



Service Manual

Optra Color 1200™

5050-001

- ***Table of Contents***
- ***Start Diagnostics***
- ***Safety and Notices***
- ***Trademarks***
- ***Index***
- ***Manuals Menu***

LEXMARK™

Lexmark and Lexmark with diamond design are trademarks of Lexmark International, Inc., registered in the United States and/or other countries.

First Edition (October, 1998)

The following paragraph does not apply to any country where such provisions are inconsistent with local law: LEXMARK INTERNATIONAL, INC. PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in later editions. Improvements or changes in the products or the programs described may be made at any time.

Comments may be addressed to Lexmark International, Inc., Department D22/035-3, 740 New Circle Road N.W., Lexington, Kentucky 40550, U.S.A. Lexmark may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you. You can purchase additional copies of publications related to this product by calling 1-800-553-9727. In other countries, contact your point of purchase.

Lexmark, FontVision, MarkVision, and Optra are trademarks of Lexmark International, Inc., registered in the United States and/or other countries.

Other trademarks are the property of their respective owners.

© Copyright Lexmark International, Inc. 1998.

All rights reserved.

UNITED STATES GOVERNMENT RESTRICTED RIGHTS

This software and documentation are provided with RESTRICTED RIGHTS. Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 and in applicable FAR provisions: Lexmark International, Inc., Lexington, KY 40550.

Contents

Safety Information ix

Safety Notice ix

General Information 1-1

 Maintenance Approach 1-1

 Tools 1-1

 Serial Number 1-2

 Abbreviations 1-3

 Standard Features 1-4

 Options 1-5

 Printer Supplies 1-6

 Cross Section of Printer 1-6

Operational Theory 1-8

 Electrophotographic Process 1-8

 Photoconductor Drum 1-10

 Electrical Charge Unit 1-10

 Exposure Assembly 1-11

 Developer Assembly 1-11

 Transfer Assembly 1-12

 Cleaning Assembly 1-13

 Paper Feed, Transfer, and Fusing 1-14

 Print Modes 1-26

Clearing Paper Jams 1-27

 Printing From the Multipurpose Feeder 1-28

Diagnostic Information 2-1

 Part Numbers 2-1

 Adjustments and Procedures Following Parts Replacement 2-1

Start 2-2

 Initial Check 2-2

Printer Messages 2-3

 Service Error Message Table 2-4

 Status Messages 2-11

 Attendance Messages 2-14

 Symptom Table 2-24

Service Checks 2-28

 Fuser Service Check 2-28

 Color Print Unit Missing Service Check 2-29

 Drive 1 DC Motor Service Check 2-29

 Drive 2 Stepper Motor Service Check 2-30

Transport Belt/BUD Service Check	2-30
Optional Paper Feed Service Check	2-31
Paper Jam Service Check	2-31
Paper Carrying Service Check	2-33
Paper Exit FU/FD Service Check	2-35
Paper Low/Empty Tray 1, 2, 3 Service Check	2-36
Paper Tray Missing/Size Service Check	2-36
Remove Paper Sensor Service Check	2-37
Power Supply Service Check	2-37
Marks on Paper Service Check	2-38
Image Quality Troubleshooting	2-39
Print Quality Problems	2-39
Sensor Service Check	2-46
Diagnostic Aids	3-1
Power-On Self Test Sequence	3-1
Using the Operator Panel	3-2
Operator Panel Buttons	3-3
Printing the Menu Settings	3-4
Operator Menu Disabled	3-4
Menu Overview	3-4
Diagnostic Mode	3-6
Diagnostic Menu Group	3-6
Setting Printer top Margin	3-10
Color Calibration of Printer	3-13
Print Tests	3-15
Input/Output Source Print Tests	3-15
Print Quality Pages	3-16
LCD Hardware Test	3-17
Button Test	3-17
DRAM Memory Test	3-17
Std Parallel Wrap Test and Parallel X Wrap Test	3-18
Serial Wrap Tests	3-19
Quick Disk Test	3-20
Disk Test/Clean	3-21
Setting the Page Count	3-23
Viewing the Permanent Page Count	3-23
Viewing and Resetting the Drum Counters	3-24
Calibrating the Transparency Sensor	3-24
Viewing the Error Log	3-25
Clearing the Error Log	3-26
US / Non-US	3-27
Exiting Diagnostics Mode	3-27

Test Print 1	3-28
Test Print 2	3-29
Repair Information	4-1
Precautions for Disassembly and Cleaning	4-1
Handling the Printed Circuit Boards with MOS ICs	4-1
Precautions for Handling the Drum Cartridge	4-2
Parts not to be touched	4-3
Adjustment Procedures	4-3
Transfer Belt Tracking Adjustment	4-3
Thermistor Rank Adjustment	4-5
LED Head Light Quantity Adjustment	4-5
Top Margin for Color Mode	4-5
Top Margin for Black and White Mode	4-6
Overhead Projection Sheet Detection Sensor Adjustment	4-6
Printhead Adjustments (X, Y, and Theta)	4-6
Removal Procedures	4-10
LED Head Removal	4-10
Transfer Belt Unit Removal	4-11
Paper Remaining Sensor Removal	4-12
Belt Unit Drive Frame, BUD Motor, BUD Sensor Removal	4-12
Engine Board (PG14 ENG BB) Removal	4-14
Cover Removals	4-15
Head Controller Board (P614 HDCONT) Removal	4-21
Operator Panel Removal	4-22
MPF Removal	4-23
Paper Feed Roller Removal	4-24
MPF Roller	4-25
F Pad Removal	4-26
Registration Sensor Removal	4-26
MPF Paper Empty Sensor Removal	4-27
Humidity Sensor Removal	4-27
Printer Controller (614 PRCONT) Removal	4-28
HVU1(U) Removal	4-29
Drive 2 (U) and Face Up/Face Down (FUD) Solenoid Removal	4-29
Fuser Removal	4-30
Fuser Thermostat, Fuse, and Thermistor Removals	4-34
Fuser Press Roller Removal	4-37
Fuser Pawl Removal	4-39
Fuser Heater Removal	4-42
Fuser Heat Roller and Gear H, Gear 30 Removal	4-44
Heater Drive Board, 230 V Only	4-45
HVU 2 Removal	4-46

Power Supply Switch Removal	4-46
Power Supply Board (P614-MPS) Removal	4-47
Size Sensor Board (P611-PSZ) Removal	4-48
Toner Remaining Sensor, Drum Gear Sensor Removal	4-48
Drive 1 Removal	4-50
Drum Drive Gear Sensor (P614-DGS) Removal	4-51
Registration Roller Removal	4-52
OHP Sensor Removal	4-57
Paper Exit Sensor Removal	4-59
Output Bin Full Sensor Removal	4-59
RIP Controller Card Removal	4-61
Paper Face Up/Face Down (FUD) Delivery Sensor Removal ..	4-61
Optional Paper Feeder Removal Procedures	4-62
Outer Cover Removal	4-62
Size Sensor Board (P611-PSZ) Removal	4-63
Drive Board (P614-2/3 DRIV) Removal	4-64
Paper Feed Motor 2 (PM42) Removal	4-64
Paper Feed Roller Removal	4-65
Paper Remaining Sensor Removal	4-66
Paper Feed Clutch, Solenoid, and Transfer Roller Removal ..	4-67
Connector Locations	5-1
Paper Handling	5-1
Cross Section of Printer	5-2
Electronic Board Layout	5-4
Electrical Components	5-5
Sensors	5-6
Power Supply Board (614-MPS-E)	5-7
High Voltage Unit 1 Board (614-HVU1)	5-8
High Voltage Unit 2 Board (P614-HVU2)	5-9
Optional Paper Feed Controller Board (P614-2/3 DRIV)	5-10
Printhead Controller Board (P614-HD CONT)	5-11
Printer Controller Board (P614-PRCONT)	5-12
Size Sensor Board (P611-PSZ)	5-13
RIP Controller Card	5-14
Preventive Maintenance	6-1
Maintenance Kit	6-1
Periodic Maintenance	6-2
Lubricants and Cleaners	6-2
Parts Catalog	7-1
How to Use This Parts Catalog	7-1
Assembly 1: Covers	7-2

Assembly 2: Paper Exit 7-6

Assembly 3: Upper Unit 7-8

Assembly 4: Base 1. 7-14

Assembly 5: Base 2. 7-18

Assembly 6: Feeder 7-26

Assembly 7: Electrical 7-30

Assembly 8: I/F Controller. 7-36

Assembly 9: Fuser. 7-38

Assembly 10: Cassette 7-42

Assembly 11: Optional Feeder Base. 7-44

Assembly 12: Optional Feeder Paper Feed 7-50

Assembly 13: Optional Features 7-52

Safety Information

Safety Notice

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

Consignes de Sécurité

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

Norme di sicurezza

- Il prodotto è stato progettato, testato e approvato in conformità a severi standard di sicurezza e per l'utilizzo con componenti Lexmark specifici. Le caratteristiche di sicurezza di alcune parti non sempre sono di immediata comprensione. Lexmark non è responsabile per l'utilizzo di parti di ricambio di altri produttori.
- Le informazioni riguardanti la manutenzione di questo prodotto sono indirizzate soltanto al personale di assistenza autorizzato.
- Durante lo smontaggio e la manutenzione di questo prodotto, il rischio di subire scosse elettriche e danni alla persona è più elevato. Il personale di assistenza autorizzato, deve, quindi, adottare le precauzioni necessarie.

Sicherheitshinweise

- Dieses Produkt und die zugehörigen Komponenten wurden entworfen und getestet, um beim Einsatz die weltweit gültigen Sicherheitsanforderungen zu erfüllen. Die sicherheitsrelevanten Funktionen der Bauteile und Optionen sind nicht immer offensichtlich. Sofern Teile eingesetzt werden, die nicht von Lexmark sind, wird von Lexmark keinerlei Verantwortung oder Haftung für dieses Produkt übernommen.
- Die Wartungsinformationen für dieses Produkt sind ausschließlich für die Verwendung durch einen Wartungsfachmann bestimmt.
- Während des Auseinandernehmens und der Wartung des Geräts besteht ein zusätzliches Risiko eines elektrischen Schlags und körperlicher Verletzung. Das zuständige Fachpersonal sollte entsprechende Vorsichtsmaßnahmen treffen.

Pautas de Seguridad

- Este producto se ha diseñado, verificado y aprobado para cumplir los más estrictos estándares de seguridad global usando los componentes específicos de Lexmark. Puede que las características de seguridad de algunas piezas no sean siempre evidentes. Lexmark no se hace responsable del uso de otras piezas de recambio.
- La información sobre el mantenimiento de este producto está dirigida exclusivamente al personal cualificado de mantenimiento.
- Existe mayor riesgo de descarga eléctrica y de daños personales durante el desmontaje y la reparación de la máquina. El personal cualificado debe ser consciente de este peligro y tomar las precauciones necesarias.

Informações de Segurança

- Este produto foi concebido, testado e aprovado para satisfazer os padrões globais de segurança na utilização de componentes específicos da Lexmark. As funções de segurança de alguns dos componentes podem não ser sempre óbvias. A Lexmark não é responsável pela utilização de outros componentes de substituição.
- As informações de segurança relativas a este produto destinam-se a profissionais destes serviços e não devem ser utilizadas por outras pessoas.
- Risco de choques eléctricos e ferimentos graves durante a desmontagem e manutenção deste produto. Os profissionais destes serviços devem estar avisados deste facto e tomar os cuidados necessários.

Informació de Seguretat

- Aquest producte està dissenyat, comprovat i aprovat per tal d'acomplir les estrictes normes de seguretat globals amb la utilització de components específics de Lexmark. Les característiques de seguretat d'algunes peces pot ser que no sempre siguin òbvies. Lexmark no es responsabilitza de l'ús d'altres peces de recanvi.
- La informació pel manteniment d'aquest producte està orientada exclusivament a professionals i no està destinada a ningú que no ho sigui.
- El risc de xoc elèctric i de danys personals pot augmentar durant el procés de desmuntatge i de servei d'aquest producte. El personal professional ha d'estar-ne assabentat i prendre les mesures convenients.

安全资讯

- 本产品使用特有的 Lexmark 元件，并依照严格的世界安全标准来设计、测试及验证。有些零件的安全功能可能不明显。对于其他厂牌更换零件的使用，Lexmark 概不负责。
 - 本产品的维护资讯仅供专业服务人员使用，而非针对一般使用者。
 - 本产品在拆卸、维修的时候，遭受电击或人员受伤的危险性会增高，专业服务人员对这点必须有所了解，并采取必要的预防措施。
-

안전 사항

- 본 제품은 특정 Lexmark 구성 요소의 사용에 있어 엄격한 세계 안전 표준에 맞도록 설계, 테스트되었으며 승인받았습니다. 일부 부품의 안전성은 항상 보장되지 않습니다. Lexmark는 다른 교체 부품의 사용에 대한 책임을 지지 않습니다.
- 본 제품에 관한 유지 보수 설명서는 전문 서비스 기술자용으로 작성된 것이므로 비 전문가가 사용할 수 없습니다.
- 본 제품을 해체하거나 정비할 경우 전기적인 충격을 받거나 상처를 입을 위험이 커집니다. 전문 서비스 기술자는 이 사실을 숙지하고 필요한 예방 조치를 취하도록 하십시오.

1. General Information

Maintenance Approach

The diagnostic information in this manual leads you to the correct field replaceable unit (FRU) or part. Use the error code charts, symptom index, and service checks to determine the symptom and repair the failure. You may find that the removals in the Repair Information chapter will help you identify parts.

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

Tools

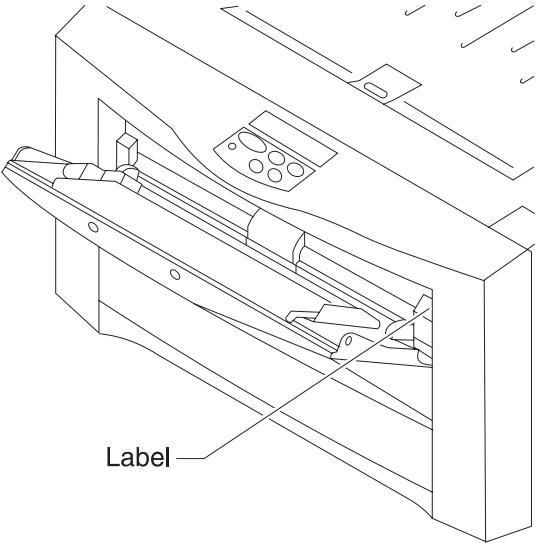
The removal and adjustment procedures described in this manual require the following tools and equipment:

- Magnetic tip Phillips screwdrivers, large and small
- Flat-blade screwdrivers
- Analog volt ohmmeter (a digital volt ohmmeter may also be used)
- Needle nose pliers
- Tweezers, C-ring pliers
- Magnifier (10 times or equivalent)
- 6-angle wrench (1.5 mm).

When you make voltage readings, always use frame ground unless another ground is specified.

Serial Number

Lower the multipurpose feeder and refer to the label on the right. The serial number is also listed on the menu settings page you can print from the Tests Menu.



Abbreviations

ASIC	Application-Specific Integrated Circuit
CSU	Customer Setup
DRAM	Dynamic Random Access Memory
EEPROM	Electrically Erasable Programmable Read-Only Memory
EP	Electrophotographic Process
ESD	Electrostatic Discharge
FRU	Field Replaceable Unit
HVPS	High Voltage Power Supply
LAN	Local Area Network
LASER	Light Amplification by Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LVPS	Low Voltage Power Supply
NVRAM	Nonvolatile Random Access Memory
OEM	Original Equipment Manufacturer
PICS	Problem Isolation Charts
PIXEL	Picture Element
POR	Power-On Reset
POST	Power-On Self Test
PQET	Print Quality Enhancement Technology
RIP	Raster Image Processor
ROS	Read-Only Storage
SRAM	Static Random Access Memory
UPR	Used Parts Replacement
VAC	Volts alternating current
VDC	Volts direct current

Standard Features

Feature	Description
Print method	Dry electrophotographic process using LED printheads
Print addressability	600 dpi
Maximum print speed	<ul style="list-style-type: none"> • 12 ppm (letter and A4 paper) (Color) • 12 ppm (Mono)
Fonts	<ol style="list-style-type: none"> 1. 75 resident scalable fonts: <ul style="list-style-type: none"> • PostScript Level 2 emulation: 39 Optra compatible plus 36 additional • PCL emulation: 45 LaserJet compatible plus 30 additional 2. PCL bitmap fonts: <ul style="list-style-type: none"> • LinePrinter • POSTNET Barcode 3. FontVision™ font manager utility with 110 fonts 4. World class international font support: <ul style="list-style-type: none"> • 77 symbol sets, including support for • Canadian, French, Brazilian, • Portuguese, Cyrillic, and Greek
Paper input	<ul style="list-style-type: none"> • 250-sheet tray • Multipurpose feeder
Paper output	<ul style="list-style-type: none"> • Top output bin: 250 sheets (collated) • Rear output bin: 100 sheets (uncollated)
Paper sizes supported	A4, A5, JIS B4, JIS B5, A3, letter, legal, 11 x 17
Printer memory	32MB (two 16MB 50 ms EDO SIMMS) Some printer models may ship with more memory.
Flash memory	4MB (for permanent storage of fonts, logos, and forms)
Interface	Parallel (standard Centronics protocol that complies with bidirectional IEEE 1284B)
Internal solutions ports	<ul style="list-style-type: none"> • 2 ports for network adapters, tri-port adapters, or parallel port adapters • 1 connector for hard disk • 2 pairs of memory connectors
Printer software	MarkVision™ utility that lets you manage your printer from your computer. Supported in the following environments: Windows 95, Windows NT 4.0, Windows 3.1x, OS/2 Warp, Macintosh, UNIX.

Options

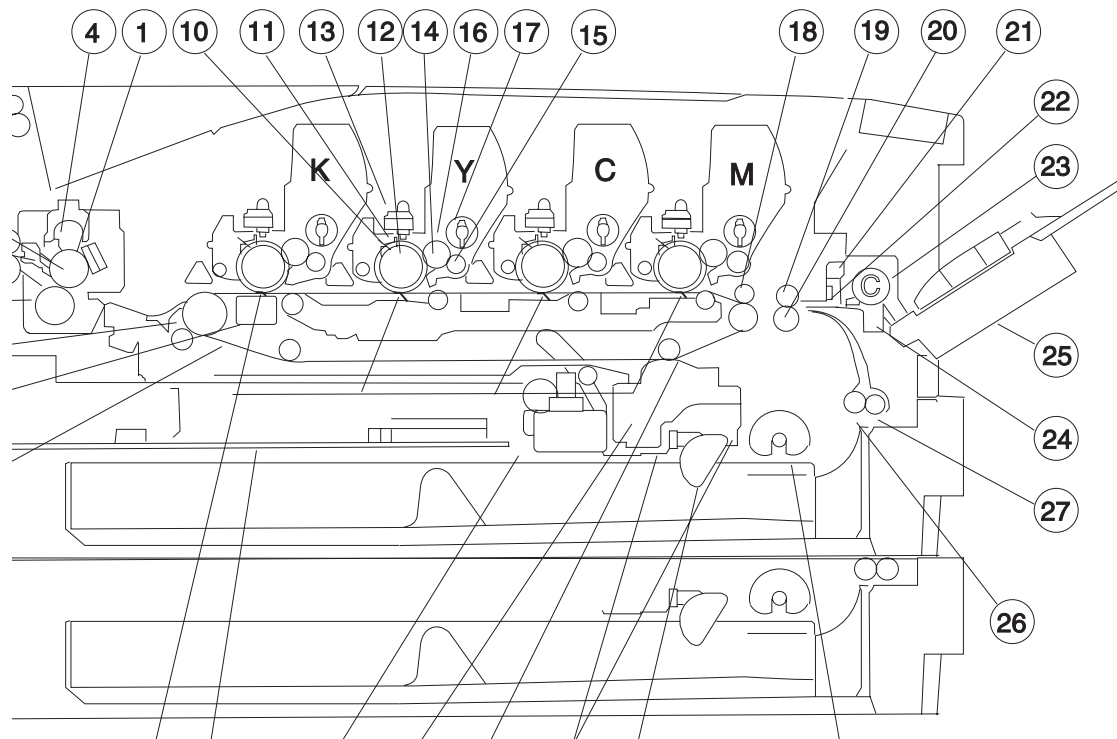
Option	Description
Optional drawer	Support unit and 250-sheet tray; up to two drawers may be installed underneath the printer
250-sheet tray	Replacement tray
Memory	<ul style="list-style-type: none"> • 32MB option (two 16MB memory cards) • 64MB option (two 32MB memory cards) • Maximum installed memory: 128MB
Hard disk option	2.5-inch hard disk to store fonts, forms, job statistics, and spooled jobs
Hard disk adapter ribbon cable	For installing compatible Lexmark or third-party hard disks
MarkNet S internal network adapters	Adapters available to support the following topologies: <ul style="list-style-type: none"> • Ethernet 10BaseT and 10Base2 • Ethernet 10/100BaseTX • Token-Ring (connects the printer to a Token-Ring network via DB9 or RJ45)
Tri-port adapter	Provides support for the following interfaces: <ul style="list-style-type: none"> • Serial RS-232C/RS-422A (which can also be configured to support a class 1 fax modem) • High speed Infrared local connections • LocalTalk network connection
Parallel port adapter	Provides additional parallel port
Infrared adapter	For use with the tri-port adapter; receives infrared beam from an IrDA-compatible workstation
Serial interface adapter	Converts the printer's parallel port to a serial port
Parallel cables	High speed bidirectional 10-foot and 20-foot 1284-B parallel cables; 9.8-foot 1284 A-C parallel cable
Serial cable	50-foot serial cable

Printer Supplies

Supply	Description	Approximate yield
Toner cartridges	Black, magenta, cyan, or yellow cartridges	6,500 pages each (5% coverage)
Photoconductors	<ul style="list-style-type: none">• Black photoconductor (with fuser coating roll)• Cyan, magenta, and yellow photoconductors (packaged together)	13,000 pages each
Transparencies	A4 and letter size	

Cross Section of Printer

1	Fuser Roller	18	Absorption Roller
2	Press Roller	19	Registration Upper Roller (Metal)
3	Heater	20	Registration Roller (Rubber)
4	Fuser Oil Roller	21	Registration Sensor
5	Paper Exit Sensor Lever	22	Registration Sensor Lever
6	Belt Drive Roller	23	MPF Roller
7	Belt Thermistor	24	Feeder Friction Stop Pad
8	Transfer Belt	25	MPF Assembly
9	Transfer Sheet	26	Paper Carrying Roller
10	Cleaning Blade	27	Paper Noise-Cut Roller
11	Charging Roller	28	Pick-up Paper Feed Roller
12	Photoconductor Drum	29	Paper Remaining Detection Lever
13	LED Printhead	30	Paper Remaining Detection Sensors
14	Development Roller	31	Transport Belt Blade
15	Developer Supply Roller	32	Transport Belt Waste Bottle
16	Developer Doctor Blade	33	Belt Unit Drive Motor
17	Developer Agitator	34	Interface RIP Controller Card

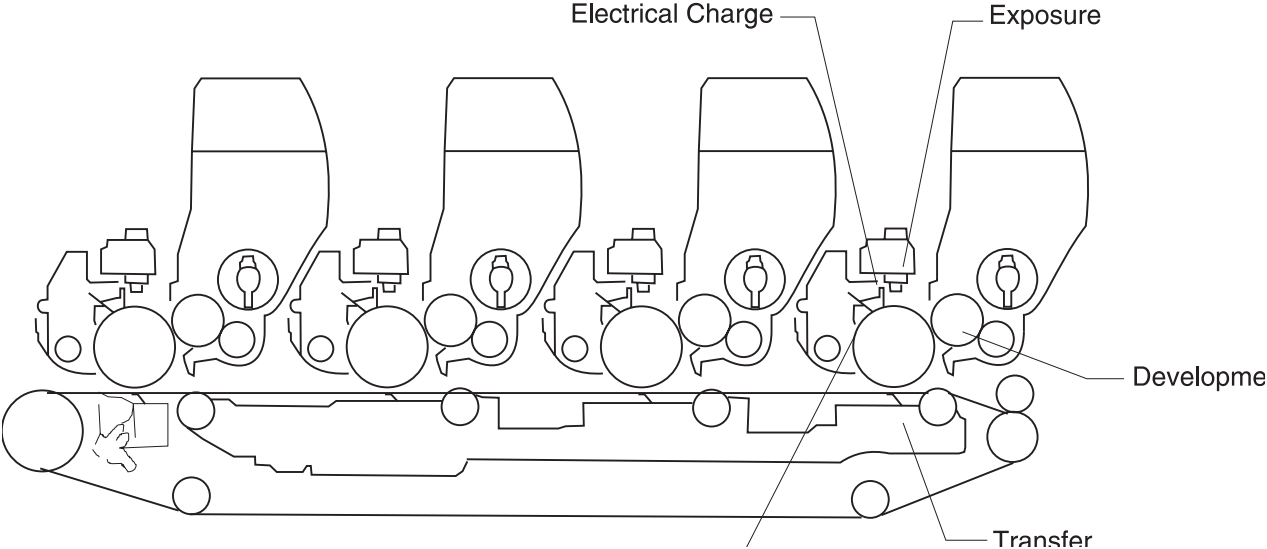


Operational Theory

This printer makes a color image by overlapping each color toner in dot units and fusing them to the paper. The process is divided into two steps. The first step is the electrophotographic process which forms the image on the PC. The second step consists of Feeding, Transferring, Fusing which feeds the paper, transfers the image to the paper and fuses the toner.

Electrophotographic Process

As the photoconductor drum rotates it is electrically charged, the image is exposed to the PC drum, the image is developed with toner, the image is transferred to the paper, and the PC drum is cleaned.

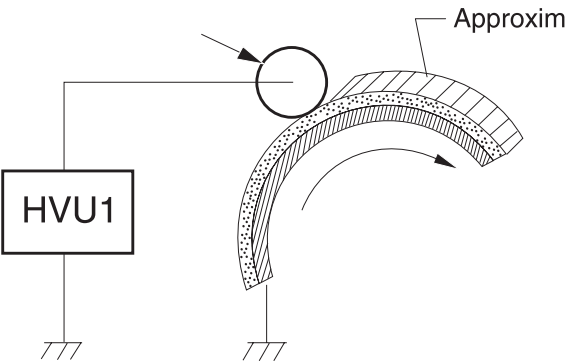


Photoconductor Drum

The photoconductor drum uses aluminum as the base material and a layer of organic photo conductor (OPC) on the surface. A characteristic of this layer is that only the part that the light shines on becomes conductive.

Electrical Charge Unit

The charge roller of the electrical charge unit evenly charges the surface of the drum. The static latent image forms on the photo-sensitive drum.

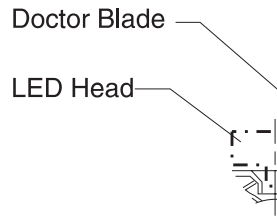


Exposure Assembly

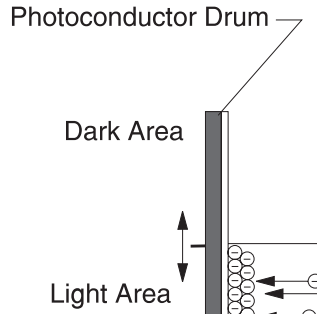
The exposure assembly uses an LED head to form an electrostatic image by emitting light onto the charged drum. The length of time the light is on is contained in non-volatile memory (EEPROM) in the printer controller because the light emitting time of each LED is different in every head. When the LED head is replaced, the light emitting time must be reset. If you replace the LED head, be sure to also replace the EEPROM.

Developer Assembly

The toner agitator stirs the toner in the cartridge. The toner supply roller provides toner to the development roller. The doctor blade is pressed to the development roller which is conductive rubber.

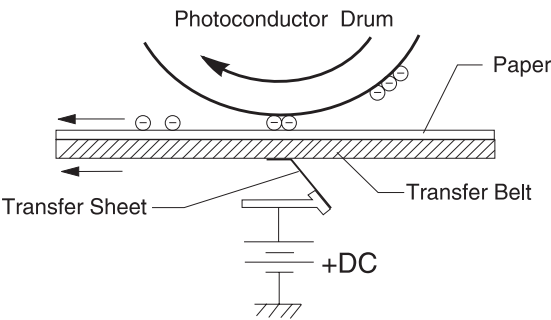


As the development roller rotates, toner feeds between the developer roller and the doctor blade. This friction charges the toner negatively. As the toner comes in contact with the photoconductor drum, it sticks to the electrostatic latent image.



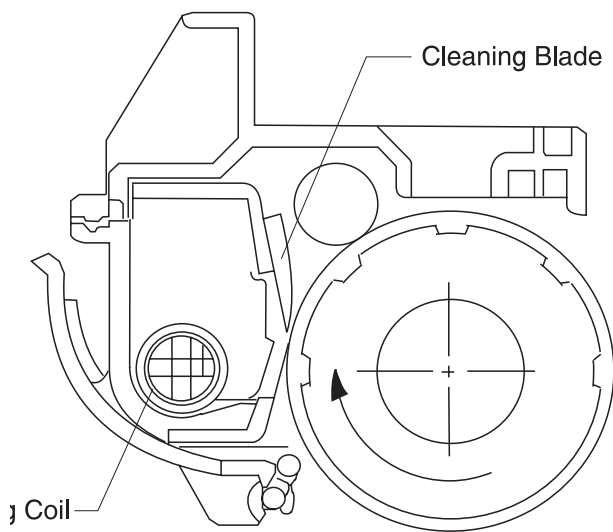
Transfer Assembly

Paper is held to the transfer belt electrostatically. The belt rotates at the same speed as the photoconductor drum. The absorption roller applies a positive charge to the paper. The toner formed on the photoconductor drum transfers to the paper because of the positive charge from the transfer sheet under the transfer belt.

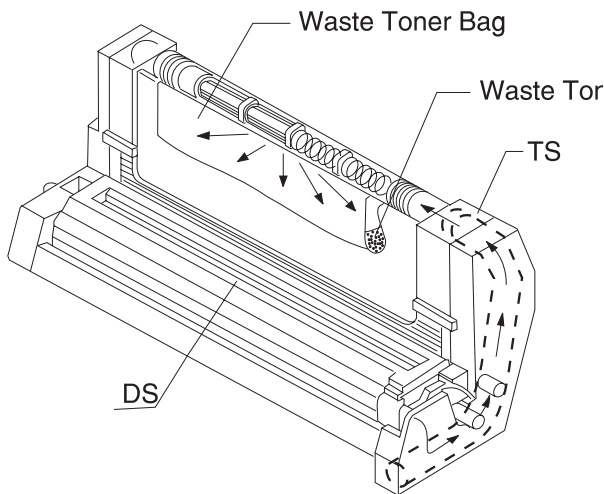


Cleaning Assembly

The cleaning blade scrapes off the remaining toner on the photoconductor drum after the toner image has been transferred to the paper.



A rotating coil in the waste toner conveyance assembly conveys the scraped-off toner to the waste toner bag.



Paper Feed, Transfer, and Fusing

Two drives perform the entire paper feed in this printer, drive 1 and drive 2. There is a separate motor in the second paper feeder to drive the paper feed.

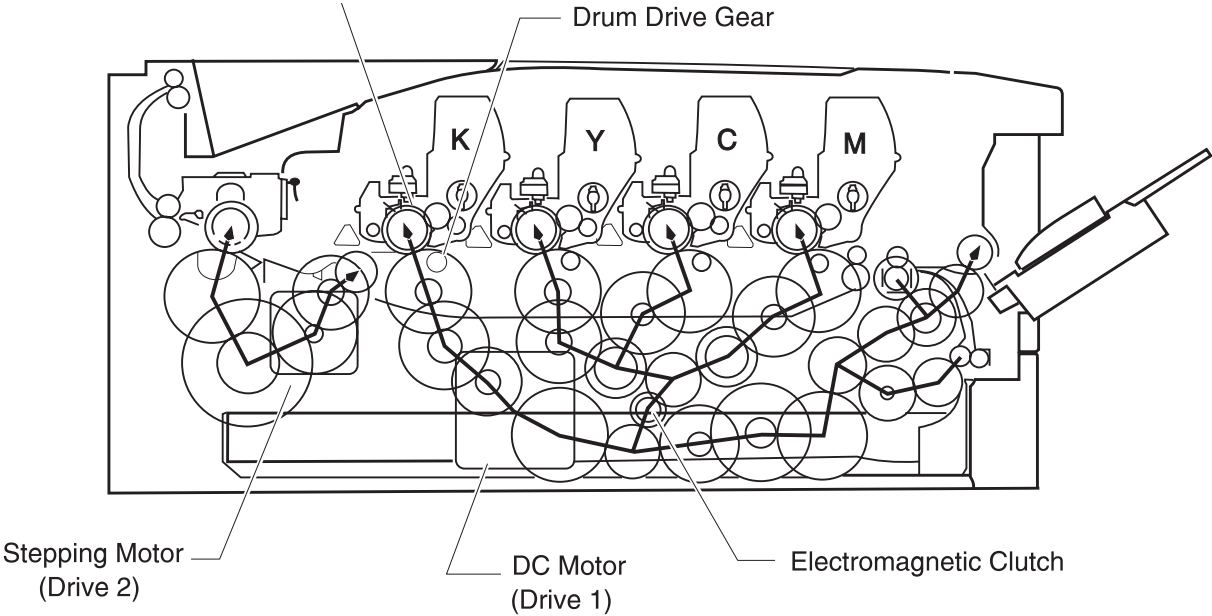
Drive 1

Drive 1 consists of a brush-less dc motor and gear unit. Drive 1 carries paper from the paper feed unit to the registration unit and also drives the electrophotographic process. The motor starts running after it receives an ON signal from the printer controller. The motor then sends a synchronizing signal to the printer controller. When monochrome mode is selected, clutch 2 interrupts the electrophotographic process for color printing.

Do not disassemble the gears in drive 1 because the phase adjustment has been preset. Do not turn the PC when it is out of the machine as the gears will lose timing to work as a matched set.

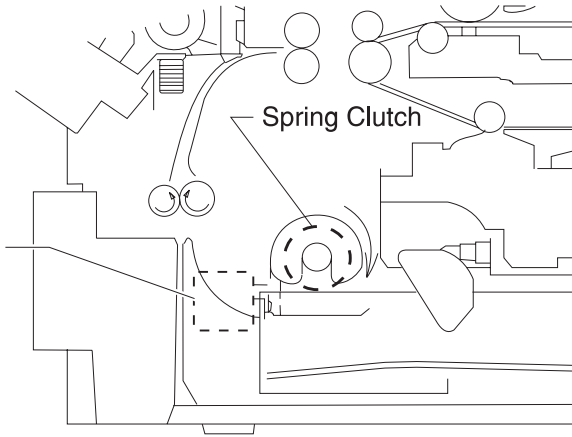
Drive 2

Drive 2 consists of a hybrid stepping motor and gear assembly. It drives the fuser and exit assembly. There is no synchronizing signal for this motor.



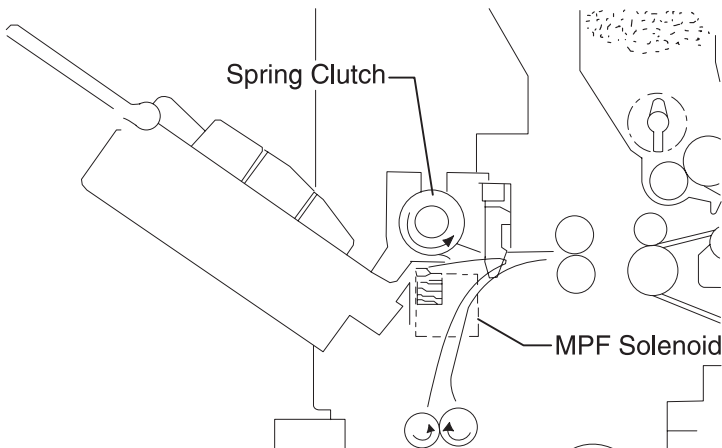
Paper Cassette Feeder

The printer controller sends a signal to the paper feed solenoid which turns on and drives the paper feed roller connected to drive 1 by a spring clutch. The paper in the cassette is picked one sheet at a time.



Multipurpose Feeder

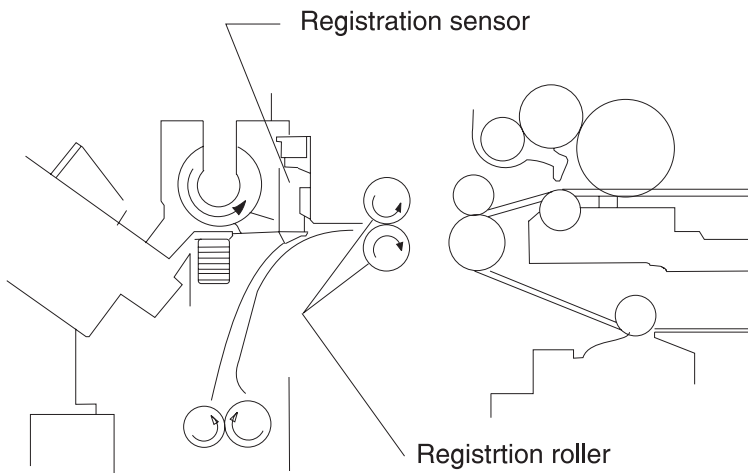
After it receives a signal from the printer controller, the MPF solenoid turns on and drives the MPF roller connected to drive 1 by a spring clutch. The paper in the multipurpose feeder is picked up one sheet at a time.



Registration

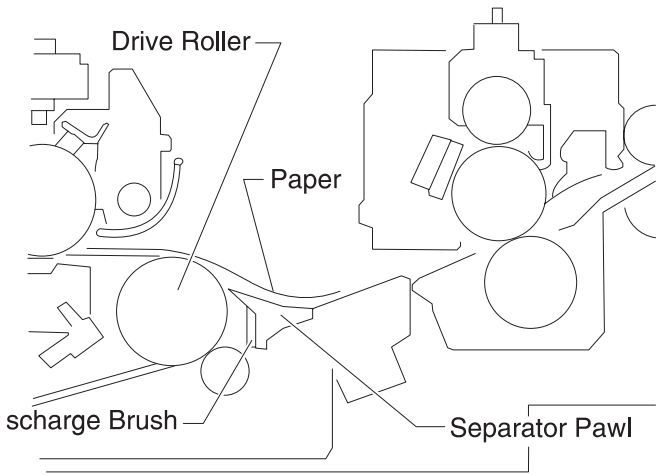
Paper feed stops temporarily at the registration roller to make the top edge of the paper parallel to the photosensitive drum and to adjust feed timing with the toner image on the photosensitive drum. In parallel to the photosensitive drum, the rubber registration roller presses against the metal registration upper roller. The registration clutch controls the registration roller.

The registration sensor (photo-interrupter) detects paper as it feeds through, senses paper jams and stops paper feed, and also starts the electrophotographic process.



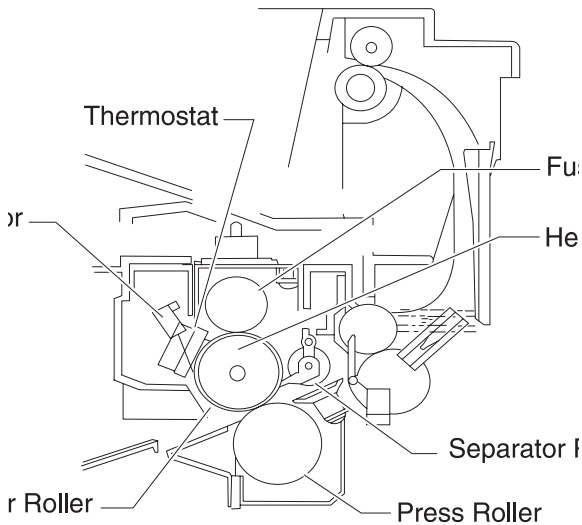
Separation Assembly

The paper separates from the transfer belt at the drive roller section of the belt assembly. The electric charge on the paper is then eliminated by the discharge brush.



Fuser Assembly

The press roller presses the paper with toner against the heated fuser roller which fuses and fixes the toner to the paper. The separator pawl separates the paper from the fuser roller.



Exit Unit

The fused paper is ejected from the printer.

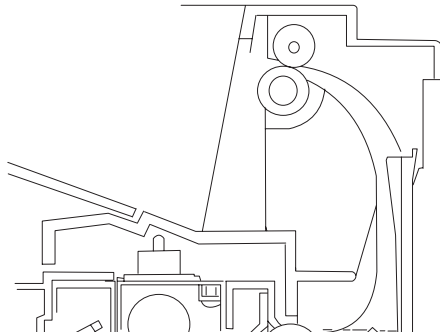
The exit sensor checks the state of the paper, while the flap performs the change-over of paper exit direction (face down, face up).

As the paper leaves the fuser it pushes down the exit link which turns on the exit sensor on the printer controller. The printer controller detects a paper jam if the exit sensor is not turned on within the prescribed time or when it continues to be turned on past the prescribed time.

Face down/face up switching for paper exit is performed by switching the flap lever (manual) or by command from the interface controller (automatic).

5050-001

When automatic switching is set (default), the face up/face down (FUD) solenoid is turned on by a signal from the printer controller and the spring clutch transfers power from the exit roller to the flap. The flap is then switched by a cam mechanism on the exit roller.



Transfer Belt

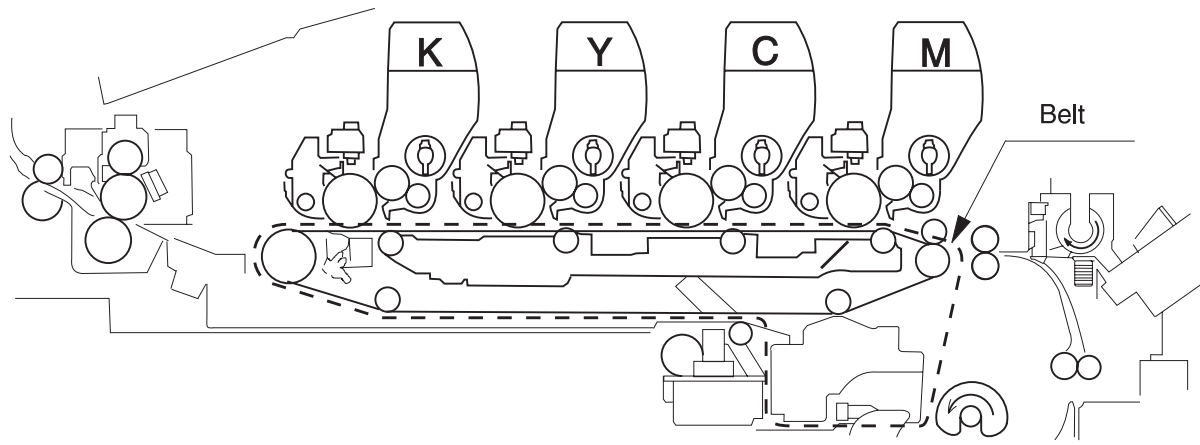
The positive-charged absorption roller charges the paper as it enters the transfer belt. The belt rotates at the same speed as the photoconductor drum. Toner is transferred to the paper in the order of magenta, cyan, yellow, and black. As the paper passes each photoconductor drum, the static from the transfer belt pulls toner away from the drum. A little waste toner sticks to the transfer belt as it passes the drum. This toner is scraped off and collected in the transfer belt waste toner bottle.

Temperature changes can affect the registration of colors. To compensate for these changes the temperature of the belt drive roller is monitored and the timing of the LED head writing is adjusted accordingly.

The transfer belt unit should be replaced approximately every 100,000 pages. When you replace a transfer belt, you must set the thermistor resistance settings for temperature control. You must also make the print adjustments.

There are two printhead adjustments; the margin adjustment and the color image registration adjustment. Make these adjustments in the service mode.

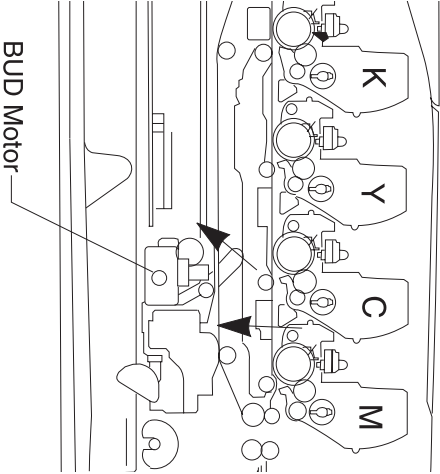
The length of the transfer belt is about 760 mm, and the width is about 320 mm. The belt is conductive and has no seams. Be careful not to scratch the belt or leave fingerprints on it when you replace the assembly. If toner remains on the belt in a scratch or on a finger print, it will create dirty spots on the back side of the paper. If you do find a stain on the belt, wipe it off with a dry cloth or alcohol.



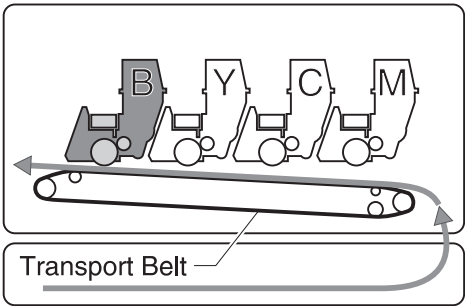
Belt Up or Down (BUD)

During monochrome printing, only the black transfer and development functions operate. An electromagnetic clutch in drive 1 operates to pull the transfer belt down as the paper passes under the color PC drums. A cam on the changing shaft moves the belt up and down through gears from the belt unit drive motor on the unit frame.

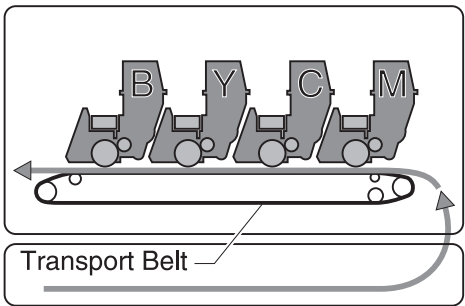
The position of the belt is detected by a photo sensor from the cam position.



Paper Path for Mono Pages



Paper Path for Color Pages



Second Paper Feed

Up to two additional paper feeders can be used under this printer. The operation of the optional paper feeder is the same as the base printer cassette feeder except the optional paper feeder has its own motor to drive paper to the printer paper path.

Print Modes

The 3 print modes for this printer are:

1. Normal mode for normal printing.
2. Overhead projector transparency mode.
3. Post card mode

The modes are switched by commands from the interface controller.

Overhead Projector (OHP) Mode

This mode improves the color print on transparencies. If the color image on a transparency is not smooth, light will not penetrate it and it will appear black when projected.

Processing speed is reduced 75% in OHP mode. The fuser temperature is set at 20 degrees higher than normal printing. This is to improve the smoothness of the toner image by ensuring the toner melts enough in the fuser.

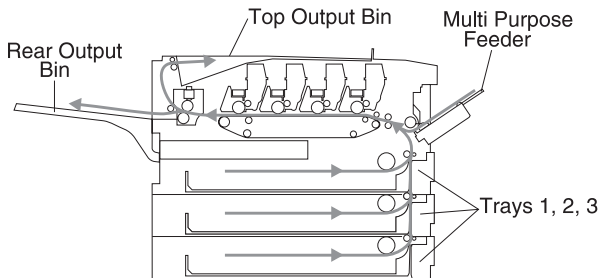
When you load transparencies in the multipurpose feeder, the printer recognizes this type of media you have loaded and automatically makes these adjustments. However, waiting for the printer to sense the presence of transparencies may further delay the job. We recommend always selecting the correct Paper Type before sending a job to print.

Post Card Mode

In this mode the fuser temperature is also set 20 degrees higher and the setting of transfer voltage switches according to the humidity.

Clearing Paper Jams

When a jam occurs, the **Paper Jam** message on the operator panel display indicates where to find the jammed paper. You must clear the paper from this area, but you must also *clear all paper from the entire paper path*.



After you have cleared all the paper, close the printer's top cover and press **Go** to clear the message. If you feel you have cleared all the paper from the paper path, but the paper jam message is still displayed, open and close the top cover and press **Go** again.

The Jam Recovery setting in the Setup Menu determines whether the printer reprints the jammed page.

When clearing a jam, open the top cover *completely* and clear all paper from the entire paper path. Make sure you also clear paper jammed in the paper tray. Close the top cover and press **Go**.

The following table lists the paper jam messages.

Message	To locate the jam...
200 Paper Jam	Open Top Cover
201 Paper Jam	Open Top Cover
202 Paper Jam	Open Top Cover
24x Paper Jam	Check Tray x
250 Paper Jam	Check MP Feeder

Printing From the Multipurpose Feeder

Because the multipurpose feeder does not have auto size sensing, you must select the correct paper size and type from the printer operator panel or from MarkVision before you send a job to print. Paper must be loaded before any paper pickup attempt is made.

2. Diagnostic Information

The diagnostic information in this chapter leads you to the failing part. Before you replace an entire assembly, determine if just the defective part is available in the parts catalog. Use the error code tables, symptom table, service checks and the diagnostic aids chapter to determine the symptom and repair the failure. You may find that the removal procedures in the Repair Information chapter will help you identify parts. After you complete the repair, perform the appropriate tests to verify the repair.

If an error is displayed, locate it in the following Service Error Message Table, Status Messages Table, or Attendance Messages Table and take the appropriate action.

If an error message appears while you are working on the printer, go to the error message table and take the indicated action.

Part Numbers

Some of the message tables and service checks list the part number of the part you are asked to replace.

Adjustments and Procedures Following Parts Replacement

Note: When trouble shooting, or prior to making any adjustment to print quality, always be sure of the following:

- The printer is installed on a level rigid surface.
- The OPCs are never exchanged. Do not exchange a black OPC for a color OPC, as they will have different surface phase counts.
- Radar Page is always used when adjusting print registration.

Whenever you replace any of the following parts be sure to perform the required adjustments or procedures. The adjustments are in the Repair Information and Diagnostic Aids chapters.

Printer Controller Board/Printer Control EEPROM (U107)

If you replace the printer controller board, remove EEPROM (U/107) and install it on the new board. Also check the printhead adjustment.

If you change the EEPROM, the following items must be checked and adjusted in the service mode.

- LED Head Light Quantity
- Belt Thermistor Rank
- Margins (Top K and C)
- Printhead Adjustments (X, Y, and Theta)
- OHP Sheet Sensor
- Counters

RIP Controller Card

If you replace the RIP controller card be sure to move the solid state drive, memory, and option cards from the old card to the new one.

Transfer Belt

- Transfer belt tracking
- Transfer belt thermistor rank
- Printhead adjustments (X, Y, and Theta)
- Margins (Top K and C)

LED Printhead Controller Board or LED Printhead

- LED printhead light quantity
- Printhead adjustments (X, Y, and Theta)
- Margins

Start

Initial Check

Before you start troubleshooting, check the following:

Installation Environment

- The power supply line voltage is plus or minus 10% of the rated line voltage.
- The machine is securely installed on a level surface in a well-ventilated place.
- The room temperature is between 10 and 32°C (50 and 90°F) and the relative humidity between 20 and 80%.
- Avoid sites generating ammonia gas, high temperature or high humidity (near water faucets, kettles, humidifiers), cold spaces, near open flames, and dusty areas.
- Avoid sites exposed to direct sunlight.

Print Paper Checks

- Be sure the recommended paper for this printer is being used.
- Check the paper for dampness. Make a trial print with paper from a newly opened package, and check the result.

Printer Messages

The printer displays three types of messages: service messages, status messages, and attendance messages. *Service messages* indicate a problem that requires a service technician. *Status messages* provide information about the current state of the printer. They require no action. *Attendance messages* alert the operator to printer problems that require operator intervention.

Service Error Message Table

Error	Message or Symptom	Action
900	<i>Software Error</i>	Unrecoverable software error. Refer to the operator manual.
910	<i>Motor Error</i> DC Drive 1 Motor Failure	<ol style="list-style-type: none"> 1. Be sure motor connector CN501 is connected properly to the PC motor drive (1). 2. Be sure printer controller board connector CN105 is connected properly. 3. Be sure there is no abnormal load on the toner or drum unit. 4. Replace the toner unit or the drum unit if necessary. 5. Replace the DC motor (drive 1) (11G0256). 6. If you still have a problem, go to the “Drive 1 DC Motor Service Check” on page 2-28.
918	<i>Fan Error</i> Main Body Fan Alarm	<ol style="list-style-type: none"> 1. Be sure motor connector CN115 is connected properly on the printer controller board (11G0323). 2. Replace the fan if necessary. 3. If you still have a problem, replace the printer controller board.
919	<i>Fan Error</i> Power Supply Fan Alarm	<ol style="list-style-type: none"> 1. Be sure motor connector CN116 is connected properly on the printer controller board. 2. Replace the fan (11G0322). 3. Replace the printer controller board (11G0324).

Error	Message or Symptom	Action
920	<i>Fuser Error</i> Fuser Heater Trouble	<ol style="list-style-type: none"> 1. Remove the fuser heater cable from the power supply (CN602) and check it for continuity. If there is no continuity in the heater wire, replace the fuser heater and the fuser oil coating roller. If there is no continuity in the thermostat, or it does not equal 240K Ohms at 25 degrees C (room temperature), replace the fuser thermostat and the fuser oil coating roller. If the thermal fuse is open, replace it. 2. If there is continuity, and the thermostat is good, replace the power supply. If this doesn't fix the problem, replace the printer controller board.
923	<i>Fuser Error</i> Fuser Thermistor Open	<ol style="list-style-type: none"> 1. Be sure thermistor connector CN119 is connected properly to the printer controller board. 2. Short pins 1 and 2 of connector CN119 and turn the power on. 3. If an error displays, replace the printer controller board. If an error does not display, replace the fuser thermistor and the fuser oil coating roller.
93X	<ul style="list-style-type: none"> • 930 = Yellow • 931 = Magenta • 932 = Cyan • 933 = Black Printhead Error	<ol style="list-style-type: none"> 1. Be sure all cables to the printhead controller board are correctly seated. 2. Replace the appropriate color printhead and printhead EEPROM. 3. If you still have the problem, replace the printhead controller board (11G0555). 4. Do the printhead adjustments. See Chapter 3, Diagnostic Aids.
939	<i>COMM Error</i> Printer Controller Board	Replace the printer controller board (11G0324).
941	<i>Code ROM Error</i>	Replace the EEPROM code controller, solid state drive (J10) on the RIP control card.

Error	Message or Symptom	Action
942	<i>Font ROM Error</i>	Replace the EEPROM code controller, solid state drive (J10) (11G0607) on the RIP control card.
943	<i>RIP Controller Board, Font Error</i>	The font and RIP controller card (11G0604) are incompatible.
944 945 946 947 950 953 954	<i>RIP Controller Card Error</i>	Replace the RIP controller card (11G0604). Be sure to move the solid state drive, memory, and option cards from the old card to the new one.
955	<i>NVRAM Failure</i> RIP Controller Card	Replace the RIP controller card (11G0604).
960	<i>Memory Error DRAM</i>	Replace memory SIMM J1 or J3 on the RIP controller card. These must be in a set of 2, and must be 50 NS EDO SIMMS.
961	<i>Memory Error Option DRAM</i>	Replace memory SIMM J4 or J5 on the RIP controller card. These must be in a set of two, and must be 50 NS EDO SIMMS.
964	<i>Emulation Error</i> Download emulation CRC failure	Contact Technical Support for assistance.
965	<i>Emulation Error</i> Download emulation outdated. Time stamps indicate the download emulation and RIP code are incompatible.	Contact Technical Support for assistance.
97X	<i>INA Failure</i>	Be sure the RIP controller riser card and the INA are properly installed. Replace the INA. If you still have a problem, replace the RIP controller card (11G0604).

Error	Message or Symptom	Action
977	<i>Network Card Error</i>	<p>The system processor has detected an INA is installed but cannot communicate with it. The X after the card indicates which one has the problem. Network card 1 always refers to the INA in the bottom slot and Network card 2 always refers to the INA in the top slot.</p> <p>Be sure the RIP controller card riser card is properly installed.</p>
980	<i>Switch Error</i> Transfer Belt or Belt Up/Down (BUD) Sensor Problem	<ol style="list-style-type: none"> 1. Be sure connector CN106 is connected to the printer controller board. 2. Be sure the BUD sensor actuator is working properly. 3. Clean the BUD sensor. 4. Firmly connect the connector. 5. Do a sensor test. Check for approximately +5 V on pin 2 to GND of connector CN106 as you actuate the flag in the sensor. Replace the actuator or sensor if necessary. 6. Replace the BUD motor unit (11G0251). 7. If you still have the problem, replace the printer controller board (11G0324).
981	<i>Switch Error</i> Abnormal FU/FD Switching	<ol style="list-style-type: none"> 1. Be sure connector CN133 is properly connected to the controller board. 2. Be sure the FUD sensor actuator is working properly. 3. Do a sensor test. Check for approximately +5 V on connector CN133, pin 2 to GND as you actuate the flag in the sensor. 4. Replace the FUD actuator sensor. If the sensor is good, go to the "Paper Exit FU/FD Service Check" on page 2-34.

Error	Message or Symptom	Action
983	<i>Gear Sensor</i> Abnormal Gear Sensor (Color/Black)	<ol style="list-style-type: none"> 1. Be sure CN123 and CN126 are properly connected to the printer controller board. 2. Clean the gear/drum sensor. 3. Replace the drum drive gear sensor 11G0581). <p>If you still have the problem, go to the “Drive 1 DC Motor Service Check” on page 2-28.</p>
984	<i>Gear Sensor</i> Abnormal Drum Gear Sensor (Yellow/Black)	<ol style="list-style-type: none"> 1. Be sure CN125 and CN127 are properly connected to the printer controller board. 2. Clean the gear/drum sensor. 3. Replace the drum gear sensor (11G0581). 4. If you still have the problem, go to the “Drive 1 DC Motor Service Check” on page 2-28.
985	<i>Thermistor Error</i> Belt Thermistor Open	<ol style="list-style-type: none"> 1. Be sure the thermistor connector under the transfer guide is properly connected. Also be sure CN107 is properly connected to the printer controller board. 2. Unplug the connector and check for 10K ohms conductance of the belt thermistor. 3. Replace the belt unit (11G0202). 4. If you still have the problem, replace the printer controller board (11G0324).
986	<i>OHP Sensor Error</i>	<ol style="list-style-type: none"> 1. Be sure connector CN132 is properly connected to the printer controller board. 2. Replace the OHP sensor. 3. If you still have a problem, replace printer controller EEPROM U107. 4. If you still have a problem, replace the printer controller board.

Error	<i>Message or Symptom</i>	Action
992	<i>Engine Error</i> Abnormal Humidity Sensor	<ol style="list-style-type: none"> 1. Be sure connector CN121 is properly connected to the printer controller board. Also be sure the connector on the humidity sensor card is plugged in correctly. 2. Replace the humidity sensor (11G0571). 3. If you still have the problem, replace the printer controller board.
993	<i>Engine ROM/RAM</i> Printer Controller Error	<ol style="list-style-type: none"> 1. Try to recover by turning power off and on. 2. Replace the U107 EEPROM (11G0325) on the printer controller board. 3. If you still have the problem, replace the printer controller board (11G0324). 4. If you still have the problem, replace the RIP controller card (11G0604).

Status Messages

Message	Meaning
Ready	The printer is ready to receive and process data.
Power Saver	<p>When your printer is in power saver mode, the Power Saver message replaces the Ready message on the display. When Power Saver is displayed, your printer is ready to receive and process data.</p> <p>When Power Saver is displayed, you can:</p> <ul style="list-style-type: none"> • Press Go to quick start the printer. • Press Menu> or <Menu to enter the menus.
Engine Warming	The printer is warming the fuser to prepare for printing.
Performing Self Test	The printer is running the normal series of start-up tests it performs after it is turned on.
Busy	<p>The printer is processing or printing data. (The light on the operator panel flashes while this message is displayed.) If a job name has been defined, the name replaces the Busy message on the display.</p> <p>To cancel the print job, press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.</p>
Waiting	<p>The printer has received a page of data to print but is waiting for an End of Job or Form Feed command or for additional data.</p> <ul style="list-style-type: none"> • To print the contents of the print buffer, press Go. • To cancel the print job, press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.
Not Ready	<p>The printer is not ready to receive or process data, because someone selected Stop when another message was displayed.</p> <ul style="list-style-type: none"> • Press Go to take the printer out of the Not Ready state. • To cancel the print job, press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.

Message	Meaning
Ready Hex	<p>Hex Trace diagnostic mode is active, and the printer is ready to receive data. Use Hex Trace to isolate the source of a print job problem. With Hex Trace selected, all data sent to the printer is printed in hexadecimal and character representation. Control code strings are printed, not executed.</p> <p>To exit Hex Trace mode, turn the printer off or reset the printer. To reset the printer, press Menu> or <Menu. The Job Menu is displayed and Reset Printer appears on the second line. Press Select.</p>
Locking Menus	Someone has locked the menus. While the menus are locked, users cannot change the printer default settings from the operator panel.
Unlocking Menus	Someone has unlocked the menus. Users can now change the printer default settings from the operator panel.
Menus Disabled	Menus have been locked, or disabled. To unlock, press the Stop and Go buttons as you POR the machine.
Supplies	At least one of the printer supplies needs attention. You may have a paper tray that is low on paper or a toner cartridge or photoconductor that needs replacing. Press Menu> or <Menu to open the Supplies Menu.
Maintenance	It's time to replace the fuser, transport belt, and roller set. See the Preventive Maintenance chapter for more information.
Parallel	The standard parallel interface is the active communication link.
Parallel x	The specified parallel interface is the active communication link.
Serial x	The specified serial interface is the active communication link.
Network x	The specified network interface is the active communication link.
LocalTalk x	The LocalTalk interface is the active communication link.
Infrared x	The infrared interface is the active communication link.
Fax	The Fax interface is the active communication link.

Message	Meaning
Cancelling Job	The printer is processing a request to cancel the print job.
Resetting the Printer	The printer is deleting any print jobs in progress and restoring all print settings to the user defaults.
Flushing Buffer	The printer is flushing corrupted print data and discarding the current print job.
Printing Menu Settings	<p>A list of the user default settings and the installed options is printing.</p> <p>To cancel the print job, press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.</p>
Printing Font List	<p>A list of available fonts for the selected printer language is printing.</p> <p>To cancel the print job, press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.</p>
Printing Directory List	<p>A list of all the files stored in flash memory or on the hard disk is printing.</p> <p>To cancel the print job, press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.</p>
Printing Job Accounting Stat	A report of the accumulated statistics for the most recent print jobs is printing.
Clearing Job Accounting Stat	The printer is deleting all job statistics stored on the optional disk.
Restoring Factory Defaults	The printer is restoring factory defaults.
Formatting Flash	The printer is formatting the flash memory. Do not turn the printer off while this message is displayed.
Programming Flash	The printer is storing resources in flash memory. Do not turn the printer off while this message is displayed.
Formatting Disk	The printer is formatting the hard disk. Do not turn the printer off while this message is displayed.

Message	Meaning
Programming Disk	The printer is storing resources on the hard disk. Do not turn the printer off while this message is displayed.
Network Card Busy	The network adapter is being reset. The Network x Setup menu is not available while this message is displayed.

Attendance Messages

Message	Action
Close Top Covers	<p>Close the printer's top cover and rear cover. If the message will not reset, check the two actuating rods contacting the power supply interlock switch.</p> <p>Activate the interlock switch with the power on and replace the power supply (11G0305 115 V, 11G0541 230 V) if the message does not reset.</p>
Insert Tray x	<p>Insert the tray indicated (tray 1, 2, or 3). Go to the "Paper Tray Missing/Size Service Check" on page 2-35.</p>
Change <i>tray</i>	<p>The printer is requesting a different size or type media than what it detects is in the identified tray (tray 1, 2, 3, or the multipurpose feeder). The message displays either the custom media name defined using the MarkVision utility, the media size, or the media size and type it is looking for.</p> <p>To clear the message:</p> <ul style="list-style-type: none"> • If the correct paper type is loaded in the tray (but the Paper Type setting was not changed from the operator panel), press Go to continue printing. • Press Select to ignore the request and print on the media already installed in the tray. • Load media of the requested size and type in the tray indicated. • If you're printing on larger paper, make sure the Size Detection setting is correct. • Cancel the print job. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.

Message	Action
Load <i>tray</i>	<p>The printer is trying to feed paper from a source it detects is empty (tray 1, 2, 3, or the multipurpose feeder). The message displays either the custom media name defined using the MarkVision utility, the media size, or the media size and type it is looking for.</p> <p>To clear the message:</p> <ul style="list-style-type: none"> • Load media of the requested size and type in the tray indicated. • If you're printing on larger paper, make sure the Size Detection setting is correct. • Cancel the print job. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select. <p>Go to the "Paper Low/Empty Tray 1, 2, 3 Service Check" on page 2-35.</p>
Load Manual	<ul style="list-style-type: none"> • You have sent a request for a manual feed job to the printer, and the printer is ready for you to insert a single sheet or envelope into the multipurpose feeder. The message displays either the custom media name defined using the MarkVision utility, the media size, or the media size and type it is looking for. <p>To clear the message:</p> <ul style="list-style-type: none"> • Load media of the requested size and type in the multipurpose feeder. • Press Select or Go to ignore the manual feed request and print on media already installed in one of the paper sources. If the printer finds a tray that has media of the correct size and type, it feeds media from that tray. If the printer cannot find a tray with the correct media size and type, it prints on whatever media is installed in the default paper source. • Cancel the print job. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.
Remove Paper Top Output	<p>The top output bin is full. Remove the stack of paper and press Go.</p> <p>Go to the "Remove Paper Sensor Service Check" on page 2-36.</p>

Message	Action
Print Jobs on Disk?	Jobs that were spooled to the optional hard disk before the printer was last turned off have not yet printed. Press Go to print the jobs. Press Return or Stop to delete the jobs from the disk without printing them.
Files Will be Lost. Go/Stop?	You have changed the Job Buffer Size setting from the operator panel, and the printer must reformat the hard disk to activate the change. If you press Go , all files currently stored on the disk will be deleted. Press Return or Stop to cancel this operation.
Invalid Font Data	The printer has detected an incompatibility between the font data and the firmware. You must download compatible font data to flash memory before the printer can return to the ready state.
Invalid Network x Code	The code in the specified network adapter has not been programmed or is invalid. You must download valid code to the network adapter before the printer can return to the ready state.
30 <i>color</i> Print Unit Missing	The specified print unit (Cyan, Magenta, Yellow, or Black) is not installed in the printer. Insert the print unit and close the top cover to clear the message.
33 Tray x Configuration Error	The printer has detected a tray with the rear paper guide in the wrong position. When loading A4 and letter size paper, make sure you place it in the tray with the long-edge of the sheet next to the front of the tray. Position the rear paper guide correctly for the paper size, then insert the tray in the printer.
35 Res Save Off Deficient Memory	<p>The printer lacks the memory needed to enable the Resource Save function. This message usually indicates that too much memory is allocated for one or more of the printer link buffers.</p> <p>To disable Resource Save and continue printing, press Go.</p> <p>To enable Resource Save after you get this message:</p> <ul style="list-style-type: none"> • Set the link buffer for each interface to Auto, then exit the menus to activate the link buffer changes. When the Ready message is displayed, enable Resource Save from the Setup Menu. • Or, install additional printer memory.

Message	Action
37 Insufficient Collation Area	<p>The printer memory (or optional hard disk, if installed) does not have the space necessary to collate the print job.</p> <ul style="list-style-type: none"> • Press Go to print the portion of the job already stored and begin collating the rest of the job. • Cancel the print job. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select.
38 Memory Full	<p>The printer is processing the job, but the memory used to store pages is full.</p> <ul style="list-style-type: none"> • Press Go to clear the message and continue printing. Some data may not print or may not print correctly. • Cancel the print job. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select. <p>To reduce the complexity of the job:</p> <ul style="list-style-type: none"> • Reduce the number of graphics or images on a page. • Delete unnecessary downloaded fonts or macros. • Change the Print Quality setting. • Install additional printer memory to avoid future Memory Full errors.
39 Complex Page	<p>The text, graphics, and print information on the page require more memory to print than what you have installed in your printer.</p> <ul style="list-style-type: none"> • Press Go to clear the message and continue printing. Some data may not print or may not print correctly. • Cancel the print job. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Cancel Job appears on the second line. Press Select. <p>To avoid another Complex Page error:</p> <ul style="list-style-type: none"> • Set Page Protect On from the Setup Menu and resend the job. • Reduce the complexity of the page by using fewer fonts, macros, and graphics. • Install additional printer memory.

Message	Action
52 Flash Full	<p>There is not enough space available to hold the resources you want to store in flash memory.</p> <ul style="list-style-type: none"> • Press Go to clear the message and continue processing. Downloaded fonts and macros not previously stored in flash memory or disk are deleted. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.
53 Unformatted Flash	<p>The flash memory installed in your printer has not been formatted. You must format the flash memory before downloading resources.</p> <p>Press Go to clear the message. To format flash memory, select Format Flash from the Tests Menu.</p>
54 Parallel Error	<p>The printer has detected a protocol error on the standard parallel interface. Check the cable connection between the printer and the computer, and make sure the cable is not defective.</p> <ul style="list-style-type: none"> • Press Go to clear the message and continue printing. The job may not print correctly. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.
54 Parallel Option x Error	<p>The printer has detected a protocol error on the specified parallel interface. Check the cable connection between the printer and the computer, and make sure the cable is not defective.</p> <ul style="list-style-type: none"> • Press Go to clear the message and continue printing. The job may not print correctly. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.

Message	Action
54 Serial Option x Error	<p>The printer has detected a protocol error on the specified serial interface. Make sure the serial interface parameters are set up correctly and you are using an appropriate serial cable.</p> <ul style="list-style-type: none"> • Press Go to clear the message and continue printing. The job may not print correctly. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.
54 Std Par ENA Connection Lost	<p>An external network adapter (ENA) that was once connected to the standard parallel port is no longer responding. The printer only recognizes the missing connection when the printer power is first turned on.</p> <ul style="list-style-type: none"> • Make sure the cable connecting the ENA and the printer is securely attached. Turn the printer off and then on again to see if the printer recognizes the connection. • Press Go to clear the message. The printer erases any reference to the ENA and then resets.
54 Par x ENA Connection Lost	<p>An external network adapter (ENA) that was once connected to the specified parallel port is no longer responding. The printer only recognizes the missing connection when the printer power is first turned on.</p> <ul style="list-style-type: none"> • Make sure the cable connecting the ENA and the printer is securely attached. Turn the printer off and then on again to see if the printer recognizes the connection. • Press Go to clear the message. The printer erases any reference to the ENA and then resets.
56 Std Parallel Port Disabled	<p>Data was sent to the standard parallel port, but the port has been disabled from the Parallel Buffer menu item.</p> <ul style="list-style-type: none"> • Press Go to clear the message. The printer discards the data sent to the parallel port. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.

Message	Action
56 Parallel Port x Disabled	<p>Data was sent to the specified parallel port, but the port has been disabled from the Parallel Buffer menu item.</p> <ul style="list-style-type: none"> • Press Go to clear the message. The printer discards the data sent to the parallel port. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.
56 Serial x Port Disabled	<p>Data was sent to the specified serial port, but the port has been disabled from the Serial Buffer menu item.</p> <ul style="list-style-type: none"> • Press Go to clear the message. The printer discards the data sent to the serial port. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.
61 Defective Disk	<p>The hard disk installed in your printer is defective. Press Go to clear the message and continue printing. You must install a different disk before you can perform any disk functions.</p>
62 Disk Full	<p>There is not enough space available to hold the resources you want to store on disk.</p> <ul style="list-style-type: none"> • Press Go to clear the message and continue processing. Downloaded fonts and macros not previously stored in flash memory or disk are deleted. • Reset the printer. Press Menu> or <Menu. The Job Menu is displayed. Press Menu> or <Menu until Reset Printer appears on the second line. Press Select.
63 Unformatted Disk	<p>The hard disk installed in your printer has not been formatted. You must format the disk before you can download resources to it.</p> <p>Press Go to clear the message. If the error message remains, the disk may be defective and need replacing.</p> <p>To format the disk, select Format Disk from the Tests Menu.</p>

Message	Action
70–79 Network	Reserved for messages relating to the optional internal network adapter (INA) installed in your printer. For more information, refer to the online documentation included on the printer CD under “Network Printing.”
80 Scheduled Maintenance	<p>The printer requires replacement of routine maintenance items, such as the fuser, transport belt, and roller set to maintain top performance and avoid print quality and paper feed problems. These items are in a maintenance kit available from Lexmark. You must have a trained service technician install the maintenance kit.</p> <p>The message appears when the printer maintenance counter determines 100,000 pages have printed. Failure to replace the maintenance kit items will not interrupt printer operation, but can result in unsatisfactory printer performance.</p>
84 Black PC Life Warning	<p>This message alerts you that you can print approximately 100 pages before the Black PC Drum Exhausted message appears. If you do not have a black photoconductor kit, order it now.</p> <p>Press Go to clear the message and continue printing. The Supplies status message is then displayed with the Ready, Power Saver, Busy and Waiting messages—unless another status message of higher priority is posted—until you replace the photoconductor.</p> <p>If this message does not reset after replacing all photoconductor units, clean or replace the drum sensor (11G0550, black) in the right sub frame.</p>

Message	Action
84 Color PC Life Warning	<p>This message alerts you that you can print approximately 100 pages before the Color PC Drums Exhausted message appears. If you do not have new color photoconductors, order them now.</p> <p>The cyan, magenta, and yellow photoconductors come packaged together. You cannot order them separately.</p> <p>Press Go to clear the message and continue printing. The Supplies status message is then displayed with the Ready, Power Saver, Busy and Waiting messages—unless another status message of higher priority is posted—until you replace the photoconductor.</p> <p>If this message does not reset after replacing all photoconductor units, clean or replace the drum sensor (11G0548) in the right sub frame.</p>
84 Black PC Drum Exhausted	<p>The black photoconductor has reached the end of its 13,000-page life. You may want to replace the photoconductor now.</p> <p>If the print quality is still acceptable, press Go to clear the message and continue printing. The Supplies status message is then displayed with the Ready, Power Saver, Busy and Waiting messages—unless another status message of higher priority is posted—until you replace the photoconductor.</p> <p>When you replace the black photoconductor, make sure you also install the new fuser coating roll that is included in the black photoconductor kit.</p> <p>If this message does not reset after replacing all photoconductor units, clean or replace the drum sensor (11G0550) in the right sub frame.</p>

Message	Action
84 Color PC Drums Exhausted	<p>The three color photoconductors have reached the end of their 13,000-page life. You may want to replace the photoconductors now. When you do replace them, replace all three—cyan, magenta, and yellow—at the same time.</p> <p>If the print quality is still acceptable, press Go to clear the message and continue printing. The Supplies status message is then displayed with the Ready, Power Saver, Busy and Waiting messages—unless another status message of higher priority is posted—until you replace the photoconductors.</p> <p>If this message does not reset after replacing all photoconductor units, clean or replace the drum sensor (11G0548) in the right sub frame.</p>
84 <i>color</i> PC Abnormal	<p>You have installed a defective photoconductor. You must replace the specified photoconductor before you can continue printing.</p> <p>If this message does not reset after replacing all photoconductor units, clean or replace the drum sensor (11G0548) in the right sub frame.</p>
88 <i>color</i> Toner Low	<p>The printer has detected that the toner supply in the specified cartridge is low. After printing approximately 250 more pages, the printer will display the 88 color Toner Empty message and cease operating until the toner cartridge is replaced. If you do not have the necessary supplies, order them now.</p> <p>Press Go to clear the message. The Supplies status message is then displayed with the Ready, Power Saver, Busy and Waiting messages—unless another status message of higher priority is posted—until you replace the toner cartridge. The 88 color Toner Low message is also displayed each time you turn the printer on and each time you open and close the top cover.</p> <p>If this message does not reset after you replace all the toner cartridges, clean or replace the toner remaining sensor (11G0207) in the right sub-frame.</p>

Message	Action
88 <i>color</i> Toner Empty	<p>The printer has detected that the specified toner cartridge is completely out of toner. You must install a new toner cartridge before you can continue printing.</p> <p>If this message does not reset after you replace all the toner cartridges, replace the toner remaining sensor (11G0207) in the right sub-frame.</p>
91 Fan Error RIP Controller Board Fan	<ol style="list-style-type: none"> 1. Be sure connector C193 is properly connected to the RIP controller card. 2. Replace the fan (11G0606) if necessary. 3. If you still have a problem, replace the RIP controller card (11G0604).
2xx Paper Jam / Open Top Cover	<p>The printer has detected a paper jam in the area specified in the message. In some cases, the Open Top Cover message alternates with the Paper Jam message to remind you to open the top cover and remove jammed paper from inside the printer.</p> <p>You must remove all the paper from the entire paper path. Close the top cover and press Go to clear the message. If the message does not clear, go to the “Paper Jam Service Check” on page 2-30.</p>

Symptom Table

Symptom	Action
You cannot print color.	<p>Make sure the Color Correction menu item is not set to Black & White.</p> <p>Make sure the color print units are completely installed in the printer.</p> <p>Make sure the RIP controller card is completely inserted in the printer and the thumbscrews are securely tightened.</p> <p>Go to the “Transport Belt/BUD Service Check” on page 2-29.</p>
Transparencies curl excessively.	<p>Make sure you're using the recommended Lexmark transparencies. Also be sure the paper delivery is set to the rear exit.</p>

Symptom	Action
Transparencies jam	If the last transparency jams as you try to feed it from tray 1, place the cardboard sheet (with the cutout) included in the transparencies box in the bottom of tray 1 before loading transparencies.
The printer seems slow to print	<p>If you set Print Quality to 1200 Image Quality, it may take longer to print some complex jobs or jobs formatted for larger paper. Select another Print Quality setting if you need the job to print faster.</p> <p>If you set the Paper Type to Transparency or Card Stock, the printer increases the fuser temperature and slows printing to 3 ppm to improve the print quality. After printing on these media, the printer requires additional time to cool the fuser after you select another Paper Type setting (such as Plain Paper or Letterhead).</p> <p>If Printer Usage is set to Maximum Yield, the printer must adjust the photoconductors as it prepares to print a color page after printing a mono page. The printer performs this same calibration each time you turn the printer on and each time you open and close the top cover. Depending on the types of jobs you print, these adjustments may significantly slow print time.</p> <p>Setting Timing Adjustment to Gear Only may decrease the time necessary to complete the calibration, but you may notice inconsistent color registration on your printed pages.</p>
You cannot remove paper jammed in the fuser	<p>Make sure the printer's top cover is completely open. Opening the top cover all the way releases the fuser roll so you can easily remove jammed paper.</p> <p>Go to the “Paper Carrying Service Check” on page 2-32.</p>
You cannot clear the paper jam message	<p>To clear the paper jam messages, you must remove all paper from the printer's paper path. Check both inside the printer as well as the paper source you were using. Open and close the top cover and press Go. If the message does not clear, go to the “Paper Jam Service Check” on page 2-30.</p>

Symptom	Action
Paper jam in pick-up assembly	Go to the “Paper Carrying Service Check” on page 2-32.
Fuser failure	Go to the “Fuser Service Check” on page 2-27.
No paper pick-up from multipurpose tray	Go the “Paper Carrying Service Check” on page 2-32.
No paper pick-up from upper or lower cassette.	Go to the “Optional Paper Feed Service Check” on page 2-30.
Registration roller does not rotate.	Go to the “Drive 1 DC Motor Service Check” on page 2-28.
Operator panel does not operate properly	<p>Go to the Diagnostic Aids chapter and run the LCD and Button tests. If the tests fail, replace the operator panel (99A0001). If the diamonds remain, check the pairs of SIMMs in J1 and J3, and the riser card (11G0605) for proper installation. If you still have the problem, replace the operator panel. If this does not fix the problem, replace the ROM solid state drive (11G0607). If you still have a problem, replace the RIP controller card (11G0604).</p> <p>If your machine beeps 5 times and the screen is blank or all diamonds, replace the operator panel.</p>
Foggy print Black pages Blank print White spots Poor reproduction Incorrect color image registration Dirt on back of paper Low image density White and black lines and bands	Go to “Print Quality Problems” on page 2-38.

Symptom	Action
Evenly spaced marks on the paper, or a single mark in the same place on every page.	Go to the “Marks on Paper Service Check” on page 2-37.
Poor fusing	Go to the “Fuser Service Check” on page 2-27.
Toner scatter on front or back of paper	<p>Check the following:</p> <p>Excessive toner buildup. Clean off the toner and run a test print.</p> <p>Transfer belt assembly</p> <p>Transfer belt toner waste bottle</p> <p>Fuser separation pawl</p>
Paper Jam 201 clears but the fuser and exit rollers do not rotate while the printer resets.	Go to the “Drive 2 Stepper Motor Service Check” on page 2-29.
Paper will not feed from MPF	<p>Be sure you have paper in the MPF</p> <p>Be sure the MPF paper present sensor connector (CN110) is connected to the printer controller board.</p> <p>Do a sensor test. Check for approximately +5 V between pin 2 and Gnd on connector CN110 as you actuate the flag to the sensor. Replace the parts as necessary.</p> <p>If the paper still does not feed, go to the “Paper Carrying Service Check” on page 2-32</p>

Service Checks

Fuser Service Check

When you work on the fuser be sure to reposition it to the original mounting position. Also be sure the exit sensor and FUD sensors are not damaged when you replace the fuser.

	FRU	Action
1	<ul style="list-style-type: none"> Fuser Heater Fuser Thermostat Fuser Thermal Fuse 	<p>The fuser may not be fusing correctly or not fusing at all.</p> <p>Disconnect the fuser heater cable CN602 from the power supply. Check for continuity of the heater (11G0348 115 V, 11G0549 230 V), thermostat (11G0349), and thermal fuse. The thermostat must equal 240K Ohms at 25 degrees C (room temperature).</p> <p>Replace the failing part.</p>
2	Power Supply	With the paper exit cover interlock activated, check for approximately 120 V or approximately 240 V on connector CN602 pin 1 and 2.
3	<ul style="list-style-type: none"> Fuser Thermistor Printer Controller Board 	<p>Be sure connector CN119 is securely plugged into the printer controller board.</p> <p>If the problem remains, unplug connector CN119 and short pins 1 and 2 on the connector together with the power on. If an error code displays, replace the printer controller board. If no error displays, replace the Thermistor (11G0353).</p>
4	Springs	Be sure the two large springs that hold the fuser rollers together are securely in place.
5	<ul style="list-style-type: none"> Fuser Roll Press Roller 	Be sure the fuser roll and the press roller are not dirty or damaged. Replace as necessary.
6	<ul style="list-style-type: none"> Separation Pawl Detach Fingers 	Be sure the detach fingers are not dirty, damaged, or out of position. Replace as necessary.
7	Fuser position	Be sure the fuser mounting guides are adjusted for proper paper exit tracking. Replace as necessary.

Color Print Unit Missing Service Check

When you replace the PC drum unit, all three color units must be replaced at the same time.

	FRU	Action
1	Color Print Unit	Check for dirt or damage to the sensing contacts on the right side of the cartridge assembly. Clean or replace the PC drum unit if necessary. The toner and PC drum unit must be installed as a unit.
2	Right Side Sub-frame Unit	Check the sensing contacts on the right side sub-frame assembly. Clean or replace the affected right side sub-frame.
3	High Voltage Unit 1	If you still have the problem, replace the high voltage unit 1(11G0326).
4	High Voltage Unit 2	If you still have the problem, replace the high voltage unit 2 (11G0313).
5	Printer Controller Board	If you still have the problem, replace the printer controller board (11G0324).

Drive 1 DC Motor Service Check

	FRU	Action
1	<ul style="list-style-type: none"> • DC Motor • Drive Unit 1 • Printer Controller Board 	<p>If the motor does not attempt to turn and you receive a 910 error code, replace the driver 1 dc motor (11G0256).</p> <p>Be sure the toner and dc drum units are not causing an overload on the dc motor.</p> <p>If the motor turns but the paper carrying section of the machine does not rotate, check the drive 1 unit gear train for damage. Be sure the clutch on the gear train engages for color printing. Replace the drive 1 unit if necessary (11G0257).</p> <p>If this does not correct the problem, replace the printer controller board (11G0324).</p>

Drive 2 Stepper Motor Service Check

	FRU	Action
1	Drive 2 Stepper Motor	Be sure connector C112 on the printer controller board is firmly connected. If you still have the problem, replace the drive 2 stepper motor (11G0260).
2	Drive 2 Stepper Motor Unit	If the drive 2 stepper motor rotates and the fuser, and exit rolls do not rotate, replace the drive 2 stepper motor unit (11G0258).

Transport Belt/BUD Service Check

	FRU	Action
1	<ul style="list-style-type: none"> • BUD Sensors • BUD Actuator 	Check the transfer belt BUD sensor. Replace the sensor or the actuator if necessary.
2	BUD Motor	Be sure connector CN106 is firmly connected. Replace the BUD unit if necessary (11G0254).
3	BUD Lift Cams	Check and replace the BUD lift cam shaft if necessary (11G0267).
4	Printer Controller Board	If you still have the problem, replace the printer controller board (11G0324).

Optional Paper Feed Service Check

If you have a 24XX error code, the last number in the code indicates the affected tray.

Check the option connection cable for proper connection to the printer or other paper feeder.

If you have two optional feeders, you can connect the non-working one directly to the printer to check for a cable or drive card problem.

	FRU	Action
1	Drive Motor	<p>If the drive motor works, go to the “Paper Carrying Service Check” on page 2-32.</p> <p>If the drive motor does not work, check for 8 Ohms resistance between pins 1 to 3, and 2 to 4. Replace the motor if necessary (11G0414).</p>
2	Gears	<p>If the motor turns but the drive gears do not, replace the gears as necessary. If this does not correct the problem, replace the optional feed driver board.</p>

Paper Jam Service Check

Be sure the customer is using the correct paper.

If the machine is turned on and error code 200, 201, 202, 24X, or 250 is displayed, do the following before going to the Paper Carrying Service Check.

You must clear all paper from the entire paper path. Open and close the top cover and the rear cover then press Go. If you still get an error, run a single sheet of paper through the machine, note the error code and the position of the paper in the printer. Locate the error code from the following and check parts as indicated.

Jam 200

Check the paper registration sensor by actuating the sensor lever (flag) and look for a change of voltage at pin 2 to ground on connector CN110 on the printer controller board. Look for approximately +5 V. If it works properly go to the **“Paper Carrying**

Service Check” on page 2-32. If it does not work properly, replace the actuator or sensor. If that doesn't correct the problem, replace the printer controller board.

Jam 201

Remove the cartridges. Check the registration sensor and the paper exit sensor. Actuate the sensor lever (flag) and look for a change of voltage at pin 2 to ground on connectors CN110 and CN124 on the printer controller board. Look for approximately +5 V. If it works properly go to the **“Paper Carrying Service Check” on page 2-32.** If it does not work properly, replace the actuator or sensor. If that doesn't correct the problem, replace the printer controller board. If the fuser exit rollers do not turn, go to the **“Drive 2 Stepper Motor Service Check” on page 2-29.**

Jam 202

Check the paper exit sensor by actuating the sensor lever (flag) and looking for a change of voltage at pin 2 to ground on connector CN124 on the printer controller board. Look for approximately +5 V. If it works properly go to the **“Paper Carrying Service Check” on page 2-32.** If it does not work properly, replace the actuator or sensor. If that doesn't correct the problem, replace the printer controller board.

24X Paper Jam

Be sure the option paper tray 2 and 3 are plugged in correctly and go to the **“Paper Carrying Service Check” on page 2-32.**

Paper Jam

Be sure there is no paper jammed in the MPF, then go to step 1 of the **“Paper Carrying Service Check” on page 2-32.**

Paper Carrying Service Check

The paper is being picked up and carried to the registration roll.

	FRU	Action
1	<ul style="list-style-type: none"> • Paper Size Guide • Side Location Plates 	<p>Be sure the paper cassette has the size guides and the side locator locks are working properly.</p> <p>Replace parts as necessary.</p>
2	<ul style="list-style-type: none"> • Paper Feed Roller (MPF) • Paper Feed Rolls (MPF tray 1, 2,3) • Carrying Roller (Tray 1, 2, 3) • Friction Stop Pad (MPF) 	<p>Be sure the paper feed rollers are free of dirt and not damaged.</p> <p>Be sure the stop friction pad is free of dirt and not damaged.</p> <p>Replace parts as necessary.</p>
3	Gears	Be sure the paper feed gears are not damaged.
4	<ul style="list-style-type: none"> • Paper Feed Solenoid • Paper Feed Clutch 	<p>Be sure the paper feed solenoid activates the paper feed clutch and the clutch engages properly.</p> <p>Check the failing paper feed solenoid for continuity. Also check connector CN101 and CN102 (MPF) on the printer controller board and CN906 on the option paper feed driver board.</p>

The paper has stopped at the registration roller or has not reached the fuser.

If the fuser or exit rollers do not turn during POR, go to the **“Drive 2 Stepper Motor Service Check” on page 2-29.**

	FRU	Action
1	<ul style="list-style-type: none">• Registration Roller Clutch• Registration Roller• Absorption Roller• Transfer Belt Unit• Rear Paper Feed Guide	<p>Check these parts for wear or damage. Replace as necessary. Be sure all guide surfaces in the paper path are free of dirt.</p> <p>Check the registration roller clutch for continuity.</p> <p>Be sure connector CN104 on the printer controller board is connected properly.</p>

The paper has exited the registration roll and entered the fuser.

	FRU	Action
1	<ul style="list-style-type: none"> • Transfer Belt Unit • Rear Paper Guide • Discharge Brush • Fuser Roller • Fuser Press Roller 	Remove any buildup of toner. Replace and damaged or worn parts.
2	Fuser Separation Pawl	Be sure the separation pawls do not have any toner built up on the tips. Replace any damaged or worn parts.

The paper has entered the fuser and exited the printer.

	FRU	Action
1	<ul style="list-style-type: none"> • Fuser Roller • Fuser Press Roller • Fuser Separation Pawl 	Remove any toner buildup and replace any worn or damaged parts.
2	<ul style="list-style-type: none"> • Fuser Exit Lower roller • Exit Guide • FU/FD Flap Solenoid • Exit Flap Clutch Lever • Gears • Fuser Exit Upper Roller 	<p>Be sure the exit FU/FD solenoid energizes in the correct position for either face down or face up delivery. Replace any damaged or worn parts.</p> <p>Do a continuity check of the solenoid. Be sure connector CN122 is properly connected to the printer controller board.</p>

Paper Exit FU/FD Service Check

	FRU	Action
1	FU/FD Sensor Actuator	If the paper is not exiting to the back paper face up tray or the face down tray, check the sensors.

2	Flap	Check the paper flap (vane) that directs the paper to the proper tray. Replace if necessary.
3	FU/FD Solenoid	Check the FU/FD solenoid for continuity. Also be sure connector CN122 is properly connected to the printer controller board.
4	<ul style="list-style-type: none"> • Gear • Cam 	Check the gears and the metal actuating cam for wear or damage. Replace as necessary.

Paper Low/Empty Tray 1, 2, 3 Service Check

	FRU	Action
1	<ul style="list-style-type: none"> • Actuator • Sensor 	<p>Check the actuators and sensors for proper operation.</p> <ul style="list-style-type: none"> • Tray 1 = connector CN106 pin 9, and pin 12 to GND • Tray 2 and 3 = CN903 pin 2, and pin 5 to GND

Paper Tray Missing/Size Service Check

	FRU	Action
1	<ul style="list-style-type: none"> • Actuator • Sensor 	<p>Check the paper size indicator for proper operation.</p> <p>Check the size detection fingers for proper operation. Replace parts as necessary.</p> <p>Do a sensor check for the paper size detection board. It should be approximately +5 V when activated.</p> <ul style="list-style-type: none"> • Tray 1 = CN108 pins 11, 12, and 13 to GND • Tray 2 and 3 = CN904 pins 1, 2, and 3 to GND
2	Paper Size Detection Board	If you still have a problem, replace the paper size detection board (11G0310).

Remove Paper Sensor Service Check

	FRU	Action
1	Remove Paper Lever	Check the operation of the paper full lever and actuator shaft. Replace as necessary.
2	Paper Full Sensor	Check the sensor for operation. Check for approximately +5 V from CN109 pin 2 to GND when the sensor is activated. Replace if necessary.

Power Supply Service Check

	FRU	Action
1	Voltage	Be sure the switch is on and the power cord is firmly plugged into the printer. Be sure the correct voltage is present at the outlet.
2	Power Cord	Check the power cord for continuity.
3	<ul style="list-style-type: none"> • Fuse • Switch 	The power supply fuses may be blown. Unplug the machine and check fuse F1 on the power supply for continuity. If the fuse is good, check the power switch connector for continuity.
4	Power Supply	<p>The power supply may be defective.</p> <p>Check the dc power of the power supply. Check pins 7 and pin 5 on connector CN604. Pin 7 (yellow) should read +4.8 V to +5.3 V. Pin 5 (red) should read +22 V to 26 V. Replace if necessary (11G0305 115 V, 11G0541 230 V).</p>

Marks on Paper Service Check

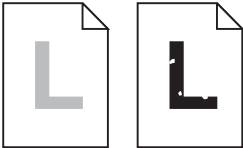
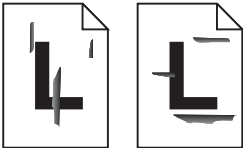
If you have evenly spaced marks on the paper, measure the distance between the marks and locate the symptom below. Check the assembly for dirt or damage and clean as necessary. Run a test print to verify the problem has been corrected. The indicated assemblies are replaced by the customer at prescribed intervals.


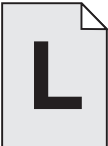

If you remove the transfer belt, do not turn it upside down. Toner will fall from the waste toner box onto the transfer sheets and roller(s) inside the belt. This will cause lower transfer efficiency and washed out colors.

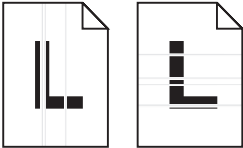
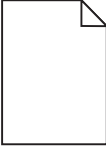

Distance between marks	FRU
31.4 mm	Absorption/Charge Roller
75.4 mm	Fuser Upper Roller
80.1 mm	Fuser Lower Roller
763.4 mm	Transfer Belt
44 mm	Upper Registration Roller
81.7 mm	Lower Registration Roller
37.7 mm	Supply Roller (cartridge)
58.7 mm	Developer Roller (cartridge)
94.2 mm	PC

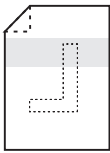


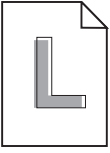
Image Quality Troubleshooting

Print Quality Problems

Problem	Action
<p>Print is too light, or printed images or characters have voids or dropouts.</p> <div></div>	Be sure you're using recommended paper or other media. Use media from a new package.
	Be sure you have selected the correct Paper Type setting for the media you're using.
	Be sure the affected print unit is completely installed in the printer.
	Set Toner Saver Off from the Color Menu.
	Clean the head LEDs.
	If you suspect a toner cartridge is low on toner, remove the appropriate print unit and gently shake it back-and-forth to distribute the toner evenly. Reinsert the print unit and try printing the job again.
	Replace the affected toner cartridge.
<p>Colored lines, streaks, or smudges appear on the printed page, or print appears blurred or unclear.</p> <div></div>	Replace the photoconductors. If only black print appears light, you can replace just the black photoconductor. If one of the colors prints too light, replace all three of the color photoconductors. If you still have the problem, go to "Partial Darkness or Lightness" on page 2-44.
	Replace the photoconductors. If the problem only occurs when printing black, you can replace just the black photoconductor and fuser coating roll. If the problem occurs when printing one of the colors, replace all three of the color photoconductors. If you still have the problem, go to "Black Line" on page 2-42.

Problem	Action
<p>Toner specks appear on the page.</p> 	<p>Replace the fuser coating roll. If it is not time to order a black photoconductor kit, which includes a fuser coating roll, order a separate fuser coating roll (P/N 12A1706).</p>
<p>Toner colors the background of the page.</p> 	<p>Be sure the affected print unit is completely installed in the printer.</p>
<p>The page has 100% coverage of one color.</p> 	<p>Be sure the system board is completely inserted in the printer and the thumbscrews are securely tightened. Refer to the Setup Guide or installation instructions.</p>
	<p>Be sure the affected print unit is completely installed in the printer.</p>
	<p>Replace the photoconductors. If the page is black, you can replace just the black photoconductor. If the page is another color, replace all three of the color photoconductors. If this does not fix the problem, go to “Black Print” on page 2-43.</p>

Problem	Action
<p>Light lines or streaks appear on the printed page.</p> 	Clean the LEDs.
	Make sure the affected print unit is completely installed in the printer.
	Remove the affected print unit and gently shake it back-and-forth to distribute the toner evenly. Reinsert the print unit and try printing the job again.
	Replace the affected toner cartridge.
	Replace the photoconductors. If the problem only occurs when printing black, you can replace just the black photoconductor. If the problem occurs when printing one of the colors, replace all three of the color photoconductors. If you still have the problem, go to “Uneven Printing” on page 2-44.
<p>The page is blank.</p> 	Be sure the affected print unit is completely installed in the printer.
	Replace the affected toner cartridge. If you still have the problem, go to “No Image” on page 2-42.
<p>Toner smears or rubs off the page.</p> 	Be sure you're using recommended paper or other media.
	Be sure you have selected the correct Paper Type setting for the media you're using.
	Be sure the top cover is completely closed and both sides are snapped shut.
	You may need to replace the fuser (11G0375 115 V, 11G0542 230 V).

Problem	Action
<p>Toner adheres to the back of the page.</p> 	<p>Remove the fuser coating roll from under the printer's rear cover, and wipe it with a dry, lint-free cloth. If you still have the problem, go to “Periodic Dirt” on page 2-44.</p>
<p>Quality of printed transparencies is inadequate.</p> 	<p>Be sure you're using the recommended Lexmark transparencies.</p>
	<p>Be sure you're loading transparencies properly.</p>
	<p>When printing transparencies, always set the Paper Type to Transparency.</p>
	<p>Set the Color Correction menu item to Vivid.</p>
<p>Print on the page is skewed.</p> 	<p>Be sure the width guides in the paper tray or the multipurpose feeder fit snugly against the media you loaded.</p>
	<p>Be sure the paper you load in the trays fits under the two corner tabs at the front of the tray.</p>
<p>A white gap is noticeable between color fills, due to poor color registration.</p> 	<p>Be sure all four corners of the printer are resting on a level surface.</p>
	<p>Turn the printer off and back on. The printer calibrates the photoconductors and drive gears, which may improve registration.</p>
	<p>If the Printer Usage menu item is set to Maximum Yield, make sure the Timing Adjustment menu item is set to Gear and Drum.</p>

No Image

Possible Cause	Action
Moist Paper	Be sure the printer is not in a damp environment and the paper is not curled or wavy due to moisture. If necessary inform the customer about correct storage.
LED Head	Be sure the LED head cable is securely connected to the head controller board and LED head assembly. If the problem remains, replace the LED head.
High Voltage Unit 2	Be sure all the connectors to the high voltage unit 2 are securely connected. If the problem remains, replace the high voltage unit 2 (11G0313).
Printer Controller Board	Be sure all connectors are securely connected to the printer controller board. If the problem remains, replace the printer controller board (11G0324).
Printhead Controller Board	If you still have the problem, replace the printhead controller board (11G0555).

Black Line

Possible Cause	Action
Photoconductor Drum	Clean any dirt from the PC surface. Replace it if it is scratched.
Fuser Detach Pawl Fuser Roller Surface Fuser Thermistor Surface Fuser Thermostat Surface	Remove any toner buildup. Replace scratched parts.
LED Head	Clean the LED printhead. Print a sheet of blank document. Replace the LED printhead if a black line appears on the paper.

Black Print

Possible Cause	Action
High Voltage Unit 1	The printed paper has black print. Be sure the high voltage unit 1 is properly connected. If you still have a problem, replace the high voltage unit 1 (11G0326).
Right Sub-frame	If you still have the problem, replace the right sub-frame contacts.
Photoconductor Drum Set	If you still have a problem after replacing the right sub-frame, be sure the PC drum has clean contacts. If necessary, replace the PC drum set.

Missing Colors

Possible Cause	Action
Toner Cartridge Unit	Be sure the toner cartridge and the PC drum unit are properly seated. Be sure the contacts on the print unit are clean. Be sure the print unit is installed in the correct position. Run a print test. If the problem remains, switch the print unit with another color and run a test print. If the new color prints, replace the failing toner cartridge.
High Voltage Unit 2	If you still have the problem, check the connector on the high voltage. Replace the high voltage unit if you still have the problem (11G0313).
LED Printhead Unit	Replace the printhead if you still have the problem.
LED Printhead Controller Board	If you still have the problem, replace the LED printhead controller board (11G0555).

Possible Cause	Action
High Voltage Unit 1	If you still have the problem, replace the high voltage unit 1 (11G0326).
Transfer Belt Unit	If you still have the problem, replace the transfer belt unit (11G0202).

Partial Darkness or Lightness

Possible Cause	Action
Photoconductor Drum Unit	Check the PC drum for exposure to strong light.
Transport Belt Waste Toner Bottle Transport Belt Unit	Check the underside of the transport belt for toner buildup.

Uneven Printing

Possible Cause	Action
Photoconductor Drum	Check for condensation or dirt on the photoconductor drum.
LED Head	Clean any dirt off the exposure surface of the LED head.
Transfer Belt Unit	Be sure the transfer belt is clean and not damaged. Replace parts as necessary.

Periodic Dirt

Possible Cause	Action
Fuser Heat Roll	Check for dirt or damage to the fuser heat roll.
Fuser Press Roll	Check for dirt or damage to the fuser press roll.
Fuser Oil Roll	Check for dirt or damage to the fuser oil roll.

Possible Cause	Action
Photoconductor Drum	Check for scratches on the surface and replace if necessary.

White Spots

Possible Cause	Action
Condensation	Check the LED head and photoconductor drum surface for condensation. Let it dry naturally.
Printhead Unit DS/TS	Firmly install the PC drum unit into the toner cartridge and the print unit into the printer.
Belt Unit	Check the belt unit for scratches or nicks. Be sure there is no toner buildup on the belt. Replace the belt unit if it is damaged (11G0202).

Sensor Service Check

1. When a paper jam or malfunction occurs, identify the sensor that is probably responsible for the problem.
2. Probe the connector with a test meter. Test the LED between signal pin +5 V and GND.
3. Change the state of the selected sensor and see if the signal is approximately +5 V.

For example: When a paper jam occurs, and you think the paper exit sensor is responsible. Check it as follows:

1. Remove the paper jam.
2. Access the sensor signal.
3. Use a sheet of paper to move the actuator so that the sensor is blocked.
4. Check the meter for changes in the reading between signal pin +5 V pin and GND.
5. If the sensor is not working correctly and the actuator is not damaged, replace the failing sensor.

5050-001

6. If this does not correct the problem, replace the printer controller board.
7. If both the sensor and actuator are working correctly, replace the indicated part in the service check you were working in.

3. Diagnostic Aids

Note: When trouble shooting, or prior to making any adjustment to print quality, always be sure of the following:

- The printer is installed on a level rigid surface.
- The OPCs are never exchanged. Do not exchange a black OPC for a color OPC, as they will have different surface phase counts.
- Radar Page is always used when adjusting print registration.

Power-On Self Test Sequence

1. Power on.
2. Printer and RIP controller check:
 - ROM and RAM
 - Fuser thermistor
3. Printer hardware check:
 - Paper jam
 - Printer cartridge unit
 - Toner supply
 - Paper cassette present
4. Fuser temperature check. Temperature regulated.
5. Ready:
 - Printer controller
 - RIP controller
 - Printer condition
 - Motor/Fan
 - Heater
6. DC motor drive 1
7. Feeding paper
8. Print
9. Stepper motor drive 2
10. Paper exit
11. Stop

Using the Operator Panel

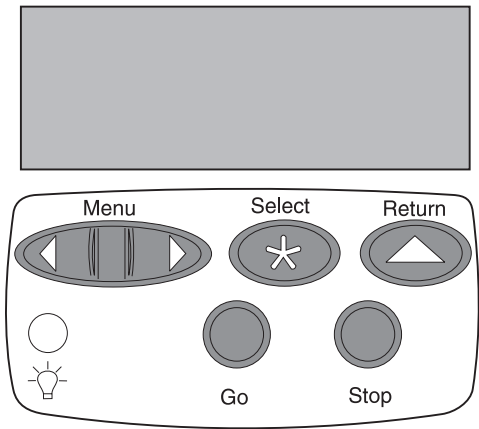
The operator panel on your printer has a 2-line by 16-character liquid crystal display (LCD), five buttons, and one indicator light.

The light indicates whether the printer power is on and whether the printer is idle or busy processing a job.

Indicator Light

State	Indicates
Off	Printer power is off.
On	Printer is on, but idle.
Flashing	Printer is busy processing a job.

Use the five operator panel buttons to open a menu, scroll through a list of values, select printer settings, and clear error messages.



Operator Panel Buttons

Button	Function
Go	<p>Press the Go button to:</p> <ul style="list-style-type: none"> • Exit printer menus and return the printer to the ready state • Clear certain messages from the display <p>If you've changed printer settings from the operator panel menus, press Go before you send a job to print.</p>
Menu > and <Menu	<p>Press the Menu> or <Menu button to:</p> <ul style="list-style-type: none"> • Enter the menus from the ready state • Scroll to the next (Menu>) or the previous (<Menu) menu, menu item, or value • Increase or decrease a numerical value for a menu item setting • Display the Job Menu or the Supplies Menu while the printer is busy
Select	<p>Press the Select button to:</p> <ul style="list-style-type: none"> • Select the menu shown on the second line of the display and view the available menu items • Select the menu item shown on the second line of the display and view the available values and the current user default setting for that menu item • Save the value displayed on the second line of the display as the new user default setting • Clear certain messages from the display
Return	<p>Press the Return button to back up to the previous level of the menu structure without selecting a new menu item or value.</p>
Stop	<p>Press the Stop button when the printer displays the Busy or Waiting message to temporarily stop all activity. The message Not Ready is then displayed until you press Go to continue printer activity.</p> <p>For example, if you need to load paper in a tray while a job is printing, press Stop and wait for the printer motors to idle before removing the tray from the printer. Reinsert the loaded tray, and then press Go.</p>

Printing the Menu Settings

1. From the printer operator panel, press the **Menu>** or **<Menu** button to enter the menus.
2. Continue to press and release **Menu>** or **<Menu** until you see TESTS MENU.
3. Press the Select button. **TESTS MENU** is then displayed on the first line, and **Print Menus** is on the second line.
4. Press Select again to print the page. The message **Printing Menu Settings** is displayed. The printer returns to **Ready** status after the menu settings page prints.

Operator Menu Disabled

If the operator has disabled the menu and you want to run operator print tests, turn the machine off, then press **Go** and **Stop** as you turn the machine on.

Menu Overview

Menus or menu items in *italic* are displayed only when the required option is installed. Capitalized menu items (for example, PAPER SIZE) have submenus.

SUPPLIES MENU <color> Toner <color> PC Drum Tray 1 Status <i>Tray 2 Status</i> <i>Tray 3 Status</i>	MAINTENANCE MENU Maint Status	COLOR MENU Color Correction Print Quality Toner Saver
PAPER MENU Paper Source PAPER SIZE PAPER TYPE CUSTOM TYPES Output Bin Substitute Size Configure MP Size Detection	FINISHING MENU Copies Blank Pages Collation Separator Sheets Separator Source Multipage Print Multipage Order Multipage View Multipage Border	TESTS MENU Print Menus Print Fonts Print Directory Print Demo Color Samples Factory Defaults Format Flash <i>Format Disk</i> <i>Job Acct Stat</i> Hex Trace

JOB MENU Cancel Job Reset Printer Print Buffer	SETUP MENU Printer Language Power Saver Resource Save Download Target Print Timeout Wait Timeout Auto Continue Jam Recovery Page Protect Print Area Display Language Alarm Control Printer Usage Timing Adj <i>Job Buffer Size</i> <i>Job Accounting</i> <i>Job Acct Limit</i>	PCL EMUL MENU Font Source Font Name Point Size Pitch Symbol Set Orientation Lines per Page A4 Width TRAY RENUMBER Auto CR after LF Auto LF after CR
POSTSCRIPT MENU Print PS Error Font Priority Image Smoothing	PARALLEL MENU STD PARALLEL <i>PARALLEL OPT 1</i> <i>PARALLEL OPT 2</i> PCL SmartSwitch PS SmartSwitch NPA Mode Parallel Buffer <i>Job Buffering</i> Advanced Status Protocol Honor Init Parallel Mode 1 Parallel Mode 2	SERIAL MENU SERIAL OPTION 1 SERIAL OPTION 2 PCL SmartSwitch PS SmartSwitch NPA Mode Serial Buffer Job Buffering RS-232/RS-422 RS-422 Polarity Serial Protocol Robust XON Baud Data Bits Parity Honor DSR

NETWORK MENU NETWORK OPTION 1 NETWORK OPTION 2 PCL SmartSwitch PS SmartSwitch NPA Mode Infrared Buffer Job Buffering Window Size Transmit Delay Max Baud Rate	INFRARED MENU Infrared Port PCL SmartSwitch PS SmartSwitch NPA Mode Infrared Buffer Job Buffering Window Size Transmit Delay Max Baud Rate	LOCALTALK MENU LocalTalk Port PCL SmartSwitch PS SmartSwitch NPA Mode LocalTalk Buffer Job Buffering NPA Hosts LocalTalk Name LocalTalk Addr LocalTalk Zone
FAX MENU Fax Port Fax Baud Fax Data Bits Fax Parity Fax Buffer		

Diagnostic Mode

To access the diagnostics printer settings and operations:

- 1. Turn off the printer.
- 2. Press and hold the **Go** and **Return** buttons.
- 3. Turn on the printer. Release the buttons after the Performing Self Test message displays.

Diagnostic Menu Group

The Diagnostic Menu Group contains multiple menus. They are displayed in the operator panel in the order shown in the table. The names of the top-level menus are capitalized.

Top-level Menu	Intermediate Menu, Printer Setting, or Printer Operation	Value List
CMY TOP MAR ADJ	Tray 1	=-16 to 15 (0)
	Tray 1 Test	Test
	Tray 2	=-16 to 15 (0)

	Tray 2 Test	Test
	Tray 3	=-16 to 15 (0)
	Tray 3 Test	Test
	MP Feeder	=-16 to 15 (0)
	MP Feeder Test	
K TOP MAR ADJ	Tray 1	=-16 to 15 (0)
	Tray 1 Test	Test
	Tray 2	=-16 to 15 (0)
	Tray 2 Test	Test
	Tray 3	=-16 to 15 (0)
	Tray 3 Test	Test
	MP Feeder	=-16 to 15 (0)
	MP Feeder Test	Test
X POSITION ADJ	Cyan	= - 80 to 80 (0)
	Magenta	= - 80 to 80 (0)
	Yellow	= - 80 to 80 (0)
	Test Print (Radar)	Test
Y POSITION ADJ	Cyan	= - 128 to 127 (0)
	Magenta	= - 128 to 127 (0)
	Yellow	= - 128 to 127 (0)
	Test Print (Radar)	Test
THETA POSITION ADJ	Cyan	= - 24 to 24 (0)
	Magenta	= - 24 to 24 (0)
	Yellow	= - 24 to 24 (0)
	Test Print (Radar)	Test
PRINT TESTS	Tray 1	= Single = Continuous

	Tray 2, if installed	= Single = Continuous
	Tray 3, if installed	= Single = Continuous
	MP Feeder	= Single = Continuous
	Top Output	= Single = Continuous
	Back Output	= Single = Continuous
	Prt Quality Pgs	= Single = Continuous
HARDWARE TESTS	LCD Test	Test
	Button Test	Test
	DRAM Memory Test	Test
	Std Parallel Wrap	Test
	Parallel 1 Wrap	Test
	Parallel 2 Wrap	Test
	Serial 1 Wrap, if available	Test
	Serial 2 Wrap, if available	v
DEVICE TESTS Only displayed if a flash or disk option is installed.		
	Quick Disk Test	See “Quick Disk Test” on page 3-20.
	Disk Test/Clean	See “Disk Test/Clean” on page 3-21.
PRINTER SETUP		
	Defaults	<ul style="list-style-type: none"> • U.S. • Non-U.S.

	LIGHT QUANTITY	<ul style="list-style-type: none"> • Cyan • Magenta • Yellow • Black 0 to 45 (0)
	Thermistor Rank	0 to 4 (0)
	Transfer Belt Adj	30 - Seconds 60 90 120 150 180 210 240
	Sensor Cal.	<ul style="list-style-type: none"> • Paper • Transparency
	Cyan Drum Cnt	0 to 65535
	Magenta Drum Cnt	0 to 65535
	Yellow Drum Cnt	0 to 65535
	Black Drum Cnt	0 to 65535
	Page Count	0 to 9999999
	Perm Page Count	0 to 9999999
	Serial Number	xxxxxxx (printer serial number) where x = A - Z or 0 - 9
	Par S Strobe Adj	-4 to 6 (0)
	Par 1 Strobe Adj - Only displayed if a parallel port is available via PCI slot 1.	-4 to 6 (0)
	Par Strobe Adj - Only displayed if a parallel port is available via PCI slot 2.	= -4 to 6 (0)
MAINTENANCE MENU	80 Maint Cnt	0 to 1048675

	Reset 80 Maint	= Yes = No
ERROR LOG	Display Log	
	Clear Log	
US/Non US Defaults		<ul style="list-style-type: none"> • US • Non US
EXIT DIAGNOSTICS	See “Exiting Diagnostics Mode” on page 3-27.	

Setting Printer top Margin

The purpose of this function is to adjust the leading edge margin for each tray. It is the top margin of how the page is printed. For A4 or letter it is on the leading long edge of the page that the margin is being adjusted.

K Top Margin Adjust Print Tests

The purpose of this function is to adjust the leading edge margin for each tray. It is the top margin of the direction the page is printed. For A4 or letter it is on the leading long edge of the page that the margin is being adjusted. What is being adjusted is the time from when the leading edge of the paper reaches the print registration rollers and when the printer starts putting toner on the paper. You must adjust both the CMY and K top margins. The K Top Margin must be adjusted first.

To make this adjustment:

Note: Before adjusting the margins, be sure the printer is set to the graphic print mode in the Print Quality Menu. The Print Quality Menu is a sub menu of the Color Menu.

1. Select the Diagnostic Mode.
2. Select Printer Setup.
3. Select K Top Margin Adjust
4. Input the values.

To verify the margin values are correct, you must print the Quick Test page. From the Tray X test screen press Select. While the page is printing the following message is displayed. The Power indicator also blinks while the page is printing.

Quick Test Printing...

The printer will attempt to print the Top Margin page from the default paper source. However, if the default source only supports envelopes, then the page will be printed from Tray 1. The page consists of alignment diamonds. When you change the value for that tray you will see the K alignment diamonds move up and down the page. The test page also contains the page count setting, printer serial number, and code levels.

The Test Page can only be printed for the trays that are installed. The Menus to change the values show up even if the tray is not installed. This allows the service person to set these values to the factory values even if a customer does not have that tray installed.

The Test page should be printed on Letter or A4 paper only.

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

CMY Top Margin Adjust Print Tests

The purpose of this function is to adjust the leading edge margin for each tray. It is the top margin of how the page is printed. For A4 or letter it is the leading long edge of the page that the margin is being adjusted. What is being adjusted is the time from when the leading edge of the paper reaches the print registration rollers and when the printer starts putting toner on the paper. You must adjust both the CMY and K top margins. The K Top Margin must be adjusted first.

To make this adjustment:

Note: Before adjusting the margins, be sure the printer is set to the graphic print mode in the Print Quality Menu. The Print Quality Menu is a sub menu of the Color Menu.

1. Select the Diagnostic Mode.
2. Select Printer Setup.
3. Select CMY Top Margin Adjust.
4. Input the values.

To verify the margin values are correct, you must print the Quick Test page. From the Tray X test screen press **Select**. While the page is printing the following message is displayed. The Power indicator also blinks while the page is printing.

Quick Test
Printing...

The printer will attempt to print the Top Margin page from the default paper source. However, if the default source only supports envelopes, then the page will be printed from Tray 1. The page consists of alignment diamonds. When you change the value for that tray you will see the CMY alignment diamonds move up and down the page. The test page also contains the page count setting, printer serial number, and code levels.

The Test Page can only be printed for the trays that are installed. The Menus to change the values show up even if the tray is not installed. This allows the service person to set these values to the factory values even if a customer does not have that tray installed.

The Test page should be printed on Letter or A4 paper only.

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

Color Calibration of Printer

Printhead Adjustment - X, Y, and Theta

Test Print Pages

Printing the color calibration pages allows a service person to align the Cyan, Magenta, and Yellow planes with the Black plane. The planes must be adjusted in three different directions, the X direction, the Y direction and the Theta direction. These values must be adjusted for each plane. View the page in the portrait position when you check these adjustments.

The X, Y, and Theta adjustment must be checked with the radar test page found in the X Adjustment menu, (Test Print) sub menu.

Printhead Adjustment

X Position Adjustment (Horizontal)

Modification of this setting allows the users to adjust the color offset of a color image for the line direction (X).

Changing this parameter by 1 unit moves the image 1/600 of an inch. The X position can be set from -80 to 80. A positive offset moves the plane up the page. A negative offset moves plane down the page.

Note: Modification of the X position adjustment setting causes the entire plane to move up/down on the page.

Y Position Adjustment (Vertical)

Modification of this setting allows the users to adjust the color offset of a color image for the page direction (Y).

Changing this parameter by 1 unit moves the image 1 dot unit. The X position can be set from -128 to 127. A positive offset moves the plane to the right of the page. A negative offset moves the plane to the left the page.

Note: Modification of the y position adjustment setting causes the entire plane to move side to side - see **“Summary Notes:” on page 4-9.**

Theta Position Adjustment (Alignment of the curve of the horizontal position over the length of the line)

Modification of this setting allows the users to adjust the color offset of a color image for the line direction and page direction (X and Y).

Changing this parameter by 1 unit moves the image 1 dot unit. The theta position can be set from -128 to 127. A positive offset moves the plane down the page from left side to right side of the page. A negative offset moves the plane up the page from left side to the right side of the page.

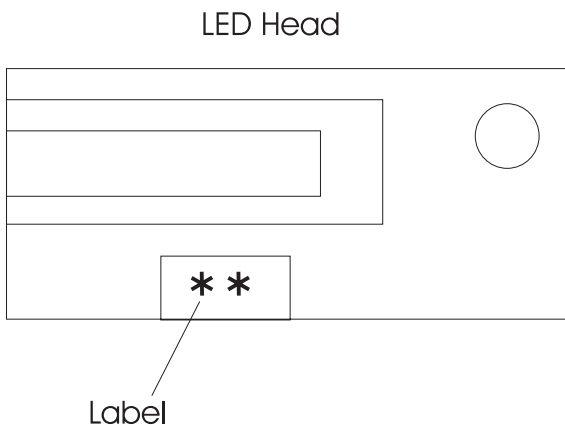
Light Quantity

If you replace one or more of the printheads, or the EEPROM for the engine controller, the Light Quantity value must be set to the value that is marked on the printhead.

To set this value:

1. Select Diagnostic Mode.
2. Select Printer Setup.
3. Select Light Quantity.

Enter the value from the label on the printhead.



Thermistor Rank

If you replace the transfer belt unit or the EEPROM for the engine controller, the Thermistor rank value must be set according to the color of the lead line color.

To set this value:

1. Select Diagnostic Mode.
2. Select Printer Setup.
3. Select Thermistor Setup.
4. Enter the value from the following table.

Thermistor Rank	Color of Connector	Standard Resistance Value (K Ohms)
0	Blue	9.057
1	Black	9.515
2	Red	10.000
3	Yellow	10.51
4	Green	11.06

Transfer Belt Adjustment

This menu allows you to select how long you would like to run the transfer belt for testing. Whenever you replace a transfer belt you have to run the transfer belt to make sure that it is tracking correctly.

Print Tests

Input/Output Source Print Tests

The Diagnostic PRINT TESTS menu is used to verify that the printer can print on media from each of the installed input sources. Each of the installed sources is listed as an option within this menu. For each source, the user has 2 choices:

- Single (print Print Test pages once),

- Continuous (continue printing Print Test pages until Return or Stop is pressed).

The first page Print Test contains seven vertical columns of black, cyan, magenta, yellow, red, green, and blue. The columns are shaded from 0% to 100% coverage. The second page contains a matrix of blocks outlined in primary colors which are used to show vertical and horizontal misalignment. This page also contains four large square blocks of each primary color located in the top 1/3 of the page used to show ghosting. These pages are the same as the Print Quality Pages. If Continuous is selected, the pages will be printed until the Stop button is pressed.

The Print Test pages can only be printed on A4 or Letter.

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

<Input Source>

Printing...

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

<Input Source>

Cancelling...

Print Quality Pages

Execution of this diagnostic function causes the printer to print the Print Quality Test Pages. These pages can also be printed with a POR key sequence; however, when printed with this method the toner cartridge lockout functionality is enabled. These pages are the same as the Print Test pages.

As the pages are printed, the printer posts:

Prt Quality Pgs

Printing...

Once started, this operation cannot be cancelled. Furthermore, all key presses are ignored while this message is posted.

LCD Hardware Test

Selecting this test will cause the printer to continually execute the LCD display test. To cancel the test, press **Return** or **Stop**.

Button Test

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

OP	OP	OP	OP
		OP	OP

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

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

DRAM Memory Test

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

DRAM Memory Test	
P:#####	F:#####

Terminology:

P:##### represents the number of times the memory test has passed (finished successfully). Initially 000000 is displayed for #####. The maximum pass count is 999,999.

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

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

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

DRAM Error

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

Std Parallel Wrap Test and Parallel X Wrap Test

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

To perform the wrap test, follow these steps:

- Disconnect the parallel interface cable, and install the parallel wrap plug.
- Select **HARDWARE TESTS** from the Diagnostics Menu.
- Select **Parallel Wrap** to initiate the Parallel Wrap Test.

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

Parallel Wrap

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

Terminology:

P:##### represents the number of times the test has passed (finished successfully). Initially 000000 is displayed for *#####*. The maximum pass count is 999,999.

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

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

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

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

Serial Wrap Tests

The Serial Wrap Test is used to check the operation of the serial port hardware using a wrap plug. Each serial signal is tested.

To perform the wrap test, follow these steps:

- Disconnect the serial interface cable, and install the serial wrap plug.
- Select **HARDWARE TESTS** from the Diagnostics Menu.
- Select the appropriate Serial Wrap Test (Serial 1 Wrap, Serial 2 Wrap).

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

Serial X Wrap P:##### F:#####

Terminology:

The X indicates which serial port is being tested (1=optional serial port #1, 2=optional serial port #2).

P:##### represents the number of times the test has passed (finished successfully). Initially 000000 is displayed for *#####*. The maximum pass count is 999,999.

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

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

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

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

Quick Disk Test

Selecting this test runs a disk test that performs a non-destructive read/write on one block per track on the disk. The test reads one block on each track, saves the data, and proceeds to write and read four test patterns to the bytes in the block. If the block is good, then the saved data is written back to the disk.

The following message is displayed while the test is running. The Power indicator also blinks while the test is in progress.

Quick Disk Test

Testing...

If the test passes, the Power indicator is turned on solid and the following message is displayed. Press **Go**, **Return**, or **Stop** to return to the DEVICE TESTS screen.

Quick Disk Test

Test Passed

If the test fails, the Power indicator is turned on solid and the following message is displayed. Press **Go**, **Return**, or **Stop** to return to the DEVICE TESTS screen.

Quick Disk Test Test Failed

Disk Test/Clean

This test causes the file system to scan the disk for bad sectors and remove these blocks from the addressable space. This test destroys all data on the disk and should not be attempted on a good disk. Normally this test will only be used when the disk contains bad data and is therefore unusable.

The test is actually executed in two distinct phases: a writing or cleaning phase and a verifying or testing phase. During the cleaning phase, the printer writes a 0x00 to each byte location on the disk. During the testing phase, the data written is verified.

This can be an extremely lengthy test; however, the test length depends on the disk size. For example, each phase of this test executed on a 540MB hard disk takes approximately 14 minutes to complete.

This test leaves the disk unformatted. The servicer or user must reformat the disk using the Format Disk menu operation.

To run this test, select *Disk Test/Clean* from the DEVICE TESTS menu. The following message is displayed to warn the customer that all disk contents will be lost. To continue on with the test, press **Go**. To exit the test immediately and return to the DEVICE TESTS screen, press **Return** or **Stop**.

Files will be Lost. Go/Stop ?

Once **Go** is selected, the following screen is displayed to indicate the *cleaning* phase of the test has begun. This screen is periodically updated to indicate the percentage of the cleaning phase which is

complete and number of bad blocks which have been found. The Power indicator also blinks while the cleaning phase is in progress.

Cleaning Disk... Bad:000000 00%

When the *cleaning* phase of the test is complete, the following screen is displayed to indicate the *testing* phase of the test has begun. Again, the screen is periodically updated to indicate the percentage of the testing phase which is complete and the number of bad blocks which have been found. The Power indicator also blinks while the testing phase is in progress

Testing Disk... Bad:000000 00%

The cleaning or testing phase can be cancelled at any time by pressing **Return** or **Stop**. If either phase is cancelled, the following message is displayed momentarily before returning to the DEVICE TESTS screen.

Disk Test/Clean Cancelling...

Once both phases complete, one of the following screens is displayed.

If fewer than 2,000 bad blocks are detected, then the following screen is displayed. This screen indicates the number of bad blocks (xxxxx) and usable blocks (yyyyyy) on the disk. Press **Go**, **Return**, or **Stop** to return to the DEVICE TESTS screen.

xxxxxx Bad Blocks yyyyyy Usable

If more than 2,000 bad blocks are detected, then the following screen is displayed. This screen indicates the number of bad blocks (xxxxxx). The disk cannot be recovered because too many bad

blocks exist on the disk. Press **Go**, **Return**, or **Stop** to return to the DEVICE TESTS screen.

xxxxx Bad Blocks Replace Disk

If the bad block count is 6 digits long (i.e. the whole disk is bad), then the 's' is dropped from "blocks" to make room for the sixth digit.

Setting the Page Count

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

Page Count =1234567*

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

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

Viewing the Permanent Page Count

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

Perm Page Count =1234567*

Viewing and Resetting the Drum Counters

The drum counters increment when a page is printed. The drum counter for a particular plane only increments if that color is printed. It increments by 1 for Letter, A4, A5, B5 and envelopes. It increments by 1.2 for Legal and B4. It increments by 2 for 11 x 17 and A3. The counters are used to track printer usage.

The current value of the drum counter may be viewed in the Diagnostic menus by selecting Drum Count menu. However, this value is not viewable from the Ready menu.

The following screen illustrates the operator panel when the cyan drum counter is displayed. The leftmost digit ('1' in this example) will blink, indicating it is the first digit to be changed. To change the value, press either Menu> or Menu< until the value you want is displayed. Press Select to move to the next digit. The next digit ('2' in this example) will blink. Continue modifying each digit using this method. To skip a digit (and keep its current value), press Select.

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

Cyan Drum Count
=1234567*

Calibrating the Transparency Sensor

If you replace the printer controller board you must re-calibrate the transparency sensor. This sensor must be calibrated for both Paper and Transparency. The sensor is located in the MP Feeder so these calibrations must be done from the MP Feeder.

To calibrate the sensor for paper the user selects "Paper."

Sensor Cal
Paper

After the user selects Paper, the printer requests that paper be loaded. The paper must be loaded into the MP Feeder.

Sensor Cal Insert Paper

Press **Go** for the calibration to begin. The operator panel displays that it is performing the calibration.

Sensor Cal. Performing Cal

When the engine has completed the Sensor Calibration for paper, the operator panel returns to the Sensor Calibration menu.

Sensor Cal Paper

Press **Menu>** or **Menu<** to calibrate the sensor for Transparency. These same steps should be followed for transparencies. The transparency must be loaded in the MP Feeder.

After the sensor has been calibrated for both paper and transparencies, the calibration is complete.

Viewing the Error Log

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

If an error occurs after the log is full, the oldest error in the log is discarded to make room for the new error.

The following error messages are stored in the error log:

All 2xx paper jam messages.

All 9xx service messages.

To view the error log, select the *Display Log* operation from the Diagnostics ERROR LOG menu. The entire error log cannot be displayed on a single screen. Four error log entries are displayed per screen. Therefore, the entire error log takes up three screens. To move forward in the log, press **Menu>**. To move backward in the log, press **Menu<**.

Here is an example of the error log screens:

1-200	2-920
3-928	4-922

5-250	6-990
7-230	8-230

9-953	10-000
11-000	12-000

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

Clearing the Error Log

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

Clear Log =Yes

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

1-000	2-000
3-000	4-000

5050-001

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

US / Non-US

This setting is used by the printer to determine whether US /Non-US factory defaults should be selected.

Exiting Diagnostics Mode

To exit diagnostics mode and POR the printer into normal user mode, press EXIT DIAGNOSTICS.

5050-001

Test Print 1

5050-001

Test Print 2

4. Repair Information

Precautions for Disassembly and Cleaning

Observe the following precautions whenever you service the printer:

- Be sure to unplug the printer from the outlet before attempting to service the printer.
- To reassemble the printer, reverse the order of disassembly unless otherwise specified.
- Do not operate the printer anytime during disassembly. If it is absolutely necessary to run the printer with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the gears, rollers and fan motor.
- Never touch the terminals of electrical parts or high-voltage parts such as the high voltage unit.
- Be sure to handle the fuser carefully as it remains hot for a while after the printer stops running. Always unplug connectors by holding the connector housing.
- Be sure to use the fuse listed in the parts catalog.
- Do not forget to install the ground wire or ground plate to ensure positive conduction. Install the screw with a toothed washer in the right position at reassembly.

Handling the Printed Circuit Boards with MOS ICs

The following precautions must be observed when handling circuit boards with MOS (Metal Oxide Semiconductor) ICs.

During Transportation/Storage:

- During transportation or when in storage, new circuit boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place circuit boards in a location exposed to direct sunlight.
- When it becomes absolutely necessary to remove a board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch pins of the ICs with your bare hands.

During Replacement:

- Before you unplug connectors from the circuit boards, be sure the power cord has been unplugged from the power outlet.
- When you remove a board from its conductive bag or case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the board.
- Before you plug connectors into the board, be sure the power cord has been unplugged from the power outlet.

During Inspection:

- Avoid checking the IC directly with a multimeter; use connectors on the board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.

Precautions for Handling the Drum Cartridge

The following precautions must be observed when handling the drum cartridge:

During Transportation/Storage:

- Use the specified carton whenever moving or storing the drum cartridge.
- The storage temperature is in the range between -20°C and +40°C.

Handling:

- The PC drum in the drum cartridge exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight. Cover the PC when you remove it from the printer.
- Use care not to contaminate the surface of the PC drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC drum.

Parts not to be touched

Any part where the mounting screws are painted red, such as the printhead, must not be removed, disassembled or adjusted.

Adjustment Procedures

The transfer belt tracking adjustment is the only mechanical adjustment in this printer. The other adjustments are in the form of printer setup settings entered into the printer from the diagnostic mode. This section describes these adjustments and lists the menus and values for each. To make the adjustment you will be directed to the appropriate page in the Diagnostic Aids chapter.

Transfer Belt Tracking Adjustment

Make this adjustment whenever you replace the transfer belt unit or when the belt is not tracking properly.

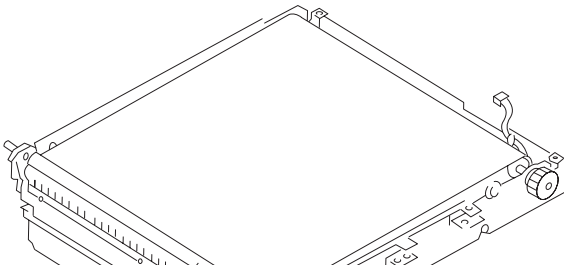
As you check and make this adjustment:

- Be careful not to scratch or leave fingerprints on the belt.
- Do not expose the photosensitive drum kit to direct light.

To check belt tracking:

1. Enter the diagnostic mode.
2. Select Transfer Belt Adjustment.
3. Select the time you want the belt to run (seconds), and let the belt run.

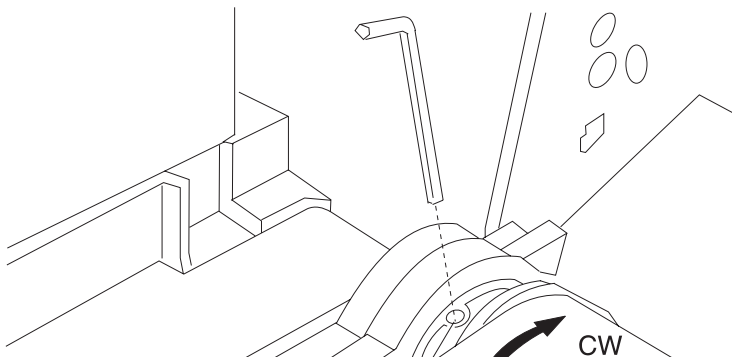
After the belt stops, check for a minimum clearance between the belt and the right hand stopper. If the belt tracks against either the right or left stopper you need to make the adjustment.



To make the adjustment:

1. Be sure the transfer belt unit is installed correctly and the 6 mounting screws are tight.
2. Insert an allen wrench into the hole in the offset collar. Use the wrench as a lever to rotate the collar clockwise or counter-clockwise and adjust belt tracking. Rotate the collar one click at a time and recheck the adjustment. Adjust for minimum clearance at the front, left corner of the belt unit without the belt tracking against the right stopper.

- If the belt tracks too far to the right, rotate the collar clockwise.
- If the belt tracks too far to the left, rotate the collar counter-clockwise.



Thermistor Rank Adjustment

Make this adjustment whenever you replace the transfer belt unit or when you replace the EEPROM on the printer controller board.

See **“Thermistor Rank” on page 3-15.**

LED Head Light Quantity Adjustment

Make this adjustment whenever you replace the LED Head or the EEPROM on the printer controller board.

See **“Light Quantity” on page 3-14.**

Top Margin for Color Mode

Make this adjustment whenever you replace the following parts:

- Transfer Belt Unit
- LED Head
- EEPROM Printer Controller
- Printer Controller Board

You must set the top margin for each cassette and the MPF.

See **“CMY Top Margin Adjust Print Tests” on page 3-11.**

Top Margin for Black and White Mode

Make this adjustment whenever you replace the following parts:

- Transfer Belt Unit
- LED Head
- EEPROM Printer Controller
- Printer Controller Board

You must set the top margin for each cassette and the MPF.

See **“K Top Margin Adjust Print Tests” on page 3-10.**

Overhead Projection Sheet Detection Sensor Adjustment

Make this adjustment whenever you replace the OHP sensor or the printer controller board EEPROM. See **“Calibrating the Transparency Sensor” on page 3-24.**

Printhead Adjustments (X, Y, and Theta)

Note: When trouble shooting, or prior to making any adjustment to print quality, always be sure of the following:

- The printer is installed on a level rigid surface.
- The OPCs are never exchanged. Do not exchange a black OPC for a color OPC, as they will have different surface phase counts.
- Radar Page is always used when adjusting print registration.

Make this adjustment if you replace the LED head sub frame, transfer belt, or EEPROM on the printer controller board.

The X, Y, and Theta adjustment must be checked with the radar test page found in the X Adjustment menu, (Test Print) sub menu.

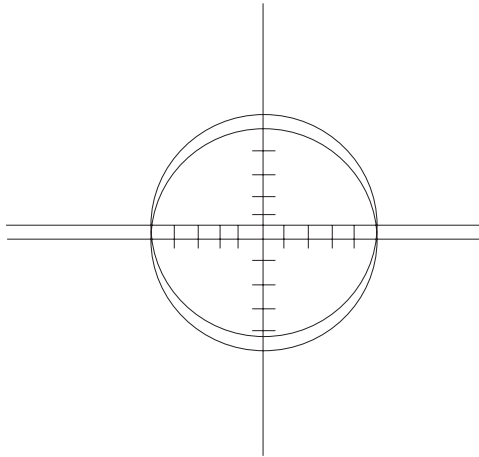
This adjustment depends on the combination of 3 settings for color registration, X, Y, and Theta. Follow the procedure closely as the adjustment is critical. For additional information see **“Color Calibration of Printer” on page 3-13.**

1. Press Return and Go as you turn on the printer. Release the buttons when you see Performing Self Test on the display.
2. Press the **Menu** button until X Adjustment displays.
3. Select **X Adjustment**.
4. Press the **Menu** button until **X Adjustment- Print Tests** displays and press **Select**. This will print the 3 color registration pages. These pages are the same for X, Y, Theta and for the 3 colors and are available under the X Adjustment, Y Adjustment, and the THETA Adjustment.
5. There are 3 adjustments for each color registration; X, Y, and Theta. Adjust X and Y first, then adjust Theta. X controls the horizontal plane. By adjusting X you move the radar image left (negative) and right (positive). Y controls the vertical plane and by adjusting the value for Y you move the color radar image up (negative) and down (positive). These values are determined by examining the left side of the radar page. Values for X are 1/600th of an inch and Y values are 1/2400th of an inch.
6. Theta controls the skew or angle of rotation. To get the correct reading, adjust X and Y before Theta.
7. Examine the left side radar images for their deviation from black. Look at all the radar images along the left and make a judgment on the value of the adjustment. When the color is correctly adjusted, the color radar image should lay directly on the black radar image.
8. Press the **Menu** button until the color you want to adjust displays and then press **Select**.
9. Change the displayed value and press **Select**. You should see a message displayed that the value is Saved.
10. Press the **Menu** button until X Adjustment - Print Tests displays and press **Select**.
11. Look at the color and the value you have changed and see if this is acceptable. If so, go to the next adjustment. If it is not acceptable, go back to the color and adjust it again.

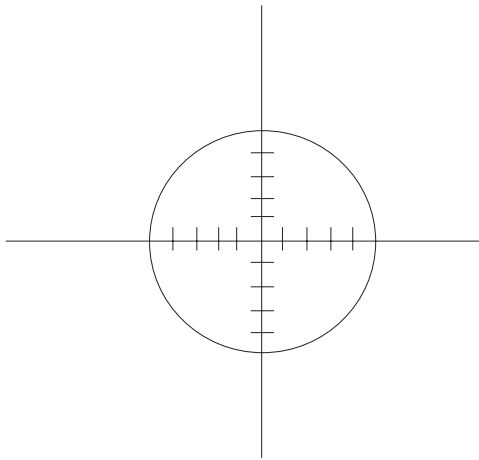
12. When all the values are acceptable for all colors, exit diagnostics.

Example of the Adjustment

Here is a sample of the magenta radar image. Looking down the left side for both X and Y you can see the X value is close to correct. It may be a little to the right. The Y value for magenta is incorrect. The magenta radar image is too far above the black. In the case of Y, increase the value for Y to move the magenta image down the page. This may not seem intuitive, but increasing the value increases the timing delay, thus moving the image down the page. The images may be off by different amounts. Make the best overall judgment using all the radar images on the left side.



When the Y value is correctly adjusted the magenta radar image should look like the following example. The Theta adjustment is done in the same manner as the Y except theta values are taken from the right side of the test pages.



Summary Notes:

X and Y values are taken from the left side. Theta is taken from the right.

Increasing values for X drives the color radar right. Increasing values for Y and Theta drive the color radar image down the page.

Do both the X and Y before attempting Theta.

Use a loop or magnifying glass to make the job easier.

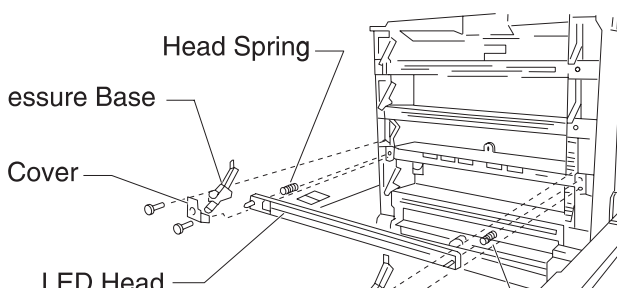
Yellow is very difficult. When you make the yellow adjustment, swap the cyan toner cartridge and photoconductor with the yellow cartridge and photo conductor. Run through the procedure making the correct adjustments to the yellow X, Y and Theta adjustment. Remember to swap the supplies position back to the correct position when you finish.

Removal Procedures

LED Head Removal

Open the top cover and remove the toner cartridge and PC drum. Be sure to set them away from bright light.

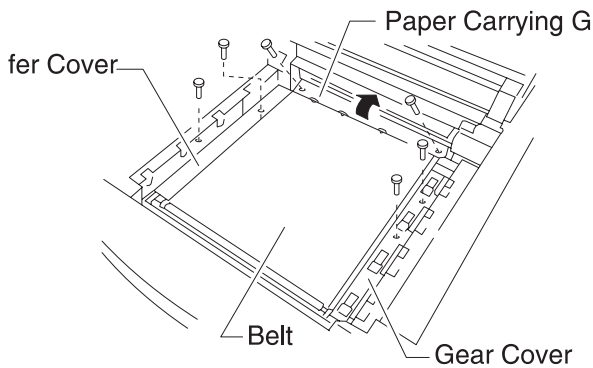
1. Remove the left and right head covers.
2. Remove the left and right pressure bases, (3 black screws). Be careful of the LED head because nothing is supporting it at this time.
3. Remove the black right-hand head spring and the gold left-hand head spring.
4. Disconnect the ground wire and the flat cable on both ends of the head from the connector.
5. Remove the LED head. Do not remove or loosen the pins on either end of the LED head because the head will be out of focus when you reinstall it. Set the head aside and place a sheet of paper over the transfer belt to protect it.
6. Do the print position (top margin K and C) adjustments for each paper supply tray and enter the LED head quantity in the service mode. When you replace the head also replace the EEPROM on the printhead controller board which corresponds to the head.



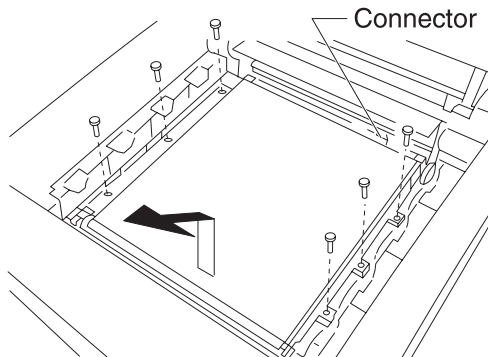
Transfer Belt Unit Removal

Never turn the transfer belt unit upside down.

1. Hold the top of the printer and press the upper unit release button to open it.
2. Remove the 4 toner cartridges and PC drum sets. Place them in a safe place away from bright light.
3. Remove the transfer cover and gear cover, (4 black screws).
4. Remove the paper carrying guide, (2 screws).



5. Disconnect connector 2P.
6. Lift the front part of the transfer belt unit first then lift the transfer belt unit out of the machine, (6 black screws).

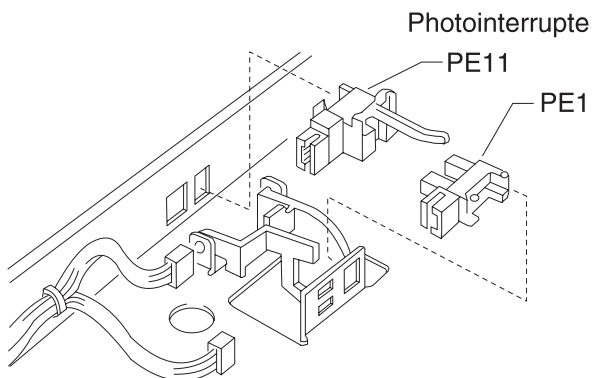


Installation Notes:

1. After you replace the belt, do the transfer belt adjustments. Run tests in the service mode. Enter the thermistor rank value and adjust the print position (top margin K and C) in the service mode. Check the belt tracking.
2. Check and adjust the printhead adjustments (X, Y and Theta position) in the service mode, if necessary.

Paper Remaining Sensor Removal

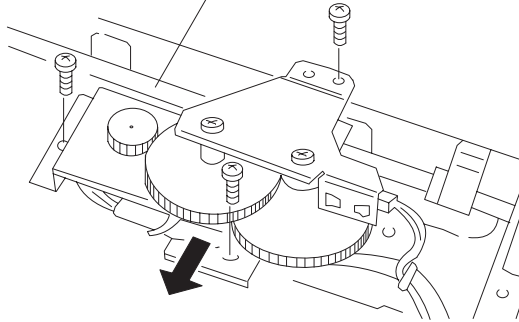
1. Remove the belt unit.
2. Remove the connector and the sensor. The sensor is a snap-fit type.



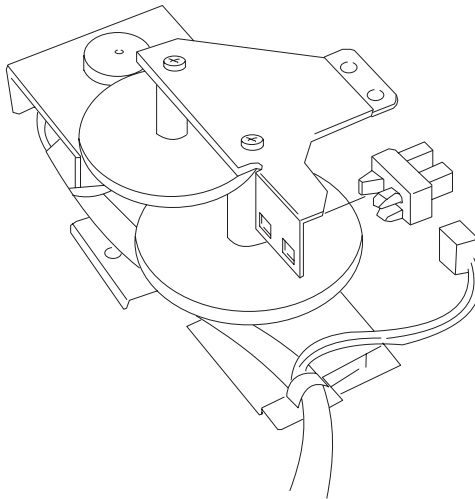
Belt Unit Drive Frame, BUD Motor, BUD Sensor Removal

1. Remove the belt unit. Do not turn it upside down.
2. Remove the 3 screws and pull it from the front.

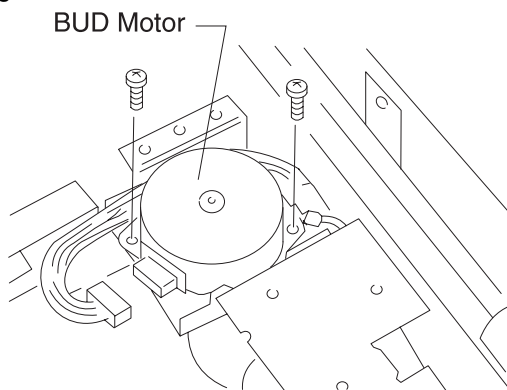
Changing Cam Shaft



3. Remove the UD frame.
4. Remove the connector and remove the BUD sensor from the UD frame.



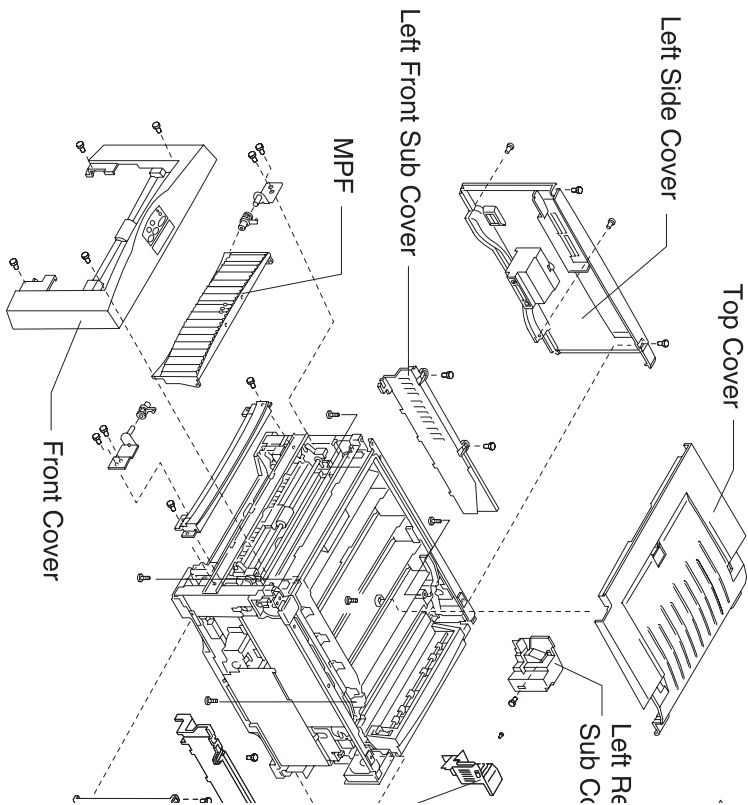
5. Disconnect the BUD motor connector and remove the 2 mounting screws. Remove the motor.



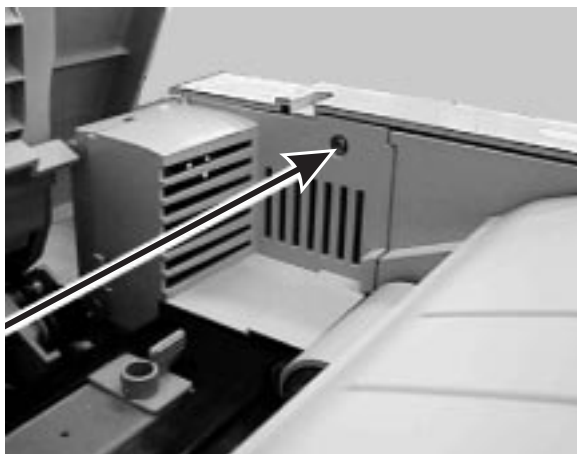
Engine Board (PG14 ENG BB) Removal

1. Remove the belt unit. Do not turn it upside down.
2. Lift the engine board bracket. Be careful not to damage the harness.
3. Remove the connector.
4. Remove the engine board from the bracket.

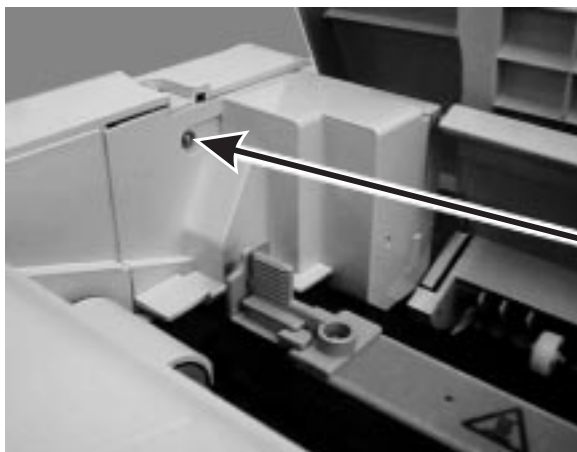
Cover Removals



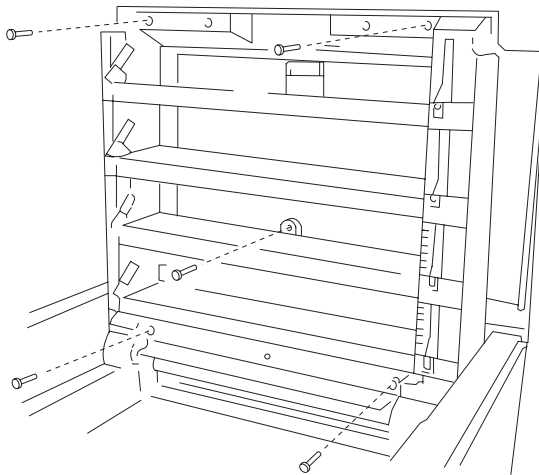
1. Open the paper exit cover and remove the screw in the right, rear sub cover. Place a screwdriver between the right side cover and the sub cover then move the sub-cover toward the center of the printer and lift it out.



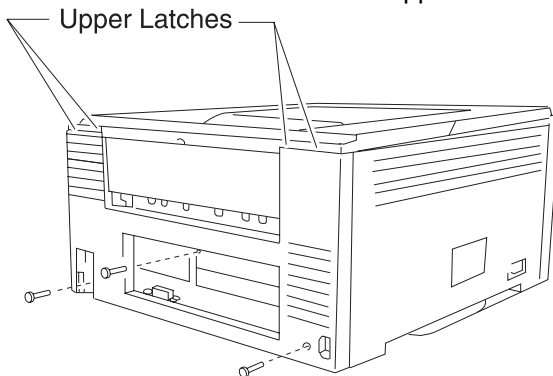
2. Remove left-rear sub-cover mounting screw and remove the cover.



3. Push the latch to lift the top cover, remove the 5 black mounting screws and remove the top cover.

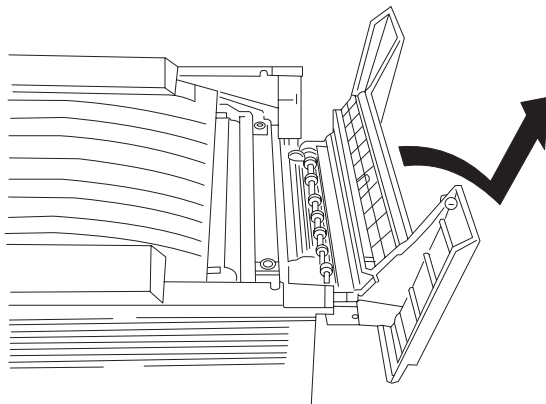


4. Remove the second paper cassette connector cover on the bottom of the rear cover.
5. Remove the rear paper exit tray if it is installed.
6. Remove the 2 rear paper exit tray mounting studs.
7. Remove the 3 silver screws from the upper latch and rear cover.



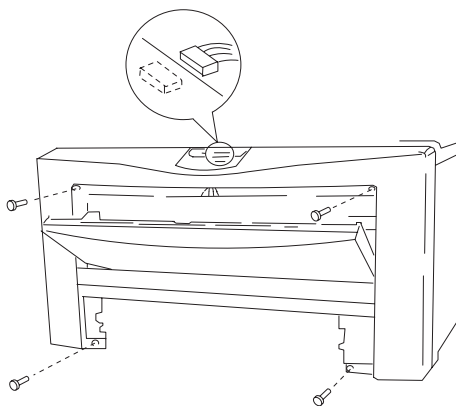
8. Lift the cover over the top latches and lift back.
9. Loosen the cable tie and remove the face-down stacker sensor harness connector if it is installed.

10. Open the paper exit cover and remove the paper exit unit by sliding it toward the rear.



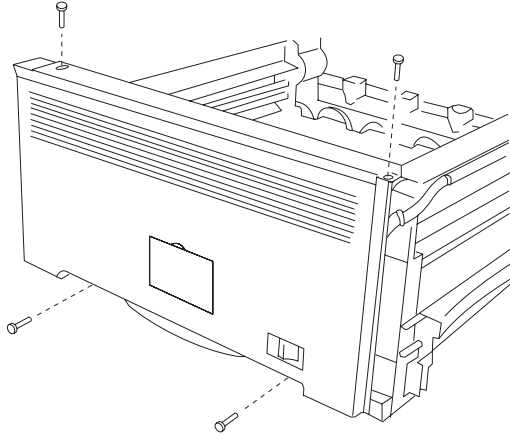
To remove the front cover:

1. Remove the paper cassette and open the MPF.
2. Remove the 4 silver mounting screws and unlatch the upper part of the front cover.
3. Remove the operator panel connector and remove the front cover.

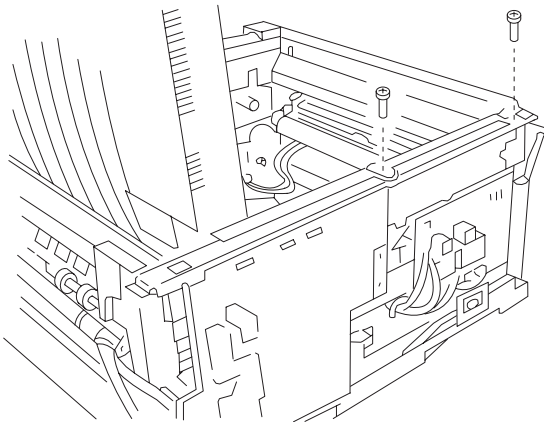


To remove the left side cover:

1. Remove the 4 silver mounting screws and remove the left side cover.

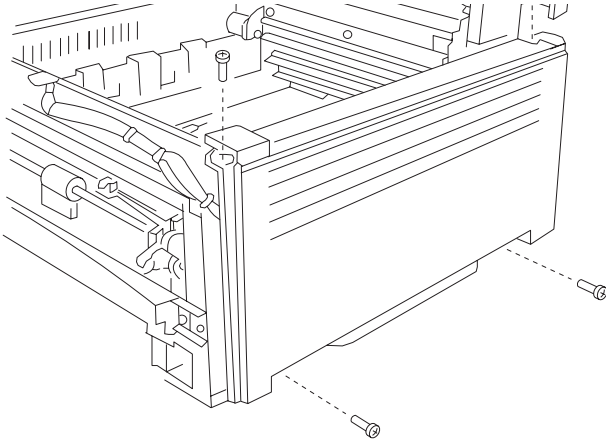


2. Remove the 2 screws that mount the left side sub-cover.

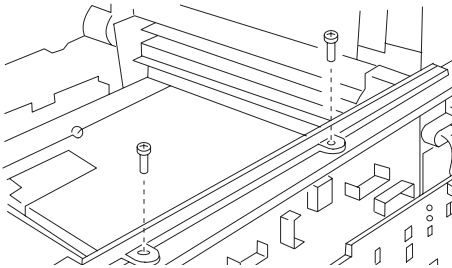


To remove the right side cover:

1. Remove the 4 silver screws that mount the right side cover.

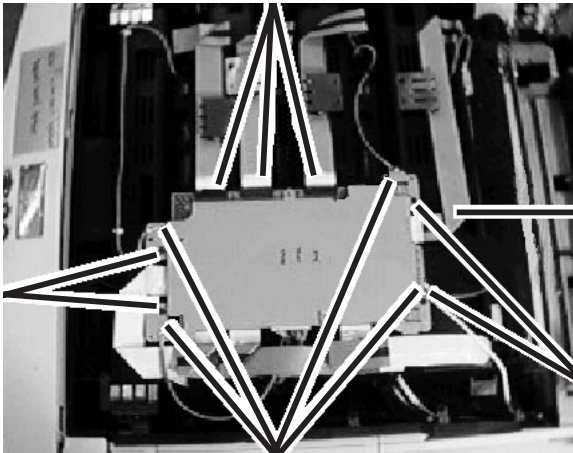


2. Remove the 2 screws that mount the right side sub-cover.

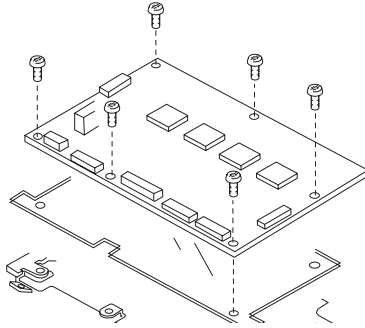


Head Controller Board (P614 HDCONT) Removal

1. Remove the top cover.
2. Remove the harness connector from the HDCONT board.
3. Remove the 3 flat cables from the HDCONT board.
4. Remove the grounding wires from the shield plate.
5. Remove the 4 black mounting screws and lift the shield plate from the HDCONT board.
6. Remove the remaining flat cable from the HDCONT board.
7. Remove the other 4 flat cables and 3 harness connectors.

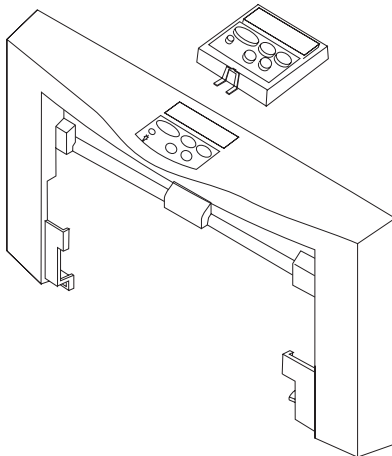


8. Remove the head controller board from the mounting board, (6 screws.)



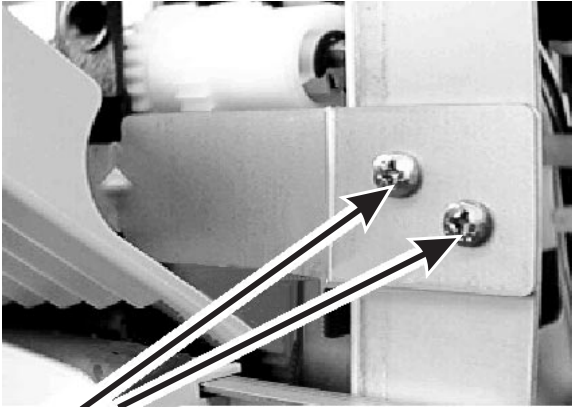
Operator Panel Removal

1. Remove the front cover, (4 silver screws).
2. Remove the connector and ground wire.
3. Remove the 2 screws from the operator panel mounting bracket.

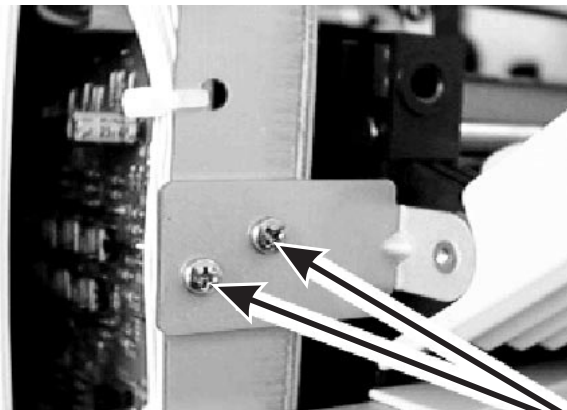


MPF Removal

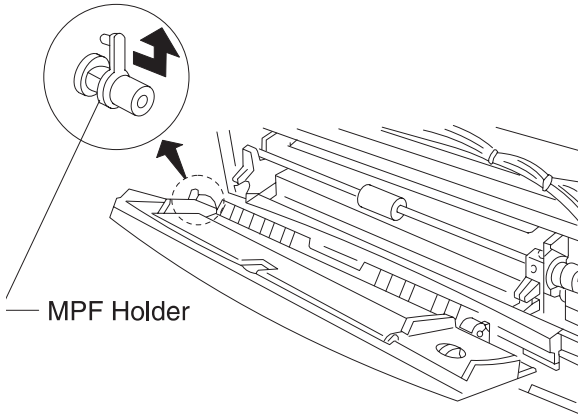
1. Remove the front cover.
2. Remove the right MPF plate, (2 screws).



3. Remove the left MPF plate, (2 screws).

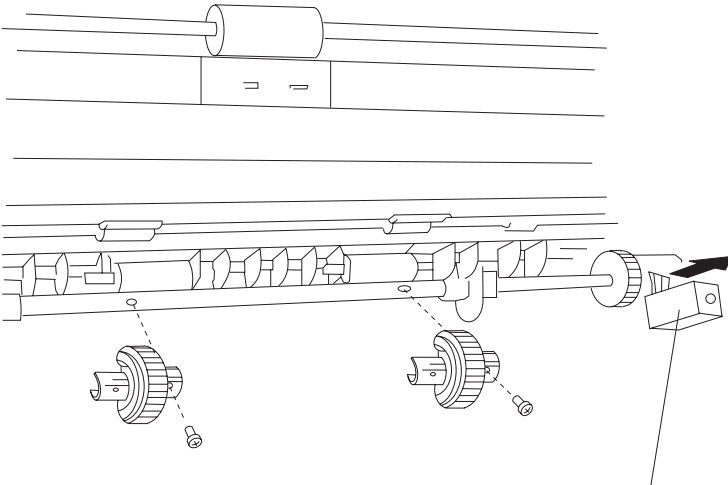


4. Remove the bearing stoppers from each side of the MPF(U). Release and turn the bearing position clips 90 degrees toward the front.



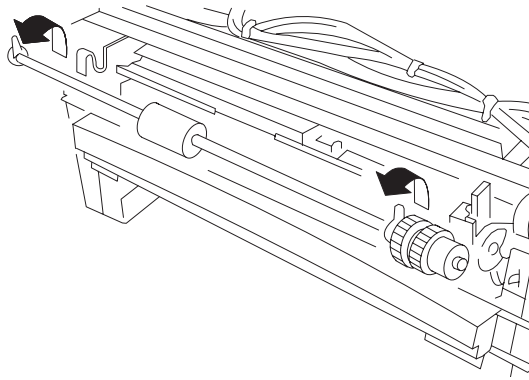
Paper Feed Roller Removal

1. Remove the rear cover and the right side cover.
2. Move the plunger of the paper feed clutch solenoid out of the way to make the clutch move freely. Turn the paper feed roller and remove the screw.
3. Remove the paper feed roller from the shaft. If the roller has oil on it, clean it with a cloth dampened with alcohol.

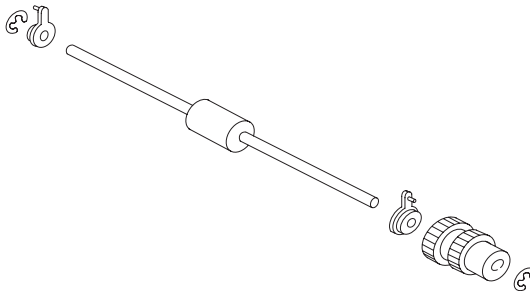


MPF Roller

1. Remove the front cover.
2. Remove the MPF(U).
3. Remove the bearing stoppers from each side of the MPF(U). Release and turn the bearing position clips 90 degrees toward the front.



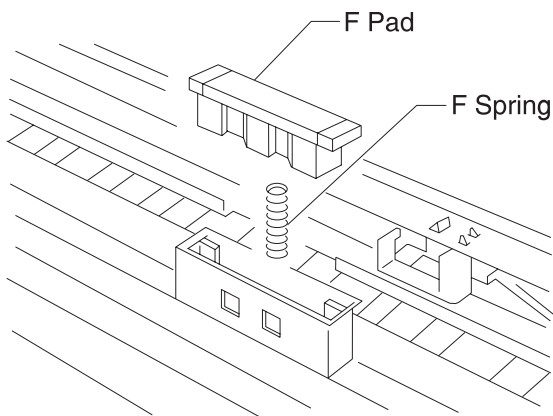
4. Remove the E-ring and MPF clutch.



Assembly Note: Put conductive grease on the contact portion between the shaft of the resist roll and the resist roller ground plate.

F Pad Removal

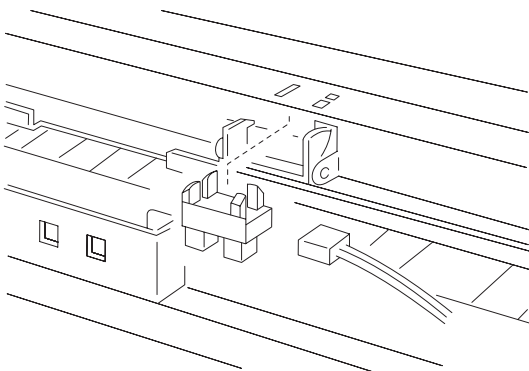
1. Remove the MPF roller.
2. Remove the pad by releasing 2 latches.



Clean the paper feed roller surface with a cloth dampened with alcohol.

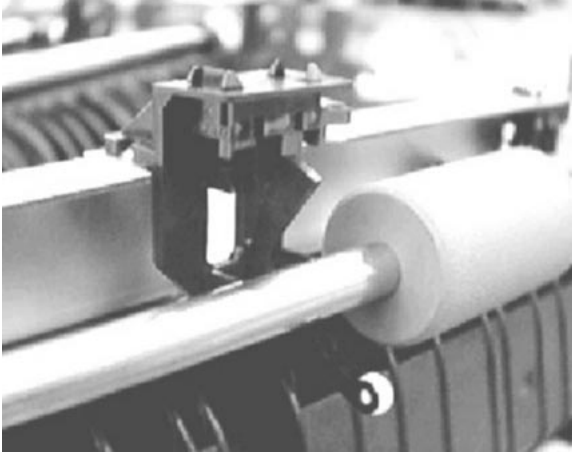
Registration Sensor Removal

1. Remove the MPF roller.
2. Remove the connector and lift out the sensor.



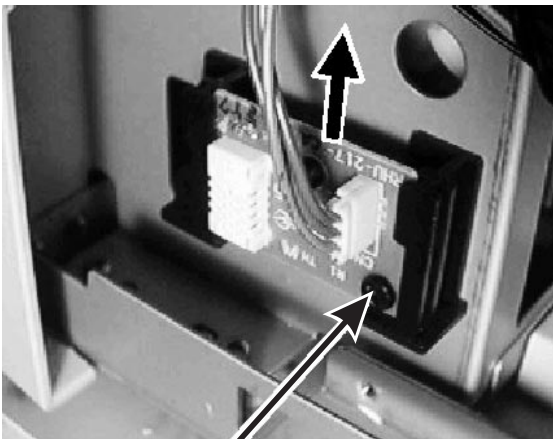
MPF Paper Empty Sensor Removal

1. Remove the front cover.
2. Remove the connector and lift out the sensor from the MPF sensor bracket.



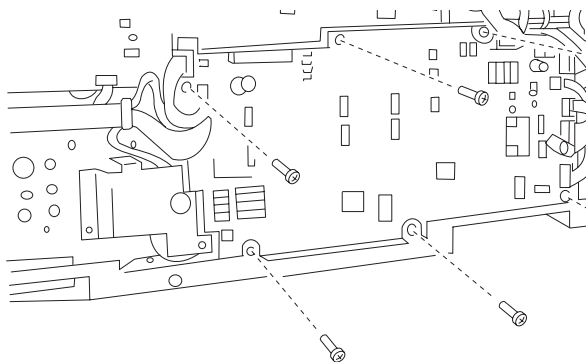
Humidity Sensor Removal

1. Remove the rear cover and the right side cover.
2. Remove the connector and remove the humidity sensor, 1 black screw.



Printer Controller (614 PRCONT) Removal

1. Remove the rear cover and the right side cover.
2. Remove the connector and the printer control board, (6 screws.)

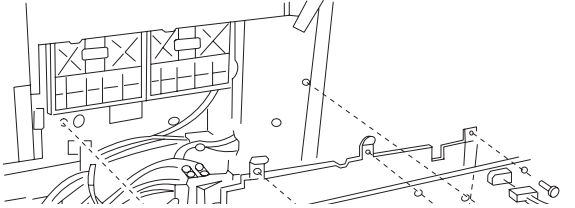


Installation Notes:

- Be sure to take the EEPROM (U107) from the old board and install it on the new board.
- If you change the EEPROM, the LED light quantity, total counter, printing position (margins), and printhead adjustments (X,Y, and Theta) should be readjusted in the service mode.

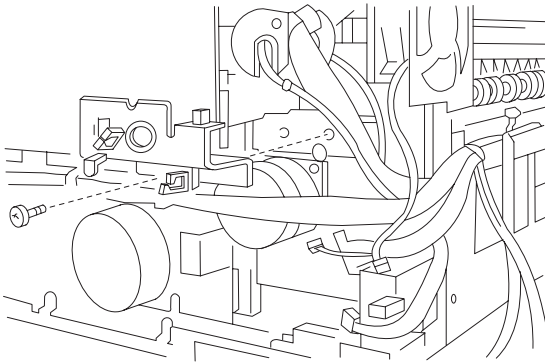
HVU1(U) Removal

1. Remove the printer controller board.
2. Remove the harness from the wire saddle.
3. Remove the connector.
4. Remove the 7 mounting screws.
5. Remove HVU1(U) from the HVU bracket, (9 screws).

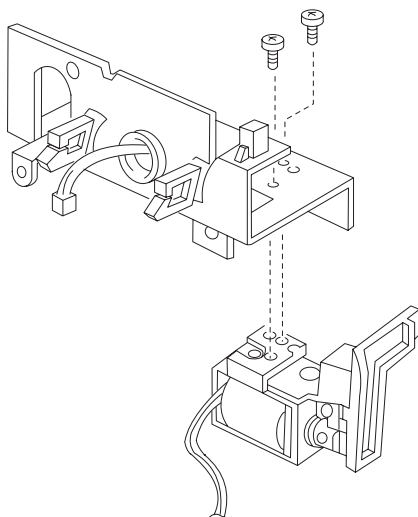


Drive 2 (U) and Face Up/Face Down (FUD) Solenoid Removal

1. Remove the printer controller.
2. Remove the harness from the wire saddle.
3. Remove the mounting bracket stay, (1 black screw).



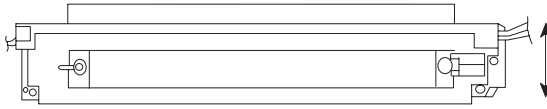
4. Remove the FUD solenoid from the mounting bracket stay, (2 black screws).



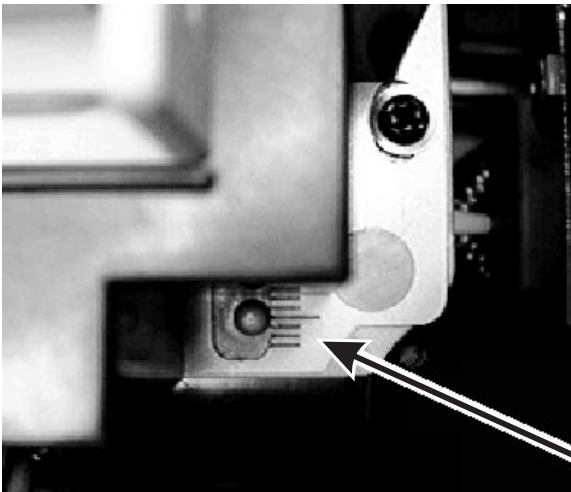
5. Remove the Drive 2, (7 black screws).

Fuser Removal

Before you remove the fuser, mark its position with a pencil so you can install it to the same place.



You can also note the position of the fuser on the embossed scale on the bottom of the fuser frame.



Identification of high/low voltage fuser can be determined by either a red/low or a blue/high wire for the fuser connector.

After you install the fuser, run a test print. If there is a wrinkle or scrape on the bottom of the page, reposition the fuser.

1. Be sure to unplug the machine.
2. Remove the left-rear and right-rear sub covers.

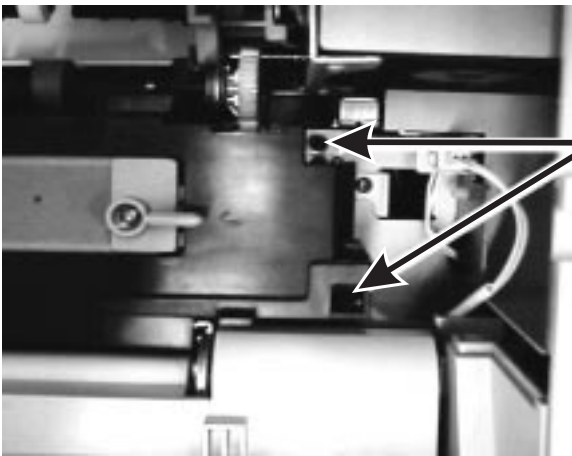
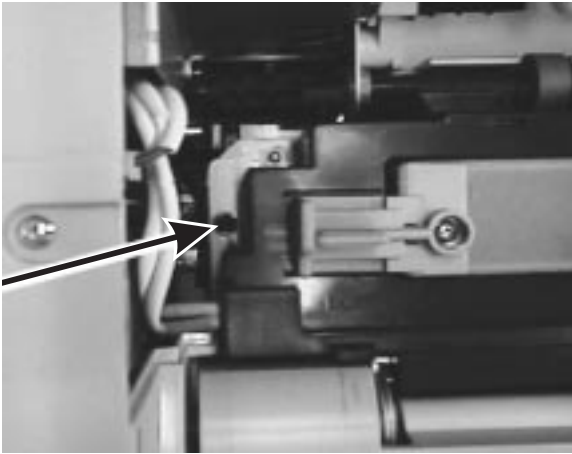
3. Remove the thermistor harness connector.



4. Remove the harness connector from the power supply board.



5. Remove the 3 black fuser mounting screws.

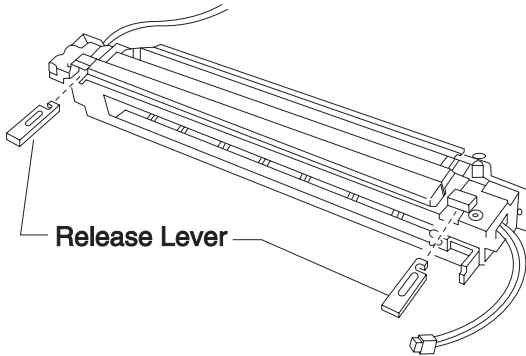


6. Lift the fuser out of the printer.

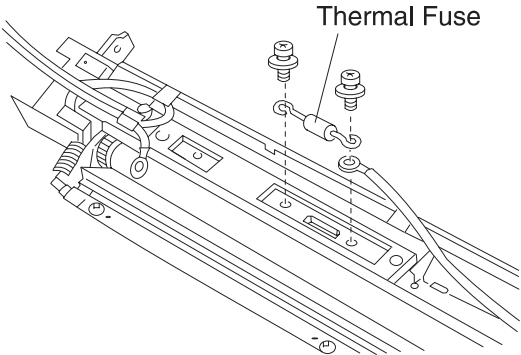
When you reinstall the fuser, be careful not to damage the fuser exit sensor actuator.

Fuser Thermostat, Fuse, and Thermistor Removals

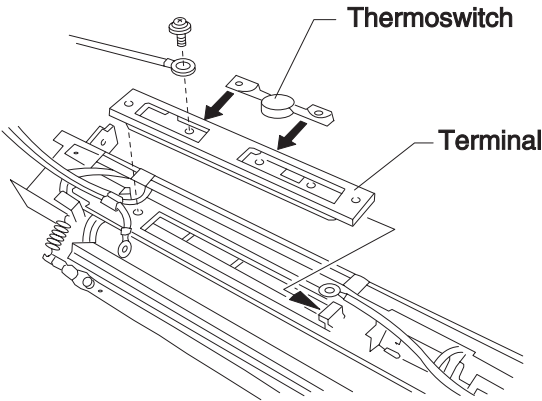
1. Remove the fuser cleaner.



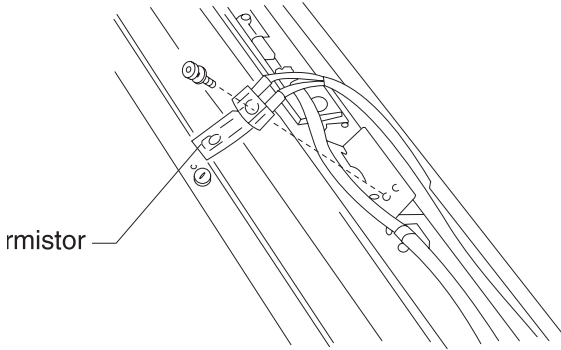
2. Remove the 2 release levers and stopper screws.
3. Unlatch the center of the fuser guide, slide it to the right and remove the fuser guide.



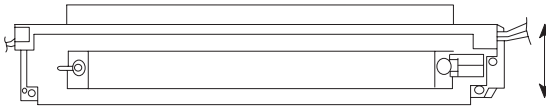
4. Remove the temperature fuse, (silver screw with washer).



5. Remove 1 screw and the terminal.
6. Remove the thermistat switch from the terminal, (1 silver screw with washer).



7. Remove the thermistor, (1 silver screw with washer).

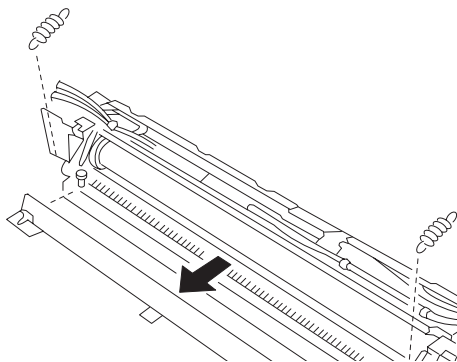


Fuser Press Roller Removal

1. Remove the fuser cleaner and the fuser guide,
2. Remove the lock screw, wave washer and washer.
3. Slide the fuser cover toward the driving side and remove the fuser cover to the upper side.

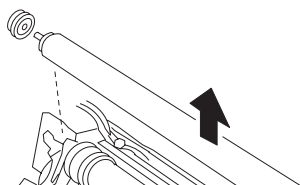
Fuser Cover → Lock Screw

4. Remove the press spring by loosening 2 of the screws and sliding the paper feed guide toward the bottom.



5050-001

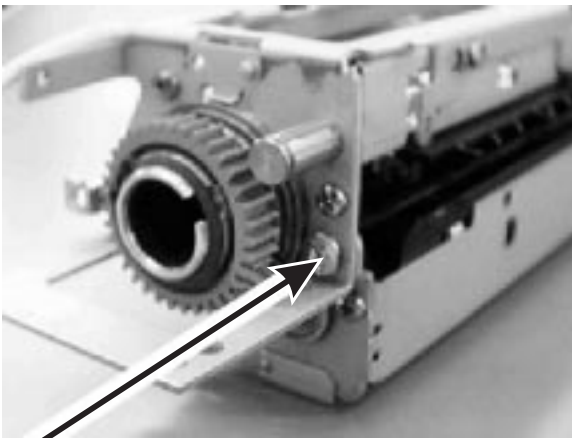
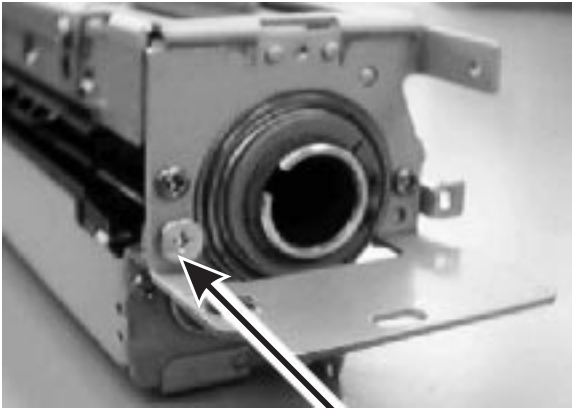
5. Open the guide retainer.
6. Remove the press roller.



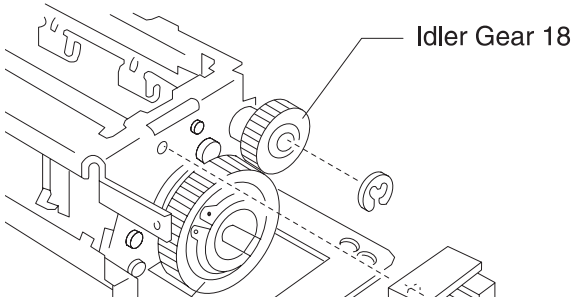
Fuser Pawl Removal

Be careful not to damage the edge of the pawl or the fuser roll.

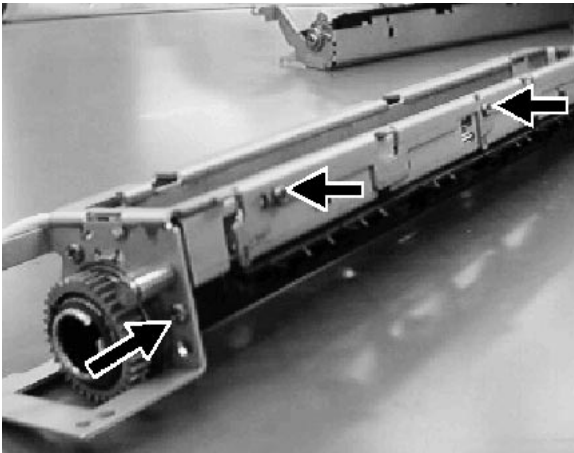
1. Remove the fuser oiler roller, fuser guide and fuser cover.
2. Remove the press spring.
3. Remove the 2 stopper screws and the guide stay.

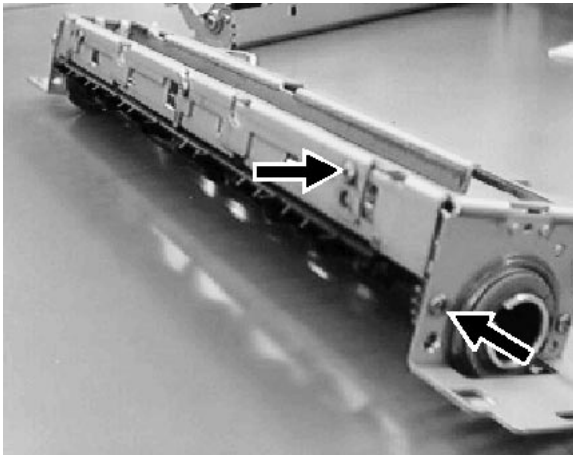


4. Remove idler gear 18.

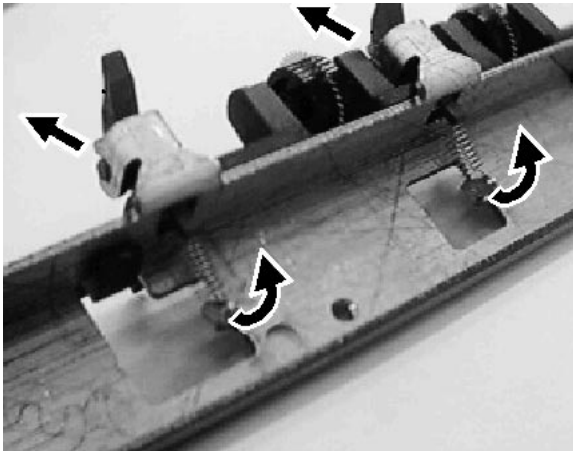


5. Pull out the pawl holder stay and remove it, 5 screws. Be careful not to damage the fuser roller surface.





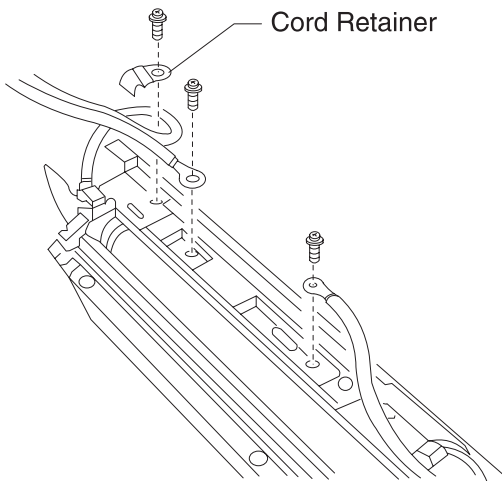
6. Remove the pawl from the holder stay. Be careful to not lose the spring.



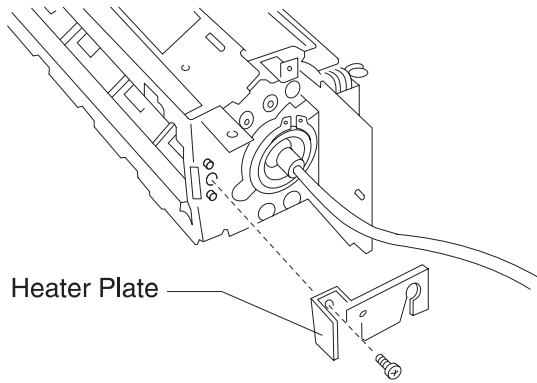
Fuser Heater Removal

Be careful not to damage the heater glass. Do not touch the lamp with your fingers. Wipe with alcohol if it is necessary to clean.

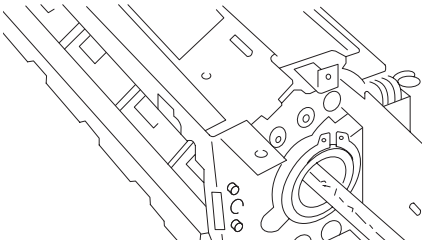
1. Remove the fuser guide and the fuser cover.
2. Remove the harness from the terminal, 2 silver screws with washers.
3. Cut off the cable tie on the cord retainer.



4. Remove the left heater plate from the left side.

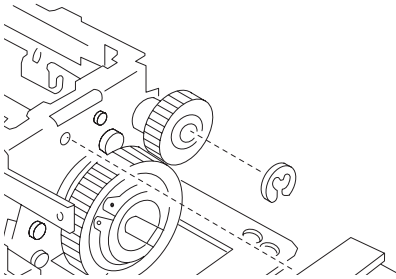


5. Hold the insulator and pull it out from the heat roller.

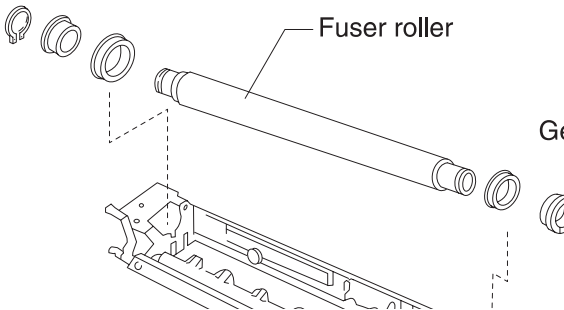


Fuser Heat Roller and Gear H, Gear 30 Removal

1. Remove the fuser heater.
2. Remove the guide stay.
3. Remove the pawl holder stay.
4. Remove the right heater plate.

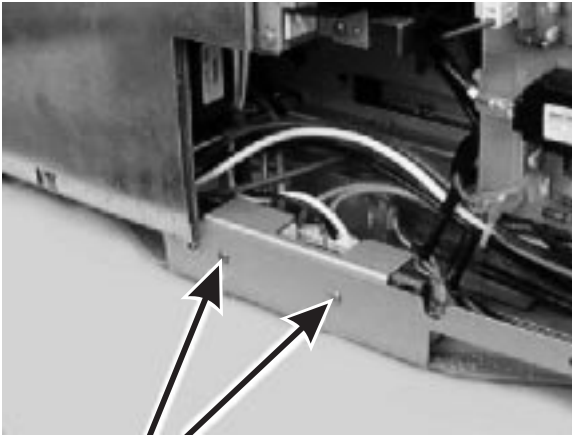


5. Remove the fuser roller.
6. Remove gear H.

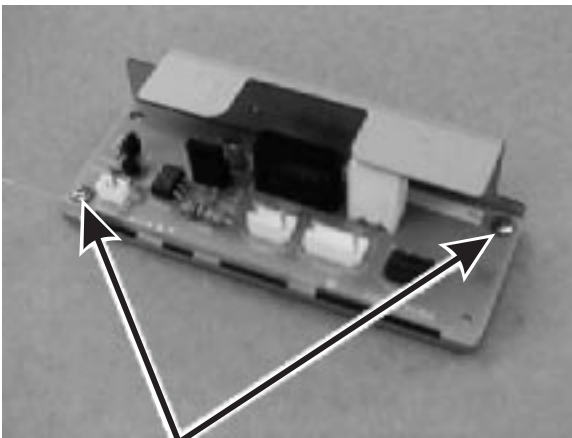


Heater Drive Board, 230 V Only

1. Remove the rear cover, front cover, and left side cover.
2. Remove the HK bracket, (2 screws).
3. Remove the connector.

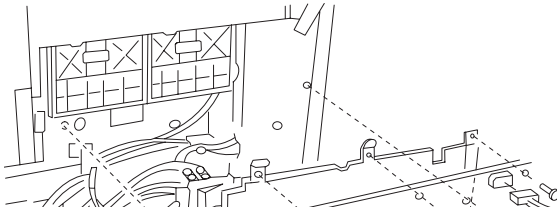


4. Remove the HDRV board from the HK bracket, (2 screws).



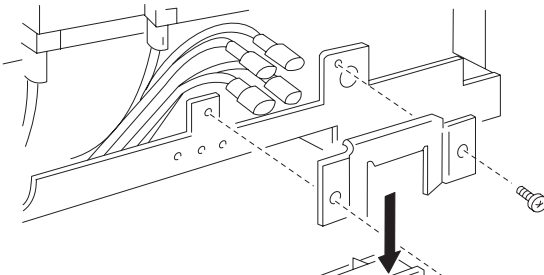
HVU 2 Removal

1. Remove the rear cover, the front cover, and the left side cover.
2. Remove the connector and HVT bracket.
3. Remove the HVU 2 from the HVT bracket, (6 screws).



Power Supply Switch Removal

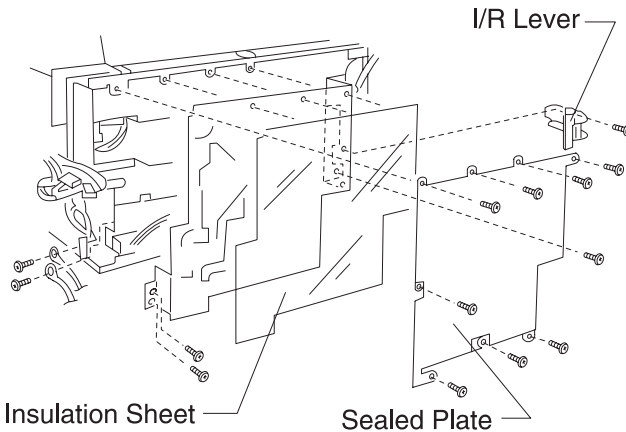
1. Remove the rear cover, the front cover, and the left side cover.
2. Remove the 2 switch mounting screws and pull out the switch.
3. Remove each terminal and the switch from the switch holder.



Installation Note: When you connect the terminals be sure to connect them to the correct position. Also, after the terminals are connected, firmly insert the insulating cover.

Power Supply Board (P614-MPS) Removal

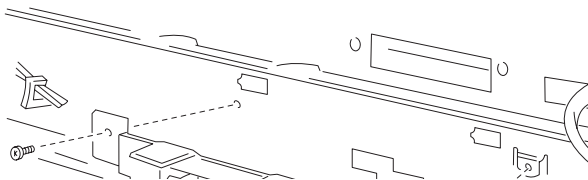
1. Remove the rear cover, the front cover, and the left side cover.
2. Remove the connectors on the board.
3. Remove the ground wire
(green/yellow, gray, 117 V only / 1 screw).
4. Remove the I/R lever: B, (S-tight 3x6 / 2 screws).
5. Remove the shield plate, (S-tight 3x6 / 8 screws).
6. Remove the insulating sheet and power supply board,
(S-tight 3x6 / 5 screws).
7. Remove the connector of the main switch cable.



Note: Be sure the I/R lever works correctly after you reassemble.

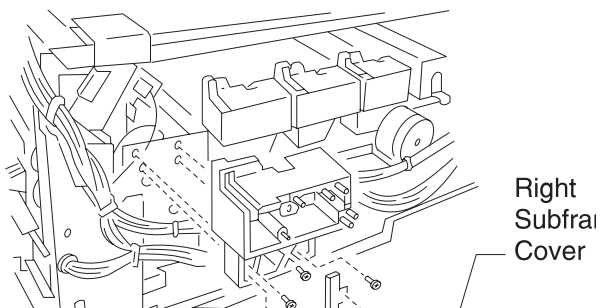
Size Sensor Board (P611-PSZ) Removal

1. Remove the rear cover, the front cover, and the left side cover.
2. Remove the power supply board.
3. Remove the HDRV board (230 V only).
4. Remove the connector and the PSZ bracket, (2 screws).
5. Remove the P611-PSZ assembly (size sensor board) from the bracket, (2 screws).

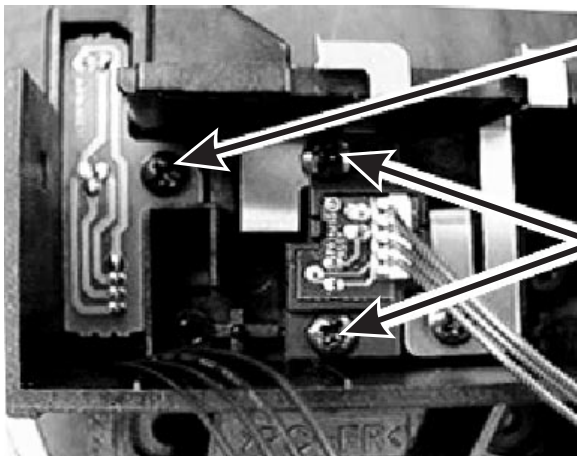


Toner Remaining Sensor, Drum Gear Sensor Removal

1. Remove the HVU1.
2. Remove the right sub-cover, (2 screws).
3. Remove the right sub-frame (toner/drum gear sensor), (4 screws).
4. Unsnap and remove the sub-frame (toner/drum gear sensor) cover.
5. Remove one black mounting screw and lift out the toner remaining sensor.

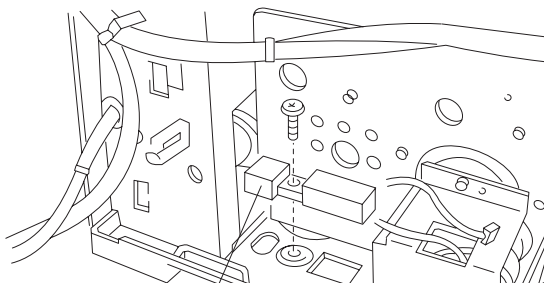


6. Remove the drum gear sensor, (2 black screws).

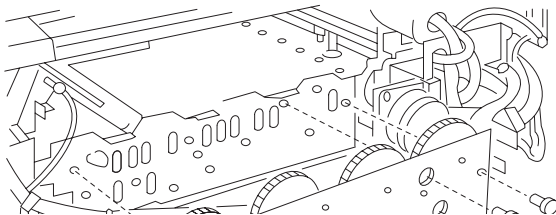


Drive 1 Removal

1. Remove the right sub-frame toner/drum gear sensor unit.
2. Remove the belt unit.
3. Remove the lock cover, (1 screw).



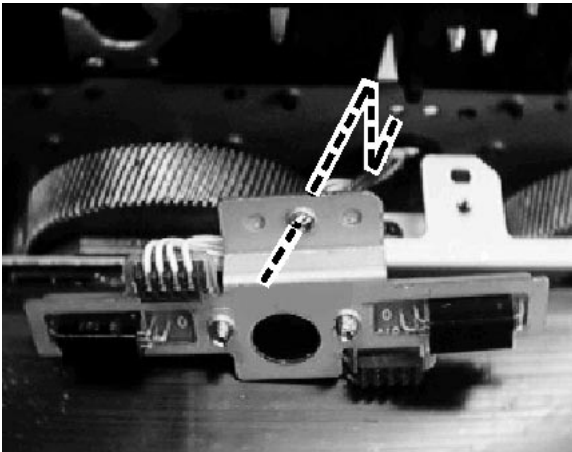
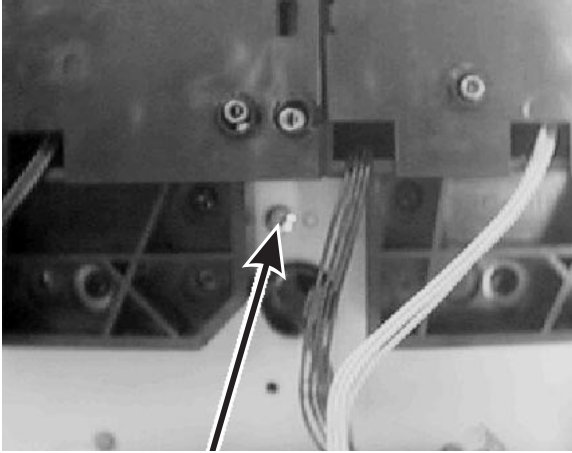
4. Remove the 6 outside mounting screws and 2 screws from inside the frame. Remove drive 1.



Installation Note: When you connect the terminals be sure to connect them to the correct position. After the terminals are connected, firmly insert the insulating cover.

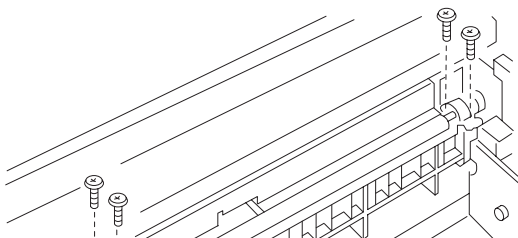
Drum Drive Gear Sensor (P614-DGS) Removal

1. Remove the gear cover.
2. Remove the rear cover, front cover, and right side cover.
3. Remove the printer controller board and high voltage unit 1.
4. Remove the drum drive gear sensor from drive 1, (1 screw).

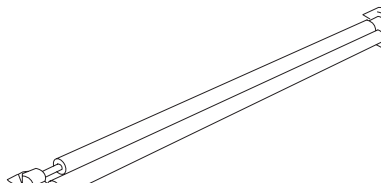


Registration Roller Removal

1. Remove the rear cover, the front cover, and the right side cover.
2. Remove the right-front sub-cover.
3. Remove the connector from printer controller board.
4. Remove the lead line from the wire saddle.
5. Remove the registration roll, (4 black screws). Be careful of the lead line.
6. Remove the registration clutch from the registration roller, (1 E-ring). I

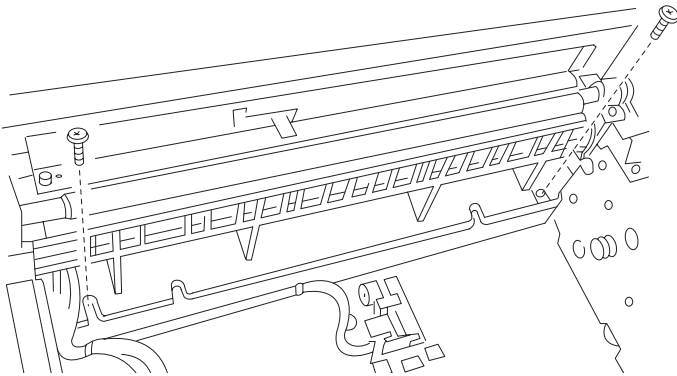


When you reassemble, put conductive grease on the contact portion between the shaft of the registration roll unit and registration roller ground plate.

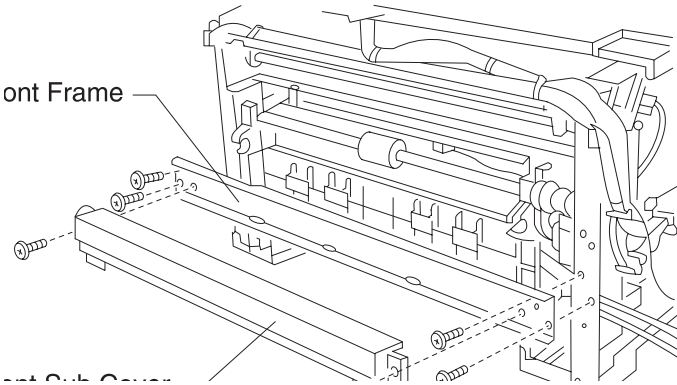


Paper Feed Assembly Removal

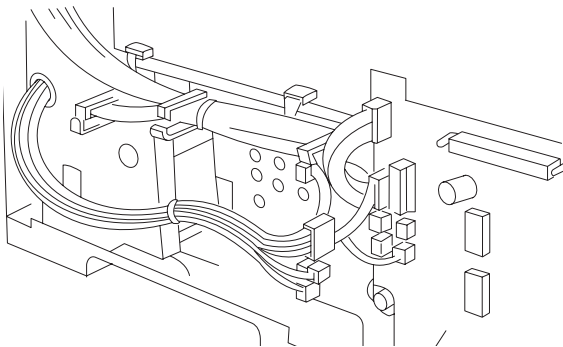
1. Remove the rear cover, front cover, and right side cover.
2. Remove the MPF.
3. Remove the transfer belt assembly.
4. Remove the 2 screws.



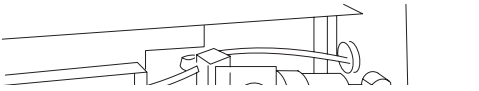
5. Remove the front sub-cover, (2 screws).
6. Cut the cable tie off and remove the front frame, (4 screws).



7. Remove the connector from the printer controller board and harness.

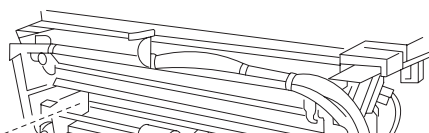


8. Remove the MPF solenoid, (1 screw).

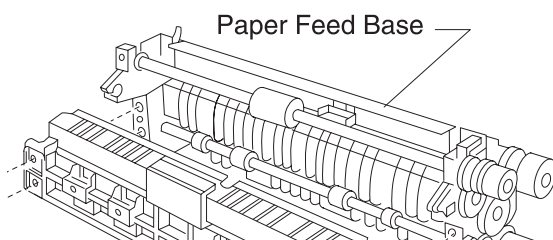


9. Remove the registration sensor and, the connector of the remaining paper sensor, and cut the cable tie.

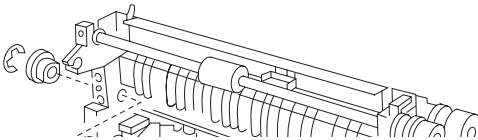
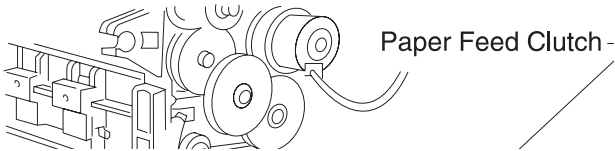
10. Press and slide the paper cassette support plate and remove the paper feed base, (4 screws).



11. Remove the turn guide, (4 screws).

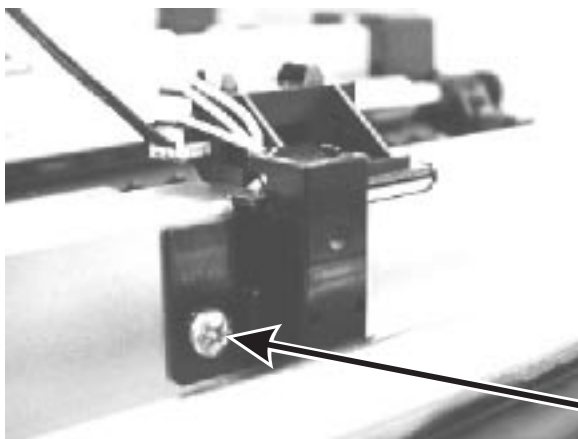


12. Remove the paper feed clutch and the paper feed solenoid.
13. Remove the paper carrying roller.

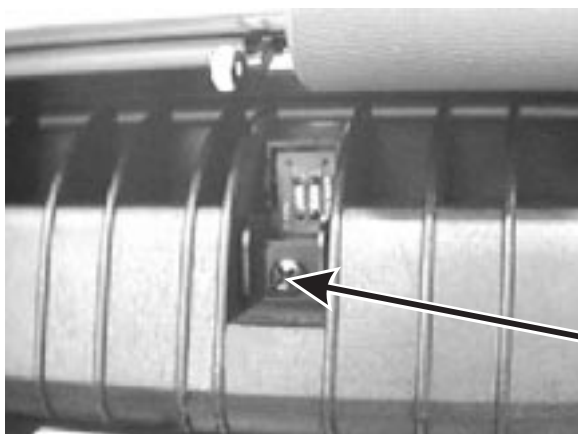


OHP Sensor Removal

1. Remove the rear cover, front cover, and right side cover.
2. Remove the MPF.
3. Remove connector CN132 and harness from the printer control board.
4. Remove the OHP sensor (photo sensor) from the sensor stay.



5. Remove the front sub-cover.
6. Cut the cable tie and remove the front frame.
7. Remove the transfer belt unit.
8. Remove the turn guide.
9. Remove connector CN131 and harness from the control board.
10. Remove the OHP sensor (LED), (1 screw).



Paper Exit Sensor Removal

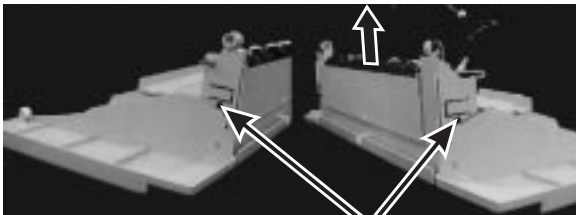
1. Remove the rear cover.
2. Remove the connector.
3. Remove the paper exit photo interrupter.



Be sure the actuator works correctly after you reassemble.

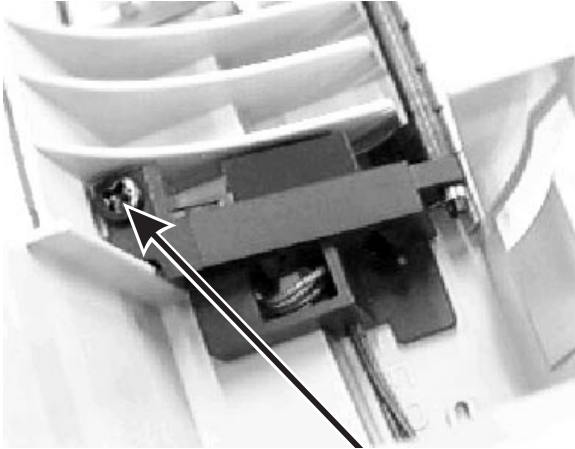
Output Bin Full Sensor Removal

1. Remove the rear cover.
2. Remove the connector from the paper full sensor harness.
3. Remove the paper exit unit.
4. Remove the paper exit cover. Be careful not to drop the exit flame from the exit cover.



5050-001

5. Pull out the exit unit from the exit cover. Be careful of the output bin sensor harness.
6. Remove the paper full sensor from the exit cover.

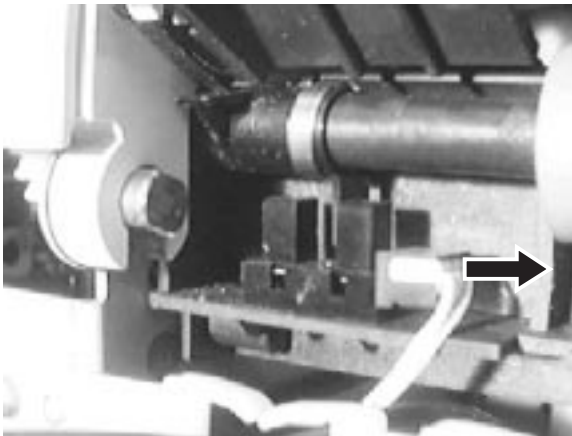


RIP Controller Card Removal

1. Be sure the printer power is off and the power cord is unplugged.
2. If the rear output bin is attached to the back of the printer, lift it straight up and remove it from the printer.
3. Disconnect all cables from the back of the printer.
4. Loosen the six thumbscrews on the system board faceplate at the back of the printer.
5. Slide the system board completely out of the printer and place it on a level surface.

Paper Face Up/Face Down (FUD) Delivery Sensor Removal

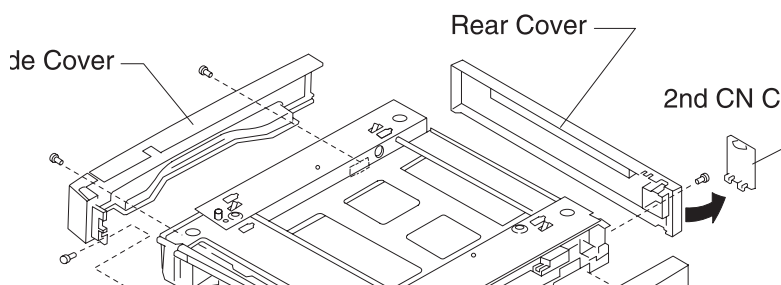
1. Remove the rear cover.
2. Remove the connector.
3. Remove the photo interrupter.
4. Be sure to check the actuator after you reassemble.



Optional Paper Feeder Removal Procedures

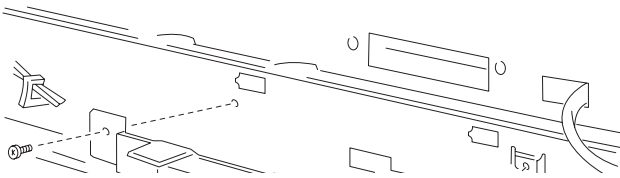
Outer Cover Removal

1. Remove the second cover.
2. Remove the screw and take off the latch of the upper side, and remove the rear cover, (1 silver screw).
3. Remove the right side cover, (3 silver screws).
4. Remove the left side cover, (3 silver screws).
5. Remove the front cover, (2 screws).



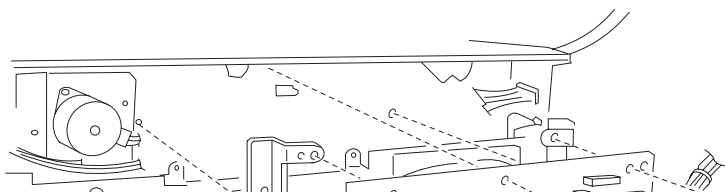
Size Sensor Board (P611-PSZ) Removal

1. Remove the rear cover and the left side cover.
2. Remove the connector and the paper size board bracket, (2 screws).
3. Remove the size sensor board from the bracket (2 screws).



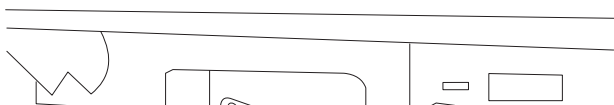
Drive Board (P614-2/3 DRIV) Removal

1. Remove the rear cover and the right side cover.
2. Remove the connector from the drive board.
3. Remove the drive board and the bracket, (2 screws).
4. Remove the drive board from the bracket, (4 screws).



Paper Feed Motor 2 (PM42) Removal

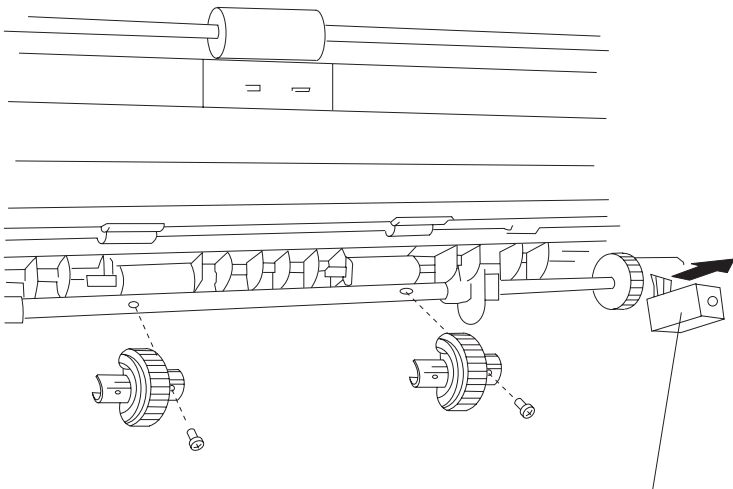
1. Remove the rear cover and the right side cover.
2. Remove the harness from the motor.
3. Remove the motor, (2 screws).



Paper Feed Roller Removal

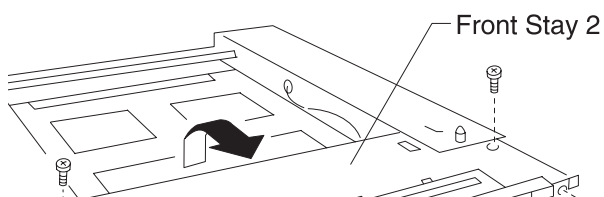
1. Remove the rear cover and the right side cover.
2. Move the plunger of the paper feed clutch solenoid out of the way to make the clutch move freely. Turn the paper feed roller and remove the screw.
3. Remove the paper feed roller from the shaft.

If the roller has oil on it, clean it with a cloth dampened with alcohol.

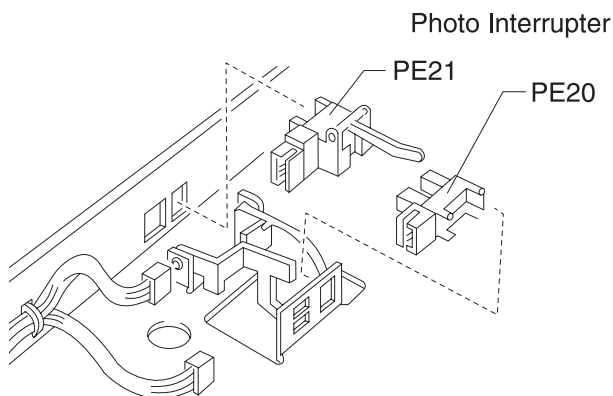


Paper Remaining Sensor Removal

1. Remove the rear cover, the right side cover, and the left side cover.
2. Remove the front stay 2 plate, (5 screws).

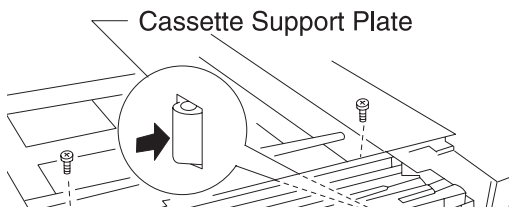


3. Remove the connector and lift out the photo interrupter.

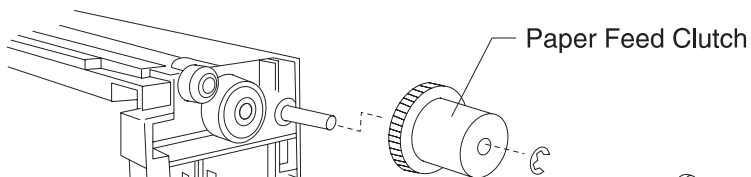


Paper Feed Clutch, Solenoid, and Transfer Roller Removal

1. Remove the rear cover, the right side cover, and the left side cover.
2. Remove the front stay 2 plate, (5 screws).
3. Remove the connector and lead line of the solenoid.
4. Remove the 4 screws. Press the cassette support plate in and slide the paper feed base out of the machine. Remove the paper feed base to the upper side.

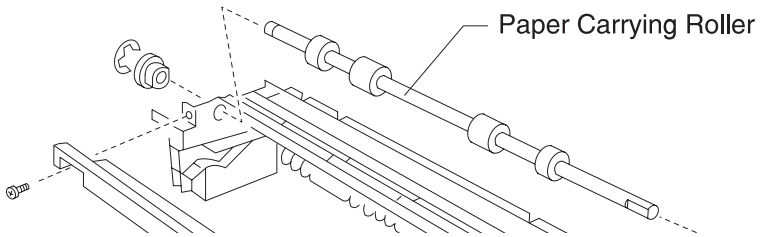


5. Remove the solenoid. Remove the paper feed clutch.



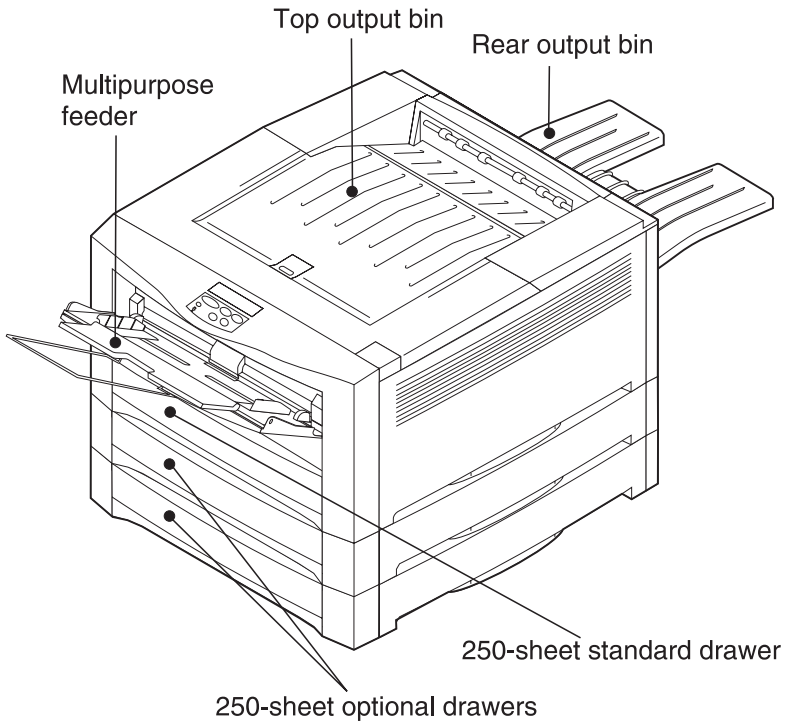
5050-001

6. Remove the paper feed guide, (2 black screws).
7. Remove the paper carrying roller.



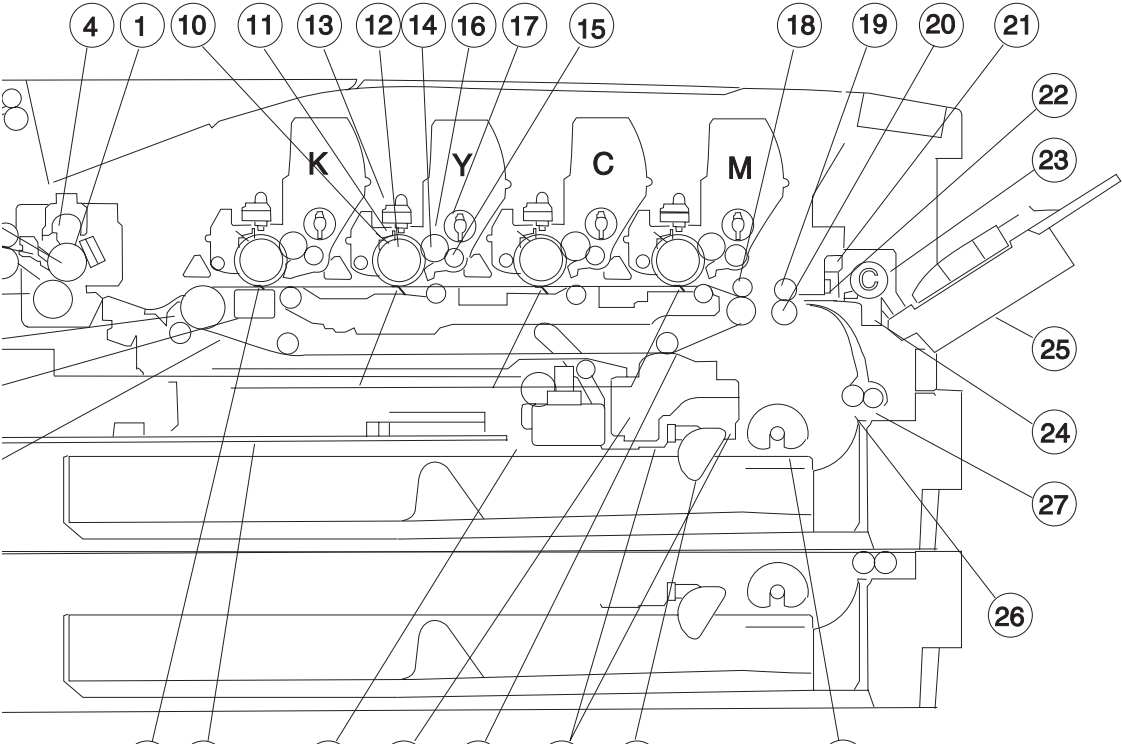
5. Connector Locations

Paper Handling



Cross Section of Printer

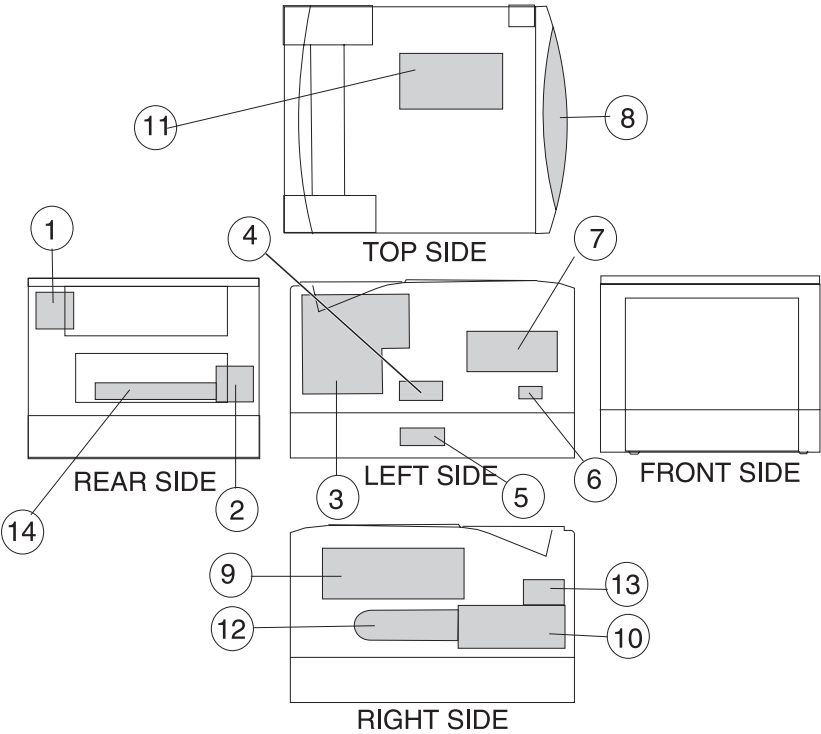
1	Fuser Roller	18	Absorption Roller
2	Press Roller	19	Registration Upper Roller (Metal)
3	Heater	20	Registration Roller (Rubber)
4	Fuser Oil Roller	21	Registration Sensor
5	Paper Exit Sensor Lever	22	Registration Sensor Lever
6	Belt Drive Roller	23	MPF Roller
7	Belt Thermistor	24	Feeder Friction Stop Pad
8	Transfer Belt	25	MPF Assembly
9	Transfer Sheet	26	Paper Carrying Roller
10	Cleaning Blade	27	Paper Noise-Cut Roller
11	Charging Roller	28	Pick-up Paper Feed Roller
12	Photoconductor Drum	29	Paper Remaining Detection Lever
13	LED Printhead	30	Paper Remaining Detection Sensors
14	Development Roller	31	Transport Belt Blade
15	Developer Supply Roller	32	Transport Belt Waste Bottle
16	Developer Doctor Blade	33	Belt Unit Drive Motor
17	Developer Agitator	34	Interface Controller



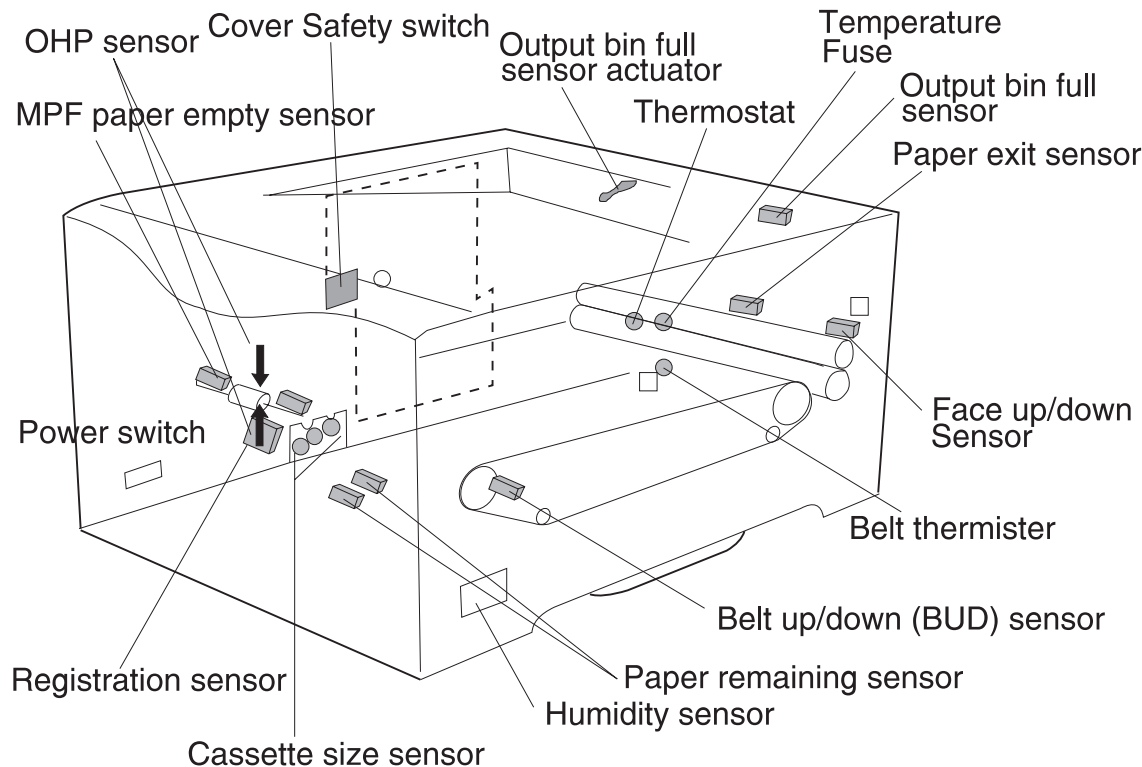
Connector Locations

Electronic Board Layout

No.	Name	No.	Name
1	Main Fan	8	Operator Panel
2	Power Supply Fan	9	HVU1
3	Power Supply	10	Printer Controller Board
4	Paper Size Detection Board	11	Printhead Controller Board
5	Paper Size Detection Board (2nd Paper Feeder Option)	12	Drive Unit 1
6	Power Switch	13	Drive Unit 2
7	HVU2	14	RIP Controller Board

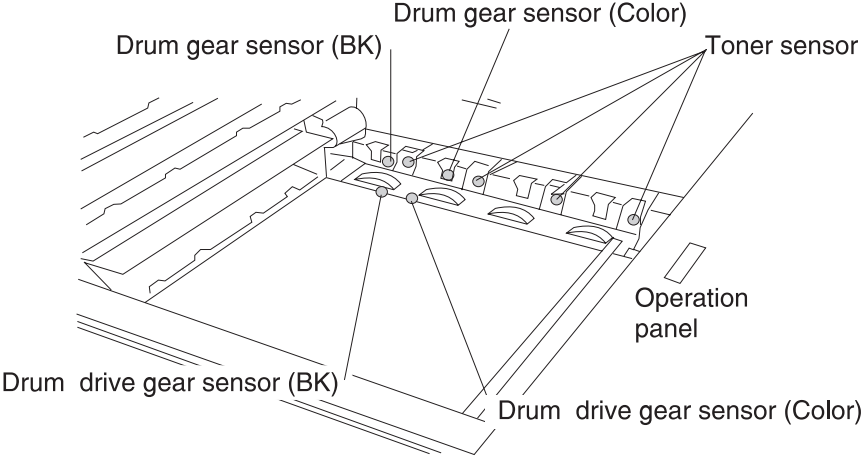


Electrical Components

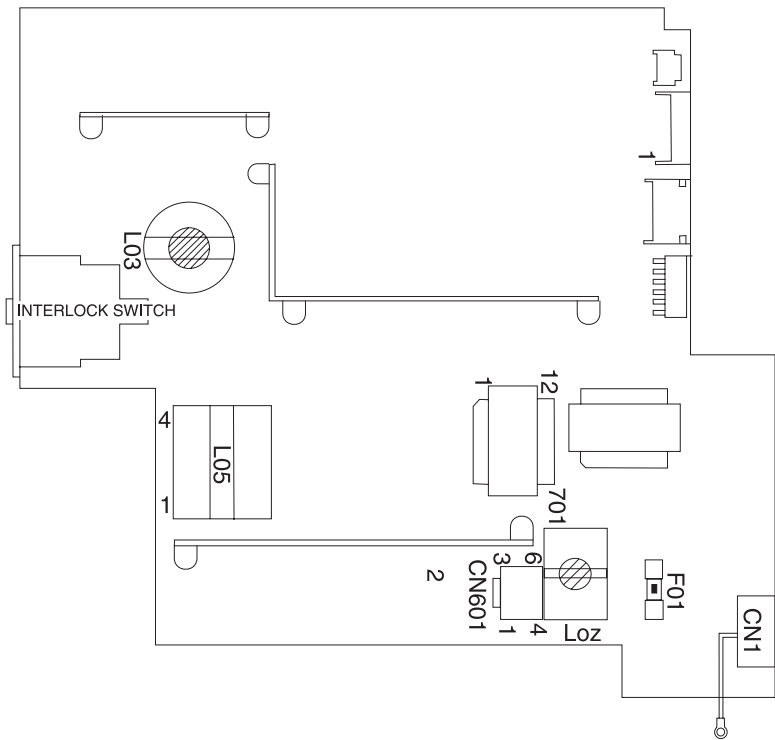


5050-001

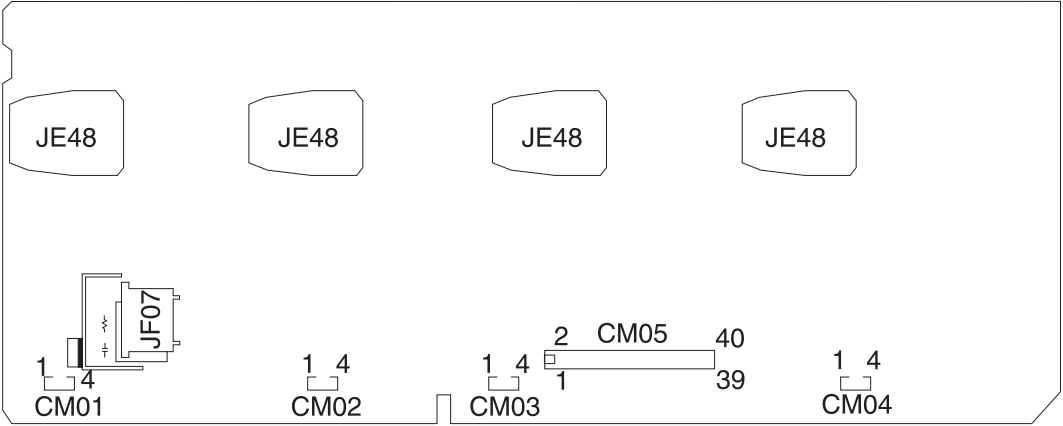
Sensors



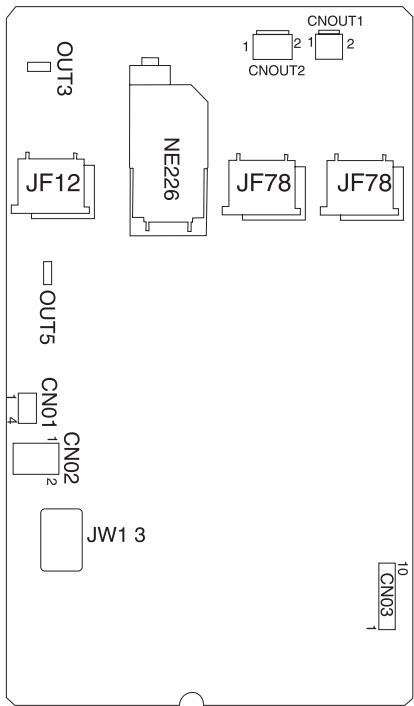
Power Supply Board (614-MPS-E)



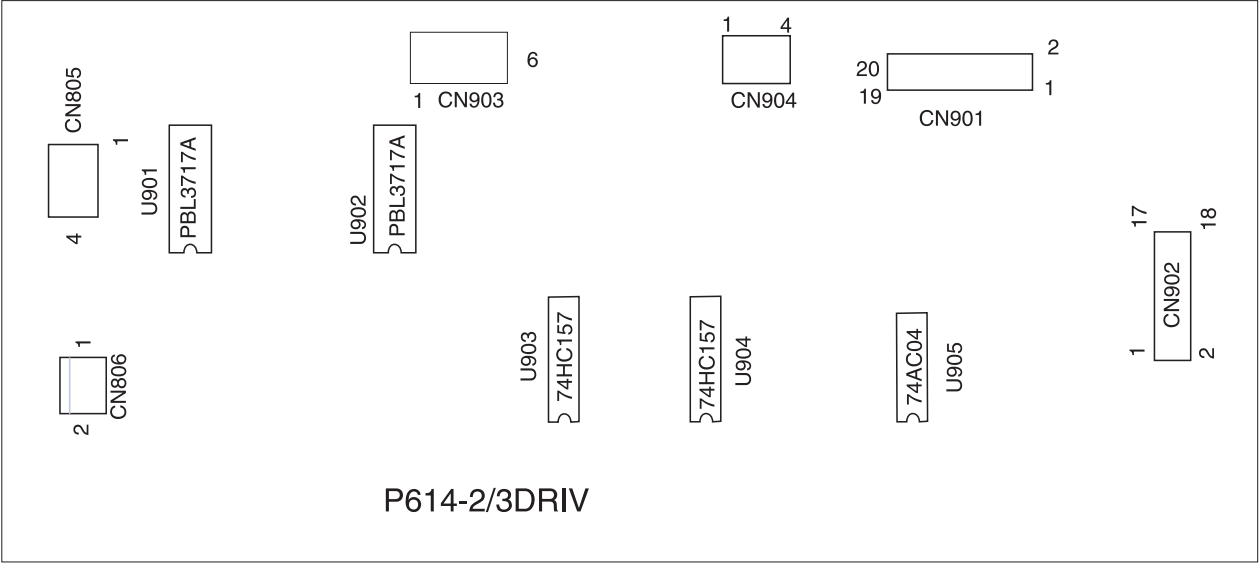
High Voltage Unit 1 Board (614-HVU1)



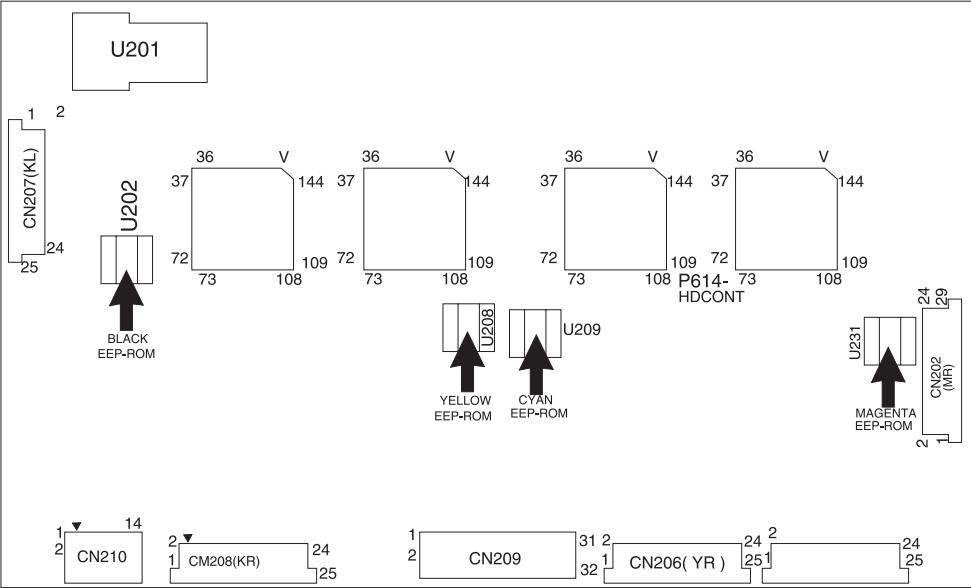
High Voltage Unit 2 Board (P614-HVU2)



Optional Paper Feed Controller Board (P614-2/3 DRIV)

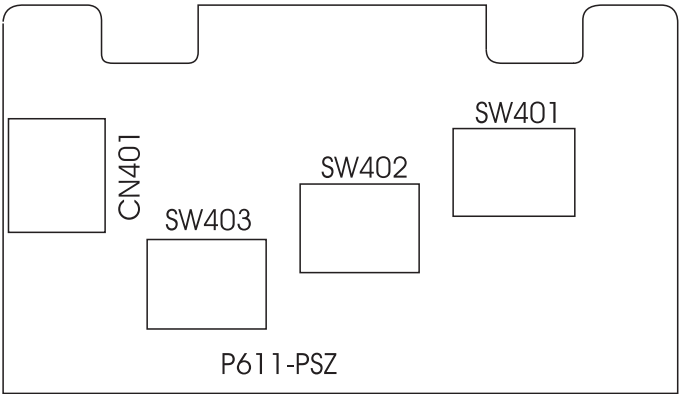


Printhead Controller Board (P614-HD CONT)

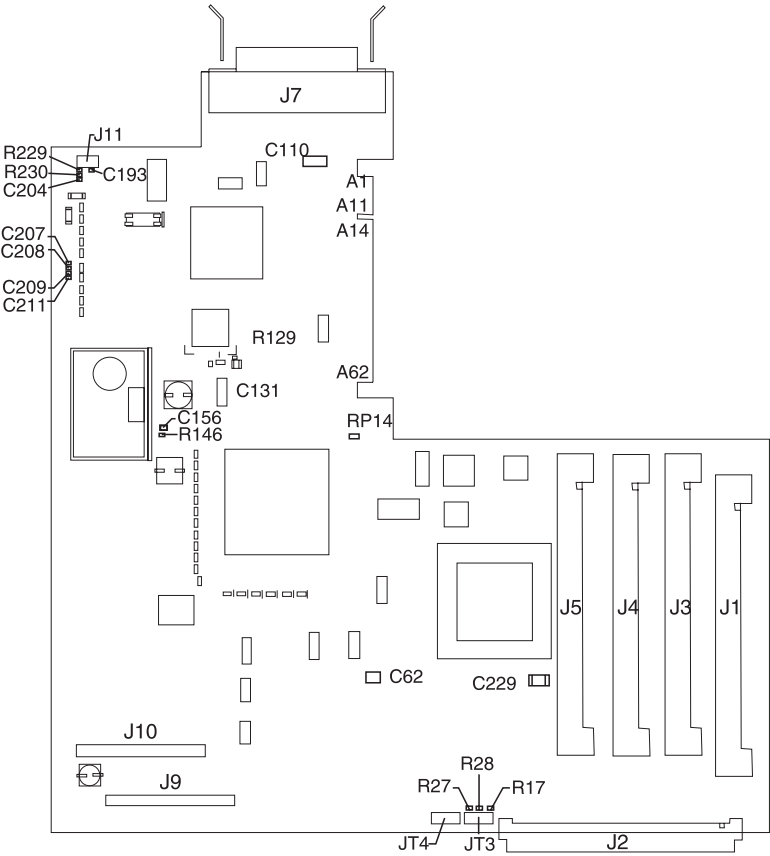




Size Sensor Board (P611-PSZ)



RIP Controller Card



6. Preventive Maintenance

Maintenance Kit

After printing approximately 100,000 pages, the message **80 Scheduled Maintenance** appears on the printer display. This message indicates that it's time to replace the following parts:

- Fuser Unit
- Belt Unit
- Paper Feed Rollers (2)

Routine replacement of these parts ensures peak printer performance and helps prevent print quality problems and paper feed problems resulting from worn parts. The parts are contained in the maintenance kits listed below.

Maintenance Kit Part number	Printer power supply
11G0601	115 V, 750 W
11G0602	220 V, 750 W

The printer can be used until you are able to schedule a service call. The **Maintenance** status message appears on the display until the printer is serviced.

Periodic Maintenance

This table lists the parts to be periodically cleaned by the servicer.

Part Name	Method
Paper Feed Unit: <ul style="list-style-type: none"> • Paper Feed Roller • MPF Roll 	If there is dust or dirt, remove it and wipe the surface lightly with a dry cloth. If it is still dirty, clean with a soft cloth and alcohol.
Registration Unit: Registration Roller, Upper and Lower	If there is dust or dirt, remove it and wipe the surface lightly with a dry cloth. If it is still dirty, clean with a soft cloth and alcohol.
Charge/Exposure Unit: LED Head	If there is dust or dirt, remove it and wipe the surface lightly with a dry cloth. If it is still dirty, clean with a soft cloth and alcohol.
Transfer Unit: Transfer Belt	If there is dust or dirt, remove it and wipe the surface lightly with a dry cloth. If it is still dirty, clean with a soft cloth and alcohol.
Fuser Unit: <ul style="list-style-type: none"> • Heat Roller • Fuser Oil Roller 	Clean with a soft cloth, silicon oil, or alcohol.
Outer Covers	Use a synthetic detergent and a damp cloth.

Lubricants and Cleaners

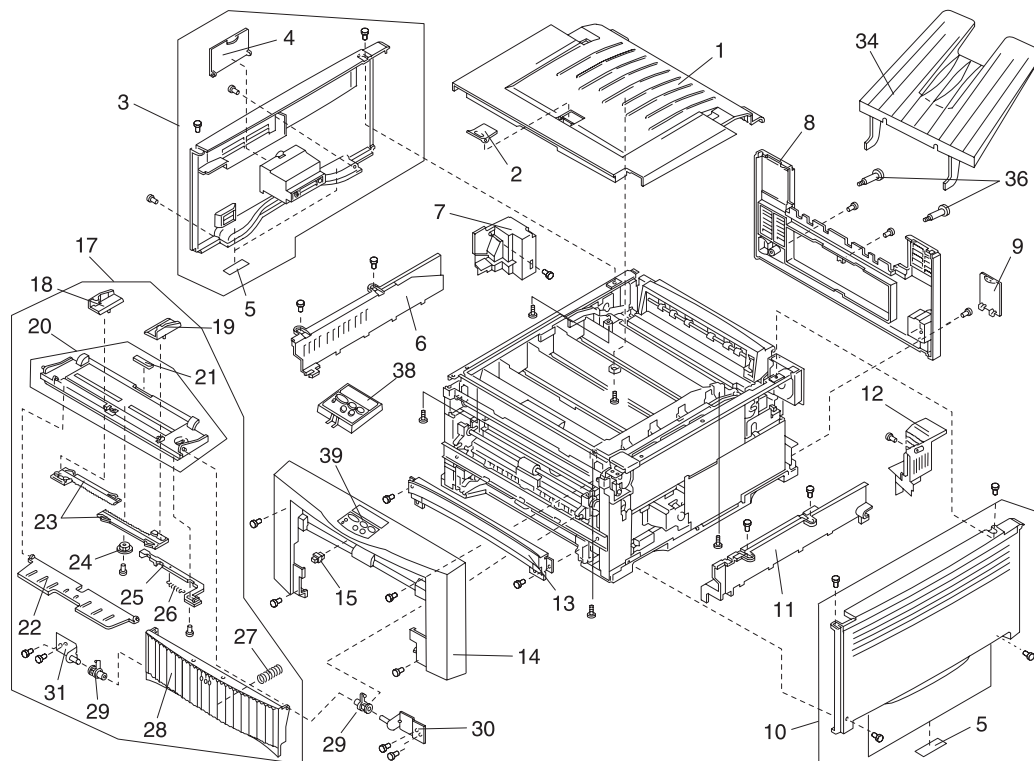
Alcohol or Isopropyl	Clean: Plastic, rubber, and external parts	Follow manufacturer's directions
Lubricating Oil	Apply between gears and shafts	#10 oil
Lubricating Grease	Apply to gears	#23 grease

7. Parts Catalog

How to Use This Parts Catalog

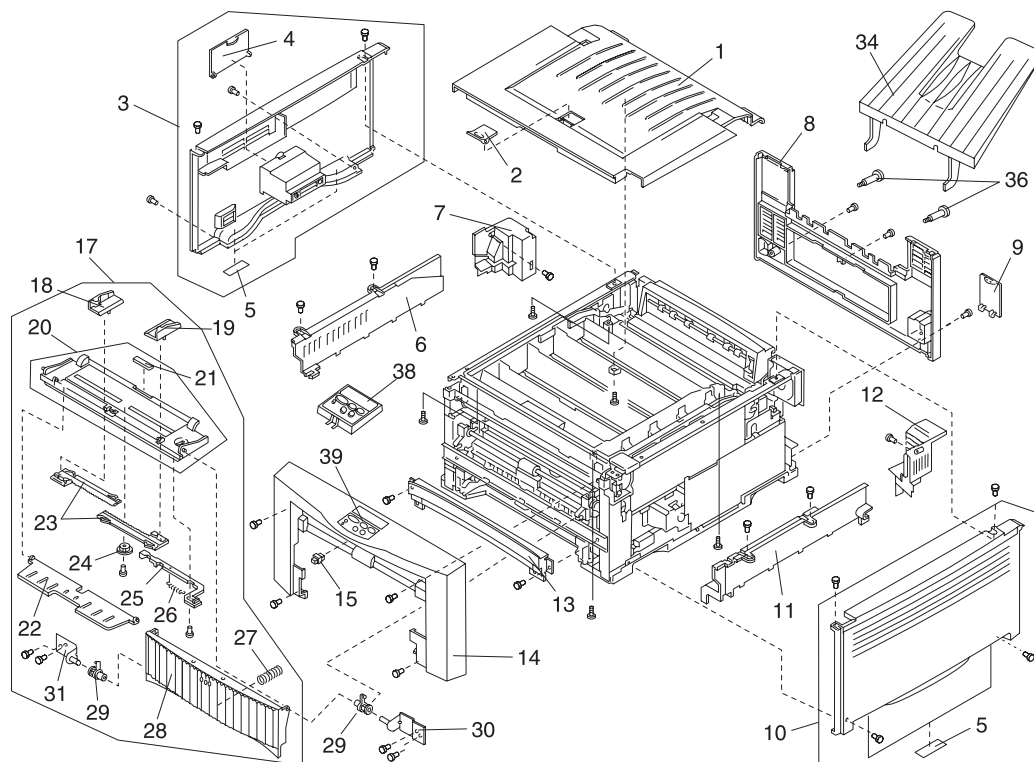
- **SIMILAR ASSEMBLIES:** If two assemblies contain a majority of identical parts, they are shown on the same list. Common parts are shown by one index number. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.
- **AR: (As Required)** in the Units column indicates that the quantity is not the same for all machines.
- **NP: (Non-Procurement)** in the Units column indicates that the part is non-procurable and that the individual parts or the next higher assembly should be ordered.
- **NR: (Not Recommended)** in the Units column indicates that the part is procurable but not recommended for field replacement, and that the next higher assembly should be ordered.
- **R: (Restricted)** in the Units column indicates that the part has a restricted availability.
- **NS: (Not Shown)** in the Asm-Index column indicates that the part is procurable but is not pictured in the illustration.
- **PP: (Parts Packet)** in the Description column indicates that the part is contained in a parts packet.
- A part reference within a circle indicates an assembly or a bill-of-material. An assembly is complete. A bill-of-material contains unassembled parts.

Assembly 1: Covers



Assembly 1: Covers

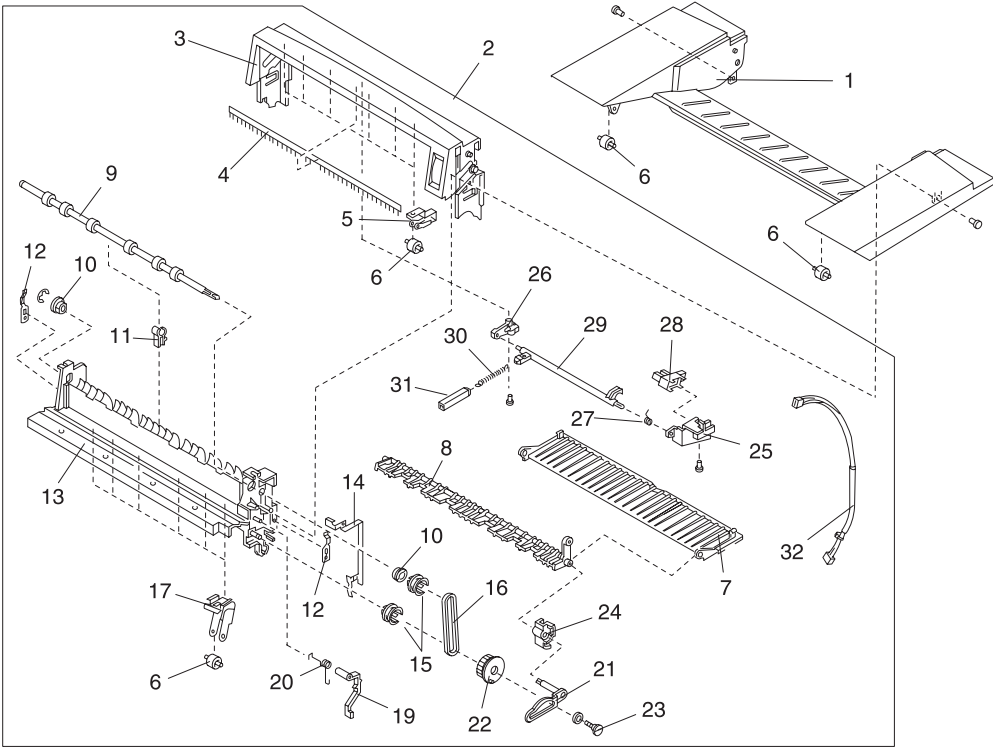
Ref	Part Number	Units	Description
1-1	11G0101	1	Top Cover (115 V)
-1	11G0650	1	Top Cover (230 V)
-1	11G0716	1	Top Cover (100 V) - Japan
-2	11G0102	1	Paper Stopper
-3	11G0104	1	Side Cover Asm, L
-4	11G0103	1	FC Cover
-5	11G0129	4	Rubber Plate
-6	11G0105	1	Sub Cover, L F
-7	11G0546	1	Sub Cover, L R
-8	11G0547	1	Rear Cover L, (230volt)
-8	11G0106	1	Rear Cover L, (115volt)
-8	11G0717	1	Rear Cover L, (100volt) - Japan
-9	11G0107	1	Second CN Cover
-10	11G0108	1	Side Cover, R
-11	11G0109	1	Sub Cover, R
-12	11G0552	1	Sub Cover, R
-13	11G0110	1	Front Sub Cover
-14	11G0111	1	Front Cover Asm
-15	11G0112	1	Latch
-17	11G0128	1	Mpf Asm
-18	11G0113	1	Mpf Side Location L
-19	11G0114	1	Mpf Side Location R
-20	11G0115	1	Mpf Tray (L)
-21	11G0623	1	Label, Paper Size, Mpf
-22	11G0116	1	Sub Tray
-23	11G0117	2	Mpf Rack
-24	11G0118	1	Mpf Pinion
-25	11G0119	1	Mpf Lock Lever
-26	11G0120	1	Tray Lock Spring
-27	11G0122	1	Mpf Spring
-28	11G0123	1	Mpf Cover

Assembly 1 (cont.): Covers

Assembly 1 (cont.): Covers

Ref	Part Number	Units	Description
1-29	11G0121	2	Mpf Holder
-30	11G0524	1	Bracket Rh Mpf Tray
-31	11G0525	1	Bracket Lh Mpf Tray
-34	11G0631	1	Rear Paper Exit Tray Asm
-36	11G0651	2	Screw, Mtg, Rear Paper Exit Tray
-38	99A0001	1	Operator Panel Asm
-39	99A0630	1	Bezel, Operator Panel
-39	99A0541	1	Bezel, Operator Panel - Japan
-NS	11G0567	1	Rating Plate, Low, (115 Volts)
-NS	11G0568	1	Rating Plate, High, (230 Volts)
-NS	11G0718	1	Rating Label, (100 Volts) - Japan
-NS	11G0623	2	Cushion, Exit Tray
-NS	11G0569	1	Screw Parts Packet #1
-NS	11G0622	1	Label, Instruction Mpt
-NS	11G0732	1	MPF Wire Extension

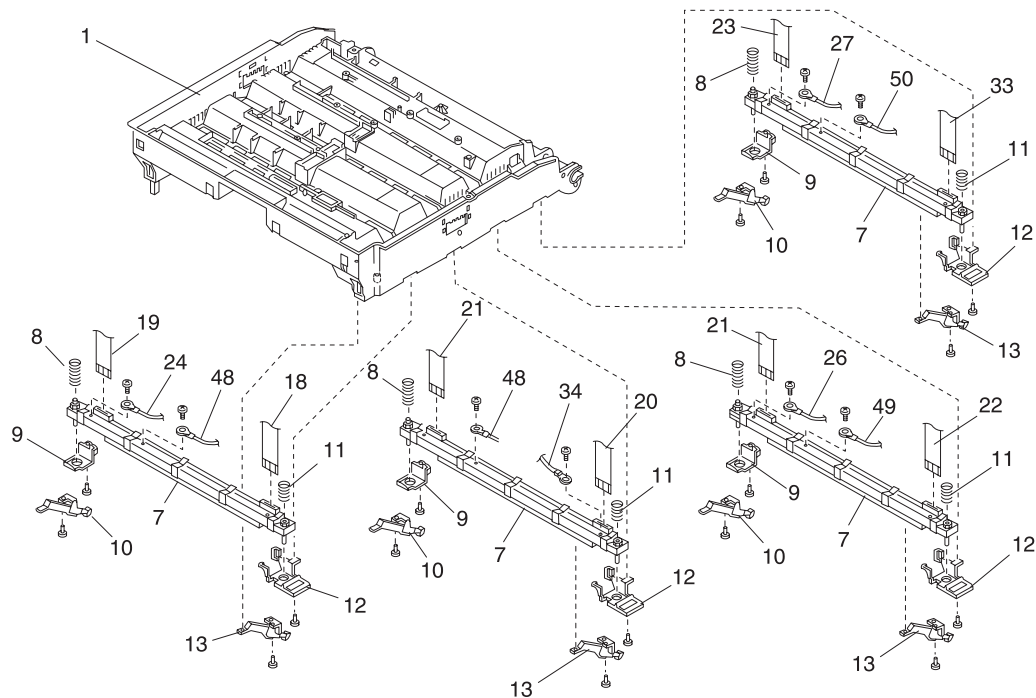
Assembly 2: Paper Exit



Assembly 2: Paper Exit

Ref	Part Number	Units	Description
2-1	11G0149	1	Paper Exit Cover H
-2	11G0151	1	Paper Exit Unit
-3	11G0131	1	Paper Exit Cover
-4	11G0150	1	Discharge Brush
-5	11G0134	6	Roller Fitting Plate, Upper
-6	11G0135	8	Paper Exit Roller
-7	11G0132	1	Feed Guide
-8	11G0133	1	Paper Delivery Flap
-9	11G0137	1	Paper Exit Shaft, Upper
-10	11G0140	2	Bushing
-11	11G0138	1	Bushing C
-12	11G0139	1	Lock Spring
-13	11G0141	1	Paper Exit Frame
-14	11G0143	1	Ground Plate, Paper Exit
-15	11G0144	2	Pulley
-16	11G0145	1	Belt
-17	11G0147	6	Lower Roller Fitting Plate
-19	11G0561	1	Clutch Lever, Paper Delivery Flap
-20	11G0507	1	Clutch Lever, Spring
-21	11G0508	1	Paper Delivery Flap Plate Shaft
-22	11G0146	1	One Way Clutch Gear, 20
-23	11G0511	1	Screw, stopper
-24	11G0136	1	Harness Cover
-25	11G0515	1	Paper Exit Feeder Base 1
-26	11G0518	1	Paper Exit Feeder Base 2
-27	11G0142	1	Switch Spring
-28	11G0563	1	Photo Interrupter, Remove Paper
-29	11G0521	1	Paper Exit Feeder Rod
-30	11G0523	1	Paper Exit Feeder Spring
-31	11G0527	1	Paper Exit Feeder Lever
-32	11G0528	1	Sensor Cable, Remove Paper
-NS	11G0566	1	Screw Parts Packet #2

Assembly 3: Upper Unit

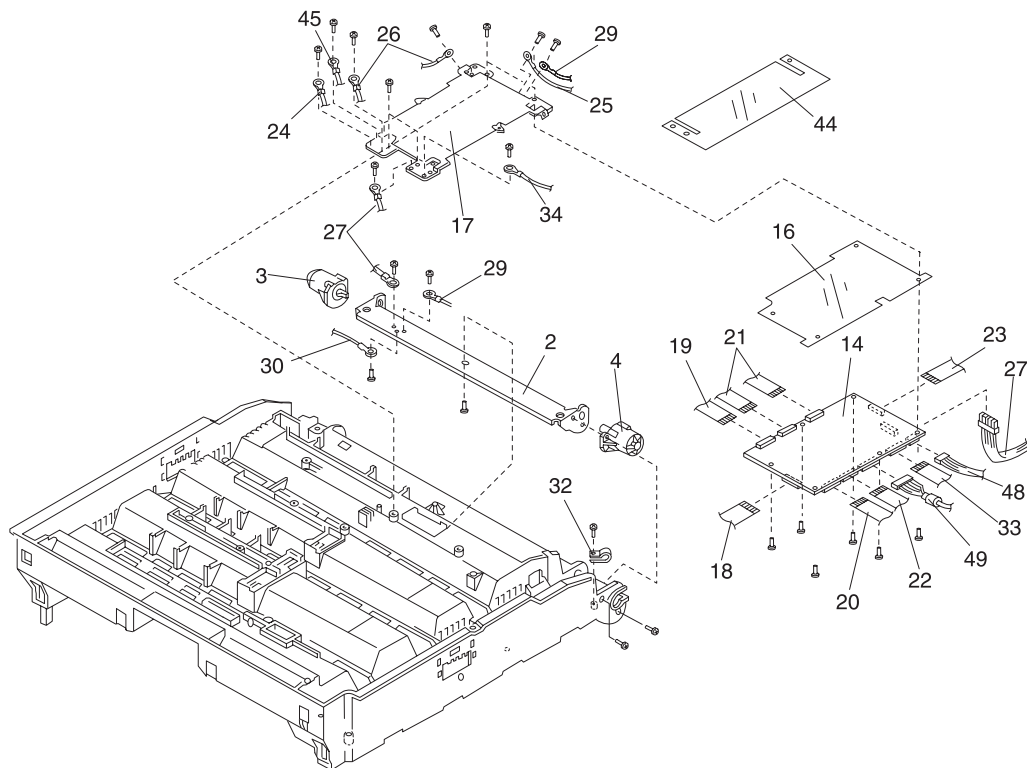


Assembly 3: Upper Unit

Ref	Part Number	Units	Description
3-1	11G0152	1	Head Frame
-7	11G0159	4	LED Head Asm, LED Head EEPROM
-7	11G0719	4	LED Head Asm, LED Head EEPROM Level 2
-8	11G0160	4	Head Spring L
-9	11G0161	4	Head Cover L
-10	11G0162	4	Pressure Base, L
-11	11G0502	4	Head Spring R
-12	11G0163	4	Head Cover R
-13	11G0164	4	Pressure Base, R
-18	11G0503	1	Head/cable (M) 115 V
-18	11G0720	1	Head Cable (M) 100 V - Japan
-19	11G0504	1	Head/cable (M) 115 V
-19	11G0652	1	Head Cable (M) 230 V
-20	11G0506	1	Head/cable (C) 115 V
-20	11G0653	1	Head Cable (C) 230 V
-21	11G0509	2	Head/cable (C) 115 V
-21	11G0654	1	Head Cable (C) 230 V
-22	11G0510	2	Head/cable (Y) 115 V
-22	11G0655	1	Head Cable (Y) 230 V
-22	11G0721	1	Head Cable (Y) 100 V - Japan
-23	11G0512	1	Head/cable (K) 115 V
-23	11G0656	1	Head Cable (K) 230 V
-24	11G0670	1	MLFG Harness
-25	11G0671	1	HDFG Harness
-26	11G0672	1	YLFG Harness
-27	11G0673	1	DLFG Harness
-32	11G0620	1	Nylon Clip
-33	11G0657	1	KRCFFC Cable, 115 V
-33	11G0658	1	KRCFFC Cable, 230 V
-34	11G0677	1	CRFG Harness
-48	11G0688	1	MCT Harness
-49	11G0689	1	YTFG Harness
-50	11G0690	1	KTFG Harness

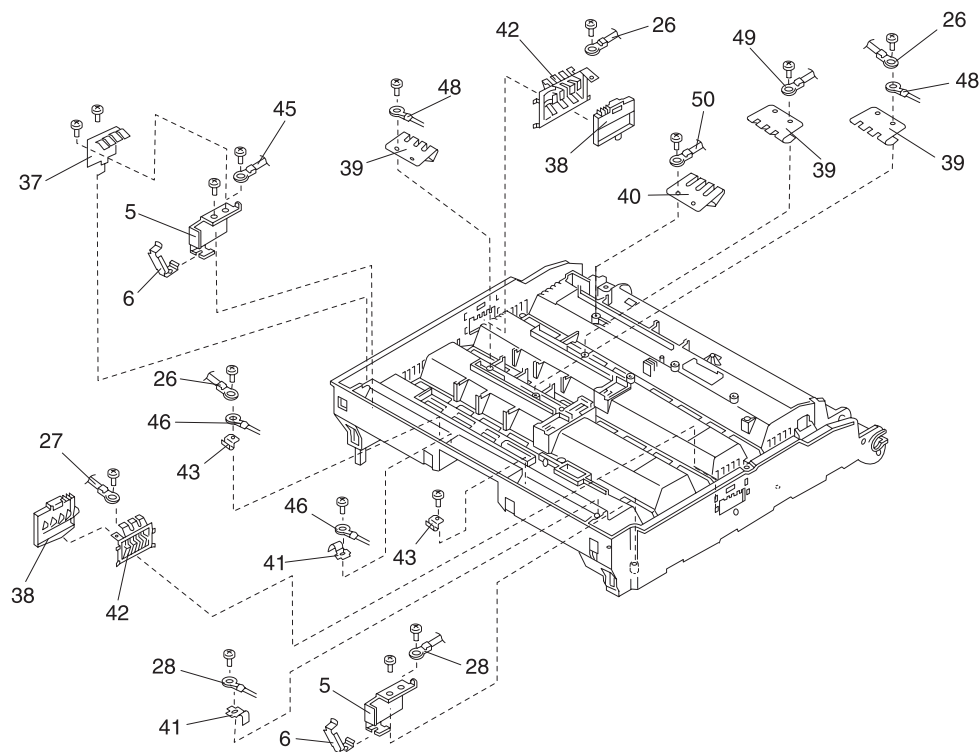
5050-001

Assembly 3 (cont.):



Assembly 3 (cont.): Upper Unit

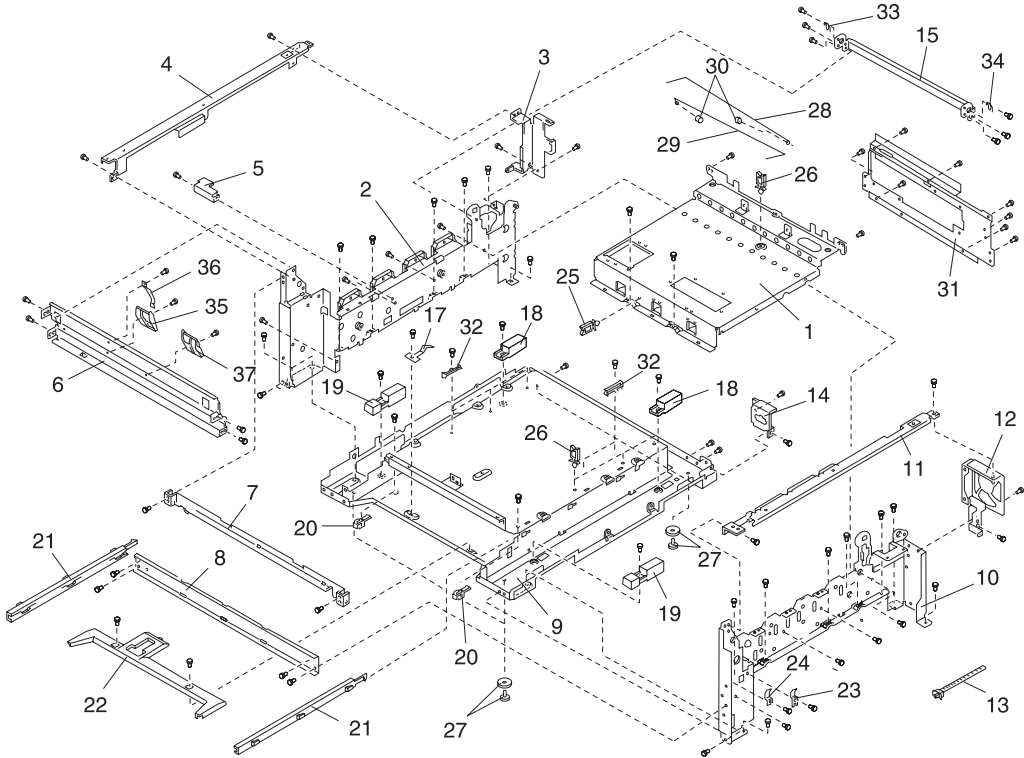
Ref	Part Number	Units	Description
3-2	11G0153	1	Hinge Stay 2
-3	11G0154	1	Damper Right
-4	11G0155	1	Damper Left
-14	11G0555	1	LED Printhead Controller Board (P614-Hdcont)
-16	11G0167	1	Insulator Shield, sheet
-17	11G0168	1	Sealed Plate
-18	11G0665	1	Head Cable (M) 230 V
-18	11G0720	1	Head Cable (M) 100 V - Japan
-19	11G0504	1	Head/cable (M) 115 V
-19	11G0652	1	Head Cable (M) 230 V
-20	11G0506	1	Head/cable (C) 115 V
-20	11G0653	1	Head Cable (C) 230 V
-21	11G0509	2	Head/cable (C) 115 V
-21	11G0654	1	Head Cable (C) 230 V
-22	11G0510	2	Head/cable (Y) 115 V
-22	11G0655	1	Head Cable (Y) 230 V
-23	11G0512	1	Head/cable (K) 115 V
-23	11G0656	1	Head Cable (K) 230 V
-24	11G0670	1	MLFG Harness
-25	11G0671	1	HDFG Harness
-26	11G0672	1	YLFG Harness
-27	11G0673	1	DLFG Harness
-29	11G0675	1	STFG Harness
-30	11G0676	1	DFG Harness
-32	11G0620	3	Nylon Clip
-33	11G0657	1	KRCFFC Cable 115 V
-34	11G0677	1	CRFG Harness
-44	11G0684	1	Sheet, Selected
-45	11G0685	1	FLFG Harness
-48	11G0688	1	MCT Harness
-49	11G0689	1	YTFG Harness

Assembly 3 (cont.):

Assembly 3 (cont.):

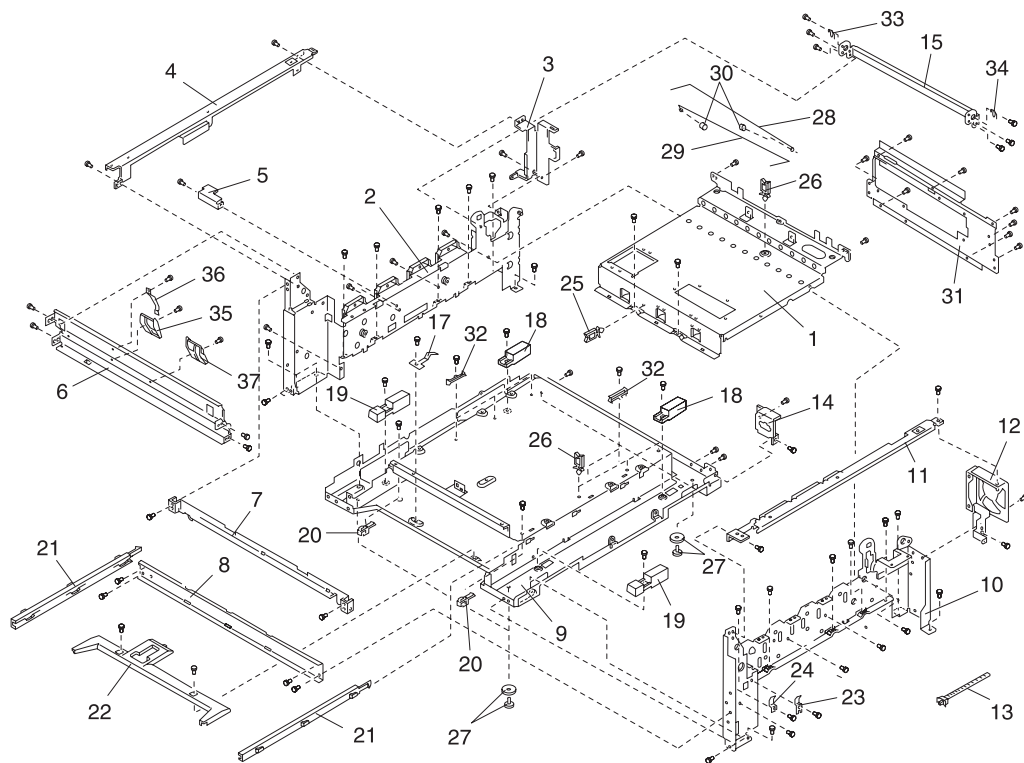
Ref	Part Number	Units	Description
3-5	11G0501	2	Bracket Ground Plate
-6	11G0157	2	Ground Plate, Head Frame
-26	11G0672	1	YLFG Harness
-27	11G0673	1	KLFG Harness
-28	11G0674	1	FRFG Harness
-37	11G0678	1	Top Cover Spring
-38	11G0679	2	Cover
-39	11G0680	3	FFC Spring A
-40	11G0681	1	FFC Spring B
-41	11G0339	1	Ground Plate
-42	11G0682	2	Side Ground Plate
-43	11G0683	2	Ground Plate
-45	11G0685	1	FLFG Harness
-46	11G0686	1	FTFG Harness
-48	11G0688	1	MCT Harness
-49	11G0689	1	YTFG Harness
-50	11G0690	1	KTFG Harness
-NS	11G0565	1	Screw Parts Packet #3

Assembly 4: Base 1



Assembly 4: Base 1

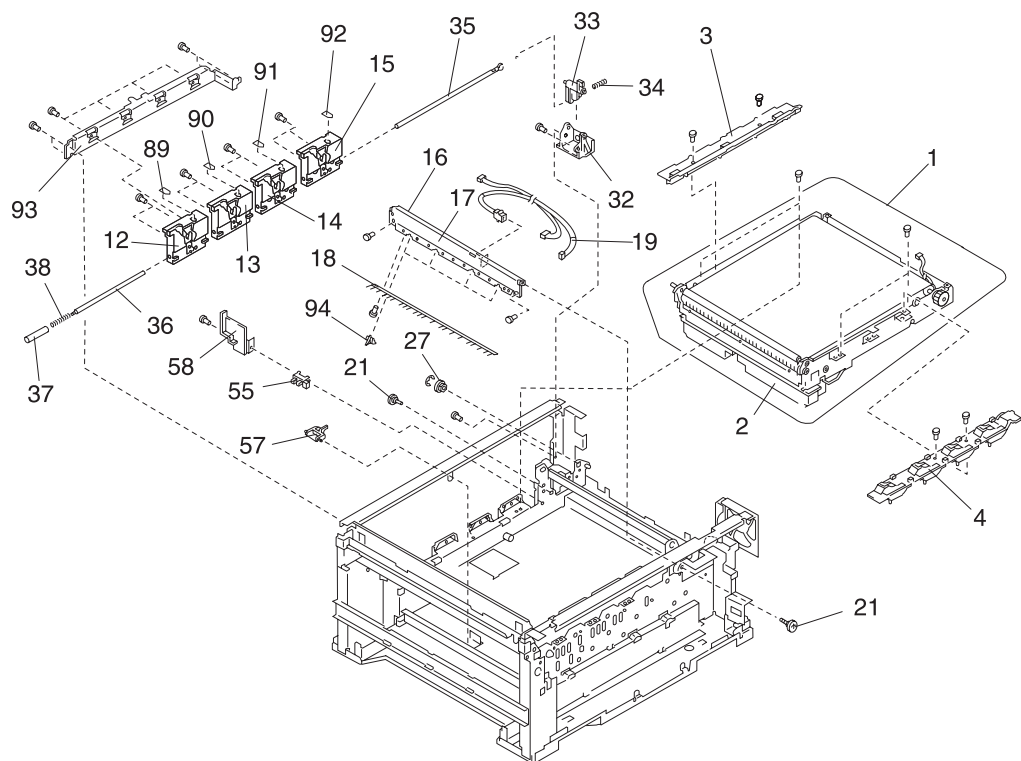
Ref	Part Number	Units	Description
4-1	11G0176	1	Top Frame
-2	11G0177	1	Side Frame; L
-3	11G0178	1	Power Supply Bracket A
-4	11G0179	1	Power Supply Stay
-5	11G0180	1	Power Supply Bracket B
-6	11G0181	1	Front Stay USA
-6	11G0691	1	Front Stay Non-USA
-7	11G0182	1	Front Frame, B
-8	11G0183	1	Front Frame
-9	11G0184	1	Bottom Frame
-10	11G0185	1	Side Frame, R
-11	11G0186	1	HVU1 Mounting Stay
-12	11G0187	1	Fan Stay
-13	11G0618	1	Cable Tie
-14	11G0188	1	Second Connector Bracket
-15	11G0189	1	Hinge Frame
-17	11G0191	1	Cassette Ground Plate
-18	11G0192	2	Lock Cover, B
-19	11G0193	2	Lock Cover, A
-20	11G0194	2	Release Lower Plate
-21	11G0195	2	Cassette Rail
-22	11G0196	1	Bottom Frame Cover
-23	11G0197	1	Registration Roller Ground Plate
-24	11G0198	1	Mpf Ground Plate
-25	11G0517	1	Locking Saddle
-26	11G0199	3	Locking Wire Saddle
-27	11G0201	4	Foot
-28	11G0519	1	Torsion Bearing R
-29	11G0520	1	Torsion Bearing L
-30	11G0522	2	Torsion Bearing Nut
-31	11G0526	1	Controller Card Mounting Plate
-NS	11G0617	1	Screw Parts Packet #4

Assembly 4 (cont.):

Assembly 4 (cont.):

Ref	Part Number	Units	Description
4-32	11G0692	5	PCB Guide
-33	11G0693	1	Ground Spring, LV
-34	11G0694	1	Ground Spring, RV
-35	11G0695	1	Cover Spring
-36	11G0696	1	Spring
-37	11G0697	1	Cover Bracket Spring R

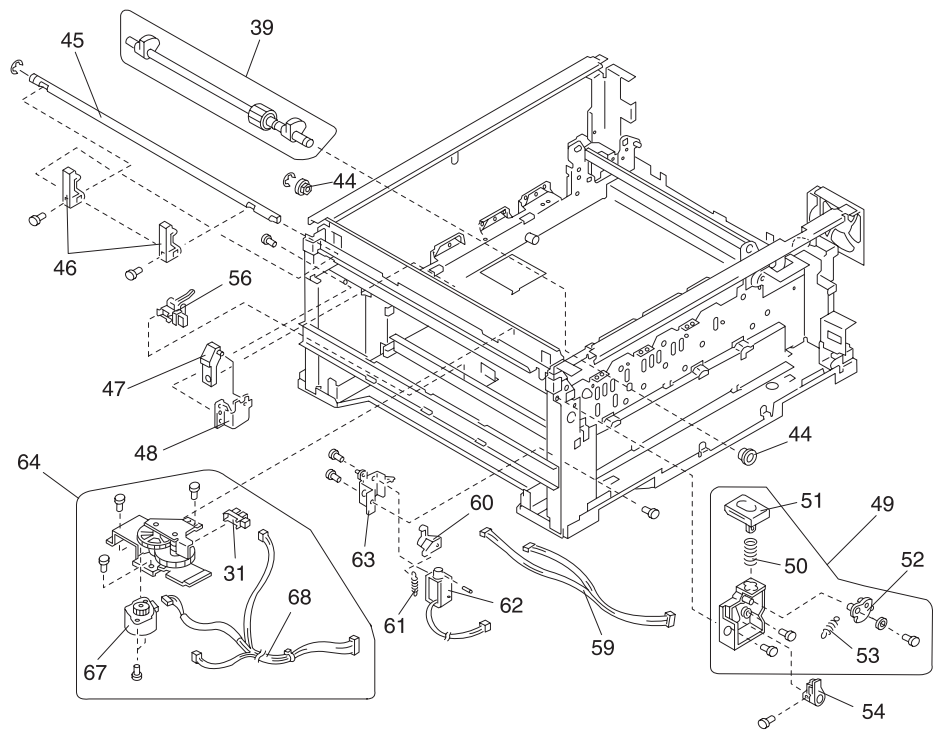
Assembly 5: Base 2



Assembly 5: Base 2

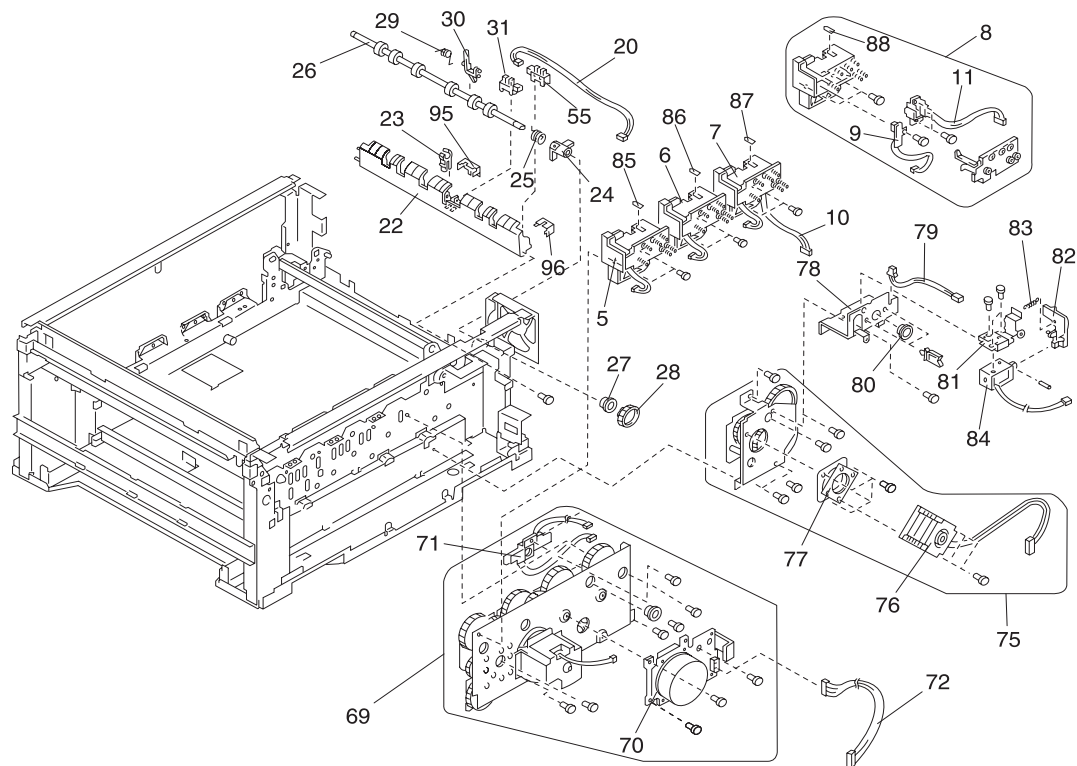
Ref	Part Number	Units	Description
5-1	11G0202	1	Transfer Belt Unit
-2	11G0203	1	Belt toner Waste Bottle
-3	11G0204	1	Transfer Cover
-4	11G0205	1	Gear Cover
-12	11G0208	4	Sub Frame Asm, Lm
-13	11G0554	4	Sub Frame Asm, Lc
-14	11G0557	4	Sub Frame Asm, Ly
-15	11G0560	4	Sub Frame Asm, Lk
-16	11G0209	1	Paper Carrying Guide
-17	11G0210	1	Paper Carrying Guide Film
-18	11G0211	1	Paper Discharge Brush
-19	11G0212	1	Belt Thermistor Harness
-21	11G0214	2	Stopper Screw
-27	11G0140	2	Bushing
-32	11G0221	1	Link Holder
-33	11G0222	1	Link Arm
-34	11G0223	1	Link Spring
-35	11G0224	1	Interlock Rod, Front
-36	11G0225	1	Interlock Rod, Rear
-37	11G0226	1	Spring Cover
-38	11G0227	1	Interlock Lever Spring, Rear
-55	11G0243	2	Photo Interrupter, Paper Detect
-57	11G0245	1	Paper Detect Lever
-58	11G0244	1	Power Supply Cover
-89	11G0266	2	Setting Label, MI
-90	11G0265	2	Setting Label, CI
-91	11G0264	2	Setting Label, YI
-92	11G0263	2	Setting Label, Bkl
-93	11G0539	1	Stay, Sub Frame L
-94	11G0698	4	Separation Pawl

Assembly 5 (cont.): Base 2



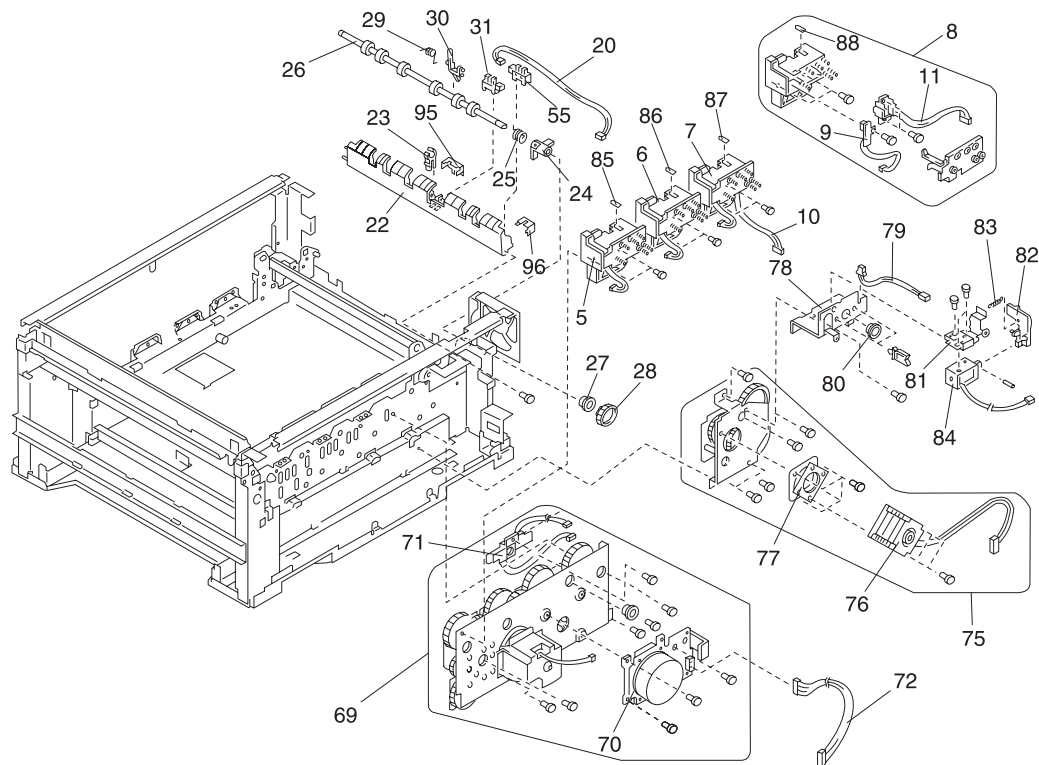
Assembly 5 (cont.): Base 2

Ref	Part Number	Units	Description
5-31	11G0219	2	Photo Interrupter, Belt Up/Down (BUD) Sensor
-39	11G0267	1	Changing Shaft
-44	11G0232	2	Bushing
-45	11G0233	1	Hook Shaft
-46	11G0234	2	Hook
-47	11G0235	1	Interlock Lever, Rear
-48	11G0236	1	Interlock Lever Bracket
-49	11G0239	1	Link Base
-50	11G0238	1	Open Spring
-51	11G0237	1	Open Button
-52	11G0242	1	Link
-53	11G0241	1	Hook Spring
-54	11G0240	1	Release Hook Lever
-56	11G0558	1	Photo Interrupter, Paper Detect
-59	11G0246	1	Paper Detect Sensor Harness Asm
-60	11G0247	1	Mpf Clutch Lever
-61	11G0248	1	Mpf Clutch Spring
-62	11G0249	1	Solenoid 2, Paper Feed
-63	11G0250	1	Solenoid Bracket
-64	11G0251	1	Belt Up/Down (BUD) Frame Unit
-67	11G0254	1	Belt Up/Down (BUD) Motor
-68	11G0255	1	Belt Up/Down (BUD) Harness Asm

Assembly 5 (cont.):

Assembly 5 (cont.): Base 2

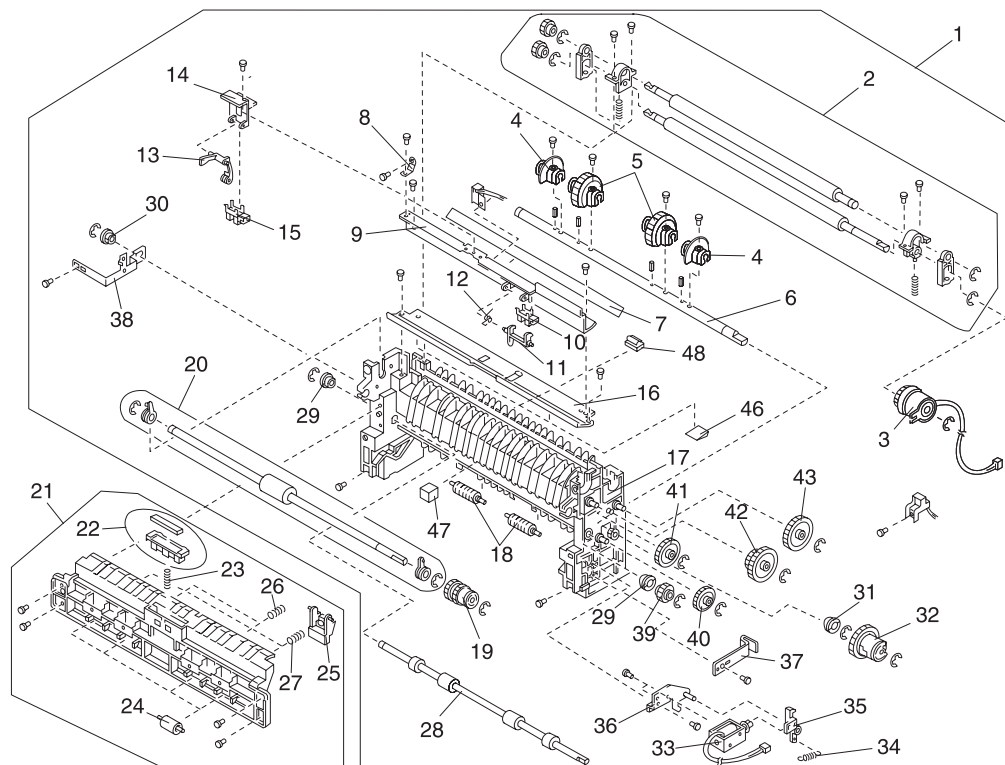
Ref	Part Number	Units	Description
5-5	11G0543	1	Sub Frame Asm, Rm
-6	11G0544	1	Sub Frame Asm, Rc
-7	11G0545	1	Sub Frame Asm, Ry
-8	11G0206	4	Sub Frame Asm, Rk
-9	11G0207	4	Toner Sensor (A) Asm (611-Tn)
-10	11G0548	1	Drum Sensor, Color, (A) Asm (614-dss)
-11	11G0550	1	Drum Sensor, Black (A) Asm (614-dss)
-20	11G0505	1	Paper Face Up/Face Down Sensor Cable
-22	11G0215	1	Paper Exit Guide
-23	11G0138	1	Bushing
-24	11G0513	1	Paper Face Up/Face Down Sensor Lever
-25	11G0516	1	Torsion Spring
-26	11G0216	1	Paper Exit Shaft, Lower
-27	11G0140	2	Bushing
-28	11G0220	1	Gear
-29	11G0217	1	Sensor Spring
-30	11G0218	1	Sensor Lever
-31	11G0219	2	Photo Interrupter, Belt Up/Down (BUD) Sensor
-55	11G0243	2	Photo Interrupter, Paper Detect
-69	11G0257	1	Drive Unit 1
-70	11G0256	1	Dc Motor, Drive 1
-71	11G0581	1	Drum/Drive Gear Sensor
-72	11G0259	1	Dc Motor Cable Asm
-75	11G0258	1	Drive Unit 2
-76	11G0260	1	Stepper Motor, Drive 2
-77	11G0262	1	Rubber Mount
-78	11G0261	1	Solenoid Bracket
-79	11G0534	1	Thermistor Cable
-80	11G0340	1	Bushing
-81	11G0535	1	Face Up/Face Down (FUD) Solenoid Bracket
-82	11G0536	1	Face Up/Face Down (FUD) Solenoid Actuator
-83	11G0537	1	Face Up/Face Down (FUD) Solenoid Spring
-84	11G0538	1	Face Up/Face Down (FUD) Solenoid

Assembly 5 (cont.):

Assembly 5 (cont.):

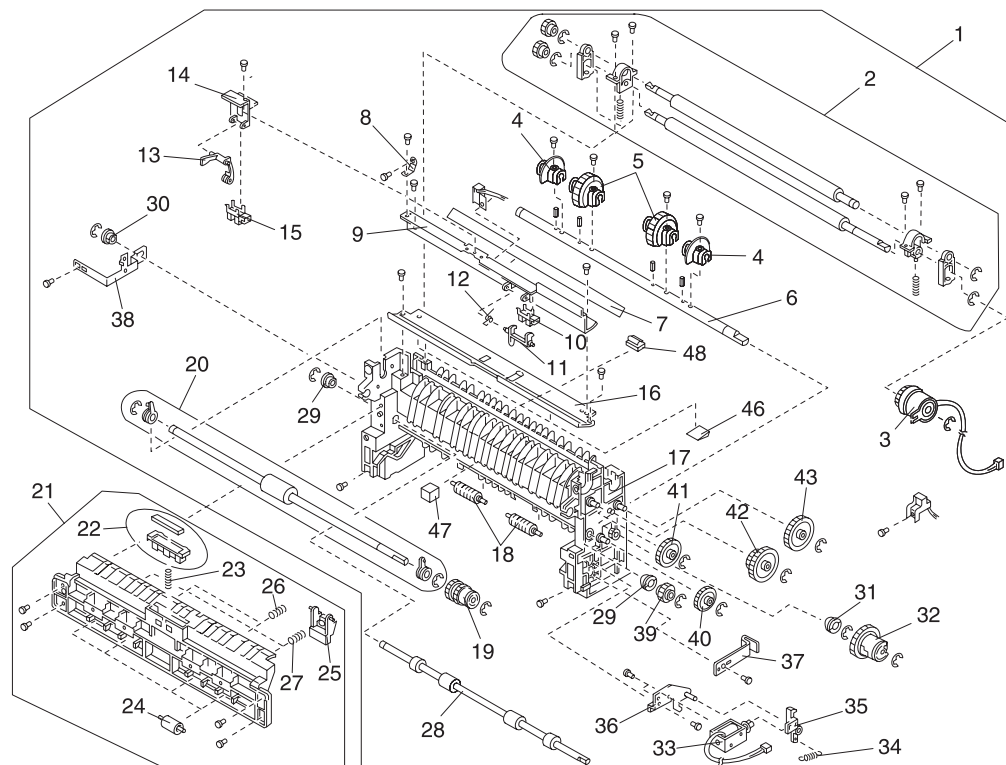
Ref	Part Number	Units	Description
5-85	11G0626	2	Setting Label, M R
-86	11G0627	2	Setting Label, Cr
-87	11G0628	2	Setting Label, Yr
-88	11G0629	2	Setting Label, Bkr
-95	11G0699	1	Exit Sensor Cover
-96	11G0700	1	Face Up/Down Sensor Cover
-NS	11G0725	1	Exit Sensor Grid
-NS	11G0540	1	Screw Parts Packet #5

Assembly 6: Feeder



Assembly 6: Feeder

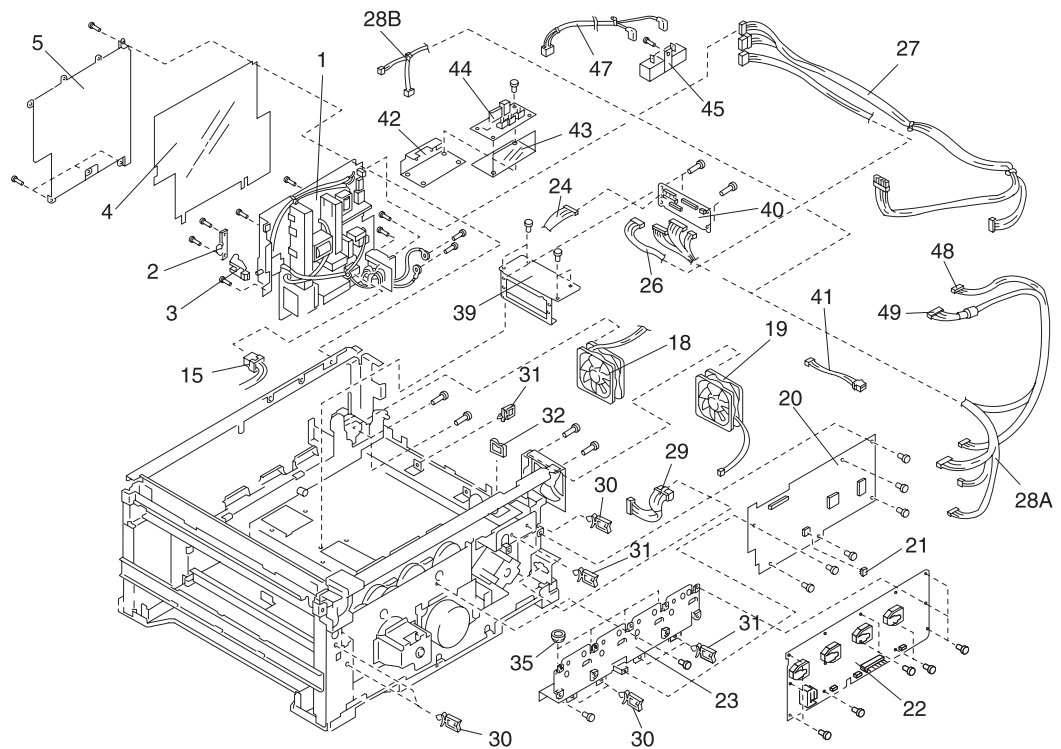
Ref	Part Number	Units	Description
6-1	11G0304	1	Paper Feed Unit
-2	11G0268	1	Registration Roller Asm
-3	11G0269	1	Registration Clutch
-4	11G0270	2	Auxiliary Roller
-5	11G0271	2	Paper Feed Roll Asm
-6	11G0272	1	Paper Feed Shaft
-7	11G0273	1	Guide Stay Sheet
-8	11G0274	1	Ground Plate Guide
-9	11G0275	1	Sensor Stay
-10	11G0219	1	Photo Interrupter, Registration Sensor
-11	11G0276	1	Registration Sensor Lever
-12	11G0277	1	Registration Sensor Spring
-13	11G0553	1	MPF Sensor Lever
-14	11G0556	1	Bracket, Sensor MPT
-15	11G0243	1	Photo Interrupter, MPF Paper Detect Sensor
-16	11G0278	1	Upper Guide Stay
-17	11G0279	1	Paper Feed Base
-18	11G0280	2	Noise-cut Roller
-19	11G0281	1	MPF Clutch
-20	11G0282	1	MPF Roller
-21	11G0285	1	Turn Guide
-22	11G0283	1	MPF Friction Pad
-23	11G0284	1	Friction Pad Spring
-24	11G0286	4	Idler Roller
-25	11G0287	4	Roller Guide
-26	11G0288	2	Roller Spring
-27	11G0302	2	Roller Spring
-28	11G0289	1	Carrying Roller
-29	11G0303	2	Metal Bushing
-30	11G0290	1	Bushing
-31	11G0140	1	Bushing
-32	11G0291	1	Paper Feed Clutch
-33	11G0292	1	Paper Feed Solenoid 1

Assembly 6 (cont.): Feeder

Assembly 6 (cont.): Feeder

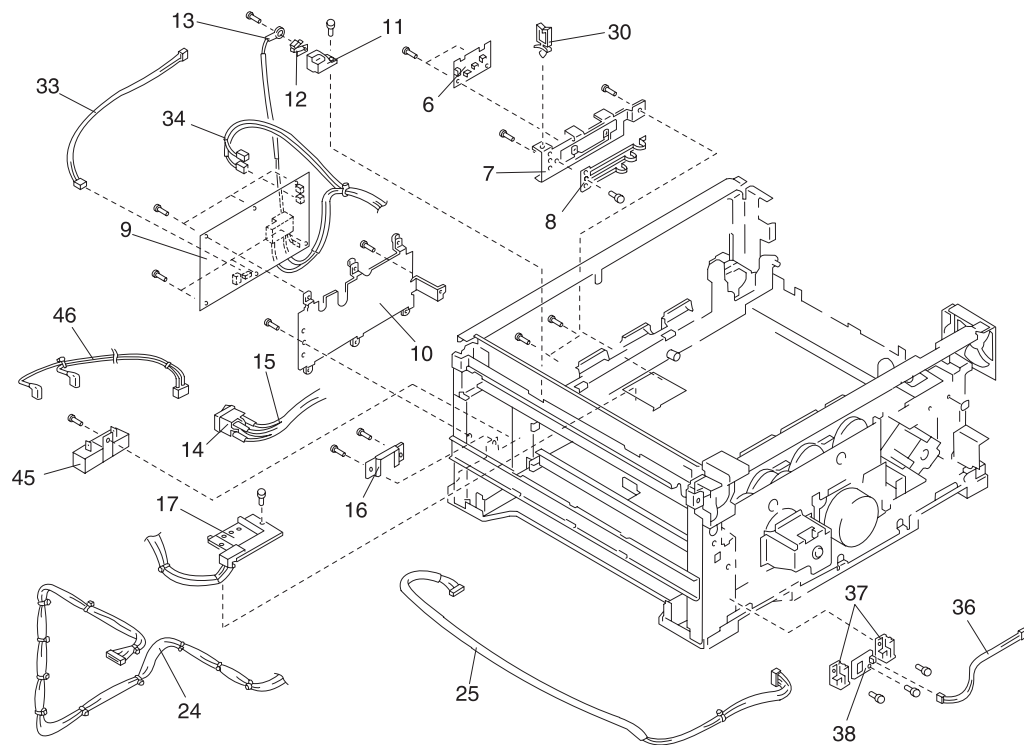
Ref	Part Number	Units	Description
6-34	11G0435	1	Solenoid Spring
-35	11G0293	1	Clutch Lever
-36	11G0294	1	Solenoid Bracket
-37	11G0295	1	Cassette Support Plate
-38	11G0296	1	Paper Feed Ground Plate
-39	11G0297	1	Carrying Gear
-40	11G0298	1	Idler Gear
-41	11G0299	1	Idler Gear 35
-42	11G0300	1	W Gear 21 x 39
-43	11G0301	1	Idler Gear 38
-46	11G0701	2	MPF Guide
-47	11G0702	1	Pad
-48	11G0703	1	Clamp
-NS	11G0575	1	OHP Sheet Detect Sensor, Also order 11G0576
-NS	11G0576	1	OHP Sheet Detect Sensor, Also order 11G0575
-NS	11G0577	1	Screw Parts Packet #6

Assembly 7: Electrical



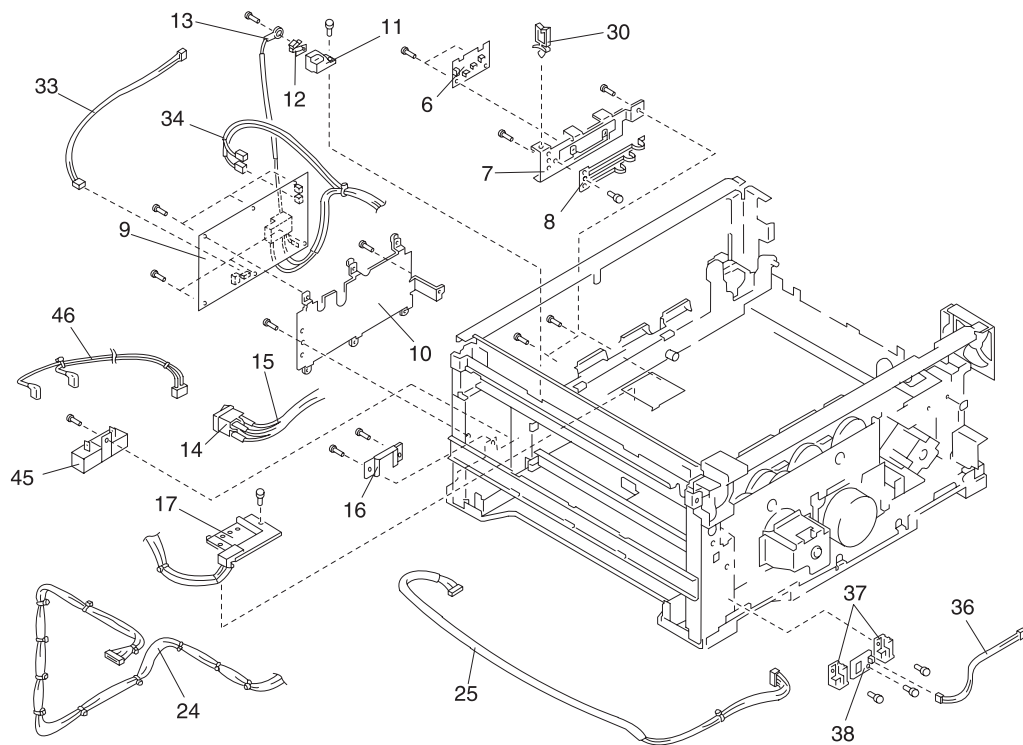
Assembly 7: Electrical

Ref	Part Number	Units	Description
7-1	11G0305	1	MPS, Power Supply (P611-MPS) (115 Volt)
-1	11G0541	1	MPS, Power Supply (P611-MPS-E) (230 Volt)
-2	11G0306	1	Interlock Rod Lever Bracket
-3	11G0307	1	Interlock Rod Lever
-4	11G0308	1	Insulation Sheet, MPS
-5	11G0309	1	Sealed Plate, MPS
-15	11G0319	1	Power Switch Cable
-18	11G0322	1	Fan, Power Supply
-19	11G0323	1	Fan, Main
-20	11G0324	1	Printer Controller Board (P614-PRCONT)
-21	11G0325	1	EEPROM, Printer Controller Board
-22	11G0326	1	High Voltage Unit 1 (P614-HVU1)
-23	11G0327	1	HVU Bracket
-26	11G0330	1	IF Power Cable Asm
-27	11G0331	1	Power Cable Asm
-28A	11G0332	1	VDOL Wire Harness (115 Volt)
-28B	11G0704	1	PBVDOF Wire Harness (230 Volt)
-29	11G0334	1	Second Harness
-30	11G0199	4	Locking Wire Saddle
-31	11G0420	7	Locking Wire Saddle
-32	11G0336	3	Edging Saddle
-35	11G0340	6	Mini Bushing
-39	11G0531	1	Interface Card Connector Mounting Bracket
-40	11G0573	1	Interface Connector Bracket
-41	11G0532	1	Option Junction Cable
-42	11G0705	1	Bracket
-43	11G0706	1	Installation Sheet
-44	11G0659	1	Heater Drive Board, (230 Volt)
-45	11G0660	1	Resistor, Heater Drive Board, (230 Volt)
-47	11G0708	1	AC Cable Rear
-48	11G0709	1	HPVDO Harness
-49	11G0710	1	HBVDO Harness

Assembly 7 (cont.):

Assembly 7 (cont.): Electrical

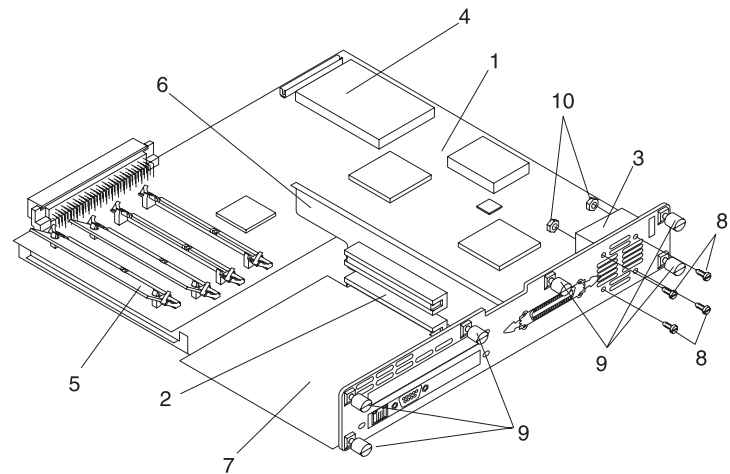
Ref	Part Number	Units	Description
7-6	11G0310	1	Paper Size Board A (P611-PSZ)
-7	11G0311	1	Paper Size Bracket
-8	11G0312	1	Size Sensor Plate
-9	11G0313	1	High Voltage Unit 2 (P614-HVU2)
-10	11G0314	1	Hvt Bracket
-11	11G0315	1	Plate Holder
-12	11G0316	1	Plate, Feeder
-13	11G0317	1	Hv Cable
-14	11G0318	1	Power Switch
-15	11G0319	1	Power Switch Cable
-16	11G0320	1	Switch Holder
-17	11G0321	1	Transfer Belt Power Connector Holder
-24	11G0328	1	OPEL Cable
-25	11G0329	1	HVU2 Harness (P614-HVU2)
-30	11G0199	4	Locking Wire Saddle
-33	11G0338	1	Paper Size Harness Asm (614-PSZ)
-34	11G0339	1	HV Cable Asm
-36	11G0529	1	Rh Cable
-37	11G0530	1	Humidity Sensor Housing
-38	11G0571	1	Sensor, Humidity
-45	11G0660	1	Resistor, Heater Drive Board, (230 Volt)
-46	11G0707	1	AC Cable Front

Assembly 7 (cont.):

Assembly 7 (cont.):

Ref	Part Number	Units	Description
7-NS	11G0562	1	Screw Parts Packet #7
-NS	11G0726	1	Insulator Sheet (HVT)
-NS	11D0328	1	Power Cord, U.S, Canada, APG (LV), LAD (LV)
-NS	11D0333	1	Power Cord, Denmark
-NS	11D0334	1	Power Cord, Europe, England
-NS	11D0334	1	Power Cord, France
-NS	11D0334	1	Power Cord, Germany
-NS	11D0335	1	Power Cord, Italy
-NS	11D0334	1	Power Cord, Spain
-NS	11D0336	1	Power Cord, Swiss/French
-NS	11D0336	1	Power Cord, Swiss/German
-NS	11D0336	1	Power Cord, Swiss/Italian
-NS	11D0337	1	Power Cord, U.K.
-NS	11D0338	1	Power Cord, Israel
-NS	11D0339	1	Power Cord, South Africa
-NS	11D0334	1	Power Cord, Belgium
-NS	11D0330	1	Power Cord, Argentina
-NS	11D0331	1	Power Cord, Brazil
-NS	11D0332	1	Power Cord, Chile
-NS	11D0329	1	Power Cord, Peru

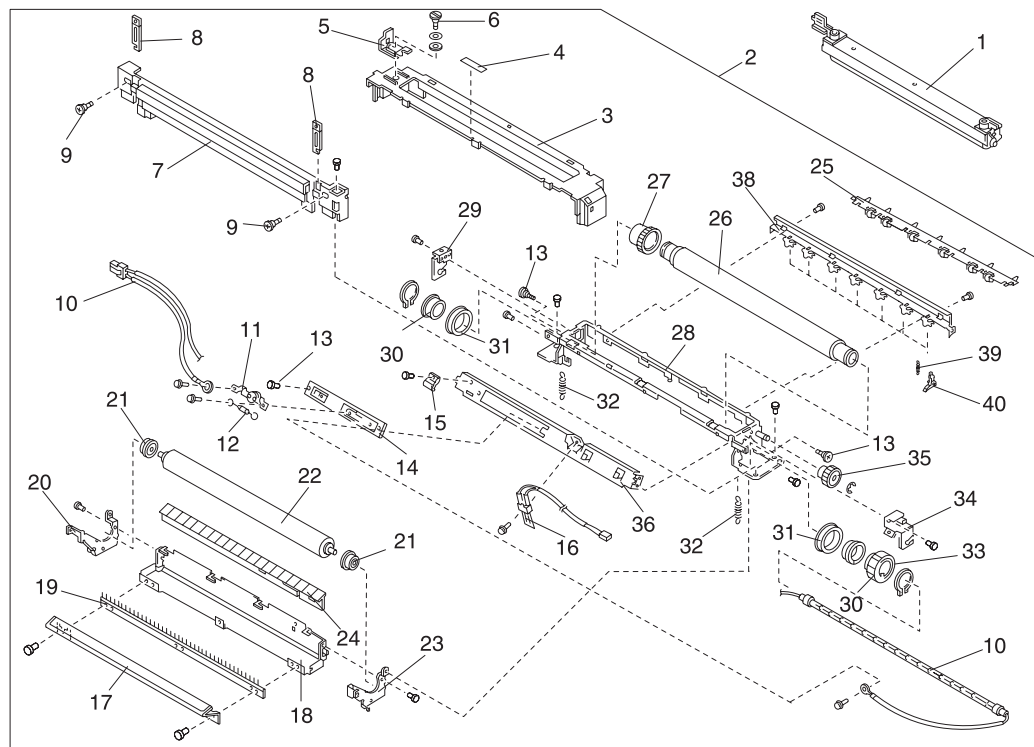
Assembly 8: I/F Controller



Assembly 8: I/F Controller

Ref	Part Number	Units	Description
8-1	11G0604	1	RIP Controller Card
-2	11G0605	1	Riser Card
-3	11G0606	1	Fan
-4	11G0607	1	16MB Solid State Drive
-4	11G0714	1	20MB Solid State Drive - Japan
-5	11G0608	2	16MB SIMM EDO, 50ns
-5	11G0609	2	32MB SIMM EDO, 50ns
-6	11G0611	1	Bracket, Riser Card
-7	11G0612	1	Tray, Controller Card
-8	11G0613	2	Screw, Fan
-9	11G0614	6	Screw, Thumb
-10	11G0615	2	Nut, Fan

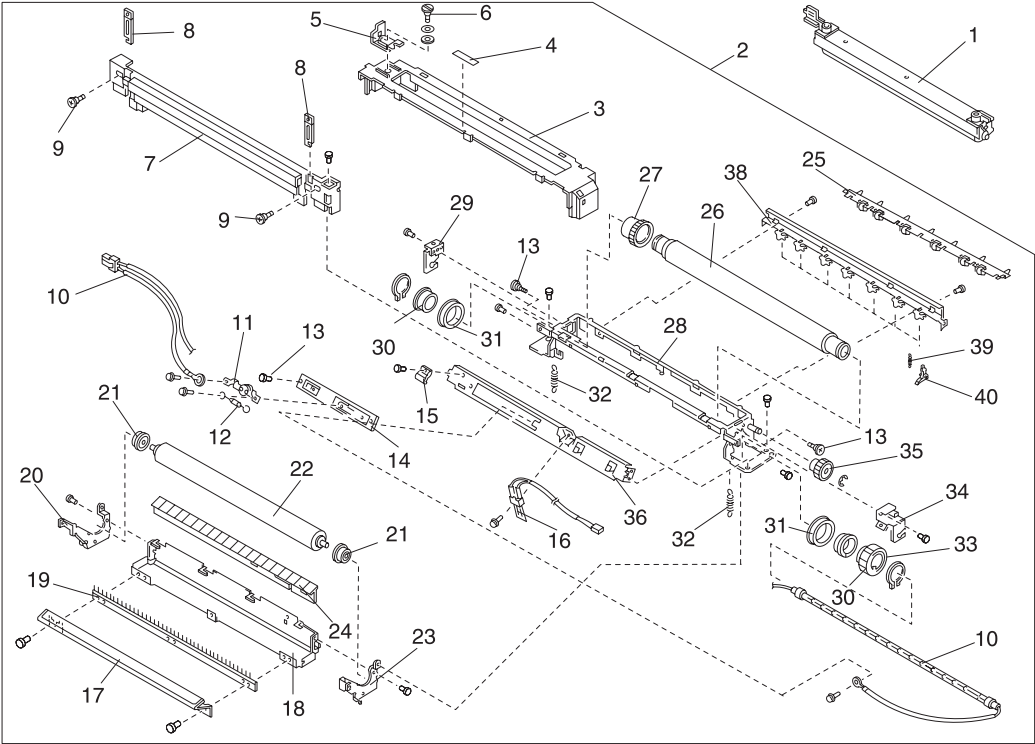
Assembly 9: Fuser



Assembly 9: Fuser

Ref	Part Number	Units	Description
9-1	11G0603	1	Fuser Oil Roll
-2	11G0542	1	Fuser (230 Volt)
-2	11G0375	1	Fuser (115 Volt)
-2	11G0722	1	Fuser (100 Volt) - Japan
-3	11G0342	1	Fuser Cover
-4	11G0619	1	Caution Label, Fuser Cover
-5	11G0343	1	Lock
-6	11G0344	1	Lock Screw
-7	11G0345	1	Fuser Guide
-8	11G0346	2	Release Lever
-9	11G0347	2	Screw
-10	11G0549	1	614 Heater (230 Volt)
-10	11G0348	1	614 Heater (115 Volt)
-10	11G0723	1	614 Heater (100 Volt) - Japan
-11	11G0349	1	611 Thermostat Asm
-11	11G0724	1	611 Thermostat Asm (Level 2)
-12	11G0551	1	611 Fuse Asm
-13	11G0214	4	Stopper Screw
-14	11G0351	1	Terminal
-15	11G0352	1	Cord Retainer
-16	11G0353	1	614 Thermistor Asm
-17	11G0354	1	Paper Feed Guide
-18	11G0355	1	Fuser Lower Cover
-19	11G0356	1	Discharge Brush
-20	11G0357	1	Arm, L
-21	11G0358	2	Bushing, P
-22	11G0359	1	Press Roller
-23	11G0360	1	Arm, R
-24	11G0514	1	Press Roller Guide
-25	11G0661	1	Guide Roller Asm
-26	11G0365	1	Heat Roller
-27	11G0366	1	Gear 30

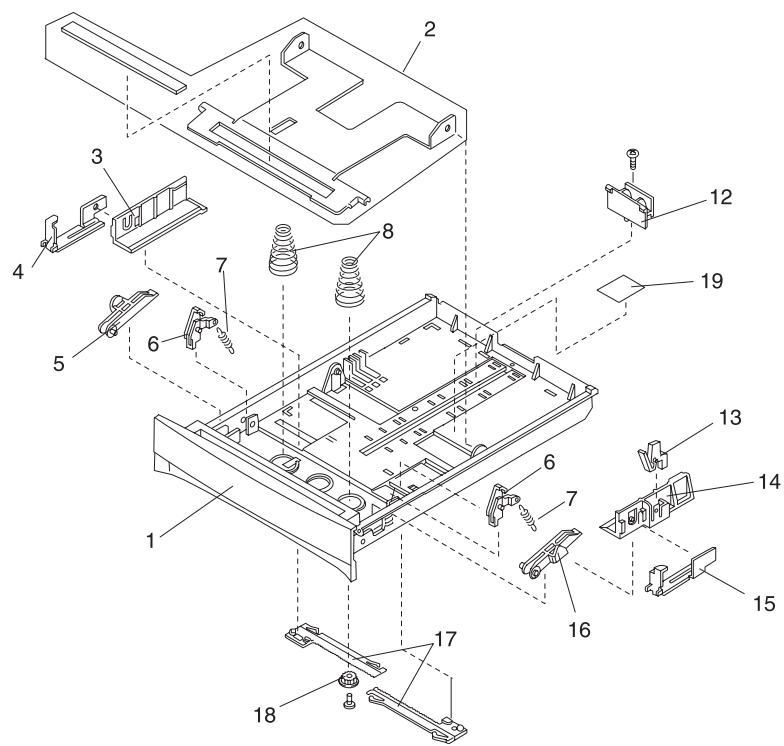
Assembly 9 (cont.): Fuser



Assembly 9 (cont.): Fuser

Ref	Part Number	Units	Description
9-28	11G0367	1	Fuser Frame
-29	11G0368	1	Heater Plate, L
-30	11G0369	2	Bushing Holder
-31	11G0564	2	Bearing Holder
-32	11G0370	2	Compression Spring
-33	11G0371	1	Gear Holder
-34	11G0372	1	Heater Plate, R
-35	11G0373	1	Idler Gear, 18
-36	11G0374	1	Stay, Bracket
-38	11G0711	1	Paw Bracket
-39	11G0662	1	Pawl Spring
-40	11G0663	1	Separation Pawl
-NS	11G0570	1	Heat Resist Cable Tie
-NS	11G0572	1	Screw Parts Packet #9

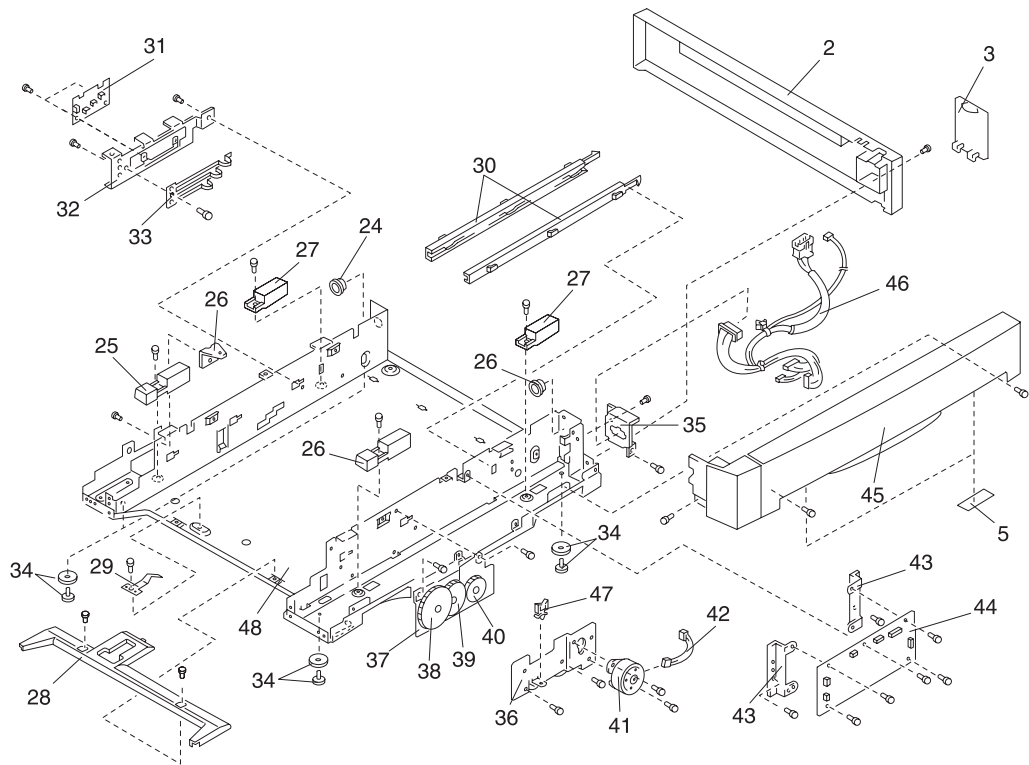
Assembly 10: Cassette



Assembly 10: Cassette

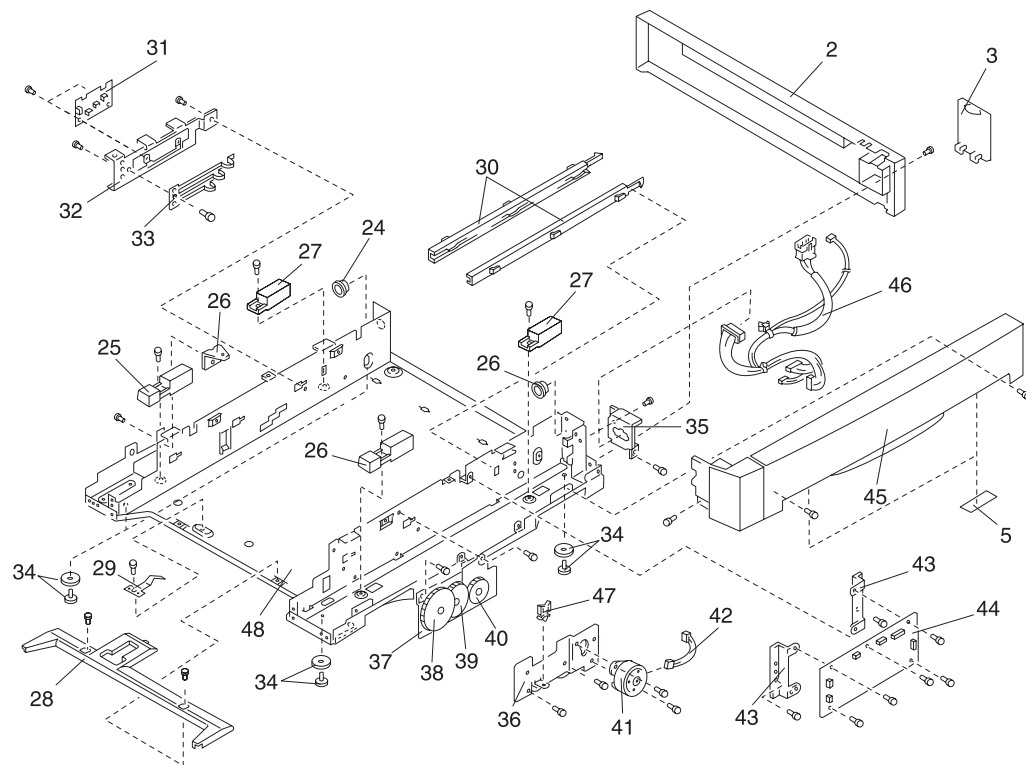
Ref	Part Number	Units	Description
10-1	11G0376	1	Lower Base
-2	11G0377	1	Lower Plate
-3	11G0378	1	Side Location, R
-4	11G0379	1	Click, R
-5	11G0380	1	Lower Plate Push Lever, R
-6	11G0381	2	Lever Lock
-7	11G0382	2	Lock Spring
-8	11G0383	2	Push Up Spring
-12	11G0387	1	Rear Location Plate
-13	11G0388	1	Side Lock
-14	11G0389	1	Side Location, L
-15	11G0390	1	Click, L
-16	11G0391	1	Lower Plate Push Lever, L
-17	11G0392	2	Rack
-18	11G0118	1	Pinion
-19	11G0393	1	Instruction Label
-NS	11G0616	1	Screw Parts Packet #10

Assembly 11: Optional Feeder Base



Assembly 11: Optional Feeder Base

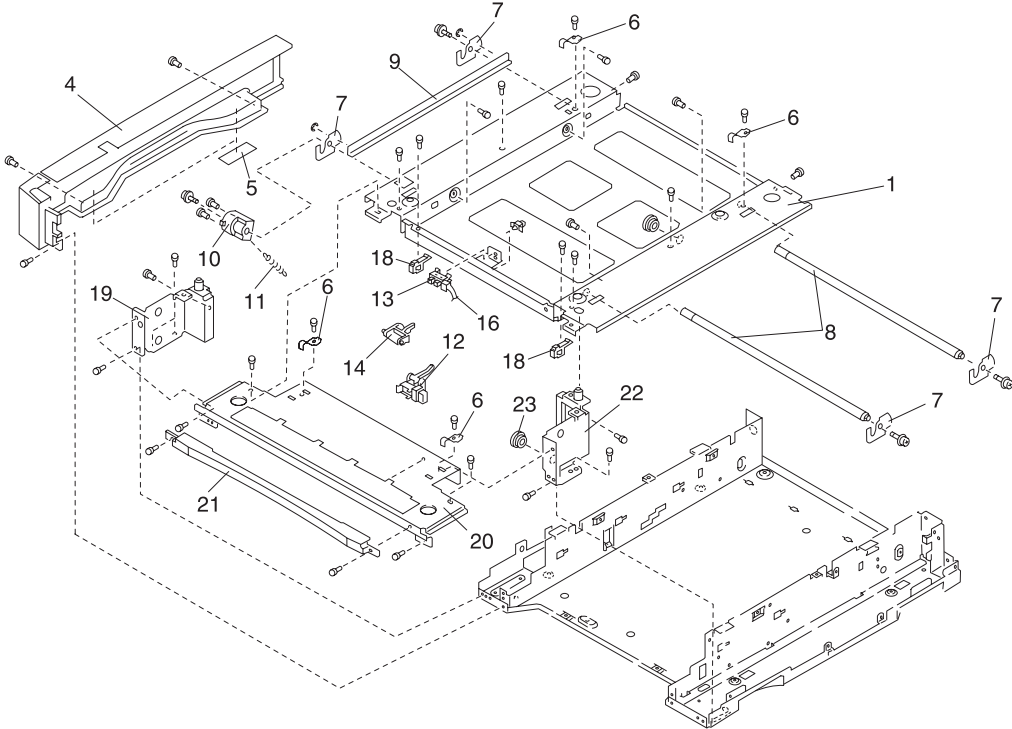
Ref	Part Number	Units	Description
11-2	11G0397	1	Rear Cover, 2
-3	11G0107	1	Second. Connector Cover
-5	11G0129	1	Rubber Plate
-24	11G0411	2	Mini Bushing, B
-25	11G0412	1	Spring Hook
-26	11G0193	2	Lock Cover, A
-27	11G0192	2	Lock Cover, B
-28	11G0196	1	Bottom Frame Cover
-29	11G0191	1	Cassette Ground Plate
-30	11G0195	2	Cassette Rail
-31	11G0310	1	Paper Size Board (P611-PSZ)
-32	11G0311	1	Paper Size Board Bracket
-33	11G0312	1	Paper Size Sensor Plate
-34	11G0201	4	Foot
-35	11G0188	1	Second Connector Bracket
-36	11G0413	1	Drive Frame Out, 2
-42	11G0415	1	Motor Harness

Assembly 11 (cont.):

Assembly 11 (cont.):

Ref	Part Number	Units	Description
11-37	11G0421	1	Drive Frame In, 2
-38	11G0422	1	Gear, Idler 62
-39	11G0423	1	Gear, S37xs24
-40	11G0424	1	Gear, H97xs34
-41	11G0414	1	Paper Feed Motor (Pm42) Optional Feeder
-42	11G0415	1	Motor Harness
-43	11G0416	2	Pcb Bracket
-44	11G0417	1	Paper Feeder Driver Board (P614-2/3 DRIV)
-45	11G0418	1	Side Cover, R 2
-46	11G0419	1	Second Harness Asm
-47	11G0420	1	Locking Wire Saddle
-48	11G0425	1	Bottom Frame, 2

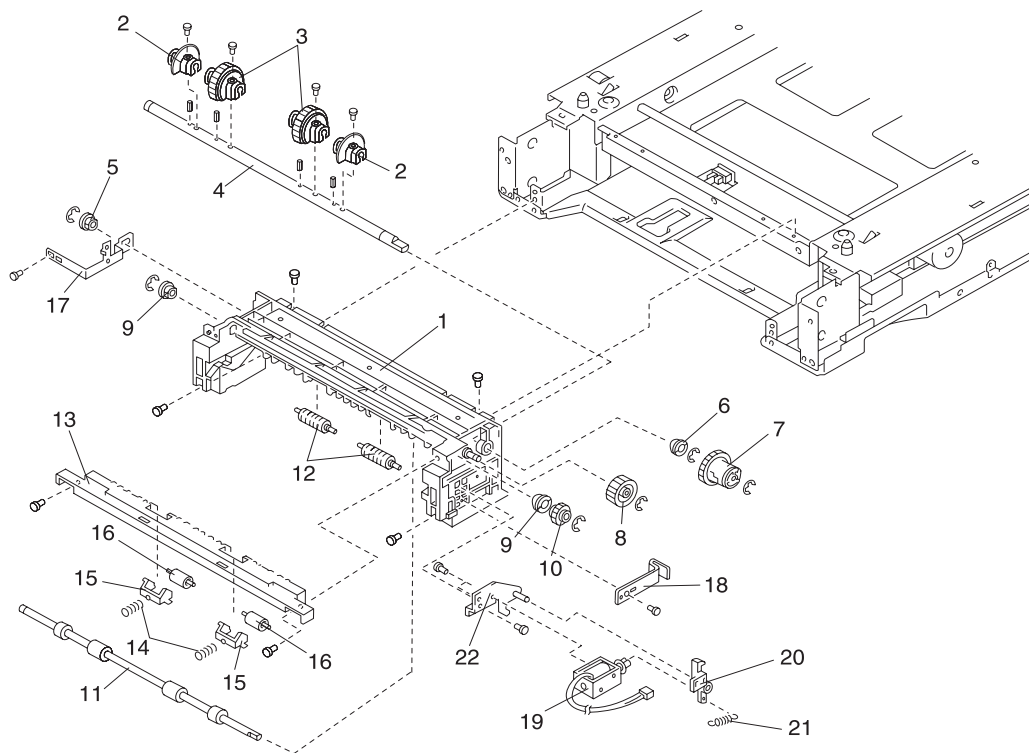
Assembly 11 (cont.): Optional Feeder Base



Assembly 11 (cont.): Optional Feeder Base

Ref	Part Number	Units	Description
11-1	11G0396	1	Top Frame, 2
-4	11G0398	1	Side Cover, L 2
-5	11G0129	1	Rubber Plate
-6	11G0399	4	Ground Plate, Second
-7	11G0400	4	Lock, 2
-8	11G0401	2	Lock Shaft, 2
-9	11G0402	1	Lock Link
-10	11G0403	1	Lock Lever
-11	11G0404	1	Lock Spring, 2
-12	11G0245	1	Paper Detect Lever
-13	11G0243	1	Photo Interrupter, Paper Detect Sensor
-14	11G0558	1	Photo Interrupter, Paper Detect Sensor
-16	11G0405	1	Second Photo Interrupter Harness
-18	11G0194	2	Release Lower Plate
-19	11G0407	1	Sub Frame, L 2
-20	11G0408	1	Front Stay, 2
-21	11G0409	1	Front Cover, 2
-22	11G0410	1	Sub Frame, R 2
-23	11G0340	2	Mini Bushing, A
-NS	11G0578	1	Rating Plate
-NS	11G0618	1	Cable Tie
-NS	11G0579	1	Screw Parts Packet #11
-NS	11G0625	1	Lever Stopper

Assembly 12: Optional Feeder Paper Feed



Assembly 12: Optional Feeder Paper Feed

Ref	Part Number	Units	Description
12-1	11G0426	1	Paper Feed Base, 2
-2	11G0270	2	Auxiliary Roller
-3	11G0271	2	Paper Feed Roller
-4	11G0272	1	Paper Feed Shaft
-5	11G0290	1	Bushing, B
-6	11G0140	1	Bushing, 8a
-7	11G0291	1	Paper Feed Clutch
-8	11G0430	1	Idle Gear 27
-9	11G0303	2	Metal Bushing 8
-10	11G0297	1	Carrying Gear
-11	11G0431	1	Carrying Roller, 2
-12	11G0280	2	Noise-cut Roller
-13	11G0432	1	Paper Feed Guide, 2
-14	11G0433	2	Roller Spring
-15	11G0434	2	Roller Guide, 2
-16	11G0286	2	Idle Roller
-17	11G0296	1	Paper Feed Ground Plate
-18	11G0295	1	Cassette Plate
-19	11G0249	1	Solenoid 2, Paper Feed
-20	11G0293	1	Clutch Lever
-21	11G0435	1	Solenoid Spring
-22	11G0294	1	Solenoid Bracket
-NS	11G0562	1	Screw Parts Packet #12

Assembly 13: Optional Features

Ref	Part Number	Units	Description
	11G0601	1	Maintenance Kit Low Voltage
	11G0602	1	Maintenance Kit High Voltage
	11G0727	1	Maintenance Kit - Japan
	11G0632	1	Machine Return Packaging Material
	11G0733	1	Hard Disk
	11G0610	1	Cable, Hard Disk
	99A0422	1	Ethernet 10BaseT and 10Base2
	99A0421	1	Ethernet 10/100BaseT
	99A0420	1	Token-Ring, (Connects via DB9 or RJ45)
	99A0560	1	Tri-port Adapter
	99A0467	1	Parallel Port Adapter
	99A0424	1	Infrared Adapter
	99A0545	1	Serial Interface Adapter
	99A0702	2	Printer Stand Caster, Non Locking
	99A0703	2	Printer Stand Caster, Locking
	99A0704	1	Printer Stand Grommet, Wire
	99A0705	2	Printer Stand Lock, Cam
	99A0706	1	Printer Stand Storage Shelf
	99A0707	1	Printer Stand Door Assembly, Cabinet
	99A0710	1	Printer Stand Filler, Rear Top Piece
	99A0711	1	Printer Stand Table Assembly, Large
	99A0712	1	Printer Stand Table Assembly, Small

Index

A

abbreviations 1-3
 adjustment procedures 4-3
 adjustments and procedures following
 parts replacement 2-1
 attendance messages 2-13

B

belt unit drive frame, BUD motor, BUD
 sensor removal 4-12
 belt up or down (BUD) 1-23
 button test 3-17

C

calibrating the transparency sensor
 3-24
 cleaning assembly 1-13
 clearing paper jams 1-27
 clearing the error log 3-26
 color calibration of printer 3-13
 color print unit missing service check
 2-28
 Covers 7-2
 cross section of printer 1-6, 5-2

D

developer assembly 1-11
 diagnostic menu group 3-6
 diagnostic mode 3-6
 disk test/clean 3-21
 DRAM memory test 3-17
 drive board removal 4-64
 drive 1 dc motor service check 2-28
 drive 1 removal 4-50
 drive 2 and FUD solenoid removal
 4-29
 drive 2 stepper motor service check
 2-29
 drum drive gear sensor removal 4-51

E

electrical charge unit 1-10
 electronic board layout 5-4
 electro-photographic process 1-8
 engine board removal 4-14
 exiting diagnostic mode 3-27
 exposure assembly 1-11

F

F pad removal 4-26
 fuser assembly 1-19
 fuser heat roller and gear H, gear 30
 removal 4-44
 fuser heater removal 4-42
 fuser pawl removal 4-39
 fuser press roller removal 4-37
 fuser removal 4-30
 fuser service check 2-27
 fuser thermostat, fuse, and thermistor
 removals 4-34

H

handling PWBs with MOISICS 4-1
 handling the drum cartridge 4-2
 head controller removal 4-21
 heater drive board, 230 V removal
 4-45
 humidity sensor removal 4-27
 HVU1 board layout 5-8
 HVU1 removal 4-29
 HVU2 board layout 5-9
 HVU2 removal 4-46

I

image quality troubleshooting 2-38
 initial check 2-2
 input/output source print tests 3-15

L

LCD hardware test 3-17
 LED head light quantity adjustment

4-5LED head removal **4-10**

LEDs

cleaning **2-40**light quantity **3-14**lubricants and cleaners **6-2****M**maintenance approach **1-1**maintenance kit **6-1**marks on paper service check **2-37**menu overview **3-4**MPF paper empty sensor removal
4-27mpf removal **4-23**multipurpose feeder **1-16****O**ohp sensor removal **4-57**operational theory **1-8**operator menu disabled **3-4**operator panel buttons **3-3**operator panel removal **4-22**optional paper feed controller board
layout **5-10**optional paper feed service check
2-30optional paper feeder removal
procedures **4-62**options **1-5**outer cover removal **4-62**output bin full sensor removal **4-59**over head projector (OHP) mode
1-26overhead projection sheet detection
sensor adjustment **4-6****P**paper carrying service check **2-32**paper cassette feeder **1-16**paper exit fu/fd service check **2-34**paper exit sensor removal **4-59**paper feed assembly removal **4-53**paper feed clutch, solenoid, and
transfer belt removal **4-67**paper feed motor 2 removal **4-64**paper feed roller removal **4-24, 4-65**paper feed, transfer, and fusing **1-14**paper FUD delivery sensor removal
4-61paper handling **5-1**paper jam service check **2-30**paper low/empty tray 1, 2, 3 service
check **2-35**paper path for color pages **1-25**paper path for mono pages **1-25**paper remaining sensor removal
4-12, 4-66paper tray missing/size service check
2-35parallel wrap test **3-18**part numbers **2-1**parts not to be touched **4-3**periodic maintenance **6-2**photoconductor drum **1-10**post card mode **1-27**power on self-test sequence **3-1**power supply board layout **5-7**power supply board removal **4-47**power supply service check **2-36**power supply switch removal **4-46**precautions for disassembly and
cleaning **4-1**print modes **1-26**print quality pages **3-16**print quality problems **2-38**print tests **3-15**printer controller board layout **5-12**printer controller removal **4-28**printer messages **2-3**printer supplies **1-6**printhead adjustment **3-13**printhead adjustments **4-6**printhead controller board layout **5-11**printing from the multipurpose feeder
1-28printing the menu settings **3-4****Q**quick disk test **3-20**

R

registration 1-17, 2-41
registration roller removal 4-52
registration sensor removal 4-26
removal procedures 4-10
remove paper sensor service check
2-36
RIP controller card layout 5-14
RIP controller card removal 4-61

S

safety information ix
second paper feed 1-26
sensor locations 5-6
sensor service check 2-45
separation assembly 1-18
serial number 1-2
serial wrap test 3-19
service checks 2-27
service error message table 2-4
setting printer top margin 3-10
setting the page count 3-23
size sensor board layout 5-13
size sensor board removal 4-48,
4-63
standard features 1-4
status messages 2-10
symptom table 2-23

T

thermistor rank 3-15
thermistor rank adjustment 4-5
tools 1-1
top margin for black and white mode
adjustment 4-6
top margin for color mode adjustment
4-5
transfer assembly 1-12
transfer belt 1-21
transfer belt tracking adjustment 4-3
transfer belt unit removal 4-11
transport belt/bud service check 2-29

U

using the operator panel 3-2

V

viewing and resetting the drum
counters 3-24
viewing the error log 3-25
viewing the permanent page count
3-23

Reader Comment Form

Lexmark Optra Color 1200
(5050-001)
Service Manual
P/N 12G0169 (U.S.) P/N 11F0867 (Japan)
October, 1998

You may use this form to communicate your comments about this publication, with the understanding that Lexmark may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

1. Did you find the book well organized?

Yes ☐ No ☐

2. Was the content of the book accurate and complete?

Yes ☐ No ☐

3. Was the book easy to use?

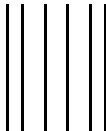
Yes ☐ No ☐

4. What can we do to improve the book?

5. What is your job title?

Questions or comments about supplies, service, applications, and so on slow response time considerably. Please refer those questions or comments to your authorized dealer or point of purchase.

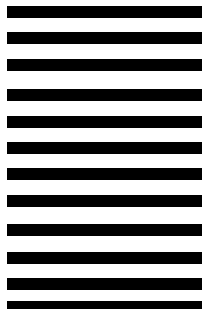
Note: You can purchase additional copies of publications related to this product by calling 1-800-553-9727.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 2659 LEXINGTON, KY



POSTAGE WILL BE PAID BY ADDRESSEE

LEXMARK INTERNATIONAL INC
DEPARTMENT D22A BUILDING 035 3
740 NEW CIRCLE ROAD NW
LEXINGTON KY 40511 9954



Fold Here

Cut Along Line

Tape

Please Do Not Staple

Tape