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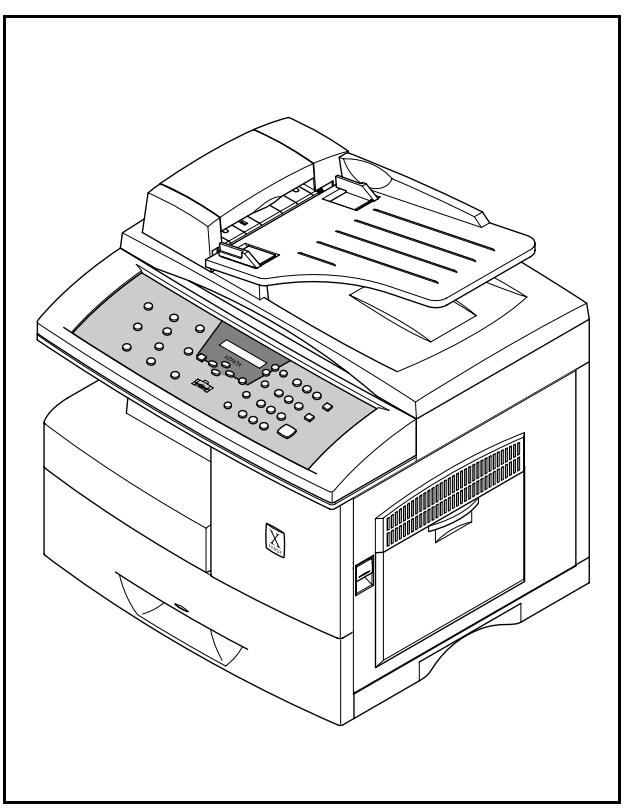
WorkCentre Pro 412
Launch Issue

SERVICE MANUAL



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WorkCentre Pro 412.

Service Documentation.

WorkCentre Pro 412 Service Manual.

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1. Introduction

This service manual is part of a multinational service documentation system, but is not structured in the standard Xerox service manual format.

1-1 Organisation

Section 1 Introduction

This section describes the contents of the service manual, describes the Heath & Safety Incident Reporting and gives translations of all warnings within the service manual in French, Italian, German and Spanish languages.

Section 2 Service Call Procedures

This section is used to start and complete a service call. This section will either direct you to the Maintenance and Troubleshooting section, or identify a faulty component or sub-assembly.

Section 3 Precautions

This section contains ESD precautions.

Section 4 Specifications

This section contains the specifications for the various modules of the machine.

Section 5 Circuit Description

This section describes the control system of the machine.

Section 6 Disassembly and Reassembly

This section gives instructions for dismantling and assembling the machine.

Section 7 Maintenance & Troubleshooting

This section contains instructions for preventative maintenance and diagnosis of machine fault

Section 8 Exploded Views and Parts Lists

This section shows all parts of the machine in exploded views with lists of spared parts.

Section 9 Electrical Parts Lists.

This section lists all of the spared electrical components.

Section 10 Block Diagram

This section contains a block diagram of the machine functions.

Section 11 Connection Diagram

This section contains an electrical connection diagram for the whole machine.

Section 12 Schematic Diagrams

This section contains the schematic diagrams for the machine.

1-2 Warnings, Cautions and Notes

Translated versions of all warnings are in Translation of Warnings at the end of this section.

WARNING

A warning is used whenever an operating or maintenance procedure, practice, condition or statement, if not strictly observed, could result in personal injury.

CAUTION

A caution is used whenever an operation or maintenance procedure, practice, condition or statement, if not strictly observed, could result in damage to the equipment

NOTE: A note is used where it is essential to highlight a procedure, practice, condition or statement

1-3 Safety Procedures and Information

The Xerox WorkCentre Pro 412 product and supplies are manufactured, tested and certified to strict safety regulations, electromagnetic regulations and established environmental standards.

WARNING

Any unauthorised alteration, which may include the addition of new functions, the connection of external devices or the use of components not specified by Xerox may impact the products certification, safety performance or compliance with legislation.

Warning markings

All warning instructions marked on or supplied with the product should be followed.

WARNING

A warning is used whenever an operating, service or maintenance procedure, practice, condition or statement, if not strictly observed could result in personal injury.

WARNING

Alerts to areas of the product where there are heated surfaces which must be avoided during service or maintenance operations.

WARNING

The following are general warning statements which apply in various service or maintenance situations.

General Safety Warning
Switch off the power to the machine and disconnect the power cord from the outlet while performing tasks that do not need the electricity on. Contact with electricity can cause death or injury.

Power Supply
This product must be operated from the type of power supply indicated on the product's data plate label.
This product must be connected to a protective earth circuit.

Safe Working
Throughout this procedure prior to working on any electrical circuit or any mechanical drive component disconnect all electrical power to the product. The disconnect device is the power cord. Remove the plug from the power outlet.

Ventilation
This product should not be placed in a built-in installation unless proper ventilation is provided.

Operator Accessible Areas
This product has been designed to restrict operator access to safe areas only. Operator access to hazardous areas is restricted with covers or guards, which require a tool to remove. Ensure that these covers or guards are correctly replaced after every service or maintenance task.

Maintenance/Service
Do not to carry out any maintenance or service on the product, which is not described this service documentation.

Cleaning
Before cleaning this product, unplug the product from the power outlet. Always use materials specifically designated for this product, the use of other materials may result in poor performance and may create a hazardous situation. Do not use aerosol cleaners, they may become flammable under certain circumstances.

Precautions

1. Be sure that all built-in protective devices are in place. Restore any missing protective covers.
2. When re-installing chassis and assemblies, be sure to restore all protective devices, including control knobs and compartment covers.
3. Design Alteration Warning: Never alter or add to the mechanical or electrical design of this equipment, such as auxiliary connectors, etc. Such alterations and modifications will void the manufacturer's warranty.
4. Components, parts, and wiring that appear to have overheated or are otherwise damaged should be replaced with Xerox spare parts. Always determine the cause of damage or overheating, and correct any potential hazards.
5. Observe the original harness routing, especially near sharp edges, AC, and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board.
6. Product Safety Notice: Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they provide could be lost if a replacement component differs from the original. This holds true, even though the replacement may be rated for higher voltage, wattage, etc.

Lithium battery precautions
The Main PWBA is provided with a lithium Cell designated BAT1. Observe the following precautions:
- There could be a danger of explosion if the battery is subject to forced discharge or reverse voltage.
- The battery must only be replaced with the same type.
- The battery should only be replaced at a service centre not at a customer location
- The replacement battery must be the same type and manufacturer as the original.
- Lithium batteries contain substances which are subject to control and should not be opened, crushed or burned during disposal.

Laser Safety

Invisible laser radiation

WARNING

Invisible laser radiation. avoid exposure to beam.
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
This product contains laser warning labels. These labels are intended for use by Service and Maintenance Representatives and are placed on the top surface of the Laser Unit. Do not attempt to open the laser unit. There are no serviceable components or areas inside the unit. Operation of the laser unit with machine or laser covers removed could cause eye damage if the laser beam is viewed directly.

Electrostatic Damage Caution

The following is an example of the terminology and symbols used in this manual for an electrostatic damage caution:

Caution

Certain components in this product are susceptible to damage from electrostatic discharge. Observe all ESD procedures to avoid component damage.

1-4 Heath and Safety Incident Reporting

I. Summary

This standard defines requirements for notification of health and safety incidents involving Xerox products (equipment and materials) at customer locations.

II. Scope

Xerox Corporation and subsidiaries worldwide.

III. Objective

To enable prompt resolution of health and safety incidents involving Xerox products and to ensure Xerox regulatory compliance.

IV. Definitions

Incident:
An event or condition occurring in a customer account that has resulted in injury, illness or property damage. Examples of incidents include machine fires, smoke generation, physical injury to an operator or service representative. Alleged events and product conditions are included in this definition.

V. Requirements

Initial Report:

1. Xerox organisations shall establish a process for individuals to report product incidents to EH&S within 24 hours of becoming aware of the event.
2. The information to be provided at the time of reporting is contained in Appendix A (Health and Safety Incident Report involving a Xerox product).
3. The initial notification may be made by any of the following methods:
   - For incidents in North America and Developing Markets West (Brazil, Mexico, Latin American North and Latin American South):

Phone* EH&S at: 1-800-828-6571.

- Electronic mail EH&S at: Doris.Bush@usa.xerox.com.
- Fax EH&S at: 1-716-422-7734 [intelnet 8*222 7734].
- For incidents in Europe and Developing Markets East (Middle East, Africa, India, China and Hong Kong):
- Phone* EH&S at: +44 (0) 1707 35343.
- Electronic mail EH&S at: Elaine.Grange@GBR.xerox.com.
- Fax EH&S at: +44 (0) 1707 353914 [intelnet 8*668 3914].

*Initial notification made by phone must be followed within 24 hours by a completed incident report and sent to the indicated electronic mail address or fax number.

NOTE: If sending a fax, please also send the original via internal mail.

Responsibilities for resolution:

1. Business Groups/Product Design Teams responsible for the product involved in the incident shall:
   a. Manage field bulletins, customer correspondence, product recalls, safety retrofits.
   b. Fund all field retrofits.
2. Field Service Operations shall:
   a. Preserve the Xerox product involved and the scene of the incident inclusive of any associated equipment located in the vicinity of the incident.
   b. Return any affected equipment/part(s) to the location designated by EH&S and/or the Business Division.
   c. Implement all safety retrofits.
3. EH&S shall:
   a. Manage and report all incident investigation activities.
   b. Review and approve proposed product corrective actions and retrofits, if necessary.
   c. Manage all communications and correspondence with government agencies.
   d. Define actions to correct confirmed incidents.

VI. Appendices

The Health and Safety Incident Report involving a Xerox Product (Form # EH&S-700) is available at the end of this Service Manual.

1-5 Translation of Warnings and Precautions

WARNING

A warning is used whenever an operating or maintenance procedure, practice, condition or statement, if not strictly observed, could result in personal injury.

AVERTISSEMENT

Un avertissement est utilisé chaque fois qu'une procédure d'utilisation ou de maintenance peut provoquer des blessures si elle n'est pas strictement respectée.

AVVERTENZA

Un' avvertenza viene utilizzata per segnalare procedure, operazioni, condizioni o istruzioni operative e di manutenzione, la cui mancata osservanza può causare infortuni.

VORSICHT

Warnhinweise dieser Art gelten für Anweisungen und Situationen, bei deren Nichtbeachtung bzw. Auftreten Verletzungsgefahr besteht.

AVISO

Los avisos se utilizan cuando un procedimiento, ejercicio, condición o declaración de funcionamiento o mantenimiento puede producir lesiones personales, si no se sigue estrictamente.

WARNING

Any unauthorised alteration, which may include the addition of new functions, the connection of external devices or the use of components not specified by Xerox may impact the products certification, safety performance or compliance with legislation.

AVERTISSEMENT

Toute modification non autorisée, qu'il s'agisse de l'ajout de nouvelles fonctions, de la connexion de dispositifs externes ou de l'utilisation de composants non recommandés par Xerox, peut entraîner l'annulation de la garantie.

AVVERTENZA

Qualunque modifica che implichi l' aggiungimento di nuove funzioni, il collegamento ad un dispositivo esterno o l' utilizzo di componenti non autorizzati da Xerox può invalidare la certificazione e le dichiarazioni di conformità del prodotto, nonché compromettere la sicurezza operativa di questo.

VORSICHT

Warnhinweise dieser Art gelten für Anweisungen und Situationen, bei deren Nichtbeachtung bzw. Auftreten Verletzungsgefahr besteht.

AVISO

Cualquier modificación no autorizada, que puede incluir la adición de nuevas funciones, la conexión de dispositivos externos o el uso de componentes no especificados por Xerox, puede afectar a la certificación del producto, el funcionamiento seguro o el cumplimiento de la legislación.

WARNING

A warning is used whenever an operating, service or maintenance procedure, practice, condition or statement, if not strictly observed could result in personal injury

AVERTISSEMENT

Un avertissement est utilisé à chaque fois qu'une procédure de maintenance ou qu'une manipulation présente un risque de blessure si elle n'a pas été strictement observée.

AVVERTENZA

Un' avvertenza viene utilizzata per segnalare procedure, operazioni, condizioni o istruzioni operative e di manutenzione, la cui mancata osservanza può causare infortuni.

VORSICHT

Warnhinweise dieser Art gelten für Anweisungen und Situationen, bei deren Nichtbeachtung bzw. Auftreten Verletzungsgefahr besteht.

AVISO

Los avisos se utilizan cuando un procedimiento, ejercicio, condición o declaración de funcionamiento, servicio o mantenimiento puede producir lesiones personales, si no se sigue estrictamente.

WARNING

Alerts to areas of the product where there are heated surfaces which must be avoided during service or maintenance operations.

AVERTISSEMENT

Prévient des risques encourus lors d'une intervention dans des zones chaudes qui peuvent provoquer des blessures.

AVVERTENZA

Evitare le superfici calde del prodotto, indicate da etichette di avvertenza, durante le operazioni di manutenzione o di assistenza.

VORSICHT

Weist auf heiße Gerätebereiche hin, die bei der Wartung und Pflege nicht angefasst werden dürfen.

AVISO

Llama la atención sobre áreas del producto donde hay superficies calientes que deben evitarse durante las tareas de servicio o mantenimiento.

WARNING

The following are general warning statements which apply in various service or maintenance situations.

General safety warning
Switch off the power to the machine and disconnect the power cord from the outlet while performing tasks that do not need the electricity on. Contact with electricity can cause death or injury.

Power Supply
This product must be operated from the type of power supply indicated on the product's data plate label. This product must be connected to a protective earth circuit.

Safe Working
Throughout this procedure prior to working on any electrical circuit or any mechanical drive component disconnect all electrical power to the product. The disconnect device is the power cord. Remove the plug from the power outlet.

Ventilation
This product should not be placed in a built-in installation unless proper ventilation is provided.

Operator Accessible Areas
This product has been designed to restrict operator access to safe areas only. Operator access to hazardous areas is restricted with covers or guards, which require a tool to remove. Ensure that these covers or guards are correctly replaced after every service or maintenance task.

Maintenance/Service
Do not to carry out any maintenance or service on the product, which is not described this service documentation.

Cleaning
Before cleaning this product, unplug the product from the power outlet. Always use materials specifically designated for this product, the use of other materials may result in poor performance and may create a hazardous situation. Do not use aerosol cleaners, they may become flammable under certain circumstances.

AVERTISSEMENT

Cette mention indique des informations relatives à différentes situations de maintenance.

Sécurité générale - Avertissement
Mettre la machine hors tension et débrancher le cordon d'alimentation de la prise murale lors d'interventions qui ne nécessitent pas que l'alimentation soit maintenue. Un contact avec une zone sous tension peut mettre en danger la sécurité des personnes.

Alimentation
Ce produit doit être utilisé avec l'alimentation indiqué sur la plaque de la machine.
Ce produit doit être connecté à un circuit avec mise à la terre.

Sécurité
Pendant toute cette procédure d'intervention dans des circuits électriques ou des entraînements mécaniques, débranchez la machine. Le système de déconnexion est le cordon d'alimentation. Retirer le connecteur de la prise murale.

Aération
Cet équipement ne doit pas être encastré, sans une ventilation appropriée.

Zones accessibles aux utilisateurs
Ce produit a été conçu de façon à ce que les zones accessibles par les utilisateurs soient sans danger. Les zones qui peuvent être dangereuses sont protégées par des panneaux ou des sécurités qui nécessitent l'utilisation d'un outil pour être retirer. Veiller à ce que ces panneaux et sécurités sont correctement remis en place après toute intervention technique ou de maintenance.

Maintenance
N'effectuez aucune procédure de maintenance non décrite dans la documentation.

Nettoyage
Avant toute procédure de nettoyage, débranchez l'équipement de la prise murale. Utilisez toujours les produits d'entretien conçus spécifiquement pour l'appareil. L'utilisation d'autres produits risque de nuire au bon fonctionnement de l'appareil et peut s'avérer dangereuse. N'utilisez jamais d'aérosols, ils peuvent s'enflammer sous certaines circonstances.

AVVERTENZA

Le seguenti avvertenze sono applicabili a svariate situationi di manutenzione o di assistenza.

Avvertenza sicurezza generale
Spegnere l' apparecchio e scollegare il cavo di alimentazione dalla presa durante l' esecuzione di operazioni che non richiedono l' utilizzo di elettricità. Scosse elettriche accidentali possono causare lesioni personali o morte.

Alimentazione
Utilizzare il prodotto esclusivamente con il tipo di energia indicato e collegarlo a un circuito protettivo con messa a terra.

Sicurezza elettrica
Accertarsi che il prodotto non riceva elettricità durante le operazioni di intervento sui circuiti elettrici o sulle parti meccaniche. Il dispositivo di disattivazione del prodotto è costituito dal cavo di alimentazione, il quale deve essere scollegato dalla presa.

Ventilazione
Non installare l' apparecchio in un alloggiamento a incasso, a meno che non sia garantita una ventilazione adeguata.

Aree accessibili per l' operatore
Questo prodotto è stato progettato in modo da impedire l' accesso dell' operatore ad aree non sicure; queste sono protette da coperture o schermi che richiedono l' utilizzo di attrezzi per la rimozione. Accertarsi che le coperture o gli schermi siano reinseriti in seguito a qualunque operazione di manutenzione o di assistenza del prodotto.

Manutenzione e assistenza
Non effettuare alcuna operazione di manutenzione o di assistenza non descritta nella documentazione del prodotto.

Pulizia del prodotto
Prima di eseguire operazioni di pulizia, scollegare il cavo di alimentazione dalla presa a muro. Utilizzare sempre prodotti specifici per questo apparecchio: l' utilizzo di prodotti diversi da quelli consigliati può comportare un deterioramento delle prestazioni e causare situazioni di pericolo. Non utilizzare detergenti aerosol, che in alcune circostanze possono risultare infiammabili.

VORSICHT

Die folgenden Warnhinweise gelten für diverse Wartungs- und Pflegearbeiten.

Allgemeine Sicherheitshinweise

Bei Arbeiten, bei denen kein Strom erforderlich ist, das Gerät ausschalten und den Netzstecker abziehen.

Netzanschluss
Das Gerät muss an eine einwandfrei funktionierende Steckdose angeschlossen sein. Das Gerät muss geerdet sein.

Arbeitssicherheit
Vor jeglichen Arbeiten an einem Stromkreis oder einem mechanischen Antrieb ist immer der Netzanschluss zu trennen. Das Gerät wird durch Abziehen des Netzsteckers abgeschaltet.

Belüftung
Das Gerät darf nur dann in einer Einbauposition installiert werden, wenn für ausreichende -Lüftung gesorgt ist.

Gefahrenbereiche im Gerät
Der Zugang zum Gerät ist durch Abdeckungen und mechanische Verriegelungen auf sichere Bereiche eingegrenzt. Gefahrenbereiche sind mit Abdeckungen versehen, die nur mit Werkzeug entfernt werden können. Diese Abdeckungen müssen nach Reparaturarbeiten durch den Kundendienst wieder ordnungsgemäß eingebaut werden.

Wartung/Kundendienst
Keine Wartungsarbeiten, die nicht in der Dokumentation beschrieben sind, ausführen.

Reinigung
Vor der Reinigung des Geräts den Netzstecker abziehen. Nur die speziell für das Gerät empfohlenen Teile und Verbrauchsmaterialien benutzen, da im anderen Fall schlechte Laufleistung und Sicherheitsrisiken möglich sind. Keine Reinigungssprays verwenden, da diese sich ggf. entzünden können.

AVISO

Los siguientes son declaraciones generales de aviso aplicables en varias situaciones de servicio o mantenimiento.

Aviso de seguridad general

Apague la máquina y desenchufe el cable de alimentación de la toma de corriente para realizar tareas que no necesiten que se tenga corriente eléctrica en la máquina. El contacto con la corriente eléctrica puede causar lesiones e incluso la muerte.

Fuente de alimentación eléctrica
Este producto debe utilizarse con el tipo de alimentación eléctrica que se indique en la etiqueta o placa de datos técnicos del producto. Este producto debe conectarse a un circuito con puesta a tierra de protección.

Seguridad en el trabajo
Durante este procedimiento antes de trabajar en algún circuito eléctrico o componente impulsor mecánico desconecte el producto de la corriente eléctrica. El dispositivo de desconexión es el cable de alimentación. Desconecte el enchufe de la toma de corriente.

Ventilación
Este producto no debe colocarse en un lugar empotrado al menos que se tenga la ventilación apropiada.

Áreas accesibles por el operador
Este producto está diseñado para limitar el acceso del operador solamente a áreas seguras. El acceso del operador a áreas de peligro se limita mediante cubiertas y protectores que para quitarlos es necesario utilizar alguna herramienta. Asegúrese de volver a colocar las cubiertas y los protectores correctamente después de cada tarea de servicio o mantenimiento.

Mantenimiento/Servicio
No realice ninguna operación de mantenimiento o servicio en este producto si no está descrita en esta documentación de servicio.

Limpieza
Antes de limpiar este producto, desenchúfelo de la toma de corriente. Utilice siempre materiales designados específicamente para este producto; el uso de otros materiales puede producir un funcionamiento defectuoso o crear situaciones de peligro. No utilice limpiadores de aerosol; en ciertas circunstancias pueden llegar a ser inflamables.

Precautions

1. Be sure that all built-in protective devices are in place. Restore any missing protective covers.
2. When re-installing chassis and assemblies, be sure to restore all protective devices, including control knobs and compartment covers.
3. Design Alteration Warning: Never alter or add to the mechanical or electrical design of this equipment, such as auxiliary connectors, etc. Such alterations and modifications will void the manufacturer's warranty.
4. Components, parts, and wiring that appear to have overheated or are otherwise damaged should be replaced with Xerox spare parts. Always determine the cause of damage or overheating, and correct any potential hazards.
5. Observe the original harness routing, especially near sharp edges, AC, and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board.
6. Product Safety Notice: Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they provide could be lost if a replacement component differs from the original. This holds true, even though the replacement may be rated for higher voltage, wattage, etc.
7. Components critical for safety are indicated in the parts list with symbols shown below. Use only replacement components that have the same ratings, especially for flame resistance and dielectric specifications. A replacement part that does not have the same safety characteristics as the original may create shock, fire, or other safety hazards.

Lithium battery precautions

The Main PWBA is provided with a lithium Cell designated BAT1. Observe the following precautions:
There could be a danger of explosion if the battery is subject to forced discharge or reverse voltage.
The battery must only be replaced with the same type.
The battery should only be replaced at a service centre not at a customer location
The replacement battery must be the same type and manufacturer as the original.
Lithium batteries contain substances which are subject to control and should not be opened, crushed or burned during disposal.

Précautions

1. Vérifier que tous les dispositifs de protection intégrés sont en place. Replacer les panneaux de protection manquants.
2. Lors de la réinstallation du châssis et des différentes pièces, veiller à bien replacer tous les dispositifs de protection, y compris les boutons de contrôle et les couvercles de compartiment.
3. Avertissement relatif aux modifications de conception : Ne jamais modifier la structure mécanique ou électrique de cet équipement (en ajoutant, par exemple, des connecteurs auxiliaires, etc.). De telles transformations et modifications annuleraient la garantie du constructeur.
4. Tout composant, pièce ou câblage ayant été exposé à une surchauffe ou endommagé d'une quelconque autre façon doit être remplacé par une pièce Xerox. Toujours déterminer la cause du dommage ou de la surchauffe et éliminer les risque potentiels.
5. Examiner le câblage initial, aux abords notamment des arêtes coupantes, de l'alimentation en courant alternatif et haute tension et toujours s'assurer qu'aucun fil n'est coincé, déplacé ou endommagé. Ne pas modifier l'espacement des composants et de la carte de circuit imprimé.
6. Sécurité produit : Certaines pièces mécaniques et électriques présentent des caractéristiques de sécurité particulières qui peuvent ne pas être évidentes à l'oeil nu. Ces caractéristiques de sécurité et la protection qu'elles assurent risquent de disparaître si un composant de rechange différent du composant d'origine est utilisé. Ceci est vrai même dans le cas où la pièce de rechange serait destinée à un voltage, à un ampérage, etc., supérieur.
7. Les composants essentiels pour la sécurité sont indiqués dans la liste des pièces par les symboles décrits ci-dessous. Utiliser uniquement des composants de rechange présentant les mêmes caractéristiques assignées, surtout en matière de tenue à la flamme et de spécifications diélectriques. Une pièce de rechange ne présentant pas les mêmes caractéristiques de sécurité que la pièce d'origine peut provoquer des accidents : électrocution, incendie, et autres dangers pour la sécurité.

Précautions relatives aux piles au Lithium
La carte PWBA est équipée d'une pile au lithium identifiée BAT1. Observez les précautions suivantes :
Il existe un risque d'explosion si la pile est l'objet d'une alimentation forcée ou d'un voltage inversé.
Une pile ne doit être remplacée que par une de même type.
La pile ne doit être remplacée que dans un Centre de maintenance et non chez le client.
Les piles de remplacement doivent être de même type et fabrication que celles d'origine.
Les piles au Lithium contiennent des substances qui nécessitent des contrôles et ne doivent pas être ouvertes, écrasées ou brûlées.

Precauzioni

1. Accertari che non manchino dispositivi di protezione. Rimettere in sede eventuali coperture di protezione mancanti.
2. Durante l'installazione di coperture e gruppi, accertarsi che siano presenti tutti i dispositivi di protezione, comprese manopole di controllo e coperture nelle diverse aree.
3. Avvertenza: non modificare la struttura meccanica o elettrica della macchina, quali connettori ausiliari, ecc. Eventuali modifiche o alterazioni renderanno nullo il certificato di garanzia del produttore.
4. Componenti, parti e cablaggio che appaiono surriscaldati o danneggiati vanno sostituiti da parti di ricambio Xerox. Stabilire la causa del problema e intervenire in modo adeguato per evitare che si ripresenti.
5. Mantenere il percorso originale del cablaggio, in particolare in prossimità di bordi, per CA e alimentazione elettrica ad alta tensione. Verificare che il cablaggio non sia strozzato, fuori sede o consumato. Non alterare lo spazio tra i componenti e la scheda del circuito stampato.
6. Avviso sulla sicurezza del prodotto: alcuni componenti elettrici e meccanici possiedono delle funzioni di sicurezza non sempre ovvie durante l'ispezione visiva. Queste funzioni possono non essere più attive se un componente viene sostituito con uno diverso dall'originale. Questo vale anche se le parti di ricambio hanno specifiche più elevate, ad esempio, di alta tensione, potenza nominale, ecc.
7. I componenti per la sicurezza più importanti sono riportati nell'elenco delle parti di ricambio con i simboli illustrati qui di seguito. Utilizzare solo componenti con gli stessi valori, in particolare per quanto riguarda i valori di resistenza al calore e le specifiche dielettriche. Una parte di ricambio con funzioni di sicurezza diverse dalla parte originale può causare condizioni di pericolo quali scosse elettriche e incendi.

Precauzioni della batteria al litio
La PWBA (scheda a circuito stampato) principale è fornita di una batteria al litio (BAT1).
Osservare le precauzioni riportate di seguito.
La batteria può esplodere se soggetta ad una forzata discarica o tensione inversa.
Sostituire la batteria ESCLUSIVAMENTE con una dello stesso tipo.
Sostituire la batteria presso un centro di assistenza tecnica e accertarsi che la batteria di sostituzione sia dello stesso tipo e marca dell' originale.
Le batterie al litio contengono sostanze soggette a controllo e non devono essere aperte, frantumate o bruciate durante l' eliminazione.

Vorsichtsmaßnahmen

1. Darauf achten, dass alle Sicherheitsvorrichtungen vorhanden sind. Evtl. fehlende Sicherheitsabdeckungen einbauen.
2. Beim Zusammenbau von Komponenten und Gehäuse alle Sicherheitsvorrichtungen sowie Steuerknöpfe und Abdeckungen installieren.
3. Bauartänderungen: keinerlei Änderung an der mechanischen oder elektrischen Bauart des Geräts, z. B. durch Installation von Zusatzanschlüssen, durchführen. Bei solchen Änderungen wird die Garantie des Herstellers ungültig.
4. Komponenten oder Kabel/Drähte, die überhitzt oder anderweitig beschädigt sind, müssen durch Ersatzteile von Xerox ersetzt werden. Die Ursache einer Überhitzung muss immer gesucht und entsprechende Gefahrenquellen beseitigt werden.

5. Kabelbaum, Netzkabel und Hochspannungskabel besonders in der Nähe scharfer Kanten auf Schäden und Positionsänderungen überprüfen. Der Abstand zwischen Komponenten und der Leiterplatte darf nicht geändert werden.
6. Gerätesicherheit: Einige elektrische und mechanische Komponenten verfügen über bestimmte, nicht sichtbare, Sicherheitsmerkmale. Werden Komponenten durch solche anderer Bauart ersetzt, bieten diese ggf. nicht denselben Gefahrenschutz wie die Originalkomponenten. Das gilt auch dann, wenn die Ersatzteile für eine höhere Spannung ausgelegt sind, o. Ä.
7. Für die Betriebssicherheit wichtige Komponenten sind in der Teileliste mit dem unten gezeigten Symbol gekennzeichnet. Es dürfen nur Ersatzteile mit der gleichen Sicherheitsauslegung, insbesondere mit den gleichen dielektrischen und flammhemmenden Spezifikationen, verwendet werden. Bei Einbau einer Komponente mit einer anderen Sicherheitsauslegung als der des Originals bestehen Stromschlag-/Brand- und weitere Sicherheitsrisiken.

Lithiumbatterie
Das Haupt-PWBA enthält eine Lithiumbatterie (BAT1). Folgende Hinweise beachten:
Bei Rückspannung oder erzwungener Entladung besteht Explosionsgefahr.
Die Batterie darf nur durch eine Batterie gleichen Typs ersetzt werden.
Die Batterie darf nur im Kundendienstzentrum, nicht aber im Haus des Kunden, ersetzt werden.
Die Ersatzbatterie muss vom gleichen Typ und Hersteller sein, wie das Original.
Lithiumbatterien müssen den vorschriftmäßig entsorgt werden.

Precauciones

1. Asegúrese de que todos los dispositivos de protección incorporados están en su sitio. Restaure las cubiertas protectoras que falten.
2. Al reinstalar el chasis y los ensamblajes, asegúrese de restaurar todos los dispositivos de protección, incluyendo mandos de control y cubiertas de compartimientos.
3. Aviso de alteración del diseño: Nunca altere o agregue nada al diseño mecánico o eléctrico de este equipo, como conectores auxiliares, etc. Tales alteraciones y modificaciones anularán la garantía del fabricante.
4. Los componentes, piezas y cables que parezcan haber sufrido sobrecalentamiento o daños de otro tipo deben reemplazarse por piezas de repuesto de Xerox. Siempre determine la causa del daño o sobrecalentamiento y corrija cualquier tipo de riesgo potencial.
5. Observe la ruta original de los mazos de cables, especialmente cerca de bordes afilados, CA y alimentaciones eléctricas de alto voltaje. Siempre inspeccione si los cables están pellizcados, fuera de lugar o pelados. No cambie el espacio entre los componentes y la tarjeta de circuito impreso.
6. Aviso de seguridad del producto: Algunas piezas eléctricas y mecánicas tienen características especiales relacionadas con la seguridad que pueden pasar desapercibidas a una inspección visual. Estas funciones de seguridad y la protección que proporcionan podría perderse si un componente de repuesto difiere del original. Esto es verdadero, aunque la pieza de repuesto admita un voltaje o vatios más altos, etc.
7. Los componentes críticos para la seguridad se indican en la lista de piezas con símbolos mostrados debajo. Use sólo componentes de repuesto que tengan los mismos valores, sobre todo en cuanto a resistencia al fuego y especificaciones dieléctricas. Una pieza de recambio que no tenga las mismas características de seguridad que la original puede producir una descarga, fuego u otros riesgos de seguridad.

Precauciones con la batería de litio.
El PWBA principal tiene una batería de litio denominada BAT1. Observe las precauciones siguientes:
Podría producirse peligro de explosión si la batería se ve sometida a descarga forzada o tensión inversa.
La batería solamente debe cambiarse por otra del mismo tipo.
La batería debe cambiarse solamente en un centro de servicio y no donde el cliente.
Las baterías de litio contienen substancias sujetas a control y no deben abrirse, aplastarse ni quemarse para deshacerse de ellas.

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2. Service Call Procedures

SCP 1 Initial Actions

The Service Call Procedures section is used to identify a suspected problem with the machine.

Start a service call with Initial Actions and end with SCP 6 Final Actions.

Initial Actions are used to gather information of the machine performance.

Procedure

Warning

Switch off the power to the machine and disconnect the power cord from the outlet while performing tasks that do not need the electricity on. Electricity can cause death or injury.

NOTE: Ignore any references in this manual to options not installed on the machine.

NOTE: If the machine is equipped with FAX, do not service or interrupt power until the jobs in the FAX Queue are completed, or the FAXs in the queue may be lost.

1. Take note of symptoms, error messages or error codes.
2. Ask the operator to describe or demonstrate the problem.
3. If the problem is the result of incorrect operator action, refer the operator to the user documentation.
4. Make sure that:
   a. The power cord is connected to the wall outlet and to the machine.
   b. Documents are not loaded.
   c. Paper is loaded correctly and all paper trays and covers are closed.
   d. The telephone line cable is connected correctly between the line socket and the wall jack.
   e. The telephone line is good.
   f. Connection cable between the machine and any computer or computer network is correctly connected and in good condition.
5. Check the machine service log book for any previous actions that may be relevant to the call.
6. Either perform SCP 2 First Call Actions or SCP 3 Normal Call Actions.

SCP 2 First Call Actions

First Call Actions are used for the first service call.

Procedure

Perform the following:

1. Check the machine configuration with the customer. Check that all required hardware and software is installed and / or enabled.
2. Check that all the relevant machine settings are correctly entered.
3. If a fault is present, go to SCP 3 Normal Call Actions. If there is no fault present, go to SCP 6 Final Actions.

SCP 3 Normal Call Actions

Normal Call Actions are used to determine the reason for the service call.

Procedure

NOTE: If an error message appears at any time. Refer directly to the error code tables in 1-1 Error Codes RAP, and perform the procedure.
Perform the Following:
1. Review any defective print or copy samples.
2. If the LCD is completely blank, switch off the machine. Wait 10 seconds. Switch on the machine. If the LCD is still blank, go to 7-6 Malfunction, No Power (LCD or LED).
3. If connected to a network, verify with the customer, that it is permissible to disconnect the machine from the network.
4. Check and record the total number of images made by the machine.
5. Make a note of any parts requiring cleaning or replacement, refer to 7-1 Preventative Maintenance.
6. Go to SCP4 Fault Analysis.

SCP 4 Fault Analysis

Fault Analysis is used to identify a fault.

Procedure

Exercise the machine in all modes until the fault is determined.
Perform the following:
- If an error message is displayed, go to 7-2 Diagnostics.
- If an image defect is evident, go to 7-3 Scanner.
- If there are problems in sending or receiving FAXs, go to 7-4 FAX.
- If a print defect is evident, go to 7-5 Print Quality.
- If the machine is malfunctioning, go to 7-6 Malfunction.
- When the fault is corrected, go to SCP 5 Final Actions.

SCP 5 Final Actions

Final Actions are used to evaluate the total operation of the system and to identify the actions required to complete the service call.

Procedure

Complete the following:
- Perform any remaining cleaning or replacement actions, referred to in SCP 3.
- Exercise the machine in all modes, making copies and / or prints from all trays, utilising the ADF and the document glass.
- If necessary, make a proof copy of a customer document.
- Remove and destroy any copies of test patterns.
- Provide customer training if required.
- If any of the customers selections were changed, return them to the customers preferred settings.
- Complete all administrative tasks.

Ensure the machine and service area are clean before leaving the customer premises.

3. Precautions

Follow these ESD precautions to prevent equipment damage.

1. Certain semiconductor devices can be easily damaged by static electricity. Such components are commonly called “Electrostatically Sensitive (ES) Devices”, or ESDs. Examples of typical ESDs are: integrated circuits, some field effect transistors, and semiconductor “chip” components.

   The techniques outlined below should be followed to help reduce the incidence of component damage caused by static electricity.

CAUTION

•Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

2. Before handling a semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by using the standard Xerox ESD protection kit, which should be removed for your personal safety reasons prior to applying power to the machine.
3. After removing an electrical assembly equipped with ESDs, place the assembly on the conductive mat of the ESD kit, to prevent electrostatic charge buildup in the vicinity of the assembly.
4. Use only a grounded tip soldering iron to solder or de-solder ESDs.
   Use only an “anti-static” solder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESDs.
5. Do not use Freon-propelled chemicals. When sprayed, these can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective packaging until immediately before installing it. Most replacement ESDs are packaged with all leads shorted together by conductive foam, aluminum foil, or a comparable conductive material.
7. Immediately before removing the protective shorting material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.
8. Maintain continuous electrical contact between the ESD and the assembly into which it will be installed, until completely plugged or soldered into the circuit.
9. Minimize bodily motions when handling unpacked replacement ESDs. Normal motions, such as the brushing together of clothing fabric and lifting one’s foot from a carpeted floor, can generate static electricity sufficient to damage an ESD.

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4. Specifications

4-1 Printer

Printing method	Laser scanning unit + electro photography
Print speed	12 PPM (Letter size, 5% area coverage)
Resolution	True 600 X 600 DPI
Emulation	PCL6
Operation system	Windows 95/98/2000/NT 4.0/Win-ME
Interface	IEEE1284 (Nibble/ECP)
	USB (Windows 98/2000 only, without HUB mode)
Source of Light	Laser diode (LSU)
Feed method	Cassette type and multi-purpose tray
Feed direction	FISO (front-in side-out)
Paper	Size
	Normal paper: A4,letter,legal,B5,
	Executive, A5
	Envelope: normal envelope
	Length: 149 to 356mm (5.87 to 14 inches)
	Width: 100 to 216mm (3.94 to 8.5 inches)
	Weight: For MPF, 60 to 90gsm (16 to 24 bond/xerographic)
	For cassette, 60-163 gsm (16 to 40 bond/xerographic)
Paper capacity	MPF: 100 sheets (based on 75gsm, 20 lb.)
	Cassette: 550 sheet (based on 75gsm, 20 lb.)
Paper stacker capacity	Face Down: 250 Sheets (75gsm, 20 lb.)
Warming up time	Stand-by: 20 seconds
First printing time	Power save mode: 30 seconds
Minimum PC spec	Pentium II 300 MHz, 64MB RAM
Duplex printing	Yes

4-2 Facsimile

Machine type	Desk top
Applicable line	G3 PSTN
Compatibility	ITU Group 3
Data coding	MH/MR/MMR/JPEG (colour FAX transfer)
FAX Mode	Standard, fine, super fine, halftone
Modem speed	33,600 bps
Transmission speed	Approx. 3 sec.
Effective scanning width	208 mm (8.2 inches)
Memory	4 M Byte
Halftone	256 levels
Automatic document feeder	30 pages (75gsm)
LCD	16 characters x 2 lines

4-3 Scanner

Operation System	Windows 95/98/2000/NT 4.0/Win-ME
Interface	IEEE 1284 (ECP Support), USB (without HUB Mode)
Compatibility	TWAIN standard, WIA
Device	Color CCD (charge coupled device) module
Scan width	Max.: 216 mm (8.5 inches), effective: 208 mm (8.2 inches)
Color depth	Internal 36 bit, external 24 bit
Optical resolution (H x V)	600 x 600 dpi
Interpolation resolution	Max. 4800 dpi
Pre-scan mode:	Yes, 75 dpi
Scan speed	Mono: 1.25 msec/line, Color: 5 msec/line
	(Pentium II 300MHz, 64MB Memory)

4-4 Copier

Copy mode	B/W
Scanner type	CCD, Flat-bed with automatic document feeder
Maximum original size	A4/letter
Maximum paper size	A4/letter/legal
Maximum scan width	216 mm (8.5 inches)
Optical resolution	600 x 600 dpi
Copy quality	Text/photo/mixed
Paper type selection	Plain, label, card stock, index, transparency
Mono copy speed (Note 1)	Platen (SDMP): 12 cpm
	ADF (SDMP): 12 cpm
	ADF (MDPS): text/mixed:6.6 cpm, photo: 3.3cpm
Effective print-edge margin	Top: 4mm, bottom: 4mm, each side: 4mm (0.16 inches)
Multi copy	999 pages (memory multi copy: mono fast mode only)
Zoom Rate	Platen: 25% ~ 400% (1% step)
	ADF: 25% ~ 100% (1% step)
Fixed reduction/enlargement settings	100%, autofit, clone
Contrast control	5 steps
FCOT (platen/ADF)	9.8sec(300 dpi), 18sec(600dpi)

***Note 1**:*

Speed claims based on the test chart: Printed spdtst.sam(mono)/letter size.

SDMP = single document multiple printout

MDSP = multiple document single printout

4-5 Power Supply

Power rating	AC 110V to 127V ± 15% 50/60Hz ± 3Hz,
	AC 220V to 240V ± 15% 50/60Hz ± 3Hz
Power consumption	Average. 300W
Power saving consumption	Average. 30W

4-6 Dimension

Machine size (W x D x H)	554.5x 433.9 x 459.1 mm (21.8 x 17 x 18 inches)
Machine weight	About 23 Kg (50.6 pounds) with CRU

4-7 Packaging

Power cord	1ea (USA standard, ivory)
IEEE 1284 cable	No
USB cable	1ea
CD-ROM	1ea
Cartridge	Drum CRU 1EA, toner CRU 1EA
Manual	1vol.

4-8 Environmental Condition

Absolute storage	Temperature-	20 to 40 degrees C (68 to 104 degrees F)
	Humidity	10% RH to 95% RH
Recommended operating condition	Temperature	6 to 30 degrees C (43 to 86 degrees F)
	Humidity	30% RH to 70% RH

4-9 Machine Life

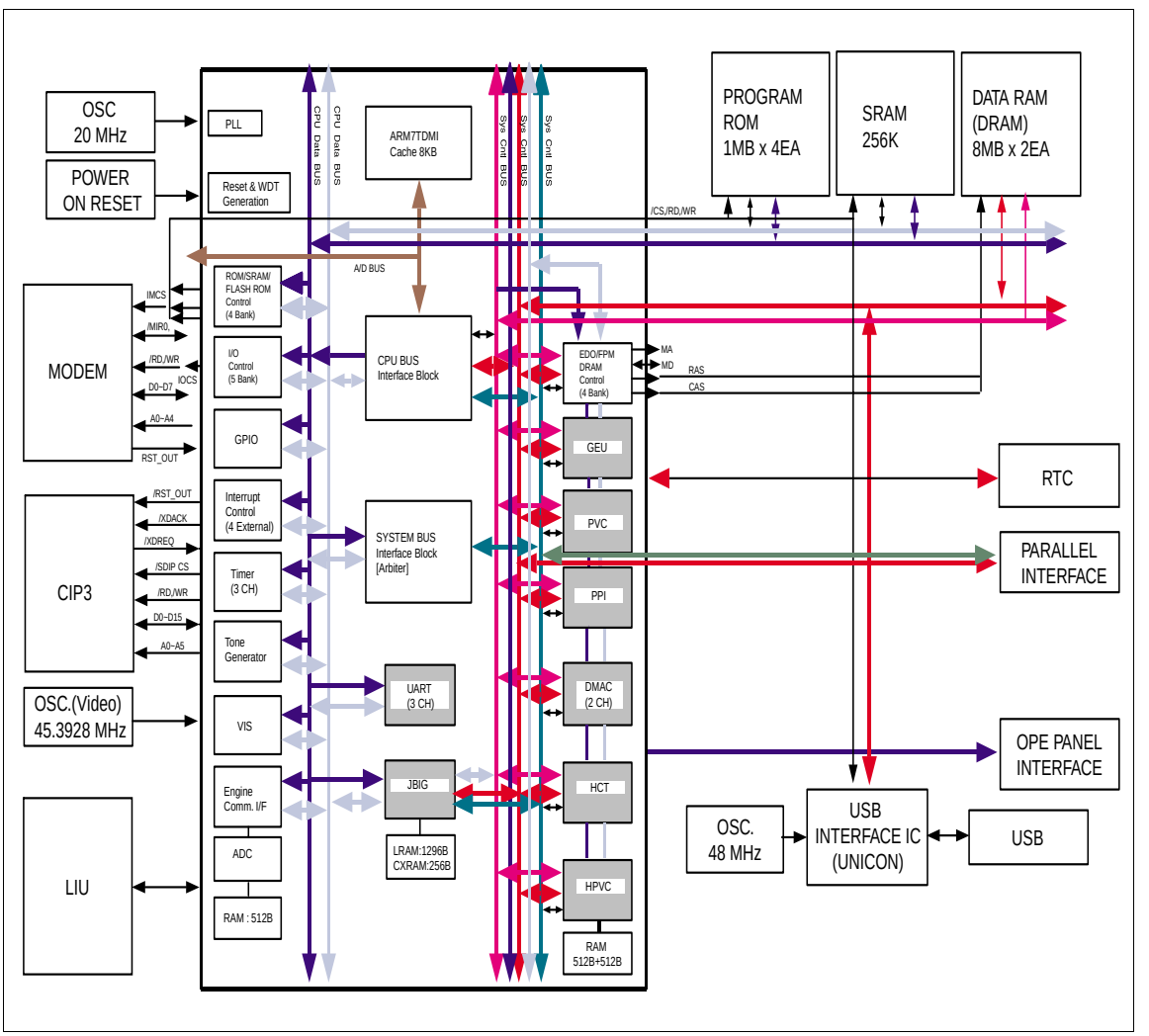
Product life	5 years
Product life in pages	150,000 printing pages (A4 size, 5% area coverage)
Maximum monthly duty cycle	2,500 printing pages (A4 size, 5% area coverage)

5. Circuit Description

5-1 Main PBA

5-1-1 Summary

The main circuit that consists of CPU, MFP controller (built-in 32bit RISC processor core: ARM7TDMI) including various I/O device drivers, system memory, scanner, printer, motor driver, PC I/F, and FAX transceiver controls the whole system. The entire structure of the main circuit is as follows:



Block Diagram

5-2 Circuit Operation

5-2-1 Clock

1) System Clock

Device	Oscillator
Frequency	20MHz

• KS32C61200 RISC PROCESSOR: drives PLL internally and uses 60MHz.

2) Video Clock

Device	Oscillator
Frequency	45.3928 MHz

• Fvd = ((PAPER 1SCAN LINE sending time * SCAN effective late /1SCAN LINE DOT #)*4
=(600dpi*600dpi*58.208mm/s*216mm*4)/(25.4mm*25.4mm*76.1%) = 28.697MHz.

•PAPER 1SCAN LINE sending time = SCAN LINE interval/DOCUMENT SPEED (58.208mm/S)
•1SCAN LINE DOT # = MAZ SCAN distance (216mm) *DOT # per 1mm.

3)USB Clock

Device	Oscillator
Frequency	48MHz

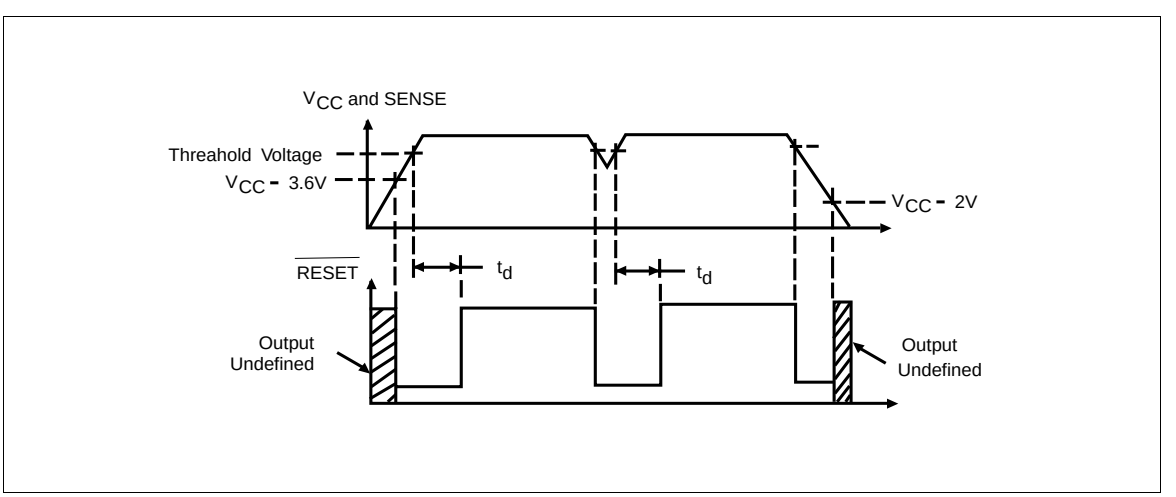
5-2-2 Power on/off Reset

1) Signal Operation

Input Signal	+5V Power Line (VCC)
Output Signal	KS32C61200 nRESET 29F800B nRESET
• Power on/off detect	VCC RISING/FALLING 4.5°¦4.6V

Reset time (Td) 1.48 to1.52ms
• Td = (Ct*V sensing)/I charge (...Ct = 33µF, Is = 100µA)

2) Timing Chart



5-2-3 Risc Microprocessor

1) RISC microprocessor pin & interface

No	Pin Name	I/O	Reset Value	Description	PAD
1	DATA0	I/O	Input	CPU Data Bus 0	PHBTT8, 8 mA
2	DATA1	I/O	"	CPU Data Bus 1	"
3	DATA2	I/O	"	CPU Data Bus 2	"
4	DATA3	I/O	"	CPU Data Bus 3	"
5	Vsso	Vss	-	5 V Gnd	
6	DATA4	I/O	Input	CPU Data Bus 4	PHBTT8, 8 mA
7	Vddo	Vdd	-	5 V	
8	DATA5	I/O	Input	CPU Data Bus 5	PHBTT8, 8 mA
9	DATA6	I/O	"	CPU Data Bus 6	"
10	DATA7	I/O	"	CPU Data Bus 7	"
11	DATA8	I/O	"	CPU Data Bus 8	"
12	Vssi	Vss	-	3.3 V Gnd	
13	DATA9	I/O	Input	CPU Data Bus 9	PHBTT8, 8 mA
14	Vddi	Vdd		3.3 V	
15	DATA10	I/O	Input	CPU Data Bus 10	PHBTT8, 8 mA
16	DATA11	I/O	"	CPU Data Bus 11	"
17	DATA12	I/O	"	CPU Data Bus 12	"
18	DATA13	I/O	"	CPU Data Bus 13	"
19	Vsso	Vss	-	5 V Gnd	
20	DATA14	I/O	Input	CPU Data Bus 14	PHBTT8, 8 mA
21	DATA15	I/O	"	CPU Data Bus 15	"
22	DATA16	I/O	"	CPU Data Bus 16	"
23	DATA17	I/O	"	CPU Data Bus 17	"
24	Vsso	Vss	-	5 V Gnd	
25	DATA18	I/O	Input	CPU Data Bus 18	PHBTT8, 8 mA
26	DATA19	I/O	"	CPU Data Bus 19	"
27	DATA20	I/O	"	CPU Data Bus 20	"
28	DATA21	I/O	"	CPU Data Bus 21	"
29	Vddi	Vdd	-	3.3 V	
30	DATA22	I/O	Input	CPU Data Bus 22	PHBTT8, 8 mA

No	Pin Name	I/O	Reset Value	Description	PAD
31	Vssi	Vss	-	3.3 V Gnd	
32	DATA23	I/O	Input	CPU Data Bus 23	PHBTT8, 8 mA
33	DATA24	I/O	"	CPU Data Bus 23	"
34	Vddp	Vdd	-	5 V	
35	DATA25	I/O	Input	CPU Data Bus 23	PHBTT8, 8 mA
36	Vssp	Vss	-	5 V Gnd	
37	DATA26	I/O	Input	CPU Data Bus 23	PHBTT8, 8 mA
38	DATA27	I/O	"	CPU Data Bus 23	"
39	Vddo	Vdd	-	5 V	
40	DATA28	I/O	Input	CPU Data Bus 23	PHBTT8, 8 mA
41	Vsso	Vss	-	5 V Gnd	
42	DATA29	I/O	Input	CPU Data Bus 23	PHBTT8, 8 mA
43	DATA30	I/O	"	CPU Data Bus 23	"
44	DATA31	I/O	"	CPU Data Bus 23	"
45	Vssi	Vss	-	3.3 V Gnd	
46	LFIA0 / OP4	O	H	Line Feed Motor Phase A	PHOB4, 4mA
47	Vddi	Vdd	-	3.3 V	
48	LFIA1 / OP5	O	H	Line Feed Motor Phase /A	PHOB4, 4mA
49	LFIB0 / OP6	O	"	Line Feed Motor Phase B	"
50	LFIB1 / OP7	O	"	Line Feed Motor Phase /B	"
51	TnRST	I		TAP Controller Reset	PHIT
52	TMS	I		TAP Controller Mode Sel	PHIT
53	TDI	I		TAP Controller Data In	"
54	TCK	I		TAP Controller Clock	"
55	TDO	O		TAP Controller Data Out	PHOB4
56	AVdd	Vcca	-	Analog 3.3 V	
57	AVin[0]	I	-	Analog Input 0	PICA
58	AVin[1]	I	-	Analog Input 1	"
59	AVss	Vssa	-	Analog Gnd	
60	AVssAVin[2]	I	-	Analog Input 2	PICA

No	Pin Name	I/O	Reset Value	Description	PAD
61	AVref	I	-	Analog Positve Reference	PICA
62	nIOCS0	O	H	IO Chipselect 0	PHOB4, 4 mA
63	nIOCS2/ToneOut	O	"	IO Chipselect 2 / ToneOut	"
64	nIOCS3/BufferSel	O	"	IO Chipselect 2 / BufferSel	"
65	Vssi	Vss	-	3.3 V Gnd	
66	nSELECTIN	I	-	Select Input	PHIL, ST
67	nFAULT	O	H	Fault for Error Condition	PHOB8, 8 mA
68	nAUTOFD	I	-	Auto Feed	PHIL, ST
69	nINIT	I	-	Initialization	"
70	SELECT	O	L	Parallel Port Select	PHOB8, 8 mA
71	Vddp	Vdd	-	5 V	
72	PERROR	O	L	Paper Error	PHOB8, 8 mA
73	BUSY	O	"	Parallel Port Busy	PHOB8, 8 mA
74	nACK	O	H	Parallel Port Acknowledge	PHOB8, 8 mA
75	Vssp	Vss	-	5 V Gnd	
76	PD0	I/O	Input	Parallel Port Data 0	PHBTT8, 8 mA
77	PD1	I/O	"	Parallel Port Data	"
78	Vddi	Vcca	-	3.3 V	for Ring OSC
79	PD2	I/O	Input	Parallel Port Data	PHBTT8, 8 mA
80	PD3	I/O	"	Parallel Port Data	"
81	Vssi	Vssa	-	3.3 V Gnd	for Ring OSC
82	PD4	I/O	Input	Parallel Port Data	PHBTT8, 8 mA
83	PD5	I/O	"	Parallel Port Data	"
84	Vddo	Vdd	-	5 V	
85	PD6	I/O	Input	Parallel Port Data	PHBTT8, 8 mA
86	PD7	I/O	"	Parallel Port Data	"
87	nSTROBE	I	-	Data Strobe	PHIL, ST
88	Vsso	Vss	-	5 V Gnd	
89	RxD1 / CTin[2]	I	-	Uart 1 Rx Data	PHIL, ST
90	TxD1	O	H	Uart 1 Tx Data	PHOB4, 4 mA

No	Pin Name	I/O	Reset Value	Description	PAD
91	nDREQ1/RxD2/CTin[1]	I	-	DMA Request1/Uart 2 RxD	PHIL, ST
92	nDMACK1 / TxD2	O	H	DMA Ack1/Uart 2 TxD	PHOB4, 4 mA
93	nIOCS1 / nIOCS5	O	"	IO CS1 / DMA IO1 CS	"
94	Vddi	Vdd	-	3.3 V	
95	nDREQ0 /IP1/CTin[0]	I	-	DMA Request0 / Input Port	PHIL, ST
96	nDMACK0 / OP1	O	H	DMA Ack1 / Out Port	PHOB4, 4 mA
97	nIOCS4 / OP2	O	"	DMA IO0 CS / Out Port	"
98	EIRQ0	I	-	External Interrupt 0	PHILU50, ST
99	EIRQ1	I	-	External Interrupt 1	"
100	EIRQ2	I	-	External Interrupt 2	"
101	nWait / EIRQ3	I	-	Wait Request / Ex. IRQ 3	"
102	Vssi	Vss	-	3.3 V Gnd	
103	VCLK	I	-	Video Clock Input	PHIC
104	Vddi	Vdd	-	3.3 V	
105	IP[7] / nFSYNC	I	-	Input Port / Frame Sync	PHIL, ST
106	nLSYNC	I	-	Line Sync	"
107	OP[8] / nPRINT	O	H	Out Port / Print Start	PHOB4, 4 mA
108	Vssi	Vss	-	3.3 V Gnd	
109	VDO	O	H	Video Data Output	PHOB16, 16mA
110	Vsso	Vss	-	5 V Gnd	
111	CCLK / PWM[0]	O	H	Com. Clock / PWM [0]	PHOB4, 4 mA
112	nEPRDY / RxD0	I	-	Engine Power Ready / Uart 0 Rx Data	PHIL, ST
113	nCBSY / TxD0	O	H	Command Busy / Uart 0 Tx Data	PHOB4, 4 mA
114	nEMSG / PWM[1]	I/O	Input	Eng. Message / PWM [1]	PHBLT4,ST,4mA
115	nEBSY / nLsuReady	I	-	Eng. Busy / LSU Ready	PHIL, ST
116	nCMSG / PWM[2]	O	H	Com. Busy / PWM [2]	PHOB4, 4 mA
117	Vddo	Vdd	-	5 V	
118	nDRAMCAS0	O	L	DRAM Cas Strobe 0	PHOB8, 8 mA
119	nDRAMCAS1	O	"	DRAM Cas Strobe 1	"
120	nDRAMCAS2	O	"	DRAM Cas Strobe 2	"

No	Pin Name	I/O	Reset Value	Description	PAD
121	nDRAMCAS3	O	L	DRAM Cas Strobe 3	PHOB8, 8 mA
122	Vsso	Vss	-	5 V Gnd	
123	nDRAMOE	O	H	DRAM Data Out Enable	"
124	nDRAMWE	O	H	DRAM Data Write Enable	"
125	Vssi	Vss	-	3.3 V Gnd	
126	nDRAMRAS0	O	L	DRAM Ras Strobe 0	PHOB8, 8 mA
127	Vddi	Vdd	-	3.3 V	
128	nDRAMRAS1	O	L	DRAM Ras Strobe 1	PHOB8, 8 mA
129	nDRAMRAS2	O	"	DRAM Ras Strobe 2	"
130	nDRAMRAS3	O	"	DRAM Ras Strobe 3	"
131	Vsso	Vss	-	5 V Gnd	
132	DRAMD0	I/O	Input	DRAM Data Bus 0	PHBTT12, 12mA
133	Vddo	Vdd	-	5 V	
134	DRAMD1	I/O	Input	DRAM Data Bus 1	PHBTT12, 12mA
135	DRAMD2	I/O	"	DRAM Data Bus 2	"
136	DRAMD3	I/O	"	DRAM Data Bus 3	"
137	DRAMD4	I/O	"	DRAM Data Bus 4	"
138	Vsso	Vss	-	5 V Gnd	
139	DRAMD5	I/O	Input	DRAM Data Bus 5	PHBTT12, 12mA
140	DRAMD6	I/O	"	DRAM Data Bus 6	"
141	DRAMD7	I/O	"	DRAM Data Bus 7	"
142	Vssi	Vss	-	3.3 V Gnd	
143	DRAMD8	I/O	Input	DRAM Data Bus 8	PHBTT12, 12mA
144	Vddi	Vdd	-	3.3 V	
145	DRAMD9	I/O	Input	DRAM Data Bus 9	PHBTT12, 12mA
146	DRAMD10	I/O	"	DRAM Data Bus 10	"
147	DRAMD11	I/O	"	DRAM Data Bus 11	"
148	Vssp	Vss	-	5 V Gnd	
149	DRAMD12	I/O	Input	DRAM Data Bus 12	PHBTT12, 12mA
150	Vddp	Vdd	-	5 V	

No	Pin Name	I/O	Reset Value	Description	PAD
151	DRAMD13	I/O	Input	DRAM Data Bus 13	PHBTT12, 12mA
152	DRAMD14	I/O	"	DRAM Data Bus 14	"
153	DRAMD15	I/O	"	DRAM Data Bus 15	"
154	DRAMD16	I/O	"	DRAM Data Bus 16	"
155	Vsso	Vss	-	5 V Gnd	
156	DRAMD17	I/O	Input	DRAM Data Bus 17	PHBTT12, 12mA
157	Vddo	Vdd	-	5 V	
158	DRAMD18	I/O	Input	DRAM Data Bus 18	PHBTT12, 12mA
159	DRAMD19	I/O	"	DRAM Data Bus 19	"
160	DRAMD20	I/O	"	DRAM Data Bus 20	"
161	DRAMD21	I/O	"	DRAM Data Bus 21	"
162	Vssi	Vss	-	3.3 V Gnd	
163	DRAMD22	I/O	Input	DRAM Data Bus 22	PHBTT12, 12mA
164	Vddi	Vdd	-	3.3 V	
165	DRAMD23	I/O	Input	DRAM Data Bus 23	PHBTT12, 12mA
166	DRAMD24	I/O	"	DRAM Data Bus 24	"
167	DRAMD25	I/O	"	DRAM Data Bus 25	"
168	DRAMD26	I/O	"	DRAM Data Bus 26	"
169	Vsso	Vss	-	5 V Gnd	
170	DRAMD27	I/O	Input	DRAM Data Bus 27	PHBTT12, 12mA
171	Vddo	Vdd	-	5 V	
172	DRAMD28	I/O	Input	DRAM Data Bus 28	PHBTT12, 12mA
173	DRAMD29	I/O	"	DRAM Data Bus 29	"
174	DRAMD30	I/O	"	DRAM Data Bus 30	"
175	DRAMD31	I/O	"	DRAM Data Bus 31	"
176	Vsso	Vss	-	5 V Gnd	
177	DRAMA0	O	L	DRAM Address Bus 0	PHOB8, 8 mA
178	DRAMA1	O	"	DRAM Address Bus 1	"
179	DRAMA2	O	"	DRAM Address Bus 2	"
180	DRAMA3	O	"	DRAM Address Bus 3	"

No	Pin Name	I/O	Reset Value	Description	PAD
181	DRAMA4	O	L	DRAM Address Bus 4	PHOB8, 8 mA
182	Vsso	Vss	-	5 V Gnd	
183	DRAMA5	O	"	DRAM Address Bus 5	"
184	DRAMA6	O	"	DRAM Address Bus 6	"
185	DRAMA7	O	"	DRAM Address Bus 7	"
186	Vddo	Vdd	-	5 V	
187	DRAMA8	O	L	DRAM Address Bus 8	PHOB8, 8 mA
188	Vsso	Vss	-	5 V Gnd	
189	DRAMA9	O	L	DRAM Address Bus 9	PHOB8, 8 mA
190	DRAMA10	O	"	DRAM Address Bus 10	"
191	DRAMA11	O	"	DRAM Address Bus 11	"
192	Vssi	Vss	-	3.3 V Gnd	
193	nROMCS0	O	H	ROM Chip Select 0	PHOB4, 4 mA
194	Vddi	Vdd	-	3.3 V	
195	nROMCS1	O	H	ROM Chip Select 1	PHOB4, 4 mA
196	nROMCS2	O	"	ROM Chip Select 2	"
197	nROMCS3	O	"	ROM Chip Select 3	"
198	nROMRD	O	"	ROM or IO Read	PHOB8, 8 mA
199	Vssp	Vss	-	5 V Gnd	
200	nROMWR	O	H	ROM or IO Write	PHOB8, 8 mA
201	Vddp	Vdd	-	5 V	
202	ADDR2	O	L	Address Bus 2 for ROM	PHOB8, 8 mA
203	ADDR3	O	"	Address Bus 3 for ROM	"
204	ADDR4	O	"	Address Bus 4 for ROM	"
205	Vsso	Vss	-	5 V Gnd	
206	ADDR5	O	L	Address Bus 5 for ROM	PHOB8, 8 mA
207	ADDR6	O	"	Address Bus 6 for ROM	"
208	ADDR7	O	"	Address Bus 7 for ROM	"
209	Vssi	Vss	-	3.3 V Gnd	
210	ADDR8	O	L	Address Bus 8 for ROM	PHOB8, 8 mA

No	Pin Name	I/O	Reset Value	Description	PAD
211	ADDR9	O	L	Address Bus 9 for ROM	PHOB8, 8 mA
212	Vddo	Vdd	-	5 V	
213	ADDR10	O	L	Address Bus 10 for ROM	PHOB8, 8 mA
214	Vsso	Vss	-	5 V Gnd	
215	ADDR11	O	L	Address Bus 11 for ROM	PHOB8, 8 mA
216	ADDR12	O	"	Address Bus 12 for ROM	"
217	ADDR13	O	"	Address Bus 13 for ROM	"
218	ADDR14	O	"	Address Bus 14 for ROM	"
219	Vsso	Vss	-	5 V Gnd	
220	ADDR15/CTOut[0]	O	L	Address Bus 15 for ROM	PHOB8, 8 mA
221	ADDR16/CTOut[1]	O	"	Address Bus 16 for ROM	"
222	ADDR17/CTOut[2]	O	"	Address Bus 17 for ROM	"
223	ADDR18/CTOut[3]	O	"	Address Bus 18 for ROM	"
224	Vsso	Vss	-	5 V Gnd	
225	ADDR19/CTOut[4]	O	L	Address Bus 19 for ROM	PHOB8, 8 mA
226	ADDR20/CTOut[5]	O	"	Address Bus 20 for ROM	"
227	ADDR21/CTOut[6]	O	"	Address Bus 21 for ROM	"
228	ADDR22/CTOut[7]	O	"	Address Bus 22 for ROM	"
229	Vddo	Vdd	-	5 V	
230	ADDR23/PTOut	O	L	Address Bus 23 for ROM	PHOB8, 8 mA
231	Vsso	Vss	-	5 V Gnd	
232	TESTSE	I	-	Scan Enable :Tied to Gnd	PHILD50, ST
233	TM	I	-	Test Mode :Tied to Gnd	"
234	Vddi	Vcca	-	3.3 V	for PLL
235	MCLK	I	-	Master Clock	PHIC
236	Vssi	Vssa	-	3.3 V Gnd	for PLL
237	FILTER	O	-	Charge Pump Out : Capacitor is connected	POBA
238	CPUTEST	I	-	CPU Test Mode : Tied to Gnd	PHILD50, ST
239	nRESET	I	-	Reset Input	PHIL, ST
240	nRSTOUT	O	L	Reset Output	PHOB8, 8 mA

5-2-4 Program ROM (Flash Memory) Control

1) Device

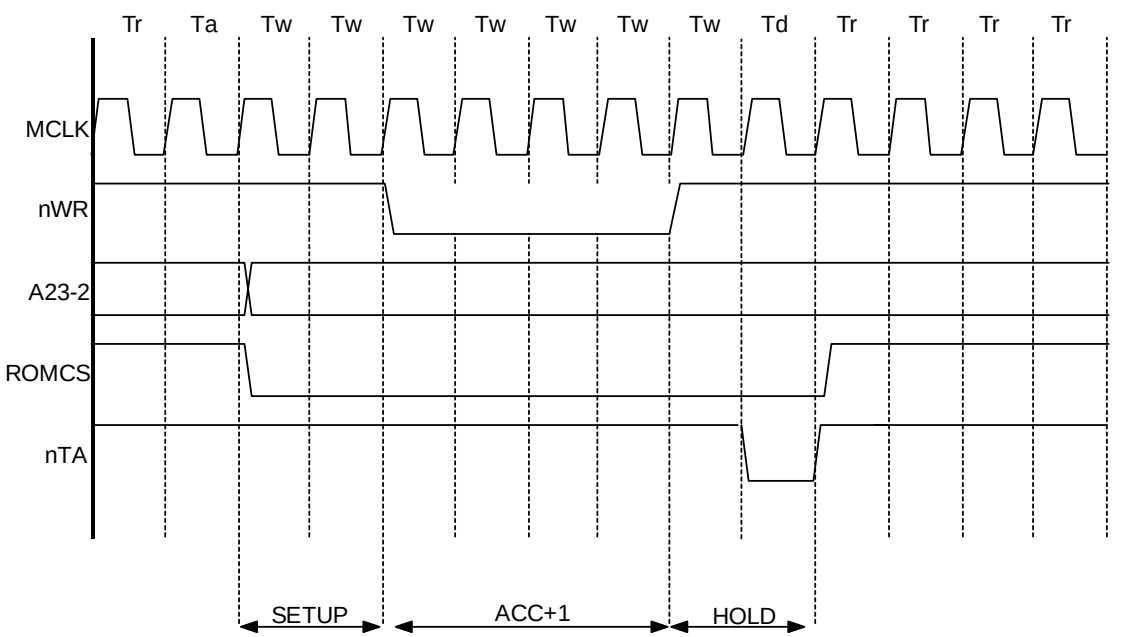
Type No.	AM29F800B
Capacity	4 Mbyte (512K * 16BITS * 4)

2) Programming

Before assembly	EPROM programmer or programming at the factory
After assembly	Download from PC

3) Operating Principle

When the RCSO(ROM CHIP SELECT) signal is activated from the CPU after the POWER is ON, it activates RD SIGNAL and reads the DATA(HIGH/LOW) stored in the FLASH MEMORY to control the overall system. The FLASH MEMORY may also write. When turning the power on, press and hold the key (power switch) for 2 - 3 seconds, then the LED will scroll and the PROGRAM DOWNLOAD MODE will be activated. In this mode, you can download the program through the parallel port.



Write Timing Diagram for Two Beat Burst Cycle

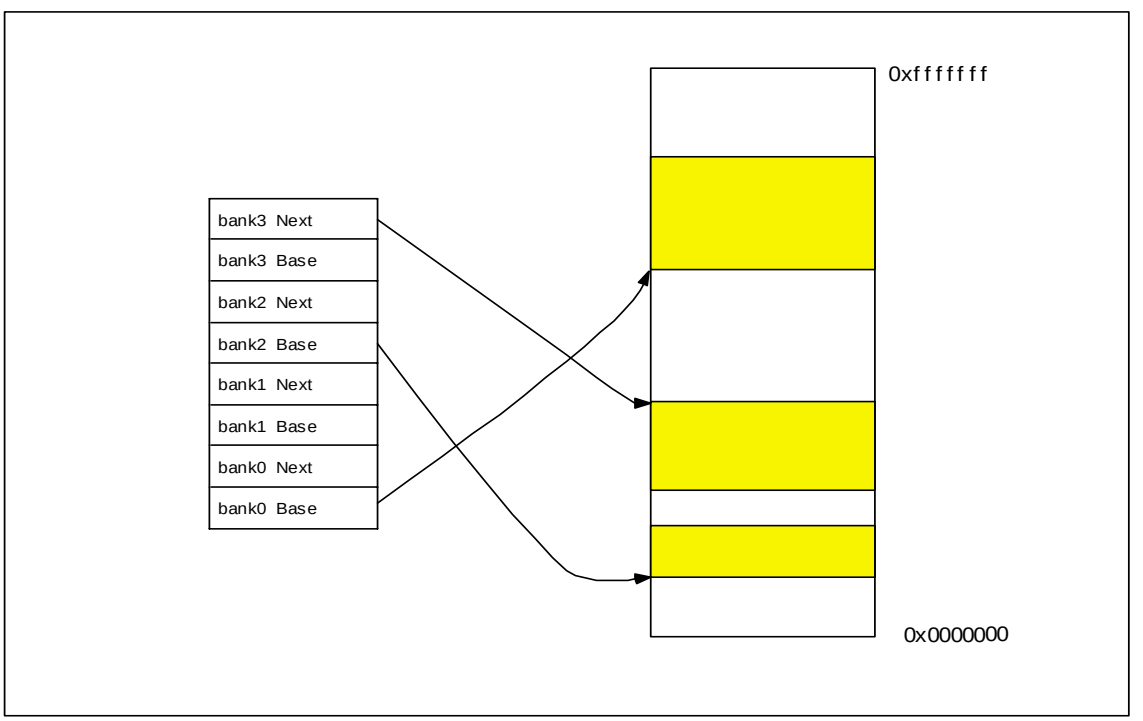
5-2-5 Dram Control

1) Device

Type No.	K4E6411D EDO type
Capacity	4Mbytes (1M*16BITS*2)

2) Operating Principle

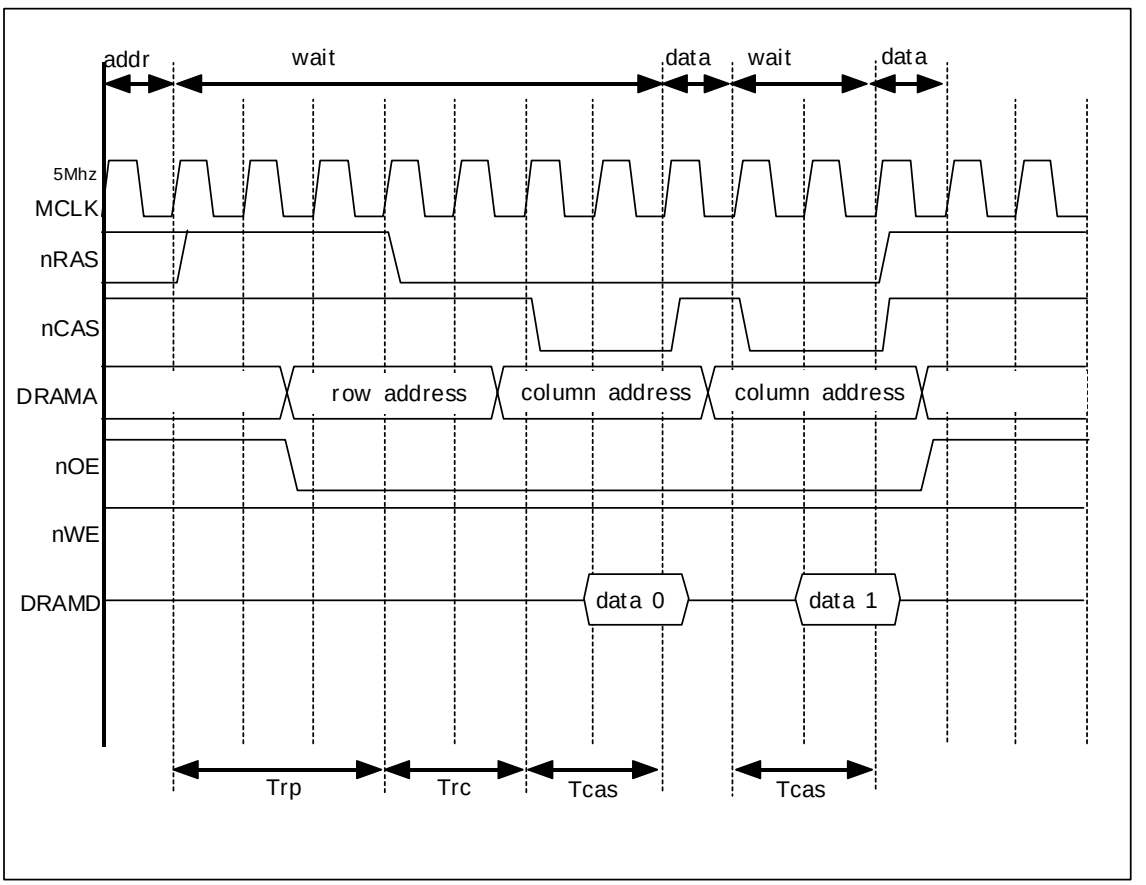
DRAM can either read or write. The data can be stored in the DRAM only when the power is on. It stores data white the CPU processes data. The address to read and write the data is specified by RAS SIGNAL and CAS SIGNAL.DRAMWE*SIGNAL is activated when writing data and DRAMOE*SIGNAL, when reading. You can expand up to 64MBYTE of DRAM in this system.



DRAM Bank Configuration

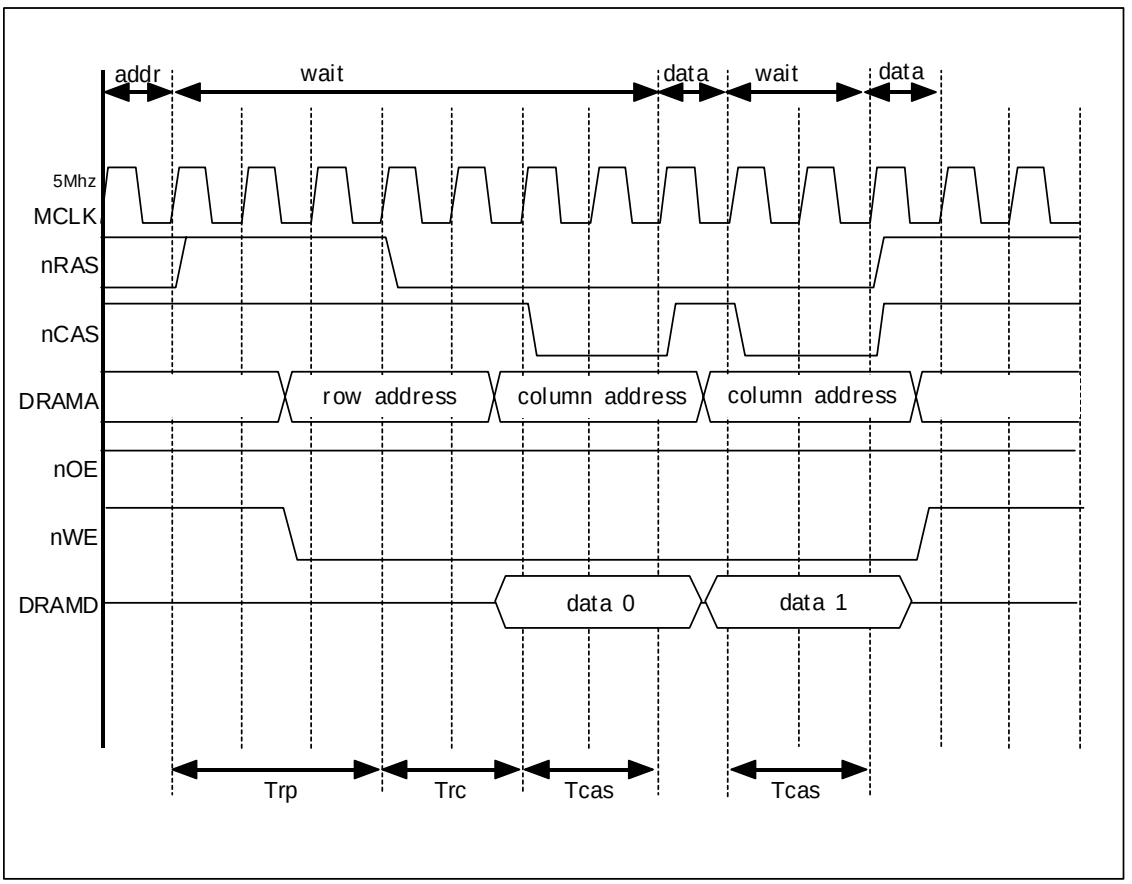
5-2-5-1 FPM DRAM Reading Timing

Fast Page Mode DRAM can access the page mode. It can read consecutive cells by accessing the page mode while accessing the burst. For FPM DRAM, the data are valid only when the nCAS is active.
While configuring the software, you must set the timing register of SFR considering the clock speed and the DRAM spec.



FPM Read Timing Diagram

5-2-5-2 FPM DRAM Write Timing



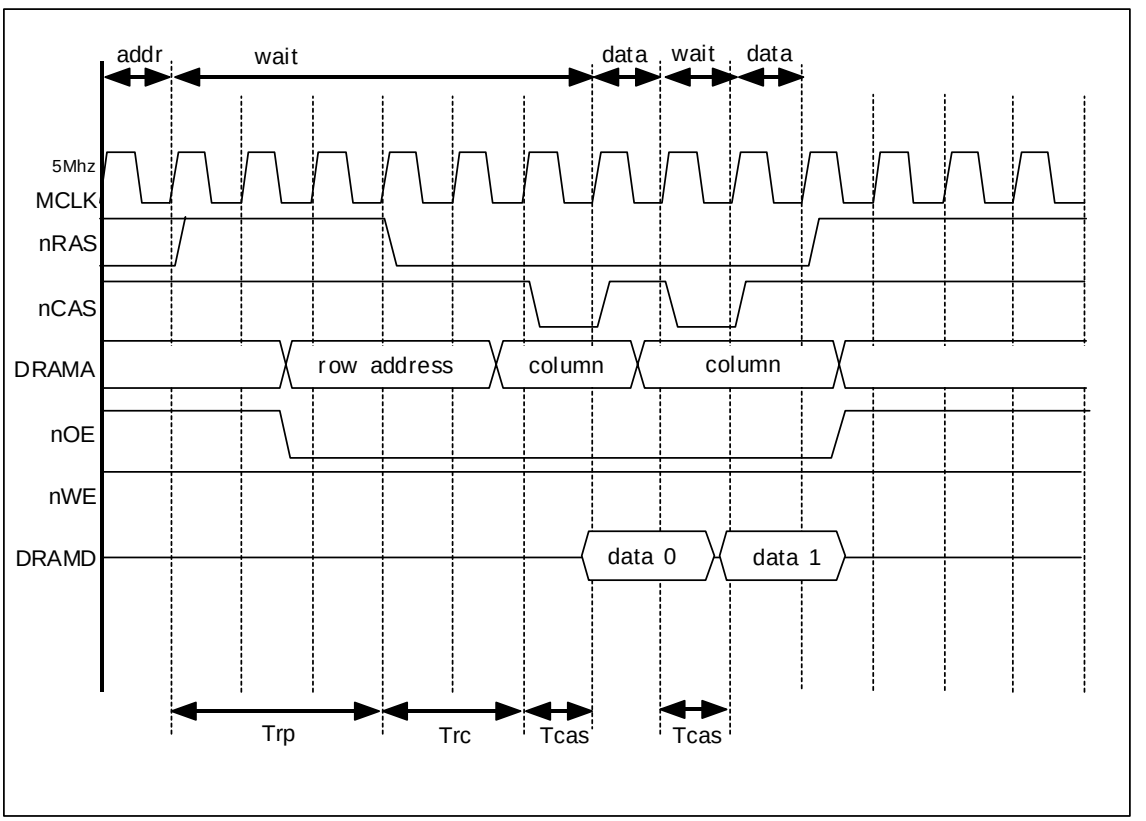
FPM Write Timing Diagram

clock	type	Trp		Trc		Tcas	
		cycle #	register	cycle #	register	cycle #	register
58Mhz	40 ns FPM	2	0x1	2	0x1	1	0x0
	50 ns FPM	2	0x1	2	0x1	1	0x0
	60 ns FPM	3	0x2	2	0x1	2	0x1
	70 ns FPM	3	0x2	2	0x1	2	0x1

SFR Values Example for FPM

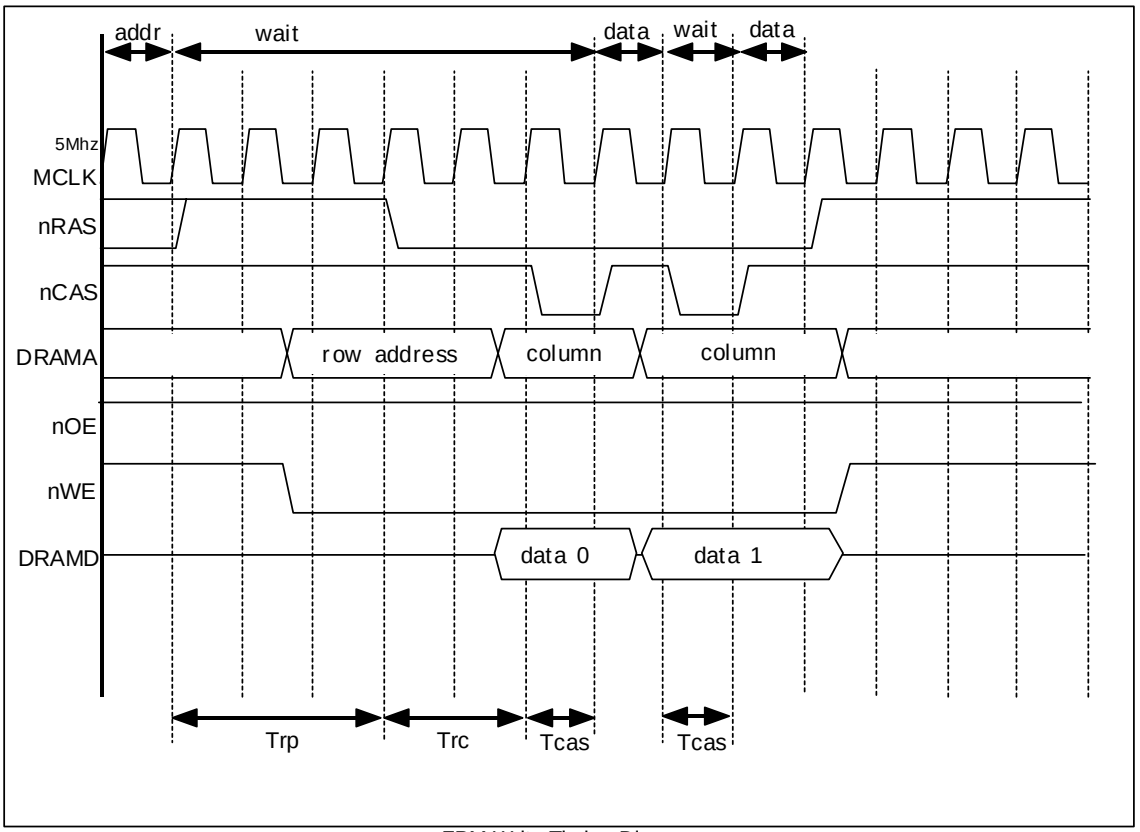
5-2-5-3 EDO DRAM Read Timing

Basically the Extended Data Out DRAM is similar to Fast Page Mode DRAM. For FPM, the data are valid only when the nCAS is active while reading the internal data, however, it has a latch that the data will be continuously outputted even after the nCAS is inactivated.
While configuring the software, you must set the timing register of SFR considering the clock speed and the DRAM spec.



EDO Read Timing Diagram

5-2-5-4 edo DRAM Write Timing



FPM Write Timing Diagram

clock	type	Trp		Trc		Tcas	
		cycle #	register	cycle #	register	cycle #	register
58Mhz	40 ns EDO	2	0x1	2	0x1	1	0x0
	50 ns EDO	2	0x1	2	0x1	1	0x0
	60 ns EDO	3	0x2	2	0x1	1	0x0
	70 ns EDO	3	0x2	2	0x1	2	0x1

SFR Values Example for FPM

5-2-6 FS781 (Frequency Attenuator)

This system used FS741 for the main clock for EMI suppression.
It spreads the source clock in a consistent bandwidth to disperse the energy gathered in order to attenuate the energy.
The capacitor value of the loop filter (PIN 4) is set depending on the source clock used or the spread bandwidth. Refer to FS781 Spec. for detail.

5-2-7 USB (Universal Serial Bus)

NS's USBN9602 is used as the interface IC and 48MHz clock is used.
When the data is received through the USB port, EIRQ1 SIGNAL is activated to send interrupt to CPU, then it directly sends the data to DRAM by IOCS4* & DRAMA(11) SIGNAL through DRAMD (24;31).

5-2-8 SRAM; 32KB SRAM

It stores a variety of option data.

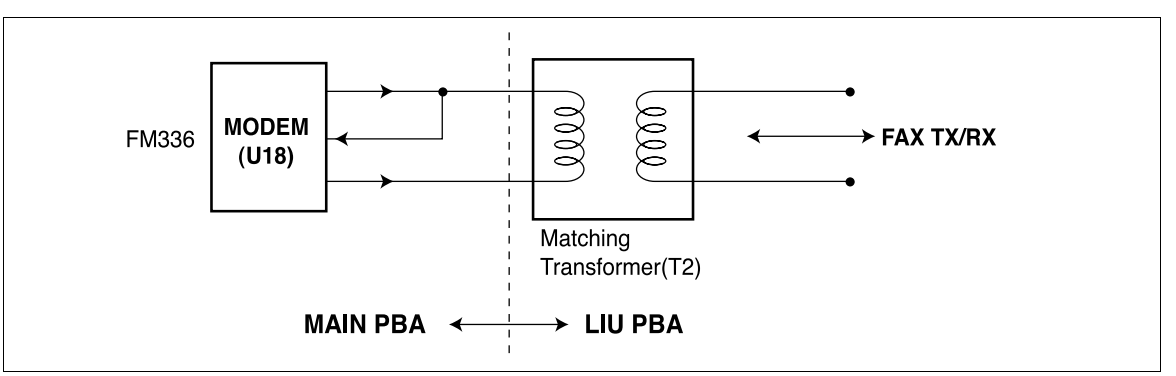
5-2-9 FAX Transceiver

5-2-9-1. General

This circuit processes transmission signals of modem and between LIU and modem.

5-2-9-2. Modem (u44)

FM336 is a single ship fax modem. It has functions of DTMF detection and DTMF signal production as well as functions of modem. TX A1, 2 is transmission output port and RX IN is received data input port. / POR signal controlled by MFP controller (U3:KS32C61200) can initialize modem (/M_RST) without turning off the system. D0-D7 are 8-bit data buses. RS0-RS4 signals to select the register in modem chips. /RS and /WR signals control READ and WRITE respectively. /IRQ is a signal for modem interrupt.
Transmission speed of FM336 is supported up to 33.6k.
The modem is connected to LINE through transformer directly.



FAX TRANSCEIVER

5-3 Scanner

5-3-1 Summary

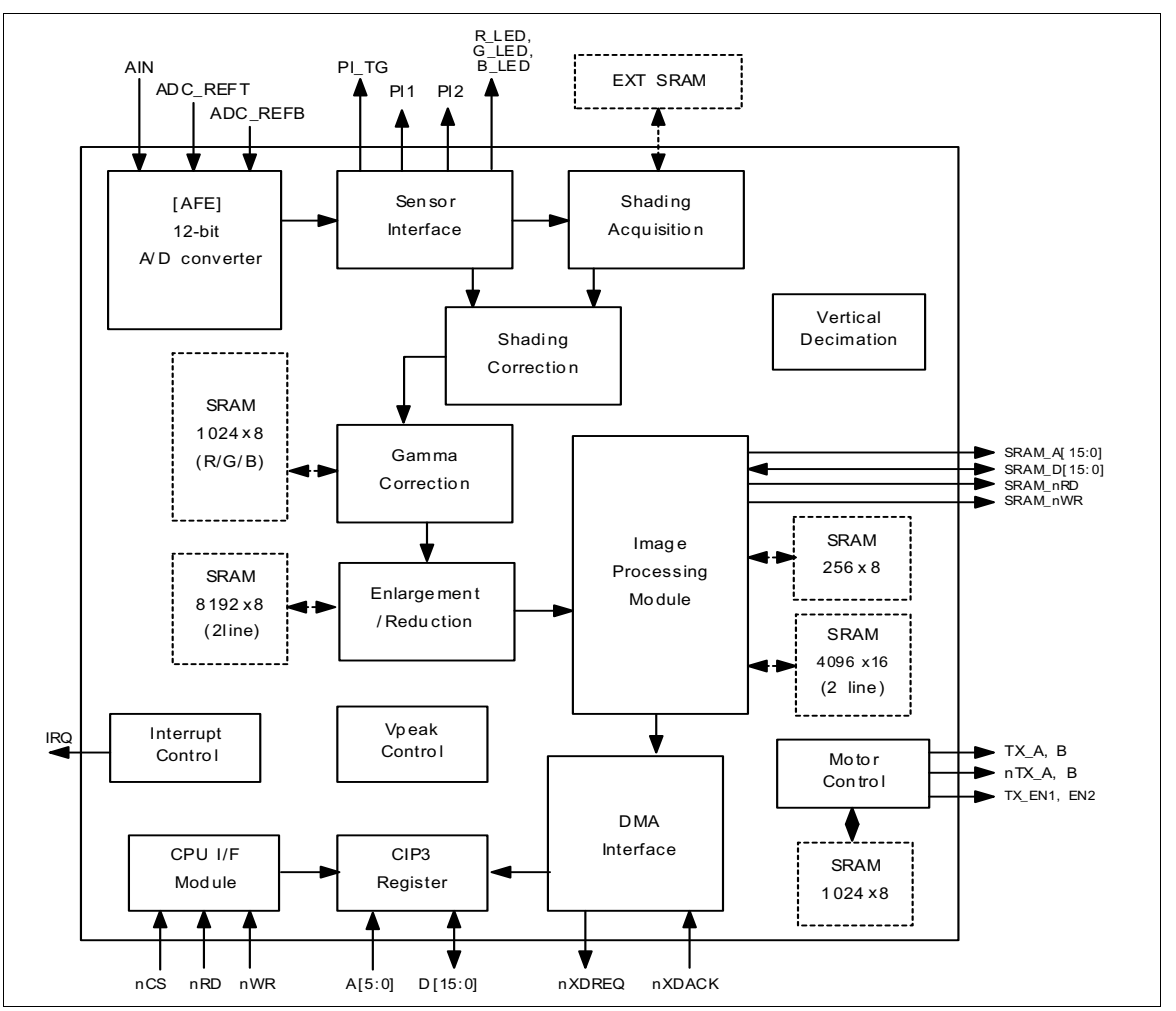
This flat-bed type device to read manuscripts has 600dpi CCD as an image sensor. There is one optical sensor for detecting CCD home position and Scan-end position. The home position is detected by a optical sensor which is attached to the CCD Module. The Scan-end position is calculated by the number of motor steps.

CCD

Contact Image Sensor improves productivity and allows a compact design.

This machine uses a color CCD.

- Minimum scan line time for one color: 5mS.
- Light source power: +12V.
- Maximum pixel frequency: 6 MHz.
- Effective sensor element: 5340 X 3.
- Clamp level: 0.7 to 0.8V.
- Bright output: min. 0.8V.



DUOIP2 Block Diagram

5-3-2 Key Features

Overview

(1) 0.5µm C-MOS process (TLM), 208-PIN QFP, STD85 library.
(2) Frequency: 50 MHz.
(3) On-Chip oscillator.
(4) Method: Raster scanning method.
(5) Image Sauce: 300/400/600dpi CIS & CCD.
(6) Scanning Mode.
- color gray image: each 8 bits / RGB.
- mono gray image: 8 bits / pixel.
- binary image: 1 bit / pixel (for text/photo/mixed mode).

(7) Maximum scanning width: A3, 600dpi (8K effective pixels).
(8) Ideal MSLT (A4, 600/300dpi).
- color gray image: 3x5Kx80nsec = 1.2msec (7/28 CPM).
- mono gray image: 1x5Kx80nsec = 0.4msec (21/84 CPM).
- binary image: 1x5Kx80nsec = 0.4msec (21/84 CPM).

(9) A/D conversion depth: 12bits.

Pixel Processing Structure

- Minimum pixel processing time: 4 system clocks.
- High speed pipe-lined processing method.
  (Shading correction, gamma correction, enlargement/reduction, and binarisation).

Shading Correction

(1) White shading correction support for each R/G/B.
(2) White shading data memory: 3x8Kx12bits = 288Kbits → 384Kbits (external).
(3) Black shading data memory: 3x8Kx12bits = 288Kbits → 384Kbits (external).

Gamma Correction

(1) Independent gamma table for each RGB component.
(2) Gamma table data memory: 3x1Kx8bits = 24Kbits (internal).

Binarisation (mono)

(1) 256 Gray's halftone representation for photo document: 3x5 EDF (Error DifFusion) method proposed by Stucki.
(2) LAT (Local Adaptive Thresholding) for text document:
- use of 5x5 LOCAL WINDOW (TIP ALGORITHM).
- ABC (Automatic Background Control): Tmin automatic change.

(3) Mixed mode processing for text/photo mixed document.
(4) EDF data memory: 2x4Kx16bits = 128Kbits (internal).
(5) LAT data memory: 4x4Kx16bits = 256Kbits (external).

Scaling of Input Image

(1) Scaling factor:
- Horizontal direction: 25 to 800% by 1% unit.
- Vertical direction: 25 to 100% by 1% unit.

(2) Scaling data memory: 2x8Kx8bits = 128Kbits (internal).

Intelligent scan motor controller

(1) Automatic acceleration/deceleration/uniform velocity.
(2) Data memory: 256x16bits = 4Kbits (internal).

Auto-Run

Automatic CLK_LINE (line processing start control) and •'TG (line scan start control) signal generation.

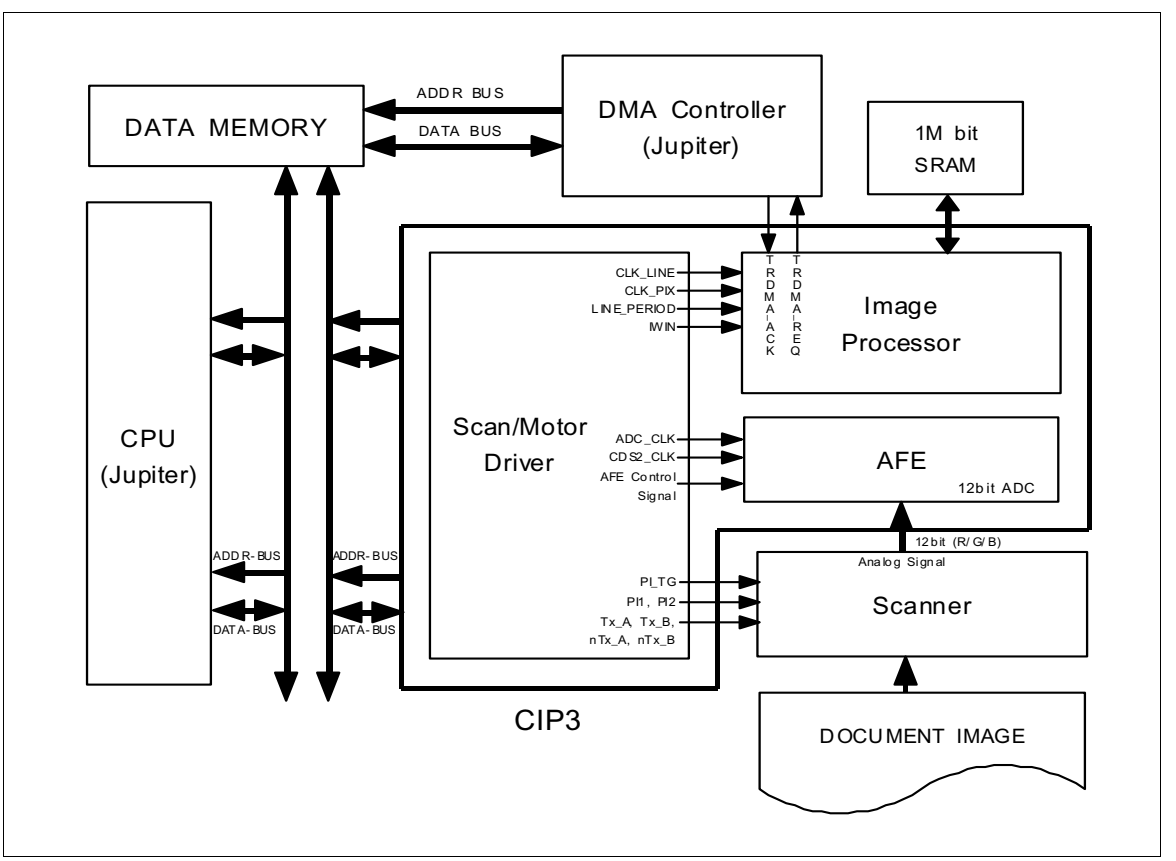
(1)Available re-synchronisation of øTG signal.
(2) programmable øTG's period & CLK_LINE's occurrence number.

Processed data output format in DTM (Data Transfer Module)

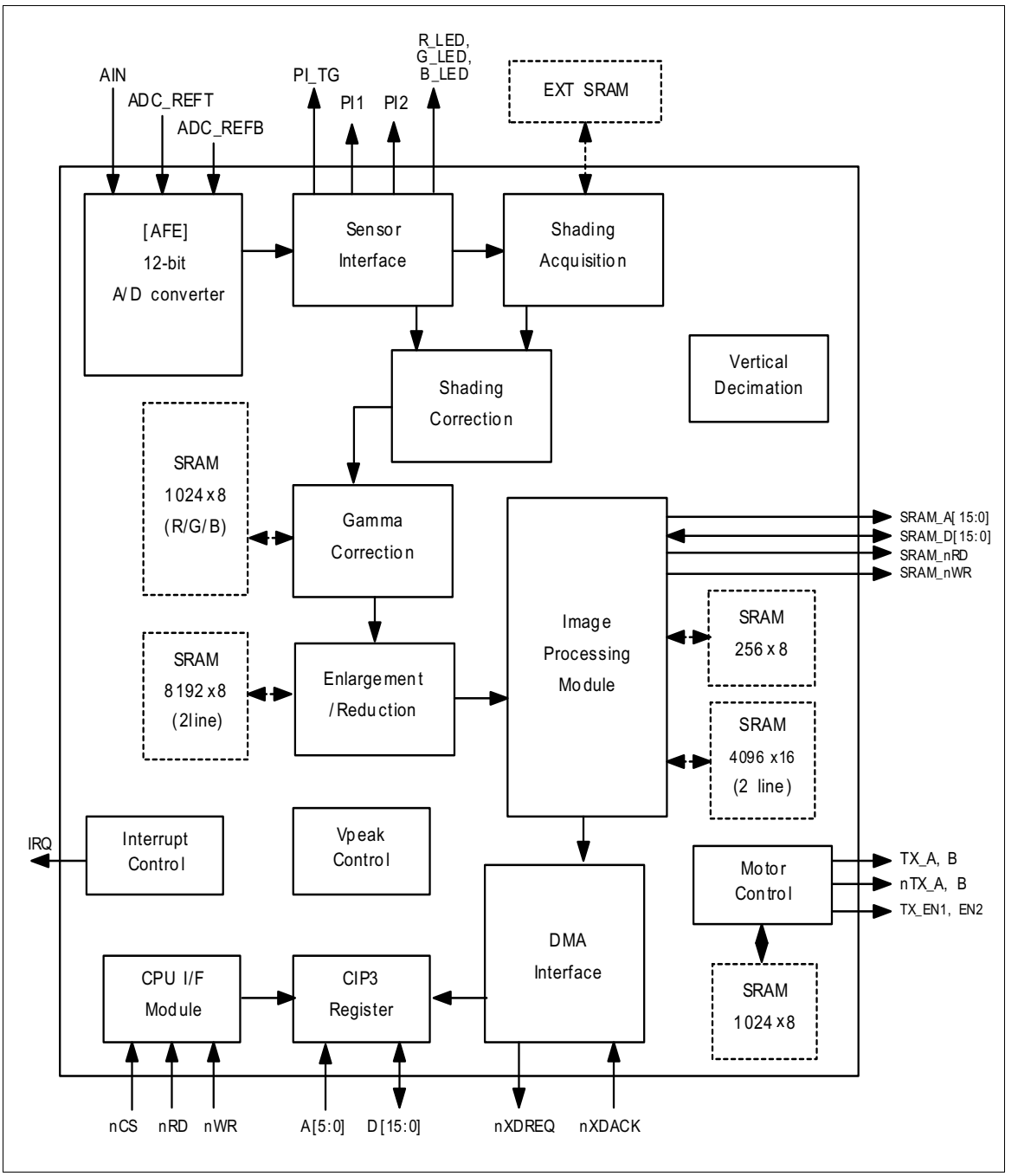
(1)DMA mode: Burst/On-demand mode.
(2) CDIP I/F: LINE_SYNC, PIXEL_SYSNC, PIXEL_DATA[7:0].

36 General Purpose Input/Output: 8(GPO), 28(GPIO)

Black/White reversion, and Image Mirroring support



External interface with CIP3



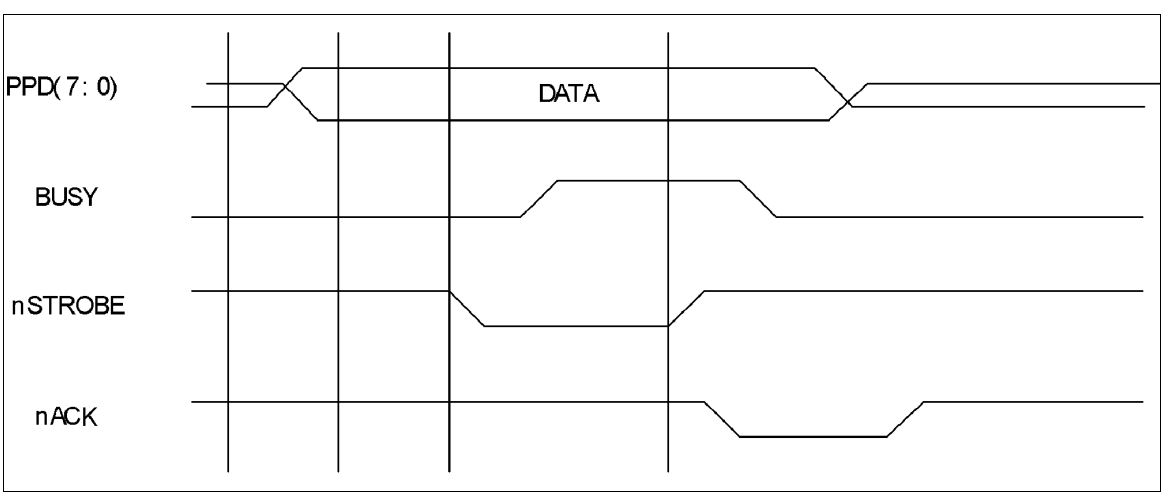
Block diagram of CIP3

5-4 Host Interface

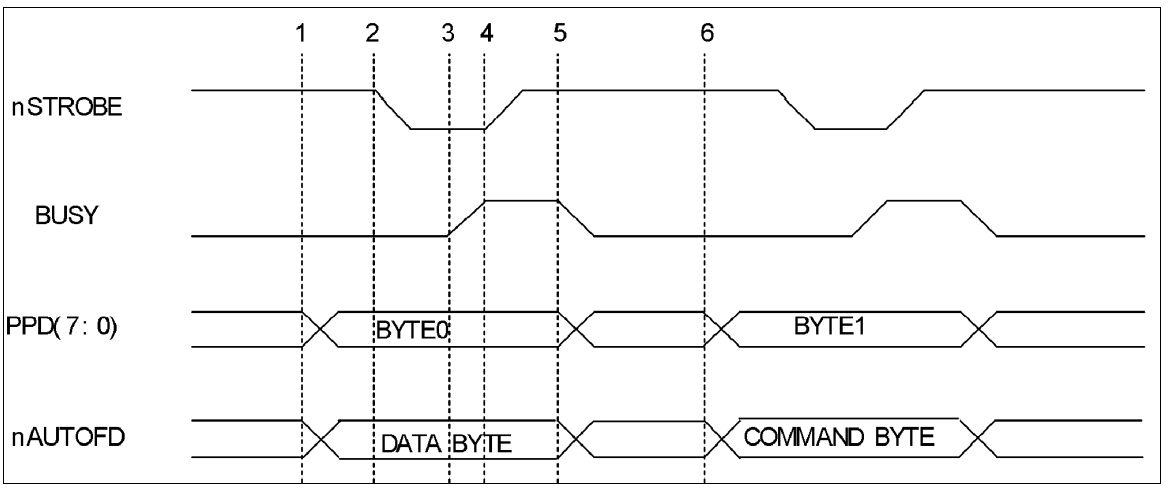
Referred to IEEE 1284 standard.

5-4-1. Host Interface

PARALLEL PORT INTERFACE PART KS32C61200 enables the parallel interface with the PC. This part is connected to the PC through a Centronics connector. It generates major control signals that are used to actuate parallel communication. It is comprised of/ERROR, PE, BUSY, /ACK, SLCT, /INIT, /SLCTIN, /AUTOFD and /STB. This part and the PC data transmission method support the method specified in IEEE P1283 Parallel Port Standard (http://www.fapo.com/ieee1284.html). In other words, it supports both compatibility mode (basic print data transmitting method), the nibble mode (4bit data; supports data uploading to PC) and ECP (enhanced capabilities port: 8bits data - high speed two-way data transmission with PC). Compatibility mode is generally referred to as the Centronics mode and this is the protocol used by most PCs to transmit data to the printer. ECP mode is an improved protocol for the communication between PC and peripherals such as printer and scanner, and it provides high speed two-way data communication. ECP mode provides two cycles in the two-way data transmission; data cycle and command cycle. The command cycle has two formats; Run-Length Count and Channel Addressing. RLE (Run-Length Count) has high compression rate (64x) and it allows real-time data compression that it is useful for the printer and scanner that need to transmit large raster images . Channel Addressing was designed to address multiple devices with single structure. For example, like this system, when the fax/printer/scanner have one structure, the parallel port can be used for other purposes while the printer image is being processed.This system uses RLE for high speed data transmission. PC control signals and data send/receive tasks such as PC data printing, high speed uploading of scanned data to PC, upload/download of the fax data to send or receive and monitoring the system control signal and overall system from PC are all processed through this part.

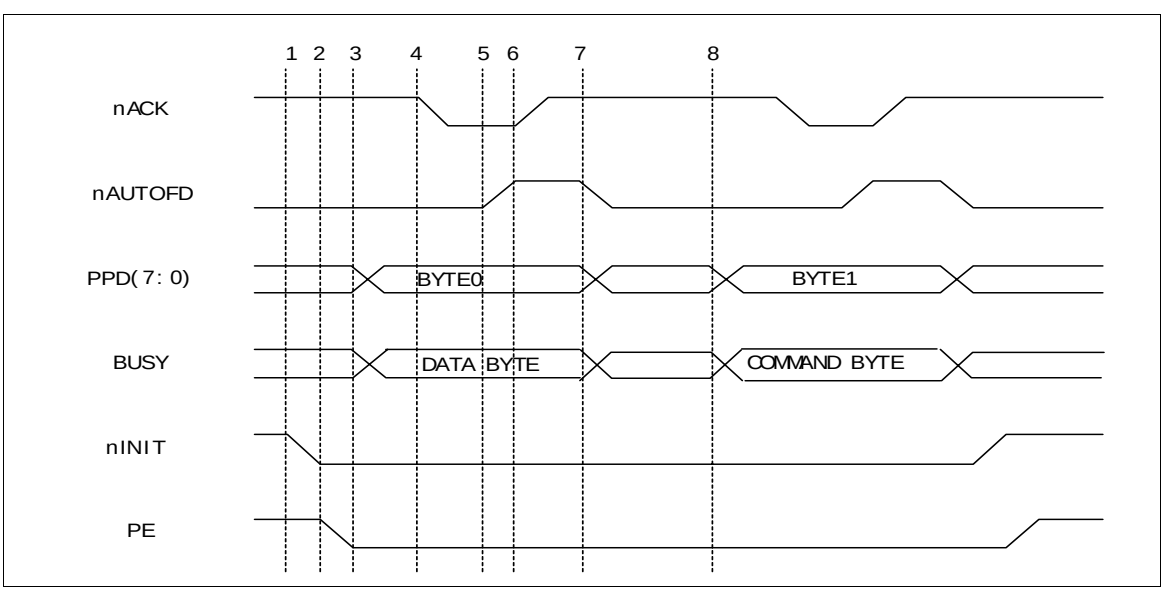


Compatibility Hardware Handshaking Timing



ECP Hardware Handshaking Timing (forward)

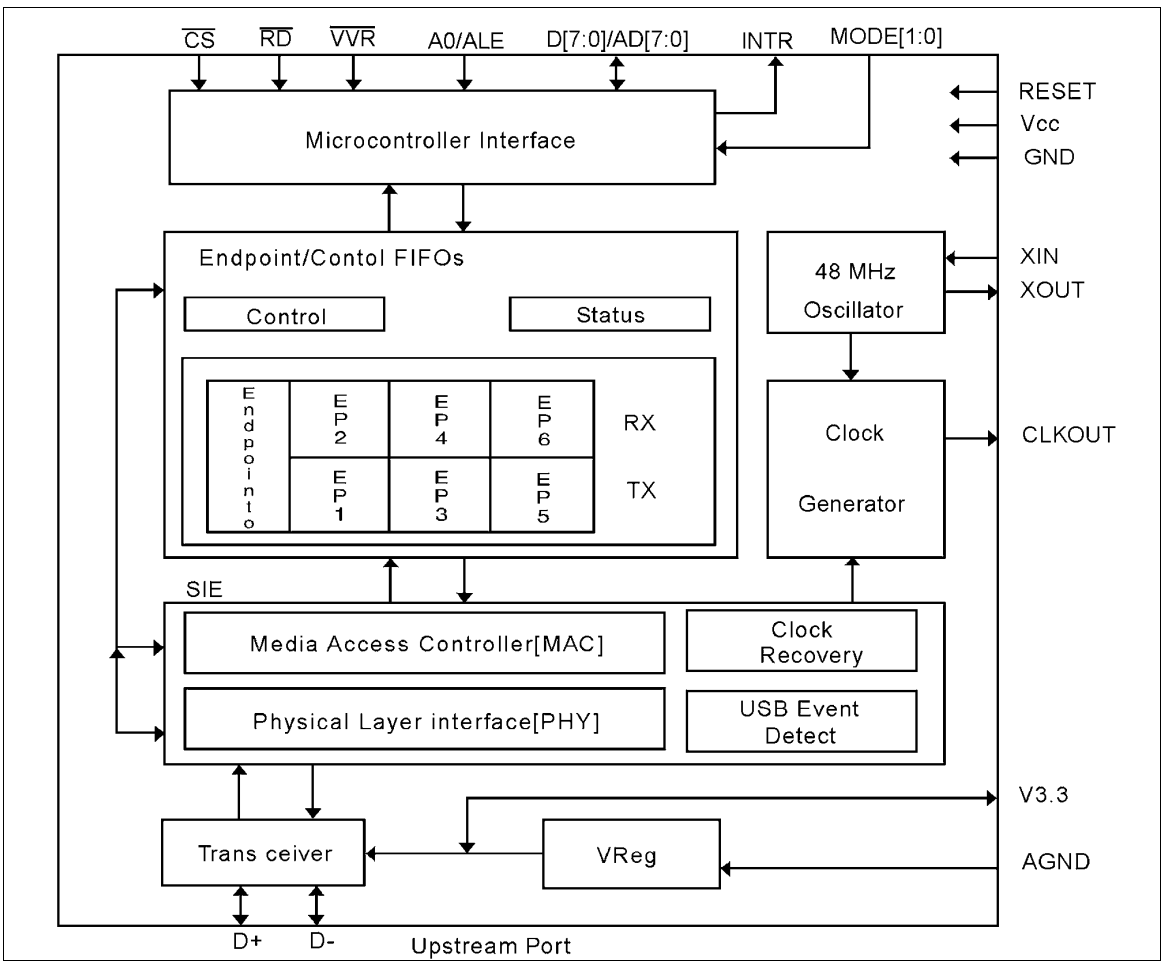
1. The host places data on the data lines and indicates a data cycle by setting nAUTOFD.
2. Host asserts nSTROBE low to indicate valid data.
3. Peripheral acknowledges host by setting BUSY high.
4. Host sets nSTROBE high. This is the edge that should be used to clock the data into the Peripheral.
5. Peripheral sets BUSY low to indicate that it is ready for the next byte.
6. The cycle repeats, but this time it is a command cycle because nAUTOFD is low.



ECP Hardware Handshaking Timing (forward)

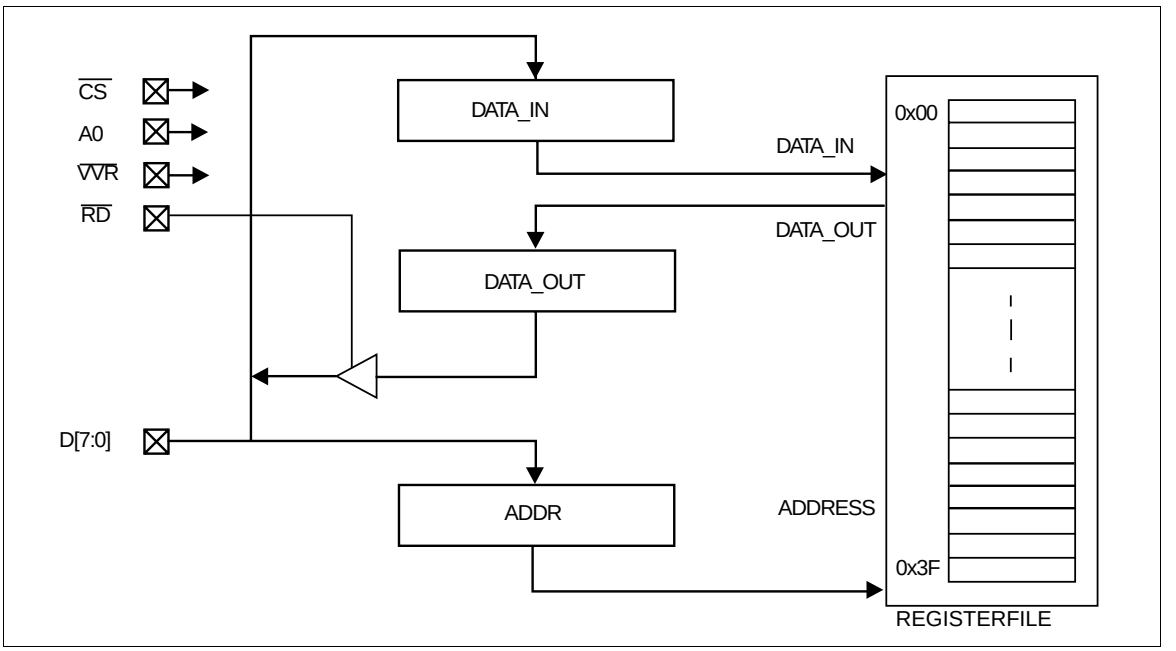
1. The host request a reverse channel transfer by setting nINIT low.
2. The peripheral signals that it is OK to proceed by setting PE low.
3. The peripheral places data on the data lines and indicates a data cycle by setting BUSY high.
4. Peripheral asserts nACK low to indicate valid data.
5. Host acknowledges by setting nAUTOFD high.
6. Peripheral sets nACK high. This is the edge that should be used to clock the data into the host.
7. Host sets nAUTOFD low to indicate that it is ready for the next byte.
8. The cycle repeats, but this time it is a command cycle because BUSY is low.

5-4-2 USB INTERFACE

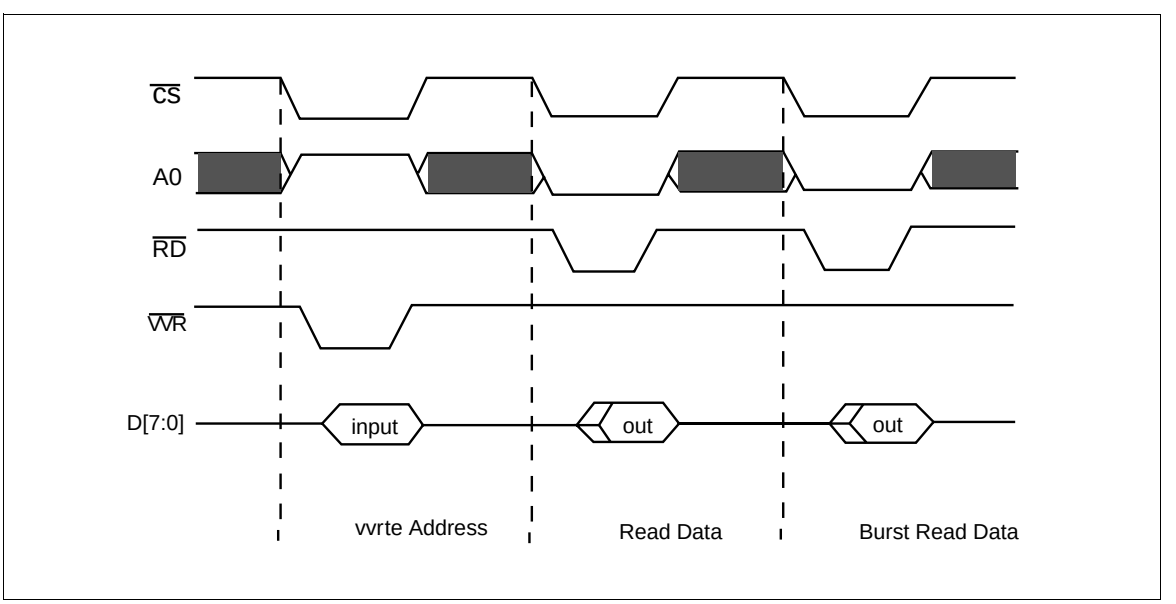


5-4-2-1 Features

- Full-Speed USB Node Device.
- USB transceiver.
- 3.3V signal voltage regulator.
- 48 MHz oscillator circuit.
- Programmable clock generator.
- Serial Interface Engine consisting of Physical Layer Interface (PHY) and Media Access Controller (MAC), USB Specification 1.0 compliant.
- Control/Status Register File.
- USB Function Controller with seven FIFO-based End-points.
- One bidirectional Control Endpoint 0 (8bytes).
- Three Transmit Endpoints (2*32 and 1*64 bytes).
- Three Receive Endpoints (2*32 and 1*64 bytes).
- 8-bit parallel interface with two selectable modes - non-multiplexed.
- multiplexed (Intel compatible).
- DMA support for parallel interface.
- MICROWIRE/PLUS Interface.
- 28-pin SO package.



Non-Multiplexed Mode Interface Block Diagram



Non-Multiplexed Mode Basic Timing Diagram

5-5 Engine Controller

5-5-1. Fuser Control / Thermistor Circuit

This circuit controls the heat lamp temperature to fix the transferred toner on the paper. It is comprised of the thermistor that has the negative resistance against the temperature and LM393 (voltage comparator) and transistor for switching.
The thermistor has the resistance value reverse proportional to the heat lamp surface temperature. The voltage value is read by #60 pin(AVIN2) of CPU referring to the parallel combined resistance with the resistor(R43) connected parallel to it and the voltage distribution of R29. The voltage read activates (inactivates) 'fuser' signal to high (or low) referring to the set temperature and when the 'FUSERON' signal turns down (high) to low (high) by Q3 switching, the S21ME4 inside SMPS (PC3) turns on (off) and this eventually turns two-way thyristor(THY501) on (off) to allow (shut) AC voltage to the heat lamp.

LM393 is hardware designed to protect the system when the firmware that controls the heat lamp no longer functions correctly. When the thermistor temperature goes beyond 210 degrees C, the level of pin #1 (LM393) will turn low, which turns the 'FUSERON' signal to high. The LM393 will force the heat lamp off by forcefully shutting off the power to Q3.

5-5-2. Paper Sensing Circuit

1) Cover Open Sensing

Cover open sensor is located on the right side of the printer. In case the right cover is open, it shuts +5V (LSU laser unit) and +24V(main motor, polygon motor of fixer LSU and HVPS) that are supplied to each unit. It detects the cover opening through CPU. In this case, the red LED of the OP panel LED will turn on.

2) Paper Empty Sensing

The paper empty sensor (photo interruptor), located inside bottom of the bin cassette detects paper with the actuator connected to it and informs the CPU of whether there is paper. When there is no paper in the cassette, the red LED of the OP panel LED will turn on to tell the user to fill the cassette with paper.

3) Paper Feeding

When the paper is fed into the set and passes through the actuator of the feed sensor unit, transistor inside the photo interrupter will turn on, 'nFEED' signal will turn low and inform CPU that the paper is currently fed into the system. CPU detects this signal and sprays video data after certain time (related to paper adjustment). If the paper does not hit the feed sensor within certain time, CPU detects this and informs as "Paper Jam0" (red LEDs on the OP panel will turn on).

4) Paper Exit Sensing

The system detects the paper going out of the set with the exit sensor assembled to the actuator attached to the frame. If CPU does not turn back high a while after the paper hits the exit sensor, CPU detects this and inform as "Paper Jam2" (red LEDs on the OP panel will turn on).

5-5-3. LSU Circuit

1) Polygon Motor Unit (actuated by +24V)

The polygon motor inside LSU rotates by the 'PMOTOR' signal. When it reaches the motor constant velocity section through the initial transient (transient response) section, it sends the 'nLREADY' signal to the CPU.

The 'clock' pin is the pin that receives clock of the required frequency when LSU uses external CLK as the motor rotational frequency. Currently the external clock circuit is located in the HVPS and 1686Hz = 6.9083MHz (crystal frequency)÷212(74HC4060N IC), is used as the rotational frequency of the polygon motor.

2) Laser Unit (actuated by +5V)

After laser is turned on by 'nLD_ON' signal, it is reflected by 6 mirrors (polygon mirror) attached to the polygon motor and performs scan in horizontal way.When the laser beam hits the corner of the polygon mirror, it generates 'nHSYNC' signal (pulse) and the CPU forms the left margin of the image using this signal (horizontal synchronous signal).

There are no user-serviceable parts inside the Laser unit.

5-5-4. Fan/Solenoid Actuation Circuit

The fan actuation circuit gets its power using NPN TR. When it receives 'FAN' signal from the CPU. The TR will turn on to make the voltage supplied to the fan to 24V in order to actuate the fan.
The solenoid is actuated in the same way. When it receives control signal from the CPU, the solenoid for paper feeding is actuated by switching circuit.
D29(1N4003) diode is applied to the both ends of the output terminal to protect Q22(KSC1008-Y) from noise pulse induced while the solenoid is de-energized.

5-5-5. PTL Actuation Circuit

PTL actuation circuit switches its power using NPN TR.

5-5-6. Motor Actuation Circuit

Motor actuation circuit is determined while selecting the initial driver IC (provided by the vendor). This system uses TEA3718(U57, U58), A2918(U59)'s motor driver IC. However, the sensing resistance (R273, R274, R292, R293) and reference resistance (R284, R289, R294, R295) can vary depending on the motor actuation current value.
It receives motor enable signal (2 phase) from CPU and generates bipolar pulse (constant-current) and sends its output to stepping motor input.

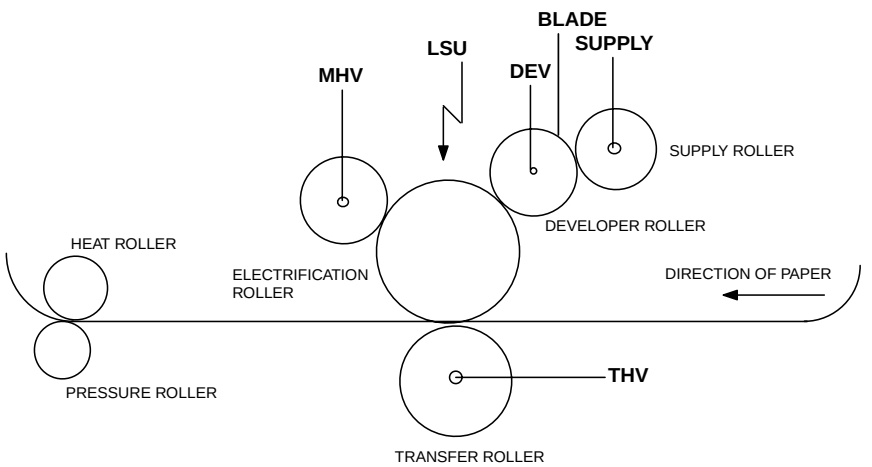
5-5-7. High Voltage Power Supply

5-5-7-1. Summary

It is the high voltage power supply that has DC+24V/DC+5V (used for the image forming device in OA digital picture developing method) as the rated inputs. It supplies electrifying voltage (MHV), supply voltage (SUPPLY), developing voltage (DEV), blade voltage (BLADE) and transferring voltage (THV).
Each high voltage supply shows the voltage required in each digital picture process.

5-5-7-2. Digital Picture Process

Digital picture developing method is widely used by copy machine, laser beam printer and fax paper.
The process is comprised of electrification, exposure, develop, transfer and fixing.

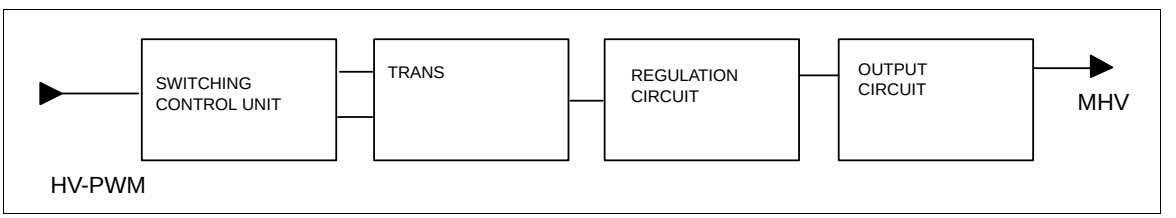


First, in the electrification process, retain constant charge at approx. -900V for the electric potential on the OPC surface by electrifying OPC drum at approx. -1.4KV through the electrification roller.
The electrified surface of OPC is exposed responding to the video data by the LSU that received print command due to rotation. The unexposed non-video section will retain the original electric potential of -900V, but the electric potential of the image area exposed by LSU will be approx. -180V that it will form the electrostatic latent image. The surface of the photo-conductive drum where the electrostatic latent image is formed reaches the developer as the drum rotates. Then the electrostatic latent image formed on the OPC drum is developed by the toner supplied to the developing roller by supplying roller and it is transformed into visible image. It is the process to change the afterimage on the OPC drum surface formed by LSU into visible image by the toner particles.
While the supply roller energized with -450V by HVPS and the developer roller energized with -300V rotate in the same direction, it keeps the toner particles between two rollers supplied to OPC drum in negative state by the friction between two rollers.
The toner supplied to the developer roller is biased to bias electric potential by the developer roller and transferred to the developing area. After (-) toner is attached to the developer roller, it will move to the exposed high electric potential surface (-180V) rather than to the unexposed low electric potential surface (-900V) of the developer roller and OPC drum. Eventually the toner will not settle in the low electric potential surface to form the visible image.
Later, the OPC drum continues to rotate and reaches to transfer location in order to accomplish the transfer process.
This process transfers the (-)toner on the transfer roller to the printing paper by the transfer roller. The (-)toner attached to the OPC drum will be energized to hundreds to thousands of the (+)transfer voltage by HVPS.
The (+)electrostatic force of the transfer roller generated has higher adhesiveness than the (-)toner OPC drum and thus it moves to the surface of the paper passing through the transfer roller.
The toner transferred to the paper with weak electrostatic force is fixed to the paper by the pressure and heat of the fixer composed of pressure roller and heat roller.
The toner attached to the paper is melted by applying the heat (approx. 180°C) from the heat roller and the pressure (approx. 4kg) from the pressure roller. After the fixing process, the paper is sent out of the set to finish the printing process.

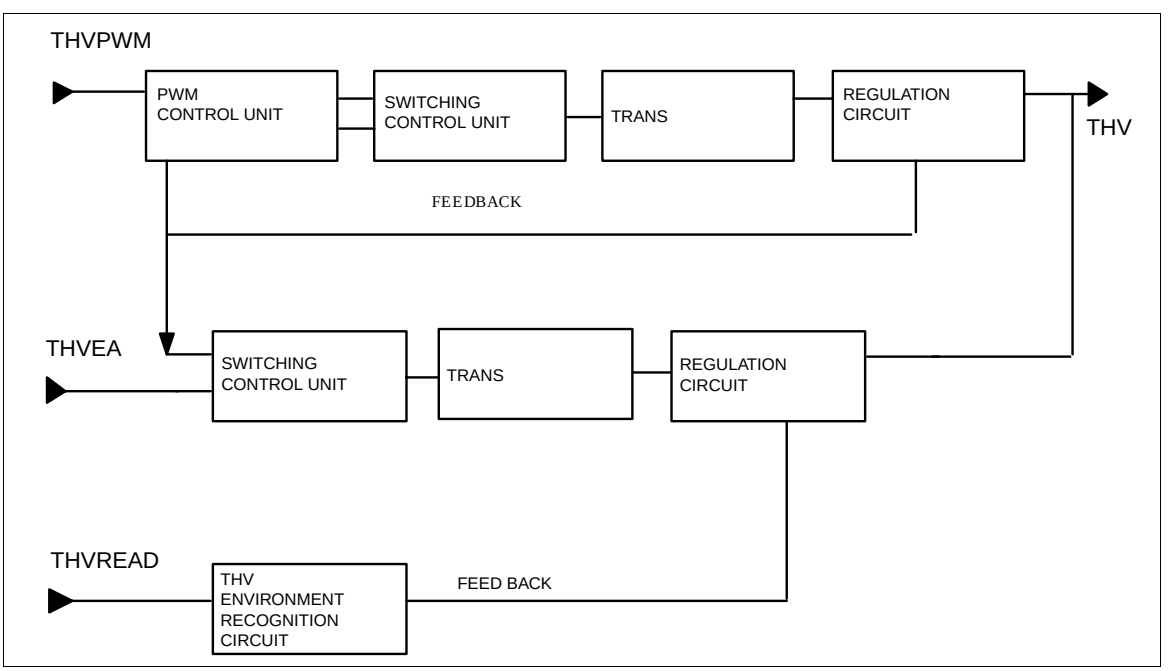
5-5-7-3. Organization of the Device

HVPS is comprised of electrification output unit, bias output unit and transfer output unit.

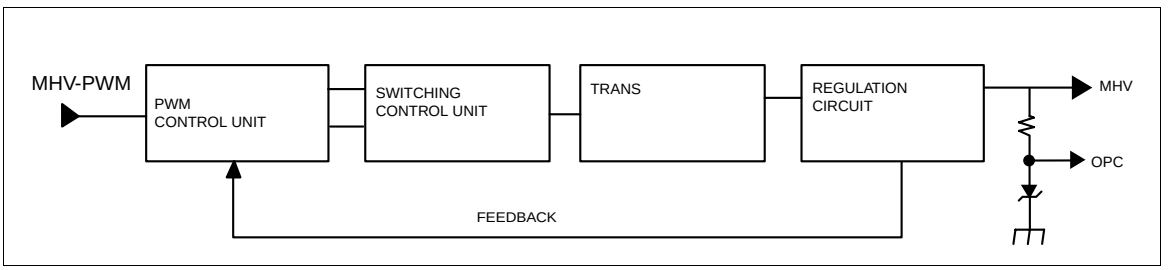
1) Input Unit.
2) Electrification Output (Enable) Unit: MHV (Main High Voltage).
3) Bias Output (Enable) Unit: DEV (Development Voltage)/Supply (Supply Voltage)/BLADE (Blade Voltage).
4) Transfer '+' Output (Enable) Unit: THV (+) (Transfer High Voltage(+)).
5) Transfer '-' Output (Enable) Unit: THV (-) (Transfer High Voltage(-)).
6) Switching Unit.
7) Feedback Unit.
8) Regulation Unit.
9) Output Unit.



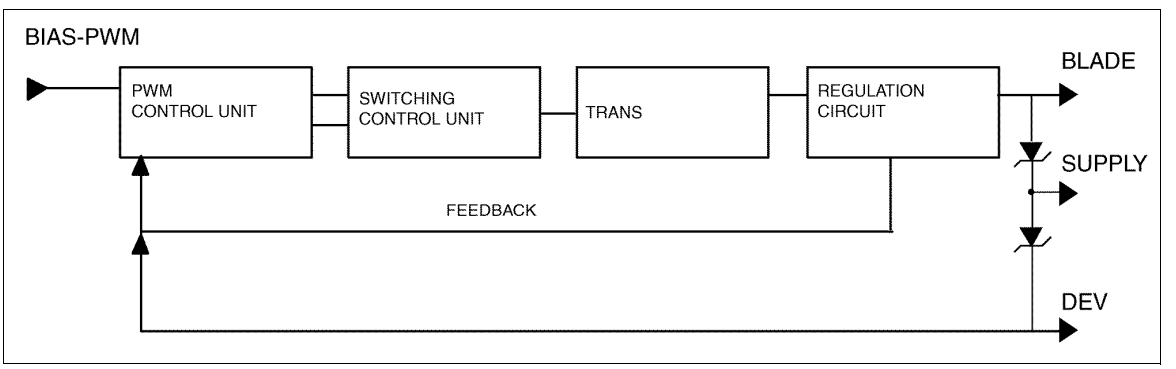
Electrification Unit Block-Diagram



Transfer Output Unit Block Diagram



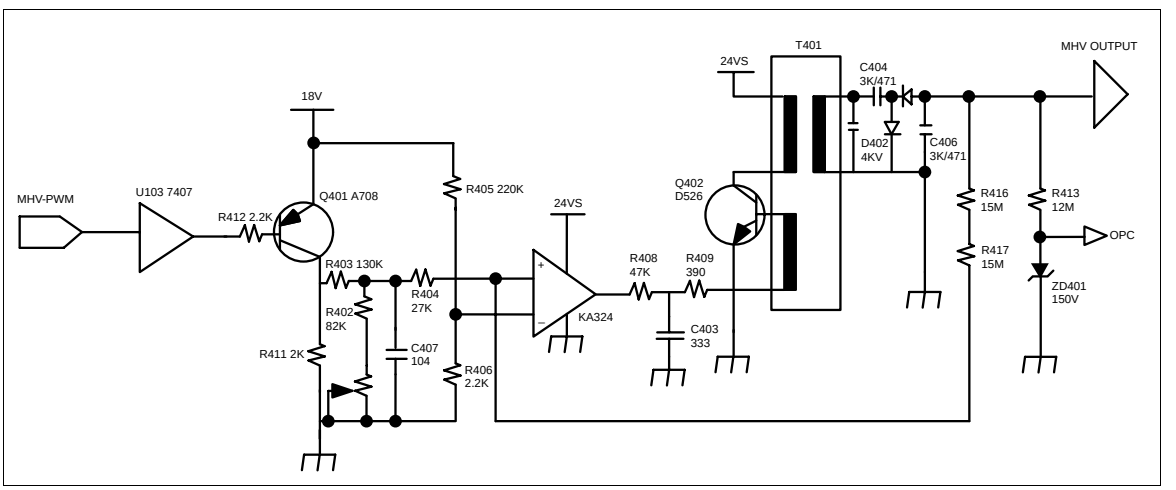
MHV Output unit Block Diagram



BIAS Output Unit Block Diagram

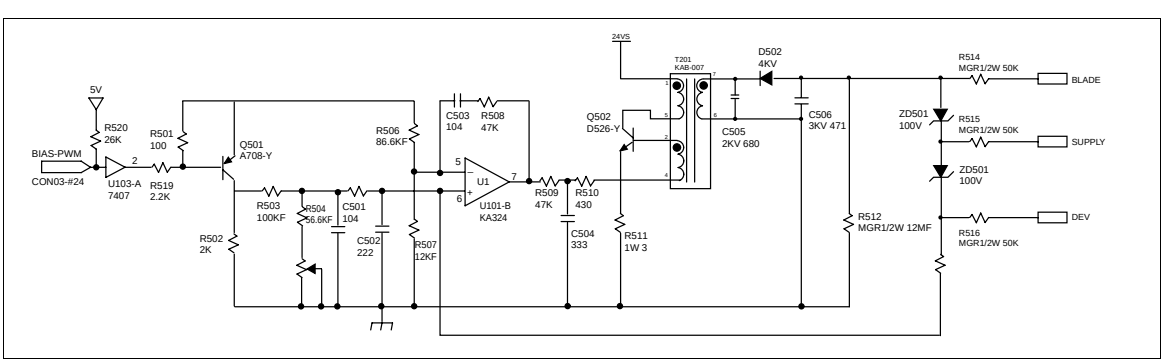
5-5-7-4 MHV (Electrification Output Enable)

Electrification Output Enable is the electrification output control signal 'PWM-LOW ACTIVE'.
When MHV-PWM LOW signal is received, Q401 turns on and the steady voltage will be accepted to the non-inverting terminal of OP-AMP 324. As the voltage higher than the inverting reference voltage of OP-AMP, which is set to R405 and R406, OP-AMP output turns high. This output sends IB to the TRANS auxiliary wire through current-restricting resistance Q402 via R408 and C403 and Q402 turns on. When the current is accepted to Q402, Ic increases to the current proportional to time through the T401 primary coil, and when it reaches the Hfe limit of Q402, it will not retain the "on" state, but will turn to "off". As Q402 turns 'off', TRANS N1 will have counter-electromotive force, discharge energy to the secondary unit, sends current to the load and outputs MHV voltage through the high voltage output enable, which is comprised of Regulation circuit.



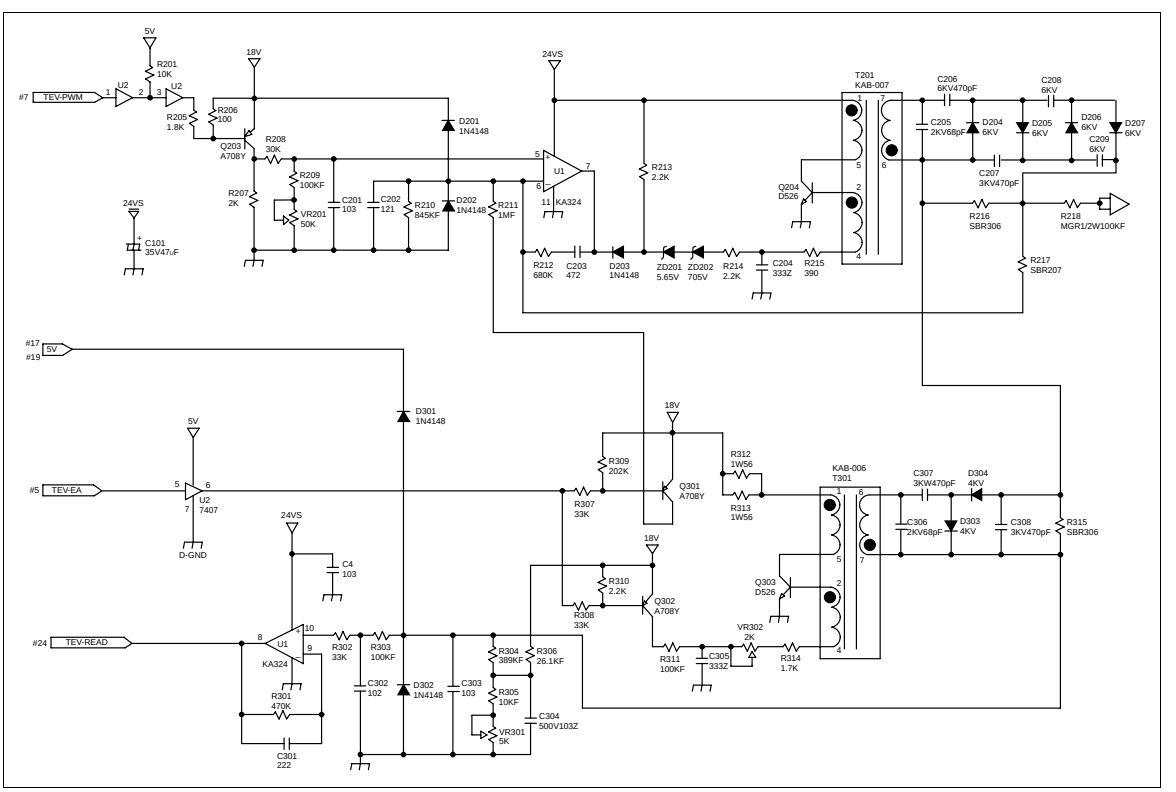
5-5-7-5 BIAS (supply/dev/blade output unit)

BIAS (Electrification Output Enable) Electrification Output Enable is the electrification output control signal 'PWM-LOW ACTIVE'.When BIAS-PWM LOW signal is received, Q501 turns on and the steady voltage will be accepted to the non-inverting terminal of OP-AMP 324. As the voltage higher than the inverting reference voltage of OP-AMP, which is set to R506 and R507, OP-AMP output turns high. This output sends IB to the TRANS auxiliary wire through current-restricting resistance Q502 via R509 and C504 and Q502 turns on. When the current is accepted to Q502, Ic increases to the current proportional to time through the T201 primary coil, and when it reaches the Hfe limit of Q502, it will not retain the "on" state, but will turn to "off". As Q502 turns 'off', TRANS N1 will have counter-electromotive force, discharge energy to the secondary unit, sends current to the load and outputs DEV voltage through the high voltage output enable, which is comprised of Regulation-circuit.



5-5-7-6. THV(THV(+)/THV(-) Output Unit)

Transfer(+) output unit is the transfer output control signal 'PWM-LOW ACTIVE'.
When THV-PWM LOW signal is received, Q203 turns on and the steady voltage will be accepted to the non-inverting terminal of OP-AMP 324. As the voltage is higher than the inverting reference voltage of OP-AMP, OP-AMP output turns high.
The 24V power adjusts the electric potential to ZD201 and ZD202, sends IB to TRANS auxiliary wire through current-restricting resistance R215 via R212 and C204, and eventually Q204 will turn on. When the current is accepted to Q402, Ic increases to the current proportional to time through the T201 primary coil, and when it reaches the Hfe limit of Q204, it will not retain the “on” state, but will turn to “off”. As Q402 turns 'off', TRANS N1 will have counter-electromotive force, discharge energy to the secondary coil, sends current to the load and outputs THV voltage through the high voltage output enable, which is comprised of Regulation– circuit. The output voltage is determined by the DUTY width. Q203 switches with PWM DUTY cycle to fluctuate the output by fluctuating the OP-AMP non-inverting end VREF electric potential, and the maximum is output at 0% and the minimum, at 100%.Transfer(-) output unit is THV-EA 'L' enable.
When THV-EA is 'L', Q302 turns on and the VCE electric potential of Q302 will be formed and sends IB to TRANS auxiliary wire through R311, C305 and VR302 via current-restricting resistance R314, and eventually Q303 will turn on. When the current is accepted to Q303, Q303's Ic increases to the current proportional to time through the T301 primary coil, and when it reaches the Hfe limit of Q303, it will not retain the “on” state, but will turn to “off”. As Q303 turns 'off', TRANS N1 will have counter-electromotive force, discharge energy to the secondary coil, send current to load and output THV(-) voltage through the high voltage output enable, which is comprised of Regulation circuit.



5-5-7-7. Environment Recognition

THV voltage recognizes changes in transfer roller environment and allows the voltage suitable for the environment in order to realize optimum image output. The analog input is converted to digital output by the comparator that recognizes the environmental changes of the transfer roller. It is to allow the right transfer voltage to perform appropriate environmental response considering the environment and the type of paper depending on this digital output by the programs that can be input to the engine controller ROM.

This environment recognition setting is organized as follows: First, set the THV(+) standard voltage. Allow 200M¾ load to transfer output, enable output and set the standard voltage 800V using VR201. Then set 56 (CPU's recognition index value) as the standard using VR302. This standard value with CPU makes sure that the current feedback is 4μA when output voltage is 800V and load is 200M¾.If the load shows different resistance value when 800V is output, the current feedback will also be different and thus the index value will also be different. according to the index value read by CPU, the transfer voltage output will differ according to the preset transfer table.
The changes in transfer output required by each load is controlled by PWM-DUTY.

5-6 OPE PBA

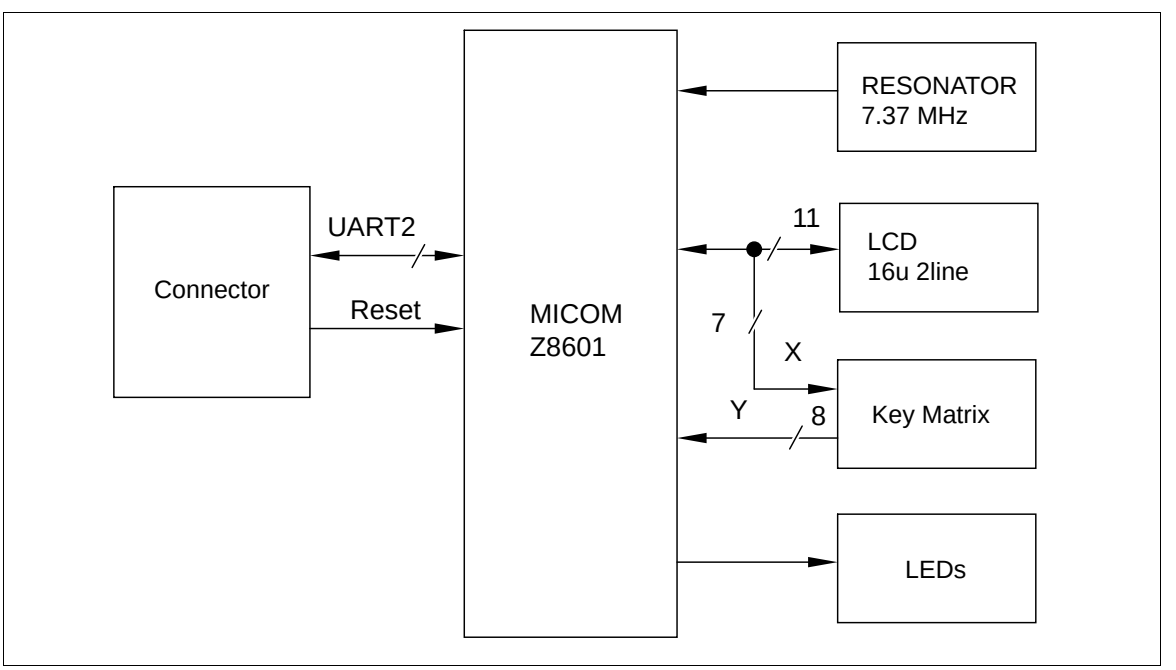
5-6-1 SUMMARY

OPE Board is separated functionally from the main board and operated by the micom(Z8601) in the board. OPE and the main use UART (universal asynchronous receiver/transmitter) channel to exchange information. OPE reset can be controlled by the main. OPE micom controls key-scanning and LCD and LED display. If there occurs an event in OPE (such as key touch), it sends specific codes to the main to respond to the situation and the main analyzes these codes and operates the system. For example, it the main is to display messages in OPE, the main transmits data through UART line to OPE according to the designated format and OPE displays this on LCD, LED. OPE's sensing is also transmitted to the main through UART line and then the main drives necessary operation.

OPE PBA consists of U1(MICOM, Z8601),LCD, key matrix, LED indicators. Refer to OPE Schematic Diagram and Wiring Diagram sections of this manual.

- Signals from the key matrix are delivered to U1 input pin group (D1 to D6)
- U1 pin 48 (TX DATA) is the UART code sent to MAIN PBA.

- Display from the controller is received at U1 pin 5(RX DATA).
- LCD drive signals are sent from U1 P2-x pin group, P3-4 to P3-6 pins.
- Machine status LED drive signals are sent from U1 LED0 to LED7.



OPE BLOCK DIAGRAM

5-7 LIU PBA

5-7-1. SUMMARY

LIU WIRE CONNECTS Main B'D's MODEM AND LINE PARTS, AND IMPEDANCE MATCHING (AC, DC), RING DETECTION PART and LINE SEIZURE (DIALER).

5-7-2. DC MATCHING PART

Normal movement range of LIU is 12mA to 9mA.
Adapting CTR21 standard, the regulation limits to 60mA CURRENT flow through the terminal.
Therefore, select (*:for EU PIT) Option to connect necessary items then the current through LIU will not exceed 60mA.
• CTR21 Standard (Europe): 12mA~60mA • OTHER Standard (U.S.): 12mA to 90mA
DC has a character to pass through the LINE. And with Q1 (VN2410) GATE section's LINE INPUT current and Q1 Source connection to R20, can be decided as follows:
• -VDCR = VL1 + ILINE X R20.
(VDCR: Tip-Ring CD Voltage, ILINE:
Current flow)VL1:Line Input Voltage, VL1 = VBD1+VCE(Q2)+VDS(Q1).

5-7-3. AC MATCHING PART

Basic LIU's AC IMPEDANCE is 600 and uses R47. 48. C36 to possibly control combined IMPEDANCE.
• U.S. Usage: A terminal IMPEDANCE Æ 600W(±30%).
• CTR21: A Terminal IMPEDANCE Æ 270+750W//150nF.

5-7-4. DIALER PART

***MF DIAL**
DTMF Dialing is controlled by MODEM and should be selected by appropriate LEVEL and On-off Time output based on each countries' own National specification.
• Frequency Tolerance: ±1.5%.
High Group: 1209, 1336, 1477, 1633Hz.
Low Group: 697, 770, 852, 941 Hz.

	U.S. Usage	CTR21
High Frequency Level	-9.0+2.0/-2.5	-7.0 +1.0/-2.0
Low Frequency Level	-9.0+1.0/-2.0	-11.0+2.5/-2.0

***DP DIAL**
Controls from MAIN through / DP-Terminal.
for U.S.Usage, set time to DF signal of 40:60 M/B. DP signal is made of U6 (pcb817). The DC current which flows through Q2 Base is regulated by On/Off switch and turns to DP dial signal with a COUPLER.
• CTR 21 does not have telephone capability but has the number 3 and 4 Line Connection. No DP condition but possibility to get approval only on DTMF Dial based terminal.

5-7-5. RING DETECTION PART

RING SIGNALS from the LINE section (TIP, RING) are further passed through C5, R3, ZD1, and ZD2 and ends up at U9, (PC 814). U9 then detects above RING SIGNAL and passes the output to MAIN B'D. The wire diagram's C5 is RINGER CAPACITOR and it normally uses 1UF/250V.

A R3 limits AC current and controls upper and lower REN meter.

5-8 SMPS (Switching Mode Power Supply) Unit.

5-8-1 SMPS Specifications

There are no user-serviceable parts inside the SMPS unit.

The SMPS (Switching Mode Power Supply) unit used here is a PWM (Pulse Width Modulation) type power supply unit that supplies DC+5V to controller and control panel, and DC+5V, DC+24V and DC+12V to the engine. It also supplies AC power to fixer heat lamp.

No.	Output Channel	Ch.1	Ch.2	Ch.3
1	Channel name	+5.1V	+24.0V	+12.0V
2	Rated output voltage	+5.1V	+24.0V	+12.0V
3	Rate output current	2A	2.5A	1.0A
4	Maximum load current and load pattern	3A continuous	3.5A continuous	1.0A continuous
5	Load change range	0.5~2.0A	0.3~2.5A	0.2~1.0A
6	Rate output voltage (For rated I/O)	+5.1V±5% (+4.84 to +5.35V)	+24.0V±10% (+21.60 to +26.40V)	+12V±5% (+11.40 to +12.60V)
7	1) Total output voltage deviation (Input, load, temp., aging) 2) Dynamic input change 3) Dynamic load change	Including all +5.1V±5% (+4.84 to +5.35V) including set error	Including all +24.0V±10% (+21.60 to +26.40V) including set error	Including all +12V±5% (+11.40 to +12.60V) including set error
8	Refer to ripple & noise 27)	150mVp-p or less	500mVp-p or less	150mVp-p or less

5-8-2 AC Input Stage

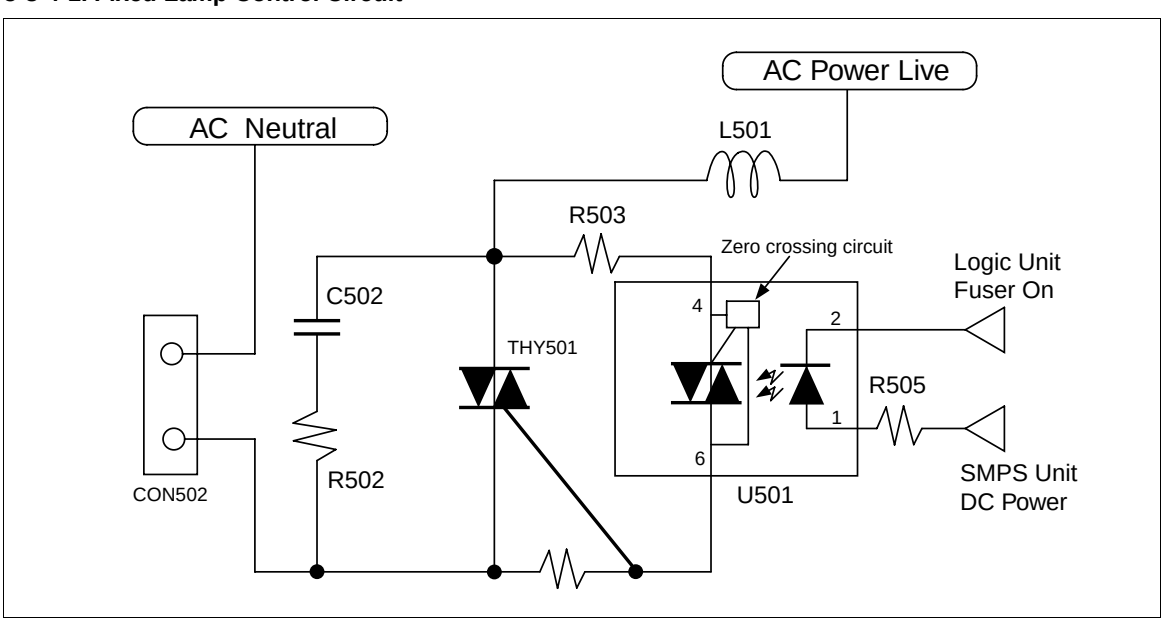
AC input power path is consist of the fuse (F501) for AC current limit, the Varistor (TNR501) for by-passing high voltage surge, the discharge resistor(R508), the AC impulse noise filtering circuit (C501, LF501, C503), the common mode grounding circuit (C504, C505), the second noise filter (LF502), and the thermistor (TH501).
When power is turned on, TH 501 limits inrush current by it's high resistance, and when it's temperature rises, it's resistance reduces to approximately zero ohms.

5-8-3 SMC (Switched Mode Control)

The AC input voltage is rectified and filtered by BD552 and C507 to create the DC high voltage applied to the primary winding of T501. TR01 pin #1 is driven by the SMPS device U502. U502. auto-starts and chops the DC voltage. The U502 is PWM SMPS IC and has internally a SMC (switched mode control) IC and a MOS-FET output stage. The SMC IC has a Auto-restart without a Power Supply for the IC and a Thermal Shutdown function and so on. C509, R512, C510, D505 clamp leading-edge voltage spikes caused by transformer leakage inductance.
The power secondary winding (pin # 11-12) is rectified and filtered by D507, C552, L551, and C554 to create the 5V output voltage. The bias winding (pin # 4-5) is rectified and filtered by D506 and C511 to create U502 bias voltage. The secondary output 5V is regulated through the path of the voltage divide by R553, R556-U503 switching PC252-the bias voltage of U502-U503 PWM duty cycle-T501 secondary voltage. C508 filters internal pin, determines the auto-restart frequency, and together with R506, compensates the control loop. U552 of the secondary stage -12V is the Low Power-loss Regulator with built-in over-current protection function.

5-8-4. Fixed Temperature Control

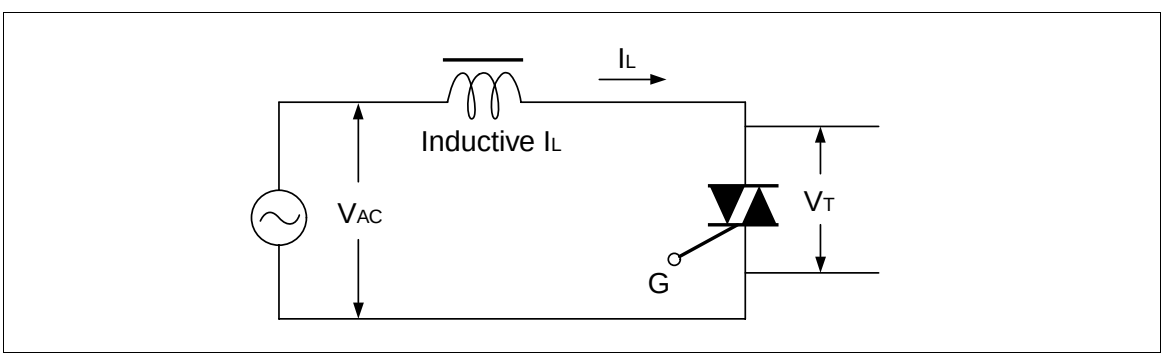
5-8-4-1. Fixed Lamp Control Circuit



Fixed Lamp Control Circuit

5-8-4-2. The Concept of Fixed Lamp Control

For fixed lamp control, the logic unit “fuser on” control signal and SMPS unit DC power must be supplied. This circuit turns on only when “fuser on” sends the signal and the DC power is supplied.
The following explains how the fixed lamp control circuit works.
Logic unit “fuser on” sends trigger current to triac driver U501 LED, then the infrared ray is detected by U501 photo detector. Next, U501 triac is conducted.
The conducted current sends trigger input to triac THY501 gate. At this point, THY501 is conducted and AC power is supplied to fixed lamp. Lamp is turned on and temperature rises.
As this fixed lamp control circuit uses the AC voltage (“+” and “-” are repeated) as the power supply, it used two-way triac (THY501), which has advantage over one-way SCR considering the price, size and reliability. Triac's gate can be triggered by either forward or reverse signal. Once triac is turned on, it will not be controlled by gate signal, but will be continuously on until the current between major terminals decreases below the holding current. In other words, you cannot turn it off with reverse signal unlike SCR. This property is called current-voltage threshold rise rate (commutation: dv/dt). In AC power control
application, triac has to turn off conduction in each zero crossing or switch it twice in each cycle. This switching operation is called commutation. It is possible to turn off the triac at the end of half cycle by eliminating the gate signal when the load current (IL) is gained at the level equal to or lower than holding current. When triac commutes off-line, the direction of the voltage of the both ends of triac will be reversed and increase up to the maximum value of line voltage (VAC). At this point, the width of rise rate will be determined by dv/dt and overshoot voltage, by the circuit. When triac commutes off-line, the voltage of both ends of triac will have the same voltage as the line voltage.



Inductive Circuit

6. Disassembly and Reassembly

6-1 General Precautions on Disassembly

WARNING

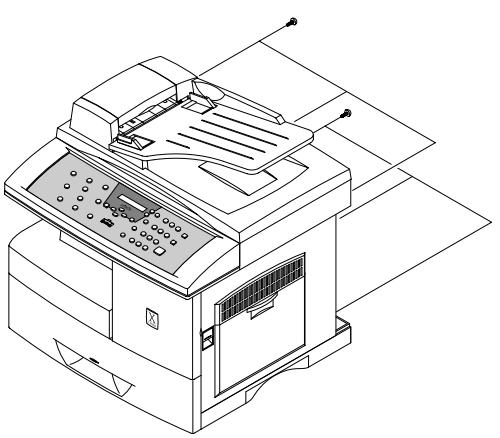
When you disassemble and reassemble components, you must use extreme care. The close proximity of cables to moving parts makes proper routing essential. If components are removed, any cables disturbed by the procedure must be restored as close as possible to their original positions. Before removing any component from the machine, note the cable routing that will be affected.

Whenever servicing the machine, you must perform as follows:

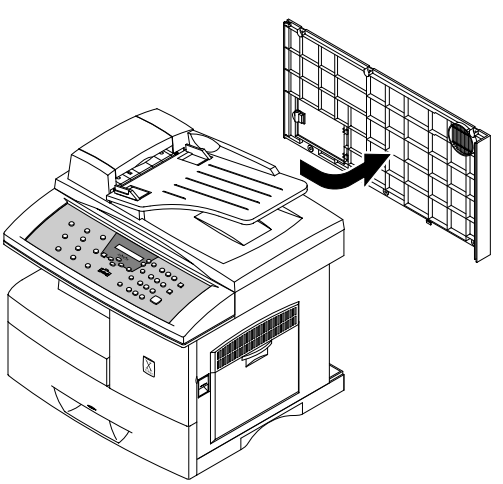
1. Check to verify that documents are not stored in memory.
2. Unplug the power cord.
3. Use a flat and clean surface.
4. Replace only with authorized components.
5. Do not use force to remove or install plastic components.
6. Make sure all components are correctly installed.

6-2 Rear Cover

1. Remove the six screws securing the rear cover.



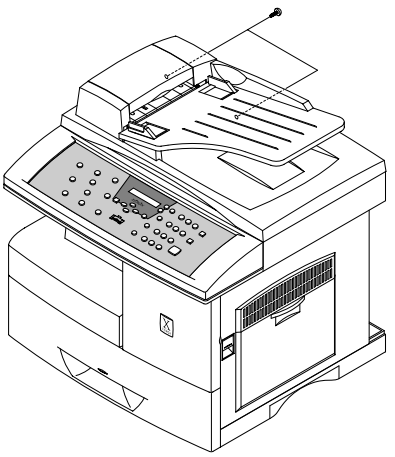
2. Separate the rear cover from the base frame and scanner assembly.



6-3 Scanner Assembly

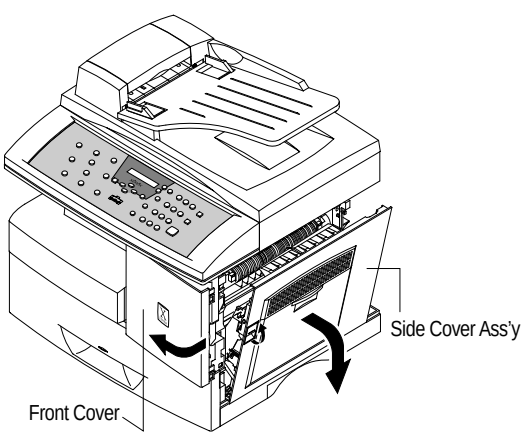
1. Before you remove the scanner assembly, you should remove:
   - Rear cover (see page 6-3).

2. Remove the two screws, as shown below.

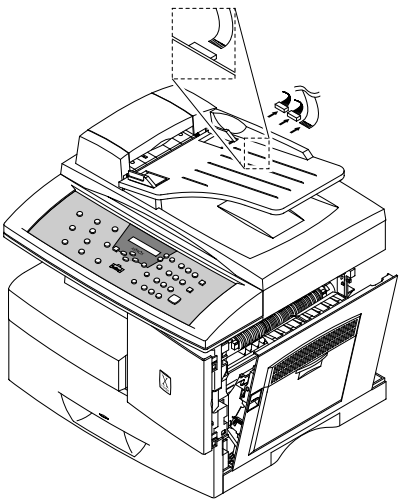


3. Open the side cover assembly and front cover, as shown below.

.



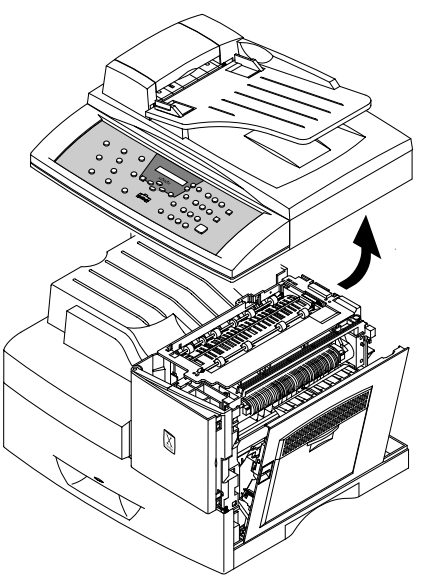
4. Unplug the two connectors and CCD cable.



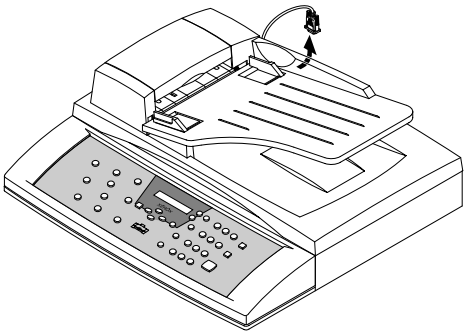
CAUTION

You should disconnect the CCD cable vertically to avoid CCD cable pin damage.

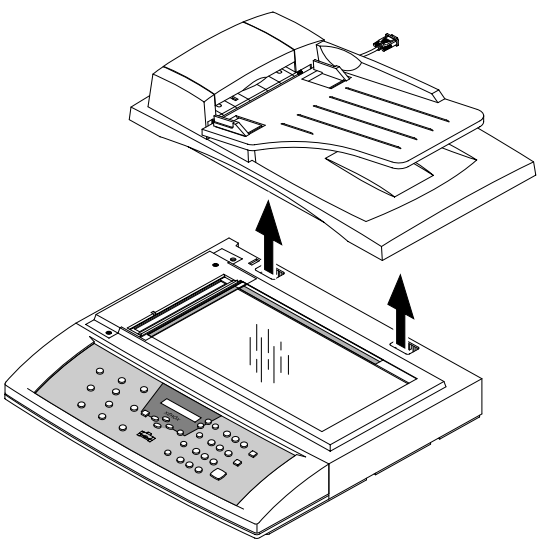
5. Pull up the scanner assembly in the direction of arrow.



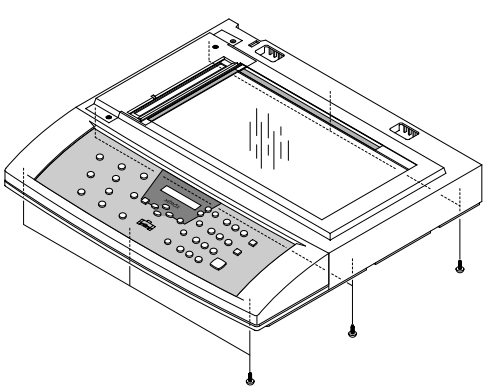
6. Remove the connector from the platen assembly.



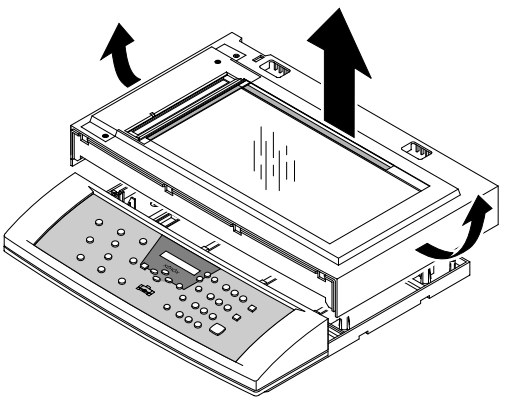
7. Pull the ADF assembly upward and remove it.



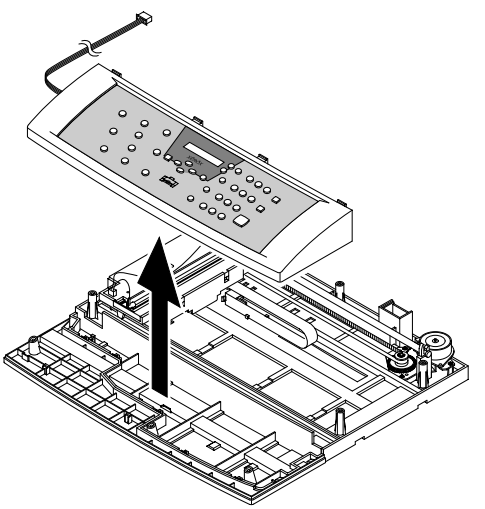
8. Remove the eight screws securing the platen assembly.



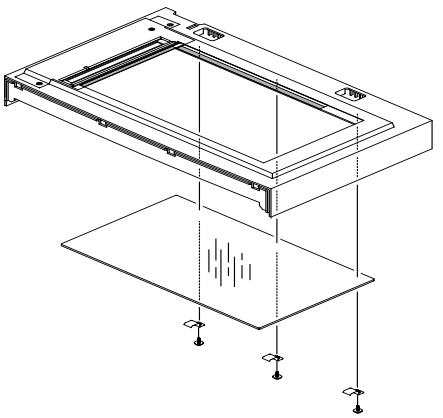
9. Unlatch the scan upper assembly securing the glass and remove it.



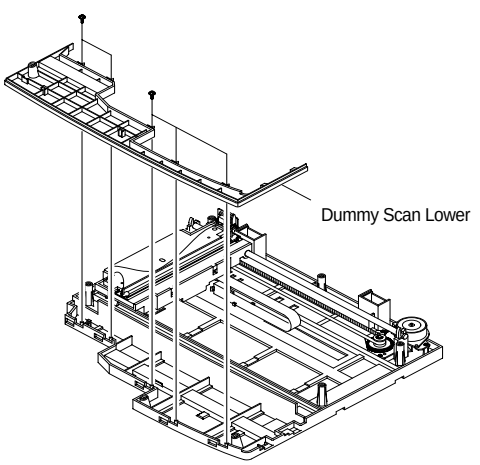
10. Unplug the one connector and remove the OPE assembly.



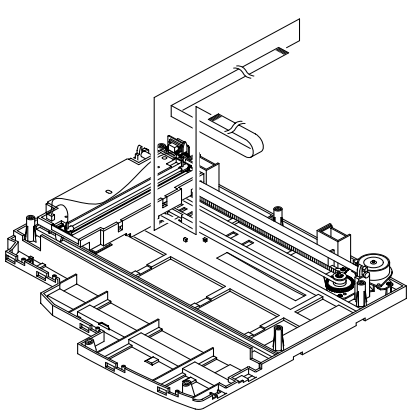
11. Remove the three screws and take out the glass from the cover scan upper assembly.



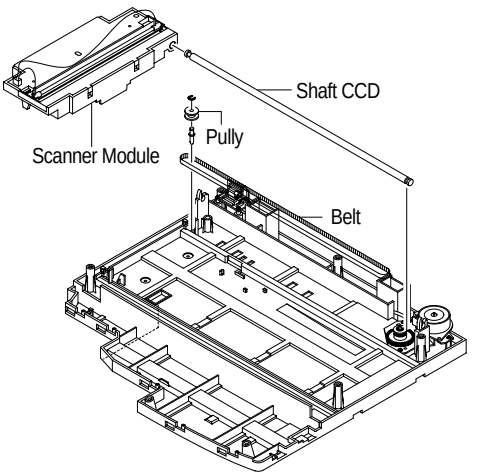
12. Remove the five screws and dummy scanner lower.



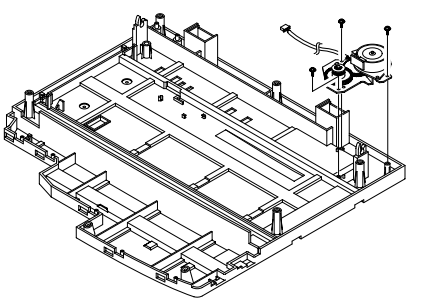
13. Remove the CCD cable.



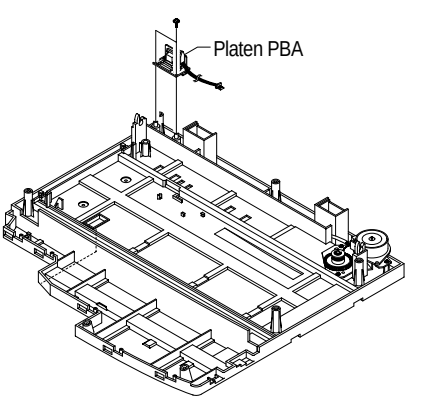
14. Pull up the shaft CCD and take out the scanner module.



15. Remove three screws and take out the motor bracket.



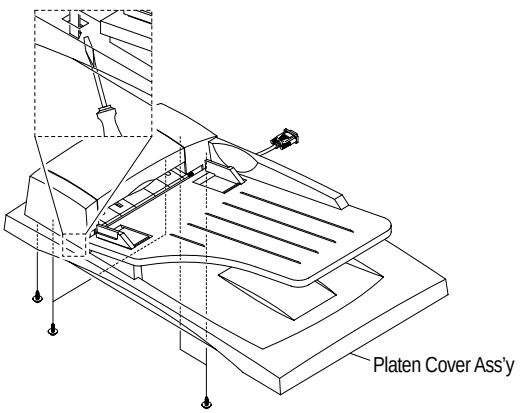
16. Remove two screws and take out the platen PBA.



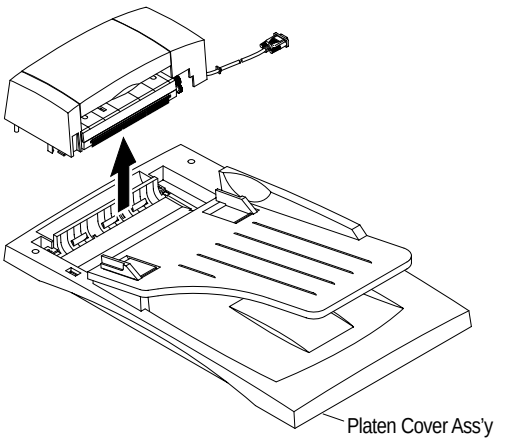
6-4 ADF Assembly

1. Before you remove the ADF assembly, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).

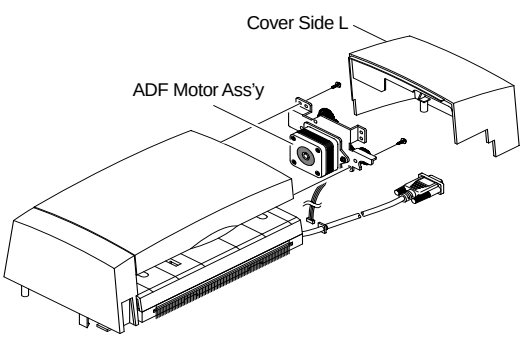
2. Remove the five screws securing the platen cover and unlatch the ADF assembly by pushing the part hooked the platen cover using a sharp tool.



3. Pull the ADF assembly upward and remove it.



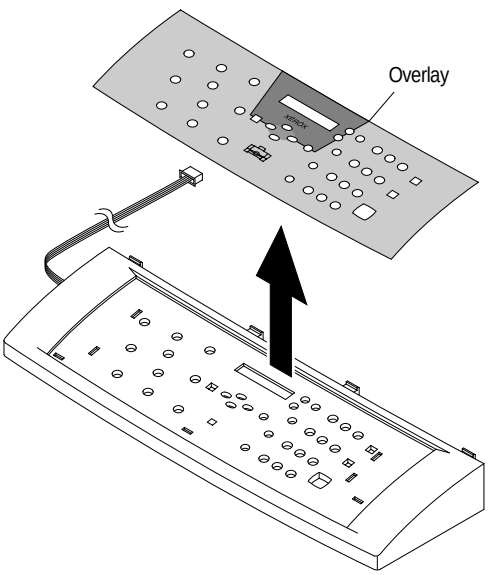
4. Remove two screws and take out the ADF motor assembly.



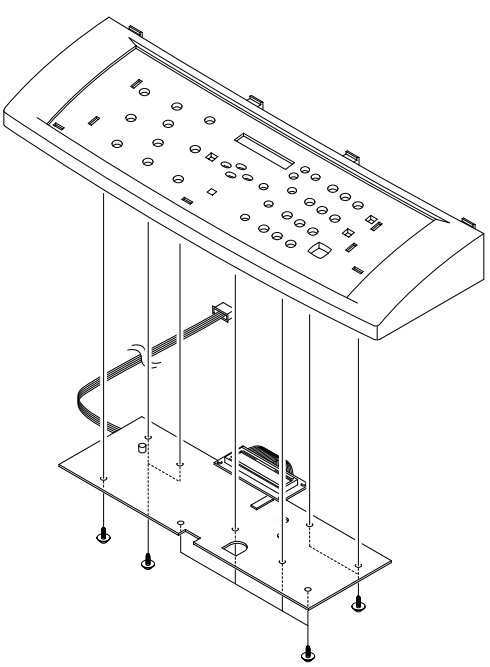
6-5 OPE Assembly

1. Before you remove the OPE assembly, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).

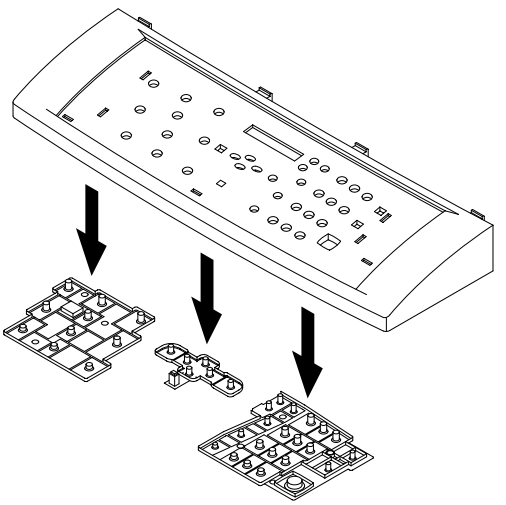
2. Pull the overlay upward and remove it.



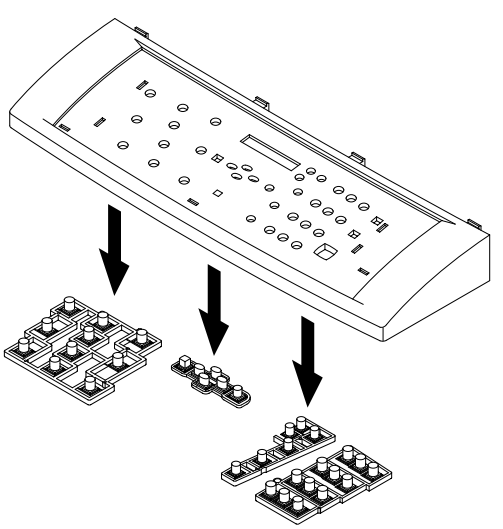
3. Remove nine screws securing the OPE PBA to the OPE cover.



4. Remove the contact rubber from the unit.

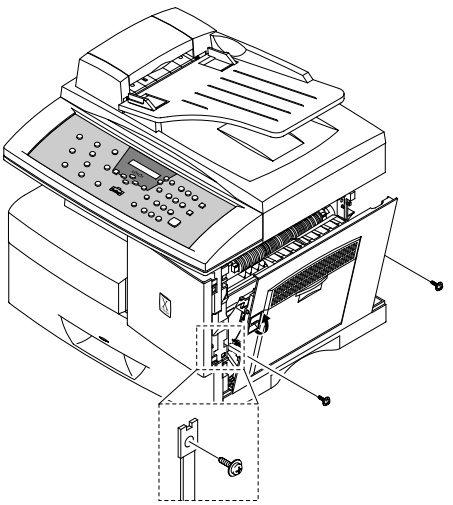


5. Remove the key pad from the unit.

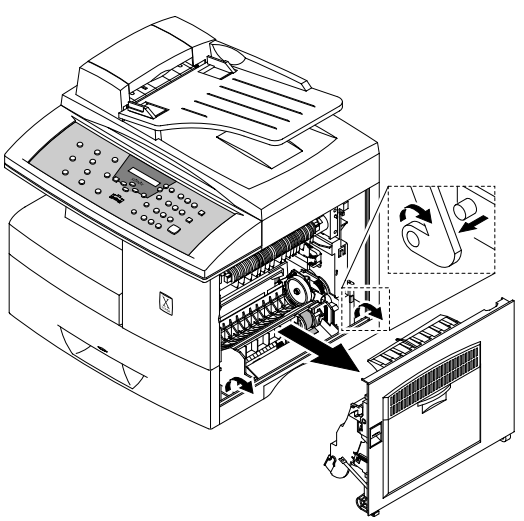


6-6 Side Cover Assembly

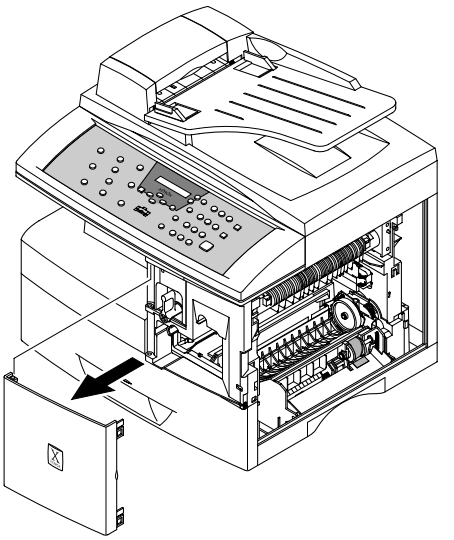
1. Remove the two screws to release the stopper securing the side cover to the main frame.



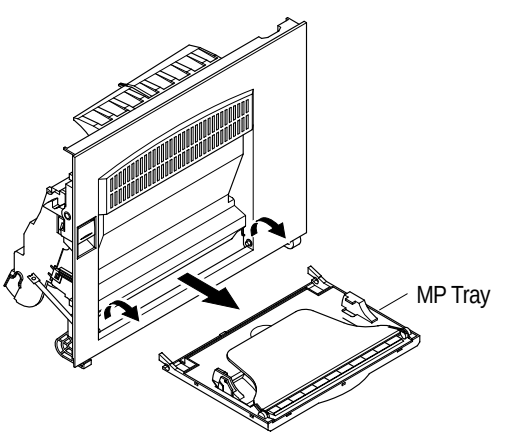
2. Release the right-bottom of the cover, then pull it the direction of arrow to release the other end.



3. Unlatch the cover front securing the base frame and remove it.

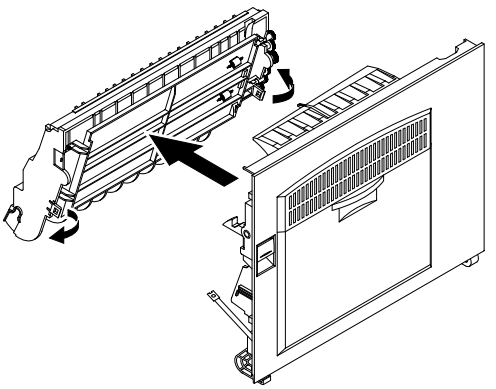


4. Unlatch the MP tray securing the side cover assembly and remove it.

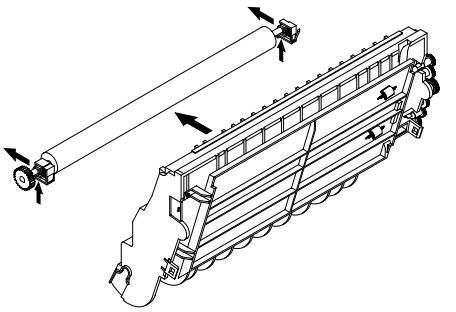


5. Unlatch the duplex assembly securing the side cover assembly and remove it

.



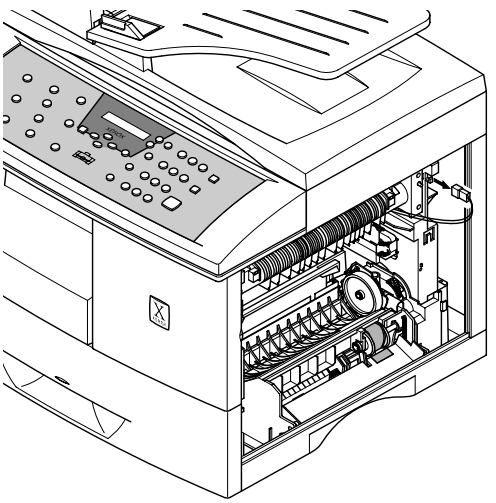
6. Take out the exit roller, as shown below.



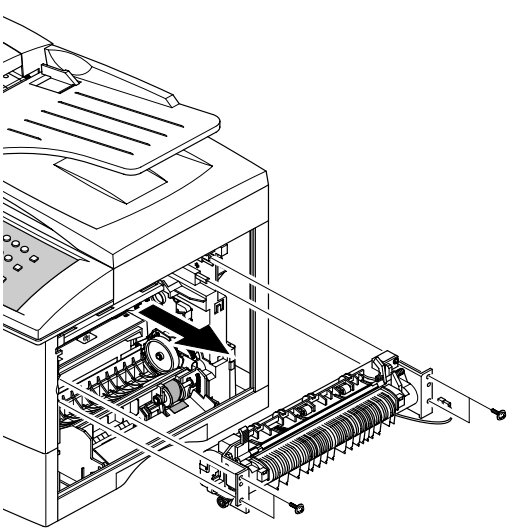
6-7 Fuser Assembly

1. Before you remove the Fuser assembly, you should remove:
   - Side cover assembly (see page 6-9).

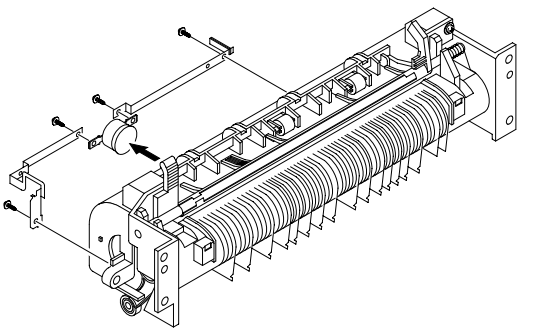
2. Unplug the connector.



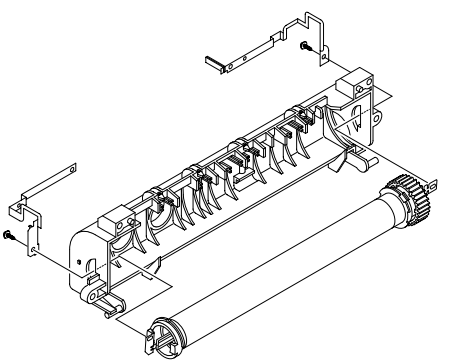
3. Remove the four screws and take out the fuser assembly.



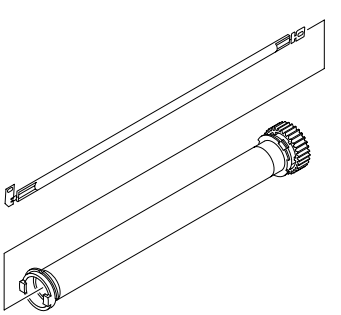
4. Remove the four screws and take out the thermostat.



5. Remove the two screws and take out the heat roller.



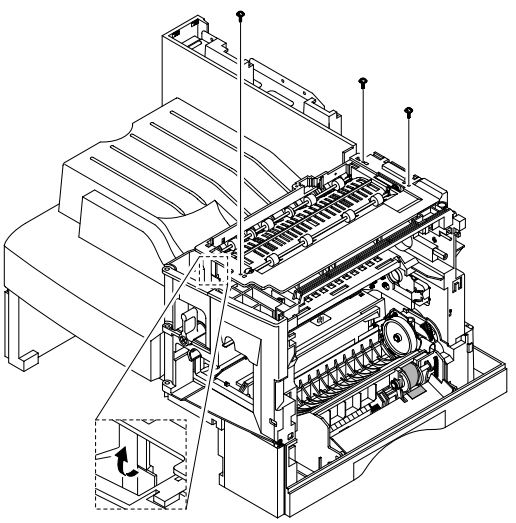
6. Remove the halogen lamp from the heat roller.



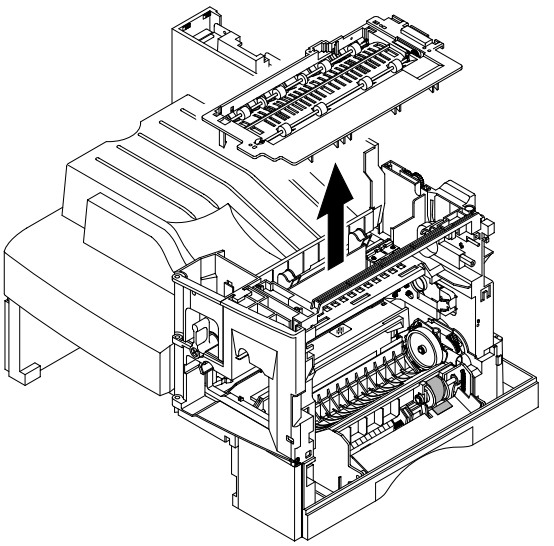
6-8 Exit Assembly

1. Before you remove exit assembly, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).
   - Side cover assembly (see page6-9).

2. Remove three screws and unlatch the exit assembly, as shown below.



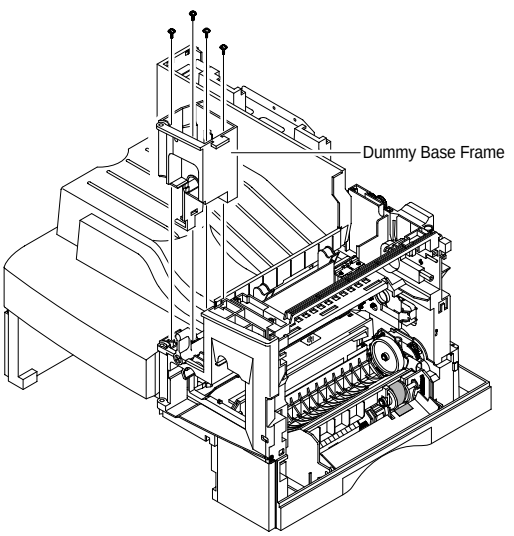
3. Pull the exit assembly and remove it.



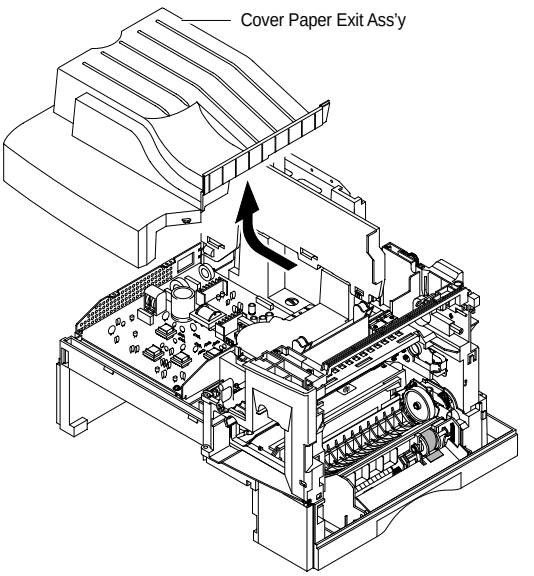
6-9 Cover Paper Exit Assembly

1. Before you remove the cover paper exit assembly, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).
   - Side cover assembly (see page 6-9).
   - Exit assembly (see page 6-12).

2. Remove four screws and take out the dummy base frame.



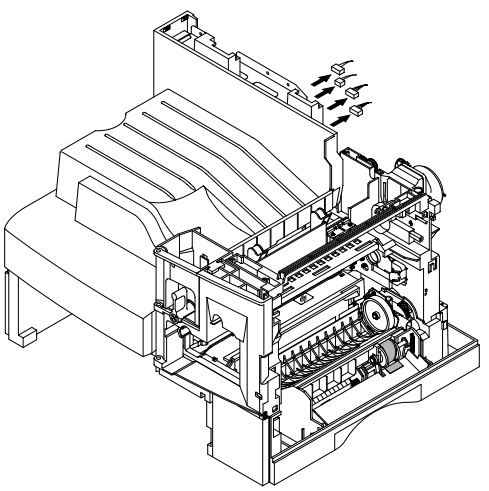
3. Remove two screws and cover paper exit assembly, as shown below.



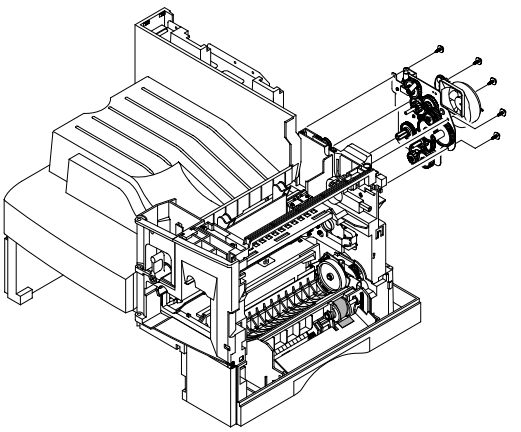
6-10 Drive Assembly

1. Before you remove the drive assembly, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).
   - Side cover assembly (see page 69).
   - Exit assembly (see page 6-12).

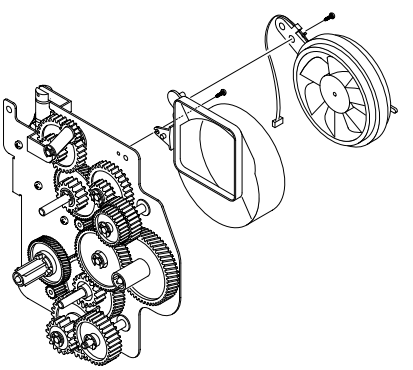
2. Unplug the all connectors.



3. Remove the five screws and take out the drive assembly.



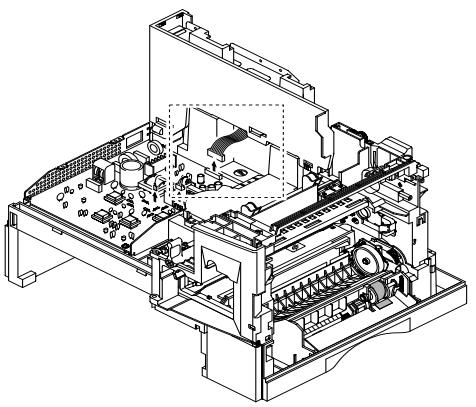
4. Remove the one screw and take out the fan and dust fan.



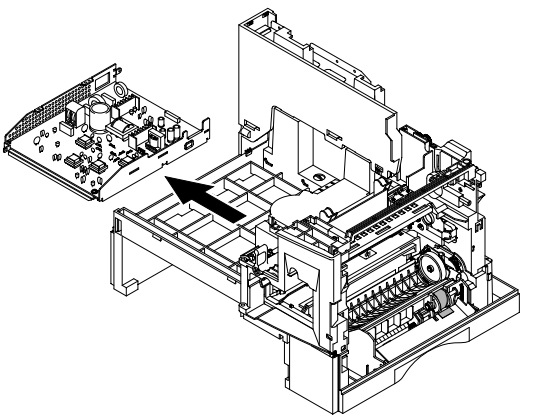
6-11 SMPS

1. Before you remove the LSU, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).
   - Side cover assembly (see page 6-9).
   - Exit assembly (see page 6-12).

2. Unplug the all connectors.



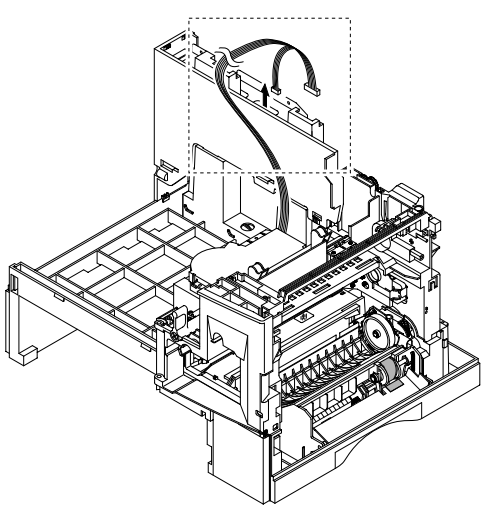
3. Remove the SMPS, as shown below.



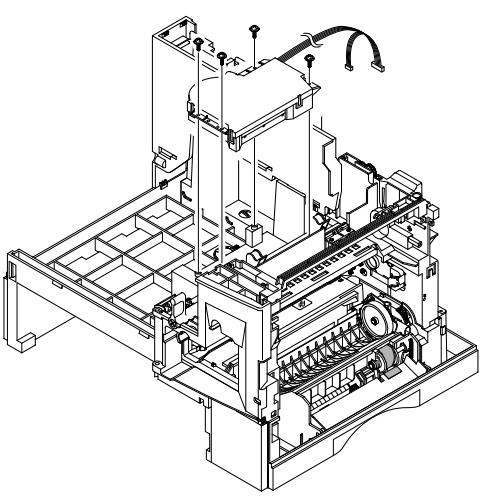
6-12 LSU

1. Before you remove the LSU, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).
   - Side cover assembly (see page 6-9).
   - Exit assembly (see page 6-12).

2. Unplug the two connectors.



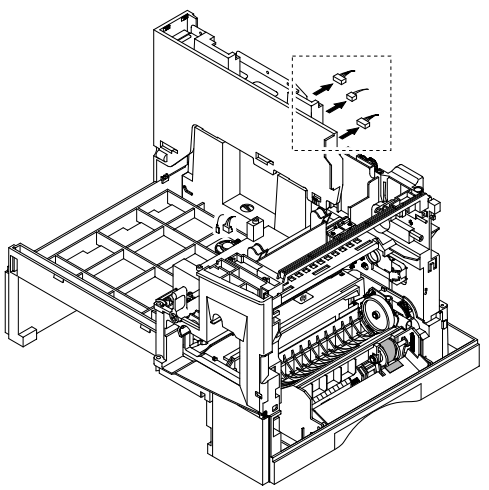
3. Remove the four screws and take out the LSU.



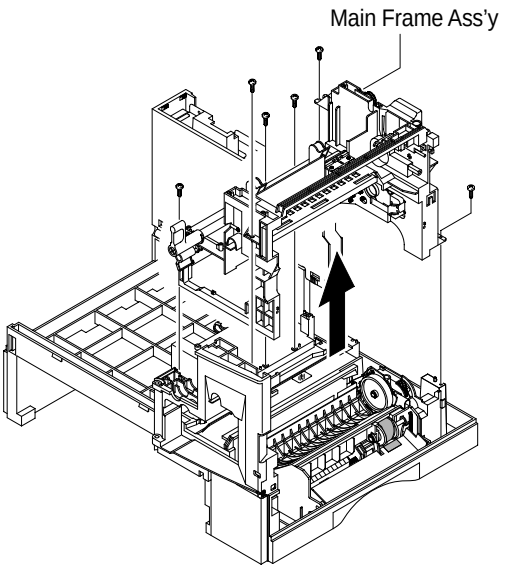
6-13 Main Frame Assembly

1. Before you remove the LSU, you should remove:
   - Rear cover (see page 6-3).
   - Scanner assembly (see page 6-4).
   - Side cover assembly (see page 6-9).
   - Exit assembly (see page 6-12).
   - LSU (see page 6-15).
   - SMPS (see page 6-15).

2. Unplug the all connectors.

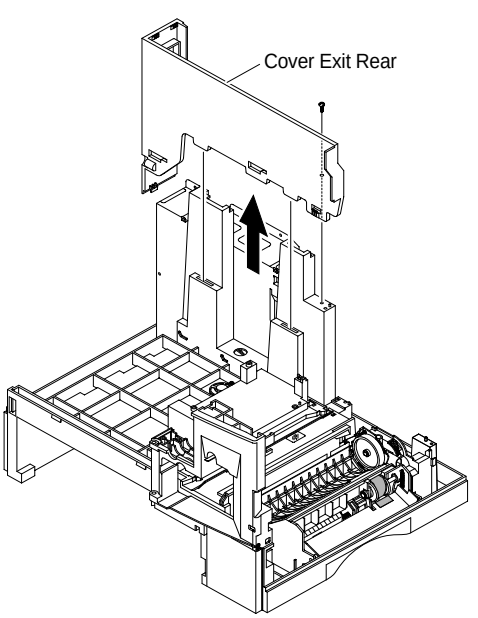


3. Remove the six screws and take out the main frame assembly.



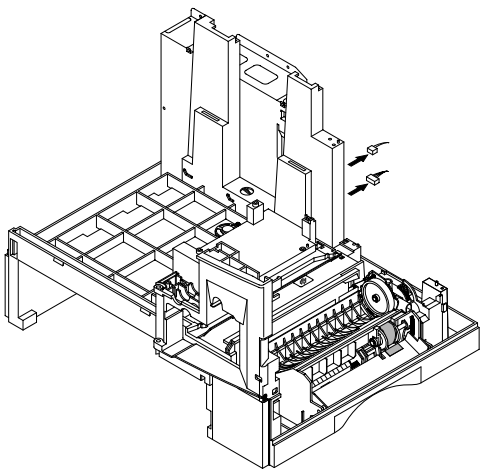
6-14 Cover Exit Rear

1. Remove the one screw and cover exit rear, as shown below.

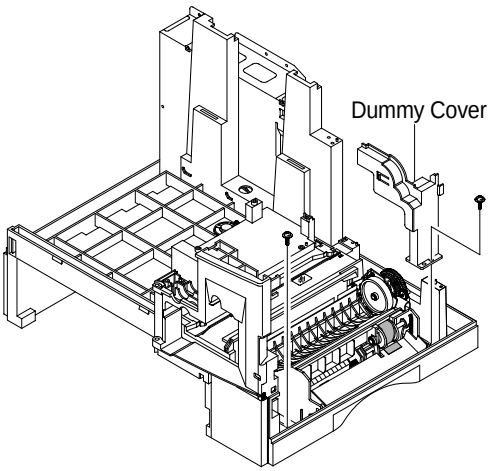


6-15 MP Assembly

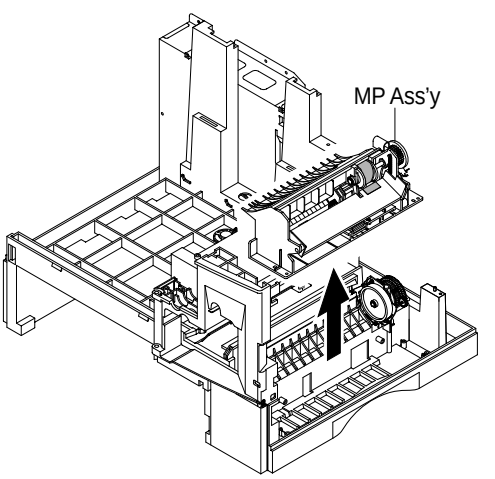
1. Unplug the two connectors.



2. Remove the two screws and take out the dummy cover.

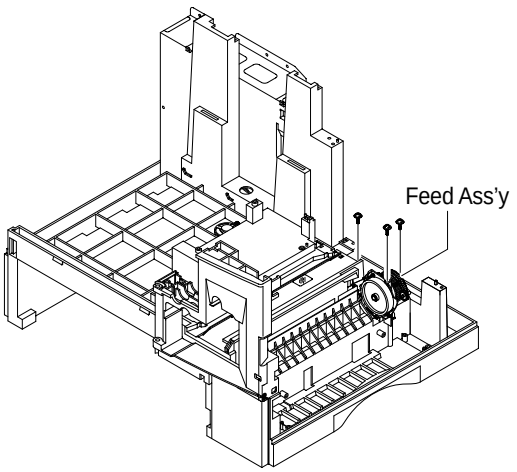


3. Pull the MP assembly upward and remove it.

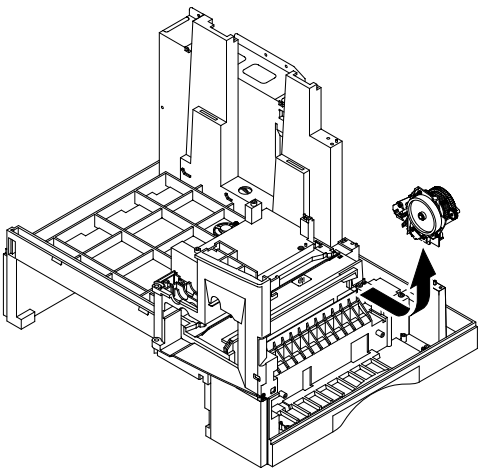


6-16 Feed Assembly

1. Remove the three screws.

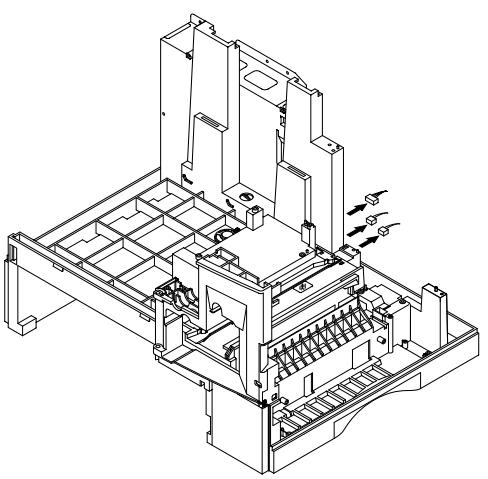


2. Pull the feed assembly upward and remove it.

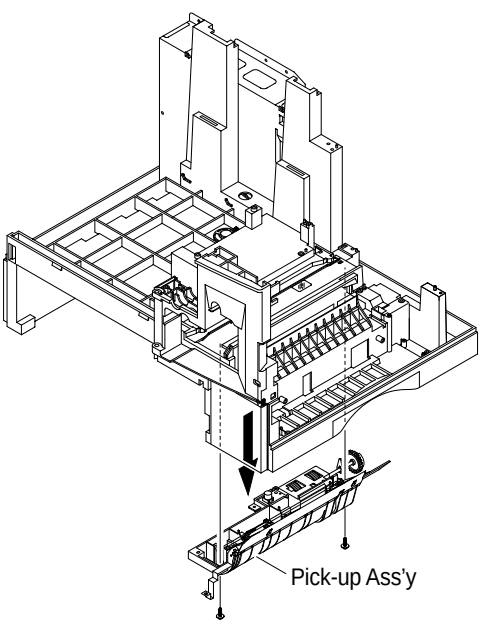


6-17 Pick Up Assembly

1. Unplug the three connectors.

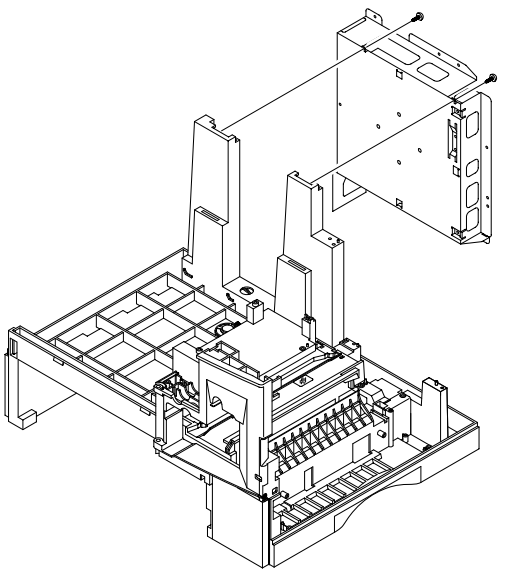


2. Remove the two screws and take out the pick up assembly, as shown below.

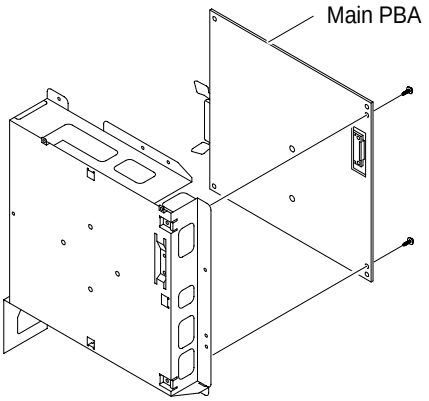


6-18 Main PBA

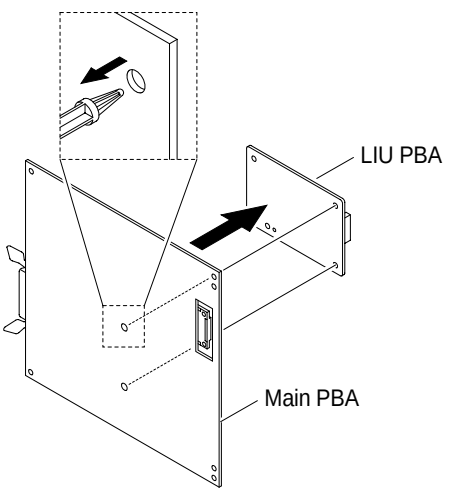
1. Remove the two screws and take out the shield main lower.



2. Remove the two screws and take out the main PBA from the shield main lower.



3. Unlatch the LIU PBA securing the main PBA and remove it.



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7. Maintenance & Troubleshooting

7-1 Preventative Maintenance

The cycle period outlined below is a general guideline for maintenance. The example list is for an average usage of 50 transmitted and received documents per day. Environmental conditions and actual use will vary these factors. The cycle period given below is for reference only.

COMPONENT	REPLACEMENT CYCLE
ADF roller	20,00 pages
Feed roller	50,000 pages
Transfer	50,000 pages
Fuser	50,000 pages
Toner CRU	6,000 pages
Drum DRU	15,000 pages

7-2 Diagnostics

This section describes methods and procedures to isolate the cause of a malfunction in the machine. This machine displays diagnostic information on the LCD. In addition, it can perform a series of tests that allow the machine to observe individual machine functions.

7-2-1 Error Messages.

Error Message	Description	Solution
RETRY REDIAL?	The machine is waiting for the programmed interval to automatically re-dial.	You can press START to immediately re-dial, or STOP to cancel the re-dial operation.
COMM. ERROR	A problem with the FAX communications has occurred.	Try again.
DOCUMENT JAM	Loaded document has jammed in the feeder when document jam occurred at ADF module	Clear the document Jam.
DOOR OPEN	The side cover is not securely latched.	Close the cover until it clicks in place.

Error Message	Description	Solution
GROUP NOT AVAILABLE	You have tried to select a group location where only a single location number can be used, such as when adding locations for a multi-dial operation.	Try again, check location for group.

Error Message	Description	Solution
LINE ERROR	Your unit cannot connect with the remote machine, or has lost contact because of a problem on the phone line.	Try again. If failure persists, wait an hour or so for the line to clear then try again.
LOAD DOCUMENT	You have attempted to send a FAX document with no document loaded.	Load a document and try again.
MEMORY FULL	The memory has become full.	Either delete unnecessary documents, or re-transmit after more memory becomes available, or split the transmission into more than one operation.
NO ANSWER	The remote machine did not answer after all the re-dial attempts.	Try again. Make sure the remote machine is OK.
NO. NOT ASSIGNED	The speed dial location you tried to use has no number assigned to it.	Dial the number manually with the keypad, or assign the number to the speed dial and try again.
NO PAPER [ADD PAPER]	The paper has run out. The printer system stops.	Load new paper in the paper tray.
OVERHEAT	The printer has overheated.	The machine will automatically return to the standby mode when it cools down to normal operating temperature. If failure persists, install a new ELA HOU-FUSER, PL 1-14.

Error Message	Description	Solution
PAPER JAM 0 OPEN/CLOSE DOOR	paper has jammed in paper feeding area. paper is jammed in pick-up unit	Press STOP and clear the jam.
PAPER JAM 1 OPEN/CLOSE DOOR	paper has jammed inside the unit. paper has jammed in paper exit unit.	Clear the jam.
TONER EMPTY	The machine has encountered the toner empty condition.	Install a new ELA -TONER UNIT SET, PL 1-8
DRUM WARNING	The machine has encountered the drum life,14000 print pages.	The drum is nearing the end of it's life.

Error Message	Description	Solution
REPLACE DRUM	When the machine has encountered the end of life, 15000 print pages.	The drum has reached the end of it's life, install a new ELA-OPC UNIT SET, PL 1-7.
NO CARTRIDGE	The machine detected the toner cartridge has not been installed.	Check that the toner cartridge is fully seated in the machine.
BYPASS JAM	The machine has detected no feed from bypass Tray.	Clear the jam.
DUPLEX JAM	The machine detected a duplex jam in the middle of machine.	Clear the jam.
LINE BUSY	The remote FAX didn't answer	Try again.

7-2-2 Test Mode

The test mode is used to test certain functions of the machine. The available tests are:

•User mode: Clean drum, Notify toner low
•tech mode: switch test, modem test, SRAM test, DRAM test, ROM test, Pattern test, Clear count, Answer On CNG, Adjust shading, Flash upgrade.

To enter the Tech Mode:

1. Enter the Tech mode by pressing **Menu, #, 1, 9, 3, 4.** The letter “T” will appear in the top right of the display.
2. In Tech mode, press **Menu**, ‘Maintenance [System]’ is displayed on the LCD.
3. Press the **Select** key
4. Scroll to the options by pressing **Up** and **Down** navigation key repeatedly until the correct selection is found.
5. Press the **Select** key to initiate the tech mode.
6. Perform step 1 to return to user mode.

• Cleaning DRUM

This procedure removes excess toner on the OPC drum.

1. Make sure that paper is loaded in the automatic feeder or document glass (platen).
2. Press **Menu**, -> **Up** or **Down** key -> **Maintenance** -> **Select** -> **Up** or **Down** key ->**Clean Drum**
3. Press ‘**Select**’.The machine automatically feeds a sheet of paper, and prints out. The excess toner on the OPC drum surface is fused to the paper.

• Notify Toner Low

With this feature enabled, when the toner becomes low, the toner low information will be sent to the specified contact point, for example, the service company. After you access this menu, select **on**, and when the LCD prompts, enter the name and the number of the contact point, the customer’s FAX number, the model name, and the serial number.

• Switch Test

This test checks the operation of the LCD display and the LED indicators that interface the switches on the operation panel.

• Modem Test

This test causes the machine to generate a particular frequency to verify the operation of the modem and it’s control circuits.

• SRAM Test

This test is used for checking the Random Access Memory (RAM) on the main PBA. If all memory is working normally, the LCD shows TESTING OK!.
When this testing is carried out, any picture data stored in memory is erased.

• ROM Test

This test mode will display and check the current ROM level in your machine.

FLASH VER.: 1.00 V
ENGINE VER: 1.00 V

• DRAM Test

This test checks the DRAM memory status and shows if it is functioning properly

• Pattern Test

1. Select **Pattern Test**.
2. There are 4 different pattern tests. Scroll to the options by pressing **Up** or **Down** repeatedly until you find the correct selection.
3. Press **Select** key.

• ADJUST Shading

This procedure is needed to set (make) a new shading reference value. The reference value is preset at factory. However, when a new CCD or main board is installed, the reference value must be set again.
Follow the next steps as instructed through the LCD window. After the shading value has just been set, the shading value pattern is automatically printed. The shading value pattern shows the value of the white reference level of the Contact Image Sensor. Check for the waveform in the pattern. For best results the waveform should be level. If there are many points sharply broken, perform the adjust shading procedure several times until the waveform is level.

7-2-3 Maintenance List

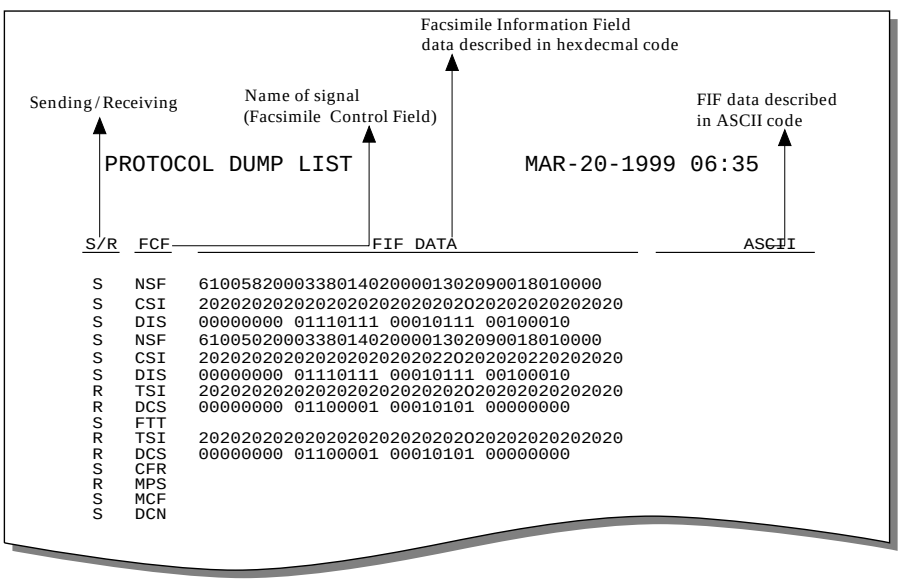
A number of reports can be printed from the FAX machine within the test mode. The protocol list and memory dump list all contain detailed information which may be required when contacting technical support.

To printout the protocol and memory dump lists:

1. Enter Tech mode by pressing **Menu, #, 1, 9, 3, 4**.

2. In Tech mode, press the **Reports** button, 'Protocol Report' will be displayed on the LCD.

3. Press **Up** or **Down** key repeatedly until you find 'Reports Protocol', press **Select** key. A sample of a protocol dump list will be printed.



7-2-4 Engine Test

The Engine test mode is used to check the operation of the components related the printer engine. In this mode, the tests are classified into six sections. The available tests are:

0: MOTOR Test, PTL Test, FAN Test, FUSER Test.
1: LSU MOTOR Test, LD ON Test, LSU OPERATION Test.
2: FEED Sensor Test, EXIT Sensor Test, COVER Sensor Test, 1st Cast Sensor Test, MP Sensor Test.
3: 1st Cast SOLENOID Test, MP SOLENOID Test, DUPLEX SOLENOID Test.
4: MHV Test, DEVBIAS Test, THV Test, THV NEG Test, THV TRIGGER TEST.
5: All components test.

To enter the Engine test mode:

1. Press **Menu, #, 1, 9, 3, 1** in sequence.
2. When you see 'ENGINE TEST?', press Start 'ENGINE TEST NO>O-5'appears in LCD window.
3. Enter the number you want.
4. Scroll to the options by pressing **Up** or **Down** key repeatedly until you find the one you want.
5. Press **Start** to begin the test.
6. After the engine test is finished, press **Stop** to exit the engine test mode.

7-2-5 Firmware Upgrade

1. Upgrade Local Machine.

- By using ControlCentre Application (Parallel & USB).

- Activate ControlCentre 5.0.
- Select **Firmware Upgrade** Window.
- Click **Browse** Icon to search the Upgrade Firmware.
- Click **Upgrade** Icon.
- The message “Upgrading Firmware” will be displayed.
- Wait until the machine is initialised, this will happen automatically after completion of the upgrade.
- Click the **Refresh** icon when the machine has been initialized.
- The machine is now updated with New Firmware.

2. Upgrade the Remote Fax.

- Performed on the Local Machine in the Service Center.
- Go to the **Tech Mode** -Search for the Flash Upgrade in Maintenance Item, select **REMOTE**.
- Enter Remote Fax Number to be upgraded.
- Multiple remote FAXs can be upgraded sequentially if you enter the multiple FAX numbers.
- Select **All Remote Fax Number** if required.
- Confirm Input. - Machine will start dialing and send its own image codes to remote **fax** machine(s).
- It will take 10 to 15 minutes to send the image to each remote FAX machine.
- The Remote Fax machine will automatically program the received image on its flash memory.
- If ECM mode is off, or Received Memory is not empty, or machine is being used, the remote upgrade will not be performed.

7-3 Scanner

7-3-1 Copy

PROBLEM	ITEMS TO BE CHECKED.	HOW TO SOLVE
White copy	• Check the scan-cover is not open.	• Ambient light can cause image problems
	• Check shading profile.	• Remake shading profile in the Tech mode.
	• Check white/black reference voltage in Main PBA.	• Replace Main PBA if it is defective. - U16-97 = 3.3V - U16-98 = 3.3V - U16-99 = 1.5V
	• Check the CCD lamp is on when scanning.	• If the CCD is defective, replace it. - CN3-19 is 5.8V when white original copying for R, B and 3.5V for G.
Black copy	• Check for CCD problem in Main PBA.	• Check the CCD harness contacts.
	• Check shading profile.	• Remake shading profile in the Tech mode.
	• Check the CCD problem in Main PBA.	• If the CCD is defective, install a new ELEC/MECH-SCANNER MODULE, PL 2-2-21. - Cn3-19 is 7.3V when idle for R, B, and 5V for G.
Defective image quality	• Check shading profile.	• Remake shading profile in the Tech mode.
	• Check the gap between original and scanner glass.	• A gap greater than 0.5mm can cause a blurred image.
	• Check printing quality.	• See “Print” troubleshooting.

PROBLEM	ITEMS TO BE CHECKED.	HOW TO SOLVE
Abnormal noise	• Check the scanner glass and any mechanical disturbance.	• Check the scanner glass is correctly located and clean, check that the CCD carriage moves smoothly.
	• Check the motor driver in Driver PBA.	• If any driver is defective, replace the main PBA. - U55 or U55-1, 15 = 0V to 24V swing signal when operating.

7-3-2 PC-Scan

PROBLEM	ITEMS TO BE CHECKED.	HOW TO SOLVE
Scanning error	• Check the printer cable.	• Check correct installation, and use standard IEEE1284 cable.
	• Check how TWAIN driver is installed.	• Remove any other scanner driver. • Reboot after reinstallation of the TWAIN driver.
	• Check harness contact.	• Check CN14 contact in Main PBA
	• Check the IEEE1284 signal level.	• If any signal level is defective, install a new Main PBA. - U36-66~74 in Main PBA = 0.8V to 2.4V TTL signal. • If necessary, install a new PBA MAIN MAIN, PL 1-19
Defective image quality	• Check shading profile.	• Remake shading profile in the Tech mode.
	• Check the gap between original and scanner glass.	• A gap greater than 0.5mm can cause a blurred image.
Abnormal noise	• Check the scanner glass and any mechanical disturbance.	• Check the scanner glass is correctly located and clean, check that the CCD carriage moves smoothly.
	• Check the motor driver in Driver PBA.	• If any driver is defective, replace the Main PBA. - U55 or U56-19 = 0V to 24V swing signal when operating.

7-4 FAX

7-4-1 FAX/Telephone Precautions

PROBLEM	ITEMS TO BE CHECKED.	HOW TO SOLVE
TEL LINE CANNOT BE ENGAGED (NO DIAL TONE)	• When you press the “OHD” key: a) Check line cord connection. b) Check MAIN LIU harness, and CN1(LIU PBA). c) Check relay operation of LIU PBA: Is the control signal of CN20-7(main) low?	a) Insert plug into the socket named “line”. b) Replace defective parts. c) Replace main PBA IF the control signal of CN20-7(main) is high. Replace LIU PBA if high but phone line cannot be connected.
Cannot MF dial	• Check CN20 (main PBA), main-LIU harness, and CN1 (LIU PBA)	• Replace defective parts.
MF dial is possible but not DP dial.	• Check DP control signal of CN20-11 of MAIN PBA and the circuit around R15. U6 and Q2 of LIU PBA.	• Replace LIU PBA.
Defective FAX transmission	• Check CN20 (main PBA), main LIU harness, and CN1(LIU PBA). • Is the external phone off the hook? • Check ‘hook off’: Refer to ‘TEL LINE CANNOT BE ENGAGED’ above. • Check the control signals of CN20-11. • Check transmission path: Check output of CN20-3.4 and T2-4(LIU PBA). • Check reception path: Check output CN1-1 (LIU PBA) and input of CN20-1(main PBA).	• Replace defective parts. • Replace LIU PBA if low. • Refer to ‘TEL LINE CANNOT BE ENGAGED’ above. • Replace main PBA, if the signals of CN8-11 (MAIN PBA) is low. • Replace main PBA, if abnormal. • Replace LIU PBA if CN1-1(LIU PBA) is not confirmed. Replace main PBA if CN20-1(MAIN PBA) is not confirmed.
Defective automatic FAX reception	• Is the ring checked? Check ring pattern at CN1-9 (LIU PBA). • Refer to ‘Defective FAX Transmission.’	• Replace LIU PBA if it cannot be checked. • Refer to ‘Defective FAX Transmission’.

7-5 Print Quality

Error Status	Check	Solution
Vertical black line and band.	1. Bad blade in toner cartridge. 2. LSU.	1. Install a new toner cartridge. 2. Install a new LSU.
Vertical white line.	1. LSU window contamination. 2. Toner cartridge.	1. Clean LSU window. 2. If not LSU contamination, install a new toner cartridge.
No image.	1. Has the seal tape been removed? 2. Is the GND OPC well grounded? 3. LSU running well? 4. Is the bias voltage normal? 5. Low toner? 6. Is there video data from Main PBA	1. Remove the seal tape. 2. Measure the resistance between. frame ground and the ground spring attached to the frame. If necessary clean the components to achieve a good earth. 3. Adjust LSU or install a new LSI. 4. Normal Dev bias = -350V. 5. If necessary install a new toner cartridge. 6. Test engine test pattern, if necessary, install a new Main PBA
Light image.	1. Has the seal tape been removed? 2. LSU light power normal? 3. Enough toner? 4. High charger voltage? 5. Lower bias voltage 6. Contamination of high voltage contact 7. Transfer voltage and roller.	1. Remove the seal tape 2. LSU light power check is difficult. Compare with new one and check. 3. Check toner and developer counter 4 and 5. Check all high voltage outputs 6. Leakage of toner cause bad contacts and increases contact resistance. Clean the contaminated area.
Dark image.	1. LSU light power normal? 2. Bias voltage output is high? 3. Video data is always supplied?	1. Check the rated level and replace. 2. Set to correct voltage. 3. Replace defected board.

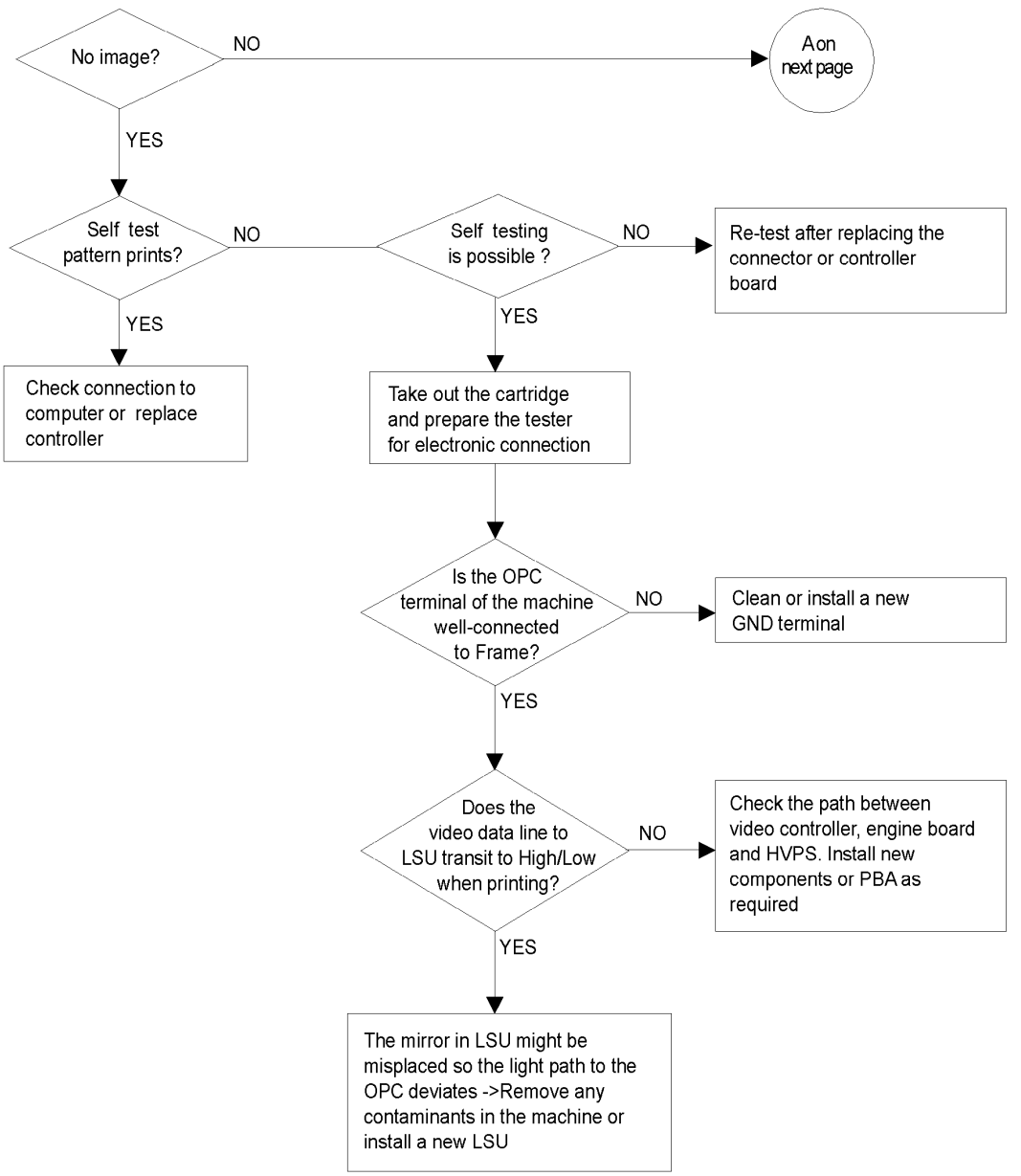
Error Status	Check	Solution
Background.	1. High voltage output is normal? 2. C/R of toner cartridge is contaminated?	1. Set to correct voltage. 2. Install a new toner cartridge.
Ghost.	1. High voltage output. 2. Pre-transfer lamp. 3. Bad high voltage contact.	1. Check all high voltage outputs. 2. Check the operation of the pre-transfer lamp. 3. Clean the contaminated contact.

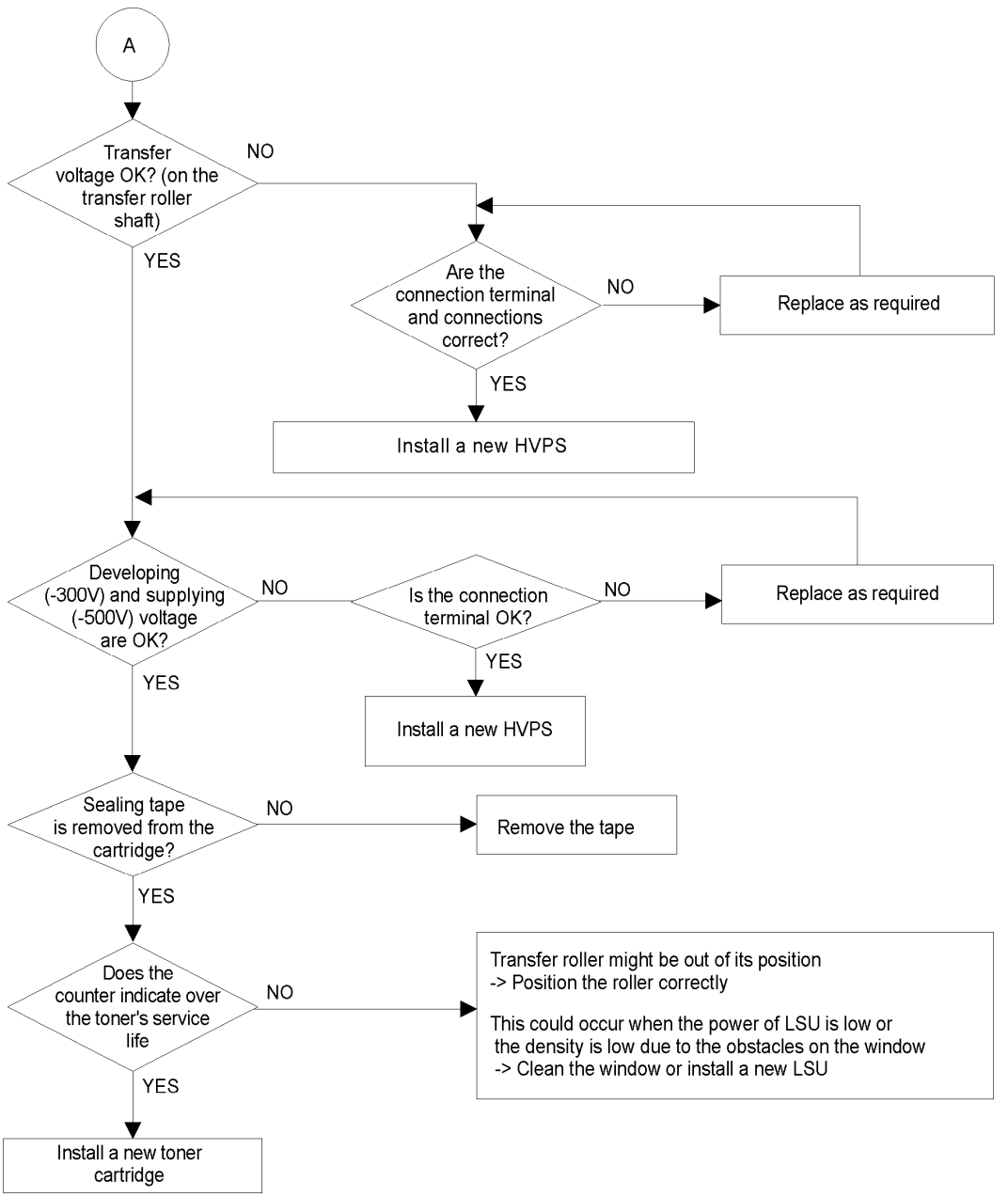
Error Status	Check	Solution
Stains on back of paper	1. Contamination of transfer roller 2. Stains of paper path 3. Pressure roller's contamination	1. Clean the transfer roller with vacuum cleaner 2. Clean the area of paper path with cloth or air cleaner. 3. Install a new fuser.
Poor Fusing	1. Check the paper quality. 2. Check fusing temperature. 3. The machine has been in a low temperature for a long period of time?	1. Try alternative paper. 2. Check engine controller board. Measure the thermistor voltage to CPU, 2.62V±5% will be measured if the system is working correctly. Check the thermistor contact and thermistor. 3. Re-check the fusing after placing the machine in a warm place for an hour or more.
Partial blank image (not periodic)	1. Toner is low? 2. The toner cartridge is out of position?	1. Install a new toner cartridge. 2. Ensure the toner cartridge is correctly installed.
Partial blank image (periodic)	1. Damaged developer unit 2. Defect repeated every 94 mm. 3. Defect repeated every 47 mm.	1 and 2. Install a new toner cartridge. 3. Install a new transfer roller.
Different image density (left and right)	1. Charge roller's pressure is uneven along it's length. 2. Dev. roller and OPC or Dev. roller and blade's pressure is uneven along it's length. 3. Transfer roller's pressure is uneven along it's length.	1 and 2. Install a new toner cartridge 3. Check left and right spring of transfer roller and the developer spring inside the unit.
Horizontal band	1. Poor high voltage contact. 2. Charge roller contamination. 3. Heat roller contamination. 4. Malfunction of LSU.	1. Clean each contact and check good contact. 2. Clean charge roller. 3. Install a new fuser. 4. Check Main PBA.

NO	Roller	Abnormal image period	Kind of abnormal image
1	OPC drum	94.29mm	White spot

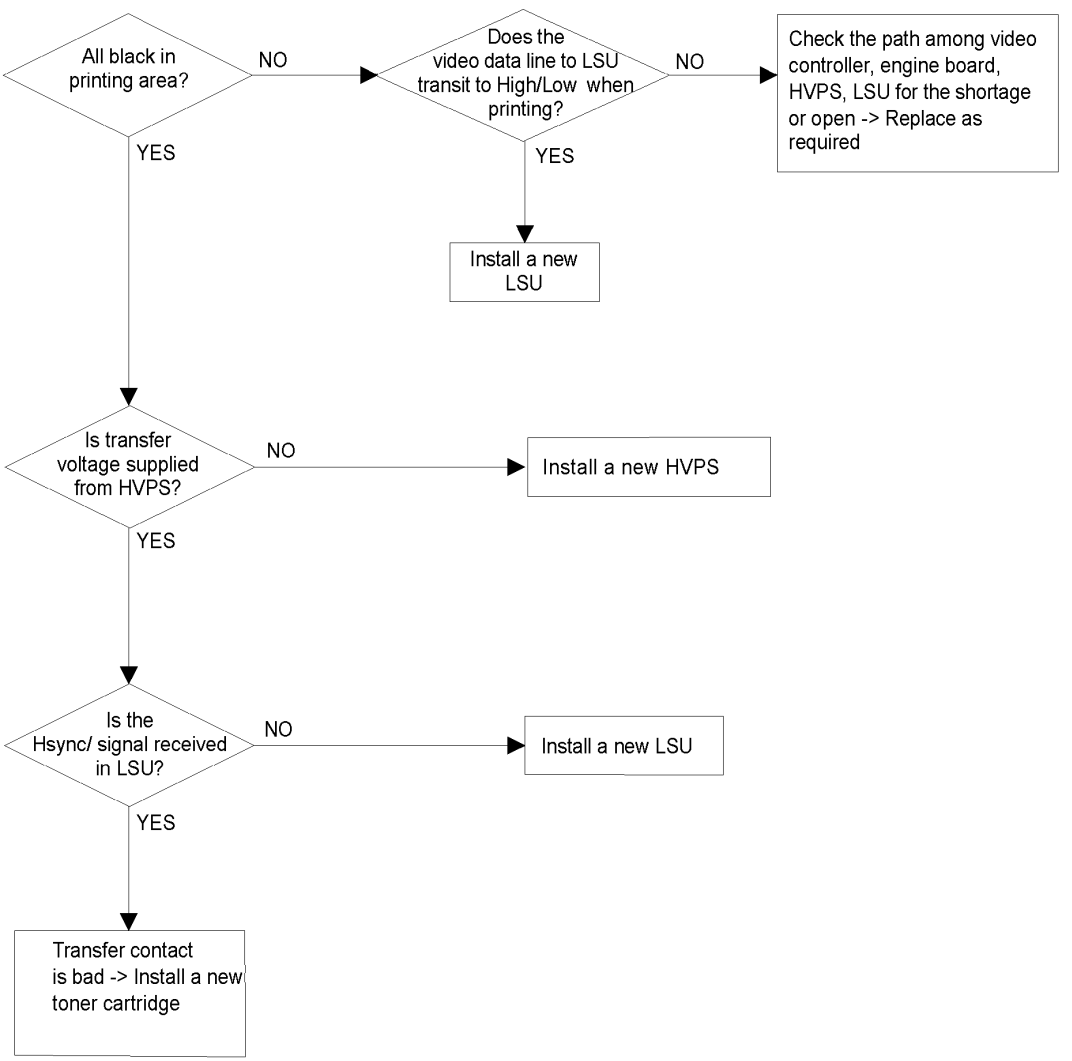
NO	Roller	Abnormal image period	Kind of abnormal image
2	Charge roller	31.68mm	Black spot
3	Supply roller	42.70mm	Horizontal density band
4	Developer roller	56.52mm	Horizontal density band
5	Transfer roller	57.78mm	Black side contamination/transfer fault
6	Heat roller	82.89mm	Black spot, White spot
7	Pressure roller	69.08mm	Black side contamination

No Image

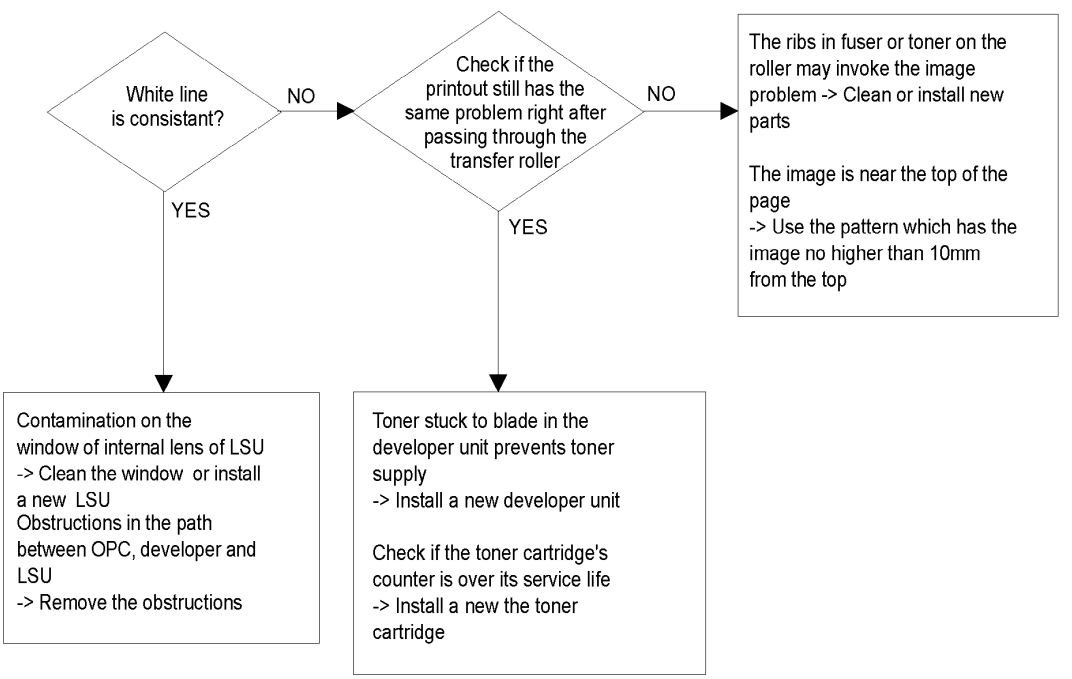

No image?
NO
A on next page
YES
Self test pattern prints?
NO
Self testing is possible ?
NO
Re-test after replacing the connector or controller board
YES
YES
Check connection to computer or replace controller
Take out the cartridge and prepare the tester for electronic connection
Is the OPC terminal of the machine well-connected to Frame?
NO
Clean or install a new GND terminal
YES
Does the video data line to LSU transit to High/Low when printing?
NO
Check the path between video controller, engine board and HVPS. Install new components or PBA as required
YES
The mirror in LSU might be misplaced so the light path to the OPC deviates ->Remove any contaminants in the machine or install a new LSU


A
Transfer voltage OK? (on the transfer roller shaft)
NO
YES
Are the connection terminal and connections correct?
NO
Replace as required
YES
Install a new HVPS
Developing (-300V) and supplying (-500V) voltage are OK?
NO
Is the connection terminal OK?
NO
Replace as required
YES
Install a new HVPS
YES
Sealing tape is removed from the cartridge?
NO
Remove the tape
YES
Does the counter indicate over the toner's service life
NO
Transfer roller might be out of its position
-> Position the roller correctly
This could occur when the power of LSU is low or the density is low due to the obstacles on the window
-> Clean the window or install a new LSU
YES
Install a new toner cartridge

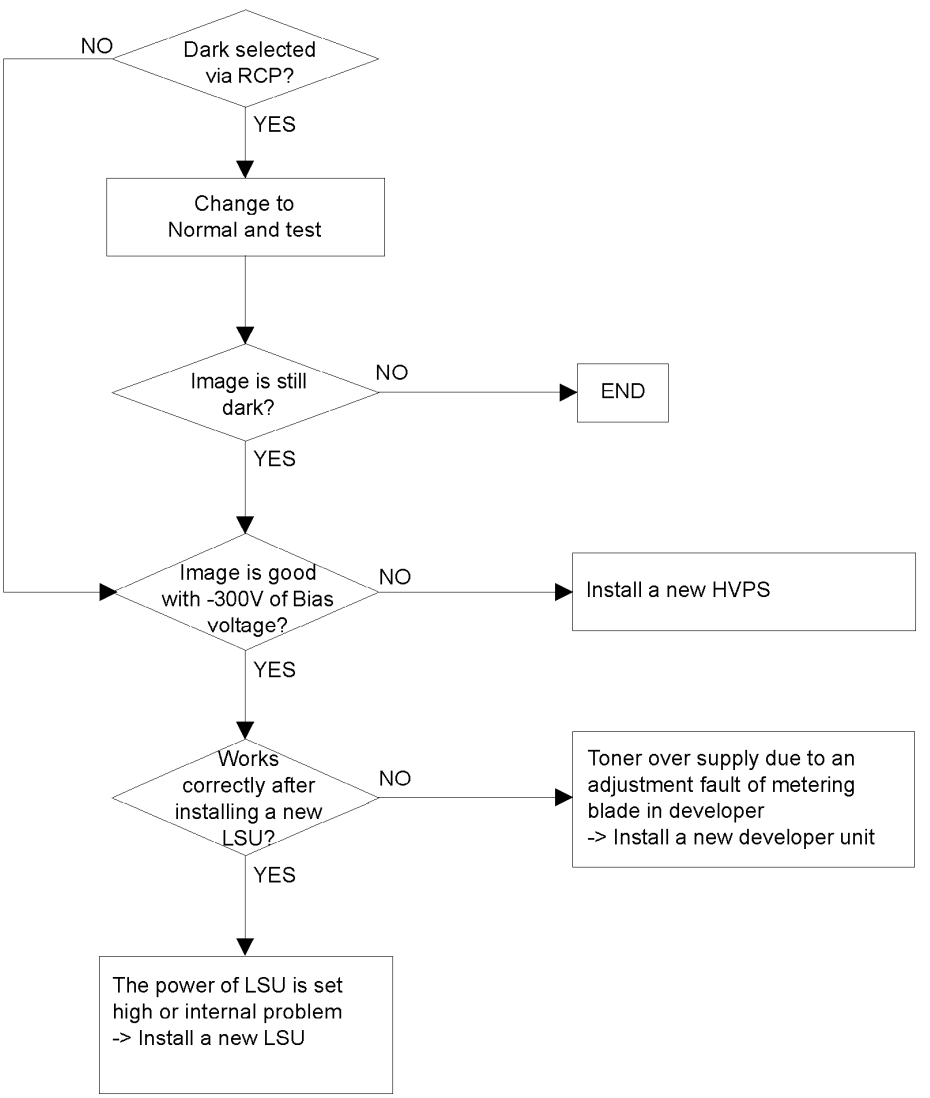
All Black


All black in printing area?
NO
Does the video data line to LSU transit to High/Low when printing?
NO
Check the path among video controller, engine board, HVPS, LSU for the shortage or open -> Replace as required
YES
YES
Install a new LSU
Is transfer voltage supplied from HVPS?
NO
Install a new HVPS
YES
Is the Hsync/ signal received in LSU?
NO
Install a new LSU
YES
Transfer contact is bad -> Install a new toner cartridge

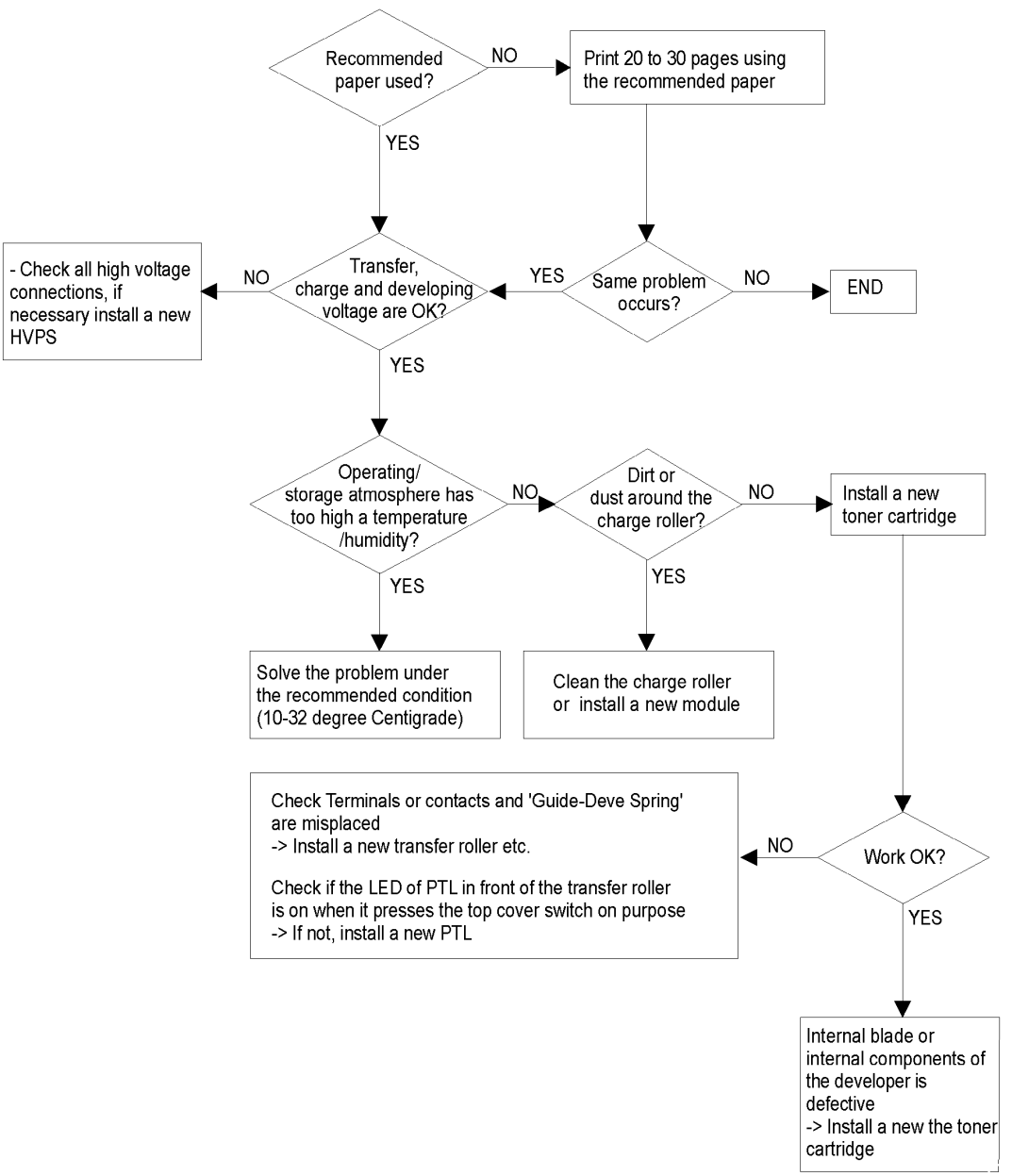
Vertical White Line (Band)



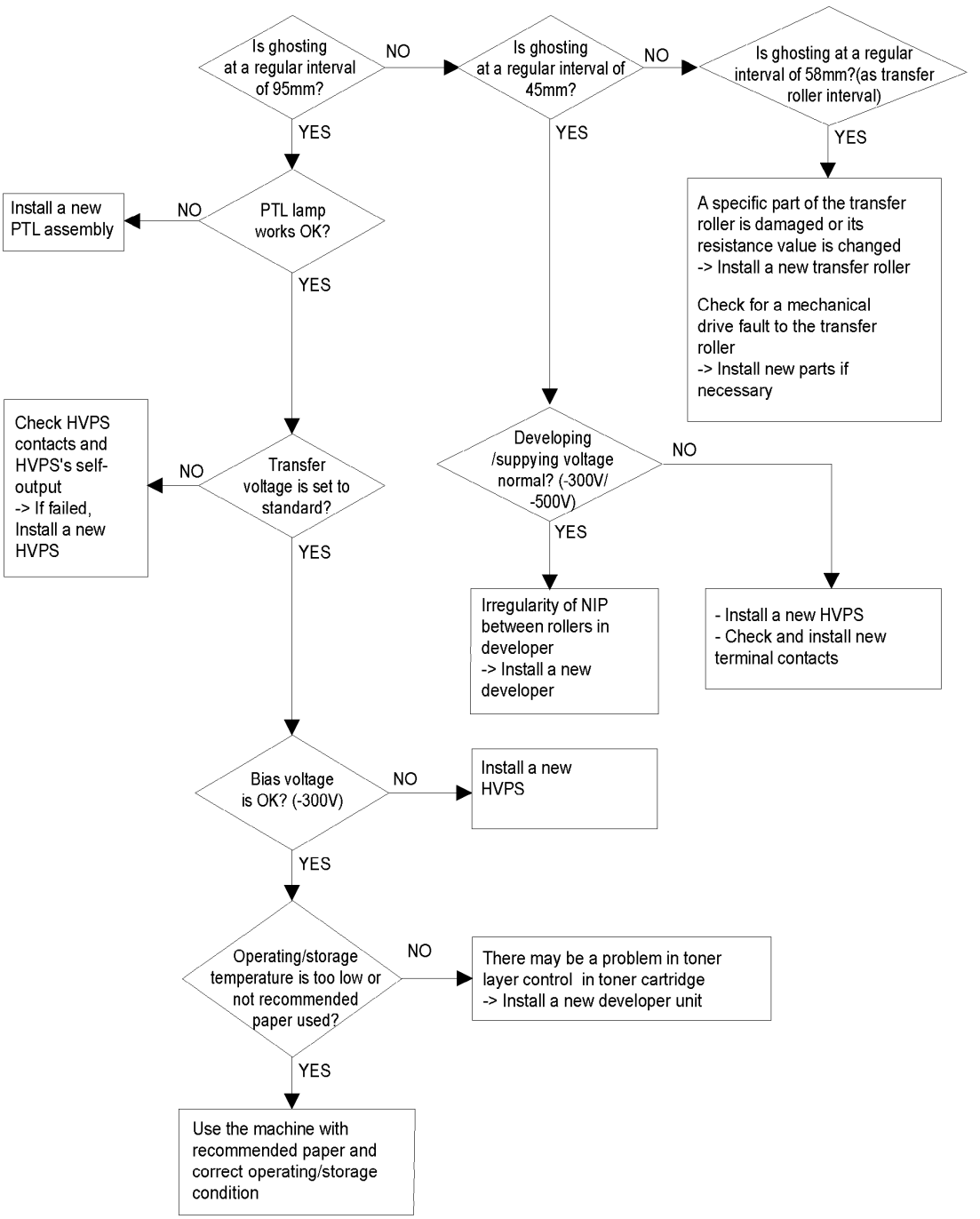
Dark Image


Dark selected via RCP?
NO
YES
Change to Normal and test
Image is still dark?
NO
END
YES
Image is good with -300V of Bias voltage?
NO
Install a new HVPS
YES
Works correctly after installing a new LSU?
NO
Toner over supply due to an adjustment fault of metering blade in developer
-> Install a new developer unit
YES
The power of LSU is set high or internal problem
-> Install a new LSU

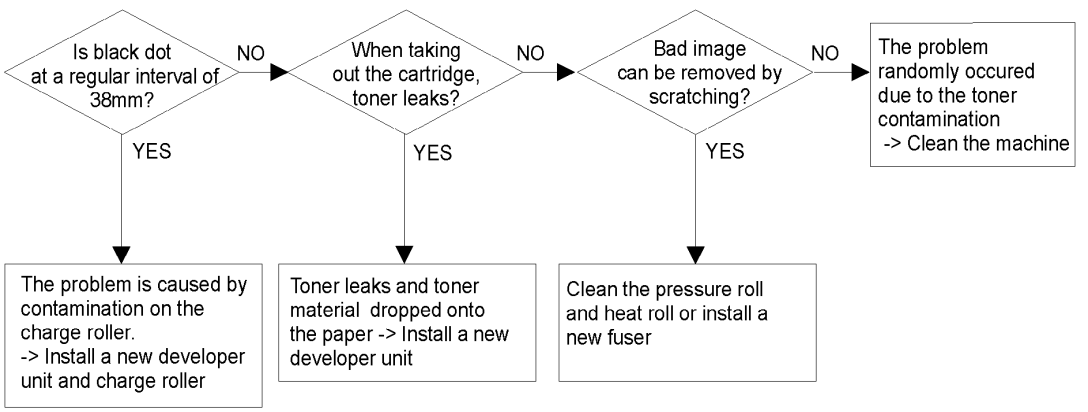
Background


Recommended paper used?
NO
Print 20 to 30 pages using the recommended paper
YES
- Check all high voltage connections, if necessary install a new HVPS
NO
Transfer, charge and developing voltage are OK?
YES
Same problem occurs?
NO
END
YES
Operating/ storage atmosphere has too high a temperature /humidity?
NO
Dirt or dust around the charge roller?
NO
Install a new toner cartridge
YES
YES
Solve the problem under the recommended condition (10-32 degree Centigrade)
Clean the charge roller or install a new module
Check Terminals or contacts and 'Guide-Deve Spring' are misplaced
-> Install a new transfer roller etc.
Check if the LED of PTL in front of the transfer roller is on when it presses the top cover switch on purpose
-> If not, install a new PTL
NO
Work OK?
YES
Internal blade or internal components of the developer is defective
-> Install a new the toner cartridge

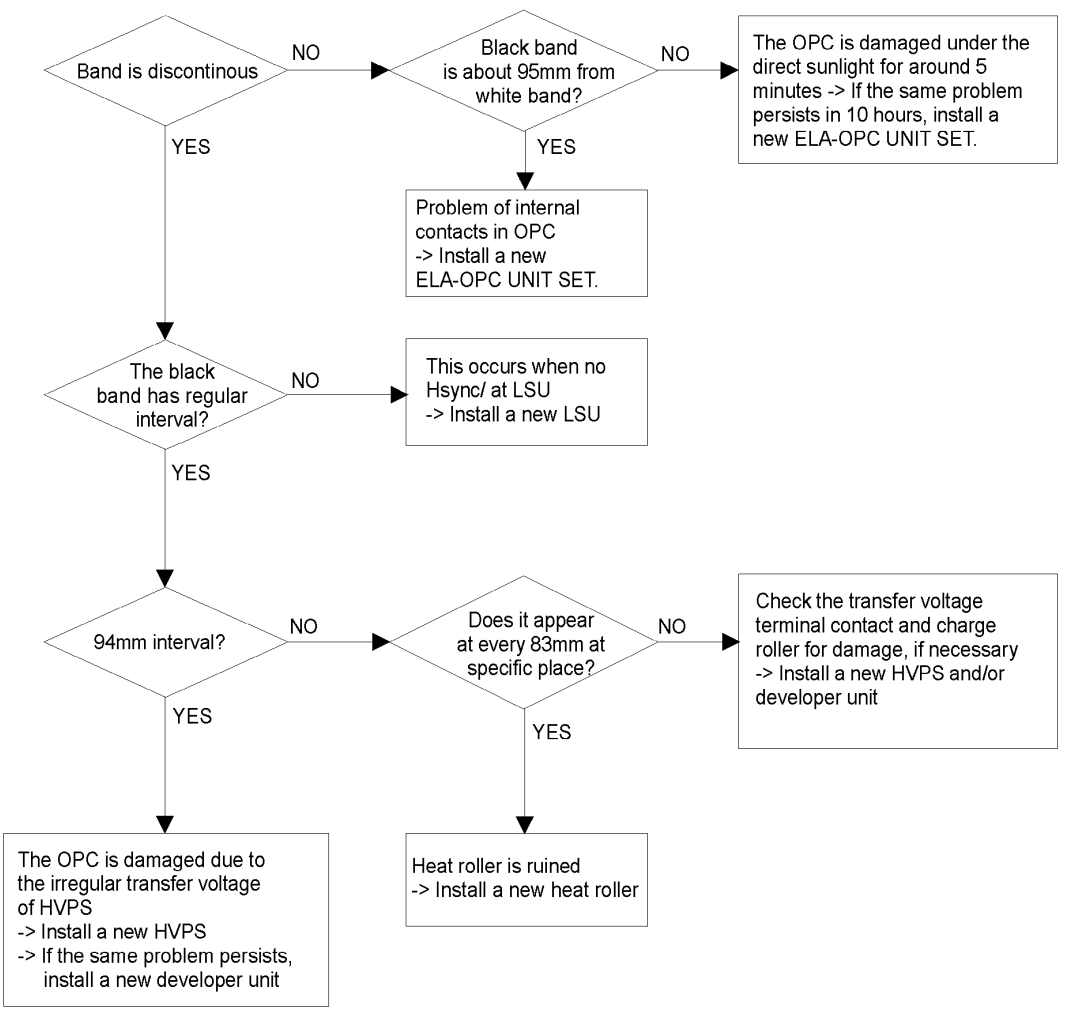
Ghost


Is ghosting at a regular interval of 95mm?
NO
Is ghosting at a regular interval of 45mm?
NO
Is ghosting at a regular interval of 58mm?(as transfer roller interval)
YES
YES
YES
A specific part of the transfer roller is damaged or its resistance value is changed
-> Install a new transfer roller
Check for a mechanical drive fault to the transfer roller
-> Install new parts if necessary
Install a new PTL assembly
NO
PTL lamp works OK?
YES
Check HVPS contacts and HVPS's self-output
-> If failed, Install a new HVPS
NO
Transfer voltage is set to standard?
YES
Developing /suppying voltage normal? (-300V/ -500V)
NO
YES
Irregularity of NIP between rollers in developer
-> Install a new developer
- Install a new HVPS
- Check and install new terminal contacts
Bias voltage is OK? (-300V)
NO
Install a new HVPS
YES
Operating/storage temperature is too low or not recommended paper used?
NO
There may be a problem in toner layer control in toner cartridge
-> Install a new developer unit
YES
Use the machine with recommended paper and correct operating/storage condition

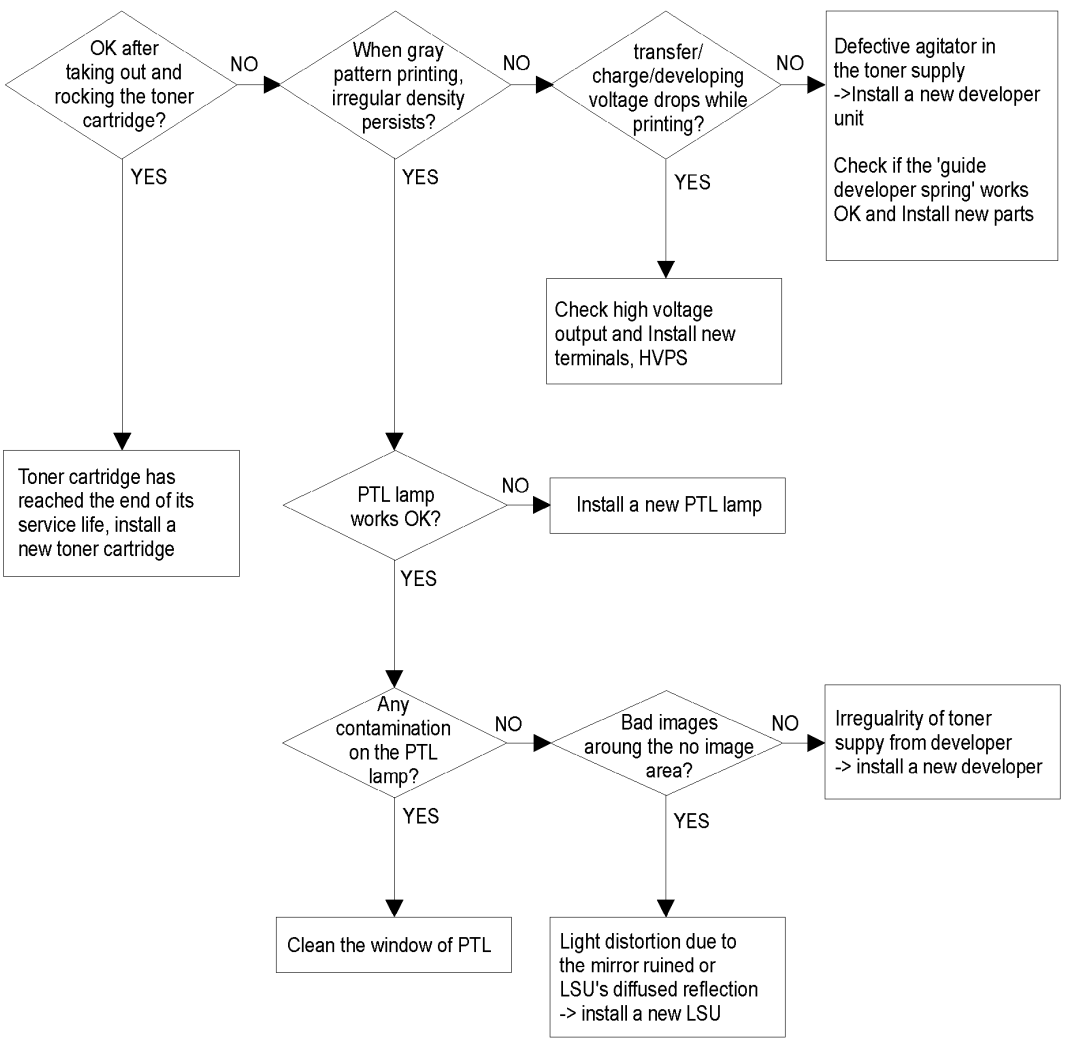
Black Dot


Is black dot at a regular interval of 38mm?
NO
When taking out the cartridge, toner leaks?
NO
Bad image can be removed by scratching?
NO
The problem randomly occured due to the toner contamination -> Clean the machine
YES
YES
YES
The problem is caused by contamination on the charge roller. -> Install a new developer unit and charge roller
Toner leaks and toner material dropped onto the paper -> Install a new developer unit
Clean the pressure roll and heat roll or install a new fuser

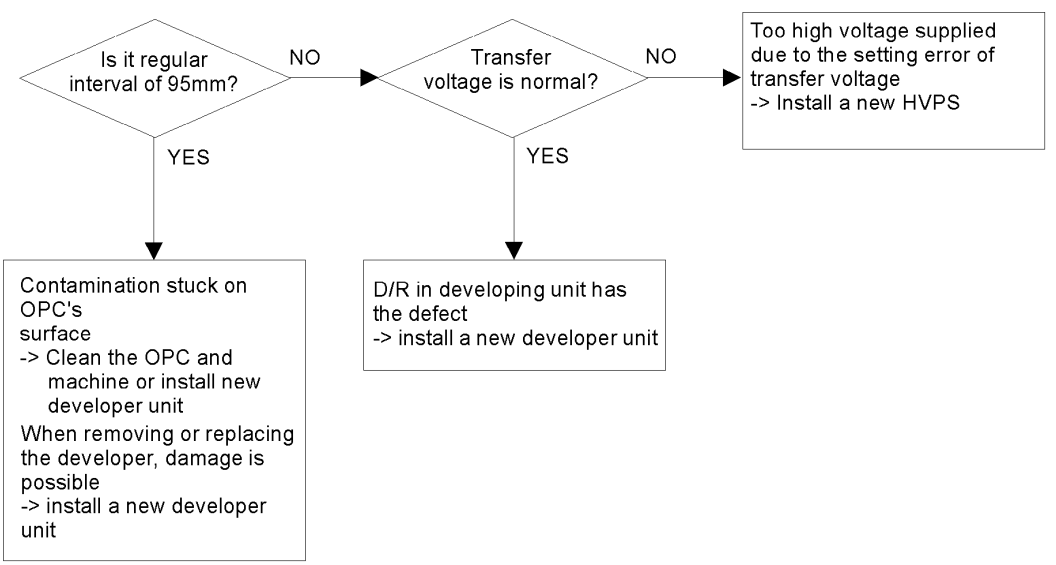
Horizontal Band



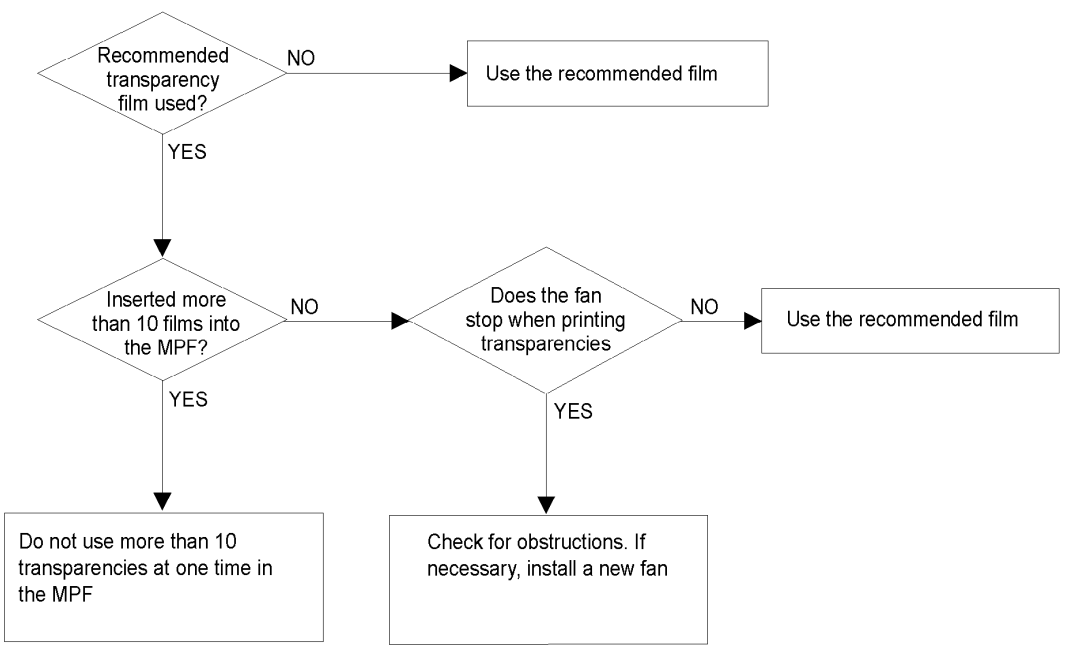
Irregular Density



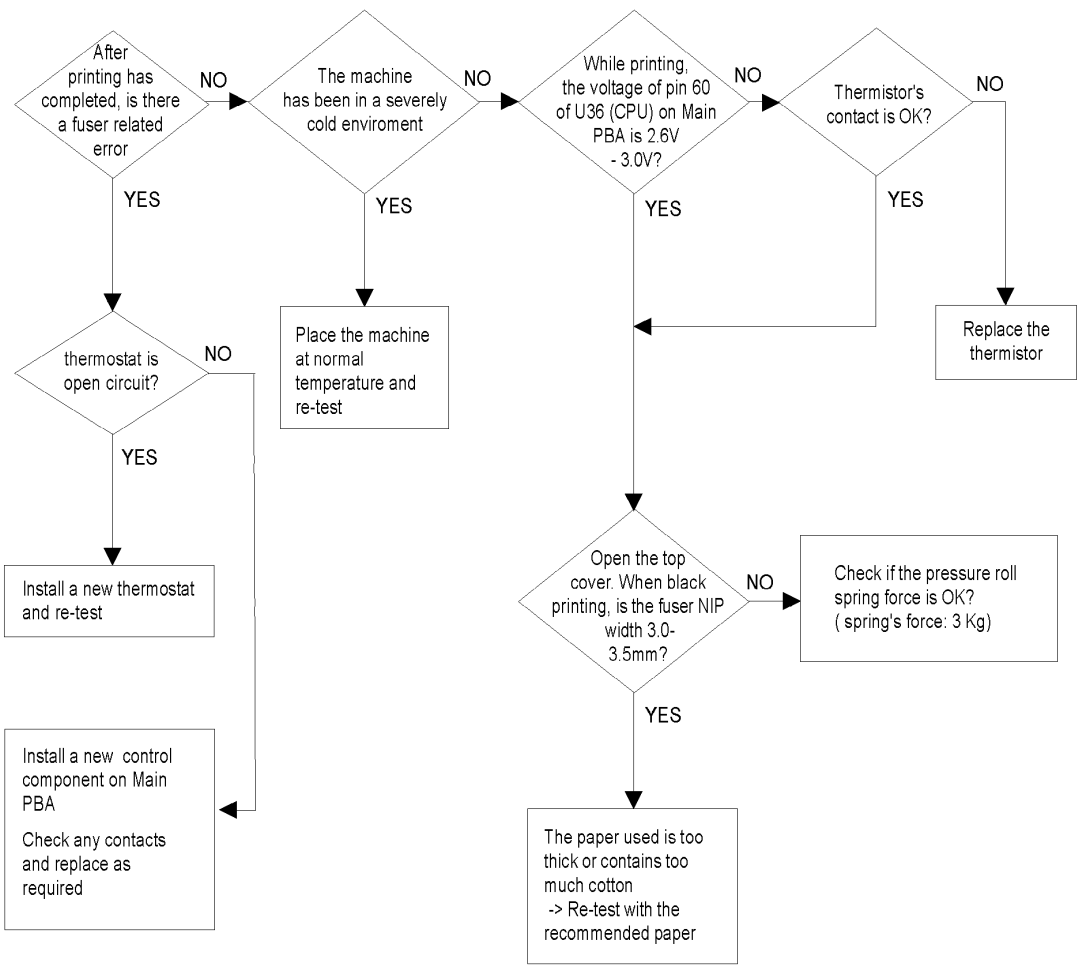
White Spot


Is it regular interval of 95mm?
NO
Transfer voltage is normal?
NO
Too high voltage supplied due to the setting error of transfer voltage
-> Install a new HVPS
YES
YES
Contamination stuck on OPC's surface
-> Clean the OPC and machine or install new developer unit
When removing or replacing the developer, damage is possible
-> install a new developer unit
D/R in developing unit has the defect
-> install a new developer unit

Trailing Edge Disturbance When Printing Transparencies



Poor Fusing

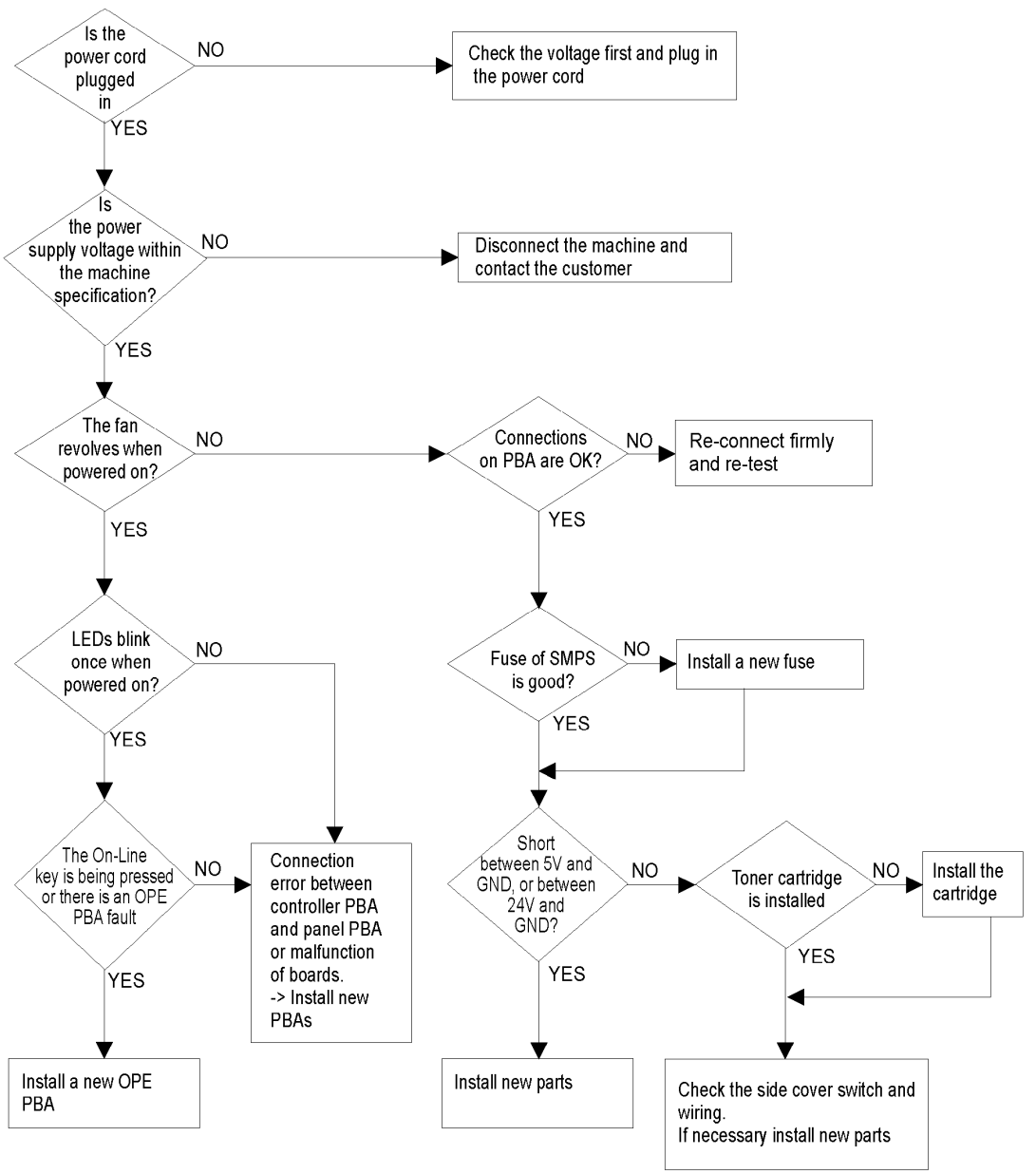

After printing has completed, is there a fuser related error
NO
The machine has been in a severely cold enviroment
NO
While printing, the voltage of pin 60 of U36 (CPU) on Main PBA is 2.6V - 3.0V?
NO
Thermistor's contact is OK?
NO
YES
YES
YES
YES
thermostat is open circuit?
NO
Place the machine at normal temperature and re-test
Replace the thermistor
YES
Install a new thermostat and re-test
Open the top cover. When black printing, is the fuser NIP width 3.0-3.5mm?
NO
Check if the pressure roll spring force is OK? (spring's force: 3 Kg)
YES
Install a new control component on Main PBA
Check any contacts and replace as required
The paper used is too thick or contains too much cotton -> Re-test with the recommended paper

7-6 Malfunction

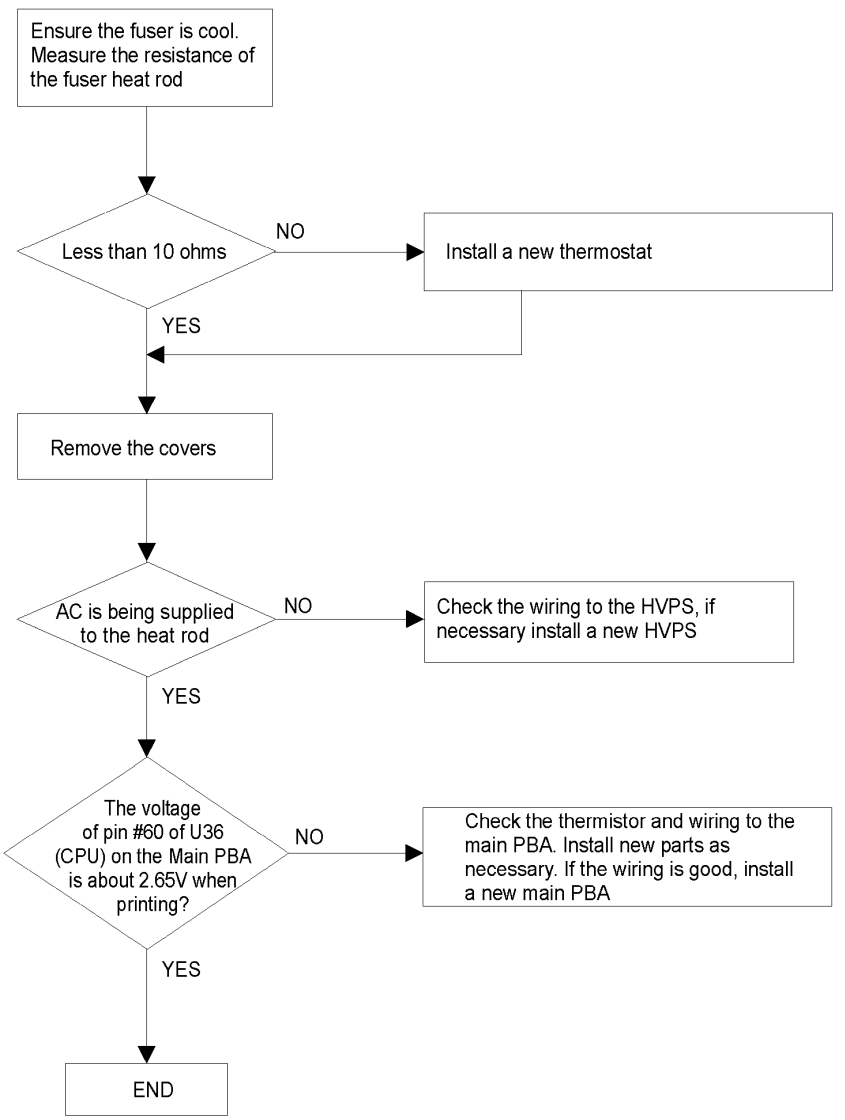
Error Status	Check	Solution
No power	1. Check the power supply to the machine. 2. Check fuse F1 open.	1. If power supply differs from machine spec. contact the dealer. 2. Install a new fuse F1.
Fuser Error	1. Thermostat open. 2. AC wire open. 3. Thermistor wire open. 4. Main PBA.	1. Detach AC connector and test for an open circuit across thermostat, if necessary install a new thermostat. 2. Install new wiring. 3. Install new wiring. 4. Install a new Main PBA.
Cover open	1. Check the lever is pressed when the top cover is closed. 2. Micro switch's contact. 3. CPU and related circuit.	1, 2 and 3. Open top cover and press the lever. If CPU detects cover close, check for mechanical problem in top cover and lever assembly. If not there is an electrical problem.
Jam 0	Check where Jam 0 happens. 1. Paper is not picked up. 2. Paper is located in feed sensor. 3. Jams when inserting specific papers such as envelope into the MPF. 4. Jams when inserting specific papers such as envelope into the Manual Feeder. 5. The stacker extender is unfolded. 6. The adjustable guide can grip the paper.	1. Check whether solenoid is working or not by using Engine Test Mode 2. Check the operation of the feed sensor. Check if it is misplaced with paper width sensor. 3. Re-try using fewer sheets of paper. •Fan the paper and align. •Turn the paper stack. 4. Turn the paper stack •Use paper as recommended for manual feeding. •When loading, ensure the paper detect sensor senses loading 5. When using long paper, use the stacker extender 6. Adjust guide to fit the paper width
Jam 1	Paper is jammed just after fuser unit.	1. This is mainly caused by double feeding. Check paper is well stacked in feeder. 2. Check the mechanical actuation of the feed sensor. Check the electrical operation of feed sensor using the Engine Test Mode. 3. Check exit operation. Remove jam and check actuator moves freely by hand. If actuator is too stiff, paper can wrap around the heat roller. Install new parts if necessary.
Jam 2	Check where Jam 2 happens 1. Paper is curled and cannot exit. 2. Paper is curled in the exit cover.	1. Remove the paper jam and check for paper path obstructions 2. Check the ribs of exit cover for obstructions to the paper path, clean the ribs or install a new cover.

Error Status	Check	Solution
Jam 2 at face-up tray	1. Tried to print and stack thick paper in the face-up tray. 2. Tried to print and stack thin paper in the face-up tray.	1. When using thick paper such as envelope, card stock, label and transparencies, one-sheet printing is recommended. 2. Face-down tray is recommended for thin paper.
Jam 2 at face-down tray	1. Face down tray is full. 2. Paper curls in the face down tray.	1. Empty the face down tray. 2. Open the cover front and check that the roller and spring, are correctly located.
Clutch error	1. Check the solenoid spring. 2. Check the armature assembly/cushion 3. Check the harness and connectors to the clutch.	1. Check whether the spring is expanded or not. 2. Check for the correct assembly of the armature. 3. Install new parts as necessary.
High voltage error	1. Check the terminal output voltage 2. Check HVPS	1. Remove the toner cartridge, open the cover and press cover open switch lever. Measure the voltage with high voltage probe during print cycle. If the voltage is normal, install a new toner cartridge. 2. Disassemble the left side cover, and check HV of the solder side of HVPS, if necessary, install a new HVPS.
Feeding obstacles	1. Check for paper path obstructions. 2. Does the plate-knock-up prevent paper feeding.	1. Clear obstructions from the paper path. 2. Turn the power off and on. Open and close the Top cover to return to the original state.
Skew	Is the width guide adjusted to the paper width?	Correctly adjust the width guide.
Stacking	1. Took out the Stacker extender to support long papers? 2. Too much paper in the stacker 3. Face-up stacker does not neatly stack the papers and stack not in order.	1. Use extender as per the paper length. 2. The Face-up stacker normally can hold 100 pages when using 75gsm, however, stacking capacity will be lower with thicker paper. 3. Face-down stacking is recommended for specific papers and one-sheet feed.
Engine Error	1. Check CBF Harness_CN7. (Main PBA to LSU)	Refer to troubleshooting “ENGINE ERROR”.

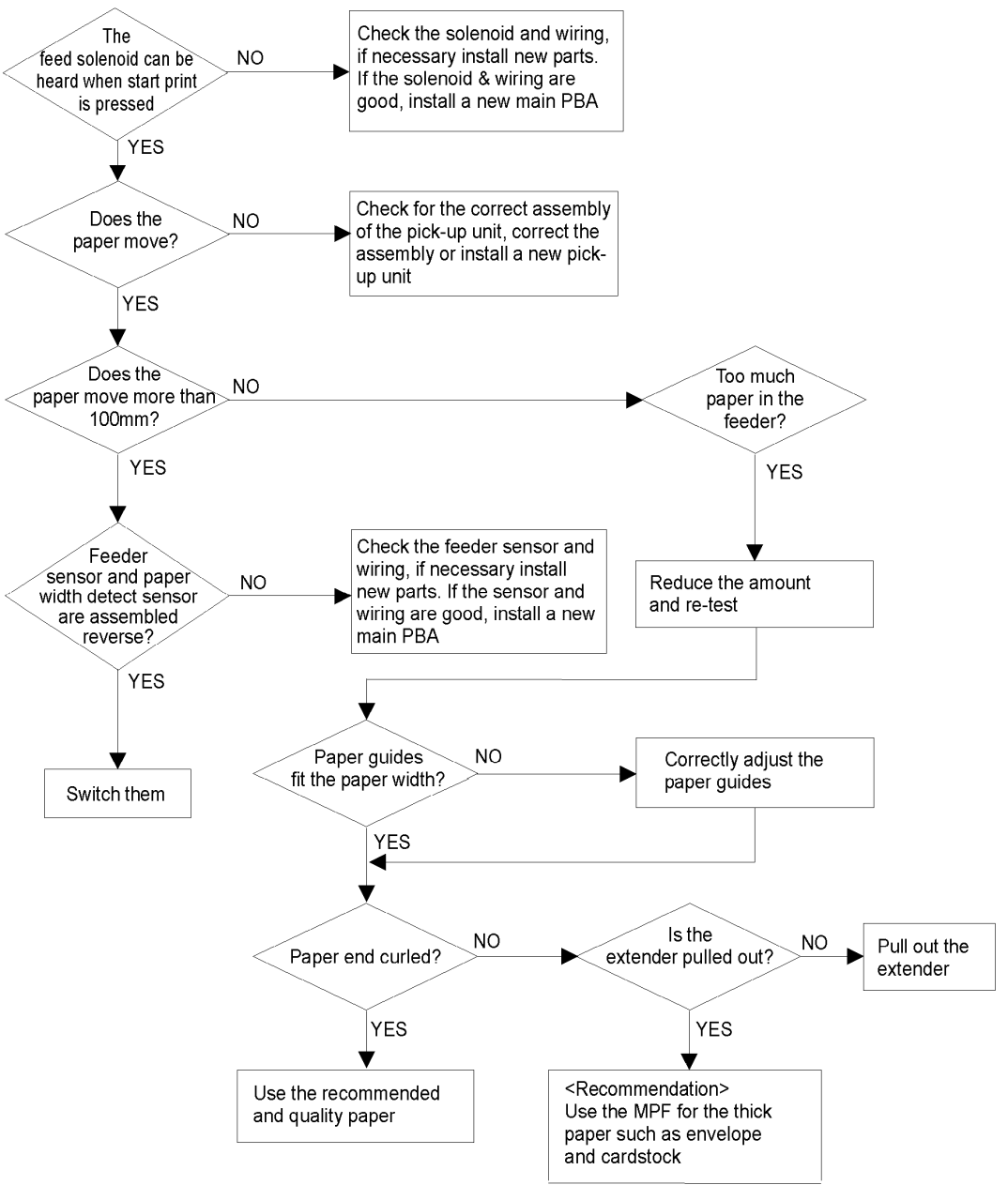
No Power (No LCD or LEDs)



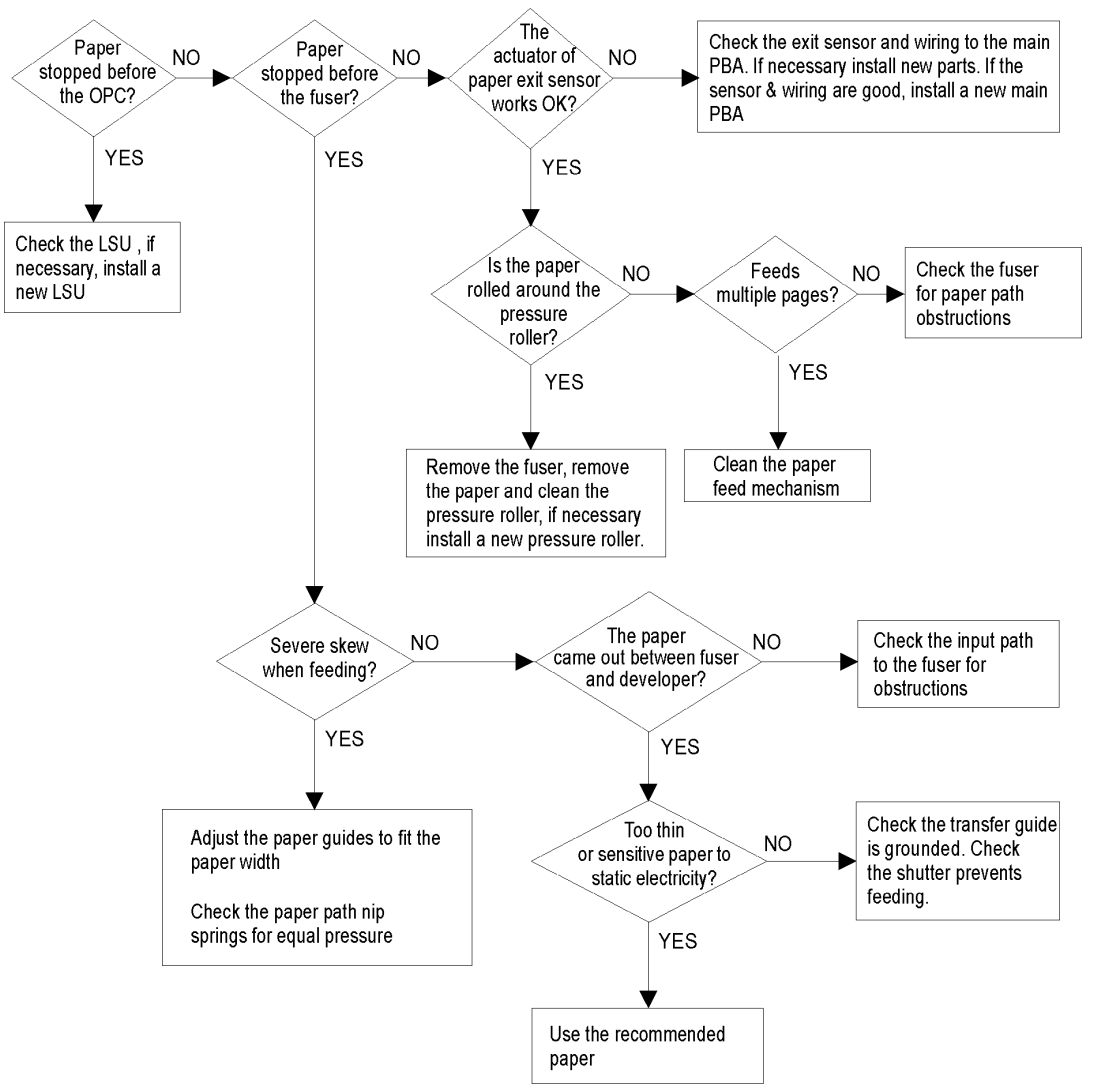
Fuser Error


Ensure the fuser is cool. Measure the resistance of the fuser heat rod
Less than 10 ohms
NO
Install a new thermostat
YES
Remove the covers
AC is being supplied to the heat rod
NO
Check the wiring to the HVPS, if necessary install a new HVPS
YES
The voltage of pin #60 of U36 (CPU) on the Main PBA is about 2.65V when printing?
NO
Check the thermistor and wiring to the main PBA. Install new parts as necessary. If the wiring is good, install a new main PBA
YES
END

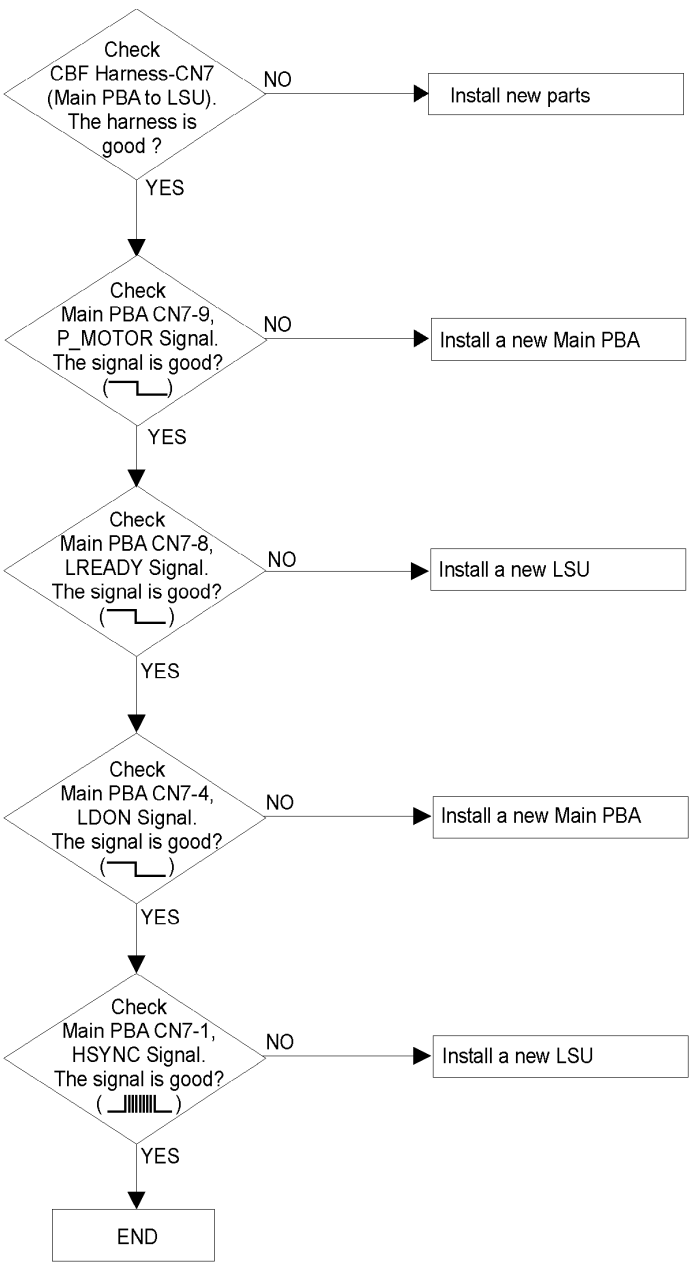
Paper Jam (Mis-feeding)



Paper Jam (Jam 1)

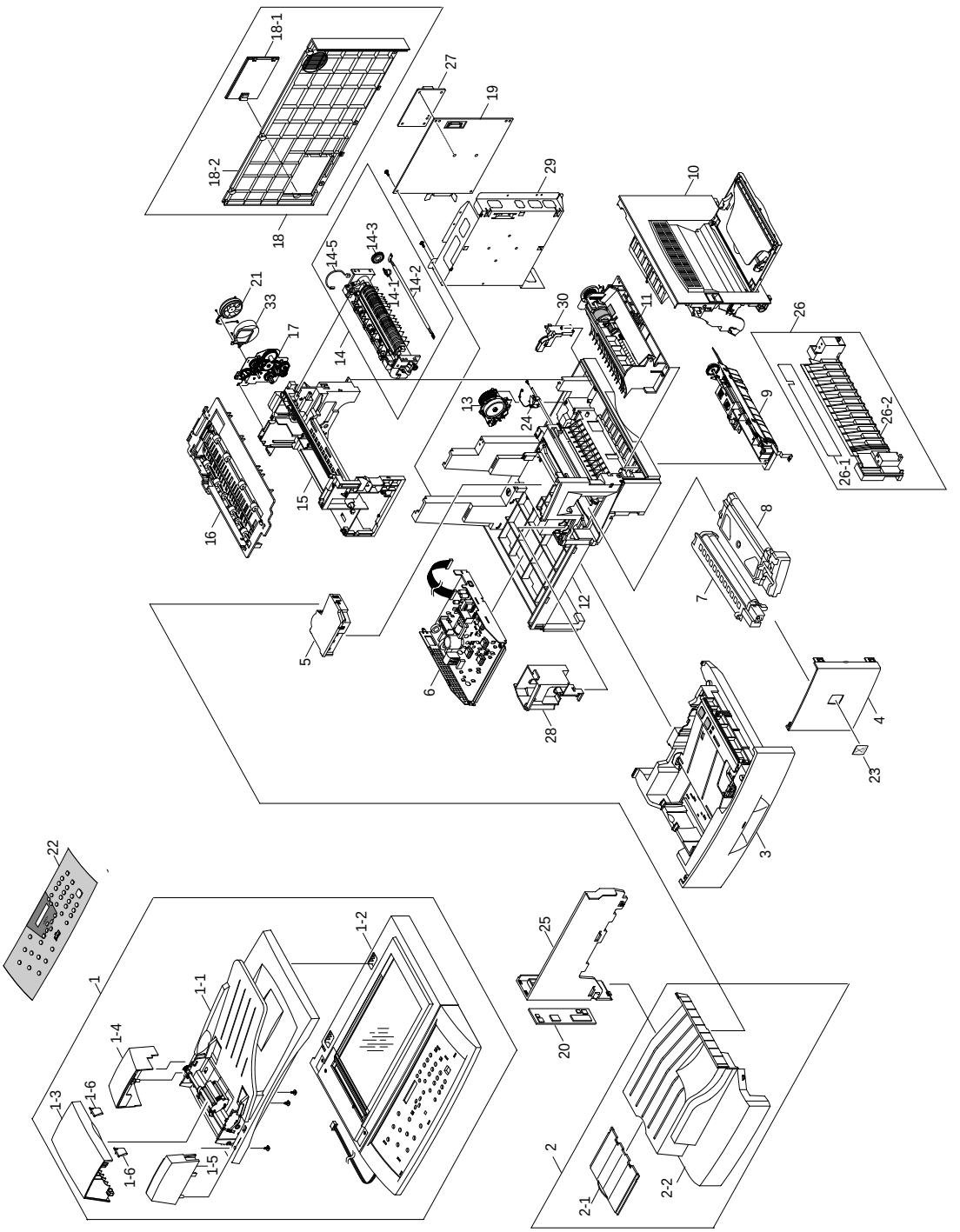


Engine Error



8. Exploded View & Parts List

8-1. Main Exploded View & Parts List

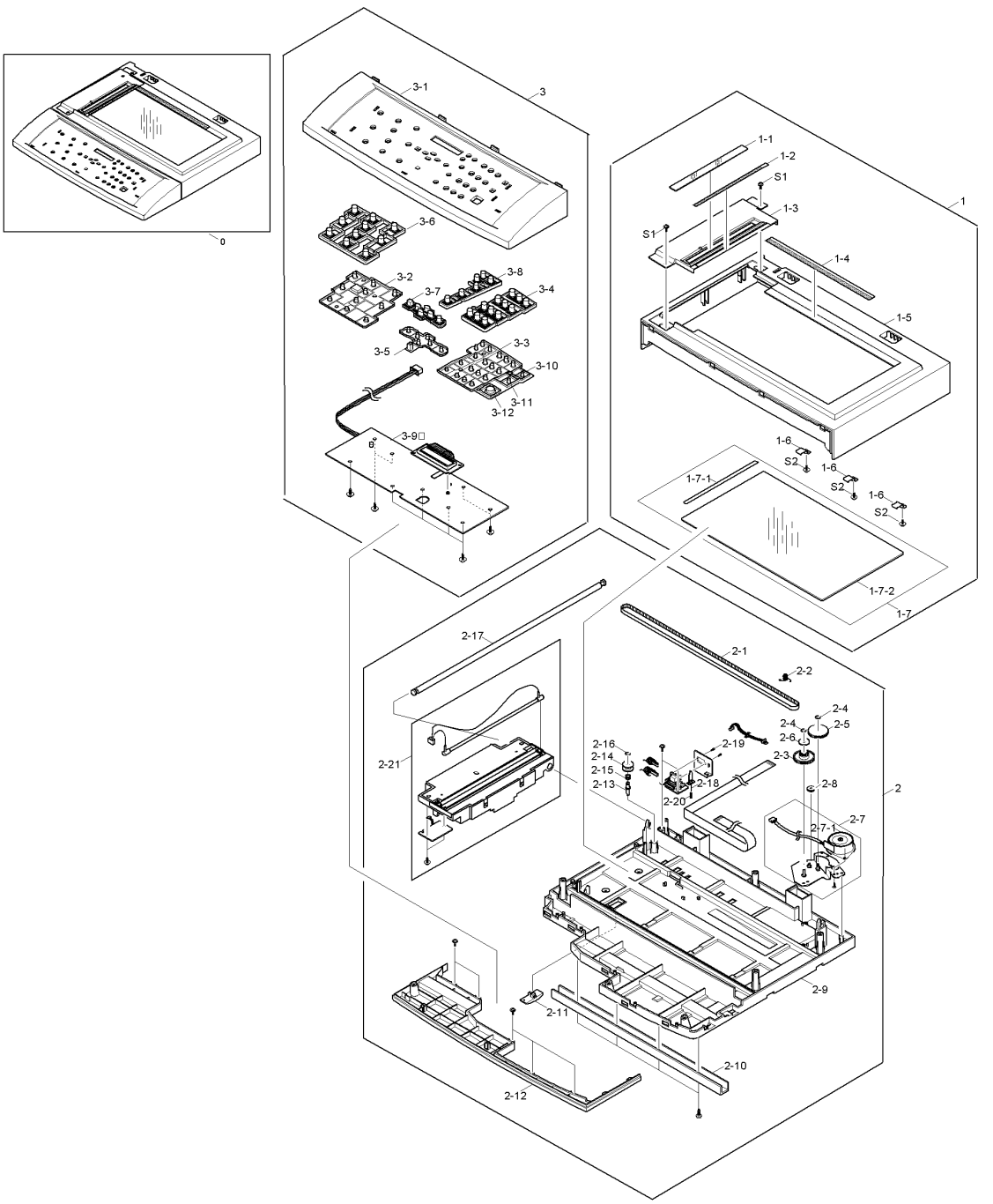


8-1-1 Main Parts List

NO	SEC CODE	PART NAME	Q'TY	REMARK
1	ELA HOU-SCANNER ASS'Y	109N00585	1	
1-1	ELA HOU-ADF ASS'Y	022N01482	1	
1-2	ELA HOU-PLATEN ASS'Y	090N00151	1	
1-3	PMO-COVER OPEN	002N02002	1	
1-4	PMO-COVER SIDE L	002N02003	1	
1-5	PMO-COVER SIDE R	002N02004	1	
1-6	PMO-GUIDE PAPER	038N00370	2	
2	MEA RACK-COVER PA EXIT ASS'Y	002N02013	1	
2-1	PMO-TRAY EXTENTION MP NE	050N00392	1	
2-2	PMO-COVER PAPER EXIT	002N02005	1	
3	MEC-CASSETTE ASS'Y	050N00393	1	
-	MEC-CASSETTE ASS'Y (A4 Size Europe)	050N00394	1	
4	PMO-COVER FRONT	002N02006	1	
5	UNIT-LSU	122N00207	1	
6	PBA POWER(SMPS US)	105N01464	1	
-	PBA POWER(SMPS Europe)	105N01465	1	
7	ELA-OPC UNIT SET	113R00506	1	
8	ELA-TONER UNIT SET	106R00586	1	XE
	ELA-TONER UNIT SET	106R00584	1	NASG/XCL
9	ELA HOU-PICKUP ASS'Y	022N01485	1	
10	ELA HOU-SIDE COVER ASS'Y	002N02016	1	
11	ELA HOU-MP ASS'Y	600N01741	1	
12	ELA HOU-BASE FRAME ASS'Y		1	NOT SPARED
13	MEC-FEED ASS'Y	022N01472	1	
14	ELA HOU-FUSER(110V)ASS'Y	126N00182	1	NASG/XCL
	ELA HOU-FUSER(220V)ASS'Y	126N00183	1	XE
14-1	THERMOSTAT	130N01214	1	
14-2	LAMP-HALOGEN (110V)	122N00208	1	NASG/XCL
	LAMP-HALOGEN(220V)	122N00209	1	XE
14-3	GEAR-FUSER	126N00184	1	
14-4	PMO-GUIDE DUPLEX	032N00353	1	
14-5	THERMISTOR-FUSER	126N00185	1	
15	ELA HOU-FRAME MAIN ASS'Y	600N01743	1	
16	MEC-EXIT ASS'Y	600N01736	1	
17	ELA HOU-DRIVE ASS'Y	007N01117	1	
18	MEA RACK-COVER REAR ASS'Y	002N02014	1	
18-1	"PMO-COVER SIMM,XRX	002N02007	1	
18-2	PMO-COVER REAR	002N02008	1	
19	PBA MAIN-MAIN	140N05938	1	
20	PMO-CONNECT PAPER MFP	002N02012	1	
21	FAN-DC	127N01375	1	
22	PPR-OVERLAY	091N00677	1	NOT SPARED
-	PPR-OVERLAY (English)	892E62830	1	
-	PPR-OVERLAY (English/French)	892E80010	1	
-	PPR-OVERLAY (French)	892E62840	1	
	PPR-OVERLAY (German)	892E62870	1	
	PPR-OVERLAY (Italian)	892E62860	1	
	PPR-OVERLAY (Spanish)	892E62850	1	
	PPR-OVERLAY (Portuguese)	892E62880	1	
	PPR-OVERLAY (Finnish)	892E79920	1	
	PPR-OVERLAY (Dutch)	892E62890	1	

NO	SEC CODE	PART NAME	Q'TY	REMARK
	PPR-OVERLAY (Danish)	892E79910	1	
	PPR-OVERLAY (Norwegian)	892E79930	1	
	PPR-OVERLAY (Swedish)	892E79940	1	
	PPR-OVERLAY (Hungarian)	892E79990	1	
	PPR-OVERLAY (Czech)	892E79950	1	
	PPR-OVERLAY (Polish)	892E79960	1	
	PPR-OVERLAY (Romanian)	892E79980	1	
	PPR-OVERLAY (Bulgarian)	892E79970	1	
	PPR-OVERLAY (Greek/English)	892E79900	1	
23	MPR-NAME/PLATE XRX	015N00436	1	
24	SOLENOID-PICK UP	022N01486	1	
25	PMO-COVER EXIT REAR	002N02009	1	
26	A/S MATERAL-CST RAIL	001N00384	1	
26-1	PMO-SHEET GUIDE PAPER		1	NOT SPARED
26-2	PMO-GUIDE CASSETTE RAIL		1	NOT SPARED
27	PBA LIU (US/Canada)	140N05939	1	
-	PBA LIU (Western Europe)	140N05945	1	
-	PBA LIU (Eastern Europe)	140N05946	1	
28	PMO-DUMMY BASE FRAME		1	NOT SPARED
29	IPR-SHIELD MAIN LOWER		1	NOT SPARED
30	PMO-COVER FEED AY		1	NOT SPARED
31	PMO-COVER BRKT MOTER	002N02017	1	
32	PMO-GUIDE PAPER OUT	038N00371	1	
33	PMO-DUCT FAN		1	NOT SPARED

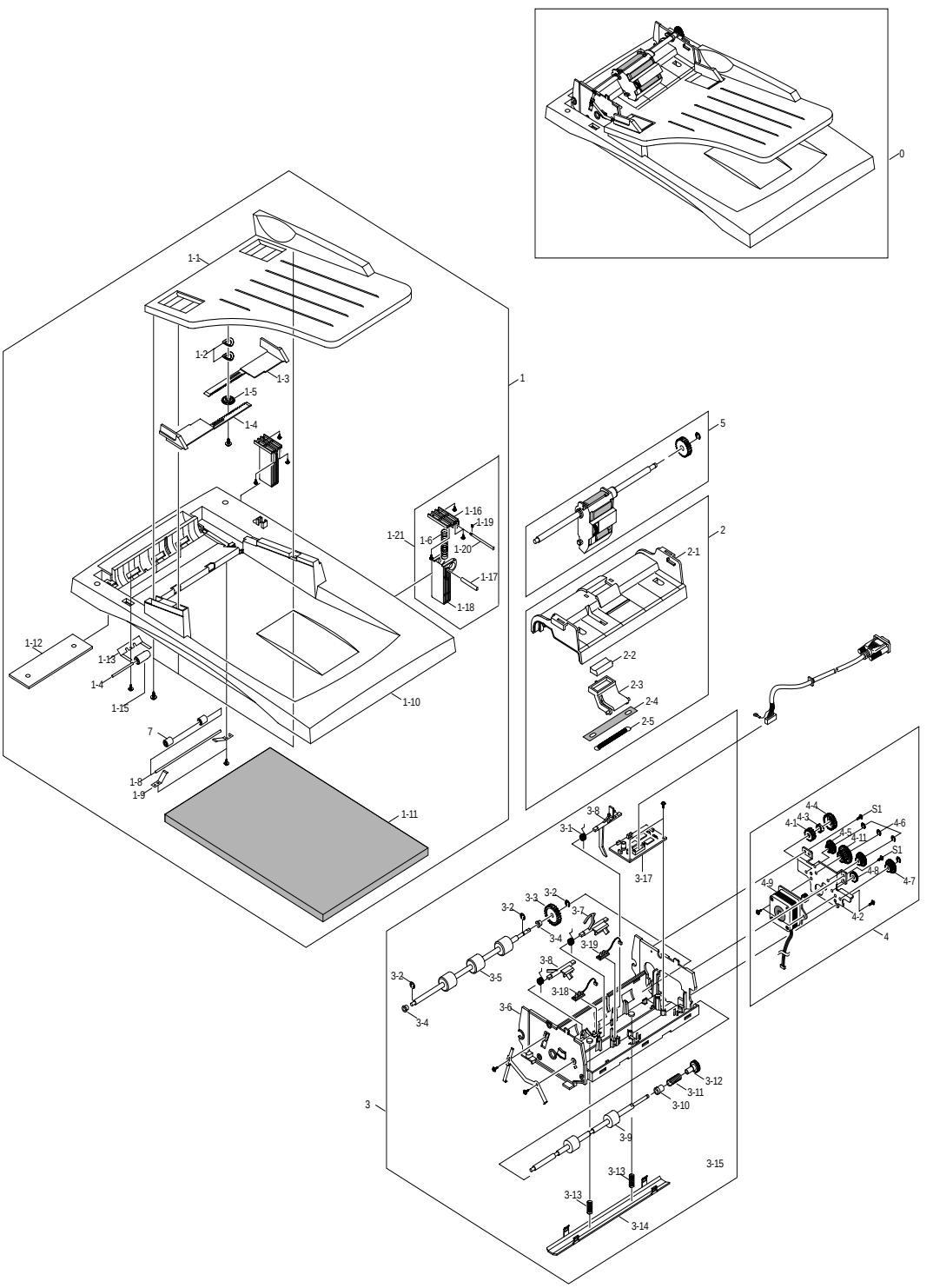
8-2. Platen Ass'y Exploded View & Parts List



8-2-1 Platen Ass'y Parts List

NO	SEC CODE	PART NAME	Q'TY	REMARK
0	ELA HOU-PLATEN ASS'Y	090N00151	1	
1	MEA RACK-SCAN UPPER ASS'Y	600N01737	1	
1-1	MCT-GLASS ADF	118N00171	1	
1-2	LABEL(L)-REGISTRATION EDGE (L)	091N00678	1	
1-3	PMO-DUMMY UPPER	019N00615	1	
1-4	LABEL(R)-REGISTRATION EDGE (R)	091N00679	1	
1-5	PMO-COVER SCAN UPPER		1	NOT SPARED
1-6	IPR-HOLDER GLASS		3	NOT SPARED
1-7	HEA RACK-GLASS PLATEN ASS'Y	118N00172	1	
1-7-1	LABEL(P)-SHEET SHADING		1	NOT SPARED
1-7-2	MCT-GLASS SCANNER(LEGAL)		1	NOT SPARED
1-8	A/S MATERAL-DUMMY UPPER	019N00622	1	
2	ELA HOU-SCAN LOWER ASS'Y		1	NOT SPARED
2-1	BELT-TIMING GEAR	023N00954	1	
2-2	SPRING-BELT	023N00955	1	
2-3	GEAR-TIMING		1	NOT SPARED
2-4	RING-E	005N00781	3	
2-5	GEAR-REDUCTION		1	NOT SPARED
2-6	PMO-HOLDER BELT		1	NOT SPARED
2-7	ELA HOU-SCAN MOTOR ASS'Y	127N01376	1	
2-7-1	MOTOR-SCAN		1	NOT SPARED
2-8	GEAR-IDLE		1	NOT SPARED
2-9	PMO-COVER PUMMY LOWER	025N00080	1	
2-10	IPR-CHANNEL BASE FRAME		1	NOT SPARED
2-11	PMO-HOLDER CCD		1	NOT SPARED
2-12	PMO-DUMMY SCAN LOWER		1	NOT SPARED
2-13	ICT-INSERT SHAFT		1	NOT SPARED
2-14	PMO-PULLEY		1	NOT SPARED
2-15	PMO-HOLDER BELT		1	NOT SPARED
2-16	RING-E	005N00781	1	
2-17	ICT-SHAFT CCD		1	NOT SPARED
2-18	PMO-LEVER SENSOR		1	NOT SPARED
2-19	IPR-BRK SCAN B'D	140N05936	1	
2-20	SPRING-EXIT		1	NOT SPARED
2-21	ELEC/MECH-SCANNER MODULE	109N00584	1	
3	ELA HOU-OPE COVER ASS'Y	002N02015	1	
3-1	PMO-OPE COVER	002N02010	1	
3-2	RMP-RUBBER FUNCTION	019N00616	1	
3-3	RMO-RUBBER TEL	019N00617	1	
3-4	PMO-KEY TEL	029N00274	1	
3-5	RMO-RUBBER SCROLL	019N00618	1	
3-6	PMO-KEY FUNCTION(A)	029N00275	1	
3-7	PMO-KEY SCROLL	029N00280	1	
3-8	PMO-KEY FUNCTION(B)	029N00276	1	
3-9	PBA SUB-OPE(XEROX)	140N05937	1	
3-10	PMO-KEY REPORT	029N00277	1	
3-11	PMO-KEY STOP	029N00278	1	
3-12	PMO-KEY START	029N00279	1	

8-3. ADF ASS'Y Exploded View & Parts List



8-3-1 ADF Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	ELA HOU-ADF ASS'Y		1	
1	MEC RACK-PLATEN COVER ASS'Y	090N00152	1	
1-1	PMO-TX STACKER	022N01478	1	
1-2	IPR-WASHER SPRING CY		2	NOT SPARED
1-3	PMO-DOC GUIDE L	038N00372	1	
1-4	PMO-DOC GUIDE R	038N00373	1	
1-5	GEAR PINION		1	NOT SPARED
1-6	SPRING-HINGE PLATE		1	NOT SPARED
1-7	ROLLER EXIT IDLE		2	NOT SPARED
1-8	IPR-SHAFT EXIT		1	
1-9	NPR-SPRING PINCH DRIVE		2	
1-10	PMO-COVER PLATEN		1	
1-11	PPR-SPONG SHEET	025N00081	1	
1-12	PPR-SHEET PLATEN		1	
1-13	IPR-SPRING PINCH		3	
1-14	IPR-SHAFT PINCH		3	
1-15	PMO-ROLL PINCH		3	
1-16	PMO-HINGE PLATEN		1	
1-17	PMO-BUSHING HINGE		1	
1-18	PMO-HSG HINGE		1	
1-19	ICT-SHAFT HINGE		1	
1-20	RING-C		1	
1-21	MEA-RACK-HINGE ASS'Y	600N01738	1	
2	MEA RACK-ADF UPPER ASS'Y	600N01739	1	
2-1	COVER ADF UPPER		1	
2-2	ADF RUBBER	022N01487	1	
2-3	HOLDER ADF	019N00610	1	
2-4	SPONG ADF		1	
2-5	SPRING ADF		1	
3	ELA HOU-ADF LOWER ASS'Y	600N01740	1	
3-1	SPRING TORSION DOC		1	
3-2	E-RING		3	
3-3	GEAR-ADF 38		1	
3-4	PMO-BUSH	013N00513	2	
3-5	MEC-ROLLER DRIVE	007N01113	1	
3-6	COVER ADF LOWER		1	
3-7	PMO-ACTUATOR SENSOR DOC	130N01202	1	
3-8	PMO ACTUATOR SENSOR REG	130N01215	1	
3-9	MEC-ROLLER EXIT	022N01473	1	
3-10	BUSHING HOLDER		1	

8-3-1 ADF Ass'y Parts List (Cont.)

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
3-11	SPRING CLUTCH		1	
3-12	GEAR-EXITE 23		1	
3-13	SPRING WHITE BAR		2	NOT SPARED
3-14	BRKT WHITE BAR	025N00079	1	
3-15	PPR-WHITE BAR SHEET	025N00080	1	
3-16	PMO-ACTUATOR SENSOR REGI		1	
3-17	PBA SUB-ADF	022N01471	1	
3-18	PBA SUB-ADF POS SEN	130N01199	1	
3-19	PBA SUB-ADF DET SEN	130N01200	1	
3-20	PMO-ACTUATOR SENSOR SCAN	130N01216	1	
4	ELA HOU-ADF MOTOR ASS'Y	127N01377	1	
4-1	GEAR CLUTCH 29		1	
4-2	BRKT ADF MOTOR		1	
4-3	PMO-WHITE CLUTCH SUB 29		1	
4-4	GEAR-CLUTCH IDLE 39		1	
4-5	GEAR DOUBLE 33/20		2	
4-6	E-RING		6	
4-7	GEAR-DOUBLE 17/35		2	
4-8	GEAR IDLE 25		1	
4-9	MOTOR ADF		1	NOT SPARED
4-10	GEAR-JAM NOB		1	NOT SPARED
4-11	GEAR REDUCTION45/19		1	
5	MEC RACK-PICK UP ASS'Y	002N02001	1	
S1	SCREW-TAPTITE		2	

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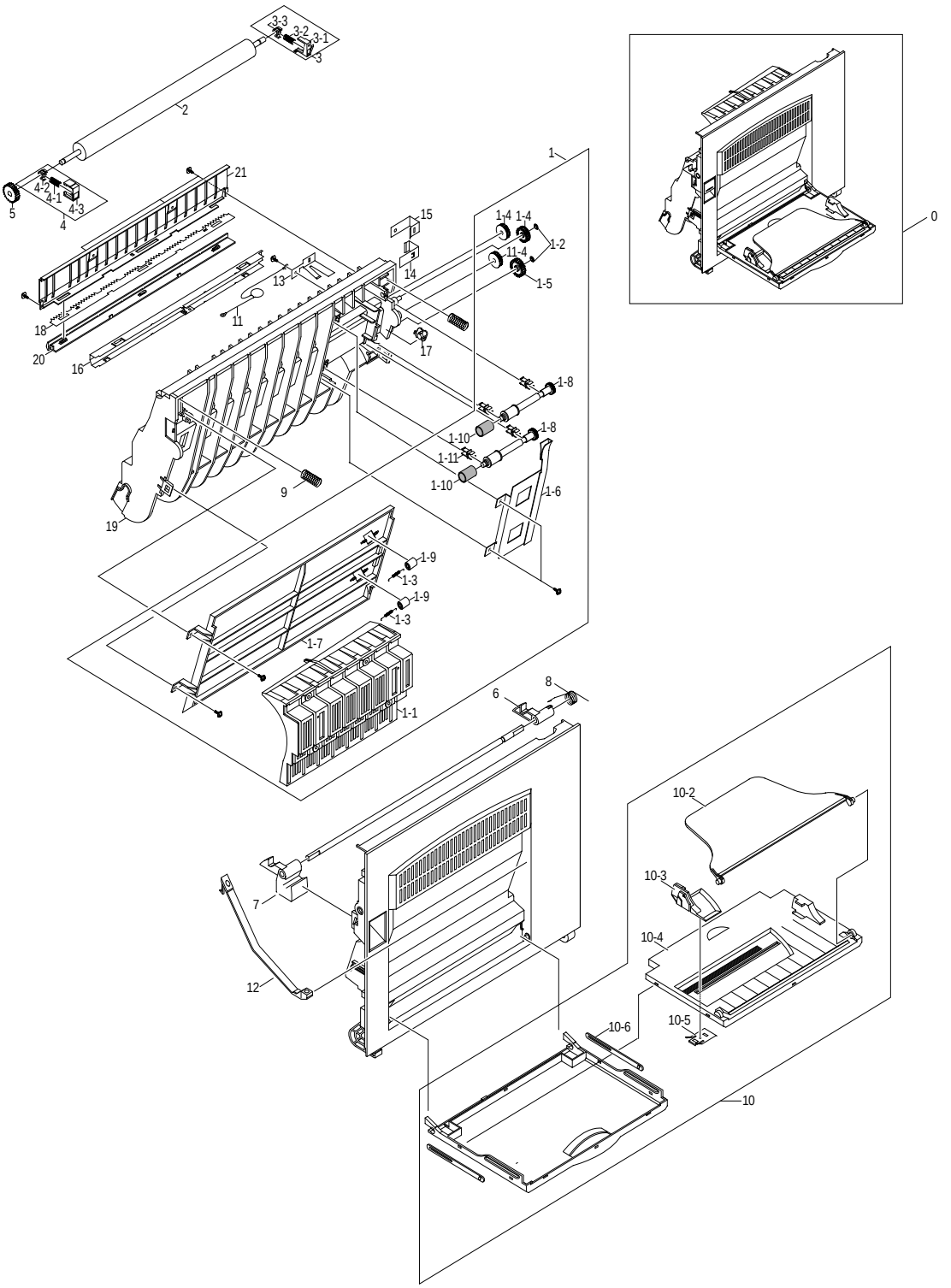
8-4. Side Cover Ass'y Exploded View & Parts List



8-4-1 Side Cover Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	ELA HOU-SIDE COVER ASS'Y	002N02016	1	
1	MEA RACK-DUPLEX ASS'Y		1	
1-1	PMO-GUIDE DP SIDE		1	
1-2	RING-CS		2	
1-3	SPRING-FUSER EXIT		2	
1-4	GEAR-DUP IDLER 17		3	
1-5	GEAR-MP/DUP DRV		1	
1-6	IPR-BRKT G DUP		1	
1-7	PMO-GP LOWER DP		1	
1-8	PMO-SHAFT DUP DRIVER		2	
1-9	PMO-ROLLER_EXIT		2	
1-10	RPR-RUBBER EXIT		2	
1-11	PMO-BUSHING TX(B4)		4	
1-12	PMO-GUIDE DP SIDE		1	
2	MEC-ROLLER TRANSFER	022N01475	1	
3	MEA UNIT-HOLDER TR:R		1	
3-1	SPRING-PLATE TR		1	
3-2	SPRING-TR_R		1	
3-3	PMO-BUSH		1	
3-4	PMO-HOLDER TR R		1	
4	MEA UNIT-HOLDER TR:L		1	
4-1	SPRING-TR_L		1	
4-2	PMO-BUSH		1	
4-3	PMO-HOLDER TR L		1	
5	GEAR-FRANSFER	007N01114	1	
6	PMO-LOCKER SIDE R	019N00619	1	
7	PMO-LOCKER OPEN	019N00620	1	
8	SPRING-LOCKER TORSION	009N01366	1	
9	SPRING-FEED	022N01476	2	
10	MEC RACK-TRAY ASS'Y	002N02011	1	
10-1	PMO-TRAY CASE, MP		1	
10-2	PMO-SIDE EXIT, MP		1	
10-3	PMO-SIDE GUIDE, MP		1	
10-4	PMO-TRAY COVER, MP		1	
10-5	IPR-GUIDE LATCH, MP		1	
10-6	PMO-TRAY LINK,MP		1	

Side Cover Ass'y Parts List(Cont.)

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
11	CBF HARNESS-OPE GND		1	
11-1	PMO-GUIDE DP SIDE		1	
12	PMO-TIE STOPPER	120N00394	2	
13	IPR-BRKT GROUND B		1	
14	IPR-BRKT GROUND TR		1	
15	IPR-BRKT GROUND A		1	
16	IPR-BRACKET GUIDE B		1	
17	PMO-BUSHING FEED		1	
18	IPR-PLATE SAW		2	
19	PMO-FEED FRAME		1	
20	PMO-HOLDER SAW		1	
21	IPR-BRACKET GUIDE A		1	

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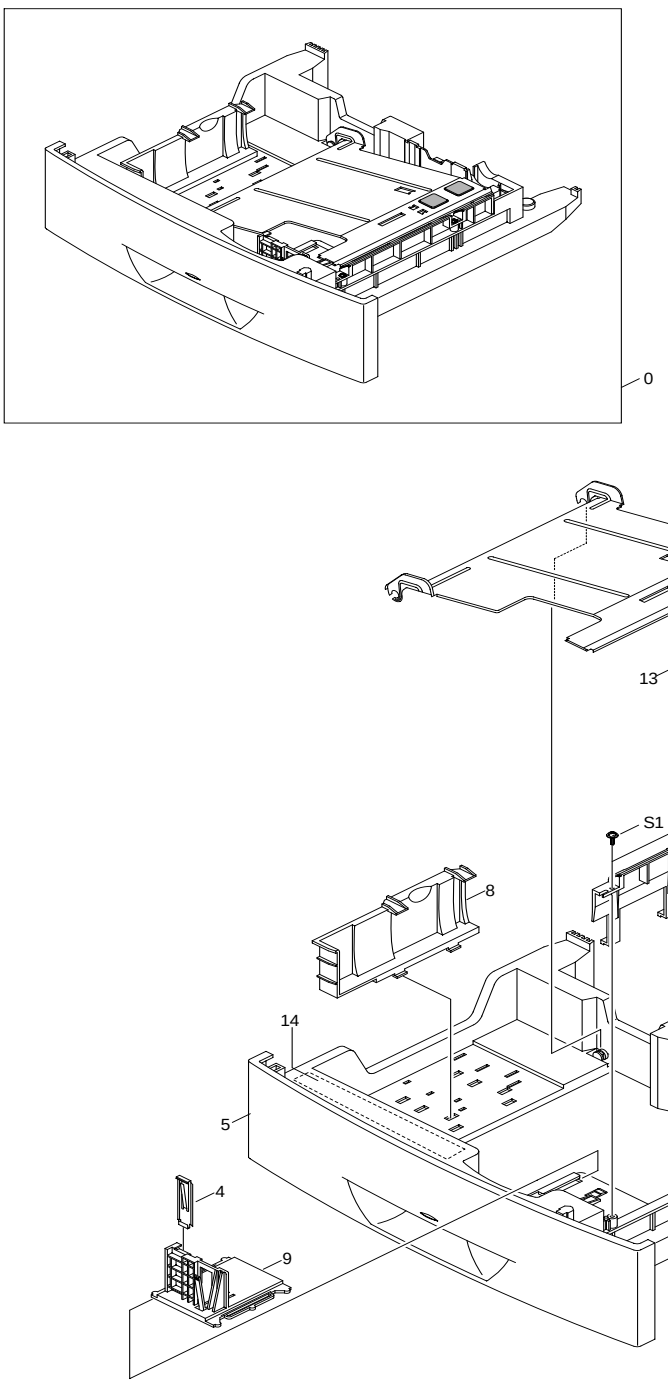
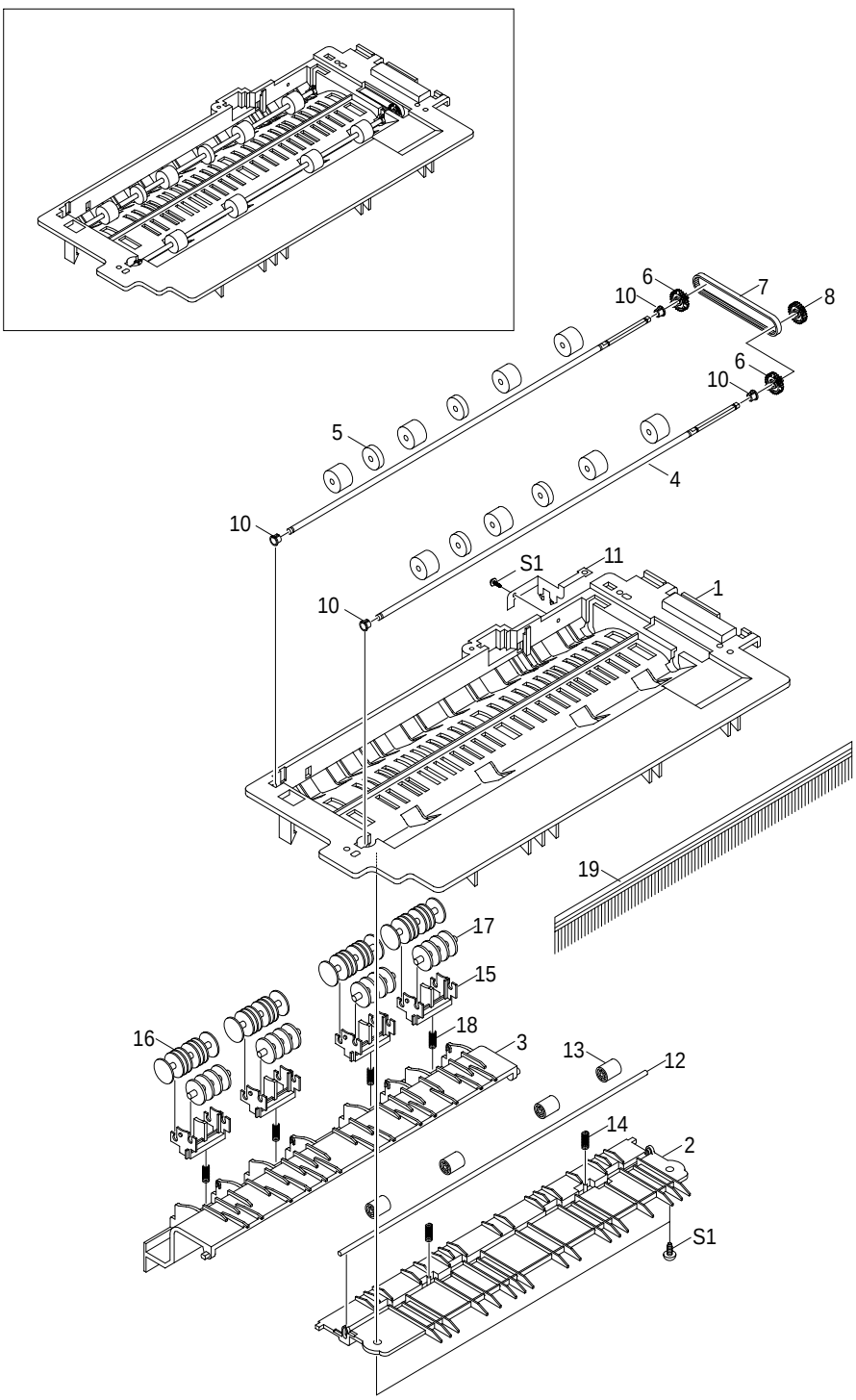
8-5. Cassette Ass'y Exploded View & Parts List



8-5-1 Cassette Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	MEC-CASSETTE ASS'Y	050N00393	1	
1	IPR-FINGER		1	
2	IPR-GUIDE PLT PAPER		1	
3	IPR-PLATE K/UP		1	
4	IPR-SPR PLT G/SIDE	015N00437	1	
5	PMO-COVER CASSETTE		1	
6	PMO-FRAME CASSETTE		1	
7	PMO-GUIDE FRONT CST		1	
8	PMO-GUIDE REAR	032N00351	1	
9	PMO-GUIDE/SIDE CST	032N00352	1	
10	PMO-LOCKER PLATE	015N00438	1	
11	PRP-PAD CAST	019N00611	2	
12	SPRING-LOCKER PLATE	015N00439	1	
13	SPRING-PLATE K/UP	015N00435	2	
14	LABEL(R)-INSTRUCTION CST		1	
15	LABEL(R)-HEIGHT CST		1	
S1	SCREW-TAPTITE		5	

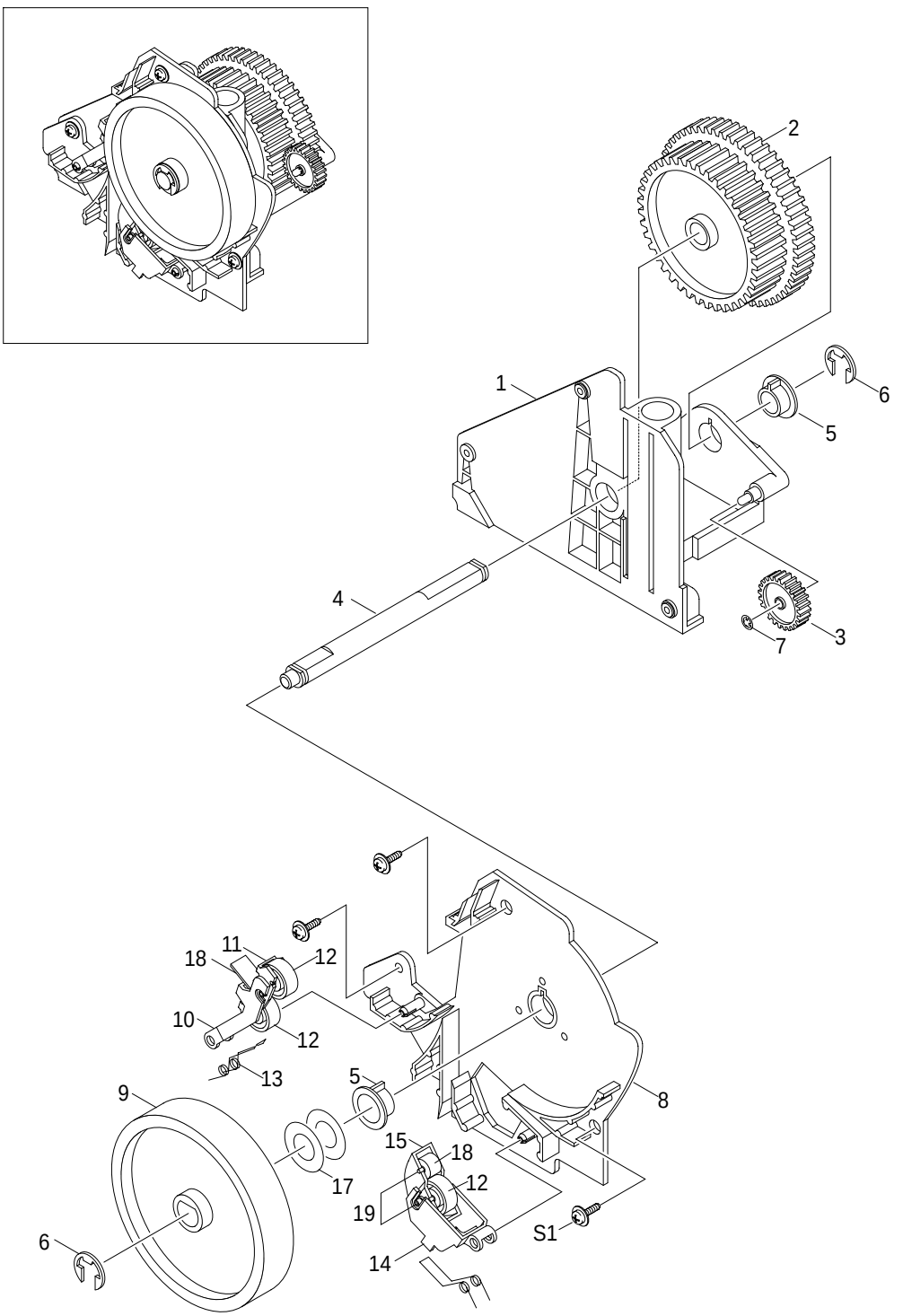
8-6. Exit Ass'y Exploded View & Parts List



8-6-1. Exit Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	MEC-EXIT ASS'Y	600N01736	1	
1	PMO-GUIDE-EXIT UPPER		1	
2	PMO-GUIDE-EXIT LOWER		1	
3	PMO-GUIDE-JAM REMOVE		1	
4	MEC-ROLLER EXIT DRV	007N01115	2	
5	PMO-ROLLER DECURL	022N01474	4	
6	PMO-PULLEY DUPLEX		2	
7	BELT-TIMING GEAR		1	
8	GEAR-DUPLEX		1	
9	PMO-BEARING LARGE DP	013N00514	1	
10	PMO-BEARING LARGE DP	013N00514	4	
11	IPR-GROUND-EXIT		1	
12	ICT-SHAFT-EXIT LOWER ID		1	
13	PMO-ROLLER_EXIT		4	
14	SPRING-EXIT ROLL FD		2	
15	PMO-HOLDER EXIT ROLL		4	
16	PMO-ROLLER FD F		4	
17	PMO-ROLLER FD R		4	
18	SPRING-EXIT LOWER IDLE		4	
19	MEC- BRUSH ANTISTATIC	115N00354	1	
S1	SCREW-TAPTITE		3	

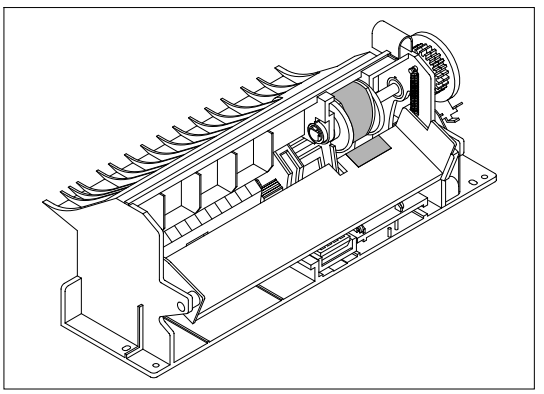
8-7. Feeder Ass'y Exploded View & Parts List

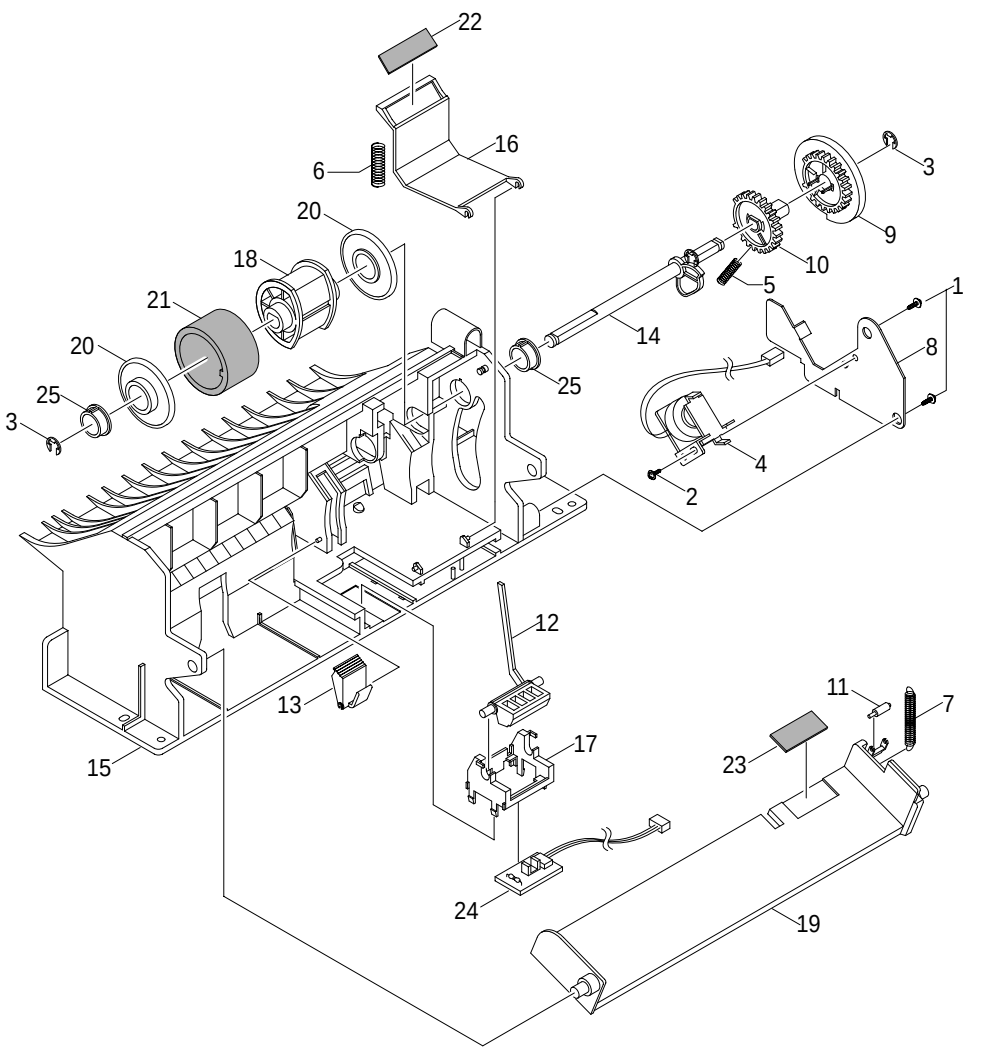


8-7-1 Feeder Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	MEC-FEED ASS'Y	022N01472	1	
1	PMO-FRAME FEED		1	
2	GEAR-FEED		1	
3	GEAR-MP/DUP DRV		1	
4	ICT-SHAFT FEED		1	
5	PMO-BUSHING_P/U,MP	013N00515	1	
6	E-RING		1	NOT SPARED
7	C-RING		1	NOT SPARED
8	PMO-BRKT FEED		1	
9	PMO-ROLLER FEED	022N01470	1	
10	PMO-HOLDER PINCH C		1	
11	PMO-HOLDER PINCH SUB		1	
12	PMO-ROLLER FEED L		3	
13	SPRING-FEED CAST		1	
14	PMO-HOLDER PINCH M		1	
15	PMO-SUB HOLDER FEED		1	
16	SPRING-FEED MP		1	
17	WASHER-PLAIN		2	
18	PMO-ROLLER FEED S		1	
19	IPR-SHAFT FEED IDLER		4	
S1	SCREW-TAPTITE		3	

8-8. MP Ass'y Exploded View & Parts List

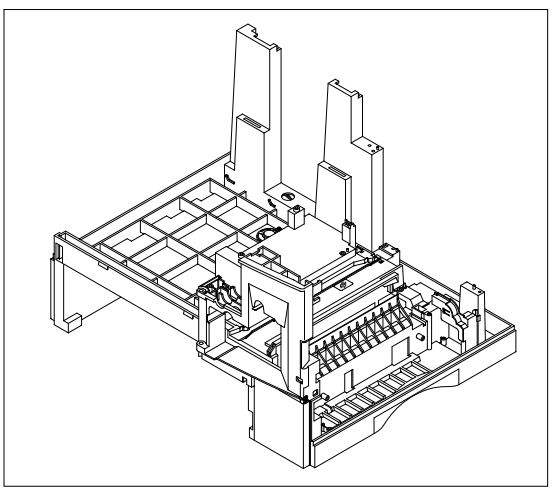


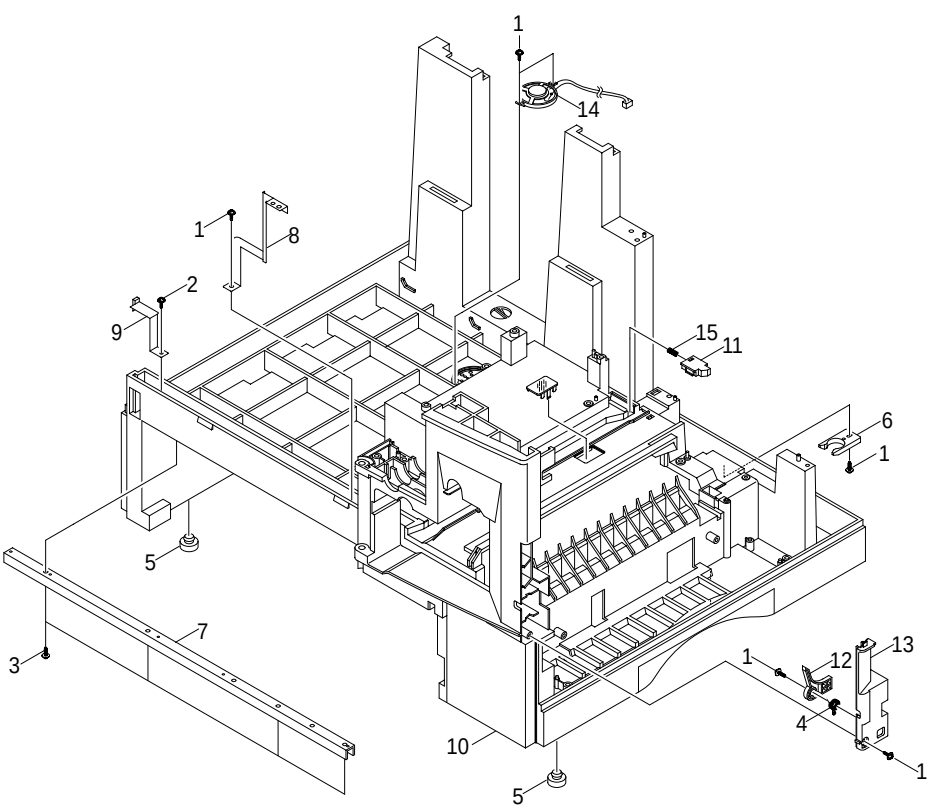


8-8-1 MP Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	ELA HOU-MP ASS'Y	600N01741	1	
1	SCREW-TAPTITE		2	
2	SCREW-TAPTITE		1	
3	RING-E	005N00781	2	
4	SOLENOID-MP	121N00595	1	
5	SPRING--CAM MP	009N01364	1	
6	SPRING-PICK UP MP		1	
7	SPRING-KNOCKUP,MP	009N01365	1	
8	IPR-BRACKET SOLENOIDE		1	
9	PMO-HOLDER CAM MPF		1	
10	PMO-GEAR P/U MPF		1	
11	PMO-ROLLER CAM.MP		1	
12	PMO-ACTUATOR,MP	120N00392	1	
13	PMO-ADJUSTER,MP	022N01479	1	
14	PMO-CAM PICK UP,MP	022N01480	1	
15	PMO-FRAME,MP		1	
16	PMO-HOLDER PAD,MP	019N00613	1	
17	PMO-HOLDER SENSOR,MP	130N01206	1	
18	PMO-HOUSING PICK UP,MP		1	
19	PMO-PLATE KNOCK UP,MP		1	
20	PMO-IDLE PICK UP MP	013N00516	2	
21	RPR-RUBBER PICK UP,MP		1	
22	RPR-RCT-PAD-PICKUP,MP	019N00612	1	
23	RPR-PAD KNOCK UP MP	019N00614	1	
24	PBA SUB-MP SEN	130N01203	1	
25	PMO-BUSHING PICKUP,MP	013N00515	1	
26	A/S MATERAL-PICKUP,MP	022N01484	1	

8-9. Base Frame Exploded View & Parts List

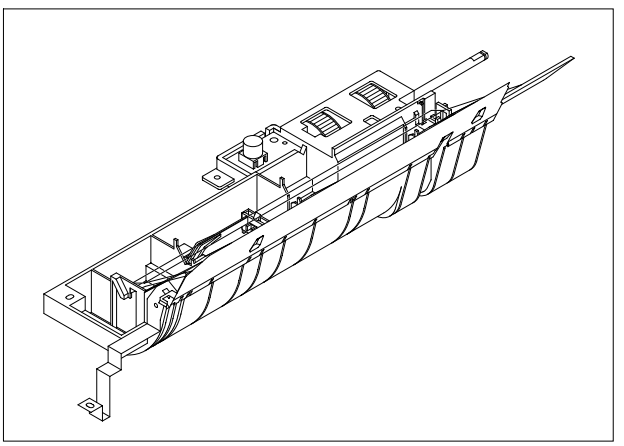


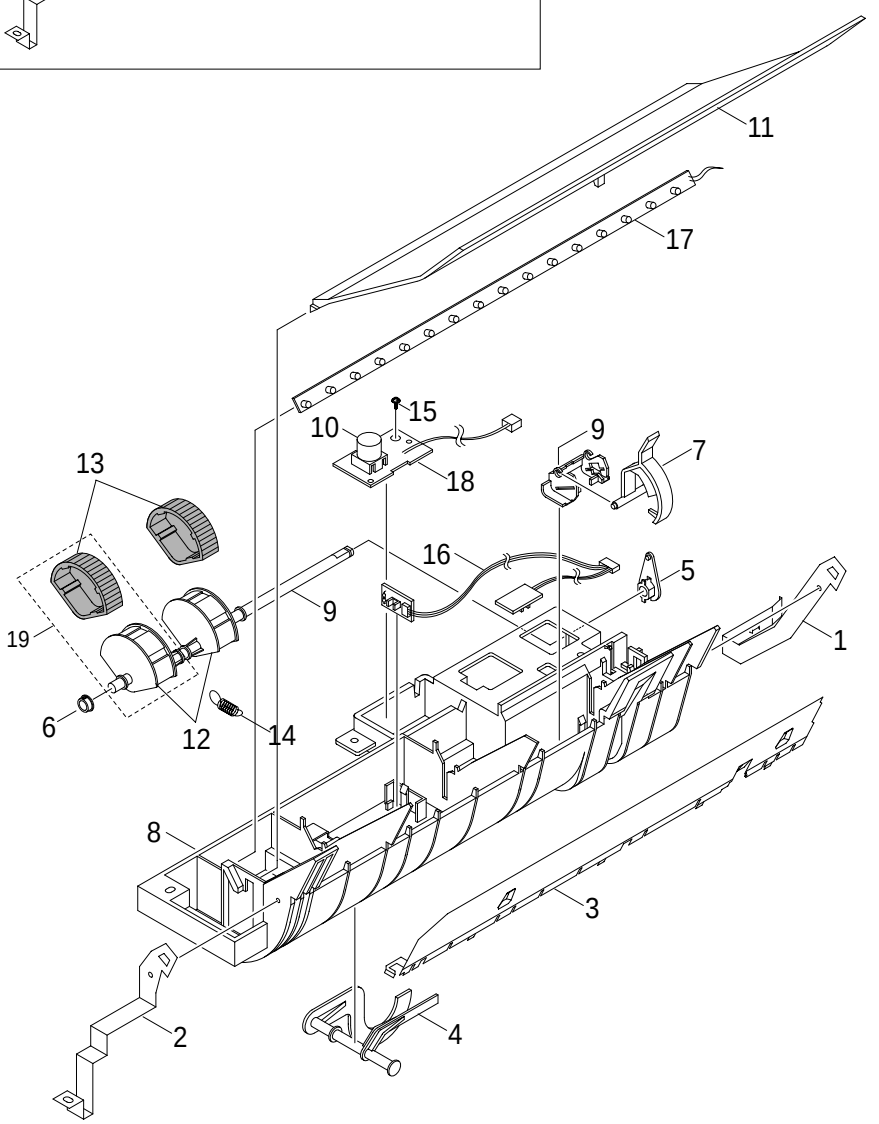


8-9-1 Base Frame Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	ELA HOU-BASE FRAME ASS'Y		1	
1	SCREW-TAPTITE		5	
2	SCREW-TAPTITE		2	
3	SCREW-TAPTITE		4	
4	SPRING-TORSION		1	
5	FOOT-RUBBER	017N00212	2	
6	CAM-CATCH		1	
7	IPR-CHANNEL BASE FRAME		1	
8	IPR-GROUND PLATE A(OPC)	015N00440	1	
9	IPR-GROUND PLATE B(BASE)	015N00441	1	
10	PMO-BASE FRAME		1	
11	PMO-BRACKET PUSH DEVE		2	
12	PMO-BRACKET SIDE OPEN	030N00606	1	
13	PMO-COVER FRONT DUMMY		1	
14	ELA M/MEDIO AUD-SPEAKER	130N01213	1	
15	SPRING-DEVE		2	

8-10. Pick-up Ass'y Exploded View & Parts List

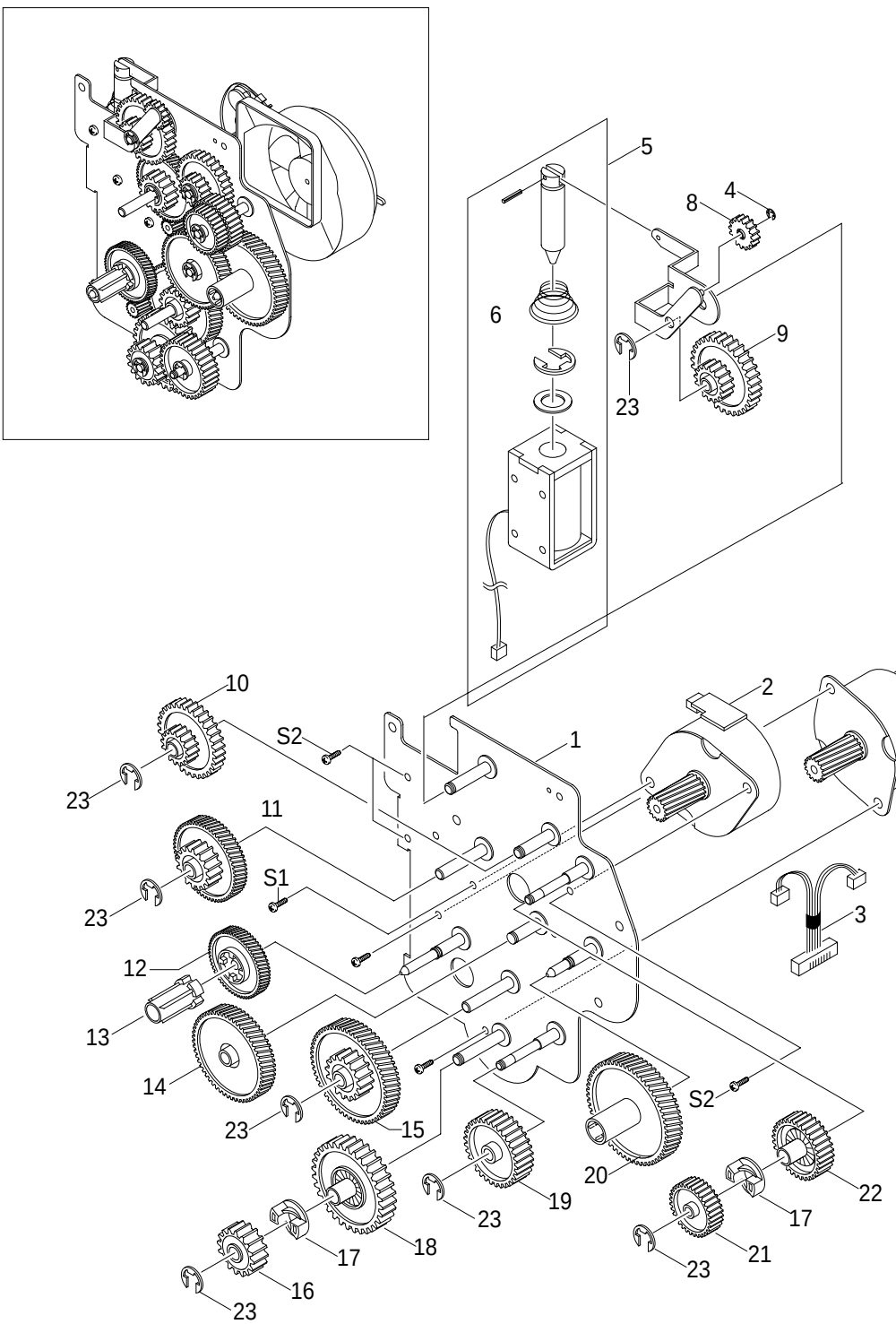




8-10-1 Pick-up Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	ELA HOU-PICKUP ASS'Y	022N01485	1	
1	IPR-GND FEED		1	
2	IPR-GND INPUT	152N01895	1	
3	IPR-GUIDE INPUT	022N01481	1	
4	PMO-ACTUATOR EMPTY	120N00393	1	
5	PMO-BEARING SHAFT	006N01093	1	
6	PMO-BUSHING PICK UP MP	013N00515	1	
7	PMO-FEED SENSOR		1	
8	PMO-GUIDE PAPER		1	
9	PMO-HOLDER SENSOR FEED		1	
10	PMO-LENS TONER SENSOR		1	
11	PMO-PTL PATH		1	
12	PMO-SHAFT PICK UP		1	
13	RPR-RUBBER PICK UP	022N01477	2	
14	SPRING-PICKUP	009N01362	1	
15	SCREW-TAPTITE		1	
16	PBA SUB-FEED+P.EMP SEN.	130N01204	1	
17	PBA SUB-PTL	140N05940	1	
18	PBA SUB-TONER_TX	130N01207	1	
19	A/S MATERAL-PICKUP,CST	022N01484	1	

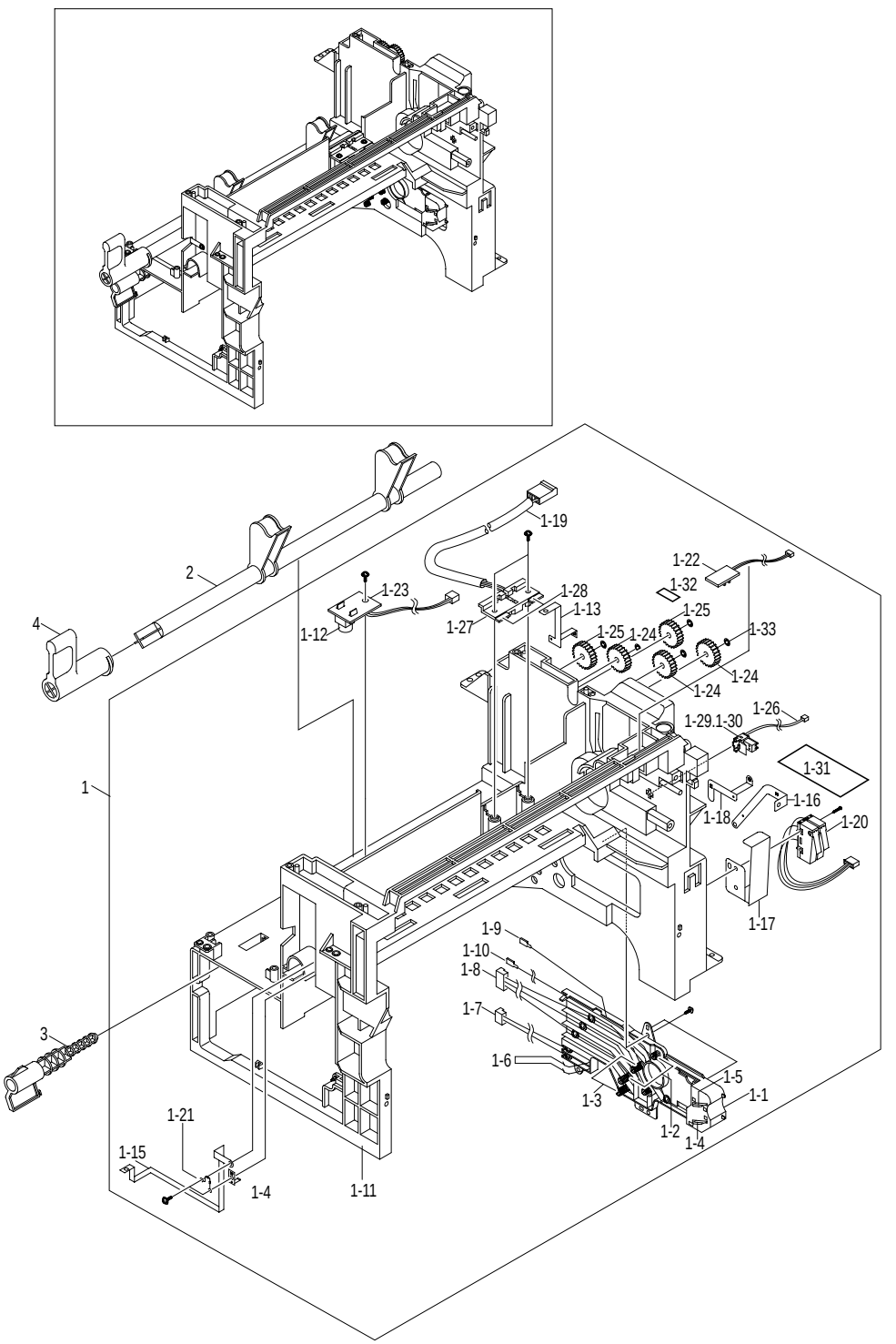
8-11. Drive Ass'y Exploded View & Parts List



8-11-1 Drive Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	ELA HOU-DRIVE ASS'Y	007N01117	1	
1	IPR-BRKT MOTOR		1	
2	MOTOR-STEP	127N01378	2	
3	HARNESS-MOTOR		1	
4	RING-E		1	
5	SOLENOID-DUPLEX	121N00596	1	
6	SPRING SOLENOID DP		1	
7	IPR-LINK SOLENOID		1	
8	GEAR-EXIT/U,ID		1	
9	GEAR-SWING DRV		1	
10	GEAR-35/19		1	
11	GEAR-71/23		1	
12	GEAR-DEVE DRV		1	
13	PMO-DEV/COUPLING		1	
14	GEAR-RDCN,OPC		1	
15	GEAR-86/23		1	
16	GEAR-RDCN FEED OUTER		1	
17	GEAR-HUB CLUTCH		2	
18	GEAR-RDCN FEED INNER		1	
19	GEAR-FEED DRV		1	
20	GEAR-OPC DRV		1	
21	GEAR-GEAR FUSER DRV OUTER		1	
22	GEAR-FUSER DRV INNER		1	
23	RING-E		8	
S1	SCREW-TAPTITE		5	
S2	SCREW-TAPTITE		7	

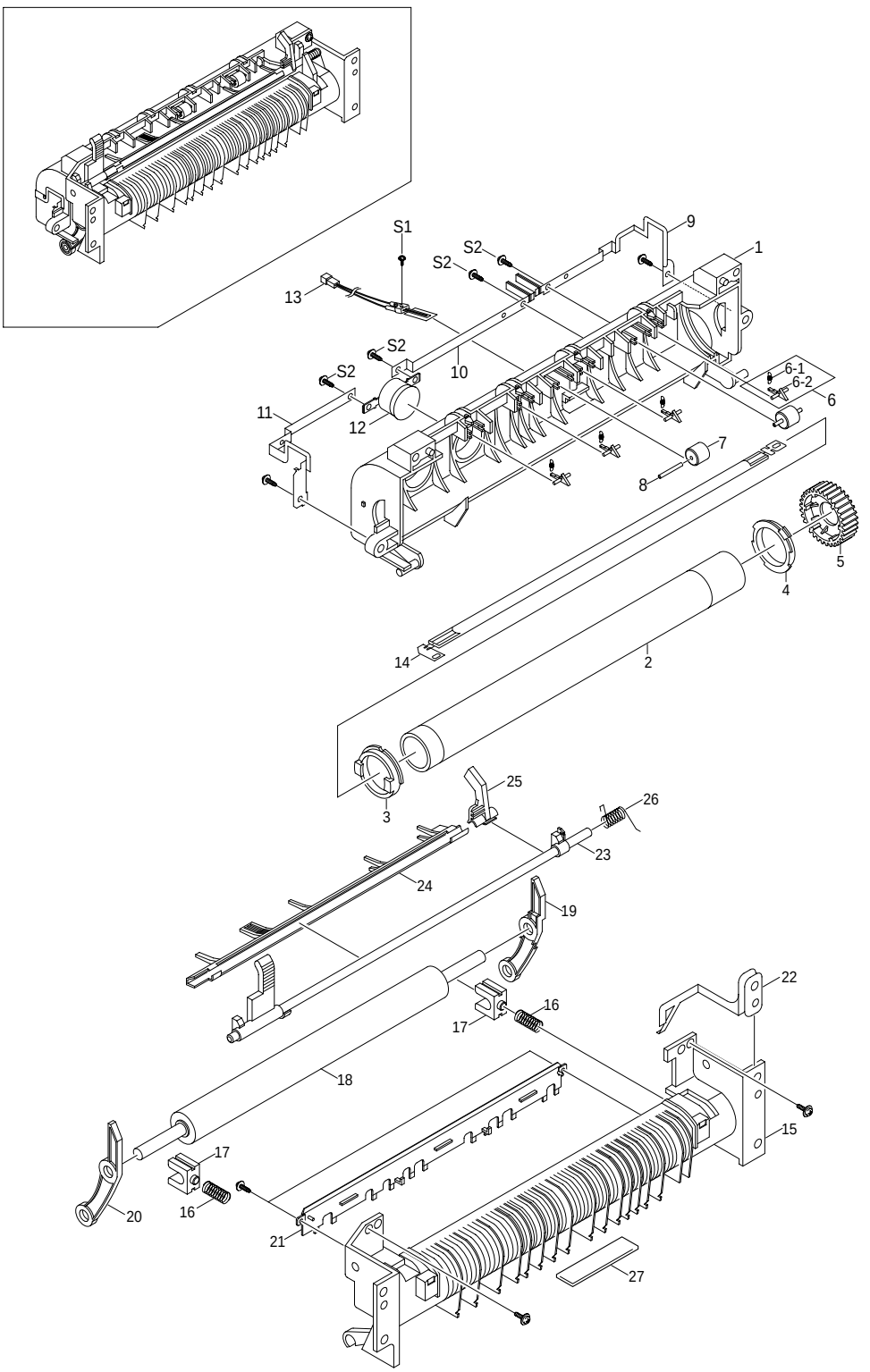
8-12. Main Frame Ass'y Exploded View & Parts List



8-12-1 Main Frame Ass'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
1	ELA HOU-FRAME MAIN ASS'Y	600N01743	1	
1-1	PMO-HOUSING TERMINAL		1	
1-2	IPR-TERMINAL BLADE		2	
1-3	IPR-TERMINAL SUPPLY		2	
1-4	IPR-TERMINAL TR		1	
1-5	IPR-TERMINAL GND		1	
1-6	IPR-TERMINAL DEVE KEY		2	NOT SPARED
1-7	CBF-HARNESS;MAIN-DEV_KEY		1	NOT SPARED
1-8	CBF-HARNESS; HVPS OUTPUT-FRAME		5	NOT SPARED
1-9	CBF-HARNESS:MAIN-THV		1	NOT SPARED
1-10	CBF-HARNESS;MAIN-MHV		1	NOT SPARED
1-11	PMO-FRAME MAIN		1	
1-12	PMO-LENS TONER SENSOR		2	
1-13	IPR-GND EXIT		1	
1-14	IPR-GND OPC		1	
1-15	IPR-GND OPC BASE		1	
1-16	IPR-GND FUSER		1	
1-17	IPR-GUARD C/O S/W		1	
1-18	IPR-GND TERMINAL		1	
1-19	CBF HARNESS-;FUSER(2PIN,550mm)		1	NOT SPARED
1-20	CBF-HARNESS;SWITCH-MICRO	110N01041	2	
1-21	CBF-HARNESS MOTOR		1	
1-22	PBA SUB-EXIT SENSOR	130N01205	1	
1-23	PBA SUB-TONER_RX	130N01208	1	
1-24	GEAR-EXIT/U,ID		3	
1-25	GEAR-EXIT,IDLE(Z17)		2	
1-26	CBF-HARNESS THERMISTOR_JOINT	011N00463	1	
1-27	PMO-HOUSING TERMINAL	116N00227	1	
1-28	IPR-TERMINAL FU		2	
1-29	PMO-CAP CONNECTOR L	113N00364	1	
1-30	PMO-CAP CONNECTOR U	113N00365	1	
1-31	CBF-HARNESS; RESISTOR ASS'Y(100Mohrn)		1	
1-32	SPRING-CLUTCH		2	
1-33	RING-CS		5	
S	NUT-HEXAGON		2	
S	SCREW-TAPPING,M2*18		1	NOT SPARED
S	SCREW-ASS'Y MACH		2	
S	SCREW-TAPTITE,M3*8 BLACK,BINDER		17	
2	PMO-CAM JAM REMOVE	011N00465	1	
3	PMO-LOCKER DEVE	011N00465	1	
4	PMO-LEVER JAM REMOVE	011N00465	1	

8-13. FuserAss'y Exploded View & Parts List



8-13-1 FuserAss'y Parts List

No	DESCRIPTION	SEC. CODE	Q'TY	REMARK
0	ELA HOU-FUSER(110V)ASS'Y	126N00182	1	110V
	ELA HOU-FUSER(220V)ASS'Y	126N00183	1	220V
1	PMO-UPPER FUSER		1	
2	RMO-ROLLER HEAT		1	
3	PMO-BEARING H/R-F		1	
4	BEARING-H/R L		1	
5	GEAR-FUSER	126N00184	1	
6	MEA RACK-CLAW ASS'Y		1	
6-1	SPRING-SAPERATION		4	
6-2	PMO-GUIDE CLAW		4	
7			1	NOT SPARED
8	IPR-PIN ROLLER EXIT		2	
9	NPR-ELECTRODE GEAR		1	
10	NPR-ELECTRODE M		1	
11	NPR-ELECTRODE F		1	
12	THERMOSTAT	130N01214	1	
13	THERMISTOR-FUSER	126N00185	1	
14	LAMP-HALOGEN (110V)	122N00208	1	110V
	LAMP-HALOGEN(220V)	122N00209	1	220V
15	PMO-LOWER FUSER		1	
16	THERMISTOR-FUSER	126N00185	1	
17	BEARING-PRESSURE/R		2	
18	RMO-ROLLER PRESSURE		1	
19	PMO-LEVER JAM R		1	
20	PMO-LEVER JAM F		1	
21	PMO-GUIDE INPUT		1	
22	IPR-GROUND FU		1	
23	PMO-ACTUATOR EXIT		1	
24	PMO-GUIDE DUPLEX	032N00353	1	
25	PMO-ARM ACTUATOR		1	
26	SPRING-PR(7300)		2	
27	LABEL(R)-HV FUSER		1	
S1	SCREW-TAPTITE		8	
S2	SCREW-TAPTITE		4	

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9. Electrical Parts Lists

9-1 Main PBA

SEC CODE	NO.	Q'ty	DESCRIPTION
JC92-01354A		1	PBA MAIN-MAIN"SCX-5100,XEROX,USA,12PPM,COPIER"
0105-001032		2	PAPER-ART"75g,W210,-,WHITE,HANSOI,L297"
0401-000116	D13	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0401-000116	D17	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0401-000116	D18	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0401-000116	D21	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0401-000116	D34	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0401-000116	D48	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0401-000116	D6	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0401-000116	D8	1	DIODE-SWITCHING"MMSD914T1,100V,200mA,SOD-123,TP"
0402-000129	D19	1	DIODE-RECTIFIER"1N4003,200V,1A,DO-41,TP"
0402-000129	D29	1	DIODE-RECTIFIER"1N4003,200V,1A,DO-41,TP"
0402-000129	D5	1	DIODE-RECTIFIER"1N4003,200V,1A,DO-41,TP"
0402-000129	D9	1	DIODE-RECTIFIER"1N4003,200V,1A,DO-41,TP"
0403-000139	ZD1	1	DIODE-ZENER"1N4734A,5.6V,5%,1W,DO-41,TP"
0404-000112	D2	1	DIODE-SCHOTTKY"RB420D,25V,100mA,SOT-23,TP"
0404-000112	D28	1	DIODE-SCHOTTKY"RB420D,25V,100mA,SOT-23,TP"
0407-000101	D35	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D36	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D37	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D38	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D39	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D40	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D41	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D43	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D44	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D45	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D46	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D47	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0407-000101	D49	1	DIODE-ARRAY"DA204K,20V,100mA,C2-3,SOT-23,T"
0501-000010	Q19	1	TR-SMALL SIGNAL"KSC1008,NPN,800mW,TO-92,TP,120-240"
0501-000010	Q22	1	TR-SMALL SIGNAL"KSC1008,NPN,800mW,TO-92,TP,120-240"
0501-000279	Q21	1	TR-SMALL SIGNAL"KSA1182-Y,PNP,150mW,SOT-23,TP,"
0501-000294	Q4	1	TR-SMALL SIGNAL"KSA708-Y,PNP,800mW,TO-92,TP,12"
0501-000338	Q1	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q10	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q11	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q15	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q17	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q18	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q20	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q23	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q24	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q25	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q3	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q5	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q6	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q7	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q8	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0501-000338	Q9	1	TR-SMALL SIGNAL"2SC2812,NPN,200mW,SOT-23,TP,20"
0502-000245	Q12	1	TR-POWER"KSB1151-Y,PNP,1.3W,TO-126,-,16"
0502-001048	Q14	1	TR-POWER"KSD1691,NPN,1.3W,TO-126,BK,160"
0801-000379	U48	1	IC-CMOS LOGIC"74HC00,NAND GATE,SOP,14P,150MI"
0801-000454	U22	1	IC-CMOS LOGIC"74HC74,D FLIP-FLOP,SOP,14P,150"
0801-000477	U26	1	IC-CMOS LOGIC"74HCT273,D FLIP-FLOP,SOP,20P,3"
0801-000477	U27	1	IC-CMOS LOGIC"74HCT273,D FLIP-FLOP,SOP,20P,3"
0801-001055	U40	1	IC-CMOS LOGIC"74VHC08,AND GATE,SOP,14P,150MI"

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0801-001055	U45	1	IC-CMOS LOGIC"74VHC08,AND GATE,SOP,14P,150MI"
0801-001056	U1	1	IC-CMOS LOGIC"74VHC32,OR GATE,SOP,14P,150MIL"
0801-001056	U2	1	IC-CMOS LOGIC"74VHC32,OR GATE,SOP,14P,150MIL"
0801-001056	U21	1	IC-CMOS LOGIC"74VHC32,OR GATE,SOP,14P,150MIL"
0801-001090	U61	1	IC-CMOS LOGIC"74HC14,SCHIMITT INVERTER,SOP,1"
0801-001262	U10	1	IC-CMOS LOGIC"74HC4060,BINARY COUNTER,DIP,16"
0803-001393	U3	1	IC-TTL"7407,BUFFER/DRIVER,SOP,14P,150"
0909-000101	U18	1	IC-REAL TIME CLOCK"4513,-,SOP,14P,300MIL,0.032MHz"
1001-000170	U42	1	IC-ANALOG SWITCH"MC14051BD,SPDT CMOS,SOP,16P,15"
1001-000171	U46	1	IC-ANALOG SWITCH"MC14053BD,SPDT CMOS,SOP,16P,15"
1003-001102	U55	1	IC-MOTOR DRIVER"TEA3718DP,DIP,16P,300MIL,SINGL"
1003-001102	U56	1	IC-MOTOR DRIVER"TEA3718DP,DIP,16P,300MIL,SINGL"
1003-001102	U57	1	IC-MOTOR DRIVER"TEA3718DP,DIP,16P,300MIL,SINGL"
1003-001102	U58	1	IC-MOTOR DRIVER"TEA3718DP,DIP,16P,300MIL,SINGL"
1003-001291	U59	1	IC-MOTOR DRIVER"A2918SWH,DIP,18P,1220MIL20W,45V,-"
1006-000243	U33	1	IC-LINE TRANSCEIVER"74ACT245,SOP,20P,-,OCTAL,ST,PL"
1006-000243	U34	1	IC-LINE TRANSCEIVER"74ACT245,SOP,20P,-,OCTAL,ST,PL"
1105-001252	U53	1	IC-DRAM "416C4104,4MX16BIT,TSOP,50P,400MIL,50NS,5V"
1105-001252	U54	1	IC-DRAM "416C4104,4MX16BIT,TSOP,50P,400MIL,50NS,5V"
1106-001037	U11	1	IC-SRAM"62256,32Kx8BIT,SOP,28P,450MIL,"
1106-001384	U13	1	IC-SRAM "6R1016,64KX16BIT,TSOP,44P,400MIL,15NS,5V"
1107-001121	U14	1	IC-FLASH MEMORY "29F800,1Mx8/512Kx16Bit,TSOP,48P,787MIL,70nS,5V"
1107-001121	U15	1	IC-FLASH MEMORY"29F800,1Mx8/512Kx16Bit,TSOP,48P,787MIL,70nS,5V"
1107-001121	U19	1	IC-FLASH MEMORY"29F800,1Mx8/512Kx16Bit,TSOP,48P,787MIL,70nS,5V"
1107-001121	U20	1	IC-FLASH MEMORY"29F800,1Mx8/512Kx16Bit,TSOP,48P,787MIL,70nS,5V"
1201-000105	U52	1	IC-AUDIO AMP"34119,SOP,8P,150MIL,SINGLE,-,P"
1201-000167	U50	1	IC-OP AMP"358,SOP,8P,150MIL,DUAL,100V/mV"
1201-000167	U51	1	IC-OP AMP"358,SOP,8P,150MIL,DUAL,100V/mV"
1201-001589	U7	1	IC-OP AMP"15420,SOP,TP,8P,150MIL,DUAL,5.9dB14V,400mW"
1201-001589	U8	1	IC-OP AMP"15420,SOP,TP,8P,150MIL,DUAL,5.9dB14V,400mW"
1201-001589	U9	1	IC-OP AMP"15420,SOP,TP,8P,150MIL,DUAL,5.9dB14V,400mW"
1202-000164	U6	1	IC-VOLTAGE COMP."393,SOP,8P,150MIL,DUAL,36V,CMO"
1203-000496	U49	1	IC-VOL. SUPERVISORY"7705,SOP,8P,150MIL,PLASTIC,20V"
1203-001455	U31	1	IC-POSI.FIXED REG."1117,DPAK,3P,265MIL,PLASTIC,3."
1203-001455	U47	1	IC-POSI.FIXED REG."1117,DPAK,3P,265MIL,PLASTIC,3."
1203-001455	U60	1	IC-POSI.FIXED REG."1117,DPAK,3P,265MIL,PLASTIC,3."
1205-001771	U23	1	IC-CLOCK GENERATOR"FS781BZB,SOP,8P,150MIL,5.5V,37mW"
1205-001896	U44	1	IC-MODEM"FM336R6719-12,QFP,100P,3.6V,250mW"
2001-000015	R271	1	R-CARBON(S)"0.5OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000015	R272	1	R-CARBON(S)"0.5OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000015	R273	1	R-CARBON(S)"0.5OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000015	R274	1	R-CARBON(S)"0.5OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2001-000016	R243	1	R-CARBON(S)"1OHM,5%,1/2W,AA,TP,2.4X6.4MM"
2005-000419	R292	1	"R-WIRE WOUND,NON""0.33ohm,1%,1W,AA,TP,4.3x12mm"
2005-000419	R293	1	"R-WIRE WOUND,NON""0.33ohm,1%,1W,AA,TP,4.3x12mm"
2007-000033	R321	1	R-CHIP"0OHM,5%,1/8W,DA,TP,3216"
2007-000070	R128	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R172	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R23	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R24	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R25	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R26	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R27	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R313	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R63	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R64	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R65	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000074	R11	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R110	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000070	R66	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"

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2007-000070	R67	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000070	R68	1	R-CHIP"0ohm,5%,1/16W,DA,TP,1608"
2007-000074	R134	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R15	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R155	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R157	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R203	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R212	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R250	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R286	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R5	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R50	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R6	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R62	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R69	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R7	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R77	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R88	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R89	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R9	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R90	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R94	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000074	R95	1	R-CHIP"100ohm,5%,1/16W,DA,TP,1608"
2007-000077	R322	1	R-CHIP"470ohm,5%,1/16W,DA,TP,1608"
2007-000078	R131	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R150	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R151	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R154	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R160	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R166	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R17	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R189	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R190	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R198	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R20	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R221	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R258	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R259	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R260	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R261	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R262	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R263	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R264	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R298	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R299	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R323	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R324	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R325	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R326	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R327	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R75	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000078	R76	1	R-CHIP"1Kohm,5%,1/16W,DA,TP,1608"
2007-000080	R194	1	R-CHIP"2Kohm,5%,1/16W,DA,TP,1608"
2007-000082	R294	1	R-CHIP"3.3Kohm,5%,1/16W,DA,TP,1608"
2007-000083	R223	1	R-CHIP"3Kohm,5%,1/16W,DA,TP,1608"
2007-000083	R333	1	R-CHIP"3Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R16	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R18	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R202	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R231	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"

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2007-000084	R287	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R300	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R37	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R38	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R39	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R40	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R41	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R42	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R58	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000084	R59	1	R-CHIP"4.7Kohm,5%,1/16W,DA,TP,1608"
2007-000086	R141	1	R-CHIP"5.6Kohm,5%,1/16W,DA,TP,1608"
2007-000086	R239	1	R-CHIP"5.6Kohm,5%,1/16W,DA,TP,1608"
2007-000086	R251	1	R-CHIP"5.6Kohm,5%,1/16W,DA,TP,1608"
2007-000086	R253	1	R-CHIP"5.6Kohm,5%,1/16W,DA,TP,1608"
2007-000086	R30	1	R-CHIP"5.6Kohm,5%,1/16W,DA,TP,1608"
2007-000086	R80	1	R-CHIP"5.6Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R102	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R103	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R108	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R120	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R121	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R130	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R135	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R162	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R163	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R164	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R165	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R167	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R170	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R176	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R177	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R180	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R187	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R2	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R216	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R218	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R219	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R220	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R222	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R226	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R28	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R283	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R284	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R285	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R295	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R3	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R302	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R32	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R33	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R330	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R4	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R46	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R47	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R54	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R60	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R61	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R84	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000090	R85	1	R-CHIP"10Kohm,5%,1/16W,DA,TP,1608"
2007-000092	R156	1	R-CHIP"15Kohm,5%,1/16W,DA,TP,1608"
2007-000092	R235	1	R-CHIP"15Kohm,5%,1/16W,DA,TP,1608"

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2007-000094	R161	1	R-CHIP"22Kohm,5%,1/16W,DA,TP,1608"
2007-000094	R8	1	R-CHIP"22Kohm,5%,1/16W,DA,TP,1608"
2007-000096	R213	1	R-CHIP"30Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R1	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R107	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R12	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R144	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R169	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R183	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R193	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R195	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R211	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R224	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R249	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R70	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R74	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000097	R79	1	R-CHIP"47Kohm,5%,1/16W,DA,TP,1608"
2007-000098	R277	1	R-CHIP"56Kohm,5%,1/16W,DA,TP,1608"
2007-000098	R278	1	R-CHIP"56Kohm,5%,1/16W,DA,TP,1608"
2007-000098	R279	1	R-CHIP"56Kohm,5%,1/16W,DA,TP,1608"
2007-000098	R280	1	R-CHIP"56Kohm,5%,1/16W,DA,TP,1608"
2007-000098	R296	1	R-CHIP"56Kohm,5%,1/16W,DA,TP,1608"
2007-000098	R297	1	R-CHIP"56Kohm,5%,1/16W,DA,TP,1608"
2007-000102	R104	1	R-CHIP"100Kohm,5%,1/16W,DA,TP,1608"
2007-000102	R122	1	R-CHIP"100Kohm,5%,1/16W,DA,TP,1608"
2007-000102	R173	1	R-CHIP"100Kohm,5%,1/16W,DA,TP,1608"
2007-000103	R233	1	R-CHIP"120Kohm,5%,1/16W,DA,TP,1608"
2007-000103	R234	1	R-CHIP"120Kohm,5%,1/16W,DA,TP,1608"
2007-000104	R232	1	R-CHIP"150Kohm,5%,1/16W,DA,TP,1608"
2007-000106	R168	1	R-CHIP"220Kohm,5%,1/16W,DA,TP,1608"
2007-000106	R256	1	R-CHIP"220Kohm,5%,1/16W,DA,TP,1608"
2007-000109	R179	1	R-CHIP"1Mohm,5%,1/16W,DA,TP,1608"
2007-000109	R214	1	R-CHIP"1Mohm,5%,1/16W,DA,TP,1608"
2007-000109	R44	1	R-CHIP"1Mohm,5%,1/16W,DA,TP,1608"
2007-000113	R111	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R113	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R123	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R124	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R127	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R146	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R182	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R184	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R186	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R196	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R199	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R207	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R209	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R210	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R238	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R301	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R71	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000113	R72	1	R-CHIP"33ohm,5%,1/16W,DA,TP,1608"
2007-000120	R10	1	R-CHIP"680ohm,5%,1/16W,DA,TP,1608"
2007-000121	R246	1	R-CHIP"820ohm,5%,1/16W,DA,TP,1608"
2007-000121	R86	1	R-CHIP"820ohm,5%,1/16W,DA,TP,1608"
2007-000123	R116	1	R-CHIP"1.5Kohm,5%,1/16W,DA,TP,1608"
2007-000123	R254	1	R-CHIP"1.5Kohm,5%,1/16W,DA,TP,1608"
2007-000123	R257	1	R-CHIP"1.5Kohm,5%,1/16W,DA,TP,1608"
2007-000123	R329	1	R-CHIP"1.5Kohm,5%,1/16W,DA,TP,1608"
2007-000123	R331	1	R-CHIP"1.5Kohm,5%,1/16W,DA,TP,1608"

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SEC CODE	NO.	Q'ty	DESCRIPTION
2007-000124	R133	1	R-CHIP"2.2Kohm,5%,1/16W,DA,TP,1608"
2007-000124	R45	1	R-CHIP"2.2Kohm,5%,1/16W,DA,TP,1608"
2007-000124	R81	1	R-CHIP"2.2Kohm,5%,1/16W,DA,TP,1608"
2007-000131	R230	1	R-CHIP"91Kohm,5%,1/16W,DA,TP,1608"
2007-000132	R255	1	R-CHIP"180Kohm,5%,1/16W,DA,TP,1608"
2007-000133	R225	1	R-CHIP"330Kohm,5%,1/16W,DA,TP,1608"
2007-000134	R291	1	R-CHIP"33Kohm,5%,1/16W,DA,TP,1608"
2007-000134	R31	1	R-CHIP"33Kohm,5%,1/16W,DA,TP,1608"
2007-000136	R229	1	R-CHIP"300Kohm,5%,1/16W,DA,TP,1608"
2007-000223	R252	1	R-CHIP"1.2KOHM,5%,1/8W,DA,TP,3216"
2007-000265	R29	1	R-CHIP"1.8Kohm,1%,1/16W,DA,TP,1608"
2007-000309	R317	1	R-CHIP"10ohm,5%,1/16W,DA,TP,1608"
2007-000309	R318	1	R-CHIP"10ohm,5%,1/16W,DA,TP,1608"
2007-000309	R319	1	R-CHIP"10ohm,5%,1/16W,DA,TP,1608"
2007-000312	R153	1	R-CHIP"10OHM,5%,1/8W,DA,TP,3216"
2007-000368	R228	1	R-CHIP"130Kohm,5%,1/16W,DA,TP,1608"
2007-000402	R175	1	R-CHIP"150ohm,5%,1/16W,DA,TP,1608"
2007-000683	R43	1	R-CHIP"3.3Kohm,1%,1/16W,DA,TP,1608"
2007-000839	R303	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R304	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R305	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R306	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R307	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R308	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R309	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R310	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000839	R311	1	R-CHIP"39ohm,5%,1/16W,DA,TP,1608"
2007-000965	R236	1	R-CHIP"5.1Kohm,5%,1/16W,DA,TP,1608"
2007-001002	R140	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001002	R237	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001002	R244	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001002	R288	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001002	R289	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001002	R290	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001002	R328	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001002	R56	1	R-CHIP"510ohm,5%,1/16W,DA,TP,1608"
2007-001134	R125	1	R-CHIP"68ohm,5%,1/16W,DA,TP,1608"
2007-001134	R197	1	R-CHIP"68ohm,5%,1/16W,DA,TP,1608"
2007-001134	R247	1	R-CHIP"68ohm,5%,1/16W,DA,TP,1608"
2007-001134	R332	1	R-CHIP"68ohm,5%,1/16W,DA,TP,1608"
2007-002768	R52	1	R-CHIP"6.2Kohm,1%,1/16W,DA,TP,1608"
2011-001093	RA21	1	R-NETWORK"100ohm,5%,1/16W,L,CHIP,8P,TP"
2011-001093	RA22	1	R-NETWORK"100ohm,5%,1/16W,L,CHIP,8P,TP"
2011-001093	RA23	1	R-NETWORK"100ohm,5%,1/16W,L,CHIP,8P,TP"
2011-001094	RA1	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA10	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA11	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA12	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA13	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA14	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA15	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA16	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA17	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA18	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA19	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"

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SEC CODE	NO.	Q'ty	DESCRIPTION
2011-001094	RA2	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA20	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA3	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA4	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA5	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA6	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA7	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA8	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001094	RA9	1	R-NETWORK"39ohm,5%,63mW,L,CHIP,8P,TP"
2011-001334	U25	1	RC-NETWORK"1K/5.1K/39ohm,10%,150pF,-,6V,28P"
2203-000189	C101	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C102	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C104	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C107	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C109	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C110	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C111	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C112	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C113	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C116	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C118	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C121	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C122	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C124	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C125	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C126	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C128	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C129	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C132	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C133	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C138	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C139	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C140	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C141	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C142	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C143	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C144	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C145	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C146	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C147	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C149	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C155	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C156	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C16	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C161	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C162	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C163	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C164	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C165	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C166	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C167	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C168	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C169	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C170	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C171	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C172	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C173	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C174	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C176	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"

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SEC CODE	NO.	Q'ty	DESCRIPTION
2203-000189	C177	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C179	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C18	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C181	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C182	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C183	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C184	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C185	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C186	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C188	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C189	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C190	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C192	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C194	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C195	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C198	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C201	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C202	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C204	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C207	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C208	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C209	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C210	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C211	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C212	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C213	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C215	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C216	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C217	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C218	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C22	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C221	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C222	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C223	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C225	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C226	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C227	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C228	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C229	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C236	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C237	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C238	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C239	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C240	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C242	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C243	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C245	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C246	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C247	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C248	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C249	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C251	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C253	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C254	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C26	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C262	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C263	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C264	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C265	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"

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SEC CODE	NO.	Q'ty	DESCRIPTION
2203-000189	C266	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C267	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C268	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C269	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C270	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C282	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C294	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C296	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C298	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C300	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C31	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C332	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C336	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C337	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C338	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C36	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C38	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C40	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C46	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C49	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C50	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C53	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C62	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C64	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C66	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C68	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C69	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C7	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C70	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C72	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C76	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C8	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C81	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C82	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C83	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C84	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C85	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C86	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C87	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C88	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C89	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C9	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C90	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C91	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C92	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C94	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C95	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C96	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C97	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000189	C99	1	"C-CERAMIC,CHIP""100nF,+80-20%,25V,Y5V,TP,1608,"
2203-000192	C280	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	C293	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	C295	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	C297	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	C299	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	C32	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	C327	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000192	C52	1	"C-CERAMIC,CHIP""100nF,+80-20%,50V,Y5V,TP,2012,"
2203-000236	C106	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C130	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"

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2203-000236	C131	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C134	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C135	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C150	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C196	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C214	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C230	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C24	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C5	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C58	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C6	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C60	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000236	C73	1	"C-CERAMIC,CHIP""0.1nF,5%,50V,NP0,TP,1608"
2203-000257	C119	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C191	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C20	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C219	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C231	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C317	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C318	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C319	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C328	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C329	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C330	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C331	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000257	C42	1	"C-CERAMIC,CHIP""10nF,10%,50V,X7R,TP,1608"
2203-000357	C80	1	"C-CERAMIC,CHIP""0.15nF,5%,50V,NP0,TP,1608"
2203-000426	C105	1	"C-CERAMIC,CHIP""0.018nF,5%,50V,NP0,TP,1608"
2203-000426	C123	1	"C-CERAMIC,CHIP""0.018nF,5%,50V,NP0,TP,1608"
2203-000440	C10	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C17	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C19	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C199	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C203	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C205	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C206	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C224	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C23	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C232	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C235	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C25	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C250	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C252	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C258	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C259	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C281	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C283	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C29	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C30	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C322	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C323	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C324	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C325	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C335	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C340	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000440	C41	1	"C-CERAMIC,CHIP""1nF,10%,50V,X7R,TP,1608,-"
2203-000626	C115	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C120	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C157	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C160	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"

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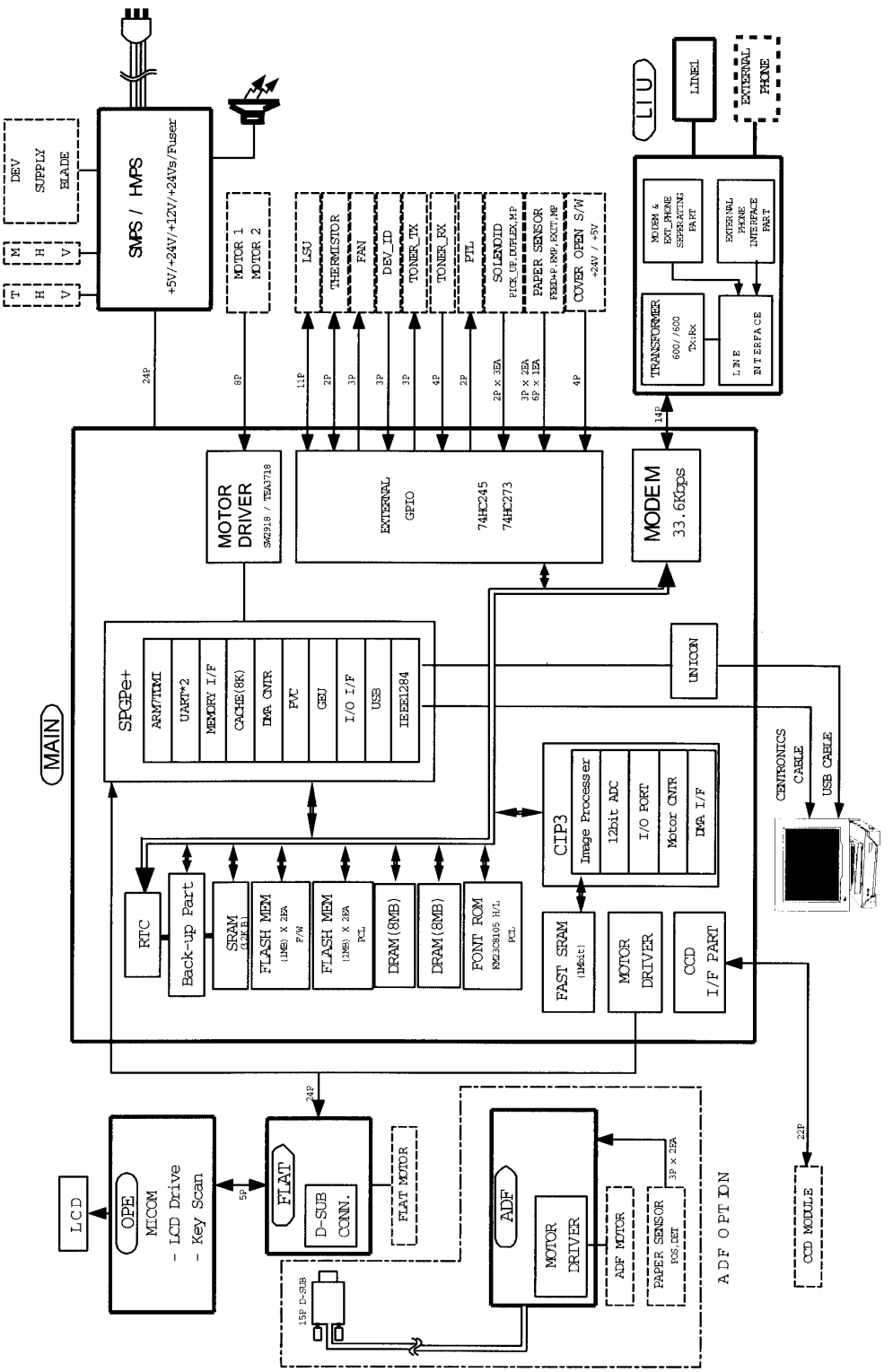
2203-000626	C197	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C200	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C287	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C288	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C289	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C290	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C43	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C51	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C61	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C74	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000626	C75	1	"C-CERAMIC,CHIP""0.022nF,5%,50V,NP0,TP,1608"
2203-000681	C178	1	"C-CERAMIC,CHIP""0.027nF,5%,50V,NP0,TP,1608"
2203-000681	C187	1	"C-CERAMIC,CHIP""0.027nF,5%,50V,NP0,TP,1608"
2203-000783	C333	1	"C-CERAMIC,CHIP""0.33nF,5%,50V,NP0,TP,1608"
2203-000783	C334	1	"C-CERAMIC,CHIP""0.33nF,5%,50V,NP0,TP,1608"
2203-000783	C339	1	"C-CERAMIC,CHIP""0.33nF,5%,50V,NP0,TP,1608"
2203-000815	C11	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-000815	C12	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-000815	C13	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-000815	C14	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-000815	C15	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-000815	C154	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-000815	C220	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-000815	C286	1	"C-CERAMIC,CHIP""0.033nF,5%,50V,NP0,TP,1608"
2203-001222	C305	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001222	C306	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001222	C307	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001222	C308	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001222	C309	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001222	C310	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001222	C311	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001222	C312	1	"C-CERAMIC,CHIP""820pF,10%,50V,X7R,TP,1608,-"
2203-001408	C158	1	"C-CERAMIC,CHIP""0.27nF,5%,50V,NP0,TP,1608"
2203-001408	C261	1	"C-CERAMIC,CHIP""0.27nF,5%,50V,NP0,TP,1608"
2203-001656	C159	1	"C-CERAMIC,CHIP""0.47nF,5%,50V,NP0,TP,1608"
2203-005065	C255	1	"C-CERAMIC,CHIP""1000nF,+80-20%,10V,Y5V,TP,1608"
2203-005065	C260	1	"C-CERAMIC,CHIP""1000nF,+80-20%,10V,Y5V,TP,1608"
2203-005105	C79	1	"C-CERAMIC,CHIP""0.68nF,5%,50V,NP0,TP,1608"
2401-000042	C1	1	C-AL"100uF,20%,16V,GP,TP,6.3x7,5"
2401-000042	C257	1	C-AL"100uF,20%,16V,GP,TP,6.3x7,5"
2401-000042	C28	1	C-AL"100uF,20%,16V,GP,TP,6.3x7,5"
2401-000042	C284	1	C-AL"100uF,20%,16V,GP,TP,6.3x7,5"
2401-000042	C59	1	C-AL"100uF,20%,16V,GP,TP,6.3x7,5"
2401-000042	C77	1	C-AL"100uF,20%,16V,GP,TP,6.3x7,5"
2401-001185	C193	1	C-AL"33uF,20%,35V,GP,TP,5x11,5"
2401-001185	C233	1	C-AL"33uF,20%,35V,GP,TP,5x11,5"
2401-001185	C78	1	C-AL"33uF,20%,35V,GP,TP,5x11,5"
2401-001197	C256	1	C-AL"33uF,20%,50V,GP,TP,6.3x7,-"
2401-001363	C175	1	C-AL"470uF,20%,16V,GP,TP,10x12.5,5"
2401-002300	C27	1	C-AL"47uF,20%,50V,GP,TP,6.3x11,5"
2401-002300	C285	1	C-AL"47uF,20%,50V,GP,TP,6.3x11,5"
2401-002300	C326	1	C-AL"47uF,20%,50V,GP,TP,6.3x11,5"
2401-002300	C47	1	C-AL"47uF,20%,50V,GP,TP,6.3x11,5"
2401-002300	C48	1	C-AL"47uF,20%,50V,GP,TP,6.3x11,5"
2404-000284	C180	1	"C-TA,CHIP""10uF,20%,16V,-,TP,3528,-"
2404-000284	C234	1	"C-TA,CHIP""10uF,20%,16V,-,TP,3528,-"
2404-000284	C244	1	"C-TA,CHIP""10uF,20%,16V,-,TP,3528,-"
2703-000158	L8	1	INDUCTOR-SMD"1uH,10%,1.25x2x0.85mm"
2801-003699	OSC2	1	CRYSTAL-UNIT"48MHz,50ppm,28-ABM,12pF,80ohm,"
2801-003960	OSC6	1	CRYSTAL-UNIT"28.224MHz,50ppm,28-AAA,18pF,35ohm,BK"

Main PBA

SEC CODE	NO.	Q'ty	DESCRIPTION
2801-004079	OSC1	1	CRYSTAL-UNIT"6.9083MHZ,50PPM,28-AAM,16PF,50OHM,BK"
2804-001163	OSC5	1	OSCILLATOR-CLOCK"20MHz,50ppm,10TTL & CMOS,ST,5V"
2804-001473	OSC7	1	OSCILLATOR-CLOCK"45.3928MHZ,100PPM,10TTL,ST,5V,40MA"
2901-001178	F1	1	FILTER-EMISMD"25V,2A,-,100000pF,2x1.25x1mm,TP"
2901-001178	F2	1	FILTER-EMISMD"25V,2A,-,100000pF,2x1.25x1mm,TP"
2901-001178	F3	1	FILTER-EMISMD"25V,2A,-,100000pF,2x1.25x1mm,TP"
2901-001178	F4	1	FILTER-EMISMD"25V,2A,-,100000pF,2x1.25x1mm,TP"
2901-001178	F5	1	FILTER-EMISMD"25V,2A,-,100000pF,2x1.25x1mm,TP"
2901-001178	F6	1	FILTER-EMISMD"25V,2A,-,100000pF,2x1.25x1mm,TP"
3301-000317	L10	1	CORE-FERRITE BEAD"AB,2x1.25x0.9mm,-,-"
3301-000317	L9	1	CORE-FERRITE BEAD"AB,2x1.25x0.9mm,-,-"
3301-000325	L1	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L11	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L12	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L13	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L14	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L15	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L4	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L5	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L6	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000325	L7	1	CORE-FERRITE BEAD"AB,3.2x2.5x1.3mm,-,-"
3301-000344	BD1	1	CORE-FERRITE BEAD"AA,-,3.5x0.6x6.5mm,-,-,Mn-Zn,-"
3301-000344	BD2	1	CORE-FERRITE BEAD"AA,-,3.5x0.6x6.5mm,-,-,Mn-Zn,-"
3301-000344	BD3	1	CORE-FERRITE BEAD"AA,-,3.5x0.6x6.5mm,-,-,Mn-Zn,-"
3301-001425	L16	1	CORE-FERRITEBEAD"AB,120ohm,3.2x1.6x1.1mm,900mA,TP,-,0.15ohm"
3301-001425	L17	1	CORE-FERRITEBEAD"AB,120ohm,3.2x1.6x1.1mm,900mA,TP,-,0.15ohm"
3301-001425	L18	1	CORE-FERRITEBEAD"AB,120ohm,3.2x1.6x1.1mm,900mA,TP,-,0.15ohm"
3301-001425	L19	1	CORE-FERRITEBEAD"AB,120ohm,3.2x1.6x1.1mm,900mA,TP,-,0.15ohm"
3301-001425	L20	1	CORE-FERRITEBEAD"AB,120ohm,3.2x1.6x1.1mm,900mA,TP,-,0.15ohm"
3301-001425	L21	1	CORE-FERRITEBEAD"AB,120ohm,3.2x1.6x1.1mm,900mA,TP,-,0.15ohm"
3301-001425	L22	1	CORE-FERRITEBEAD"AB,120ohm,3.2x1.6x1.1mm,900mA,TP,-,0.15ohm"
3702-000118	CN14	1	CONNECTOR-RIBBON"36P,FEMALE,ANGLE,AU"
3708-001531	CN3	1	CONNECTOR-FPC/FC/PIC"22P,1mm,STRAIGHT,SN"
3711-000164	CN23	1	CONNECTOR-HEADER"1WALL,2P,1R,2.5mm,STRAIGHT,SN"
3711-000198	CN16	1	CONNECTOR-HEADER"1WALL,3P,1R,2.5mm,STRAIGHT,SN"
3711-000225	CN26	1	CONNECTOR-HEADER"1WALL,4P,1R,2.5mm,STRAIGHT,SN"
3711-002807	CN19	1	CONNECTOR-HEADER"BOX,6P,1R,2mm,STRAIGHT,SN"
3711-002809	CN28	1	CONNECTOR-HEADER"BOX,8P,1R,2mm,STRAIGHT,SN"
3711-002812	CN7	1	CONNECTOR-HEADER"BOX,11P,1R,2mm,STRAIGHT,SN"
3711-003204	CN2	1	CONNECTOR-HEADER"BOX,24P,2R,2mm,STRAIGHT,SN"
3711-003204	CN8	1	CONNECTOR-HEADER"BOX,24P,2R,2mm,STRAIGHT,SN"
3711-003408	CN15	1	CONNECTOR-HEADER"BOX,2P,1R,2mm,STRAIGHT,SN"
3711-003408	CN21	1	CONNECTOR-HEADER"BOX,2P,1R,2mm,STRAIGHT,SN"
3711-003408	CN27	1	CONNECTOR-HEADER"BOX,2P,1R,2mm,STRAIGHT,SN"
3711-003408	CN4	1	CONNECTOR-HEADER"BOX,2P,1R,2mm,STRAIGHT,SN"
3711-003409	CN18	1	CONNECTOR-HEADER"BOX,3P,1R,2mm,STRAIGHT,SN"
3711-003409	CN25	1	CONNECTOR-HEADER"BOX,3P,1R,2mm,STRAIGHT,SN"
3711-003409	CN5	1	CONNECTOR-HEADER"BOX,3P,1R,2mm,STRAIGHT,SN"
3711-003410	CN17	1	CONNECTOR-HEADER"BOX,4P,1R,2mm,STRAIGHT,SN"
3711-003410	CN22	1	CONNECTOR-HEADER"BOX,4P,1R,2mm,STRAIGHT,SN"
3722-001101	CN11	1	JACK-USB"4P/2C,8.38mm,AU,IVR,#22-28"
4301-000108	BAT1	1	BATTERY-LI"3V,220mAH,BUTTON,20x3.2mm,NO"
4302-001116	BAT2	1	BATTERY-NIH(2ND)"4.8V,70mAH,CYLINDRICAL,35mA/3hr,5.8V,"
JB13-00002A	U12	1	IC ASIC-UNICON"MJC-1300G,UNICON,QFP,44P,-"
JC11-10507A	U29	1	IC MASK ROM-HIGH"ML-165,KM23C8105DG,SOP,44P,600"
JC11-10510A	U28	1	"IC MASK ROM-PCL6,LOW" "ml-165,KM23C8105DG,SOP,44P,600"
JC13-00006A	U36	1	IC ASIC- SPGPE+ "ML-6060,KS32C61200,QFP,240P,36.4x4"
JC13-00013A	U16	1	IC ASIC-IMAGE PROCESSOR "CIP3,SCX-5100,208,5V,-,QFP,TP"
JC41-00125A	PCB	1	PCB-MAIN "SCX-5100,FR-4,2L,V1.0,1.6T,235 X 215MM"
JF68-30527N		1	LABEL(R)-BAR CODE"SF500,PY,20X10,T0.1,WHT"

10. Block Diagram



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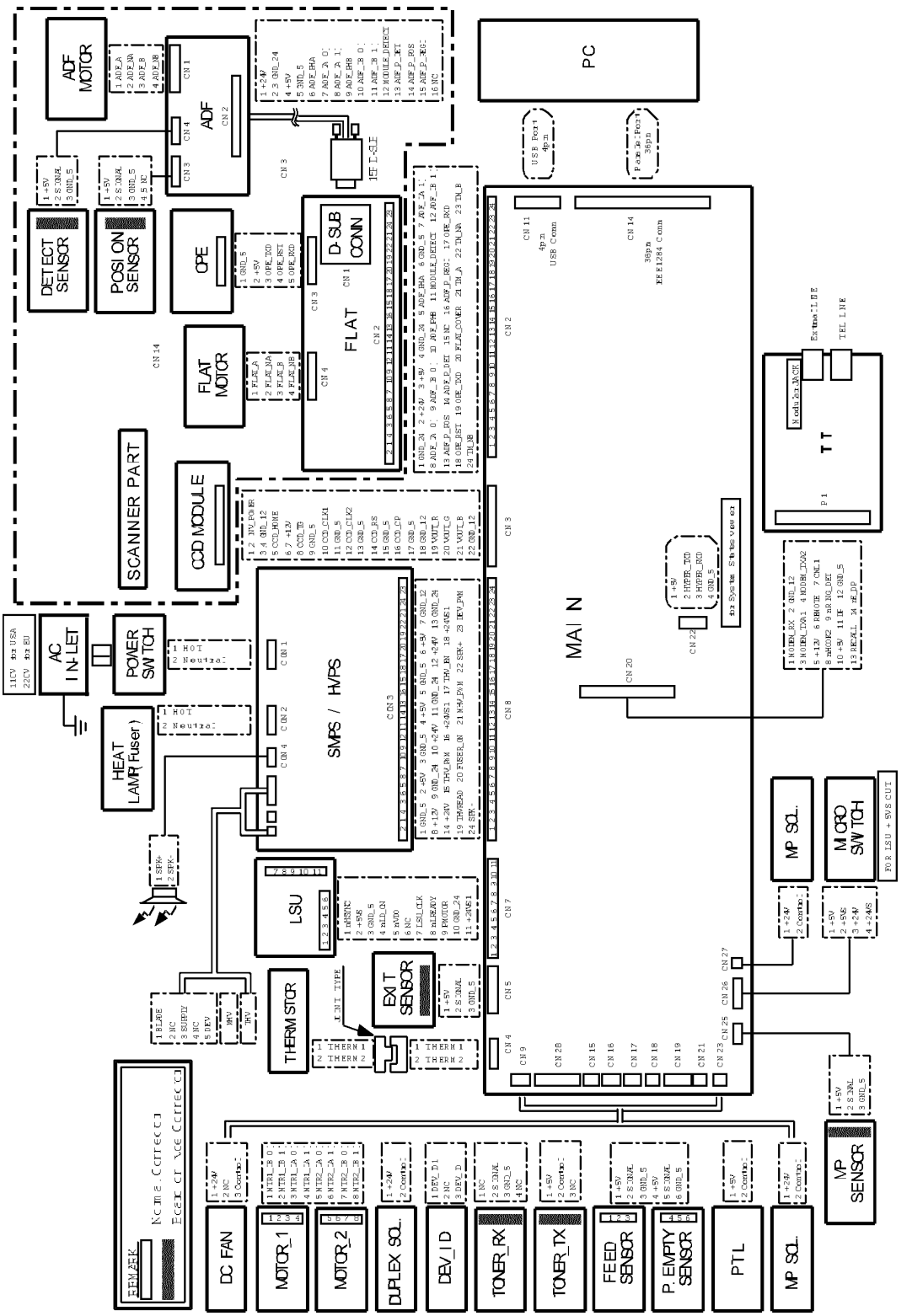
11. Connection Diagram



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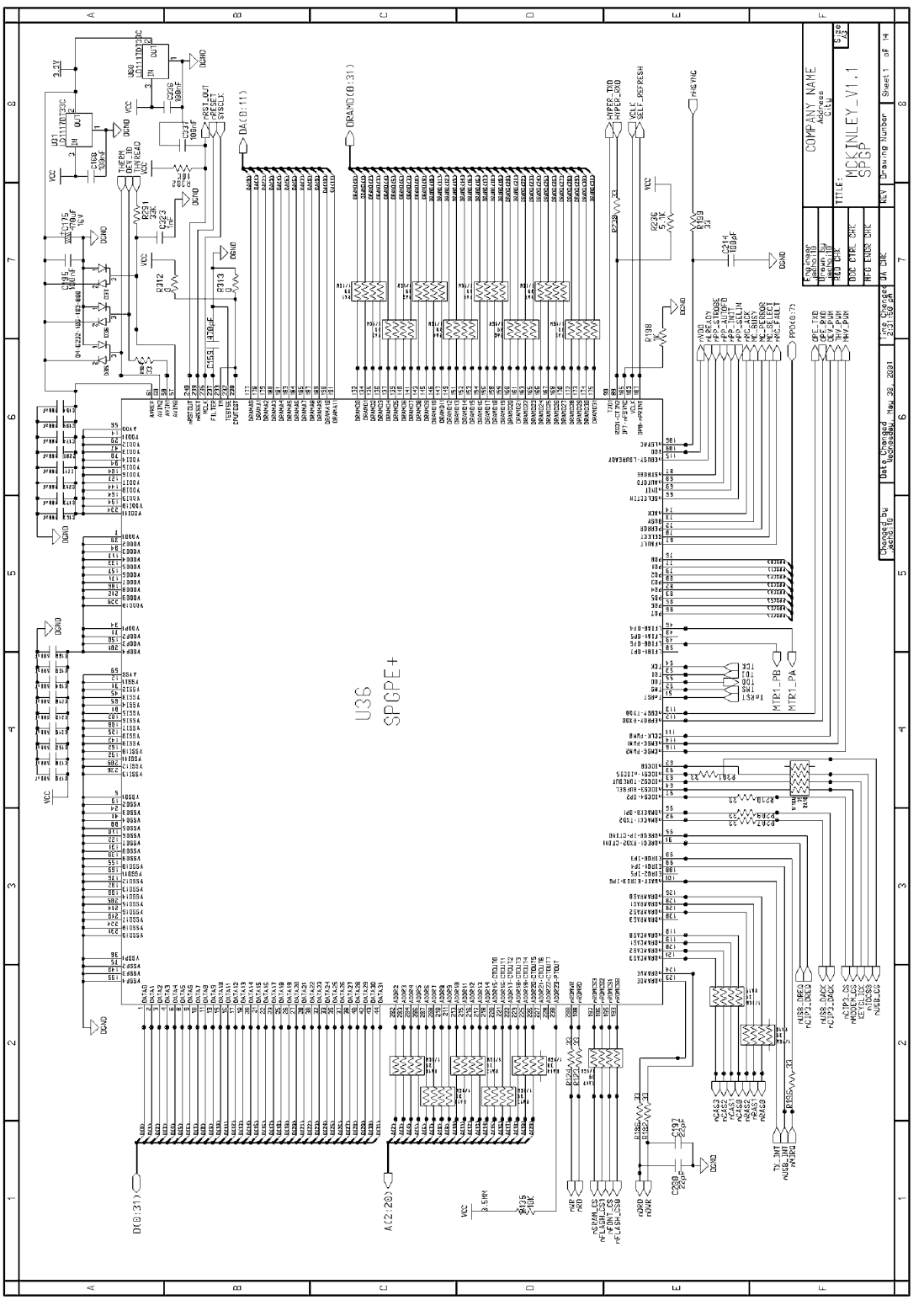
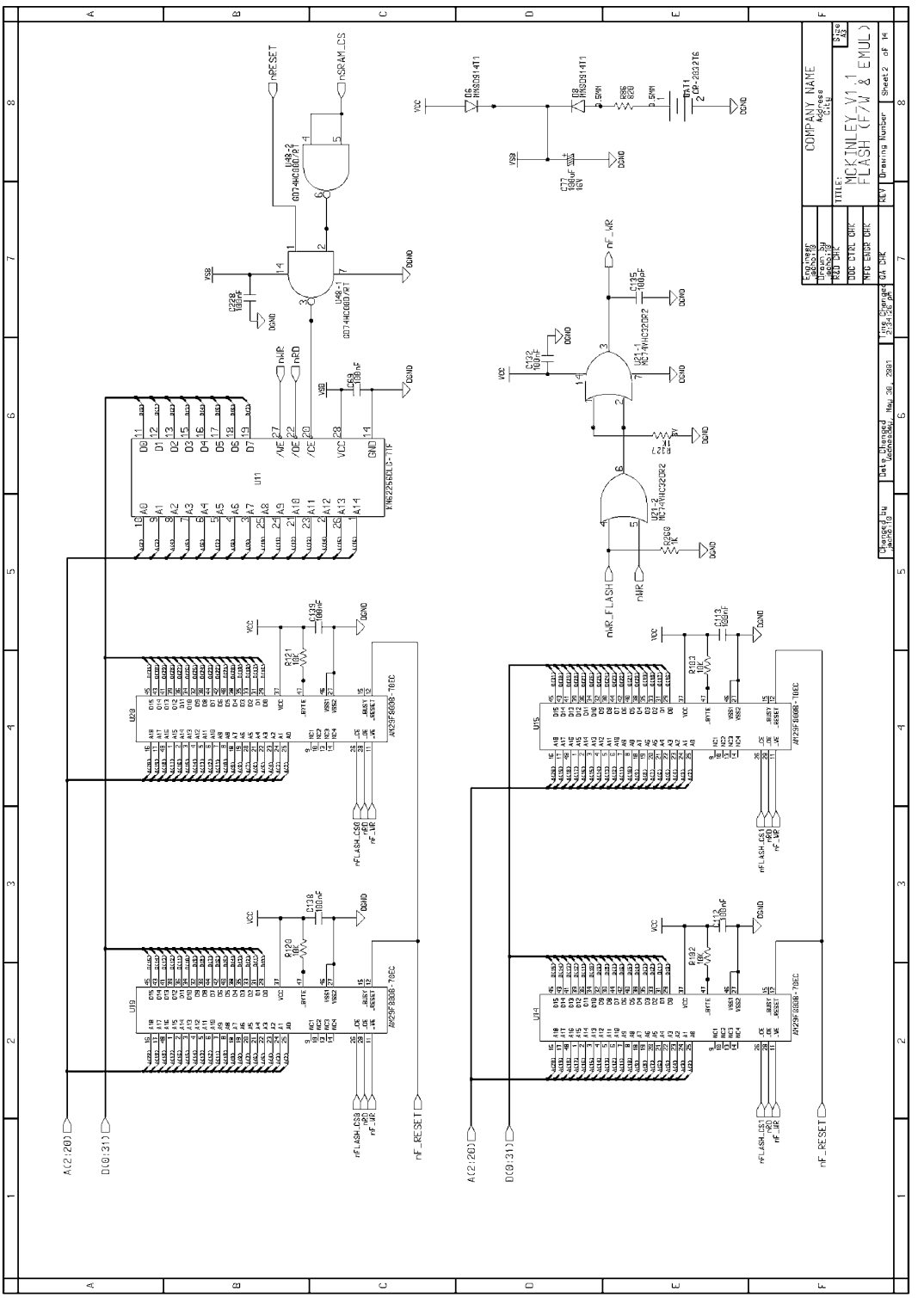
12. Schematic Diagrams

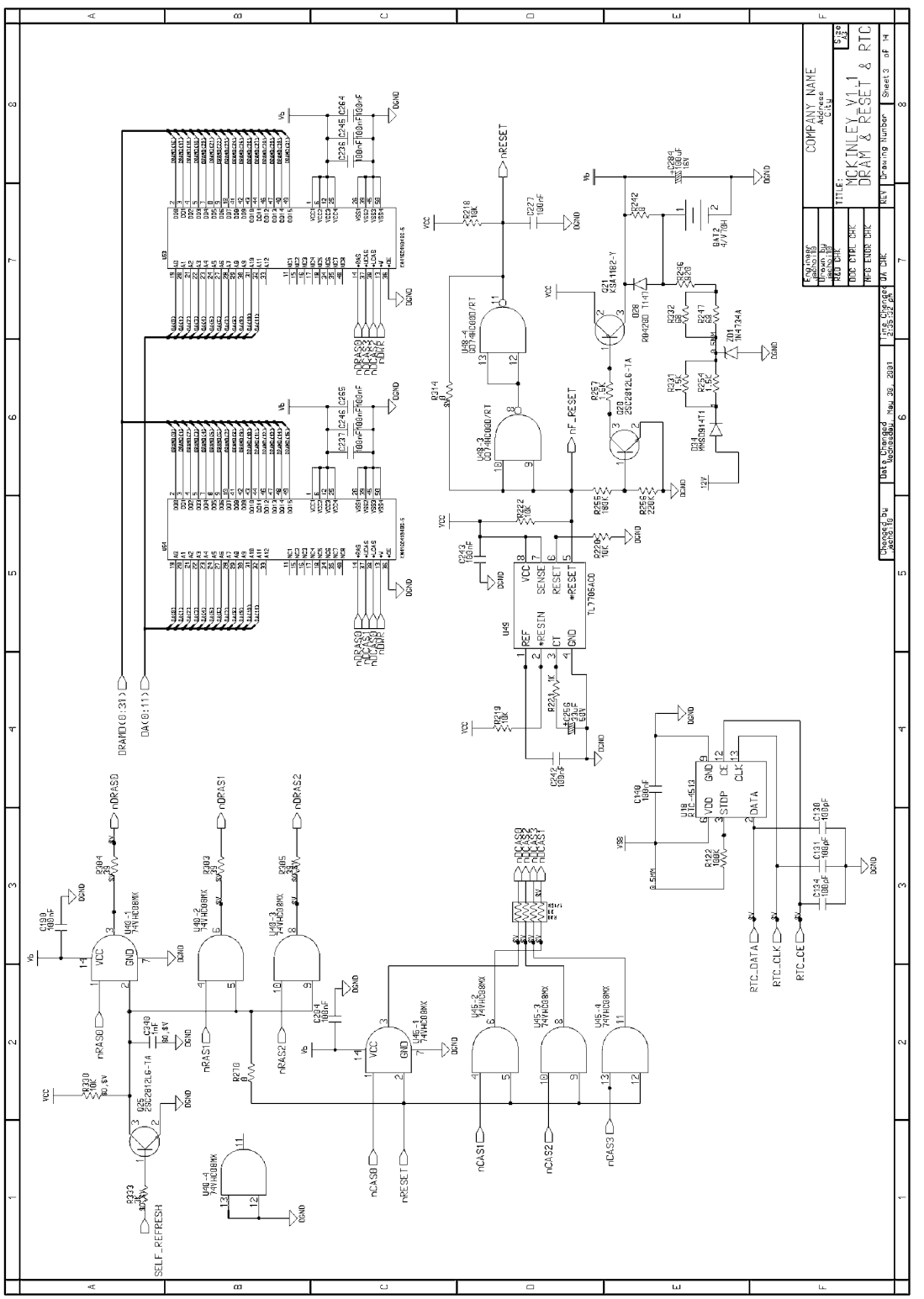
12-1 Main Circuit Diagram (1 of 14)



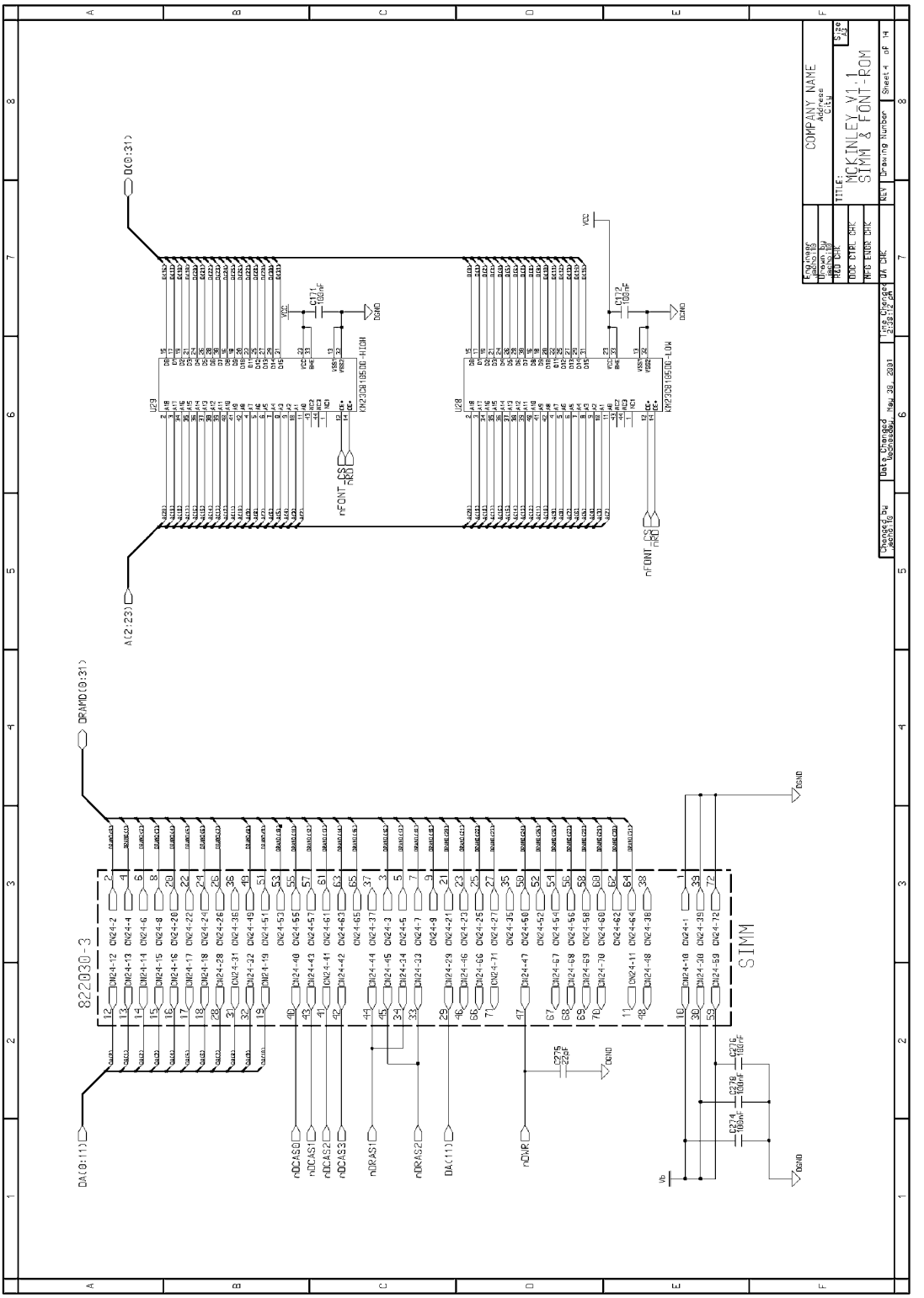
12-2 Main Circuit Diagram (2 of 14)



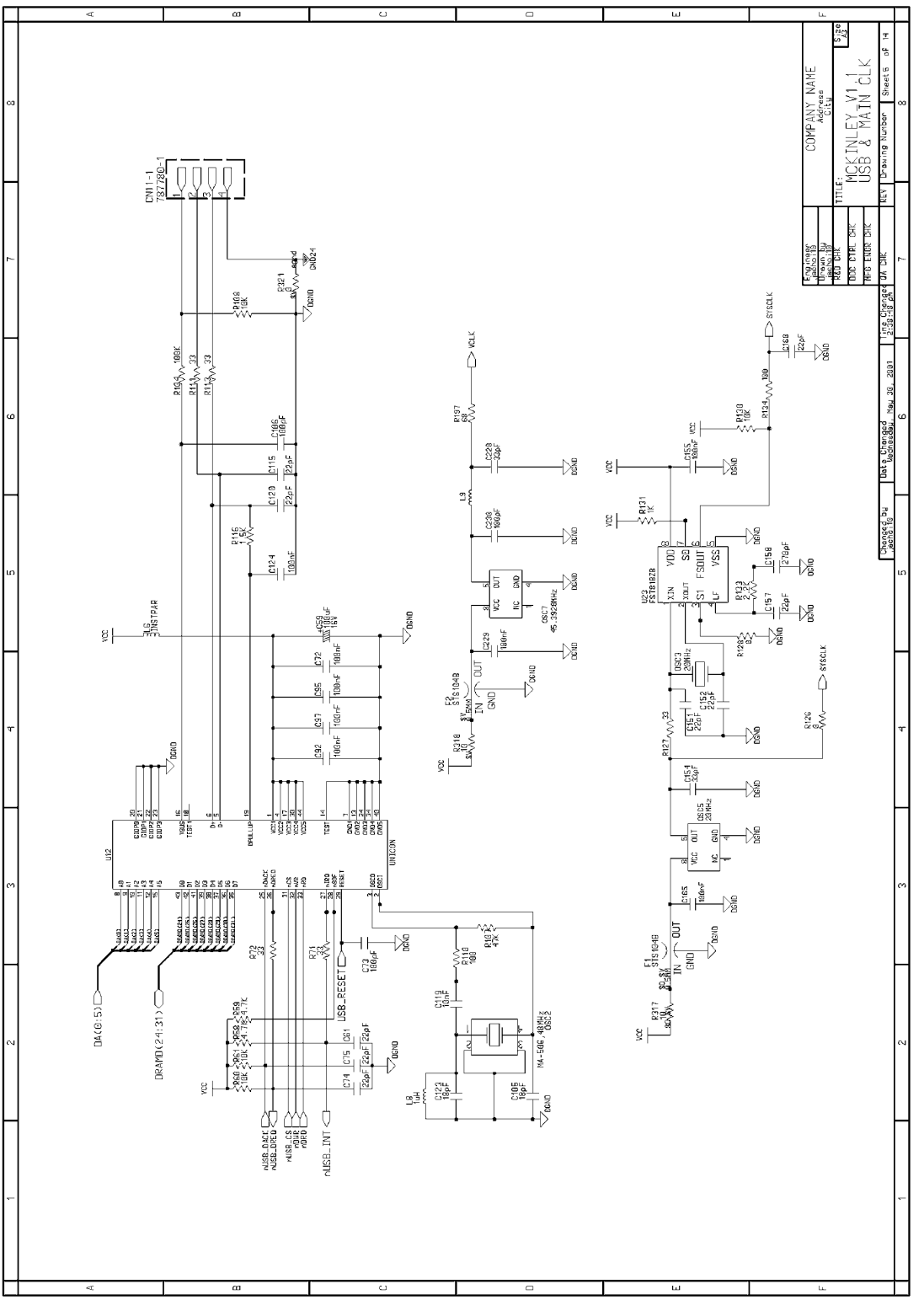
12-3 Main Circuit Diagram (3 of 14)



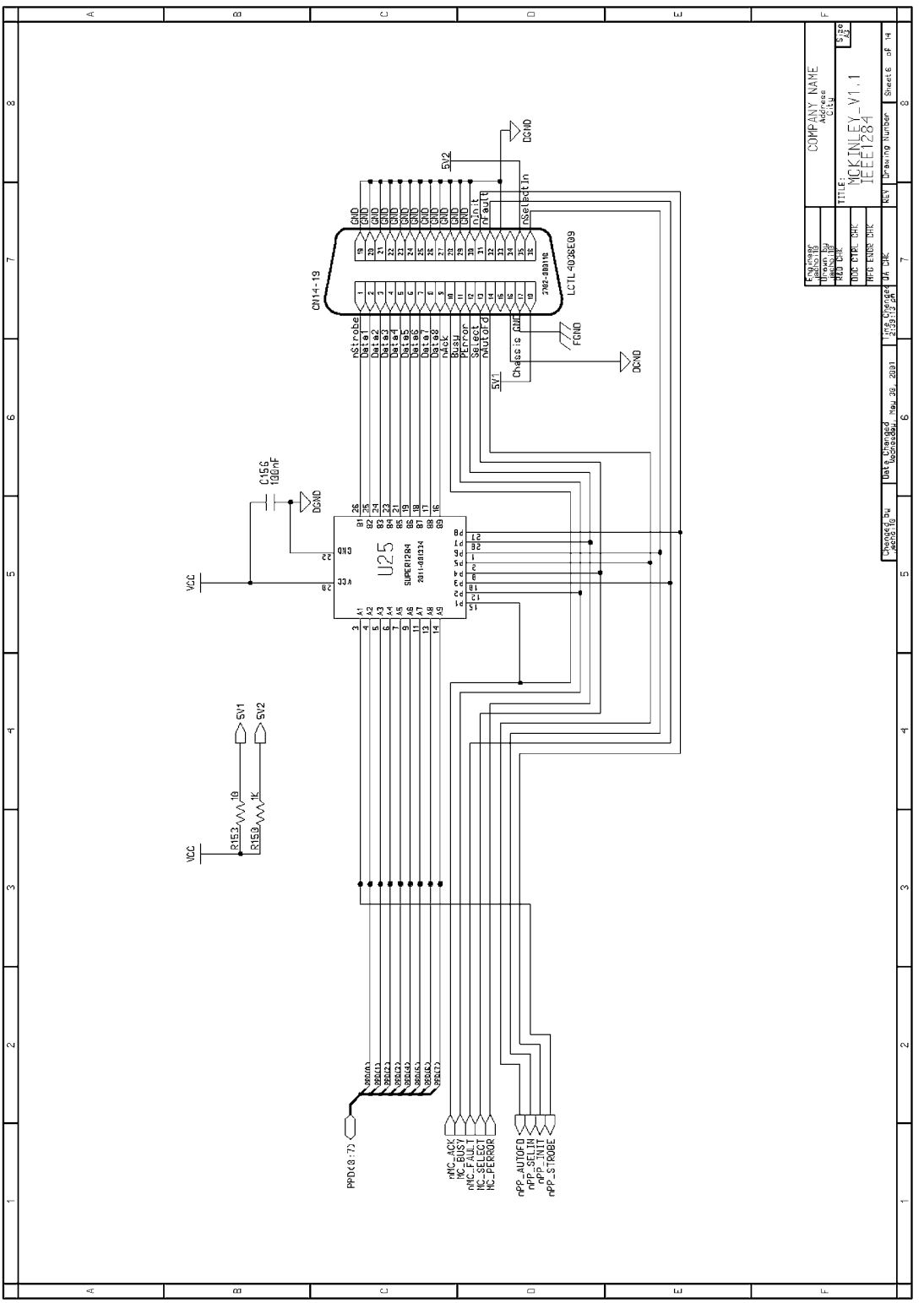
12-4 Main Circuit Diagram (4 of 14)



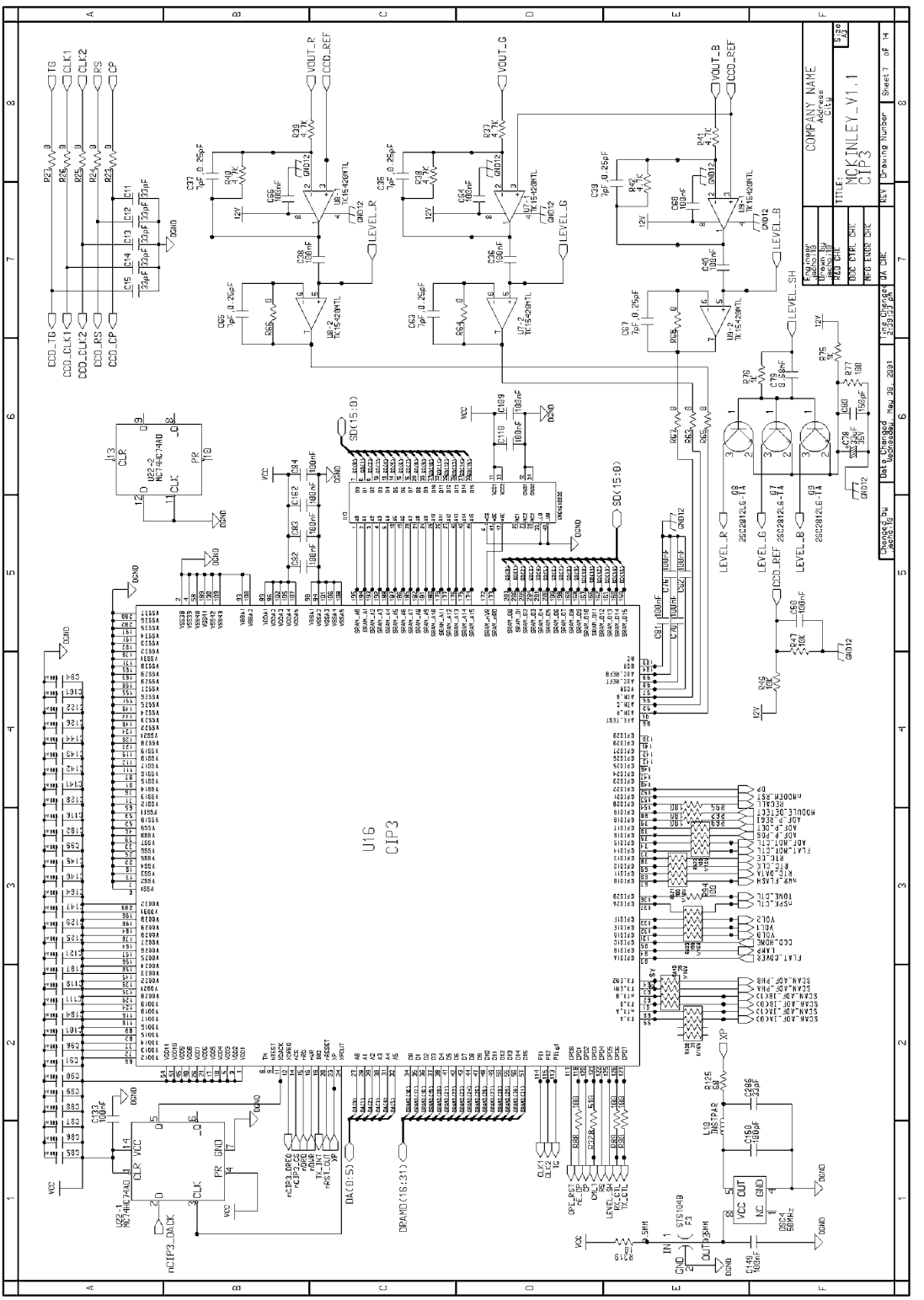
12-5 Main Circuit Diagram (5 of 14)



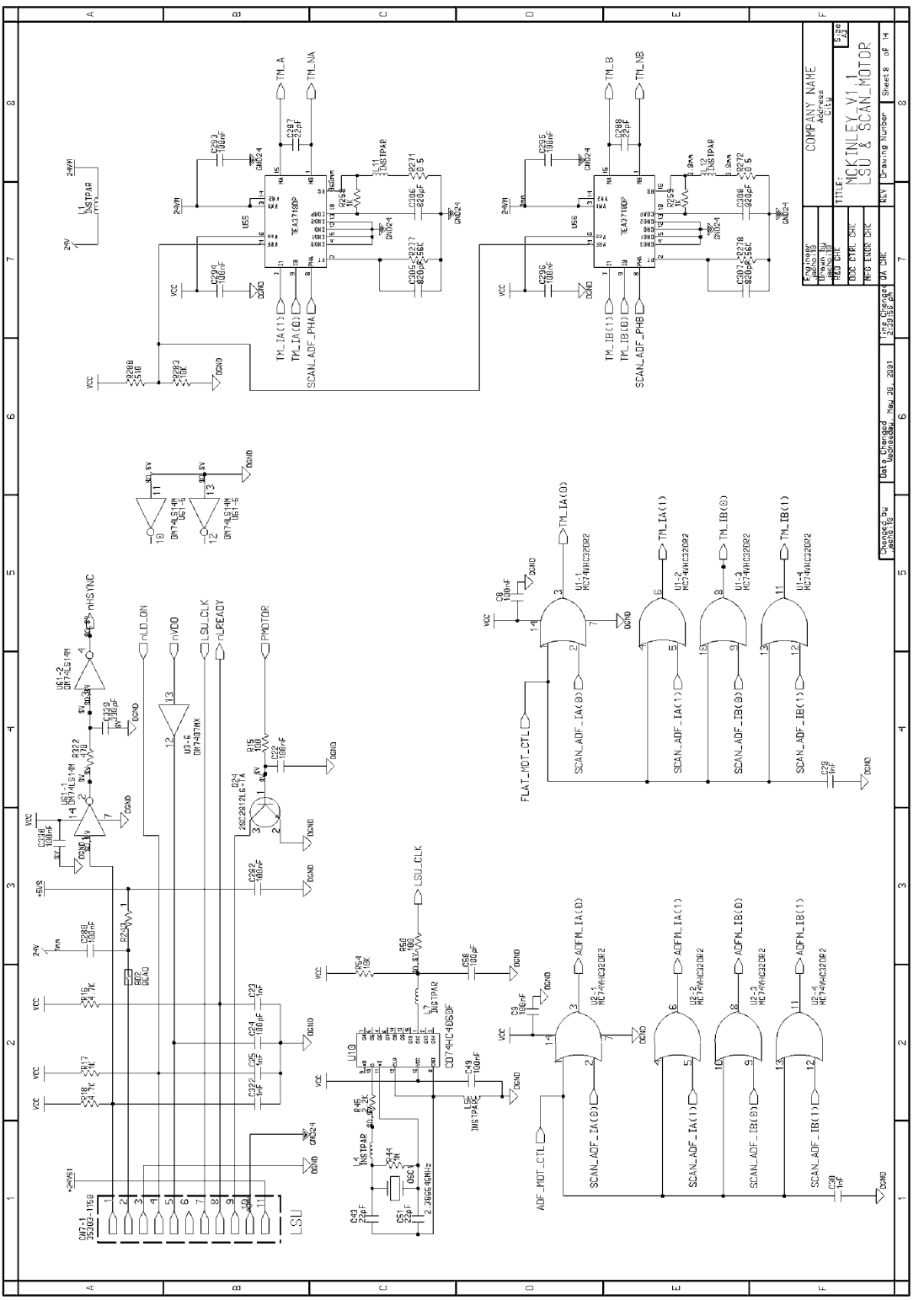
12-6 Main Circuit Diagram (6 of 14)



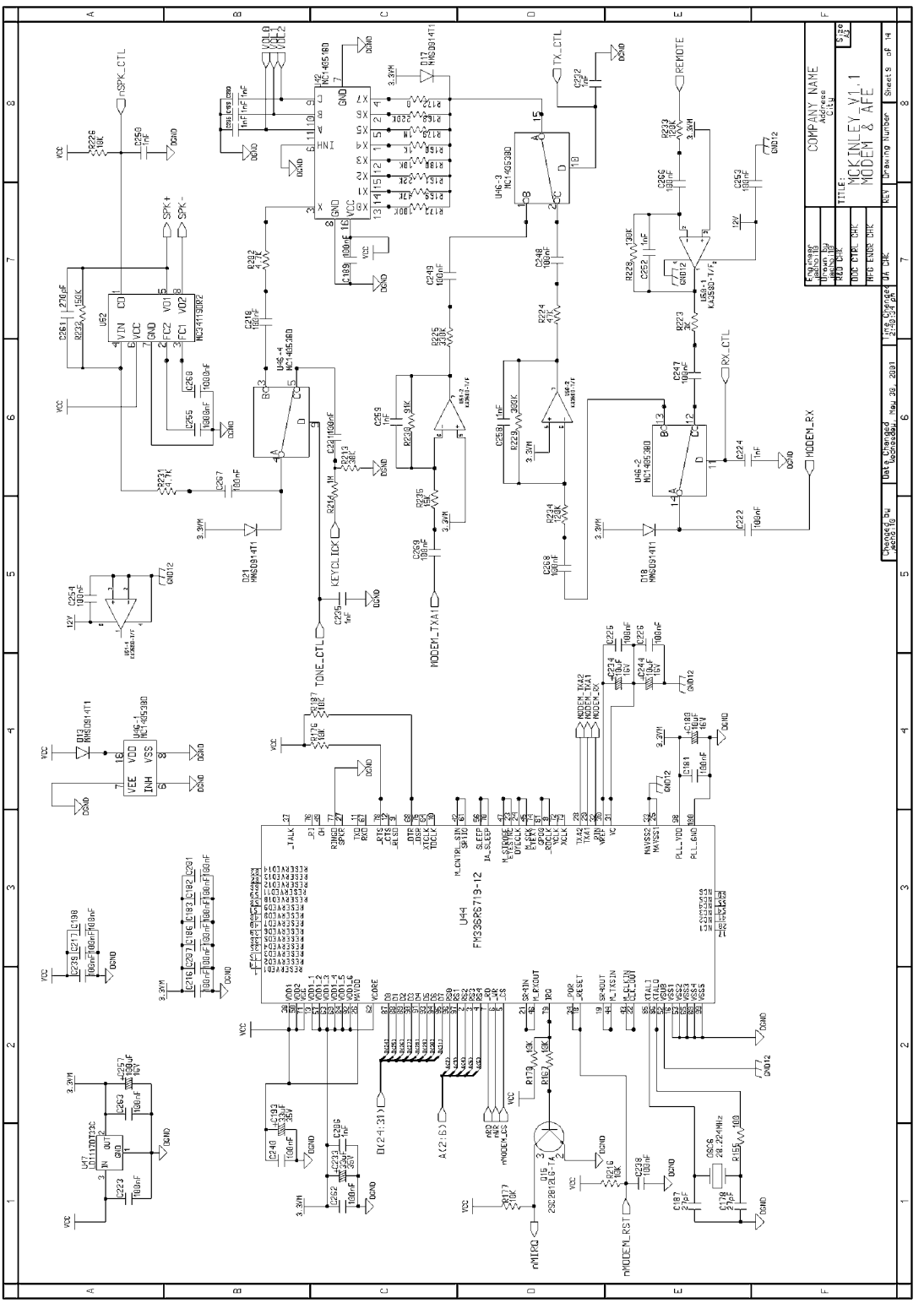
12-7 Main Circuit Diagram (7 of 14)



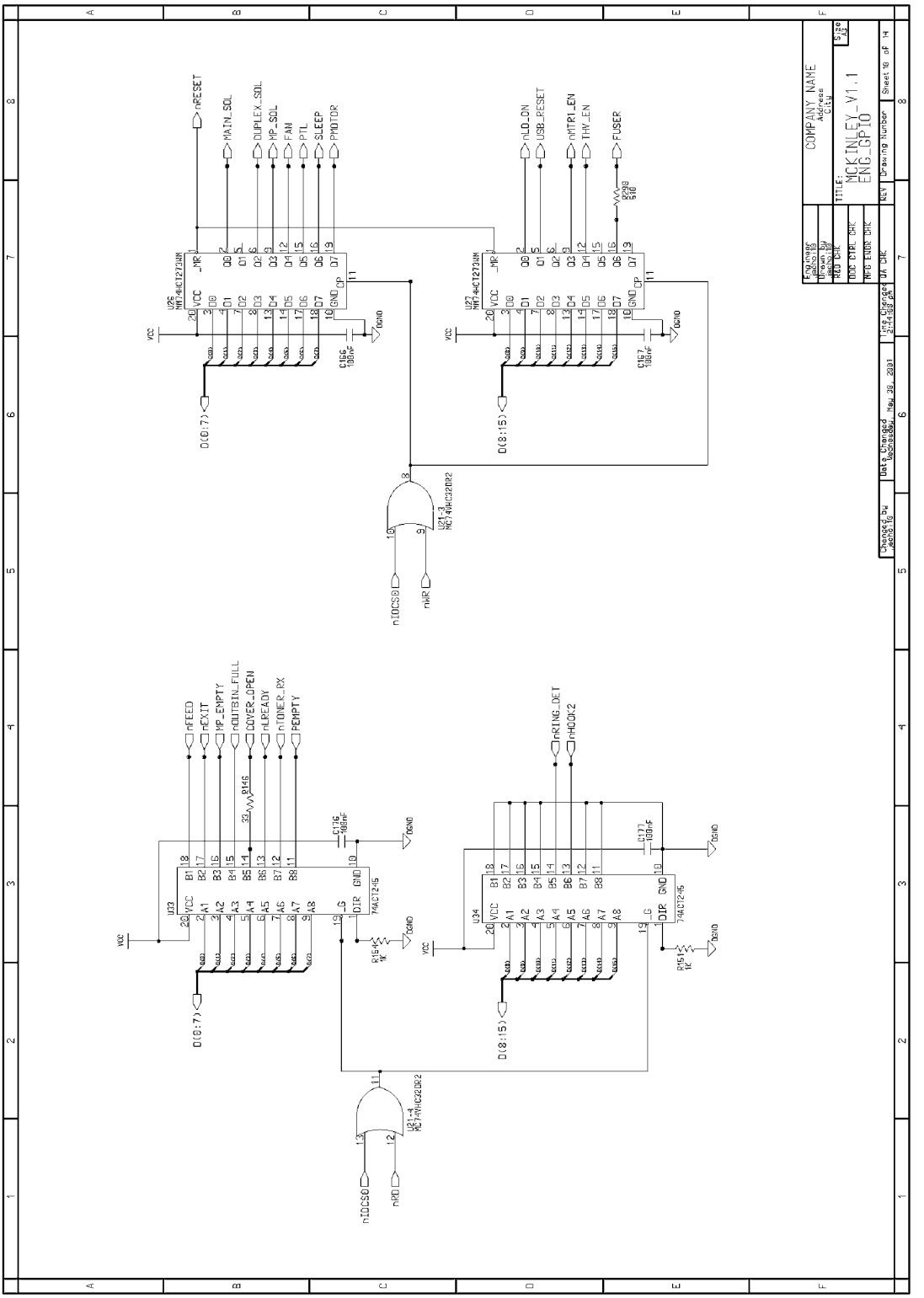
12-8 Main Circuit Diagram (8 of 14)



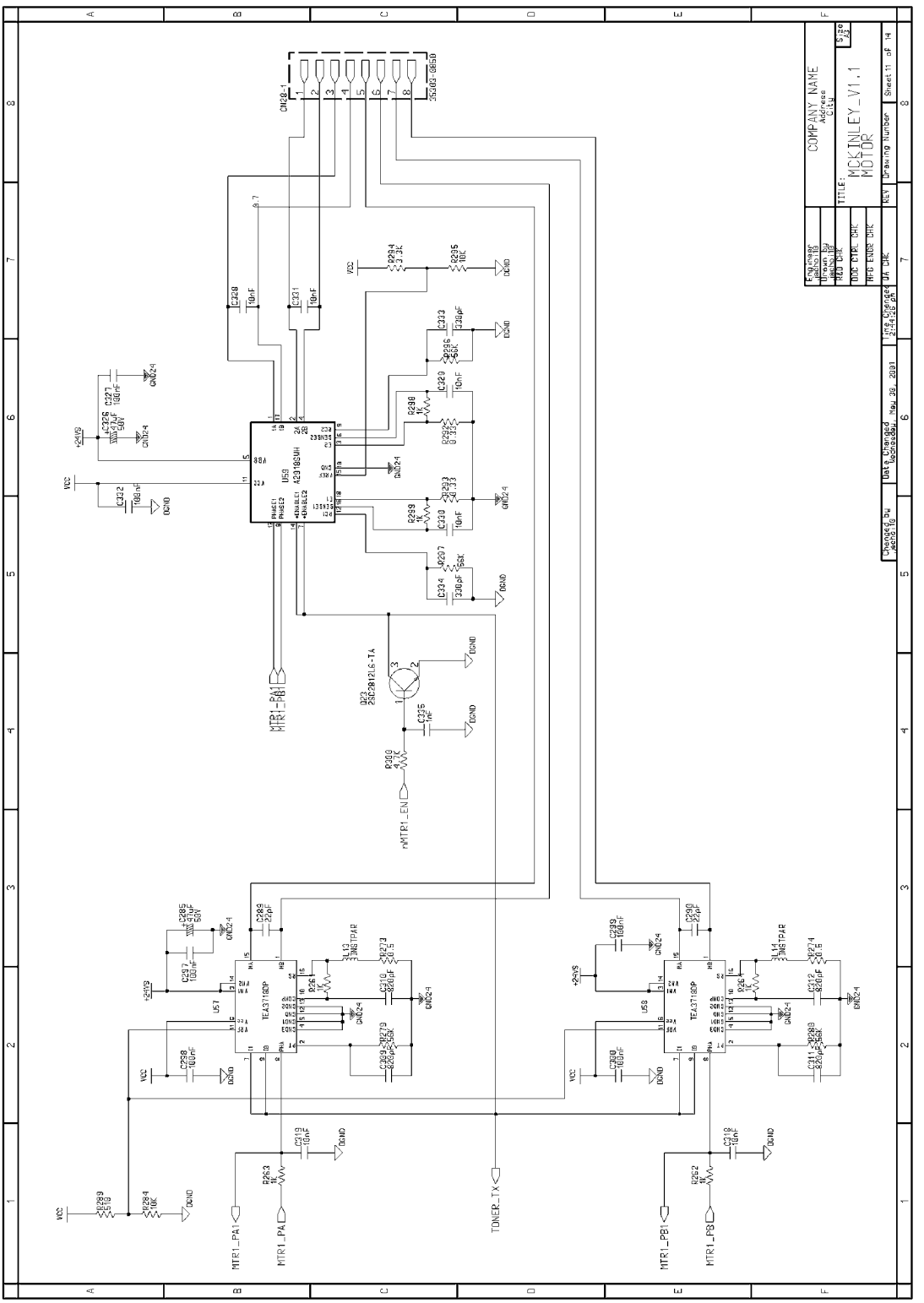
12-9 Main Circuit diagram (9 of 14)



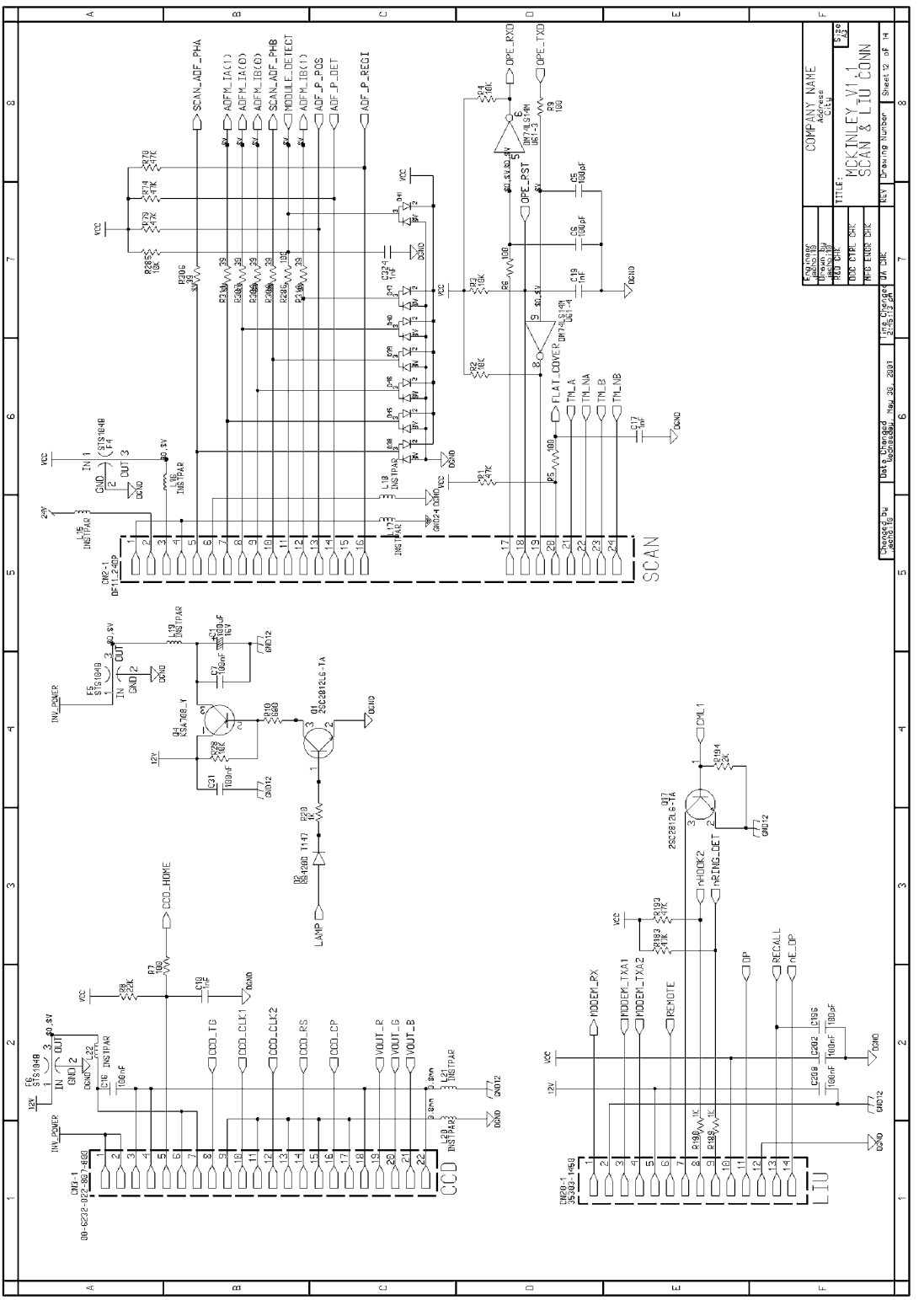
12-10 Main Circuit Diagram (10 of 14)



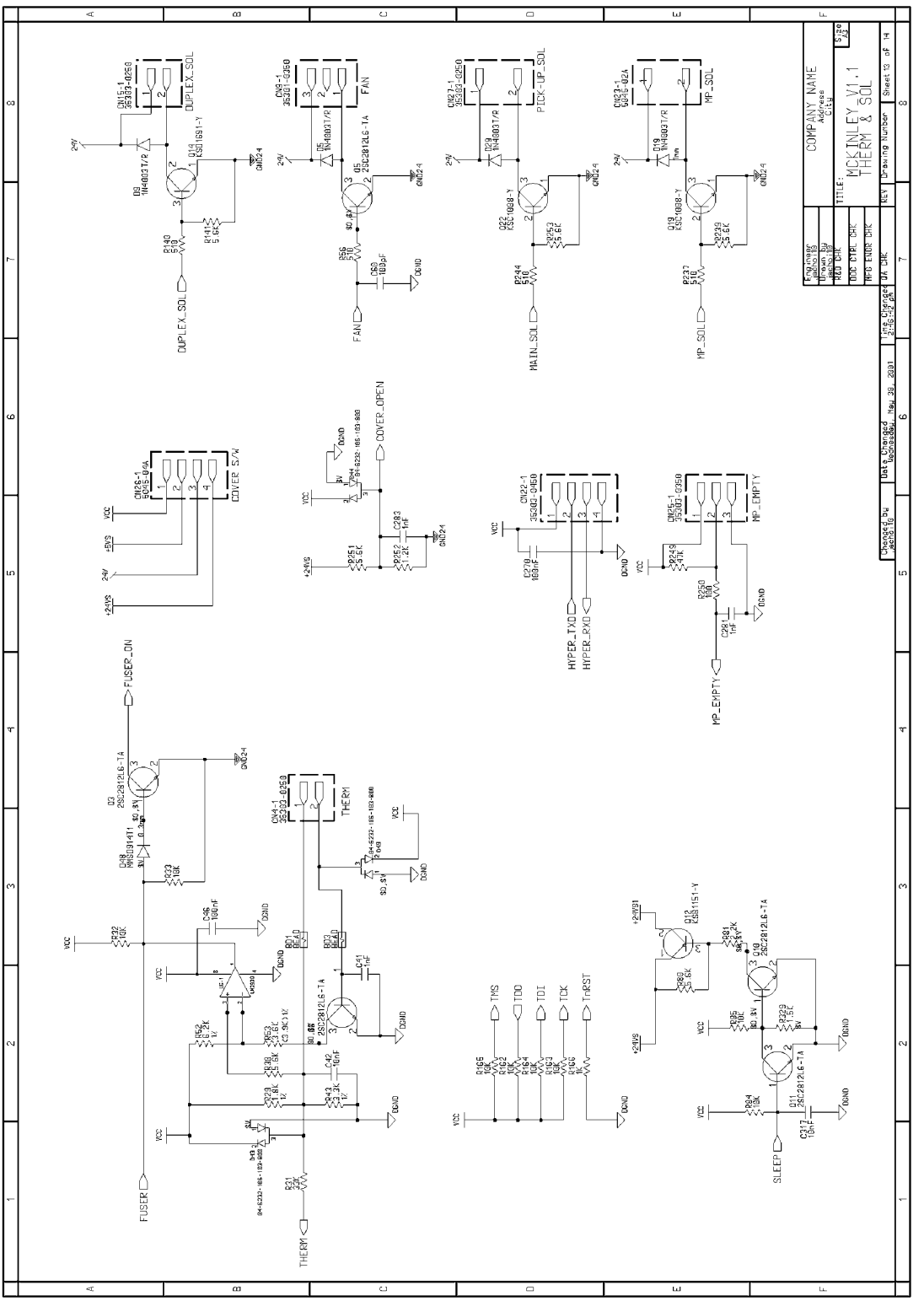
12-11 Main Circuit Diagram (11 of 14)



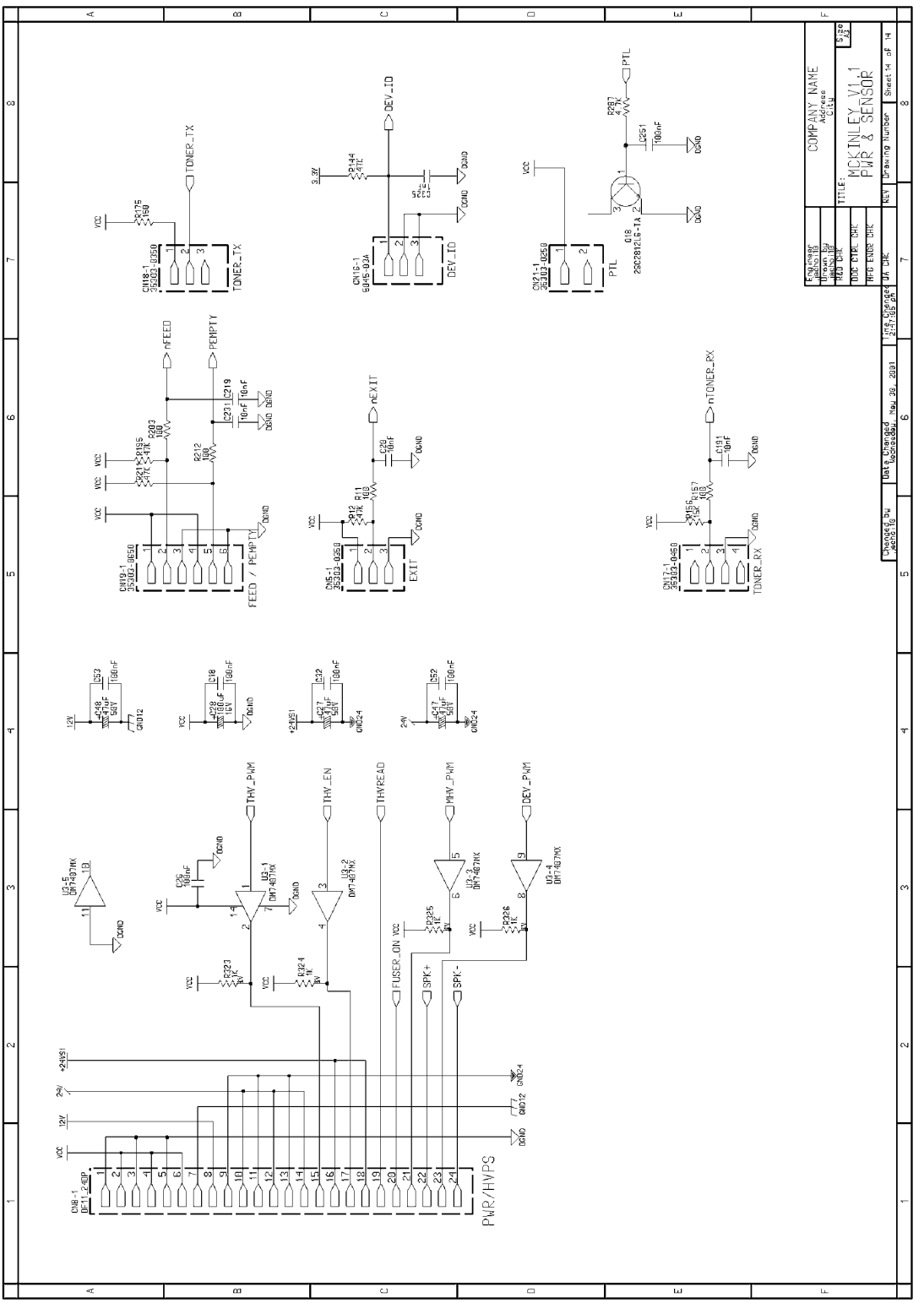
12-12 Main Circuit Diagram (12 of 14)



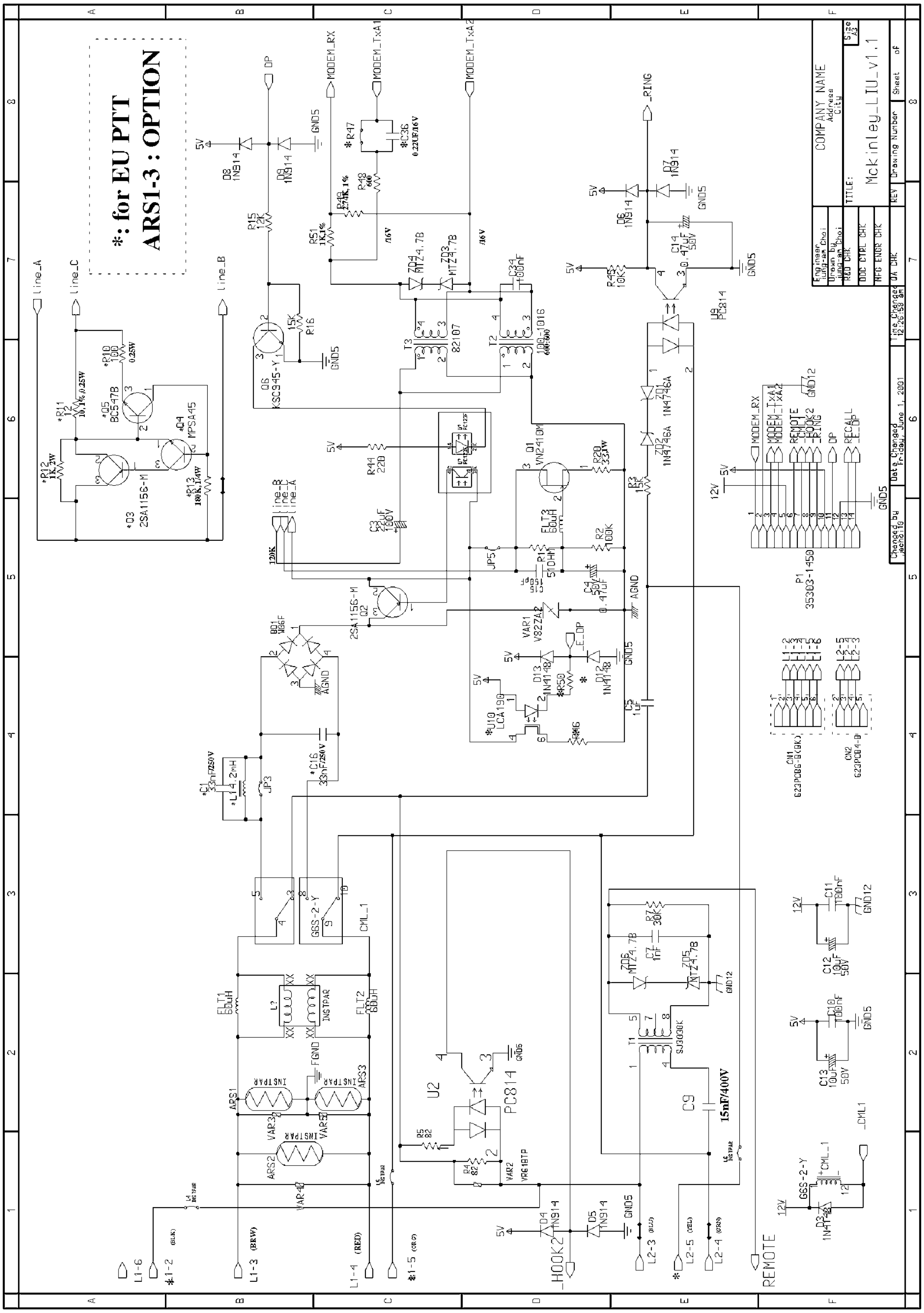
12-13 Main Circuit Diagram (13 of 14)



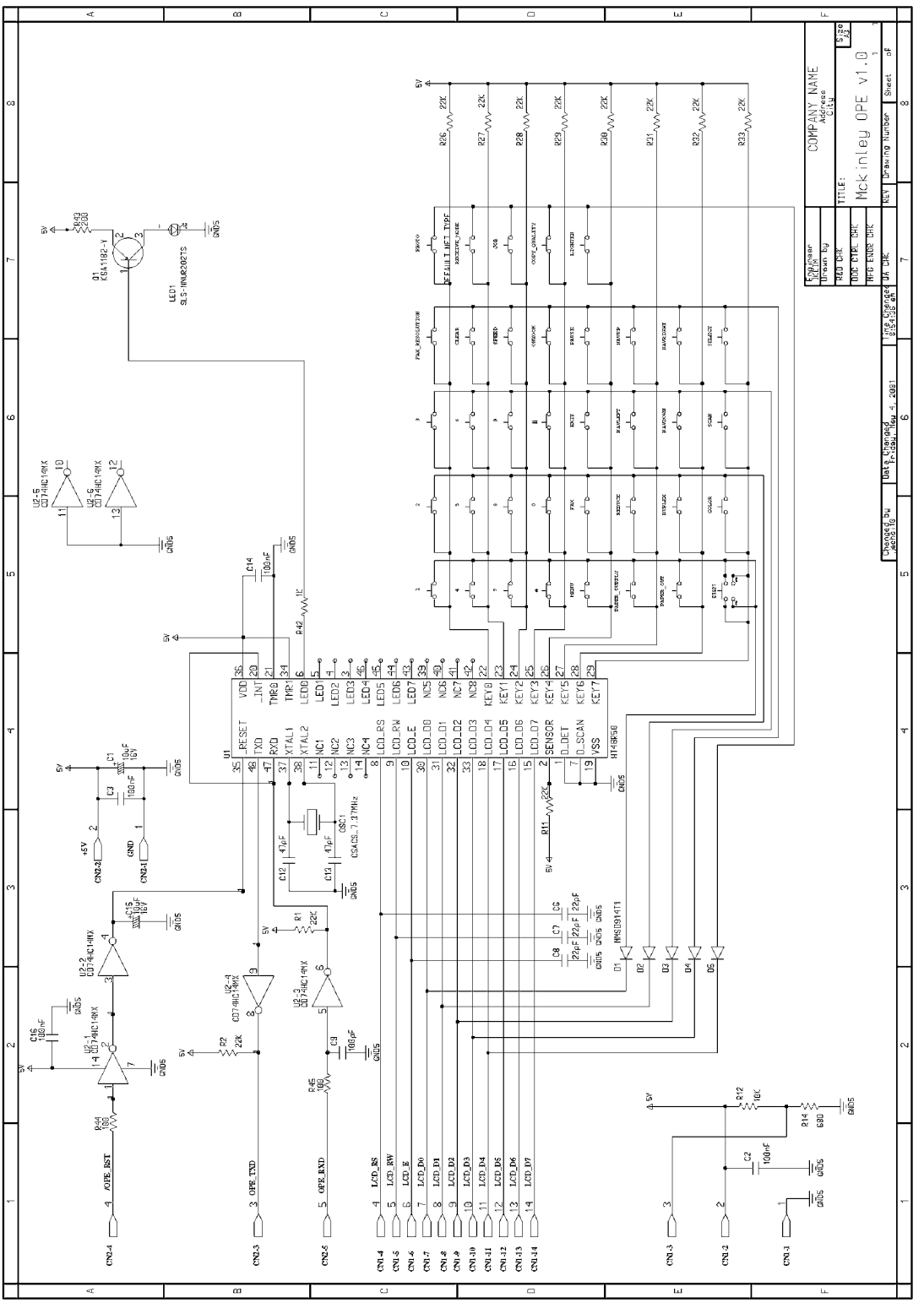
12-14 Main Circuit Diagram (14 of 14)



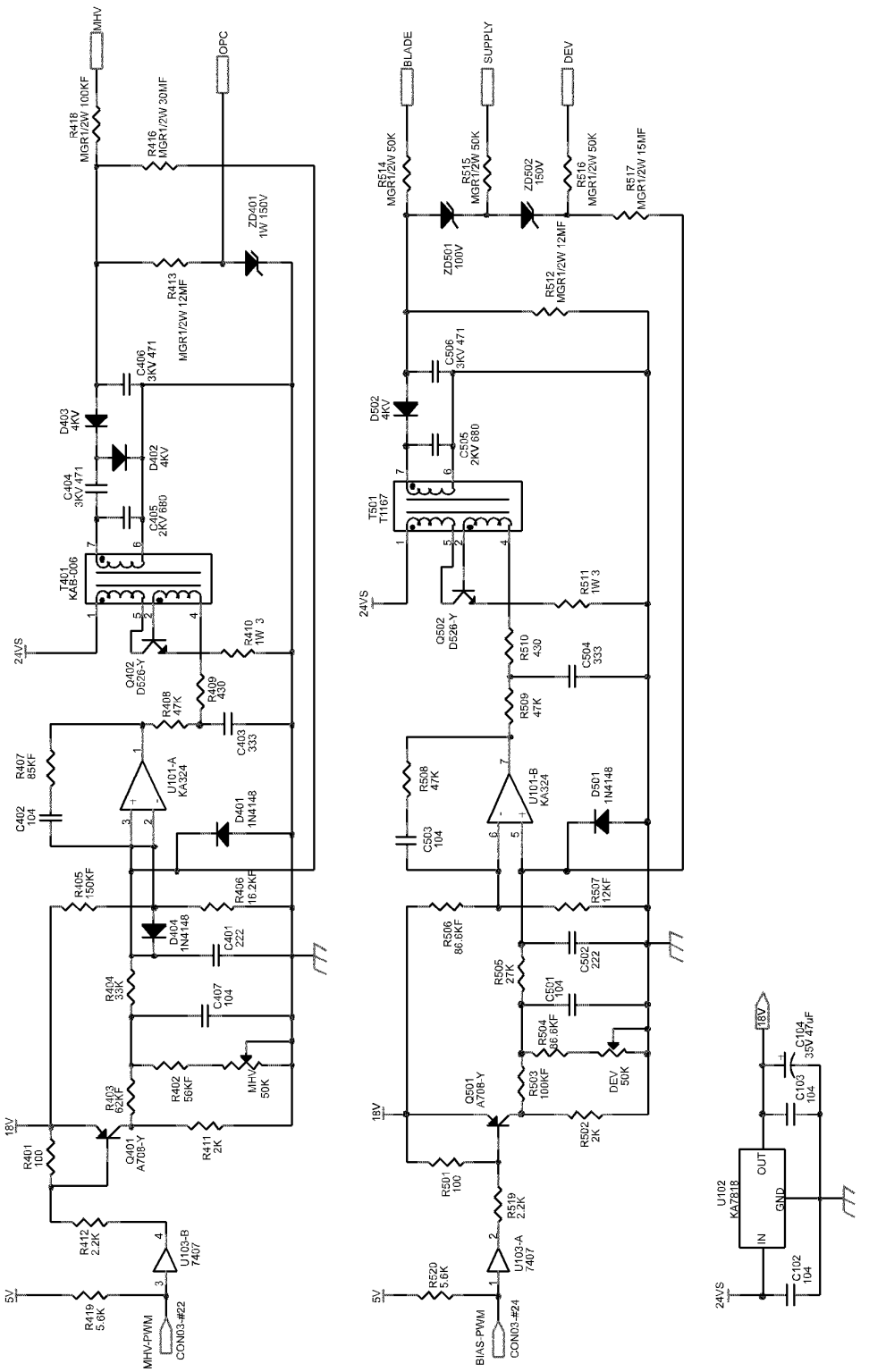
12-15 LIU Circuit Diagram



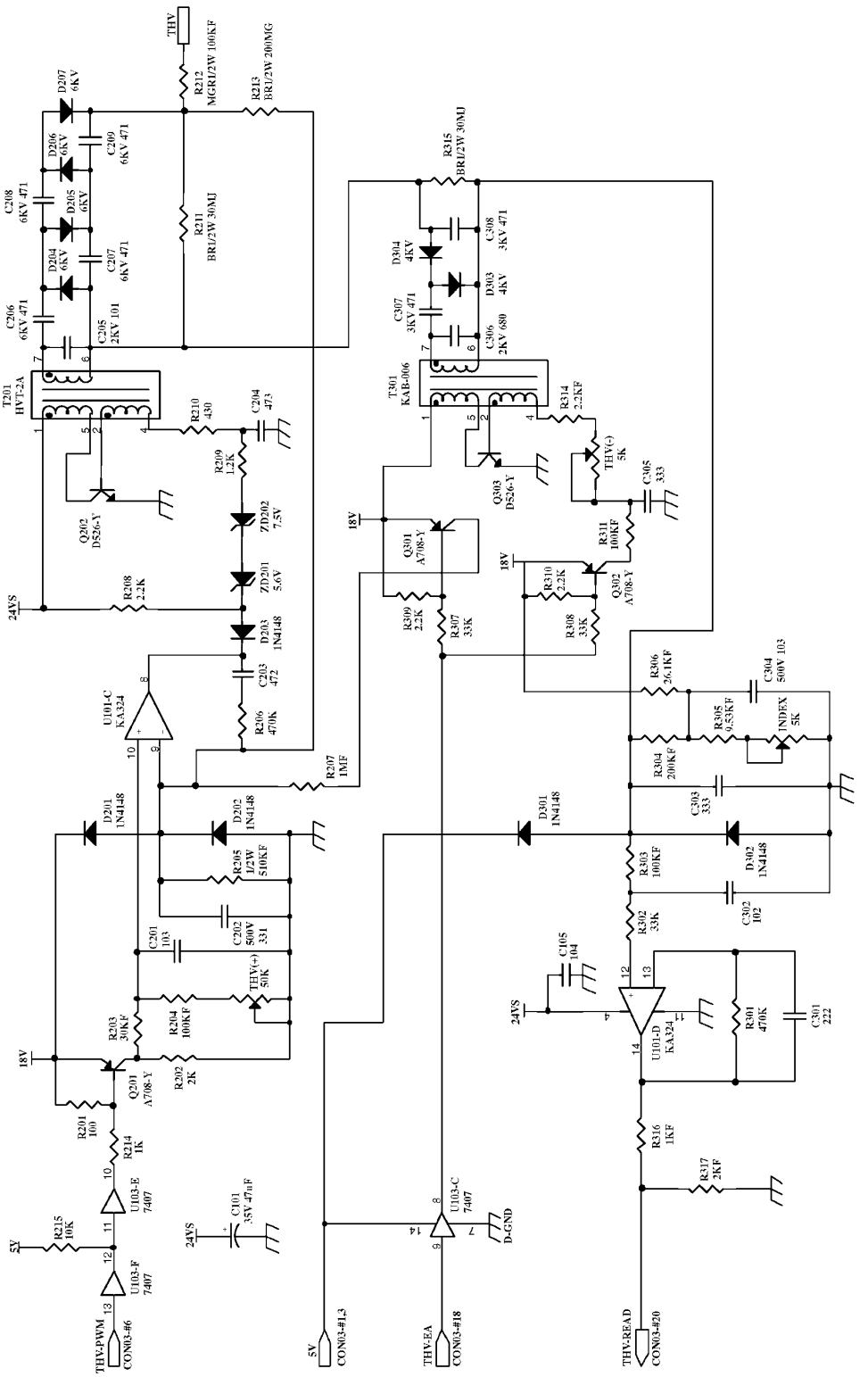
12-16 OPE Circuit Diagram



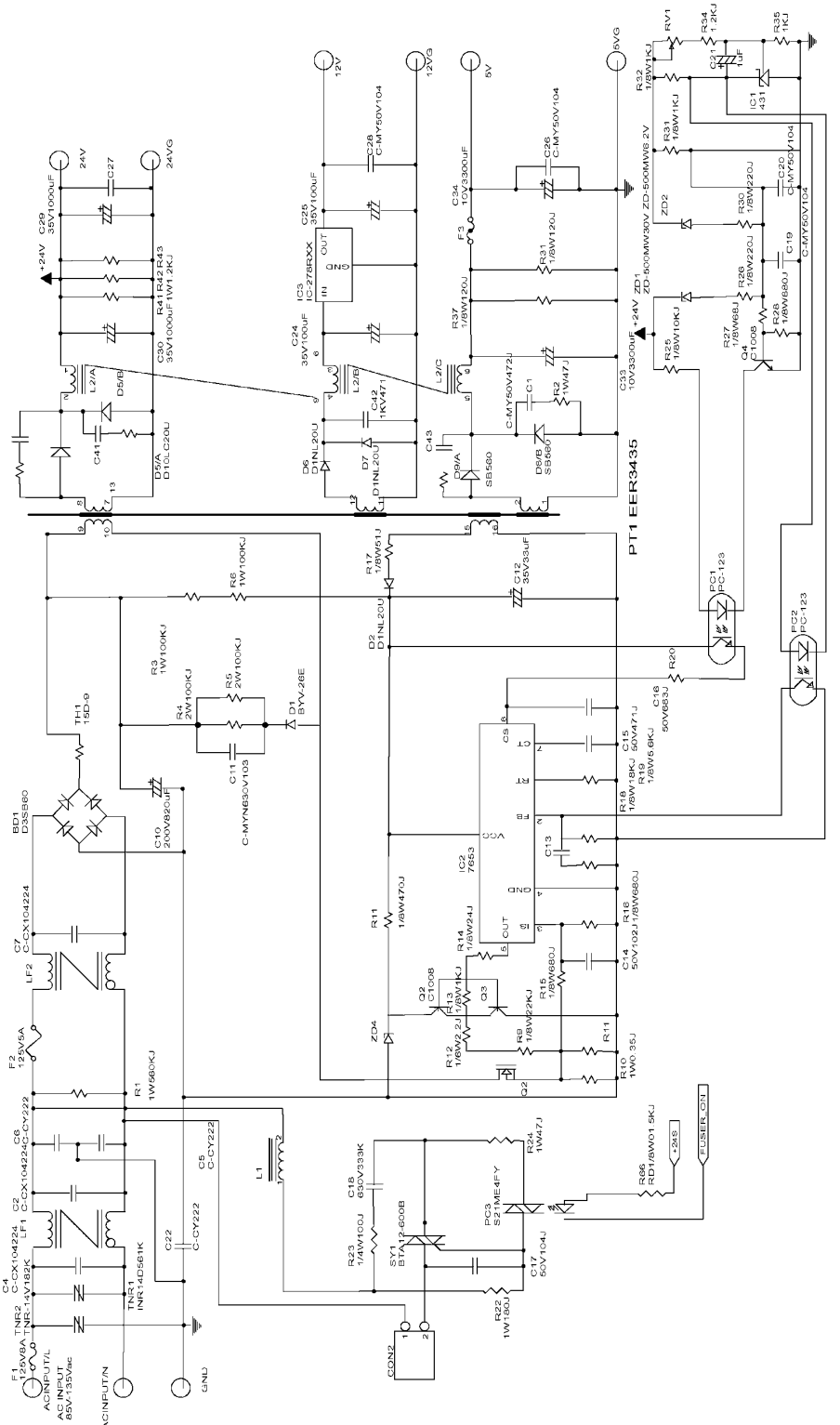
12-17 HVPS Circuit Diagram (1 of 2)



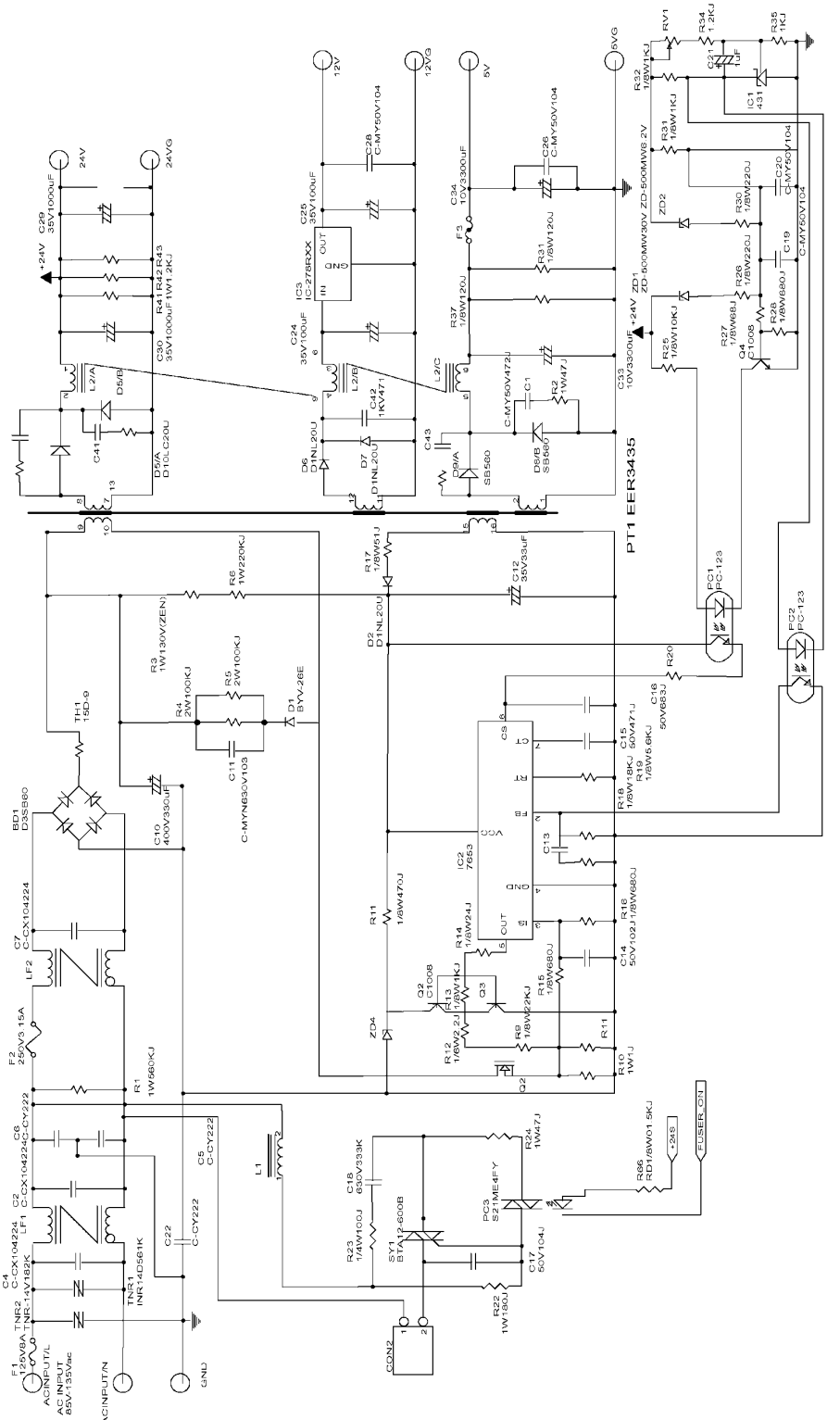
12-18 HVPS Circuit Diagram (2 of 2)



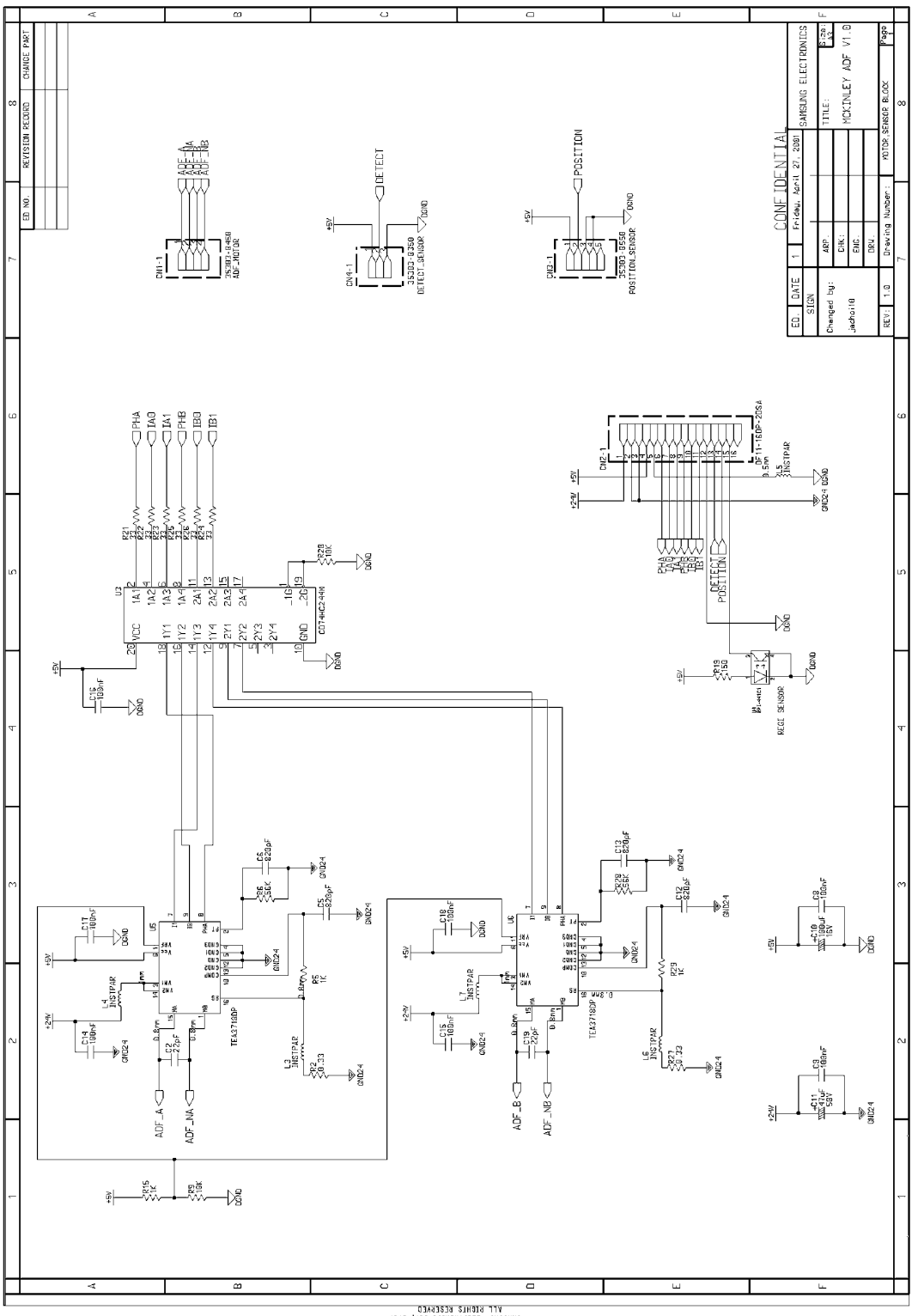
12-19 SMPS (110) Circuit Diagram



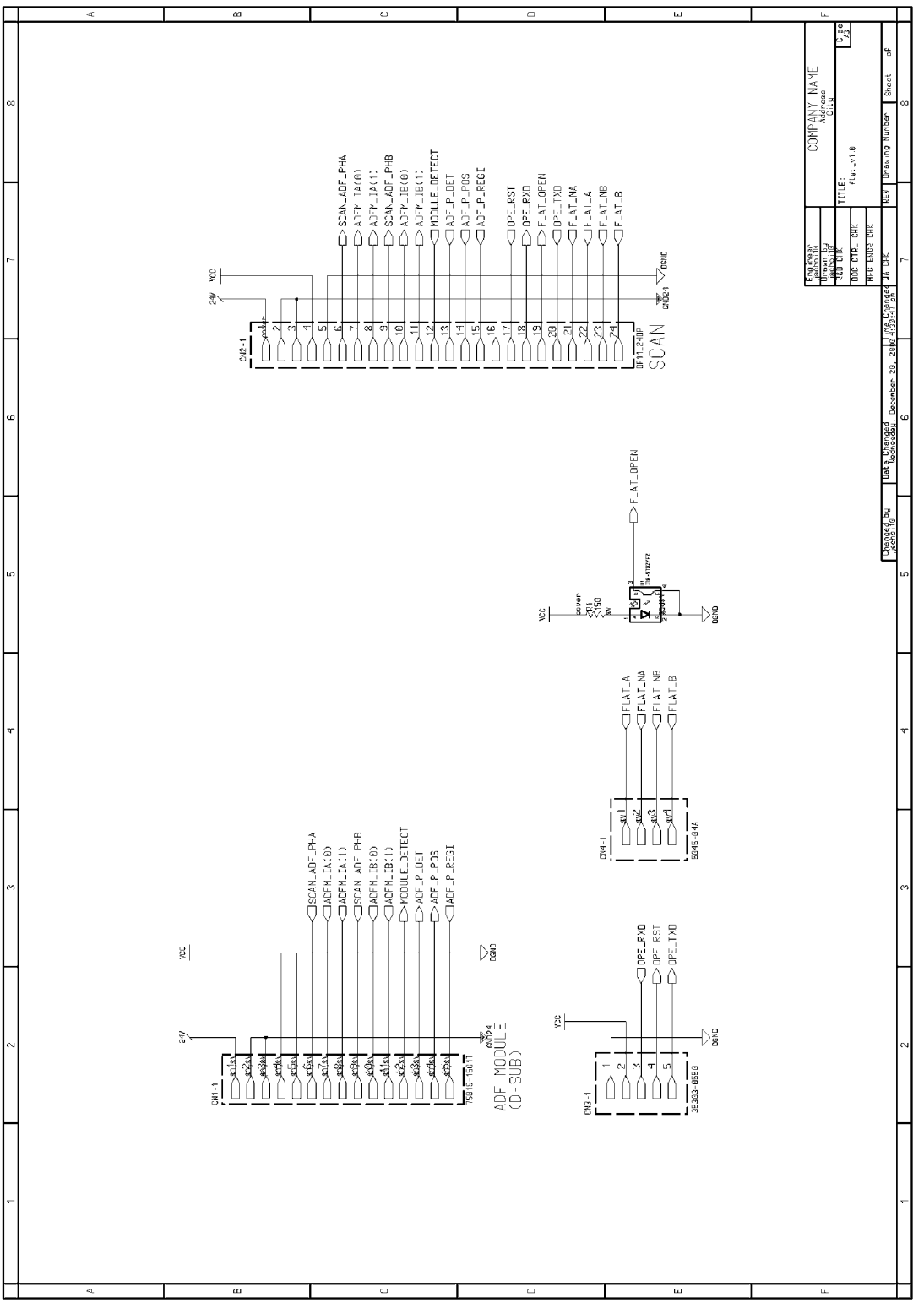
12-20 SMPS (220) Circuit Diagram



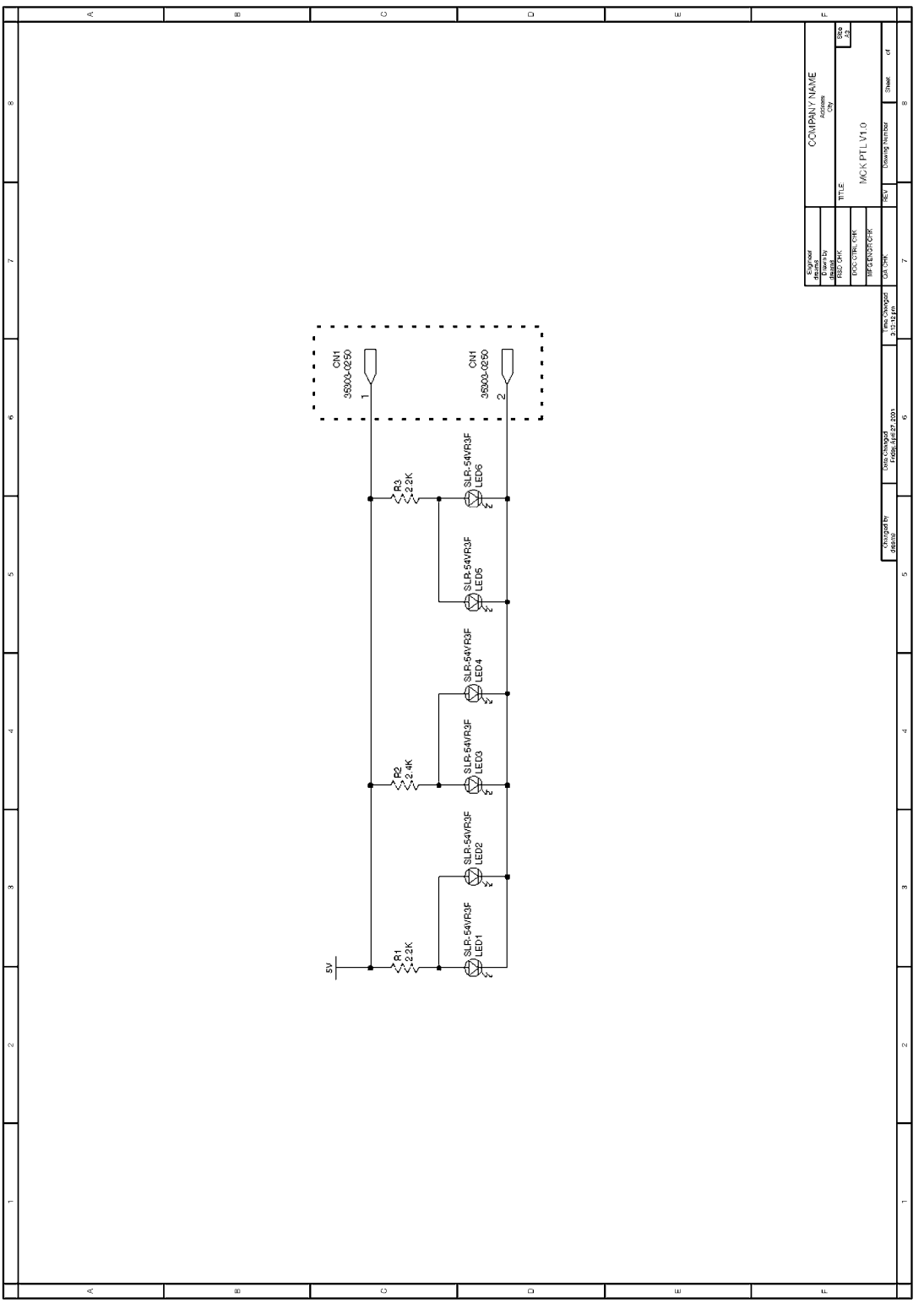
12-21 ADF Circuit Diagram



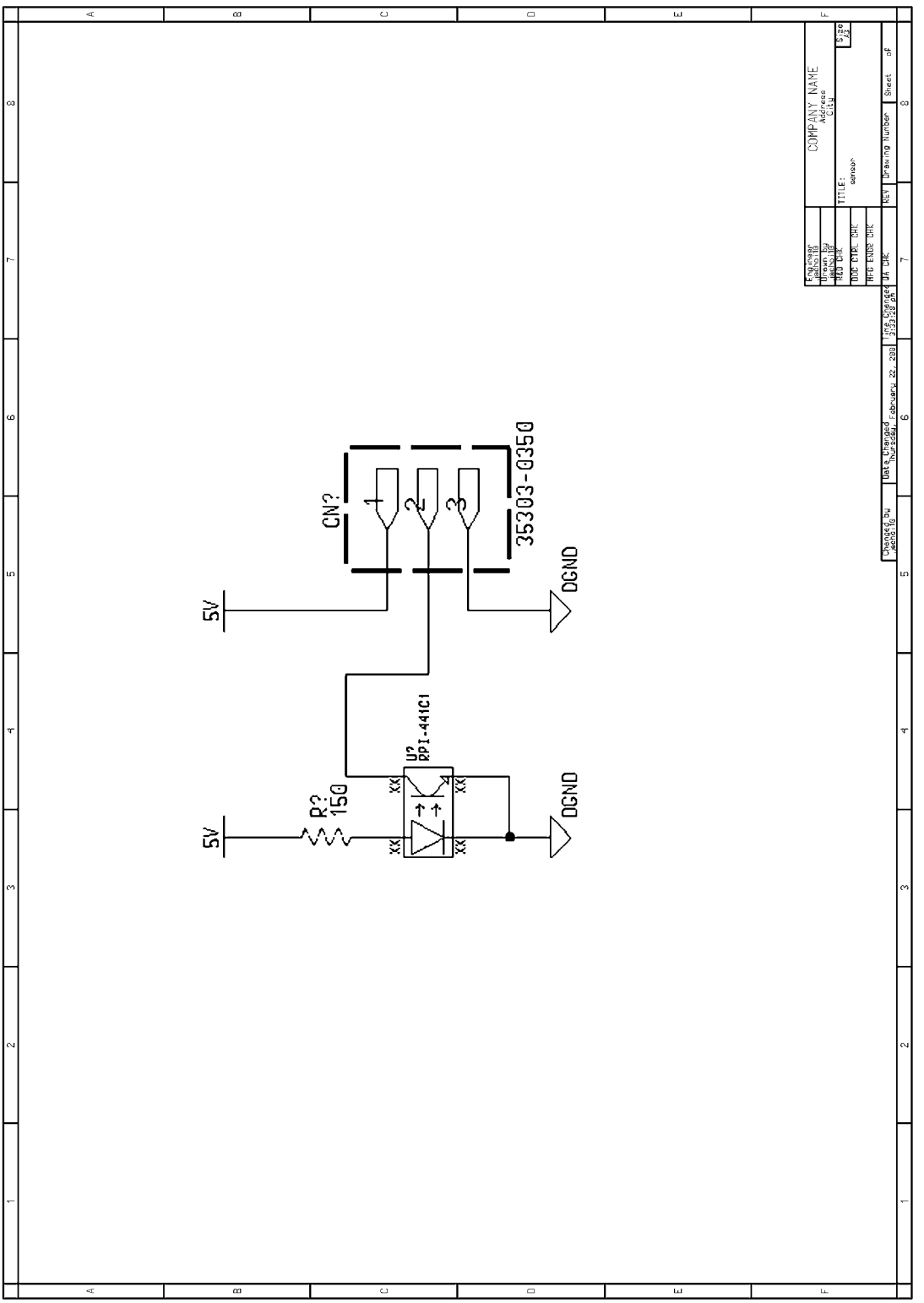
12-22 Flat Circuit Diagram



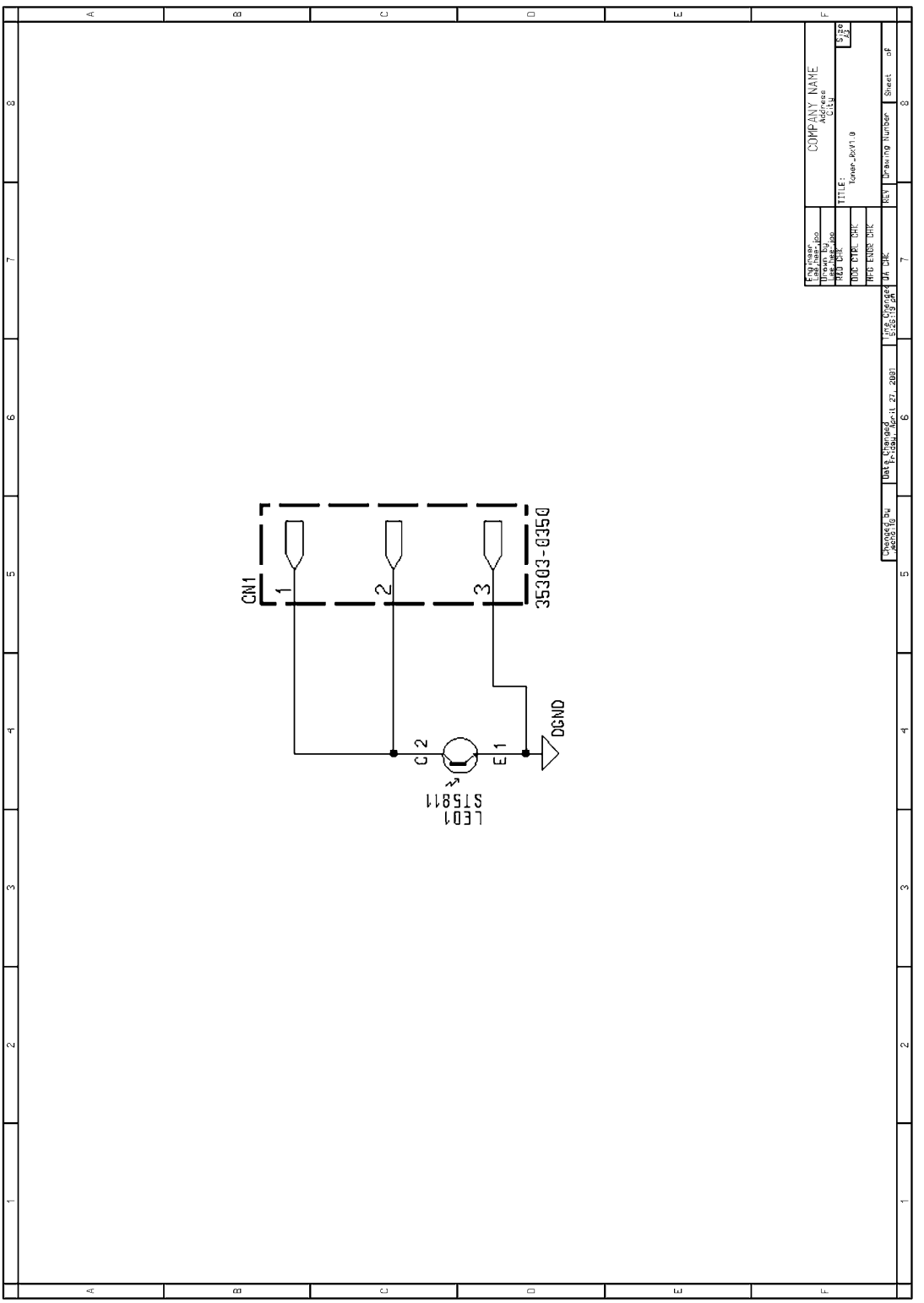
12-23 PTL Circuit Diagram



12-24 Sensor Circuit Diagram



12-25 Toner RX Circuit Diagram



12-26 Toner TX Circuit Diagram