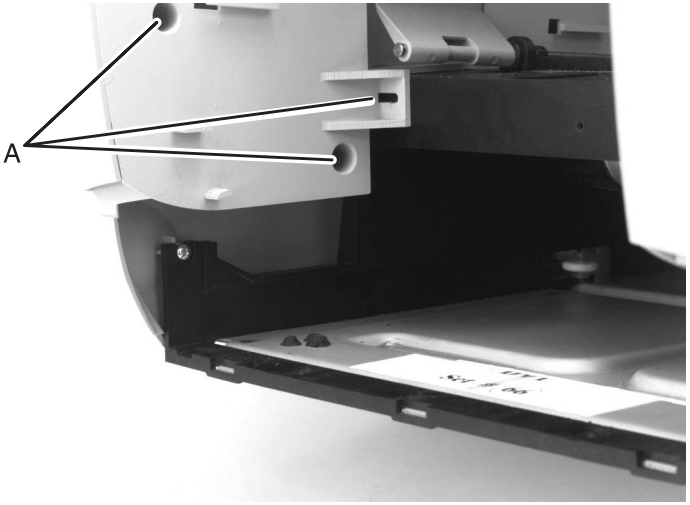
Note: When reinstalling, reinsert the cover guides before installing the screws. Cover guides are located on the bottom edge of the cover.




B

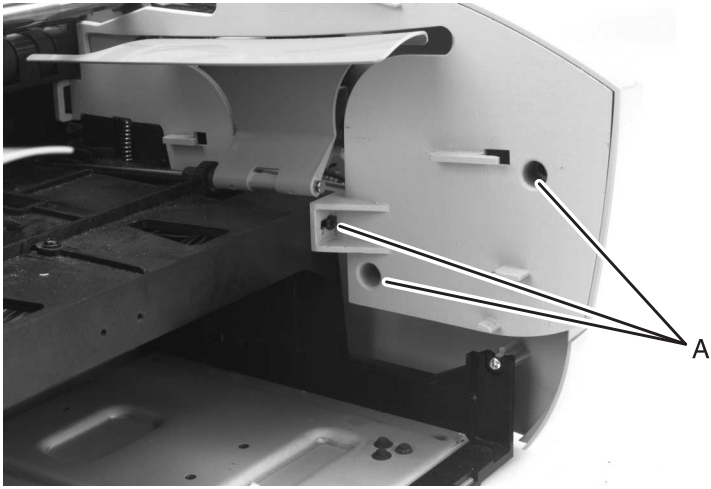
Left Tray Cover Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the exit tray cover. Refer to “Exit Tray Removal” on page 4-5.
3. Remove the left cover. Refer to “Left Cover Removal” on page 4-7.
4. Remove the three screws {A} that secure the left tray cover.
5. Remove the left tray cover.



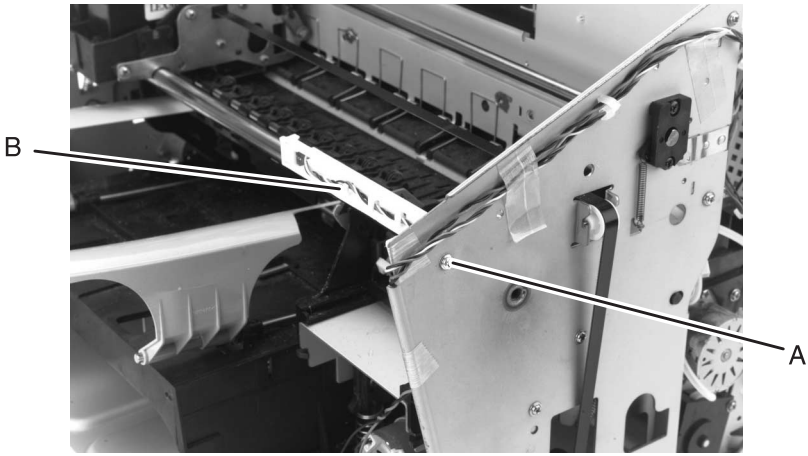
Right Tray Cover Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the exit tray cover. Refer to “Exit Tray Removal” on page 4-5.
3. Remove the right cover. Refer to “Right Cover/Power Switch Removal” on page 4-9.
4. Remove the three screws {A} that secure the right tray cover.
5. Remove the right tray cover.



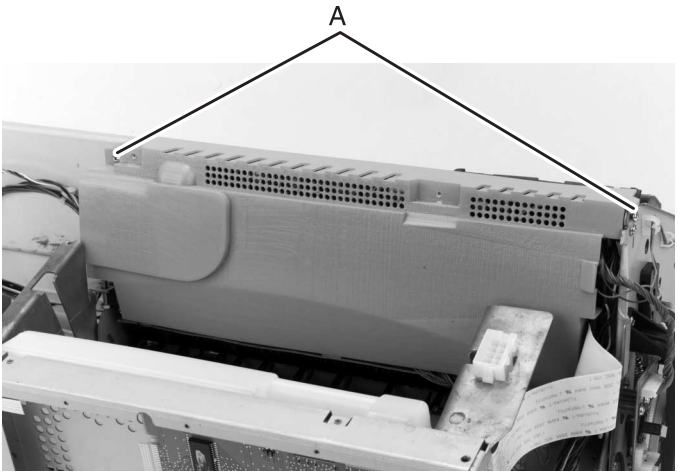
Ink Levels and Temperature Sensor with Bracket Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the operator panel cover. Refer to “Operator Panel Cover/Operator Panel Removal” on page 4-5.
3. Disconnect the ink level and temperature sensor connector (J12) on the engine board. Note the wire routing.
4. Remove the right cover.
5. Remove the screw {A} from the sensor bracket.
6. Remove the sensor and bracket {B}.



Engine Board /Cover Removal

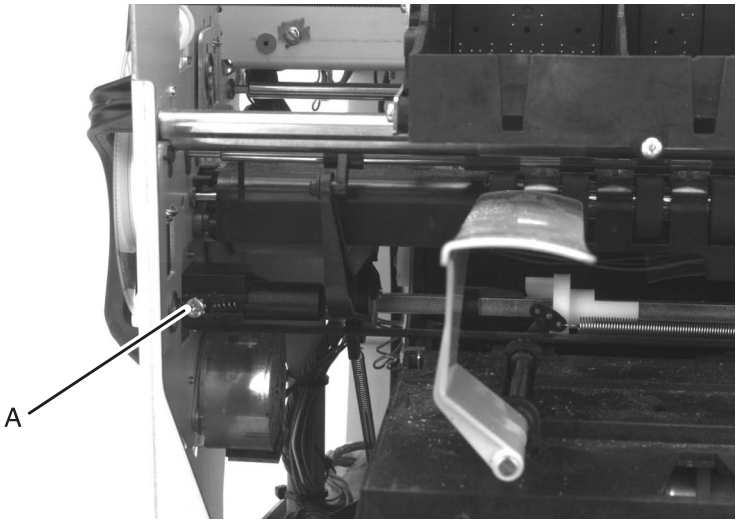
1. Remove the rear cover.
2. Remove left frame cover. Refer to “Left Frame Cover Removal” on page 4-6.
3. Remove the two screws {A} from the engine board cover and the cover.
4. Disconnect all connectors and cables from the engine board.
5. Remove the four screws and remove the engine board. Note the routing of the ground cable.

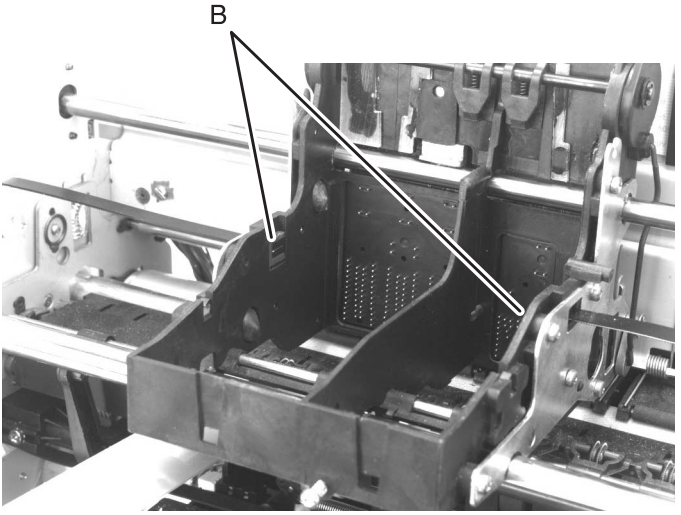


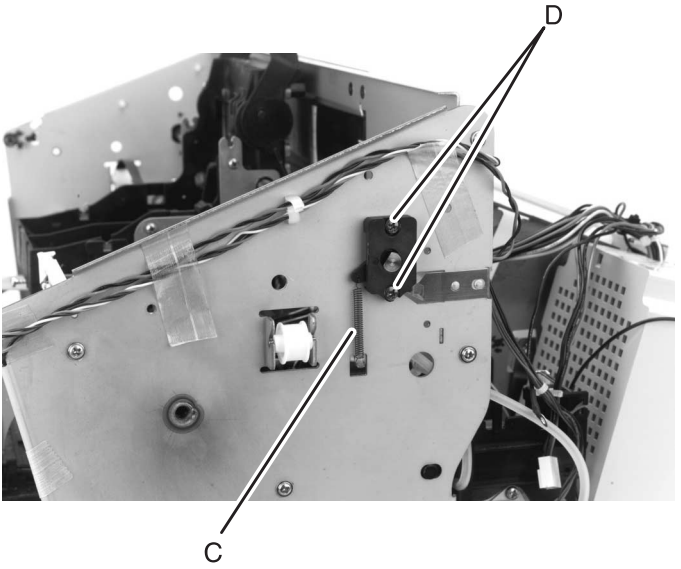
Carrier with Card Removal

1. Remove all covers.
2. Remove all ink cartridges from carrier.
3. Remove engine board cover. Refer to “Tray 2 Covers Removal” on page 4-49.
4. Loosen the set screw {A} on the belt tensioner.
5. Remove the tension from the belt and retighten the set screw.
6. Remove the belt keepers from the ends of the belt {B}. The open end of the keepers should face the rear of the carrier.
7. Remove the belt.
8. Disconnect the spring {C} and remove two screws {D} from the support shaft bracket located on the right side.
9. Slide the carrier guide rod out the right side.
10. Remove the encoder strip. Note the routing of the encoder strip through a sensor at the rear of the carrier. Be careful not to touch the encoder strip in any areas that the sensor uses. Handle the encoder strip no further in than 4 cm from each side.
11. Disconnect the carrier clip and cables from the engine board.
12. Remove the carrier.

Note: When reinstalling, insure correct orientation of the support shaft bracket and linkage.




B


D
C

Carrier 1st Stage Drive Belt Removal

1. Remove the motor bracket from the printer frame.
2. Loosen the three screws securing the motor plate to the motor assembly.
3. Gently depress the motor so that the 1st stage drive belt is loosened. Retighten the three screws to fix this position.
4. Remove the original belt and install the new belt.
5. Loosen the three screws to allow the motor bracket to apply proper belt tension. Retighten in a clockwise order, as installed in the machine, starting with the screw closest to the tensioner rivet. Next tighten the screw closest to the tensioner spring.
6. Ensure that the belt is aligned by rotating the compound pulley two or three times.

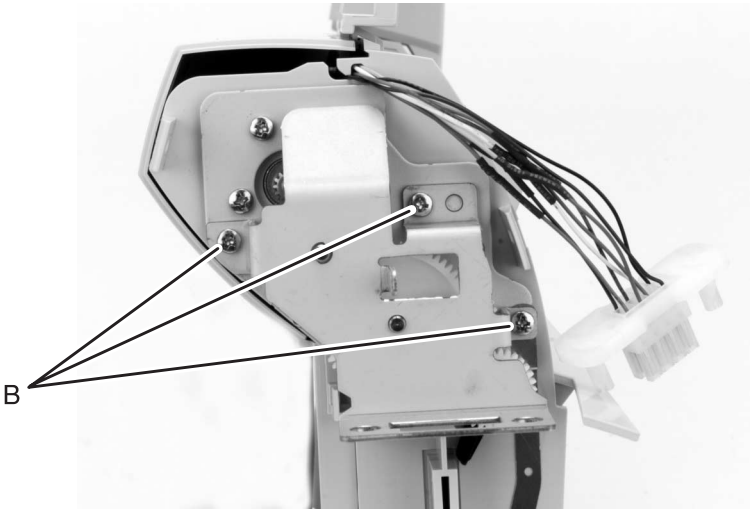
Carrier Printhead Latch Removal

1. Turn the printer off.
2. Open the front cover.
3. Move the carrier to the center.
4. Remove print cartridges from the carrier.
5. Remove the clips and washer from both sides.
6. Disconnect the pogo housing link on the right side.
7. Remove the carrier printhead latch.

Multi-Purpose Feeder (MPF) Motor and Sensor Removal

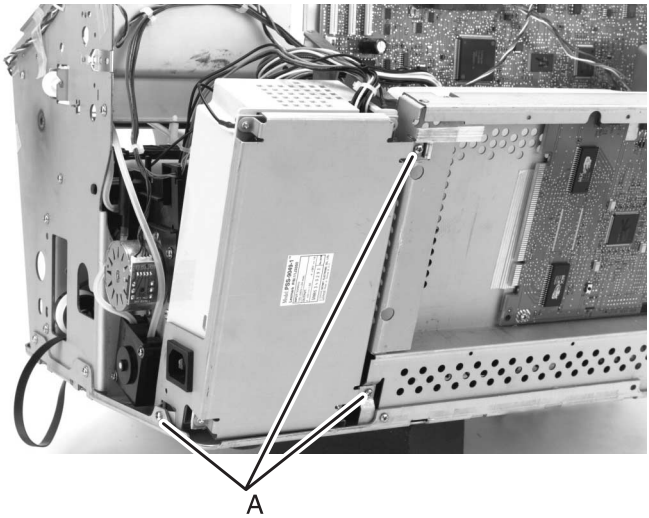
1. Remove multi-purpose feeder from the printer.
2. Remove the left and right end covers.
3. Remove one screw {A} from the right side of the rear cover.
4. Remove the rear cover.
5. Depress the clips and remove the sensor.
6. Depress the clips on the electrical connector and remove the connector from gear bracket.
7. Remove the three screws {B} from the gear bracket.
8. Remove the gear bracket.
9. Remove the two screws.
10. Remove the motor.


A


B

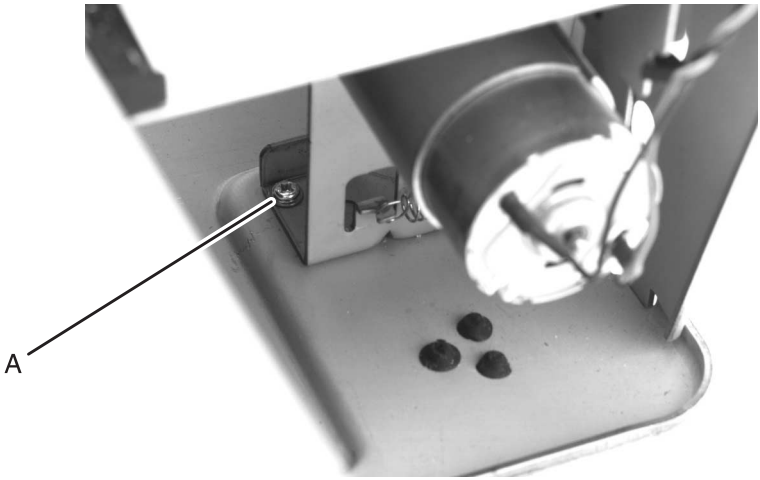
Power Supply Removal

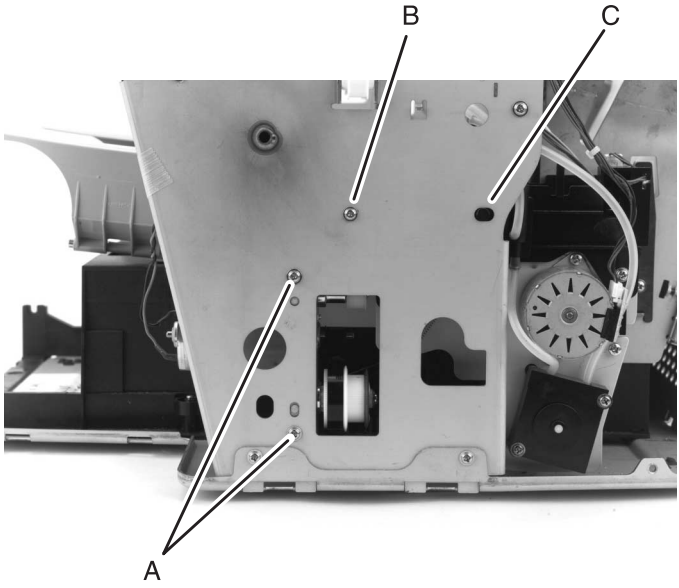
1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Disconnect all power supply cables, and ground straps. Note routing of the cables and straps.
3. Remove the three mounting screws {A} that attach the power supply to the frame.
4. Remove the power supply.



Pump Housing/Maintenance Station/Ink Waste Tank/ Transport Carrier Motor Removal

1. Remove all covers.
2. Remove the power supply. Refer to “Power Supply Removal” on page 4-19.
3. Slide the ink waste tank out the rear of the printer. Note the routing of the hose into tank.
4. Remove the carrier belt. Refer to “Engine Board /Cover Removal” on page 4-14.
5. Disconnect transport carrier motor cable from engine board.
6. Remove three screws {A} from the transport carrier motor bracket.
7. Remove the motor and bracket.
8. Loosen the screw on the maintenance bracket and depress the spring, then retighten the screw.
9. Remove the spring from the rear of the maintenance station.
10. Remove the screw {B} from the right side of the frame that secures the pump housing maintenance station assembly.
11. Push in the guide post {C} and move the pump housing maintenance station assembly forward and down to disconnect it from the shaft.
12. Slide the assembly out the rear of the printer and remove.

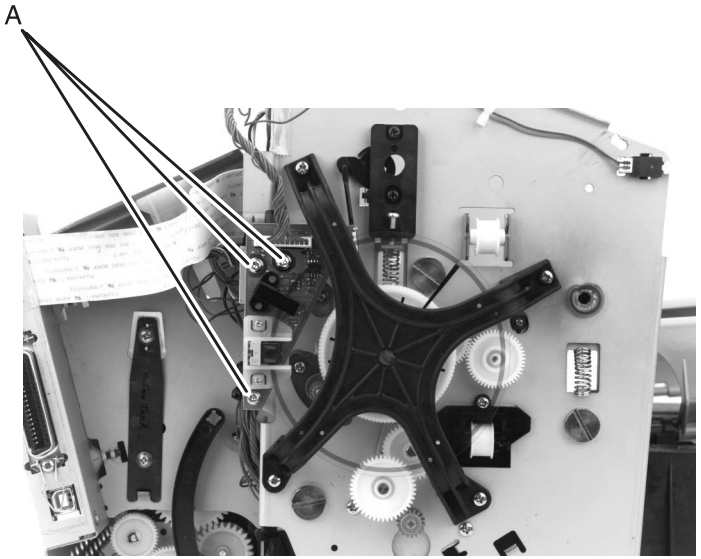



B
C
A

Index Card Assembly Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the exit tray cover. Refer to “Exit Tray Removal” on page 4-5.
3. Remove the left cover. Refer to “Left Cover Removal” on page 4-7.
4. Unplug the index board connector.
5. Remove the three screws {A} from the index board.
6. Remove the index card.

Note: The index card and the encoder disk feed roller must be replaced as a matching set. See “Encoder Disk Feed Roller Assembly Removal” on page 4-34.



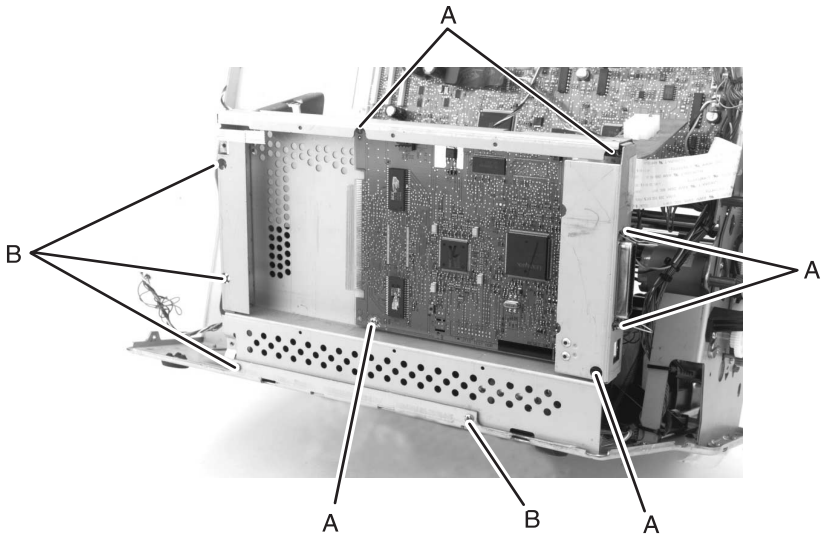
Cover-Open Sensor Removal

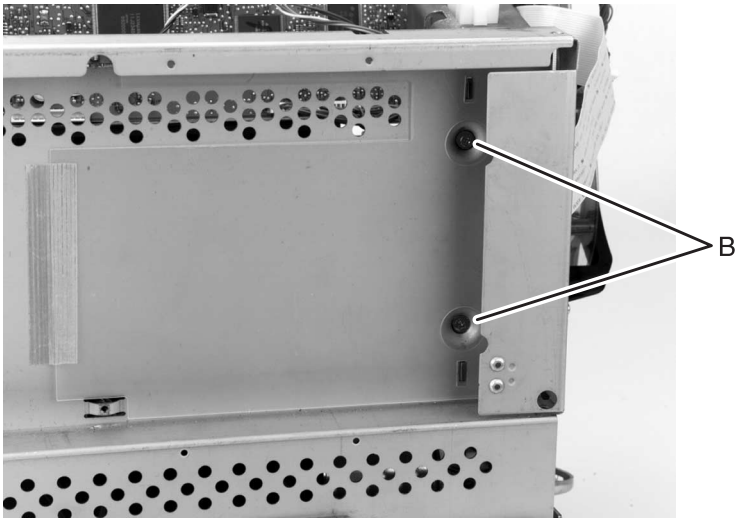
1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the exit tray cover. Refer to “Exit Tray Removal” on page 4-5.
3. Remove the left cover. Refer to “Left Cover Removal” on page 4-7.
4. Remove the engine card cover.
5. Unplug the cover-open sensor (J18) connector.
6. Depress two latches and remove the cover-open sensor.

RIP-EMC Shield Assembly/RIP Card Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the power supply. Refer to “Power Supply Removal” on page 4-19.
3. Disconnect (J14) RIP cable from the engine board.
4. Remove the six screws {A} from the RIP card.
5. Remove the RIP card. Note routing of cable.
6. Remove the six screws {B} from the shield assembly.
7. Remove the shield assembly.

Note: Anytime the RIP card is replaced, a course alignment has to be done. Refer to “Coarse Alignment” on page 3-5.



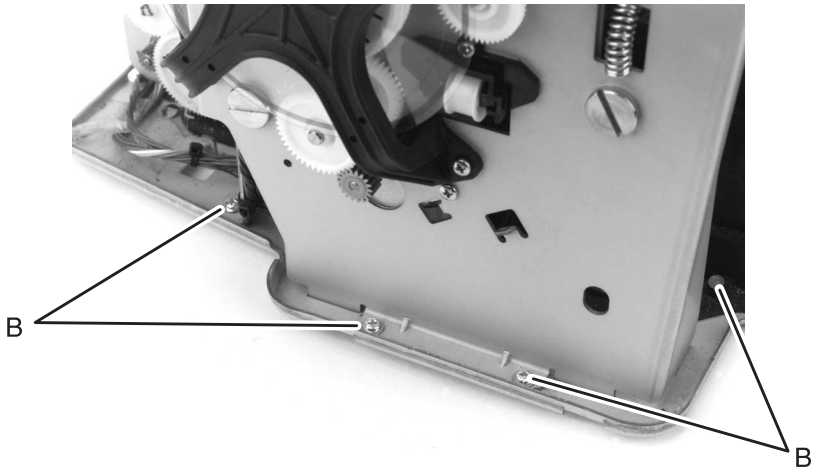

B

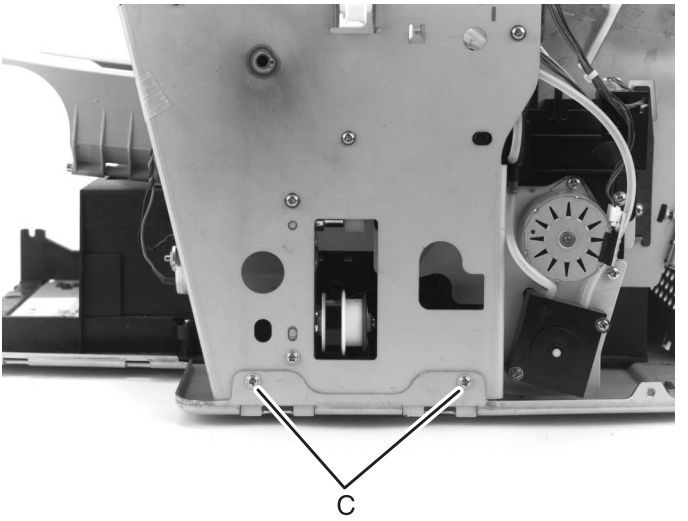
PerfectFinish Sensor Assembly/Rear Paper Path Sensor Removal

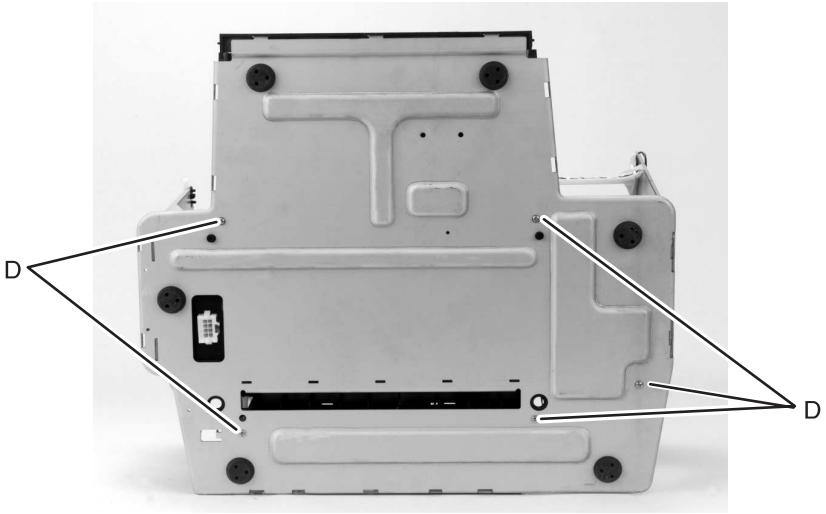
1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the power supply. Refer to “Power Supply Removal” on page 4-19.
3. Remove the RIP-EMC shield assembly and RIP card. Refer to “RIP-EMC Shield Assembly/RIP Card Removal” on page 4-24.
4. Disconnect the wire from the PerfectFinish sensor.
5. Remove two screws from the PerfectFinish sensor.
6. Remove the PerfectFinish sensor.
7. Remove the PerfectFinish tank.
8. Remove two screws and remove the PerfectFinish cartridge.
9. Unsnap the rear paper path sensor arm and remove. Note the position of the spring.
10. Lift the left side, unlatch the paper path sensor.
11. Disconnect the wire from paper path sensor.
12. Remove the paper path sensor.

Frame From Base Removal

1. Remove all covers. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the power supply. Refer to “Power Supply Removal” on page 4-19.
3. Remove the maintenance tank through the rear of the printer.
4. Disconnect (J2) the transport carrier motor from the engine board.
5. Disconnect (J17) the paper port II from the engine board.
6. Disconnect the star wheel follower spring {A} from the base assembly.
7. Remove the four screws {B} from the left side frame plate.
8. Remove the two screws {C} on the right side frame plate.
9. Before placing the printer on its back, remove the PerfectFinish applicator to prevent spilling.
10. Place the printer on its back and remove five screws {D} from the base.
11. Lift and slide the frame forward and remove.

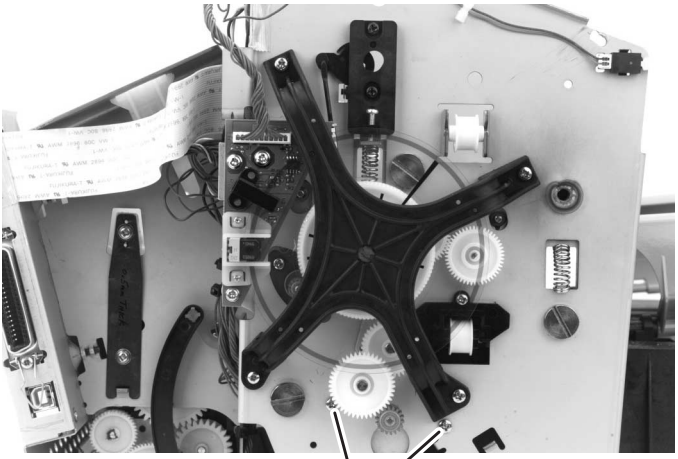

B
B


C



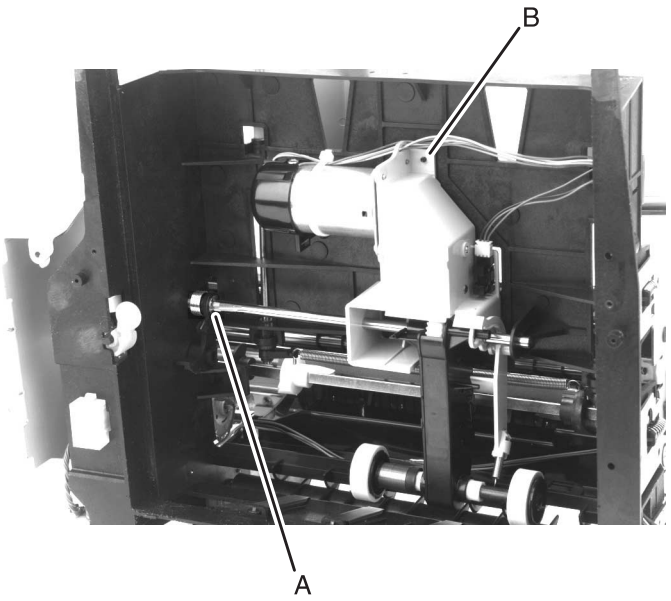
Cam Engine Motor with Gear Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the exit tray cover. Refer to “Exit Tray Removal” on page 4-5.
3. Remove the left cover. Refer to “Left Cover Removal” on page 4-7.
4. Disconnect the cam engine motor connector (J8) from the engine board.
5. Remove the two screws {A} from the motor.
6. Remove the motor through the front of the printer. Note the routing of the wires.


A

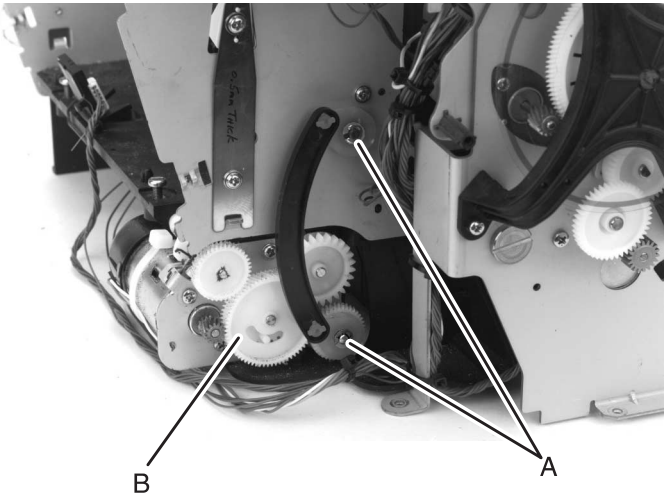
Paper Feed Pick Arm Assembly with Motor and Paper Path Sensor Removal

1. Remove all covers.
2. Remove power supply. Refer to “Power Supply Removal” on page 4-19.
3. Remove the frame from the base. Refer to “Frame From Base Removal” on page 4-27.
4. Remove the two lower screws on the base of the RIP shield.
5. Disconnect the integrated tray connector (J6) from the engine board and disconnect the paper path sensor.
6. Remove the E-clip {A} from the pick assembly shaft.
7. Remove the screw {B} from the paper feed frame assembly.
8. Slide the shaft to the left and remove the pick arm assembly.
9. Disconnect the wire from the paper path sensor and snap the sensor out to remove. When reinstalling, note the routing of the wires and position of spring.



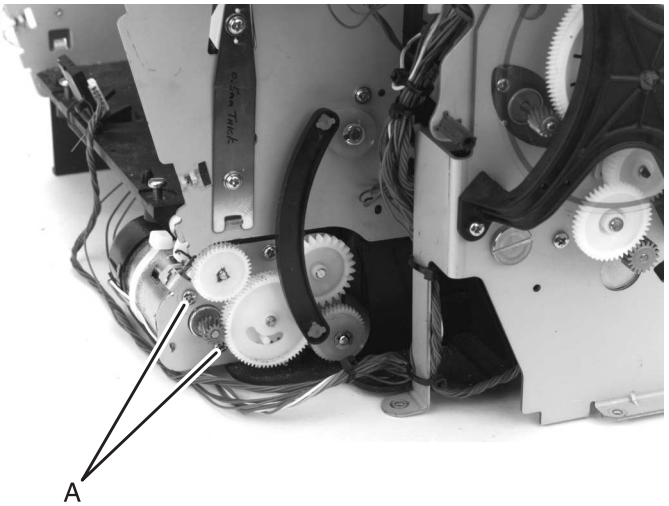
PerfectFinish Gear Plate Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove E-clips {A} from bellcrank diverter link and remove link.
3. Remove helical drive gear {B} and cartridge drive gear under it. Note the position of the cartridge drive gear under the helical drive gear.
4. Remove three screws and remove plate.



PerfectFinish Motor Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Disconnect the PerfectFinish motor and encoder connector (J5) from the engine board.
3. Remove the two screws {A} from the motor.
4. Remove the motor. Note routing of wiring.



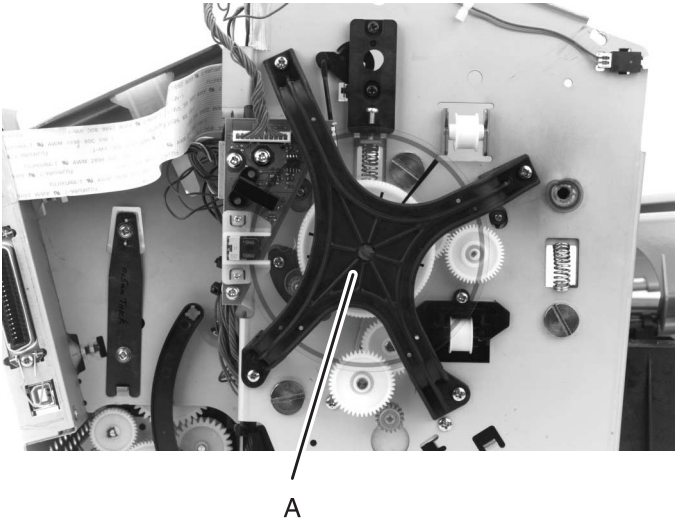
Index Motor Assembly Removal

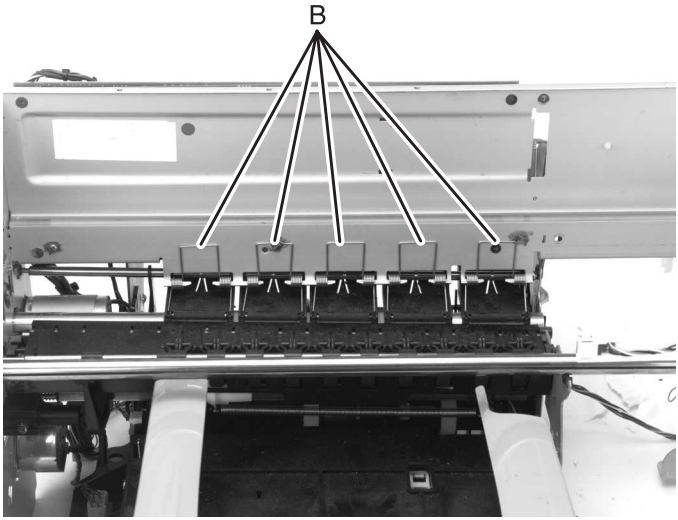
1. Remove rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove engine board cover. Refer to “Tray 2 Covers Removal” on page 4-49.
3. Disconnect (J16) from the engine board.
4. Remove the encoder disk feed roller assembly. Refer to “Encoder Disk Feed Roller Assembly Removal” on page 4-34.
5. Remove the two screws from the index motor.
6. Remove the motor. Note the routing of the wiring.

Encoder Disk Feed Roller Assembly Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the operator panel cover. Refer to “Operator Panel Cover/Operator Panel Removal” on page 4-5.
3. Remove the exit tray cover. Refer to “Exit Tray Removal” on page 4-5.
4. Remove the left cover. Refer to “Left Cover Removal” on page 4-7.
5. Remove the thrust bracket CBM {A}.
6. Remove the index board assembly.
7. Remove the five backup roller springs {B}. Note orientation of springs before removing.
8. Remove the encoder disk feed roller assembly through the left side of the printer.

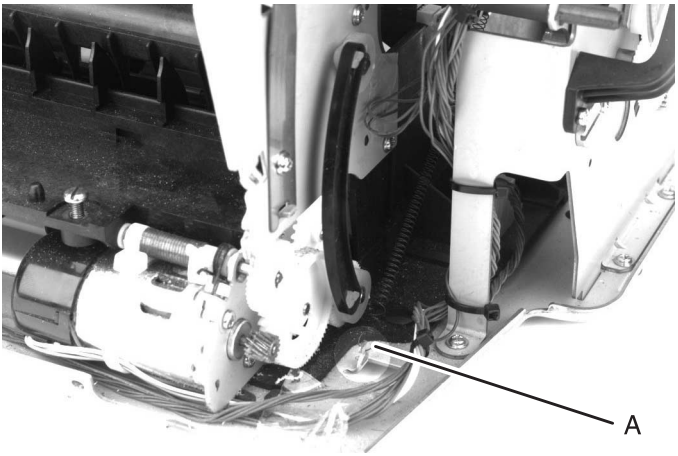
Note: The index card and the encoder disk feed roller must be replaced as a matching set. See “Index Card Assembly Removal” on page 4-22. Also replace the thrust bracket and the cleaning roller.

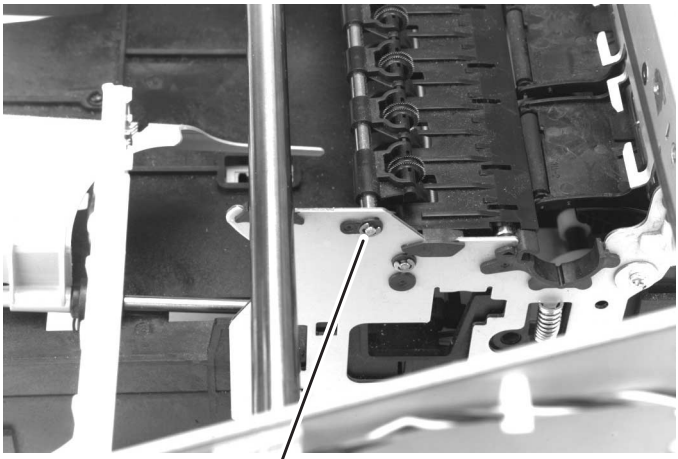



B

Star Wheel Shaft Assembly Removal

1. Remove all covers.
2. Remove the carrier and belt. Refer to “Engine Board /Cover Removal” on page 4-14.
3. Remove pump housing maintenance station, tank, and transport carrier motor. Refer to “Pump Housing/Maintenance Station/Ink Waste Tank/Transport Carrier Motor Removal” on page 4-20.
4. Disconnect the spring {A} connecting the base assembly to the star wheel cam follow assembly.
5. Remove the E-clip {B} from the right end of the star wheel shaft.
6. Slide the shaft to the left and lift out. Disconnect the star wheel cam follow from the cam shaft assembly.
7. Remove the star wheel assembly.



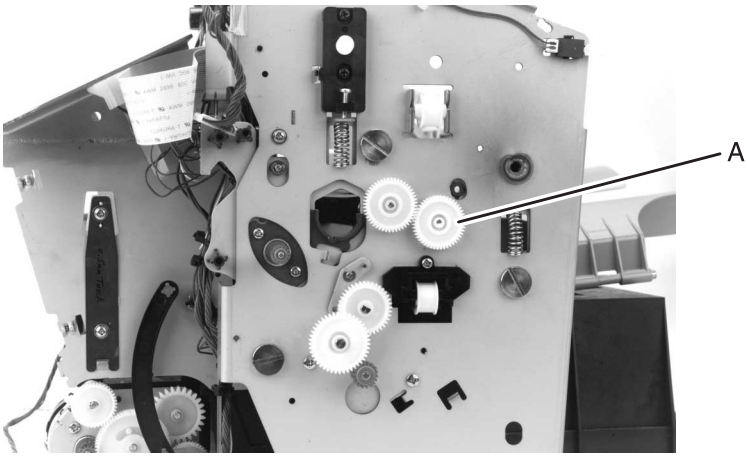

B

Paper Feed Platen Assembly Removal

1. Remove all covers.
2. Remove the carrier and belt. Refer to “Engine Board /Cover Removal” on page 4-14.
3. Remove the pump housing maintenance station, tank, and the transport carrier motor. Refer to “Pump Housing/Maintenance Station/Ink Waste Tank/Transport Carrier Motor Removal” on page 4-20.
4. Remove the star wheel shaft.
5. Press down gently on both sides and remove the paper feed platen out through the front of the printer. Be careful not to damage the platen bias studs.
6. Remove the paper feed platen.

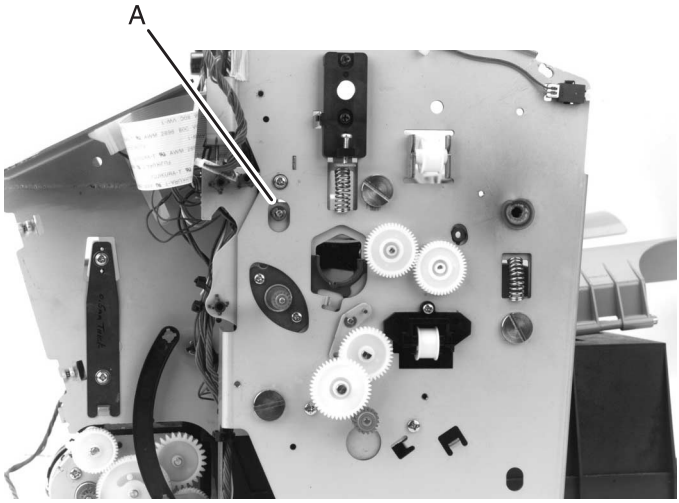
Exit Shaft with Gear Removal

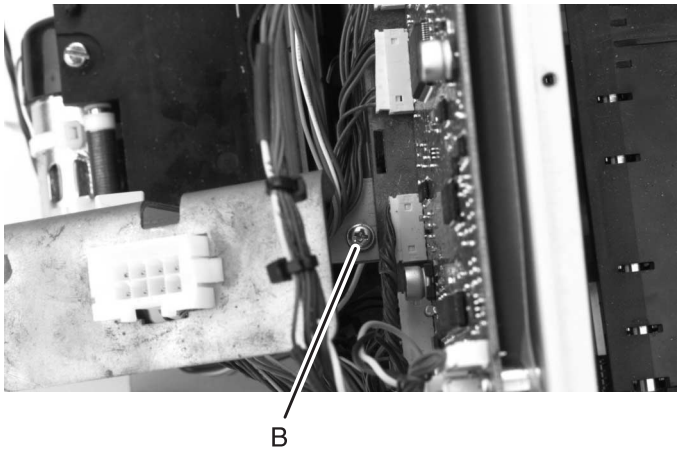
1. Remove all covers.
2. Remove carrier and belt. Refer to “Engine Board /Cover Removal” on page 4-14.
3. Remove pump housing, maintenance station, tank, and transport carrier motor. Refer to “Pump Housing/Maintenance Station/Ink Waste Tank/Transport Carrier Motor Removal” on page 4-20.
4. Remove star wheel shaft. Refer to “Star Wheel Shaft Assembly Removal” on page 4-36.
5. Remove paper feed platen. Refer to “Paper Feed Platen Assembly Removal” on page 4-38.
6. Remove the E-clip from the right end of the exit shaft.
7. Move exit shaft to the left, lift and pull to the right to remove the exit shaft gear {A}. Note the orientation of the gear before removal.
8. Remove the exit shaft.

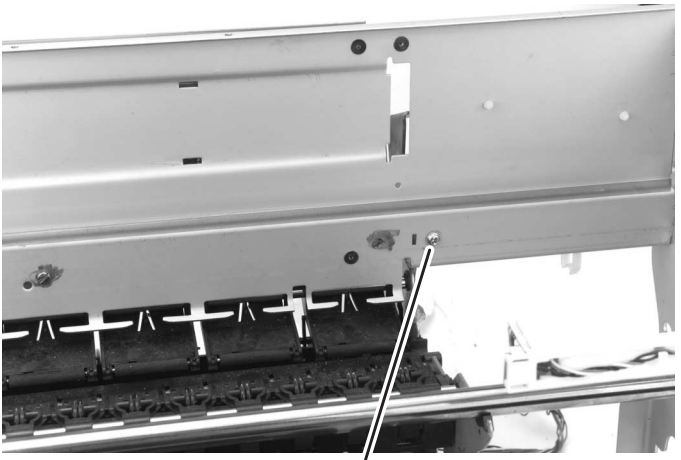


Paper Feed Frame and Motor/Cam Shaft Assembly Removal

1. Remove all covers.
2. Remove the carrier and belt. Refer to “Engine Board /Cover Removal” on page 4-14.
3. Remove pump housing, maintenance station, tank and transport carrier motor. Refer to “Pump Housing/Maintenance Station/Ink Waste Tank/Transport Carrier Motor Removal” on page 4-20.
4. Remove the star wheel shaft. See “Star Wheel Shaft Assembly Removal” on page 4-36.
5. Remove paper feed platen. Refer to “Paper Feed Platen Assembly Removal” on page 4-38.
6. Remove encoder disk and feed roller assembly. Refer to “Encoder Disk Feed Roller Assembly Removal” on page 4-34.
7. Remove frame from base. Refer to “Frame From Base Removal” on page 4-27.
8. Disconnect all cable connectors from the engine board.
9. Remove the two E-clips {A} on the backup roller assembly shaft.
10. Remove the two upper frame support screws {B}.
11. Move the paper feed frame with motor to the right and remove.
12. Pull the cam shaft assembly to the right and remove the gear.
13. Remove the cam shaft assembly. Before removing the paper feed frame and motor, note the position of the bat wings on the cam shaft.

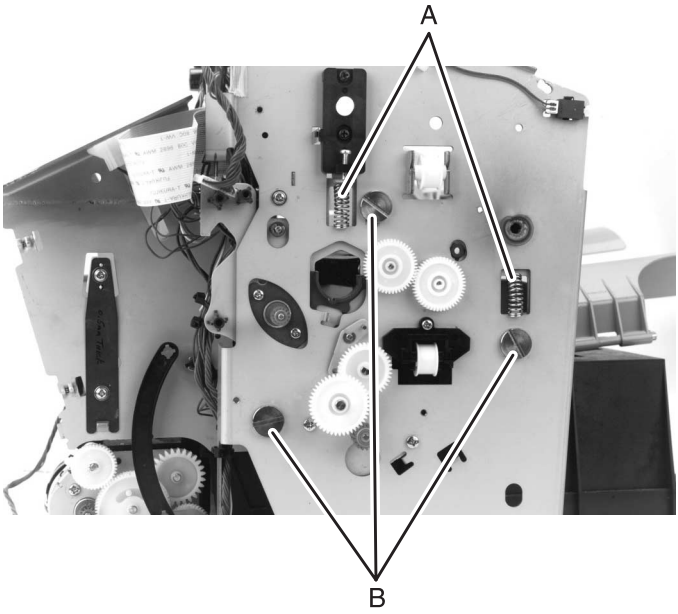

A


B


B

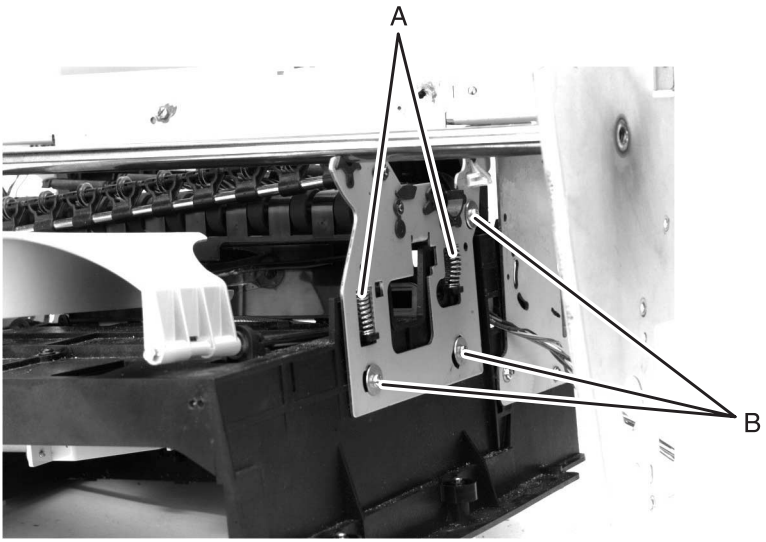
Left Index Frame Pivot Assembly Removal

1. Remove all covers.
2. Remove the carrier and belt. Refer to “Engine Board /Cover Removal” on page 4-14.
3. Remove the pump housing, maintenance station, tank, and transport carrier motor. Refer to “Pump Housing/Maintenance Station/Ink Waste Tank/Transport Carrier Motor Removal” on page 4-20.
4. Remove the star wheel shaft. Refer to “Star Wheel Shaft Assembly Removal” on page 4-36.
5. Remove paper feed platen. Refer to “Paper Feed Platen Assembly Removal” on page 4-38.
6. Remove encoder disk feed roller assembly. See “Encoder Disk Feed Roller Assembly Removal” on page 4-34.
7. Remove the frame from the base. Refer to “Frame From Base Removal” on page 4-27.
8. Disconnect all cable connectors from the engine board.
9. Remove paper feed frame and motor. Refer to “Paper Feed Frame and Motor/Cam Shaft Assembly Removal” on page 4-40.
10. Remove the index motor. Refer to “Index Motor Assembly Removal” on page 4-33.
11. Remove the two index frame springs {A}.
12. Remove the three screws {B} from the left index frame pivot assembly.
13. Remove the left index frame pivot assembly.


A
B

Right Index Frame Pivot Assembly Removal

1. Remove all covers.
2. Remove the carrier and belt. Refer to “Engine Board /Cover Removal” on page 4-14.
3. Remove the pump housing, maintenance station, tank and the transport carrier motor. Refer to “Pump Housing/Maintenance Station/Ink Waste Tank/Transport Carrier Motor Removal” on page 4-20.
4. Remove the star wheel shaft. Refer to “Star Wheel Shaft Assembly Removal” on page 4-36.
5. Remove the paper feed platen. Refer to “Paper Feed Platen Assembly Removal” on page 4-38.
6. Remove encoder disk feed roller assembly. Refer to “Encoder Disk Feed Roller Assembly Removal” on page 4-34.
7. Remove the two index frame springs {A}.
8. Remove three screws and washers {B} from the right index frame pivot assembly.
9. Remove the right index frame pivot assembly.



Bat Wings and Bushings Removal

1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the spring between the cam followers.
3. Remove the two E-clips from the ends of the bat wing shaft.
4. Remove bushings.
5. Pull forward and remove.

Backup Roller Assembly Removal

1. Remove all covers.
2. Remove carrier and belt. Refer to “Engine Board /Cover Removal” on page 4-14.
3. Remove pump housing, maintenance station, tank and transport carrier motor. Refer to “Pump Housing/Maintenance Station/Ink Waste Tank/Transport Carrier Motor Removal” on page 4-20.
4. Remove star wheel shaft. Refer to “Star Wheel Shaft Assembly Removal” on page 4-36.
5. Remove the paper feed platen. Refer to “Paper Feed Platen Assembly Removal” on page 4-38.
6. Remove the backup roller springs.
7. Remove the index board assembly. Refer to “Index Card Assembly Removal” on page 4-22.
8. Remove the encoder disk feed roller assembly. Refer to “Encoder Disk Feed Roller Assembly Removal” on page 4-34.
9. Remove the frame from the base. Refer to “Frame From Base Removal” on page 4-27.
10. Disconnect all cable connectors from the engine board.
11. Remove, from the left side frame, two E-clips on the right side of the backup roller assembly.
12. Move the paper feed frame and motor to the right and remove. Refer to “Paper Feed Frame and Motor/Cam Shaft Assembly Removal” on page 4-40.
13. Move the backup roller assembly shaft to the left and remove it from the right bushing.
14. Move the backup roller assembly to the right and out of the inner deflector and remove.

Note: When removing the backup roller assembly, use care not to damage the paper sensor flag.

Backup Roller Spring Removal

1. Lift the front door on the printer.
2. Press the coil on the backup roller spring to center and remove. Note the position of the spring before removing.

Carrier/Cable Retainer Removal

1. Remove all covers.
2. Remove the engine board cover.
3. Disconnect carrier cables from the engine board.
4. Remove the carrier guide shaft from the carrier.
5. Unlatch the cable restraint, disconnect carrier cables from the rear of the carrier and remove.
6. Depress the retainer cable clip, move the cable to the right and remove.

Peristaltic Pump Removal

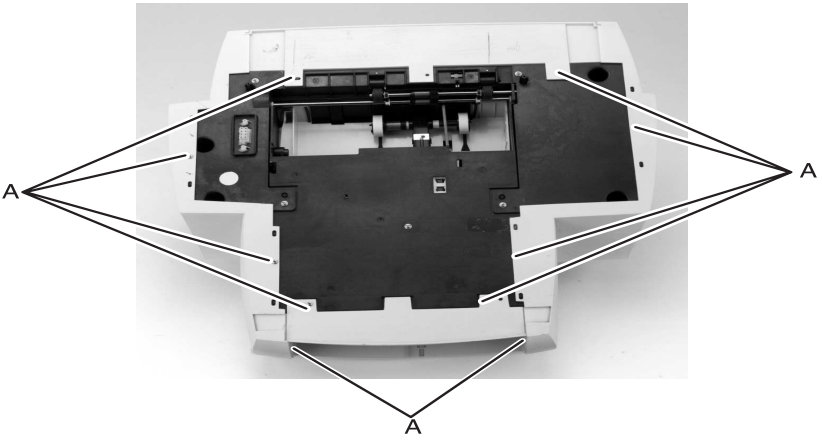
1. Remove the rear cover. Refer to “Rear Cover Removal” on page 4-3.
2. Remove the exit tray. Refer to “Exit Tray Removal” on page 4-5.
3. Remove the operator panel cover. Refer to “Operator Panel Cover/Operator Panel Removal” on page 4-5.
4. Remove right cover. Refer to “Right Cover/Power Switch Removal” on page 4-9.
5. Remove the power supply and tank.

Note: When reinstalling the pump, be sure the gear alignment is correct.

6. Remove the two screws from the peristaltic pump and disconnect the pump from the gear.

Tray 2 Covers Removal

1. Remove ten screws {A} from Tray 2 covers.
2. Remove the covers.



Tray 2 Paper Pick Arm Assembly Removal

1. Remove all covers
2. Remove eight screws {A} from Tray 2 base.
3. Remove E-clip {B} from pick assembly shaft.
4. Remove the screw {C} from the paper feed frame assembly.
5. Slide the shaft to the left and remove the pick arm assembly.

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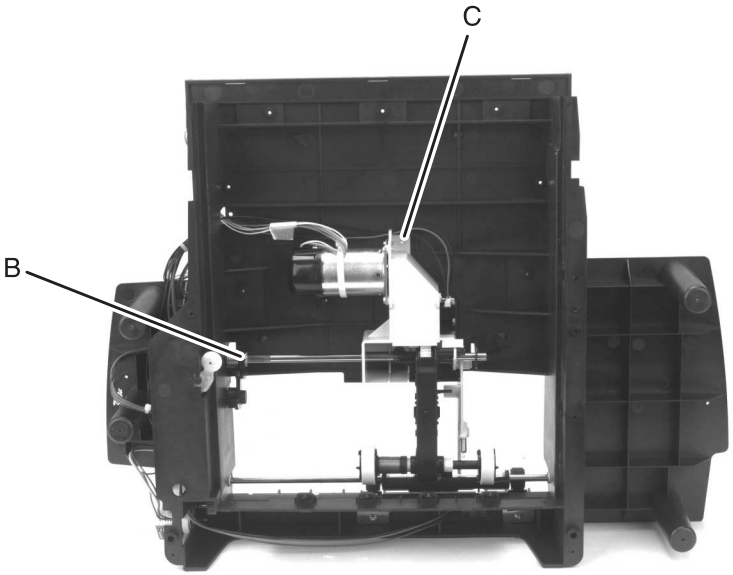
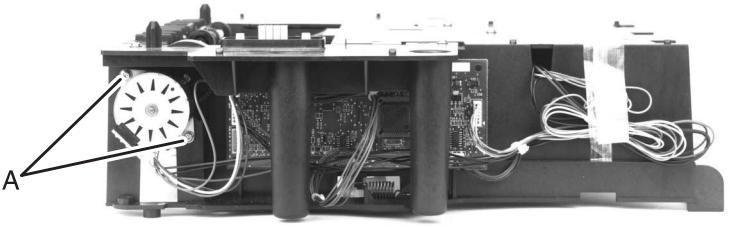


Tray 2 Paper Feed Motor and Card Assembly Removal

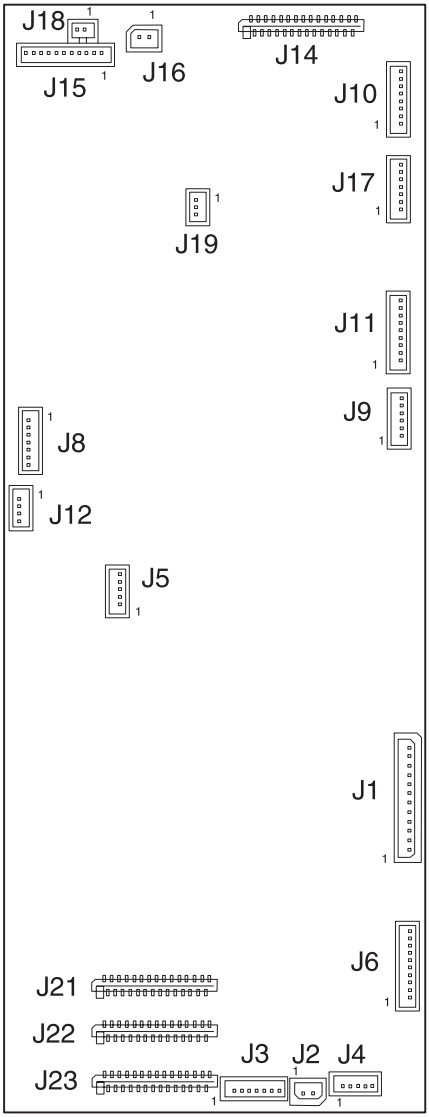
1. Remove the left cover from Tray 2.
2. Remove the four screws from the paper port connector frame.
3. Remove the paper port connector frame.
4. Remove the two paper feed motor screws {A}.
5. Disconnect the paper feed motor connector.
6. Remove the motor.



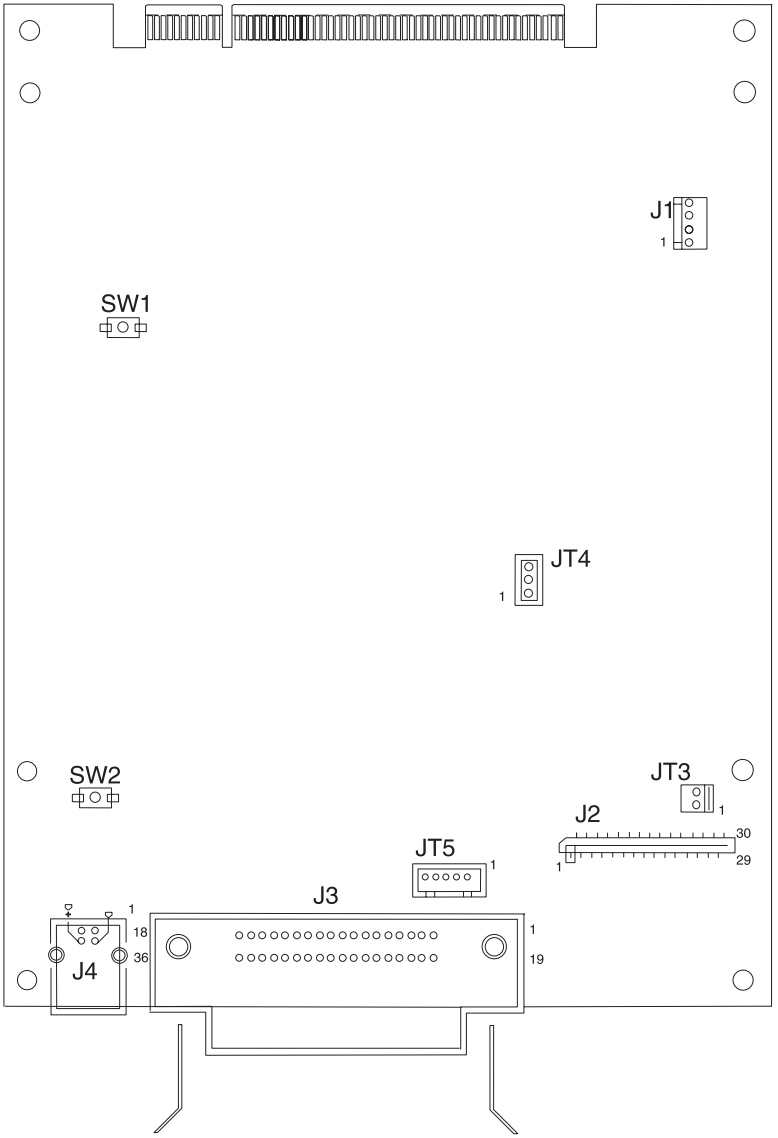
5. Connector Locations

Engine Board

J1	Power Supply
J2	Carrier Motor
J3	Maintenance Station Motor and Homing
J4	Operator Panel
J5	Thin-Coat Motor and Encoder
J6	Integrated Tray
J8	Cam System
J9	Thin-Coat Sensing
J10	MPF-Feeder
J11	Paper-Path Sensing
J12	Ink-Level and Temperature Sensing
J14	RIP
J15	Index System
J16	Index Motor
J17	Paper Port II Tray2
J18	Cover-Open Sensor
J21	Carrier Connector
J22	Carrier Connector
J23	Carrier Connector



RIP Card

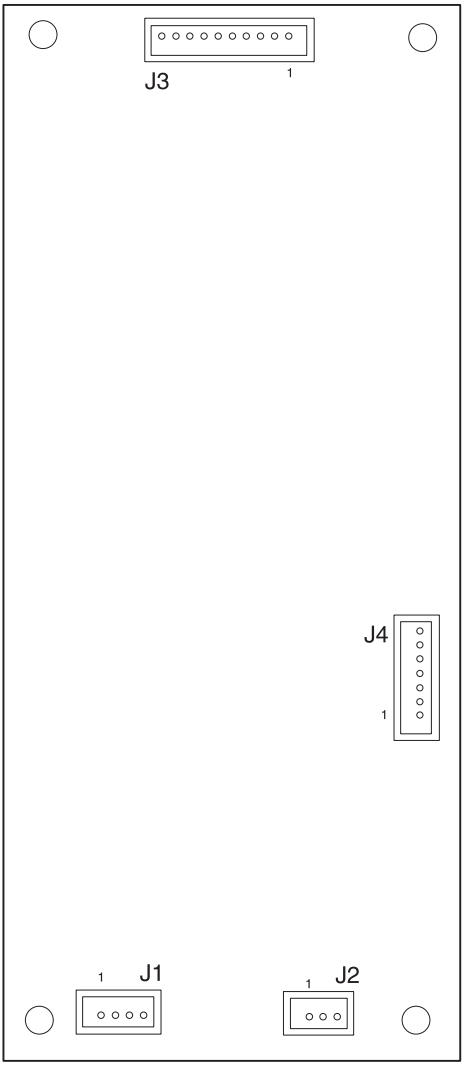


RIP Card (cont.)

J1	Power Supply
J2	Engine
J3	Parallel
J4	USB

Optional Tray 2

J1	Paper Feed Motor
J2	Passthru Sensor
J3	Paper Feed Pic Motor
J4	Paperport II and Power



6. Preventive Maintenance

This chapter contains lubrication specifications. Follow these recommendations to prevent problems and maintain optimum performance.

Lubrication Specifications

Lubricate only when parts are replaced or as needed, not on a scheduled basis. Use of lubricants other than those specified can cause premature failure. Some unauthorized lubricants may chemically attack polycarbonate parts. Use IBM no. 10 oil, PN 1280443 (Approved equivalents: Mobil DTE27, Shell Tellus 100, Fuchs Renolin MR30), IBM no. 23 grease (Approved equivalent Shell Darina 1), and grease, PN 99A0394 Nyogel 744 to lubricate appropriate areas of the machine.

Numbers in {} refer to items in **Assembly 4: Carrier Transport**.

Carrier Shafts

- Apply Nye Nyogel 744 uniformly across the top portion of the 8mm {1} and 12mm carrier shafts. The grease should be visible to the eye on the shafts, but not dripping from the shafts. Use 0.03 to 0.06 grams for the 8mm shaft {1}. For reference, use 0.08 to 0.16 grams for the 12 mm shaft.
- Remove any excessive coatings or accumulations with a lint-free cloth. When applying Nyogel 744 to the top of the 8mm shaft, ensure that no grease contacts the encoder strip as a carrier system stall could result during the Power-On-Sequence or during printing.

Note: Do not let the Nyogel 744 come in contact with the pogo pin housing. May cause machine failure.

Carrier Transport System Pulleys

- Apply Shell Tellus #100 to the pulley bores of the top idler pulleys {3} and tensioner {13}. The amount of oil to b used should be visible in the pulley bore, but should not drip. For reference, use approximately 0.003 grams per pulley.

- Avoid oil contact with the outer pulley surface and flanges that contact the belt.

Motor Pulley Studs

- Apply Shell Tellus #100 oil to the idler stud and compound pulley stud {8}. The amount of Shell Tellus #100 to be used should be visible on the stud but not dripping or running onto the motor bracket, pulleys or frame. For reference, use approximately 0.005 grams on the compound pulley stud and approximately 0.003 grams on the idler pulley stud.

Carrier Latch Camshaft Lubrication

- With the carrier handle raised to disengage the camshaft, apply small drops of Nye Uniflor 8512 (0.01 grams to 0.02 grams per cam) to the carrier backup bracket in the regions directly behind the camshaft lobes.
- Open and close the handle a couple of times to ensure that the contacting surfaces of the cams and bracket have been lubricated.
- If appropriate, remove any excess lubricant from the bracket around these regions, being careful to avoid contamination of the carrier card or carrier cables. Lubricant should not drip down the carrier card bracket.

Carrier Card Pogo Pins

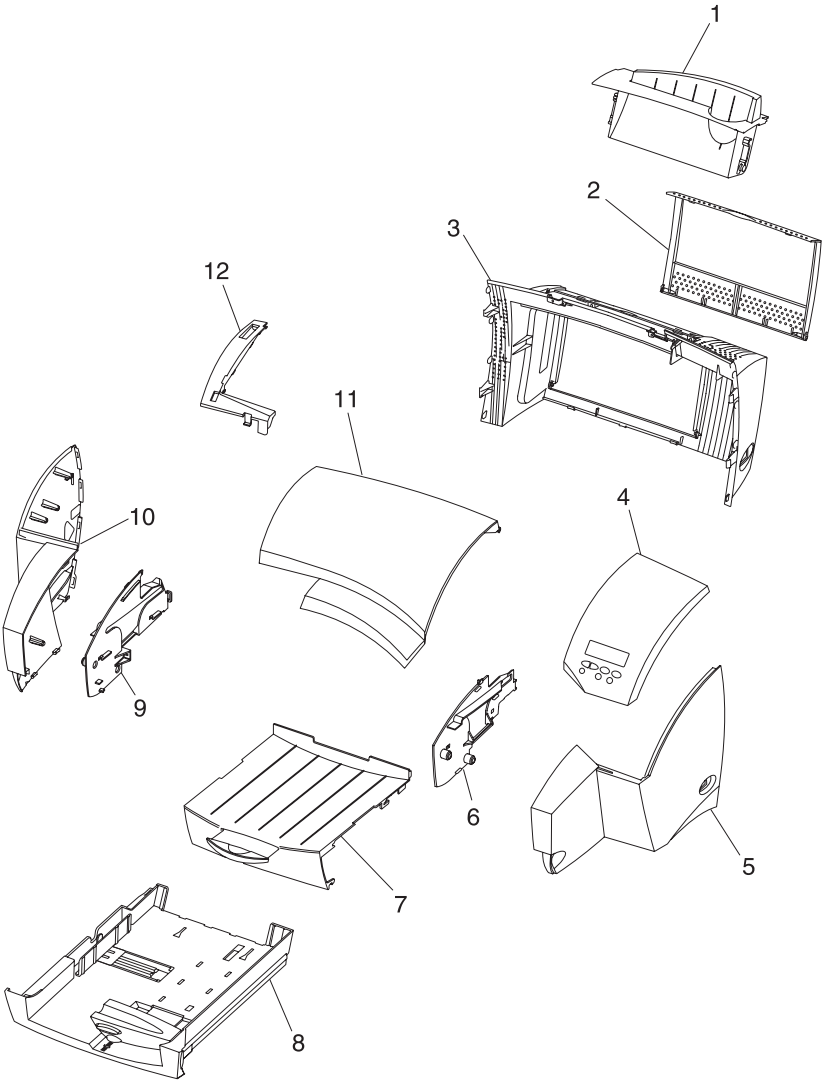
- Use Nye Tact 570H-10 to lubricate the ink tank pogo pins on the carrier card assembly. Use of an appropriate fixture is needed to properly lubricate the ink tank pogo pins. For reference, this amount should be about 0.05 grams wet.
- Shake well before applying Nyetact 570H-10 lubricant. Depress the applicator bottle on each set of pogo pins only once, avoiding excessive drippage on other parts of the carrier card.

7. Parts Catalog

How To Use The Parts Catalog

- NS: (Not Shown) in the Asm-Index column indicates that the part is procurable but is not shown in the illustration.
- PP: in the Description column indicates the part is available in the listed parts packet.

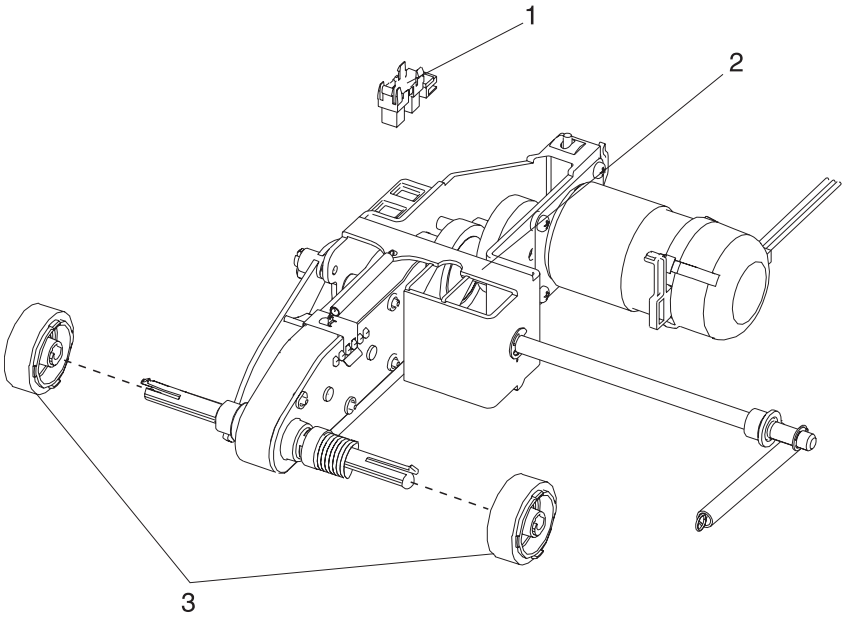
Assembly 1: Covers



Assembly 1: Covers

Asm-Index	Part Number	Units	Description
1-1	12G6073	1	Cover Assembly, Manual Feed
2	12G6070	1	Door, Rear
3	12G6069	1	Cover, Rear
4	12G6065	1	Cover, Operator Panel
5	12G6061	1	Cover, Right
6	12G6063	1	Cover, Right Tray
7	12G6072	1	Cover Assembly, Exit Tray
8	12G6075	1	Paper Tray Assembly
9	12G6062	1	Cover, Left Tray
10	12G6060	1	Cover, Left
11	12G6071	1	Top Door Assembly
12	12G6064	1	Cover, Left Frame
NS	12G6076		Screws, (PP)

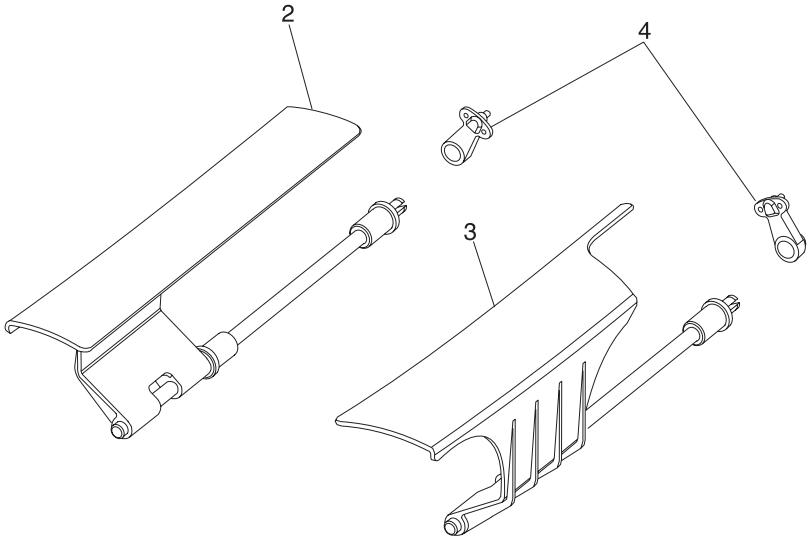
Assembly 2: Paper Feed



Assembly 2: Paper Feed

Asm-Index	Part Number	Units	Description
2-1	12G6024	1	Paper Out Sensor
2	12G6000	1	Paper Feed Pick Assembly with Motor
3	12G6092	2	Pick Tires

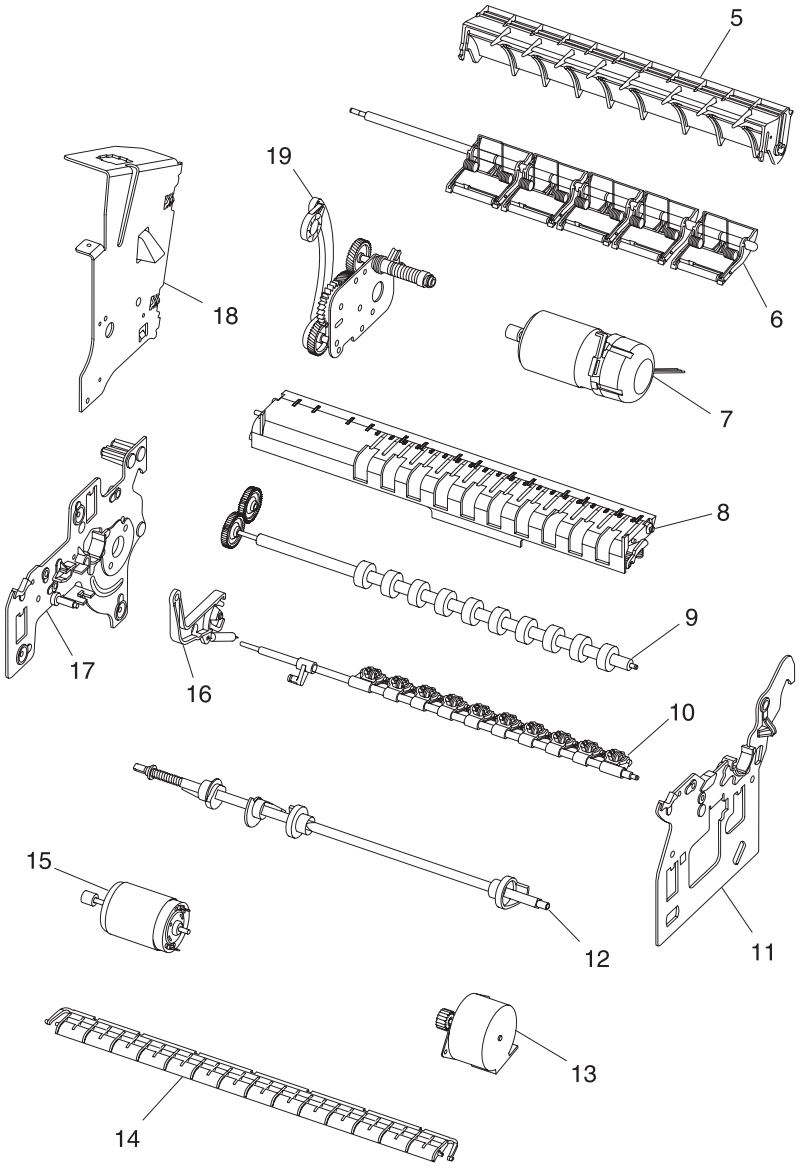
Assembly 2 (cont.): Paper Feed



Assembly 2 (cont.): Paper Feed

Asm-Index	Part Number	Units	Description
2-2	12G6003	1	Left Bat Wing with Bushings
3	12G6004	1	Right Bat Wing with Bushings
4	12G6005	1	Bat Wing Follower Assembly

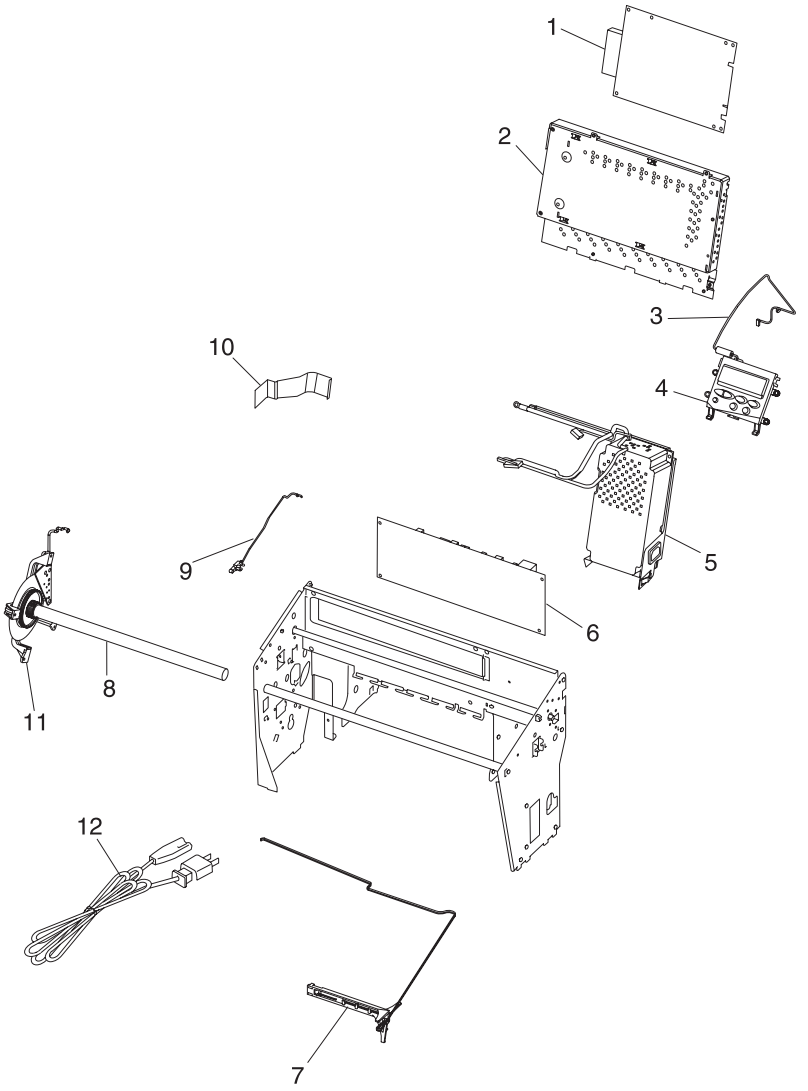
Assembly 2 (cont.): Paper Feed



Assembly 2 (cont.): Paper Feed

Asm-Index	Part Number	Units	Description
2-5	12G6010	1	Deflector Assembly, Second Path
6	12G6031	1	Paper Exit Backup Roll Assembly
7	12G6008	1	Motor Assembly, PerfectFinish
8	12G6028	1	Platen with Spring and Levers Assembly
9	12G6027	1	Shaft, Exit Assembly with Gears
10	12G6029	1	Star Wheel Shaft Assembly
11	12G6006	1	Plate, Right Pivot
12	12G6026	1	Cam Shaft Assembly with Spring
13	12G6013	1	Motor, Camshaft
14	12G6074	1	Static Brush Bracket Assembly
15	12G6025	1	Motor, Index Assembly
16	12G6032	1	Starwheel Follower with Spring Assembly
17	12G6014	1	Plate, Left Pivot
18	12G6007	1	Left Plate Assembly, Automatic Sheet Feed
19	12G6009	1	PerfectFinish Drive Plate Assembly
NS	12G6094	1	Roller, Cleaning
NS	12G6095	1	Applicator, Cartridge Assembly
NS	12G6250	1	Sensor Assembly with Cable - Fluid Level
NS	12G6076		Screws, (PP)
NS	12G6097	1	Retainer/Bearing/Bushing (PP)
NS	12G6098	1	Spring (PP)
NS	12G6099	1	Washer/Clip/Keeper/Tubing (PP)

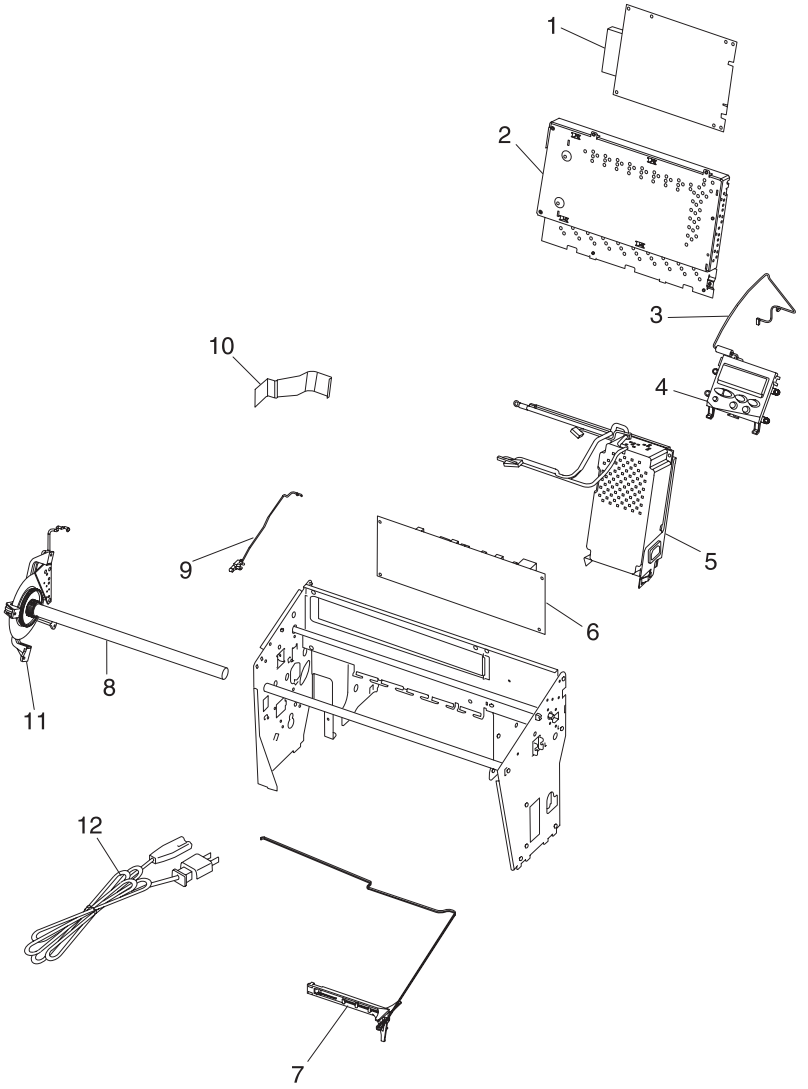
Assembly 3: Electronics



Assembly 3: Electronics

Asm-Index	Part Number	Units	Description
3-1	12G6059	1	RIP Card
2	12G6058	1	Shield, RIP Enclosure
3	12G6067	1	Cable, Operator Panel
4	12G6066	1	Operator Panel Assembly
5	12G6057	1	Power Supply
6	12G6048	1	Engine Board
7	12G6055	1	Sensor, Ink Level
8	12G6044	1	Index Card/Feedroll Encoder Disc Assembly
9	12G6018	1	Top Door Switch with Retainer
10	12G6053	1	Cable, Engine to RIP
11	12G6093	1	Bracket, Thrust
12	1339535	1	Power Cord, Canada, United States, Bolivia, Caribbean, Columbia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Puerto Rico, Venezuela, Virgin Islands, Papua, New Guinea, Phillippines, South Korea, Taiwan, Thailand
12	1339542	1	Power Cord, Italy
12	1342530	1	Power Cord, Brazil, Paraguay, Uruguay
12	1342534	1	Power Cord, Chile
12	1339537	1	Power Cord, Abu Dhabi, Ajman, Bahrain, Dubai, Fujeirah, Iraq, Kuwait, Lybia, Oman, Pakistan, Qatar, Ras-Al-Khaimah, Sharjah, U.A.E., UK/Ireland/ Iceland, Umm-Al-Qwain, Yemen, Hong Kong, Malasia, Singapore
12	1339536	1	Power Cord, Australia, New Zealand
12	1339539	1	Power Cord, Israel
12	1339540	1	Power Cord, Switzerland (Fr), Switzerland (German) Switzerland (It)
12	1339541	1	Power Cord, Botswana, Lesotho, Namibia, South Africa, Bangladesh, Sri Lanka

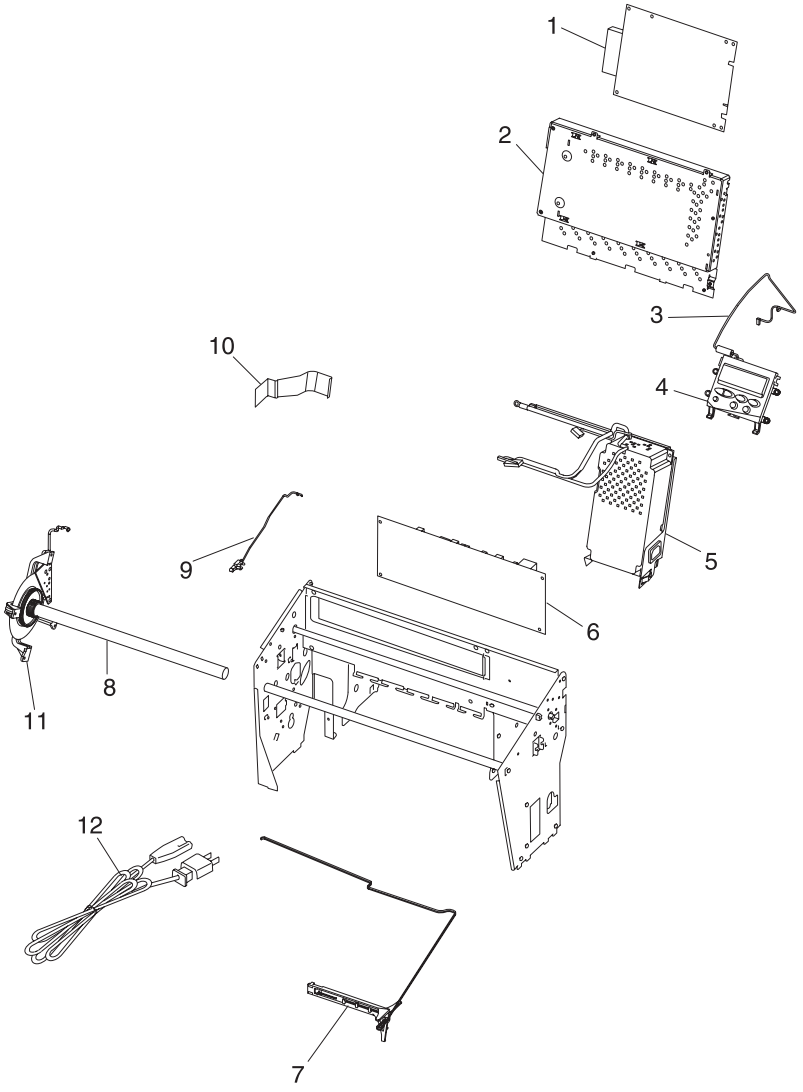
Assembly 3 (cont.): Electronics



Assembly 3 (cont.): Electronics

Asm-Index	Part Number	Units	Description
12	1339545	1	Power Cord, Argentina
12	1339538	1	Power Cord, Albania, Algeria, Armenia, Austria, Azerbijan, Belarus, Belgium, Benin, Bosnia, Bulgaria, Burkina-Faso, Cameroon, Central African Republic, Chad, Chechenya, Comoros, Congo, Croatia, Czek Republic, Djbouti, Egypt, Equatorial Guinea, Estonia, Euro English, Finland, France, French Guyana, Gabon, Gambia, Georgia, Germany, Greece, Guadeloupe, Guinea, Hungary, Iran, Ivory Coast, Jordan, Kazakhstan, Kirghizistan, Kyrgyz Republic, La Reunion, Latvia, Lebanon, Lettonia, Lithuania, Macedonia, Madagascar, Mali, Martinique, Mauritania, Mauritius, Mayottes, Moldavia, Moldova, Morocco, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Romania, Russia, Saint Pierre et Miqueion, Senegal, Seychelles, Slovakia, Slovenia, Spain/Catalan, Sweden, Syria, Tahiti, Tajikistan, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Vanuatu, Wallis & Futuna, Yugoslavia (Serbia & Montenegro)
12	1342514	1	Power Cord, Saudia Arabia, Indonesia, Japan
12	43H9547	1	Power Cord, Peoples Republic China
NS	12G6012	1	Cables, Camshaft Motor and TDC Sensor
NS	12G6017	1	PerfectFinish Sensor (Flag)
NS	12G6045	1	Power Switch with Cable
NS	12G6046	1	Input Sensor
NS	12G6047	1	PerfectFinish Sensor Cable
NS	12G6050	1	Cable, Auto Connect - Tray 2
NS	12G6051	1	Cable, Rear Feeder
NS	12G6052	1	Cable, Index Sensor
NS	12G6054	1	Cable, Fluid Level Sensor
NS	12G6068	1	Cover, Engine Board Assembly
NS	12G6076	1	Screws, (PP)

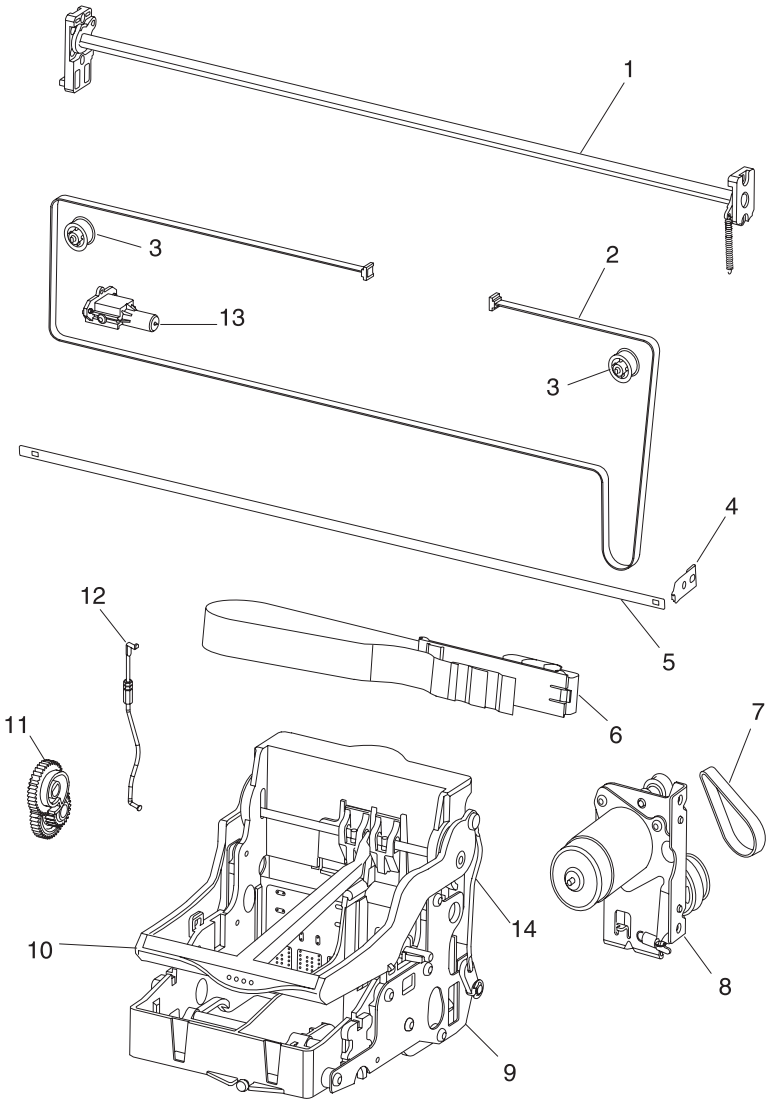
Assembly 3 (cont.): Electronics



Assembly 3 (cont.): Electronics

Asm-Index	Part Number	Units	Description
NS	12G6097	1	Retainer/Bearing/Bushing (PP)
NS	12G6098	1	Spring (PP)
NS	12G6099	1	Washer/Clip/Keeper/Tubing (PP)

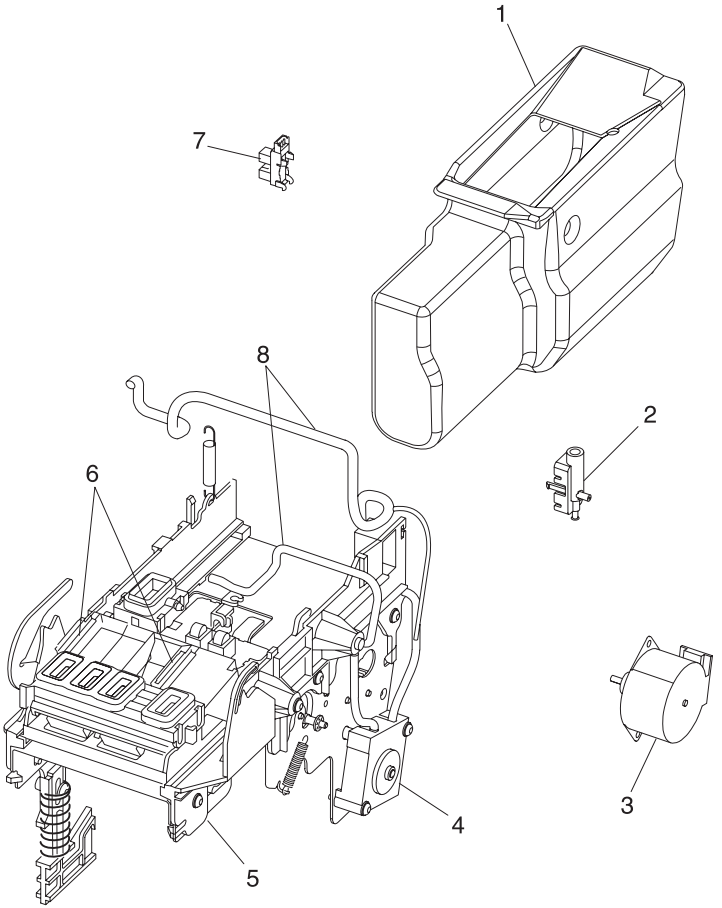
Assembly 4: Carrier Transport



Assembly 4: Carrier Transport

Asm-Index	Part Number	Units	Description
4-1	12G6033	1	Shaft, Upper Carrier with Brackets
2	12G6037	1	Belt, Carrier Drive with Keepers
3	12G6038	2	Pulley Assembly with Shaft-Top Idler
4	12G6040	1	Clip, Encoder Strip
5	12G6039	1	Encoder, Carrier Drive
6	12G6035	1	Carrier Cables with Retainer and Clamps
7	12G6016	1	Belt, Carrier Drive
8	12G6015	1	Motor, Carrier Drive Assembly with Belt
9	12G6034	1	Carrier Assembly with Cables and Clamps
10	12G6036	1	Printhead Latch, Carrier
11	12G6042	1	Gears, Compound/Carrier Lift
12	12G6041	1	Carrier Lift Assembly
13	12G6030	1	Tensioner, Carrier Drive Belt
14	12G6200	1	Link, Pogo Housing
NS	12G6076		Screws, (PP)
NS	99A0394	1	Grease Packet, Nyogel 744
NS	99A0462	1	Grease Packet, IBM 23
NS	12G6097	1	Retainer/Bearing (PP)

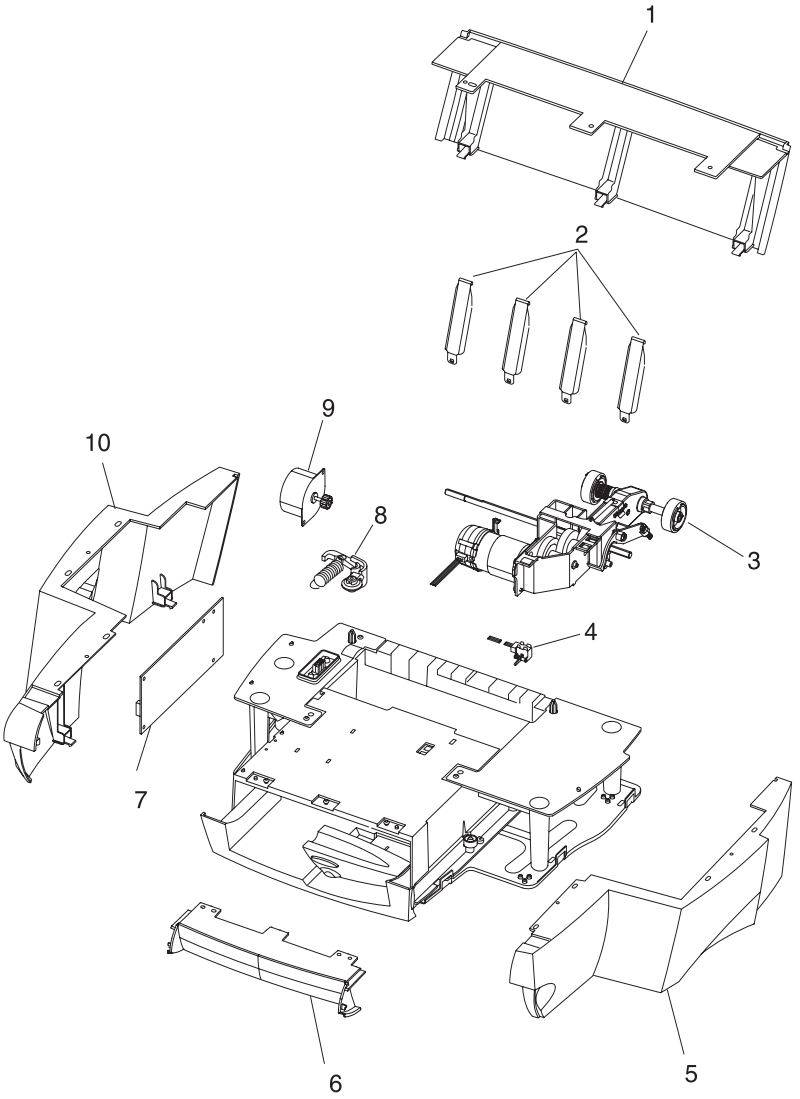
Assembly 5: Maintenance Station



Assembly 5: Maintenance Station

Asm-Index	Part Number	Units	Description
5-1	12G6056	1	Waste Ink Bottle with Belt Shield
2	12G6022	1	Maintenance Regulator Assembly
3	12G6019	1	Maintenance Motor Assembly with Gear
4	12G6021	1	Peristaltic Pump Assembly
5	12G6020	1	Maintenance Station Assembly
6	12G6091	2	Wipers, Maintenance
7	12G6024	1	Maintenance Homing Sensor
8	12G6099	1	Washer/Clip/Keeper/Tubing (PP)
NS	12G6023	1	Maintenance Cable
NS	12G6076		Screws, (PP)

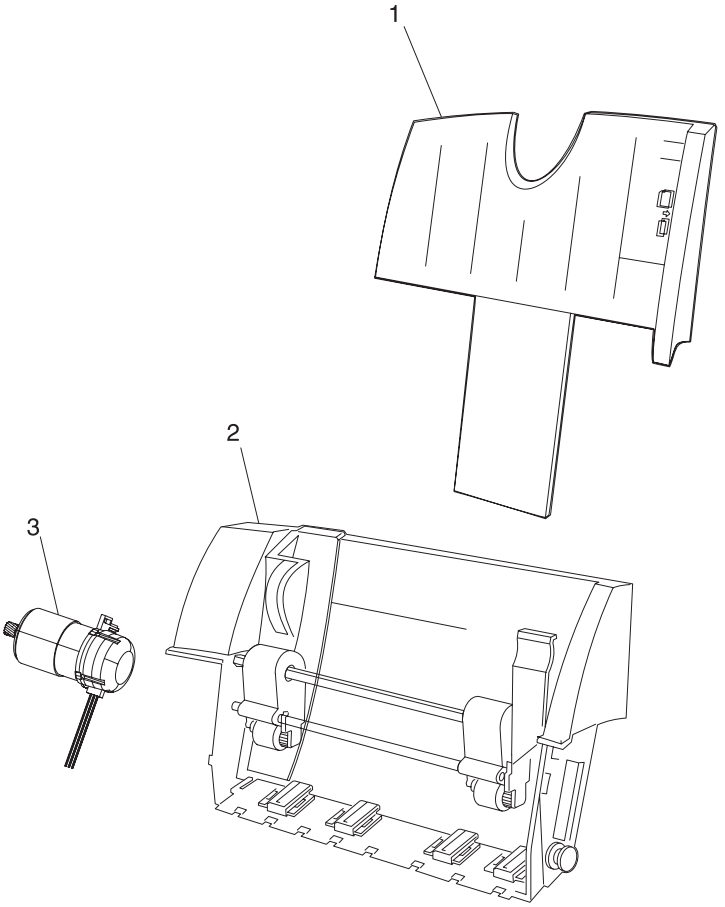
Assembly 6: Optional Tray 2



Assembly 6: Optional Tray 2

Asm-Index	Part Number	Units	Description
6-1	12G6088	1	Cover, Rear (OP Tray 2)
2	12G6002	4	Wear Strips
3	12G6049	1	Paper Feed Pick Assembly with Motor - 250 Option Final Assembly
4	12G6046	1	Sensor, Tray 2 Passthru
5	12G6086	1	Cover, Right Side (OP Tray 2)
6	12G6085	1	Cover, Front (OP Tray 2)
7	12G6089	1	Card, Secondary Tray
8	12G6001	1	Detent - Paper Tray 2 with Spring
9	12G6083	1	Motor, Redrive with Gear Assembly
10	12G6087	1	Cover, Left Side (OP Tray 2)
NS	12G6078	1	Cable, Tray 2 Power and Paper Port
NS	12G6080	1	Cable, Tray 2 Stepper Motor
NS	12G6076	1	Screw (PP)
NS	12G6098	1	Spring (PP)

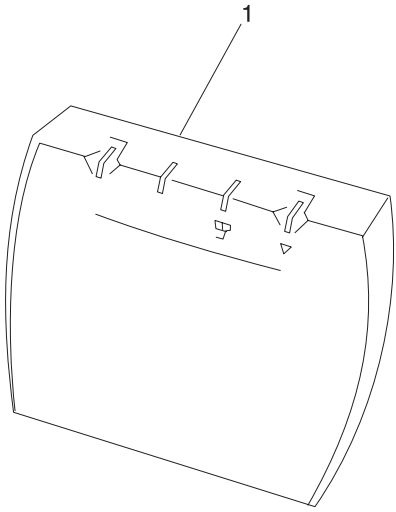
Assembly 7: Optional Multi-Purpose Feeder



Assembly 7: Optional Multi-Purpose Feeder

Asm-Index	Part Number	Units	Description
7-1	12G6077	1	Guide, MPF Rear Paper
2	12G6011	1	Feeder, Auxillary Sheet
3	12G6084	1	MFP Motor with wire

Assembly 8: Optional MarkNet External Print Server



Assembly 8: Optional MarkNet External Print Server

Asm-Index	Part Number	Units	Description
8-1	12G6090	1	MarkNet™ External Print Server
NS	12G6251	1	MarkNet XP Cable

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Part Numbers