



Service Manual

Optra™ SC 1275

5040-001

- ***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 (January 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. Publications are not stocked at the address given below; requests for publications should be made to your point of purchase.

A form for reader's comments is provided at the back of this publication. If the form has been removed, comments may be addressed to Lexmark International, Inc., Department D22A/035-3, 740 New Circle Road NW, 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.

Lexmark 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. 1997. 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

Notices and Safety Information	viii
Laser Notice	viii
Laser Advisory Label	ix
Class 1 Laser Statement Label	ix
General Information	1-1
Maintenance Approach	1-1
Tools	1-1
Abbreviations	1-2
Paper Feed Operation	1-2
Drum Cartridge Toner Full Detection	1-6
Synchronizing Rollers	1-7
Paper Type Detection	1-8
Development	1-10
Toner Empty / Toner Cartridge Detection	1-10
AIDC Sensor and Erase Lamp	1-11
Diagnostic Information	2-1
Start	2-1
Initial Check	2-1
Operator Error Message Table	2-2
Status Messages	2-2
Line 1 Status Messages	2-3
Line 2 Messages	2-10
Supplies Status Messages	2-11
Attendance Messages	2-11
Service Error Message Table	2-26
Symptom Table	2-29
Service Checks	2-33
Fuser Service Check	2-33
Developing Motor Service Check	2-34
Transport Motor Service Check	2-34
Image Transfer Belt Service Check	2-35
Paper Jam Service Check	2-35
Toner Cartridge Rack Service Check	2-38
Printhead Cooling Fan Service Check	2-39
Power Supply Cooling Fan Motor Service Check	2-39
Suction Fan Motor Service Check	2-39
AC Power Service Check	2-40
Marks on Paper Service Check	2-41
Image Quality Troubleshooting	2-42

Sensor Service Check	2-47
Diagnostic Aids	2-48
Basic Printer Paper Passage Test	2-48
Operator Menu Disabled	2-48
Diagnostic Mode	2-48
Diagnostic Menu Group	2-48
Setting Printer Registration	2-50
Print Tests	2-50
Quality Pages	2-51
Clean Engine Test	2-51
LCD Hardware Test	2-51
Button Test	2-51
DRAM Memory Test	2-51
ROM Memory Test	2-52
Parallel Wrap Test	2-53
Serial Wrap Tests	2-54
Input Tray Sensor Test	2-55
Size Sensing Sensor Test	2-55
Base Sensor Test	2-56
Quick Disk Check	2-57
DISK Test/Clean	2-57
Flash Test	2-58
Setting the Page Count	2-58
Viewing the Permanent Page Count	2-58
Viewing the Error Log	2-58
Clearing the Error Log	2-59
Exiting Diagnostic Mode	2-59
Print Quality Test Page	2-60
Print Quality Test Page	2-61
Repair Information	3-1
Precautions for Disassembly and Cleaning	3-1
Instructions for Handling the PWBs with MOS ICs	3-1
Precautions for Handling the Drum Cartridge	3-2
Parts not to be touched	3-2
Precautions for Handling the Laser Equipment	3-3
Adjustment Procedures	3-3
Registration Adjustment	3-3
Rack Lever Solenoid Adjustment	3-5
Removal Procedures	3-5
Outer Cover Removals	3-5
Image Transfer Roller Removal	3-6
Drum Cartridge Removal	3-6

Waste Toner Bottle Removal	3-7
Image Transfer Belt Removal	3-7
Fuser Removal	3-8
Oil Coating Roller Removal	3-9
Heater Lamp Removal	3-10
Printhead Removal	3-11
Paper Exit Removal	3-12
High Voltage (HV1) / Sub High Voltage Board (PWB-F) Removal	3-12
Shield Plate Removal	3-13
Power Supply Removal	3-13
Mechanical Control Board Removal	3-14
Power Supply Frame Removal	3-14
Printhead Frame Removal	3-15
Toner Empty / Toner Cartridge Detecting Board (PWB-B) Removal	3-16
Toner Cartridge Rack Removal	3-16
Mechanical Controller Board Frame Removal	3-19
Paper Size/Cassette Detecting Board (PWB-E) Removal	3-19
Paper Take-Up Removal	3-19
Suction Assembly Removal	3-25
Suction Fan Motor Removal	3-27
Locations	4-1
Parts of the Printer	4-1
Parts of the Printer	4-2
Printing Process	4-6
Switches and Sensors	4-7
Gears and Rollers	4-10
Electrical Components	4-12
Connectors	4-18
Printed Circuit Boards	4-19
Parts Catalog	5-1
How to Use This Parts Catalog	5-1
Housing	5-2
Frames 1	5-6
Frames 2	5-10
Drive	5-14
Paper Take-Up 1	5-18
Paper Take-Up 2	5-22
Image Transfer Belt	5-24
Image Transfer Belt	5-26
Transfer Roller	5-28

Paper Transport	5-32
Rack	5-34
Fuser 1	5-38
Fuser 2	5-40
Fuser/Exit	5-42
Exit	5-44
Electrical Parts	5-46
Second Cassette (Tray 1)	5-50
Third Cassette (Tray 2)	5-54
Paper Tray	5-56
Controller Card	5-58
Index	X1

Notices and Safety Information

References in this publication to products, programs, or services do not imply that the manufacturer intends to make these available in all countries in which it operates. Any reference to a product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any existing intellectual property rights may be used instead. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by the manufacturer, are the user's responsibility.

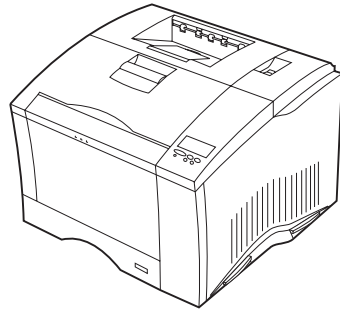
Laser Notice

The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for Class I (1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 825.

Class I laser products are not considered to be hazardous. The printer contains internally a Class IIIb (3b) laser that is nominally a 5 milliwatt gallium arsenide laser operating in the wavelength region of 770-795 nanometers. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service condition.

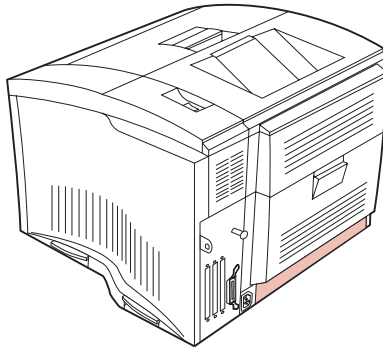
Laser Advisory Label

Label is inside printer!



Class 1 Laser Statement Label

Label is on back of printer.



Laser

Der Drucker erfüllt gemäß amtlicher Bestätigung der USA die Anforderungen der Bestimmung DHHS (Department of Health and Human Services) 21 CFR Teil J für Laserprodukte der Klasse I (1). In anderen Ländern gilt der Drucker als Laserprodukt der Klasse I, der die Anforderungen der IEC (International Electrotechnical Commission) 825 gemäß amtlicher Bestätigung erfüllt.

Laserprodukte der Klasse I gelten als unschädlich. Im Inneren des Druckers befindet sich ein Laser der Klasse IIIb (3b), bei dem es sich um einen Galliumarsenlaser mit 5 Milliwatt handelt, der Wellen der Länge 770-795 Nanometer ausstrahlt. Das Lasersystem und der Drucker sind so konzipiert, daß im Normalbetrieb, bei der Wartung durch den Benutzer oder bei ordnungsgemäßer Wartung durch den Kundendienst Laserbestrahlung, die die Klasse I übersteigen würde, Menschen keinesfalls erreicht.

Avis relatif à l'utilisation de laser

Pour les Etats-Unis : cette imprimante est certifiée conforme aux provisions DHHS 21 CFR alinéa J concernant les produits laser de Classe I (1). Pour les autres pays : cette imprimante répond aux normes IEC 825 relatives aux produits laser de Classe I.

Les produits laser de Classe I sont considérés comme des produits non dangereux. Cette imprimante est équipée d'un laser de Classe IIIb (3b) (arséniure de gallium d'une puissance nominale de 5 milliwatts) émettant sur des longueurs d'onde comprises entre 770 et 795 nanomètres. L'imprimante et son système laser sont conçus pour impossible, dans des conditions normales d'utilisation, d'entretien par l'utilisateur ou de révision, l'exposition à des rayonnements laser supérieurs à des rayonnements de Classe I .

Avvertenze sui prodotti laser

Questa stampante è certificata negli Stati Uniti per essere conforme ai requisiti del DHHS 21 CFR Sottocapitolo J per i prodotti laser di classe 1 ed è certificata negli altri Paesi come prodotto laser di classe 1 conforme ai requisiti della norma CEI 825.

I prodotti laser di classe non sono considerati pericolosi. La stampante contiene al suo interno un laser di classe IIIb (3b) all'arseniuro di gallio della potenza di 5mW che opera sulla lunghezza d'onda compresa tra 770 e 795 nanometri. Il sistema laser e la stampante sono stati progettati in modo tale che le persone a contatto con la stampante, durante il normale funzionamento, le operazioni di servizio o quelle di assistenza tecnica, non ricevano radiazioni laser superiori al livello della classe 1.

Avisos sobre el láser

Se certifica que, en los EE.UU., esta impresora cumple los requisitos para los productos láser de Clase I (1) establecidos en el subcapítulo J de la norma CFR 21 del DHHS (Departamento de Sanidad y Servicios) y, en los demás países, reúne todas las condiciones expuestas en la norma IEC 825 para productos láser de Clase I (1).

Los productos láser de Clase I no se consideran peligrosos. La impresora contiene en su interior un láser de Clase IIIb (3b) de arseniuro de galio de funcionamiento nominal a 5 milivatios en una longitud de onda de 770 a 795 nanómetros. El sistema láser y la impresora están diseñados de forma que ninguna persona pueda verse afectada por ningún tipo de radiación láser superior al nivel de la Clase I durante su uso normal, el mantenimiento realizado por el usuario o cualquier otra situación de servicio técnico.

Declaração sobre Laser

A impressora está certificada nos E.U.A. em conformidade com os requisitos da regulamentação DHHS 21 CFR Subcapítulo J para a Classe I (1) de produtos laser. Em outros locais, está certificada como um produto laser da Classe I, em conformidade com os requisitos da norma IEC 825.

Os produtos laser da Classe I não são considerados perigosos. Internamente, a impressora contém um produto laser da Classe IIIb (3b), designado laser de arseneto de potássio, de 5 milliwatts, operando numa faixa de comprimento de onda entre 770 e 795 nanómetros. O sistema e a impressora laser foram concebidos de

forma a nunca existir qualquer possibilidade de acesso humano a radiação laser superior a um nível de Classe I durante a operação normal, a manutenção feita pelo utilizador ou condições de assistência prescritas.

Laserinformatie

De printer voldoet aan de eisen die gesteld worden aan een laserprodukt van klasse I. Voor de Verenigde Staten zijn deze eisen vastgelegd in DHHS 21 CFR Subchapter J, voor andere landen in IEC 825.

Laserprodukten van klasse I worden niet als ongevaarlijk aangemerkt. De printer is voorzien van een laser van klasse IIIb (3b), dat wil zeggen een gallium arsenide-laser van 5 milliwatt met een golflengte van 770-795 nanometer. Het lasergedeelte en de printer zijn zo ontworpen dat bij normaal gebruik, bij onderhoud of reparatie conform de voorschriften, nooit blootstelling mogelijk is aan laserstraling boven een niveau zoals voorgeschreven is voor klasse 1.

Lasermeddelelse

Printeren er godkendt som et Klasse I-laserprodukt, i overensstemmelse med kravene i IEC 825.

Klasse I-laserprodukter betragtes ikke som farlige. Printeren indeholder internt en Klasse IIIB (3b)-laser, der nominelt er en 5 milliwatt galliumarsenid laser, som arbejder på bølgelængdeområdet 770-795 nanometer. Lasersystemet og printeren er udformet således, at mennesker aldrig udsættes for en laserstråling over Klasse I-niveau ved normal drift, brugervedligeholdelse eller obligatoriske servicebetingelser.

Huomautus laserlættetesta

Tämä kirjoitin on Yhdysvalloissa luokan I (1) laserlaitteiden DHHS 21 CFR Subchapter J -määrityksen mukainen ja muualla luokan I laserlaitteiden IEC 825 -määrityksen mukainen.

Luokan I laserlaitteiden ei katsota olevan vaarallisia käyttäjälle. Kirjoittimessa on sisäinen luokan IIIB (3b) 5 milliwatin galliumarsenidilaser, joka toimii aaltoalueella 770 - 795 nanometriä. Laserjärjestelmä ja kirjoitin on suunniteltu siten, että käyttäjä ei altistu luokan I määrityksiä voimakkaammalle säteilylle kirjoittimen normaalin toiminnan, käyttäjän tekemien huoltotoimien tai muiden huoltotoimien yhteydessä.

VARO! Avattaessa ja suojalukitus ohitettaessa olet alltiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

WARNING! Osynlig laserstråling när denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

Laser-notis

Denna skrivare är i USA certifierad att motsvara kraven i DHHS 21 CFR, underparagraf J för laserprodukter av Klass I (1). I andra länder uppfyller skrivaren kraven för laserprodukter av Klass I enligt kraven i IEC 825.

Laserprodukter i Klass I anses ej hälsovådliga. Skrivaren har en inbyggd laser av Klass IIIb (3b) som består av en laserenhet av gallium-arsenid på 5 milliwatt som arbetar i våglängdsområdet 770-795 nanometer. Lasersystemet och skrivaren är utformade så att det aldrig finns risk för att någon person utsätts för laserstrålning över Klass I-nivå vid normal användning, underhåll som utförs av användaren eller annan föreskriven serviceåtgärd.

Laser-melding

Skriveren er godkjent i USA etter kravene i DHHS 21 CFR, underkapittel J, for klasse I (1) laserprodukter, og er i andre land godkjent som et Klasse I-laserprodukt i samsvar med kravene i IEC 825.

Klasse I-laserprodukter er ikke å betrakte som farlige. Skriveren inneholder internt en klasse IIIb (3b)-laser, som består av en gallium-arsenlaserenhet som avgir stråling i bølgelengdeområdet 770-795 nanometer. Lasersystemet og skriveren er utformet slik at personer aldri utsettes for laserstråling ut over klasse I-nivå under vanlig bruk, vedlikehold som utføres av brukeren, eller foreskrevne serviceoperasjoner.

Avís sobre el Làser

Segons ha estat certificat als Estats Units, aquesta impressora compleix els requisits de DHHS 21 CFR, apartat J, pels productes làser de classe I (1), i segons ha estat certificat en altres llocs, és un producte làser de classe I que compleix els requisits d'IEC 825.

Els productes làser de classe I no es consideren perillosos. Aquesta impressora conté un làser de classe IIIb (3b) d'arseniür de gal.li, nominalment de 5 mil.liuwats, i funciona a la regió de longitud d'ona de 770-795 nanòmetres. El sistema làser i la impressora han sigut concebuts de manera que mai hi hagi exposició a la radiació làser per sobre d'un nivell de classe I durant una operació normal, durant les tasques de manteniment d'usuari ni durant els serveis que satisfacin les condicions prescrites.

Japanese Laser Notice

レーザーに関するお知らせ

このプリンターは、米国ではDHHS 21 CFRサブチャプターJのクラスI (1)の基準を満たしたレーザー製品であることが証明されています。また米国以外ではIEC 825の基準を満たしたクラスIのレーザー製品であることが証明されています。

クラスIのレーザー製品には危険性はないと考えられています。このプリンターはクラスIII b (3 b)のレーザーを内蔵しています。このレーザーは、波長が770 ~ 795ナノメートルの範囲で、通常5ミリワットのガリウム砒化物を放射するレーザーです。このレーザーシステムとプリンターは、通常の操作、ユーザのメンテナンス、規定された修理においては、人体がクラスIのレベル以上のレーザー放射に晒されることのないよう設計されています。

Chinese Laser Notice

注意：

本打印机被美国认证合乎 DHHS 21 CFR Subchapter I 对分类 I (1) 激光产品的标准，而在其他地区则被认证合乎 IEC 825 的标准。

分类 I 激光产品一般认为不具危险性，本打印机内部含有分类 IIIb (3b) 的激光，在操作过程中会产生 5 毫瓦含镓及砷的微量激光，其波长范围在 770-795 nm 之间。本激光系统及打印机的设计，在一般操作、使用者维护或规定内的维修情况下，不会使人体接触分类 I 以上等级的辐射。

Korean Laser Notice

본프린터는 1등급 레이저 제품들에 대한 DHHS 21 CFR Subchapter 3의 규정을 준수하고 있음을 미국에서 인증받았으며, 그외의 나라에서도 IEC 825 규정을 준수하는 1등급 레이저 제품으로서 인증을 받았습니다.

1등급 레이저 제품들은 안전한 것으로 간주됩니다. 본 프린터는 5 밀리와트 갈륨 아르세나이드 레이저로서 770-795 나노미터의 파장대에서 활동하는 Class III (3b) 레이저를 내부에 갖고 있습니다. 본 레이저 시스템과 프린터는 정상 작동 중이나 유지 보수 중 또는 규정된 서비스 상태에서 상기의 Class I 수준의 레이저 방출에 사람이 절대 접근할 수 없도록 설계되어 있습니다.

Safety Information

- 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'us 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 전문가는 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.

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 screwdriver
- Analog volt ohmmeter (a digital volt ohmmeter may also be used)
- Needle nose pliers

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

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

Paper Feed Operation

- Paper can be fed into the printer from the Multi-Purpose Tray (150 sheets) or from the Second Cassette Tray (Tray 1, 250 sheets).
- The Optional Third Cassette Unit (Tray 2 option, 250 sheets) adds another feeding method. Its structure is the same as that of the Second Cassette Tray.)

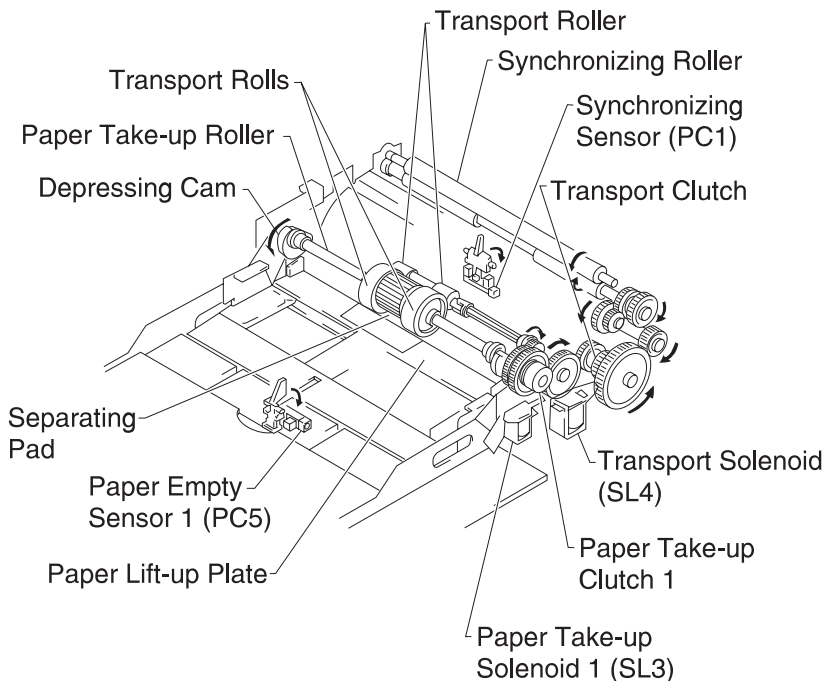
Multi Purpose Tray

When the paper take-up solenoid 1 (SL3) energizes, the transport motor (M2) drives the paper take-up roller via the paper take-up clutch. The paper take-up roller rotates one revolution. At the same time, the depressing cam rotates and releases the paper lift-up plate to feed the top sheet of paper. The paper is transported to the synchronizing roller section by the transport rollers.

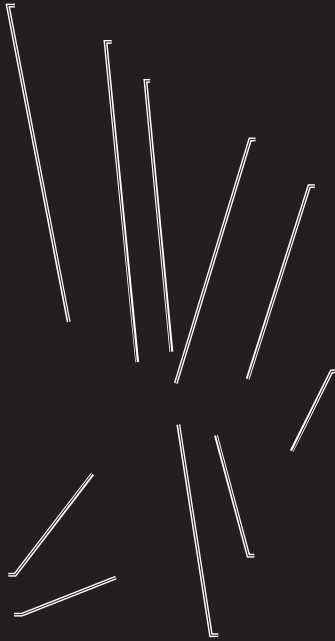
The transport rolls are mounted free on the shaft of the paper take-up roller and rotate independently of the paper take-up roller. The transport rolls rotate as the transport roller rotates.

The fixed separating pad separates paper and prevents multiple paper feeds.

The paper empty sensor 1 (PC5) detects paper in the multi-purpose tray.

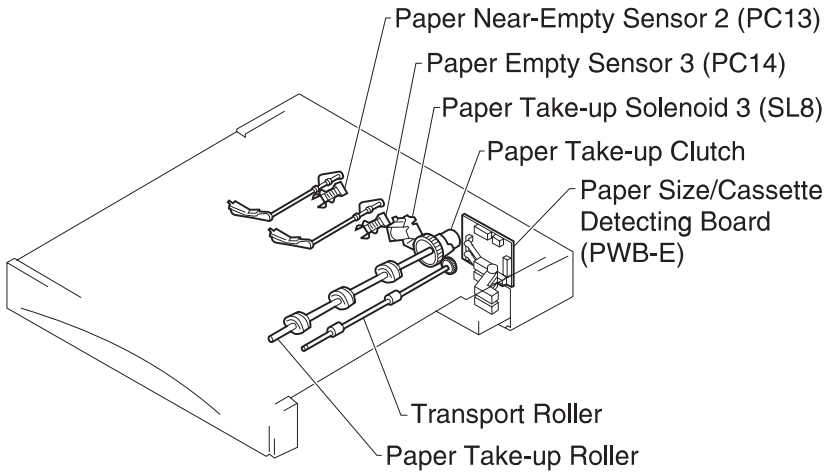


aper



Third Cassette Unit (Tray 2 Option)

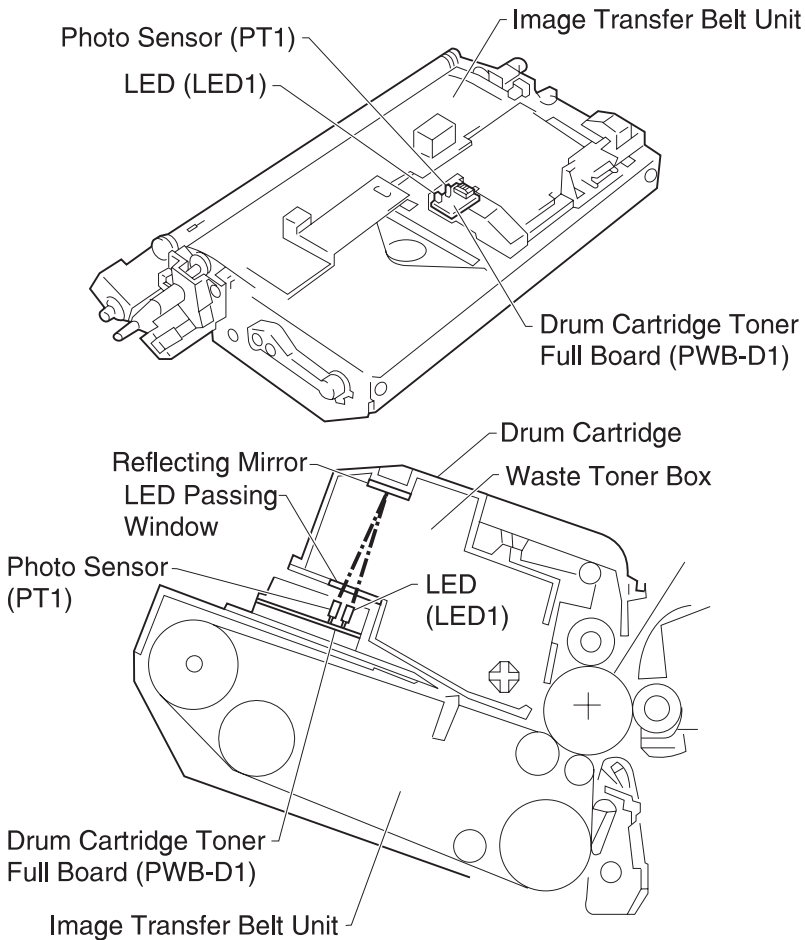
The third cassette is constructed in the same way as the second cassette.



Drum Cartridge Toner Full Detection

The drum cartridge toner full board (PWB-D1), on top of the image transfer belt assembly, determines when the PC drum waste toner box is full.

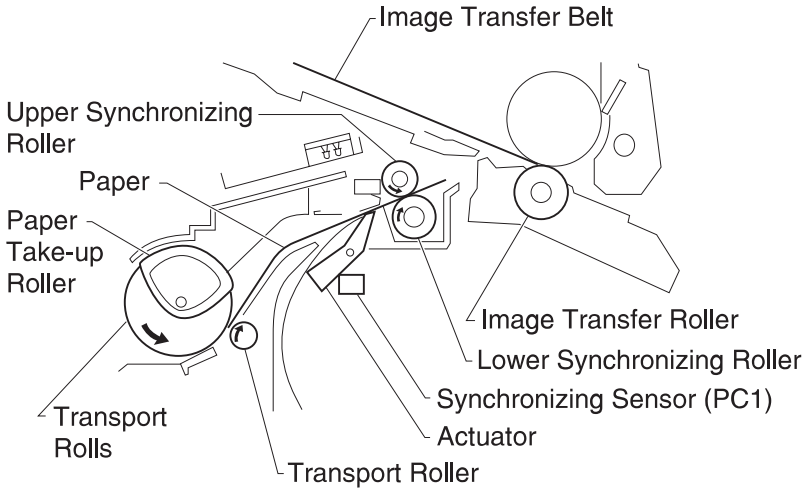
Waste toner full is detected by an LED (LED1) and a photo-sensor (PT1) on the PWB-D1. Light from the LED (LED1) passes through the LED passing window, is reflected by a mirror in the drum cartridge, and then received by the photo sensor (PT1). The amount of this light determines whether the drum cartridge is nearly full or full.



Synchronizing Rollers

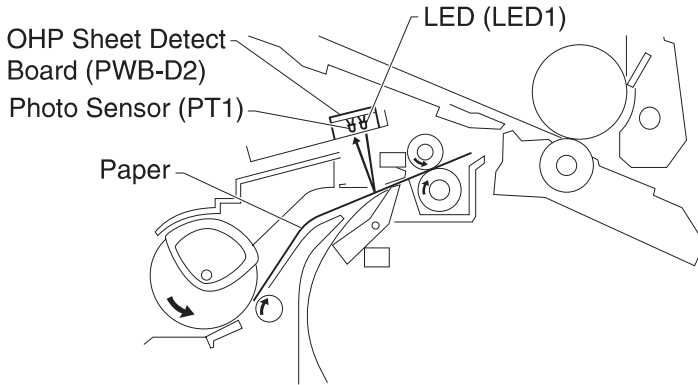
The synchronizing rollers adjust any skewed paper transported from the paper take-up/feed section. The rollers match the leading edge of the image on the image transfer belt with the leading edge of the paper.

The paper synchronizing sensor (PC1) detects when the leading edge of paper has reached the synchronizing rollers.

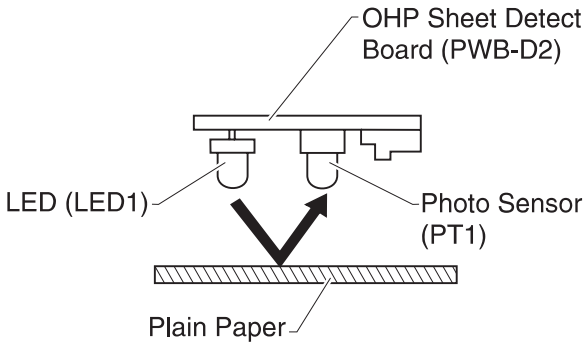


Paper Type Detection

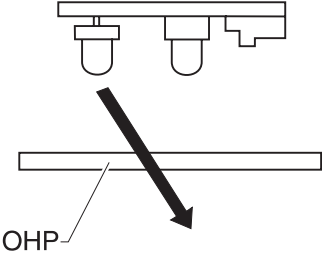
The overhead projection (OHP) sheet detect board (PWB-D2), consisting of an LED (LED1) and a photo sensor (PT1), determines whether transparencies or plain paper is being fed through the machine.



When plain paper is feeding, the light from the LED reflects off the surface of the paper, and strikes PT1.



When a sheet of OHP transparencies is feeding, the light from the LED passes through and PT1 receives no light.



Development

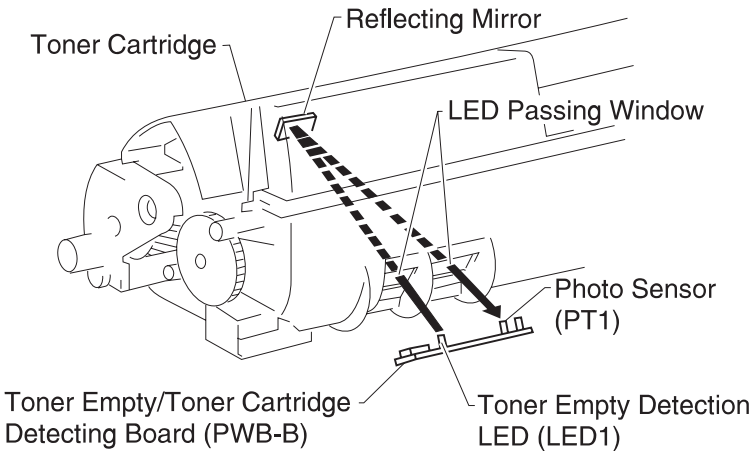
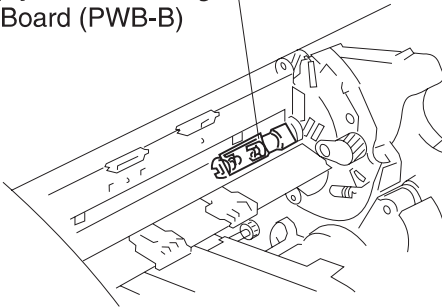
Toner Empty / Toner Cartridge Detection

Toner Empty Detection

Light from the toner empty detection LED (LED1) on the toner empty/toner cartridge detecting board (PWB-B) is reflected by a mirror in the toner cartridge and received by photo sensor (PT1).

The amount of light received by the photo sensor determines whether the toner is empty or nearly empty.

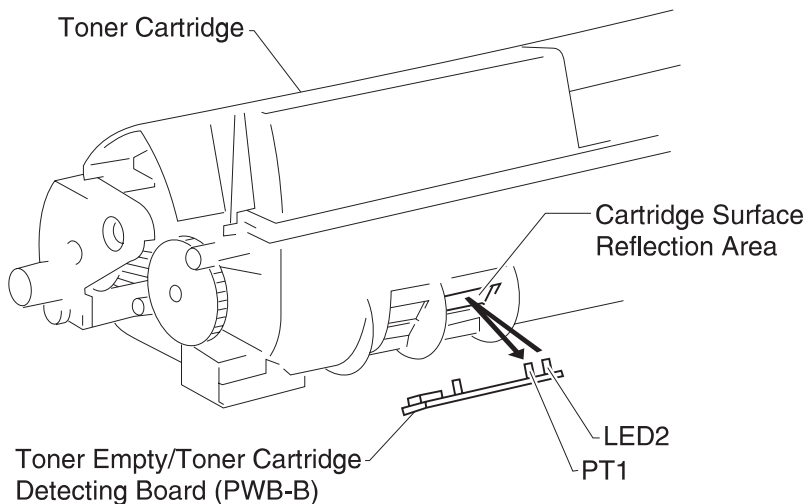
Toner Empty/Toner Cartridge
Detecting Board (PWB-B)



Toner Cartridge Detection

Light from the toner cartridge detection LED (LED2) on the toner empty/toner cartridge detecting board (PWB-B) is reflected by the toner cartridge surface to the photo sensor (PT1).

The toner cartridge is detected during warm up.

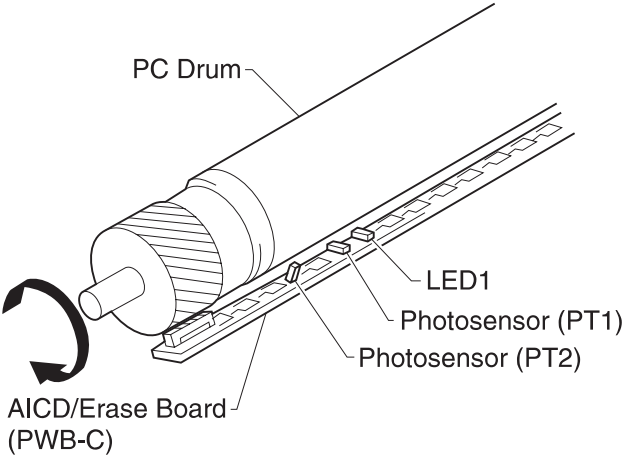
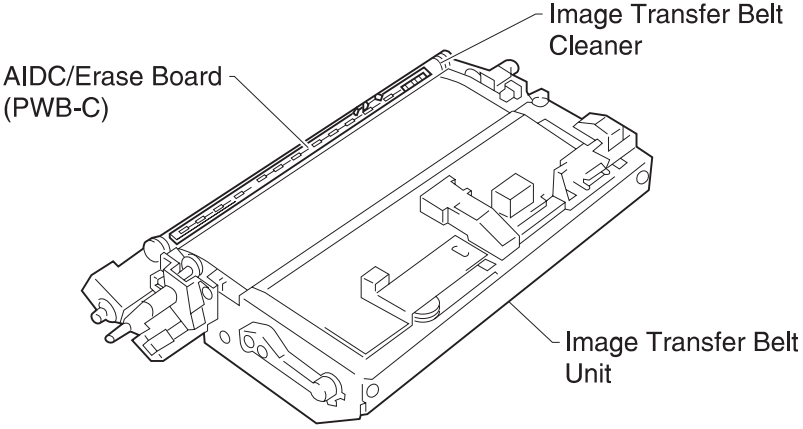


AIDC Sensor and Erase Lamp

Automatic Image Density Control (AIDC)

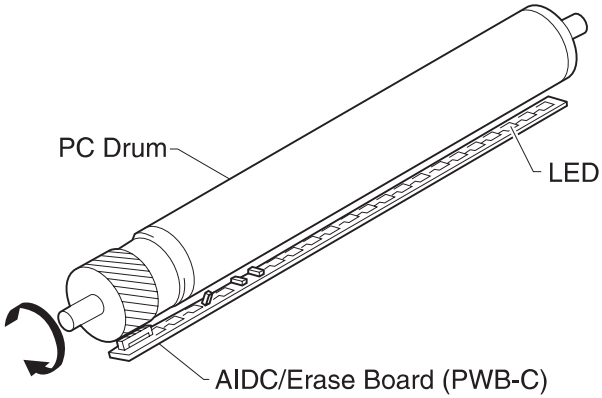
The AIDC sensor detects the image density of the AIDC mark formed by toner on the PC Drum to determine proper charging bias and developing bias. The sensor is located on the AIDC/erase lamp board (PWB-C) on top of the image transfer belt. AIDC detection is accomplished with one LED (LED1) and two photo sensors (PT1, PT2).

AIDC detection is done for each Color Toner Cartridge after the developing rack position initializes.



Erase Lamp

Nineteen LEDs are placed in a row on the AIDC/Erase Lamp Board (PWB-C). Following developing, the surface of the PC Drum is exposed to light from these LEDs to neutralize negative the charge on the areas to which no toner has been attracted.



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. Some diagnostic procedures indicate the parts catalog location of the part to be checked by including the assembly number and reference number in parenthesis. Some part numbers are also included. Use the error code tables, symptom table, service checks and the diagnostic aids chapter to determine the symptom and repair the failure. After you complete the repair, perform the appropriate tests to verify the repair.

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

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

Use the Locations chapter to find connector, board, and pin information. The sequence given in the service check is connector, board, and pin. The board uses only a letter for an identifier. For example, connector CN8A-3; CN8 = connector, A = board, -3 = the pin.

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.

Operator Error Message Table

The operator panel messages are divided into three groups: Status, Attendance, and Service. Status messages give information about the current state of the printer. Attendance messages indicate printer errors that the operator must resolve. Service messages indicate printer problems that require servicing.

Printer status is shown on the first line of the display. Additional information about printer status may be displayed on the second line of the display.

Status Messages

Line 1 on the display provides information about the printer, as shown in the following table. A long message requires line 2 to provide additional information about printer status.

Line 1 Status Messages

Status Message	Action
<p>Ready</p>	<p>The printer is ready to receive and process data.</p> <ul style="list-style-type: none"> • Press <Menu> to take the printer out of Ready and enter the primary menu selections. • Press Stop to take the printer offline. Not Ready is displayed and no more data is processed from the host computer. • Press Go to return to Ready.
<p>Ready Hex</p>	<p>The printer is ready and Hex Trace mode is active.</p> <ul style="list-style-type: none"> • Press <Menu> to take the printer out of Ready and to enter the primary menu selections. • Press Stop to take the printer offline. Not Ready is displayed and no more data is processed from the host computer. • Press Go to return to Ready.
<p>Busy</p>	<p>The printer is busy receiving or processing data, or printing data. The printer language is shown to the right of Busy on the display.</p> <p>The printer indicator light blinks while the printer is processing data.</p> <p>If line 2 indicates that operator intervention is required:</p> <ul style="list-style-type: none"> • Press Stop to take the printer offline. Not Ready is displayed and no more data is processed from the host computer. • Press Go to return to Ready. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Status Message	Action
Waiting	<p>The printer has received a page of data to print, but is waiting until an End of Job or Form Feed command occurs or until additional data is received.</p> <p>The display shows the printer language on line 1 to the right of Waiting.</p> <ul style="list-style-type: none"> • Press Stop to take the printer offline. Not Ready is displayed and no more data is processed from the host computer. • Press Go to return to Ready. Or, to reset the printer: • Press <Menu>> to access the Busy menu. • Select Reset Printer.
Engine Warming	<p>The printer is performing the necessary action to warm the fuser mechanism. No button actions are possible while this message is displayed.</p>
Density Check	<p>The printer is performing the Image Density Calibration. No button actions are possible while this message is displayed.</p>
Cleaning Engine	<p>From the Tests Menu the selection Clean Engine is available to clean the secondary transfer assembly. This message is displayed if you select Yes and the cleaning process is in progress. No button actions are possible while this message is displayed. When the cleaning is complete, TESTS MENU is displayed.</p>

Status Message	Action
Flushing Buffer	<p>The current print job is being discarded.</p> <p>This message is displayed when a PostScript job has an invalid operator or if SmartSwitch is disabled. No button actions are possible while this message is displayed.</p>
Power Saver	The printer is in Power Saver mode.
Printing Menu Settings	<p>The printer is processing or printing a list of current menu settings because Print Menu Setting was selected from the Tests Menu.</p> <ul style="list-style-type: none"> • Press Stop to take the printer offline. The Not Ready message is displayed. No more data is processed, but the printer processes all paper currently in the printer paper path. • Press Go to return to Ready after the page prints. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.
Printing Directory List	<p>A directory of the flash and disk contents is processing or printing because Print Directory is selected from the menu.</p> <ul style="list-style-type: none"> • Press Stop to take the printer offline. The Not Ready message is displayed. No more data is processed, but the printer processes all paper currently in the printer paper path. • Press Go to return to Ready after the page prints. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Status Message	Action
<p>Printing Font List</p>	<p>The printer is processing a print font listing because Print Fonts is selected from the menu. When all the pages for a font listing format, the printer display changes to the Busy message as the pages print.</p> <ul style="list-style-type: none"> • Press Stop to take the printer offline. The Not Ready message is displayed. No more data is processed, but the printer processes all paper currently in the printer paper path. • Press Go to return to Ready after the page prints. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.
<p>Restoring Factory Defaults</p>	<p>The printer is restoring factory defaults.</p> <p>No button actions are possible while this message is displayed.</p>
<p>Performing Self Test</p>	<p>The printer is running the normal series of start-up tests after it is powered on. When the tests are complete, the printer returns to Ready.</p> <p>No button actions are possible while this message is displayed.</p>

Status Message	Action
<p>Not Ready</p> <p>Press Go</p>	<p>The printer is in the Not Ready state, which means it is not ready to receive or process data.</p> <p>This message displays when Stop is pressed during a print job. Press Go to take the printer out of the not ready state.</p> <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.
<p>Resetting the Printer</p>	<p>The printer is deleting any print jobs in process and restoring all settings to user defaults.</p> <p>No button actions are possible while this message is displayed.</p>
<p>Formatting Flash</p> <p>DO NOT POWER OFF</p>	<p>The flash memory is being formatted.</p> <p>No button actions are possible while this message is displayed.</p>
<p>Programming Flash</p> <p>DO NOT POWER OFF</p>	<p>The flash memory is being programmed. Fonts or macros are being written to flash memory.</p> <p>No button actions are possible while this message is displayed.</p>
<p>Formatting Disk</p>	<p>The disk is being formatted.</p> <p>No button actions are possible while this message is displayed.</p>

Status Message	Action
<p>Programming Disk</p> <p>DO NOT POWER OFF</p>	<p>The disk is being programmed. Fonts or macros are being written to disk.</p> <p>No button actions are possible while this message is displayed.</p> <p>If information is written both to flash memory and to disk at the same time, the Programming Flash message is displayed.</p>
<p>Menus Disabled</p>	<p>The printer menus have been disabled. This occurs when <Menu> is pressed while the printer is Ready and Menu Lockout is active.</p> <p>The printer display shows this message for one second and then returns to the Ready message.</p> <p>No button actions are possible while this message is displayed.</p> <p>If the operator has disabled the menu and you want to run print tests, turn the machine off, then press Go and Stop as you turn the machine on.</p>
<p>Activating Menu Changes</p>	<p>The printer is reset to activate a printer setting changed in the menus.</p> <p>No button actions are possible while this message is displayed.</p>

Status Message	Action
Files Will Be Lost. Go or Stop?	<p>This message is displayed when the Job Buffer Size is changed in the Setup Menu. The message indicates that the disk is about to be formatted to create the new job buffer partition. All disk files will be lost if this action continues.</p> <ul style="list-style-type: none">• Press Go to continue. The disk is formatted and the job buffer partition is created.• Press Stop to cancel the operation.

Line 2 Messages

Status Message	Action
Supplies	Toner is low, or a tray is empty or missing. This message remains on the operator panel until the supply is replaced, or the tray is installed. If you are unable to clear the supplies message, see the "Supplies Status Messages" on page 2-11.
Parallel	The printer is locked to the printer standard parallel port.
Serial x	x is 1, 2, or 3 and represents the serial port attached to option connector x. The printer is locked to this link.
Network x	x is 1, 2, or 3 and represents the network card attached to option connector x. The printer is locked to this link.
LocalTalk x	x is 1, 2, or 3 and represents the LocalTalk card attached to option connector x. The printer is locked to this link.
Infrared x	x is 1, 2, or 3 and represents the infrared port attached to option connector x. The printer is locked to this link.
Maintenance	Maintenance is required for the assembly shown. This message remains on the operator panel until the maintenance is completed.

Supplies Status Messages

Status Message	Action
Paper Tray Missing, Size	<ul style="list-style-type: none"> • Check size paper indicator for damage and be sure it is inserted correctly. • Go to the “Sensor Service Check” on page 2-47, run the sensor size test and replace parts as necessary. • Replace the 2nd paper size/cassette detection board (Tray 1, PWB-E1, or Tray 2 (PWB-E2).
Paper Low/Empty Tray 1 and 2	Go to the “Sensor Service Check” on page 2-47 and check the actuators and sensors for tray 1 and tray 2.
Paper Empty Multipurpose Tray	Go to the “Sensor Service Check” on page 2-47 and check the actuators and sensors for the multipurpose tray.

Attendance Messages

Attendance messages indicate printer errors the user must solve.

Attendance Message	Action
20x Paper Jam 24x 250	<p>The printer has detected a paper jam. The second line shows where the paper jam may be. The entire paper path must be cleared of paper.</p> <p>Press Go to return to printing. If you still have the problem, clear the entire paper path of paper and go to the “Paper Jam Service Check” on page 2-35.</p>

Attendance Message	Action
Close Door	<p>Either the top door is open or the back door (fuser area) is open.</p> <p>Be sure the transfer belt assembly is installed.</p> <p>Check the actuators and do a continuity check of interlock switch 1 (S2), interlock switch 2 (S3) and PH scatter switch (S5). Replace the switch or actuator as necessary.</p>
30 Yellow Toner Cart Missing 30 Magenta Toner Cart Missing 30 Cyan Toner Cart Missing 30 Black Toner Cart Missing	<p>The toner cartridge indicated is not installed. Install the toner cartridge. The message clears from the display when the top door is closed.</p> <p>If you still have the error, check the contacts on the toner cartridge and the toner cartridge rack. Clean or replace as necessary. If this does not correct the problem, replace the toner empty/toner cartridge detecting board (PWB-B) and the mechanical controller board if necessary.</p>
34 Incorrect Media	<p>The media type or size that is installed in a tray is different from the size you selected on the operator panel.</p> <ul style="list-style-type: none"> • Be sure the paper cassette is securely closed. • Be sure the paper size indicator is not damaged and that it is in the correct position. • Replace the paper size/cassette detection board (PWB-E).

Attendance Message	Action
<p>35 Res Save Off Deficient Memory</p>	<p>The printer lacks the memory needed to enable Resource Save. This message usually indicates that too much memory is allocated for one or more of the printer link buffers.</p> <ul style="list-style-type: none"> • To enable Resource Save after this message is displayed, either install additional memory or set each link buffer to the Auto value. • After you set all link buffers to Auto, exit the printer menus to activate link buffer changes. • When Ready is displayed, enable Resource Save in the Setup Menu and modify the link buffers again. • Press Go to clear the message. The printer automatically disables Resource Save and continues.
<p>38 Memory Full</p>	<p>The printer is processing data, but the memory used to store pages is full.</p> <p>Reduce the complexity of the page.</p> <ul style="list-style-type: none"> • Simplify the print job by reducing the amount of text or graphics on a page. • Delete unnecessary downloaded fonts or macros. • Install additional memory. • Reduce the print resolution. <p>Send the job to print again.</p> <p>Press Go to clear the message. The printer continues printing the job; however, some data may not print or may not print correctly.</p> <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Attendance Message	Action
<p>39 Complex Page</p>	<p>The amount of text, graphics, and print information on the page is very complex; therefore, the page may not print correctly.</p> <ul style="list-style-type: none"> • Set Page Protect in the Setup Menu to On and send the print job again. • Press Go to clear the message. The printer continues printing the job; however, some data may not print or may not print correctly. • Try to simplify your print job. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.
<p>51 Defective Flash</p>	<p>The printer detects a defective flash during power on, or during format and write to flash operations.</p> <p>Press Go to clear the message. Flash operations are not allowed until the problem is resolved.</p> <p>Remove the defective flash memory card and try another.</p>
<p>52 Flash Full</p>	<p>There is not enough free space in the flash memory card to hold the data that was sent.</p> <p>Press Go to clear the message and continue processing. All downloaded fonts and macros not written to flash are deleted.</p> <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Attendance Message	Action
53 Unformatted Flash	<p>The printer detected an unformatted flash memory card during the power on process. Flash operations are not allowed until the flash is formatted.</p> <p>Try the following:</p> <ul style="list-style-type: none">• Format the flash memory card using Format Flash in the Tests Menu.• Send the data again.• If the error condition remains, the flash memory card is defective and must be replaced.• Press Go to clear the message. The flash memory is ignored and normal operation continues.

Attendance Message	Action
54 Serial Option x Error	<p>A serial interface error has been detected (framing or parity). This error usually indicates the serial link has not been set up correctly.</p> <p>x represents optional serial port 1 through 3.</p> <p>Press and hold Select and then press Return to determine the cause of the host interface error.</p> <p>When the serial error is displayed, the reporting of other serial errors is suppressed until interface parameters are changed or the printer is turned off.</p> <p>Check the interface:</p> <ul style="list-style-type: none"> • Verify that the correct cable is used. • Make sure the serial interface parameters (protocol, baud, parity, data bits) are correct. • Press Go to clear the message and continue printing the job. The print job may not print correctly. • To reset the printer: • Press <Menu> to access the Busy menu. • Select Reset Printer.
54 Parallel Error	<p>An IEEE 1284 protocol error has been detected on the parallel host interface. This error may be due to a faulty cable.</p>

Attendance Message	Action
<p>56 Serial x Port Disabled</p>	<p>Data is sent to the printer across the serial port, but the serial port is disabled. When the serial error is displayed, the reporting of other serial errors is suppressed until the menus are entered or the printer is reset.</p> <p>x is 1, 2, or 3 and represents the serial option attached.</p> <p>Press Go to clear the message. The printer discards any data received on the serial port.</p> <p>Enable the serial port. Or,</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.
<p>56 Parallel Port Disabled</p>	<p>Data is sent to the printer across the parallel port, but the parallel port is disabled. When the error is displayed, the reporting of other errors is suppressed until the menus are entered or the printer is reset.</p> <p>Make sure Parallel Buffer is <i>not</i> set to Disabled in the Parallel Menu.</p> <ul style="list-style-type: none"> • Press Go to clear the message. The printer discards any data received on the parallel port. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Attendance Message	Action
<p>58 Too Many Disks Installed</p>	<p>You have installed more than one Hard Disk Option. The Hard Disk Option can be installed only in connector 3.</p> <p>Turn off the printer and remove the extra Hard Disk Option.</p>
<p>61 Defective Disk</p>	<p>The printer detects a defective disk during power on, or during disk format and write operations.</p> <p>Press Go to clear the message. Hard disk operations are not allowed with a defective hard disk.</p> <p>Remove the defective hard disk and replace it with a new hard disk.</p>
<p>62 Disk Full</p>	<p>There is not enough free space in the disk to hold the data that was sent.</p> <p>Press Go to clear the message and continue processing. Any data currently being written to the disk is lost. Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.
<p>63 Unformatted Disk</p>	<p>The printer detected an unformatted hard disk when the printer was turned on. Disk operations are not allowed until the disk is formatted.</p> <ul style="list-style-type: none"> • Format the hard disk with the Format Disk setting in the Tests Menu. • Send the data again. <p>If the error condition remains, the disk is defective and must be replaced.</p> <p>Or, press Go to clear the message. The disk is ignored and normal operation continues.</p>

Attendance Message	Action
64 Disk In Wrong Slot	<p>The Hard Disk Option is installed in the wrong connector. The Hard Disk Option can be installed only in connector 3.</p> <ol style="list-style-type: none"> 1. Power off the printer. 2. Remove the incorrectly installed disk. 3. Turn on the printer.
Print Jobs on Disk?	<p>The printer asks for confirmation to print the waiting jobs, which were previously spooled to disk. This message gives you the chance to print the jobs or to cancel all spooled jobs.</p> <ul style="list-style-type: none"> • Press Go to continue and print the jobs. • Press Return or Stop to cancel all spooled jobs.
70-79	<p>These numbered messages are reserved for internal network adapter messages.</p> <p>Refer to the CD-ROM online Help for more information. Also, refer to the documentation that is included with the internal network adapter.</p>

Attendance Message	Action
8X Scheduled Maintenance	<p>The following messages appear to alert you that certain assemblies need replacing:</p> <p>80 - Fuser Assembly and Second Transfer Roll Assembly</p> <p>81 - Transfer Belt Assembly</p> <p>Press Go to clear the message.</p> <p>The status of the two maintenance items listed above will be displayed in the User Maint Menu. The User Maint Menu will be active only if one or both maintenance items have expired. Once the items have expired, they should be replaced as soon as possible. After you have replaced the expired items, you must reset the appropriate maintenance message.</p>
82 Waste Toner Bottle Missing	<p>The waste toner bottle is not installed or there is a problem with the toner collecting box detection switch (S6). Open the top door, install the waste toner bottle, and close the top door.</p> <p>The message clears from the display when the top door is closed. If it does not, go to the "Sensor Service Check" on page 2-47.</p>
82 Waste Toner Bottle Full	<p>Open the top door, remove the full waste toner bottle. Replace the waste toner bottle and close the top door. The customer replaces this part at prescribed intervals.</p> <p>The message clears from the display when the top door is closed. If it does not, the toner full sensor (PC6) could be failing. Go to the "Sensor Service Check" on page 2-47.</p>

Attendance Message	Action
83 Fuser or Coating Roll Missing	<p>Open the back door and install the fuser assembly and the fuser coating roll. Close the back door.</p> <p>The message clears from the display when the door is closed. If it does not, the oil coating roller assembly sensor (PC3) could be failing. Go to the "Sensor Service Check" on page 2-47.</p>
84 PC Missing	<p>The photoconductor unit is not installed. Open the top door, install the photoconductor unit, and close the top door.</p> <p>The message clears from the display when the top door is closed. If it does not:</p> <ul style="list-style-type: none"> • Check the contacts on the PC drum cartridge connector. • Be sure connector CN6 on the mechanical controller board is plugged in correctly. • If you still have the problem, replace the mechanical controller board.
84 PC Life Warning	<p>The photoconductor unit needs to be replaced. Open the top door and remove the photoconductor unit. Install the new photoconductor unit and close the top door. The customer replaces this part at prescribed intervals.</p> <p>If you do not have a replacement photoconductor unit available, press Go to continue normal printer operations until you can get a replacement unit.</p>

Attendance Message	Action
84 PC Exhausted	<p>The photoconductor unit must be replaced to continue operating the printer. Open the top door and remove the photoconductor unit. Install the new photoconductor unit and close the top door. The customer replaces this part at prescribed intervals.</p> <p>The message clears from the display when a new unit is installed and the top door is closed.</p>

Attendance Message	Action
<p>Change <tray> <Custom Type Name> <size> <type><size></p>	<p>The media in the tray is a different size from the media detected by the paper size sensor, or it is different from the size that was set in the Paper Size or Paper Type menu items. The display shows the following information:</p> <p>On line 1, <tray> indicates where the printer expects the printed material to be.</p> <p>On line 2, one of the following items is displayed:</p> <p><Custom Type Name> Custom Type 1 through 3 is a user-defined name that was created with the MarkVision utility. The name is truncated to 16 characters.</p> <p><size> If the requested type matches the type currently in the tray, the paper size is displayed if you have not defined a custom type name. The name is truncated to 16 characters.</p> <p><type><size> The requested <type> is other than a custom type. The type name is truncated to 9 characters. The requested <size> of paper is displayed. The size name is truncated to 6 characters.</p> <ul style="list-style-type: none"> • Load the requested size and type in the source. • If the source has auto-size sensing (tray 1 or tray 2), the printer automatically clears the message and continues processing the job. If the source does not have auto-size sensing, press Go after loading the requested size. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Attendance Message	Action
<p>Load <tray> <Custom Type Name> <size> <type> <size></p>	<p>The printer is requesting paper or other print material from a source it detects is empty. The display shows the following information:</p> <p>On line 1, <tray> indicates where the printer expects the printed material to be.</p> <p>On line 2, one of the following items is displayed:</p> <p><Custom Type Name> Custom Type 1 through 3 is a user-defined name that was created with the MarkVision utility. The name is truncated to 16 characters.</p> <p><size> If the requested type matches the type currently in the tray, the paper size is displayed if you have not defined a custom type name. The name is truncated to 16 characters.</p> <p><type><size> The requested <type> is other than a custom type. The type name is truncated to 9 characters.</p> <p>The requested <size> paper is displayed. The size name is truncated to 6 characters.</p> <ul style="list-style-type: none"> • Load the requested size and type in the source. • If the source has auto-size sensing, the printer automatically clears the message and continues processing the job. If the source does not have auto-size sensing, press Go after loading the requested size. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Attendance Message	Action
<p>Load Manual <Custom Type Name> <size> <type> <size></p>	<p>The printer is requesting paper or other printer material to be fed manually from the Multipurpose Feeder. The display shows the following information:</p> <p>On line 2:</p> <p><Custom Type Name> Custom Type 1 through 3 is a user-defined name that was created with the MarkVision utility. The name is truncated to 16 characters.</p> <p><size> If the requested type matches the type currently in the tray, the paper size is displayed if you have not defined a custom type name. The name is truncated to 16 characters.</p> <p><type><size> The requested <type> is other than a custom type. The type name is truncated to 9 characters. The requested <size> paper is displayed. The size name is truncated to 6 characters.</p> <ul style="list-style-type: none"> • Load the requested size and type in the source. The printer automatically clears the message and continues processing the job. • To ignore the message and print on the material installed in the tray, press Select. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Attendance Message	Action
<p>Insert <tray></p>	<p>This message is displayed when the printer needs to select print material from a missing tray. Often the message is displayed when a user removes a tray to refill it while a job is printing.</p> <p><tray> is Tray 1 or Tray 2.</p> <ul style="list-style-type: none"> • Press Stop and wait for all pages in the buffer to print. • Insert the tray indicated. The printer clears the message and resumes printing. <p>Or, to reset the printer:</p> <ul style="list-style-type: none"> • Press <Menu> to access the Busy menu. • Select Reset Printer.

Service Error Message Table

Error	Symptom or Message	Action
900	Software Error	Unrecoverable software error. Refer to the operator manual.
910	Transport Motor (M2) Failure	Go to the “Transport Motor Service Check” on page 2-34.
911	Developing Motor (M1) Failure	Go to the “Developing Motor Service Check” on page 2-34.
912	Toner Cartridge Rack Motor (M3) Failure	Go to the “Toner Cartridge Rack Service Check” on page 2-38.
913	Transfer Roller Error	<p>The printer fails to completely transfer the image to the paper or does not transfer it at all.</p> <p>The image transfer roll does not lift when paper is passing over it.</p>
914	Intermediate Transfer Belt	Go to the “Image Transfer Belt Service Check” on page 35.

Error	Symptom or Message	Action
915	Power Supply Fan (M6) Failure	Go to the "Power Supply Cooling Fan Motor Service Check" on page 2-39.
916	Suction Supply Fan (M7) Failure	Go to the "Suction Fan Motor Service Check" on page 2-39.
917	Printhead Cooling Fan Failure	Go to the "Printhead Cooling Fan Service Check" on page 2-39.
920	Fuser Error	Go to the "Fuser Service Check" on page 2-33.
930	Printhead Error	Check the printhead connectors. Replace the printhead if necessary. If you still have a failure, replace the mechanical controller board (PWB-A).
939	Mechanical Controller Board COMM Error	Replace the mechanical controller board (PWB-A).
941	Code ROM Error	Replace the EPROM code controller SIMM (J3).
942	Font ROM Error	Replace the EPROM code controller SIMM (J3).
943	Controller Card, Font Error	The font and controller cards are incompatible.
944 945 946 947 950 953 954	Controller Card Error	Replace the controller card. Be sure to move the EPROM controller SIMM, memory, and option cards from the old card to the new one.
960	Memory Error DRAM (J9)	Replace memory SIMM J9.
961	Memory Error Option DRAM (J10)	Replace memory SIMM J10.
962	Memory Error Option DRAM (J12)	Replace memory SIMM J12.

Error	Symptom or Message	Action
964	Emulation Error Download emulation CRC failure	Contact Technical Support for assistance.
965	Emulation Error Download emulation outdated. Time stamps indicate the download emulation and RIP code are incompatible.	Contact Technical Support for assistance.
97X	INA Failure	Be sure the controller riser card and the INA are properly installed. Replace the INA. If you still have a problem, replace the system board.
977	Network Card Error	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. Be sure the controller card riser card is properly installed.

Symptom Table

Symptom	Action
<p>Blank copies when foils are run.</p> <p>Machine fails to detect overhead projection foils.</p>	<p>Be sure OHP/Transparencies is selected in the operator menu.</p> <p>Go to the “Sensor Service Check” on page 2-47.</p> <p>Replace the OHP sheet detection board (PWB-D2).</p>
<p>The printer fails to completely transfer the image to the paper or does not transfer it at all.</p> <p>The image transfer roll does not lift when paper is passing over it.</p>	<p>Go to the “Sensor Service Check” on page 2-47 and check the image transfer roller position sensor (PC2). If it works properly, return to this check.</p> <p>Run a test print. After the paper has been released, open the top cover to stop the printing process. The image will be on the transfer belt unit, but the transfer roller will not be lifted.</p> <p>Check the transfer roller assembly solenoid (SL5). Do a continuity check of the connector (CN5). Replace the solenoid if necessary.</p> <p>If you still have the problem, replace the mechanical controller board.</p>
<p>The toner rack does not go to home position or lock the rack into colors. The font print test does not print in black.</p>	<p>Go to the “Sensor Service Check” on page 2-47 and check the rack lever sensor (PC12) and the rack home sensor (PC4). If they are good, replace the mechanical controller board.</p>
<p>Toner cartridge rack does not rotate.</p>	<p>Go to the “Toner Cartridge Rack Service Check” on page 2-38.</p>

Symptom	Action
<p>The toner cartridge rack does not detent when replacing toner cartridges or it makes an unusual noise.</p>	<ul style="list-style-type: none"> • Check the rack detent on the left side of the rack. This detent is released when the top cover is open. • Check the toner cartridge rack back check gear for damage. • Check the rack lever and detent pins • Check the toner cartridge rack lever sensor (PC12) for correct operation. • Check the back check sensor for correct operation and replace any damaged parts.
<p>Toner cartridge rack fails to stop rotating.</p>	<p>Go to the “Toner Cartridge Rack Service Check” on page 2-38.</p>
<p>Paper jam in pick-up assembly</p>	<p>Go to the “Paper Jam Service Check” on page 2-35.</p>
<p>Paper jam in exit assembly.</p>	<p>Go to the “Paper Jam Service Check” on page 2-35.</p>
<p>Paper jam in fuser.</p>	<p>Go to the “Paper Jam Service Check” on page 2-35.</p>
<p>Faulty developing motor (M1). The developing motor tries to turn when the print cycle is initiated.</p>	<p>Go to the “Developing Motor Service Check” on page 2-34.</p>
<p>Fuser failure</p>	<p>Go to the “Fuser Service Check” on page 2-33.</p>
<p>Fuser belt suction failure (M7).</p>	<p>Go to the “Suction Fan Motor Service Check” on page 2-39.</p>
<p>Printhead cooling fan (M5) failure.</p>	<p>Go to the “Printhead Cooling Fan Service Check” on page 2-39.</p>
<p>No paper pick-up from multipurpose tray</p>	<p>Go the “Paper Jam Service Check” on page 2-35.</p>
<p>No paper pick-up from upper or lower cassette.</p>	<p>Go to the “Paper Jam Service Check” on page 2-35.</p>

Symptom	Action
Power supply fan failure.	Go to the “Power Supply Cooling Fan Motor Service Check” on page 2-39.
Synchronizing/timing roller does not rotate.	Go to the “Paper Jam Service Check” on page 2-35.
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. If the display has diamonds on it or is blank, run the “Basic Printer Paper Passage Test” on page 2-48. If the test completes and the panel remains blank, replace the operator panel. If diamonds remain, check the SIMMs and riser card for proper installation. If you still have a problem, replace the ROM SIMM as it is the most likely failure. If you still have a problem, replace the controller card.</p> <p>If your machine beeps 5 times and the screen is blank or all diamonds, replace the operator panel.</p>
<ul style="list-style-type: none"> • 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 the “Image Quality Troubleshooting” on page 2-42.
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 41.
Paper feed problems in the image transfer roll area	Go to the “Paper Jam Service Check” on page 2-35.

Symptom	Action
<p>Paper feed problems in the fuser and delivery area.</p> <p>Paper jam message will not clear.</p>	<p>Go to the “Paper Jam Service Check” on page 2-35.</p>
<p>Poor fusing</p>	<p>Go to the “Image Quality Troubleshooting” on page 2-42.</p>
<p>Toner scatter on front or back of paper</p>	<p>Check the following:</p> <ul style="list-style-type: none"> • Excessive toner buildup. Clean off the toner and run a test print with a transparency or paper. • Image transfer belt assembly • Transport belt toner shields • Toner waste bottle

Service Checks

Fuser Service Check

	FRU	Action
1	<ul style="list-style-type: none">• Heater Lamp (H1)• Thermostat (S4)• Power Unit (PU1)• Mechanical Controller Board (PWB-A)	<p>Be sure the heater lamp (H1) lights up when the power is turned on. (Open the rear door and activate the rear door interlock to see the fuser lamp.) If the lamp does not light up, check for voltage between CN2PU-1 and CN2PU-3 of the power unit (PU1).</p> <p>If there is voltage, replace the heater lamp (H1) or the thermostat (S4).</p> <p>If there is no voltage, replace the power unit (PU1) or the mechanical controller board (PWB-A).</p>
2	<ul style="list-style-type: none">• Fuser• Mechanical Controller Board (PWB-A)	<p>Check for voltage between CN9A-6 and CN9A-7 of thermistor 1 (TH1). If there is no voltage, replace the fuser.</p> <p>If there is voltage, replace the mechanical controller board (PWB-A).</p>
3	<ul style="list-style-type: none">• Fuser• Mechanical Controller Board (PWB-A)	<p>Check for voltage between CN9A-8 and CN9A-9 of thermistor 2 (TH2). If there is no voltage, replace the fuser.</p> <p>If there is voltage, replace the mechanical controller board (PWB-A).</p>

Developing Motor Service Check

	FRU	Action
1	Rollers, Gears	If the developing motor (M1) starts turning when a print cycle is initiated, check the rollers and gears for overload.
2	Mechanical Controller Board (PWB-A)	Check the voltage across CN15A-5 on the mechanical controller board and GND. It should change from 5 V dc to 0 V dc during a print cycle. If it does not, replace the mechanical controller board.
3	<ul style="list-style-type: none"> • Developer Motor (M1) • Mechanical Controller Board (PWB-A) 	Check the voltage across CN15A-3 on the mechanical controller board and GND. If it remains 0 V dc during a print cycle, replace the developer motor (M1). If it does not, replace the mechanical controller board.

Transport Motor Service Check

	FRU	Action
1	Rollers, Gears	If the transport motor (M2) starts turning when a print cycle is initiated, check the rollers and gears for overload.
2	Mechanical Controller Board (PWB-A)	Check the voltage across CN15A-6 on the mechanical controller board and GND. It should change from 5 V dc to 0 V dc during a print cycle. If it does not, replace the mechanical controller board.
3	<ul style="list-style-type: none"> • Transport Motor (M2) • Mechanical Controller Board (PWB-A) 	Check the voltage across CN15A-4 on the mechanical controller board and GND. If it remains 0 V dc during a print cycle, replace the transport motor. If it does not, replace the mechanical controller board.

Image Transfer Belt Service Check

	FRU	Action
1	Image Transfer Belt (replaced by customer)	Be sure the image transfer belt turns during a print cycle, (check with the front cover removed). If it does not, be sure the image transfer belt assembly is installed correctly.
2	<ul style="list-style-type: none">• Mechanical Controller Board• Image Transfer Belt Assembly	Use the sensor check test to check the image transfer belt position sensor (PC7). If it operates correctly, replace the mechanical controller board. If it does not, replace the transfer belt assembly.

Paper Jam Service Check

If the machine is turned on and error code 200, 201, or 202 is displayed, do the following before going on to the FRU check:

Clear all paper from the machine and note where it is when you clear it.

Be sure the customer is using the correct paper.

POR the machine and see if you still get the error code. If you do not get an error code, run the print test menu from each paper source to check the machine. 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 machine. Locate the error code from the following and check parts as indicated.

Jam 200

The jam occurred at the paper pickup source before it reached the timing/synchronizing roller.

	FRU	Action
1	<ul style="list-style-type: none">• Actuator• Synchronizing Paper Sensor (PC1)	Go to the "Sensor Service Check" on page 2-47 and check the synchronizing/timing roll paper sensor. If it is good, return to this check and continue.
2	<ul style="list-style-type: none">• Paper Take-up Solenoid (SL3)• Paper Take-up Solenoid (SL7,SL8)• Transport Solenoid (SL4)	Check the paper takeup solenoid and the transport solenoid for correct operation. Replace as necessary.
3	<ul style="list-style-type: none">• Take-up Roller• Transport Roller• Paper Take-up Clutch• Transport Take-up Clutch• Depressing Cam• Separating Pad	Check these parts for dirt or wear. Clean or change as necessary.

Jam 201

The paper has stopped at the synchronizing roller, or has not reached the exit roller.

	FRU	Action
1	Fuser Sensor (PC9)	Go to the "Sensor Service Check" on page 2-47 and check the fuser sensor (PC9) and actuator. If it is working correctly, return to this check.
2	Synchronizing Roller	Check the synchronizing/timing roller for dirt or wear. Clean or replace as necessary.
3	<ul style="list-style-type: none">• Synchronizing Solenoid (SL2)• Mechanical Controller Board	If the synchronizing/timing roller does not rotate, replace the synchronizing solenoid or the mechanical controller board.
4	<ul style="list-style-type: none">• Image Transfer Roller• Image Transfer Solenoid• Image Transfer Sensor (PC2)	<p>If paper is stopped at the image transfer roller, check the roller for dirt or wear and clean or replace as necessary.</p> <p>Check the image transfer solenoid for correct operation. The image transfer roll should be lifted when paper is passing over it.</p>
5	Transport Belts	Check the transport belts for damage and replace if necessary.
6	Fuser Assembly	Check the fuser belts and the fuser lower roller for wear or damage. If it is not operating correctly, replace the fuser assembly. This is a customer replaceable part at prescribed intervals.

Jam 202

The paper has exited the fuser but not the printer.

	FRU	Action
1	Fuser Sensor (PC9)	Go to the "Sensor Service Check" on page 2-47 and check the fuser sensor (PC9) and actuator. If it is working correctly, return to this check.
2	Paper Exit Sensor (PC8)	Go to the "Sensor Service Check" on page 2-47 and check the paper exit sensor (PC8) and actuator. If it is working correctly, return to this check.
3	Fuser Assembly	Check the fuser belts and the fuser lower roller for wear or damage. If it is not operating correctly, replace the fuser assembly. This is a customer replaceable part at prescribed intervals.
4	Paper Exit Rollers	Check the paper exit rollers for dirt or damage. Replace as necessary.

Toner Cartridge Rack Service Check

	FRU	Action
1	<ul style="list-style-type: none">• Rack Motor (M3)• Mechanical Controller Board (PWB-A)	Be sure the rack motor (M3) turns during a print cycle. If it does not, replace the motor. If you still have the problem, replace the mechanical controller board.
2	<ul style="list-style-type: none">• Toner Cartridge Rack Latch	Check the latch for wear or damage.
3	Gears	If the toner cartridge rack does not turn during a print cycle, check the gears for overload.
4	<ul style="list-style-type: none">• Rack Home Position Sensor (PC4)• Mechanical Controller Board (PWB-A)	Use the sensor check test to check the rack home position sensor (PC4). If it does not operate correctly, replace the sensor (PC4). If it operates correctly, replace the mechanical controller board.

Printhead Cooling Fan Service Check

	FRU	Action
1	<ul style="list-style-type: none">• Printhead Cooling Fan Motor (M5)• Mechanical Controller Board (PWB-A)	See if the printhead cooling fan motor (M5) rotates when the power is turned on. If it does, replace the mechanical controller board. If it does not, replace the fan motor. If you still have the problem, replace the mechanical controller board.

Power Supply Cooling Fan Motor Service Check

	FRU	Action
1	<ul style="list-style-type: none">• Power Supply Cooling Fan Motor (M6)• Mechanical Controller Board (PWB-A)	See if the power supply cooling fan motor (M6) rotates when the power is turned on. If it does, replace the mechanical controller board. If it does not, be sure the fan is plugged into the low voltage power supply. If this does not correct the failure, replace the fan motor. If you still have the problem, replace the mechanical controller board.

Suction Fan Motor Service Check

	FRU	Action
1	<ul style="list-style-type: none">• Suction Fan Motor (M7)• Mechanical Controller Board (PWB-A)	See if the suction fan motor (M7) rotates when the power is turned on. If it does, replace the mechanical controller board. If it does not, replace the fan motor. If you still have the problem, replace the mechanical controller board.

AC Power 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 F1, F2• Switch (S1)	The power supply fuses may be blown. Unplug the machine and check fuses F1 and F2 on the power supply (PU1) for continuity. If the fuses are good, check the power switch connector for continuity.
4	<ul style="list-style-type: none">• Power Supply (PU1)• Mechanical Controller Board (PWB-A)	<p>The power supply may be defective.</p> <p>The mechanical controller board may be defective.</p>

Marks on Paper Service Check

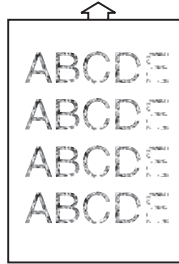
If you have evenly spaced marks on the paper, measure the distance between the marks and locate the symptom below. Check the assembly for dirt or damage and clean as necessary. Run a test print to verify the problem has been corrected. The indicated assemblies are replaced by the customer at prescribed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

Distance between marks	FRU
25mm, single color	Toner cartridge scuff
50mm, single color	Toner cartridge developer
51mm, all colors	Second transfer roll
65.5mm	Fuser lower roller
94mm, light horizontal streaks	Photoconductor cartridge
95mm, light to dark discoloring	Image transfer belt assembly, check for debris on the roller under the belt
172mm	Fuser belt, toner offset indicates a new fuser coating roll is needed
No repeat marks. One mark appears in the same position on each page.	Image transfer belt

Image Quality Troubleshooting

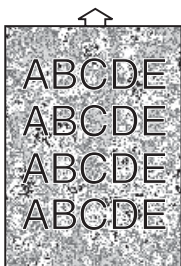
Locate your symptom below, note the possible causes, and take the appropriate action. Be sure all associated connectors are plugged in correctly.

Low Image Density



Possible Cause	Action
Poor development	Replace the high voltage assembly (HV1).
Defective PC drum	Replace the PC drum cartridge.
Poor intermediate image transfer Poor paper image transfer	Replace the image transfer belt asm. Replace the image transfer roller asm. This is a customer replaceable part at prescribed intervals. Replace the high voltage assembly (HV1). Replace the mechanical controller board (PWB-A).

Foggy Background



Possible Cause	Action
Poor development	<p>Replace the high voltage assembly (HV1). Replace the mechanical controller board (PWB-A).</p> <p>The following are customer replaceable parts at prescribed intervals: Replace the toner cartridge. Replace the PC drum cartridge.</p>

Blank Print

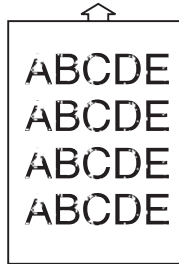
Possible Cause	Action
Dirty or damaged PC drum contacts	Clean and reseal the PC drum contacts. Replace if necessary.
Transfer Roll	Be sure the transfer roll is installed correctly.
Incorrect laser exposure	Replace the printhead. Replace the mechanical controller board (PWB-A).
Poor development	Gently rock the toner cartridge to distribute the toner evenly. If you still have the problem, replace the toner cartridge. This is a customer replaceable part at prescribed intervals.

Black Print

If the PC drum cartridge has been replaced recently, check the contacts on the PC drum cartridge connector and all ground pins on the PC cartridge assembly.

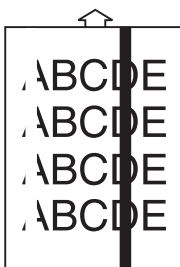
Possible Cause	Action
Incorrect laser exposure	Replace the printhead. Replace the mechanical controller board (PWB-A).
Incorrect charging	Replace the high voltage assembly (HV1). Replace the mechanical controller board (PWB-A).

White Spots



Possible Cause	Action
Poor intermediate image transfer Poor paper image transfer	Replace the image transfer belt. Replace the image transfer roller assembly. These customer replaceable parts at prescribed intervals. Replace the high voltage assembly (HV1).

White and/or Black Lines and Bands

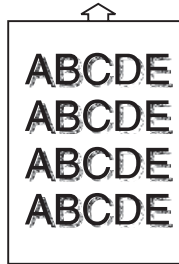


Possible Cause	Action
Poor development	Replace the toner cartridge. This is a customer replaceable part at prescribed intervals.
Defective PC drum	Replace the PC drum cartridge. This is a customer replaceable part at prescribed intervals.
Incorrect charging	Replace the PC drum cartridge. This is a customer replaceable part at prescribed intervals.
Incorrect fusing	Replace the fuser. This is a customer replaceable part at prescribed intervals.
Poor intermediate image transfer Poor paper image transfer	Replace the image transfer belt. This is a customer replaceable part at prescribed intervals. Replace the image transfer roller assembly. This is a customer replaceable part at prescribed intervals. Replace the high voltage assembly (HV1).
Incorrect laser exposer	Replace the printhead.

Toner Smudges on Back Side of Paper

Possible Cause	Action
Incorrect charging	Replace the high voltage assembly (HV1). Replace the mechanical controller board (PWB-A).
Poor development	Replace the high voltage assembly (HV1). Replace the mechanical controller board (PWB-A).
Incorrect fusing	Replace the fuser (customer replaces this).

Offset print



Possible Cause	Action
Incorrect fusing	Replace the oil coating roller. Replace the fuser. (Customer replaces these parts.)

Incorrect Color Image Registration

Possible Cause	Action
Incorrect toner cartridge setting	Reset the toner cartridge securely.
Defective intermediate image transfer	Replace the image transfer belt assembly (customer replaces this).

Poor Color Reproduction

Possible Cause	Action
Defective AIDC	Replace the image transfer belt assembly (customer replaces this). Replace the mechanical controller board (PWB-A).
Defective paper image transfer	Replace the high voltage assembly (HV1). Replace the humidity sensor (HS1). Replace the mechanical controller board (PWB-A).

Sensor Service Check

1. When a paper jam or malfunction occurs, identify the sensor that is probably responsible for the problem (see “Electrical Components” on page 4-12).
2. Enter the sensor check mode in diagnostic mode.
3. Change the state of the selected sensor and see if the signal is changed.

For example: When a paper jam occurs, and you think paper exit sensor (PC8) is responsible. Check it as follows:

1. Remove the paper jam.
2. Enter the sensor check mode on the controller.
3. Use a sheet of paper to move the PC8 actuator so that PC8 is blocked.
4. Check for changes on the operator panel display for the on/off operation of the sensor.
5. If the sensor is not working correctly and the actuator is not damaged, replace the failing sensor.
6. If this does not correct the problem, replace the mechanical controller board.

Diagnostic Aids

Basic Printer Paper Passage Test

This test determines whether the engine or controller card is failing.

1. Turn off the power switch and remove the controller card.
2. Load the multipurpose tray, 2nd cassette, or 3rd cassette with paper and turn on the power switch.
 - If the paper is properly fed out of the printer, the controller card, or a component on the controller card such as the memory SIMM, code SIMM, riser card, or other option is responsible for the malfunction.
 - If the paper is not properly fed out, the engine is responsible for the malfunction.

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.

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 control 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
REGISTRATION	Top Margin Left Margin

Top-Level Menu	Intermediate Menu, Printer Setting, or Printer Operation
PRINT TESTS	Tray 1 Tray 2 (if installed) MP Tray
HARDWARE TESTS	Clean Engine Sensor Test LCD Test Button Test DRAM Memory Test ROM Memory Test Parallel Wrap Serial 1 Wrap (if available) Serial 2 Wrap (if available) Serial 3 Wrap (if available)
INPUT TRAY TEST	Tray Sensor Test: <ul style="list-style-type: none"> • Tray 1 • Tray 2 • Multipurpose Feeder Size Sensor Test: <ul style="list-style-type: none"> • Tray 1 • Tray 2
BASE SENSOR TEST	Timing Roll/Synchronizing Roll Fuser Sensor Exit Sensor Transparency Detect Sensor Fuser Detect Sensor Waste Toner Bottle Detect Sensor T/C Rack Detect Sensor Waste Bottle Full Sensor Coating Roll Detect Sensor Image Transfer Belt Sensor
DEVICE TESTS (Only displayed if a flash or disk option is installed.)	Test Disk Test/Clean Flash Test
PRINTER SETUP	Defaults Page Count Perm Page Count

Top-Level Menu	Intermediate Menu, Printer Setting, or Printer Operation
Maintenance Menu	80 Maint Cnt 81 Main Cnt Reset 80 Maint Reset 81 Maint
Error Log	Display Log Clear Log
EXIT DIAGNOSTICS	

Setting Printer Registration

When you first enter the Registration menu, the Top margin sign/ value pair flashes. This indicates it is the margin value being changed. To change the value, press either **Menu>** or **Menu<**. Once the value you want displays, press **Select** to save the value and move to the next margin value.

To verify the margin values are correct, you must print the Quick Test page on Letter, Legal, or A4 paper. From the Registration screen containing each of the margin values, press **Go**. This button serves as a hot key to the quick test page. As the page prints Quick Test Printing appears on the display.

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

Print Tests

The diagnostic PRINT TESTS menu verifies 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 two choices.

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

Quality Pages

This function causes the printer to print the Print Quality Test Pages. Once started, this operation cannot be canceled. All key presses are ignored while the Prt Quality Pgs Printing message is displayed.

Clean Engine Test

Use this test to perform a cleaning cycle on the engine specifically on the second transfer mechanism. The value list is YES and NO. To cancel the test, press **Return** or **Stop**.

LCD Hardware Test

This test causes the printer to continually execute the LCD display test. To cancel the test, press **Return** or **Stop**.

Button Test

This test verifies the operation of each button on the operator panel. When you select this test the following appears on the display:

```
OP OP OP OP  
OP OP
```

When you press a button, **CL** (closed) appears on the display. When the button is not pressed, **OP** (open) is displayed. If the wrong message displays, the button is malfunctioning.

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

DRAM Memory Test

This test checks the validity of DRAM (both standard and optional). 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, the following screen displays and the printer begins testing DRAM memory for the first time:

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

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

The power indicator blinks indicating the memory test is in progress. The printer continually runs the same test until canceled 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 displays 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 stops, the power indicator turns on solid and the final test results display. Press **Return** or **Stop** to exit the test.

ROM Memory Test

This test checks the validity of the RIP code and fonts. When this test is selected, the following screen displays and the printer begins testing ROM memory for the first time:

ROM Memory Test

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

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

The power indicator blinks indicating the memory test is in progress. The printer continually runs the same test until canceled 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 one of the following messages display for approximately 3 seconds and then the Fail Count increments by 1.

- ROM Checksum Error
- ROM Burst Read Error

Once the maximum pass count or fail count is reached, the test stops, the power indicator turns on solid and the final test results display. Press **Return** or **Stop** to exit the test.

Parallel Wrap Test

This test uses a wrap plug to check the operation of the parallel port hardware. Each parallel signal is tested.

To run the wrap test:

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

The following screen displays and the printer begins testing the parallel hardware for the first time:

```
Parallel Wrap  
P:##### F:#####
```

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

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

Once the maximum pass count or fail count is reached, the test stops, the power indicator turns on solid, and the final test results display. Press **Return** or **Stop** to exit the test.

Serial Wrap Tests

This test uses a wrap plug to check the operation of the serial port hardware. Each serial signal is tested.

To run the serial wrap test:

1. Disconnect the parallel interface cable, and install the serial wrap plug.
2. Select **HARDWARE TESTS** from the Diagnostics Menu.
3. Select the appropriate Serial Wrap Test (Serial Wrap, Serial 1, Serial 2, or Serial 3 Wrap).

The following screen displays and the printer begins testing the serial hardware for the first time:

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

- X indicates which serial port is being tested (1=optional serial port #1, 2=optional serial port #2, 3=optional serial port #3).
- P:##### represents the number of times the memory test has passed (finished successfully). Initially 000000 displays for #####. The maximum pass count is 999,999.
- F:##### represents the number of times the memory test has failed (finished with errors). Initially 000000 displays for #####. The maximum fail count is 99,999.

The power indicator blinks indicating the memory test is in progress. The printer continually runs the same test until canceled 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 one of the following messages display for approximately 3 seconds and then the Fail Count increments by 1.

Once the maximum pass count or fail count is reached, the test stops, the power indicator turns on solid, and the final test results display. Press **Return** or **Stop** to exit the test.

Input Tray Sensor Test

This test determines whether or not the input tray sensors are working correctly. To run the test, select the Sensor Test Menu and press MENU> until you find the TRAY1, TRAY2, or MP FEEDER selection. The following screen displays: <input tray> EM=OP LO=OP

- The selected input tray displays on line 1. One of the following is displayed for <input tray>: Tray 1, Tray 2, or MP Feeder.
- EM or Empty refers to the input tray's empty sensor.
- LO or Low refers to the input tray's paper low sensor.

Once this screen is displayed, you can manually actuate each of the input tray sensors. When the sensor is closed, CL is displayed. When the sensor is open, OP is displayed. If the wrong message is displayed, then the sensor must be malfunctioning.

Each source does not necessarily support all the sensors. The following table shows which sensors are supported by which sources.

Source	Empty Sensor	Low Sensor
Tray 1	Yes	Yes
Tray 2	Yes	Yes
Multipurpose Feeder	Yes	No

To exit the sensor test, press **Return** or **Stop**.

Size Sensing Sensor Test

This test checks the state of the sensors in the printer. When a sensor is active it displays the active status and when the sensor is inactive the appropriate inactive status displays.

To run the test, select the Sensor Test Menu and press MENU> until you find the TRAY 1 or Tray 2 selection. The following screen displays: <input tray> Size SEN1=OP SEN2=OP

- SEN1 or SENSOR 1 refers to sensor 1 of the size sensing logic.
- SEN2 or SENSOR 2 refers to sensor 2 of the size sensing logic.

The MP FEEDER does not have any Size Sensing sensors therefore the test is only valid for Tray 1 or Tray 2.

To exit the sensor test, press **Return** or **Stop**.

Base Sensor Test

This test determines whether or not the sensors located inside the printer are working correctly.

Once this screen is displayed, you can open the doors and manually actuate each of the sensors. When the sensor is closed, CL is displayed. When the sensor is open, OP is displayed. If the wrong message is displayed, then the sensor is malfunctioning. See “Switches and Sensors” on page 4-7.

The following sensors can be checked:

- Timing Roll sensor
- Fuser sensor
- Exit sensor
- Transparency Detect sensor
- Fuser Detect sensor
- Waste Toner Bottle Detect sensor
- T/C Rack Detect Sensor
- Coating Roll Detect sensor
- Intermediate Transfer Belt sensor.

As the sensor test runs, the panel displays whether the sensor is open (OP) or closed (CL). You may toggle each sensor by hand to determine that the sensor is reliably switching between open and close.

To exit the sensor test, press **Return** or **Stop**.

Quick Disk Check

This check runs a disk test that performs a non-destructive read/write on one block per track on the disk.

The power indicator blinks while the test runs and the following message appears on the display:

```
Quick Disk Test  
Testing...
```

If the test passes, the power indicator turns on solid and the following message displays:

```
Quick Disk Test  
Test Passed
```

If the test fails, the power indicator turns on solid and the following message displays:

```
Quick Disk Test  
Test Failed
```

Press Go, Return, or Stop to return to the DEVICE TESTS screen.

DISK Test/Clean

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

The test executes in two phases: a writing or cleaning phase and a verifying or testing phase.

This can be an extremely lengthy test depending on the size of the disk. Each phase of the test on a 540 MB 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.

Flash Test

This test causes the file system to write and read data on the flash to test the flash device. The test destroys all data on the flash which is reformatted at the end of the test.

Setting the Page Count

Use this menu to reset the page count whenever you replace the engine card. The engine card contains the printer's NVRAM memory. When you select Page Count from the PRINTER SETUP menu, the current page count displays as follows:

```
Page Count
=1234567*
```

The left-most digit (1 in this example) blinks, indicating it is the first digit to be changed. To change the value press **Menu>** or **Menu<** to get the value you want. Press **Select** to move to the next digit. To skip a digit (keep its current value) press **Select**.

Press **Select** after the final digit to store the new page count in NVRAM.

Viewing the Permanent Page Count

The permanent page count setting cannot be changed through the control panel. It can only be viewed with the diagnostics menu. When you select Permanent Page Count the following screen displays:

```
Perm Page Count
=1234567*
```

Viewing the Error Log

The error log provides a history of printer errors. It contains the 12 most recent errors that have occurred in the printer. The most recent error displays in position 1, and the oldest error displays in position 12 (assuming 12 or more errors have occurred). If fewer than 12 errors have occurred, the oldest error displays in the position before the empty log entries begin. Empty log entries are identified with the

error number of 000. Occupied log entries contain the error number of the message displayed on the control panel.

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.

Select No to exit the Clear Log menu. You can also press **Return** or **Stop** to exit the menu.

Exiting Diagnostic Mode

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

Print Quality Test Page

Print Quality Test Page

3. 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.
- The basic rule is not to 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 of the specified rating.
- 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.

Instructions for Handling the PWBs 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 $+40^{\circ}\text{C}$.

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.
- 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.

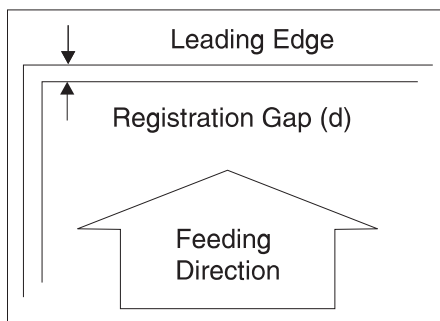
Precautions for Handling the Laser Equipment

- When a service job needs to be performed in the laser beam path, such as when working around the printhead and the drum cartridge, be sure to turn the printer off first.
- A highly reflective tool can be dangerous if it is brought into the laser beam path. Use utmost care when handling tools around the laser beam.
- If the job requires that the printer be left on, take off your watch and ring, and wear laser protective goggles which must meet the following laser specifications:
 - Max. power: 5mW
 - Output wavelength: 780 - 810nm

Adjustment Procedures

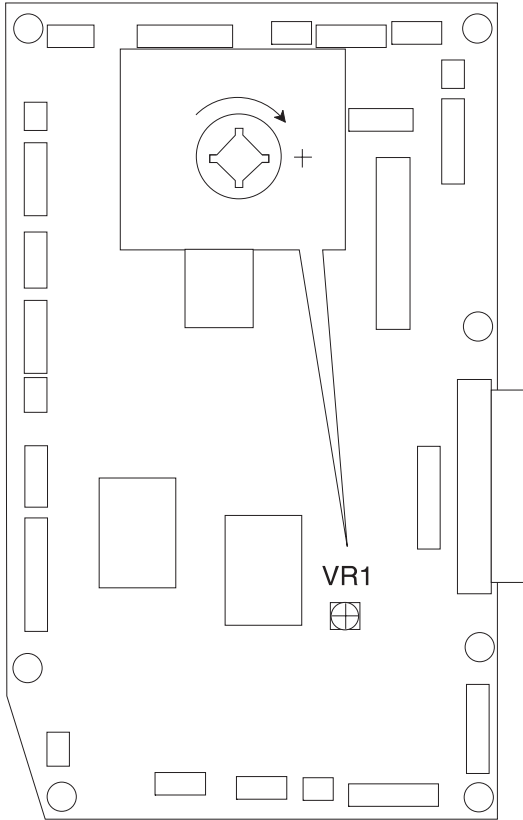
Registration Adjustment

If you replace the mechanical controller board (PWB-A), go to the diagnostic menu and run the Quick Test in the Registration Menu. If the registration gap is not 4 mm, adjust the gap as follow:



1. Remove the outer covers and shield plate.
2. Adjust VR1 so that the registration gap is 4 mm. Turn VR1 on the mechanical controller board in the + direction to increase the gap and turn it in the opposite direction to make the gap smaller.

PWB-A



Rack Lever Solenoid Adjustment

Make this adjustment whenever you remove and replace the rack lever or the rack lever solenoid.

Loosen the 3 rack solenoid mounting screws and adjust the solenoid up or down so there are 4.5 mm between the solenoid plunger and the solenoid when the lever is detented into the toner cartridge rack.

Removal Procedures

Outer Cover Removals

1. Slide out the Second Cassette (tray 1).
2. Open the Upper Unit.
3. Open the Rear Cover.
4. Remove each cover in the following sequence.

When you reinstall the covers, be sure to insert the cover protrusions into the cutouts in the printer frame.

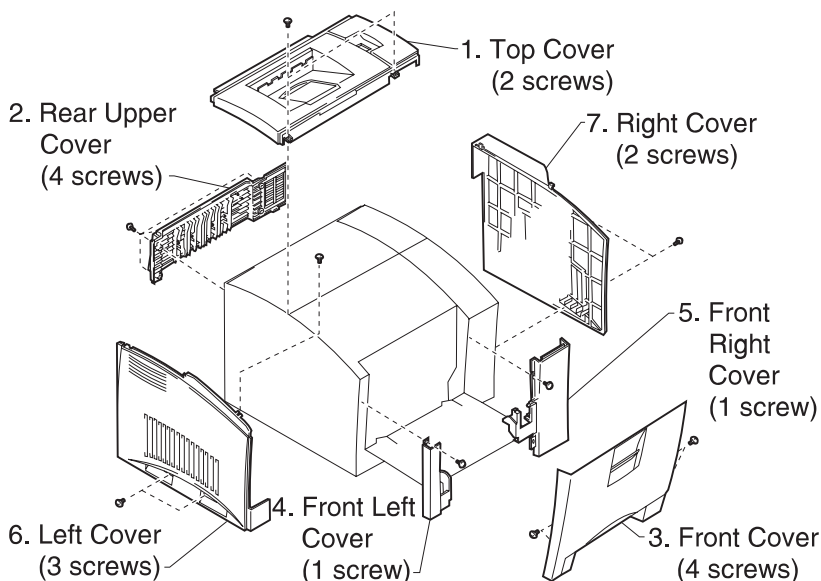
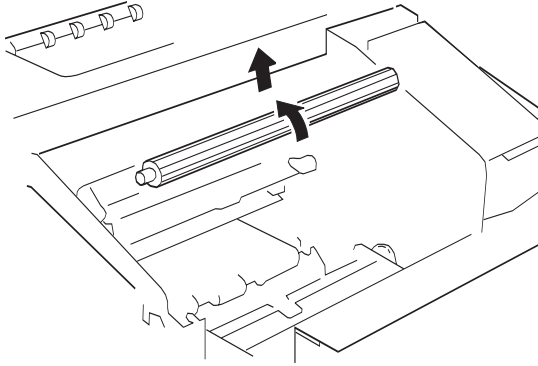


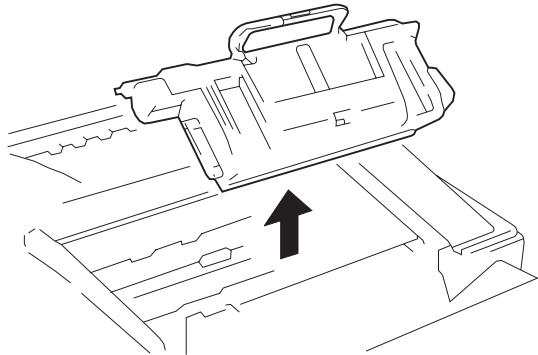
Image Transfer Roller Removal

1. Open the Upper Unit.
2. Remove the Image Transfer Roller Unit.



Drum Cartridge Removal

1. Open the Upper Unit.
2. Remove the Drum Cartridge.



Waste Toner Bottle Removal

1. Open the Upper Unit.
2. Remove the waste toner bottle.

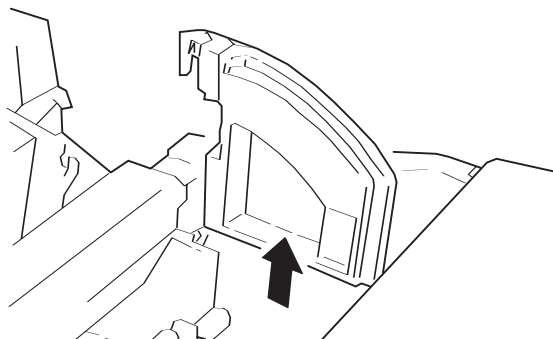
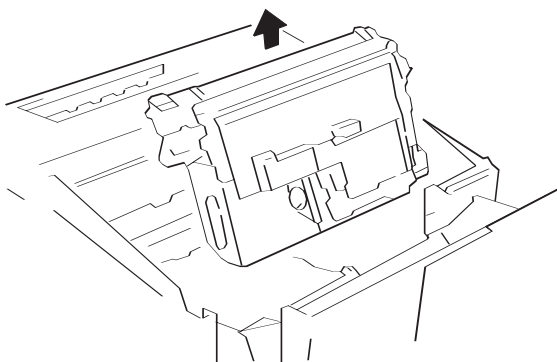


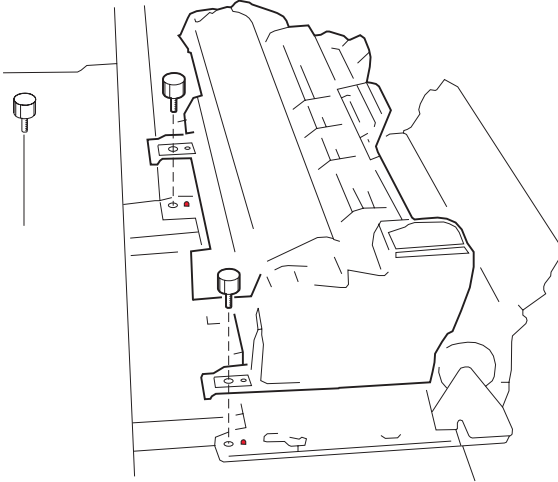
Image Transfer Belt Removal

1. Open the Upper Unit.
2. Remove the Drum Cartridge.
3. Remove the waste toner bottle.
4. Remove the Image Transfer Belt Unit. Be careful to not rotate the image transfer belt clockwise, as viewed from the right side of the printer.



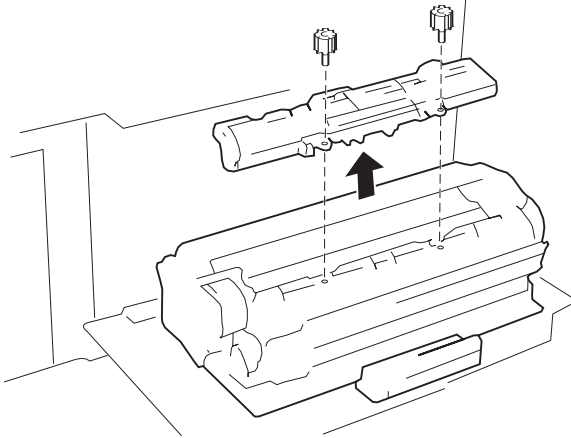
Fuser Removal

1. Open the rear cover.
2. Slide out the fuser.
3. Remove the fuser (2 thumb screws).



Oil Coating Roller Removal

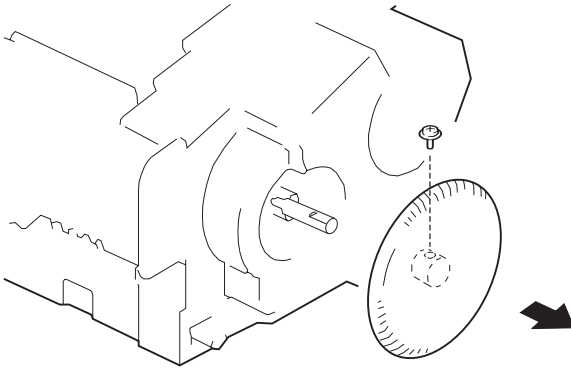
1. Open the rear cover.
2. Slide out the fuser.
3. Remove the fuser (2 screws).
4. Remove the oil coating roller (2 green knobs).



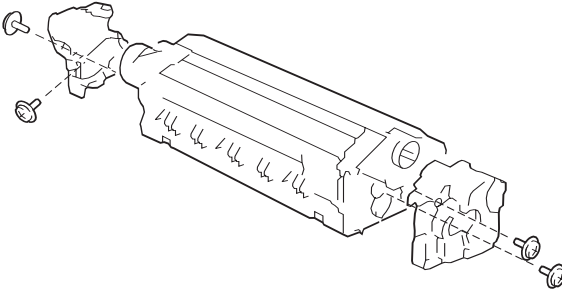
Heater Lamp Removal

Do not touch the lamp surface with your bare hands.

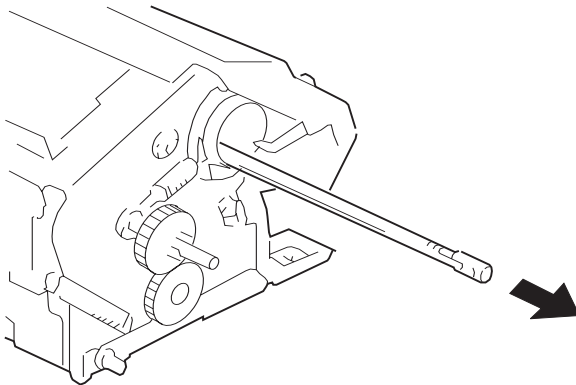
1. Open the rear cover.
2. Slide out the fuser.
3. Remove the fuser (2 screws).
4. Remove the oil coating roller (2 screws).
5. Remove the misfeed clearing knob (1 screw).



6. Remove the heater lamp covers (4 screws).



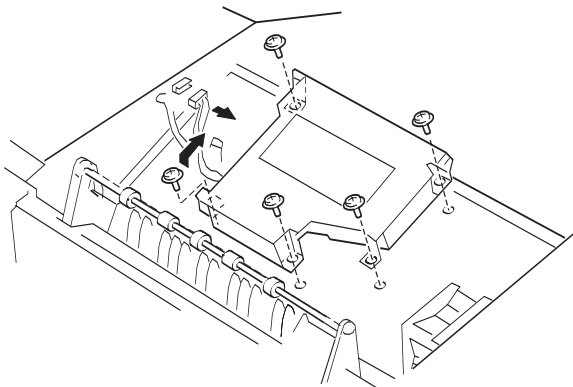
7. Pull the heater lamp out of the lamp holder from the misfeed clearing knob side.



When you reinstall the lamp, position the voltage indication toward the misfeed clearing knob side.

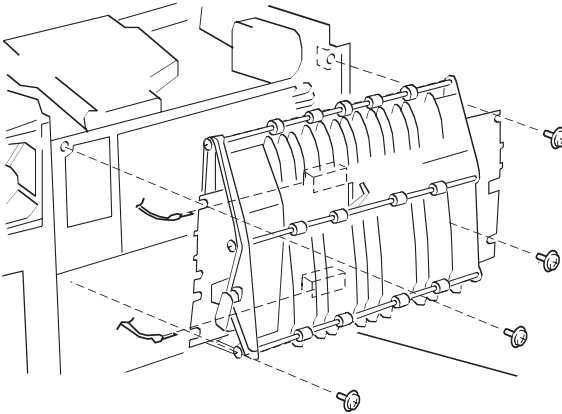
Printhead Removal

1. Remove the top cover.
2. Remove the printhead (2 connectors, 5 screws).



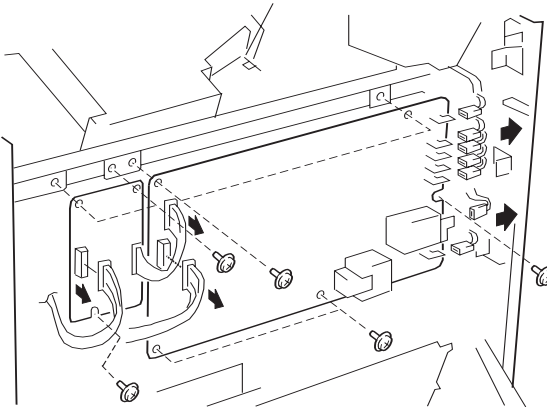
Paper Exit Removal

1. Remove the top cover and rear upper cover.
2. Slide out the fuser.
3. Remove the paper exit assembly (2 connectors, 4 screws).



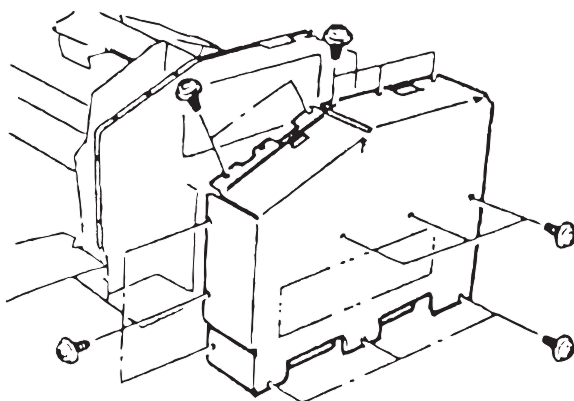
High Voltage (HV1) / Sub High Voltage Board (PWB-F) Removal

1. Remove the paper exit assembly.
2. Remove the HV1 (9 connectors, 5 screws).
3. Remove the PWB-F (1 connector, 3 screws).



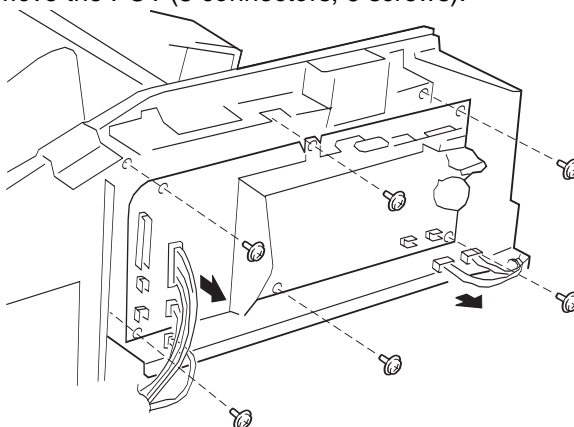
Shield Plate Removal

1. Remove the top cover, operator panel cover, rear upper cover, front right cover, and right cover.
2. Remove the shield plate (14 screws).



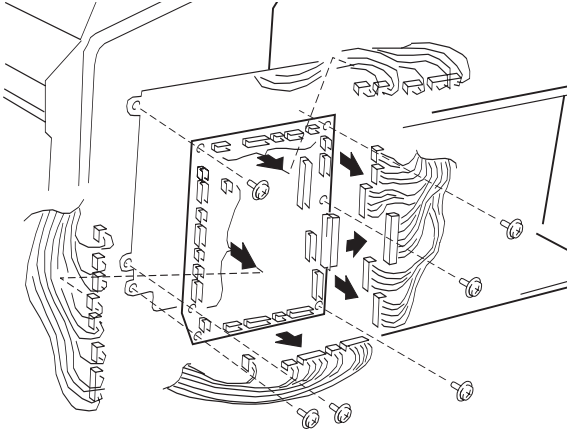
Power Supply Removal

1. Remove the shield plate.
2. Remove the PU1 (5 connectors, 6 screws).



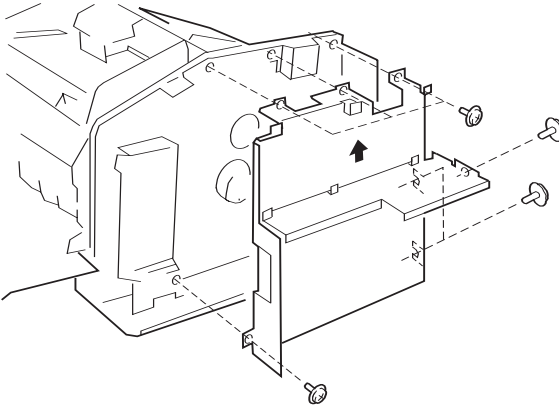
Mechanical Control Board Removal

1. Remove the shield plate.
2. Remove the mechanical controller board (22 connectors, 6 screws).



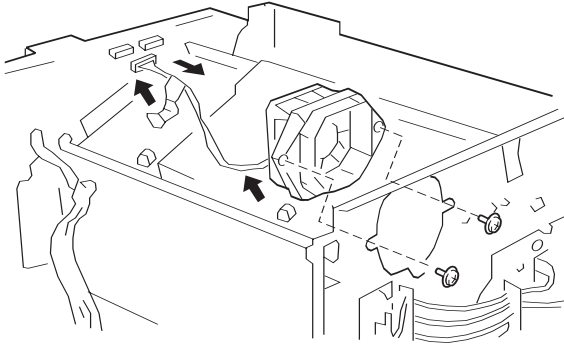
Power Supply Frame Removal

1. Remove the shield plate. (Refer to section 3-12.)
2. Remove the power unit frame (7 screws).

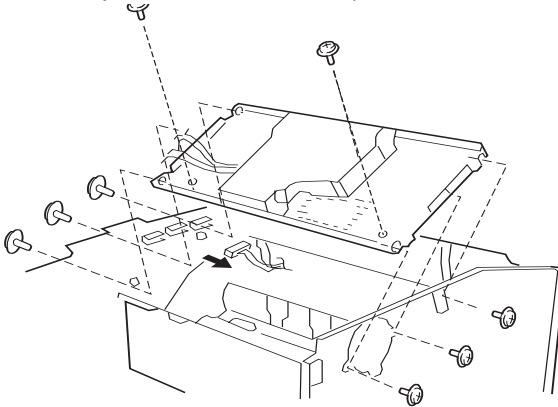


Printhead Frame Removal

1. Remove the outer covers.
2. Remove the power unit frame.
3. Remove the printhead unit cooling fan motor (1 connector, 2 screws).

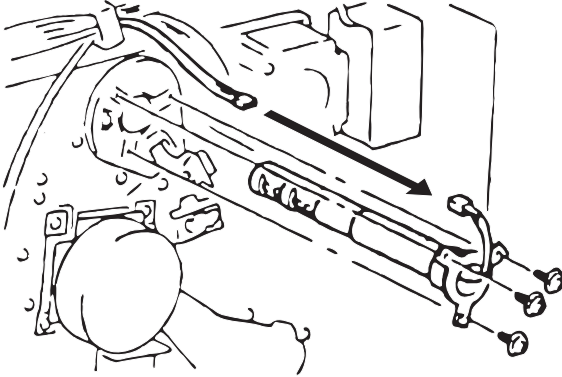


4. Remove the printhead unit frame (2 connectors, 8 screws).



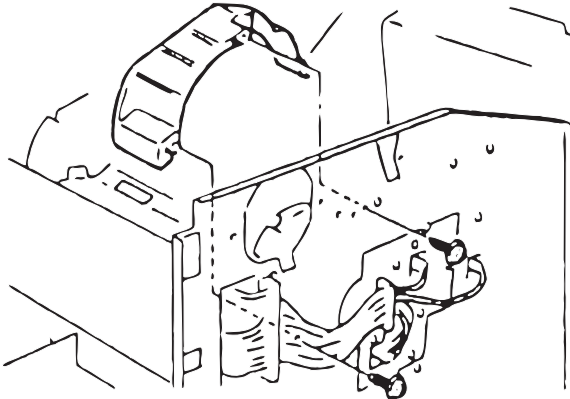
Toner Empty / Toner Cartridge Detecting Board (PWB-B) Removal

1. Remove the power unit frame.
2. Remove the toner empty / toner cartridge detecting board (1 connector, 3 screws).

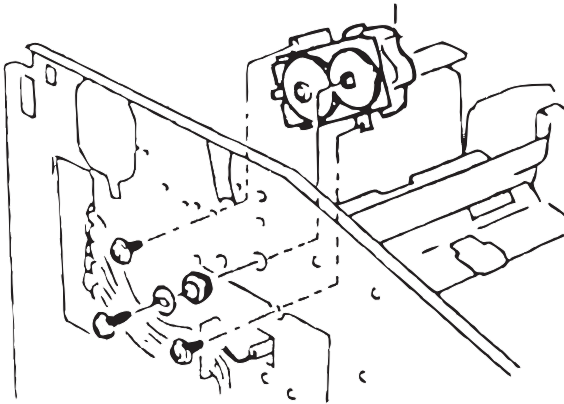


Toner Cartridge Rack Removal

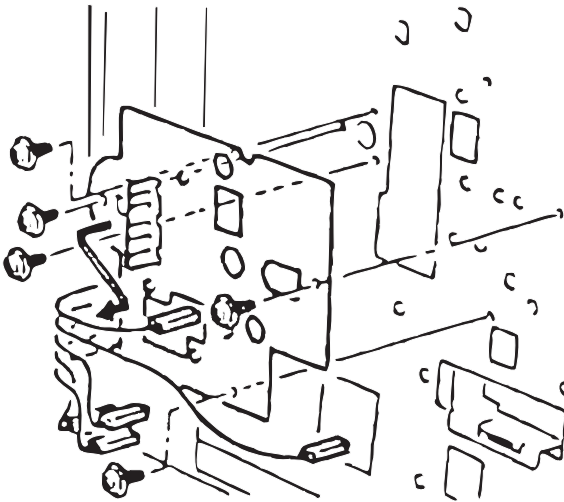
1. Remove the printhead frame.
2. Remove the rack cover (2 screws).



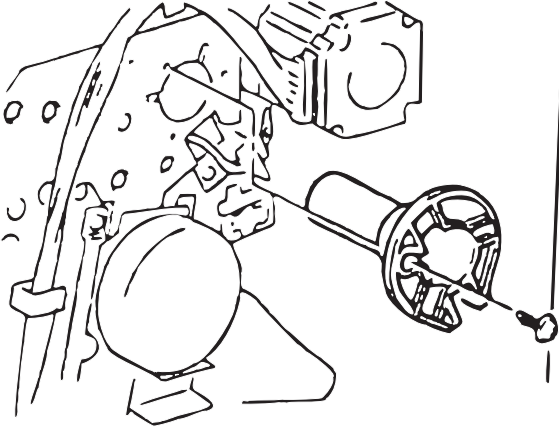
3. Remove the dial assembly (1 washer, 1 bushing, 3 screws).



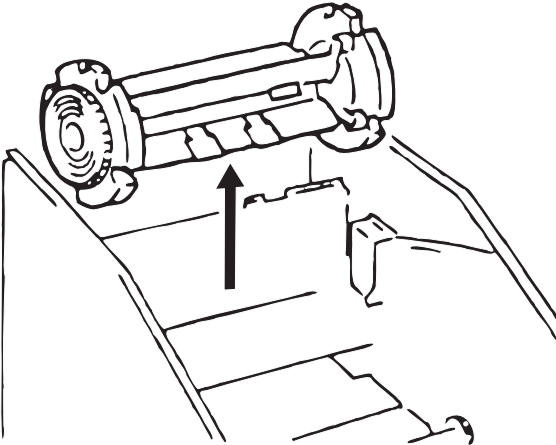
4. Remove the left rack guide (5 connectors, 5 screws).



5. Remove the toner empty / toner cartridge detecting board.
6. Remove the right rack guide (1 screw).

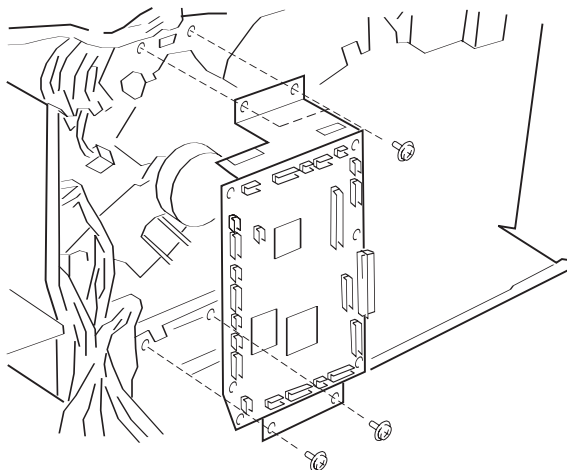


7. Remove the toner cartridge rack.



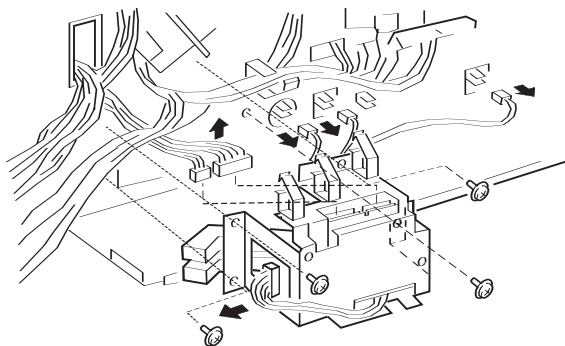
Mechanical Controller Board Frame Removal

1. Remove the Shield Plate.
2. Remove all the connectors from PWB-A (22 connectors).
3. Remove the PWB-A frame (4 screws).



Paper Size/Cassette Detecting Board (PWB-E) Removal

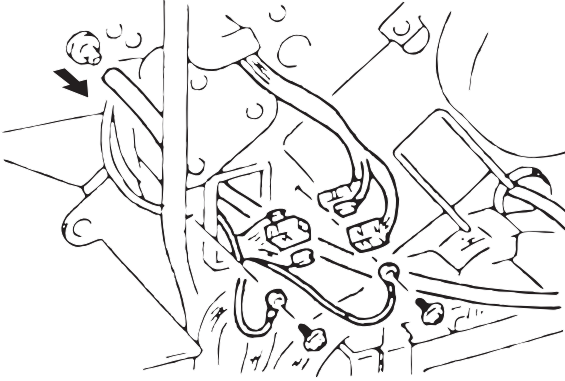
1. Remove the power unit frame.
2. Remove the PWB-A frame.
3. Remove the PWB-E assembly.



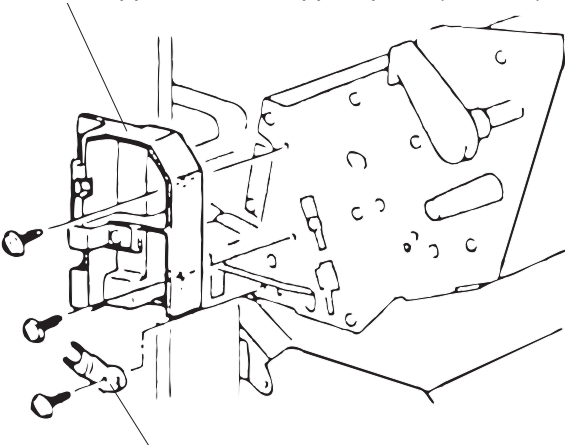
Paper Take-Up Removal

1. Remove the PWB-A frame.

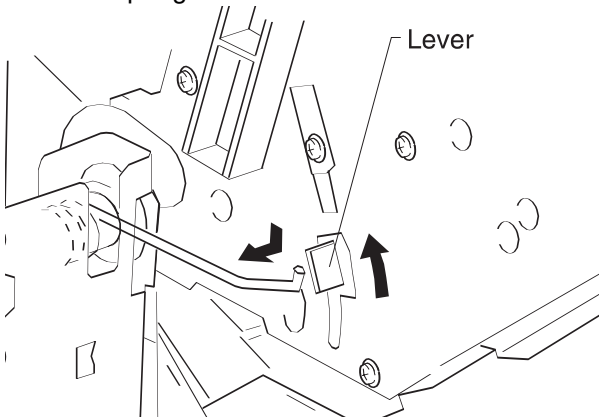
2. Disconnect the three connectors. Remove the two ground wires and the air pipe.



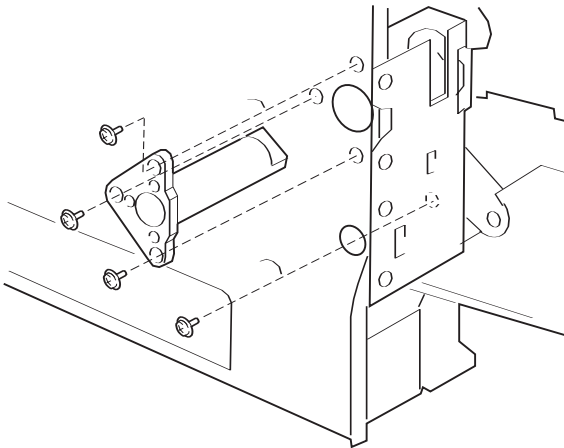
3. Remove the toner collecting box holder (2 screws).
4. Remove the upper unit left support plate (1 screw).



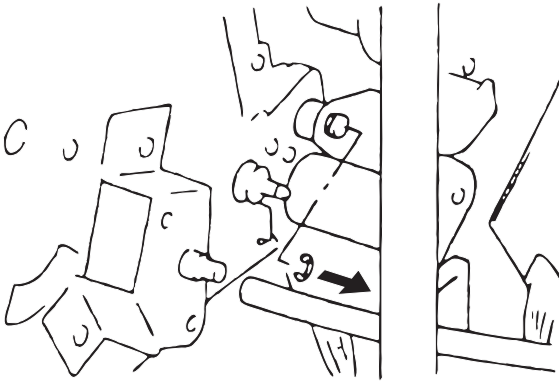
5. Hold up the lever in the direction of the arrow, and release the hook of the spring.



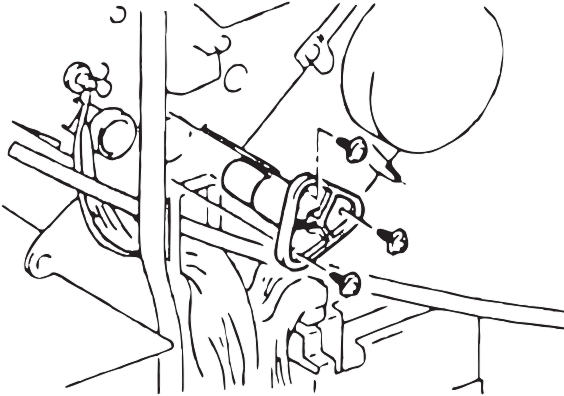
6. Remove the upper unit left guide (3 screws).
7. Remove the one screw.



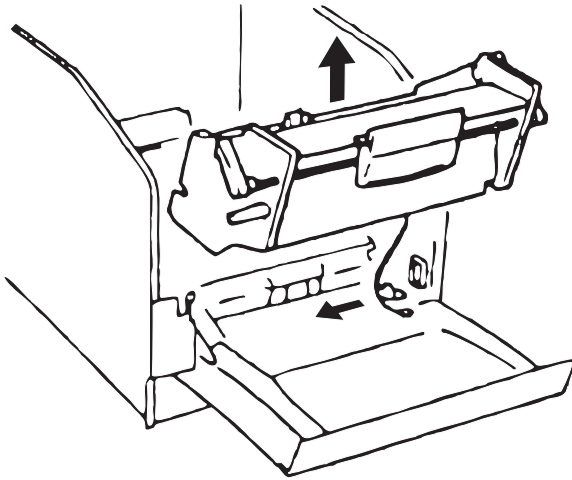
8. Remove the E-ring.



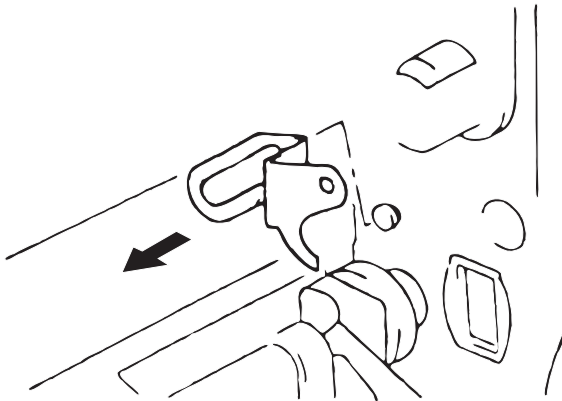
9. Remove the upper unit right guide (3 screws).



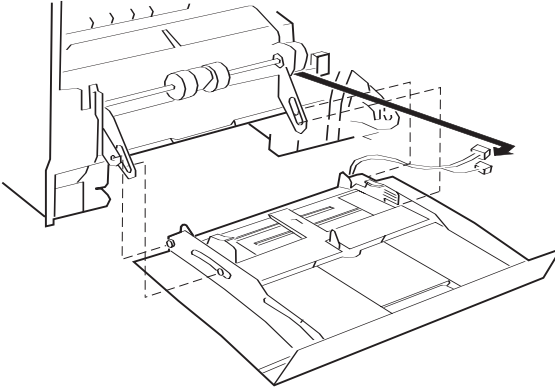
10. Remove the upper unit.



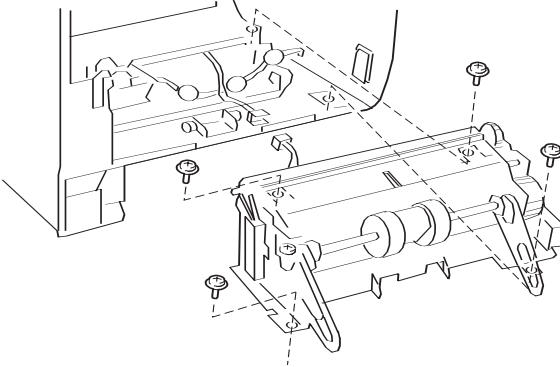
11. Remove the upper unit right support plate.



12. Remove the multipurpose tray.

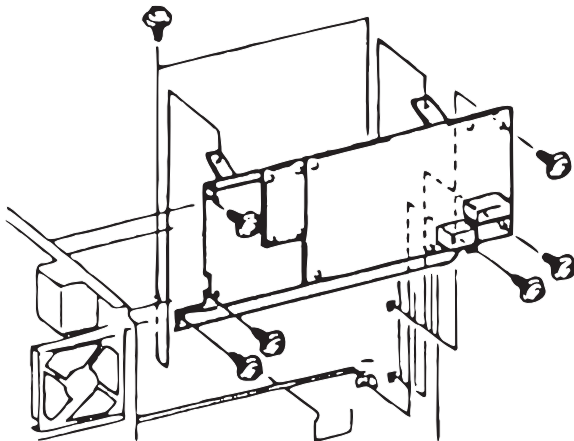


13. Remove the paper take-up unit (1 connector, 4 screws).

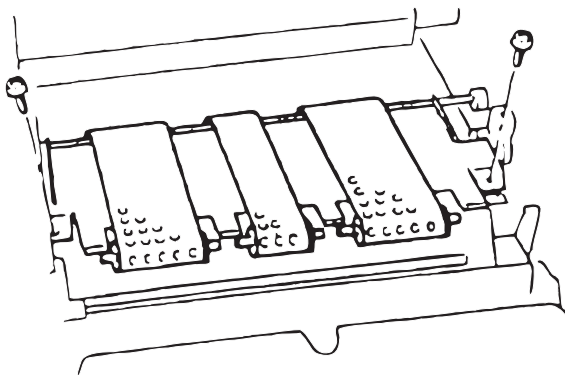


Suction Assembly Removal

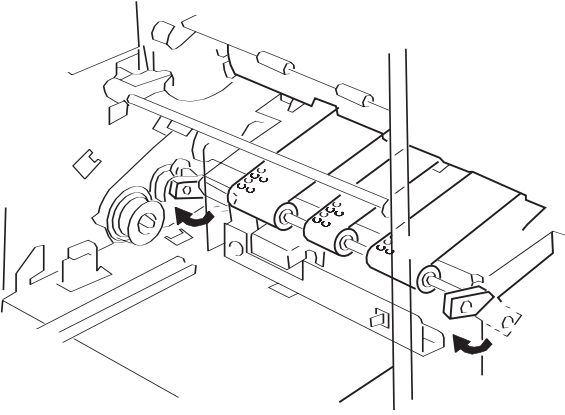
1. Remove the image transfer roller.
2. Remove the paper exit.
3. Remove the fuser.
4. Remove all connectors from HV1 (9 connectors).
5. Remove all connectors from PWB-F (1 connector).
6. Remove the high voltage unit frame (8 screws).



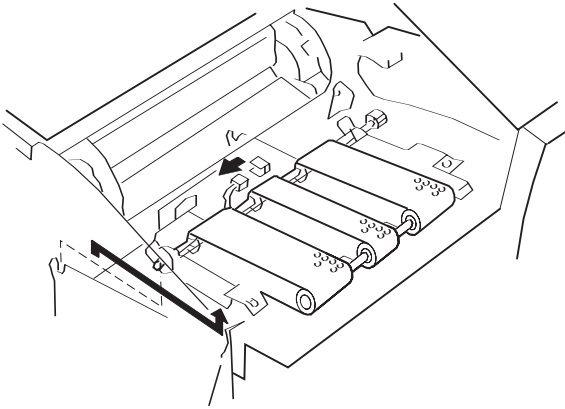
7. Remove the two screws of the suction assembly.



8. Move the bushing of the suction assembly to the position shown.

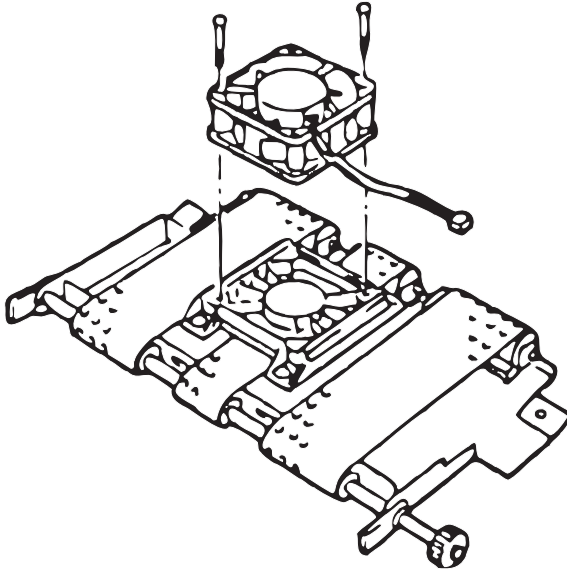


9. Remove the suction assembly (1 connector).



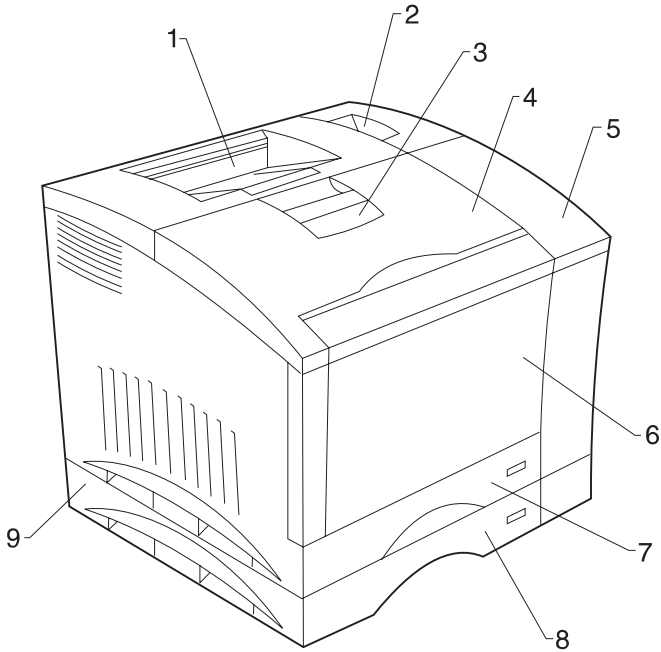
Suction Fan Motor Removal

1. Remove the suction assembly.
2. Remove the suction fan motor (2 screws).



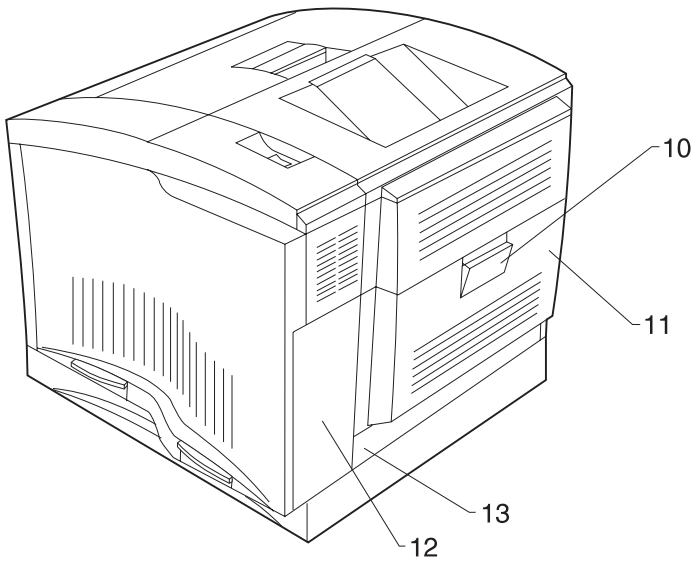
4. Locations

Parts of the Printer



1. Paper Exit Tray
2. Power Switch
3. Top Door Latch
4. Front Cover
5. Control Panel
6. Multipurpose Tray
7. 250-Sheet Second Cassette (Tray 1)
8. 250-Sheet Third Cassette (Tray 2 Option)
9. 250-Sheet Third Cassette Assembly
(Optional 2nd Drawer)

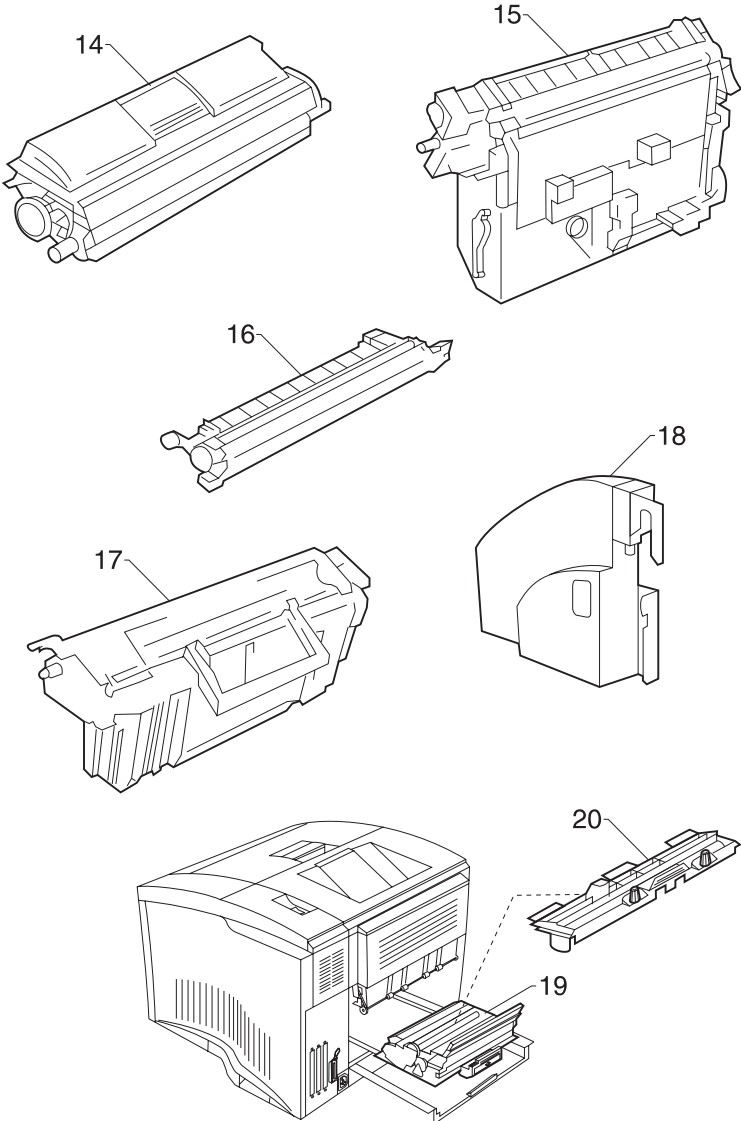
Parts of the Printer



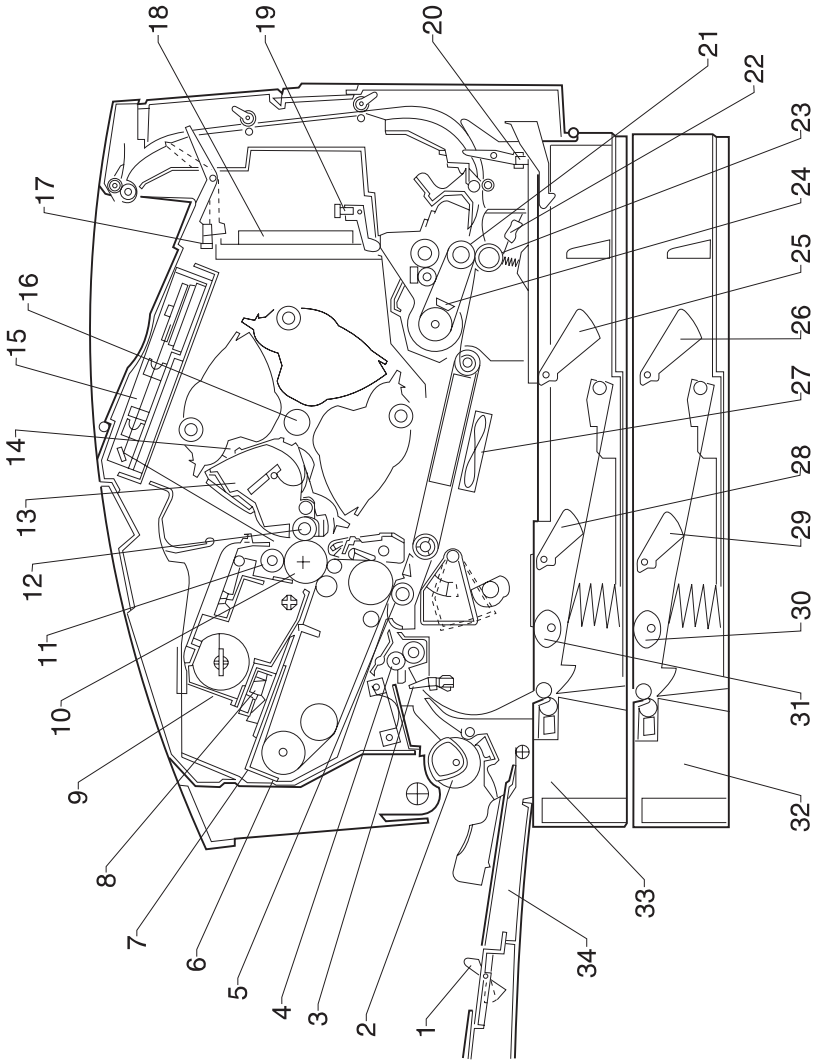
- 10. Rear Cover Release Lever
- 11. Rear Cover
- 12. Interface Connector
- 13. Power Cord Socket

- 14. Toner Cartridge (1 of 4)
- 15. Image Transfer Belt Assembly
- 16. Image Transfer Roller Assembly
- 17. Photoconductor Cartridge
- 18. Waste Toner Bottle
- 19. Fuser
- 20. Oil Coating Roller Assembly

Parts of the Printer

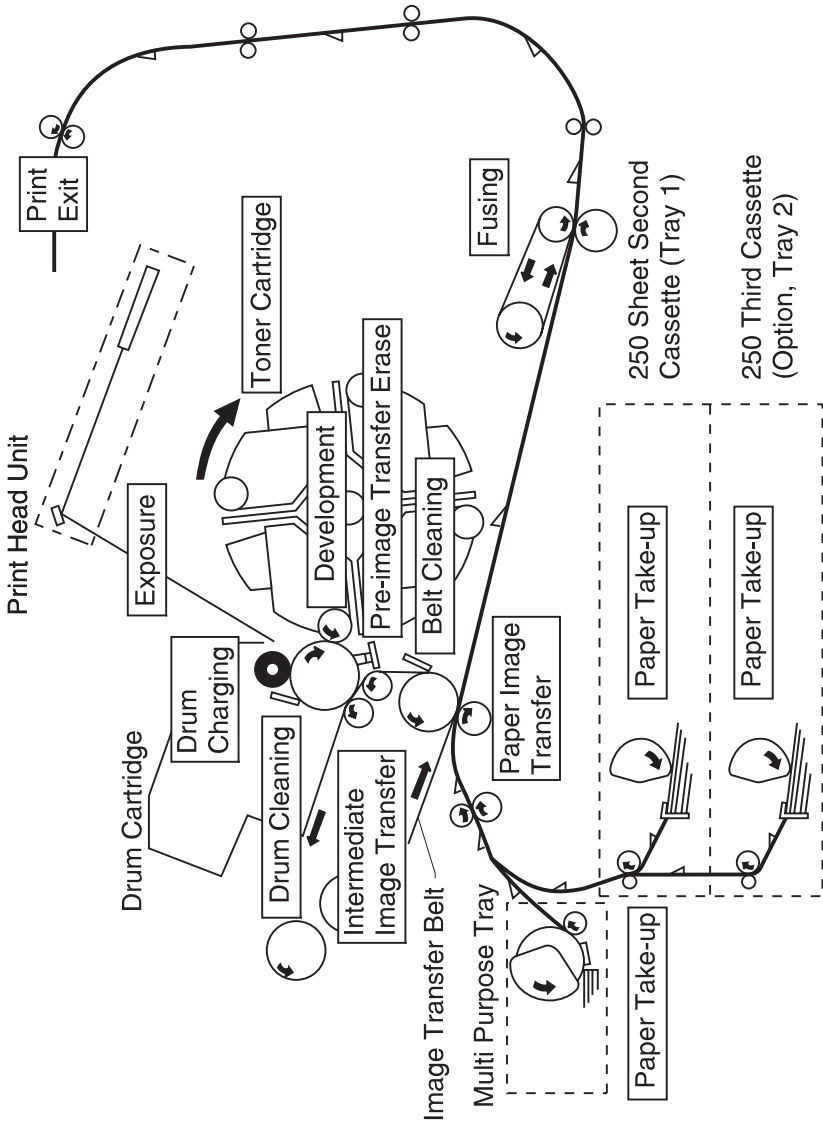


Parts of the Printer



1. Paper Empty Sensor 1 (PC5)
2. Paper Take-Up Roller 1
3. Paper Synchronizing Sensor (PC1)
4. Synchronizing Roller
5. Image Transfer Roller
6. Image Transfer Belt Unit
7. Image Transfer Belt
8. Drum Cartridge Toner Full Sensor Board (PWB-D1)
9. Drum Cartridge
10. PC Drum
11. Rotating Charge Brush
12. Sleeve Roller
13. Toner Cartridge
14. Toner Cartridge Rack
15. Printhead
16. Toner Empty/Toner Cartridge Detecting Board (PWB-B)
17. Paper Exit Sensor (PC8)
18. High Voltage Unit (HV1)
19. Oil Coating Roller Detecting Sensor (PC3)
20. Fusing Sensor (PC9)
21. Upper Fusing Roller
22. Thermistor 2 (TH2)
23. Lower Fusing Roller
24. Thermistor 1 (TH1)
25. Paper Near Empty Sensor 1 (PC10)
26. Paper Near Empty Sensor 2 (PC13)
27. Suction Fan (M7)
28. Paper Empty Sensor 2 (PC11)
29. Paper Empty Sensor 3 (PC14)
30. Paper Take-Up Roller 3
31. Paper Take-Up Roller 2
32. 250-Sheet Third Cassette (Tray 2, option)
33. 250-Sheet Second Cassette (Tray1)
34. Multipurpose Tray

Printing Process



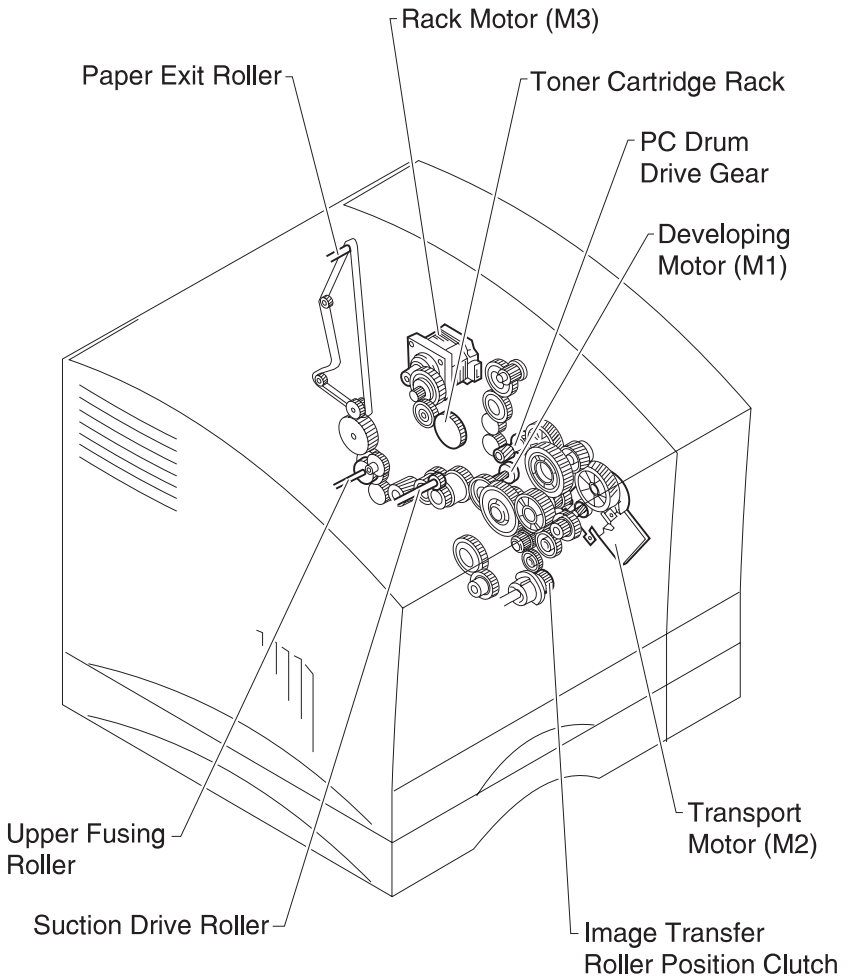
Switches and Sensors

	Name	Connector	Function
S1	Power Switch		Turns the printer on or off
S2	Interlock Switch 1		Detects the opening and closing of front cover.
S3	Interlock Switch 2		Detects the opening and closing of the rear cover.
S4	Thermostat		When the fuser temperature runs abnormally high, shuts down power to the heating lamp (H1).
S5	P/H Shutter Switch		When the front cover closes, it detects if the image transfer belt assembly is installed. If the image transfer belt has not been installed, it shuts down power to the laser diode.
S6	Waste Bottle Detecting Switch	CN20A-4 box detected: L	Detects if the waste bottle is installed.
PC1	Paper Synchronizing Sensor/ Timing Roll	CN10A-3 paper present: L	Detect if a sheet of paper has been fed to the timing roller. (Functions as a jam sensor.)
PC2	Image Transfer Roller Position Sensor	CN10A-6 Unit detected: L	Detects the position of the image transfer belt roller assembly. Detects when the image transfer roller is pressed against the image transfer belt.: L
PC3	Oil Coating Roller Detecting Sensor	CN11A-3 unit detected: H	Detects if the oil roller assembly has been attached to the fuser.
PC4	Rack Home Position Sensor	CN11A-6 home position detected: H	Detects if the toner cartridge rack is at the home position.

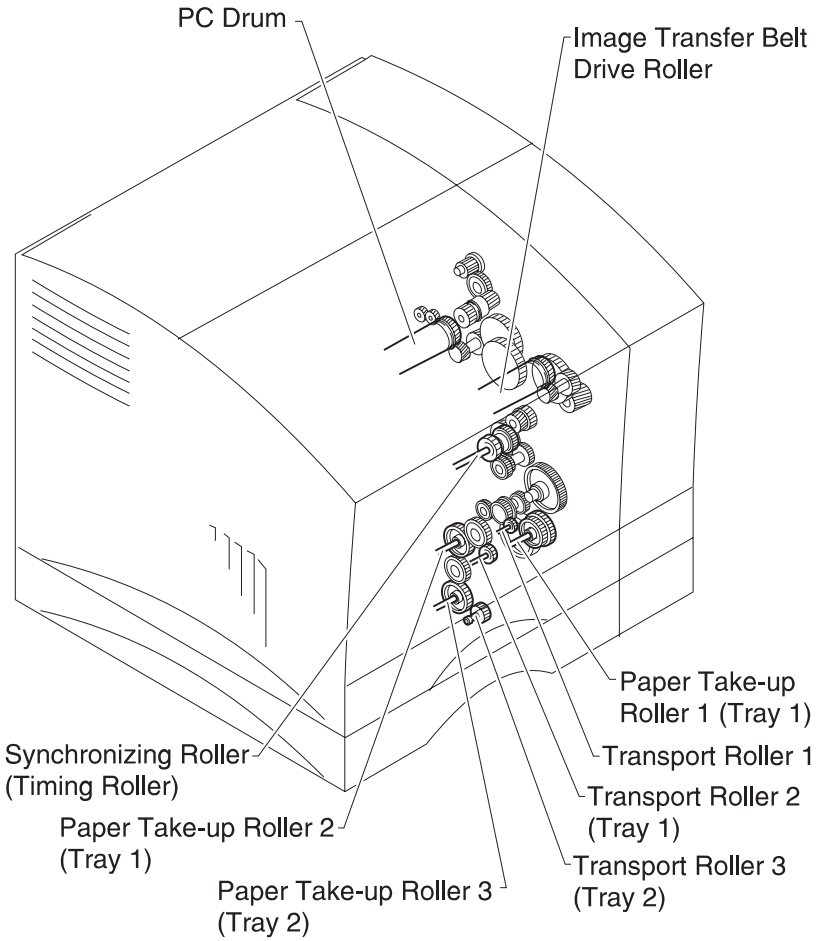
	Name	Connector	Function
PC5	Paper Empty Sensor 1	CN13A-3 empty detected: H	Detects there is no paper in the multipurpose tray.
PC6	Toner Waste Bottle Full Sensor	CN20A-2 toner full detected: H	Detects that a predetermined amount of spent toner has been fed into the toner collecting box.
PC7	Image Transfer Belt Position Sensor	CN6A-14 standard position detected: H	Detects the standard position of the rotation for the image transfer belt.
PC8	Paper Exit Sensor	CN8A-3 paper detected: H	Detects that a sheet of paper has been fed out of the machine to complete a print cycle and detect a paper misfeed.
PC9	Fusing Sensor	CN9A-5 paper detected: L	Detects a sheet of paper that moves through the fuser. (Functions as a jam sensor.)
PC10	Paper Near Empty Sensor 1	CN12A-7 near empty detected: H	Detects when there are approximately 50 sheets left in the 2nd paper cassette. (Tray 1)
PC11	Paper Empty Sensor 2	CN12A-8 empty detected: L	Detects when there is no paper in the 2nd paper cassette. (Tray 1)
PC12	Rack Lever Sensor	CN11A-9 lever detected: H	Detects the position of the rack lever.
TH1	Thermistor 1		Detects the temperature of the heat roller.
TH2	Thermistor 2		Detects the temperature of the lower fuser roller.
PC13	Paper Near Empty Sensor 2	CN186A-2 Near Empty detected: H	Detects there is no paper in the multipurpose tray. Third paper cassette (Tray 2)

	Name	Connector	Function
PC14	Paper Empty Sensor 3	CN18A-3 empty detected: L	Detects when there are approximately 50 sheets left in the 3rd cassette. (Traty2)
	Fuser		Detects if the fuser is plugged in.

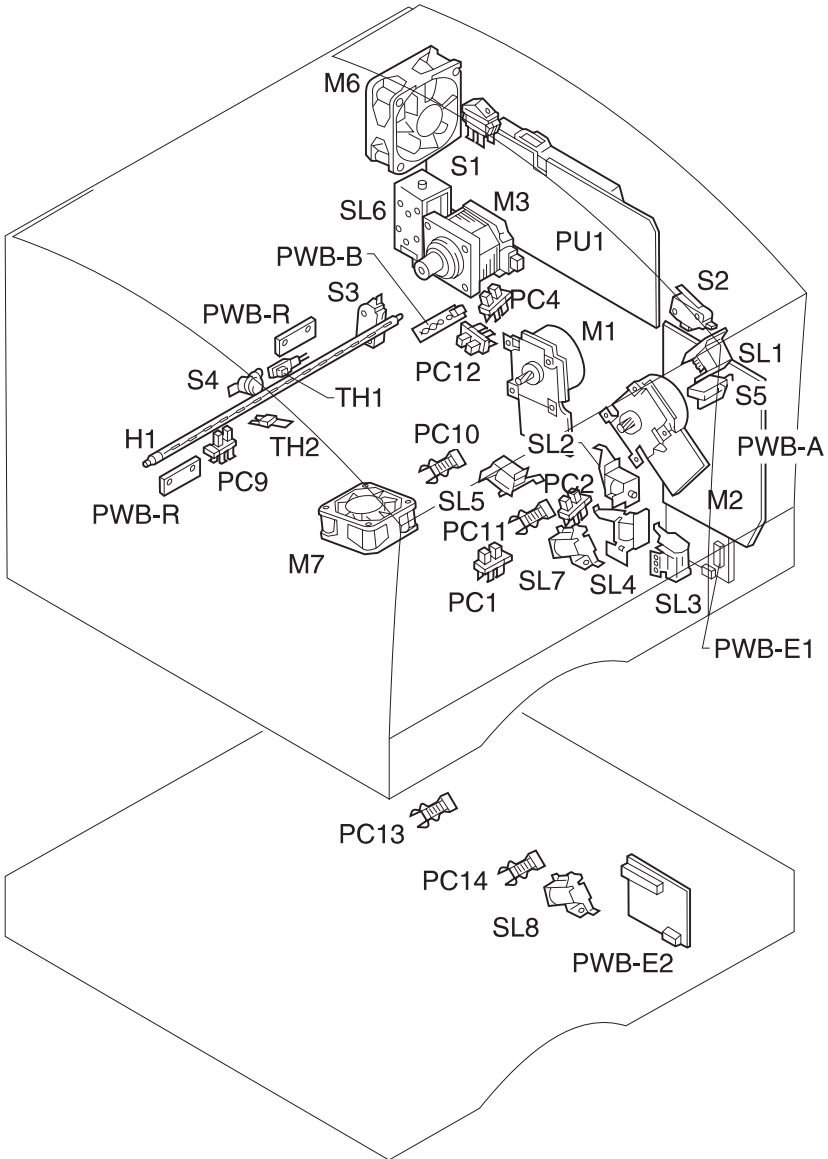
Gears and Rollers



Gears and Rollers

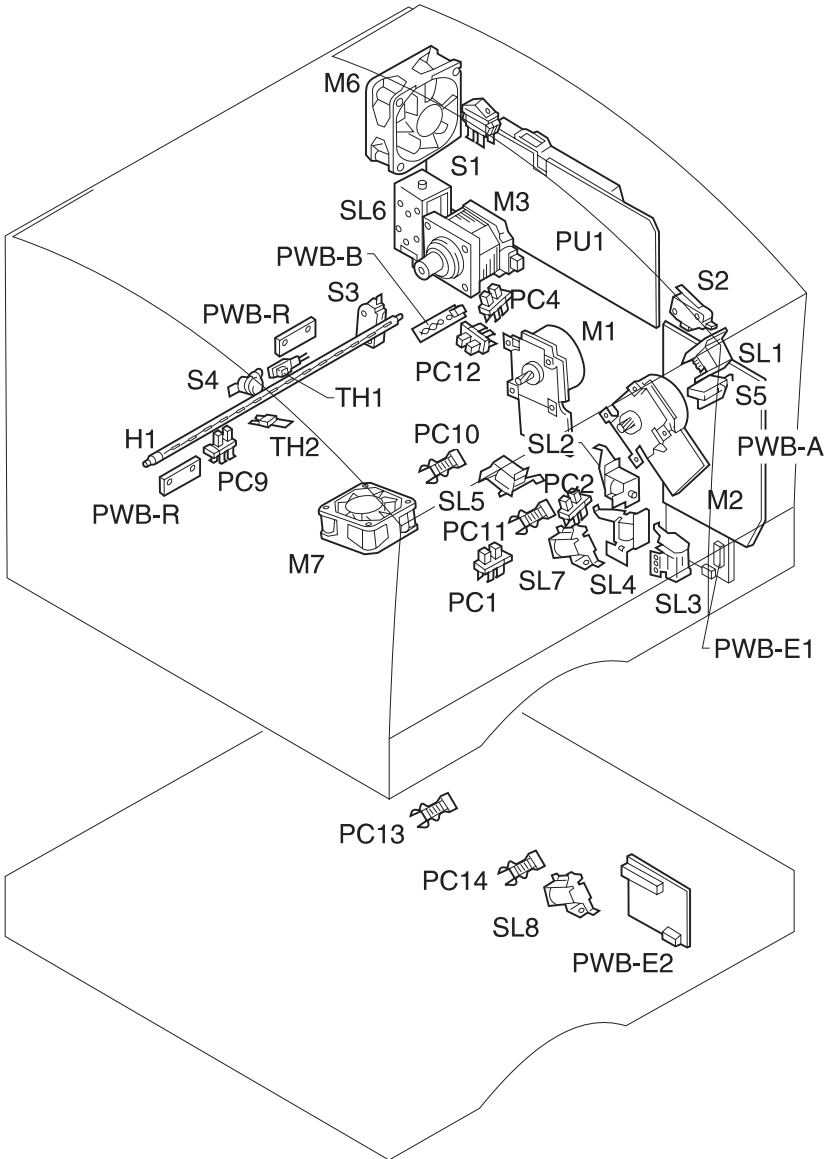


Electrical Components



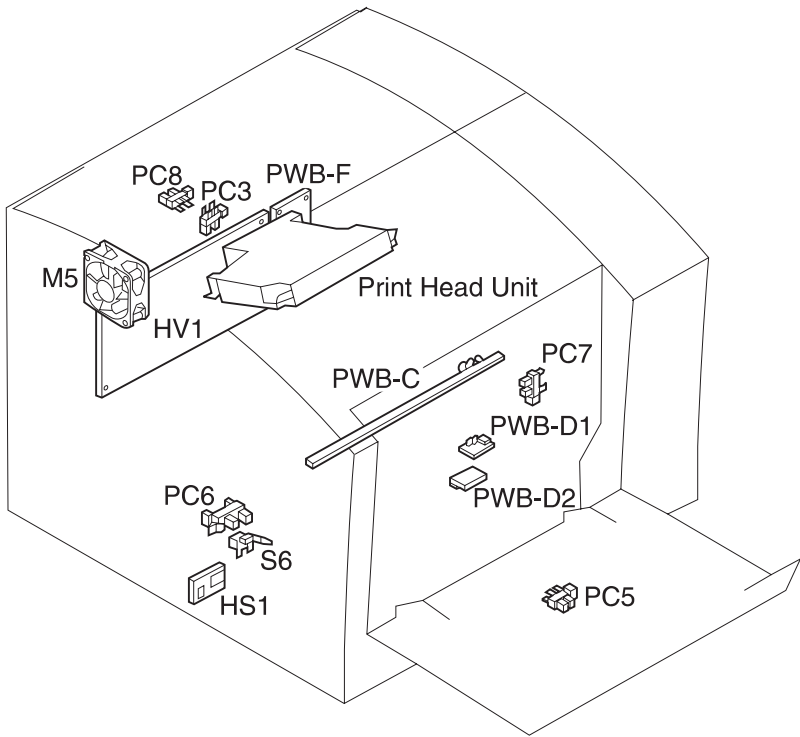
Symbol	Name
PWB-A	Mechanical Control Board
PWB-B	Toner Empty/Toner Cartridge Detecting Board
PWB-E1	2nd Paper Size/Cassette Detecting Board (Tray 1)
PWB-E2	3rd Paper Size/Cassette Detecting Board (Tray 2)
PWB-R	Register Board
PU1	Power Unit
M1	Developing Motor
M2	Transport Motor
M3	Rack Motor
M6	Power Unit Cooling Fan Motor
M7	Suction Fan Motor
SL1	PC Drum/Image Transfer Belt Drive Solenoid
SL2	Synchronizing Solenoid
SL3	Paper Take-up Solenoid 1
SL4	Transport Solenoid
SL5	Image Transfer Roller Position Solenoid
SL6	Rack Lever Solenoid
SL7	Paper Take-up Solenoid 2
SL8	Paper Take-up Solenoid 3
S1	Power Switch
S2	Interlock Switch 1
S3	Interlock Switch 2
S4	Thermostat
S5	P/H Shutter Switch
PC1	Paper Synchronizing Sensor

Electrical Components



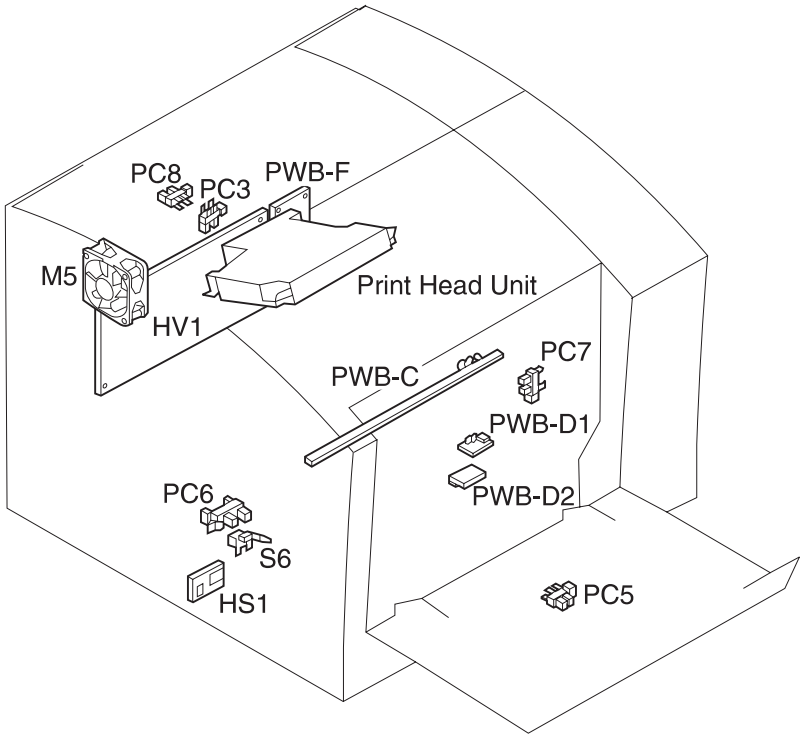
Symbol	Name
PC2	Image Transfer Roller Position Sensor
PC4	Rack Home Position Sensor
PC9	Fusing Sensor
PC10	Paper Near Empty Sensor 1 (Tray 1)
PC11	Paper Empty Sensor 2 (Tray 1)
PC12	Rack Lever Sensor
PC13	Paper Near Empty Sensor 2 (Tray 2)
PC14	Paper Empty Sensor 3 (Tray 2)
H1	Heater Lamp
TH1	Thermistor 1
TH2	Thermistor 2

Electrical Components



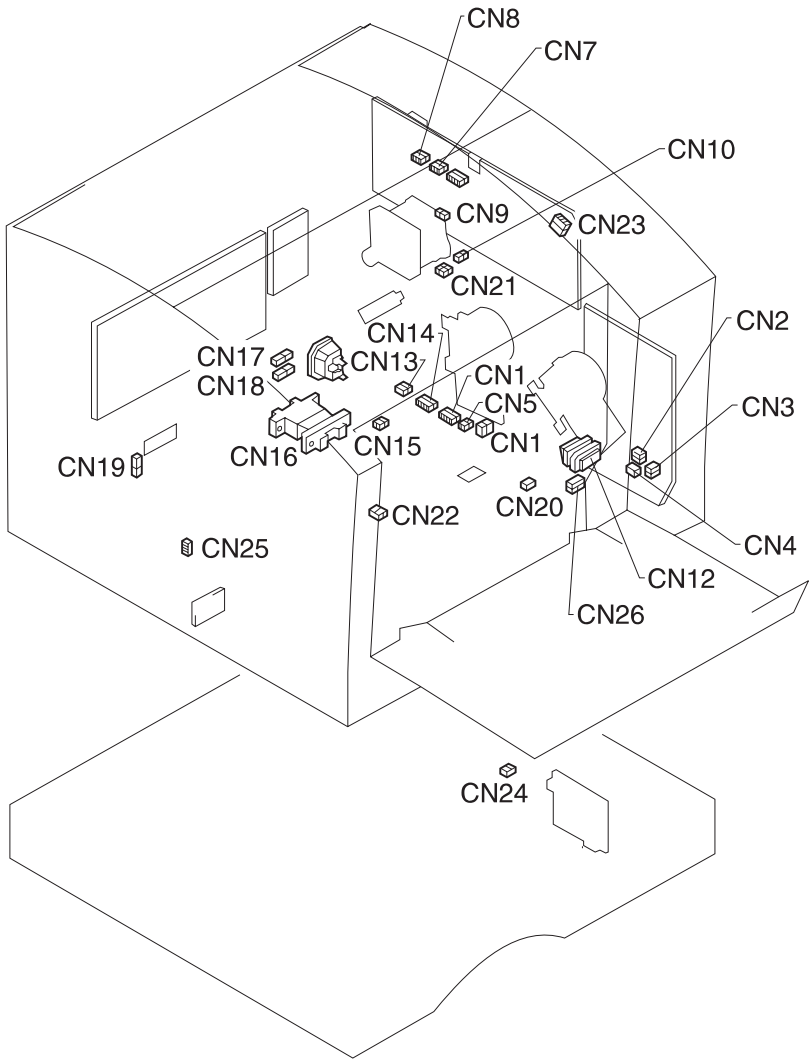
Symbol	Name
PWB-C	AIDC/Erase Board
PWB-D1	Drum Cartridge Toner Full Sensor Board
PWB-D2	OHP Sheet Detect Board
PWB-F	Sub High Voltage Board
HV1	High Voltage Unit
M5	P/H Cooling Fan Motor
S6	Waste Toner Collecting Bottle Detecting Switch
PC3	Oil Coating Roller Unit Detecting Sensor

Electrical Components



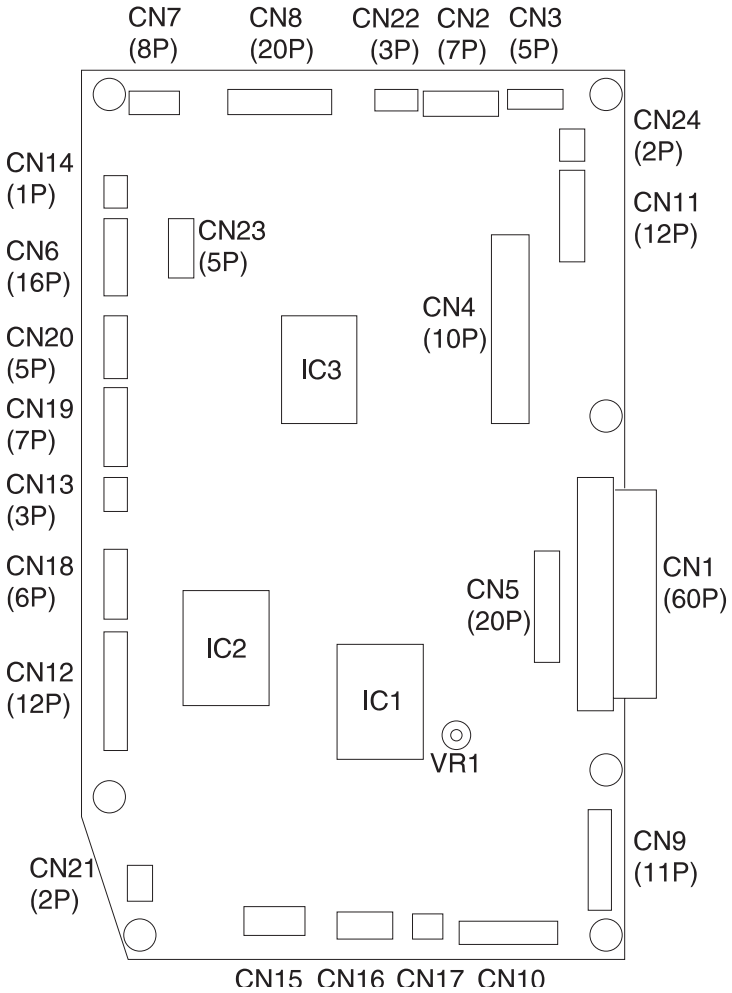
Symbol	Name
PC5	Paper Empty Sensor 1
PC6	Toner Waste Bottle Full Sensor
PC7	Image Transfer Belt Position Sensor
PC8	Paper Exit Sensor
HS1	Temperature/Humidity Sensor

Connectors

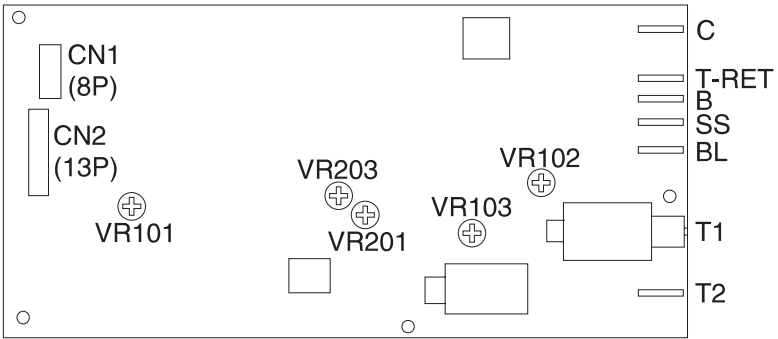


Printed Circuit Boards

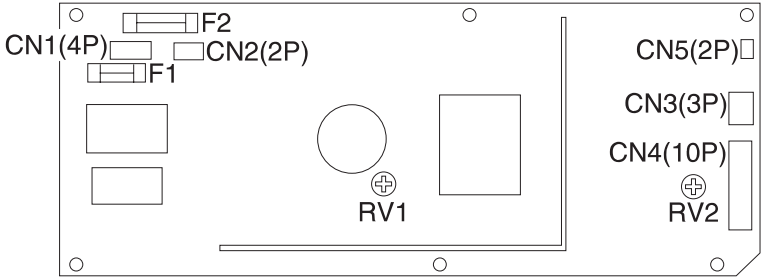
PWB-A



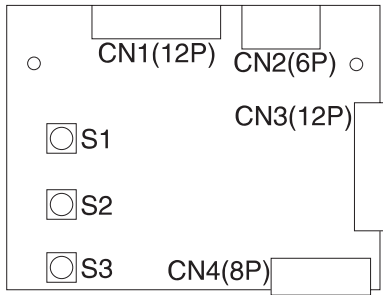
HV 1



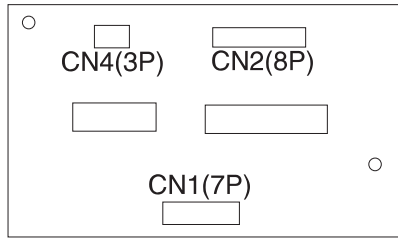
PU1



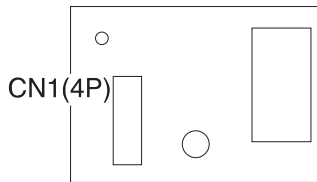
PWB-E



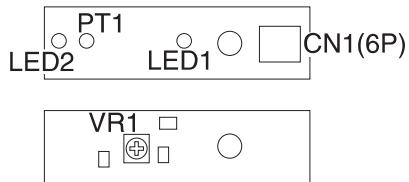
PWB-F



HS1



PWB-B



5. Parts Catalog

How to Use This Parts Catalog

- **SIMILAR ASSEMBLIES:** If two assemblies contain a majority of identical parts, they are broken down 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-Procurable)** 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.
- **INDENTURE:** The indenture is marked by a series of dots located before the parts description. The indenture indicates the relationship of a part to the next higher assembly. For example:

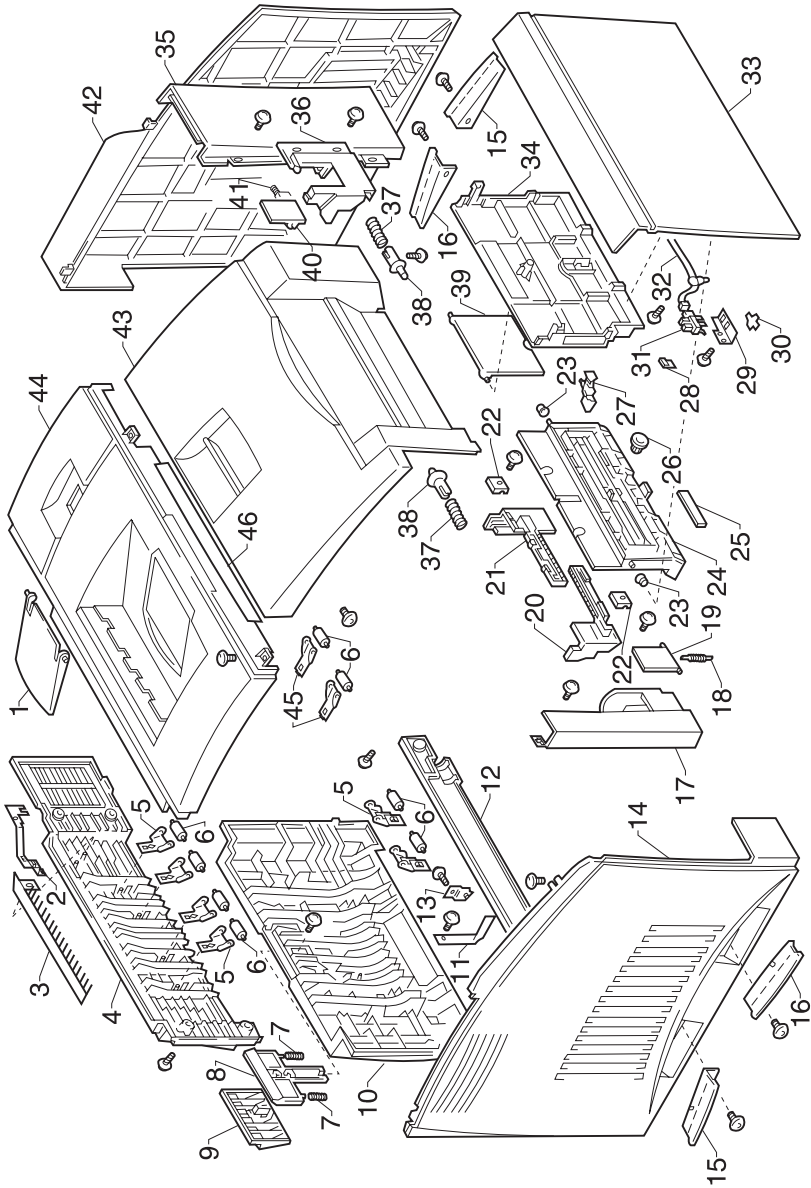
INDENTURE RELATIONSHIP OF PARTS

(No dot) MAIN ASSEMBLY

(One dot) • Detail parts or subassembly of a main assembly

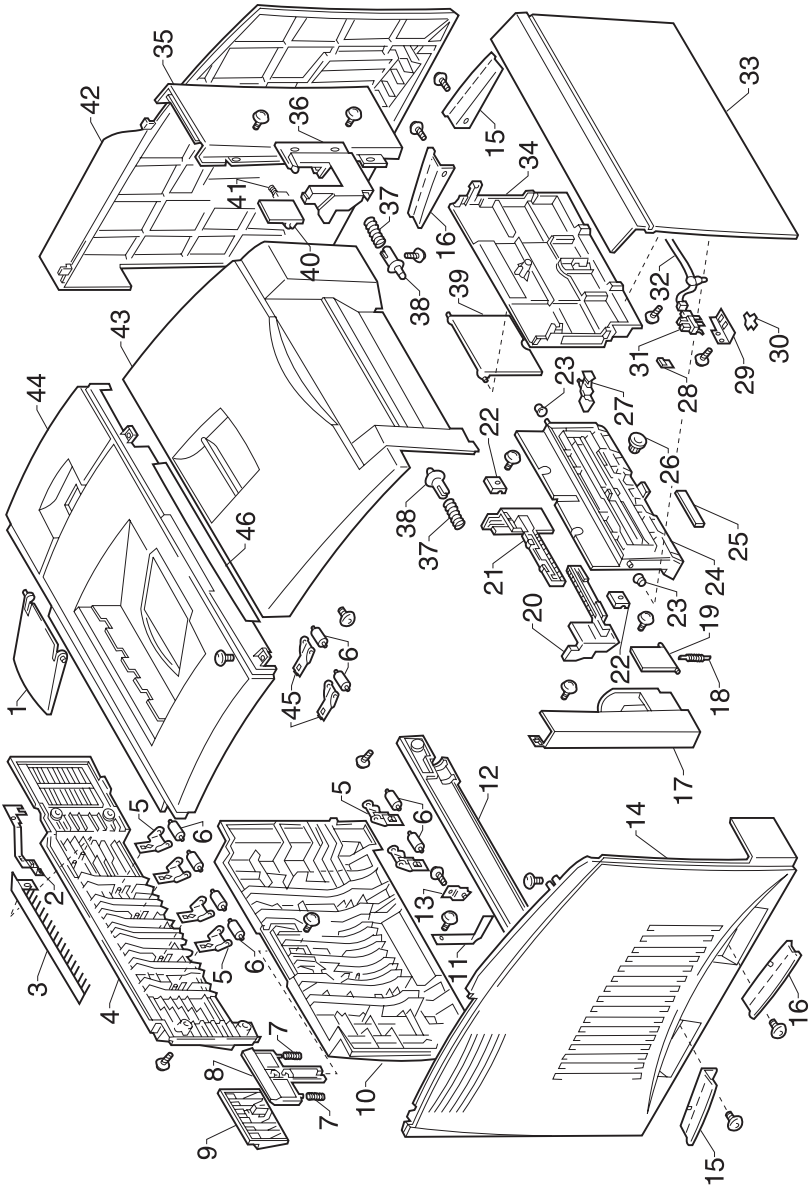
(Two dot) •• Detail part or subassembly of a one-dot subassembly

Assembly 1: Housing



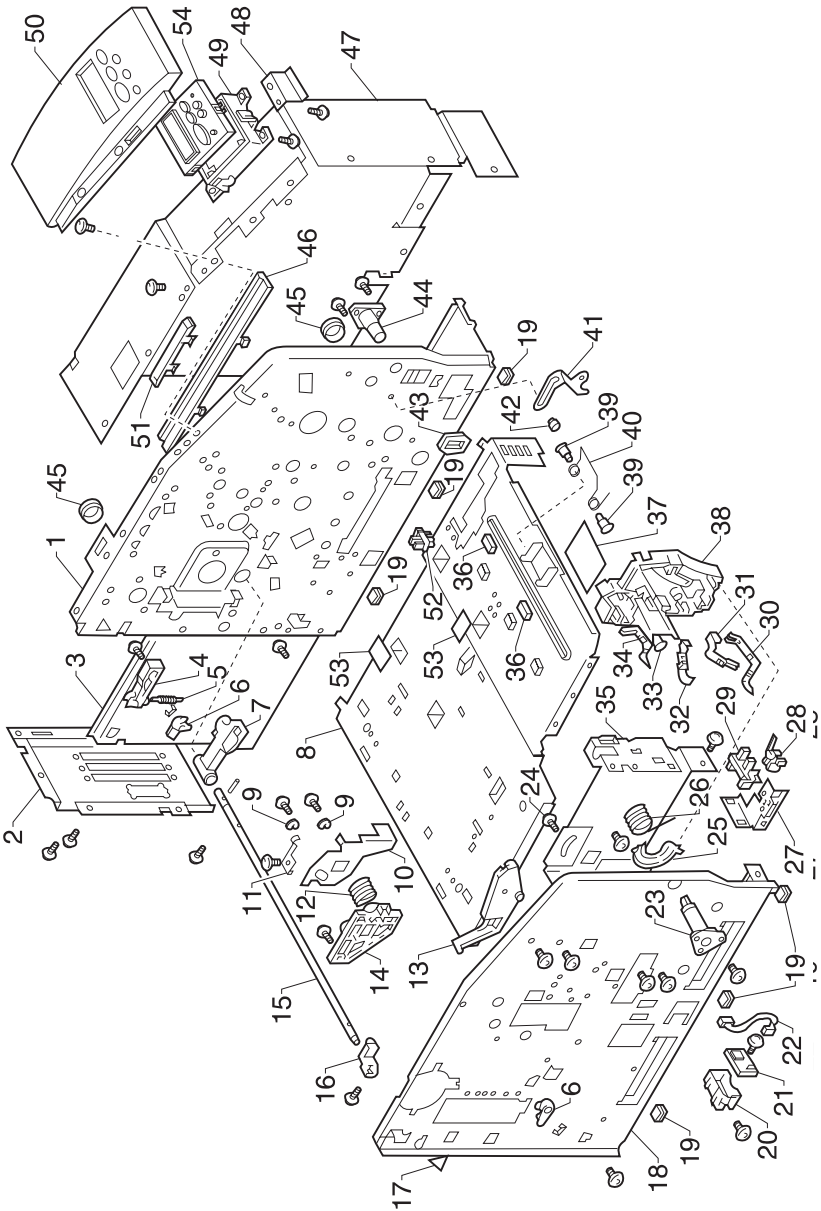
Ref	Part Number	Units	Description
1-1	12C0043	1	Tray, Exit
2	12C0044	1	Ground Plate
3	12C0045	1	Neutralizing Brush
4	12C0046	1	Rear Cover, Upper
5	12C0047	6	Holder, Roll
6	12C0048	8	Roll
7	12C0049	2	Pressure Spring
8	12C0050	1	Lock Lever
9	12C0051	1	Lock Lever
10	12C0052	1	Rear Cover
11	12C0053	1	Stopper
12	12C0054	1	Cover
13	12C0055	1	Holder
14	12C0056	1	Left Cover
15	12C0057	2	Handle, Front
16	12C0058	2	Handle, Rear
17	12C0059	1	Left Cover, Front
18	12C0060	1	Tension Spring
19	12C0061	1	Lid, Left Cover
20	12C0062	1	Guide, Left
21	12C0063	1	Guide, Right
22	12C0064	2	Guide
23	12C0065	2	Collar
24	12C0066	1	Lifting Plate
25	12C0067	1	Pad
26	12C0068	1	Gear, 14T
27	12C0069	1	Actuator (PC5)
28	12C0070	1	Sheet
29	12C0071	1	Bracket, Photo Interrupter
30	12C0072	1	Stopper
31	12C0042	1	Photo Interrupter (PC5)
32	12C0073	1	Harness
33	12C0074	1	Cover
34	12C0075	1	Base, Take-up
35	12C0076	1	Right Cover, Front
36	12C0077	1	Cover
37	12C0078	2	Pressure Spring

Assembly 1: Housing (Cont)



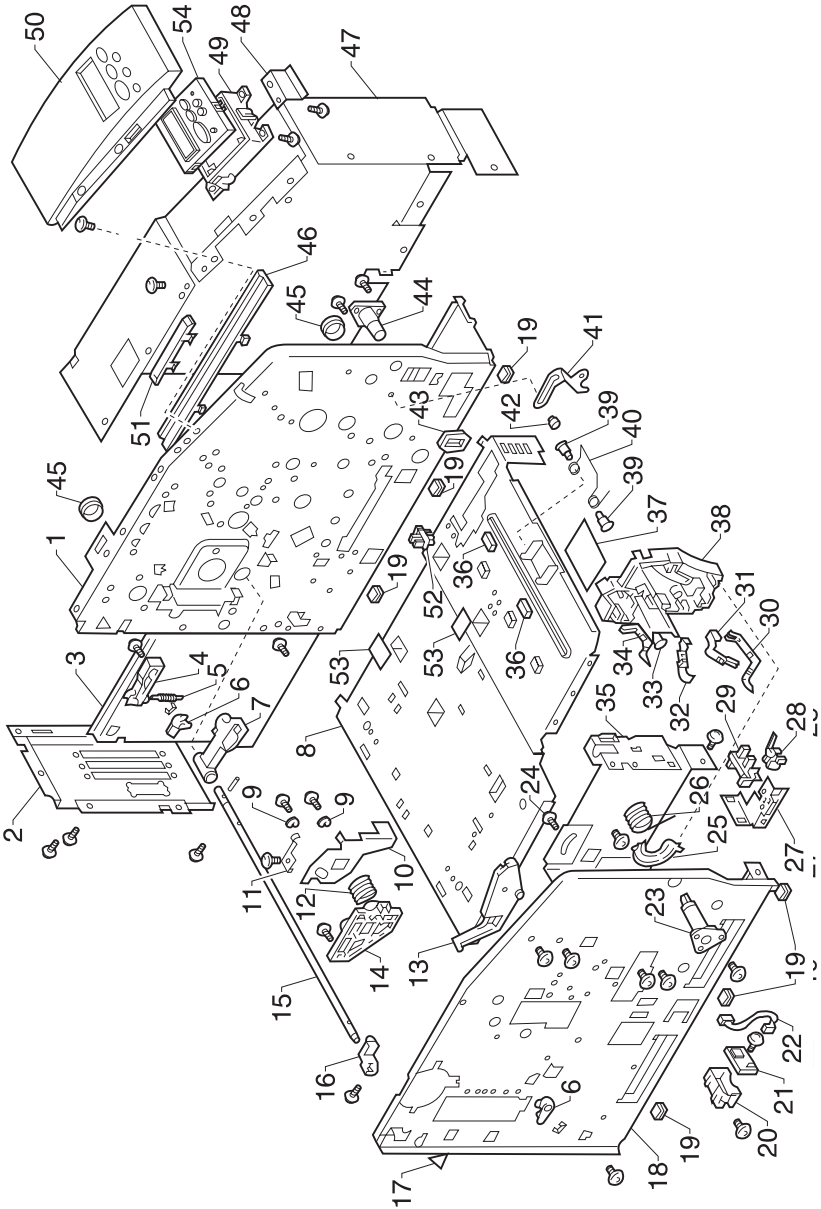
Ref	Part Number	Units	Description
1-38	12C0079	2	Stud
39	12C0080	1	Tray
40	12C0081	1	Lid
41	12C0082	1	Torsion Spring
42	12C0083	1	Right Cover
43	12C0084	1	Front Cover
44	12C0085	1	Top Cover
45	12C0086	2	Holder, Roll
46	12C0087	1	Label, T/C Setting
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 2: Frames 1



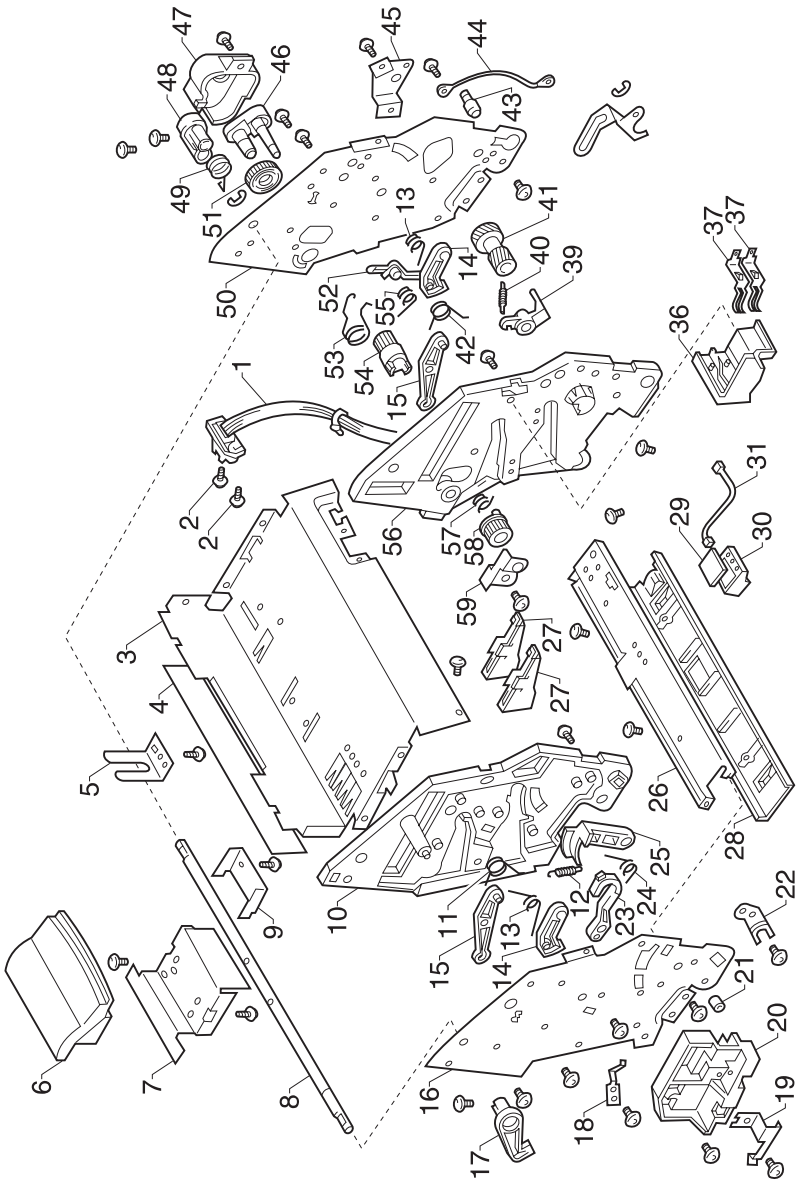
Ref	Part Number	Units	Description
2-1		NP	Right Frame
2	12C0089	1	Bracket
3	12C0090	1	Bracket
4	12C0091	1	Lever
5	12C0092	1	Tension Spring
6	12C0093	2	Bushing
7	12C0094	1	Lock Lever, Rack
8		NP	Base Frame
9	12C0096	6	Washer
10	12C0097	1	Lever
11	12C0098	1	Plate Spring
12	12C0099	1	Torsion Spring
13	12C0100	1	Guide
14	12C0101	1	Holder
15	12C0102	1	Shaft
16	12C0103	1	Lock Release Lever
17	12C0104	1	Label
18		1	Left Frame
19	12C0106	1	Rubber Foot
20	12C0108	1	Holder
21	12C0006	1	Board (HS1)
22	12C0109	1	Harness
23	12C0110	1	Bushing
24	12C0111	1	Shoulder Screw
25	12C0112	1	Cover
26	12C0113	1	Torsion Spring
27	12C0114	1	Bracket
28	12C0036	1	Switch
29	12C0041	1	Photo Interrupter
30	12C0115	1	Terminal
31	12C0116	1	Terminal
32	12C0117	1	Terminal
33	12C0118	1	Torsion Spring
34	12C0119	1	Terminal
35	12C0806	1	Cover
36	12C0807	2	Sheet
37	12C0808	1	Polyester Film

Assembly 2: Frames 1 (Cont)



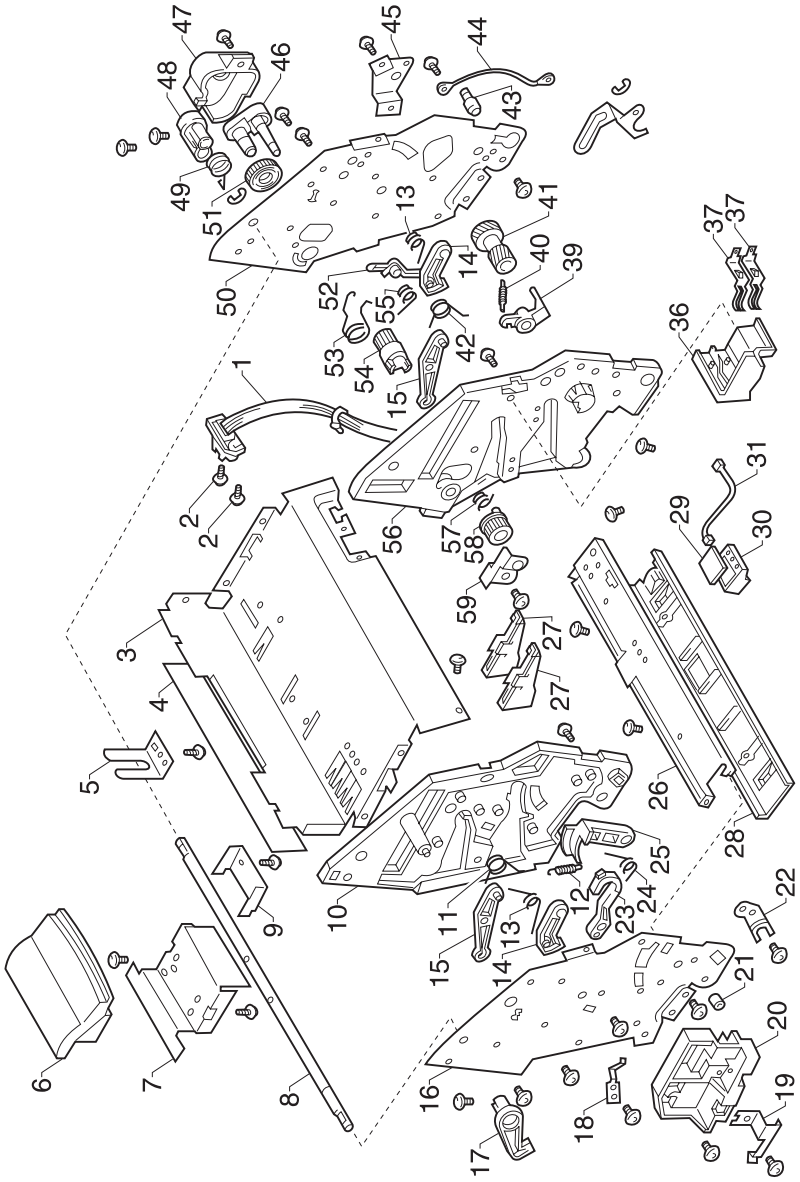
Ref	Part Number	Units	Description
2-38	12C0809	1	Holder
39	12C0810	2	Shoulder Screw
40	12C0811	1	Torsion Spring
41	12C0812	1	Lever
42	12C0813	1	Axle
43	12C0814	1	Edge Cover
44	12C0120	1	Axle
45	12C0121	2	Edge Cover
46	12C0122	2	Guide Rail
47	12C0123	1	Shield Plate
48	12C0124	1	Bracket
49	12C0125	1	Panel Cover, Lower
50	12C0126	1	Panel Cover
51	12C0127	1	Mount
52	12C0042	1	Photo Interrupter, (PC2)
53	12C0128	2	Polyester Film
54	99A0001	1	Operator Panel
55	12C0804	1	Labels, Operator Panel
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 3: Frames 2



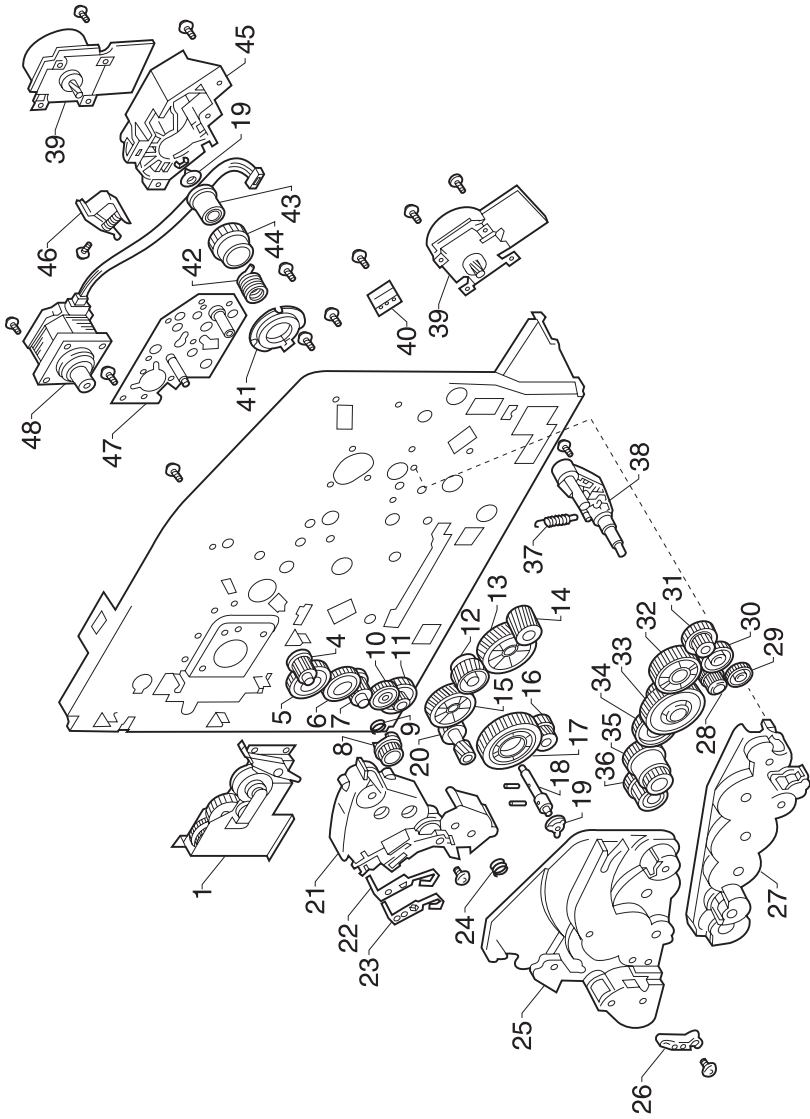
Ref	Part Number	Units	Description
3-1	12C0129	1	Harness
2	12C0130	2	Shoulder Screw
3	12C0131	1	Reinforce Plate
4	12C0132	1	Label D/C Setting
5	12C0133	1	Ground Plate
6	12C0134	1	Lever
7	12C0135	1	Bracket
8	12C0136	1	Shaft
9	12C0137	1	Stopper
10	12C0138	1	Holder, Left
11	12C0139	1	Torsion Spring
12	12C0140	1	Torsion Spring
13	12C0141	2	Torsion Spring
14	12C0142	2	Lever
15	12C0143	2	Lever
16	12C0144	1	Left Frame
17	12C0145	1	Lock Lever
18	12C0146	1	Ground Plate
19	12C0147	1	Plate Spring
20	12C0148	1	Holder
21	12C0149	1	Axle
22	12C0150	1	Bracket
23	12C0151	1	Lever
24	12C0152	1	Torsion Spring
25	12C0153	1	Lever
26	12C0154	1	Reinforce Plate
27	12C0155	2	Guide
28	12C0156	1	Cover
29	12C0157	1	PW Board D, (PWB-D2)
30	12C0158	1	Holder
31	12C0159	1	Harness
36	12C0164	1	Holder
37	12C0165	2	Terminal

Assembly 3: Frames 2, (Cont)



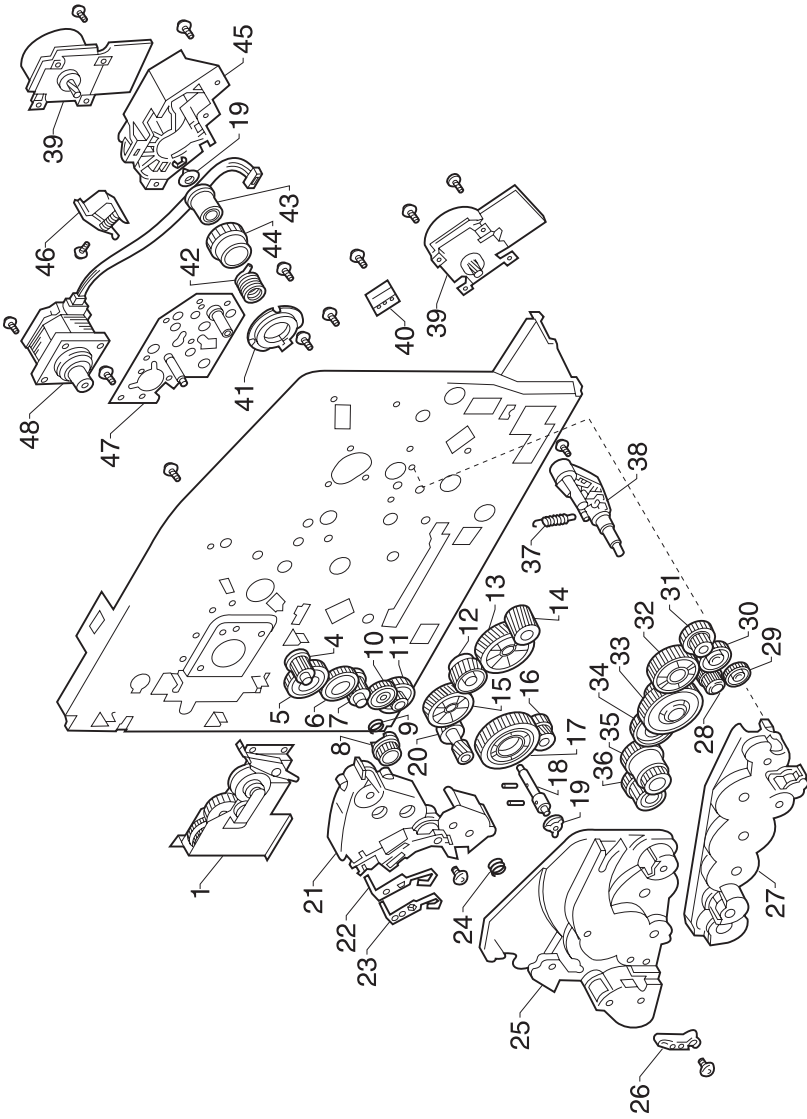
Ref	Part Number	Units	Description
3-39	12C0167	1	Lever
40	12C0168	1	Tension Spring
41	12C0169	1	Gear 20/30T
42	12C0170	1	Torsion Spring
43	12C0171	1	Axle
44	12C0172	1	Harness
45	12C0173	1	Bracket
46	12C0174	1	Arm
47	12C0175	1	Cover
48	12C0176	1	Lock Lever
49	12C0177	1	Torsion Spring
50	12C0178	1	Right Frame
51	12C0179	1	Gear 39T
52	12C0180	1	Lever
53	12C0181	1	Torsion Spring
54	12C0182	1	Gear 20T
55	12C0183	1	Torsion Spring
56	12C0184	1	Holder
57	12C0185	1	Torsion Spring
58	12C0186	1	Gear 28T
59	12C0187	1	Plate
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 4: Drive



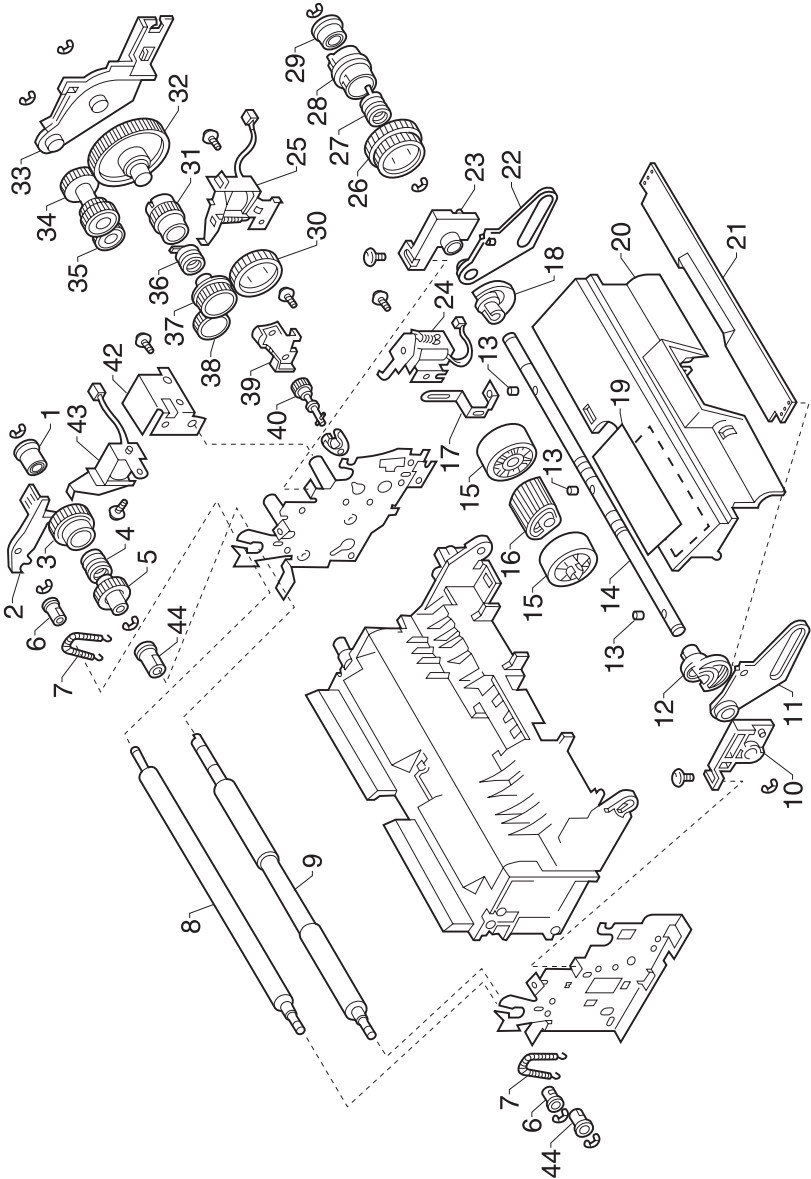
Ref	Part Number	Units	Description
4-1	12C0821	1	Back Check Pawl Assembly
4	12C0191	1	Gear 25T
5	12C0192	1	Gear 49T
6	12C0193	1	Gear 45T
7	12C0194	1	Gear 30T
8	12C0195	1	Gear 24T
9	12C0196	1	Torsion Spring
10	12C0197	1	Gear 39T
11	12C0198	1	Gear 23/78T
12	12C0199	1	Gear 40T
13	12C0200	1	Gear 80T
14	12C0201	1	Gear 30T
15	12C0202	1	Gear 60T
16	12C0203	1	Gear 26/56T
17	12C0204	1	Gear 78T
18	12C0205	1	Shaft
19	12C0206	2	Bushing
20	12C0207	1	Gear 20/30T
21	12C0208	1	Cover
22	12C0209	1	Terminal
23	12C0210	1	Terminal
24	12C0211	1	Torsion Spring
25	12C0212	1	Cover
26	12C0213	1	Lever
27	12C0214	1	Cover
28	12C0215	1	Gear 24/36T
29	12C0216	1	Gear 29T
30	12C0217	1	Gear 43T
31	12C0218	1	Gear 24/63T
32	12C0219	1	Gear 70T
33	12C0220	1	Gear 45/80T
34	12C0221	1	Gear 61T
35	12C0222	1	Gear 30/48T
36	12C0223	1	Gear 40/48T
37	12C0224	1	Tension Spring

Assembly 4: Drive (Cont)



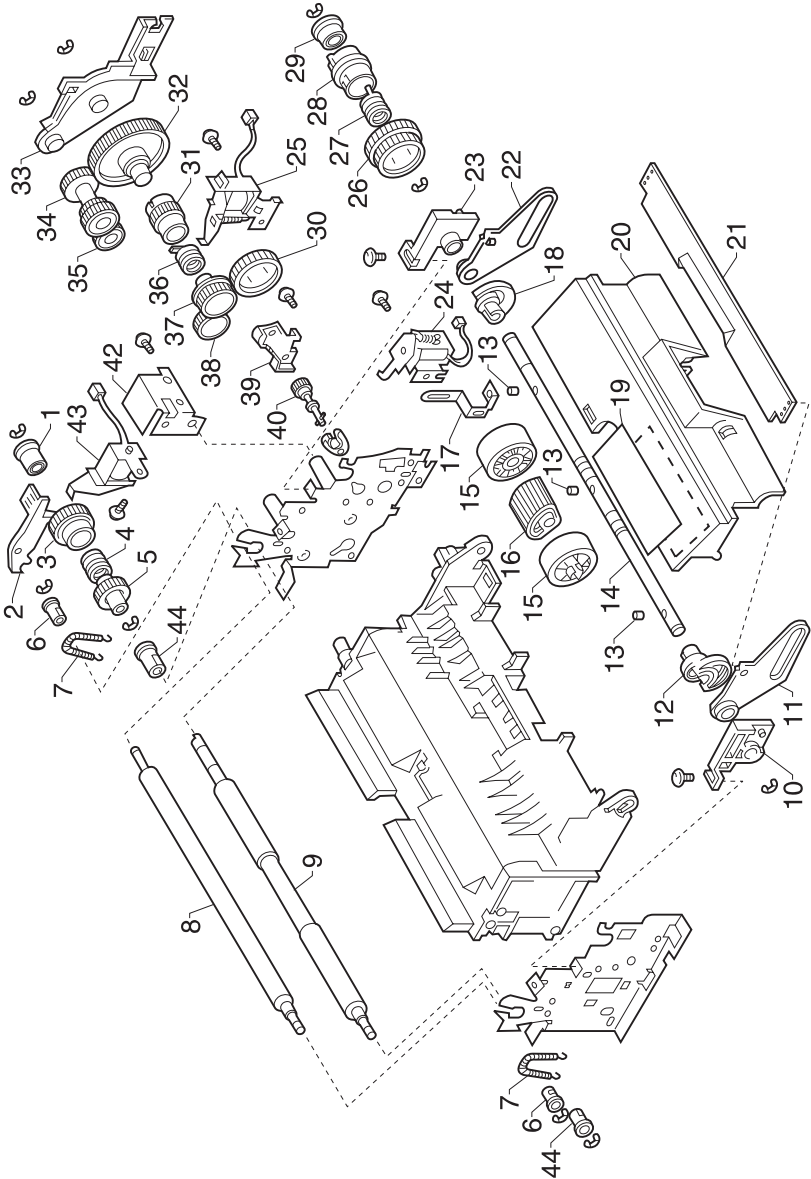
Ref	Part Number	Units	Description
4-38	12C0225	1	Lever
39	12C0020	2	Motor, (M1/M2), Developer, Transport
40	12C0226	1	Ground Plate
41	12C0227	1	Bushing
42	12C0228	1	Clutch Spring
43	12C0229	1	Flange
44	12C0230	1	Holder
45	12C0231	1	Cover
46	12C0033	1	Solenoid, (SL1), PC Drum/Image Transfer Belt Drive
47	12C0232	1	Reinforce Plate
48	12C0023	1	Motor, (M3), Rack
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 5: Paper Take-Up 1



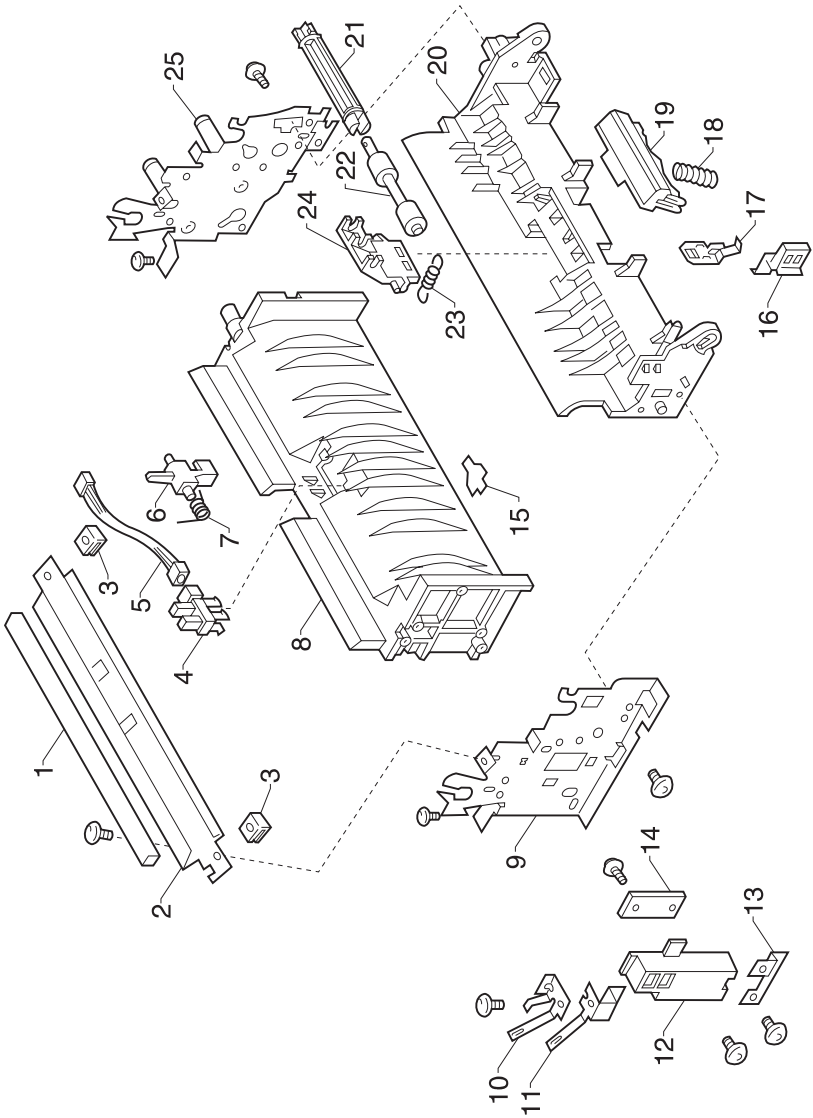
Ref	Part Number	Units	Description
5-1	12C0233	1	Arbor
2	12C0234	1	Lever
3	12C0235	1	Holder
4	12C0236	1	Clutch Spring
5	12C0237	1	Gear 28T
6	12C0238	2	Bushing
7	12C0239	2	Tension Spring
8	12C0240	1	Roller, Upper, Timing
9	12C0241	1	Roller, Lower, Timing
10	12C0242	1	Bushing
11	12C0243	1	Lever, Left
12	12C0244	1	Cam, Left
13	12C0245	3	Pin
14	12C0246	1	Shaft
15	12C0247	2	Roll
16	12C0025	1	Roller, Take-up, Bin 1
17	12C0248	1	Ground Plate
18	12C0249	1	Cam, Right
19	12C0250	1	Label Jam Removal
20	12C0251	1	Guide
21	12C0252	1	Cover
22	12C0253	1	Lever, Right
23	12C0254	1	Bushing
24	12C0035	1	Solenoid, (SL3), Paper Take-up 1
25	12C0030	1	Solenoid, (SL4), Transport
26	12C0255	1	Gear 48/69T
27	12C0256	1	Clutch Spring
28	12C0257	1	Holder
29	12C0258	1	Arbor
30	12C0259	1	Gear 49T
31	12C0260	1	Holder
32	12C0261	1	Gear 72T
33	12C0262	1	Cover
34	12C0263	1	Gear 25/30T
35	12C0264	1	Gear 24/32T
36	12C0265	1	Clutch Spring
37	12C0266	1	Gear 30T

Assembly 5: Paper Take-Up 1, (Cont)



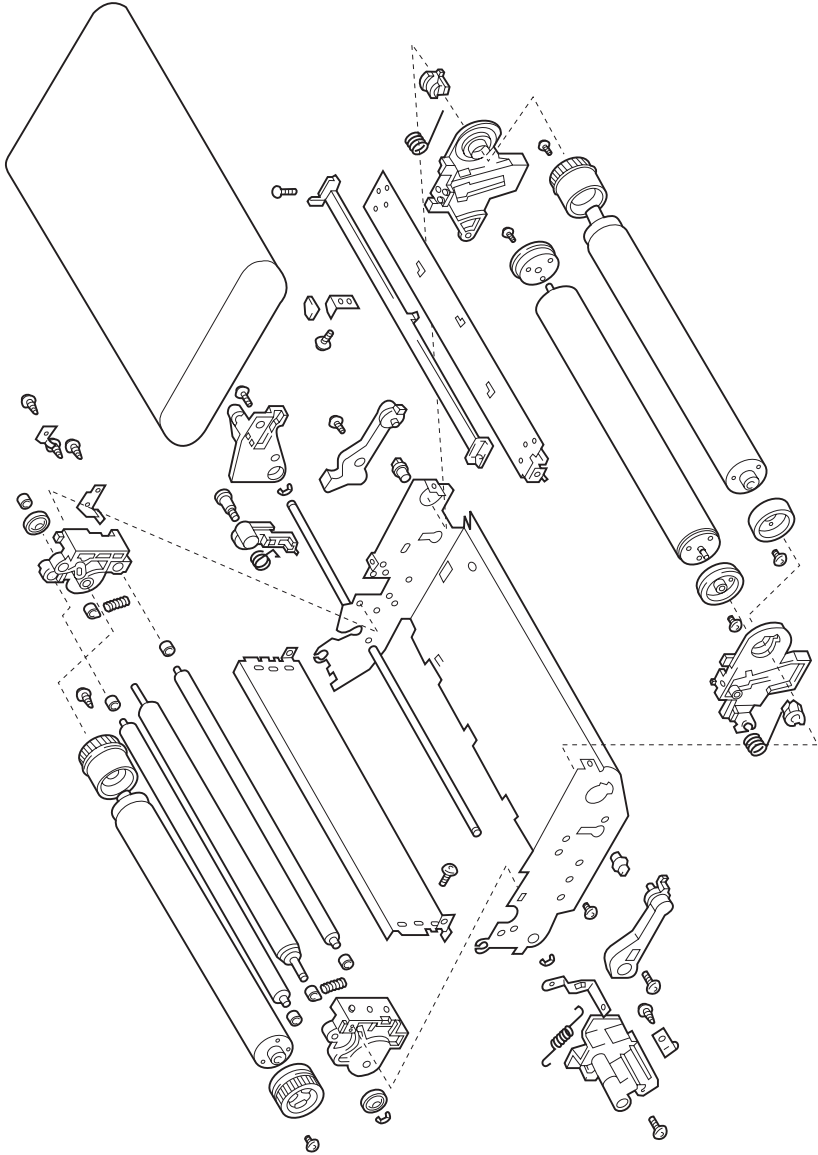
Ref	Part Number	Units	Description
5-38	12C0267	1	Gear 29T
39	12C0268	1	Bushing
40	12C0269	1	Gear 23T
41	12C0270	1	Bushing
42	12C0271	1	Bracket, Solenoid
43	12C0031	1	Solenoid, (SL2), Synchronizing
44	12C0272	2	Bushing
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 6: Paper Take-Up 2



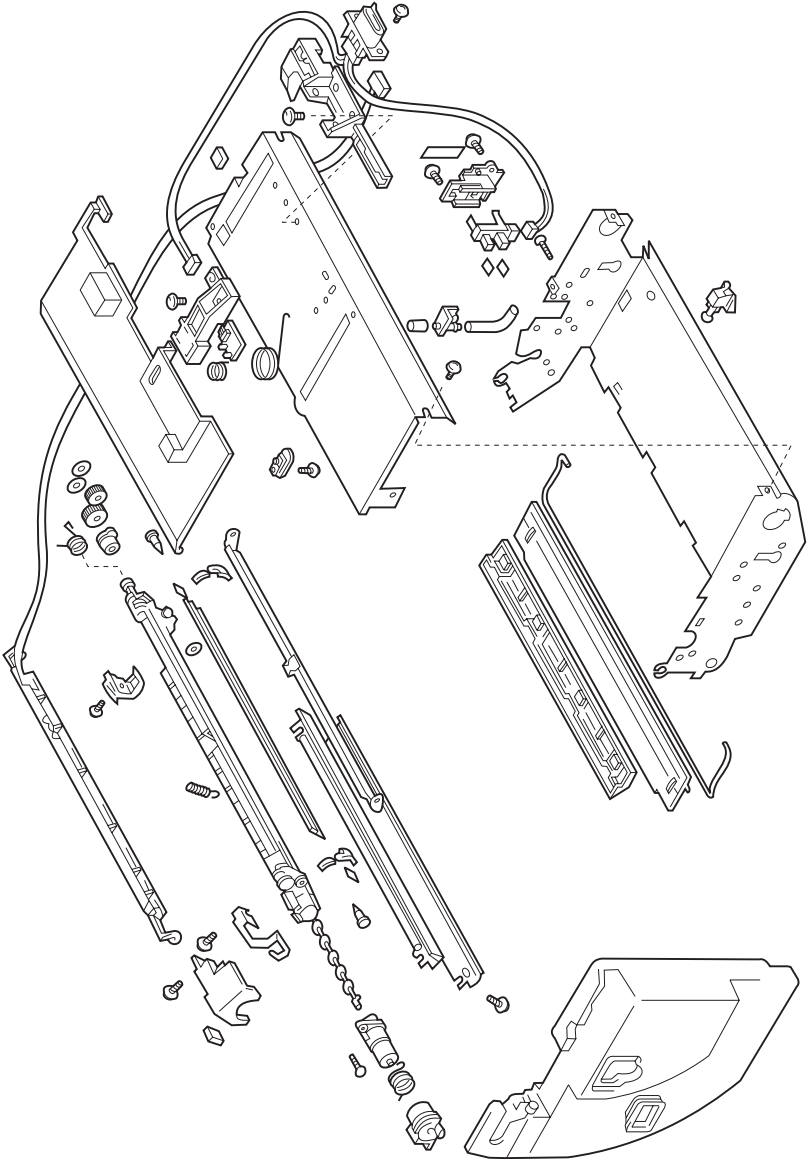
Ref	Part Number	Units	Description
6-1	12C0273	1	Sponge, Cleaner
2	12C0274	1	Guide
3	12C0275	2	Spacer
4	12C0042	1	Photo Interrupter, (PC1), Paper Synchronizing
5	12C0276	1	Harness
6	12C0277	1	Actuator
7	12C0278	1	Torsion Spring
8	12C0279	1	Guide
9	12C0280	1	Left Frame
10	12C0281	1	Terminal
11	12C0282	1	Terminal
12	12C0283	1	Holder, PWB-R
13	12C0284	1	Ground Plate
14	12C0005	1	PW Board, (PWB-R1), Register Board
15	12C0285	1	Stopper
16	12C0286	1	Stopper
17	12C0287	1	Ground Plate
18	12C0288	1	Pressure Spring
19	12C0016	1	Separator
20	12C0289	1	Guide
21	12C0290	1	Joint
22	12C0291	1	Roller
23	12C0292	1	Tension Spring
24	12C0293	1	Lever
25	12C0294	1	Right Frame
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 7: Image Transfer Belt



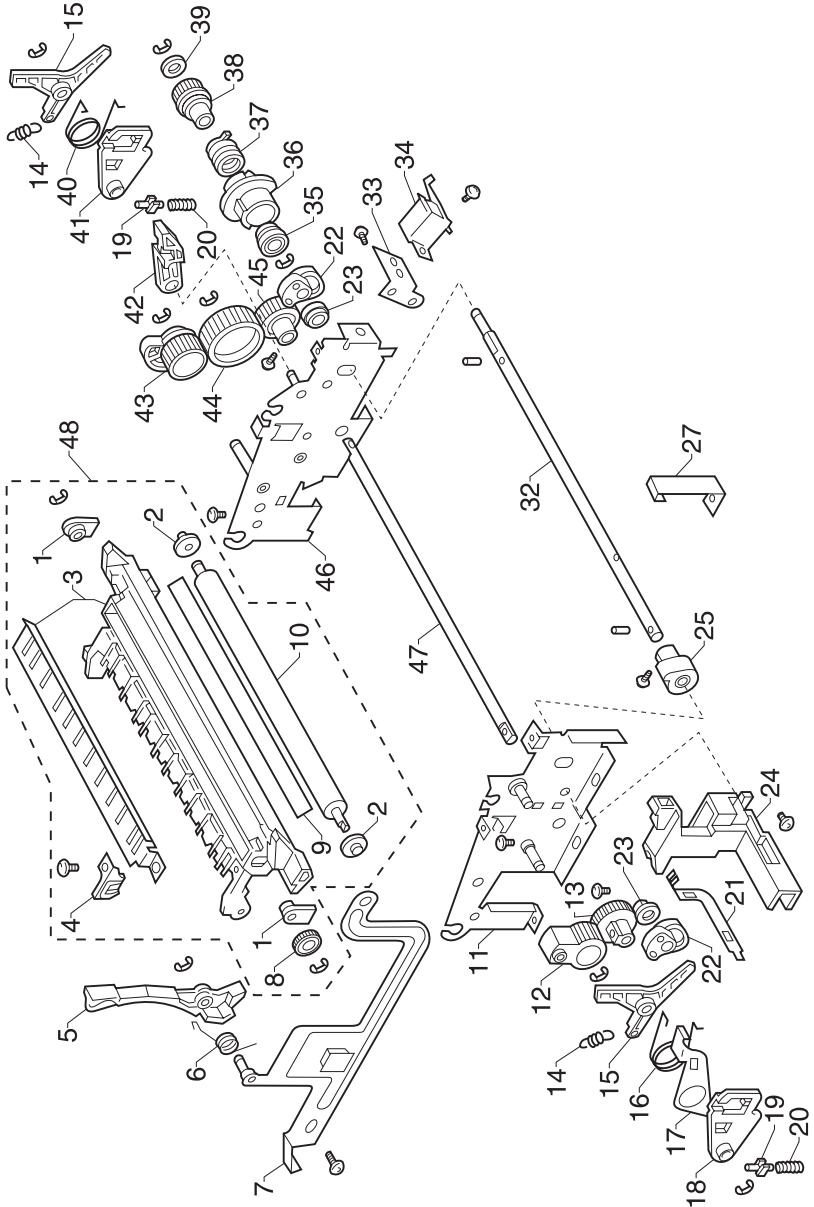
Ref	Part Number	Units	Description
7-1	12C0013	1	Image Transfer Belt Assembly
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 8: Image Transfer Belt



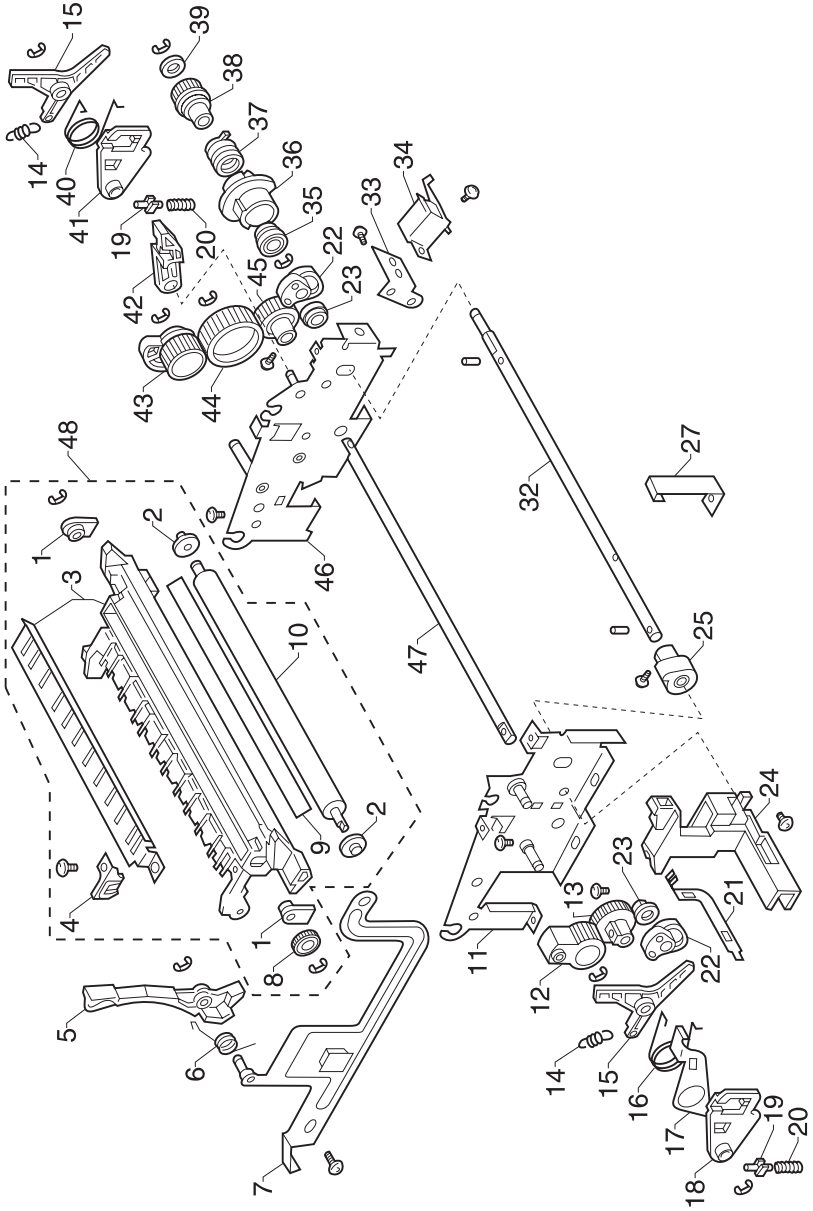
Ref	Part Number	Units	Description
8-1		1	Cleaner, Part of Image Transfer Belt
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 9: Transfer Roller



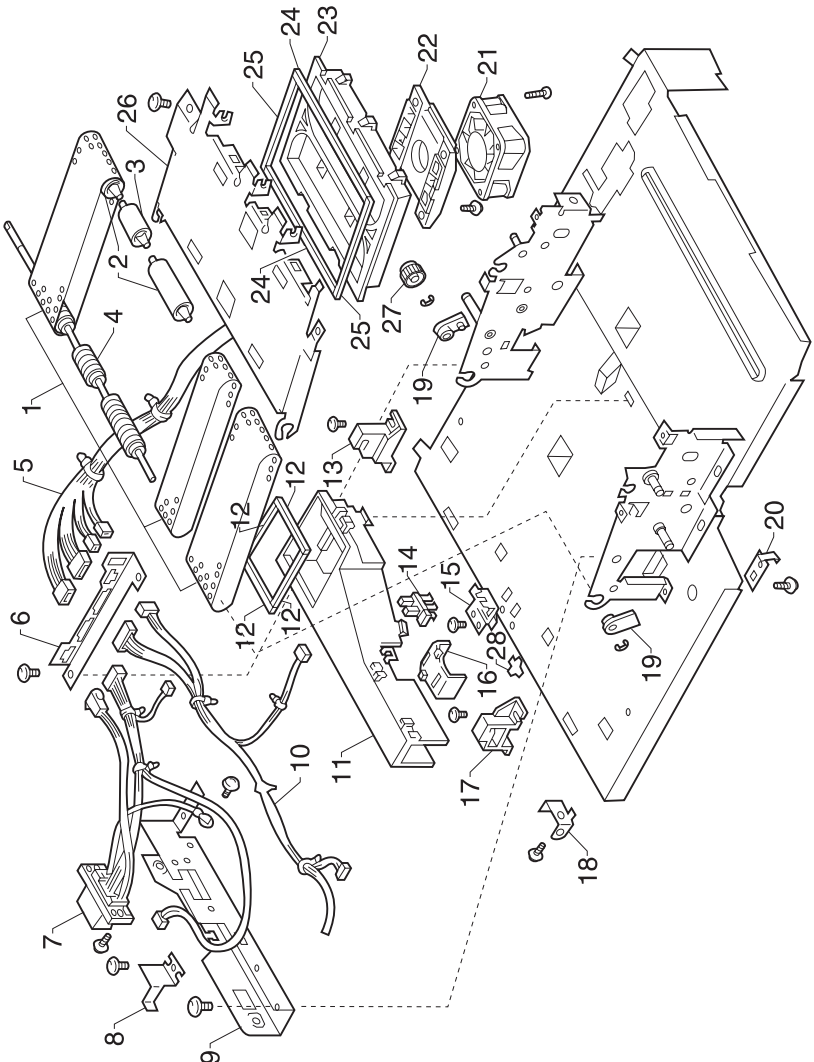
Ref	Part Number	Units	Description
9-1	12C0385	2	Bushing
2	12C0386	2	Ring
3	12C0387	1	Holder
4	12C0388	1	Terminal
5	12C0389	1	Lever
6	12C0390	1	Torsion Spring
7	12C0391	1	Plate
8	12C0392	1	Gear 16T
9	12C0393	1	Sheet
10	12C0012	1	Transfer Roller-2nd
11	12C0394	1	Left Frame
12	12C0395	1	Gear 16T
13	12C0396	1	Gear 16T
14	12C0397	2	Tension Spring
15	12C0398	2	Lever
16	12C0399	1	Torsion Spring
17	12C0400	1	Lever
18	12C0401	1	Holder
19	12C0402	2	Slider
20	12C0403	2	Pressure Spring
21	12C0404	1	Terminal
22	12C0405	2	Cam
23	12C0406	2	Bushing
24	12C0407	1	Holder
25	12C0408	1	Cam
27	12C0410	1	Brake
32	12C0415	1	Shaft
33	12C0416	1	Bracket
34	12C0032	1	Solenoid, (SL5)
35	12C0417	1	Arbor
36	12C0418	1	Holder
37	12C0419	1	Clutch Spring

Assembly 9: Transfer Roller (Cont)



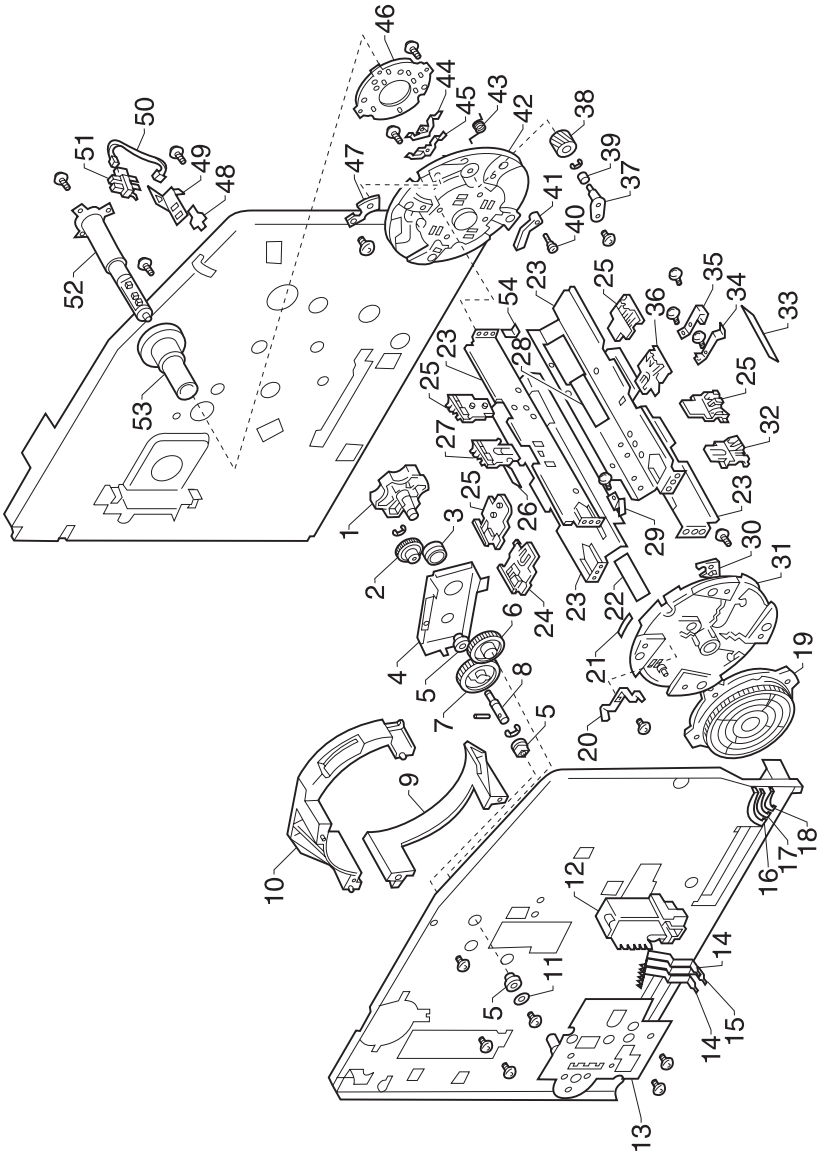
Ref	Part Number	Units	Description
9-38	12C0420	1	Gear 26T
39	12C0421	1	Washer
40	12C0422	1	Torsion Spring
41	12C0423	1	Holder
42	12C0424	1	Lever
43	12C0425	1	Cam Gear 16T
44	12C0426	1	Gear 28T
45	12C0427	1	Gear 16T
46	12C0428	1	Right Frame
47	12C0429	1	Shaft
48	12C0014	1	ImageTransfer Roll Assembly, Also Included in Fuser (Supply Item)
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 10: Paper Transport



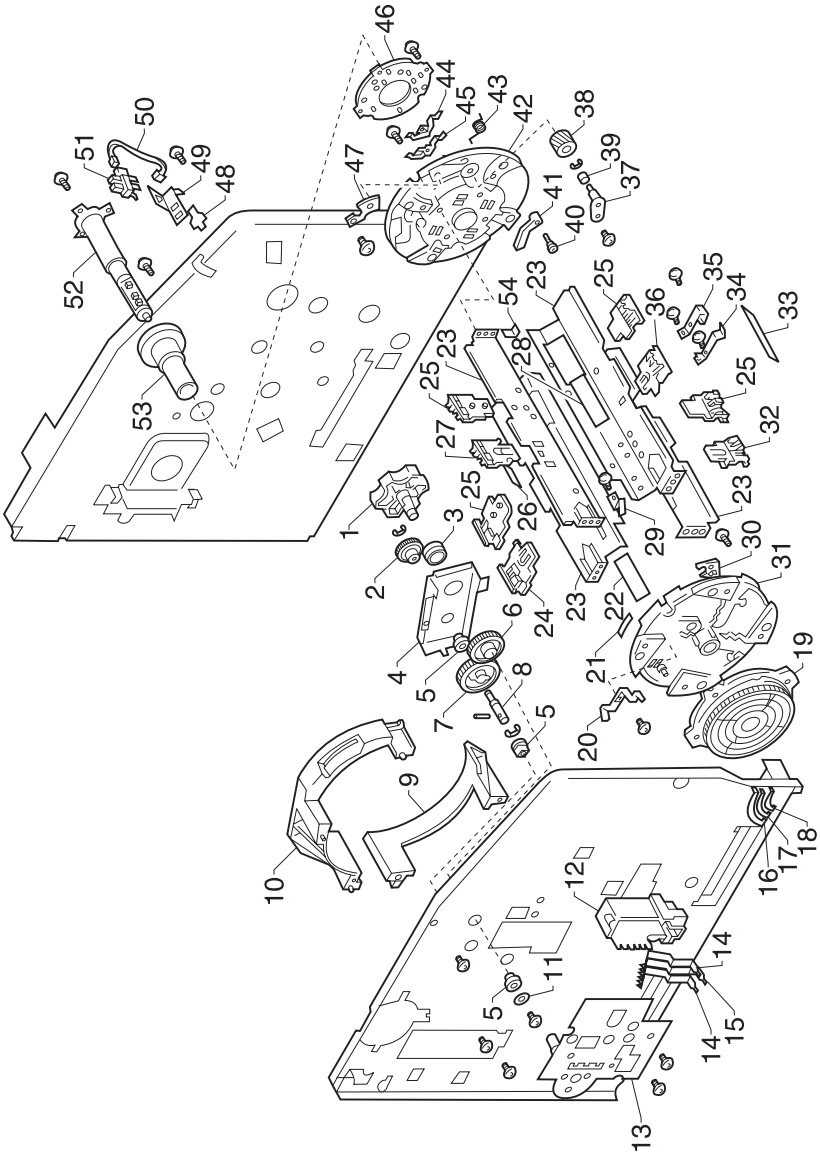
Ref	Part Number	Units	Description
10-1	12C0430	1	Transport Belts
2	12C0431	2	Roll
3	12C0432	1	Roll
4	12C0433	1	Roller
5	12C0434	1	Harness
6	12C0435	1	Bracket, Connector
7	12C0436	1	Harness
8	12C0437	1	Plate Spring
9	12C0438	1	Bracket
10	12C0439	1	Harness
11	12C0440	1	Duct
12	12C0441	4	Seal
13	12C0442	1	Guide, Right
14	12C0042	1	Photo Interrupter, (PC9)
15	12C0443	1	Auxiliary Plate
16	12C0444	1	Cover
17	12C0445	1	Guide, Left
18	12C0446	1	Support
19	12C0447	2	Bushing
20	12C0448	1	Ground Plate
21	12C0024	1	Fan Motor, (M7)
22	12C0499	1	Duct
23	12C0500	1	Duct
24	12C0501	2	Seal
25	12C0502	2	Seal
26	12C0503	1	Guide Plate
27	12C0504	1	Gear 18T
28	12C0072	1	Stopper
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover
NS	12C0830	1	Toner Shield, Left
NS	12C0831	1	Toner Shield, Right

Assembly 11: Rack



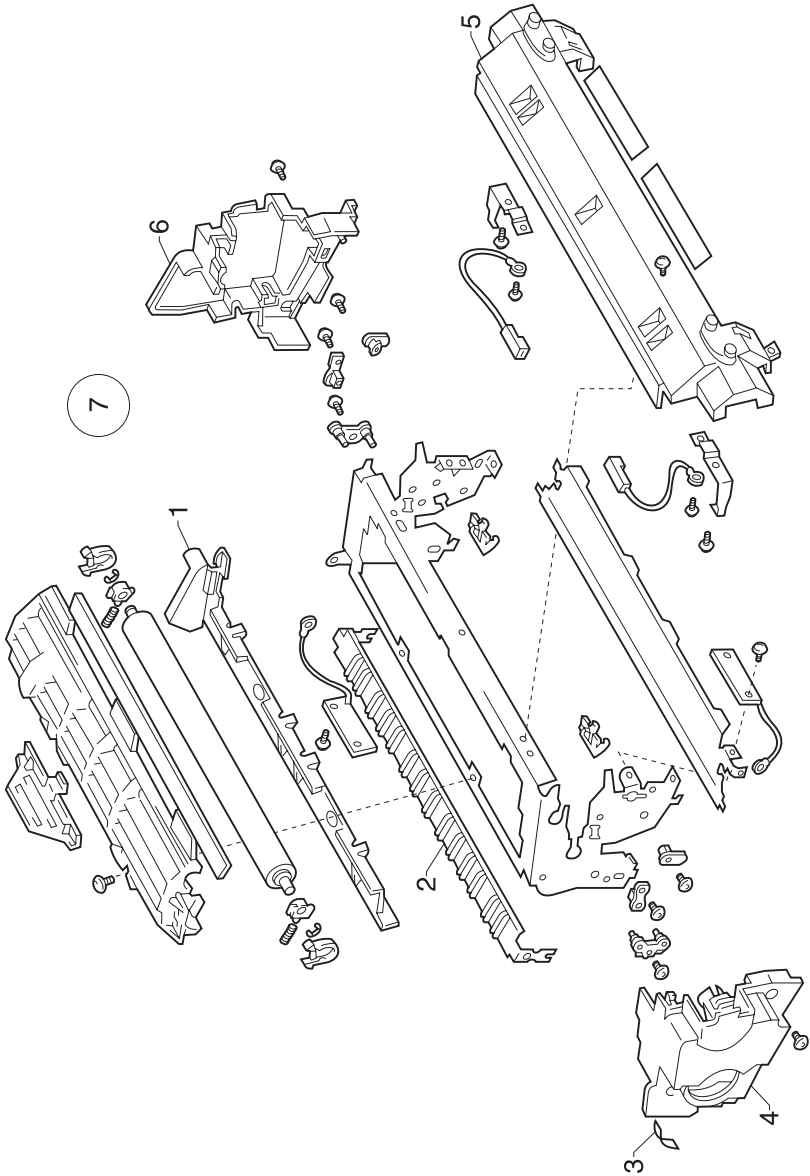
Ref	Part Number	Units	Description
11-1	12C0506	1	Knob
2	12C0507	1	Gear 24T
3	12C0508	1	Bushing
4	12C0509	1	Reinforce Plate
5	12C0510	3	Bushing
6	12C0511	1	Gear 34T
7	12C0512	1	Gear 42T
8	12C0513	1	Shaft
9	12C0514	1	Guide
10	12C0515	1	Guide
11	12C0516	1	Washer
12	12C0517	1	Holder
13	12C0518	1	Axle Plate
14	12C0519	2	Terminal
15	12C0520	1	Terminal
16	12C0521	4	Terminal
17	12C0522	4	Terminal
18	12C0523	4	Terminal
19	12C0524	1	Guide, Left
20	12C0525	12	Terminal
21	12C0526	4	Label
22	12C0527	1	Label Magenta
23	12C0528	4	Plate
24	12C0529	1	Cartridge Key, Magenta
25	12C0530	4	Guide, Cartridge
26	12C0531	1	Label Cyan
27	12C0532	1	Cartridge Key, Cyan
28	12C0533	1	Label Black
29	12C0534	1	Ground Plate
30		NP	Adjusting Plate
31	12C0536	1	Frame
32	12C0537	1	Cartridge Key, Yellow
33	12C0538	1	Label Yellow
34	12C0539	4	Plate Spring
35	12C0540	4	Plate Spring
36	12C0541	1	Cartridge Key, Black
37	12C0542	4	Axle Plate

Assembly 11: Rack (Cont)



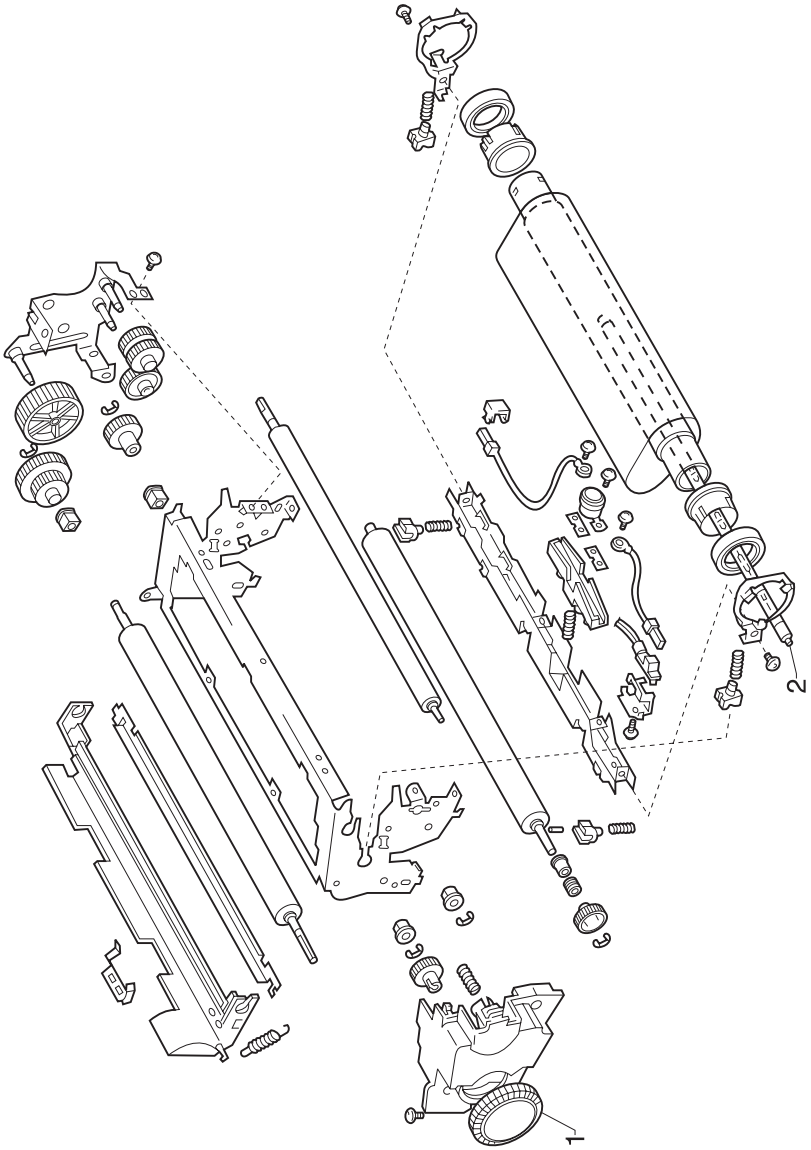
Ref	Part Number	Units	Description
11-38	12C0543	4	Gear 24T
39	12C0544	4	Roll
40	12C0545	4	Shoulder Screw
41	12C0546	4	Lever
42	12C0547	1	Frame
43	12C0548	4	Torsion Spring
44	12C0549	4	Terminal
45	12C0550	4	Terminal
46	12C0551	1	Guide, Right
47		NP	Adjusting Plate
48	12C0072	1	Stopper
49	12C0554	1	Bracket, Photo Interrupter
50	12C0555	2	Harness
51	12C0042	2	Photo Interrupter (PC4), Rack Home (PC4), and Backcheck Pawl
52	12C0008	1	PW Board-B, (PWB-B)
53	12C0556	1	Axle
54	12C0557	1	Polyester Film
NS	12C0820	1	Toner Cartridge Rack Assembly
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 12: Fuser 1



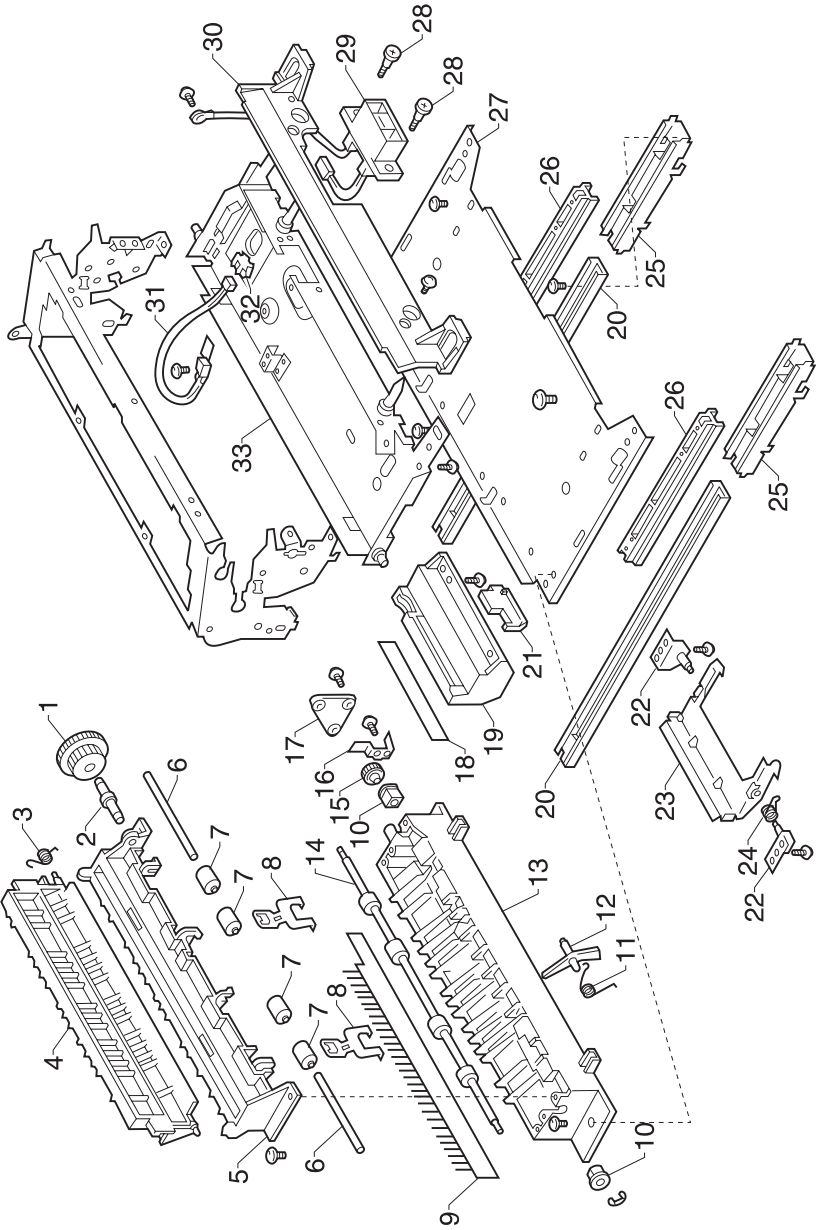
Ref	Part Number	Units	Description
12-1	12C0558	1	Cover, Upper
2	12C0560	1	Guide Plate
3	12C0563	1	Label
4	12C0564	1	Cover, Left
5	12C0572	1	Holder
6	12C0573	1	Cover, Right
7	12C0575	1	Fuser, 120 V, Includes Image Transfer Roll Assembly
7	12C0576	1	Fuser, 240 V, Includes Image Transfer Roll Assembly
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 13: Fuser 2



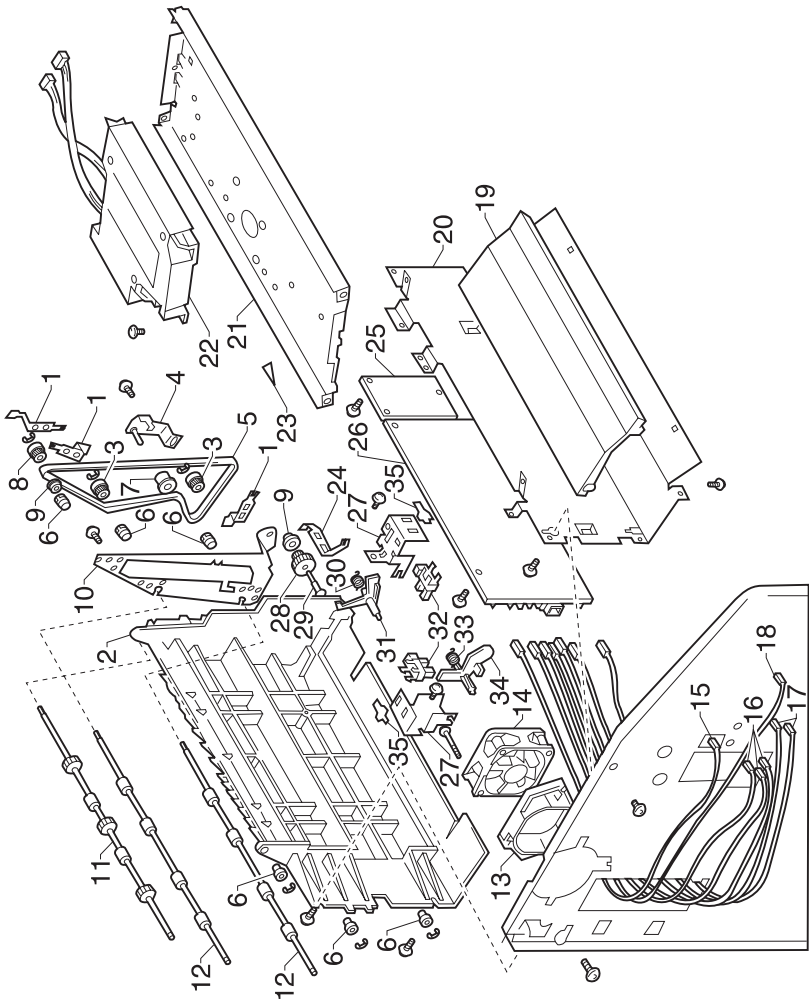
Ref	Part Number	Units	Description
13-1	12C0596	1	Knob
2	12C0610	1	Tube Lamp, (H1), 110 V
2	12C0611	1	Tube Lamp, (H1), 240 V
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 14: Fuser/Exit



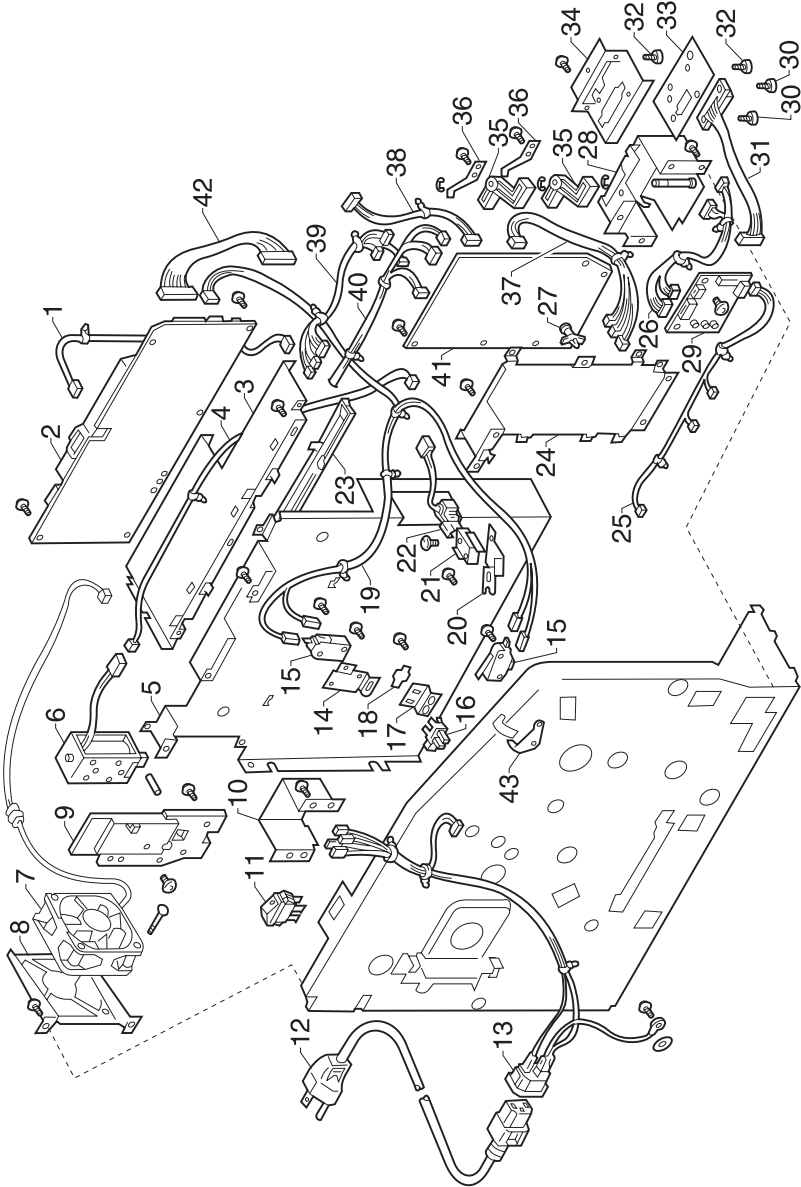
Ref	Part Number	Units	Description
14-1	12C0625	1	Gear 30/46T
2	12C0626	1	Shaft
3	12C0627	NP	Torsion Spring
4	12C0628	NP	Guide
5	12C0629	NP	Guide
6	12C0630	NP	Shaft
7	12C0631	NP	Roll
8	12C0632	NP	Holder, Roll
9	12C0633	NP	Neutralizing Brush
10	12C0634	NP	Bushing
11	12C0635	NP	Torsion Spring
12	12C0636	NP	Actuator
13	12C0637	NP	Guide
14	12C0638	NP	Roller
15	12C0639	NP	Gear 15T
16	12C0640	NP	Ground Plate
17	12C0641	NP	Bracket
18	12C0642	NP	Label
19	12C0643	NP	Lever
20	12C0644	2	Rail
21	12C0645	1	Knob
22	12C0646	2	Axle Plate
23	12C0647	1	Lock Plate
24	12C0648	1	Torsion Spring
25	12C0649	2	Rail
26	12C0650	2	Rail
27	12C0651	1	Bracket
28	12C0652	2	Shoulder Screw
29	12C0653	1	Harness
30	12C0654	1	Cover, Front
31	12C0655	1	Thermistor, (TH2)
32	12C0656	1	Holder, Connector
33	12C0657	1	Frame
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 15: Exit



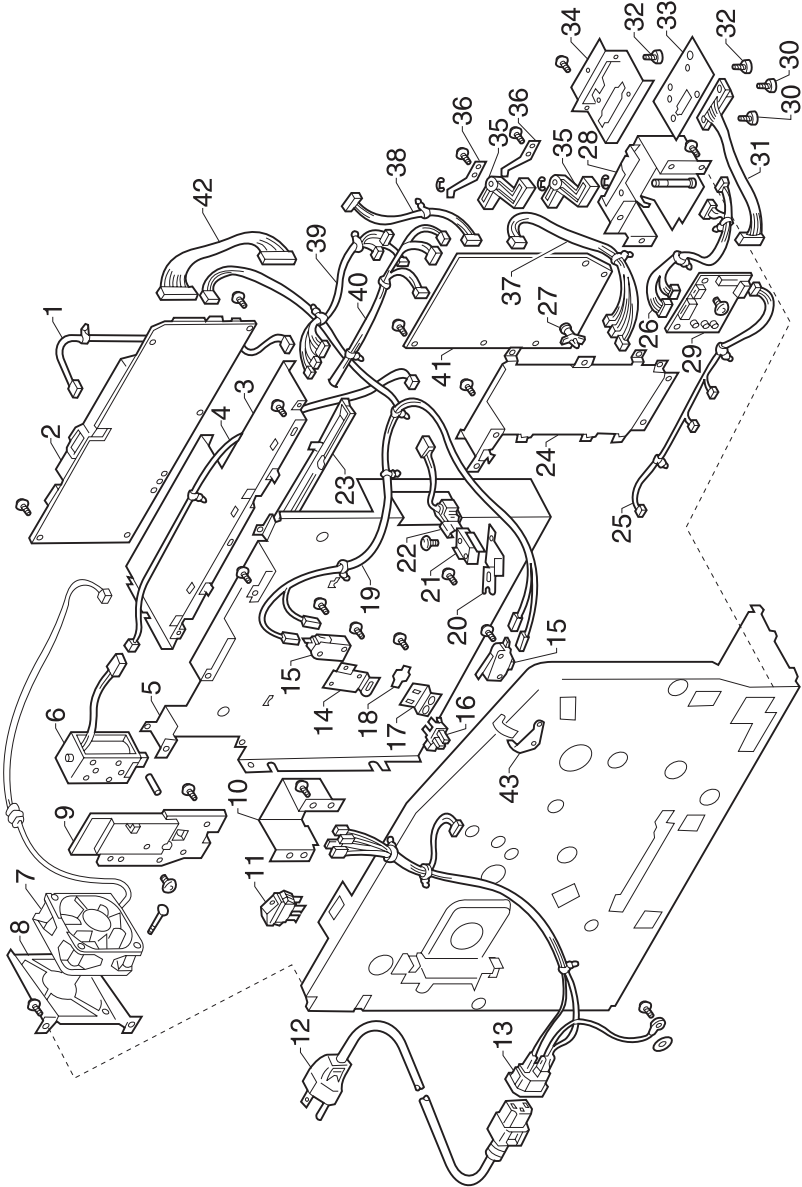
Ref	Part Number	Units	Description
15-1	12C0658	3	Ground Plate
2	12C0659	1	Guide
3	12C0660	2	Pulley 16T
4	12C0661	1	Axle Plate, Pulley
5	12C0662	1	Timing Belt
6	12C0663	6	Bushing
7	12C0664	1	Pulley
8	12C0665	1	Pulley
9	12C0666	2	Stopper
10	12C0667	1	Frame
11	12C0668	1	Roller
12	12C0669	2	Roller
13	12C0670	1	Duct
14	12C0022	1	Fan Motor, (M5)
15	12C0671	1	Harness
16	12C0672	3	Harness
17	12C0673	2	Harness
18	12C0674	1	Harness
19	12C0675	1	Duct
20	12C0676	1	Bracket, PWB-HV
21	12C0677	1	Bracket, P/H
22	12C0011	1	Printhead Assembly
23	12C0104	1	Label
24	12C0679	1	Ground Plate
25	12C0004	1	PW Board-F, (PWB-F)
26	12C0007	1	PWB-HV
27	12C0680	2	Bracket, Photo Interrupter
28	12C0681	1	Gear 16/23t
29	12C0682	1	Shaft
30	12C0683	1	Torsion Spring
31	12C0684	1	Actuator
32	12C0042	2	Photo Interrupter, (PC3/8)
33	12C0685	1	Torsion Spring
34	12C0686	1	Actuator
35	12C0072	2	Stopper

Assembly 16: Electrical Parts



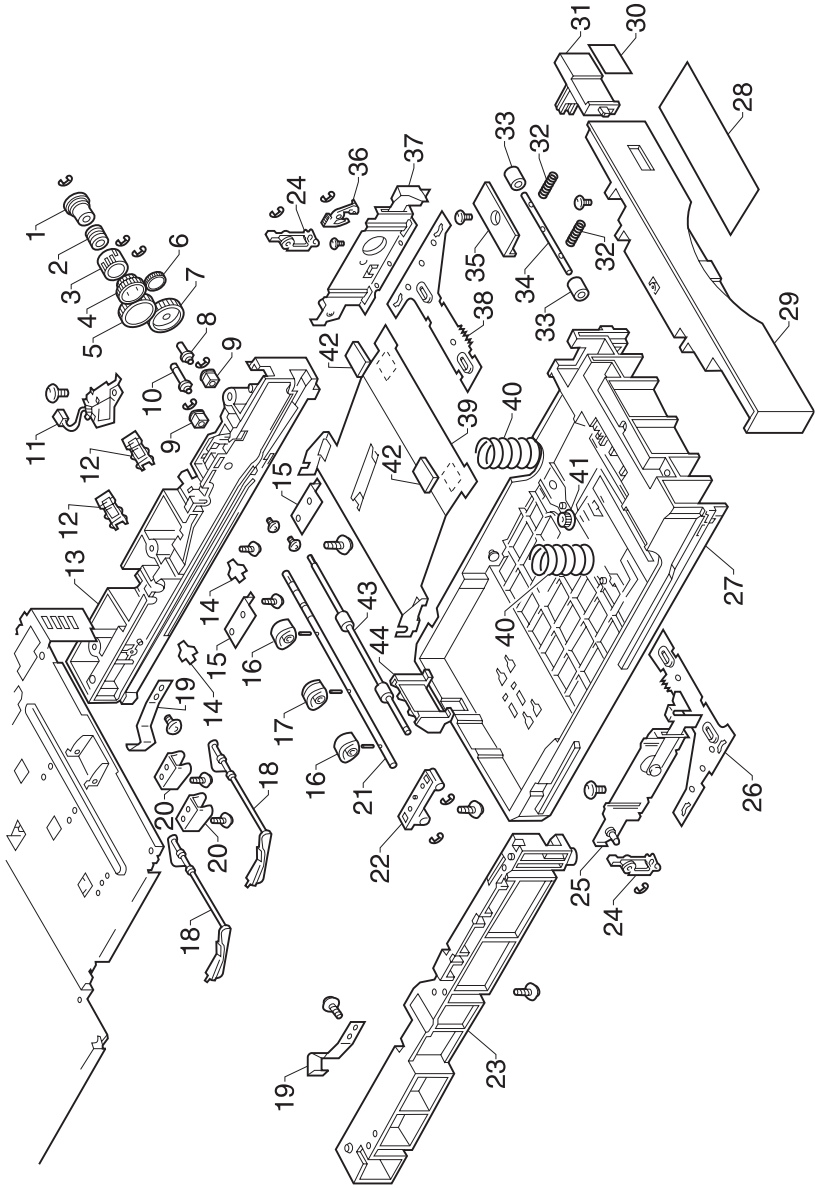
Ref	Part Number	Units	Description
16-1	12C0688	1	Harness
2	12C0009	1	PWB-PU, (PU1), 120 V
2	12C0010	1	PWB-PU, (PU1), 240 V
3	12C0689	1	Bracket
4	12C0690	1	Harness
5	12C0691	1	Bracket, PWB-PU
6	12C0034	1	Solenoid, (SL6)
7	12C0019	1	Motor, (M6)
8	12C0692	1	Bracket, Fan Motor
9	12C0693	1	Bracket, Solenoid
10	12C0694	1	Bracket
11	12C0037	1	Switch, (S1)
12	11D0328	1	Power Cord, U.S, Canada, APG (LV), LAD (LV)
12	11D0333	1	Power Cord, Denmark
12	11D0334	1	Power Cord, Europe, England
12	11D0334	1	Power Cord, France
12	11D0334	1	Power Cord, Germany
12	11D0335	1	Power Cord, Italy
12	11D0334	1	Power Cord, Spain
12	11D0336	1	Power Cord, Swiss/French
12	11D0336	1	Power Cord, Swiss/German
12	11D0336	1	Power Cord, Swiss/Italian
12	11D0337	1	Power Cord, U.K.
12	11D0338	1	Power Cord, Israel
12	11D0339	1	Power Cord, South Africa
12	11D0334	1	Power Cord, Belgium
12	11D0330	1	Power Cord, Argentina
12	11D0331	1	Power Cord, Brazil
12	11D0332	1	Power Cord, Chile
12	11D0329	1	Power Cord, Peru
13	12C0697	1	Harness
14	12C0698	1	Bracket, Microswitch
15	12C0038	2	Microswitch, (S2/3)
16	12C0042	1	Photo Interrupter, (PC12)
17	12C0699	1	Bracket, Photo Interrupter
18	12C0072	1	Stopper
19	12C0701	1	Harness

Assembly 16: Electrical Parts (Cont)



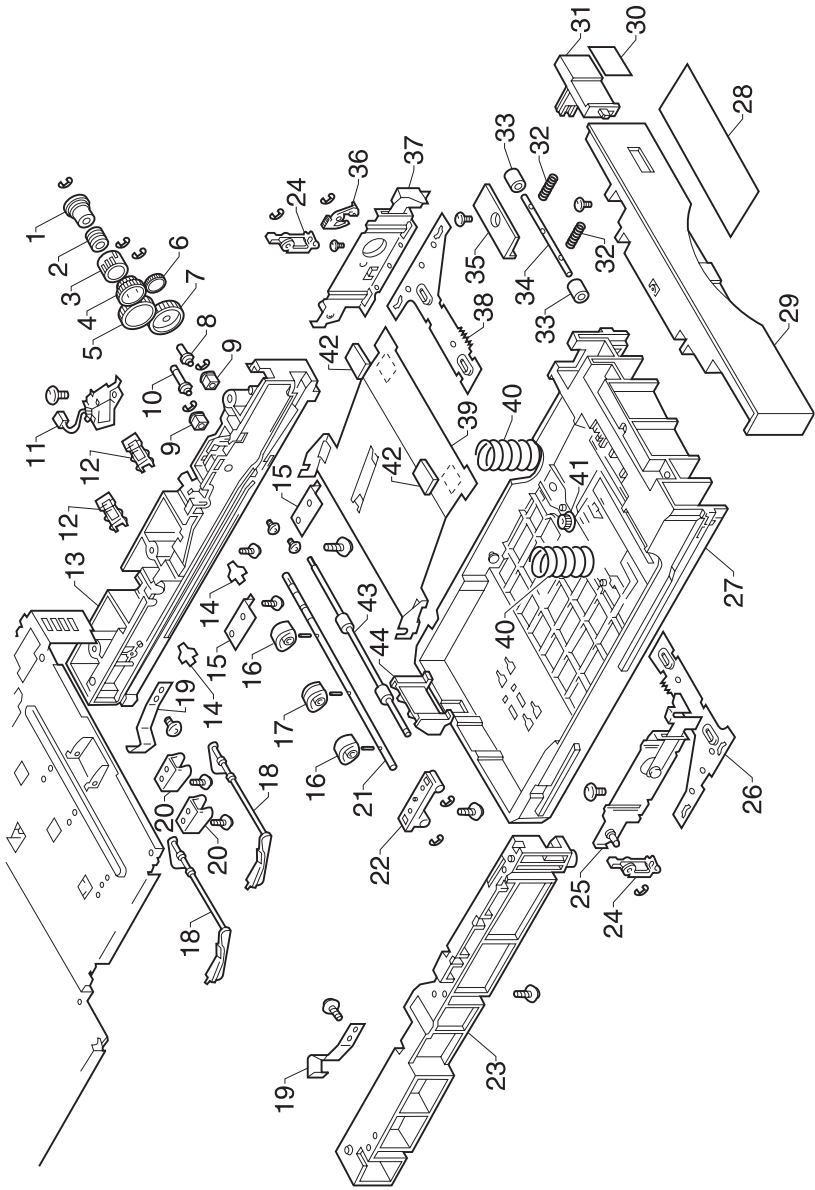
Ref	Part Number	Units	Description
16-20	12C0702	1	Bracket, Microswitch
21	12C0040	1	Microswitch, (S5)
22	12C0703	1	Harness
23	12C0122	2	Guide Rail
24	12C0705	1	Bracket
25	12C0706	1	Harness
26	12C0707	1	Harness
27	12C0708	1	PWB Support
28	12C0709	1	Bracket, PWB-E
29	12C0003	1	PW Board-E, (PWB-E1)
30	12C0710	2	Shoulder Screw
31	12C0711	1	Harness
32	12C0712	3	Shoulder Screw
33	12C0713	1	Bracket
34	12C0714	1	Bracket, Connector
35	12C0715	2	Lever
36	12C0716	1	Plate Spring
37	12C0717	1	Harness
38	12C0718	1	Harness
39	12C0719	1	Harness
40	12C0720	1	Harness
41	12C0002	1	Mechanical Controller Board, (PWB-A)
42	12C0721	1	Harness
43	12C0722	1	Bracket
NS	12C0825	1	Fuse 1 (F1), 100/125 V, 5 amp (PU1) LVPS
NS	12C0826	1	Fuse 1 (F1), 230/250 V, 2 amp (PU1) LVPS
NS	12C0827	1	Fuse 2 (F2), 100/125 V, 12 amp (PU1) LVPS
NS	12C0828	1	Fuse 2 (F2), 230/250 V, 6.3 amp (PU1) LVPS
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 17: Second Cassette (Tray 1)



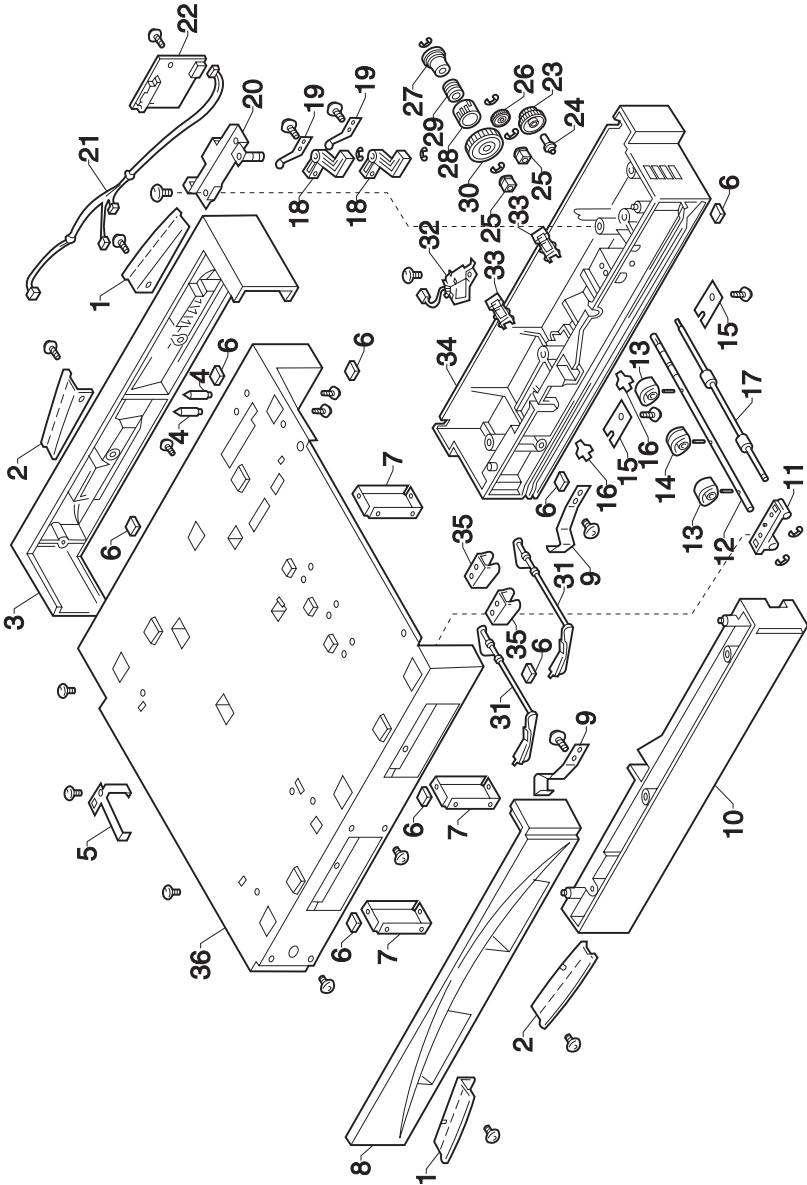
Ref	Part Number	Units	Description
17-1	12C0723	1	Arbor
2	12C0724	1	Clutch Spring
3	12C0725	1	Holder
4	12C0726	1	Gear 24/36T
5	12C0727	1	Gear 52T
6	12C0728	1	Gear 20T
7	12C0729	1	Gear 44T
8	12C0730	1	Axle
9	12C0731	2	Bushing
10	12C0732	1	Shaft
11	12C0028	1	Solenoid, (SL7)
12	12C0042	2	Photo Interrupter, (PC10/11)
13	12C0733	1	Support
14	12C0072	2	Stopper
15	12C0735	2	Cover
16	12C0026	2	Roller, Take-up
17	12C0027	1	Roller, Take-up
18	12C0736	2	Actuator
19	12C0737	2	Set Plate
20	12C0738	2	Guide
21	12C0739	1	Shaft
22	12C0740	1	Bushing
23	12C0741	1	Support
24	12C0742	2	Lock Lever
25	12C0743	1	Guide, Left
26	12C0744	1	Rack Gear, Left
27	12C0745	1	Cassette Body
28	12C0746	1	Label Paper Set
29	12C0747	1	Front Cover, Cassette
30	12C0748	1	Label Paper Size
31	12C0749	1	Lever
32	12C0750	2	Pressure Spring
33	12C0751	2	Roll
34	12C0752	1	Shaft
35	12C0753	1	Set Plate
36	12C0754	1	Stopper
37	12C0755	1	Guide, Right

Assembly 17: Second Cassette (Tray 1) (Cont)



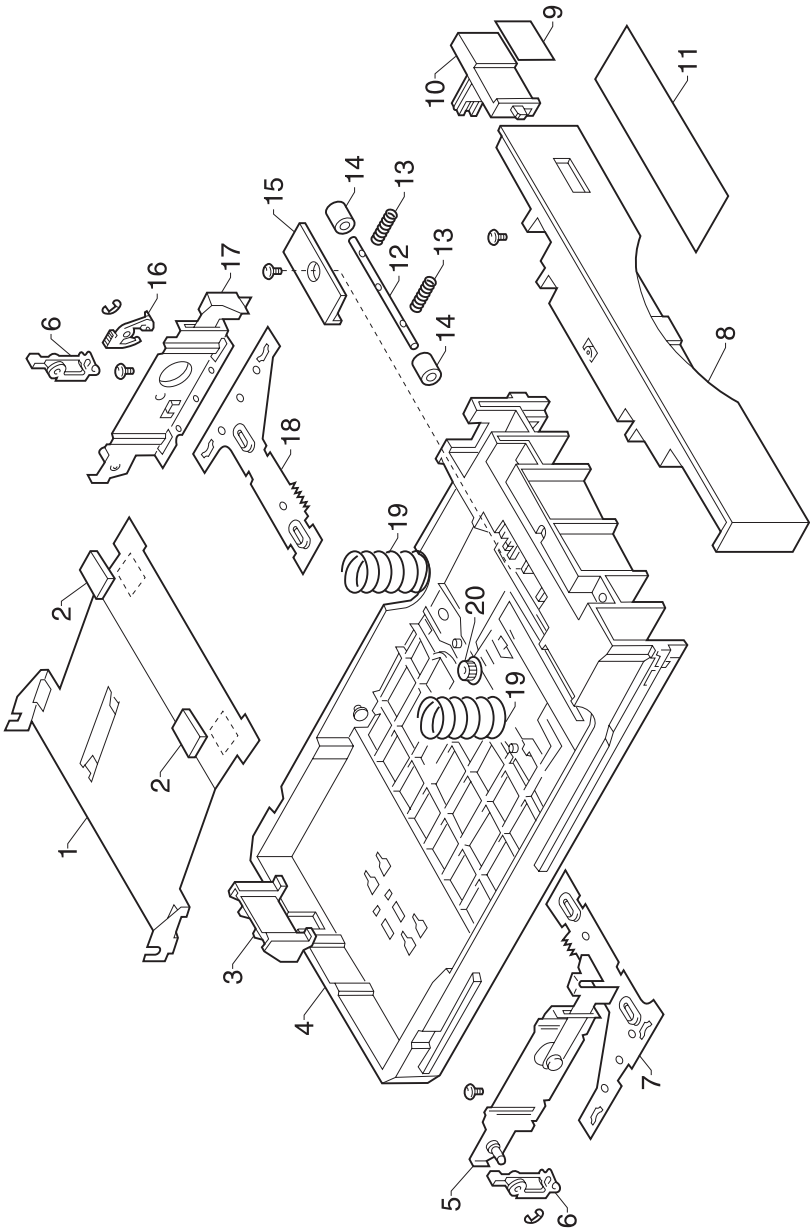
Ref	Part Number	Units	Description
17-38	12C0756	1	Rack Gear, Right
39	12C0758	1	Lifting Plate
40	12C0759	2	Pressure Spring
41	12C0760	1	Gear 14T
42	12C0761	2	Pad
43	12C0762	1	Roller
44	12C0763	1	Guide, Right
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 18: Third Cassette (Tray 2)



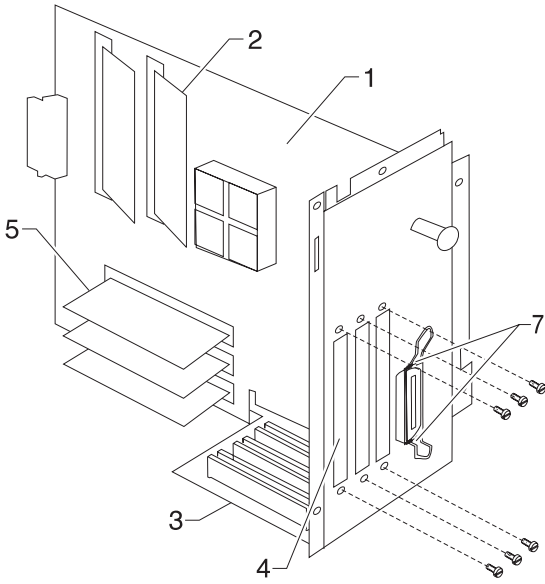
Ref	Part Number	Units	Description
18-1	12C0057	2	Handle
2	12C0058	2	Handle
3	12C0766	1	Right Cover
4	12C0767	2	Axle
5	12C0768	1	Ground Plate
6	12C0106	8	Rubber Foot
7	12C0770	3	Reinforce Plate
8	12C0771	1	Left Cover
9	12C0737	2	Set Plate
10	12C0773	1	Support
11	12C0740	1	Bushing
12	12C0739	1	Shaft
13	12C0026	2	Roller
14	12C0027	1	Roller
15	12C0776	2	Cover
16	12C0072	2	Stopper
17	12C0762	1	Roller
18	12C0779	2	Lever
19	12C0716	2	Plate Spring
20	12C0781	1	Bracket, PWB-E
21	12C0706	1	Harness
22	12C0001	1	PW Board-E, (PWB-E2)
23	12C0783	1	Gear 26T
24	12C0732	1	Shaft
25	12C0731	2	Bushing
26	12C0728	1	Gear 20T
27	12C0723	1	Arbor
28	12C0725	1	Holder
29	12C0724	1	Clutch Spring
30	12C0727	1	Gear 52T
31	12C0736	2	Actuator
32	12C0028	1	Solenoid, (SL8)
33	12C0042	2	Photo Interrupter, (PC13/14)
34	12C0792	1	Support
35	12C0738	2	Guide
36	12C0794	1	Base Plate

Assembly 19: Paper Tray



Ref	Part Number	Units	Description
19-1	12C0758	1	Lifting Plate
2	12C0761	2	Pad
3	12C0763	1	Guide, Right
4	12C0745	1	Cassette Body
5	12C0743	1	Guide, Left
6	12C0742	2	Lock Lever
7	12C0744	1	Rack Gear, Left
8	12C0747	1	Front Cover
9	12C0748	1	Label Paper Size
10	12C0749	1	Lever
11	12C0746	1	Label Paper Set
12	12C0752	1	Shaft
13	12C0750	2	Pressure Spring
14	12C0751	2	Roll
15	12C0753	1	Set Plate
16	12C0754	1	Stopper
17	12C0755	1	Guide, Right
18	12C0756	1	Rack Gear, Right
19	12C0759	2	Pressure Spring
20	12C0760	1	Gear 14T
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Assembly 20: Controller Card



Ref	Part Number	Units	Description
20-1	12C0800	1	Controller Card
2	12C0801	1	SIMM Code, Controller Card
3	12C0802	1	Riser Card, Controller Card
4	12C0803	1	Blank Cover, Controller Cage
5	99A0519	1	16MB DRAM SIMM
5	99A0520	1	32MB DRAM SIMM
7	12C0805	2	Screw, Parallel Port
	99A0421	1	Ethernet Card
	99A0521	1	1MB Flash SIMM
	99A0522	1	2MB Flash SIMM
	99A0523	1	4MB Flash SIMM
	99A0420	1	Token-Ring Card
	12C0920	1	Parts Packet 1, Screws
	12C0890	1	Parts Packet 2, Retainers, Pins
	12C0875	1	Parts Packet 3, Cable, Clip, Cover

Index

A

abbreviations 1-2
ac power service check 2-40
adjustment procedures 3-3
AIDC sensor and erase lamp 1-11
attendance messages 2-11

B

base sensor test 2-56
basic printer paper passage
test 2-48
button test 2-51

C

clean engine test 2-51
clearing the error log 2-59
connectors 4-18
controller card 5-54
cover removals 3-5

D

developing motor service
check 2-34
development 1-10
diagnostic aids 2-48
diagnostic menu group 2-48
diagnostic mode 2-48
disk test/clean 2-57
DRAM memory test 2-51
drive assembly 5-14
drum cartridge removal 3-6
drum cartridge toner full
detection 1-6

E

electrical components 4-12
electrical parts 5-46
exit assembly 5-44
exiting diagnostic mode 2-59

F

flash test 2-58
frames 2 assembly 5-10
fuser assembly 5-38
fuser removal 3-8
fuser service check 2-33
fuser/exit assembly 5-42

H

handling laser equipment 3-3
handling PWBs with MOISICS 3-1
handling the drum cartridge 3-2
heater lamp removal 3-10
high voltage/sub high voltage board
removal 3-12
housing assembly 5-2
how to use the parts catalog 5-1

I

image quality troubleshooting 2-42
image transfer belt removal 3-7
image transfer belt service
check 2-35
image transfer roller removal 3-6
initial check 2-1
input tray sensor test 2-55

L

LCD hardware test 2-51
line 1 status messages 2-3
line 2 status messages 2-10

M

maintenance approach 1-1
mechanical controller board frame
removal 3-19
mechanical controller board
removal 3-14

N

notices viii

O

- oil coating roller removal 3-9
- operator error message table 2-2
- operator menu disabled 2-48

P

- paper exit removal 3-12
- paper feed operation 1-2
- paper jam service check 2-35
- paper size/cassette detecting board removal 3-19
- paper take-up removal 3-19
- paper take-up 2 assembly 5-22
- paper type detection 1-8
- parallel wrap test 2-53
- parts not to be touched 3-2
- parts of the printer 4-1
- power supply cooling fan motor service check 2-39
- power unit frame removal 3-14
- power unit removal 3-13
- precautions for disassembly and cleaning 3-1
- print tests 2-50
- printed circuit boards 4-19
- printhead cooling fan service check 2-39
- printhead frame removal 3-15
- printhead removal 3-11
- printing process 4-6

Q

- quality pages 2-51
- quick disk check 2-57

R

- rack lever solenoid adjustment 3-5
- registration adjustment 3-3
- removal procedures 3-5
- ROM memory test 2-52

S

- safety information viii
- second cassette assembly 5-50
- sensor service check 2-47

- service checks 2-33
- service error message table 2-26
- setting printer registration 2-50
- setting the page count 2-58
- shield plate removal 3-13
- size sensing sensor test 2-55
- start 2-1
- status messages 2-2
- suction assembly removal 3-25
- suction fan motor removal 3-27
- suction fan motor service check 2-39
- supplies status messages 2-11
- switches and sensors 4-7
- symptom table 2-29
- synchronizing rollers 1-7

T

- third cassette assembly 5-54
- toner cartridge rack removal 3-16
- toner cartridge rack service check 2-38
- toner empty/toner cartridge board removal 3-16
- toner empty/toner cartridge detection 1-10
- tools 1-1
- transfer belt assembly 5-24
- transfer roller assembly 5-28
- transport motor service check 2-34

V

- viewing the error log 2-58
- viewing the permanent page count 2-58

W

- waste toner bottle removal 3-7