



## *Service Manual*

**Lexmark Optra™ N**

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**4040**

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## Notices and Safety Information

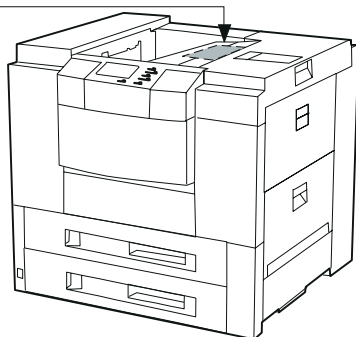
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### Laser Notice

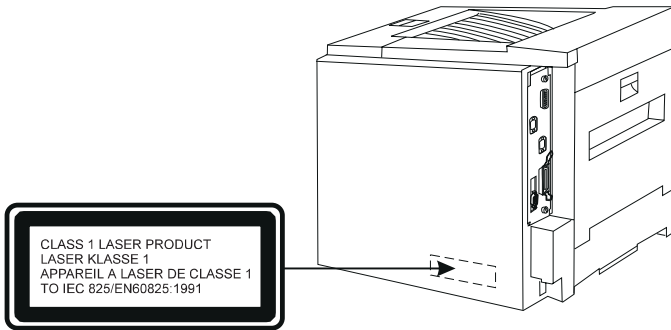
The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for Class I (1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 825.

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.

RS2-8123	
	
DANGER	-Visible laser radiation when open, AVOID DIRECT EXPOSURE TO BEAM.
ATTENTION	-RAYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FASCEAU.
VORSICHT	-UNSICHTBARE LASERSTRALUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHLEN AUSSETZEN.
ATTENZIONE	-RADIAZIONE LASER INVISIBLE IN CASO DI APERTURA. EVITARE ESPOSIZIONE AL FASCIO.
PRECAUCION	-RADIACION LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPOSERSE AL RAYO.
VARCI	-AVATREASA CILET ALTIVIA NAKYMATICHNALLE. LASERIRADIIATVIE, AKA KASO SARESENA.
VARNING!	-ÖSNIG LASERSTRÅLNING, NÄR DENNE DEL ÄR ÖPPNAD. BEHÅRAN ELL STRÅLEN.
ADVARSEL	-ØSNIG LASERSTRÅLING, NÄR DENNE ER ÅBEN. UNDGÅ BESTRÅLING.
CAUTION	-VISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
注意	-このカバーの内面では不可視レーザー光が放射されています。 レーザー光にさらされないようにしてください。



The Class 1 laser label is attached to the back of the 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.

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## 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..

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## **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.

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

---

## Huomautus laserlættet

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 alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

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



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## 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.

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## 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.

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## 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.liiwats, 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.

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## 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。

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## 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。

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## 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.

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## 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.

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## 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.

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## 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.

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## 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.

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## **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.

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## **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.

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## Informació de Seguretat

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

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## 安全资讯

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

### 안전 사항

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



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# Preface

This manual is divided into the following chapters:

- “General Information” contains a general description of the printer and the maintenance approach used to repair it. Special tools, test equipment, and options are listed.
- “Diagnostic Information” contains error code table, symptom table, and service checks used to isolate failing field replaceable units (FRUs).
- “Diagnostic Aids” contains tests and checks used to locate or repeat symptoms of printer problems.
- “Repair Information” provides instructions for making printer adjustments and removing and installing FRUs.
- “Locations” uses illustrations to identify the major components and test points on the printer.
- “Preventive Maintenance” contains safety inspection guidelines, lubrication specifications, and maintenance information to prevent problems and maintain optimum performance.
- “Parts Catalog” contains illustrations and part numbers for individual FRUs.

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## 1. General Information

The Optra™ N, model 4040 is a 600 dpi laser printer designed to attach to IBM-compatible PC's and to most types of computer networks.

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## Options

The following options are available. Some options are not available in every country. Contact your point of purchase for options available in your country.

- 2000-Sheet Paper Deck

- Duplexer

- Envelope Feeder

- Memory upgrade options of 2MB, 4MB, 8MB, 16MB and 32MB.

- Flash memory options of 1MB, 2MB and 4MB

- Integrated network options

  - Token-Ring

  - Ethernet

- Internal disk option

- LocalTalk

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## 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, service checks, and diagnostic aids to determine the symptom and repair the failure.

This printer can be serviced without being connected to a host computer.

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).
- Oiler
- Grease
- Cleaning tissue
- Magnifier
- Gloves
- Ruler

Refer to the parts catalog for part numbers of special tools. When taking voltage readings, always use frame ground unless another ground is specified.

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## 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

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## 2. Diagnostic Information

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### Diagnostic Approach

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This printer can be serviced without being connected to a host computer.

This printer displays both operator correctable errors and service errors on the front (operator) panel. In addition, there are two tests available from the base machine and the optional 2000 sheet paper deck that allow you to bypass the controller card. You can use these basic engine function tests to eliminate potential software problems. See [“Diagnostic Aids” on page 3-1](#).

The diagnostic information in this chapter should lead 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 replaced by including the assembly number and reference number in parenthesis. 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.

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### 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 printer is securely installed on a level surface in a well-ventilated place.

## 4040

- The room temperature is between 10 and 32.5 ° C, 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.

### EP Cartridges

If blank spots appear on an output image, there is a chance that the toner is not evenly mixed. Rock the toner cartridge and then make a print to see if the toner has evenly mixed.

### Other

If a packaged EP cartridge is opened soon after being moved from a cold room to a warm room, condensation will appear inside the cartridge; this can cause various image defects. In such cases, be sure to instruct the customer that it is necessary to leave the cartridge sealed for one to two hours at room temperature to allow it to acclimatize.

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## Troubleshooting

Use the error message tables, symptom table, and service checks, in this chapter and the diagnostic aids in Chapter 3 to diagnose a failure.

If the operator panel is blank, black, has diamonds across the display, or appears unusual, unplug the controller card and run **“Basic Engine Test”** on page 3-2. Go to Chapter 3 “Diagnostic Aids” to diagnose this problem because the operator panel or controller card may have a defect.

If your machine makes it through POST without an error but you have a symptom, go to the appropriate symptom table, locate your symptom and take the appropriate action.

If an error is displayed, locate it in the following “Error Message Tables” and take the appropriate action.

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

## Error Code/Message Tables

### Service Error Codes

Error	Symptom or Message	Action
900	Unrecoverable Software Error	Refer to the operator manual
920 922	Fuser Error, Fuser lamps do not come on during POR, or fuser lamps come on but do not reach operating temperature after 180 seconds.	Go to the <b>“Fuser (Temperature Low) Service Check (920/922)”</b> on page 2-23.
923	Fuser Error, Fuser is too hot or warming up abnormally.	Go to the <b>“Fuser (Abnormal Temperature) Service Check (923)”</b> on page 2-22.
924	Fuser Error, Wrong voltage	Go to the <b>“Fuser (Wrong Type) Service Check (924)”</b> on page 2-24.
927	Fan stalled	Go to the <b>“Fan Motor Service Check (927)”</b> on page 2-19.
931 932 933 934	Printhead Errors	Check the printhead connectors. Replace the printhead if necessary. If you still have a failure, replace the system board (4-9).
935	Printhead Error	<p>If the main motor (MT1) (2-7) runs during POR, replace the printhead (4-32). If the motor does not run during POR, check the connectors to the motor.</p> <p>If necessary, replace the motor and POR the machine. If you still have a failure, replace the system board (4-9).</p>



Error	Symptom or Message	Action
938	Paper Deck Option Card, No response	Check all connectors on the paper deck board and be sure all doors are securely closed. POR the machine. If you still have a failure, replace the paper deck option controller card (29-1). If you still have a failure, replace the paper deck driver board (23-41).
939	System Board Error	Be sure all cables, SIMM, and option controller riser card are correctly installed, then POR the machine. If you still have a failure, replace the system board (4-9).
941	Incorrect CHECKSUM (EPROM)	Replace the EPROM controller card (J8) (19-3).
944 945 946 947 950 953	Controller Card Failure	Replace the controller card (19-2). Be sure to move the controller SIMM, memory SIMMS, and option cards from the old board to the new one.
960	Memory Error, Base DRAM (J3)	Replace memory SIMM J3 (19-10) on the controller card.
961	Memory Error, Option DRAM (J2)	Replace optional memory SIMM J2 on the controller card.
97X	INA Failure	Be sure the controller riser card and the INA are properly installed.  Replace the INA. If you still have a failure, replace the system board (4-9).

Error	Symptom or Message	Action
977	Network Card Error	<p>The system processor has detected an INA card is installed but cannot communicate with it. The X after the card indicates which one has the problem. Network card 1 will always refer to the INA in the bottom slot and Network card 2 will always refer to the INA card in the top slot.</p> <p>Be sure the controller card riser card is properly installed.</p>
980	Device Error, 2000- sheet paper deck motor.	Be sure the motor is securely installed. If necessary, replace motor MT31 (26-3).
982	Device Error, Lifter malfunction in the multipurpose tray.	<p>Be sure J214 is securely installed to the system board. Be sure the connectors on the multipurpose tray board are installed correctly.</p> <p>If necessary, replace the lifting plate solenoid SL2 (14-6). If you still have a failure, replace the multipurpose tray board (14-20).</p>
983	Device Error, Lifter malfunction, 200-sheet paper deck.	Be sure the lifter plate clutch (CL31) connector (J206) on the paper deck driver board is securely installed. Check for broken parts. If necessary replace the paper deck lifter clutch (26-5).
990	Service Duplex Option	Be sure the duplex registration motor cable is installed correctly. Check for broken registration parts. If necessary, replace the duplex registration motor SMT22 (22-22).

## Operator Codes

The following code numbers are operator instructions and messages. In some cases, no action is required; others are operator-correctable; others may require service. An error code may require up to two minutes to appear. Some symptoms may not generate an error code. Locate your code in the table and take the appropriate action.

Code	Message or Symptom	Action
20 21 22 23 25	Paper Jam, Clear All Paper Possible error locations:  20 Tray 1 20 Tray 2 20 Tray 3 21 Input 21 Input Feeder (envelope) 21 Input Multipurpose Tray 22 Fuser 23 Top Output 25 Duplex	Clear all paper jams and POR the machine. If the error remains, go to the <b>“Paper Jam Sensor Service Check”</b> on page 2-45.  If the paper sensors are good go to the <b>“Paper Feed Symptom Table”</b> on page 2-12 or the <b>“Paper Deck Symptom Table”</b> on page 2-15 and check for mechanical problems.
27	Change Envelope	No service required, refer to operator manual.
27	Change Paper, Possible locations:  27 Tray 1 27 Tray 2	Be sure the correct paper size is installed.  Go to the <b>“Paper Jam 27, Paper Size/Change Paper”</b> on page 2-49.
27	Change Paper, Possible location:  27 Tray 3	Go to the <b>“Paper Deck Lifting Plate Service Check”</b> on page 2-53.
28	Load Envelope Feeder	Be sure the correct envelope size and weight is installed. Replace PS931 paper sensor (21-7) on the envelope driver board.

Code	Message or Symptom	Action
29	Output Bin Full, top bin only	Remove the paper from the output face-down bin. Check and replace if necessary: <ul style="list-style-type: none"> <li>• Paper Full Lever (16-4)</li> <li>• Switch Sensor Board (4-18)</li> </ul>
32	Print Cartridge Missing	Be sure the print cartridge is properly installed. Clean or replace the high voltage power supply contacts (7-2).
37	Insufficient Memory	No service required, refer to operator manual.
38	Memory Full	No service required, refer to operator manual.
39	Complex Page	No service required, refer to operator manual.
51	Defective Flash	Go to Diagnostic Aids and run the device tests. Replace Flash SIMM J-7, on the controller card, if necessary.
52	Flash Full	No service required, refer to operator manual.
54	Serial Port Disabled	No service required, refer to operator manual.
56	Parallel Port Disabled	No service required, refer to operator manual.
57	Check Tray 3	Be sure the following are correct: <ul style="list-style-type: none"> <li>• Tray 3, Paper drawer closed</li> <li>• Power cord plugged in</li> <li>• Option controller is installed</li> <li>• Option controller signal cable is completely installed.</li> <li>• If you still have no power to the paper deck, go to the <b>“Paper Deck Power Input Service Check”</b> on page 2-57.</li> </ul>

Code	Message or Symptom	Action
58	Duplex not attached	Be sure the duplexer is securely latched into the printer.  POR to reset the printer.
59	Print Job on Disk	No service required, refer to operator manual.
63	Unformatted Disk	Format the disk. Go to <b>“Diagnostic Aids” on page 3-1</b> and run the device tests.
64	Defective Disk	Replace the defective disk. Go to <b>“Diagnostic Aids” on page 3-1</b> to format the new disk .
80	Scheduled Maintenance	No service required, refer to operator manual.  The Maintenance Kit must be ordered and installed by the customer. Part numbers can be found in the User's Guide.  This message appears each time the printer is turned on.

## Diagnostic Information

The diagnostic information in this chapter is divided as follows:

- Base Machine Service Checks
- Print Quality Service Checks
- Paper Feed Service Checks
- Paper Deck Service Checks
- Paper Deck Paper Feed Service Checks

If you think your symptom is caused by a print quality failure go to the **“Print Quality Symptom Table” on page 2-11**.

If you think your symptom is caused by a paper feed failure, go to the **“Paper Feed Symptom Table” on page 2-12**.

If you think your problem is caused by a malfunction in the paper deck go to **“Paper Deck Service Checks” on page 2-53**.

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If you think your symptom is caused by a paper feed problem in the paper deck go to [“Paper Deck Paper Feed Service Checks” on page 2-58.](#)

If you think your symptom is caused by any other malfunction, go to the [“Other Malfunction Symptom Table” on page 2-13.](#)

## Symptom Tables

### Print Quality Symptom Table

Symptom	Action
Black Page	Go to “Black Page Service Check” on page 2-30.
Blank Spots	Go to “Blank Spots Service Check” on page 2-30.
Blank Page	Go to “Blank Page Service Check” on page 2-31.
Dark Image	Go to “Dark Image Service Check” on page 2-32.
Dirt on back of paper	Go to the “Dirt on Back of Paper Service Check” on page 2-32.
Dirty Image	Go to the “Dirty Image Service Check” on page 2-33.
Distortion	Go to “Distorted Print Service Check” on page 2-33.
Light Image	Go to “Light Image Service Check” on page 2-34.
Poor Fusing	Go to “Poor Fusing Service Check” on page 2-35.
Sharp Black Horizontal Lines	Go to “Sharp Black Horizontal Lines Service Check” on page 2-35.
Smudged Horizontal Bands	Go to “Smudged Horizontal Bands Service Check” on page 2-36.
Vertically Dots in a Line	Go to “Light Image Service Check” on page 2-34.
Vertical Streaks/Lines	Go to “Vertical Streaks/Lines Service Check” on page 2-37.
White Horizontal Lines	Go to “White Horizontal Lines Service Check” on page 2-37.

Symptom	Action
White Vertical Lines	Go to "White Vertical Lines Service Check" on page 2-38.

## Paper Feed Symptom Table

Symptom	Action
Paper Jam in Pick-up Assembly	Go to "Pick-Up Assembly Paper Jams Service Check" on page 2-51.
Paper Jam in Fuser and Delivery Assembly	Go to "Fuser and Delivery, Paper Jams Service Check" on page 2-43.
Paper Jam in Duplexing Assembly	Go to "Paper Jam 25, Duplex" on page 2-49.
Paper Jam in Envelope Feeder	Go to "Envelope Feeder Paper Jams Service Check" on page 2-42.
Multiple Paper Feed	Go to "Multiple Paper Feed Service Check" on page 2-44.
Wrinkled Paper	Go to "Wrinkled Paper Service Check" on page 2-52.
Bent Leading Edge of Paper	Go to "Bent Leading Edge of Paper Service Check" on page 2-40.
Skewed Paper	Go to "Paper Skew Service Check" on page 2-50.



## Other Malfunction Symptom Table

Symptom	Action
Printhead Malfunction	Go to the "Printhead Service Check" on page 2-28.
Electrical Assembly Fan (FM3) Failure	Go to "Electrical Assembly Fan (FM3) Check" on page 2-21.
Faulty Main Motor	Go to "Main Motor Service Check" on page 2-25.
Fuser Failure (Abnormal Temperature)	Go to "Fuser (Abnormal Temperature) Service Check (923)" on page 2-22.
Fuser Failure (Abnormal Warm-up/Temperature Low)	Go to "Fuser (Temperature Low) Service Check (920/922)" on page 2-23.
Fuser Failure (Wrong Type)	Go to "Fuser (Wrong Type) Service Check (924)" on page 2-24.
Fuser Fan (FM4) Failure	Go to "Fuser Fan (FM4) Check" on page 2-21.
Fuser/Printhead Fan (FM2) Failure	Go to the "Fuser/Printhead Fan (FM2) Check" on page 2-20.
Horizontal Registration Guide Failure (Duplexing Installed)	Go to "Duplex Horizontal Registration Guide Service Check" on page 2-18.
Printhead/Laser Malfunction	Go to the "Printhead/Laser Service Check" on page 2-28.
Lifting Plate Failure (Multi-purpose Tray)	Go to the "Lifting Plate (Multi-purpose Tray) Service Check" on page 2-25.
No AC Power Input (Dead Machine)	Go to "AC Power Input Service Check" on page 2-16.
No DC Power Input (Dead Machine)	Go to "DC Power Input Service Check" on page 2-17.
No Paper Pick-Up (From Multi-purpose Tray)	Go to "Paper Pick-Up from Multi-purpose Tray Service Check" on page 2-27.

Symptom	Action
No Paper Pick-Up from Upper or Lower Cassette	Go to "Paper Pick-Up from Cassettes Service Check" on page 2-26.
No Paper Pick-Up from Envelope Feeder	Go to "Paper Pick-Up from Envelope Feeder Service Check" on page 2-26.
Poor Output from High-Voltage Power Supply	Go to "High-Voltage Power Supply Output Service Check" on page 2-24.
Power Supply Fan (FM1) Failure	Go to "Fan Motor Service Check (927)" on page 2-19.
Registration Roller Does Not Rotate	Go to "Registration Roller Service Check" on page 2-29.
Printhead/Scanner Motor Malfunction	"Printhead/Scanner Motor Service Check" on page 2-29.
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 engine test. If the test completes and the panel remains blank, replace the operator panel (1-22). If diamonds remain, check the SIMM (19-3) for proper installation. If you still have a problem, replace the controller card (19-2).</p> <p>If your machine beeps 5 times and the screen is blank or all diamonds, replace the operator panel.</p>
No Side Output Bin Operation	Check and replace the face-up solenoid assembly parts (asm. 6). Replace the face-up solenoid if necessary.

## Paper Deck Symptom Table

Symptom	Action
No power	Go to the "Paper Deck Power Input Service Check" on page 2-57.
Wrinkled paper	Go to the "Paper Deck Wrinkled Paper Service Check" on page 2-60.
Bent leading paper edge	Go to the "Paper Deck Bent Leading Edge Service Check" on page 2-58.
Paper skew	Go to the "Paper Deck Paper Skew Service Check" on page 2-60.
Left edge registration failure	Go to the "Paper Deck Left Edge Registration Service Check" on page 2-59.
Paper doesn't pick-up from the paper deck	Go to the "Paper Deck Paper Pick-Up Service Check" on page 2-55.
Paper doesn't exit paper registration roller.	Go to the "Paper Deck Registration Roller Service Check" on page 2-58.
Paper doesn't exit paper deck , jam in feed roller.	Go to the "Paper Deck Feed Roller Service Check" on page 2-53.
Multiple sheets of paper feeding.	Go to the "Paper Deck Multiple Paper Feed Service Check" on page 2-59.
Paper deck doesn't lift properly	Go to the "Paper Deck Lifting Plate Service Check" on page 2-53.
Paper deck does not sense paper size, paper full, or surface obstruction.	Go to the "Paper Deck Lifting Plate Service Check" on page 2-53.
Faulty paper deck drive motor	Go to the "Paper Deck Motor Service Check" on page 2-55.

## Base Machine Service Checks

### AC Power Input Service Check

	FRU	Action
1	Voltage	The correct voltage may not be present at the outlet. Inform the customer that the correct line voltage is not available at the outlet.
2	Power Cord	The power cord may not be firmly plugged into the printer, the paper deck and the outlet. Push the power plugs in firmly.
3	Circuit Breaker	The circuit breaker may be off. Remove the power supply. Press the circuit breaker button to set the circuit breaker on.
4	Power Switch	The power switch may be defective. Remove the power supply. Measure the resistance between the two terminals of the power switch by applying the tester probes to the terminals. The resistance must be zero when the power is turned on, and infinity when the switch is turned off. If it is not, replace the power supply.
5	Low Voltage Power Supply	The ac power line in the low voltage power supply may be defective. Replace the power supply.

If ac power is present and the machine is dead go to the **“DC Power Input Service Check”** on page 2-17.

## DC Power Input Service Check

	FRU	Action
1	AC Power	If the ac power is not present, go to <b>“AC Power Input Service Check”</b> on page 2-16.
2	Overcurrent/ Overvoltage Detection Circuit	The overcurrent/overvoltage detection circuit may be active. If the problem does not disappear when the power switch is turned off and on again, find the cause of activation of the overcurrent/over voltage detection circuit of the power supply. Turn the power switch off for 2 minutes then turn it on again.
3	Fuse	The fuse may be blown. Remove the power supply and replace the fuse (5-15).
4	Power Supply	The power supply may be defective. Turn the power switch off and remove connector J204 from the system board. Plug in the power cable and turn the power switch on. Measure the DC power supply output of connector J204. Do not short the connector. If the correct value is not outout, replace the power supply (5-10)
5	System Board	Turn the power switch off. Check the wiring from the system board J204 and the power supply. If they are normal, replace the system board (4-9).

## Duplex Horizontal Registration Guide Service Check

	FRU	Action
1	Connectors	The horizontal registration guide home position sensor signal line and horizontal registration motor drive signal line connectors may be loose. Reconnect connectors J2005 and J2006 on the duplexing driver board.
2	Gears	Gears may be damaged. Replace any damaged gears.
3	Sensor (PS23)	The horizontal registration guide home position sensor (PS23) may be defective. Check and replace as required (22-53).
4	Horizontal Registration Motor	The horizontal registration motor may be defective. Replace the horizontal registration motor (22-22).
5	Duplexing Driver Board	The duplexing driver board could be defective. Replace the duplexing driver board (22-14).

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## **Fan Motor Service Check (927)**

Be sure the power is on, then check the air flow from each fan to determine which fan is failing. Go to the appropriate fan check below.

**Power Supply Fan (FM1) Check**

	<b>FRU</b>	<b>Action</b>
1	Connector	The FM1 drive signal line connector could be loose. Reconnect connector J208 on the system board.
2	Power Supply Fan	The power supply fan could be defective. Disconnect connector J208 on the system board. Turn the power switch on and measure the voltage between connector J208-1 (FAN1D) and J208-3 (GND) on the system board. If the voltage changes from 0 to more than 18 V, replace the power supply fan (5-11).
3	System Board	The system board could be defective (4-9).

**Fuser/Printhead Fan (FM2) Check**

	<b>FRU</b>	<b>Action</b>
1	Connector	The FM2 drive signal line connector could be loose. Reconnect connector J216 on the system board.
2	Fuser/Printhead Fan	The printhead fan could be defective. Disconnect connector J216 on the system board. Turn the power switch on and measure the voltage between connector J216-1 (FAN2D) and J216-3 (GND) on the system board. If the voltage changes from 0 to more than 18 V, replace the printhead fan (4-29).
3	System Board	The system board could be defective (4-9).



**Electrical Assembly Fan (FM3) Check**

	<b>FRU</b>	<b>Action</b>
1	FM3 Drive Signal Line Connector	The FM3 drive signal line connector could be loose. Reconnect connector J210 on the system board and connectors J12 and J13.
2	Electrical Unit Fan	The electrical unit fan could be defective. Disconnect connector J210 on the system board. Turn the power switch on and measure the voltage between connector J210-1 (FAN3D) and J210-3 (GND) on the system board. If the voltage changes from 0 to more than 18 V, replace the electrical assembly fan (5-7).
3	System Board	The system board could be defective (4-9).

**Fuser Fan (FM4) Check**

	<b>FRU</b>	<b>Action</b>
1	Connector	The FM4 drive signal line connector may be loose. Reconnect connector J225 on the system board and connectors J25 and J26.
2	Fuser Fan	The fuser fan may be defective. Disconnect connector J225 on the system board. Turn the power switch on and measure the voltage between connector J225-1 (FAN4D) and J225-3 (GND) on the system board. If the voltage changes from 0 to more than 18 V, replace the fuser fan (16-7).
3	System Board	The system board could be defective (4-9).

## Fuser (Abnormal Temperature) Service Check (923)

	FRU	Action
1	Thermistor	The thermistor could be shorted. Turn the power off and remove the fuser assembly. Measure the resistance between the fuser connector J50B-2 (FSRTH) and J50B-3 (GNDTH). The connector J50B is the lower terminal of the left connector. If the resistance is 1k Ohm or less, check the wiring from connector J222-5 and J222-6 on the system board to the thermistor. If it is normal, replace the thermistor (18-23).
2	Fuser	The fuser drive circuit in the power supply is defective. Replace the power supply (5-10).
3	System Board	The system board could be defective (4-9).

## Fuser (Temperature Low) Service Check (920/922)

	FRU	Action
1	Thermistor	<p>The thermistor may be dirty. If the thermistor contact area of the fuser upper roller is dirty, clean it.</p> <p>The thermistor may not be installed correctly. If the thermistor is not evenly contacting the fixing upper roller, re-install the thermistor correctly.</p>
2	Thermistor Wire	<p>The thermistor wire may be broken. Turn the power off and remove the fuser assembly. Measure the resistance between fuser connector J50B-2 (FSRTH) and J50B-3 (GNDTH). If the resistance is not between 150k Ohms and 290k Ohms (normal temperature), check the wiring from connector J222 on the system board to the thermistor. If it is normal, replace the thermistor (18-23).</p>
3	Main Heater Wire	<p>The main heater wire could be broken. Remove the fuser. If there is no continuity between fuser connector J50-3 (FSRN1: the upper right terminal of the left connector) and J51-4 (FSRN2: the upper right terminal of the right connector), replace the main heater (18-2A).</p>
4	Sub Heater Wire	<p>The sub heater wire may be broken. Remove the fuser assembly. If there is no continuity between fuser connector J50-4 (FSRL1: the lower right terminal of the left connector) and J51-3 (FSRL2: the lower right terminal of the right connector), replace the fuser lamp (18-2A).</p>
5	Thermoswitch	<p>The thermoswitch may be open. Remove the fuser assembly and wiring cover. If there is no continuity between thermoswitch connectors, replace the thermoswitch (18-3).</p>
6	System Board	<p>The system board could be defective (4-9).</p>

### Fuser (Wrong Type) Service Check (924)

	FRU	Action
1	Fuser	The rated voltage of the fuser may not match the power supply voltage. Replace the fuser (18-1).
2	Power Supply	The type detection circuit in the power supply may be defective. Replace the power supply (5-10).
3	System Board	The system board could be defective (4-9).

### High-Voltage Power Supply Output Service Check

	FRU	Action
1	High-Voltage Contacts	A terminal of the high-voltage contacts (7-2) could be dirty or burned out. Clean the terminals of the high-voltage contact. Replace if it is burned out.
2	High-Voltage Power Supply Board	The high-voltage power supply board could be defective. Replace the high-voltage power supply (Asm. 7).
3	System Board	The system board could be defective (4-9).

## Lifting Plate (Multipurpose Tray) Service Check

	FRU	Action
1	Lifting Plate Drive Assembly	The lifting plate drive assembly could be defective. Replace any damaged parts.
2	Lifting Plate Position Sensor (PS1302)	The lifting plate position sensor could be defective. Check the sensor (PS1302) by measuring the voltage at J214-3 and J214-6 (+5 V). You should get a lower reading when the lifter plate rises. If it is defective replace the multipurpose tray board (14-20).
3	Lifting Plate Solenoid (SL2)	The lifting plate solenoid could be defective. Disconnect lifting plate solenoid connector J1302. Measure the resistance between connectors J1302-1 and J1302-2 on the cable side. If it is not about 100 Ohms replace the lifting plate solenoid (14-6).
4	System Board	The system board could be defective (4-9).

## Main Motor Service Check

	FRU	Action
1	Main Motor Drive Line Connectors	The main motor drive line connectors could be loose. Reconnect connector J12 of the main motor and connector J218 on the system board.
2	Door Switch	The door switch in the switch/sensor board could be defective. Remove connectors J205 and J221 on the system board. If J205-3(+24 V dc) and J221-1(+24 VB) on the cable side do not conduct when the door switch (SW1401) is on, replace the switch/sensor board (4-18).
3	Main Motor (MT1)	The main motor could be defective. If it does not rotate during POR and no error codes appear, replace it (2-7).
4	System Board	The system board could be defective (4-9).

## Paper Pick-Up from Envelope Feeder Service Check

	FRU	Action
1	Controller Card	The controller card could be defective. Run the paper feed test in Diagnostic Aids to determine which paper path is causing the problem. If the envelope is picked up correctly from the envelope feeder, replace the controller card (19-2).
2	Gears	Gears could be damaged. Remove the envelope feeder and check the gears. Replace any damaged gears.
3	Envelope Feeder Pick-up Motor (SMT11)	The envelope feeder pick-up motor could be defective. Run the paper feed test in Diagnostic Aids to rotate the envelope feeder pick-up motor. If it does not rotate replace it (21-27).
4	Envelope Feeder Driver Board	The envelope feeder driver board could be defective. Replace the envelope feeder driver board (21-7).
5	System Board	The system board could be defective (4-9).

## Paper Pick-Up from Cassettes Service Check

	FRU	Action
1	Controller Card	The controller card could be defective. Use the paper feed test in Diagnostic Aids to make a test print from the cassette with a paper pick-up failure. If the paper is picked up correctly from the cassette, replace the controller card.
2	Pick-up Drive Assembly	The pick-up drive assembly could be damaged. Remove the pick-up unit and replace any damaged parts.
3	Pick-up Motor (SMT1)	The pick-up motor could be defective. Use the the paper feed test in Diagnostic Aids to rotate the paper pick-up motor. If it does not rotate, replace it (11-46).

	FRU	Action
4	Cassette Pick-up Solenoid (SL1)	The cassette pick-up solenoid could be defective. Remove the pick-up unit, and disconnect cassette pick-up solenoid connector J1203 from the pick-up board. Measure the resistance between connectors J1203-1 and J1203-2 on the cable side. If it is not about 155 Ohms, replace the cassette pick-up solenoid (11-56).
5	Pick-up Board	The pick-up board could be defective. Replace the pick-up board (11-41).
6	System Board	The system board could be defective (4-9).

### Paper Pick-Up from Multipurpose Tray Service Check

	FRU	Action
1	Controller Card	The controller card could be defective. Make a test print from the multipurpose tray using the paper feed test in Diagnostic Aids. If the paper is picked up correctly, replace the controller card (19-2).
2	Gears	Gears could be damaged. Remove the manual feed pick-up assembly and check the gears. Replace any damaged gears.
3	Manual Feed Clutch (SL3)	The manual feed clutch could be defective. Remove the manual feed pick-up assembly and disconnect manual feed clutch connector J1303 from the multipurpose tray board. Measure the resistance between connectors J1303-1 and J1303-2 on the cable side. If it is not about 155 Ohms, replace the manual feed clutch (14-5).
4	System Board	The system board could be defective (4-9).

## Printhead Service Check

Condensation could cause this problem. Leave the printer running for 10 to 20 minutes.

	FRU	Action
1	Printhead Board Signal Line Connector	The printhead signal line connector could be loose. Reconnect connector J6 on the printhead board and J206 on the system board.
2	Printhead	The printhead assembly could be defective. (The BD signal is not output correctly.) Replace the printhead assembly (4-32).
3	System Board	The system board could be defective (4-9).

## Printhead/Laser Service Check

	FRU	Action
1	Connectors	The laser drive signal line connectors may be loose. Reconnect connector J1001 on the laser driver board and connector J202 on the system board.
2	Printhead	The printhead (laser driver circuit) could be defective. Replace the printhead (4-32).
3	System Board	The system board could be defective (4-9).



## Printhead/Scanner Motor Service Check

	FRU	Action
1	Connectors	The scanner motor drive line connectors could be loose. Reconnect connector J1 on the scanner driver board, connector J18, and connector J207 on the system board.
2	Printhead/ Scanner Motor Driver	The scanner motor driver could be defective. Check the connectors on the printhead. Run a test print. If you still have the problem, replace the printhead (4-32).
3	System Board	The system board could be defective (4-9).

## Registration Roller Service Check

	FRU	Action
1	Gears	Gears could be damaged. Check and replace any damaged gears.
2	Registration Clutch (CL1)	The registration clutch could be defective. Disconnect registration clutch connector J17. Measure the resistance between connectors J17-1 and J17-2 on the cable side. If it is not about 210 Ohms, replace the registration clutch (12-4).
3	System Board	The system board could be defective (4-9).

## Print Quality Service Checks

### Black Page Service Check:

	FRU	Action
1	EP Cartridge	The EP cartridge may be defective. Replace the cartridge.
2	High Voltage Power Supply	Be sure all the mounting screws are in place and properly tightened. The primary charging roller-bias contact of the high-voltage power supply may not be making a good connection with the cartridge contact (7-2). If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.
3	High Voltage Power Supply	The high-voltage power supply board may be defective. Replace the high-voltage power supply.
4	System Board	The system board may be defective. (4-9)

### Blank Spots Service Check

	FRU	Action
1	Paper	Be sure the recommended paper is being used.  The paper may be damp. Replace the paper and instruct the customer to wrap and store the paper correctly.
2	Transfer Charging Roller	If the blank spots on the paper are uniformly spaced approximately 56mm apart, the transfer charging roller (2-17) may be dirty or deformed. The transfer charging roller is a supply item, replaced by the customer.

	FRU	Action
3	EP Cartridge	If the blank spots on the paper are uniformly spaced approximately 75mm apart, the EP cartridge may be defective. The EP cartridge is a supply item, replaced by the customer.

## Blank Page Service Check

	FRU	Action
1	EP Cartridge	The projection for opening and closing the laser shutter of the EP cartridge may be damaged. Replace the cartridge.
2	<ul style="list-style-type: none"> <li>• Laser Shutter</li> <li>• Laser Shutter Arm</li> </ul>	The laser shutter arm or laser shutter may be malfunctioning or damaged. If the laser shutter arm (4-4) or laser shutter (4-15) does not move smoothly, or parts are damaged, replace them.
3	High Voltage Power Supply Contacts	The developing bias contact (7-2) of the high-voltage power supply may not be making a good connection with the cartridge contact. If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.
4	High Voltage Power Supply	The high-voltage power supply board may be defective. Replace the high-voltage power supply.
5	System Board	The system board may be defective (4-9).

## Dark Image Service Check

	FRU	Action
1	Image Density	The Image density may not be adjusted correctly. Adjust the Image density through the host software.
2	High Voltage Power Supply	<p>The drum grounding contact of the high-voltage power supply may not be making a good connection with the cartridge contact. If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.</p> <p>The primary charging roller-bias contact (7-2) of the high-voltage power supply may not be making a good connection with the cartridge contact. If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.</p>
3	High Voltage Power Supply	The high-voltage power supply board may be defective. Replace the high-voltage power supply (Asm. 7).
4	System Board	The system board may be defective. (4-9)

## Dirt on Back of Paper Service Check

	FRU	Action
1	<ul style="list-style-type: none"> <li>• Transfer Charging Roller</li> <li>• Lower Fuser Roller</li> </ul>	Check the rollers for dirt. If they cannot be cleaned, replace them (18-21). If the dirt spots on the paper are uniformly spaced approximately 56mm apart, the transfer charging roller could be dirty or deformed. The transfer charging roller is a supply item, replaced by the customer.

	FRU	Action
2	<ul style="list-style-type: none"> <li>• Transfer Guide</li> <li>• Feeder Guide</li> <li>• Fuser Entry Guide</li> </ul>	Check for dirt and clean if necessary.

### Dirty Image Service Check

	FRU	Action
1	Paper	Make sure the paper is clean.
2	<ul style="list-style-type: none"> <li>• Pick-up Roller</li> <li>• Separation Roller</li> <li>• Transfer Charging Roller</li> <li>• Upper Fuser Roller</li> <li>• EP Cartridge</li> </ul>	<p>Clean dirty rollers. If they cannot be cleaned, replace them (11-20, 2-7, 18-20). The transfer charging roller is a supply item, replaced by the customer.</p> <p>If the EP cartridge has more than 15K copies, replace it. The EP cartridge is a supply item, replaced by the customer.</p> <p>Check for bits of paper that may not have been removed from a paper jam.</p>

### Distorted Print Service Check

	FRU	Action
1	System Board	<p>Connectors on the system board could be loose. Reconnect the J202, J206, and J207 connectors properly.</p> <p>The system board could be defective (4-9).</p>
2	Printhead	<p>The printhead connectors could be loose. Reconnect J1001, J1, and J6. on the 2 boards.</p> <p>The printhead assembly could be defective (4-32).</p>

## Light Image Service Check

	FRU	Action
1	Image Density	The Image density may not be adjusted correctly. Adjust the Image density by operating the external device.
2	Toner	Low toner. Replace the EP cartridge.
3	Toner Image	Open the upper cover and remove the EP cartridge while a print is being made. Open the drum protective shield of the EP cartridge and check the toner image on the photosensitive drum. If the toner Image was not transferred to the paper properly, go to step 4. If the toner Image on the drum is faint, go to step 7. Do not open the drum protective shield for more than 10 seconds.
4	Paper	Check the print paper. Replace if necessary.
5	Transfer Charging Roller Contact	The transfer charging roller contact (7-2) of the high-voltage power supply may not be making a good connection with the contact of the transfer charging roller shaft. If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.
6	Transfer Charging Roller	The transfer charging roller may be deformed or has deteriorated. The transfer charging roller is a supply item, replaced by the customer.
7	High-voltage Power Supply	The high-voltage power supply board could be defective. Replace the high-voltage power supply (Assembly 7).
8	System Board	The system board could be defective. (4-9)

## Poor Fusing Service Check

	FRU	Action
1	Envelope Position Lever	The envelope position levers of the fuser are raised. Push the levers down (18-6).
2	Fuser Upper Roller	If the poorly fused spots are uniformly spaced approximately 126mm apart, the upper fuser roller could be defective. Replace the roller (18-20).
3	Fuser Lower Roller	If the poorly fused spots are uniformly spaced approximately 94mm apart, the lower fuser roller could be dirty. Clean the roller. If it cannot be cleaned, replace it (18-21).
4	Fuser Roller Pressure	The pressure between the fuser rolls may not be correct. This pressure cannot be adjusted. Replace the fuser (18-1).
5	Thermistor	The thermistor may have deteriorated. Replace the thermistor (18-23).

## Sharp Black Horizontal Lines Service Check

	FRU	Action
1	System Board Connectors	The connectors on the system board could be loose. Reconnect the J202, J206, and J207 connectors properly.
2	Printhead	The printhead connectors could be loose. Reconnect J1001, J1, and J6.  The printhead could be defective. Replace it if necessary (4-32).
3	System Board	The system board could be defective (4-9).

## Smudged Horizontal Bands Service Check

	FRU	Action
1	EP Cartridge	The EP cartridge could be defective. Replace it if necessary.
2	Fuser Upper Roller	The fuser upper roller could be dirty, deformed, or worn. Replace the fuser upper roller (18-20).

## Vertical Dots in a Line Service Check

	FRU	Action
1	Static Charge Eliminator	Check the static charge eliminator (12-8) for dirt. Clean as necessary.
2	High-Voltage Power Supply Contacts	The static charge eliminator contact (7-2) of the high-voltage power supply is not making a good connection with the static charge eliminator contact. If the contacts are dirty, clean them. If the problem continues after cleaning, or parts are deformed or damaged, replace them.
3	Transfer Charging Roller	The transfer charging roller could be deformed or has deteriorated. The transfer charging roller is a supply item, replaced by the customer.
4	High-Voltage Power Supply	The high-voltage power supply board could be defective. Replace the high-voltage power supply (Asm. 7).



## Vertical Streaks/Lines Service Check

	FRU	Action
1	Photosensitive Drum	The photosensitive drum could be damaged. Replace the EP cartridge.
2	Fuser Entry Guide	The fuser entry guide could be dirty. Clean the fuser entry guide.
3	Fuser Upper Roller	The fuser upper roller could be scratched. Remove the cause of the damage and replace the roller (18-20).

## White Horizontal Lines Service Check

	FRU	Action
1	<ul style="list-style-type: none"> <li>• EP Cartridge</li> <li>• Upper Fuser Roller</li> </ul>	The EP cartridge or upper fuser roller could be defective. Replace the EP cartridge or the fuser upper roller if necessary (18-20).

## White Vertical Lines Service Check

	FRU	Action
1	Toner	Lack of toner. Take out the EP cartridge, rock it to distribute the toner evenly, then reinstall it. If the problem continues, replace the EP cartridge.
2	Photosensitive Drum	The photosensitive drum could be scratched. Replace the EP cartridge.
3	<ul style="list-style-type: none"> <li>• Printhead Outlet</li> <li>• Printhead Inlet</li> </ul>	Foreign matter could be on the printhead/laser outlet of the printer or the printhead/laser inlet of the cartridge. Remove the foreign matter.
4	Fuser Entry Guide	The fuser entry guide could be dirty. Clean the fuser entry guide.
5	Fuser Upper Roller	The fuser upper roller surface could be damaged. Replace the fuser upper roller (18-20).
6	Printhead	The mirror in the laser/scanner assembly could be dirty. Replace the printhead (4-32).

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## Paper Feed Service Checks

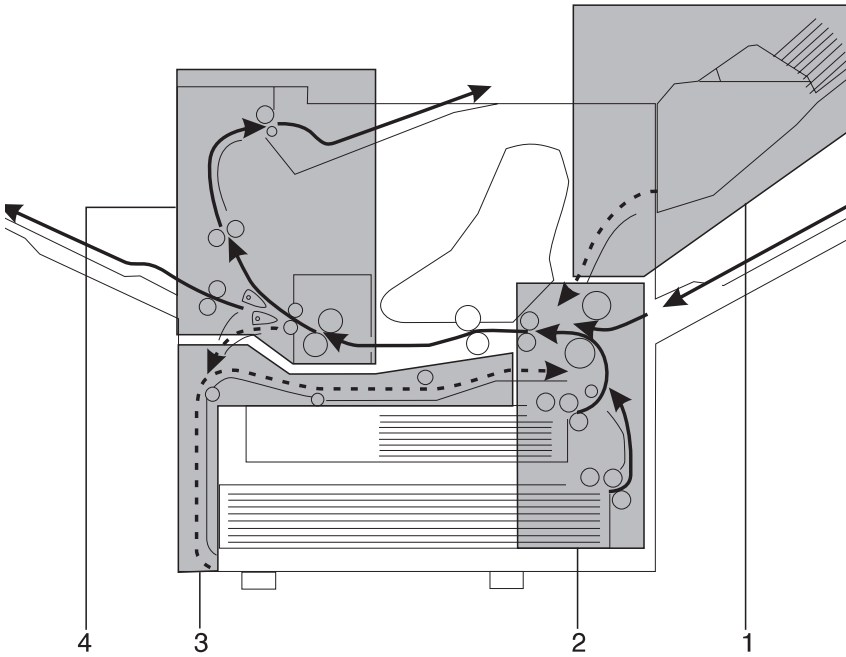
It is easier to troubleshoot paper feed problems if you override the top cover and delivery door interlock when you run paper feed tests in the diagnostic mode. To do this:

1. Access the paper menu through the operator panel and select submenu Output Bin. Select Side to exit the paper through the side output bin. Remember to return this to the original setting when you are finished.
2. Remove the top cover.
3. Locate the long, white, top cover actuator (4-5) at the top right of the machine. With the toner cartridge installed, this actuator also opens the laser shutter. To avoid exposure to the laser beam, keep the laser shutter closed. To do this, insert a screwdriver along the top of, and toward the rear of, the actuator until it switches the interlock switch on the switch sensor board.

The EP cartridge can be removed when you run any paper feed test but you must reinstall it before you clear any error codes. In order for paper to pass through all paper stations with the cartridge removed, you must use legal, or B4 paper. You may have to POR the machine to clear some error codes.

Paper passes through four major assemblies in the printer:

1. Multipurpose and Envelope Feeder
2. Paper Pick-Up and Registration
3. Duplexer
4. Fuser and Delivery



The following information explains troubleshooting for paper jams in each of these assemblies. This section also covers multiple paper feed, wrinkles, bent leading edge, and skewing. Locate your symptom in the **“Paper Feed Symptom Table”** on page 2-12 and take the indicated action.

### Bent Leading Edge of Paper Service Check

Be sure the recommended paper is being used. The paper should not be curled or wrinkled.

	FRU	Action
1	Paper Feed Tray	There may be too much paper loaded in the paper feed tray.
2	Paper Guide	The paper guide may be worn or deformed. Check the paper feed path, and replace the guide if it is damaged or deformed (15-2, 15-8).

## Duplexing Assembly Paper Jams Service Check

	FRU	Action
1	Feed Guide	Foreign matter may be adhering to the feed guide or it is burred. Remove any foreign matters. If the guide is burred, replace it (22-6).
2	<ul style="list-style-type: none"> <li>• Switchback Roller</li> <li>• Feed Roller</li> <li>• Duplex Feed Roller</li> </ul>	The switchback roller, feed roller, or duplex feed roller may be worn or deformed. Replace worn or deformed rollers. (22-61, 22-50, 22-51)
3	Rollers	Paper dust or dirt may be adhering to rollers. Remove the paper dust or dirt.
4	Gears	Gears may be worn or damaged. Replace any worn or damaged gears.
5	Sensor Arms	Sensor arms may not move smoothly or may be damaged. Adjust the arm so that it moves smoothly. If it is damaged. replace it (22-10, 22-18).
6	Duplexing Assembly Sensors	<p>Duplexing assembly sensors could be defective. Be sure all sensors are connected properly to the duplex board. If you suspect a sensor is bad, replace it. The sensors are:</p> <p>PS21, J2008 (22-29B)            PS22, J2007 (22-29)            PS23, J2006 (22-53)            PS24, J2007 (22-43)</p>

## Envelope Feeder Paper Jams Service Check

	FRU	Action
1	Envelopes	Be sure the recommended envelopes are being used and that there are not too many envelopes in the feeder.
2	Envelope Guide	The envelope guide may be pressing against the envelopes. Advise the customer not to set the envelope guide too close to the envelopes.
3	Envelope Feeder Rollers	Envelope feeder rollers may be worn or deformed. Run the paper feed test in Diagnostic Aids to determine which paper path is causing the problem. Replace any worn or deformed envelope feeder rollers (21-10, 21-19).  The envelope feeder roller may not rotate when a print is being made. Go to the <b>“Registration Roller Service Check”</b> on page 2-29.
4	Envelope Feeder Separation Guide and Lower Separation Roller Gap Adjustment	Check the <b>“Envelope Feeder Separation Guide and Lower Separation Roller Gap Adjustment”</b> on page 4-3.

## Fuser and Delivery, Paper Jams Service Check

	FRU	Action
1	Fuser Roller	The fuser roller does not rotate smoothly. Check for worn or missing gears.
2	Fuser Entrance Guide	The fuser entrance guide is dirty, damaged, or clogged with toner. Clean the guide.
3	Fuser Separation Guide	The fuser separation guide could be dirty, damaged, or clogged with toner. Clean the guide.
4	Fuser Separation Guide	The fuser separation guide could be worn or damaged. Replace the guide (18-10).
5	Upper Or Lower Fuser Roller	The upper or lower fuser roller could be deformed or damaged. Replace deformed or damaged rollers (18-20, 18-21).
6	Fuser Roller Pressure	The roller pressure may not be correct. Replace the fuser (18-1).
7	Fuser Delivery Sensor Arm	The fuser delivery sensor arm may not move smoothly or is damaged. Adjust the arm so that it moves smoothly. If it is damaged, replace it (18-22).
8	Fuser Delivery Roller	The fuser delivery roller is worn. Replace the fixing unit delivery roller (18-18).  The fuser delivery roller does not rotate smoothly. Check for worn or missing gears.
9	Face-Down Delivery Roller	The face-down delivery roller does not rotate smoothly. Check for worn or missing gears (17-15).

## Multiple Paper Feed Service Check

Be sure the recommended paper is being used.

If this problem occurs with the multipurpose tray, perform step 3 and subsequent steps.

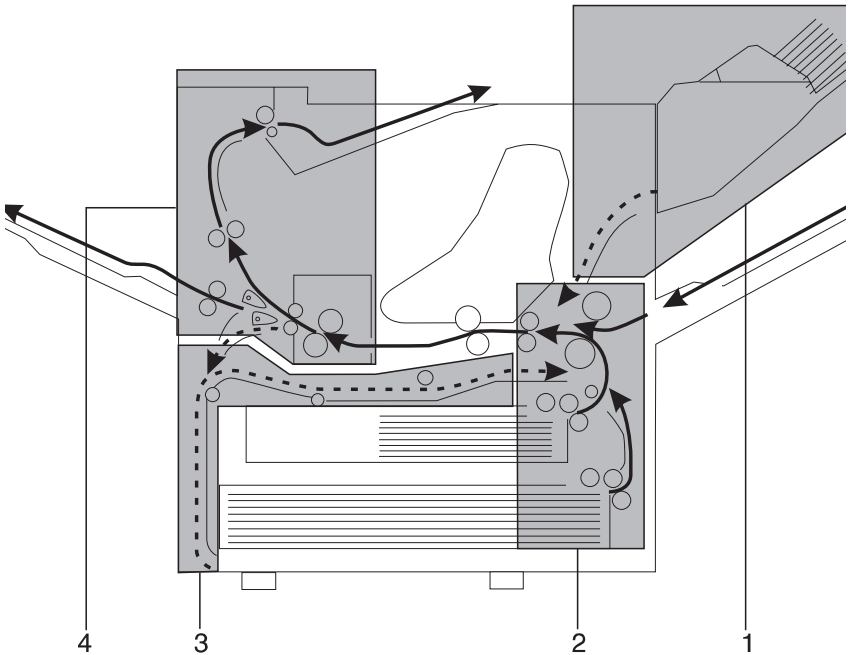
	FRU	Action
1	Separation Roller, Tray 1 and 2	The separation roller could be worn or deformed. Run the paper feed test in Diagnostic Aids to determine which paper path is causing the problem. Replace the separation roller (11-20).
2	Separation Roller Spring, Tray 1 and 2	The spring could be defective. Replace the spring (11-39) that pulls the separation roller.
3	Separation Pad, Multipurpose Tray	The separation pad surface could be worn. Replace the separation pad (14-10).
4	Separation Pad Spring, Multipurpose Tray	The spring could be defective. Replace the spring of the separation pad (14-10).



## Paper Jam Sensor Service Check

Paper passes through four major assemblies of the printer:

1. Multipurpose and Envelope Feeder
2. Paper Pick-Up and Registration
3. Duplexer
4. Fuser and Delivery



Paper movement is measured in time intervals. A paper jam error code is generated when the moving paper fails to arrive at a specific paper station (PS). This service check addresses only the paper stations that generate specific paper jam error codes.

In general, if a paper jam error code is displayed and the paper is under the paper station for that error code, the paper station sensor or adjoining parts have failed. If the paper has not reached the paper station that generated the error code, there is probably a mechanical

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failure, such as a guide, solenoid, clutch, motor, or gear, and you should go to the appropriate service check.

It is important to know which paper path your printer is using when the error code is generated. To check, clear all jammed paper and turn the printer off. Press the two lower buttons on the operator panel and turn the printer on. This puts the machine in the diagnostic mode and allow you to test each paper path separately. You can run one sheet of paper at a time to test each paper station. See Diagnostic Mode in Diagnostic Aids to run the paper feed tests.

Locate your paper jam error code in the following tables and take the indicated action.

## Paper Jam 20, Paper Deck Tray or Feeder

	FRU	Action
1	<ul style="list-style-type: none"> <li>Tray 1, 2</li> <li>Pick-Up Unit Paper Sensor (PS2)</li> </ul>	<p>Check PS2 pick-up unit paper sensor J219 on the system board, pin 8 (+5V) to ground. You should see a lower reading when the sensor detects paper. You can actuate this sensor by sliding a sheet of paper up the paper deck inlet to the printer. If the reading is incorrect, replace PS2 (11-48).</p> <p>If the reading is correct, and you still have a jam, check all actuators for the pick-up unit. If you still have a problem, the paper pick-up board (11-41) may be defective or you may have a mechanical problem. Before you replace the pick-up board, go to the <b>"Pick-Up Assembly Paper Jams Service Check"</b> on page 2-51 to determine if you have a mechanical problem.</p>

## Paper Jam 20

	FRU	Action
1	Tray 3	If the paper has not entered the paper deck feeder, go to the <b>"Paper Deck Registration Roller Service Check"</b> on page 2-58.
2	<ul style="list-style-type: none"> <li>PS32</li> <li>PS31</li> </ul>	If the paper is in the paper deck feeder, check PS32, J207-6 (+5V) and PS31, J207-3 (+5V) on the paper deck drive board for a lower reading when the sensor detects paper. Replace as necessary (PS32, 28-33 and PS31, 28-35).
3	Pick-up Unit Paper Sensor (PS2)	<p>If paper is in the printer, check PS2 pick-up unit paper sensor J219 on the system board, pin 8 (+5V) to ground. You should see a lower reading when the sensor detects paper. You can actuate this sensor by sliding a sheet of paper up the paper deck inlet to the printer. If the reading is incorrect, replace PS2 (11-48).</p> <p>If the reading is correct, and you still have a jam, check all actuators for the pick-up unit. If you still have a problem, replace the paper pick-up board (11-41). If you think you may have a mechanical problem go to the <b>"Pick-Up Assembly Paper Jams Service Check"</b> on page 2-51.</p>

## Paper Jam 21, Input

	FRU	Action
1	Registration Paper Sensor (PS1)	<p>Check for paper jams in both the envelope feeder and the multipurpose tray. Remove any paper. There are no paper jam sensors in either area. There is a printer input sensor (PS1) in the registration station.</p> <p>Remove the jammed paper and POR the machine. If you still have the error code, leave the machine on and check PS1 at J209, pin 3 (+5V) to ground. You should get a lower voltage reading when the switch is activated. The switch can be accessed by removing the EP cartridge. It is under the paper jam station 2 guide. If the reading is incorrect, replace PS1 (13-4). If you think you may have a mechanical problem go to the <b>"Pick-Up Assembly Paper Jams Service Check"</b> on page 2-51.</p>

## Paper Jam 22, Fuser

	FRU	Action
1	Fuser Paper Sensor Actuator  Switch Sensor Board (PS1403)	<p>Remove any paper from the fuser area.</p> <p>Be sure the actuator on the top, left, rear of the fuser is not broken.</p> <p>Test PS1403 (fuser PS) by checking for voltage at J205 pin 8 (+5V), to ground. If there is no voltage change when the sensor is activated, replace the switch sensor board (4-18). If you think you may have a mechanical problem go to the <b>"Pick-Up Assembly Paper Jams Service Check"</b> on page 2-51, or the <b>"Wrinkled Paper Service Check"</b> on page 2-52.</p>

**Paper Jam 23, Top Output/Delivery**

	FRU	Action
1	Delivery Sensor	Remove paper from the rear paper delivery guide.  Be sure the delivery sensor actuator operates freely.
2	Switch Sensor Board (PS1402)	Check the delivery paper sensor at J205, pin 9 (+5V) to ground for a higher reading when paper is detected. If there is no voltage change, replace the switch sensor board (4-18). If you think you may have a mechanical problem go to the <b>"Pick-Up Assembly Paper Jams Service Check" on page 2-51</b> , or the <b>"Wrinkled Paper Service Check" on page 2-52</b> .

**Paper Jam 25, Duplex**

	FRU	Action
1	Duplex (PS21)	Clear all paper from the duplex unit.  Check under tray 2 of the printer for loose paper that may cause interference with the duplex switch-back roller.  If you still have the error, go to the <b>"Duplexing Assembly Paper Jams Service Check" on page 2-41</b> .

**Paper Jam 27, Paper Size/Change Paper**

	FRU	Action
1	Paper Tray 1 Paper Tray 2	Be sure the trays are correctly installed.
2	Paper Guides	The paper size detection levers may not be pressed because the paper guides are not properly inserted. Check the paper guides and replace the detection levers if they are damaged.

	<b>FRU</b>	<b>Action</b>
3	Guides	Be sure the side and end guides are installed in the correct paper size slots. Replace the guides if they are damaged.
4	Front Lock	Be sure the front paper size lock is completely locked. Replace the lock if it is damaged.
5	Paper Size Sensor Indicators	Be sure the upper (10-4) and lower (9-4) paper size indicators are not damaged and that they change when a different paper size is selected.
6	Paper Size Sensing Spring Cassette Size Board	The paper size sensing indicators come in contact with the paper size sensing springs (3-2) and then the cassette size sensing board (3-30). Check for damaged parts and replace as required. If you still have a problem, replace the cassette size board (3-30).

## Paper Skew Service Check

Be sure the recommended paper is being used and there is not too much paper on the paper feed slot.

	<b>FRU</b>	<b>Action</b>
1	Guide Edge	Be sure the paper is aligned with the guide edge of the multipurpose tray.
2	Registration Rollers	Paper dust or dirt may be adhering to the registration rollers (12-6, 12-10) or the feed guide. Remove the paper dust or dirt.

## Pick-Up Assembly Paper Jams Service Check

Be sure the recommended paper is being used and that the paper is not curled or wrinkled.

If Jams occur in the manual feed pick-up assembly, perform step 3 below and all subsequent steps.

If jams occur in the cassette paper pick-up assembly, perform step 6 and all subsequent steps.

	FRU	Action
1	Registration Clutch	The registration clutch does not work properly. Go to the <b>“Registration Roller Service Check” on page 2-29.</b>
2	Registration Roller	The registration roller could be worn, deformed, or dirty. Clean or replace as required (12-10).
3	Paper	There could be too much paper on the multi-purpose tray. Check and advise the customer not to over load the tray with paper.
4	Manual Feeding Pick-Up Roller	The manual feed lift plate may be binding due to excessive lubrication. The manual feeding pick-up roller could be worn, deformed, or dirty. Clean the manual feeding pick-up roller if it is dirty. Replace if worn or deformed (14-14).
5	Pick-up Roller	The pick-up roller may not rotate when a print is being made. Go to the <b>“Paper Pick-Up from Multipurpose Tray Service Check” on page 2-27.</b>
6	Cassette	The cassette may not be positioned correctly. Re-position the cassette properly.  There could be too much paper in the cassette.  Run the paper feed test in Diagnostic Aids to determine which paper path is causing the problem.

	FRU	Action
7	<ul style="list-style-type: none"> <li>• Cassette Pick-Up Roller</li> <li>• Separation Roller</li> <li>• Feed Roller</li> </ul>	The cassette pick-up roller (11-20), separation roller (11-20), or feed roller (11-38) could be worn or deformed. Replace if worn or deformed. Run the paper feed test in Diagnostic Aids to determine which paper path is causing the problem.
8	Cassette Pick-Up Roller	The cassette pick-up roller may not rotate when a print is being made. Run the paper feed test in Diagnostic Aids to determine which paper path is causing the problem. Go to the <b>"Paper Pick-Up from Cassettes Service Check"</b> on page 2-26.

## Wrinkled Paper Service Check

Be sure the recommended paper is being used and the paper is not damp.

	FRU	Action
1	Separation Roller	The separation roller (11-20) may be worn or deformed. Run the paper feed test in Diagnostic Aids to determine which paper path is causing the problem. Open the upper cover before a sheet of paper enters the fuser. If there are wrinkles on the paper at this point or the paper is skewed, check the pick-up assembly.
2	Fuser Entrance Guide	The fuser entrance guide may be dirty. Clean the guide.
3	Fuser Lower Roller	The fuser lower roller may be dirty. Replace the fuser lower roller (18-21).
4	Fuser Upper Roller	The fuser upper roller may be deformed or worn. Replace the roller (18-20).



## Paper Deck Service Checks

### Paper Deck Feed Roller Service Check

	FRU	Action
1	Gears	Gears could be damaged. Replace any damaged gears (27-11).
2	Feed Clutch (CL33)	The feed clutch could be damaged. Remove connector J102. Measure the resistance between connectors J102-9 and J102-10 on the clutch side. If it is not about 210 Ohms, replace the feed clutch (26-5).
3	Paper Deck Driver Board	The paper deck driver board could be defective. Replace the paper deck driver board (23-41).

### Paper Deck Lifting Plate Service Check

	FRU	Action
1	Tray	The tray may not be correctly installed. Reload the tray.
2	Paper Guides	The paper size detection lever may not be pressed because the paper guides are not properly inserted. Insert the paper guides correctly.
3	Guides	Be sure the side and end guides are installed in the correct paper size slots.
4	Wire	A wire may be cut. Replace the wire (24-2, 24-11).
5	Gears	Check for and replace damaged gears.
6	Lifter Clutch (CL31)	Remove connector J119 on the paper deck driver board from the lifter clutch. Measure the resistance between connectors J119-1 and J119-4 on the clutch side. Replace the lifter clutch (26-5) if the resistance is not about 155 Ohms.

	<b>FRU</b>	<b>Action</b>
7	Sensing Switch (SW31)	Remove connector J121 from the lifter abnormal position sensing switch. Measure the resistance between connectors J121-1 and J121-2 on the switch side. Replace the switch, (26-43) if the resistance reads infinity when the switch is closed.
8	Sensor Lever	Adjust the lever so it moves smoothly. Replace if damaged.
9	Paper Surface Sensor (PS33, PS34)	Pull the tray half way out and lower it. Turn the printer power on. Measure the voltage between connectors J208-8 (LIFT) and J208-6 (+5V) on the paper deck driver board. Replace the sensor (27-30) if the voltage is about 5 V.
10	Paper-Size Sensing Switch Board	The paper-size sensing switch board could be bad. Replace the switch (23-18).
11	Paper Deck Driver Board	The paper deck driver board could be bad. Replace the board (23-41).

## Paper Deck Motor Service Check

	FRU	Action
1	Drive Signal Line Connector	The deck motor drive signal line connector may not be connected properly. Reconnect deck motor connector J118 and connector J204 on the paper deck driver board.
2	Deck Motor (MT31)	The deck motor may be defective. Measure the voltage between connectors J204-4 (DCMOT-ON) and J204-2 (GND) on the paper deck driver board. Pull out the tray. If the measured value changes from 5 V to 0 V, when you push the tray back in, replace the deck motor (26-3).
3	Paper Deck Driver Board	The paper deck driver board could be defective. Replace the paper deck driver board (23-41).

## Paper Deck Paper Pick-Up Service Check

	FRU	Action
1	Paper Pick-up Drive Assembly	There could be a damaged part in the paper pick-up drive assembly. Remove the pick-up assembly and replace any damaged parts (26-1).
2	Pick-Up Solenoid (SL31)	Remove pick-up solenoid connector J115. Measure the resistance between connectors J115-1 and J115-2 on the cable side. If it is not about 190 Ohms, replace the pick-up solenoid (27-42).
3	Pick-Up Motor (SMT31)	The pick-up motor could be defective. Load one sheet of paper into the paper deck. Then after shorting jumpers JP201-2 (TEST-1) and JP201-1 (GND) on the paper deck driver board, turn the printer power switch on. If the pick-up motor does not rotate at that time, replace the motor (27-48).
4	Paper Deck Driver Board	Paper deck driver board could be bad. Replace it (23-41).

	<b>FRU</b>	<b>Action</b>
5	Paper Deck Option Con- troller Card	The option controller card could be defective (29-1).
6	Controller Card	The controller card could be defective (19-2).

## Paper Deck Power Input Service Check

Be sure voltage is present at the outlet and the power cords are firmly plugged into the printer and paper deck.

	FRU	Action
1	Connector	If the power on signal is not being input, there may be a poor connection at the interface connector. Reconnect the interface connector.
2	Power On Signal	If the power on signal is not being input:  Turn the printer power switch on. Measure the voltage between jumper connectors JP201-1 (PWRON-IN) and JP201-1 (GND) on the paper deck driver board. If the value is not about 5 V, replace the option controller card. If this does not correct the problem, replace the controller card (19-2).
3	Fuse	If the fuse is blown, remove the power supply and replace the fuse (23-24).
4	Overcurrent/overvoltage Detection Circuit	If the overcurrent/overvoltage detection circuit has been activated, turn the power switch off and on. If this does not correct the problem, investigate the cause of the overcurrent/overvoltage detection circuit being activated. Be sure to turn the power off for 2 minutes then turn it on again.
5	Power Supply	Turn the printer power switch off and remove connector J203 from the paper deck driver board. Plug the power cable into the power supply and turn the printer power on. Then measure the dc power supply through connector J203. While doing this be careful not to short it. If the correct voltage is not being output replace the power supply (23-25).
6	Cable, DC Load and Paper Deck Driver Board	Turn the printer power switch off, and check the lines and dc loads from the paper deck driver board. If there are no problems with either of them, replace the paper deck driver board (23-41).

## Paper Deck Registration Roller Service Check

	FRU	Action
1	Gears	Gears could be damaged. Replace any damaged gears.
2	Registration Clutch (CL32)	The registration clutch could be defective. Remove connector J102. Measure the resistance between connectors J102-7 and J102-8 on the clutch side. If it is not about 210 Ohms, replace the registration clutch (28-13).
3	Paper Deck Driver Board	The paper deck driver board could be defective. Replace the paper deck driver board (23-41).

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## Paper Deck Paper Feed Service Checks

### Paper Deck Bent Leading Edge Service Check

Be sure the recommended paper is loaded in the machine and the paper is not curled, wrinkled or deformed. Also be sure the correct amount of paper is loaded.

	FRU	Action
1	Paper Guide	The paper guide could be scratched or deformed. Check the paper feed path and replace the guide if it is scratched or deformed.

## Paper Deck Left Edge Registration Service Check

	FRU	Action
1	Paper Guide	The paper guide may not be inserted into the correct paper size position.  The upper or lower end of the paper guide may not be inserted into the same paper size position

## Paper Deck Multiple Paper Feed Service Check

Be sure the recommended paper is loaded in the printer.

	FRU	Action
1	Separation Roller	The separation roller could be worn or deformed. Replace the separation roller (27-22).
2	Spring	The spring holding the separation roller could be defective. Replace it.

## Paper Deck Paper Jam Service Check

Be sure the paper is loaded correctly and is not bent. Also be sure there is not too much paper loaded.

	FRU	Action
1	Guides	The side and end guides may not be inserted correctly. (For example when feeding A4 size paper, if the end paper guide has not been inserted the paper deck presumes that A3 paper is to be fed, causing a paper jam due to a difference in timing. Insert the guides correctly.
2	Pick-Up Separation Or Feed Roller	The pick-up separation or feed roller may be worn or deformed. Replace if worn or deformed. Be sure to replace the separation and feed rollers together (27-22).

	FRU	Action
3	Paper Deck Pick-Up Roller	The paper deck pick-up roller may not be rotating during printing. Go to <b>“Paper Deck Registration Roller Service Check”</b> on page 2-58.

### Paper Deck Paper Skew Service Check

Be sure the recommended paper is correctly loaded in the machine and the paper is not curled, wrinkled or deformed. Also be sure the correct amount of paper is loaded.

	FRU	Action
1	<ul style="list-style-type: none"> <li>• Registration Roller</li> <li>• Paper Feed Guide</li> </ul>	There may be paper dust or dirt in the registration roller assembly (28-26) or on the paper guide (28-21, 28-36). Clean any dirty areas.

### Paper Deck Wrinkled Paper Service Check

Be sure the recommended paper is loaded in the machine and the paper is not damp.

	FRU	Action
1	Rollers	Check the various rollers in the pick-up and feed units, replace any that are worn or deformed.



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### 3. Diagnostic Aids

This printer can run internal diagnostics tests. These tests are in the same format as the other Optra models and are described in this chapter.

The printer may be tested without the controller card. The basic engine test will isolate any a failure to either the engine or the controller card.

If the printer is configured with the optional sheet feeder or any of the internal options, remove the option(s) and run one of the three diagnostic methods to determine where the problem is located.

#### Interlock Override

It is easier to troubleshoot paper feed problems if you override the top cover and delivery door interlock when you run paper feed tests in the diagnostic mode. To do this:

1. Access the paper menu through the operator panel and select submenu Output Bin. Select Side to exit the paper through the side output bin. Remember to return this to the original setting when you are finished.
2. Remove the top cover.
3. Locate the long, white, top cover actuator (4-5) at the top right of the machine. With the toner cartridge installed, this actuator also opens the laser shutter. To avoid exposure to the laser beam, keep the laser shutter closed. To do this, insert a screwdriver along the top of, and toward the rear of, the actuator until it switches the interlock switch on the switch sensor board.

The EP cartridge can be removed when you run any paper feed test but you must reinstall it before you clear any error codes. In order for paper to pass through all paper stations with the cartridge removed, you must use legal, or B4 paper. You may have to POR the machine to clear some error codes.

## Basic Engine Test

This test eliminates the controller card as the source of a malfunction.

1. Turn the printer off.
2. Disconnect the controller card by sliding it to the rear 1 inch. The display will not function until the controller card is reconnected.
3. Turn the printer on, and observe the POST sequence. If the printer completes POST, it is functioning properly. Be sure tray 2 has paper loaded.
4. Insert a small screwdriver through the small 1/4 inch square hole in the right, top, rear side cover.
5. Press the Engine Test Print switch through the 1/4 inch hole and verify a machine paper pick-up from tray 2 and output on top exit with vertical lines running down the page.
6. Turn the printer off and reseal the controller card.
7. POR the machine to continue using the operator panel.

## Menu Disable

To disable or lockout the menu press the Return key and top soft button as you turn the printer off and on. The printer will power up and display the Ready screen without the MENU soft key. This prevents a user from changing anything from the panel. Status and attendance messages will be displayed normally. To re-enable the menus repeat the above POR sequence.

## Option-2000 Sheet Paper Deck (Tray 3) Self Test

The paper deck has a self test mode that allows paper to feed from the paper deck without the base printer being activated. To run the test:

1. Turn the printer off.
2. Remove the back cover of the paper deck.
3. Locate the paper deck driver board near the top, rear.

4. Locate JP201 on the paper deck board.

Jumper Number	Function
JP201-1	GND
JP201-2	TEST-1: Jumper to enter the test mode.
JP201 -3	TEST-2: reserved
JP201-4	+5V
JP201-5	PWRON-IN signal

5. Short out TEST-1 and GND, and turn on the printer, to enter test mode. Once in test mode, the paper pick-up operation runs continuously as long as TEST-1-1 and GND are shorted and paper is loaded. If TEST-1 and GND are opened the test mode is canceled, stopping the paper pick-up operation. To re-enter the test mode and continue the pick-up process, short TEST- 1 and GND again.
6. You must POR the machine after completing this test.

Even though the paper deck enters test mode and runs the pick-up operation, the printer does not operate. Therefore, if paper is picked-up and fed into the printer itself, a jam will occur. For this reason it is important that care is taken while operating the test mode to only load one sheet of print paper at a time in the tray. If multiple sheets of paper are loaded in the tray, the paper deck will continuously feed paper into the printer until running out causing a paper jam in the printer. If you tape a piece of paper over the printer input slot paper exiting from the paper deck will not enter the printer.

Test mode will not be entered if the power is turned on before shorting TEST- 1 and GND.

Test-1 should be left open.

## Diagnostics Mode

To run the printer diagnostic tests, you must put the printer in Diagnostics mode. The controller card must be plugged into the system board (normal state).

**Note:** Entering the Diagnostic mode clears NVRAM.

To enter Diagnostics mode:

1. Turn the printer off.
2. Press and hold the Ready and Return buttons as you turn on the machine. The printer performs the Power-On Self Test.
3. Release the buttons when [Performing Self Test] is displayed.
4. You can exit Diagnostics mode without a POR by selecting [Reset Printer].

## Diagnostics Mode Menu Structure

The following is the Diagnostics mode menu structure, The indented items are submenus available under the main menu items, which are in capital letters on the operator panel. Menu items referring to options will only be present if those options are installed. Menus with more than four items will use [MORE] on the fourth operator panel button to access the next screen of selections.

### PRINT TESTS

- Print Test 1
- Print Test 2
- Print Test 3
- Envelope Print Test

### PRINT REGISTRATION

- Left Margin
- Top Margin
- Quick Test

### HARDWARE TESTS

- LCD Test

## **4040**

- Button Test
- Parallel Confidence Test
- Wrap Tests
  - Parallel
  - Serial
- Memory Tests
  - DRAM
  - ROM

### **PAGE COUNTS**

- Page Count
- Permanent Page Count
- Maintenance Page Count

### **PAPER FEED TESTS**

- Tray 1
- Tray 2
- Tray 3 (if installed)
- Multipurpose
- Feeder (if installed)

### **DUPLEX**

- Duplex Quick Test

### **DEVICE TESTS (If Installed)**

- Disk Test/Clean
- Quick Disk Test
- Flash Test

### **PRINTER SETUP**

- Defaults

### **ERROR LOG**

### **RESET PRINTER**

---

## Diagnostics Mode Tests

### Button Test

To test the operator panel buttons:

1. Enter Diagnostics mode.
2. Select [HARDWARE TESTS].
3. Select [Button Test].
4. Press each button. [Closed] is displayed until the button is released. Then [Open] is displayed.
5. Press Return to return to the Diagnostics mode main menu.

### Defaults

Allows setting the following defaults to U.S. or Non U.S. values.

U.S.	NON U.S.
Letter size paper	A4 paper
Symbol Set Roman-8	Symbol Set PC-850

1. Enter Diagnostics mode.
2. Select [PRINTER SETUP].
3. Select [Defaults].
4. Select [U.S.] or [NON U.S.].
5. Press Return to return to the Diagnostics mode main menu.

### Disk Test/Clean

This is a 90 minute test that should be performed only on a disk that contains bad data and is therefore unusable.

This test destroys all data on the disk by doing a multi-pass read/write on every block of the disk. Bad blocks are flagged and removed from use. If over 2000 bad blocks are found, the test stops and the display indicates the disk must be replaced.

A message describing test progress is displayed during the test.

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1. Enter Diagnostics mode.
2. Select [DEVICE TESTS].
3. Select [Disk Test/Clean].
4. Select [CONTINUE] to start the test, or [CANCEL] to return to Diagnostics mode main menu.
5. Select [CANCEL] to interrupt the test.
6. Press Return to return to the Diagnostics mode main menu.

### Duplex Quick Test

Print on both sides with machine specification information on one side.

### Error Log

The list of the six most recent errors is displayed. The newest error is displayed in position one. In a full log, position six is the oldest error. If more than six errors are received, the oldest error is discarded. If a position is all zeros, then not enough errors have occurred to fill up the log to that position. When a new error is received a check is done to see if that error is identical to the last error received. If so, it is not recorded. Identical errors may appear in the log if there were intervening errors.

The following error messages are stored in the error log.

20 Paper Jam	24 Paper Jam (Short Paper)
21 Paper Jam	25 Paper Jam
22 Paper Jam	26 Paper Jam
23 Paper Jam	All 9XX messages

1. Enter Diagnostics mode.
2. Select [ERROR LOG].
3. Select [CLEAR] and then [CONTINUE] to clear the error log.
4. Press Return to return to the Diagnostics mode main menu.

## Flash Test

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

1. Enter Diagnostics mode.
2. Select [DEVICE TESTS].
3. Select [Flash Test].

The operator panel displays [Passed] or [Failed].

4. Press Return to return to the Diagnostics mode main menu.

## LCD Test

To test the operator panel display:

1. Enter Diagnostics mode.
2. Select [HARDWARE TESTS].
3. Select [LCD Test].
4. Select [Single] or [Continuous].
5. The display goes through a continuous sequence of turning pels on and off.
6. Press Return to stop continuous LCD test.
7. Press Return to return to the Diagnostics mode main menu.

## Memory Tests

1. Enter Diagnostics mode.
2. Select [HARDWARE TESTS].
3. Select [Memory Test].
4. Select either [DRAM], or [ROM].
5. Select [Single] or [Continuous].
6. The display indicates [PASSED], or [FAILED].
7. Select [CANCEL] to stop continuous memory test.
8. Press Return to return to the Diagnostics mode main menu.



## Paper Feed Tests

Tray 1

Tray 2

Tray 3

Multipurpose

Feeder

## Page Count

To view or set the page count:

1. Enter Diagnostics mode.
2. Select [PAGE COUNTS].
3. Select [Page Count].
4. Choose any number between 0000000 and 9999999 by selecting [Next] to move the cursor under each digit. Select [+] or [-] to select the number you want in each digit.
5. Select [SAVE] to save the page count displayed.

## Permanent Page Count

The permanent page count can be only displayed. It cannot be modified or reset by the customer or servicer.

1. Enter Diagnostics mode.
2. Select [PAGE COUNTS].
3. Select [Permanent Page Count].
4. Press Return to return to the Diagnostics mode main menu.

## Print Test 1

Print Test 1 generates one printout similar to the test page. This test uses paper from tray 1 only.

To run Print Test 1:

1. Enter Diagnostics mode.
2. Select [PRINT TESTS].
3. Select [Print Test 1].
4. Select [Single] or [Continuous].
5. Select [CANCEL] to stop continuous print.
6. Press Return to return to the main Diagnostics mode main menu.

## **Print Test 2**

Print Test 2 generates two printouts: a page similar to the test page, and a fine dot pattern with two black 1 inch squares which can be used to evaluate banding or other print quality problems. If you have a duplex option installed, the two printouts print on one piece of paper.

To run Print Test 2:

1. Enter Diagnostics mode.
2. Select [PRINT TESTS].
3. Select [Print Test 2].
4. Select [Single] or [Continuous].
5. Select [Cancel] to stop continuous print.
6. Press Return to return to the main Diagnostic main menu.

## **Print Test 3**

This test generates two printouts: a solid black page, the second page is a gray scale page. The gray scale can be used to spot developer band problems.

1. Enter Diagnostics mode.
2. Select [PRINT TESTS].
3. Select [Print Test 3].
4. Select [Single] or [Continuous].
5. Select [Cancel] to stop continuous print.
6. Press Return to return to the Diagnostics mode main menu.

## Print Registration

Use the 3 sub menus of this selection to adjust the left margin, adjust the top margin, and to verify the settings.

### Left Margin

When you select Left Margin, the current value of the left margin is indicated in the display. The value can be set from -23 to 23. Each unit represents 1/75 inch. Press the + key to move the margin to the right. Press the - key to move the margin to the left. To save the value, press Save. To cancel, press Return. The default margin is 1/4 inch.

### Top Margin

When you select Top Margin, the current value of the top margin is indicated in the display. Each unit represents 1/100 inch. Press the + key to move the text down the page and widen the top margin. Press the - key to move the text up the page and narrow the top margin. To save the value, press Save. To cancel, press Return.

### Quick Test

Use the quick test page to verify the print registration settings, as well as to verify the printer can print pages. The page consists of the alignment box and diamonds from Print Test 1, horizontal lines used for skew adjustment, the page count setting, printer serial number, code levels, and print registration settings.

## Envelope Print Test

Select Envelope Print to pick an envelope from Manual Envelope if a Feeder is not installed, an envelope from the Envelope Feeder (if the Feeder paper size is set for an envelope size). Text prints on the first envelope. If Single has been selected, the test stops after the first envelope or sheet of paper. If you select Continuous, envelopes or paper will continue to feed, but will not be printed, until the test is cancelled.

## Quick Disk Test

This test performs a non-destructive write/read on one block per track on the disk. The test will read one block on each track, save the data, and proceed to write and read four test patterns to the bytes in the block. If the block is good then the saved data will be written back out to the disk.

The Quick Disk Test does not destroy data on the disk; existing data is read and stored prior to the testing of each track, and then rewritten after the track is tested.

1. Enter Diagnostics mode.
2. Select [DEVICE TESTS].
3. Select [Quick Disk Test].
4. The display will indicate [Test Passed] or [Test Failed].
5. Press Return to return to Diagnostics mode main menu.

## Wrap Tests

The Wrap Tests check the circuits used to communicate with the host computer.

To run the Wrap Test:

1. Turn the printer off.
2. Disconnect the interface cable.
3. Install the wrap plug in one of the interface cable connectors.  
Note: Install the parallel wrap plug part no. 1319128 for the parallel test or install the 25-pin serial wrap plug part no. 1329048 for the serial test.
4. Enter Diagnostics mode.
5. Select [HARDWARE TESTS].
6. Select [Wrap Test].
7. Select [Parallel] for the parallel port or [Serial] for the 25-pin serial port.
8. Select [Single] or [Continuous].
9. Select [CANCEL] to stop continuous.

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A [Passed] message indicates the printer connection to the printer cable connector is good.

A [Failed] message indicates a defective RIP board.

**Note:** Ignore the number displayed after a failure is displayed.

10. Press Return to return to the Diagnostics mode main menu.
11. Turn the printer off, then remove the wrap plug from the interface connector.

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## 4. Repair Information

This chapter describes mechanical operation as well as adjustments and removal procedures. Whenever you replace parts, make sure that all adjustments are correct by running diagnostics procedures and checking adjustments as needed. Note the following precautions during disassembly or reassembly.

- When you remove the EP cartridge, cover the cartridge with a cloth or put it in a dark place to prevent light from affecting the drum inside the cartridge.
- Remove the cartridge from the printer before you disassemble or transport the printer.
- Disconnect the power cord from the electrical outlet before you service the printer.
- Assembly is the reverse of disassembly unless otherwise specified.
- Note the lengths, diameter and locations of screws as you remove them. When you reassemble the printer be sure to put the screws in their original location.
- Do not operate the printer with any parts removed.
- Read the following ESD information.

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## Handling ESD-Sensitive Parts

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

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

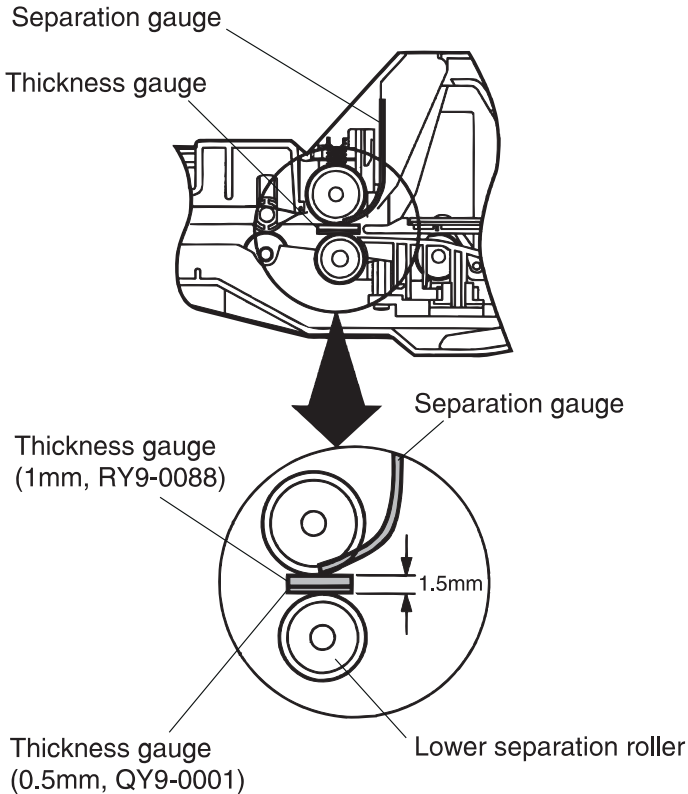
## Adjustments

### Envelope Feeder Separation Guide and Lower Separation Roller Gap Adjustment

Under normal conditions, remove the separation guide along with the upper cover. If you removed just the separation guide or replaced a bent separation guide, adjust the gap as follows:

Insert the separation guide 1.5 mm from the lower separation roller. Adjust its position by inserting the thickness gauges (1 mm and 0.5 mm) into the gap between the separation guide and the lower separation roller.

Cross sectional view of the envelope feeder

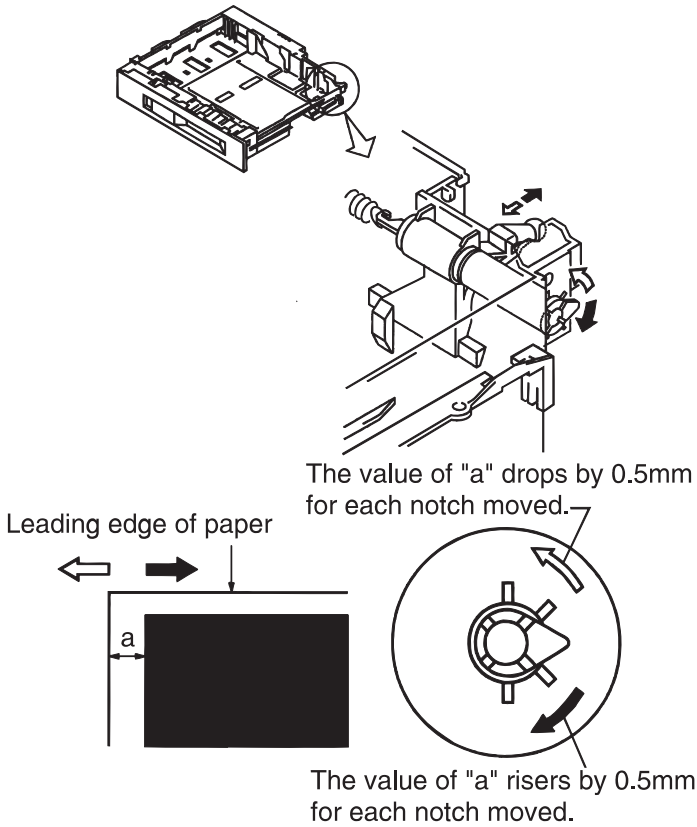




## Paper Drawer Cassette Side Registration Adjustment

Make this adjustment when the side registration of the cassette is not aligned. The side adjustment registration levers in the upper and lower cassettes are adjusted in the factory. There is no need to make adjustments when you install the machine. However, in the event that either the upper or lower cassette needs replacing in the field, re-adjustment of the margins on the left side is necessary. To make the adjustment:

1. Load 20 - 30 sheets of paper in the cassette. Print several pages of all-black or horizontal line test prints.
2. Measure the distance (a) between the left edge of the page to the edge of the printed pattern. Measure several test prints to find the average distance.
3. Move the side registration adjustment lever so the distance measured in step 2 is 5.0 mm. One notch alters length (a) by 0.5 mm. For example, if the average length of step 2 is 4.0 mm, by moving the lever 2 steps clockwise the necessary adjustment of 1.0 mm can be made.
4. Make several more test prints. Make sure the margin on the left side is 5.0 mm by repeating step 2 above.



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## Service Information

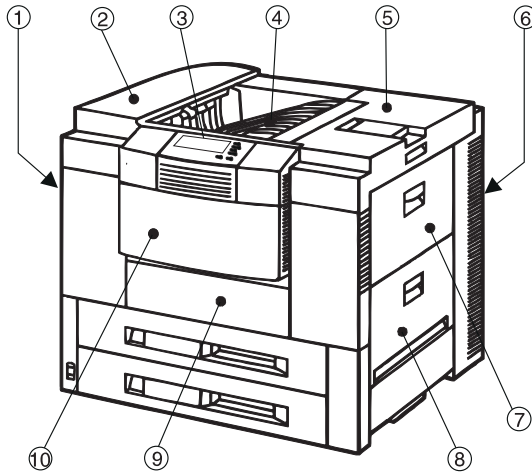
### Releasing Plastic Latches

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

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## External Parts Removal Procedures

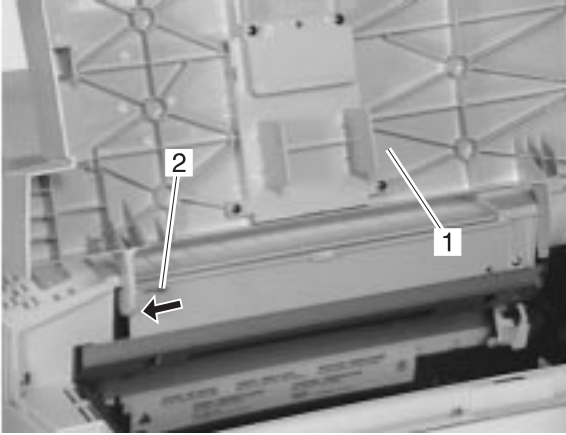
### Cover Removal Procedures



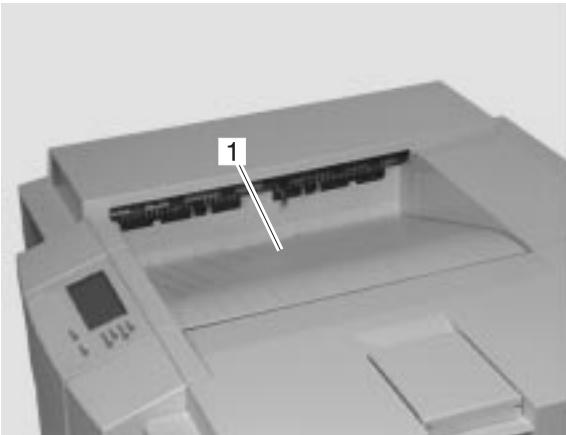
1. Delivery Cover
2. Upper Cover
3. Operator Panel
4. Face-down Tray
5. Upper Cover
6. Rear Cover
7. Multipurpose Tray
8. Pick-Up Door
9. Duplex Door
10. Front Cover

## Face-Down Tray Removal

1. Open the upper cover (1).
2. Move the lock lever (2) in the direction of the arrow.

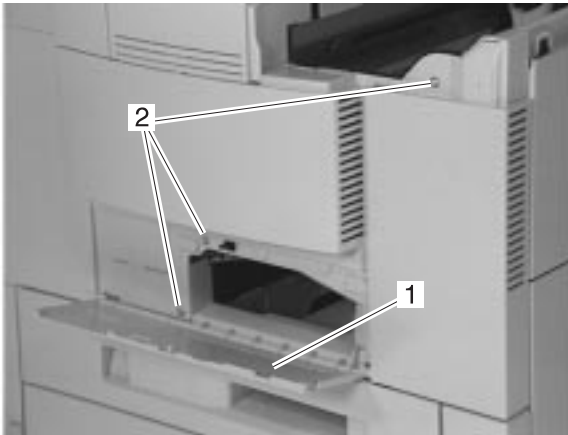


3. Close the upper cover and remove the face-down tray (1).

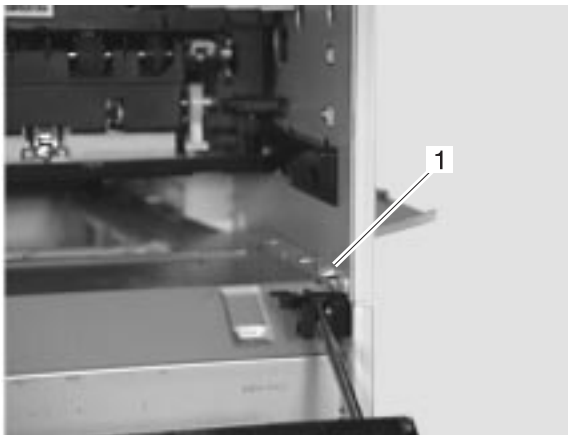


## Front Cover Removal

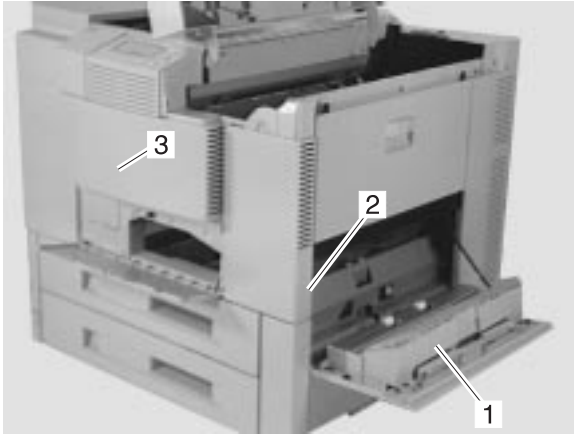
1. Open the upper cover.
2. Open the duplex door (1).
3. Remove the 3 screws (2).



4. Open the delivery cover, and undo the latch (1).

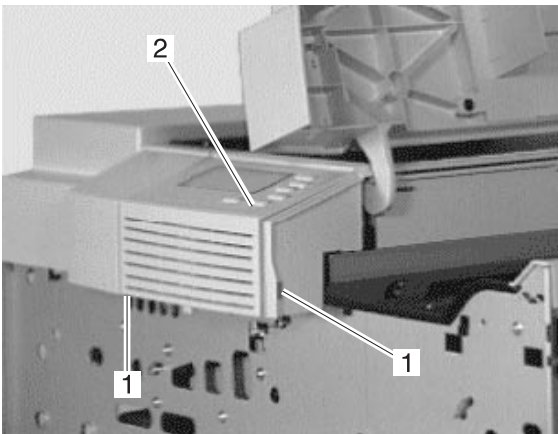


5. Open the pick-up unit door (1), disconnect the latch (2) and remove the front cover (3).



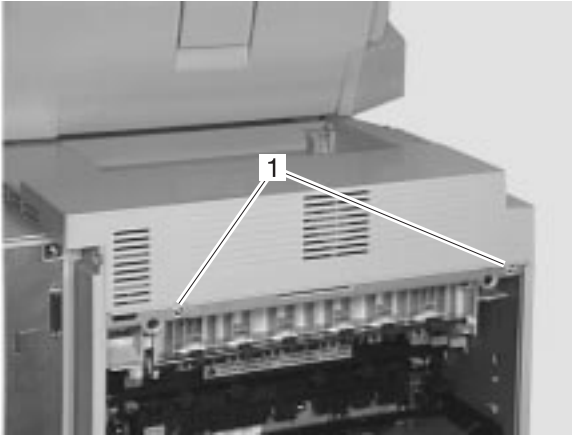
### Upper Cover Removal

1. Remove the face-down tray.
2. Remove the front cover.
3. Remove the 2 latches (1), and then the operator panel (2).
4. Disconnect the connector from the operator panel.

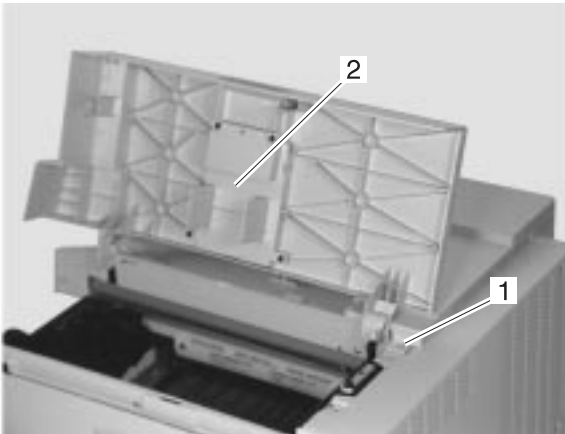


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5. Remove the 2 screws (1).

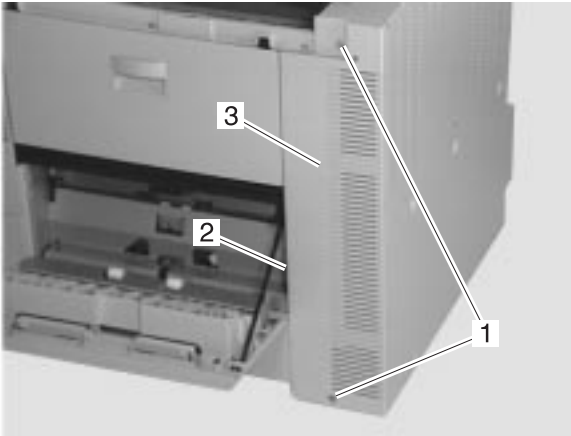


6. Remove the screw (1), and then the upper cover (2).

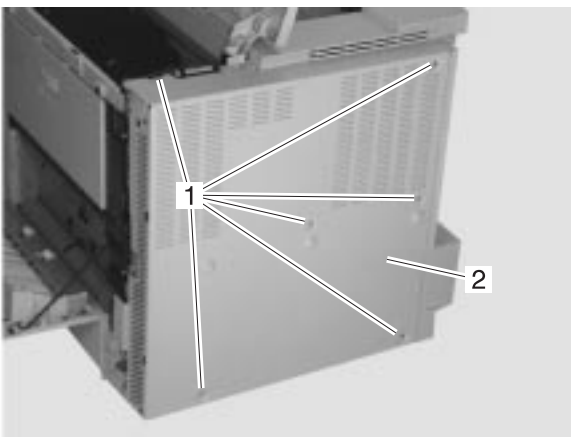


## Rear Cover Removal

1. Open the upper cover.
2. Open the pick-up door.
3. Remove the 2 screws (1), the latch (2), and the right rear cover (3).



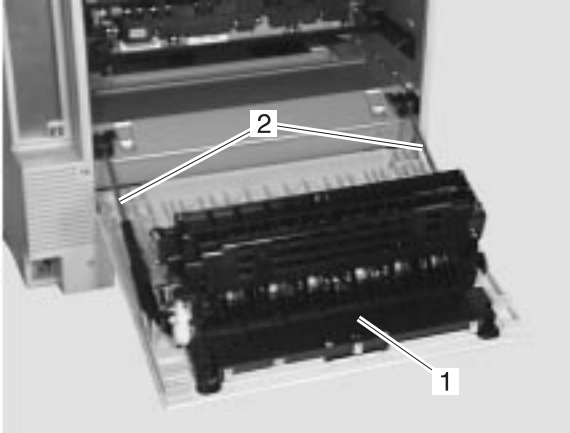
4. Remove the 6 screws (1) and take off the rear cover (2).





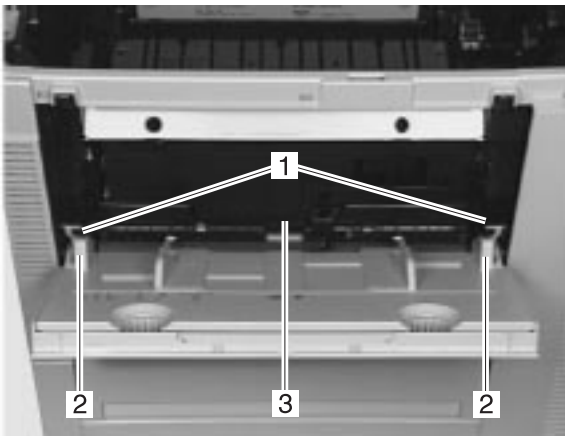
### Delivery Cover Removal

1. Open the delivery cover (1).
2. Remove the 2 rods (2) holding the delivery cover, pull out the right side first, then the left.



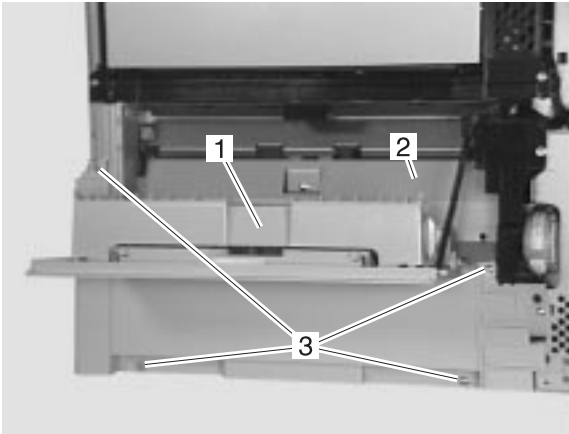
### MultiPurpose Tray Removal

1. Open the multipurpose tray.
2. Remove the 2 stoppers (1).
3. Undo the 2 latches (2) holding the multipurpose tray unit, and pull the tray (3) out toward you.

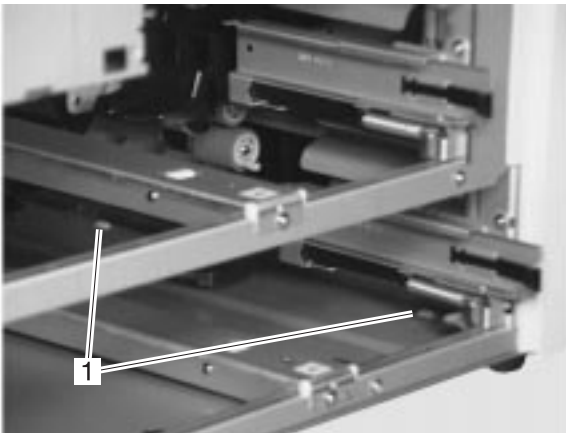


## Right Cover Removal

1. Remove the front cover.
2. Remove the right cover (1).
3. Remove the hinge (2) from the right cover, and then the 4 screws (3).



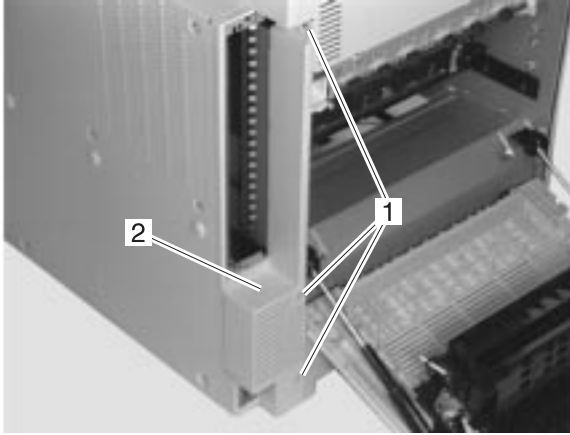
4. Remove the cassettes.
5. Remove the 2 latches (1), and then the right cover.



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### **Left Rear Cover Removal**

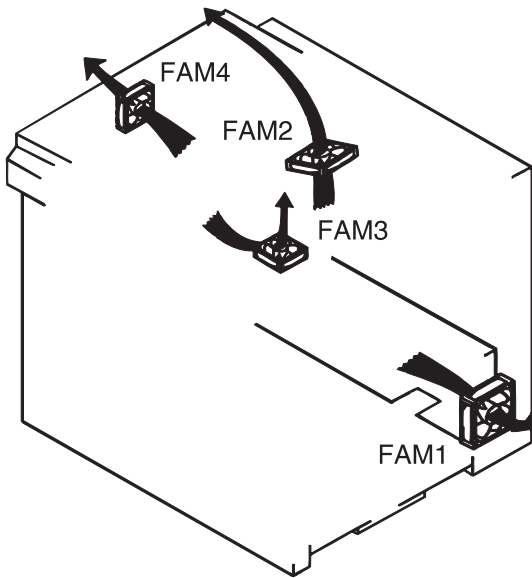
1. Open the delivery cover.
2. Remove the 3 screws (1) and the left rear cover (2).



## Fan Removal Procedures

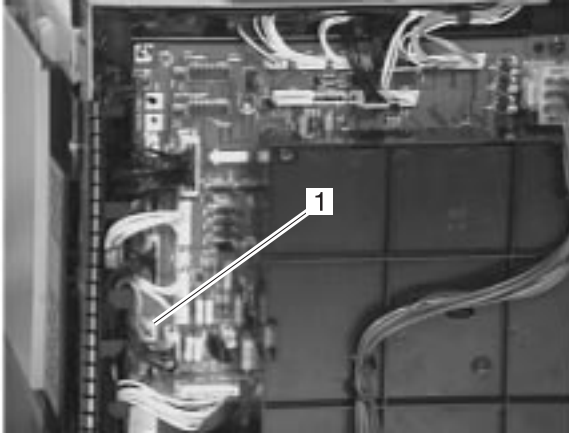
There are 4 fan motors installed in the printer to circulate air and to prevent the internal temperature from rising.

1. Power supply fan (FM1): Blows air from the power supply.
2. Fuser/Scanner fan (FM2): Blows air from the fuser and the print-head assembly.
3. Electrical assembly fan (FM3): Intake fan for the controller card.
4. Fuser fan (FM4): Blows air from the fuser.

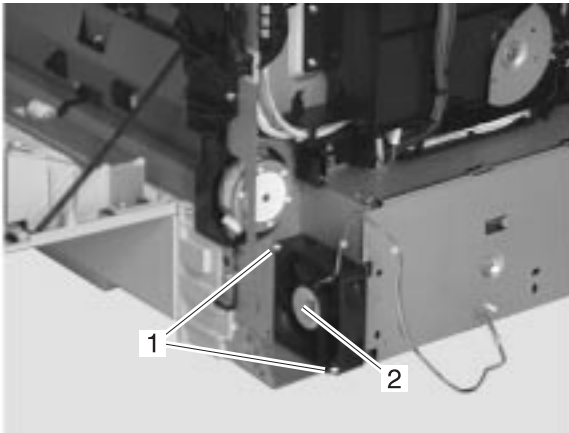


### Power Supply Fan (FM1) Removal

1. Remove the right rear cover and the rear cover.
2. Disconnect the connector (1).

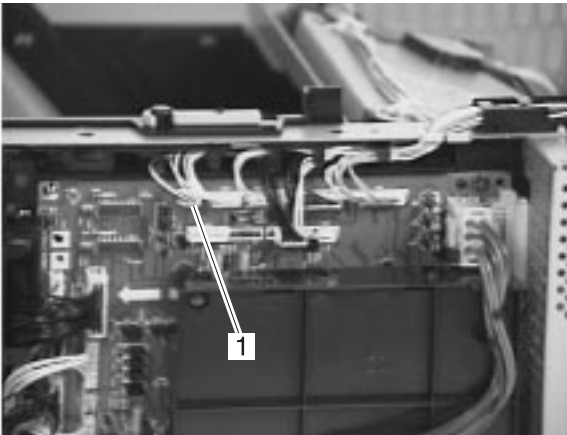


3. Remove the 2 screws (1), and then the power supply fan (2).

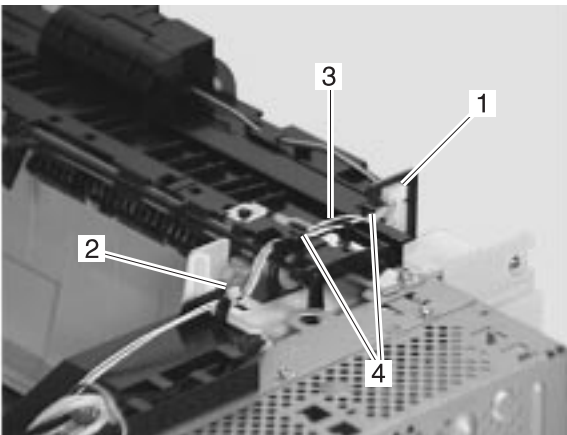


## Fuser/Scanner Fan (FM2) Removal

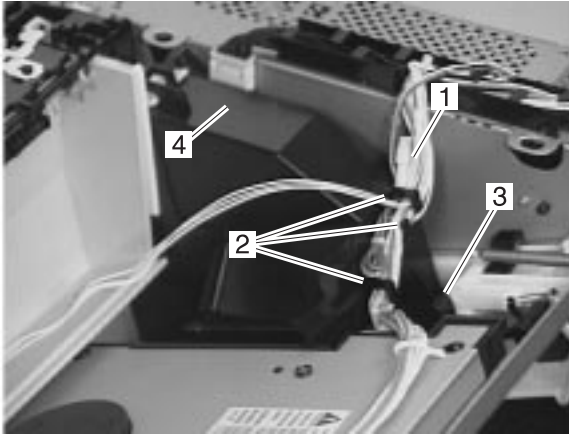
1. Remove the right rear cover and the rear cover.
2. Remove the upper cover.
3. Disconnect the connector (1).



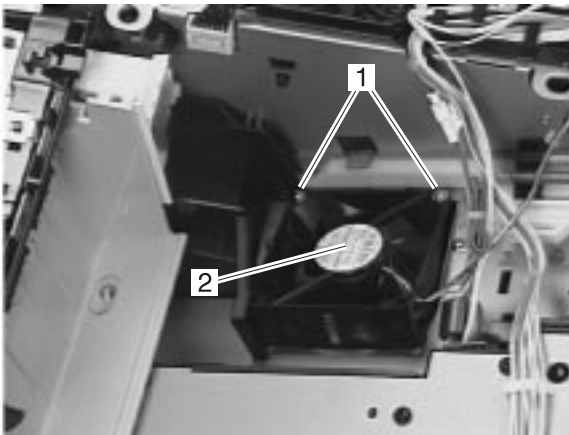
4. Disconnect the connector (1).
5. Remove the cable tie (2), then remove the cable (3) from the cable guide (4).



6. Remove the cable (1) from the guide (2).
7. Unhook the latch (3), then remove the fan duct (4).

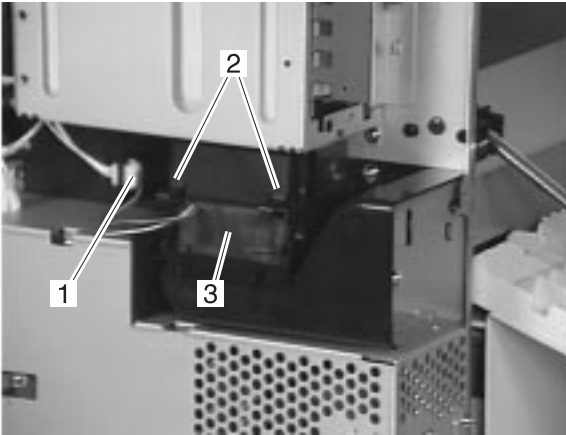


8. Remove the 2 screws (1), and then the fuser/scanner fan (2).



## Electrical Fan (FM3) Removal

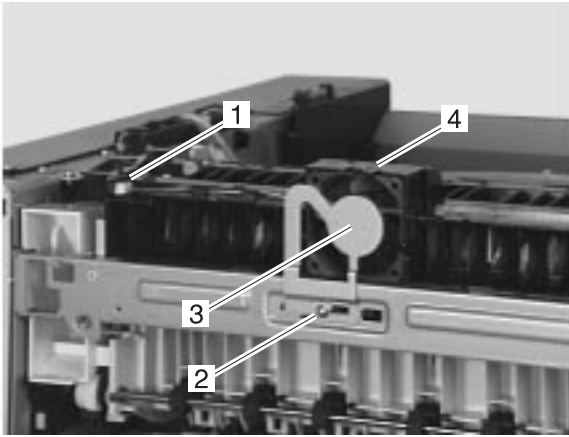
1. Remove the right rear cover and the rear cover.
2. Remove the left rear cover.
3. Undo the connector (1).
4. Pinch the 2 latches (2) holding the electrical fan (3) and pull out the fan.





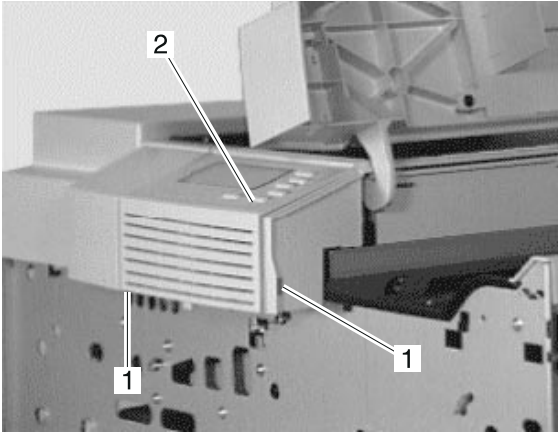
## Fuser Fan (FM4) Removal

1. Remove the upper cover unit.
2. Open the delivery cover unit.
3. Remove the left rear cover.
4. Undo the connector (1).
5. Remove the screw (2), and then the fan grounding plate (3).  
Disconnect the 4 latches to remove the fuser fan (4)



## Operator Panel Removal

1. Open the upper cover.
2. Remove the front cover.
3. Unlatch the 2 latches (1) and remove the operator panel (2).
4. Remove the connector and then the operator panel.

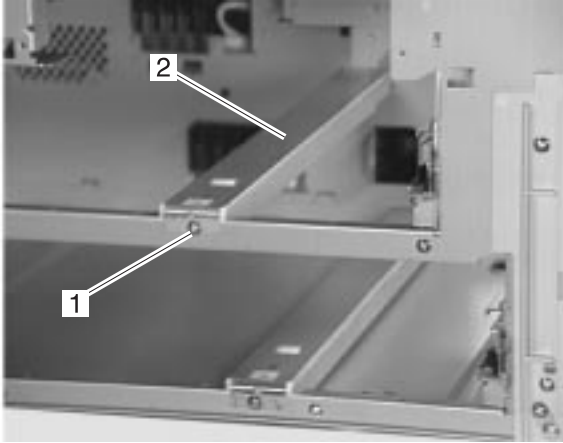


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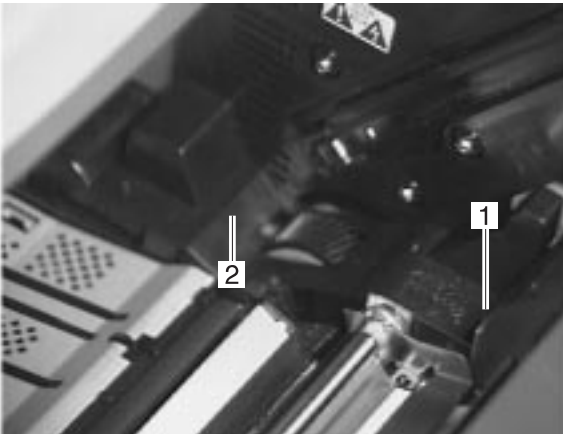
## Drive System Removal Procedures

### Drive Unit Removal

1. Remove the pick-up unit.
2. Remove the screw (1), and then the cassette stay (2).

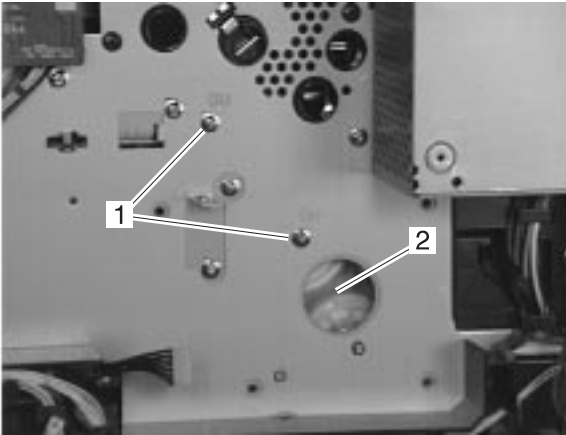


3. Disconnect the latch (1), and then the clutch cover (2).



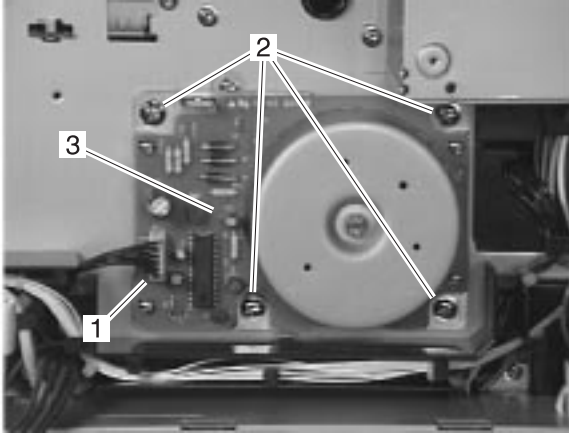
## 4040

4. Remove the high voltage power supply unit.
5. Undo the connector, remove the 4 screws and then the main motor.
6. Remove the 2 screws (1) and the drive unit (2)



## Main Motor Removal

1. Remove the right rear cover and the rear cover.
2. Remove the high-voltage power supply.
3. Undo the connector (1), remove the 4 screws (2), and then the main motor (3).

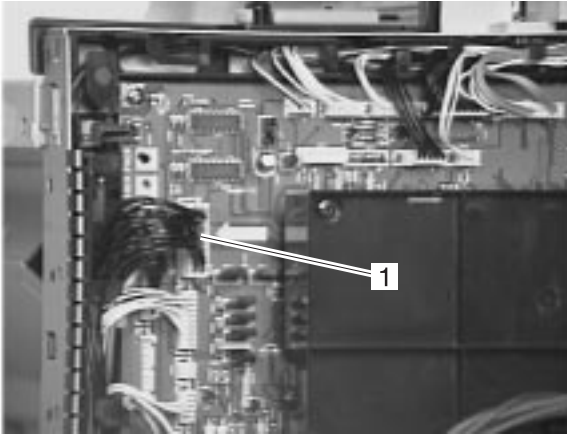


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## Paper Transport System Removal Procedures

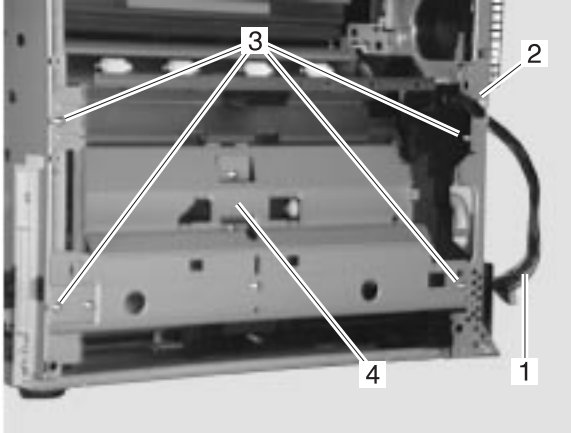
### Pick-Up Unit Removal

1. Pull out the upper and lower cassettes.
2. Remove the manual feed pick-up unit.
3. Remove the right cover.
4. Undo the connector (1)

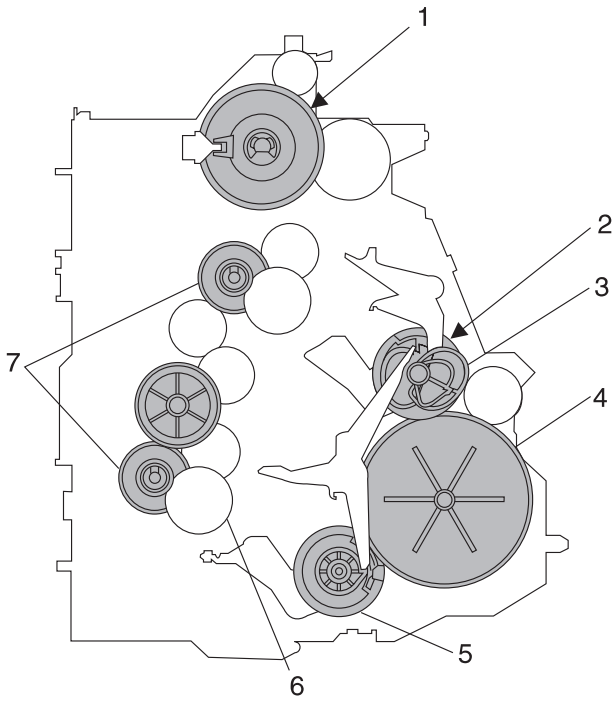


## 4040

5. Remove the pick-up, feed, and separation rollers.
6. Remove the cable (1) from the guide (2).
7. Remove the 4 screws (3), and take out the pick-up unit (4).



For Assembly: Remove the pick-up feed and separation rollers during assembly to prevent grease from getting on them. Be careful not to get grease on the paper feed guide. Be sure to grease the gears you replace to prevent noise. Use Permalub SHV-2 and apply a small amount to 3 or more continuous cogs on the gear.

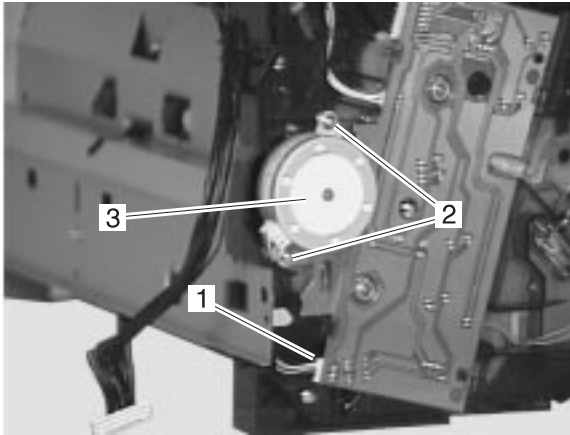


1. 57T Gear
2. Upper Lift-up Cam
3. Pick-up Cam
4. 100T Gear
5. Lower Lift-up Cam
6. 31T/47T Gear
7. 20T/41T Gear



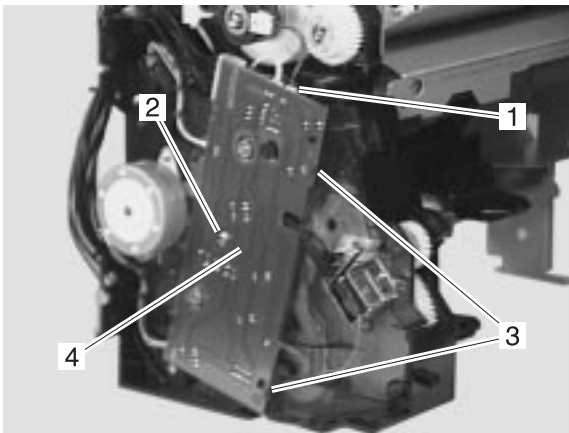
### Pick-Up Motor Removal

1. Undo the connector (1).
2. Remove the 2 screws (2), and slide the pick-up motor (3) out.

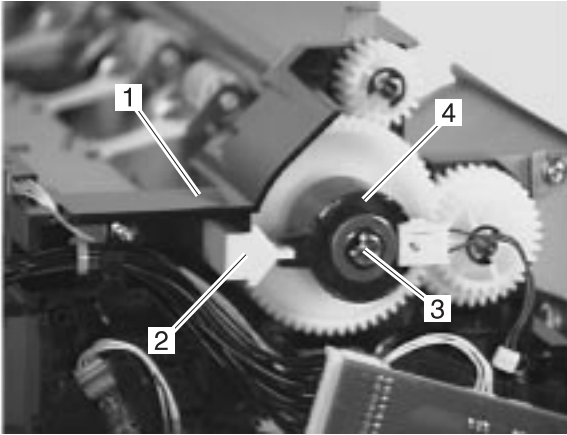


### Feed Clutch Removal

1. Disconnect the connector (1).
2. Remove the screw (2), and disconnect the 2 latches (3) to remove the pick-up board (4).

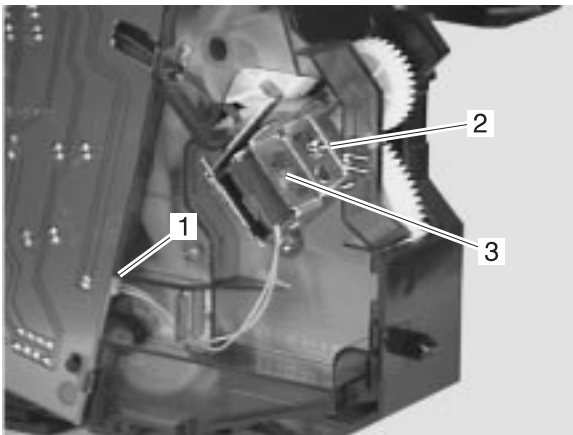


3. Undo the latch (1) and remove the clutch fixing plate (2).
4. Remove the E-ring (3), and then the feed clutch (4).



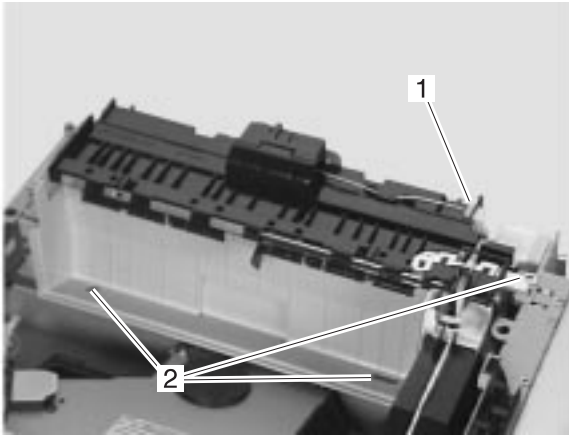
### Cassette Pick-Up Solenoid Removal

1. Disconnect the connector (1).
2. Remove the screw (2) and take out the cassette pick-up solenoid (3).

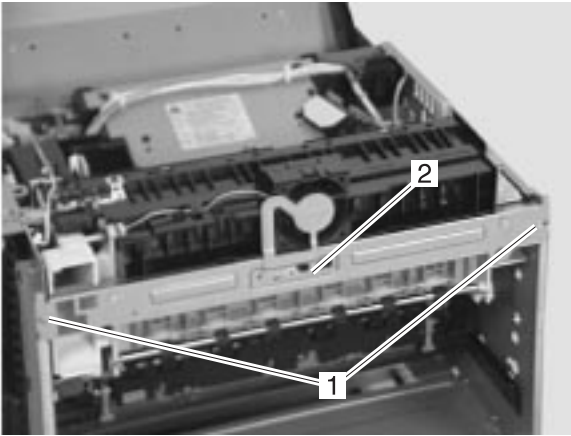


## Delivery Unit Removal

1. Remove the upper cover unit.
2. Remove the front cover.
3. Remove the right rear cover and the rear cover.
4. Open the delivery cover unit.
5. Remove the left rear cover.
6. Disconnect the connector (1) and remove the 3 screws (2).

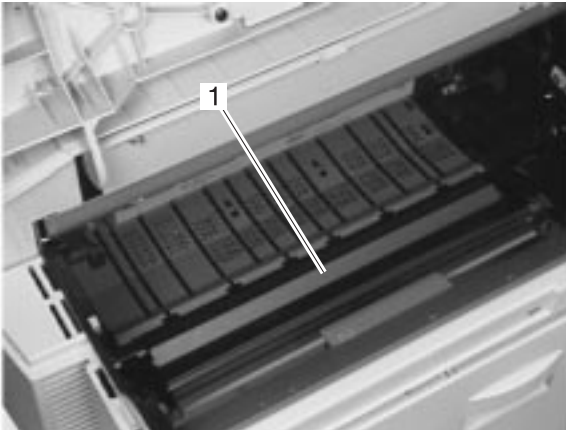


7. Remove the 2 screws (1).
8. Slightly lift the delivery unit (2) up and then pull it toward you.

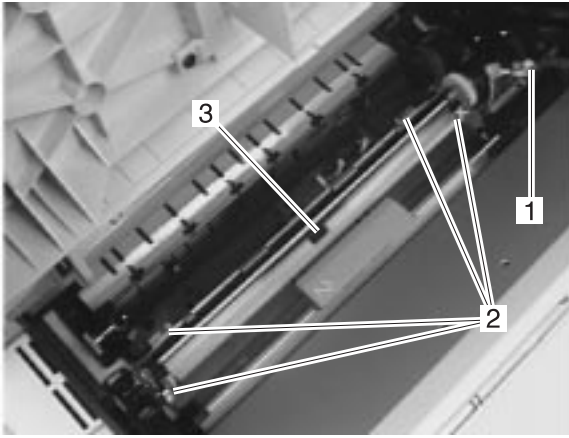


## Registration Roller Removal

1. Open the upper cover.
2. Remove the clutch cover.
3. Open the transfer charging roller guide (1).

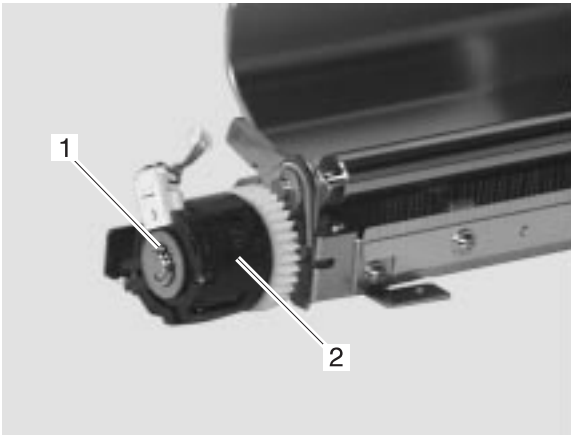


4. Undo the connector (1).
5. Remove the 4 screws (2) and take out the registration roller (3).



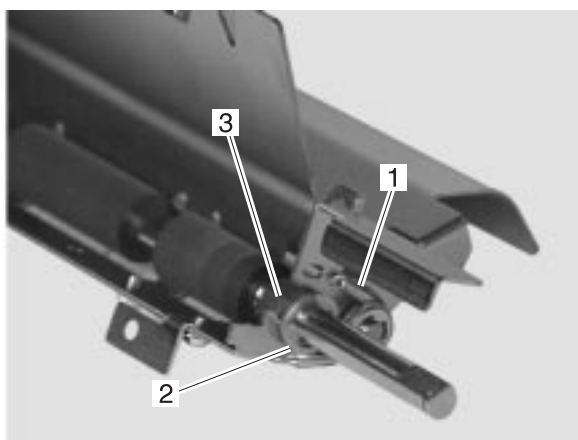
### Registration Clutch Removal

1. Remove the E-ring (1) and the registration clutch (2).

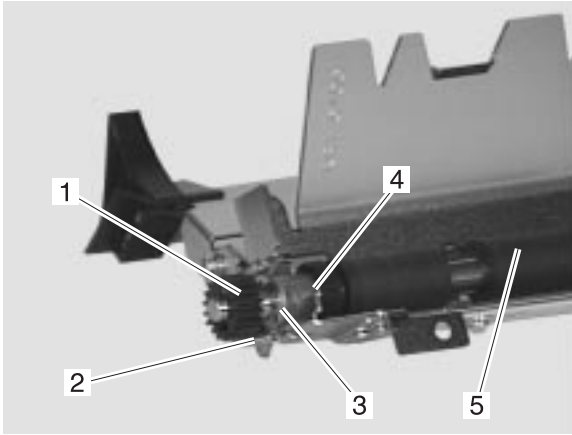


### Registration Lower Roller Removal

1. Remove the registration clutch.
2. Remove the spring (1), the E-ring (2) and the bushing (3).

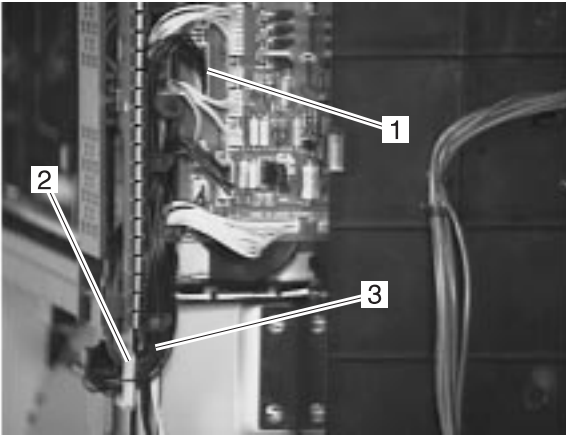


3. Remove the gear (1), the spring (2), the E-ring (3), the bushing (4), and then the registration lower roller (5).

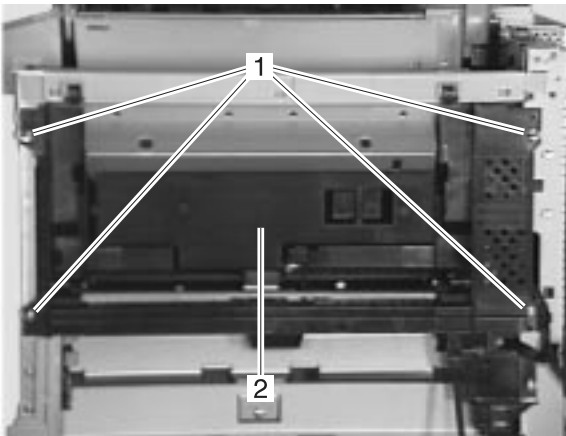


### Manual Feed Pick-Up Removal

1. Remove the front cover.
2. Remove the rear cover.
3. Remove the multipurpose tray.
4. Open the pick-up unit door.
5. Disconnect the connector (1), and then remove the cable (2) from the cable guide (3).



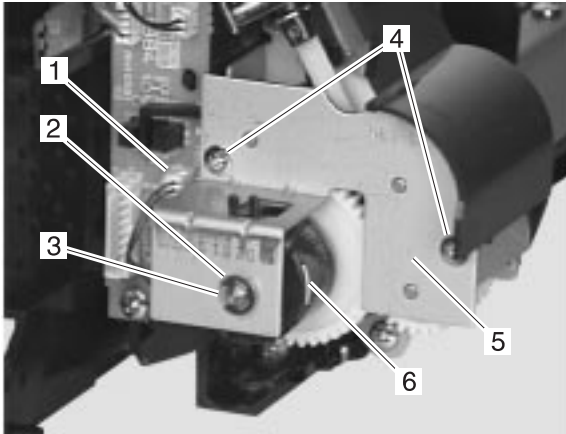
6. Remove the 4 screws (1), and then the manual feed pick-up unit (2).





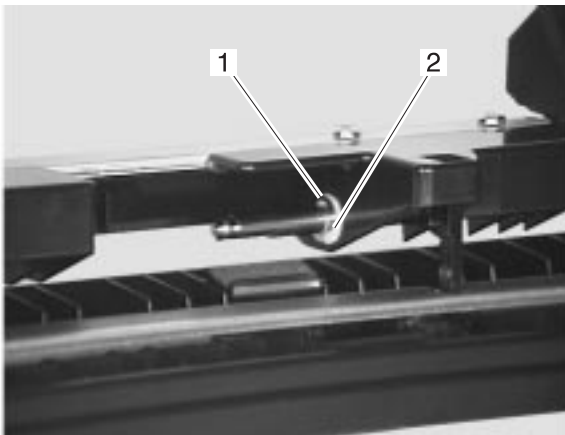
### Manual Feed Pick-Up Clutch Removal

1. Disconnect the connector (1).
2. Remove the E-ring (2) and the bushing (3).
3. Remove the 2 screws (4), the take out the drive side plate (5) and the manual feed pick-up clutch (6).

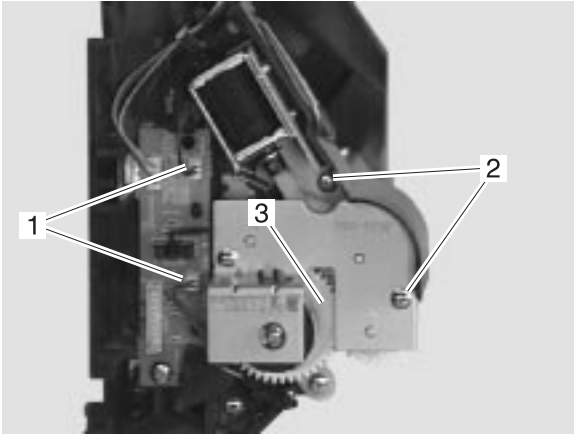


### Lifting Plate Solenoid Removal

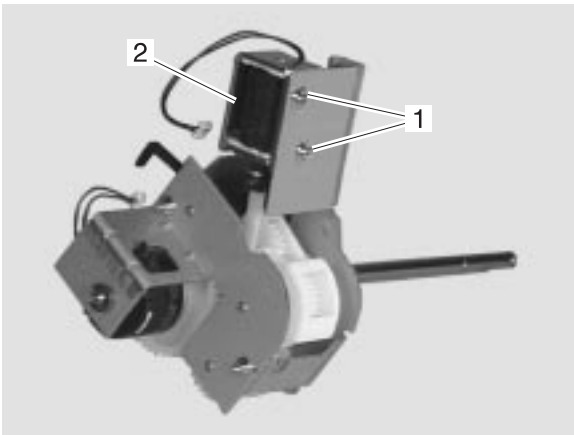
1. Remove the manual feed pick-up roller.
2. Remove the E-ring (1) and the bushing (2).



3. Disconnect the connector (1).
4. Remove the 2 screws (2), and the manual feed drive unit (3).

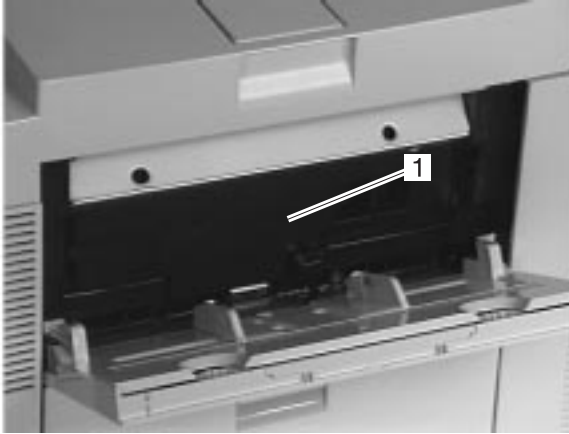


5. Remove the 2 screws (1), and then the lifting plate solenoid (2).

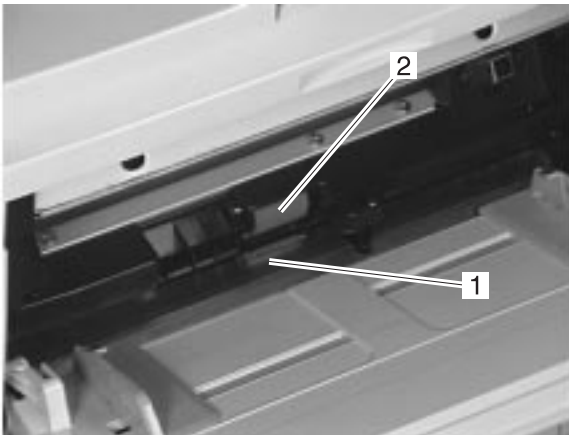


## Manual Feeding Pick-Up Roller Removal

1. Open the multipurpose tray.
2. Remove the cover (1).

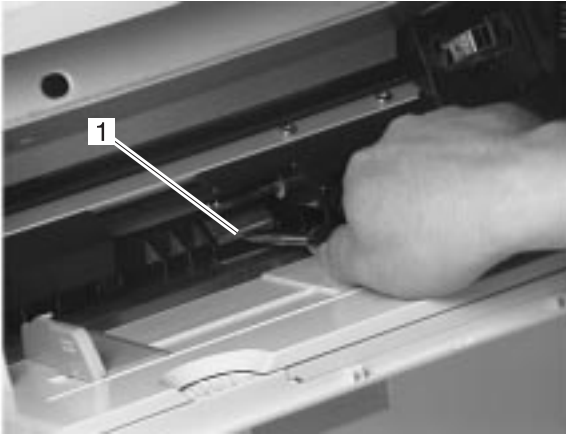


3. Press the lifting plate (1), grasp the manual feeding pick-up roller knob, and pull out the roller (2).



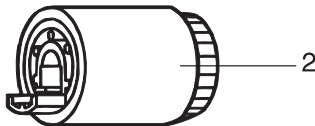
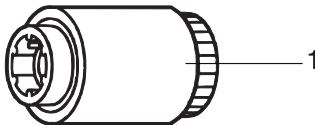
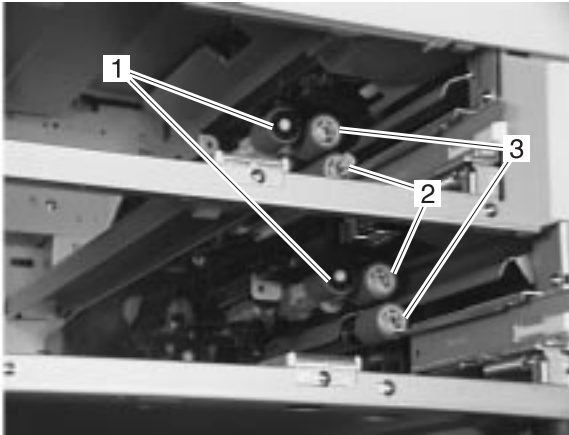
## Separation Pad Removal

1. Open the multipurpose tray.
2. Remove the manual feeding pick-up roller.
3. Use a flat-bladed screwdriver to remove the separation pad (1).



## Pick-Up/Feed/Separation Rollers Removal

1. Pull out the upper and lower cassettes.
2. Grasp the knobs of each roller; the pick-up roller (1), the separation roller (2), and the feed roller (3), and pull the rollers out of the printer.

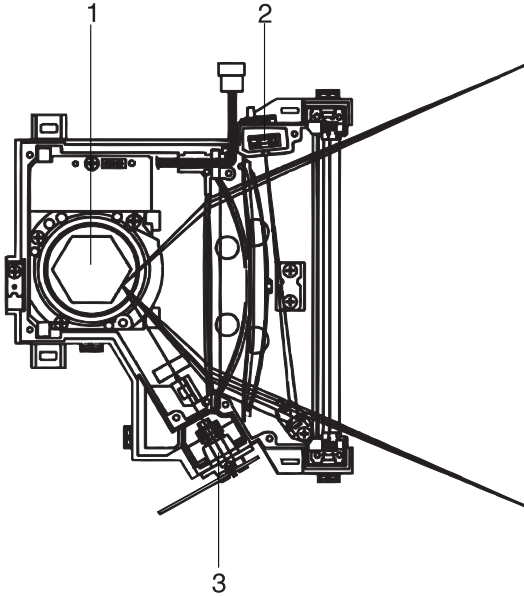


1. Pick-up Roller
2. Feed Roller/Separation Roller

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## Exposure System Removal Procedures

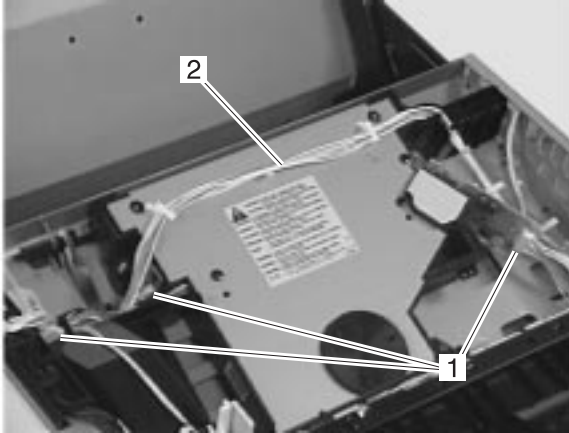
The laser/scanner is the section that sweeps the laser beam across the photosensitive drum. The configuration of the printhead is shown below.



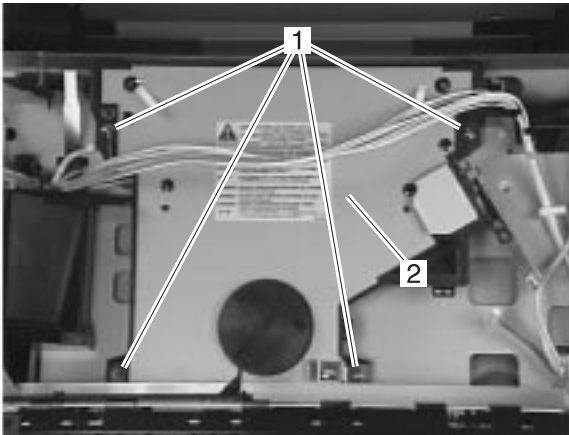
1. Scanner
2. BD Board
3. Laser

## Printhead Removal

1. Remove the upper cover.
2. Disconnect the 3 connectors (1) and the cable (2) from the printhead.



3. Remove the 4 screws (1) and the printhead (2).



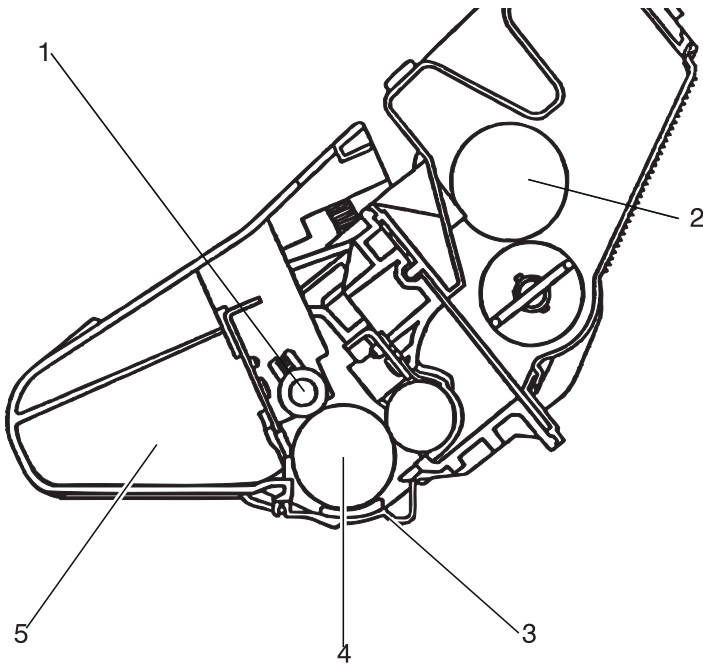
Do not disassemble the printhead as it cannot be adjusted in the field.

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## Electrostatic Imaging/Developing/Cleaning System Removal Procedures

### EP Cartridge

The EP cartridge consists of the photosensitive drum, primary charging roller, developing unit, and cleaning unit. As the photosensitive drum rotates within the cartridge, a visible image is formed on its surface based on print data as part of the printing process. The EP cartridge cannot be disassembled.



1. Primary Charging Roller
2. Developer
3. Protective Shield
4. Photosensitive Drum
5. Drum Cleaner



## **Drum Protective Shutter**

Since blank spots and black lines can appear on prints as a result of strong light striking the photosensitive drum, it is covered by a protective shutter. Do not carelessly open the protective shutter. The protective shutter opens automatically when the cartridge is installed in the printer.

## **Photosensitive Drum**

As a general rule, do not clean the photosensitive drum nor touch it with your hand. If it becomes necessary to clean the drum:

1. Open the upper cover to remove the EP cartridge.
2. Open the protective cover.
3. Apply toner to a flannel cloth to clean the dirty drum surface.

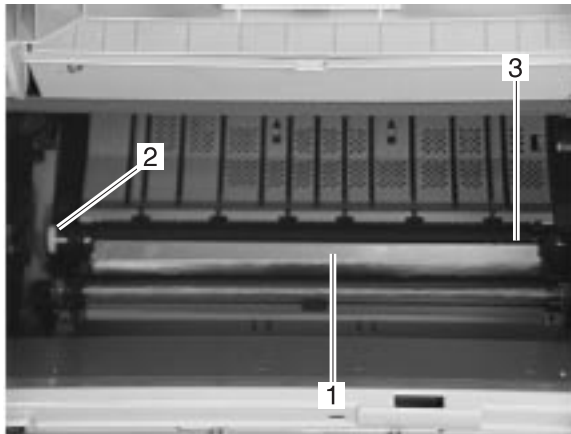
Rotate the drum in the same direction it rotates during printing. Do not rotate the drum in the opposite direction as the connection of the plate spring that applies developing bias to the developing cylinder will be damaged. Do not touch the photosensitive section of the drum.

Do not use lint-free paper as it will scratch the drum. Do not use solvents when cleaning.

Clean the drum quickly as lengthy exposure to light can have adverse effects to print images.

## Transfer Charging Roller Removal

1. Open the upper cover.
2. Open the transfer charging roller guide (1).
3. Pinch the gear (2), lift it slightly, and slide it to the left. Remove the transfer charging roller (3).



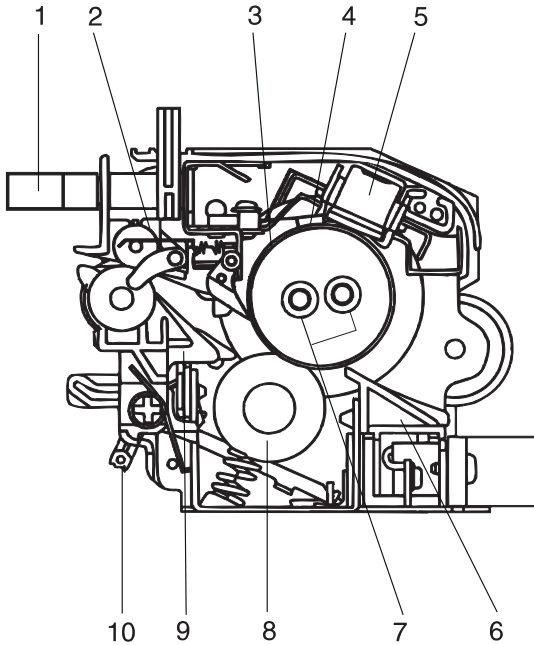
Clean the transfer charging roller only when it is very dirty. Be careful when cleaning not to touch the roller or get solvents or oil on it.

Clean it with dry lint-free paper that does not produce paper dust. Do not use water or solvents.

If the transfer charging roller cannot be cleaned, or if it is deformed, it must be replaced. The transfer charging roller is a supply item, replaced by the customer.

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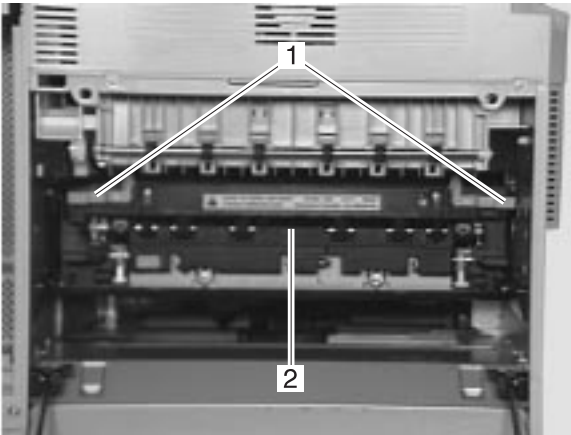
## Fuser Removal Procedures



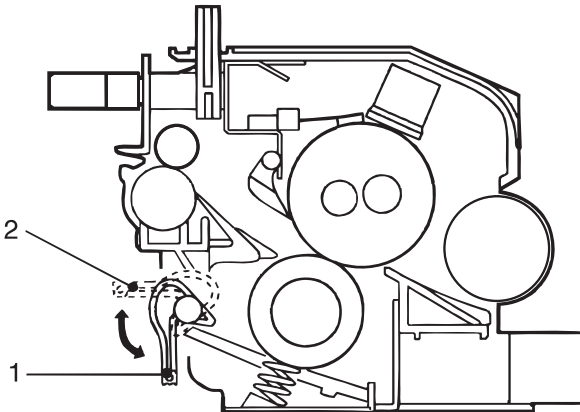
1. Fuser Fastening Levers
2. Separation Upper Guide
3. Fuser Upper Roller
4. Thermistor
5. Thermostat
6. Fuser Entrance Guide
7. Fuser Heater
8. Fuser Lower Roller
9. Separation Lower Guide
10. Envelope Lever

## Fuser Removal

1. Open the delivery cover unit.
2. Move the 2 fastened levers (1) of the fuser, slightly lift the fuser (2), and pull it out toward you.

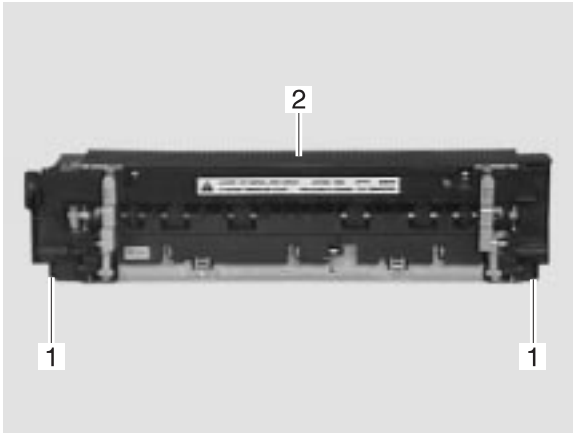


When you replace the fuser, be sure to position the fuser envelope lever in the same position it was in when you removed the fuser; normal (1), or envelope (2).

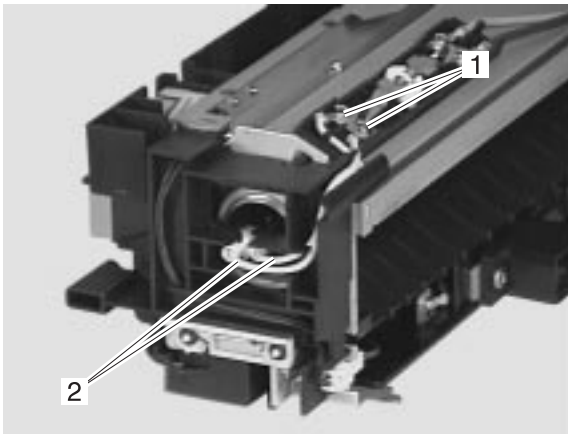


## Fuser Roller Heater Removal

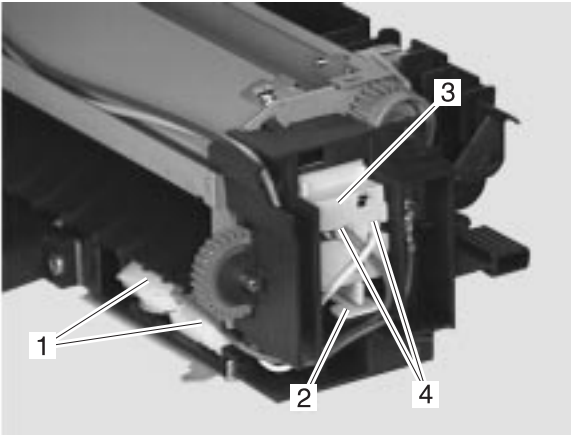
1. Disconnect the 2 latches (1) that hold the wire cover (2) to the fuser, and then remove the wire cover.



2. Remove the 2 screws (1) and the fuser lead wire (2).

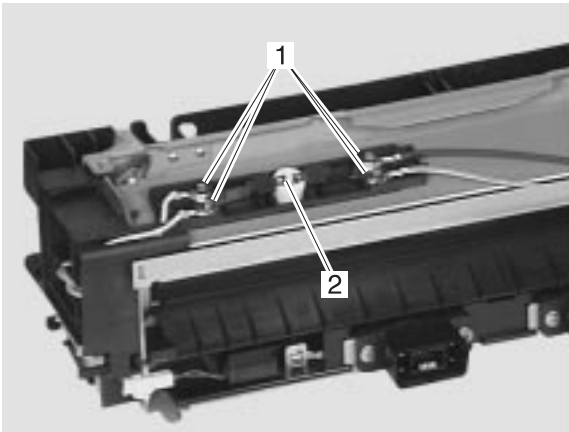


3. Take out the 2 connectors (1).
4. Disconnect the heater latch (2) of the holder and remove the holder (3). Then, gently pull out the fuser heater (4) from the fuser upper roller.



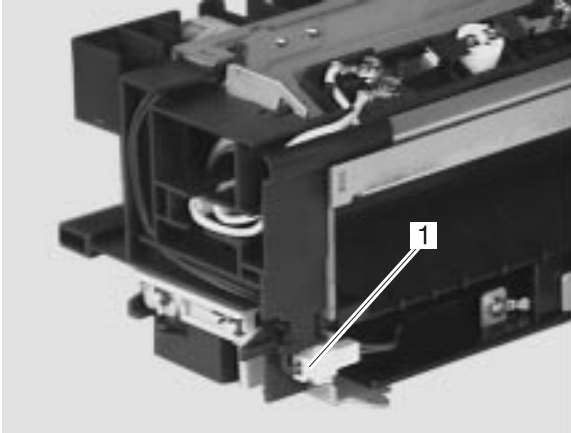
### Thermoswitch Removal

1. Remove the wire cover.
2. Remove the 4 screws (1) and then the lead wire and thermoswitch (2).

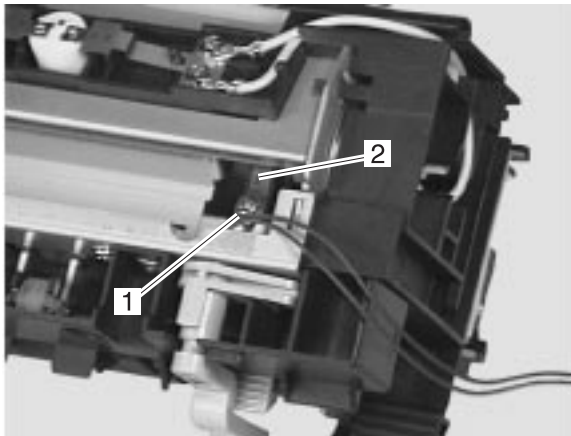


### Thermistor Removal

1. Remove the wire cover.
2. Disconnect the connector (1) and remove the cable from the fuser left cover.



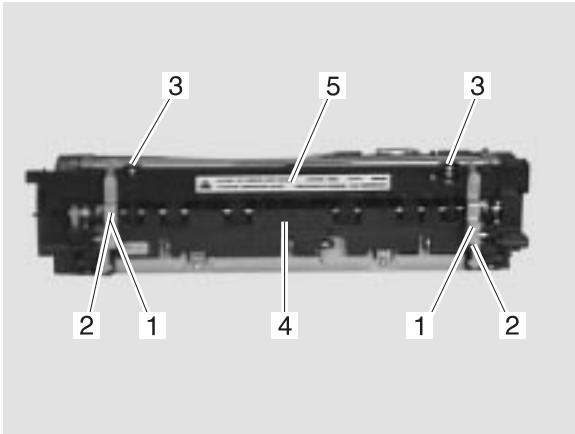
3. Remove the screw (1) and the thermistor (2).



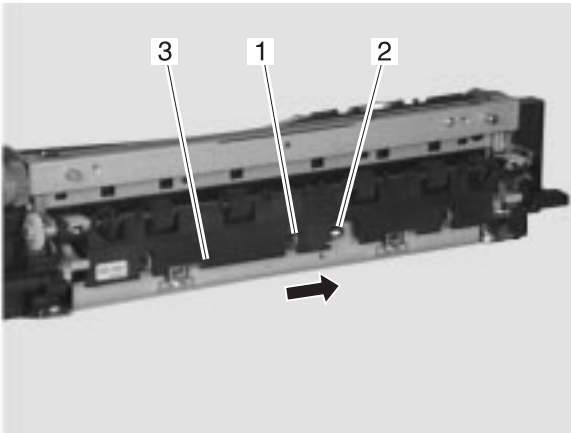
When you install the thermistor, be sure its detection surface is uniformly contacting the fuser upper roller surface. If it is not making uniform contact, check the plate spring for deformity.

## Fuser Upper Roller Removal

1. Hold up the left and right fuser fastening levers (1).
2. Hold up the left and right envelope levers (2).
3. Remove the 2 screws (3) and the separation upper guide (5) as you pull out the separation lower guide (4).



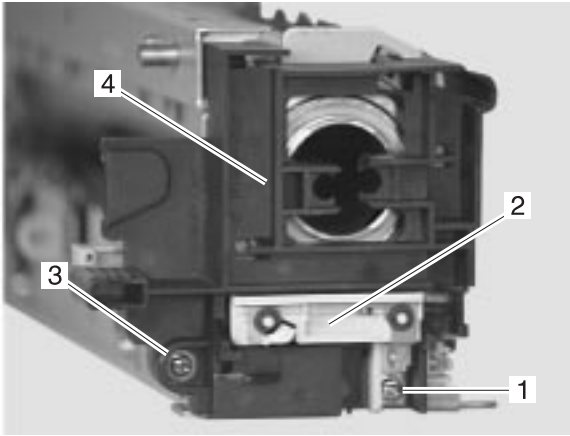
4. Remove the E-ring (1) and the spring (2) and then pull the separation lower guide (3) toward you and slide it off in the direction of the arrow.



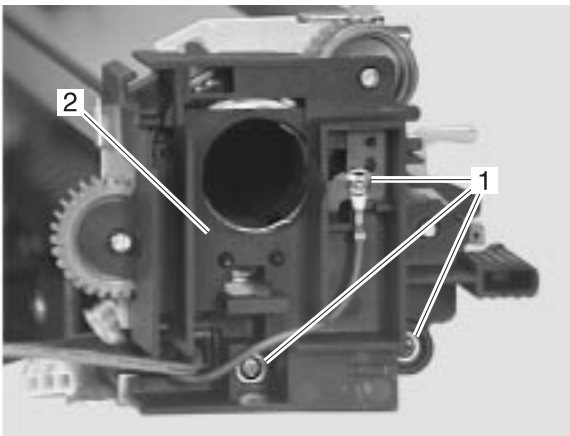


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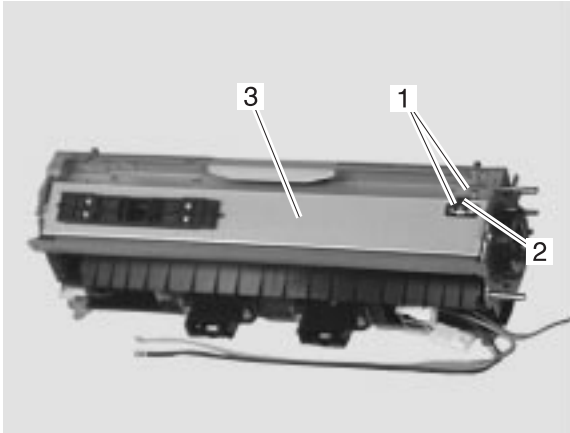
5. Remove the fuser roller heater.
6. Remove the thermoswitch.
7. Remove the thermistor.
8. Remove the screw (1) and diode holder (2).
9. Remove the screw (3) and the fuser right cover (4).



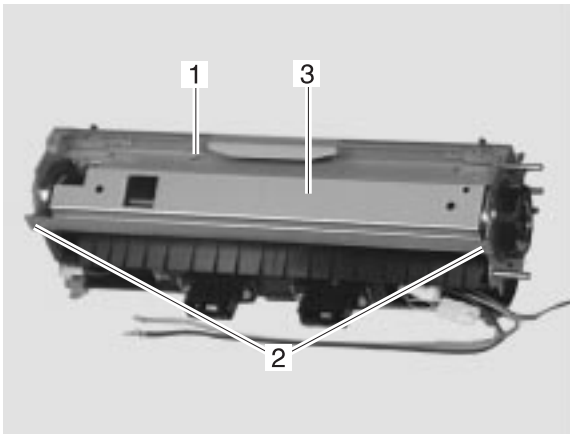
10. Remove the 3 screws (1) and the fuser left cover (2).
11. Remove the 4 gears.



12. Remove the 2 screws (1), the grounding plate (2), and the thermostat stay (3).



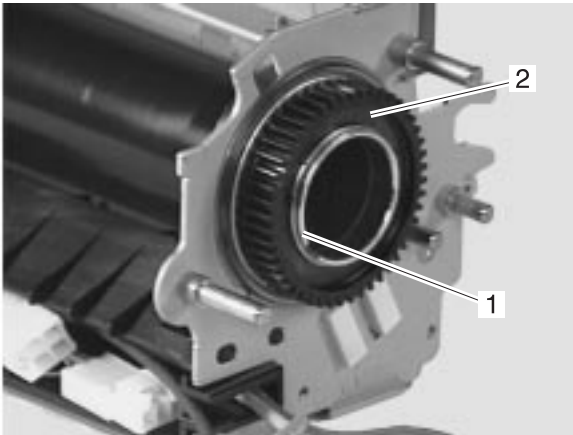
13. Remove the screw (1), undo the 2 latches (2), and take off the fixing roller cover (3).



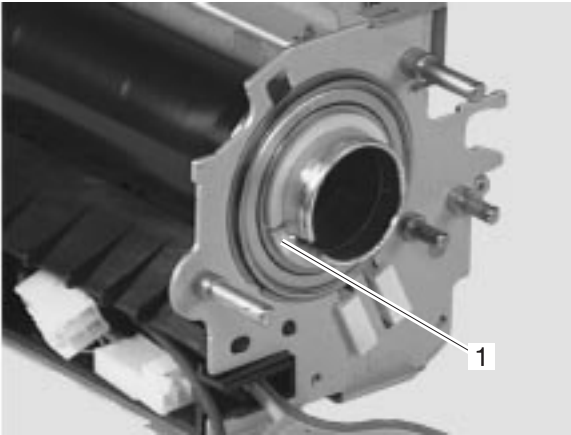
14. Remove the grounding ring (1).



15. Remove the C-ring (1) from the gear (2).

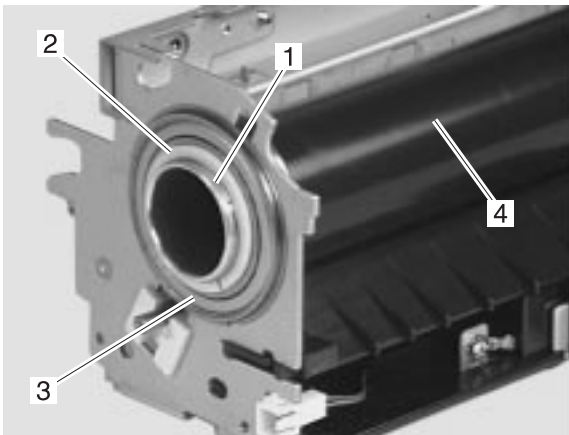


16. Remove the bushing (1).



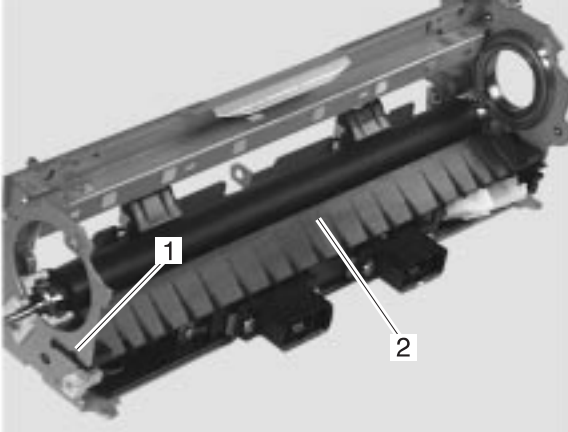
17. Remove the C-ring (1) from the bushing (2).

18. Remove the bearing (3) from the fuser upper roller (4).

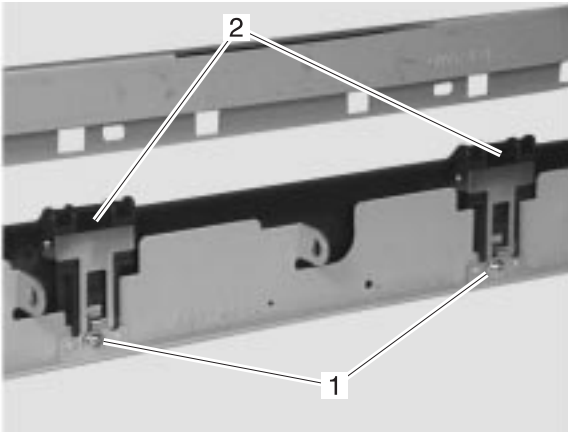


### Fuser Lower Roller Removal

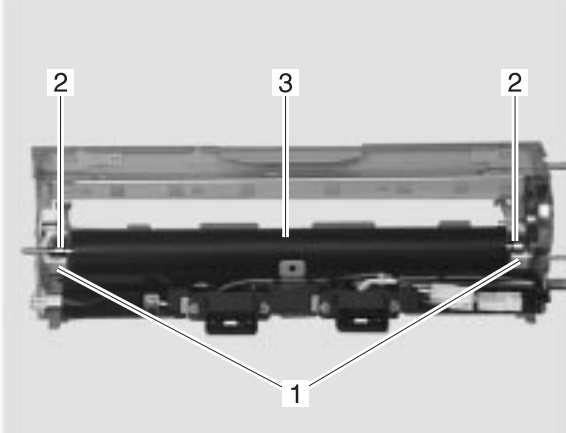
1. Remove the fuser upper roller.
2. Disconnect the latch (1) and remove the fuser entrance guide (2).



3. Remove the 2 screws (1) and the 2 separation guides (2).



4. Remove the fuser lower roller with its holder.
5. Remove the 2 holders (1) and 2 bushings (2) from the fuser lower roller (3).

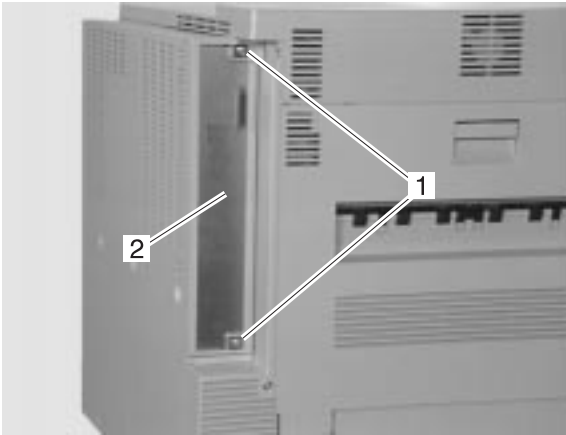


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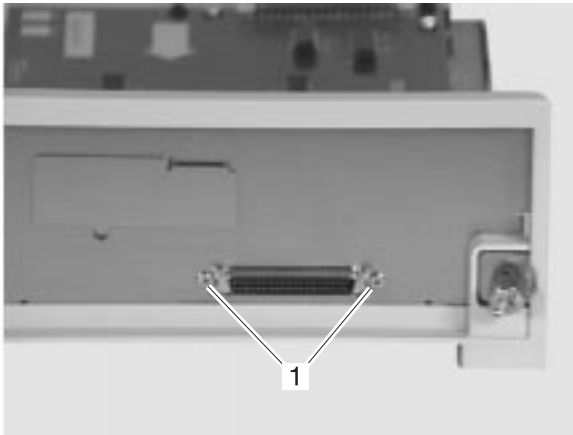
## Electronic Components Removal Procedures

### Controller Card Removal

1. Remove the 2 screws (1), then pull out the controller card (2).



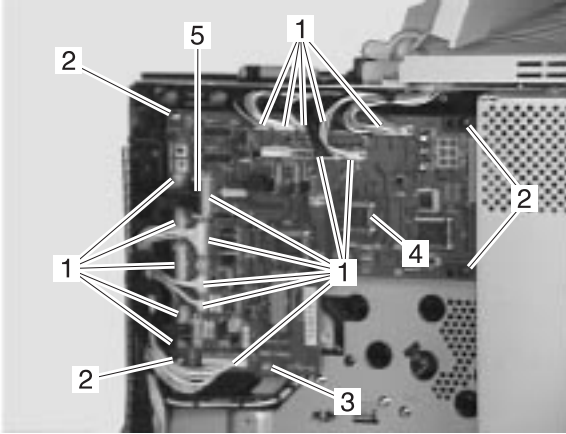
2. Remove the 2 screws (1).



3. Remove the 4 screws and the 2 mount retainers, then take out the controller card.

## System Board Removal

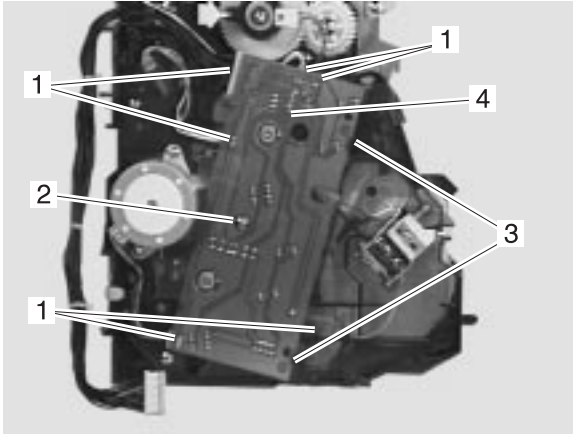
1. Remove the high-voltage power supply.
2. Disconnect the 17 connectors (1) from the system board.
3. Remove the 4 screws (2) and the mount retainer (3).
4. Press the black clip (5) and remove the system board (4).





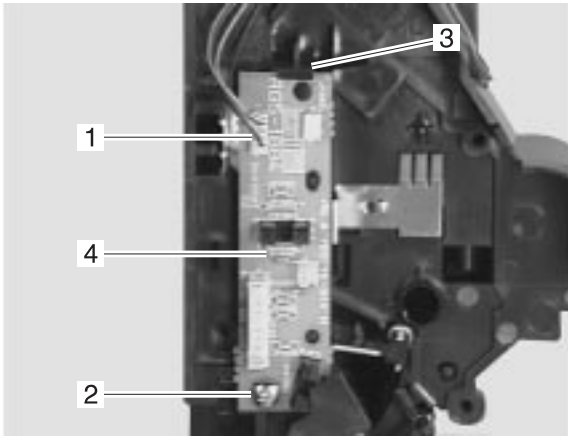
## Pick-Up Board Removal

1. Remove the pick-up assembly.
2. Disconnect the 6 connectors (1).
3. Remove the screw (2), disconnect the 2 latches (3), and take out the pick-up board (4).



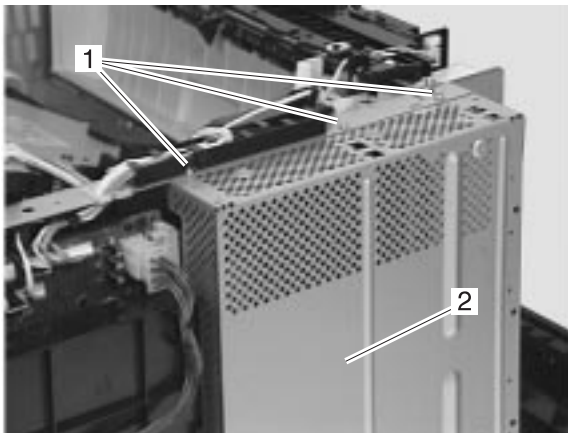
## Multipurpose Tray Board Removal

1. Remove the manual feed pick-up assembly.
2. Remove the manual feed pick-up clutch.
3. Disconnect the 3 connectors (1).
4. Slightly lift the sensor lever and remove it from the cam.
5. Remove the screw (2) and disconnect the latch (3). Take out the multipurpose tray board (4) being careful to avoid the sensor lever.

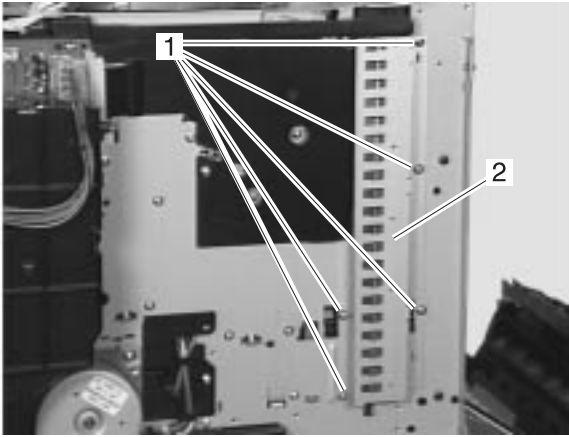


### Switch/Sensor Board Removal

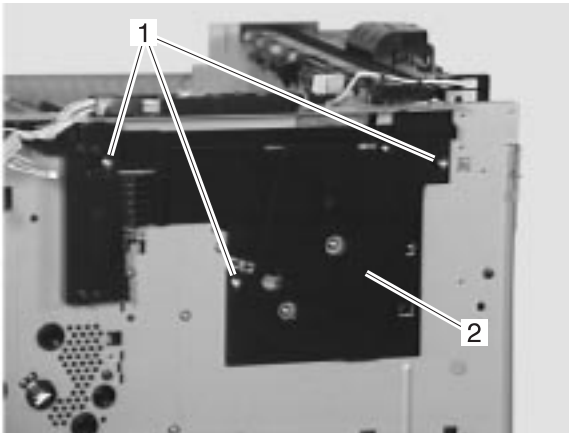
1. Remove the upper cover unit.
2. Remove the right rear cover and the rear cover.
3. Remove the left rear cover.
4. Remove the 3 screws (1). Remove the 4 screws on the bottom of the shield cover and remove the shield cover (2).



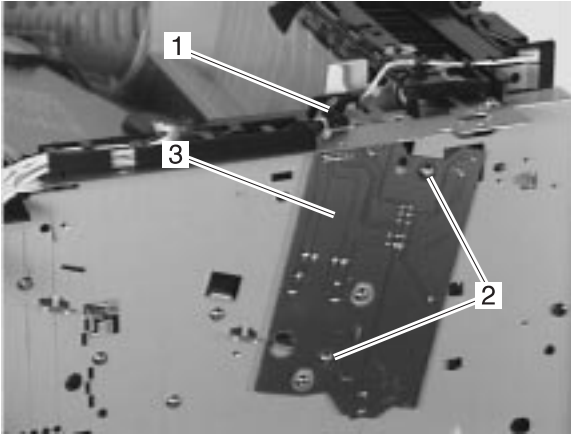
5. Remove the 5 screws (1) and the shield plate (2).



6. Remove the system board.
7. Remove the 3 screws (1) and take out the DC controller mounting plate (2).

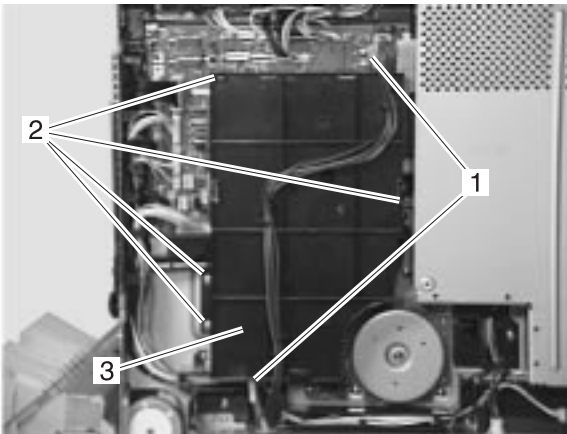


8. Disconnect the connector (1), remove the 2 screws (2), and pull out the board. Disconnect the other connector and remove the switch/sensor board (3).



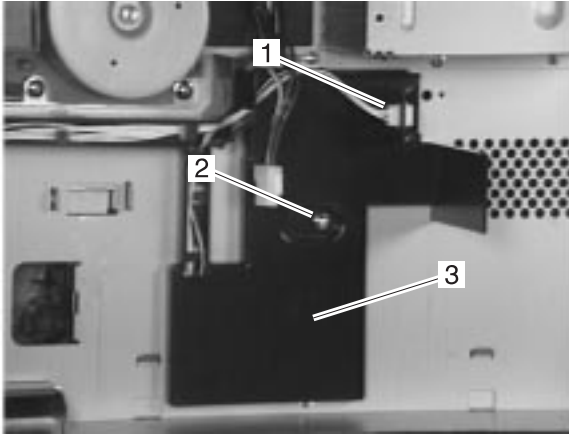
### High Voltage Power Supply Board

1. Remove the right rear cover and the rear cover.
2. Disconnect the 2 connectors (1), remove the 4 screws (2), then take out the high voltage power supply assembly (3).
3. Disconnect the 2 latches and remove the high-voltage power supply board.

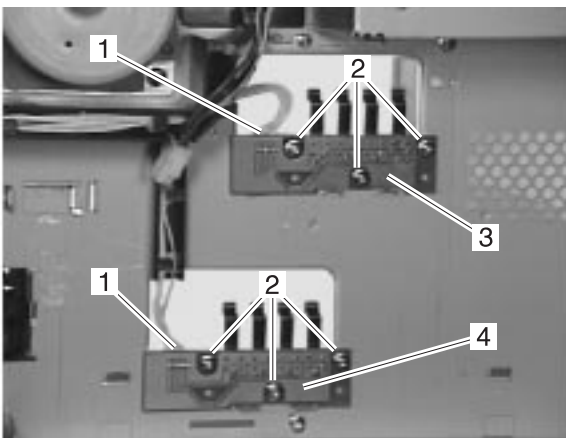


## Cassette-Size Sensing Boards Removal

1. Remove the cassettes.
2. Remove the power supply.
3. Disconnect the connector (1), remove the screw (2), then take off the cassette-size sensing cover (3).

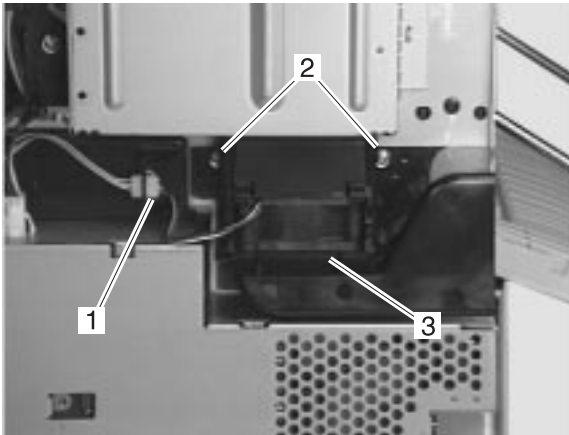


4. Disconnect the connectors (1) from each board, remove the 3 screws (2), then take out the upper cassette-size sensing board (3) and the lower cassette-size sensing board (4).

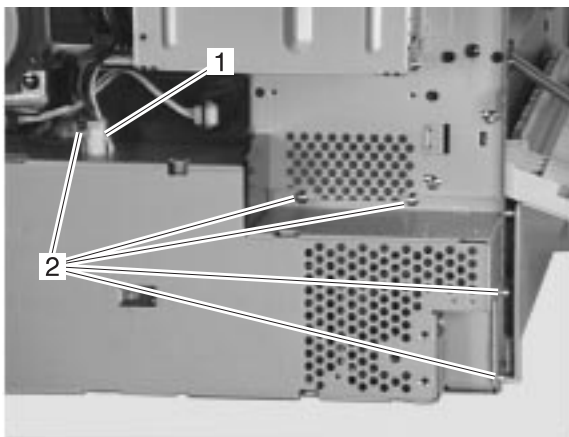


## Power Supply Removal

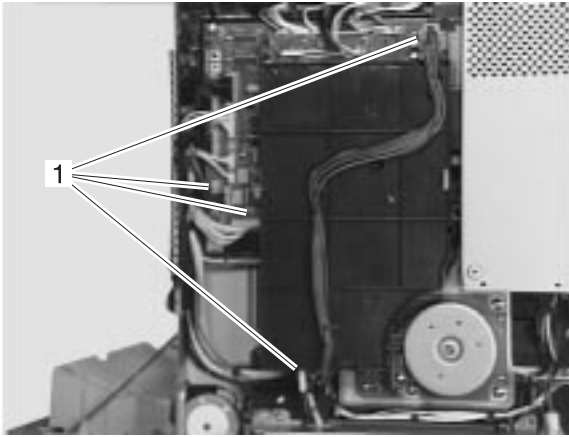
1. Remove the left rear cover and the rear cover.
2. Disconnect the connector (1), remove the 2 screws (2), then take out the fan duct (3).



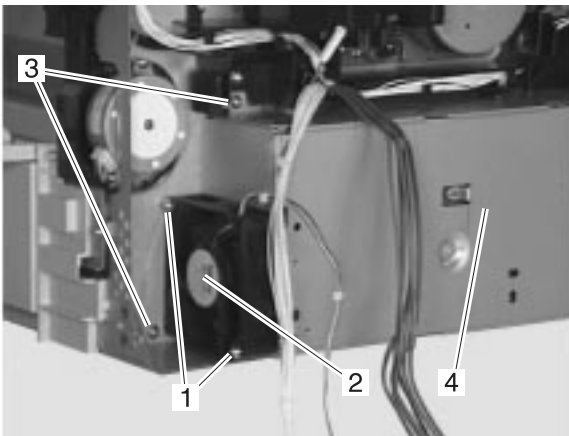
3. Remove the connector (1).
4. Take out the 5 screws (2).



5. Remove the 4 connectors (1).



6. Remove the 2 screws (1) and the power supply fan (2).
7. Remove the 2 screws (3) and the power supply (4).



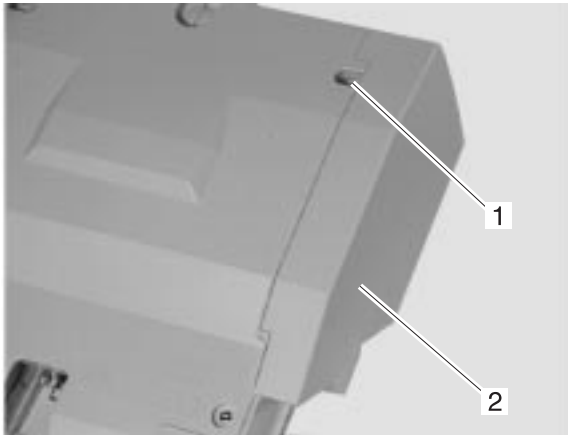
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## Envelope Feeder Removal Procedures

### Envelope Feeder Cover Removals

#### Rear Cover Removal

Remove the screw (1) and take off the rear cover (2).

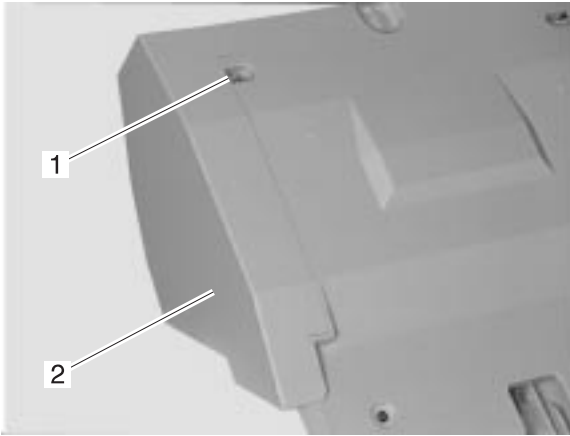


Before you check on an operation of the envelope feeder, try the envelope feeder with the rear cover off. Be sure to either hold the bottom of the board with your hand or tape it to the frame.

#### Front Cover Removal

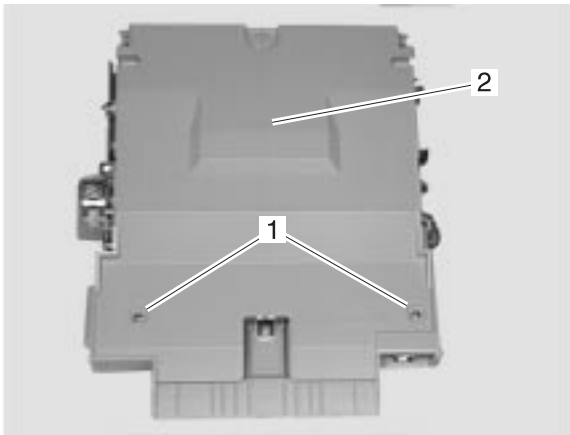
Remove the screw (1) and take off the front cover (2).





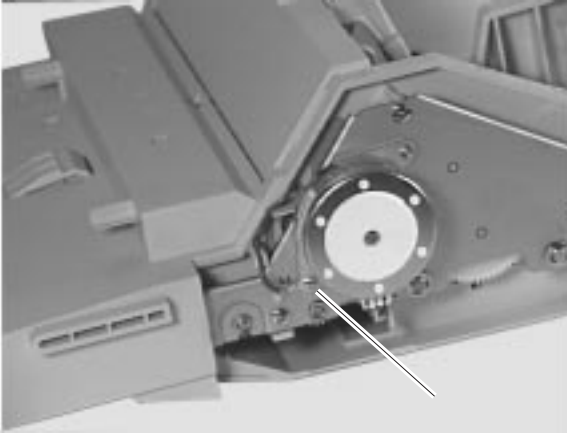
### Lower Cover Removal

1. Remove the rear and front covers.
2. Remove the 2 screws (1) and dislodge the lower cover (2).

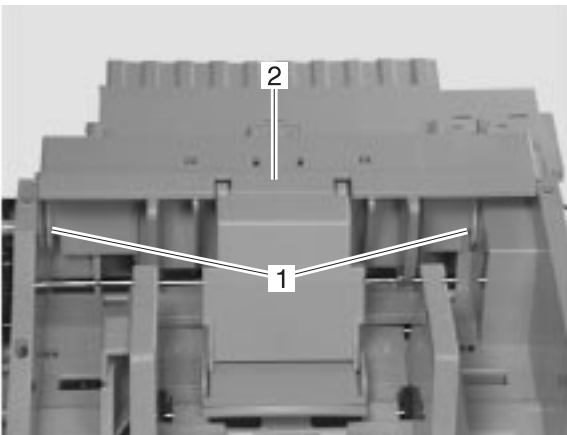


## Upper Cover Removal

1. Remove the rear and front covers.
2. Take out the screw (1).

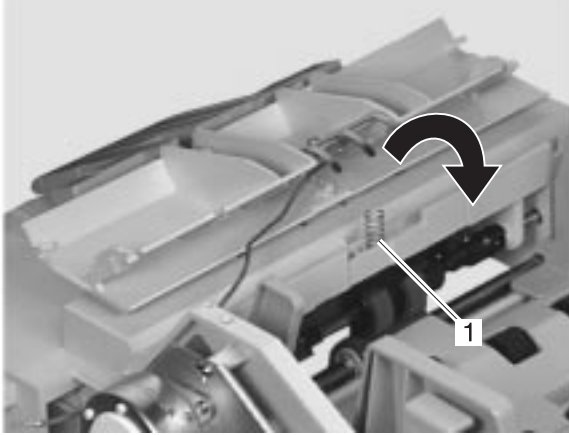


3. With a flat blade screwdriver, unfasten the snaps (1) on both sides. Remove the upper cover (2) and spring.
4. Remove the separation guide and upper cover as one unit.

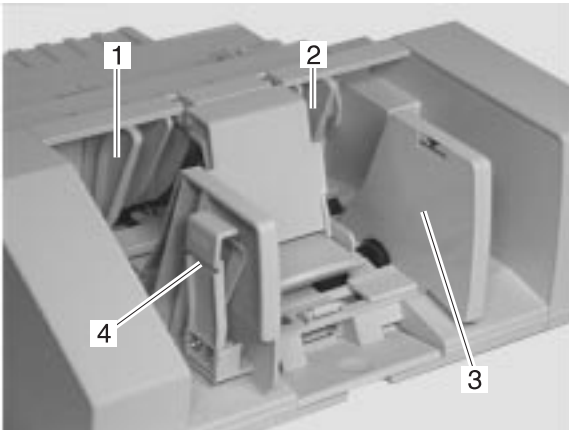


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Be sure the separation roller pressure spring (1) is correctly installed when you reassemble the covers.

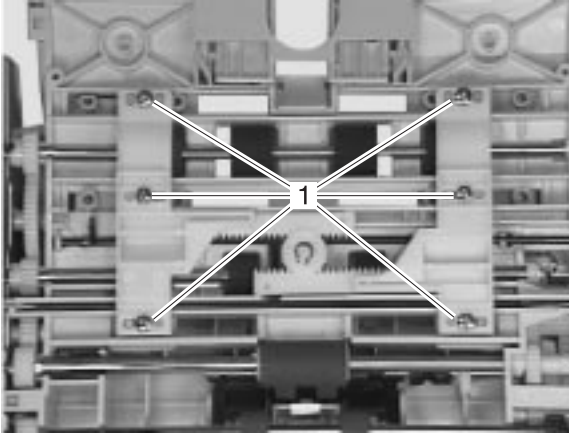


### Envelope Side Guide Removal



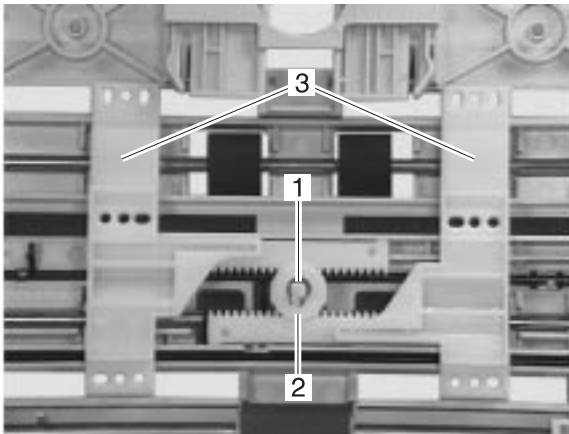
- Left Front Guide (1)
- Left Rear Guide (2)
- Right Rear Guide (3)
- Right Front Guide (4)

1. Remove the rear, front, lower and upper covers.
2. Remove the 6 screws (1) and take out the guides from underneath.



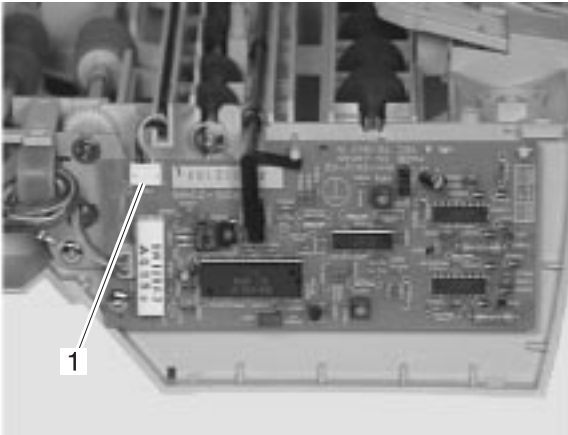
### Envelope Feeder Pick-Up Motor Removal

1. Remove the rear, front, lower, and upper covers.
2. Remove the envelope side guides.
3. Remove the C-ring (1), the gear (2), and the rack (3).

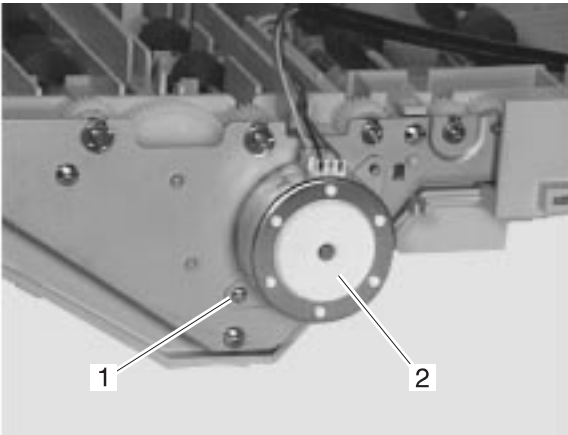


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4. Remove the connector (1).



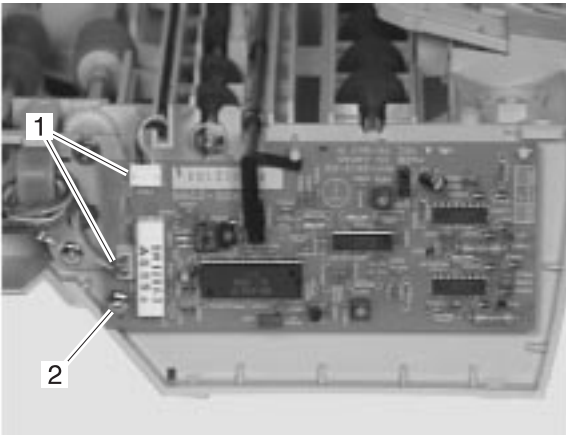
5. Remove the screw (1) and take out the pick-up motor (2).



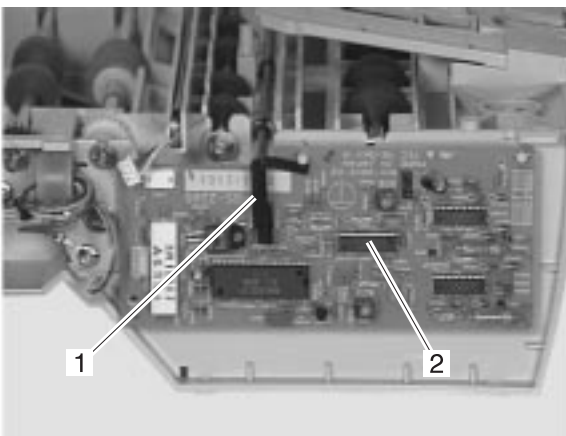
Reassembly note: After you fasten the guides to the rack, attach the gear by spreading the guides apart.

## Envelope Feeder Driver Board Removal

1. Remove the rear, front, lower, and upper covers.
2. Remove the envelope guides.
3. Take off the 2 connectors (1) and the screw (2).

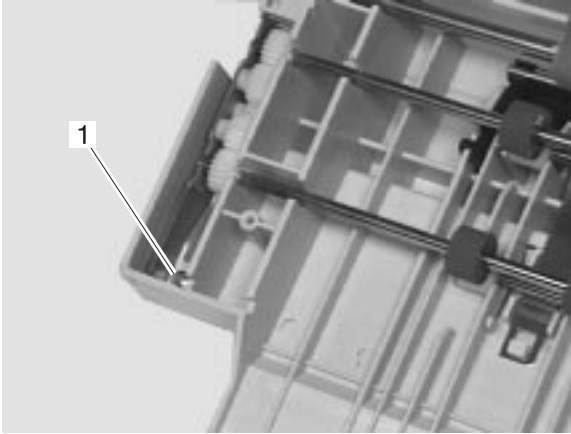


4. Remove the sensor lever (1).
5. Remove the envelope feeder driver board (2).

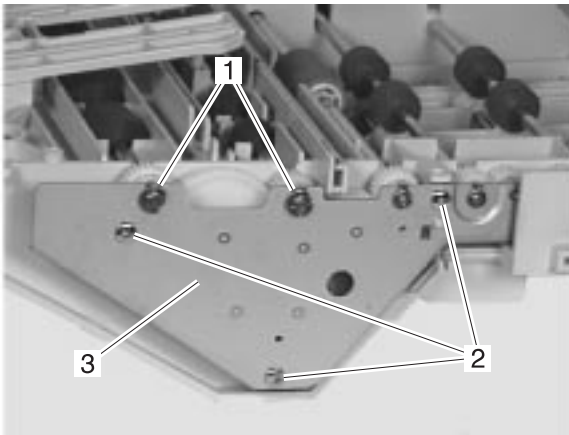


## Drive Unit Removal

1. Remove the pick-up motor.
2. Take out the screw (1).

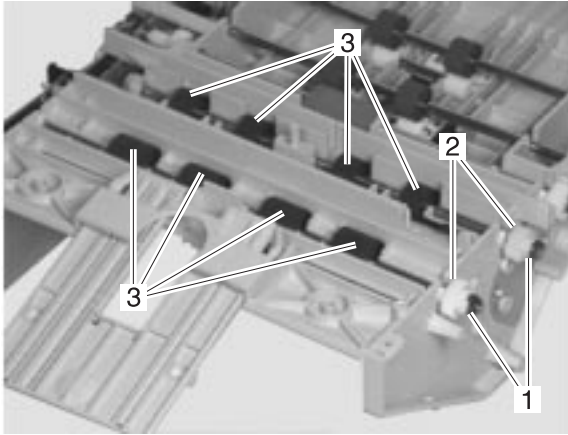


3. Remove the drive unit (3) by removing the E-rings (1) and removing the 3 screws (2).



## Envelope Feeder Pick-Up Roller Removal

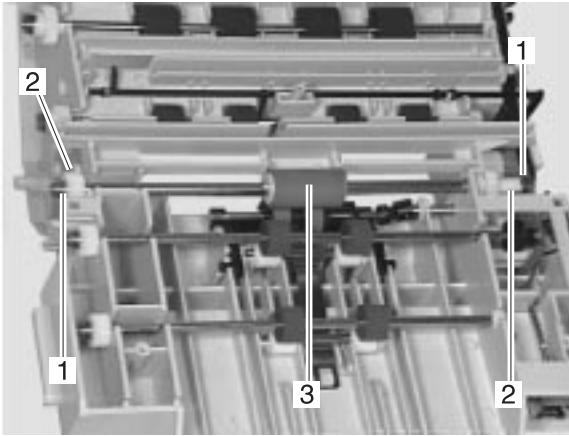
1. Remove the pick-up motor.
2. Remove the drive motor.
3. Remove the 2 E-rings (1) and 2 bushings (2), then take out the pick-up roller shaft with rollers (3).



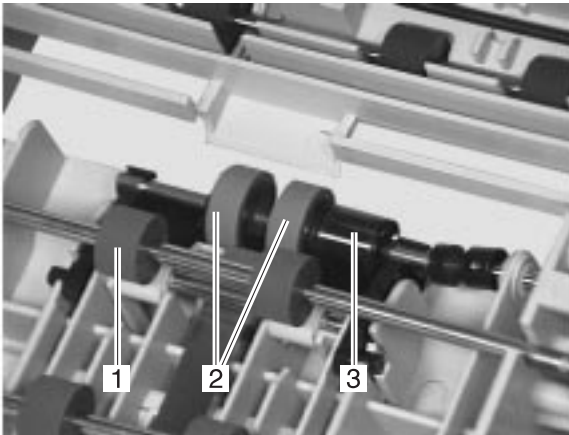
## Separation Rollers and Torque Limiter Removal

1. Remove the pick-up motor.
2. Remove the drive unit.
3. Remove the 2 E-rings (1) and 2 bushings (2), then take out the separation lower roller shaft. Remove the separation roller (3) from the shaft.





4. Remove the separation lower shaft from the guide (1).
5. Remove the separation upper roller (2) and torque limiter (3) from the shaft.

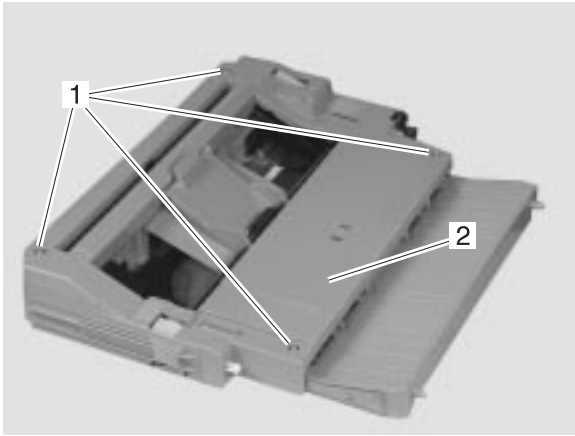


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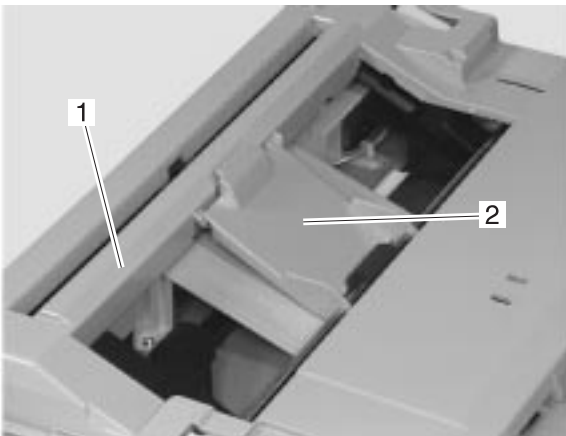
## Duplex Assembly Removal Procedures

### Upper Guide Removal

Remove the 4 screws (1), then the upper guide (2).

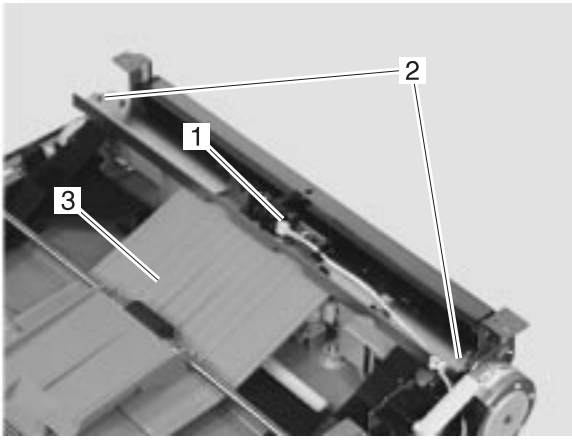


When you re-attach the upper guide (1), be sure the guide (2) is on the outside.

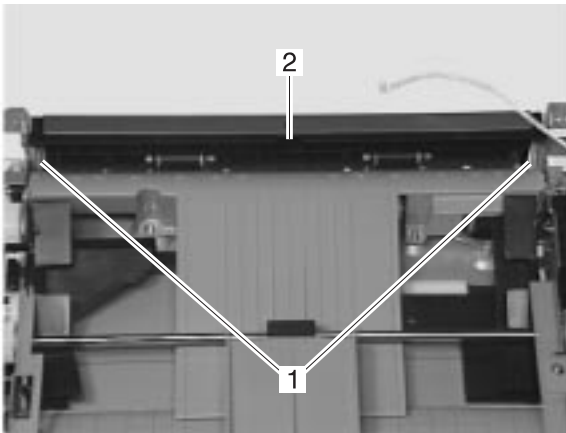


## Lower Guide Removal

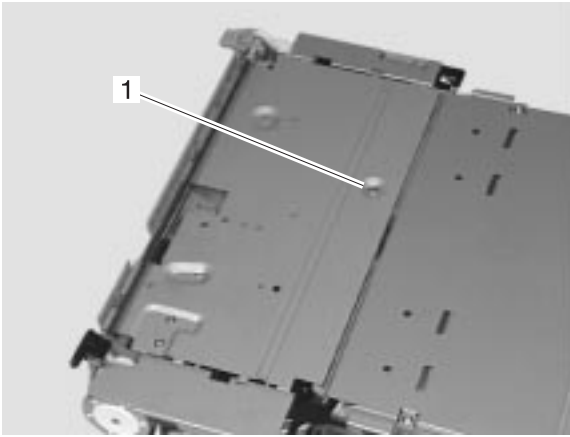
1. Remove the upper cover.
2. Remove the connector (1).
3. Remove the 2 screws (2), then the guide (3).



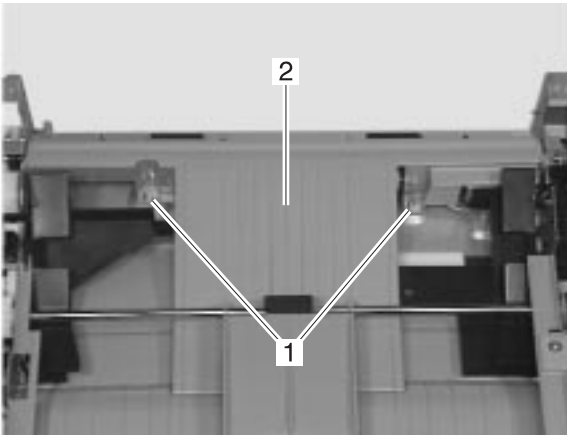
4. Remove the 2 springs (1), then the switch back guide (2).



5. Remove the screw (1).

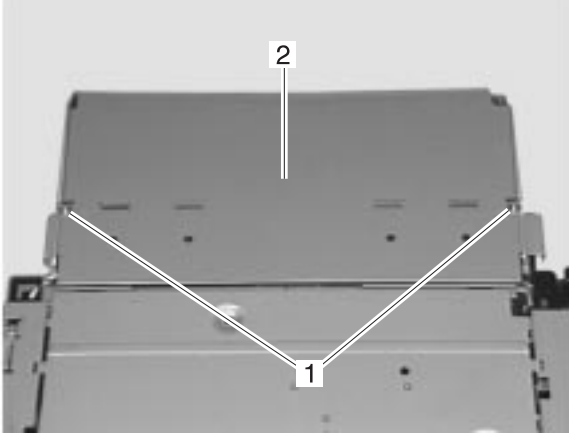


6. Remove the 2 screws (1), then the lower guide (2).

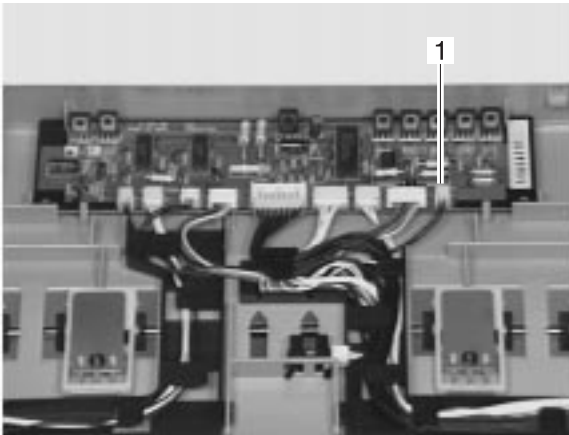


## Switchback Roller Release Solenoid Removal

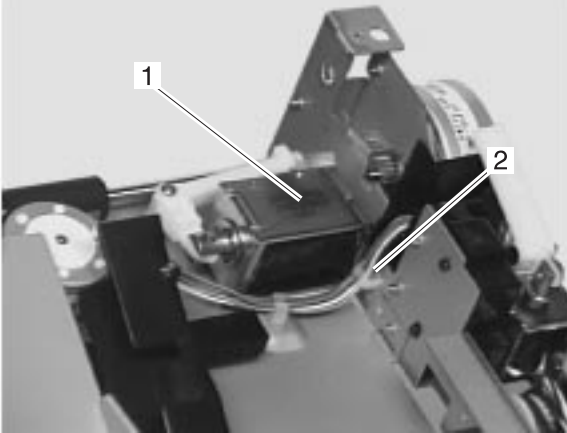
1. Remove the lower guide.
2. Take out the 2 screws (1), then the board cover (2).



3. Remove the connector (1).

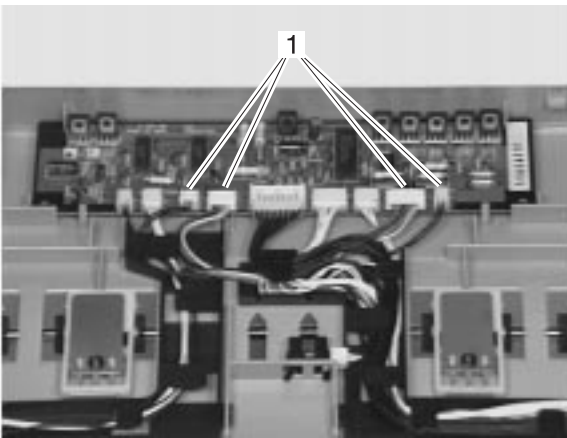


4. Remove the cable from the cable guide (1).
5. Remove the 2 screws that hold the switchback roller release solenoid (2) from underneath and take off the solenoid.

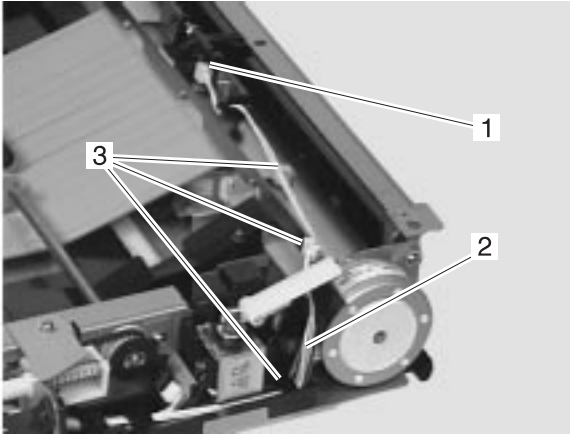


### Duplex Deflector Drive Solenoid Removal

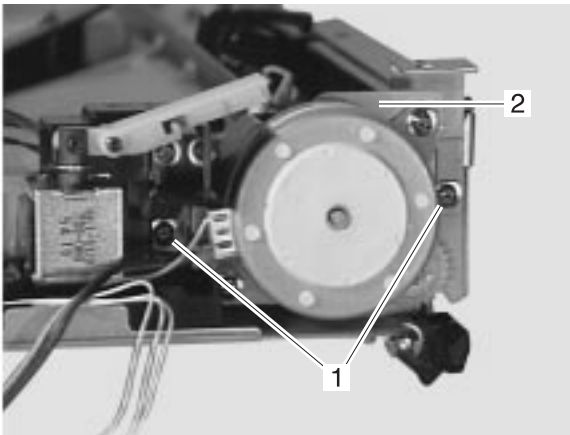
1. Remove the upper guide.
2. Remove the board cover, and the 4 connectors (1).



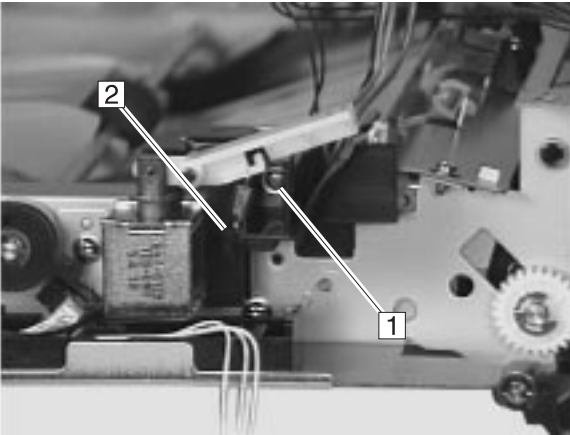
3. Remove the connector (1).
4. Remove the cable (2) from the guide (3).



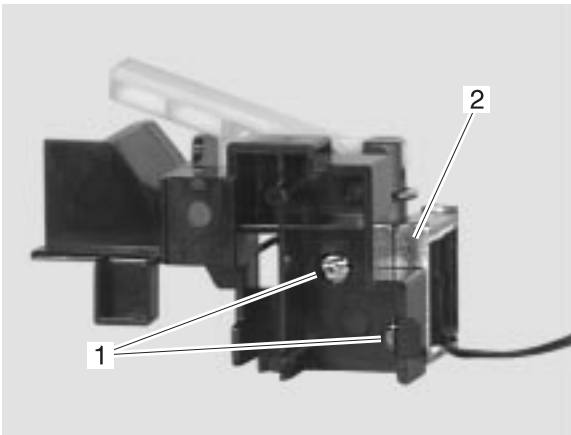
5. Remove the 2 screws (1), and take off the motor base plate (2).



6. Remove the screw (1) and take off the solenoid cover (2).



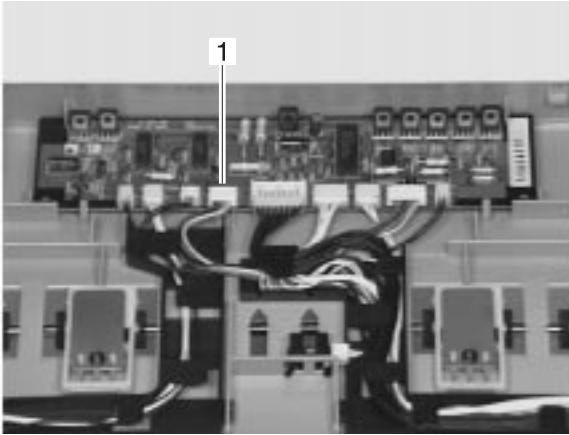
7. Remove the 2 screws (1) and take off the duplex deflector drive solenoid (2).



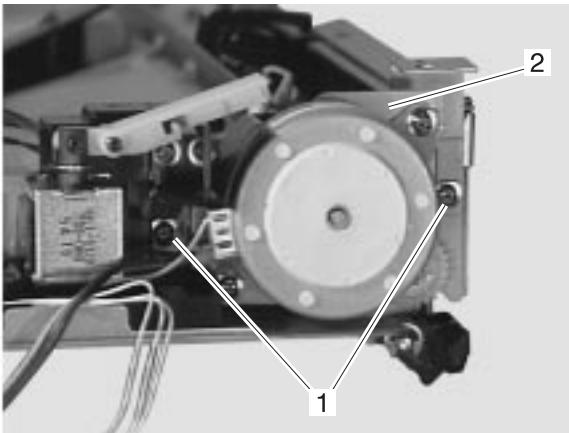


## Switchback Motor Removal

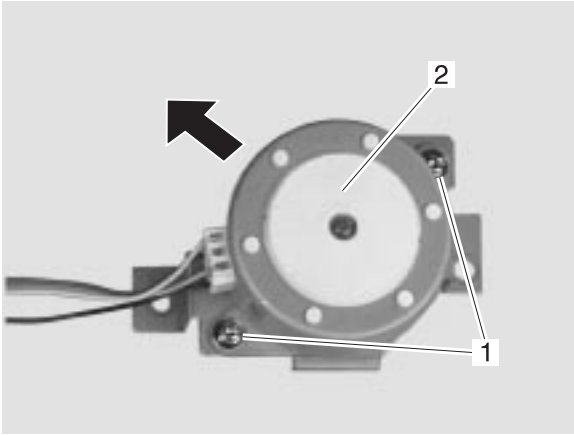
1. Remove the upper guide.
2. Take off the board cover and remove the connector (1).



3. Remove the 2 screws (1), and then the motor base plate (2).

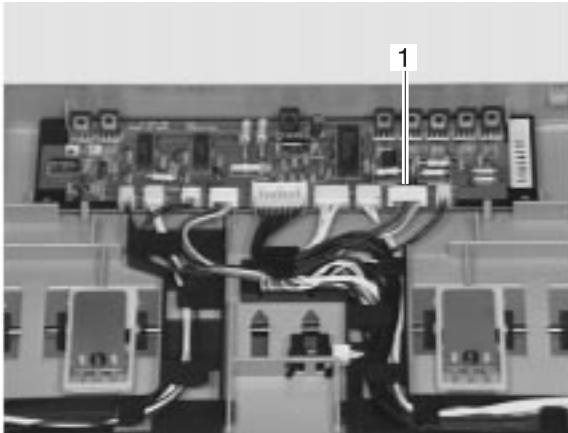


4. Take out the 2 screws (1), then slide the switchback motor (2) in the direction of the arrow to remove it.

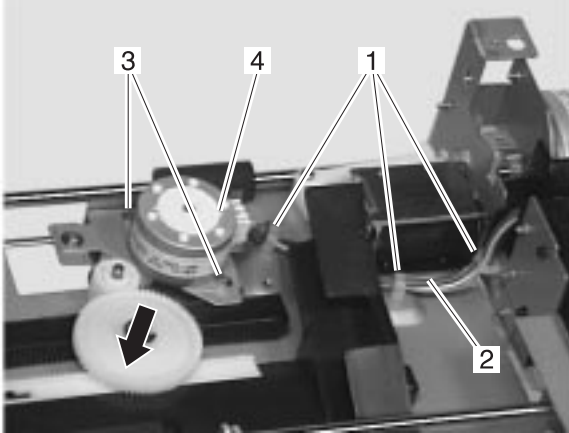


### Side Registration Motor Removal

1. Remove the lower guide.
2. Take off the board cover, then remove the connector (1).

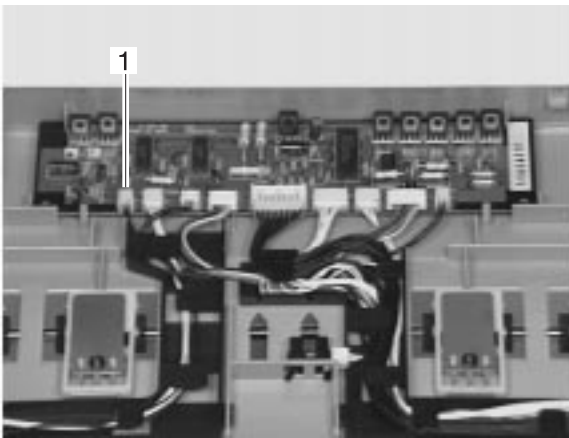


3. Undo the cable guides (1) from the cable (2).
4. Take out the 2 screws (3) and slide the side registration motor (4) in the direction of the arrow to remove it.

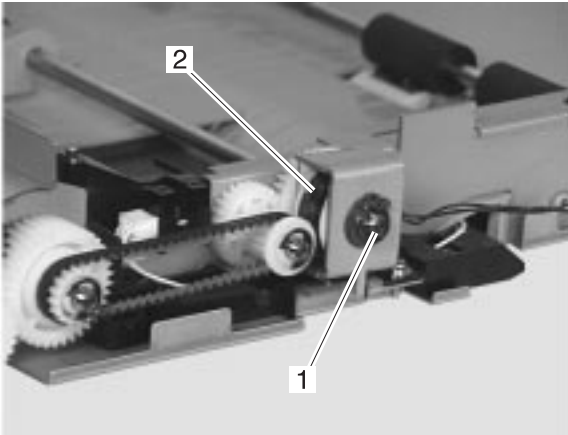


## Duplex Feed Clutch Removal

1. Remove the upper guide.
2. Take off the board cover and undo the connector (1).

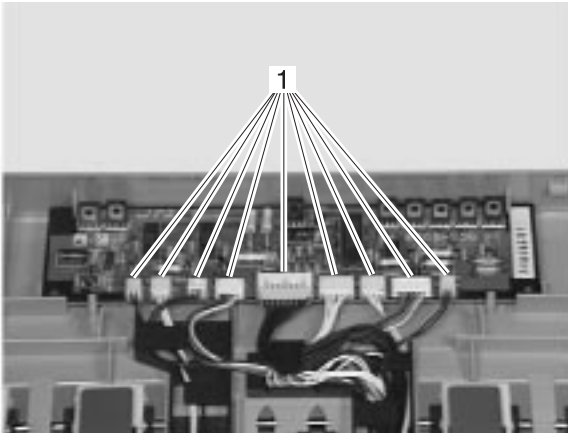


3. Remove the C-ring (1) and take out the duplex feed clutch (2).



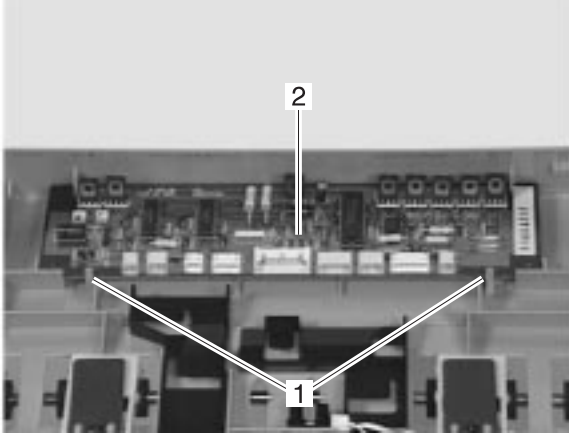
## Duplex Driver Board Removal

1. Take off the board cover, and remove the 9 connectors (1).



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2. Undo the 2 latches (1) holding the board and remove the duplex driver board (2).



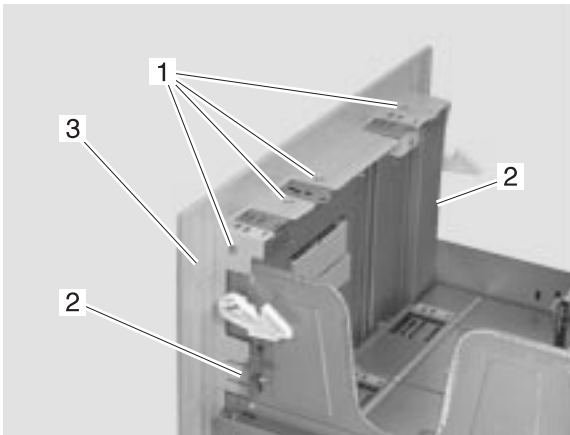
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## Paper Deck Removal Procedures

### External Covers

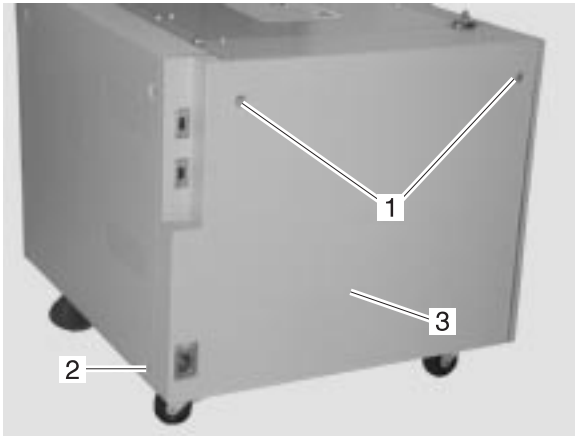
#### Front Cover Removal

1. Pull out the tray.
2. Remove the paper guide.
3. Remove the 4 screws (1), undo the left and right latches (2), and take off the front cover (3).



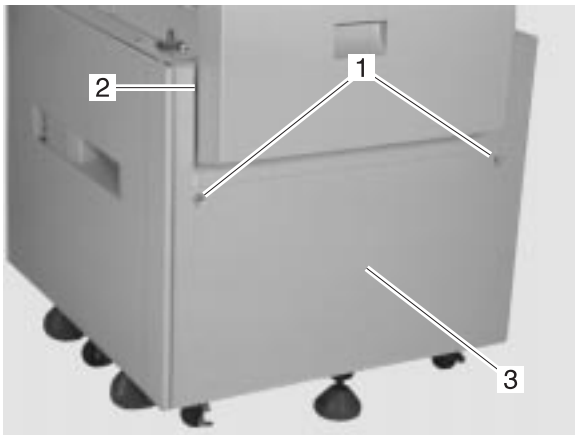
#### Left Cover Removal

1. Remove the 2 screws (1).
2. Remove the latch (2) and take off the left cover (3).



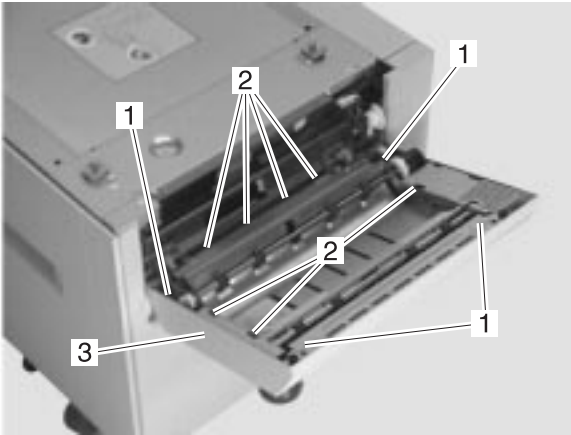
### Right Cover Removal

1. Remove the 2 screws (1).
2. Undo the latches (2) and remove the right cover (3).



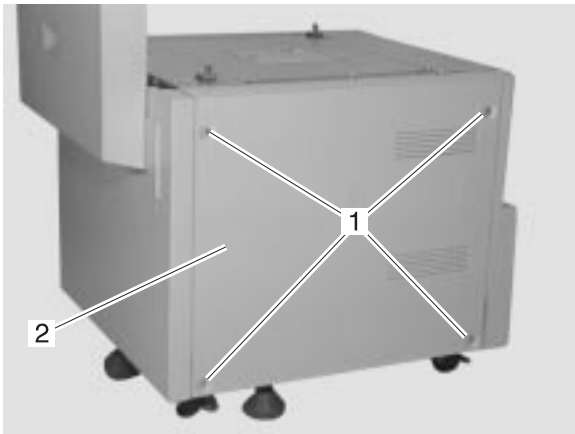
### Feed Cover Removal

1. Remove the 4 screws (1).
2. Undo the 7 latches (2) and remove the feed cover (3).



### Rear Cover Removal

Remove the 4 screws (1) and take off the rear cover (2).



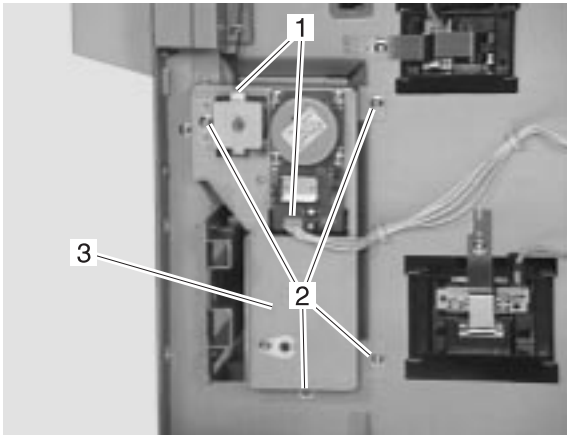


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## Paper Deck Drive System Removal Procedures

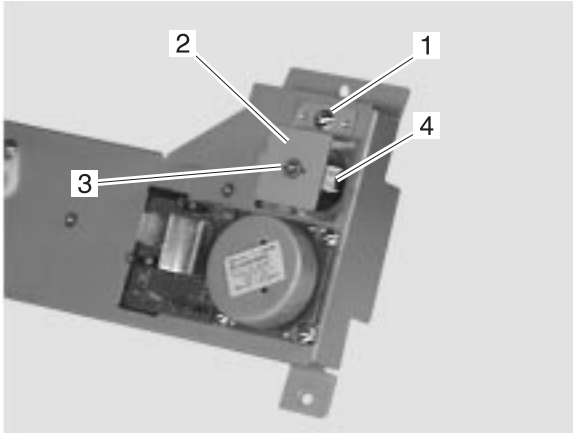
### Drive Assembly Removal

1. Remove the right cover and the rear cover.
2. Pull out the tray.
3. Remove the 2 connectors (1) and 4 screws (2), then take out the drive assembly (3).



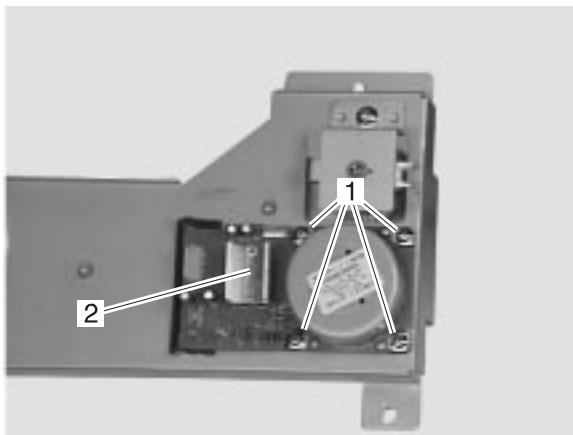
### Lifter Clutch Removal

1. Remove the screw (1).
2. Remove the clutch cover (2) and bushing (3), then take out the lifter clutch (4).



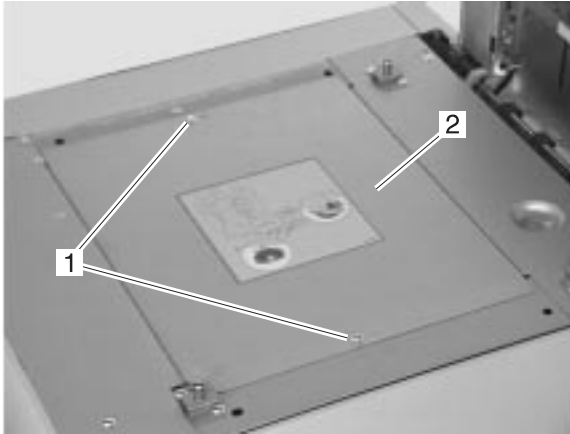
### Deck Motor Removal

Remove the 4 screws (1) and take out the deck motor (2).

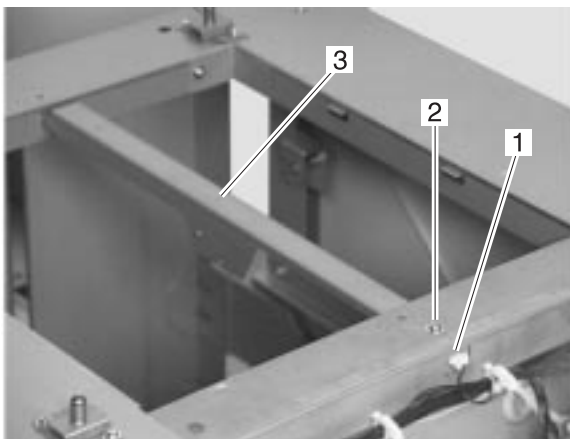


## Limit Switch Removal

1. Remove the 2 screws (1), then remove the upper cover (2).



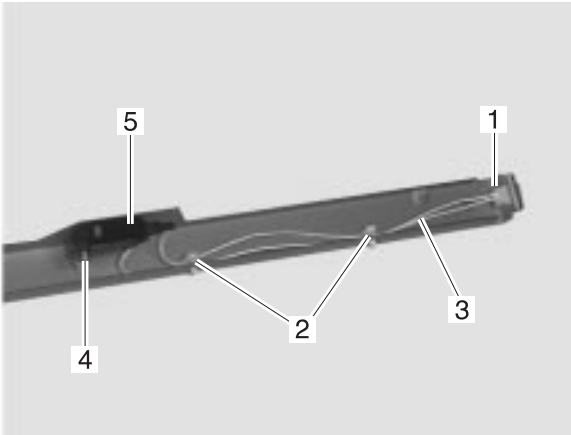
2. Pull out the tray.
3. Remove the rear cover.
4. Remove the connector (1).
5. Remove the screw (2) and slide out the stay (3).



6. Remove the connector (1) from the stay, then take the cable (3)

out of the band (2).

7. Remove the screw (4), then remove the limit switch (5).

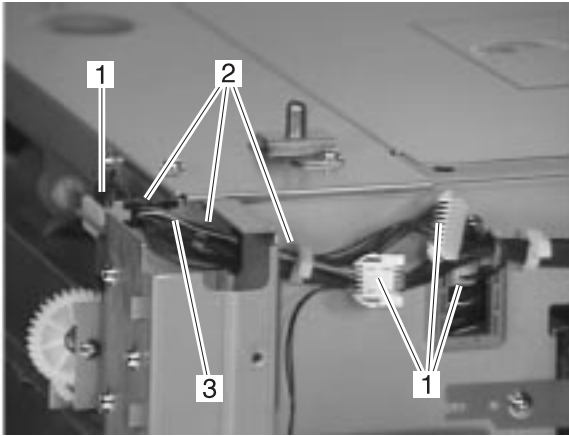


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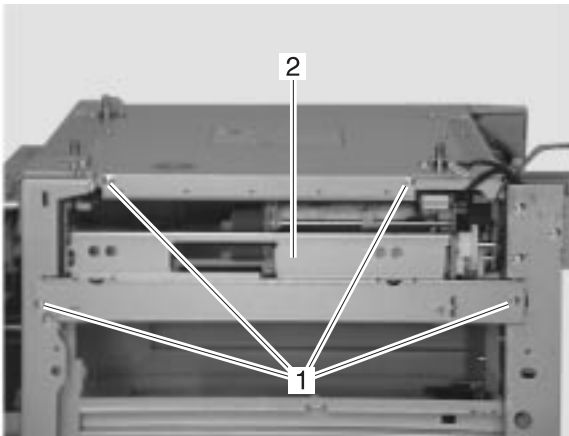
## Paper Transport System Removal Procedures

### Pick-Up Assembly Removal

1. Remove the feed assembly.
2. Pull out the tray.
3. Remove the right and rear covers.
4. Remove the 4 connectors (1), then take the cable (3) out of the band (2).



5. Remove the 4 screws (1) , then remove the pick-up assembly (2).

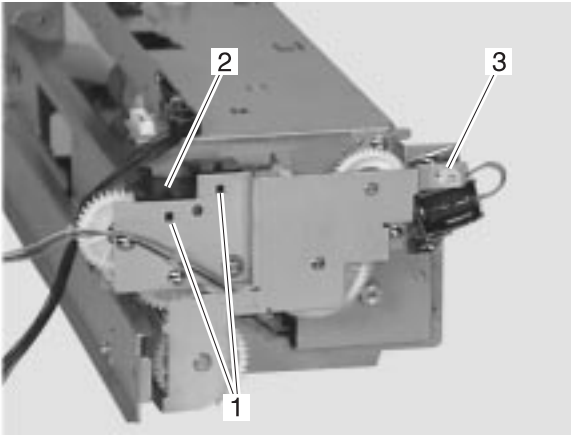


6. When you replace the parts of the pick-up assembly, remove the pick-up, feed and separation rollers so you do not get grease on them. Also be careful not to get grease on the paper feed guide.

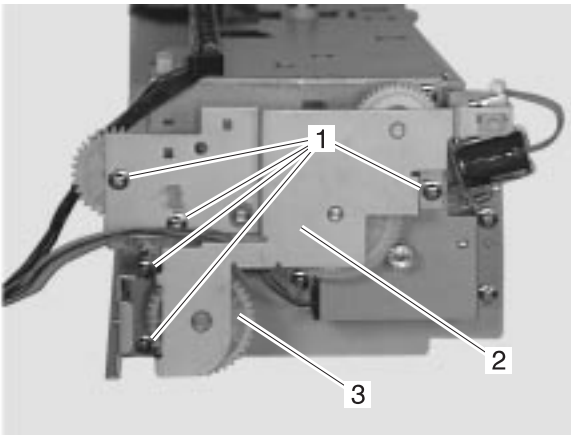
### Pick-Up Solenoid Removal

1. Undo the 2 latches (1) and remove the gear cover (2).

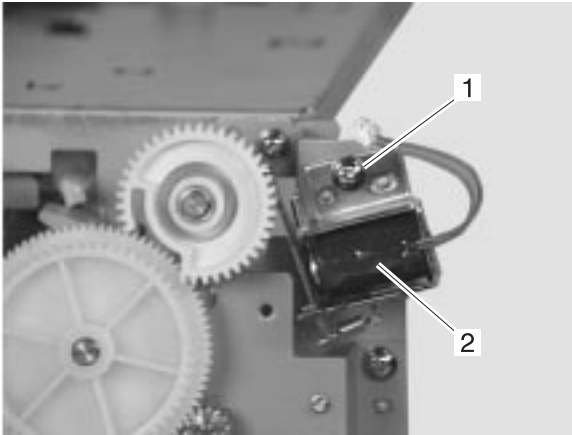
2. Remove the connector (3).



3. Remove the 5 screws (1).
4. Remove the gear side plate (2) with the gear (3).

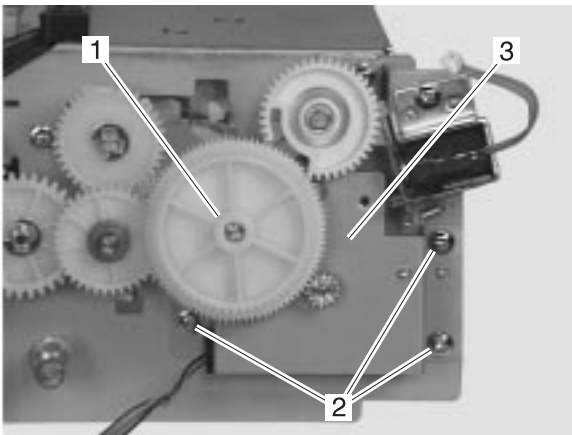


5. Remove the screw (1), then remove the pick-up solenoid (2).

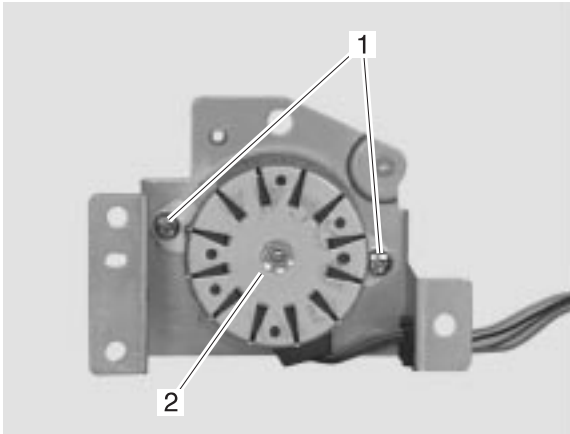


### Pick-Up Motor Removal

1. Remove the gear side plate.
2. Remove the gear (1).
3. Remove the 3 screws (2), then remove the motor base plate (3).

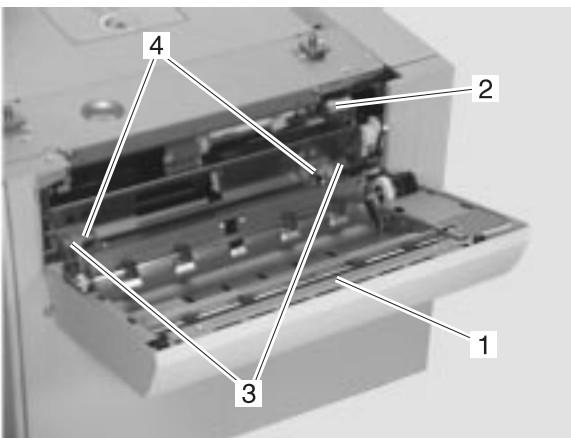


4. Remove the 2 screws (1), then remove the pick-up motor (2).



### Feed Assembly Removal

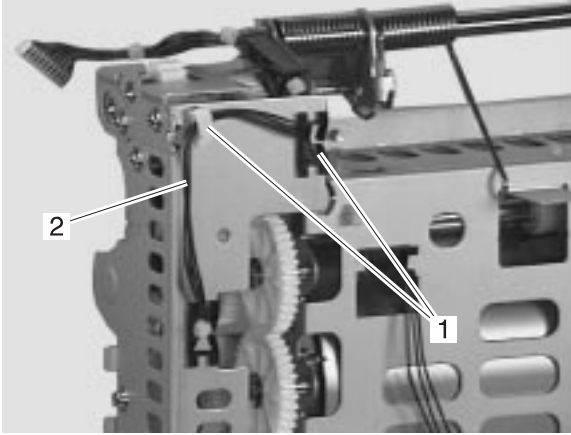
1. Drop the feed assembly (1) forward.
2. Remove the connector (2).
3. Rotate the feed spacer (3).
4. Remove the 2 screws (4), then remove the feed assembly.



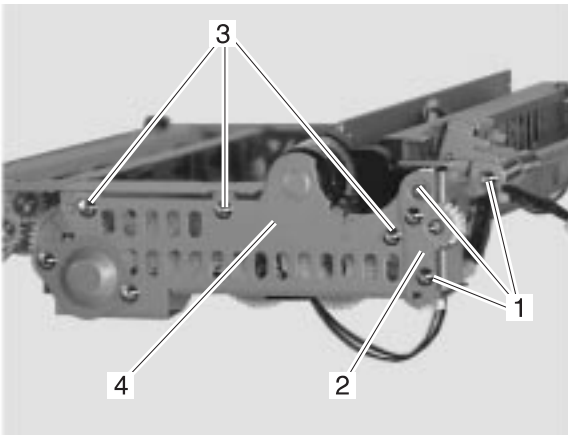


### Feed Clutch Removal

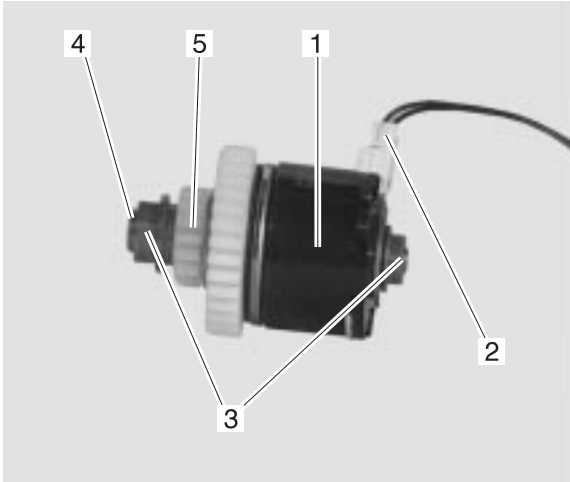
1. Remove the feed cover.
2. Remove the cable (2) from the bands (1).



3. Remove the 3 screws (1), then remove the connecting plate (2).
4. Remove the 3 screws (3), then remove the gear side plate (4).

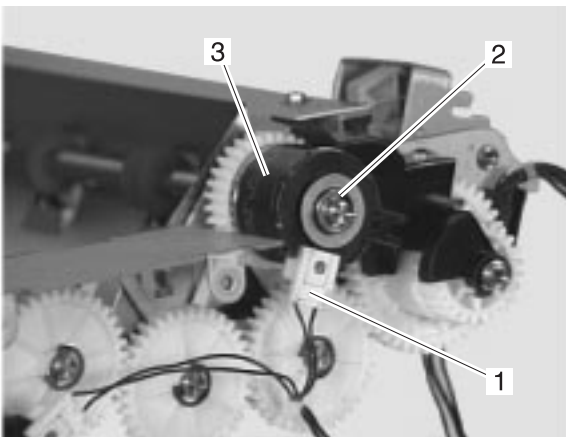


5. Remove the connector (2), 2 bushings (3), shaft (4), pin, and gear (5) from the feed clutch (1).



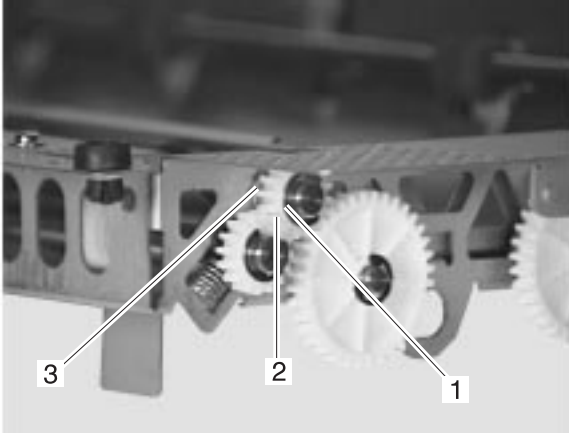
### Registration Clutch Removal

1. Remove the gear side plate.
2. Remove the connector (1).
3. Remove the E-ring (2) and then remove the registration clutch (3).

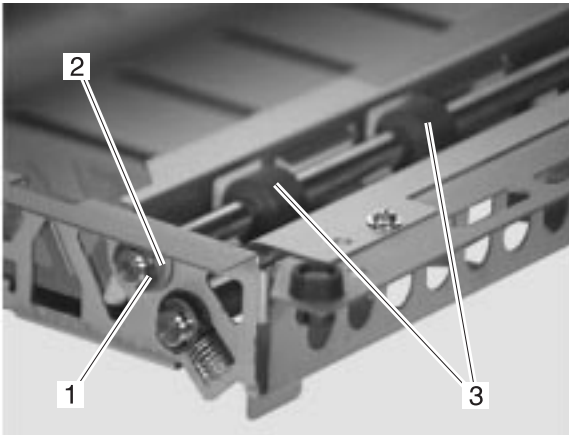


### Feed Roller Removal

1. Remove the feed clutch.
2. Remove the E-ring (1), gear (2), pin, and bushing (3).

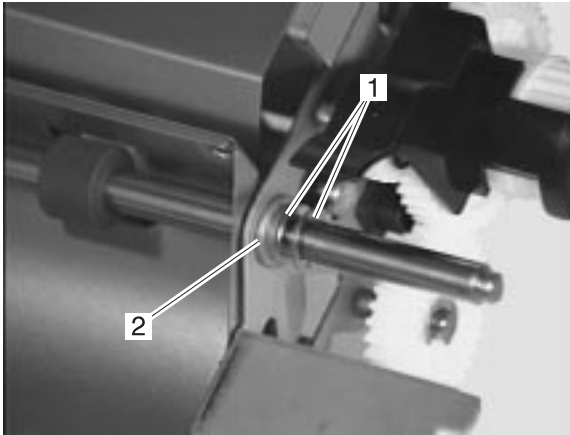


3. Remove the E-ring (1) and bushing (2), then remove the feed roller (3).

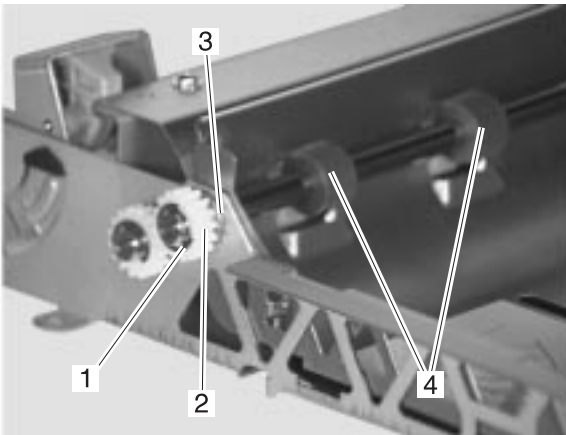


## Registration Roller Removal

1. Remove the registration clutch.
2. Remove the 2 E-rings (1) and the bushing (2).

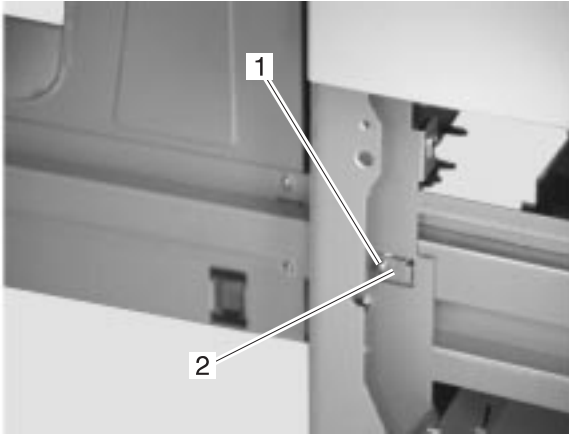


3. Remove the E-ring (1), gear (2), pin, and bushing (3), then remove the registration rollers (4).

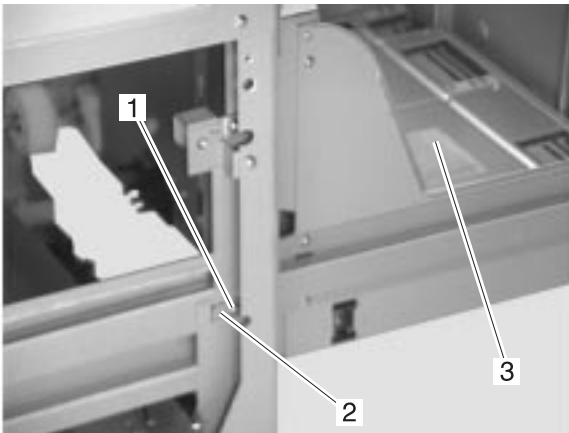


## Tray Removal

1. Remove the front cover.
2. Remove the right and left covers.
3. Remove the screw (1) and the stopper (2).

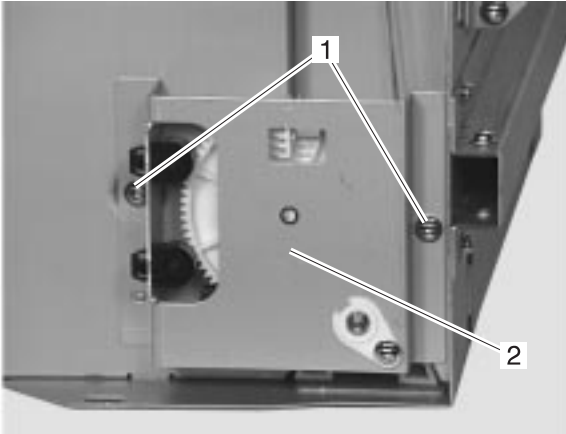


4. Remove the screw (1) and stopper (2), then remove the tray (3).

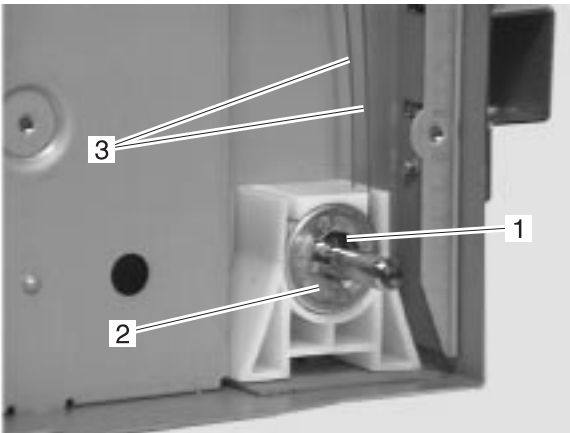


## Lifter Removal

1. Remove the 2 screws (1), the damper (2), then the gear.

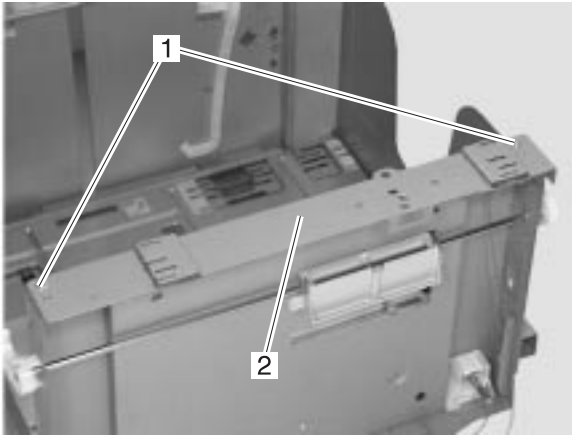


2. Remove the E-ring (1), then the 2 pulleys (2).
3. Remove the wires (3) from the pulleys.

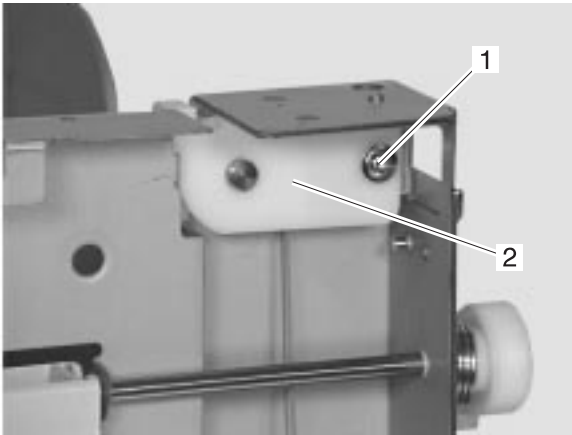


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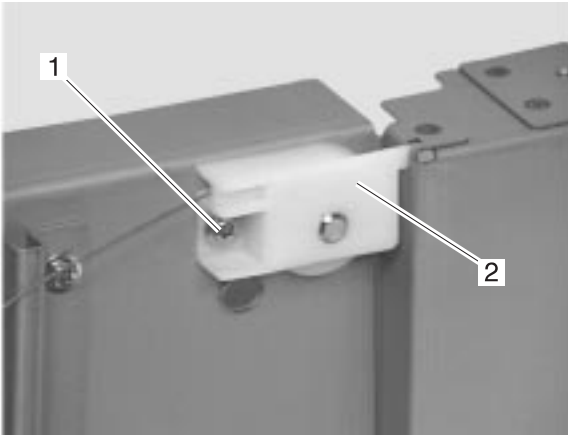
4. Remove the 2 screws (1), then the reference plate (2).



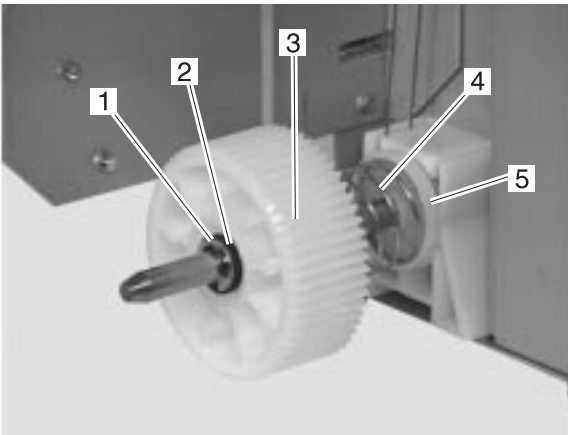
5. Remove the screw (1) then the wire cover (2).



6. Remove the screw (1), then remove the wire cover (2).



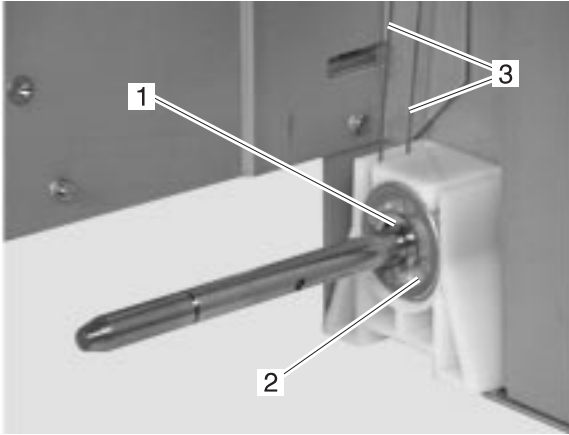
7. Remove the E-ring (1), the rubber ring (2), then the gear (3).
8. Remove the spring (4), pin, and spring stop (5).



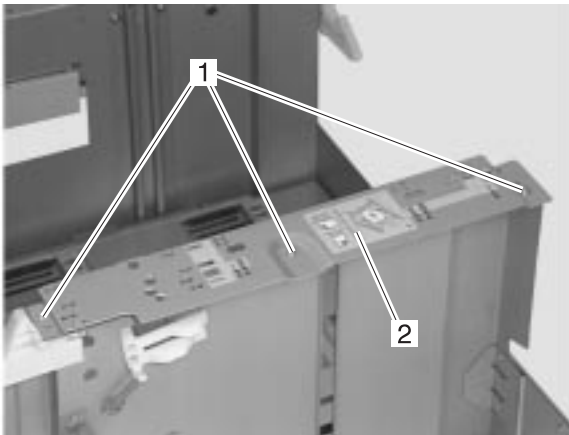


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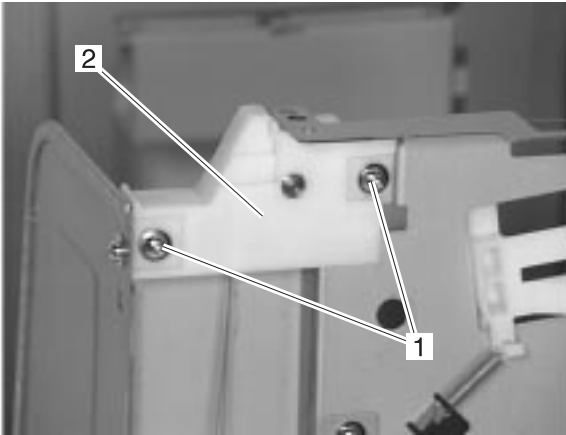
9. Remove the E-ring (1) and the 2 pulleys (2).
10. Remove the wires (3) from the pulleys.



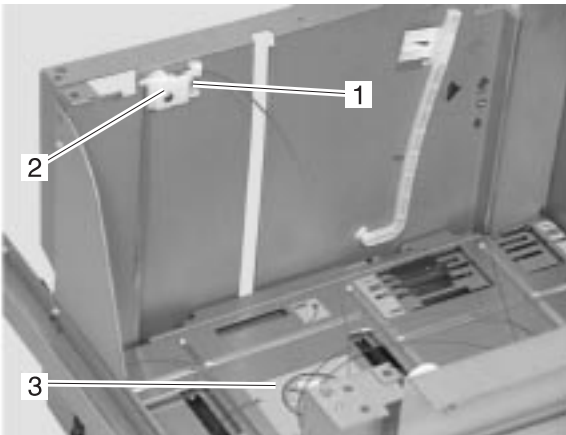
11. Remove the 3 screws (1), then the reference plate (2).



12. Remove the 2 screws (1), then the wire cover (2).

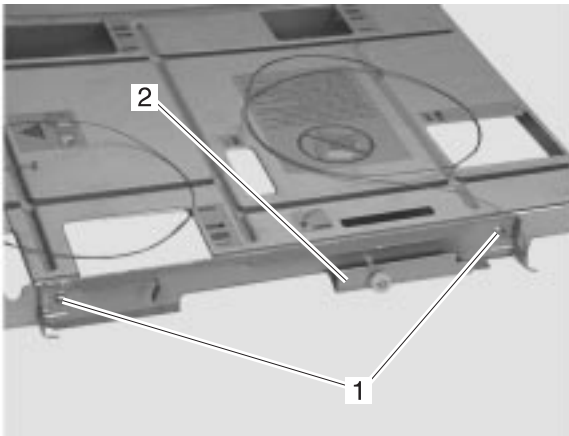
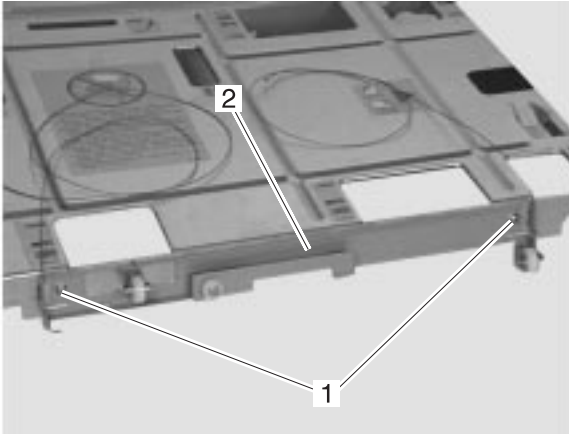


13. Remove the screw (1) and the wire cover (2), then remove the tray (3).



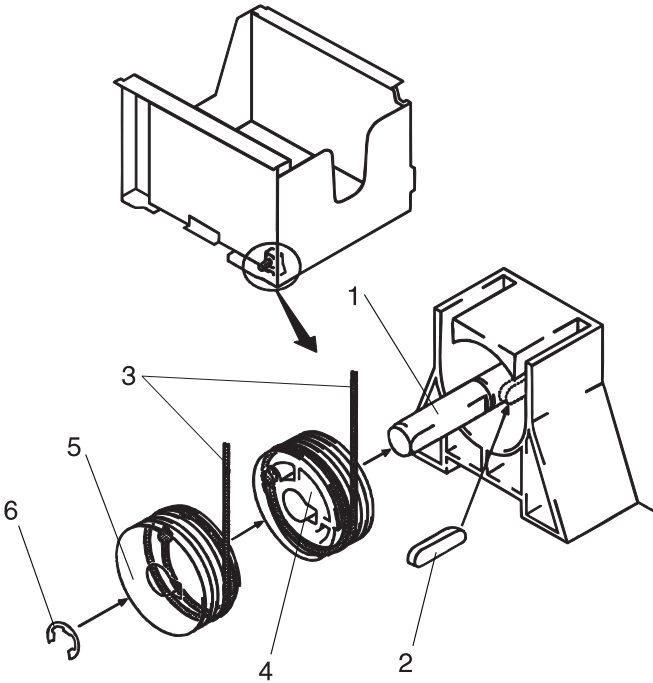
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14. Remove the 2 screws (1) from the tray, then remove either the front wire unit (2), or the rear wire units (2).



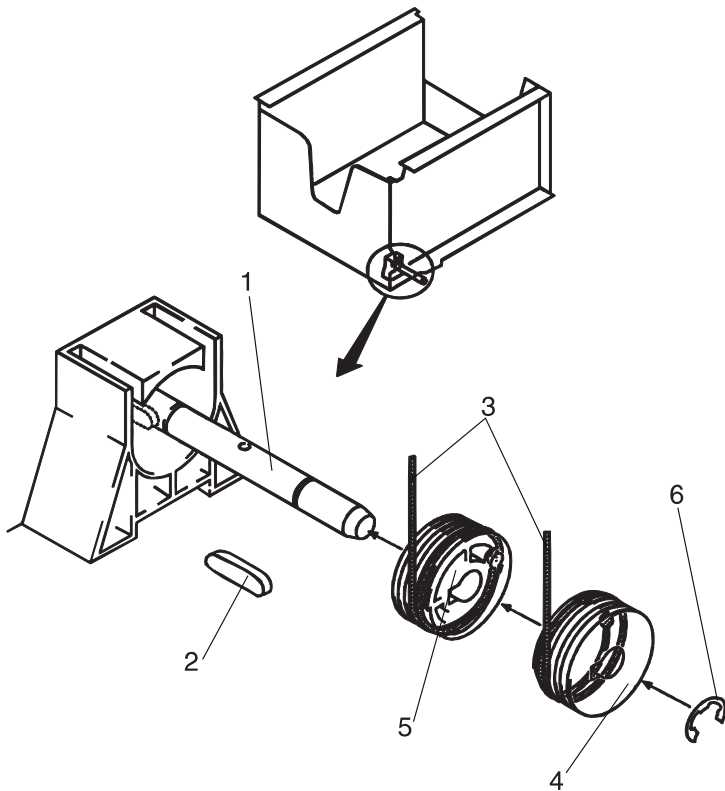
**To assemble the front wire:**

1. Insert the pulley alignment pin (2) in the right side (looking from the front) of the shaft (1).
2. Wind the wire (3) one and one-half times around the second groove from the front side of pulley 1 (4) and insert it onto the shaft.
3. Wind the wire one and one half times around the second groove from the backside of pulley 2 (5) and insert it onto the shaft.
4. Secure the pulleys with the E-ring (6).



**To assemble the rear wire:**

1. Insert the pulley alignment pin (2) in the left side (looking from the front) of the shaft (2).
2. Wind the wire (3) one and one-half times around the second groove from the front side of pulley 2 (4) and insert it onto the shaft.
3. Wind the wire one and one half times around the second groove from the backside of pulley 1 (5) and insert it onto the shaft.
4. Secure the pulleys with the E-ring (6).

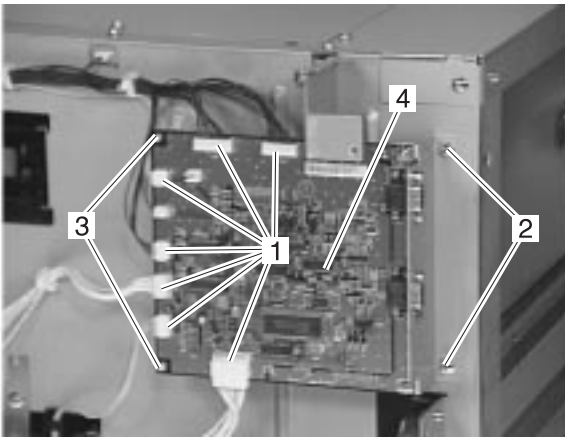


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## Electronic Component Removal Procedures

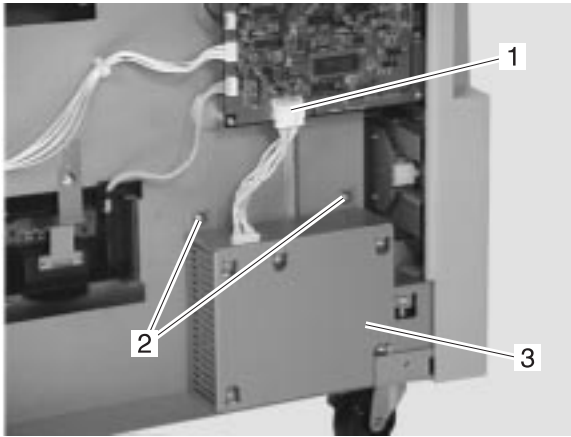
### Paper Deck Driver Board Removal

1. Remove the left cover.
2. Remove the rear cover.
3. Take out the 7 connectors (1).
4. After you remove the 2 screws (2) and the 2 board holding pins (3), remove the paper deck driver board (4).



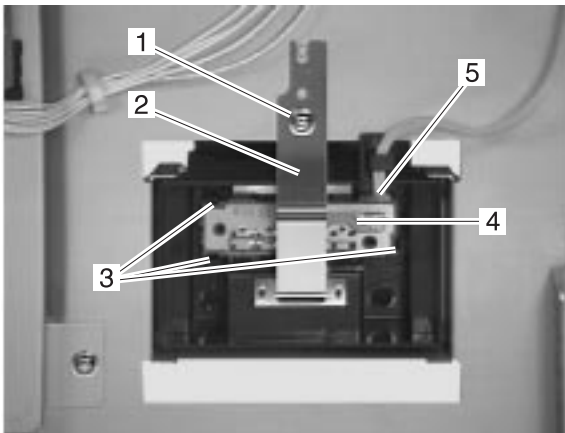
### Power Supply Removal

1. Remove the rear cover.
2. Remove the connector (1) and 2 screws (2), then remove the power supply (3) by slightly lifting its left side.



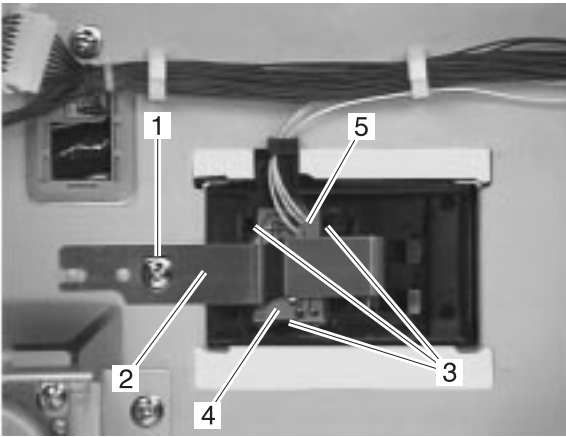
## Paper-size Sensing Switch Board Removal

1. Remove the rear cover.
2. Pull out the tray.
3. Remove the screw (1) and the board base plate (2).
4. Undo the 3 latches (3), then remove the paper-size sensing switch board (4) followed by the connector (5).



## Paper-level Sensing Switch Board Removal

1. Remove the rear cover.
2. Pull out the tray.
3. Remove the screw (1) and then the board base plate (2).
4. Undo the 3 latches (3), then remove the paper-level sensing switch board (4) followed by the connector (5).

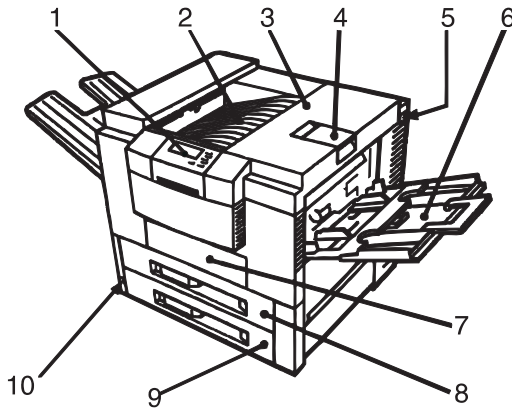




## 5. Locations

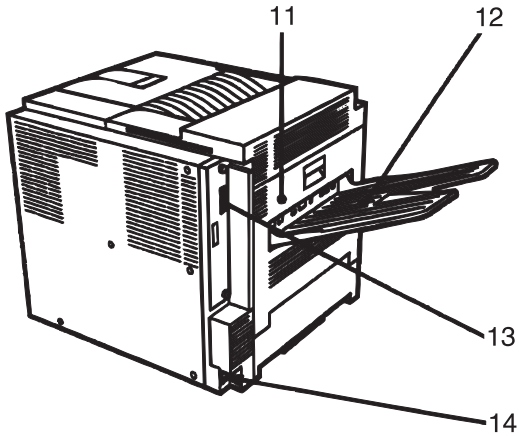
### Parts of the Printer

1. Operator Panel
2. Face-down tray
3. Upper Cover
4. Delivery Stopper
5. Test Print Switch
6. Multipurpose Tray
7. Duplex Door
8. Upper Cassette
9. Lower Cassette
10. Power Switch

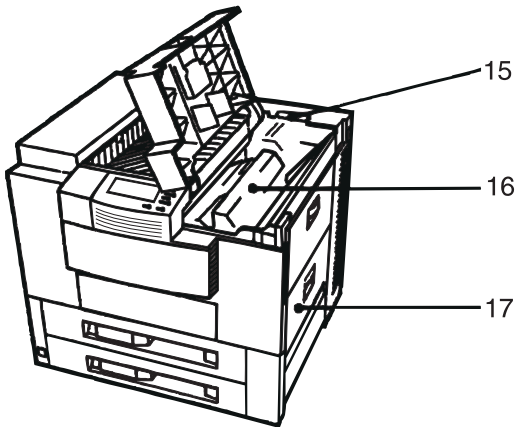


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- 11. Delivery Cover
- 12. Face-up Tray
- 13. Video Interface Connector
- 14. Power Receptacle

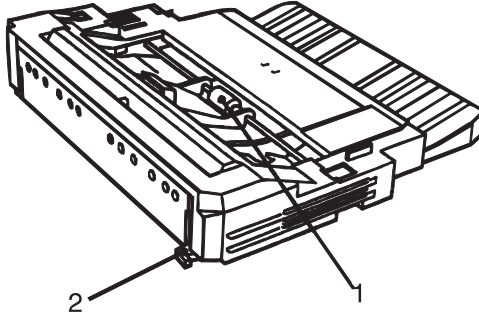


- 15. Cleaning Brush
- 16. EP-W Cartridge
- 17. Pick-up Door



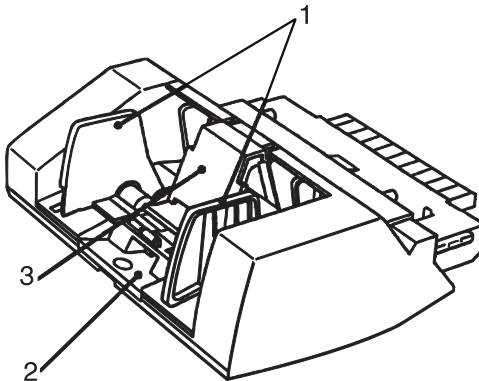
## Duplexer

1. Duplexing Feed Roller
2. Duplexing Assembly Removal Lever



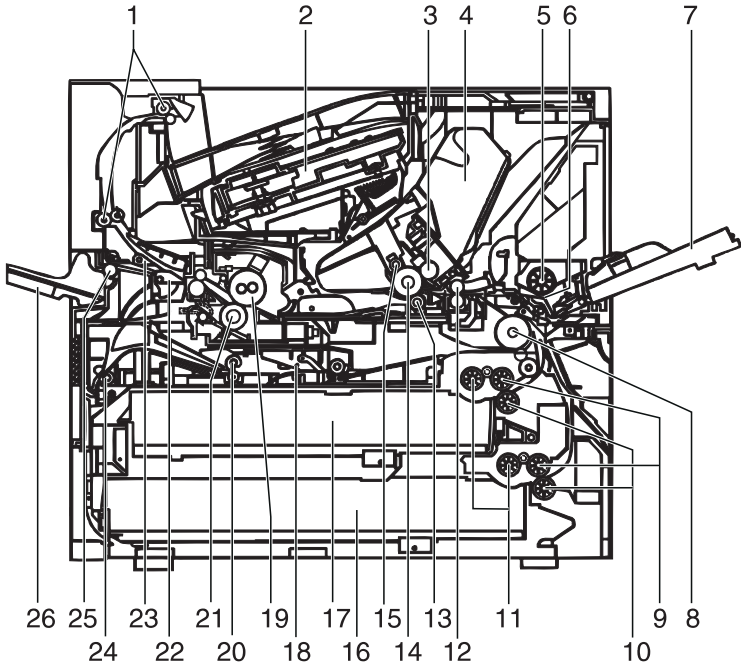
## Envelope Feeder

1. Envelope Guide
2. Extension Tray
3. Weight



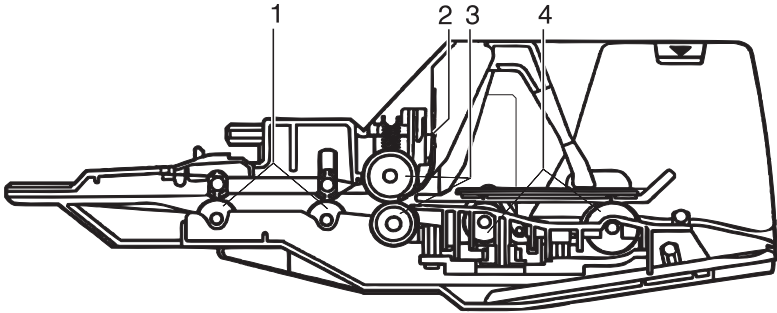
### Cross Section View of Printer and Duplexer

- |                                  |                             |
|----------------------------------|-----------------------------|
| 1. Delivery Roller               | 14. Photosensitive Drum     |
| 2. Laser/Scanner Assembly        | 15. Primary Charging Roller |
| 3. Developing Cylinder           | 16. Lower Cassette          |
| 4. EP-W Cartridge                | 17. Upper Cassette          |
| 5. Manual Feeding Pick-up Roller | 18. Duplex Assembly         |
| 6. Separation Pad                | 19. Fuser Upper Roller      |
| 7. Multipurpose Tray             | 20. Duplex Feed Roller      |
| 8. Feed Roller 1                 | 21. Fuser Lower Roller      |
| 9. Feed Roller 2                 | 22. Duplex Deflector        |
| 10. Separation Roller            | 23. Face-up Deflector       |
| 11. Pick-up Roller               | 24. Switchback Roller       |
| 12. Registration Roller          | 25. Face-up Delivery Roller |
| 13. Transfer Charging Roller     | 26. Face-up Tray            |

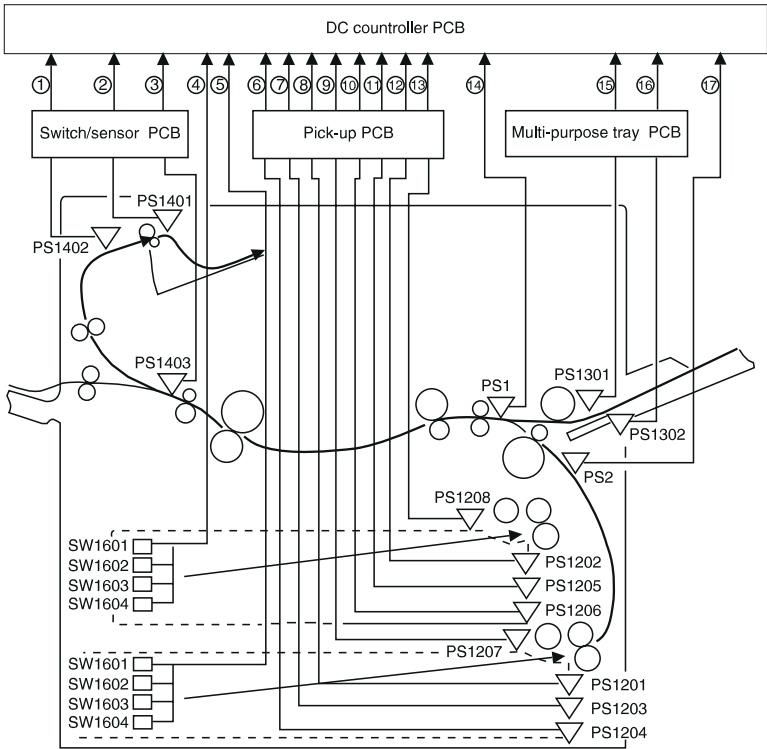


## Cross Section View of Envelope Feeder

1. Feed Rollers
2. Separation Guide
3. Separation Roller
4. Pick-up Roller



# Base Machine Sensor and Switch Operation



1. Face-down Tray Delivery Sense signal (FDOUTS)
2. Face-down Tray Paper Full Sense signal (FDFULS)
3. Fixing Unit Delivery Sense signal (/FPOUTS)
4. Upper Cassette Paper Size Sense signal
5. Lower Cassette Paper Size Sense signal
6. Lower Cassette Paper-level Sense signal 1 (LVPS1)
7. Lower Cassette Paper-level Sense signal 2 (LPVS2)
8. Lower Cassette Sense signal (/LDECKC)
9. Lower Cassette Paper-out Sense signal (/LDECKS)
10. Upper Cassette Paper-level Sense signal 1 (UPVS1)
11. Upper Cassette Paper-level Sense signal 2 (UPVS2)
12. Upper Cassette Sense signal (/UDECKC)
13. Upper Cassette Paper-out Sense signal (/UDECKS)
14. Registration Paper Sense signal (/REGS)
15. Multipurpose Tray Paper Sense signal (/MPTPS)
16. Lifting Plate Sense signal (/MPTLS)
17. Pick-up Unit Paper Sense signal (/FEEDS)

PS1: Registration paper sensor

PS2: Pick-up unit paper sensor

PS1201: Lower cassette sensor

PS1202: Upper cassette sensor

PS1203: Lower cassette paper-level sensor 1

PS1204: Lower cassette paper level sensor 2

PS1206: Upper cassette paper-level sensor 2

PS1207: Lower cassette paper-out sensor

PS1208: Upper cassette paper-out sensor

PS1301: Multipurpose tray paper sensor

PS1302: Lifting plate position sensor

PS1401: Face-down tray paper full sensor

PS1402: Face-down tray delivery sensor

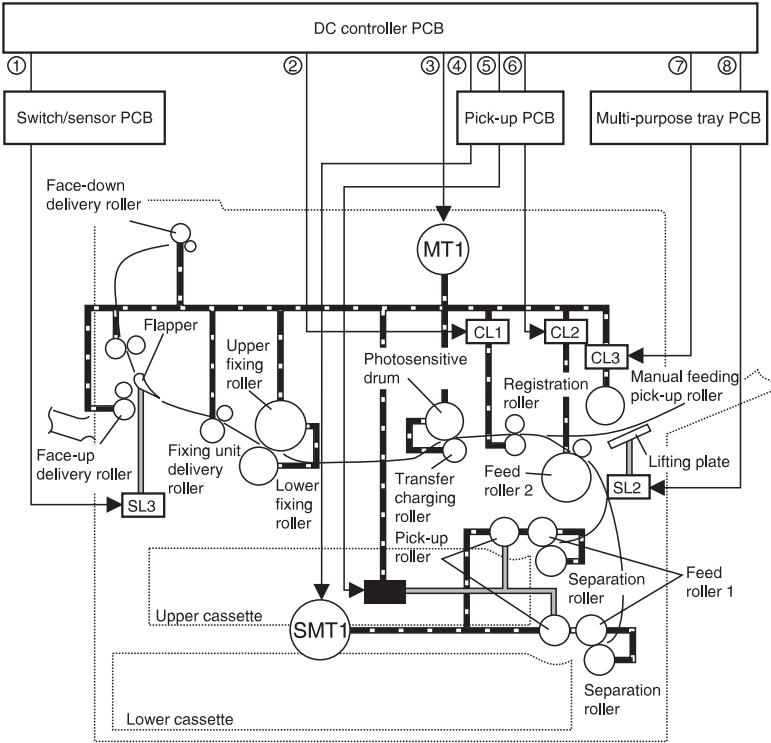
PS1403: Fuser delivery sensor

SW1602: Cassette-size sensing switch

SW1603: Cassette-size sensing switch

SW1604: Cassette-size sensing switch

# Base Machine Motor and Clutch Operation





1. Face-up Solenoid Drive signal (/FUSLD)
2. Registration Clutch Drive signal (/REGCLD)
3. Main Motor Drive signal (MMRDY)
4. Pick-up Motor Drive signal
5. Feed Clutch Drive signal (/FEEDCLD)
6. Cassette Pick-up Solenoid Drive signal (/PUPSLD)
7. Manual Feed Clutch Drive signal (/MPTCLD)
8. Lifting Plate Solenoid Drive signal (/MPTS LD)

MT1: Main motor

SMT1: Cassette pick-up motor

SL1: Cassette pick-up solenoid

SL2: Lifting plate solenoid

SL3: Face-up solenoid

CL1: Registration clutch

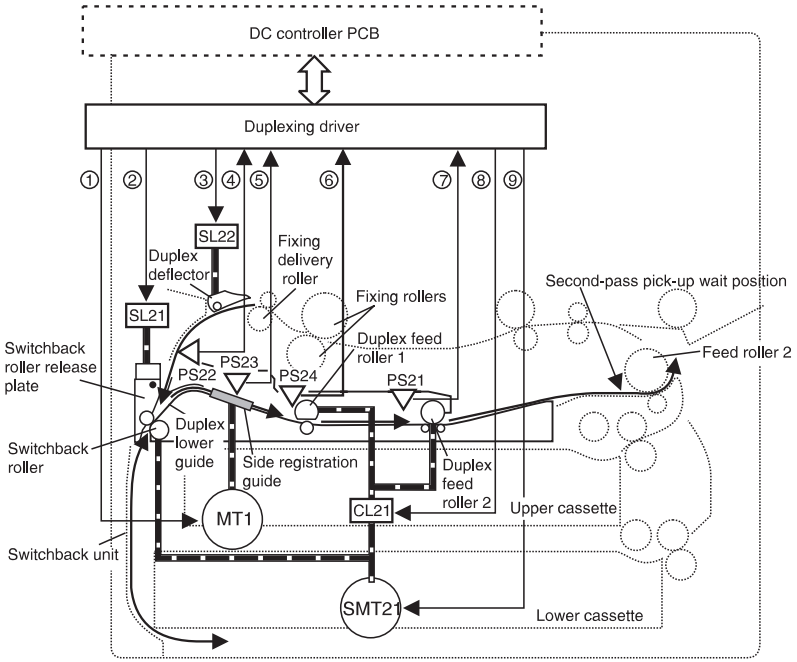
CL2: Feed clutch

CL3: Manual feed clutch

## Paper Feed

When the /PRNT signal is sent to the system board by the controller card and the scanner motor is put in the READY state, the system board issues the print sequence command and printing starts. After a sheet of paper is picked up by the cassette pickup roller or the manual feeding pickup roller, it is fed by the feed rollers. Any skew of the paper is corrected by the registration roller and it stops at the leading edge detection position. The temporarily stopped paper is fed so that its leading edge matches the transfer roll as well as the leading edge of the image on the photosensitive drum. Subsequently, the paper passes through the transfer, fuser, and delivery units to the face-down or face-up tray.

# Duplex Operation



1. Side Registration Motor Drive signal
2. Switchback Roller Release Solenoid Drive signal (/PRRESLD)
3. Duplex Deflector Solenoid Drive signal (/DUPSLD)
4. Switchback Sensor signal (IDUPIDS)
5. Side Registration Guide Home Position Sensor signal (HRHGS)
6. Duplex Feed Roller 1 Home Position Sensor signal (DRHPS)
7. Duplex Paper Sensor signal (/DUPPS)
8. Duplex Feed Clutch Drive signal (IDUPCLD)
9. Switchback Motor Drive signal

SMT21: Switchback motor

SMT22: Side registration motor

SL21: Switchback roller release solenoid

SL22: Duplex deflector solenoid

CL21: Duplex feed clutch

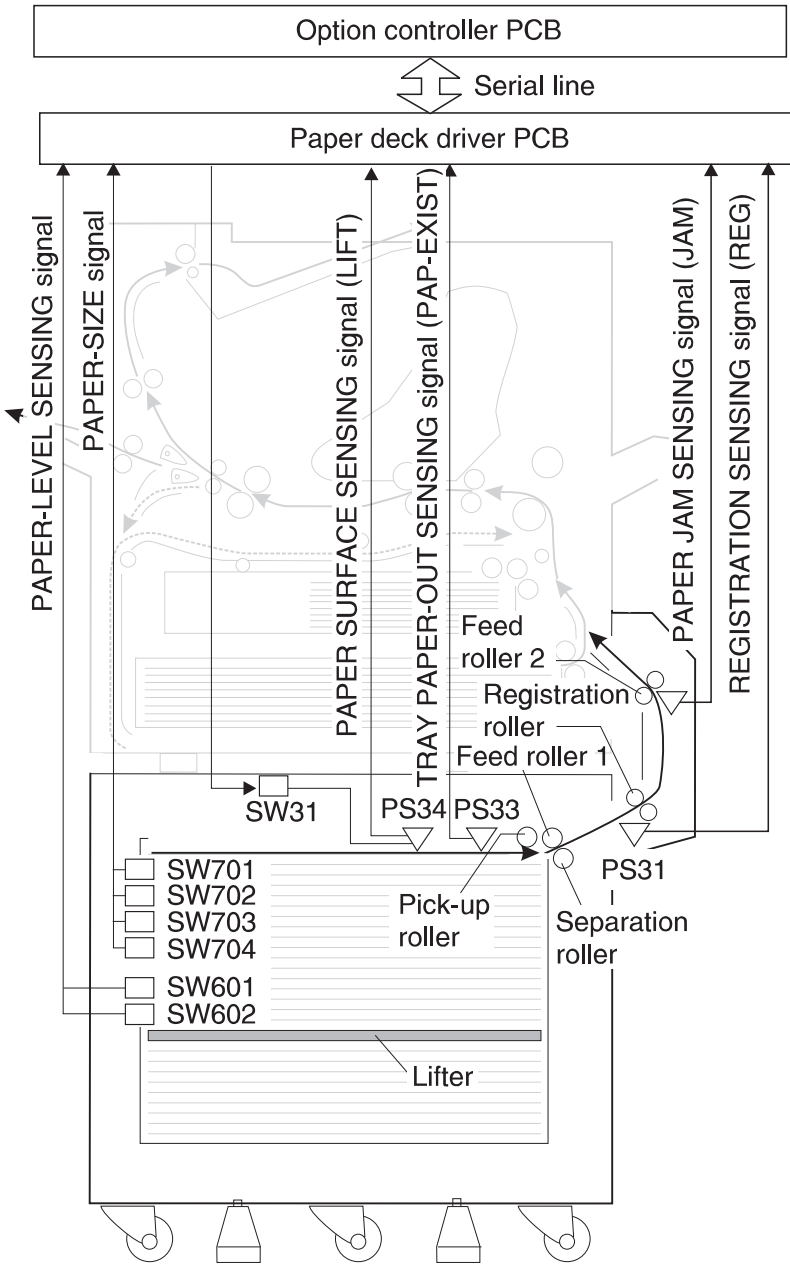
PS21: Duplexing unit paper sensor

PS22: Switchback sensor

PS23: Side registration guide home position sensor

PS24: Duplex feed roller 1 home position sensor

### Paper Deck Sensor and Switch Operation



## **4040**

PS31: Registration paper sensor

PS32: Paper jam sensor

PS33: Tray paper-out sensor

PS34: Paper surface sensor

SW31: Lifter abnormal position sensing switch

SW601: Paper-level sensing switch

SW602: Paper-level sensing switch

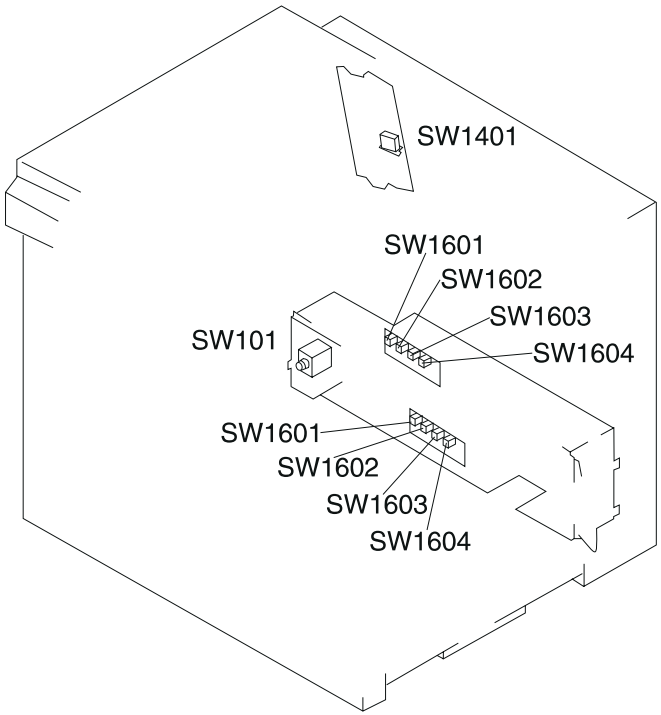
SW701: Paper-size sensing switch

SW702: Paper-size sensing switch

SW703: Paper-size sensing switch

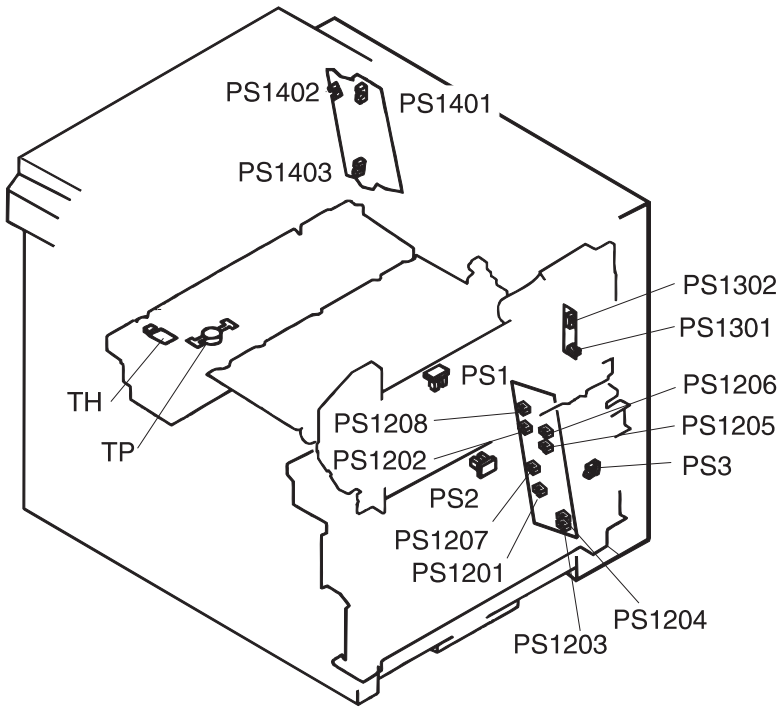
Sw704: Paper-size sensing switch

Switches



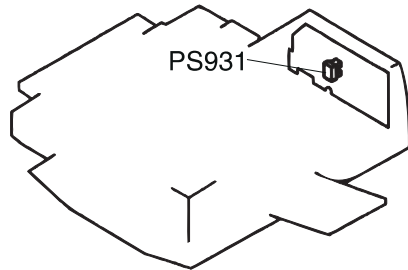
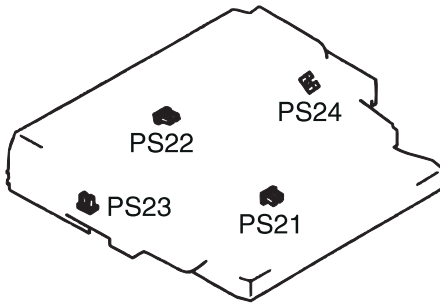
Name	Function
SW101	Power Switch
SW1401	Door Switch
SW1601	Lower Cassette-size Sensing Switch
SW1602	Lower Cassette-size Sensing Switch
SW1603	Lower Cassette-size Sensing Switch
SW1604	Lower Cassette-size Sensing Switch
SW1601	Upper Cassette-size Sensing Switch
SW1602	Upper Cassette-size Sensing Switch
SW1603	Upper Cassette-size Sensing Switch
SW1604	Upper Cassette-size Sensing Switch

## Sensors



Name	Function	Name	Function
PS1	Registration Paper Sensor	PS1207	Lower Cassette Paper Out Sensor
PS2	Pick-up Assembly Paper Sensor	PS1208	Upper Cassette Paper Out Sensor
PS3	Right Door Sensor	PS1301	Multipurpose Tray Paper Sensor
PS1201	Lower Cassette Sensor	PS1302	Lifting Plate Position Sensor
PS1202	Upper Cassette Sensor	PS1401	Face-down Tray Paper Full Sensor
PS1203	Lower Cassette Paper Level Sensor 1	PS1402	Face-down Tray Delivery Sensor
PS1204	Lower Cassette Paper Level Sensor 2	PS1403	Fuser Delivery Sensor
PS1205	Upper Cassette Paper Level Sensor 1	TH	Detects the fuser upper roller surface temperature
PS1206	Upper Cassette Paper Level Sensor 2	TP	Detects the fuser upper roller abnormal temperature

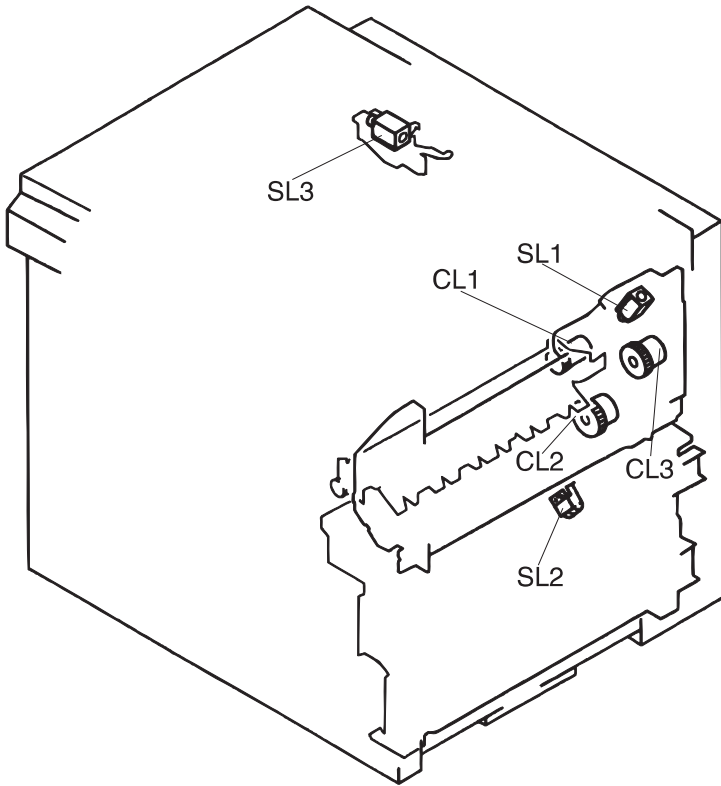
## Sensors (Cont.)



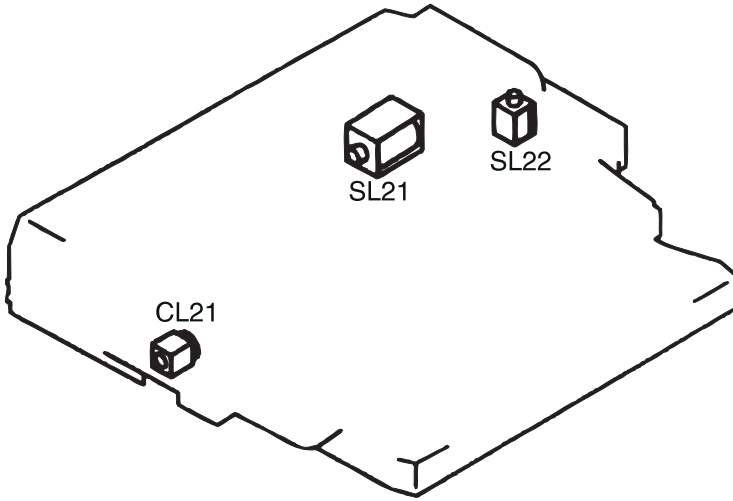
Name	Function
PS21	Duplexer Paper Sensor
PS22	Switchback Sensor (Duplexer)
PS23	Side Registration Guide Home Position Sensor (Duplexer)
PS24	Duplex Feed Roller 1 Home Position Sensor (Duplexer)
PS931	Envelope Feeder Paper Sensor (Envelope Feeder)



## Clutches and Solenoids

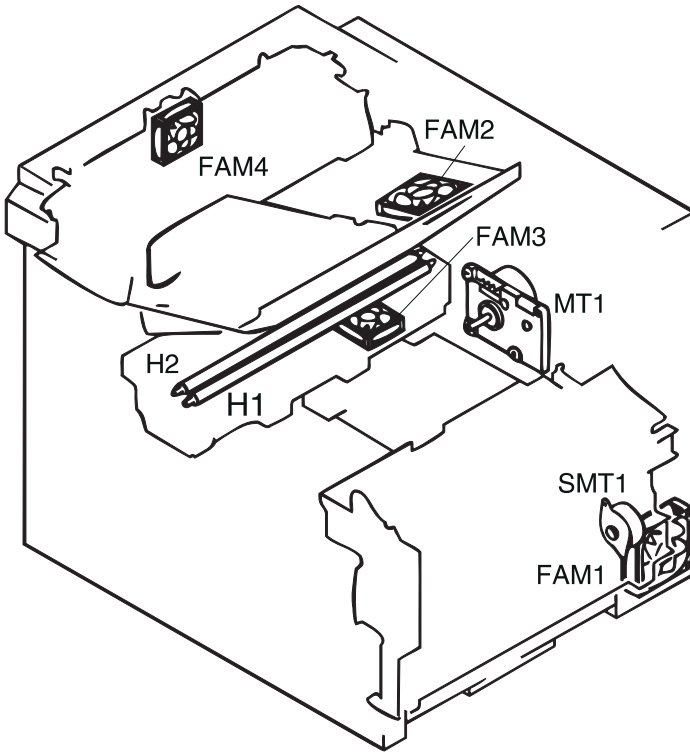


Name	Function
CL1	Registration Clutch
CL2	Feed Clutch
CL3	Manual Feed Clutch
SL1	Cassette Pick-up Solenoid
SL2	Lifting Plate Solenoid
SL3	Face-up Solenoid

**Clutches and Solenoids (Cont.)**

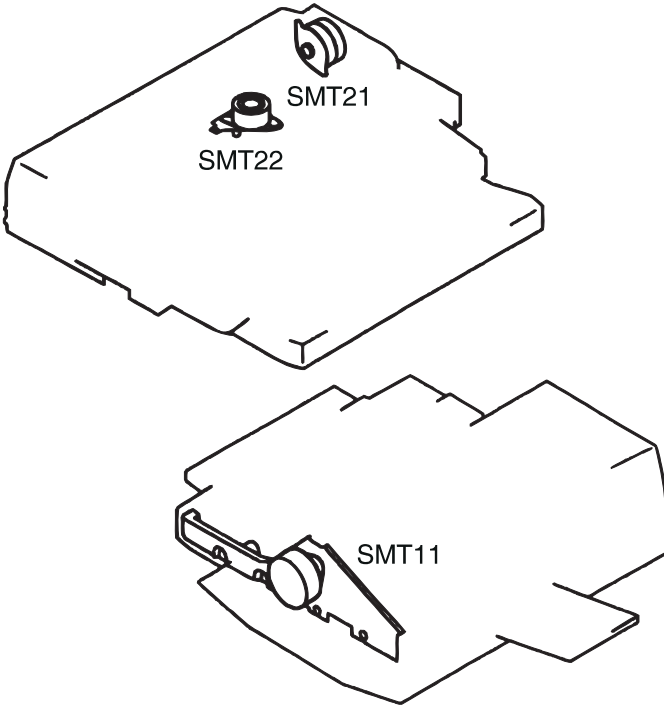
<b>Name</b>	<b>Function</b>
CL21	Duplex Feed Clutch
SL21	Switchback Roller Release Solenoid (Duplexer)
SL22	Duplex Deflector Drive Solenoid

## Motor, Fans, and Heaters



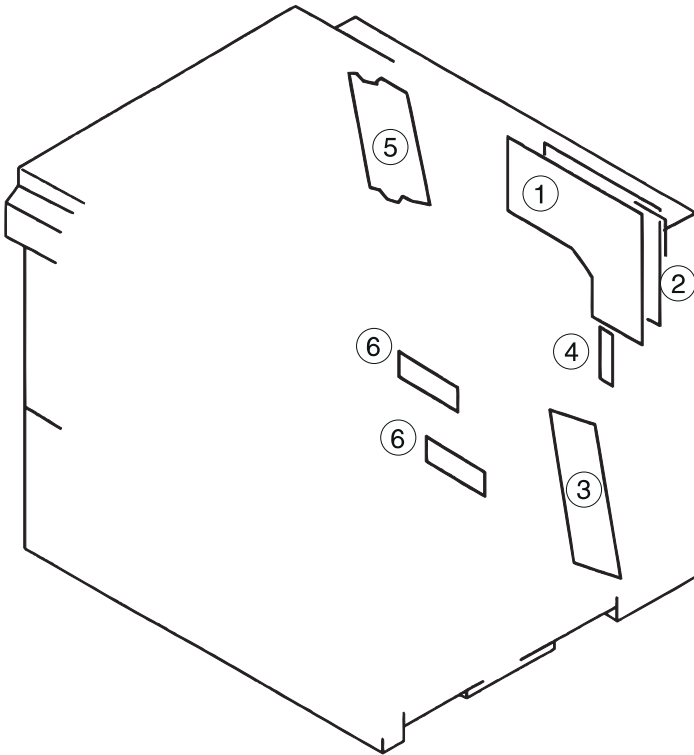
Name	Function
MT1	Main Motor
SMT1	Pick-up Motor
FAM1	Power Supply Fan
FAM2	Fuser/Scanner Fan
FAM3	Electrical Assembly Fan
FAM4	Fuser Fan
H1	Fuser Main Heater
H2	Fuser Sub Heater

**Motors, Fans and Heater (Cont.)**



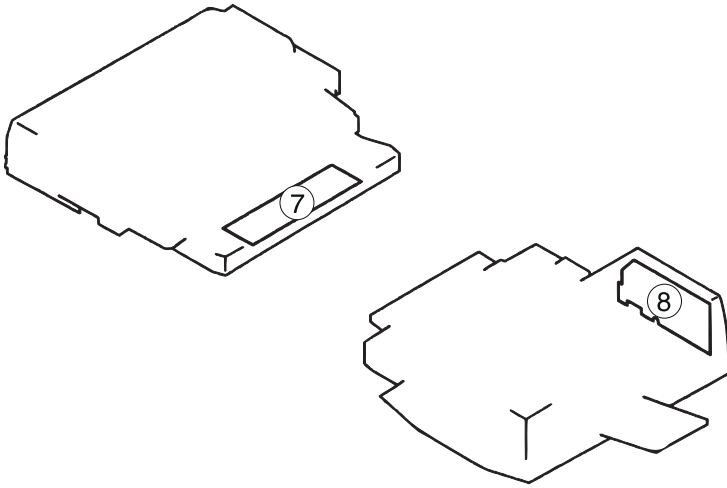
Name	Function
SMT11	Envelope Feeder Pick-up Motor
SMT21	Switchback Motor (Duplexer)
SMT22	Side Registration Motor (Duplexer)

## Printed Circuit Boards



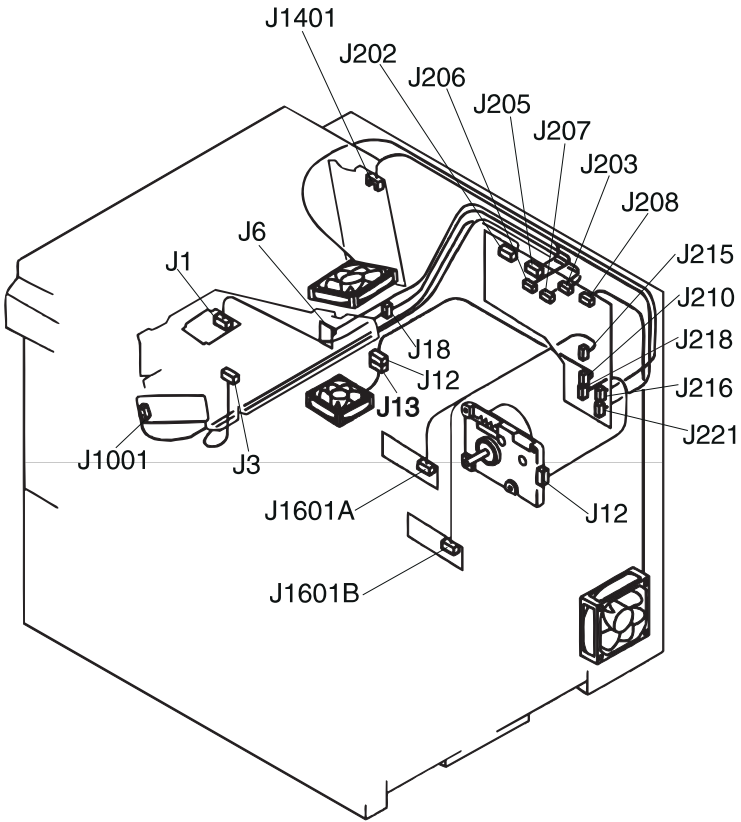
	Name	Function
1	System Board	Controls Print Sequence
2	High-voltage Power Supply Board	Outputs primary, developing, transfer, and separation voltages (bias) according to the print sequence.
3	Pick-up Board	Relays signals between sensors, loads and the system board.
4	Multipurpose Tray Board	Relays signals between sensors, loads and the system board.
5	Switch/Sensor Board	Relays signals between sensors, loads and the system board.
6	Cassette Size Detection Board	Cassette Size Detection

## Printed Circuit Boards (Cont.)

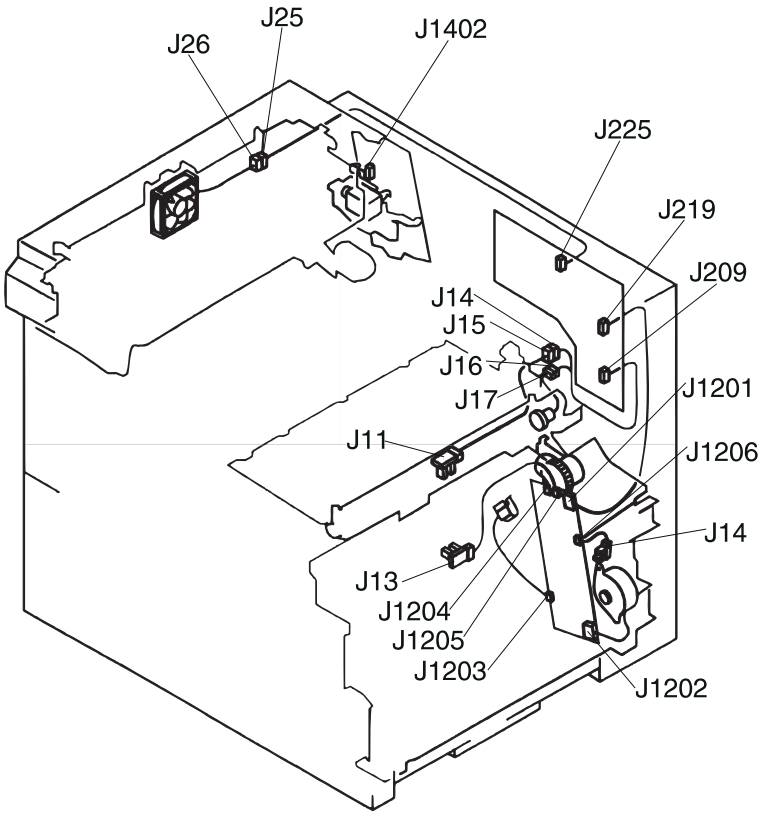


	<b>Name</b>	<b>Function</b>
7	Duplexing Driver Board	Controls loads in the duplexer and sensors.
8	Envelope Feeder Driver Board	Controls the envelope feeder motor and sensors.

## Connector Locations

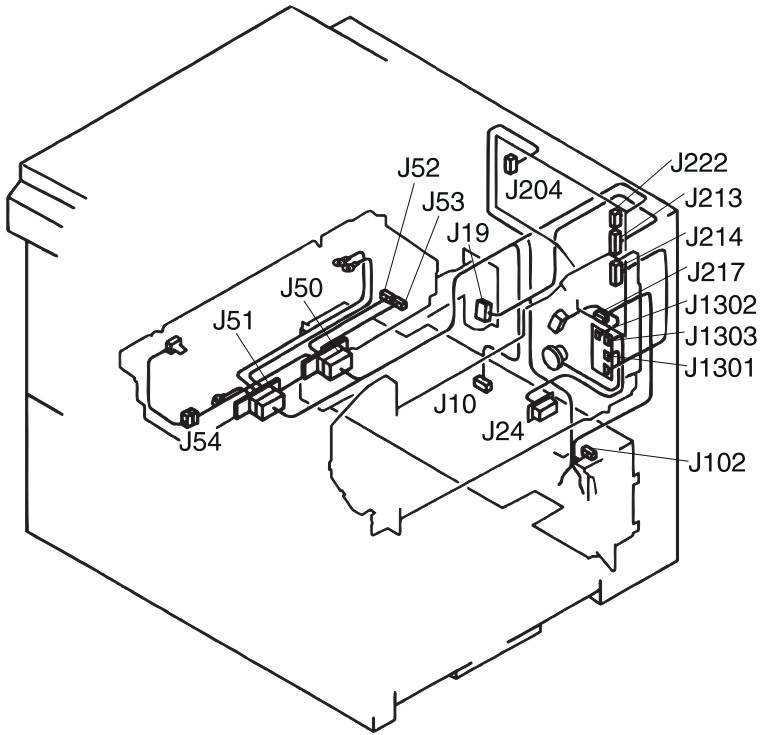


Connector Locations (Cont.)

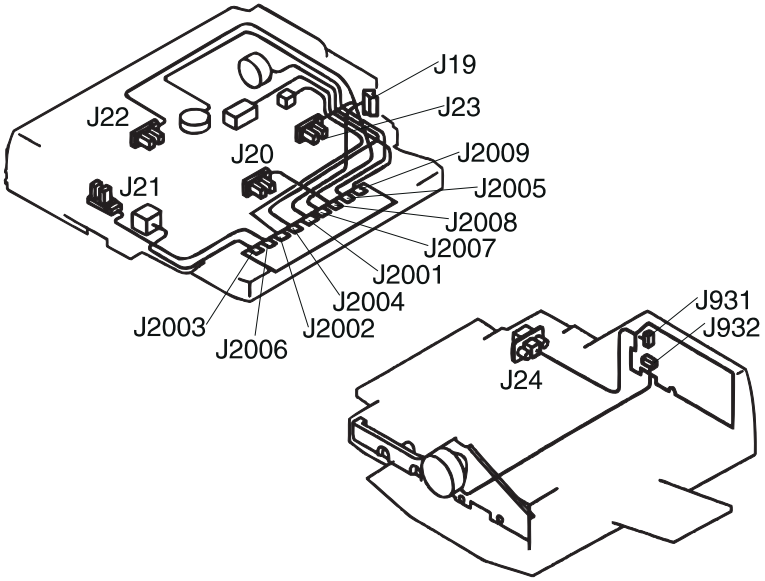




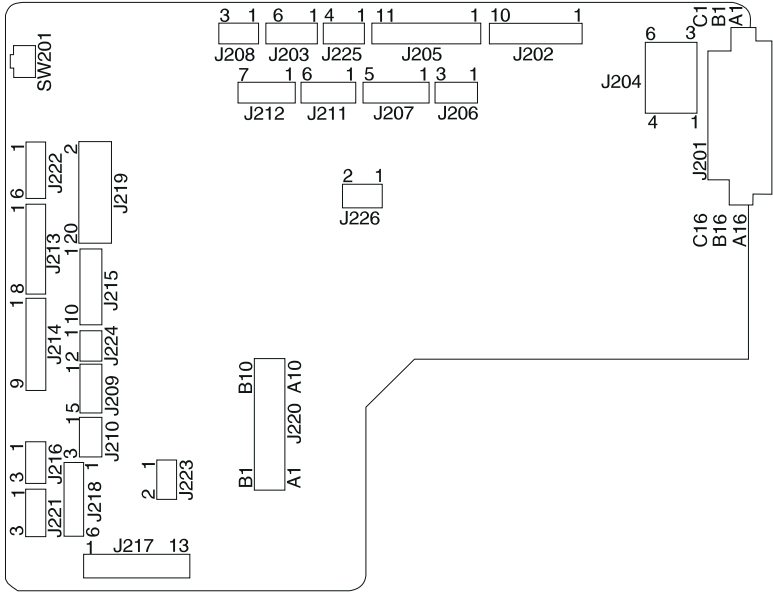
Connector Locations (Cont.)



### Connector Locations (Cont.)



# System Board



## System Board Connector Signals

### System Board Connector J201

Pin	Signal	Signal Name
A1	GND	
A2	GND	
A3	/FPCS	Front Panel Controller Chip Select Signal
A4	Reserved	Vsync Request Signal
A5	/VSREQ	Vsync Request Signal
A6	/VSYNC	Vertical Sync Signal
A7	/STS	Status Signal
A8	/CMD	Command Signal
A9	Reserved	
A10	/SPCHG	Speed Change Signal
A11	Reserved	
A12	+5V	
A13	+5V	
A14	+5V	
A15	GND	
A16	GND	
B1	GND	
B2	GND	
B3	/FPO	Front Panel Serial Output Signal
B4	Reserved	
B5	/RDY	Ready Signal
B6	/CPRDY	Controller Power Ready Signal
B7	/SBSY	Status Busy Signal
B8	/CBSY	Command Busy Signal
B9	Reserved	
B10	/PFEED	Paper Feed Signal
B11	Reserved	
B12	+5V	
B13	+5V	
B14	+5V	
B15	GND	
B16	GND	

**4040**

<b>Pin</b>	<b>Signal</b>	<b>Signal Name</b>
C1	VDO	Video Signal
C2	GND	
C3	/FPI	Front Panel Serial Input Signal
C4	FPCK	Front Panel Serial Clock Signal
C5	/PPRDY	Printer Power Ready Signal
C6	/PRNT	Print Signal
C7	/PCLK	Printer Clock Signal
C8	/CCLK	Controller Clock Signal
C9	Reserved	
C10	/PDLV	Paper Delivery Signal
C11	Reserved	
C12	+5V	
C13	+5V	

**System Board Connector J201**

Pin	Signal	Signal Name
C14	+5V	
C15	GND	
C16	/BD	Beam Detection Signal

**System Board Connector J202**

Pin	Signal	Signal Name
1	LLCONT	Laser Output Signal
2	GND	
3	PD	Photo Detection Signal
4	/LENBL	Video Data Enable Signal
5	/LON	Forced Laser On Signal
6	GND	
7	VDO	Video Signal
8	GDN	
9	+5V	
10	N.C.	

**System Board Connector J203**

Pin	Signal	Signal Name
1	/FPO	Front Panel Serial Output Signal
2	/FPI	Front Panel Serial Input Signal
3	/FPCS	Front Panel Controller Chip Select Signal
4	FPCK	Front Panel Serial Clock Signal
5	+5V	
6	GND	

**System Board Connector J204**

Pin	Signal	Signal Name
1	+5V	
2	GND	
3	GND	

**4040**

<b>Pin</b>	<b>Signal</b>	<b>Signal Name</b>
4	+5V	
5	GND	
6	+24VA	

**System Board Connector J205**

Pin	Signal	Signal Name
1	GND	
2	GND	
3	+24VA	
4	+24VA	
5	+24VA	
6	UDOORS	Upper Door Open Sense Signal
7	FDFULS	Face-down Tray Paper Full Sense Signal
8	/FPOUTS	Fuser Delivery Sense Signal
9	FDOUTS	Face-down Tray Delivery Sense Signal
10	/FUSLD	Face-up Solenoid Drive Signal
11	P5VB	

**System Board Connector J206**

Pin	Signal	Signal Name
1	GND	
2	/BDI	Beam Detection Input Signal
3	+5V	

**System Board Connector J207**

Pin	Signal	Signal Name
1	/SCNRDY	Scanner Motor Ready Signal
2	/SCND	Scanner Motor Drive Signal
3	SCNCLK	Scanner Motor Control Clock Signal
4	GND	
5	+24VA	

**System Board Connector J208**

Pin	Signal	Signal Name
1	FAN1D	Fan Motor 1 Drive Signal
2	/FAN1S	Fan Motor 1 Rotating Detection Signal
3	GND	



**System Board Connector J209**

Pin	Signal	Signal Name
1	/REGCLD	Registration Clutch Drive Signal
2	+24VA	
3	/REGS	Registration Paper Sense Signal
4	CND	
5	P5VB3	

**System Board Connector J210**

Pin	Signal	Signal Name
1	FAN3D	Fan Motor 3 Drive Signal
2	/FAN3S	Fan Motor 3 Rotating Detection Signal
3	GND	

**System Board Connector J212**

Pin	Signal	Signal Name
1	+5V	
2	GND	
3	FSRTH	Flying Roller Temperature Sense Signal
4	GND	
5	SVIN	Service Status Signal
6	SVOUT	Service Command Signal
7	+24VA	

**System Board Connector J213**

Pin	Signal	Signal Name
1	+24VA	
2	+24VA	
3	/DUPIDS	Duplexing Unit Sense Signal
4	/DUPSTS	Duplexing Unit Status Signal
5	DUPCMD	Duplexing Unit Command Signal
6	/DUPCLK	Serial Clock
7	GND	

**4040**

Pin	Signal	Signal Name
8	GND	

**System Board Connector J214**

Pin	Signal	Signal Name
1	GND	
2	+24VA	
3	P5VB2	
4	/MPTCLD	Manual Feed Clutch Drive Signal
5	/MPTSLD	Lifting Plate Solenoid Drive Signal
6	/MPTLS	Lifting Plate Sense Signal
7	/MPTPS	Multipurpose Tray Paper Sense Signal
8	ENVCMD	Envelope Feeder Command Signal
9	ENVSTS	Envelope Feeder Status Signal

**System Board Connector J215**

Pin	Signal	Signal Name
1	GND	
2	LSIZE4	Lower Cassette Paper Size Sense Signal
3	LSIZE3	Lower Cassette Paper Size Sense Signal
4	LSIZE2	Lower Cassette Paper Size Sense Signal
5	LSIZE1	Lower Cassette Paper Size Sense Signal
6	GND	
7	USIZE4	Upper Cassette Paper Size Sense Signal
8	USIZE3	Upper Cassette Paper Size Sense Signal
9	USIZE2	Upper Cassette Paper Size Sense Signal
10	USIZE1	Upper Cassette Paper Size Sense Signal

**System Board Connector J216**

Pin	Signal	Signal Name
1	FAN2D	Fan Motor 2 Drive Signal
2	/FAN2S	Fan Motor 2 Rotating Detection Signal
3	GND	

**System Board Connector J217**

Pin	Signal	Signal Name
1	FSRTH	Fixing Roller Temperature Sense Signal
2	RLD	Relay Drive Signal
3	FSRD1E	Fuser Main Heater Drive Signal
4	/FSRCT1	Fuser Main Heater Type Sense Signal
5	/FSRD	Fuser Main Heater Drive Enable Signal
6	/FSRD1R	Fuser Main Heater Drive Enable Signal (200 V Model Only)
7	FSRD2E	Fuser Sub Heater Drive Signal
8	/FSRCT2	Fuser Sub Heater Type Sense Signal
9	/FSRD2	Fuser Sub Heater Drive Enable Signal
10	/FSRD2R	Fuser Sub Heater Drive Enable Signal (200 V model only)
11	/RLDSNS	Relay Detection Sense Signal
12	PSTYP	Power Supply Type Sense Signal
13	REMT24	24 V Drive Signal

**System Board Connector J218**

Pin	Signal	Signal Name
1	/MMRDY	Main Motor Ready Signal
2	/MMOTD	Main Motor Drive Signal
3	GND	
4	GND	
5	+24VB	
6	+24VB	

**System Board Connector J219**

Pin	Signal	Signal Name
1	FEDAND	Pick-up Motor Control Signal
2	FEDAD	Pick-up Motor Control Signal
3	FEDBND	Pick-up Motor Control Signal
4	FEDBD	Pick-up Motor Control Signal
5	/UDECKS	Upper Cassette Paper-out Sense Signal

Pin	Signal	Signal Name
6	/UDECKC	Upper Cassette Sense Signal
7	/FEEDCLD	Feed Clutch Drive Signal
8	/FEEDS	Pick-up Unit Paper Sense Signal
9	/PUPSLD	Cassette Pick-up Solenoid Drive Signal
10	/LDECKC	Lower Cassette Paper-out Sense Signal
11	/LDECKS	Lower Cassette Sense Signal
12	LPVS2	Lower Cassette Paper-level Sense Signal 2
13	LPVS1	Lower Cassette Paper-level Sense Signal 1
14	UPVS2	Upper Cassette Paper-level Sense Signal 2
15	UPVS1	Upper Cassette Paper-level Sense Signal 1
16	/RDOORS	Right Door Open Sense Signal
17	+24VA	
18	P5VBDOR	
19	GND	
20	GND	

**System Board Connector J220**

Pin	Signal	Signal Name
A1	HVTS	Transfer Bias Monitor Signal
A2	/HVTRVBD	Transfer Negative Bias Drive Signal
A3	N.C	
A4	N.C	
A5	TONRS	Toner Level Signal
A6	DENADJ	Image Density Adjustment Signal
A7	/DBACD	Developing ac Bias Drive Signal
A8	/DBFRQ	Developing Bias Frequency Output Signal
A9	GND	
A10	+24VB	
B1	HVTVLTD	Transfer Bias Drive Signal
B2	HVTCRTD	Transfer Bias Constant Current Drive Signal
B3	/HRLBD	Fixing Roller Bias Drive Signal
B4	/DCHGBD	Discharge Bias Drive Signal
B5	/HV1FRQ	Primary Bias Frequency Output Signal
B6	/DCHGUP	Discharge Bias Switch Signal
B7	/HV1DCD	Primary dc Bias Drive Signal
B8	/DBDCD	Developing dc Bias Drive Signal
B9	GND	
B10	+24VB	

**System Board Connector J221**

Pin	Signal	Signal Name
1	+24VB	
2	+24VB	
3	+24VB	

**System Board Connector J222**

Pin	Signal	Signal Name
1	FSRTYP1	Fuser Main Heater Type Sense Signal
2	FSRTP1R	
3	FSRTP2R	

**4040**

<b>Pin</b>	<b>Signal</b>	<b>Signal Name</b>
4	FSRTYP2	Fuser Sub Heater Type Sense Signal
5	FSRTH	Fuser Roller Temperature Sense Signal
6	GND	

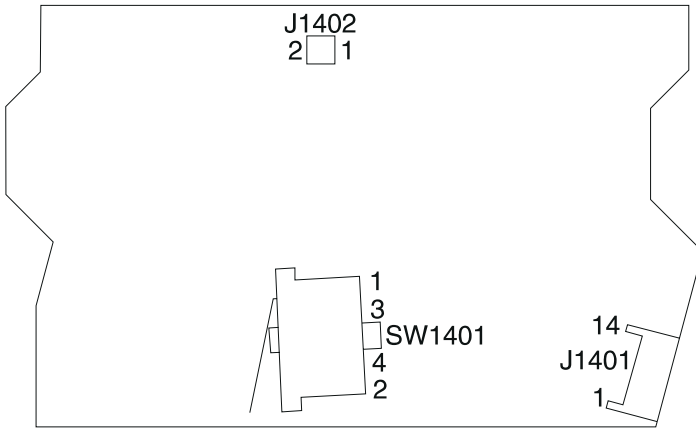
**System Board Connector J223**

Pin	Signal	Signal Name
1	TONRS	Toner Level Signal
2	GND	

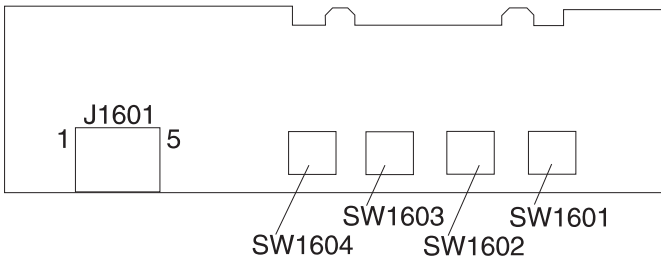
**System Board Connector J225**

Pin	Signal	Signal Name
1	FAN4D	Fan Motor 4 Drive Signal
2	/FAN4S	Fan Motor 4 Rotating Detection Signal
3	GND	
4	NC	

**Switch/Sensor Board**

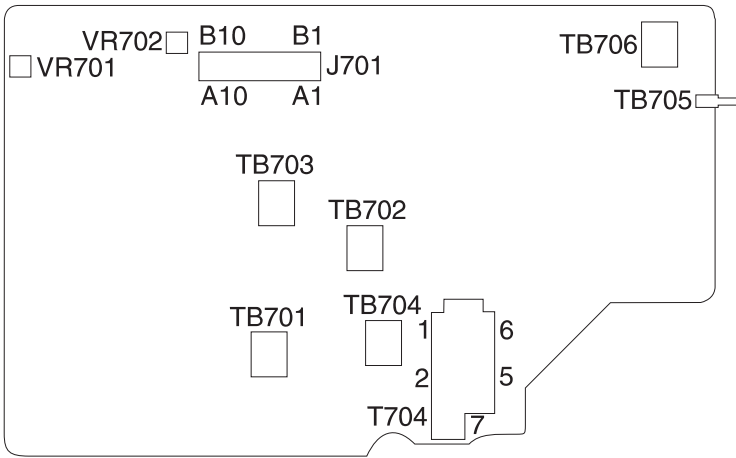


**Cassette Size Sensing Switch Board**

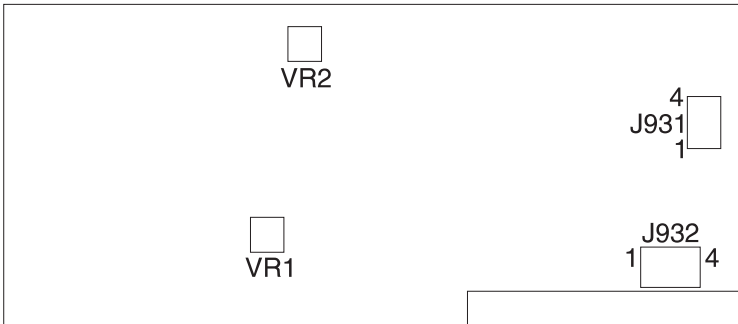




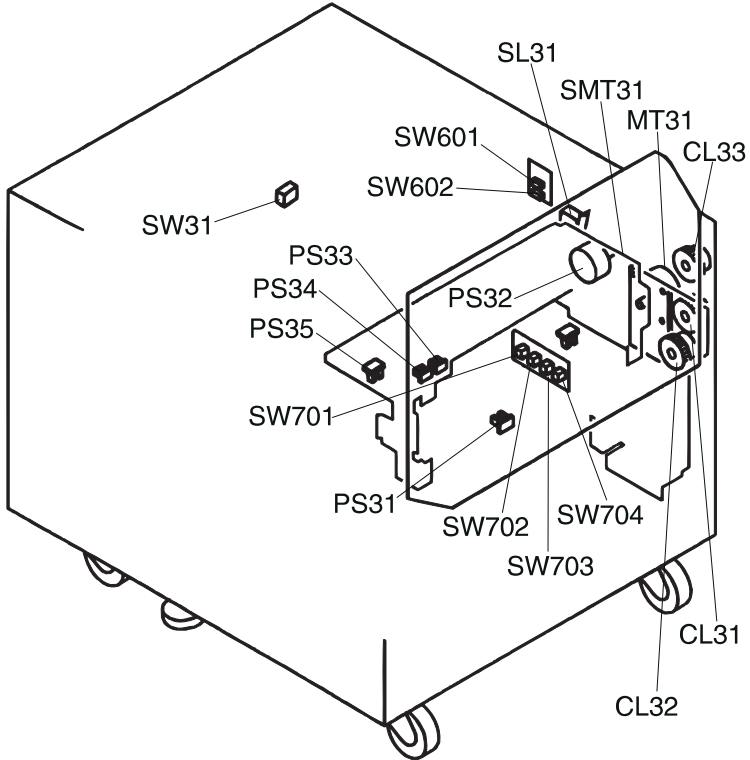
### High Voltage Power Supply Board



### Envelope Feeder Driver Board

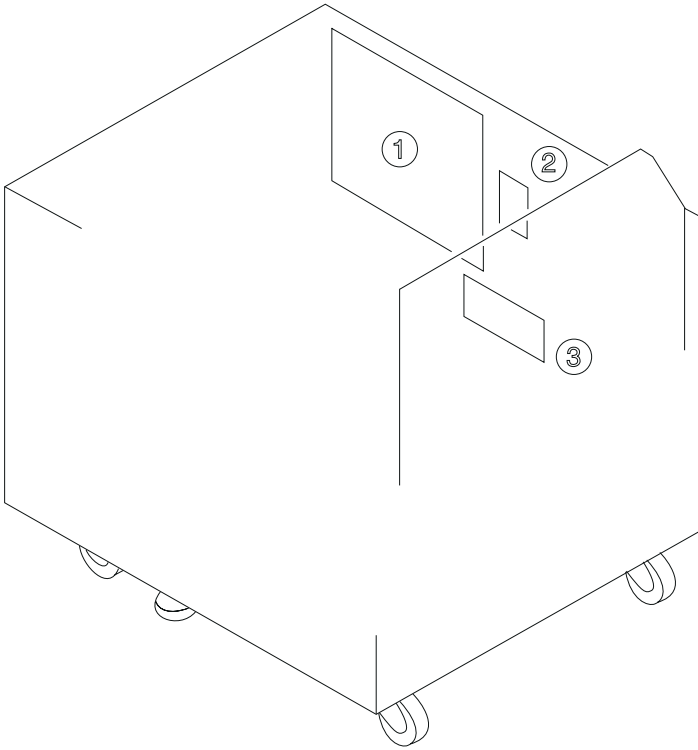


**Paper Deck Switches, Sensors, Clutches, Solenoid, Motors**



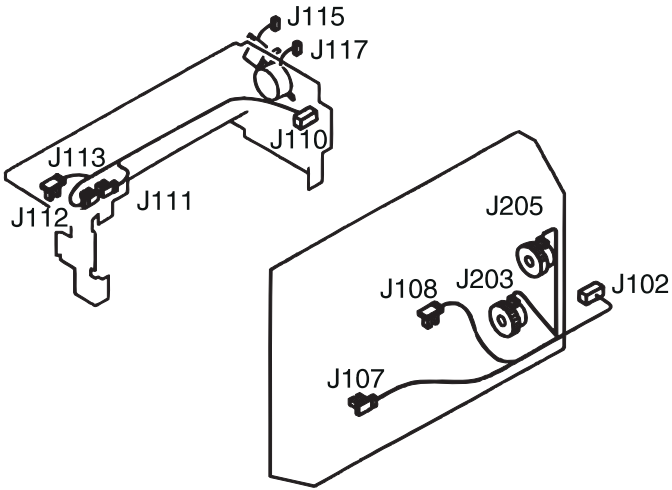
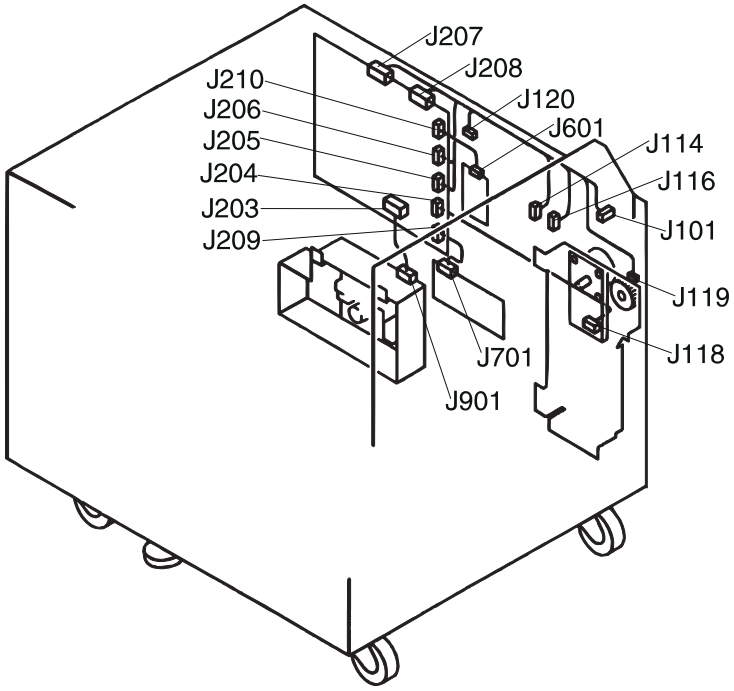
Name	Function	Name	Function
SW31	Lift Abnormal Position Sensing Switch	PS35	Door Sensor
SW601	Paper-level Sensing Sw.	CL31	Lifter Clutch
SW602	Paper-level Sensing Sw.	CL32	Registration Clutch
SW701	Paper-size Sensing Sw.	CL33	Feed Clutch
SW702	Paper-size Sensing Sw.	SL31	Pick-up Solenoid
SW703	Paper-size Sensing Sw.	SMT31	Pick-up Motor
SW704	Paper-size Sensing Sw.	MT31	Deck Motor
PS31	Registration Paper Sensor		

## Paper Deck Printed Circuit Boards

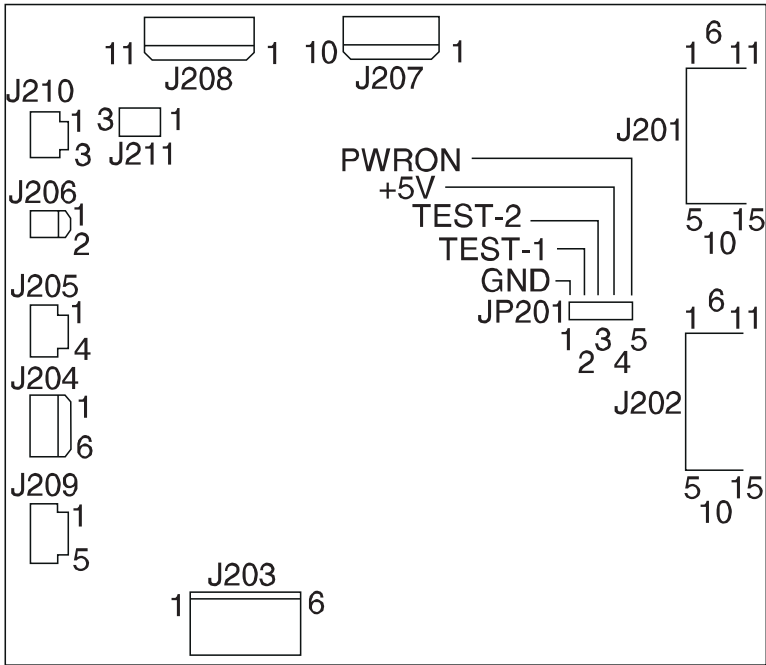


No	Name	Function
1	Paper Deck Driver Board	Controls the various loads and sensors
2	Paper-level Sensing Switch Board	Paper level detection
3	Paper-size Sensing Switch Board	Paper size detection

# Paper Deck Connectors



## Paper Deck Driver Board



## Paper Deck Driver Board Connectors

### Paper Deck Driver Board Connector J201

Pin	Signal	Signal Name
1	TXI	Serial In Signal
2	GND	
3	R XO	Serial Out Signal
4	CONTO	Communication Ready Signal
5	+24V	
6	CKI	Synchronous Clock Signal
7	GND	
8	GND	
9	GND	
10	+24V	
11	GND	
12	STRBI	Strobe Signal

**4040**

<b>Pin</b>	<b>Signal</b>	<b>Signal Name</b>
13	PWRON-IN	Power On Signal
14	GND	
15	+24V	

**Paper Deck Driver Board Connector J202**

Pin	Signal	Signal Name
1	TXO	Serial Out Signal
2	GND	
3	RX	Serial In Signal
4	CONTI	Communication Ready Signal
5	+24V	
6	CKO	Synchronous Clock Signal
7	GND	
8	GND	
9	GND	
10	+24V	
11	GND	
12	STRBO	Strobe Signal
13	PWRON- OUT	Power On Signal
14	GND	
15	+24V	

**Paper Deck Driver Board Connector J203**

Pin	Signal	Signal Name
1	+24V	
2	+24V	
3	PWRON- IN	Power On Signal
4	+5V	
5	GND	
6	GND	

**Paper Deck Driver Board Connector J204**

Pin	Signal	Signal Name
1	GND	
2	GND	
3	DCMOT-RDY	Deck Motor Ready Signal
4	DCMOT-ON	Deck Motor Drive Signal

**4040**

<b>Pin</b>	<b>Signal</b>	<b>Signal Name</b>
5	+24V	
6	+24V	



**Paper Deck Driver Board Connector J205**

Pin	Signal	Signal Name
1	FEDBND	Pick-up Motor Control Signal
2	FEDBD	Pick-up Motor Control Signal
3	FEDAND	Pick-up Motor Control Signal
4	FEDAD	Pick-up Motor Control Signal

**Paper Deck Driver Board Connector J206**

Pin	Signal	Signal Name
1	+24V	
2	LIFTCL	Lifter Clutch Drive Signal

**Paper Deck Driver Board Connector J207**

Pin	Signal	Signal Name
1	+5V	
2	GND	
3	REGI	Registration Paper Sense Signal
4	+5V	
5	GND	
6	JAM	Paper Jam Sense Signal
7	REGICL	Registration Clutch Drive Signal
8	+24V	
9	FEEDCL	Feed Clutch Drive Signal
10	+24V	

**Paper Deck Driver Board Connector J208**

Pin	Signal	Signal Name
1	+24V	
2	PICKUPSL	Pick-up Solenoid Drive Signal
3	+5V	
4	GND	
5	PAP-EXIST	Tray Paper-out Sense Signal

**4040**

<b>Pin</b>	<b>Signal</b>	<b>Signal Name</b>
6	+5V	
7	GND	
8	LIFT	Paper Surface Sense Signal
9	+5V	
10	GND	
11	DOOR	Door Open Sense Signal

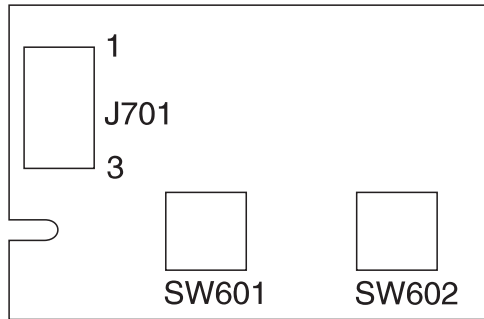
**Paper Deck Driver Board Connector J209**

Pin	Signal	Signal Name
1	GND	
2	PAP-SIZE4	Paper Size Sense Signal 4
3	PAP-SIZE3	Paper Size Sense Signal 3
4	PAP-SIZE2	Paper Size Sense Signal 2
5	PAP-SIZE1	Paper Size Sense Signal 1

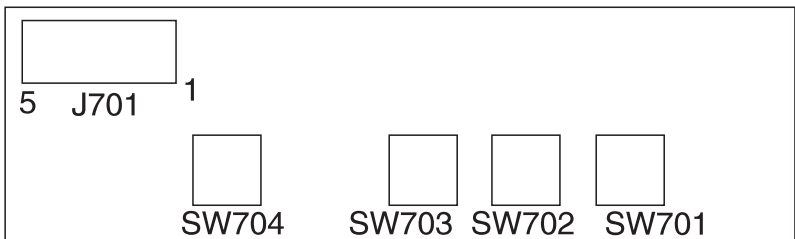
**Paper Deck Driver Board Connector J210**

Pin	Signal	Signal Name
1	GND	
2	PAP-VOL1	Paper-level Sense Signal 1
3	PAP-VOL2	Paper-level Sense Signal 2

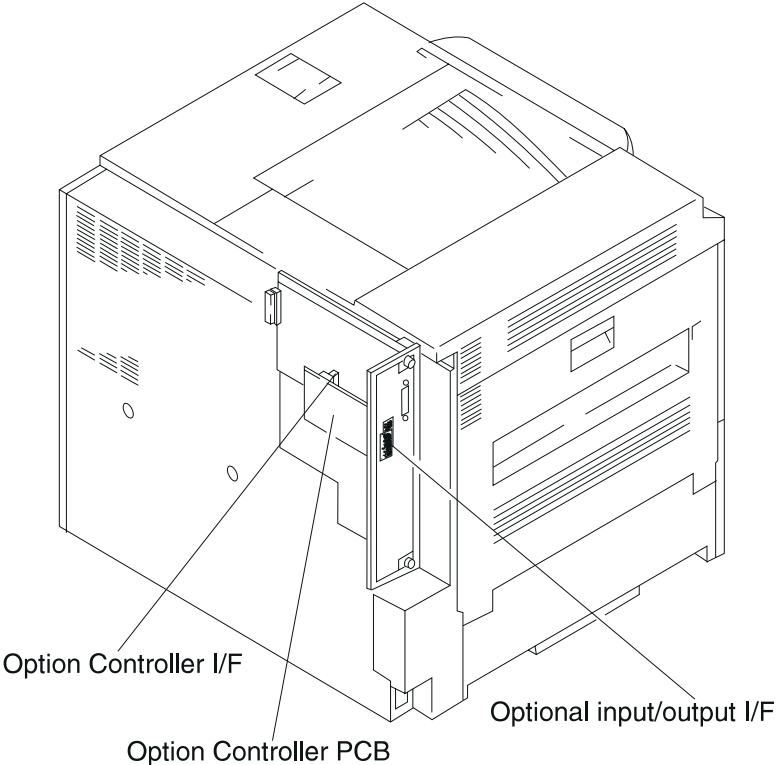
**Paper-level Sensing Switch Board**



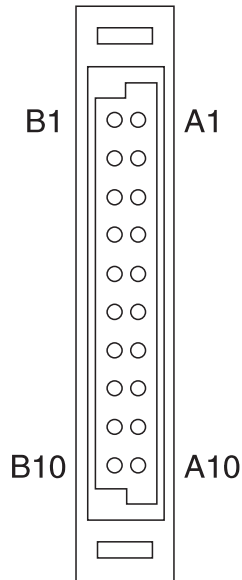
**Paper-size Sensing Switch Board**



# Option Controller Interface Connector Locations



## Option Controller Interface Connector

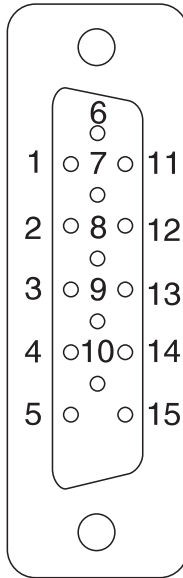


Pin	Signal	Signal Name
A1	+5V	
A2	RESET	Reset Signal (unused)
A3	/PRINT	Print Signal (unused)
A4	/SPCHG	Speed Change Signal (unused)
A5	/PDLV	Paper Delivery Signal
A6	/undetermined 1	For expansion
A7	N.C.	
A8	/CKEN	Communication Ready Signal
A9	/TX	Send Data Line
A10	GND	
B1	+5V	
B2	N.C.	
B3	/VSYNC	Vertical Synchronized Request Signal
B4	/PFED	Paper Feed Signal
B5	RETRUN-BACK GND	Connection confirmation

**4040**

<b>Pin</b>	<b>Signal</b>	<b>Signal Name</b>
B6	undetermined 2	For expansion
B7	/STROBE	Strobe Signal
B8	/RX	Receive Data Line
B9	/CLK	Synchronized Clock Signal
B10	GND	

## Optional I/O Device Interface



Pin	Signal	Signal Name
1	/TX	Send Data Line
2	GND	
3	/RX	Receive Data Line
4	/TERMI-NATE	Communication Ready Signal
5	+24V	
6	/CLOCK	Synchronized Clock Signal
7	GND	
8	GND	
9	GND (KEY)	Mis-insertion prevention
10	+24V	
11	GND	
12	/STROBE	Strobe Signal
13	PWRON	Power On Signal
14	GND	
15	+24V	

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## 6. Preventive Maintenance

This chapter describes procedures for printer preventive maintenance. Following these recommendations can help prevent problems and maintain optimum performance.

### Safety Inspection Guide

The purpose of this inspection guide is to aid you in identifying unsafe conditions.

Use good judgment to identify possible safety conditions not covered by this inspection guide. Refer to the safety reminders for a general checklist.

If any unsafe conditions exist, find out how serious the hazard could be and if you can continue before you correct the hazard.

Check the following items:

- Damaged, missing, or altered parts, especially in the area of the On/Off switch and the power supply
- Damaged, missing, or altered covers, especially in the area of the top cover and the power supply cover
- Possible safety exposure from any non-Lexmark attachments

### Expected Life of Consumable Parts

The following parts should be replaced at the indicated intervals. The values are only estimates based on part data, and are subject to change.

Manual feeding pick-up roller and separation pad - 200K pages

Fuser - 350K pages

Transfer charging roller - 175K pages

Feed roller and separation roller - 350K pages

Power supply fan - 25,000 hours

Fixing unit/scanner fan 25,000 hours

Electrical unit fan - 25,000 hours

Fuser fan - 25,000 hours



## Maintenance, Customer Checks

Maintenance that should be performed by the customer to maintain the printer at the optimum level are listed below. All other maintenance procedures are to be performed by a trained service technician.

Item	Action
Toner Cartridge	Shake or replace the cartridge.
Registration roller assembly (cassette pickup unit)	Clean the paper dust between the metal registration roller and the sheet. Use a damp cloth to dry the assembly.
Fuser	When the message "80 Scheduled Maintenance" appears, the customer should order a maintenance kit. The part numbers can be found in the User's Guide.

## Service Checkpoints - Printer

### Cartridge - Photosensitive Drum

Do not touch or clean the drum unless absolutely necessary. Do not expose the drum to light. Never clean the drum with solvents.

### Manual Feeding Pick-Up Roller, Cassette Pick-Up Roller, Separation Roller, and Feed Roller

Clean the rollers with a slightly damp cloth or a cloth moistened with alcohol. Replace severely worn rollers.

### Separation Pad

Clean the separation pad with a dry cloth.

### Registration Roller Unit

Clean the registration roller unit with a slightly damp cloth. If it is very dirty, clean the metal parts with MEK and the rubber parts with alcohol. If a spring is dislodged, the paper may skew or jam.

## **Transfer Guide**

Clean the transfer guide with soft, dry flannel.

## **Transfer Charging Roller**

Clean the transfer charging roller if it is very dirty. Do not touch the roller or get solvents or oils on it when you clean it. Do not clean the roller with water or solvents.

## **Static Charge Eliminator**

Clean the static charge eliminator with the supplied cleaning brush.

## **Feed Guide**

Clean the feed guide with a damp cloth.

## **Fuser**

- Fixing Entry Guide - Clean with a cloth moistened with MEK.
- Fixing Separation Guide - To remove toner, use a cloth moistened with MEK.
- Fuser Separation Claw - To remove toner, use a cloth moistened with MEK. Replace it if it is severely worn.

## **Service Checkpoints - Paper Deck**

### **Pick-Up Roller, Separation Roller, Feed Roller**

Clean the rollers with a slightly dampened cloth or a cloth moistened with alcohol. Replace severely worn rollers.

## Lubricants and Cleaners

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

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# 7. Parts Catalog

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## How To Use This Parts Catalog

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- **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:

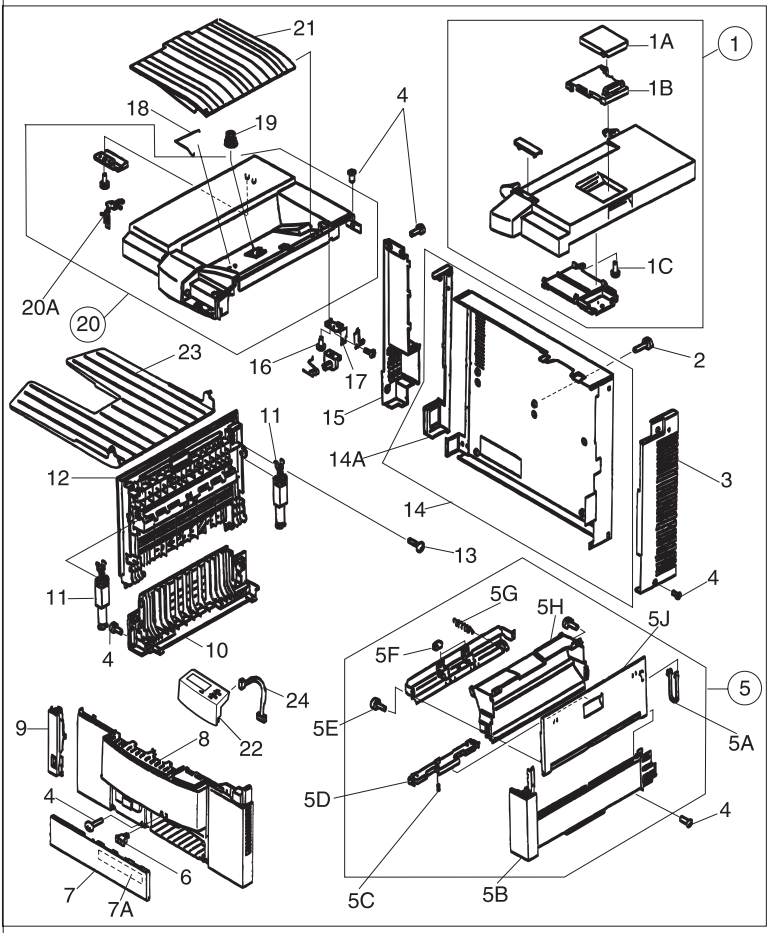
### INDENTURE RELATIONSHIP OF PARTS

(No dot) MAIN ASSEMBLY

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

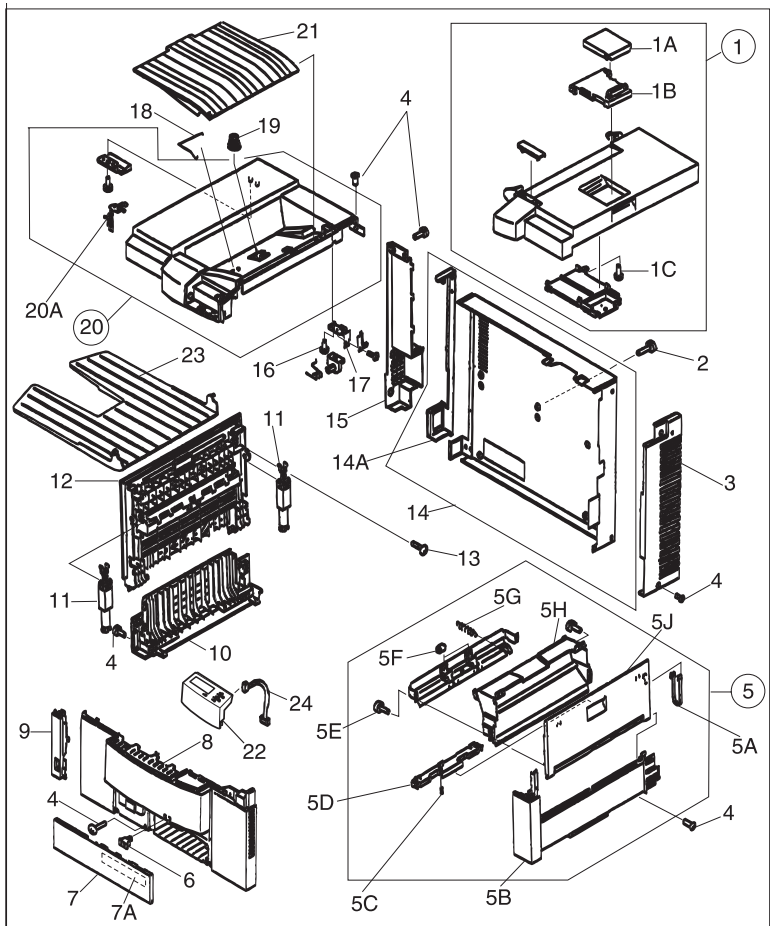
(Two dot) •• Detail part or subassembly of a one-dot subassembly

# Assembly 1: Covers and Panels



Ref.	Part Number	Units	Description
1-1	11A8005	1	Cover Asm., Right Top
1A	11A8006	1	• Stop, Paper Length Delivery
1B	11A8007	1	• Tray, Delivery
1C		4	• Screw, Paper Feed Stop, PP 11A8258
2		6	Screw, Rear Cover Asm, PP 11A8258
3	11A8023	1	Cover, Right, Lower Rear
4		3	Screw, Left Top Cover Asm, PP 11A8258
4		2	• Screw, Bottom Cover, PP 11A8258
5	11A8008	1	Cover Asm., Right
5A	11A8012	1	• Stopper, Open/close
5B	11A8009	1	• Cover, Bottom Right
5C		1	• Spring, Right Door, PP 11A8260
5D	11A8013	1	• Lever, Door Right Cover
5E		4	• Screw, Door Handle Brkt, PP 11A8258
5F		2	• Roller, Right Door Handle, PP 11A8259
5G		1	• Spring, Rt. Door Handle, PP 11A8260
5H	11A8011	1	• Guide, Cover
5J	11A8010	1	Pick-up Door, Right
6	11A8016	1	Latch, Door
7	11A8015	1	Door, Duplex
7A	11A8814	1	Label, Jam
8	11A8014	1	Cover, Front
9	11A8020	1	Cover, Switch
10	11A8017	1	Cover, Bottom Left
11	11A8002	2	Hinge, Stopper
12	11A8001	1	Cover, Delivery
13		6	Screw, Left Cover, PP 11A8258
14	11A8024	1	Cover Asm., Rear
14A		5	Nut, Push, Rear Cover Asm, PP 11A8259
15	11A8018	1	Cover, Rear, Electrical
16		3	Screw, Plate, Top Cover, PP 11A8258
17	11A8003	1	Plate, Left Top Cover Hinge
18	11A8022	1	Retaining Spring, Face Up Pa/tray
19	11A8021	1	Compression Spring, Face Up Pa/t
20	11A8004	1	Cover Asm. Left Top
20A		1	• Clip, Operator Panel Ground, PP 11A8259
21	11A8019	1	Tray, Face-down Paper

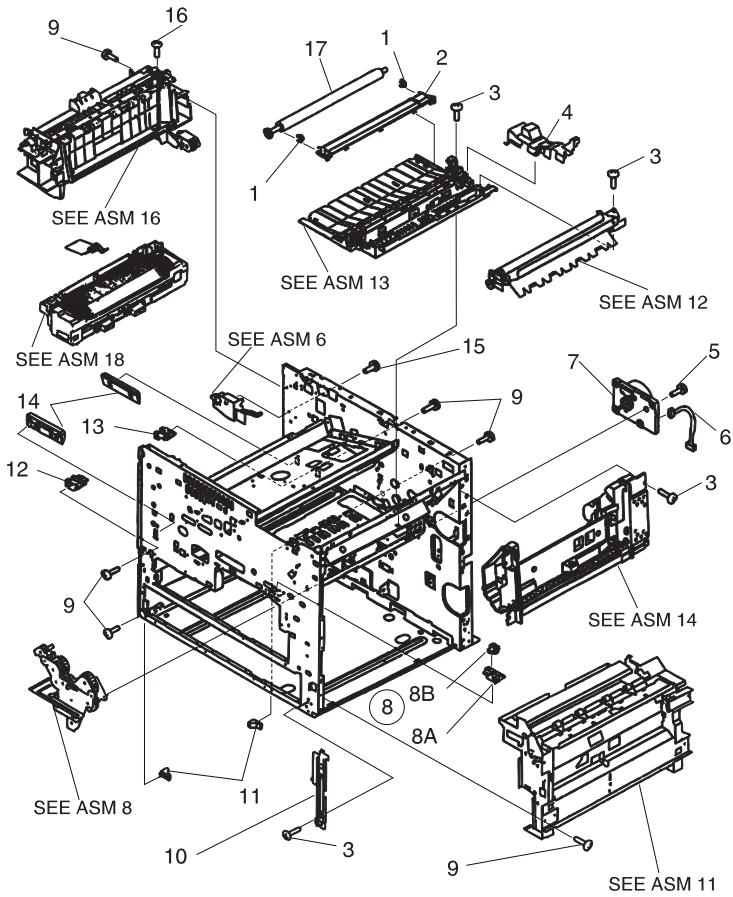
## Assembly 1: Covers and Panels (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
22	11A8286	1	Control Panel
23	11A8804	1	Tray, Face Up
24	11A8298	1	Cable, Operator Panel

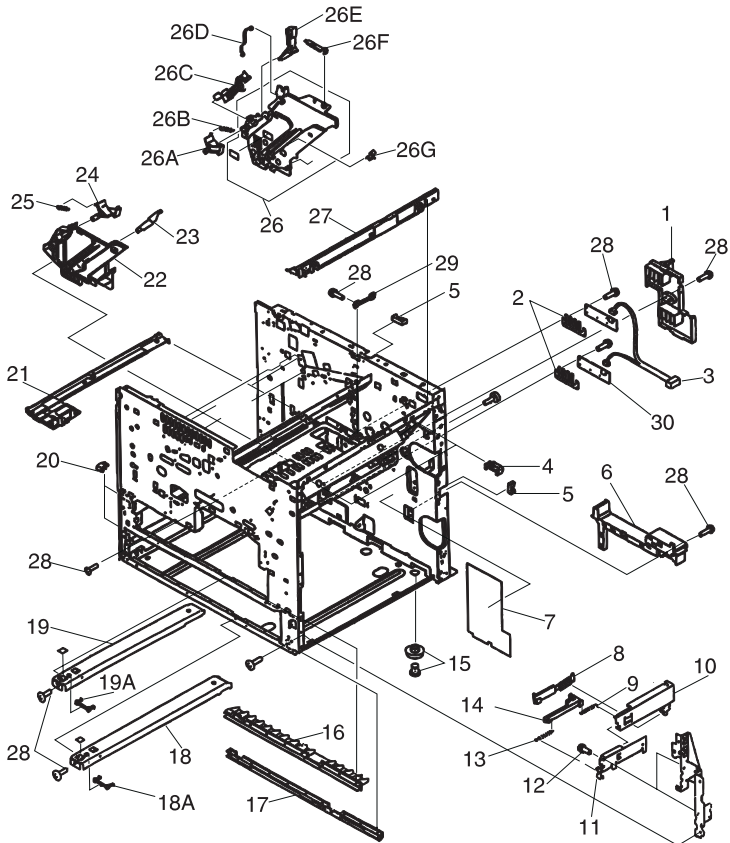


# Assembly 2: Internal Paper Mechanism



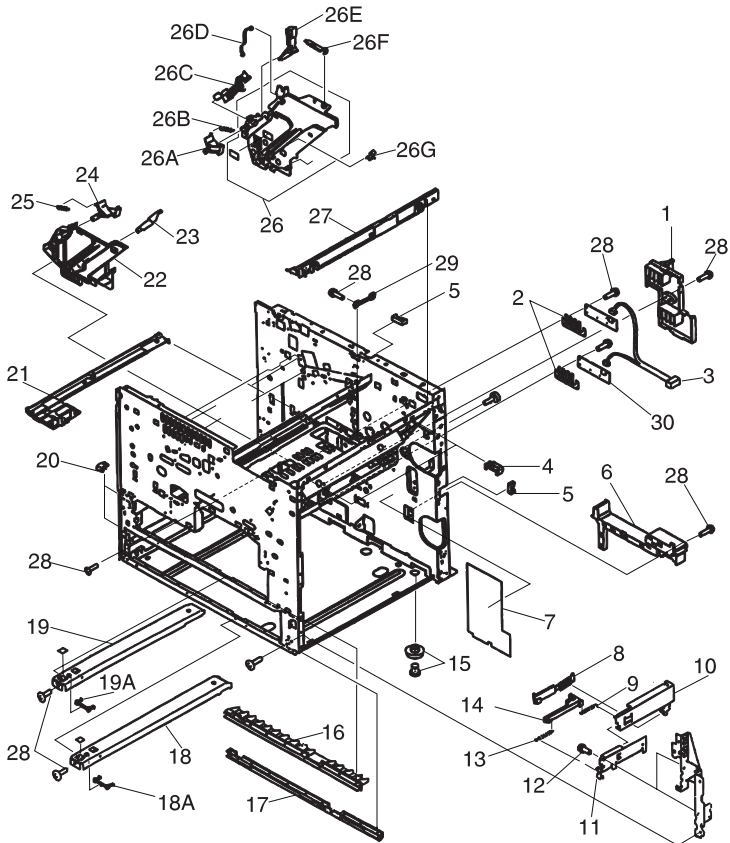
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
2-1	11A8259	NP	Bushing, Transfer Roller, PP 11A8259
2	11A8025	NP	Holder, Transfer Roller
3		4	Screw, Multipurpose Pickup, PP 11A8258
4	11A8031	1	Cover, Paper Feed Clutch
5		4	Screw, Drive Motor Mtg, PP 11A8258
6	11A8035	1	Cable, Motor Drive (Mt1)
7	11A8033	1	Motor, Main (Mt1)
8	11A8034	1	B/M Stopper, Pawl
8A			• Cam Gear Stopper Pawl
8B			• Gear, Cam
9		4	Screw, Paper Delivery Mtg, PP 11A8258
10	11A8032	1	Insert, Front Cover
11	11A8030	2	Bracket, Option Guide
12	11A8028	1	Bracket, Front Sock Damper
13	11A8029	1	Bracket, Rear Sock Damper
14	11A8027	2	Rail, Fuser
15		2	Screw, Face Up Solenoid Mtg, PP 11A8258
16		2	Screw, Paper Delivery Asm Mtg, PP 11A8258
17		1	Roller, Transfer, Supply Item

### Assembly 3: Internal Paper Drawer/Print Cartridge Mtg.



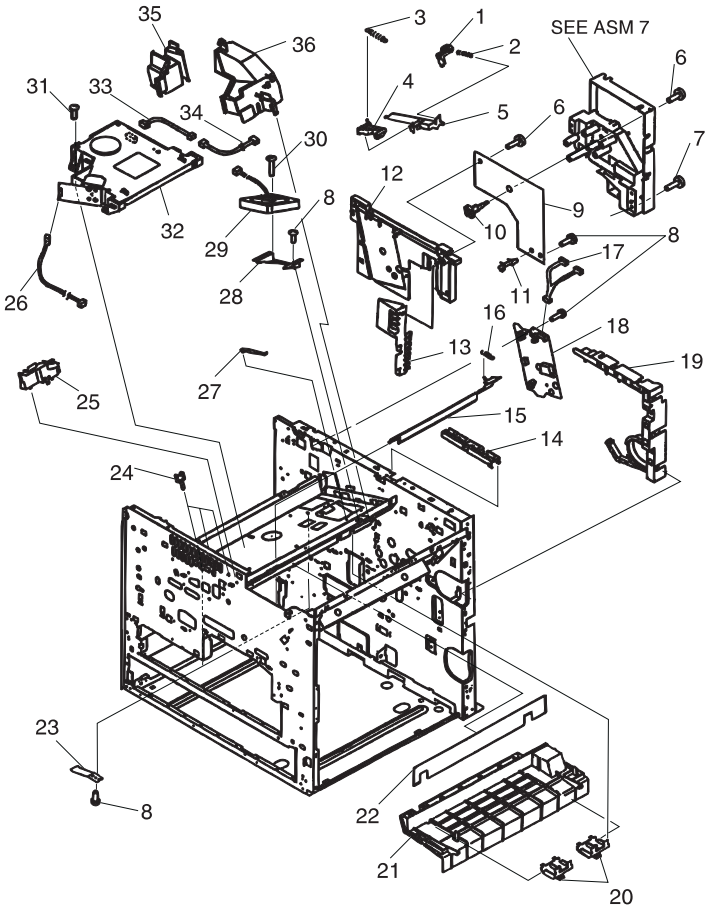
Ref.	Part Number	Units	Description
3-1	11A8050	1	Cover, Paper Size Sensor
2	11A8051	2	Spring, Paper Size Sensor
3	11A8054	1	Cassette Size Cable
4	11A8036	2	Clip, Right Upper Cover Retainer
5		2	Clip Wire Saddle, PP 11A8259
6	11A8049	1	Cover, Cable, Low V dc
7	11A8047	1	Sheet, Rear Frame Insulating
8	11A8058	1	Stopper, Rail
9		2	Spring, Small, Cassette Rail, PP 11A8260
10	11A8056	1	Rail, Tray Cassette
11	11A8055	2	Guide, Cassette Tray, Rail
12		4	Screw, Cassette Rail Mtg., PP 11A8258
13		2	Spring, Large, Cassette Rail, PP 11A8260
14	11A8057	1	Rod, Cassette Rail
15	11A8037	4	Foot
16	11A8038	1	Cover, Edge, Upper
17	11A8039	1	Cover, Edge, Lower
18	11A8053	1	Rail, Cassette, Lower
18A		1	Guard, Edge, PP 11A8259
19	11A8052	1	Rail, Cassette, Upper
19A		1	Guard, Edge, PP 11A8259
20		2	Clip, Cassette Rail Slide, PP 11A8259
21	11A8048	1	Cover, Fuser, Lower
22	11A8040	1	Guide, Front Cartridge
23		1	Spring, Leaf, PP 11A8260
24	11A8041	1	Arm, Pleasure, Front
25		1	Spring, Front Pressure, PP 11A8260
26	11A8042	1	Guide, Rear Cartridge
26A	11A8043	1	• Arm, Pleasure, Rear
26E	11A8044	1	• Arm, Upper, Release
26C	11A8045	1	• Arm, Lower, Release
26G		1	• Plate, Drum, Ground, PP 11A8259
26B		1	• Spring, Rear Pressure Arm, PP 11A8260
26D		1	• Spring, Leaf, PP 11A8260
26F	11A8046	1	• Brush, Cleaning
27	11A8059	1	Cover, Right, Upper
29		1	Screw, Leaf Spring Mtg, PP 11A8258

# Assembly 3: Internal Paper Drawer/Print Cartridge Mtg. (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
3-30	11A8350		Board Asm, Cassette Size

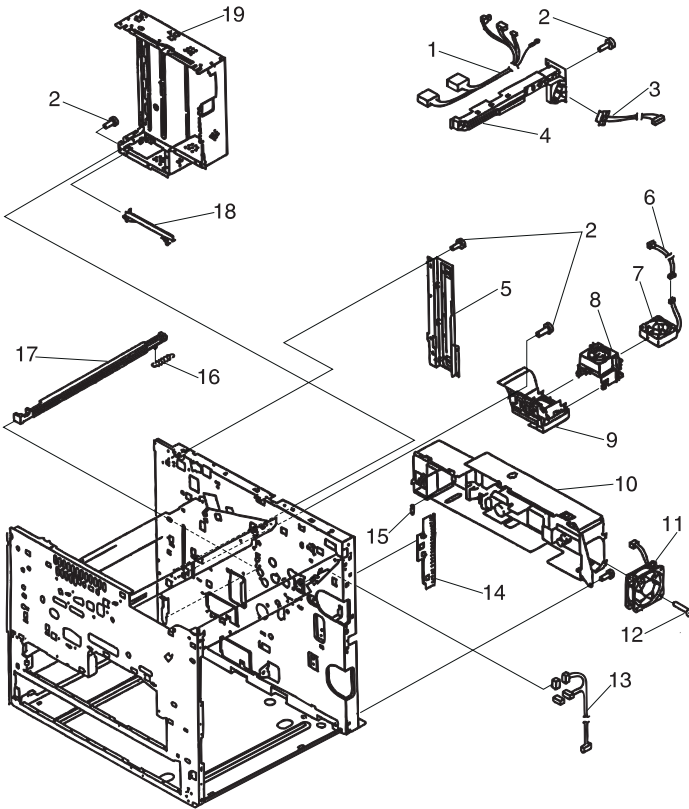
# Assembly 4: Printhead/System Board



Ref.	Part Number	Units	Description
4-1	11A8068	1	Holder, Laser Scan. Act. Arm
2		1	Spring, Arm Lock, PP 11A8260
3		1	Spring, Shutter Actuator Arm, PP 11A8260
4	11A8071	1	Shutter, Laser Scanner Actuator
5	11A8070	1	Arm, Actuator Lock
6		1	Screw, Spring Mtg. Fuser, PP 11A8258
7		1	Screws, Engine Mtg, PP 11A8258
8		1	Screws, Tension Spring, PP 11A8258
9	11A8082	1	Board, System
10		1	Support, Engine Card, PP 11A8259
11		1	Support, Engine Card, PP 11A8259
12	11A8079	1	Mount, Sensor Switch Control
13	11A8080	1	Plate, Shield, Switch Sensor
14	11A8077	1	Cover, Cable Top Frame
15	11A8067	1	Shutter, Laser
16		1	Spring, Shutter, PP 11A8260
17	11A8076	1	Cable, Switch Sensor
18	11A8081	1	Board, Switch Sensor
19	11A8078	1	Cover, Cable, D.C.
20	11A8062	1	Stopper, Cartridge
21	11A8061	1	Plate, Toner Fixing
22	11A8063	1	Insulation, Mylar
23	11A8060	1	Spring, Fuser Plate Tension
24		1	• Wire Clamp, PP 11A8259
25	11A8069	1	Plate, Duct, Front Laser
26	11A8073	1	Laser Cable
27		1	Spring, Shutter, PP 11A8260
28		1	Mount, Fan
29	11A8072	1	Fan 2, Printhead
30		2	Screws, Fan Mtg. PP 11A8258
31		2	• Screws, Printhead Mtg, PP 11A8258
32	11A8064	1	Printhead
33	11A8074	1	Cable, Laser Scan Motor
34	11A8075	1	Cable, Laser Scanner
35	11A8066	1	Cover, Coupling Duct Fan
36	11A8065	1	Air Duct, Fan, Printhead

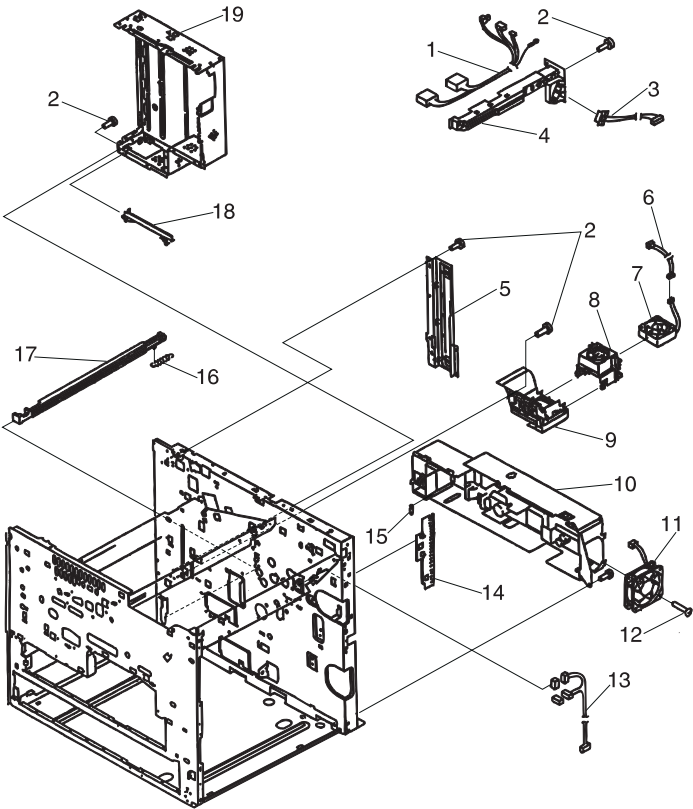


# Assembly 5: Power Supply/Fuser Cables



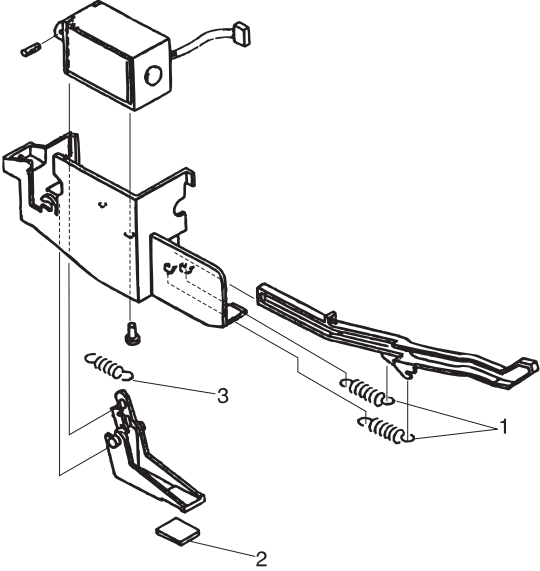
Ref.	Part Number	Units	Description
5-1	11A8084	1	Fuser, 1 Cable
2		6	Screw, Control Bd. Cage, PP 11A8258
3	11A8085	1	Fuser, 2 Cable
4	11A8083	1	Cover, Fuser Cable
5	11A8100	2	Plate, Shield, Outer Control Grid
6	11A8095	1	Cable, Power Supply Fan #3
7	11A8094	1	Fan #3, Electrical Assembly
8	11A8093	1	Bracket, Upper, Fan #3 Mounting
9	11A8092	1	Bracket, Lower, Fan #3 Mounting
10	11A8086	1	Power Supply Asm. (100 / 120)
10	11A8087	1	Power Supply Asm. (220 / 240)
11	11A8098	1	Fan #1, Power Supply
12		2	Screw, PP 11A8258
13	11A8096	1	Cable, Registration
14	11A8099	1	Plate, L.H. Grd. Cover
15	11A8088	1	Fuse, 120 V
15	11A8089	1	Fuse, 250 V
16		1	Spring, Switch Actuator, PP 11A8260
17	11A8097	1	Rod Actuator, Switch
18	11A8090	1	Guide, Control Bd.
19	11A8091	1	Cage, Control Bd.
NS	11A8359	1	Guide, Slide
NS	11A8360	1	Guide, Slide
NS	11D0328	1	Power Cord, U.S, Canada, APG (LV), LAD (LV)
NS	11D0333	1	Power Cord, Denmark
NS	11D0334	1	Power Cord, Europe, England
NS	11D0334	1	Power Cord, France
NS	11D0334	1	Power Cord, Germany
NS	11D0335	1	Power Cord, Italy
NS	11D0334	1	Power Cord, Spain
NS	11D0336	1	Power Cord, Swiss/French
NS	11D0336	1	Power Cord, Swiss/German
NS	11D0336	1	Power Cord, Swiss/Italian
NS	11D0337	1	Power Cord, U.K.
NS	11D0338	1	Power Cord, Israel
NS	11D0339	1	Power Cord, South Africa

# Assembly 5: Power Supply/Fuser Cables (Cont)



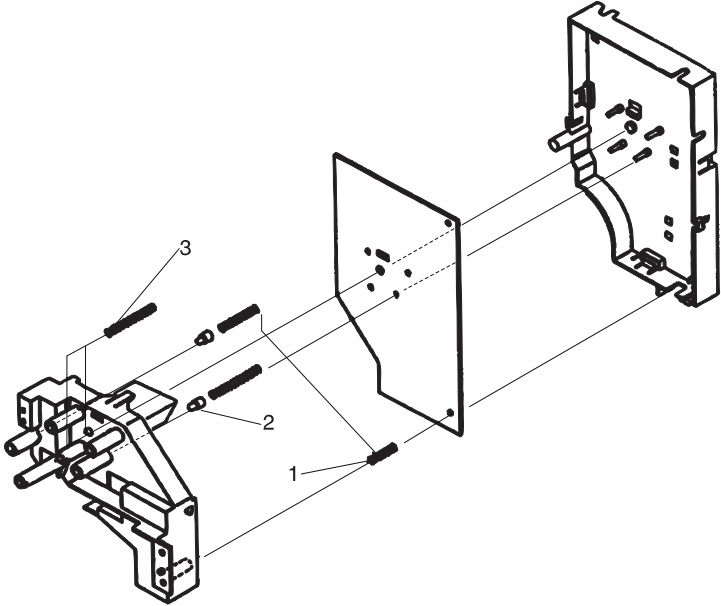
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
4	11D0334	1	Power Cord, Belgium
4	11D0330	1	Power Cord, Argentina
4	11D0331	1	Power Cord, Brazil
4	11D0332	1	Power Cord, Chile
4	11D0329	1	Power Cord, Peru

# Assembly 6: Face-Up Solenoid



Ref.	Part Number	Units	Description
6-1 2 3	11A8101	1 1 1	Face-up Solenoid Asm. • Spring, Tension, PP 11A8260 • Cushion, Lever 9.5x11, PP 11A8259 • Spring, Tension, PP 11A8260

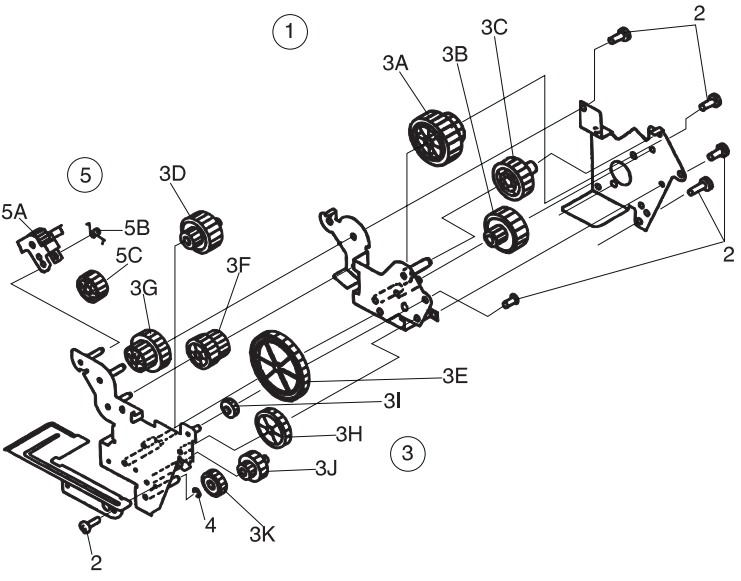
# Assembly 7: High Voltage Power Supply



Ref.	Part Number	Units	Description
7-1 2 3	11A8102	1 1 1	High Voltage Power Supply • Spring, Compression, PP 11A8260 • Pin, Contact, PP 11A8259 • Spring, Compression, PP 11A8260

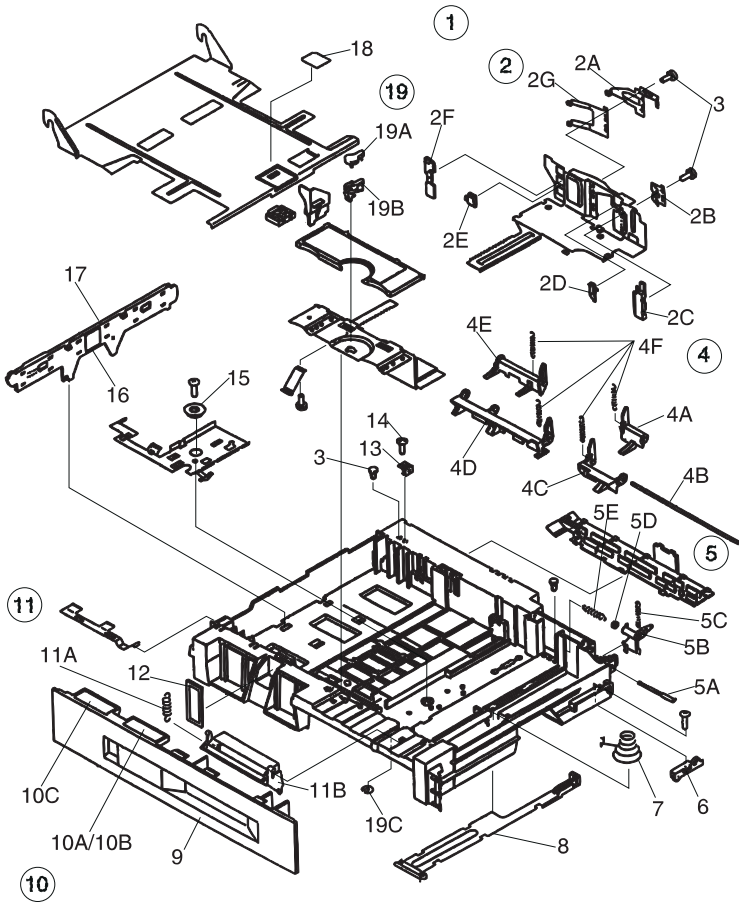


# Assembly 8: Printer Driver



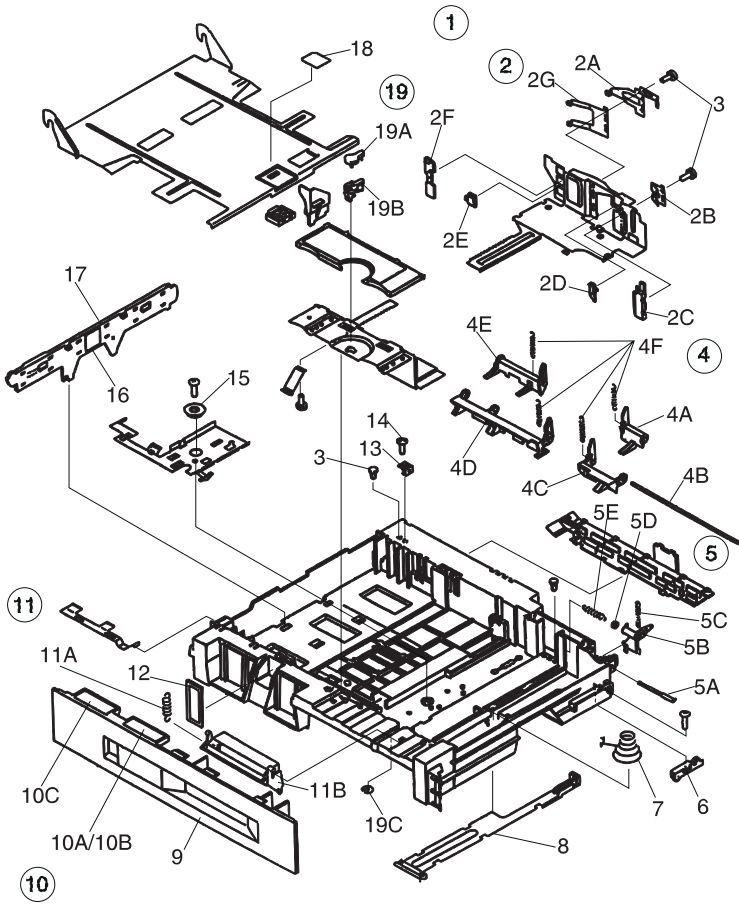
Ref.	Part Number	Units	Description
8-1	11A8265	1	Printer Drive Asm.
2		6	Screw, PP 11A8258
3	11A8104	1	Printer Driver Gear B/M
3A		1	• Gear, 42T / 99T
3B		1	• Gear, 17T / 57T
3C		1	• Gear, 41T
3D		1	• Gear, 17T/57T
3E		1	• Gear, 73T
3F		1	• Gear, 27T / 30T
3G		1	• Gear, 26T / 39T
3H		1	• Gear, 39T
3J		1	• Gear, 19T / 57T
3K		1	• Gear, 31T
3I		1	• Gear, 17T
4		1	Retaining Ring (E-type), PP 11A8259
5	11A8103	1	Fuser Transfer Gear B/M
5A		1	• Coupler, Fixing
5B		1	• Spring, Torsion, PP 11A8260
5C		1	• Gear, 25T

# Assembly 9: Lower Drawer



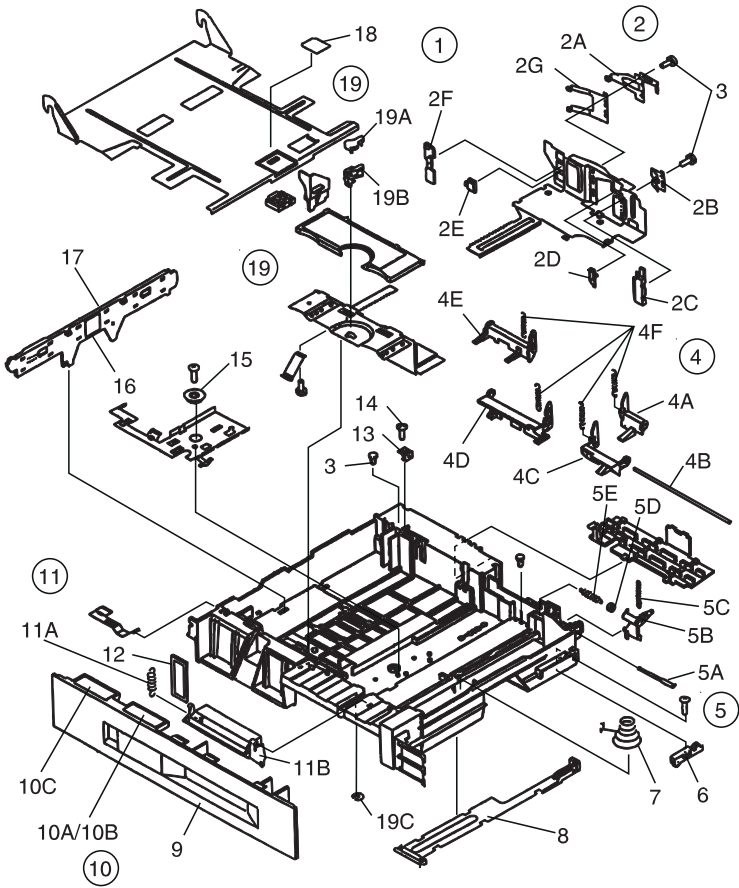
Ref.	Part Number	Units	Description
9-1		NP	Drawer Asm, Lower
2	11A8118	1	Stops, Paper Guide B/M
2A		1	Spring, Leaf
2B		1	Spring, Leaf
2C		1	Plate, Side Front
2D		1	Plate, Side
2E		1	Plate, side
2F		1	Plate, Side Rear
2G		1	Spring, Leaf
3		1	Clip, PP 11A8259
4	11A8113	1	Indicator, Paper Size Sensor, B/M
4A		1	Cam, Size
4B		1	Shaft, Cam
4C		1	Cam, Size
4D		1	Cam, Size
4E		1	Cam, Size
4F		4	Spring, PP 11A8260
5	11A8112	1	Latch, Paper Shut B/M
5A		1	Shaft, Latch
5B		1	Arm, Sensor
5C		1	Shaft, Cam
5D		1	Bushing
5E		1	Spring, Tension
6	11A8111	1	Roller Asm. Right Rear
7	11A8110	1	Spring, Paper Empty
8	11A8109	1	Actuator
9	11A8121	1	Cover, Front, Drawer
10	11A8120	1	Label B/M
10A	11A8807	1	• Label 1
10B	11A8803	1	• Label 2
10C		1	• Label

# Assembly 9: Lower Drawer (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
9-11	11A8106	1	Handle, Drawer Open B/M
11A		1	• Spring, PP 11A8260
11B		1	• Handle, Drawer Open
12	11A8107	1	Drawer Paper Size Indicator
13	11A8116	1	Roller, Left Rear
14		1	Screw, PP 11A8258
15	11A8117	1	Gear, Paper Adjust
16	11A8114	1	Label, Paper Size Separator
17	11A8115	1	Paper Size Separator
18	11A8119	1	Pad, Paper Pivot Plate
19	11A8108	1	Lever, Paper Lock B/M
19A		1	• Cover, Paper Lock
19B		1	• Lever, Paper Lock
19C		1	• Clip, Paper Lock

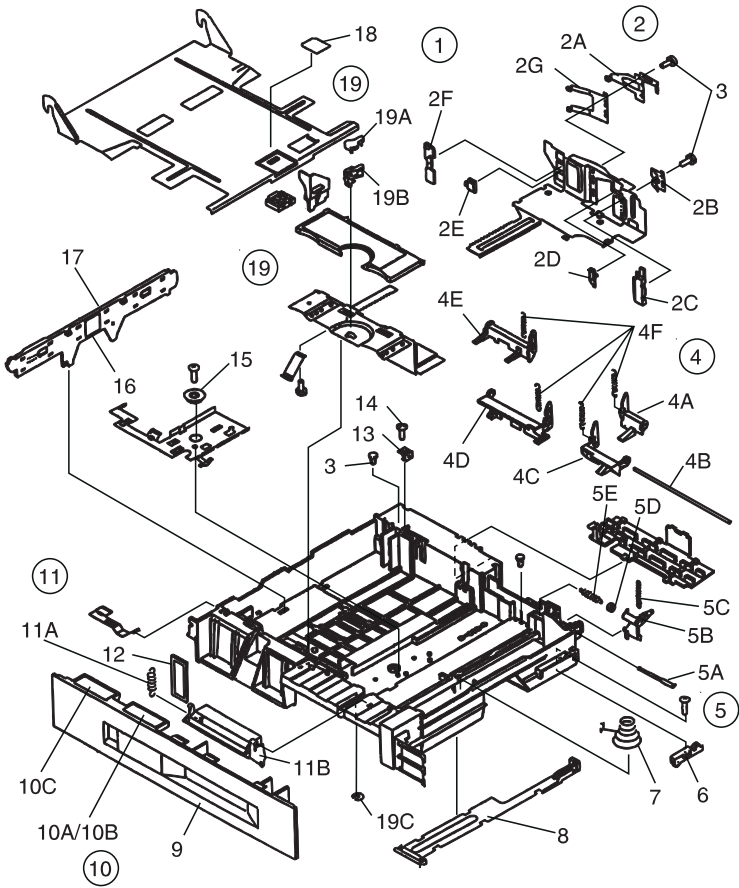
# Assembly 10: Upper Drawer



Ref.	Part Number	Units	Description
10-1		NP	Drawer Asm, Upper
2	11A8118	1	Stops, Paper Guide B/M
2A		1	Spring, Leaf
2B		1	Spring, Leaf
2C		1	Plate, Side Front
2D		1	Plate, Side
2E		1	Plate, side
2F		1	Plate, Side Rear
2G		1	Spring, Leaf
3		1	Clip, PP 11A8259
4	11A8264	1	Indicator, Paper Size Sensor, B/M
4A		1	Cam, Size
4B		1	Shaft, Cam
4C		1	Cam, Size
4D		1	Came, Size
4E		1	Cam, Size
4F		4	Spring, PP 11A8260
5	11A8112	1	Latch, Paper Shut B/M
5A		1	Shaft, Latch
5B		1	Arm, Sensor
5C		1	Shaft, Cam
5D		1	Bushing
5E		1	Spring, Tension
6	11A8111	1	Roller Asm. Right Rear
7	11A8110	1	Spring, Paper Empty
8	11A8109	1	Actuator
9	11A8123	1	Cover, Front, Drawer
10	11A8120	1	Label B/M
10A	11A8807	1	• Label 1
10B	11A8803	1	• Label 2
10C		1	• Label

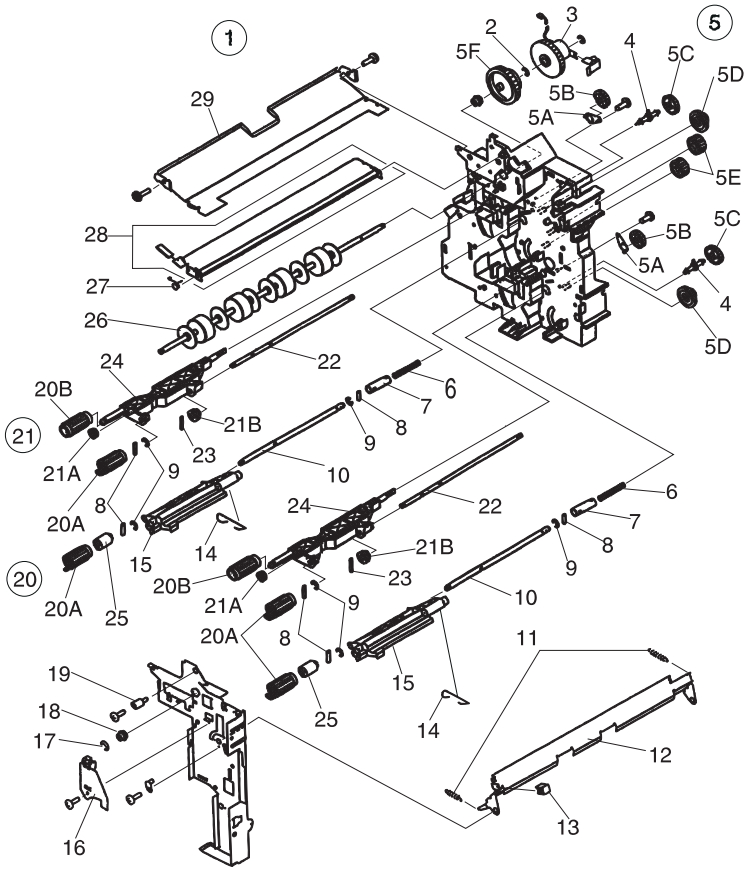


# Assembly 10: Upper Drawer (Cont)



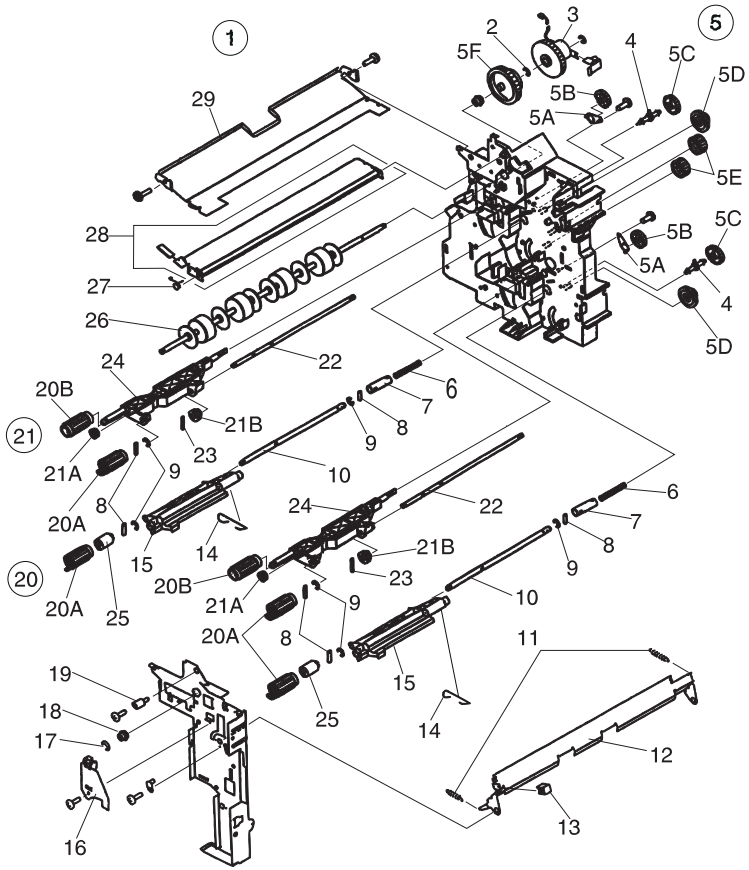
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
10-11	11A8106	1	Handle, Drawer Open B/M
11A		1	• Spring, PP 11A8260
11B		1	• Handle, Drawer Open
12	11A8107	1	Drawer Paper Size Indicator
12A	11A8807	1	Label
13	11A8116	1	Roller, Left Rear
14		1	Screw, PP 11A8258
15	11A8117	1	Gear, Paper Adjust
16	11A8114	1	Label, Paper Size Separator
17	11A8115	1	Paper Size Separator
18	11A8119	1	Pad, Paper Pivot Plate
19	11A8108	1	Lever, Paper Lock B/M
19A		1	• Cover, Paper Lock
19B		1	• Lever, Paper Lock
19C		1	• Clip, Paper Lock

# Assembly 11: Paper Pick-up



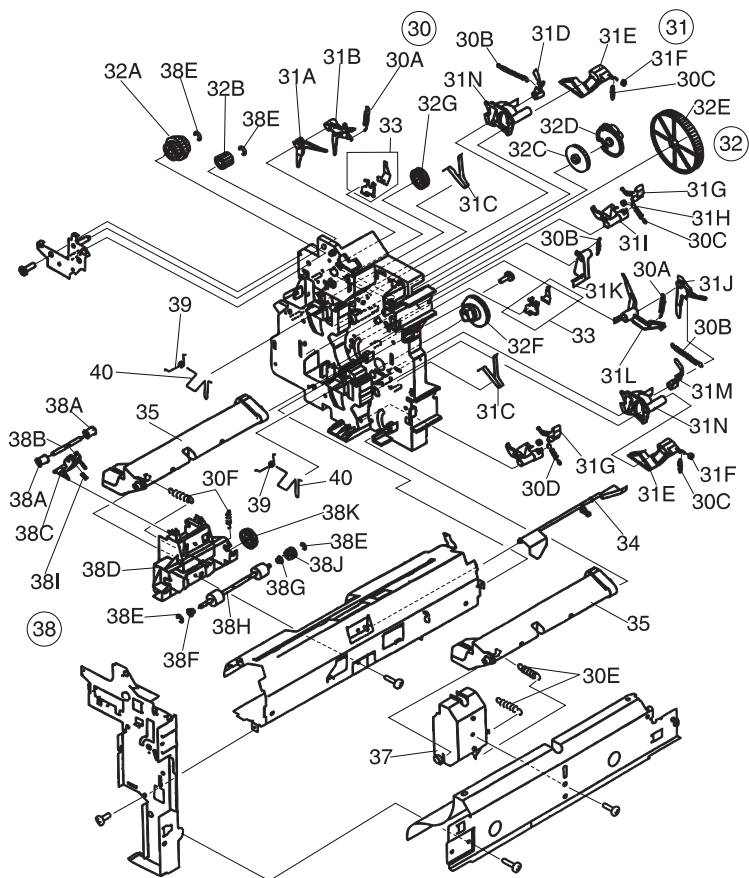
Ref.	Part Number	Units	Description
11-1		NP	Paper Pick-up Asm
2		1	Retaining Ring (E-Type), PP 11A8259
3	11A8152	1	Clutch, Electromagnet
4	11A8153	2	Shaft, Connecting
5	11A8151	1	Pickup Roller Drive Gear B/M
5A		1	Plate, Grounding
5B		2	Gear 31T
5C		2	Gear 38T
5D		2	Gear 20T, 41T
5E		2	Gear 31T
5F		2	Gear 57T
6		2	Spring, Compression PP 11A8261
7		2	Joint, Coupler PP 11A8261
8		2	Spring Pin, PP 11A8261
9		2	Retaining Ring (E-Type), PP 11A8259
10	11A8144	2	Shaft
11		2	Spring, Tension, PP 11A8261
12	11A8160	1	Guide, Open/close
13		1	Lever, Guide PP 11A8261
14		1	Rod, Release, PP 11A8261
15	11A8156	2	Arm, Roller Separation
16	11A8162	1	Plate, Grounding
17		1	Retaining Ring (E-Type) PP 11A8261
18	11A8161	1	Bushing
19		1	Standoff Stud PP 11A8261
20	11A8155	1	Paper Roller/Separation/Pickup
20A		2	• Roller, Feed
20B		1	• Roller, Pick-up
21	11A8158	1	Gear, B/M 2 Pickup Roller Holder
21A		1	• Gear, 18T
21B		1	• Gear, 23T

# Assembly 11: Paper Pick-up (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
11-22	11A8231	2	Shaft
23		2	Spring, Pin, PP 11A8261
24	11A8157	2	Holder, Roller
25	11A8159	2	Limiter, Torque
26	11A8266	1	Paper Feed Roller, Second Pass
27		1	Spring, Torsion PP 11A8261
28	11A8154	1	Guide Assembly
29	11A8163	1	Plate, Guide, Upper

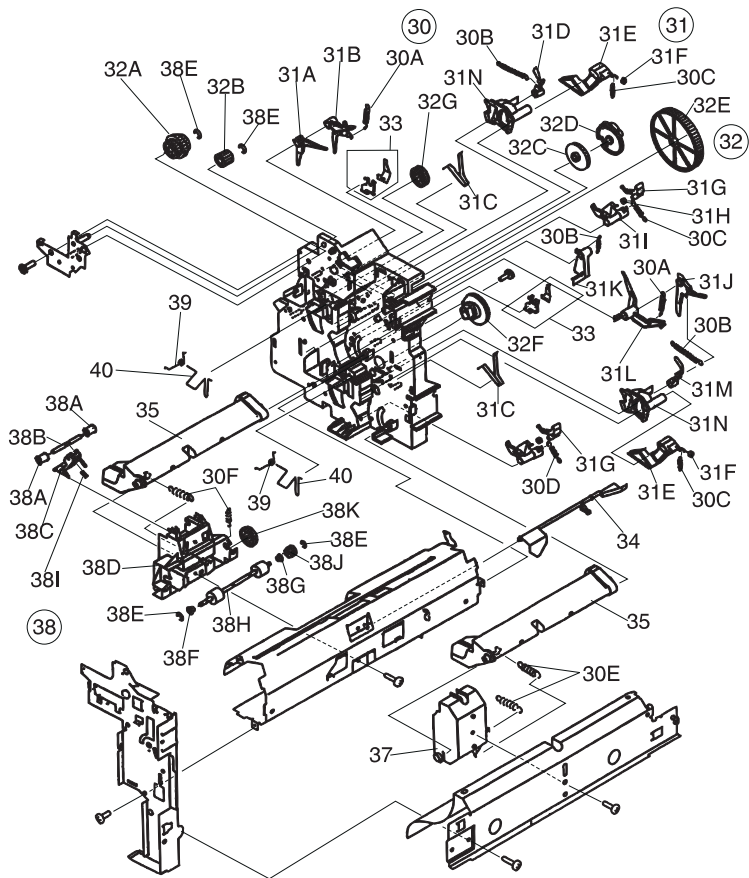
## Assembly 11: Paper Pick-up (Cont)



Ref.	Part Number	Units	Description
11-30			Pickup Asm, Misc. Parts, PP 11A8261
30A		2	• Spring, Tension, PP 11A8261
30B		2	• Spring, Tension, PP 11A8261
30C		2	• Spring, Tension, PP 11A8261
30D		2	• Spring, Tension, PP 11A8261
30E		2	• Spring, Tension, PP 11A8261
30F		2	• Spring, Tension, PP 11A8261
31	11A8150	1	Paper Pickup Cam/Lever B/M
31A		1	• Trigger, Lifted, Upper
31B		1	• Arm, Lifted, Upper
31C		1	• Spring, Leaf
31D		1	• Block, Pick-up Lock, Upper
31E		1	• Claw, Letter Arm
31F		1	• Damper
31G		1	• Lever, Lead
31H		1	• Damper
31I		1	• Claw, Lifted Lock
31J		1	• Trigger, Lifted, Lower
31K		1	• Lever, Open/close Sensing
31L		1	• Arm, Lifted, Lower
31M		1	• Block, Pick-up Lock, Lower
31N		1	• Arm, Connecting
32	11A8149	1	Gear B/M 1, Paper Pickup
32A		1	• Gear, 27T / 36T
32B		1	• Gear, 20T
32C		1	• Cam, Lift Up, Upper
32D		1	• Cam, Paper Pick-up
32E		1	• Gear, 100T
32F		1	• Cam, Lift Up, Lower
32G		1	• Gear, 32T
33	11A8148	2	Lever, Lock, Rear
34	11A8141	1	Flag, Paper Sensing
35	11A8143	2	Lifter
37	11A8147	1	Block, Support, Lower

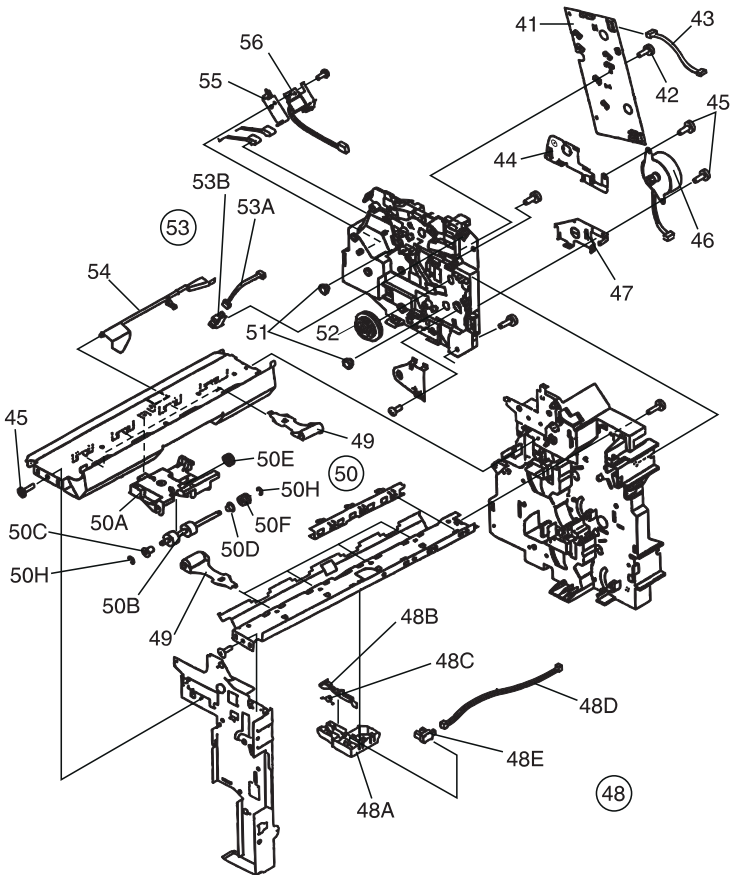


## Assembly 11: Paper Pick-up (Cont)



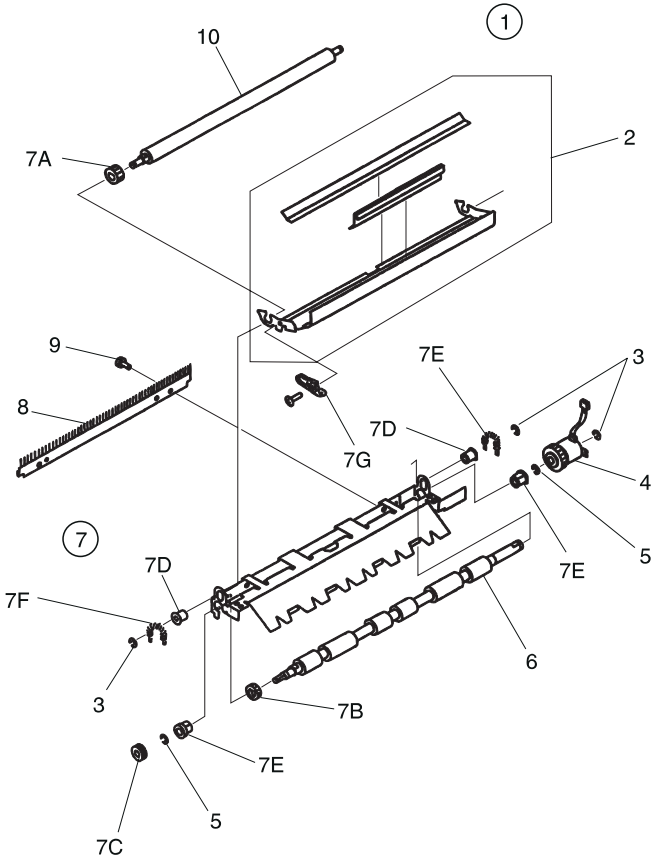
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
11-38	11A8142	1	Roller B/M, Lower Paper Feed
38A		2	• Roller
38B		1	• Shaft, Roller
38C		1	• Holder, Roller
38D		1	• Block, Support, Upper
38E		2	• Retaining Ring
38F		1	• Bushing
38G		1	• Bushing
38H		1	• Roller, Paper Feed
38J		1	• Gear, 16T
38K		1	• Gear, 17T
38I		1	Spring, Compression, PP 11A8261
39	11A8145	2	Spring, Torsion
40	11A8146	2	Link, Lifted

# Assembly 11: Paper Pick-up (Cont)



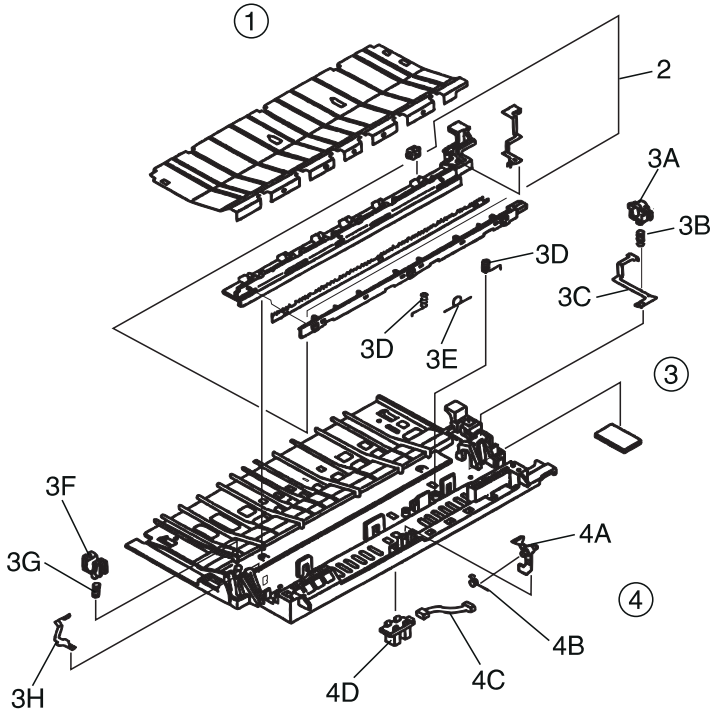
Ref.	Part Number	Units	Description
11-41	11A8128	1	Paper Pick-up Board Asm.
42		1	Screw, PP 11A8258
43	11A8129	1	Cable, Paper Pick-up
44	11A8132	1	Plate Grounding, 1
45		1	Screw, PP 11A8258
46	11A8131	1	Motor, Paper Pickup
47	11A8133	1	Plate Grounding, 2
48	11A8138	1	Switch Sensor B/M, Pickup (PS2)
48A		1	• Holder, Sensor
48B		1	• Flag, Paper Sensing
48C		1	• Spring, Torsion
48D		1	• Cable, Pick-up Sensor
48E	11A8386	1	• Sensor, Paper
49	11A8139	1	Roller, Tension
50	11A8140	1	Upper Feed Roller B/M
50A		1	• Block, Roller, Support, Upper
50B		2	• Roller, Paper Feed, Upper
50C		1	• Bushing
50D		1	• Bushing
50E		1	• Gear, 21T
50F		1	• Gear, 40T
50H		2	Retaining Ring (E-Type), PP 11A8259
51	11A8136	2	Bushing
52	11A8137	1	Gear, Pivot
53	11A8130	1	Switch, PS3 B/M
53A		1	Cable, Right Door Sensor
53B		1	Photo Interuptor
54	11A8141	1	Flag, Paper Sensing
55	11A8135	1	Plate Grounding, 3
56	11A8134	1	Solenoid, Paper Pick-up

# Assembly 12: Registration Roller



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
12-1	11A8164	1	Registration Roller Asm. B/M
2	11A8165	1	Plate, Guide
3		2	Grip Ring, PP 11A8259
4	11A8170	1	Clutch, Registration
5		1	Grip Ring, PP 11A8259
6	11A8169	1	Lower Roller, Registration
7	11A8167	1	Gear, Bearing B/M, Registration Roller
7A		1	• Gear, 28T
7B		1	• Gear, 32T
7C		1	• Gear, 18T
7D		2	• Bushing
7E		2	• Bushing
7F		2	• Spring, Tension, PP 11A8260
7G		2	. Spring, Leaf, PP 11A8259
8	11A8168	1	Eliminator, Static Charge
9			Screw, PP 11A8259
10	11A8166	1	Roller, Registration

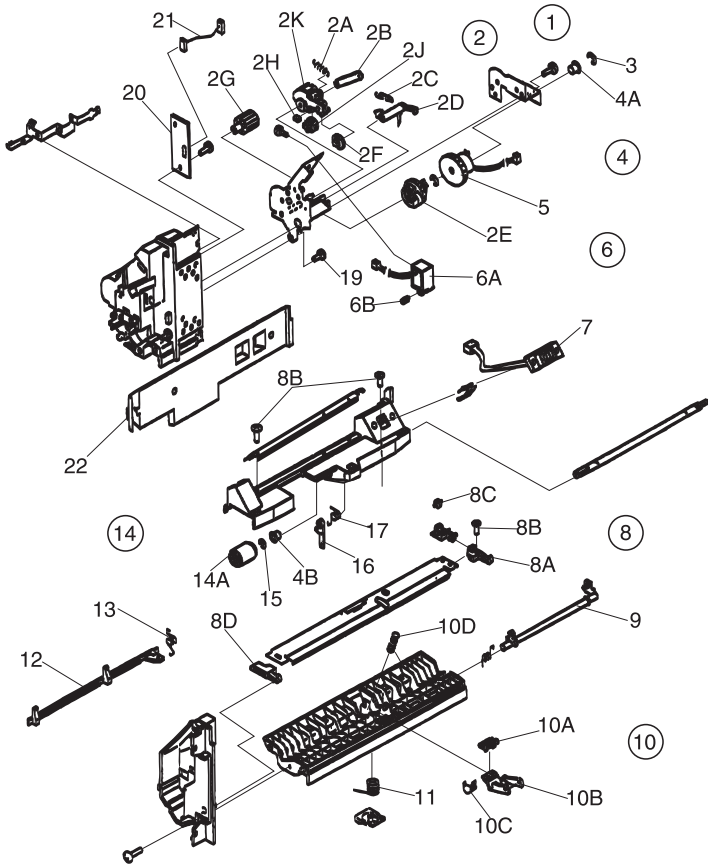
# Assembly 13: Feeder



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
13-1		NP	Feeder Asm
2	11A8172	1	Frame, Transfer
3	11A8173	1	Feeder Asm. B/M
3A		1	• Block, Shaft Holding, Rear
3B		1	Spring, Compression, PP 11A8260
3C		1	• Plate, Terminal
3D		2	Spring, Compression, PP 11A8260
3E			• Varistor
3F		1	• Block, Shaft Holding, Front
3G			Spring, Compression, PP 11A8260
3H			• Spring, Leaf
4	11A8174	1	PS1 Switch B/M
4A		1	Spring, Tension
4B		1	Arm, Sensor
4C		1	Sensor Cable Asm
4D	11A8386	1	Sensor, Paper

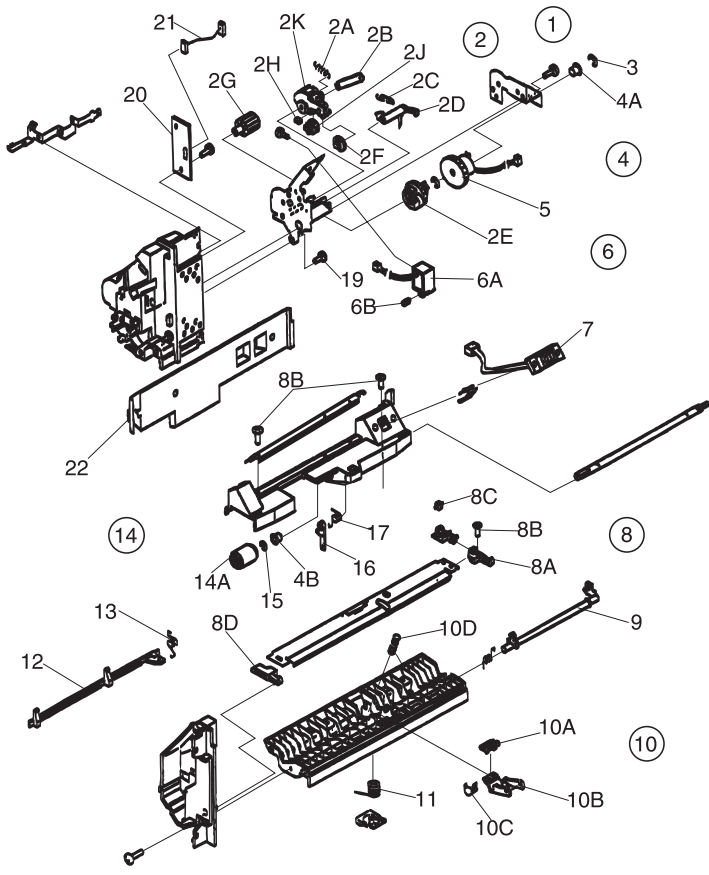


# Assembly 14: Multipurpose Tray Pick-Up



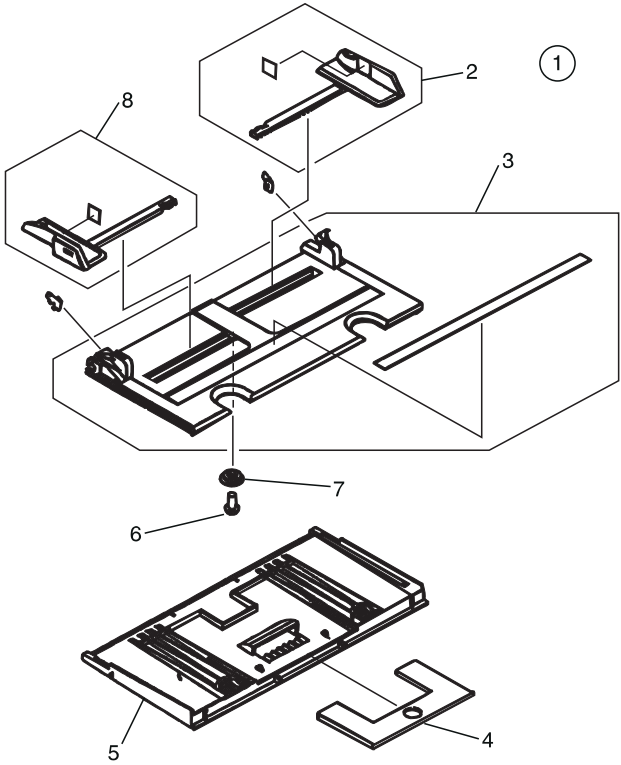
Ref.	Part Number	Units	Description
14-1		NP	Multipurpose Tray Pick-up Asm
2	11A8180	1	Pick-up Gear B/M, MPT
2A		1	• Spring, Tension, PP 11A8260
2B		1	• Link, Solenoid, PP 11A8260
2C		1	• Spring, Tension, PP 11A8260
2D		1	• Arm, Auxiliary
2E		1	• Cam
2F		1	• Gear, 23T
2G		1	• Gear, 23T
2H		1	• Damper
2J		1	• Gear, 31T / 31T
2K		1	• Arm, Swing
3		1	Retaining Ring (E-Type), PP 11A8259
4	11A8177	1	Bearing B/M MP Tray Pick-Up Asm. B/M
4A		1	• Bushing
4B		1	• Bushing
5	11A8176	1	Clutch, Electromagnet
6	11A8179	1	Solenoid Asm. Met Pick-Up, B/M
6A		1	• Solenoid, MPT
6B		1	• Pin, Spring
2B		1	• Link Solenoid, PP 11A8260
7	11A8178	1	Cable, Envelope Feeder
8	11A8182	1	Mounts, Separation Plate B/M
8C		1	• Roller, Arm
8A		1	• Arm, Rear
8D		1	• Arm, Front
8B		1	• Screw, W / Washer, M3X7
9	11A8183	1	Flag, Sensor
10	11A8185	1	Separation Pad B/M
10A		1	• Pad, Separation
10B		1	Holder, Separator Pad
10C		1	Plate, Continuity
10D		1	Spring, Compression
12	11A8186	1	Arm, Stop
13		1	Spring, Torsion

# Assembly 14: Multipurpose Tray Pick-Up (Cont)



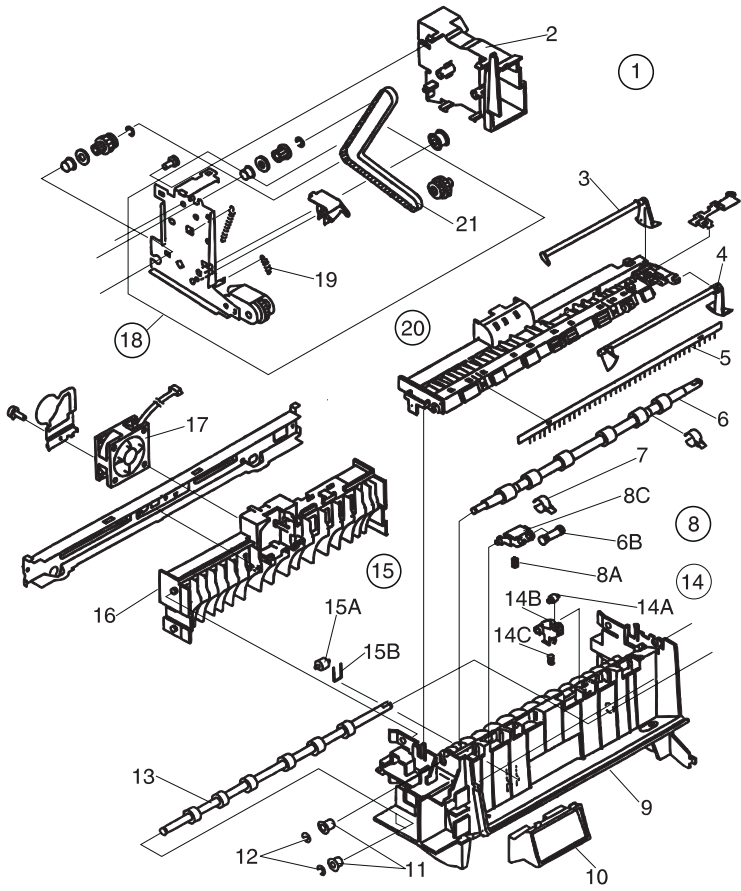
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
14-14	11A8184	1	Pick-up Roller/ Separation Pad B/M
14A		1	• Roller, MP Tray Pick-up
10A		1	• Separation Pad
11	11A8190	1	Spring
15		1	Retaining Ring (E-Type), PP 11A8259
16	11A8188	1	Arm, Sensor, Paper Present
17		1	Spring, Torsion
19		1	Screw, Self-tpg, Pan Head, PP 11A8258
20	11A8189	1	Multipurpose Tray Board
21	11A8181	1	Cable, MPT Board
22	11A8367	1	Cover, Inner MPT

**Assembly 15: Multipurpose Tray**



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
15-1	11A8191	1	Multipurpose Tray Asm.
2	11A8196	1	Paper Guide, Right
3	11A8194	1	Tray
4	11A8193	1	Tray, Sub
5	11A8192	1	Cover, Tray
6		1	Screw, Binding Head, PP 11A8258
7	11A8197	1	Gear, 20T
8	11A8195	1	Paper Guide, Left

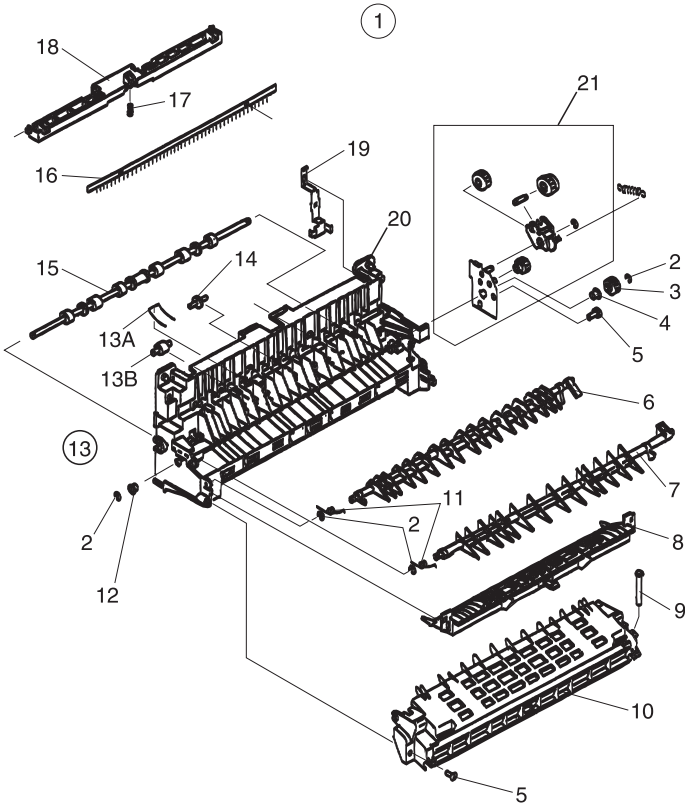
# Assembly 16: Face Down Paper Delivery



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
16-1		NP	Delivery Asm
2	11A8201	1	Duct, Fan
3	11A8204	1	Lever, Paper Sensing
4	11A8205	1	Lever, Paper Full
5	11A8206	1	Static Eliminator
6	11A8207	1	Roller, Delivery
7	11A8208	1	Guide, Delivery
8	11A8209	6	Large Pressure Roller B/M
8C		1	• Spring, Compression
8B		1	• Roller
8A		1	• Holder, Roller
9	11A8211	1	Frame
10	11A8212	1	Cover, Swing Limit
11	11A8213	2	Bushing
12		2	Retaining Ring (E-Type), PP 11A8259
13	11A8214	1	Roller, Feeder
14	11A8210	2	Small Pressure Roller B/M
14A		1	• Roller
14B		1	• Holder, Roller
14C		1	• Spring, Compression
15	11A8215	6	Pressure Roller, Feeder Roll B/M
15A		1	• Roller
15B		1	• Spring
16	11A8216	1	Guide, Feeder
17	11A8202	1	Fan, 4, Delivery
18	11A8199	1	Face-down Delivery Drive Asm.
19		2	Spring, Tension, PP 11A8260
20	11A8203	2	Guide, Upper
21	11A8200	1	Belt, Timing

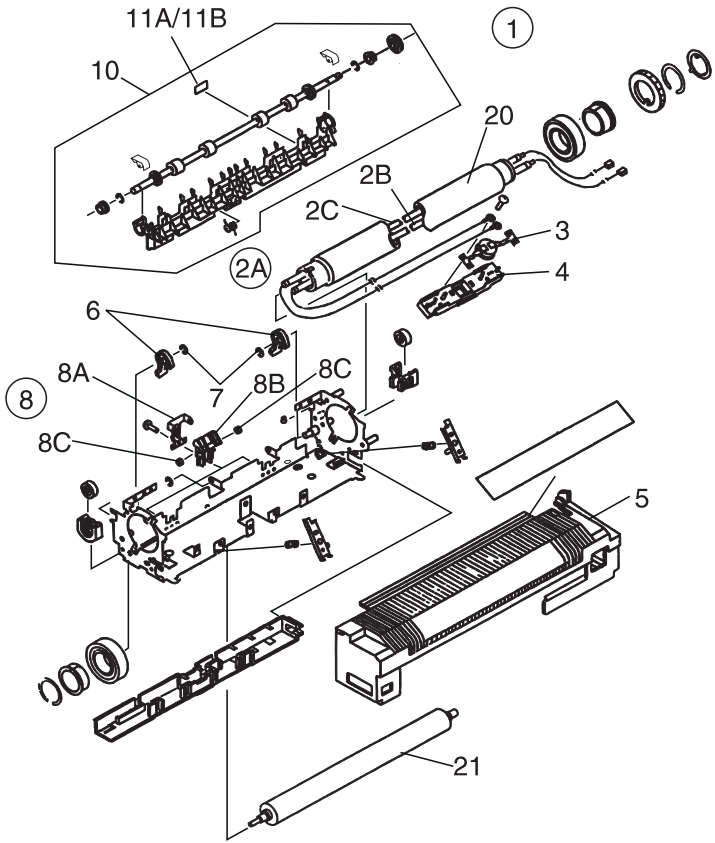


# Assembly 17: Face Up Paper Delivery Frame



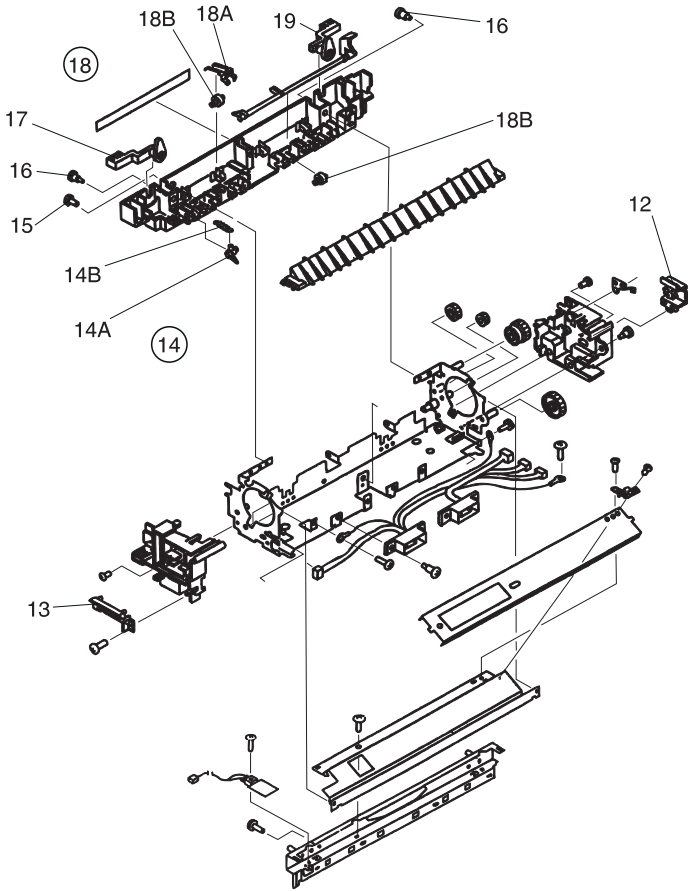
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
17-1		NP	Delivery Frame Asm
2		4	Retaining Ring (E-Type), PP 11A8260
3	11A8226	1	Gear, 20T
4	11A8225	1	Bushing, Conductive
5		1	Screw, Binding, PP 11A8258
6	11A8222	1	Paper Vane 2
7	11A8221	1	Paper Vane
8	11A8220	1	Guide, Feeder
9	11A8218	1	Pin, Flapper
10	11A8219	1	Guide, Delivery
11		2	Spring, Torsion, PP 11A8259
12	11A8213	2	Bushing
13	11A8227	6	Pressure Roll B/M
13A		1	• Spring
13B		1	• Roller
14	11A8228	1	Roller, Metal
15	11A8223	1	Roller, Delivery
16	11A8206	1	Static Eliminator
18	11A8232	1	Lever, Door
17		1	Spring, Compression, PP 11A8260
19	11A8230	1	Plate, Static Charge
20	11A8229	1	Frame, Delivery
21	11A8357	1	Face Up Delivery Drive Asm

# Assembly 18: Fuser



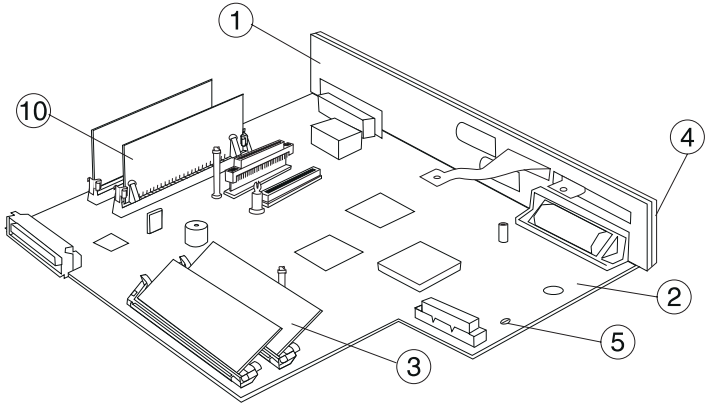
Ref.	Part Number	Units	Description
18-1	11A8233	1	Fuser Asm. (110/115)
	11A8234	1	Fuser Asm. (220/240)
2A	11A8245	1	Fuser Lamp 110V B/M
2B			• Heater, Halogen, 120V, Main
2C			• Heater, Halogen, 120V, Sub
2A	11A8248	1	Fuser Lamp 240V B/M
2B			• Heater, Halogen, 240V, Main
2C			• Heater, Halogen, 240V, Sub
3	11A8250	1	Thermoswitch
4	11A8251	1	Bracket, Thermoswitch Mounting
5	11A8252	1	Cover, Upper
6	11A8237		Lever, Control, Envelope
7		2	Retaining Ring (E-Type), PP 11A8259
8	11A8236	2	Compression Guide, B/M
8A		1	• Plate, Compression Guide
8B		1	• Guide, Separation
8C		2	• Roller
9			Screw, PP 11A8258
10	11A8235	1	Lower Separation
11A	11A8243	1	Label, (110/115V)
11B	11A8244	1	Label, (220/240)
20	11A8351	1	Hot Roll, Upper, Fuser
21	11A8352	1	Backup Roll, Lower, Fuser
NS	11A8246	1	Thermistor, Fuser

# Assembly 18: Fuser (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
18-12	11A8247	1	Holder, Heater
13	11A8242	1	Diode Holder Asm.
14	11A8241	6	Separation Claw B/M
14A		1	• Claw, Separation
14B		1	• Spring, Tension
15			Screw, PP 11A8258
16			Screw, Stepper, w/Washer, PP 11A8258
17	11A8239		Lever, Holding, Right
18	11A8240	6	Separation Roller B/M
18A		1	• Plate, Roller Holder
18B		1	• Roller
19	11A8238	1	Lever, Holding
22	11A8364	1	Flag, Delivery Lever Sensor

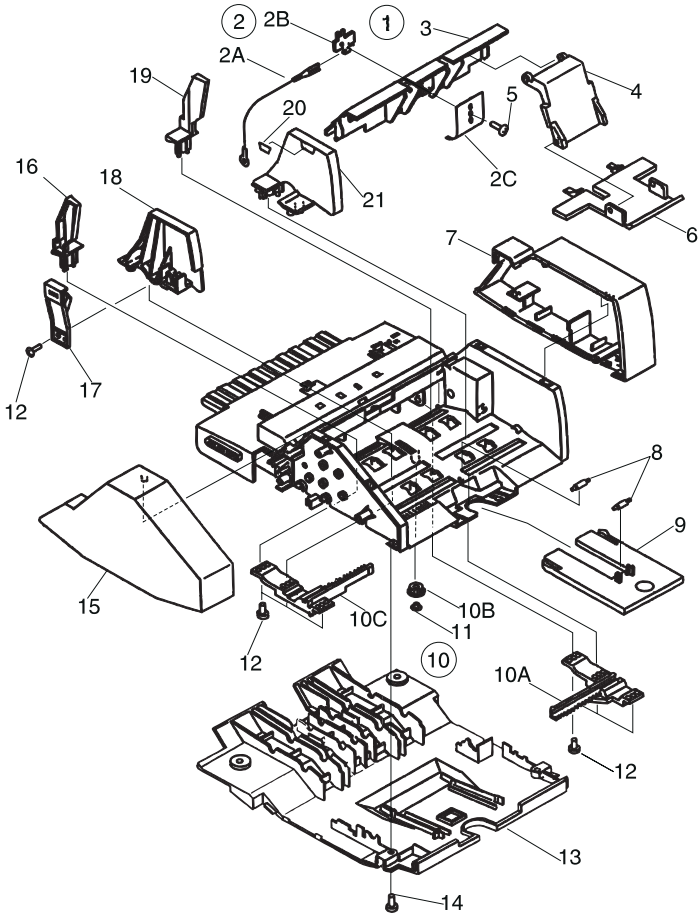
# Assembly 19: Controller Card



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
19-1	11A8253	1	Controller Card Mtg. Tray
2	11A8254	1	Controller Card
3	11A8255	1	Controller SIMM
4	11A8256	1	Bezel, Control Card Tray
5		4	• Screws, Control Card Mtg. PP 11A8262
NS	11A8257	1	Riser Card, FRU, INA
NS		1	Post, Short INA Mtg, PP 11A8262
NS		2	Screw, Serial Port, PP 11A8262
NS		2	Screw, Parallel Port, PP 11A8262
10	1364875	1	16MB Memory SIMM, Model 245
10	1364877	1	4MB Memory SIMM, Model 240
NS	1195319	2	Standoff, INA Mounting, PP 11A8262
NS	11A2029	1	Standoff, INA Mounting, PP 11A8262
NS	11A9089	2	Thumb Screw Tray Asm, PP 11A8262
NS	11A9085	1	Guide, Card Mounting, PP 11A8262

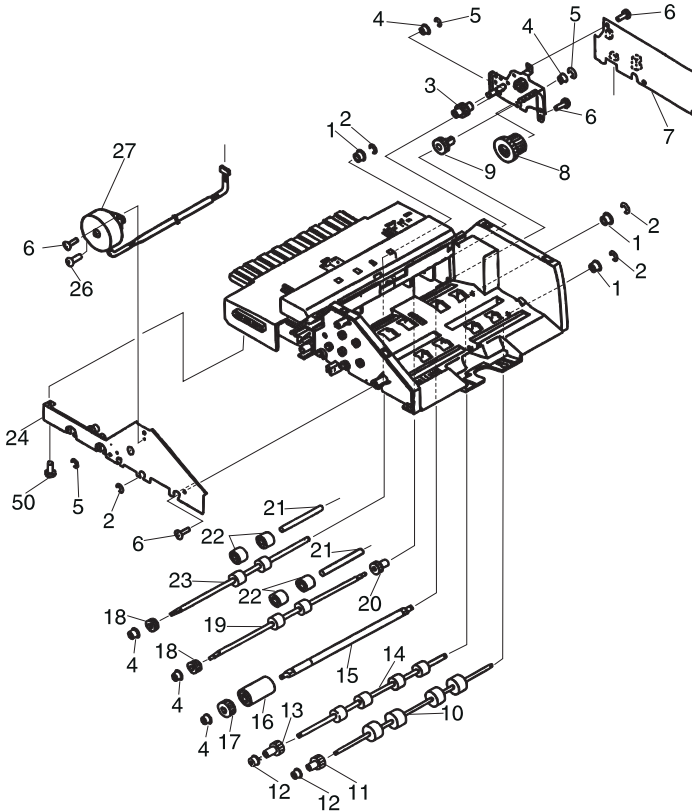


# Assembly 20: Envelope Feeder Covers



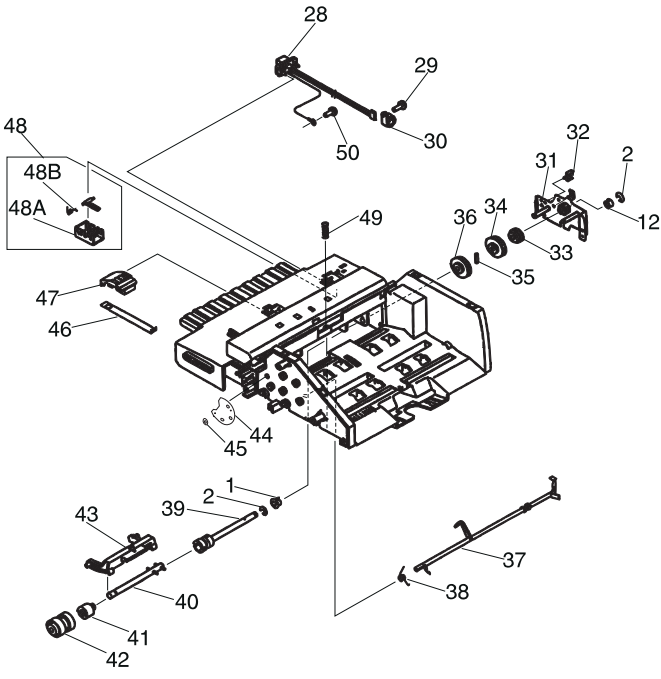
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
20-1		NP	Envelope Feeder
2	11A8308	1	Guide, Static Eliminator
2A		1	• Cable, FG
2B		1	• Nut, Plate
2C		1	• Plate Guide
3	11A8307	1	Cover, Center
4	11A8306	1	Arm Weight Press
5			• Screw, PP 11A8317
6	11A8305	1	Weight, Press
7	11A8301	1	Cover, Right Side
8	11A8304	2	Roller, PP 11A8317
9	11A8303	1	Tray, Envelope, Extension
10	11A8310	1	Rack, Width Adjustment
10A		1	• Rack, Right
10B		1	• Gear, 16T
10C		1	• Rack, Left
11		1	• Clip, Gear Adj. Rack, PP 11A8317
12			• Screw, PP 11A8317
13	11A8309	1	Cover, Bottom
14			• Screw, PP 11A8317
15	11A8302	1	Cover, Left Side
16	11A8316	1	Guide, Left Front
17	11A8314	1	Lever, Release, Width Adjust
18	11A8313	1	Guide, Left Rear
19	11A8315	1	Guide, Right Front
20		1	• Label, Limit
21	11A8312	1	Guide, Right Rear

# Assembly 21: Envelope Feeder Drive 1



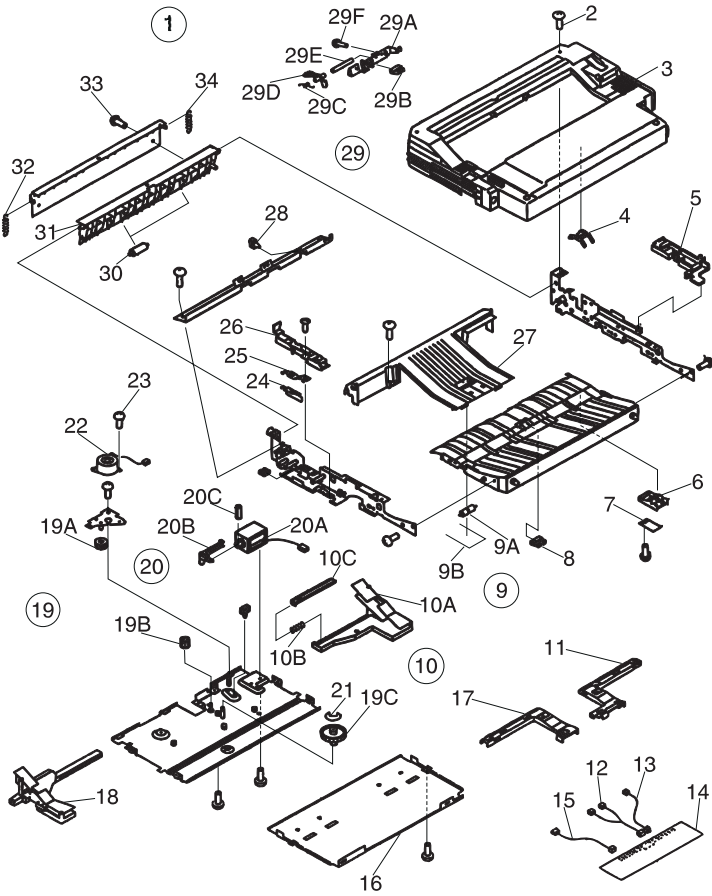
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
21-1	11A8332	4	Bushing
2			• E-Clip, PP 11A8317
3	11A8334	1	Gear, 20T
4	11A8330	5	Bushing
5			• E-Clip, PP 11A8317
6			• Screw, PP 11A8317
7	11A8318	1	Envelope Feeder Board
8	11A8335	1	Gear, 42T
9	11A8333	1	Gear, 22T
10	11A8319		Roller, Pickup #1
11	11A8326	1	Gear, 24T
12	11A8331	3	Bushing
13	11A8327	1	Gear, 20T
14	11A8320	1	Roller, Pickup #2
15	11A8337	1	Shaft, Separation, Lower
16	11A8321	1	Roller, Lower Separation
17	11A8278	1	Gear, 22T
18	11A8328	2	Gear, 20T
19	11A8323		Roller, Feed #2
20	11A8329	1	Gear, 20T
21	11A8336	2	Shaft, Paper Feed
22	11A8324	3	Roller
23	11A8322	1	Roller, Feed #1
24		1	• Plate, Drive Left
26			• Screw with Washer, PP 11A8317
27	11A8325	1	Motor, Envelope Feeder

# Assembly 21: Envelope Feeder Drive 1 (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
21-28	11A8342	1	Feeder Cable
29			Screw, PP 11A8317
30		1	Ferrite Core, PP 11A8317
31		1	Plate, Drive, Right, PP 11A8317
32			Clamp, PP 11A8317, PP 11A8317
33	11A8341	1	Gear, 24T
34	11A8340	1	Gear, 36T
35		1	• Pin, PP 11A8317
36	11A8339	1	Gear, 36T
37	11A8338	1	Lever, Sensor
38		1	• Spring, PP 11A8317
39	11A8349	1	Shaft, Drive
40	11A8348	1	Shaft, Separation Roller
41	11A8347	1	Torque Limiter
42	11A8346	1	Roller, Upper
43	11A8345	1	Arm, Registration
44	11A8228	1	Plate, Magnet Shield
45			• Washer, PP 11A8317
46	11A8343	1	Spring, Latch
47	11A8344	1	Latch
48	11A8283		Box, Click
48A		1	• Lever, Click
48B		1	• Spring, Torsion
49		1	• Spring, PP 11A8317
50			• Screw, PP 11A8317

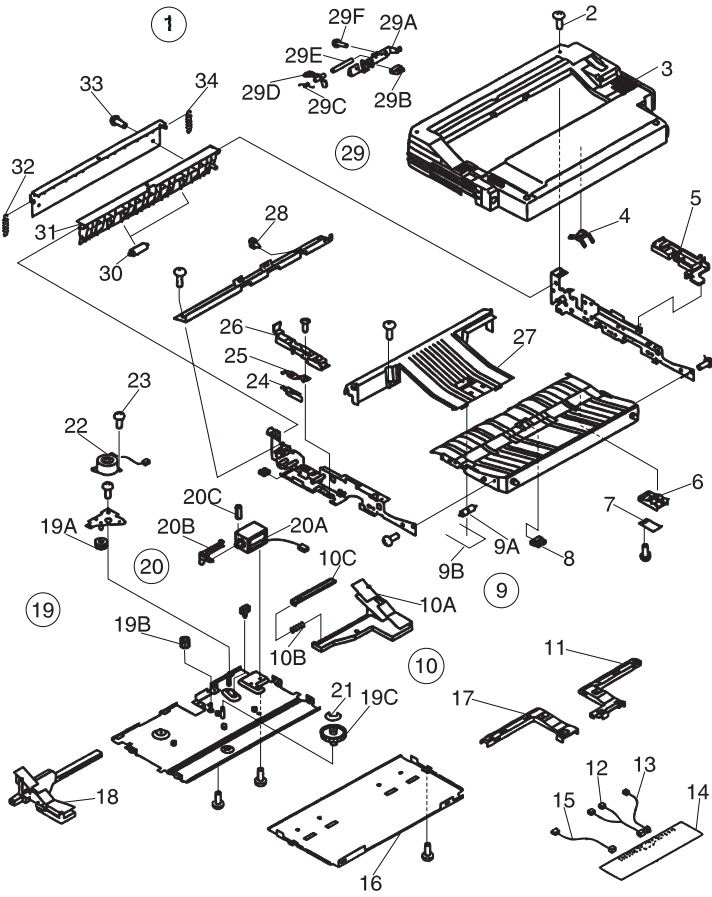
# Assembly 22: Duplex Option



Ref.	Part Number	Units	Description
22-1		NP	Duplex Option, For Sale Only
2			Screw, PP 11A8422
3	11A8378	1	Cover, Top
4	11A8379	1	Lever, Paper Sensor
5	11A8401	1	Guide, Rear Cable
6	11A8387	4	Guide, Paper Entry
7	11A8388	1	Spring, Leaf
8	11A8386	1	Paper Sensor, PS21
9	11A8385	1	Roller, Rear Guide
9A		1	• Roller
9B		1	• Spring
10	11A8395	1	Guide, RH, B/M
10A		1	• Guide, RH, Rear
10B		1	• Spring, PP 11A8422
10C		1	• Rack, Right Rear
11	11A8389	1	Cable Guide
12	11A8392	1	Cable, Duplex Reverse
13	11A8391	1	Cable, Paper Sensor
14	11A8394	1	Duplex, Board
15	11A8393	1	Cable, Side Registration
16	11A8399	1	Cover, Duplex Board
17	11A8390	1	Cable Guide, Front
18	11A8396	1	Guide, Left Front
19	11A8397	1	Gear B/M
19A		1	• Gear 33T
19B		1	• Gear 25T
19C		1	• Gear 17T
20	11A8398	1	Solenoid B/M
20A		1	• Solenoid
20B		1	• Lever, Pressure
20C		1	• Spring
21		1	• E-Clip, PP 11A8422

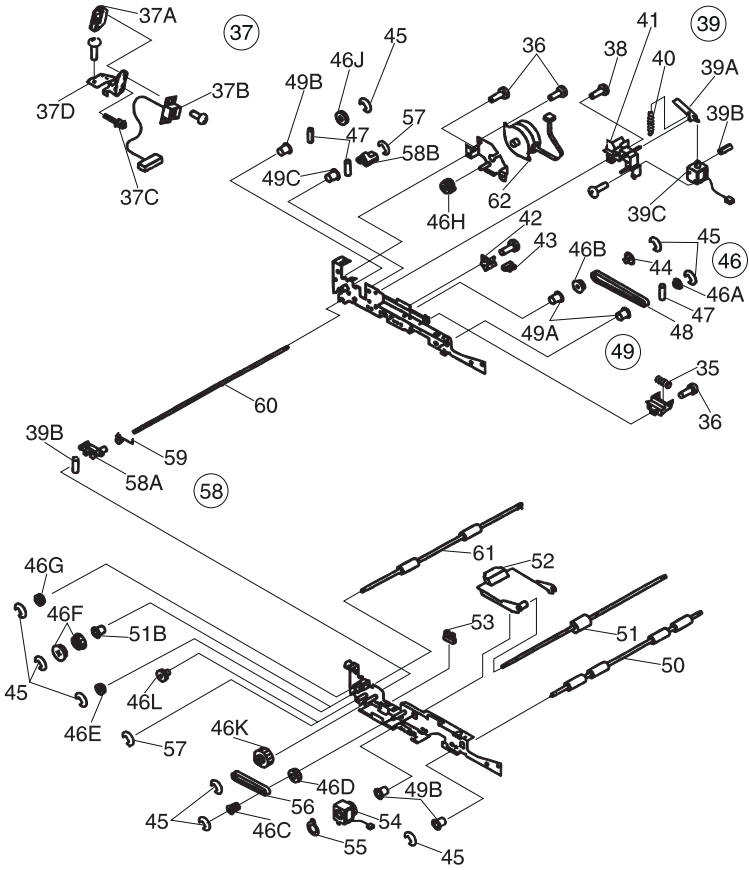


# Assembly 22: Duplex Option (Cont)



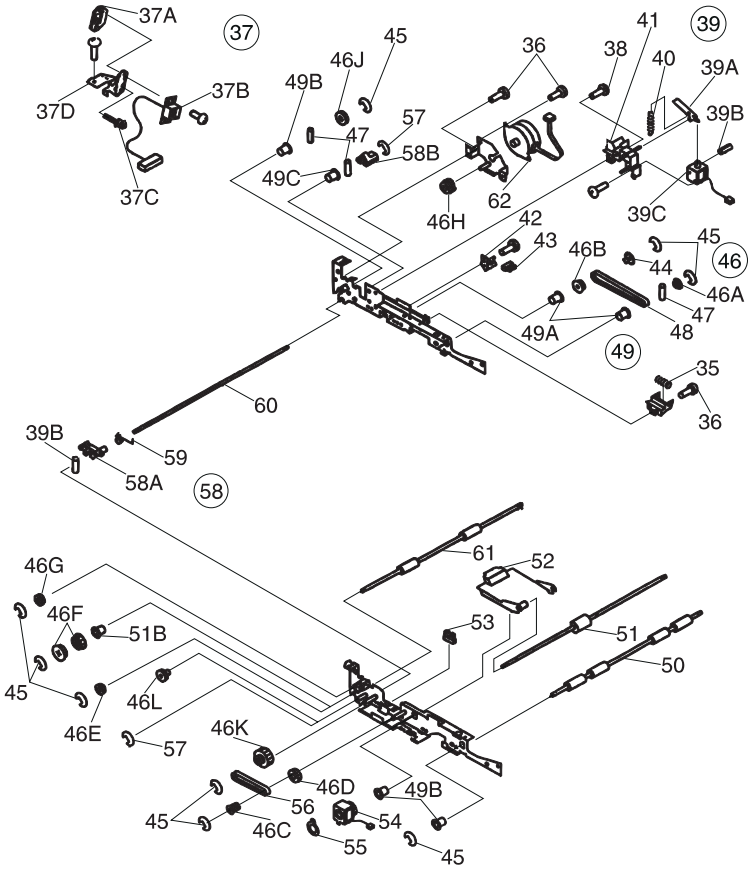
Ref.	Part Number	Units	Description
22-22	11A8383		Motor, SMT22
23		1	Screw, PP 11A8422
24	11A8403	1	Holder, Ground Plate
25	11A8402	1	Ground Plate
26	11A8400	1	Guide, Front Cable
27	11A8384	1	Guide, Lower Left
28		1	• Clip, PP 11A8422
29	11A8380	1	Paper Station B/M, PS 22
29A		1	• Bracket
29E		1	• Flag Shaft
29D		1	• Flag
29C		1	• Spring, PP 11A8422
29F		1	• Screw
29B	11A8386	1	Sensor, Photo Interuptor, PS21
30	11A8382	2	Roller, Guide
31	11A8381	1	Guide, Switch
32		1	• Spring, PP 11A8422
33			• Screw, PP 11A8422
34		1	• Spring, PP 11A8422

# Assembly 22: Duplex Option (Cont)



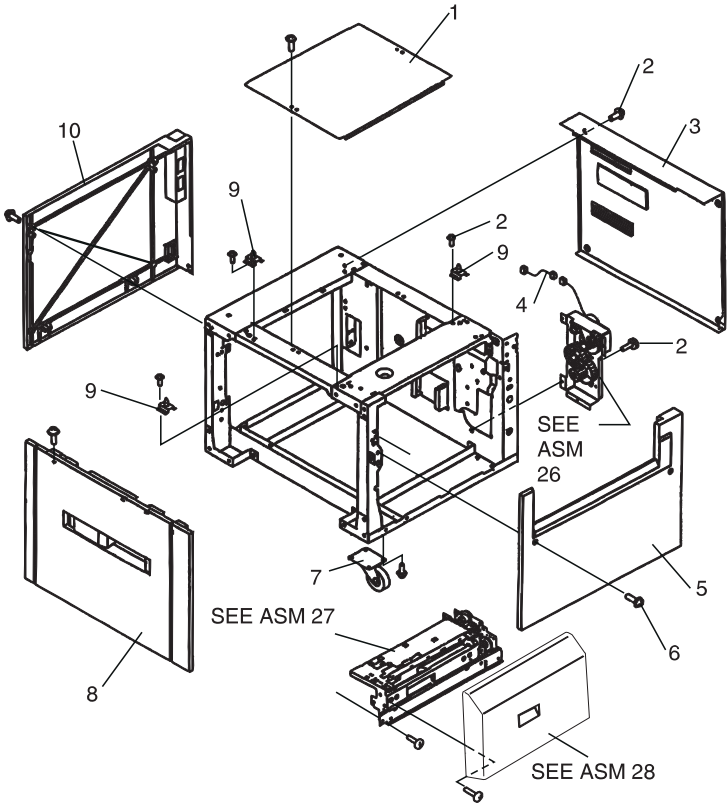
Ref.	Part Number	Units	Description
22-35		1	• Spring, PP 11A8422
36		1	• Screw, PP 11A8422
37	11A8412	1	Duplex Power Conn. B/M
37A		1	• Holder, Conn.
37B		1	• Cable, Duplex
37C		1	• Shaft
37D		1	• Plate, Connector
38		1	• Screw, PP 11A8422
39	11A8419	1	Solenoid B/M
39A		1	• Lever
39B		1	• Pin
39C		1	• Solenoid
40		1	• Spring, PP 11A8422
41	11A8420	1	Cover, Solenoid
42	11A8414	1	Sensor, Mount
43	11A8386	1	Paper Sensor, PS 24
44	11A8417	1	Flag, Sensor
45		1	• E-Ring, PP 11A8422
46	11A8416	1	Gear B/M
46A		1	• Gear 15T
46B		1	• Gear 20T
46C		1	• Gear 14T
46D		1	• Gear 26T
46E		1	• Gear 20TT
46F		1	• Gear 27T
46G		1	• Gear 21T
46H		1	• Gear 23/37T
46I		1	• Gear 24T
46J		1	• Gear 26T
46K		1	• Gear 16/37T

# Assembly 22: Duplex Option (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
22-47		1	• Pin Parallel, PP 11A8422
48	11A8413	1	Belt, Timing
49	11A8415	1	Bushing B/M
49A		3	• Bushing
49B		3	• Bushing
49C		1	• Bushing
50	11A8404	1	Roller #2
51	11A8405	1	Roller #1
52	11A8406	1	Gudie, Duplex
53	11A8386	1	Paper Sensor, PS22, PS23
54	11A8410	1	Clutch
55		1	• Grip Clip, PP 11A8422
56	11A8411	1	Belt, Timing
57		1	• Clip, PP 11A8422
58	11A8409	1	Release Levers B/M
58A		1	Lever, RF
58B		1	Lever, RR
59	11A8421	1	Spring, Torsion
60	11A8408	1	Shaft
61	11A8407	1	Roller, Reverse
62	11A8418	1	Motor, SM21

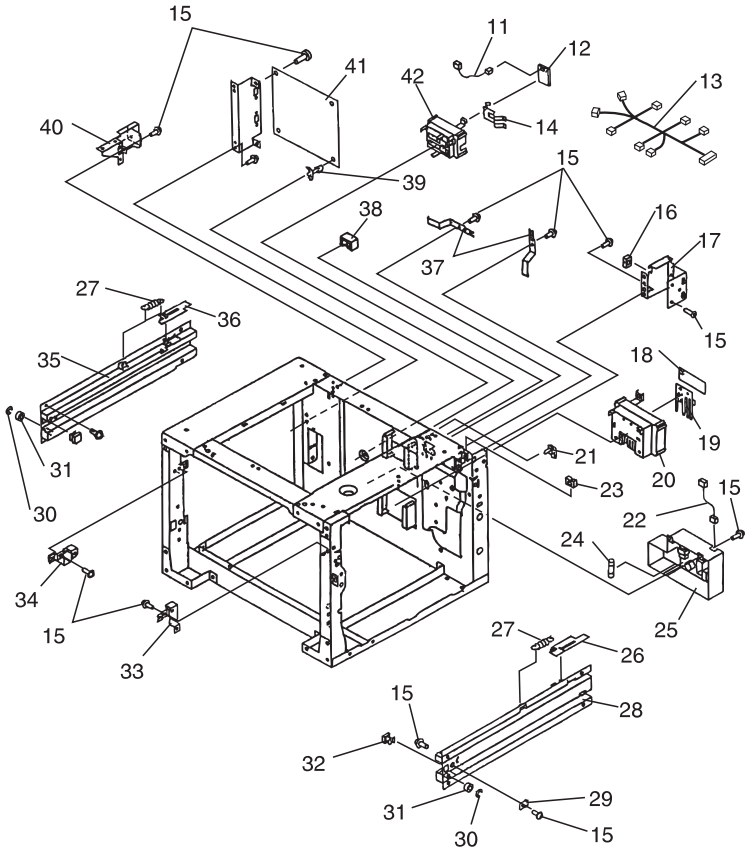
# Assembly 23: Paper Deck, Covers and Frame



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
23-1	11A8451	1	Cover, Top
2			Screw, PP 11A8646
3	11A8455	1	Cover, Rear
4	11A8456	1	Cable, Motor Pickup
5	11A8457	1	Cover, RH
6			Screw, PP 11A8646
7	11A8458	4	Caster
8	11A8459	1	Cover, Door
9	11A8453	1	Pin, Locating
10	11A8454	1	Cover, LH

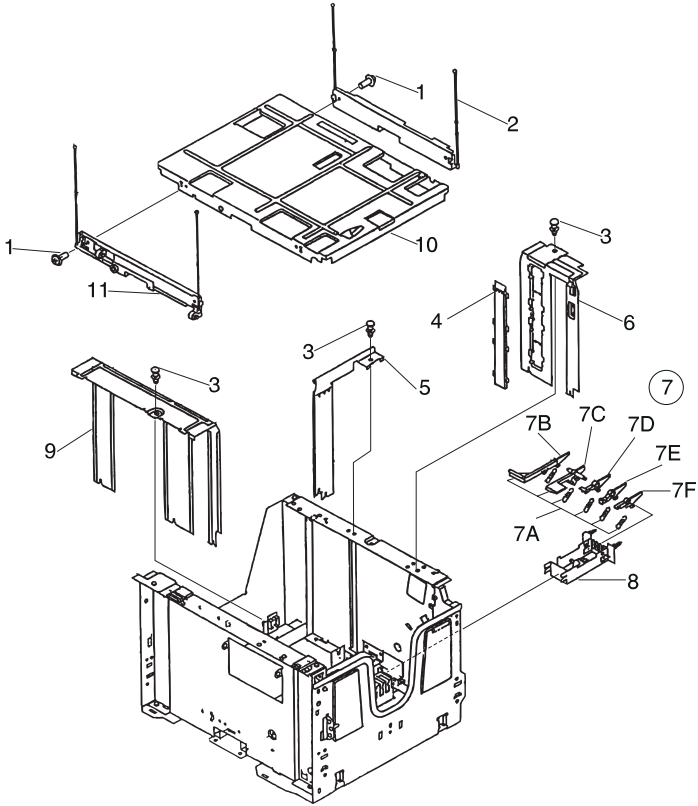


# Assembly 24: Paper Deck, Main Body



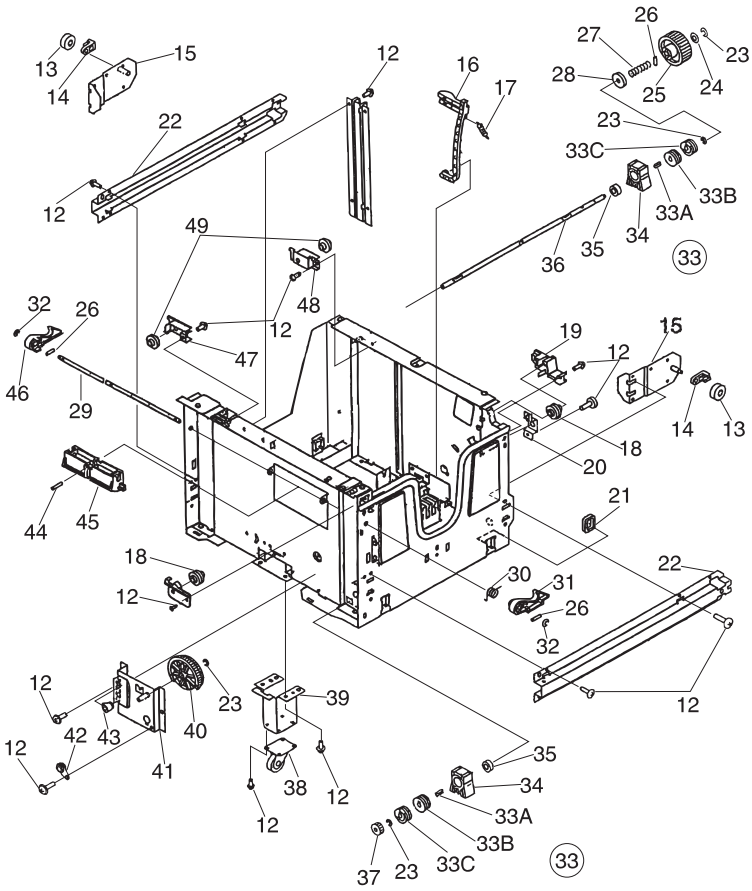
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
23-11	11A8464	1	Cable, Paper Volume
12	11A8465	1	Paper Sensor Board
13	11A8460	1	Cable, Main
14	11A8468	1	Spring, Leaf
15		1	Screw, PP 11A8646
16		1	Clamp, Cable, PP 11A8646
17	11A8487	1	Mount, Cover
18	11A8471	1	Paper Size Sensing Board
19	11A8472	1	Spring, Sensor
20	11A8473	1	Holder, Size
21		1	Clamp, Cable PP 11A8646
22	11A8474	1	Cable, Power Supply
23		1	Clip, Cable PP 11A8646
24	11A8476	1	Fuse
25	11A8475	1	Power Supply, DC
26	11A8478	1	Plate, Pressure, RH
27	11A8477	1	Spring, Tension
28	11A8479	1	Guide, Rail RH
29	11A8483	1	Plate, Stop
30		1	Retaining Ring, PP 11A8646
31	11A8484	1	Roller, Rail
32	11A8485	1	Spacer, Rail
33		NP	Bracket, Latch RH
34		NP	Bracket, Latch LH
35	11A8480	1	Guide, Rail LH
36	11A8486	1	Plate, Pressure, LH
37	11A8469	1	Spring, Leaf
38		1	Clip, Cable, PP 11A8646
39	11A8462	2	Support, Board
40	11A8463	1	Mount, Cover
41	11A8461	1	Paper Deck Driver Board
42	11A8467	1	Holder, Paper Sensor
NS	11A8366	1	Abnormal Position Switch

# Assembly 25: Paper Deck, Paper Drawer



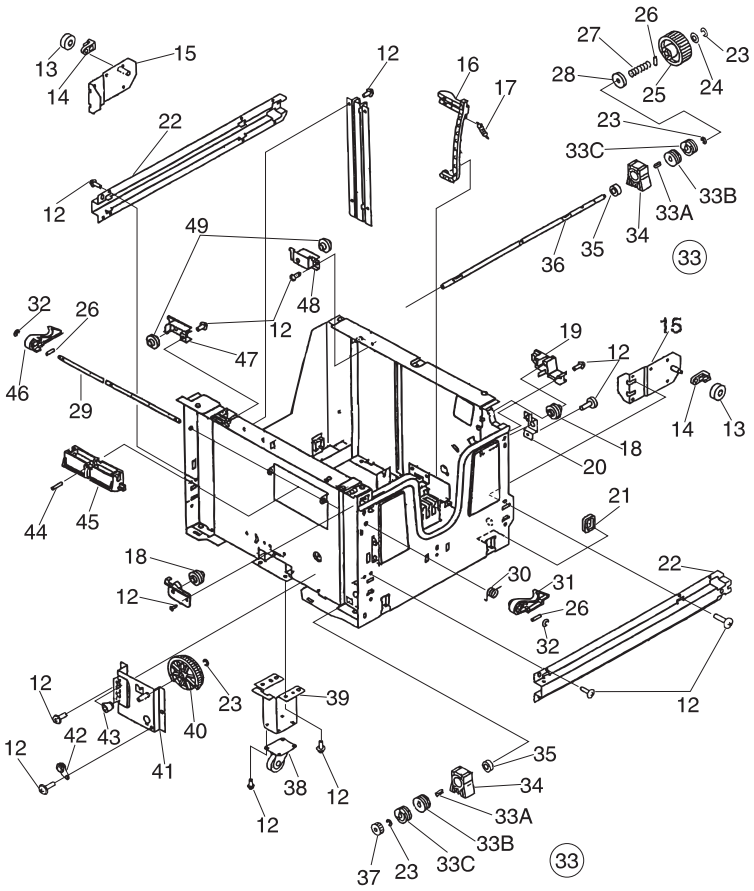
<b>Ref</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
25-1			Screw, PP 11A8646
2	11A8495	1	Plate, Tray 2
3		1	• Latch, Limit, PP 11A8646
4	11A8491	1	Plate, Paper
5	11A8492	1	Plate, Limit
6	11A8489	1	Plate, Paper Limit
7	11A8527	1	Paper Sensing B/M
7A		4	• Spring, Tension, PP 11A8646
7B		1	• Cam, Size 5
7C		1	• Cam, Size 4
7D		1	• Cam, Size 3
7E		1	• Cam, Size 2
7F		1	• Cam, Size 1
8	11A8488	1	Holder, Size Cam
9	11A8493	1	Plate Reference
10	11A8496	1	Tray, Paper
11	11A8494	1	Plate, Wire

# Assembly 25: Paper Deck Paper Drawer (Cont)



Ref.	Part Number	Units	Description
25-12			• Screw, PP 11A8646
13	11A8505	2	Roller, Rail
14	11A8504	2	Spacer, Roller
15	11A8503	2	Plate, Support Rail
16	11A8507	1	Arm, Sensor
17	11A8508	1	Spring, Tension
18	11A8500	2	Pulley
19	11A8502	1	Holder, Wire, Right, Rear
20	11A8501	1	Plate, Support
21	11A8506		Damper, Tray
22	11A8520	4	Rail, Tray
23		2	• Grip Ring, PP 11A8646
24		1	• Cushion, Lifter, PP 11A8646
25	11A8509	1	Gear, 40T
26		1	• Pin, M2X 20, PP 11A8646
27		1	• Spring, Compression, PP 11A8646
28		1	• Stop, Spring, PP 11A8646
23-29	11A8521	1	Shaft, Knob
30	11A8517	1	Spring, Torsion
31	11A8518	1	Latch, Housing, Right
32		1	• Retaining Ring (E-Type), PP 11A8646
33	11A8510	2	Cable Pulley B/M
33A		1	• Key, Take-Up
33B		1	• Drum, Take-Up, 2
33C		1	• Drum, Take-Up, 1
34	11A8511	2	Cover, Drum
35	11A8512	2	Ball Bearing
36	11A8516	1	Shaft, Lifter
37	11A8513	1	Gear, 22T
38	11A8353	1	Caster
39	11A8515	1	Mount, Caster
40	11A8523	1	Gear, 96T/98T
41	11A8526	1	Plate, Damper
42	11A8524	1	Bushing
43	11A8525	1	Gear, 11T
44		1	• Pin, Parallel, PP 11A8646
45	11A8522	1	Knob, Housing

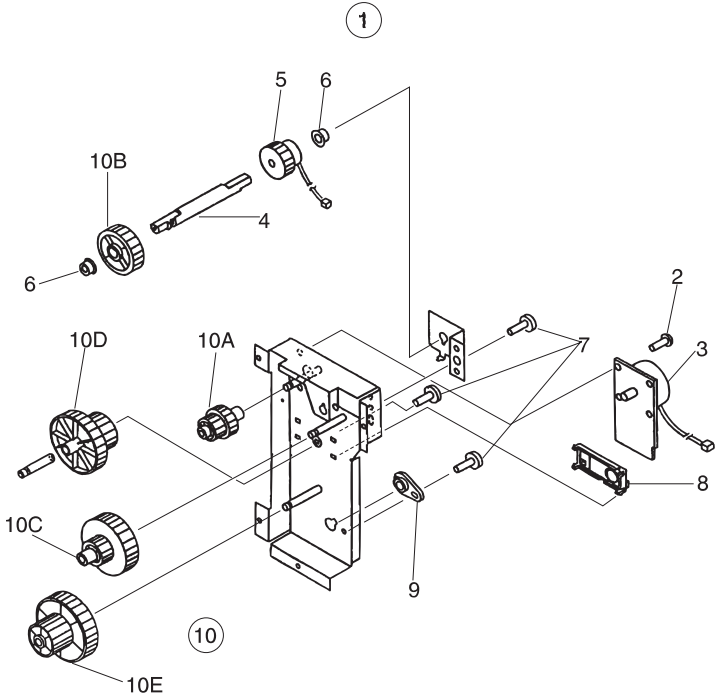
# Assembly 25: Paper Deck, Paper Drawer (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
25-46	11A8519	1	Latch, Housing, Left
47	11A8499	1	Holder, Wire, Left, Front
48	11A8498	1	Holder, Wire, Left, Rear
49	11A8497	1	Pulley

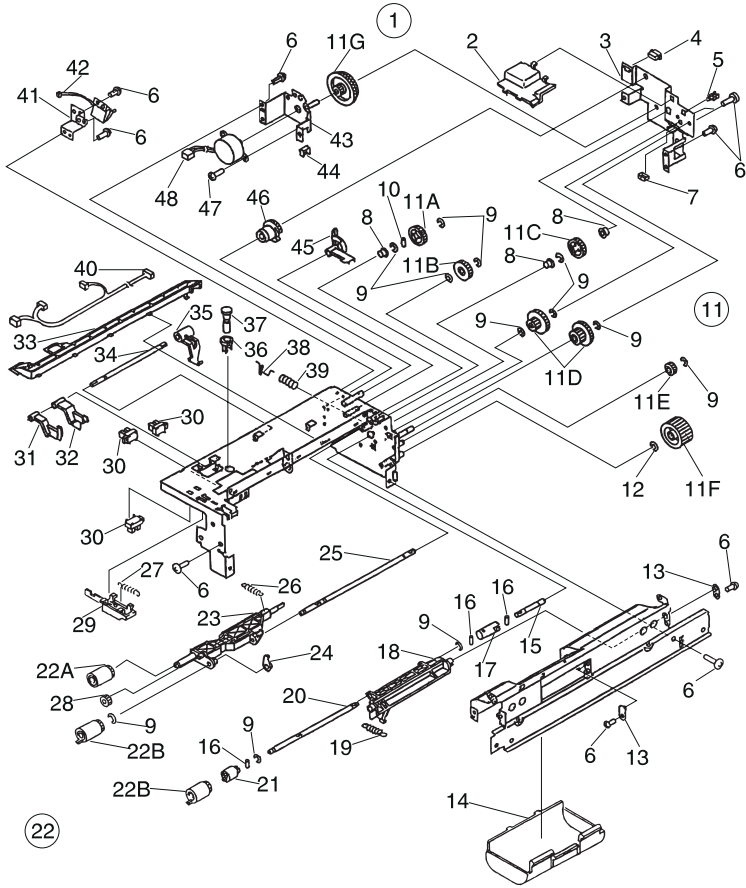


# Assembly 26: Paper Deck Drive



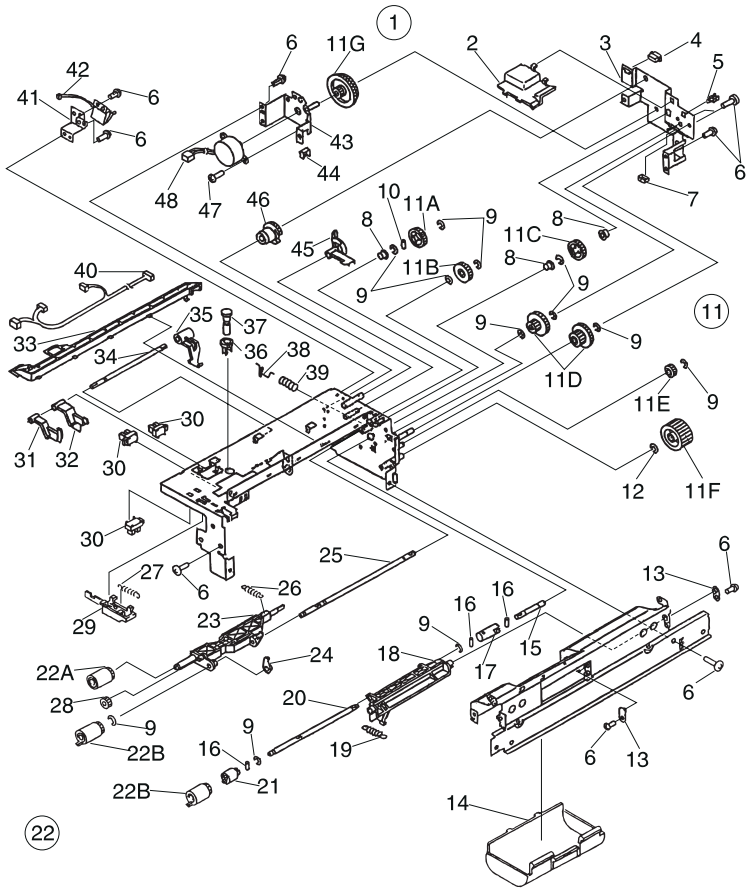
<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
26-1		NP	Paper Deck Drive Asm
2			• Screw, TP, M3X8, PP 11A8646
3	11A8551	1	Motor, MT31
4	11A8557	1	Shaft, H
5	11A8554	1	Clutch, Magnet, CL31
6	11A8555	2	Bushing
7			• Screw, PP 11A8646
8	11A8552	1	Mount, Motor
9	11A8524	1	Bushing
10	11A8556	1	Gear, B/M, Paper Deck Drive Asm.
10A		1	• Gear, 25T/55T
10B		1	• Gear, 41T
10C		1	• Gear, 58T/ 25T
10D		1	• Gear, 24T/63T
10E		1	• Gear, 32T/76T

# Assembly 27: Paper Deck, Paper Pick-Up



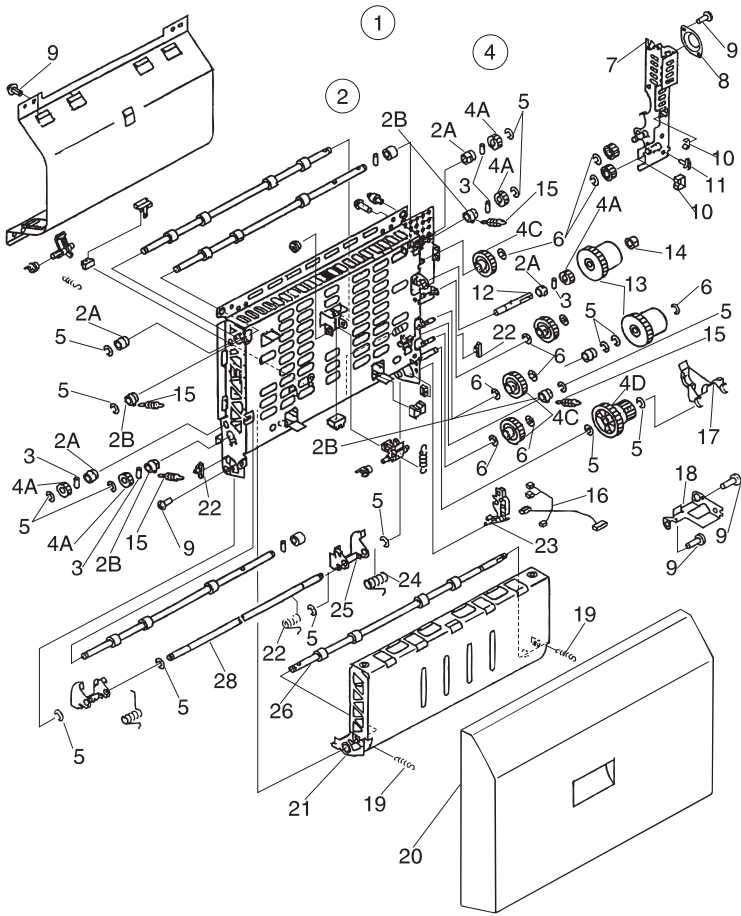
Ref.	Part Number	Units	Description
27-1		NP	Paper Pick-Up Asm
2	11A8574	1	Cover, Gear
3	11A8575	1	Plate, Gear
4		1	• Connector, PP 11A8646
5		1	• Clamp, Cable, PP 11A8646
6			• Screw, TP, M3X6, PP 11A8646
7		1	• Clip, Cord, PP 11A8646
8	11A8573	2	Bushing
9			• Retaining Ring (E-Type), PP 11A8646
10		1	• Pin, Parallel, PP 11A8646
11	11A8572	1	Gear B/M, Paper Feed
11A		1	• Gear, 41T
11B		1	• Gear, 45T/18T
11C		1	• Gear, 17T
11D		2	• Gear, 34T/21T
11E		1	• Gear, 17T
11F		1	• Gear, 40T
11G	11A8786	1	Gear, 16T/87T/57T
12			• Retaining Ring (E-Type), PP 11A8646
13	11A8577	1	Shaft, Positioning
14	11A8576	1	Cover, Roller
15	11A8581	1	Shaft, Gear
16		2	• Pin, Spring, PP 11A8646
17	11A8580	1	Joint
18	11A8579	1	Arm, R
19		1	• Spring, Tension, PP 11A8646
20	11A8144	1	Shaft
21	11A8159	1	Limiter, Torque
22	11A8155	1	Paper Roller/Separation/Pick-Up
22A		1	• Roller, Feed
22B		2	• Roller, Pick-Up
23	11A8157	1	Holder, Roller
24	11A8584	1	Bushing
25	11A8582	1	Shaft, Feed Roller
26		1	• Spring, Tension, PP 11A8646
27		1	• Spring, Tension, PP 11A8646

# Assembly 27: Paper Deck, Paper Pick-Up (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
27-28	11A8583	1	Gear, 18T
29	11A8585	1	Lever, Door Open Sensor
30	11A8586	2	Photo Interuptor PS33, PS34
31	11A8588	1	Arm, Paper Sensor
32	11A8587	1	Arm, Paper Sensor
33	11A8594	1	Cover, Cable
34	11A8593	1	Shaft, Paper Sensor
35	11A8589	1	Arm, Paper Sensor 2
36	11A8591	1	Plate, Solenoid
37	11A8590	1	Shaft
38	11A8592	1	Arm, Roller
39		1	• Spring, Tension, PP 11A8646
40	11A8595	1	Cable, Pick-Up
41	11A8569	1	Plate, Solenoid
42	11A8566	1	Solenoid
43	11A8570	1	Mount, Motor
44		1	• Clip, Cable, PP 11A8646
45	11A8571	1	Arm, Roller
46	11A8568	1	Cam, Roller
47			• Screw, with Washer, M3X6, PP 11A8646
48	11A8567	1	Motor, Pickup

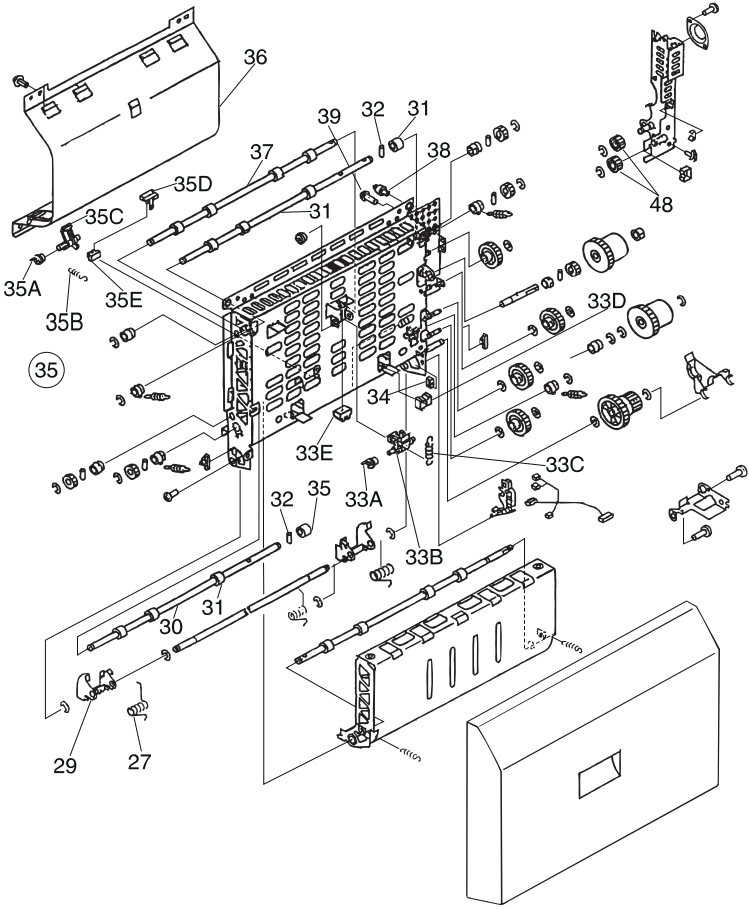
# Assembly 28: Paper Deck, Paper Feed



Ref.	Part Number	Units	Description
28-1		NP	Paper Feeder Asm
2	11A8645	1	Bushing B/M
2A		5	• Bushing
2B		4	• Bushing
3		1	• Pin, Parallel, PP 11A8646
4	11A8628	1	Gear B/m, Feed Assembly
4A		5	• Gear, 16T
4B		4	• Gear, 16T
4C		1	• Gear, 36T
4D		1	• Gear, 24T/44T
5			Retaining Ring (E-Type), PP 11A8646
6			Retaining Ring (E-Type), PP 11A8646
7	11A8622	1	Plate, Clutch
8	11A8623	1	Plate
9			Screw TP, M3X6, PP 11A8646
10		1	Clip, Cable, PP 11A8646
11		1	Holder, Cable, PP 11A8646
12	11A8274	1	Shaft, Clutch
13	11A8624	2	Clutch Magnet, CL33, CL32
14	11A8573	1	Bushing
15		2	Spring, Tension, PP 11A8646
16	11A8627	1	Cable, Feed
17	11A8625	1	Cover, Feed Gear
18	11A8626	1	Plate, Connecting
19		2	• Spring, Tension, PP 11A8646
20	11A8621	1	Cover
21	11A8635	1	Guide, Feed, Inner
22	11A8639	1	Block, Stop
23	11A8636	1	Guide, Cable
24	11A8632	2	Spring, Torsion
25	11A8631	2	Plate, Hinge, Rear

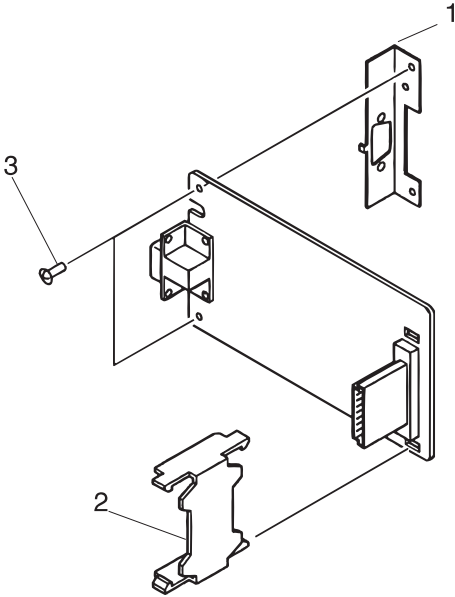


# Assembly 28: Paper Deck Paper Feed (Cont)



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
28-26	11A8634	1	Roller, Register
27	11A8629	2	Spring, Torsion
28	11A8633	1	Shaft, Hinge
29	11A8630	1	Plate, Hinge, Front
30	11A8637	1	Shaft, Roller
31	11A8638	1	Roller, Feed
32		1	Pin, Parallel, PP 11A8646
33	11A8643	1	Jam Sensor B/M, PS32
33A		1	• Bushing
33B		1	• Lever, Jam Sensor
33C		1	• Spring, Tension
33D		2	• Clip, Cable
33E		1	Photo Interruptor, PS32
34		1	• Clamp, Cable, PP 11A8646
35	11A8642	1	Registration Sensor B/M, PS31
35A		1	• Bushing
35B		1	• Spring, Tension
35C		1	• Lever, Register Sensor
35D		1	• Cover, Sensor
35E		1	Photo Interruptor, PS31
36	11A8644	1	Guide, Feed, Outer
37	11A8641	1	Roller, Feed
38	11A8640	2	Foot
39			• Screw, PP 11A8646
48		2	16T Gear, PP 11A8628

**Assembly 29: Option Controller Card**



<b>Ref.</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
29-1	11A8361		Board, Option Controller
2	11A8362		Stand
3			Screw, PP 11A8646

## **Assembly 30: Options (No Illustration)**

<b>Ref</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
	1364921		Memory SIMM 2MB
	1364877		Memory SIMM 4MB
	1364876		Memory SIMM 8MB
	1364875		Memory SIMM 16MB
	1364874		Memory SIMM 32MB
	1364923		Flash Memory 1MB
	1364922		Flash Memory 2MB
	1364879		Flash Memory 4MB
	1381856		Hard Drive
	1402217		Token-Ring
	1402218		Ethernet 10Base-T
	1446702		Ethernet 10Base2 / 10Base-T combined



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## 8. Wiring Diagram

A wiring diagram for this printer is available as a PostScript file on this CD-ROM disk. Print file 4040.PS in the DIAGRAM directory. Files are available for either letter or A4 paper sizes.



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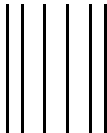
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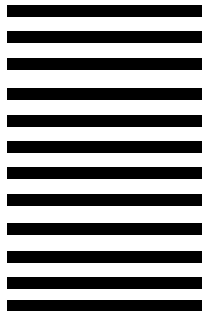
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