SERVICE MANUAL

FIELD SERVICE

bizhub 181

2007.05

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the safety and important warning items described below to understand them before doing service work.

IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this product as well as the risk of damage to the product, KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. (hereafter called the KMBT) strongly recommends that all servicing be performed only by KMBT-trained service technicians.
Changes may have been made to this product to improve its performance after this Service Manual was printed. Accordingly, KMBT does not warrant, either explicitly or implicitly, that the information contained in this service manual is complete and accurate.
The user of this service manual must assume all risks of personal injury and/or damage to the product while servicing the product for which this service manual is intended.
Therefore, this service manual must be carefully read before doing service work both in the course of technical training and even after that, for performing maintenance and control of the product properly.
Keep this service manual also for future service.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In this Service Manual, each of three expressions “⚠ DANGER”, “⚠ WARNING”, and “⚠ CAUTION” is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing the product, the relevant works (disassembling, reassembling, adjustment, repair, maintenance, etc.) need to be conducted with utmost care.

⚠ **DANGER: Action having a high possibility of suffering death or serious injury**

⚠ **WARNING: Action having a possibility of suffering death or serious injury**

⚠ **CAUTION: Action having a possibility of suffering a slight wound, medium trouble, and property damage**

Symbols used for safety and important warning items are defined as follows:

△ :Precaution when servicing the product.	⚠ General precaution	Electric hazard	High temperature
🛇 :Prohibition when servicing the product.	🛇 General prohibition	Do not touch with wet hand	Do not disassemble
● :Direction when servicing the product.	❗ General instruction	Unplug	Ground/Earth

SAFETY WARNINGS

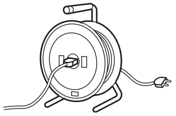
[1] MODIFICATIONS NOT AUTHORIZED BY KONICA MINOLTA BUSINESS TECHNOLOGIES, INC.

KONICA MINOLTA brand products are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.
Product design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degradation in performance and safety. Such modifications are therefore strictly prohibited. the points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

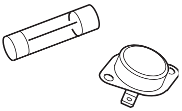
Prohibited Actions

⚠ DANGER

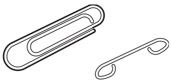
- Using any cables or power cord not specified by KMBT.



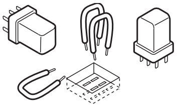
- Using any fuse or thermostat not specified by KMBT.
  Safety will not be assured, leading to a risk of fire and injury.



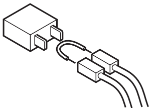
- Disabling fuse functions or bridging fuse terminals with wire, metal clips, solder or similar object.



- Disabling relay functions (such as wedging paper between relay contacts)

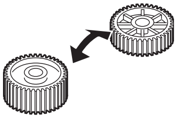


- Disabling safety functions (interlocks, safety circuits, etc.)
  Safety will not be assured, leading to a risk of fire and injury.



- Making any modification to the product unless instructed by KMBT

- Using parts not specified by KMBT



[2] POWER PLUG SELECTION

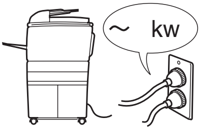
In some countries or areas, the power plug provided with the product may not fit wall outlet used in the area. In that case, it is obligation of customer engineer (hereafter called the CE) to attach appropriate power plug or power cord set in order to connect the product to the supply.

Power Cord Set or Power Plug

⚠ WARNING

- Use power supply cord set which meets the following criteria:
  - provided with a plug having configuration intended for the connection to wall outlet appropriate for the product's rated voltage and current, and
  - the plug has pin/terminal(s) for grounding, and
  - provided with three-conductor cable having enough current capacity, and
  - the cord set meets regulatory requirements for the area.

  Use of inadequate cord set leads to fire or electric shock.



- Attach power plug which meets the following criteria:
  - having configuration intended for the connection to wall outlet appropriate for the product's rated voltage and current, and
  - the plug has pin/terminal(s) for grounding, and
  - meets regulatory requirements for the area.

  Use of inadequate cord set leads to the product connecting to inadequate power supply (voltage, current capacity, grounding), and may result in fire or electric shock.

- Conductors in the power cable must be connected to terminals of the plug according to the following order:
  - Black or Brown:L (line)
  - White or Light Blue:N (neutral)
  - Green/Yellow:PE (earth)

  Wrong connection may cancel safeguards within the product, and results in fire or electric shock.

[3] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

KONICA MINOLTA brand products are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer (hereafter called the CE) from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the CE must perform regular safety checks.

1. Power Supply

Connection to Power Supply

⚠ WARNING

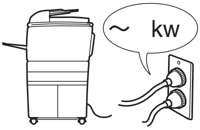
- Check that mains voltage is as specified.

  Connection to wrong voltage supply may result in fire or electric shock.

- Connect power plug directly into wall outlet having same configuration as the plug.

  Use of an adapter leads to the product connecting to inadequate power supply (voltage, current capacity, grounding), and may result in fire or electric shock.

  If proper wall outlet is not available, advice the customer to contact qualified electrician for the installation.



- Plug the power cord into the dedicated wall outlet with a capacity greater than the maximum power consumption.

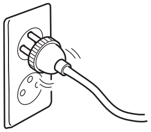
  If excessive current flows in the wall outlet, fire may result.

- If two or more power cords can be plugged into the wall outlet, the total load must not exceed the rating of the wall outlet.

  If excessive current flows in the wall outlet, fire may result.

- Make sure the power cord is plugged in the wall outlet securely.

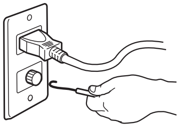
  Contact problems may lead to increased resistance, overheating, and the risk of fire.



- Check whether the product is grounded properly.

  If current leakage occurs in an ungrounded product, you may suffer electric shock while operating the product.

  Connect power plug to grounded wall outlet.

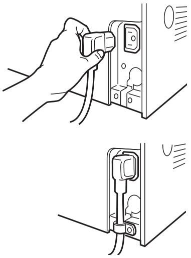


Power Plug and Cord

⚠ WARNING

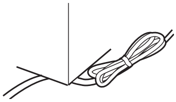
- When using the power cord set (inlet type) that came with this product, make sure the connector is securely inserted in the inlet of the product.
  When securing measure is provided, secure the cord with the fixture properly.

  If the power cord (inlet type) is not connected to the product securely, a contact problem may lead to increased resistance, overheating, and risk of fire.



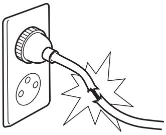
- Check whether the power cord is not stepped on or pinched by a table and so on.

  Overheating may occur there, leading to a risk of fire.



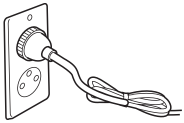
- Check whether the power cord is damaged. Check whether the sheath is damaged.

  If the power plug, cord, or sheath is damaged, replace with a new power cord (with plug and connector on each end) specified by KMBT. Using the damaged power cord may result in fire or electric shock.



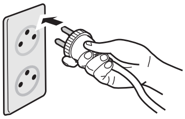
- Do not bundle or tie the power cord.

  Overheating may occur there, leading to a risk of fire.



- Check whether dust is collected around the power plug and wall outlet.

  Using the power plug and wall outlet without removing dust may result in fire.

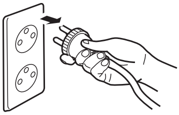


- Do not insert the power plug into the wall outlet with a wet hand.

  The risk of electric shock exists.

- When unplugging the power cord, grasp the plug, not the cable.

  The cable may be broken, leading to a risk of fire and electric shock.

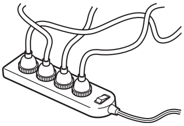


Wiring

⚠ WARNING

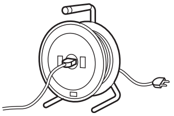
- Never use multi-plug adapters to plug multiple power cords in the same outlet.

  If used, the risk of fire exists.



- When an extension cord is required, use a specified one. Current that can flow in the extension cord is limited, so using a too long extension cord may result in fire.

  Do not use an extension cable reel with the cable taken up. Fire may result.



2. Installation Requirements

Prohibited Installation Places

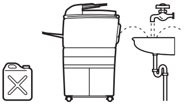
⚠ WARNING

- Do not place the product near flammable materials or volatile materials that may catch fire.

  A risk of fire exists.

- Do not place the product in a place exposed to water such as rain.

  A risk of fire and electric shock exists.

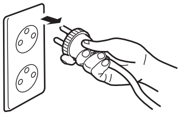


When not Using the Product for a long time

⚠ WARNING

- When the product is not used over an extended period of time (holidays, etc.), switch it off and unplug the power cord.

  Dust collected around the power plug and outlet may cause fire.



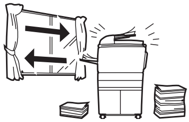
Ventilation

⚠ CAUTION

- The product generates ozone gas during operation, but it will not be harmful to the human body.

  If a bad smell of ozone is present in the following cases, ventilate the room.

  a. When the product is used in a poorly ventilated room
  b. When taking a lot of copies
  c. When using multiple products at the same time



Stability

⚠ CAUTION

- Be sure to lock the caster stoppers.

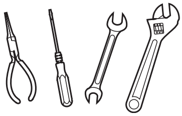
  In the case of an earthquake and so on, the product may slide, leading to a injury.

Inspection before Servicing

⚠ CAUTION

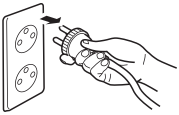
- Before conducting an inspection, read all relevant documentation (service manual, technical notices, etc.) and proceed with the inspection following the prescribed procedure in safety clothes, using only the prescribed tools. Do not make any adjustment not described in the documentation.

  If the prescribed procedure or tool is not used, the product may break and a risk of injury or fire exists.



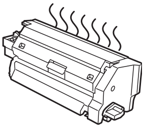
- Before conducting an inspection, be sure to disconnect the power plugs from the product and options.

  When the power plug is inserted in the wall outlet, some units are still powered even if the POWER switch is turned OFF. A risk of electric shock exists.



- The area around the fixing unit is hot.

  You may get burnt.

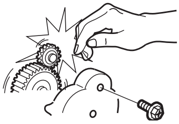


Work Performed with the Product Powered On

⚠ WARNING

- Take every care when making adjustments or performing an operation check with the product powered.

  If you make adjustments or perform an operation check with the external cover detached, you may touch live or high-voltage parts or you may be caught in moving gears or the timing belt, leading to a risk of injury.



- Take every care when servicing with the external cover detached.

  High-voltage exists around the drum unit. A risk of electric shock exists.

Safety Checkpoints

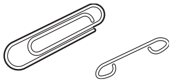
⚠ WARNING

- Check the exterior and frame for edges, burrs, and other damage.

  The user or CE may be injured.

- Do not allow any metal parts such as clips, staples, and screws to fall into the product.

  They can short internal circuits and cause electric shock or fire.



- Check wiring for squeezing and any other damage.

  Current can leak, leading to a risk of electric shock or fire.

- Carefully remove all toner remnants and dust from electrical parts and electrode units such as a charging corona unit.

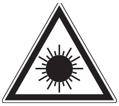
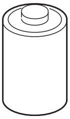
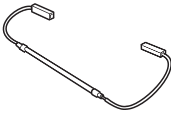
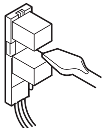
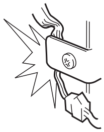
  Current can leak, leading to a risk of product trouble or fire.

- Check high-voltage cables and sheaths for any damage.

  Current can leak, leading to a risk of electric shock or fire.

Safety Checkpoints

⚠ WARNING

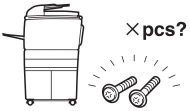
• Check electrode units such as a charging corona unit for deterioration and sign of leakage. Current can leak, leading to a risk of trouble or fire.	❗	
• Before disassembling or adjusting the write unit (P/H unit) incorporating a laser, make sure that the power cord has been disconnected. The laser light can enter your eye, leading to a risk of loss of eyesight.	❗	
• Do not remove the cover of the write unit. Do not supply power with the write unit shifted from the specified mounting position. The laser light can enter your eye, leading to a risk of loss of eyesight.	⊘	
• When replacing a lithium battery, replace it with a new lithium battery specified in the Parts Guide Manual. Dispose of the used lithium battery using the method specified by local authority. Improper replacement can cause explosion.	❗	
• After replacing a part to which AC voltage is applied (e.g., optical lamp and fixing lamp), be sure to check the installation state. A risk of fire exists.	❗	
• Check the interlock switch and actuator for loosening and check whether the interlock functions properly. If the interlock does not function, you may receive an electric shock or be injured when you insert your hand in the product (e.g., for clearing paper jam).	❗	
• Make sure the wiring cannot come into contact with sharp edges, burrs, or other pointed parts. Current can leak, leading to a risk of electric shock or fire.	❗	

Safety Checkpoints

⚠ WARNING

- Make sure that all screws, components, wiring, connectors, etc. that were removed for safety check and maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)

  A risk of product trouble, electric shock, and fire exists.



Handling of Consumables

⚠ WARNING

- Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes, etc. It may be stimulative.

  If the substances get in the eye, rinse with plenty of water immediately. When symptoms are noticeable, consult a physician.

- Never throw the used cartridge and toner into fire.

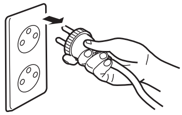
  You may be burned due to dust explosion.

Handling of Service Materials

⚠ CAUTION

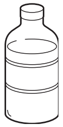
- Unplug the power cord from the wall outlet.

  Drum cleaner (isopropyl alcohol) and roller cleaner (acetone-based) are highly flammable and must be handled with care. A risk of fire exists.



- Do not replace the cover or turn the product ON before any solvent remnants on the cleaned parts have fully evaporated.

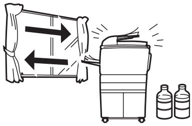
  A risk of fire exists.



Handling of Service Materials

CAUTION

- Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.
  A risk of fire exists.
- When using any solvent, ventilate the room well.
  Breathing large quantities of organic solvents can lead to discomfort.



[4] Used Batteries Precautions

ALL Areas

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer’s instructions.

Germany

VORSICHT!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.
Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ.
Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

France

ATTENTION

Il y a danger d’explosion s’il y a remplacement incorrect de la batterie.
Remplacer uniquement avec une batterie du même type ou d’un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Denmark

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Finland, Sweden

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

Norway

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

[5] Laser Safety

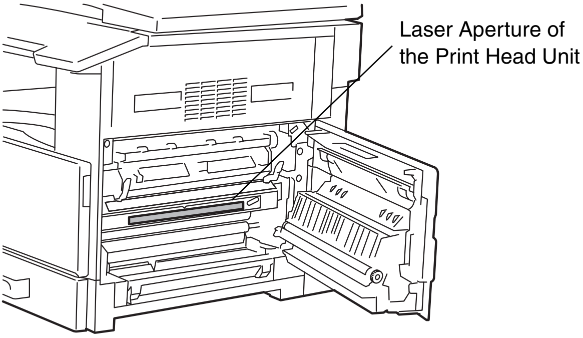
- This is a digital machine certified as a Class 1 laser product. There is no possibility of danger from a laser, provided the machine is serviced according to the instruction in this manual.

5.1 Internal Laser Radiation

semiconductor laser	
Maximum power of the laser diode	5 mW
Maximum average radiation power (*)	6.32 μW
Wavelength	770-795 nm

*at laser aperture of the Print Head Unit

- This product employs a Class 3B laser diode that emits an invisible laser beam. The laser diode and the scanning polygon mirror are incorporated in the print head unit.
- The print head unit is NOT A FIELD SERVICEABLE ITEM. Therefore, the print head unit should not be opened under any circumstances.



U.S.A., Canada
(CDRH Regulation)

- This machine is certified as a Class 1 Laser product under Radiation Performance Standard according to the Food, Drug and Cosmetic Act of 1990. Compliance is mandatory for Laser products marketed in the United States and is reported to the Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration of the U.S. Department of Health and Human Services (DHHS). This means that the device does not produce hazardous laser radiation.

- The label shown on page S-16 indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

CAUTION

- **Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.**

semiconductor laser	
Maximum power of the laser diode	5 mW
Wavelength	770-795 nm

All Areas

CAUTION

- **Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.**

semiconductor laser	
Maximum power of the laser diode	5 mW
Wavelength	770-795 nm

Denmark

ADVARSEL

- **Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. Klasse 1 laser produkt der opfylder IEC60825-1 sikkerheds kravene.**

halvlederlaser	
Laserdiodens højeste styrke	5 mW
bølgelængden	770-795 nm

Finland, Sweden

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

VAROITUS!

- **Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.**

puolijohdelaser	
Laserdiodin suurin teho	5 mW
aallonpituus	770-795 nm

VARNING!

- **Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.**

halvledarlaser	
Den maximala effekten för laserdioden	5 mW
våglängden	770-795 nm

VARO!

- **Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättomälle lasersäteilylle. Älä katso säteeseen.**

VARNING!

- **Osynlig laserstråining när denna del är öppnad och spärren är urkopplad. Betrakta ej stråien.**

Norway

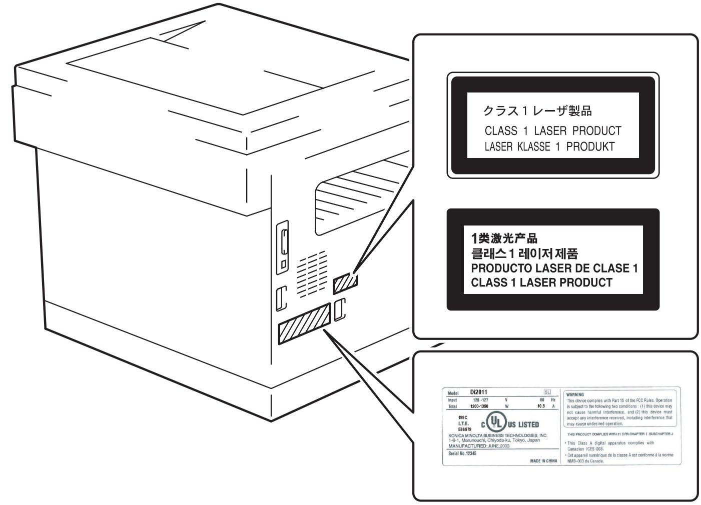
ADVERSEL

- **Dersom apparatet brukes på annen måte enn spesifisert i denne bruksanvisning, kan brukeren utsettes för unsynlig laserstrålning, som overskrider grensen for laser klass 1.**

halvleder laser	
Maksimal effekt till laserdiode	5 mW
bølgelengde	770-795 nm

5.2 Laser Safety Label

- A laser safety label is attached to the inside of the machine as shown below.


クラス１レーザ製品
CLASS 1 LASER PRODUCT
LASER KLASSE 1 PRODUKT
1类激光产品
클래스 1 레이저 제품
PRODUCTO LASER DE CLASE 1
CLASS 1 LASER PRODUCT
Model Di2011 SL
Input 120 -127 V 60 Hz
Total 1200-1350 W 10.5 A
199C
I.T.E.
E66579
C UL US LISTED
KONICA MINOLTA BUSINESS TECHNOLOGIES, INC.
1-6-1, Marunouchi, Chiyoda-ku, Tokyo, Japan
MANUFACTURED:JUNE,2003
Serial No.12345
MADE IN CHINA

WARNING
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

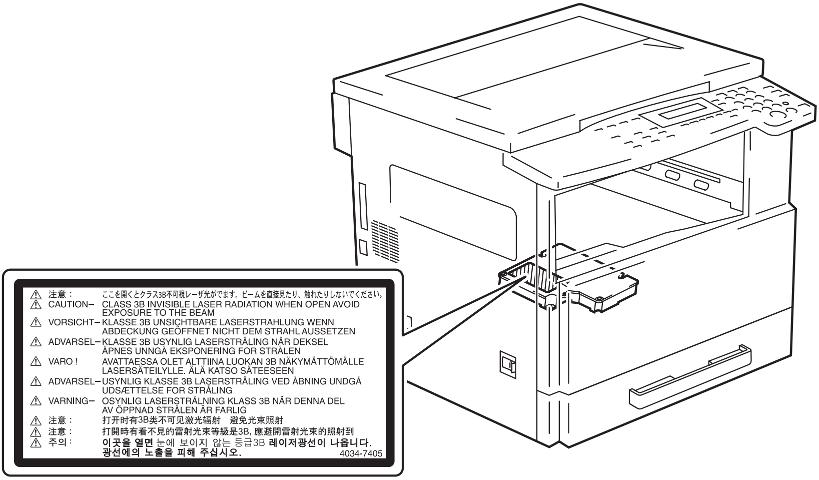
THIS PRODUCT COMPLIES WITH 21 CFR CHAPTER I SUBCHAPTER J

- This Class A digital apparatus complies with Canadian ICES-003.
- Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

A09AP0E505DA

5.3 Laser Caution Label

- A laser caution label is attached to the outside of the machine as shown below.



⚠ 注意： ここを開くとクラス3B不可視レーザ光がでます。ビームを直接見たり、触れたりしないでください。
⚠ CAUTION– CLASS 3B INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO THE BEAM
⚠ VORSICHT– KLASSE 3B UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
⚠ ADVARSEL– KLASSE 3B USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
⚠ VARO ! AVATTAESSA OLET ALTTIINA LUOKAN 3B NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
⚠ ADVARSEL– USYNLIG KLASSE 3B LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
⚠ VARNING– OSYNLIG LASERSTRÅLNING KLASS 3B NÄR DENNA DEL AV ÖPPNAD STRÅLEN ÄR FARLIG
⚠ 注意： 打开时有3B类不可见激光辐射 避免光束照射
⚠ 注意： 打開時有看不見的雷射光束等級是3B, 應避開雷射光束的照射到
⚠ 주의： 이곳을 열면 눈에 보이지 않는 등급3B 레이저광선이 나옵니다. 광선에의 노출을 피해 주십시오.
4034-7405

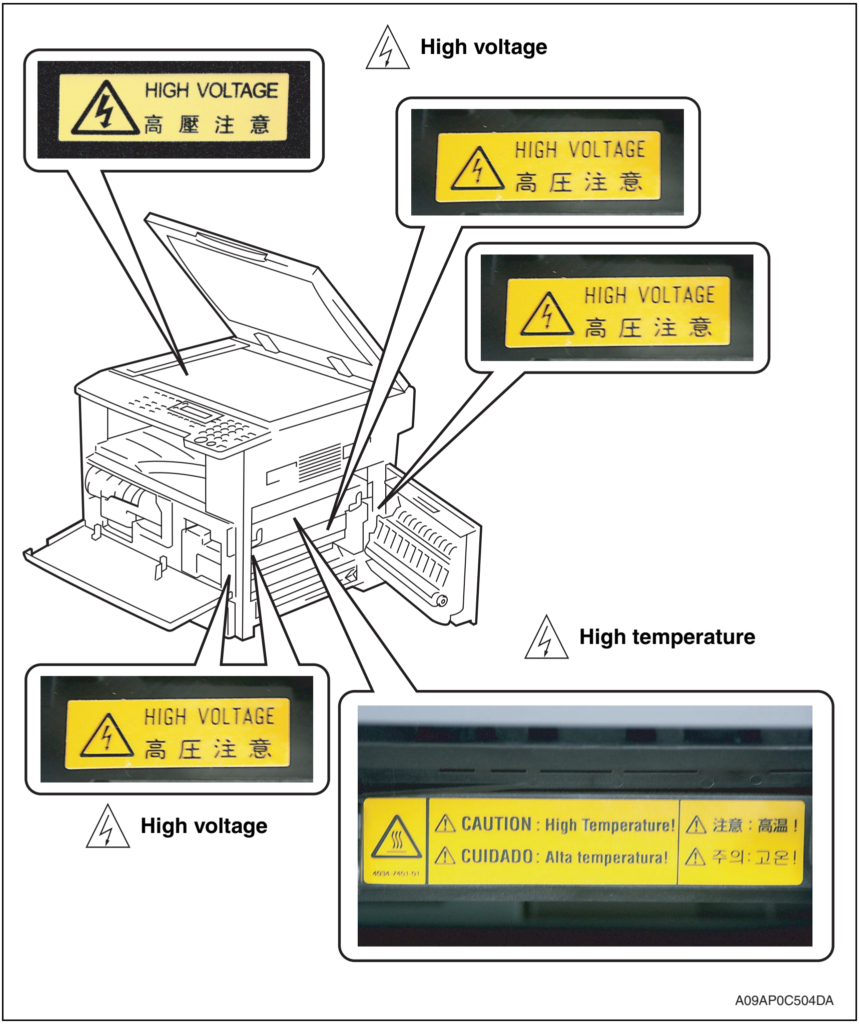
A09AP0C503DA

5.4 PRECAUTIONS FOR HANDLING THE LASER EQUIPMENT

- When laser protective goggles are to be used, select ones with a lens conforming to the above specifications.
- When a disassembly job needs to be performed in the laser beam path, such as when working around the printerhead and PC drum, be sure first to turn the printer OFF.
- If the job requires that the printer be left ON, take off your watch and ring and wear laser protective goggles.
- A highly reflective tool can be dangerous if it is brought into the laser beam path. Use utmost care when handling tools on the user's premises.
- The Print head is not to be disassembled or adjusted in the field. Replace the unit or Assembly including the control board. Therefore, remove the laser diode, and do not perform control board trimmer adjustment.

WARNING INDICATIONS ON THE MACHINE

Caution labels shown are attached in some areas on/in the machine.
When accessing these areas for maintenance, repair, or adjustment, special care should be taken to avoid burns and electric shock.


High voltage
HIGH VOLTAGE
高 壓 注 意
HIGH VOLTAGE
高 压 注 意
HIGH VOLTAGE
高 压 注 意
High temperature
HIGH VOLTAGE
高 压 注 意
High voltage
CAUTION : High Temperature!
CUIDADO : Alta temperatura!
注意：高温！
주의:고온!
A09AP0C504DA

CAUTION:

- **You may be burned or injured if you touch any area that you are advised not to touch by any caution label. Do not remove caution labels. If any caution label has come off or soiled and therefore the caution cannot be read, contact our service office.**

MEASURES TO TAKE IN CASE OF AN ACCIDENT

1. If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.
2. If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and KMBT must be notified.
3. To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by KMBT.
4. For reports and measures concerning serious accidents, follow the regulations specified by every distributor.

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Composition of the service manual

This service manual consists of Theory of Operation section and Field Service section to explain the main machine and its corresponding options.

Theory of Operation section gives, as information for the CE to get a full understanding of the product, a rough outline of the object and role of each function, the relationship between the electrical system and the mechanical system, and the timing of operation of each part.

Field Service section gives, as information required by the CE at the site (or at the customer's premise), a rough outline of the service schedule and its details, maintenance steps, the object and role of each adjustment, error codes and supplementary information.

The basic configuration of each section is as follows. However some options may not be applied to the following configuration.

<Theory of Operation section>

OUTLINE:	Explanation of system configuration, product specifications, unit configuration, and paper path
COMPOSITION/OPERATION:	Explanation of configuration of each unit, operating system, and control system

<Field Service section>

GENERAL:	Explanation of system configuration, and product specifications
MAINTENANCE:	Explanation of service schedule, maintenance steps, service tools, removal/reinstallation methods of major parts, and firmware version up method etc.
ADJUSTMENT/SETTING:	Explanation of utility mode, service mode, and mechanical adjustment etc.
TROUBLESHOOTING:	Explanation of lists of jam codes and error codes, and their countermeasures etc.
APPENDIX:	Parts layout drawings, connector layout drawings, timing chart, overall layout drawing are attached.

Notation of the service manual

A. Product name

In this manual, each of the products is described as follows:

(1) bizhub 181: Main body

(2) Microsoft Windows 98: Windows 98

Microsoft Windows Me: Windows Me

Microsoft Windows NT 4.0: Windows NT 4.0 or Windows NT

Microsoft Windows 2000: Windows 2000

Microsoft Windows XP: Windows XP

When the description is made in combination of the OS's mentioned above:

Windows 98/Me
Windows NT 4.0/2000
Windows NT/2000/XP
Windows 98/Me/ NT/2000/XP

B. Brand name

The company names and product names mentioned in this manual are the brand name or the registered trademark of each company.

C. Feeding direction

- When the long side of the paper is parallel with the feeding direction, it is called short edge feeding. The feeding direction which is perpendicular to the short edge feeding is called the long edge feeding.
- Short edge feeding will be identified with [S (abbreviation for Short edge feeding)] on the paper size. No specific notation is added for the long edge feeding.
  When the size has only the short edge feeding with no long edge feeding, [S] will not be added to the paper size.

<Sample notation>

Paper size	Feeding direction	Notation
A4	Long edge feeding	A4
	Short edge feeding	A4S
A3	Short edge feeding	A3

KONICA MINOLTA

SERVICE MANUAL FIELD SERVICE

bizhub 181
Main body

2007.05

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a specific section revised within text, △1 is shown at the left margin of the corresponding revised section.
  The number inside △1 represents the number of times the revision has been made.

- To indicate clearly a specific page that contains a revision or revisions, the page number appearing at the left or right bottom of the specific page is marked with ▲1 .
  The number inside ▲1 represents the number of times the revision has been made.

NOTE

Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.

- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2008/08	1.01	▲	Error corrections
2007/05	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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General

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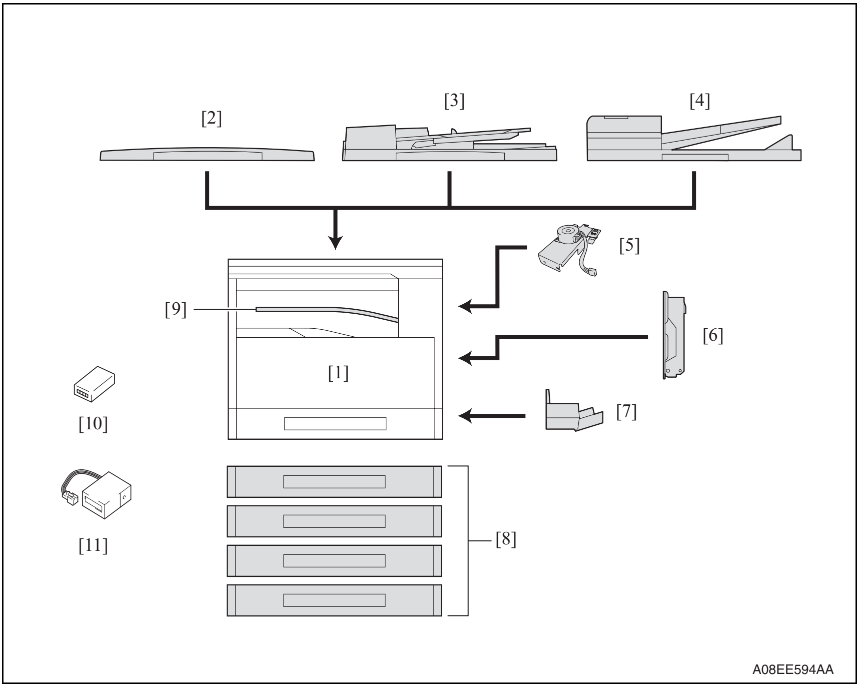
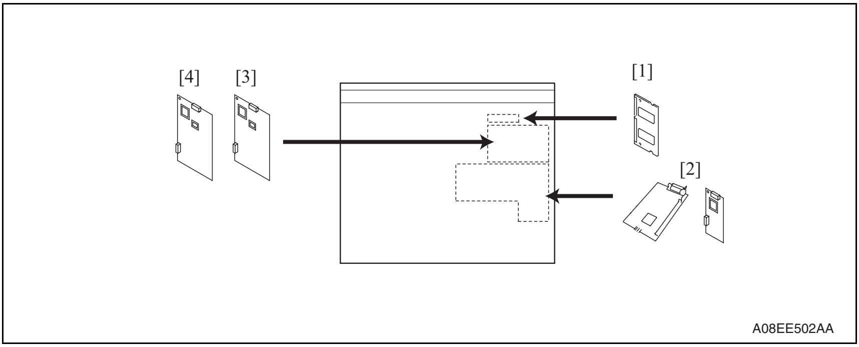


[1]	bizhub 181	[7]	Multi bypass tray (MB-501)
[2]	Original cover (OC-504)	[8]	Paper feed unit (PF-502)
[3]	Automatic document feeder (DF-502)	[9]	Job separator (JS-503)
[4]	Reverse automatic document feeder (DF-605)	[10]	Key counter mount kit 1 (previous models for minolta.) Key counter mount kit 2 (previous models for konica)
[5]	Shift tray (SF-501)	[11]	Mechanical counter (MC-503) *1
[6]	Automatic duplex unit (AD-504)		

*1: The Standard bizhub 181.

2/2 System rear view



[1] Expanded memory unit (EM-103)

[2] Fax kit (FK-506)

[3] Image controller (IC-206) *

[4] Network interface card (NC-503) *

* It is not possible to mount these units at the same time.

2. Product specification

A. Copier

Type	Console/desktop type
Platen	Stationary
Original scanning system	CCD line sensor
Photoconductor	Organic photoconductor
Copying system	Electrostatic dry powdered image transfer to plain paper with a laser
Resolution	600 × 600 dpi
Paper feeding system	Max. six-way system
Exposure system	Mirror scanning
Developing system	HMT system
Charging system	Comb electrode DC negative corona with scorotron system
Image transfer system	Roller image transfer
Paper separating system	Paper separator fingers and charge neutralizing plate
Fusing system	Heat roller
Paper discharging system	Charge neutralizing brush

B. Functions

Types of original	Sheets, books, and three-dimensional objects	
Max. original size	A3 or 11 × 17	
Multiple copies	1 to 99	
Warming-up time	15 sec. or less (when the auxiliary power switch is turned ON from a stabilized state, in which the main power switch is ON and auxiliary power switch is OFF, with the rated power source voltage and at a room temperature of 23°C)	
Image loss	Leading edge: 4 mm (1/4 inch), trailing edge: 4 mm (1/4 inch), Rear edge: 4 mm (1/4 inch), front edge: 4 mm (1/4 inch)	
First copy time (A4, full size)	Scan through glass: 7 sec. or less ADF scan: 11 sec. or less (Values in conditions of paper fed from tray 1 at a room temperature of 23°C and with a rated power source)	
Processing speed	93 mm/s	
Copying speed for multi-copy cycle (A4, 8-1/2 x 11)	18 cpm or more	
Fixed zoom ratios (Latin america areas for inch)	Full size	x 1.00
	Reduction	x 0.250, x 0.500, x 0.640, x 0.780
	Enlargement	x 1.210, x 1.290, x 2.000, x 4.000
Fixed zoom ratios (Latin america area for metric)	Full size	x 1.00
	Reduction	x 0.250, x 0.500, x 0.700, x 0.780
	Enlargement	x 1.150, x 1.410, x 2.000, x 4.000
Variable zoom ratios	×0.250 to ×4.000	in 0.001 increments
Paper size used	Tray 1	A3 to A5S, Letter, LedgerS, 11 x 14, LegalS, Invoice, 8K, 16K, FLS
	Manual bypass	

Paper capacity (Tray 1)	Plain paper/recycled paper	250 sheets
	Special paper (thick paper, overhead projector transparencies, postcards, label sheets)	20 sheets
	Envelopes	10 sheets
Paper capacity (Manual bypass)	Plain paper/recycled paper/special paper	1 sheets

C. Paper

		Tray1	Paper feed unit	Manual bypass
Type	Plain paper (60 to 90 g/m^2)	❍ (250 sheets)		❍ *1
	Transparencies	❍ (20 sheets)		❍ *1
	Thick Paper (91 to 157 g/m^2)	❍ (20 sheets)		❍ *1
	Postcards	❍ (20 sheets)		❍ *1
	Labels	❍ (20 sheets)		❍ *1
	Envelopes	❍ (10 sheets)		❍ *1
Size	Width	90 to 297 mm (3 $^{1}/_{2}$ to 11 $^{3}/_{4}$ lb) *2	182 to 297 mm (7 $^{1}/_{4}$ to 11 $^{3}/_{4}$ lb) *2	90 to 297 mm (3 $^{1}/_{2}$ to 11 $^{3}/_{4}$ lb) *2
	Length	140 to 432 mm (5 $^{1}/_{2}$ to 17 lb) *2		

*1: Capacity of manual bypass: 1 sheet
*2: If the width set 297 mm (11 $^{3}/_{4}$ lb), the max. length is to 420 mm (16 $^{1}/_{2}$ lb).
If the length set 432 mm (17 lb), the max. width is to 279 0mm (11 lb).

D. Maintenance

E. Machine specifications

Power requirements	Voltage	AC120V to 127V
	Frequency	60 Hz
Max power consumption	120V area	1200 W ± 10% or less
	127V area	1350 W ± 10% or less
Dimensions	599 (W) x 620 (D) x 520 (H) mm *1	
Space requirements	998 (W) x 665 (D) mm	
Mass	89 kg (when fully equipped)	

*1: Including the original cover

F. Operating environment

Temperature	10 to 30°C (with a fluctuation of 10°C or less per hour)
Humidity	15 to 85% (with a fluctuation of 10%/h)

G. Built-in controllers

Printing Speed	18 printed pages/min (A4, 300 dpi) 12 printed pages/min (A4, 600 dpi)
Memory	Shared with the copier
Interface	USB revision 2.0 compatible
Printer language	GDI
Font	Windows
Complying OS	Windows XP (SP2 or later), Windows 2000 (SP4 or later), Windows ME, ~~Windows 98 SE~~

2.1 Fax kit (FK-506): (Option)

Transmission mode	G3
Compatible wiring	General subscriber telephone line, NCC each line
Connection method	Direct connection (using a modular jack)
Transmission speed	33.6, 31.2, 28.8, 26.4, 24.0, 21.6, 19.2, 16.8, 14.4, 12.0, 9.6, 7.2, 4.8, 2.4 kbps (automatic switching)
Transmission time	3 seconds *1
Scanning density	8 dots/mm x 3.85/7.7/15.4 lines/mm, 16 dots/mm x 15.4 lines/mm *2
Document size	Maximum A3 (Ledger), banner documents (maximum 1000 mm (39-1/4 inches)) possible
Print paper size	Metric: A3, B4, A4, B5, A5 Inch: Invoice (8-1/2 x 5-1/2), Letter, Legal (8-1/2 x 14), Ledger (11 x 17)
Scanning storage	With built in memory (5 MB): 280 pages With expanded memory (16 MB): 1,024 pages *With standard A4-size documents
Compression encoding format	MH / MR / MMR / JBIG

*1: This is the speed for transmitting an A4-size, or Letter-size document containing approximately 700 characters at high-speed (33.6 kbps) using the standard resolution (8 dots/mm x 3.85 lines/mm (200 dpi x 100 lpi)). The transmission time for only the image information and the communication control time are not included. In addition, the actual transmission time differs depending on the contents of the document, the recipient's fax machine and the condition of the wiring.

*2: Real-time transmission is supported only with the document feeder.

Maintenance

3. Periodical check

3.1 Service schedule

3.1.1 Main body/PF-502/MB-501

Guarantee period : 5-year or 300,000 prints

	Service item	x 10,000-print								No. of times
		4	8	12	15	16	20	24	28	
Main body	40,000	●	●	●		●	●	●	●	7
	80,000		●			●		●		3
	150,000				●					1
PF-502	150,000				●					1
MB-501	150,000				●					1

3.1.2 DF-502

Guarantee period: 5-year or 150,000 originals feed

Service item	x 10,000-originals feed				No. of times
	3	6	9	12	
30,000	●	●	●	●	4
120,000				●	1

3.1.3 DF-605

Guarantee period: 5-year or 1000,000 originals feed

Service item	x 10,000-originals feed																			No. of times
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	
50,000	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	19
200,000				●				●				●				●				4

3.2 Maintenance items

3.2.1 Parts to be replaced by users (CRU)

No	Class	Parts to be replaced	Cycle	Clean	Replace	Descrip-tions
1	Processing sections	Toner bottle	11,000		●	

3.2.2 Periodical parts replacement/cleaning 1 (per 30,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri-cation	Descrip-tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-502	Pick-up roller	—		●			
4		Paper take-up roller	—		●			
5		Separation roller	—		●			
6		Registration roller	—		●			
7		Registration roll	—		●			
8		Exit roller	—		●			
9		Exit roll	—		●			
10		Transport roll	—		●			
11		Length sensor/2 (PS7)	—		●			

3.2.3 Periodical parts replacement/cleaning 2 (per 40,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri-cation	Descrip-tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	Processing sections	Ds collars	—		●			
4		Developer scattering prevention plate	—		●			
5		Pre-image transfer guide plate	—		●			
6		PC drum paper separator fingers	—		●			
7		PC drum	1			●		
8		PC drum charge corona assy	1			●		
9		Cleaning blade	1			●		
10		Developer	1			●		
11		Toner agitating seal	1			●		
12		Cleaning pad assy	1			●		

3.2.4 Periodical parts replacement/cleaning 3 (per 50,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri-cation	Descrip-tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-605	Pick-up roller	—		●			
4		Paper take-up roller	—		●			
5		Separation roller	—		●			
6		Rollers and rolls	—		●			
7		Scanning guide	—		●			
8		Reflective sensor section	—		●			

3.2.5 Periodical parts replacement/cleaning 4 (per 80,000-print)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri-cation	Descrip-tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	Scanner section	Original glass/original scanning glass	—		●			

3.2.6 Periodical parts replacement/cleaning 5 (per 120,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri-cation	Descrip-tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-502	Pick-up roller	1			●		*1
4		Feed roller	1			●		
5		Separation roller	1			●		

*1: Replace those three parts at the same time.

3.2.7 Periodical parts replacement/cleaning 6 (per 150,000-print)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri-cation	Descrip-tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	Tray 1	Feed roller	1			●		*1
4		Separation roller assy	1			●		
5	Image transfer section	Image transfer roller assy	1			●		
6	Fusing section	Fusing unit	1			●		
7	Processing sections	Ozone filter	1			●		
8	PF-502	Feed roller	2			●		
9	MB-501	Feed roller	1			●		*1
10		Separation roller assy	1			●		

*1: Replace those two parts at the same time.

3.2.8 Periodical parts replacement/cleaning 7 (per 200,000-original feed)

No.	Class	Parts to be replaced	Qt.	Check	Clean	Replace	Lubri-cation	Descrip-tions
1	Overall	Paper feed and image conditions	—	●				
2		Appearance	—	●	●			
3	DF-605	Pick-up roller	2			●		*1
4		Feed roller	1			●		
5		Separation roller	1			●		

*1: Replace those three parts at the same time.

3.3 Maintenance parts

- To ensure that the machine produces good copies and to extend its service life, it is recommended that the maintenance jobs described in this schedule be carried out as instructed.
- Replace with reference to the numeric values displayed on the life counter.

3.3.1 Replacement parts

A. Main body

No.	Classification	Parts name	Quantity	Actual durable cycle *1	Pats No.	Descriptions	Ref.page in this manual
1	Paper take-up section	Feed roller	1	150,000	4034 3012 ##	*2	P.17
2		Separation roller assy	1	150,000	4034 0151 ##		P.15
3	Transport section	Paper dust remover assy	1	40,000	4034 R703 ##		P.18
4	Imaging unit section	PC drum	1	40,000	—		P.22
5		Ozone filter	1	150,000	1156 4118 ##		P.23
6		PC drum charge corona assy	1	40,000	A08E R702 ##		P.24
7		Cleaning blade	1	40,000	4034 5622 ##		P.24
8		Developer	1	40,000	—		P.27
9		Toner agitating seal	1	40,000	A08E 3700 ##		P.27
10	Image transfer section	Image transfer roller assy	1	150,000	4034 R706 ##		P.30
11	Fusing section	Fusing unit	1	150,000	4035 0751 ##		P.30

*1: Actual durable cycle is the life counter value.
*2: Replace those two parts at the same time.

B. Options

No.	Classifi-cation	Parts name	Quantity	Actual durable cycle *1	Pats No.	Descriptions	Ref.page in this manual
1	DF-502	Pick-up roller	1	120,000	4688 3032 ##	Replace those three parts at the same time.	*2
2		Feed roller	1	120,000	4688 3033 ##		
3		Separation roller	1	120,000	4688 3034 ##		
4	DF-605	Pick-up roller	2	200,000	4344 5003 ##	Replace those three parts at the same time.	*3
5		Feed roller	1	200,000	4582 3014 ##		
6		Separation roller	1	200,000	4582 3047 ##		
7	PF-502	Feed roller	2	150,000	4686 3371 ##		*4
8	MB-501	Paper take-up roller	1	150,000	4687 3012 ##	Replace those two parts at the same time.	*5
9		Separation roller assy	1	150,000	4034 0151 ##		

*1: Actual durable cycle is the life counter value.
*2: See the DF-502 Service Manual.
*3: See the DF-605 Service Manual.
*4: See the PF-502 Service Manual.
*5: See the MB-501 Service Manual.

3.3.2 Cleaning parts

No.	Classification	Parts name	Actual cleaning cycle *1	Descriptions	Ref.page in this manual
1	Imaging unit section	Ds collars	40,000		P.25
2		Developer scattering prevention plate	40,000		P.26
3		Pre-image transfer guide plate	40,000		P.29
4		PC drum paper separator fingers	40,000		P.25
5	Scanner section	Original glass/original scanning glass	80,000		P.15
6	DF-502	Pick-up roller	30,000		*2
7		Feed roller	30,000		
8		Separation roller	30,000		
9		Registration roller	30,000		
10		Registration roll	30,000		
11		Exit roller	30,000		
12		Exit roll	30,000		
13		Transport roll	30,000		
14		Length sensor/2 (PS7)	30,000		
15	DF-605	Pick-up roller	50,000		*3
16		Feed roller	50,000		
17		Separation roller	50,000		
18		Rollers and rolls	50,000		
19		Scanning guide	50,000		
20		Reflective sensor section	50,000		

*1: Actual cleaning cycle is the life counter value.
*2: See the DF-502 Service Manual.
*3: See the DF-605 Service Manual.

3.4 Concept of parts life

	Description	Life value (Specification value)	New copy/print cycle inhibited
PC drum	The distance travelled by the PC drum is converted to a corresponding number of printed pages of A4 paper at 2P/J.	40,000	Not inhibited *1
Cleaning blade		40,000	
PC drum charge corona		40,000	
Developer		40,000	
Image transfer assy	The number of sheets of paper fed out of the copier is counted.	150,000	Not applicable
Paper dust remover assy		40,000	Not applicable
Fusing unit		150,000	Not applicable

*1:The service mode can be used to set either enable or disable the initiation of a new copy/print cycle.

A. Conditions for life specifications values

- The life value represents the number of copies made in the conditions specified in the table shown below, or a value translated to a corresponding number of copies made. It may therefore vary depending on the conditions, in which the copiers are used among different users.

Item	Description
Copying type	2P/J
Paper size	A4
CV/M	Average 3,000/month, Max. 16,000/month
Original density	B/W 6%

3.5 Maintenance procedure (periodical check parts)

NOTE

- **The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.**

3.5.1 Cleaning of the original glass and original scanning glass

A. Periodically cleaning parts/cycle

- Original glass/original scanning glass: Every 80,000 prints

B. Procedure

[2]
[1]
A09AF2C001DA

1. Using a soft cloth dampened with alcohol, wipe the original glass [1] and original scanning glass [2] clean of dirt.

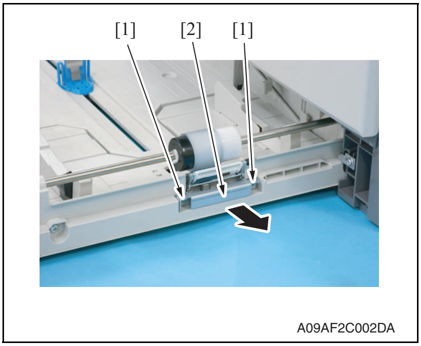
3.5.2 Replacing the separation roller assy

A. Periodically replaced parts/cycle

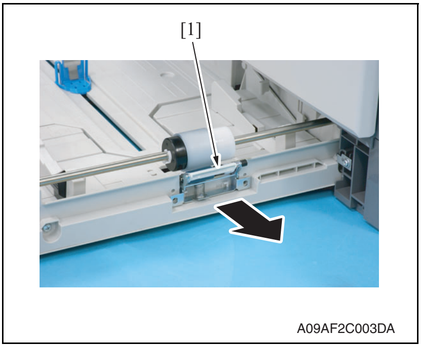
- Separation roller assy: Every 150,000 prints

B. Procedure

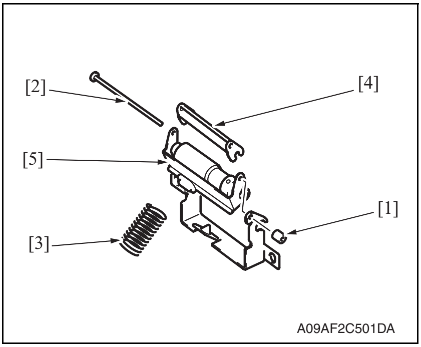
1. Slide out the tray/1.



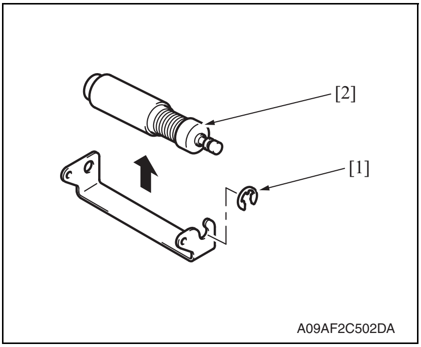
2. Remove two screws [1], and remove the mounting bracket [2].


[1]
A09AF2C003DA

3. Remove the separation roller fixing plate assy [1].


[2]
[4]
[5]
[1]
[3]
A09AF2C501DA

4. Take off the rubber stopper [1], shaft [2], spring [3], and guide plate [4] to remove the paper separation roller fixing bracket assy [5].


[2]
[1]
A09AF2C502DA

5. Snap off the E-ring [1], and remove the tray 1paper separation roller assy [2].
6. To reinstall, reverse the order of removal.
7. Select [Service Mode] → [CLEAR DATA] → [PM COUNTER] and clear the counter value of [Tray 1].

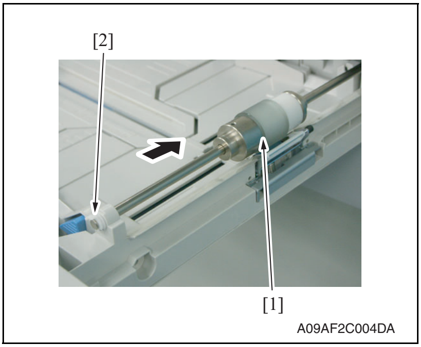
3.5.3 Replacing the feed roller

A. Periodically replaced parts/cycle

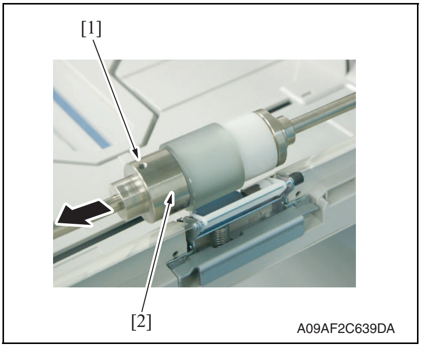
- Feed roller: Every 150,000 prints

B. Procedure

1. Slide out the tray/1.



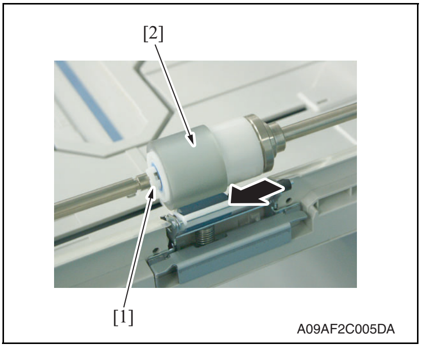
2. Press down the paper lifting plate.
3. Snap off the C-clip [2] from the feed roller assy [1].
4. Slide the feed roller assy [1] to the rear and pull it off the bearing at the front.



5. Loosen the set screw [1] with the hexagon wrench (2.5 mm), and remove the weight [2].

NOTE

- **When reinstall the weight, tighten the set screw with the weight slightly pushed against the feed roller.**



6. Snap off the C-clip [1], and remove the feed roller [2].

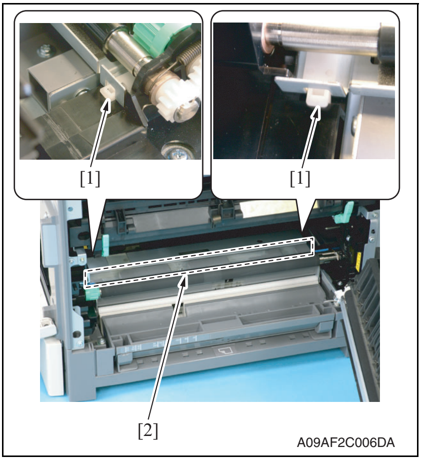
3.5.4 Replacing the paper dust remover assy

A. Periodically replaced parts/cycle

- Paper dust remover assy: Every 40,000 prints

B. Procedure

1. Open the right door.
2. Remove the imaging unit.
   See P.20



3. Unhook the two tabs [1], and remove the paper dust remover assy [2].

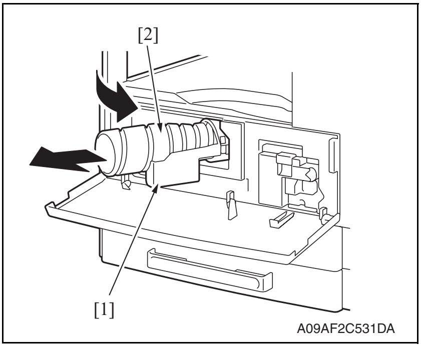
3.5.5 Replacing the toner bottle

A. Periodically replaced parts/cycle

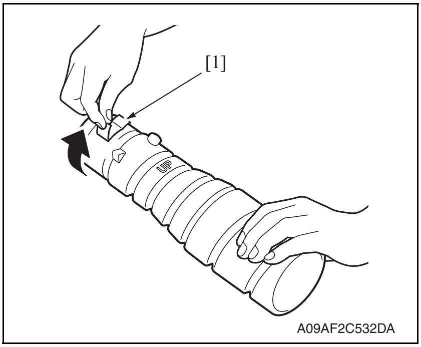
- Toner bottle: Every 11,000 prints

B. Procedure

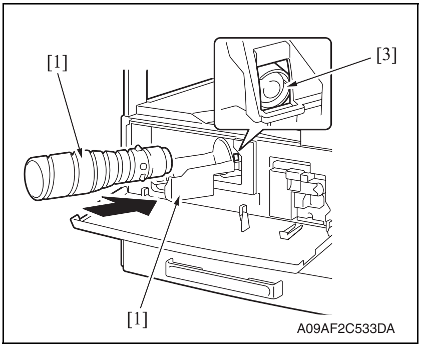
1. Open the front door.



2. Pull the toner bottle holder [1], and remove the toner bottle [2].


[1]
UP
A09AF2C532DA

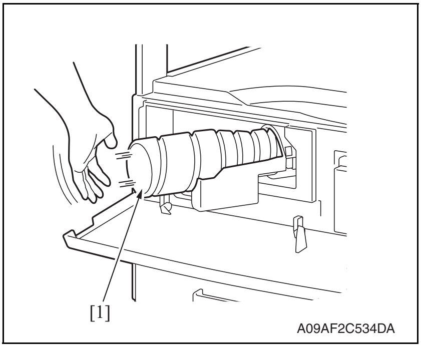
3. Turn up the sealing part [1] of the new toner bottle, and remove the seal toward slowly.


[1]
[3]
[1]
A09AF2C533DA

4. Turn up the part with “UP” display of the toner bottle [1], and put it into the toner bottle holder [2].

NOTE

- **Make sure that the convex part of the toner bottle is inserted into the concave part of the toner bottle holder [3].**


[1]
A09AF2C534DA

5. Tap the bottom of the toner bottle [1] 3 or 4 times.

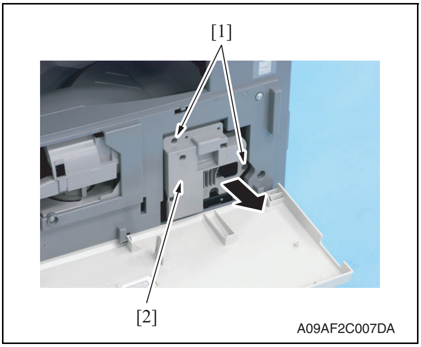
3.5.6 Replacing the imaging unit

A. Procedure

NOTE

- **When the developer is to be changed, it is necessary that toner in the recycled toner recycling duct and toner conveying duct be fed into the developer mixing chamber. To do that, remove the toner bottle and run "ATDC AUTO ADJUST" twice.**
  See P.138

1. Open the front door.
2. Open the right door.



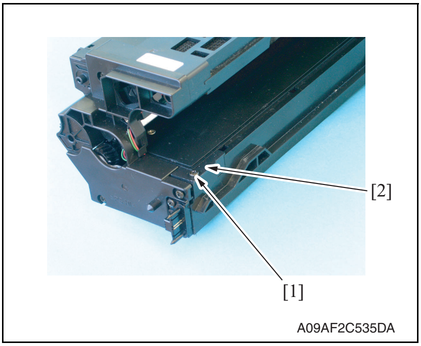
3. Remove two screws [1], and remove the IU [2].

NOTE

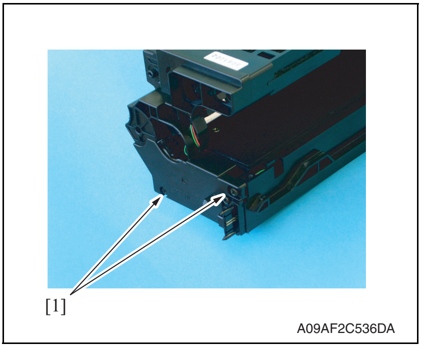
- **When installing the IU, use care not to damage the PC drum.**
- **Before attempting to install the IU, be sure to fully open the right door. Take care that, if the IU is installed with the right door locked halfway, it may interfere with the transfer roller.**
- **When inserting the IU, do that slowly and, when you are sure that the drum gear contacts the mating part, push the IU all the way into position. If this step is done all at once, the drum gear could be damaged.**

3.5.7 Disassembly of the imaging unit

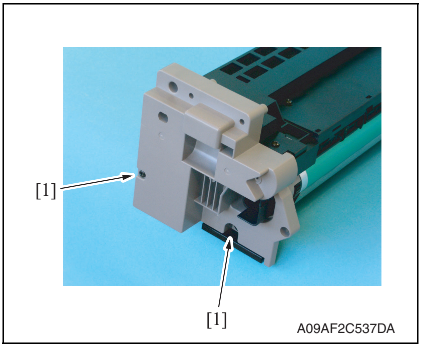
A. Procedure



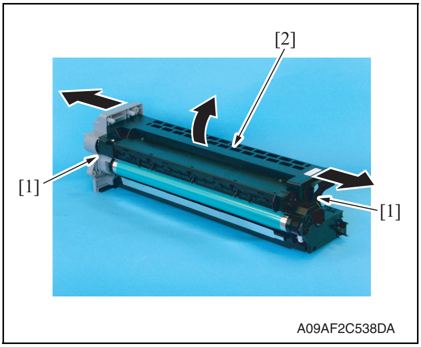
1. Remove the screw [1] in the rear of the IU and remove the harness cover [2].


[1]
A09AF2C536DA

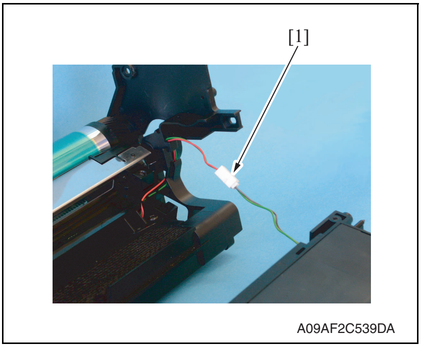
2. Remove two screws [1] in the rear of the IU.


[1]
[1]
A09AF2C537DA

3. Remove two screws [1] at the front of the IU.


[2]
[1]
[1]
A09AF2C538DA

4. Widen flaps on both ends (marked with A in the photo on the left) [1] of the drum assy in the direction of the arrow and turn to take off the developing assy [2].



5. Unplug the connector [1] of the main erase.

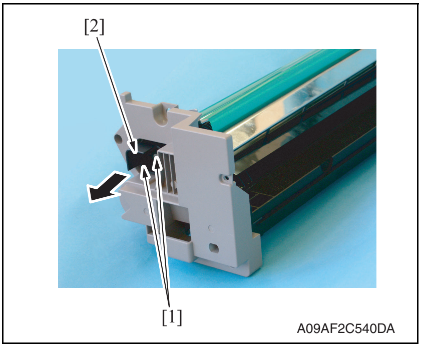
3.5.8 Replacing the PC drum

A. Periodically replaced parts/cycle

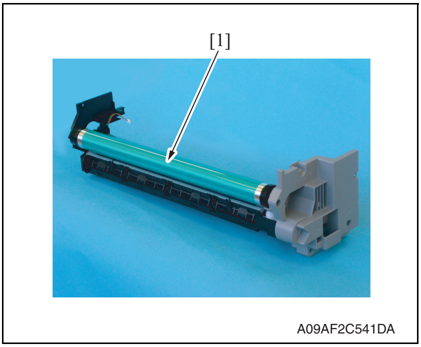
- PC drum: Every 40,000 prints

B. Procedure

1. Remove the developing assy from the imaging unit.
   See IU disassemble procedure 1 to 4.
   See P.20



2. Remove two screws [1], and remove the pivot shaft [2].



3. Remove the PC drum [1].

NOTE

- **Protect the PC drum that has been removed with a protective cloth.**
- **If the PC drum has been replaced with a new one, apply a coat of toner to the surface of the new PC drum.**
  See P.85

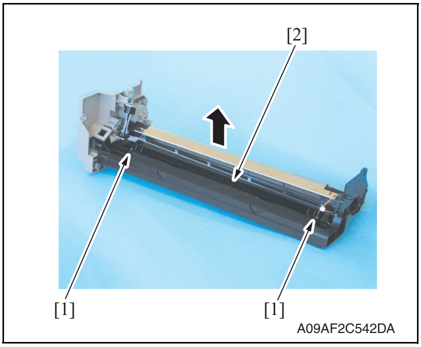
3.5.9 Replacing the ozone filter

A. Periodically replaced parts/cycle

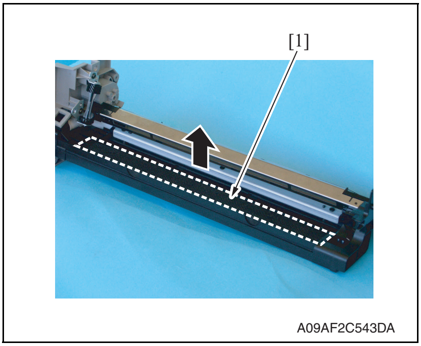
- Ozone filter: Every 150,000 prints

B. Procedure

1. Remove the PC drum.
   See P.22


[2]
[1]
[1]
A09AF2C542DA

2. Remove two screws [1], and remove the main erase [2].


[1]
A09AF2C543DA

3. Remove the ozone filter [1].

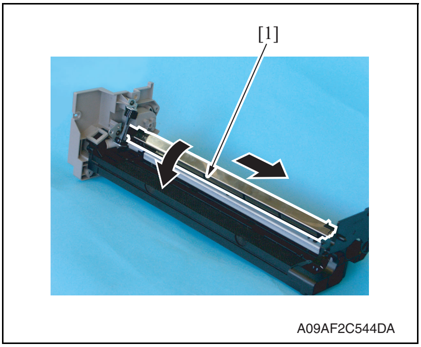
3.5.10 Replacing the PC drum charge corona assy

A. Periodically replaced parts/cycle

- PC drum charge corona assy: Every 40,000 prints

B. Procedure

1. Remove the PC drum.
   See P.22
2. Remove the main erase.
   See P.23



3. Turn the holder in the rear in the direction of the arrow to remove it from the side bracket.
4. Slide out the PC drum charge corona assy [1] in the direction of the arrow.

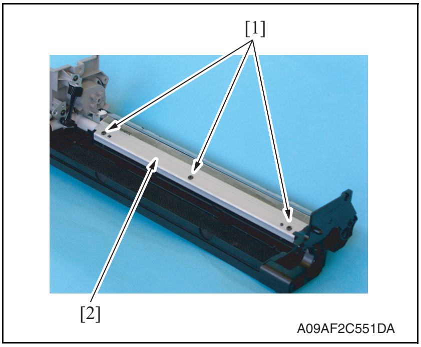
3.5.11 Replacing the cleaning blade

A. Periodically replaced parts/cycle

- Cleaning blade: Every 40,000 prints

B. Procedure

1. Remove the PC drum charge corona assy.
   See P.24



2. Remove three screws [1], and remove the cleaning blade [2].

NOTE

- **When securing the cleaning blade, tighten screws in the order of one on one edge, one at the center, and one on the other edge.**
- **When the cleaning blade has been replaced, apply a coat of toner to the surface of the PC drum.**
  See P.85

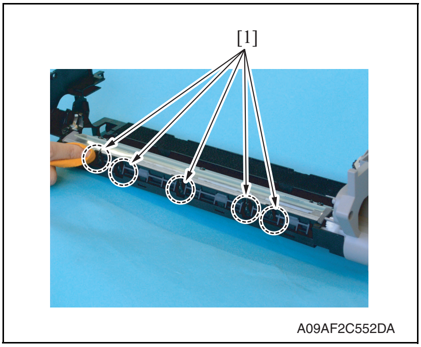
3.5.12 Cleaning of the PC drum paper separator fingers

A. Periodically cleaning parts/cycle

- PC drum paper separator fingers: Every 40,000 prints

B. Procedure

1. Remove the cleaning blade.
   See P.24



2. Using a soft cloth dampened with alcohol, wipe the five paper separator fingers [1] clean of dirt.

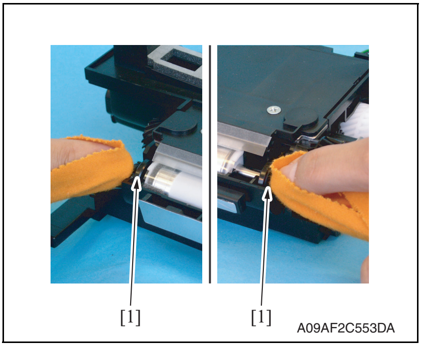
3.5.13 Cleaning of the Ds collars

A. Periodically cleaning parts/cycle

- Ds collars: Every 40,000 prints

B. Procedure

1. Divide the image unit into the PC drum assy and the developing assy.
   See P.20



2. Using a soft cloth dampened with alcohol, wipe the two Ds collars [1] clean of dirt.

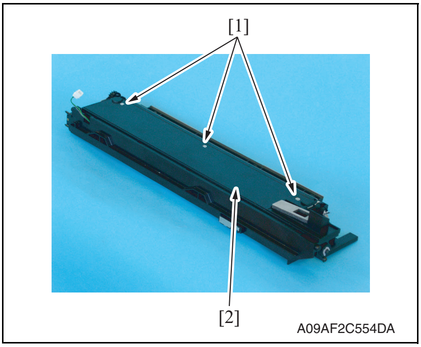
3.5.14 Cleaning of the developer scattering prevention plate

A. Periodically cleaning parts/cycle

- Developer scattering prevention plate: Every 40,000 prints

B. Procedure

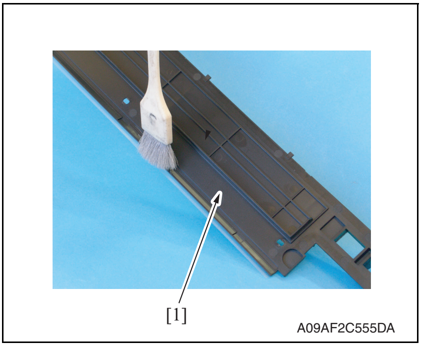
1. Divide the image unit into the PC drum assy and the developing assy.
   See P.20



2. Remove three screws [1], and remove the developer scattering prevention plate [2].

NOTE

- **When securing the developer scattering prevention plate, tighten screws in the order of one on one edge, one at the center, and one on the other edge.**



3. Using a brush, whisk dust and dirt off the surface of the developer scattering prevention plate [1].

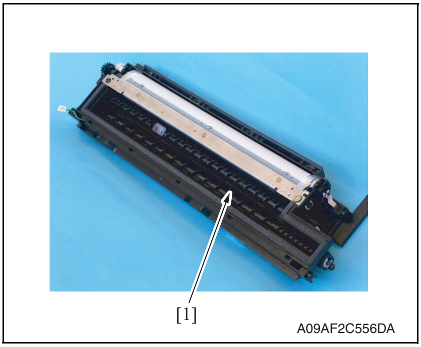
3.5.15 Replacing the developer / toner agitating seal

A. Periodically replaced parts/cycle

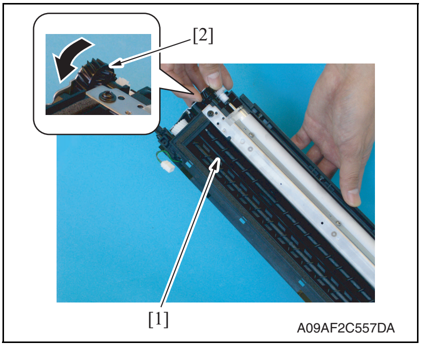
- Developer: Every 40,000 prints

B. Procedure

1. Remove the developer scattering prevention plate.
   See P.26



2. Dump the developer.

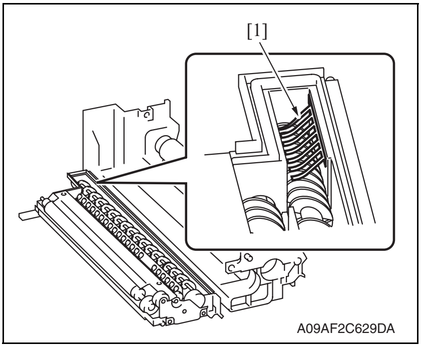


<<How to dump developer>>

- Dump developer [1] on the surface of the sleeve roller by turning the gear [2] in the direction of the arrow with the developing unit tilted as shown.

NOTE

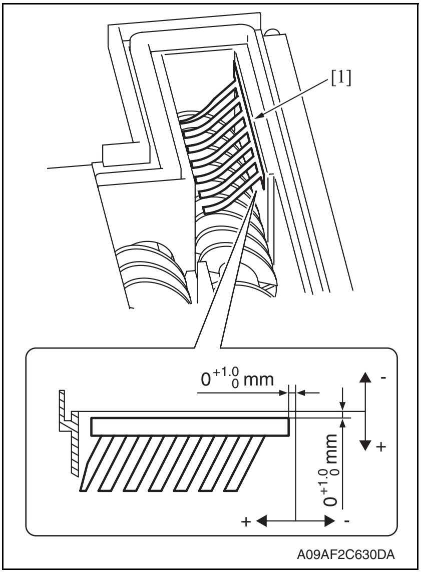
- **Turning the gear backward at this time could damage the mylar for cleaning the TCR sensor.**
- **Dump developer until almost no developer sticks to the sleeve roller.**



3. Remove the toner agitating seal [1], and wipe the sealed surface with alcohol.

NOTE

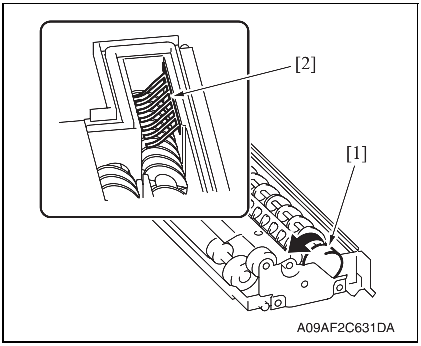
- **Make sure that the above-mentioned procedure is done after the old developer is removed.**



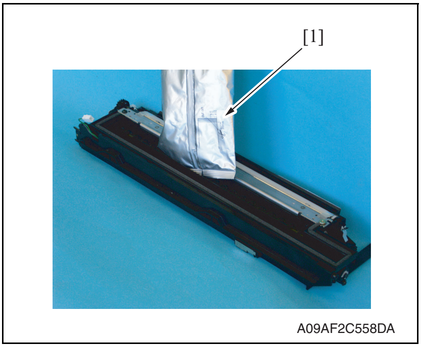
4. Put the new toner agitating seal [1].

NOTE

- **Put the toner agitating seal at the position shown the left.**
- **Check to make sure that the bottom of the toner agitating seal is on the transporting blade. If not, place the bottom of the toner agitating seal on the transporting blade with tweezers.**
- **Do not put the seal as the developer remains mounted.**
- **If the sealing is not done properly, do not use that seal again.**



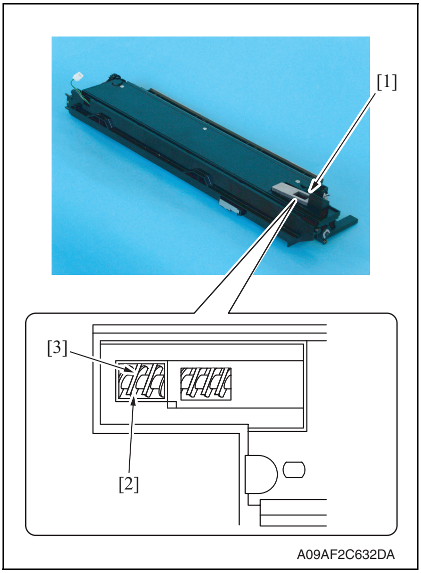
5. Turn the gear [1] to the direction shown the left (to the left), and confirm the swing of the toner agitating seal [2].



6. Pour one packet of developer [1].

NOTE

- **Shake the packet of developer well before pouring.**
- **When the developer has been changed, make the ATDC AUTO ADJUST and enter the adjustment value on the adjust label.**
  See P.138



7. Attach the developer scattering prevention plate and confirm through the opening [1] that the bottom of the toner agitating seal [2] is on the transporting blade [3].

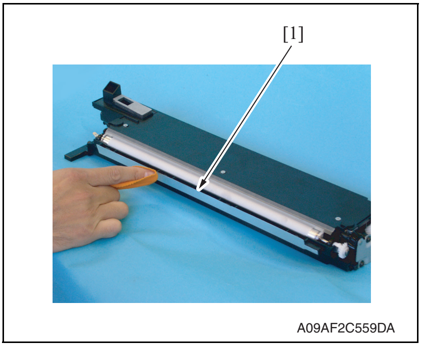
3.5.16 Cleaning of the pre-image transfer guide plate

A. Periodically cleaning parts/cycle

- Pre-image transfer guide plate: Every 40,000 prints

B. Procedure

1. Divide the image unit into the PC drum assy and the developing assy.
   See P.20



2. Using a soft cloth dampened with alcohol, wipe the pre-image transfer upper guide plate [1] clean of dirt.

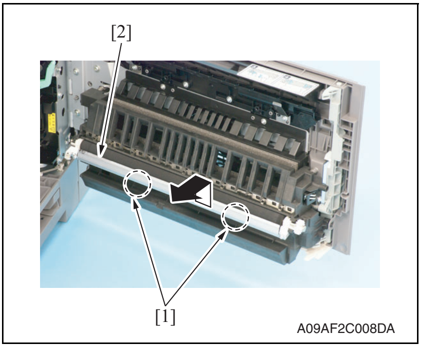
3.5.17 Replacing the image transfer roller assy

A. Periodically replaced parts/cycle

- Image transfer roller assy: Every 150,000 prints

B. Procedure

1. Open the right door.



2. Unhook two tabs [1]. and remove the image transfer roller assy [2].

NOTE

- **Indentations or dirt on the surface of the image transfer roller adversely affect the printed image. Do not therefore touch or dirty with toner the surface of the image transfer roller.**
- **When handling the image transfer roller, hold onto the shaft or bearings of the roller.**
- **Do not place a new image transfer roller directly on the floor.**

3.5.18 Replacing the fusing unit

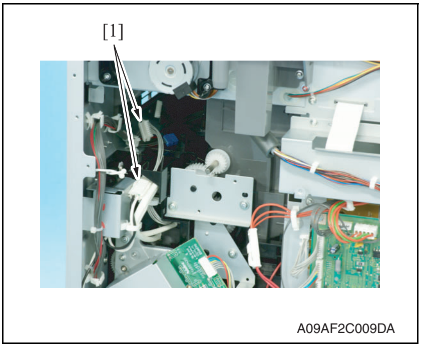
⚠ **CAUTION**
- **The temperature gets high in the vicinity of the fusing unit. You may get burned when you come into contact with the area. Before replacement operations, make sure that more than 20 minutes have elapsed since the main and sub power switches were turned off.**

A. Periodically replaced parts/cycle

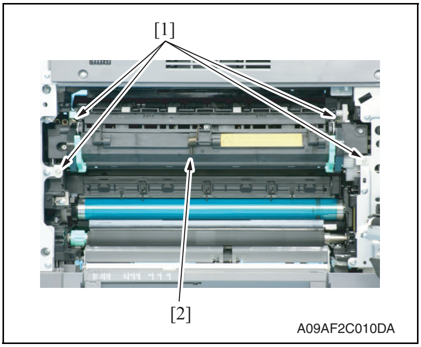
- Fusing unit: Every 150,000 prints

B. Procedure

1. Remove the rear cover and rear right cover.
   See P.47,P.48



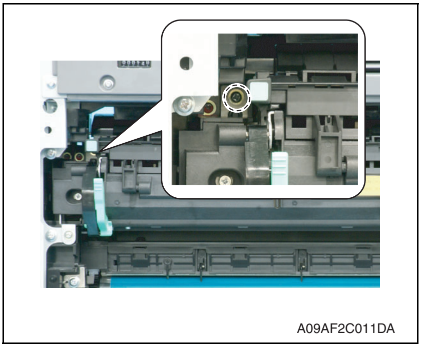
2. Unplug two connectors [1] of the fusing unit.



3. Open the right door.
4. Remove four screws [1], and remove the fusing unit [2].

NOTE

When removing the fusing unit, make sure of the correct type of screws that must be removed.



NOTE

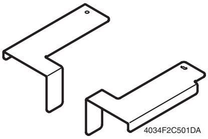
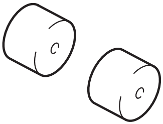
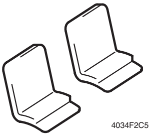
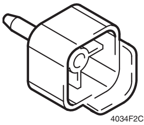
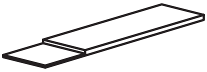
- **When removing the fusing unit, take care not to confuse the types of screw.**

4. Service tool

4.1 Service material list

Name	Shape	Material No.	Remarks
Isopropyl alcohol	A00KF2C506DA	—	

4.2 CE tool list

Tool name	Shape	Parts No.	Personnel	Remarks
Scanner/mirrors carriage positioning jigs	 4034F2C501DA	4034 7901 ## 4034 7902 ##	1 for each	
Ds collar positioning jigs	 4034F2C502DA	4021 7903 ##	2	
Db gap adjusting jigs	 4034F2C503DA	4021 7904 ##	2	
PC positioning jig	 4034F2C504DA	4021 4362 ##	2	
Gauge	 4034F2C505DA	1144 7910 ##	2	

5. Firmware upgrade

5.1 Preparations for firmware rewriting

5.1.1 Installing the driver

NOTE

- **The TWAIN driver must previously be installed in the host computer that is used to upgrade the firmware.**
- **If the TWAIN driver has not been installed, use the procedure below to install it.**
- **If the TWAIN driver has already been installed, proceed with the section on "Firmware rewriting" to upgrade the firmware.**

  See P.35

A. Installation of the GDI printer/TWAIN driver

(1) For Windows XP

1. Start the host computer.
2. Turn on the power switch of the machine.
3. Use a USB cable to connect the machine to host computer.
4. In the "Found New Hardware Wizard" dialog box, choose "Install from a list or specific location (Advanced)", and then click [Next].
5. Under "Search for the best driver in these locations", choose "Include this location in the search", and then click [Browse].
6. Specify "\(name of any given language)\WinXP" in the folder in which the TWAIN driver is stored, and then click [OK].
7. Click [Next] and then [Finish].
8. The "Found New Hardware Wizard" dialog box will appear again: Repeat steps 4~7 to install all drivers.

(2) For Windows 2000

1. Prepare the files necessary for upgrading the firmware, and copy them to PC.
2. Start the host computer.
3. Turn on the power switch of the machine.
4. Use a USB cable to connect the machine to host computer.
   The "Found New Hardware Wizard" dialog box will appear.
5. In the "Install Hardware Device Printers" dialog box, choose "Search for a suitable driver for my device (recommended)", and then click [Next].
6. In the "Locate Driver Files" dialog box, choose "Specify a location", and then click [Next].
7. Click [Browse], specify "\(name of any given language)\Win2000" in the folder in which the TWAIN driver is stored, and then click [OK].
8. Click [OK]. Then, continue following the instructions in the dialog boxes that will appear until the "Completing the Found New Hardware Wizard" dialog box appears.
9. Click [Finish].
10. The "Found New Hardware Wizard" dialog box will appear again: Repeat steps 4~8 to install all drivers.

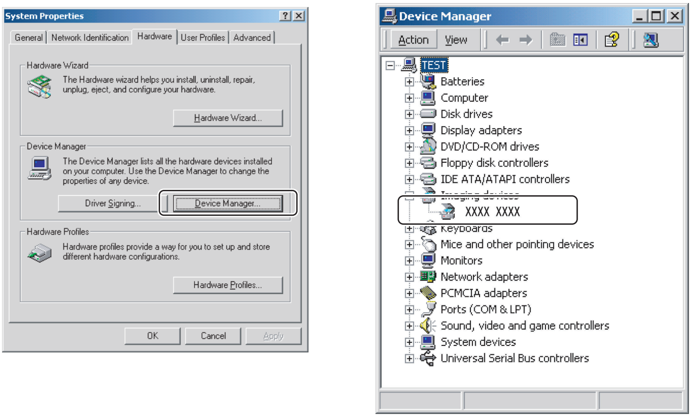
(3) For Windows Me/98SE

1. Prepare the files necessary for upgrading the firmware, and copy them to PC.
2. Start the host computer.
3. Turn on the power switch of the machine.
4. Use a USB cable to connect the machine to host computer.
   The “Add New Hardware Wizard” dialog box will appear.
5. With Windows Me, choose “Specify the location of the driver (Advanced)”, and then click [Next].
   With Windows 98, click [Next]. Then, in the dialog box that will then appear, choose “Search for the best driver for your device (recommended)”, and then click [Next].
6. Choose “Specify a location”, and then click [Browse].
7. Specify “\(name of any given language)\Win9X” in the folder in which the TWAIN driver is stored, and then click [OK].
8. Click [Next]. Then, continue following the instructions in the dialog boxes that will appear until the “Finish” button appears.
9. Click [Finish].
10. The “Add New Hardware Wizard” dialog box will appear again: Repeat steps 4~8 to install all drivers.

5.2 Firmware rewriting

5.2.1 Updating method

1. Turn ON the power switch of the machine.
2. Start the host computer.
3. Copy the “Update Software” folder and “Update” file to drive C. (Copy them into the highest directory on drive C.)
4. Connect the machine to the host computer using a USB cable. (Wait until the hardware is detected.)
5. Open “Properties” of “My Computer.” Then select System Properties/Hardware/Device Manager/Imaging devices to check that the “XXXXXXXXXXX” (Model Name) icon has been added.


System Properties
General
Network Identification
Hardware
User Profiles
Advanced
Hardware Wizard
Hardware Wizard...
Device Manager
Driver Signing...
Device Manager...
Hardware Profiles
Hardware Profiles...
OK
Cancel
Apply
Device Manager
Action
View
TEST
Batteries
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
IDE ATA/ATAPI controllers
Imaging devices
XXXX XXXX
Keyboards
Mice and other pointing devices
Monitors
Network adapters
PCMCIA adapters
Ports (COM & LPT)
Sound, video and game controllers
System devices
Universal Serial Bus controllers

The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.

The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.

Hardware profiles provide a way for you to set up and store different hardware configurations.

A09AF2E627DA

6. Double-click the “Update” file in the “Update Software” folder.
   The “TenryuS Update F/W-VXXX” screen will appear.

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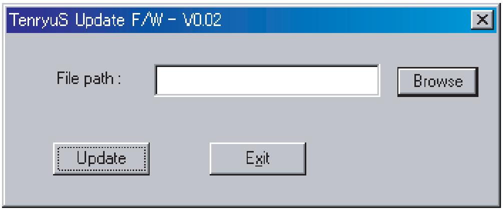
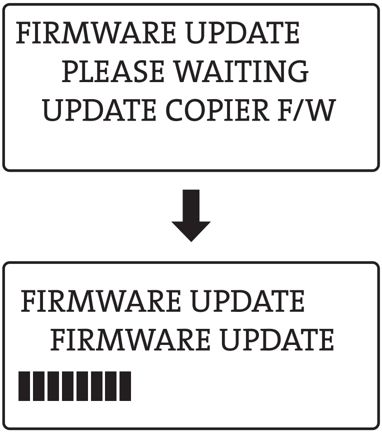
7. Click the [Browse] button. Then, select the “Update” file that has been copied onto drive C in step 3.


TenryuS Update F/W - V0.02
File path :
Browse
Update
Exit

A09AF2C623DA

8. Click the [Update] button to start the transfer of the firmware data. (Wait until data transfer is completed.)
9. Check the display for status of the firmware upgrading sequence.



FIRMWARE UPDATE
PLEASE WAITING
UPDATE COPIER F/W

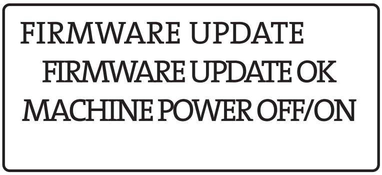
FIRMWARE UPDATE
FIRMWARE UPDATE

A09AF2E636DA

NOTE

- **NEVER turn OFF and ON the power switch as long as the above screens are being displayed.**

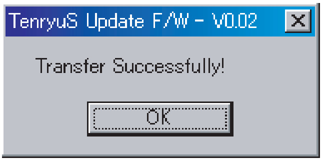
10. When the following message appears in the display, it indicates that upgrading of the firmware has been completed.



FIRMWARE UPDATE
FIRMWARE UPDATE OK
MACHINE POWER OFF/ON

A09AF2E637DA

11. Click the [OK] button to quit “TenryuS Update F/W-VXXX.”



TenryuS Update F/W - V0.02

Transfer Successfully!

A09AF2C626DA

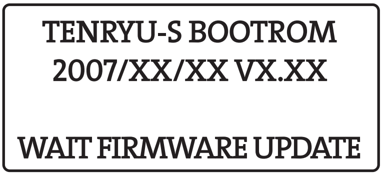
12. Turn OFF and ON the power switch of the machine, and confirm the firmware version.

5.2.2 Procedure when upgrading the firmware has failed

NOTE

- **Perform the following procedure only when upgrading from PC using ordinary USB connection has failed and the machine has not started properly.**
- **Prepare the special USB device driver because it is not possible to upgrade the firmware with the usual TWAIN/printer driver.**

1. Prepare the USB device driver (TWAIN/printer driver) for the firmware upgrade, and copy the USB device driver to the host computer.
2. Turn ON the power switch of the machine while pressing the Utility key on the control panel.
3. Check to make sure that [TENRYU-S BOOTROM] is displayed on the control panel.

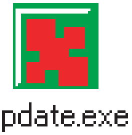


TENRYU-S BOOTROM
2007/XX/XX VX.XX

WAIT FIRMWARE UPDATE

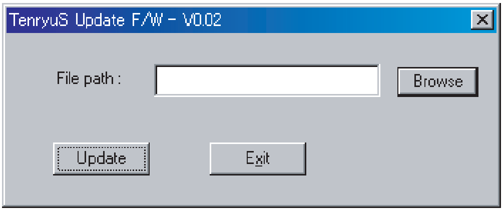
A09AF2E638DA

4. Start the host computer.
5. Copy the “Update Software” folder and “Update” file to drive C. (Copy them into the highest directory on drive C.)
6. Connect the machine to the host computer using a USB cable.
   (The new hardware wizard dialog box will appear, and install the driver that has been copied onto the host computer in step 1.)
7. Double-click the “Update” file in the “Update Software” folder.
   The “TenryuS Update F/W-VXXX” screen will appear.



A09AF2C622DA

8. Click the [Browse] button. Then, select the “Update” file that has been copied onto drive C in step 5.

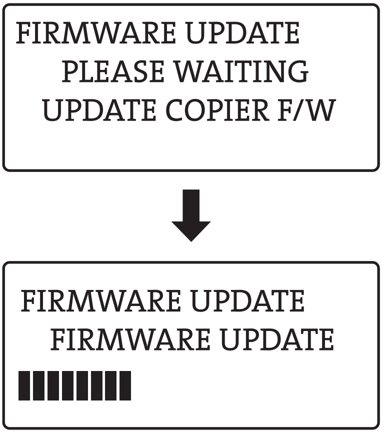


TenryuS Update F/W - V0.02

A09AF2C623DA

9. Click the [Update] button to start the transfer of the firmware data. (Wait until data transfer is completed.)

10. Check the display for status of the firmware upgrading sequence.



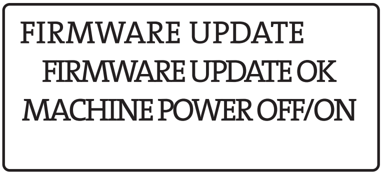
FIRMWARE UPDATE
PLEASE WAITING
UPDATE COPIER F/W

FIRMWARE UPDATE
FIRMWARE UPDATE
▮▮▮▮▮▮▮▮

NOTE

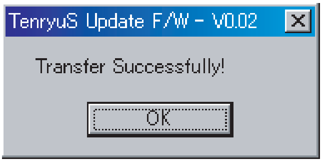
- **NEVER turn OFF and ON the power switch as long as the above screens are being displayed.**

11. When the following message appears in the display, it indicates that upgrading of the firmware has been completed.



FIRMWARE UPDATE
FIRMWARE UPDATE OK
MACHINE POWER OFF/ON

12. Click the [OK] button to quit “TenryuS Update F/W-VXXX.”



TenryuS Update F/W - V0.02

Transfer Successfully!

13. Turn OFF and ON the power switch of the machine, and confirm the firmware version.

6. Other

6.1 Disassembly/adjustment prohibited items

A. Paint-locked screws

- **To prevent loose screws, a screw lock in blue or green series color is applied to the screws.**
- **The screw lock is applied to the screws that may get loose due to the vibrations and loads created by the use of machine or due to the vibrations created during transportation.**
- **If the screw lock coated screws are loosened or removed, be sure to apply a screw lock after the screws are tightened.**

B. Red-painted screws

- **The screws which are difficult to be adjusted in the field are painted in red in order to prevent them from being removed by mistake.**
- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to “Handling of PWBs” and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

6.2 Disassembly/assembly/cleaning list (other parts)

6.2.1 Disassembly/assembly parts list

No.	Section	Part name	Ref.page
1	Exterior parts	Original glass/Original scanning glass	P.42
2		Control panel	P.42
3		Front cover	P.43
4		Paper exit cover	P.44
5		Front door	P.44
6		Tray 1	P.44
7		Left cover	P.45
8		Paper exit tray	P.45
9		Rear inside cover	P.46
10		Upper rear cover	P.46
11		Left rear cover	P.47
12		Rear cover	P.47
13		Right rear cover	P.47
14		Rear right cover	P.48
15		Right cover	P.48
16	Board and etc.	Printer control board (PRCB)	P.48
17		MFP board (MFPB)	P.49
18		High voltage unit (HV1)	P.50
19		Power supply unit (DCPU)	P.51
20		Paper size detect board (PSDTB)	P.53
21		Pre-image transfer register board (PITRB)	P.54
22	Unit	Manual bypass tray	P.55
23		Toner hopper unit/Toner replenishing motor (M2)	P.55
24		PH unit	P.57
25		Disassembly of the fusing unit	P.58
26	IR	CCD unit	P.61
27		Scanner	P.63
28		Exposure lamp (LA1)	P.63
29		Inverter board (INVB)	P.63
30		Scanner motor (M4)	P.65
31		Scanner drive cables	P.66
32	Others	Main motor (M1)	P.76
33		Power unit cooling fan motor (FM2)	P.77
34		Fusing cooling fan motor (FM1)	P.78
35		Paper size sensor (S5) assy	P.79
36		Fusing unit interlock switch (S2)	P.80
37		Inch/metric sensor/1 (PS7) assy	P.83
48		TCR sensor (TCRS)	P.84
39		Application of toner	P.85

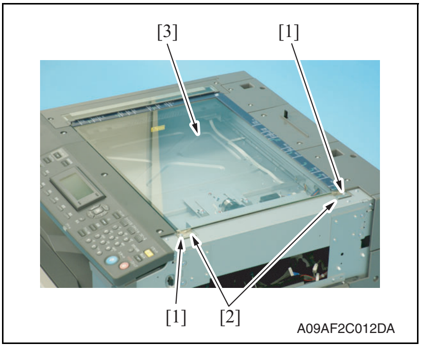
6.2.2 Cleaning parts list

No.	Section	Part name	Ref.Page
1	Paper feed section	Separation roller	P.86
2		Feed roller	P.87
3	Image transfer section	Upper/lower synchronizing rollers	P.87
4		Paper dust remover	P.88
5	Paper feed section	Bypass transport roller/roll	P.88
6	IR	Mirrors	P.89
7		Lens	P.89
8		CCD sensor	P.90
9		Scanner rails/bearings	P.91
10	PH	PH window	P.91
11	Image transfer section	Pre-image transfer lower guide plate	P.92
12		Charge neutralizing plate	P.92

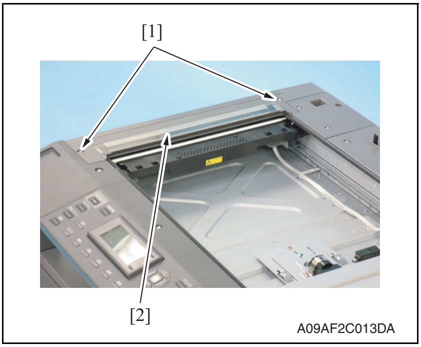
6.3 Disassembly/assembly procedure

6.3.1 Original glass/Original scanning glass

1. Remove the right cover.
   See P.48

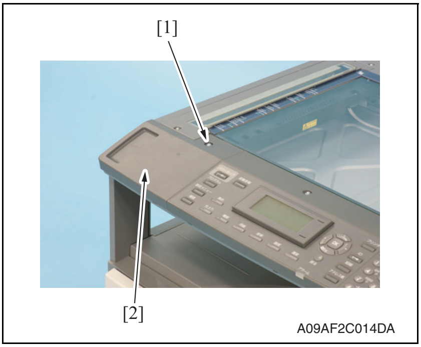

[3]
[1]
[1]
[2]
A09AF2C012DA

2. Remove two screws [1], and remove two fixing holders [2].
3. Remove the original glass [3].

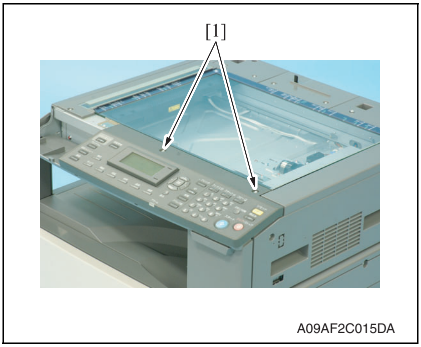

[1]
[2]
A09AF2C013DA

4. Remove two screws [1], and remove the original scanning glass [2].

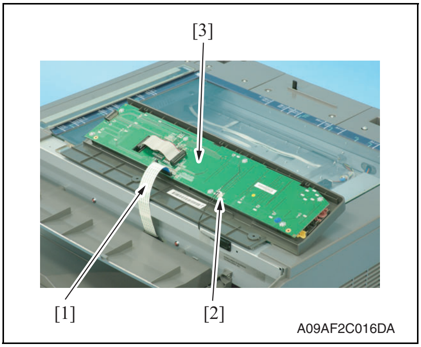
6.3.2 Control panel


[1]
[2]
A09AF2C014DA

1. Remove the screw [1], and remove the control panel left cover [2].


[1]
A09AF2C015DA

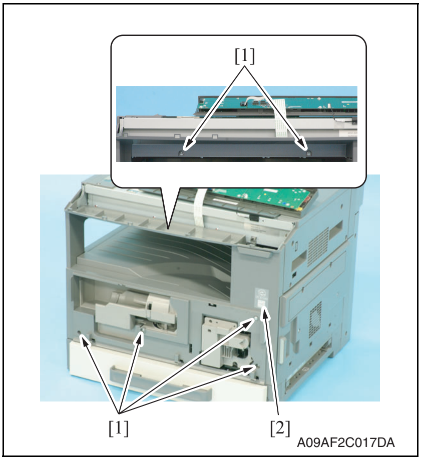
2. Remove two screws [1].


[3]
[1]
[2]
A09AF2C016DA

3. Disconnect the flat cable [1] and the connector [2], and remove the control panel [3].

6.3.3 Front cover

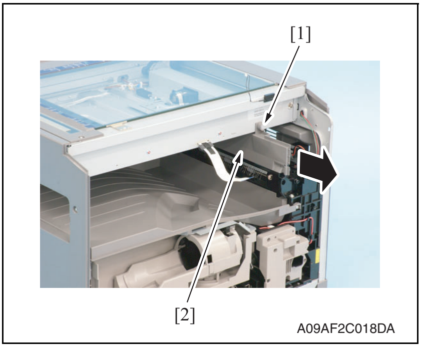
1. Remove the control panel.
   See P.42
2. Slide out the tray 1.
3. Open the front door.


[1]
[1]
[2]
A09AF2C017DA

4. Remove six screws [1], and remove the front cover [2].

6.3.4 Paper exit cover

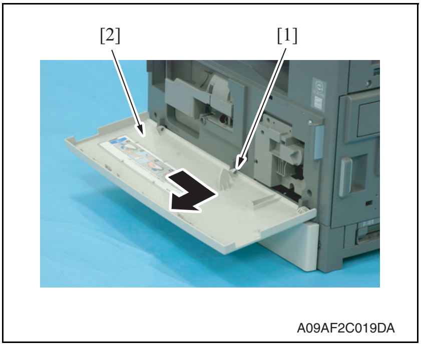
1. Remove the front cover.
   See P.43


[1]
[2]
A09AF2C018DA

2. Remove the screw [1], and remove the paper exit cover [2].

6.3.5 Front door

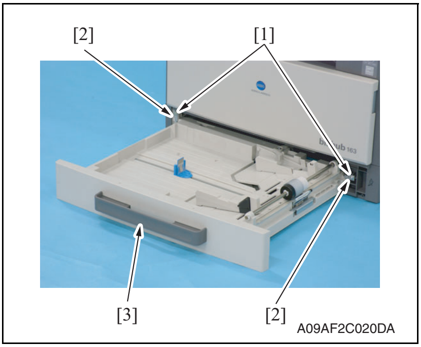
1. Open the front door.


[2]
[1]
A09AF2C019DA

2. Remove the C clip [1] and slide the front door [2] to the right to remove it.

6.3.6 Tray 1

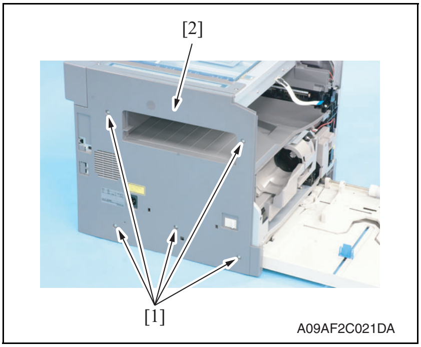
1. Slide out the tray 1.


[2]
[1]
[3]
[2]
A09AF2C020DA

2. Remove two screws [1], and remove two fixing plates [2].
3. Remove the tray 1 [3].

6.3.7 Left cover

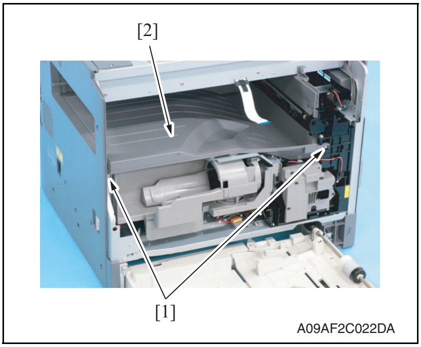
1. Remove the front cover.
   See P.43


[2]
[1]
A09AF2C021DA

2. Remove five screws [1], and remove the left cover [2].

6.3.8 Paper exit tray

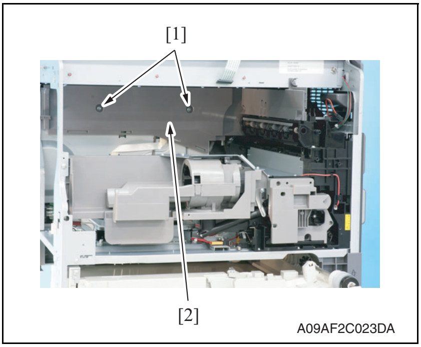
1. Remove the front cover.
   See P.43


[2]
[1]
A09AF2C022DA

2. Remove two screws [1], and remove the paper exit tray [2].

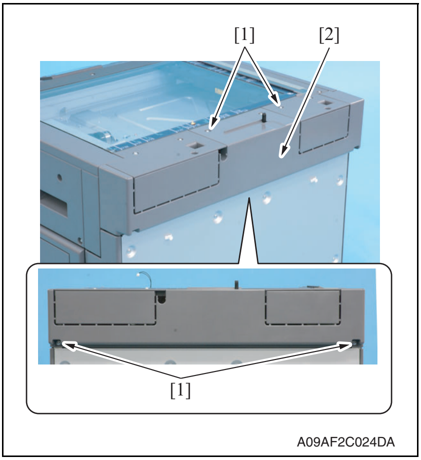
6.3.9 Rear inside cover

1. Remove the left cover.
   See P.45
2. Remove the paper exit tray.
   See P.45


[1]
[2]
A09AF2C023DA

3. Remove two screws [1], and remove the rear inside cover [2].

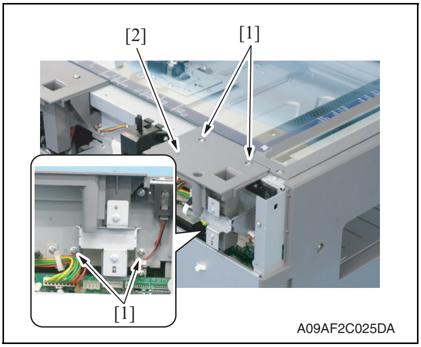
6.3.10 Upper rear cover


[1]
[2]
[1]
A09AF2C024DA

1. Remove four screws [1], and remove the upper rear cover [2].

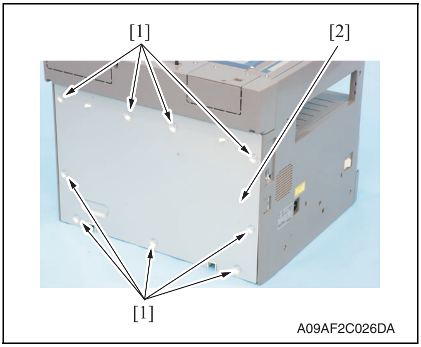
6.3.11 Left rear cover

1. Remove the upper rear cover.
   See P.46


[2]
[1]
[1]
A09AF2C025DA

2. Remove four screws [1], and remove the left rear cover [2].

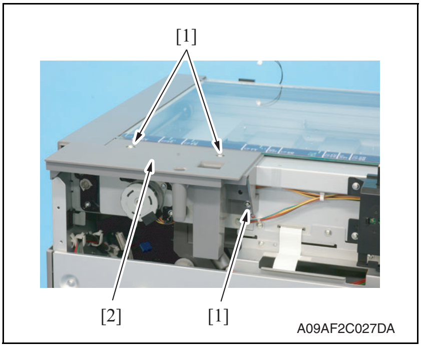
6.3.12 Rear cover


[1]
[2]
[1]
A09AF2C026DA

1. Remove nine screws [1], and remove the rear cover [2].

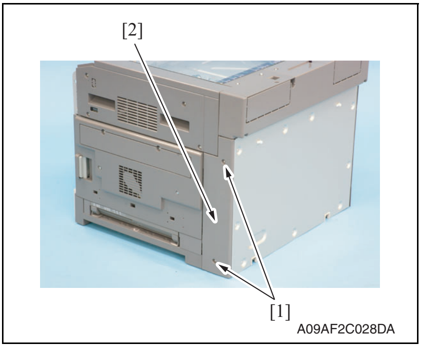
6.3.13 Right rear cover

1. Remove the upper rear cover.
   See P.46


[1]
[2]
[1]
A09AF2C027DA

2. Remove three screws [1], and remove the right rear cover [2].

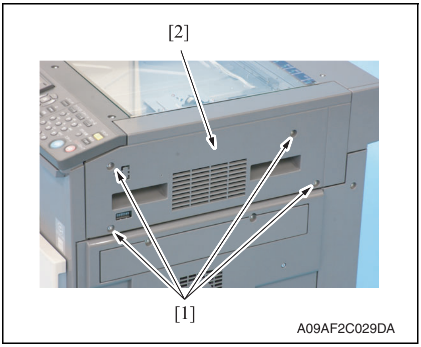
6.3.14 Rear right cover


[2]
[1]
A09AF2C028DA

1. Remove two screws [1], and remove the rear right cover [2].

6.3.15 Right cover

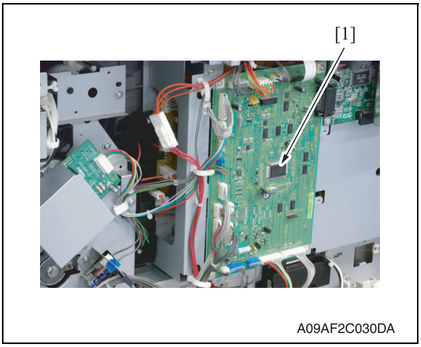
1. Remove the front cover.
   See P.43


[2]
[1]
A09AF2C029DA

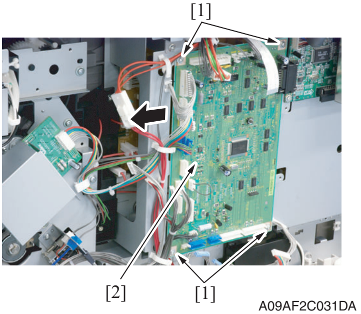
2. Remove four screws [1], and remove the right cover [2].

6.3.16 Printer control board (PRCB)

1. Remove the rear cover.
   See P.47


[1]
A09AF2C030DA

2. Unplug all connectors from the printer control board [1].


[1]
[2]
[1]
A09AF2C031DA

3. Remove four screws [1], and remove the printer control board [2].

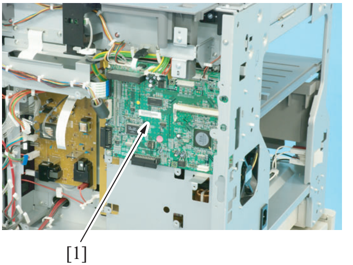
NOTE

- **When the printer control board is to be replaced, rewriting the firmware to the latest one.**

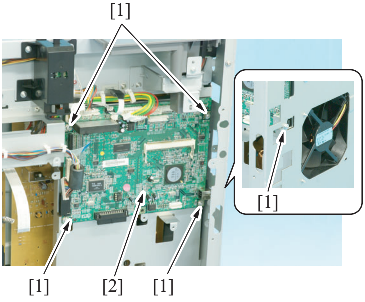
6.3.17 MFP board (MFPB)

1. Remove the rear cover.
See P.47

2. Remove the printer control board.
See P.48


[1]
A09AF2C032DA

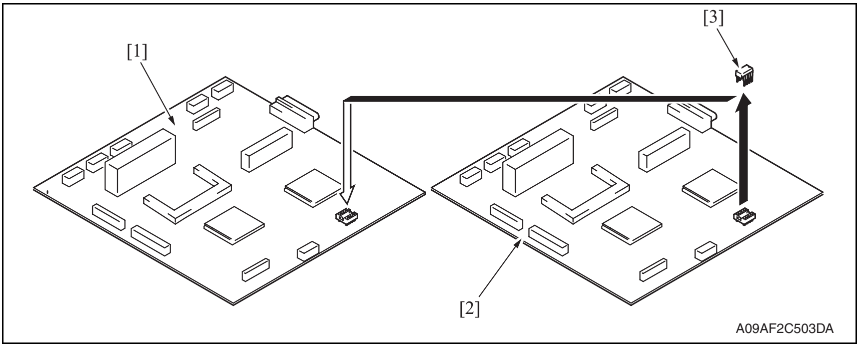
3. Unplug all connectors from the MFP board [1].

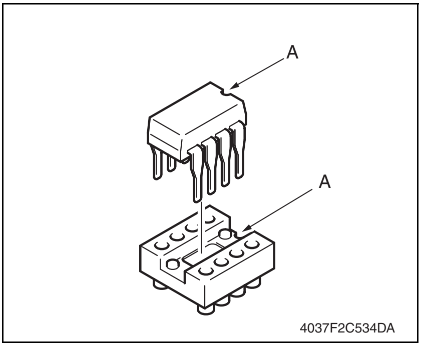

[1]
[1]
[1]
[2]
[1]
A09AF2C033DA

4. Remove five screws [1], and remove the MFP board [2].

NOTE

- **When the MFP board (MFPB) is replaced with a new one, parameter chip (U18) must be demounted from the old MFPB and remounted on the new MFPB. Mount the parameter chip (U18) of the old MFPB on the new MFPB.**



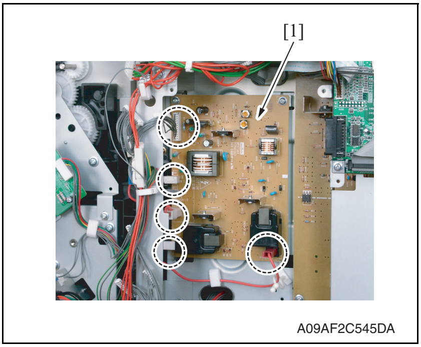


NOTE

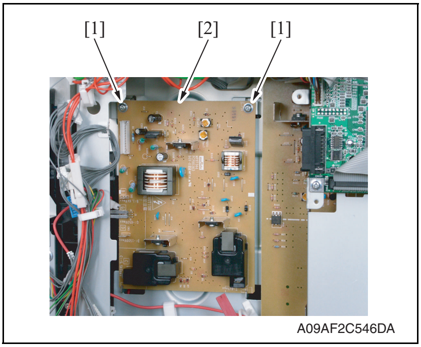
- **Note the alignment notch marked with A on the parameter chip (U18) when mounting the IC.**
- **When the MFP board is to be replaced, rewriting the firmware to the latest one.**

6.3.18 High voltage unit (HV1)

1. Remove the rear cover.
   See P.47
2. Remove the printer control board.
   See P.48



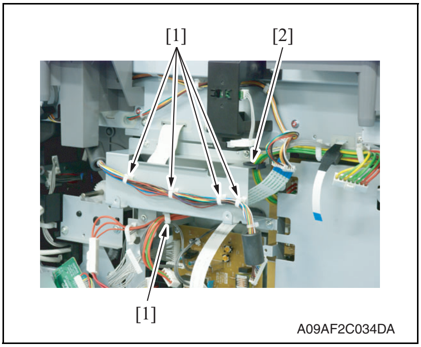
3. Unplug all connectors from the high voltage unit [1].


[1]
[2]
[1]
A09AF2C546DA

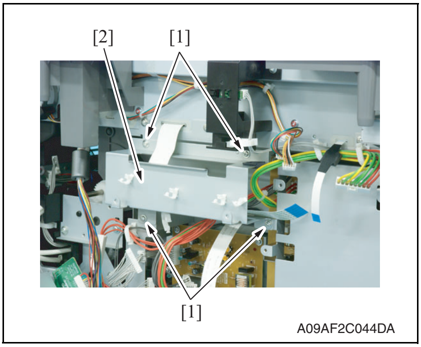
4. Remove two screws [1], and remove the high voltage unit [2].

6.3.19 Power supply unit (DCPU)

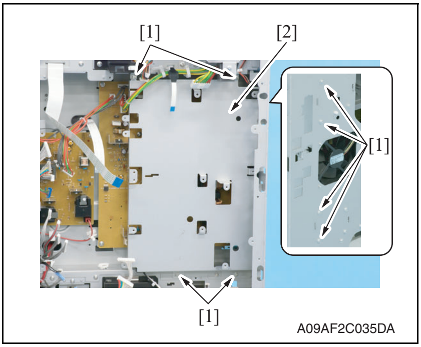
1. Remove the left cover.
   See P.45
2. Remove the rear cover.
   See P.47
3. Remove the upper rear cover.
   See P.46
4. Remove the printer control board.
   See P.48
5. Remove the MFP board.
   See P.49


[1]
[2]
[1]
A09AF2C034DA

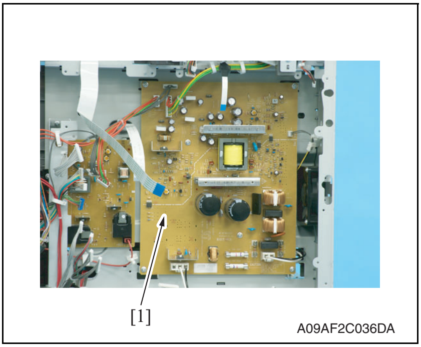
6. Remove the harness from five wire saddles [1], and remove the edge cover [2].


[2]
[1]
[1]
A09AF2C044DA

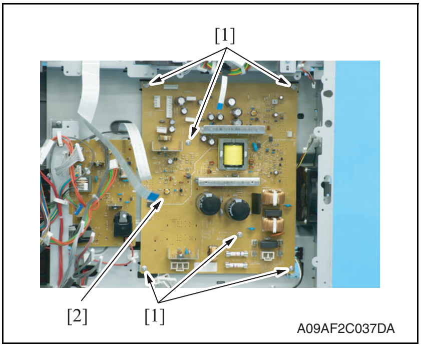
7. Remove four screws [1], and remove the protective cover 1 [2].


[1]
[2]
[1]
[1]
A09AF2C035DA

8. Remove eight screws [1], and remove the protective cover 2 [2].


[1]
A09AF2C036DA

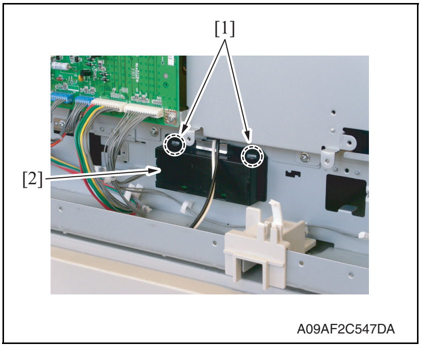
9. Disconnect all connectors from the power supply unit [1].


[1]
[2]
[1]
A09AF2C037DA

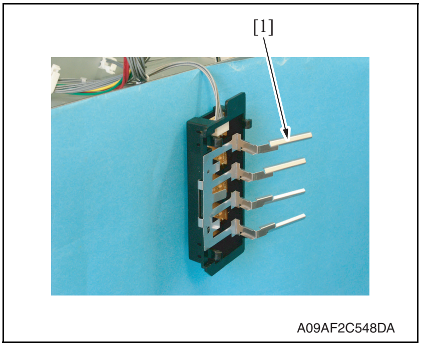
10. Remove six screws [1], and remove the power supply unit [2].

6.3.20 Paper size detect board (PSDTB)

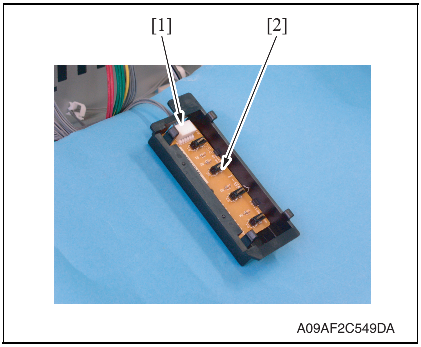
1. Remove the rear cover.
   See P.47
2. Slide out the tray 1.


[1]
[2]
A09AF2C547DA

3. Unhook two tabs [1], and remove the holder [2].


[1]
A09AF2C548DA

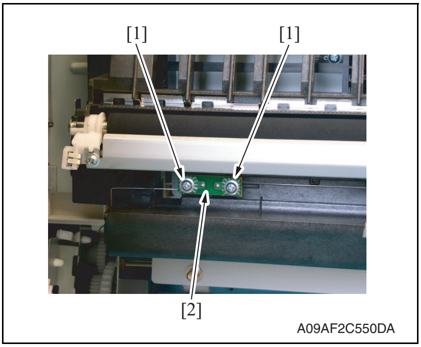
4. Remove the lever [1].


[1]
[2]
A09AF2C549DA

5. Disconnect the connector [1], and remove the paper size detect board [2].

6.3.21 Pre-image transfer register board (PITRB)

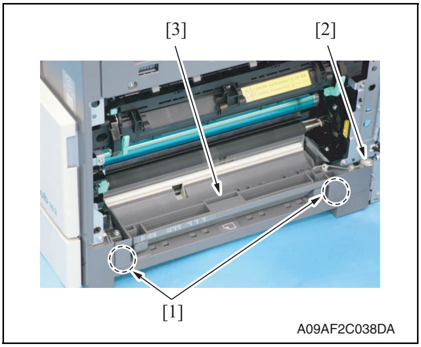
1. Open the right door.



2. Remove two screws [1], and remove the pre-image transfer register board [2].

6.3.22 Manual bypass tray

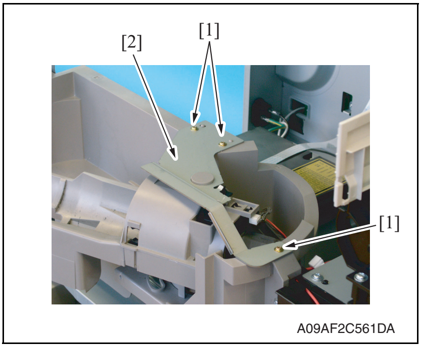
1. Remove the rear right cover.
   See P.48
2. Open the right door.



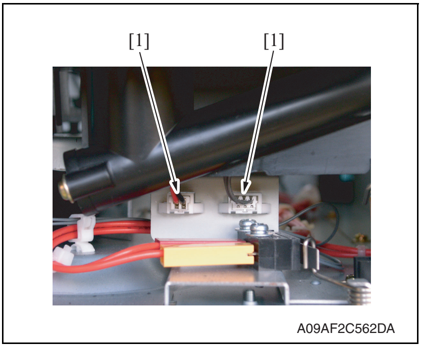
3. Remove two screws [1], disconnect the connector [2], and remove the manual bypass tray [3].

6.3.23 Toner hopper unit/Toner replenishing motor (M2)

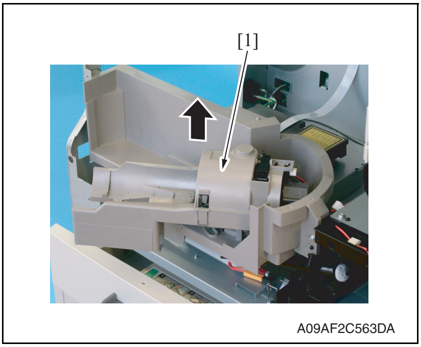
1. Remove the front door.
   See P.44
2. Remove the front cover.
   See P.43
3. Remove the left cover.
   See P.45
4. Remove the paper exit tray.
   See P.45
5. Remove the toner bottle.
   See P.18



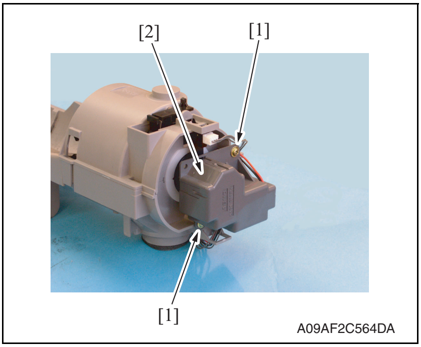
6. Remove three screws [1], and remove the unit cover [2].


[1]
[1]
A09AF2C562DA

7. Disconnect two connectors [1].


[1]
A09AF2C563DA

8. Remove the toner hopper unit [1].

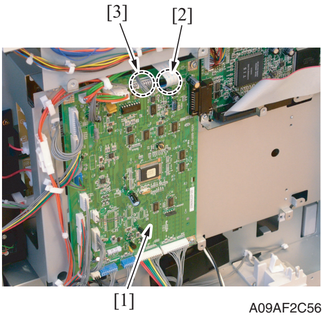

[2]
[1]
[1]
A09AF2C564DA

9. Remove two screws [1], and remove the toner replenishing motor [2].

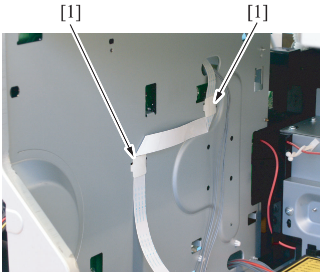
6.3.24 PH unit

⚠ CAUTION	
⚠	• **Do not replace the printer head unit while the power is ON. Laser beam generated during the above mentioned activity may cause blindness.**
🛇	• **Do not disassemble or adjust the printer head unit. Laser beam generated during the above mentioned activity may cause blindness.**

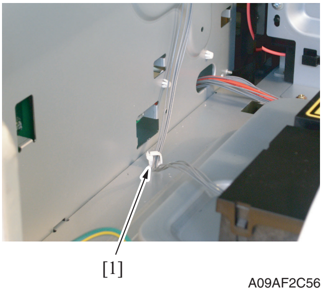
1. Remove the front cover.
   See P.43
2. Remove the left cover.
   See P.45
3. Remove the rear cover.
   See P.47
4. Remove the paper exit tray.
   See P.45
5. Remove the rear inside cover.
   See P.46



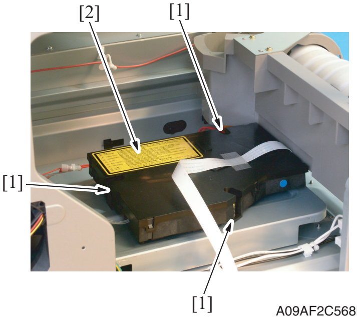
6. Disconnect the flat cable [2] and the connector [3] from the printer control board [1].



7. Remove two cable holders [1] of the flat cable.


[1]
A09AF2C567DA

8. Remove the harness from the wire saddle [1].

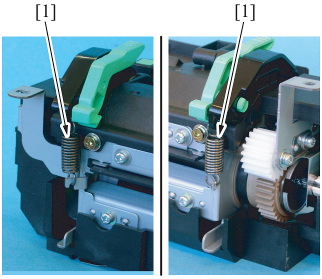

[2]
[1]
[1]
[1]
A09AF2C568DA

9. Remove three screws (with springs) [1], and remove the PH unit [2].

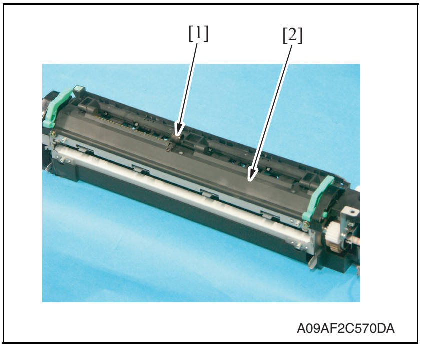
6.3.25 Disassembly of the fusing unit

A. Removal of the thermistor and paper separator fingers

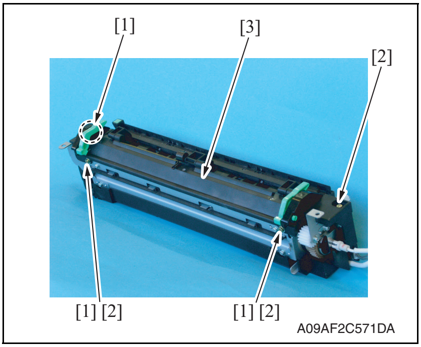
1. Remove the fusing unit.
   See P.30


[1]
[1]
A09AF2C569DA

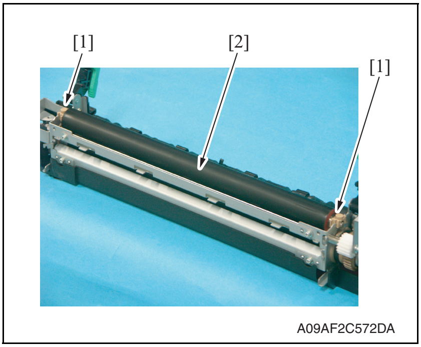
2. Remove two pressure springs [1] on both ends of the unit.


[1]
[2]
A09AF2C570DA

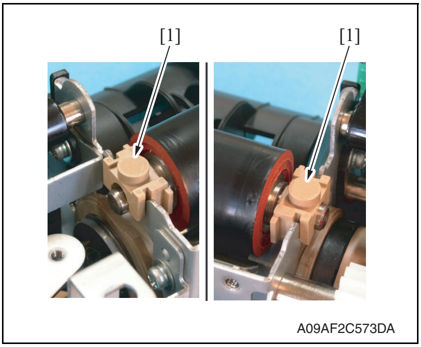
3. Remove the torsion coil spring [1], and remove the movable guide assy [2].


[1]
[3]
[2]
[1] [2]
[1] [2]
A09AF2C571DA

4. Remove three shoulder screws [1], three washers [2], and remove the fusing roller/rt cover [3].

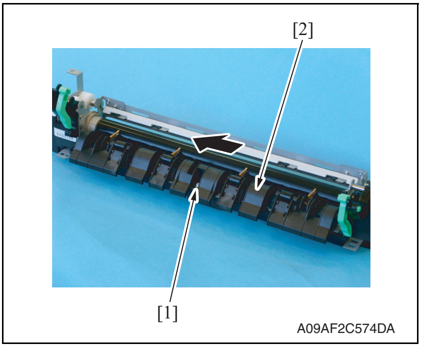

[1]
[2]
[1]
A09AF2C572DA

5. Remove two bearings [1], and remove the fusing roller/rt [2].

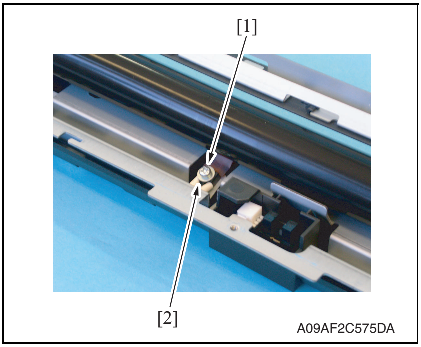

[1]
[1]
A09AF2C573DA

NOTE

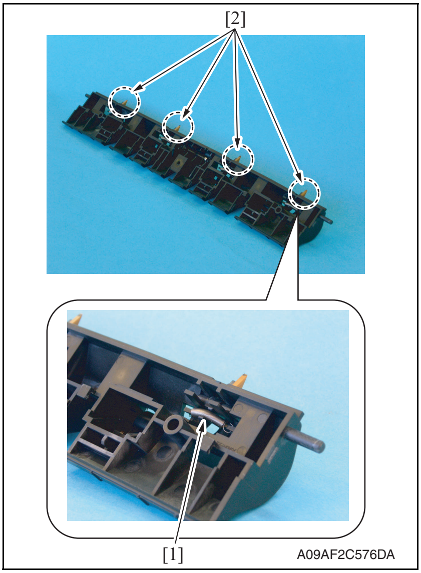
- **Install the right and left bearings [1] in the directions shown in the photo on the left.**


[2]
[1]
A09AF2C574DA

6. Remove the screw [1].
Then, slide the paper separator finger assy cover [2] in the direction of the arrow and take it off.


[1]
[2]
A09AF2C575DA

7. Remove the screw [1], and remove the thermistor [2].

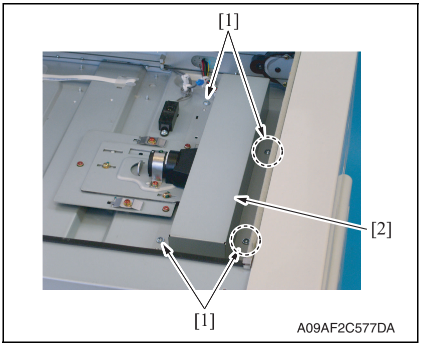

[2]
[1]
A09AF2C576DA

8. Unhook springs [1], and remove the four paper separator fingers [2].

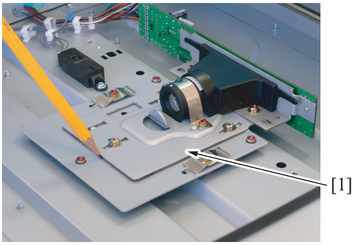
6.3.26 CCD unit

A. Removal procedure

1. Remove the original glass.
   See P.42

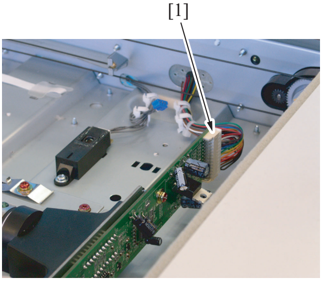

[1]
[2]
[1]
A09AF2C577DA

2. Remove four screws [1], and remove the CCD unit cover [2].



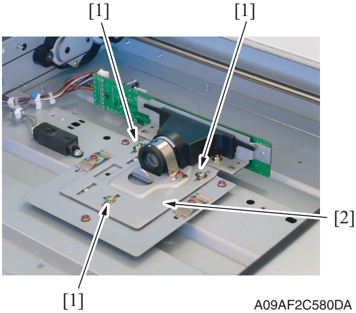
A09AF2C578DA

3. Mark a line along the profile of the CCD unit mounting bracket [1] as shown on the left.



A09AF2C579DA

4. Disconnect the connector [1].



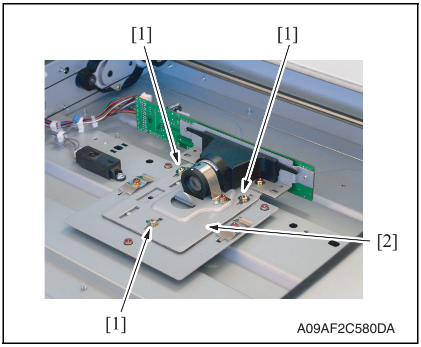
A09AF2C580DA

5. Remove three screws [1] (to which green paint has been applied), and remove the CCD unit [2].

NOTE

- **When removing the CCD Unit, loosen or remove only these specified screws.**

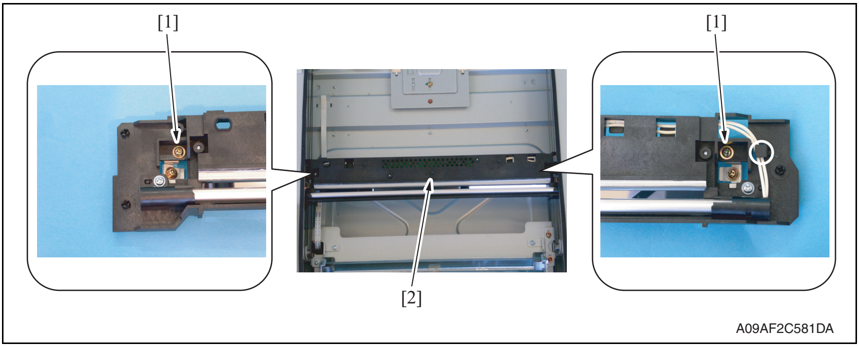
B. Reinstallation procedure



1. Position the CCD unit [2] along the marking line. Then, temporarily secure three screws [1] at the center of each of the screw slots.
2. Adjust the position of the CCD unit.
   See P.146

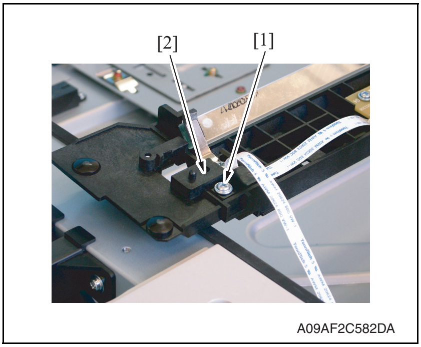
6.3.27 Scanner, exposure lamp, and inverter board (PU2)

1. Remove the original glass and original scanning glass.
   See P.42
2. Remove two screws [1] (to which no red paint has been applied). Then, remove the scanner assy [2] from the scanner drive cables.

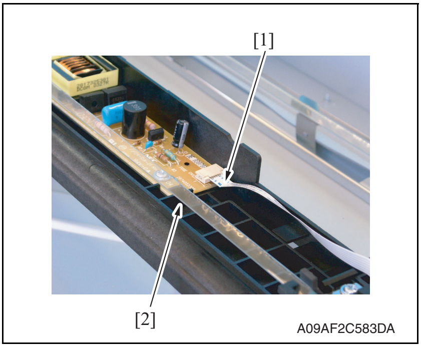


NOTE

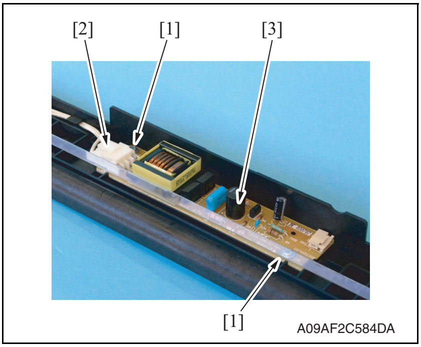
- **Removal of the scanner assy leaves the front and rear scanner drive cables attached with the fixing brackets.**



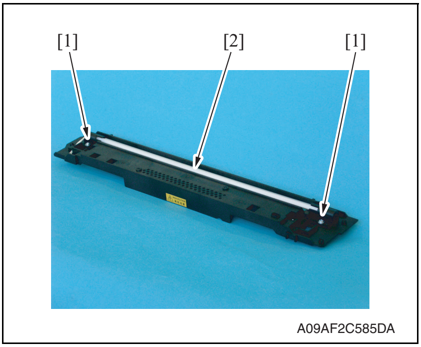
3. Remove the screw [1], and remove the cable holder [2].


[1]
[2]
A09AF2C583DA

4. Disconnect the flat cable [1], and remove the scanner assy [2].


[2]
[1]
[3]
[1]
A09AF2C584DA

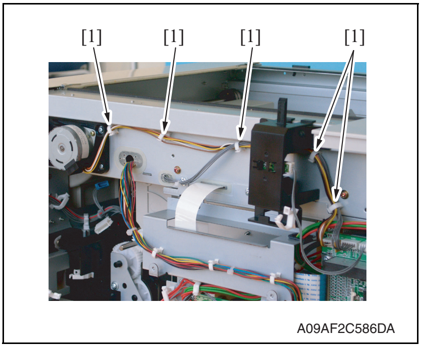
5. Remove two screws [1], disconnect the connector [2], and remove the inverter board [3].


[1]
[2]
[1]
A09AF2C585DA

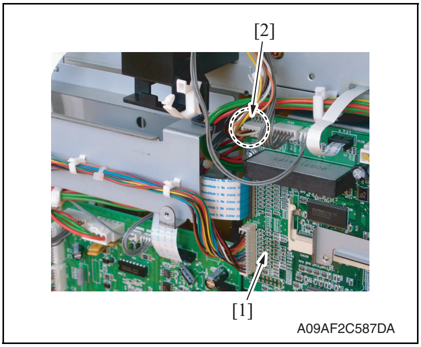
6. Remove two screws [1], and remove the exposure lamp [2].

6.3.28 Scanner motor (M4)

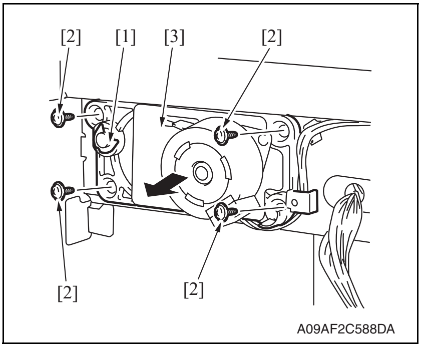
1. Remove the right rear cover.
   See P.47


[1]
[1]
[1]
[1]
A09AF2C586DA

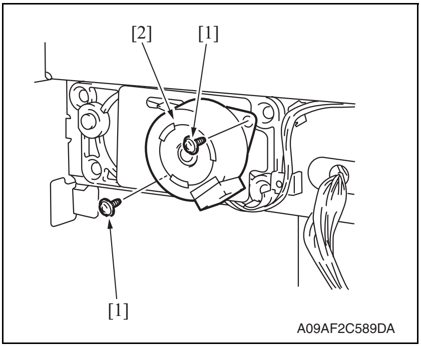
2. Remove the scanner motor harness from five wire saddles [1].


[2]
[1]
A09AF2C587DA

3. Disconnect the connector [2] from the MFP board [1].


[2]
[1]
[3]
[2]
[2]
[2]
A09AF2C588DA

4. Snap off the C-ring [1].
5. Loosen four screws [2], and remove the scanner motor harness from the gear case assy [3].

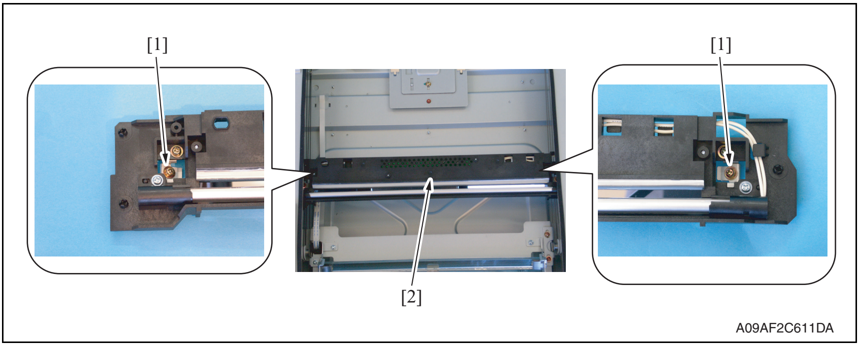


6. Remove two screws [1], and remove the scanner motor [2].

6.3.29 Scanner drive cables

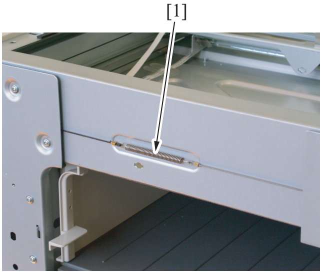
A. Removal procedure

1. Remove the left cover.
   See P.45
2. Remove the front cover.
   See P.43
3. Remove the rear cover.
   See P.47
4. Remove the upper rear cover.
   See P.46
5. Remove the right rear cover.
   See P.47
6. Remove the original glass and original scanning glass.
   See P.42
7. Loosen two screws [1] (to which red paint has been applied) and remove the scanner assy [2].



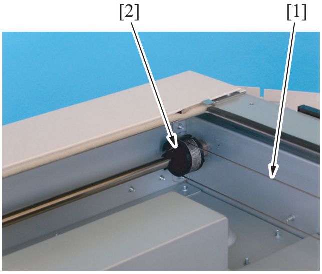
NOTE

- **Loosen the two red painted screws to remove the scanner assy in this step, which differs from the removal procedure for the scanner assy as a single unit.**



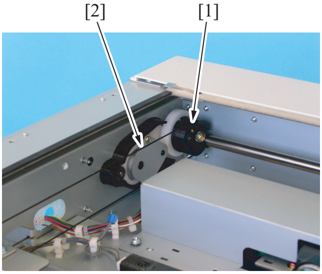
A09AF2C612DA

8. Unhook the springs [1] from the cable hooks at the front and rear.



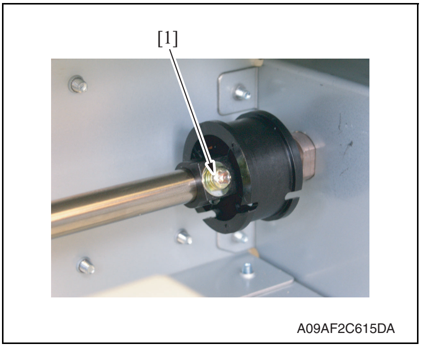
A09AF2C613DA

9. Remove the front cable [1] from the cable pulley [2].

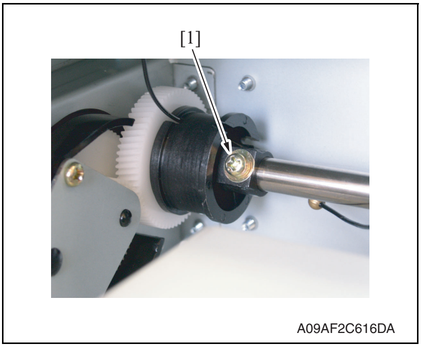


A09AF2C614DA

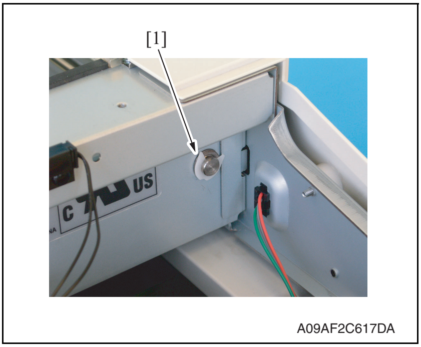
10. Remove the rear cable [1] from the cable pulley [2].


[1]
A09AF2C615DA

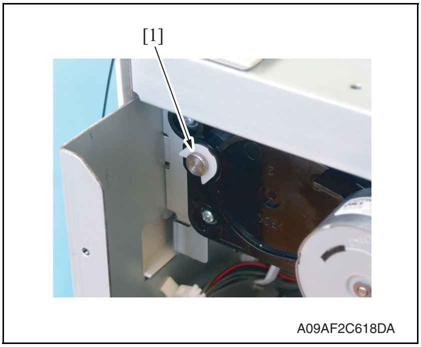
11. Remove the screw [1] from the front cable pulley.


[1]
A09AF2C616DA

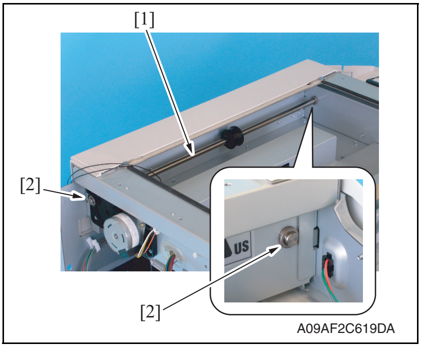
12. Remove the screw [1] from the rear cable pulley.


[1]
A09AF2C617DA

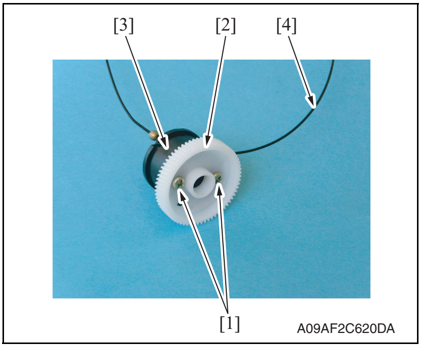
13. Snap off the C-ring [1] from the front side of the pulley assy.


[1]
A09AF2C618DA

14. Snap off the C-ring [1] from the rear side of the pulley assy.


[1]
[2]
[2]
A09AF2C619DA

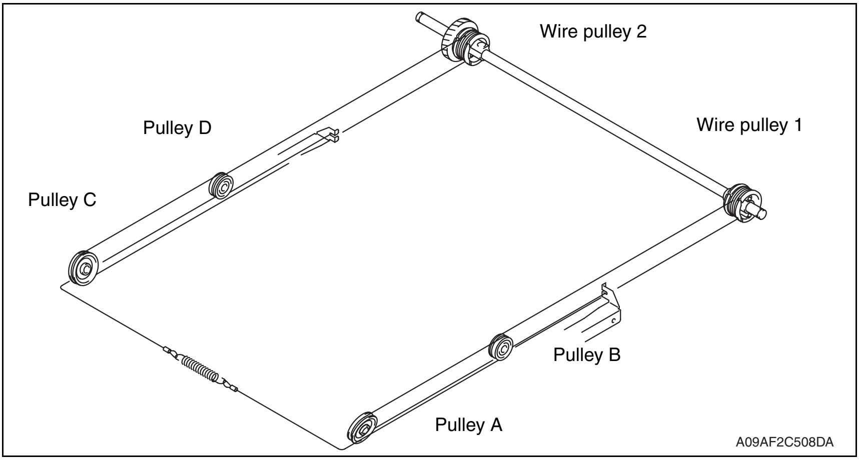
15. Pull out the shaft [1], and remove two bearings [2].


[3]
[2]
[4]
[1]
A09AF2C620DA

16. Remove two screws [1] from the rear side of the pulley assy and remove the gear [2].
17. Remove the cable [4] from the cable pulley [3].

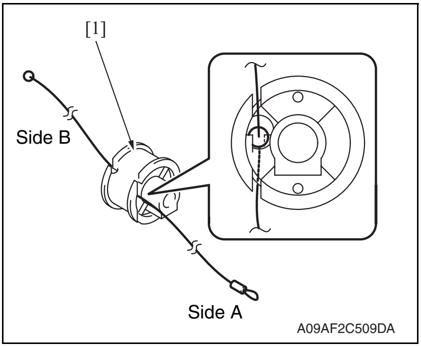
B. Reinstallation procedure

<Overall view>

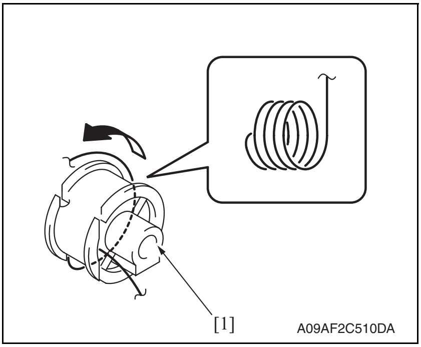

Wire pulley 2
Wire pulley 1
Pulley D
Pulley C
Pulley B
Pulley A
A09AF2C508DA

NOTE

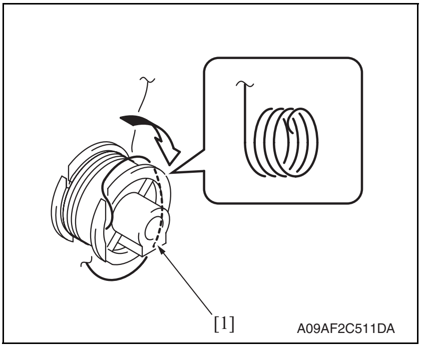
- **The cables are color-coded and differ in type from each other: the front cable is silver, while the rear cable is black.**
- **Make sure that no part of the cable rides on the other.**


[1]
Side B
Side A
A09AF2C509DA

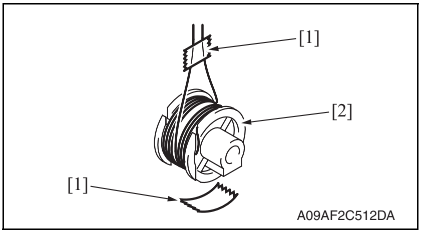
1. Pass the cable (black) through wire pulley 2 [1].


[1]
A09AF2C510DA

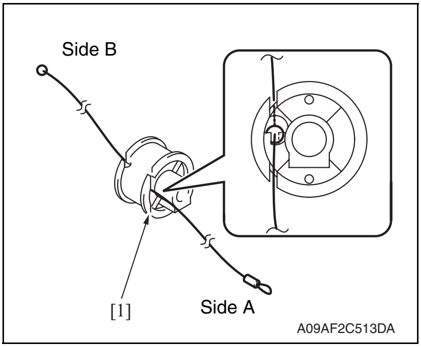
2. Wind the cable on side B around wire pulley 2 [1] four turns counter-clockwise, starting with the slit at the bottom in the rear left of the pulley.


[1]
A09AF2C511DA

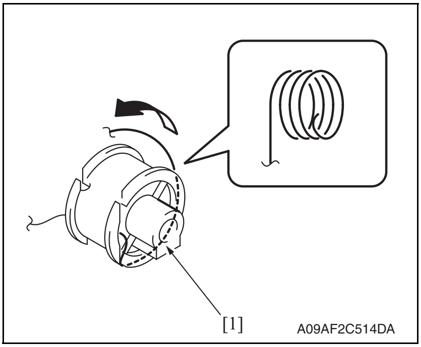
3. Wind the cable on side A around wire pulley 2 [1] four turns clockwise, starting with the slit at the top in the front left of the pulley.


[1]
[2]
[1]
A09AF2C512DA

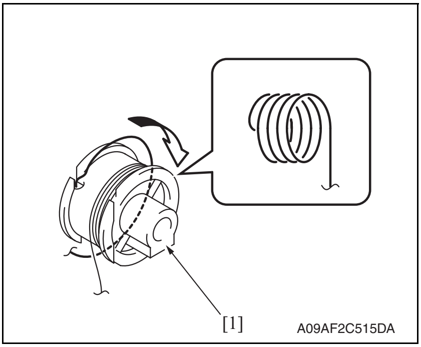
4. Affix tape [1] to secure the cable to wire pulley 2 [2].


Side B
[1]
Side A
A09AF2C513DA

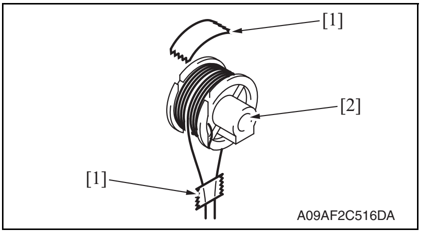
5. Pass the cable (silver) through wire pulley 1 [1].


[1]
A09AF2C514DA

6. Wind the cable on side A around wire pulley 1 [1] four turns counter-clockwise, starting with the slit at the bottom in the front left of the pulley.


[1]
A09AF2C515DA

7. Wind the cable on side B around wire pulley 1 [1] four turns clockwise, starting with the slit at the top in the rear left of the pulley.


[1]
[2]
[1]
A09AF2C516DA

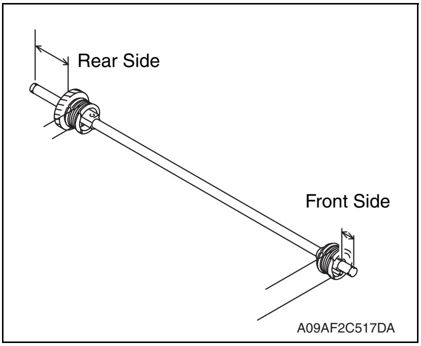
8. Affix tape [1] to secure the cable to wire pulley 1 [2].

9. Use the two screws to secure the gear to wire pulley 2.

NOTE

- **Make sure that the cable pulley is dowelled to the gear.**

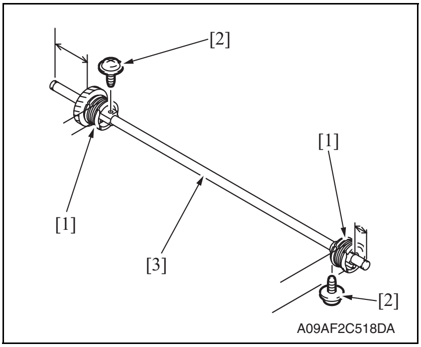
10. Mount the front and rear cable pulleys onto the shaft and install the shaft to the copier.


Rear Side
Front Side
A09AF2C517DA

NOTE

- **Install the shaft as shown on the left.**

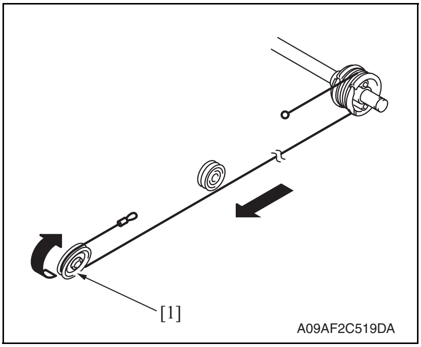
11. Fit two Bearings and snap on two C-rings.


[2]
[1]
[1]
[3]
[2]
A09AF2C518DA

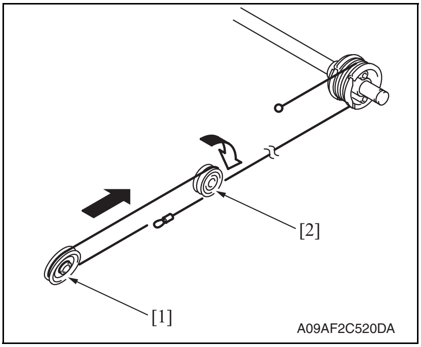
12. Secure the front and rear cable pulleys [1] to the shaft [3] using the screw [2] each.

NOTE

- **The direction in which the screw is installed differs between the front and rear. Note the correct direction.**


[1]
A09AF2C519DA

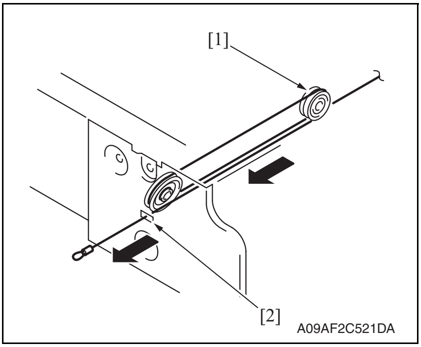
13. Wind the lower cable of wire pulley 1 around pulley A [1].


[2]
[1]
A09AF2C520DA

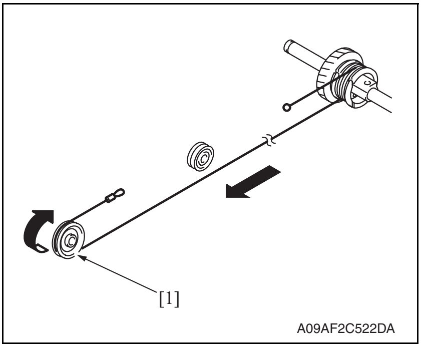
14. Wind the cable from pulley A [1] around pulley B [2].

NOTE

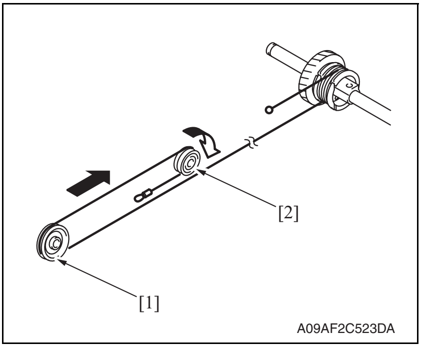
- **Wind the cable around the outer groove in pulley B.**


[1]
[2]
A09AF2C521DA

15. Pass the cable from pulley B [1] into the hole [2] in the IR frame.


[1]
A09AF2C522DA

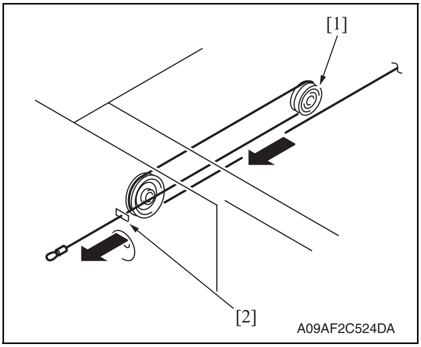
16. Wind the lower cable of wire pulley 2 around pulley C [1].


[2]
[1]
A09AF2C523DA

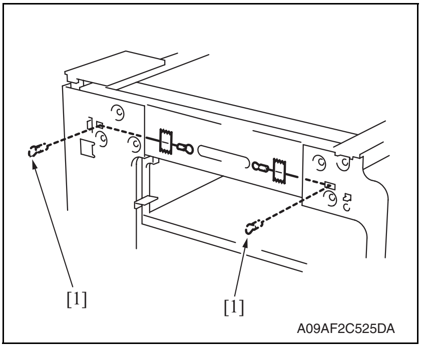
17. Wind the cable from pulley C [1] around pulley D [2].

NOTE

- **Wind the cable around the outer groove in pulley D.**

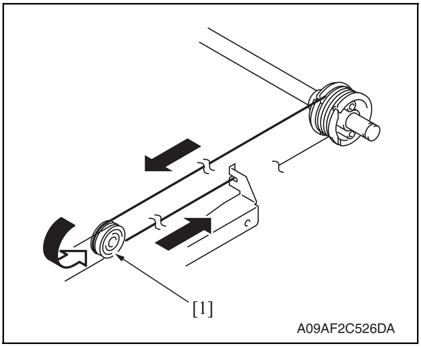

[1]
[2]
A09AF2C524DA

18. Pass the cable from pulley D [1] into the hole [2] in the IR frame.


[1]
[1]
A09AF2C525DA

19. Pass the leading edge of each of the front and rear cables [1] into the space between the IR frame and copier frame.

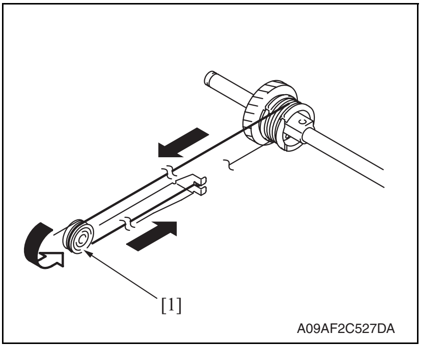
20. Affix tape to temporarily secure the cables to the copier frame.


[1]
A09AF2C526DA

21. Wind the upper cable of wire pulley 1 around pulley B [1] and hook it onto the hook.

NOTE

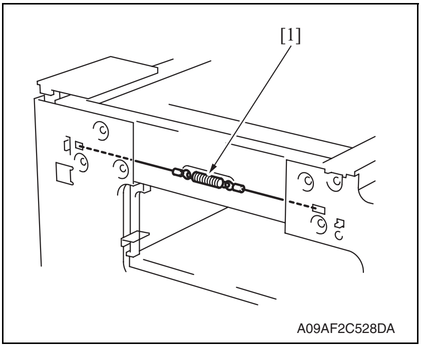
Wind the cable around the inner groove in pulley B.



22. Wind the upper cable of wire pulley 2 around pulley D [1] and hook it onto the hook.

NOTE

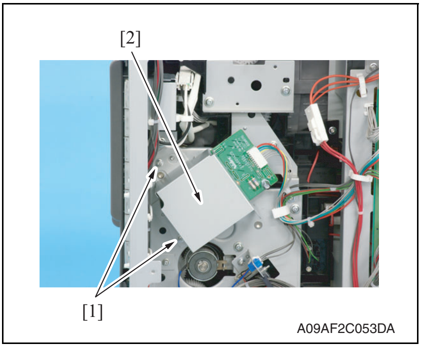
- **Wind the cable around the inner groove in pulley D.**



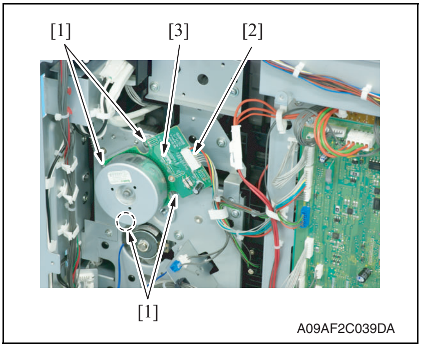
23. Peel off the pieces of tape that secure the front and rear cable pulleys.
24. Peel off the tape used to temporarily secure the cables to the machine frame. Hook a spring to the leading edges of the front and rear cables [1].
25. Temporarily secure the scanner to the front and rear cables.
26. Adjust the position of the scanner and the 2nd/3rd mirrors carriage.
    See P.146

6.3.30 Main motor (M1)

1. Remove the rear cover.
   See P.47



2. Remove two screws [1], and remove the metal plate [2].


[1]
[3]
[2]
[1]
A09AF2C039DA

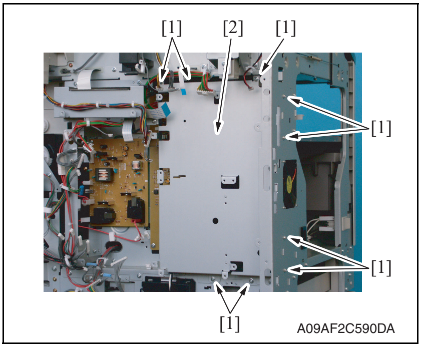
3. Remove four screws [1], unplug the connector [2], and remove the main motor [3].

6.3.31 Power unit cooling fan motor (FM2)

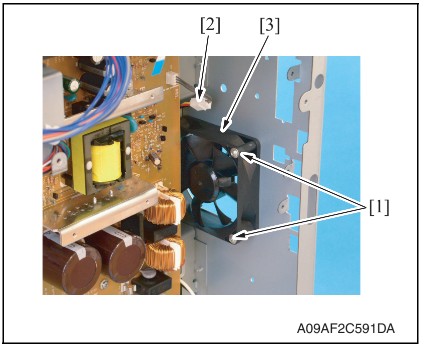
1. Remove the left cover, rear cover, and upper rear cover.
See P.45, P.47, P.46

2. Remove the printer control board.
See P.48

3. Remove the MFP board.
See P.49


[1]
[2]
[1]
[1]
[1]
[1]
A09AF2C590DA

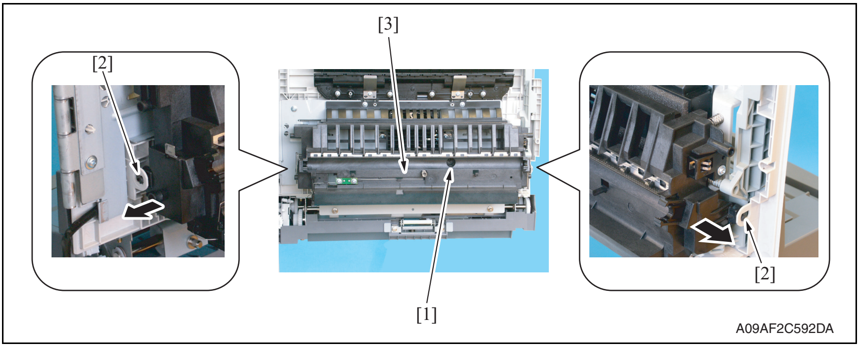
4. Remove nine screws [1], and remove the protective cover [2].


[2]
[3]
[1]
A09AF2C591DA

5. Remove two screws [1], unplug the connector [2], and remove the power unit cooling fan motor [3].

6.3.32 Fusing cooling fan motor (FM1)

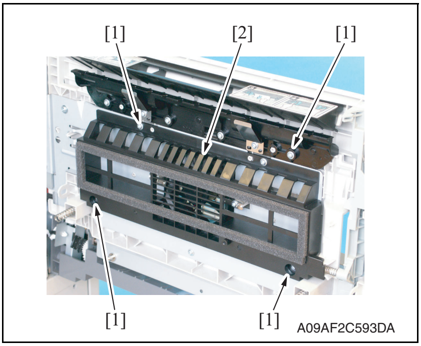
1. Remove the rear right cover.
   See P.48
2. Open the right door.
3. Remove the image transfer roller assy.
   See P.30
4. Remove the screw [1], unhook two tabs [2], and remove the transport unit holder [3].


[3]
[2]
[2]
[1]
A09AF2C592DA

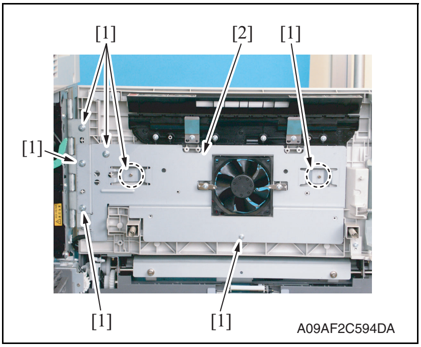
NOTE

- **Use care not to lose the two springs.**

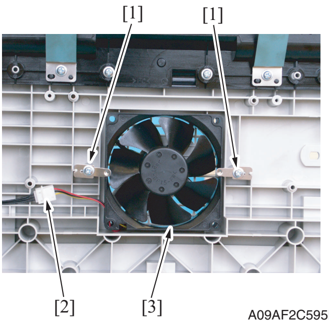
5. Remove four screws [1], and remove the duct assy [2].


[1]
[2]
[1]
[1]
[1]
A09AF2C593DA

6. Remove seven screws [1], and remove the mounting bracket [2].


[1]
[2]
[1]
[1]
[1]
[1]
A09AF2C594DA

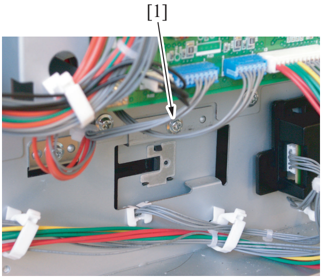
7. Remove two screws [1], unplug the connector [2], and remove the fusing cooling fan motor [3].



A09AF2C595DA

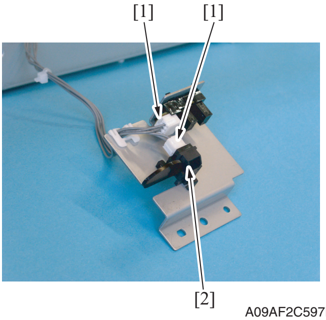
6.3.33 Paper size sensor (S5) assy

1. Remove the rear cover.
   See P.47
2. Slide out the paper feed tray/1.
3. Remove the screw [1].



A09AF2C596DA

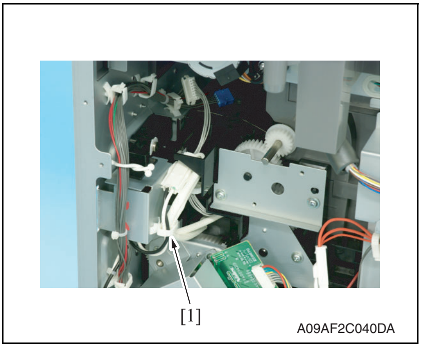
4. Unplug two connectors [1], and remove the paper size sensor assy [2].



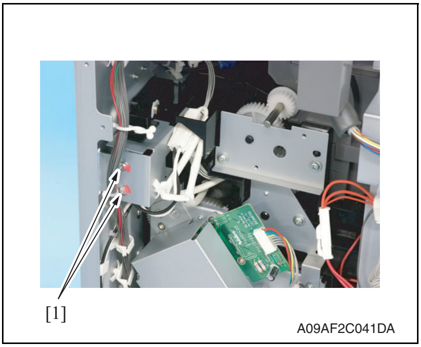
A09AF2C597DA

6.3.34 Fusing unit interlock switch (S2)

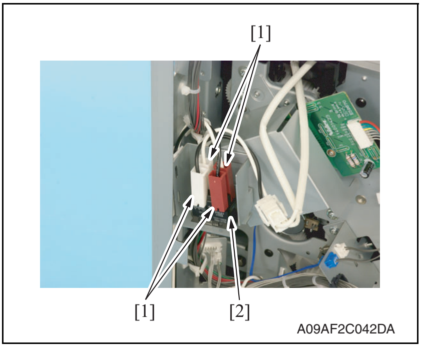
1. Remove the rear cover.
   See P.47


[1]
A09AF2C040DA

2. Remove the harness from the wire saddle [1].


[1]
A09AF2C041DA

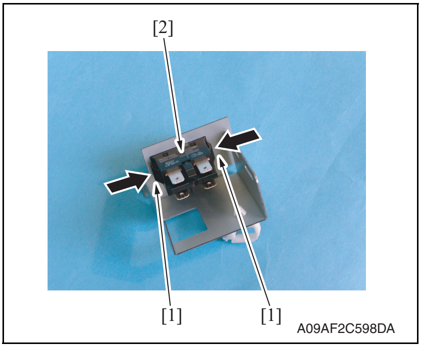
3. Remove two screws [1] (to which red paint has been applied).


[1]
[1]
[2]
A09AF2C042DA

4. Unplug four connectors [1], and remove the fusing unit interlock switch assy [2].

NOTE

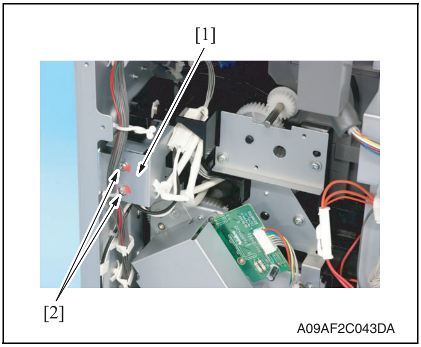
- **When installing the fusing unit interlock switch assy, make sure that the connectors are connected properly.**



5. Unhook two tabs [1], and remove the fusing unit interlock switch [2].

<Fusing unit interlock switch reinstallation procedure>

1. Fit the switch holder to the fusing unit interlock switch.
2. Connect the four connectors to the fusing unit interlock switch assy.

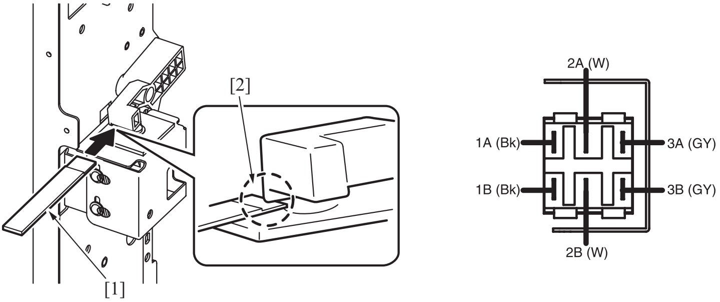


3. Temporarily secure the fusing unit interlock switch [1] using two screws [2] (to which red paint has been applied).

4. With the right door closed, insert the gauge [1] between the projection of lever and the top surface of fusing unit interlock switch [2], and then secure the switch holder so that the gap is 0.5 mm.

NOTE

- **Use the 0.5 mm thick portion of gauge.**
- **Insert the gauge between the rear side (projection) of lever and the top surface of fusing unit interlock switch.**



A09AF2C640DA

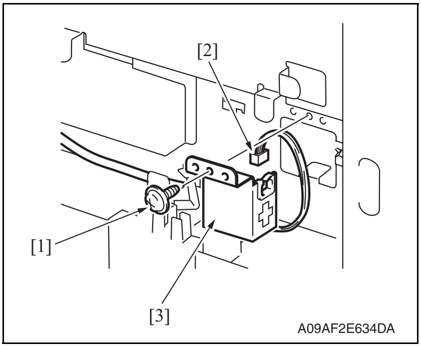
5. Close the right door, and then use a tester to make sure that the fusing unit interlock switch is conducting between 2A and 2B, 3A and 3B.
6. Open the right door, and then use a tester to make sure that the fusing unit interlock switch is not conducting between 2A and 2B, 3A and 3B.

NOTE

- **If there is any abnormality in conducting check, repeat adjustment again from step 4.**

6.3.35 Inch/metric sensor/1 (PS7) assy (3rd area only)

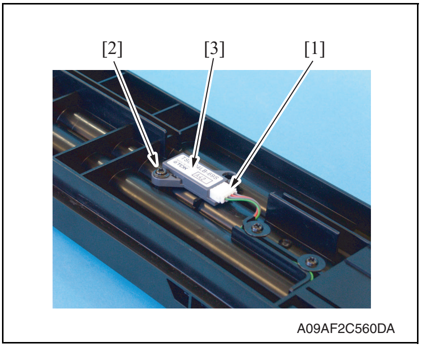
1. Remove the rear cover.
   See P.47



2. Remove the screw [1], disconnect the connector [2], and remove the inch/metric sensor/1 assy [3].

6.3.36 Replacing the TCR sensor (TCRS)

1. Separate the IU into the drum assy and developing assy.
   See P.20
2. Remove the developer scattering prevention plate.
   See P.26
3. Dump the developer.
   See P.27

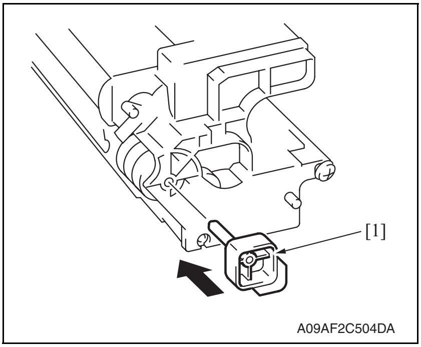


4. Disconnect the connector [1], and remove the screw [2] and the TCR sensor [3].
5. Install the TCR sensor and the developer scattering prevention plate.
6. Assemble the drum assy to the developing assy to reconstruct the IU.
7. Install the IU in the copier and run “ATDC AUTO ADJUST” of the Service Mode.
   See P.138
8. Enter the adjustment value on the adjust label.

6.3.37 Application of toner

NOTE

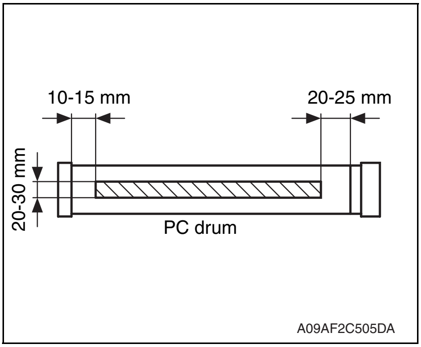
- **Perform these steps when the PC drum and/or cleaning blade have been replaced.**


[1]
A09AF2C504DA

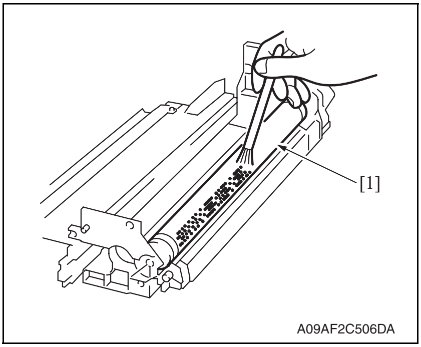
1. With the IU divided into the drum assy and developing assy, install the PC positioning jig [1] in the rear of the developing assy.

NOTE

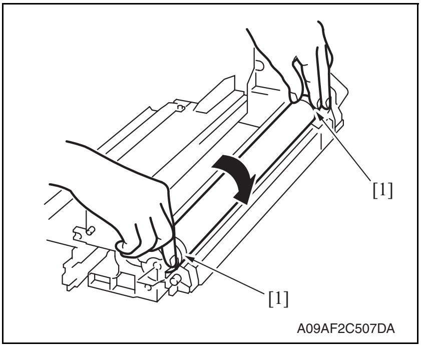
- **Ready the PC positioning jig (pivot shaft) separately.
(See the Parts Guide Manual.)**


10-15 mm
20-25 mm
20-30 mm
PC drum
A09AF2C505DA

<<Area to which toner is to be applied>>


[1]
A09AF2C506DA

2. Using a brush, apply a light coat of toner to the surface of the PC drum [1].



3. Hold both ends [1] of the PC drum with your both hands and turn the PC drum a half turn in the direction of the arrow.

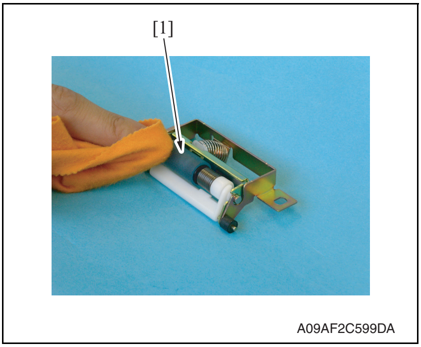
6.4 Cleaning procedure

NOTE

- **The alcohol described in the cleaning procedure of maintenance represents the isopropyl alcohol.**

6.4.1 Separation roller

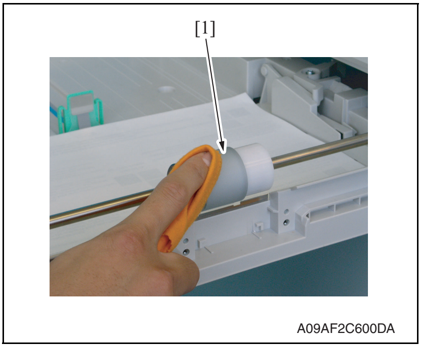
1. Remove the separation roller assy.
   See P.15



2. Using a soft cloth dampened with alcohol, wipe the separation roller [1] clean of dirt.

6.4.2 Feed roller

1. Slide out the tray 1.

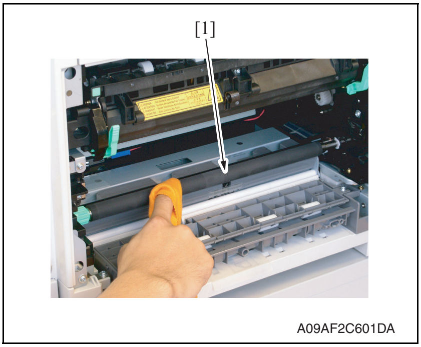


A09AF2C600DA

2. Using a soft cloth dampened with alcohol, wipe the feed roller [1] clean of dirt.

6.4.3 Upper/Lower Synchronizing Rollers

1. Open the right door.
2. Remove the imaging unit.
   See P.20

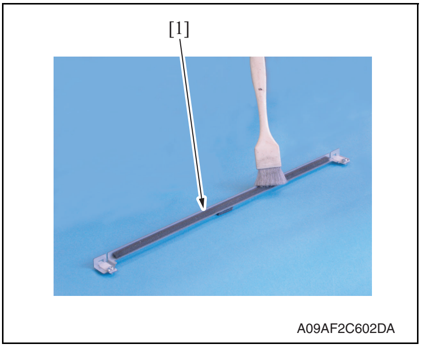


A09AF2C601DA

3. Using a soft cloth dampened with alcohol, wipe the upper and lower synchronizing rollers [1] clean of dirt.

6.4.4 Paper dust remover

1. Remove the paper dust remover assy.
   See P.18

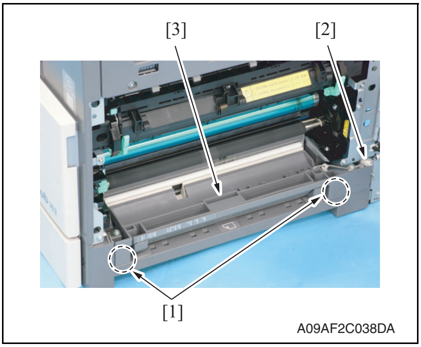


A09AF2C602DA

2. Using a brush, whisk dust and dirt off the paper dust remover [1].

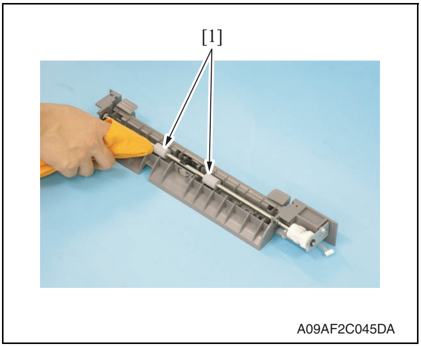
6.4.5 Bypass transport roller/roll

1. Remove the rear right cover.
   See P.48
2. Open the right door.



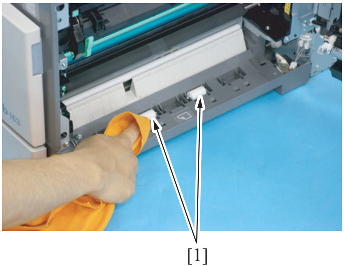
A09AF2C038DA

3. Remove two screws [1], disconnect the connector [2], and remove the manual bypass assy [3].



A09AF2C045DA

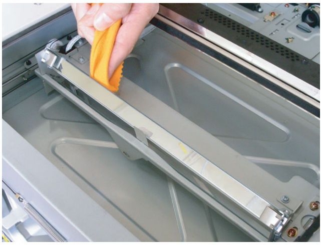
4. Using a soft cloth dampened with alcohol, wipe the bypass transport roller [1] clean of dirt.


[1]
A09AF2C046DA

5. Using a soft cloth dampened with alcohol, wipe the bypass transport roll [1] clean of dirt.

6.4.6 Mirrors

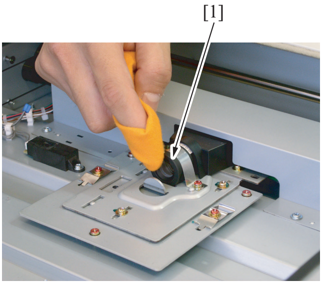
1. Remove the original glass.
   See P.42


A09AF2C603DA

2. Using a soft cloth dampened with alcohol, wipe the mirrors clean of dirt.

6.4.7 Lens

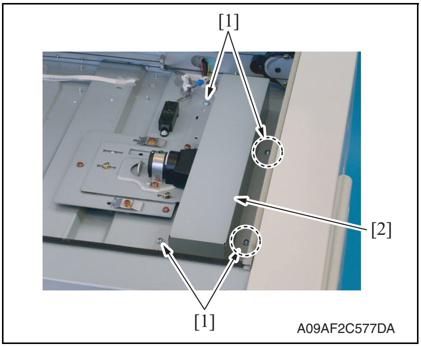
1. Remove the original glass.
   See P.42


[1]
A09AF2C604DA

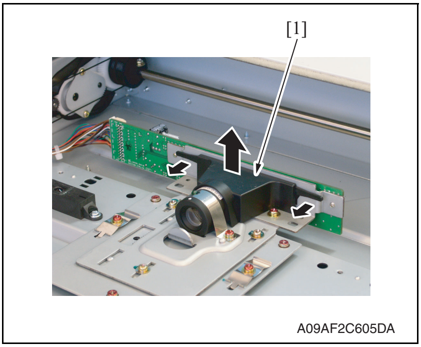
2. Using a soft cloth dampened with alcohol, wipe the lens [1] clean of dirt.

6.4.8 CCD Sensor

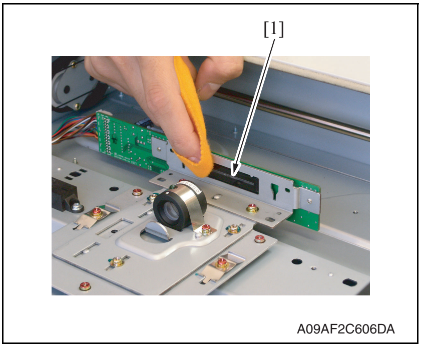
1. Remove the original glass.
   See P.42


[1]
[2]
[1]
A09AF2C577DA

2. Remove four screws [1], and remove the CCD unit cover [2].


[1]
A09AF2C605DA

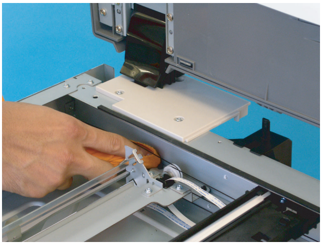
3. Pulling the tabs [1] on both sides of the lens cover, remove the lens cover [2].


[1]
A09AF2C606DA

4. Using a soft cloth dampened with alcohol, wipe the CCD sensor [1] clean of dirt.

6.4.9 Scanner rails/bearings

1. Remove the original glass.
   See P.42



A09AF2C607DA

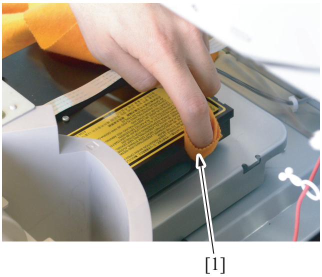
2. Using a soft cloth dampened with alcohol, wipe the scanner rails and bearings clean of dirt.

NOTE

- **After the scanner rails and bearings have been cleaned, apply oil (copier lubricant A or FLOIL 947P).**

6.4.10 PH window

1. Remove the front cover.
   See P.43
2. Remove the left cover.
   See P.45
3. Remove the paper exit tray.
   See P.45

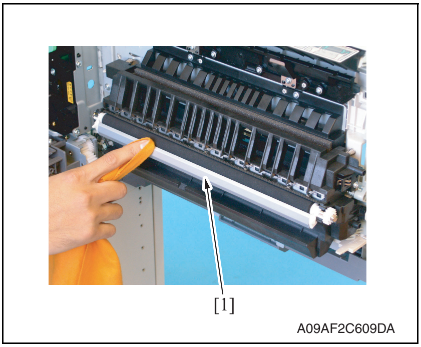


A09AF2C608DA

4. Using a soft cloth dampened with alcohol, wipe the PH window [1] clean of dirt.

6.4.11 Pre-Image transfer lower guide plate

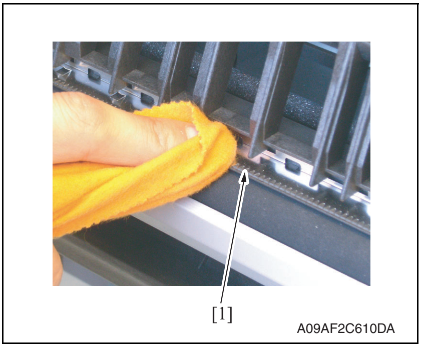
1. Open the right door.



2. Using a soft cloth dampened with alcohol, wipe the pre-image transfer lower guide plate [1] clean of dirt.

6.4.12 Charge neutralizing plate

1. Open the right door.



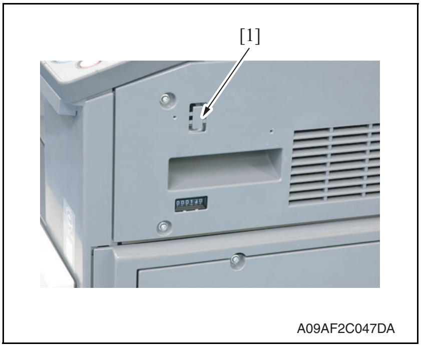
2. Using a soft cloth dampened with alcohol, wipe the charge neutralizing plate [1] clean of dirt.

NOTE

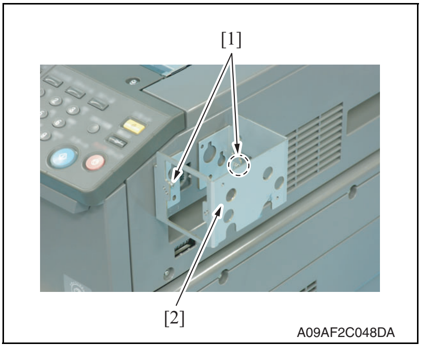
- **Use care not to allow the image transfer roller to be touched with alcohol.**
- **Do not allow the soft cloth to be caught by the tip of the charge neutralizing plate.**

6.5 Option counter

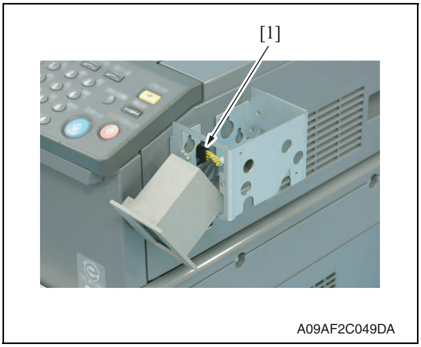
6.5.1 Installation of the key counter


[1]
A09AF2C047DA

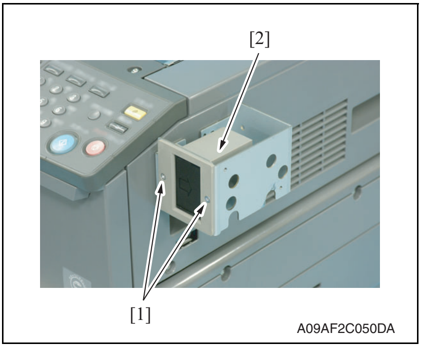
1. Cut out the knockout [1] from the right cover.


[1]
[2]
A09AF2C048DA

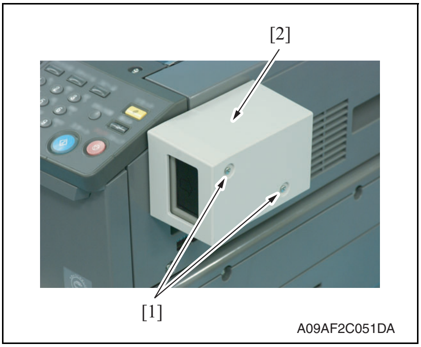
2. Using two screws [1], secure the counter mounting bracket [2].


[1]
A09AF2C049DA

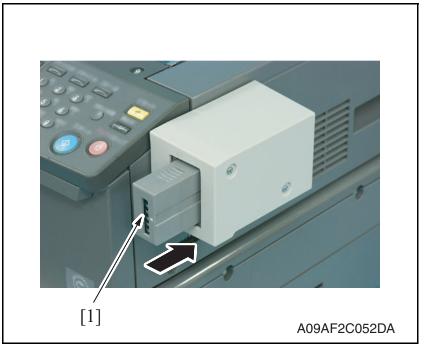
3. Connect the key counter socket connector [1].


[2]
[1]
A09AF2C050DA

4. Using two screws [1], secure the key counter socket [2].


[2]
[1]
A09AF2C051DA

5. Using two screws [1], secure the key counter cover [2].


[1]
A09AF2C052DA

6. Plug in the key counter [1].

NOTE

- **When the Key Counter is mounted, set “MACHINE COUNTER” of the Security mode to “DISABLE.”**
  See P.145

Adjustment/Setting

7. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting,” the default settings are indicated by “ ”.

A. Advance checks

- Before attempting to solve the customer problem, the following advance checks must be made. Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The original glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for service jobs

1. To unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the scanner cables or gears of the exposure unit.
3. Special care should be used when handling the fusing unit which can be extremely hot.
4. The developing unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

8. Utility Mode

- Utility mode is used to make settings for the utility functions.

8.1 Utility Mode function tree

Utility Mode			Ref. page
MACHINE SETTING	AUTO PANEL RESET		P.99
	ENERGY SAVE MODE		P.99
	AUTO SHUT OFF		P.99
	DENSITY (ADF)		P.100
	DENSITY (BOOK)		P.100
	PRINT DENSITY		P.100
	LCD CONTRAST		P.100
	KEY SPEED SETTING		P.101
	LANGUAGE		P.101
	BUZZER VOLUME *1		P.101
	INITIAL MODE *1		P.101
	SCAN THRESHOLD *2		P.101
PAPER SOURCE SETUP	INCH/METRIC		P.102
	TRAY1 PAPER		P.102
	PAPER TYPE		P.103
CUSTOM SIZE MEMORY	MEMORY1		P.103
	MEMORY2		
USER MANAGEMENT	DRUM DEHUMIDIFY		P.103
	TONER REPLENISHER		P.104
ADMIN. MANAGEMENT	ADMINISTRATOR NO.		P.104
	AUTO SHUT OFF		P.104
	ACCOUNT TRACK	ACCOUNT TRACK MODE	P.105
		ACCOUNT NO. REG.	P.105
		ACCOUNT TRACK DATA	P.105
	REMOTE MONITOR *1		P.105
	NETWORK SETTING *3	IP ADDRESS SETTING *3	P.105
		DNS CONFIG. *3	
		GATEWAY TX *4	
		WEB SETTING *3	
		LPD SETTING *3	
		SLP SETTING *3	
		SNMP SETTING *3	

Utility Mode			Ref. page
ADMIN. MANAGEMENT	E-MAIL SETTING 1 *3	SENDER NAME *3	P.106
		E-MAIL ADDERSS *3	
		SMTP SERVER ADDR. *3	
		SMTP PORT NO. *3	
		SMTP TIMEOUT *3	
		TEXT INSERT *3	
		DEFAULT SUBJECT *3	
		POP BEFORE SMTP *3	
		E-MAIL MODE *4	
	E-MAIL SETTING 2 *3	POP3 SERVER ADDR. *3	P.106
		POP3 PORT NO. *3	
		POP3 TIMEOUT *3	
		POP3 ACCOUNT *3	
		POP3 PASSWORD *3	
		AUTO RECEPTION *4	
		REPLY ADDRESS *4	
		HEADER PRINT *4	
	COMM. SETITNG *1	TONE/PULSE *1	P.106
		LINE MONITOR *1	
		PSTN/PBX *1	
	USER SETTING	NTP SERVER ADDRESS *5	P.106
		TIME ZONE *5	P.106
		DATE&TIME *1	P.106
		USER FAX NO. *1	P.106
		USER NAME *1	P.106
COPY SETTING 1	PAPER PRIORITY		P.106
	QUALITY PRIORITY		P.107
	DENSITY PRIORITY		P.107
	DENSITY LEVEL	AUTO	P.107
		MANUAL	P.107
	BINDING POSITION		P.107
	MARGIN SETTING		P.107
	ERASE SETTING		P.108
	SMALL ORIGINAL		P.108
COPY SETTING 2	COPY PRIORITY		P.108
	OUTPUT PRIORITY		P.108
	4IN1 COPY ORDER		P.108
	MIXED ORIGINAL		P.109
	DUPLEX COPY		P.109
	CRISSCROSS MODE		P.109

Utility Mode		Ref. page
DIAL REGISTRATION *1	ONE-TOUCH DIAL *1	P.109
	SPEED DIAL *1	
	GROUP DIAL *1	
	PROGRAM DIAL *1	
FAX REGISTRATION *1	MAIL BOX *1	P.109
	RELAY BOX *1	
FAX TX OPERATION *1	DENSITY LEVEL *1	P.109
	QUALITY PRIORITY *1	
	DEFAULT TX *1	
	HEADER *1	
FAX RX OPERATION *1	MEMORY RX MODE *1	P.109
	NO. of RINGS *1	
	REDUCTION RX *1	
	RX PRINT *1	
	RX MODE *1	
	FORWARD *1	
	FOOTER *1	
	SELECT TRAY *1	
	CLOSED NETWORK *1	
REPORTING *1	ACTIVITY REPORT *1	P.109
	RESERVATION REPORT *1	
	TX RESULT REPORT *1	
	RX RESULT REPORT *1	
SCAN SETTING *3	RESOLUTION *3	P.109
	IMAGE FORMAT *3	
	CODING METHOD *3	

*1: It will be displayed only when the FK-506 is mounted.
*2: It will be displayed only when the NC-503 or FK-506 is mounted.
*3: It will be displayed only when the NC-503 is mounted.
*4: It will be displayed only when the NC-503 and FK-506 is mounted.
*5: It will be displayed only when the NC-503 is mounted.
(It will not be displayed only when the NC-503 and FK-506 is mounted.)

8.2 Utility Mode function setting procedure

8.2.1 Procedure

1. Press the Utility key.
2. The Utility Mode screen will appear.

8.2.2 Exiting

- Press the Back key.

8.2.3 Changing the setting value in Utility Mode functions

- Select the appropriate item using [▲ / ▼ / ▶ / ◀] key, or the 10-key pad.
- Select the setting value using [▲ / ▼ / ▶ / ◀] key, or the 10-key pad.

1. Validate the selected setting value using the OK key.
2. To go back to the previous screen, press the Back key.

8.3 Setting in the Utility Mode

8.3.1 MACHINE SETTING

A. AUTO PANEL RESET

Functions	• To set the time it takes the auto panel reset function, which resets the panel settings when the set period of time elapses after a copy cycle has been completed or the last key operated, to be activated.
Use	
Setting/ Procedure	• The default setting is 1 min. OFF 30sec “1min” 2min 3min 4min 5min

B. ENERGY SAVE MODE

Functions	• To set the time it takes the machine to enter the energy saver mode after a copy cycle has been completed or the last key operated.
Use	
Setting/ Procedure	• The default setting is 15 min. 1 to 240 min.

C. AUTO SHUT OFF

Functions	• To set the time it takes the auto shut OFF function, which shuts down the machine when the set period of time elapses after a copy cycle has been completed or the last key operated, to be activated.
Use	
Setting/ Procedure	• The default setting is OFF. ON OFF • If selecting “ON”, set the time that the AUTO SHUT OFF function is turned ON. 15 to 240 min.

D. DENSITY (ADF)

- This setting is available when the optional DF-502 or DF-605 is mounted.

Functions	• To set the reading image density level when the automatic document feeder is used. MODE1 : To lower the image density to prevent a dirty copy from being produced. MODE2 : To produce a copy having an image density equivalent to that of the original.
Use	
Setting/ Procedure	• The default setting is MODE1. "MODE1" MODE2 **NOTE** • **The low image density is set as the default value to prevent a dirty copy from being produced.**

E. DENSITY (BOOK)

Functions	• To set the reading image density level when the original glass is used. MODE1 : To produce a copy having an image density equivalent to that of the original. MODE2 : To lower the image density to prevent a dirty copy from being produced.
Use	
Setting/ Procedure	• The default setting is MODE1. "MODE1" MODE2

F. PRINT DENSITY

Functions	• To set the print density for PC print mode. * This setting is invalid in the print density for copy/fax print.
Use	
Setting/ Procedure	• The default setting is displayed with ■. LIGHT □□■□□ DARK

G. LCD CONTRAST

Functions	• To set the LCD display contrast in 4 scales.
Use	
Setting/ Procedure	• The default setting is displayed with ■. LIGHT □■□□ DARK

H. KEY SPEED SETTING

Functions Use	• To set the time that the repetitive input gets started when keeping on pressing the key. • To set the cycle time of the repetitive input.
Setting/ Procedure	<TIME TO START> • The default setting is 1.0 sec. 0.1sec 0.3sec 0.5sec "1.0sec" 1.5sec 2.0sec 2.5sec 3.0sec <INTERVAL> • The default setting is 0.1sec. "0.1sec" 0.3sec 0.5sec 1.0sec 1.5sec 2.0sec 2.5sec 3.0sec

I. LANGUAGE

Functions Use	• To select the language displayed on the control panel.
Setting/ Procedure	• Select the desired language and touch [OK] to set the language.

J. BUZZER VOLUME

See P.19 of the FK-506 service manual

K. INITIAL MODE

See P.19 of the FK-506 service manual

L. SCAN THRESHOLD

See P.19 of the FK-506 service manual

8.3.2 PAPER SOURCE SETUP

A. INCH/METRIC

Functions	• To set the paper size unit of each tray.
Use	• To change the size unit of the paper to be used. **NOTE** • **If it is not set appropriately, auto detection of paper size cannot be made.** • **Tray 2 to 5 can be set only when the optional PF-502 is mounted.**
Setting/ Procedure	• The default setting is METRIC. <Step> *1.* Select the tray. *2.* Select the appropriate paper size type. INCH “METRIC”

B. TRAY1 PAPER

(1) PAPER SIZE

Functions Use	• To set the paper size loaded in the tray/1.
Setting/ Procedure	• The default setting is AUTO. <Step> *1.* Select the type of paper. “AUTO” SIZE INPUT POSTCARD MEMORY1 MEMORY2 • When selecting “SIZE INPUT”, enter the size with the numeric keypad. Setting range : 140 to 432 mm (Width) : 90 to 297 mm (Length) • The size registered on [COUSTOME SIZE MEMORY] of [Utility] is set for [Memory1]/ [Memory 2]. **NOTE** • **When the type of paper is set other than “AUTO”, the paper set to the tray 1 cannot be used with Fax mode.**

(2) MEDIA TYPE

Functions Use	• To set the media type loaded in the tray/1.
Setting/ Procedure	• The default setting is PLAIN. “PLAIN” TRANSPARENCY CARD ENVELOPE **NOTE** • **When the media type is set other than “PLAIN”, the paper set to the tray 1 cannot be used with Fax mode.**

C. PAPER TYPE

Functions	• To set the special paper type of each tray.
Use	• To set whether [Auto paper select]/[Auto tray change] is used for each tray according to the paper type to be used. • The combination of [Auto paper select]/[Auto tray change] can be selected according to the paper type (“PLAIN”, “RECYCLE”, “SPECIAL”). PLAIN: Auto paper select can be selected. Auto tray change is available. RECYCLE: Auto paper select cannot be selected. Auto tray change is available. SPECIAL: Auto paper select cannot be selected. Auto tray change is not available. **NOTE** **• Tray 2 to 5 can be set only when the optional PF-502 is mounted.**
Setting/ Procedure	• The default setting is PLAIN. <Step> *1.* Select the paper source. *2.* Select the type of paper. “PLAIN” RECYCLE SPECIAL 1-SIDE*

* Appears only when the AD-504 is installed.

8.3.3 CUSTOM SIZE MEMORY

Functions	• To set the custom size paper commonly used.
Use	• When setting the paper size of Tray 1 after selecting [Utility] → [PAPER SOURCE SETUP] → [TRAY1 PAPER], the size registered with this memory setting will be available. • Up to 2 digits can be set (MEMORY 1/MEMORY 2)
Setting/ Procedure	*1.* Select [CUSTOME SIZE MEMORY] and press OK key. *2.* Select [MEMORY 1] or [MEMORY 2] and press OK key. *3.* Input the paper size with the numeric keypad.

8.3.4 USER MANAGEMENT

A. DRUM DEHUMIDIFY

Functions	• To run a drum dry sequence.
Use	• The drum dry sequence is run when an image problem occurs due to condensation formed on the surface of the PC drum as a result of a sudden change in temperature or an increased humidity.
Setting/ Procedure	<Step> *1.* Select [DRUM DEHUMIDIFY] and press the [OK] key. *2.* The drum dry sequence is automatically terminated after the lapse of a predetermined period of time and the initial screen reappears.

B. TONER REPLENISHER

Functions	• To execute Toner replenishment forcibly to adjust the tone to the T/C level set.
Use	• To be used when a large number of copies are made for the original with high density and ID is deteriorated due to the decrease of T/C ratio.
Setting/ Procedure	• When [TONER REPLENISHER] is executed, the machine first detects the current toner density. If it is found that the density is lower than the reference value, supply of toner is replenished and then toner is agitated. If the density is found to be higher than the reference value, the machine simply agitates toner to complete the sequence. <Step> *1.* Select [TONER REPLENISHER] and press the [OK] key. *2.* The toner replenisher sequence is automatically terminated after a given period of time or when the specified toner density is recovered. Then, the initial screen reappears.

8.3.5 ADMIN. MANAGEMENT

- The ADMIN. MANAGEMENT will be available by entering the administrator number (6 digits) set by the ADMIN. MANAGEMENT or SERVICE MODE.
  (The administrator password is initially set to “000000.”)

<ADMIN. MANAGEMENT mode setting procedure>

1. Press the Utility key.
2. Select “ADMIN. MANAGEMENT.”
3. Type the 6-digit administrator number and press the [OK] key.

A. ADMINISTRATOR NO.

Functions	• To change the Administrator number currently registered to the other number.
Use	
Setting/ Procedure	*1.* Select [ADMINISTRATOR NO.] and press OK key. *2.* Input the administrator number currently registered with the numeric keypad, and press OK key. *3.* Input the administrator number newly registered with the numeric keypad, and press OK key. *4.* Input the administrator number currently registered again with the numeric keypad, and press OK key.

B. AUTO SHUT OFF

Functions	• To enable or disable the setting of auto shut OFF.	
Use		
Setting/ Procedure	• The default setting is ENABLE. DISABLE	“ENABLE”

C. ACCOUNT TRACK

(1) ACCOUNT TRACK MODE

Functions Use	• To select whether to turn ON or OFF the account track function.
Setting/ Procedure	• The default setting is OFF. ON “OFF”

(2) ACCESS NO. REG.

Functions Use	• To register a 3-digit (001 to 999) account number used for the account track function, or to change or delete a previously set account number.
Setting/ Procedure	<Registration procedure> 1. Select [ACCESS NO. REG.] and press OK key. 2. Input any account number with the numeric keypad, and press OK key. • Select [ADD] to continue the registration (Up to 50 number can be registered) • Select [RETURN] to finish the registration. <Change/delete procedure> 1. Select [ACCESS NO. REG.] and press OK key. 2. Input the corresponding account number with the numeric keypad, and press OK key. 3. Select [CHECK/EDIT] and press OK key. 4. Select the number to be changed or deleted. • Press OK key and input the new number to change the setting. • Press Clear/Stop key and select [YES] to delete the setting.

(3) ACCOUNT TRACK DATA

Functions Use	• To display or clear the total count value of a specific account. • To clear the total count values of all accounts under control. • Output the account track list.
Setting/ Procedure	<Display/clear procedure> 1. Select [ACCOUNT TRACK DATA] and press OK key. 2. Select [DISPLAY] and press the [OK] key. 3. Select the account number, for which the count is to be checked, and press the [OK] key. 4. The total count value of the account number selected will be displayed. • To clear the count value, press the Clear/Stop key. <All clear procedure> 1. Select [ACCOUNT TRACK DATA] and press OK key. 2. Select [ALL COUNTER CLEAR] and press the [OK] key.

D. REMOTE MONITOR

See P.20 of the FK-506 service manual

E. NETWORK SETTING

See P.14 of the IC-206/NC-503 service manual

F. E-MAIL SETTING 1

See P.15 of the IC-206/NC-503 service manual

G. E-MAIL SETTING 2

See P.18 of the IC-206/NC-503 service manual

H. COMM.SETTING

See P.21 of the FK-506 service manual

I. USER SETTING

(1) NTP SERVER ADDRESS

See P.19 of the IC-206/NC-503 service manual

(2) TIME ZONE

See P.19 of the IC-206/NC-503 service manual

(3) DATE&TIME

See P.19 of the IC-206/NC-503 service manual

(4) USER FAX NO.

See P.22 of the FK-506 service manual

(5) USER NAME

See P.22 of the FK-506 service manual

8.3.6 COPY SETTING 1

A. PAPER PRIORITY

Functions	• To set the tray to be prioritized when AUTO ZOOM setting is selected. **NOTE** • **Tray 2 to 5 can be set only when the optional PF-502 is mounted.** • **MULTIBYPASS can be set only when the optional MB-501 is mounted.**
Use	
Setting/ Procedure	• The default setting is TRAY1. "TRAY1" TRAY2 TRAY3 TRAY4 TRAY5 MULTI BYPASS

B. QUALITY PRIORITY

Functions Use	• To set the priority image quality mode that is selected when the power switch is turned ON or the Panel Reset key is pressed.
Setting/ Procedure	• The default setting is TEXT/PHOTO. "TEXT/PHOTO" TEXT PHOTO

C. DENSITY PRIORITY

Functions Use	• To set the priority density that is selected when the power switch is turned ON or the Panel Reset key is pressed.
Setting/ Procedure	• The default setting is AUTO. "AUTO" MANUAL

D. DENSITY LEVEL
(1) AUTO

Functions Use	• To set the density level when the auto density is selected.
Setting/ Procedure	• The default setting is displayed with ■. LIGHT □■□ DARK

(2) MANUAL

Functions Use	• To set the density level when the manual density is selected.
Setting/ Procedure	• The default setting is displayed with ■. LIGHT □□□□■□□□□ DARK

E. BINDING POSITION

Functions Use	• To set the first page to be scanned when copies are made from a book, whether it is on the left or on the right. LEFT: Scanned from the left page (Bound on the left side) RIGHT: Scanned from the right page (Bound on the right side)
Setting/ Procedure	• The default setting is LEFT. "LEFT" RIGHT

F. MARGIN SETTING

Functions Use	• To set the file margin width when making copies with a file margin.
Setting/ Procedure	• The default setting is 10 mm. 0 to 20 mm (1 step: 1 mm)

G. ERASE SETTING

Functions	• For copies made using CENTER/FRAME ERASE function, you can set an erase width individually on LEFT, UPPER, and FRAME.
Use	
Setting/ Procedure	• The default setting is 10 mm for all the positions. <Step> *1.* Select the erase position. *2.* Set the erase width. 5 to 20 mm (1 step: 1 mm)

H. SMALL ORIGINAL

Functions	• To set whether to enable or disable copying when an original of a size smaller than the detectable one is loaded in the auto paper mode.
Use	
Setting/ Procedure	• The default setting is DISABLE. “DISABLE” ENABLE

8.3.7 COPY SETTING 2

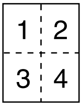
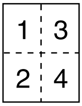
A. COPY PRIORITY

Functions	• To set the priority copy mode, either auto paper, auto zoom, or manual, selected when the power switch is turned ON or Panel Reset key is pressed.
Use	
Setting/ Procedure	• The default setting is AUTO PAPER SELECT “AUTO PAPER SELECT” AUTO ZOOM MANUAL

B. OUTPUT PRIORITY

Functions	• To set the priority finishing function, either non-sort, sort, or group.
Use	
Setting/ Procedure	• The default setting is NON-SORT. “NON-SORT” SORT GROUP

C. 4IN1 COPY ORDER

Functions	• To set the layout of copy images in 4in1 copies.
Use	
Setting/ Procedure	• The default setting is PATTERN1. PATTERN1  PATTERN2 

D. MIXED ORIGINAL

- This setting is available only when the optional DF-502 is installed.

Functions	• To set whether or not to select the mixed original mode when the power switch is turned ON or Panel Reset key is pressed.
Use	
Setting/ Procedure	• The default setting is OFF. "OFF" ON

E. DUPLEX COPY

Functions	• To select whether or not double-sided printing is used. The optional duplex unit must be installed
Use	
Setting/ Procedure	• The default setting is OFF. "OFF" ON

F. CRISSCROSS MODE

Functions	• When conditions necessary for crisscross sorting are met, crisscross sorting can be set to ON or OFF.
Use	
Setting/ Procedure	• The default setting is ON. "ON" OFF

8.3.8 DIAL REGISTRATION

See P.22 of the FK-506 service manual

8.3.9 FAX REGISTRATION

See P.23 of the FK-506 service manual

8.3.10 FAX TX OPERATION

See P.23 of the FK-506 service manual

8.3.11 FAX RX OPERATION

See P.24 of the FK-506 service manual

8.3.12 REPORTING

See P.36 of the FK-506 service manual

8.3.13 SCAN SETTING

See P.20 of the IC-206/NC-503 service manual

9. Adjustment item list

Replacement Part/Service Job Adjustment/Setting Items			No	Tray1		Replace paper dust remover assy	Cleaning scanner rail/bushing	Replace PC drum	Replace PC drum charge corona assy	Replace developer and toner agitating seal	Replace cleaning blade
				Replace feed roller	Replace separation roll assy						
Service Mode	SER-VICE'S CHOICE	ID ADJUST	1					3*		5*	
		VG ADJUST	2					4*	1*		
		LEADING EDGE	3								
		TRAILING EDGE	4								
		VERTICAL EDGE	5								
		LOOP Ad. (TRAY1)	6	3*	3*						
		FUSER TEMP.	7								
		CCD APS SIZE	8								
	ADJUST	PRN MAIN REGIST	9								
		PRN SUB REGIST	10								
		CCD MAIN ZOOM	11								
		CCD SUB ZOOM	12								
		CCD MAIN REGIST	13								
		CCD SUB REGIST	14								
		ADF SUB ZOOM	15								
		ADF MAIN REGIST	16								
		ADF SUB REGIST 1	17								
		ADF SUB REGIST 2	18								
	CLEAR DATA	PM COUNTER	19	1	1	1					
		SUPPLIES COUNETER	20					2	2	3	2
	FUNC-TION	PAPAER FEED TEST	21	2	2						
		ATDC AUTO ADJUST	22							1, 4	
		PRN TEST PATTERN	23					5	3	6	
		ADF FEED TEST	24								
		SCAN TEST	25				2				
Mechanical		Focus-positioning of scanner and 2nd/3rd mirrors carriage	26								
		CCD unit position adjustment	27								
Others		Utility Mode	28								
		Service Mode	29								
		Parameter chip (U18)	30								
		FW update	31								
		Application of toner to PC drum	32					1			1
		Application of lubricant	33				1				
		Change of developer	34							2	

*: Check when setting is changed.

✻ This table shows the list of adjustment items when replacing a part. Items are numbered by the priority if there is any.

No											DF-605			DF-502			PF-502	MB-501	
	Replace image transfer roller assy	Replace fusing unit	Replace ozone filter	Replace CCD assy	Replace MFP board	Replace TCR sensor	Replace PH unit	Memory Clear	Install scanner drive cable	Add original size sensor	Replace pick-up roller	Replace feed roller	Replace separation roller	Replace pick-up roller	Replace feed roller	Replace separation roller	Replace feed roller	Replace feed roller	Replace separation roller assy
1						4*													
2																			
3							11												
4							12												
5							13												
6																	3*	3*	3*
7		2*																	
8										1									
9							1												
10							2												
11				2			3												
12							4		3										
13				3			5												
14							6		4										
15							7												
16				4			8												
17							9												
18							10												
19	1	1	1								1	1	1	1	1	1	1	1	1
20																			
21																	2	2	2
22						1, 3													
23																			
24											2	2	2	2	2	2			
25									2										
26									1										
27				1															
28								1											
29								2											
30					1														
31					2														
32																			
33																			
34						2													

*: Check when setting is changed.

NOTE
- **Before executing a memory clear, be sure to take notes of the settings and adjustment data of Utility Mode, Service Mode., Security Mode, and adjust modes. After the memory clear has been executed, re-enter those data.**
- **The following data of "ADJUST" are indicated at the factory on the adjust label located inside the front door (The other side of the toner replacement label). (PRN MAIN REGIST/PRN SUB REGIST/CCD MAIN ZOOM/CCD SUB ZOOM/CCD MAIN REGIST/CCD SUB REGIST)**
- **The ATDC value at the time of setting up of the PC drum unit is also entered on the adjust label at installation.**
- **The setting value after ATDC adjustment is written down in a adjust label.**

10. Service Mode

10.1 Service Mode function setting procedure

NOTE

- **Care must be used to ensure that only the personnel who are involved in service jobs know the procedure to enter the Service Mode.**

10.1.1 Procedure

1. Press the Utility key.
2. Press the following keys in this order.
   Stop → 0 → 0 → Stop → 0 → 1
3. The Service Mode menu screen will appear.

10.1.2 Exiting

- Press the Panel Reset key as many times as it is required to display the initial screen.

10.1.3 Changing the setting value in Service Mode functions

1. Select the desired item using [▲ / ▼ / ▶ / ◀] key.
2. Select the setting value using [▲ / ▼ / ▶ / ◀] key, or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

10.2 Service Mode function tree

Service Mode		Ref. page
SERVICE'S CHOICE	MARKETING AREA *1	P.117
	SHIPMENT	P.117
	MAINTENANCE COUNT.	P.117
	IU LIFT STOP MODE	P.117
	ID ADJUST	P.118
	VG ADJUST	P.118
	FUSER TEMP. (PLAIN)	P.118
	FUSER TEMP. (THICK)	P.118
	FUSER TEMP. (OHP)	P.120
	LEADING EDGE	P.121
	TRAILING EDGE	P.121
	VERTICAL EDGE	P.122
	LOOP Ad. (TRAY1)	P.122
	LOOP Ad. (TRAY2-5)	P.122
	LOOP Ad. (DUPLEX) *2	P.122
	LOOP Ad. (BYPASS)	P.123
	FLS PAPER SIZE	P.123
	FLS/LEGAL CHANGE	P.123
	TX SPEED *1	P.123
	RX SPEED *1	P.123
	TX LEVEL *1	P.123
	RX LEVEL *1	P.123
	DTMF LEVEL *1	P.123
	CNG LEVEL *1	P.124
	CED LEVEL *1	P.124
	ECM MODE *1	P.124
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	REPORT DESTINATION *1	P.124
	TONER EMPTY REPORT *1	P.124
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	MAINTENANCE REPORT *1	P.124
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	CCD APS SIZE	P.125
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Service Mode		Ref. page
ADJUST	PRN MAIN REGIST	P.126
	PRN SUB REGIST	P.127
	CCD MAIN ZOOM	P.128
	CCD SUB ZOOM	P.129
	CCD MAIN REGIST	P.130
	CCD SUB REGIST	P.131
	ADF SUB ZOOM *3	P.131
	ADF MAIN REGIST *3	P.131
	ADF SUB REGIST 1 *3	P.131
	ADF SUB REGIST 2 *4	P.131
	ADF REG. LOOP 1 *3	P.132
	ADF REG. LOOP 2 *4	P.132
	ATDC GAIN	P.132
	MODEL SETTING	P.132
COUNTER	TOTAL COUNTER	P.132
	SIZE COUNTER	P.132
	PM COUNTER	P.133
	MAINTENANCE COUNT.	P.133
	SUPPLIES COUNTER	P.133
	APPLICATION COUNT.	P.133
	SCAN COUNTER	P.134
	PAPER SIZE COUNTER	P.134
	MISFEED COUNTER	P.134
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DISPLAY	TONER DENSITY LEVEL	P.136
	PROCESS CONTROL	P.136
	MAIN F/W VER.	P.136
	ENGINE F/W VER.	P.136
	PCL F/W VER. *5	P.136
	NIC F/W VER. *6	P.137
	ADF F/W VER. *4	P.137
	MAIN RAM SIZE	P.137
	SERIAL NO.	P.137
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Service Mode		Ref. page
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	PROCESS CHECK	P.138
	ATDC AUTO ADJUST	P.138
	PRN TEST PATTERN	P.138
	ADF FEED TEST *3	P.138
	COPY ADF GLASS	P.138
	CCD MOVE TO HOME	P.139
	UPLOAD F/W	P.139
	FAX RES. COPY TEST *1	P.139
	SCAN TEST	P.139
	ADF WIDTH Ad. (Max) *3	P.139
	ADF WIDTH Ad. (Min) *3	P.139
	ADF SENSOR ADJUST *4	P.139
SOFT SWITCH *1		P.139
REPORT *1	SERVICE DATA LIST *1	P.139
	ERROR CODE LIST *1	
	T.30 PROTOCOL LIST *1	
ADMIN. REGISTRATION		P.140
FIXED ZOOM CHANGE		P.140
FACTORY TEST	SIGNAL TEST *1	P.141
	RELAY TEST *1	P.141
	DIAL TEST *1	P.141
	VOLUME TEST *1	P.141
	PANEL BUZZER TEST	P.142
	RAM TEST	P.142
CLEAR DATA	DRAM CLEAR *1	P.142
	FLASH ROM CLEAR *1	P.142
	MEMORY CLEAR	P.142
	PM COUNTER	P.142
	MAINTENANCE COUNT.	P.143
	SUPPLIES LIFE COUNT.	P.143
	APPLICATION COUNTER	P.143
	SCAN COUNTER	P.143
	PAPER SIZE COUNTER	P.143
	MISFEED COUNTER	P.143
	TROUBLE COUNTER	P.143
	ADF BACKUP CLEAR *4	P.143

*1: It will be displayed only when the FK-506 is mounted.
*2: It will be displayed only when the AD-504 is mounted.
*3: It will be displayed only when the DF-502 or DF-605 is mounted.
*4: It will be displayed only when the DF-605 is mounted.
*5: It will be displayed only when the IC-206 is mounted.
*6: It will be displayed only when the NC-503 is mounted.

10.3 Setting in the Service Mode

10.3.1 SERVICE'S CHOICE

A. MARKETING AREA

See the FK-506 Service Manual.
See P.40 of the FK-506 service manual

B. SHIPMENT

Functions	• To select the display of the fixed zoom ratios and paper sizes according to the applicable marketing area.
Use	
Setting/ Procedure	• The default setting is METRIC. "METRIC" INCH JAPAN CHINA L.AMERICA (METRIC) L.AMERICA (INCH)

C. MAINTENANCE COUNT.

Functions	• To enter an appropriate counter value (0 to 999999) as the tentative maintenance time. • Specify the setting on maintenance counter to "1" or "2": If the maintenance life is reached, the maintenance call (M1) or service call [Call Service (M1)] will appear. **NOTE** • **The counter value is decremented until it reaches -999999 even after it has counted 0.**
Use	
Setting/ Procedure	• The default setting is 0. "0" : Not counted 1 : Counted (The maintenance call display is given when the counter reaches 0.) 2 : Counted (The service call display is given and the initiation of any new copy cycle is inhibited when the counter reaches 0.) • When "1" or "2" is selected, a screen will then appear to allow the counter value to be entered.

D. IU LIFE STOP MODE

Functions	• When the supplies life count. reaches the life value, the IU life will be detected. • The mode when the IU life is reached, is specified by this setting. CONTINUOUS : Enables copying. Maintenance call display is given. STOP : Disables copying. service. call display is given and the initiation of any new copy cycle is inhibited. **NOTE** • **The counter value is decremented until it reaches -999999 even after it has counted 0. In this case, however, no image quality is guaranteed.**
Use	
Setting/ Procedure	• The default setting is CONTINUOUS. "CONTINUOUS" STOP

E. ID ADJUST

Functions	• To set the image density by varying Vg and Vb on the engine side.
Use	• Used when the image density is high or low.
Setting/ Procedure	• The default setting is 0. -3 to +3

F. VG ADJUST

Functions	• To adjust image density by varying Vg with changing sensitivities as the PC drum is used for an extended period of time.
Use	• Used when image problems (fog, void) occur. • Used when the PC drum unit has been replaced. Increase the setting value to eliminate void. Decrease the setting value to eliminate fog.
Setting/ Procedure	• The default setting is 0. -2 to +2

G. FUSER TEMP. (PLAIN)

Functions	• To set the temperature of the fusing roller for each type of paper, thereby making up for fusing performance that changes with the operating environment or type of paper.
Use	• Used when fusing failure occurs. • Used when the type of paper is changed.
Setting/ Procedure	• The default setting is 0. -1 to +2

<Temperature table for adjusting fusing temperature for plain paper>

Setting value	Paper width	Mode selected in SERVICE'S CHOICE	
		Mode 1	Mode 3
		Fusing heater lamp temperature (main/sub)	
2	221 mm or more	200 °C	
	220 mm or less		
1	221 mm or more	190 °C	
	220 mm or less		
0 (default value)	221 mm or more	180 °C	
	220 mm or less		
-1	221 mm or more	170 °C	
	220 mm or less		

H. FUSER TEMP. (THICK)

Functions	• To set the fusing temperature when thick paper is used.
Use	• Used when fusing failure occurs.
Setting/ Procedure	• The default setting is 0. -1 to +1

<Temperature table for adjusting fusing temperature for special paper>

Setting value	Mode selected in SERVICE'S CHOICE	
	Mode 1	Mode 3
	Fusing heater lamp temperature (main/sub)	
1	210 °C	
0 (default value)	200 °C	
-1	190 °C	

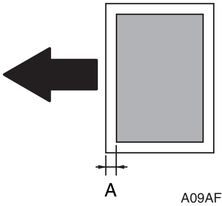
I. FUSER TEMP. (OHP)

Functions	• To set the fusing temperature when OHP film are used.
Use	• Used when fusing failure occurs.
Setting/ Procedure	• The default setting is 0. -1 to +1

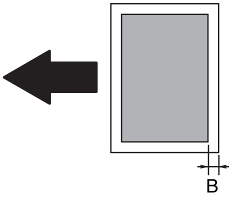
<Temperature table for adjusting fusing temperature for OHP film>

Setting value	Mode selected in SERVICE'S CHOICE	
	Mode 1	Mode 3
	Fusing heater lamp temperature (main/sub)	
1	175 °C	
0 (default value)	165 °C	
-1	155 °C	

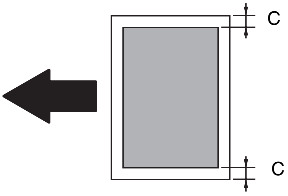
J. LEADING EDGE

Functions	• To adjust the erase width on the leading edge of the image by varying the laser emission timing.
Use	• Used when the PH unit has been replaced.
Setting/ Procedure	• The default setting is 4 mm. 0 mm 1 mm 2 mm 3 mm “4 mm” 5 mm
	• Adjustment Instructions To make the erase width smaller, decrease the setting value. To make the erase width greater, increase the setting value.
Adjustment Procedure	 A09AF3C501DA Set the erase width on the leading edge of the paper (width A). 1. Call SERVICE’S CHOICE of Service Mode to the screen. 2. Select [LEADING EDGE] and press the OK key. 3. Using [▲ / ▼] key, select the desired setting value. 4. Press the OK key to validate the setting value selected in step 3.

K. TRAILING EDGE

Functions	• To adjust the erase width on the trailing edge of the image by varying the laser emission timing.
Use	• Used when the PH Unit has been replaced.
Setting/ Procedure	• The default setting is 4 mm. 0 mm 1 mm 2 mm 3 mm “4 mm” 5 mm
	• Adjustment Instructions To make the erase width smaller, decrease the setting value. To make the erase width greater, increase the setting value.
Adjustment Procedure	 A09AF3C502DA Set the erase width on the trailing edge of the paper (width B). 1. Call SERVICE’S CHOICE of Service Mode to the screen. 2. Select [TRAILING EDGE] and press the OK key. 3. Using [▲ / ▼] key, select the desired setting value. 4. Press the OK key to validate the setting value selected in step 3.

L. VERTICAL EDGE

Functions	• To adjust the erase width on both edges of the image (in CD direction) by varying the laser emission timing.
Use	• Used when the PH Unit has been replaced.
Setting/ Procedure	The default setting is 4 mm. 0 mm 1 mm 2 mm 3 mm “4 mm” 5 mm
	• Adjustment Instructions To make the erase width smaller, decrease the setting value. To make the erase width greater, increase the setting value.
Adjustment Procedure	 Set the erase width on both edges of the paper (width C). *1.* Call SERVICE’S CHOICE of Service Mode to the screen. *2.* Select [VERTICAL EDGE] and press the OK key. *3.* Using [▲ / ▼] key, select the desired setting value. *4.* Press the OK key to validate the setting value selected in step 3.

M. LOOP Ad. (TRAY1)

Functions	• To adjust the length of the loop formed in the paper feed from the tray1 before the synchronizing roller.
Use	• Used when a skew feed, fold, or misfeed of paper occurs. • Used when variations in the amount of void on the leading edge occurs.
Setting/ Procedure	-3.9 to 3.9 mm (1 step: 0.6 mm)
Adjustment Procedure	*1.* Call SERVICE’S CHOICE of Service Mode to the screen. *2.* Select [LOOP Ad. (TRAY1)] and press the OK key. *3.* Using [▲ / ▼] key, select the desired setting value. *4.* Press the OK key to validate the setting value selected in step 3. • Try a different setting value until there are no variations in the amount of void on the leading edge, and paper skew, fold, or misfeed.

N. LOOP Ad. (TRAY2-5)

See P.13 of the PF-502 service manual

O. LOOP Ad. (DUPLEX)

See P.12 of the AD-504 service manual

P. LOOP Ad. (BYPASS)

Functions	• To adjust the length of the loop formed in the paper feed from the manual bypass tray before the synchronizing roller.
Use	• Used when a skew feed, fold, or misfeed of paper occurs. • Used when variations in the amount of void on the leading edge occurs.
Setting/ Procedure	-3.9 to 3.9 mm (1 step: 0.6 mm)
Adjustment Procedure	*1.* Call SERVICE'S CHOICE of Service Mode to the screen. *2.* Select [LOOP Ad. (BYPASS)] and press the OK key. *3.* Using [▲ / ▼] key, select the desired setting value. *4.* Press the OK key to validate the setting value selected in step 3. • Try a different setting value until there are no variations in the amount of void on the leading edge, and paper skew, fold, or misfeed.

Q. FLS PAPER SIZE

Functions	• To select the paper size for FLS.
Use	• Used when the FLS paper size is changed. • Used at setup.
Setting/ Procedure	• The default setting is 330✻210. 330✻203 "330✻210" 330✻216 330✻220 337✻206

R. FLS/LEGAL CHANGE

Functions	• To let LEGAL originals be detected as FLS ones.
Use	
Setting/ Procedure	• Default setting depend on the marketing area setting. NORMAL FLS←→LEAGAL

S. TX SPEED

See P.40 of the FK-506 service manual

T. RX SPEED

See P.40 of the FK-506 service manual

U. TX LEVEL

See P.40 of the FK-506 service manual

V. RX LEVEL

See P.41 of the FK-506 service manual

W. DTMF LEVEL

See P.41 of the FK-506 service manual

X. CNG LEVEL

See P.41 of the FK-506 service manual

Y. CED LEVEL

See P.41 of the FK-506 service manual

Z. ECM MODE

See P.41 of the FK-506 service manual

AA. CODING SCHEME

See P.41 of the FK-506 service manual

AB. REPORT DESTINATION

See P.42 of the FK-506 service manual

AC. TONER EMPTY REPORT

See P.42 of the FK-506 service manual

AD. IU LIFE REPORT

See P.42 of the FK-506 service manual

AE. MAINTENANCE REPORT

See P.42 of the FK-506 service manual

AF. PROTOCOL REPORT

See P.43 of the FK-506 service manual

AG.CCD APS SIZE

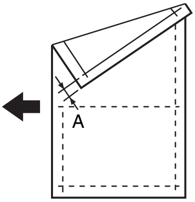
<table>
<tr><td>Functions</td><td>• To change the original size detection pattern that is used for CCD scan.</td></tr>
<tr><td>Use</td><td>
• To change the original size detection performance settings.
• For Inch and Latin America (Inch) areas
<Pattern 1>
<table>
<tr><td colspan="2">Original Size
Sensor</td><td rowspan="2">~144.7 mm</td><td rowspan="2">~220.9 mm</td><td rowspan="2">~221.0 mm</td></tr>
<tr><td>PS101</td><td>PS102</td></tr>
<tr><td>OFF</td><td>–</td><td>Invoice S</td><td>Letter S</td><td>Letter</td></tr>
<tr><td>ON</td><td>–</td><td>Legal S</td><td>Legal S</td><td>11×17 S</td></tr>
</table>
<Pattern 2>
<table>
<tr><td colspan="2">Original Size
Sensor</td><td rowspan="2">~143.9 mm</td><td rowspan="2">~153.0 mm</td><td rowspan="2">~187.0 mm</td><td rowspan="2">~213.0 mm</td><td rowspan="2">~220.9 mm</td><td rowspan="2">~225.0 mm</td><td rowspan="2">~262.0 mm</td><td rowspan="2">~284.4 mm</td><td rowspan="2">284.5 mm~</td></tr>
<tr><td>PS101</td><td>PS102</td></tr>
<tr><td>OFF</td><td>OFF</td><td>Invoice S</td><td>A5 S</td><td>B5 S</td><td>A4 S</td><td>Letter S</td><td>B5</td><td>B5</td><td>Letter</td><td>A4</td></tr>
<tr><td>ON</td><td>OFF</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>B4 S</td><td>11×17 S</td><td>A3</td></tr>
<tr><td>OFF</td><td>ON</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>B4 S</td><td>B4 S</td><td>11×17 S</td><td>A3</td></tr>
<tr><td>ON</td><td>ON</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>B4 S</td><td>B4 S</td><td>11×17 S</td><td>A3</td></tr>
</table>
• For Metric, China and Latin America (Metric) areas
<Pattern 1>
<table>
<tr><td colspan="2">Original Size
Sensor</td><td rowspan="2">~153.0 mm</td><td rowspan="2">~187.0 mm</td><td rowspan="2">~200.0 mm</td><td rowspan="2">~215.0 mm</td><td rowspan="2">~225.0 mm</td><td rowspan="2">~262.0 mm</td><td rowspan="2">~275.0 mm</td><td rowspan="2">275.1 mm~</td></tr>
<tr><td>PS101</td><td>PS102</td></tr>
<tr><td>OFF</td><td>–</td><td>A5 S</td><td>B5 S</td><td>16K S</td><td>A4 S</td><td>B5</td><td>B5</td><td>16K</td><td>A4</td></tr>
<tr><td>ON</td><td>–</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>B4 S</td><td>8K S</td><td>A3</td></tr>
</table>
<Pattern 2>
<table>
<tr><td colspan="2">Original Size
Sensor</td><td rowspan="2">~143.9 mm</td><td rowspan="2">~153.0 mm</td><td rowspan="2">~187.0 mm</td><td rowspan="2">~200.0 mm</td><td rowspan="2">~213.0 mm</td><td rowspan="2">~220.9 mm</td><td rowspan="2">~225.0 mm</td><td rowspan="2">~262.0 mm</td><td rowspan="2">~274.7 mm</td><td rowspan="2">~284.4 mm</td><td rowspan="2">284.5 mm~</td></tr>
<tr><td>PS 101</td><td>*PS 102</td></tr>
<tr><td>OFF</td><td>OFF</td><td>Invoice S</td><td>A5 S</td><td>B5 S</td><td>16K S</td><td>A4 S</td><td>Letter S</td><td>B5</td><td>B5</td><td>16K</td><td>Letter</td><td>A4</td></tr>
<tr><td>ON</td><td>OFF</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>FLS S</td><td>B4 S</td><td>8K S</td><td>11×17 S</td><td>A3</td></tr>
<tr><td>OFF</td><td>ON</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>B4 S</td><td>B4 S</td><td>8K S</td><td>11×17 S</td><td>A3</td></tr>
<tr><td>ON</td><td>ON</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>Legal S</td><td>B4 S</td><td>B4 S</td><td>8K S</td><td>11×17 S</td><td>A3</td></tr>
</table>
</td></tr>
<tr><td>Setting/
Procedure</td><td>• The default setting is PATTERN1.
“PATTERN1” PATTERN2</td></tr>
</table>

AH.GDI TIMEOUT

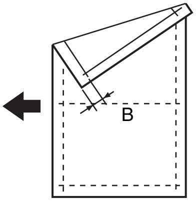
Functions	• To specify the time for timeout when data from PC is interrupted during GDI printing.
Use	
Setting/ Procedure	• The default setting is 6. 0 (5 sec.) 1 (10 sec.) 2 (20 sec.) 3 (30 sec.) 4 (40 sec.) 5 (50 sec.) “6 (60 sec.)”

10.3.2 ADJUST

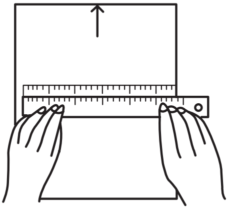
A. PRN MAIN REGIST

Functions	• To adjust by varying the starting position of image writing in the main scanning direction.
Use	• Used when the image on the copy deviates in the main scanning direction. • Used when the PH unit has been replaced.
Setting/ Procedure	60 (-4.0 mm) to 140 (+4.0 mm) (1 step: 0.1 mm)
	• Adjustment instructions If width A on the test pattern is longer than the specifications, decrease the setting value. If width A on the test pattern is shorter than the specifications, increase the setting value.
Adjustment Procedure	 A09AF3C504DA Adjust so that width A on the test pattern produced falls within the specified range. Specifications 20 ± 2.0 mm *1.* Load the tray 1 with A4 paper. *2.* Enter function of the Service Mode. *3.* Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern. *4.* Check to see if width A on the test pattern falls within the specified range. If width A falls outside the specified range, perform the following steps to make an adjustment. *5.* Select [PRN MAIN REGIST] of [ADJUST]. *6.* Using [▲ / ▼] key, select the appropriate setting value. *7.* Press the OK key to validate the setting value selected in step 6. *8.* If a single adjustment procedure does not successfully bring width A into the specified range, repeat steps 5 through 7.

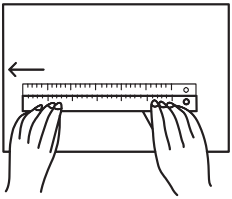
B. PRN SUB REGIST

Functions	• To adjust by varying the starting position of image writing in the sub scanning direction.
Use	• Used when the image on the copy deviates in the sub scanning direction. • Used when the PH unit has been replaced.
Setting/ Procedure	84 (-5.95 mm) to 116 (+5.95 mm) (1 step: 0.37 mm)
	• Adjustment instructions If width B on the test pattern is longer than the specifications, decrease the setting value. If width B on the test pattern is shorter than the specifications, increase the setting value.
Adjustment Procedure	 A09AF3C505DA Adjust so that width B on the test pattern produced falls within the specified range. Specifications 10 ± 1.5 mm 1. Load the tray 1 with A4 paper. 2. Enter function of the Service Mode. 3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern. 4. Check to see if width B on the test pattern falls within the specified range. If width B falls outside the specified range, perform the following steps to make an adjustment. 5. Select [PRN SUB REGIST] of [ADJUST]. 6. Using [▲ / ▼] key, select the appropriate setting value. 7. Press the OK key to validate the setting value selected in step 6. 8. If a single adjustment procedure does not successfully bring width B into the specified range, repeat steps 5 through 7.

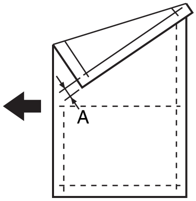
C. CCD MAIN ZOOM

Functions	• To adjust variations in machining and installation accuracy of different IR parts by varying the scanning zoom ratio in the main scanning direction.
Use	• Used when the CCD unit has been replaced (After the CCD unit has been adjusted for correct position).
Setting/ Procedure	• The default setting is 100. 95 (-2.0%) to 105 (+2.0%) (1 step: 0.4%)
	• Adjustment instructions If the length on the copy is longer than the actual one, decrease the setting value. If the length on the copy is shorter than the actual one, increase the setting value.
Adjustment Procedure	• Adjust so that the amount of error falls within ±1.0% of the length to be measured. • Adjust so that the following specifications are met when the length of the scale is 200 mm. Zoom Ratio/Specifications Zoom Ratio: Full size (× 1.00) Specifications: 200 ± 2.0 mm *1.* Place a scale on the original glass in parallel with the original width scale and make a copy.  A09AF3C506DA *2.* Measure the length of the scale on the copy. If the amount of error falls outside the specified range, perform the following steps to make an adjustment. *3.* Enter adjust of the Service Mode. *4.* Select [CCD MAIN ZOOM] of [ADJUST]. *5.* Using [▲ / ▼] key, select the appropriate setting value. *6.* Press the OK key to validate the setting value selected in step 5. *7.* If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 6.

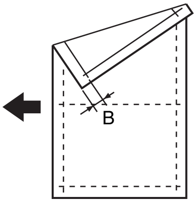
D. CCD SUB ZOOM

Functions	• To adjust variations in machining and installation accuracy of different IR parts by varying the scanning zoom ratio in the sub scanning direction.
Use	• Used when the scanner drive cables have been replaced.
Setting/ Procedure	• The default setting is 100. 95 (-2.0%) to 105 (+2.0%) (1 step: 0.4%)
	• Adjustment instructions If the length on the copy is longer than the actual one, decrease the setting value. If the length on the copy is shorter than the actual one, increase the setting value.
Adjustment Procedure	• Adjust so that the amount of error falls within ±1.0% of the length to be measured. • Adjust so that the following specifications are met when the length of the scale is 300 mm. Zoom Ratio/Specifications Zoom Ratio: Full size (× 1.00) Specifications: 300 ± 3.0 mm *1.* Place a scale so that it is at right angles to the original width scale, and copy it.  A09AF3C507DA *2.* Measure the length of the scale on the copy. If the amount of error falls outside the specified range, perform the following steps to make an adjustment. *3.* Enter adjust of the Service Mode. *4.* Select [CCD SUB ZOOM] of [ADJUST]. *5.* Using [▲ / ▼] key, select the appropriate setting value. *6.* Press the OK key to validate the setting value selected in step 5. *7.* If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 6.

E. CCD MAIN REGIST

Functions	• To adjust variations in machining and installation accuracy of different IR parts by varying the starting position of image scanning in the main scanning direction.
Use	• Used when the PH unit has been replaced. (After PRN MAIN REGIST, PRN SUB REGIST, and CCD MAIN ZOOM have been adjusted) • Used when the CCD unit has been replaced. (After the CCD unit has been adjusted for correct position)
Setting/ Procedure	20 (-8.0 mm) to 180 (+8.0 mm) (1 step: 0.1 mm)
	• Adjustment instructions If the deviation is longer than the specifications, increase the setting value. If the deviation is shorter than the specifications, decrease the setting value.
Adjustment Procedure	 A09AF3C504DA Adjust so that deviation between width A on the test pattern produced and that on the copy produced falls within the specified range. Specifications 0 ± 2.0 mm 1. Load the tray 1 with A4 paper. 2. Enter function of the Service Mode. 3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern. 4. Place the test pattern produced in step 3 on the original glass and make a copy of it. 5. Place the test pattern (original) on top of the copy and check for deviation in width A. If the deviation in width A falls outside the specified range, perform the following steps to make an adjustment. 6. Select [CCD MAIN REGIST] of [ADJUST]. 7. Using [▲ / ▼] key, select the appropriate setting value. 8. Press the OK key to validate the setting value selected in step 7. 9. If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 5 through 7.

F. CCD SUB REGIST

Functions	• To adjust variations in machining and installation accuracy of different IR parts by varying the starting position of image scanning in the sub scanning direction.
Use	• Used when the PH unit has been replaced. (After PRN MAIN REGIST, PRN SUB REGIST, and CCD MAIN ZOOM have been adjusted) • Used when the CCD unit has been replaced. (After the CCD unit has been adjusted for correct position)
Setting/ Procedure	60 (-4.0 mm) to 140 (+4.0 mm) (1 step: 0.1 mm)
	• Adjustment instructions If the deviation is longer than the specifications, increase the setting value. If the deviation is shorter than the specifications, decrease the setting value.
Adjustment Procedure	 A09AF3C505DA Adjust so that deviation between width B on the test pattern produced and that on the copy produced falls within the specified range. Specifications 0 ± 1.5 mm 1. Load the tray 1 with A4 paper. 2. Enter function of the Service Mode. 3. Select [PRN TEST PATTERN] and then [TEST PATTERN1]. Then, press the Start key. This will produce a test pattern. 4. Place the test pattern produced in step 3 on the original glass and make a copy of it. 5. Place the test pattern (original) on top of the copy and check for deviation in width B. If the deviation in width B falls outside the specified range, perform the following steps to make an adjustment. 6. Select [CCD SUB REGIST] of [ADJUST]. 7. Using [▲ / ▼] key, select the appropriate setting value. 8. Press the OK key to validate the setting value selected in step 7. 9. If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 5 through 7.

G. ADF SUB ZOOM

See P.19 of the DF-502 service manual
See P.7 of the DF-605/MK-501 service manual

H. ADF MAIN REGIST

See P.20 of the DF-502 service manual
See P.8 of the DF-605/MK-501 service manual

I. ADF SUB REGIST1

See P.21 of the DF-502 service manual
See P.9 of the DF-605/MK-501 service manual

J. ADF SUB REGIST2

See P.10 of the DF-605/MK-501 service manual

K. ADF REG. LOOP1

See P.10 of the DF-605/MK-501 service manual

L. ADF REG. LOOP2

See P.11 of the DF-605/MK-501 service manual

M. ATDC GAIN

Functions	• To manually adjust the ATDC sensor voltage.
Use	• To change the original size detection performance settings.
Setting/ Procedure	123 (5.39 V) to 186 (8.15 V) • The adjusted value of the ATDC auto adjust is the setting value.

N. MODEL SETTING

Functions Use	**NOTE** • **Never change this setting.** • **If it is changed, the Tech. Rep. call (C03FF) will appear.**
Setting/ Procedure	• Default setting depend on the marketing area setting. 20 ppm 18 ppm 16 ppm

10.3.3 COUNTER

A. TOTAL COUNTER

Functions	• To display the total count value of the selected mode.
Use	• To check total count value in each mode. • Counting method is different depending on the settings of [SECURITY] → [TOTAL COUNTER COUNT] in the service mode. See P.144
Setting/ Procedure	COPY : Total count value in copy mode COPY DUPLEX : Total count value of duplex copies PRINT : Total count value in PC print mode PRINT DUPLEX: Total count value of duplex prints

B. SIZE COUNTER

Functions	• To display the count of the size counter.
Use	• Paper sizes on which counting can be made are different depending on the setting of [SECURITY] → [SIZE COUNTER] in the service mode.
Setting/ Procedure	• To clear the count, use [CLEAR DATA] of the Service Mode.

C. PM COUNTER

Functions	• To display the count of the number of times each of different parts of the machine has been used.
Use	• This function is used at the time of maintenance work for the main body and options. • The count should be cleared when the corresponding PM part is replaced.
Setting/ Procedure	1 : BYPASS 2 : TRAY1 3 : TRAY2 4 : TRAY3 5 : TRAY4 6 : TRAY5 7 : ADF FEED 8 : ADF REVERSE 9 : IR 10: OZONE 11: CLEANING • To clear the count, use [CLEAR DATA] of the Service Mode.

D. MAINTENANCE COUNT.

Functions	• To display the count of the maintenance counter.
Use	When the counter reaches “0”, maintenance call M1 or the service call will appear, according to the setting on MAINTENANCE COUNT. of SERVICE’S CHOISE. See P.117
Setting/ Procedure	• To clear the count, use [CLEAR DATA] of the Service Mode.

E. SUPPLIES COUNTER

Functions	• To display the count of the supplies life counter.
Use	When the counter reaches “0”, life 1 will be detected and maintenance call M2 will appear. The initial value is 40,000, and the countdown system is used.
Setting/ Procedure	• To clear the count, use [CLEAR DATA] of the Service Mode.

F. APPLICATION COUNTER

Functions Use	• To display the count of the number of sheets of paper used for each of different applications.
Setting/ Procedure	COPY PRINT : Number of copies made FAX RX PRINT: (Used only when FK-506 is mounted) REPORT PRN : (Used only when FK-506 is mounted) PC PRINT : Number of printed pages produced from PC FAX TX : (Used only when FK-506 is mounted) MAIL TX : (Used only when IC-206/NC-502 is mounted) • To clear the count, use [CLEAR DATA] of the Service Mode.

G. SCAN COUNTER

Functions	• To display the count of the scan counter.
Use	
Setting/ Procedure	• The number of scan motions carried out for copying is not counted. • To clear the count, use [CLEAR DATA] of the Service Mode.

H. PAPER SIZE COUNTER

Functions	• To display the count of the number of sheets of paper used for each size and type.
Use	
Setting/ Procedure	1: A3 2: B4 3: A4 L 4: A4 C 5: B5 6: A5 7: FLS 8: LEDGER 9: 11 × 14 10: LEGAL 11: LETTER L 12: LETTER C 13: INVOICE 14: OTHER 15: PLAIN 16: RECYCLE 17: SPECIAL 18: 1-SIDE (Used only when AD-504 is mounted) 19: OHP 20: THICK 21: ENVELOPE • To clear the count, use [CLEAR DATA] of the Service Mode.

I. MISFEED COUNTER

Functions	• To display the count of the number of paper misfeeds that have occurred at different parts of the machine.
Use	
Setting/ Procedure	1 : BYPASS 2 : TRAY1 3 : TRAY2 (Used only when PF-502 is mounted) 4 : TRAY3 (Used only when PF-502 is mounted) 5 : TRAY4 (Used only when PF-502 is mounted) 6 : TRAY5 (Used only when PF-502 is mounted) 7 : PICK-UP/TSPT. 8 : DUPLEX (ENTRANCE) (Used only when AD-504 is mounted) 9 : DUPLEX (FEED) (Used only when AD-504 is mounted) 10 : FUSER 11 : SEPARATOR 12 : ADF (PICK-UP) 13 : ADF (TSPT.) 14 : ADF (EXIT) 15 : ADF (REVERSE) (Used only when AD-504 is mounted) • To clear the count, use [CLEAR DATA] of the Service Mode.

J. TROUBLE COUNTER

Functions Use	• To display the count of the number of malfunctions detected according to the malfunction code.
Setting/ Procedure	C0000: Main motor malfunction C0044: ADF cooling fan failure C0045: Fusing cooling fan motor malfunction C004E: Power unit cooling fan motor malfunction C0070: Toner replenishing motor malfunction C0210: Abnormal image transfer voltage C0500: Warm-up failure C0501: Warm-up failure 2 C0510: Fusing failure (abnormally low temperature) C0511: Fusing failure (abnormally low temperature 2) C0520: Fusing failure (abnormally high temperature) C0521: Fusing failure (abnormally high temperature 2) C0650: Faulty scanner home position sensor C0B60: Bin switching motor malfunction C0B80: Shift motor malfunction C0F32: Faulty TCR sensor C0F33: Improperly adjusted TCR sensor C1038: Engine connection failure C1200: Faulty ASIC/memory C1300: Polygon motor malfunction C133B: Communication with option error C133C: Modem fault C133D: ROM checksum error C13F0: Faulty HSYNC C1468: Faulty parameter chip C14A3: IR fluorescent lamp fault • To clear the count, use [CLEAR DATA] of the Service Mode.

10.3.4 DISPLAY

A. TONER DENSITY LEVEL

Functions	• To display the current output value of TCR sensor. • Refer to the following table for actual T/C values.
Use	• Used to check the T/C ratio when the image density is defective.

Display	T/C
⋮	⋮
80	8.0%~8.4%
⋮	⋮
100	10.0%~10.4%
⋮	⋮
130	13.0%~13.4%
135	13.5%~13.9%
140	14.0%~14.4%
145	14.5%~14.9%
⋮	⋮

B. PROCESS CONTROL

Functions	• To display the Vg and Vb values.
Use	

Display	Vb (V)	Vg (V)
-5	-300	-450
0	-400	-550
+5	-500	-650

C. MAIN F/W VER.

Functions	• To display the main firmware (MFPB) version information.
Use	

D. ENGINE F/W VER.

Functions	• To display the engine firmware (PRCB) version information.
Use	

E. PCL F/W VER.

- This function is available only when the optional IC-205 is installed.

Functions	• To display the PCL firmware version information.
Use	

F. NIC F/W VER.

- This function is available only when the optional NC-503 is installed.

Functions	• To display the NIC firmware version information.
Use	

G. ADF F/W VER.

- This function is available only when the optional DF-605 is installed.

Functions	• To display the ADF firmware version information.
Use	

H. MAIN RAM SIZE

Functions	• To display the main memory size.
Use	

I. SERIAL NO.

Functions	• To display the serial number of the machine.
Use	

J. CUSTOMER ID

Functions	• To display the customer ID of the machine.
Use	

10.3.5 FUNCTION

A. PAPER FEED TEST

Functions	• To check for correct paper passage of the paper take-up and transport system by letting the machine consecutively take up and feed paper without involving actual printing action. • Here are the details of operation involved in the paper passage motion. The scanner does not make any scan motion. Paper is fed until the corresponding paper source runs out of paper. This test cannot be run with the manual bypass or multiple bypass (option). No counters are activated.
Use	• Used when a paper misfeed occurs
Setting/ Procedure	<Step> *1.* Select the paper source. TRAY1 TRAY2 *2.* Press the OK key to start the paper feed test. *3.* Press the Stop key to stop the paper feed test.

B. PROCESS CHECK

Functions Use	• HV output (for factory setting only) *Should not be used

C. ATDC AUTO ADJUST

Functions	• To make an automatic adjustment of the TCR sensor.
Use	• Used at setup. • Used when developer has been changed. • Used when IU has been replaced.
Setting/ Procedure	<Step> *1.* Press the OK key to start the adjustment. *2.* The adjustment sequence automatically stops as soon as the adjustment is made.

D. PRN TEST PATTERN

(1) PATTERN1

Functions	• To produce a test pattern for image adjustments.
Use	• When skew, registration, or zoom ratio has been adjusted.
Setting/ Procedure	<Step> *1.* Select the paper source. *2.* Select the type of test pattern. *3.* Press the OK key to let the machine produce the test pattern.

(2) PATTERN2

Functions	• To produce halftone and gradation test patterns.
Use	• Used when checking for uneven density or uneven pitch. • Used when checking for gradation reproducibility.
Setting/ Procedure	<Step> *1.* Select the paper source. *2.* Select the type of test pattern. *3.* Press the OK key to let the machine produce the test pattern.

E. ADF FEED TEST

See P.22 of the DF-502 service manual
See P.11 of the DF-605/MK-501 service manual

F. COPY ADF GLASS

Functions	• To check for scratches and dirt on the original scanning glass.
Use	• Used when a dirty image occurs.
Setting/ Procedure	See P.22 of the DF-502 service manual See P.11 of the DF-605/MK-501 service manual

G. CCD MOVE TO HOME

Functions	• To move the scanner to its home position and fix it at the home position.
Use	• Used when transporting the machine.
Setting/ Procedure	<Step> *1.* Select [HOME POSITION] and touch OK to move the scanner from the standby position to the home position. *2.* Select [STANDBY POSITION] and touch OK to move the scanner from the home position to the standby position.

H. UPLOAD F/W

See P.43 of the FK-506 service manual

I. FAX RES. COPY TEST

See P.43 of the FK-506 service manual

J. SCAN TEST

Functions	• To check that the exposure lamp turns ON properly and the scanner moves properly.
Use	• Used when the scan motion is faulty.
Setting/ Procedure	<Step> *1.* Press the OK key to start the scan test. *2.* Pressing the Stop key will stop the scan test.

K. ADF WIDTH Ad. (Max)

See P.11 of the DF-605/MK-501 service manual

L. ADF WIDTH Ad. (Min)

See P.12 of the DF-605/MK-501 service manual

M. ADF SENSOR ADJUST

See P.12 of the DF-605/MK-501 service manual

10.3.6 SOFT SWITCH

See P.44 of the FK-506 service manual

10.3.7 REPORT

See P.44 of the FK-506 service manual

10.3.8 ADMIN. REGISTRATION

Functions	• To register or change administrator number.
Use	• To change administrator number. • A new administrator number can be set without entering the current registered administrator number. Therefore, this function can be used when an administrator forgets the current registered administrator number.
Setting/ Procedure	• The default setting is 000000. *1.* Enter the administrator number (6 digits) using the 10-key pads. *2.* Touch OK key and register the number.

10.3.9 FIXED ZOOM CHANGE

- FIXED ZOOM CHANGE is used to change the fixed zoom ratios.

<Step>

1. Select the particular fixed zoom ratio to be changed.
2. Using the 10-key pad, enter the desired fixed zoom ratio.

A. Default values and setting range of fixed zoom ratios

(1) Japan

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	122%	101% to 140%
EXPANSION2	141%	141% to 199%

(2) Metric

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(3) Inch

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	64%	51% to 64%
REDUCTION1	78%	65% to 99%
EXPANSION1	121%	101% to 128%
EXPANSION2	129%	129% to 199%

(4) China

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	81%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(5) Latin America (Metric)

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	70%	51% to 70%
REDUCTION1	78%	71% to 99%
EXPANSION1	115%	101% to 140%
EXPANSION2	141%	141% to 199%

(6) Latin America (Inch)

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	64%	51% to 64%
REDUCTION1	78%	65% to 99%
EXPANSION1	121%	101% to 128%
EXPANSION2	129%	129% to 199%

(7) OEM1 US

Setting name	Default fixed zoom ratio	Setting range
REDUCTION2	64%	51% to 64%
REDUCTION1	77%	65% to 99%
EXPANSION1	129%	101% to 154%
EXPANSION2	155%	155% to 199%

10.3.10 FACTORY TEST

A. SIGNAL TEST

See P.44 of the FK-506 service manual

B. RELAY TEST

See P.44 of the FK-506 service manual

C. DIAL TEST

See P.44 of the FK-506 service manual

D. VOLUME TEST

See P.44 of the FK-506 service manual

E. PANEL BUZZER TEST

Functions Use	• To test LEDs and keys on control panel
Setting/ Procedure	PANEL LED TEST • Make sure that all LEDs on control panel light (for 5 seconds). PANEL SWITCH TEST • Press the control keys and numeric keys, and make sure that the names of switches appear in the LCD display. • To release the test, press the panel reset key twice: The initial screen will be restored.

F. RAM TEST

Functions Use	• Write or read data to/from RAM memory to make sure of normal operation.
Setting/ Procedure	*1.* Pressing the OK key will start the check. *2.* After approx. 30 seconds, “RAM Chip is OK” will appear.

10.3.11 CLEAR DATA

A. DRAM CLEAR

See P.45 of the FK-506 service manual

B. FLASH ROM CLEAR

See P.45 of the FK-506 service manual

C. MEMORY CLEAR

Functions Use	• To clear the setting values listed on the right, resetting them to the default values.
Setting/ Procedure	• Settings of the Utility Mode • Settings of SERVICE’S CHOICE in the Service Mode • Settings of ADJUST of the Service Mode • Setting of ADMIN. REGISTRATION of the Service Mode • Settings of FIXED ZOOM CHANGE of the Service Mode • Settings of SECURITY of the Service Mode • Settings of copy programs **NOTE** • **After memory clear has been executed, be sure to turn OFF and ON the power switch.**

D. PM COUNTER

Functions Use	• To clear each of the counts of the PM counter.

E. MAINTENANCE COUNTER

Functions	• To clear the count of the maintenance counter.
Use	

F. SUPPLIES LIFE COUNT.

Functions	• To clear the count of the supplies life counter.
Use	

G. APPLICATION COUNTER

Functions	• To clear each of the counts of the application counter.
Use	

H. SCAN COUNTER

Functions	• To clear the count of the scan counter.
Use	

I. PAPER SIZE COUNTER

Functions	• To clear each of the counts of the paper size counter.
Use	

J. MISFEED COUNTER

Functions	• To clear each of the counts of the misfeed counter.
Use	

K. TROUBLE COUNTER

Functions	• To clear each of the counts of the trouble counter.
Use	

L. ADF BACKUP CLEAR

See P.12 of the DF-605/MK-501 service manual

11. Security

11.1 Security function setting procedure

11.1.1 Procedure

1. Call the Service mode to the screen.
2. Press the following keys in this order:
   Stop → 9
3. The Security mode screen will appear.

11.1.2 Exiting

- Press the Panel Reset key as many times as it is required to display the initial screen.

11.1.3 Changing the setting value in Security functions

1. Select the desired item using [▲ / ▼ / ▶ / ◀] key.
2. Select the setting value using [▲ / ▼ / ▶ / ◀] key, or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

11.2 Security function tree

Security		Ref. page
SECURITY	TOTAL COUNTER COUNT	P.144
	SIZE COUNTER COUNT	P.144
	PLUG-IN COUNTER COPY	P.145
	MACHINE COUNTER	P.145

11.3 Setting in the Security

11.3.1 TOTAL COUNTER COUNT

Functions Use	• To set the count-up method.
Setting/ Procedure	• The default setting is 0. "0" : One count-up for each copy cycle (ordinary mode) 1 : Multiple count-up according to the paper size and copy mode. 2 : Multiple count-up according to the paper size and copy mode.

11.3.2 SIZE COUNTER COUNT

Functions Use	• To set the paper size to be counted.
Setting/ Procedure	• The default setting is 1. 0 : Not counted "1" : A3/LEDGER L 2 : A3/B4/LEDGER L/LEGAL L/8K L 3 : A3/B4/FLS/LEDGER L/LEGAL L/11 × 14 L/8K L

11.3.3 PLUG-IN COUNTER COPY

Functions	• To select whether to enable or disable copying according to whether the plug-in counter is mounted or not.
Use	
Setting/ Procedure	• The default setting is ENABLE. "ENABLE" DISABLE

11.3.4 MACHINE COUNTER

Functions	• To select whether to enable or disable copying according to whether the machine counter is mounted or not.
Use	
Setting/ Procedure	• The default setting is DISABLE. ENABLE "DISABLE"

<Count-up Table>

Size counter count mode	Size other than those set			Set size		
Total counter count mode	0	1	2	0	1	2
Total counter	1			1	2	2
Size counter	Not count			1	1	2

1: 1 count 2: 2 counts

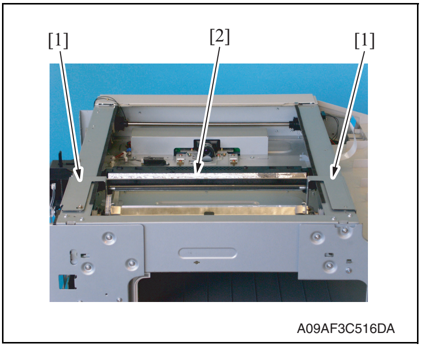
12. Mechanical adjustment

12.1 Adjustment of the position of the scanner and 2nd/3rd mirrors carriage

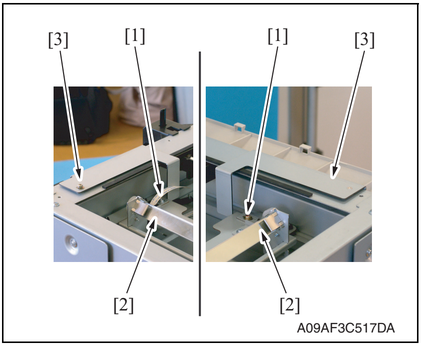
NOTE

- **This adjustment is to be made when the scanner drive cables has been replaced or rewound.**

1. Remove the original glass.
See P.42

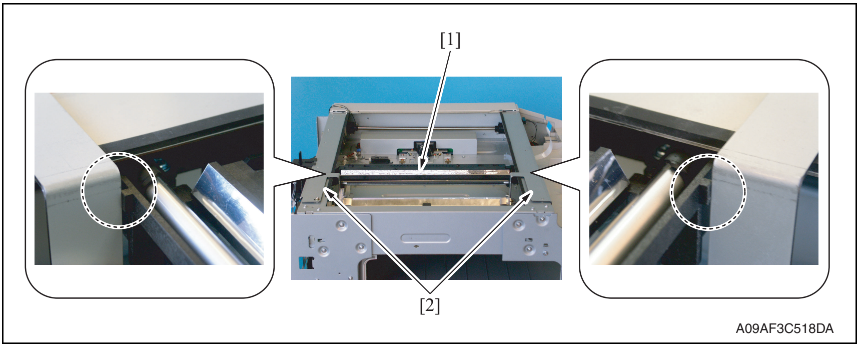


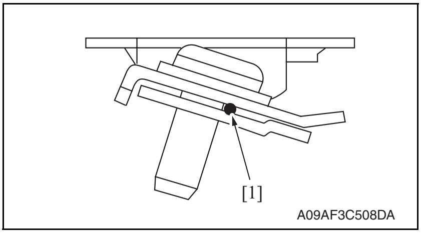
2. Fit the scanner/mirrors carriage positioning jigs [1] in position. Then, press the 2nd/3rd mirrors carriage [2] up against the jigs.



3. Loosen the fixing screws [1] and adjust as necessary so that there is no clearance between the 2nd/3rd mirrors carriage [2] and the jigs [3].

4. Press the scanner [1] up against the jigs [2] and tighten the fixing screws.





NOTE

- **When the scanner assy is secured to the scanner drive cables [1] using the fixing brackets, make sure that the cables are located as shown on the left.
If the cables are not positioned properly, the scanner assy can move askew, resulting an image problem.**

12.2 CCD unit position adjustment

NOTE

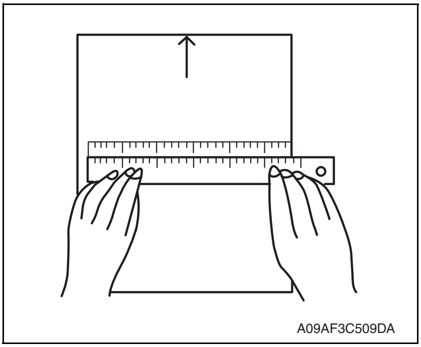
- **This adjustment is to be made when the CCD unit has been replaced.**

<Adjustment standard>

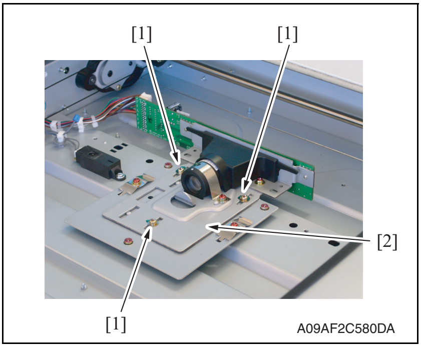
- Adjust so that the amount of error falls within ±1.0% of the length to be measured.
- Adjust so that the following specifications are met when the length of the scale is 200 mm.

Zoom ratio/specifications
Zoom ratio: Full size (× 1.00)
Specifications: 200 ± 2.0 mm

1. Place a scale on the original glass in parallel with the original width scale and make a copy.



2. Measure the length of the scale on the copy. If the amount of error falls outside the specified range, perform the following steps to make an adjustment.



3. Loosen the three CCD unit mounting screws [1] (painted in green), slide the CCD unit [2] to the right or left, and secure it in position.

Adjustment Instructions
If the length on the copy is longer than the actual one, move the CCD unit to the right.
If the length on the copy is shorter than the actual one, move the CCD unit to the left.
If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 1 through 3.

12.3 Adjustment of the gap between the doctor blade and sleeve roller (Db adjustment)

NOTE

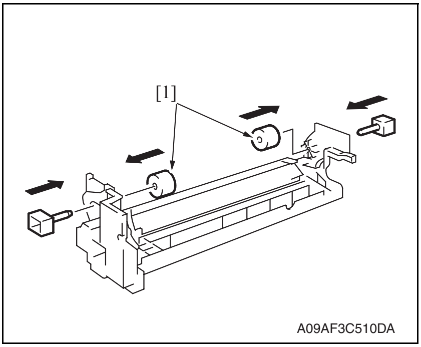
- **This adjustment is to be made when an image problem (uneven density, low ID, gradation reproducibility failure, etc.) occurs.**

<Adjustment standard>

- The gap between the doctor blade and the sleeve roller should meet the following specifications.

Specifications
0.39 ± 0.04 mm (as set using the jigs)

1. Remove the imaging unit.
2. Separate the imaging unit into the drum assy and developing assy.
3. Remove the PC drum, main erase, PC drum charge corona assy, and ozone filter.
   See P.20

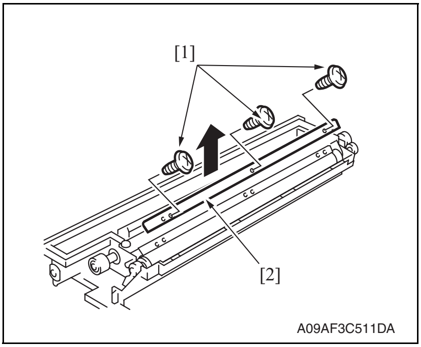


4. Install the Ds collar positioning jigs [1].

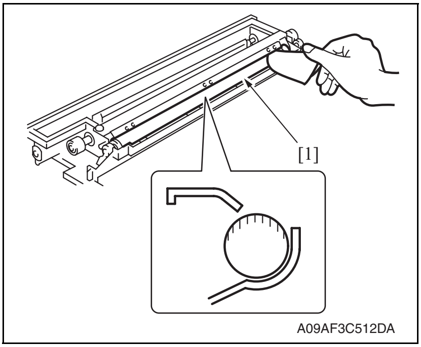
NOTE

- **Ready one PC positioning jig (pivot shaft) separately.**
  (For details, see the Parts Guide Manual.)

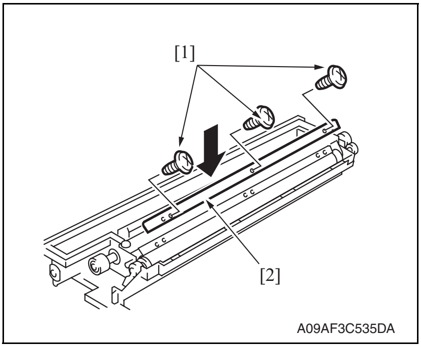
5. Remove the developer scattering prevention plate.
   See P.26



6. Remove three screws [1] and the doctor blade [2].



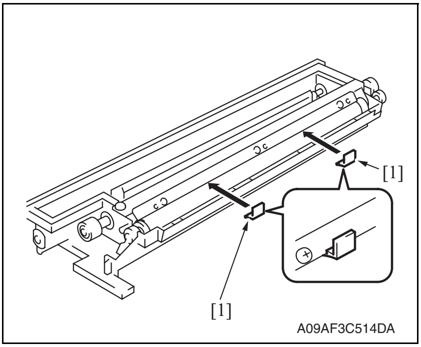
7. Using a small piece of paper, remove developer from the shaded area on the surface of the sleeve roller [1] and put it in the developer mixing chamber.
8. Remove the developer left on the surface of the sleeve roller.



9. Temporarily secure the doctor blade [2] using three new screws [1].

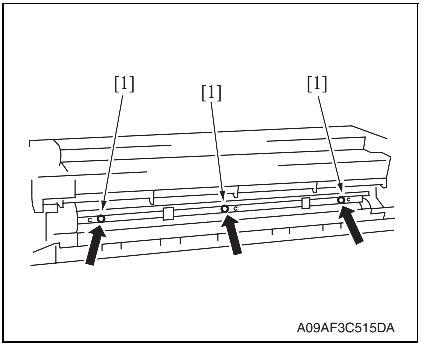
NOTE

- **Whenever a Db adjustment is made, use new screws (to which lock paint has been applied).**



10. Install the Db gap adjusting jigs [1] in a space between the sleeve roller and doctor blade.

11. Put the developing assy and drum assy together.



12. Press the doctor blade tightly up against the Db gap adjusting jigs and tighten the screws [1] in the order of (1) at the front, (2) at the center, and (3) in the rear.

NOTE

- **The doctor blade mounting screws have been coated with lock paint and the job must be completed within 30 min. If the job extends more than that time, change the screws for new ones.**

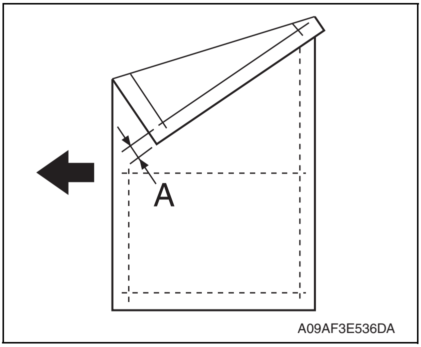
12.4 Manual bypass (for the optional AD-504) CD registration adjustment

NOTE

- **This adjustment is to be made when the PH unit has been replaced.**

<Adjustment procedure>

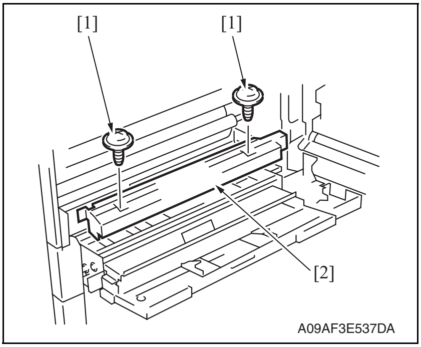
1. Load the paper feed tray/1 with A4 paper.
2. Enter function of the Service Mode.
3. Select “PRN TEST PATTERN” and then “PATTERN1.” Then, press the Start key. This will produce a test pattern.
4. Place the test pattern produced on the original glass.
5. Load A4 paper in the manual bypass and make a test copy.



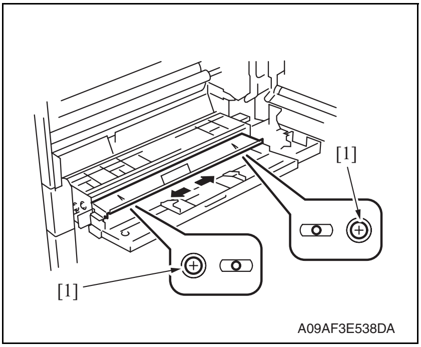
6. Check width A on the copy of the test pattern. If width A falls outside the specified range, perform the following steps to make an adjustment.

Specifications
20 ± 2.0 mm

7. Open the right door.



8. Remove two screws [1] and the manual bypass cover [2].



9. Loosen two screws [1] on the manual bypass and adjust the position of the manual bypass.

Adjustment Instructions
If width A on the copy is smaller than width A on the test pattern, move the manual bypass toward the rear of the machine.
If width A on the copy is greater than width A on the test pattern, move the manual bypass toward the front of the machine.

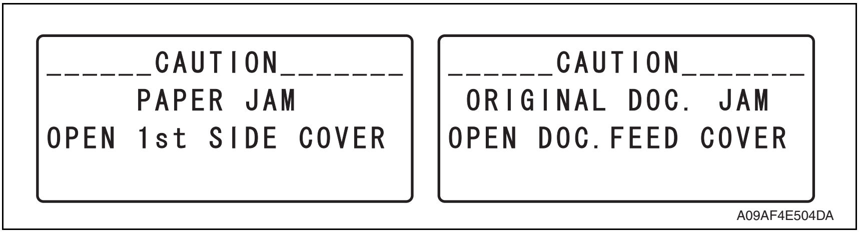
10. Make another copy of the test pattern and check for any error in width A.

Troubleshooting

13. Jam display

13.1 Misfeed display

- When a paper misfeed occurs, the error indicator lights up steadily and the display gives a corresponding message.



```
______CAUTION_______
     PAPER JAM
OPEN 1st SIDE COVER
```

```
______CAUTION_______
 ORIGINAL DOC. JAM
OPEN DOC.FEED COVER
```

A09AF4E504DA

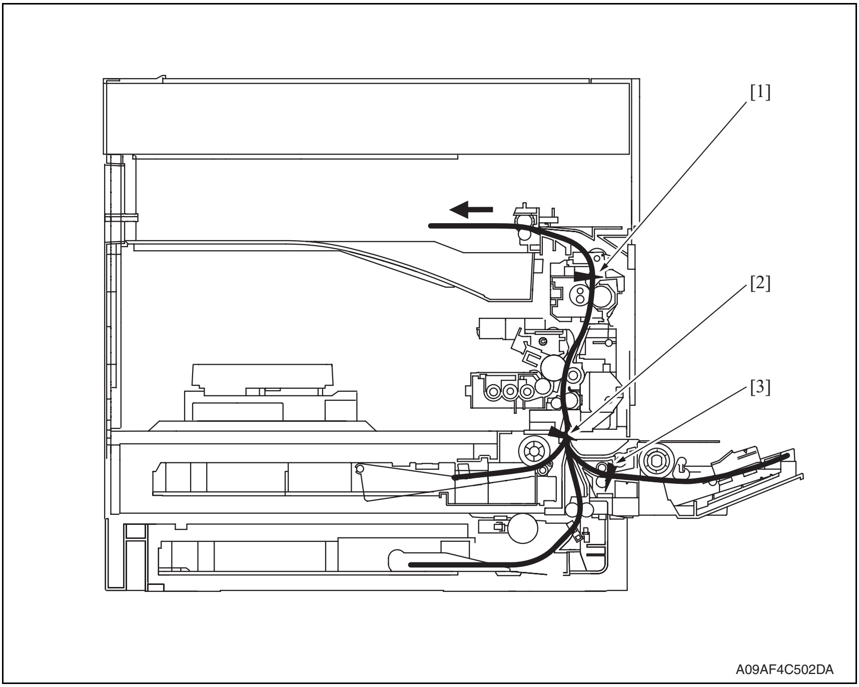
Display message	Misfeed/paper location	Ref. page
OPEN 1st SIDE COVER	Tray 1 paper feed section	P.156
	Manual bypass tray paper feed section	P.157
	Multiple bypass tray paper feed section See P.25 of the MB-501 service manual.	
	Paper separating section	P.158
	Fusing/paper exit section	P.159
OPEN 2nd SIDE COVER	See P.17 of the PF-502 service manual.	
OPEN 3rd SIDE COVER		
OPEN 4th SIDE COVER		
OPEN 5th SIDE COVER		
OPEN DOC. FEED COVER	See P.27 of the DF-502 service manual. See P.15 of the DF-605/MK-501 service manual.	

13.1.1 Display resetting procedure

- Open the corresponding cover, clear the sheet of paper misfed, and close the cover.

13.2 Sensor layout

13.2.1 System mounted with PF-502 and MB-501.



[1]	Exit paper sensor (PS3)	[3]	Paper set sensor/bypass (PS2)
[2]	Registration sensor (PS1)		

13.3 Solution

13.3.1 Initial check items

- When a paper misfeed occurs, first perform the following initial checks.

Check item	Action
Does paper meet product specifications?	Replace paper.
Is the paper curled, wavy, or damp?	Replace paper. Instruct the user on the correct paper storage procedures.
Is a foreign object present along the paper path, or is the paper path deformed or worn?	Clean or change the paper path.
Are the paper separator fingers dirty, deformed, or worn?	Clean or replace the defective paper separator finger.
Are rolls/rollers dirty, deformed, or worn?	Clean or replace the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the paper?	Set as necessary.
Are the actuators operational and checked for correct operation?	Correct or replace the defective actuator.

13.3.2 Misfeed at tray1 paper feed section

A. Detection timing

Type	Description
Tray1 paper feed section misfeed detection	• The leading edge of the paper does not unblock the registration sensor (PS1) even after the lapse of a given period of time after the paper feed solenoid/1 (SD1) has been energized.
Size error detection	• The registration sensor (PS1) is not blocked even after the lapse of a given period of time after the paper has unblocked the PS1.
	• The registration sensor (PS1) is blocked before the lapse of a given period of time.

B. Action

Relevant electrical components	
Registration sensor (PS1) Paper feed solenoid/1 (SD1)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	–	–
2	PS1 sensor check	PRCB PJ17PRCB-3 (ON)	C-5
3	SD1 operation check	PRCB PJ9PRCB-2 (REM)	C-14
4	Replace PRCB	–	–

13.3.3 Misfeed at the manual bypass tray paper feed section

A. Detection timing

Type	Description
Manual bypass tray paper feed section misfeed detection	• The leading edge of the paper does not unblock the registration sensor (PS1) even after the lapse of a given period of time after the paper feed solenoid/bypass (SD2) has been energized.
Size error detection	• The registration sensor (PS1) is not blocked even after the lapse of a given period of time after the paper has unblocked the PS1.
	• The registration sensor (PS1) is blocked before the lapse of a given period of time.
Paper left at the manual bypass tray paper feed section	• The paper set sensor/bypass (PS2) is blocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

Relevant electrical components	
Registration sensor (PS1) Paper feed solenoid/bypass (SD2)	Paper set sensor/bypass (PS2) Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	–	–
2	PS1 sensor check	PRCB PJ17PRCB-3 (ON)	C-5
3	SD2 operation check	PRCB PJ12PRCB-2 (REM)	K-18
4	PS2 sensor check	PRCB PJ12PRCB-5 (ON)	K-17
5	Replace PRCB	–	–

13.3.4 Misfeed at the paper separating section

A. Detection timing

Type	Description
Paper separating section misfeed detection	• The exit paper sensor (PS3) is not blocked even after the lapse of a given period of time after the paper has unblocked the registration sensor (PS1).
	• The registration sensor (PS1) is not blocked even after the lapse of a given period of time after the paper has unblocked the PS1.
	• The registration sensor (PS1) is blocked before the lapse of a given period of time after the paper has unblocked the PS1.
Paper left at the paper separating section	• The registration sensor (PS1) is unblocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

Relevant electrical components	
Registration sensor (PS1) Exit paper sensor (PS3)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	–	–
2	PS1 sensor check	PRCB PJ17PRCB-3 (ON)	C-5
3	PS3 sensor check	PRCB PJ15PRCB-3 (ON)	C-18
4	Replace PRCB	–	–

13.3.5 Misfeed at the fusing/exit section

A. Detection timing

Type	Description
Fusing/exit section misfeed detection	• The exit paper sensor (PS3) is not unblocked even after the lapse of a given period of time after the registration sensor (PS1) has been blocked.
Paper left at the fusing/exit section	• The exit paper sensor (PS3) is blocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

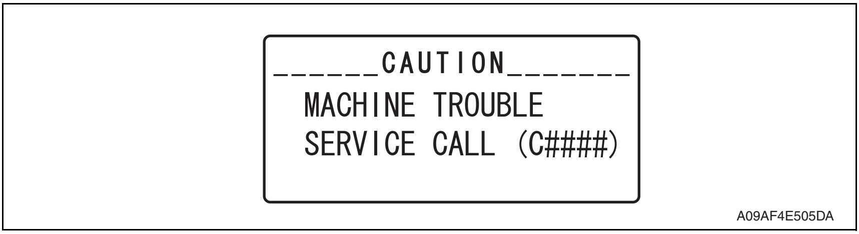
Relevant electrical components	
Registration sensor (PS1) Exit paper sensor (PS3)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	–	–
2	PS1 sensor check	PRCB PJ17PRCB-3 (ON)	C-5
3	PS3 sensor check	PRCB PJ15PRCB-3 (ON)	C-18
4	Replace PRCB	–	–

14. Malfunction code

14.1 Trouble code

- The copier's CPU performs a self-diagnostics function that, on detecting a malfunction, gives the corresponding malfunction code and maintenance call mark on the control panel.



______CAUTION_______
MACHINE TROUBLE
SERVICE CALL (C####)

A09AF4E505DA

14.1.1 Trouble code list

NOTE

- **Error codes having no prefix "C" are for the fax machine. See the FK-506 Service Manual for these.**

Code	Item	Description
C0000	Main motor malfunction	• The main motor (M1) lock signal remains HIGH for a continuous 1-sec. period at any time 1 sec. after the main motor has started turning.
C0044	ADF cooling fan failure (Only when the optional DF-605 is mounted)	See P.160 of the DF-605/MK-501 service manual.
C0045	Fusing cooling fan motor malfunction	• The fusing cooling fan motor (FM1) lock signal remains HIGH for a continuous 1-sec. period while the fusing cooling fan motor is turning at full speed or decelerated speed.
C004E	Power supply cooling fan motor malfunction	• The power supply cooling fan motor (FM2) lock signal remains HIGH for a continuous 1-sec. period while the power supply cooling fan motor remote signal remains ON (for full-speed rotation) or OFF (for decelerated-speed rotation).
C0070	Toner replenishing motor malfunction	• The toner bottle home position sensor (PS6) outputs a HIGH signal for a continuous 3.5-sec. period while the toner bottle is turning. • The toner bottle home position sensor (PS6) outputs a LOW signal for a continuous 2-sec. period while the toner bottle is turning.
C0210	Abnormal image transfer voltage	• The image transfer voltage remains more than 100 V continuously for a given period of time while the PC drum remains stationary.
C03FF	Faulty model setting	• "Model Setting" of "Adjust" available from the Service mode is incorrectly set.
C0500	Warm-up failure	• The surface temperature of the fusing roller does not reach a given level even after the lapse of a given period of time during a warm-up cycle.

Code	Item	Description
C0500	Warm-up failure (for the model having two fusing roller heater lamps)	• The thermistor (TH1) does not detect a predetermined temperature within 30 sec. after a warm-up cycle has been started and thus the warm-up cycle is not completed. • The surface temperature of the fusing roller does not reach a given level even after the lapse of a given period of time during a warm-up cycle.
C0501	Warm-up failure 2 (for the model having two fusing roller heater lamps)	• The sub thermistor (TH2) does not detect a predetermined temperature within 30 sec. after a warm-up cycle has been started and thus the warm-up cycle is not completed. • The surface temperature of the fusing roller does not reach a given level even after the lapse of a given period of time during a warm-up cycle.
C0510	Fusing failure (abnormally low fusing temperature)	• The temperature detected by the thermistor (TH1) remains lower than 120°C (105°C for the model having two fusing roller heater lamps) for a given period of time during the standby state. • The temperature detected by the thermistor (TH1) remains lower than 120°C (105°C for the model having two fusing roller heater lamps) for a given period of time during a print cycle.
C0511	Fusing failure (abnormally low fusing temperature 2)	• The temperature detected by the sub thermistor (TH2) remains lower than 105°C for a given period of time during the standby state. • The temperature detected by the sub thermistor (TH2) remains lower than 105°C for a given period of time during a print cycle.
C0520	Fusing failure (abnormally high fusing temperature)	• The temperature detected by the thermistor (TH1) remains higher than 240°C for a given period of time.
C0521	Fusing failure (abnormally high fusing temperature 2)	• The temperature detected by the sub thermistor (TH2) remains higher than 240°C for a given period of time.
C0650	Faulty scanner home position sensor	• The scanner home position sensor (PS100) does not go from HIGH to LOW when the scanner motor (M4) is energized for a given number of steps after the sequence to bring the scanner back to its home position has been started at the end of a scan motion and during re-shading. • The scanner home position sensor (PS100) does not go from LOW to HIGH when the scanner motor (M4) is energized for a given number of steps after a scan motion has been started at the end of a PS100 home check scan motion and during re-shading.
C0B60	Bin switching motor malfunction (Only when the optional JS-503 is mounted)	See P.12 of the JS-503 service manual.
C0B80	Shift motor malfunction (Only when the optional SF-501 is mounted)	See P.9 of the SF-501 service manual.

Code	Item	Description
C0F32	Faulty TCR sensor	• The measurement taken by the TCR sensor (TSRS) at a time 2.0 sec. after the main motor (M1) has started turning is less than 5% (greater than 4.63 V). • The measurement taken by the TCR sensor (TCRS) at a time 2.0 sec. after the main motor (M1) has started turning is 19% or more (1.41 V or less).
C0F33	Improperly adjusted TCR sensor	• The adjustment of the TCR control voltage is not completed within 1 sec. after sampling has started of the TCR sensor (TCRS) as part of an operation of TCRS sensor automatic adjustment. • The TCR sensor control voltage falls outside the range of 5.39 V to 8.15 V during an operation of TCR sensor automatic adjustment.
C1038	Engine connection failure	Printer control board (PRCB) to MFP board (MFPB) connection failure • There is no acknowledge signal transmitted from the printer control board (PRCB) to MFP board (MFPB) for 1.5 sec. or more. • An error command signal is transmitted from the MFP board (MFPB) to printer control board (PRCB). • An error status signal is transmitted from the printer control board (PRCB) to MFP board (MFPB).
C1200	Faulty ASIC/memory	ASIC/memory (for image and control) fault • A write or read error occurs with SRAM on the MFP board (MFPB).
C1300	Polygon motor malfunction	Startup failure • A LOW polygon motor lock signal is not detected within a given period of time that begins 1 sec. after the polygon motor has started turning.
		Lock signal fault: Unstable after the first lock signal has been detected • For a period of 1 sec. after the first LOW polygon motor lock signal (first Lock) has been detected, the next LOW polygon motor lock signal is not detected.
		Lock signal fault: Lock signal out-of-timing • A LOW polygon motor lock signal is not detected for a continuous given period of time while the rotation of the polygon motor remains stabilized.
		Faulty lock signal • A LOW polygon motor lock signal is detected for a given period of time or more when the polygon motor remains deenergized.
C133B	Communication with option error	See P.117 of the FK-506 service manual.
C133D	ROM check error	
C13F0	Faulty HSYNC	Laser scanning system malfunction • The SOS sensor does not detect a rising edge of SOS within a given period of time after the polygon motor has started turning and a laser output has been started. • The SOS sensor detects no rising edges of SOS while VIA (image area control) is ON.

Code	Item	Description
C1468	Faulty parameter chip	• Contact the responsible people of KMBT before taking some countermeasures.
C14A3	IR fluorescent lamp fault	The exposure lamp (LA1) of the scanner fails to turn ON. • The intensity of the exposure lamp is a predetermined value or less during shading and re-shading.
C3FFF	Flash ROM error	• The copier determines that there is an error if writing to the flash ROM fails during upgrading of the firmware. • When the power switch is turned ON, the error indicator lights up steadily and a corresponding message appears on the display. • If this error message appears, no operations can then be performed. It is not possible to upgrade the firmware from a PC connected through USB connection, either.

14.2 How to reset

Code	Description	Procedure
C0000	Main motor malfunction	• Turn OFF and ON the power switch.
C0044	ADF cooling fan failure	
C0045	Fusing cooling fan motor malfunction	
C004E	Power supply cooling fan motor malfunction	
C0070	Toner replenishing motor malfunction	
C0210	Abnormal image transfer voltage	
C03FF	Faulty model setting	• Make the correct setting for “MODEL SETTING” of “ADJUST” available from the Service mode. See P.132
C0500	Warm-up failure	• Turn ON the power switch with the Stop key held down.
C0501	Warm-up failure 2	
C0510	Fusing failure (abnormally low fusing temperature)	
C0511	Fusing failure (abnormally low fusing temperature 2)	
C0520	Fusing failure (abnormally high fusing temperature)	
C0521	Fusing failure (abnormally high fusing temperature 2)	
C0650	Faulty scanner home position sensor	• Turn OFF and ON the power switch.
C0B60	Bin switching motor malfunction	
C0B80	Shift motor malfunction	
C0F32	Faulty ATDC sensor	
C0F33	Improperly adjusted ATDC sensor	
C1038	Engine connection failure	
C1200	Faulty ASIC/memory	
C1300	Polygon motor malfunction	
C133B	Communication with option error	
C133D	ROM check error	
C13F0	Faulty HSYNC	
C1468	Faulty parameter chip	
C14A3	IR fluorescent lamp fault	
C3FFF	Flash ROM error	

14.3 Solution

14.3.1 C0000: Main motor malfunction

Relevant electrical components	
Main motor (M1)	Printer control board (PRCB) Power supply unit (DCPU)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check M1 connectors for proper connection and correct as necessary.	–	–
2	Check M1 for correct drive coupling and correct as necessary.	–	–
3	M1 operation check.	PRCB PJ8PRCB-8 (LOCK)	C-14
4	Change PRCB.	–	–
5	Change DCPU.	–	–

14.3.2 C0045: Fusing cooling fan motor malfunction

Relevant electrical components	
Fusing cooling fan motor (FM1)	Printer control board (PRCB) Power supply unit (DCPU)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check FM1 connectors for proper connection and correct as necessary.	–	–
2	Check the fan for possible overload and correct as necessary.	–	–
3	FM1 operation check	PRCB PJ22PRCB-1 (REM) PRCB PJ22PRCB-3 (LOCK)	C-8
4	Change PRCB.	–	–
5	Change PU1.	–	–

14.3.3 C004E: Power unit cooling fan motor malfunction

Relevant electrical components	
Power unit cooling fan motor (FM2)	Printer control board (PRCB) Power supply unit (DCPU)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check FM2 connectors for proper connection and correct as necessary.	–	–
2	Check the fan for possible overload and correct as necessary.	–	–
3	FM2 operation check	DCPU CN7DCPU-1 (REM) DCPU CN7DCPU-3 (LOCK)	L-16
4	Change PRCB.	–	–
5	Change DCPU.	–	–

14.3.4 C0070: Toner replenishing motor malfunction

Relevant electrical components	
Toner replenishing motor (M2) Toner bottle home position sensor (PS6)	Printer control board (PRCB) Power supply unit (DCPU)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check M2 connectors for proper connection and correct as necessary.	–	–
2	Check M2 for correct drive coupling and correct as necessary.	–	–
3	M2 operation check	PRCB PJ16PRCB-1 (REM)	C-6 to 7
4	PS6 sensor check	PRCB PJ16PRCB-5 (ON)	C-6 to 7
5	Change PRCB.	–	–
6	Change DCPU.	–	–

14.3.5 C0210: Abnormal image transfer voltage

Relevant electrical components	
Image transfer roller High voltage unit (HV1)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the image transfer roller for installation.	–	–
2	Change HV1.	–	–
3	Change PRCB.	–	–

14.3.6 C0500: Warm-up failure

14.3.7 C0501: Warm-up failure 2

14.3.8 C0510: Fusing failure (Abnormally low fusing temperature)

14.3.9 C0511: Fusing failure (Abnormally low fusing temperature 2)

14.3.10 C0520: Fusing failure (Abnormally high fusing temperature)

14.3.11 C0521: Fusing failure (Abnormally high fusing temperature 2)

Relevant electrical components	
Thermistor (TH1) Sub thermistor (TH2)	Fusing unit interlock switch (S2) Printer control board (PRCB) Power supply unit (DCPU)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check that the fusing roller heater lamp turns ON when the power switch is turned ON and correct the lamp as necessary.	–	–
2	Check that the fusing roller sub heater lamp turns ON when the power switch is turned ON and correct the lamp as necessary.	–	–
3	Check the fusing roller thermostat for operation. <Check procedure> Check the resistance of fusing roller thermostat. Fusing roller thermostat is open-circuited if its resistance is infinity.	–	–

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
4	Check the fusing unit interlock switch (S2) for operation. <Check procedure> Check continuity across the following terminals when S2 is ON. • Across S2-1A and S2-1B • Across S2-2A and S2-2B	–	L-8 to 9
5	Check the thermistor (TH1) and sub thermistor (TH2) for installation and correct or clean as necessary.	–	–
6	Check the thermistor (TH1) for operation. <Check procedure> Disconnect CN15 (4P) and check the resistance across CN15-2 and 3 on the thermistor side. TH1 is open-circuited if the resistance is infinity.	–	C-18
7	Check the sub thermistor (TH2) for operation. <Check procedure> Disconnect CN22 (4P) and check the resistance across CN22-2 and 3 on the thermistor side. TH2 is open-circuited if the resistance is infinity.	–	T-17 to 18
8	Check the fusing roller heater lamp for continuity and correct as necessary.	–	–
9	Check the fusing roller sub heater lamp for continuity and correct as necessary.	–	–
10	Change DCPU.	–	–
11	Change PRCB.	–	–

14.3.12 C0650: Faulty scanner home position sensor

Relevant electrical components	
Scanner motor (M4) Scanner home position sensor (PS100)	MFP board (MFPB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check M4 connectors for proper connection and correct as necessary.	–	–
2	Check M4 for correct drive coupling and correct as necessary.	–	–
3	M4 operation check	MFPB P105MFPB-1 to 4	L-12
4	Scanner operation check	–	–
5	PS100 sensor check	MFPB P114MFPB-3 (ON)	L-14
6	Change MFPB.	–	–

14.3.13 C0F32: Faulty TCR sensor

14.3.14 C0F33: Improperly adjusted TCR sensor

Relevant electrical components	
TCR sensor (TCRS)	Printer control board (PRCB) Power supply unit (DCPU)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check to see if developer is available.	–	–
2	Check the TCR sensor connectors for proper connection and correct as necessary.	–	–
3	Change TCRS.	–	–
4	Run “ATDC AUTO ADJUST.”	–	–
5	Change PRCB.	–	–
6	Change DCPU.	–	–

14.3.15 C1038: Engine connection failure

Relevant electrical components	
Printer control board (PRCB)	MFP board (MFPB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	–	–
2	Check the PRCB connectors for proper connection and correct as necessary.	–	–
3	Check the MFPB connectors for proper connection and correct as necessary.	–	–
4	Check for proper connection between PRCB and MFPB and correct as necessary.	–	–
5	Change PRCB.	–	–
6	Change MFPB.	–	–

14.3.16 C1200: Faulty ASIC/Memory

Relevant electrical components	
MFP board (MFPB)	

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	–	–
2	Check memory on MFPB for connection and correct as necessary.	–	–
3	Change MFPB.	–	–

14.3.17 C1300: Polygon motor malfunction

14.3.18 C13F0: Faulty HSYNC

Relevant electrical components	
PH unit	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Turn OFF and ON the power switch.	–	–
2	Check for proper connection between the PH unit and master board and correct as necessary.	–	–
3	Change the PH unit.	–	–
4	Change PRCB.	–	–

14.3.19 C14A3: IR fluorescent lamp fault

Relevant electrical components	
Exposure lamp (LA1) Inverter board (INVB)	CCD board (CCDB) MFP board (MFPB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check that the exposure lamp (LA1) turns ON when the power switch is turned ON and correct or replace as necessary.	–	–
2	Check connectors on INVB for proper connection and correct as necessary.	–	–
3	Check connectors on CCDB for proper connection and correct as necessary.	–	–
4	Change MFPB.	–	–

14.3.20 C3FFF: Flash ROM error

Relevant electrical components	
Printer control board (PRCB) MFP board (MFPB)	Control panel

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check the connection status of connectors on each board (PRCB, MFPB, control panel): If there is any abnormality, correct it.	–	–
2	Identify the specific firmware that is responsible for the error.	–	–
3	Perform upgrading of the firmware through BIOS.	–	–
4	Unplug parameter chip (U18) from MFPB and then plug it back in.	–	–
5	Change MFPB.	–	–

15. Power supply trouble

15.1 The copier does not turn ON

Step	Check	Result	Action
1	A malfunction code appears when the power switch is turned ON.	YES	• Go to step 2.
		NO	• Go to step 3.
2	The malfunction is temporarily reset when the power switch is turned OFF and ON with the Stop key held down.	YES	• Perform the troubleshooting procedure according to the malfunction code.
3	Power supply voltage check <Check procedure> Check voltage across pins of power supply unit (DCPU) when the power switch is turned ON. • Voltage across CN1DCPU-1 and CN1DCPU-2 AC0 V when the power switch is OFF Rated AC voltage when the power switch is turned ON	NO	• Check wall outlet for voltage. • Check power cord for continuity. • Check power switch.
4	Check of output of DC24 V to MFP board (copier: MFPB) <Check procedure> Check voltage across a MFP board (MFPB) pin and GND when the power switch is turned ON. • Voltage across P110MFPB-1 and GND • Voltage across P110MFPB-2 and GND DC0 V when the power switch is OFF DC24 V when the power switch is turned ON	NO	• Check front door interlock switch (S3). • Check right door interlock switch (S4). • Change power supply unit (DCPU).
5	Check of output of DC24 V to printer control board (PRCB) <Check procedure> Check voltage across a printer control board (PRCB) pin and GND when the power switch is turned ON. • Voltage across PJ2PRCB-2 and GND DC0 V when the power switch is OFF DC24 V when the power switch is turned ON	NO	• Check front door interlock switch (S3). • Check right door interlock switch (S4). • Change power supply unit (DCPU).
6	Check of output of DC 5 V to printer control board (PRCB) <Check procedure> Check voltage across a printer control board (PRCB) pin and GND when the power switch is turned ON. • Voltage across PJ6PRCB-9 and GND DC0 V when the power switch is OFF DC24 V when the power switch is turned ON	NO	• Change power supply unit (DCPU)
7	Check of output of DC5 V to control panel <Check procedure> Check voltage across a MFP board (MFPB) pin and GND when the power switch is turned ON. Voltage across P102MFPB-1 and GND DC0 V when the power switch is OFF DC5 V when the power switch is turned ON	NO	• Check MFP board (MFPB). • Change printer control board (PRCB). • Change power supply unit (DCPU)
		YES	• Change control panel.

16. Image quality problem

16.1 How to identify problematic part

- In this chapter, troubleshooting is divided into “initial checks” and “troubleshooting procedures classified by image failures.”
- If any image failure has occurred, first make the initial checks, then proceed to the corresponding image failure troubleshooting procedure.

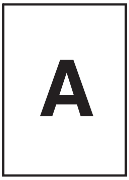
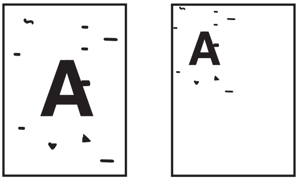
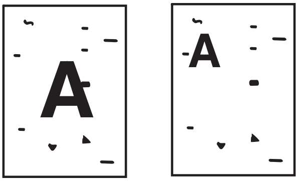
16.1.1 Initial check items

- Determine if the failure is attributable to a basic cause or causes.

Section	Step	Check	Result	Action
Paper	1	Paper meets product specifications.	NO	• Instruct user to use paper that meets specifications and is recommended.
	2	Paper is damp.	YES	• Change paper for one that is dry. Then, instruct user to use paper that meets specifications and in how to store paper.
Original	3	Original is placed correctly.	NO	• Reposition original.
	4	Original is written in light pencil.	YES	• Instruct user to use original with appropriate image density.
	5	Original is transparent (OHP film, etc.).	YES	• Instruct user to use originals that meet specifications.
	6	Original glass is dirty or scratchy.	YES	• Clean original glass. • Change original glass.
PM parts	7	The PM parts relating to image formation have reached the end of cleaning/replacement cycles.	YES	• Clean PM parts. • Change PM parts.
Adjustment items	8	Adjustment item in which re-adjustment is made to improve the image faulty.	YES	• Re-adjustment

16.1.2 Identification of the faulty system

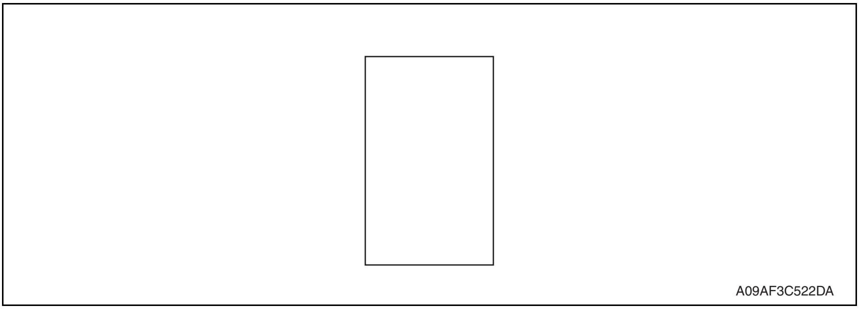
- Determine if the failure is attributable to an input system (scanner) or output system (printer).

Check	Result	Action
Copy made at a reduced ratio  A09AF3C519DA	Full-size Reduced  A09AF3C520DA	Input system (scanner)
	Full-size Reduced  A09AF3C521DA	Output system (printer)

16.2 Solution

16.2.1 Image reading section: Blank copy

A. Typical faulty images

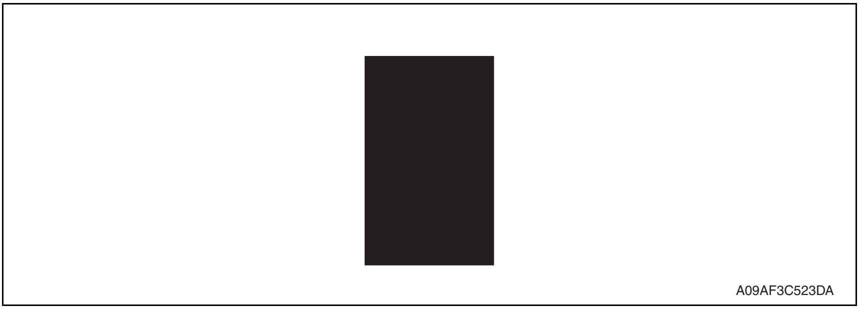


B. Troubleshooting procedure

Step	Check	Result	Action
1	CCD board (CCDB) connector is loose.	YES	• Reconnect.
2	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change MFP board (MFPB). • Change printer control board (PRCB).

16.2.2 Image reading section: Black copy

A. Typical faulty images

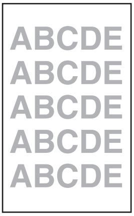


B. Troubleshooting procedure

Step	Check	Result	Action
1	Exposure lamp turns ON when the power switch is turned ON.	NO	Go to step 3.
2	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	Go to step 4.
3	Inverter board (INVB) connector is loose.	YES	Reconnect.
		NO	Change exposure lamp.
4	CCD board (CCDB) connector is loose.	YES	Reconnect.
5	MFP board (MFPB) connector is loose.	YES	Reconnect.
		NO	• Change inverter board (INVB). • Change CCD unit. • Change MFP board (MFPB).

16.2.3 Image reading section: Low image density

A. Typical faulty images



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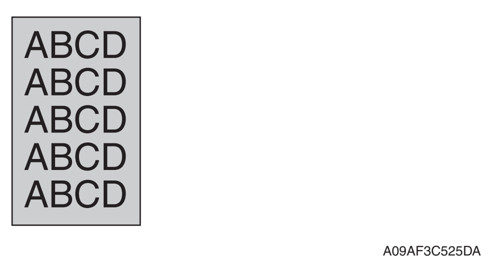
B. Troubleshooting procedure

Step	Check	Result	Action
1	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
2	CCD board (CCDB) connector is loose.	YES	• Reconnect.
3	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change MFP board (MFPB). • Change printer control board (PRCB).

16.2.4 Image reading section: Foggy background or rough image

A. Typical faulty images

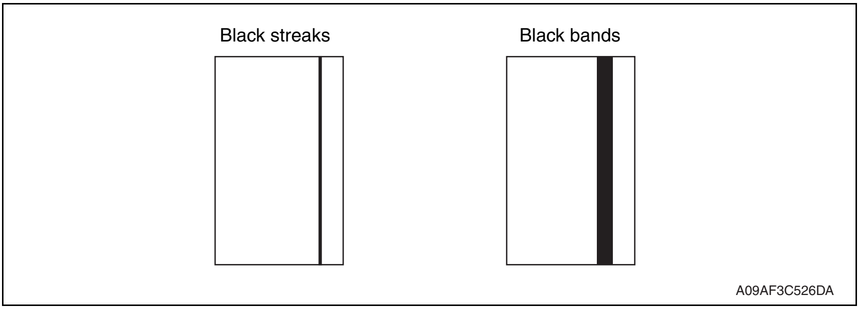


B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty.	YES	• Clean.
2	Scanner mirrors are dirty.	YES	• Clean.
3	Exposure lamp (LA1) is dirty.	YES	• Clean.
4	CCD unit lens and CCD surface are dirty. <Check procedure> Remove lens cover to check for possible contamination.	YES	• Clean.
5	Exposure lamp is abnormally lit (flickers or abnormally dark) when the Start key is pressed.	NO	• Go to step 7.
6	Inverter board (INVB) connector is loose.	YES	• Reconnect.
		NO	• Change exposure lamp (LA1).
7	CCD board (CCDB) connector is loose.	YES	• Reconnect.
		NO	• Change inverter board (INVB). • Change MFP board (MFPB).

16.2.5 Image reading section: Black streaks or bands

A. Typical faulty images

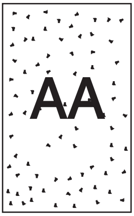


B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the backside of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Scanner mirrors are dirty, scratchy, or damaged.	YES	• Clean or change.
4	Exposure lamp (LA1) is dirty.	YES	• Clean or change.
5	CCD unit lens and CCD surface are dirty or scratchy. <Check procedure> Remove lens cover to check for possible contamination.	YES	• Clean or change.
6	CCD board (CCDB) connector is loose.	YES	• Reconnect.
7	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change CCD unit. • Change MFP board (MFPB).

16.2.6 Image reading section: Black spots

A. Typical faulty images



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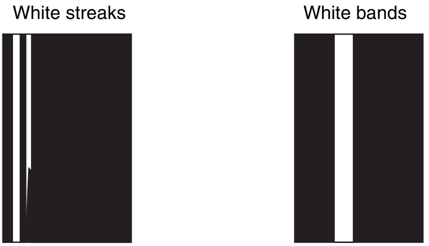
B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty or scratchy.	YES	• Clean.
2	CCD board (CCDB) connector is loose.	YES	• Reconnect.
3	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change CCD unit. • Change MFP board (MFPB).

16.2.7 Image reading section: White streaks or bands

A. Typical faulty images



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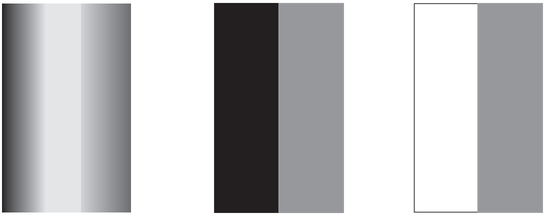
B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the backside of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Scanner mirrors are dirty, scratchy, or damaged.	YES	• Clean or change.
4	CCD unit lens and CCD surface are dirty or scratchy. <Check procedure> Remove lens cover to check for possible contamination.	YES	• Clean or change.
5	CCD board (CCDB) connector is loose.	YES	• Reconnect.
6	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change CCD unit. • Change MFP board (MFPB).

16.2.8 Image reading section: Uneven image density

A. Typical faulty images



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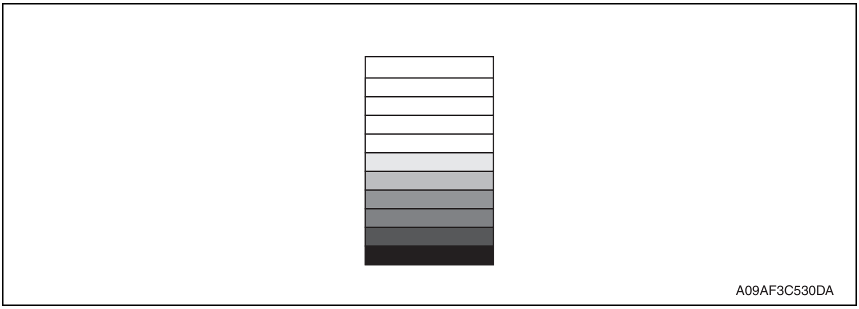
B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the back-side of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Scanner mirrors are dirty, scratchy, or damaged.	YES	• Clean or change.
4	Exposure lamp (LA1) is dirty.	YES	• Clean or change.
5	CCD unit lens and CCD surface are dirty or scratchy. <Check procedure> Remove lens cover to check for possible contamination.	YES	• Clean or change.
6	Exposure lamp is abnormally lit (flickers or abnormally dark) when the power switch is turned ON.	NO	• Go to step 8.
7	Inverter board (INVB) connector CN1INVB is loose.	YES	• Reconnect.
		NO	• Change exposure lamp (LA1).
8	CCD board (CCDB) connector is loose.	YES	• Reconnect.
9	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change CCD unit. • Change MFP board (MFPB).

16.2.9 Image reading section: Gradation reproduction failure

A. Typical faulty images

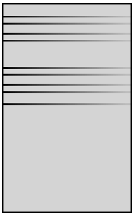


B. Troubleshooting procedure

Step	Check	Result	Action
1	Original glass is dirty, scratchy, worn, or damaged.	YES	• Clean or change.
2	Shading sheet reading portion (the portion on the backside of the original glass to which original width scale is affixed) is dirty.	YES	• Clean.
3	Scanner mirrors are dirty, scratchy, or damaged.	YES	• Clean or change.
4	Exposure lamp (LA1) is dirty.	YES	• Clean or change.
5	CCD unit lens and CCD surface are dirty or scratchy. <Check procedure> Remove lens cover to check for possible contamination.	YES	• Clean or change.
6	Exposure lamp is abnormally lit (flickers or abnormally dark) when the Start key is pressed.	NO	• Go to step 8.
7	Inverter board (INVB) connector CN2INVB is loose.	YES	• Reconnect.
		NO	• Change exposure lamp (LA1).
8	CCD board (CCDB) connector is loose.	YES	• Reconnect.
9	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change CCD unit. • Change MFP board (MFPB).

16.2.10 Image reading section: Periodically uneven image

A. Typical faulty images



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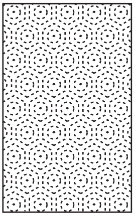
B. Troubleshooting procedure

Step	Check	Result	Action
1	Scanner motor (M4) is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
2	Scanner motor (M4) drive mechanism is dirty or damaged.	YES	• Clean or change.
3	Scanner drive mechanism pulley is dirty with foreign matter, scratchy, deformed, worn, or damaged.	YES	• Remove foreign matter or change.
4	Scanner drive cables are wound incorrectly.	YES	• Re-wind scanner drive cables.
5	Scanner rails and bearings are dirty with foreign matter, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
6	Scanner moves smoothly. <Check procedure> Gently move the scanner by hand to check for smooth operation.	NO	• Lubricate the scanner rails. • Reinstall scanner.
7	CCD board (CCDB) connector is loose.	YES	• Reconnect.
8	MFP board (MFPB) connector is loose.	YES	• Reconnect.
		NO	• Change CCD unit. • Change MFP board (MFPB).

16.2.11 Image reading section: Moire

A. Typical faulty images



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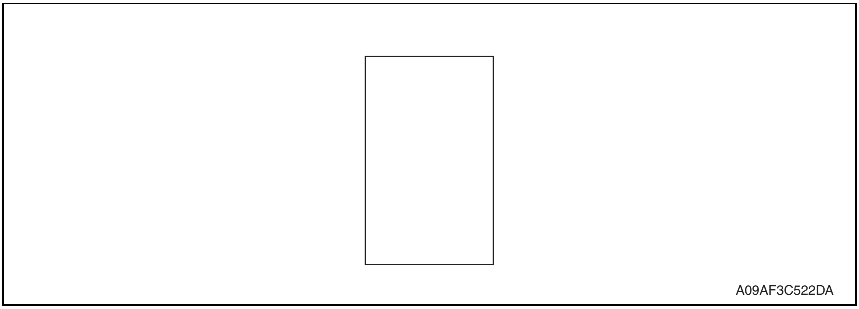
B. Troubleshooting procedure

Step	Check	Result	Action
1	Moire distortions recur even after the orientation of original has been changed.	NO	• Change the original mode (select one other than that resulted in moire).
2	Moire distortions recur even after the original mode has been changed.	NO	• Change the original image mode.
3	Moire distortions recur even when the zoom ratio is changed.	NO	• Change the zoom ratio setting.
4	The problem has been eliminated through the checks of step up 3.	NO	• Adjust CCD MAIN ZOOM and CCD SUB ZOOM. See P.128

16.2.12 Printer section: Blank copy

A. Typical faulty images

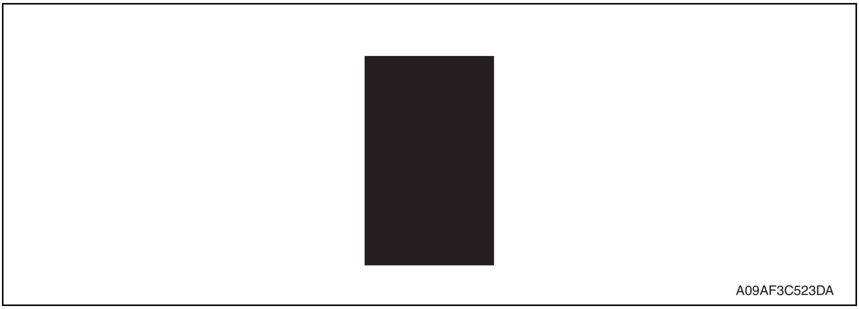


B. Troubleshooting procedure

Step	Check	Result	Action
1	Imaging unit is installed correctly.	NO	• Reinstall.
2	Connector between the imaging unit and copier is dirty.	YES	• Clean.
3	PH shutter (located along the laser path between the PH unit and PC drum) is not in correct position or malfunctions.	YES	• Correct or reinstall.
4	Connectors PJ12A and PJ13A in PH unit come off or lift.	YES	• Reconnect.
5	Image transfer roller assy is installed correctly.	NO	• Reinstall.
6	Image transfer current contact is dirty, broken, or bent.	YES	• Clean, correct, or change.
7	Developing bias contact is dirty, broken, or bent.	YES	• Clean, correct, or change.
8	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
9	The following voltage is supplied from the printer control board (PRCB). <Check procedure> Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change PH unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.13 Printer section: Black copy

A. Typical faulty images

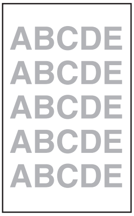


B. Troubleshooting Procedure

Step	Check	Result	Action
1	PC drum charge corona grid mesh and comb electrode are loose.	YES	• Reinstall.
2	PC drum charge corona contact is dirty, scratchy, folded, bent, or damaged.	YES	• Correct or change.
3	Grid bias contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
4	PC drum ground contact is dirty, scratchy, bent, or damaged.	YES	• Clean, correct, or change.
5	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
6	The PH unit cable is loose.	YES	• Reconnect.
7	The following voltage is supplied from the printer control board (PRCB). <Check procedure> Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change PH unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.14 Printer section: Low image density

A. Typical faulty images

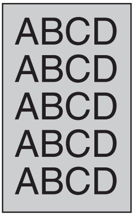


B. Troubleshooting procedure

Step	Check	Result	Action
1	The image changes when “TONER REPLENISHER” is executed. • “Toner Replenisher” of Utility	YES	• Replenish the supply of toner using toner replenisher.
2	The image changes when “ID ADJUST” and “VG ADJUSTt” are executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.
3	Image transfer current contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
4	Developing bias contact is dirty, folded, or bent.	YES	• Clean, correct, or change.
5	High voltage unit (HV1) connectors is loose.	YES	• Reconnect.
6	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
7	The following voltages develop from the TCR sensor (TCRS). <Check procedure> Check voltage across a master board pin and GND when the power switch is turned ON. • DC5.39 V to 8.15 V across PJ10A-1 and GND • DC1.41 V to 4.98 V across PJ10A-3 and GND	NO	• Change TCR sensor (TCRS) and then change developer.
8	The following voltage is supplied from the printer control board (PRCB). <Check procedure> • Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Change IU. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.15 Printer section: Foggy background or rough image

A. Typical faulty images



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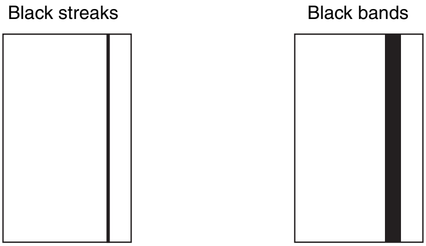
B. Troubleshooting procedure

Step	Check	Result	Action
1	The image changes when "ID ADJUST" and "VG ADJUST" are executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.
2	PC drum surface and the areas in contact with Ds collars are dirty with foreign matter, or deformed or worn.	YES	• Clean or change.
3	Eraser lamp (EL1) is dirty.	YES	• Clean.
4	Grid bias contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
5	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
6	The following voltages develop from the TCR sensor (TCRS). <Check procedure> Check voltage across a master board pin and GND when the power switch is turned ON. • DC5.39 V to 8.15 V across PJ10A-1 and GND • DC1.41 V to 4.98 V across PJ10A-3 and GND	NO	• Change TCR sensor (TCRS) and then change developer.
7	The following voltage is supplied from the printer control board (PRCB). <Check procedure> • Check that there is 24 V developing across the printer control board pin and GND when the power switch is turned ON (during a copy cycle or a standby state).	YES	• Adjust Db. For details, see ADJUSTING/SETTING. • Change eraser lamp (EL1). • Change PC drum. • Change imaging unit. • Change high voltage unit (HV1).
		NO	• Change printer control board (PRCB).

16.2.16 Printer section: black streaks or bands

A. Typical faulty images



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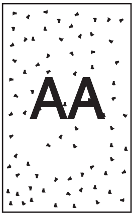
B. Troubleshooting procedure

Step	Check	Result	Action
1	PC drum is dirty or scratchy.	YES	• Clean or change.
2	Foreign matter (such as paper dust) sticks to the cleaning blade of IU or the blade curves upward.	YES	• Remove foreign matter, correct, or change.
3	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
4	PC drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, damaged, or out of position.	YES	• Clean or change.
5	Fusing roller is dirty or scratchy.	YES	• Clean or change.
6	PH window of the PH unit is dirty or scratchy.	YES	• Clean or change.
		NO	• Change IU.

16.2.17 Printer section: Black spots

A. Typical faulty images



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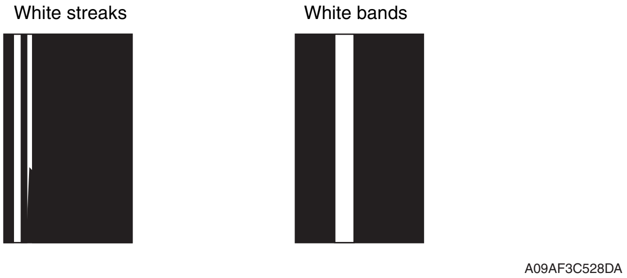
B. Troubleshooting Procedure

Step	Check	Result	Action
1	Toner is present along the paper path.	YES	• Clean.
2	PC drum is dirty or scratchy.	YES	• Clean or change.
3	Tip of the PC drum paper separator finger is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
4	Fusing roller is dirty or scratchy.	YES	• Clean or change.
5	Tip of the fusing paper separator finger is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change fusing paper separator fingers and finger springs.
6	The image changes when “VG ADJUST” is executed.	YES	• Readjust. For details, see ADJUSTING/SETTING.

16.2.18 Printer section: Blank streaks or bands

A. Typical faulty images

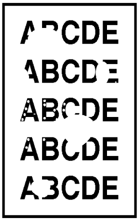


B. Troubleshooting procedure

Step	Check	Result	Action
1	PC drum ground terminal is dirty, scratchy, deformed, or damaged.	YES	• Clean, correct, or change.
2	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
3	PC drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, or damaged.	YES	• Clean, correct, or change.
4	Post-fusing guide plate is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	PH window of the PH unit is dirty, scratchy, or damaged.	YES	• Clean or change.
		NO	• Change IU.

16.2.19 Printer section: Void areas

A. Typical faulty images



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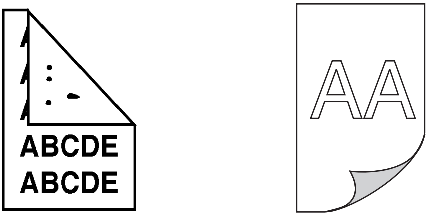
B. Troubleshooting procedure

Step	Check	Result	Action
1	Foreign matter is present along the paper path.	YES	• Remove foreign matter.
2	Paper dust plugs up the paper dust remover.	YES	• Clean or change.
3	PC drum charge corona, grid mesh, and comb electrode are loose.	YES	• Reinstall.
4	PC drum charge corona contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
5	Developing roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
6	Toner is even on sleeve/magnet roller.	NO	• Adjust Db. For details, see ADJUSTING/SETTING.
7	Developer is not even in the developer mixing chamber of IU.	YES	• Even out developer in the developer mixing chamber.
8	DB of IU is plugged with foreign matter (such as paper dust).	YES	• Remove foreign matter.
9	Image transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
10	Image transfer roller assy is installed correctly.	NO	• Reinstall.
11	Charge neutralizing plate is dirty, scratchy, folded, or bent.	YES	• Clean, correct, or change.
12	Fusing roller is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
		NO	• Change IU.

16.2.20 Printer section: Smear on back

A. Typical faulty images



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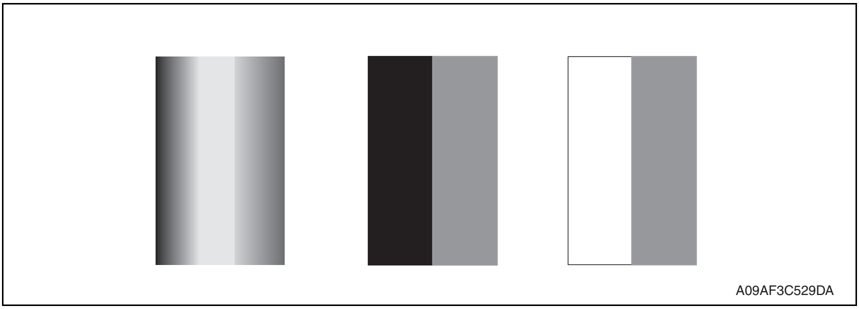
B. Troubleshooting procedure

Step	Check	Result	Action
1	Toner is spilled over area inside copier.	YES	• Clean interior.
2	Toner is present along the paper path.	YES	• Clean.
3	Fusing pressure roller is dirty, scratchy, or damaged.	YES	• Clean or change.
4	Image transfer roller is dirty.	YES	• Clean or change.
5	Grid bias contact is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
		NO	• Change high voltage unit (HV1). • Change printer control board (PRCB).

16.2.21 Printer section: Uneven image density

A. Typical faulty images

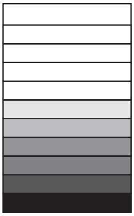


B. Troubleshooting Procedure

Step	Check	Result	Action
1	PC drum ground plate is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean, correct, or change.
2	PC drum charge corona grid mesh and comb electrode are dirty, scratchy, deformed, worn, damaged, or loose.	YES	• Clean, correct, or change.
3	Image transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
4	Sleeve/magnet roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
5	Toner is even on sleeve/magnet roller.	NO	• Adjust Db. For details, see ADJUSTING/SETTING.
6	Developer is not even in the developer mixing chamber of IU.	YES	• Even out developer in the developer mixing chamber.
		NO	• Change IU. • Change printer control board (PRCB).

16.2.22 Printer section: Gradation reproduction failure

A. Typical faulty images



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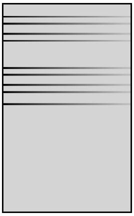
B. Troubleshooting Procedure

Step	Check	Result	Action
1	PC drum is dirty.	YES	• Clean.
2	Image transfer roller is dirty, scratchy, deformed, worn, or damaged.	YES	• Clean or change.
3	The PH unit cable is loose.	YES	• Reconnect.
4	PH window of PH unit is dirty.	YES	• Clean.
5	TCR sensor (TCRS) is dirty with foreign matter (such as paper dust) other than developer.	YES	• Clean.
6	The following voltages develop from the TCR sensor (TCRS). <Check procedure> Check voltage across a printer control board pin and GND when the power switch is turned ON. • DC5.39 V to 8.15 V across PJ10A-1 and GND • DC1.41 V to 4.98 V across PJ10A-3 and GND	NO	• Change TCR sensor (TCRS) and developer.
		YES	• Change printer control board (PRCB).

16.2.23 Printer section: Periodically uneven image

A. Typical faulty images



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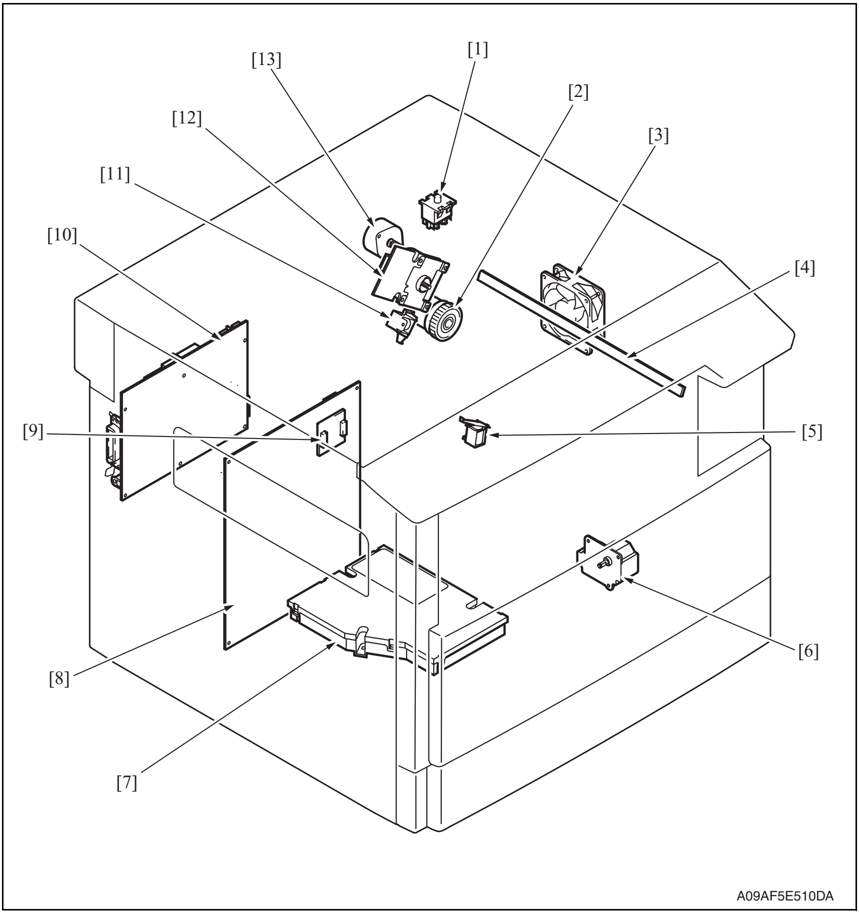
B. Troubleshooting procedure

Step	Check	Result	Action
1	IU is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
2	PH unit is securely fastened using the dedicated fixing screws.	NO	• Secure in position.
3	IU drive mechanism is dirty or damaged.	YES	• Clean or change.
4	PC drum surfaces in contact with Ds collars and drive mechanism are dirty, scratchy, deformed, or worn.	YES	• Clean or change.
5	Registration roller drive mechanism is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
6	Fusing unit drive mechanism is dirty, scratchy, deformed, or worn.	YES	• Clean or change.
		NO	• Change printer control board (PRCB).

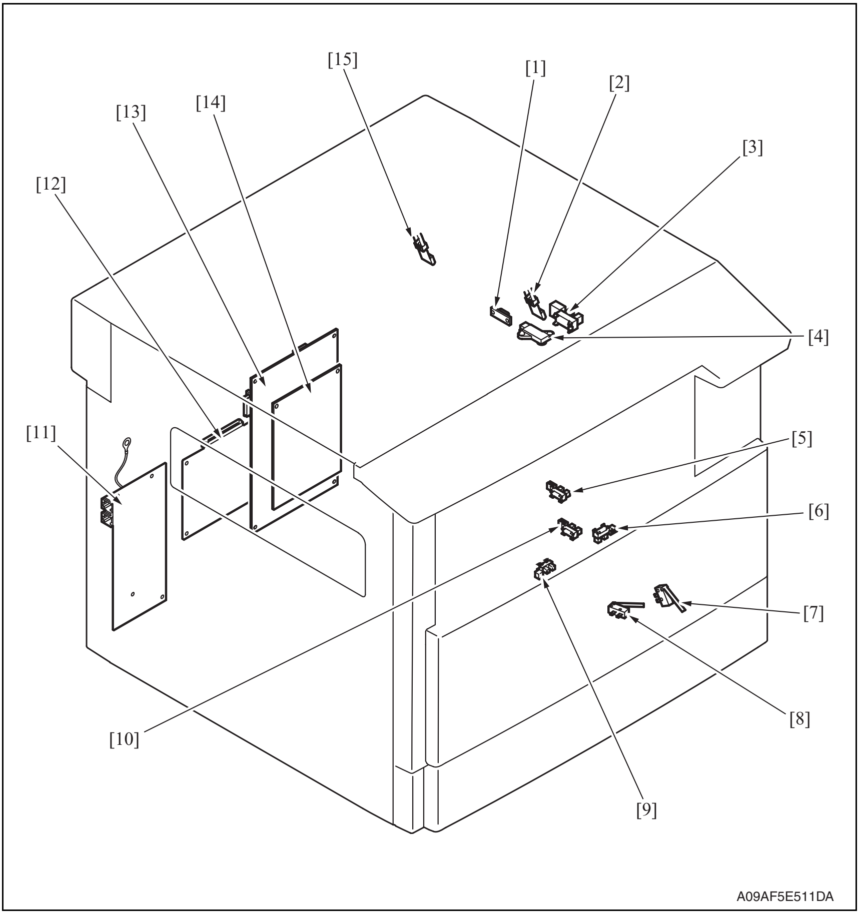
Appendix

17. Parts layout drawing

17.1 Main body

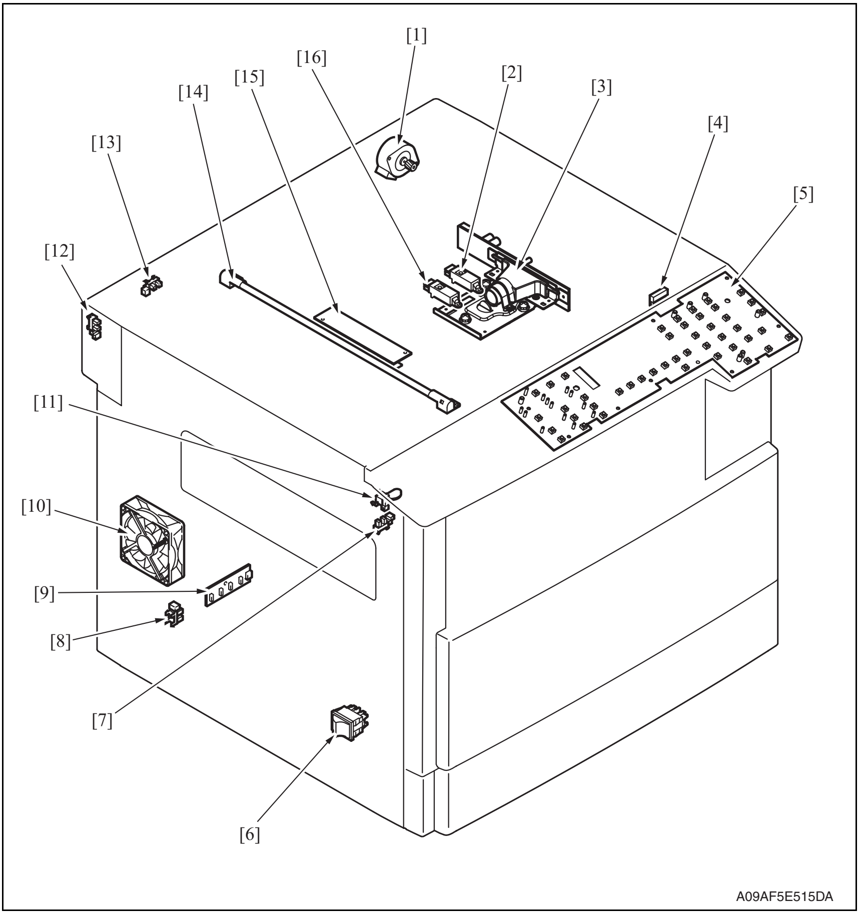


[1]	Fusing unit interlock switch (S2)	[7]	PH unit
[2]	Registration roller clutch (CL1)	[8]	Power supply unit (DCPU)
[3]	Fusing cooling fan motor (FM1)	[9]	MFP board (MFPB)
[4]	Eraser lamp (EL1)	[10]	Paper feed solenoid/1 (SD1)
[5]	Paper feed solenoid/bypass (SD2)	[11]	Main motor (M1)
[6]	Toner replenishing motor (M2)	[12]	Switchback motor (M3)



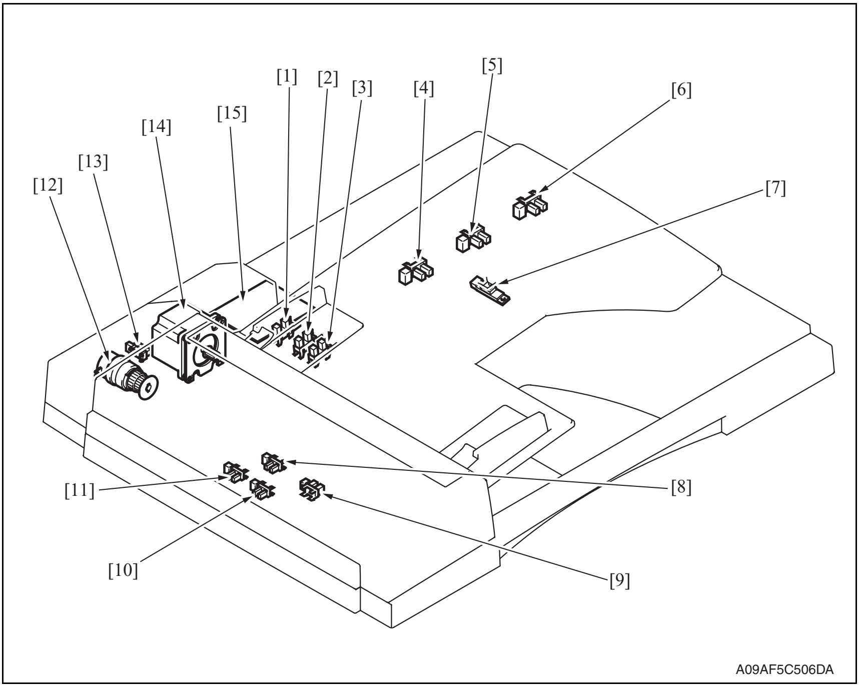
[1]	Pre-image transfer register board (PITRB)	[9]	Paper empty sensor/1 (PS4)
[2]	Thermistor (TH1)	[10]	Paper set sensor/bypass (PS2)
[3]	Exit paper sensor (PS3)	[11]	FAX board (FAXB) *1
[4]	TCR sensor (TCRS)	[12]	NCU board (NCUB) *1
[5]	Registration sensor (PS1)	[13]	Printer control board (PRCB)
[6]	Toner bottle home position sensor (PS6)	[14]	High voltage unit (HV1)
[7]	Front door interlock switch (S3)	[15]	Sub thermistor (TH2)
[8]	Right side door interlock switch (S4)		

*1: Optional fax kit FK-506



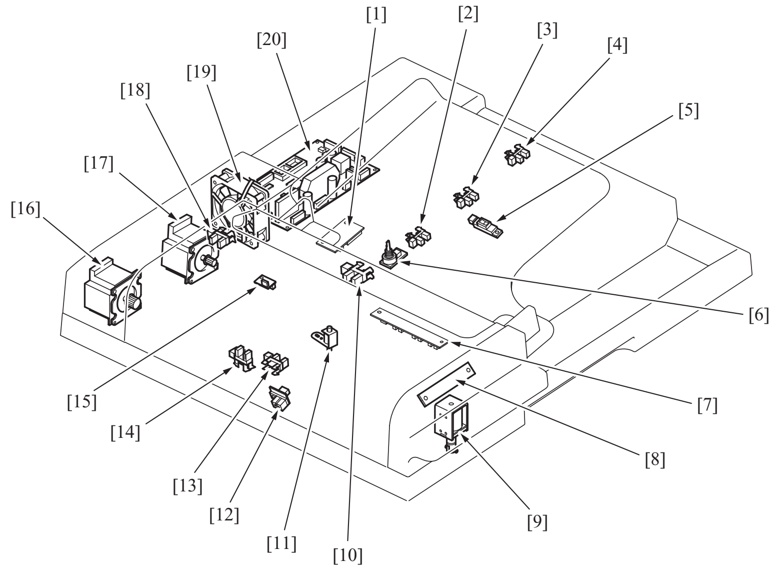
[1] Scanner motor (M4)
[2] Original size sensor 2 (Option) (PS102)
[3] CCD board (CCDB)
[4] Original cover set switch (S6)
[5] Control panel
[6] Power switch (S1)
[7] Tray set sensor/1 (PS5)
[8] Inch/metric sensor/1 (PS7)
[9] Paper size detect board (PSDTB)
[10] Power unit cooling fan motor (FM2)
[12] Paper size sensor (S5)
[13] Scanner home position sensor (PS100)
[14] Original cover sensor (PS8)
[15] Exposure lamp (LA1)
[16] Inverter board (INVB)
[17] Original size sensor 1 (PS101)

17.2 DF-502 (option)



[1]	Width sensor/3 (PS12)	[9]	Paper exit sensor (PS5)
[2]	Width sensor/2 (PS11)	[10]	Registration sensor (PS3)
[3]	Width sensor/1 (PS10)	[11]	Separator sensor (PS4)
[4]	Length sensor/1 (PS6)	[12]	Paper feed clutch (CL1)
[5]	Length sensor/3 (PS8)	[13]	Upper door open/close sensor (PS1)
[6]	Length sensor/4 (PS9)	[14]	Main motor (M1)
[7]	Length sensor/2 (PS7)	[15]	DF control board (DFCB)
[8]	Paper empty sensor (PS2)		

17.3 DF-605 (option)



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[1] Interface Board (PWA-TRAY)

[2] FD Paper Size Detection Sensor 1 (PC1-ADF)

[3] FD Paper Size Detection Sensor 3 (PC3-ADF)

[4] FD Paper Size Detection Sensor 4 (PC4-ADF)

[5] FD Paper Size Detection Sensor 2 (PC2-ADF)

[6] Variable Resistor (PBA-VR)

[7] Mix Document Size Detection Board (PBA-SIZE)

[8] Print Lamp Board (PBA-LED)

[9] Exit Roller Retraction Solenoid (SL1-ADF)

[10] Empty Sensor (PC5-ADF)

[11] Stamp Solenoid (SL2-ADF)

[12] Original Detection Sensor (PC8-ADF)

[13] Exit/Turnover Sensor (PC10-ADF)

[14] Registration Sensor (PC9-ADF)

[15] Separator Sensor (PC6-ADF)

[16] Transport Motor (M2-ADF)

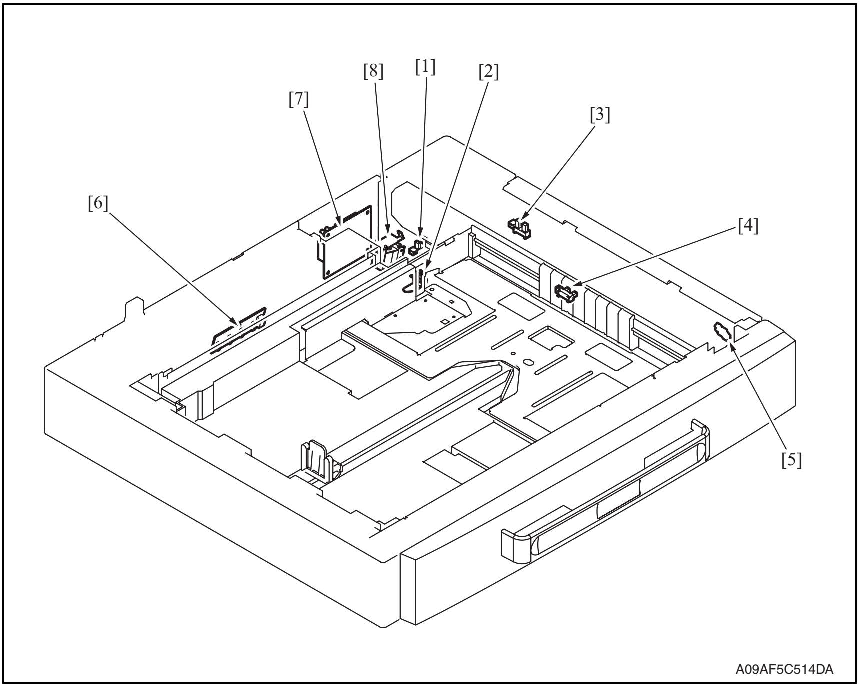
[17] Paper Feed Motor (M1-ADF)

[18] Upper Door Open/Close Sensor (PC7-ADF)

[19] Cooling Fan Motor (M3-ADF)

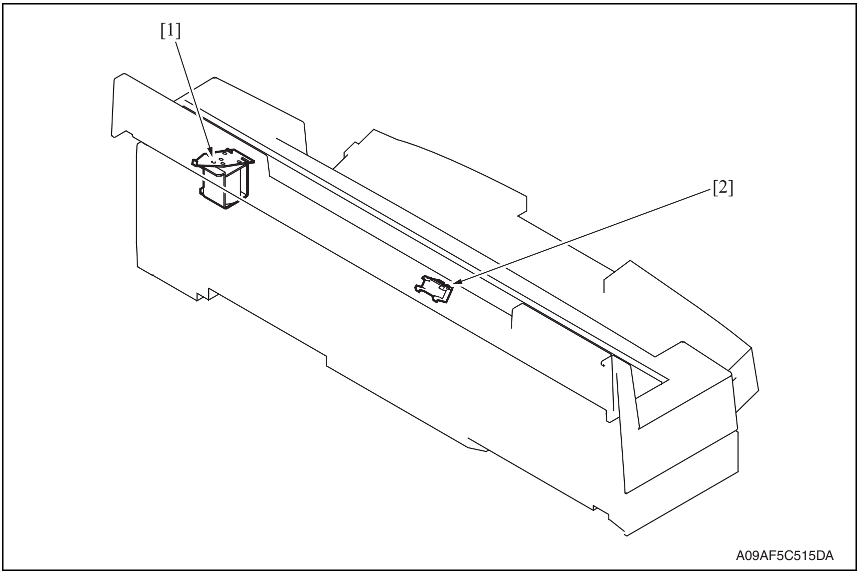
[20] Main Control Board (PBA-CONT)

17.4 PF-502 (option)



[1]	Tray set sensor (PS3)	[5]	Paper feed sensor (PS2)
[2]	Paper size detect switch (SW1)	[6]	Paper size detect board (PSDTB)
[3]	Door sensor (PS4)	[7]	PF drive board (PFDB)
[4]	Paper empty sensor (PS1)	[8]	Paper feed solenoid (SD1)

17.5 MB-501 (option)


[1]
[2]
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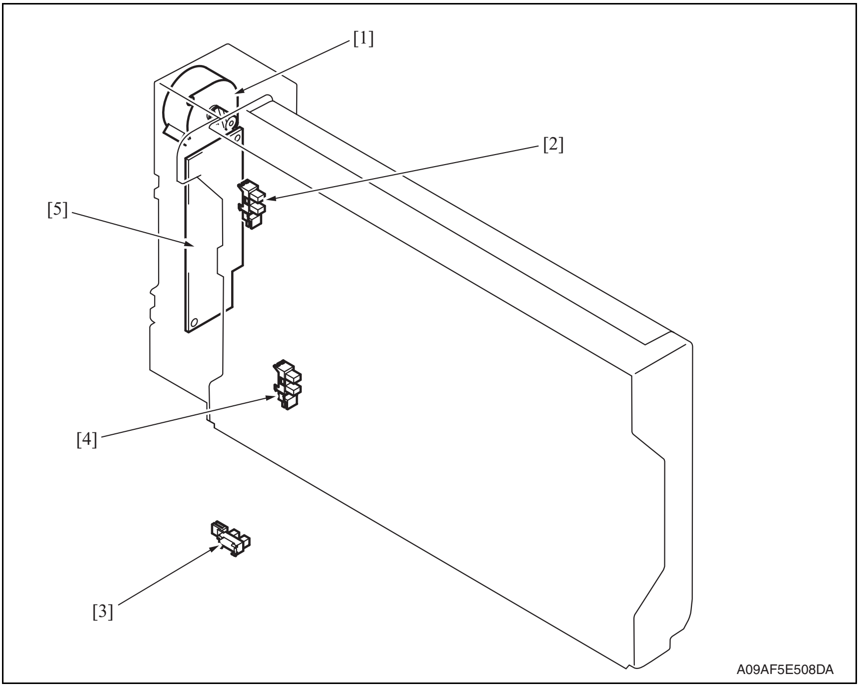
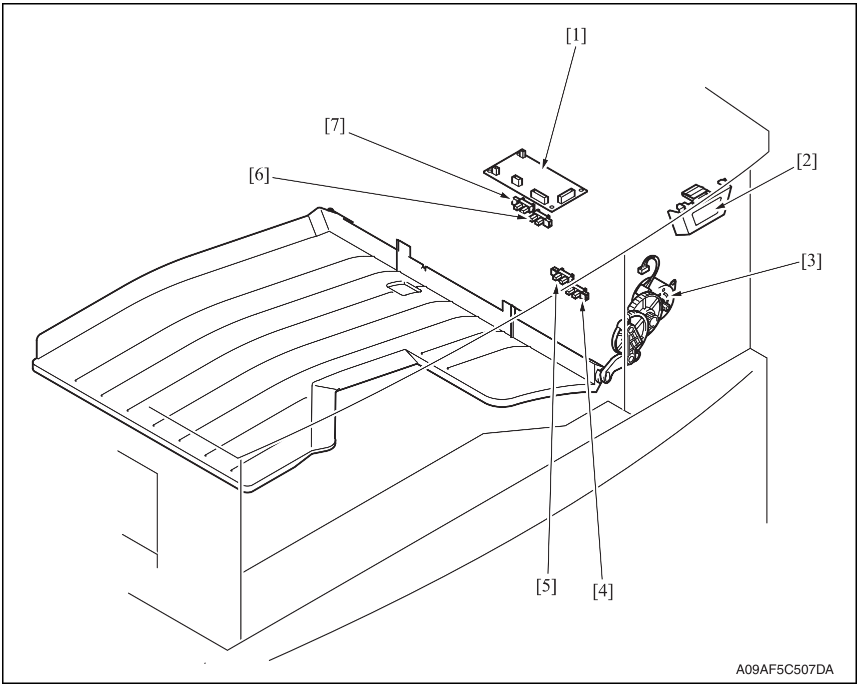
[1]	Paper feed solenoid (SD1)	[2]	Paper empty sensor (PS1)

17.6 AD-504 (option)



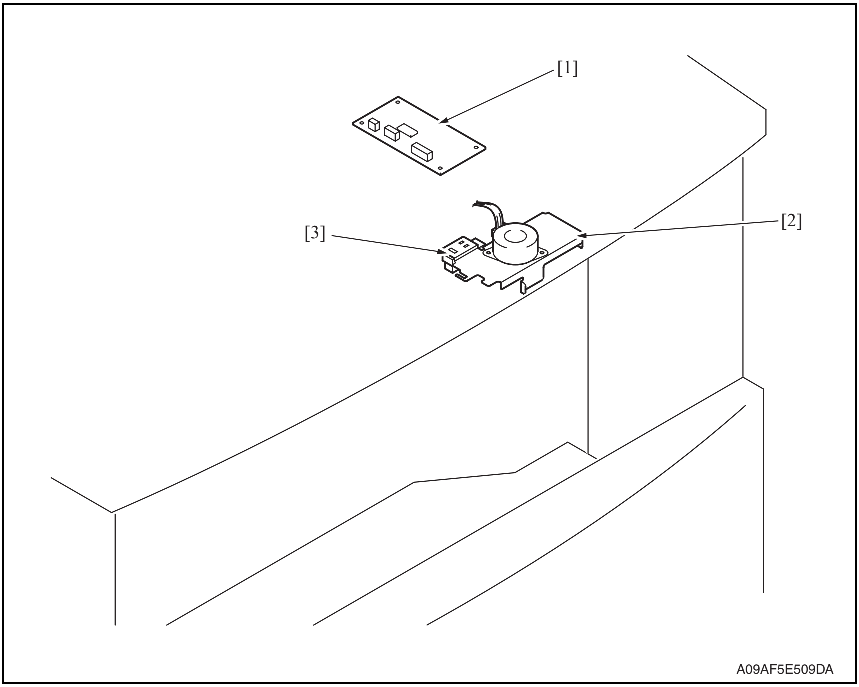
[1]	Transport motor (M1)	[4]	Transport sensor (PS2)
[2]	Door sensor (PS1)	[5]	AD drive board (ADDB)
[3]	Paper set sensor/bypass (PS3)		

17.7 JS-503 (option)



[1]	JS drive board (JSDB)	[5]	Upper home position sensor (PS1)
[2]	Paper detecting board (PSDB)	[6]	Paper full sensor (PS3)
[3]	Bin switching motor (M1)	[7]	Paper empty sensor (PS4)
[4]	Lower home position sensor (PS2)		

17.8 SF-501 (option)


[1]
[2]
[3]
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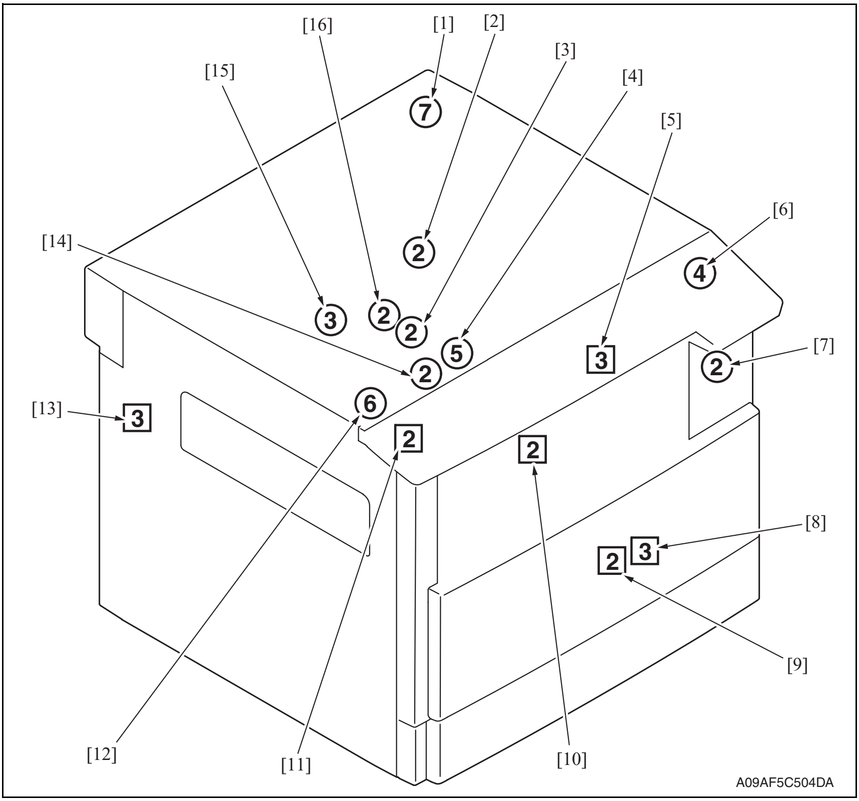
[1]	SF drive board (SFDB)	[3]	Home sensor (PS1)
[2]	Shift motor (M1)		

18. Connector layout drawing

Description

Number of pin → ① Possible to confirm by removing external cover.

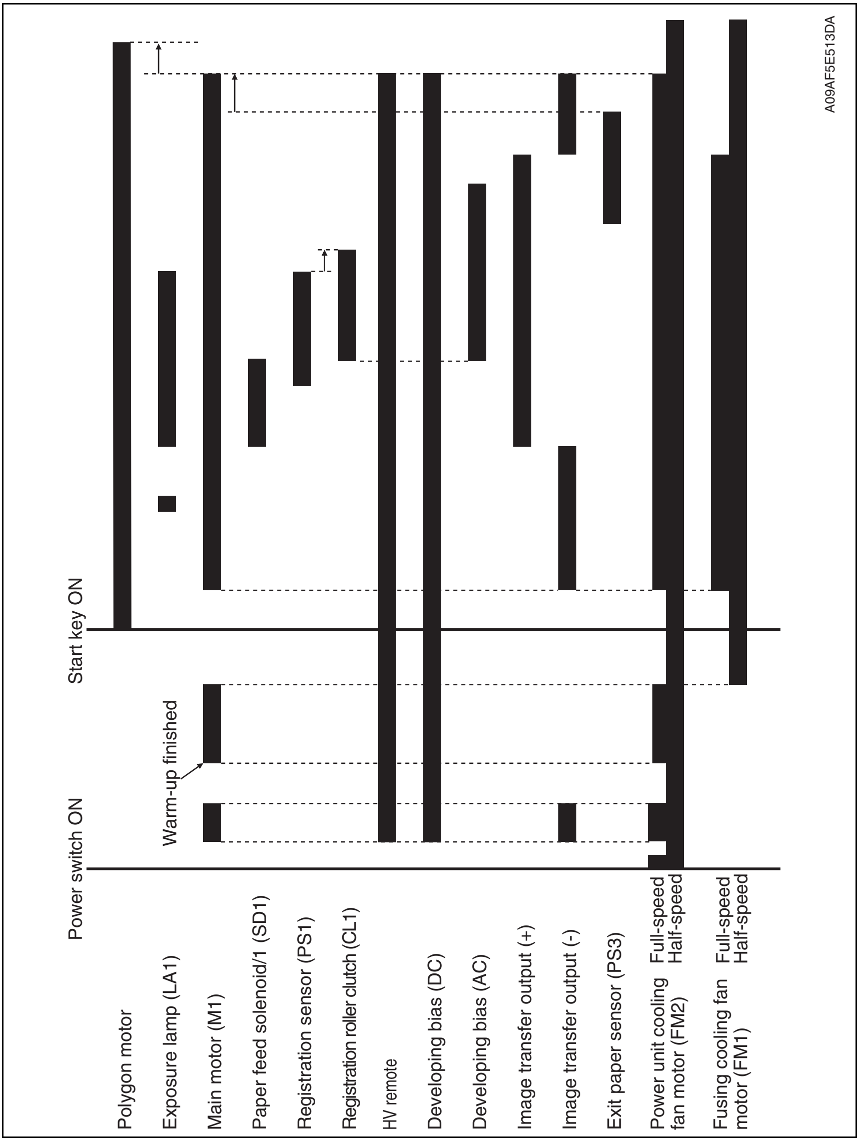
→ $\boxed{1}$ Not possible to confirm by removing external cover.


[16]
[1]
[2]
[3]
[15]
[4]
[5]
[6]
[14]
[7]
[13]
[8]
[9]
[12]
[11]
[10]
⑦
②
④
③
②
②
⑤
②
⑥
②
3
2
2
3
2
3
2
A09AF5C504DA

No.	CN No.	Location	No.	CN No.	Location
[1]	CN17	D-18	[8]	CN24	D-6 to 7
[2]	CN2	N-8 to 9	[9]	CN18	D-6 to 7
[3]	CN13	D-14	[10]	CN26	J-18
[4]	CN11	I-17	[11]	CN23	D-15
[5]	CN35	D-8	[12]	CN12	D to E-15
[6]	CN20	D-15	[13]	CN70	M-16
[7]	CN19	D-16	[14]	CN21	I-18

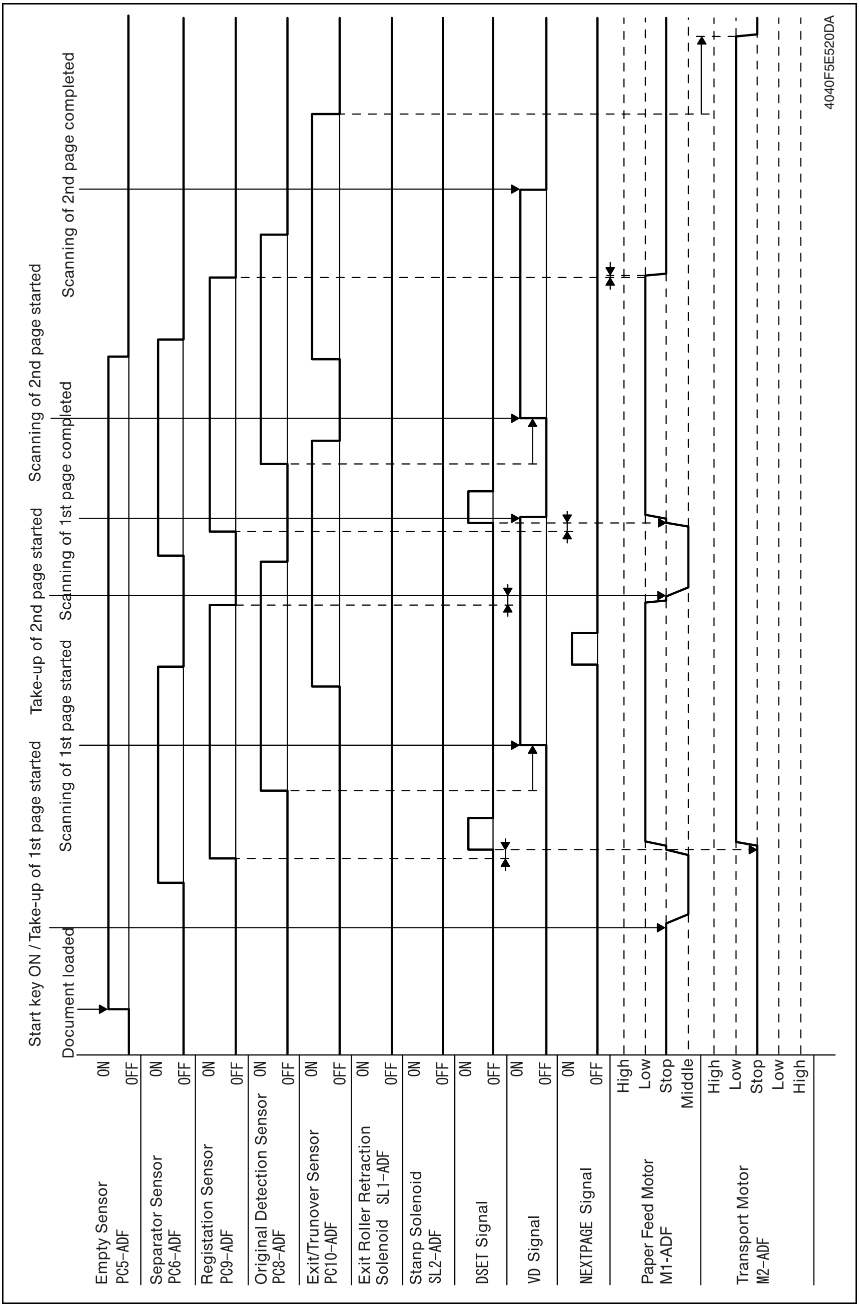
19. Timing chart

19.1 Main body

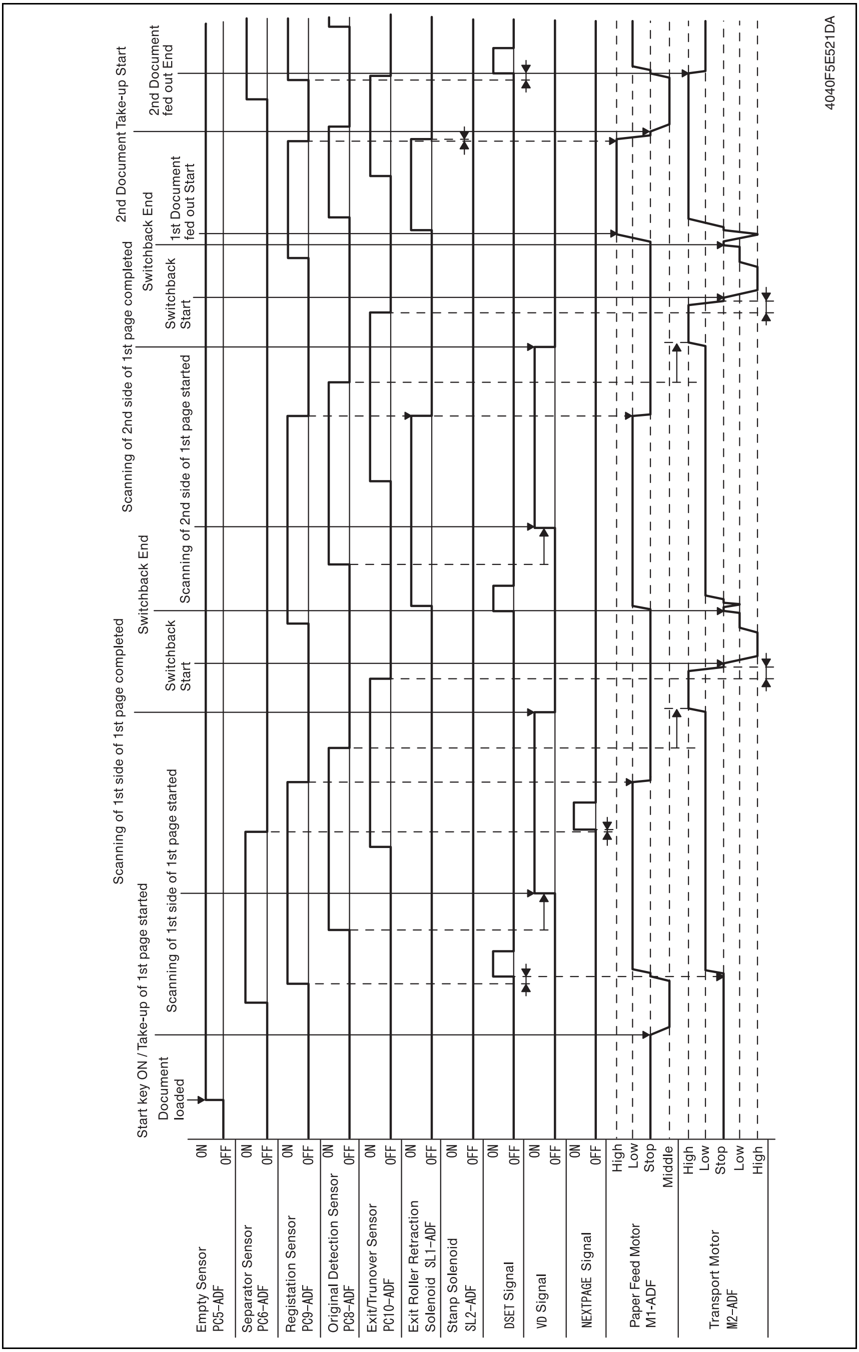


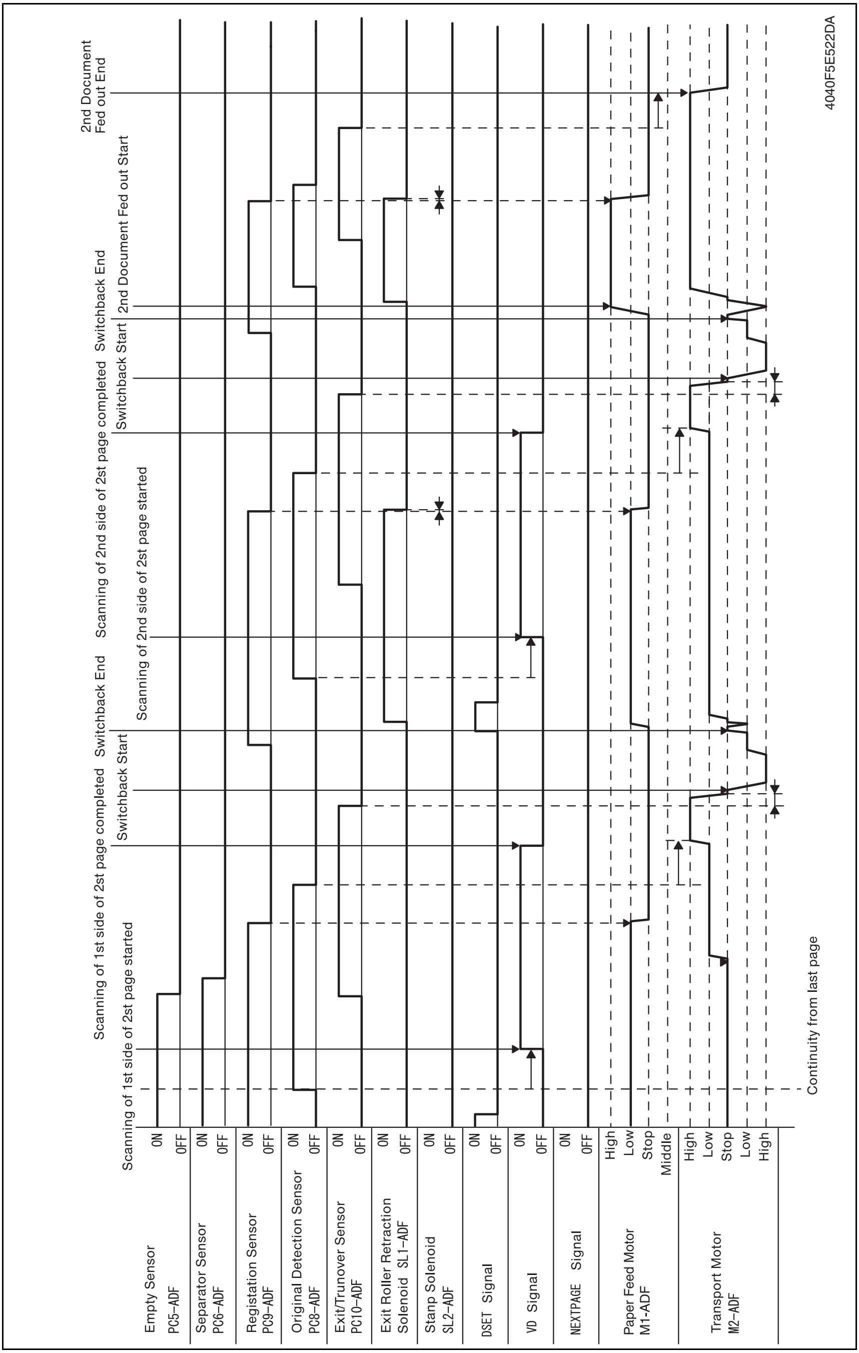
19.2 DF-605

19.2.1 1-Sided Mode (A4 two sheets feeding)



19.2.2 2-Sided Mode (A4 two sheets feeding)




Empty Sensor
PC5-ADF
Separator Sensor
PC6-ADF
Registation Sensor
PC9-ADF
Original Detection Sensor
PC8-ADF
Exit/Trunover Sensor
PC10-ADF
Exit Roller Retraction
Solenoid SL1-ADF
Stanp Solenoid
SL2-ADF
DSET Signal
VD Signal
NEXTPAGE Signal
Paper Feed Motor
M1-ADF
Transport Motor
M2-ADF
ON
OFF
High
Low
Stop
Middle
High
Low
Stop
Low
High
Scanning of 1st side of 2st page started
Scanning of 1st side of 2st page completed
Switchback Start
Switchback Start
Switchback End
Scanning of 2nd side of 2st page started
Scanning of 2nd side of 2st page completed
Switchback Start
Switchback End
2nd Document Fed out Start
2nd Document
Fed out End
Continuity from last page
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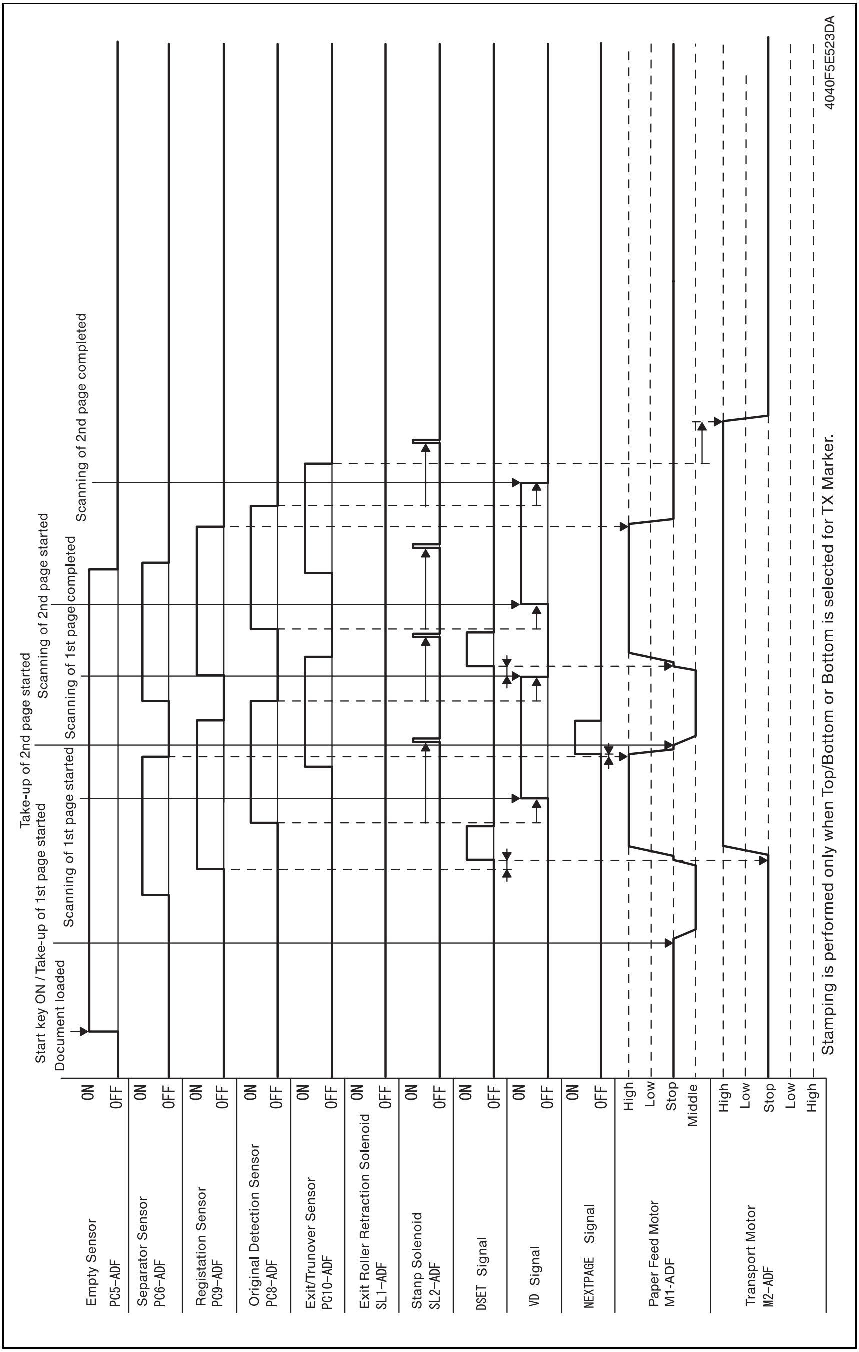
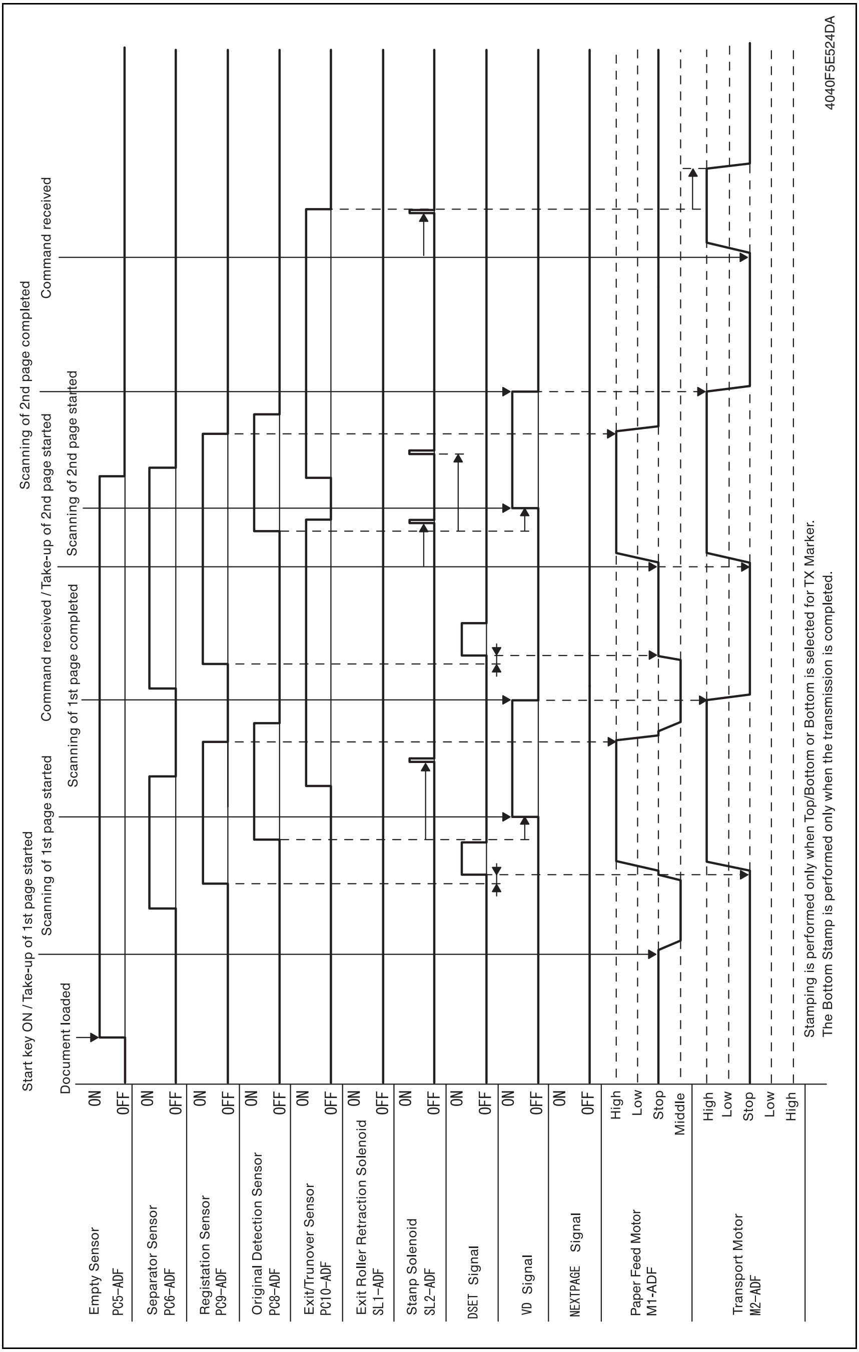
19.2.3 Fax Fine mode (A4 two sheets feeding)



Stamping is performed only when Top/Bottom or Bottom is selected for TX Marker.

19.2.4 Fax real-time transmission mode (A4 two sheets feeding)


Empty Sensor PC5-ADF
Separator Sensor PC6-ADF
Registation Sensor PC9-ADF
Original Detection Sensor PC8-ADF
Exit/Trunover Sensor PC10-ADF
Exit Roller Retraction Solenoid SL1-ADF
Stanp Solenoid SL2-ADF
DSET Signal
VD Signal
NEXTPAGE Signal
Paper Feed Motor M1-ADF
Transport Motor M2-ADF
ON
OFF
High
Low
Stop
Middle
Document loaded
Start key ON / Take-up of 1st page started
Scanning of 1st page started
Scanning of 1st page completed
Command received / Take-up of 2nd page started
Scanning of 2nd page started
Scanning of 2nd page completed
Command received
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Stamping is performed only when Top/Bottom or Bottom is selected for TX Marker.
The Bottom Stamp is performed only when the transmission is completed.

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KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

FK-506

2007.04

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a specific section revised within text, △1 is shown at the left margin of the corresponding revised section.
  The number inside △1 represents the number of times the revision has been made.

- To indicate clearly a specific page that contains a revision or revisions, the page number appearing at the left or right bottom of the specific page is marked with ▲1 .
  The number inside ▲1 represents the number of times the revision has been made.

NOTE

Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.

- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2008/08	1.01	▲	Error corrections
2007/05	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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General

1. Product specifications

Transmission mode	G3
Compatible wiring	General subscriber telephone line, NCC each line
Connection method	Direct connection (using a modular jack)
Transmission speed	33.6, 31.2, 28.8, 26.4, 24.0, 21.6, 19.2, 16.8, 14.4, 12.0, 9.6, 7.2, 4.8, 2.4 kbps (automatic switching)
Transmission time	3 seconds *1
Scanning density	8 dots/mm x 3.85/7.7/15.4 lines/mm, 16 dots/mm x 15.4 lines/mm *2
Document size	Maximum A3 (Ledger), banner documents (maximum 1000 mm (39-1/4 inches)) possible
Print paper size	Metric: A3, B4, A4, B5, A5 Inch: Invoice (8-1/2 x 5-1/2), Letter, Legal (8-1/2 x 14), Ledger (11 x 17)
Scanning storage	With built in memory (5 MB): 280 pages With expanded memory (16 MB): 1,024 pages *With standard A4-size documents
Compression encoding format	MH / MR / MMR / JBIG

*1: This is the speed for transmitting an A4-size, or Letter-size document containing approximately 700 characters at high-speed (33.6 kbps) using the standard resolution (8 dots/mm x 3.85 lines/mm (200 dpi x 100 lpi)). The transmission time for only the image information and the communication control time are not included. In addition, the actual transmission time differs depending on the contents of the document, the recipient's fax machine and the condition of the wiring.

*2: Real-time transmission is supported only with the document feeder.

Blank Page

Maintenance

2. Firmware upgrade

2.1 Preparations for firmware rewriting

2.1.1 Installing the driver

NOTE

- **The TWAIN driver must previously be installed in the host computer that is used to upgrade the firmware.**
- **If the TWAIN driver has not been installed, use the procedure below to install it.**
- **If the TWAIN driver has already been installed, proceed with the section on "Firmware rewriting" to upgrade the firmware.**

  See P.5

A. Installation of the GDI printer/TWAIN driver

(1) For Windows XP

1. Start the host computer.
2. Turn on the power switch of the machine.
3. Use a USB cable to connect the machine to host computer.
4. In the "Found New Hardware Wizard" dialog box, choose "Install from a list or specific location (Advanced)", and then click [Next].
5. Under "Search for the best driver in these locations", choose "Include this location in the search", and then click [Browse].
6. Specify "\(name of any given language)\WinXP" in the folder in which the TWAIN driver is stored, and then click [OK].
7. Click [Next] and then [Finish].
8. The "Found New Hardware Wizard" dialog box will appear again: Repeat steps 4~7 to install all drivers.

(2) For Windows 2000

1. Prepare the files necessary for upgrading the firmware, and copy them to PC.
2. Start the host computer.
3. Turn on the power switch of the machine.
4. Use a USB cable to connect the machine to host computer.
   The "Found New Hardware Wizard" dialog box will appear.
5. In the "Install Hardware Device Printers" dialog box, choose "Search for a suitable driver for my device (recommended)", and then click [Next].
6. In the "Locate Driver Files" dialog box, choose "Specify a location", and then click [Next].
7. Click [Browse], specify "\(name of any given language)\Win2000" in the folder in which the TWAIN driver is stored, and then click [OK].
8. Click [OK]. Then, continue following the instructions in the dialog boxes that will appear until the "Completing the Found New Hardware Wizard" dialog box appears.
9. Click [Finish].
10. The "Found New Hardware Wizard" dialog box will appear again: Repeat steps 4~8 to install all drivers.

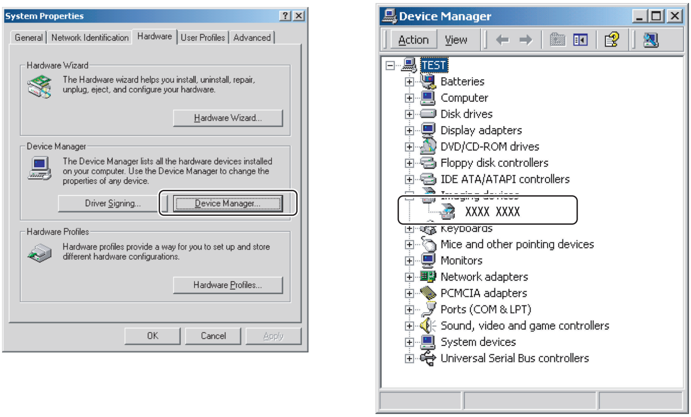
(3) For Windows Me/98SE

1. Prepare the files necessary for upgrading the firmware, and copy them to PC.
2. Start the host computer.
3. Turn on the power switch of the machine.
4. Use a USB cable to connect the machine to host computer.
   The “Add New Hardware Wizard” dialog box will appear.
5. With Windows Me, choose “Specify the location of the driver (Advanced)”, and then click [Next].
   With Windows 98, click [Next]. Then, in the dialog box that will then appear, choose “Search for the best driver for your device (recommended)”, and then click [Next].
6. Choose “Specify a location”, and then click [Browse].
7. Specify “\(name of any given language)\Win9X” in the folder in which the TWAIN driver is stored, and then click [OK].
8. Click [Next]. Then, continue following the instructions in the dialog boxes that will appear until the “Finish” button appears.
9. Click [Finish].
10. The “Add New Hardware Wizard” dialog box will appear again: Repeat steps 4~8 to install all drivers.

2.2 Firmware rewriting

2.2.1 Updating method

1. Turn ON the power switch of the machine.
2. Start the host computer.
3. Copy the “Update Software” folder and “Update” file to drive C. (Copy them into the highest directory on drive C.)
4. Connect the machine to the host computer using a USB cable. (Wait until the hardware is detected.)
5. Open “Properties” of “My Computer.” Then select System Properties/Hardware/Device Manager/Imaging devices to check that the “XXXXXXXXXXX” (Model Name) icon has been added.



The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.

The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.

Hardware profiles provide a way for you to set up and store different hardware configurations.

System Properties
General
Network Identification
Hardware
User Profiles
Advanced
Hardware Wizard
Hardware Wizard...
Device Manager
Driver Signing...
Device Manager...
Hardware Profiles
Hardware Profiles...
OK
Cancel
Apply
Device Manager
Action
View
TEST
Batteries
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
IDE ATA/ATAPI controllers
Imaging devices
XXXX XXXX
Keyboards
Mice and other pointing devices
Monitors
Network adapters
PCMCIA adapters
Ports (COM & LPT)
Sound, video and game controllers
System devices
Universal Serial Bus controllers

A09AF2E627DA

6. Double-click the “Update” file in the “Update Software” folder.
   The “TenryuS Update F/W-VXXX” screen will appear.

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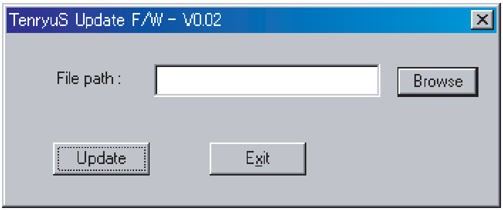
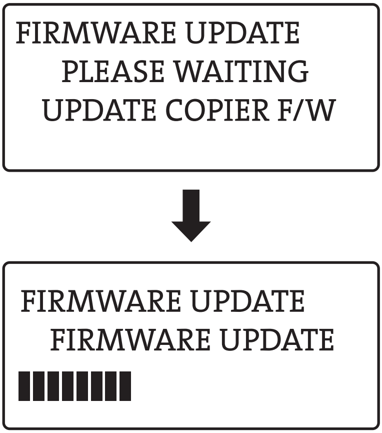
7. Click the [Browse] button. Then, select the “Update” file that has been copied onto drive C in step 3.



TenryuS Update F/W - V0.02
File path :
Browse
Update
Exit

A09AF2C623DA

8. Click the [Update] button to start the transfer of the firmware data. (Wait until data transfer is completed.)
9. Check the display for status of the firmware upgrading sequence.



FIRMWARE UPDATE
PLEASE WAITING
UPDATE COPIER F/W

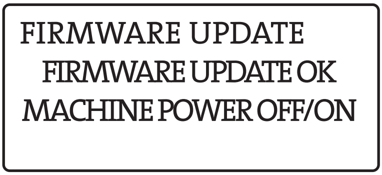
FIRMWARE UPDATE
FIRMWARE UPDATE

A09AF2E636DA

NOTE

- **NEVER turn OFF and ON the power switch as long as the above screens are being displayed.**

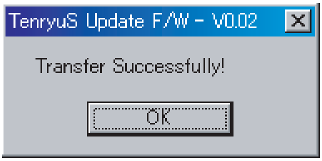
10. When the following message appears in the display, it indicates that upgrading of the firmware has been completed.



FIRMWARE UPDATE
FIRMWARE UPDATE OK
MACHINE POWER OFF/ON

A09AF2E637DA

11. Click the [OK] button to quit "TenryuS Update F/W-VXXX."



TenryuS Update F/W - V0.02

Transfer Successfully!

A09AF2C626DA

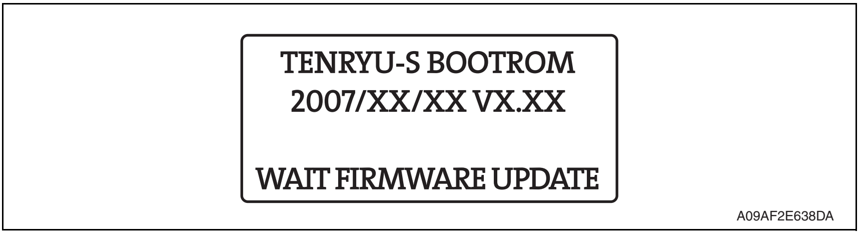
12. Turn OFF and ON the power switch of the machine, and confirm the firmware version.

2.2.2 Procedure when upgrading the firmware has failed

NOTE

- **Perform the following procedure only when upgrading from PC using ordinary USB connection has failed and the machine has not started properly.**
- **Prepare the special USB device driver because it is not possible to upgrade the firmware with the usual TWAIN/printer driver.**

1. Prepare the USB device driver (TWAIN/printer driver) for the firmware upgrade, and copy the USB device driver to the host computer.
2. Turn ON the power switch of the machine while pressing the Utility key on the control panel.
3. Check to make sure that [TENRYU-S BOOTROM] is displayed on the control panel.



TENRYU-S BOOTROM
2007/XX/XX VX.XX

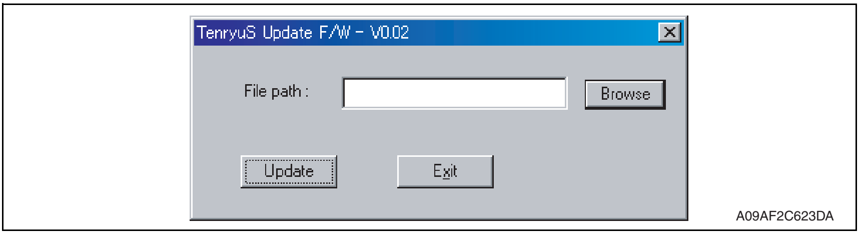
WAIT FIRMWARE UPDATE

A09AF2E638DA

4. Start the host computer.
5. Copy the “Update Software” folder and “Update” file to drive C. (Copy them into the highest directory on drive C.)
6. Connect the machine to the host computer using a USB cable.
   (The new hardware wizard dialog box will appear, and install the driver that has been copied onto the host computer in step 1.)
7. Double-click the “Update” file in the “Update Software” folder.
   The “TenryuS Update F/W-VXXX” screen will appear.

A09AF2C622DA

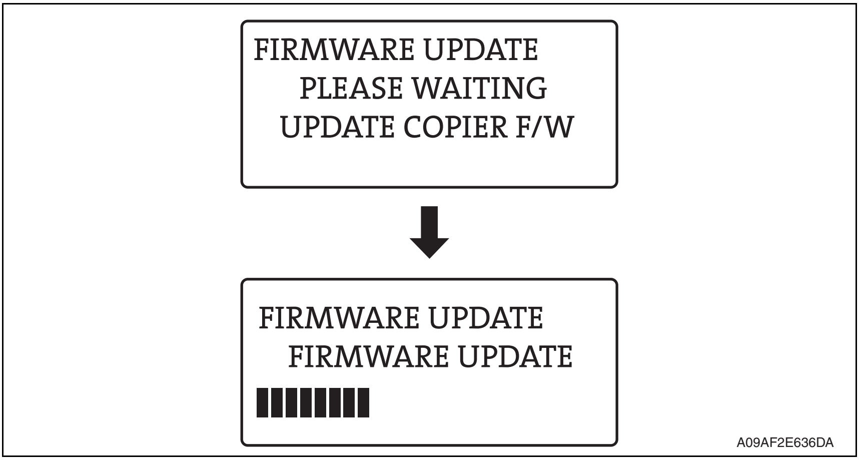
8. Click the [Browse] button. Then, select the “Update” file that has been copied onto drive C in step 5.



A09AF2C623DA

9. Click the [Update] button to start the transfer of the firmware data. (Wait until data transfer is completed.)

10. Check the display for status of the firmware upgrading sequence.



FIRMWARE UPDATE
PLEASE WAITING
UPDATE COPIER F/W

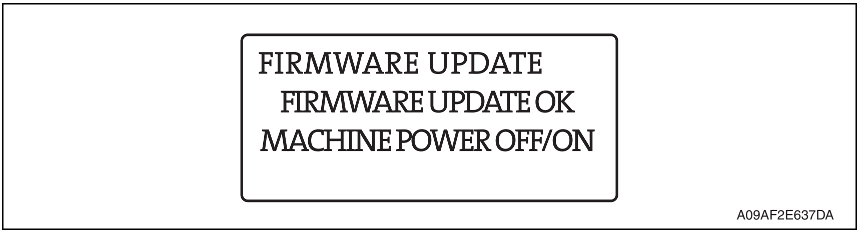
FIRMWARE UPDATE
FIRMWARE UPDATE

A09AF2E636DA

NOTE

- **NEVER turn OFF and ON the power switch as long as the above screens are being displayed.**

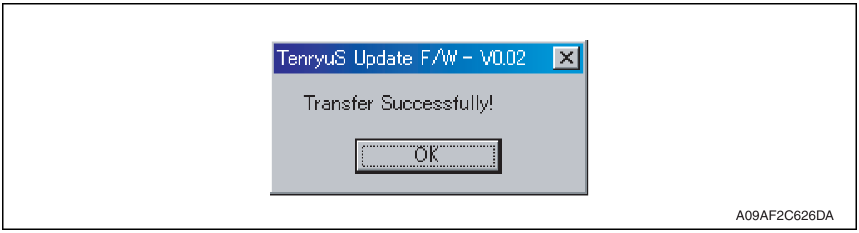
11. When the following message appears in the display, it indicates that upgrading of the firmware has been completed.



FIRMWARE UPDATE
FIRMWARE UPDATE OK
MACHINE POWER OFF/ON

A09AF2E637DA

12. Click the [OK] button to quit “TenryuS Update F/W-VXXX.”



TenryuS Update F/W - V0.02

Transfer Successfully!

A09AF2C626DA

13. Turn OFF and ON the power switch of the machine, and confirm the firmware version.

3. Other

3.1 Disassembly/adjustment prohibited items

A. Paint-locked screws

- **To prevent loose screws, a screw lock in blue or green series color is applied to the screws.**
- **The screw lock is applied to the screws that may get loose due to the vibrations and loads created by the use of machine or due to the vibrations created during transportation.**
- **If the screw lock coated screws are loosened or removed, be sure to apply a screw lock after the screws are tightened.**

B. Red-painted screws

- **The screws which are difficult to be adjusted in the field are painted in red in order to prevent them from being removed by mistake.**
- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to “Handling of PWBs” and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

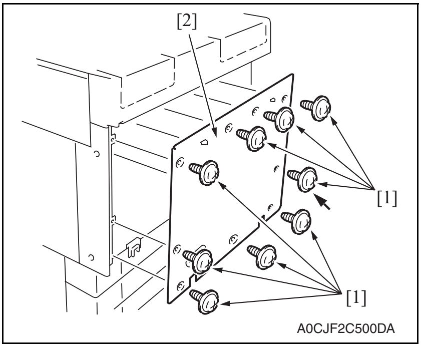
3.2 Disassembly/assembly/cleaning list (other parts)

3.2.1 Disassembly/assembly parts list

No.	Section	Part name	Ref.page
1	Board and etc.	NCU board	P.11
2		FAX board	P.12
3	Others	Speaker	P.10

3.3 Disassembly/assembly procedure

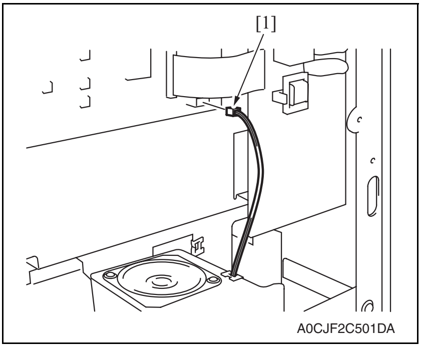
3.3.1 Speaker



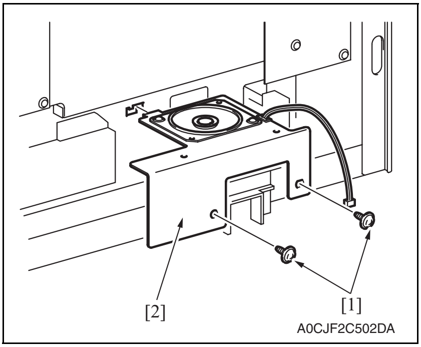
1. Remove nine screws [1] and then remove the rear cover [2] of the main body.

NOTE

- **Make sure that the screws illustrated right with arrows have washers when installing.**



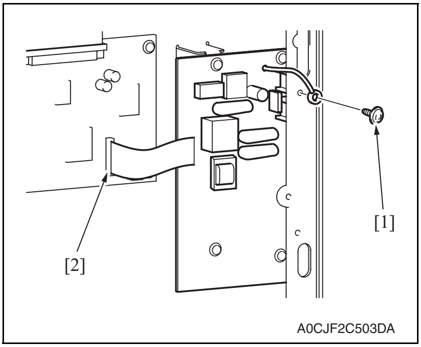
2. Disconnect the connector [1] of the speaker from the FAX board.


[2]
[1]
A0CJF2C502DA

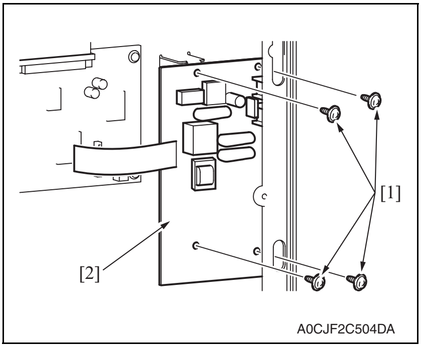
3. Remove two scerws [1] and remove the speaker [2].

3.3.2 NCU board

1. Remove the speaker.
   See P.10


[1]
[2]
A0CJF2C503DA

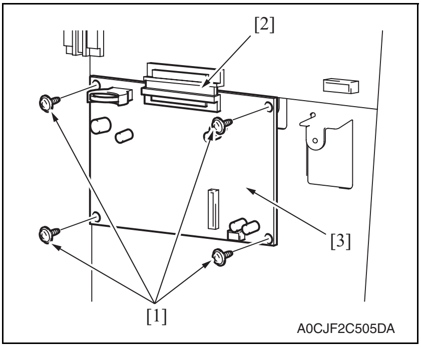
2. Remove the screw [1] of the grounding wire and disconnect the connector [2].


[1]
[2]
A0CJF2C504DA

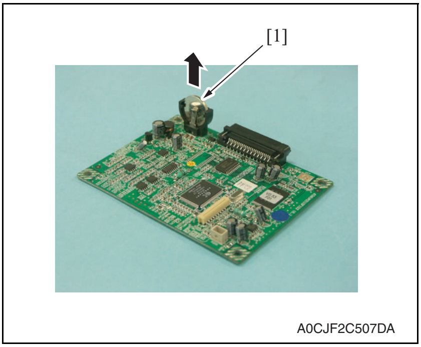
3. Remove four screws [1] and remove the NCU board [2].

3.3.3 FAX board

1. Remove the speaker.
   See P.10
2. Remove the NCU board.
   See P.11



3. Remove four screws [1], disconnect the connector [2] and remove the FAX board [3].



NOTE

- **When replacing the FAX board, remove the battery [1] from the old board and install it on the new board.**

Adjustment/Setting

4. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting” the default settings are indicated by “ ”.

A. Advance Checks

- Before attempting to solve the customer problem, the following advance checks must be made.Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The Original Glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for Service Jobs

1. Be sure to unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the Exposure Unit.
3. Special care should be used when handling the Fusing Unit which can be extremely hot.
4. The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC Drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

5. Confirm Mode

5.1 Confirm mode function tree

CONFIRM MODE		Ref. page
TOTAL PAGE	TOTAL COUNT	P.15
	SIZE COUNT	P.15
	TOTAL SCAN	P.15
	TX PAGES	P.15
	RX PAGES	P.15
TX/RX RESULT		P.15
PRINT REPORT	TX RESULT REPORT	P.16
	RX RESULT REPORT	P.16
	ACTIVITY REPORT	P.16
	MEMORY DATA LIST	P.16
	MEMORY IMAGE PRINT	P.16
	ONE-TOUCH LIST	P.16
	SPEED DIAL LIST	P.16
	KEY SETTING LIST	P.16
	RELAY BOX LIST	P.16
	MACHINE STATUS	P.17
	CONFIGURATION PAGE	P.17
	PCL FONT LIST *1	P.17

*1: It is available only when the optional Image controller IC-206 is mounted.

5.2 Confirm mode function setting procedure

5.2.1 Procedure

1. Press the Confirm key.
2. The CONFIRM MODE screen will appear.

5.2.2 Exiting

- Press the Reset key.

5.2.3 Changing the setting value in CONFIRM MODE functions

1. Press the ▲ / ▼.
2. Press the OK key.
3. To go back to the previous screen, press the Back key.

5.3 Setting in the CONFIRM MODE

5.3.1 TOTAL PAGE

A. TOTAL COUNT

Functions	• Displays the total number of pages printed since this machine was installed.
Use	

B. SIZE COUNT

Functions	• Displays the size count of pages printed since this machine was installed.
Use	

C. TOTAL SCAN

Functions	• Displays the total number of pages scanned since this machine was installed. however, the scanned number of pages in copy are not included.
Use	

D. TX PAGES

Functions	• Displays the total number of pages faxed since this machine was installed.
Use	

E. RX PAGES

Functions	• Displays the total number of pages received since this machine was installed.
Use	

5.3.2 TX/RX RESULT

Functions	• TX/RX result is displayed or printed out up to 60 jobs.
Use	
Setting/ Procedure	*1.* Press the Confirm key. *2.* Select the [TX/RX RESULT] and press OK key. *3.* Press the ▼ and ▲ keys to display the desired transmission results to check them. *4.* Press Start key to output the TX/RX result report.

5.3.3 PRINT REPORT

A. TX RESULT REPORT

Functions	• The document number, recipient name, date sent, starting time of transmission, number of document pages, time required, mode, and transmission result are printed.
Use	

B. RX RESULT REPORT

Functions	• The document number, caller name, date received, starting time of reception, number of pages received, time required, mode, and reception result are printed.
Use	

C. ACTIVITY REPORT

Functions	• The number, document number, communication date, starting time of transmission/reception, whether a transmission or reception was performed, recipient/caller name, number of pages sent/received, mode, and communication result are printed. **NOTE** • **This machine is set to automatically print the report each time a total of 60 communications have been performed.**
Use	

D. MEMORY DATA LIST

Functions	• This is a list of documents stored in the memory and waiting to be sent, and documents specified for timer transmission, batch transmission or polling reception. The document number, type of operation to be performed, time, recipient/caller name, and number of document pages are printed.
Use	

E. MEMORY IMAGE PRINT

Functions	• A reduced image of the first page of the document stored in the memory and waiting to be sent in addition to the document number, type of operation to be performed, recipient/caller name, date, time, and number of document pages are printed.
Use	

F. ONE-TOUCH LIST

Functions	• The recipients registered with the one-touch dial keys are printed in the numerical order of the keys.
Use	

G. SPEED DIAL LIST

Functions	• The recipients registered with the speed dial numbers are printed in numerical order.
Use	

H. KEY SETTING LIST

Functions	• The group dialing and program dialing settings specified for one-touch dial keys are printed in the numerical order of the keys.
Use	

I. RELAY BOX LIST

Functions	• The status and settings for the 10 relay user boxes are printed.
Use	

J. MACHINE STATUS

Functions Use	• The current machine settings are printed.

K. CONFIGURATION PAGE

Functions Use	• The list of print settings are printed.

L. PCL FONT LIST

Functions Use	• The list of PCL fonts are printed. **NOTE** **• This option is available only if optional image controller IC-206 is installed.**

6. Utility Mode

6.1 Utility Mode function tree

- Utility mode is used to make settings for the utility functions.

NOTE

- **The setting menu contains only the cases in which FK-506 is mounted.**

UTILITY MODE			Ref. page
MACHINE SETTING	BUZZER VOLUME		P.19
	INITIAL MODE		P.19
	SCAN THRESHOLD *1		P.19
ADMIN. MANAGEMENT	REMOTE MONITOR		P.20
	COMM. SETITNG	TONE/PULSE	P.21
		LINE MONITOR	P.21
		PSTN/PBX	P.21
	USER SETTING	DATE&TIME	P.22
		USER FAX NO.	P.22
		USER NAME	P.22
DIAL REGISTRATION	ONE-TOUCH DIAL		P.22
	SPEED DIAL		P.22
	GROUP DIAL		P.22
	PROGRAM DIAL		P.23
FAX REGISTRATION	MAIL BOX		P.23
	RELAY BOX		P.23
FAX TX OPERATION	DENSITY LEVEL		P.23
	QUALITY PRIORITY		P.23
	DEFAULT TX		P.24
	HEADER		P.24
FAX RX OPERATION	MEMORY RX MODE		P.24
	NO. of RINGS		P.24
	REDUCTION RX		P.25
	RX PRINT		P.34
	RX MODE		P.34
	FORWARD		P.34
	FOOTER		P.35
	SELECT TRAY		P.36
	CLOSED NETWORK		P.36
REPORTING	ACTIVITY REPORT		P.36
	RESERVATION REPORT		P.36
	TX RESULT REPORT		P.36
	RX RESULT REPORT		P.37

*1: It will be displayed only when the NC-503 or FK-506 is mounted.

6.2 Utility mode function setting procedure

6.2.1 Procedure

1. Press the Utility key.
2. The UTILITY MODE screen will appear.

6.2.2 Exiting

- Press the Reset key.

6.2.3 Changing the setting value in Utility Mode functions

- Select the appropriate item using ▲ / ▼ key, or the 10-key pad.

1. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
1. Validate the selected setting value using the OK key.
2. To go back to the previous screen, press the Back key.

6.3 Setting in the Utility mode

6.3.1 MACHINE SETTING

A. BUZZER VOLUME

Functions	• This function can be used to set the volume of alarms and the beep sounded when a key is pressed.
Use	
Setting/ Procedure	• The default setting is “LOW”. OFF “LOW” HIGH

B. INITIAL MODE

Functions	• This function can be used to set the mode (Copy mode or Fax mode) that the machine starts up in or returns to after the control panel is Reset.
Use	
Setting/ Procedure	• The default setting is “COPY”. “COPY” FAX

C. SCAN THRESHOLD

Functions	• This function is used to set the remaining memory that the memory is defined as full and the scanning is stopped.
Use	
Setting/ Procedure	• The default setting is “512 KByte”. 256 KByte “512 KByte” 1024 KByte 1536 KByte

6.3.2 ADMIN. MANAGEMENT

A. REMOTE MONITOR

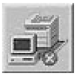
Functions	• To set the access right when monitoring a user machine from a remote location on the Service side. • RSD is used for remote monitoring.
Use	
Setting/ Procedure	• The default setting is “LIMITED”. OFF “LIMITED” FULL • LIMITED: Access is prohibited. remote monitoring is disabled. • LIMITED: Access right with limited functions. Detailed settings made in the user machine can be monitored. It is, however, not possible to change the user setting or upgrade firmware. • FULL: Access right with no restrictions. In addition to being able to monitor the detailed settings made in the user machine, the Service can change user settings and upgrade firmware. **NOTE** • **When [FULL] is selected, the [PASSWORD] screen will appear. The Administrator of the user machine sets a 4-digit (0000 to 9999) password. This password is necessary for remote monitoring and must be obtained in advance from the administrator of the user machine.**

NOTE

Precautions for Changing the Setting of [ADMIN. MANAGEMENT] - [REMOTE MONITOR]

If the user machine setting has been changed from [LIMITED] to [FULL] or vice versa while RSD (Remote Setup Diagnostic) communication is established, perform the following operations:

- **Temporarily disconnect the communication and re-execute [Remote Connect.]**
- **Press the Disconnect key to disconnect the communication.**

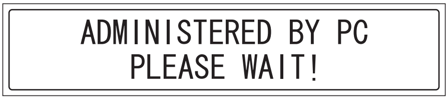


4980S533AB

- **The specific changes made in the setting of REMOTE MONITOR are not validated unless the connection is made again.**

< Precautions for Using the RSD (Remote Setup Diagnostic)>

- **When a connection is established with a local machine using the RSD, the following message appears on the Display and no operations can be made from the control panel of the local machine. Neither the PC print nor Scanner function can be accepted.**



ADMINISTERED BY PC
PLEASE WAIT!

A0CJF3C508DA

- **No connection can be made with the RSD during operation from the control panel of the local machine. Make the connection while no operations are performed on the local machine.**

- **As is the case with the RSD, operations from the control panel of the local machine, PC print, and Scanner function are not accepted while a connection is being established with the local machine using the LSD (Local Setup Diagnostic) and Page Scope Web Connection/Admin. mode.**
- **As is the case with the RSD, no connection can be made with LSD and Page Scope Web Connection/Admin. mode during operation from the control panel of the local machine. Make the connection while no operations are performed on the local machine.**

B. COMM. SETITNG

(1) TONE/PULSE

Functions	• This function is used to set the dial system of phone which is used by the machine.
Use	
Setting/ Procedure	• The default setting is “TONE”. “TONE” PULSE [TONE]: Tone line [PULSE]: 10 PPS pulse [10pps] line or 20 PPS pulse line [20pps] is selected.

(2) LINE MONITOR

<table>
<tr><td>Functions</td><td rowspan="2">• This function can be used to set the volume when monitoring communication.</td></tr>
<tr><td>Use</td></tr>
<tr><td>Setting/ Procedure</td><td>• The default setting is “LOW”.
OFF “LOW” HIGH
• Monitor sound output period
<table>
<tr><th></th><th>Start</th><th>End</th></tr>
<tr><td>Usual TX/ RX</td><td>• Pressing Start key following pressing ten-key.
• Pressing Start key following pressing Speed dial.
• Pressing One-touch key.
• Pressing Redial key.</td><td>After receiving V21 signal.</td></tr>
<tr><td>Using On Hook key</td><td>• Just after pressing On Hook key.</td><td>After receiving CED signal.</td></tr>
</table>
</td></tr>
</table>

(3) PSTN/PBX

Functions	• This function can be used to set whether the connected telephone wiring is a public switched telephone network (PSTN) or a private branch exchange (PBX). For a PBX system, the outside line access number (or extension number) must be specified. • The connected wiring system can be set to either PSTN (Public Switched Telephone Network) or PBX (Private Branch Exchange). For a PBX system, the outside line access number (or extension number) must be specified. The outside line access number (or extension number) is programmed in the [#] key.
Use	
Setting/ Procedure	• The default setting is “PSTN”. “PSTN” PBX

C. USER SETTING

(1) DATE&TIME

Functions Use	• This function is used to set the date, time and zone for FAX.

(2) USER FAX NO.

Functions Use	• This function is used to register the user's telephone number.

(3) USER NAME

Functions Use	• This function can be used to input the user's name to be notified to the other side.
Setting/ Procedure	• Up to 32 characteristics can be input.

6.3.3 DIAL REGISTRATION

A. ONE-TOUCH DIAL

Functions Use	• This function can be used to register the destination on one-touch dial keys. • A maximum of 32 fax numbers can be programmed.
Setting/ Procedure	The contents of registration. • Destination name: 20characters. • FAX No.: 30 digits. • Sub address: 20 digits. • SID: 20 digits. • Modem speed: [33.6 kbps] [14.4 kbps] [9.6 kbps] • Registered data: Automatically.

B. SPEED DIAL

Functions Use	• This function can be used to register the destination in speed dial. • A maximum of 240 fax numbers (001 to 240) can be programmed.
Setting/ Procedure	The contents of registration. • Destination name: 20characters. • FAX No.: 30 digits. • Sub address: 20 digits. • SID: 20 digits. • Modem speed: [33.6 kbps] [14.4 kbps] [9.6 kbps] • Registered data: Automatically.

C. GROUP DIAL

Functions Use	• This function can be used to register one-touch dial keys as a group. • Up to 50 keys can be registered as a group.
Setting/ Procedure	The contents of registration. • Group name: 20 characters. • Information of destination station: The contents of one-touch or speed dial.

D. PROGRAM DIAL

Functions	• This function can be used to register the destination number and TX/RX function on one-touch dial keys.
Use	
Setting/ Procedure	The function of registration • Broadcast transmission • Timer transmission • Mailbox transmission • Polling reception • Relay initiating transmission

6.3.4 FAX REGISTRATION

A. MAIL BOX

Functions	• This function can be used to specify mailbox IDs in order to receive faxes with mailbox reception only if the mailbox ID sent by the caller matches the mailbox ID set on this machine.
Use	
Setting/ Procedure	• Setting value: 0000 to 9999 • Password: Setting range 0 to 9999, or none. **NOTE** • **A relay box ID cannot be the same as a mailbox ID.**

B. RELAY BOX

Functions	• This function can be used to program the relay boxes in order for this machine (acting as a relay station) to receive a document from another fax machine (transmitting station), then transmit the document to multiple recipients (receiving stations).
Use	
Setting/ Procedure	• Setting value: 0000 to 9999 • Password: Setting range 0 to 9999, or none. **NOTE** • **A relay box ID cannot be the same as a mailbox ID.**

6.3.5 FAX TX OPERATION

A. DENSITY LEVEL

Functions	• This parameter can be used to set the default scanning density to one of five levels.
Use	• For paper with a dark color (background), select a setting towards [LIGHT]. For faint or colored text, select a setting toward [DARK]
Setting/ Procedure	• The default setting is “◖□□■□□◗“. • Setting value: -2 (light) to +2 (dark)

B. QUALITY PRIORITY

Functions	• This function can be used to set the default scanning resolution (image quality) to one of the following.
Use	
Setting/ Procedure	• The default setting is “STD/TEXT”. “STD/TEXT” FINE/TEXT S-FINE/TEXT STD/PHOTO FINE/PHOTO S-FINE/PHOTO

C. DEFAULT TX

Functions	• This function can be used to set the default of TX mode.
Use	
Setting/ Procedure	• The default setting is “MEMORY TX”. “MEMORY TX” ADF TX

D. HEADER

Functions	• This function can be used to set the default setting ([ON] or [OFF]) for adding the header (date sent, sender's name and fax number, etc.) when sending faxes. • This function is not available in the United States.
Use	
Setting/ Procedure	• The default setting is “ON”. OFF “ON” The contents of registration. • TX data and time. • Transmitter's own name. • Transmitter's own tel number. • Session number. • Page number. • Total page number (only displayed by use the memory TX job). • It is selectable by soft switch to transmit only pages which have failed to transmit, if communication error occurs on the way transmitting document. In this case, page number on Header Print is continued from the page number of the document successfully transmitted. Whether user setting is allowed or not is selectable with Soft switch. • For North America, Header print is set ON, and setting change to OFF by the user is not allowed. • Attaching Header Print: Image within 4 mm (1/4 in) top margin of transmitting document is not transmitted and Header print data is attached.

6.3.6 FAX RX OPERATION

A. MEMORY RX MODE

Functions	• This function can be used to set whether or not to receive memory RX.
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON

B. NO. of RINGS

Functions	• This function can be used to set the number of call sound until the incoming call is answered automatically.
Use	
Setting/ Procedure	• The default setting is “2”. • Setting value: 1 to 16

C. REDUCTION RX

Functions Use	• This function can be used to set whether documents longer than the paper are printed reduced ([ON]), split ([OFF]), or discarded ([CUT]). However, when sending a document more than 24 mm (1 inch) longer than the paper, [CUT] is not available. (In this case, the document is split.)
Setting/ Procedure	• The default setting is “ON”. [OFF]: 100% RX mode [ON]: Reduction print mode [CUT]: Cut mode

Reduction print mode

- It reduces (only the sub scanning direction) and prints so that receiving data will in a recording paper.

Recording paper size	Footer	Length of received image	Printing
A3	OFF	Less than 412 mm	1 page with 100%
		413 mm to 458 mm	1 page with (412 mm / image length)% reduction
		459 mm to 816 mm	Divide into 2 pages with 100%
		817 mm to 1,220 mm	Divide into 3 pages with 100%
		1,221 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 408 mm	1 page with 100%
		409 mm to 454 mm	1 page with (408 mm / image length)% reduction
		455 mm to 808 mm	Divide into 2 pages with 100%
		809 mm to 1,208 mm	Divide into 3 pages with 100%
		1,209 mm or more	Divide into 3 pages (or more) with 100%
A4S	OFF	Less than 202 mm	1 page with 100%
		203 mm to 269 mm	1 page with (202 mm / image length)% reduction
		270 mm to 396 mm	Divide into 2 pages with 100%
		397 mm to 590 mm	Divide into 3 pages with 100%
		591 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 198 mm	1 page with 100%
		199 mm to 265 mm	1 page with (198 mm / image length)% reduction
		266 mm to 388 mm	Divide into 2 pages with 100%
		389 mm to 578 mm	Divide into 3 pages with 100%
		579 mm or more	Divide into 3 pages (or more) with 100%
A4S	OFF	Less than 289 mm	1 page in 187 mm or less, it prints to A5
		290 mm to 385 mm	1 page with (289 mm / image length)% reduction
		386 mm to 570 mm	Divide into 2 pages with 100%
		571 mm to 851 mm	Divide into 3 pages with 100%
		852 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 285 mm	1 page with 100%
		286 mm to 381 mm	1 page with (285 mm / image length)% reduction
		382 mm to 562 mm	Divide into 2 pages with 100%
		563 mm to 839 mm	Divide into 3 pages with 100%
		840 mm or more	Divide into 3 pages (or more) with 100%

Recording paper size	Footer	Length of received image	Printing
B4S	OFF	Less than 356 mm	1 page in 193mm or less, it prints to B5
		357 mm to 396 mm	1 page with (356 mm / image length)% reduction
		397 mm to 704 mm	Divide into 2 pages with 100%
		705 mm to 1,052 mm	Divide into 3 pages with 100%
		1,053 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 352 mm	1 page in 189 mm or less, it prints to B5
		353 mm to 392 mm	1 page with (352 mm / image length)% reduction
		393 mm to 696 mm	Divide into 2 pages with 100%
		697 mm to 1,040 mm	Divide into 3 pages with 100%
		1,041 mm or more	Divide into 3 pages (or more) with 100%
B5	OFF	Less than 174 mm	1 page with 100%
		175 mm to 193 mm	1 page with (147 mm / image length)% reduction
		194 mm to 340 mm	Divide into 2 pages with 100%
		341 mm to 506 mm	Divide into 3 pages with 100%
		507 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 170 mm	1 page with 100%
		171 mm to 189 mm	1 page with (170 mm / image length)% reduction
		190 mm to 332 mm	Divide into 2 pages with 100%
		333 mm to 494 mm	Divide into 3 pages with 100%
		495 mm or more	Divide into 3 pages (or more) with 100%
A5	OFF	Less than 140 mm	1 page with 100%
		141 mm to 187 mm	1 page with (140 mm / image length)% reduction
		188 mm to 272 mm	Divide into 2 pages with 100%
		273 mm to 404 mm	Divide into 3 pages with 100%
		405 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 136 mm	1 page with 100%
		137 mm to 183 mm	1 page with (136 mm / image length)% reduction
		184 mm to 264 mm	Divide into 2 pages with 100%
		265 mm to 392 mm	Divide into 3 pages with 100%
		393 mm or more	Divide into 3 pages (or more) with 100%
Ledger	OFF	Less than 424 mm	1 page in 255 mm or less, it prints to Letter
		425 mm to 471 mm	1 page with (424 mm / image length)% reduction
		472 mm to 840 mm	Divide into 2 pages with 100%
		841 mm to 1,256 mm	Divide into 3 pages with 100%
		1,257 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 420 mm	1 page in 251 mm or less, it prints to Letter
		421 mm to 467 mm	1 page with (420 mm / image length)% reduction
		468 mm to 832 mm	Divide into 2 pages with 100%
		833 mm to 1,244 mm	Divide into 3 pages with 100%
		1,245 mm or more	Divide into 3 pages (or more) with 100%

Recording paper size	Footer	Length of received image	Printing
Letter	OFF	Less than 208 mm	1 page.
		209 mm to 297 mm	1 page with (208 mm / image length)% reduction
		298 mm to 408 mm	Divide into 2 pages with 100%
		409 mm to 608 mm	Divide into 3 pages with 100%
		609 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 204 mm	1 page.
		205 mm to 291 mm	1 page with (204 mm / image length)% reduction
		292 mm to 400 mm	Divide into 2 pages with 100%
		401 mm to 596 mm	Divide into 3 pages with 100%
		597 mm or more	Divide into 3 pages (or more) with 100%
LetterS	OFF	Less than 271 mm	1 page in 189 mm or less, it prints to Invoice
		272 mm to 387 mm	1 page with (271 mm / image length)% reduction
		388 mm to 534 mm	Divide into 2 pages with 100%
		535 mm to 797 mm	Divide into 3 pages with 100%
		798 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 267 mm	1 page in 185 mm or less, it prints to Invoice
		268 mm to 383 mm	1 page with (267 mm / image length)% reduction
		384 mm to 526 mm	Divide into 2 pages with 100%
		527 mm to 785 mm	Divide into 3 pages with 100%
		786 mm or more	Divide into 3 pages (or more) with 100%
Legal	OFF	Less than 348 mm	1 page with 100%
		349 mm to 385 mm	1 page with (347 mm / image length)% reduction
		386 mm to 688 mm	Divide into 2 pages with 100%
		689 mm to 1,028 mm	Divide into 3 pages with 100%
		1,029 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 344 mm	1 page with 100%
		345 mm to 381 mm	1 page with (343 mm / image length)% reduction
		382 mm to 680 mm	Divide into 2 pages with 100%
		681 mm to 1,016 mm	Divide into 3 pages with 100%
		1,017 mm or more	Divide into 3 pages (or more) with 100%
Invoice	OFF	Less than 132 mm	1 page with 100%
		133 mm to 189 mm	1 page with (132 mm / image length)% reduction
		190 mm to 256 mm	Divide into 2 pages with 100%
		257 mm to 380 mm	Divide into 3 pages with 100%
		381 mm or more	Divide into 3 pages (or more) with 100%
	ON	Less than 128 mm	1 page with 100%
		129 mm to 185 mm	1 page with (128 mm / image length)% reduction
		186 mm to 248 mm	Divide into 2 pages with 100%
		249 mm to 368 mm	Divide into 3 pages with 100%
		369 mm or more	Divide into 3 pages (or more) with 100%

100% RX mode

- All receiving data is divided into 2 pages or more, and is printed.

Recording paper size	Footer	Length of received image	Printing
A3	OFF	Less than 412 mm	1 page in 202 mm or less, it prints to A4
		413 mm to 816 mm	Divide into 2 pages
		817 mm to 1,220 mm	Divide into 3 pages
		1,221 mm or more	Divide into 4 pages or more
	ON	Less than 408 mm	1 page in 198 mm or less, it prints to A4
		409 mm to 808 mm	Divide into 2 pages
		809 mm to 1,208 mm	Divide into 3 pages
		1,209 mm or more	Divide into 4 pages or more
A4	OFF	Less than 202 mm	1 page
		203 mm to 396 mm	Divide into 2 pages
		397 mm to 590 mm	Divide into 3 pages
		591 mm or more	Divide into 4 pages or more
	ON	Less than 198 mm	1 page
		199 mm to 388 mm	Divide into 2 pages
		389 mm to 578 mm	Divide into 3 pages
		579 mm or more	Divide into 4 pages or more
A4S	OFF	Less than 289 mm	1 page in 140 mm or less, it prints to A5
		290 mm to 570 mm	Divide into 2 pages
		571 mm to 851 mm	Divide into 3 pages
		852 mm or more	Divide into 4 pages or more
	ON	Less than 285 mm	1 page in 136 mm or less, it prints to A5
		286 mm to 562 mm	Divide into 2 pages
		563 mm to 839 mm	Divide into 3 pages
		840 mm or more	Divide into 4 pages or more
B4S	OFF	Less than 356 mm	1 page in 174 mm or less, it prints to B5
		357 mm to 704 mm	Divide into 2 pages
		705 mm to 1,052 mm	Divide into 3 pages
		1,053 mm or more	Divide into 4 pages or more
	ON	Less than 352 mm	1 page in 170 mm or less, it prints to B5
		353 mm to 696 mm	Divide into 2 pages
		697 mm to 1,040 mm	Divide into 3 pages
		1,041 mm or more	Divide into 4 pages or more

Recording paper size	Footer	Length of received image	Printing
B5	OFF	Less than 174 mm	1 page
		175 mm to 340 mm	Divide into 2 pages
		341 mm to 506 mm	Divide into 3 pages
		507 mm or more	Divide into 4 pages or more
	ON	Less than 170 mm	1 page
		171 mm to 332 mm	Divide into 2 pages
		333 mm to 494 mm	Divide into 3 pages
		495 mm or more	Divide into 4 pages or more
A5	OFF	Less than 140 mm	1 page
		141 mm to 272 mm	Divide into 2 pages
		273 mm to 404 mm	Divide into 3 pages
		405 mm or more	Divide into 4 pages or more
	ON	Less than 136 mm	1 page
		137 mm to 264 mm	Divide into 2 pages
		265 mm to 392 mm	Divide into 3 pages
		393 mm or more	Divide into 4 pages or more
Ledger	OFF	Less than 424 mm	1 page in 208 mm or less, it prints to Letter
		425 mm to 840 mm	Divide into 2 pages
		841 mm to 1,256 mm	Divide into 3 pages
		1,257 mm or more	Divide into 4 pages or more
	ON	Less than 420 mm	1 page in 204 mm or less, it prints to Letter
		421 mm to 832 mm	Divide into 2 pages
		833 mm to 1,244 mm	Divide into 3 pages
		1,245 mm or more	Divide into 4 pages or more
Letter	OFF	Less than 208 mm	1 page
		209 mm to 408 mm	Divide into 2 pages
		409 mm to 608 mm	Divide into 3 pages
		609 mm or more	Divide into 4 pages or more
	ON	Less than 204 mm	1 page
		205 mm to 400 mm	Divide into 2 pages
		401 mm to 596 mm	Divide into 3 pages
		597 mm or more	Divide into 4 pages or more
LetterS	OFF	Less than 271 mm	1 page in 132 mm or less, it prints to Invoice
		272 mm to 534 mm	Divide into 2 pages
		535 mm to 797 mm	Divide into 3 pages
		798 mm or more	Divide into 4 pages or more
	ON	Less than 267 mm	1 page in 128 mm or less, it prints to Invoice
		268 mm to 526 mm	Divide into 2 pages
		527 mm to 785 mm	Divide into 3 pages
		786 mm or more	Divide into 4 pages or more

Recording paper size	Footer	Length of received image	Printing
Legal	OFF	Less than 348 mm	1 page
		349 mm to 688 mm	Divide into 2 pages
		689 mm to 1,028 mm	Divide into 3 pages
		1,029 mm or more	Divide into 4 pages or more
	ON	Less than 344 mm	1 page
		344 mm to 680 mm	Divide into 2 pages
		681 mm to 1,024 mm	Divide into 3 pages
		1,025 mm or more	Divide into 4 pages or more
Invoice	OFF	Less than 132 mm	1 page
		133 mm to 256 mm	Divide into 2 pages
		257 mm to 380 mm	Divide into 3 pages
		381 mm or more	Divide into 4 pages or more
	ON	Less than 128 mm	1 page
		129 mm to 248 mm	Divide into 2 pages
		249 mm to 368 mm	Divide into 3 pages
		369 mm or more	Divide into 4 pages or more

Cut mode

- The data that is larger than 1-page record area is cut and not recorded (to 18 mm).

Recording paper size	Footer	Length of received image	Printing
A3	OFF	Less than 412 mm	1 page in 226 mm or less, it prints to A4
		413 mm to 436 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		437 mm to 816 mm	Divide into 2 pages
		817 mm to 840 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		841 mm to 1,220 mm	Divide into 3 pages
		1,221 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 408 mm	1 page in 222 mm or less, it prints to A4
		409 mm to 432 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		433 mm to 808 mm	Divide into 2 pages
		809 mm to 832 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		833 mm to 1,208 mm	Divide into 3 pages
		1,209 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.

Recording paper size	Footer	Length of received image	Printing
A4	OFF	Less than 202 mm	1 page
		203 mm to 226 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		227 mm to 396 mm	Divide into 2 pages
		397 mm to 420 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		421 mm to 590 mm	Divide into 3 pages
		591 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 198 mm	1 page
		199 mm to 222 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		223 mm to 388 mm	Divide into 2 pages
		389 mm to 412 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		413 mm to 578 mm	Divide into 3 pages
		579 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
A4S	OFF	Less than 289 mm	1 page in 164 mm or less, it prints to A5
		290 mm to 313 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		314 mm to 570 mm	Divide into 2 pages
		571 mm to 594 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		595 mm to 851 mm	Divide into 3 pages
		852 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 285 mm	1 page in 160 mm or less, it prints to A5
		286 mm to 309 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		310 mm to 562 mm	Divide into 2 pages
		563 mm to 586 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		587 mm to 839 mm	Divide into 3 pages
		840 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
B4S	OFF	Less than 356 mm	1 page in 198 mm or less, it prints to B5
		357 mm to 380 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		381 mm to 704 mm	Divide into 2 pages
		705 mm to 728 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		729 mm to 1,052 mm	Divide into 3 pages
		1,053 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 352 mm	1 page in 194 mm or less, it prints to B5
		353 mm to 376 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		377 mm to 696 mm	Divide into 2 pages
		697 mm to 720 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		721 mm to 1,040 mm	Divide into 3 pages
		1,041 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.

Recording paper size	Footer	Length of received image	Printing
B5	OFF	Less than 174 mm	1 page
		175 mm to 198 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		199 mm to 340 mm	Divide into 2 pages
		341 mm to 364 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		365 mm to 506 mm	Divide into 3 pages
		507 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 170 mm	1 page
		171 mm to 194 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		195 mm to 332 mm	Divide into 2 pages
		333 mm to 356 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		357 mm to 494 mm	Divide into 3 pages
		495 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
A5	OFF	Less than 140 mm	1 page
		141 mm to 164 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		165 mm to 272 mm	Divide into 2 pages
		273 mm to 296 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		297 mm to 404 mm	Divide into 3 pages
		405 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 136 mm	1 page
		137 mm to 160 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		161 mm to 264 mm	Divide into 2 pages
		265 mm to 288 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		289 mm to 392 mm	Divide into 3 pages
		393 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
Ledger	OFF	Less than 424 mm	1 page in 232 mm or less, it prints to Letter
		423 mm to 448 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		449 mm to 840 mm	Divide into 2 pages
		841 mm to 864 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		865 mm to 1,256 mm	Divide into 3 pages
		1,257 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 420 mm	1 page in 228 mm or less, it prints to Letter
		421 mm to 444 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		445 mm to 832 mm	Divide into 2 pages
		833 mm to 856 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		857 mm to 1,244 mm	Divide into 3 pages
		1,245 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.

Recording paper size	Footer	Length of received image	Printing
Letter	OFF	Less than 208 mm	1 page
		209 mm to 232 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		233 mm to 408 mm	Divide into 2 pages
		409 mm to 432 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		433 mm to 608 mm	Divide into 3 pages
		609 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 204 mm	1 page
		205 mm to 228 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		229 mm to 400 mm	Divide into 2 pages
		401 mm to 424 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		425 mm to 596 mm	Divide into 3 pages
		597 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
LetterS	OFF	Less than 271 mm	1 page in 156 mm or less, it prints to Invoice
		272 mm to 295 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		296 mm to 534 mm	Divide into 2 pages
		535 mm to 558 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		559 mm to 797 mm	Divide into 3 pages
		798 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 267 mm	1 page in 152 mm or less, it prints to Invoice
		268 mm to 291 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		292 mm to 526 mm	Divide into 2 pages
		527 mm to 550 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		551 mm to 785 mm	Divide into 3 pages
		786 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
Legal	OFF	Less than 348 mm	1 page
		349 mm to 371 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		372 mm to 688 mm	Divide into 2 pages
		689 mm to 712 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		713 mm to 1,028 mm	Divide into 3 pages
		1,029 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 344 mm	1 page
		345 mm to 367 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		368 mm to 680 mm	Divide into 2 pages
		681 mm to 704 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		705 mm to 1,016 mm	Divide into 3 pages
		1,017 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.

Recording paper size	Footer	Length of received image	Printing
Invoice	OFF	Less than 132 mm	1 page
		133 mm to 156 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		157 mm to 256 mm	Divide into 2 pages
		257 mm to 280 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		281 mm to 380 mm	Divide into 3 pages
		381 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.
	ON	Less than 128 mm	1 page
		129 mm to 152 mm	Print into 1 page. 1 mm to 24 mm of end is cut.
		153 mm to 248 mm	Divide into 2 pages
		249 mm to 272 mm	Divide into 2 pages. 1 mm to 24 mm of end is cut.
		273 mm to 368 mm	Divide into 3 pages
		369 mm or more	Divide into 3 pages (or more). 1 mm to 24 mm of end is cut.

D. RX PRINT

Functions	• This function can be used to set whether the fax is only printed after all document pages have been received ([MEMORY RX]) or printing begins as soon as the first page of the document is received ([PRINT RX]).
Use	
Setting/ Procedure	• The default setting is “MEMORY RX”. “MEMORY RX” PRINT RX

E. RX MODE

Functions	• This function can be used to set the reception mode to automatic reception ([AUTO RX]) or manual reception ([MANUAL RX]).
Use	
Setting/ Procedure	• The default setting is “AUTO RX”. “AUTO RX” MANUAL RX AUTO RX: Automatically begins receiving after the set number of rings. MANUAL RX: Does not automatically receive the fax. Reception begins after making a connection by picking up the telephone receiver or pressing the Speaker key, then pressing the Start key

F. FORWARD

Functions	• This function can be used to set whether or not the received document is forwarded. **NOTE** • **In order to forward the document to an e-mail address, the optional image controller or network interface card is required.**
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON ON (PRINT) ON: The received document is forwarded to the specified fax number or e-mail address. ON (PRINT): The received document is printed by this machine at the same time that it is forwarded to the specified fax number or e-mail address.

G. FOOTER

Functions	• This function can be used to set whether or not the reception information (RX data and time, RX management number, RX page number, Transmitter's ID) is printed at the bottom of each received document.
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON

Attaching footer print:
When footer is selected ON, it is printed at the end of printable area. 4 mm line area from the end of printable area is kept for printing footer. It should be attached on footer area regardless of image length. If the received image is divided into 2 pages or more, footer is printed in the specified location of all the recording sheets of paper printed.

Image data area:
The received image data is printed on the area except for 12 mm from recording paper size. (No printable area: 8 mm (1/3 in) + Footer area: 4 mm (1/4 in)) The following table is the image printable area of each recording paper size due to setting of footer print.

Paper length		Footer OFF	Footer ON	
		Image data area	Image data area	Footer area
A3	420 mm	412 mm	408 mm	+4 mm
A4S	297 mm	289 mm	285 mm	+4 mm
A4	210 mm	202 mm	198 mm	+4 mm
B4	364 mm	356 mm	352 mm	+4 mm
B5	182 mm	174 mm	170 mm	+4 mm
A5	148 mm	140 mm	136 mm	+4 mm
Ledger	432 mm	424 mm	420 mm	+4 mm
Legal	356 mm	348 mm	344 mm	+4 mm
LetterS	279 mm	271 mm	267 mm	+4 mm
Letter	216 mm	208 mm	204 mm	+4 mm
Invoice	140 mm	132 mm	128 mm	+4 mm

H. SELECT TRAY

Functions	• This function can be used to select which paper tray can be used to supply paper when printing received documents or transmission reports. (A paper tray that cannot be used for supplying paper can also be specified.)
Use	• This function can be used to specify the tray not to supply a paper.
Setting/ Procedure	*1.* Select the tray. TRAY1 TRAY2 TRAY3 TRAY4 TRAY5 *2.* Select the [DISABLE] or [ENABLE]. • The default setting is “ENABLE”. DISABLE “ENABLE”

I. CLOSED NETWORK

Functions	• This function can be used to set whether or not the fax is received if the sender's fax number does not match the fax number programmed in this machine's one-touch dial keys.
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON

6.3.7 REPORTING

A. ACTIVITY REPORT

Functions	• Every 60 transmissions/receptions, a report can be printed to show the results of the transmissions/receptions. This function can be used to set whether the report is printed automatically when the 60th transmission/ reception is reached.
Use	
Setting/ Procedure	• The default setting is “ON”. OFF “ON”

B. RESERVATION REPORT

Functions	• If multiple recipients are specified for transmission, such as with broadcast transmission and polling reception, a report can be printed to show specified settings. This function can be used to set whether this report is printed automatically.
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON

C. TX RESULT REPORT

Functions	• This function can be used to set whether the report showing the result of a transmission is printed automatically after the transmission is finished.
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON

D. RX RESULT REPORT

Functions	• This function can be used to set whether the report showing the result of a reception is printed automatically after mailbox reception is finished. (If regular reception is not finished normally, a report will always be printed, regardless of the selected setting.)
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON

7. Service Mode

7.1 Service mode setting procedure

NOTE

- **Care must be used to ensure that only the personnel who are involved in service jobs know the procedure to enter the service mode.**

7.1.1 Procedure

1. Press the Utility key.
2. Press the following keys in this order.
3. Stop → 0 → 0 → Stop → 0 → 1
4. The Service mode menu screen will appear.

7.1.2 Exiting

- Press the Reset key.

7.1.3 Changing the setting value in service mode functions

1. Select the desired item using ▲ / ▼ key.
2. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

7.2 Service Mode function tree

NOTE

- **This setting menu contains only the cases in which the FK-506 is mounted.**

SERVICE MODE		Ref. page
SERVICE'S CHOICE	MARKETING AREA	P.40
	TX SPEED	P.40
	RX SPEED	P.40
	TX LEVEL	P.40
	RX LEVEL	P.41
	DTMF LEVEL	P.41
	CNG LEVEL	P.41
	CED LEVEL	P.41
	ECM MODE	P.41
	CODING SCHEME	P.41
	REPORT DESTINATION	P.42
	TONER EMPTY REPORT	P.42
	IU LIFE REPORT	P.42
	MAINTENANCE REPORT	P.42
	PROTOCOL REPORT	P.43
	GDI TIMEOUT	P.43
FUNCTION	UPLOAD F/W	
	FAX RES. COPY TEST	P.43
SOFTSWITCH		P.44
FACTORY TEST	SIGNAL TEST	P.44
	RELAY TEST	P.44
	DIAL TEST	P.44
	VOLUME TEST	P.44
CLEAR DATA	DRAM CLEAR	P.45
	FLASH ROM CLEAR	P.45

7.3 Setting in the service mode

7.3.1 SERVICE'S CHOICE

A. MARKETING AREA

Functions Use	• Set the marketing area. • If you change the marketing area, the soft switch will change automatically.
Setting/ Procedure	• Using ▲ / ▼ key, select the marketing area.

STANDARD	IRELAND	KOREA	MALAYSIA
U.S.A	PORTUGAL	CZECH	HONG KONG
TAIWAN	SOUTH AFRICA	SLOVAKIA	PHILIPPINE
SPAIN	GREECE	HUNGARY	THAILAND
ITALIAN	ISRAEL	UKRAINE	INDONESIA
BELGIUM	AUSTRIA	BALTIC	OMAN
NORWAY	GERMANY	WEST EUROPE	UAE
SWEDEN	FRANCE	SLOVENIA	QATAR
NETHERLANDS	UNITED KINGDOM	POLAND	BAHRAIN
FINLAND	AUSTRALIA	ROMANIA	KUWAIT
DENMARK	CHINA	RUSSIA	SAUDIARABIA
SWITZERLAND	NEW ZEALAND	SINGAPORE	JAPAN

B. TX SPEED

Functions Use	• Transmit start speed setting. Choose the mode from among the following.
Setting/ Procedure	• The default setting is "V.34". "V.34": 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800 V.17: 14400, 12000, 9600, 7200 V.29: 9600, 7200 V.27: 4800, 2400

C. RX SPEED

Functions Use	• Reception start speed setting. Choose the mode from among the following.
Setting/ Procedure	• The default setting is "V.34". "V.34": 33600, 31200, 28800, 26400, 24000, 21600, 19200, 16800 V.17: 14400, 12000, 9600, 7200 V.29: 9600, 7200 V.27: 4800, 2400

D. TX LEVEL

Functions Use	• PSK/FSK signal output level.
Setting/ Procedure	• The default setting is "-9 dBm". -2 dBm -3 dBm to -8 dBm "-9 dBm" -10 dBm to -16 dBm -17 dBm

E. RX LEVEL

Functions	• Reception sensitivity level.
Use	
Setting/ Procedure	• The default setting is “-43 dBm”. -36 dBm -37 dBm to -42 dBm “-43 dBm” -44 dBm to -48 dBm -49 dBm

F. DTMF LEVEL

Functions	• Dual tone output level.
Use	
Setting/ Procedure	• The default setting is “-6 dBm”. -2 dBm -3 dBm to -7 dBm “-6 dBm” -9 dBm to -16 dBm -17 dBm

G. CNG LEVEL

Functions	• Calling tone output level.
Use	
Setting/ Procedure	• The default setting is “-10 dBm”. -2 dBm -3 dBm to -9 dBm “-10 dBm” -11 dBm to -16 dBm -17 dBm

H. CED LEVEL

Functions	• Answer tone output level.
Use	
Setting/ Procedure	• The default setting is “-10 dBm”. -2 dBm -3 dBm to -9 dBm “-10 dBm” -11 dBm to -16 dBm -17 dBm

I. ECM MODE

Functions	• Select error correction mode.
Use	
Setting/ Procedure	• The default setting is “ON”. “ON” OFF “ON”: When an error occurs during communication, re-send the frame where the error occurs. OFF: Any error is ignored during communication.

J. CODING SCHEME

Functions	• Select compression method in TX/ RX mode.
Use	
Setting/ Procedure	• The default setting is “JBIG”. MMR MR MH “JBIG” MMR: A compression method. MR: A compression method. MH: The simplest compression method. “JBIG”: The most complex compression method that generates the smallest code than any of following ones.

K. REPORT DESTINATION

Functions	• Enter the telephone number for which the report is to be produced.
Use	When any of the following conditions happens, the report is sent to the destination. • Toner-empty condition • The IU Life Counter exceeds the specifications. • The Maintenance Counter reaches a preset value.
Setting/ Procedure	• Fax number specifications: An up-to-20-digit number that may consist of “0-9”, “ * ”, and “#”. (0-9, #, *) **NOTE** • **The report will be produced at a timing of 20 min., 24 hours, 48 hours, and 72 hours after any of the above conditions has occurred until the condition disappears.** • **If two or more conditions occur, only one report will be produced.**

L. TONER EMPTY REPORT

Functions	• Select to generate a report to a specific destination when toner empty status occurs in the engine.
Use	
Setting/ Procedure	• The default setting is “OFF”. ON “OFF” ON: Generate a report to report destination. “OFF”: Not to generate report.

M. IU LIFE REPORT

Functions	• Select to generate the report when IU LIFE COUNTER becomes out of life. * If “ON” is selected, the report will be printed when the following setting is set to “STOP.” [Service Mode]→[SERVICE’S CHOICE]→[IU LIFE STOP MODE]
Use	
Setting/ Procedure	• The default setting is “OFF”. ON “OFF” ON: Generate a report to report destination. “OFF”: Not to generate report.

N. MAINTENANCE REPORT

Functions	• This function can be used to set whether or not to send the report when the maintenance counter is zero. * If “ON” is selected, the report will be printed when the following setting is set to “2.” [Service Mode]→[SERVICE’S CHOICE]→[MAINTENANCE COUNT.]
Use	
Setting/ Procedure	• The default setting is “OFF”. ON “OFF” ON: Generate a report to report destination. “OFF”: Not to generate report.

O. PROTOCOL REPORT

Functions	• Print communication report.
Use	• Choose one from among the following.
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON ON (ERROR) “OFF”: Disable T.30 communication report. ON: Print T.30 communication report. ON (ERROR): Print T.30 communication report when an error occurs.

P. GDI TIMEOUT

Functions Use	• To specify the time for time out when data from PC is interrupted during GDI printing.
Setting/ Procedure	• The default setting is “60sec”. 5sec 10sec 20sec 30sec 40sec 50sec “60sec”

7.3.2 FUNCTION

A. UPLOAD F/W

Functions Use	• Download firmware from this machine to remote side, after setup of remote side location.
Setting/ Procedure	• Machine will dial automatically and copy the Flash ROM date to remote side machine.

B. FAX RES. COPY TEST

Functions	• Fax resolution copy test
Use	• To check whether the encoding/ decoding process is correct
Setting/ Procedure	[CCD. FAX] *1.* Press [AUTO DETECTION] or [MANAUL: XX] to select the paper. *2.* Press OK key to scan the next original and Back key to finish the scanning. [ADF. FAX] *1.* Set the original on ADF, and press OK key.

7.3.3 SOFTSWITCH

See P.47

7.3.4 FACTORY TEST

A. SIGNAL TEST

- This test is for factory adjustment only and should NOT be used.

B. RELAY TEST

- This test is for factory adjustment only and should NOT be used.

C. DIAL TEST

- This test is for factory adjustment only and should NOT be used.

D. VOLUME TEST

Functions	• Buzzer issues sound correct.
Use	
Setting/ Procedure	*1.* Press the OK key, and a buzzer can be heard. *2.* Pressing the ▲/▼ keys will select the volume of [HIGH] or [LOW].

7.3.5 CLEAR DATA

A. DRAM CLEAR

- Clear all data in the memory file and free all memory to 100%, the user data are not affected. But only clear DRAM data on Printer control board.

NOTE

- **Not include DRAM data on NIC.**

B. FLASH ROM CLEAR

- To clear the settings for the functions listed at the following and return the functions to their default settings.
- The following items are cleared (initialization).

NOTE

- **Before executing [FLASH ROM CLEAR] be sure to record the setting values that are to be initialized through [FLASH ROM CLEAR].**
- **For the record of the setting values, it is a good idea to have reports and lists printed.**
- **Some setting values are not included any of these reports or lists. Be sure to make a note of them separately.**
- **After [FLASH ROM CLEAR] has been executed, make necessary entries of data again based on the setting values recorded.**

MODE	Initialized Items		Default	Report/ List
UTILITY MODE	MACHINE SETTING	BUZZER VOLUME	LOW	MACHINE STATUS LIST
	ADMIN. MANEGEMENT	REMOTE MONITOR	LIMITED	none
	COMM. SETTING	TONE/ PULSE LINE MONITOR PSTN/ PBX	TONE LOW PSTN	MACHINE STATUS LIST
	USER SETTING	DATE & TIME USER FAX NO. USER NAME	None None None	MACHINE STATUS LIST
	DIAL REGISTRATION	ONE-TOUCH DIAL SPEED DIAL GROUP DIAL PROGRAM DIAL	None None None None	ONE-TOUCH LIST SPEED DIAL LIST KEY SETTING LIST MACHINE STATUS LIST
	FAX REGISTRATION	MAIL BOX RELAY BOX	None None	none
	FAX TX OPERATION	DENSITY LEVEL QUALITY PRIORITY DEFAULT TX HEADER	0 STD/TEXT MEMORY ON	MACHINE STATUS LIST
	FAX RX OPERATION	MEMORY RX MODE NO. of RINGS REDUCTION RX RX PRINT RX MODE FORWARD FOOTER SELECT TRAY CLOSED NETWORK\	OFF 2 ON MEMORY RX AUTO RX OFF OFF ENABLE OFF	MACHINE STATUS LIST
	REPORTING	ACTIVITY REPORT RESERVATION REPORT TX RESULT REPORT RX RESULT REPORT	ON OFF OFF OFF	MACHINE STATUS LIST
	NETWORK SETTING	IP ADDRESS SETTING SUBNET MASK GATEWAY DNS CONFIG. GATEWAY TX	None None None DISABLE DISABLE	MACHINE STATUS LIST

MODE	Initialized Items		Default	Report/ List
UTILITY MODE	E-MAIL SETTING 1	SENDER NAME	None	MACHINE STATUS LIST
		E-MAIL ADDRESS	None	
		SMTP SERVER ADDR.	None	
		SMTP PORT NO.		
		SMTP TIMEOUT	60	
		TEXT INSERT	OFF	
		DEFAULT SUBJECT	None	
	E-MAIL SETTING 2	POP3 SERVER ADDR.	None	MACHINE STATUS LIST
		POP3 PORT NO.	None	
		POP3 TIMEOUT	None	
		POP3 ACCOUNT	None	
		POP3 PASSWORD	None	
		AUTO RECEPTION	OFF	
		REPLY ADDRESS	None	
		HEADER PRINT	OFF	
	SCAN SETTING	RESOLUTION	300 X 300	MACHINE STATUS LIST
		IMAGE FORMAT	TIFF	
		CODING METHOD	MH	
TX/RX Result (Activity Data)			None	TX RESULT REPORT RX RESULT REPORT ACTIVITY REPORT
Image Data of DRAM memory file			None	MEMORY DATA LIST MEMORY IMAGE PRINT
SERVICE MODE	SERVICE'S CHOICE	MARKETTING AREA	STANDARD	SERVICE DATA LIST
		TX SPEED	V.34	none
		RX SPEED	V.34	
		TX LEVEL	-9 dBm	
		RX LEVEL	-43 dBm	
		DTMF LEVEL	-6 dBm	
		CNG LEVEL	-10 dBm	
		CED LEVEL	-10 dBm	
		ECM MODE	ON	
		CODING SCHEME	JBIG	
		PROTOCOL REPORT	OFF	

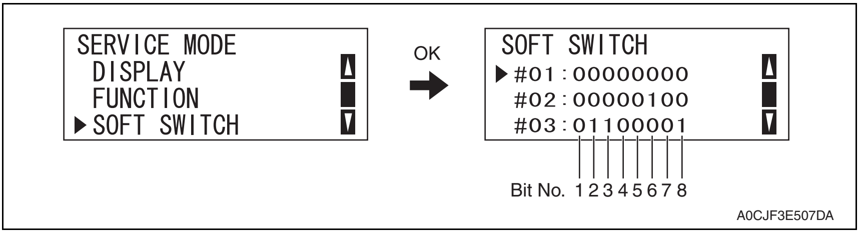
8. Soft Switch Set

- This machine is provided with a total of 64 soft switches used for making various adjustments. The initial values can be changed, defined to comply with the requirements unique to each individual country.

- The initial settings of the soft switches can be changed according to the marketing area.
  The settings can be changed when:
  The marketing area code is set in the service mode.
  The marketing area code is set using the RSD utility software.
  [FLASH ROM CLEAR] is cleared using the service mode. In this case, the initial settings are determined according to the current marketing area code.

- The bit status can be changed by the following methods:

1. Use soft switch available as a service mode function.
See P.44



▶#01 : 00000000
#02 : 00000100
#03 : 01100001

Hex-binary conversion list		HEX															
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Bit no.	4 (8)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	3 (7)	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
	2 (6)	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
	1 (5)	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1

2. Use the RSD software function.

8.1 Default Setting

8.1.1 Country for each marketing area

NOTE

- **A different country may be applicable depending on the communications standard.**
- **The marketing area settings can be set using the [SERVICE'S CHOICE] of [SERVICE MODE].**
  See P.40
- **According to the following table, the machines that are installed in the West Europe Area select [West Europe] in the [MARKETING AREA] function. Do not select each country.**

Marketing area	Country
STANDARD	BALTIC, BAHRAIN, INDONESIA, ISRAEL, KUWAIT, OMAN, PHILIPPINE, POLAND, QUTAR, ROMANIA, RUSSIA, SAUDIARABIA, SLOVAKIA, SLOVENIA, THAILLAND, UAE, UKRAINE
U.S.A	U.S.A., CANADA
WEST EUROPE	AUSTRIA, BELGIUM, CZECH, DENMARK, FINLAND, FRANCE, GREECE, HUNGARY, IRELAND, ITALIAN, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM, WEST EUROPE.
ASIA	HONG KONG, MALAYSIA
Setting in accordance with each country	AUSTRALIA, CHINA, GERMANY, JAPAN, KOREA, NEW ZEALAND, SOUTH AFRICA, TAIWAN
SINGAPORE	SINGAPORE (remark: with DTS default setting).

8.2 Default soft switch setting for each market area 1

Soft switch No.	MARKETING AREA																															
	STANDARD (Initial setting)								U.S.A.								WEST EUROPE								ASIA							
	Bit No.								Bit No.								Bit No.								Bit No.							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
# 01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 02	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
# 03	0	1	1	0	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	1	1	0	1	1	0	0	0	0	1
# 04	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0
# 05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
# 06	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0
# 07	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	0	0	0	0	0
# 08	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1	1	0
# 09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
# 10	1	0	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	1	1	1	0	1	1	1	1	0	0	0	0	1	0	1
# 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 12	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
# 13	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0	0
# 14	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
# 15	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 16	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
# 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 19	1	1	0	1	1	1	1	0	0	0	0	1	1	1	1	0	1	1	0	1	1	1	1	0	0	1	1	0	0	1	1	0
# 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 21	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
# 22	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0
# 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 26	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0
# 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 28	1	1	1	0	0	1	0	1	1	1	1	0	0	1	0	1	1	1	1	0	1	0	1	0	1	1	1	0	0	1	0	1
# 29	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0
# 30	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0
# 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 33	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
# 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 35	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1
# 36	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1
# 37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Soft switch No.	MARKETING AREA																															
	STANDARD (Initial setting)								U.S.A.								WEST EUROPE								ASIA							
	Bit No.								Bit No.								Bit No.								Bit No.							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
# 38	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
# 39	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 46	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
# 47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 48	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1
# 49	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 50	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
# 51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 54	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1
# 55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 59	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 60	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
# 61	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0
# 62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 63	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
# 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 Default soft switch setting for each market area 2

Soft switch No.	MARKETING AREA																															
	AUSTRIA								CHINA								GERMANY								JAPAN							
	Bit No.								Bit No.								Bit No.								Bit No.							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
# 01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 02	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
# 03	0	1	1	0	0	0	1	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	1	1	0	1	1	0	0	0	0	1
# 04	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0
# 05	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
# 06	0	1	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0
# 07	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
# 08	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	0
# 09	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0
# 10	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	0	0	0	0	1	0	1
# 11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 12	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1
# 13	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0
# 14	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0
# 15	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 16	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
# 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 19	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0
# 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 21	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1
# 22	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0
# 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 26	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0
# 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 28	1	1	1	0	1	0	1	0	1	1	1	0	0	1	0	1	1	1	1	0	0	1	0	1	1	1	1	0	0	1	0	1
# 29	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0
# 30	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0
# 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 33	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
# 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 35	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1
# 36	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1
# 37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Soft switch No.	MARKETING AREA																															
	AUSTRIA								CHINA								GERMANY								JAPAN							
	Bit No.								Bit No.								Bit No.								Bit No.							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
# 38	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
# 39	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 46	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
# 47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 48	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1
# 49	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
# 50	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
# 51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 54	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1
# 55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 60	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
# 61	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0
# 62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0
# 63	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
# 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0

8.4 Default soft switch setting for each market area 3

Soft switch No.	MARKETING AREA																															
	KOREA								NEW ZEALAND								SOUTH AFRICA								TAIWAN							
	Bit No.								Bit No.								Bit No.								Bit No.							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
# 01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 02	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
# 03	0	1	1	0	0	0	0	1	0	1	1	0	0	0	1	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	0	1
# 04	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0
# 05	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 06	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0
# 07	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0
# 08	1	1	0	0	0	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
# 09	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 10	1	0	0	0	0	1	0	1	1	1	1	1	0	1	0	1	1	0	0	0	1	1	0	1	1	0	0	0	0	1	0	1
# 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 12	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
# 13	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
# 14	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
# 15	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 16	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
# 17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 19	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	1	1	0	1	1	1	0	1	1	0	1	1	1	1	0
# 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 21	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
# 22	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0
# 23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 26	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0
# 27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 28	1	1	1	0	0	1	0	1	1	1	1	0	0	1	0	1	1	1	1	0	0	1	0	1	1	1	1	0	0	1	0	1
# 29	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0
# 30	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0	0	0	1	0	1	1	1	0	0	0	1	0	1	1	0
# 31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 33	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
# 34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 35	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
# 36	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1
# 37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Soft switch No.	MARKETING AREA																															
	KOREA								NEW ZEALAND								SOUTH AFRICA								TAIWAN							
	Bit No.								Bit No.								Bit No.								Bit No.							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
# 38	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
# 39	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 46	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
# 47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 48	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1
# 49	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
# 50	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
# 51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 54	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0	1
# 55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 59	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 60	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0
# 61	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0
# 62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
# 63	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
# 64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.5 Default soft switch setting for each market area 4

Soft switch No.	MARKETING AREA							
	SINGAPORE							
	Bit No.							
	1	2	3	4	5	6	7	8
# 01	0	0	0	0	0	0	0	0
# 02	0	0	0	0	0	1	0	0
# 03	0	1	1	0	0	0	0	1
# 04	0	0	1	1	0	0	0	0
# 05	1	0	0	0	0	0	1	1
# 06	0	0	1	1	0	0	1	0
# 07	0	0	0	1	0	0	0	1
# 08	1	0	0	0	0	1	1	0
# 09	0	0	0	0	0	0	0	0
# 10	1	0	0	0	0	1	0	1
# 11	0	0	0	0	0	0	0	0
# 12	0	0	0	0	0	0	0	1
# 13	0	0	0	0	1	0	0	0
# 14	0	1	0	0	0	0	0	0
# 15	1	0	0	0	0	0	0	0
# 16	1	1	0	0	0	0	0	0
# 17	0	0	0	0	0	0	0	0
# 18	0	0	0	0	0	0	0	0
# 19	0	0	1	1	1	1	1	0
# 20	0	0	0	0	0	0	0	0
# 21	0	0	0	0	0	0	1	1
# 22	1	1	1	0	0	0	0	0
# 23	0	0	0	0	0	0	0	0
# 24	0	0	0	0	0	0	0	0
# 25	0	0	0	0	0	0	0	0
# 26	0	0	0	1	0	1	0	0
# 27	0	0	0	0	0	0	0	0
# 28	1	1	1	0	0	1	0	1
# 29	0	0	1	0	1	0	0	0
# 30	0	0	0	1	0	1	1	0
# 31	0	0	0	0	0	0	0	0
# 32	0	0	0	0	0	0	0	0

Soft switch No.	MARKETING AREA							
	SINGAPORE							
	Bit No.							
	1	2	3	4	5	6	7	8
# 33	0	0	0	0	0	0	1	0
# 34	0	0	0	0	0	0	0	0
# 35	0	0	0	0	1	0	0	1
# 36	0	1	0	1	0	0	0	1
# 37	0	0	0	0	0	0	0	0
# 38	1	0	0	0	0	1	1	0
# 39	1	0	0	0	0	0	0	0
# 40	0	0	0	0	0	0	0	0
# 41	0	0	0	0	0	0	0	0
# 42	0	0	0	0	0	0	0	0
# 43	0	0	0	0	0	0	0	0
# 44	0	0	0	0	0	0	0	0
# 45	0	0	0	0	0	0	0	0
# 46	0	1	0	1	0	0	0	0
# 47	0	0	0	0	0	0	0	0
# 48	1	0	0	1	0	0	0	1
# 49	1	0	0	0	0	0	0	0
# 50	0	0	0	0	0	0	1	0
# 51	0	0	0	0	0	0	0	0
# 52	0	0	0	0	0	0	0	0
# 53	0	0	0	0	0	0	0	0
# 54	0	0	0	1	0	1	0	1
# 55	0	0	0	0	0	0	0	0
# 56	0	0	0	0	0	0	0	0
# 57	0	0	0	0	0	0	0	0
# 58	0	0	0	0	0	0	0	0
# 59	0	0	0	1	0	0	0	0
# 60	1	0	0	0	0	1	1	0
# 61	1	1	1	1	0	0	0	0
# 62	0	0	0	0	0	0	0	0
# 63	0	0	0	0	0	0	0	1
# 64	0	0	0	0	0	0	0	0

8.6 Soft Switch List

Switch No.	Bit No.	Designation	Page No.
# 01	-	Reserved	P.61
# 02	8/7	Time between phase C to phase D signal in V.17	P.61
	6	Header TX selection open to user	
	3/2	Transmit RTN signal level criteria	
	1	Sent N.G page	
# 03	8	Send out NSF frame with station ID	P.62
	7	Number of pause within phone number	
	6	Re-dial prohibit for NO ANSWER	
	4/3/2/1	RX level setting	
# 04	4	Visible alarm for RTN signal	P.63
	3	Audible alarm or RTN signal	
# 05	8/7	Push Button on/off Timing (PB)	P.64
	6/5	Relation between dialed No. and No. of dial pulse	
	3	10PPS/20PPS	
	2/1	PPS ratio	
# 06	8/7	Ring on time to ignore ring off time at 1st cycle	P.64
	4/3	Ring off time at 1 st. cycle to approve incoming ring	
# 07	8	Dial tone or busy tone detection	P.65
	7	PSTN/ PBX setting	
	6	PBX dial tone detect	
	5	Dial mode select	
	4/3/2/1	Tx level select for PSK/ FSK	
# 08	8	Sending RTN signal level	P.66
	7	Detect busy tone after dialing	
	6	Sending CED signal after connection	
	4/3/2/1	Redial interval	
# 09	8/7	Ringer frequency detection	P.67
	5	TSI/ CSI Append “+”	
	2/1	Time from RX DIS signal to send DCS signal	
# 10	8	Print out RTN page report	P.68
	7	Confirmation report result field	
	6/5	Get gap time between digit for pulse dial	
	4	RX PIP T.30 command after send out MPS command	
	3	Received DIS signal within reception	
	2	Transmission time limitation	
	1	Audio alarm after communication fail	
# 11	7	Detect dial tone after pre-fix number	P.69
	6	Pulse dial allowed to select	
	5	Protocol signal display mode	
	1	DTMF high frequency dB value	

Switch No.	Bit No.	Designation	Page No.
# 12	8	ECM Mode capability	P.69
	7/6	V.34 fall back level for V.34 TX.	
	5	Send CTC after 4th PPR	
	3	Send EOR after lowest speed	
	2/1	TCF transmission timing after DCS	
# 13	8	MR capability for G3	P.70
	7/6	Delay time between transaction	
	5	Super fine printing capability for receiving	
	4	Disable ultra fine capability in RX mode	
	3	DTS mode	
	2	Send DTC signal if RX DIS signal in polling RX mode	
# 14	6	Memory size level to RX	P.71
	3/2/1	Time between V.34 ANSam signal and FSK DIS signal	
# 15	1	Remote side no document to be polled	P.71
# 16	2/1	Fax communication coding method	P.72
# 17	6	CED frequency	P.72
	5/4/3	Pause between off hook and CED signal	
	2/1	Inactivity timer [T5]	
# 18	6/5	G3 mode training quality level	P.73
	4/3/2/1	Redefine re-dial attempts counter	
# 19	8/7/6/5	CNG signal level	P.74
	4/3/2/1	DTMF high frequency level	
# 20	5/4/3/2/1	Redefine redial interval	P.75
# 21	8	NSS signal before DCS	P.76
	7/6	CNG duration after dialing (T1)	
	5	T4 timer	
	3	DIS signal length	
	2/1	Increase default T1 timing during calling	
# 22	8	Detect busy tone before dial	P.77
	7	Regard dial tone as busy tone after dialing	
	6	Check busy tone method	
	4/3/2/1	CED signal output level	
# 23	–	Reserved	P.77
# 24	–	Reserved	P.78
# 25	4/3	Flash key time in ON hook key dial	P.78
# 26	8/7	Dial tone detection time before disconnected	P.79
	6/5/4/3/2/1	Dial tone insensitivity	
# 27	4/3/2/1	Immunity for dial tone receiver	P.80
# 28	8/7/6/5	Time to dial after dial tone on the line	P.81
	4/3/2/1	CED duration time within calling period	
# 29	5/4/3/2/1	Time to dial after size the line when dial tone detected	P.82

Switch No.	Bit No.	Designation	Page No.
# 30	8/7	Pause delay time within digit	P.83
	6/5/4/3/2/1	Signal tone Insensitivity after dial for busy tone	
# 31	–	Reserved	P.84
# 32	–	Reserved	P.84
# 33	7	V.17 echo protection tone	P.85
	6	V.29 echo protection tone	
	5	Compromise equalize enable (CEQ) in the transmit path (TCEQ)	
	4	Compromise equalize enable (CEQ) in the receiver path (RCEQ)	
# 34	–	Reserved	P.85
# 35	8/7	Dial tone table switch time	P.86
	6/5/4	Dial tone frequency upper range index	
	3/2/1	Dial tone frequency low range index	
# 36	8	Re-dial attempts continue fall counter	P.87
	4/3/2/1	Re-dial attempts fail limitation counter	
# 37	8	Polling TX type for V.34 modem	P.88
	7	Auto dial learning for V.34 modem	
	6/5/4	RX start symbol rate for V.34 modem	
	3/2/1	TX start symbol rate for V.34 modem	
# 38	7	Set/ reset V.34 transmit level deviation	P.89
	6/5	V.34 flag number between ECM frame	
	4	Phase 2 guard tone power level (V.34)	
	1	V.8/ V.34 capability	
# 39	8	Disable V.34 TX for V.34 modem	P.89
	7	Disable V.34 RX for V.34 modem	
	6/5	Flags number in FSK for V.34 modem	
	4	Manual TX mode for V.34 modem	
	3	Switch from V.17 to V.34 if DIS bit 6 set after received DIS	
	2/1	Delay time in primary channel for V.34 transmit after CFR or MCF signal	
# 40	8/7/6/5	V.17 RX start speed	P.90
	3/2/1	V.34 RX start speed	
# 41	8/7/6/5	V.17 TX start speed	P.91
	3/2/1	V.34 TX start speed	
# 42	–	Reserved	P.92
# 43	–	Reserved	P.92
# 44	–	Reserved	P.92
# 45	6	Closed network	P.93
	5	Call transfer	
	4/3/2/1	No. of call transfer	

Switch No.	Bit No.	Designation	Page No.
# 46	8	Daylight savings timer	P.94
	4	RX print mode	
	3	Default TX mode	
	2	Header for FAX TX	
	1	Print model name on top of TX page if machine name not register	
# 47	6	RX mode	P.94
	5	Footer	
# 48	8	Activity report	P.95
	7	Reservation report	
	6	TX result report	
	5	RX result report	
	4	TX/ RX error report	
	3	Error report for I-FAX and network scanner	
	2	Error mail (I-FAX)	
	1	Broadcast report	
# 49	6	Print RX mailbox report method	P.96
	5	Redial method if communication fail	
	4/3/2/1	No. of rings	
# 50	8	Transmit or cancel after time out in “Memory TX”	P.96
	7	It is possible to register E-mail address in Relay box registration	
# 51	4/3	T.30 monitor report selection	P.97
	2	Send “un-sent page mode” for memory transmission	
# 52	–	Reserved	P.97
# 53	–	Reserved	P.97
# 54	8	Report/ LCD date/ time type	P.98
	7/6	Report/ LCD date/ time format	
	5/4	Memory near full capacity for scanning	
# 55	–	Reserved	P.98
# 56	–	Reserved	P.99
# 57	–	Reserved	P.99
# 58	8	Time out from PSK to FSK delay time	P.99
# 59	6/5/4/3/2/1	Time between GMT (Greenwich Mean Time)	P.100
# 60	7	Fax data divide printer	P.103
	6	Quick memory TX	
	5	B4/ A3 declaration for Ledger	
	4	The width of TX Ledger (8k)	
	3	Print mailbox RX image even if password is not correct	
	2	Off hook alarm after communication	
	1	Display destination selection within TX phase C	
# 61	4/3/2/1	Max. No. of ring	P.104
# 62	–	Reserved	P.104

Switch No.	Bit No.	Designation	Page No.
# 63	8	# key definition in PBX mode	P.105
	2	FAX Tx image adjust	
	1	TX result report with image	
# 64	6	Print RX error report on RX side if no FAX signal is detected	P.105
	5	10 pps & 20 pps selectable by user	

8.6.1 SOFT SWITCH: #01

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.2 SOFT SWITCH: #02

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="2">Time between phase C to phase D signal in V.17
Example:
Image → EOP</td><td rowspan="2"><table><tr><td>RX Insensitivity</td><td>70 msec</td><td>120 msec</td><td>180 msec</td><td>60 msec</td></tr><tr><td>Bit 8</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 7</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td><td rowspan="4">2</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td>Header TX selection open to user</td><td>0: No
1: Yes</td><td>1</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td rowspan="2">Transmit RTN signal level criteria</td><td rowspan="2"><table><tr><td>Percentage of error line</td><td>10%</td><td>15%</td><td>20%</td><td>25%</td></tr><tr><td>Bit 3</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 2</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>Sent N.G page</td><td>0: Send N.G page and up to 3 times for that page
1: Not re-send that N.G page for G3 mode</td><td>0</td></tr>
</table>

- Bit 1: If this bit is set to ‘0’, N.G indicates our side detected RTN signal from other end. In this case machine can re-send the same page up to three or just one time, and this use for G3 mode only.
- Bit 2-3: In G3 mode, if error line for each page meets the criteria setting, receiving machine will send RTN signal, in this case, some machine will re-send the same page again. The retry times depend on transmission side.
- Bit 6: If this bit is set to ‘0’, the header select function can not be changed by user, only changeable by serviceman in service mode.

8.6.3 SOFT SWITCH: #03

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Send out NSF frame with station ID</td><td>1: Yes
0: No</td><td>1</td><td rowspan="4">8</td></tr>
<tr><td>7</td><td>Number of pause within phone number</td><td>0: No limitation
1: Max. up to 2 “P” within inputted telephone number</td><td>0</td></tr>
<tr><td>6</td><td>Re-dial prohibit for NO ANSWER</td><td>0: Continue to dial
1: Not allowed to re-dial if no any FAX signal or detected busy tone after dialing</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">RX level setting</td><td rowspan="4">
<table>
<tr><th>RX level (dB)</th><th>-49</th><th>-48</th><th>-47</th><th>-46</th><th>-45</th><th>-44</th><th>-43</th></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><th>RX level (dB)</th><th>-42</th><th>-41</th><th>-40</th><th>-39</th><th>-38</th><th>-37</th><th>-36</th></tr>
<tr><td>Bit 4</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th>RX level (dB)</th><th colspan="2">Reserved</th></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">6</td></tr>
<tr><td>3</td><td>1</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 8: This bit set to 1, the answer machine will send machine name by NSF frame after connection. Can input Pause key to insert pause time between digits, this can put more than one “P” at the end of telephone number to increase calling time (T) after calling. In this case can use “P” to increase T1 time during calling to other parties.

8.6.4 SOFT SWITCH: #04

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Visible alarm for RTN signal	0: No **1: Yes - display message while sending / receiving RTN signal (RTN= Return To Negative).**	1	C
3	Audible alarm for RTN signal	0: No **1: Yes - alarm for sending or receiving RTN signal.**	1	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

- Bit 3: The alarm lasts for 3 seconds after a negative signal is detected in G3 mode.
- Bit 4: The display message will stay put on the LCD for 3 seconds or until next incoming T30 signal.

8.6.5 SOFT SWITCH: #05

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="2">Push button on/off timing (PB)</td><td rowspan="2"><table>
<tr><td rowspan="2">Timing (ms)</td><td>ON</td><td>100</td><td>70</td><td>70</td><td>90</td></tr>
<tr><td>OFF</td><td>140</td><td>70</td><td>140</td><td>90</td></tr>
<tr><td colspan="2">Bit 8</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td colspan="2">Bit 7</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td rowspan="2">Relation between dialed 10-key and No. of dial pulse</td><td rowspan="2"><table>
<tr><td># 1</td><td>1</td><td>2</td><td>9</td><td rowspan="10">Reserved</td></tr>
<tr><td># 2</td><td>2</td><td>3</td><td>8</td></tr>
<tr><td># 3</td><td>3</td><td>4</td><td>7</td></tr>
<tr><td># 4</td><td>4</td><td>5</td><td>6</td></tr>
<tr><td># 5</td><td>5</td><td>6</td><td>5</td></tr>
<tr><td># 6</td><td>6</td><td>7</td><td>4</td></tr>
<tr><td># 7</td><td>7</td><td>8</td><td>3</td></tr>
<tr><td># 8</td><td>8</td><td>9</td><td>2</td></tr>
<tr><td># 9</td><td>9</td><td>10</td><td>1</td></tr>
<tr><td># 0</td><td>10</td><td>1</td><td>10</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>Reserve</td><td>Reserve</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>10PPS / 20PPS</td><td>0: 10PPS
1: 20PPS</td><td>0</td></tr>
<tr><td>2</td><td rowspan="2">PPS ratio</td><td rowspan="2"><table>
<tr><td>MR(%)</td><td>33</td><td>40</td><td>30</td><td>Reserved</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.6 SOFT SWITCH: #06

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="2">Ring on time to ignore ring off time at 1st cycle</td><td rowspan="2"><table>
<tr><td>Time</td><td>50 ms</td><td>100 ms</td><td>150 ms</td><td>800 ms</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td><td>0</td><td rowspan="4">4</td></tr>
<tr><td>7</td><td>1</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="2">Ring off time at 1 st. cycle to approve incoming ring</td><td rowspan="2"><table>
<tr><td>Time</td><td>100 ms</td><td>250 ms</td><td>500 ms</td><td>1000 ms</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td><td>1</td><td rowspan="4">F</td></tr>
<tr><td>3</td><td>1</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

8.6.7 SOFT SWITCH: #07

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Dial tone or busy tone detection</td><td>**0: Disable**
1: Enable - Detect dial tone before dial</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>PSTN/PBX setting</td><td>**0: PSTN**
1: PBX - Select PBX line type</td><td>0</td></tr>
<tr><td>6</td><td>PBX dial tone detect</td><td>**0: Not to detect dial tone before pre-fix number**
1: Detect dial tone before the pre-fix number in PBX mode</td><td>0</td></tr>
<tr><td>5</td><td>Dial mode select</td><td>**0: DTMF - PB**
1: Pulse - DP</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">Tx level select for PSK/FSK</td><td rowspan="4">
<table>
<tr><td>Level (dBm)</td><td>-17</td><td>-16</td><td>-15</td><td>-14</td><td>-13</td><td>-12</td><td>-11</td><td>-10</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>**-9**</td><td>-8</td><td>-7</td><td>-6</td><td>-5</td><td>-4</td><td>-3</td><td>-2</td></tr>
<tr><td>Bit 4</td><td>**1**</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>**0**</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>**0**</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>**0**</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td><td rowspan="4">8</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.8 SOFT SWITCH: #08

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td rowspan="2">8</td><td rowspan="2">Sending RTN signal level</td><td>0: (Normal, Fine)=(12,24) continue error line</td><td rowspan="2">0</td><td rowspan="7">6</td></tr>
<tr><td>1: (Normal, Fine)=(6,12) continue error line</td></tr>
<tr><td rowspan="2">7</td><td rowspan="2">Detect busy tone after dialing</td><td>0: Not to detect</td><td rowspan="2">1</td></tr>
<tr><td>1: Detect busy tone after dialing</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Sending CED signal After connection</td><td>0: Not to send</td><td rowspan="2">1</td></tr>
<tr><td>1: Send CED signal before DIS signal after connection</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">Redial Interval</td><td rowspan="4">
<table>
<tr><td>Auto dial interval</td><td>1, 1, 1, 1, 1, 10, 1, 1, 1.</td><td>3, 3, 15, 3, 3.</td><td>1, 1, 15.</td><td>3, 3.</td><td>1, 1, 1.</td><td>3, 3, 3.</td><td>1, 1.</td><td>3, 3, 3, 3.</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Auto dial interval</td><td>1, 1, 1, 1.</td><td>2, 2.</td><td>5, 5, 5, 5.</td><td>1, 2, 2, 2.</td><td>2, 2, 2, 2, 2, 2, 2, 2, 2, 2.</td><td>2, 2, 10, 2, 2, 2.</td><td>3, 3, 10, 3, 3, 3, 3.</td><td>10, 10, 10, 10, 15, 10.</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">1</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

- Bit 8: If error line above definition, machine will send RTN signal instead of MCF signal. This will cause the other party to send the same page again.

8.6.9 SOFT SWITCH: #09

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="2">Ringer frequency detection</td><td rowspan="2"><table><tr><td>Ringer frequency range</td><td>**10 to 75 Hz**</td><td>20 to 57.5 Hz</td><td>20 to 75 Hz</td><td>10 to 75 Hz</td></tr><tr><td>Bit 8</td><td>**0**</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 7</td><td>**0**</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>TSI/CSI append “+”</td><td>**0: Not append “+” before send out TSI/CSI**
1: Automatically insert “+”</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td rowspan="2">Time from RX DIS signal to send DCS signal</td><td rowspan="2"><table><tr><td>Description</td><td>**70 msec**</td><td>120 msec</td><td>180 msec</td><td>240 msec</td></tr><tr><td>Bit 2</td><td>**0**</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 1</td><td>**0**</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 5: When this bit is set to “1”, the “+” character will be placed in the first position on CSI and TSI command.

8.6.10 SOFT SWITCH: #10

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td rowspan="2">8</td><td rowspan="2">Print out RTN page report</td><td>0: Not to Print</td><td rowspan="2">1</td><td rowspan="6">A</td></tr>
<tr><td>1: Print Out RTN page report after transaction for TX/RX RTN signal</td></tr>
<tr><td rowspan="2">7</td><td rowspan="2">Confirmation report result field</td><td>0: Print “OK”</td><td rowspan="2">0</td></tr>
<tr><td>1: Print “NG” in case of sending or receiving RTN signal</td></tr>
<tr><td>6</td><td rowspan="2">Get gap time between digit for pulse dial</td><td rowspan="2"><table><tr><td>Value</td><td>550 ms</td><td>650 ms</td><td>750 ms</td><td>850 ms</td></tr><tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>1</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">RX PIP T.30 command after send out MPS command</td><td>0: Send DCS at current speed</td><td rowspan="2">0</td><td rowspan="8">1</td></tr>
<tr><td>1: Return to Tx phase B waiting for DIS signal</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Received DIS signal within reception</td><td>0: Repeat sending DIS/DTC again until time out</td><td rowspan="2">0</td></tr>
<tr><td>1: Disconnected after sending DCN signal</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Transmission time limitation</td><td>0: No any limitation until document jam</td><td rowspan="2">0</td></tr>
<tr><td>1: Limit to 8 minutes from data phase</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Audio alarm after communication fail</td><td>0: Not to alarm after transaction fail</td><td rowspan="2">1</td></tr>
<tr><td>1: Alarm 3 seconds after disconnected</td></tr>
</table>

- Bit 8: If this bit set to 1, machine will print out confirmation report after each transaction for TX/RX RTN signal.
- Bit 7: If this bit is set to 1, the result field will show “NG” instead of “OK” in the confirmation report and activity report or checking the result on the LCD.
- Bit 2: For Manual Tx only.

8.6.11 SOFT SWITCH: #11

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Detect dial tone after pre-fix number</td><td>0: No
1: Yes</td><td>0</td></tr>
<tr><td>6</td><td>Pulse dial allowed to select</td><td>0: Yes
1: Not allowed</td><td>0</td></tr>
<tr><td>5</td><td>Protocol signal display mode</td><td>0: Not to display
1: Display V8 or T30 command within communication.</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>1</td><td>DTMF high frequency dB value</td><td>0: Base on SW19 (1-4)
1: High 1dB</td><td>0</td></tr>
</table>

- Bit 6: If this bit is set to 1, not allowed user to select Pulse dial, and this function open for serviceman to change.
- Bit 7: Bit set to 1, LCD will show the command between each party.

8.6.12 SOFT SWITCH: #12

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>ECM mode capability</td><td>1: Yes
0: No - also disable V.34 modem capability</td><td>1</td><td rowspan="4">8</td></tr>
<tr><td>7</td><td rowspan="2">V.34 fall back level for V.34 TX.</td><td rowspan="2"><table><tr><td>Counter</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Bit 7</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 6</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>6</td><td>0</td></tr>
<tr><td>5</td><td>Send CTC after 4th PPR</td><td>0: Send CTC (Continue To Correct)
1: Send EOR (End Of Transmission)</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>Send EOR after lowest speed</td><td>0: Send DCN (Redial)
1: Send EOR_xxx (Germany PTT)</td><td>0</td></tr>
<tr><td>2</td><td rowspan="2">TCF transmission timing after DCS</td><td rowspan="2"><table><tr><td>Description</td><td>70 msec</td><td>80 msec</td><td>90 msec</td><td>100 msec</td></tr><tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 1-2: Delay time from FSK mode to PSK mode, this is used for G3 mode only, V.34 does not need this setting.
- Bit 6-7: If level reads “1”, machine. Will go down to next lower speed for next data phase.

8.6.13 SOFT SWITCH: #13

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td rowspan="2">8</td><td rowspan="2">MR capability for G3</td><td>0: Yes</td><td rowspan="2">0</td><td rowspan="7">1</td></tr>
<tr><td>1: No</td></tr>
<tr><td>7</td><td rowspan="2">Delay time between transaction</td><td rowspan="2"><table><tr><td>Description</td><td>20 sec</td><td>60 sec</td><td>120 sec</td><td>240 sec</td></tr><tr><td>Bit 7</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 6</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>6</td><td>0</td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">Super fine printing capability for receiving</td><td>0: No</td><td rowspan="2">1</td></tr>
<tr><td>1: Yes</td></tr>
<tr><td>4</td><td>Disable ultra fine capability in RX mode</td><td>0: No
1: Yes</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>DTS mode</td><td>0: No
1: Yes</td><td>0</td></tr>
<tr><td>2</td><td>Send DTC signal if RX DIS signal in polling RX mode</td><td>1: No-send DIS again
0: Yes</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

- Bit 7-6: If set to 1, the time between each transaction will become longer, in this case machine will wait more time before start to dial next transaction.
- Bit 4: The resolution definition:
  - Standard R8 × 3.85 lines/mm
  - Fine R8 × 7.7 lines/mm
  - Super fine R8 × 15.4 line/mm
  - Ultra fine R8 × 15.4 lines/mm.

8.6.14 SOFT SWITCH: #14

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="5">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Memory size level To RX</td><td>1: Up to 128 KB</td><td rowspan="2">0</td></tr>
<tr><td>**0: Based on system configuration**</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">2</td></tr>
<tr><td>3</td><td rowspan="3">Time between V.34 ANSam signal and FSK DIS signal</td><td rowspan="3"><table>
<tr><th>Timer</th><th>50 ms</th><th>60 ms</th><th>**70 ms**</th><th>80 ms</th><th>100 ms</th><th>120 ms</th><th>140 ms</th><th>160 ms</th></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>**0**</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>**1**</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>**0**</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td><td>0</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 6 : If set to 1, machine will become manual RX mode if available memory size less than 128 K.

8.6.15 SOFT SWITCH: #15

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	1
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Remote side no document to be polled	0: Not to generate error report document to be polled	1	
		1: Generate error report after communication end		

8.6.16 SOFT SWITCH: #16

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">3</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td rowspan="2">Fax communication coding method</td><td rowspan="2">
<table>
<tr><th>Coding method</th><th>MMR</th><th>MR</th><th>MH</th><th>JBIG</th></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

8.6.17 SOFT SWITCH: #17

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>CED frequency</td><td>0: 2100 Hz
1: 1100 Hz</td><td>0</td></tr>
<tr><td>5</td><td rowspan="3">Pause between off hook and CED signal</td><td rowspan="3">
<table>
<tr><th>Time (T=)</th><th>1.8 sec to 2.5 sec</th><th>T+ 100 ms</th><th>T+ 200 ms</th><th>T+ 300 ms</th></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th>Time (T=)</th><th>T+ 400 ms</th><th>T+ 500 ms</th><th>T+ 600 ms</th><th>T+ 700 ms</th></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>4</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td rowspan="2">Inactivity timer [T5]</td><td rowspan="2">
<table>
<tr><th>Descrip-tion</th><th>T5</th><th>T5 + 20 sec</th><th>T5 + 40 sec</th><th>T5 + 60 sec</th></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- T5: 60 ± 5 sec. in ITU-T standard

8.6.18 SOFT SWITCH: #18

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td rowspan="2">G3 mode training quality level</td><td rowspan="2">
<table>
<tr><td>Definition</td><td>Level1</td><td>Level2</td><td>Level3</td><td>Level4</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">Redefine re-dial attempts counter</td><td rowspan="4">
<table>
<tr><td>Counter</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Counter</td><td colspan="5">Reserved</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 1-4: The redial attempt times will follow bit 1- 4, if these bits are not all setting “0”. Otherwise the redial attempt times will follow bit 1 to 4 on SW08.
- Bit 5-6: Level 4 training check phases is most severe than level 3, 2, 1. Level 4 can keep lowest RX speed communication than level 3, 2, 1 when poor line condition.

8.6.19 SOFT SWITCH: #19

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="4">CNG signal level</td><td rowspan="4">
<table>
<tr><td>Level (dBm)</td><td>-17</td><td>-16</td><td>-15</td><td>-14</td><td>-13</td><td>-12</td><td>-11</td><td>-10</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-9</td><td>-8</td><td>-7</td><td>-6</td><td>-5</td><td>-4</td><td>-3</td><td>-2</td></tr>
<tr><td>Bit 8</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">7</td></tr>
<tr><td>7</td><td>1</td></tr>
<tr><td>6</td><td>1</td></tr>
<tr><td>5</td><td>1</td></tr>
<tr><td>4</td><td rowspan="4">DTMF high frequency level</td><td rowspan="4">
<table>
<tr><td>Level (dBm)</td><td>-17</td><td>-16</td><td>-15</td><td>-14</td><td>-13</td><td>-12</td><td>-11</td><td>-10</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-9</td><td>-8</td><td>-7</td><td>-6</td><td>-5</td><td>-4</td><td>-3</td><td>-2</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td><td rowspan="4">B</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.20 SOFT SWITCH: #20

Bit No.	Designation	Function	Initial Setting Bit	Initial Setting HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Redefine redial interval Redefine redial interval over default setting that is based on soft SW #08 bit 1~4		0	
4			0	0
3			0	
2			0	
1			0	

Interval (min)	0	1	2	3	4	5	6	7	8	9	10	11
Bit 5	0	0	0	0	0	0	0	0	0	0	0	0
Bit 4	0	0	0	0	0	0	0	0	1	1	1	1
Bit 3	0	0	0	0	1	1	1	1	0	0	0	0
Bit 2	0	0	1	1	0	0	1	1	0	0	1	1
Bit 1	0	1	0	1	0	1	0	1	0	1	0	1

Interval (min)	12	13	14	15	16	17	18	19	20
Bit 5	0	0	0	0	1	1	1	1	1
Bit 4	1	1	1	1	0	0	0	0	0
Bit 3	1	1	1	1	0	0	0	0	1
Bit 2	0	0	1	1	0	0	1	1	0
Bit 1	0	1	0	1	0	1	0	1	0

Interval (min)	Reserved										
Bit 5	1	1	1	1	1	1	1	1	1	1	1
Bit 4	0	0	0	1	1	1	1	1	1	1	1
Bit 3	1	1	1	0	0	0	0	1	1	1	1
Bit 2	0	1	1	0	0	1	1	0	0	1	1
Bit 1	1	0	1	0	1	0	1	0	1	0	1

8.6.21 SOFT SWITCH: #21

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>NSS signal before DCS</td><td>0: Not to send NSS signal if remote side is same model
1: Send NSS signal if remote side is same model</td><td>1</td><td rowspan="4">C</td></tr>
<tr><td>7</td><td rowspan="2">CNG duration after dialing (T1)</td><td rowspan="2"><table><tr><td>Duration</td><td>40 sec</td><td>60 sec</td><td>**70 sec**</td><td>120 sec</td></tr><tr><td>Bit 7</td><td>0</td><td>0</td><td>**1**</td><td>1</td></tr><tr><td>Bit 6</td><td>0</td><td>1</td><td>**0**</td><td>1</td></tr></table></td><td>1</td></tr>
<tr><td>6</td><td>0</td></tr>
<tr><td>5</td><td>T4 timer</td><td>**0: 3.0 sec – Normal case**
1: 4.5 sec</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>DIS signal length</td><td>**0: Normal length (bit 1 to 64)**
1: 4 bytes DIS command – bit 1 to 32 only</td><td>0</td></tr>
<tr><td>2</td><td rowspan="2">Increase default T1 timing during calling</td><td rowspan="2"><table><tr><td>Description</td><td>**T1 sec**</td><td>T1+ 30 sec</td><td>T1+ 40 sec</td><td>T1+ 60 sec</td></tr><tr><td>Bit 2</td><td>**0**</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 1</td><td>**0**</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 1-2: T1 indicates the calling time after dialing, can adjust the T1 time longer by changing the default value. The default T1 timer depends on each country regulation.
- Bit 3: Some old machines can not accept DIS command over 4 bytes, and every time will become fail. In this case you can set this bit to 1. If this bit is set to 1, JBIG and V8 capability will be disabled automatically.
- Bit 6-7: A fax to be received is canceled and the machine becomes unable to receive it if the setting of “No. of RINGS” is made longer than the setting of “CNG duration after dialing.” Be sure to make the “No. of RINGS” setting to a value shorter than the “CNG duration after dialing” setting.
- Bit 8: Sender machine’s name will show on the other party’s LCD or print on the report if remote side is the same model.

8.6.22 SOFT SWITCH: #22

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Detect busy tone before dial</td><td>1: Check busy tone within dial tone detection
0: Not to check</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Regard dial tone as busy tone after dialing</td><td>1: Yes - Check dial tone after dialing
0: No</td><td>0</td></tr>
<tr><td>6</td><td>Check busy tone method</td><td>0: Measure tone by input energy over threshold
1: By PTT regulation tone frequency</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">CED signal output level</td><td rowspan="4">
<table>
<tr><td>Level (dBm)</td><td>-17</td><td>-16</td><td>-15</td><td>-14</td><td>-13</td><td>-12</td><td>-11</td><td>-10</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-9</td><td>-8</td><td>-7</td><td>-6</td><td>-5</td><td>-4</td><td>-3</td><td>-2</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">7</td></tr>
<tr><td>3</td><td>1</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

8.6.23 SOFT SWITCH: #23

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

8.6.24 SOFT SWITCH: #24

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.25 SOFT SWITCH: #25

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="2">Flash key time in ON hook key dial</td><td rowspan="2"><table><tr><td>Flash time</td><td>100 ms</td><td>80 ms</td><td>60 ms</td><td>50 ms</td></tr><tr><td>Bit 4</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 3</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

8.6.26 SOFT SWITCH: #26

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="2">Dial tone detection time before disconnected</td><td rowspan="2">
<table>
<tr><td>Time</td><td>10 sec</td><td>15 sec</td><td>20 sec</td><td>25 sec</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">2</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td rowspan="6">Dial tone insensitivity (0 dBm to -40 dBm)</td><td rowspan="6">
<table>
<tr><td>Level (dBm)</td><td>0</td><td>-1</td><td>-2</td><td>-3</td><td>-4</td><td>-5</td><td>-6</td><td>-7</td><td>-8</td><td>-9</td><td>-10</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-11</td><td>-12</td><td>-13</td><td>-14</td><td>-15</td><td>-16</td><td>-17</td><td>-18</td><td>-19</td><td>-20</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-21</td><td>-22</td><td>-23</td><td>-24</td><td>-25</td><td>-26</td><td>-27</td><td>-28</td><td>-29</td><td>-30</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-31</td><td>-32</td><td>-33</td><td>-34</td><td>-35</td><td>-36</td><td>-37</td><td>-38</td><td>-39</td><td>-40</td></tr>
<tr><td>Bit 6</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 2</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-41 dBm to -50 dBm</td></tr>
<tr><td>Bit 1 to 6</td><td>Setting disable</td></tr>
</table>
</td><td>1</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>1</td><td rowspan="4">8</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.27 SOFT SWITCH: #27

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">Immunity for dial tone receiver</td><td rowspan="4">
<table>
<tr><td>Level (dBm)</td><td>0</td><td>-1</td><td>-2</td><td>-3</td><td>-4</td><td>-5</td><td>-6</td><td>-7</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-8</td><td>-9</td><td>-10</td><td>-11</td><td>-12</td><td>-13</td><td>-14</td><td>-15</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 1-4: Line input energy must be lower this level before dialing.

8.6.28 SOFT SWITCH: #28

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="4">Time to dial after dial tone on the line</td><td rowspan="4">
<table>
<tr><td>Time (ms)</td><td>0</td><td>100</td><td>200</td><td>300</td><td>400</td><td>500</td><td>600</td><td>700</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Time (ms)</td><td>800</td><td>900</td><td>1000</td><td>1100</td><td>1200</td><td>1300</td></tr>
<tr><td>Bit 8</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Time (ms)</td><td>1400</td><td>1500</td></tr>
<tr><td>Bit 8</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td><td rowspan="4">A</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td>1</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">CED duration time within calling period</td><td rowspan="4">
<table>
<tr><td>Time (ms)</td><td>0</td><td>100</td><td>200</td><td>300</td><td>400</td><td>500</td><td>600</td><td>700</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Time (ms)</td><td>800</td><td>900</td><td>1000</td><td>1100</td><td>1200</td><td>1300</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Time (ms)</td><td>1400</td><td>1500</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">7</td></tr>
<tr><td>3</td><td>1</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

- Bit 1-4: The CED duration time level for automatic transmation

8.6.29 SOFT SWITCH: #29

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">1</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td rowspan="5">Time to dial after size the line when dial tone detected
(Unit = 200 ms)</td><td rowspan="5">
<table>
<tr><td>Time (sec)</td><td>0</td><td>0.2</td><td>0.4</td><td>0.6</td><td>0.8</td><td>1.0</td><td>1.2</td><td>1.4</td><td>1.6</td><td>1.8</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Time (sec)</td><td>2.0</td><td>2.2</td><td>2.4</td><td>2.6</td><td>2.8</td><td>3.0</td><td>3.2</td><td>3.4</td><td>3.6</td><td>3.8</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Time (sec)</td><td>4.0</td><td>4.2</td><td>4.4</td><td>4.6</td><td>4.8</td><td>5.0</td><td>5.2</td><td>5.4</td><td>5.6</td><td>5.8</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Time (sec)</td><td>6.0</td><td>6.2</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td></tr>
<tr><td>4</td><td>0</td><td rowspan="4">4</td></tr>
<tr><td>3</td><td>1</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.30 SOFT SWITCH: #30

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="2">Pause delay time within digits
Ex. 002Pxxxxxx</td><td rowspan="2">
<table>
<tr><td>Time</td><td>2.0 sec</td><td>2.5 sec</td><td>3.0 sec</td><td>3.5 sec</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">6</td></tr>
<tr><td>7</td><td>1</td></tr>
<tr><td>6</td><td rowspan="6">Signal tone Insensitivity (dBm) after dial for busy tone</td><td rowspan="6">
<table>
<tr><td>Level (dBm)</td><td>0</td><td>-1</td><td>-2</td><td>-3</td><td>-4</td><td>-5</td><td>-6</td><td>-7</td><td>-8</td><td>-9</td><td>-10</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-11</td><td>-12</td><td>-13</td><td>-14</td><td>-15</td><td>-16</td><td>-17</td><td>-18</td><td>-19</td><td>-20</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-21</td><td>-22</td><td>-23</td><td>-24</td><td>-25</td><td>-26</td><td>-27</td><td>-28</td><td>-29</td><td>-30</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-31</td><td>-32</td><td>-33</td><td>-34</td><td>-35</td><td>-36</td><td>-37</td><td>-38</td><td>-39</td><td>-40</td></tr>
<tr><td>Bit 6</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 2</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Level (dBm)</td><td>-41 dBm to -50 dBm</td></tr>
<tr><td>Bit 1 to 6</td><td>Setting disable</td></tr>
</table>
</td><td>1</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>1</td><td rowspan="4">8</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.31 SOFT SWITCH: #31

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.32 SOFT SWITCH: #32

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.33 SOFT SWITCH: #33

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	4
7	V.17 echo protection tone	0: Off **1: On**	1	
6	V.29 echo protection tone	**0: Off** 1: On	0	
5	Compromise equalize enable (CEQ) in the transmit path (TCEQ)	**0: No** 1: Yes	0	
4	Compromise equalize enable (CEQ) in the receiver path (RCEQ)	**0: No** 1: Yes	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

- Bit 4-5: V.17, V.29 and V.27 only

8.6.34 SOFT SWITCH: #34

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.35 SOFT SWITCH: #35

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="2">Dial tone table switch time</td><td rowspan="2">
<table>
<tr><td>Time</td><td>300 ms</td><td>600 ms</td><td>1 sec</td><td>2 sec</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td><td rowspan="4">9</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td rowspan="3">Dial tone frequency upper range index</td><td rowspan="3">
<table>
<tr><td>Frequency range</td><td>375 Hz to 462 Hz</td><td>310 Hz to 380 Hz</td><td>462 Hz to 580 Hz</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Frequency range</td><td>570 Hz to 630 Hz</td><td>300 Hz to 370 Hz</td><td colspan="3">Reserved</td></tr>
<tr><td>Bit 6</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
See Bit 1 to 3
(This upper range value must be higher than lower range value that defined in bit 1 to 3)
</td><td>0</td></tr>
<tr><td>5</td><td>1</td></tr>
<tr><td>4</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td rowspan="3">Dial tone frequency Low range index</td><td rowspan="3">
<table>
<tr><td>Frequency range</td><td>375 Hz to 462 Hz</td><td>310 Hz to 380 Hz</td><td>462 Hz to 580 Hz</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Frequency range</td><td>570 Hz to 630 Hz</td><td>300 Hz to 370 Hz</td><td colspan="3">Reserved</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.36 SOFT SWITCH: #36

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Re-dial attempts continue fail counter</td><td>0: No any limitation
1: limit up to bit 1 to 4</td><td>1</td><td rowspan="4">8</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">Re-dial attempts fail limitation counter</td><td rowspan="4">
<table>
<tr><td>Counter</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Counter</td><td>8</td><td>9</td><td>**10**</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>**1**</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>**0**</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>**1**</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>**0**</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td><td rowspan="4">A</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 8: The redial fail counter will plus 1 for each auto dialing, unless user interruption or after finish communication. If the counter is over the setting in bit 1~4 and Bit set to 1, then the machine will stop redial unless user interruption or enter the communication phase.

8.6.37 SOFT SWITCH: #37

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Polling TX type for V.34 modem</td><td>0: V.34
1: V.17</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Auto dial learning for V.34 modem</td><td>0: Yes- skip V.34 handshaking with remote side
1: No - retry from V.8 handshake</td><td>0</td></tr>
<tr><td>6</td><td rowspan="3">RX start symbol rate for V.34 modem</td><td rowspan="3">
<table>
<tr><td>Symbol rate</td><td>3429 sym/s</td><td>3200 sym/s</td><td>3000 sym/s</td><td>2800 sym/s</td><td>2400 sym/s</td></tr>
<tr><td>Max. speed</td><td>33.6 kbps</td><td>31.2 kbps</td><td>26.4 kbps</td><td>24.0 kbps</td><td>21.6 kbps</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Symbol rate</td><td colspan="3" rowspan="2">Reserved</td></tr>
<tr><td>Max. speed</td></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td rowspan="3">TX start symbol rate for V.34 modem</td><td rowspan="3">
<table>
<tr><td>Symbol rate</td><td>3429 sym/s</td><td>3200 sym/s</td><td>3000 sym/s</td><td>2800 sym/s</td><td>2400 sym/s</td></tr>
<tr><td>Max. speed</td><td>33.6 kbps</td><td>31.2 kbps</td><td>26.4 kbps</td><td>24.0 kbps</td><td>21.6 kbps</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
</table>
<table>
<tr><td>Symbol rate</td><td colspan="3" rowspan="2">Reserved</td></tr>
<tr><td>Max. speed</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.38 SOFT SWITCH: #38

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="5">6</td></tr>
<tr><td rowspan="2">7</td><td rowspan="2">Set/Reset V.34 transmit level deviation</td><td>0: Reset</td><td rowspan="2">1</td></tr>
<tr><td>1: Set</td></tr>
<tr><td>6</td><td rowspan="2">V.34 flag number between ECM frame</td><td rowspan="2"><table><tr><td>Flags number</td><td>2</td><td>4</td><td>8</td><td>16</td></tr><tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>1</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Phase 2 guard tone power level (V.34)</td><td>0: Normal power level</td><td rowspan="2">0</td><td rowspan="6">1</td></tr>
<tr><td>1: -7 db of normal power level</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">V.8 /V.34 capability</td><td>0: No</td><td rowspan="2">1</td></tr>
<tr><td>1: Yes</td></tr>
</table>

8.6.39 SOFT SWITCH: #39

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td rowspan="2">8</td><td rowspan="2">Disable V.34 TX for V.34 modem</td><td>0: No</td><td rowspan="2">0</td><td rowspan="6">0</td></tr>
<tr><td>1: Yes</td></tr>
<tr><td rowspan="2">7</td><td rowspan="2">Disable V.34 RX for V.34 modem</td><td>0: No</td><td rowspan="2">0</td></tr>
<tr><td>1: Yes</td></tr>
<tr><td>6</td><td rowspan="2">Flags number in FSK for V.34 modem</td><td rowspan="2"><table><tr><td>Flags number</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Manual TX mode for V.34 modem</td><td>0: V.8 - start handshake from V.8</td><td rowspan="2">0</td><td rowspan="6">1</td></tr>
<tr><td>1: V.17</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Switch from V.17 to V.34 if DIS bit 6 set after received DIS</td><td>0: Yes - start V.8 handshaking.but only first time</td><td rowspan="2">0</td></tr>
<tr><td>1: No - Continue start with V.17</td></tr>
<tr><td>2</td><td rowspan="2">Delay time in primary channel for V.34 transmit after CFR or MCF signal</td><td rowspan="2"><table><tr><td>Delay time</td><td>100 msec</td><td>200 msec</td><td>300 msec</td><td>500 msec</td></tr><tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table></td><td>0</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

8.6.40 SOFT SWITCH: #40

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="4">V.17 RX start speed
Select receiving start speed for V.17</td><td rowspan="4">
<table>
<tr><td rowspan="2">Speed</td><td>V.17</td><td>V.17</td><td>V.17</td><td>V.17</td></tr>
<tr><td>14400 bps</td><td>12200 bps</td><td>9600 bps</td><td>7200 bps</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td rowspan="2">Speed</td><td>V.29</td><td>V.29</td><td>V.27</td><td>V.27 ter</td></tr>
<tr><td>9600 bps</td><td>7200 bps</td><td>4800 bps</td><td>2400 bps</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 7</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Speed</td><td colspan="8">Reserved</td></tr>
<tr><td>Bit 8</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td rowspan="3">V.34 RX start Speed
Prohibit V.34 mode
When upper speed less</td><td rowspan="3">
<table>
<tr><td rowspan="2">Speed</td><td>V.34</td><td>V.34</td><td>V.34</td><td>V.34</td></tr>
<tr><td>33600 bps</td><td>31200 bps</td><td>28800 bps</td><td>26400 bps</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td rowspan="2">Speed</td><td>V.34</td><td>V.34</td><td>V.34</td><td>V.34</td></tr>
<tr><td>24000 bps</td><td>21600 bps</td><td>19200 bps</td><td>16800 bps</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.41 SOFT SWITCH: #41

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td rowspan="4">V.17 TX start speed
Select receiving start speed for V.17</td><td rowspan="4">
<table>
<tr><td rowspan="2">Speed</td><td>V.17</td><td>V.17</td><td>V.17</td><td>V.17</td></tr>
<tr><td>14400 bps</td><td>12200 bps</td><td>9600 bps</td><td>7200 bps</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td rowspan="2">Speed</td><td>V.29</td><td>V.29</td><td>V.27</td><td>V.27 ter</td></tr>
<tr><td>9600 bps</td><td>7200 bps</td><td>4800 bps</td><td>2400 bps</td></tr>
<tr><td>Bit 8</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 7</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Speed</td><td colspan="8">Reserved</td></tr>
<tr><td>Bit 8</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>0</td></tr>
<tr><td>6</td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td rowspan="3">V.34 TX start speed</td><td rowspan="3">
<table>
<tr><td rowspan="2">Speed</td><td>V.34</td><td>V.34</td><td>V.34</td><td>V.34</td></tr>
<tr><td>33600 bps</td><td>31200 bps</td><td>28800 bps</td><td>26400 bps</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td rowspan="2">Speed</td><td>V.34</td><td>V.34</td><td>V.34</td><td>V.34</td></tr>
<tr><td>24000 bps</td><td>21600 bps</td><td>19200 bps</td><td>16800 bps</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.42 SOFT SWITCH: #42

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.43 SOFT SWITCH: #43

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.44 SOFT SWITCH: #44

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.45 SOFT SWITCH: #45

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Closed network</td><td>0: OFF
1: ON</td><td>0</td></tr>
<tr><td>5</td><td>Call transfer</td><td>0: OFF
1: ON</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">NO. of call transfer</td><td rowspan="4">
<table>
<tr><td>Value</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>Value</td><td>8</td><td>9</td><td colspan="6">Reserved</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">3</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

8.6.46 SOFT SWITCH: #46

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Daylight savings timer	**0: No**	0	0
		1: Yes		
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	RX print mode	0: RX one page then print one page. (PRINT RX)	1	A
		1: Start to print after receiving all pages. (MEMORY RX)		
3	Default TX mode	**0: Memory TX**	0	
		1: ADF TX		
2	Header for FAX TX	0: Off	1	
		1: On-Transmit header at top of each page.		
1	Print model name on top of TX page if machine name not register	**0: No**	0	
		1: Yes		

- Bit 1: If machine name not registered, the model name will print at the top of each receiving page. The default is not printed.
- Bit 2: Some country such as U.S.A. PTT regulation, must send header at top of each page.

8.6.47 SOFT SWITCH: #47

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	RX mode	**0: Auto RX mode**	0	
		1: Manual RX mode		
5	Footer	**0: Off**	0	
		1: On - Print footer information at each of received page		
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

- Bit 5: The footer shows machine number, receiving time, remote side TSI number, session and page number.

8.6.48 SOFT SWITCH: #48

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Activity report	0: No	1	8
		1: Yes		
7	Reservation report	**0: No**	0	
		1: Yes		
6	TX result report	**0: No**	0	
		1: Yes		
5	RX result report	**0: No**	0	
		1: Yes		
4	TX/ RX error report	0: No	1	9
		1: Yes		
3	Error report for I-FAX and network scanner	**0: No**	0	
		1: Yes		
2	Error mail (I-FAX)	If machine receives Error Mail (I-FAX), the mail is deleted or kept?	0	
		0: Delete		
		1: Keep		
1	Broadcast report	0: Not to print	1	
		1: Print		

- Bit 4: During communication have error in TX or RX and Bit 4 was set, the machine printed error report.
- Bit 2: If resetting (delete), the mail will be deleted on POP3 server. If setting (keep), the mail will be kept on POP3 server.

8.6.49 SOFT SWITCH: #49

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="6">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td rowspan="2">6</td><td rowspan="2">Print RX mailbox report method</td><td>**0: Based on RX RESULT REPORT setting**</td><td rowspan="2">0</td></tr>
<tr><td>1: Always printing</td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">Redial method if communication fail</td><td>**0: Redial again**</td><td rowspan="2">0</td></tr>
<tr><td>1: Based on redial time interval</td></tr>
<tr><td>4</td><td rowspan="4">No. of rings</td><td rowspan="4">
<table>
<tr><td>No. of rings</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>No. of rings</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td><td rowspan="4">1</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

8.6.50 SOFT SWITCH: #50

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Transmit or cancel after time out in “Memory TX”	**0: Cancel and print out**	0	4
		1: Transmission		
7	It is possible to register E-mail address in Relay box registration	0: Disable	1	
		1: Enable		
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

- Bit 8: Can select cancel this job and print out report or start to send in case of time when memory full condition occurs
- Bit 7: If F-NIC was install, this bit was usable in Relay box. If Bit was set, any E-mail address could be registered in Relay box. If Bit was reset, any E-mail address could not be registered in Relay box.

8.6.51 SOFT SWITCH: #51

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="2">T.30 monitor report selection</td><td rowspan="2"><table>
<tr><td>Description</td><td>Not to print</td><td>Print report for each transaction</td><td>Print report while reporting error</td><td>Not used</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table></td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>Send “un-sent page mode” for memory transmission</td><td>0: From error page
1:From start page</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

8.6.52 SOFT SWITCH: #52

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.53 SOFT SWITCH: #53

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.54 SOFT SWITCH: #54

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Report/ LCD date/time type</td><td>0: Digits format (example: 2006. 11. 19)
1: Alpha numeric format (example: 2006. NOV. 19)</td><td>1</td><td rowspan="4">2</td></tr>
<tr><td>7</td><td rowspan="2">Report/ LCD date format</td><td rowspan="2">When bit No.8 is “1”.
<table>
<tr><td>Date</td><td>2006. NOV. 19</td><td>19. NOV. 2006</td><td>NOV. 19. 2006</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>1</td><td>0</td></tr>
</table>
When bit No.8 is “0”.
<table>
<tr><td>Date</td><td>2006. 11. 19</td><td>19. 11. 2006</td><td>11. 19. 2006</td></tr>
<tr><td>Bit 7</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit 6</td><td>0</td><td>1</td><td>0</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>6</td><td>1</td></tr>
<tr><td>5</td><td rowspan="2">Memory near full capacity for scanning</td><td rowspan="2">
<table>
<tr><td>Description</td><td>256 KB</td><td>512 KB</td><td>1024 KB</td><td>1536 KB</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>4</td><td>1</td><td rowspan="4">8</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

8.6.55 SOFT SWITCH: #55

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

8.6.56 SOFT SWITCH: #56

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.57 SOFT SWITCH: #57

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

8.6.58 SOFT SWITCH: #58

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Time out from PSK to FSK delay time	**0: 6 sec** 1: 30 sec	0	0
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

- Bit 8: This is the delay time for PSK signal after sending MCF or PPR command. The timer depends on regulations of each country.

8.6.59 SOFT SWITCH: #59 Part 1

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td rowspan="6">Time between GMT
GMT: Greenwich mean time</td><td rowspan="6">
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>+00:00</th><th>+00:30</th><th>+01:00</th><th>+01:30</th></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>+02:00</th><th>+02:30</th><th>+03:00</th><th>+03:30</th></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>+04:00</th><th>+04:30</th><th>+05:00</th><th>+05:30</th></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>+06:00</th><th>+06:30</th><th>+07:00</th><th>+07:30</th></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>+08:00</th><th>+08:30</th><th>+09:00</th><th>+09:30</th></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.60 SOFT SWITCH: #59 Part 2

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td rowspan="6">Time between GMT
GMT: Greenwich mean time</td><td rowspan="6">
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>+10:00</th><th>+10:30</th><th>+11:00</th><th>+11:30</th></tr>
<tr><td>Bit 6</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>+12:00</th><th>-00:30</th><th>-01:00</th><th>-01:30</th></tr>
<tr><td>Bit 6</td><td>0</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>1</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>-02:00</th><th>-02:30</th><th>-03:00</th><th>-03:30</th></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>-04:00</th><th>-04:30</th><th>-05:00</th><th>-05:30</th></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

8.6.61 SOFT SWITCH: #59 Part 3

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td rowspan="6">Time between GMT
GMT: Greenwich mean time</td><td rowspan="6">
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>-06:00</th><th>-06:30</th><th>-07:00</th><th>-07:30</th></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>-08:00</th><th>-08:30</th><th>-09:00</th><th>-09:30</th></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="4">Greenwich mean time + T</th></tr>
<tr><th>-10:00</th><th>-10:30</th><th>-11:00</th><th>-11:30</th></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><th rowspan="2">Time between mean time</th><th colspan="8">Greenwich mean time + T</th></tr>
<tr><th>-12:00</th><th colspan="7">Reserved</th></tr>
<tr><td>Bit 6</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 5</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>0</td></tr>
<tr><td>5</td><td>0</td></tr>
<tr><td>4</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>0</td></tr>
<tr><td>2</td><td>0</td></tr>
<tr><td>1</td><td>0</td></tr>
</table>

- Bit 1-6: This value must be entered correctly, or E-mail headers will be wrong. A good reference web site may be found at http://greenwichmeantime.com
  Available ranges are: 12 to -12, in one hour increments. The default setting is zero.

8.6.62 SOFT SWITCH: #60

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	6
7	Fax data divide printer (A3→A4; B4→B5, A4 A4→A5)	0: Enable	1	
		1: Disable		
6	Quick memory TX	0: Ineffective	1	
		1: Effective		
5	B4/ A3 declaration for Ledger	**0: A3 size**	0	
		1: B4 size		
4	The width of TX Ledger (8k)	**0: A3 size**	0	1
		1: B4 size		
3	Print mailbox RX image even if password is not correct	**0: No**	0	
		1: Yes		
2	Off hook alarm after communication	**0: Alarm**	0	
		1: No alarm after communication		
1	Display destination selection within TX Phase C	0: Local Name or telephone number	1	
		1: Display and report Remote telephone number		

- Bit 5: If set to 0, machine will indicate A3 printing capability in DIS command if machine have Ledger Paper.
- Bit 4: If set to 0, the width of Ledger as handle as A3 size, but the Zoom ratio is not perform. If set to 1, the width of Ledger as handle as B4. However, when the transmission is performed at the same zoom ratio, an image will be lost. Therefore transmission is started after reducing the width of the image.
- Bit 3: If bit 3 is set to “1”, machine will print out the incoming page even if password is not correct.

8.6.63 SOFT SWITCH: #61

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td rowspan="4">Max. No. of rings</td><td rowspan="4">
<table>
<tr><td>No. of rings</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>Bit 4</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
<table>
<tr><td>No. of rings</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr>
<tr><td>Bit 4</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>Bit 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>Bit 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td></tr>
</table>
</td><td>1</td><td rowspan="4">F</td></tr>
<tr><td>3</td><td>1</td></tr>
<tr><td>2</td><td>1</td></tr>
<tr><td>1</td><td>1</td></tr>
</table>

8.6.64 SOFT SWITCH: #62

<table>
<tr><th rowspan="2">Bit No.</th><th rowspan="2">Designation</th><th rowspan="2">Function</th><th colspan="2">Initial Setting</th></tr>
<tr><th>Bit</th><th>HEX</th></tr>
<tr><td>8</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>7</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>6</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>5</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>4</td><td>Reserved</td><td>Reserved</td><td>0</td><td rowspan="4">0</td></tr>
<tr><td>3</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>2</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
<tr><td>1</td><td>Reserved</td><td>Reserved</td><td>0</td></tr>
</table>

8.6.65 SOFT SWITCH: #63

Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	# key definition in PBX mode	0: default is internal	1	8
		1: default is external		
7	Reserved	Reserved	0	
6	Reserved	Reserved	0	
5	Reserved	Reserved	0	
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	FAX Tx image adjust	**0: Normal**	0	
		1: Special handle		
1	Tx Result report with image	**0: Yes**	0	
		1: No		

- Bit 8: If this bit set to “1”, the # key is used to access PSTN line instead of the pre-fix number which is dialed in front of the TEL No. If this bit set to 0, the pre-fix number is used automatically to access PSTN line when the TEL No. is dialed.
- Bit 1: If this bit set to “1”, the first page image will not append at the bottom of error report or OK report.

8.6.66 SOFT SWITCH: #64

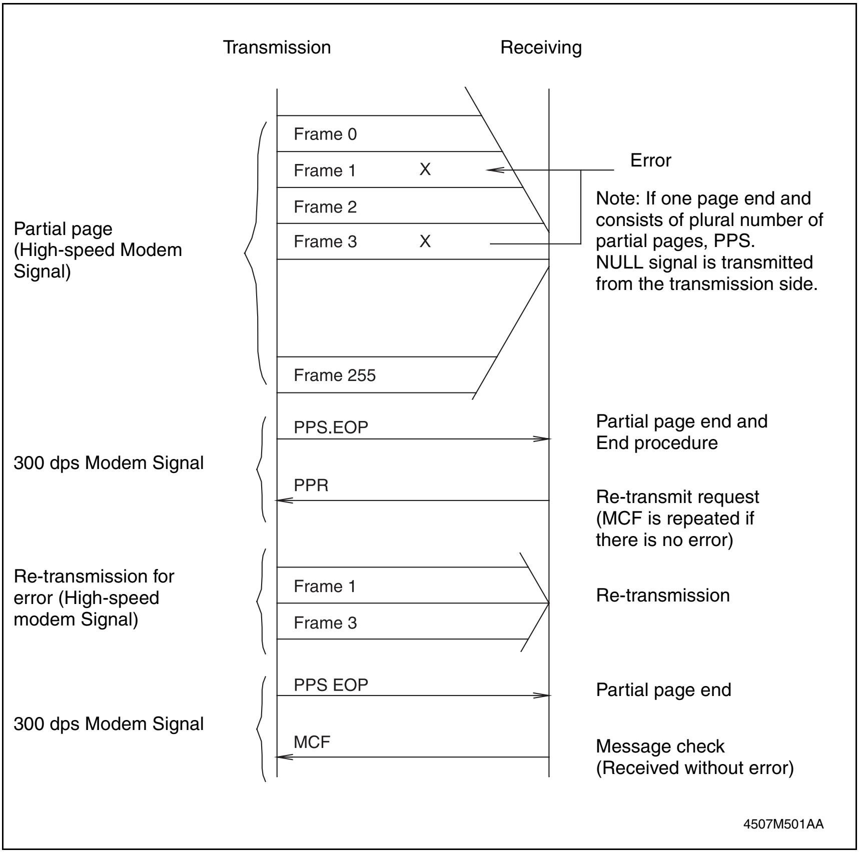
Bit No.	Designation	Function	Initial Setting	
			Bit	HEX
8	Reserved	Reserved	0	0
7	Reserved	Reserved	0	
6	Print RX error report on RX side if no FAX signal is detected	**0: No**	0	
		1: Yes		
5	10 PPS & 20 PPS selectable by user	**0: No**	0	
		1: Yes		
4	Reserved	Reserved	0	0
3	Reserved	Reserved	0	
2	Reserved	Reserved	0	
1	Reserved	Reserved	0	

- Bit 6: If this bit set to “1”, Machine does not print a RX error report if no Fax signal from the other party is detected.
- Bit 5: Prevents user to change PPS if this bit set to “0”.

9. Fax Protocols

9.1 G3 ECM (G3 Error Correction Mode)

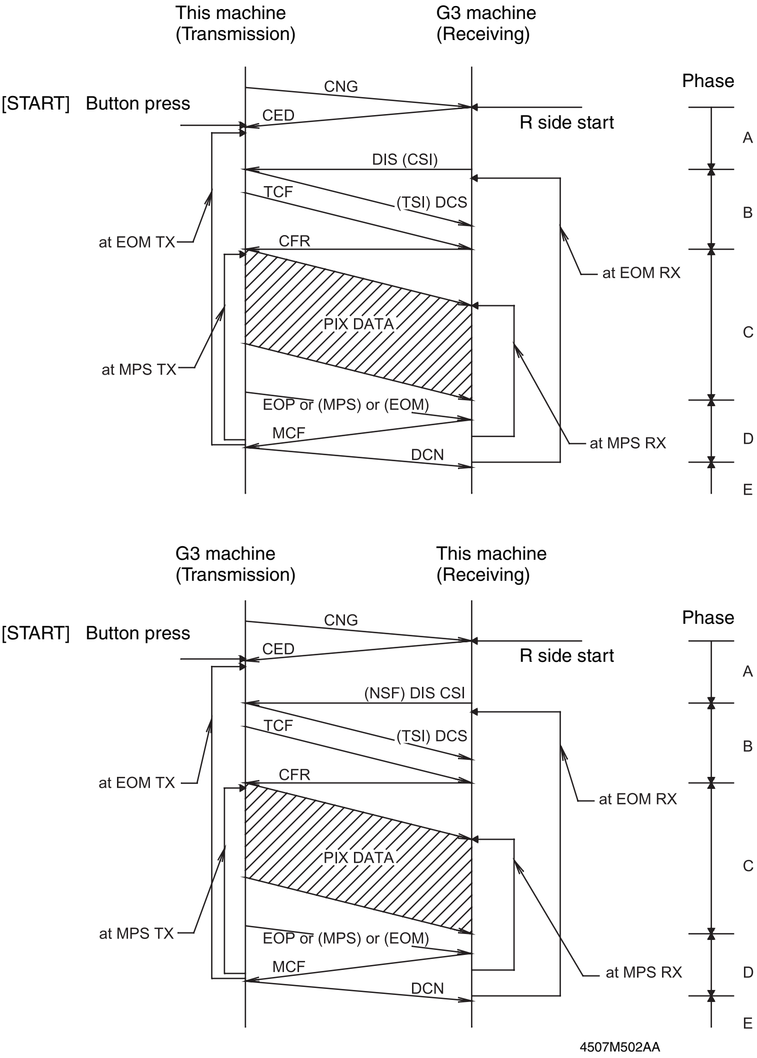
- G3 ECM is the error correction system newly recommended by Consultative Committee of International Telephone & Telegraph of 1988.
- By G3 ECM, documents are divided into blocks (called partial page) for transmission. If any error takes place in any frame (one partial page consists of 256 frames) on a partial page, the receiving party generates the retransmit request with erroneous frame numbers.
  Here is an example where frame 1 and frame 3 are subjected to error:


Transmission
Receiving
Partial page (High-speed Modem Signal)
Frame 0
Frame 1
X
Frame 2
Frame 3
X
Frame 255
Error
Note: If one page end and consists of plural number of partial pages, PPS.
NULL signal is transmitted from the transmission side.
300 dps Modem Signal
PPS.EOP
Partial page end and End procedure
PPR
Re-transmit request (MCF is repeated if there is no error)
Re-transmission for error (High-speed modem Signal)
Frame 1
Frame 3
Re-transmission
300 dps Modem Signal
PPS EOP
Partial page end
MCF
Message check (Received without error)
4507M501AA

9.2 Line Control

9.2.1 Procedure of G3 mode communication

- Basic communications diagram of G3 mode.


This machine
(Transmission)
G3 machine
(Receiving)
[START] Button press
CNG
CED
R side start
Phase
DIS (CSI)
TCF
(TSI) DCS
CFR
at EOM TX
at EOM RX
PIX DATA
at MPS TX
EOP or (MPS) or (EOM)
MCF
DCN
at MPS RX
A
B
C
D
E
G3 machine
(Transmission)
This machine
(Receiving)
(NSF) DIS CSI
4507M502AA

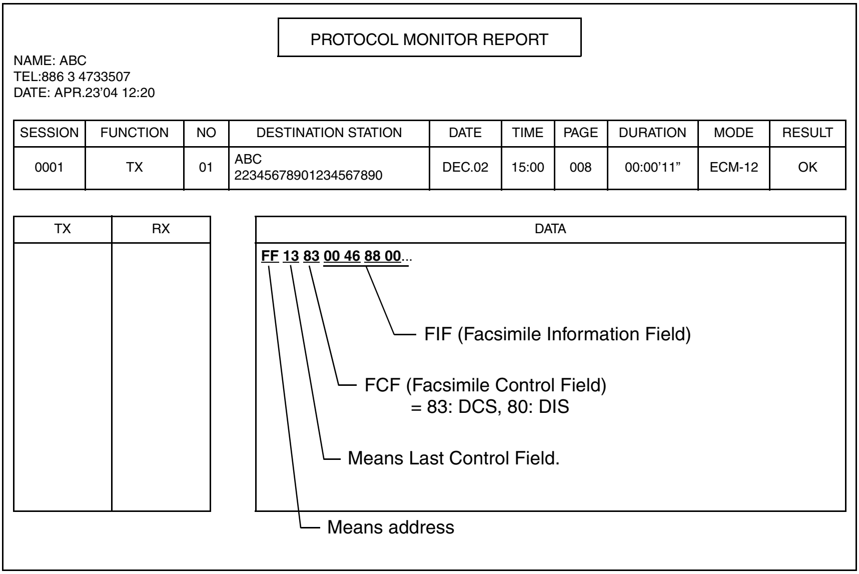
Drawing: Line Control

9.3 Table of Reference Code

Code	Function
CFR	Confirmation to Receive. 1,850 Hz or 1,650 Hz 3 sec.
CIG	Calling Station Identification.
CRP	Command Repeat.
CSI	Called Subscriber Identification.
DCN	Disconnect.
DCS	Digital Identification Signal.
DIS	Digital Transmit Command.
DTC	Digital Transmit Command.
EOM	End of Message. 1,100 Hz.
EOP	End of Procedure.
FTT	Failure to Train.
MCF	Message Confirmation. 1,650 Hz or 1,850 Hz.
MPS	Multi-Page Signal.
NCS	Non-Standard Facilities Command.
NCF	Non-Standard Facilities.
NSS	Non-Standard Facilities Set-up.
PIN	Procedural Interrupt Negative.
PIP	Procedural Interrupt Positive.
PRI-EOM	Procedure Interrupt-End of Message (COM).
PRI-MPS	Procedure Interrupt-Multi page Signal (MPS).
PRI-EOP	Procedure Interrupt-End of Procedure (EOP).
RTN	Retrain Negative.
RTP	Retrain Positive.
TSI	Transmitting Station Identification.

9.4 How to Analyze the T30 Protocol Monitor

- DCS or DIS
- HEX Data as printed on page.
- Example: V.17 Communication



PROTOCOL MONITOR REPORT

NAME: ABC
TEL:886 3 4733507
DATE: APR.23'04 12:20

SESSION	FUNCTION	NO	DESTINATION STATION	DATE	TIME	PAGE	DURATION	MODE	RESULT
0001	TX	01	ABC 22345678901234567890	DEC.02	15:00	008	00:00'11"	ECM-12	OK

TX	RX

DATA
FF 13 83 00 46 88 00...

FIF (Facsimile Information Field)

FCF (Facsimile Control Field)
= 83: DCS, 80: DIS

Means Last Control Field.

Means address

- FIF (Facsimile Information Field)

HEX	1																2															
	0				0				4				6				8				8				0				0			
Data Bit	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Bit No.	8	7	6	5	4	3	2	1	16	15	14	13	12	11	10	9	24	23	22	21	20	19	18	19	32	31	30	29	28	27	26	25
Note										↑			↑	↑							↑	↑										
	Bit No.11= 1, Bit No.12=0 7200 bps Bit No.15= 1 R8 x 7.7 Lines/mm (Fine Mode) Bit No.19= 0, Bit No.20=1 Unlimited Paper Length																															

- Hex-Binary Conversion List

Hex	Binary				Hex	Binary				Hex	Binary				Hex	Binary			
0	0	0	0	0	4	0	1	0	0	8	1	0	0	0	C	1	1	0	0
1	0	0	0	1	5	0	1	0	1	9	1	0	0	1	D	1	1	0	1
2	0	0	1	0	6	0	1	1	0	A	1	0	1	0	E	1	1	1	0
3	0	0	1	1	7	0	1	1	1	B	1	0	1	1	F	1	1	1	1

DIS (DTC)/ DCS Bit Allocation Table of FIF (Facsimile Information Field)

<table>
<tr><th>Bit No.</th><th>Designation</th><th>DIS/ DTC</th><th>DCS</th></tr>
<tr><td>1</td><td colspan="3">“0”= Invalid
“1”= Store-and-forward switching Internet fax simple mode</td></tr>
<tr><td>2</td><td colspan="3">Set to “0”</td></tr>
<tr><td>3</td><td colspan="3">“0”= Invalid
“1”= Real-time Internet fax</td></tr>
<tr><td>4</td><td colspan="3">Set to “0”</td></tr>
<tr><td>5</td><td colspan="3">Set to “0”</td></tr>
<tr><td>6</td><td colspan="2">“0”= Invalid
“1”= V.8 capabilities</td><td>Invalid</td></tr>
<tr><td>7</td><td>Flame size</td><td>“0” = 256 octets preferred
“1”= 64 octets preferred</td><td>Invalid</td></tr>
<tr><td>8</td><td colspan="3">Set to “0”</td></tr>
<tr><td>9</td><td colspan="2">“0”= Invalid
“1”= Ready to transmit a facsimile document (polling)</td><td>Set to “0”</td></tr>
<tr><td>10</td><td colspan="3">“0”= Invalid
“1”= Receiver fax operation</td></tr>
<tr><td>11</td><td rowspan="4">Data signalling rate</td><td rowspan="4">
<table>
<tr><th colspan="4">Bit No.</th><th rowspan="2">Data signalling rate</th></tr>
<tr><th>14</th><th>13</th><th>12</th><th>11</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>V.27 <i>ter</i> fall-back mode</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>Rec. V.29</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>Rec. V.27 <i>ter</i></td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>Rec. V.27 <i>ter</i> and V.29</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>Not used</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td>Not used</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0</td><td>Reserved</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>1</td><td>Reserved</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>Not used</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td>Not used</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td>Reserved</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1</td><td>Rec. V.27 <i>ter</i>, V.29, V33 and V.17</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td><td>Not used</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1</td><td>Not used</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0</td><td>Reserved</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td>Reserved</td></tr>
</table>
</td><td rowspan="4">
<table>
<tr><th colspan="4">Bit No.</th><th rowspan="2">Data signalling rate</th></tr>
<tr><th>14</th><th>13</th><th>12</th><th>11</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>2400 bit/s,
rec. V.27<i>ter</i></td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>9600 bit/s,
rec. V.29</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>4800 bit/s,
rec. V.27<i>ter</i></td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>7200 bit/s,
rec. V.29</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>Invalid</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>1</td><td>Reserved</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>0</td><td>Invalid</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>1</td><td>Reserved</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>14,400 bit/s,
rec. V.17</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>1</td><td>9,600 bit/s,
rec. V.17</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>0</td><td>12,000 bit/s,
rec. V.17</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>1</td><td>7,200 bit/s,
rec. V.17</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>0</td><td>Reserved</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>1</td><td>Reserved</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0</td><td>Reserved</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td>Reserved</td></tr>
</table>
</td></tr>
<tr><td>12</td></tr>
<tr><td>13</td></tr>
<tr><td>14</td></tr>
<tr><td>15</td><td colspan="3">“0”= Invalid
“1”= R8 × 7.7 lines/mm and/or 200 × 200 pels/25.4 mm</td></tr>
<tr><td>16</td><td colspan="2">“0”= Invalid
“1”= Two-dimensional coding capability</td><td>“0”= Invalid
“1”= Two-dimensional coding</td></tr>
</table>

<table>
<tr><th>Bit No.</th><th>Designation</th><th>DIS/ DTC</th><th>DCS</th></tr>
<tr><td>17</td><td rowspan="2">Recording width capabilities</td><td rowspan="2">
<table>
<tr><th colspan="2">Bit No.</th><th rowspan="2">Data signalling rate</th></tr>
<tr><th>18</th><th>17</th></tr>
<tr><td>0</td><td>0</td><td>Scan line length
215 mm ± 1%</td></tr>
<tr><td>0</td><td>1</td><td>Scan line length
215 mm ± 1%
and scan line length
255 mm ± 1%</td></tr>
<tr><td>1</td><td>0</td><td>Scan line length
215 mm ± 1%
and scan line length
255 mm ± 1%
and scan line length
303 mm ± 1%</td></tr>
<tr><td>1</td><td>1</td><td>Invalid</td></tr>
</table>
</td><td rowspan="2">
<table>
<tr><th colspan="2">Bit No.</th><th rowspan="2">Data signalling rate</th></tr>
<tr><th>18</th><th>17</th></tr>
<tr><td>0</td><td>0</td><td>Scan line length
215 mm ± 1%</td></tr>
<tr><td>0</td><td>1</td><td>Scan line length
215 mm ± 1%</td></tr>
<tr><td>1</td><td>0</td><td>Scan line length
303 mm ± 1%</td></tr>
<tr><td>1</td><td>1</td><td>Invalid</td></tr>
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</td></tr>
<tr><td>18</td></tr>
<tr><td>19</td><td rowspan="2">Recording length capability</td><td rowspan="2">
<table>
<tr><th colspan="2">Bit No.</th><th rowspan="2">Recording length capability</th></tr>
<tr><th>20</th><th>19</th></tr>
<tr><td>0</td><td>0</td><td>A4 (297 mm)</td></tr>
<tr><td>0</td><td>1</td><td>A4 (297 mm) and
B4 (364 mm)</td></tr>
<tr><td>1</td><td>0</td><td>Unlimited</td></tr>
<tr><td>1</td><td>1</td><td>Invalid</td></tr>
</table>
</td><td rowspan="2">
<table>
<tr><th colspan="2">Bit No.</th><th rowspan="2">Recording length capability</th></tr>
<tr><th>20</th><th>19</th></tr>
<tr><td>0</td><td>0</td><td>A4 (297 mm)</td></tr>
<tr><td>0</td><td>1</td><td>B4 (364 mm)</td></tr>
<tr><td>1</td><td>0</td><td>Unlimited</td></tr>
<tr><td>1</td><td>1</td><td>Invalid</td></tr>
</table>
</td></tr>
<tr><td>20</td></tr>
<tr><td>21</td><td colspan="2" rowspan="3">
<table>
<tr><th colspan="3">Bit No.</th><th rowspan="2">Minimum scan line time capability at the receive</th></tr>
<tr><th>23</th><th>22</th><th>21</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>20 ms at 3.85 1/mm: T 7.7 = T 3.85 20 ms</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>5 ms at 3.85 1/mm: T 7.7 = T 3.85</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>10 ms at 3.85 1/mm: T 7.7 = T 3.85 10 ms</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>20 ms at 3.85 1/mm: T 7.7 = 1/2 T 3.85</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>40 ms at 3.85 1/mm: T 7.7 = T 3.85 40 ms</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>40 ms at 3.85 1/mm: T 7.7 = 1/2 T 3.85</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>10 ms at 3.85 1/mm: T 7.7 = 1/2 T 3.85</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0 ms at 3.85 1/mm: T 7.7 = T 3.85</td></tr>
</table>
</td><td rowspan="3">
<table>
<tr><th colspan="3">Bit No.</th><th rowspan="2">Minimum scan line time</th></tr>
<tr><th>23</th><th>22</th><th>21</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>20 ms</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>5 ms</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>10 ms</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>40 ms</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>0 ms</td></tr>
</table>
</td></tr>
<tr><td>22</td></tr>
<tr><td>23</td></tr>
<tr><td>24</td><td>Extension field</td><td colspan="2">"0"= Without
"1"= With</td></tr>
<tr><td>25</td><td colspan="3">Reserved</td></tr>
<tr><td>26</td><td colspan="3">"0"= Invalid
"1"= Un-compressed mode</td></tr>
<tr><td>27</td><td colspan="3">"0"= Invalid
"1"= ECM</td></tr>
<tr><td>28</td><td colspan="2">Set to "0"</td><td>Frame size 0: 256 octets
Frame size 1: 64 octets</td></tr>
<tr><td>29</td><td colspan="3">Set to "0"</td></tr>
<tr><td>30</td><td colspan="3">Set to "0"</td></tr>
<tr><td>31</td><td colspan="2">"0"= Invalid
"1"= T.6 coding capability</td><td>"0"= Invalid
"1"= T.6 coding enabled</td></tr>
<tr><td>32</td><td>Extend field</td><td colspan="2">"0"= Without
"1"= With</td></tr>
</table>

Bit No.	Designation	DIS/ DTC	DCS
33	“0”= Invalid “1”= Field not valid capability		
34	“0”= Invalid “1”= Multiple selective polling capability		Set to “0”
35	“0”= Invalid “1”= Polling subaddress transmission (DTC) by Polled SubAddress (DIS)/PSA		Set to “0”
36	“0”= Invalid “1”= T.43 coding		
37	“0”= Invalid “1”= Plane interleave		
38	Set to “0”		
39	Set to “0”		
40	Extend field	“0”= Without “1”= With	
41	“0”= Invalid “1”= R8 x 15.4 lines/mm		
42	“0”= Invalid “1”= 300 x 300 pels/25.4 mm		
43	“0”= Invalid “1”= R16 x 15.4 lines/mm and/or 400 x 400 pels/25.4 mm		
44	“0”= Invalid “1”= Inch based resolution preferred		Resolution type selection “0”= metric based resolution “1”= inch based resolution
45	“0”= Invalid “1”= Metric based resolution preferred		Do not care
46	Minimum scan line time capability for higher resolutions.	“0”: T 15.4 = T 7.7 “1”: T 15.4 = 1/2 T 7.7	Do not care
47	“0”= Invalid “1”= Selective polling (DIS)/ Selective polling transmission (DTC)		Set to “0”
48	Extend field	0: Without 1: With	
49	“0”= Invalid “1”= Sub Addressing capability		“0”= Invalid “1”= Sub Addressing transmission
50	“0”= Invalid “1”= Password/ Sender Identification capability (DIS)/ Password transmission (DTC)		“0”= Invalid “1”= Sender Identification transmission
51	“0”= Invalid “1”= Ready to transmit a data file (polling)		Set to “0”
52	Set to “0”		
53	“0”= Invalid “1”= Binary File Transfer (BFT)		
54	“0”= Invalid “1”= Document Transfer Mode (DTM)		
55	“0”= Invalid “1”= EDIFACT Transfer (EDI)		

Bit No.	Designation	DIS/ DTC	DCS
56	Extend field	0: Without 1: With	
57	“0”= Invalid “1”= Basic Transfer Mode (BTM)		
58	Set to “0”		
59	“0”= Invalid “1”= Ready to transmit a character or mixed mode document (polling)		Set to “0”
60	“0”= Invalid “1”= Character mode		
61	Set to “0”		
62	“0”= Invalid “1”= Mixed mode		
63	Set to “0”		
64	Extend field	“0”= Without “1”= With	
65	“0”= Invalid “1”= Processable mode 26		
66	“0”= Invalid “1”= Digital network capability		
67	Duplex and half duplex capabilities	“0”= Half duplex operation only “1”= Duplex and half duplex operation	“0”= Half duplex operation only “1”= Duplex operation
68	“0”= Invalid “1”= JPEG coding		
69	“0”= Invalid “1”= Full color mode		
70	Set to “0”		“0”= Invalid “1”= Preferred Huffmann tables
71	“0”= Invalid “1”= 12 bit/pixel/element		
72	Extend field	“0”= Without “1”= With	
73	“0”= Invalid “1”= No sampling (1:1:1)		
74	“0”= Invalid “1”= Nonstandard radiation light		
75	“0”= Invalid “1”= Nonstandard is mute range		
76	“0”= Invalid “1”= North American Letter (215.9 mm × 279.4 mm) capacity		“0”= Invalid “1”= North American Letter (215.9 mm × 279.4 mm)
77	“0”= Invalid “1”= North American Legal (215.9 mm × 355.6 mm) capacity		“0”= Invalid “1”= North American Legal (215.9 mm × 355.6 mm)
78	“0”= Invalid “1”= Single layer sequential encoding, basic capacity		“0”= Invalid “1”= Single layer sequential encoding, basic

Bit No.	Designation	DIS/ DTC	DCS
79	"0"= Invalid "1"= Single layer sequential encoding, optional L0 capacity		
80	Extend field	"0"= Without "1"= With	
81	"0"= Invalid "1"= HKM key management capacity		"0"= Invalid "1"= HKM key management selection
82	"0"= Invalid "1"= RSA key management capacity		"0"= Invalid "1"= RSA key management selection
83	"0"= Invalid "1"= Override mode capacity		"0"= Invalid "1"= Override mode function
84	"0"= Invalid "1"= HFX40 code capacity		"0"= Invalid "1"= HFX40 code selection
85	"0"= Invalid "1"= Alternative code number 2 capacity		"0"= Invalid "1"= Alternative code number 2 selection
86	"0"= Invalid "1"= Alternative code number 3 capacity		"0"= Invalid "1"= Alternative code number 3 selection
87	"0"= Invalid "1"= HFX40-1 hashing capacity		"0"= Invalid "1"= HFX40-1 hashing selection
88	Extend field	"0"= Without "1"= With	
89	"0"= Invalid "1"= Alternative hashing system number 2 capacity		"0"= Invalid "1"= Alternative hashing system number 2 selection
90	"0"= Invalid "1"= Alternative hashing system number 3 capacity		"0"= Invalid "1"= Alternative hashing system number 3 selection
91	Reserved		
92	"0"= Invalid "1"= T.44 (Mixed raster content) mode		
93	"0"= Invalid "1"= T.44 (Mixed raster content) mode		
94	"0"= Invalid "1"= T.44 (Mixed raster content) mode		
95	"0"= Invalid "1"= Page length maximum strip size for T.44 (Mixed raster content)		
96	Extend field	"0"= Without "1"= With	
97	"0"= Invalid "1"= Color/mono-color multi-value 300 pixels x 300 pixels or 400 pixels x 400 pixels / 25.4 mm		
98	"0"= Invalid "1"= R4 x 3.85 lines/mm and/or 100 pixels x 100 pixels / 25.4 mm for color/mono-color multi-value		
99	"0"= Invalid "1"= Single phase C BFT negotiation capacity		

Bit No.	Designation	DIS/ DTC	DCS
100	Set to “0”		
101	Set to “0”		
102	Set to “0”		
103	Set to “0”		
104	Extend field	“0”= Without “1”= With	

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Troubleshooting

10. Fax Error

10.1 Communication Error

10.1.1 Outline

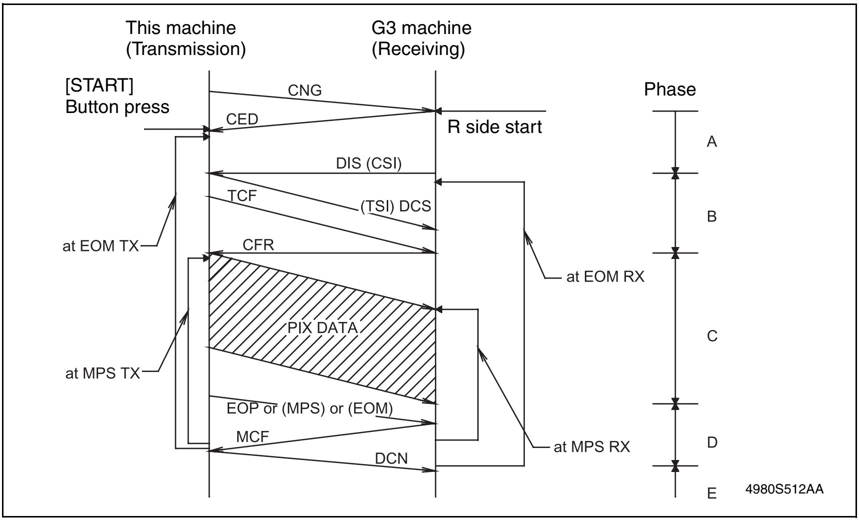
- Error caused by a problem of communication functioning. Five possible causes of errors are:

1. Communication is discontinued by a machine error.
2. Communication is discontinued by a machine trouble.
3. Communication is discontinued by an error occurring at the destination station.
4. Communication is discontinued by a protocol error.
5. ADF Error on trouble.

- When communication is discontinued due to item 3 or 4, transmission is retried. In other case, transmission is canceled without retry.

10.1.2 Error occurring during transmission

- The transmission error before “Phase-B” performs redial according to the redial interval of each country and the number of times.
  The transmission error after “Phase-C” performs redial only one time. Transmission is canceled when an error occurs again. (can change in Soft SW)
  When an error occurs by ADF TX, transmission is canceled without redial.


This machine (Transmission)
G3 machine (Receiving)
[START] Button press
CNG
CED
R side start
Phase
A
DIS (CSI)
TCF
(TSI) DCS
B
at EOM TX
CFR
at EOM RX
PIX DATA
C
at MPS TX
EOP or (MPS) or (EOM)
MCF
DCN
at MPS RX
D
E
4980S512AA

10.1.3 Error occurring during reception

- Reception is canceled.

10.2 Error Code

10.2.1 Reception

Code	Possible Causes of Error.
0001	No G3 signal received within 35 sec. in manual receive mode.
0003	Received DIS after sending DIS signal.
0004	Received DCN after sending DTC signal.
0006	Detect busy tone within receiving phase B.
0009	Can not receive any signal within 35 sec. in manual polling mode.
0010	Received DCN signal after sending DTC signal in polling RX.
0011	Can not receive any correct response after sending three DTC signals.
0012	Remote side Password does not match in polling RX/our side no file to be polled.
0013	Can not receive carrier signal within 6 sec. after sending CFR in data phase C.
0014	Can not receive T.30 signal after sending FTT signal.
0015	Line polarity change within receiving phase B to D.
0016	Receive DCN signal after sending FTT signal.
0017	Can not receive any response from remote side after sending type of xxx_EOM signal.
0018	Can not detect energy within 6 sec. after sending FTT command.
0019	Received DCN signal after sending CFR signal.
001A	No energy on line over 6 sec. within phase C before any corrected ECM frame.
001D	Detect flag but noting after CER.
0020	Can not correct frame within 6 sec., or in non-ECM mode, one decoding line over 6 sec.
0021	File full
0022	Owing to noise interference on the line, receiving side can't receive correct data within specified time (no ECM).
0023	- Received “Remote monitoring password” error in RSD. - The Customer machine has updated the firmware now. - The Service Tech. Rep. updated remote machine firmware by RSD.
0024	- TX and RX machines both have different “machine ID (FAX model ID)” code in RSD. - The Customer machine has updated the firmware now. - The Service Tech. Rep. updated remote machine firmware by RSD
0025	- TX and RX machines have different “company ID (FAX machine maker ID)” code in RSD. - The Customer machine has updated the firmware now. - The Service Tech. Rep. updated remote machine firmware by RSD
0026	- Remote monitor level error. Remote side can’t access in RSD. - The Customer machine has updated the firmware now. - The Service Tech. Rep. updated remote machine firmware by RSD
0027	RSD connect failure due to user incorrect operation or machine error.
0029	Mailbox password not programmed or matched for mailbox receiving.
002A	Line Problem
0030	Did not receive any signal within 6 sec.at phase D.
0031	Received incorrect signal at phase D (not EOP, MPS, EOM, DCS PPS_Q, PPS_Q, etc.).
0032	Did not receive carrier signal within 6 sec.after sending MCF. or RTP, RTN signal.
0033	Received DCN signal at phase D within pages (not last page).
0039	In non-ECM mode, when machine already received the data but next line data doesn’t receive within 13.1 seconds.

Code	Possible Causes of Error.
003F	Remote side TSI not programmed in machine one touch or speed dial directory.
0040	Did not receive carrier signal within 6 sec. after sending CTR.
0041	Did not receive carrier signal within 6 sec. after sending PPR.
0042	Did not receive correct signal after sending RNR signal.
0043	Received incorrect signal at phase D in ECM mode.
0044	Did not receive carrier signal /FSK signal within 6 sec. after sending MCF in ECM mode.
0045	Did not receive any correct signal after sending RNR response with ERR signal.
0046	Receive incorrect signal when sending RNR response with ERR signal.
0047	Did not receive correct signal after sending ERR signal.
0048	Did not receive correct signal after receiving PPS_PRI_Q or PRI_Q, EOR_PRI_Q.
0049	Did not receive correct signal after sending PIP/PIN signal within 13 sec.
004A	Line energy over threshold lasts for 60 seconds after MCF and can not detect FSK or carrier signal in ECM mode.
004B	Can not detect correct FSK signal even though detected FSK tone within 6 sec.
004C	Command hand shake fail when V.34 RX.
004E	Receive DCN signal after sending DIS in V.34.
004F	Remote side disconnected after sending ANSam in V.8 phase.
0050	Did not receive any correct signal after sending CJ signal in V.8 phase.
0051	Did not receive phase C signal after phase B within 20 seconds in V.34.
0052	Did not receive phase D signal after phase C within 20 seconds in V.34.
0053	Modem disconnect after phase D in V.34.
0054	Remote side disconnected after phase D in V.8.
0055	Receive incorrect signal after sending DIS signal in V.34.
0056	Modem disconnect after sending CFR in V.34.
0057	Did not detect image signal within 6 seconds after sending CFR.
0058	Did not detect image signal within 6 seconds after modem enter to phase A in V.34.
0059	Relay box is not registered even when Relay job has been received.
005A	Modem can not detect any correct ECM frame within 3 minutes in phase C.
005B	Did not detect phase E signal after primary channel within 6 seconds.
005C	Detect busy tone within control channel after phase C.
005D	Modem can not detect any connect ECM frame with 12 sec. in Phase C.
005E	Did not detect control channel signal after received RCP frame within 6 seconds.
005F	Did not detect silence after sending JM signal for polling TX function.
0060	There are no bulletin files to be polled in V.34.
0061	Machine can not detect V.21 or V.8 signal within 35 seconds.
0062	Modem disconnect in phase D after our side sending out flag sequence in control channel.
0063	Did not receive any flag sequence in control channel within 6 seconds in phase D.
0064	Did not detect any control channel signal in phase D within 60 seconds even though energy still on the line.
0065	Did not detect any control channel signal within 60 seconds after detect silence in phase D.
0066	Did not receive T.30 signal or carrier signal after sending CFR in V.34.
0070	User presses stop key during receiving.
0071	Memory full during receiving.

10.2.2 Transmission

Code	Possible Causes of Error.
0080	Did not detect any G3 signal within 35 sec. specified by ITU-T in phase B.
0081	Received DTC signal in transmission phase.
0082	Transmitting unit receives a signal other than DIS or DTC. and DCN in phase B.
0083	Detected FSK signal, but did not receive any signal within 35 seconds.
0084	Detect DCN signal in phase B.
0085	Transmitting unit sending DCS 3 times consecutively, but each time receiver responds with DIS/DTC.
0086	Detected response signal other than DTC, DIS, FTT, DCN or CFR after sending DCS.
0087	Training attempt has failed because speed unit cannot adjust to low lower speed.
0088	Received DCN signal after sending out DCS signal.
0089	Remote side no mailbox function or not compatible.
008A	Remote side not enough memory for relay initiate.
008B	Receiver's protocol of DIS is received, but it is not compatible with our machine.
008C	Remote side not enough memory for relay initiate.
008D	Receiver's protocol of DIS is received, but remote side can't receive document temporary, may be run out of paper or other reason.
008E	Remote side CSI number not defined in machine one touch or speed dial directory.
008F	Modem not ready to receive V.34 data during 6 seconds after receiving CFR signal.
0090	Called side document not ready for our polling.
0091	Sending out DCS+TCF signal 3 times consecutively but no signal in response from receiver.
0092	Remote side disconnected during transmitting phase.
0093	Received DCN signal after sending out DCS signal for V.34.
0094	Time out during transmission of ECM frame or RCP command.
0095	Wrong ID number when Polling RX or Mail Box TX.
0099	Remote side disconnect after primary channel.
009A	Did not detect any signal after sending CI signal.
009C	Received DCN after sending DTC in V.34 polling RX.
009D	Remote side hang up before V.34 modem enters phase B state in V.34 polling RX.
009F	Did not receive any response from other side after sending PPS_EOM signal.
00A0	User stops or cancels transmission job.
00A1	Document JAM during transmission.
00AE	Did not finish V.8 procedure or detect V.21 signal after CM signal within 30 seconds.
00AF	Modem can not enter into control channel after TX side sends out RCP signal for V.34.
00B0	Did not receive any command after our side retry three DCS signal in V.34 TX.
00B1	Did not finish V.8 procedure or detect V.21 signal after ANSam signal within 35 seconds.
00B2	Did not detect phase B signal after our side sending CJ signal within 30 seconds.
00B3	Did not detect correct V.21 or JM signal after sending CM signal.
00B4	Did not detect correct phase B signal within 25 second after CM/JM signal exchange.
00B5	Did not detect phase C signal after phase B within 25 seconds.
00B6	Did not detect phase D signal within 25 seconds after CM/JM exchange.
00B7	Did not detect phase E signal after phase D within 30 seconds.

Code	Possible Causes of Error.
00B8	Remote side disconnect after our side sent DCS signal in V.34.
00B9	Receive T.30 signal other than DIS,DCS,CFR after sending DCS signal in V.34.
00BA	Did not receive correct signal after our side sent DTC signal in V.34.
00BB	Every time our side received DIS signal after sending DTC in V.34.
00BC	Modem not ready within 10 second after entering primary channel in V.34.
00BD	Can not detect correct V.21 or JM signal after detected FSK frequency.
00BE	Remote side no document to be polled after V8 handshaking.
00BF	Capability not match after V8 handshaking.
00C0	Remote side disconnect before entering primary channel in V.34.
00C1	At phase-D, transmitting unit sends out EOP 3 times consecutively, but receives no answer from receiving unit.
00C2	Remote side disconnect after sending out V.8 CM signal.
00C4	After sending MPS signal, the received signal is not one of MCF, RTN, PIP, PIN, RTP, DCN.
00C5	Received DCN signal after sending MPS signal.
00C9	At phase-D, sending MPS 3 times consecutively, but no answer from receiving unit.
00CA	After sending EOP signal, the received signal is not one of MCF, RTN, PIP, PIN, PRI-EOP, DCN.
00CB	After sending EOP signal, the received signal is DCN signal.
00CC	After sending EOM signal, the received signal is not one of MCF, RTN, PIP, PIN, RTP, DCN.
00CD	At phase-D, transmitting unit sends out EOM 3 times consecutively, but receives no answer.
00CE	At phase-D, transmitting unit sends out EOM, but receives DCN.
00CF	Received incorrect signal after sending DTC signal for V.34 polling.
00D0	Received ERR signal after sending EOR_NULL.
00D1	ECM TX received wrong command in phase D after PPS-EOP. (not PPR, MCF, PIP, PIN,.....).
00D2	Receive DCN after send command PPS-EOP signal.
00D3	Received DCN after sending PPS_NULL signal.
00D4	Received DCN after sending PPS_EOM signal.
00D8	Did not detect correct phase C signal for polling within 25 seconds.
00D9	Did not detect correct phase C signal after detecting silence after phase B.
00DA	Did not detect phase D signal within 30 seconds or remote side hang up over 6 seconds.
00DB	Did not receive any T.30 signal within 15 seconds in phase D.
00DC	Received T.30 signal in phase D other than DCS,DIS or DTC.
00DD	Remote side not the same model or no mailbox ID defined for mailbox TX.
00DE	Remote side no SUB capability in V.34.
00E0	At phase-D, transmitting unit sends out PPS_NULL 3 times consecutively but receives no answer.
00E1	Received incorrect response after sending PPS_NULL.
00E2	Did not receive any response in RR response procedure after sending PPS_NULL.
00E4	At phase-D, transmitting unit sends out PPS_MPS 3 times consecutively but no answer.
00E5	Received incorrect response after sending PPS_MPS.
00E6	Did not receive any response in RR response procedure after sending PPS_MPS.
00E7	Received DCN after sending PPS_MPS.

Code	Possible Causes of Error.
00E8	At phase-D, transmitting unit sends out PPS_EOP 3 times consecutively but no answer.
00E9	Receive PIN signal after sent last page three times.
00EA	Did not receive any response in RR response procedure after sending PPS_EOP.
00EB	At phase-D, transmitting unit sends out PPS_EOM 3 times consecutively but no answer.
00EC	Received incorrect response after sending PPS_EOM.
00ED	Did not receive any response in RR response procedure after sent out PPS_EOM.
00EE	At phase-D, transmitting unit sends out EOR_NULL 3 times consecutively but no answer.
00EF	Received incorrect response after sending EOR_NULL.
00F0	Did not receive any response procedure after sending EOR_NULL.
00F1	At phase-D, transmitting unit sends out EOR_MPS 3 times consecutively but no answer.
00F2	Received incorrect response after sending EOR_MPS.
00F3	Received ERR signal after sending EOR_MPS.
00F4	Did not receive any response in RR response procedure after sending EOR_MPS.
00F5	At phase-D, transmitting unit sends out EOR_EOP 3 times consecutively but no answer.
00F6	Received incorrect response after sending EOR_EOP.
00F7	After Received ERR, our side can not receive response after sending EOR_EOP command.
00F8	At phase-D, transmitting unit sends out EOR_EOM 3 times consecutively but no answer.
00F9	Received incorrect response after sending EOR_EOM.
00FA	Received ERR signal after sending EOR_EOM.
00FB	Did not receive any response in RR response procedure after sending EOR_EOM.
00FC	Did not receive any response after sending CTC.
00FD	Can't speed down to lower speed in ECM mode.
00FE	Memory full for transmission.
00FF	Redial all fail.

KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

DF-605/MK-501

2007.04

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

Revision history

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a section revised, show △1 to the left of the revised section.
  A number within △1 represents the number of times the revision has been made.

- To indicate clearly a section revised, show ▲1 in the lower outside section of the corresponding page.
  A number within ▲1 represents the number of times the revision has been made.

NOTE

Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.

- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2007/04	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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DF-605/MK-501

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Maintenance

10. Periodical check

10.1 Maintenance procedure (Periodical check parts)

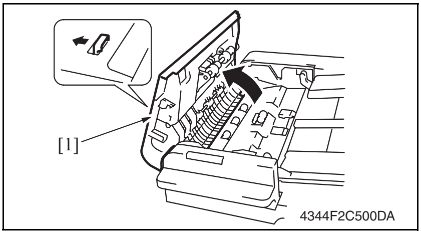
NOTE

- **The alcohol described in the cleaning procedure represents the isopropyl alcohol.**

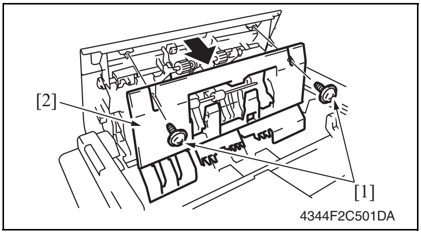
10.1.1 Replacing the pick-up roller and feed roller

A. Periodically replaced parts/cycle

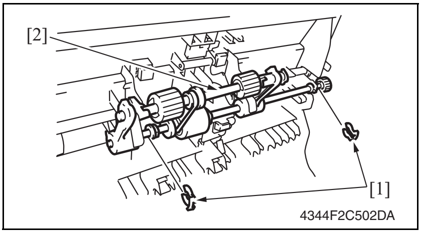
- Pick-up roller: Every 200,000 prints
- Feed roller: Every 200,000 prints



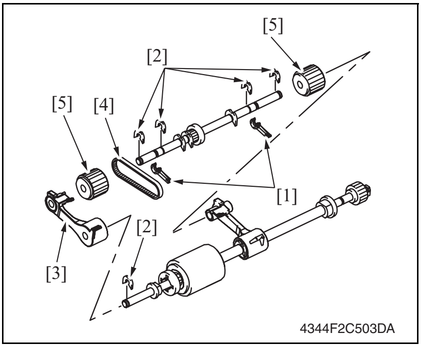
1. Open the upper door [1].



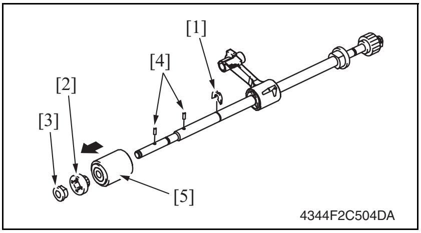
2. Remove two screws [1], and remove the cover [2].



3. Remove two C-clips [1], and remove the pick-up roller assy [2].


[5]
[2]
[5]
[4]
[1]
[2]
[3]
4344F2C503DA

4. Remove two levers [1].
5. Remove five C-rings [2].
6. Remove the arm [3].
7. Remove the belt [4].
8. Remove two pick-up rollers [5].


[1]
[4]
[2]
[3]
[5]
4344F2C504DA

9. Remove the C-ring [1], and remove the gear [2] and the bushing [3].
10. Remove two pins [4].
11. Remove the feed roller [5].

NOTE

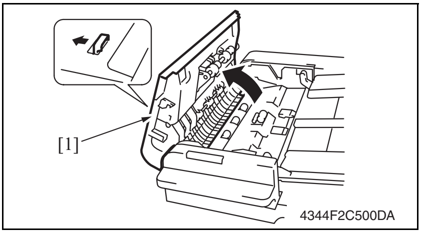
- **Use care not to lose the pin.**

12. To reinstall, reverse the order of removal.

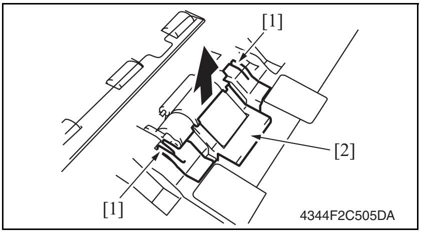
10.1.2 Replacing the separation roller

A. Periodically replaced parts/cycle

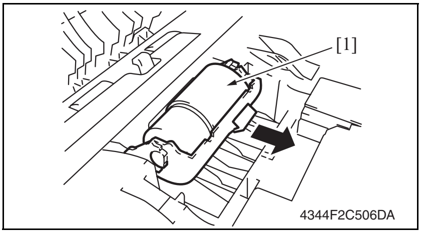
- Separation roller: Every 200,000 prints


[1]
4344F2C500DA

1. Open the upper door [1].


[1]
[2]
[1]
4344F2C505DA

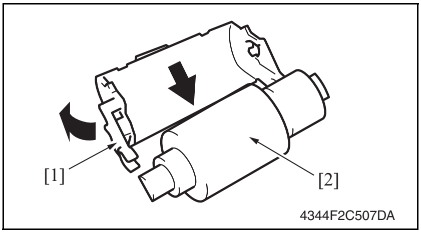
2. Hold the [1] sections in the figure, and remove the cover [2].


[1]
4344F2C506DA

3. Remove the separation roller assy [1].

NOTE

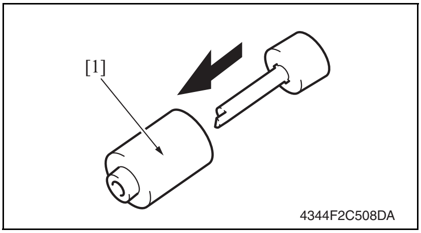
- **Use care not to lose the spring at the bottom side of the separation roller assy.**


[1]
[2]
4344F2C507DA

4. While opening up the holder [1], remove the shaft [2].

NOTE

- **Opening the holder too much can break the holder.**


[1]
4344F2C508DA

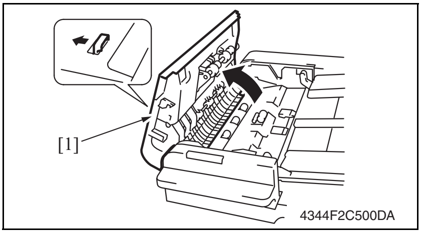
5. Remove the separation roller [1] from the shaft.

6. To reinstall, reverse the order of removal.

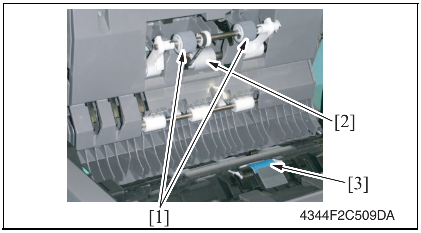
10.1.3 Cleaning of the pick-up roller, feed roller and separation roller

A. Periodically cleaning parts/cycle

- Pick-up roller: Every 50,000 prints
- Feed roller: Every 50,000 prints


[1]
4344F2C500DA

1. Open the upper door [1].

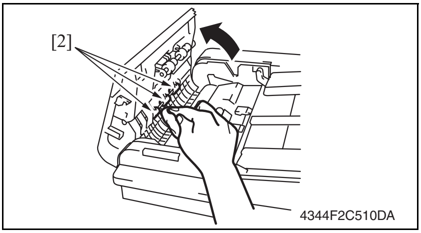

[2]
[3]
[1]
4344F2C509DA

2. Using a soft cloth dampened with alcohol, wipe the pick-up roller [1], feed roller [2] and separation roller [3].

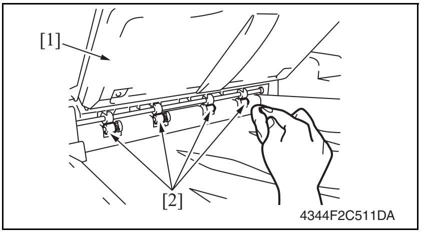
10.1.4 Cleaning of miscellaneous rolls

A. Periodically cleaning parts/cycle

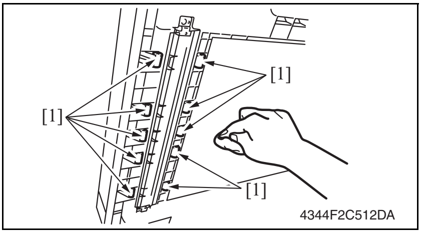
- Miscellaneous rolls: Every 50,000 prints



1. Open the upper door [1].
2. Using a soft cloth dampened with alcohol, wipe the roll [2].



3. Lift up the original feed tray [1].
4. Using a soft cloth dampened with alcohol, wipe the roll [2].

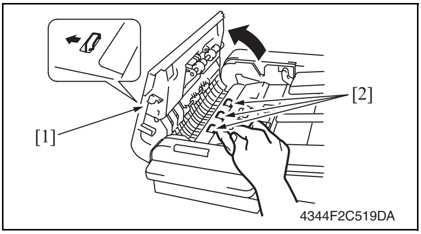


5. Open the duplexing document feeder.
6. Using a soft cloth dampened with alcohol, wipe the roll [1].

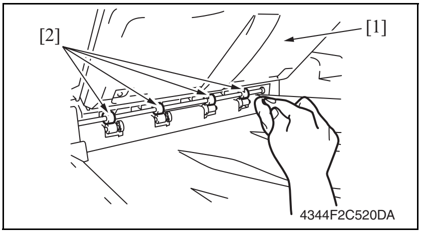
10.1.5 Cleaning of miscellaneous rollers

A. Periodically cleaning parts/cycle

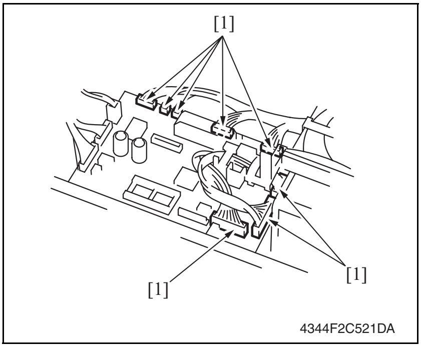
- Miscellaneous rollers: Every 50,000 prints



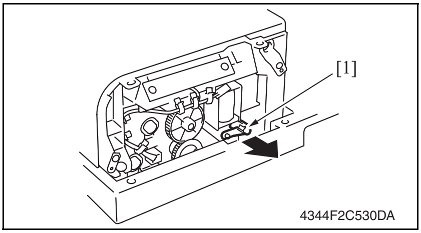
1. Open the upper door [1].
2. Using a soft cloth dampened with alcohol, wipe the roller [2].


[2]
[1]
4344F2C520DA

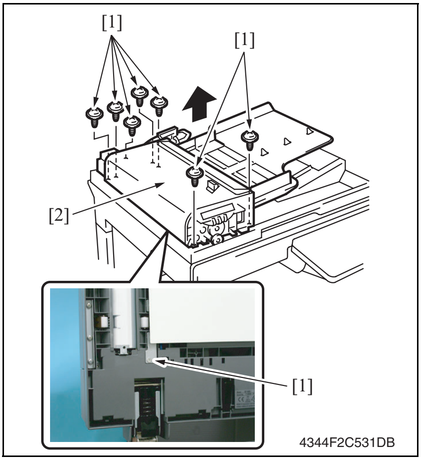
3. Lift up the original feed tray [1].
4. Using a soft cloth dampened with alcohol, wipe the roller [2].


[1]
[1]
[1]
4344F2C521DA

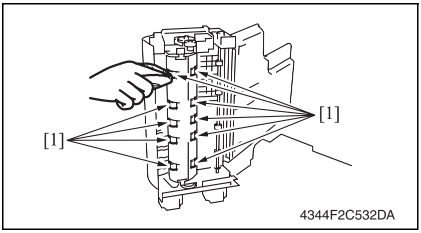
5. Remove the front cover and rear cover.
   See P.x
6. Disconnect eight connectors [1] on the board.


[1]
4344F2C530DA

7. Remove the lever [1].


[1]
[1]
[2]
[1]
4344F2C531DB

8. Remove eight screws [1], and remove the paper feed unit [2].

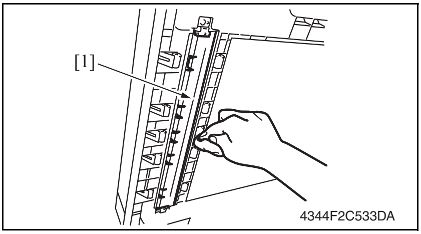


9. Using a soft cloth dampened with alcohol, wipe the roller [1].

10.1.6 Cleaning of the scanning guide

A. Periodically cleaning parts/cycle

- Scanning guide: Every 50,000 prints

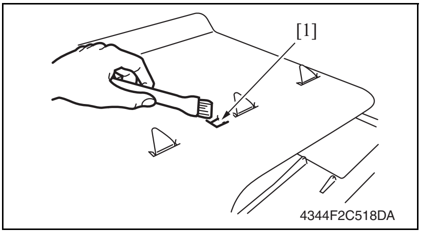


1. Open the duplexing document feeder.
2. Using a soft cloth dampened with alcohol, wipe the scanning guide [1] clean of dirt.

10.1.7 Cleaning of the reflective sensor section

A. Periodically cleaning parts/cycle

- Reflective sensor section: Every 50,000 prints



1. Clean the sensor [1] using a brush or other similar tools.

11. Other

11.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable Resistors on Board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ Caution

- **When removing a circuit board or other electrical component, refer to “SAFETY AND IMPORTANT WARNING ITEMS” and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

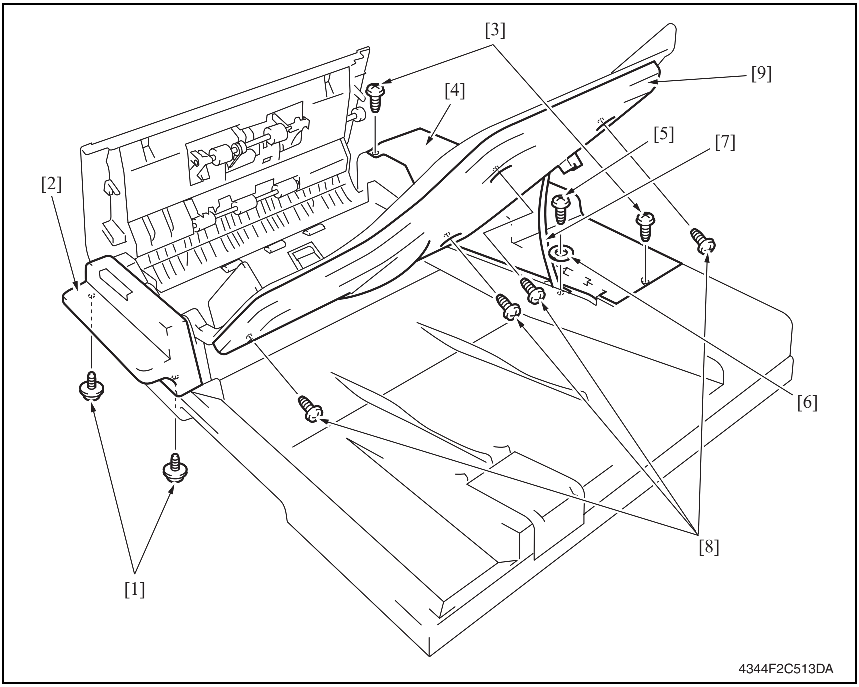
11.2 Disassembly/Assembly/Cleaning list (Other parts)

11.2.1 Disassembly/Assembly parts list

No.	Section	Part name	Ref.Page
1	Exterior parts	Front cover	P.x
2		Rear cover	P.x
4		Original feed tray rear cover	P.x
5	Unit	ADF (DF-605)	P.xi
6		Mount kit (MK-501)	P.xi
7	Board and etc.	Main control board	P.xiv
8		Variable resistor	P.xiv
9	Others	Complete stamp unit 2	P.xvi
10		Replace stamp 2	P.xvii

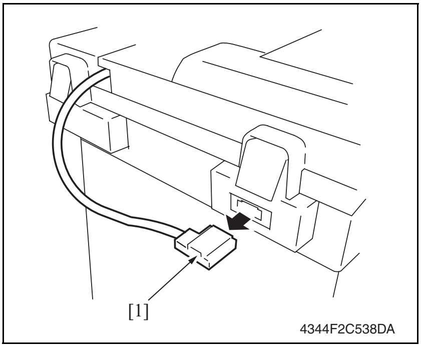
11.3 Disassembly/Assembly procedure

11.3.1 Front cover/rear cover/original feed tray rear cover

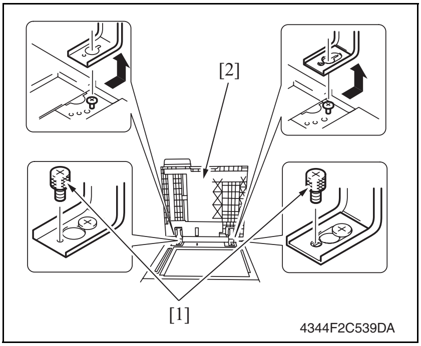


1. Remove two screws [1], and remove the front cover [2].
2. Remove two screws [3].
3. Lift up the original feed tray, and remove the rear cover [4].
4. Remove the screw [5] and the washer [6], and remove the stopper [7].
5. Lift up the original feed tray.
6. Remove four screws [8], and remove the original feed tray rear cover [9].

11.3.2 ADF (DF-605)


[1]
4344F2C538DA

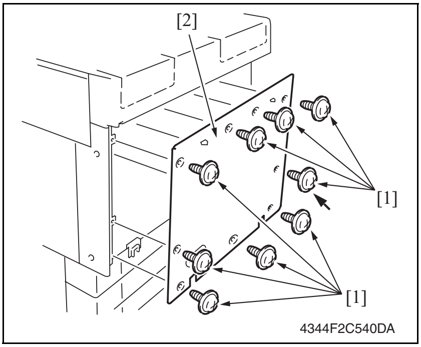
1. Disconnect the connector [1].


[2]
[1]
4344F2C539DA

2. Remove two screws [1] and remove the ADF [2].

11.3.3 Mount kit (MK-501)

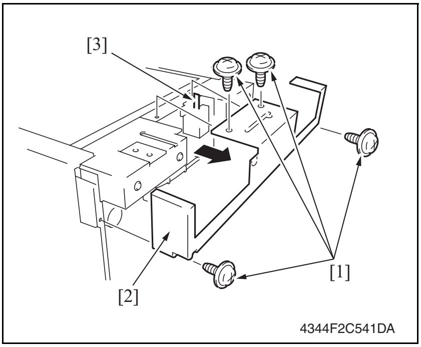
1. Remove the ADF.
   See P.xi


[2]
[1]
[1]
4344F2C540DA

2. Remove nine screws [1] and then remove the rear cover [2] of the main body.

NOTE

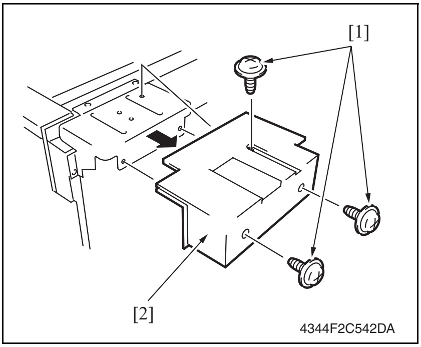
- **Make sure that the screws illustrated right with arrows have washers when installing.**


[3]
[1]
[2]
4344F2C541DA

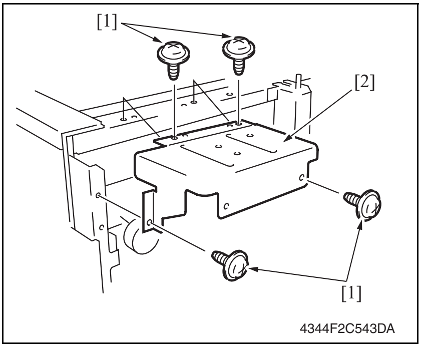
3. Remove four screws [1] and remove the rear upper cover [2].

NOTE

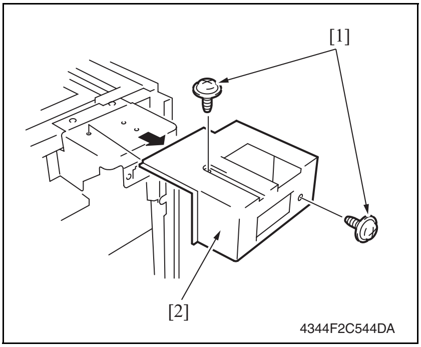
- **Make sure to hold the angle detecting lever [3] with fingers at the time of removing or installing.**


[1]
[2]
4344F2C542DA

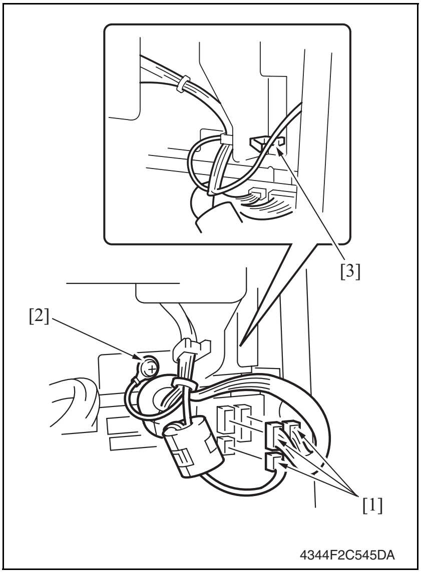
4. Remove three screws [1] and remove the rear left cover [2].


[1]
[2]
[1]
4344F2C543DA

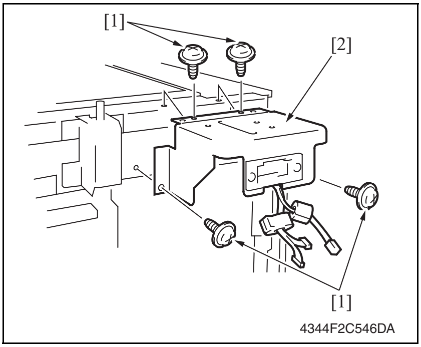
5. Remove four screws [1] and remove the rear left hinge mounting bracket [2].


[1]
[2]
4344F2C544DA

6. Remove two screws [1] and remove the rear right cover [2].

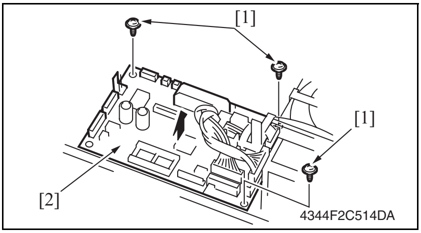

[3]
[2]
[1]
4344F2C545DA

7. Disconnect three connectors [1], the screw of the grounding wire [2] and the wire saddle [3].


[1]
[2]
[1]
4344F2C546DA

8. Remove four screws [1] and remove the rear right hinge mounting bracket [2].

11.3.4 Main control board



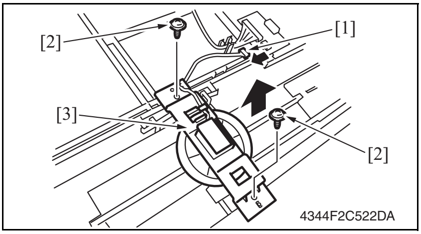
1. Turn OFF the main power switch.
2. Remove the rear cover.
   See P.x
3. Disconnect all the connectors on the board.
4. Remove three screws [1], and then remove the main control board [2].

NOTE

- **Be sure to perform the following operation when the main control board is replaced.**

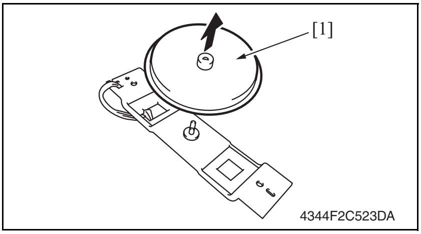
5. Initialize the backup data.
   See P.12
6. Perform document width detection adjustment.
   See P.11
7. Turn OFF the main power switch and turn it ON again and check whether size detection operates normally.
8. Upgrade the firmware.
   See P.xviii

11.3.5 Variable resistor

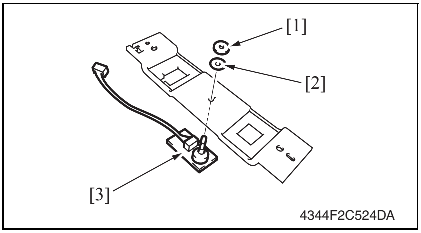


A. Removal procedure

1. Turn OFF the main power switch.
2. Remove the original feed tray rear cover.
   See P.x
3. Disconnect the connector [1].
4. Remove two screws [2] and the mounting bracket [3].

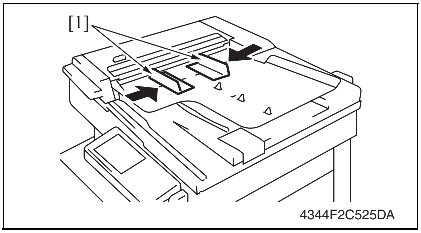


5. Remove the gear [1].



6. Remove the nut [1] and the washer [2], and remove the variable resistor [3].

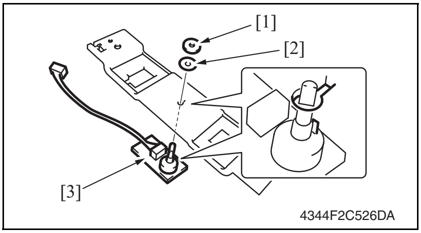
B. Reinstallation procedure



1. Close the side edge stop [1] of the original feed tray.

NOTE

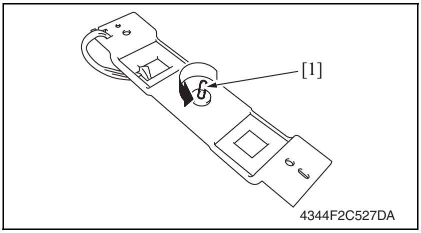
- **Be sure to perform document width detection adjustment after replacing the variable resistor (PBA-VR).**
  See P.xiv



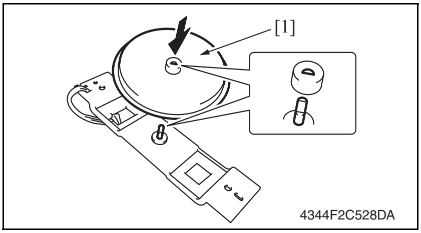
2. Use the nut [1] and the washer [2] to install the variable resistor [3].

NOTE

- **Align the protrusion of the variable resistor and the cutout of the mounting bracket.**



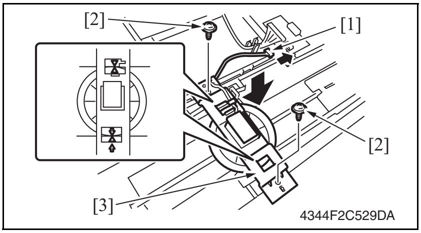
3. Turn the variable resistor [1] counterclockwise until it stops.



4. Reinstall the gear [1].

NOTE

- **Note the mounting position of the gear and the variable resistor.**



5. Connect the connector [1].
6. Use two screws [2] to install the variable resistor [3].

NOTE

- **Install the gear and rack gear by aligning the arrows.**

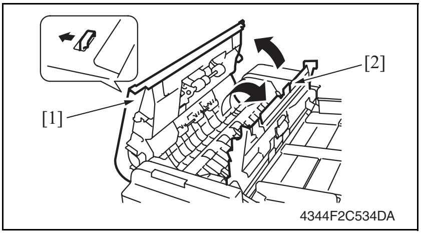
7. Install the original feed tray rear cover and turn ON the main power switch.

NOTE

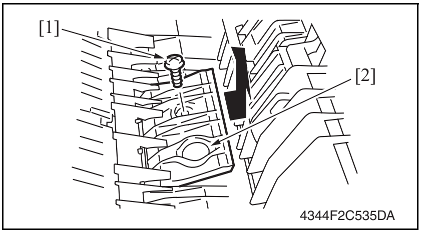
- **Be sure to perform the following operation when the variable resistor is replaced.**

8. Initialize the backup data.
   See P.12
9. Perform document width detection adjustment.
   See P.11
10. Turn OFF the main power switch and turn it ON again and check whether size detection operates normally.

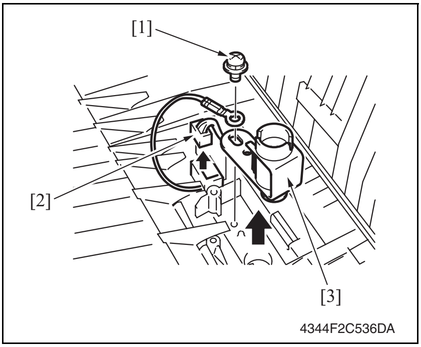
11.3.6 Complete stamp unit 2


[1]
[2]
4344F2C534DA

1. Open the upper door [1].
2. Open the processing guide [2].

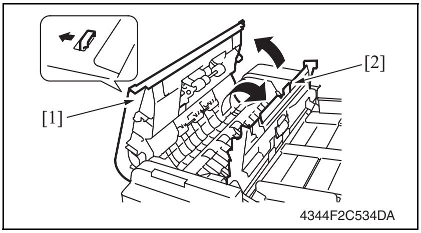

[1]
[2]
4344F2C535DA

3. Remove the screw [1] and the cover [2].

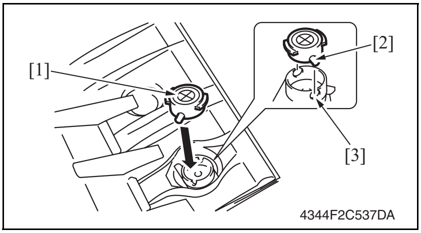

[1]
[2]
[3]
4344F2C536DA

4. Remove the screw [1] and disconnect the connector [2], and remove the complete stamp unit 2 [3].

11.3.7 Replacing the replace stamp 2



1. Open the upper door [1].
2. Open the processing guide [2].



3. Remove the stamp.
4. Reinstall the new replace stamp 2 [1].

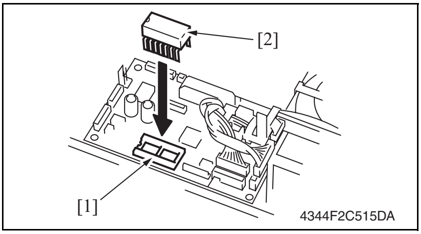
NOTE

- **Align the protrusion [2] of the stamp to the crevice [3] of the holder.**

5. Close the processing guide.
6. Close the upper door.

12. Firmware upgrade

1. Prepare the firmware upgrade EEPROM.
2. Turn OFF the main power switch.
3. Remove the rear cover.
   See P.x

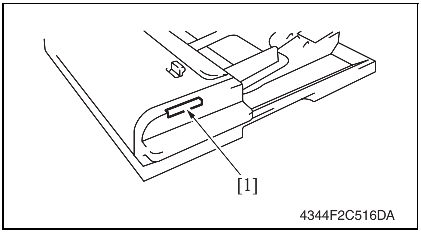


4. Insert the prepared EEPROM [2] to the IC socket section [1] of the main control board.

NOTE

- **Ensure that the EEPROM is installed in the correct direction.**

5. Turn ON the main power switch.



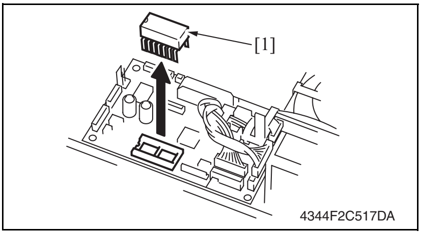
6. Check the firmware update status at the print lamp display section [1] of the duplexing document feeder.

Updating: Green and red light up alternately.

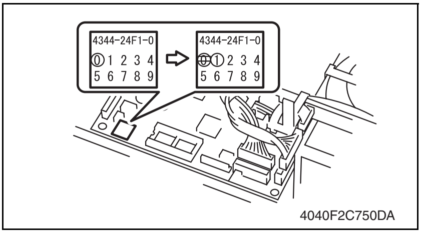
Successful completion: Blinks in green.

Failure: Blinks in red.

- If failure occurs, redo the procedure from step 4.



7. After the firmware has been upgraded successfully, turn OFF the main power switch and remove the EEPROM [1] that was attached at step 4.



8. Turn ON the main power switch.
9. Display [SERVICE MODE].
10. Touch the [DISPLAY] and check the [ADF F/W VER.].
11. Correct the version indication on the ROM label on the main control board using a pen or other similar means.
12. Reinstall the rear cover.

General

1. Product specifications

A. Type

Name	Reverse automatic document feeder	
Type	Paper feed	Paper feed from top of stack
	Turnover	Switch back system
	Paper exit	Straight exit system
Installation	Screw cramp to the main unit	
Document alignment	Center	
Document loading	Left image side up	

B. Functions

Modes	1-sided mode / 2-sided mode

C. Paper

Type of document	Standard mode Plain paper	1-Sided mode 35 to 128 g/m^2 (9.25 to 34 lb)
		2-Sided mode 50 to 128 g/m^2 (13.25 to 34 lb)
	Mixed original detection mode Plain paper	1-Sided / 2-Sided Mode 50 to 128 g/m^2 (13.25 to 34 lb)
	FAX mode Plain paper	1-Sided mode 35 to 128 g/m^2 (9.25 to 34 lb)
		2-Sided mode 50 to 128 g/m^2 (13.25 to 34 lb)
Detectable document size*1	Metric area B6S to A3 Inch area 5 $^1/_2$ × 8 $^1/_2$S / 5 $^1/_2$ × 8 $^1/_2$ to 11 × 17	
Capacity	80 sheets (80 g/m^2) or load height of 11 mm or less.	

*1: For the combined original detection mode, refer to the mixed original detection enabled size combination table.

D. Paper feed prohibited originals

- If fed, trouble occurrence will be highly possible.

Type of original	Possible trouble
Original that is stapled or clipped.	Feed failure, damage to the original, or drive failure due to clip clogging
Book original	Feed failure, damage to the original, or drive failure
Original weighing less than 35g/m^2 or 129g/m^2 or more	Feed failure
Torn original	Feed failure, damaged sheet
Highly curled original (15 mm or more)	Original misfeed due to dog-ear or skew
OHP transparencies	Feed failure
Label Sheet	Feed failure
Offset master	Feed failure
Sheets clipped or notched	Damaged sheet
Sheets patched	Patched part folded or torn sheet, Sheets misfed

E. Paper feed not guaranteed originals

- If fed, paper feed will be possible to some extent but trouble occurrence will be possible.

Type of original	Possible trouble
Sheets lightly curled (Curled amount: 10 - 15 mm)	Dog-eared, exit failure
Heat sensitive paper	Edge folded, exit failure, transport failure
Coated paper (Ink Jet paper)	Take-up failure, transport failure
Translucent paper	Take-up failure, transport failure
Paper immediately after paper exit from the main unit	Take-up failure, transport failure
Paper with many punched holes (e.g., loose leaf) limited to vertical feeding	Multi-page feed due to flashes from holes
Sheets with 2 to 4 holes	Transport failure
Sheets two-folded or Z-folded	Transport failure, image deformation
Sheets with rough surface (e.g., letterhead)	Take-up failure
Sheets folded	Image deformation, multi-page feed, take-up failure

F. Mixed original feed chart

For Metric

	Max. original size	297 mm		257 mm		210 mm		182 mm	148 mm
Mixed original size		A3	A4	B4	B5	A4S	A5	B5S	A5S
297 mm	A3	OK	OK	-	-	-	-	-	-
	A4	OK	OK	-	-	-	-	-	-
257 mm	B4	OK	OK	OK	OK	-	-	-	-
	B5	OK	OK	OK	OK	-	-	-	-
210 mm	A4S	OK*	OK*	OK	OK	OK	OK	-	-
	A5	NG	NG	OK	OK	OK	OK	-	-
182 mm	B5S	NG	NG	OK*	OK*	OK	OK	OK	-
148 mm	A5S	NG	NG	NG	NG	NG	NG	OK	OK
128 mm	B6S	NG	NG	NG	NG	NG	NG	NG	OK

For Inch

	Max. original size	11		8.5			5.5
Mixed original size		11 x 17	8.5 x 11	8.5 x 14	8.5 x 11S	5.5 x 8.5	8.5 x 5.5S
11	11 x 17	OK	OK	-	-	-	-
	8.5 x 11	OK	OK	-	-	-	-
8.5	8.5 x 14	OK*	OK*	OK	OK	OK	-
	8.5 x 11S	OK*	OK*	OK	OK	OK	-
5.5	8.5 x 5.5	NG	NG	OK	OK	OK	-
	8.5 x 5.5S	NG	NG	NG	NG	NG	OK

OK	Mixed original feed available (Tilted with in 1.5% or less)
NG	NO. mixed original feed
-	Can not set original
*	Tilted with in 2% or less is 80%

G. Machine specifications

Power Requirements	DC 24 V (supplied from the main unit) DC 5 V (generated within the Automatic Document Feeder) DC 3.3 V (supplied from the main unit)
Max. Power Consumption	48 W or less
Dimensions	582 (W) x 558 (D) x 145 (H) mm 23 inch (W) x 20.5 inch (D) x 5.75 inch (H)
Weight	10 kg (22 lb) or less

H. Operating

- Conforms to the operating environment of the main unit.

NOTE

- **These specifications are subject to change without notice.**

Blank Page

Adjustment/Setting

2. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting” the default settings are indicated by “   ”.

A. Advance Checks

- Before attempting to solve the customer problem, the following advance checks must be made.Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The Original Glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for Service Jobs

1. Be sure to unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the Exposure Unit.
3. Special care should be used when handling the Fusing Unit which can be extremely hot.
4. The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC Drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

3. Service Mode

3.1 Service mode function setting procedure

NOTE

- **Care must be used to ensure that only the personnel who are involved in service jobs know the procedure to enter the service mode.**

3.1.1 Procedure

1. Press the Utility key.
2. Press the following keys in this order.
3. Stop → 0 → 0 → Stop → 0 → 1
4. The service mode menu screen will appear.

3.1.2 Exiting

- Press the Reset key.

3.1.3 Changing the setting value in service mode functions

1. Select the desired item using ▲ / ▼ key.
2. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

3.2 Service Mode function tree

NOTE

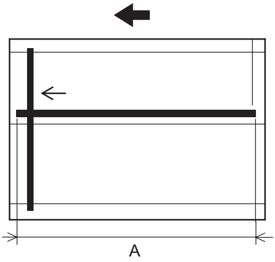
- **This setting menu contains only the cases in which the DF-605 is mounted.**

Service Mode		Ref. page
ADJUST	ADF SUB ZOOM	P.7
	ADF MAIN REGIST	P.8
	ADF SUB REGIST 1	P.9
	ADF SUB REGIST 2	P.10
	ADF REG. LOOP 1	P.10
	ADF REG. LOOP 2	P.11
FUNCTION	ADF FEED TEST	P.11
	COPY ADF GLASS	P.11
	ADF WIDTH Ad. (Max)	P.11
	ADF WIDTH Ad. (Min)	P.12
	ADF SENSOR ADJUST	P.12
CLEAR DATA	ADF BACKUP CLEAR	P.12

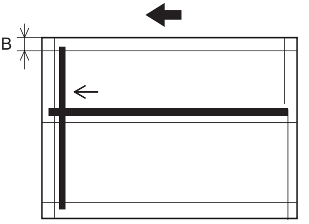
3.3 Setting in the Service mode

3.3.1 ADJUST

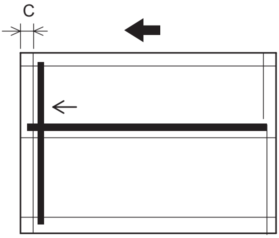
A. ADF SUB ZOOM

Functions	TEST COPY	ADJUST
Use	• To adjust variations in machining and installation accuracy of different parts by varying the scanning zoom ratio in the sub scanning direction when the automatic document feeder is used.	
Setting/ procedure	• Press the OK key to start a test copy cycle.	• The default setting is 100. • Setting range: 87 to 113 (1 step: 0.4%)
Adjustment procedure	 4344F3C527DA *1.* Make a full-size copy of the test chart. *2.* Measure the length of reference line A on the copy to determine if the deviation falls within the specified range. If it falls outside the specified range, perform the following steps to make an adjustment. *3.* Enter [ADJUST] of the Service mode. *4.* Select [ADF SUB ZOOM] and press the OK key. *5.* Using ▲ / ▼ key, select the appropriate setting value. *6.* Press the OK key to validate the setting value selected in step 5. *7.* Make another full-size copy of the test chart to determine the amount of error in length A on the copy. Adjustment Instructions If length A on the copy is longer than the specifications, decrease the setting value. If length A on the copy is shorter than the specifications, increase the setting value. If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 3 through 7.	• Ready the test chart that comes with the automatic document feeder. • Adjust so that deviation between length A on the test chart and that on the copy falls within the specified range. Specifications: 400 ± 6.0 mm

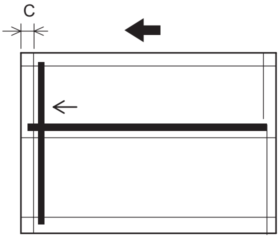
B. ADF MAIN REGIST

Functions	TEST COPY	ADJUST
Use	• To adjust variations in machining and installation accuracy of different parts by varying the scanning start position in the main scanning direction when the automatic document feeder is used.	
Setting/ procedure	• Press the OK key to start a test copy cycle.	• Setting range: 20 to 180 (1 step: 0.1 mm)
Adjustment procedure	 4344F3C528DA	• Ready the test chart that comes with the optional automatic document feeder. • Adjust so that the amount of error of width B on the copy falls within the specified range. Specifications: 20 ± 2.0 mm
	1. Make a full-size copy of the test chart. *2.* Using a scale, measure the distance between reference line B on the copy and the top edge of the copy (width B) and determine if the amount of error in width B falls within the specified range. If it falls outside the specified range, perform the following steps to make an adjustment. *3.* Enter [ADJUST] of the Service mode. *4.* Select [ADF MAIN REGIST] and press the OK key. *5.* Using ▲ / ▼ key, select the appropriate setting value. *6.* Press the OK key to validate the setting value selected in step 5. *7.* Make another full-size copy of the test chart to check for the amount of error in width B on the copy. Adjustment Instructions If width B on the copy is longer than the specifications, decrease the setting value. If width B on the copy is shorter than the specifications, increase the setting value. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 7.	

C. ADF SUB RESIST1

Functions	TEST COPY	ADJUST
Use	• To adjust variations in machining and installation accuracy of different parts by varying the scanning start position in the sub scanning direction when the automatic document feeder is used. (1-sided) **NOTE** **• This adjustment should be made after the [ADF SUB ZOOM] adjustment.**	
Setting/ procedure	• Press the OK key to start a test copy cycle.	Setting range: 50 to 150 (1 step: 0.1 mm)
Adjustment procedure	 4344F3C529DA *1.* Make a full-size copy of the test chart. *2.* Using a scale, measure the distance between reference line C on the copy and the leading edge of the copy (length C) and determine if the amount of error in length C falls within the specified range. If it falls outside the specified range, perform the following steps to make an adjustment. *3.* Enter [ADJUST] of the Service mode. *4.* Select [ADF SUB REGIST1] and press the OK key. *5.* Using ▲ / ▼ key, select the appropriate setting value. *6.* Press the OK key to validate the setting value selected in step 5. *7.* Make another full-size copy of the test chart to check for the amount of error in length C on the copy. Adjustment Instructions If length C on the copy is longer than the specifications, increase the setting value. If length C on the copy is shorter than the specifications, decrease the setting value. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 7.	• Ready the test chart that comes with the optional automatic document feeder. • Adjust so that the amount of error of length C on the copy falls within the specified range. • Specifications: 20 ± 2.5 mm

D. ADF SUB RESIST2

Functions	TEST COPY	ADJUST
Use	• To adjust variations in machining and installation accuracy of different parts by varying the scanning start position in the sub scanning direction when the automatic document feeder is used. (2-sided) **NOTE** **• This adjustment should be made after the [ADF SUB ZOOM] adjustment.**	
Setting/ procedure	• Press the OK key to start a test copy cycle.	Setting range: 50 to 150 (1 step: 0.1 mm)
Adjustment procedure	 4344F3C529DA *1.* Make a full size copy using the 2-sided original/2-sided copy mode. (Face down the test chart.) *2.* Using a scale, measure the distance between reference line C on the copy and the leading edge of the copy (length C) and determine if the amount of error in length C falls within the specified range. If it falls outside the specified range, perform the following steps to make an adjustment. *3.* Enter [ADJUST] of the Service mode. *4.* Select [ADF SUB REGIST2] and press the OK key. *5.* Using ▲ / ▼ key, select the appropriate setting value. *6.* Press the OK key to validate the setting value selected in step 5. *7.* Make another 2-sided original/2-sided copy of the test chart to check for the amount of error in length C on the copy. Adjustment Instructions If length C on the copy is longer than the specifications, increase the setting value. If length C on the copy is shorter than the specifications, decrease the setting value. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 7.	• Ready the test chart that comes with the optional automatic document feeder. • Adjust so that the amount of error of length C on the copy falls within the specified range. • Specifications: 20 ± 3.0 mm

E. ADF REG. LOOP1

Functions	• To adjust the length of loop formed in the original before the registration roller. (1-sided)
Use	• When a skew feed, fold, or misfeed of the original occurs
Setting/ procedure	• The default setting is 100. • Setting range: 95 to 105 (1 step: 1.0 mm)
Adjustment procedure	*1.* Enter [ADJUST] of the Service mode. *2.* Select [ADF REG. LOOP1] and press the OK key. *3.* Using ▲ / ▼ key, select the desired setting value. *4.* Press the OK key to validate the setting value selected in step 3. Adjustment Instructions • Try a different setting value until there is no skew, fold, or misfeed of the original.

F. ADF REG. LOOP2

Functions	• To adjust the length of loop formed in the original before the registration roller. (2-sided)
Use	• When a skew feed, fold, or misfeed of the original occurs
Setting/ procedure	• The default setting is 100. • Setting range: 95 to 105 (1 step: 1.0 mm)
Adjustment procedure	*1.* Enter [ADJUST] of the Service mode. *2.* Select [ADF REG. LOOP2] and press the OK key. *3.* Using ▲ / ▼ key, select the desired setting value. *4.* Press the OK key to validate the setting value selected in step 3. Adjustment Instructions • Try a different setting value until there is no skew, fold, or misfeed of the original.

3.3.2 FUNCTION

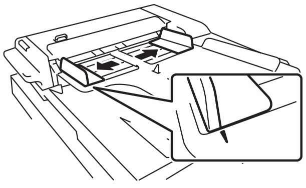
A. ADF FEED TEST

Functions	• To check for correct paper passage of the paper take-up and transport system in the automatic (duplexing) document feeder alone as a single unit. • Here are the details of operation involved in the paper passage motion. • The Scanner does not make any scan motion. • Paper passage operation continues until all pages of the document loaded in the unit have been fed in.
Use	• When a paper misfeed of originals occurs
Setting/ procedure	*1.* Enter [FUNCTION] of the Service mode. *2.* Select [ADF FEED TEST] and press the OK key. *3.* Select [1-SIDED] or [2-SIDED] and press the OK key to start the ADF feed test. • Press the Stop key to stop the ADF feed test.

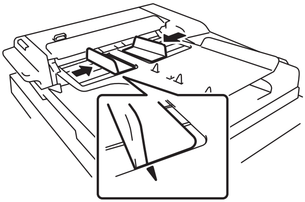
B. COPY ADF GLASS

Functions	• To check for scratches and dirt on the original scanning glass.
Use	• When a dirty image occurs
Adjustment/ procedure	*1.* Enter [FUNCTION] of the Service mode. *2.* Select [COPY ADF GLASS]. *3.* Press the Start key to start the COPY ADF GLASS AREA test. *4.* The copier produces two copy samples (in order to know dirt on the glass from printer image noise).

C. ADF WIDTH Ad. (Max)

Functions	• To adjust the original size detection VR.
Use	• When PBA-VR board is replaced
Adjustment procedure	 4344F3C530DA *1.* Display the Service mode. *2.* Choose [ADF WIDTH Ad. (Max)] from [FUNCTION]. *3.* Align the original edge plane of the side edge stop of the original feed tray to the outside ▼ mark. *4.* Press the OK key to determine the maximum value. *5.* Power cycle and check whether size detection operates normally.

D. ADF WIDTH Ad. (Min)

Functions	• To adjust the original size detection VR.
Use	• When PBA-VR board is replaced
Adjustment procedure	 4344F3C531DA 1. Display the Service mode. 2. Choose [ADF WIDTH Ad. (Min)] from [FUNCTION]. 3. Align the original edge plane of the side edge stop of the original feed tray to the outside ▼ mark. 4. Press the OK key to determine the maximum value. 5. Power cycle and check whether size detection operates normally.

E. ADF SENSOR ADJUST

Functions	• To automatically adjust the detection level of original path sensor.
Use	• When each sensor is replaced • When original size detection error occurs
Adjustment/ procedure	1. Display the Service mode. 2. Choose [ADF SENSOR ADJUST] from [FUNCTION]. 3. Press the OK key.

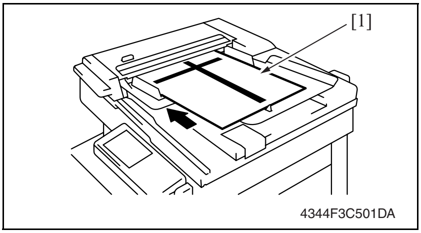
3.3.3 CLEAR DATA

A. ADF BACKUP CLEAR

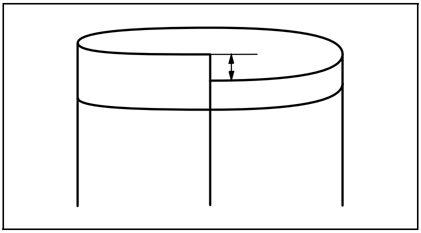
Functions	• To clear the values adjusted with [ADF SENSOR ADJUST] and the values adjusted with Org. width detect.
Use	• When PBA-CONT board has been replaced. • When PBA-VR board has been replaced.
Adjustment/ procedure	1. Press the OK key to clear settings memorized in PBA-CONT. 2. The operation stops automatically. 3. After clear the Backup data, adjust the [ADF WIDTH Ad. (MAX)], [ADF WIDTH Ad. (Min)] and [ADF SENSOR ADJUST].

4. Mechanical adjustment

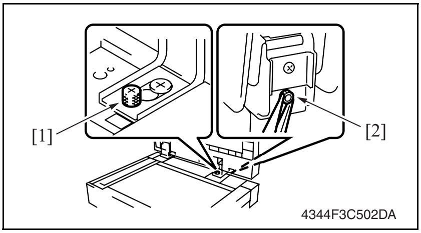
4.1 Leading edge skew adjustment



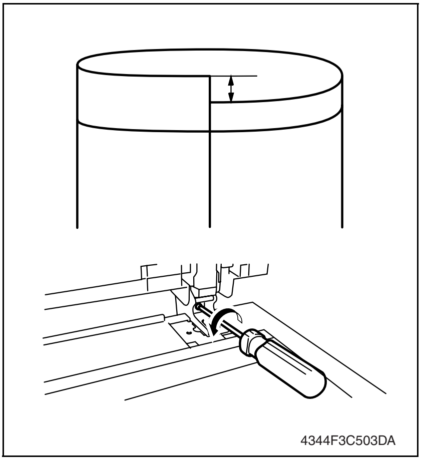
1. Load the test chart [1] in the reverse automatic document feeder and make one 1-sided copy five consecutive times.



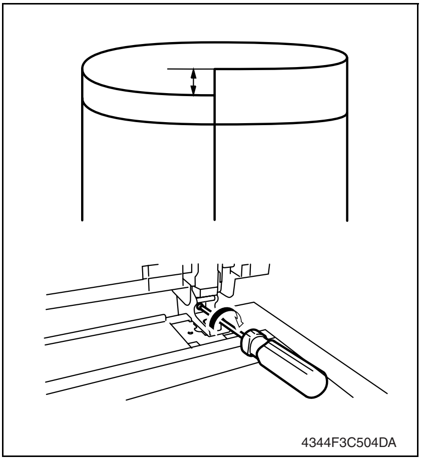
2. Fold each of the sample copies as illustrated and check for any deviation.
   Specifications: 0 ± 3.0 mm
3. If the deviation does not fall within the specified range, perform the following adjustment procedure.



4. Loosen the decorative screw [1] and the nut [2] in the back to the right.



5. If there is a deviation as shown on the figure, turn the screw counterclockwise to adjust it.

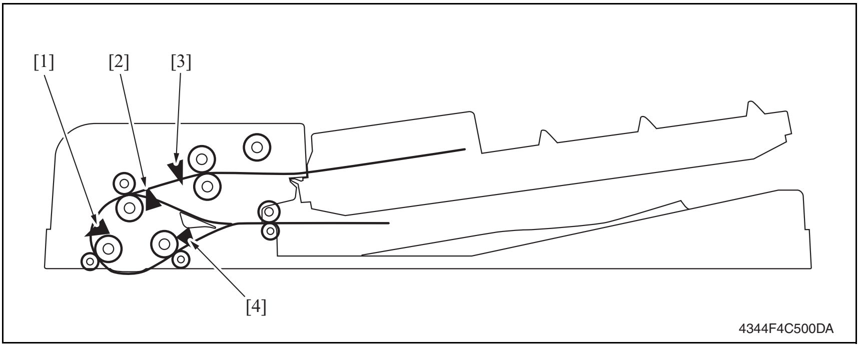


6. If there is a deviation as shown on the figure, turn the screw clockwise to adjust it.
7. After the adjustment procedure has been completed, tighten the decorative screw and the nut which has been loosened in step 4.

Troubleshooting

5. Jam display

5.1 Sensor layout



[1]	Original detection sensor	PC8-ADF	[3]	Separator sensor	PC6-ADF
[2]	Registration sensor	PC9-ADF	[4]	Exit/turnover sensor	PC10-ADF

5.2 Solution

5.2.1 Initial check items

- When a paper misfeed occurs, first perform the following initial check items.

Check item	Action
Does paper meet product specifications?	Replace paper.
Is the paper curled, wavy, or damp?	Replace paper. Instruct the user on the correct paper storage procedures.
Is a foreign object present along the paper path, or is the paper path deformed or worn?	Clean the paper path and replace if necessary.
Are rolls/rollers dirty, deformed, or worn?	Clean or replace the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the paper?	Set as necessary.
Are the actuators operating correctly?	Correct or replace the defective actuator.

5.2.2 Misfeed at paper take-up section

A. Detection timing

Type	Description
Detection of misfeed at paper take-up section	The separator sensor (PC6-ADF) is not blocked even after the set period of time has elapsed after the paper feed motor (M1-ADF) is energized.
	The registration sensor (PC9-ADF) is not blocked even after the set period of time has elapsed after the paper feed motor (M1-ADF) is energized.
Detection of paper left in paper take-up section	The separator sensor (PC6-ADF) is not blocked even after the set period of time has elapsed after the original detection sensor (PC8-ADF) is blocked by the paper.
	The registration sensor (PC9-ADF) is not blocked even after the set period of time has elapsed after the original detection sensor (PC8-ADF) is blocked by the paper.

B. Action

Relevant electrical parts	
Paper feed motor (M1-ADF) Separator sensor (PC6-ADF) Registration sensor (PC9-ADF) Original detection sensor (PC8-ADF)	Main control board (PBA-CONT)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items	-	-
2	PC6-ADF I/O check	PBA-CONT CN5CONT-11	DF-605 G-5
3	PC9-ADF I/O check	PBA-CONT CN6CONT-3	DF-605 G-3
4	PC8-ADF I/O check	PBA-CONT CN6CONT-6	DF-605 G-3
5	M1-ADF operation check	PBA-CONT CN7CONT-3 to 6	DF-605 C-6
6	Change PBA-CONT	-	-

5.2.3 Misfeed at transport section

A. Detection timing

Type	Description
Detection of misfeed at transport section	The original detection sensor (PC8-ADF) is not blocked even after the set period of time has elapsed after the registration sensor (PC9-ADF) is blocked by the paper.
Detection of paper left in transport section	The original detection sensor (PC8-ADF) is not unblocked even after the set period of time has elapsed after the registration sensor (PC9-ADF) is unblocked by the paper.

B. Action

Relevant electrical parts	
Paper feed motor (M1-ADF) Transport motor (M2-ADF) Registration sensor (PC9-ADF) Original detection sensor (PC8-ADF)	Main control board (PBA-CONT)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items	-	-
2	PC9-ADF I/O check	PBA-CONT CN6CONT-3	DF-605 G-3
3	PC8-ADF I/O check	PBA-CONT CN6CONT-6	DF-605 G-3
4	M1-ADF operation check	PBA-CONT CN7CONT-3 to 6	DF-605 C-6
5	M2-ADF operation check	PBA-CONT CN8CONT-3 to 6	DF-605 C-6
6	Change PBA-CONT	-	-

5.2.4 Misfeed at turnover section

A. Detection timing

Type	Description
Detection of misfeed at turnover section	The registration sensor (PC9-ADF) is not blocked even after the set period of time has elapsed after the transport motor (M2-ADF) is energized.

B. Action

Relevant electrical parts	
Transport motor (M2-ADF) Registration sensor (PC9-ADF)	Main control board (PBA-CONT)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items	-	-
2	PC9-ADF I/O check	PBA-CONT CN6CONT-3	DF-605 G-3
3	M2-ADF operation check	PBA-CONT CN8CONT-3 to 6	DF-605 C-6
4	Change PBA-CONT	-	-

5.2.5 Misfeed at paper exit section

A. Detection timing

Type	Description
Detection of misfeed at paper exit section	The exit/turnover sensor (PC10-ADF) is not blocked even after the set period of time has elapsed after the original detection sensor (PC8-ADF) is blocked by the paper.
Detection of paper left in paper exit section	The exit/turnover sensor (PC10-ADF) is not unblocked even after the set period of time has elapsed after the original detection sensor (PC8-ADF) is unblocked by the paper.

B. Action

Relevant electrical parts	
Transport motor (M2-ADF) Original detection sensor (PC8-ADF) Exit/turnover sensor (PC10-ADF)	Main control board (PBA-CONT)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items	-	-
2	PC8-ADF I/O check	PBA-CONT CN6CONT-6	DF-605 G-3
3	PC10-ADF I/O check	PBA-CONT CN6CONT-9	DF-605 G-4
4	M2-ADF operation check	PBA-CONT CN8CONT-3 to 6	DF-605 C-6
5	Change PBA-CONT	-	-

6. Malfunction code

6.1 Solution

6.1.1 C0044: ADF cooling fan motor failure

A. Detection timing

Trouble code	Description
C0044	• The Lock signal remains HIGH for a predetermined continuous period of time while ADF cooling fan motor is rotating.

B. Action

Relevant electrical parts	
Cooling fan motor (M3-ADF)	Main control board (PBA-CONT)

Step	Action	WIRING DIAGRAM	
		Control Signal	Location (Electrical component)
1	Check the M3-ADF connector for proper connection and correct as necessary.	-	-
2	M3-ADF operation check	PBA-CONT CN9CONT-2	DF-605 C-6
3	Change PBA-CONT	-	-

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KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

DF-502

2007.04
KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

Revision history

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a section revised, show △1 to the left of the revised section.
  A number within △1 represents the number of times the revision has been made.

- To indicate clearly a section revised, show ▲1 in the lower outside section of the corresponding page.
  A number within ▲1 represents the number of times the revision has been made.

NOTE
Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.
- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2007/04	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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General

1. Product specification

A. Type

Name	Automatic document feeder
Installation	Inserted in top portion of the copier
Modes	Standard = 1-sided original Mixed original = 1-sided original
Document loading	Left-hand side, face up

B. Paper

	Standard	Mixed original
Type	Plain paper (50 to 110 g/m^2)	Plain paper (60 to 90 g/m^2)
Sizes	A3, A4S, A4, A5S, B4, B5S, B5, 11 x 17, 11 x 14, Legal, LetterS, Letter, InvoiceS, and Invoice	A3 and A4, B4 and B5, 11 x 17 and Letter, Legal and LetterS, Legal and Invoice, LetterS and Invoice

C. Paper feed prohibited originals

Type of original	Possible problems
Sheets stapled or clipped together	Take-up failure, damaged sheet, defective drive mechanism due to jammed staples or clips
Sheets glued together	Take-up failure, damaged sheet
Sheets folded, torn, or wrinkled	Take-up failure, damaged sheet
Sheets severely curled	Sheet misfed due to its being dog-eared or fed in askew

D. Machine specifications

Document alignment	Center
Capacity	50 sheets max. (80 g/m^2)
Power requirements	DC24 V, DC5 V (supplied from the copier)
Power consumption	36 W or less
Dimensions	598 mm (W) x 483 mm (D) x 102 mm (H)
Mass	6.3 kg

E. Operating environment

- Conforms to the operating environment of the main unit.

NOTE

- **These specifications are subject to change without notice.**

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Maintenance

2. Periodical check

2.1 Maintenance procedure (Periodical check parts)

NOTE

- **The alcohol described in the cleaning procedure represents the isopropyl alcohol.**

2.1.1 Pick-up roller/feed roller

A. Periodically cleaning parts/cycle

- Pick-up roller: Every 30,000 prints
- Feed roller: Every 30,000 prints

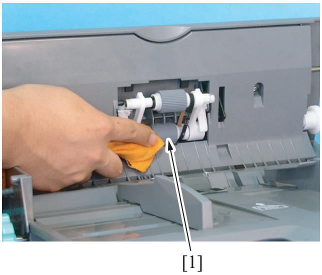
B. Periodically replaced parts/cycle

- Pick-up roller: Every 120,000 prints
- Feed roller: Every 120,000 prints

C. Cleaning procedure

1. Open the upper door.

2. Using a soft cloth dampened with alcohol, wipe the feed roller [1] clean of dirt.



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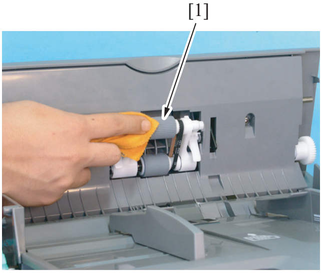
3. Using a soft cloth dampened with alcohol, wipe the pick-up roller [1] clean of dirt.



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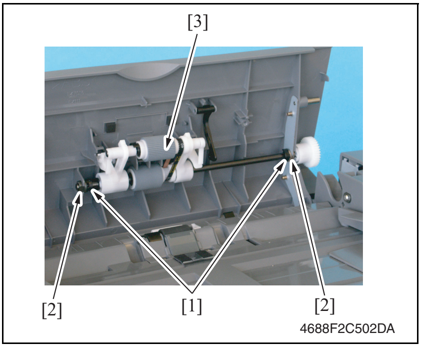
D. Replacing procedure

1. Open the upper door.
2. Open the document feed section cover.
   See P.14


[3]
[2]
[1]
[2]
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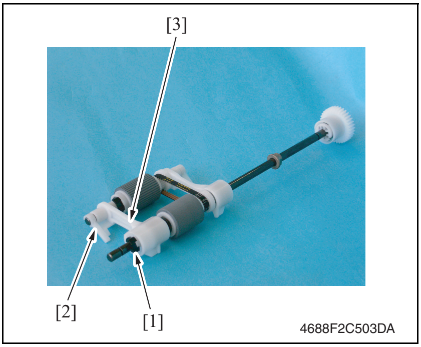
3. Snap off two C-clips [1].
4. Remove two bearings [2] and the pick-up roller/feed roller assy [3].


[3]
[2]
[1]
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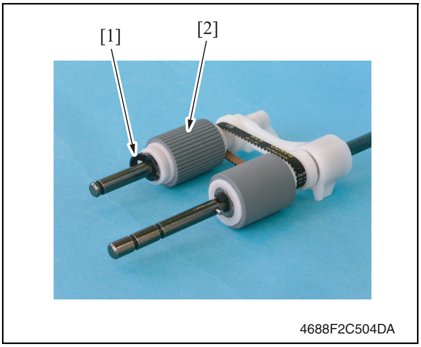
5. Snap off the C-clip [1] and remove the lever [2] and the holder [3].


[1]
[2]
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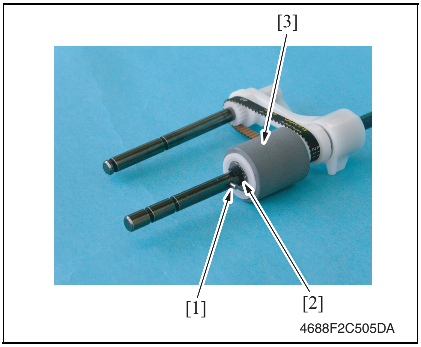
6. Snap off the C-clip [1] and remove the pick-up roller [2].



7. Remove the pin [1], snap off one C-clip [2], and remove the feed roller [3].

8. To reinstall, reverse the order of removal.

2.1.2 Separation roller

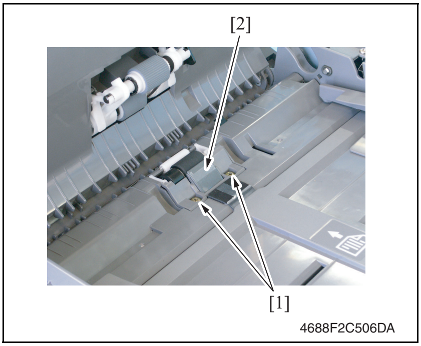
A. Periodically cleaning parts/cycle

- Separation roller: Every 30,000 prints

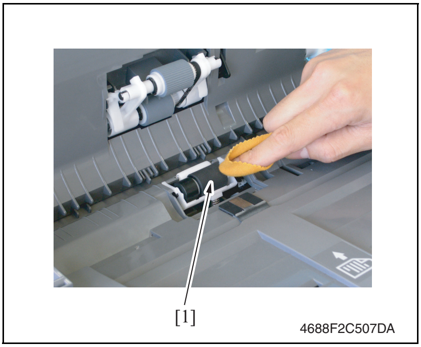
B. Periodically replaced parts/cycle

- Separation roller: Every 120,000 prints

C. Cleaning procedure



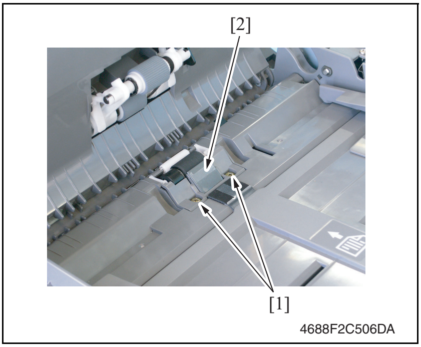
1. Remove two screws [1] and the separator section protective cover [2].



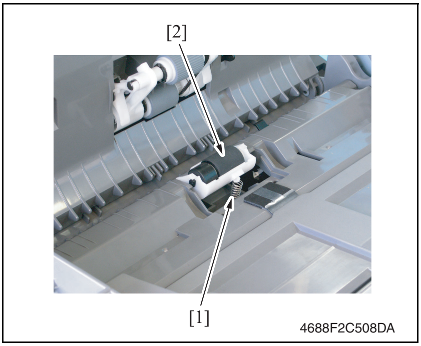
2. Using a soft cloth dampened with alcohol, wipe the separation roller [1] clean of dirt.

D. Replacing procedure

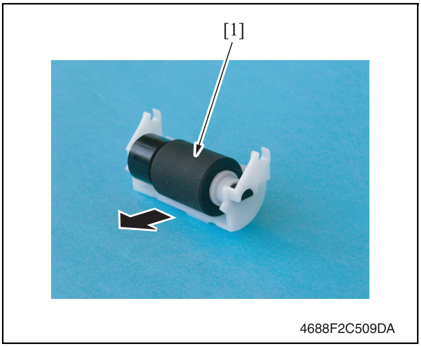
1. Open the upper door.


[2]
[1]
4688F2C506DA

2. Remove two screws [1] and the separator section protective cover [2].


[2]
[1]
4688F2C508DA

3. Unhook the spring [1] and remove the separation roller assy [2].


[1]
4688F2C509DA

4. Remove the separation roller [1].

5. To reinstall, reverse the order of removal.

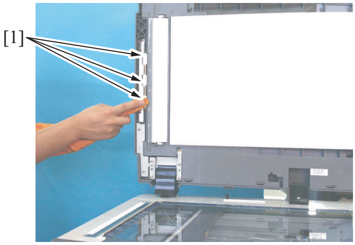
2.1.3 Cleaning of the registration rollers/rolls

A. Periodically cleaning parts/cycle

- Registration rollers: Every 30,000 prints
- Registration rolls: Every 30,000 prints

B. Cleaning procedure

1. Raise the automatic document feeder.



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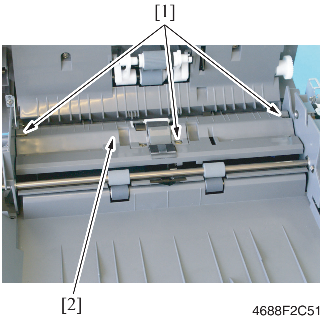
2. Using a soft cloth dampened with alcohol, wipe the registration rolls [1] clean of dirt.
3. Remove the rear cover.
   See P.14
4. Remove the document feeding tray.
   See P.14



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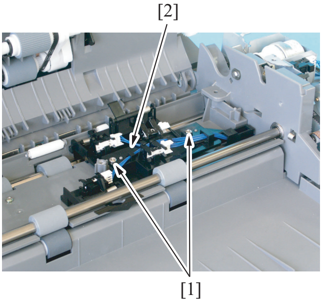
5. Remove three screws [1] and the registration roller cover [2].



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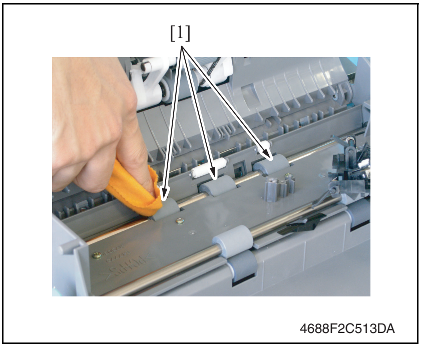
6. Remove two screws [1] and the sensor assy [2].



7. Using a soft cloth dampened with alcohol, wipe the registration roller [1] clean of dirt.

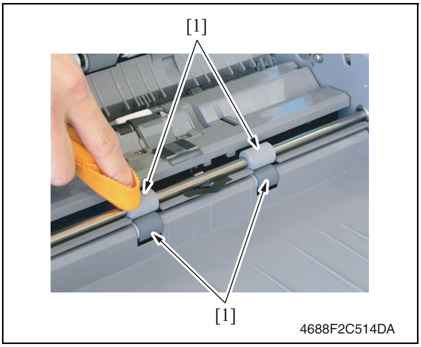
2.1.4 Cleaning of the exit rollers/rolls

A. Periodically cleaning parts/cycle

- Exit rollers: Every 30,000 prints
- Exit rolls: Every 30,000 prints

B. Cleaning procedure

1. Remove the rear cover.
   See P.14
2. Remove the document feeding tray.
   See P.14



3. Using a soft cloth dampened with alcohol, wipe the exit rollers/rolls [1] clean of dirt.

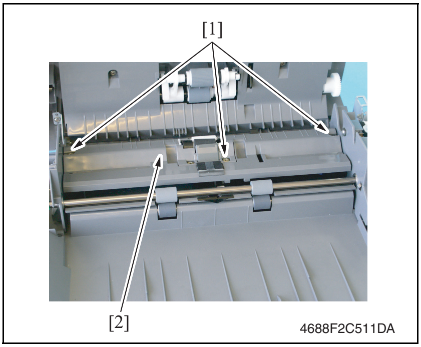
2.1.5 Cleaning of the transport rolls

A. Periodically cleaning parts/cycle

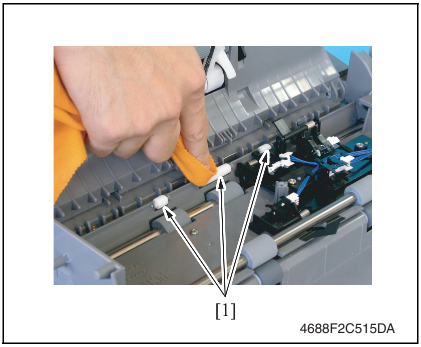
- Transport rolls: Every 30,000 prints

B. Cleaning procedure

1. Remove the rear cover.
   See P.14
2. Remove the document feeding tray.
   See P.14



3. Remove three screws [1] and remove the registration roller cover [2].



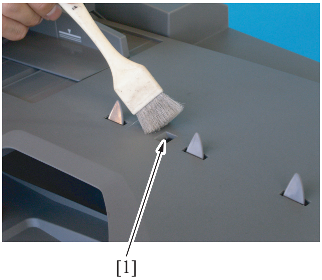
4. Using a soft cloth dampened with alcohol, wipe the transport rolls [1] clean of dirt.

2.1.6 Cleaning of length size sensor 2

A. Periodically cleaning parts/cycle

- Length size sensor 2: Every 30,000 prints

B. Cleaning procedure



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1. Using a brush, whisk dust and dirt off the surface of the sensor window [1].

3. Other

3.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to "SAFETY AND IMPORTANT WARNING ITEMS" and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

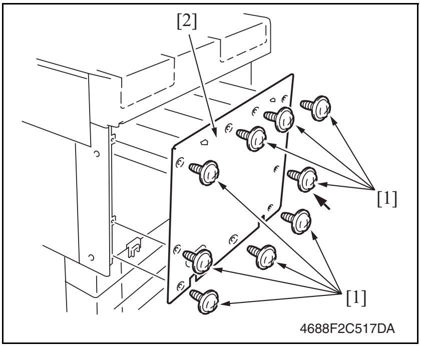
3.2 Disassembly/Assembly/Cleaning list (Other parts)

3.2.1 Disassembly/Assembly parts list

No.	Section	Part name	Ref. page
1	Uniut	ADF	P.12
2	Exterior parts	Document feed section cover	P.14
3		Rear cover	P.14
4		Document feeding tray	P.14
5		Document feeding tray cover	P.15
6	Board and etc.	DF control board	P.16

3.3 Disassembly/Assembly procedure

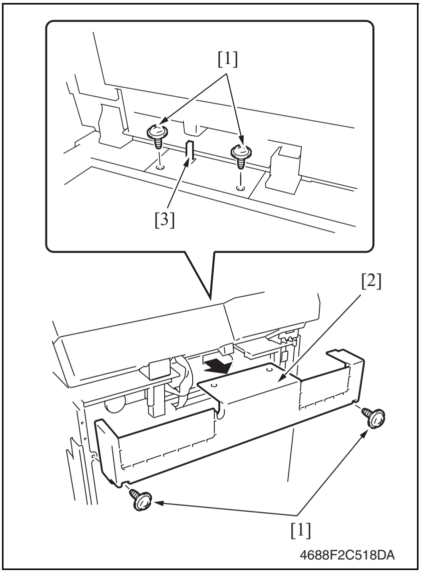
3.3.1 ADF



1. Remove nine screws [1] and then remove the rear cover [2] of the main body.

NOTE

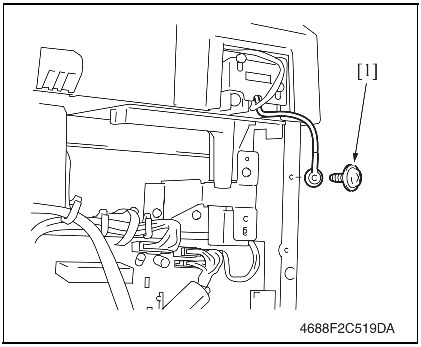
- **Make sure that the screws illustrated right with arrows have washers when installing.**



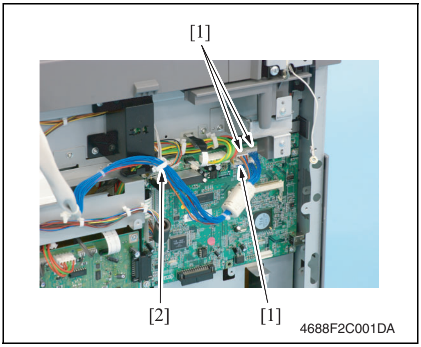
2. Remove four screws [1] and remove the uper rear cover [2].

NOTE

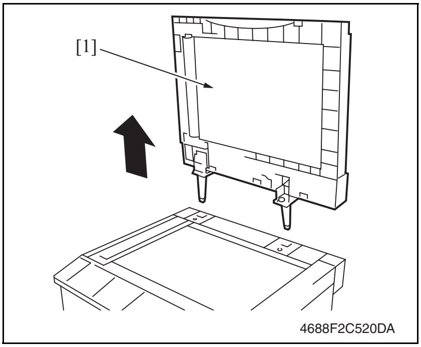
- **Make sure to hold the angle detecting lever [3] with fingers at the time of removing or installing.**


[1]
4688F2C519DA

3. Remove the screw [1] to remove the grounding wire.


[1]
[2]
[1]
4688F2C001DA

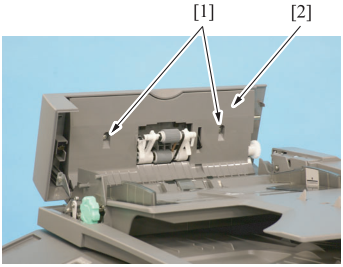
4. Disconnect three connectors [1] and remove the harness out of the wire saddle [2].


[1]
4688F2C520DA

5. Remove the ADF [1].

3.3.2 Document feed section cover

1. Open the upper door.

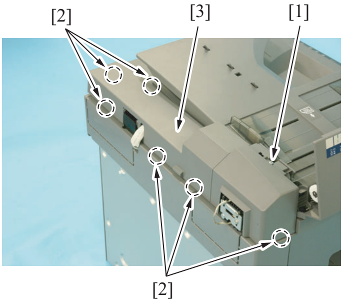


4688F2C002DA

2. Remove two screws [1] and remove the document feed section cover [2].

3.3.3 Rear cover

1. Open the upper door.



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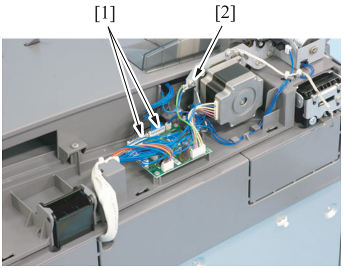
2. Remove the screw [1] and six tabs [2], and remove the rear cover [3].

3.3.4 Document feeding tray

1. Open the upper door.
2. Remove the rear cover.
   See P.14



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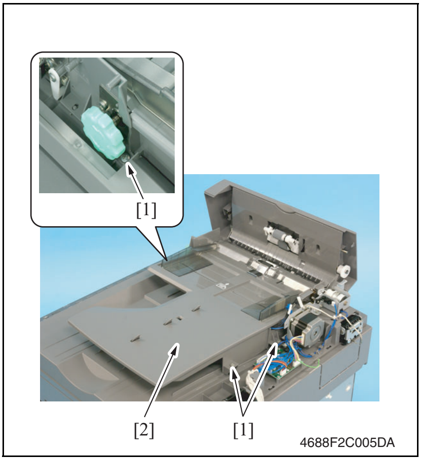
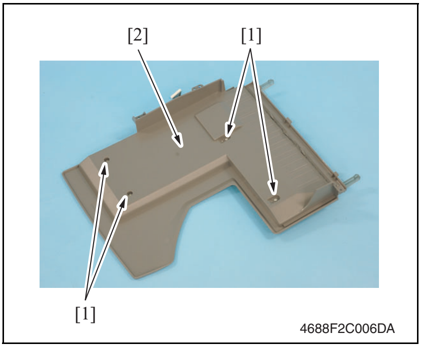
3. Remove the two connectors [1] on the DF control board and the screw [2] of the grounding wire.


[1]
[2]
[1]
4688F2C005DA

4. Remove three screws [1] and remove the document feeding tray [2].

3.3.5 Document feeding tray cover

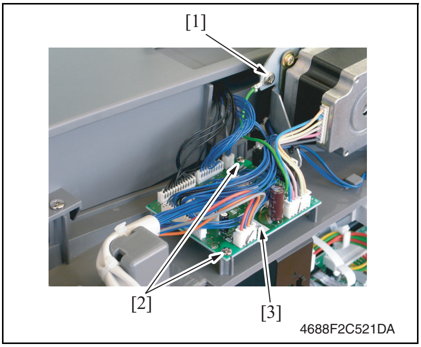
1. Remove the document feeding tray.
   See P.14


[2]
[1]
[1]
4688F2C006DA

2. Remove four screws [1] and remove the document feeding tray cover [2].

3.3.6 DF control board

1. Open the upper door.
2. Remove the rear cover.
   See P.14



3. Disconnect all connectors from the interface board.
4. Remove the screw [1] and remove the grounding wire.
5. Remove two screws [2] and remove the DF control board [3].

Adjustment/Setting

4. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting” the default settings are indicated by “ ”.

A. Advance Checks

- Before attempting to solve the customer problem, the following advance checks must be made.Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The Original Glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for Service Jobs

1. Be sure to unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the Exposure Unit.
3. Special care should be used when handling the Fusing Unit which can be extremely hot.
4. The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC Drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

5. Service Mode

5.1 Service mode setting procedure

NOTE

- **Care must be used to ensure that only the personnel who are involved in service jobs know the procedure to enter the service mode.**

5.1.1 Procedure

1. Press the Utility key.
2. Press the following keys in this order.
3. Stop → 0 → 0 → Stop → 0 → 1
4. The Service mode menu screen will appear.

5.1.2 Exiting

- Press the Reset key.

5.1.3 Changing the setting value in service mode functions

1. Select the desired item using ▲ / ▼ key.
2. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

5.2 Service Mode function tree

NOTE

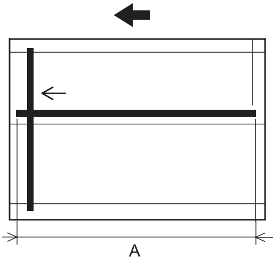
- **This setting menu contains only the cases in which the DF-502 is mounted.**

Service Mode		Ref. page
ADJUST	ADF SUB ZOOM	P.19
	ADF MAIN REGIST	P.20
	ADF SUB REGIST 1	P.21
	ADF REG. LOOP 1	P.21
FUNCTION	ADF FEED TEST	P.22
	COPY ADF GLASS	P.22

5.3 Setting in the service mode

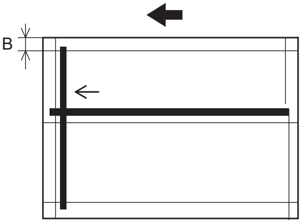
5.3.1 ADJUST

A. ADF SUB ZOOM

<table>
<tr><td>Functions</td><td>TEST COPY</td><td>ADJUST</td></tr>
<tr><td>Use</td><td colspan="2">• To adjust variations in machining and installation accuracy of different parts by varying the scanning zoom ratio in the sub scanning direction when the automatic document feeder is used.</td></tr>
<tr><td>Setting/ procedure</td><td>• Press the OK key to start a test copy cycle.</td><td>• The default setting is 100.
• Setting range: 87 to 113 (1 step: 0.4%)</td></tr>
<tr><td rowspan="2">Adjustment procedure</td><td>

4344F3C527DA</td><td>• Ready the test chart that comes with the automatic document feeder.
• Adjust so that deviation between length A on the test chart and that on the copy falls within the specified range.
Specifications: 400 ± 6.0 mm</td></tr>
<tr><td colspan="2">1. Make a full-size copy of the test chart.
2. Measure the length of reference line A on the copy to determine if the deviation falls within the specified range. If it falls outside the specified range, perform the following steps to make an adjustment.
3. Enter [ADJUST] of the Service mode.
4. Select [ADF SUB ZOOM] and press the OK key.
5. Using ▲ / ▼ key, select the appropriate setting value.
6. Press the OK key to validate the setting value selected in step 5.
7. Make another full-size copy of the test chart to determine the amount of error in length A on the copy.
Adjustment Instructions
If length A on the copy is longer than the specifications, decrease the setting value.
If length A on the copy is shorter than the specifications, increase the setting value.
If a single adjustment procedure does not successfully bring the deviation into the specified range, repeat steps 3 through 7.</td></tr>
</table>

B. ADF MAIN REGIST

Functions	TEST COPY	ADJUST
Use	• To adjust variations in machining and installation accuracy of different parts by varying the scanning start position in the main scanning direction when the automatic document feeder is used.	
Setting/ procedure	• Press the OK key to start a test copy cycle.	• Setting range: 20 to 180 (1 step: 0.1 mm)
Adjustment procedure	 4344F3C528DA	• Ready the test chart that comes with the optional automatic document feeder. • Adjust so that the amount of error of width B on the copy falls within the specified range. Specifications: 20 ± 2.0 mm
	1. Make a full-size copy of the test chart. 2. Using a scale, measure the distance between reference line B on the copy and the top edge of the copy (width B) and determine if the amount of error in width B falls within the specified range. If it falls outside the specified range, perform the following steps to make an adjustment. 3. Enter [ADJUST] of the Service mode. 4. Select [ADF MAIN REGIST] and press the OK key. 5. Using ▲ / ▼ key, select the appropriate setting value. 6. Press the OK key to validate the setting value selected in step 5. 7. Make another full-size copy of the test chart to check for the amount of error in width B on the copy. Adjustment Instructions If width B on the copy is longer than the specifications, decrease the setting value. If width B on the copy is shorter than the specifications, increase the setting value. If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 7.	

C. ADF SUB RESIST1

<table>
<tr><td>Functions</td><td>TEST COPY</td><td>ADJUST</td></tr>
<tr><td>Use</td><td colspan="2">

- To adjust variations in machining and installation accuracy of different parts by varying the scanning start position in the sub scanning direction when the automatic document feeder is used. (1-sided)

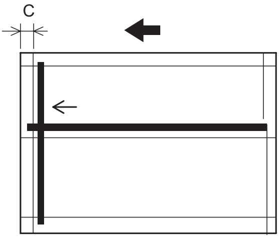
NOTE

- **This adjustment should be made after the [ADF SUB ZOOM] adjustment.**

</td></tr>
<tr><td>Setting/ procedure</td><td>

- Press the OK key to start a test copy cycle.

</td><td>Setting range: 50 to 150 (1 step: 0.1 mm)</td></tr>
<tr><td>Adjustment procedure</td><td colspan="2">



4344F3C529DA

- Ready the test chart that comes with the optional automatic document feeder.
- Adjust so that the amount of error of length C on the copy falls within the specified range.
- Specifications: 20 ± 2.5 mm

1. Make a full-size copy of the test chart.
2. Using a scale, measure the distance between reference line C on the copy and the leading edge of the copy (length C) and determine if the amount of error in length C falls within the specified range. If it falls outside the specified range, perform the following steps to make an adjustment.
3. Enter [ADJUST] of the Service mode.
4. Select [ADF SUB REGIST1] and press the OK key.
5. Using ▲ / ▼ key, select the appropriate setting value.
6. Press the OK key to validate the setting value selected in step 5.
7. Make another full-size copy of the test chart to check for the amount of error in length C on the copy.
   Adjustment Instructions
   If length C on the copy is longer than the specifications, increase the setting value.
   If length C on the copy is shorter than the specifications, decrease the setting value.
   If a single adjustment procedure does not successfully bring the amount of error into the specified range, repeat steps 3 through 7.

</td></tr>
</table>

D. ADF REG. LOOP1

Functions	• To adjust the length of loop formed in the original before the registration roller. (1-sided)
Use	• When a skew feed, fold, or misfeed of the original occurs
Setting/ procedure	• The default setting is 100. • Setting range: 95 to 105 (1 step: 1.0 mm)
Adjustment procedure	1. Enter [ADJUST] of the Service mode. 2. Select [ADF REG. LOOP1] and press the OK key. 3. Using ▲ / ▼ key, select the desired setting value. 4. Press the OK key to validate the setting value selected in step 3. Adjustment Instructions • Try a different setting value until there is no skew, fold, or misfeed of the original.

5.3.2 FUNCTION

A. ADF FEED TEST

Functions	• To check for correct paper passage of the paper take-up and transport system in the automatic (duplexing) document feeder alone as a single unit.
	• Here are the details of operation involved in the paper passage motion.
	  • The Scanner does not make any scan motion.
	  • Paper passage operation continues until all pages of the document loaded in the unit have been fed in.

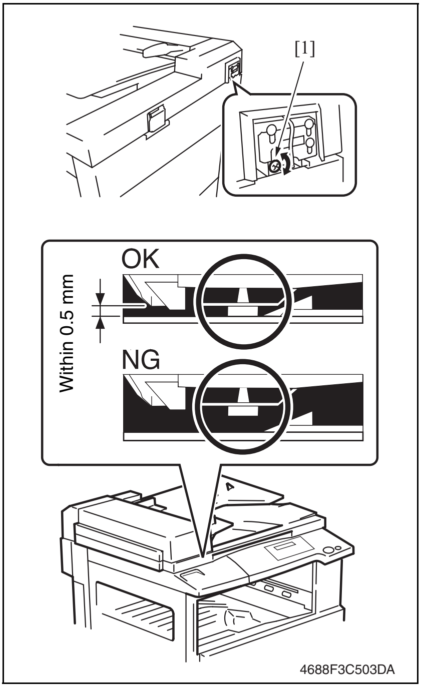
Use	• When a paper misfeed of originals occurs
Setting/ procedure	*1.* Enter [FUNCTION] of the Service mode. *2.* Select [ADF FEED TEST] and press the OK key. *3.* Select [1-SIDED] and press the OK key to start the ADF feed test. • Press the Stop key to stop the ADF feed test.

B. COPY ADF GLASS

Functions	• To check for scratches and dirt on the original scanning glass.
Use	• When a dirty image occurs
Setting/ procedure	*1.* Enter [FUNCTION] of the Service mode. *2.* Select [COPY ADF GLASS]. *3.* Press the Start key to start the COPY ADF GLASS AREA test. *4.* The copier produces two copy samples (in order to know dirt on the glass from printer image noise).

6. Mechanical adjustment

6.1 ADF Height Adjustment

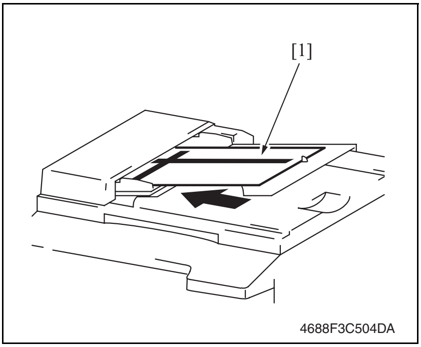


1. Turn the screw [1] so that the spacer contacts the glass at the scale position of the copier.
   Turn the screw clockwise to raise the ADF.
   Turn the screw counterclockwise to lower the ADF.

6.2 ADF Leading Edge Skew Adjustment

NOTE

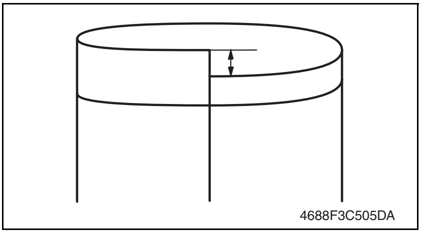
- **This adjustment is to be made when a tilted image occurs.**



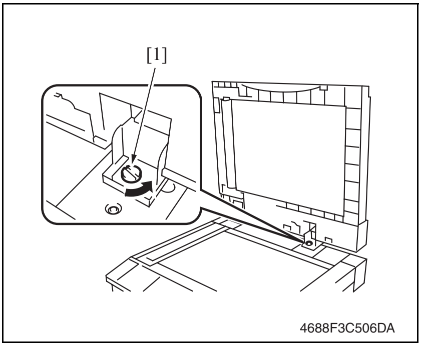
1. Load the test chart [1] in the ADF and make five 1-sided copies.

NOTE

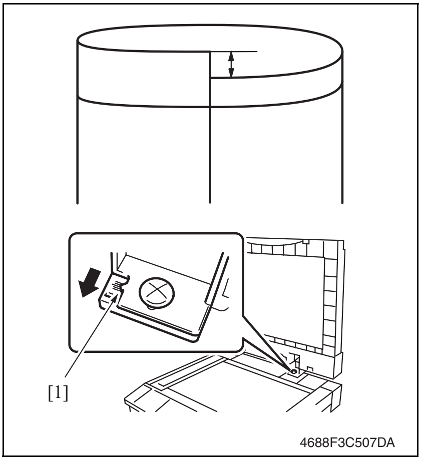
- **Load the test chart lengthwise.**



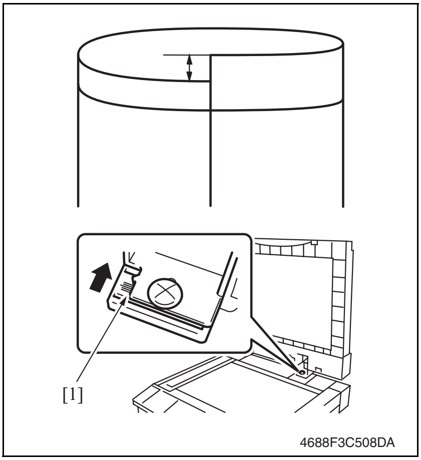
2. Align each copy sample as shown on the left and check the deviation.
   If the deviation falls outside the range specified below, perform the following steps to make an adjustment.
   Specifications: 0 ± 3.0 mm



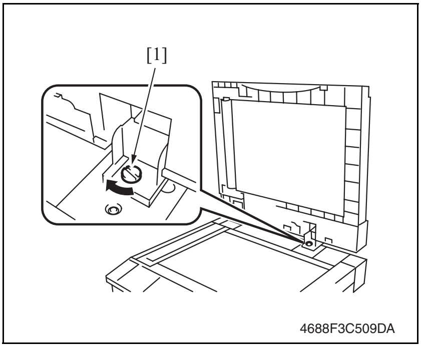
3. Loosen the screw [1].


[1]
4688F3C507DA

4. If the deviation is as shown on the left, move the graduations [1] of the ADF to the front.


[1]
4688F3C508DA

5. If the deviation is as shown on the left, move the graduations [1] of the ADF to the rear.


[1]
4688F3C509DA

6. Tighten the screw [1].

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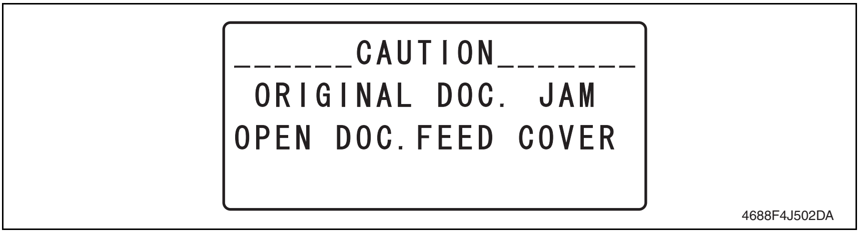
Troubleshooting

7. Jam Display

7.1 Misfeed display

- When a paper misfeed occurs, the error indicator lights up steadily and the display gives a corresponding message.



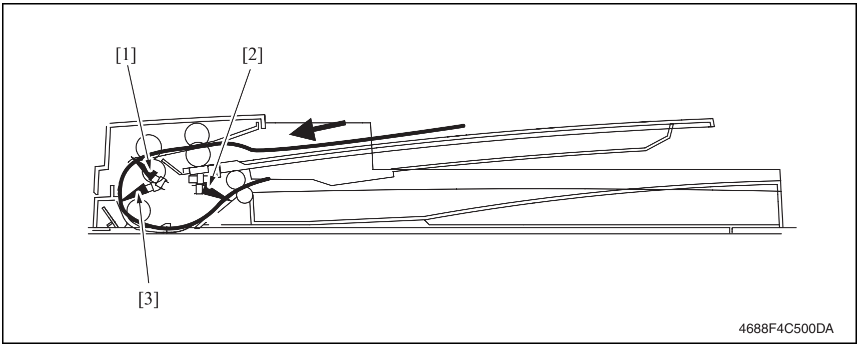
```
______CAUTION_______
 ORIGINAL DOC.  JAM
OPEN DOC.FEED COVER
```

Display message	Misfeed/paper location	Ref. page
ORIGINAL DOC. JAM OPEN DOC. FEED COVER	Document feed section	P.28
	Document transport section	P.29
	Document exit section	P.30

7.1.1 Display resetting procedure

- Open the corresponding cover, clear the sheet of paper misfed, and close the cover.

7.2 Sensor layout



[1]	Separator sensor (PS4)	[3]	Registration sensor (PS3)
[2]	Paper exit sensor (PS5)		

7.3 Solution

7.3.1 Initial Check Items

- When a paper misfeed occurs, first perform the following initial checks.

Check Item	Action
Does the paper meet product specifications?	Change the paper.
Is paper curled, wavy, or damp.	Change the paper. Instruct the user in correct paper storage.
Is a foreign object present along the paper path, or is the paper path deformed or worn?	Clean or change the paper path.
Are the rolls/rollers dirty, deformed, or worn?	Clean or change the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the paper?	Set as necessary.
Are the actuators found operational when checked for correct operation?	Correct or change the defective actuator.

7.3.2 Misfeed at the document feed section

A. Detection timing

Type	Description
Document feed section misfeed detection	• The Separator sensor (PS4) is not blocked even after the lapse of a given period of time after the main motor (M1) has been energized.
Document left in the document feed section	• The separator sensor (PS4) is blocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

Relevant electrical components	
Main motor (M1) Separator sensor (PS4)	DF control board (DFDB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	—	—
2	M1 operation check	DFDB CN8DFDB-3 to 6	B-3
3	PS4 sensor check	DFDB CN2DFDB-9 (ON)	F-2
4	Replace DFDB	—	—

7.3.3 Misfeed at the document transport section

A. Detection timing

Type	Description
Document transport section misfeed detection	• The registration sensor (PS3) is not blocked even after the lapse of a given period of time after the main motor (M1) has been energized.
Document left in the document transport section	• The registration sensor (PS3) is blocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

Relevant electrical components	
Main motor (M1) Registration sensor (PS3)	DF control board (DFDB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	—	—
2	M1 operation check	DFDB CN8DFDB-3 to 6	B-3
3	PS3 sensor check	DFDB CN2DFDB-6 (ON)	F-2
4	Replace DFDB	—	—

7.3.4 Misfeed at the document exit section

A. Detection timing

Type	Description
Document exit section misfeed detection	• The paper exit sensor (PS5) is not blocked even after the lapse of a given period of time after the main motor (M1) has been energized.
Document left in the document exit section	• The paper exit sensor (PS5) is blocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

Relevant electrical components	
Main motor (M1) Paper exit sensor (PS5)	DF control board (DFDB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	—	—
2	M1 operation check	DFDB CN8DFDB-3 to 6	B-3
3	PS5 sensor check	DFDB CN2DFDB-12 (ON)	F-2 to 3
4	Replace DFDB	—	—

KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

AD-504

2007.04
KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

Revision history

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a section revised, show △1 to the left of the revised section.
  A number within △1 represents the number of times the revision has been made.

- To indicate clearly a section revised, show ▲1 in the lower outside section of the corresponding page.
  A number within ▲1 represents the number of times the revision has been made.

NOTE

Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.

- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2007/04	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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General

1. Product specifications

A. Type

Name	Automatic duplex unit
Type	Sheet duplex paper take-up section
Installation	Installed to the right side door
Power requirements	DC24 V (supplied from the copier) DC5 V

B. Paper

Size	A3, A4S/A4, A5S/A5, B4, B5S/B5, FLS, Ledger, Legal, Letter, InvoiceS/Invoice
Type	Plain paper (60 to 90 g/m^2), recycled paper (60 to 90 g/m^2)
Document alignment	Center

C. Machine specifications

Max. power consumption	9 W or less
Dimensions	412 mm (W) x 215 mm (D) x 88 mm (H) 16.25 inch (W) x 8.5 inch (D) x 3.5 inch (H)
Mass	2.5 kg (Duplex unit + Manual bypass assy
Operating environment	Conforms to that of the copier

D. Operating environment

- Conforms to the operating environment of the main body.

NOTE

- **These specifications are subject to change without notice.**

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Maintenance

2. Periodical check

2.1 Maintenance procedure (Periodical check parts)

- Periodically replaced parts are not employed.

3. Other

3.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to "SAFETY AND IMPORTANT WARNING ITEMS" and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

3.2 Disassembly/Assembly/Cleaning list (Other parts)

3.2.1 Disassembly/Assembly parts list

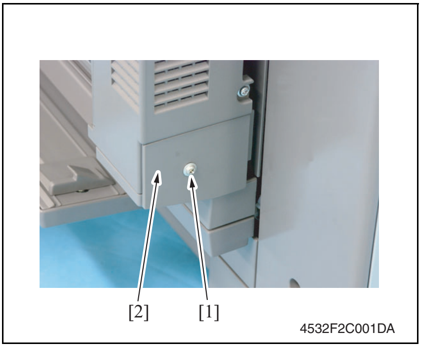
No.	Section	Part name	Ref. page
1	Exterior parts	Lower right cover	P.6
2		Right cover	P.6
3	Board and etc.	AD drive board	P.7
4	Others	Transport motor	P.7

3.2.2 Cleaning parts list

No	Section	Part name	Ref. page
1	Duplex unit	Duplex unit transport rollers/rolls	P.8
2		Switch back unit transport roller/roll	P.8
3		Duplex unit ventilation section	P.9
4	Bypass transport	Bypass transport roller/rolls	P.9

3.3 Disassembly/Assembly procedure

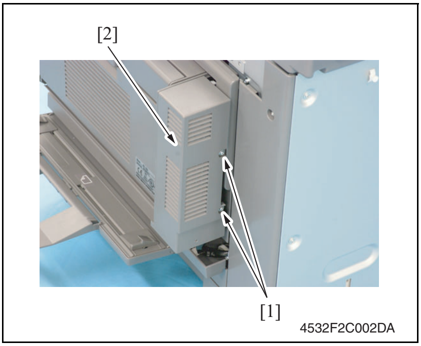
3.3.1 Lower right cover


[2]
[1]
4532F2C001DA

1. Remove the screw [1] and the lower right cover [2].

3.3.2 Right cover

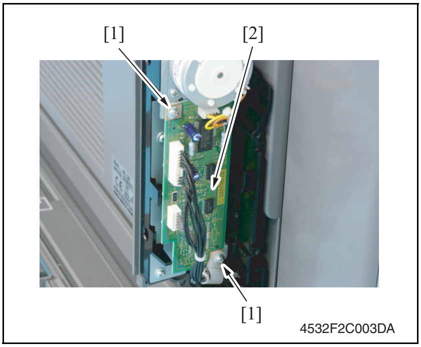
1. Remove the lower right cover.
   See P.6


[2]
[1]
4532F2C002DA

2. Remove two screws [1] and the right cover [2].

3.3.3 AD drive board

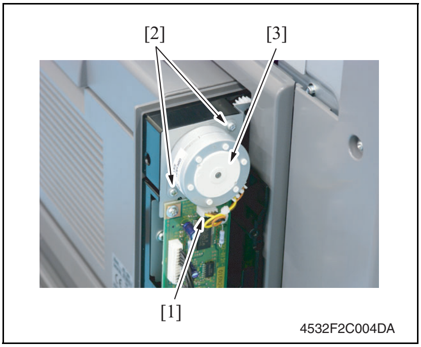
1. Remove the lower right cover.
   See P.6
2. Remove the right cover.
   See P.6



3. Remove two screws [1], disconnect all connectors, and remove the AD drive board [2].

3.3.4 Transport motor

1. Remove the lower right cover.
   See P.6
2. Remove the right cover.
   See P.6



3. Disconnect the connector [1], remove two screws [2] and remove the transport motor [3].

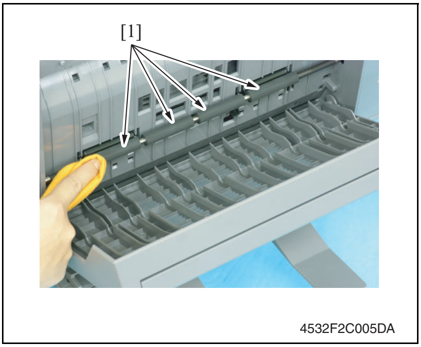
3.4 Cleaning procedure

NOTE

- **The alcohol described in the cleaning procedure represents the isopropyl alcohol.**

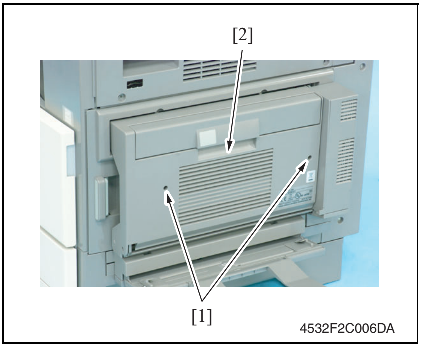
3.4.1 Duplex unit transport rollers/rolls

1. Open the front door of the duplex unit.

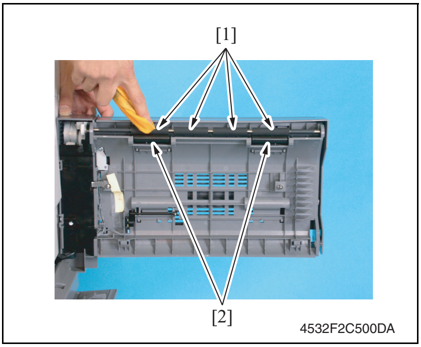


2. Using a soft cloth dampened with alcohol, wipe the duplex unit transport rollers/rolls [1] clean of dirt.

3.4.2 Switch back unit transport rollers/roll

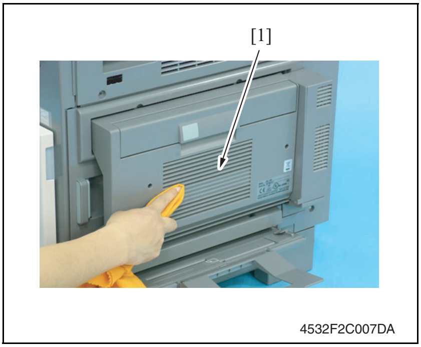


1. Remove two screws [1] and the duplex unit [2].

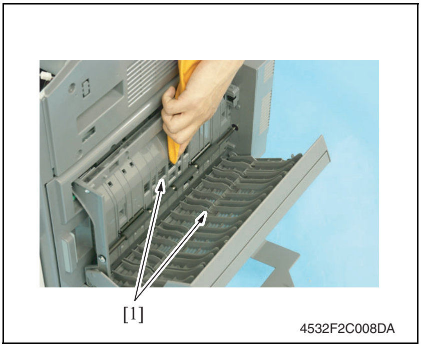


2. Using a soft cloth dampened with alcohol, wipe the switch back unit transport rollers [1]/rolls [2] clean of dirt.

3.4.3 Duplex unit ventilation section



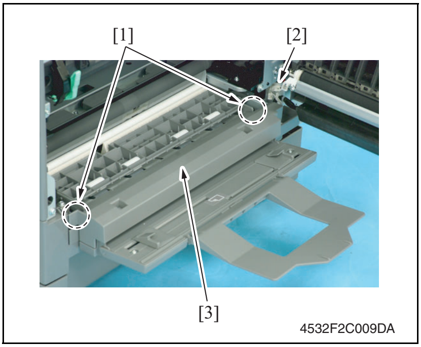
1. Using a soft cloth dampened with alcohol, wipe the outside of the duplex unit ventilation section [1] clean of dirt.
2. Open the front door of the duplex unit.



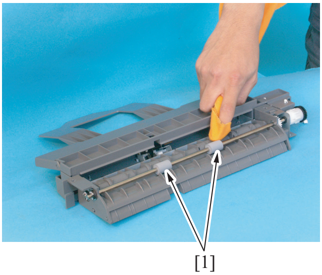
3. Using a soft cloth dampened with alcohol, wipe the inside of the duplex unit ventilation section [1] clean of dirt.

3.4.4 Bypass transport roller/rolls

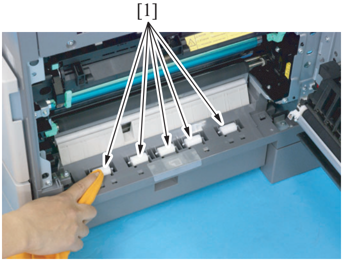
1. Remove the rear right cover.
   See P.48 of the main body service manual.
2. Open the right door.



3. Remove two screws [1], disconnect the connector [2], and remove the bypass assy [3].


[1]
4532F2C501DA

4. Using a soft cloth dampened with alcohol, wipe the bypass transport rollers [1] clean of dirt.


[1]
4687F2C003DA

5. Using a soft cloth dampened with alcohol, wipe the bypass transport rolls [1] clean of dirt.

Adjustment/Setting

4. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting” the default settings are indicated by “ ”.

A. Advance Checks

- Before attempting to solve the customer problem, the following advance checks must be made.Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The Original Glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for Service Jobs

1. Be sure to unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the Exposure Unit.
3. Special care should be used when handling the Fusing Unit which can be extremely hot.
4. The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC Drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

5. Service Mode

5.1 Service mode function setting procedure

NOTE

- **Care must be used to ensure that only the personnel who are involved in service jobs know the procedure to enter the service mode.**

5.1.1 Procedure

1. Press the Utility key.
2. Press the following keys in this order.
3. Stop → 0 → 0 → Stop → 0 → 1
4. The service mode menu screen will appear.

5.1.2 Exiting

- Press the Reset key.

5.1.3 Changing the setting value in service mode functions

1. Select the desired item using [▲ / ▼] key.
2. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

5.2 Service Mode function tree

NOTE

- **This setting menu contains only the cases in which the AD-504 is mounted.**

Service Mode		Ref. page
SERVICE’S CHOICE	LOOP Ad. (DUPLEX)	P.12

5.3 Setting in the service mode

5.3.1 SERVICE’S CHOICE

A. LOOP ADJUST (DUPLEX)

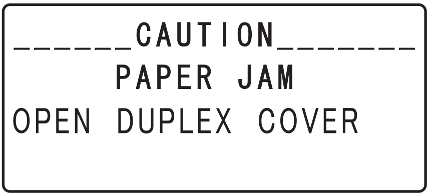
Functions	To adjust the length of the loop formed in the paper before the registration roller.
Use	• When a skew feed, fold, or misfeed of paper occurs • When variations in the amount of void on the leading edge occurs
Adjustment range	Setting range: -3.9 to 3.9 mm (1 step: 0.6 mm)
Setting procedure	1. Call [SERVICE’S CHOICE] of Service mode to the screen. 2. Select [LOOP ADJUST (DUPLEX)] and press the OK key. 3. Using ▲ / ▼ key, select the desired setting value. 4. Press the OK key to validate the setting value selected in step 3. Adjustment Instructions • Try a different setting value until there are no variations in the amount of void on the leading edge, and paper skew, fold, or misfeed.

Troubleshooting

6. Jam display

6.1 Misfeed display

- When a paper misfeed occurs, the error indicator lights up steadily and the display gives a corresponding message.



```
______CAUTION_______
     PAPER JAM
OPEN DUPLEX COVER
```

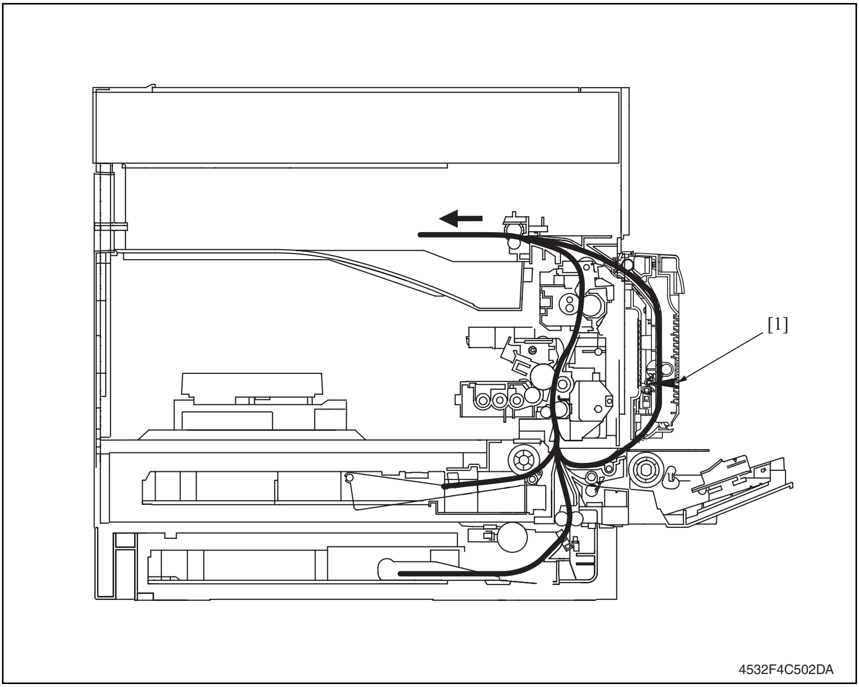
4532F4E501DA

Display message	Misfeed processing location	Ref. page
PAPER JAM OPEN DUPLEX COVER	Duplex reversal housing block	P.15

6.1.1 Misfeed display resetting procedure

- Open the corresponding door, clear the sheet of paper misfed, and close the door.

6.2 Sensor layout


[1]
4532F4C502DA

[1]	Transport sensor	PS2

6.3 Solution

6.3.1 Initial check items

- When a paper misfeed occurs, first check the following initial check items.

Check Item	Action
Does the paper meet product specifications?	Change the paper.
Is paper curled, wavy, or damp.	Change the paper. Instruct the user in correct paper storage.
Is a foreign object present along the paper path, or is the paper path deformed or worn?	Clean or change the paper path.
Are the rolls/rollers dirty, deformed, or worn?	Clean or change the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the paper?	Set as necessary.
Are the actuators found operational when checked for correct operation?	Correct or change the defective actuator.

6.3.2 Duplex reversal housing block

A. Detection timing

Type	Description
Duplex reversal housing block	• If the duplex unit transport sensor does not turn on even when a specified time elapses after the exit paper sensor turns off.

B. Action

Relevant electrical parts	
Transport motor (M1) Transport sensor (PS2)	AD drive board (ADDB)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items	—	—
2	M1 operation check	ADDB PJ2ADDB-1 to 4	D-4
3	PS2 sensor check	ADDB PJ4ADDB-5 (ON)	D-5
4	Change ADDB	—	—

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SERVICE MANUAL

FIELD SERVICE

PF-502

2007.04
KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

Revision history

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a section revised, show △1 to the left of the revised section.
  A number within △1 represents the number of times the revision has been made.

- To indicate clearly a section revised, show ▲1 in the lower outside section of the corresponding page.
  A number within ▲1 represents the number of times the revision has been made.

NOTE

Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.

- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2007/04	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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General

1. Product specification

A. Type

Name	Add-on paper feed unit
Installation	Installed on the underside of the copier

B. Paper

Type	Plain paper (60 to 90 g/m^2)	250 sheets
	Recycled paper (60 to 90 g/m^2)	
Sizes	Metric areas: A3, A4S, A4, A5, B4, B5S, and B5 Inch areas: Ledger (11 x 17), 11 x 14, Legal (8-1/2 x 14), LetterS (8-1/2 x 11S), and Invoice (5-1/2 x 8-1/2)	

C. Machine specifications

Paper alignment	Center
Capacity	250 sheets
Power requirements	DC24 V, DC5 V (supplied from the copier)
Power consumption	9 W or less
Dimensions	590 mm (W) x 558 mm (D) x 108 mm (H) 23.25 inch (W) x 22 inch (D) x 4.25 inch (H)
Weight	5.5 kg (12.25 lb)

D. Operating environment

- Conforms to the operating environment of the main body.

NOTE

- **These specifications are subject to change without notice.**

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Maintenance

2. Periodical check

2.1 Maintenance procedure (Periodical check parts)

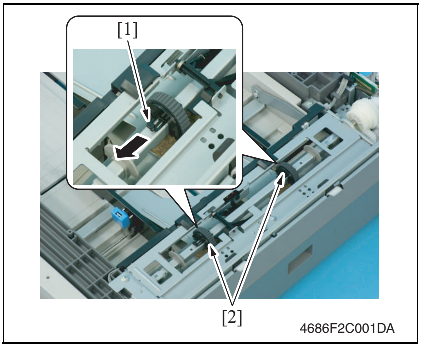
2.1.1 Replacing the feed roller

A. Periodically replaced parts/cycle

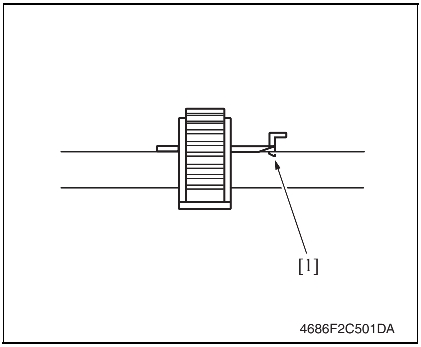
- Feed roller: Every 150,000 prints

B. Replacing procedure

1. Remove the paper feed unit.
   See P.5



2. Remove the feed roller lock [1]. Then, slide and take off two feed rollers [2].



NOTE

- **Make sure that the feed roller lock [1] is in position.**

3. To reinstall, reverse the order of removal.

3. Other

3.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to "SAFETY AND IMPORTANT WARNING ITEMS" and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

3.2 Disassembly/Assembly/Cleaning list (Other parts)

3.2.1 Disassembly/Assembly parts list

No.	Section	Part name	Ref. page
1	Unit	Paper feed unit	P.5
2	Exterior parts	Tray	P.7
3		Paper feed unit rear cover	P.7
4	Board and etc.	PF drive board	P.8
5		Paper size detect board	P.8

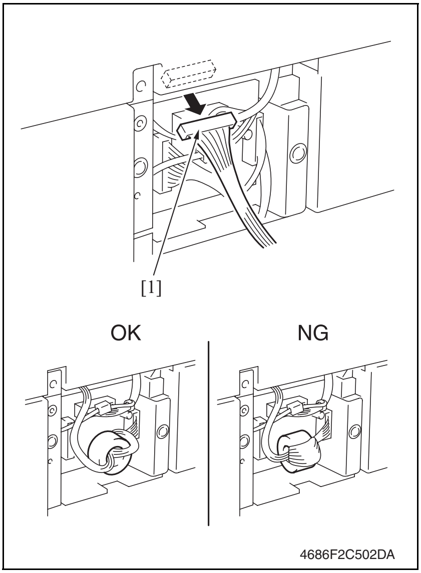
3.2.2 Cleaning parts list

No.	Section	Part name	Ref. page
1	Feed section	Feed roller	P.9
2	Transport section	Transport roller/rolls	P.9

3.3 Disassembly/Assembly procedure

3.3.1 Paper feed unit

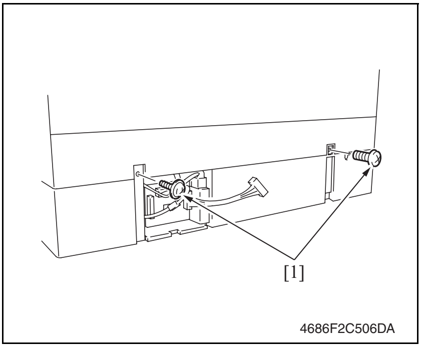
1. Remove the paper feed unit rear cover.
   See P.7



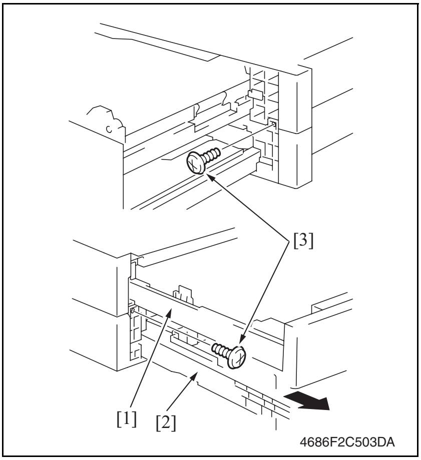
2. Disconnect the connector [1].

NOTE

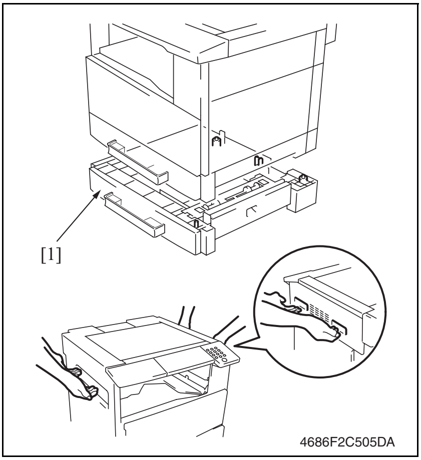
- **Make sure to install the ferrite core to be parallel with the PF drive board.**


[1]
4686F2C506DA

3. Remove two screws [1] in the rear.


[3]
[1]
[2]
4686F2C503DA

4. Open the tray 1 [1] of the main body and tray [2] of the paper feeder unit, and remove the two screws [3] in the front.


[1]
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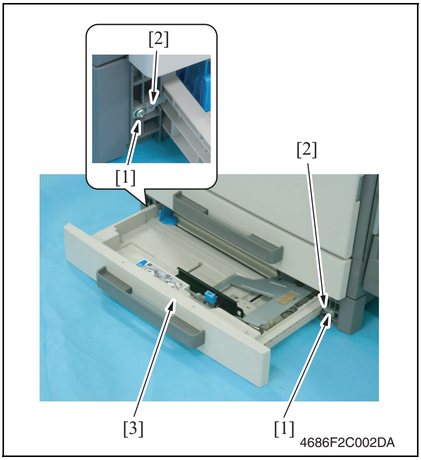
5. Hold the positions of the main body as illustrated to lift it up, and take out the paper feeder unit [1].

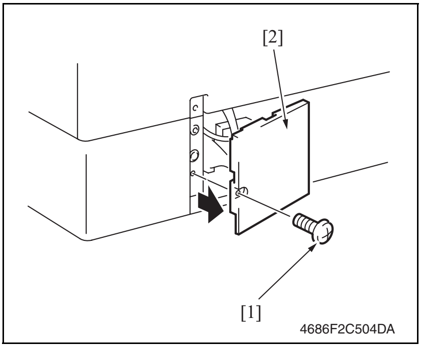
3.3.2 Tray

1. Slide out the tray.


[2]
[1]
[2]
[3]
[1]
4686F2C002DA

2. Remove two screws [1], two fixed metal plates [2] and remove the tray [3].

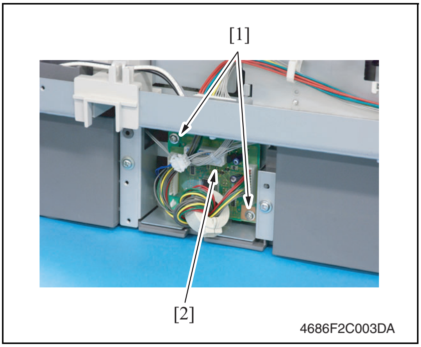
3.3.3 Paper feed unit rear cover


[2]
[1]
4686F2C504DA

1. Remove the screw [1] and remove the paper feed unit rear cover [2].

3.3.4 PF drive board

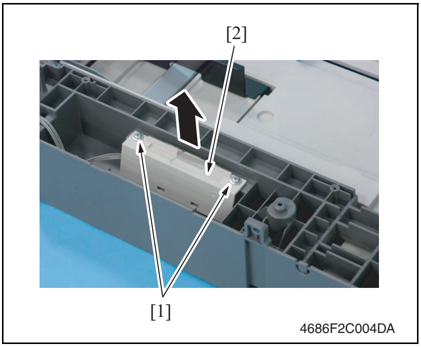
1. Remove the paper feed unit rear cover.
   See P.7


[1]
[2]
4686F2C003DA

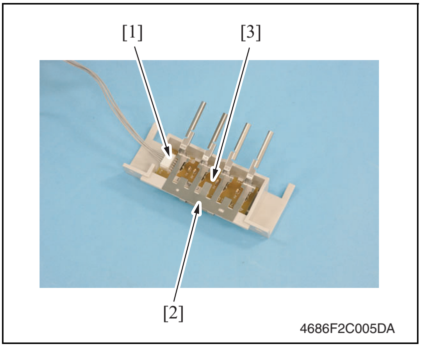
2. Disconnect all connectors on the PF drive board.
3. Remove two screws [1] and remove PF drive board [2].

3.3.5 Paper size detect board

1. Remove the paper feed unit.
   See P.5
2. Slide out the tray.


[2]
[1]
4686F2C004DA

3. Remove two screws [1] and remove the paper size detect board assy [2].


[1]
[3]
[2]
4686F2C005DA

4. Disconnect the connector [1], remove the lever [2] and remove the paper size detect board [3].

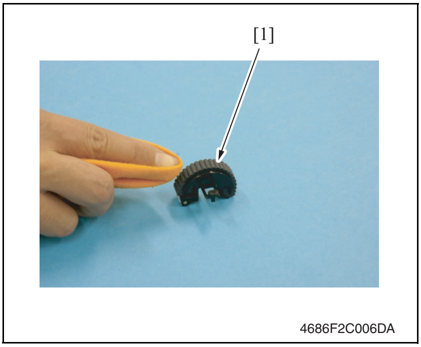
3.4 Cleaning procedure

NOTE

- **The alcohol described in the cleaning procedure represents the isopropyl alcohol.**

3.4.1 Feed roller

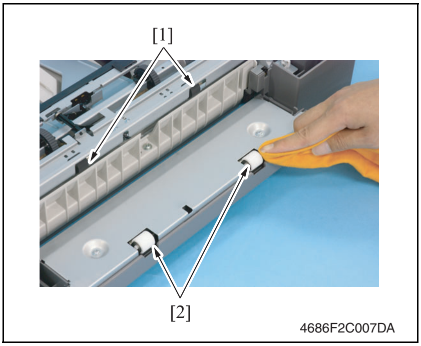
1. Remove the feed rollers.
   See P.3



2. Using a soft cloth dampened with alcohol, wipe the two feed rollers [1] clean of dirt.

3.4.2 Vertical transport rollers/rolls

1. Open the paper feed unit right door.



2. Using a soft cloth dampened with alcohol, wipe the vertical transport rollers [1]/rolls [2] clean of dirt.

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Adjustment/Setting

4. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting” the default settings are indicated by “ ”.

A. Advance Checks

- Before attempting to solve the customer problem, the following advance checks must be made.Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The Original Glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for Service Jobs

1. Be sure to unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the Exposure Unit.
3. Special care should be used when handling the Fusing Unit which can be extremely hot.
4. The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC Drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

5. Service mode

5.1 Service mode setting procedure

NOTE

- **Care must be used to ensure that only the personnel who are involved in service jobs know the procedure to enter the service mode.**

5.1.1 Procedure

1. Press the Utility key.
2. Press the following keys in this order.
3. Stop → 0 → 0 → Stop → 0 → 1
4. The Service mode menu screen will appear.

5.1.2 Exiting

- Press the Reset key.

5.1.3 Changing the setting value in service mode functions

1. Select the desired item using ▲ / ▼ key.
2. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

5.2 Service Mode function tree

NOTE

- **This setting menu contains only the cases in which the PF-502 is mounted.**

Service Mode		Ref. page
SERVICE'S CHOICE	LOOP Ad. (TRAY2-5)	P.13
FUNCTION	PAPER FEED TEST	P.13

5.3 Setting in the service mode

5.3.1 SERVICE'S CHOICE

A. LOOP Ad. (TRAY2-5)

Functions	• To adjust the length of the loop formed in the paper before the synchronizing roller when the optional paper feed unit is used.
Use	• When a skew feed, fold, or misfeed of paper occurs • When variations in the amount of void on the leading edge occurs
Setting/ procedure	• The default setting "0.0 mm". • Setting range: -3.9 to 3.9 mm (1 step: 0.6 mm) *1.* Call the SERVICE MODE to the screen. *2.* Select the [SERVICE'S CHOICE] and press the OK key. *3.* Select the [LOOP Ad. (TRAY2-5)] and press the OK key. *4.* Using ▲ / ▼ key, select the desired setting value. *5.* Press OK key to define the setting value.

5.3.2 FUNCTION

A. PAPER FEED TEST

Functions	• To check for correct paper passage of the paper take-up and transport system by letting the copier consecutively take up and feed paper without involving actual printing action.
	• Here are the details of operation involved in the paper passage motion.
	  • The Scanner does not make any scan motion.
	  • Paper is fed until the corresponding paper source runs out of paper.
	  • This test cannot be run with the manual bypass or multiple bypass (option).
	  • No counters are activated.

Use	• When a paper misfeed occurs
Setting/ procedure	*1.* Call the SERVICE MODE to the screen. *2.* Select the [FUNCTION] and press the OK key. *3.* Select the [PAPER FEED TEST] and press the OK key. *4.* Select the [TRAY2], [TRAY3], [TRAY4] or [TRAY5]. *5.* Press the Start key to start the paper feed test. • Press the Stop key to stop the paper feed test.

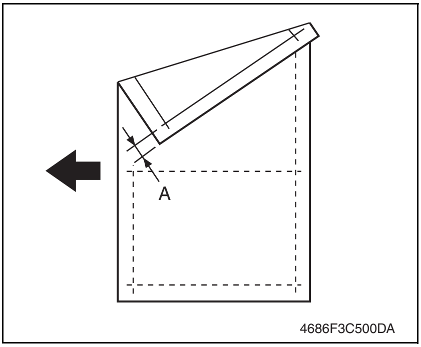
6. Mechanical adjustment

6.1 Paper feed unit main scanning registration adjustment

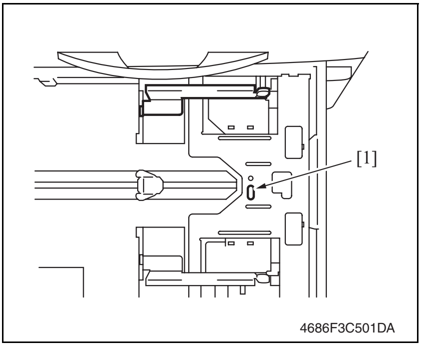
NOTE

- **This adjustment is to be made when the PH unit has been replaced.**

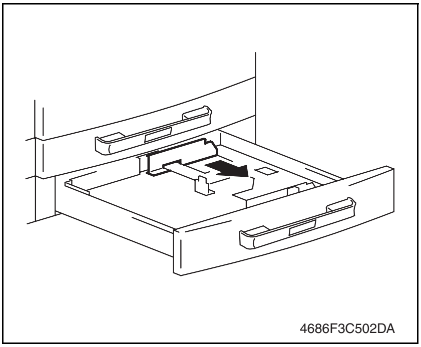
1. Load the tray2 with A4 crosswise paper.
2. Call the SERVICE MODE to the screen.
3. Select the [FUNCTION] and press the OK key.
4. Select the [PRN TEST PATTERN] and press the OK key.
5. Select the [TRAY2] and press the OK key.
6. Select [PATTERN 1] and press OK key to print out the test pattern.



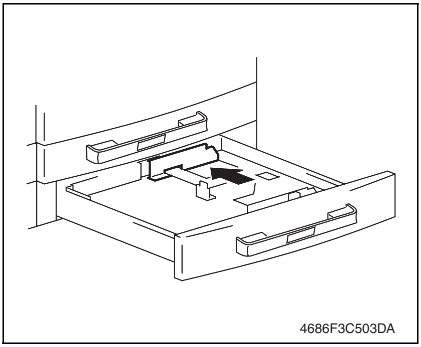
7. Check width A on the test pattern. If width A falls outside the specified range, perform the following steps to make an adjustment. Specifications: 20 ± 2.0 mm



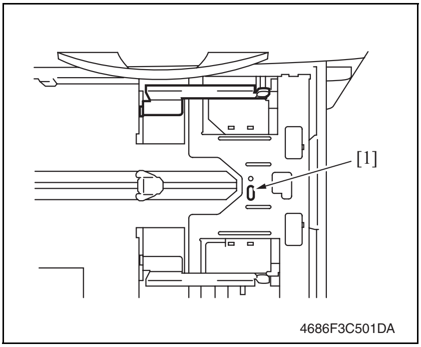
8. Slide out the tray2 and loosen the screw [1].



9. If width A is greater than the specified range, move the edge guide in the direction of the arrow.


4686F3C503DA

10. If width A is smaller than the specified range, move the edge guide in the direction of the arrow.
11. After the adjustment has been made, produce a new test pattern and check for deviation.



4686F3C501DA

12. After the adjustment has been properly made, tighten the screw [1].

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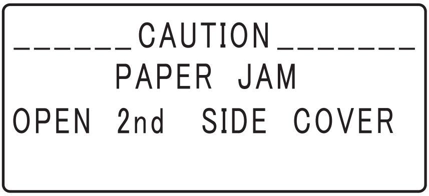
Troubleshooting

7. Jam display

7.1 Misfeed display

- When a paper misfeed occurs, the error indicator lights up steadily and the display gives a corresponding message.



______CAUTION_______
PAPER JAM
OPEN 2nd SIDE COVER

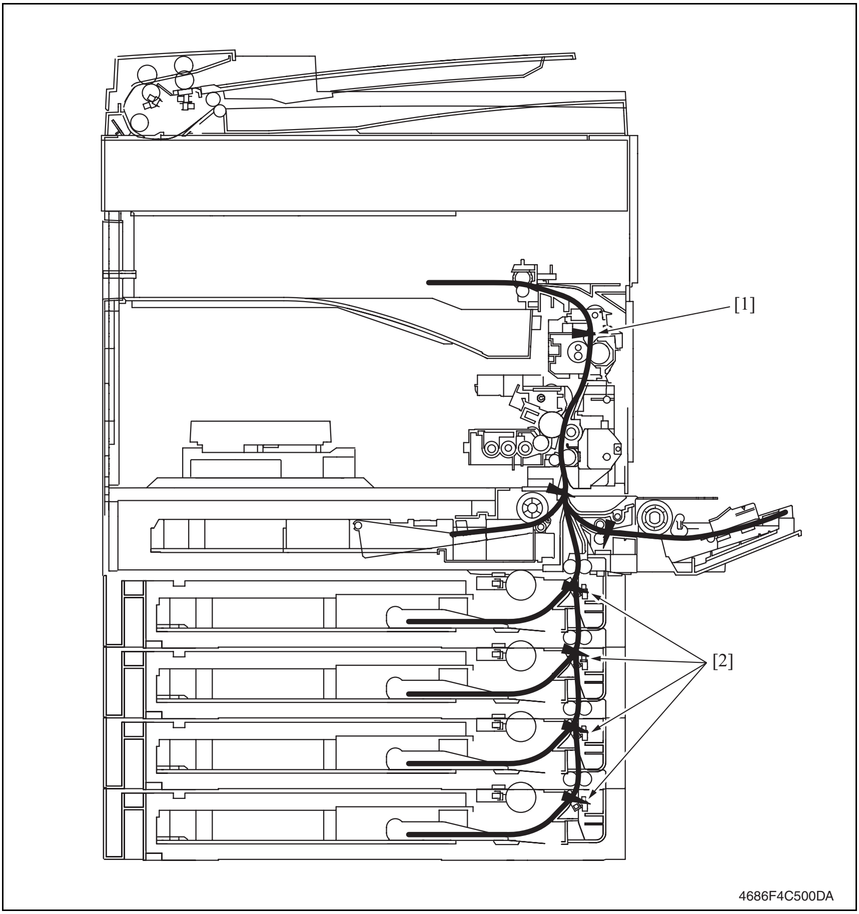
4686F4E501DA

Display message	Misfeed/paper location	Ref. Page
PAPER JAM OPEN 2nd SIDE COVER	Tray2 paper feed/vertical transport section of the paper feed unit	P.20
PAPER JAM OPEN 3rd SIDE COVER	Tray3 paper feed/vertical transport section of the paper feed unit	
PAPER JAM OPEN 4th SIDE COVER	Tray4 paper feed/vertical transport section of the paper feed unit	
PAPER JAM OPEN 5th SIDE COVER	Tray5 paper feed/vertical transport section of the paper feed unit	

7.1.1 Misfeed display resetting procedure

- Open the corresponding cover, clear the sheet of paper misfed, and close the cover.

7.2 Sensor layout


[1]
[2]
4686F4C500DA

[1] Registration sensor (PS1)
[2] Paper feed sensor (PS2)

7.3 Solution

7.3.1 Initial check items

- When a paper misfeed occurs, first check the following initial check items.

Check Item	Action
Does the paper meet product specifications?	Change the paper.
Is paper curled, wavy, or damp.	Change the paper. Instruct the user in correct paper storage.
Is a foreign object present along the paper path, or is the paper path deformed or worn?	Clean or change the paper path.
Are the rolls/rollers dirty, deformed, or worn?	Clean or change the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the paper?	Set as necessary.
Are the actuators found operational when checked for correct operation?	Correct or change the defective actuator.

7.3.2 Misfeed at the tray2 to 5 paper feed/vertical transport section

A. Detection timing

Type	Description
Paper feed/ vertical transport section misfeed detection	• The leading edge of the paper does not unblock the registration sensor (PS1) even after the lapse of a given period of time after the paper feed solenoid (SD1) has been energized.
Size error detection	• The registration sensor (PS1) is not blocked even after the lapse of a given period of time after the paper has unblocked the registration sensor (PS1).
Paper left at the paper feed/ vertical transport section	• The paper feed sensor (PS2) is blocked at timing when the power switch is turned ON, the cover is opened and closed, or a paper misfeed or malfunction is reset.

B. Action

Relevant electrical parts	
Registration sensor (PS1) Paper feed solenoid (SD1) Paper feed sensor (PS2)	PF drive board (PFDB) Printer control board (PRCB)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items	—	—
2	PS1 sensor check	PRCB PJ17PRCB-3 (ON)	bizhub 163/163f/ 181/211/220 C-5
3	SD1 operation check	PFDB PJ3PFDB A-1 (ON)	C to D-4
4	PS2 sensor check	PFDB PJ3PFDB B-2 (ON)	C to D-6
5	Replace DFDB	—	—
6	Replace PRCB	—	—

KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

MB-501

2007.04

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

Revision history

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a section revised, show △1 to the left of the revised section.
  A number within △1 represents the number of times the revision has been made.

- To indicate clearly a section revised, show ▲1 in the lower outside section of the corresponding page.
  A number within ▲1 represents the number of times the revision has been made.

NOTE

Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.

- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2007/04	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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MB-501

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General

1. Product specification

A. Type

Name	Multiple bypass tray
Installation	Screwed to the copier

B. Paper

Type	Plain paper (60 to 90 g/m^2)	100 sheets
	OHP film	20 sheets
	Thick paper (91 to 157 g/m^2)	
	Postcards and labels	
	Envelopes	10 sheets
	Recycled paper (60 to 90 g/m^2)	100 sheets
Size	Width	90 X 297 mm
	Length	140 X 432 mm
Sizes	A3, A4S, A4, A5, A5S, B4, B5S, B5, FLS, Ledger, 11 x 14, Legal, LetterS, Letter, InvoiceS, Invoice, 8K, 16KS, and 16K	

C. Machine specifications

Registration	Center
Capacity	100 sheets (80 g/m^2)
Power requirements	DC24 V, DC5 V (supplied from the copier)
Power consumption	9 W or less
Dimensions	439 mm (W) x 435 mm (D) x 137 mm (H) 17.25 inch (W) x 17.25 inch (D) x 5.5 inch (H)
Mass	3.1 kg (6.75 lb)

D. Operating environment

- Conforms to the operating environment of the main body.

NOTE

- **These specifications are subject to change without notice.**

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Maintenance

2. Periodical check

2.1 Maintenance procedure (Periodical check parts)

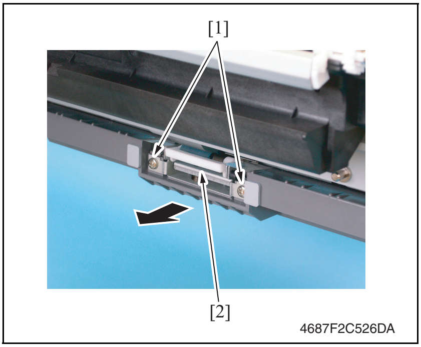
2.1.1 Replacing the separation roller assy

A. Periodically replaced parts/cycle

- Separation roller assy: Every 150,000 prints

B. Replacing procedure

1. Open the right door.



2. Remove two screws [1] and remove the separation roller assy [2].

3. To reinstall, reverse the order of removal.

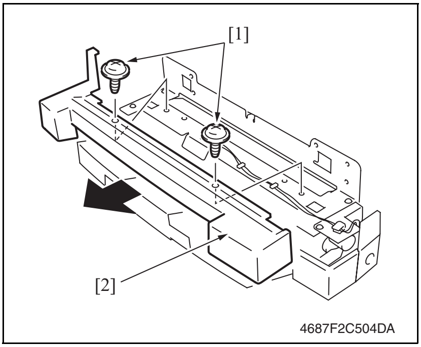
2.1.2 Replacing the feed roller

A. Periodically replaced parts/cycle

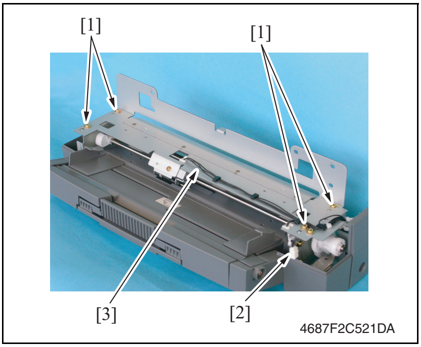
- Feed roller: Every 150,000 prints

B. Replacing procedure

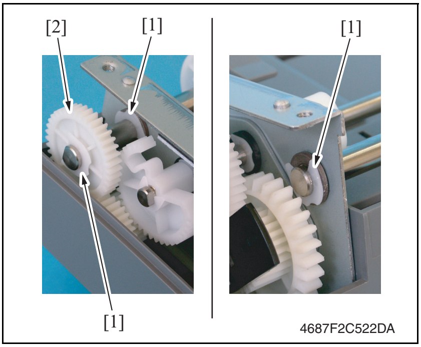
1. Remove the multi bypass tray.
See P.7



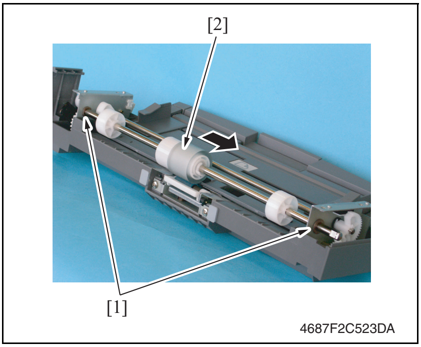
2. Remove two screws [1] and remove the lower cover [2].


[1]
[1]
[3]
[2]
4687F2C521DA

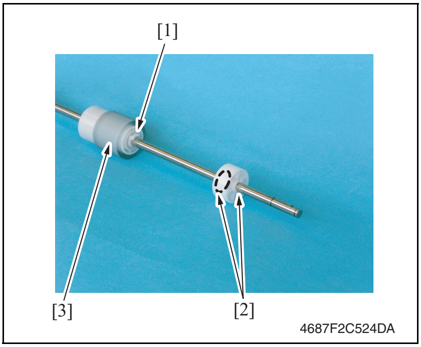
3. Remove four screws [1], disconnect the connector [2], and remove the paper feed assy [3].


[2]
[1]
[1]
[1]
4687F2C522DA

4. Snap off three C-rings [1] and slide the shaft to remove the gear [2].


[2]
[1]
4687F2C523DA

5. Remove two bearings [1] and remove the feed roller assy [2].



6. Snap off the C-clip [1] and two C-rings [2] and remove the feed roller [3].

7. To reinstall, reverse the order of removal.

3. Other

3.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to “SAFETY AND IMPORTANT WARNING ITEMS” and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

3.2 Disassembly/Assembly/Cleaning list (Other parts)

3.2.1 Disassembly/Assembly parts list

No.	Section	Part name	Ref. page
1	Unit	Multi bypass tray	P.7
2	Others	Paper feed solenoid	P.12
3		Paper feed mechanical clutch	P.13

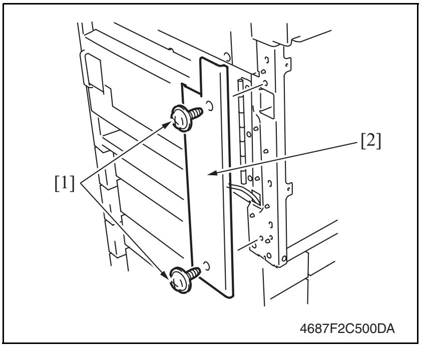
3.2.2 Cleaning parts list

No.	Section	Part name	Ref. page
1	Feed section	Separation roller	P.16
2		Feed roller	P.16
3	Transport section	Bypass transport roller/rolls	P.17

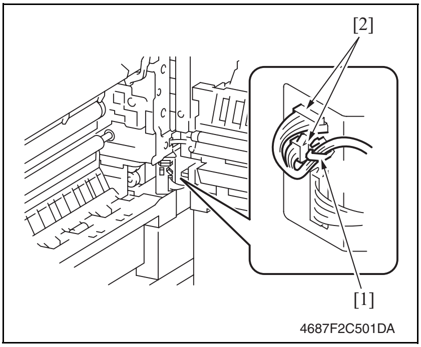
3.3 Disassembly/Assembly procedure

3.3.1 Multi bypass tray

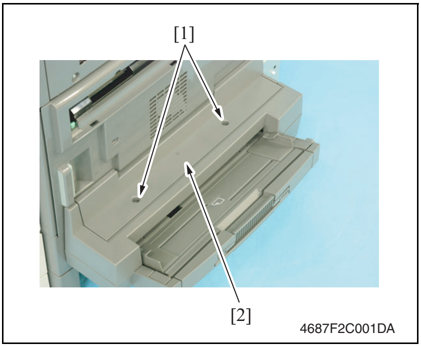
A. Removal procedure



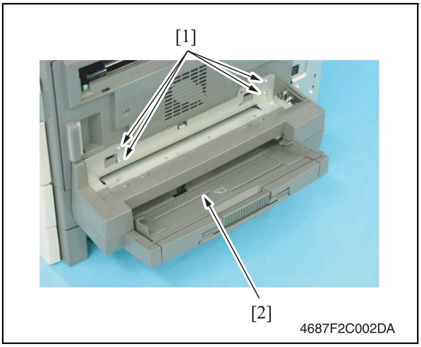
1. Remove two screws [1] and remove the right rear cover [2] of the main body.



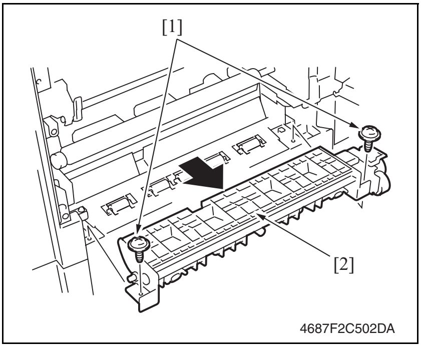
2. Open the right cover.
3. Remove the wire saddle [1] and disconnect two connectors [2].


[1]
[2]
4687F2C001DA

4. Remove two screws [1] and remove the upper cover [2].

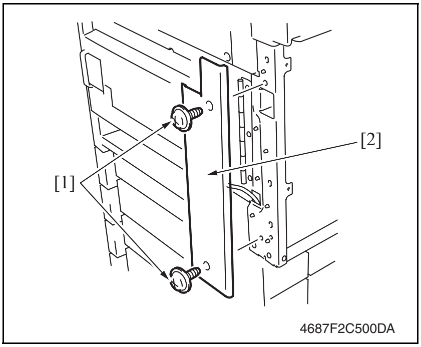

[1]
[2]
4687F2C002DA

5. Remove four screws [1] and remove the multiple bypass [2].

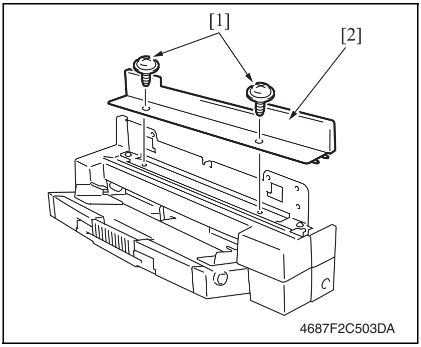

[1]
[2]
4687F2C502DA

6. Remove two screws [1] and remove the guide plate [2].

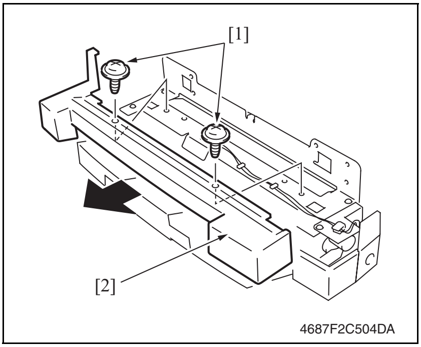
B. Reinstallation procedure


[1]
[2]
4687F2C500DA

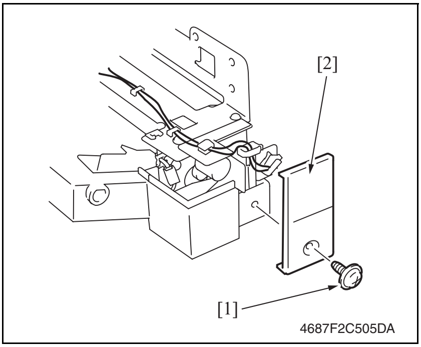
1. Remove two screws [1] and remove the right rear cover [2] of the main body.


[1]
[2]
4687F2C503DA

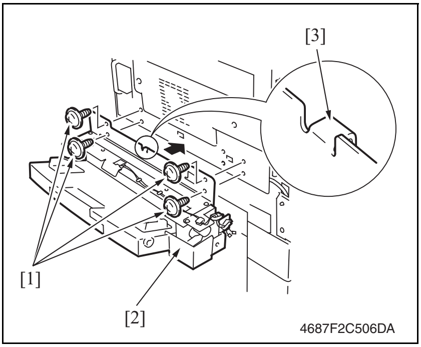
2. Remove two screws [1] and remove the upper cover [2].


[1]
[2]
4687F2C504DA

3. Remove two screws [1] and remove the lower cover [2].


[2]
[1]
4687F2C505DA

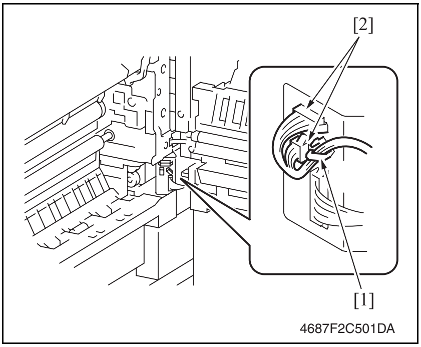
4. Remove the screw [1] and remove the rear cover [2].


[3]
[1]
[2]
4687F2C506DA

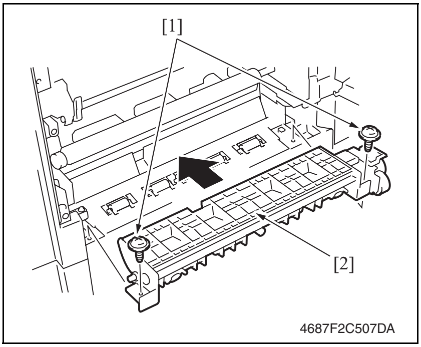
5. Install the multiple bypass [2] and temporarily tighten the four screws [1].

NOTE

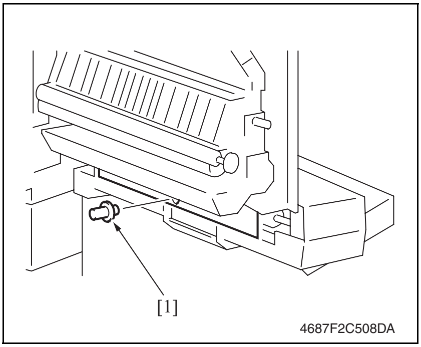
- **Put the middle hook [3] of the multiple bypass on the right door.**


[2]
[1]
4687F2C501DA

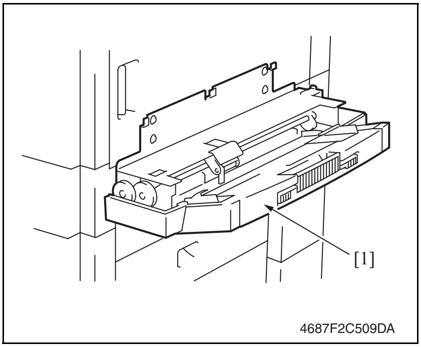
6. Install wire saddle [1] and two connectors [2].



7. Install the guide plate assy [2] with two screws [1].



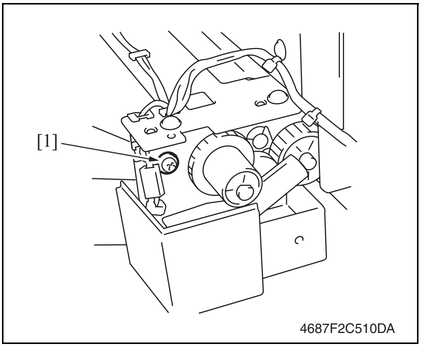
8. Open the right door and install the positioning pin [1] at the position as illustrated.
9. Close the right door. Correctly position the multiple bypass with reference to the positioning pin.



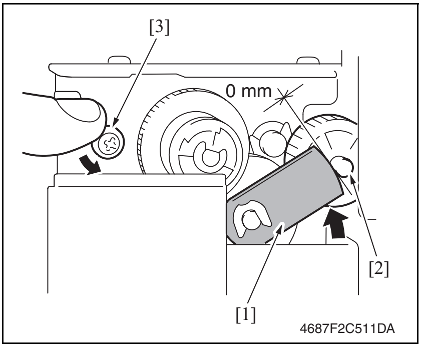
10. Firmly tighten the four screws to fix the multiple bypass [1] in position.
11. Open the right door and remove the positioning pin.

NOTE

- **Save the positioning pin that has been removed.**


[1]
4687F2C510DA

12. Loosen the screw [1] shown.


[3]
0 mm
[2]
[1]
4687F2C511DA

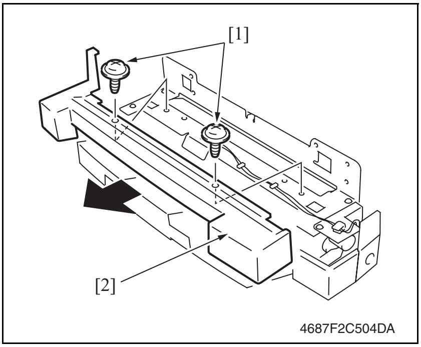
13. Make the lever [1] contact the gear shaft [2].

14. Tighten the screw [3] to fix it.

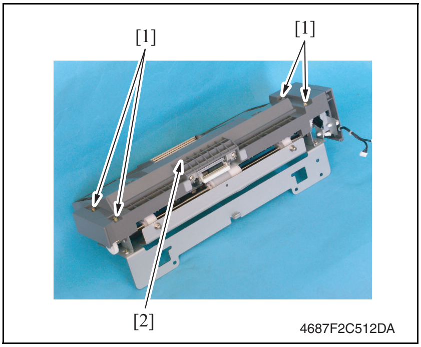
15. Reinstall the rear cover, lower cover, and upper cover.

3.3.2 Paper feed solenoid

1. Remove the multi bypass tray.
See P.7


[1]
[2]
4687F2C504DA

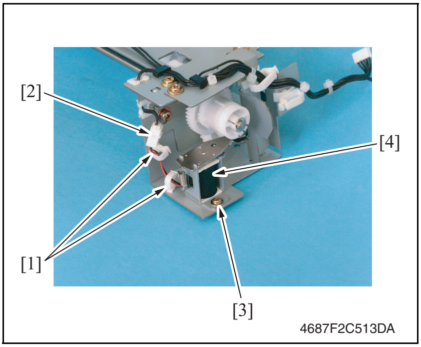
2. Remove two screws [1] and remove the lower cover [2].


[1]
[1]
[2]
4687F2C512DA

3. Remove four screws [1] and remove feed roller assy [2].

NOTE

- **Use care not to lose the two springs.**


[2]
[4]
[1]
[3]
4687F2C513DA

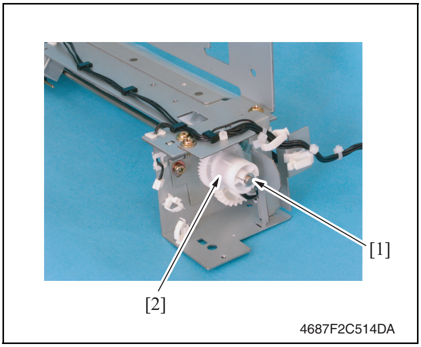
4. Remove two wire saddle [1] and disconnect the connector [2].
5. Remove the screw [3] and remove the paper feed solenoid [4].

NOTE

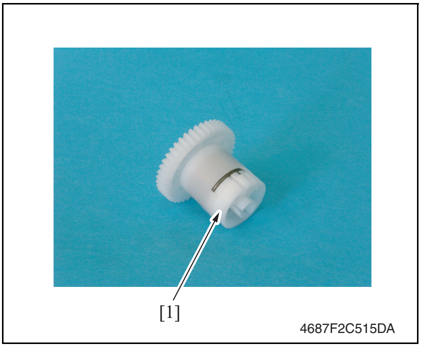
- **Do not remove the flapper from the solenoid.**

3.3.3 Removal and disassembly of the paper feed mechanical clutch

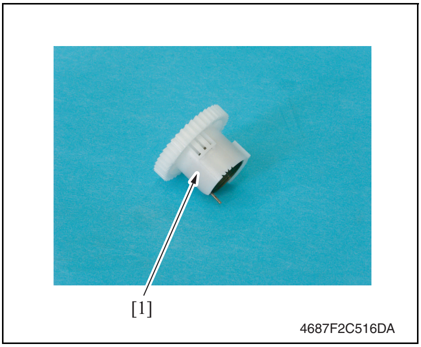
1. Remove the paper feed solenoid.
   See P.12


[1]
[2]
4687F2C514DA

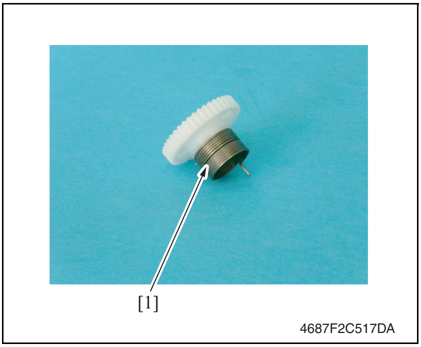
2. Snap off the E-ring [1] and remove the paper feed mechanical clutch [2].


[1]
4687F2C515DA

3. Remove the collar [1].


[1]
4687F2C516DA

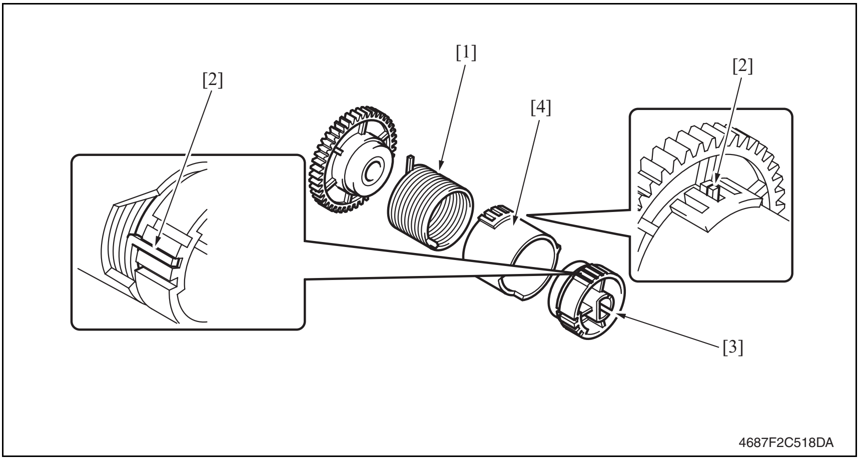
4. Remove the coupling [1].


[1]
4687F2C517DA

5. Remove the torque limiter [1] from the gear.

Precautions for reassembly of the paper feed mechanical clutch

- **At reassembly, make sure that the protrusions on both ends [2] of the torque limiter [1] fit into the center slit in the collar [3] and coupling [4].**



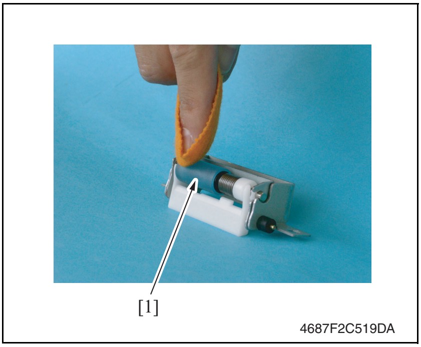
3.4 Cleaning procedure

NOTE

- **The alcohol described in the cleaning procedure represents the isopropyl alcohol.**

3.4.1 Separation roller

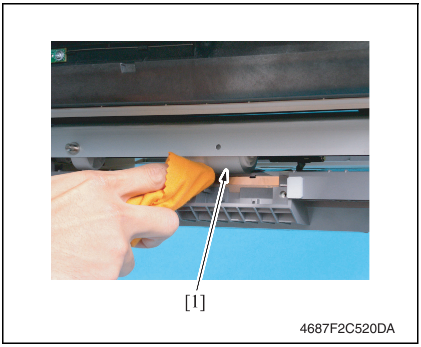
1. Remove the separation roller assy.
   See P.3



2. Using a soft cloth dampened with alcohol, wipe the separation roller [1] clean of dirt.

3.4.2 Feed roller

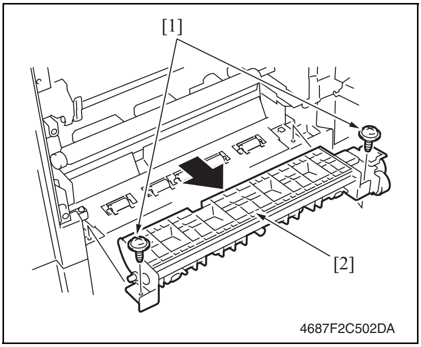
1. Remove the separation roller assy.
   See P.3



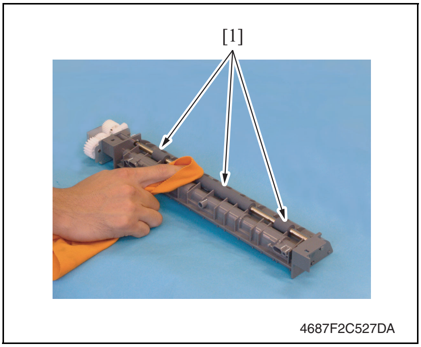
2. Using a soft cloth dampened with alcohol, wipe the feed roller [1] clean of dirt.

3.4.3 Bypass transport roller/rolls

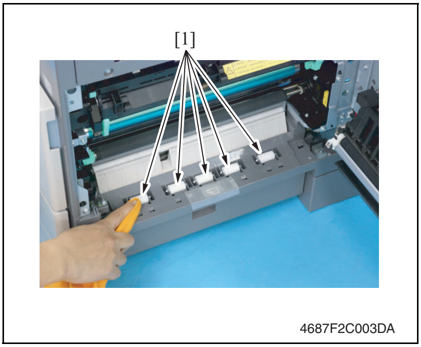
1. Open the right door.


[1]
[2]
4687F2C502DA

2. Remove two screws [1] and remove the guide plate [2].


[1]
4687F2C527DA

3. Using a soft cloth dampened with alcohol, wipe the bypass transport roller [1] clean of dirt.


[1]
4687F2C003DA

4. Using a soft cloth dampened with alcohol, wipe the bypass transport rolls [1] clean of dirt.

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Adjustment/Setting

4. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting” the default settings are indicated by “   ”.

A. Advance Checks

- Before attempting to solve the customer problem, the following advance checks must be made.Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The Original Glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for Service Jobs

1. Be sure to unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the Exposure Unit.
3. Special care should be used when handling the Fusing Unit which can be extremely hot.
4. The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC Drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

5. Service Mode

5.1 Service mode setting procedure

NOTE

- **Care must be used to ensure that only the personnel who are involved in service jobs know the procedure to enter the service mode.**

5.1.1 Procedure

1. Press the Utility key.
2. Press the following keys in this order.
3. Stop → 0 → 0 → Stop → 0 → 1
4. The Service mode menu screen will appear.

5.1.2 Exiting

- Press the Reset key.

5.1.3 Changing the setting value in service mode functions

1. Select the desired item using ▲ / ▼ key.
2. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

5.2 Service Mode function tree

NOTE

- **This setting menu contains only the cases in which the MB-501 is mounted.**

Service Mode		Ref. page
SERVICE'S CHOICE	LOOP Ad. (BYPASS)	P.20

5.3 Setting in the service mode

5.3.1 SERVICE'S CHOICE

A. LOOP Ad. (BYPASS)

Functions	• To adjust the length of the loop formed in the paper before the regist Roller when the Manual Bypass is used.
Use	• When a skew feed, fold, or misfeed of paper occurs • When variations in the amount of void on the leading edge occurs
Setting/ procedure	• The default setting is "0.0 mm". • Setting range: -3.9 to 3.9 mm (1 step: 0.6 mm) 1. Call the SERVICE MODE to the screen. 2. Select the [SERVICE'S CHOICE] and press the OK key. 3. Select the [LOOP Ad. (BYPASS)] and press the OK key. 4. Using [▲ / ▼] key, select the desired setting value. 5. Press the OK key to validate the setting value selected in step 4.

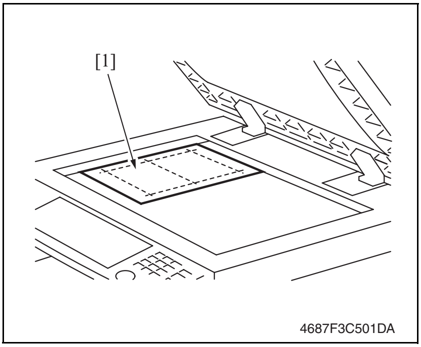
6. Mechanical adjustment

6.1 Multiple Bypass main scanning Registration Adjustment

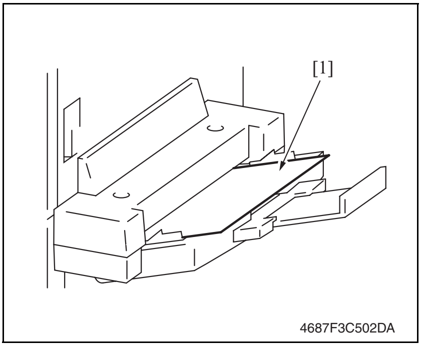
NOTE

- **This adjustment is to be made when the PH Unit has been replaced.**

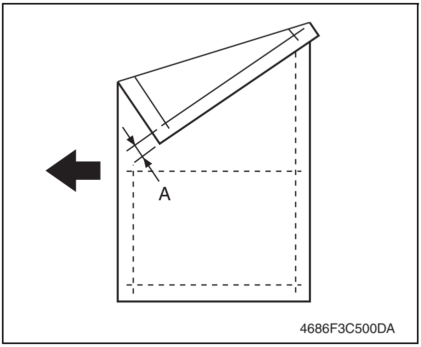
1. Load the paper feed tray1 with A4 paper.
2. Call the SERVICE MODE to the screen.
3. Select the [FUNCTION] and press the OK key.
4. Select the [PRN TEST PATTERN] and press the OK key.
5. Select the [TRAY1] and press the OK key.
6. Select [PATTERN 1] and press OK key, then the test pattern will be printed out.



7. Place the test pattern [1] produced on the original glass.

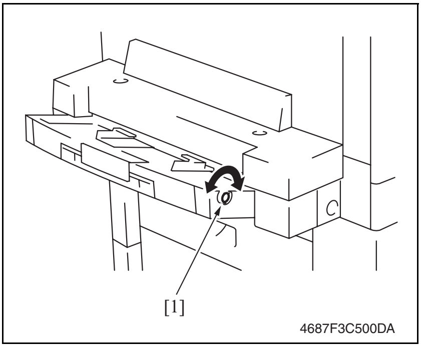


8. Load A4 paper [1] in the multiple bypass and make a test copy.



4686F3C500DA

9. Check width A on the copy of the test pattern.
   If width A falls outside the specified range, perform the following steps to make an adjustment.
   Specifications: 20 ± 2.0 mm



4687F3C500DA

10. Turn the screw [1] of the multiple bypass as necessary to adjust the position of the multiple bypass table.

- If width A on the copy is smaller than width A on the test pattern, turn the screw clockwise.
- If width A on the copy is greater than width A on the test pattern, turn the screw counterclockwise.

11. Make another copy of the test pattern and check for any error in width A.

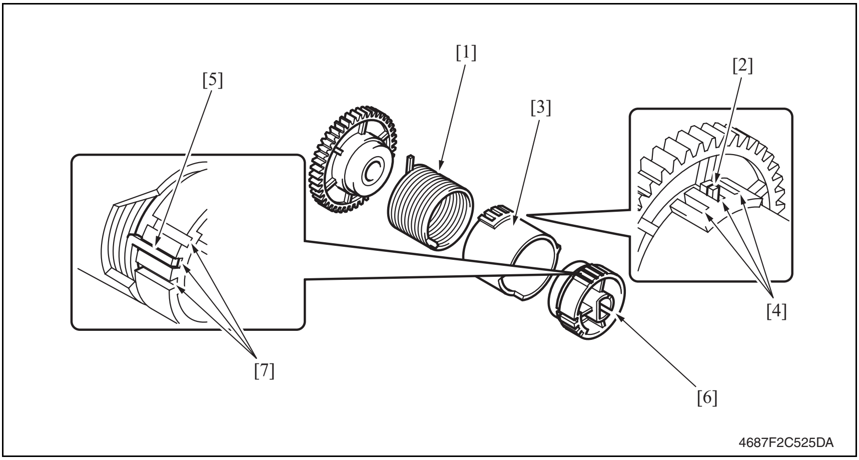
6.2 Multiple bypass mechanical clutch adjustment

- The assembled position of the collar/coupling on the torque limiter of the paper feed Mechanical clutch is varied so that the clutch operates properly.

NOTE

- **This adjustment is to be made when a paper feed failure occurs in the multiple bypass.**

1. Remove the paper feed mechanical clutch.
   See P.13
2. Fit the convex part [2] of the torque limiter [1] to either of three notches [4] of the coupling [3] to install.
3. Fit the convex part B [5] of the torque limiter [1] to either of three notches [7] of the collar [6] to install.



4. Reinstall the paper feed mechanical clutch and make copies using the multiple bypass. If a paper feed failure occurs again, repeat steps 1 through 3.

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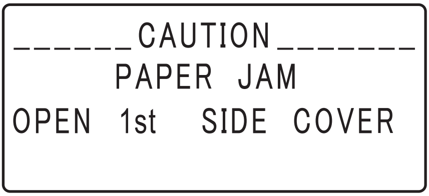
Troubleshooting

7. Jam Display

7.1 Misfeed display

- When a paper misfeed occurs, the error indicator lights up steadily and the display gives a corresponding message.



```
______CAUTION_______
     PAPER JAM
OPEN 1st  SIDE COVER
```

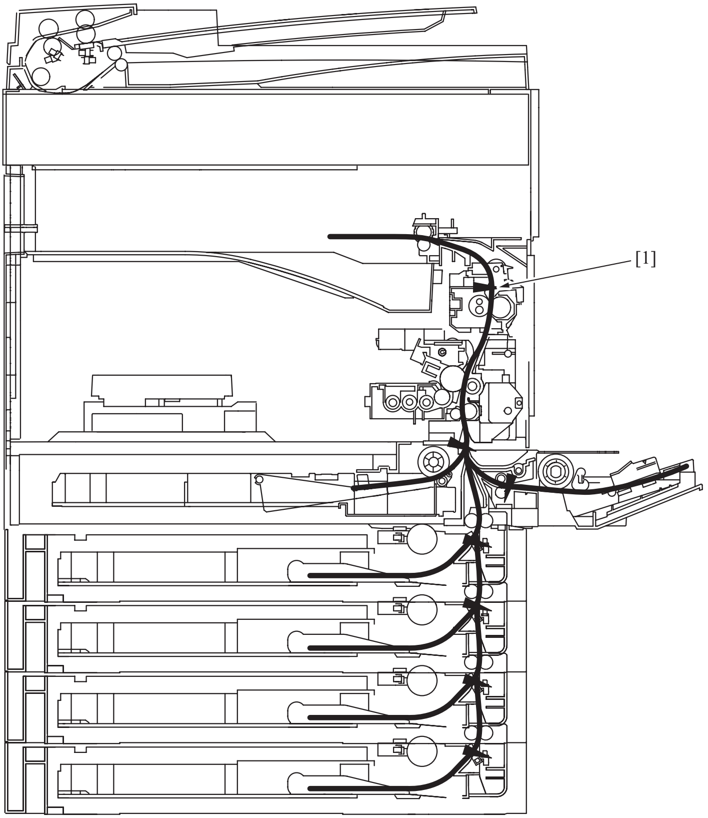
4687F4E502DA

Display message	Misfeed/paper location	Ref. page
PAPER JAM OPEN 1st SIDE COVER	Paper feed section of the multiple bypass	P.28

7.1.1 Display resetting procedure

- Open the corresponding cover, clear the sheet of paper misfed, and close the cover.

7.2 Sensor layout


[1]
4687F4C501DA

[1] Registration sensor (PS1)

7.3 Solution

7.3.1 Initial Check Items

- When a paper misfeed occurs, first perform the following initial checks.

Check Item	Action
Does the paper meet product specifications?	Change the paper.
Is paper curled, wavy, or damp.	Change the paper. Instruct the user in correct paper storage.
Is a foreign object present along the paper path, or is the paper path deformed or worn?	Clean or change the paper path.
Are the rolls/rollers dirty, deformed, or worn?	Clean or change the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the paper?	Set as necessary.
Are the actuators found operational when checked for correct operation?	Correct or change the defective actuator.

7.3.2 Misfeed at the multiple bypass paper feed section

A. Detection timing

Type	Description
Paper feed section misfeed detection	• The leading edge of the paper does not unblock the registration sensor (PS1) even after the lapse of a given period of time after the paper feed solenoid (SD1) has been energized.
Size error detection	• The registration sensor (PS1) is not blocked even after the lapse of a given period of time after the paper has unblocked the registration sensor (PS1). • The registration sensor (PS1) is blocked before the lapse of a given period of time.

B. Action

Relevant electrical components	
Registration sensor (PS1) Paper feed solenoid (SD1)	Printer control board (PRCB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Initial checks	—	—
2	PS1 sensor check	PRCB PJ17PRCB-3 (ON)	bizhub 163/163f/ 181/211/220 C-5
3	SD1 operation check	PRCB PJ12PRCB-2 (REM)	bizhub 163/163f/ 181/211/220 P-4
4	Replace PRCB	—	—

KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

JS-503

2007.04

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

Revision history

After publication of this service manual, the parts and mechanism may be subject to change for improvement of their performance.
Therefore, the descriptions given in this service manual may not coincide with the actual machine.

When any change has been made to the descriptions in the service manual, a revised version will be issued with a revision mark added as required.

Revision mark:

- To indicate clearly a section revised, show △1 to the left of the revised section.
  A number within △1 represents the number of times the revision has been made.

- To indicate clearly a section revised, show ▲1 in the lower outside section of the corresponding page.
  A number within ▲1 represents the number of times the revision has been made.

NOTE
Revision marks shown in a page are restricted only to the latest ones with the old ones deleted.
- When a page revised in Ver. 2.0 has been changed in Ver. 3.0:
  The revision marks for Ver. 3.0 only are shown with those for Ver. 2.0 deleted.
- When a page revised in Ver. 2.0 has not been changed in Ver. 3.0:
  The revision marks for Ver. 2.0 are left as they are.

2007/04	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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JS-503

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General

1. Product specification

A. Type

Type	Add-on drawer
Installation	Built into the exit section of the copier
Paper storage system	Moving drawer system

B. Paper

Type	Upper drawer	Lower drawer
Plain paper (60 to 90 g/m^2)	100 sheets (A4S), 50 sheets (other than A4S) Load height up to 22 mm	150 sheets (A4S), 75 sheets (other than A4S)
OHP film	10 sheets	20 sheets
Thick paper (91 to 157 g/m^2)		
Postcards, labels, and envelopes		
Recycled paper (60 to 90 g/m^2)	100 sheets (A4S), 50 sheets (other than A4S) Load height up to 22 mm	150 sheets (A4S), 75 sheets (other than A4S)

C. Machine specifications

Power requirements	DC24 V, DC5 V (supplied from the copier)
Power consumption	24 W or less

D. Operating environment

- Conforms to the operating environment of the main body.

NOTE

- **These specifications are subject to change without notice.**

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Maintenance

2. Other

2.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to “SAFETY AND IMPORTANT WARNING ITEMS” and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

2.2 Disassembly/Assembly/Cleaning list (Other parts)

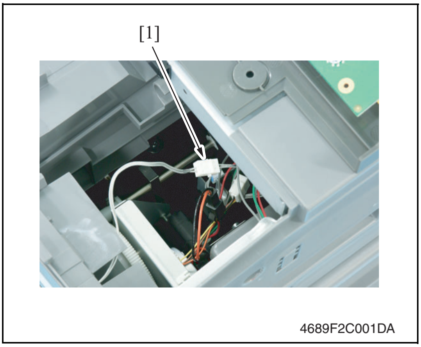
2.2.1 Disassembly/Assembly parts list

No.	Section	Part name	Ref. page
1	Board and etc.	JS drive board	P.4
2		Paper detecting board	P.7
3	Other	Bin switching motor	P.9

2.3 Disassembly/Assembly procedure

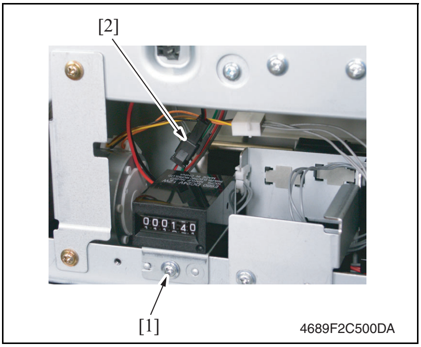
2.3.1 JS drive board

1. Remove the control panel.
   See P.42 of the main body service manual.

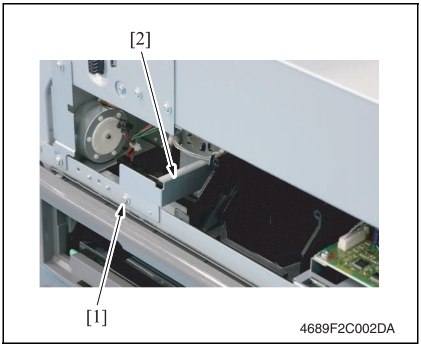


2. Disconnect the connector [1].

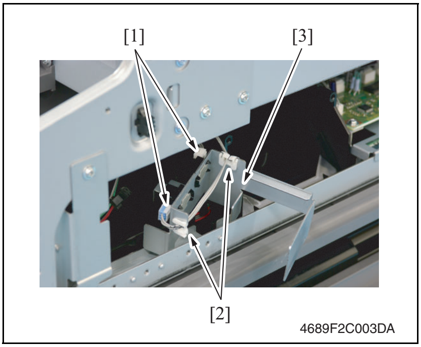
3. Remove the front cover.
   See P.43 of the main body service manual.
4. Remove the right cover.
   See P.48 of the main body service manual.



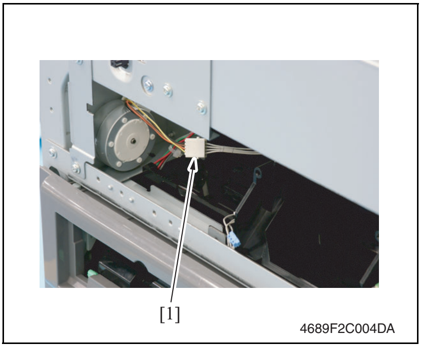
5. Remove the screw [1], disconnect the connector [2], and remove the total counter.


[2]
[1]
4689F2C002DA

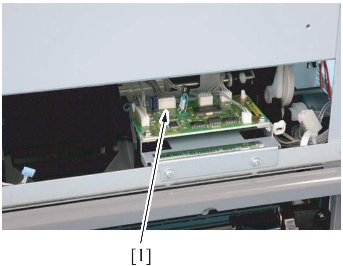
6. Remove the screw [1] and remove the sensor assy mounting bracket [2].


[1]
[3]
[2]
4689F2C003DA

7. Disconnect two connectors [1].
8. Remove the harness from two edge covers [1] and remove the sensor assy [3].

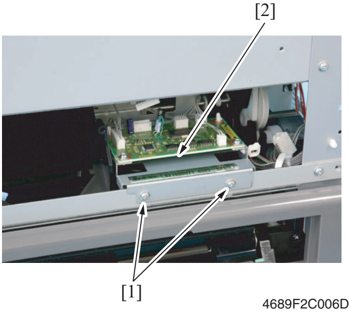

[1]
4689F2C004DA

9. Disconnect the connector [1].



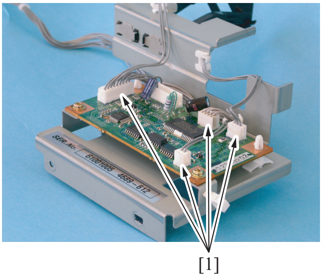
4689F2C005DA

10. Disconnect the connector [1] from the main body.



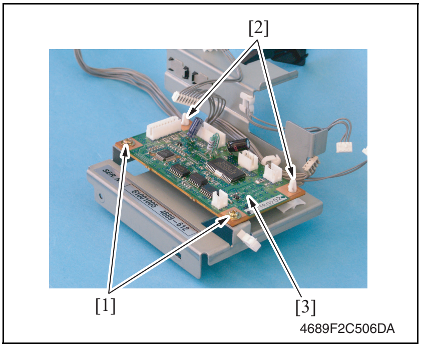
4689F2C006DA

11. Remove two screws [1] and remove the JS drive board assy [2].



4689F2C505DA

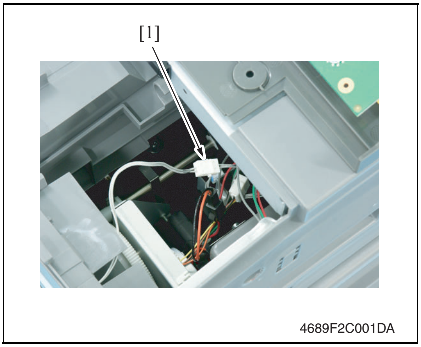
12. Disconnect four connectors [1] from the JS drive board.


[2]
[1]
[3]
4689F2C506DA

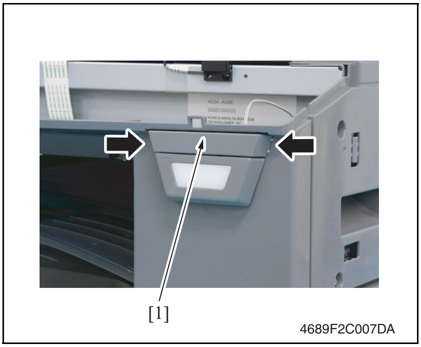
13. Remove two screws [1], two PWB supports [2], and remove the JS drive board [3].

2.3.2 Paper detecting board

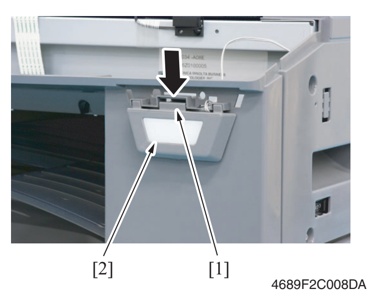
1. Remove the control panel.
   See P.42 of the main body service manual.


[1]
4689F2C001DA

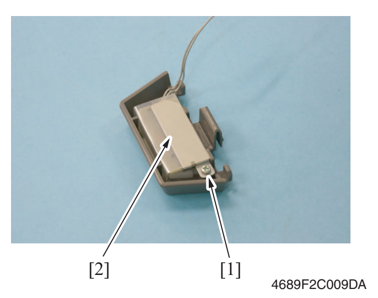
2. Disconnect the connector [1].


[1]
4689F2C007DA

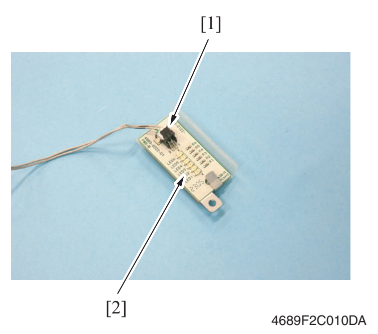
3. Holding onto both ends, remove the indicator lamp cover [1].


[2]
[1]
4689F2C008DA

4. Press down the tab [1] and remove the paper detecting board [2].


[2]
[1]
4689F2C009DA

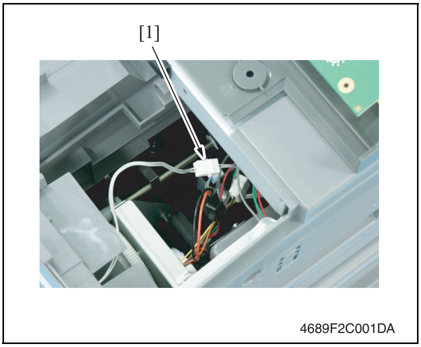
5. Remove the screw [1] and remove the paper detecting board assy [2].


[1]
[2]
4689F2C010DA

6. Disconnect the connector [1] and remove the paper detecting board [2].

2.3.3 Bin switching motor

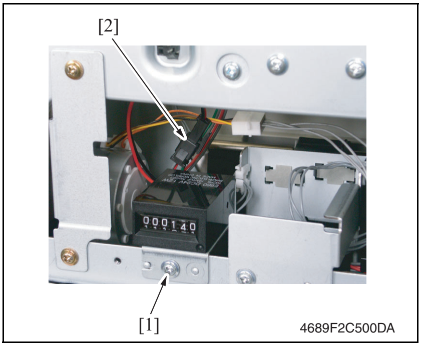
1. Remove the control panel.
   See P.42 of the main body service manual.



4689F2C001DA

2. Disconnect the connector [1].

3. Remove the front cover.
   See P.43 of the main body service manual.
4. Remove the right cover.
   See P.48 of the main body service manual.



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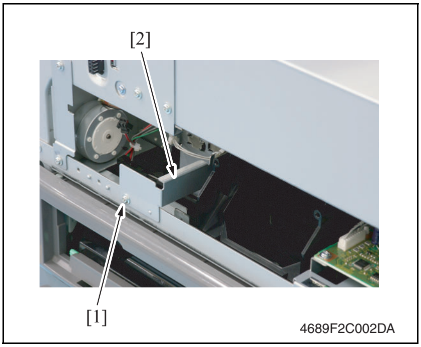
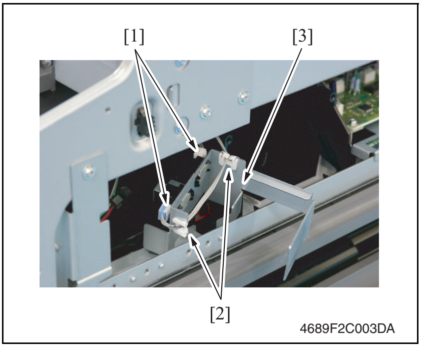
5. Remove the screw [1], disconnect the connector [2], and remove the total counter.

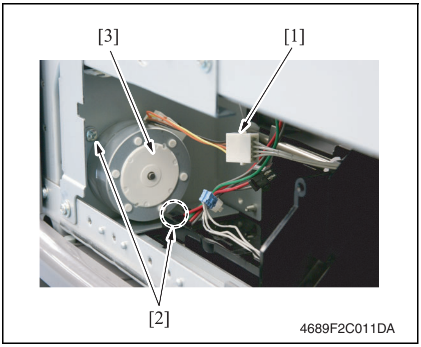


4689F2C002DA

6. Remove two screws [1] and remove the sensor assy mounting plate [2].


[1]
[3]
[2]
4689F2C003DA

7. Disconnect two connectors [1].
8. Take the harness out of the two edge covers [2] and remove the sensor assy.


[3]
[1]
[2]
4689F2C011DA

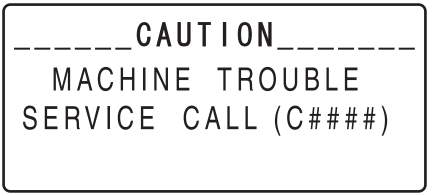
9. Disconnect the connector [1] and remove two screws [2] and remove the bin switching motor [3].

Troubleshooting

3. Malfunction code

3.1 Trouble code

- The main unit's cpu performs a self-diagnostics function that, on detecting a malfunction, gives the corresponding malfunction code on the touch panel.



```
______CAUTION_______
  MACHINE TROUBLE
 SERVICE CALL (C####)
```

4689F4C500DA

3.2 Trouble code list

Code	Description	Detection timing
C0B60	Bin switching motor malfunction	If the upper home position sensor is LOW during an initial operation: • The lower home position sensor (PS2) is LOW when the bin switching motor (M1) starts turning forward. • If the lower home position sensor (PS2) does not go LOW for a given period of time after the bin switching motor (M1) has started turning forward, the bin switching motor (M1) is kept deenergized for a given period of time and then energized again to turn backward. If the upper home position sensor (PS1) does not go LOW after the motor has started turning backward, it is regarded as abnormal. • If the upper home position sensor (PS1) does not go HIGH for a given period of time after the bin switching motor (M1) has started turning forward, it is regarded as abnormal. • When the lower home position sensor (PS2) goes LOW, the bin switching motor (M1) starts turning backward. If the upper home position sensor (PS1) does not go LOW for a given period of time after the bin switching motor (M1) has started turning backward, it is regarded as abnormal. • When the lower home position sensor (PS2) goes LOW, the bin switching motor (M1) starts turning backward. If the lower home position sensor (PS2) does not go HIGH for a given period of time after the bin switching motor (M1) has started turning backward, it is regarded as abnormal.
		If the lower home position sensor (PS2) is LOW during an initial operation: • If the upper home position sensor (PS1) does not go LOW for a given period of time after the bin switching motor (M1) has started turning backward, it is regarded as abnormal. • If the lower home position sensor (PS2) does not go HIGH for a given period of time after the bin switching motor (M1) has started turning backward, it is regarded as abnormal.

Code	Description	Detection timing
C0B60	Bin switching motor malfunction	If both the upper home position sensor (PS1) and the lower home position sensor (PS2) are HIGH during an initial operation: • If the lower home position sensor (PS2) does not go LOW for a given period of time after the bin switching motor (M1) has started turning forward, the bin switching motor (M1) is kept deenergized for a given period of time and then energized again to turn backward. If the upper home position sensor (PS1) does not go LOW after the motor has started turning backward, it is regarded as abnormal. • When the lower home position sensor (PS2) goes LOW, the bin switching motor (M1) starts turning backward. If the upper home position sensor (PS1) does not go LOW for a given period of time after the bin switching motor (M1) has started turning backward, it is regarded as abnormal. • When the lower home position sensor (PS2) goes LOW, the bin switching motor (M1) starts turning backward. If the lower home position sensor (PS2) does not go HIGH for a given period of time after the bin switching motor (M1) has started turning backward, it is regarded as abnormal.

3.3 Solution

3.3.1 C0B60: Bin switching motor malfunction

Relevant electrical parts	
Bin switching motor (M1) Upper home position sensor (PS1) Lower home position sensor (PS2)	JS drive board (JSDB) Printer control board (PRCB)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check sensor connectors for proper connection and correct as necessary.	—	—
2	Check M1 connectors for proper connection and correct as necessary.	—	—
3	Check M1 for correct drive coupling and correct as necessary.	—	—
4	M1 operation check	JSDB PJ2JSDB-1 to 4	bizhub 163/163f/ 181/211/220 L-2
5	PS1 sensor check	JSDB PJ4DSDB-3 (ON)	bizhub 163/163f/ 181/211/220 P-1
6	PS2 sensor check	JSDB PJ4DSDB-6 (ON)	bizhub 163/163f/ 181/211/220 P-1
7	Change JSDB	—	—
8	Change PRCB	—	—

KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

SF-501

2007.04
KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

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2007/04	1.0	—	Issue of the first edition
Date	Service manual Ver.	Revision mark	Descriptions of revision

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General

1. Product specifications

A. Machine specifications

Shifting amount	28 mm
Paper capacity	250 sheets
Power consumption	Less than 63 W

B. Operating environment

- Conforms to the operating environment of the main body.

NOTE

- **These specifications are subject to change without notice.**

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Maintenance

2. Periodical check

2.1 Maintenance procedure (Periodical check parts)

- Periodically replaced parts are not employed.

3. Other

3.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to “SAFETY AND IMPORTANT WARNING ITEMS” and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

3.2 Disassembly/Assembly/Cleaning list (Other parts)

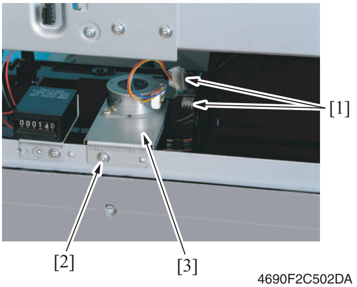
3.2.1 Disassembly/Assembly parts list

No.	Section	Part name	Ref. page
1	Others	Shift motor	P.5
2	Board and etc.	SF drive board	P.6

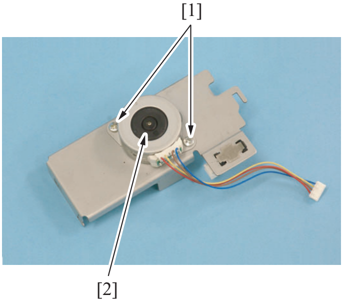
3.3 Disassembly/Assembly procedure

3.3.1 Shift motor

1. Remove the control panel.
   See P.42 of the main body service manual.
2. Remove the front cover.
   See P.43 of the main body service manual.
3. Remove the right cover.
   See P.48 of the main body service manual.



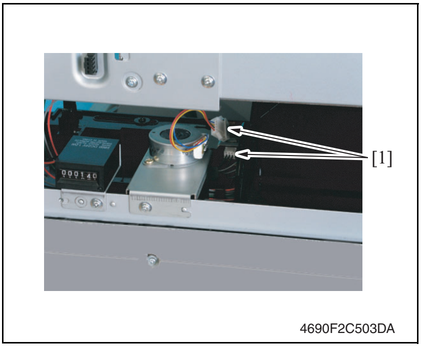
4. Disconnect two connectors [1], remove the screw [2] and remove the shift motor assy [3].



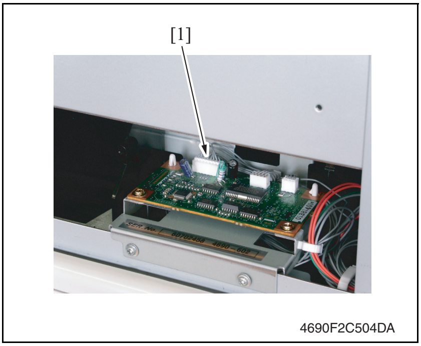
5. Remove two screws [1] and remove the shift motor [2].

3.3.2 SF drive board

1. Remove the control panel.
   See P.42 of the main body service manual.
2. Remove the front cover.
   See P.43 of the main body service manual.
3. Remove the right cover.
   See P.48 of the main body service manual.


[1]
4690F2C503DA

4. Disconnect two connectors [1].


[1]
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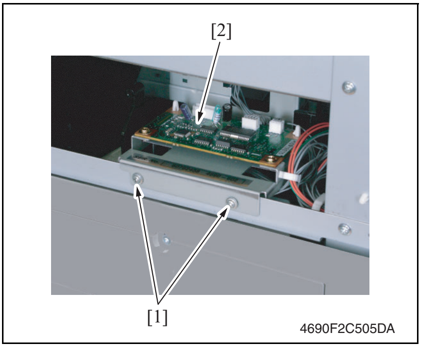
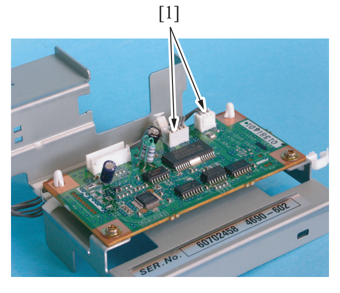
5. Disconnect the connector [1] from SF drive board.


[2]
[1]
4690F2C505DA

6. Remove two screws [1] and remove SF drive board assy [2].



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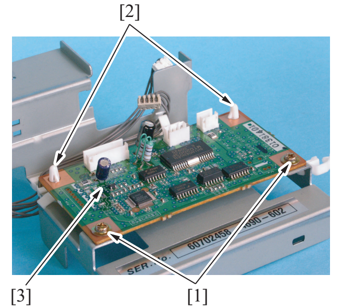
7. Disconnect two connectors [1].



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8. Remove two screws [1], two PWB supports [2], and the SF drive board [3].

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Troubleshooting

4. Malfunction code

4.1 Solution

4.1.1 C0B80: Shift motor malfunction

A. Detection timing

Trouble code	Description
C0B80	• The home sensor (PS1) is LOW at a timing immediately before the shift motor (M1) starts turning backward. • The home sensor (PS1) is LOW after the lapse of a given period of time after the shift motor (M1) has started turning backward.

B. Action

Relevant Electrical Components	
Shift motor (M1) Home sensor (PS1)	SF drive board (SFDB) MFP board (MFPB)

Step	Operations	WIRING DIAGRAM	
		Control signal	Location (Electrical components)
1	Check PS1 connectors for proper connection and correct as necessary.	—	—
2	Check M1 connectors for proper connection and correct as necessary.	—	—
3	Check M1 for correct drive coupling and correct as necessary.	—	—
4	M1 operation check	SFDB PJ2SFDB-1 to 4	K to L-4
5	PS1 sensor check	SFDB PJ3SFDB-3 (ON)	K to L-4 to 5
6	Change SFDB.	—	—
7	Change MFPB.	—	—

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KONICA MINOLTA

SERVICE MANUAL

FIELD SERVICE

IC-206/NC-503

2007.04

KONICA MINOLTA BUSINESS TECHNOLOGIES, INC. Ver. 1.0

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General

1. Product specifications

1.1 Printing (IC-206)

Print speed *1	18 ppm (when printing on A4/Letter paper at 600 x 600 dpi)
Interface	Ethernet 10/100Base T /TX (RJ-45) Compatible USB Revision 2.0
TCP/IP service	ARP, BootP, DHCP, IPP, lpr/lpd, Raw Socket, HTTPd1.1, SLP, AutoIP
Netware services	Bindery, NDS, Pserver mode, Nprinter mode, NDPS Frame Type (802.3, 802.2, 802.3 SNAP, Ethernet-II, AutoDetect)
Printer language	PCL5e, PCL6 emulation
Font	53 Western-language fonts
Driver-compatible operating systems	Windows Server 2003, Windows XP (Service Pack 2 or later), Windows 2000 (Service Pack 4 or later), Windows Me, Windows 98 SE or Windows Terminal Server (Windows 2000 Server/Windows Server 2003)

*1: The print speed is measured under the following printing conditions.

- Paper is fed from Tray 1.

1.2 Network printing (NC-503)

Interface	Ethernet 10/100Base T /TX (RJ-45)
TCP/IP service	ARP, BootP, DHCP, IPP, lpr/lpd, Raw Socket, HTTPd1.1, SLP, AutoIP
Netware services	Bindery, NDS, Pserver mode, Nprinter mode, NDPS Frame Type (802.3, 802.2, 802.3 SNAP, Ethernet-II, AutoDetect)

1.3 Scan to E-mail/Scan to Server (FTP) (IC-206/NC-503)

Communication protocol	E-mail transmission: SMTP, TCP/IP FTP transmission: FTP, TCP/IP
Resolution	150 x 150 dpi, 300 x 300 dpi, 600 x 600 dpi
Data format	E-mail format: MIME Attached file format: TIFF, PDF
Compression encoding method	MH, MR, MMR
Network	Ethernet LAN (10BASE-T and 100BASE-TX connections)

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Maintenance

2. Firmware upgrade

2.1 Preparations for firmware rewriting

2.1.1 Installing the driver

NOTE

- **The TWAIN driver must previously be installed in the host computer that is used to upgrade the firmware.**
- **If the TWAIN driver has not been installed, use the procedure below to install it.**
- **If the TWAIN driver has already been installed, proceed with the section on "Firmware rewriting" to upgrade the firmware.**
  See P.5

A. Installation of the GDI printer/TWAIN driver

(1) For Windows XP

1. Start the host computer.
2. Turn on the power switch of the machine.
3. Use a USB cable to connect the machine to host computer.
4. In the "Found New Hardware Wizard" dialog box, choose "Install from a list or specific location (Advanced)", and then click [Next].
5. Under "Search for the best driver in these locations", choose "Include this location in the search", and then click [Browse].
6. Specify "\(name of any given language)\WinXP" in the folder in which the TWAIN driver is stored, and then click [OK].
7. Click [Next] and then [Finish].
8. The "Found New Hardware Wizard" dialog box will appear again: Repeat steps 4~7 to install all drivers.

(2) For Windows 2000

1. Prepare the files necessary for upgrading the firmware, and copy them to PC.
2. Start the host computer.
3. Turn on the power switch of the machine.
4. Use a USB cable to connect the machine to host computer.
   The "Found New Hardware Wizard" dialog box will appear.
5. In the "Install Hardware Device Printers" dialog box, choose "Search for a suitable driver for my device (recommended)", and then click [Next].
6. In the "Locate Driver Files" dialog box, choose "Specify a location", and then click [Next].
7. Click [Browse], specify "\(name of any given language)\Win2000" in the folder in which the TWAIN driver is stored, and then click [OK].
8. Click [OK]. Then, continue following the instructions in the dialog boxes that will appear until the "Completing the Found New Hardware Wizard" dialog box appears.
9. Click [Finish].
10. The "Found New Hardware Wizard" dialog box will appear again: Repeat steps 4~8 to install all drivers.

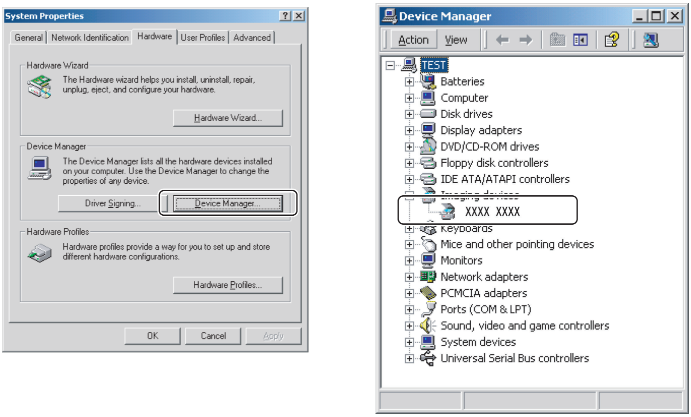
(3) For Windows Me/98SE

1. Prepare the files necessary for upgrading the firmware, and copy them to PC.
2. Start the host computer.
3. Turn on the power switch of the machine.
4. Use a USB cable to connect the machine to host computer.
   The “Add New Hardware Wizard” dialog box will appear.
5. With Windows Me, choose “Specify the location of the driver (Advanced)”, and then click [Next].
   With Windows 98, click [Next]. Then, in the dialog box that will then appear, choose “Search for the best driver for your device (recommended)”, and then click [Next].
6. Choose “Specify a location”, and then click [Browse].
7. Specify “\(name of any given language)\Win9X” in the folder in which the TWAIN driver is stored, and then click [OK].
8. Click [Next]. Then, continue following the instructions in the dialog boxes that will appear until the “Finish” button appears.
9. Click [Finish].
10. The “Add New Hardware Wizard” dialog box will appear again: Repeat steps 4~8 to install all drivers.

2.2 Firmware rewriting

2.2.1 Updating method

1. Turn ON the power switch of the machine.
2. Start the host computer.
3. Copy the “Update Software” folder and “Update” file to drive C. (Copy them into the highest directory on drive C.)
4. Connect the machine to the host computer using a USB cable. (Wait until the hardware is detected.)
5. Open “Properties” of “My Computer.” Then select System Properties/Hardware/Device Manager/Imaging devices to check that the “XXXXXXXXXXX” (Model Name) icon has been added.



The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.

The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.

Hardware profiles provide a way for you to set up and store different hardware configurations.

System Properties
General
Network Identification
Hardware
User Profiles
Advanced
Hardware Wizard
Hardware Wizard...
Device Manager
Driver Signing...
Device Manager...
Hardware Profiles
Hardware Profiles...
OK
Cancel
Apply
Device Manager
Action
View
TEST
Batteries
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Floppy disk controllers
IDE ATA/ATAPI controllers
Imaging devices
XXXX XXXX
Keyboards
Mice and other pointing devices
Monitors
Network adapters
PCMCIA adapters
Ports (COM & LPT)
Sound, video and game controllers
System devices
Universal Serial Bus controllers

A09AF2E627DA

6. Double-click the “Update” file in the “Update Software” folder.
   The “TenryuS Update F/W-VXXXX” screen will appear.

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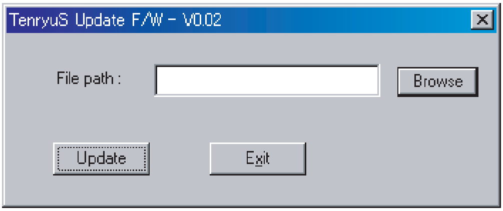
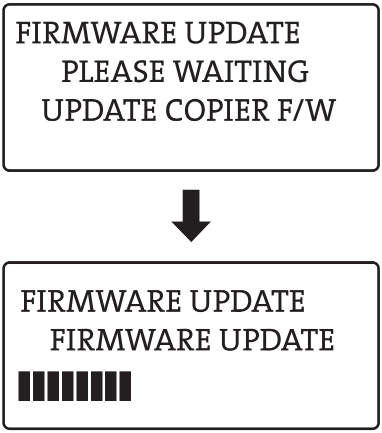
7. Click the [Browse] button. Then, select the “Update” file that has been copied onto drive C in step 3.



TenryuS Update F/W - V0.02
File path :
Browse
Update
Exit

A09AF2C623DA

8. Click the [Update] button to start the transfer of the firmware data. (Wait until data transfer is completed.)
9. Check the display for status of the firmware upgrading sequence.



FIRMWARE UPDATE
PLEASE WAITING
UPDATE COPIER F/W

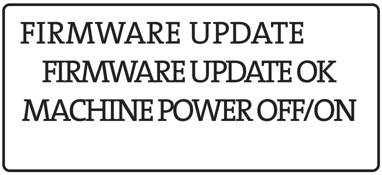
FIRMWARE UPDATE
FIRMWARE UPDATE

A09AF2E636DA

NOTE

- **NEVER turn OFF and ON the power switch as long as the above screens are being displayed.**

10. When the following message appears in the display, it indicates that upgrading of the firmware has been completed.



FIRMWARE UPDATE
FIRMWARE UPDATE OK
MACHINE POWER OFF/ON

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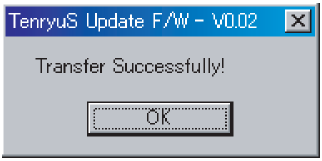
11. Click the [OK] button to quit “TenryuS Update F/W-VXXX.”



Transfer Successfully!

A09AF2C626DA

12. Turn OFF and ON the power switch of the machine, and confirm the firmware version.

2.2.2 Procedure when upgrading the firmware has failed

NOTE

- **Perform the following procedure only when upgrading from PC using ordinary USB connection has failed and the machine has not started properly.**
- **Prepare the special USB device driver because it is not possible to upgrade the firmware with the usual TWAIN/printer driver.**

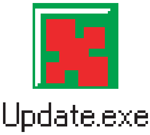
1. Prepare the USB device driver (TWAIN/printer driver) for the firmware upgrade, and copy the USB device driver to the host computer.
2. Turn ON the power switch of the machine while pressing the Utility key on the control panel.
3. Check to make sure that [TENRYU-S BOOTROM] is displayed on the control panel.

TENRYU-S BOOTROM
2007/XX/XX VX.XX

WAIT FIRMWARE UPDATE

A09AF2E638DA

4. Start the host computer.
5. Copy the “Update Software” folder and “Update” file to drive C. (Copy them into the highest directory on drive C.)
6. Connect the machine to the host computer using a USB cable.
   (The new hardware wizard dialog box will appear, and install the driver that has been copied onto the host computer in step 1.)
7. Double-click the “Update” file in the “Update Software” folder.
   The “TenryuS Update F/W-VXXX” screen will appear.



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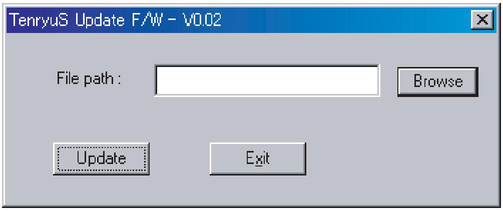
8. Click the [Browse] button. Then, select the “Update” file that has been copied onto drive C in step 5.



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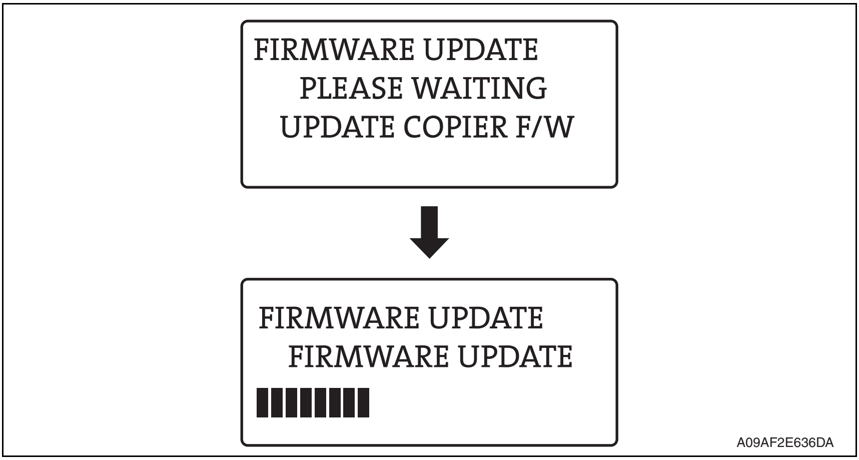
9. Click the [Update] button to start the transfer of the firmware data. (Wait until data transfer is completed.)

10. Check the display for status of the firmware upgrading sequence.



FIRMWARE UPDATE
PLEASE WAITING
UPDATE COPIER F/W

FIRMWARE UPDATE
FIRMWARE UPDATE

A09AF2E636DA

NOTE

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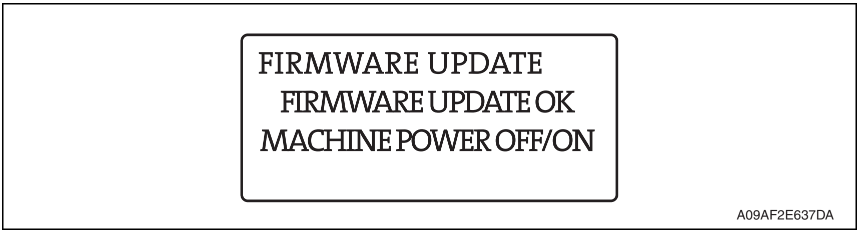
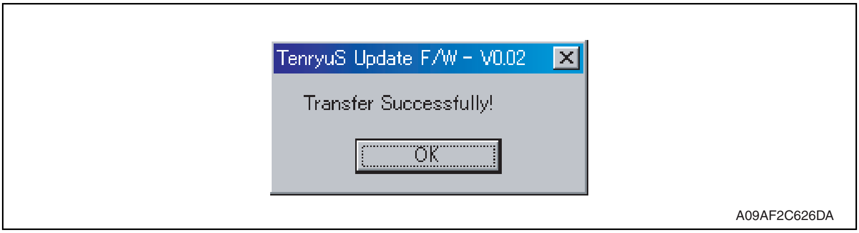


FIRMWARE UPDATE
FIRMWARE UPDATE OK
MACHINE POWER OFF/ON

A09AF2E637DA

12. Click the [OK] button to quit “TenryuS Update F/W-VXXX.”



Transfer Successfully!

A09AF2C626DA

13. Turn OFF and ON the power switch of the machine, and confirm the firmware version.

3. Other

3.1 Disassembly/Adjustment prohibited items

A. Screws to which blue paint or green paint is applied

- **Blue paint or green paint is applied to some screws to prevent them from coming loose.**
- **As a general rule, screws to which blue paint or green paint is applied should not be removed or loosened.**

B. Red-painted screws

- **Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.**

C. Variable resistors on board

NOTE

- **Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.**

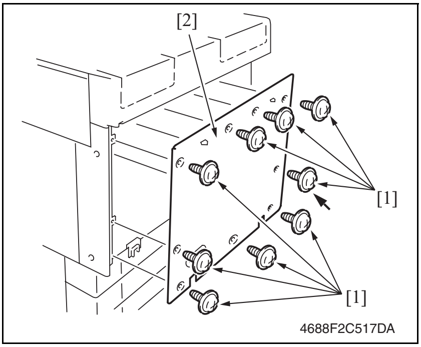
D. Removal of PWBs

⚠ CAUTION

- **When removing a circuit board or other electrical component, refer to “SAFETY AND IMPORTANT WARNING ITEMS” and follow the corresponding removal procedures.**
- **The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.**
- **When it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.**

3.2 Disassembly/Assembly procedure

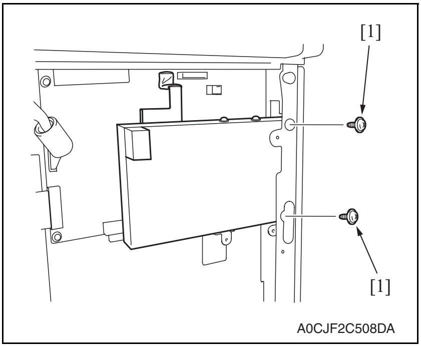
3.2.1 Image controller/Network interface card


[2]
[1]
[1]
4688F2C517DA

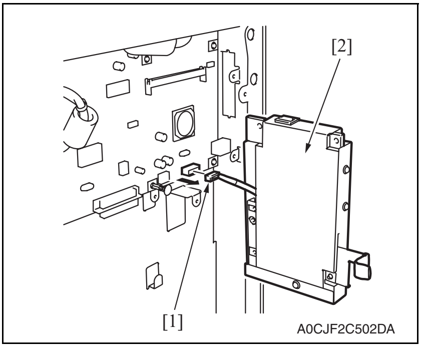
1. Remove nine screws [1] and then remove the rear cover [2] of the main body.

NOTE

- **Make sure that the screws illustrated right with arrows have washers when installing.**


[1]
[1]
A0CJF2C508DA

2. Remove two screws [1].


[2]
[1]
A0CJF2C502DA

3. Disconnect the connector [1] and remove the image controller or network interface card [2].

Adjustment/Setting

4. How to use the adjustment section

- “Adjustment/Setting” contains detailed information on the adjustment items and procedures for this machine.
- Throughout this “Adjustment/Setting” the default settings are indicated by “ ”.

A. Advance Checks

- Before attempting to solve the customer problem, the following advance checks must be made.Check to see if:

1. The power supply voltage meets the specifications.
2. The power supply is properly grounded.
3. The machine shares the power supply with any other machine that draws large current intermittently (e.g., elevator and air conditioner that generate electric noise).
4. The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
5. The original has a problem that may cause a defective image.
6. The density is properly selected.
7. The Original Glass, slit glass, or related part is dirty.
8. Correct paper is being used for printing.
9. The units, parts, and supplies used for printing (developer, PC Drum, etc.) are properly replenished and replaced when they reach the end of their useful service life.
10. Toner is not running out.

B. Precautions for Service Jobs

1. Be sure to unplug the power cord of the machine before starting the service job procedures.
2. If it is unavoidably necessary to service the machine with its power turned ON, use utmost care not to be caught in the Scanner Cables or gears of the Exposure Unit.
3. Special care should be used when handling the Fusing Unit which can be extremely hot.
4. The Developing Unit has a strong magnetic field. Keep watches and measuring instruments away from it.
5. Take care not to damage the PC Drum with a tool or similar device.
6. Do not touch IC pins with bare hands.

5. Utility Mode

5.1 Utility Mode function tree

- Utility mode is used to make settings for the utility functions.

NOTE

- **The setting menu contains only the cases in which the Image Controller (IC-206) or Network Interface Card (NC-503) is mounted.**

UTILITY MODE			Ref. page
ADMIN. MANAGEMENT	NETWORK SETTING	IP ADDRESS SETTING	P.14
		DNS CONFIG.	P.14
		GATEWAY TX *1	P.15
		WEB SETTING	P.15
		LPD SETTING	P.15
		SLP SETTING	P.15
		SNMP SETTING	P.15
	E-MAIL SETTING 1	SENDER NAME	P.15
		E-MAIL ADDERSS	P.16
		SMTP SERVER ADDR.	P.16
		SMTP PORT NO.	P.16
		SMTP TIMEOUT	P.16
		TEXT INSERT	P.16
		DEFAULT SUBJECT	P.16
		POP BEFORE SMTP	P.17
		E-MAIL MODE *1	P.17
	E-MAIL SETTING 2	POP3 SERVER ADDR.	P.18
		POP3 PORT NO.	P.18
		POP3 TIMEOUT	P.18
		POP3 ACCOUNT	P.18
		POP3 PASSWORD	P.18
		AUTO RECEPTION *1	P.19
		REPLY ADDRESS *1	P.19
		HEADER PRINT *1	P.19
	USER SETTING	NTP SERVER ADDRESS *2	P.19
		TIME ZONE *2	P.19
SCAN SETTING	RESOLUTION		P.20
	IMAGE FORMAT		P.20
	CODING METHOD		P.20

*1: FIt will be displayed only when the FK-506 is mounted.
*2: FIt will be displayed only when the FK-506 is unmounted.

5.2 Utility mode function setting procedure

5.2.1 Procedure

1. Press the Utility key.
2. The UTILITY MODE screen will appear.

5.2.2 Exiting

- Press the Reset key.

5.2.3 Changing the setting value in UTILITY MODE functions

1. Select the desired item using [▲ / ▼] key.
2. Select the setting value using [▲ / ▼ / ◀ / ▶] key or the 10-key pad.
3. Validate the selection by pressing the OK key.
4. To go back to previous screen, press the Back key.

5.3 Setting in the UTILITY MODE

5.3.1 ADMIN. MANAGEMENT

A. NETWORK SETTING

(1) IP ADDRESS SETTING

Functions	• This function is used to specify the IP address for the copier. **NOTE** • **Please consult customer’s network administrator for information about the IP address to use.**
Use	
Setting/ Procedure	• The default setting is “AUTO”. “AUTO” SPECIFY • If [AUTO] is selected, the IP address is automatically acquired from the DHCP server. • If [SPECIFY] is selected, the screen for entering the IP address appears.

• SUBNET MASK

Functions	• This function is used to specify the subnet mask value for the network. **NOTE** • **Please consult customer’s network administrator for information about the subnet mask to use.** • **Use this function when [SPECIFY] is selected for [IP ADDRESS SETTING].**
Use	
Setting/ Procedure	• IP address version 4 format [0 to255]. [0 to 255]. [0 to 255]. [0 to 255]

• GATEWAY

Functions	• This function is used to specify the default gateway (IP address) of a router on the network. **NOTE** • **Please consult customer’s network administrator for information about the gateway to use.** • **Use this function when [SPECIFY] is selected for [IP ADDRESS SETTING].**
Use	
Setting/ Procedure	• IP address version 4 format [1 to 126, 128 to 254]. [0 to 255]. [0 to 255]. [1 to 255]

(2) DNS CONFIG.

Functions	• This function is used to enable or disable the DNS (Domain Name System) setting. If there is a DNS server on your network, enter the IP address of the DNS server. • If the DNS server is located within your local network, select [ENABLE]. If you are using the DNS server of an Internet service provider (ISP) or some other DNS server located outside your local network, select [DISABLE]. **NOTE** • **Please consult customer’s network administrator for details.**
Use	
Setting/ Procedure	• The default setting is “DISABLE”. “DISABLE” ENABLE

(3) GATEWAY TX

Functions	• This function is used to enable the direct fax function. **NOTE** **• FIt will be displayed only when the FK-506 is mounted.**
Use	
Setting/ Procedure	• The default setting is “DISABLE”. “DISABLE” ENABLE

(4) WEB SETTING

Functions	• This function is used to enable access to Page Scope Web Connection.
Use	
Setting/ Procedure	• The default setting is “ENABLE”. DISABLE “ENABLE”

(5) LPD SETTING

Functions	• This function is used to set the protocol that makes a printing via TCP/IP network.
Use	
Setting/ Procedure	• The default setting is “ENABLE”. DISABLE “ENABLE”

(6) SLP SETTING

Functions	• This function is used to set the protocol that enables the function such as search of services on TCP/IP network or auto setting of client.
Use	
Setting/ Procedure	• The default setting is “ENABLE”. DISABLE “ENABLE”

(7) SNMP SETTING

Functions	• This function is used to set the control protocol on TCP/IP network.
Use	
Setting/ Procedure	• The default setting is “ENABLE”. DISABLE “ENABLE”

B. E-MAIL SETTING 1

(1) SENDER NAME

Functions	• This function is used to specify the sender's name.
Use	
Setting/ Procedure	• Up to 20 characters can be entered for the sender name.

(2) E-MAIL ADDERSS

Functions	• This function is used to specify the e-mail address of the sender. **NOTE** • **Please consult customer's network administrator for information about the e-mail address to use.**
Use	
Setting/ Procedure	• Up to 64 characters can be entered for the sender address.

(3) SMTP SERVER ADDR.

Functions	• This function is used to enter the IP address or host name of an SMTP server. **NOTE** • **Please consult customer's network administrator for information about the IP address to use.** • **The [DNS CONFIG.] must have been specified before specifying the host name for the SMTP server.**
Use	
Setting/ Procedure	• Up to 64 characters can be entered for the host name.

(4) SMTP PORT NO.

Functions	• This function is used to enter the port number (1 to 65535) for the SMTP server. **NOTE** • **Please consult customer's network administrator for information about the port number to use.**
Use	
Setting/ Procedure	• The default setting is “25”. (1-65535)

(5) SMTP TIMEOUT

Functions	• This function is used to specify the length of time (in seconds) before the connection to the SMTP server times out.
Use	
Setting/ Procedure	• The default setting is “60sec.” (30-300sec)

(6) TEXT INSERT

Functions	• This function is used to specify whether or not to insert text explaining that an image has been attached to an e-mail message, when sending scan data as an E-mail attachment.
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON

(7) DEFAULT SUBJECT

Functions	• This function is used to specify the default subject line, when sending scan data as an e-mail attachment.
Use	
Setting/ Procedure	• Up to 20 characters can be entered for the default subject.

(8) POP BEFORE SMTP

Functions	• This function is used to set whether or not to use POP before SMTP.
Use	
Setting/ Procedure	• The default setting is “OFF”. “OFF” ON • When [ON] is selected, set the time (second) for POP BEFORE SMTP. The default setting is “5sec”. (0-60sec)

(9) E-MAIL MODE

<table>
<tr><td>Functions</td><td rowspan="2">• This function is used to specify the default settings for the Basic and Advanced transmission modes when sending a document by Internet fax (using the 10 key pad to enter the destination).</td></tr>
<tr><td>Use</td></tr>
<tr><td>Setting/ Procedure</td><td>• The default setting is BASIC.
“BASIC” ADVANCED
<table>
<tr><th rowspan="2">Function</th><th colspan="2">Description</th></tr>
<tr><th>BASIC</th><th>ADVANCED</th></tr>
<tr><td>Maximum TX size</td><td>A4</td><td>A4, B4, A3</td></tr>
<tr><td>Resolution to be transmitted</td><td>STD/TEXT, FINE/TEXT</td><td>FINE/TEXT, S-FINE/TEXT</td></tr>
<tr><td>Coding method</td><td>MH</td><td>MH, MR, MMR</td></tr>
</table>
NOTE
• If the settings are not changed for IFAX transmission, that particular transmission is carried out with the values selected in E-Mail mode set as default both for [BASIC] and [ADVANCED] mode.
• The following operations are performed if [BASIC] is selected.
Paper size:
Scans a size larger than A4 → Transmitted with data reduced to A4
Scans a size smaller than A4 → Data transmitted as A4
Resolution:
[FINE/TEXT] or [STD/TEXT] is specified using the Quality key or other function → Transmitted with the selected resolution
[S-FINE/TEXT] is specified using the Quality key or other function → Transmitted in [FINE/TEXT]
(In [BASIC] mode, [FINE/TEXT] is the best possible resolution. Selecting [S-FINE/TEXT] is not accepted and data is transmitted as [FINE/TEXT] even if [S-FINE/TEXT] is selected.)
Coding method: Transmitted as MH at all times
• The following operations are performed if [ADVANCED] is selected.
Paper size:
Scans A4/B4/A3 size → Data transmitted as the same size as the original
Scans a size smaller than A4 → Data transmitted as A4
Resolution: Resolution is specified using the Quality key or other function → Transmitted with the selected resolution
Coding method: Transmitted by the selected coding method (MH/MR/MMR)
• FIt will be displayed only when the FK-506 is mounted.</td></tr>
</table>

C. E-MAIL SETTING 2

(1) POP3 SERVER ADDR.

Functions	• This function is used to enter the IP address or host name of an POP3 server. **NOTE** • **Please consult customer's network administrator for information about the IP address to use.** • **The [DNS CONFIG.] must have been specified before specifying the host name for the POP3 server.**
Use	
Setting/ Procedure	• Up to 64 characters can be entered for the host name.

(2) POP3 PORT NO.

Functions	• This function is used to enter the port number for the POP3 server. **NOTE** • **Please consult customer's network administrator for information about the port number to use.**
Use	
Setting/ Procedure	• The default setting is “110”. (1-65535)

(3) POP3 TIMEOUT

Functions	• This function is used to specify the length of time (in seconds) before the connection to the POP3 server times out.
Use	
Setting/ Procedure	• The default setting is “60sec”. (30-300sec)

(4) POP3 ACCOUNT

Functions	• This function is used to enter the account name used to log on to the POP3 server. **NOTE** • **Please consult customer's network administrator for information about the account name to use.**
Use	
Setting/ Procedure	• Up to 64 characters can be entered for the account name.

(5) POP3 PASSWORD

Functions	• This function is used to enter the password associated with the account name used to log in to the POP3 server. **NOTE** • **Please consult customer's network administrator for information about the password to use.**
Use	
Setting/ Procedure	• Up to 32 characters can be entered for the password.

(6) AUTO RECEPTION

Functions	• This function is used to specify the time interval (in minutes) for checking E-mail, when Auto Reception is enabled.
Use	
Setting/ Procedure	• The default setting is "OFF". "OFF" ON • When [ON] is selected, set the interval time (minute) to check a mail. The default setting is "15 min". (1-60min) **NOTE** **• FIt will be displayed only when the FK-506 is mounted.**

(7) REPLY ADDRESS

Functions	• This function is used to enter the e-mail address to be used when sending notification of an error, if an error occurs while receiving an Internet fax.
Use	
Setting/ Procedure	• Up to 64 characters can be entered for the reply address. **NOTE** **• FIt will be displayed only when the FK-506 is mounted.**

(8) HEADER PRINT

Functions	• This function is used to specify whether or not to print header information when printing E-mails that have been received.
Use	
Setting/ Procedure	• The default setting is OFF. "OFF" ON **NOTE** **• FIt will be displayed only when the FK-506 is mounted.**

D. USER SETTING

(1) NTP SERVER ADDRESS

Functions	• This function is used to enter NTP server address.
Use	• This function is used to set the precise time from the NTP server.
Setting/ Procedure	• Input the address of NTP server using the 10-key, and press OK key. **NOTE** **• FIt will be displayed only when the FK-506 is unmounted.**

(2) TIME ZONE

Functions	• This function is used to set the time gap from the standard time added to the mail header at mail sending.
Use	• This function is used to change the time gap from the standard time.
Setting/ Procedure	• Select the corresponding time zone, and press OK key. **NOTE** **• FIt will be displayed only when the FK-506 is unmounted.**

5.3.2 SCAN SETTING

A. RESOLUTION

Functions	• The default settings for resolution used by the scan to e-mail functions can be specified.
Use	
Setting/ Procedure	• The default setting is "300x300dpi". 150x150dpi "300x300dpi" 600x600dpi

B. IMAGE FORMAT

Functions	• The default settings for data format used by the scan to e-mail functions can be specified.
Use	
Setting/ Procedure	• The default setting is "TIFF". "TIFF" PDF

C. CODING METHOD

Functions	• The default settings for coding method, used by the scan to e-mail functions can be specified.
Use	
Setting/ Procedure	• The default setting is "MH". "MH" MR MMR

Troubleshooting

6. Troubleshooting

6.1 Troubleshooting procedure overview

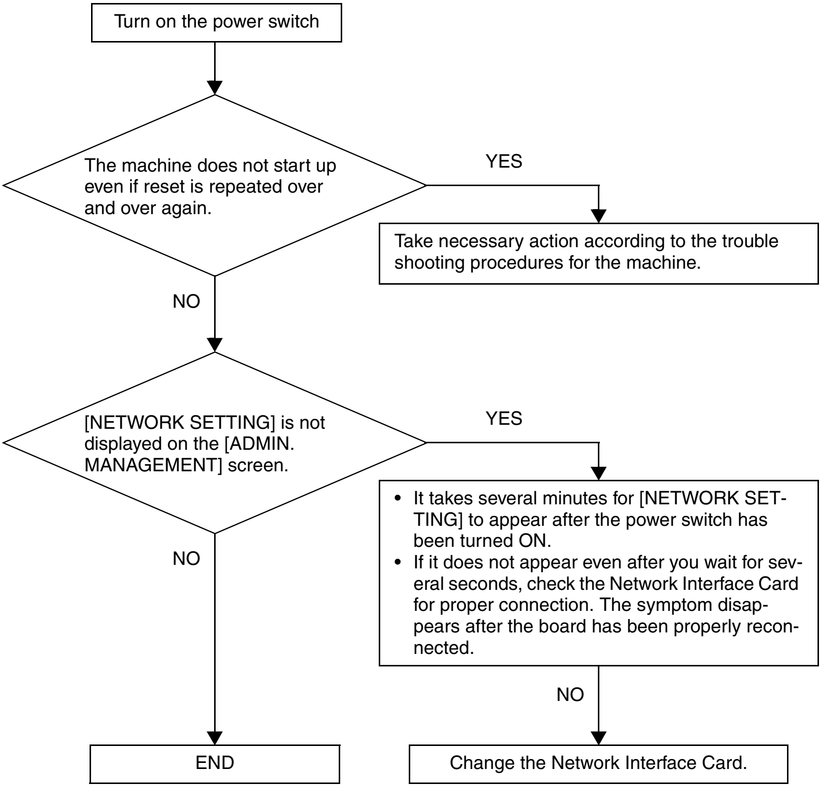
- If the following symptoms occur when the machine is restarted after the Network Interface Card (NC-503) or Image Controller (IC-206) has been mounted, check the board and connectors for proper connection. If the symptom persists, replace the defective part or parts.
- If it is not possible to transfer data correctly with the various settings made on [NETWORK SETTING], the network or telephone line is probably defective.

NOTE

- **Network setting and line checks should be made by the network administrator (system administrator).**

6.2 Troubleshooting procedure chart

1. If network settings are not correct, check them by following the flowchart below.



The machine does not start up even if reset is repeated over and over again.

Take necessary action according to the trouble shooting procedures for the machine.

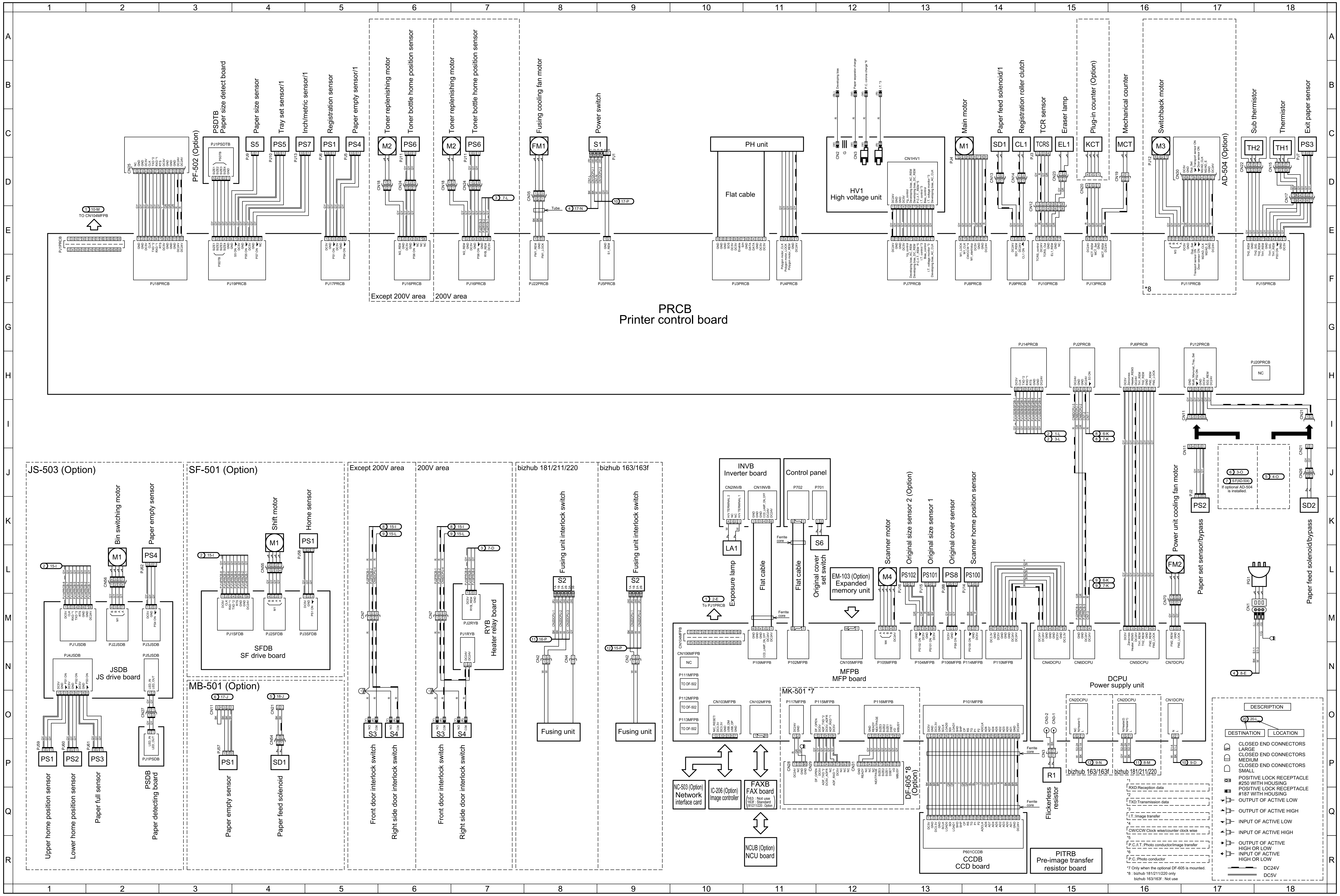
[NETWORK SETTING] is not displayed on the [ADMIN. MANAGEMENT] screen.

- It takes several minutes for [NETWORK SETTING] to appear after the power switch has been turned ON.
- If it does not appear even after you wait for several seconds, check the Network Interface Card for proper connection. The symptom disappears after the board has been properly reconnected.

6.3 Action taken if network print cannot be done

Step	Check	Result	Possible cause	Action
1	Has the print job reached the copier?	Yes	A copier error (paper running out, toner, etc.)	Check the copier and correct the cause of the error.
		No	Data is yet to reach the copier.	Go to step 2.
2	Is a response received to ping from the computer to the Network I/F Card?	Yes	A wrong print destination port has been set.	Set the correct port.
			Computer operate erratically only temporarily.	Restart the computer.
			The driver has not been correctly installed.	Follow the correct procedure to uninstall the driver, and then reinstall it correctly.
		No	Computer operates erratically only temporarily.	Restart the computer.
			The network cable is disconnected, or the relay device is faulty.	Make the correct connector connection, or restart or replace the relay device.
			Erroneously set IP address and subnet mask.	Set the correct IP address and subnet mask.

bizhub 163/163f/181/211/220 Overall wiring diagram


PRCB
Printer control board
PF-502 (Option)
PSDTB
Paper size detect board
Paper size sensor
Tray set sensor/1
Inch/metric sensor/1
Registration sensor
Paper empty sensor/1
Toner replenishing motor
Toner bottle home position sensor
Except 200V area
200V area
Fusing cooling fan motor
Power switch
PH unit
Flat cable
HV1
High voltage unit
Main motor
Paper feed solenoid/1
Registration roller clutch
TCR sensor
Eraser lamp
Plug-in counter (Option)
Mechanical counter
Switchback motor
AD-504 (Option)
Sub thermistor
Thermistor
Exit paper sensor
JS-503 (Option)
Bin switching motor
Paper empty sensor
JSDB
JS drive board
PSDB
Paper detecting board
Upper home position sensor
Lower home position sensor
Paper full sensor
SF-501 (Option)
Shift motor
Home sensor
SFDB
SF drive board
MB-501 (Option)
Paper empty sensor
Paper feed solenoid
Front door interlock switch
Right side door interlock switch
RYB
Heater relay board
bizhub 181/211/220
bizhub 163/163f
Fusing unit interlock switch
Fusing unit
INVB
Inverter board
Exposure lamp
Control panel
Original cover set switch
EM-103 (Option)
Expanded memory unit
Scanner motor
Original size sensor 2 (Option)
Original size sensor 1
Original cover sensor
Scanner home position sensor
MFPB
MFP board
MK-501 *7
NC-503 (Option)
Network interface card
IC-206 (Option)
Image controller
FAXB
FAX board
NCUB (Option)
NCU board
DF-605 *8 (Option)
CCDB
CCD board
PITRB
Pre-image transfer resistor board
Flickerless resistor
DCPU
Power supply unit
Power unit cooling fan motor
Paper set sensor/bypass
Paper feed solenoid/bypass
DESCRIPTION
DESTINATION
LOCATION
CLOSED END CONNECTORS LARGE
CLOSED END CONNECTORS MEDIUM
CLOSED END CONNECTORS SMALL
POSITIVE LOCK RECEPTACLE #250 WITH HOUSING
POSITIVE LOCK RECEPTACLE #187 WITH HOUSING
OUTPUT OF ACTIVE LOW
OUTPUT OF ACTIVE HIGH
INPUT OF ACTIVE LOW
INPUT OF ACTIVE HIGH
OUTPUT OF ACTIVE HIGH OR LOW
INPUT OF ACTIVE HIGH OR LOW
DC24V
DC5V
*1 RXD:Reception data
*2 TXD:Transmission data
*3 I.T.:Image transfer
*4 CW/CCW:Clock wise/counter clock wise
*5 P.C./I.T.:Photo conductor/image transfer
*6 P.C.:Photo conductor
*7 Only when the optional DF-605 is mounted.
*8 : bizhub 181/211/220 only
bizhub 163/163f : Not use

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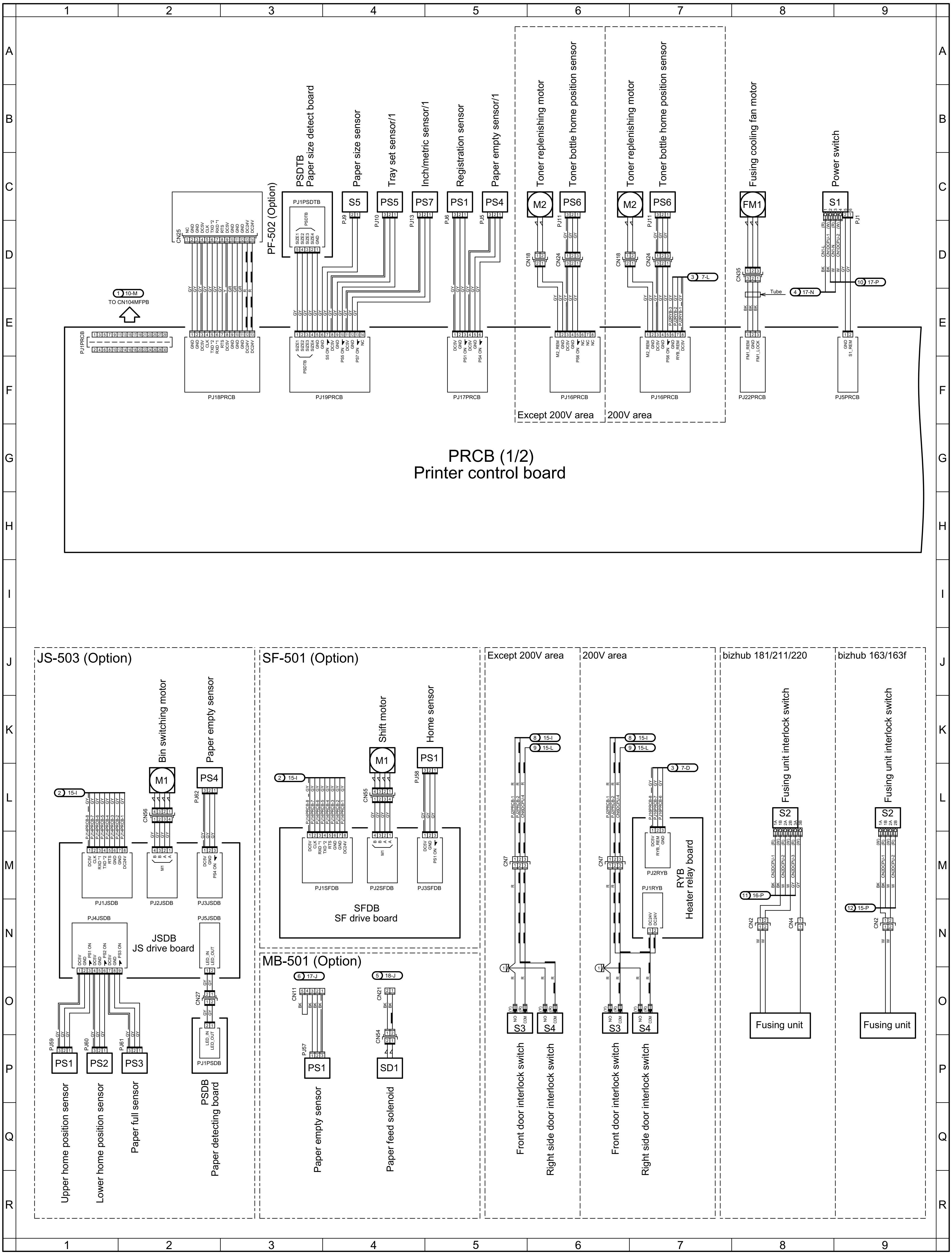
bizhub 163/163f/181/211/220 Overall wiring diagram 1/2


PF-502 (Option)
PSDTB
Paper size detect board
Paper size sensor
Tray set sensor/1
Inch/metric sensor/1
Registration sensor
Paper empty sensor/1
Toner replenishing motor
Toner bottle home position sensor
Fusing cooling fan motor
Power switch
S5
PS5
PS7
PS1
PS4
M2
PS6
FM1
S1
TO CN104MFPB
PJ1PRCB
PJ18PRCB
PJ19PRCB
PJ17PRCB
PJ16PRCB
PJ22PRCB
PJ5PRCB
Except 200V area
200V area
PRCB (1/2)
Printer control board
JS-503 (Option)
Bin switching motor
Paper empty sensor
M1
PS4
PJ1JSDB
PJ2JSDB
PJ3JSDB
PJ4JSDB
PJ5JSDB
JSDB
JS drive board
PJ1PSDB
PS1
PS2
PS3
Upper home position sensor
Lower home position sensor
Paper full sensor
PSDB
Paper detecting board
SF-501 (Option)
Shift motor
Home sensor
PJ1SFDB
PJ2SFDB
PJ3SFDB
SFDB
SF drive board
MB-501 (Option)
SD1
Paper empty sensor
Paper feed solenoid
Except 200V area
200V area
S3
S4
Front door interlock switch
Right side door interlock switch
RYB
Heater relay board
PJ1RYB
PJ2RYB
bizhub 181/211/220
bizhub 163/163f
Fusing unit interlock switch
S2
Fusing unit

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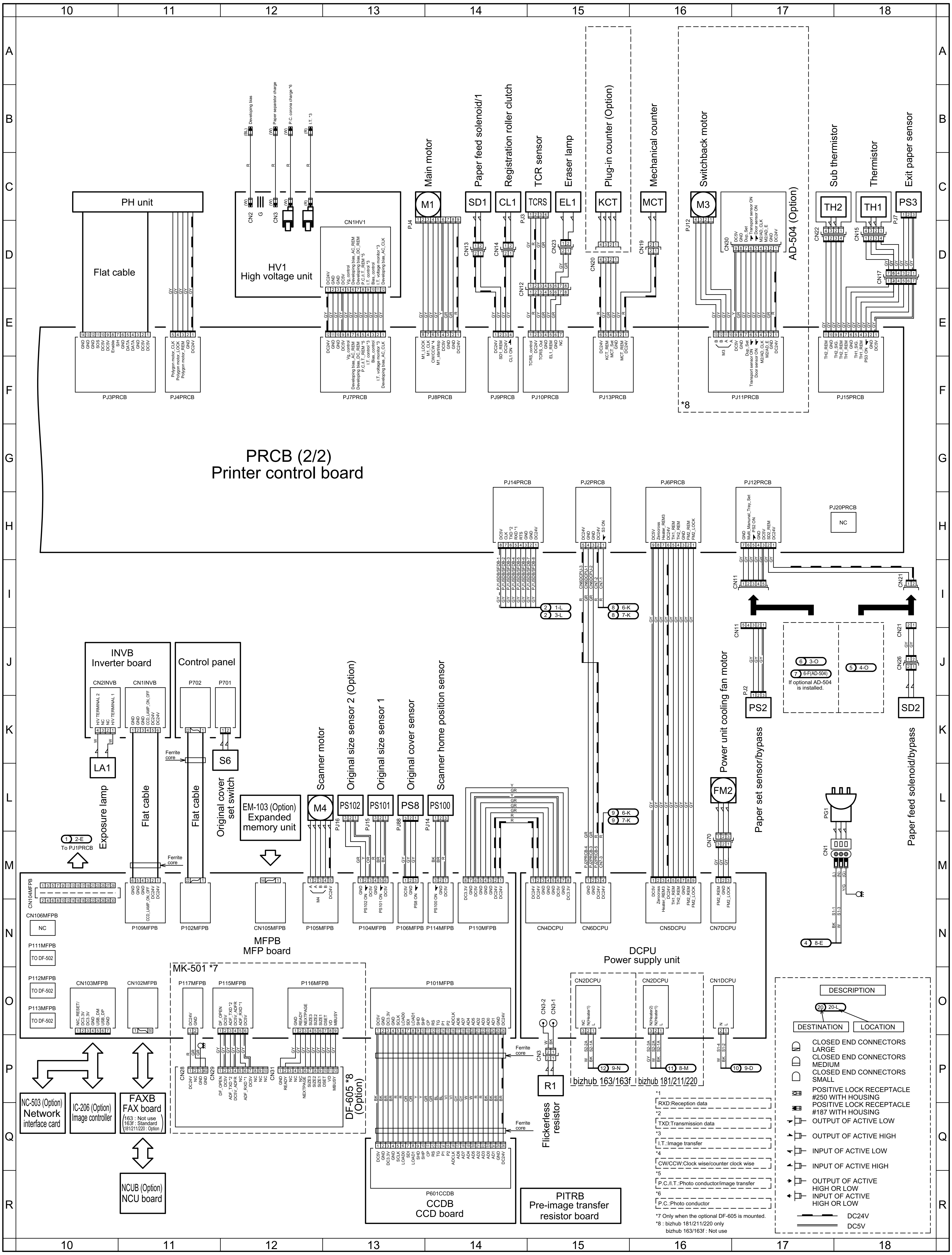
bizhub 163/163f/181/211/220 Overall wiring diagram 2/2


10
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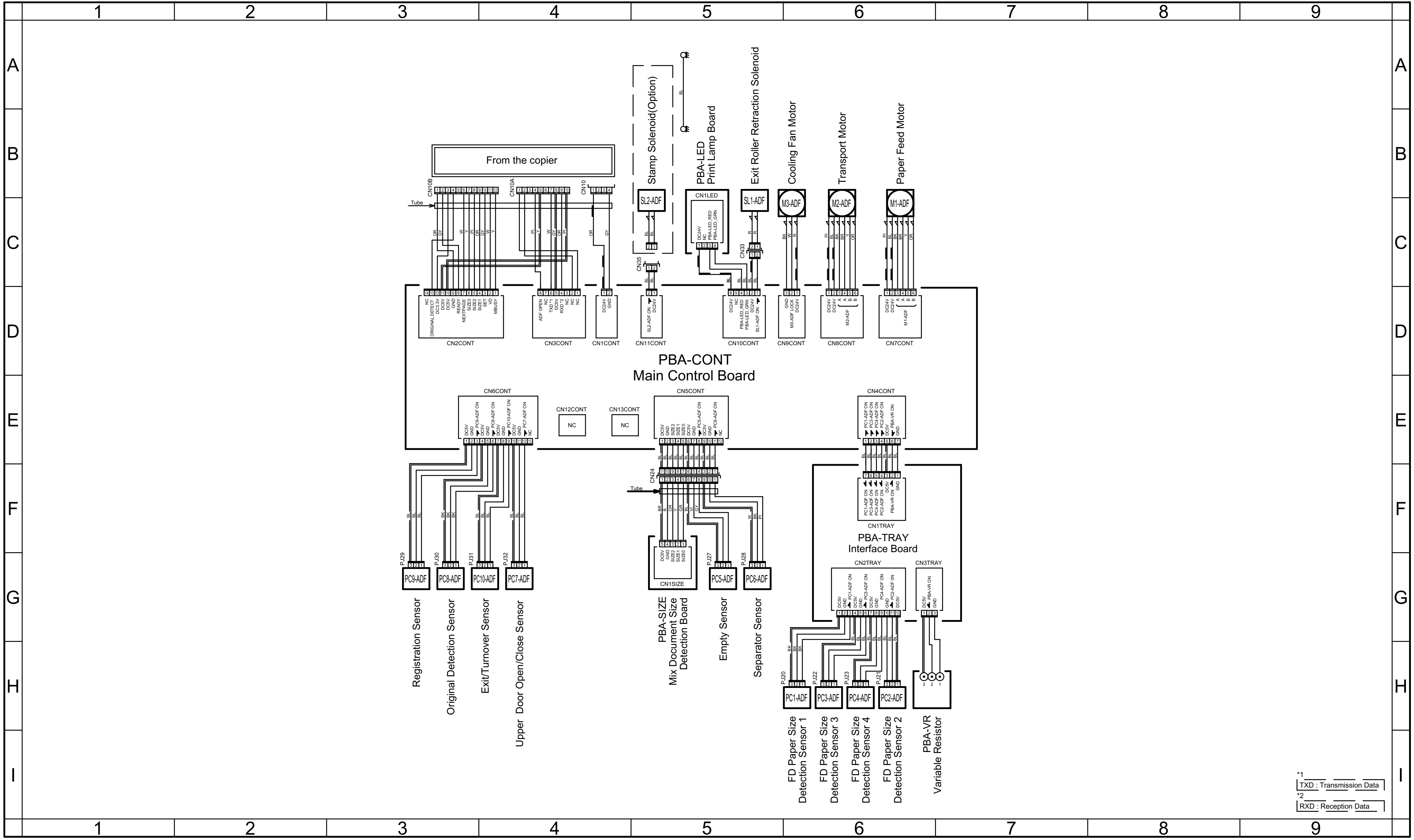
17
18
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
PH unit
Flat cable
PJ3PRCB
PJ4PRCB
HV1
High voltage unit
Developing bias
Paper separator charge
P.C. corona charge *6
I.T. *3
CN1HV1
PJ7PRCB
Main motor
M1
PJ8PRCB
Paper feed solenoid/1
SD1
Registration roller clutch
CL1
PJ9PRCB
TCR sensor
TCRS
Eraser lamp
EL1
PJ10PRCB
Plug-in counter (Option)
KCT
Mechanical counter
MCT
PJ13PRCB
Switchback motor
M3
AD-504 (Option)
PJ11PRCB
*8
Sub thermistor
TH2
Thermistor
TH1
Exit paper sensor
PS3
PJ15PRCB
PRCB (2/2)
Printer control board
PJ14PRCB
PJ2PRCB
PJ6PRCB
PJ12PRCB
PJ20PRCB
NC
If optional AD-504 is installed.
PS2
Paper set sensor/bypass
SD2
Paper feed solenoid/bypass
Power unit cooling fan motor
FM2
INVB
Inverter board
CN2INVB
CN1INVB
LA1
Exposure lamp
Control panel
P702
P701
S6
Original cover set switch
Ferrite core
Flat cable
EM-103 (Option)
Expanded memory unit
Scanner motor
M4
Original size sensor 2 (Option)
PS102
Original size sensor 1
PS101
Original cover sensor
PS8
Scanner home position sensor
PS100
To PJ1PRCB
CN104MFPB
CN106MFPB
P111MFPB
TO DF-502
P112MFPB
P113MFPB
P109MFPB
P102MFPB
CN105MFPB
P105MFPB
P104MFPB
P106MFPB
P114MFPB
P110MFPB
CN4DCPU
CN6DCPU
CN5DCPU
CN7DCPU
MFPB
MFP board
MK-501 *7
CN103MFPB
CN102MFPB
P117MFPB
P115MFPB
P116MFPB
P101MFPB
DF-605 *8 (Option)
DCPU
Power supply unit
CN2DCPU
CN2DCPU
CN1DCPU
bizhub 163/163f
bizhub 181/211/220
R1
Flickerless resistor
PG1
NC-503 (Option)
Network interface card
IC-206 (Option)
Image controller
FAXB
FAX board
163 : Not use
163f : Standard
181/211/220 : Option
NCUB (Option)
NCU board
P601CCDB
CCDB
CCD board
PITRB
Pre-image transfer resistor board
*1
RXD:Reception data
*2
TXD:Transmission data
*3
I.T.:Image transfer
*4
CW/CCW:Clock wise/counter clock wise
*5
P.C./I.T.:Photo conductor/image transfer
*6
P.C.:Photo conductor
*7 Only when the optional DF-605 is mounted.
*8 : bizhub 181/211/220 only
bizhub 163/163f : Not use
DESCRIPTION
20-L
DESTINATION
LOCATION
CLOSED END CONNECTORS LARGE
CLOSED END CONNECTORS MEDIUM
CLOSED END CONNECTORS SMALL
POSITIVE LOCK RECEPTACLE #250 WITH HOUSING
POSITIVE LOCK RECEPTACLE #187 WITH HOUSING
OUTPUT OF ACTIVE LOW
OUTPUT OF ACTIVE HIGH
INPUT OF ACTIVE LOW
INPUT OF ACTIVE HIGH
OUTPUT OF ACTIVE HIGH OR LOW
INPUT OF ACTIVE HIGH OR LOW
DC24V
DC5V

DF-605 Overall Wiring Diagram


1 2 3 4 5 6 7 8 9
A B C D E F G H I
From the copier
CN10B
CN10A
CN10
Tube
Stamp Solenoid(Option)
SL2-ADF
CN35
PBA-LED
Print Lamp Board
CN1LED
Exit Roller Retraction Solenoid
SL1-ADF
CN33
Cooling Fan Motor
M3-ADF
Transport Motor
M2-ADF
Paper Feed Motor
M1-ADF
CN2CONT
CN3CONT
CN1CONT
CN11CONT
CN10CONT
CN9CONT
CN8CONT
CN7CONT
PBA-CONT
Main Control Board
CN6CONT
CN12CONT
NC
CN13CONT
NC
CN5CONT
CN4CONT
CN24
CN1TRAY
PBA-TRAY
Interface Board
CN2TRAY
CN3TRAY
PJ29
PC9-ADF
PJ30
PC8-ADF
PJ31
PC10-ADF
PJ32
PC7-ADF
CN1SIZE
PJ27
PC5-ADF
PJ28
PC6-ADF
PJ20
PC1-ADF
PJ22
PC3-ADF
PJ23
PC4-ADF
PJ21
PC2-ADF
Registration Sensor
Original Detection Sensor
Exit/Turnover Sensor
Upper Door Open/Close Sensor
PBA-SIZE
Mix Document Size
Detection Board
Empty Sensor
Separator Sensor
FD Paper Size
Detection Sensor 1
FD Paper Size
Detection Sensor 3
FD Paper Size
Detection Sensor 4
FD Paper Size
Detection Sensor 2
PBA-VR
Variable Resistor
*1 TXD : Transmission Data
*2 RXD : Reception Data

4344-B001-1A
Jul.2005

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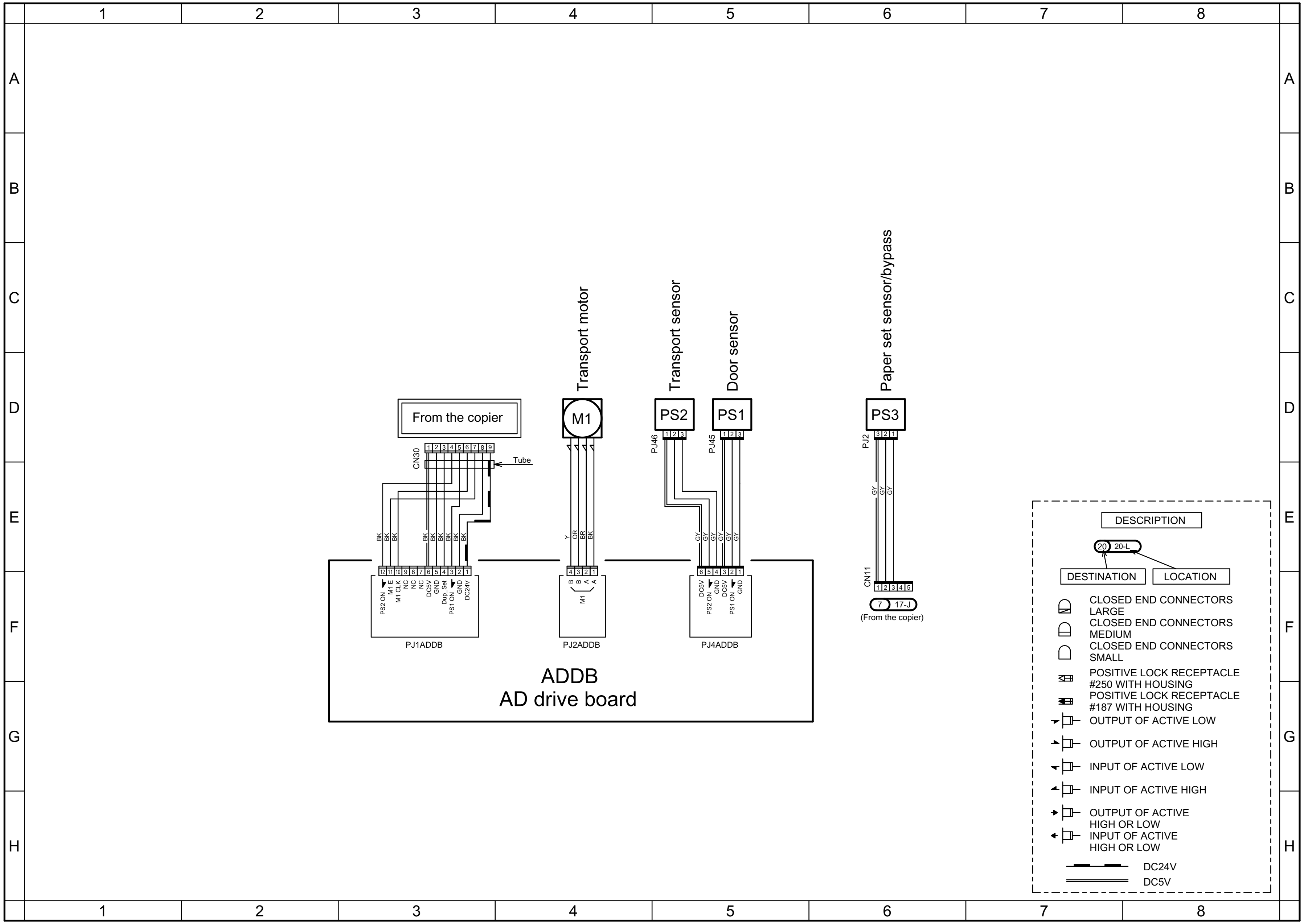
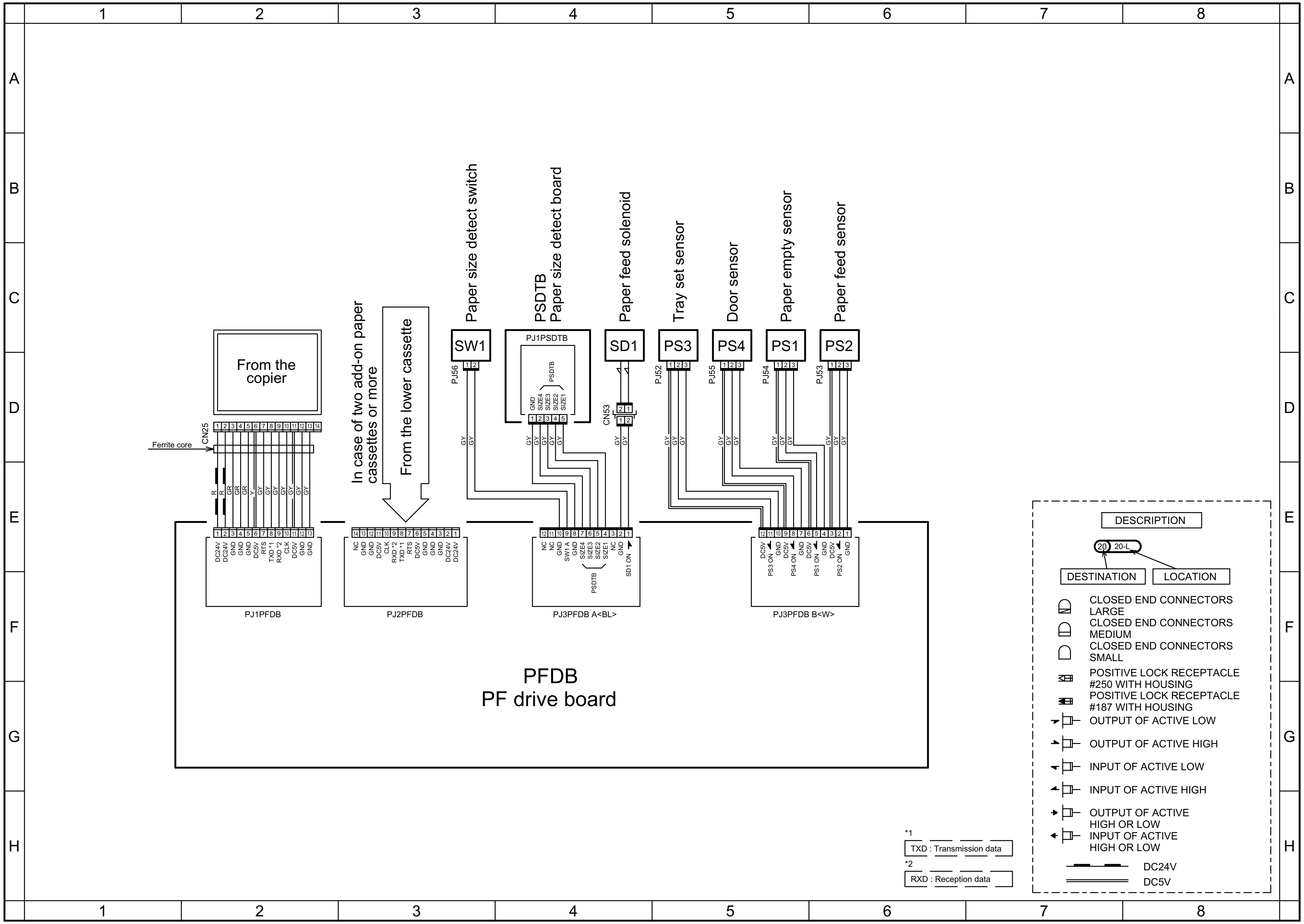
AD-504 Overall wiring diagram


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
Transport motor
Transport sensor
Door sensor
Paper set sensor/bypass
From the copier
M1
PS2
PS1
PS3
CN30
Tube
PJ46
PJ45
PJ2
BK
Y
OR
BR
GY
PS2 ON
M1 E
M1 CLK
NC
DC5V
GND
Dup_Set
PS1 ON
DC24V
B
A
CN11
7
17-J
(From the copier)
PJ1ADDB
PJ2ADDB
PJ4ADDB
ADDB
AD drive board
DESCRIPTION
20
20-L
DESTINATION
LOCATION
CLOSED END CONNECTORS LARGE
CLOSED END CONNECTORS MEDIUM
CLOSED END CONNECTORS SMALL
POSITIVE LOCK RECEPTACLE #250 WITH HOUSING
POSITIVE LOCK RECEPTACLE #187 WITH HOUSING
OUTPUT OF ACTIVE LOW
OUTPUT OF ACTIVE HIGH
INPUT OF ACTIVE LOW
INPUT OF ACTIVE HIGH
OUTPUT OF ACTIVE HIGH OR LOW
INPUT OF ACTIVE HIGH OR LOW
DC24V
DC5V

4532-B001-2A
Apr.2007

PF-502 Overall wiring diagram


1 2 3 4 5 6 7 8
A B C D E F G H
From the copier
CN25
Ferrite core
R R GR GR GR Y GY GY GY GY GY GY GY
In case of two add-on paper cassettes or more
From the lower cassette
Paper size detect switch
SW1
PJ56
PSDTB
Paper size detect board
PJ1PSDTB
GND SIZE4 SIZE3 SIZE2 SIZE1
Paper feed solenoid
SD1
CN53
Tray set sensor
PS3
PJ52
Door sensor
PS4
PJ55
Paper empty sensor
PS1
PJ54
Paper feed sensor
PS2
PJ53
GY
PJ1PFDB
DC24V DC24V GND GND GND DC5V RTS TXD *1 RXD *2 CLK DC5V GND GND
PJ2PFDB
NC GND GND DC5V CLK RXD *2 TXD *1 RTS DC5V GND GND GND DC24V DC24V
PJ3PFDB A<BL>
NC NC GND SW1 A GND SIZE4 SIZE3 SIZE2 SIZE1 NC GND SD1 ON
PSDTB
PJ3PFDB B<W>
DC5V PS3 ON GND DC5V PS4 ON GND DC5V PS1 ON GND DC5V PS2 ON GND
PFDB
PF drive board
*1
TXD : Transmission data
*2
RXD : Reception data
DESCRIPTION
20 20-L
DESTINATION
LOCATION
CLOSED END CONNECTORS LARGE
CLOSED END CONNECTORS MEDIUM
CLOSED END CONNECTORS SMALL
POSITIVE LOCK RECEPTACLE #250 WITH HOUSING
POSITIVE LOCK RECEPTACLE #187 WITH HOUSING
OUTPUT OF ACTIVE LOW
OUTPUT OF ACTIVE HIGH
INPUT OF ACTIVE LOW
INPUT OF ACTIVE HIGH
OUTPUT OF ACTIVE HIGH OR LOW
INPUT OF ACTIVE HIGH OR LOW
DC24V
DC5V

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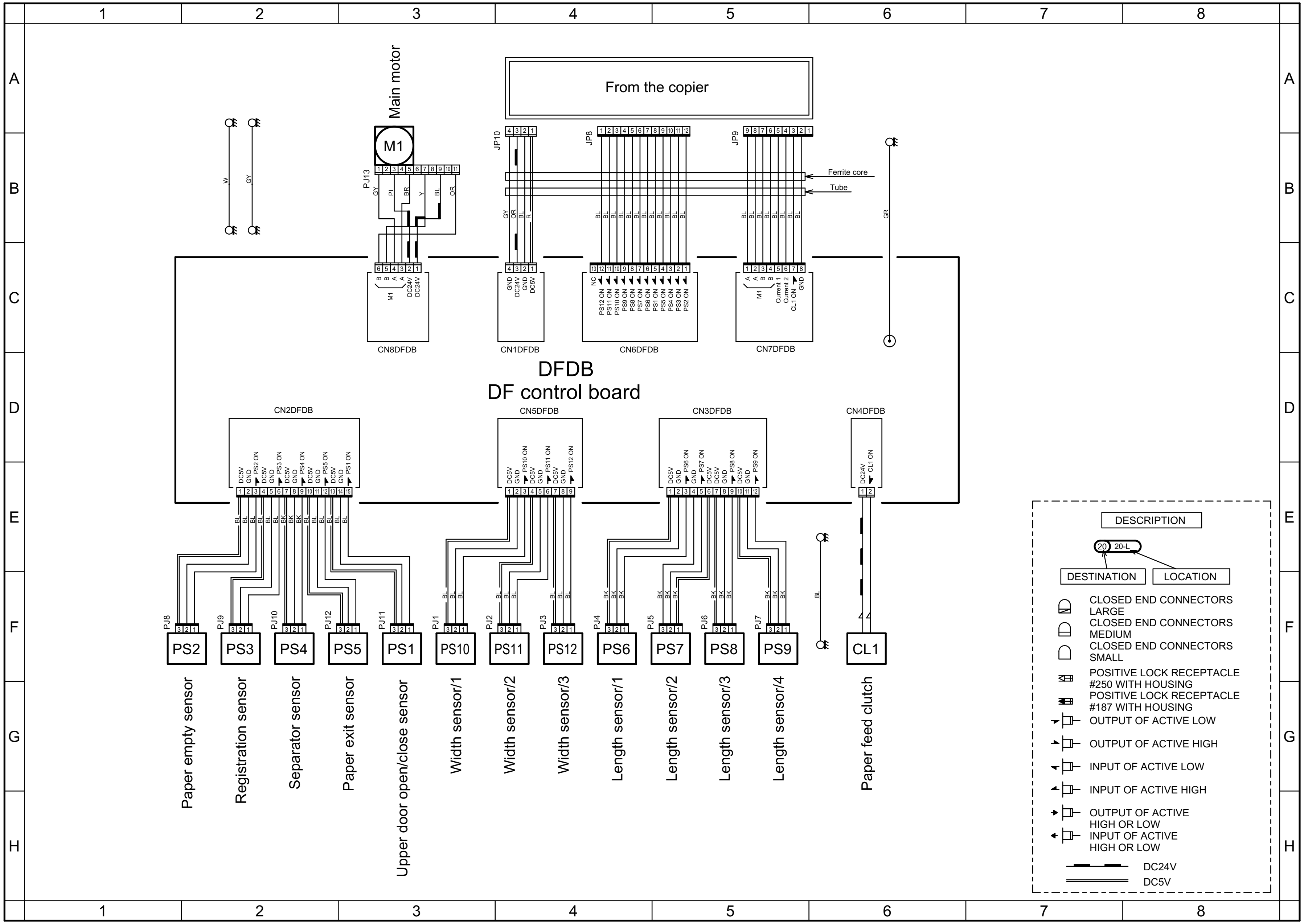
DF-502 Overall wiring diagram



1 2 3 4 5 6 7 8
A B C D E F G H
Main motor
M1
PJ13
From the copier
JP10
JP8
JP9
Ferrite core
Tube
CN8DFDB
CN1DFDB
CN6DFDB
CN7DFDB
DFDB
DF control board
CN2DFDB
CN5DFDB
CN3DFDB
CN4DFDB
PJ8 PJ9 PJ10 PJ12 PJ11 PJ1 PJ2 PJ3 PJ4 PJ5 PJ6 PJ7
PS2 PS3 PS4 PS5 PS1 PS10 PS11 PS12 PS6 PS7 PS8 PS9 CL1
Paper empty sensor
Registration sensor
Separator sensor
Paper exit sensor
Upper door open/close sensor
Width sensor/1
Width sensor/2
Width sensor/3
Length sensor/1
Length sensor/2
Length sensor/3
Length sensor/4
Paper feed clutch
DESCRIPTION
20 20-L
DESTINATION
LOCATION
CLOSED END CONNECTORS LARGE
CLOSED END CONNECTORS MEDIUM
CLOSED END CONNECTORS SMALL
POSITIVE LOCK RECEPTACLE #250 WITH HOUSING
POSITIVE LOCK RECEPTACLE #187 WITH HOUSING
OUTPUT OF ACTIVE LOW
OUTPUT OF ACTIVE HIGH
INPUT OF ACTIVE LOW
INPUT OF ACTIVE HIGH
OUTPUT OF ACTIVE HIGH OR LOW
INPUT OF ACTIVE HIGH OR LOW
DC24V
DC5V

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Printed in Japan
DDA08E-M-FE1