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Service Manual

OL800 // OL820 LED Page Printers

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Service Guide OL800 / OL820**0 About This Manual**

Front Cover	1
Copyright	2
Manual Part Number and Revision	3

1 Product Specifications

1.1 Overview	4
1.2 Print Specifications	5
1.3 Physical Specifications	6
1.4 Power Requirements	7
1.5 Paper Specifications	8
1.6 Environmental Conditions	9
1.7 Agency Approvals	10
1.8 Options	11
....1.8.01 RAM Expansion Board	12
....1.8.02 RAM Expansion Chip Set	13
....1.8.03 Font ROM Cards	14
....1.8.04 Paper Trays	15
....1.8.05 Multiport Interface Boards	16
....1.8.06 Second Paper Feed Mechanism	17
....1.8.07 OkiXpress	18
1.9 Consumables	19
1.10 Reliability Data	20

2 Principles of Operation

2.1 Printer Overview	21
2.2 Main Control Unit	22
....2.2.01 Main Control Board (CTLZ)	23
....2.2.02 Program Cartridge Board (PRGZ)	24
....2.2.03 Font Card Board (CMBZ)	25
....2.2.04 Program Cartridge Connection Board (LNKZ)	26
....2.2.05 Extended RAM Board (MEMZ) (Option)	27
....2.2.06 Multi-Port Centronics Parallel Interface Board (CMIZ) (Option)	28
....2.2.07 Multi-port RS232-C Serial Interface Board (RMIZ) (Option)	29
....2.2.08 Font Card (Option)	30
....2.2.09 OL820 Board (OkiXpress Upgrade)	31
2.3 Printer Control Unit	32
....2.3.02 Engine Board (LLAB-2)	33
....2.3.03 Power Supply Unit	34
....2.3.04 Fuser Unit	35
....2.3.05 Main Motor (Drum Motor)	36
....2.3.06 LED Head	37

Table of Contents

Page

....2.3.07 Resist Motor	38
....2.3.08 DC Fan	39
....2.3.09 Operation Panel	40
....2.3.10 Second Paper Tray Mechanism (Option)	41
2.4 Mechanical Operation Description	42
....2.4.03 Process Descriptions	43
2.5 Sensors And Switches	44
....2.5.02 Sensor Functions	45
3 Maintenance & Disassembly	
3.1 Maintenance	46
....3.1.02 Maintenance Tools	47
....3.1.03 Maintenance Precautions	48
3.2 Disassembly/Assembly Procedures	49
....3.2.01 Upper Cover	50
....3.2.02 LED Head	51
....3.2.03 Interface Board	52
....3.2.04 RAM Board (Option)	53
....3.2.05 Main Controller Board	54
....3.2.06 Engine Controller Circuit Board (LLAB)	55
....3.2.07 Main Motor	56
....3.2.08 DC Fan Assembly	57
....3.2.09 Idle Gears "A" and "B", and the Reduction Gear	58
....3.2.10 Power Supply Unit	59
....3.2.11 Upper Unit	60
....3.2.12 Fusing Unit	61
....3.2.13 Backup Roller	62
....3.2.14 Transfer Charger Assembly	63
....3.2.15 Resist Roller Assembly	64
....3.2.16 Idle Gear C	65
....3.2.17 Paper Supply Unit	66
....3.2.18 Resist Motor	67
....3.2.19 Engine Connection Board	68
....3.2.20 Hopping Roller	69
....3.2.21 Separator	70
....3.2.22 Ozone Filter	71
3.3 Adjustments And Service Checks	72
3.3.02 Actual Page Count	73
....3.3.03 Modified Page Count	74
....3.3.04 Vertical Print Start Position Adjustment	75
....3.3.05 Setting the LED Head Drive Time	76
....3.3.06 Voltage Adjustment (+5 vdc)	77
....3.3.07 Darkness Control	78
3.4 Cleaning	79
4 Failure & Repair Analysis	

Table of Contents

Page

4.1 Overview	80
4.2 Troubleshooting Updates	81
4.3 Reporting Problems	82
4.4 Troubleshooting Tips	83
4.5 Fault Alarms	84
....4.5.02 Error Messages Table	85
....4.5.03 Output Samples	86
4.6 Repair Analysis Procedures	87
....4.6.02 RAP Index	88
.....RAP 01 Printer Does Not Initialize	89
.....RAP 2a Paper Feed Jam 1 Alarm	90
.....RAP 2b Paper Feed Jam 2 Alarm	91
.....RAP 03 Paper Jam Alarm	92
.....RAP 04 Size Tray Error Alarm	93
.....RAP 05 Engine Error Fusing Problem Alarm	94
.....RAP 06 Error Engine Alarm	95
.....RAP 07 Error Operator Panel Interface Timeout	96
.....RAP 08 Loop Test Failure (RS232C)	97
.....RAP 09 Error Resident RAM Check	98
.....RAP 10 Error Option RAM Check	99
.....RAP 11 No Operator Panel Display	100
.....RAP 12 Light or Blurred Output	101
.....RAP 13 Dark Background	102
.....RAP 14 Blank Output	103
.....RAP 15 Vertical Black Stripes	104
.....RAP 16 Repeating Marks	105
.....RAP 17 Blank Spots	106
.....RAP 18 Vertical White Stripes	107
.....RAP 19 Black Output	108
.....RAP 20 Poor Fusing	109
4.7 Self-Tests	110
A Reference Charts	
A.1 Overview	111
A.2 Index to Charts	112
....A.2.01 Main Controller Board (CTLZ)	113
....A.2.02 Engine Controller Board (LLAB-2)	114
....A.2.03 Operator Panel Board (LLJA)	115
....A.2.04 Power Connection Board (LLID)	116
....A.2.05 Engine Connection Board (LLCC)	117
....A.2.06 Font Card Board (CMBZ)	118
....A.2.07 Program Cartridge Board (PRGZ)	119
....A.2.08 Power Supply Unit	120
....A.2.09 Connection Board (LLIC)	121
....A.2.10 Program Cartridge Connection Board (LNKZ)	122

Table of Contents

Page

....A.2.11 Second Tray Driver Board (LLFC) (Option)	123
....A.2.12 RAM Board (MEMZ) (Option)	124
....A.2.13 Multi-Port Centronics Interface Board (CMIZ - Option)	125
....A.2.14 Multi-Port RS-232C Interface Board (RMIZ) (Option)	126
....A.2.15 OL820 Controller Board (OkiXpress)	127
B Illustrated Parts Listing	
B.1 Illustrated Parts Listing	128
....B.1.02 Definitions of Terms	129
....B.1.03 Parts Ordering Information	130
B.2 CHARTS	131
....B.2.01 Illustrated Parts Listing (1 of 7)	132
....B.2.02 Illustrated Parts Listing (2 of 7)	133
....B.2.03 Illustrated Parts Listing (3 of 7)	134
....B.2.04 Illustrated Parts Listing (4 of 7)	135
....B.2.05 Illustrated Parts Listing (5 of 7)	136
....B.2.06 Illustrated Parts Listing (6 of 7)	137
....B.2.07 Illustrated Parts Listing (7 of 7)	138



Service Guide OL800 / OL820

Chapter 0 About This Manual

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Service Guide OL800 / OL820

Chapter 0 About This Manual

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First Edition, March 1992
Second Edition May, 1994

Written and produced by the Okidata Technical Training Group

THE OL400/800/820/830/840 VIDEO TRAINING KIT covers the following products:

- o OL400
- o OL800
- o OL820
- o OL830
- o OL840

The following items are included in the kit:

- o OL400 Service Handbook
- o OL800/820 Service Handbook
- o OL830 Service Handbook
- o OL840 Service Handbook
- o Service Training Video
- o OL400/800/820 User's Documentation
- o OL830 User's Documentation
- o OL840 User's Documentation

Price: \$95.00 (\$124.00 Canadian)
P/N 58226902

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1.1 OVERVIEW

1.1.01 General Information

The OL800 is a desktop, page printer, using a stationary LED head and dry electrophotography as its exposure and development methods. The printer has a resolution of 300 x 300 dots per inch and a continuous print speed of 8 letter-sized sheets per minute.

A 512Kbyte page memory is standard on the OL800; this can be expanded in 1 Mbyte increments to 4.5 Mbyte with an optional RAM printed circuit board and memory chips.

The OL800 has three emulations. The HP Laserjet Series II emulation has 36 resident fonts. The Diablo 630 emulation has 18 resident fonts and the IBM Proprinter XL emulation includes twenty-six fonts. Two optional font cards can be installed with the Diablo and HP emulations. Six cards are available at this time. The OL800 also accepts downloadable fonts.

Both a Centronics parallel interface and an RS-232C serial interface are standard.

Two consumables are used in the printer. The toner cartridge kit contains a toner cartridge, a fuser cleaner pad, and an LED lens cleaner. The other consumable, the image drum cartridge kit, includes an image drum cartridge and an ozone filter.

A letter-size paper tray is included with the printer, and legal, envelope, executive, and A4 trays are also available. Paper feeding can be done automatically or manually.

The printer will print on a variety of paper types, labels, envelopes, and transparencies.

The OL820 includes all the features of the OL800, plus thirteen resident Bitstream typefaces. An OL800 may be upgraded to an OL820 with the addition of OkiXpress. This feature provides instant scaling of typefaces from 4 points to 240 points by using a proprietary font scaling chip and Okidata provided software drivers.

1.2 SPECIFICATIONS

1.2.01 Print Specifications

Development method: Dry electrophotography
Exposure method: Stationary LED head

1.2.02 Print Speed

First print: 28 seconds maximum (letter size)
Continuous print: 8 sheets/minute (letter size)
Warm-up time: 40 seconds maximum [at room temperature 77oF (25oC) and rated voltage (120 VAC)]

1.2.03 Symbol Sets

Thirty-nine symbol sets are available through the OL800.

1.2.04 Available Fonts

The resident fonts in the OL800 and 820 are:
HP Emulation: 36 resident fonts
Diablo 630 Emulation: 18 resident fonts
IBM Proprinter XL Emulation: 26 resident fonts
The resident fonts specific to the OL820 are:
13 resident Bitstream scalable typefaces in the HP Emulation (using an OL820 software driver)

1.2.05 Paper Feed Method

Automatic feed
Manual Feed

1.2.06 Paper Delivery Method

Face down/face up

1.2.07 Print Resolution

300 x 300 dots/inch

1.3 PHYSICAL SPECIFICATIONS

1.3.01 Outside Dimensions

Width: 17.72"
Height: 9.49"
Length: 17.72"

1.3.02 Printer Weight

37 lbs.

1.3.03 LED Array

Number of LED Elements - 2560



1.4 POWER REQUIREMENTS

1.4.01 Input Power

120 VAC +5.5%, -15%
220/240 VAC +/-10%

1.4.02 Power Consumption

Approximately 800 W maximum during operation

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1.5 PAPER SPECIFICATIONS

1.5.01 Paper Types

Letter

Size: 8.5" x 11"
Feed: Automatic or Manual
Weight: Minimum 16 lbs
Maximum 24 lbs
Recommended 20 lbs

Legal

Size: 8.5" x 14"
Feed: Automatic (with optional paper tray) or Manual
Weight: Minimum 16 lbs
Maximum 24 lbs
Recommended 20 lbs

Executive

Size: 7.25" x 10.5"
Feed: Automatic (with optional paper tray) or Manual
Weight: Minimum 16 lbs
Maximum 24 lbs
Recommended 20 lbs

A4

Size: 8.27" x 11.69"
Feed: Automatic (with optional paper tray) or Manual
Weight: Minimum 16 lbs
Maximum 24 lbs
Recommended 20 lbs

Envelope

Size: Minimum 3.5" x 7.5"
Maximum 7.2" x 10.1"
Feed: Automatic (with optional paper tray) or Manual
Weight: Minimum 16 lbs
Maximum 24 lbs
Recommended 20 lbs

Labels - Manual feed / Face up delivery only
Use labels designed specifically for laser printers.

Transparencies - Manual feed / Face up delivery only
Must be able to withstand the heat of the fusing process.

CAUTION:

Envelopes, labels, and transparencies should only be fed from the top paper tray.

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1.6 ENVIRONMENTAL CONDITIONS

1.6.01 Ambient Temperature and Relative Humidity

Operation

50° to 89° F (10° to 32° C)
20 to 80% Relative Humidity

Storage

14° to 122° F (10° to 50° C)

1.6.02 Printer Noise Level

During operation: 50 dB maximum

At standby: 43 dB maximum



1.7 AGENCY APPROVALS

FCC Class B
UL 478 Ver.5
CSA 22.2 220








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Service Guide OL800 / OL820

Chapter 1 Product Specifications

1.8 OPTIONS

Ram Expansion Board	
Ram Expansion Chip Set	
Font ROM Cards	
Paper Trays	
Multiport Interface Boards	
Second paper Feed Mechanism	
OkiXpress	

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1.8.01 RAM Expansion Board

1 megabyte (expands printer memory to 1.5 megabytes)



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1.8.02 RAM Expansion Chip Set

1 megabyte memory expansion chip set used in conjunction with the RAM Expansion Board option (expands printer memory up to 4.5 megabytes in 1 megabyte increments).



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1.8.03 Font ROM Cards

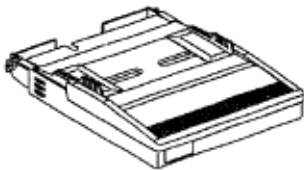
Letter Gothic
Prestige Elite
Tax
Barcodes Plus
MicroDocs
OKIPRO



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1.8.04 Paper Trays

Letter size
Legal size
Envelope
Executive
A4

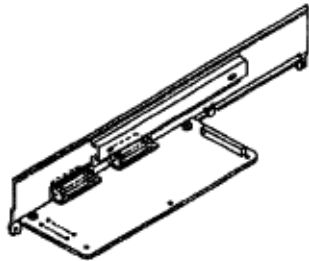


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1.8.05 Multiport Interface Boards

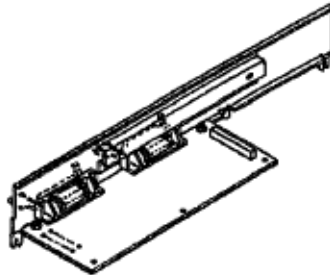
RS-232C Serial

Provides two additional RS-232C serial connectors. One or all three interfaces may be selected and each port can be individually configured.



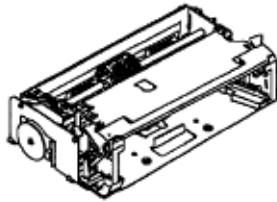
Centronics Parallel

Provides two additional Centronics parallel connectors. One or all three interfaces may be selected and each port can be individually configured.



1.8.06 Second Paper Feed Mechanism

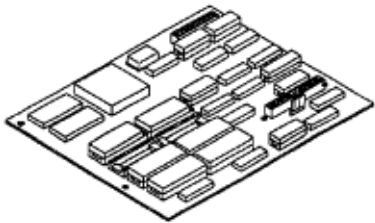
Converts printer to allow paper feeding from two paper trays. The second paper tray must be purchased separately.



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1.8.07 OkiXpress

A printed circuit board which upgrades an OL800 to an OL820. The proprietary font scaling chip mathematically sizes fonts, allowing instantaneous printing. Scalable fonts are accessible in the HP emulation using an OL820 software driver.



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1.9 CONSUMABLES

Toner Cartridge Kit (P/N 52104201)

- (1) Toner Cartridge
- (1) Fuser Cleaner Pad
- (1) LED Head Cleaning Pad

I Image Drum Cartridge (P/N 56106601)

- (1) Image Drum Cartridge
 - (1) Ozone Filter
-

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1.10 RELIABILITY DATA

1.10.01 Printer Mean Page Between Failure (MPBF)

Approximately 32,000 pages

1.10.02 Printer Mean Time To Repair (MTTR)

Approximately 20 minutes

1.10.03 Estimated Printer Life

Approximately 360,000 pages

1.10.04 Estimated Fuser Life

Approximately 180,000 pages

1.10.05 Printer Duty Cycle

Approximately 5,000 pages per month @ 5% print density

2.1 PRINTER OVERVIEW

2.1.01 General Information

This section describes the operation of the printer in the order listed below.

- Main Control Function
- Printer Control Function
- Mechanical Operation
- Sensors and Switches

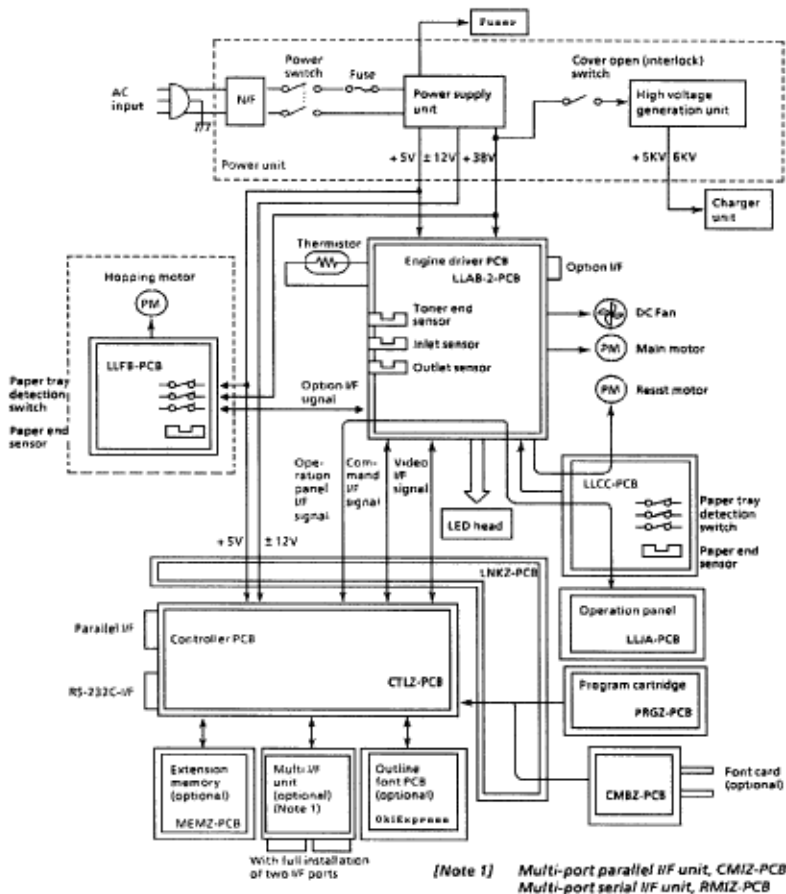
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2.2 MAIN CONTROL UNIT

The main control unit controls the reception of data from the host interface (interface), processes command signals, processes the image signals, controls the printer unit, outputs data, and controls the operation panel.

The principal hardware configuration of the main control unit is listed below.

- Main Control Board
- Program Cartridge Board
- Font card board
- Program Cartridge Connection Board
- Extended RAM Board (Option)
- Multi-Parallel Interface Board (Option)
- Multi-Serial Interface Board (Option)
- Font Card (Option)
- OL820 Controller Board (OkiXpress Upgrade)



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2.2.01 Main Control Board (CTLZ)

The Main Control Board consists of the Motorola 68000 CPU, font ROM, RAM, and two gate arrays. The Main Control Board is connected to a host system through a Centronics parallel interface or an RS-232C serial interface. Either of the two interface ports can be used when specified by the control panel. The unused interface port outputs a busy signal. The Main Control Board receives print data and string commands from the host system, and generates bit image data. The programs for these procedures are stored in the Program ROM installed on the Program Cartridge Board.

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2.2.02 Program Cartridge Board (PRGZ)

Two EPROMS IC3 and IC5 (1Mbit) are mounted on the Program Cartridge Board. The Program Cartridge, which is installed in the control unit, provides programs for the three printers listed below.

LaserJet Series II[®]: Hewlett Packard
Diablo 630[®]: Xerox
IBM ProPrinter XL[®]: IBM

The emulation can be selected through the printer menu or via software commands from the host.

2.2.03 Font Card Board (CMBZ)

The connectors for the optional font cards are provided on the Font Card Board. The font data is sent to the Main Control Board (CTLZ) through the Program Cartridge Connection Board (LNKZ).

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2.2.04 Program Cartridge Connection Board (LNKZ)

This connection board is housed in the cabinet and relays data between the program cartridge (PRGZ Board) and CPU bus. The connection board also contains the bus buffer to enable the optional font card data to be loaded on the Main Control Board (CTLZ) via the data bus.

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2.2.05 Extended RAM Board (MEMZ) (Option)

The extended RAM Board includes 1 Mbyte of RAM , and IC sockets for an additional 3 Mbyte. This 4 Mbyte plus 512 Kbyte on the Main Control Board extends RAM to 4.5 Mbyte. RAM is extended in 1 Mbyte increments. The CPU detects the extended RAM board by sending the MEMEXIST signal. The RAM capacity is identified during the Power-on sequence. Also, RAM capacity is output during Menu Print.

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2.2.06 Multi-Port Centronics Parallel Interface Board (CMIZ) (Option)

The multi-port parallel interface is equipped with two Centronics parallel port connectors, in addition to the resident parallel port. When the multi-port parallel interface is installed, and enabled through the menu, three parallel ports are put in the on-line state and are polled for data. When data is received from any one port, the port that has received data is locked in the on-line state. When the locked port does not receive data for more than 15 seconds, it automatically enters the polling mode.

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2.2.07 Multi-port RS232-C Serial Interface Board (RMIZ) (Option)

The multi-port RS232-C Serial interface Board provides two serial ports in addition to the resident serial port. It operates under the same time sharing principals as the Multi-port Centronics Parallel Board. Since a polling sequence is used, the serial multi-port interface will only function in the Ready/Busy (Hardware Handshake) mode.

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2.2.08 Font Card (Option)

Up to two font cards for additional bit map fonts can be installed. A ROM on the font card provides the optional fonts. If the printer is in the off-line state (the **READY** lamp is off), the card can be inserted and removed. When the font card is inserted and removed in the on-line state (the **READY** lamp is on), a **CARD REMOVED ON-LINE** error message appears on the LCD display.

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2.2.09 OL820 Board (OkiXpress Upgrade)

The heart of this board is the Blue Point font scaling chip, which is a 20K gate array graphics co-processor specially designed for font generation. It generates characters as a bit mapped image in system band buffer RAM from instructions stored in the font ROM's. These instructions tell the font scaling chip to draw lines that form the characters and to fill the space enclosed by the lines with any desired pattern including full black as in normal printing.

The OL820 Program ROMs are located at Q52 and Q53. This board also contains the four 1Mbit ROMs are located at Q40 thru Q43.

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2.3 PRINTER CONTROL UNIT

2.3.01 General Information

The principal hardware components of the printer control unit are listed below.

- Engine Board
- Power Supply Unit
- Fuser Unit
- Main Motor
- LED Head
- Resist Motor
- DC Fan
- Operation Panel
- Second Paper Tray Mechanism (option)

2.3.02 Engine Board (LLAB-2)

The Engine Board contains an 80C51, or a 83C154 microprocessor (8-bit), an EPROM which stores the Engine Control Program and an EEPROM. When the 83C154 Microprocessor is installed (LLAB-2 Revision 11) the EPROM is not required.

The Engine Board (LLAB-2) turns the LED Array diodes ON, which leaves a latent image on the photosensitive drum. The Engine Board also controls the paper feed, paper transport, and electrophotographic processing actions so that the latent image is printed by fusing toner on the paper.

The 1-Kbit Electrically Erasable PROM (EEPROM) is loaded with the data listed below.

- Total number of sheets printed after installation
- Modified page count
- Total number of sheets printed with the current drum
- Total number of sheets printed with the current fuser
- Setting of time required from the completion of printing to Quiet Mode
- Feed time needed to feed the paper to a printable position
- Vertical Registration (Top margin)
- LED Head Drive Time

Note: The EEPROM preserves the data while the supply voltage is off.

The counters stored in the EEPROM can be accessed by using SW1 on the Engine Board to set the printer in the Maintenance Mode. (See Section 3 of the Service Handbook)

The count of the total number of sheets printed after installation cannot be reset.

The count of the total number of sheets printed with the drum currently in use should be taken as a rough measure of the useful life of the drum; it is reset to zero when the drum is replaced by holding down the **RESET** button and applying power to the printer.

2.3.03 Power Supply Unit

The power supply unit generates the voltages listed below from the AC input voltage.

<u>Voltage</u>	<u>Purpose</u>
+5vdc	Logic Levels,, LED Head Drive Voltage
+12vdc	Interface Line Voltage
-12vdc	Interface Line Voltage
+38vdc	Motor/Fan Drive Voltage: High Voltage Source
+5Kvdc	Transfer Charge Voltage
-6Kvdc	Drum Charge Voltage
-600vdc	Charge Grid Voltage
-550,-400vdc	Developer Bias Voltages

High Voltage Drive

The high-voltage circuit provides a charge voltage (about -6Kvdc), a transfer charge voltage (about +5 Kvdc), a grid voltage (about -600 vdc), and developer bias voltages (about -550vdc and -400vdc). Of these voltages, the charge voltage and the transfer charge voltage are generated by a high-voltage power supply. The grid connects to ground via a varistor on the medium-voltage generation circuit. It is kept at about -680 vdc during charging.

2.3.04 Fuser Unit

The fuser unit heater is controlled by a thermistor, a comparator, an LSI, and the CPU to keep the heat roller surface temperature within a predetermined range (about 150 degrees Celsius). A thermostat within the fuser unit prevents abnormal temperature rises in the fuser unit if the thermistor fails.

Note: The CPU checks for an open circuit in the thermistor at power-on , setting a fuser alarm if this error is detected.

The CPU also sets a fuser alarm if the proper temperature is not attained within a specified period of time after power-on.

Upon detecting a fuser alarm, the CPU will halt (after printing the current page).

2.3.05 Main Motor (Drum Motor)

The main motor is driven by the motor drivers, T21,T22,T23 and T24. It is a two-phase motor, driven by the DM-PH 1 and 2 signals.

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2.3.06 LED Head

Data on the 2,560 LEDs in the LED head is set in the shift register by the HD CLK signal. The data is loaded in the latch circuit by the HD LD signal.

The on/off states of the LEDs are controlled by the signals STB1- STB4; 640 bits are turned on or off at a time.

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2.3.07 Resist Motor

The resist motor is driven clockwise (Hopping), then counterclockwise (Paper Feed) by the motor drive IC (LB1731). It is four-phase motor, driven according to the RM-H1, RM-H2, and RM ON-P signals generated from the LSI.

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2.3.08 DC Fan

The fan is controlled by the FAN ON-P signal from the LSI (MSM73H019). In order for the fan to operate, the signal FAN SENSE-N must be active.

Note: The fuser and the fan are not enabled when the cover is open . If the fan fails to run, the fuser will turn off and FAN ALARM is set. Printing is disabled.

In accordance with the TIME TO QUIET setting of the Level 2 Menu, the Fuser will maintain the proper fusing temperature for 1 or 8 minutes after the last page has been printed. If printing is not requested within the selected time frame, the fuser will turn OFF and the fan speed will be reduced 50%. Selecting DISABLE allows the FUSER to maintain the proper fusing temperature continuously.

2.3.09 Operation Panel

The components listed below make up the operation panel.

- 4-bit MPU (LC6543C)
- LCD control driver (MSM6222B or HD44780)
- LCD display (16 characters per line)
- Operation panel sheet
- LEDs (for online mode indication)
- Operation buttons

The operation panel is connected to the Main Control Board via the Engine Connection Board, the Engine Controller Board and the Program Cartridge Controller Board. The operation panel is controlled by the Main Control Board with its operation panel interface signal.

The LCD control driver (MSM6222B or HD44780) converts 4-bit character codes received from the MPU into 8-bit character codes and retrieves the character pattern data (font) associated with the 8-bit character codes from the internal character generator for display on the LCD.

Operation Panel Interface

The operation panel is controlled by the operation panel interface located on the Main Controller Board via the Engine Board.

2.3.10 Second Paper Tray Mechanism (Option)

The Second Paper Tray Mechanism is controlled by the Second Tray Driver Board (LLFC). This board is attached to the left side of the optional second paper tray mechanism. The resist motor and paper tray detection sensors are mounted on this board.

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2.4 MECHANICAL OPERATION DESCRIPTION

2.4.01 Basic Principles of Electrophotography

A photoconductive drum is charged by a high voltage from the power supply. The printer turns on the LED head according to the data received from the controller. The charged drum is exposed to this light, forming a latent image on the drum surface. This latent image is developed by toner, with the resultant toner image being transferred to paper and fused for printing.

The electrophotographic technology used in this printer is similar to that embodied in general copying machines. The technology is made up of the following processes.

Charging

The surface of the photoconductive drum is uniformly charged.

Exposure

The charged photoconductive drum is exposed to light, forming a latent image associated with the print image on the drum.

Developing

Charged toner is attracted to the latent image by static electricity, making the image visible.

Transfer

The toner is attracted to the paper by a static charge.

Cleaning

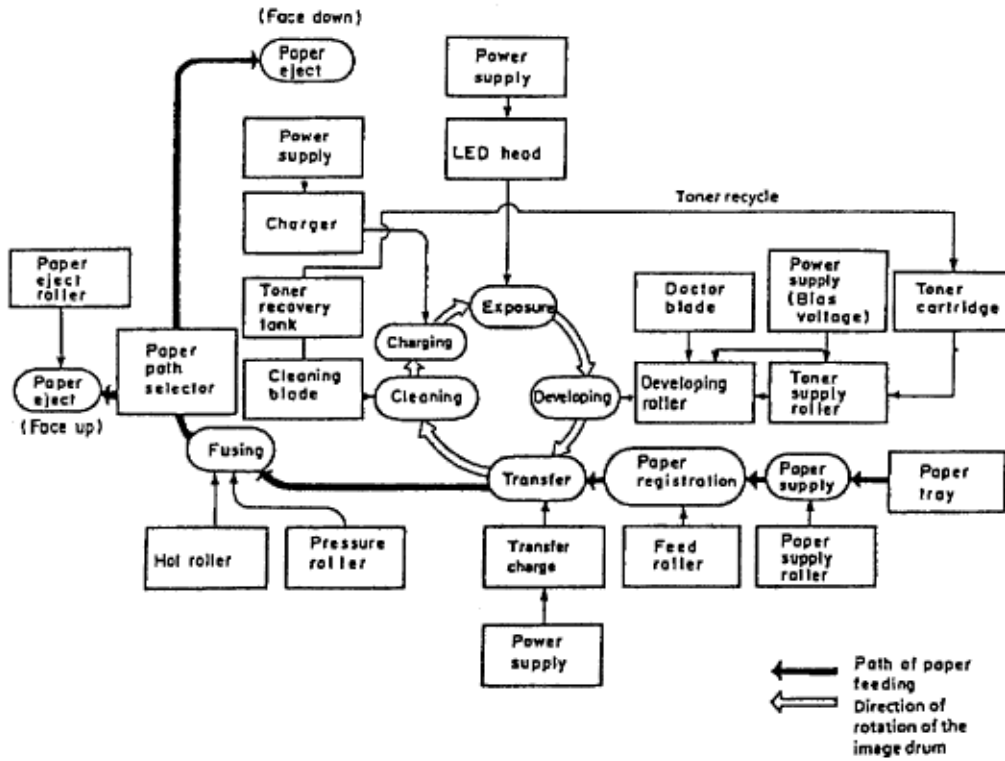
Residual toner is removed from the image drum surface.

Fusing

The toner image is fused to the paper using heat and pressure.

Toner Recycling

Toner that is collected during cleaning is returned to the developer.



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2.4.03 Process Descriptions

Hopping and Feeding

Hopping and feeding are accomplished by the resist motor, hopping roller, and resist rollers. Turning the resist motor in the clockwise direction drives the hopping roller. Turning the resist motor in the counter-clockwise direction drives the resist rollers.

Hopping

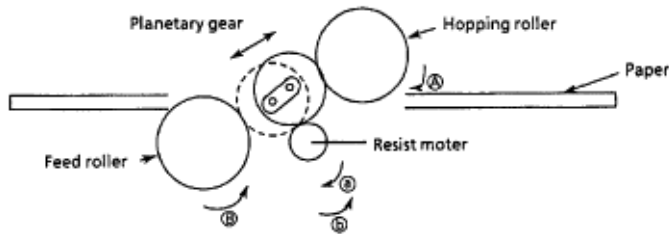
Hopping is loading paper from the tray.

The resist motor turns the hopping roller to advance the paper until the inlet sensor turns on.

After the paper has turned on the inlet sensor, the hopping roller advances the paper until it contacts the resist roller. The resist roller corrects paper skew.

Feeding

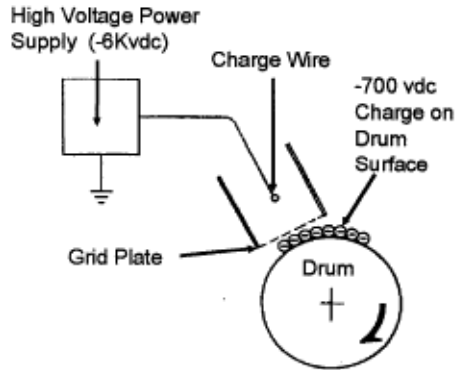
Feeding is transporting the paper through the printer.



At the end of hopping, the resist motor reverses and the resist rollers transport the paper through the printer.

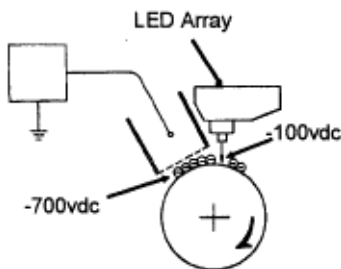
Charging

-6 Kvdc is applied to the charge wire. This causes negative ions to be generated in the vicinity of the charge wire (corona discharge). The negative ions are discharged to the grid plate and the image drum surface. Since the drum surface is not conductive (in the dark), the negative charge (approximately -700 vdc) remains on the drum. To ensure that the drum surface is not charged with more than -700 vdc, a varistor is connected between the grid and ground. If the grid voltage exceeds -700 vdc, the varistor shunts this excess voltage to ground.



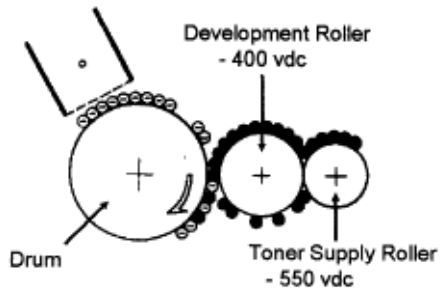
Exposure

Light emitted from the LED head is radiated to the image drum surface which is charged with negative ions. The areas of the drum that light is directed to become conductive. This allows the surface potential in these areas to drop from -700 vdc to approximately -100 vdc, thereby forming a latent image associated with the image signals.

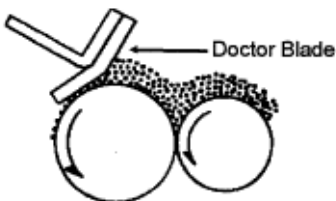


Developing

The toner supply roller and the development roller are supplied with bias voltages required during the developing process. -550 vdc is supplied to the toner supply roller, -400 vdc to the development roller. The toner supply roller is constructed of a porous material which absorbs toner. Since the development roller charge is more positive than the toner supply roller charge, toner is attracted from the toner supply roller to the development roller.



The toner attracted to the development roller is scraped off by the doctor blade, forming a thin coat of toner on the development roller surface.

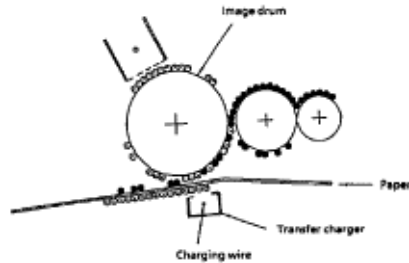


Since the areas of the drum exposed to light (-100vdc) are charged more positive than the toner

(-400 vdc), the toner is attracted to the exposed areas of the Image drum surface, making the latent image visible.

Transfer

As paper passes by the image drum surface, a positive charge (+5Kvdc), is applied to the charge wire causing the paper to be charged positively through corona discharge. Since the paper is charged more positive than the toner (-100 vdc), the toner is attracted to the paper.



Cleaning

Upon completion of transfer, residual toner on the image drum is scraped off by the cleaning blade. The residual toner is returned from the toner recovery unit to the developer unit for reuse.

Fusing

The toner image is fused on the paper by passing it between the heated roller and the back-up roller. The heated roller is teflon coated and contains a 600 watt quartz lamp. The back-up roller and springs provides a pressure of 3 kg.

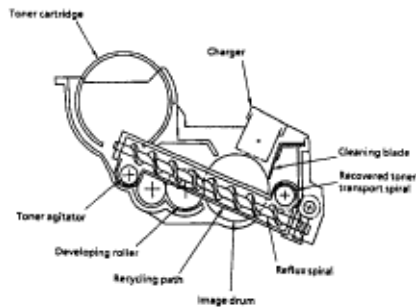
A thermistor regulates the heated roller temperature at a predetermined temperature (about 150° C). A thermostat cuts off voltage supply to the heater in the event of abnormal temperature rise.

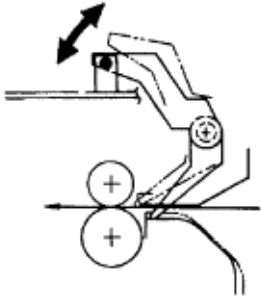
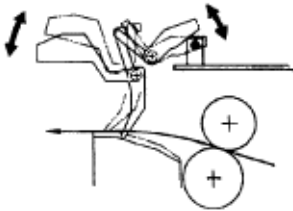
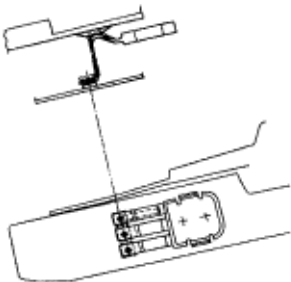
Paper Ejection

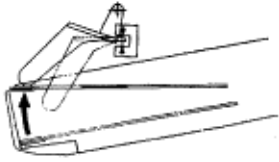
Paper is ejected from the fuser unit by the back-up roller. If the face-up stacker is closed, paper is routed to the top of the printer for face-down delivery.

Toner Recycling

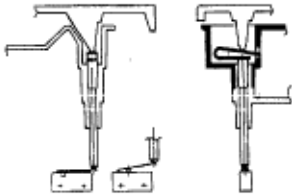
Toner in the recovery tank is moved to the toner cartridge for re-use.



2.5 SENSORS AND SWITCHES**2.5.01 Sensors and Switches****Inlet Sensor (Photosensor)****Outlet Sensor (Photosensor)****Paper Tray Identification Switches****Paper End Sensor (Photosensor)**



Cover Open Switch



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2.5.02 Sensor Functions

At Power-On

The inlet and outlet sensors are checked for their on and off states at power on.

Inlet sensor ON: PAPER FEED JAM ERROR (Paper supply jam)

Outlet sensor ON: OUTLET JAM ERROR (Paper eject jam)

The thermistor sensor circuit detects if the temperature of the fusing unit reaches the normal temperature within the specified time. When it does not reach the normal temperature within the specified time, the thermistor sensor turns OFF the heater and generates an alarm.

During Hopping

Whenever the inlet sensor fails to detect paper within a predetermined period of time after a feed command has been issued to the paper supply system (tray), the failure is counted. The hopping operation is attempted three times. If the paper fails to feed properly, a PAPER FEED JAM ERROR occurs.

During Feeding

If the leading part of the paper does not reach the outlet sensor within a predetermined period of time after the start of feeding by the resist motor, a PAPER JAM ERROR occurs.

Detection of Form Length Errors by the Inlet Sensor

Form length detection is not enabled for manually fed paper or envelopes.

Any form length other than those specified in Section 1 of this Service Handbook will generate a FORM LENGTH ERROR.

To detect the form length, the processor measures the time interval between the activation of the inlet sensor and the deactivation of the inlet sensor (after the start of the resist motor in the forward direction).

Detection of Outlet Jams by the Outlet Sensor

Since paper is fed through the printer at a fixed speed, the outlet sensor must remain on for a predetermined length of time. If the sensor remains on in excess of this time, the controller assumes that an exit jam has occurred and an alarm is generated.

3.1 MAINTENANCE

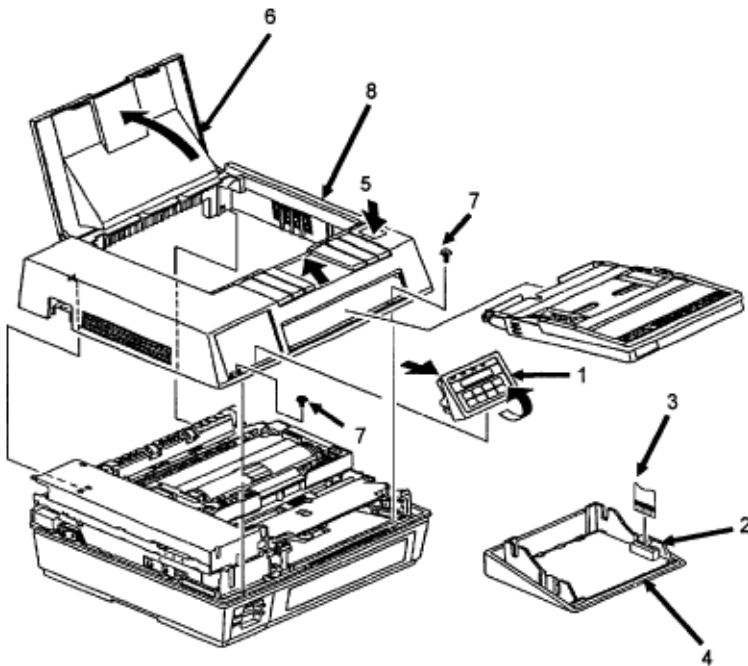
3.1.01 General Information

This section lists the parts replacement, adjustment, cleaning, and lubrication procedures.

Disassembly should not be performed unless absolutely necessary. **NEVER** perform disassembly on a malfunctioning unit until you have followed the failure analysis procedures in [Section Four of this Service Handbook](#) (📖).

Follow the procedures listed in [Adjustments and Service Settings](#) (🔧). Adjustments may be required when either consumables or parts are replaced. Failure to perform these procedures could result in unnecessary service calls.

Cleaning procedures must be performed correctly if high print quality is to be achieved.



3.1.02 Maintenance Tools

The following tools are required to service the unit.

- #2 Phillips Screwdriver (with magnetic tip)
 - Straight-slot Screwdriver
 - Needle Nose Pliers (4 Inch)
 - Digital Multimeter
 - Shop Vacuum (with filter for toner)
 - Cloth (soft and lint-free)
 - All-purpose Cleaner
 - Grease (Dow Corning BR2 or equivalent)
-

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3.1.03 Maintenance Precautions

Do **NOT** disassemble the unit if it is operating normally.

Before starting disassembly and assembly, always power **OFF** the unit and detach the power cord.

Detach the interface cable, if installed.

Do not remove parts unnecessarily. Try to keep disassembly to a minimum.

Use the recommended maintenance tools.

When disassembling, follow the listed sequence. Failure to follow the correct sequence may result in damaged parts.

Screws, collars and other small parts are easily lost. Temporarily attach these parts to their original positions.

When handling circuit boards use extreme care. Integrated circuits (microprocessors, ROM, and RAM) can be destroyed by static electricity.

Do not place printed circuit boards directly on conductive surfaces.

Follow the recommended procedures when replacing assemblies and units.

Clear the drum counter when a new drum cartridge is installed.

1. Power **OFF** the unit.
2. Press and hold **RESET** while powering **ON** the unit.
3. The drum counter will reset.

Clear the fuser counter when a new fusing unit is installed. Refer to Section 3.3 (🔧), Adjustments in this Service Handbook (doclinks).

3.2 DISASSEMBLY/ASSEMBLY PROCEDURES

General Information

This section contains the printer disassembly procedures. Only the removal procedures are explained. Reverse the procedure for the installation.

This Service Handbook lists the disassembly procedures for major components of the unit. **Okidata does NOT recommend disassembling a unit which is operating normally.** If you decide to perform disassembly during this training, Okidata recommends that you perform only the disassembly procedures for RSPL items. All other procedures are provided to assist you in identifying parts. It is not likely that you will perform these procedures while servicing the product.

Read all notes, cautions, and warnings. They contain important information regarding assembly/disassembly.

3.2.01 Upper Cover

Turn the power switch **OFF** and unplug the AC power cord from the outlet and the printer power receptacle at the rear of the printer.

Remove the paper tray (1), interface cable (2), and font card (3) (if installed).

Lift the operator panel assembly (4) at its bottom and detach it.

Pull on the locking collar and then detach the connecting cable (5) from connector J1 (6) of the operator panel PCB (7).

Note: Please note that when assembling the operator panel board, you must install the connecting cable with the blue strip to the left.

Press the "OPEN" button (8) and raise the stacker cover (9).

Remove the two screws (10) and lift the front side of the upper cover (11). As you lift, you will disengage the upper cover from the lower cover at the back of the printer.

Note:

Installation

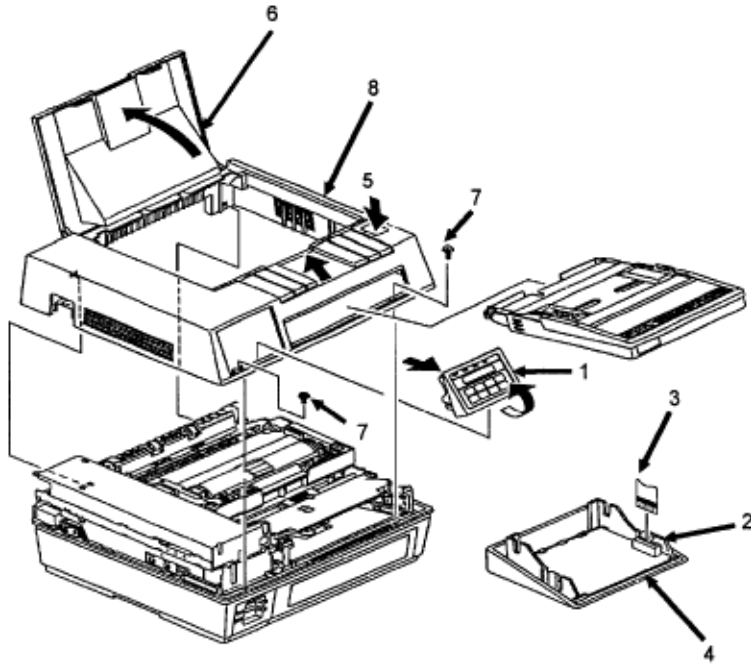
Open the stacker cover.

Align the square slots of the upper cover with the claws of the lower cover.

The claws are located on the back of the lower cover, at the left and right sides.

Lower the upper cover into position.

If the cover is not installed properly, paper jams will result.



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3.2.02 LED Head

Perform this procedure:

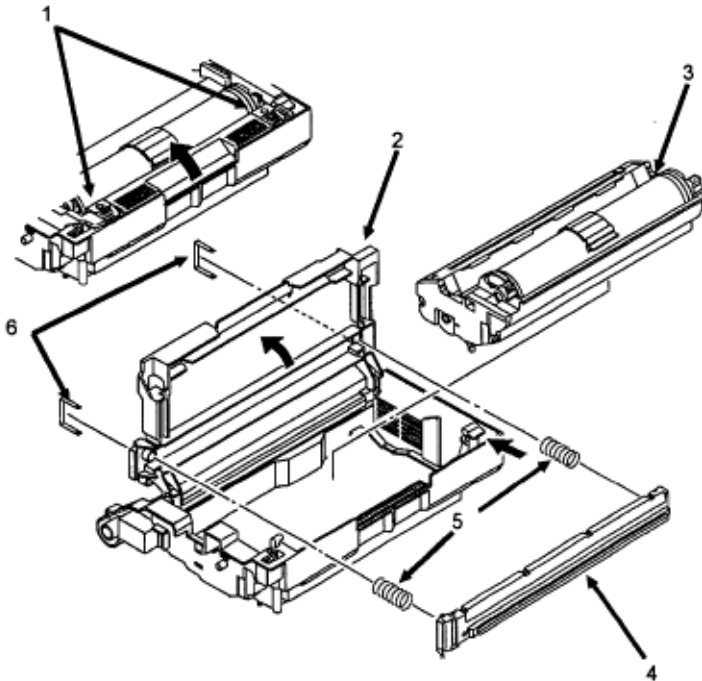
3.2.01 

Push the two blue lock levers (1) toward the rear of the printer and open the LED holder (2).

Lift and remove the image drum cartridge (3). To protect the image drum cartridge, please place it back in the styrofoam shipping package.

LED Head Replacement

After replacing the LED head, set the LED head drive time as described in [Section 3.3 of this Service Handbook](#) ().



3.2.03 Interface Board

This procedure may be used to remove both the parallel and serial interface boards.

Perform this procedure:

3.2.01

Remove the three shield cover mounting screws (1) and detach the shield cover (2) by sliding it forward and lifting it.

Remove the interface board mounting screw (3) and the post (4).

Lift the interface board (5) to disconnect it from the control board (6) for removal.

3.2.04 RAM Board (Option)

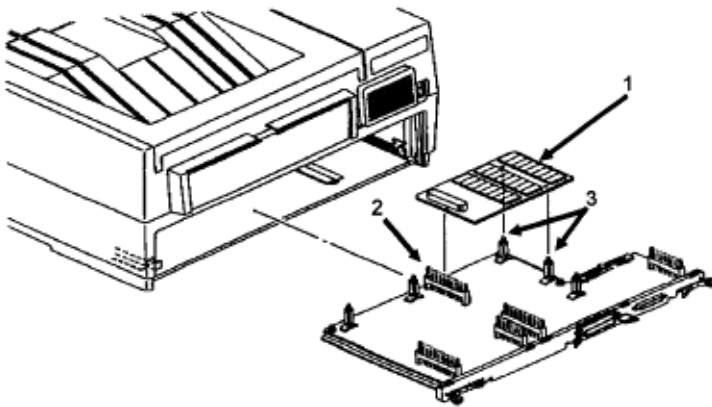
Perform this procedures:

3.2.01

Remove the three shield cover mounting screws (1) and detach the shield cover (2) by sliding it forward and lifting it.

Press the hook of the locking circuit board support (3) to unlock the RAM board (4).

Lift the RAM board to disconnect it from the main controller board (5) for removal.



3.2.05 Main Controller Board

Perform these procedures:

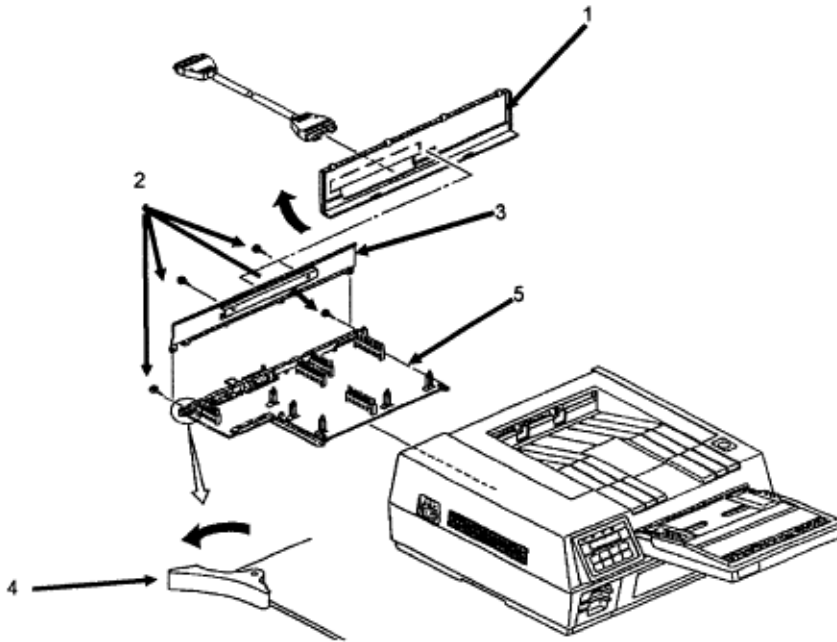
3.2.01 

3.2.03 

3.2.04 

Remove the three controller board mounting screws (1).

Lift the main controller board (2) to disconnect it from the engine control circuit board (3) and remove the main controller board.



3.2.06 Engine Controller Circuit Board (LLAB)

Perform these procedures:

3.2.01 

3.2.03 

3.2.04 

3.2.05 

Disconnect the cables (1) from connectors J1, J2, and J5.

Open the LED holder to allow access to the engine board mounting screw (2) and remove the mounting screw.

Close the LED holder and raise the upper unit.

Remove the two remaining mounting screws (3).

CAUTION:

Be careful not to lose the plastic spacer (4) located between the shield frame and the engine controller board. When installing the engine controller board, be sure that the spacer is in place or the engine controller board will short against the shield frame.

Lift the engine controller board (5) to disconnect it from the interconnect board (6).

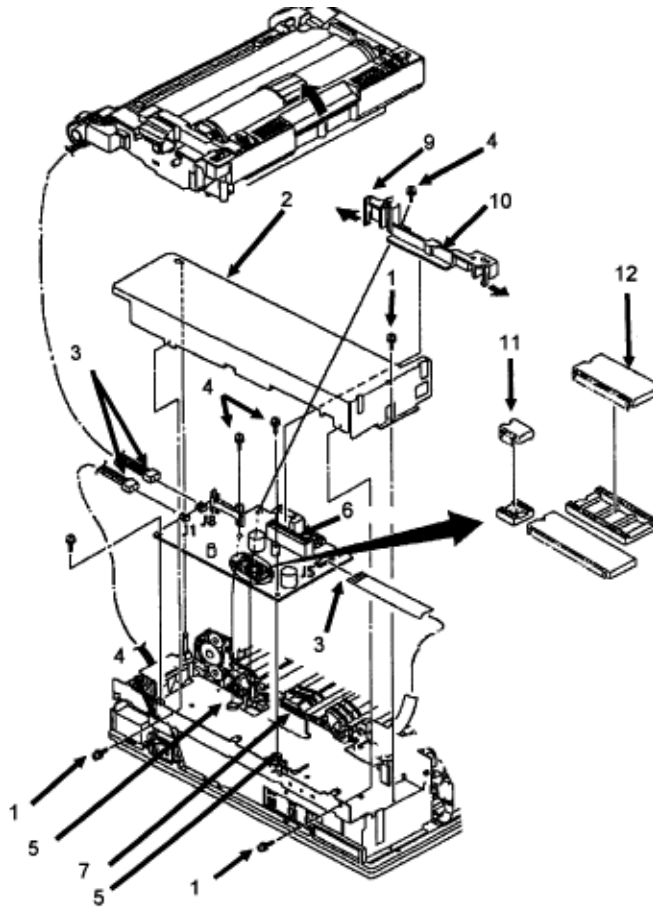
On the engine controller board, press the pawls (7) to unlock and remove the print board cover (8).

Note:

Replacement

When replacing an engine controller board, remove the EEPROM IC2 (9) and the Program PROM Q1 (10) from the old board and mount them on the new board.

With LLAB CPU. Revision 11, Q1 is not installed because the program is masked in the CPU.



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3.2.07 Main Motor

Perform these procedures:

3.2.01 

3.2.03 

3.2.04 

3.2.05 

3.2.06 

Remove the three mounting screws (1) and detach the shield frame (2).

Detach the interconnect board (3).

Note:

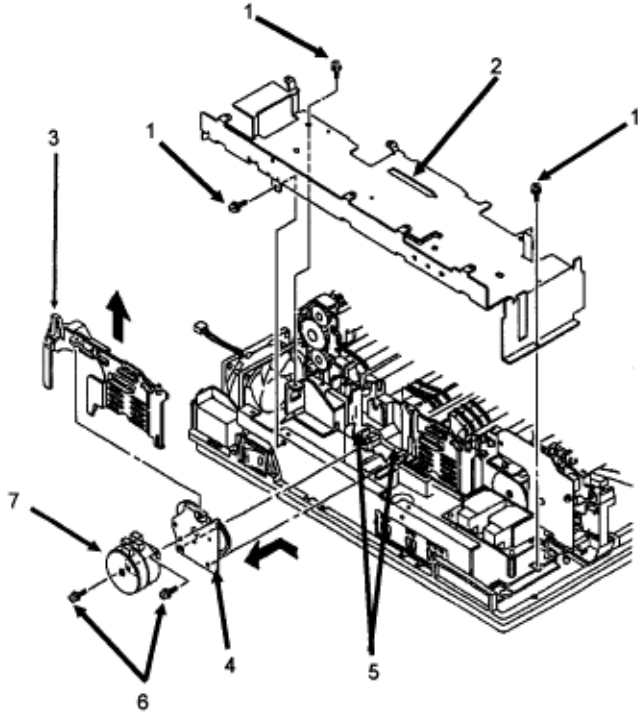
The traces which run the entire length of the board are to the front of the printer when the board is installed.

Working from the bottom of the printer, remove the motor cover (4) by releasing the two black claws (5).

Remove the two high voltage wires from the motor cover.

Shift the motor assembly to the left to remove it from the claws (6) of the lower unit.

Working on the motor assembly, remove the two mounting screws (7) to remove the main motor (8) from the motor assembly.



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3.2.08 DC Fan Assembly

Perform these procedures:

3.2.01 

3.2.03 

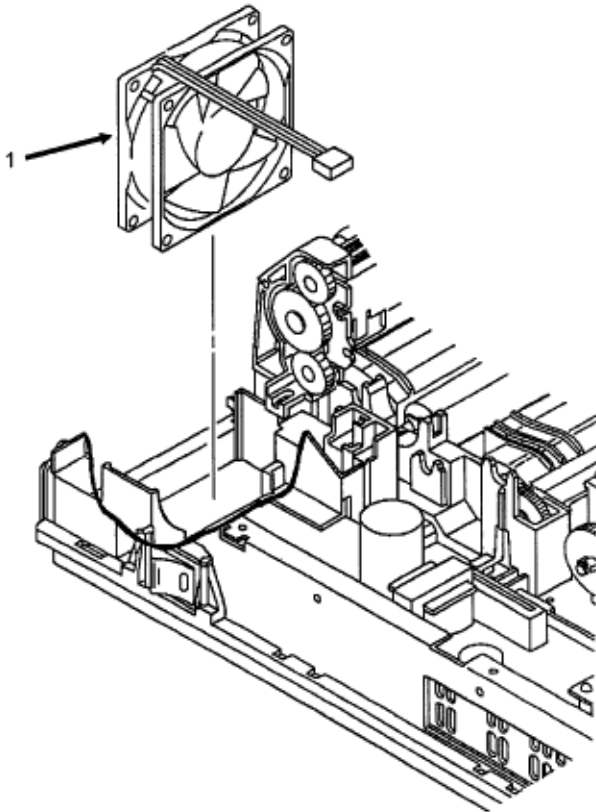
3.2.04 

3.2.05 

3.2.06 

Detach the shield frame (3.2.07 step 6).

Remove the DC fan assembly (1).



3.2.09 Idle Gears "A" and "B", and the Reduction Gear

Perform these procedures:

3.2.01 

3.2.03 

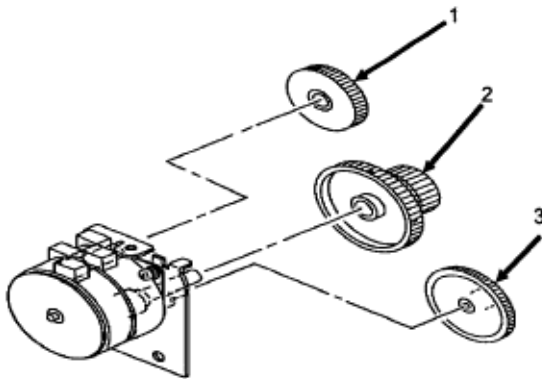
3.2.04 

3.2.05 

3.2.06 

3.2.07 

Detach the gears in the following order: idle gear "B" (1), reduction gear (2) and idle gear "A" (3).



3.2.10 Power Supply Unit

Perform these procedures:

3.2.01 

3.2.03 

3.2.04 

3.2.05 

3.2.06 

3.2.07 

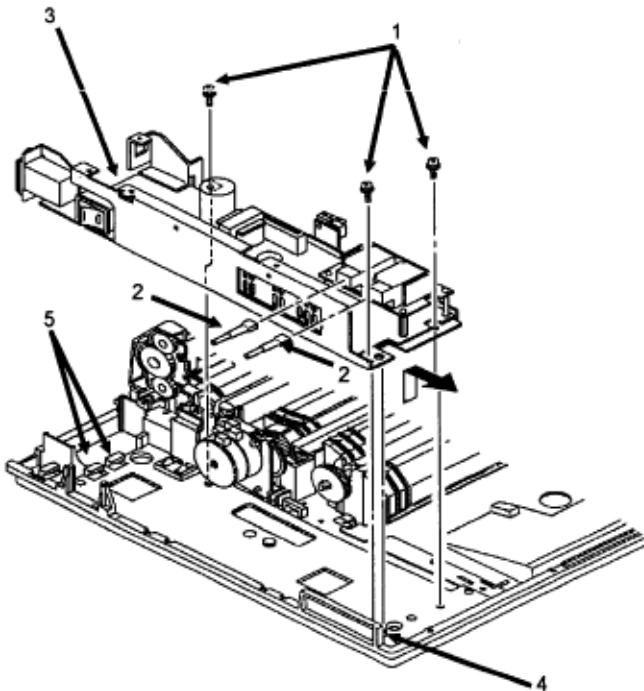
Disconnect the two high-voltage cables (1).

Note: When installing, the cables are keyed for correct placement. The larger connector is to the front of the printer.

Remove the four mounting screws (2).

Raise the upper unit.

Slide the power supply unit (3) towards the front until it comes off the guide (4) of the lower unit.
Lift the power supply unit towards you to detach it from the rear claws (5) for removal.



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3.2.11 Upper Unit

Perform these procedures:

3.2.01 

3.2.02 

3.2.03 

3.2.04 

3.2.05 

3.2.06 

3.2.07 

3.2.08 

3.2.10 

Place the face-up stacker assembly, located at the rear of the printer, down. Then, lift the upper unit.

Remove the paper eject roller assembly mounting screw (1). Slightly lift the paper eject roller assembly (2) at its left end and slide the left end backward using the right end as a pivot. Remove the assembly.

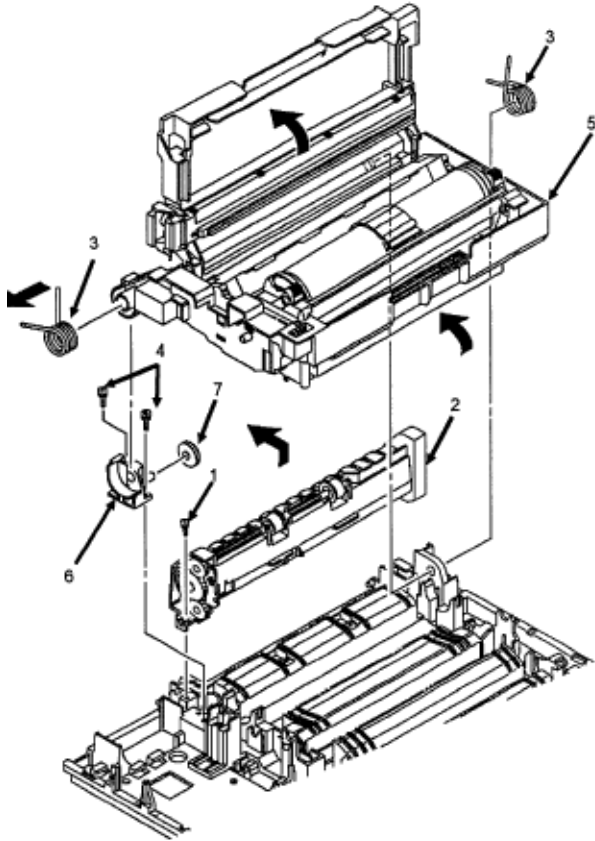
Remove the tension springs (3) using a needle nose pliers.

Loosen the two mounting screws (4). Lift the upper unit (5).

Slide the upper unit to the right and work it free of the right slot to remove it.

CAUTION:

Be careful not to drop the fulcrum block (6) and the idle gear (7) when removing the upper unit.



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3.2.12 Fusing Unit

WARNING:

Allow the printer to cool before servicing the fusing unit.

Perform these procedures:

3.2.01 

3.2.02 

3.2.03 

3.2.04 

3.2.05 

3.2.06 

3.2.07 

3.2.08 

3.2.10 

3.2.11 

Working on the upper unit, remove fuser cleaner pad (1) and the fulcrum block with idle gear (2).

Detach the cable (3) from the cable guide (4) of the upper unit.

Pass the connector (5) through the slot in the upper unit and work the cable from the upper unit guides.

Position the upper unit so its underside is facing you, with the fusing unit (6) at the top.

Push the fusing unit against the upper unit until the two lock plates (7) protrude from their slots.

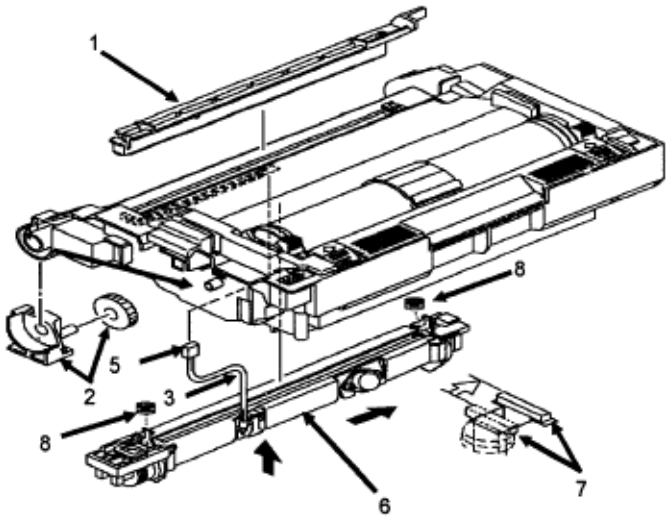
Slide the fusing unit to the right until the lock plates disengage from the grooves of the upper unit.

Remove the fusing unit, being careful not to lose the springs (8).

CAUTION:

Installation

The four separator claws must move freely within their grooves or paper jams will result.



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3.2.13 Backup Roller

Perform these procedures:

3.2.01 

3.2.02 

3.2.03 

3.2.04 

3.2.05 

3.2.06 

3.2.07 

3.2.08 

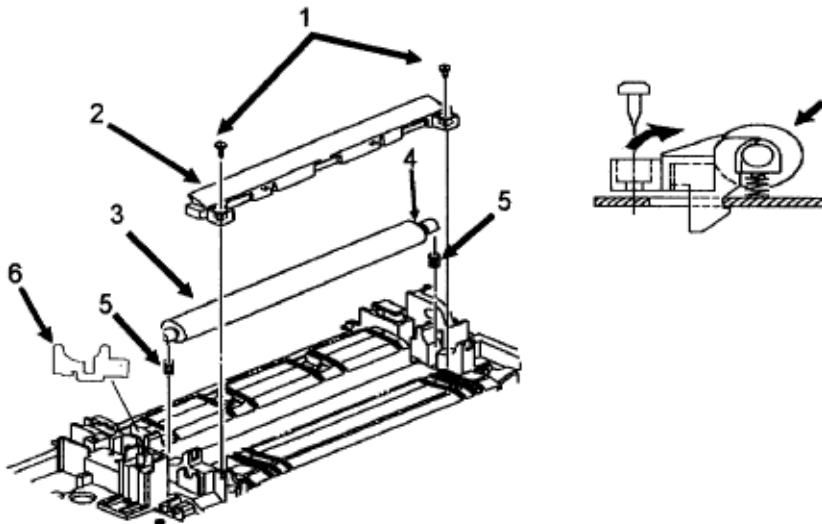
3.2.10 

3.2.11 

Remove the two mounting screws (1).

Use a straight slot screwdriver to detach the sheet guide (2).

Remove the backup roller (3).



3.2.14 Transfer Charger Assembly

Turn the power switch **OFF** and unplug the AC power cord from the outlet.

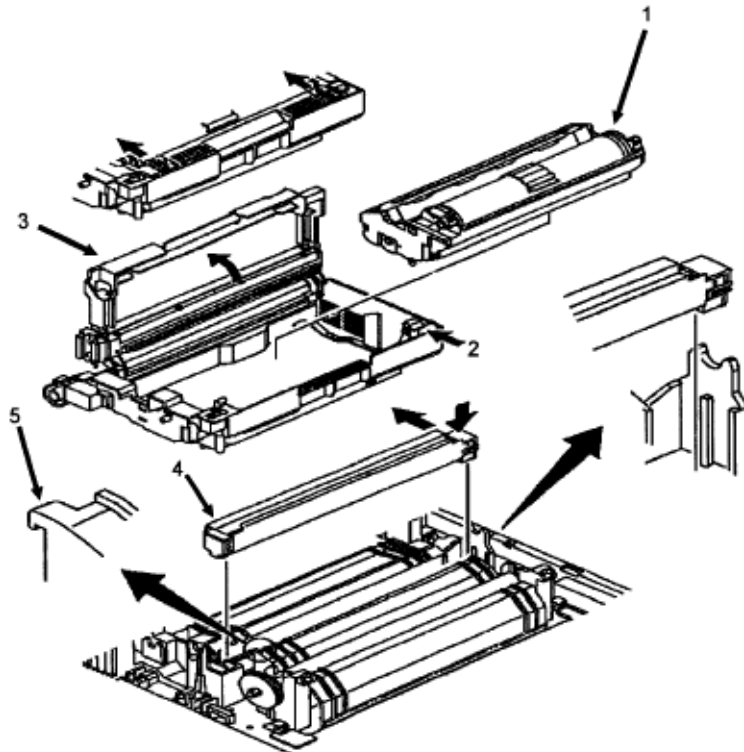
Press the **OPEN** button and raise the stacker cover.

Remove the image drum cartridge (1). (See 3.2.2 ())

Push the lock lever (2) towards the back of the printer to raise the upper unit (3).

Firmly push down and back on the sides of the transfer charger assembly (4) until the lower cover claws are disengaged from the square holes on each end of the transfer charger assembly.

Lift and remove the transfer charger assembly.



3.2.15 Resist Roller Assembly

Perform these procedures:

3.2.01 

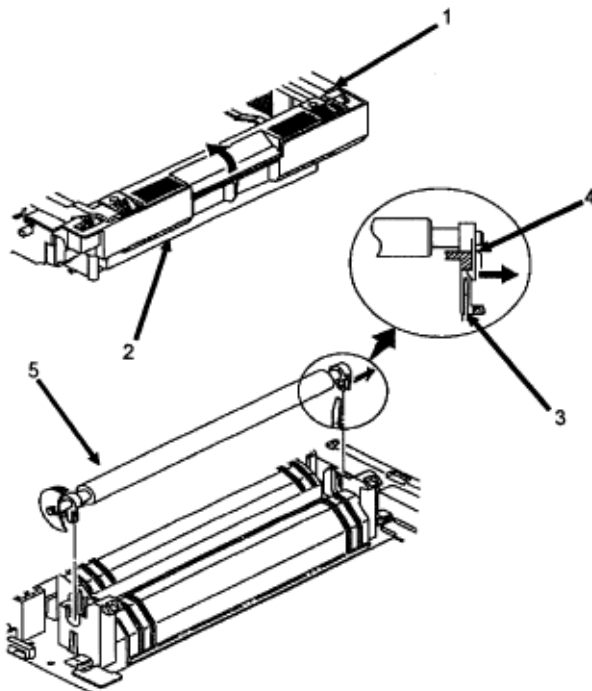
3.2.02 

Using a standard screwdriver, release the claws (1)
From both sides of the resist roller assembly (2).

Note:

The left claw can be accessed from the bottom of the printer.

Lift the resist roller assembly from the printer.



3.2.16 Idle Gear C

Perform this procedure:

3.2.01 

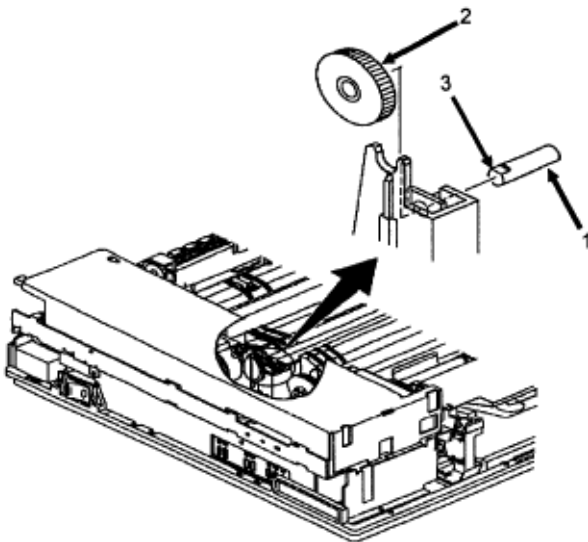
Push the lock lever towards the back of the printer to raise the upper unit.

Using a needle nose pliers and working from the left side of the printer, push the post (1) to the right.

Remove the post.

Remove idle gear C (2).

Note: The cutout (3) on the post should be positioned to the left side of the printer and on the top when installing.



3.2.17 Paper Supply Unit

Perform these procedures:

3.2.01 

3.2.02 

3.2.03 

3.2.04 

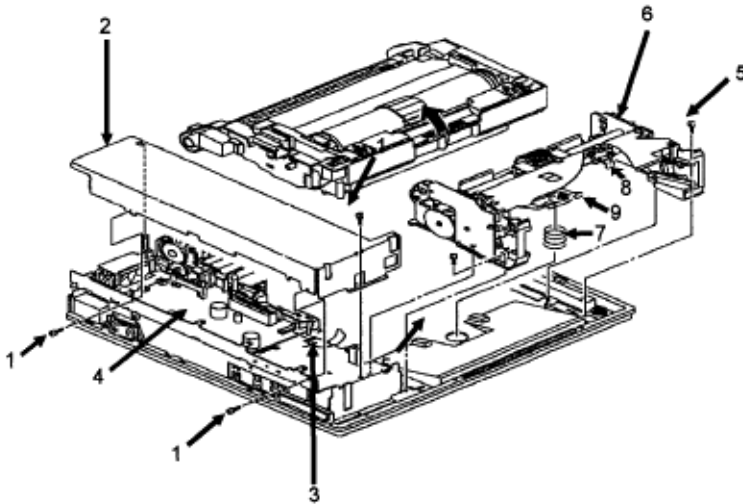
3.2.05 

Press the lock lever (1) backward and lift the upper unit (2).

Disconnect the cable (3) from connector J5 on the engine controller circuit board (4).

Remove the two mounting screws (5).

Lift the paper supply assembly (6) at its front until the frame of the unit comes off the guide pins, then move the unit towards you for removal.



3.2.18 Resist Motor

Perform these procedures:

3.2.01 

3.2.02 

3.2.03 

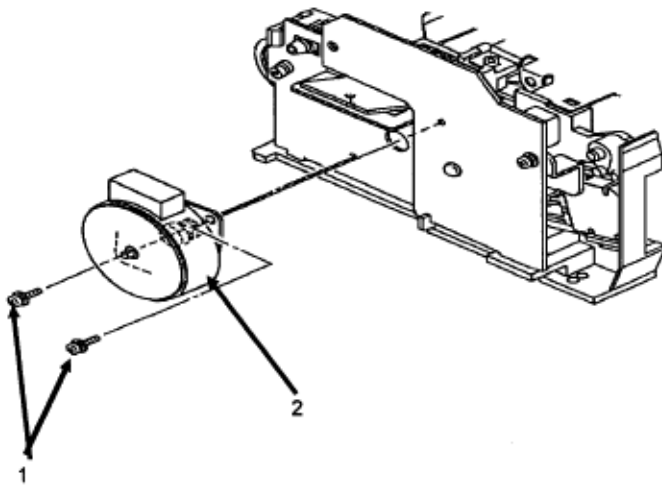
3.2.04 

3.2.05 

3.2.17 

Remove the two mounting screws (1).

Detach the resist motor (2).



3.2.19 Engine Connection Board

Perform these procedures:

3.2.01 

3.2.03 

3.2.04 

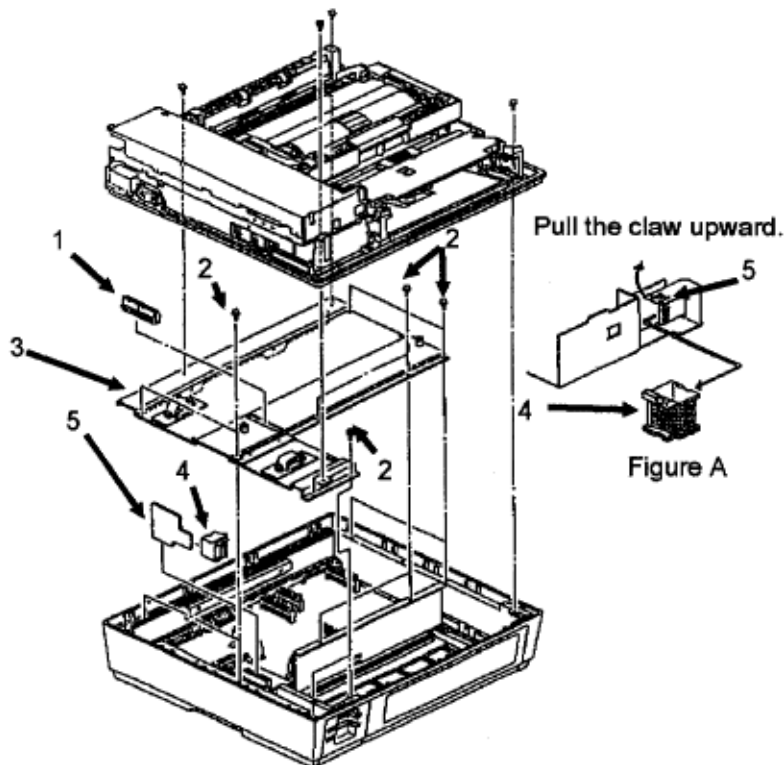
3.2.05 

3.2.17 

Remove the two mounting screws. (1)

On the paper supply unit, press the pointed end of the nylon latch (2), push out the head (3), and remove the latch.

Detach the engine connection board (4).



3.2.20 Hopping Roller

Perform these procedures:

3.2.01 

3.2.02 

3.2.03 

3.2.04 

3.2.05 

3.2.17 

Remove the two screws (1) and slide the upper plate assembly (2) until the claws (3) are unlocked.

Push the hopping roller shaft (4) to the left to unlock it.

Remove the hopping gear pin (5).

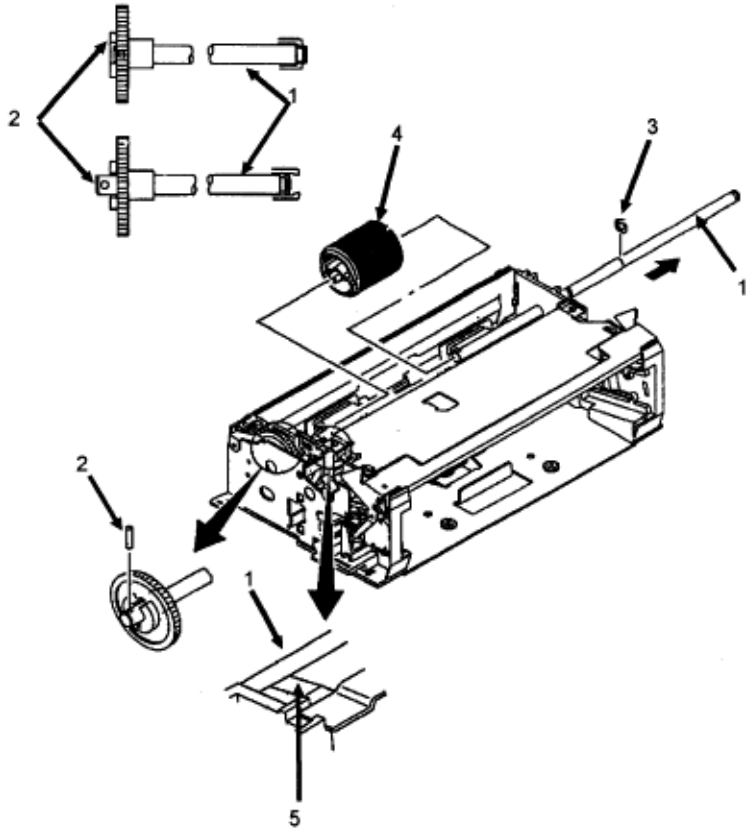
Remove the E-clips (6).

Remove the hopping roller pin (7).

Slide the hopping roller shaft to the right and remove the hopping roller (8).

Note:

When installing, always mount the hopping roller shaft above the ground plate, which is on the left side of the printer.



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3.2.21 Separator

Perform these procedures:

3.2.01 

3.2.02 

3.2.03 

3.2.04 

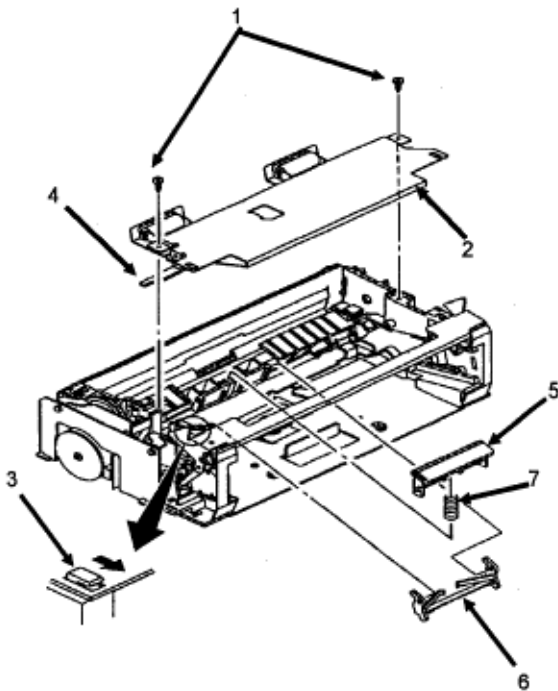
3.2.05 

3.2.17 

3.2.15 

3.2.20 

Hold the separator (1) down and remove the escape lever (2) from the pins on the paper supply unit. Be careful not to lose the separator spring (3).



3.2.22 Ozone Filter

Note:

An ozone filter is provided with the image drum cartridge kit. The filter should be replaced when the image drum cartridge is replaced.

Using a screwdriver, insert the blade under the lower portion of the fan cover (1) and twist the screwdriver to remove the fan cover.

Remove the ozone filter (2) from the fan cover.

3.3 ADJUSTMENTS AND SERVICE CHECKS

3.3.01 General Information

The first four adjustments (Actual Page Count, Modified Page Count, Vertical Print Start Position and LED Head Drive Time) are performed by changing addresses on the EEPROM located on the Engine Controller printed circuit board.

Before performing these adjustments, setup the printer as listed below.

Remove the upper cover.

Raise the upper unit.

Remove the image drum cartridge.

Override the cover open interlock switch.

3.3.02 Actual Page Count

General Information

The actual page counter counts the number of sheets printed by the printer.

Procedure

To display the value of the actual page counter, follow this procedure.

Power ON the printer while pressing Switch 1 on the Engine Controller Board. The LED (located on the Engine Controller Board) will flash once - then pause (the LED will continuously flash once - then pause) indicating that the printer is in Parameter 1 of the maintenance mode.

Press Switch 1 for five seconds. The LED will display the contents of the Parameter1 (Actual Page Counter) register as follows:

- a. The long flash indicates start of count.
- b. Short flashes indicate counter contents (most significant digit first). There will be a pause between digits.
- c. Upon completion of the count, a long flash will indicate start of count.
- d. This process will loop until you press Switch 1 for five seconds. This will cause the modified page count to be displayed.

Example

Actual Page Counter = 235 pages

3.3.03 Modified Page Count

General Information

The modified page counter combines the main motor revolution time and the number of printed sheets. Drum replacement is determined by the modified page count.

Procedure

To check the modified page count, follow this procedure.

Note:

To access the Modified Page Count, you must first view the Actual Page Count.

1. After viewing the Actual Page Count, press Switch 1 for five seconds. The LED will display the contents of the Parameter 1 (Modified Page Count) register.
2. To end this procedure, press Switch 1 for 1 second. The LED will perform one short flash to indicate Parameter 1 is selected.

Example

Modified Page Counter = 142

Switch 1 Action	LED Display	Description
Press for 5 seconds	Long Flash	Start of Modified Page Count
None	On-Off-Pause	1st Digit = 1
None	On-Off-On-Off-On-Off-On-P ause	2nd Digit = 4
None	On-Off-On-Off-Pause	3rd Digit = 2
None	Long Flash	Start of Count
Press for 1 second	Flashes ON/OFF	Parameter #1 - Selected

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3.3.04 Vertical Print Start Position Adjustment

General Information

The Vertical Print Start Position Adjustment is used to set the top of form position. Use this adjustment to correct print start variations between different OL400 printers, or to achieve a 4.6 mm vertical start position, the default value.

A chart of the EEPROM addresses and print start positions is shown below.

The Vertical Print Start Position is Parameter 9.

Procedure

To change the Vertical Print Start Position, follow this procedure.

Power ON the printer while pressing Switch 1 on the Engine Control board. The LED will flash continuously, indicating that the printer is in Parameter 1 of the maintenance mode.

Press Switch 1 eight times to access Parameter 9. The LED will flash 9 times, indicating Parameter 9 has been selected.

Press Switch 1 once for 5 seconds. The contents of the Parameter 9 register will be displayed.

To modify the contents of the Parameter 9 register, press Switch 1 (momentarily) to step through the addresses (in accordance with the chart shown below).

To end the adjustment, press Switch 1 once for 5 seconds. The LED will flash 9 times, indicating Parameter 9.

Note:

Ten flashes represent the number zero.
On the table below, Address 0 comes after Address 15
EEPROM Address / Print Start Position Table

3.3.05 Setting the LED Head Drive Time

General Information

This adjustment is necessary only when replacing the LED head. However, if the luminous energy ratings of the new and original LED heads are the same, adjustment is not necessary. The luminous energy rating is on the label on the LED head. Digits three and two (reading from the right) are the drive time rating.

The LED Head Drive Time is Parameter 13.

Procedure

To change the LED Head Drive Time, follow this procedure.

Power ON the printer while pressing Switch 1 on the Engine Control board. The LED will flash continuously, indicating that the printer is in Parameter 1 of the maintenance mode.

Press Switch 1, twelve times to access Parameter 13. The LED will flash thirteen times, indicating Parameter 13 has been selected.

Press Switch 1 once for five seconds. The contents of the Parameter 13 register will be displayed.

To modify the contents of the Parameter 13 register, press Switch 1 (momentarily) to step through the addresses (in accordance with the chart shown below).

To end the adjustment, press Switch 1 once for five seconds. The LED will flash thirteen times, indicating Parameter 13.

LED Drive Time Rating / Drive Time Setting Table

EEPROM Address	Print Start Position	EEPROM Address	Print Start Position
0 DEFAULT	0 (mm)	8	-4.0 (mm)
1	+5	9	-3.5
2	+1.0	10	-3.0
3	+1.5	11	-2.5

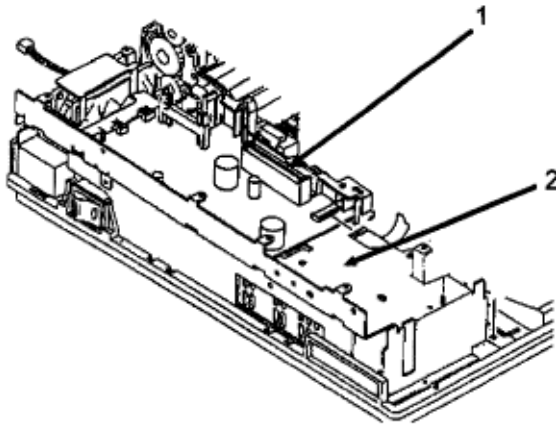
4	+2.0	12	-2.0
5	+2.5	13	-1.5
6	+3.0	14	-1.0
7	+3.5	15	-0.5

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3.3.06 Voltage Adjustment (+5 vdc)

Procedure

1. Remove the upper cover.
2. Remove the shield cover.
3. Remove the main controller board.
4. Use a digital voltmeter which has an input impedance of 10M Ohms and is capable of displaying to the second decimal place or farther.
5. Check the voltage at CN1 of the interconnect board (1) between Pin 31, 5 vdc and Pin27, 0 vdc . **The value should be +5.0 vdc (+/-0.1).**
6. If adjustment is required, remove the front guide.
7. Change the output voltage by adjusting potentiometer RV1 on the power supply board (2).



3.3.07 Darkness Control

General Information

The Darkness Control is adjusted from the Level 2 Menu. This adjustment changes the degree of character density.

Procedure

Place the printer off-line.

Press and hold **MENU** more than 2 seconds. The first menu category will appear on the display.

Press **MENU** until "Darkness" appears on the display.

Press "+" to toggle through the values until the desired setting is reached.

Press **ENTER/MENU RESET** to store the new setting.

3.4 CLEANING

3.4.01 General Information

Remove any dropped toner and dust. Clean inside and around the printer with a vacuum cleaner when necessary.

CAUTION:

Do not touch the image drum, the LED head, or the LED head connector block.

3.4.02 Cleaning the Static Charge Wire

Turn **OFF** the power supply switch, and press the "**OPEN**" button and raise the stacker cover.

Push the two lock levers backward and lift the LED holder.

Clean the static charge wire by moving the blue wire cleaner of the image drum cartridge to the left and right.

Place the blue wire cleaner in its original position (to the right).

3.4.03 Cleaning the Transfer Charge Wire

CAUTION:

Do not press strongly when cleaning or you will break the transfer wire.

Push the two lock levers backward to lift the LED holder, and take out the wire cleaner.

Close the LED holder.

Raise the upper unit.

Clean the transfer charger by pressing the wire cleaner to the transfer charger assembly. Slide it several times to the left and right, and clean the transfer wire.

Return the wire cleaner to its original position.

3.4.04 LED Lens Array

Clean the LED lens array when vertical white lines or "blank" spots appear on the output.

Place the LED lens cleaner pad against the LED lens array.

Slide the cleaner pad horizontally several times to clean the head. Use a clean area of the pad on each pass.

Discard the pad.

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Service Guide OL800 / OL820


Chapter 4 Failure & Repair Analysis


4.1 OVERVIEW

4.1.01 Introduction

This section is used to isolate problems to the assembly level. Application problems and detection of faulty components on the printed circuit boards are not addressed.

When troubleshooting a defective unit, refer first to [Section 4.4 of this Service Handbook](#) . This section contains tips on preventing problems as well as a list of common problems.

Next, refer to [Section 4.5](#) . This section lists the operator panel messages and sample output problems.

Finally, refer to [Section 4.6](#) . Repair Analysis Procedures (RAPs) will ask you questions or require you to make observations. The answers to these questions and the results of your observations determine your next course of action. Use the RAP Index to identify which RAP should be used to resolve the problem with the machine.

If you encounter a situation that is not addressed by the documentation in this kit, please report the problem to Okidata. Refer to the [Service Center Reference Guide](#) for information on contacting Okidata.

The following information is provided to detect and analyze failures.

- Okilink II, Faxable Facts, Technical Service Bulletins
- Troubleshooting Tips / Common Problems
- Fault Alarms
- Output Samples
- Repair Analysis Procedures
- Tests
 - Continuous Print
 - Print Fonts
 - Menu Print
 - Serial Interface Loop
 - Engine

4.2 TROUBLESHOOTING UPDATES

4.2.01 General Information

Okidata distributes updated troubleshooting information in three ways.

- Okilink II
- Faxable Facts
- Technical Service Bulletins

4.2.02 Okilink II

Okilink II is Okidata's Bulletin Board Service. This service is available to all Okidata Certified Service Technicians. Okilink II provides troubleshooting and service information. Technicians can download files, ask questions of Okidata's technical support personnel, and participate in round table discussions about Okidata products and services. Technical Service Bulletins, Recommended Spare Parts Lists, Printer Drivers, Product Specifications, and Service Training Information are also available.

[Refer to the Service Center Reference Guide for information on accessing Okilink II.](#)

4.2.03 Faxable Facts

Okidata's Faxable Facts is an automated fax document retrieval system. It is maintained by Okidata's Customer Information Center. Answers to common questions about Okidata products are available through Faxable Facts.

[Refer to the Service Center Reference Guide for information on accessing Faxable Facts \(\)](#).

4.2.04 Technical Service Bulletins

Okidata's Technical Service Bulletins (TSBs) contain technical information developed after product release. Firmware updates, part number changes, and procedural changes are some of the subjects covered by these bulletins. The TSBs are distributed through Okilink II.

[Refer to the Service Center Reference Guide for information on accessing Okilink II \(\)](#).

4.3 REPORTING PROBLEMS

4.3.01 General Information

Okidata strives to provide accurate and detailed service information through its training materials. The Technical Training Group realizes that service technicians have valuable experience, knowledge, and opinions. Okidata strongly encourages you to report any problems you may encounter when using the materials of this training kit. Please be as specific and detailed as possible. Your comments, suggestions, and criticisms are used to update and revise training kits.

You should reference the training materials when servicing Okidata products. Most problems can be solved by using the information provided in the training materials. If you encounter a situation that cannot be solved, please let Okidata know.

[Refer to the Service Center Reference Guide for information on contacting Okidata.](#)

4.3.02 Problem Lists

Technicians frequently request a list of common problems specific to a product. Technical Training Kits are written before a product is shipped to customers. Therefore, such information is not available when a product is first released.

However, Okidata wants to respond to these requests. Okilink II provides round-table discussions on technical problems. Errors and corrections in the training materials are listed in the Training Section of Okilink II. The Technical Service Bulletins (also known as Okidata's Monthly Mail) are available via Okilink II. Situations that are not addressed in the reference documentation, technical service bulletins, or round tables may be reported to the Dealer Service and Support Engineers (DSSEs) or the Technical Training Group. You will receive a response to your message within one business day.

The information on Okilink II is the most accurate and up-to-date technical information available from Okidata. This is only possible with your assistance. By reporting your suggestions, concerns, and problems, Okidata can provide the best possible information.

Your cooperation is greatly appreciated. Thank you for your help!

4.3.03 Reporting Methods

Okilink II

You may use Okilink II to report your findings. [Refer to the Service Center Reference Guide for information on using Okilink II.](#)

Course Critique

Use the Course Critique to report any problems you find as you are completing the self-paced training.

Fax Number

If you wish to fax your response, please use the numbers listed in the Service Center Reference Guide.

Mailing Address

If you respond by mail, please use the appropriate address listed in the Service Center Reference Guide.

Information Provided

Please provide the following information when reporting problems.

Okidata Dealer Number

Technician's Name

Company Name

Company's Address (Street, City, State/Province, ZIP / Postal Code, Country)

Telephone and Fax Numbers (with area / country access codes)

Product Name

Unit's Serial Number

Firmware Revision Level

Description of Problem

Document Name (with page number or procedure) with error or problem.

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4.4 TROUBLESHOOTING TIPS

4.4.01 Preliminary Checks

Is the product being operated under the proper ambient conditions?
Does the paper being used meet the specifications for this product?
Have the consumables been replaced as recommended?
Have the consumables been installed properly?
Are Okidata consumables being used?
Is the LED Head Drive Time correctly set?
Check the contacts and connections of the power supply board. If good contact is not made at all connections and ground points, false diagnosis will occur.
Examine the basic check points as directed in the Solutions manual.
Gather as much information on the problem from the customer as possible.
Perform inspections in conditions which resemble those in which the problem occurred.

4.4.02 Tips For Preventing Image Problems


Do not let anything touch the surface of the image drum.
NEVER expose the image drum to direct sunlight.
Do not touch the fuser unit. It is heated during operation. Oil from your skin may cause uneven fusing temperature.
Do not expose the image drum to light for more than 5 minutes.

4.5 FAULT ALARMS

4.5.01 General Information

The operator panel is used to display printer modes and error conditions. The table below shows the operator panel display and the mode or condition it matches.

Failure To Initialize At Power-On

If the printer fails to go ON-LINE at Power-On, refer to RAP 01 .

LCD Error Message

The failure status of this printer is displayed on the liquid crystal display (LCD) in the operator panel. The Error Messages Table lists the problems that may be indicated by messages on the LCD. The first and the second lines of each LCD message are displayed alternately at 1 second intervals. The messages are displayed until the associated error(s) is removed.

Image Problems

If the printer output is faulty, refer to the Output Samples and determine which example resembles the problem. Proceed to the Repair Analysis Procedure (RAP) referred to by the example.

4.5.02 Error Messages Table

Category	LCD Message Display	Trouble	Trouble
Engine Errors	ERROR ENGINE	LLAB-2 board: ROM errors, timer errors, EEPROM errors, optional IPT errors.	Refer to RAP 06 (📄)
	ERROR ENGINE FAN PROBLEM	The DC fan is halted, or power (+38V) is not fed to the fan.	Check for the presence of foreign matter in the fan Check the DC fan for proper connection Replace the fan or the LLAB2 board
	Replace the fan or the LLAB2 board	ERROR ENGINE FUSING PROBLEM	Refer to RAP 05 (📄)
Refer to RAP 05 ()	Interface Errors	ERROR OPPANEL I/F TIMEOUT	Refer to RAP 07 (📄)
	ERROR PRINTER I/F TIMEOUT	ERROR PRINTER I/F TIMEOUT	Error between the CU and the PU. A timeout occurred without the PU receiving data transmitted from the CU. Replace the LLAB2
	Replace the LLAB2	ERROR OPTION I/F TIMEOUT	Replace the LLAB2 board Replace option
ERROR LOOP TEST	ERROR LOOP TEST	An error occurred during an RS232C line loopback test. (A special connector for loop tests is required)	Refer to RAP 08 (📄)

Controller Errors	ERROR OPTION RAM CHECK	A RAM write/read compare error occurred in the optional RAM board.	Refer to RAP 10 (📄)
	Refer to RAP 10 (📄)	ERROR RESIDENT RAM CHECK	A RAM write/read compare error occurred in the internal 512 kbyte RAM on the CTLZ board.
	ERROR EEPROM (THE SERVICE LAMP IS ON)	A verifying error occurs when EEPROM is written.	A verifying error occurs when EEPROM is written.
	Replace the main control board (CTLZ board)	There is an error in the internal font ROM on the CTLZ board (checksum error).	Replace the main control board (CTLZ board)
	ERROR PROGRAM ROM CHECK	ERROR PROGRAM ROM CHECK	Replace the Program Cartridge
Replace the Program Cartridge	LCD Messages specific to the OL820	FONT CHIP OK	None
	None	The Font Chip failed during initialization.	The Font Chip failed during initialization.
	ERROR: FC CHIP	ERROR: FC CHIP	Replace the Scalable Font Controller Board (OkiXpress)
	ERROR FC SRAM	The static RAM on the Font Controller Board failed during initialization	The static RAM on the Font Controller Board failed during initialization
Replace the Scalable Font Controller Board (OkiXpress)	Font Card Errors	ERROR CARD CHECK	Replace the Font Card
	ERROR CARD REMOVED ONLINE	ERROR CARD REMOVED ONLINE	Turn the power on again to recover from the error
	Turn the power on again to recover from the error	The upper font card used by the CU was extracted.	Insert the font card back into original position
	LOWER CARD NOT FOUND	LOWER CARD NOT FOUND	Insert the font card back into original position

Cover Open	COVER OPEN	COVER OPEN	The upper cover was opened. If the display does not change even after this procedure, replace the cover open microswitch or the LLAB2 board
If the display does not change even after this procedure, replace the cover open microswitch or the LLAB2 board	PAPER FEED JAM n	A jam occurred in the cassette section. The top of paper failed to reach the entrance sensor within a few seconds after the activation of the hopping roller. (Retry is attempted three times) Or the entrance sensor was on when the poser was turned on.	Open the cover and remove the jam, then close the cover Refer to RAP 02a (🖨️) and 2b (🖨️)
Connection Error	No Display	No Display	Refer to RAP 01 (🖨️)
Jam Errors	Jam Errors	PAPER JAM n	Open the cover and remove the jam, then close the cover. Open the cover and remove the jam, then close the cover.
	SIZE TRAY n ERROR	SIZE TRAY n ERROR	Refer to RAP 04 (🖨️)
Tray Requests	Tray Requests	The tray has run out of paper	Load paper in the tray
	Load paper in the tray	An executive tray is requested.	Replace with an executive tray, or press the RECOVER switch to force printing with the present tray
	LETTER TRAY n REQUEST	A letter tray is requested.	Replace with a letter tray, or press the RECOVERY switch to force printing with the present tray



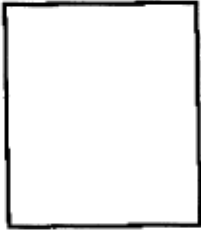

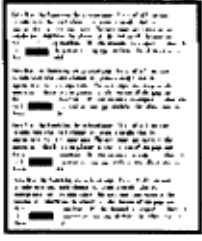


	A4 TRAY n REQUEST	A4 TRAY n REQUEST	Replace with A4 tray, or press the RECOVER switch to force printing with present tray
	Replace with A4 tray, or press the RECOVER switch to force printing with present tray	A5 tray is requested.	A5 tray is requested.
	A6 TRAY n REQUEST	A6 tray is requested.	A6 tray is requested.
	LEGAL TRAY n REQUEST	Legal tray is requested.	Replace with legal tray, or press the RECOVER switch to force printing with present tray
	ENVELOPE TRAY n REQUEST	Envelope tray is requested.	Replace with envelope tray or press the RECOVER switch to force printing with present tray
	B5 TRAY n REQUEST	B5 TRAY n REQUEST	Replace with B5 tray, or press the RECOVER switch to force printing with present
	UNIVERSAL (A6) TRAY n REQUEST	Universal tray is requested.	Replace with universal tray or press the RECOVER switch to force printing with present tray
Requests for Manual Paper Loading	Requests for Manual Paper Loading	EXECUTIVE PAPER MANUAL REQUEST	Load paper in the manual tray and press the FORM FEED switch
	LETTER PAPER MANUAL REQUEST	Letter size paper is requested.	Load paper in the manual tray and press the FORM FEED switch
	LEGAL 14 INCH MANUAL REQUEST	Legal size paper is requested.	" "

	LEGAL 13 INCH MANUAL REQUEST	" "	" "
	MONARCH ENVELOPE MANUAL REQUEST	" "	" "
	COM10 ENVELOPE MANUAL REQUEST	" "	" "
	DL ENVELOPE MANUAL REQUEST	" "	" "
	DL ENVELOPE MANUAL REQUEST	" "	" "
	A4 PAPER MANUAL REQUEST	" "	" "
	A5 PAPER MANUAL REQUEST	" "	" "
	A5 PAPER MANUAL REQUEST	" "	" "
	B5 PAPER MANUAL REQUEST	" "	" "
Buffer Overflow	Buffer Overflow	The receiver buffer overflowed (receive busy control disabled)	Check Level 2 MENU settings
	Check level 2 MENU settings	ERROR PAGE BUFFER OVERFLOW	Install additional optional RAM board Reduce the amount of print data Reduce the number of DLLs or macros catalogued
	ERROR DLL BUFFER OVERFLOW	The DLL buffer overflowed.	Install additional optional RAM board Reduce the number of macros catalogued Reduce the number of DLLs catalogued
	ERROR MACRO BUFFER OVERFLOW	The macro buffer overflowed	Reduce the number of DLLs catalogued Install additional optional RAM board
	ERROR PRINT OVERRUN	Print data is too complicated to be printed.	Alter the print data (Reduce data overlays)

EEPROM Error	ERROR EEPROM (The SERVICE lamp is off)	While EEPROM was being written, the power was turned off, so EEPROM data format was destroyed.	Press the RECOVER switch (at this time, menu setting is changed to the factory default)
Set Operation Error	RESET TO SAVE	RESET TO SAVE	Depending on the current setting, three recovery methods can be used. In all cases, the default stored in EEPROM is changed 1. Press the ONLINE switch. ONLINE state is available without changing the current set menu. 2. Press the RECOVER switch. OFFLINE state is available without changing the current set menu 3. Press RESET . The current set menu is changed, unprinted data in the buffer is erased, and ONLINE state is available.
Daily Status	ONLINE. XXn	The printer is in the online mode	None
	OFFLINE. XXn	The printer is in the online mode	None
	DATA PRESENT. XXn	Received data is present in the page buffer.	Press the FORM FEED switch in the offline mode to force printing
	PRINT FONTS	This message is displayed while a font is being printed during self test.	None
	CONTINUOUS PRINT	This message is displayed while continuous self test is in progress.	None

	DEMO PAGE PRINT	During demonstration page printing.	None
	LOOP TEST	This message is displayed while RS232C loop testing is in progress. The port number (left) and test count (right) for loop testing are displayed on the bottom line of the LCD.	None
	PRINT MENU	This message is displayed while a menu is being printed during self test.	None
	RESET	The internal status of the printer has been reset.	None
	MENU RESET	The printer defaults to factory settings.	None
	WARMING UP	The printer is warming up.	None
	CHANGE DRUM	The drum is aging.	Replace the drum . Power ON while pressing the RECOVER switch
	FUSER LIFE	Life of thermal fuser.	Replace the thermal fuser, and reset the fuser counter.

4.5.03 Output Samples

 <p>Light or Blurred Output Refer to Rap 12 (📄) Blank Spots Refer to Rap 17 (📄)</p>	 <p>Dark Background Refer to RAP 13 (📄)</p>	 <p>Blank Output Refer to Rap 14 (📄)</p>
 <p>Vertical Black Stripes Refer to RAP 15 (📄)</p>	 <p>Repeating Marks Refer to RAP 16 (📄)</p>	 <p>Vertical White Stripes Refer to RAP 18 (📄)</p>
 <p>Black Output Refer to RAP 19 (📄)</p>		

4.6 REPAIR ANALYSIS PROCEDURES

4.6.01 Using the RAPs

When using the Repair Analysis Procedures, follow these steps.

Use the RAP INDEX to find the RAP associated with the printer's problem.

Go to the appropriate RAP.

All of the RAPs will begin with a START Statement, followed by questions or another type of statement.

If the RAPs do not lead you to the cause of a problem, please report this to Okidata.

Refer to Section 4.3 for further details .

4.6.02 RAP Index

RAP	RAP Description
01	Printer Does Not Initialize
02a	Paper Feed Jam 1 Alarm
02b	Paper Feed Jam 2 Alarm
03	Paper Jam Alarm
04	Size Tray n Error Alarm
05	Error Engine Fusing Problem Alarm
06	Error Engine Alarm
07	Error Operator Panel Interface Timeout
08	Error Loop Test (RS232C)
09	Error Resident RAM Check
10	Error Option RAM Check
11	No Operator Panel Display
12 *	Light or Blurred Output
13 *	Dark Background
14 *	Blank Output
15 *	Vertical Black Stripes
16 *	Repeating Marks

17 *	Blank Spots
18 *	Vertical White Stripes
19 *	Black Output
20	Poor Fusing

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RAP 01:Printer Does Not Initialize**START**

Power OFF, then ON.

Is the WARMING UP message displayed?

YES Go to B.

NO Check the AC cable connection.

Is +5V output generated? (Check for +4.75vdc to +5.25vdc at both ends of C27
on the main control board.)

YES Go to A.

NO Is the line fuse open?

YES Check for shorts between AC and replace the fuse.

NO Is power generated when the engine controller board is detached
(from the power supply unit) and AC power is turned ON?

NO Replace the power supply unit.

Is there a short between +38V and 0V, Is there a short
between +5V and 0V when the engine controller board is
controller installed. Perform this check on the engine

board.) Be sure that the circuit side of the engine
controller board is not touching the shield frame.

YES Install the engine controller board correctly.

NO Replace the engine controller board.

A

Is the Block Character displayed on the operator panel 16 seconds after the power is turned ON?

YES Replace the main control board or the engine controller board.

NO Is the operator panel cable disconnected?

- YES Connect the cable.
- NO Replace the operator panel board

B

Is an alarm displayed?

YES Take suggested action for the alarm ([refer to the Solutions Handbook \(\)](#)).

NO Is the fan turning?

YES Make sure the power supply unit is properly installed.
Replace power supply unit
Replace fuser assembly.

NO Check the fan for obstructions
Replace the engine controller board
Replace the power supply unit

RAP 2a: Paper Feed Jam 1 Alarm**START**

Does a JAM alarm occur when the power is turned ON?

NO Go to A.

YES Is the paper at the resist sensor?

YES Remove the paper.

NO Is the JAM alarm cleared by overriding the resist sensor on the engine controller board?

YES Check the resist sensor lever for normal operation.

NO Replace the engine controller board.

A

Does the JAM Alarm occur after paper feeds?

YES Is the paper actuating the resist sensor lever?

NO Replace the paper feed assembly.

YES Replace the engine controller board.

NO Replace the engine controller board.

RAP 2b:Paper Feed Jam 2 Alarm**START**

Does a JAM alarm occur when the power is turned ON?

NO Go to A.

YES Is the paper at the resist sensor?

YES Remove the paper.

NO Is the JAM alarm cleared by overriding the resist sensor on the engine controller board?

YES Check the resist sensor lever for normal operation.

NO Replace the engine controller board.

A

Does the JAM Alarm occur after paper feeds?

YES Is the paper actuating the resist sensor lever?

NO Replace the paper feed assembly.

YES Replace the engine controller board.

NO Replace the engine controller board.

RAP 03:Paper Jam Alarm**START**

Does the paper jam occur when the power is turned ON?

- NO Go to "A"
- YES Is the paper at the resist or exit sensor?
 - YES Remove the paper.
 - NO Will the exit sensor on the engine controller circuit board toggle ON and OFF (check on the engine controller circuit board IC3 pin 3)?
 - YES Check the outlet sensor lever for normal operation.
 - NO Replace the engine controller circuit board.

A

Is the resist roller rotating?

- NO Check the planetary gearing of the paper feed assembly (replace paper feed assembly, if necessary).
- YES Has the paper reached the exit sensor?
 - YES Go to B
 - NO Is the main motor rotating?
 - NO Are the main motor contacts touching the engine controller circuit board?
 - NO Ensure good contact.
 - YES Replace the engine controller circuit board or the main motor.
- YES Is the fuser unit rotating?
 - NO Check the gearing.
 - YES Go to B

B

Does the exit sensor on the engine controller circuit board toggle ON and OFF? Check at engine controller circuit board IC3 pin 3.

NO Replace the engine controller circuit board.

YES Is the paper ejected normally?

 YES Check the exit sensor lever for normal operation.

 NO Check the paper path for obstructions or replace the engine controller circuit board.

END

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RAP 04:Size Tray Error Alarm**START**

Does the paper size differ from the tray size?

YES Use paper of the specified length.

NO Is the tray set properly?

NO Set the tray properly.

YES Has the paper been fed through the printer?

YES Replace the engine connection board.

NO Is the tray identified correctly?

YES END

NO Replace the engine connection board or the engine controller circuit board.

END

RAP 05:Engine Error Fusing Problem Alarm**START**

Power OFF, then ON.

Does a fuser unit alarm occur immediately?

NO Go to A

YES Is the thermistor open (the normal resistance should be about 100k ohms at room temperature)? Measure between pins 1 and 2 of the cable connected to engine controller circuit board J2.

YES Replace the fuser assembly.

NO Is the thermistor shorted? (See above)

YES Replace the fuser assembly.

NO Replace the engine controller circuit board.

END**A**

Turn the power OFF, then ON.

Does the fuser lamp glow? (Check this from the rear vents of the printer.)

YES Is the thermistor open? (See above)

NO Replace the engine controller circuit board.

YES Replace the fuser assembly.

NO Is the fuser lamp open? (With the upper cover open, lift the upper unit and measure the resistance between the heater AC connections.) (0 ohms is normal. Infinite resistance is open.) Check for proper contact between the fuser's AC contacts and the power supply.

YES Replace the fuser assembly.

NO Is the HEAT signal turned on? (HEAT signal at engine controller circuit board IC3 pin 75.)

NO Replace the engine controller circuit board.

YES Replace the power supply unit.

END

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RAP 06:Error Engine Alarm**START**

Replace the ROM (Q1) on the engine controller circuit board.

Has the trouble been resolved?

YES END

NO Replace the engine controller circuit board.

RAP 07:Error Operator Panel Interface Timeout**START**

Is the cable between the main control board and the operator panel connected properly?

NO Connect it properly.

YES Replace the operator panel.

Is the problem resolved?

NO Replace the main control board.

Is the problem resolved?

NO Replace the LLCC board, engine control board (LLAB2) and
LNKZ board.

RAP 08:Loop Test Failure (RS232C)

START

Is the loop test connector installed?

NO Install the loop test connector (refer to the Solutions Guide)

YES Is the multiport serial board (PORT 2 or 3) being tested?

NO Replace the main control board.

YES Replace the multiport serial board.

Note:

The loop test scans PORT 1, PORT 2 and PORT 3 to check for the presence of a loop test connector. The test will run on the first port attached to a loop test connector.



RAP 09:Error Resident RAM Check

START

Does the resident RAM operate normally when the extended RAM board (MEMZ) is removed?

NO Replace the main control board.

YES Replace the extended RAM board.

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RAP 10:Error Option RAM Check**START**

Are the expansion RAM chips installed correctly?

NO Install the chips correctly.

YES Does the memory expansion board operate normally when all socketed chips are removed?

NO Replace the memory expansion board (MEMZ).

Is the problem resolved?

YES **END**

NO Replace the main control board.

YES Replace the expansion RAM chips.

Is the problem resolved?

YES **END**

NO Replace the memory expansion board.

Is the problem resolved?

YES **END**

NO Replace the main control board.

END

RAP 11:No Operator Panel Display**START**

Is the program cartridge inserted properly?

NO Insert the program cartridge properly.

YES Is the +5vdc on the main control board between +4.75vdc and +5.25vdc? Check the +5vdc at both sides of C27 on the main control board.

NO Adjust the +5vdc as shown in Section 3 of the Training Manual.

Is the +5vdc within specifications?

NO Replace the power supply unit.

YES Is the cable between the main control board and the operator panel connected properly?

NO Connect it properly.

YES Replace the operator panel.

Is the problem resolved?

NO Replace the main control board.

Is the problem resolved?

NO Replace the LLCC board, engine control board (LLAB2) and LNKZ board.

RAP 12:Light or Blurred Output

START

Does the printer contain sufficient toner?

NO Add Toner

YES Is the paper recommended for use in a laser printer?

NO Use paper recommended for a laser printer.

YES Print the **MENU**. Raise the stacker cover to stop the print cycle just as the bottom of the paper goes under the hopping roller. Lift the upper unit, remove the paper and look at the image drum.

Is there a dark toner image on the drum?

YES Replace the transfer charger assembly.

NO Clean the LED Head.

Is the problem removed?

YES **END**

NO Replace the Image Drum Cartridge.

switch Power ON the printer power while pressing the **RECOVER** to clear the drum counter.

Is the problem removed?

YES **END**

NO Replace the Engine Controller Board.

Is the problem resolved?

YES **END**

NO Replace the High Voltage Power Supply Unit.

END

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RAP 13: Dark Background

START

Is the charge wire dirty?

YES Clean the charge wire.

NO Has the image drum been exposed to external light?

YES Install the Image Drum Cartridge in the printer and wait 30 minutes. This will allow the drum surface to recover its photoconductive properties.

NO Is the fuser assembly dirty?

YES Replace the fuser cleaner pad.

NO Replace the image drum cartridge.

Has the trouble been removed?

YES **END**

NO Replace the high voltage power supply unit.

END

RAP 14:Blank Output**START**

Is the transfer wire broken?

YES Replace the transfer wire

NO Replace the high voltage power supply unit.

If the problem still exists, run the Engine Test (See Section 4.5 of the Service Handbook
())

Are horizontal ruled lines output?

YES Replace the main controller circuit board.

NO Is the LED head connected properly? (Check for good contact.)

NO Connect the LED head properly.

YES Is the image drum cartridge connected to the ground?

NO Clean the ground contact of the image drum cartridge.

YES Replace the engine controller circuit board.

Has the trouble been removed?

YES **END**

NO Replace the LED head.

Has the trouble been removed?

YES **END**

NO Replace the image drum cartridge.

END

RAP 15:Vertical Black Stripes**START**

Is the charge wire dirty?

YES Clean the charge wire.

NO Replace the image drum cartridge. Power ON the printer power while pressing
the **RECOVER** switch to clear the drum counter.

Has the trouble been removed?

YES **END**

NO Replace the LED head.

Has the trouble been removed?

YES **END**

NO Replace the engine controller board.

END

RAP 16:Repeating Marks

START

Measure the distance between the marks.
Find the measurement below and take the suggested corrective action.

2.5"

Check/replace the fuser assembly or backup roller.

3.7"

Check/replace the image drum cartridge.

4.75"

Check/replace the hopping roller.

All others

Check/replace the resist rollers.

RAP 17:Blank Spots**START**

Does the printer contain sufficient toner?

NO Add Toner

YES Is the paper recommended for use in a laser printer?

NO Use paper recommended for a laser printer and make sure the print side is up.

YES Make sure the print side is up.

Has the trouble been resolved?

YES **END**

NO Is the transfer wire broken or nicked?

YES Replace the transfer wire assembly.

NO Clean the transfer wire.

Has the trouble been resolved?

YES **END**

NO Replace the image drum cartridge. Power ON the printer power while pressing the **RECOVER** switch to clear the drum counter.

Has the trouble been resolved?

YES **END**

NO Replace the high voltage power supply unit.

END

RAP 18:Vertical White Stripes

START

Does the printer contain sufficient toner?

NO Add Toner

YES Clean the LED Head.

Has the trouble been resolved?

YES **END**

NO Is the transfer wire broken/nicked?

YES Replace the transfer wire assembly.

NO Clean the transfer wire.

Has the trouble been resolved?

YES **END**

NO Replace the LED head.

Has the trouble been resolved?

YES **END**

NO Replace the image drum cartridge. Power ON the printer power while pressing the **RECOVER** switch to clear the drum counter.

END

RAP 19:Black Output**START**

Is the charge wire broken?

YES Replace the image drum cartridge. Power ON the printer power while pressing
the **RECOVER** switch to clear the drum counter.

NO Replace the high voltage power supply unit.

Is the problem resolved?

YES **END**

NO Replace the LED head.

Is the problem resolved?

YES **END**

NO Replace the engine controller board.

Is the problem resolved?

YES **END**

NO Replace the image drum cartridge. Power ON the printer power
while pressing the **RECOVER** switch to clear the drum counter.

END

RAP 20:Poor Fusing

START

Is the heater lamp turning ON?

NO Replace the engine controller board.

YES Replace the fuser assembly.

Has the problem been resolved?

YES

END

NO Are the backup roller springs normal?

NO Replace the springs.

YES Replace the fuser assembly.

Has the trouble been removed?

YES END

NO Replace the engine controller circuit board.

END

4.7 SELF-TESTS

4.7.01 General Information

The following diagnostics are available for the printer.

- Continuous Print Test
- Print Fonts
- Menu Print
- Serial Interface Loop Test
- Engine Test

4.7.02 Continuous Print Test

During the Continuous Print Test, the printer will print a rolling ASCII character set. This test is helpful in determining the relative print quality of an entire page.

4.7.03 Print Fonts

Although Print Fonts is not usually considered a diagnostic, it is quite useful in determining if the printer is recognizing Font Cards and DLL Fonts.

4.7.04 Menu Print

Menu Print should be used to determine the status of the various Menu Items. This information is stored in the EEPROM.

4.7.05 Serial Interface Loop Test

The Serial Interface Loop Test is used to determine the status of the RS232C Serial Interface Board. A loopback connector (as shown in the Solutions Manual) must be attached to the interface connector before running this test.

4.7.06 Engine Test

The Engine Test allows the technician to operate the printer with the main controller board and operator panel detached. This can be very helpful when trying to isolate defective circuit boards.

To perform the Engine Test, follow this procedure.

- Remove the upper cover.
- Make sure that the paper cassette is installed.
- Detach the operator panel and main controller board.
- Override the cover interlock switch.
- Press **Switch 1** on the engine controller board while powering **ON** the printer.
 - The printer will continually print pages of horizontal ruled lines.
- To stop the test, press **Switch 1** again.
 - The printer may print a few more pages before stopping the test.

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A.1 OVERVIEW
















A.1.01 General Information

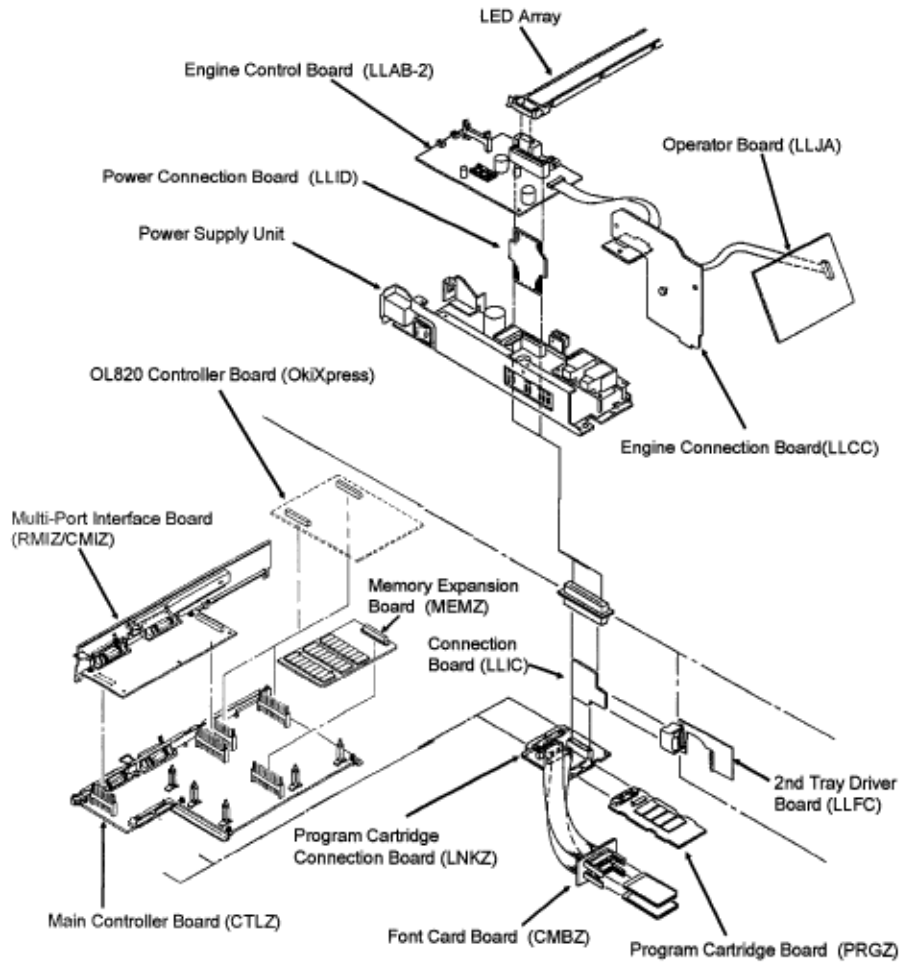
This section describes the characteristics of the printed circuit boards used in the printers. The following areas are covered.

- Firmware
- Fuses
- Jumpers
- Switches
- Sensors
- Test Points

Where an item is not applicable, the word **NONE** will be listed.

A.2 Index to Charts

Description	Board Designation	Option ?	Section
Main Controller	CTLZ		A.2.01 
Engine Controller	LLAB-2		A.2.02 
Operator Panel	LLJA		A.2.03 
Power Connection	LLID		A.2.04 
Engine Connection Board	LLCC		A.2.05 
Font Card Board	CMBZ		A.2.06 
Program Cartridge Board	PRGZ		A.2.07 
Power Supply Unit	N/A		A.2.08 
Connection Board	LLIC		A.2.09 
Program Cartridge Connection Board	LNKZ		A.2.10 
Second Tray Driver Board	LLFC	Option	A.2.11 
RAM Board	MEMZ	Option	A.2.12 
Multi-Port Centronics Interface Board	CMIZ	Option	A.2.13 
Multi-Port RS-232C Serial Interface Board	RMIZ	Option	A.2.14 
OL820 Controller Board (OkiXpress)			A.2.15 



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A.2.01 Main Controller Board (CTLZ)**Firmware**

O1E - ROM (4M bit) - Resident Font (Masked)
O2E - ROM (4M bit) - Resident Font (Masked)

Fuses

NONE

Jumpers

Jumper T1: I-Prime
Pins 1-2: Valid
Pins 2-3: Invalid
Jumper T2: +5vdc power supply to pin 18 (Centronic only)
Pins 1-2: Invalid
Pins 2-3: Valid

Sensors

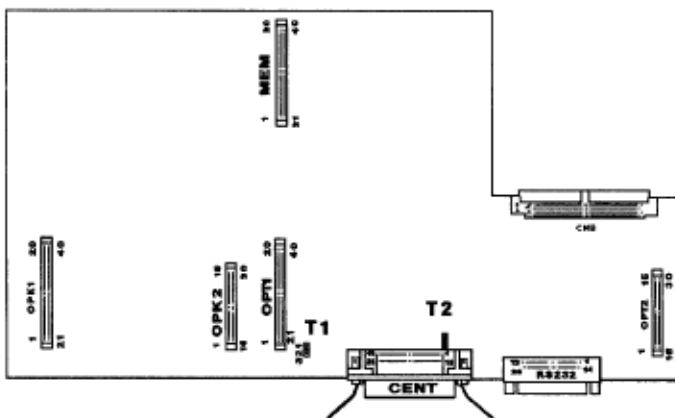
NONE

Switches

NONE

Test Points

+5 vdc OPK2 pins 1, 2
+5 vdc OPT1 pins 1, 2
+12 vdc OPT1 pin 39
- 12 vdc OPT1 pin 40



A.2.02 Engine Controller Board (LLAB-2)**Firmware**

Q1 - EPROM (64Kbyte) -Engine Control Program
IC2 - EEPROM (1,024 bit)

Beginning with LLAB-2 Revision 11, Q1 is not needed. The Q1 ROM has been changed to a Masked ROM internal to MPU 83C154, which replaces MPU 80C51.

Fuses

NONE

Jumpers

NONE

Sensors

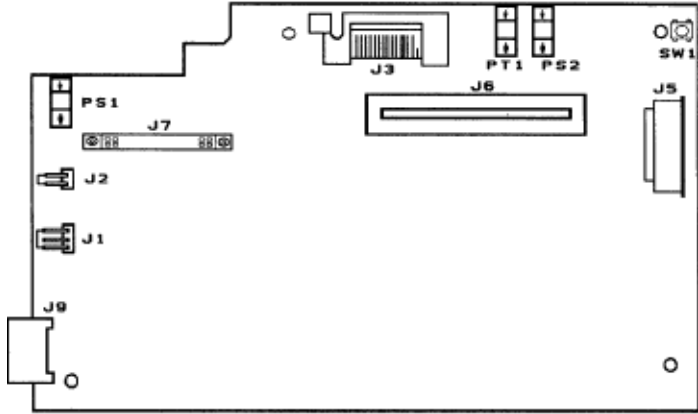
PS2: Resist Sensor
PS1: Outlet Sensor
PT1: Toner End Sensor (not used at this time)

Switches

SW1: Activates Maintenance Mode

Test Points

+38 vdc J1 pin 1 (Fan drive voltage)
Signal Ground J1 pin 2
+5 vdc J3 pins 12, 2 (Power source of LED Assembly)
Signal Ground J3 pins 1, 3, 13
+5 vdc J9 pin 7 (Power supply)
Ground J9 pins 2, 4
+5 vdc J5 pin 5 (Power Supply)
+38 vdc J5 pin 13 (Resist Motor drive voltage)
+38 vdc supply J6 pin 15
+5 vdc supply J6 pins 13, 31, 32
Ground - J6 pin 16



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A.2.03 Operator Panel Board (LLJA)**Firmware**

NONE

Fuses

NONE

Jumpers

NONE

Sensors

NONE

Switches

SW1: +

SW2: -

SW3: Enter/Menu Reset

SW4: Menu

SW5: On-Line

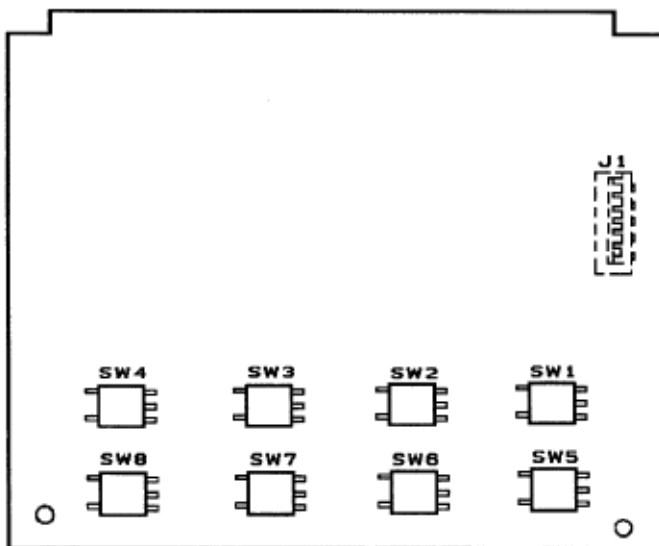
SW6: Form Feed

SW7: Print Fonts/Self Test

SW8: Recover/Reset

Test Points

NONE



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Service Guide OL800 / OL820

Chapter A Reference Charts

A.2.04 Power Connection Board (LLID)

Firmware

NONE

Fuses

NONE

Jumpers

NONE

Sensors

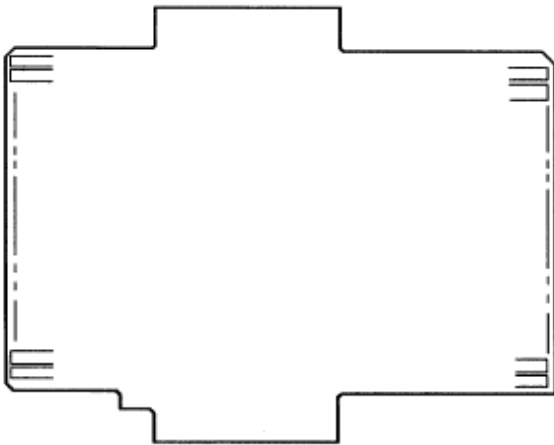
NONE

Switches

NONE

Test Points

NONE





Service Guide OL800 / OL820

Chapter A Reference Charts

A.2.05 Engine Connection Board (LLCC)

Firmware

NONE

Fuses

NONE

Jumpers

NONE

Sensors

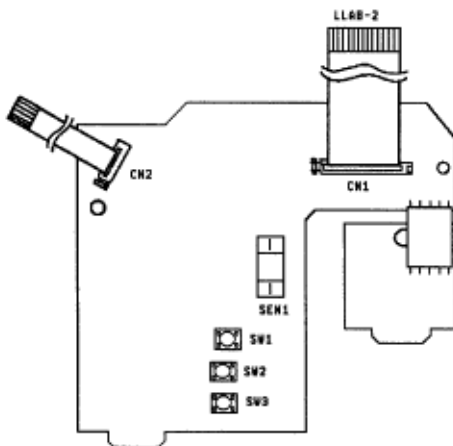
SEN1: Paper-end Sensor

Switches

SW1, SW2, SW3: Paper Tray identification switches

Test Points

NONE





Service Guide OL800 / OL820

Chapter A Reference Charts

A.2.06 Font Card Board (CMBZ)

Firmware
NONE

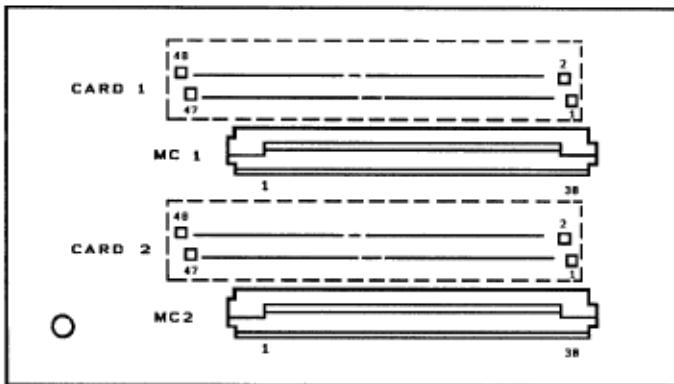
Fuses
NONE

Jumpers
NONE

Sensors
NONE

Switches
NONE

Test Points
NONE



A.2.07 Program Cartridge Board (PRGZ)**Firmware**

IC 3 - 1M bit Program ROM
IC 5 - 1 M bit Program ROM

When installing or replacing the Program Cartridge ROMS (IC3/IC5) in the OL820, they must be compatible with OkiXpress.

See [A.2.15 \(\)](#) for information on compatibility with OkiXpress.

Fuses

NONE

Jumpers

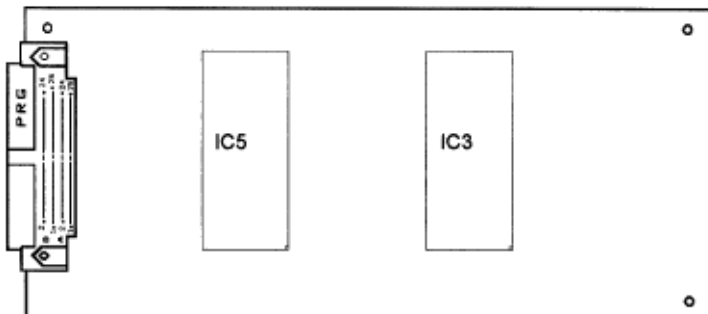
NONE

Sensors

NONE

Switches

NONE



A.2.08 Power Supply Unit**Firmware**

NONE

Fuses

F1: 250V 8A : AC Line Fuse

F2: 125V 2.5A : +38vdc Fuse (Style 1 ONLY)

Jumpers

NONE

Sensors

NONE

Switches

Cover Interlock Switch (CN2)

RV1 : +5vdc Adjustment Potentiometer (Style 1 ONLY)

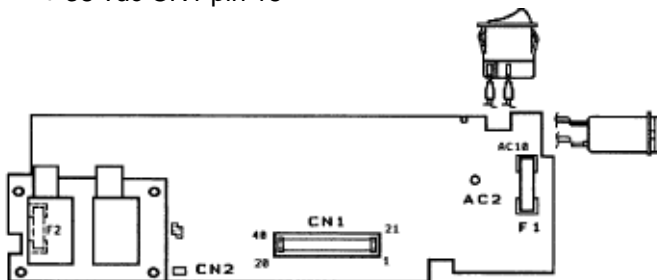
Test Points

+ 5 vdc CN1 pins 13, 31, 32

+ 12 vdc CN1 pin 12

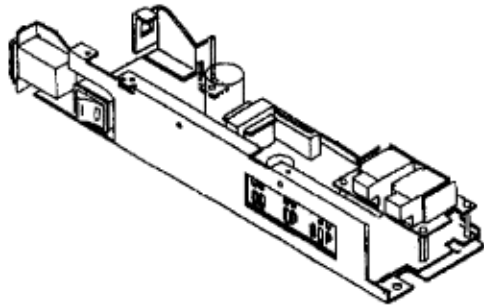
- 12 vdc CN1 pin 11

+ 38 vdc CN1 pin 15



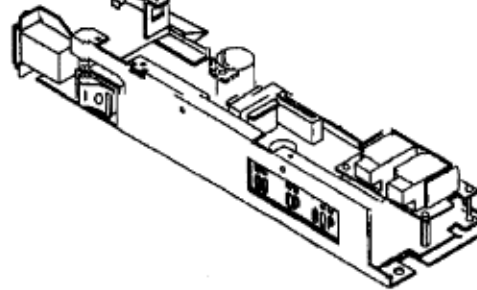
Note: There are two styles of Power Supply Units currently available. The Power Supply Units are interchangeable. However, in order to install a Style 1 Power Supply Unit in a printer that previously contained a Style 2 Power Supply Unit, you must install the grounding plate (as shown in the OL800/820 Service Video).

First Revision Power Supply

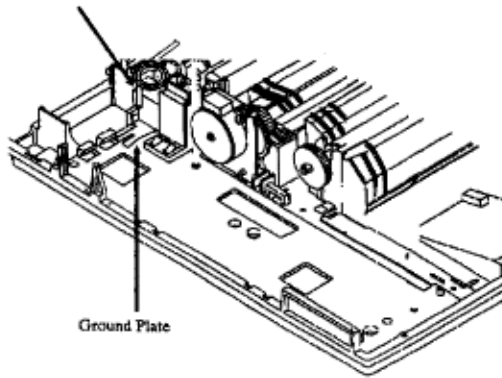


Left Torsion Spring fits here.

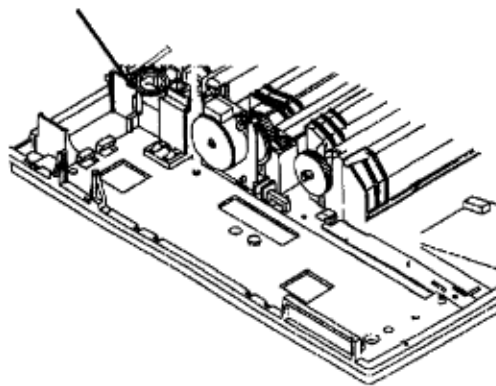
Second Revision Power Supply



Left Torsion Spring



Left Torsion Spring



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A.2.09 Connection Board (LLIC)**Firmware**

NONE

Fuses

NONE

Jumpers

NONE

Sensors

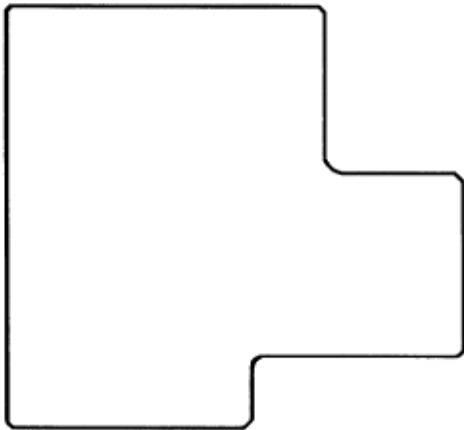
NONE

Switches

NONE

Test Points

NONE





Service Guide OL800 / OL820

Chapter A Reference Charts

A.2.10 Program Cartridge Connection Board (LNKZ)

Firmware

NONE

Fuses

NONE

Jumpers

NONE

Sensors

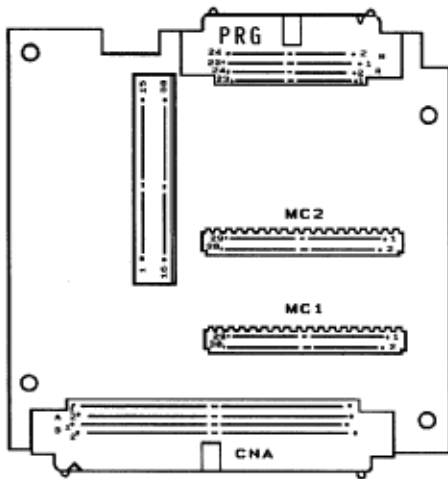
NONE

Switches

NONE

Test Points

NONE



A.2.11 Second Tray Driver Board (LLFC) (Option)**Firmware**

NONE

Fuses

F1: 1 amp - Protects 38vdc

Jumpers

Jumper J1: Pins 1 and 2 - 8ppm (page per minute)

Pins 3 and 4 - 4ppm

Sensors

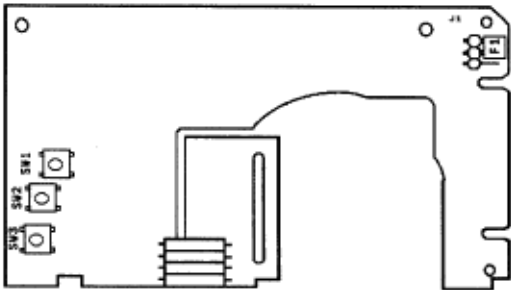
NONE

Switches

SW1, SW2, SW3: Paper Tray identification switches

Test Points

NONE





Service Guide OL800 / OL820

Chapter A Reference Charts

A.2.12 RAM Board (MEMZ) (Option)

Firmware
NONE

Fuses
NONE

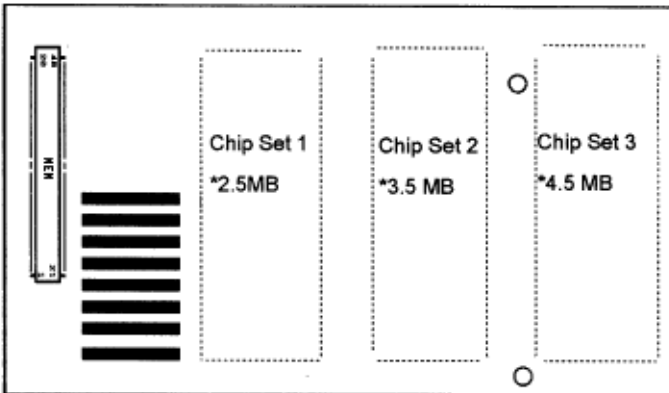
Jumpers
NONE

Sensors
NONE

Switches
NONE

Test Points
NONE

Note: Expansion RAM can be added in 1 MB increments as shown on the facing page.



A.2.13 Multi-Port Centronics Interface Board (CMIZ - Option)**Firmware**

NONE

Fuses

NONE

Jumpers

Jumper T1: I-Prime

Pins 1-2: Invalid

Pins 2-3: Valid

Jumper T2: +5vdc power supply to pin 18

Pins 1-2: Invalid

Pins 2-3: Valid

Sensors

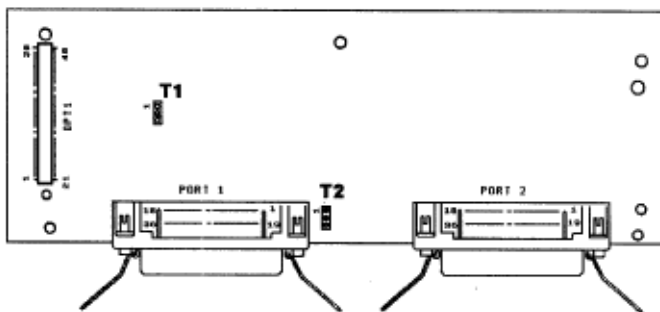
NONE

Switches

NONE

Test Points

NONE





Service Guide OL800 / OL820

Chapter A Reference Charts

A.2.14 Multi-Port RS-232C Interface Board (RMIZ) (Option)

Firmware

NONE

Fuses

NONE

Jumpers

NONE

Sensors

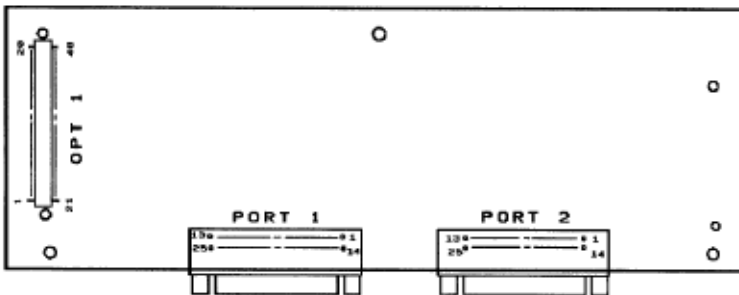
NONE

Switches

NONE

Test Points

NONE



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A.2.15 OL820 Controller Board (OkiXpress)

Firmware

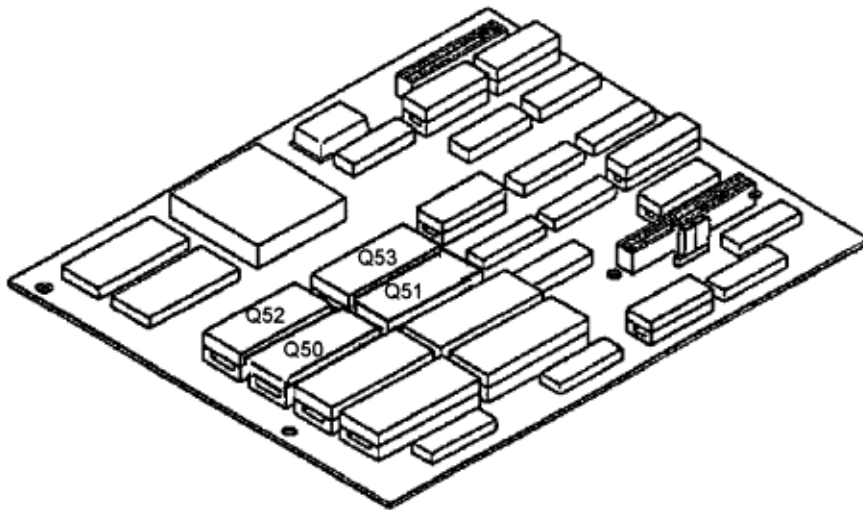
- Q40 thru Q43 - 1M bit Font ROM
- Q50 - 512K program ROM
- Q51 - 512K program ROM
- Q52 - 512K Program ROM
- Q53 - 512K Program ROM

PROMs IC5 and IC3 on the PRGZBoard MUST be compatible with the OL800.

A "PROGRAM ROM CHECK" error will result if IC3 & IC5, Rev. 3.02 are combined with Q53 & Q52, Rev. 2.05.

The Printer will "hang" while "WARMING UP" if IC5 & IC3, Rev 2.05 are combined with Q50 through Q53, Rev. 3.06.

Check OKILINK II for the latest PROM updates. [Refer to the Service Center Reference Guide \(\)](#) for information on accessing OKILINK II.



Printer	Board	Version	Program ROM	+
OL800	PRGZ	OkiXpress Board can ONLY be used with Rev. 2.05	Not Used	Q
^	^		Not Used	Q

OL820	PRGZ	OkiXpress Board can ONLY be used with Rev. 2.05	Not Used	Q
^	^		Not Used	Q
OL800<R>Rev. 3.02	PRGZ	OkiXpress Board can be used with any version	Q50	Q
^	^	^	Q51	Q53
OL820<R>Rev. 3.06	PRGZ	OkiXpress Board can be used with any version	Q50	Q
^	^	^	Q51	Q53

Fuses

NONE

Jumpers

NONE

Sensors

NONE

Switches

NONE

Test Points

+5 vdc J02 pins 1, 2

Ground J01 pin 40 and J 02 pins 28 thru 30

B.1 ILLUSTRATED PARTS LISTING

B.1.01 General Information

This appendix will assist you in identifying the assemblies and parts of the printers. Once you have used Section Four (Failure Analysis) to find a defective part, you can locate the part number in this section.

The format for this appendix is a series of tables with diagrams. The table contains the item reference number, the part description, and the Okidata part number. Also note that some items are only available as assemblies. Every effort has been made to clearly indicate which items are in assemblies and which are not.

Please read the Definition of Terms in the following section carefully. It is important that you understand the different types of parts classifications and their availability.

Please refer to the following resources for current part numbers and pricing.

Okidata's Bulletin Board (Okilink II) contains current part numbers, prices, and recommended stocking levels for each item listed as a recommended spare part. For instructions on accessing Okilink II, refer to the Service Center Reference Guide.

Okidata's Faxable Facts is an automated fax document retrieval system. Part numbers and pricing are available through Faxable Facts. For instructions on accessing Faxable Facts, refer to the Service Center Reference Guide.

Okidata's Technical Information Group is a telephone support line reserved for Authorized Dealers. Part numbers and pricing are available through Technical Information. For instructions on accessing Technical Information, refer to the Service Center Reference Guide.

REMEMBER

Current part numbers, recommended stocking levels, and pricing information are available through Okilink II, Faxable Facts, and Technical Information. Refer to the Service Center Reference Guide for information on accessing these resources ().

B.1.02 Definitions of Terms

RSPL

Okidata recommends that this part/assembly be on hand for servicing.

Consumable

A consumable is a supply item which has a specified life and needs to be replaced periodically. It is purchased and installed by the end user. Okidata machines are designed to work exclusively with Okidata consumables. By using genuine Okidata consumable products, the investment made in the equipment will be protected.

Option

An option is a part/assembly which is added to a product and expands the product's functionality. An option may or may not be installed by the end-user. Instructions for installation accompany each option.

Option RSPL

Okidata recommends that this part/assembly be on hand for servicing installed options.

Document

A document is a printed item which supports the service and marketing of a product. Various documents are available from Okidata.

Blank

Okidata does not recommend stocking this item. This item should be purchased on an As Required Basis only. The availability of this item is **NOT** guaranteed by Okidata.

B.1.03 Parts Ordering Information

General Information

All authorized Okidata Dealers may order spare parts and consumables for Okidata products. Orders are placed through Okidata's Logistics Department.

When a technician has successfully completed a product certification course and the Dealer has become service authorized, an information package will be provided to the Dealer. The Okidata Service Center Reference Guide outlines the following.

- Responsibilities of Okidata Service Centers
- Spare parts and consumables information
- Procedures for warranty repairs
- Product training, certification, and authorization
- Product support information
- Okidata depot information and services
- Third party service information
- Information about Okidata's Customer Information Center
- Okidata service and support telephone numbers.

The Service Center Reference Guide contains detailed procedures to follow when ordering parts. **Please read, understand, and follow these procedures.** Service authorization for a specific product **MUST** be obtained before a Dealer can submit warranty claims.

Questions regarding the Service Center Reference Guide should be directed to Okidata Dealer Service.

Placing a Parts Order

Please refer to the Service Center Reference Guide for details on ordering parts.

The following information **MUST** be available before an order is placed.

- Okidata Dealer Authorization Number
- Purchase Order number
- Serial Number / Revision Level of the printer(s)
- Okidata Part Number(s)

Use this Appendix, Okilink II, Faxable Facts, or Technical Information to find the correct part number. **Refer to the Service Center Reference Guide for information on contacting Okidata ().**

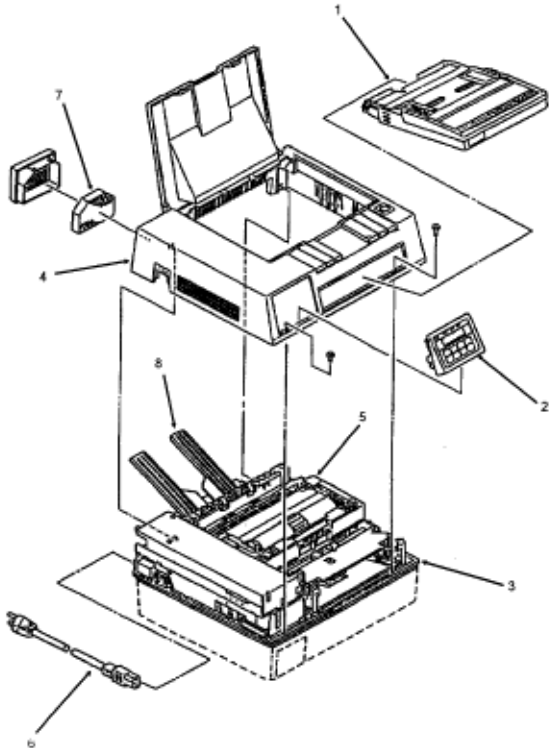
B.2 CHARTS

Below is an index to the illustrated parts breakdown charts.

Index to Charts

Description	Section
Illustrated Parts Listing (1 of 7)	B.2.01
Illustrated Parts Listing (2 of 7)	B.2.02
Illustrated Parts Listing (3 of 7)	B.2.03
Illustrated Parts Listing (4 of 7)	B.2.04
Illustrated Parts Listing (5 of 7)	B.2.05
Illustrated Parts Listing (6 of 7)	B.2.06
Illustrated Parts Listing (7 of 7)	B.2.07

B.2.01 Illustrated Parts Listing (1 of 7)

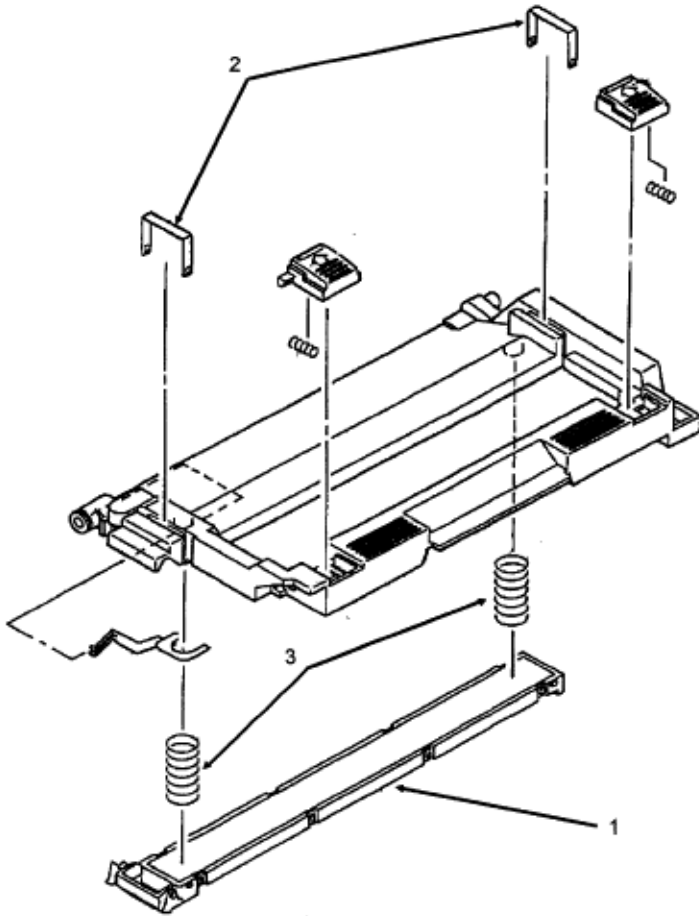


Item	Part Description	Okidata Part Number
1	Paper Cassette (Letter Size)	70013601
1	Paper Cassette (Legal Size)	70013701
1	Paper Cassette (Envelope)	70013801
2	Operator Panel Assembly	50213502
3	Lower Unit (Printer Base)	50213602
4	Upper Cover	50213902

5	Upper Unit	50213702
6	AC Power Cord	56609701
7	Ozone Filter	55503501
8	Face-up Stacker Assembly	50066601

#####

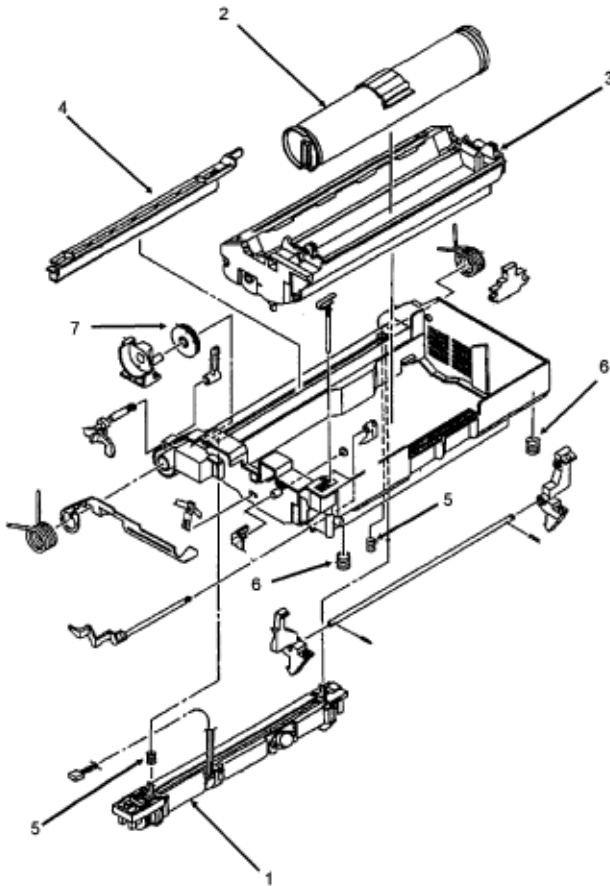
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B.2.02 Illustrated Parts Listing (2 of 7)

Item	Part Description	Okidata Part Number
1	LED Head	55619501
2	LED Head Clamp Spring	50914301
3	LED Head Bias Spring	50914101

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B.2.03 Illustrated Parts Listing (3 of 7)



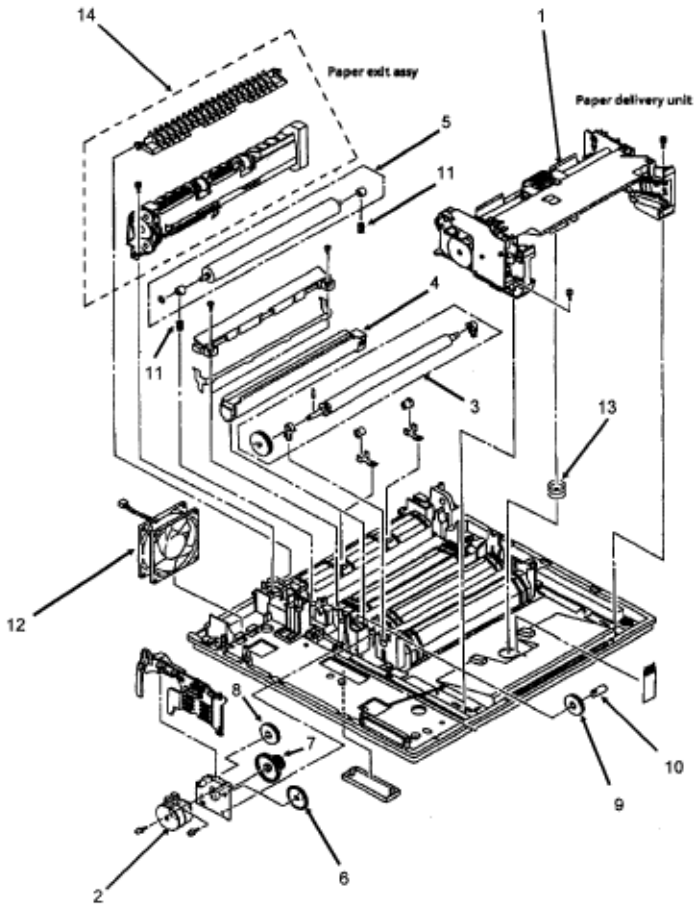
Item	Part Description	Okidata Part Number
1	Fusing Unit (120 volts)	55044901
1	Fusing Unit (240 volts)	55044902
2	Toner Cartridge	52104201
3	Image Drum Cartridge	56106601

4	Fuser Cleaning Pad	53500901
5	Fusing Unit Spring	50914601
6	Image Drum Tray Spring	50917205
7	Idle Gear "B"	51218501
**	120vac Upper Unit (includes all items shown in illustration)	50213701

#####

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B.2.04 Illustrated Parts Listing (4 of 7)

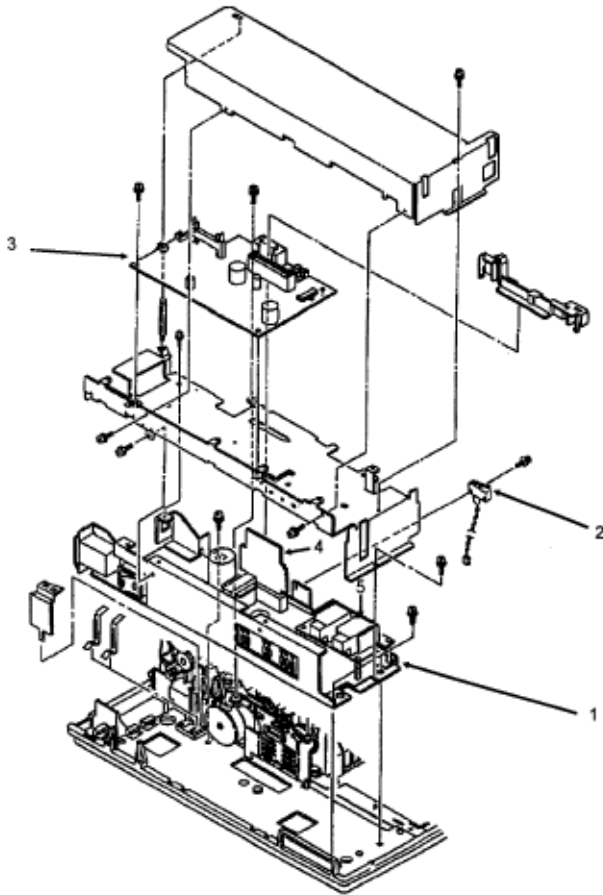


Item	Part Description	Okidata Part Number
1	Paper Delivery Unit	50214502
2	Main Pulse Motor	56507701
3	Resist Roller Assembly	50079101
4	Transfer Charger Assembly	50087401

5	Backup Roller Assembly	50079201
6	Idle Gear "A"	51218401
7	Reduction Gear	51218701
8	Idle Gear "B"	51218501
9	Idle Gear (in base)	51218601
10	Post	53329501
11	Backup Roller Pressure Spring	50914801
12	DC Fan Assembly	56508501
13	Paper Cassette Spring	50917001

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B.2.05 Illustrated Parts Listing (5 of 7)

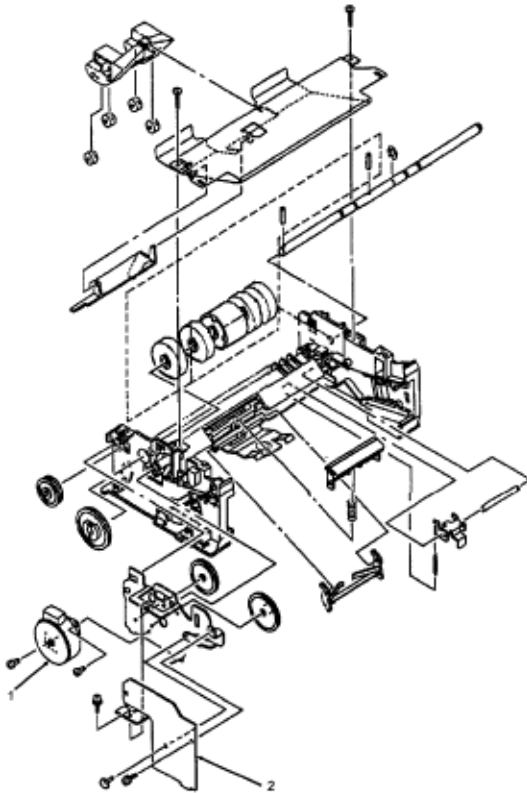


Item	Part Description	Okidata Part Number
1	Power Supply Unit (120Volts)	56408701
1	Power Supply Unit (240Volts)	56408702
2	Cover Open Switch<R>(mounted on the Power Supply Frame)	55050701
3	Engine Controller Board (LLAB-2 PCB) without ROM	55044402

4	Power Connection Board (LLID PCB)	55046001
5	High Voltage Power Unit	55047301

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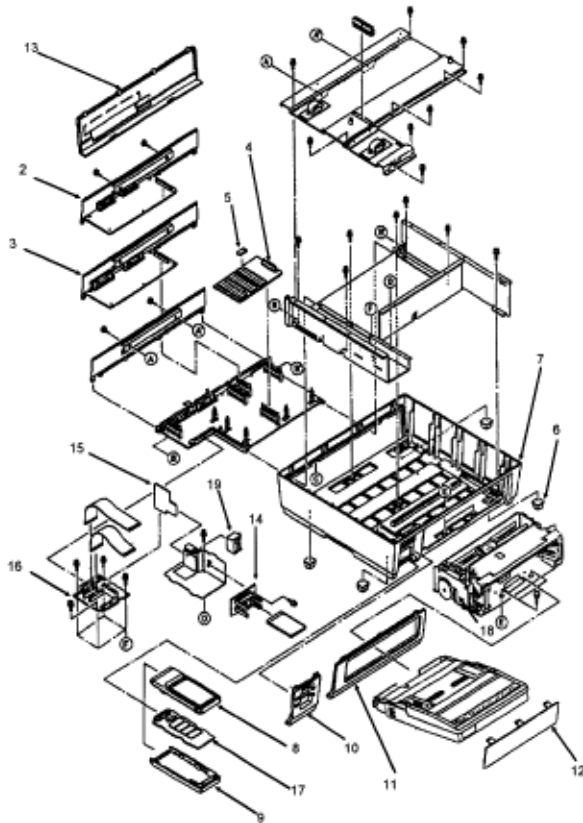
B.2.06 Illustrated Parts Listing (6 of 7)



Item	Part Description	Okidata Part Number
1	Resist Motor	56507401
2	Engine Connection Board (LLCC PCB)	55044601
**	Paper Delivery Unit Includes all items shown in illustration EXCEPT for #1 and #2	50214502

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B.2.07 Illustrated Parts Listing (7 of 7)



Item	Part Description	Okidata Part Number
1	Main Controller Board (CTLZ PCB)	55046101
2	Centronics Multi-port Interface Board (CMIZ PCB)	55046701
3	RS232-C Multi-port Serial Interface Board (RMIZ PCB)	55046801
4	RAM Expansion Board (w/ 1MB)	55046601
5	RAM Expansion Chip Set	70015801

6	Rubber Foot	53505301
7	Lower Base	53059401
8	Program Cartridge (Upper Cover)	50070201
9	Program Cartridge (Lower Cover)	50070301
10	Panel (Front Left)	53059701
11	Panel (Front Right)	53059501
12	Blind Panel	53059601
13	Rear Panel	53059801
14	PCB (CMBZ)	55046201
15	PCB (LLIC)	55046301
16	PCB (LNKZ)	55046401
17	PCB (PRGZ) w/o ROM	55046501
18	PCB (LLFC)	55051401
19	Connector (for 2nd Paper Tray)	56726001

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