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OKIDATA[®]

Service Manual

OL830

LED Page Printer

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09/17/97

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Service Guide OL830

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Service Guide OL830

Chapter 0 About This Manual

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P/N 59252702
Part of the Service Kit P/N 58226902

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 OL830 is an 8 page per minute page printer, with Adobe Postscript capability. The OL830 uses a stationary LED head and dry electrophotography as its exposure and development methods.

In addition to supporting Adobe Postscript (17 Fonts), the OL830 provides the HP LaserJet Series II emulation, which has 36 resident fonts and the Diablo 630 emulation, which has 6 resident fonts. The OL830 is shipped with the emulation board already installed.

An optional font card can be installed with either the PostScript or HP mode. Four cards are available for use in PostScript Mode: Futura and More, Garamond and More, Optima and More, and PostScript Essentials. Seven cards are available for use in the HP mode. Six of the seven cards are available from Okidata: Barcodes Plus, Letter Gothic, MICRO DOCS, OKIPRO 65, Prestige Elite, and Tax. The seventh card, the Custom Font Card, is available from Architext. The OL830 also accepts downloadable fonts.

A 2 Mbyte page memory is standard on the OL830. This can be expanded to 4 Mbyte with an optional RAM printed circuit board.

A Centronics parallel interface is standard. An optional interface board may be installed. This board contains three interfaces: AppleTalk, RS232-C Serial, and RS422-A Serial.

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. Toner and drum life depend on printer use. Based on a 5% print density and 10 pages per job, a toner cartridge should last approximately 2,500 pages; a drum should last approximately 15,000 pages.

A 200 sheet letter-size paper tray is included with the printer, and a second tray can be added, (if the optional second paper feed unit is installed), providing an additional 200 pages. Legal, Envelope, Executive and A4 paper trays are also available. Paper feeding can be done automatically or manually. Pages can be printed face-down or face-up. The face-up stacker assembly located at the back of the printer must be used for items such as card stock, envelopes, labels or overhead transparencies.

The OL830 Printer is a member of the family of OL Series Printers which includes the OL400, OL800, OL820, and OL840. Okidatas own proprietary engine assures built-in quality and reliability.

1.2 PRINT 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: 50 seconds maximum [at room temperature 77 o F (25 o C) and rated voltage (120 VAC)]

Postscript Initialization time: 120 seconds maximum [with 4 megabytes memory installed and "Do Start Page" deselected]

1.2.03 Symbol Sets

HP Emulation

Thirty-nine symbol sets are available through the OL830.

1.2.04 Available Resident Fonts

PostScript

17 Adobe Fonts

HP Emulation

36 resident fonts and (HP A,B,C,F,L,Y,S1 and S2 Cartridge Fonts)

Diablo 630

6 resident fonts

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

NOTE:

The OL830 PostScript Mode produces only 300 x 300 dots/inch resolution.

150 x 150 dots/inch

100 x 100 dots/inch

75 x 75 dots/inch

1.2.08 Memory

RAM

Resident: 2 Mbyte

Optional: 2 Mbyte

ROM

Program: 1 Mbyte (Emulation PCB)

Resident: 512 Kbyte (Controller PCB)

1.2.09 Interfaces

Standard

Centronics Parallel

Options

One interface board which contains three interfaces

AppleTalk, RS232-C Serial, RS422-A Serial (uses AppleTalk connector)

1.2.10 Emulation Board

Provides the HP LaserJet II Emulation

Provides the Diablo 630 Emulation

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1.3 PAPER SPECIFICATIONS

1.3.01 Paper Types

Letter

Size: 8.5" x 11"

Feed: Automatic or Manual

Weight: Minimum 16 lbs

Maximum 24 lbs

Recommended 20 lbs

Legal (option)

Size: 8.5" x 14"

Feed: Automatic (with optional paper tray) or Manual

Weight: Minimum 16 lbs

Maximum 24 lbs

Recommended 20 lbs

Executive (option)

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 (option)

Size: 8.27" x 11.69" (210 mm x 297 mm)

Feed: Automatic (with optional paper tray) or Manual

Weight: Minimum 16 lbs

Maximum 24 lbs

Recommended 20 lbs

Envelopes (option)

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

Types

Business

4.12" x 9.5"

C5

6.4" x 9.12"

DL
4.36" x 8.77"

Monarch
3.87" x 7.5"

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 (150° C) of the fusing process.

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

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1.4 PHYSICAL SPECIFICATIONS

1.4.01 Outside Dimensions

Width: 17.72"

Height: 6.02" (does not include optional second paper tray)

Length: 17.72" (does not include paper tray)

1.4.02 Printer Weight

24 lbs. (does not include options)

1.4.03 LED Array

Number of LED Elements - 2560

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1.5 POWER REQUIREMENTS

1.5.01 Input Power

120 VAC +5.5%, -15%

220/240 VAC +/-10%

1.5.02 Power Consumption

Approximately 800 W maximum during operation

Approximately 22 W maximum during stand-by (fuser is off)

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1.6 ENVIRONMENTAL CONDITIONS

1.6.01 Ambient Temperature and Relative Humidity

While operating:

50° to 90° F

10° to 32° C

20 to 80% Relative Humidity

While in storage:

-4° to 110° F

-20° to 43° C

10 to 90% Relative Humidity

1.6.02 Printer Noise Level

At standby: 43 decibels maximum



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Chapter 1 Product Specifications

1.7 AGENCY APPROVALS

FCC Class B
UL 478 Version 5
CSA 22.2 220

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1.8 CONSUMABLES**1.8.01 Toner Cartridge Kit**

Toner Cartridge
Fuser Cleaner Pad
LED Lens Cleaning Pad

1.8.02 Image Drum Cartridge

Image Drum Cartridge
Ozone Filter

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1.9 OPTIONS

1.9.01 RAM Expansion Board

2 Mbyte (expands printer memory to 4 Mbyte)
User installable

1.9.02 RS232C/AppleTalk/RS422 Interface Board

User installable

1.9.03 Font Cards

HP Emulation Mode

Available from Okidata
Barcodes Plus
Letter Gothic
MICRO DOCS
OKIPRO 65
Prestige Elite
Tax Fonts

Available from Architext
Custom Font Card

PostScript Mode
Futura and More
Garamond and More
Optima and More
PostScript Essentials

1.9.04 Paper Trays

A4
Envelope
Executive
Legal
Letter

1.9.05 Second Paper Feed Unit

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

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2.1 OVERVIEW

2.1.01 Outline of Printer Operation

The primary control boards of the printer are the Engine Controller Board (LLAB-2) and the Main Controller Board (APSM). The Engine Controller Board controls the printer mechanism and drives the LED head. The Main Controller Board receives data from the host device, analyzes commands, and processes the data for printing.

The APSM PCB is connected to the host system through a Centronics parallel interface, RS-232C serial interface or an AppleTalk/RS422 interface. Interface selection is accomplished through menu settings. The Main Controller Board receives print data and command strings from the host system, and generates bit image data. When one page of print data is ready, the Main Controller Board turns on the PRINT-N signal which is one of the video interface signals. Upon receipt of the PRINT-N signal, the Engine Controller Board turns ON the main motor, resist motor, and fuser in preparation for printing. The Engine Controller Board then sends the FSYNC-N and LSYNC-N signals to the Main Controller Board.

Once the Main Controller Board receives the FSYNC-N and LSYNC-N signals, the WDATA-N signal (image data signal) is sent to the Engine Controller Board in synchronization with the WCLK-N signal. The Engine Controller Board turns ON the appropriate LEDs in conformance with the WDATA-N signal.

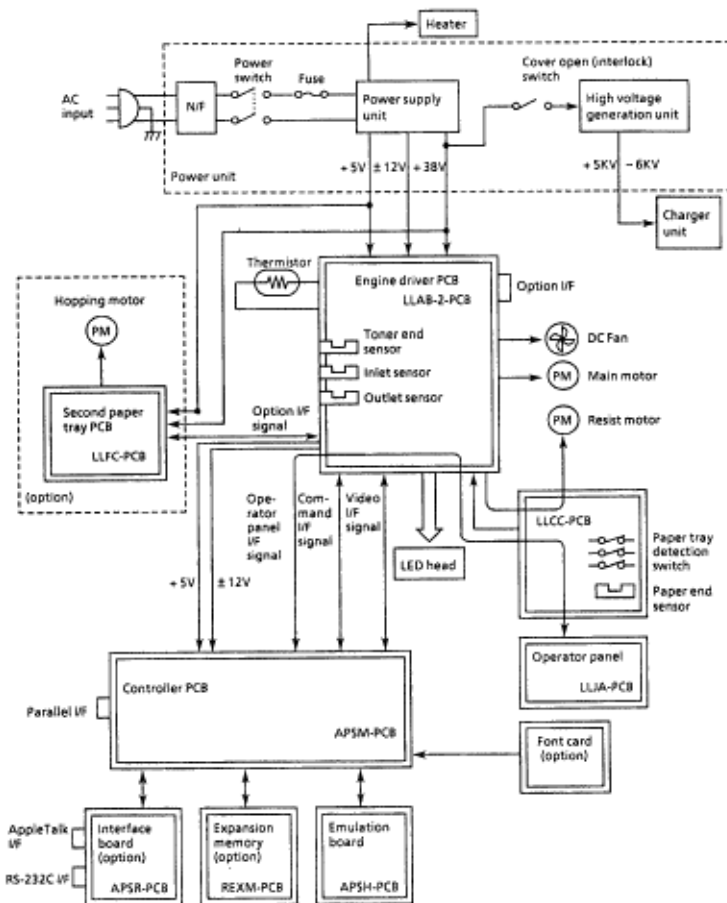
In addition to the above, the Engine Controller Board controls the paper feed, paper transport, and electrostatic processing actions necessary for printing.

The Operation Panel is connected to the Main Controller Board via the LLCC PCB and the Engine Controller Board. The Operation Panel is controlled by the Main Controller Board.

The Main Controller Board contains 2 Mbytes of dynamic RAM. The Expansion Memory Board (REXM) provides an additional 2 Mbytes of dynamic RAM.

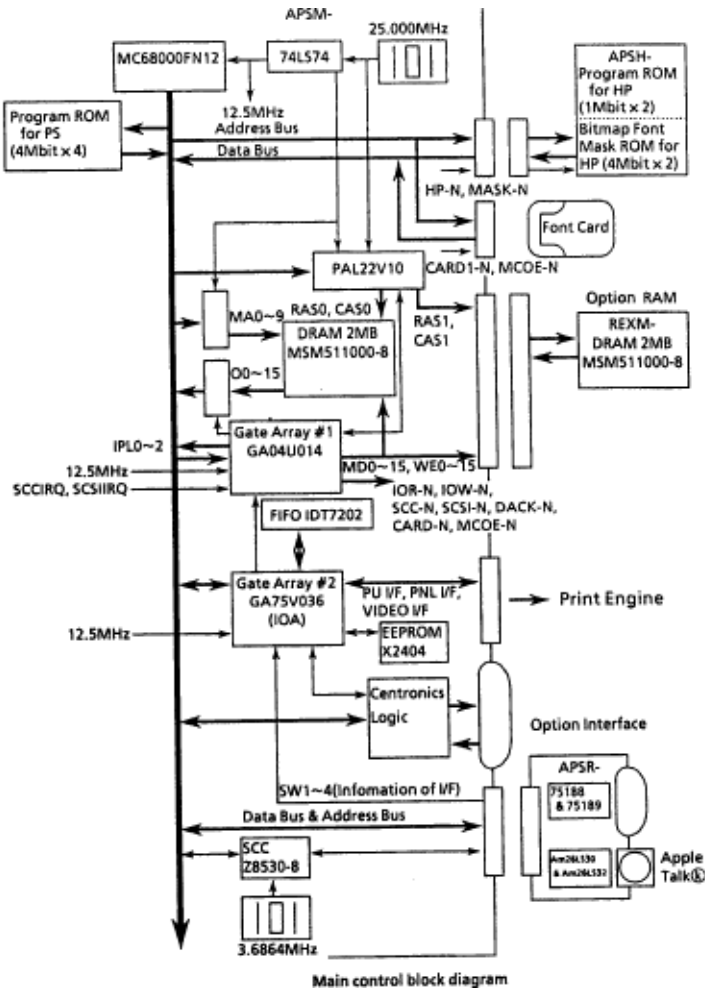
An optional font card can also be installed. Each font card contains ROM which provides additional fonts. The font card connects directly to the Main Controller Board.

Block Diagram of Printer



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Block Diagram of Main Control Board



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2.2 PRINTER OVERVIEW

2.2.01 General Information

This section describes the operation of the OL830 Printer in the following order:

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

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2.2.02 Main Control Unit

The control unit controls reception of the data from the host through the interface, processes command analysis, bit image development, and raster buffer read. It also controls signal flow with the Engine Controller Board and the Operator Panel.

Reception Control

The control unit has three interface ports: centronics parallel and optional RS-232C serial, and Appletalk/RS-422 serial ports. Through the menu, one of the I/F ports can be selected at a time. The other ports output BUSY in emulation mode, but not in PostScript mode. The Centronics Parallel port is the default port for the OL830.

Command Analysis Processing

The OL830 contains the PostScript Interpreter and the following emulation modes (which are selected through the printer MENU.)

LaserJet Series II: Hewlett Packard

Diablo 630 : Xerox

In the PostScript mode, each typeface style is stored as a series of outlines, one for each character, comprised of lines and Bezier curves. The shape of each character in a typeface style is actually determined by a mathematical formula. When the document is to be printed, the host sends information to the printer in the form of the PostScript page description language. The printer then reads the file it receives, sizes and orients each character outline as required, and prints the page.

In the HP and Diablo modes, the OL830 prints fonts as bit-mapped outlines. The outline of each character is determined by placing dots in a grid. A complete set of these grids, one for each character in the font, is stored in ROM. Since no special calculations are used in the HP mode, each typeface, style, weight, orientation and size is stored separately.

Down-line-loaded (DLL) fonts and macro registration are stored in the DLL and macro areas of memory (RAM). Emulation and PostScript interpretation are performed under program control by the CPU.

Font Processing

In the emulation mode, the bit image in the font ROM is loaded by the CPU into the raster buffer (RAM). The raster buffer has a band buffer structure; new data is written to the raster buffer once the buffer has been read and becomes empty.

In PostScript mode, the outline data stored in the programmed ROM is loaded into the RAM area called the font cache. The required font pattern is then transferred to the raster buffer. The buffer has a full-page buffer structure. One page of data is written at a time. After a page is written, another raster buffer read operation starts.

Raster Buffer Read Operation

The bit image written to the raster buffer by the CPU is converted to serial dot data to be read in response to the VIDEO SYNCH signal.

The first-in, first-out (FIFO) buffer is between the raster buffer and the serial dot data of the video interface (WDATA).

The CPU can transfer data from the raster buffer to the FIFO automatically when the CPU reads the "OR-ING" memory area of the raster buffer. The CPU reads a line of data from the raster buffer before the LSYNC signal is received from the Engine Controller Board. Once LSYNC is received, reading starts. Then, in response to WCLK, parallel to serial conversion and data transfer take place.

The amount of data that is read from the FIFO is sensed by the 64NC22VIA counter. The CPU writes another line of data to the FIFO, immediately after a line of data is read from the FIFO.

Engine I/F Processing

The engine I/F is divided into the engine control signal and the command interface. The engine control signal is allocated to a signal line through bits of the TTL register. The CPU can obtain the engine status by sensing each bit, or run the engine by manipulating each bit.

The command I/F is a bidirectional serial signal. The TTL register is used for serial-parallel or parallel-serial conversion.

Operation Panel Control

The operation panel I/F is a bidirectional serial signal. Each signal line is allocated to the IOA port. The CPU then sends the shift clock and executes serial or serial-parallel conversion.

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2.2.03 Main Controller Board (APSM)

The Main Controller Board (APSM) consists of the CPU, RAM, ROM, Serial Communications Controller (SCC), FIFO, EEPROM and Gate Array.

The CPU is a MC68000 with a clock frequency of 12.5MHz.

Sixteen 1 Mbit (1 bit x 1 Mbit) dynamic RAM chips are mounted as resident RAM (total 2Mbytes). Two 4 Mbit EPROMs store program data for PostScript operation. Two 4 Mbit EPROMs are located on the optional emulation PCB.

The IOA (Input/Output Adapter) IC12 (MSM75V036) controls the Operation Panel interface, Printer Unit interface, read/write operations of FIFO (IC13) and the EEPROM IC1 (X2404).

The FIFO (First in-First out Buffer) connects the CPU to the video interface. The FIFO has a capacity of over 2 lines (2 rasters). The data written to the FIFO by the CPU is sequentially read according to the VIDEO I/F synchronous signal.

The Serial Communications Controller - SCC - (Z8530H8) controls the RS-232C interface, RS-422 interface, and the AppleTalk interface. The RS-422 and AppleTalk interfaces use the same connector. Although the RS-422 and AppleTalk interfaces are physically the same, they use different protocols and are usable only in the PostScript mode.

2.2.04 Emulation Board (APSH)

The Emulation Board (APSH) is connected to the Main Controller Board. The APSH board consists of:

- Two 1 Mbit EPROM for Emulation Mode

- Two 4 Mbit MASK ROMs which store the bit-map fonts used in HP Laserjet and Diablo emulations

- One TTL IC, which function as an address decoder.

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Chapter 2 Principles of Operation

2.2.05 Expansion RAM Board (REXM)

Sixteen 1Mbit (1bit x 1Mbit) dynamic RAM (total 2 Mbytes) are mounted to the Expansion RAM Board. The RAM capacity is detected during the power-on sequence. The RAM capacity is printed during MENU PRINT in the Emulation Mode or START PAGE in Postscript mode.

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2.2.06 Font Card

An optional font card for additional fonts can be installed. If the printer is in the off-line state (the READY lamp is off), the card can be inserted and removed without removing power. When the font card is inserted and removed in the on-line state (the READY lamp is on), the message, **CARD REMOVED ONLINE**, will be displayed on the Operation Panel.

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2.3 PRINTER CONTROL UNIT

2.3.01 General Information

Below are the principal hardware components of the printer control unit.

- Engine Board
- Power Supply Unit
- Fuser Unit
- Main Motor
- LED Head
- Sensors and Switches
- Resist Motor
- Fan
- Operation Panel

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2.3.02 Engine Controller Board (LLAB-2)

The Engine Controller Board contains an 80C51 Microprocessor (8-bit), an EPROM which stores the Engine Control Program and an EEPROM.


The Engine Controller Board turns the LED array diodes ON to place an electrostatic image on the photosensitive drum. The Engine Controller Board also controls the paper feed, paper transport, and electrophotographic processing actions so the electrostatic image can be printed by fusing toner on the paper.

The 1 Kbit Electrically Erasable PROM (EEPROM) is loaded with the following data:

- 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:

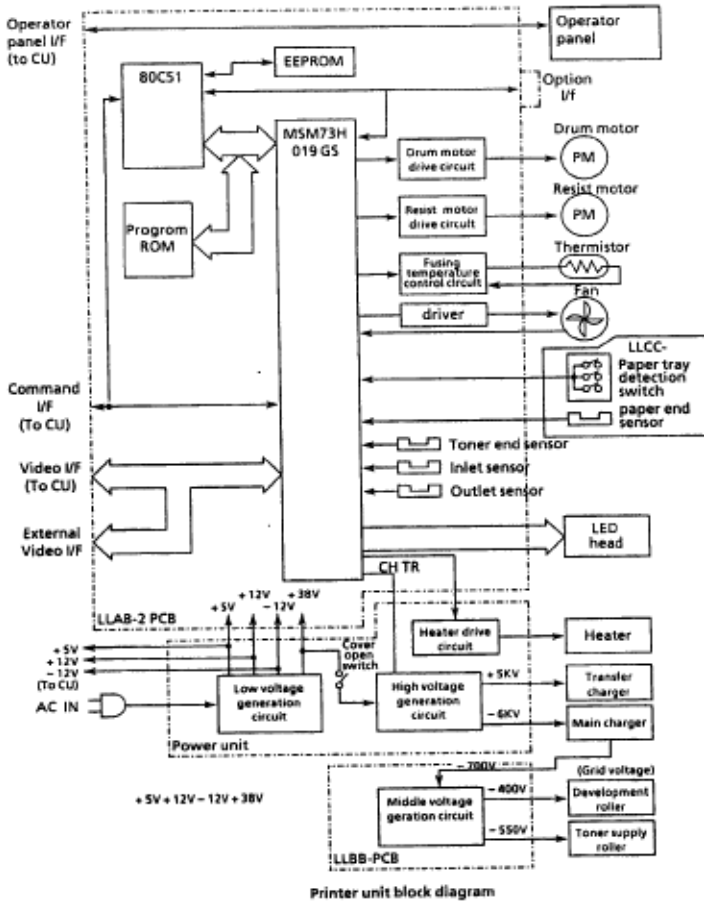
The EEPROM preserves the data while the supply voltage is off.

The counters stored in the EEPROM can be accessed by using SW1 on the Engine Controller Board to set the printer in the Maintenance Mode. (See Section 3 of the OL400 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.

Block Diagram of Printer Unit



2.3.03 Power Supply Unit

The power supply unit generates the following voltages from the AC input voltage:

High Voltage Drive

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

Low Voltage Circuit

This circuitry produces the following voltages:

- +5 vdc: Printer Logic
 - +/- 12 vdc: Interface Signal Levels
 - +38 vdc: Resist/Main Motor Drive, Fan Drive
-

2.3.04 Fuser Unit

The Fuser Unit 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 thermal fuse within the Fuser Unit prevents abnormal temperature rises in case 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.)

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Service Guide OL830

Chapter 2 Principles of Operation

2.3.05 Main Motor (Drum Motor)

The Main Motor is controlled by the motor control LSIs, IC5 (M54646) and IC8 (M54646). The motor used is a four-phase motor, driven by the DM-PHL 1, 2, 3 and 4 signals generated by the LSI.

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2.3.06 LED Array

Data for the 2,560 LEDs in the LED Array is placed in the shift register by the HD CLK signal. The data is loaded in the latch circuit by the HD LD signal.

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2.3.07 Resist Motor

The Resist Motor is driven clockwise for hopping, then counterclockwise for Paper Feeding by the motor drive IC (LB1731).

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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 printer 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.

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2.3.09 Operation Panel

The following components 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 Controller Board via the Engine Connection Board and the Engine Controller Board.

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) from the internal character generator for display on the LCD.

2.3.10 Sensor Functions

Power On

The inlet and outlet sensors are checked for their on and off states at POWER ON time.

Inlet sensor on: Inlet jam error (paper supply jam)

Outlet sensor on: Outlet jam error (paper eject jam)

The thermistor sensor detects if the fuser temperature reaches the desired temperature within the specified time. If the desired temperature is not reached, the fuser is turned OFF.

The fan sensor circuitry checks for the rotation of the fan. If fan motion is not detected, the fuser is turned OFF, and power is removed from the fan.

When an empty paper cassette has been detected, the Paper-End Sensor sends the PAPER END signal to the Control Unit.

When the power supply is turned ON, the number of printed pages of the fusing unit and drum cartridge is checked. If the Fuser or Drum life has been exceeded, this information is transmitted to the Control Unit.

Hopping

Whenever the inlet sensor fails to detect paper within a predetermined time after a feed command has been issued to the paper supply system, the failure is counted. The hopping operation is then attempted up to three times. If the hopping operation still fails, an **INLET JAM ERROR** is displayed on the Operation Panel.

Feeding

If the leading part of the paper does not reach the outlet sensor within a predetermined time after the start of feeding by the resist motor, a **FEED JAM ERROR** will be displayed on the Operation Panel.

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.

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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.

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.

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Service Guide OL830

Chapter 3 Maintenance & Disassembly

Sequence of Procedures

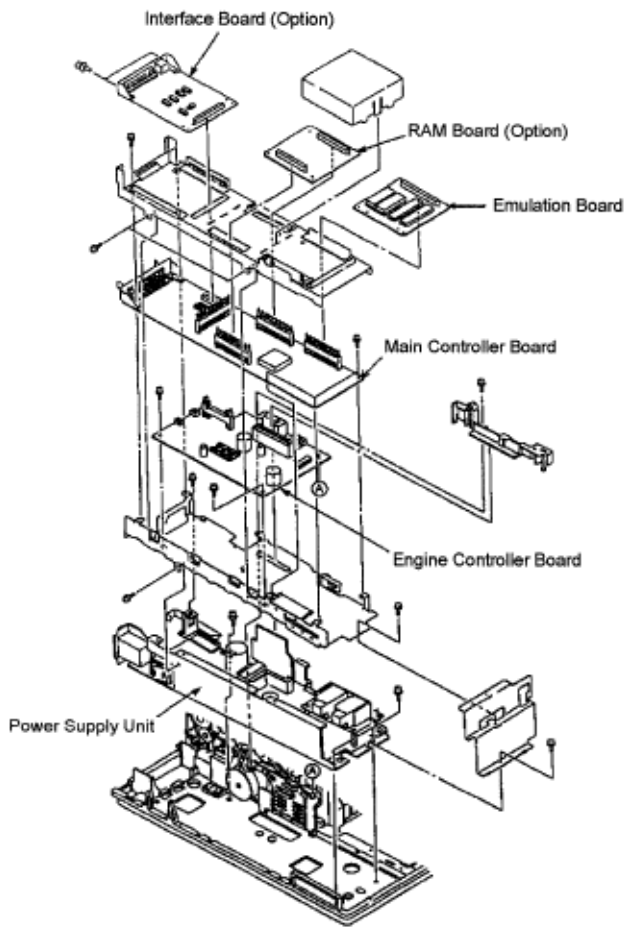
NOTE:

The procedures listed in this manual are for the OL830 Upper Cover, the Optional Interface Board (APSR), the Optional RAM Board (REXM), the Emulation Board (APSH), and the Main Controller Board (APSM).

Refer to the OL400 Service Handbook for the remaining procedures{ }.

The printer will be disassembled in the order listed below.

1. Upper Cover
 2. LED Head
 3. AppleTalk/Serial Interface Board (option)
 4. RAM Board (option) (REXM)
 5. Emulation Board (APSH)
 6. Main Controller Board with parallel interface (APSM)
 7. Engine Controller Board (LLAB-2)
 8. Main Motor Assembly
 9. DC Fan Assembly
 10. Idle Gears "A" and "B", and the Reduction Gear
 11. Power Supply Unit
 12. Upper Unit
 13. Fusing Unit
 14. Backup Roller
 15. Transfer Charger Assembly
 16. Resist Roller Assembly
 17. Idle Gear C
 18. Paper Supply Unit
 19. Resist Motor
 20. Engine Connection Board
 21. Ozone Filter
-

Board Layout

3.2.01 Upper Cover

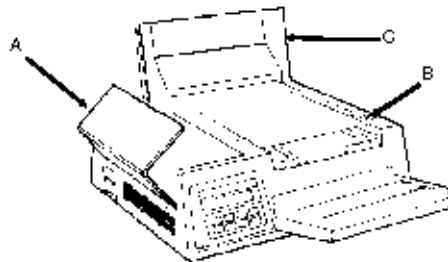
1. Power OFF the printer and unplug the AC power cord from the outlet.
 2. Remove the paper cassette (1), interface cable (2), and font card (option) (3).
 3. Lift the operator panel assembly (4) at its bottom and remove it.
 4. Remove connecting cable (5) from the connector J1 (6) of the LLJA Board (7).
 5. Press the "OPEN" button (8) and open the stacker cover (9).
 6. Remove the two screws (10).
 7. Lift the front side of the upper cover, and disconnect its engagement with the two tabs on the rear of the lower unit (11), by pivoting the upper cover upward and back.
- P/N 53338201 OL830 Upper Cover**

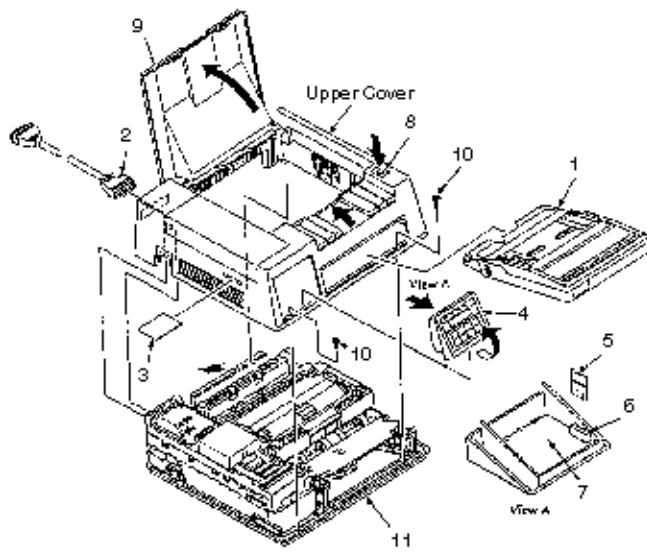
NOTES:

When installing the upper cover, first set the square holes on the back of the upper cover over the two tabs on the rear of the lower unit , then lower the cover.

Option Cover


The Emulation Board (APSH) which adds Hewlett-Packard Laser Jet II ,and Diablo emulation, is a standard feature and is present in the printer when shipped. The optional RAM (REXM) and Interface (APSR) Boards, are operator installable by removing the Option Cover (A). To remove the Option Cover, first make sure the printer is turned off and unplugged, then press the release button (B) and open the top cover (C). Remove the Option Cover by pulling up gently on its inside edge. Close the top cover, then install the boards. Remember, the components on the boards are sensitive to static electricity--handle them carefully.





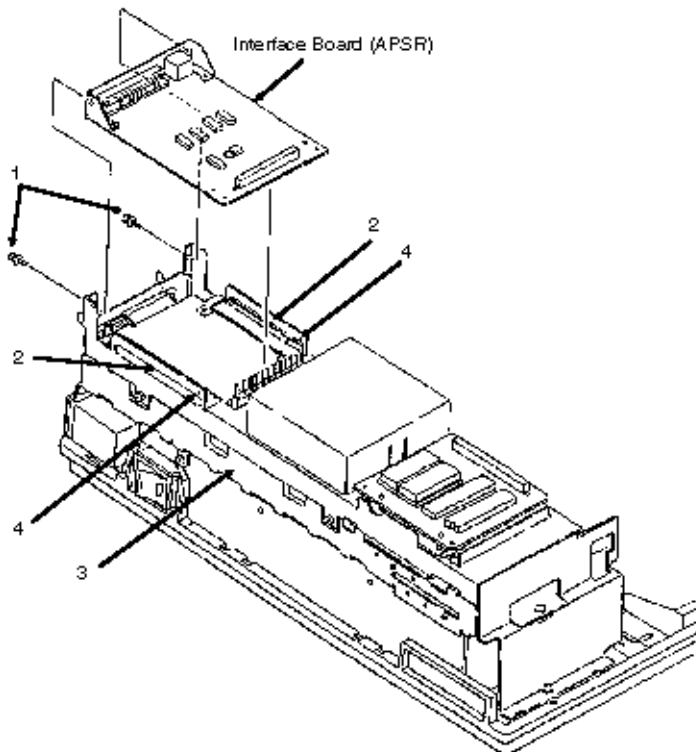
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3.2.02 AppleTalk/Serial Interface Board (APSR) (Option)

1. Remove the upper cover. (See 3.2.01) 
2. Remove the two screws (1).
3. Pull outward slightly on the two flanges (2) on shield plate B (3), releasing the two small tabs (4).
4. Lift out the interface board.

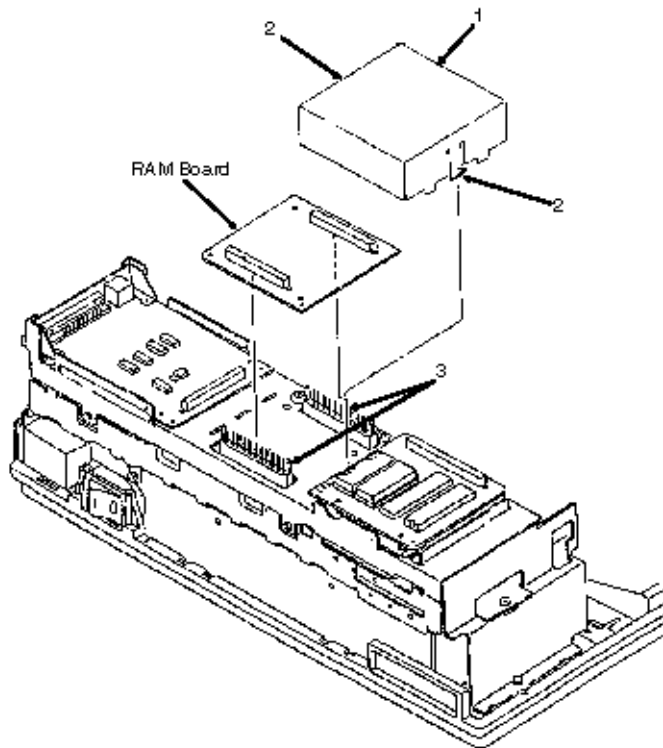
NOTE:

When installing the interface board, make sure that the board is under the tabs (4).

P/N 55058001 OL830 AppleTalk/Serial Interface Board

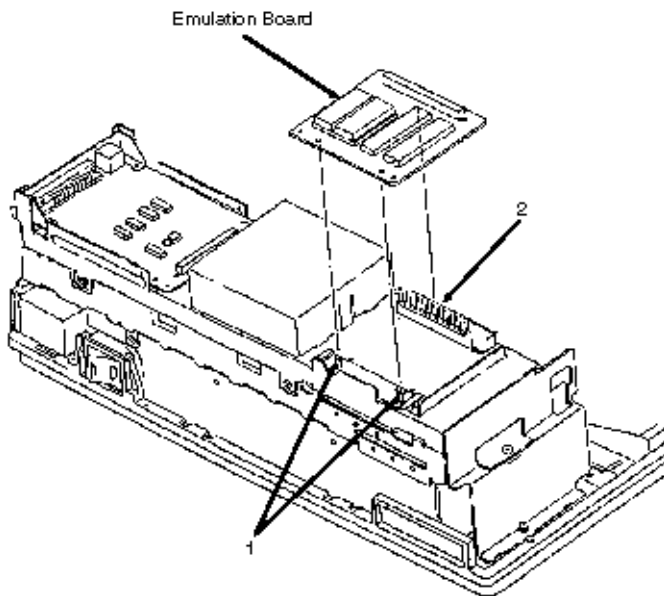
3.2.03 RAM Board (REXM) Option

1. Remove the upper cover. (See 3.2.01){🔧}
2. Remove the shield cover (1) by squeezing sides (2) then lifting.
3. Lift the RAM board, disengaging the connectors and posts (3).

P/N 55051601 RAM Board (REXM) (2 MB)

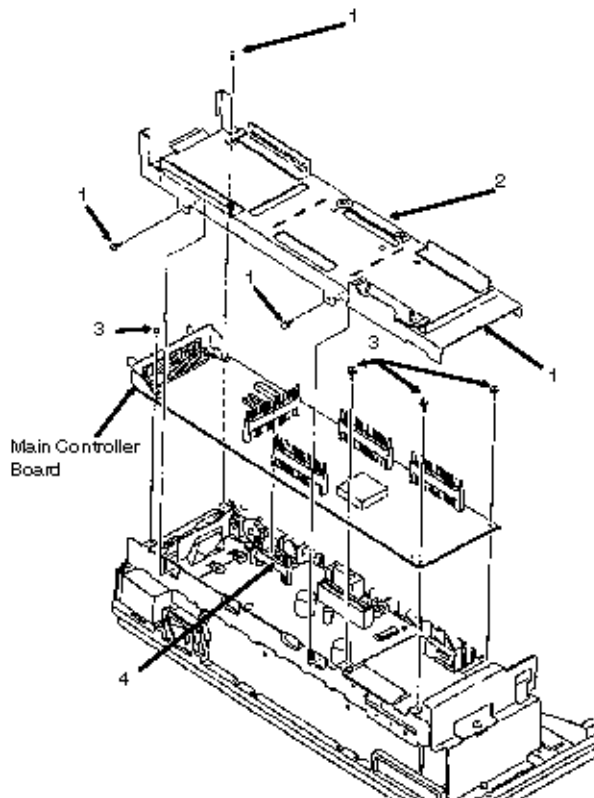
3.2.04 Emulation Board (APSH)

1. Remove the upper cover. (See 3.2.01){}
2. Unlatch the two nylon circuit board supports (1).
3. Lift the emulation board, disengaging the connector and posts (2).

P/N 55058101 Emulation Board (APSH - without ROM)

3.2.05 Main Controller Board (APSM)

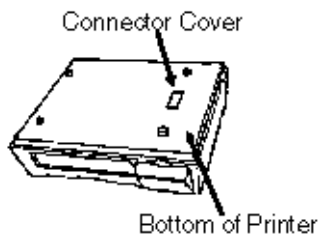
1. Remove the upper cover. (See 3.2.01){}
2. Remove the interface board (APSR) if installed. (See 3.2.02){}
3. Remove the RAM board (REXM) if installed. (See 3.2.03){}
4. Remove the emulation board (APSH) (See 3.2.04){}
5. Remove the four screws (1) and remove shield plate B (2).
6. Remove the four screws (3),
7. Lift the main controller board, disengaging it from the connector (4).

P/N 55057901 Main Controller without ROM (APSM)

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3.2.06 Second Paper Feed Unit

The Second Paper Feed Unit doubles the OL830s paper handling capacity by adding a second paper feed mechanism. The paper tray is sold separately. Here are the procedures for adding the Second Paper Feed Unit to the printer. Reverse these procedures for removal. Before installation/removal, perform this procedure.

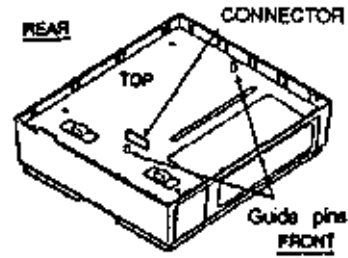


1. Set power switch to OFF and unplug the power cord.
2. Remove the interface cable, paper tray, and font cards, if installed.
3. Remove the image drum and toner cartridge. Put them in a safe place where the image drum will not be scratched or exposed to light.
 1. Remove the connector cover from the bottom of the printer using a flat blade screwdriver. This will expose an edge connector. **Do not** discard the connector cover. It must be installed if the Second Paper Feed Unit is removed from the printer.

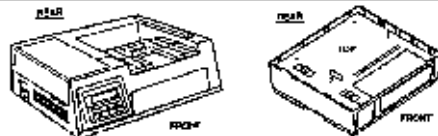


It is not necessary to turn the printer upside down. The printer is shown upside down for illustration only.

2. Unpack the Second Paper Feed Unit. Notice the two metal guide pins and the black connector. The two metal guide pins are used for alignment. The edge connector, on the bottom of the printer, will attach to the black connector.



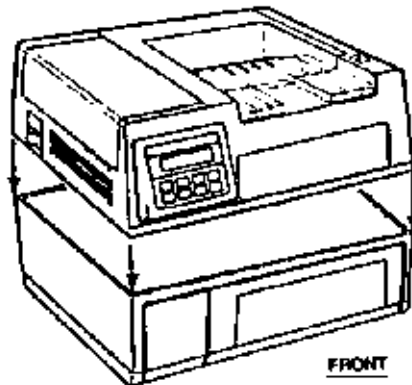
3. Set the printer next to the Second Paper Feed Unit with fronts facing the same direction.



4. Place the printer on the Second Paper Feed Unit aligning the corners of the printer to those of the Second Paper Feed Unit.

5. Lower the printer onto the Second Paper Feed Unit. The metal guide pins will help make alignment easier.

6. To activate the Second Paper Feed Unit, the TRAY SWITCH option in the Printer Menu must be set to ON. (See the Printer Handbook, Chapter 3--Controlling Your Printer.)





Service Guide OL830

Chapter 3 Maintenance & Disassembly

3.3 ADJUSTMENTS AND SERVICE CHECKS

The first five adjustments (Actual Page Count, Modified Page Count, Vertical Print Start Position, LED Head Drive Time and Resetting the Fuser Counter) 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.

1. Raise the upper unit.
 2. Remove the image drum cartridge.
 3. Override the cover open interlock switch.
-

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Service Guide OL830

Chapter 3 Maintenance & Disassembly

3.3.01 Actual Page Count


The actual page counter counts the number of sheets printed by the printer. The value of the actual page counter will be displayed as listed below.

1. 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.
2. Press Switch 1 for five seconds. The LED will display the contents of the Parameter 1 register (Actual Page Counter) as listed below.

The long flash indicates start of count.

Short flashes indicate counter contents (most significant digit first).

(There will be a pause between digits)

Upon completion of the count, a long flash will indicate start of count. This process will loop until you press Switch 1 for five seconds (this will cause the modified page count to be displayed (refer to 3.3.02) ).

Example

Actual Page Counter = 235 pages

Switch 1 Action	LED Display	Description
Press at Power ON	Flashes ON/OFF	Parameter #1 - Selected
Press for five seconds	Long Flash	Start of Count
None	On-Off-On-Pause	1st Digit = 2
None	On-Off-On-Off-On-Pause	2nd Digit = 3
None	On-Off-On-Off-On-Off-On-Off-On-Pause<P11.5M>	3rd Digit = 5
None	Long Flash	Start of Count

Press for five seconds	Long Flash	Start of Modified Page Count
------------------------	------------	------------------------------

NOTE:

The number "0" is represented by 10 flashes

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Chapter 3 Maintenance & Disassembly

3.3.02 Modified Page Count

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. Follow these steps to check the modified page count.

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 one 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 five seconds	Long Flash	Start of Modified Page Count
None	On-Off-Pause	1st Digit = 1
None	On-Off-On-Off-On-Off-On- -Pause	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

NOTE:

The number "0" is represented by 10 flashes

The Actual and Modified Page Counters cannot be changed.



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Chapter 3 Maintenance & Disassembly

3.3.03 Vertical Print Start Position Adjustment

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 OL printers, or to achieve 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. To change the Vertical Print Start Position:

1. 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.
2. Press Switch 1 eight times to access Parameter 9. The LED will flash nine times, indicating Parameter 9 has been selected.
3. Press Switch 1 once for five seconds. The contents of the Parameter 9 register will be displayed.
4. 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 five seconds. The LED will flash nine 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	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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Chapter 3 Maintenance & Disassembly

3.3.04 Setting the LED Head Drive Time

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. To change the LED Head Drive Time:

1. 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.
2. Press Switch 1, twelve times to access Parameter 13. The LED will flash thirteen times, indicating Parameter 13 has been selected.
3. Press Switch 1 once for five seconds. The contents of the Parameter 13 register will be displayed.
4. 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. To end the adjustment, press Switch 1 once for five seconds. Parameter 13 will be displayed.

Drive Time Rating displayed on LED Head	Drive Time Setting Value (Address)
08	5
09	4
10	3
11 12	2
13 14	1
15 16 17	0
18 19 20	15

21 22 23 24	14
25 26 27 28 29	13
30 31 32 33 34 35 36	12

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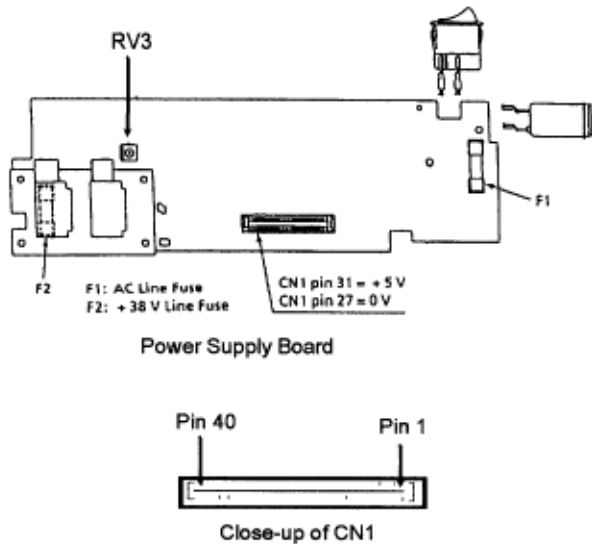
3.3.05 Resetting the Fuser Counter

After replacing the Fuser Unit, reset the fuser counter. Follow the procedure listed below.

1. 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. The Fuser Counter value is found in Parameter 3.
 2. Press Switch 1 two times to access Parameter 3. The LED will flash three times, indicating Parameter 3 has been selected.
 3. Press Switch 1 once for five seconds. The contents of the Parameter 3 register will be displayed.
 4. Press Switch 1 once for five seconds to reset the fuser counter to zero.
 5. To end the adjustment, press Switch 1 once for five seconds. The LED will flash three times, indicating Parameter 3.
-

3.3.06 DC Voltage Adjustment (+5vdc)

1. Use a digital voltmeter which has an input impedance of 10M Ohms and is capable of displaying to the second decimal place or greater.
2. Check the voltage at CN1 of the interconnect board (1) between Pin 31, +5vdc and Pin 27, ground. The value should be +5.1vdc (+/-0.1vdc)
3. Change the output voltage by adjusting potentiometer RV3 on the power supply board.



3.4 CLEANING

3.4.01 General Information

Remove any dropped toner and dust. Clean inside and around the printer with a vacuum cleaner (designed to pick-up toner) when necessary.

CAUTION:

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

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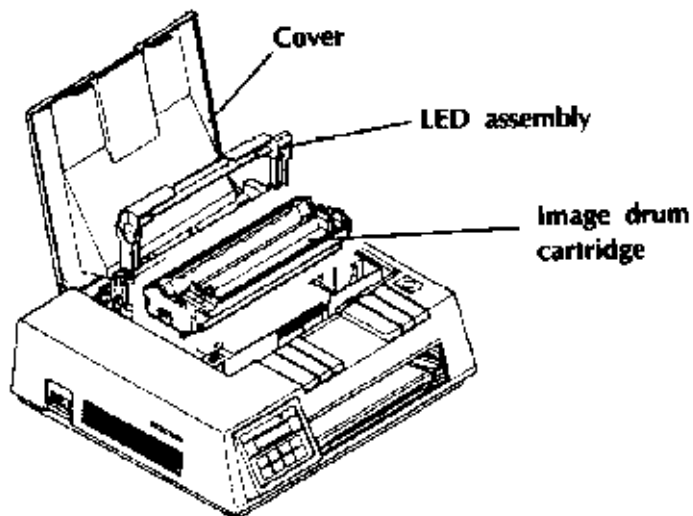
3.4.02 Static Charger

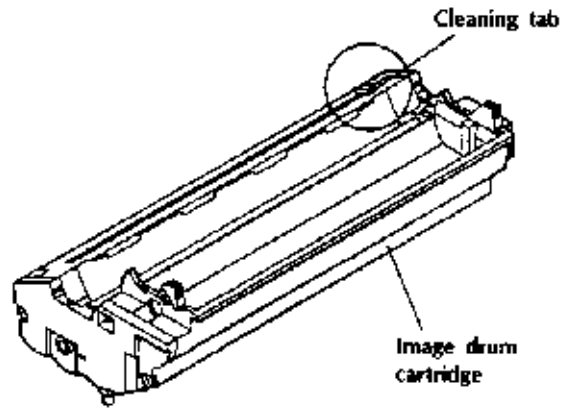
Clean the static charger wire when black lines or stripes and toner blotching are present on the paper or whenever replacing the image drum or toner cartridge.

1. Turn OFF the power supply switch, and press the "OPEN" button, which is on the top right of the printer, and raise the stacker cover.
2. Lift the LED assembly. Locate the wire cleaner tab on the image drum cartridge.
3. Clean the static charge wire by moving the wire cleaner tab to the left and right.

NOTE:

After cleaning, be sure to return the wire cleaner to its original position.





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3.4.03 Transfer Charger

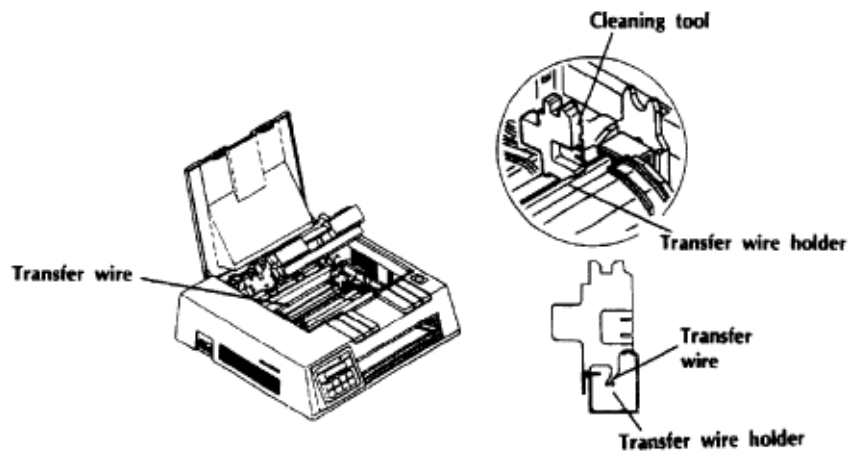
Clean the transfer charger wire when white lines or stripes (printed lightly) are printed, or whenever you replace the image drum.

1. Push the lock lever backward to lift the LED holder, and take out the transfer charger wire cleaner tool.
2. Clean the transfer charger wire by gently running the cleaning tool along the wire. Slide it several times to the left and right to clean the transfer wire.

NOTE:

The transfer charger must be cleaned with the wire cleaner. Do not press strongly when wiping or you will break the wire.

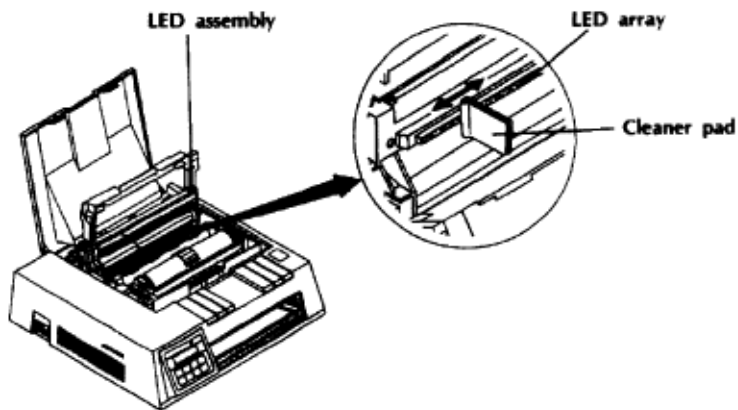
3. Return the wire cleaner to its storage clip.



3.4.04 LED Lens Array

Clean the LED lens array when vertical white lines or stripes (void and/or light printing) are generated on the printing face. The cleaning pad is included with each toner cartridge.

1. Locate the LED array strip on the back of the LED holder.
2. Place the LED head cleaner pad against the LED lens array, then slide the cleaner horizontally several times to clean the head.

**NOTE:**

Be sure to use a clean area of the cleaner pad on each pass.

3.5 LUBRICATION

3.5.01 General Information

Lubrication should be performed once a year or as needed.

Use lithium grease.

When applying the grease, do not over-lubricate.

DO NOT allow lubricant to contact the surface of any rollers or paper guides.

Apply to grease to gears as necessary.




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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

4.1.02 Types of Problems

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.

4.2 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 Okidatas 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 Okidatas 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

Okidatas Faxable Facts is an automated fax document retrieval system. It is maintained by Okidatas 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

Okidatas 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 Okidatas 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

Technicians Name

Company Name

Companys Address (Street, City, State/Province, ZIP / Postal Code, Country)

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

Product Name

Units 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 following tables show the operator panel display and the mode or condition it matches.




Two types of errors will be displayed.






1. SERVICE is lit. An error message is displayed on the operator panel.
 2. SERVICE is NOT lit. An error message is displayed on the operator panel.
-

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4.5.02 Error Messages Table

SERVICE is Lit

Category	LCD Error Message	Message Description	Recommended Action
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 stopped. Power (+38V) is not supplied 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 LLAB-2 board
	ERROR ENGINE FUSING PROBLEM	The fuser unit has not reached a prescribed temperature or it is above that temperature.	Refer to RAP 05 
Interface Errors	ERROR OP-PANEL I/F TIMEOUT	Communication error between the CU and the operator panel. No response is received from the operator panel even after a specified number of times from the CU.	Refer to RAP 07 

	ERROR PRINTER I/F TIMEOUT	Error between the CU and the PU. A timeout occurred without the PU receiving data transmitted from the CU.	Refer to RAP 08 
	ERROR OPTION I/F TIMEOUT	After PU sends data no response is received for constant time.	Replace the LLAB-2 board
			Replace option
	ERROR LOOP TEST(Emulation Mode	An error occurred during an RS-232C line loopback test. (A special connector for loop test is required.)	Refer to RAP 09 
Controller Errors	ERROR OPTION RAM CHECK (Emulation Mode ONLY. SERVICE does not light in the PS mode)	A RAM write/read compare error occurred in the optional RAM board.	Refer to RAP 10 
	ERROR RESIDENT RAM CHECK	A RAM write/read compare error occurred in the internal 2M byte RAM on the APSM board.	Refer to RAP 10 
	ERROR EEPROM (SERVICE is lit)	A verifying error occurs when EEPROM is written.	Replace the main control board
	ERROR FONT ROM CHECK	There is an error in the internal font ROM on th APSM board or APSH board (checksum error)	Replace the emulation board.
	ERROR PROGRAM ROM CHECK	There is an error in the ROM on the APSM board or the APSH board (checksum error)	Refer to RAP 11 



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SERVICE is NOT Lit

- n 1 or 2 top (1) or bottom (2) paper tray
- xx PS PostScript mode
- HP HP LaserJet Series II mode
- DB Diablo 630 mode
- yy COM COM-10 size envelope
- DL DL size envelope
- C5 C5 size envelope
- MON Monarch size envelope

Category	LCD Error Message	Message Description	Recommended Action
EEPROM Error	ERROR EEPROM (SERVICE is NOT lit	While EEPROM was being written the power was turned off. So EEPROM data format was destroyed.	Press the RESET switch. Menu settings reset to factory defaults.
Font Card Errors	ERROR CARD CHECK Emulation Mode	There is an error in the data on the font card (checksum error).	Replace the font card
	ERROR CARD PS Mode	There is an error in the data on the font card (checksum error).	Replace the font card
	ERROR CARD REMOVED ON-LINE Emulation Mode	The font card was extracted during on-line operation.	Power OFF then ON.
	CARD NOT FOUND Emulation Mode	The font card used by the CU was extracted.	Insert the font card back into original position
Cover Open	COVER OPEN	The upper cover was opened.	Close the upper cover



			If the display does not change replace the cover open microswitch or the LLAB-2 board
Feed Jam Errors	PAPER FEED JAM n	A jam occurred in the cassette section. The top of the paper failed to reach the inlet sensor within a few seconds after the activation of the hopping roller (attempted three times). The inlet sensor was activated during power ON.	Open the cover and remove the jam then close the cover
		^	Refer to RAP 02 
Connection Error	or No Display	Displayed over 30 seconds. Connection error or Operator panel malfunction.	Refer to RAP 01 



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Jam Errors

Category	LCD Error Message	Message Description	Recommended Action
Jam Errors	PAPER JAM n	A paper jam occurred. The top of the paper failed to reach the outlet sensor within 9.6 seconds after it passed the inlet sensor.<R>The outlet sensor was on when the length of paper passage at the outlet sensor was the specified paper length +/- 45mm or during power ON.	Open the cover and remove the jam then close the cover. Refer to RAP 03{ 
	SIZE TRAY n ERROR	This error occurs when the difference between the print paper length and the paper length (tray size) identified by the printer is +/- 45mm or more. It is detected by the time of paper passage at the inlet sensor.	Refer to RAP 04{ 

Tray Requests

Category	LCD Error Message	Message Description	Recommended Action
Tray requests	PAPER OUT TRAY n	The tray has run out of paper.	Load paper in the tray
	EXECUTIVE TRAY n REQUEST	An executive tray is requested.	Replace with the correct tray.
	LETTER TRAY n REQUEST	A letter tray is requested.	PS Mode: Wait 1 minute.
	A4 TRAY n REQUEST	A4 tray is requested.	HP Mode: Press the Form Feed switch to force printing with the present tray.
	A5 TRAY n REQUEST	A5 tray is requested.	
	LEGAL TRAY n REQUEST	Legal tray is requested.	
	ENVELOPE (yy) TRAY 1 REQUEST	Envelope tray is requested.	
	B5 TRAY n REQUEST	B5 tray is requested.	
	UNIVERSAL (A6) TRAY n REQUEST	Universal tray is requested.	
	COM-10 ENVELOPE TRAY 1 REQUEST<R>PS Mode	Envelope tray (COM-10) is requested.	
	MONARCH ENVELOPE TRAY 1 REQUEST	Envelope tray (MONARCH) is requested.	

	DL ENVELOPE TRAY 1 REQUEST	Envelope tray (DL) is requested.	
	C5 ENVELOPE TRAY 1 REQUEST	Envelope tray (C5) is requested.	

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Manual Feed Requests

Category	LCD Error Message	Message Description	Recommended Action
Requests for manual paper loading	EXECUTIVE PAPER MANUAL REQUEST	Executive-size paper is requested.	Manually load the correct size of paper.
	LETTER PAPER MANUAL REQUEST	Letter-size paper is requested.	Press Form Feed.
	LEGAL PAPER MANUAL REQUEST (only in the PS mode)	Legal-size (14 inch) paper is requested.	
	LEGAL 14 INCH MANUAL REQUEST (only in the emulation mode)	Legal-size (14 inch) paper is requested.	
	LEGAL 13 INCH MANUAL REQUEST (only in the emulation mode)	Legal-size (13 inch) paper is requested.	
	MONARCH ENVELOPE MANUAL REQUEST	An envelope (Monarch 7 3/4) is requested.	
	COM-10 ENVELOPE MANUAL REQUEST	An envelope (Commercial 10) is requested.	
	DL ENVELOPE MANUAL REQUEST	An envelope (International DL) is requested.	
	C5 ENVELOPE MANUAL REQUEST	An envelope (International C5) is requested.	

	A4 PAPER MANUAL REQUEST	A4-size paper is requested.	
	A5 PAPER MANUAL REQUEST	A5-size paper is requested.	
	A6 PAPER MANUAL REQUEST	A6-size paper is requested.	
	B5 PAPER MANUAL REQUEST	B5-size paper is requested.	

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Buffer Overflow / Reset Operation (Emulation Mode)

Category	LCD Error Message	Message Description	Recommended Action
Buffer Overflow Emulation Mode	ERROR RECEIVE BUFFER OVERFLOW	The receiving buffer overflowed (receive busy control disabled).	Replace the I/F board
	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.	Install additional optional RAM board. Reduce the number of DLLs catalogued. Reduce the number of macros catalogued.
	ERROR PRINT OVERRUN	Print data is too complicated to be printed.	Alter the print data (reduce data overlay)
Reset Operation Error Emulation Mode	RESET TO SAVE	Data was in the buffer and the menu setting affecting the print result was changed.	Depending on the current setting three recovery methods can be used. In all cases the default stored in EEPROM is changed.

			1.Press ON-LINE. ON-LINE is available without changing the current setting.
			2.Press FORM FEED. OFF-LINE is available without changing the current setting.
			3.Press RESET. The current setting is changed data in the buffer is erased and ON-LINE state is available

Daily Status (Emulation Mode)

Category	LCD Error Message	Message Description	Recommended Action
Daily Status Emulation Mode	ON-LINE.xx	The printer ON-LINE	N/A
	OFF-LINE.xx	The printer is OFF-LINE.	N/A
	DATA PRESENT.xx	Received data is present in the page buffer.	Go OFF-LINE. Press FORM FEED to force printing
	PRINT FONTS	Font Sample Test is printing.	N/A
	CONTINUOUS PRINT	Continuous self test is printing	N/A
	DEMO PAGE PRINT	Demonstration page is printing.	N/A
	LOOP TEST	The RS-232C loop testing is in progress. The bottom line counts the test increments.	N/A
	TONER LOW	Toner is running out.	N/A
	PRINT MENU	This message is displayed while a menu is being printed during self test.	N/A
	RESET	The internal status of the printer has been reset.	N/A

	MENU RESET	The printer defaults to factory settings.	N/A
	WARMING UP	The printer is warming up.	N/A
	CHANGE DRUM	Replace the image drum.	Replace the image drum cartridge. Power ON while pressing RESET .
	FUSER LIFE	Replace the fusing unit (approximately 180,000 pages).	Replace the thermal fuser. Reset the fusing unit counter

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Daily Status (PostScript Mode)

Category	LCD Error Message	Message Description	Recommended Action
Daily Status PS Mode	ON-LINE.PS IDLE	The printer is ON-LINE.	N/A
	OFF-LINE.PS	The printer is OFF-LINE. The printer receives data but does not process it.	N/A
	ON-LINE.PS PROCESSING	Processing the receive data.	N/A
	ON-LINE.PS WAITING	Waiting to receive data.	N/A
	ON-LINE.PS PRINTING	Printing.	N/A
	ON-LINE.PS PRINTER BUSY	The ON-LINE key is pressed during processing waiting or printing.	Recovers automatically. Otherwise press the RESET key to return to idle.
	ON-LINE.PS FLUSHING JOB	After PRINTER BUSY appeared the RECOVER key was pressed and all data in the receive buffer was invalidated.	Automatically returns to idle.
	DOING START PAGE	START PAGE is activated. Printing begins approximately one minute after initialization.	N/A





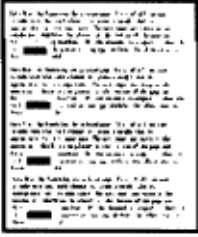


	ON-LINE.PS IDLE CHANGE DRUM	The drum should be replaced.	Replace the drum.
			Change the software to the emulation mode.
			Hold down the RESET key and power ON.
			DRUM CTR RESET should appear in the LCD.
	ON-LINE.PS IDLE FUSE LIFE	Life of thermal fuser.	Replace the thermal fuser. Reset the fuser counter.
	ON-LINE.PS IDLE TONER LOW	Toner is running out.	Replace the toner cartridge.
	WARMING UP	The printer is warming up.	N/A

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4.5.03 Output Samples


 <p>Light or Blurred Output Refer to Rap 13 (📄) Blank Spots Refer to Rap 18 (📄)</p>	 <p>Dark Background Refer to RAP 14 (📄)</p>	 <p>Blank Output Refer to Rap 15 (📄)</p>
 <p>Vertical Black Stripes Refer to RAP 16 (📄)</p>	 <p>Repeating Marks Refer to RAP 17 (📄)</p>	 <p>Vertical White Stripes Refer to RAP 19 (📄)</p>
 <p>Black Output Refer to RAP 20 (📄)</p>		

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4.6 REPAIR ANALYSIS PROCEDURES






















4.6.01 Using the RAPs

When using the Repair Analysis Procedures, follow these steps.

1. Use the RAP INDEX to find the RAP associated with the printers problem.
 2. Go to the appropriate RAP.
 3. All of the RAPs will begin with a START Statement, followed by questions or another type of statement.
 4. 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.
-

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4.6.02 RAP Index

RAP	RAP Description
01	Printer Does Not Initialize ()
02	Paper Feed Jam 1 Alarm ()
03	Paper Jam Alarm ()
04	Paper Size Error ()
05	Error Engine Fusing Problem ()
06	Error Engine ()
07	Error Operator Panel Interface Timeout ()
08	Communication Error Between PU and CU ()
09	Error Loop Test (RS232-C) ()
10	Error Resident/Optional RAM Check ()
11	Program ROM Failure ()
12	No Operator Panel Display ()
13*	Light or Blurred Image ()
14*	Dark Background ()
15*	Blank Output ()
16*	Vertical Black Stripes ()
17*	Repeating Marks ()
18*	Blank Spots ()
19*	Vertical White Stripes ()
20*	Black Page ()
21	Poor Fusing ()

* Refer to the Output Samples, 4.5.02 ()

CAUTION:

In some of the RAPs, you will be asked to replace the image drum cartridge and then told to reset

the drum counter.

DO NOT reset the drum counter unless you replace the image drum cartridge.

Refer to the Solutions Manual for information on resetting the drum counter.

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

Power OFF, then ON.

Is the INITIALIZING message displayed within 16 seconds (27 seconds when Optional RAM is installed) ?

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 C3 on the main controller 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.

YES Is there a short between +38V and 0V?

Is there a short between +5V and 0V when the engine controller board is installed?

Perform this check on the engine controller 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 controller 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 Allow the unit to warm up and go **ON-LINE**.

NO Replace the engine controller board

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RAP 02: Paper Feed Jam 1 Alarm**START**

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

NO Go to A

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 Check the connection between the engine controller and LLCC boards.

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.

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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Partner Exchange (BPX) for any updates to this material. (<http://bpx.okidata.com>)

RAP 04: Paper Size Error (Size Tray 1 Error)

START

Does the paper size differ from the tray size?

YES Use paper of the specified length.

NO Is the paper tray installed properly?

NO Install the paper tray properly.

YES Are the tray identification markings properly recognized by the switches on the LLCC board?

YES - **END**

NO Replace the LLCC board.

Replace the engine controller board.

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

Turn the 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**

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 fusers 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

RAP 06: Engine Error Alarm**START**

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

Is the problem solved?

YES END

NO Replace the engine controller circuit board.

END

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

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

NO Connect it properly.

YES Replace the operator panel.

Is the problem solved?

NO Replace the main controller board.

Is the problem solved?

NO Replace the LLCC board, then the engine controller board (LLAB-2).



RAP 08: Communications Error PU and CU

START

Replace the main controller board.

Is the problem solved?

NO Replace the engine controller board.

YES **END**

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RAP 09: Loop Test Failure (RS232-C) - Emulation Mode

START

Is the loop test connector installed?

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

YES Replace the interface board (option).

Is the problem solved?

NO Replace the main controller board.

YES **END**



RAP 10: Error Resident / Optional RAM Check

START

Does the resident RAM operate normally when the optional RAM board (REXM) is removed?

NO Replace the main controller board.

YES Replace the optional RAM (REXM) board.

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RAP 11: Program ROM Failure**START**

Replace the Program ROM on the main controller board.

Is the problem solved?

YES END

NO Replace the Program ROM on the emulation board.

Is the problem solved?

YES END

NO Replace the emulation board.

Is the problem solved?

YES END

NO Replace the main controller board.

END

RAP 12: No Operation Panel Display**START**

Is the +5vdc on the main controller board between +4.75vdc and +5.25vdc? Check the +5vdc at both sides of C3 on the main controller board.

NO Adjust the +5vdc as shown in Section 3 of the Service Handbook.

Is the +5vdc within specifications?

NO Replace the power supply unit.

YES Go to RAP 7 

RAP 13: Light or Blurred Images

START

Does the printer contain sufficient toner?

NO Add toner

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

NO Use paper recommended for a xerographic 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.

Reset the drum counter.

[Refer to the OL830 Solutions Manual.](#)

Is the problem removed?

YES **END**

NO Replace the engine controller board.

Is the problem solved?

YES **END**

NO Replace the high voltage power supply unit.

END

RAP 14: 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.

Is the problem solved?

YES **END**

NO Replace the high voltage power supply unit.

END

RAP 15: 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 4.7 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.

Is the problem solved?

YES **END**

NO Replace the LED head.

Is the problem solved?

YES **END**

NO Replace the image

drum cartridge.

END

RAP 16: Vertical Black Stripes

START

Is the charge wire dirty?

YES Clean the charge wire.

NO Replace the image drum cartridge. Reset the drum counter. [Refer to the OL830 Solutions Manual.](#){ }

Is the problem solved?

YES **END**

NO Replace the LED head.

Is the problem solved?

YES **END**

NO Replace the engine controller board.

END

RAP 17: Repeating Marks**START**

Measure the distance between the marks.

Find the measurement below and take the suggested corrective action.

2.27"

Check/replace the image drum cartridge.

2.5"

Check/replace the fuser cleaner pad and fuser assembly

2.72"

Check/replace the backup roller.

3.7"

Check/replace the image drum cartridge.

4.75"

Check/replace the hopping roller.

All others

Check/replace the resist rollers.



Service Guide OL830
Chapter 4 Failure & Repair Analysis

RAP 18: Blank Spots

START

Does the printer contain sufficient toner?

NO Add toner

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

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

YES Make sure the print side is up.

Is the problem solved?

YES **END**

NO Is the transfer wire broken or nicked?

YES Replace the transfer wire assembly.

NO Clean the transfer wire.

Is the problem solved?

YES **END**

NO Replace the image drum cartridge.

Reset

the drum counter.

Is the problem solved?

YES **END**

NO Replace the high

voltage power supply

]

unit.

END

RAP 19: Vertical White Stripes

START

Does the printer contain sufficient toner?

NO Add toner

YES Clean the LED Head.

Is the problem solved?

YES **END**

NO Is the transfer wire broken/nicked?

YES Replace the transfer wire assembly.

NO Clean the transfer wire.

Is the problem solved?

YES **END**

NO Replace the LED head.

Is the problem solved?

YES **END**

NO Replace the image drum cartridge.

Reset the drum counter.

END

RAP 20: Black Output

START

Is the charge wire broken?

YES Replace the image drum cartridge. Reset the drum counter. [Refer to the OL830 Solutions Manual.](#)

NO Replace the high voltage power supply unit.

Is the problem solved?

YES **END**

NO Replace the LED head.

Is the problem solved?

YES **END**

NO Replace the engine controller board.

Is the problem solved?

YES **END**

NO Replace the image drum cartridge. Reset the drum counter.

END

RAP 21: Poor Fusing**START**

Is the heater lamp turning ON?

NO Replace the engine controller board.

YES Replace the fuser assembly.

Has the problem been solved?

YES END

NO Are the backup roller springs normal?

NO Replace the springs.

YES Replace the fuser assembly.

Is the problem solved?

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 resident fonts, 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 RS232-C serial interface and multi-port board. A loopback connector 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.

1. Remove the upper cover.
2. Detach the operator panel and main controller board.
3. Make sure that the paper cassette is installed.
4. Override the cover interlock switch.
5. Power ON the the printer while pressing Switch 1 on the engine controller board.
6. The printer will continually print pages of horizontal ruled lines.
7. To stop the test, press Switch 1.

The printer may print a few more pages before stopping the test.

A.1 OVERVIEW

A.1.01 General Information

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

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

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

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Service Guide OL830

Chapter A Reference Charts

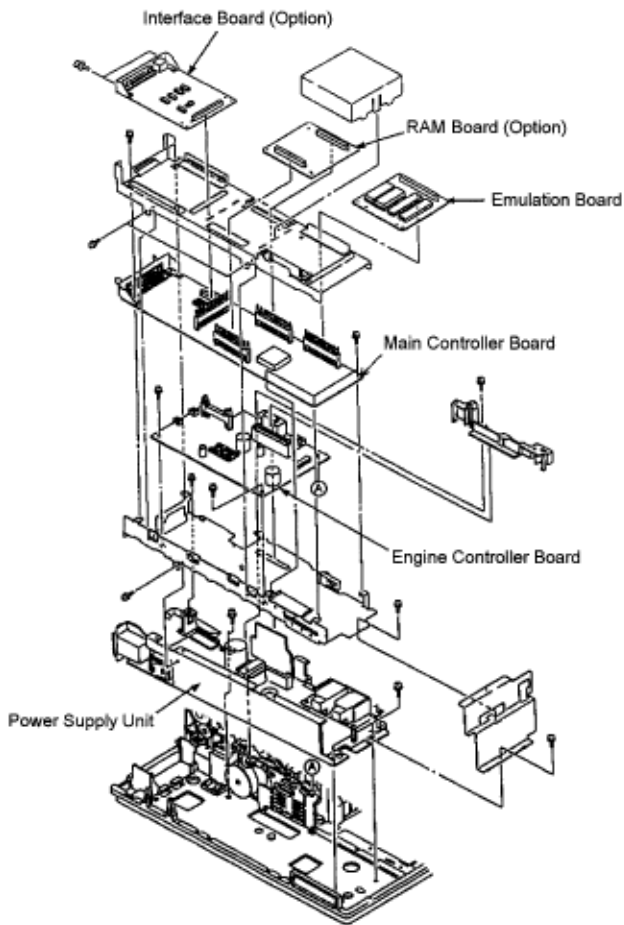
A.2 CHARTS

Index to Charts

Description	Acronym	P/N	Comment	Section
Main Controller (without ROM)	APSM	55057901	RSPL	A.2.01
Second Tray Connection	LLIF	N/A	Option	A.2.02
Serial Interface	APSR	55058001	RSPL Option	A.2.03
Operation Panel Assembly	LLJA	50213503	RSPL	A.2.04
Emulation Board (without ROM)	APSH	55058101	RSPL Option	A.2.05
2MB RAM	REXM	55051601	RSPL Option	Same as OL840
Engine Controller (without ROM)	LLAB-2	55044402	RSPL	Same as OL800/820/840
Engine Connection	LLCC	55044601	RSPL	Same as OL800/820/840
Second Tray Controller	LLFC	55051401	RSPL	Same as OL800/820/840
Power Supply(120 V)	N/A	56408707	RSPL	Same as OL800/820/840
Power Supply(240 V)	N/A	56408708	RSPL	Same as OL800/820/840
PR-POW Connection	LLID	55046001	RSPL	Same as OL800/820/840

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Board Layout



A.2.01 Main Controller Board (APSM)

NOTE:
ROMS must be added separately

Firmware

IC5 EPROM (4M bit) (PostScript)

IC6 EPROM (4M bit) (PostScript)

Fuses

NONE

Jumpers

NONE

Sensors

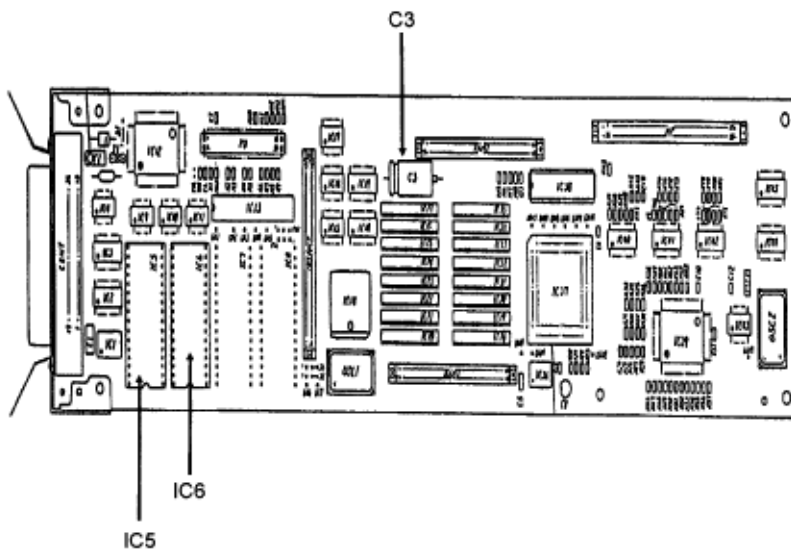
NONE

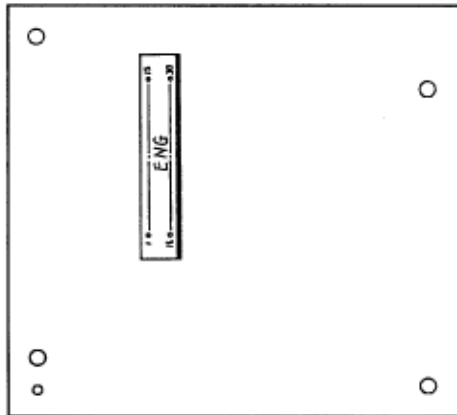
Switches

NONE

Test Points

+5vdc: Check at C3



A.2.02 Second Tray Connection Board (LLIF) Option**Firmware**
NONE**Fuses**
NONE**Jumpers**
NONE**Sensors**
NONE**Switches**
NONE**Test Points**
NONE

A.2.03 AppleTalk/Serial Interface Board (APSR) Option

Firmware
NONE

Fuses

FU1 (1 amp): Protects +5vdc supplied to pin 18 on the RS232C Port.

Jumpers

Jumper T1:

Pins 2 and 3 jumpered supplies +5vdc at pin 18 on the RS232C Port. (Factory Setting)

Pins 1 and 2 jumpered, +5vdc is not supplied to pin 18.

Jumper T2:

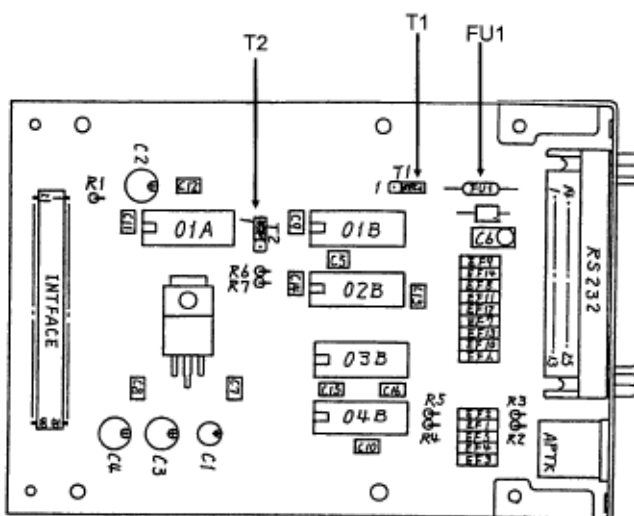
Pins 1 and 2 jumpered selects pin 20 (DTR) on the RS232C Port as the Busy Signal. (Factory Setting)

Pins 2 and 3 jumpered selects pin 11 (SSD) on the RS232C Port as the Busy Signal.

Sensors
NONE

Switches
NONE

Test Points
NONE



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Service Guide OL830

Chapter A Reference Charts

A.2.04 Operation Panel Board (LLJA)

Firmware
NONE

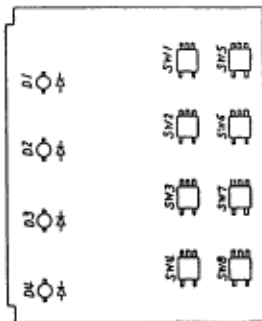
Fuses
NONE

Jumpers
NONE

Sensors
NONE

Switches
NONE

Test Points
NONE



Solder Side

A.2.05 Emulation Board (APSH)**NOTE:****ROMs 01A and 02A must be added separately****Firmware**

01A and 02A - Hewlett Packard Emulation ROMS

03A and 04A - Bit mapped fonts are stored in these ROMs

Fuses

NONE

Jumpers

NONE

Sensors

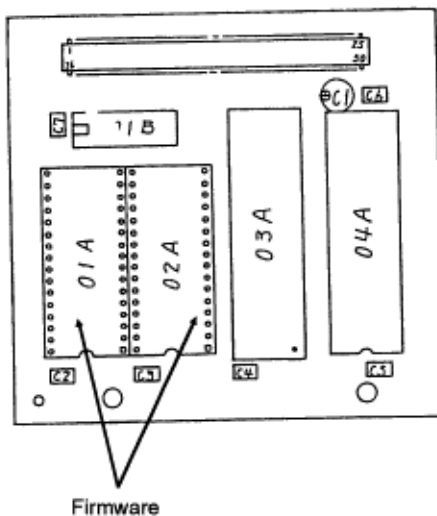
NONE

Switches

NONE

Test Points

NONE



B.1 OVERVIEW

B.1.01 General Information

This appendix will assist you in identifying the assemblies and parts of the printer. 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 Okidata part number, the part description, the disassembly procedure, and a comments. 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.

- Okidatas 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.
- Okidatas 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.
- Okidatas 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 products 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 Okidatas 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 Okidatas 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.

B.2 CHARTS

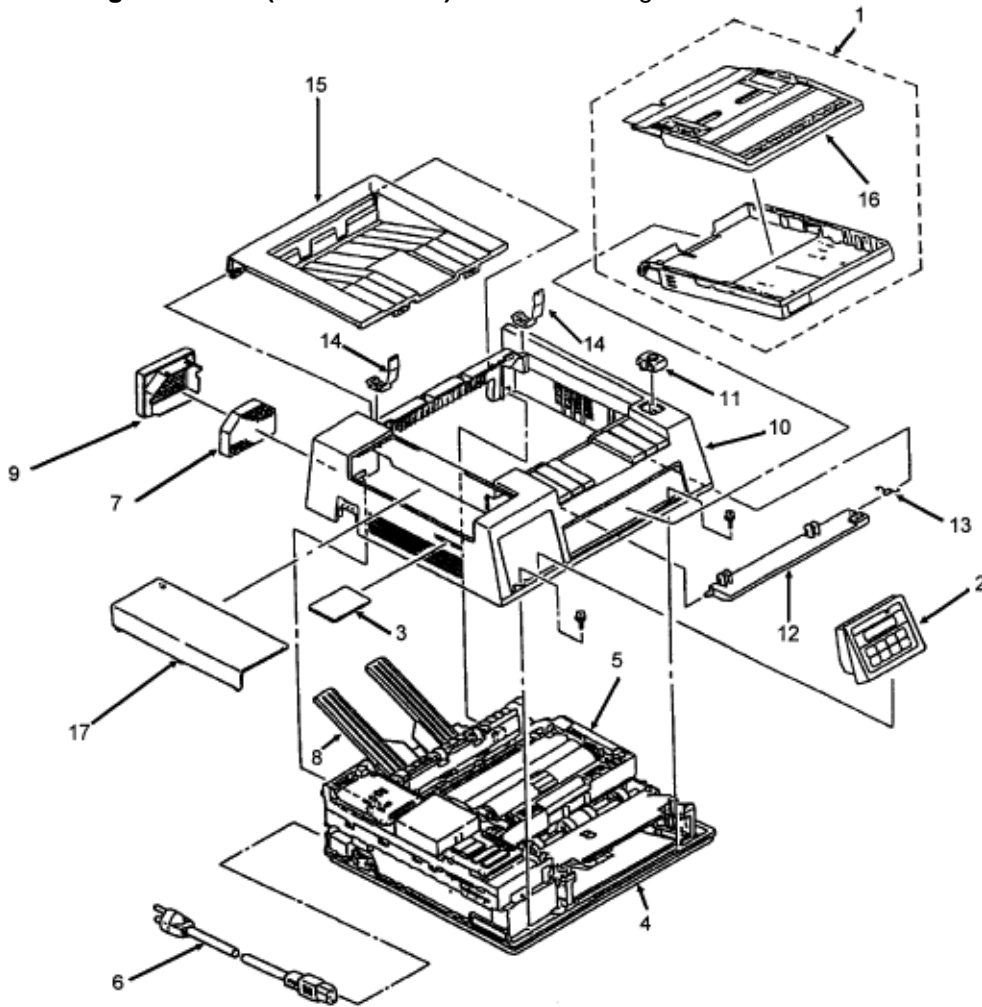
Below is an index to the illustrated parts breakdown charts.

Index to Charts

Description	Section
Printer Unit	B.2.01 
Upper Unit	B.2.02 
Fusing Unit	B.2.03 
Lower Unit (1 of 2)	B.2.04 
Lower Unit (2 of 2)	B.2.05 
Paper Eject Roller Assembly	B.2.06 
Paper Supply Unit	B.2.07 
Second Paper Tray Unit	B.2.08 
Packaging	B.2.09 

B.2.01 Printer Unit

The Image Drum Kit (P/N 56106601) contains an image drum and an ozone filter.



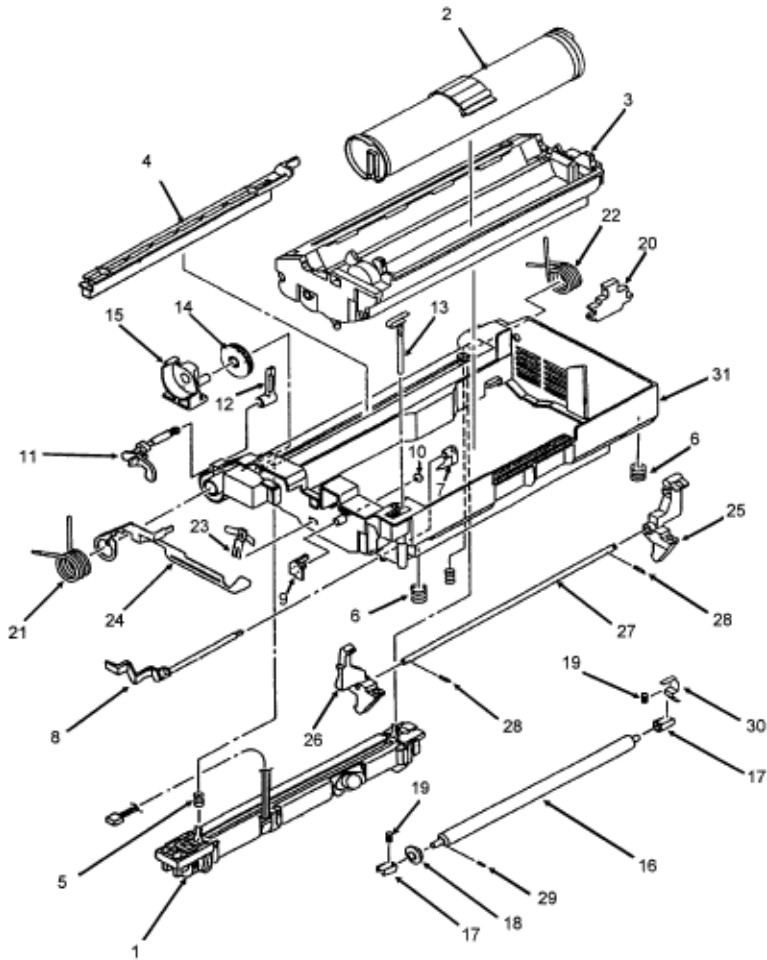
Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	70013601	Paper Cassette (Letter)	Standard	
1	70013701	Paper Cassette (Legal)	Option	

1	70013801	Paper Cassette (Envelope)	Option	
2	50213503	Panel: Operation Assembly	RSPL	
3	70014401	Font ROM Card (Tax)	Option	
3	70014201	Font ROM Card (Prestige Elite)	Option	
3	70014501	Font ROM Card (Letter Gothic)	Option	
4	50213602	Unit: Lower	RSPL	
5	50213701	Unit: Upper (AC 120 V)	RSPL	
5	50213702	Unit: Upper (AC 240 V)	RSPL	
6	56609701	Cord: AC	RSPL	
7	55503501	Filter: Ozone	RSPL Consumabl e *	
8	50066601	Stacker: Face-up Assembly	RSPL	
9	53527301	Fan Cover		
10	53338202	Upper Cover (with logo)	RSPL	3.2.1
11	53527401	Button		
12	51111301	Shaft		
13	50917901	Spring		
14	50918001	Reset Spring		
15	53527501	Stacker Cover		
16	53527601	Cassette Cover (Letter)		

16	53527602	Cassette Cover (Legal)		
17	53062901	Access Cover		

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B.2.02 Upper Unit



* Included in the **Toner Cartridge Kit, P/N 52104201**. This kit contains a toner cartridge, a fuser cleaner pad, and an LED lens cleaning pad.

** Included in the **Image Drum Kit, P/N 56106601**. This kit contains an image drum and an ozone filter.

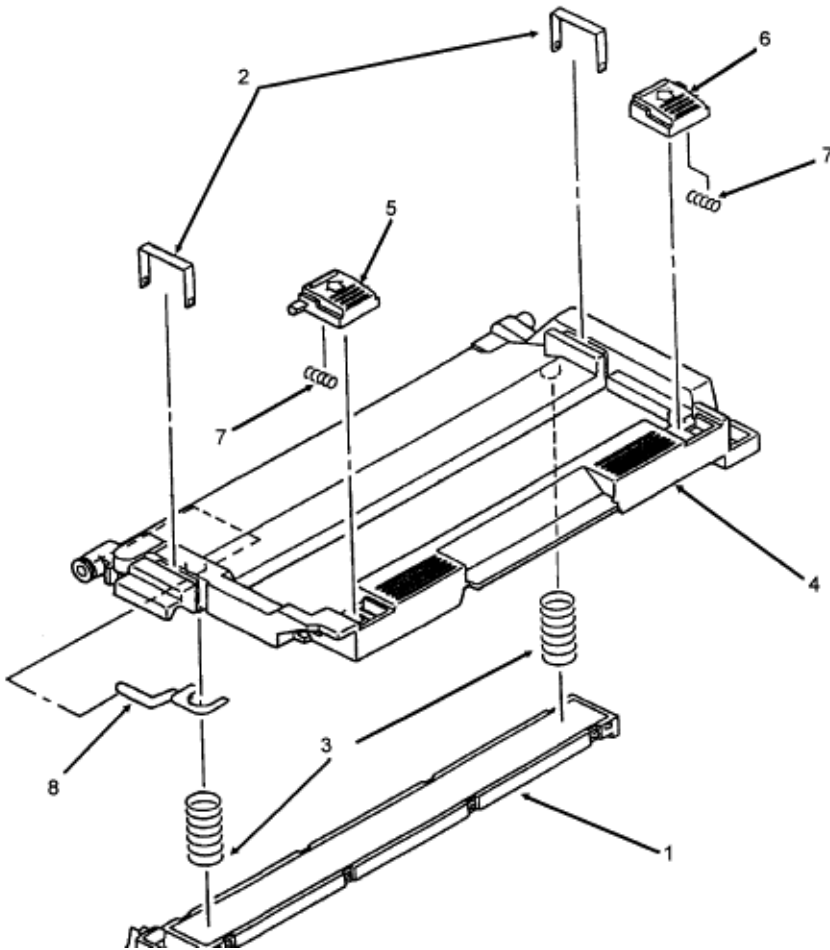
Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	55044901	Unit: Fusing (120V)	RSPL	
1	55044902	Unit: Fusing (240V)	RSPL	

2	52104201	Toner Cartridge	Consumable *	
3	56106601	Image Drum Cartridge	Consumable **	
4	53500901	Pad: Fuser	RSPL Consumable *	
5	50914601	Spring: Fusing Unit	RSPL	
6	50917205	Spring Image Drum Tray		
7	53503001	Sensor Lever (Resist)		
8	53329601	Sensor Flag (Resist)		
9	53527701	Sensor Lever (Toner)		
10	50606001	Rivet		
11	53527801	Paper Eject Sensor Lever B		
12	53527901	Paper Eject Sensor Lever C		
13	50312501	Actuator		
14	51225801	Idle Gear (Z-30)	Same P/N as Idle Gear B in Lower Unit	
15	51005001	Fulcrum Block		
16	53334302	Pressure Roller		
17	51605802	Bearing		
18	51222701	Pressure Roller Gear		
19	50914501	Pressure Spring		
20	53528001	Wire Cleaner		

21	50918101	Torsion Spring L		
22	50918201	Torsion Spring R		
23	53058201	Ground Plate (Drum)		
24	53058901	Support Plate L		
25	53502601	Lock Lever L		
26	53502701	Lock Lever R		
27	51110201	Lock Lever Shaft		
28	50606216	Knock Pin		
29	50606208	Knock Pin		
30	53058501	Ground Plate (Resist Roller)		
31	53329701	Upper Frame		

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B.2.03 Fusing Unit

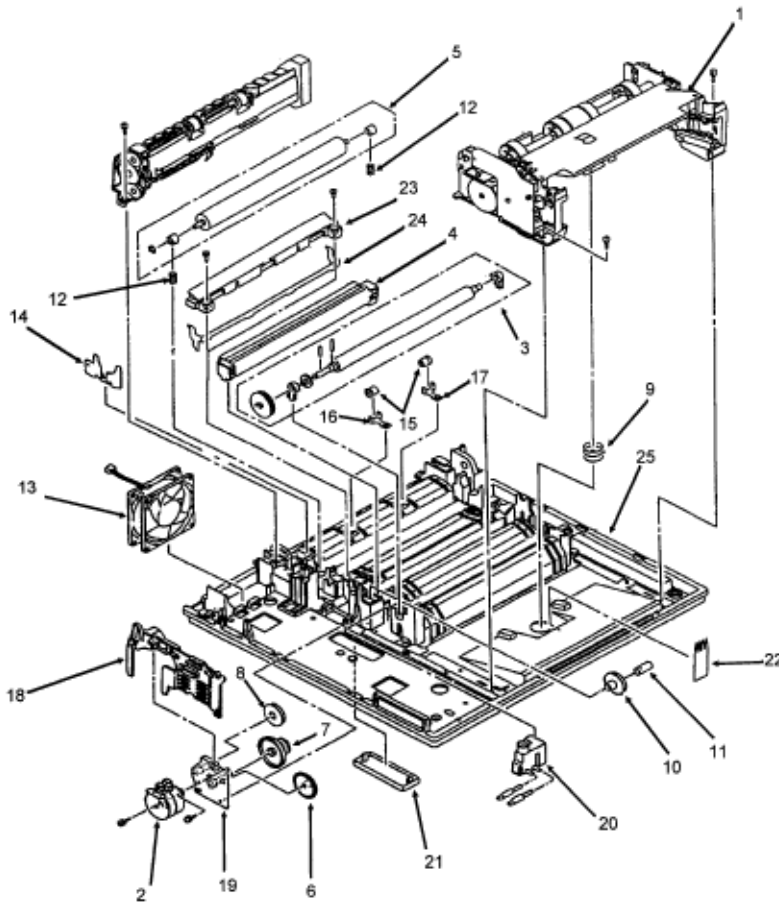


Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	55619501	Unit: LED Head	RSPL	
2	50914301	Spring: Clamp (LED)	RSPL	
3	50914101	Spring: Bias (LED Head)	RSPL	
4	55619601	LED Head Housing		

5	51901301	Knob L		
6	51901401	Knob R		
7	50918301	Pressure Spring		
8	53058401	Ground Plate (LED Head)		

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B.2.04 Lower Unit (1 of 2)



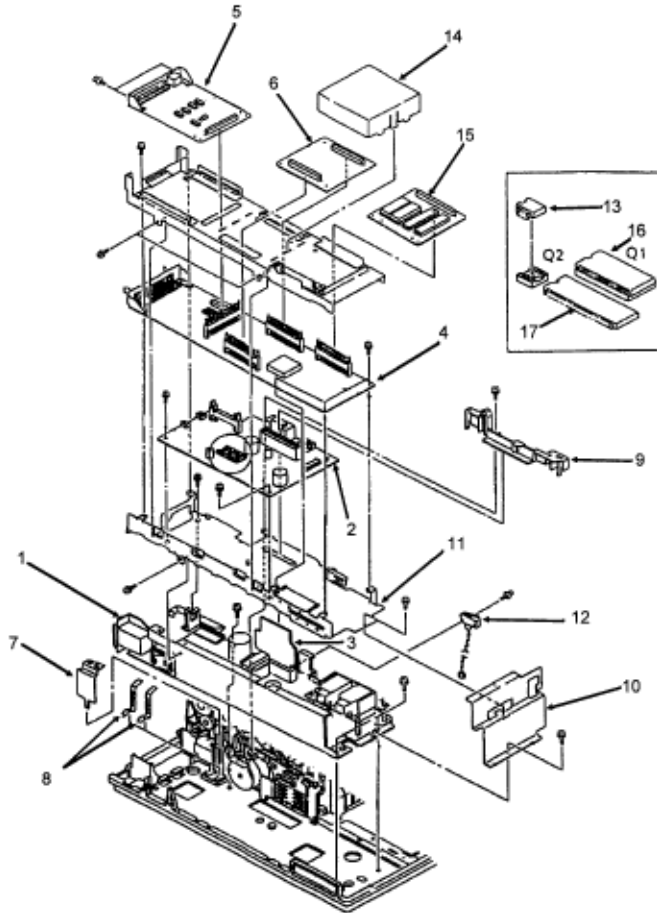
Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	50214502	Unit: Paper Delivery	RSPL	
2	56507701	Motor: Pulse (Main)	RSPL	
3	50079101	Roller: Resist Assembly	RSPL	
4	50087401	Charger: Transfer Assembly	RSPL	

5	50079201	Roller: Back-up Assembly	RSPL	
6	51225701	Gear: Idle A	RSPL	
7	51218701	Gear: Speed Reduction	RSPL	
8	51225801	Idle Gear B	Same P/N as Idle Gear (Z-30) in Upper Unit	
9	50917001	Spring: Cassette	RSPL	
10	51218601	Idle Gear (Base)	RSPL	
11	53329501	Post	RSPL	
12	50914801	Spring: Backup Roller	RSPL	
13	56508501	Fan: DC Assembly	RSPL	
14	53335601	Reinforcement Plate		
15	53334601	Bias Roller		
16	50918401	Bias Spring L		
17	50918501	Bias Spring R		
18	53528301	Motor Cover		
19	53329301	Motor Bracket		
20	56725901	High Voltage Connector		
21	To be assigned	Blind Cover (LLID PCB)		
22	51802501	Static Discharge Film		
23	51005101	Fusing Guide		

24	51003601	Sheet Guide		
25	53057801	Base Frame		

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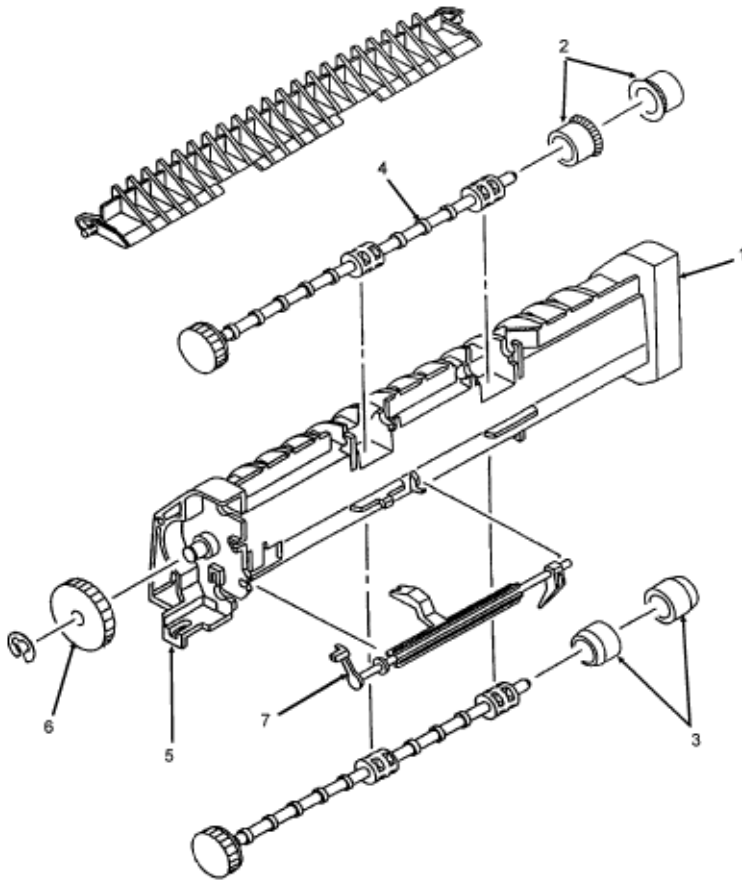
B.2.05 Lower Unit (2 of 2)



Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	56408707	Power Supply (120 V)	RSPL	
1	56408708	Power Supply (240 V)	RSPL	
2	55044402	PCB: LLAB-2 (Engine Controller) w/out ROM	RSPL	

3	55046001	PCB: LLID (PR-POW Connection)	RSPL	
4	55057901	PCB: APSM (Main Controller) w/out ROM		3.2.5
5	55058001	PCB: APSR (Serial Interface)	RSPL Option	3.2.2
6	55051601	PCB: REXM (2 MB RAM)	RSPL Option	3.2.3
7	53502301	AC Cover		
8	53057901	Contact Plate AC		
9	53528401	Board Cover		
10	51707201	Shield Plate A		
11	51707301	Shield Plate B		
12	55050701	Microswitch Assembly		
13	55921901	IC: EEPROM (for LLAB-2 PCB)		
14	51707001	Shield Cover		3.2.3
15	55058101	PCB: APSH (Emulation Board w/out ROM)	RSPL	3.2.4
16	Refer to Okilink II for current revision	IC: ROM (Q1)		
17	Refer to Okilink II for current revision	IC: EEROM (Q2)		

B.2.06 Paper Eject Roller Assembly

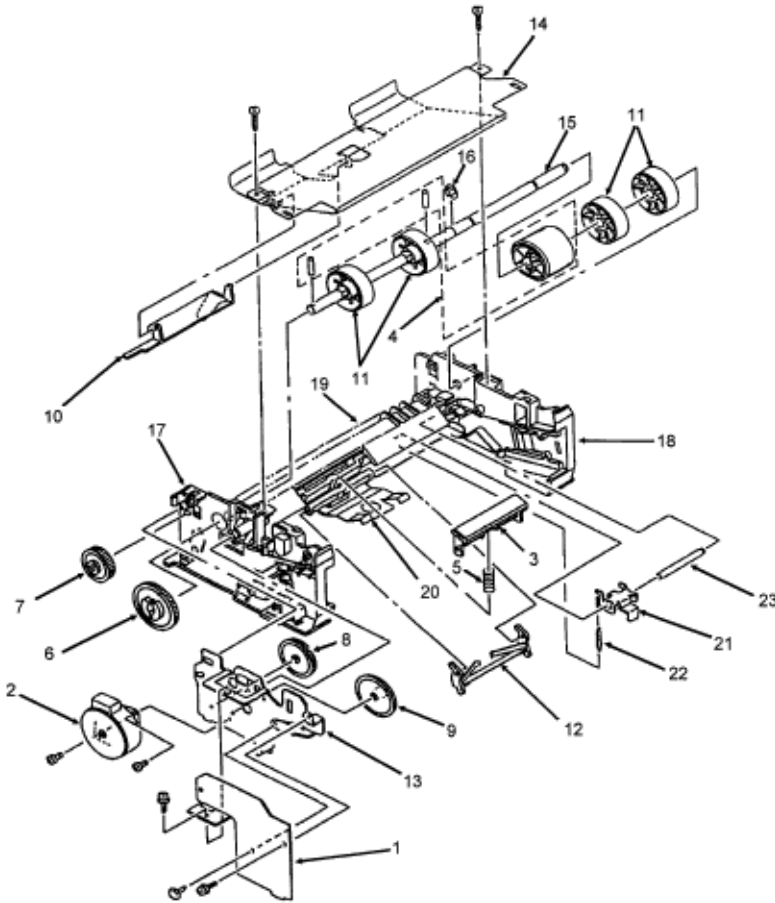


Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	51005201	Sheet Guide		
2	53334401	Paper Eject Roller		
3	53334501	Paper Eject Roller (Face-up)		

4	51111401	Paper Eject Roller Shaft		
5	51222801	Idle Gear (Paper Eject)		
6	50705301	E-Ring		
7	53528101	Sensor Lever (Paper Eject)		

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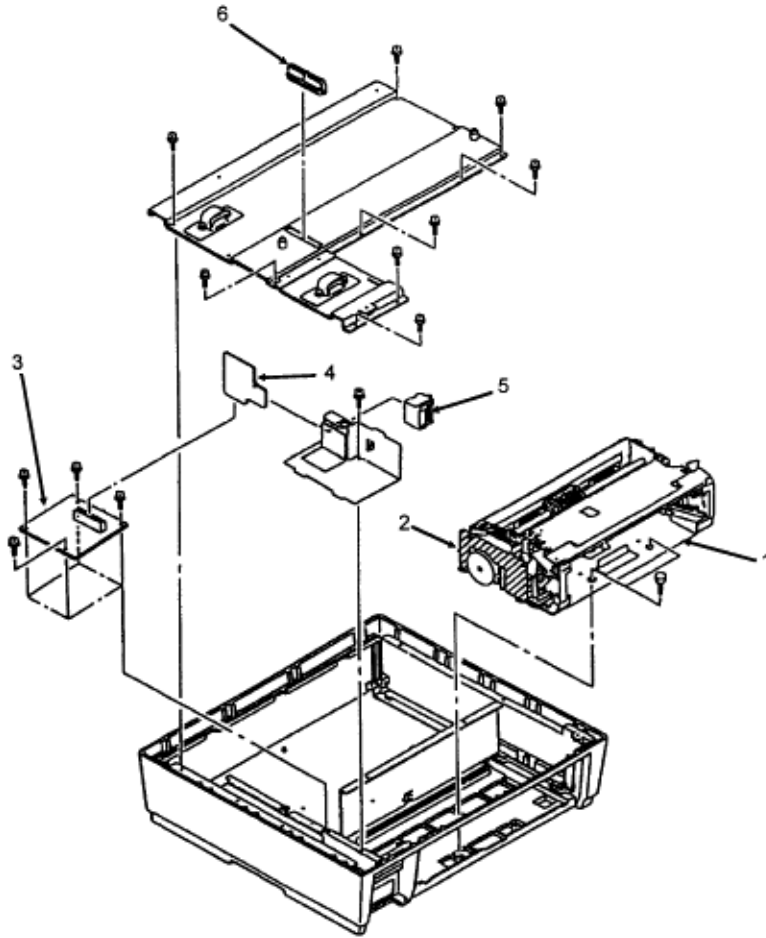
B.2.07 Paper Supply Unit



Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	55044601	PCB: LLCC (Engine Connection)	RSPL	
2	56507401	Motor: Pulse (Resist)	RSPL	
3	53500501	Separator	RSPL	
4	50081701	Roller: Hopping Assembly	RSPL	

5	50917101	Spring: Separator	RSPL	
6	51222901	Hopping Gear		
7	51223001	Planet Gear		
8	51223101	Idle Gear B		
9	51223201	Idle Gear		
10	53528501	Paper End Lever		
11	53334901	Hopping Roller B		
12	53528601	Escape Lever		
13	53335002	Motor Bracket		
14	53335101	Upper Plate		
15	5111501	Hopping Roller Shaft		
16	50705401	E-Ring		
17	53335201	Side Frame (Left)		
18	53335301	Side Frame (Right)		
19	53335401	Separator Frame		
20	53528701	Setting Lever		
21	53528801	Latch Lever		
22	50918601	Latch Spring		
23	51111601	Latch Shaft		

B.2.08 Second Paper Tray Unit

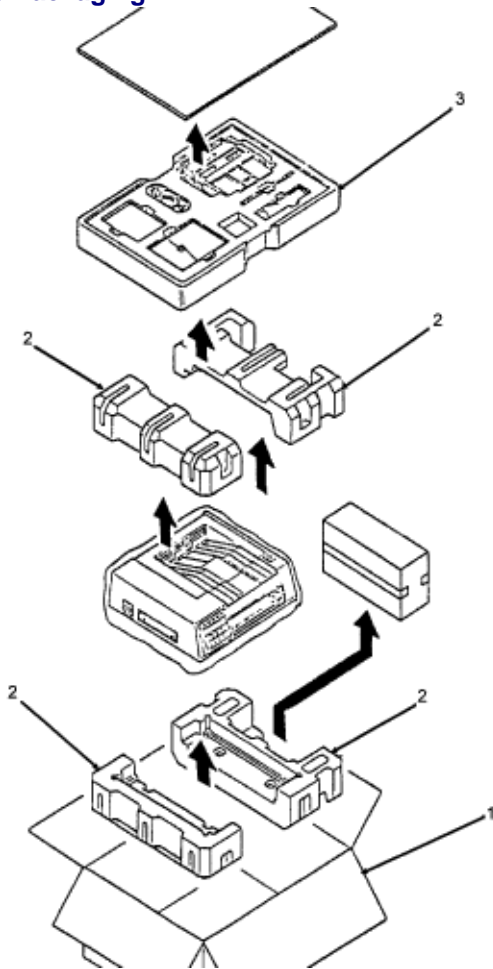


Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	50063501	Second Paper Supply Unit		
2	55051401	LLFC (Second Tray Controller)		
3	To be assigned	LLIF PCB (Connection)		

4	To be assigned	LLIG PCB (Connection)		
5	56726001	Connector PM8DOX		
6	56725201	Connector AKJ-40AJ		

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B.2.09 Packaging



Item	Okidata P/N	Description	Comments	Disassembly Procedure
1	53507315	Graphics Box		
2	53507401	Foam: OL830		
3	53507501	Foam: Accessory Tray		

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