## SERVICE MANUAL

## bizhub c25

## FIELD SERVICE TOTAL CONTENTS

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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 " $\lfloor$ DANGER", " $\$ WARNING", and " $\lfloor$ 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

## 1. 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

## $\triangle$ 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

## $\therefore$ 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.


## Inspection before Servicing

## A CAUTION

- Do not leave the machine unattended during transportation, installation, and inspection of the machine. If it is to be unavoidably left unattended, face protrusions toward the wall or take other necessary risk reducing action.
The user may stumble over a protrusion of the machine or be caught by a cable, falling to the floor or being injured.


## Work Performed with the Product Powered On <br> \. 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 eec-
 tric shock exists.
- If it is absolutely necessary to service the machine with the door open or external covers removed, always be attentive to the motion of the internal parts.
A normally protected part may cause unexpected gaz-
 ards.


## Safety Checkpoints

## \} WARNING

- Check the exterior and frame for edges, burrs, and other damage.
The user or CE may be injured.
- Whenever mounting an option on the machine, be attenfive to the motion of the fellow worker of the joint work. The fellow worker may be injured with his or her finger or hand pinched between the machine and the option.


## Safety Checkpoints

## \} WARNING

- When mounting an option on the machine, be careful about the clearance between the machine and the option. You may be injured with your finger or hand pinched between the machine and the option.
- When removing a part that secures a motor, gear, or other moving part, disassembling a unit, or reinstalling any of such parts and units, be careful about moving parts and use care not to drop any part or unit. During the service procedure, give sufficient support for any heavy unit. You may be injured by a falling part or unit.
- Check the external covers and frame for possible sharp edges, burrs, and damage.
They can be a cause of injury during use or servicing.
- When accessing a hard-to-view or narrow spot, be careful about sharp edges and burrs of the frame and parts. They may injure your hands or fingers.
- 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.
- 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.



## Safety Checkpoints

## \. WARNING

- 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.
- 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

## <br>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 (ace-tone-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.

- 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] 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.


### 4.1 Internal Laser Radiation

| semiconductor laser |  |
| :---: | :---: |
| Maximum power of the laser diode | 15 mW |
| Maximum average radiation power ( ${ }^{*}$ ) | $11.2 \mu \mathrm{~W}$ |
| Wavelength | $770-800 \mathrm{~nm}$ |

*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 | 15 mW |
| Wavelength | $770-800 \mathrm{~nm}$ |

## 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 | 15 mW |
| Wavelength | $770-800 \mathrm{~nm}$ |

## 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 | 15 mW |
| bølgelængden | $770-800 \mathrm{~nm}$ |

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 | 15 mW |
| aallonpituus | $770-800 \mathrm{~nm}$ |

## 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 | 15 mW |
| våglängden | $770-800 \mathrm{~nm}$ |

## 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 | 15 mW |
| bølgelengde | $770-800 \mathrm{~nm}$ |

### 4.2 Laser Safety Label

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



### 4.3 Laser Caution Label

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


A2YFP0C004DA

### 4.4 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.


## INDICATION OF WARNING ON THE MACHINE

Caution labels shown below 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

- This area generates high voltage. Be careful not to touch here when the power is turned ON to avoid getting an electric shock.

Electric hazard

- To avoid electrical shock, after turning OFF the power switch, do not touch the DC power supply for 9 minutes.




WARNING
Do not burn used Waste Toner Bottle.
Toner expelled from the fire is dangerous.


## CAUTION:

- You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from. Do not remove caution labels. And also, when the caution label is peeled off or soiled and cannot be seen clearly, replace it with a new caution label.


## 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.

## 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>

| OUTLINE: | Explanation of system configuration, and product <br> specifications |
| :--- | :--- |
| MAINTENANCE: | Explanation of service schedule, maintenance steps, ser- <br> vice tools, removal/reinstallation methods of major parts, <br> and firmware version up method etc. |
| ADJUSTMENT/SETTING: | Explanation of utility mode, service mode, and mechanical <br> adjustment etc. |
| TROUBLESHOOTING: | Explanation of lists of jam codes and error codes, and <br> their countermeasures etc. |
| APPENDIX: | Parts layout drawings, connector layout drawings, timing <br> 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 C25: Main body
(2) Microsoft Windows 2000:

Microsoft Windows XP:
Microsoft Windows Vista:
Microsoft Windows 7:
Microsoft Windows Server 2003:
Windows 2000
Windows XP
Windows Vista
Windows 7
Windows Server 2003
Microsoft Windows Server 2008:
Windows Server 2008
When the description is made in combination of the OS's mentioned above:
Windows 7/Vista/Server 2008/XP/Server
2003/2000
Windows 7/Vista/XP/2000
Windows Server 2008/Server 2003

## 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 |

## SERVICE MANUAL

 FIELD SERVICE
## bizhub C25

## 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, $\widehat{1}$ is shown at the left margin of the revised section. The number inside $\uparrow$ represents the number of times the revision has been made.
- To indicate clearly a page that contains the revision,
is shown near the page number of the corresponding page.
The number inside $\mathbf{\Lambda}$ 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.

| $2011 / 05$ | 1.1 | 4.1 | Error corrections |
| :---: | :---: | :---: | :--- |
| $2011 / 01$ | 1.0 | - | Issue of the first edition |
| Date | Service manual Ver. | Revision mark | Descriptions of revision |

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## OUTLINE

1. SYSTEM CONFIGURATION

[1] bizhub C25
[3] Lower Feeder Unit (PF-P09)
[2] Compact Flash Adapter (MK-725)
[4] Hard Disk Kit (HD-P03)

## 2. PRODUCT SPECIFICATIONS

### 2.1 Type

| Type | Full-color printer/copier/scanner with stationary plate and ADF |
| :--- | :--- |
| Printing system | Semiconductor laser and electrostatic image transfer to plain paper |
| Exposure system | 4 laser diode and 1 polygon mirror |
| PC drum type | OPC (organic photo conductor) |
| Photoconductor <br> cleaning | Blade cleaning system |
| Scan resolution | $600 \times 600$ dpi, $600 \times 300$ dpi |
| Luminous source | CCFL Dual |
| Original scanning | Flatbed CIS scanning system |
| Print resolution | $600 \times 600$ dpi |
| Paper feeding system | Tray1: Small roller separation system with torque limiter <br> Tray2: Small roller separation system with torque limiter |
| Developing system | Single-element developing system |
| Charging system | Charge roller system |
| Image transfer | Intermediate transfer belt system |
| system | Curvature separation + charge-neutralizing system |
| Paper separating |  |
| system | Belt fusing |
| Fusing system | Face down (Output tray capacity: 150 sheets (A4S/LetterS)) |
| Paper exit system |  |

### 2.2 Functions

| Types of original | Sheets, books, and three-dimensional objects |
| :--- | :--- |
| Max. original size | A4 or Legal |
| Max. original weight | 3 kg |
| Multiple copies | 1 to 99 |
| Image loss | Copy <br> Leading edge: 4.0 mm, trailing edge: 4.0 mm, rear edge: 4.0 mm, <br> front edge: 4.0 mm <br> Print: <br> Leading edge: 4.2 mm, trailing edge: 4.2 mm, rear edge: 4.2 mm, <br> front edge: 4.2 mm |
| Warm-up time | Power on to ready: average 38 seconds or less <br> $\left(\right.$ Power on to ready, at ambient temperature of $23^{\circ} \mathrm{C} / 73.4{ }^{\circ} \mathrm{F}$ and rated source <br> voltage) |
| Process speed | $144 \mathrm{~mm} /$ sec. (plain paper) <br> $72.0 \mathrm{~mm} / \mathrm{sec}$. <br> (thick paper1/2, envelope, post card, label, letterhead, glossy $1 / 2)$ |
| First-page output time | 16.0 second or less (A4S/LetterS, plain paper) |


| Copy speed | Simplex <br> Monochrome/Full color: <br> 24.0 page per minutes for A4 (plain paper) 25.0 page per minutes for Letter (plain paper) 12.0 page per minutes for A4 (thick paper1/2) 12.5 page per minutes for Letter (thick paper1/2) <br> Duplex (double-sided) Monochrome/Full color: <br> 24.0 sheet per minutes for A4 (plain paper) 25.0 sheet per minutes for Letter (plain paper) <br> 12.0 sheet per minutes for A4 (thick paper1/2) <br> 12.5 sheet per minutes for Letter (thick paper $1 / 2$ ) |  |
| :---: | :---: | :---: |
| Fixed zoom ratios | Metric area | Enlargement: $x 4.00, \times 2.00, x 1.41, \times 1.15$ Reduction: $x 0.86, x 0.70, x 0.50, x 0.25$ |
|  | Inch area | Enlargement: $x 4.00, \times 2.00, x 1.54, \times 1.29$ <br> Reduction: $\mathrm{x} 0.78, \mathrm{x} 0.64, \mathrm{x} 0.50, \mathrm{x} 0.25$ |
| Variable zoom ratios | Platen: $\times 0.25$ to $\times 4.00$ (in $\times 0.01$ increments) ADF: $\times 0.25$ to $\times 2.00$ (in $\times 0.01$ increments) |  |

### 2.3 Media

| Type |  | Paper source (maximum tray capacity) |  |
| :---: | :---: | :---: | :---: |
|  |  | Tray 1 | Tray 2 |
| Media type | Plain paper (60 to $90 \mathrm{~g} / \mathrm{m}^{2} ; 16$ to 24 lb ) | 100 sheets | 250 sheets |
|  | Thick 1 (91 to $150 \mathrm{~g} / \mathrm{m}^{2}$ ) | 20 sheets | 20 sheets |
|  | Thick 2 (151 to $210 \mathrm{~g} / \mathrm{m}^{2}$ ) |  |  |
|  | Label |  |  |
|  | Letterhead |  |  |
|  | Glossy 1 (100 to $128 \mathrm{~g} / \mathrm{m}^{2}$ ) |  |  |
|  | Glossy 2 (129 to $158 \mathrm{~g} / \mathrm{m}^{2}$ ) |  |  |
|  | Postcard |  |  |
|  | Envelope | 10 sheets | - |
| Media dimensions | Width | 92 to 216 mm * (3.6 to 8.5 inch) | 92 to 216 mm ( 3.6 to 8.5 inch) |
|  | Length | 148 to 356 mm* <br> (5.8 to 14.0 inch) | 148 to 297 mm (5.8 to 11.7 inch) |

*: If the width set 210 mm to 216 mm , the max. length is to 279.4 mm .

### 2.4 Machine specifications

| Power requirements | Voltage: | AC $100 \mathrm{~V}, 120 \mathrm{~V}, 220$ to 240 V |  |
| :---: | :---: | :---: | :---: |
|  | Current: | 100 V | 9.7 A |
|  |  | 110 V | 8.2 A |
|  |  | 120 V | 8.2 A |
|  |  | 127 V | 8.2 A |
|  |  | 220 to 240 V | 4.4 A |
|  | Frequency: | 50 to 60 Hz |  |
| Max power consumption |  | ```1,000 W or less (100 V, 120 V) 900 W or less (110 V) 1,100 W or less (127 V, 220-240 V) Power save mode: 34 W or less``` |  |
| Dimensions |  | $\begin{aligned} & \hline 421.5(\mathrm{~W}) \times 544(\mathrm{D}) \times 476(\mathrm{H}) \mathrm{mm} \\ & 16.6(\mathrm{~W}) \times 21.42(\mathrm{D}) \times 18.74(\mathrm{H}) \text { inch } \\ & \text { * Manual paper feed is not included. } \end{aligned}$ |  |
| Weight |  | Approx. 27.7 <br> Approx. 32.5 | lb) or less without consumables <br> lb) or less with consumables |
| Operating noise |  | During standby <br> During printin <br> During copyin | $\mathrm{B}(\mathrm{A})$ or less $\mathrm{dB}(\mathrm{A})$ or less $\mathrm{dB}(\mathrm{A})$ or less |

### 2.5 Operating environment

| Temperature | $10^{\circ} \mathrm{C}$ to $30^{\circ} \mathrm{C} / 50^{\circ} \mathrm{F}$ to $86^{\circ} \mathrm{F}$ (with a fluctuation of $10^{\circ} \mathrm{C} / 18^{\circ} \mathrm{F}$ or less per hour) |
| :--- | :--- |
| Humidity | $15 \%$ to $85 \%$ (with a fluctuation of $10 \%$ or less per hour) |

### 2.6 Print functions

| Type | Built-in printer controller |
| :--- | :--- |
| RAM | 128 MB (MFP board/1) <br> $256 ~ M B ~(M F P ~ b o a r d / 2) ~$ |
| HDD | 40 GB (User's usage area) |
| Interface | USB 2.0 (High Speed) compliant <br> 10Base-T/100Base-TX/1000Base-T <br> Ethernet, Host USB (PictBridge1.0 USB Device Printing) <br> RJ-45 connector |
| Supported <br> protocols | TCP/IP, IPX/SPX, Ethertalk, UDP |
| Print speed | 20 pages/min. (A4S/LetterS, 1-sided print, plain paper) <br> $12 ~ p a g e s / m i n . ~(A 4 S / L e t t e r S, ~ 1-s i d e d ~ p r i n t, ~ t h i c k ~ p a p e r) ~$ |
| Printer | PostScript3 (3016) <br> PCL 5 e/c, PCL 6 (XL3.0) <br> XPS (Version1.0) <br> PDF Direct Printing (Version 1.7) <br> JPEG/TIFF Direct Print |
| language |  |
| Print resolution | $600 \times 600$ dpi $\times$ 3bit |
| Printer fonts | PCL: 80 fonts, PostScript3: 137 fonts |


|  | Windows Server 2008/Server 2003/Server 2008 x64 Edition/Server 2003 x64 Edition <br> Supported <br> operating <br> system |  |
| :--- | :--- | :--- |
| Windows 7/Vista (ServicePack1)/7 x64 Edition /Vista x64 Edition/ |  |  |
| XP (ServicePack2 or later)/XP x64 Edition/ |  |  |
| Mac OS X (10.3/10.4/10.5/10.6) |  |  |
| Linux SUSE Linux Enterprise Desktop 10 (CUPS Ver. 1.1.23) |  |  |
| Red Hat Enterprise Linux 5 Desktop (CUPS Ver. 1.2.4) |  |  |

### 2.7 Scan functions

| Scannable range | Based on copy specifications |
| :--- | :--- |
| Scan Speed <br> (ADF scan, resolution 300 dpi) | Monochrome: 20 pages/min (A4/Letter) <br> Full color: 10 pages/min (A4/Letter) |
| Functions | Scan to E-mail, Scan to FTP, Scan to SMB, Scan to USB memory |
| Scanning resolution | $150 \times 150$ dpi, $300 \times 300$ dpi <br> (Network Twain: $150 / 300 / 600 / 1,200 / 2,400 / 4,800$ dpi) |
| Supported operation system | Windows 7/Vista/Server 2008/XP/Server 2003 <br> Mac OS X (10.3/10.4/10.5/10.6) |
| Drivers | TWAIN Driver for Windows 7/Vista/Server 2008/XP/Server 2003 <br> TWAIN Driver for Mac OS X (10.3/10.4/10.5/10.6) <br> WIA Driver for Windows 7/Vista/Server 2008/XP <br> WIA Driver for Windows 7/Vista/Server 2008/XP 64bit |
| Output file format | TIFF, PDF, JPEG |

### 2.8 Fax functions

| Applicable lines | PSTN (Public Switched Telephone Network), PBX (Private Branch Exchange) |  |
| :---: | :---: | :---: |
| Resolution | Standard (203 dpi x 98 dpi) |  |
|  | Fine (203 dpi x 196 dpi) |  |
|  | Super fine (203 dpi x 392 dpi) |  |
| Compatibility | ECM/Super G3 |  |
| Modem speed | 2.4 to 33.6 kbps |  |
| Transmit speed | 3 second/page (A4, V.34, 33.6 kbps, JBIG) |  |
| Coding method | MH/MR/MMR/JBIG |  |
| Memory for receiving | 6 MB (approx. 384 pages) |  |
| Paper size | A4S, LegalS, LetterS, 8 1/2x13 1/2S |  |
| Paper type | Plain paper, recycled paper |  |
| Functions | Speed dial | 220 |
|  | Group dial | 20 groups (50 destination stations for one group) |
|  | Broadcast | Available maximum 236 stations. <br> (Speed dial 220 stations, full dial 16 stations) |
|  | Other supported functions | Timer transmission, address book, automatic redial, smoothing |

## NOTE

- These specifications are subject to change without notice.


## MAINTENANCE

## 3. PERIODICAL MAINTENANCE ITEM

### 3.1 Periodical replacement parts list (CRU)

| Class | Part to be replaced | Number of prints | Description | Ref. page |
| :---: | :---: | :---: | :---: | :---: |
| Processing section | Imaging unit ( $\mathrm{C}, \mathrm{M}, \mathrm{Y}, \mathrm{K}$ ) | $\begin{gathered} \text { 30,000 (Continuous printing) } \\ 20,000 \text { (2 pages/job) } \end{gathered}$ |  | P. 11 |
|  | Standard in-box toner cartridge (C,M,Y,K) | $2,000$ <br> (by 5\% chart, 2 pages/job) |  | P. 8 |
|  | High-capacity toner cartridge ( $\mathrm{C}, \mathrm{M}, \mathrm{Y}, \mathrm{K}$ ) | C,M,Y: 4,500 (by 5\% chart, 2 pages/job) |  |  |
|  |  | K: 5,000 <br> (by 5\% chart, 2 pages/job) |  |  |
| Image transfer section | Waste toner bottle (WB-P03) | Monochrome: 26,000 <br> (by 5\% chart, 2 pages/job) |  | P. 14 |
|  |  | Full color: 6,500 <br> (by 5\% chart, 2 pages/job) |  |  |
|  | Transfer roller (TF-P04) | 100,000 (2 pages/job) |  | P. 15 |
|  | Transfer belt unit (TF-P05) | 100,000 (2 pages/job) |  | P. 16 |
| Fusing section | Fuser unit (FU-P02) | 100,000 (2 pages/job) |  | P. 19 |

### 3.2 Periodical replacement parts list (FRU)

### 3.2.1 Main body

| Class | Part to be replaced | Quantity | Parts No. | Actual <br> durable cycle | Description | Ref. <br> page |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: |
| Tray1 <br> (Manual feed tray) | Tray1 feed roller | 1 | $41383032 \# \#$ | 300,000 |  | P.21 |
| Tray2 | Tray2 feed roller | 1 | $41383032 \# \#$ | 300,000 |  | P.23 |

### 3.2.2 Option

| Class | Part to be replaced | Quantity | Parts No. | Actual <br> durable cycle | Description | Ref. <br> page |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Tray3 <br> (Lower feeder unit) <br> PF-P09 | Tray3 feed roller | 1 | $45376214 \# \#$ | 300,000 |  | $* 1$ |

*1: For details, see the optional lower feeder unit (PF-P09) service manual.

### 3.3 Concept of parts life

- See the accompanying sheet "bizhub C25 Concept of parts life" for details.


## 4. PERIODICAL MAINTENANCE PROCEDURE

### 4.1 Processing section

### 4.1.1 Replacing the toner cartridge (C, M, Y, K)

A. Periodically replaced parts/cycle

- Standard-in box toner cartridge (C, M, Y, K): Every 2,000 images
- High-capacity toner cartridge (C, M, Y): Every 4,500 images
- High-capacity toner cartridge (K): Every 5,000 images


## B. Removal procedure



1. Open the front door [1].

2. Slide the lock lever [1] to the left.
3. Grab the handle of the toner cartridge [1] to be replaced, and then pull out the toner cartridge [1].

## C. Reinstallation procedure



1. Take the toner cartridge [2] out of its plastic bag [1].
2. Gently shake the toner cartridge [1] three times to agitate the toner.
3. Peel off the protective film tape [1] from the right side of the toner cartridge.

4. Insert the toner cartridge [1] into the machine.
5. Slide the lock lever [1] to the right to lock the toner cartridge.
6. Remove the protective film [1].
7. Close the front door [1].

### 4.1.2 Replacing the imaging unit (C, M, Y, K)

A. Periodically replaced parts/cycle

- Imaging unit (C, M, Y, K): Every 30,000 images (Continuous printing) or
20,000 images (2 pages/job)
B. Removal procedure

1. Remove the toner cartridge. See P. 8
2. Remove the waste toner bottle.

See P. 14

C. Reinstallation procedure

3. Press down the "Push" marked place [1].
4. Pull the imaging unit [2] out.

1. Take the imaging unit [2] out of the plastic bag [1].


2. Hold the imaging unit with both
hands, and then shake it twice as shown in the illustration.
3. Remove the protective cover [1] from the imaging unit.
4. Remove all packing tape [2] from the imaging unit.
5. Remove the paper [1] from the imaging unit.
6. Remove the protective cover [2] from the imaging unit.

7. Install the waste toner bottle.

See P. 14
9. Install the toner cartridge. See P. 8
10. Close the front door.
7. Slide the imaging unit [1] in.

### 4.2 Transfer section

### 4.2.1 Replacing the waste toner bottle

## A. Periodically replaced parts/cycle

- Waste toner bottle: Every 26,000 images (2 pages/job: monochrome) or 6,500 images (2 pages/job: full color)


## B. Removal procedure



1. Open the front door [1].

2. Raise the left and right handles [1] to unlock the waste toner bottle.
3. Grab the left and right handles [1], remove the waste toner bottle [2].

4. To reinstall, reverse the order of removal.

### 4.2.2 Replacing the transfer roller

A. Periodically replaced parts/cycle

- Transfer roller: Every 100,000 counts (2 pages/job)
B. Removal procedure

1. Open the right door.

2. Push two levers [1] inside to unlock the transfer roller.
3. Rotate the transfer roller [2] in the direction of the arrow.

4. Remove the transfer roller [1].
5. To reinstall, reverse the order of removal.
6. From the Menu, select [SERVICE MODE] $\rightarrow$ [ADJUST] $\rightarrow$ [SUPPLIES REPLACE] $\rightarrow$ [TRANSFER ROLLER] and execute this function to reset the transfer roller counter value.
See P. 149
7. From the Menu, select [PS/PCL PRINT] $\rightarrow$ [QUALITY MENU] $\rightarrow$ [CARIBRATION] $\rightarrow$ [TONE CALIBRATION] and execute this function.

### 4.2.3 Replacing the transfer belt unit

A. Periodically replaced parts/cycle

- Transfer belt unit: Every 100,000 counts (2 pages/job)


## B. Removal procedure

1. Turn OFF the power switch.
2. Remove the waste toner bottle.

See P. 14
3. Remove the toner cartridge ( $C, M, Y, K$ ).

See P. 8
4. Remove the imaging unit ( $C, M, Y, K$ ).

See P. 11

5. Open the right door [1].
6. Remove the exit cover.
7. Completely insert the protective sheet [1] supplied with the transfer belt in the direction of the arrow.


## NOTE

- If the protective sheet is not supplied, use two sheets [1] of A4 or Letter paper as shown in the illustration.

8. Hold the both handles [1] and lower the guide [2].
9. Hold the handles, and then carefully pull out the transfer belt [1].
10. Pull the protective sheet [1] out.


11. Insert the transfer belt [2] along the rails [1].
12. Hold the both handles [1] and raise the guide [2].
13. To reinstall, reverse the order of removal.
14. From the Menu, select [SERVICE MODE] $\rightarrow$ [ADJUST] $\rightarrow$ [SUPPLIES REPLACE] $\rightarrow$ [TRANSFER BELT] and execute this function to reset the transfer belt counter value. See P. 149
15. From the Menu, select [PS/PCL PRINT] $\rightarrow$ [QUALITY MENU] $\rightarrow$ [CARIBRATION] $\rightarrow$ [TONE CALIBRATION] and execute this function.

### 4.3 Fusing section

### 4.3.1 Replacing the fuser unit

|  | \}  CAUTION  |
| :---: | :---: |
| $\overleftrightarrow{\int \unlhd \Omega}$ | - The temperature gets high in the vicinity of the fuser 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 replacing parts/cycle

- Fuser unit: Every 100,000 counts (2 pages/job)
B. Procedure

1. Turn OFF the power switch, unplug the power cord from the power outlet, and let the machine to stand idle for about 20 min .

2. Open the right door [1].

3. Open the fuser unit cover [1].

4. Pull down two levers [1].

5. Remove the fuser unit [1].
6. Install the new fuser unit.
7. From the Menu, select [SERVICE MODE] $\rightarrow$ [ADJUST] $\rightarrow$ [SUPPLIES REPLACE] $\rightarrow$ [FUSER UNIT] and execute this function to reset the fuser unit counter value. See P. 149

### 4.4 Feed section

### 4.4.1 Replacing the tray1 feed roller

A. Periodically replaced parts/cycle

- Tray1 feed roller: Every 300,000 counts
B. Procedure

1. Remove the tray1.

## See P. 47

2. Open the right door.

3. Detach the spring [1] from the hook [2] in order to unlock the plate.
4. Remove six screws [1], and remove the tray 1 feed roller assy [2].

5. Remove the E-ring [1] and the bearing [2], and move the tray 1 feed roller assy [3] in the direction of the arrow.


## NOTE

- When reinstalling the tray 1 feed roller assy, the stopper [1] must be located under the shaft [2] as shown in the illustration.

6. Remove the E-ring [1] and mechanism clutch [2], and remove the tray1 feed roller [3].
7. To reinstall, reverse the order of removal.
NOTE

- When reinstalling the feed roller [1], make sure that it is mounted in the direction shown in the illustration on the left.


### 4.4.2 Replacing the tray2 feed roller

A. Periodically replaced parts/cycle

- Tray2 feed roller: Every 300,000 counts
B. Procedure

1. Remove the tray2.

2. Lock the media lift metal plate [1].
3. Remove two E-rings [2] and the bushing [3].
4. Remove the C-ring [1], and remove the tray2 feed roller [2].

5. To reinstall, reverse the order of removal.


## NOTE

- When reinstalling the feed roller [1], make sure that it is mounted in the direction shown in the illustration on the left.


## 5. SERVICE TOOL

### 5.1 Service material list

| Tool name | Shape | Material No. | Remarks |
| :---: | :---: | :---: | :---: |
| Cleaning pad |  | $000 \mathrm{~V}-18-1$ | 10pcs/1pack |
| Isopropyl alcohol |  | $000 \mathrm{~V}-19-0$ |  |

### 5.2 CE tool list

| Tool name | Shape | Quantity | Parts No. |
| :---: | :---: | :---: | :---: |
| Laser lens cleaning tool |  |  |  |
|  |  | 1 | AOVD 1089 \#\# |
|  |  |  |  |

## 6. FIRMWARE UPGRADE

### 6.1 Controller firmware upgrading (for MFPB/1)

### 6.1.1 Preparations for firmware upgrading

NOTE

- Make sure that the scanner driver has been installed in the PC.
- Before updating the firmware, print Configuration Page to confirm the current Controller Firmware Version.

See P. 154

### 6.1.2 Upgrading procedure

1. Connect the machine and PC using the USB cable.
2. Turn ON the machine's main switch pressing Menu/Select key.
3. Confirm that [*BOOTROM MODE*] appears on the screen.

4. Copy the firmware data and upgrading program in any arbitrary directory of the PC.
5. Double-click "UpdateFW.exe".
6. Click [Browse] and select File path of target file.
7. Click [Update].

8. Firmware updating starts.

9. When [Transfer Successfully!] message appears on the screen, click [OK].

10. Click [Exit] to close the execution tool.

11. Confirm that [FIRMWARE UPDATE OK] message has been displayed, and turn OFF/ ON the machine's main switch.

12. Print [CONFIGURATION PAGE] to confirm the Controller Firmware Version. See P. 154

### 6.2 PS/PCL firmware upgrading (for MFPB/2)

### 6.2.1 Preparations for firmware upgrading

NOTE

- Make sure that the printer driver has been installed in the PC.
- Before updating the firmware, print Configuration Page to confirm the current PS/ PCL Firmware Version.
See P. 154
A. Connection for Windows
(1) Starting the firmware updater

NOTE

- Before starting the firmware updater, turn on the printer, and make sure that it is correctly connected.

1. Download the firmware updater.
2. Double-click "xxxxxxxxxxxx.exe."
3. The printer name and firmware version are displayed. Click the [Next].

4. The license agreement is displayed. Select "I agree", and then click the [Next].

5. The list of printer drivers is displayed. Select the appropriate connection for the environment where the printer is being used.


- For a network connection: Select "Network port."

See P. 30

- For a local connection: Select "Local port."

See P. 32

- When specifying the IP address of the printer: Select "Printer IP address."

See P. 34

## NOTE

- If you select "Network port" or "Local port", make sure that the printer driver has been installed.
- If you select "Printer IP address", the firmware can be updated even if a printer driver is not already installed.


## (2) For a network connection

1. When "Network port" is selected, a list of printer drivers for the network port appears.
2. Select the printer driver, and then click the [Next].

3. A message appears, requesting confirmation to update the firmware. Click the [Start] to begin transferring the firmware.

## NOTE

- Do not turn off the printer while its firmware is being updated.


4. The result of the firmware transfer is displayed. Click the [Exit].

5. If the firmware was successfully updated, the printer will automatically restart.
6. Print [CONFIGURATION PAGE] to confirm the PS/PCL Firmware Version.

See P. 154
<lf spooling of the data fails>
NOTE

- If spooling fails, data may remain in the printer spooler. Delete this data, and then try again.

1. If spooling of the data fails, the following message appears.
2. Click $[\mathrm{OK}]$.

3. Check that the printer is ready and that it is correctly connected, and then click the [Update again].


## (3) For a local connection

1. When "Local port" is selected, a list of printer drivers for the local port appears.
2. Select the printer driver, and then click the [Next].

3. A message appears, requesting confirmation to update the firmware. Click the [Start] to begin transferring the firmware.

NOTE

- Do not turn off the printer while its firmware is being updated.


4. The result of the firmware transfer is displayed. Click the [Exit].

5. If the firmware was successfully updated, the printer will automatically restart.
6. Print [CONFIGURATION PAGE] to confirm the PS/PCL Firmware Version.

See P. 154
<lf spooling of the data fails>
For details, see "For a network connection."
See P. 31

## (4) When specifying the IP address of the printer

1. When "Printer IP address" is selected, the "Printer IP address" box becomes available.
2. Type in the IP address, and then click the [Next].

3. A message appears, requesting confirmation to update the firmware. Click the [Start] to begin transferring the firmware.

## NOTE

- Do not turn off the printer while its firmware is being updated.


4. The result of the firmware transfer is displayed. Click the [Exit].

5. If the firmware was successfully updated, the printer will automatically restart.
6. Print [CONFIGURATION PAGE] to confirm the PS/PCL Firmware Version.

See P. 117
<lf transferring of the data fails>

1. If transferring of the data fails, the following message appears.
2. Click $[\mathrm{OK}]$.

3. Check that the printer is ready and that it is correctly connected, and then click the [Update again].


### 6.3 Engine firmware upgrading

### 6.3.1 Preparations for firmware upgrading

## NOTE

- Make sure that the scanner driver has been installed in the PC.
- Before updating the firmware, print Configuration Page to confirm the current Engine Firmware Version.
See P. 117


### 6.3.2 Upgrading procedure

1. Connect the machine and PC using the USB cable.
2. Turn ON the machine's main switch.
3. Copy the firmware data and upgrading program in any arbitrary directory of the PC.
4. Double-click "UpdateFW.exe".
5. Click [Browse] and select File path of target file.
6. Click [Update].

7. Firmware updating starts.

8. When [Transfer Successfully!] message appears on the screen, click [OK].

9. Click [Exit] to close the execution tool.

10. Confirm that [FIRMWARE UPDATE OK] message has been displayed, and turn OFF/ ON the machine's main switch.
$\square$
11. Print [CONFIGURATION PAGE] to confirm the Engine Firmware Version. See P. 117

## 7. OTHER MAINTENANCE ITEM

### 7.1 Items not allowed to be disassembled and adjusted

## A. Paint-locked screws

## NOTE

- 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


## NOTE

- 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

- To avoid electrical shock, after turning OFF the power switch, do not touch the DC power supply for 9 minutes.
- 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.
E. Precautions for disassembly
- When accessing a hard-to-view or narrow spot, be careful about sharp edges and burrs of the frame and parts.
They may injure your hands or fingers.
- If it is absolutely necessary to service the machine with the door open or external covers removed, always be attentive to the motion of the internal parts.
A normally protected part may cause unexpected hazards.
- When removing a part that secures a motor, gear, or other moving part, disassembling a unit, or reinstalling any of such parts and units, be careful about moving parts and use care not to drop any part or unit. During the service procedure, give sufficient support for any heavy unit.
You may be injured by a falling part or unit.
F. Precautions during setup or transportation
- Whenever mounting an option on the machine, be attentive to the motion of the fellow worker of the joint work.
The fellow worker may be injured with his or her finger or hand pinched between the machine and the option.
- When mounting an option on the machine, be careful about the clearance between the machine and the option.
You may be injured with your finger or hand pinched between the machine and the option.
- Do not leave the machine unattended during transportation, installation, and inspection of the machine. If it is to be unavoidably left unattended, face protrusions toward the wall or take other necessary risk reducing action.
The user may stumble over a protrusion of the machine or be caught by a cable, falling to the floor or being injured.


### 7.1.1 PH unit

A. Reason for prohibition

- The laser runs inside the PH unit. Opening the cover may cause dust to enter and interrupt the laser. Do no remove any screw which may disassemble the PH unit.


### 7.1.2 Fusing unit

A. Reason for prohibition

- Inner part of the fusing unit and the position of the fusing roller are adjusted prior to shipping. Do not remove any screw which may disassemble the fusing unit.


### 7.2 Disassembly/reassembly parts list



| Section | Part name | Ref.Page |
| :---: | :---: | :---: |
| Other parts | Developing motor (M1) | P. 68 |
|  | Main motor (M2) | P. 68 |
|  | Color PC drum motor (M4) | P. 69 |
|  | DC power supply fan motor (FM10) | P. 70 |
|  | Cooling fan motor (FM11) | P. 71 |
|  | Tray2 media feed clutch (CL1) | P72 |
|  | Tray1 media feed clutch (CL2) | P. 72 |
|  | Registration clutch (CL3) | P. 74 |
|  | Toner supply motor/Y (CL4) |  |
|  | Toner supply motor/M (CL5) |  |
|  | Toner supply motor/C (CL6) | P. |
|  | Toner supply motor/K (CL7) |  |
|  | Loop detection clutch (CL8) | P. 77 |
|  | Switchback roller feed clutch (CL11) | P80 |
|  | Switchback roller reverse clutch (CL12) | P.80 |
|  | Duplex conveyance roller clutch (CL13) | P. 83 |
|  | 2nd transfer release solenoid (SD2) | P. 88 |
| Other parts | Scanner motor (M101) | P. 93 |
|  | ADF pick-up roller |  |
|  | ADF feed roller | P. 100 |
|  | ADF separation pad | P. 103 |

*1: Option

### 7.2.1 Cleaning parts list

| Section | Part name | Ref.Page |
| :---: | :--- | :--- |
| Tray1 | Tray1 feed roller | P.104 |
| Tray2 | Tray2 feed roller | P.104 |
| ADF | ADF feed roller | P. 105 |
| Processing section | Laser irradiation section | P.106 |

### 7.3 Disassembly/reassembly procedure

### 7.3.1 Rear cover



1. Remove the rear center cover [1].

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

### 7.3.2 Left cover

1. Slide out tray2.
2. Open the front door.
3. Remove the waste toner bottle

See P. 14
4. Remove the rear cover.

See P. 43

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

### 7.3.3 Rear right cover

1. Remove the rear cover.

See P. 43
2. Open the right door.

3. Remove six screws [1].
4. Release the tab [1], raise the scanner unit, and remove the rear right cover [2].

### 7.3.4 Exit cover

1. Open the right door.

2. Remove the exit cover.

### 7.3.5 Front right cover

1. Open the right door.
2. Remove the waste toner bottle.

See P. 14

3. Remove two caps [1].

5. Remove two screws [1].


### 7.3.6 Tray2


6. Unhook the tab [1], and raise the operation panel.

## NOTE

- When unhook the tab [1], use the flathead screwdriver or the similar tool.

7. Unhook three tabs [1], and remove the front right cover [2].
8. Pull out the tray 2 [1].
9. While pushing the left and right tabs [2], remove the tray 2 [1].

### 7.3.7 Tray1

1. Open the right door.

2. Remove the screw [1], and remove the fixed cover [2].
3. Remove the spring [3].
4. Remove the screw [4], and remove the harness cover [5].
5. Remove the spring [6].
6. Remove the conveyance unit [7].

7. Unlock four tabs [1], and remove the tray 1.

### 7.3.8 Operation panel

1. Remove the ADF.

## See P. 98


2. Peel off the label [1]. NOTE

- After reinstalling the original glass, attach the label (Parts No.: A121 9447 \#\#) again.

3. Remove 12 screws [1], and remove the original glass [2].

## NOTE

- During installation of the original glass, use care not to allow dust or dirt to enter the machine. Clean any dust or dirt that may have entered before attempting to install the original glass.

4. Remove two screws [1].

5. To reinstall, reverse the order of removal.

### 7.3.9 Upper cover

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover.

See P. 43
3. Remove the left cover.

See P. 43
4. Remove the ADF.

See P. 98
5. Remove the scanner unit.

See P. 96
6. Remove the front right cover. See P. 45

5. Disconnect the flat cable [1], and remove the operation panel [2].
7. Remove four screws [1], and remove the upper cover [2].

### 7.3.10 FAX board

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover. See P. 43
3. Remove the left cover. See P. 43

4. Remove nine screws [1], and remove the board protective shield [2].
5. Disconnect two flat cables [1].
6. Remove the screw [2], and remove the flat cables guide [3].
7. Disconnect the connector [1].
8. Remove four screws [2], and remove the FAX board [3].
9. To reinstall, reverse the order of removal.

### 7.3.11 MFP board /1(MFPB /1)/ MFP board/2(MFPB /2)

NOTE

- When the MFP board is replaced, upgrade the firmware to the latest version.

See P. 25

- When the MFP board is replaced with a new one, be sure to execute [BK CLEAR].

See P. 149

1. Remove the waste toner bottle.

## See P. 14

2. Remove the rear cover.

See P. 43
3. Remove the left cover.

See P. 43

4. Remove nine screws [1], and remove the board protective shield [2].
5. Remove seven screws [1], and remove the bracket [2].
6. Remove the backup battery [1].

10. Disconnect all connectors and flat cables.
11. Remove five screws [1], and remove the three brackets [2].
12. Remove three screws [1], and
7. Disconnect three flat cables [1].
8. Remove seven screws [2], and remove the MFP board /2 [3].
9. Remove the FAX board [4]. See P. 50
remove the MFP board /1 [2].
13. To reinstall, reverse the order of removal.


### 7.3.12 Printer control board (PRCB)

NOTE

- When the printer control board is replaced with a new one, be sure to execute [BK CLEAR].
See P. 149

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover.

See P. 43
3. Remove the left cover.

See P. 43
4. Remove the rear right cover.

See P. 44

5. Remove nine screws [1], and remove the board protective shield [2].

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

10. To reinstall, reverse the order of removal.
7. Disconnect all connectors and flat cables.
8. Remove eight screws [1].
9. Remove the print control board [2].

## NOTE

- When the printer control board (PRCB) has been replaced, be sure to remount EEPROM [1] (ICS1). Unmount EEPROM [1] (ICS1) from the old printer control board and mount it on the new printer control board.


## NOTE

- When mounting EEPROM (ICS1), make sure the notches " A " are precisely lined up.


### 7.3.13 DC power supply (DCPU)

## CAUTION

- Note that in the event of DC power supply failure, it can take long before voltage drops even after turning OFF the power switch. To avoid electrical shock, after turning OFF the power switch, do not touch the DC power supply for 9 minutes.

1. Remove the fuser unit.

See P. 19
2. Remove the waste toner bottle.

See P. 14
3. Remove the rear cover.

See P. 43
4. Remove the left cover.

See P. 43
5. Remove the ADF.

See P. 98
6. Remove the scanner unit.

See P. 96
7. Remove the front right cover.

See P. 45
8. Remove the upper cover.

See P. 49

9. Disconnect the connector [1].
10. Remove the screw [2], and remove the exit drive assy [3].
11. Disconnect two connectors [4].

14. Remove the harness [2] from the harness guide [1].
15. Remove eight screws [3], and remove the DC power supply protective cover [4].
16. Disconnect eight connectors [1].
17. Remove seven screws [1] and two board supports [2], and remove the DC power supply [3].
18. To reinstall, reverse the order of removal.

### 7.3.14 High voltage unit (HV1)

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover.

$$
\text { See P. } 43
$$

3. Remove the left cover. See P. 43
4. Remove the rear right cover.

See P. 44
5. Remove the FAX board. See P. 50

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


13. Remove the wire saddle [1] from the bracket.
14. Remove the screw [2]


A2YFF2C151DA

18. Remove the harness from five wire saddles [1].
19. Disconnect all connectors, two flat cables [2], and the USB cable [3] from MFP board / 1.

20. Loosen the screw [1].
21. Remove six screws [2].
22. Remove the MFP boards $1 / 2$ together with their plate.

28. To reinstall, reverse the order of removal.

## NOTE

- To protect the harness, insert paper [1] between the plate and the harness.

23. Remove two hooks [1].
24. Remove five screws [2].
25. Release two tabs [3], and tilt the high voltage unit [4] toward you.
26. Disconnect the flat cable [5].
27. Release two tabs [6], and remove the high voltage unit [4].

### 7.3.15 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 waste toner bottle.

See P. 14
2. Remove the toner cartridge ( $\mathrm{C}, \mathrm{M}, \mathrm{Y}, \mathrm{K}$ ). See P. 8
3. Remove the imaging unit ( $\mathrm{C}, \mathrm{M}, \mathrm{Y}, \mathrm{K}$ ).

See P. 11
4. Remove the exit cover.

See P. 44
5. Remove the transfer belt unit.

See P. 16
6. Remove the fuser unit.

See P. 19
7. Remove the left cover.

See P. 43
8. Remove the rear right cover.

See P. 44
9. Remove the FAX board.

See P. 50
10. Remove the high voltage unit. See P. 57

11. Remove four screws [1], and remove four rails [2].

12. Remove the harness [2] from four harness guides [1].
13. Remove the PH unit [1].

14. To reinstall, reverse the order of removal.

### 7.3.16 Hard disk kit (HD-P03)

1. Turn OFF the power switch.

2. Remove the rear center cover [1].

3. Loosen the screw [1], and remove the metal plate [2].
4. Disconnect two connectors [1], and remove the hard disk kit [2].

5. Remove the hard disk kit [1] from metal plate.

### 7.3.17 CF adapter (MK-725)

1. Turn OFF the power switch.

2. Remove the rear center cover [1].

3. Loosen the screw [1], and remove the metal plate [2].

4. Disconnect two connectors [1], and remove the CF adapter [2].

5. Remove the CF adapter [1] from metal plate.

### 7.3.18 Dual In-Line Memory Module (DIMM)

1. Turn OFF the power switch.

2. Remove the rear center cover [1].

3. Loosen the screw [1], and remove the metal plate [2].

4. To reinstall, reverse the order of removal.
5. Pull the DIMM [1] toward you about 45 degrees, and remove it.
7.3.19 Developing motor (M1)
6. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover. See P. 43
3. Remove the left cover. See P. 43
4. Remove the rear right cover. See P. 44
5. Remove the FAX board. See P. 50
6. Remove the high voltage unit. See P. 57

9. To reinstall, reverse the order of removal.

### 7.3.20 Main motor (M2)

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover.

See P. 43
3. Remove the left cover.

See P. 43
4. Remove the rear right cover.

See P. 44
5. Remove the FAX board.

See P. 50
6. Remove the high voltage unit.

See P. 57
7. Disconnect the connector [1].
8. Remove four screws [2], and remove the developing motor [3].
NOTE

- When installing the motor, try to insert it straight, and take care not to damage the gears.


9. To reinstall, reverse the order of removal.
10. Disconnect the connector [1].
11. Remove four screws [2], and remove the main motor [3].
NOTE

- When installing the motor, try to insert it straight, and take care not to damage the gears.


### 7.3.21 Color PC drum motor (M4)

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover.

See P. 43
3. Remove the left cover.

See P. 43
4. Remove the rear right cover.

See P. 44
5. Remove the FAX board.

See P. 50
6. Remove the high voltage unit.

See P. 57

9. To reinstall, reverse the order of removal.
7. Disconnect the connector [1].
8. Remove three screws [2], and remove the color PC drum motor [3]. NOTE

- When installing the motor, try to insert it straight, and take care not to damage the gears.


### 7.3.22 DC power supply fan motor (FM10)

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover. See P. 43
3. Remove the left cover.

See P. 43
4. Remove the ADF.

See P. 98
5. Remove the scanner unit.

See P. 96
6. Remove the front right cover.

See P. 45
7. Remove the upper cover.

See P. 49

8. Disconnect the connector [1], and remove it from the wire saddle [2].
9. Remove three screws [3], release the tab [4], and slide the duct [5].
10. Unlock the tab [1], and remove the DC power supply fan motor [2].
11. To reinstall, reverse the order of removal.

### 7.3.23 Cooling fan motor (FM11)

1. Remove the rear cover.

## See P. 43

2. Remove the ADF. See P. 98
3. Remove the Scanner unit.

See P. 96
4. Remove the front right cover.

See P. 45
5. Remove the upper cover.

See P. 49

11. To reinstall, reverse the order of removal.
6. Disconnect the connector [1].
7. Remove the harness [3] from the wire saddle [2].
8. Remove two screws [1].
9. Remove three screws [1], release the tab [2], and slide the duct [3].
10. Remove the cooling fan motor [4].

### 7.3.24 Tray2 media feed clutch (CL1) / Tray1 media feed clutch (CL2)

1. Remove the waste toner bottle.

See P. 14
2. Remove the rear cover.

See P. 43
3. Remove the left cover.

See P. 43
4. Remove the rear right cover.

See P. 44
5. Remove the FAX board.

See P. 50
6. Remove the high voltage unit.

See P. 57
7. Remove the main motor.

See P. 68

8. Remove the harness from the wire saddle [1].
9. Remove the E-ring [2].
10. Remove four screws [3], and remove the fixing metal plate [4].

11. Remove the bushing [1].

14. Remove the bushing [1].
15. Remove the E-ring [1].
16. Disconnect the connector [2], and remove the tray 1 media feed clutch [3].
12. Remove the E-ring [1].
13. Disconnect the connector [2], and remove the tray2 media feed clutch [3].

17. To reinstall, reverse the order of removal.
7.3.25 Registration clutch (CL3)

1. Open the right door.

2. Remove the screw [1], and remove the fixed cover [2].
3. Remove the spring [3].
4. Remove the screw [4], and remove the harness cover [5].
5. Remove the spring [6].
6. Remove the conveyance unit [7].
7. Disconnect the connector [1].
8. Remove the E-ring [2] and the bushing [3], and remove the registration clutch [4].
9. To reinstall, reverse the order of removal.

### 7.3.26 Toner supply clutch/Y (CL4) / Toner supply clutch/M (CL5) /

 Toner supply clutch/C (CL6) / Toner supply clutch/K (CL7)1. Remove the toner cartridge ( $C, M, Y, K$ ).

See P. 8
2. Remove the waste toner bottle.

See P. 14
3. Remove the imaging unit ( $C, M, Y, K$ ).

See P. 11
4. Remove the fuser unit.

See P. 19
5. Remove the rear cover.

See P. 43
6. Remove the left cover.

See P. 43
7. Remove the ADF.

See P. 98
8. Remove the scanner unit.

See P. 96
9. Remove the front right cover.

See P. 45
10. Remove the upper cover.

See P. 49

11. Disconnect the connector [1].
12. Remove the screw [2], and remove the exit drive assy [3].
13. Disconnect two connector [4].

14. Remove the harness from four wire saddles [1].
15. Remove two screws [1].
16. While releasing the lock with the inserted metal ruler [2] or another similar tool as shown in the illustration, remove the toner box drive Assy [3].
17. Remove the stopper [1], and remove the gear [2].
18. Remove the harness from guide, and disconnect the connector [3].
19. Remove the screws [4], and remove the cover [5].
20. Remove the toner supply clutch [1].
21. To reinstall, reverse the order of removal.

### 7.3.27 Loop detection clutch (CL8)

1. Remove the fuser unit.

See P. 19
2. Remove the waste toner bottle.

See P. 14
3. Remove the rear cover.

See P. 43
4. Remove the left cover.

See P. 43
5. Remove the rear right cover.

See P. 44
6. Remove the FAX board.

See P. 50
7. Remove the high voltage unit.

See P. 57
8. Remove the ADF.

See P. 98
9. Remove the scanner unit.

See P. 96
10. Remove the front right cover. See P. 45
11. Remove the upper cover.

See P. 49

12. Disconnect the connector [1].
13. Remove the screw [2], and remove the exit drive assy [3].
14. Disconnect two connectors [4].

15. Remove the wire saddle [1] from metal plate.

16. Loosen the screw [1].
17. Remove the three screws [2].
18. Disconnect the connector [1].
19. Remove two screws [2].

22. To reinstall, reverse the order of removal.

NOTE

- While reinstalling the holder, the gear needs to be pushed.
- After reinstallation, remove the tape attached in step 20.
7.3.28 Switchback roller feed clutch (CL11) / Switchback roller reverse clutch (CL12)

1. Remove the fuser unit.

See P. 19
2. Remove the waste toner bottle.

See P. 14
3. Remove the rear cover.

See P. 43
4. Remove the left cover.

See P. 43
5. Remove the ADF.

See P. 98
6. Remove the scanner unit.

See P. 96
7. Remove the front right cover. See P. 45
8. Remove the upper cover. See P. 49

9. Disconnect the connector [1].
10. Remove the screw [2], and remove the exit drive assy [3].
11. Disconnect two connectors [4].

12. Remove the screw [1].
13. While pushing the tab [2] in the direction of the arrow to unlock it, disassemble and remove the exit drive assy [3].

14. Disconnect two connectors [1].
15. Remove two screws [1], and remove
the gear assy [2].

16. Remove two E-rings [1]
17. Remove two gears [2].
18. Remove two bushings [1], and remove the metal plate [2].
19. Remove two E-rings [1] and two bushings [2].
20. Remove two gears [1] and remove the switchback roller feed clutch [2] or the switchback roller reverse clutch [3].
21. To reinstall, reverse the order of removal.

### 7.3.29 Duplex conveyance roller clutch (CL13)

1. Open the right door.

2. Remove the screw [1], and remove the fixed cover [2].
3. Remove the spring [3].
4. Remove the screw [4], and remove the harness cover [5].
5. Remove the spring [6].
6. Remove the conveyance unit [7].
7. Remove the heavy sponge.

8. Remove the hookup connector from the holder and pull out the connector [1].
9. Remove the E-ring [2] and the bushing [3], and remove the registration clutch [4].

### 7.3.30 Installation of the duplex conveyance roller clutch (CL13)



1. Prepare the heavy sponge shipped with the replacement clutch.

## MAINTENANCE

2. Install the duplex conveyance roller clutch [1] and fix it with the E-ring.

3. Connect the duplex conveyance roller clutch connector [1].
4. Fix the hookup connector of the duplex conveyance roller clutch to the holder of the conveyance unit.
5. Route the harness of the duplex conveyance roller clutch as illustrated on the left.
6. Using tweezers or similar tool, tidy up the harness on the duplex conveyance roller clutch side by pushing it in the direction of the arrow.

7. Make sure that the harness is neatly stored inside.
8. Dampen a cotton swab with alcohol and clean [2] the shaded area [1] shown on the left.
9. Mount the heavy sponge shipped with the clutch on the area cleaned earlier.

## NOTE

- When mounting the heavy sponge, affix it at the location [1] shown in the affixing standard.
- Make sure that the heavy sponge and the harness [2] are not in contact with the harness when the heavy sponge is mounted.


10. Perform steps from 6 to 1 of the duplex conveyance roller clutch (CL13). See P. 83

### 7.3.31 2nd transfer release solenoid (SD2)

1. Remove the registration clutch.

See P. 74

2. Remove the 2nd transfer roller unit assy [1].
3. Remove two screws [1], and remove the duplex conveyance roller assy [2].
4. Remove two screws [1] and unlock two tabs [2], and remove the holder [3].

5. Disconnect the connector [1].
6. Remove the screw [1], and remove the 2nd transfer release solenoid [2].

## NOTE

- If the gears come off and they need to be reinstalled, align the arrow [1] on the gear with the marked line [2] on the holder.

7. To reinstall, reverse the order of removal.

### 7.3.32 Temperature/ humidity sensor (TEM/HUMS)

1. Open the right door.

2. Remove the screw [1], and remove the fixed cover [2].
3. Remove the spring [3].
4. Remove the screw [4], and remove the harness cover [5].
5. Remove the spring [6].
6. Remove the conveyance unit [7].
7. Remove the screw [1] and remove the sensor holder [2] as shown in the illustration on the left.

## NOTE

- Do not jerk off the sensor holder, to which a harness is connected.


9. To reinstall, reverse the order of removal.

### 7.3.33 IDC sensor (IDC)

1. Remove the toner cartridge ( $C, M, Y, K$ ). See P. 8
2. Remove the waste toner bottle. See P. 14
3. Remove the imaging unit ( $C, M, Y, K$ ).

See P. 11
4. Remove the exit cover.

See P. 44
5. Remove the transfer belt unit.

See P. 16

6. Hold the both handles [1] and raise the guide [2].
7. Raise the guide [1] further and remove it.

## NOTE

- Do not jerk off the sensor holder, to which a harness is connected.

8. Disconnect the connector [1], and remove the temperature/humidity sensor [2].

9. Remove two screws [1], and remove the sensor cover [2].
10. While slightly raising the ground plate [1], remove the IDC sensor [2].
11. Disconnect the connector [1], and remove the IDC sensor [2]. NOTE

- Be careful not to break the sensor head [3] of the IDC sensor.


### 7.3.34 Scanner motor (M101)

1. Remove the rear cover.

See P. 43
2. Remove the ADF.

See P. 98

3. Peel off the label [1]. NOTE

- After reinstalling the original glass, attach the label (Parts No.: A121 9447 \#\#) again.

4. Remove 12 screws [1], and remove the original glass [2].

## NOTE

- During installation of the original glass, use care not to allow dust or dirt to enter the machine. Clean any dust or dirt that may have entered before attempting to install the original glass.

5. Remove the screw [1], and remove the earth cable [2].



## MAINTENANCE


7. Remove the harness [1] from two harness guides [2].
8. While releasing the stopper, remove the belt [1].
9. Remove three screws [1], and remove the scanner motor [2].
10. To reinstall, reverse the order of removal.

### 7.3.35 CIS module

1. Remove the rear cover.

See P. 43
2. Remove the ADF. See P. 98

3. Peel off the label [1].

## NOTE

- After reinstalling the original glass, attach the label (Parts No.: A121 9447 \#\#) again.

4. Remove 12 screws [1], and remove the original glass [2].

## NOTE

- During installation of the original glass, use care not to allow dust or dirt to enter the machine. Clean any dust or dirt that may have entered before attempting to install the original glass.

5. While releasing the stopper, remove the belt [1].

6. To reinstall, reverse the order of removal.

### 7.3.36 Scanner unit

1. Remove the rear cover.

See P. 43
2. Remove the left cover.

See P. 43
3. Remove the ADF.

See P. 98

6. Disconnect the flat cable [1], and remove it from the flat cable guide.
7. Remove the CIS module [2].
4. Remove two caps [1].

6. Remove four screws [1].
7. Remove seven screws [1], and remove the bracket [2].
8. Disconnect two flat cables [1] (P103, P104).
9. Disconnect the connector [2] (P106), and remove it from three wire saddles [3].
10. Disconnect the USB cable [4] (CN101) from the MFP board/1, and remove it from five wire saddles [5].
NOTE

- When disconnecting the flat cable, make sure not to lose the ferrite core [6].


11. Remove the harness [1] from the harness guide [2].
12. Remove the earth cable [3] from the wire saddle [4] and the harness guide [2].
13. Remove the tab [1].
14. Remove the scanner unit.

## NOTE

- When unhook the tab [1], use the flathead screwdriver or the similar tool.

15. To reinstall, reverse the order of removal.

### 7.3.37 ADF

1. Remove the rear cover.

See P. 43

2. Remove nine screws [1], and remove the board protective shield [2].

3. Disconnect two connectors [1] (P107,P110).
4. Remove the harness from six wire saddles [1].
5. Remove the screw [2], and remove the earth cable [3] from wire saddle.
6. Remove two screws [1], and remove the ADF [2].
7.3.38 ADF pick-up roller / ADF feed roller


1. Open the ADF feed cover [1].
2. Release two tabs [1], and pull the cover [2] toward you.
3. Unhook two tabs [1], and remove the cover [2].

4. Remove the lever [1], and remove the spring [2].
5. Remove the C-ring [1], and remove the gear [2].
6. Remove two bushing [1].

7. Remove the C-ring [1].
8. Remove the pin [1], and remove the shaft [2].
9. Remove the feed roller [3].

### 7.3.39 ADF separation pad



1. Open the ADF feed cover [1].

2. Unhook two tabs [1], and remove the ADF separator pad [2].

### 7.4 Cleaning procedure

NOTE

- The alcohol described in the cleaning procedure represents the isopropyl alcohol.


### 7.4.1 Tray1 feed roller

1. Open the tray1.

2. Press down the media lifting metal plate [1].
3. Using a cleaning pad dampened with alcohol, wipe the tray 1 feed roller [1] clean of dirt.

### 7.4.2 Tray2 feed roller

1. Slide out tray2.

2. Using a cleaning pad dampened with alcohol, wipe the tray2 feed roller [1] clean of dirt.

### 7.4.3 ADF feed roller



1. Open the ADF feed cover [1].

2. Using a cleaning pad dampened with alcohol, wipe the ADF feed roller [1] clean of dirt.

### 7.4.4 Laser irradiation section

1. Slide out tray2.

2. Remove the cover [1].
3. Remove the laser lens cleaning tool [1].

4. Close the tray2.

5. Open the front door [1].

6. Remove the waste toner bottle [1]. See P. 14
7. Remove the toner cartridge [2]. See P. 8
8. Remove the imaging unit [3].

See P. 11
9. Attach the cover [1] to the removed imaging unit.
10. Insert the laser lens cleaning tool [1] into the imaging unit opening [2], pull it out, and then repeat this back and forth movement 2 or 3 times.

## ADJUSTMENT/SETTING

## 8. HOW TO USE THE ADJUSTMENT/SETTING 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 " ".


## Advance checks

- Before attempting to solve the customer problem, the following advance checks must be made. Check to see if:
- The power supply voltage meets the specifications.
- The power supply is properly grounded.
- 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).
- The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
- The original has a problem that may cause a defective image.
- The density is properly selected.
- The original glass, slit glass, or related part is dirty.
- Correct paper is being used for printing.
- 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.
- Toner is not running out.


## CAUTION

- To unplug the power cord of the machine before starting the service job procedures.
- 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.
- Special care should be used when handling the fuser unit which can be extremely hot.
- The developing unit has a strong magnetic field. Keep watches and measuring instruments away from it.
- Take care not to damage the PC drum with a tool or similar device.
- Do not touch IC pins with bare hands.


## 9. UTILITY

### 9.1 List of UTILITY mode

## NOTE

- Keys displayed on screens are different depending on the setting.
*1: It will be displayed only when the optional lower feeder unit PF-P09 is installed.

| UTILITY mode |  |  |  |
| :---: | :---: | :---: | :---: |
| ACCESSIBILITY | SOUND SETTINGS |  |  |
|  | LCD CONTRAST |  |  |
|  | KEY SPEED | TIME TO START |  |
|  |  | INTERVAL |  |
| MACHINE SETTING | AUTO PANEL RESET |  |  |
|  | SLEEP MODE |  |  |
|  | LANGUAGE |  |  |
|  | INITIAL MODE |  |  |
|  | TONER EMPTY |  |  |
|  | ENABLE WARNING | Toner Low |  |
|  |  | I-Unit Low |  |
|  |  | WASTE NEAR FULL |  |
|  | AUTO CONTINUE |  |  |
|  | CALIBRATION |  |  |
| PAPER SETUP | TRAY1 PAPER | PLAIN PAPER |  |
|  |  | THICK PAPER |  |
|  |  | THICK PAPER2 |  |
|  |  | TRANSPARENCY |  |
|  |  | LABELS |  |
|  |  | LETTERHEAD |  |
|  |  | GLOSSY |  |
|  |  | GLOSSY2 |  |
|  |  | ENVELOPE |  |
|  |  | POSTCARD |  |
|  | TRAY2 PAPER |  |  |
|  | TRAY3 PAPER *1 |  |  |
| ADMIN. MANAGEMENT | PASSWORD SETTING | ADMINISTRATOR NO. |  |
|  | PASSWORD SETTING | FULL FUNC. NO. | CHANGE FUNC. NO. |
|  |  |  | RESTRICT |
|  | REMOTE MONITOR |  |  |


| UTILITY mode |  |  |  |
| :---: | :---: | :---: | :---: |
| ADMIN. MANAGEMENT | NETWORK SETTING | TCP/P |  |
|  |  | IP ADDR. SETTING |  |
|  |  | DHCP |  |
|  |  | BOOTP |  |
|  |  | ARP/PING |  |
|  |  | HTTP |  |
|  |  | FTP SERVER |  |
|  |  | FTP TX |  |
|  |  | SMB |  |
|  |  | BONJOUR |  |
|  |  | DYNAMIC DNS |  |
|  |  | IPP |  |
|  |  | RAW PORT | DISABLE/ENABLE |
|  |  |  | BIDIRECTIONAL |
|  |  | SLP |  |
|  |  | SNMP |  |
|  |  | WSD PRINT |  |
|  |  | IPSEC |  |
|  |  | IP ADDR. FILTER | ACCESS PER. |
|  |  |  | ACCESS REFUSE |
|  |  | IPv6 | DISABLE/ENABLE |
|  |  |  | AUTO SETTING |
|  |  |  | LINK LOCAL |
|  |  |  | GLOBAL ADDRESS |
|  |  |  | GATEWAY ADDRESS |
|  |  | NETWARE |  |
|  |  | APPLETALK |  |
|  |  | SPEED/DUPLEX |  |


| UTILITY mode |  |  |  |
| :---: | :---: | :---: | :---: |
| ADMIN. MANAGEMENT | NETWORK SETTING | IEEE802.1X |  |
|  | E-MAIL SETTING | SMTP |  |
|  |  | SENDER NAME |  |
|  |  | E-MAIL ADDRESS |  |
|  |  | DEFAULT SUBJECT |  |
|  |  | SMTP SERVER ADDR. |  |
|  |  | SMTP PORT NO. |  |
|  |  | SMTP TIMEOUT |  |
|  |  | TEXT INSERT |  |
|  |  | POP BEFORE SMTP | DISABLE/ENABLE |
|  |  |  | POP3 SERVER ADDR. |
|  |  |  | POP3 PORT NO. |
|  |  |  | POP3 TIMEOUT |
|  |  |  | POP3 ACCOUNT |
|  |  |  | POP3 PASSWORD |
|  |  | SMTP AUTH. | DISABLE/ENABLE |
|  |  |  | SMTP USER NAME |
|  |  |  | SMTP PASSWORD |
|  | LDAP SETTING | DISABLE/ENABLE |  |
|  |  | LDAP SERVER ADDR. |  |
|  |  | LDAP PORT NO. |  |
|  |  | SSL SETTING |  |
|  |  | SEARCH BASE |  |
|  |  | ATTRIBUTE |  |
|  |  | SEARCH METHOD |  |
|  |  | LDAP TIMEOUT |  |
|  |  | MAX. SEARCH RESUL | LTS |
|  |  | AUTHENTICATION |  |
|  |  | LDAP ACCOUNT |  |
|  |  | LDAP PASSWORD |  |
|  |  | DOMAIN NAME |  |
|  | MEMORY DIRECT |  |  |
|  | USB SETTING |  |  |
|  | FAX SETTING | AUTO REDIAL | NUMBER OF REDIAL |
|  |  |  | INTERVAL |


|  | UTILITY |  |
| :---: | :---: | :---: |
| ADMIN. MANAGEMENT | FAX SETTING | CONFRIM FAX NO. |
|  |  | DETECT DIAL TONE |
|  | COMM. SETTING | TONE/PULSE |
|  |  | LINE MONITOR |
|  |  | PSTN/PBX |
|  | USER SETTING | PTT SETTING |
|  |  | DATE\&TIME |
|  |  | DAYLIGHT SAVING |
|  |  | DATE FORMAT |
|  |  | PRESET ZOOM |
|  |  | USER FAX NUMBER |
|  |  | USER NAME |
|  | SUPPLIES REPLACE | TRANSFER BELT |
|  |  | FUSER UNIT |
|  |  | TRANSFER ROLLER |
| COPY SETTING | PAPER PRIORITY |  |
|  | TRAY CHAINING |  |
|  | QUALITY PRIORITY |  |
|  | DENSITY PRIORITY |  |
|  | DENSITY LEVEL | AUTO |
|  |  | MANUAL |
|  | SHARPNESS |  |
|  | OUTPUT PRIORITY |  |
|  | N-UP PRIORITY |  |
|  | 4IN1 COPY ORDER |  |
|  | DUPLEX COPY |  |
| DIAL REGISTER | FAVORITE |  |
|  | SPEED DIAL |  |
|  | GROUP DIAL |  |
| FAX TX OPERATION | QUALITY PRIORITY |  |
|  | DENSITY LEVEL |  |
|  | DEFULT TX |  |
|  | HEADER |  |
| FAX RX OPERATION | MEMORY RX MODE |  |
|  | NO. of RINGS |  |
|  | REDUCTION RX |  |
|  | RX PRINT |  |
|  | RX MODE |  |
|  | FORWARD |  |
|  | FOOTER |  |
|  | SELECT TRAY |  |
|  | DUPLEX PRINT |  |


| UTILITY mode |  |
| :---: | :---: |
| REPORTING | ACTIVITY REPORT |
|  | TX RESULT REPORT |
|  | RX RESULT REPORT |
| SCAN SETTING | IMAGE FORMAT |
|  | CODING METHOD |
|  | RESOLUTION |
|  | QUALITY PRIORITY |
|  | DENSITY LEVEL |
|  | SHARPNESS |
|  | SCAN SIZE |
|  | FILE SIZE |
|  | START KEY |

* The settings list shown in the above is in accordance with the screen display format.


### 9.2 Starting/Exiting

### 9.2.1 Starting procedure

1. Select [UTILITY] in the main screen.
2. Press the Select key.
3. The UTILITY mode screen will appear.

- When accessing to [ADMIN. MANAGEMENT], the following procedure is needed starting UTILITY mode.

4. Select [ADMIN. MANAGEMENT], and press the Select key.
5. Enter the 6-digit administrator password using the10-key pad.
(The initial setting for administrator password is "000000.")
6. Press the Select key.
7. [ADMIN. MANAGEMENT] menu will appear.

### 9.2.2 Exiting procedure

- Press the Stop/Reset key.


## 10. REPORT/STATUS

### 10.1 List of REPORT/STATUS mode

*1: It will be displayed only when the optional hard disk kit HD-P03 or CompactFlash card is installed.

|  | REPORT/STATUS mode |
| :---: | :---: |
| TOTAL PRINT | TOTAL PRINT |
|  | MONO COPY |
|  | COLOR COPY |
|  | MONO PRINT |
|  | COLOR PRINT |
|  | FAX PRINT |
|  | TOTAL SCAN |
| SUPPLY STATUS | C TONER |
|  | M TONER |
|  | Y TONER |
|  | K TONER |
|  | C I-UNIT |
|  | M I-UNIT |
|  | Y I-UNIT |
|  | K I-UNIT |
| TX/RX RESULT |  |
| REPORT | TX RESULT REPORT |
|  | RX RESULT REPORT |
|  | ACTIVITY REPORT |
|  | MEMORY DATA LIST |
|  | MEMORY IMAGE PRINT |
|  | FAVORITE LIST |
|  | SPEED DIAL LIST |
|  | GROUP DIAL LIST |
|  | UTILITY MAP |
|  | PS/PCL MENU MAP |
|  | CONFIGURATION PAGE |
|  | PS FONT LIST |
|  | PCL FONT LIST |
|  | DIRECTORY LIST *1 |

### 10.2 Starting/Exiting

10.2.1 Starting procedure

1. Select [REPORT/STATUS] in the main screen.
2. Press the Select key.
3. The REPORT/STATUS mode screen will appear.

### 10.2.2 Exiting procedure

- Press the Stop/Reset key.


### 10.3 CONFIGURATION PAGE

- To check the status and the usage of the machine (consumables, maintenance parts and paper).


### 10.3.1 Sample of CONFIGURATION PAGE

Product Name:KONICA MINOLTA bizhub C25
DATE:01. FEB. 2010 00:00

- Supplies Status -
Toner Cartridge Cyan
Toner Cartridge Magenta
Toner Cartridge Yellow
Toner Cartridge Black
Image Unit Cyan
Image Unit Magenta
Image Unit Yellow
Image Unit Black
Waste Toner Bottle
Status
Empty
Near Empty
Ready
Ready
Empty
Near Empty
Ready
Ready
Ready Configuration Page
Remaining \%
$0 \%$
$4 \%$
$88 \%$
$90 \%$
$0 \%$
$4 \%$
$88 \%$
$90 \%$


## Cartridge Type Standard <br> Standard <br> High <br> Starter

- Coverage Information - Normalization:A11 sizes converted to A4 equivalent.

Normalized Total Faces Counter Color Faces Printed Monochrome Faces Printed $\quad$ xxxxxx Total $\underset{x \times x \times x}{x x y x x y}$

Normalized Total Faces Coverage

$\mathrm{Xxxx}^{\mathrm{xxxx}}$
Normalized Coverage Information
Color Average \% $\quad$ xxxxxx $\quad$ Monochrome Average \% xxxxxx
Normalized Coverage Information

| - Counter - |  |
| :---: | :---: |
| Total Faces Counter: | xxxxxx |
| Color Faces Counter |  |
| Copy | xxxxxx |
| Printer | xxxxxx |
| Monochrome Faces Counter |  |
| Copy | xxxxxx |
| Printer | xxxxxx |
| Fax | x xxxxx |
| Total Faces Large Size: | xxxxxy |
| Color Faces Large Size |  |
| Copy | xxxxxx |
| Printer | xxxxxx |
| Monochrome Faces Large Si |  |
| Copy | xxxxxx |
| Printer | mxxyxx |
| Fax | xxxxxx |
| - Paper- |  |
| Sheets Printed by Paper Size |  |
| A4 | xxxxix |
| B5 (JIS) | mxxyxx |
| A5 | xxxxxx |
| Legal | mxxyxx |
| Letter | xxxxxx |
| Others | xxxxxx |

Fax

| Total Duplex Counter: | xxxxxx |
| :---: | :---: |
| Color Sheets Counter |  |
| Copy | xxxxxx |
| Printer | xxxxxx |
| Monochrome Sheets Counter |  |
| Copy | xxxxxx |
| Printer | xxxxxx |
| Fax | xxxxxx |
| Total Scan Counter |  |
| Total Scan/Fax | xxxxxx |
| Total Scan/Fax Large Size | xxxxxx |
| Total Scan | xxxxxx |
| Total Scan Large Size | xxxxxx |
| Color Scan | xxxxix |
| Color Scan Large Size | xxxxxx |
| Mono Scan | xxxxix |


| Fax Counter |  |
| :---: | :---: |
| TX Counter $\quad$ xx | xxxxxx |
| RX Counter xx | xxxxxx |
| Scan Counter xx | xxxxxx |
| Sheets Printed by Paper Tray |  |
| Tray1 xx | xxxxxx |
| Tray2 $x x$ | xxxxxx |
| Tray3 xx | xxxxxx |
| Mono Scan Large Size | $x$ |
| Total Fax Scan | xxxxxx |
| Total Fax Scan Large Size | Size xxxxxx |
| Color Copy Scan | xxxxxx |
| Color Copy Scan Large Size | Size xxxxxx |
| Mono Copy Scan | xxxxxx |
| Mono Copy Scan Large Size | Size xxxxxx |

- Machine Setting -

Serial Number
Sleep (min)
Energy Save Mode (min)
Language
Tray Chaining
Toner Empty
1
15
ENGL

STOP

- Firmware Version -

Engine
A2YF-50F0-0302-00 A2YF98D0000100
Boot Code
CC Controlled
pp Controlled
CPLD

- Options -

Tray3
uplex
Memory (Copy+Printer)
Hard Disk
Card A2YF35D0001400 A2YF30F000xx00 V001

PM Parts Information
Not Installed
Installed
$128 \mathrm{Mb}+512 \mathrm{Mb}$
1024 MB
Remaining $\%$
$50 \%$
$78 \%$

Sheets Printed
Plain Paper
Plain Paper
Recycled
Thick
Thick2
Glossy
Glossy2
y Paper Type
xxxxxx
xxxxxx
xxxxxx
xxxxxx
xxxxxx
xxxxxx

| Envelope | xxxxxx |
| :--- | :--- |
| Letterhead | xxxxxx |
| Postcard | xxxxxx |
| Label | xxxxxx |
| Single Side | xxxxxx |
| Special | xxxxxx |

- Network Setting -

Network Interface Ethernet 10Base-T/100Base-TX/1000Base-T
Host Name
Bonjour Discovery
MC4690768213
DHCP $\quad$ ENABLE
B00TP DISABLE
HTTP ENBALE
IP Address $\quad$ 172. 18. 17. 251
Subnet Mask
Gateway Addres
MAC Address

- Fax Setting -

Fax Number
Tone/Pulse
No. Of Rings
No. Oder
Header
Def. Res
Def. Bright
Def. Bright
Line Monitor
Def. Tx Report
Def. Rx Report
Def. Rx
Footer
255. 255.255.0
255. 255.25
172.16 .0 .1
$00: 20: 6 \mathrm{~B}: 76: 82: 13$

Tone
${ }_{\mathrm{O}}^{2} \mathrm{~N}$
STD/TEXT
LOW
0
LOW
LOW
ON
ON
OFF

- Fax Maintenance -

| Fax Maintenance - |  |
| :--- | :--- |
| TX Speed | 33.6 kbps |
| RX Speed | 33.6 kbps |
| TX Leve1 | -9 dBm |
| RX Level | -43 dBm |
| DTMF Level | -9 dBm |
| CNG Level | -11 dBm |
| CED Level | -11 dBm |
| ECM Mode | ON |
| Coding scheme | JBIG |
| Toner Empty Report | OFF |
| Protocol | OFF |

$0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 / 0 /$ O/ 1 Bol
$\begin{array}{llllllllllll}0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / \\ 0 / & 0 / & 0 & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0 / & 0\end{array}$

## A. Supplies Status

- Display the estimated percent of life remaining in the toner cartridge and imaging unit. The type of the toner cartridges that are installed in the printer is also displayed (See the table below).
- Display the status of the waste toner bottle.

| Types of toner cartridges |  |
| :--- | :---: |
| Starter | $\bullet$ Toner cartridge included with a product shipped from the factory: 2.0 K |
| High | $\bullet$ High-capacity toner cartridge: $4.5 \mathrm{~K}(\mathrm{C}, \mathrm{M}, \mathrm{Y}) / 5.0 \mathrm{~K}(\mathrm{~K})$ |

## NOTE

- The percent of life remaining in the toner cartridge or print unit can be used as a guide, but may not exactly reflect the amount that has been used in the toner cartridge or print unit.
B. Coverage Information
- The total number of pages that have been printed is counted and displayed based on the description shown in the following table.
- Normalization: printed pages converted into the standard page size (A4/Letter)

| Coverage Information |  |  | Count condition |
| :---: | :---: | :---: | :---: |
| Normalized Total Faces Counter | Color Faces Printed |  | - Counts by converting the size outputted in color to a value corresponding to A4 pages. <br> 1 -sided (A4): Counts +1 ; 2 -sided (A4): Counts +2 |
|  | Monochrome Faces Printed |  | - Counts by converting the size outputted in monochrome to a value corresponding to A4 pages. 1 -sided (A4): Counts +1 ; 2 -sided (A4): Counts +2 |
|  | Total |  | - Total count of the above printed pages in color and monochrome |
| Normalized Total Faces Coverage | Copy |  | - Average of total dot coverage of copy printing |
|  | Printer |  | - Average of total dot coverage of pc-print printing |
| Normalized Coverage Information | Color Average |  | - Average of total dot coverage of color printing |
|  | Monochrome Average |  | - Average of total dot coverage monochrome printing |
|  | Color Faces | Copy | - Average of total dot coverage of color copy printing |
|  |  | Printer | - Average of total dot coverage of color pc-print printing |
|  | Monochrome Faces | Copy | - Average of total dot coverage of monochrome copy printing |
|  |  | Printer | - Average of total dot coverage of monochrome pc-print printing |
|  |  | Fax | - Average of total dot coverage of fax printing include received data and report. |
|  | Current Toner Cartridge |  | - Average of total dot coverage each color current toner cartridge. |
|  | Last Job |  | - Average of dot coverage of each color of the final job |

## C. PM parts information

- The lower right part of the configuration page shows numerical values that represent consumable/periodic replacement parts (units) counter information.
The table below explains counter information that is provided by each numerical data.


## (1) Display on the configuration page



## (2) Meaning of counter value

|  | o. | Contents |
| :---: | :---: | :---: |
| 1 | Replace | Number of times a High-capacity toner cartridge (K) has been replaced |
| 2 |  | Number of times a Standard-capacity toner cartridge (K) has been replaced * This item is not available in this machine. |
| 3 |  | Number of times a Non-genuine toner cartridge (K) has been replaced |
| 4 |  | Number of times a High-capacity toner cartridge (C) has been replaced |
| 5 |  | Number of times a Standard-capacity toner cartridge (C) has been replaced * This item is not available in this machine. |
| 6 |  | Number of times a Non-genuine toner cartridge (C) has been replaced |
| 7 |  | Number of times a High-capacity toner cartridge (M) has been replaced |
| 8 |  | Number of times a Standard-capacity toner cartridge (M) has been replaced <br> * This item is not available in this machine. |
| 9 |  | Number of times a Non-genuine toner cartridge (M) has been replaced |
| 10 |  | Number of times a High-capacity toner cartridge ( Y ) has been replaced |
| 11 |  | Number of times a Standard-capacity toner cartridge (Y) has been replaced * This item is not available in this machine. |
| 12 |  | Number of times a Non-genuine toner cartridge (Y) has been replaced |
| 13 |  | If Non-genuine TC was used, value is 1 . (default is 0 ) |
| 14 |  | If Refill TC was used, value is 1 . (default is 0 ) |
| 15 |  | Rate of transfer roller remaining (\%) |
| 16 |  | Number of times a transfer roller has been replaced |
| 17 |  | Rate of transfer belt unit remaining (\%) |
| 18 |  | Number of times a transfer belt unit has been replaced |
| 19 |  | Rate of fuser unit remaining (\%) |
| 20 |  | Number of times a fuser unit has been replaced |
| 21 |  | Number of times a imaging unit (K) has been replaced |
| 22 |  | Number of times a imaging unit (C) has been replaced |
| 23 |  | Number of times a imaging unit (M) has been replaced |
| 24 |  | Number of times a imaging unit ( Y ) has been replaced |


| No. |  | Contents |
| :---: | :---: | :---: |
| 25 | Machine setting date | Year (e.g. The year 2011 is displayed as 1.) |
|  |  | Month (e.g. January is displayed as A. February is B. March is C. and December is L.) |
|  |  | Day (e.g. The day 1 is displayed as 01.) |
| 26 | Application counter | Copy print |
| 27 |  | Fax Reception print |
| 28 |  | Report output print |
| 29 |  | PC Print |
| 30 |  | Fax Transmitting pages |
| 31 |  | Scan to E-mail |
| 32 |  | Scan to FTP |
| 33 |  | Scan to SMB |
| 34 |  | Scan to USB |
| 35 |  | Twain |
| 36 |  | USB to Printing |

## 11. PS/PCL PRINT

### 11.1 List of PS/PCL PRINT mode

*1: This menu item appears only if an optional hard disk kit HD-P03 is installed.
*2: This function becomes available only when the optional lower feeder unit PF-P09 is mounted on the machine.
*3: This menu item appears only if an optional hard disk kit or a CompactFlash card of 1GB or more is installed.
*4: This menu item appears only if an optional CompactFlash card is installed.

| PS/PCL PRINT mode |  |  |  |
| :---: | :---: | :---: | :---: |
| PROOF/PRINT MENU *1 |  |  |  |
| PAPER MENU | ANY TRAY SETTING | TRAY1 PAPER | TRAY1 ANY SIZE |
|  |  |  | TRAY1 ANY TYPE |
|  |  | TRAY2 PAPER | TRAY2 ANY SIZE |
|  |  |  | TRAY2 ANY TYPE |
|  |  | TRAY3 PAPER *2 | TRAY3 ANY TYPE |
|  | TRAY CHAINING |  |  |
|  | TRAY MAPPING | TRAY MAPPING MD. |  |
|  |  | LOGICAL TRAY 0-9 |  |
|  | DUPLEX |  |  |
|  | COPIES |  |  |
|  | COLLATE *3 |  |  |
| QUALITY MENU | COLOR MODE |  |  |
|  | BRIGHTNESS |  |  |
|  | HALFTONE | IMAGE PRINTING |  |
|  |  | TEXT PRINTING |  |
|  |  | GRFX. PRINTING |  |
|  | EDGE ENHANCEMENT | IMAGE PRINTING |  |
|  |  | TEXT PRINTING |  |
|  |  | GRFX. PRINTING |  |
|  | EDGE STRENGTH |  |  |
|  | ECONOMY PRINT |  |  |
|  | PCL SETTING | CONTRAST |  |
|  |  | IMAGE PRINTING | RGB SOURCE |
|  |  |  | RGB INTENT |
|  |  |  | RGB GRAY |
|  |  | TEXT PRINTING | RGB SOURCE |
|  |  |  | RGB INTENT |
|  |  |  | RGB GRAY |
|  |  | GRFX. PRINTING | RGB SOURCE |
|  |  |  | RGB INTENT |
|  |  |  | RGB GRAY |


| PS/PCL PRINT mode |  |  |  |
| :---: | :---: | :---: | :---: |
| QUALITY MENU | PS SETTING | IMAGE PRINTING | RGB SOURCE |
|  |  |  | RGB INTENT |
|  |  |  | RGB GRAY |
|  |  |  | DESTINATION PROF |
|  |  | TEXT PRINTING | RGB SOURCE |
|  |  |  | RGB INTENT |
|  |  |  | RGB GRAY |
|  |  |  | DESTINATION PROF |
|  |  | GRFX. PRINTING | RGB SOURCE |
|  |  |  | RGB INTENT |
|  |  |  | RGB GRAY |
|  |  |  | DESTINATION PROF |
|  |  | SIMULATION | SIMULATION PROF |
|  |  |  | SIM. INTENT |
|  |  |  | CMYK GRAY |
|  | CALIBRATION | TONE CALIBRATION |  |
|  |  | CMYK DENSITY | CYAN |
|  |  |  | MAGENTA |
|  |  |  | YELLOW |
|  |  |  | BLACK |
|  |  | COLOR SEPARATION |  |
| SYS DEFAULTMENU | EMULATION | DEF. EMULATION |  |
|  |  | POSTSCRIPT | WAIT TIMEOUT |
|  |  |  | PS ERROR PAGE |
|  |  |  | PS PROTOCOL |
|  |  | PCL | CR/LF MAPPING |
|  |  |  | LINES PER PAGE |
|  |  |  | FONT SOURCE |
|  |  | XPS <*3> | DIGITAL SGN. |
|  |  |  | XPS ERROR PAGE |
|  | PAPER | DEFAULT PAPER | PAPER SIZE |
|  |  |  | CUSTOM SIZE |
|  |  |  | PAPER TYPE |
|  | GRAYSCALE PAGE |  |  |
|  | STARTUP OPTIONS | DO STARTUP PAGE |  |
|  | HOLD JOB TIMEOUT *1 |  |  |
|  | HDD FORMAT *1 | USER AREA ONLY |  |
|  |  | ALL |  |
|  | CARD FORMAT *4 | USER AREA ONLY |  |
|  |  | ALL |  |

## 12. USER SERVICE MODE

### 12.1 List of USER SERVICE MODE

| USER SERVICE MODE |  |  |
| :---: | :---: | :---: |
| FAX MAINTENANCE | TX SPEED |  |
|  | RX SPEED |  |
|  | TX LEVEL |  |
|  | RX LEVEL |  |
|  | DTMF LEVEL |  |
|  | CNG LEVEL |  |
|  | CED LEVEL |  |
|  | ECM MODE |  |
|  | CODING SCHEME |  |
|  | TONER EMPTY REPORT |  |
|  | PROTOCOL REPORT |  |
|  | PC FAX TIMEOUT |  |
|  | TAD TIME OUT |  |
|  | TWAIN TIME OUT |  |
|  | SLEEP OFF |  |
|  | DETECT DIAL TONE |  |
| ADJUST | CIS MAIN ZOOM |  |
|  | CIS SUB ZOOM |  |
|  | CIS MAIN REGIST |  |
|  | CIS SUB REGIST |  |
|  | ADF SUB ZOOM |  |
|  | ADF MAIN REGIST |  |
|  | ADF SUB REGIST |  |
|  | FUSER CONTROL |  |
|  | TOP ADJ. (FRONT) | PLAIN PAPER |
|  |  | THICK1 |
|  |  | THICK2 |
|  |  | ENVELOPE |
|  | LEFT ADJ. (FRONT) | TRAY1 |
|  |  | TRAY2 |
|  |  | TRAY3 |
|  | LEFT ADJ. (BACK) | TRAY1 |
|  |  | TRAY2 |
|  |  | TRAY3 |


| USER SERVICE MODE |  |  |  |
| :---: | :---: | :---: | :---: |
| ADJUST | TRANSFER POWER | SIMPLEX PASS |  |
|  |  | DUPLEX PASS |  |
|  | IMAGE ADJ PARAM |  |  |
|  | TEMPERATURE |  |  |
|  | ENGINE SW |  |  |
|  | MAI N-SCAN SCALE | MAIN SCAN PAGE |  |
|  |  | SCAN ADJUST VALUE |  |
|  | AIDC MODE |  |  |
|  | THICK MODE |  |  |
|  | FINE LINE ADJ |  |  |
| CRU USAGE | TRANSFER BELT |  |  |
|  | FUSER UNIT |  |  |
|  | TRANSFER ROLLER |  |  |
| SUPPLIES REPLACE | TRANSFER BELT |  |  |
|  | FUSER UNIT |  |  |
|  | TRANSFER ROLLER |  |  |
| MAINTEN. MENU | PRINT MENU | EVENT LOG |  |
|  |  | HALFTONE 64 | CYAN64 |
|  |  |  | MAGENTA64 |
|  |  |  | YELLOW64 |
|  |  |  | BLACK64 |
|  |  | HALFTONE128 | CYAN128 |
|  |  |  | MAGENTA128 |
|  |  |  | YELLOW128 |
|  |  |  | BLACK128 |
|  |  | HALFTONE256 | CYAN256 |
|  |  |  | MAGENTA256 |
|  |  |  | YELLOW256 |
|  |  |  | BLACK256 |
|  |  | GRADATION |  |
|  | IMG ADJ THICK | CYAN |  |
|  |  | MAGENTA |  |
|  |  | YELLOW |  |
|  |  | BLACK |  |
|  | IMG ADJ BLACK |  |  |

### 12.2 Starting/Exiting

A. Starting procedure

1. Call the UTILITY mode display to the screen.
2. Keep on pressing $\langle$ key over three seconds.
B. Exiting procedure

- Press the Stop/Reset key.


## 13. SERVICE MODE

### 13.1 LIST OF SERVICE MODE

* The function tree is shown to comply with the format displayed on the screen.
*1: It will be displayed only when the optional lower feeder unit PF-P09 is installed.

| SERVICE MODE |  |  | Ref. page |
| :---: | :---: | :---: | :---: |
| SERVICE'S CHOICE | TX SPEED |  | P. 130 |
|  | RX SPEED |  | P. 130 |
|  | TX LEVEL |  | P. 130 |
|  | RX LEVEL |  | P. 130 |
|  | DTMF LEVEL |  | P. 131 |
|  | CNG LEVEL |  | P. 131 |
|  | CED LEVEL |  | P. 131 |
|  | ECM MODE |  | P. 131 |
|  | CODING SCHEME |  | P. 132 |
|  | TONER EMPTY REPORT |  | P. 132 |
|  | PROTOCOL REPORT |  | P. 133 |
|  | PC FAX TIMEOUT |  | P. 133 |
|  | TWAIN TIMEOUT |  | P. 133 |
|  | SLEEP OFF |  | P. 133 |
|  | ENABLE WARNING | TONER LOW | P. 133 |
|  |  | I-UINT LOW | P. 134 |
|  |  | WASTE NEAR FULL | P. 134 |
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|  | COUNT MODE | COUNT MODE | P. 134 |
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|  | MANUAL INPUT DEST. |  | P. 135 |
| ADJUST | CIS MAIN ZOOM |  | P. 136 |
|  | CIS SUB ZOOM |  | P. 137 |
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|  | FUSER CONTROL |  | P. 143 |
|  | TOP ADJ. (FRONT) | PLAIN PAPER | P. 143 |
|  |  | THICK1 |  |
|  |  | THICK2 |  |
|  |  | ENVELOPE |  |


| SERVICE MODE |  |  |  | Ref. page |
| :---: | :---: | :---: | :---: | :---: |
| ADJUST | LEFT ADJ. (FRONT) | LEFT ADJ TRAY |  | P. 143 |
|  |  | LEFT ADJ TRAY2 |  |  |
|  |  | LEFT ADJ TRAY3 |  |  |
|  | LEFT ADJ. (BACK) | LEFT ADJ TRAY1 |  | P. 144 |
|  |  | LEFT ADJ TRAY2 |  |  |
|  |  | LEFT ADJ TRAY3 |  |  |
|  | TRANSFER POWER | SIMPLEX PASS | PLAIN PAPER | P. 144 |
|  |  |  | THICK1 |  |
|  |  |  | THICK2 |  |
|  |  |  | POSTCARD |  |
|  |  |  | ENVELOPE |  |
|  |  |  | LABEL |  |
|  |  |  | GLOSSY1 |  |
|  |  |  | GLOSSY2 |  |
|  |  | DUPLEX PASS | THICK1 | P. 145 |
|  |  |  | THICK2 |  |
|  |  |  | POSTCARD |  |
|  |  |  | ENVELOPE |  |
|  |  |  | LABEL |  |
|  |  |  | GLOSSY1 |  |
|  |  |  | GLOSSY2 |  |
|  | IMAGE ADJ PARAM |  |  | P. 145 |
|  | TEMPERATURE | PLAIN PAPER |  | P. 145 |
|  |  | THICK |  |  |
|  |  | ENVELOPE |  |  |
|  | MAIN SCAN SCALE | MAIN SCAN PAGE |  | P. 146 |
|  |  | SCAN ADJUST VALUE |  | P. 146 |
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|  | IU YIELD SETTING |  |  | P. 148 |
|  | SUPPLIES REPLACE | TRANSFER BELT |  | P. 149 |
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|  | BK CLEAR |  |  | P. 149 |


| SERVICE MODE |  |  | Ref. page |
| :---: | :---: | :---: | :---: |
| COUNTER | TOTAL PRINT |  | P. 150 |
|  | FAX COUNTER |  | P. 151 |
|  | SCAN COUNTER |  | P. 151 |
|  | TRAY COUNTER |  | P. 151 |
|  | PAPER SIZE COUNTER |  | P. 151 |
|  | PAPER TYPE COUNTER |  | P. 151 |
|  | APPLICATION COUNT. |  | P. 152 |
|  | SUPPLIES STATUS |  | P. 152 |
|  | CRU USAGE |  | P. 152 |
|  | JAM COUNTER |  | P. 152 |
|  | TROUBLE COUNTER |  | P. 152 |
|  | TOTAL SCAN |  | P. 153 |
| DISPLAY | MAIN F/W VER. |  | P. 154 |
|  | ENGINE F/W VER. |  | P. 154 |
|  | MAIN RAM SIZE |  | P. 154 |
|  | SERIAL NO. |  | P. 154 |
|  | PP F/W VER. |  | P. 154 |
|  | PP BOOT VER. |  | P. 154 |
|  | PRINTER RAM SIZE |  | P. 154 |
|  | HARD DISK |  | P. 154 |
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|  | CPLD VER. |  | P. 154 |
| FUNCTION | PAPER FEED TEST | TRAY1 | P. 155 |
|  |  | TRAY2 |  |
|  |  | TRAY3 <*1> |  |
|  | PRN TEST PATTERN | TRAY1 | P. 155 |
|  |  | TRAY2 |  |
|  |  | TRAY3 <*1> |  |
|  | ADF FEED TEST |  | P. 156 |
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|  |  | ELECTRIC PARTS |  |
|  |  | PRINT TEST |  |
|  | ADF TEST | SENSOR | P. 159 |
|  |  | ELECTRIC PARTS |  |
| SOFT SWITCH | CONTROLLER SW |  | P. 160 |
|  | ENGINE SW |  | P. 160 |


| SERVICE MODE |  |  |  | Ref. page |
| :---: | :---: | :---: | :---: | :---: |
| REPORT | SERVICE DATA LIST |  |  | P. 161 |
|  | ERROR CODE LIST |  |  | P. 164 |
|  | T. 30 PROTOCOL LIST |  |  | P. 165 |
|  | SERVICE REPORT |  |  | P. 167 |
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| FIXED ZOOM CHANGE | REDUCTION2 |  |  |  |
|  | REDUCTION1 |  |  |  |
|  | EXPANSION1 |  |  |  |
|  | EXPANSION2 |  |  |  |
| FACTORY TEST | SIGNAL TEST |  |  |  |
|  | SENSOR TEST |  |  |  |
|  | DIAL TEST |  |  |  |
|  | VOLUME TEST |  |  | P. 169 |
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|  | RAM TEST |  |  |  |
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|  |  | ELEMENT PAGE |  | P. 172 |
|  |  | HALFTONE 64 | CYAN64 | P. 174 |
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|  |  |  | YELLOW64 |  |
|  |  |  | BLACK64 |  |
|  |  | HALFTONE 128 | CYAN128 | P. 174 |
|  |  |  | MAGENTA128 |  |
|  |  |  | YELLOW128 |  |
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|  |  |  | MAGENTA256 |  |
|  |  |  | YELLOW256 |  |
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|  |  | GRADATION |  | P. 174 |
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|  | SOFT SWITCH |  |  | P. 175 |
|  | CS REMOTE CARE |  |  | P. 176 |

### 13.2 STARTING/EXITING

### 13.2.1 STARTING PROCEDURE

## NOTE

- Ensure appropriate security for Service Mode function setting procedures. They should NEVER be shown to any unauthorized person not involved with service jobs.
A. Procedure

1. Press the Select key.
2. Press the following keys in this order.; Stop/Reset $\rightarrow 0 \rightarrow 0 \rightarrow$ Stop/Reset $\rightarrow 0 \rightarrow 1$
3. The Service Mode menu will appear.

B. Exiting procedure

- Press the Stop/ Reset Key.


### 13.3 SERVICE'S CHOICE

### 13.3.1 TX SPEED

## A. Use

- Transmit start speed setting. Choose the mode from among the following.


## B. Procedure

- The default setting is V .3433600 bps .

| "V. 3433600 bps" | V. 3431200 bps | V. 3428800 bps | V. 3426400 bps |
| :--- | :--- | :--- | :--- |
| V. 3424000 bps | V. 3421600 bps | V. 3419200 bps | V .3416800 bps |
| V. 1714400 bps | V. 1712000 bps | V. 179600 bps | V .177200 bps |
| V. 299600 bps | V. 297200 bps | V. 274800 bps | V. 272400 bps |

### 13.3.2 RX SPEED

A. Use

- Reception start speed setting. Choose the mode from among the following.


## B. Procedure

- The default setting is V .3433600 bps.

| "V. 3433600 bps" | V. 3431200 bps | V. 3428800 bps | V .3426400 bps |
| :--- | :--- | :--- | :--- |
| V. 3424000 bps | V. 3421600 bps | V. 3419200 bps | V .3416800 bps |
| V. 1714400 bps | V. 1712000 bps | V. 179600 bps | V .177200 bps |
| V. 299600 bps | V. 297200 bps | V. 274800 bps | V. 272400 bps |

### 13.3.3 TX LEVEL

A. Use

- PSK/FSK signal output level.
B. Procedure
- The default setting is -10 dbm .

| -2 dbm | -3 dbm | -4 dbm | -5 dbm | -6 dbm | -7 dbm |
| :--- | :--- | :--- | :--- | :--- | :--- |
| -8 dbm | -9 dbm | $"-10 \mathrm{dbm}$ | -11 dbm | -12 dbm | -13 dbm |
| -14 dbm | -15 dbm | -16 dbm | -17 dbm |  |  |

### 13.3.4 RX LEVEL

A. Use

- Reception sensitivity level.
B. Procedure
- The default setting is -43 dbm .

| -36 dbm | -37 dbm | -38 dbm | -39 dbm | -40 dbm | -41 dbm |
| :--- | :--- | :--- | :--- | :--- | :--- |
| -42 dbm | $"-43 \mathrm{dbm} "$ | -44 dbm | -45 dbm | -46 dbm | -47 dbm |
| -48 dbm | -49 dbm |  |  |  |  |

### 13.3.5 DTMF LEVEL

A. Use

- Dual tone output level.
B. Procedure
- The default setting is -6 dbm .

| -2 dbm | -3 dbm | -4 dbm | -5 dbm | $"-6 \mathrm{dbm} "$ | -7 dbm |
| :--- | :--- | :--- | :--- | :--- | :--- |
| -8 dbm | -9 dbm | -10 dbm | -11 dbm | -12 dbm | -13 dbm |
| -14 dbm | -15 dbm | -16 dbm | -17 dbm |  |  |

### 13.3.6 CNG LEVEL

A. Use

- Calling tone output level.


## B. Procedure

- The default setting is -10 dbm .

| -2 dbm | -3 dbm | -4 dbm | -5 dbm | -6 dbm | -7 dbm |
| :--- | :--- | :--- | :--- | :--- | :--- |
| -8 dbm | -9 dbm | "-10 dbm" | -11 dbm | -12 dbm | -13 dbm |
| -14 dbm | -15 dbm | -16 dbm | -17 dbm |  |  |

### 13.3.7 CED LEVEL

A. Use

- Answer tone output level.
B. Procedure
- The default setting is -10 dbm .

| -2 dbm | -3 dbm | -4 dbm | -5 dbm | -6 dbm | -7 dbm |
| :--- | :--- | :--- | :--- | :--- | :--- |
| -8 dbm | -9 dbm | "-10 dbm" | -11 dbm | -12 dbm | -13 dbm |
| -14 dbm | -15 dbm | -16 dbm | -17 dbm |  |  |

### 13.3.8 ECM MODE

A. Use

- Select error correction mode.

ON: When an error occurs during communication, re-send the frame where the error occurs.
OFF: Any error is ignored during communication.
B. Procedure

- The default setting is ON.
"ON"
OFF


### 13.3.9 CODING SCHEME

A. Use

- Select compression method in TX/RX mode.

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.
B. Procedure

- The default setting is JBIG.
MMR
MR
MH
"JBIG"


### 13.3.10 TONER EMPTY REPORT

A. Use

- Select to generate a report to a specific destination when toner empty status occurs in the engine.
ON: Generate a report to report destination.
OFF: Not to generate report.
B. Procedure
- The default setting is OFF.
ON
"OFF"
- If "ON" is selected, select generate report and send to remote side when toner runs out.
- Enter the telephone number for which the report is to be produced.
- Fax number specifications: An up-to-20-digit number that may consist of [0-9], [*], [\#], [pause], and [space]. (0-9, \#, *, pause, _)
- The report will generate after 20 minutes, 24 hours, 48 hours, or 72 hours after the event has occurred or until the condition is gone.
C. Toner empty report (example)



### 13.3.11 PROTOCOL REPORT

A. Use

- Print communication report.
- Choose one from among the following.

OFF: Disable T. 30 communication report.
ON: Print T. 30 communication report.
ON (ERROR): Print T. 30 communication report when an error occurs.

## B. Procedure

- The default setting is OFF.
"OFF"
ON
ON (ERROR)


### 13.3.12 PC FAX TIMEOUT

A. Use

- Select the time for PC FAX timeout.
- This setting is for USB port only.
- Network timeout is 5 minutes.
B. Procedure
- The default setting is 60 sec .

$$
5 \mathrm{sec} 10 \mathrm{sec} \quad 20 \mathrm{sec} \quad 30 \mathrm{sec} \quad 40 \mathrm{sec} \quad 50 \mathrm{sec} \quad " 60 \mathrm{sec} "
$$

### 13.3.13 TWAIN TIMEOUT

A. Use

- To specify the time for TWAIN time out.
B. Procedure
- The default setting is 6 min .

| $2 \min$ | $4 \min$ | $" 6 \mathrm{~min} "$ | 8 min | 10 min |
| :--- | :--- | :--- | :--- | :--- |
| $12 \min$ | 14 min | 16 min | 18 min |  |

### 13.3.14 SLEEP OFF

A. Use

- To display the option of "OFF" for the sleep mode setting screen available from UTILITY mode.
B. Procedure
- The default setting is HIDDEN.

```
"HIDDEN"
APPEAR
```


### 13.3.15 ENABLE WARNING - TONER LOW

A. Use

- Specifies whether or not a warning appears when the toner is about to run out.
B. Procedure
- The default setting is OFF.

ON
"OFF"

### 13.3.16 ENABLE WARNING - I-UNIT LOW

A. Use

- Specifies whether or not a warning appears when the imaging unit is about to reach the end of its service life.


## B. Procedure

- The default setting is OFF.
ON
"OFF"


### 13.3.17 ENABLE WARNING - WASTE NEAR FULL

## A. Use

- Specifies whether or not a warning appears when the waste toner bottle becomes a near full condition.
B. Procedure
- The default setting is ON.
"ON"
OFF


### 13.3.18 DETECT DIAL TONE

A. Use

- To set whether to use the Dial Tone detection or not.

ON: Detect dial tone before dial.
OFF: Not detect dial tone before dial.
B. Procedure

- The default setting is ON.

> "ON"

OFF

### 13.3.19 COUNT MODE - COUNT MODE

A. Use

- To set the counting method for the total counter and size counter.
- Use to change the counting method for the counters.
B. Procedure
- The default setting is depend on the marketing area.

Mode 1: 1 count per 1 copy cycle (Default: Japan)
Mode 2 : Large size is double counts
(Default: US, Europe, Asian pacific and other areas)

### 13.3.20 COUNT MODE - LARGE PAPER MODE

A. Use

- To set the size regarded as the large size (2 counts.)


## B. Procedure

- The default setting is depend on the marketing area.

Mode 0 : Not counted - Never regard any size as the large size (Default: Japan)
Mode 1 : Regard A3/11 x 17 or more size as the large size.
In this machine, it is virtually no different than [Large Paper size Mode 0]. (Default: US)
Mode 2 : Regard $81 / 2 \times 14$ or more size as the large size. When it exceeds 215.9 mm in the main scan direction and 355.6 mm in the sub scan direction (Default: Europe, Asian pacific)
Mode 3 : Regard Foolscap or more size as the large size.

### 13.3.21 MANUAL INPUT DEST.

A. Use

- To set whether to allow or prohibit to manually enter the destination address on the Fax/ Scan mode.
B. Procedure
- The default setting is ENABLE.
"ENABLE"
DISABLE

When set DISABLE, user can not input destination by ten keys in Fax/Scan mode.

### 13.4 ADJUST

### 13.4.1 CIS MAIN ZOOM

## A. Use

- To adjust for variations in the accuracy of IR parts and their mounting accuracy by varying the scanning zoom ratio in the main scanning direction.
- When the scanner unit has been replaced.
- Adjust the width of $D$ in the copy of the test pattern1 so that the following specification is met.
- $100 \pm 0.5 \%$ (Zoom Ratio = Full Size:100\%)

B. Procedure
- The default setting is $0 \%$.

$$
-2 \% \sim+2 \% ; \text { step: 0.2\% }
$$

1. Print the test pattern1.

See P. 155
2. Enter the [ADJUST] menu in the service mode.
3. Select [CIS MAIN ZOOM] of [ADJUST] and press the Select key.
4. Place the test pattern1 on the original glass and make a test copy.

## NOTE

- The test pattern1 should be positioned vertically.
- Use A4 or Letter paper loaded into tray1 to make the test copy.

5. Check that the width of D in the copy of the test pattern1 meets the specification.

Calculation: ( 1 - Width of $D$ in the document $\div$ Width of $D$ in the copy) $\times 100$ If the width of $D$ is out of specification, adjust it according to the following procedure.
6. Press the Select key.
7. Using the $\mathbf{\Lambda / \nabla}$ key, change the setting value and then press the Select key.
8. Place the test pattern1 on the original glass. Then, make a test copy again and check it. <Adjustment instructions>
If the width of D in the test pattern is longer than the specified width.. Decrease the setting. If the width of $D$ in the test pattern is shorter than the specified width.. Increase the setting.

### 13.4.2 CIS SUB ZOOM

A. Use

- To adjust for variations in the accuracy of IR parts and their mounting accuracy by varying the scanning zoom ratio in the sub-scanning direction.
- When the Scanner unit has been replaced
- Adjust the width of E in the copy of the test pattern1 so that the following specification is met.
- $200 \pm 0.5 \%$ (Zoom Ratio = Full Size:100\%)

B. Procedure
- The default setting is $0 \%$.
-2.0\% ~ "0\%" ~ +2.0\%; Step: 0.2\%

1. Print the test pattern1.

See P. 155
2. Enter the [ADJUST] menu in the service mode.
3. Select [CIS SUB ZOOM] of [ADJUST] and press the Select key.
4. Place the test pattern1 on the original glass and make a test copy.

## NOTE

- The test pattern1 should be positioned vertically.
- Use A4 or Letter paper loaded into tray1 to make the test copy.

5. Check that the width of $E$ in the copy of the test pattern 1 meets the specification.

Calculation: ( 1 - Width of $E$ in the document $\div$ Width of $E$ in the copy) $\times 100$ If the width of $E$ is out of specification, adjust it according to the following procedure.
6. Press the Select key.
7. Using the $\mathbf{\Delta / \nabla}$ key, change the setting value and then press the Select key.
8. Place the test pattern1 on the original glass. Then, make a test copy again and check it. <Adjustment instructions>
If the width of $E$ in the test pattern is longer than the specified width.. Decrease the setting.
If the width of $E$ in the test pattern is shorter than the specified width.. Increase the setting.

### 13.4.3 CIS MAIN REGIST

A. Use

- To adjust for variations in the accuracy of IR parts and their mounting accuracy by varying the scanning start position in the main scanning direction.
- When the original glass is replaced.
- When the Scanner unit has been replaced.


## NOTE

- After the [CIS MAIN ZOOM] adjustments have been performed
- Adjust the amount that widths $A$ and $B$ in the copy of the test pattern1 so that the following specification is met.
- $0 \pm 2.0 \mathrm{~mm}$

B. Procedure
- The default setting is 0 .

$$
\text { -1.5 (-1.5 mm) ~ "0.0 (0.0 mm)" ~ +1.5 (+1.5 mm); Step: } 0.5 \mathrm{~mm}
$$

1. Print the test pattern1.

See P. 155
2. Enter the [ADJUST] menu in the service mode.
3. Select [CIS MAIN REGIST] of [ADJUST] and press the Select key.
4. Place the test pattern1 on the original glass and make a test copy.

NOTE

- The test pattern1 should be positioned vertically.
- Use A4 or Letter paper loaded into tray1 to make the test copy.

5. Check the amount that widths $A$ and $B$ in the copy of the test pattern are shifted. If the shift is out of specification, adjust it according to the following procedure.
6. Press the Select key.
7. Using the $\mathbf{\Delta / \nabla}$ key, change the setting value and then press the Select key
8. Place the test pattern1 on the original glass. Then, make a test copy again and check it.
<Adjustment instructions>
If the width of $A$ is less than the width of $B$..... Increase the setting.
If the width of $B$ is less than the width of $A . . .$. . Decrease the setting.

### 13.4.4 CIS SUB REGIST

A. Use

- To adjust for variations in the accuracy of IR parts and their mounting accuracy by varying the scanning start position in the sub-scanning direction.
- When the original glass is replaced.
- When the Scanner unit has been replaced.


## NOTE

- After the [CIS SUB ZOOM] adjustments have been performed.
- Adjust the width of $C$ in the copy of the test pattern1 so that the following specification is met.
- $20 \pm 2.5 \mathrm{~mm}$

B. Procedure
- The default setting is 0 .

$$
\text { -5.0 (-5.0 mm) ~"0 (0 mm)" ~ +5.0 (+5.0 mm); Step: } 0.5 \text { mm }
$$

1. Print the test pattern1.

See P. 155
2. Enter the [ADJUST] menu in the service mode.
3. Select [CIS SUB REGIST] of [ADJUST] and press the Select key.
4. Place the test pattern1 on the original glass and make a test copy.

NOTE

- The test pattern1 should be positioned vertically.
- Use A4 or Letter paper loaded into tray1 to make the test copy.

5. Check that the width of $C$ in the copy of the test pattern are shifted. If the width of C is out of specification, adjust it according to the following procedure.
6. Press the Select key.
7. Using the $\mathbf{\Delta / \nabla}$ key, change the setting value and then press the Select key.
8. Place the test pattern1 on the original glass. Then, make a test copy again and check it.
<Adjustment instructions>
If the width of $C$ in the test pattern is longer than the specified width.. Increase the setting.
If the width of C in the test pattern is shorter than the specified width.. Decrease the setting.

## 13．4．5 ADF SUB ZOOM

A．Use
－To adjust for variations in the accuracy of all parts and their mounting accuracy by vary－ ing the scanning zoom ratio in the sub－scanning direction（1－side）when using the Auto－ matic Document Feeder
－When the original glass is replaced．
－When a new Auto Document Feeder Unit is mounted

## NOTE

## After the［CIS SUB ZOOM］adjustments have been performed

－Adjust the length of $E$ in the copy of the test pattern so that the following specification is met．
－ $200 \pm 0.5$ \％（Zoom Ratio＝Full Size： 100 \％）


B．Procedure
－The default setting is $0 \%$ ．
-2.0\% ~ "0\%" ~ +2.0\%; step: 0.4\%

1．Print the test pattern1．
See P． 155
2．Enter the［ADJUST］menu in the service mode．
3．Select［ADF SUB ZOOM］，and press the Select key．
4．Place the test pattern1 on the original glass and make a test copy
5．Select［TEST COPY］and press the Select key to make a test copy．
NOTE
The test pattern1 should be positioned vertically．
Use A4 or Letter paper loaded into tray1 to make the test copy．
6．Check that the width of $E$ in the copy of the test pattern1 meets the specification．
Calculation：（ 1 －Width of $E$ in the document $\div$ Width of $E$ in the copy）$\times 100$ If the width of E is out of specification，adjust it according to the following procedure．
7．Select［ADJUST］，and press the Select key．
8．Using the $\mathbf{\Delta} / \boldsymbol{\nabla}$ key，change the setting value and then press the Select key
9．Place the test pattern1 on the original glass．Then，make a test copy again and check it．
＜Adjustment instructions＞
If the width of D in the test pattern is longer than the specified width．．Decrease the setting． If the width of $D$ in the test pattern is shorter than the specified width．．Increase the setting．

### 13.4.6 ADF MAIN REGIST

A. Use

- To adjust for variations in the accuracy of all parts and their mounting accuracy by varying the scanning start position in the main scanning direction (1-side) when using the Automatic Document Feeder.
- When the original glass is replaced.
- When a new Auto Document Feeder Unit is mounted


## NOTE

After the [CIS SUB ZOOM] adjustments have been performed
After the [ADF SUB ZOOM] adjustments have been performed

- Adjust the amount that widths $A$ and $B$ in the copy of the test pattern1 so that the following specification is met.
- $0 \pm 2.0 \mathrm{~mm}$

B. Procedure
- The default setting is $0 \%$.

$$
\text { -1.5 (-1.5 mm) ~ "0.0 (0.0 mm)" ~ +5.0 (+1.5 mm); Step: } 0.5 \mathrm{~mm}
$$

1. Print the test pattern1.

See P. 155
2. Enter the [ADJUST] menu in the service mode.
3. Select [ADF MAIN REGIST], and press the Select key.
4. Place test pattern 1 in the ADF with its printed surface up.
5. Select [TEST COPY] and press the Select key to make a test copy.

## NOTE

The test pattern1 should be positioned vertically.
Use A4 or Letter paper loaded into tray1 to make the test copy.
6. Check the amount that widths $A$ and $B$ in the copy of the test pattern are shifted. If the shift is out of specification, adjust it according to the following procedure.
7. Select [ADJUST], and press the Select key
8. Using the $\mathbf{\triangle} / \boldsymbol{\nabla}$ key, change the setting value and then press the Select key.
9. Place the test pattern1 into the Automatic Document Feeder. Then, make a test copy again and check it.
<Adjustment instructions>
If the width of $A$ is less than the width of $B . . .$. Increase the setting.
If the width of $B$ is less than the width of $A . . .$. Decrease the setting.

### 13.4.7 ADF SUB REGIST

A. Use

- To adjust for variations in the accuracy of all parts and their mounting accuracy by varying the scanning start position in the sub-scanning direction (1-side) when using the Automatic Document Feeder.
- When the original glass is replaced.
- When a new Auto Document Feeder Unit is mounted


## NOTE

After the [CIS SUB ZOOM] adjustments have been performed
After the [ADF SUB ZOOM] adjustments have been performed

- Adjust the width of $C$ in the copy of the test pattern1 so that the following specification is met.
- $20 \pm 2.5 \mathrm{~mm}$

B. Procedure
- The default setting is $0 \%$.

$$
\text { -5.0 (-5.0 mm) ~"0 (0 mm)" ~ +5.0 (+5.0 mm); Step: } 0.5 \mathrm{~mm}
$$

1. Print the test pattern1.

See P. 155
2. Enter the [ADJUST] menu in the service mode.
3. Select [ADF SUB REGIST], and press the Select key.
4. Place test pattern 1 in the ADF with its printed surface up.
5. Select [TEST COPY] and press the Select key to make a test copy.

## NOTE

The test pattern1 should be positioned vertically.
Use A4 or Letter paper loaded into tray1 to make the test copy.
6. Check that the width of $C$ in the copy of the test pattern are shifted. If the width of $C$ is out of specification, adjust it according to the following procedure.
7. Select [ADJUST], and press the Select key.
8. Using the $\mathbf{\Lambda / \nabla}$ key, change the setting value and then press the Select key.
9. Place the test pattern1 into the Automatic Document Feeder. Then, make a test copy again and check it
<Adjustment instructions>
If the width of $C$ in the test pattern is longer than the specified width.. Increase the setting. If the width of $C$ in the test pattern is shorter than the specified width.. Decrease the setting.

### 13.4.8 FUSER CONTROL

A. Use

- Sets the heater lamp lighting control so that it implements the flicker standards.
- To use when flickering from fluorescent light occurs.

0 : Flicker Control is determined according to an area code (Default)
1: Flicker Control is always on (disregarding area code)
2: Flicker Control is always off (disregarding area code)

## B. Procedure

- The default setting is 0 .


### 13.4.9 TOP ADJ (FRONT)

A. Use

- To correct a misaligned print image.

PLAIN PAPER: Adjust the head margin of plain paper.
THICK1: Adjust the head margin of thick paper.
THICK2: Adjust the head margin of thick paper.
ENVELOPE: Adjust the head margin of envelope.
B. Procedure

1. Select [TOP ADJ (FRONT)] and press the Select key.
2. Select desired paper type and press the Select key.
3. Select desired adjustment amount with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.

$$
-15 \text { to }+15(1 \text { step: } 0.21 \mathrm{~mm})
$$

### 13.4.10 LEFT ADJ. (FRONT)

A. Use

- To correct a misaligned print image.

TRAY 1: Adjust the left margin of media fed from tray 1 (manual tray.)
TRAY 2: Adjust the left margin of media fed from tray 2.
TRAY 3: Adjust the left margin of media fed from tray 3.
B. Procedure

1. Select [LEFT ADJ. (FRONT)] and press the Select key.
2. Select desired tray and press the Select key.
3. Select desired adjustment amount with the up key $\mathbf{\Delta}$ /down key $\boldsymbol{\nabla}$ and press the Select key.

$$
-15 \text { to }+15 \text { (1 step: } 0.21 \mathrm{~mm})
$$

### 13.4.11 LEFT ADJ. (BACK)

A. Use

- To correct a misaligned print image.

TRAY 1: Adjust the left margin of media fed from tray 1 (manual tray.)
TRAY 2: Adjust the left margin of media fed from tray 2.
TRAY 3: Adjust the left margin of media fed from tray 3.
B. Procedure

1. Select [LEFT ADJ. (BACK)] and press the Select key.
2. Select desired tray and press the Select key.
3. Select desired adjustment amount with the up key $\mathbf{\Delta}$ /down key $\boldsymbol{\nabla}$ and press the Select key.
4. Select desired setting value with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.

$$
-15 \text { to }+15(1 \text { step: } 0.21 \mathrm{~mm})
$$

### 13.4.12 TRANSFER POWER- SIMPLEX PASS

## A. Use

- Adjust the 2nd image transfer output (ATVC) on the single-sided pages for each media type.
- To use when the transfer failure at the trailing edge occurs.
B. Procedure
- The default setting is 0 .

$$
-8 \text { to }+7
$$

1. Select [TRANSFER POWER] and press the Select key.
2. Select [SIMPLEX PASS] and press the Select key.
3. Select desired media type with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
4. Select desired setting value with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
<Adjustment instructions>
To increase the ATVC value (in the direction of a foggier image), decrease the setting value. To decrease the ATVC value (in the direction of a less foggy image), increase the setting value.

### 13.4.13 TRANSFER POWER- DUPLEX PASS

A. Use

- Adjust the 2nd image transfer output (ATVC) on the duplexed pages for each media type.
- To use when the transfer failure at the trailing edge occurs.
B. Procedure
- The default setting is 0 .

$$
-8 \text { to }+7
$$

1. Select [TRANSFER POWER] and press the Select key.
2. Select [DUPLEX PASS] and press the Select key.
3. Select desired media type with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
4. Select desired setting value with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
<Adjustment instructions>
To increase the ATVC value (in the direction of a foggier image), decrease the setting value.
To decrease the ATVC value (in the direction of a less foggy image), increase the setting value.

### 13.4.14 IMAGE ADJ PARAM

A. Use

- Adjusts the printer in case of an image quality problem (uneven density)
- To correct image quality problems (uneven density) due to the machine being operated at a high altitude.
B. Procedure
- The default setting is 0 .


## 0 to 6

### 13.4.15 TEMPERATURE

A. Use

- When fusing performance is poor, or wax streak or offset occurs when the type of paper is changed or environmental conditions change.
- Use this function when curled paper, or paper misfeed as a result of the curled paper, occurs under varying environmental conditions or depending on the type of paper used.
B. Procedure
- PLAIN PAPER: $-10^{\circ} \mathrm{C}$ to $0^{\circ} \mathrm{C}$ (step: $5^{\circ} \mathrm{C}$ )
- THICK: $-10^{\circ} \mathrm{C}$ to $0^{\circ} \mathrm{C}$ (step: $5^{\circ} \mathrm{C}$ )
- ENVELOPE: $-10^{\circ} \mathrm{C}$ to $0^{\circ} \mathrm{C}$ (step: $5^{\circ} \mathrm{C}$ )

1. Select [TEMPERATURE] and press the Select key.
2. Select the type of paper and press the Select key.
3. Select desired setting value with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
<Adjustment instructions>
If fusing performance is poor, increase the setting.
If wax streaks occur, decrease the setting.
If offset is poor, decrease the setting.
If curling of the paper occurs, decrease the setting.

### 13.4.16 MAIN SCAN SCALE - MAIN SCAN PAGE

A. Use

- Prints the test pattern used for the main scan adjustment.


## B. Procedure

1. Call the Service Mode to the display.
2. Select [ADJUST] $\rightarrow$ [MAIN SCAN SCALE] $\rightarrow$ [MAIN SCAN PAGE], and press the Select key.
3. Select [PRINT], and press the Select key.
4. The test pattern is output.

### 13.4.17 MAIN SCAN SCALE - SCAN ADJUST VALUE

A. Use

- Adjusts magnification in the main scan direction.
- Use when replacing the PH unit.
- This adjustment is necessary when the adjustment values are cleared due to the replacement of the EEPROM on the print control board or other reasons.
B. Procedure

1. Select [ADJUST] $\rightarrow$ [MAIN SCAN SCALE] $\rightarrow$ [MAIN SCAN PAGE] to print the test pattern.

2. Make adjustments so that the gray area on each color sample of the output test pattern becomes parallel to the main scan direction.
Calculate the correction values for cyan, magenta, and yellow in the following way.
$<1>$ Check the numbers indicated on the ends of $A$ and $B$ which correspond to the darkest black lines in the gray area of each color pattern.
(In the example of the yellow pattern, " 1 " is selected for the end of A and " 7 " is selected for the end of B.)
$<2>$ The number indicated on the end of $A$ minus the number on the end of $B$ equals the correction value.
(In the example of the yellow pattern, the calculation is 1-7=-6. "-6" is the correction value.)
3. Call the Service Mode to the display.
4. Select [ADJUST] $\rightarrow$ [MAIN SCAN SCALE] $\rightarrow$ [SCAN ADJUST VALUE], and press the Select key.
5. Select the key for color to be adjusted.
6. Enter the correction value calculated in step 2 and press the Select key.
7. Enter the correction values for cyan, magenta, and yellow respectively.
8. Select [ADJUST] $\rightarrow$ [MAIN SCAN SCALE] $\rightarrow$ [MAIN SCAN PAGE] and output the test pattern again to check the results of the adjustments.

- Specification: The difference between the respective numbers indicated on the ends of $A$ and $B$ which correspond to the darkest black lines must be within 2 steps.


### 13.4.18 AIDC MODE

- Not used.


### 13.4.19 THICK MODE

A. Use

- In order to prevent toner from clogging within the developer unit as a result of it being driven at half-speed, select the timing for driving the developer unit at full speed for a fixed length of time when thick paper is being fed.
QUALITY MODE: While printing on thick paper, printing is periodically paused, and the developer unit is driven at full speed for a fixed length of time. Since printing is paused, the quality is not affected; however, a standby time of approximately 70 seconds occurs every 400 seconds or so of halfspeed operation.
SPEED MODE: While printing on thick paper, only the drive of the developer unit periodically switches to full speed for a fixed length of time. Since printing continues during full-speed drive, the print quality is slightly affected, however the standby time is short.


## B. Procedure

- The default setting is QUALITY MODE.
"QUALITY MODE"


## SPEED MODE

### 13.4.20 FINE LINE ADJ

A. Use

- Adjust how fine lines are reproduced by changing the applied voltage (VC) to the electrostatic roller.


## B. Procedure

- The default setting is 0 .

$$
-4 \text { to } 3
$$

## NOTE

- The User Service Mode can also make this setting by selecting [USER SERVICE MODE] $\rightarrow$ [ADJUST] $\rightarrow$ [FINE LINE ADJ].
However, the adjustable range of the parameter is narrowed to -3 to 2 .


### 13.4.21 IU YIELD SETTINGS

A. Use

- Sets the life detection timing of the imaging unit.

STANDAD: Detect the imaging unit life (prohibition of printing) as the specification value.
LONG : Change the threshold value of the imaging unit life (prohibition of printing) detection, and extend the detection timing.

|  | Standard | Long |
| :---: | :---: | :---: |
| Life (prohibition of printing) threshold value <br> (consumption rate) | $105 \%$ | $150 \%$ |

B. Procedure

- The default setting is STANDARD.


### 13.4.22 SUPPLIES REPLACE - TRANSFER BELT

A. Use

- Resets the transfer belt unit counter.
- To use when the transfer belt unit has been replaced.
B. Procedure

1. Call the Service Mode to the display.
2. Select [ADJUST] $\rightarrow$ [SUPPLIES REPLACE] $\rightarrow$ [TRANSFER BELT], and press the Select key.
3. Press the Select key to clear the counter.

### 13.4.23 SUPPLIES REPLACE - FUSER UNIT

A. Use

- Resets the fuser unit counter.
- To use when the fuser unit has been replaced.
B. Procedure

1. Call the Service Mode to the display.
2. Select [ADJUST] $\rightarrow$ [SUPPLIES REPLACE] $\rightarrow[$ FUSER UNIT], and press the Select key.
3. Press the Select key to clear the counter.

### 13.4.24 SUPPLIES REPLACE - TRANSFER ROLLER

A. Use

- Resets the transfer roller unit counter.
- To use when the transfer roller unit has been replaced.
B. Procedure

1. Call the Service Mode to the display.
2. Select [ADJUST] $\rightarrow$ [SUPPLIES REPLACE] $\rightarrow$ [TRANSFER ROLLER], and press the Select key.
3. Press the Select key to clear the counter.

### 13.4.25 BK CLEAR

A. Use

- To clear engine information backup data.
- Use when the engine information backup data is cleared.
- Use when the MFP board is replaced.
B. Procedure

1. Call the Service Mode to the display.
2. Select [ADJUST] $\rightarrow$ [BK CLAER], and press the Select key.
3. Press the Select key to clear the data.

### 13.5 COUNTER

### 13.5.1 TOTAL PRINT

## A. TOTAL FACE

- Count the total number of face.


## B. COLOR COPY

- Count the copy number of faces of copy by Color.
C. COLOR PRINT
- Count the output number of faces of the printing paper by the Color print.
D. MONO COPY
- Count the copy number of faces of copy by Monochrome.


## E. MONO PRINT

- Count the output number of faces of the printing paper by the Monochrome print.


## F. FAX PRINT

- Count the output number of faces of the printing paper by the Fax print.
G. TOTAL DUP.
- Count the total number of sheets of duplex copy or duplex print or duplex fax.


## H. D COLOR COPY

- Count the copy number of sheets of duplex copy by Color.


## I. D COLOR PRINT

- Count the output number of sheets of the printing paper by the Color print.


## J. D MONO COPY

- Count the copy number of sheets of copy by Monochrome.


## K. D MONO PRINT

- Count the output number of sheets of the printing paper by the Monochrome print.
L. D FAX PRINT
- Count the output number of sheets of the printing paper by the Fax print.


## M. TOTAL LARGE

- Count the total number of faces of large size.


## N. COLOR COPY L

- Count the copy number of faces of large size by color copy.
O. COLOR PRN L
- Count the output number of faces of the printing large size paper by the color print.


## P. MONO COPY L

- Count the copy number of faces of large size by Monochrome copy.
Q. MONO PRINT L
- Count the output number of faces of the printing large size paper by the mono print.


## R. FAX PRINT L

- Count the output number of faces of the printing large size paper by the fax print.
- However, it does not count to the output of the printing paper which users cannot direct, such as the test printing and the report output in the service mode, the protocol report directed in the service mode.
- Do not count to a blank paper at the time of ejecting a blank paper by the size error.


### 13.5.2 FAX COUNTER

A. Use

- Displays the number of FAX printed pages produced.
- When checking the number of FAX printed pages produced.

TX JOB: Counter the number of transmission job.
RX JOB: Counter the number of reception job.

### 13.5.3 SCAN COUNTER

A. Use

- To display the count of the scan counter.
- When checking the number of scans made.

IR: Count one when one time of IR action completed.
ADF (SINGLE): Count the number of sheet of ADF (single) scanning.
ADF (DUPLEX): Count the number of sheet of ADF (Duplex) scanning.

### 13.5.4 TRAY COUNTER

A. Use

- Displays the number of sheets of paper used for each tray.
- The element to count is as follows.

TRAY1, TRAY2, TRAY3

### 13.5.5 PAPER SIZE COUNTER

A. Use

- Displays the number of sheets of paper used for each size and type.
- A paper size counter is as follows.

> A4, B5, A5, LEGAL, LETTER, OTHERS

### 13.5.6 PAPER TYPE COUNTER

A. Use

- Displays the number of sheets of paper used for each paper type.
- A paper type counter is as follows.

PLAIN PAPER, RECYCLED, THICK, THICK2, GLOSSY, GLOSSY2, SINGLE SIDE., SPECIAL, ENVELOPE, LETTERHEAD, POSTCARD, LABEL

### 13.5.7 APPLICATION COUNTER

## A. Use

- When checking the number of sheets of paper used for each of different applications. COPY PRINT: Number of copies made. FAX RX PRN.: Number of printed pages received by Fax. REPORT PRN.: Number of printed report pages. PC PRINT: Number of printed pages produced from PC. FAX TX: Number of transmitting to Fax. MAIL TX: Number of transmitting to mail server. SCAN TO FTP: Number of transmitting to FTP server. SCAN TO SMB: Number of transmitting to SMB. SCAN TO USB: Number of transmitting to USB memory. TWAIN: Number of transmitting to PCI.
USB TO PRN.: Number of sheets counts at the time of the completion of USB printing.


### 13.5.8 SUPPLIES STATUS

A. Use

- C TONER: Displays the remaining amount of toner in the cyan ( C ) toner cartridge as a percentage.
- $M$ TONER: Displays the remaining amount of toner in the magenta $(M)$ toner cartridge as a percentage.
- Y TONER: Displays the remaining amount of toner in the yellow (Y) toner cartridge as a percentage.
- K TONER: Displays the remaining amount of toner in the black ( K ) toner cartridge as a percentage.
- C I-UNIT: Displays the remaining service life of the cyan imaging unit as a percentage.
- M I-UNIT: Displays the remaining service life of the magenta imaging unit as a percentage.
- Y I-UNIT: Displays the remaining service life of the yellow imaging unit as a percentage.
- K I-UNIT: Displays the remaining service life of the black imaging unit as a percentage.


### 13.5.9 CRU USAGE

A. Use

- To check the remaining life of the maintenance service parts.

TRANSFER BELT: Displays the remaining life of the transfer belt.
FUSER UNIT: Displays the remaining life of the fuser unit.
TRANSFER ROLLER: Displays the remaining life of the transfer roller.

### 13.5.10 JAM COUNTER

A. Use

- When checking for the number of misfeeds that have occurred PRINTER, ADF


### 13.5.11 TROUBLE COUNTER

A. Use

- When checking for the number of malfunctions detected

TOTAL: Total numbers of all malfunctions detected. 4 FFF: Number of the malfunction "4FFF" detected.

### 13.5.12 TOTAL SCAN

Displays the total number of scanned document pages.
When checking for the total number of scanned document pages.
A. SCAN/FAX

- Count the total number of Scan/Fax.


## B. SCAN/FAX L

- Count the total number of faces of large size by Scan/Fax.
C. SCAN
- Count the total number of Scan.
D. SCAN LARGE
- Count the total number of faces of large size by Scan.
E. COLOR SCAN
- Count the scan number of faces of scan by Color.
F. COLOR SCAN L
- Count the scan number of faces of large size scan by color scan.
G. MONO SCAN
- Count the scan number of faces of scan by Monochrome.
H. MONO SCAN L
- Count the scan number of faces of large size scan by Monochrome.
I. FAX SCAN
- Count the total number of FAX Scan.
J. FAX SCAN L
- Count the total number of faces of large size by FAX Scan.
K. COLOR COPY
- Count the scan number of faces of Color Copy.
L. COLOR COPY L
- Count the scan number of faces of large size scan by color copy.
M. MONO COPY
- Count the scan number of faces of scan by Mono Copy.
N. MONO COPY L
- Count the scan number of faces of large size scan by mono copy.


### 13.6 DISPLAY

### 13.6.1 MAIN F/W VER.

## A. Use

- Displays the version of the controller firmware.
- When upgrading the firmware.
- When the image processing board has been replaced with a new one.


### 13.6.2 ENGINE F/W VER.

A. Use

- Displays the version of the engine firmware.
- When the printer control board has been replaced with a new one.


### 13.6.3 MAIN RAM SIZE

A. Use

- Displays the size of the main memory.
- When checking for the memory size.


### 13.6.4 SERIAL NO.

A. Use

- Displays the serial number of the printer engine.
- When checking for the printer serial number.


### 13.6.5 PP F/W VER.

A. Use

- Displays the version of the PP firmware.


### 13.6.6 PP BOOT VER.

## A. Use

- Displays the version of the PP boot firmware.


### 13.6.7 PRINTER RAM SIZE

A. Use

- Displays the size of the printer memory.
- When checking for the memory size.


### 13.6.8 HARD DISK

A. Use

- Displays the size of the hard disk.
- When checking for the hard disk size.


### 13.6.9 CARD

A. Use

- Displays the size of the CF card.
- When checking for the CF card size.


### 13.6.10 CPLD VER.

## A. Use

- Display the version of the CPLD.


### 13.7 FUNCTION

### 13.7.1 PAPER FEED TEST

A. Use

- To check the paper feeding in the paper take-up/transport sections without printing on the paper
- When a paper misfeed occurs.
B. Procedure

1. Select the paper tray.
2. Press the Select key to begin testing paper feeding.
3. Press the Stop/Reset key to stop testing paper feeding.

## NOTE

- It cannot be operated at the time of warming up.
- Don't count.


### 13.7.2 PRN TEST PATTERN

(1) PATTERN1
A. Use

- To print the test pattern for adjusting the image.
- If there is tilt or when registration or zoom ratio adjustments are performed.



## B. Procedure

1. Select the paper tray.
2. Select the [PATTERN1].
3. Press the Select key to print the test pattern.

## (2) PATTERN2

A. Use

- To print the test pattern for halftones and gradations.
- When checking density and pitch irregularities.
- When checking reproducibility of gradations.



## B. Procedure

1. Select the paper tray.
2. Press the Select key to print the test pattern.

### 13.7.3 ADF FEED TEST

A. Use

- When a document misfeed occurs.
B. Procedure

1. Load paper into the Automatic Document Feeder.
2. Press the Select key to begin testing paper feeding.
3. Press the Stop/Reset key to stop testing paper feeding.

### 13.7.4 COPY ADF GLASS

A. Use

- If spots appear in the copies.
B. Procedure

1. Load A4S or LetterS paper into Tray1.
2. Press the Select key to start the [COPY ADF GLASS] function.
3. Two copy samples are fed out.
4. Check that no spots appear in the copy samples.
5. Press the Stop/Reset key to stop the [COPY ADF GLASS] function.

### 13.7.5 FAX RES. COPY TEST

A. Use

- To check whether the encoding/ decoding process is correct.
B. Procedure
- The paper source is fixed to Tray1. (Tray cannot be changed.)
- When A4 or Letter is not loaded in Tray1, operation of printing is not performed.


### 13.7.6 SCAN TEST

A. Use

- If the scanner malfunctions.
B. Procedure

1. Press the Select key to begin the scanner test.
2. Press the Stop/Reset key to stop the scanner test.

### 13.7.7 PRINTER TEST- SENSOR

A. Use

- Used for troubleshooting when a malfunction or a misfeed occurs. (Main body)
B. Procedure
- The operation of each of the switches and sensors can be checked on a real-time basis.
- It can be checked as long as the 5 V power line remains intact even when a door is open.
(1) SENSOR TEST

| Test Item | Description | Sensor Condition |  |
| :--- | :--- | :---: | :---: |
|  |  | 0 | 1 |
| TRAY2 EMPTY | Tray2 media empty sensor (PS2) | No Paper | Paper Exist |
| TRAY1 EMPTY | Tray1 media empty sensor (PS3) | No Paper | Paper Exist |
| TRAY3 EMPTY | Media empty sensor (PS1) | No Paper | Paper Exist |
| SYNC. ROLLER | Registration sensor (PS5) | No Paper | Paper Exist |
| PAPER LOOP | Loop detection sensor (PS6) | No Paper | Paper Exist |
| EXIT | Exit sensor/1 (PS8) | No Paper | Paper Exist |
| PAPER FULL | Media full sensor (PS7) | No Paper | Paper Exist |
| DUPLEX PAPER | Duplex conveyance sensor (PS9) | No Paper | Paper Exist |
| TRAY3 FEEDER | Media feed sensor (PS3) | No Paper | Paper Exist |
| RETRACTION 1ST | 1st image transfer retraction <br> position sensor (PS9) | Media not present | Media present |
| RETRACTION 2ND | 2nd image transfer retraction <br> position sensor (PS10) | Media not present | Media present |
| CASSETTE SET | Tray2 set switch (SW5) | Not set | Set |
| Tray3 Size1 | Tray3 Paper Size1 Switch | OFF | ON |
| Tray3 Size2 | Tray3 Paper Size2 Switch | OFF | ON |
| Tray3 Size3 | Tray3 Paper Size3 Switch | OFF | ON |
| WASTE TONER FULL | Waste toner sensor (PS11) | Not Full | Full |

### 13.7.8 PRINTER TEST- ELECTRIC PARTS

A. Use

- Used for troubleshooting when a malfunction or a misfeed occurs. (Main body)


## B. Procedure

- The operation of each of the switches and sensors can be checked on a real-time basis. It can be checked as long as the 5 V power line remains intact even when a door is open.
(1) ELECTRIC PARTS LIST

| Panel display | Parts name |
| :--- | :--- |
| LV FAN (H-S) | DC power supply fan motor (FM10) |
| DUPLEX FAN (H-S) | Fusing fan motor (FM2) |
| DUPLEX FAN (M-S) | POLYGON MOTOR (M5) |
| POLYGON MOTOR | MEDIA FEED MOTOR (M1) |
| TRAY3 FEEDER MOTOR | COLOR PC DRUM MOTOR (M4) |
| COLOR PC MOTOR | DEV. MOTOR K |
| DEV. MOTOR K | DEV. MOTOR YMC |
| DEV. MOTOR YMC | TRAY2 MEDIA FEED CLUTCH (CL1) |
| TRAY2 FEED CLUTCH | TRAY1 MEDIA FEED CLUTCH (CL2) |
| TRAY1 FEED CLUTCH | REGISTRATION ROLLER CLUTCH (CL3) |
| SYNC. ROLLER CLUTCH | 1st image transfer pressure/retraction clutch (CL5) |
| 2ND TRANS. CLUTCH | MEDIA FEED CLUTCH (CL1) |
| 1ST TRANS. CLUTCH | TONER SUPPLY CLUTCH /Y (CL4) |
| TRAY3 FEED CLUTCH | TONER SUPPLY CLUTCH /M (CL5) |
| TONER CLUTCH Y | TONER SUPPLY CLUTCH /C (CL6) |
| TONER CLUTCH M | TONER SUPPLY CLUTCH /K (CL7) |
| TONER CLUTCH C | DUPLEX CONVEYANCE ROLLER CLUTCH (CL13) |
| TONER CLUTCH K | SWITCHBACK ROLLER REVERS CLUTCH (CL12) |
| DUP. NORMAL CLUTCH | SWITCHBACK ROLLER FEED CLUTCH (CL11) |
| DUP. REV. CLUTCH | MAIN MOTOR (M2) |
| DUP. FEED CLUTCH | LOOP DETECTION CLUITCH (CL8) |
| MAIN MORTOR |  |
| FUSER LOOP CLUTCH |  |

### 13.7.9 PRINTER TEST- PRINT TEST

A. Use

- Produces an image pattern on the engine side as commanded from the controller, thereby making a test print on the engine only.
B. Procedure

1. Load tray 1 with paper.
2. Select [SERVICE MODE $] \rightarrow[$ FUNCTION $] \rightarrow[$ PRINTER TEST $] \rightarrow[$ PRINT TEST] and press the Select key.

## NOTE

- Using A4 or Letter depend on PTT setting.
- Paper is fed from only Tray1.


### 13.7.10 ADF TEST- SENSOR

A. Use

- Used for troubleshooting when a malfunction or a misfeed occurs. (ADF)
B. Procedure

1. The operation of each of the switches and sensors can be checked on a real-time basis.
2. It can be checked as long as the 5 V power line remains intact even when a door is open.

## (1) SENSOR CHECK LIST

| Panel display | Sensor name |  | Operation characteristics/panel display |  |
| :--- | :--- | :--- | :---: | :---: |
|  |  | 0 | 1 |  |
| DOCUMENT | Leading edge detection sensor | Media not present | Media present |  |
| RS | Registration sensor | Media not present | Media present |  |

### 13.7.11 ADF TEST- ELECTRIC PARTS

A. Use

- Use to make an operation check of each of electrical parts of the ADF.


## B. Procedure

1. Select the electrical part to be operated.
2. Press the Select key, which operates the electrical part for 1 sec . before being automatically stopped.
NOTE

- After the test, be sure to turn OFF and then turn ON the power switch of the main body.
(1) ELECTRIC PARTS LIST

| Panel display | Sensor name |
| :--- | :--- |
| ADF MOTOR | Transport motor (M1) |

### 13.8 SOFT SWITCH

### 13.8.1 CONTROLLER SW

- Refer to the chapter of soft switch for the explanation of soft switch. See P. 186

A. KEY DEFINITION FOR SOFT SWITCH

| Key |  |
| :---: | :--- |
| $\boldsymbol{\nabla}$ | Soft switch number forward. |
| $\boldsymbol{\Delta}$ | Soft switch number backward. |
| $\boldsymbol{4}$ | Bit No. forward. |
| 1 or 0 | Bit No. backward. |
| Select | Bit No. is changed. |
|  | The setting value of soft switch number is defined. |

### 13.8.2 ENGINE SW

- Not used.


### 13.9 REPORT

### 13.9.1 SERVICE DATA LIST

A. Use
(1) Service Data list includes the following items:

- SOFT SWITCH
- COMMUNICATION HISTORY \& COUNTER
- ADJUST
- RX IN MEMORY
- ADMINISTRATOR PASSWORD
- MAIN RAM SIZE
- ROM ID
(2) Error log history list includes the following items:
- Index: Index number from 0-9999
- Error: Error code number
- Maker: NSF frame maker code
- Tell.: Remote side or TX side telephone number for that transaction
B. Procedure

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Select key.
3. Select [SERVICE DATA LIST] and press the Select key.
（1）SERVICE DATA LIST（example）
SE:RUTCFF DATM こ=S=
SE:RUTCFF DATM こ=S=
HARE






| －ABubst－ |  |
| :---: | :---: |
|  | ． 00 |
| CIS 5JEi 3ocm | － $0^{5}$ |
| －IS HA： 4 REGIS | －15 |
| C15＇Jla ReElst | 795 |
| A．Or M4LH PEETET | ¢5 |
| A．JF SUE 20CM | 100 |
|  | 粏 |
| FUSFP．C．O4－ROL | 6 |
| TOP 48.1 FFiplT |  |
| PLAItJ FiPEER |  |
| －¢5．rki |  |
| TiFicr | －［4］ |
| FH＇FIF AFF | ：0 |
|  －RHM1 | $=5$ |
| Tram ${ }^{\text {a }}$ | － 0 |
|  |  |
|  |  |
|  |  |
| －RO4 ID－ |  |
|  |  |
|  |  |
|  | －6140－10 |

## (2) ERROR LOG HISTORY LIST (example)

- The following table is the error log history. The table keeps the last 40 records only.



### 13.9.2 ERROR CODE LIST

A. Use

- Print error code (CODE) and error occurrence time (ERROR TIMES).
B. Procedure

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Select key.
3. Select [ERROR CODE LIST] and press the Select key.
(1) ERROR CODE LIST (example)

| CODE | ERROR TIMES |
| :---: | :---: |
| 0001 | 00000000 |
| 0004 | 00000000 |
| 0007 | 00000000 |
| 000A | 00000000 |
| 000 D | 00000000 |
| 0010 | 00000000 |
| 0013 | 00000000 |
| 0016 | 00000000 |
| 0019 | 00000000 |
| 001C | 00000000 |
| 001 F | 00000000 |
| 0022 | 00000000 |
| 0025 | 00000000 |
| 0028 | 00000000 |
| 002 B | 00000000 |
| 002 E | 00000000 |
| 0031 | 00000000 |
| 0037 | 0000000 |
| 003 A | 00000000 |
| 003D | 00000000 |
| 0040 | 00000000 |
| 0043 | 00000000 |
| 0046 | 00000000 |
| 0049 | 00000000 |
| 004C | 00000000 |
| 004 F | 00000000 |
| 0052 | 00000000 |
| 0055 | 00000000 |
| 0058 | 00000000 |
| 005 E | 0000000 |
| 0061 | 00000000 |
| 0064 | 00000000 |
| 0067 | 00000000 |
| 006A | 00000000 |
| 006 D | 00000000 00000002 |
| 0073 | 0000000 |
| 0076 | 00000000 |
| 0079 | 00000000 |
| 007C | 00000000 |
| 007 F | 00000000 |
| 0082 | 00000000 |
| 0085 | 00000000 |
| 008B | 00000000 |
| 008 E | 00000000 |
| 0091 | 00000001 |
| 0094 | 00000000 |
| 009A | 0000000 |
| 009D | 0000000 |
| OOAO | 00000024 |
| 00A3 | 00004558 |
| 00A6 | 00000000 00000001 |
| 00AC | 0000000 |
| 00AF | 0000000 |
| 00B2 | 00000000 |
| 0085 | 00000000 |
| 00B8 | 00000000 |
| 00 BE | 0000000 |
| 00 C 1 | 00000000 |
| 00 C 4 | 00000000 |
| 00 C 7 | 00000000 |
| 00CA | 00000000 |
| OOCD | 00000000 |
| 00D3 | 0000000 |
| 00D6 | 00000000 |
| 00D9 | 00000000 |
| OODC | 00000000 |
| 00 E 2 | 0000000 |
| O0E5 | 00000000 |
| 00E8 | 00000000 |
| OOEB | 00000000 |
| 00 F 1 | 0000000 |
| 00F4 | 00000000 |
| OOFA | 0000000 |
| 00FD | $00000000$ |


| CODE | ERROR TIMES |
| :---: | :---: |
| 0002 | 00000000 |
| 0005 | 00000000 |
| 0008 | 00000000 |
| 000B | 00000000 |
| 000E | 00000000 |
| 0011 | 00000000 |
| 0014 | 00000000 |
| 0017 | 00000000 |
| 001A | 00000000 |
| 001 D | 00000000 |
| 0020 | 00000000 |
| 0023 | 00000000 |
| 0026 | 00000000 |
| 0029 | 00000000 |
| 002C | 00000000 |
| 002 F | 00000000 |
| 0032 | 00000000 |
| 0035 | 00000000 |
| 0038 | 00000000 |
| 003B | 00000000 |
| 003E | 00000000 |
| 0041 | 00000000 |
| 0044 | 00000000 |
| 0047 | 00000000 |
| 004A | 00000000 |
| 004D | 00000000 |
| 0050 | 00000000 |
| 0053 | 00000000 |
| 0056 | 00000000 |
| 0059 | 00000000 |
| 005 C | 00000000 |
| 005 F | 00000000 |
| 0062 | 00000000 |
| 0065 | 00000000 |
| 0068 | 00000000 |
| 006B | 00000000 |
| 006E | 00000000 |
| 0071 | 00000000 |
| 0074 | 00000000 |
| 0077 | 00000000 |
| 007A | 00000000 |
| 007D | 00000000 |
| 0080 | 00000000 |
| 0083 | 00000001 |
| 0086 | 00000000 |
| 0089 | 00000000 |
| 008C | 00000000 |
| 008 F | 00000000 |
| 0092 | 00000000 |
| 0095 | 00000000 |
| 0098 | 00000000 |
| 0098 | 00000000 |
| 009 E | 00000000 |
| 00A1 | 00000000 |
| 00A4 | 00000002 |
| 0047 | 00000006 |
| 00AA | 00000000 |
| OOAD | 00000000 |
| 00 BO | 00000000 |
| $00 \mathrm{B3}$ | 00000000 |
| $00 \mathrm{B6}$ | 00000000 |
| $00 \mathrm{B9}$ | 00000000 |
| O0BC | 00000000 |
| 00 BF | 00000000 |
| 00 C 2 | 00000000 |
| 00 C | 0000000 |
| 00 CB | 00000000 |
| OOCE | 00000000 |
| 00 D 1 | 00000000 |
| 00D4 | 00000000 |
| 00D7 | 00000000 |
| 00DA | 00000000 |
| O0DD | 00000000 |
| OOEO | 00000000 |
| O0E3 | 00000000 |
| 00 E 6 | 00000000 |
| 00E9 | 00000000 |
| O0EC | 00000000 |
| O0EF | 00000000 |
| 00F2 | 00000000 |
| 00F5 | 00000000 |
| 00F8 | 00000000 |
| 00FB | 00000000 |
| 00FE | 00000006 |


| CODE | ERROR TIMES |
| :---: | :---: |
| 0003 | 00000000 |
| 0006 | 00000000 |
| 0009 | 00000000 |
| 000C | 00000000 |
| 000 F | 00000000 |
| 0012 | 00000000 |
| 0015 | 00000000 |
| 0018 | 00000000 |
| 001B | 00000000 |
| 001E | 00000000 |
| 0021 | 00000000 |
| 0024 | 00000000 |
| 0027 | 00000000 |
| 002A | 00000000 |
| 002D | 00000000 |
| 0030 | 00000000 |
| 0033 | 00000000 |
| 0036 | 00000000 |
| 0039 | 00000000 |
| 003C | 00000000 |
| 003F | 00000000 |
| 0042 | 00000000 |
| 0045 | 00000000 |
| 0048 | 00000000 |
| 004B | 00000000 |
| 004E | 00000000 |
| 0051 | 00000000 |
| 0054 | 00000000 |
| 0057 | 00000000 |
| 005A | 00000000 |
| 005D | 00000000 |
| 0060 | 00000000 |
| 0063 | 00000000 |
| 0066 | 00000000 |
| 0069 | 00000000 |
| 006C | 00000000 |
| 006 F | 00000000 |
| 0072 | 00000008 |
| 0075 | 00000000 |
| 0078 | 00000017 |
| 007B | 00000000 |
| 007E | 00000000 |
| 0081 | 00000000 |
| 0084 | 00000000 |
| 0087 | 00000000 |
| 008A | 00000000 |
| 008D | 00000000 |
| 0090 | 00000000 |
| 0093 | 00000000 |
| 0096 | 00000000 |
| 0099 | 00000000 |
| 009C | 00000000 |
| 009 F | 00000000 |
| 00A2 | 00000000 |
| 0045 | 00000000 |
| 00A8 | 00000000 |
| 00AB | 00000000 |
| OOAE | 00000000 |
| 00B1 | 00000000 |
| $00 \mathrm{B4}$ | 00000000 |
| $00 \mathrm{B7}$ | 00000000 |
| 00BA | 00000000 |
| 00BD | 00000000 |
| 00 CO | 00000000 |
| 00 C 3 | 00000000 |
| $00 \mathrm{C6}$ | 00000000 |
| $00 \mathrm{C9}$ | 00000000 |
| 00CC | 00000000 |
| 00 CF | 00000000 |
| 00D2 | 00000000 |
| 00 D 5 | 00000000 |
| 00D8 | 00000000 |
| 00DB | 00000000 |
| O0DE | 00000000 |
| 00E1 | 00000000 |
| OOE4 | 00000000 |
| 00 E 7 | 00000000 |
| 00EA | 00000000 |
| O0ED | 00000000 |
| 00F0 | 00000000 |
| 00F3 | 00000000 |
| 00F6 | 00000000 |
| 00F9 | 00000000 |
| 00FC | 00000000 |
| 00FF | 00000002 |

### 13.9.3 T. 30 PROTOCOL LIST

A. Use

- Print out T. 30 or V8 protocol after communication.

SESSION: Session number
FUNCTION: Function name
DESTINATION STATION: Destination Name/Tel. No.
DATE/TIME: Communication Date \& Time
PAGE: Total page number for this session
DURATION: Communication using time
MODE: Communication speed and ECM mode
RESULT: Communication result
RING: Recording ring ON/OFF time by "ms"
Only for RX function and record last 16 time
TX: T. 30 command sent by local fax
RX: T. 30 command received from remote fax
DATA: T. 30 frame that include address \& control \& data
B. Procedure

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Select key.
3. Select [T. 30 PROTOCOL LIST] and press the Select key.

## (1) V. 17 communication (example)

NAME:TMFP
TEL :886 34733507
DATE:APR. 10.2008 12:20

| SESSION | FUNCTION | NO. | DESTINATION STATION | DATE | TIME | PAGE | DURATION | MODE | RESULT |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 0001 | RX | 001 | ABC_ABC_ABC <br> 35353535353535353535 | MAY.29 | $14: 51$ | 001 | $00 h 00 \mathrm{~min} 35 \mathrm{~s}$ | ECM | OK |


| RING | DATA |
| :--- | :--- |
| ON Time (ms) | 1200120012001200120012001200120012001200120012001200120012001200 |
| OFF Time (ms) | 3000300030003000300030003000300030003000300030003000300030003000 |



## (2) V. 34 communication (example)



### 13.9.4 SERVICE REPORT

A. Use

- The report will generate and sending when toner empty happens and report request is set to "ON".


## B. Procedure

1. Enter the [SERVICE MODE].
2. Select [REPORT] and press the Select key.
3. Select [SERVICE REPORT] and press the Select key.

### 13.10 ADMIN REGISTRATION

### 13.10.1 ADMIN. NO.

A. Use

- Use to display or change the current Administrator number.
B. Procedure
- Administrator number: 000000 to 999999

1. Enter the [SERVICE MODE].
2. Select [ADMIN. REGISTRATION] and press the Select key.
3. Check that the current ADMIN. No. is displayed and then press the [Back] key.
4. Enter the new ADMIN. No. from the 10-key pad and press the Select key.

### 13.10.2 FULL - FUNC. NO

A. Use

- The mode which only the user of an administrator level can use.
B.
- Full function number: 000000 to 999999

1. Enter the [SERVICE MODE].
2. Select [ADMIN. REGISTRATION] and press the Select key.
3. Check that the current FULL - FUNC. No. is displayed and then press the [Back] key.
4. Enter the new FULL - FUNC. No. from the 10-key pad and press the Select key.

### 13.11 FIXED ZOOM CHANGE

A. Use

- The fixed zoom ratios can be changed.
B. Procedure

1. Enter the [SERVICE MODE].
2. Select [FIXED ZOOM CHANGE] and press the Select key.
3. Select the fixed zoom ratio that you wish to change and press the Select key.
4. Use the 10-Key Pad to type in the desired fixed zoom ratio.

- Default fixed zoom ratios and setting ranges according to marketing area
<Metric>

| Setting name | Initial fixed zoom ratio | Setting range |
| :---: | :---: | :---: |
| REDUCTION2 | $70 \%$ | $51 \%$ to $70 \%$ |
| REDUCTION1 | $86 \%$ | $71 \%$ to $99 \%$ |
| EXPANSION1 | $115 \%$ | $101 \%$ to $140 \%$ |
| EXPANSION2 | $141 \%$ | $141 \%$ to $199 \%$ |

<lnch>

| Setting name | Initial fixed zoom ratio | Setting range |
| :---: | :---: | :---: |
| REDUCTION2 | $64 \%$ | $51 \%$ to $64 \%$ |
| REDUCTION1 | $78 \%$ | $65 \%$ to $99 \%$ |
| EXPANSION1 | $129 \%$ | $101 \%$ to $153 \%$ |
| EXPANSION2 | $154 \%$ | $154 \%$ to $199 \%$ |

### 13.12 FACTORY TEST

- This test is for factory adjustment only and should NOT be used.

|  | Functions/Use |
| :--- | :--- |
| SIGNAL TEST | - This test is for factory adjustment only and should NOT be used. |
| RELAY TEST | - This test is for factory adjustment only and should NOT be used. |
| SENSOR TEST | - This test is for factory adjustment only and should NOT be used. |
| DIAL TEST | - To check the volume of the speaker. |
| VOLUME TEST | - To check the operation of the display and all indicators and buttons. |
| PANEL BUZZER TEST | When the panel buzzer test are finish, press the panel reset key twice. |
| RAM TEST | - To test reading and writing of the memory. |

### 13.13 CLEAR DATA

### 13.13.1 SRAM CLEAR

A. Use

- The following items are cleared (initialization). Menu mode (Except for [ADMIN. MANAGEMENT] $\rightarrow$ [USER SETTING] $\rightarrow$ [DATE\&TIME] that keeps its setting value):
Only [USER SERVICE MODE] of the user service mode: Set to default.
Only [TX/RX Result] of the Display mode: Clear.
Only [SERVICE'S CHOICE] and [SOFT SWITCH] of the Service mode: Set to default.
B. Procedure

NOTE

- Before executing [SRAM CLEAR], be sure to record the setting values that are to be initialized through [SRAM 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 [SRAM CLEAR] has been executed, make necessary entries of data again based on the setting values recorded.


### 13.13.2 MEMORY CLEAR

A. Use

- The following items are cleared (initialization).

Only [SERVICE'S CHOICE] and [FIXED ZOOM CHANGE] of the Service mode: Set to default.
B. Procedure

## NOTE

- Before executing [MEMORY CLEAR], be sure to record the setting values that are to be initialized through [MEMORY 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 [MEMORY CLEAR] has been executed, make necessary entries of data again based on the setting values recorded.


### 13.14 PS/PCL

### 13.14.1 PRINT MENU - MAINTENANCE INFO

A. Use

- To check the maintenance information.
- The items which can be checked are as follows.
[Device Caution Information]: Process caution information.
[Count (total)]: Counter value for each color.
[Coverage (total)]: Coverage rate for each color
[Replace count (total)]: Number of times IU, TC, transfer belt, transfer roller, and fuser unit have been replaced.
[Imaging Unit Information]: Information concerning the print unit.
[Toner Cartridge Information]: Information concerning the toner cartridge.
B. Procedure

1. Call the service mode to the display.
2. Select $[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ PRINT MENU] $\rightarrow$ [MAINTENANCE INFO] and press the Select key.
3. Select [PRINT] and press the Select key.
(1) How to read process caution information

- Convert the numerical value of the hexadecimal number printed on "PROCESS CAUTION INFORMATION" in [Maintenance Information] into the binary number, it compares with the allocation of each BIT, and the caution status is confirmed.
ex. When process caution information is displayed as $0 \times 0020$.

1. Convert four end digits " 0020 " of $0 \times 0020$ into the binary number ( 14 digits).
2. The BIT number is allocated in converted value " 00000000100000 ." (BIT0 to BIT13 is sequentially allocated from the first digit.)

3. In this case, BIT No. " 5 " corresponds to " 1 ". From the "PROCESS CAUTION INFORMATION", IDC sensor (front) malfunction can be detected.
(2) Conversion method from hexadecimal number to binary number
4. The hexadecimal number (four digits) is converted in each digit based on the following table.

| Hexadecimal <br> number | Binary <br> number | Hexadecimal <br> number | Binary <br> number | Hexadecimal <br> number | Binary <br> number | Hexadecimal <br> number | Binary <br> number |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 0000 | 4 | 0100 | 8 | 1000 | C | 1100 |
| 1 | 0001 | 5 | 0101 | 9 | 1001 | D | 1101 |
| 2 | 0010 | 6 | 0110 | A | 1010 | E | 1110 |
| 3 | 0011 | 7 | 0111 | B | 1011 | F | 1111 |

2. Match the converted numerical value of four digits, then two head digits are excluded and it is assumed the binary number of 14 digits.

## PROCESS CAUTION INFORMATION

| BIT | Item | Description |  |
| :---: | :---: | :---: | :---: |
| 0 | - | - |  |
| 1 | - | - |  |
| 2 | - | - |  |
| 3 | - | - |  |
| 4 | - | - |  |
|  | IDC sensor board/Fr failure | - IDC sensor output values are out of the specified range. <br> - Right door or front cover open/close, power switch OFF/ ON, and normal image stabilization are complete besides the ones listed above. |  |
| 5 |  |  |  |
| 6 | - | - |  |
| 7 | - | - |  |
| 8 | - | - |  |
| 9 | - | - |  |
|  | IDC sensor board/Re failure | - IDC sensor output values are out of the specified range. |  |
| 10 |  | - Right door or front cover open/close, power switch OFF/ ON, and normal image stabilization are complete besides the ones listed above. |  |
| 11 | Color shift test pattern failure | - The number of points detected in the main scan direction is more or less than the specified value during main scan direction registration correction. <br> - The number of points detected in the sub scan direction is more or less than the specified value during sub scan direction registration correction. |  |
|  |  | - Right door or front cover open/close, power switch OFF/ ON, and normal image stabilization are complete besides the ones listed above. |  |
| 12 | Color shift adjust failure | - The color shift amount is greater than the specified range during main scan direction registration correction. <br> - The color shift amount is greater than the specified range during sub scan direction registration correction. |  |
|  |  | - Right door or front cover open/close, power switch OFF/ ON, and normal image stabilization are complete besides the ones listed above. |  |
| 13 | - | - |  |

### 13.14.2 PRINT MENU - EVENT LOG

A. Use

- To check the jams/troubles which occurred, and the history of replacing the consumables.
- The items which can be checked are as follows.
[Paper Jam Error]: The number of times jam have occurred and its history.
[Engine Fatal Error]: The history of the troubles which required service call.
[Fuser Unit]: The history of replacing the fuser unit.
[Transfer Belt]: The history of replacing the transfer belt.
[Second Trans]: The history of replacing the transfer roller.
[Toner Cartridge]: The history of replacing the toner cartridge.
[Imaging Unit]: The history of replacing the print unit.
[Trouble Counter]: Trouble counting for each section.
B. Procedure

1. Call the service mode to the display.
2. Select $[P S / P C L] \rightarrow[P R I N T$ MENU $] \rightarrow[$ EVENT LOG $]$ and press the Select key.
3. Select [PRINT], and press the Select key.

### 13.14.3 PRINT MENU - ELEMENT PAGE

A. Use

- To check the Element Data.
- See the attached chart listed below for details.
B. Procedure

1. Call the service mode to the display.
2. Select $[P S / P C L] \rightarrow[$ PRINT MENU $] \rightarrow[E L E M E N T$ PAGE] and press the Select key.
3. Select [PRINT] and press the Select key.

## Engine Element Data Information

| Element Data Name | Description |
| :---: | :---: |
| INSIDE HUMIDITY | - Displays the inside humidity (in $1 \%$ increments). |
| INSIDE TEMPERATURE | - Displays the inside temperature (in $1^{\circ} \mathrm{C}$ increments). |
| PH TEMPRATURE | - Displays the PH temperature (in $1^{\circ} \mathrm{C}$ increments). |
| SENSOR INFORMATION1 | - Displays the input port status of the sensors and switches in hexadecimal numbers. <br> - To be used for troubleshooting when troubles/jams occur. For allocating Bits for SENSOR INFORMATION 1 to 3 , see the attached chart, "Sensor Information List." |
| SENSOR INFORMATION2 |  |
| SENSOR INFORMATION3 |  |
| SENSOR INFORMATION4 |  |
| SENSOR INFORMATION5 |  |
| FUSER HEATER1 TEMPERATURE | - Displays the latest temperature on the middle of the heating roller (in $1^{\circ} \mathrm{C}$ increments). |
| FUSER HEATER2 TEMPERATURE | - Displays the latest temperature at the edges of the heating roller (in $1{ }^{\circ} \mathrm{C}$ increments). |
| IDC SENSOR1 PS | - Shows the latest IDC data. <br> - Range of output: 0 V to 9.99 V (in 0.01 V increments) |
| IDC SENSOR1 P |  |
| TONER LEVEL SENSOR C | - Displays the number of times the toner level sensor has detected an empty condition during one cycle of developer agitation. <br> - Range of output: 0 to 200 (in increments of one time) |
| TONER LEVEL SENSOR M |  |
| TONER LEVEL SENSOR Y |  |
| TONER LEVEL SENSOR K |  |
| VDC VOLT C | - Displays the Vdc voltage of each color of toner. <br> - Range of output: -1000V to 255 V (in 1 V increments) |
| VDC VOLT M |  |
| VDC VOLT Y |  |
| VDC VOLT K |  |
| VPP VOLT C | - Displays the Vpp voltage of each color of toner. <br> - Range of output: 700 V to 2000 V (in 1 V increments) |
| VPP VOLT M |  |
| VPP VOLT Y |  |
| VPP VOLT K |  |
| VPP VOLT LIMIT C | - Displays the limit value of Vpp voltage of each color of toner. <br> - Range of output: 700 V to 2000 V (in 1 V increments) |
| VPP VOLT LIMIT M |  |
| VPP VOLT LIMIT Y |  |
| VPP VOLT LIMIT K |  |
| DUTY C | - Displays the duty ratio of each color of toner. <br> - Range of output: $0 \%$ to $100.0 \%$ (in $0.1 \%$ increments) |
| DUTY M |  |
| DUTY Y |  |
| DUTY K |  |
| IDC BASE REFLECTION1 | - Displays the IDC intensity adjustment value. <br> - Range of output: 0 to 1023 (in 1 increments) |
| TRANS CURRENT2 | - Displays the latest second image transfer output value. <br> - Range of output: -800 V to 5000 V (in 1 V increments) |

### 13.14.4 PRINT MENU - HALFTONE 64

A. Use

- To check the unevenness of the density and the pitch.
B. Procedure

1. Call the service mode to the display.
2. Select [PS / PCL] $\rightarrow$ [PRINT MENU] $\rightarrow$ [HALFTONE 64] and press the Select key.
3. Select desired color with the up key $\mathbf{\Delta}$ /down key $\boldsymbol{\nabla}$ and press the Select key.
4. Select [PRINT] and press the Select key.

### 13.14.5 PRINT MENU - HALFTONE 128

A. Use

- To check the unevenness of the density and the pitch.


## B. Procedure

1. Call the service mode to the display.
2. Select $[P S / P C L] \rightarrow[P R I N T$ MENU $] \rightarrow[$ HALFTONE 128] and press the Select key.
3. Select desired color with the up key $\mathbf{\Delta}$ /down key $\boldsymbol{\nabla}$ and press the Select key.
4. Select [PRINT] and press the Select key.

### 13.14.6 PRINT MENU - HALFTONE 256

A. Use

- To check the unevenness of the density and the pitch.
B. Procedure

1. Call the service mode to the display.
2. Select [PS / PCL] $\rightarrow$ [PRINT MENU] $\rightarrow$ [HALFTONE 256] and press the Select key.
3. Select desired color with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
4. Select [PRINT] and press the Select key.

### 13.14.7 PRINT MENU - GRADATION

A. Use

- To check the gradation reproductively.
B. Procedure

1. Call the service mode to the display.
2. Select [PS / PCL] $\rightarrow$ [PRINT MENU] $\rightarrow$ [GRADATION] and press the Select key.
3. Select [PRINT] and press the Select key.

### 13.14.8 IMG ADJ THICK

A. Use

- To fine-adjust density of printed images of each color for thick paper.
- To change the density of the printed image for each color with thick paper.


## B. Procedure

- The default setting is 0 .

$$
-5 \text { to }+5
$$

1. Call the Service Mode to the display.
2. Select [PS / PCL] $\rightarrow$ [IMG ADJ THICK].
3. Select desired color with the up key $\mathbf{\Delta}$ /down key $\boldsymbol{\nabla}$ and press the Select key.
4. Select correction amount with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
<Adjustment instructions>
Light color: increase the setting value.
Dark color: decrease the setting value.

### 13.14.9 IMG ADJ BLACK

A. Use

- To fine-adjust the density of the printed image for a black printing.
- To vary the density of the printed image of a black printing.
B. Procedure
- The default setting is 0 .

$$
-2 \text { to }+2
$$

1. Call the Service Mode to the display.
2. Select [PS / PCL] $\rightarrow$ [IMG ADJ BLACK].
3. Select correction amount with the up key $\mathbf{\Delta} /$ down key $\boldsymbol{\nabla}$ and press the Select key.
<Adjustment instructions>
If the black is light, increase the setting value.
If the black is dark, decrease the setting value.

### 13.14.10 SOFT SWITCH

A. Use

- Not used
B. Procedure
- Not used


### 13.15 CS REMOTE CARE

### 13.15.1 OUTLINES

- CS Remote Care enables the machine and the computer at CS Remote Care center to exchange data through network in order to control the machine.
- CS Remote Care enables the machine to call the computer at the center when trouble occurs. It also enables the computer at the center to contact the machine for the necessary data.
- Data which CS Remote Care handles can be divided into the following groups.
a. Data which show the status of use of the machine such as total count, PM count.
b. Data which show the abnormal situation on the machine such as where and how often errors occur.
c. Data on adjustment
d. Data on setting


### 13.15.2 SETTING UP THE CS REMOTE CARE

## NOTE

- The following describes how to set up the CS Remote Care from the Service Mode on the control panel.
In addition to the set-up from the control panel, the CS Remote Care can be set from the PageScope Web Connection.
- For resetting up the machine which CS Remote Care has already been set up, clear the RAM for CS Remote Care before resetting.
See P. 184

|  | Two-way communication | One-way communication |
| :---: | :---: | :---: |
| Step | Procedure |  |
| 0 | Register the device ID to the application at CS Remote Care center. The initial connection is not available unless the device ID is registered. |  |
| 1 | Clearing the RAM for CS Remote Care <br> 1. Select [SERVICE MODE] $\rightarrow$ [PS / PCL] $\rightarrow$ [CS REMOTE CARE $] \rightarrow[$ RAM CLEAR]. <br> 2. Select [Yes], and press the Select key. <br> See P. 184 |  |
| 2 | Setting the date and time for CS Remote Care <br> 1. Select [SERVICE MODE] $\rightarrow[$ PS / PCL] $\rightarrow$ [CS REMOTE CARE] $\rightarrow[$ CSRC CLOCK]. <br> 2. Select [DATE], [TIME] or [TIME ZONE], and press the Select key. <br> 3. Input the date, time or time zone, and press the Select key. <br> See P. 181 |  |
| 3 | Setting the communication method <br> 1. Select [SERVICE MODE] $\rightarrow[P S / P C L] \rightarrow[C S$ <br> REMOTE CARE $] \rightarrow[B A S I C ~ S E T-$ <br> TING] $\rightarrow$ [COMM. METHOD]. <br> 2. Select [DUPLEX], and press the Select key. | Setting the communication method <br> 1. Select [SERVICE MODE]] $\rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[\mathrm{CS}$ REMOTE CARE] $\rightarrow$ BASIC SET- <br> TING] $\rightarrow$ [COMM. METHOD]. <br> 2. Select [SIMPLEX], and press the Select key. |
| 4 | Inputting the ID code <br> 1. Select [SERVICE MODE] $\rightarrow$ [PS / PCL] $\rightarrow$ [CS REMOTE CARE] $\rightarrow$ [SERVICE ENGR ID]. <br> 2. Input the seven digits ID of the service engineer, and press the Select key. <br> See P. 178 |  |
| 5 | Setting the Center ID <br> 1. Select [SERVICE MODE] $\rightarrow$ [PS / PCL] $\rightarrow$ [CS REMOTE CARE] $\rightarrow$ [BASIC SETTING] $\rightarrow$ [CENTER ID]. <br> 2. Input the five digits ID of the CS Remote Care center, and press the Select key. See P. 179 |  |


|  | Two-way communication | One-way communication |
| :---: | :---: | :---: |
| Step | Procedure |  |
| 6 | Encryption setting <br> 1. Select [SERVICE MODE] $\rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[\mathrm{CS}$ REMOTE CARE $] \rightarrow[$ BASIC SETTING] $\rightarrow$ [ENCRYPTION]. <br> 2. Select [YES] or [NO] according to the necessity of encryption, and press the Select key. |  |
| 7 | Heart Beat *1 <br> 1. Select [SERVICE MODE $] \rightarrow[P S / P C L] \rightarrow[$ CS REMOTE CARE $] \rightarrow[C S R C ~ S E T-$ TINGS] $\rightarrow$ HEARTBEAT SETTINGS]. <br> 2. In [ENABLE HEATBEAT], set whether or not to enable Heart Beat communication. (Default: YES) <br> 3. Select [INTERVAL] and enter a Heart Beat transmission interval (1 to 256 minutes, Default: 30 minutes). <br> 4. In [ENABLE FIXED TIME], set whether or not to enable Heartbeat transmission at a fixed interval. (Default: Yes) <br> 5. Select [FIXED TIME] and enter a Heartbeat transmission interval ( 1 to 256 minutes, Default: 30 minutes). |  |
| 8 | Proceed to step 10. | Periodic transmission setting <br> 1. Select [SERVICE MODE] $\rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[\mathrm{CS}$ REMOTE CARE $] \rightarrow[$ CSRC SET- <br> TING] $\rightarrow$ [PERIODIC TRANS.]. <br> 2. In [ENABLE TRANS.], set whether or not to enable periodic transmission. <br> (Default: On) <br> 3. Select [INTERVAL], [TIME], [DAY OF THE WEEK] or [DATE] and set the schedule of periodic transmission. <br> See P. 182 |
| 9 |  | Report setting <br> 1. Select [SERVICE MODE] $\rightarrow[P S / P C L] \rightarrow[C S$ REMOTE CARE $] \rightarrow$ [CSRC SETTING] $\rightarrow$ [REPORT SETTING]. <br> 2. Select the report item and set items that will be reported to the Center. <br> See P. 182 |
| 10 | Setting the http server <br> 1. Select [SERVICE MODE] $\rightarrow[$ PS / PCL $] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ BASIC SETTING $] \rightarrow[$ WEB SERVER] <br> 2. Input the server name of the CS Remote Care center, and press the Select key. <br> 3. Select [SERVICE MODE] $\rightarrow$ [PS / PCL] $\rightarrow$ [CS REMOTE CARE] $\rightarrow$ [WEBDAV SETTING], and make the settings of communication with the server according to the network environment. See P. 180 |  |
| 11 | Enables/disables some special warning and report functions <br> 1. Select [SERVICE MODE] $\rightarrow$ [PS /PCL] $\rightarrow$ [CS REMOTE CARE] $\rightarrow$ [CSRC SET- <br> TING] $\rightarrow$ [SWITCHES SETTING], and set whether or not to enable each function. See P. 182 |  |
| 12 | Executing the initial transmission <br> 1. Select [SERVICE MODE] $\rightarrow$ [PS /PCL] $\rightarrow$ [CS REMOTE CARE] $\rightarrow$ [SUBSCRIBE]. <br> 2. Select [YES], and press the Select key to start initial transmission. |  |

*1 Heartbeat is a feature that uploads a Heartbeat file to the registered web server at a specified interval to report that the device is operating. Heartbeat files include total counter and status information.

### 13.15.3 SERVICE ENGR ID

A. Use

- To register the service engineer ID.
- Use when registering and changing service engineer ID.


## B. Procedure

- Enter a 7-digit code using the software keyboard. (0000001 to 9999999)


### 13.15.4 SUBSCRIBE

- Not displayed when the machine is registered in the CS Remote Care center.
A. Use
- Sent the information to the CS Remote Care center to register the machine.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow[$ PS / PCL $] \rightarrow[C S$ REMOTE CARE $] \rightarrow[$ SUBSCRIBE $]$.
2. Press the Select key to start initial transmission.

### 13.15.5 MAINTENANCE START.

A. Use

- Starts the maintenance using the CS Remote Care.
- Not displayed in the following cases.

The machine is not registered in the center.
The Service Engineer ID is not registered.
The maintenance is already provided.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ MAINTENANCE STRT].
2. Select [YES], and press the Select key to start the maintenance.

### 13.15.6 MAINTENANCE END.

A. Use

- Ends the maintenance provided by the CS Remote Care.
- Not displayed in the following cases.

The machine is not registered in the center.
The Service Engineer ID is not registered.
The maintenance is not provided.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ MAINTENANCE END].
2. Select [YES], and press the Select key to finish the maintenance.

### 13.15.7 MANUAL TRANS.

A. Use

- Use when enabling the manual transmission for the CS Remote Care.
- Not displayed in the following cases.

The machine is not registered in the center.
The maintenance is already provided.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow$ [PS / PCL] $\rightarrow$ [CS REMOTE CARE] $\rightarrow[$ MANUAL TRANS.].
2. Select [YES], and press the Select key to start manual transmission.

### 13.15.8 BASIC SETTINGS - CENTER ID

A. Use

- Registers and checks the Center ID for the CS Remote Care.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[\mathrm{CS}$ REMOTE CARE $] \rightarrow[$ BASIC SETTING] $\rightarrow$ [CENTER ID].
2. Press the [CENTER ID].
3. Enter the ID number using the software keyboard.

### 13.15.9 BASIC SETTINGS - WEB SERVER

A. Use

- Registers and checks the Web Server which is used for communication with the CS Remote Care.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ BASIC SETTING] $\rightarrow$ [WEB SERVER].
2. Press the [WEB SERVER].
3. Enter the server address or domain name using the software keyboard.
13.15.10 BASIC SETTINGS - ENCRYPTION
A. Use

- Sets whether or not to enable encryption for communication with the CS Remote Care.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ BASIC SETTING] $\rightarrow$ [ENCRYPTION].
2. Select [YES] or [NO], and press the Select key.

### 13.15.11 BASIC SETTINGS - COMM. METHOD

A. Use

- Sets the communication method for the CS Remote Care. Simplex: One-way communication Duplex: Two-way communication
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ BASIC SETTING] $\rightarrow$ [COMM. METHOD].
2. Select [SIMPLEX] or [DUPLEX], and press the Select key.

### 13.15.12 WEBDAV SETTINGS - ENABLE PROXY

A. Use

- Sets whether or not to use the proxy server for communication with the CS Remote Care
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[$ PS / PCL $] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [ENABLE PROXY].
2. Select [YES] or [NO], and press the Select key.

### 13.15.13 WEBDAV SETTINGS - PROXY ADDRESS

A. Use

- Sets the proxy server address.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[$ PS / PCL $] \rightarrow[$ [CS REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [PROXY ADDRESS].
2. Press the Select key.
3. Enter the server address or domain name using the software keyboard.

### 13.15.14 WEBDAV SETTINGS - PROXY PORT

A. Use

- Sets the proxy server port number.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[$ PS / PCL $] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [PROXY PORT].
2. Press the Select key.
3. Enter the port number using the software keyboard.

### 13.15.15 WEBDAV SETTINGS - PROXY USER NAME

A. Use

- Sets the user name of the proxy server.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[\mathrm{CS}$ REMOTE CARE] $\rightarrow[$ WEBDAV SETTING] $\rightarrow$ [PROXY USER NAME].
2. Press the Select key.
3. Enter the user name using the software keyboard.

### 13.15.16 WEBDAV SETTINGS - PROXY PASSWORD

A. Use

- Sets the proxy server password.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[$ PS / PCL $] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [PROXY PASSWORD].
2. Press the Select key.
3. Enter the password using the software keyboard.

### 13.15.17 WEBDAV SETTINGS - ENABLE SSL

A. Use

- Sets whether or not to enable SSL for communication with the CS Remote Care.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow[$ PS / PCL $] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [ENABLE SSL].
2. Select [YES] or [NO], and press the Select key.

### 13.15.18 WEBDAV SETTINGS - WEBDAV AUTH.

A. Use

- Sets whether or not to use the WEBDAV server authentication for communication with the CS Remote Care.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[P S / P C L] \rightarrow[C S$ REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [WEB DAV AUYH.].
2. Select [YES] or [NO], and press the Select key.

### 13.15.19 WEBDAV SETTINGS - WEBDAV USER NAME

A. Use

- Sets the user name used to access the WEBDAV server.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow[$ PS / PCL] $\rightarrow$ [CS REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [WEBDAV USER NAME].
2. Press the Select key.
3. Enter the user name using the software keyboard.

### 13.15.20 WEBDAV SETTINGS - WEBDAV PASSWORD

A. Use

- Sets the password used to access the WEBDAV server.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[$ PS / PCL $] \rightarrow[$ [CS REMOTE CARE $] \rightarrow[$ WEBDAV SETTING] $\rightarrow$ [WEBDAV PASSWORD].
2. Press the Select key.
3. Enter the password using the software keyboard.

### 13.15.21 CSRC CLOCK

A. Use

- Sets the time for the time stamp used in the reports provided by the CS Remote Care.
- Not displayed in the following cases.

The machine is registered in the center but the maintenance is not provided.
B. Procedure

1. Select [SERVICE MODE] $\rightarrow[$ PS / PCL $] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ CSRC CLOCK $]$.
2. Select [DATE], [TIME] or [TIME ZONE].
3. Input the date, time or time zone, and press the Select key.

### 13.15.22 CSRC SETTINGS

A. Use

- Not displayed in the following cases.

The machine is not registered in the center.
The Service Engineer ID is not registered.
The maintenance is not provided.

## B. Procedure

1. Select [SERVICE MODE $] \rightarrow[$ PS / PCL $] \rightarrow[$ [CS REMOTE CARE $] \rightarrow[$ CSRC SETTING].
2. Press the Select key.

### 13.15.23 HEARTBEAT SETTING

A. Use

- To make Heartbeat related settings.
- Heart Beat is a feature that uploads a Heartbeat file to the registered web server at a specified interval to report that the device is operating. Heartbeat files include total counter and status information.


## B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ CSRC SETTING] $\rightarrow$ [HEARTBEAT SETTING].
2. Press the Select key.

### 13.15.24 SWITCHES SETTINGS

A. Use

- To change the CS Remote Care settings.
- The items which can be set are as follows.

| Retry Settings | Retry Count <br> $\bullet$ <br>  <br>  <br> Retransmission times on http communication error <br> $\bullet$ Retransmission interval on http communication error |
| :--- | :--- |
| SC ERROR [SC] |  |
| SPECIFY DATE [A5] |  |
| PARTS LIFE [TP] |  |
| WARNING [TT] |  |
| PARTS RESET [Z1] |  |
| TONER REP. [TN] |  |
| WASTE FULL [T0] |  |
| PAPER JAM THRES. |  |
| ADF JAM THRES. |  |
| PAPER JAM WARNING |  |
| ADF JAM WARNING |  |
| JAM HISTORY |  |

### 13.15.25 PERIODIC TRANS.

A. Use

- Set the schedule of periodic transmission to the center.
- Select the notification interval from [DAILY], [WEEKLY], or [MONTHLY]. When selecting [DAILY] for the notification interval, set the [TIME].
When selecting [WEEKLY] for the notification interval, set the [TIME] and [DAY OF THE WEEK].
When selecting [MONTHLY], set the [TIME] and [DATE].
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ CSRC SETTING] $\rightarrow$ [PERIODIC TRANS].

### 13.15.26 FIXED DATE TRANS.

A. Use

- Set the schedule of fixed date transmission to the center.
- Set the transmission date and transmission time in [FIXED DATE] and [FIXED TIME] respectively.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ CSRC SETTING] $\rightarrow$ [FIXED DATE TRANS].

### 13.15.27 REPORT SETTING

A. Use

- Select the items of report data that will be sent to the center.
- The items of report data which can be set are as follows.

SALES COUNT/ERROR COUNT/SERVICE COUNT/LIFE COUNT/SYSTEM DATA/ HISTORY DATA/ADJUSTMENT DATA/COVERAGE DATA
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ CSRC SETTING] $\rightarrow$ [REPORT SETTING].

### 13.15.28 RAM CLEAR

A. Use

- To reset the every setting data for CS Remote Care to the default settings.
- To be used for setting CS Remote Care.
B. Procedure

1. Select [SERVICE MODE $] \rightarrow[\mathrm{PS} / \mathrm{PCL}] \rightarrow[$ CS REMOTE CARE $] \rightarrow[$ CSRC SETTING] $\rightarrow$ [RAM CLEAR].

## NOTE

- If RAM clear is selected during transmission, RAM clear processing will be implemented at the time the transmission is completed regardless of whether it is done properly or not.


## 14. SOFT SWITCH SET

### 14.1 Description

This machine is equipped with totally 64 soft switches that are used for fax adjustment in order to conform to the standard of each country.
The default setting is changeable.
The default setting of soft switch is automatically changed according to the following settings.

- The marketing area is set in procedures of [UTILITY] $\rightarrow$ [ADMIN. MANAGEMENT] $\rightarrow$ [USER SETTING] $\rightarrow$ [PTT SETTING].
- The marketing area is set at [PTT Setting] by using LSU utility software.
- When the setting is made in the procedures of [SERVICE MODE] $\rightarrow$ [CLEAR DATA] $\rightarrow$ [SRAM CLEAR], the default setting is defined according to the current setting of marketing area.

Bit No. can be changed with the following way.

- [SERVICE MODE] $\rightarrow$ [SOFT SWITCH] $\rightarrow$ [CONTROLLER SW].

See P. 160


| 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 |

### 14.2 Default setting

### 14.2.1 Country for each marketing area

## NOTE

- A different country may be applicable depending on the communications standard.
- The marketing area settings is set in the procedure of [UTILITY] $\rightarrow$ [ADMIN. MANAGEMENT] $\rightarrow$ [USER SETTING] $\rightarrow$ [PTT SETTING].


### 14.2.2 Soft switch list

| Soft Switch No. | Bit No. | Designation | Page No. |
| :---: | :---: | :---: | :---: |
| \#01 | 3 | Start key default for N-Scan | P. 213 |
|  | 2/1 | V .34 Cl signal byte number |  |
| \#02 | 8/7 | Time between phase C to phase D signal in V. 17 | P. 214 |
|  | 6 | Header TX selection open to user |  |
|  | 5 | Confirm fax No. |  |
|  | 3/2 | Transmit RTN/RTP/MCF signal level criteria |  |
|  | 1 | Sent N.G page |  |
| \#03 | 8 | Send out NSF frame with station ID | P. 215 |
|  | 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. 216 |
|  | 3 | Audible alarm for RTN signal |  |
|  | 2/1 | Pulse shape |  |
| \#05 | 8/7 | Push button ON/OFF timing (PB) | P. 217 |
|  | 6/5 | Relation between 10 key \# \& No. of dial pulse |  |
|  | 4 | $10 \mathrm{PPS} / 20$ PPS |  |
|  | 3/2/1 | PPS ratio |  |
| \#06 | 5 | The time switch line to external phone after dialing the last digits | P. 218 |
| \#07 | 8 | Dial tone or busy tone detection | P. 218 |
|  | 7 | PSTN/PBX setting |  |
|  | 6 | PBX dial tone detect |  |
|  | 5 | Dial mode select |  |
|  | 4/3/2/1 | TX level select for PSK/FSK |  |
| \#08 | 7 | Detect busy tone after dialing | P. 219 |
|  | 6 | Sending CED signal after connection |  |
| \#09 | 8/7 | Ringer frequency detection | P. 219 |
|  | 5 | TSI/CSI append "+" |  |
|  | 2/1 | Time from RX DIS signal to send DCS signal |  |


| Soft Switch No. | Bit No. | Designation | Page No. |
| :---: | :---: | :---: | :---: |
| \#10 | 8 | Print out RTN page report | P. 220 |
|  | 7 | Confirmation report result field |  |
|  | 6/5 | Get gap time between digit for pulse dial |  |
|  | 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. 221 |
|  | 6 | Pulse dial allowed to select |  |
|  | 5 | Protocol signal display mode |  |
|  | 2 | USB port number fixed |  |
|  | 1 | DTMF low frequency compensation |  |
| \#12 | 8 | ECM mode capability | P. 222 |
|  | 7/6 | V. 34 fall back counter for V. 34 TX |  |
|  | 5 | Send CTC after 4th PPR |  |
|  | 3 | Send EOR after lowest speed |  |
|  | 2/1 | TCF transmission timing after DCS signal |  |
| \#13 | 8 | MR capability for G3 | P. 223 |
|  | 7/6 | Delay time between transaction |  |
|  | 5 | Super fine printing capability for receiving |  |
|  | 3 | DTS mode |  |
|  | 2 | Send DTC signal if RX DIS signal in manual RX mode (no function on G4) |  |
| \#14 | 6 | Memory size level to RX | P. 223 |
|  | 5/4 | Impedance |  |
|  | 3/2/1 | Time between V. 34 ANSam signal and FSK DIS signal |  |
| \#15 | - | Reserved | P. 224 |
| \#16 | 2/1 | Fax communication coding method | P. 224 |
| \#17 | 6 | CED frequency | P. 225 |
|  | 5/4/3 | Pause between off hook and CED signal |  |
|  | 2/1 | Inactivity timer [T5] |  |
| \#18 | 6/5 | G3 mode training quality level | P. 226 |
|  | 4/3/2/1 | Redefine re-dial attempts counter |  |
| \#19 | 8/7/6/5 | CNG signal level | P. 227 |
|  | 4/3/2/1 | DTMF high frequency level |  |
| \#20 | 8/7/6 | Max. ring off time | P. 227 |
| \#21 | 8 | NSS signal before DCS | P. 228 |
|  | 7/6 | CNG sending duration after dialing |  |
|  | 5 | T4 timer |  |
|  | 4 | VOIP (Voice over IP) |  |
|  | 3 | DIS signal length |  |
|  | 2/1 | Increase default T1 timing during calling (Only for TX function) |  |
| \#22 | 4/3/2/1 | CED signal output level | P. 229 |


| Soft Switch No. | Bit No. | Designation | Page No. |
| :---: | :---: | :---: | :---: |
| \#23 | 4/3/2/1 | DTMF low frequency level | P. 229 |
| \#24 | 8 | Ring cadence | P. 230 |
|  | $\begin{gathered} \hline 7 / 6 / 5 / \\ 4 / 3 / 2 / 1 \end{gathered}$ | Re-dial interval |  |
| \#25 | 6/5 | Delay time to catch line after detect ring | P. 233 |
|  | 4/3 | Flash key time |  |
|  | 2/1 | RX gain adjustment |  |
| \#26 | 8/7 | Dial tone detection time before disconnected | P. 233 |
| \#27 | - | Reserved | P. 234 |
| \#28 | 8/7/6/5 | Time to dial after dial tone on the line | P. 234 |
|  | 4/3/2/1 | CED duration time within calling period |  |
| \#29 | $\begin{gathered} 5 / 4 / 3 / \\ 2 / 1 \end{gathered}$ | Time to dial after seize the line when dial tone detection | P. 235 |
| \#30 | 8/7 | Pause delay time within digits | P. 236 |
| \#31 | 7/6/5 | Min re-dial interval | P. 236 |
|  | 4/3/2/1 | Max. re-dial attempts |  |
| \#32 | 8 | Toner type (PA model only) | P. 237 |
|  | 7 | USB ID (PA model only) |  |
|  | 6 | Phone book sequence |  |
|  | 5 | N-Scan report |  |
|  | 4/3/2/1 | Adjust V. 34 RX connection speed threshold |  |
| \#33 | 8 | Handset detects method in manual dial | P. 238 |
|  | 7 | V .17 echo protection tone |  |
|  | 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. 238 |
| \#35 | 8/7 | Dial tone table switch time | P. 239 |
|  | 6/5/4 | Dial tone frequency upper range index |  |
|  | 3/2/1 | Dial tone frequency low range index |  |
| \#36 | 8 | Re-dial attempts continue fail counter (Using for detect line problem error) | P. 240 |
|  | 4/3/2/1 | Re-dial attempts fail limitation counter (Using for detect line problem error) |  |
| \#37 | 7 | Auto dial learning for V. 34 modem | P. 241 |
|  | 6/5/4 | RX start symbol rate for V. 34 modem |  |
|  | 3/2/1 | TX start symbol rate for V. 34 modem |  |
| \#38 | 6/5 | V. 34 flag number between ECM frame | P. 241 |
|  | 4 | Phase 2 guard tone power level (V.34) |  |
|  | 3/2 | Host detects ringing status in low frequency or one cycle |  |
|  | 1 | V. 8 /V. 34 capability |  |


| Soft Switch No. | Bit No. | Designation | Page No. |
| :---: | :---: | :---: | :---: |
| \#39 | 8 | Disable V. 34 TX for V. 34 modem | P. 242 |
|  | 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 select receiving start speed for V. 17 | P. 243 |
|  | 3/2/1 | V. 34 RX start speed prohibit V .34 mode when upper speed less |  |
| \#41 | 8/7/6/5 | V. 17 TX start speed select receiving start speed for V. 17 | P. 244 |
|  | 3/2/1 | V. 34 TX start speed prohibit V. 34 mode when upper speed less |  |
| \#42 | - | Reserved | P. 245 |
| \#43 | - | Reserved | P. 245 |
| \#44 | - | Reserved | P. 245 |
| \#45 | 5 | Call transfer | P. 246 |
|  | 4/3/2/1 | No. of call transfer |  |
| \#46 | 7 | Daylight savings timer (Manual) | P. 246 |
|  | 4 | RX print mode |  |
|  | 3 | Default TX mode |  |
|  | 2 | Header for FAX TX |  |
|  | 1 | Print model name on top of TX page if name not register |  |
| \#47 | 6 | RX mode | P. 247 |
|  | 5 | Footer |  |
| \#48 | 8 | Activity report | P. 247 |
|  | 7/6 | TX result report |  |
|  | 5/4 | RX result report |  |
| \#49 | 5 | Re-dial method if Comm. Fail | P. 248 |
|  | 4/3/2/1 | No. of rings |  |
| \#50 | 8 | Transmit or cancel after time out in "Memory TX" | P. 248 |
|  | 6/5/4 | Min. ring on time |  |
|  | 3/2/1 | Min. ring off time |  |
| \#51 | 6/5 | Max pages of T30 monitor report | P. 249 |
|  | 4/3 | T30 monitor report selection |  |
|  | 2 | Send unsent page mode for memory transmission |  |
| \#52 | - | Reserved | P. 249 |
| \#53 | - | Reserved | P. 250 |
| \#54 | 8 | Report Date/Time type | P. 250 |
|  | 7/6 | Report Date/Time format |  |
|  | 5/4 | Memory near full capacity for Fax and I-Fax scanning |  |
|  | 3/2 | Memory near full capacity for N -Scan scanning |  |
| \#55 | 8/7/6 | DC characteristics | P. 251 |
|  | 1 | Fast edge pulse dial |  |


| Soft Switch No. | Bit No. | Designation | Page No. |
| :---: | :---: | :---: | :---: |
| \#56 | 8/7/6/5 | Pulse dial setup (\$74C) | P. 251 |
|  | 4/3/2/1 | Pulse clear (\$74D) |  |
| \#57 | 5 | Compensation for loading from bridge capacitor | P. 252 |
|  | 3/2/1 | Resistance for pulse dialing |  |
| \#58 | 8 | Time out from PSK to FSK delay time | P. 252 |
| \#59 | $\begin{aligned} & \hline 6 / 5 / 4 / \\ & 3 / 2 / 1 \end{aligned}$ | Time Between GMT (Greenwich Mean Time) | P. 253 |
| \#60 | 6 | Quick memory TX | P. 256 |
|  | 2 | Off hook alarm after communication |  |
|  | 1 | Display destination selection within TX phase C |  |
| \#61 | 4/3/2/1 | Max. No. of ring | P. 256 |
| \#62 | - | Reserved | P. 257 |
| \#63 | 8 | "\#" key definition in PBX mode | P. 257 |
|  | 2 | Fax TX image adjust |  |
|  | 1 | TX result report with image |  |
| \#64 | 6 | Print RX error report in RX side if no any FAX signal detected | P. 258 |
|  | 5 | 10 PPS \& 20 PPS selectable by user |  |

### 14.2.3 Default soft switch setting for each market area

## A. Market area 1

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 2NNN0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | U.S.A |  |  |  |  |  |  | United Kingdom |  |  |  |  |  |  | Argentina |  |  |  |  |  |  | Australia |  |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |  |
|  | 1 | 2 | 3 | 4 4 5 | 5 | 7 | 8 | 1 | 2 | 3 | $4{ }^{4} 5$ | 5 5 6 | 7 | 8 | 1 | 2 | 3 3 4 | 5 | 6 | 78 | 8 | 1 | 2 | $3{ }^{3} 4$ | 5 | 6 | 7 | 8 |  |
| \#01 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 |  |
| \#02 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 01 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 |  |
| \#03 | 0 | 1 | 1 | 00 | 00 | 0 | 1 | 0 | 1 | 1 | 00 | 00 | 1 | 1 | 0 | 1 | 10 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 1 | 1 |  |
| \#04 | 0 | 0 | 1 | 10 | 00 | 0 | 0 | 1 | 0 | 1 | 10 | 00 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 0 |  |
| \#05 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 1 | 1 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 1 |  |
| \#06 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |  |
| \#07 | 1 | 1 | 1 | 00 | 00 | 0 | 0 | 1 | 1 | 1 | 00 | 00 | 0 | 1 | 1 | 1 | 10 | 0 | 0 | 0 | 0 | 1 | 1 | 10 | 0 | 0 | 0 | 1 |  |
| \#08 | 0 | 0 | 0 | 00 | 01 | 1 | 0 | 0 | 0 | 0 | 00 | 01 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 |  |
| \#09 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 |  |
| \#10 | 1 | 0 | 0 | 00 | 01 | 0 | 1 | 1 | 1 | 1 | 0 | 11 | 1 | 1 | 1 | 0 | 00 | 0 | 1 | 0 | 1 | 1 | 1 | 10 | 1 | 1 | 0 | 1 |  |
| \#11 | 0 | 0 | 0 | 00 | 01 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |  |
| \#12 | 0 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 1 | 0 | 00 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 |  |
| \#13 | 0 | 0 | 0 | 01 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 |  |
| \#14 | 0 | 1 | 0 | 01 | 10 | 0 | 0 | 0 | 1 | 0 | 10 | 00 | 0 | 0 | 0 | 1 | 00 | 1 | 0 | 0 | 0 | 0 | 1 | 01 | 0 | 0 | 0 | 0 |  |
| \#15 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 1 |  |
| \#16 | 1 | 1 | 0 | 00 | 00 | 0 | 0 | 1 | 1 | 0 | 00 | 00 | 0 | 0 | 1 | 1 | 00 | 0 | 0 | 0 | 0 | 1 | 1 | 00 | 0 | 0 | 0 | 0 |  |
| \#17 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | E |
| \#18 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 山 |
| \#19 | 0 | 0 | 0 | 11 | 11 | 1 | 0 | 1 | 1 | 0 | 1 | 11 | 1 | 0 | 1 | 1 | 01 | 1 | 1 | 1 | 0 | 0 | 0 | 01 | 1 | 1 | 1 | 0 | § |
| \#20 | 0 | 0 | 0 | 00 | 01 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 | 0 | 0 | 00 | 0 | 1 | 1 | 0 | $\sum$ |
| \#21 | 0 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 0 | 00 | 00 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 | $\underset{\square}{2}$ |
| \#22 | 1 | 1 | 10 | 00 | 00 | 0 | 0 | 1 | 1 | 1 | 00 | 00 | 0 | 0 | 1 | 1 | 10 | 0 | 0 | 0 | 0 | 1 | 1 | 10 | 0 | 0 |  | 0 | 呆 |


| $\# 23$ | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\# 24$ | 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 |
| $\# 25$ | 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 | 1 | 0 | 0 |
| $\# 26$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 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 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| $\# 29$ | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 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 | 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 |
| $\# 31$ | 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 | 0 | 0 | 1 | 0 | 0 |
| $\# 32$ | 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 | 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 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 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 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | U.S.A |  |  |  |  |  |  |  | United Kingdom |  |  |  |  |  |  |  | Argentina |  |  |  |  |  |  | Australia |  |  |  |  |  |  |  |
|  | 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 | 56 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| \#38 | 1 | 0 | 00 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| \#39 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 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 | 00 | 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 | 00 | 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 | 00 | 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 | 00 | 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 | 00 | 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 | 00 | 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 | 00 | 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 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \#48 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 01 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| \#49 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \#50 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| \#51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 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 | 00 | 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 | 00 | 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 | 01 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| \#55 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| \#56 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 00 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| \#57 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 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 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \#59 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 01 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| \#60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \#61 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 00 | 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 | 00 | 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 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| \#64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## B. Market area 2

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Austria |  |  |  |  |  |  |  | Belgium |  |  |  |  |  |  |  | Brazil |  |  |  |  |  |  | Canada |  |  |  |  |  |
|  | 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 | $4{ }^{4} 5$ | 6 | 7 | 8 | 1 | 2 | $3{ }^{3} 4$ | 5 5 6 | $6 \mid 7$ | 78 |
| \#01 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 00 | 0 |
| \#02 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#03 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 00 | 0 | 0 | 1 | 0 | 1 | 10 | 00 | 00 | ) 1 |
| \#04 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 11 | 00 | 00 | 0 |
| \#05 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 00 | 00 | 00 | 0 |
| \#06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#07 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 00 | 0 | 0 | 0 | 1 | 1 | 10 | 00 | 00 | 0 |
| \#08 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 10 |
| \#09 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#10 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 00 | 1 | 0 | 1 | 1 | 0 | 00 | 01 | 10 | 0 |
| \#11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 10 | 0 |
| \#12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 0 | 00 | 10 | 00 | 0 |
| \#14 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 01 | 0 | 0 | 0 | 0 | 1 | 00 | 10 | 00 | 0 |
| \#15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 0 | 0 | 0 | 1 | 1 | 00 | 00 | 00 | 0 |
| \#17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 00 | 0 |
| \#19 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 11 | 1 | 1 | 0 | 0 | 0 | 01 | 11 | 11 | 10 |
| \#20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 | 0 | 00 | 01 | 11 | 11 |
| \#21 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#22 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 0 | 1 | 1 | 10 | 00 | 00 | 0 |
| \#23 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 0 | 10 | 00 | 00 | 0 |
| \#24 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 00 | 00 | 00 | 0 |
| \#25 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 00 | 00 | 00 | 0 |
| \#26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#28 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 00 | 1 | 0 | 1 | 1 | 1 | 10 | 01 | 10 | 01 |
| \#29 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 01 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 00 | 0 |
| \#30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 00 | 00 | 01 | 10 |
| \#31 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 10 | 1 | 0 | 0 | 0 | 1 | 01 | 01 | 10 | 0 |
| \#32 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |  | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 0 | 1 | 0 | 11 | 00 | 00 | 0 |
| \#33 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 00 | 00 | 01 | 10 |
| \#34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#35 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 1 | 0 | 0 | 00 | 01 | 10 | 1 |
| \#36 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 0 | 0 | 1 | 0 | 1 | 01 | 00 | 00 | 01 |
| \#37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 |
| \#38 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 00 | 1 | 0 | 0 | 1 | 0 | 00 | 01 | 10 | 0 |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Austria |  |  |  |  |  |  | Belgium |  |  |  |  |  |  | Brazil |  |  |  |  |  | Canada |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  |  | 2 |  |  |  |  |  | 1 | 2 |  |  |  | 7 |  |  | 23 | 34 | $4{ }^{5}$ |  |  |  | 12 | 3 | 4 | 556 |  |  |
| \#39 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#40 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#41 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 |  |
| \#42 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#43 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#44 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#45 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 |  |
| \#46 | 0 | 1 | 01 | 10 | 00 | 0 |  | 0 | 1 | 0 | 0 | 00 | 0 | 0 |  | 10 | 01 | 10 | 0 | 00 |  | 01 | 0 | 10 | 00 | 00 |  |
| \#47 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#48 | 0 | 0 | 0 | 10 | 01 | 0 |  | 0 | 0 | 0 | 0 | 01 | 0 | 1 | 0 | 00 | 01 | 10 | 1 | 01 |  | 0 | 0 | 10 | 0 | 10 |  |
| \#49 | 1 | 0 | 00 | 00 | 00 | 0 |  | 1 | 0 | 0 | 00 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 10 | 0 | 0 | 00 | 00 |  |
| \#50 | 1 | 0 | 00 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 1 | 00 | 0 | 0 |  | 0 | 01 | 10 | 0 | 00 |  | 10 | 0 | 10 | 00 | 00 |  |
| \#51 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#52 | 0 | 0 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#53 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#54 | 0 | 0 | 0 | 10 | 01 | 0 |  | 0 | 0 | 0 | 0 | 01 | 0 | 1 |  | 00 | 01 | 10 | 1 | 01 |  | 0 | 0 | 0 | 0 | 1 |  |
| \#55 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 01 | 1 |  |
| \#56 |  | 0 | 01 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 01 | 10 | 0 | 00 |  | 0 | 0 | 10 | 00 | 00 |  |
| \#57 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 00 | 0 | 00 | 0 |  |
| \#58 | 0 | 0 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#59 | 0 | 1 | 00 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 10 | 00 | 1 | 00 |  | 1 | 0 | 10 | 01 | 10 |  |
| \#60 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 |  |
| \#61 |  | 1 | 11 | 10 | 00 | 0 |  | 1 | 1 | 1 | 10 | 00 | 0 | 0 |  | 1 | 1 | 10 | 0 | 00 |  | 11 | 1 | 10 | 00 | 00 |  |
| \#62 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#63 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 1 |  | 0 | 00 | 00 | 0 | 1 |  | 0 | 0 | 0 | 00 | 0 |  |
| \#64 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 00 | 00 | 0 |  |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |

## C. Market area 3

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | China |  |  |  |  |  |  |  | Czech |  |  |  |  |  |  |  | Denmark |  |  |  |  |  |  |  | Europe |  |  |  |  |  |  |
|  | 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 | 314 | 5 | 6 | 7 | $8$ |
| \#01 | 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 | 00 | 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 | 00 | 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 | 1 | 1 | 0 | 1 | 10 | 0 | 0 | 1 | 1 |
| \#04 | 0 | 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 | 0 | 0 | 0 | $0$ |
| \#05 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 00 | 0 | 0 | 1 | $1$ |
| \#06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#07 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 10 | 0 | 0 | 0 | $1$ |
| \#08 | 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 | 1 | 1 | $0$ |
| \#09 | 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 | 00 | 1 | 0 | 0 | 0 |
| \#10 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 10 | 1 | 1 | 1 | $1$ |
| \#11 | 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 | 00 | 0 | 0 | 0 | $0$ |
| \#12 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | $1$ |
| \#13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | $0$ |
| \#14 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 01 | 0 | 0 | 0 | 0 |
| \#15 | 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 | 00 | 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 | $0$ |
| \#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 | 00 | 0 | 0 | 0 | 0 |
| \#18 | 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 | 00 | 0 | 0 | 0 | 0 |
| \#19 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 01 | 1 | 1 | 1 | 0 |
| \#20 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 |
| \#21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 |
| \#22 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |  | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 10 | 0 | 0 | 0 | 0 |
| \#23 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 |
| \#24 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 |  |
| \#25 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 |  |
| \#26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 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 | 00 | 0 | 0 | 0 |  |
| \#28 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |  | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 10 | 1 | 0 | 1 |  |
| \#29 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 |
| \#30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 |  |
| \#31 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |  | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 01 | 0 | 1 | 0 |  |
| \#32 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |  | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 0 | 0 | 0 | 0 |
| \#33 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 |  |
| \#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 | 00 | 0 | 0 | 0 |  |
| \#35 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 00 | 0 | 1 | 0 |  |
| \#36 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 01 | 0 | 0 | 0 |  |
| \#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 | 00 | 0 | 0 | 0 |  |
| \#38 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 00 | 0 | 1 | 0 |  |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | China |  |  |  |  |  | Czech |  |  |  |  |  |  | Denmark |  |  |  |  |  |  | Europe |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  | 1 |  |  |  |  |  |  | 2\| | 3 | 4 |  | 7 | 8 |  | 23 | 34 | 45 |  |  |  | 12 | 3 | 45 | $5{ }^{5} 6$ | 67 | 78 |
| \#39 | 1 | 00 | 0 | 00 | 00 | 0 |  | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 |  |
| \#40 | 0 | 00 | 0 | 00 | 00 |  |  | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 0 |
| \#41 | 0 | 00 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 00 |
| \#42 | 0 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 00 | 0 |
| \#43 | 0 | 00 | 00 | 00 | 00 |  |  | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 0 |
| \#44 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 00 |
| \#45 | 0 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 |  | 0 |
| \#46 | 0 | 10 | 10 | 00 | 0 |  | 0 | 1 | 01 | 1 | 00 | 0 | 0 |  | 10 | 01 | 10 | 0 | 00 |  | 1 | 0 | 1 | 0 | 0 | 0 |
| \#47 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 00 |
| \#48 | 0 | 00 | 0 | 01 | 10 |  | 0 | 0 | 0 | 1 | 01 | 0 | 1 |  | 00 | 01 | 10 | 1 | 01 |  | 0 | 0 | 1 | 01 |  | 01 |
| \#49 | 1 | 00 | 00 | 00 | 0 |  | 1 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 00 |
| \#50 |  | 00 | 10 | 00 | 0 | 0 | 1 | 0 | 0 | 1 | 00 | 0 | 0 |  | 00 | 01 | 10 | 0 | 00 |  | 0 | 0 | 1 | 00 | 0 | 00 |
| \#51 | 0 | 00 | 00 | 00 | 00 |  |  | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 |  |  |
| \#52 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 |
| \#53 |  | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 00 |
| \#54 | 0 | 00 | 10 | 01 | 10 |  | 0 | 0 | 0 | 1 | 01 | 0 | 1 |  | 00 | 01 | 10 | 1 | 01 |  | 0 | 0 | 1 | 0 | 10 | 01 |
| \#55 |  | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 |  |
| \#56 |  | 00 | 10 | 00 | 0 |  | 1 | 0 | 0 | 1 | 0 | 0 | 0 |  | 00 | 01 | 10 | 0 | 00 |  | 0 | 0 | 1 | 00 | 0 | 00 |
| \#57 |  | 00 | 0 | 10 | 00 |  | 0 | 0 | 00 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#58 | 0 | 00 | 0 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 |  | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 |
| \#59 |  | 00 | 0 | 10 | 00 |  | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 10 | 00 | 00 | 0 | 00 |  | 01 | 0 | 0 | 00 | 0 | 00 |
| \#60 |  | 00 | 00 | 00 | 00 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 0 |
| \#61 |  | 11 | 10 | 00 | 00 |  | 1 | 1 | 1 | 1 | 00 | 0 | 0 |  | 1 | 11 | 10 | 0 | 00 |  | 11 | 1 | 1 | 00 | 0 | 0 |
| \#62 |  | 00 | 0 | 00 | 00 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 00 |
| \#63 | 0 | 00 | 0 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 1 |  | 0 | 00 | 00 | 0 | 1 |  | 0 | 0 | 0 | 0 | 00 | 1 |
| \#64 | 0 | 00 | 0 | 00 | 00 |  | 0 | 0 | 0 | 0 | 00 | 0 |  |  | 0 | 00 | 00 | 0 | 00 |  | 0 | - | 0 | 00 | 0 | 00 |

## D. Market area 4



| $\# 24$ | 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 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\# 25$ | 0 | 1 | 0 | 0 | 0 | 1 | 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 |
| $\# 26$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 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 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| $\# 29$ | 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 |
| $\# 30$ | 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 |
| $\# 31$ | 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 | 0 | 0 |
| $\# 32$ | 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 | 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 | 0 | 1 | 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 |
| $\# 38$ | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Finland |  |  |  |  |  |  | France |  |  |  |  |  |  | Germany |  |  |  |  |  | Greece |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  |  | 2 |  |  |  |  |  | 1 | 2 |  | 4 | 6 | 7 |  |  | 23 | 34 | $4{ }^{4} 5$ |  |  |  | 12 | 3 | 45 | 56 |  |  |
| \#39 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 00 | 00 | 0 | 00 |  | 10 | 0 | 0 | 00 | 00 |  |
| \#40 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#41 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#42 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 |  |
| \#43 | 0 | 00 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#44 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#45 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 |  |
| \#46 | 0 | 10 | 01 | 10 | 00 | 0 |  | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | 10 | 01 | 10 | 0 | 00 |  | 01 | 0 | 10 | 00 | 00 |  |
| \#47 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#48 | 0 | 0 | 0 | 10 | 01 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 00 | 01 | 10 | 1 | 01 |  | 0 | 0 | 10 | 0 | 1 |  |
| \#49 | 1 | 0 | 00 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 10 | 0 | 0 | 00 | 00 |  |
| \#50 | 1 | 0 | 01 | 10 | 00 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 1 | 0 | 01 | 10 | 0 | 00 |  | 10 | 0 | 10 | 00 | 00 |  |
| \#51 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 |  |
| \#52 | 0 | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 |  |
| \#53 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#54 | 0 | 0 | 0 | 10 | 01 | 0 |  | 0 | 0 | 0 | 10 | 1 | 0 | 1 |  | 00 | 01 | 10 | 1 | 01 |  | 0 | 0 | 0 | 0 | 1 |  |
| \#55 | 0 | 0 | 00 | 00 | 0 | 1 |  | 0 | 0 | 00 | 0 | 0 | 1 | 0 |  | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 00 | 0 |  |
| \#56 |  | 0 | 01 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 |  | 00 | 01 | 10 | 0 | 00 |  | 0 | 0 | 10 | 00 | 00 |  |
| \#57 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 00 | 0 | 00 | 00 |  |
| \#58 | 0 | 0 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#59 |  | 0 | 10 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 00 | 00 | 0 | 00 |  | 0 | 10 | 0 | 00 | 00 |  |
| \#60 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#61 |  | 1 | 11 | 10 | 00 | 0 |  | 1 | 1 | 1 | 10 | 0 | 0 | 0 |  | 1 | 11 | 10 | 0 | 00 |  | 11 | 1 | 10 | 00 | 00 |  |
| \#62 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#63 | 0 | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | 0 | 00 | 00 | 0 | 1 |  | 0 | 0 | 0 | 00 | 00 |  |
| \#64 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 00 | 0 | 0 |  |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 00 | 00 | 0 |

## E. Market area 5

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Hong Kong |  |  |  |  |  |  |  | Hungary |  |  |  |  |  |  |  | Ireland |  |  |  |  |  |  |  | Israel |  |  |  |  |  |  |
|  | 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 4 5 | 6 | 7 | 8 |
| \#01 | 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 | 00 | 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 | 00 | 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 | 1 | 1 | 0 | 1 | 1 | 00 | 0 | 0 | 1 |
| \#04 | 0 | 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 | 10 | 0 | 0 | 0 |
| \#05 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#07 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 00 | 0 | 0 | 0 |
| \#08 | 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 | 00 | 1 | 1 | 0 |
| \#09 | 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 | 00 | 0 | 0 | 0 |
| \#10 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 01 | 1 | 0 | 1 |
| \#11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  |
| \#12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 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 | 01 | 0 | 0 | 0 |
| \#14 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 01 | 0 | 0 | 0 |
| \#15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 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 | 00 | 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 | 00 | 0 | 0 | 0 |
| \#18 | 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 | 00 | 0 | 0 | 0 |
| \#19 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 11 | 1 | 1 | 0 |
| \#20 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 |
| \#21 | 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 | 00 | 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 | 00 | 0 | 0 |  |
| \#23 | 0 | 0 | 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 | 00 | 0 | 0 | 0 |
| \#24 | 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 | 00 | 0 | 0 | 0 |
| \#25 | 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 | 00 | 0 | 0 | 0 |
| \#26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 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 | 00 | 0 | 0 |  |
| \#28 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |  | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 00 | 1 | 0 |  |
| \#29 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 |  |
| \#30 | 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 | 00 | 0 | 1 |  |
| \#31 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 10 | 1 | 0 |  |
| \#32 | 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 | 10 | 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 | 00 | 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 | 00 | 0 | 0 | 0 |
| \#35 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 1 |
| \#36 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 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 | 00 | 0 | 0 | 0 |
| \#38 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 00 | 1 | 0 |  |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Hong Kong |  |  |  |  |  | Hungary |  |  |  |  |  |  | Ireland |  |  |  |  |  |  | Israel |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |
|  | 1 |  |  | 45 |  |  |  | 12 |  | 4 |  |  | 8 |  | 2 | 314 | $4{ }^{4} 5$ |  |  | 8 |  | 23 | 4 | 5 |  | 78 |
| \#39 | 1 | 0 | 00 | 00 | 00 | 00 |  | 10 | 0 | 0 | 00 | 00 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 10 | 00 | 0 | 0 | 0 | 0 |
| \#40 | 0 | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#41 | 0 | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |
| \#42 | 0 | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \#43 | 0 | 00 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#44 | 0 | 00 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |
| \#45 | 0 | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#46 | 0 | 10 | 01 | 10 | 00 | 00 |  | 01 | 0 | 1 | 0 | 00 | 0 | 0 | 1 | 0 | 10 | 0 | 0 | 0 | 0 | 10 | 1 | 0 | 0 | 0 |
| \#47 | 0 | 00 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#48 | 0 | 0 | 01 | 10 | 10 | 01 |  | 00 | 0 | 1 | 0 | 0 | 1 |  | 0 | 0 | 10 | 1 | 01 | 1 | 00 | 0 | 1 | 0 | 1 | 01 |
| \#49 | 1 | 0 | 00 | 00 | 00 | 00 |  | 10 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 |
| \#50 |  | 0 | 01 | 10 | 00 | 00 |  | 10 | 0 | 1 | 0 | 0 | 0 |  | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 00 | 1 | 0 | 0 | 0 |
| \#51 | 0 | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| \#52 | 0 | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#53 |  | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#54 | 0 | 0 | 01 | 10 | 10 | 00 |  | 00 | 0 | 1 | 0 | 10 | 1 |  | 0 | 0 | 10 | 1 | 0 | 1 | 00 | 0 | 1 | 0 | 1 | 0 |
| \#55 |  | 0 | 00 | 00 | 10 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| \#56 |  | 0 | 01 | 10 | 00 | 00 |  | 10 | 0 | 1 | 0 | 00 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 00 | 1 | 0 | 0 | 00 |
| \#57 |  | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 00 |
| \#58 | 0 | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#59 |  | 00 | 00 | 01 | 00 | 00 |  | 01 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 00 |
| \#60 |  | 0 | 00 | 00 | 00 | 00 |  | 0 | 0 | 0 | 0 | 00 | 0 |  | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |
| \#61 |  | 1 | 11 | 10 | 00 | 00 |  | 11 | 1 | 1 | 0 | 0 | 0 |  | 1 | 1 | 10 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 00 |
| \#62 |  | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#63 | 0 | 00 | 00 | 00 | 00 | 01 |  | 00 | 0 | 0 | 0 | 0 |  |  | 0 | 00 | 0 | 0 | 0 |  | 00 | 0 | 0 | 0 | 0 | 0 |
| \#64 |  | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 |  |  | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |

## F. Market area 6

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Italy |  |  |  |  |  |  | Korea |  |  |  |  |  |  |  | Malaysia |  |  |  |  |  |  | Mexico |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  | 1 | $2{ }^{2} 3$ | $3{ }^{3} 4$ | $4 \mid 5$ | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 4 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 4 5 | 6 | 7 | 8 |
| \#01 | 1 | 00 | 00 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 |  | 0 |
| \#02 | 0 | 00 | 00 | 00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 |
| \#03 | 0 | 11 | 10 | 00 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 00 | 0 | 0 | 1 | 0 | 1 | 1 | 00 | 0 | 0 | 1 |
| \#04 | 1 | 01 | 11 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 |
| \#05 | 1 | 00 | 00 | 00 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#06 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#07 | 1 | 11 | 10 | 00 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 0 |
| \#08 | 0 | 00 | 00 | 00 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 |
| \#09 | 0 | 00 | 00 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#10 | 1 | 11 | 10 | 01 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 00 | 1 | 0 | 1 | 1 | 0 | 0 | 00 | 1 | 0 | 1 |
| \#11 | 1 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#12 | 0 | 01 | 10 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 |
| \#13 | 0 | 00 | 00 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 |
| \#14 | 0 | 10 | 01 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 01 | 0 | 0 | 0 | 0 | 1 | 0 | 01 | 0 | 0 | 0 |
| \#15 | 0 | 00 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#16 | 1 | 10 | 00 | 00 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#17 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#18 | 0 | 10 | 00 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#19 | 1 | 10 | 01 | 11 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 11 | 1 | 1 | 0 | 0 | 0 | 0 | 11 | 1 | 1 | 0 |
| \#20 | 0 | 00 | 00 | 00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 1 |
| \#21 | 0 | 00 | 00 | 00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 |
| \#22 | 1 | 11 | 10 | 00 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 0 |
| \#23 | 0 | 11 | 10 | 00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 |
| \#24 | 0 | 10 | 00 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#25 | 0 | 10 | 00 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#26 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#27 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 |  | 0 |
| \#28 | 1 | 11 | 10 | 01 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 00 | 1 | 0 | 1 | 1 | 1 | 1 | 00 | 1 | 0 | 1 |
| \#29 | 0 | 00 | 00 | 01 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 01 | 0 | 0 | 0 | 0 | 0 | 1 | 01 | 0 | 0 | 0 |
| \#30 | 0 | 00 | 00 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 |
| \#31 | 0 | 10 | 01 | 10 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 1 | 0 | 0 | 0 | 1 | 0 | 10 | 1 | 0 | 0 |
| \#32 | 1 | 01 | 11 | 10 | 0 | 0 |  | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 0 |
| \#33 | 0 | 00 | 00 | 00 | 0 | 1 |  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 |
| \#34 | 0 | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#35 | 0 | 00 | 00 | 00 | 1 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 1 |
| \#36 | 0 | 10 | 01 | 10 | 0 | 0 |  | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 0 | 0 | 1 |
| \#37 | 0 | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#38 |  | 00 | 00 | 00 | 1 | 0 |  | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 1 | 0 | 0 | 00 | 1 | 0 | 0 | 1 | 0 | 0 | 00 | 1 | 0 |  |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Italy |  |  |  |  |  |  | Korea |  |  |  |  |  |  | Malaysia |  |  |  |  |  | Mexico |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  | 1 |  |  |  |  |  |  | 1 | 2 |  | $4{ }^{4} 5$ |  | 7 | 8 |  | 23 | 34 | 45 |  | 78 |  | 2 | 3 | 4 | 5 |  | 78 |
| \#39 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 |
| \#40 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#41 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#42 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#43 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 |
| \#44 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 0 |  | 00 | 0 | 0 | 0 | 0 | 00 |
| \#45 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#46 | 0 | 1 | 01 | 10 | 00 | 0 | 0 | 0 | 1 | 0 | 10 | 00 | 0 | 0 |  | 10 | 01 | 10 | 0 | 0 |  | 01 | 0 | 1 | 0 | 0 | 0 |
| \#47 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 0 |  | 00 | 0 | 0 | 0 | 0 | 00 |
| \#48 | 0 | 0 | 0 | 10 | 01 | 0 | 1 | 0 | 0 | 0 | 10 | 01 | 0 | 1 |  | 00 | 01 | 10 | 1 | 01 |  | 00 | 0 | 1 | 0 | 1 | 01 |
| \#49 | 1 | 0 | 00 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 |
| \#50 |  | 0 | 01 | 10 | 00 | 0 | 0 | 1 | 0 | 0 | 1 | 00 | 0 | 0 |  | 00 | 01 | 10 | 0 | 0 |  | 0 | 0 | 1 | 0 | 0 | 00 |
| \#51 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 00 | 0 | 0 | 0 | 0 | 0 |
| \#52 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#53 |  | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 0 |
| \#54 | 0 | 0 | 01 | 10 | 01 | 0 |  | 0 | 0 | 0 | 10 | 01 | 0 | 1 |  | 00 | 01 | 10 | 1 | 0 |  | 0 | 0 | 1 | 0 | 1 | 0 |
| \#55 | 0 | 0 | 00 | 00 | 00 | 1 |  | 1 | 0 | 0 | 0 | 01 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 1 | 0 |
| \#56 |  | 0 | 01 | 10 | 00 | 0 | 0 | 1 | 0 | 0 | 10 | 00 | 0 | 0 | 1 | 00 | 01 | 10 | 0 | 0 |  | 0 | 0 | 1 | 0 | 0 | 00 |
| \#57 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#58 | 0 | 0 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |
| \#59 | 0 | 1 | 00 | 00 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 00 | 01 | 0 | 00 |  | 00 | 1 | 1 | 0 | 1 | 00 |
| \#60 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  | 0 | 00 | 00 | 0 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 |
| \#61 |  | 1 | 11 | 10 | 00 | 0 |  | 1 | 1 | 1 | 1 | 00 | 0 | 0 |  | 1 | 11 | 10 | 0 | 0 |  | 1 | 1 | 1 | 0 | 0 | 00 |
| \#62 |  | 0 | 0 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  | 00 | 0 | 0 | 0 | 0 | 00 |
| \#63 | 0 |  | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 1 |  | 0 | 00 | 00 | 0 | 01 |  | 00 | 0 | 0 | 0 | 0 | 0 |
| \#64 | 0 | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 00 | 00 | 0 |  |  | 0 | 00 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 00 |

## G. Market area 7

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Netherlands |  |  |  |  |  |  | New Zealand |  |  |  |  |  |  | Norway |  |  |  |  |  |  |  | Philippines |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 78 | 1 | 2 | 3 | 4 | 5 | 6\| | 78 | 1 | 2 | 3 | \| 4 | 5 | 6 | 7 | 8 | 1 | $2{ }^{2} 3$ | $3{ }^{3} 4$ | 5 | 6 | 7 | 8 |
| \#01 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#02 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 |
| \#03 | 0 | 1 | 1 | 0 | 0 | 0 | 11 | 0 | 1 | 1 | 0 | 0 | 0 | 11 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 11 | 10 | 0 | 0 | 0 | 1 |
| \#04 | 1 | 0 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 | 0 | 0 | 00 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 01 | 11 | 0 | 0 | 0 | 0 |
| \#05 | 1 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 1 | 0 | 0 | 0 | 1 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#06 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#07 | 1 | 1 | 1 | 0 | 0 | 0 | 01 | 1 | 1 | 1 | 0 | 0 | 0 | 01 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11 | 10 | 0 | 0 | 0 | 0 |
| \#08 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 00 | 00 | 0 | 1 | 1 | 0 |
| \#09 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#10 | 1 | 1 | 1 | 0 | 1 | 1 | 11 | 1 | 1 | 1 | 0 | 0 | 1 | 11 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 00 | 00 | 0 | 1 | 0 | 1 |
| \#11 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#12 | 0 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 1 | 0 | 01 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 0 | 1 |
| \#13 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 00 | , | 0 | 0 | 0 |
| \#14 | 0 | 1 | 0 | 1 | 0 | 0 | 00 | 0 | 1 | 0 | 1 | 0 | 0 | 00 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 00 | 1 | 0 | 0 | 0 |
| \#15 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#16 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 00 | 0 | 0 | 0 | 0 |
| \#17 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#18 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 00 | 0 | 0 | 0 | 0 |
| \#19 | 1 | 1 | 0 | 1 | 1 | 1 | 10 | 0 | 0 | 0 | 1 | 1 | 1 | 10 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 00 | 01 | 1 | 1 | 1 | 0 |
| \#20 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 00 | 0 | 0 | 1 | 1 |
| \#21 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 00 | 0 | 0 | 1 | 1 |
| \#22 | 1 | 1 | 1 | 0 | 0 | 0 | 00 | 1 | 1 | 1 | 0 | 0 | 0 | 00 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 10 | 0 | 0 | 0 | 0 |
| \#23 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 10 | 0 | 0 | 0 | 0 |
| \#24 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 00 | 0 | 0 | 0 | 0 |
| \#25 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 1 | 10 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 00 | 0 | 0 | 0 | 0 |
| \#26 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#27 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#28 | 1 | 1 | 1 | 0 | 1 | 0 | 10 | 1 | 1 | 1 | 0 | 0 | 10 | 01 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 11 | 10 | 0 | 1 | 0 | 1 |
| \#29 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 1 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 01 | 10 | 1 | 0 | 0 | 0 |
| \#30 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 |
| \#31 | 0 | 1 | 0 | 1 | 0 | 10 | 00 | 0 | 1 | 0 | 1 | 1 | 0 | 00 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 10 | 01 | 0 | 1 | 0 | 0 |
| \#32 | 1 | 0 | 1 | 1 | 0 | 0 | 00 | 1 | 0 | 1 | 1 | 0 | 0 | 00 | 1 | 0 | 01 | 1 | 0 | 0 | 0 | 0 | 1 | 01 | 11 | 0 | 0 | 0 | 0 |
| \#33 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 |
| \#34 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#35 | 0 | 0 | 0 | 0 | 0 | 1 | 01 | 0 | 0 | 0 | 0 | 0 | 10 | 01 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 00 | 00 | 1 | 0 | 0 | 1 |
| \#36 | 0 | 1 | 0 | 1 | 0 | 0 | 01 | 0 | 1 | 0 | 1 | 0 | 0 | 01 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 10 | 01 | 0 | 0 | 0 | 1 |
| \#37 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#38 |  | 0 | 0 | 0 | 0 | 10 | 00 | 1 | 0 | 0 | 0 | 0 | 1 | 00 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 00 | 00 | 0 | 1 | 0 | 0 |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Netherlands |  |  |  |  |  |  | New ZealandBit No. |  |  |  |  |  | Norway Bit No. |  |  |  |  |  |  | PhilippinesBit No. |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | 23 | 3 34 | 45 | 56 |  |  | 1 | 2 |  | 5 | 6 | 78 | 1 | 2 | 3 | $4{ }^{4} 5$ | 5 5 |  | 8 | 1 | 2 |  | 5 | 6 |  | 8 |
| \#39 | 1 | 00 | 00 | 00 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 0 |
| \#40 |  | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 0 |  | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#41 |  | 00 | 00 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  | 0 | 0 | 00 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#42 |  | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 |
| \#43 |  | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 |
| \#44 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#45 |  | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 0 |  | 0 | 0 | 00 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 | 0 |  |
| \#46 |  | 10 | 01 | 10 | 00 | 0 |  | 0 | 10 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 10 | 00 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 |  |
| \#47 |  | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#48 |  | 0 | 01 | 10 | 01 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 |  | 0 | 0 | 10 | 01 |  | 1 | 0 | 00 | 01 | 0 | 1 | 0 |  |
| \#49 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 1 | 10 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |  |
| \#50 |  | 0 | 01 | 10 | 00 | 0 |  | 0 | 1 | 01 | 0 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 00 | 01 | 0 | 0 | 0 |  |
| \#51 |  | 0 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#52 |  | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#53 |  | 00 | 00 | 00 | 0 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#54 |  | 0 | 01 | 10 | 01 | 0 |  | 0 | 0 | 0 | 10 | 1 | 01 |  | 0 | 0 | 10 | 01 |  | 1 | 0 | 0 | 01 | 0 | 1 | 0 |  |
| \#55 |  | 00 | 00 | 00 | 0 | 10 |  | 10 | 0 | 00 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 00 |  | 0 | 1 | 0 | 00 | 0 | 1 | 1 |  |
| \#56 |  | 00 | 01 | 10 | 00 | 0 |  | 10 | 0 | 0 | 0 | 0 | 00 |  | 0 | 0 | 10 | 00 | 0 |  | 1 | 0 | 01 | 0 | 0 | 0 |  |
| \#57 |  | 000 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 | 0 |  |
| \#58 |  | 000 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#59 |  | 010 | 00 | 00 | 00 | 0 |  | 0 | 0 | 01 | 1 | 0 | 00 | 0 | 1 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 1 | 0 | 0 |  |
| \#60 |  | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |  | 0 | 0 | 00 | 0 | 0 | 0 | 0 |  |
| \#61 |  | 11 | 11 | 10 | 0 | 0 |  | 10 | 0 | 01 | 10 | 0 | 00 |  | 1 | 1 | 1 | 00 |  | 0 | 1 | 11 | 11 | 0 | 0 | 0 |  |
| \#62 |  | 00 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 |  | 00 | 00 | 0 | 0 | 0 |  |
| \#63 |  | 000 | 00 | 00 | 00 | 0 |  | 0 | 0 | 00 | 0 | 0 | 0 |  |  | 0 | 0 | 00 |  |  | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#64 |  | 000 | 00 | 00 | 0 | 0 |  | 0 | 0 | 00 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 |  | 0 |  | 00 | 00 | 0 | 0 | 0 |  |

## H. Market area 8



| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Portugal |  |  |  |  |  |  | Russia |  |  |  |  |  |  | Saudi Arabia |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |
|  | 1 |  |  |  |  |  |  | 12 |  | 4 |  |  | 8 |  | 2 | 314 | $4{ }^{4} 5$ |  |  | 8 |  | 23 | 4 |  |  | 78 |
| \#39 | 1 | 00 | 0 | 00 | 00 | 0 |  | 0 | 0 | 0 | 00 | 00 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 10 | 00 | 0 | 0 | 0 | 0 |
| \#40 | 0 | 00 | 0 | 00 | 00 |  |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#41 | 0 | 00 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#42 | 0 | 00 | 0 | 00 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 |  | 0 | 0 | 00 |
| \#43 | 0 | 00 | 0 | 00 | 00 |  |  | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#44 | 0 | 00 | 0 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#45 | 0 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#46 | 0 | 10 | 10 | 00 | 0 |  |  | 1 | 0 | 1 | 00 | 00 | 0 | 0 | 1 | 0 | 10 | 0 | 0 | 0 | 0 | 10 | 1 | 0 | 0 | 0 |
| \#47 | 0 | 00 | 0 | 00 | 0 | 0 |  | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#48 | 0 | 00 | 0 | 01 | 10 |  | 0 | 0 | 0 | 1 | 0 | 0 | 1 |  | 0 | 0 | 10 | 1 | 0 | 1 | 00 | 00 | 1 | 0 | 1 | 01 |
| \#49 | 1 | 00 | 0 | 00 | 0 |  |  | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 |
| \#50 |  | 00 | 10 | 00 | 0 | 0 |  | 0 | 0 | 1 | 0 | 0 | 0 |  | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 00 | 1 | 0 | 0 | 00 |
| \#51 | 0 | 00 | 0 | 00 | 00 |  |  | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#52 | 0 | 00 | 0 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#53 |  | 00 | 0 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#54 | 0 | 00 | 10 | 01 | 10 |  |  | 0 | 0 | 1 | 0 | 10 | 1 |  | 0 | 0 | 10 | 1 | 0 | 1 | 00 | 00 |  | 0 | 1 | 0 |
| \#55 | 0 | 00 | 0 | 01 | 10 |  |  | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 0 |
| \#56 |  | 00 | 10 | 00 | 0 |  | 1 | 0 | 0 | 1 | 0 | 00 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 10 | 00 | 1 | 0 | 0 | 00 |
| \#57 |  | 00 | 0 | 00 | 00 |  |  | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 00 |
| \#58 | 0 | 00 | 0 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 00 | 0 |  | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#59 | 0 | 10 | 0 | 00 | 0 |  | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 10 | 00 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 00 |
| \#60 |  | 00 | 0 | 00 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 | 0 |  | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#61 |  | 11 | 10 | 00 | 00 |  | 1 | 1 | 1 | 1 | 00 | 0 | 0 |  | 1 | 1 | 10 | 0 | 0 | 0 | 1 | 11 | 1 | 0 | 0 | 00 |
| \#62 |  | 00 | 0 | 00 | 00 |  | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |
| \#63 | 0 | 00 | 0 | 00 | 00 |  | 0 |  | 0 | 0 | 0 | 0 |  |  | 0 | 00 | 0 | 0 | 0 |  | 00 | 0 | 0 | 0 | 0 | 0 |
| \#64 |  | 00 | 0 | 00 | 00 |  |  | 0 | 0 | 0 | 0 | 00 |  |  | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 |

## I. Market area 9

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Singapore |  |  |  |  |  |  |  | Slovakia |  |  |  |  |  |  |  | South Africa |  |  |  |  |  |  | Spain |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  | 1 | 2 | 3 | 3 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1 | 2 | 3 | 45 | 5 6 | 7 | 8 | 1 | 2 | 314 | 5 | 6 | 7 | $8$ |
| \#01 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |  |
| \#02 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 01 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | $0$ |
| \#03 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 00 | 00 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 1 | $1$ |
| \#04 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 00 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | $0$ |
| \#05 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 1 | $1$ |
| \#06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | $0$ |
| \#07 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 00 | 00 | 0 | 0 | 1 | 1 | 10 | 0 | 0 | 0 | $1$ |
| \#08 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 01 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 |
| \#09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | $0$ |
| \#10 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 01 | 11 | 0 | 1 | 1 | 1 | 10 | 1 | 1 | 1 | $1$ |
| \#11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | $0$ |
| \#12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | $1$ |
| \#13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 10 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | $0$ |
| \#14 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| \#15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 |
| \#16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 00 | 0 | 0 | 1 | 1 | 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 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 |
| \#19 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 01 | 11 | 1 | 0 | 1 | 1 | 01 | 1 | 1 | 1 | 0 |
| \#20 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 00 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 |
| \#21 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 1 | 1 |
| \#22 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |  | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 00 | 0 | 0 | 1 | 1 | 10 | 0 | 0 | 0 | 0 |
| \#23 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 0 |
| \#24 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 |  |
| \#25 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 00 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 |  |
| \#26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 |
| \#27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#28 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |  | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 00 | 01 | 0 | 1 | 1 | 1 | 10 | 1 | 0 | 1 |  |
| \#29 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |  | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 01 | 10 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 |
| \#30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 00 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 1 |  |
| \#31 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 10 | 01 | 0 | 0 | 0 | 1 | 01 | 0 | 1 | 0 |  |
| \#32 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |  | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 00 | 0 | 0 | 1 | 0 | 11 | 0 | 0 | 0 | 0 |
| \#33 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 00 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 |  |
| \#34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#35 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 01 | 10 | 0 | 1 | 0 | 0 | 00 | 0 | 1 | 0 |  |
| \#36 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 00 | 0 | 1 | 0 | 1 | 01 | 0 | 0 | 0 |  |
| \#37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |  |
| \#38 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 1 | 0 | 0 | 00 | 01 | 0 | 0 | 1 | 0 | 00 | 0 | 1 | 0 |  |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Singapore |  |  |  |  |  |  | Slovakia |  |  |  |  |  |  | South Africa |  |  |  |  |  | Spain |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  | Bit No. |  |  |  |  |  |  | Bit No. |  |  |  |  |  |  |
|  |  | 23 |  | $4{ }^{4} 5$ | $5{ }^{6} 7$ |  |  | 2 | 23 | 4 | 5 |  | 78 |  | 12 | 2 | 4 | 556 |  | 8 | 1 | 2 | 34 |  | 6 |  | 8 |
| \#39 | 1 | 00 | 00 | 00 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 0 | 00 | 00 | 0 | 1 | 0 | 0 | 00 | 0 |  | 0 |
| \#40 |  | 00 | 00 | 00 | 00 | 00 |  | 0 | 00 | 0 | 0 | 00 | 0 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  |
| \#41 |  | 00 | 00 | 00 | 00 | 00 |  | 0 | 00 | 0 | 0 | 00 | 00 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#42 |  | 00 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 00 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#43 |  | 00 | 00 | 00 | 00 | 00 |  | 00 | 00 | 0 | 0 | 00 | 0 |  | 00 | 00 | 0 | 0 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#44 |  | 0 | 00 | 00 | 00 | 00 |  | 00 | 00 | 0 | 0 | 0 | 0 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#45 |  | 00 | 00 | 00 | 00 | 00 |  | 00 | 00 | 0 | 0 | 00 | 0 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#46 |  | 10 | 01 | 10 | 00 | 00 |  | 01 | 0 | 1 | 0 | 00 | 0 |  | 0 | 10 | 1 | 0 | 00 | 0 | 0 | 1 | 01 | 10 | 0 | 0 |  |
| \#47 |  | 0 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 00 | 00 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#48 |  | 0 | 01 | 10 | 10 | 0 |  |  | 00 | 1 | 0 | 0 | 0 |  | 0 | 00 | 1 | 01 | 10 | 1 | 0 | 0 | 01 | 10 | 1 | 0 |  |
| \#49 |  | 0 | 00 | 00 | 00 | 00 |  | 10 | 0 | 0 | 0 | 00 | 0 |  | 10 | 00 | 0 | 0 | 00 | 0 | 1 | 0 | 00 | 00 | 0 | 0 |  |
| \#50 |  | 0 | 01 | 10 | 00 | 0 |  | 10 | 0 | 01 | 0 | 00 | 0 |  | 10 | 00 | 1 | 00 | 00 |  | 1 | 0 | 01 | 10 | 0 | 0 | 0 |
| \#51 |  | 0 | 00 | 00 | 00 | 0 |  | 00 | 00 | 0 | 0 | 0 | 0 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  |
| \#52 |  | 00 | 00 | 00 | 00 | 0 |  | 00 | 0 | 0 | 0 | 00 | 0 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  |
| \#53 |  | 00 | 00 | 00 | 00 | 0 |  | 00 | 0 | 0 | 0 | 00 | 0 |  | 00 | 00 | 0 | 0 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 |  |
| \#54 |  | 0 | 01 | 10 | 10 | 01 |  | 00 | 00 | 01 | 0 | 10 | 0 |  | 00 | 00 | 1 | 0 | 10 | 1 | 0 | 0 | 01 | 10 | 1 | 0 |  |
| \#55 |  | 00 | 00 | 00 | 00 | 0 |  | 00 | 0 | 0 | 0 | 10 | 0 |  | 10 | 00 | 0 | 00 | 01 | 1 | 0 | 0 | 00 | 00 | 0 | 1 |  |
| \#56 |  | 00 | 01 | 10 | 00 | 0 |  | 10 | 0 | 01 | 0 | 0 | 0 |  | 10 | 00 | 1 | 00 | 00 |  | 1 | 0 | 01 | 10 | 0 | 0 |  |
| \#57 |  | 000 | 00 | 00 | 00 | 0 |  | 0 | 00 | 0 | 0 | 0 | 0 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  |
| \#58 |  | 000 | 00 | 00 | 00 | 0 |  |  | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 0 | 00 | 00 | 0 | 0 | 0 | 00 | 00 | 0 | 0 |  |
| \#59 |  | 000 | 00 | 01 | 00 | 00 |  | 01 | 1 | 0 | 0 | 0 | 0 |  | 00 | 01 | 0 | 0 | 00 | 0 | 0 | 1 | 00 | 00 | 0 | 0 |  |
| \#60 |  | 00 | 00 | 00 | 00 | 0 |  |  |  | 0 | 0 | 0 | 0 |  | 00 | 00 | 0 | 00 | 00 |  | 0 | 0 | 0 | 00 | 0 | 0 |  |
| \#61 |  | 11 | 11 | 10 | 00 | 0 |  | 11 | 1 | 1 | 0 | 0 | 00 |  | 11 | 11 | 1 | 00 | 00 | 0 | 1 | 1 | 11 | 10 | 0 | 0 |  |
| \#62 |  | 00 | 00 | 00 | 00 | 00 |  | 00 | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 0 | 0 | 00 |  |  | 0 | 00 | 00 | 0 | 0 |  |
| \#63 |  | 000 | 00 | 00 | 00 | 0 |  |  | 0 | 0 | 0 | 0 | 0 |  | 00 | 00 | 0 | 00 | 00 |  | 0 | 0 | 00 | 00 | 0 | 0 |  |
| \#64 |  | 000 | 00 | 00 | 00 | 0 |  | 00 | 0 | 0 | 0 | 0 | 00 |  | 00 | 00 | 0 | 00 | 00 | 0 |  | 0 | 00 | 00 | 0 |  |  |

## J. Market area 10

| Soft Switch No. | Marketing area |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Sweden |  |  |  |  |  |  |  | Switzerland |  |  |  |  |  |  |  | Taiwan |  |  |  |  |  |  | Turkey |  |  |  |  |  |  |
|  | 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 | $4{ }^{4} 5$ | 6 | 7 | 8 | 1 | 2 | 3 | 4 4 5 | 6 | 7 | 8 |
| \#01 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 |  |
| \#02 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 | 0 | 0 | 0 | 00 | 1 | 0 | 0 |
| \#03 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 00 | 0 | 0 | 1 | 0 | 1 | 1 | 00 | 0 | 1 | 1 |
| \#04 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 0 |
| \#05 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 1 | 1 |
| \#06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#07 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 00 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 1 |
| \#08 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 1 | 1 | 0 |
| \#09 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 |
| \#10 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 00 | 1 | 0 | 1 | 1 | 1 | 1 | 01 | 1 | 1 | 1 |
| \#11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 1 | 0 | 0 | 00 | 0 | 0 |  |
| \#12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 1 | 0 | 0 | 1 | 00 | 0 | 0 | 1 |
| \#13 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 | 0 |
| \#14 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 01 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 0 | 0 |
| \#15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 1 |
| \#16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 0 | 0 | 0 | 1 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#19 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 11 | 1 | 1 | 0 | 1 | 1 | 0 | 11 | 1 | 1 | 0 |
| \#20 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 1 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 1 |
| \#21 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 | 0 | 0 | 0 | 00 | 0 | 1 | 1 |
| \#22 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 |  |
| \#23 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 00 | 0 | 0 | 0 | 0 | 1 | 1 | 00 | 0 | 0 | 0 |
| \#24 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#25 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 | 0 | 1 | 0 | 00 | 0 | 0 | 0 |
| \#26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 |  |
| \#28 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 00 | 1 | 0 | 1 | 1 | 1 | 1 | 01 | 0 | 1 |  |
| \#29 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 01 | 0 | 0 |  |
| \#30 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 |  |
| \#31 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 1 | 0 | 0 | 1 | 0 | 10 | 1 | 0 |  |
| \#32 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |  | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 0 | 1 | 0 | 1 | 10 | 0 | 0 | 0 |
| \#33 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 | 0 | 0 | 0 | 00 | 0 | 1 | 0 |
| \#34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#35 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 01 | 0 | 0 | 1 | 0 | 0 | 0 | 00 | 1 | 0 | 1 |
| \#36 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 0 | 0 | 1 |
| \#37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 00 | 0 | 0 | 0 |
| \#38 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |  | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 00 | 1 | 0 | 0 | 1 | 0 | 0 | 00 | 1 | 0 |  |



## K. Market area 11

| Soft Switch No. | Marketing area |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Vietnam |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  |
|  | 1 | 2 | 34 | 5 | 6 | 7 | 8 |
| \#01 | 10000000 |  |  |  |  |  |  |
| \#02 | 0000000100 |  |  |  |  |  |  |
| \#03 | 00 1 0 0 0 1 1 |  |  |  |  |  |  |
| \#04 | $1 \begin{array}{llllllll}1 & 0 & 1 & 1 & 0 & 0 & 0 & 0\end{array}$ |  |  |  |  |  |  |
| \#05 | 1000000011 |  |  |  |  |  |  |
| \#06 | 000000000 |  |  |  |  |  |  |
| \#07 | 1 1 1 0 0 0 0 1 |  |  |  |  |  |  |
| \#08 | 0000000110 |  |  |  |  |  |  |
| \#09 | 00000110000 |  |  |  |  |  |  |
| \#10 | $\begin{array}{llllllll}1 & 1 & 1 & 0 & 1 & 1 & 1 & 1\end{array}$ |  |  |  |  |  |  |
| \#11 | 10000000 |  |  |  |  |  |  |
| \#12 | 00010000001 |  |  |  |  |  |  |
| \#13 | 0000010000 |  |  |  |  |  |  |
| \#14 | 0100100000 |  |  |  |  |  |  |
| \#15 | 0000000001 |  |  |  |  |  |  |
| \#16 | 1100000000 |  |  |  |  |  |  |
| \#17 | 000000000 |  |  |  |  |  |  |
| \#18 | $0 \begin{array}{lllllll} & 1 & 0 & 0 & 0 & 0 & 0\end{array} 0$ |  |  |  |  |  |  |
| \#19 | $\begin{array}{llllllll}1 & 1 & 0 & 1 & 1 & 1 & 1 & 0\end{array}$ |  |  |  |  |  |  |
| \#20 | 00000000011 |  |  |  |  |  |  |
| \#21 | 00000000011 |  |  |  |  |  |  |
| \#22 | $1 \begin{array}{llllllll}1 & 1 & 0 & 0 & 0 & 0 & 0\end{array}$ |  |  |  |  |  |  |
| \#23 | 0111000000 |  |  |  |  |  |  |
| \#24 | 010000000 |  |  |  |  |  |  |
| \#25 | 010000000 |  |  |  |  |  |  |
| \#26 | 0000000000 |  |  |  |  |  |  |
| \#27 | 000000000 |  |  |  |  |  |  |
| \#28 | $\begin{array}{llllllll}1 & 1 & 1 & 0 & 1 & 0 & 1 & 0\end{array}$ |  |  |  |  |  |  |
| \#29 | 0000100 |  |  |  |  |  |  |
| \#30 | 0000000010 |  |  |  |  |  |  |
| \#31 | 0100100100 |  |  |  |  |  |  |
| \#32 | 10011000 |  |  |  |  |  |  |
| \#33 | 000000010 |  |  |  |  |  |  |
| \#34 | 000000000 |  |  |  |  |  |  |
| \#35 | 0000010 |  |  |  |  |  |  |
| \#36 | $\begin{array}{llllllll}0 & 1 & 0 & 1 & 0 & 0 & 0 & 1\end{array}$ |  |  |  |  |  |  |
| \#37 | 0000000000 |  |  |  |  |  |  |
| \#38 | 10000100 |  |  |  |  |  |  |


| Soft Switch No. | Marketing area |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Vietnam |  |  |  |  |  |  |
|  | Bit No. |  |  |  |  |  |  |
|  | 1 | 2 | 34 | $4{ }^{4} 5$ | 56 | 7 | 8 |
| \#39 | 1 | 0 | 00 | 00 | 00 | 0 | 0 |
| \#40 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#41 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#42 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#43 | 0 | 0 | 00 | 00 | 00 | 0 | 0 |
| \#44 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#45 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#46 | 0 | 1 | 01 | 10 | 00 | 0 | 0 |
| \#47 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#48 | 0 | 0 | 01 | 10 | 01 | 0 | 1 |
| \#49 | 1 | 0 | 00 | 00 | 00 | 0 | 0 |
| \#50 | 1 | 0 | 0 | 10 | 00 | 0 | 0 |
| \#51 | 0 | 0 | 00 | 00 | 00 | 0 | 0 |
| \#52 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#53 | 0 | 0 | 00 | 00 | 00 | 0 | 0 |
| \#54 | 0 | 0 | 0 | 10 | 01 | 0 | 1 |
| \#55 | 0 | 0 | 00 | 00 | 00 | 0 | 0 |
| \#56 | 1 | 0 | 0 | 10 | 0 | 0 | 0 |
| \#57 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#58 | 0 | 0 | 00 | 00 | 00 | 0 | 0 |
| \#59 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#60 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#61 | 1 | 1 | 1 | 10 | 00 | 0 | 0 |
| \#62 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |
| \#63 | 0 | 0 | 0 | 00 | 0 | 0 | 1 |
| \#64 | 0 | 0 | 00 | 00 | 0 | 0 | 0 |

### 14.3 Soft switch definition

### 14.3.1 SOFT SWITCH: \#01

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  |  |  |  | 0 | 0 |
| 7 |  |  |  |  |  |  | 0 |  |
| 6 |  |  |  |  |  |  | 0 |  |
| 5 |  |  |  |  |  |  | 0 |  |
| 4 |  |  |  |  |  |  | 0 | 1 |
| 3 | Start key default for N Scan | 0: Color or Grayscale |  |  |  |  | 0 |  |
|  |  | 1: BW only |  |  |  |  |  |  |
| 2 | V. 34 Cl signal byte number |  |  |  |  |  | 0 |  |
|  |  | Byte number | 30 bytes | 15 bytes | 9 bytes | 60 bytes |  |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 |  |  |
| 1 |  | Bit No. 1 | 0 | 1 | 0 | 1 | 1 |  |

14.3.2 SOFT SWITCH: \#02

| Bit No. | Designation | Function |  |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | Time between phase C to phase D signal in V. 17 <br> Example: <br> Image $\rightarrow$ EOP | $\begin{gathered} R X \\ \text { insensitivity } \end{gathered}$ |  | 70 ms | 120 ms |  | 180 ms | 60 ms | 0 | 0 |
| 7 |  | Bit No |  | 0 |  | 0 | 1 | 1 | 0 |  |
|  |  | Bit No. |  | 0 |  | 1 | 0 | 1 |  |  |
| 6 | Header TX selection open to user | 0 : No |  |  |  |  |  |  | 0 |  |
|  |  | 1: Yes |  |  |  |  |  |  |  |  |
| 5 | Confirm fax No | 0: Not ne | d to inp | nput fax | um | mber again |  |  | 0 |  |
|  |  | 1: Need to | input fax | ax numb | er ag | again |  |  |  |  |
| 4 | Reserved | Reserved |  |  |  |  |  |  | 0 | 0 |
| 3 | Transmit RTN/RTP/ MCF signal level criteria | Percentage of error line level | Send RTN command | 11\% mor |  | $12 \%$ or more | $13 \%$ or more | $14 \%$ or more | 0 |  |
|  |  |  | Send RTP command | 6\% to than 1 |  | $\begin{gathered} 7 \% \text { to } \\ \text { less tan } \\ 12 \% \end{gathered}$ | $\begin{gathered} 8 \% \text { to } \\ \text { less tan } \\ 13 \% \end{gathered}$ | $\begin{gathered} 9 \% \text { to } \\ \text { less tan } \\ 14 \% \end{gathered}$ |  |  |
| 2 |  |  | Send MCF command | $\begin{array}{\|c} \hline \text { Less th } \\ 6 \% \end{array}$ |  | Less than 7\% | Less than 8\% | Less than 9\% | 0 |  |
|  |  | Bit No. 3 |  | 0 |  | 0 | 1 | 1 |  |  |
|  |  | Bit No. 2 |  | 0 |  | 1 | 0 | 1 |  |  |
| 1 | Sent N.G page | 0: Send N.G page and up to 3 times for that page |  |  |  |  |  |  | 0 |  |
|  |  | 1: Not re-send that N.G page for G3 mode |  |  |  |  |  |  |  |  |

- Bit 6 : If this bit set to " 0 ", the header select function can not change by user, only changeable by serviceman in service mode.
- Bit 3-2: In G3 mode, if error line for each page, machine will send RTN instead of RTN, in this case, some machine will resend the same page again. The retry times depend on other end.
- Bit 1: N.G indicate our side detected RTN signal from other end. In this case machine can resend the same page up to three or just one time, and this use for G3 mode only.


### 14.3.3 SOFT SWITCH: \#03

| Bit No. | Designation | Function |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | Send out NSF frame with station ID | 0: No |  |  |  |  |  | 1 | 8 |
|  |  | 1: Yes |  |  |  |  |  |  |  |
| 7 | Number of Pause within phone number | 0: No any limitation |  |  |  |  |  | 0 |  |
|  |  | 1: Max. up to 2 "P" within inputted telephone number |  |  |  |  |  |  |  |
| 6 | Re-dial prohibit for no answer | 0: Continue to dial |  |  |  |  |  |  |  |
|  |  | 1: Not allowed to re-dial if no any FAX signal or detected busy tone after dialing |  |  |  |  |  | 0 |  |
| 5 | Reserved | Reserved |  |  |  |  |  | 0 |  |
| 4 | RX level setting | RX level | -49 dB | -48 dB | -47 dB | -46 dB | -45 dB | 0 | 6 |
|  |  | Bit No. 4 | 0 | 0 | 0 | 0 | 0 |  |  |
|  |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 |  |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 |  |  |
|  |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 |  |  |
| 3 |  | RX level | -44 dB | -43 dB | -42 dB | -41 dB | -40 dB | 1 |  |
|  |  | Bit No. 4 | 0 | 0 | 0 | 1 | 1 |  |  |
|  |  | Bit No. 3 | 1 | 1 | 1 | 0 | 0 |  |  |
|  |  | Bit No. 2 | 0 | 1 | 1 | 0 | 0 |  |  |
|  |  | Bit No. 1 | 1 | 0 | 1 | 0 | 1 |  |  |
|  |  | RX level | -39 dB | -38 dB | -37 dB | -36 dB |  |  |  |
|  |  | Bit No. 4 | 1 | 1 | 1 | 1 |  |  |  |
| 2 |  | Bit No. 3 | 0 | 0 | 1 | 1 |  | 1 |  |
|  |  | Bit No. 2 | 1 | 1 | 0 | 0 |  |  |  |
|  |  | Bit No. 1 | 0 | 1 | 0 | 1 |  |  |  |
| 1 |  | RX level | Reserved |  |  |  |  | 0 |  |
|  |  | Bit No. 4 | 1 | 1 |  |  |  |  |  |
|  |  | Bit No. 3 | 1 | 1 |  |  |  |  |  |
|  |  | Bit No. 2 | 1 | 1 |  |  |  |  |  |
|  |  | Bit No. 1 | 0 | 1 |  |  |  |  |  |

- Bit 8: This bit set to 1 , the answer machine will send machine name by NSF frame after connection.
- Bit 7: 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.


### 14.3.4 SOFT SWITCH: \#04

| Bit No. | Designation | Function |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  |  |  | 0 | 0 |
| 7 |  |  |  |  |  | 0 |  |
| 6 |  |  |  |  |  | 0 |  |
| 5 |  |  |  |  |  | 0 |  |
| 4 | Visible alarm for RTN signal | 0: No |  |  |  | 1 | C |
|  |  | 1: Yes - Display message while sending / receiving RTN signal (RTN= Retrain Negative). |  |  |  |  |  |
|  | Audible alarm for RTN signal | 0: No |  |  |  | 1 |  |
| 3 |  | 1: Yes - Alarm (BZ-42) for sending or receiving RTN signal. |  |  |  |  |  |
| 2 | Pulse shape |  | Normal | Slow shape | Super slow shape | 0 |  |
| 1 |  | Bit No. 2 | 0 | 0 | 1 | 0 |  |
|  |  | Bit No. 1 | 0 | 1 | 0 |  |  |

- Bit 4: The display message will keep on LCD 3 seconds or until next incoming T30 signal.
- Bit 3: The duration of alarm last 3 second after detect negative signal in G3 mode.
14.3.5 SOFT SWITCH: \#05



### 14.3.6 SOFT SWITCH: \#06

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 | The time switch line to external phone after dialing the last digits | 0:1 sec | 0 |  |
|  |  | 1:1.5 sec |  |  |
| 4 | Reserved | Reserved | 0 | 0 |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 |  |
| 1 |  |  | 0 |  |

### 14.3.7 SOFT SWITCH: \#07

| Bit No. | Designation | Function |  |  |  |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | Dial tone or busy tone detection | 0: Disable |  |  |  |  |  |  |  |  | 0 | 0 |
|  |  | 1: Enable - Detect dial tone before dial |  |  |  |  |  |  |  |  |  |  |
| 7 | PSTN/PBX setting | 0: PSTN |  |  |  |  |  |  |  |  | 0 |  |
|  |  | 1: PBX - Select PBX line type |  |  |  |  |  |  |  |  |  |  |
| 6 | PBX dial tone detect | 0: Not to detect dial tone before pre-fix number |  |  |  |  |  |  |  |  | 0 |  |
|  |  | 1: Detect dial tone before the pre-fix number in PBX mode |  |  |  |  |  |  |  |  |  |  |
| 5 | Dial mode select | 0: DTMF - PB |  |  |  |  |  |  |  |  | 0 |  |
|  |  | 1: Pulse - DP |  |  |  |  |  |  |  |  |  |  |
| 4 | TX level select for PSK/FSK | Level (dBm) | -17 | -16 | -15 | -14 | -13 | -12 | -11 | -10 | 0 | 7 |
|  |  | Bit No. 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |  |
| 3 |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |  |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |  |
|  |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  |  |
| 5 |  | Level (dBm) | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | 1 |  |
|  |  | Bit No. 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  |  |
|  |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |  |  |
| 1 |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |  |
|  |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  |  |

### 14.3.8 SOFT SWITCH: \#08

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 6 |
| 7 | Detect busy tone after dialing | 0: Not to detect | 1 |  |
|  |  | 1: Detect busy tone after dialing |  |  |
| 6 | Sending CED signal after connection | 0: Not to send | 1 |  |
|  |  | 1: Send CED signal before DIS signal after connection |  |  |
| 5 | Reserved | Reserved | 0 |  |
| 4 |  |  | 0 | 0 |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 |  |
| 1 |  |  | 0 |  |

14.3.9 SOFT SWITCH: \#09

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Ringer frequency detection | Ringer frequency range (Hz) | 10 to 75 | 20 to 57.5 | 20 to 75 | 10 to 75 | 0 | 0 |
| 7 |  | Bit No. 8 | 0 | 0 | 1 | 1 | 0 |  |
|  |  | Bit No. 7 | 0 | 1 | 0 | 1 |  |  |
| 6 | Reserved | Reserved |  |  |  |  | 0 |  |
| 5 | TSI/CSI append "+" | 0: Not append "+" before send out TSI/CSI |  |  |  |  | 0 |  |
|  |  | 1: Automatically insert " + " |  |  |  |  |  |  |
| 4 | Reserved | Reserved |  |  |  |  | 0 | 0 |
| 3 |  |  |  |  |  |  | 0 |  |
| 2 | Time from RX DIS signal to send DCS signal | Description | 70 ms | 120 ms | 180 ms | 240 ms | 0 |  |
| 1 |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 |  |
|  |  | Bit No. 1 | 0 | 1 | 0 | 1 |  |  |

- Bit 5 : This bit set to " 1 ", the " + " character will put in the first position on CSI and TSI command.
14.3.10 SOFT SWITCH: \#10

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Print out RTN page report | 0: Not to print |  |  |  |  | 1 | A |
|  |  | 1: Print out RTN page report after transaction for TX RX RTN signal |  |  |  |  |  |  |
| 7 | Confirmation report result field | 0: Print "OK" |  |  |  |  | 0 |  |
|  |  | 1: Print "NG" in case of sending or receiving RTN signal |  |  |  |  |  |  |
| 6 | Get gap time between digit for pulse dial | Value (ms) | 550 | 650 | 750 | 850 | 1 |  |
| 5 |  | Bit No. 6 | 0 | 0 | 1 | 1 | 0 |  |
|  |  | Bit No. 5 | 0 | 1 | 0 | 1 |  |  |
| 4 | Reserved | Reserved |  |  |  |  | 0 | 1 |
| 3 | Received DIS signal within reception | 0: Repeat sending DIS/DTC again until time out |  |  |  |  | 0 |  |
|  |  | 1: Disconnected after sending DCN signal |  |  |  |  |  |  |
| 2 | Transmission time limitation | 0 : No any limitation until document jam |  |  |  |  | 0 |  |
|  |  | 1: Limit to 32 | nutes | data p |  |  |  |  |
| 1 | Audio alarm after communication fail | 0: Not to alarm after transaction fail |  |  |  |  | 1 |  |
|  |  | 1: Alarm after disconnected |  |  |  |  |  |  |

- Bit 8: If this bit set to 1, machine will print out confirmation report after each transaction.
- Bit 7: If this bit 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: This for manual TX only.


### 14.3.11 SOFT SWITCH: \#11

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 2 |
| 7 | Detect dial tone after pre-fix number | 0: No | 0 |  |
|  |  | 1: Yes |  |  |
| 6 | Pulse dial allowed to select | 0: Yes | 1 |  |
|  |  | 1: Not allowed |  |  |
| 5 | Protocol signal display mode | 0: Not to display | 0 |  |
|  |  | 1: Display V8 or T30 command within communication. |  |  |
| 4 | Reserved | Reserved | 0 | 0 |
| 3 |  |  | 0 |  |
| 2 | USB port number fixed | 0: OFF | 0 |  |
|  |  | 1: ON |  |  |
| 1 | DTMF low frequency compensation | 0: Base on SW23 (1 to 4) | 0 |  |
|  |  | 1: High 0.5 dB |  |  |

- Bit 6: If this bit set to 1 , not allowed user to select pulse dial, and this function open serviceman to change.
- Bit 5: Bit set to 1 , LCD will show the command between each party, the detail specification see service mode specification.
14.3.12 SOFT SWITCH: \#12

- Bit 7-6: If counter equal "1", machine will down to next lower speed for next data phase.
- Bit 2-1: Delay time from FSK mode to PSK mode, this use for G3 mode only, V. 34 do not need this setting.


### 14.3.13 SOFT SWITCH: \#13

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | MR capability for G3 | 0: Yes |  |  |  |  | 0 | 1 |
|  |  | 1: No |  |  |  |  |  |  |
| 7 | Delay time between transaction | Description (sec) | 20 | 60 | 120 | 240 | 0 |  |
|  |  | Bit No. 7 | 0 | 0 | 1 | 1 |  |  |
| 6 |  | Bit No. 6 | 0 | 1 | 0 | 1 | 0 |  |
| 5 | Super fine printing capability for receiving | 0: No |  |  |  |  | 1 |  |
|  |  | 1: Yes |  |  |  |  |  |  |
| 4 | Reserved | Reserved |  |  |  |  | 0 | 0 |
| 3 | DTS mode | 0: No |  |  |  |  | 0 |  |
|  |  | 1: Yes |  |  |  |  |  |  |
|  | Send DTC signal if RX DIS signal in manual RX mode (no function on G4) | 0: Yes |  |  |  |  | 0 |  |
| 2 |  | 1: No - Send DIS again |  |  |  |  |  |  |
| 1 | Reserved | Reserved |  |  |  |  | 0 |  |

- 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.
14.3.14 SOFT SWITCH: \#14

- Bit 6: If set to 1 , machine will become manual $R X$ mode if available memory size less than 128 K .
14.3.15 SOFT SWITCH: \#15

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 | 0 |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 |  |
| 1 |  |  | 0 |  |

14.3.16 SOFT SWITCH: \#16

| Bit No. | Designation | Function |  |  |  |  |  | $\begin{aligned} & \text { tial } \\ & \text { ting } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  |  |  |  | 0 | 0 |
| 7 |  |  |  |  |  |  | 0 |  |
| 6 |  |  |  |  |  |  | 0 |  |
| 5 |  |  |  |  |  |  | 0 |  |
| 4 |  |  |  |  |  |  | 0 | 3 |
| 3 |  |  |  |  |  |  | 0 |  |
| 2 | Fax communication coding method |  |  |  |  |  | 1 |  |
|  |  | method | MMR | MR | MH | JBIG |  |  |
| 1 |  | Bit No. 2 | 0 | 0 | 1 | 1 | 1 |  |
|  |  | Bit No. 1 | 0 | 1 | 0 | 1 |  |  |

### 14.3.17 SOFT SWITCH: \#17

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  |  |  |  | 0 | 0 |
| 7 |  |  |  |  |  |  | 0 |  |
| 6 | CED frequency | 0: 2100 Hz |  |  |  |  |  |  |
|  |  | 1: 1100 Hz |  |  |  |  |  |  |
| 5 | Pause between off hook and CED signal | Time (T) | $\mathrm{T}=1.8 \mathrm{sec}$ to 2.5 sec | T+ 100 ms | T+ 200 ms | T+300 ms | 0 |  |
| 4 |  | Bit No. 5 | 0 | 0 | 0 | 0 |  |  |
|  |  | Bit No. 4 | 0 | 0 | 1 | 1 | 0 | 0 |
|  |  | Bit No. 3 | 0 | 1 | 0 | 1 |  |  |
| 3 |  | $\begin{array}{\|l\|l\|l\|l\|} \hline \text { Time (T) } & \mathrm{T}+400 \mathrm{~ms} & \mathrm{~T}+500 \mathrm{~ms}\|\mathrm{~T}+600 \mathrm{~ms}\| \mathrm{T}+700 \mathrm{~ms} \\ \hline \end{array}$ |  |  |  |  | 0 |  |
|  |  | Bit No. 5 | 1 | 1 | 1 | 1 |  |  |
|  |  | Bit No. 4 | 0 | 0 | 1 | 1 |  |  |
|  |  | Bit No. 3 | 0 | 1 | 0 | 1 |  |  |
| 2 | Inactivity timer [T5] |  |  |  |  |  | 0 |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 |  |
| 1 |  | Bit No. 1 | 0 | 1 | 0 | 1 |  |  |

- T5: $60 \pm 5$ sec. in ITU-T standard
14.3.18 SOFT SWITCH: \#18

- Bit 6-5: Level 1 training check phases are not so severe than level 2,3,4. Level 2,3,4 can keep higher RX speed communication than level 1 for poor line condition.
14.3.19 SOFT SWITCH: \#19

| Bit No. | Designation | Function |  |  |  |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | CNG signal level | Level (dBm) | -17 | -16 | -15 | -14 | -13 | -12 | -11 | -10 | 0 | 7 |
|  |  | Bit No. 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |  |
| 7 |  | Bit No. 7 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |  |  |
|  |  | Bit No. 6 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |  |
|  |  | Bit No. 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  |  |
| 6 |  | Level (dBm) | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | 1 |  |
|  |  | Bit No. 8 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  |  |
|  |  | Bit No. 7 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |  |  |
| 5 |  | Bit No. 6 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |  |
|  |  | Bit No. 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  |  |
| 4 |  | Level (dBm) | -17 | -16 | -15 | -14 | -13 | -12 | -11 | -10 | 1 |  |
|  |  | Bit No. 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |  |
|  |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |  |  |
| 3 |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |  |
|  | high frequency | Bit No. 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  |  |
| 2 |  | Level (dBm) | -9 | -8 | -7 | -6 | -5 | -4 | -3 | -2 | 0 |  |
|  |  | Bit No. 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  |  |
|  |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | , |  |  |
| 1 |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |  |
| 1 |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |  |  |

14.3.20 SOFT SWITCH: \#20

| Bit No. | Designation | Function |  |  |  |  |  |  |  |  |  | $\begin{aligned} & \text { tial } \\ & \text { ting } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | Max. ring off time | Timer (sec.) 4 |  |  | 6 | 7 | 8 | 9 | 10 | 13 | 1 | E |
| 7 |  |  |  | 5 |  |  |  |  |  |  |  |  |
|  |  | Bit No. 8 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |  |
|  |  | Bit No. 7 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |  |  |
| 6 |  | Bit No. 6 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |  |
| 5 | Reserved | Reserved |  |  |  |  |  |  |  |  | 0 |  |
| 4 |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| 3 |  |  |  |  |  |  |  |  |  |  | 0 |  |
| 2 |  |  |  |  |  |  |  |  |  |  | 0 |  |
| 1 |  |  |  |  |  |  |  |  |  |  | 0 |  |

14.3.21 SOFT SWITCH: \#21

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | NSS signal before DCS | 0: Not to send NSS signal for self mode in TX mode |  |  |  |  | 1 | 8 |
|  |  | 1: Send NSS signal if remote side is same model |  |  |  |  |  |  |
| 7 | CNG sending duration after dialing | Duration (unit=sec) | 40 | 60 | 70 | 120 | 0 |  |
| 6 |  | Bit No. 7 | 0 | 0 | 1 | 1 | 0 |  |
|  |  | Bit No. 6 | 0 | 1 | 0 | 1 |  |  |
| 5 | T4 timer | 0:3.0 sec. - Normal case |  |  |  |  | 0 |  |
|  |  | 1: 4.5 sec . |  |  |  |  |  |  |
| 4 | VOIP (Voice over IP) | 0: Disable |  |  |  |  | 0 | 0 |
|  |  | 1: Enable |  |  |  |  |  |  |
| 3 | DIS signal length | 0: Normal length (Bit 1 to 64) |  |  |  |  | 0 |  |
|  |  | 1: 4 bytes DIS command. - bit 1 to 32 only |  |  |  |  |  |  |
| 2 | Increase default T1 timing during calling (Only for TX function) | Description (sec) | T1 | T1 + 30 | T1 + 40 | T1 + 60 | 0 |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 |  |  |
| 1 |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 |  |

- 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.
- Bit 3: Some old machine can not accept DIS command over 4 bytes, and every time will become fail. In this case can set this bit to 1 . If this bit set to 1 , JBIG and V8 capability will disable automatically.
- Bit 2-1: T1 indicate the calling time after dialing, can adjust the T1 time more long by change the default value. The default T1 timer depends on each country regulation.
14.3.22 SOFT SWITCH: \#22

14.3.23 SOFT SWITCH: \#23

14.3.24 SOFT SWITCH: \#24 (Part 1)

14.3.25 SOFT SWITCH: \#24 (Part 2)



### 14.3.26 SOFT SWITCH: \#24 (Part 3)


14.3.27 SOFT SWITCH: \#25

| Bit No. | Designation | Function |  |  |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  |  |  |  |  |  |  | 0 | 0 |
| 7 |  |  |  |  |  |  |  |  |  | 0 |  |
| 6 | Delay time to catch line after detect ring | Delay time (sec.) |  | 0 | 1 |  | 2 |  | 3 | 0 |  |
| 5 |  | Bit No. 6 |  | 0 | 0 |  | 1 |  | 1 | 0 |  |
|  |  | Bit No. |  | 0 | 1 |  | 0 |  | 1 |  |  |
| 4 | Flash key time | Flash time (ms) |  | 100 | 80 |  | 250 |  | 600 | 0 | 2 |
|  |  | Bit No. |  | 0 | 0 |  | 1 |  | 1 |  |  |
| 3 |  | Bit No. 3 |  | 0 | 1 |  | 0 |  | 1 | 0 |  |
| 2 | $R X$ gain adjustment |  | No gain | Up 0.7 |  |  | . dB |  | 2.25 dB | 1 |  |
|  |  | Bit No. 2 | 0 | 0 |  |  | 1 |  | 1 |  |  |
| 1 |  | Bit No. 1 | 0 | 1 |  |  | 0 |  | 1 | 0 |  |

14.3.28 SOFT SWITCH: \#26

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Dial tone detection time before disconnected | Time (unit=sec) | 10 | 15 | 20 | 25 | 0 | 0 |
|  |  | Bit No. 8 | 0 | 0 | 1 | 1 | 0 |  |
| 7 |  | Bit No. 7 | 0 | 1 | 0 | 1 |  |  |
| 6 | Reserved | Reserved |  |  |  |  | 0 |  |
| 5 |  |  |  |  |  |  | 0 |  |
| 4 |  |  |  |  |  |  | 0 | 0 |
| 3 |  |  |  |  |  |  | 0 |  |
| 2 |  |  |  |  |  |  | 0 |  |
| 1 |  |  |  |  |  |  | 0 |  |

14.3.29 SOFT SWITCH: \#27

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 | 0 |
| 2 |  |  | 0 |  |
| 1 |  |  | 0 |  |

14.3.30 SOFT SWITCH: \#28


- Bit 4-1: The CED duration time level for automatic transmission
14.3.31 SOFT SWITCH: \#29



### 14.3.32 SOFT SWITCH: \#30

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Pause delay time within digits <br> Ex. 002Pxxxxxx | Time (sec) | 2.0 | 2.5 | 3.0 | 3.5 | 0 | 4 |
|  |  | Bit No. 8 | 0 | 0 | 1 | 1 | 1 |  |
| 7 |  | Bit No. 7 | 0 | 1 | 0 | 1 |  |  |
| 6 | Reserved | Reserved |  |  |  |  | 0 |  |
| 5 |  |  |  |  |  |  | 0 |  |
| 4 |  |  |  |  |  |  | 0 | 0 |
| 3 |  |  |  |  |  |  | 0 |  |
| 2 |  |  |  |  |  |  | 0 |  |
| 1 |  |  |  |  |  |  | 0 |  |

### 14.3.33 SOFT SWITCH: \#31


14.3.34 SOFT SWITCH: \#32


- Bit 7:

1. In PA model, operation can change a SW to let the USB ID is PA magicolor model ID.
2. The softswitch can be R/W ON/OFF by PJL command.
3. After SRAM clear, the softswitch will be clear. That means it will return to normal USB ID.
14.3.35 SOFT SWITCH: \#33

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Handset detects method in manual dial | 0: Set H relay to high | 0 | 4 |
|  |  | 1: Set H relay to low during detect handset status |  |  |
| 7 | V. 17 echo protection tone | 0: Off | 1 |  |
|  |  | 1: On |  |  |
| 6 | V. 29 echo protection tone | 0: Off | 0 |  |
|  |  | 1: On |  |  |
| 5 | Compromise equalize enable (CEQ) in the transmit path (TCEQ) | 0: No | 0 |  |
|  |  | 1: Yes |  |  |
| 4 | Compromise equalize enable (CEQ) in the receiver path (RCEQ) | 0 : No | 0 | 0 |
|  |  | 1: Yes |  |  |
| 3 | Reserved | Reserved | 0 |  |
| 2 |  |  | 0 |  |
| 1 |  |  | 0 |  |

- Bit 5-4: V.17, V. 29 and V. 27 only
14.3.36 SOFT SWITCH: \#34

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 | 0 |
| 1 |  |  | 0 |  |

14.3.37 SOFT SWITCH: \#35

| Bit No. | Designation | Function |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  | HEX |
| 8 | Dial tone table switch time | Time (sec) | 1 | 3 |  |  |  |  | A |
|  |  | Bit No. 8 | 0 | 1 |  | 1 |  | 0 |  |
| 7 |  | Bit No. 7 | 0 | 0 |  | 1 |  |  |  |
| 6 | Dial tone frequency upper range index | See Bit No. 1 to 3 <br> (This upper range value must be higher than lower range value that defined in bit 1 to 3 ) |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |
| 3 | Dial tone frequency low range index | Frequency range (Hz) | 210 to 580 | 360 to 690 | 210 |  |  | 0 | 0 |
|  |  | Bit No. 3 | 0 | 0 |  |  |  |  |  |
| 2 |  | Bit No. 2 | 0 | 0 |  |  |  | 0 |  |
|  |  | Bit No. 1 | 0 | 1 |  |  |  |  |  |
|  |  | Frequency <br> range $(\mathrm{Hz})$ 360 to 690 210 to 580 Reserved |  |  |  |  |  |  |  |
| 1 |  | Bit No. 3 | 0 | 1 | 1 |  |  | 0 |  |
|  |  | Bit No. 2 | 1 | 0 | 0 |  |  |  |  |
|  |  | Bit No. 1 | 1 | 0 | 1 |  |  |  |  |

14.3.38 SOFT SWITCH: \#36

14.3.39 SOFT SWITCH: \#37

| Bit No. | Designation | Function |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  |  |  |  |  | 0 | 0 |
| 7 | Auto dial learning for V. 34 modem | 0: Yes - Skip V. 34 handshaking with remote side |  |  |  |  |  | 0 |  |
|  |  | 1: No - Retry from V. 8 handshake |  |  |  |  |  |  |  |
| 6 | RX start symbol rate for V. 34 modem | See Bit No. 1 to 3 |  |  |  |  |  | 0 |  |
| 5 |  |  |  |  |  |  |  | 0 |  |
| 4 |  |  |  |  |  |  |  | 0 | 0 |
| 3 | TX start symbol rate for V. 34 modem | Symbol rate (sym/s) | 3429 | 3200 | 3000 | 2800 | 2400 | 0 |  |
|  |  | Max. speed (kbps) | 33.6 | 31.2 | 28.8 | 26.4 | 21.6 |  |  |
| 2 |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 | 0 |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 |  |  |
|  |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 |  |  |
|  |  | Symbol rate | Reserved |  |  |  |  |  |  |
| 1 |  | Max. speed |  |  |  |  |  | 0 |  |
|  |  | Bit No. 3 | 1 | 1 | 1 |  |  |  |  |
|  |  | Bit No. 2 | 0 | 1 | 1 |  |  |  |  |
|  |  | Bit No. 1 | 1 | 0 | 1 |  |  |  |  |

14.3.40 SOFT SWITCH: \#38

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  |  |  |  | 0 | 2 |
| 7 |  |  |  |  |  |  | 0 |  |
| 6 | V. 34 flag number between ECM frame | Flags number | 1 | 2 | 3 | 15 | 1 |  |
| 5 |  | Bit No. 6 | 0 | 0 | 1 | 1 | 0 |  |
|  |  | Bit No. 5 | 0 | 1 | 0 | 1 |  |  |
| 4 | Phase 2 guard tone power level (V.34) | 0: Normal power level |  |  |  |  | 0 | 1 |
|  |  | 1: -7 db of normal power level |  |  |  |  |  |  |
| 3 | Host detects ringing status in low frequency or one cycle | Time (ms) | 16 | 24 | 36 | 48 | 0 |  |
| 2 |  | Bit No. 3 | 0 | 0 | 1 | 1 | 0 |  |
|  |  | Bit No. 2 | 0 | 1 | 0 | 1 |  |  |
| 1 | V. 8 /V. 34 capability | 0: No |  |  |  |  | 1 |  |
|  |  | 1: Yes |  |  |  |  |  |  |

### 14.3.41 SOFT SWITCH: \#39

| Bit No. | Designation | Function |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Bit | HEX |
| 8 | Disable V. 34 TX for V. 34 modem | 0: No |  |  |  |  | 0 | 0 |
|  |  | 1: Yes |  |  |  |  |  |  |
| 7 | Disable V. 34 RX for V. 34 modem | 0: No |  |  |  |  | 0 |  |
|  |  | 1: Yes |  |  |  |  |  |  |
| 6 | Flags number in FSK for V .34 modem | Flags number | 1 | 2 | 3 | 4 | 0 |  |
|  |  | Bit No. 6 | 0 | 0 | 1 | 1 | 0 |  |
| 5 |  | Bit No. 5 | 0 | 1 | 0 | 1 |  |  |
| 4 | Manual TX mode for V. 34 modem | 0: V. 8 - Start handshake from V. 8 |  |  |  |  | 0 | 1 |
|  |  | 1: V. 17 |  |  |  |  |  |  |
| 3 | Switch from V. 17 to V. 34 if DIS Bit 6 set after received DIS | 0: Yes - Start V. 8 handshaking. but only first time |  |  |  |  | 0 |  |
|  |  | 1: No - Continue start with V. 17 |  |  |  |  |  |  |
| 2 | Delay time in primary channel for V. 34 transmit after CFR or MCF signal | Delay time (ms) | 100 | 200 | 300 | 500 | 0 |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 | 1 |  |
| 1 |  | Bit No. 1 | 0 | 1 | 0 | 1 |  |  |

14.3.42 SOFT SWITCH: \#40

14.3.43 SOFT SWITCH: \#41


### 14.3.44 SOFT SWITCH: \#42

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 | 0 |
| 1 |  |  | 0 |  |

### 14.3.45 SOFT SWITCH: \#43

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 | 0 |
| 1 |  |  | 0 |  |

14.3.46 SOFT SWITCH: \#44

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 | 0 |
| 1 |  |  | 0 |  |

### 14.3.47 SOFT SWITCH: \#45



### 14.3.48 SOFT SWITCH: \#46

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 | Daylight savings timer (Manual) | 0: No | 0 |  |
|  |  | 1: Yes |  |  |
| 6 | Reserved | Reserved | 0 |  |
| 5 |  |  | 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 name not register | 0: No | 0 |  |
|  |  | 1: Yes |  |  |

- Bit 2: Some country such as U.S.A PTT regulation, must be send header at top of each page.
- Bit 1: If machine name not registered, the model name will print at the top of each receiving page. The default is not to print. (base on custom ID)
14.3.49 SOFT SWITCH: \#47

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 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 |  |  | 0 |  |
| 2 |  |  | 0 |  |
| 1 |  |  | 0 |  |

- Bit 5: The footer shows machine number, receiving time, remote side TSI number, session and page number. The details show on the report specification.
14.3.50 SOFT SWITCH: \#48



### 14.3.51 SOFT SWITCH: \#49



### 14.3.52 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 report |  |  |  |  |  |  | 0 |
|  |  | 1: Transmission |  |  |  |  |  | 0 |  |
| 7 | Reserved | Reserved |  |  |  |  |  | 0 |  |
| 6 | Min. ring on time | Timer | 100 ms | 150 ms | 200 ms | 300 ms | 1 s | 0 |  |
| 5 |  | Bit No. 6 | 0 | 0 | 0 | 0 | 1 | 0 |  |
|  |  | Bit No. 5 | 0 | 0 | 1 | 1 | 0 |  |  |
| 4 |  | Bit No. 4 | 0 | 1 | 0 | 1 | 0 | 1 | 9 |
| 3 | Min. ring off time |  |  |  |  |  |  | 0 |  |
|  |  | Timer | 100 ms | 200 ms | 500 ms | 1 s | 1.5 s |  |  |
| 2 |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 | 0 |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 |  |  |
| 1 |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 | 1 |  |

- Bit 8: Can select cancel this job and print out report or start to send in case of time when memory full condition occurs.
14.3.53 SOFT SWITCH: \#51

14.3.54 SOFT SWITCH: \#52

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 | 0 |
| 1 |  |  | 0 |  |

14.3.55 SOFT SWITCH: \#53

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 | 0 |
| 1 |  |  | 0 |  |

14.3.56 SOFT SWITCH: \#54

14.3.57 SOFT SWITCH: \#55

| Bit No. | Designation | Function |  |  |  |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | DC characteristics | Value |  | DC2 |  | DC4 | C0 |  | Co | CO_4 | 0 | 2 |
| 7 |  | Bit No. 8 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |  |
|  |  | Bit No. 7 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |  |  |
| 6 |  | Bit No. 6 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |  |
| 5 | Reserved | Reserved |  |  |  |  |  |  |  |  | 0 |  |
| 4 |  |  |  |  |  |  |  |  |  |  | 0 | 1 |
| 3 |  |  |  |  |  |  |  |  |  |  | 0 |  |
| 2 |  |  |  |  |  |  |  |  |  |  | 0 |  |
| 1 | Fast edge pulse dial | 0: No |  |  |  |  |  |  |  |  | 1 |  |
|  |  | 1: Yes |  |  |  |  |  |  |  |  |  |  |

14.3.58 SOFT SWITCH: \#56

| Bit No. | Designation | Function |  |  |  |  |  |  |  |  |  |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Bit | HEX |
| 8 | Pulse dial setup (\$74C) |  |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
|  |  | Value (ms) | 90 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |  |  |
| 7 |  | Bit No. 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |  |
| 6 |  | Bit No. 7 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |  |
|  |  | Bit No. 6 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |  |  |
| 5 |  | Bit No. 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  |
| 4 | Pulse clear (\$74D) |  |  |  |  |  |  |  |  |  |  |  | 1 | 9 |
|  |  | Value (ms) | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |  |  |
| 3 |  | Bit No. 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |  |
| 2 |  | Bit No. 3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |  |
|  |  | Bit No. 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |  |  |
| 1 |  | Bit No. 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |  |

14.3.59 SOFT SWITCH: \#57

14.3.60 SOFT SWITCH: \#58

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Time out from PSK to FSK delay time | 0: 6 sec. | 0 | 0 |
|  |  | 1:30 sec. |  |  |
| 7 | Reserved | Reserved | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 | 0 |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 |  |
| 1 |  |  | 0 |  |

- Bit 8: This is the delay time for PSK signal after sending MCF or PPR command. The timer depends on each country regulation.
14.3.61 SOFT SWITCH: \#59 (Part 1)

\begin{tabular}{|c|c|c|c|c|c|c|c|c|}
\hline \multirow[t]{2}{*}{Bit No.} \& \multirow[t]{2}{*}{Designation} \& \multicolumn{5}{|c|}{\multirow[t]{2}{*}{Function}} \& \multicolumn{2}{|l|}{Initial setting} <br>
\hline \& \& \& \& \& \& \& Bit \& HEX <br>
\hline 8 \& \multirow{2}{*}{Reserved} \& \multicolumn{5}{|l|}{\multirow{2}{*}{Reserved}} \& 0 \& \multirow{15}{*}{2} <br>
\hline 7 \& \& \& \& \& \& \& 0 \& <br>
\hline \multirow{6}{*}{6} \& \& Time between \& \& enwich m \& ean time \& \& \multirow{6}{*}{1} \& <br>
\hline \& \& mean time \& +00:00 \& +00:30 \& +01:00 \& +01:30 \& \& <br>
\hline \& \& Bit No. 6 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 5 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 4 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 3 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \multirow{7}{*}{5} \& \& Bit No. 2 \& 0 \& 0 \& 1 \& 1 \& \multirow{7}{*}{0} \& <br>
\hline \& \& Bit No. 1 \& 0 \& 1 \& 0 \& 1 \& \& <br>
\hline \& \& \multirow[t]{2}{*}{Time between mean time} \& \multicolumn{4}{|c|}{Greenwich mean time + T} \& \& <br>
\hline \& \& \& +02:00 \& +02:30 \& +03:00 \& +03:30 \& \& <br>
\hline \& \& Bit No. 6 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 5 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 4 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \multirow{13}{*}{4

3} \& \& Bit No. 3 \& 1 \& 1 \& 1 \& 1 \& \multirow{6}{*}{1} \& \multirow{27}{*}{A} <br>
\hline \& \& Bit No. 2 \& 0 \& 0 \& 1 \& 1 \& \& <br>
\hline \& \& Bit No. 1 \& 0 \& 1 \& 0 \& 1 \& \& <br>
\hline \& \& \multirow[t]{2}{*}{Time between mean time} \& \multicolumn{4}{|c|}{Greenwich mean time + T} \& \& <br>
\hline \& \& \& +04:00 \& +04:30 \& +05:00 \& +05:30 \& \& <br>
\hline \& \& Bit No. 6 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& (Greenwich Mean \& Bit No. 5 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& Time) \& Bit No. 4 \& 1 \& 1 \& 1 \& 1 \& \multirow{6}{*}{0} \& <br>
\hline \& \& Bit No. 3 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 2 \& 0 \& 0 \& 1 \& 1 \& \& <br>
\hline \& \& Bit No. 1 \& 0 \& 1 \& 0 \& 1 \& \& <br>
\hline \& \& Time between \& \& enwich m \& ean time \& \& \& <br>
\hline \& \& mean time \& +06:00 \& +06:30 \& +07:00 \& +07:30 \& \& <br>
\hline \multirow{7}{*}{2} \& \& Bit No. 6 \& 0 \& 0 \& 0 \& 0 \& \multirow{7}{*}{1} \& <br>
\hline \& \& Bit No. 5 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 4 \& 1 \& 1 \& 1 \& 1 \& \& <br>
\hline \& \& Bit No. 3 \& 1 \& 1 \& 1 \& 1 \& \& <br>
\hline \& \& Bit No. 2 \& 0 \& 0 \& 1 \& 1 \& \& <br>
\hline \& \& Bit No. 1 \& 0 \& \& 0 \& 1 \& \& <br>
\hline \& \& \multirow[t]{2}{*}{Time between mean time} \& \multicolumn{4}{|c|}{Greenwich mean time + T} \& \& <br>
\hline \multirow{7}{*}{1} \& \& \& +08:00 \& +08:30 \& +09:00 \& +09:30 \& \multirow{7}{*}{0} \& <br>
\hline \& \& Bit No. 6 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 5 \& 1 \& 1 \& 1 \& 1 \& \& <br>
\hline \& \& Bit No. 4 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 3 \& 0 \& 0 \& 0 \& 0 \& \& <br>
\hline \& \& Bit No. 2 \& 0 \& 0 \& 1 \& 1 \& \& <br>
\hline \& \& Bit No. 1 \& 0 \& 1 \& 0 \& 1 \& \& <br>
\hline
\end{tabular}

14.3.62 SOFT SWITCH: \#59 (Part 2)

14.3.63 SOFT SWITCH: \#59 (Part 3)


- Bit 6-1: 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 half hour increments. The default setting was depend on each PTT.
14.3.64 SOFT SWITCH: \#60

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 | Quick memory TX | 0: Ineffective | 0 |  |
|  |  | 1: Effective |  |  |
| 5 | Reserved | Reserved | 0 |  |
| 4 |  |  | 0 | 0 |
| 3 |  |  | 0 |  |
| 2 | Off hook alarm after communication | 0: Alarm | 0 |  |
|  |  | 1: Not alarm after communication |  |  |
| 1 | Display destination selection within TX phase C | 0: Local name or telephone number | 0 |  |
|  |  | 1: Remote telephone number |  |  |

14.3.65 SOFT SWITCH: \#61

14.3.66 SOFT SWITCH: \#62

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | Reserved | Reserved | 0 | 0 |
| 7 |  |  | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 |  |
| 3 |  |  | 0 |  |
| 2 |  |  | 0 | 0 |
| 1 |  |  | 0 |  |

14.3.67 SOFT SWITCH: \#63

| Bit No. | Designation | Function | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Bit | HEX |
| 8 | "\#" key definition in PBX mode | 0: "\#" is internal key, machine (PSTN) default is external | 1 | 8 |
|  |  | 1: "\#" is external key, machine (PBX) default is internal |  |  |
| 7 | Reserved | Reserved | 0 |  |
| 6 |  |  | 0 |  |
| 5 |  |  | 0 |  |
| 4 |  |  | 0 | 0 |
| 3 |  |  | 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 use to access PSTN line after dial the pre-fix number. If this bit set to 0 , the \# key is use to access PBX line instead of PSTN line.
- Bit 2: When bit set to "1", the function for "QUALITY" when fax scan with TEXT mode. (Let line more clear.)
- Bit 1: This bit set to "1", the first page image will not append at the bottom of error report or OK report.
14.3.68 SOFT SWITCH: \#64

| Bit No. | Designation | Function |  | Initial setting |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Bit | HEX |
| 8 | Reserved | Reserved |  | 0 | 0 |
| 7 |  |  |  | 0 |  |
| 6 | Print RX error report in RX side if no any FAX signal 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 |  |  |  | 0 |  |
| 2 |  |  |  | 0 |  |
| 1 |  |  |  | 0 |  |

- Bit 6: If this bit set to 1 , machine do not print put RX error report if no detect any FAX signal from the other party.
- Bit 5: Can not open by user to change PPS if this bit set to " 0 ".


## 15. FAX PROTOCOLS

### 15.1 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 at a maximum) 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:



### 15.2 Line control

### 15.2.1 Procedure of G3 mode communication

- Basic communications diagram of G3 mode.



### 15.3 Table of reference code

| Code | Function |
| :---: | :---: |
| CFR | Confirmation to Receive. 1850 Hz or 1650 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. |

### 15.4 How to analyze the T30 protocol monitor

- DCS or DIS
- HEX Data as printed on page.

See P. 165

- Example: V. 17 Communication

|  |  |  | PROTOCOL MO | ITOR R | PORT |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NAME: ABC TEL:886 34733507 DATE: APR. $23^{\prime \prime} 04$ 12:20 |  |  |  |  |  |  |  |  |  |
| SESSION | FUNCTION | NO | DESTINATION STATION | DATE | TIME | PAGE | DURATION | MODE | RESULT |
| 000 | TX | 01 | ABC <br> 22345678901234567890 | DEC. 02 | 15:00 | 008 | 00hoominoos | ECM-12 | ок |
| RING DATA |  |  |  |  |  |  |  |  |  |
| ON Time (ms) |  | 1200120012001200120012001200120012001200120012001200120012001200 |  |  |  |  |  |  |  |
| OFF Time (ms) |  | 3000300030003000300030003000300030003000300030003000300030003000 |  |  |  |  |  |  |  |
| TX | RX |  | DATA |  |  |  |  |  |  |
|  |  |  | $\int^{F^{13}} \begin{array}{r}8300468800 \\ \text { FCF } \\ =83: \\ \text { Means }\end{array}$ | FIF (Fa acsim CS, 80 ast C ress | simil <br> Con DIS <br> ntrol | trol <br> Field | ormation <br> Field) | Field) |  |

- 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 |  | 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 | 3 |  |  | 19 | 18 | 17 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 |
| Note | Bit No.11= 1, Bit No.12=0 7200 bps <br> Bit No.15=1 R8 x 7.7 Lines/mm (Fine Mode) <br> Bit No.19=0, Bit No.20=1 Unlimited Paper L |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

- 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)



| Bit <br> No. | Designation | DIS/DTC | DCS |
| :---: | :---: | :---: | :---: |
| 32 | Extend field | $\begin{aligned} & \text { "0"= Without } \\ & \text { "1"= With } \end{aligned}$ |  |
| 33 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Field not valid capability } \end{aligned}$ |  |  |
| 34 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Multiple selective polling capability } \end{aligned}$ |  | Set to "0" |
| 35 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Polling sub address transmission (DTC) by Polled Sub } \\ & \text { Address (DIS)/PSA } \end{aligned}$ |  | Set to "0" |
| 36 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1"= T. } 43 \text { coding } \end{aligned}$ |  |  |
| 37 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Plane interleave } \end{aligned}$ |  |  |
| 38 | Set to "0" |  |  |
| 39 | Set to "0" |  |  |
| 40 | Extend field | $\begin{aligned} & " 0 "=\text { Without } \\ & \text { "1"= With } \end{aligned}$ |  |
| 41 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= R8 x } 15.4 \text { lines } / \mathrm{mm} \end{aligned}$ |  |  |
| 42 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=300 \times 300 \text { pels } / 25.4 \mathrm{~mm} \end{aligned}$ |  |  |
| 43 | "0"= Invalid <br> " 1 "= R16 $\times 15.4$ lines $/ \mathrm{mm}$ and/or $400 \times 400$ pels $/ 25.4 \mathrm{~mm}$ |  |  |
| 44 | $\begin{aligned} & \text { "0"= Invalid } \\ & " 1 "=\text { Inch based resolution preferred } \end{aligned}$ |  | Resolution type selection "0" = metric based resolution " 1 "= inch based resolution |
| 45 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Metric based resolution preferred } \end{aligned}$ |  | Do not care |
| 46 | Minimum scan line time capability for higher resolutions. | $\begin{aligned} & \text { "0": T } 15.4 \text { = T } 7.7 \\ & \text { "1": T } 15.4=1 / 2 \text { T } 7.7 \end{aligned}$ | Do not care |
| 47 | "0"= Invalid$" 1 "=$ Selective polling (DIS)/ Selective polling transmission(DTC) |  | Set to "0" |
| 48 | Extend field | 0: Without 1. With <br> 1: With |  |
| 49 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Sub Addressing capability } \end{aligned}$ |  | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Sub Addressing transmission } \end{aligned}$ |
| 50 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Password/ Sender Identification capability (DIS)/ } \\ & \text { Password transmission (DTC) } \end{aligned}$ |  | "0"= Invalid <br> "1"= Sender Identification transmission |
| 51 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1"= Ready to transmit a data file (polling) } \end{aligned}$ |  | Set to "0" |
| 52 | Set to "0" |  |  |
| 53 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Binary File Transfer (BFT) } \end{aligned}$ |  |  |
| 54 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Document Transfer Mode (DTM) } \end{aligned}$ |  |  |


| Bit No. | Designation | DIS/DTC | DCS |
| :---: | :---: | :---: | :---: |
| 55 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1"= EDIFACT Transfer (EDI) } \end{aligned}$ |  |  |
| 56 | Extend field | 0: Without <br> 1: With |  |
| 57 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Basic Transfer Mode (BTM) } \end{aligned}$ |  |  |
| 58 | Set to "0" |  |  |
| 59 | "0"= Invalid <br> "1"= Ready to transmit a character or mixed mode document (polling) |  | Set to "0" |
| 60 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Character mode } \end{aligned}$ |  |  |
| 61 | Set to "0" |  |  |
| 62 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { " } 1 \text { " }=\text { Mixed mode } \end{aligned}$ |  |  |
| 63 | Set to "0" |  |  |
| 64 | Extend field | $\begin{aligned} & " 0 "=\text { Without } \\ & " 1 "=\text { With } \end{aligned}$ |  |
| 65 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Processable mode } 26 \end{aligned}$ |  |  |
| 66 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Digital network capability } \end{aligned}$ |  |  |
| 67 | Duplex and half duplex capabilities | "0"= Half duplex operation only "1"= Duplex and half duplex operation | "0"= Half duplex operation only <br> "1"= Duplex operation |
| 68 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= JPEG coding } \end{aligned}$ |  |  |
| 69 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Full color mode } \end{aligned}$ |  |  |
| 70 | Set to "0" |  | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Preferred Huffman tables } \end{aligned}$ |
| 71 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1"= } 12 \mathrm{bit} / \text { pixel/element } \end{aligned}$ |  |  |
| 72 | Extend field | $\begin{aligned} & " 0 "=\text { Without } \\ & " 1 "=\text { With } \end{aligned}$ |  |
| 73 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { No sampling (1:1:1) } \end{aligned}$ |  |  |
| 74 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Nonstandard radiation light } \end{aligned}$ |  |  |
| 75 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Nonstandard is mute range } \end{aligned}$ |  |  |
| 76 | "0" $=$ Invalid"1"ity |  | $\begin{aligned} & \text { "0"= Invalid } \\ & " 1 "=\text { North American Letter }(215.9 \\ & \mathrm{mm} \times 279.4 \mathrm{~mm}) \end{aligned}$ |
| 77 | ```"0"= Invalid "1"= North American Legal (215.9 mm \times 355.6 mm) capac- ity``` |  | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { North American Legal (215.9 } \\ & \mathrm{mm} \times 355.6 \mathrm{~mm}) \end{aligned}$ |


| Bit <br> No. | Designation | DIS/DTC | DCS |
| :---: | :---: | :---: | :---: |
| 78 | " 0 " = Invalid <br> " 1 "= Single layer sequential encoding, basic capacity |  | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Single layer sequential encod- } \\ & \text { ing, basic } \end{aligned}$ |
| 79 | "0"= Invalid <br> "1"= Single layer sequential encoding, optional LO capacity |  | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { " } 1 \text { "= Single layer sequential encod- } \\ & \text { ing, optional L0 } \end{aligned}$ |
| 80 | Extend field | $\begin{aligned} & \text { "0"= Without } \\ & " 1 "=\text { With } \end{aligned}$ |  |
| 81 | $\begin{aligned} & \text { "0"= Invalid } \\ & " 1 "=\text { HKM key management capacity } \end{aligned}$ |  | "0"= Invalid <br> "1"= HKM key management selection |
| 82 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { RSA key management capacity } \end{aligned}$ |  | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { RSA key management selection } \end{aligned}$ |
| 83 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Override mode capacity } \end{aligned}$ |  | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1"= Override mode function } \end{aligned}$ |
| 84 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= HFX40 code capacity } \end{aligned}$ |  | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= HFX40 code selection } \end{aligned}$ |
| 85 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Alternative code number } 2 \text { capacity } \end{aligned}$ |  | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Alternative code number } 2 \\ & \text { selection } \end{aligned}$ |
| 86 | "0"= Invalid <br> " 1 "= Alternative code number 3 capacity |  | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Alternative code number } 3 \\ & \text { selection } \end{aligned}$ |
| 87 | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= HFX40-1 hashing capacity } \end{aligned}$ |  | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { HFX40-1 hashing selection } \end{aligned}$ |
| 88 | Extend field | $\begin{aligned} & " 0 "=\text { Without } \\ & " 1 "=\text { With } \end{aligned}$ |  |
| 89 | "0"= Invalid <br> "1"= Alternative hashing system number 2 capacity |  | "0" $=$ Invalid <br> "1"= Alternative hashing system number 2 selection |
| 90 | "0"= Invalid <br> "1"= Alternative hashing system number 3 capacity |  | $\begin{aligned} & \text { "0"= Invalid } \\ & \text { "1"= Alternative hashing system } \\ & \text { number } 3 \text { selection } \end{aligned}$ |
| 91 | Reserved |  |  |
| 92 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1"= T. } 44 \text { (Mixed raster content) mode } \end{aligned}$ |  |  |
| 93 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1"= T. } 44 \text { (Mixed raster content) mode } \end{aligned}$ |  |  |
| 94 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & \text { "1" } 1.44 \text { (Mixed raster content) mode } \end{aligned}$ |  |  |
| 95 | "0"= Invalid <br> "1"= Page length maximum strip size for T. 44 (Mixed raster content) |  |  |
| 96 | Extend field | $\begin{aligned} & " 0 "=\text { Without } \\ & " 1 "=\text { With } \end{aligned}$ |  |
| 97 | "0"= Invalid <br> "1"= Color/mono-color multi-value 300 pixels x 300 pixels or 400 pixels x 400 pixels $/ 25.4 \mathrm{~mm}$ |  |  |
| 98 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { R4 } \times 3.85 \text { lines } / \mathrm{mm} \text { and/or } 100 \text { pixels } \times 100 \text { pixels } / 25.4 \mathrm{~mm} \text { for color/mono-color multi-value } \end{aligned}$ |  |  |


| Bit <br> No. | Designation | DIS/DTC | DCS |
| :---: | :---: | :---: | :---: |
| 99 | $\begin{aligned} & " 0 "=\text { Invalid } \\ & " 1 "=\text { Single phase C BFT negotiation capacity } \end{aligned}$ |  |  |
| 100 | Set to "0" |  |  |
| 101 | Set to "0" |  |  |
| 102 | Set to "0" |  |  |
| 103 | Set to "0" |  |  |
| 104 | Extend field | $\begin{aligned} & " 0 "=\text { Without } \\ & " 1 "=\text { With } \end{aligned}$ |  |

## TROUBLESHOOTING

## 16. JAM DISPLAY

- When a paper misfeed occurs, the printer shows the corresponding paper misfeed status by means of the Error indicator on the control panel or LCD display.



### 16.1 List of JAM display

| Display | Misfeed Location | Misfeed processing <br> location | Action |
| :---: | :--- | :--- | :--- |
| PAPER MISFEED <br> OPEN RIGHT DOOR | Tray2 paper feed section | Tray2 right side <br> cover | P.271 |
| PAPER MISFEED <br> OPEN TRANSPORT DOOR | Tray3 paper feed section | Tray3 right side <br> cover | P.272 |
| FUSER JAM <br> OPEN RIGHT DOOR | Fusing section | Right door <br> Fuser unit | P.273 |
| TRANSFER ROLLER JAM <br> OPEN TRANSPORT DOOR | Transfer section | Right door | P. 274 |
| VERTICAL TRANS JAM <br> OPEN RIGHT DOOR | Tray3 vertical transport <br> section | Right door | P.275 |
| DUPLEX LOWER JAM <br> OPEN RIGHT DOOR | Duplex paper feed section | Right door | P. 276 |
| DUPLEX UPPER JAM <br> OPEN RIGHT DOOR | Duplex paper transport <br> section | Right door | P. 277 |
| MP TRAY JAM <br> OPEN RIGHT DOOR | Tray1 paper feed section | Manual feed tray <br> Right door | P. 278 |
| OUTPUT JAM <br> OPEN RIGHT DOOR | Exit section | Right door | P. 273 |
| ORIGINAL DOC. JAM <br> OPEN DOC. FEED COVER <br> (PRESS START KEY) | Document feeding section | Top cover | P. 279 |
| Controller JAM <br> Service Call: FOO1 | Controller JAM | - | P. 280 |

### 16.1.1 JAM display resetting procedure

- Open the corresponding door, clear the sheet of paper misfed, and close the door.
- Turn OFF the power switch and then ON.


### 16.2 Sensor layout

- When the optional paper feeder unit is installed.

[1] Exit sensor (PS8)
[3] Loop detection sensor (PS6)
[5] Media feed sensor (PS3) *1
[7] Media feed sensor (REYB/1)
*1: Only when the optional paper feeder unit PF-P09 is installed.


### 16.3 Solution

### 16.3.1 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. |
| Is a foreign object present along the paper path, or <br> 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 cor- <br> rect position to accommodate the paper? | Set as necessary. |
| Are the actuators operating correctly? | Correct or replace the defective actuator. |

### 16.3.2 Misfeed at tray 2 paper feed section

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at tray 2 <br> paper feed section | - The paper does not unblock the registration sensor (PS5) even after the lapse <br> of a given period of time after the tray2 media feed clutch (CL1) is turned ON. |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Registration sensor (PS5) <br> Tray2 media feed clutch (CL1) | Printer control board (PRCB) <br> Main motor (M2) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Initial check items | - | - |
| 2 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 3 | Check the M2 connector for proper drive <br> coupling and correct as necessary. |  | - |
| 4 | Check the connector between PS5-PRCB <br> PJ23 for proper connection and correct as <br> necessary. | - | - |
| 5 | Check the connector between CL1-PRCB <br> PJ16 for proper connection and correct as <br> necessary. | - | - |
| 6 | PS5 sensor check | PRCB PJ23-3 (ON) | K-8 |
| 7 | CL1 operation check | PRCB PJ16-2 (REM) | D-2 |
| 8 | M2 operation check | PRCB PJ11-10 to 13 | B-8 |
| 9 | Change PRCB. | - | - |

### 16.3.3 Misfeed at tray 3 paper feed section

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at tray 3 <br> paper feed section | - The paper does not unblock the media feed sensor (PS3) even after the lapse <br> of a given period of time after the media feed clutch (CL1) is turned ON. |
| Detection of paper <br> left in tray 3 paper <br> feed section | - The media feed sensor (PS3) is unblocked when the power switch is turned <br> ON, a door or cover is opened and closed, or a misfeed or malfunction is reset. |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Media feed sensor (PS3) <br> Media feed clutch (CL1) | Printer control board (PRCB) <br> PC control board (PCCB) <br> Media feed motor (M1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Initial check items | - | - |
| 2 | Check the connector between M1-PCCB <br> PJ3 for proper connection and correct as <br> necessary. | - | - |
| 3 | Check the M1 connector for proper drive <br> coupling and correct as necessary. |  | - |
| 4 | Check the connector between PS3-PCCB <br> PJ5 for proper connection and correct as <br> necessary. |  | - |
| 5 | Check the connector between CL1-relay <br> CN16-PCCB PJ16 for proper connection <br> and correct as necessary. | - | - |
| 6 | PS3 sensor check | PCCB PJ5-3 (ON) | - |
| 7 | CL1 operation check | PRCB PJ16-2 (REM) | D-2 |
| 8 | M1 operation check | PCCB PJ3-4 to 8 | K-2 |
| 9 | Check the connector between PCCB PJ1, <br> PJ2-relay CN53-PRCB PJ25 for proper <br> connection and correct as necessary. | - | - |
| 10 | Change PCCB. |  | - |
| 11 | Change PRCB. | - | - |

### 16.3.4 Misfeed at fusing/paper exit section

A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at fusing/ <br> paper exit section | - The exit sensor (PS8) is not blocked even after the lapse of a given period of <br> -Time after the paper has unblocked the exit sensor (PS8). <br> The exit sensor (PS8) is blocked even before the lapse of a given period of time <br> after the paper has unblocked the exit sensor (PS8). <br> Detection of paper <br> left in fusing/paper <br> exit section- The exit sensor (PS8) is unblocked when the power switch is turned ON, a door <br> or cover is opened and closed, or a misfeed or malfunction is reset. |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Exit sensor (PS8) <br> Duplex conveyance roller clutch (CL13) | Printer control board (PRCB) <br> Main motor (M2) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Initial check items | - | - |
| 2 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 3 | Check the M2 connector for proper drive <br> coupling and correct as necessary. | - | - |
| 4 | Check the connector between PS8-PRCB <br> PJ15 for proper connection and correct as <br> necessary. | - | - |
| 5 | Check the connector between CL13-relay <br> CN20-PRCB PJ14 for proper connection <br> and correct as necessary. | - | - |
| 6 | PS8 sensor check | - |  |
| 7 | CL13 operation check | PRCB PJ15-9 (ON) | H-8 |
| 8 | M2 operation check | PRCB PJ14-5 (REM) | F-2 |
| 9 | Change PRCB. | PRCB PJ11-10 to 13 | B-8 |

### 16.3.5 Misfeed at transfer section

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at transfer <br> section | - The registration sensor (PS5) is not blocked even after the lapse of a given <br> - <br> period of time after the registration roller driving is started. <br> The paper does not unblock the exit sensor (PS8) even after the lapse of a <br> given period of time after the registration roller driving is started. |
| Detection of paper <br> left in transfer <br> section | - The registration sensor (PS5) is unblocked when the power switch is turned <br> ON, a door or cover is opened and closed, or a misfeed or malfunction is reset. <br> - The loop detection sensor (PS6) is unblocked when the power switch is turned <br> ON, a door or cover is opened and closed, or a misfeed or malfunction is reset. |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Registration sensor (PS5) | Printer control board (PRCB) |
| Exit sensor (PS8) | Main motor (M2) |
| Loop detection sensor (PS6) | Loop detection clutch (CL8) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Initial check items | - | - |
| 2 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 3 | Check the M2 connector for proper drive <br> coupling and correct as necessary. |  | - |
| 4 | Check the connector between PS5-PRCB <br> PJ23 for proper connection and correct as <br> necessary. |  | - |
| 5 | Check the connector between PS6-PRCB <br> PJ24 for proper connection and correct as <br> necessary. | - | - |
| 6 | Check the connector between PS8-PRCB <br> PJ15 for proper connection and correct as <br> necessary. | - | - |
| 7 | Check the connector between CL8-relay <br> CN2-PRCB PJ7 for proper connection and <br> correct as necessary. | - | - |
| 8 | PS5 sensor check |  | - |
| 9 | PS8 sensor check | PRCB PJ23-3 (ON) | K-8 |
| 10 | PS6 sensor check | PRCB PJ15-9 (ON) | H-8 |
| 11 | CL8 operation check | PRCB PJ24-3 (ON) | G-2 |
| 12 | M2 operation check | PRCB PJ7-2 (REM) | C-8 |
| 13 | Change PRCB. | PRCB PJ11-10 to 13 | B-8 |

### 16.3.6 Misfeed at tray 3 vertical conveyance section

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at tray 3 <br> vertical <br> conveyance section | - The paper does not unblock the registration sensor (PS5) or the upper tray's <br> media feed sensor (PS3) even after the lapse of a given period of time after the <br> paper has unblocked the media feed sensor (PS3). <br> - <br> The paper does not block the media feed sensor (PS3) even after the lapse of a <br> given period of time after the paper has unblocked the media feed sensor <br> (PS3). |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Media feed sensor (PS3) | Printer control board (PRCB) <br> Media feed clutch (CL1) <br> Registration sensor (PS5) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Initial check items | - | - |
| 2 | Check the connector between M1-PCCB <br> PJ3 for proper connection and correct as <br> necessary. | - | - |
| 3 | Check the M1 connector for proper drive <br> coupling and correct as necessary. |  | - |
| 4 | Check the connector between PS5-PRCB <br> PJ23 for proper connection and correct as <br> necessary. | - | - |
| 5 | Check the connector between PS3-PCCB <br> PJ5 for proper connection and correct as <br> necessary. | - | - |
| 6 | Check the connector between CL1-relay <br> CN57-PCCB PJ5 for proper connection <br> and correct as necessary. | - | - |
| 7 | Check the connector between PCCB PJ1, <br> PJ2-relay CN53-PRCB PJ25 for proper <br> connection and correct as necessary. | - | - |
| 8 | PS3 sensor check |  | - |
| 9 | PS5 sensor check | PCCB PJ5-3 (ON) | - |
| 10 | CL1 operation check | PRCB PJ23-3 (ON) | - |
| 11 | M1 operation check | PCCB PJ5-2 (REM) | D-2 |
| 12 | Change PCCB. | PCCB PJ3-4 to 8 | K-2 |
| 13 | Change PRCB. | - | - |

### 16.3.7 Misfeed at duplex paper feed section

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at duplex <br> paper feed section | - The paper does not unblock the registration sensor (PS5) even after the lapse <br> of a given period of time after the paper feed sequence has been started at the <br> duplex. |

## B. Action

| Relevant Electrical Parts |  |
| :--- | :--- |
| Registration sensor (PS5) <br> Duplex conveyance roller clutch (CL13) | Printer control board (PRCB) <br> Main motor (M2) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control Signal | Location <br> (Electrical Com- <br> ponent) |
| 1 | Initial check items | - | - |
| 2 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 3 | Check the M2 connector for proper drive <br> coupling and correct as necessary. |  | - |
| 4 | Check the connector between PS5-PRCB <br> PJ23 for proper connection and correct as <br> necessary. | - | - |
| 5 | Check the connector between CL13-relay <br> CN20-PRCB PJ14 for proper connection <br> and correct as necessary. | - | - |
| 6 | PS5 sensor check | - | - |
| 7 | CL13 operation check | PRCB PJ23-3 (ON) | K-8 |
| 8 | M2 operation check | PRCB PJ14-5 (REM) | F-2 |
| 9 | Change PRCB. | PRCB PJ11-10 to 13 | B-8 |

### 16.3.8 Misfeed at duplex paper transport section

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at duplex <br> paper transport <br> section | - The duplex conveyance sensor (PS9) is not blocked even after the lapse of a <br> given period of time after the paper has unblocked PS9. <br> - The duplex conveyance sensor (PS9) is not unblocked even after the lapse of a <br> given period of time after the paper has blocked the exit sensor (PS8). |
| Detection of paper <br> left at duplex paper <br> transport section | - The duplex conveyance sensor (PS9) is unblocked when the power switch is <br> turned ON, a door or cover is opened and closed, or a misfeed or malfunction is <br> reset. |

## B. Action

| Relevant Electrical Parts |  |
| :--- | :--- |
| Exit sensor (PS8) | Printer control board (PRCB) |
| Duplex conveyance sensor (PS9) | Main motor (M2) |
| Duplex conveyance roller clutch (CL13) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control Signal | Location <br> (Electrical Com- <br> ponent) |
| 1 | Initial check items | - | - |
| 2 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 3 | Check the M2 connector for proper drive <br> coupling and correct as necessary. |  | - |
| 4 | Check the connector between PS8-PRCB <br> PJ15 for proper connection and correct as <br> necessary. |  | - |
| 5 | Check the connector between PS9-PRCB <br> PJ14 for proper connection and correct as <br> necessary. | - | - |
| 6 | Check the connector between CL13-relay <br> CN20-PRCB PJ14 for proper connection <br> and correct as necessary. | - | - |
| 7 | PS8 sensor check |  | - |
| 8 | PS9 sensor check | PRCB PJ15-9 (ON) | H-8 |
| 9 | CL13 operation check | PRCB PJ14-3 (ON) | F-2 |
| 10 | M2 operation check | PRCB PJ14-5 (REM) | F-2 |
| 11 | Change PRCB. | PRCB PJ11-10 to 13 | B-8 |

### 16.3.9 Misfeed at tray1 paper feed section

## A. Detection timing

| Type | Description |
| :---: | :---: |
| Detection of tray 1 <br> paper feed section | - The paper does not unblock the registration sensor (PS5) even after the lapse <br> of a given period of time after the tray1 media feed clutch (CL2) is turned ON. |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Registration sensor (PS5) <br> Tray1 media feed clutch (CL2) | Printer control board (PRCB) <br> Main motor (M2) |


| Step | Action | WIRING DIAGRAM |  |  |  |
| :---: | :--- | :---: | :---: | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |  |  |
| 1 | Initial check items | - | - |  |  |
| 2 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |  |  |
| 3 | Check the M2 connector for proper drive <br> coupling and correct as necessary. |  | - |  |  |
| 4 | Check the connector between PS5-PRCB <br> PJ23 for proper connection and correct as <br> necessary. | - | - |  |  |
| 5 | Check the connector between CL2-PRCB <br> PJ16 for proper connection and correct as <br> necessary. | - | - |  |  |
| 6 | PS5 sensor check |  | - |  |  |
| 7 | CL2 operation check | PRCB PJ23-3 (ON) | K-8 |  |  |
| 8 | M2 operation check | PRCB PJ16-7 (REM) | E-2 |  |  |
| 9 | Change PRCB. | BRCB PJ11-10 to 13 |  |  |  |

### 16.3.10 Misfeed at ADF section

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of <br> misfeed at ADF <br> section | - The registration sensor (on REYB/1) is not unblocked even after the lapse of a <br> predetermined period of time after the DF transport motor (M100) has been <br> energized. |
| The registration sensor (on REYB/1) is not blocked even after the lapse of a <br> predetermined period of time after the registration sensor (on REYB/1) has <br> been unblocked. |  |
| Detection of paper <br> left in ADF section | - The registration sensor (on REYB/1) is unblocked when the power switch is <br> turned ON, the cover is opened and closed, or a misfeed or malfunction is <br> reset. |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Registration sensor (REYB/1) | MFP board/1 (MFPB/1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Initial check items | - | - |
| 2 | Check the connectors on the REYB/1 for <br> proper connection and correct as neces- <br> sary. | - | - |
| 3 | Check the connectors on the MFPB/1 for <br> proper connection and correct as neces- <br> sary. | - | - |
| 4 | Change REYB/1. | - | - |
| 5 | Change MFPB/1. | - | - |
| 6 | Change ADF. | - | - |

### 16.3.11 Controller JAM

## A. Detection timing

| Type | Description |
| :--- | :--- |
| Detection of |  |
| controller JAM | - A duplex print job is sent with the number of pages that goes beyond the maxi- <br> mum number of pages allowed to be in the printer for the selected media type. <br>  <br>  <br>  <br>  <br>  <br>  <br> - When trying to feed duplex media though there is no media to be fed to the <br> duplex print unit. <br> - When printing is directed with the duplex print unit selected as a media source <br> and an exit media set to be fed to the duplex unit. <br> - While two sheets of media are in the printer, printing is directed with normal <br> media feed settings other than a duplex media feed setting. |
| - In duplex printing, a size error occurs. |  |

## B. Action

| Relevant electrical parts |  |
| :--- | :--- |
| Print control board (PRCB) | MFP board/1 (MFPB/1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check printer driver settings. | - | - |
| 2 | Change PRCB. | - | - |
| 3 | Change MFPB/1. | - | - |

## 17. PROCESS CAUTION INFROMATION

### 17.1 Display procedure

- The machine's CPU performs a self-diagnostics function that, on detecting a malfunction, gives the process caution information in the report that is output by [Service Mode] $\rightarrow$ [PS/ PCL] $\rightarrow$ [PRINT MENU $] \rightarrow[$ MAINTENANCE INFO].
See P. 170
- When receiving the process caution information, user can continue printing. However, as the information indicates that some error has occurred in the image stabilization process, the error must be addressed rapidly.


### 17.2 List

- If an image stabilization fault occurs, the process caution information is provided.

| Item |  |
| :--- | :--- |
| Temperature/ humidity sensor <br> failure | - No response is provided from the temperature/ humidity sensor. |
| IDC sensor failure | - IDC sensor output values are out of the specified range. |
| Color shift test pattern failure | - The number of points detected in the main scan direction is more or <br> less than the specified value during main scan direction registration <br> correction. |
| - The number of points detected in the sub scan direction is more or |  |
| less than the specified value during sub scan direction registration |  |
| correction. |  |

### 17.3 Solution

### 17.3.1 Temperature/ humidity sensor failure

| Relevant parts |  |
| :--- | :--- |
| Temperature/ humidity sensor (TEM/HUMS) | Printer control board (PRCB) |


| Step | Action |
| :---: | :--- |
| 1 | Check the connector between TEM/HUMS-PRCB PJ2O for proper connection and correct as <br> necessary. |
| 2 | Change TEM/HUMS. |
| 3 | Change PRCB. |

### 17.3.2 IDC sensor failure

| Relevant parts |  |
| :--- | :--- |
| IDC sensor (IDC) <br> Transfer belt unit | Printer control board (PRCB) <br> High voltage unit (HV) |


| Step | Action |
| :---: | :--- |
| 1 | Wipe clean the surface of the transfer belt with a soft cloth, if it is dirty. |
| 2 | Change the image transfer belt unit if the transfer belt is damaged. |
| 3 | Reinstall or reconnect IDC, sensor shutter or connector, if it is installed or connected improperly. |
| 4 | Clean IDC if it is dirty. |
| 5 | Check the HV connector for proper connection and correct as necessary. |
| 6 | Change IDC. |
| 7 | Change PRCB. |

### 17.3.3 Color regist test pattern failure

|  | Relevant parts |  |
| :--- | :--- | :---: |
| Transfer belt unit <br> PH unit | Printer control board (PRCB) <br> MFP board/1 (MFPB/1) |  |


| Step | Action |
| :---: | :--- |
| 1 | Wipe clean the surface of the transfer belt with a soft cloth, if it is dirty. |
| 2 | Change the image transfer belt unit if the transfer belt is damaged. |
| 3 | Change PH unit. |
| 4 | Change PRCB. |
| 5 | Change MFPB/1. |

### 17.3.4 Color regist adjust failure

| Relevant parts |  |
| :--- | :--- |
| IDC sensor (IDC) | Printer control board (PRCB) |


| Step |  |
| :---: | :--- |
| 1 | Slide out the imaging unit and reinstall it in position. |
| 2 | Reinstall or reconnect IDC if it is installed or connected improperly. |
| 3 | Change IDC. |
| 4 | Change PRCB. |

## 18. MALFUNCTION CODE

### 18.1 Trouble code (Service Call)

- The machine's CPU performs a self-diagnostics function that, on detecting a malfunction, gives the corresponding malfunction code on the control panel.

| $---\quad$ CAUTION_-_-_-- |
| :---: |
| MACHINE TROUBLE |
| SERVICE CALL (\#\#\#\#) |

### 18.2 List

| Code | Description | Detection timing |
| :---: | :--- | :--- |
| 0010 | Color PC drum motor <br> malfunction | - The color PC drum motor does not rotate evenly even after <br> the lapse of a given period of time while it is being started. <br> The motor lock signal remains HIGH for a given period of <br> consecutive time while the color PC drum motor is being <br> rotated. |
| 0017 | Main motor malfunction | - The main motor does not rotate evenly even after the lapse <br> of a given period of time while it is being started. <br> The motor lock signal remains HIGH for a given period of <br> consecutive time while the main motor is being rotated. |
| 0018 | Developing motor <br> malfunction | - The developing motor does not rotate evenly even after the <br> lapse of a given period of time while it is being started. <br> The motor lock signal remains HIGH for a given period of <br> consecutive time while the developing motor is being <br> rotated. |
| 004 A | Cooling fan motor <br> malfunction | -The cooling fan motor does not rotate evenly even after the <br> lapse of a given period of time while it is being started. <br> - The motor lock signal remains HIGH for a given period of <br> consecutive time while the cooling fan motor is being <br> rotated. <br> 004 E <br> DC power supply fan <br> motor malfunction |
| The DC power supply fan motor does not rotate evenly <br> even after the lapse of a given period of time while it is <br> being started. |  |  |
| - The motor lock signal remains HIGH for a given period of |  |  |
| consecutive time while the DC power supply fan motor is |  |  |
| being rotated. |  |  |


| Code | Description | Detection timing |
| :---: | :---: | :---: |
| 0094 | 2nd image transfer pressure / retraction failure | - The IDC sensor does not come into the condition where the level detection is available (retracted position = IDC sensor shutter is open) within a given period of time after the 2nd transfer release solenoid has turned ON. <br> - The IDC sensor does not come into the condition where the level detection is not available (pressed position = IDC sensor shutter is closed) within a given period of time after the 2nd transfer release solenoid has turned ON. |
| 0096 | 1st image transfer pressure / retraction failure | - The 1st transfer release sensor is not activated (retracted position) within a given period of time after the 1st transfer release solenoid has turned ON. <br> - The 1st transfer release sensor is not deactivated (pressed position) within a given period of time after the 1st transfer release solenoid has turned ON. |
| 0300 | Polygon motor malfunction | - The polygon motor does not rotate evenly even after the lapse of a given period of time after it has been started. <br> - The motor lock signal remains HIGH for a given period of consecutive time while the polygon motor is being rotated. |
| 0310 | Laser malfunction | - The SOS signal is not detected within a given period of time after the output of the laser has been started. |
| 0500 | Heating roller warm-up failure | - The thermistor $/ 1$ does not detect the specified temperature and the warm-up cycle is not completed even after the lapse of a given period of time after the cycle has been started. |
| 0502 | Thermistor open-circuit failure | - The temperature detected by the thermistor/1 does not reach a predetermined level even after the lapse of a given period time after the warm-up cycle has been started. |
| 0503 | Thermistor resistance failure | - The difference between the temperature detected by thermistor/1 and that detected by thermistor/2 exceeds a predetermined value. |
| 0510 | Abnormally low heating roller temperature | - The temperature detected by the thermistor /1 remains lower than the specified value for a given period of time or longer. |
| 0520 | Abnormally high heating roller temperature | - The temperature detected by the thermistor /1 remains higher than the specified value for a given period of time or longer. <br> - The heater lamp remains ON for a given period of time or longer. |
| 0650 | Scanner home sensor abnormalities | - A low motor lock signal is not detected even after the lapse of a predetermined period of time after the polygon motor has been started. <br> - The motor lock signal remains HIGH for a predetermined consecutive period of time while the polygon motor remains energized. |
| 0F52 | Toner level sensor/Y malfunction | - An error occurs on the toner level sensor for each color. |
| 0F53 | Toner level sensor/M malfunction |  |
| 0F54 | Toner level sensor/C malfunction |  |
| 0F55 | Toner level sensor/K malfunction |  |


| Code | Description | Detection timing |
| :---: | :---: | :---: |
| 1038 | Engine connect error | - Printer control board (PRCB) to MFP board/1 (MFPB/1) connection failure. <br> - The copier determines that there is an error if the print control board (PRCB) fails to send an acknowledgement signal to the MFP board/1 (MFPB/1) for a given period of time or more. <br> - An error command signal is transmitted from the MFP board/1 (MFPB/1) to printer control board (PRCB). <br> - An error status signal is transmitted from the printer control board (PRCB) to MFP board/1 (MFPB/1). |
| 133C | Modem abnormalities | - Modem on fax board (FAXB) does not work correctly. |
| 13DD | Backup data error | - The engine counter data and the controller counter data are inconsistent. |
| 13E2 | Engine flash ROM write error | - Flash ROM writing is found faulty during a check. |
| 13E3 | Engine flash ROM device fault | - An erase error occurs during erasing of data in flash ROM. |
| 13F0 | Engine control failure | - An undefined malfunction occurs in the engine section (PRCB, etc.). <br> While the machine is operating, if it detects defective conditions, e.g. the next print is not started after the lapse of a given period of time, it stops operating and the trouble code is displayed. |
| 14A3 | IR lamp malfunction | - The intensity of the light emitted from the exposure lamp of the scanner falls short of the specified value. |
| 3C00 | Trouble related to | - Contact the responsible people of KONICA MINOLTA when |
| 3 C 10 |  |  |
| 3FFF | Flash ROM write error | - The copier determines that there is an error if writing to the flash ROM fails during upgrading of the firmware. <br> - When the power switch is turned ON, the error indicator lights up steadily and a corresponding message appears on the display. <br> - 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. |
| 4FFF | Controller connect error | - MFP board/1 (MFPB/1) to MFP board/2 (MFPB/2) connection failure |
| C002 | RAM error at startup (standard memory) | - RAM error at standard memory is detected during printer start-up. |
| C003 | RAM error at startup (expanded memory) | - RAM error at expanded memory is detected during printer start-up. |
| C013 | MAC address error at startup | - Invalid MAC address is detected during printer start-up. |
| C015 | Boot ROM error at startup | - Boot ROM error is detected during printer start-up. |
| C025 | Controller ROM error (Configuration information error) | - Lead error of destination setting file is detected during the printer starting. |
| C026 | Controller ROM error (Access error) | - Flash ROM access error is detected during the printer starting. |


| Code | Description | Detection timing |
| :--- | :--- | :--- |
| C027 | Controller ROM error <br> (Data error) | - Final check sum error is detected during the printer start- <br> ing. |
| C050 | HDD access error | - When correct access to the hard disk kit is failed during <br> access. |
| C051 | HDD full error | - Range for user space is full during access to the hard disk <br> kit. |
| C052 | Compact flash access <br> error | - When correct access to the compact flash card is failed <br> during access. |
| C053 | Compact flash full error | - Range for user space is full during access to the compact <br> flash card. |
| C060 | Firmware update error | - Firmware update fails to complete correctly during update. |
| CF01 | BB error | - Contact the responsible people of KONICA MINOLTA <br> before taking some countermeasures. |
| F001 | Controller JAM | - Controller JAM is occurred. <br> See P.280 |
| FFFF | Interface communication <br> error | - Correct communication is failed when receiving/sending <br> the command between PRCB and MFPB/2. |

### 18.3 Trouble resetting procedure

- To reset a malfunction, turn the power switch OFF and then ON again.


### 18.4 Solution

### 18.4.1 0010: Color PC drum motor malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| Color PC drum motor (M4) | Printer control board (PRCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between M4-PRCB <br> PJ12 for proper connection and correct as <br> necessary. | - | - |
| 2 | Check the M4 connector for proper drive <br> coupling and correct as necessary. | - | - |
| 3 | M4 operation check | PRCB PJ12-3 to 6 | D-8 |
| 4 | Change M4. | - | - |
| 5 | Change PRCB. | - | - |

### 18.4.2 0017: Main motor malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| Main motor (M2) | Printer control board (PRCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 2 | Check the M2 connector for proper drive <br> coupling and correct as necessary. | - | - |
| 3 | M2 operation check | PRCB PJ11-10 to 13 | B-8 |
| 4 | Change M2. | - | - |
| 5 | Change PRCB. | - | - |

### 18.4.3 0018: Developing motor malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| Developing motor (M1) | Print control board (PRCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between M1-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 2 | Check the M1 connector for proper drive <br> coupling and correct as necessary. | - | - |
| 3 | M1 operation check | PRCB PJ11-3 to 6 | B-8 |
| 4 | Change M1. | - | - |
| 5 | Change PRCB. | - | - |

### 18.4.4 004A: Cooling fan motor malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| Cooling fan motor (FM11) | Printer control board (PRCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between FM11-relay <br> CN27-PRCB PJ10 for proper connection <br> and correct as necessary. | - | - |
| 2 | Check the fan for possible overload and <br> correct as necessary. | - | - |
| 3 | FM11 operation check | PRCB PJ10-5 (REM) <br> PRCB PJ10-7 (LOCK) | $\mathrm{I}-2$ |
| 4 | Change FM11. | - | - |
| 5 | Change PRCB. | - | - |

### 18.4.5 004E: DC power supply fan motor malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| DC power supply fan motor (FM10) | Printer control board (PRCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between FM10-relay <br> CN43-PRCB PJ3 for proper connection <br> and correct as necessary. | - | - |
| 2 | Check the fan for possible overload and <br> correct as necessary. | - | - |
| 3 | FM10 operation check | PRCB PJ3-5 (REM) <br> PRCB PJ3-7 (LOCK) | E-7 |
| 4 | Change FM10. | - | - |
| 5 | Change PRCB. | - | - |

### 18.4.6 0062: Tray 3 media feed motor malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| Media feed motor (M1) | Printer control board (PRCB) <br> PC control board (PCCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between M1-PCCB <br> PJ3 for proper connection and correct as <br> necessary. | - | - |
| 2 | Check the connector between PCCB PJ1, <br> PJ2-relay CN53-PRCB PJ7 for proper con- <br> nection and correct as necessary. | - | - |
| 3 | Check the M1 connector for proper drive <br> coupling and correct as necessary. | - | - |
| 4 | M1 operation check | PCCB PJ3-4 to 8 | K-2 |
| 5 | Change M1. | - | - |
| 6 | Change PCCB. | - | - |
| 7 | Change PRCB. | - | - |

### 18.4.7 0094: 2nd image transfer pressure/retraction failure

| Relevant electrical parts |  |
| :--- | :--- |
| IDC sensor (IDC) | Printer control board (PRCB) |
| 2nd transfer release solenoid (SD2) |  |
| Main motor (M2) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between M2-PRCB <br> PJ11 for proper connection and correct as <br> necessary. | - | - |
| 2 | Check the M2 connector for proper drive <br> coupling and correct as necessary. | - | - |
| 3 | Check the connector between IDC-PRCB <br> PJ19 for proper connection and correct as <br> necessary. | - | - |
| 4 | Check the connector between SD2-relay <br> CN23-PRCB PJ24 for proper connection <br> and correct as necessary. | - | - |
| 5 | IDC sensor check |  |  |
| 6 | SD2 operation check | J-8 |  |
| 7 | M2 operation check | PRCB PJ19-4 |  |
| 8 | Change SD2. | PRCB PJ24-6 (REM) |  |
| 9 | Change M2. | PRCB PJ11-10 to 13 | B-2 |
| 10 | Change IDC. | - | - |
| 11 | Change PRCB. | - | - |

### 18.4.8 0096: 1st image transfer pressure/retraction failure

|  | Relevant electrical parts |  |
| :--- | :--- | :---: |
| 1st transfer release sensor (PS17) <br> 1st transfer release solenoid (SD1) <br> Main motor (M2) | Printer control board (PRCB) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal |  | \(\left.\begin{array}{c}Location (electri- <br>

cal component)\end{array}\right)\)

### 18.4.9 0300: Polygon motor malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| PH unit | Printer control board (PRCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between PH unit- <br> PRCB PJ18 for proper connection and cor- <br> rect as necessary. | - | - |
| 2 | Change PH unit. | - | - |
| 3 | Change PRCB. | - | - |

### 18.4.10 0310: Laser malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| PH unit | Printer control board (PRCB) <br> MFP board/2 (MFPB/2) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between PH unit- <br> PRCB PJ18 for proper connection and cor- <br> rect as necessary. | - | - |
| 2 | Check the connector between PH unit- <br> MFPB/2 CN15 for proper connection and <br> correct as necessary. | - | - |
| 3 | Change PH unit. | - | - |
| 4 | Change PRCB. | - | - |

### 18.4.11 0500: Heating roller warm-up failure

18.4.12 0502: Thermistor open-circuit failure
18.4.13 0503: Thermistor resistance failure
18.4.14 0510: Abnormally low heating roller temperature
18.4.15 0520: Abnormally high heating roller temperature

| Relevant electrical parts |  |
| :--- | :--- |
| Fuser unit | Printer control board (PRCB) <br> DC power supply (DCPU) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the fuser unit for correct installation <br> (whether it is secured in position). | - | - |
| 2 | Check the connector between fuser unit- <br> PRCB PJ9 for proper connection and cor- <br> rect as necessary. | - | - |
| 3 | Check the connector between fuser unit- <br> DCPU CN2 for proper connection and cor- <br> rect as necessary. | - | - |
| 4 | Change fuser unit. | - | - |
| 5 | Change PRCB. | - | - |
| 6 | Change DCPU. | - | - |

### 18.4.16 0650: Scanner home sensor abnormalities

| Relevant electrical parts |  |
| :--- | :--- |
| Scanner motor (M101) <br> Print control board (PRCB) | DC power supply (DCPU) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check to see if the lock lever of the Scan- <br> ner unit is unlocked and unlock the lock <br> lever if it is locked. | - | - |
| 2 | Check the M101 connector for proper con- <br> nection and correct as necessary. | - | - |
| 3 | Check M101 for proper drive coupling and <br> correct as necessary. | - | - |
| 4 | Check the PRCB connector for proper con- <br> nection and correct as necessary. | - | - |
| 5 | M101 operation check. | MFPB/1 P106 | C-1 |
| 6 | Change PRCB. | - | - |
| 7 | Change DCPU. | - | - |

18.4.17 OF52: Toner level sensor/Y malfunction
18.4.18 OF53: Toner level sensor/M malfunction
18.4.19 OF54: Toner level sensor/C malfunction
18.4.20 OF55: Toner level sensor/K malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| Toner level sensor/Y (PS13) | Printer control board (PRCB) |
| Toner level sensor/M (PS14) |  |
| Toner level sensor/C (PS15) |  |
| Toner level sensor/K (PS16) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the connector between each sen- <br> sor-PRCB PJ21 for proper connection and <br> correct as necessary. | - | - |
| 2 | Replace the toner level sensor of the corre- <br> sponding color. | - | - |
| 3 | Change PRCB. | - | - |

### 18.4.21 1038: Engine connect error

| Relevant electrical parts |  |
| :--- | :--- |
| Print control board (PRCB) | MFP board/1 (MFPB/1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Turn OFF and ON the power switch. | - | - |
| 2 | Check the PRCB connector for proper con- <br> nection and correct as necessary. | - | - |
| 3 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 4 | Check for proper connection between <br> PRCB and MFPB/1 and correct as neces- <br> sary. | - | - |
| 5 | Change MFPB/1. | - | - |
| 6 | Change PRCB. | - | - |

### 18.4.22 133C: Modem abnormalities

| Relevant electrical parts |  |
| :--- | :--- |
| FAX board (FAXB) | MFP board/1 (MFPB/1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Turn OFF and ON the power switch. | - | - |
| 2 | Check the FAXB connector for proper con- <br> nection and correct as necessary. | - | - |
| 3 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 4 | Check for proper connection between <br> FAXB and MFPB/1 and correct as neces- <br> sary. | - | - |
| 5 | Change FAXB. | - | - |
| 6 | Change MFPB/1. | - | - |

### 18.4.23 13DD: Backup data error

| Relevant electrical parts |  |
| :--- | :--- |
| Print control board (PRCB) | MFP board/1 (MFPB/1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Select [Service Mode] $\rightarrow$ [BK Clear], and <br> execute the BK Clear function. | - | - |
| 2 | Check the connector between MFPB/1 <br> PJ108-PRCB PJ52 for proper connection <br> and correct as necessary. | - | - |
| 3 | Change PRCB. |  | - |
| 4 | Change MFPB/1. | - | - |

### 18.4.24 13E2: Engine flash ROM write error

### 18.4.25 13E3: Engine flash ROM device fault

| Relevant electrical parts |  |
| :--- | :--- |
| Print control board (PRCB) |  |


| Step | Action |  | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |  |
| 1 | Rewrite the engine firmware. | - | - |  |
| 2 | Change PRCB. | - | - |  |

### 18.4.26 13FO: Engine control failure

| Relevant electrical parts |  |
| :--- | :--- |
| Print control board (PRCB) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :---: | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |

### 18.4.27 14A3: IR lamp malfunction

| Relevant electrical parts |  |
| :--- | :--- |
| Scanner unit | MFP board/1 (MFPB/1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the exposure lamp for lighting condi- <br> tion when the power switch is turned ON <br> and, if any faulty symptom is evident, cor- <br> rect the scanner unit. | - | - |
| 2 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 3 | Change scanner unit. | - | - |
| 4 | Change MFPB/1. | - | - |

18.4.28 3FFF: Flash ROM write error

| Relevant electrical parts |  |
| :--- | :--- |
| Print control board (PRCB) | MFP board/1 (MFPB/1) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Check the cable and connector for proper <br> connection and correct as necessary. | - | - |
| 2 | Identify the specific firmware that is respon- <br> sible for the error. | - | - |
| 3 | Rewrite the firmware. | - | - |
| 4 | Unplug parameter chip (IC51) from PRCB <br> and then plug it back in. | - | - |
| 5 | Change PRCB. | - | - |
| 6 | Change MFPB/1. | - | - |

### 18.4.29 4FFF: Controller connect error

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/1 (MFPB/1) | MFP board/2 (MFPB/2) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Turn OFF and ON the power switch. | - | - |
| 2 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 3 | Check the MFPB/2 connector for proper <br> connection and correct as necessary. | - | - |
| 4 | Check for proper connection between <br> MFPB/1 and MFPB/2 and correct as nec- <br> essary. | - | - |
| 5 | Change MFPB/2. | - | - |
| 6 | Change MFPB/1. | - | - |

### 18.4.30 C002: RAM error at startup (standard memory)

### 18.4.31 C003: RAM error at startup (expanded memory)

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) | Expanded memory |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Check connection state of the expanded <br> memory and correct as necessary. | - | - |
| 3 | Check the MFPB/2 connector for proper <br> connection and correct as necessary. | - | - |
| 4 | Change the standard/expanded memory. | - | - |
| 5 | Change MFPB/2. | - | - |

### 18.4.32 C013: MAC address error at startup <br> 18.4.33 C015: BOOT ROM error at startup

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 3 | Change MFPB/2. | - | - |

### 18.4.34 C025: Controller ROM error (Configuration information error) <br> 18.4.35 C026: Controller ROM error (Access error) <br> 18.4.36 C027: Controller ROM error (Data error)

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 3 | If this error message is displayed after <br> update of firmware, conduct the firmware <br> update procedures again. | - | - |
| 4 | Change MFPB/2. |  | - |

18.4.37 C050: HDD access error

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) | Hard disk kit |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Check the HDD connector for proper con- <br> nection and correct as necessary. | - | - |
| 3 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 4 | Change HDD. | - | - |
| 5 | Change MFPB/2. | - | - |

### 18.4.38 C051: HDD full error

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) | Hard disk kit |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Delete the job hold in [PS/PCL PRINT] - <br> [PROOF/PRINT MENU] to increase the <br> available range for user space. | - | - |
| 3 | Check the HDD connector for proper con- <br> nection and correct as necessary. | - | - |
| 4 | Format HDD with [SYS DEFAULT MENU] - <br> [HDD FORMAT]. | - | - |
| 5 | Change HDD. | - | - |
| 6 | Change MFPB/2. | - | - |

### 18.4.39 C052: Compact flash access error

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) | Compact flash card |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Check the compact flash for proper con- <br> nection and correct as necessary. | - | - |
| 3 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 4 | Change compact flash. | - | - |
| 5 | Change MFPB/2. | - | - |

### 18.4.40 C053: Compact flash full error

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) | Compact flash card |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Delete the job hold in [PS/PCL PRINT] - <br> [PROOF/PRINT MENU] to increase the <br> available range for user space. | - | - |
| 3 | Check the compact flash for proper con- <br> nection and correct as necessary. | - | - |
| 4 | Format HDD with [SYS DEFAULT MENU] - <br> [CARD FORMAT]. | - | - |
| 5 | Change compact flash. | - | - |
| 6 | Change MFPB/2. | - | - |

### 18.4.41 C060: Firmware update error

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) |  |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Check the cable that has been used for <br> update of the firmware for proper connec- <br> tion and correct as necessary. | - | - |
| 3 | Check the firmware update file and if the <br> file is not the correct one, update the firm- <br> ware again. |  | - |
| 4 | Check the firmware update procedure and <br> if the procedure is not correct, update the <br> firmware again. | - | - |
| 5 | Update the firmware again. | - | - |
| 6 | Check the MFPB/1 connector for proper <br> connection and correct as necessary. | - | - |
| 7 | Change MFPB/2. | - | - |

### 18.4.42 FFFF: Interface communication error

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/2 (MFPB/2) | Print control board (PRCB) |


| Step | Action | WIRING DIAGRAM |  |
| :---: | :--- | :---: | :---: |
|  |  | Control signal | Location (electri- <br> cal component) |
| 1 | Reboot the main body. | - | - |
| 2 | Check the MFPB/1 connector for proper <br> connection and correct as necessary | - | - |
| 3 | Check the PRCB connector for proper con- <br> nection and correct as necessary. | - | - |
| 4 | Change PRCB. | - | - |
| 5 | Change MFPB/2. | - | - |

## 19. POWER SUPPLY TROUBLE

### 19.1 Machine is not energized at all (DCPU operation check)

| Relevant parts |  |
| :--- | :--- |
| Power switch (SW1) <br> Printer control board (PRCB) | DC power supply (DCPU) |


| Step | Check item | WIRING <br> DIAGRAM <br> (Location) | Result | Action |
| :---: | :--- | :---: | :---: | :--- |
| 1 | Is a power voltage supplied across CN1 on <br> DCPU? | $\mathrm{E}-6$ | NO | Check the wiring from the <br> wall outlet to inlet to SW1 <br> to CN1DCPU. |
| 2 | Are DC5 V and DC3.4V being output from <br> P102 ON MFPB/1? | $\mathrm{E}-2$ | NO | Check the wiring from the <br> CN5, CN9DCPU to <br> P102MFPB/1. |
| 3 | Is DC3.3 V being output from PJ1 on <br> PRCB? | D-5 | NO | Check the wiring from the <br> CN4DCPU to PJ1PRCB. |
| 4 | Is DC24 V being output from P101 on <br> MFPB/1? | $\mathrm{E}-2$ | YES | Change MFPB/1. |
| 5 | Check the wiring from the Pj108MFPB/1 to <br> PJ52PRCB. | - | YES | Reconnect. <br> Change flat cable. |
| 6 | Check the wiring from the PJ1PRCB to <br> CN4DCPU. | - | YES | Reconnect. |
|  | NO | Change PRCB. |  |  |

### 19.2 Control panel indicators do not light

| Relevant electrical parts |  |
| :--- | :--- |
| MFP board/1 (MFPB/1) <br> Control panel | DC power supply (DCPU) |


| Step | Check item | Location (electri- <br> cal component) | Result | Action |
| :---: | :--- | :---: | :---: | :--- |
| 1 | Is a power voltage supplied across CN1 on <br> DCPU? | E-6 | NO | Check the wiring from <br> the wall outlet to inlet to <br> SW1 to CN1DCPU. |
| 2 | Are the fuses on DCPU conducting? | - | NO | Change DCPU. |
| 3 | Is P104 on MFPB/1 properly connected? | $\mathrm{F}-2$ | NO | Reconnect. |
|  |  |  | YES | Change MFPB/1. <br> Change scanner unit. <br> Change operation <br> panel. |

### 19.3 Fusing heaters do not operate

| Relevant parts |  |
| :--- | :--- |
| Main power switch (SW1) DC power supply (DCPU) <br> Right door switch (SW3)  <br> Fuser unit  | Printer control board (PRCB) |


| Step | Check item | WIRING <br> DIAGRAM <br> (Location) | Result | Action |
| :---: | :--- | :---: | :---: | :--- |
| 1 | Is the power source voltage applied across <br> CN1 on DCPU? | $\mathrm{E}-6$ | NO | Check the wiring from the <br> wall outlet to inlet to SW1 <br> to CN1DCPU. |
| 2 | Is the power source voltage applied across <br> CN2 on DCPU? | C-6 | YES | Change fuser unit. |
|  |  | NO | Check the wiring from the <br> CN3DCPU to PJ3PRCB. <br> Change DCPU. <br> Change PRCB. |  |

## 20. FAX ERROR

### 20.1 When faxing is not performed correctly

- To explain the solution when faxing is not performed correctly.


## NOTE

- bizhub C25 does not support the "ISDN/DSL/ADSL" line officially, it may cause the fax failed in such user environment.


### 20.1.1 Can not send a fax

- To explain the solution when fax can not be sent.




### 20.1.2 Can not receive a fax

- To explain the solution when fax can not be received.




### 20.1.3 Dialing connection problem

- To explain the solution when dialing connection has problems.

| Can not hear any voice, when pick up the phone. | Cause | The phone line cable connects incorrectly with machine. |
| :---: | :---: | :---: |
|  | Action | Make sure the phone line connects to the "TEL" jack of machine. |
|  | Cause | The phone line cable from wall jack to machine connects incorrectly. |
|  | Action | Make sure the phone line cable from wall jack to machine connects to the "LINE" jack of machine. |
| After dialing, can not hear the ring back tone. | Cause | The telephone network system does not support the selected dialing type. |
|  | Action | Set correct dialing type (DTMF/PULSE) in the machine. |
| After press down "On hook" key, it is hard to hear the voice from receiver/sender. | Cause | The volume of line monitor is too low. |
|  | Action | Increase the volume of line monitor. ("UTILITY" $\rightarrow$ "ADMIN. MANAGEMENT" $\rightarrow$ "COMM. SETTING" $\rightarrow$ "LINE MONITOR") |
| The ringing volume of phone is too low (loud). | Cause | The ringing volume of the phone is set too low (loud). |
|  | Action | Adjust the ringing volume of connected phone. |
|  |  | A0FDF4E515DA |

### 20.2 Communication error



### 20.2.1 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.


### 20.2.2 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.



### 20.2.3 Error occurring during reception

- Reception is canceled.


### 20.3 Error code list

### 20.3.1 Reception

| Code | Possible Causes of Error. |
| :---: | :---: |
| 0001 | Manual receive mode, nothing G3 signal received within 35 sec . |
| 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 signal. |
| 0012 | Remote side password not match in polling RX/our side no any file to be polling. |
| 0013 | Can not receive carrier 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 nothing after CFR. |
| 0020 | Can not correct frame within 6 sec . or in no-ECM mode, one decoding line over 6 sec . |
| 0021 | File full. |
| 0022 | Owing to noise interference on the line, receiving side can not receive correct data within specified time (no ECM). |
| 0023 | Received PWD error in RSD or upgrade F/W. |
| 0024 | TX and RX machine both are different machine ID in upgrade F/W. |
| 0025 | TX and RX machine both are different company ID in upgrade F/W. |
| 0026 | Remote monitor level error remote side can not access in upgrade F/W. |
| 002A | Line problem. |
| 0030 | Can 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 | Can not receive carrier 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 does not receive within 13.1 seconds. |
| 003F | Remote side TSI not define in machine one touch or speed dial directory. |
| 0040 | Can not receive carrier within 6 sec . after sending CTR. |
| 0041 | Can not receive carrier within 6 sec . after sending PPR. |
| 0042 | Can not receive correct signal after sending RNR signal. |
| 0043 | Receive incorrect signal at phase D in ECM mode. |
| 0044 | Can not receive carrier /FSK signal within 6 sec. after sending MCF in ECM mode. |
| 0045 | Can not receive any correct signal after sending RNR response with ERR signal. |
| 0046 | Receive incorrect signal when sending RNR which response with ERR signal. |


| Code | Possible Causes of Error. |
| :---: | :---: |
| 0047 | Can not receive correct signal after sending ERR signal. |
| 0048 | Can not receive correct signal after receive PPS_PRI_Q or PRI_Q, EOR_PRI_Q. |
| 0049 | Can not receive correct signal after sending PIP/PIN signal within 13 sec. |
| 004A | Line energy over threshold last 60 sec . after MCF, and can not detect FSK or carrier signal in ECM mode. |
| 004B | Can not detect correct FSK signal even through detected FSK tone within 6 sec . |
| 004C | Handshake fail during re-train or between page in 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 | Can not receive any correct signal after sending CJ signal in V. 8 phase. |
| 0051 | Can not receive phase 3 signal after phase 2 within 20 seconds in V.34. |
| 0052 | Can not receive phase 4 signal after phase 3 within 20 seconds in V.34. |
| 0053 | Modem disconnect after phase 4 in V.34. |
| 0054 | Remote side disconnected after phase 4 in V.8. |
| 0055 | Receive incorrect signal after sending DIS signal in V. 34. |
| 0056 | Modem disconnect after sending CFR in V.34. |
| 0057 | Can not detect image signal within 6 seconds after sending CFR. |
| 0058 | Can not detect image signal within 6 seconds after modem enter to primary phase in V.34. |
| 005A | Modem can not detect any correct ECM frame within 3 minutes in phase C. |
| 005B | Can not detect phase 5 signal after primary channel within 6 seconds. |
| 005C | Detect busy tone within control channel after phase C. |
| 005D | Modem can not detect any correct ECM frame within 12 sec. in phase C. |
| 005E | Can not detect control channel signal after received RCP frame within 6 seconds. |
| 005F | Can 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 flags sequence in control channel. |
| 0063 | Can not receive any flag sequence in control channel within 6 seconds in phase D. |
| 0064 | Can not detect any control channel signal in phase D within 60 seconds even through energy still on the line. |
| 0065 | Can not detect any control channel signal within 60 seconds after detect silence in phase D. |
| 0066 | Can not receive T. 30 signal or carrier after sending CFR in V.34. |
| 0070 | User press stop key within receiving. |
| 0071 | Memory full within receiving. |
| 0072 | Received EOR_Q Signal. |

### 20.3.2 Transmission

| Code | Possible Causes of Error. |
| :---: | :---: |
| 0080 | Can 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 can 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 responds with DIS/DTC. |
| 0086 | Detected responds signal other than DTC, DIS, FTT, DCN or CFR after sending DCS. |
| 0087 | Training attempt has failed because speed unit can not adjust to lower speed. |
| 0088 | Received DCN signal after sending out DCS signal. |
| 008B | Receiver's protocol of DIS is received, but it is not compatible with our machine. |
| 008D | Receiver's protocol of DIS is received, but remote side can not receive document temporary, may be cause by 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 received V. 34 data within 6 seconds after received 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 within transmitting phase. |
| 0093 | Received DCN signal after sending out DCS signal for V.34. |
| 0094 | Time out during transmit ECM frame or RCP command. |
| 0095 | Wrong ID number when Polling RX. |
| 0099 | Remote side disconnect after primary channel. |
| 009A | Can 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 enter phase 2 state in V. 34 polling RX. |
| 009F | Can not received any response from other side after sending PPS_EOM signal. |
| 00A0 | User stop or cancel transmission job. |
| 00A1 | Document JAM within transmission. |
| 00AE | Can not finished 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 sending out RCP signal for V.34. |
| 00B0 | Can not received any command after our side retry there DCS signal in V. 34 TX. |
| 00B1 | Can not finish V. 8 procedure or detect V. 21 signal after ANSam signal within 35 seconds. |
| 00B2 | Can not detect phase 2 signal after our side sending CJ signal within 30 seconds. |
| 00B3 | Can not detect correct V. 21 or JM signal after sending CM signal. |
| 00B4 | Can not detect correct phase 2 signal within 25 second after CM/JM signal exchange. |
| 00B5 | Can not detect phase 3 signal after phase 2 within 25 seconds. |
| 00B6 | Can not detect phase 4 signal within 25 seconds after CM/JM exchange. |
| 00B7 | Can not detect phase 5 signal after phase 4 within 30 seconds. |
| 00B8 | Remote side disconnect after our side sending DCS signal in V.34. |
| 00B9 | Receive T. 30 signal other than DIS, DCS, CFR after sending DCS signal in V.34. |
| 00BA | Can not received correct signal after our side sending DTC signal in V.34. |
| 00BB | Every time our side received DIS signal after sending DTC in V.34. |


| Code | Possible Causes of Error. |
| :---: | :---: |
| 00BC | Modem can not ready within 10 seconds 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 no match. |
| 00C0 | Remote side disconnect before entering primary channel in V.34. |
| 00C1 | At phase D, transmitting units out EOP 3 times consecutively, but receive no answer from receiving unit. |
| 00C2 | Remote side disconnect after sending out V. 8 CM signal. |
| 00C4 | After sending MPS signal, the received 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 is not one of MCF, RTN, PIP, PIN, PRI-EOP, DCN. |
| 00CB | After sending EOP signal, the received is DCN signal. |
| 00CC | After sending EOM signal, the received is not one of MCF, RTN, PIP, PIN, RTP, DCN. |
| OOCD | At phase D, transmitting units out EOM 3 times consecutively, but receive no answer. |
| OOCE | At phase D, transmitting units out EOM, but receive DCN. |
| 00CF | Received incorrect signal after sending DTC signal for V. 34 polling. |
| 00D0 | Received ERR signal after sending EOR_NULL. |
| 00D1 | Received incorrect response after sending PPS_EOP signal in V.34. |
| 00D2 | Received DCN after sending PPS_EOP signal. |
| 00D3 | Received DCN after sending PPS_NULL signal. |
| 00D4 | Received DCN after sending PPS_EOM signal. |
| 00D5 | T5 timeout. |
| 00D8 | Can not detect correct phase 3 signal for polling within 25 seconds. |
| 00D9 | Can not detect correct phase 3 signal after detect silence after phase 2. |
| 00DA | Can not detect phase 4 signal within 30 seconds or remote side hang up over 6 seconds. |
| 00DB | Can not received any T. 30 signal within 15 seconds within phase 4. |
| OODC | Received T. 30 signal in phase 4 other than DCS, DIS or DTC. |
| OODE | Remote side no SUB capability in V.34. |
| O0EO | At phase D, transmitting units out PPS_NULL 3 times consecutively but receive not answer. |
| 00E1 | Received incorrect response after sending PPS_NULL. |
| 00E2 | Can not receive any response in RR response procedure after sending PPS_NULL. |
| 00E3 | Can not speed down to lower speed in non ECM mode. |
| 00E4 | At phase D, transmitting units out PPS_MPS 3 times consecutively but receive no answer. |
| 00E5 | Received incorrect response after sending PPS_MPS. |
| 00E6 | Can not receive any response in RR response procedure after sending PPS_MPS. |
| 00E7 | Received DCN after sending PPS_MPS. |
| 00E8 | At phase D, transmitting units out PPS_EOP 3 times consecutively but receive no answer. |
| 00E9 | Receive PIN signal after sent last page three times. |
| 00EA | Can not receive any response in RR response procedure after sending PPS_EOP. |
| 00EB | At phase D, transmitting units out PPS_EOM 3 times consecutively but receive no answer. |
| 00EC | Received incorrect response after sending PPS_EOM. |


| Code | Possible Causes of Error. |
| :---: | :--- |
| O0ED | Can not receive any response in RR response procedure after sent out PPS_EOM. |
| O0EE | At phase D, transmitting units out EOR_NULL 3 times consecutively but receive no answer. |
| O0EF | Received incorrect response after sending EOR_NULL. |
| 00F0 | Can not receive any response procedure after sending EOR_NULL. |
| 00F1 | At phase D, transmitting units out EOR_MPS 3 times consecutively but receive no answer. |
| 00F2 | Received incorrect response after sending EOR_MPS. |
| 00F3 | Received ERR signal after sending EOR_MPS. |
| 00F4 | Can not receive any response in RR response procedure after sending EOR_MPS. |
| 00F5 | At phase D, transmitting units out EOR_EOP 3 times consecutively but receive no answer. |
| 00F6 | Received incorrect response after sending EOR_EOP. |
| 00F7 | After Received ERR, our side can not received response after sending EOR_EOP com- <br> mand. |
| 00F8 | At phase D, transmitting units out EOR_EOM 3 times consecutively but receive no answer. |
| 00F9 | Received incorrect response after sending EOR_EOM. |
| 00FA | Received ERR signal after sending EOR_EOM. |
| 00FB | Can not receive any response in RR response procedure after sending EOR_EOM. |
| 00FC | Can not receive any response after sending CTC. |
| 00FD | Can not speed down to lower speed in ECM mode. |
| 00FE | Memory full for transmission. |
| 00FF | Redial all fail. |

### 20.4 Error codes and corresponding solution

- The following tables contain the fax error codes. An error code can have more than one definition (cause), and more than one solution.


## NOTE

- <*1>: Please enter service mode to boost TX level of bizhub C25. (SERVICE MODE $\rightarrow$ TX LEVEL)


### 20.4.1 Reception error code (0001-0072)

(1) Error code: 0001

| Definition | Manual receive mode, nothing G3 signal received within 35 sec. |  |
| :--- | :--- | :--- |
| Solution | 1. $\quad$ Check whether the sender is the FAX machine or not. |  |
|  | 2. | Check whether the telephone line is connect correctly or not. |
|  | 3. | Check the line condition whether is too noisy, if necessary, please replace a new |
|  | telephone line or contact your telecom service provider. |  |
|  | 4. Boost the TX level of sender's machine. |  |
|  | 5. Boost the machine TX level. <*1> |  |
|  | 6. Set SOFT SW21 [3] to "1" (DIS signal length = 4 bytes). |  |
|  | NOTE |  |
|  | - The default setting is "0" (DIS signal length $=\mathbf{8}$ bytes). |  |

(2) Error code: 0003

| Definition | Received DIS after sending DIS signal. |
| :---: | :---: |
| Solution | 1. The cause is the sender does not place the original document correctly for faxing. <br> Ask sender put the original document correctly and resend the FAX again. |

(3) Error code: 0013

| Definition | Can not receive carrier within 6 sec. after sending CFR in data phase C. |
| :--- | :--- |
| Solution | 1. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |
|  | telephone line or contact your telecom service provider. |
|  | 2. Boost the TX level of sender's machine. |
|  | 3. Boost the machine TX level. $<^{\star} 1>$ |

(4) Error code: 0014

| Definition | Can not receive T.30 signal after sending FTT signal. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$ Ask sender resend the FAX again. |
|  | 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |
|  | 3. $\quad$ telephone line or contact your telecom service provider. |
|  | 4. $\quad$ Boost the TX level of sender's machine TX level. $<^{\star} 1>$ |

(5) Error code: 0016

| Definition | Receive DCN signal after sending FTT signal. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$ Ask sender resend the FAX again. <br> 2. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(6) Error code: 0017

| Definition | Can not receive any response from remote side after sending type of xxx_EOM sig- <br> nal. |
| :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br>  2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new <br>  telephone line or contact your telecom service provider. <br>  3. Boost the TX level of sender's machine. <br> 4. Boost the machine TX level. $<^{\star} 1>$  |

(7) Error code: 0018

| Definition | Can not detect energy within 6 sec. after sending FTT command. |  |
| :--- | :--- | :--- |
| Solution | 1. | Ask sender resend the FAX again. |
|  | 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |  |
|  | 3. $\quad$ telephone line or contact your telecom service provider. |  |
|  | 4. $\quad$ Boost the TX level of sender's machine. |  |

(8) Error code: 0019

| Definition | Received DCN signal after sending CFR signal. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. Ask sender resend the FAX again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(9) Error code: 001A

| Definition | No energy on line over 6 sec. within phase C before any corrected ECM frame. |  |
| :--- | :--- | :--- |
| Solution | 1. | Ask sender resend the FAX again. |
|  | 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |  |
|  | 3. $\quad$ telephone line or contact your telecom service provider. |  |
|  | 4. $\quad$ Boost the TX level of sender's machine. |  |

(10) Error code: 001D

| Definition | Detect flag but nothing after CFR. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$ Ask sender resend the FAX again. |
|  | 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |
|  | 3. $\quad$ telephone line or contact your telecom service provider. |

(11) Error code: 0020

| Definition | Can not correct frame within 6 sec. or in no-ECM mode, one decoding line over 6 <br> sec. |
| :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new <br>  |
|  | 3. $\quad$ telephone line or contact your telecom service provider. |

(12) Error code: 0021

| Definition | File full. |  |
| :--- | :--- | :--- |
| Solution | 1. | Print out the receiving data which was stored in the FAX memory or delete the |
|  | 2.unnecessary data. |  |
|  | 3. | Rebocute MEMORY CLEAR. |

(13) Error code: 0022

| Definition | Owing to noise interference on the line, receiving side can not receive correct data <br> within specified time (no ECM). |
| :--- | :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> 2. Check the line condition whether is too noisy, if necessary, please replace a new <br>  telephone line or contact your telecom service provider. <br> 3. Boost the TX level of sender's machine. |
| 4. Boost the machine TX level. <*1> |  |

(14) Error code: 002A

| Definition | Line problem. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$ Check whether the telephone line is connect correctly or not. |
|  | 2. $\quad$ Check the dialing number whether is correct or not. |
|  | 3. $\quad$ Check the machine setting whether the dial type setting (DTMF/PLUSE) is |
|  | 4. $\quad$ Check the line condition whether is too noisy. if necessary, please replace a new |
|  | 5. $\quad$ telephone line or contact your telecom service provider. |

(15) Error code: 0030

| Definition | Can not receive any signal within 6 sec. at phase D. |  |
| :--- | :--- | :--- |
| Solution | 1. | Ask sender resend the FAX again. |
| 2. | Check the line condition whether is too noisy, if necessary, please replace a new |  |
|  | telephone line or contact your telecom service provider.  <br>  4. <br> Boost the TX level of sender's machine.  <br> Boost the machine TX level. $<^{*} 1>$  |  |

(16) Error code: 0031

| Definition | Received incorrect signal at phase D (not EOP, MPS, EOM, DCS PPS_Q, PPS_Q, etc.). etc.). |
| :---: | :---: |
| Solution | 1. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

## (17) Error code: 0032

| Definition | Can not receive carrier within 6 sec . after sending MCF or RTP, RTN signal. |
| :---: | :---: |
| Solution | 1. Ask sender resend the FAX again. <br> 2. Check the line condition whether is too noisy, if necessary, please replace a new telephone line or contact your telecom service provider. <br> 3. Boost the TX level of sender's machine. <br> 4. Boost the machine TX level. <*1> <br> 5. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(18) Error code: 0033

| Definition | Received DCN signal at phase D within pages (not last page). |
| :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> 2. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(19) Error code: 0039

| Definition | In non-ECM mode, when machine already received the data but next line data does <br> not receive within 13.1 seconds. |
| :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 3. Boost the TX level of sender's machine. |

(20) Error code: 003F

| Definition | Remote side TSI not define in machine one touch or speed dial directory. |
| :--- | :--- |
| Solution | 1.Register the remote side telephone number in GROUP DIAL or SPEED DIAL of <br> machine. |
|  | 2.Print out the GROUP DIAL and SPEED DIAL to confirm that the registered tele- <br> phone number is the same as the coming sender's number. |

## (21) Error code: 0040

| Definition | Can not receive carrier within 6 sec. after sending CTR. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
| 3. Boost the TX level of sender's machine. |  |

## (22) Error code: 0041

| Definition | Can not receive carrier within 6 sec. after sending PPR. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
|  | 3. Boost the TX level of sender's machine. |

(23) Error code: 0042

| Definition | Can not receive correct signal after sending RNR signal. |
| :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
| 3. Boost the TX level of sender's machine. |  |

(24) Error code: 0043

| Definition | Receive incorrect signal at phase D in ECM mode. |
| :--- | :--- |
| Solution | 1. <br> 2. <br> Change the machine setting to ECM OFF, and then ask sender resend again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(25) Error code: 0044

| Definition | Can not receive carrier /FSK signal within 6 sec. after sending MCF in ECM mode. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Change the machine setting to ECM OFF, and then ask sender resend again. <br>  | 3. Brost the TX level of sender's machine. <br> Print out the protocol report, and provide it to technical center, ask for analyzing |

## (26) Error code: 0045

| Definition | Can not receive any correct signal after sending RNR response with ERR signal. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
| 3. Boost the TX level of sender's machine. |  |

## (27) Error code: 0046

| Definition | Receive incorrect signal when sending RNR which response with ERR signal. |
| :--- | :--- |
| Solution | $1 . \quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(28) Error code: 0047

| Definition | Can not receive correct signal after sending ERR signal. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
|  | 3. Boost the TX level of sender's machine. |

## (29) Error code: 0048

| Definition | Can not receive correct signal after receive PPS_PRI_Q or PRI_Q, EOR_PRI_Q. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
| 3. Boost the TX level of sender's machine. |  |

## (30) Error code: 0049

| Definition | Can not receive correct signal after sending PIP/PIN signal within 13 sec. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
|  | 3. $\quad$ Boost the TX level of sender's machine. |

(31) Error code: 004A

| Definition | Line energy over threshold last 60 sec. after MCF, and can not detect FSK or carrier <br> signal in ECM mode. |
| :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFFF, and then ask sender resend again. <br> 3. <br> Reduce the TX level of sender's machine. <br> 4. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (32) Error code: 004B

| Definition | Can not detect correct FSK signal even through detected FSK tone within 6 sec. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |
| 3. Boost the TX level of sender's machine. |  |

## (33) Error code: 004C

| Definition | Handshake fail during re-train or between page in V.34 RX. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Change the machine setting to ECM OFF, and then ask sender resend again. <br> 3.int out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (34) Error code: 004E

| Definition | Receive DCN signal after sending DIS in V.34. |
| :--- | :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(35) Error code: 004F

| Definition | Remote side disconnected after sending ANSam in V.8 phase. |
| :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, and then ask sender resend again. <br> 3. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(36) Error code: 0050

| Definition | Can not receive any correct signal after sending CJ signal in V.8 phase. |
| :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. <br> 2.Change the machine RX speed to V.17, and then ask sender resend again. <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(37) Error code: 0051

| Definition | Can not receive phase 3 signal after phase 2 within 20 seconds in V.34. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | $2 . \quad$Change the machine setting to ECM OFF, and then ask sender resend again. <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(38) Error code: 0052

| Definition | Can not receive phase 4 signal after phase 3 within 20 seconds in V.34. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Change the machine TX speed to V.17, and then ask sender resend again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (39) Error code: 0053

| Definition | Modem disconnect after phase 4 in V.34. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Change the machine RX speed to V.17, and then ask sender resend again. <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(40) Error code: 0054

| Definition | Remote side disconnected after phase 4 in V.8. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | $2 . \quad$Change the machine RX speed to V.17, and then ask sender resend again. <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(41) Error code: 0055

| Definition | Receive incorrect signal after sending DIS signal in V.34. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Change the machine RX speed to V.17, and then ask sender resend again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(42) Error code: 0056

| Definition | Modem disconnect after sending CFR in V.34. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Change the machine RX speed to V.17, and then ask sender resend again. <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(43) Error code: 0057

| Definition | Can not detect image signal within 6 seconds after sending CFR. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, and then ask sender resend again. <br> 3. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(44) Error code: 0058

| Definition | Can not detect image signal within 6 seconds after modem enter to primary phase in <br> V.34. |
| :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine RX speed to V.17, and then ask sender resend again. <br> 3. <br> Change the machine setting to ECM OFF, and then ask sender resend again. <br> 4. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(45) Error code: 005A

| Definition | Modem can not detect any correct ECM frame within 3 minutes in phase C. |
| :--- | :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, and then ask sender resend again. <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(46) Error code: 005B

| Definition | Can not detect phase 5 signal after primary channel within 6 seconds. |
| :--- | :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. <br>  2.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (47) Error code: 005C

| Definition | Detect busy tone within control channel after phase C. |
| :--- | :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> 2. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  |
|  | 3.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(48) Error code: 005D

| Definition | Modem can not detect any correct ECM frame within 12 sec. in phase C. |
| :--- | :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> 2. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  |
|  | 3. Change the machine setting to ECM OFF, and then ask sender resend again. <br> 4. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(49) Error code: 005E

| Definition | Can not detect control channel signal after received RCP frame within 6 seconds. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$ Ask sender resend the FAX again. |
|  | 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |
|  | telephone line or contact your telecom service provider. |
|  | 4. Boost the TX level of sender's machine. |
| Print out the protocol report, and provide it to technical center, ask for analyzing |  |
| the information. |  |

## (50) Error code: 0060

| Definition | There are no bulletin files to be polled in V.34. |
| :--- | :--- |
| Solution | 1. Polling TX is not available. |

(51) Error code: 0061

| Definition | Machine can not detect V.21 or V. 8 signal within 35 seconds. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Boost the TX level of sender's machine. <br> 3rint out the protocol report, and provide it to technical center, ask for analyzing  <br> the information.  |

(52) Error code: 0062

| Definition | Modem disconnect in phase D after our side sending out flags sequence in control <br> channel. |
| :--- | :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  <br>  2. Boost the TX level of sender's machine. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(53) Error code: 0063

| Definition | Can not receive any flag sequence in control channel within 6 seconds in phase D. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the TX level of sender's machine. |  |
| 3.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |  |

(54) Error code: 0064

| Definition | Can not detect any control channel signal in phase D within 60 seconds even <br> through energy still on the line. |
| :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Boost the TX level of sender's machine. <br> 3.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(55) Error code: 0065

| Definition | Can not detect any control channel signal within 60 seconds after detect silence in <br> phase D. |
| :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. <br> 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new  <br> telephone line or contact your telecom service provider.  |
|  | 3. $\quad$ Boost the TX level of sender's machine.  <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |

(56) Error code: 0066

| Definition | Can not receive T.30 signal or carrier after sending CFR in V.34. |  |
| :--- | :--- | :--- |
| Solution | 1. | Ask sender resend the FAX again. |
|  | 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |  |
|  | telephone line or contact your telecom service provider.  <br> 3. Change the machine RX speed to V.17, and then ask sender resend again. <br>  4. Boost the TX level of sender's machine. <br>  5. <br> Print out the protocol report, and provide it to technical center, ask for analyzing  <br> the information.  |  |

(57) Error code: 0070

| Definition | User press stop key within receiving. |
| :--- | :--- |
| Solution | 1. Ask sender resend the FAX again. |

(58) Error code: 0071

| Definition | Memory full within receiving. |  |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Split the document into several copies at sender, and send them by several dif- <br>  <br>  | ferent times. Print out the receiving data which was stored in the FAX memory or delete the <br>  unnecessary data. <br> Reboot the machine.  |
|  | 4. | Execute MEMORY CLEAR. |

(59) Error code: 0072

| Definition | Received EOR_Q signal. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Reduce the TX level of sender's machine. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

### 20.4.2 Transmission error code (0080-00FF)

(1) Error code: 0080

| Definition | Can not detect any G3 signal within 35 sec. specified by ITU-T in phase B. |
| :--- | :--- |
| Solution | 1. <br> Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
| 2.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

## (2) Error code: 0081

| Definition | Received DTC signal in transmission phase. |
| :---: | :---: |
| Solution | 1. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(3) Error code: 0082

| Definition | Transmitting unit receives a signal other than DIS or DTC and DCN in phase B. |
| :---: | :---: |
| Solution | 1. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(4) Error code: 0083

| Definition | Detected FSK signal, but can not receive any signal within 35 seconds. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Boost the TX level of sender's machine. <br> 3. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(5) Error code: 0084

| Definition | Detect DCN signal in phase B. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. <br> Resend the FAX again. <br> the information. |

(6) Error code: 0085

| Definition | Transmitting unit sending DCS 3 times consecutively, but each time responds with <br> DIS/DTC. |
| :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  <br>  2. Boost the machine TX level. $<^{*} 1>$ |

## (7) Error code: 0086

| Definition | Detected responds signal other than DTC, DIS, FTT, DCN or CFR after sending <br> DCS. |
| :--- | :--- |
| Solution | 1.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(8) Error code: 0087

| Definition | Training attempt has failed because speed unit can not adjust to lower speed. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Boost the machine TX level. < $1>$ |
|  | 3djust the SOFT SW12 [6-7] to "11", while receiving 4 PPR, the speed will <br> down. |
| 4. Change the machine TX speed to V.17, then resend again. |  |
| 5.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(9) Error code: 0088

| Definition | Received DCN signal after sending out DCS signal. |  |
| :--- | :--- | :--- |
| Solution | 1. | Resend the FAX again. |
|  | 2. | Register the telephone number in machine. |
|  | 3. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(10) Error code: 008B

| Definition | Receiver's protocol of DIS is received, but it is not compatible with our machine. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. <br> Change the machine TX speed to V.33.6, then resend again. <br> the information. |

(11) Error code: 008D

| Definition | Receiver's protocol of DIS is received, but remote side can not receive document <br> temporary, may be cause by run out of paper or other reason. |
| :--- | :--- |
| Solution | 1. <br> 2. Contact with recipient, ask for refilling machine with paper. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(12) Error code: 008F

| Definition | Modem not ready to received V.34 data within 6 seconds after received CFR signal. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Change the machine TX speed to V.17, then resend again. <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(13) Error code: 0091

| Definition | Sending out DCS+TCF signal 3 times consecutively but no signal in response from <br> receiver. |
| :--- | :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the TX level of sender's machine. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(14) Error code: 0093

| Definition | Received DCN signal after sending out DCS signal for V.34. |
| :--- | :--- | :--- |
| Solution | 1. Resend the FAX again. <br>  2. <br> Register the telephone number in machine.  <br> 3. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(15) Error code: 0094

| Definition | Time out during transmit ECM frame or RCP command. |
| :--- | :--- |
| Solution | 1. $\quad$Change the machine setting to ECM OFF, then resend again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(16) Error code: 009A

| Definition | Can not detect any signal after sending CI signal. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Boost the TX level of sender's machine. <br> 3. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (17) Error code: 009F

| Definition | Can not received any response from other side after sending PPS_EOM signal. |  |
| :--- | :--- | :--- |
| Solution | 1. | Resend the FAX again. |
|  | 2. $\quad$ Check the line condition whether is too noisy, if necessary, please replace a new |  |
|  | 3.telephone line or contact your telecom service provider. |  |
|  | 4. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(18) Error code: 00A0

| Definition | User stop or cancel transmission job. |
| :--- | :--- |
| Solution | 1. Resend the FAX again. |

(19) Error code: 00A1

| Definition | Document JAM within transmission. |
| :--- | :--- |
| Solution | 1. Clear JAM ERROR, then resend the FAX again. |

(20) Error code: 00AE

| Definition | Can not finished V. 8 procedure or detect V. 21 signal after CM signal within 30 sec- <br> onds. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. <br> 2.Boost the machine TX level. $<^{* 1} 1>$ <br> 3. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |

(21) Error code: 00AF

| Definition | Modem can not enter into control channel after TX side sending out RCP signal for <br> V.34. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  |
|  | 2. Boost the machine TX level. < $1>$ <br> 3. Change the machine TX speed to V.17, then resend again. <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |

## (22) Error code: 00B1

| Definition | Can not finish V. 8 procedure or detect V.21 signal after ANSam signal within 35 sec- <br> onds. |
| :--- | :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the machine TX level. $<^{\star} 1>$ <br> 3.Change the machine TX speed to V.17, then resend again. <br> 4. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(23) Error code: 00B2

| Definition | Can not detect phase 2 signal after our side sending CJ signal within 30 seconds. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the machine TX level. $<^{\star} 1>$ |  |
|  | 3.Change the machine TX speed to V.17, then resend again. <br> 4rint out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(24) Error code: 00B3

| Definition | Can not detect correct V.21 or JM signal after sending CM signal. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the machine TX level. < $1>$ |  |
|  | 3. Change the machine TX speed to V.17, then resend again. <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

## (25) Error code: 00B4

| Definition | Can not detect correct phase 2 signal within 25 second after CM/JM signal <br> exchange. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. <br>  2. Boost the machine TX level. < $1>$ <br> 3. Change the machine TX speed to V.17, then resend again.  <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |

(26) Error code: 00B5

| Definition | Can not detect phase 3 signal after phase 2 within 25 seconds. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the machine TX level. < $1>$ |  |
|  | 3.Change the machine TX speed to V.17, then resend again. <br> 4rint out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

## (27) Error code: 00B6

| Definition | Can not detect phase 4 signal within 25 seconds after CM/JM exchange. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the machine TX level. < $1>$ |  |
|  | 3.Change the machine TX speed to V.17, then resend again. <br> 4. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(28) Error code: 00B7

| Definition | Can not detect phase 5 signal after phase 4 within 30 seconds. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the machine TX level. < $1>$ |  |
|  | 3.Change the machine TX speed to V.17, then resend again. <br> 4rint out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

## (29) Error code: 00B8

| Definition | Remote side disconnect after our side sending DCS signal in V.34. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the machine TX level. < 1> |  |
|  | 3. Change the machine TX speed to V.17, then resend again. <br> 4rint out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(30) Error code: 00B9

| Definition | Receive T.30 signal other than DIS, DCS, CFR after sending DCS signal in V.34. |
| :--- | :--- |
| Solution | 1. $\quad$ Change the machine TX speed to V.17, then resend again. <br>  <br> 2. Print out the protocol report, and search for technical support. |

(31) Error code: 00BC

| Definition | Modem can not ready within 10 seconds after entering primary channel in V.34. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Boost the machine TX level. < $1>$ |  |
|  | 3.Change the machine TX speed to V.17, then resend again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(32) Error code: O0BD

| Definition | Can not detect correct V.21 or JM signal after detected FSK frequency. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the TX level of sender's machine. |  |
|  | 3.Change the machine TX speed to V.17, then resend again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(33) Error code: 00BF

| Definition | Capability no match. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. <br> Change the machine TX speed to V.17, then resend again. <br> the information. |

(34) Error code: 00C0

| Definition | Remote side disconnect before entering primary channel in V.34. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Resend the FAX again. |  |
|  | 3. $\quad$Change the machine TX speed to V.17, then resend again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(35) Error code: 00C1

| Definition | At phase D, transmitting units out EOP 3 times consecutively, but receive no answer <br> from receiving unit. |
| :--- | :--- | :--- |
| Solution | 1. Resend the FAX again. <br> 2. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  |
|  | 3. $\quad$ Set SOFT SW21 [5] to "1" (T4 timer = 4.5 sec.)  <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(36) Error code: 00C2

| Definition | Remote side disconnect after sending out V.8 CM signal. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Resend the FAX again. |  |
|  | 3.Change the machine TX speed to V.17, then resend again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(37) Error code: 00C4

| Definition | After sending MPS signal, the received is not one of MCF, RTN, PIP, PIN, RTP, DCN. |
| :--- | :--- |
| Solution | 1. <br> 2. $\quad$Set SOFT SW21 [5] to "1" (T4 timer $=4.5$ sec.) <br> the information. |

(38) Error code: 00C5

| Definition | Received DCN signal after sending MPS signal. |
| :--- | :--- | :--- |
| Solution | 1. Resend the FAX again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(39) Error code: 00C9

| Definition | At phase D, sending MPS 3 times consecutively, but no answer from receiving unit. |
| :--- | :--- |
| Solution | 1. <br> Resend the FAX again. <br> 2. <br> Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 3. Boost the TX level of sender's machine. |
|  | Adjust the SOFT SW02 [7-8] to "01" or "10" or "11", then resend it again. <br> 5. Set SOFT SW21 [5] to "1" (T4 timer = 4.5 sec.) <br> 6. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (40) Error code: 00CA

| Definition | After sending EOP signal, the received is not one of MCF, RTN, PIP, PIN, PRI-EOP, <br> DCN. |
| :--- | :--- |
| Solution | 1. <br> 2. Resend the FAX again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(41) Error code: 00CB

| Definition | After sending EOP signal, the received is DCN signal. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. Resend the FAX again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(42) Error code: 00CC

| Definition | After sending EOM signal, the received is not one of MCF, RTN, PIP, PIN, RTP, DCN. |
| :---: | :---: |
| Solution | 1. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(43) Error code: 00CD

| Definition | At phase D, transmitting units out EOM 3 times consecutively, but receive no answer. |
| :--- | :--- | :--- |
| Solution | 1. <br> Resend the FAX again. <br> 2. <br> Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 3. Boost the TX level of sender's machine.  <br> 4. Adjust the SOFT SW02 [7-8] to "01" or "10" or "11", then resend it again.  <br> 5. Set SOFT SW21 [5] to "1" (T4 timer = 4.5 sec.)  <br> 6. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (44) Error code: OOCE

| Definition | At phase D, transmitting units out EOM, but receive DCN. |
| :--- | :--- |
| Solution | 1. <br> 2. Resend the FAX again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(45) Error code: 00DO

| Definition | Received ERR signal after sending EOR_NULL. |
| :---: | :---: |
| Solution | 1. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(46) Error code: 00D1

| Definition | Received incorrect response after sending PPS_EOP signal in V.34. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. $\quad$Change the machine TX speed to V.17, then resend again. <br> the information. |

(47) Error code: 00D2

| Definition | Received DCN after sending PPS_EOP signal. |
| :--- | :--- |
| Solution | 1.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. $\mathbf{l}$. |

(48) Error code: 00D3

| Definition | Received DCN after sending PPS_NULL signal. |
| :---: | :---: |
| Solution | 1. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(49) Error code: 00D4

| Definition | Received DCN after sending PPS_EOM signal. |
| :--- | :--- |
| Solution | 1.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. $\mathbf{l}$. |

(50) Error code: 00D9

| Definition | Can not detect correct phase 3 signal after detect silence after phase 2. |
| :---: | :---: |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new telephone line or contact your telecom service provider. <br> 2. Boost the machine TX level. <*1> <br> 3. Change the machine TX speed to V.17, then resend again. <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

## (51) Error code: 00DA

| Definition | Can not detect phase 4 signal within 30 seconds or remote side hang up over $6 \mathrm{sec}-$ <br> onds. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  |
|  | 2. Boost the machine TX level. < $1>$ <br> 3. Change the machine TX speed to V.17, then resend again. <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |

(52) Error code: 00DB

| Definition | Can not received any T. 30 signal within 15 seconds within phase 4. |
| :---: | :---: |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new telephone line or contact your telecom service provider. <br> 2. Boost the machine TX level. <*1> <br> 3. Change the machine TX speed to V.17, then resend again. <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

## (53) Error code: OODC

| Definition | Received T. 30 signal in phase 4 other than DCS, DIS or DTC. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Change the machine TX speed to V.17, then resend again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(54) Error code: 00E0

| Definition | At phase D, transmitting units out PPS_NULL 3 times consecutively but receive not <br> answer. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  |
|  | 2. Boost the TX level of sender's machine.  <br> 3. Boost the machine TX level. $<^{*}$ 1> <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |

(55) Error code: 00E1

| Definition | Received incorrect response after sending PPS_NULL. |
| :--- | :--- | :--- |
| Solution | 1. Resend the FAX again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(56) Error code: 00E2

| Definition | Can not receive any response in RR response procedure after sending PPS_NULL. |
| :--- | :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the TX level of sender's machine. <br> 3.Boost the machine TX level. $<^{* 1}>$ <br> 4. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(57) Error code: 00E3

| Definition | Can not speed down to lower speed in non ECM mode. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Boost the TX level of sender's machine. |  |
|  | 3. Boost the machine TX level. $<^{\star} 1>$ <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(58) Error code: 00E4

| Definition | At phase D, transmitting units out PPS_MPS 3 times consecutively but receive no <br> answer. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Boost the TX level of sender's machine.  <br> 3. Boost the machine TX level. < $1>$ <br> 4. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(59) Error code: 00E5

| Definition | Received incorrect response after sending PPS_MPS. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. <br> Resend the FAX again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(60) Error code: 00E6

| Definition | Can not receive any response in RR response procedure after sending PPS_MPS. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Boost the TX level of sender's machine. <br> 3. Boost the machine TX level. $<^{\star} 1>$  |  |
| 4.Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |  |

(61) Error code: 00E7

| Definition | Received DCN after sending PPS_MPS. |
| :--- | :--- |
| Solution | 1. $\quad$Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(62) Error code: 00E8

| Definition | At phase D, transmitting units out PPS_EOP 3 times consecutively but receive no <br> answer. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. <br>  2.Boost the TX level of sender's machine. <br> 3. <br> Boost the machine TX level. < *1> <br> 4. <br> Set SOFT SW21 [5] to "1" (T4 timer $=4.5$ sec.) <br> 5. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(63) Error code: 00E9

| Definition | Receive PIN signal after sent last page three times. |
| :---: | :---: |
| Solution | 1. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(64) Error code: O0EA

| Definition | Can not receive any response in RR response procedure after sending PPS_EOP. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. $\quad$Boost the TX level of sender's machine. |  |
|  | 3.Boost the machine TX level. < $1>$ <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

## (65) Error code: 00EB

| Definition | At phase D, transmitting units out PPS_EOM 3 times consecutively but receive no <br> answer. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. <br>  2.Change the machine setting to ECM OFF, then resend again. <br> 3. <br> Boost the TX level of sender's machine. <br> 4. Boost the machine TX level. < $1>$ <br> 5. Set SOFT SW21 [5] to "1" (T4 timer = 4.5 sec.) <br> 6. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

## (66) Error code: 00EC

| Definition | Received incorrect response after sending PPS_EOM. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. $\quad$Change the machine setting to ECM OFF, then resend again. <br> the information. |

(67) Error code: O0ED

| Definition | Can not receive any response in RR response procedure after sent out PPS_EOM. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. | Change the machine setting to ECM OFF, then resend again. |
|  | 3. | Boost the TX level of sender's machine. |
| 4. | Boost the machine TX level. < $1>$ |  |
| 5. | Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(68) Error code: 00EE

| Definition | At phase D, transmitting units out EOR_NULL 3 times consecutively but receive no <br> answer. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, then resend again. <br> 3. <br> Boost the TX level of sender's machine. |
| 4.Boost the machine TX level. < $1>$ <br> 5. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(69) Error code: 00EF

| Definition | Received incorrect response after sending EOR_NULL. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. <br> Change the machine setting to ECM OFF, then resend again. <br> the information. |

(70) Error code: 00F0

| Definition | Can not receive any response procedure after sending EOR_NULL. |  |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br>  | telephone line or contact your telecom service provider. Change the machine setting to ECM OFF, then resend again. <br> 3. Boost the TX level of sender's machine. |
|  | 4.Boost the machine TX level. < $1>$ <br> 5. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(71) Error code: 00F1

| Definition | At phase D, transmitting units out EOR_MPS 3 times consecutively but receive no <br> answer. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2. Change the machine setting to ECM OFF, then resend again. <br> 3. Boost the TX level of sender's machine. |
| 4.Boost the machine TX level. <*1> <br> 5. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(72) Error code: 00F2

| Definition | Received incorrect response after sending EOR_MPS. |
| :--- | :--- | :--- |
| Solution | 1. Resend the FAX again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(73) Error code: 00F3

| Definition | Received ERR signal after sending EOR_MPS. |
| :--- | :--- | :--- |
| Solution | 1. Change the machine setting to ECM OFF, then resend again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(74) Error code: 00F4

| Definition | Can not receive any response in RR response procedure after sending EOR_MPS. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, then resend again. <br> 3. <br> Boost the TX level of sender's machine. |  |
| 4.Boost the machine TX level. $<^{* 1} 1>$ <br> 5. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |  |

(75) Error code: 00F5

| Definition | At phase D, transmitting units out EOR_EOP 3 times consecutively but receive no <br> answer. |
| :--- | :--- | :--- |
| Solution | 1.Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, then resend again. <br> 3. <br> Boost the TX level of sender's machine. |
| 4.Boost the machine TX level. < $1>$ <br> 5. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |  |

(76) Error code: 00F6

| Definition | Received incorrect response after sending EOR_EOP. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Change the machine setting to ECM OFF, then resend again. <br> 2. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(77) Error code: 00F7

| Definition | After received ERR, our side can not received response after sending EOR_EOP command. |
| :---: | :---: |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new telephone line or contact your telecom service provider. <br> 2. Change the machine setting to ECM OFF, then resend again. <br> 3. Boost the TX level of sender's machine. <br> 4. Boost the machine TX level. <*1> <br> 5. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

## (78) Error code: 00F8

| Definition | At phase D, transmitting units out EOR_EOM 3 times consecutively but receive no <br> answer. |
| :--- | :--- |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider.  <br>  2. Change the machine setting to ECM OFF, then resend again. <br> 3. Boost the TX level of sender's machine. <br> 4. Boost the machine TX level. < $1>$ <br> 5. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |

(79) Error code: 00F9

| Definition | Received incorrect response after sending EOR_EOM. |
| :--- | :--- | :--- |
| Solution | 1. Change the machine setting to ECM OFF, then resend again. <br> 2. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(80) Error code: 00FA

| Definition | Received ERR signal after sending EOR_EOM. |
| :--- | :--- | :--- |
| Solution | 1. <br> 2. <br> Change the machine setting to ECM OFF, then resend again. <br> Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(81) Error code: 00FB

| Definition | Can not receive any response in RR response procedure after sending EOR_EOM. |
| :--- | :--- |
| Solution | 1. |
|  | Check the line condition whether is too noisy, if necessary, please replace a new |
|  | telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, then resend again. |
|  | 3. Boost the TX level of sender's machine. |
| 4. | Boost the machine TX level. $<^{*}$ 1> |
| 5. | Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information. |

(82) Error code: 00FC

| Definition | Can not receive any response after sending CTC. |
| :---: | :---: |
| Solution | 1. Check the line condition whether is too noisy, if necessary, please replace a new telephone line or contact your telecom service provider. <br> 2. Change the machine setting to ECM OFF, then resend again. <br> 3. Boost the TX level of sender's machine. <br> 4. Boost the machine TX level. <*1> <br> 5. Print out the protocol report, and provide it to technical center, ask for analyzing the information. |

(83) Error code: 00FD

| Definition | Can not speed down to lower speed in ECM mode. |  |
| :--- | :--- | :--- |
| Solution | 1. | Check the line condition whether is too noisy, if necessary, please replace a new <br> telephone line or contact your telecom service provider. |
|  | 2.Change the machine setting to ECM OFF, then resend again. <br> 3. <br> Boost the TX level of sender's machine. |  |
|  | 4. Boost the machine TX level. < $1>$ <br> 5. Adjust the SOFT SW12 [6-7] to "11", while receiving 4 PPR, the speed will <br> down. Print out the protocol report, and provide it to technical center, ask for analyzing <br> the information.  |  |

(84) Error code: 00FE

| Definition | Memory full for transmission. |
| :--- | :--- | :--- |
| Solution | 1. $\quad$Split the document into several copies, and send them by several different <br> times. |
|  | 2. $\quad$Print out the receiving data which was stored in the FAX memory or delete the  <br>  3. <br>  Reboot the machine. <br> 4. Execute MEMORY CLEAR. |

(85) Error code: 00FF

| Definition | Redial all fail. |
| :---: | :---: |
| Solution | 1. Check whether the dialing number is correct or not. <br> 2. Check whether the telephone line is connect correctly or not. <br> 3. Faxing by Manual TX. <br> 4. Check the machine setting whether is according with the switchboard. <br> 5. Adjust the SOFT SW07 [8] to " 0 ", disable the dial tone detect before dial. <br> 6. Adjust the SOFT SW21 [1-2] to " 11 ", increase T1 time. <br> 7. Adjust the SOFT SW55 [6-8] to " 000 " or " 010 " or " 100 " or " 110 ", change to accord with the switchboard environment. |

### 20.5 FAX can sent but not receive

- Review the following information to determine why faxes are not being received.


## A. Troubleshooting procedure

| Relevant electrical parts |  |
| :--- | :--- |
| FAX board (FAXB) |  |


| Step | Check item | Result | Action |
| :---: | :---: | :---: | :---: |
| 1 | Turn OFF and ON the power switch. | NO | Go to step 2. |
| 2 | Is the telephone line connect correctly? | YES | Go to step 3. |
|  |  | NO | Connect it correctly. |
| 3 | Is there a paper jam? | YES | Clear the paper jam. |
|  |  | NO | Go to step 4. |
| 4 | Is the machine set to receive faxes manually? | YES | Set the machine to automatic reception. |
|  |  | NO | Go to step 5. |
| 5 | Is it able to detect the local ring? | YES | Go to step 6. |
|  |  | NO | Enter the SERVICE MODE => SOFT SWITCH => Change the SW\# 50 bit $(1-3)$ from $(1,0,0)$ to $(0,0,0)$ |
| 6 | Check the fax board for correct installation. | YES | Go to step 7. |
|  |  | NO | Reinstall the fax board. |
| 7 | Does the error still occur when faxing? | YES | Change the fax board. |
|  |  | NO | Complete. |

### 20.6 FAX line says talking

- Review the following information to determine why fax line says talking.


## A. Troubleshooting procedure

| Relevant electrical parts |  |
| :--- | :--- |
| FAX board (FAXB) |  |


| Step | Check item | Result | Action |
| :---: | :--- | :---: | :--- |
| 1 | Turn OFF and ON the power switch. | NO | Go to step 2. |
| 2 | Is the telephone line connect correctly? | YES | Go to step 3. |
|  |  | NO | Connect it correctly. |
| 3 | Is the handset lifted? | YES | Place the handset to on hook. |
|  |  | NO | Go to step 4. |
| 4 | Check the fax board for correct installation. | YES | Go to step 5. |
|  |  | NO | Reinstall the fax board. |
| 5 | Does the error still occur when faxing? | YES | Change the fax board. |
|  |  | NO | Complete. |

### 20.7 Pick up the phone, but the machine does not go into Off-Hook state

- Review the following information to determine why machine can not go into Off-Hook state.


## A. Troubleshooting procedure

| Relevant electrical parts |  |
| :--- | :--- |
| FAX board (FAXB) |  |


| Step | Check item | Result | Action |
| :---: | :--- | :---: | :--- |
| 1 | Turn OFF and ON the power switch. | NO | Go to step 2. |
| 2 | Is the handset broken? | YES | Change the handset on the hook. |
|  |  | NO | Go to step 3. |
| 3 | Is the input current from PBX not enough? | YES | Increase the input current from <br> PBX. |
|  |  | NO | Go to step 4. |
| 4 | Check the Soft SW16 [6-8] according with the <br> switchboard environment. | YES | Go to step 5. |
|  |  | NO | Adjust Soft SW16 [6-8] = "000" or <br> "001" or "010" or "101" |
| 5 | Check the fax board for correct installation. | YES | Go to step 6. |
|  |  | NO | Reinstall the fax board. |
| 6 | Does the error still occur when faxing? | YES | Change the fax board. |
|  |  | NO | Complete. |

### 20.8 In VoIP system environment, the machine can not fax properly

- Review the following information to determine why machine can not fax properly in VolP system environment.
A. Troubleshooting procedure

| Step | Check item | Result | Action |
| :---: | :---: | :---: | :--- |
| 1 | Check the setting of Soft SW21 $[5]=" 1 "$ | YES | Complete. |
|  |  | NO | Adjust Soft SW21 [5] ="1" |

## 21. SCAN ERROR

| Code | Display | Content |
| :---: | :---: | :---: |
| 0100 | CANNOT CONNECT SMTP Server | - While the scanned document was being sent in Scan mode, a connection with the specified server could not be established. |
| 0101 | CANNOT CONNECT POP3 Server |  |
| 0102 | CANNOT CONNECT DNS Server |  |
| 0103 | CANNOT CONNECT <br> FTP Proxy Server |  |
| 0104 | CANNOT CONNECT SMB Server |  |
| 0106 | FTP SERVER ERROR | - The file cannot be saved on the indicated server. |
| 0107 | SMB SERVER ERROR |  |
| 0108 | WRONG PASSWORD FTP Server | - The password is incorrect, so the indicated server could not be accessed. |
| 0109 | WRONG PASSWORD SMB Server |  |
| 010A | WRONG PASSWORD SMTP Server |  |
| 010B | WRONG PASSWORD POP3 Server |  |
| 010D | SERVER MEMORY FULL SMTP Server | - The memory of the SMTP server has become full. |
| 010F | CANNOT GET IP SMTP Server | - The IP address of the SMTP server could not be obtained from the DNS server. |
| 0110 | CANNOT GET IP POP3 Server |  |
| 0111 | CANNOT GET IP FTP Server |  |
| 0113 | COMMUNICATION ERROR SMTP Server | - While data was being sent in Scan mode, the connection to the server was interrupted. |
| 0114 | COMMUNICATION ERROR FTP Server |  |
| 0115 | COMMUNICATION ERROR SMB Server |  |
| 0118 | DISCONNECT SMTP Server | - The connection to the server was interrupted. |
| 0119 | DISCONNECT POP3 Server |  |
| 011B | DISCONNECT <br> FTP Proxy Server |  |
| 011C | $\begin{aligned} & \text { DISCONNECT } \\ & \text { SMB Server } \end{aligned}$ |  |

## 22. IMAGE QUALITY PROBLEM

### 22.1 How to identify problematic part

- This chapter is divided into two parts: "Initial check items" and "Troubleshooting procedure by a particular image quality problem."
- When an image quality problem occurs, first go through the "Initial check items" and, if the cause is yet to be identified, go to "Troubleshooting procedure by a particular image quality problem."


### 22.1.1 Initial check items

## A. Initial check items 1

- Let the machine produce a test print and determine whether the image problem is attributable to the scanner or printer system.
- Evaluation procedure

| Action | Result | Cause | Next step |
| :--- | :---: | :---: | :---: |
| From [SERVICE MODE], select [PS/PCL] $\rightarrow$ [PRINT <br> MENU] $\rightarrow$ [GRADATION], and produce a test print. Is <br> image problem evident? | YES | Printer | Initial check items 2 |
|  | NO | Scanner | P.345 |

B. Initial check items 3

- If the printer is responsible for the image problem, let the machine produce a test print and determine whether the image problem occurs in a specific single color or four colors
- Evaluation procedure

| Action | Result | Cause | Next step |
| :---: | :---: | :---: | :---: |
| From [SERVICE MODE], select [PS/PCL] $\rightarrow$ [PRINT MENU] $\rightarrow$ [GRADATION], and produce a test print. Is image problem evident in each of all four colors? | YES | Printer, 4 colors | P. 368 |
|  | NO | Printer, single color | P. 356 |

### 22.2 Solution

## NOTE

- Typical faulty image samples shown in the following are all printed with A4S setting.
22.2.1 Scanner system: white lines, white bands, colored lines and colored bands in sub scan direction
A. Typical faulty images

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :--- | :--- |
| 1 | Original | Original is damaged or dirty. | YES | Change original. |
| 2 | ADF | Original pad is dirty. | YES | Clean. |
| 3 | Original glass | Original glass is dirty. | YES | Wipe the surface clean with <br> a soft cloth. |
| 4 | SERVICE MODE $\rightarrow$ <br> ADJUST $\rightarrow$ CIS SUB <br> REGIST or ADF SUB <br> REGIST | The adjustment value for [CIS <br> SUB REGIST] or [ADF SUB <br> REGIST] falls within the specified <br> range. | NO | Readjust. |
| 5 |  | The problem has been eliminated <br> through the checks of steps up to <br> 4. | NO | Change scanner unit. |

22.2.2 Scanner system: white lines, white bands, colored lines and colored bands in main scan direction
A. Typical faulty images

| White lines | White bands | Color lines | Color bands |
| :---: | :---: | :---: | :---: |

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Original | Original is damaged or dirty. | YES | Change original. |
| 2 | ADF | Original pad is dirty. | YES | Clean. |
| 3 | Original glass | Original glass is dirty. | Wipe the surface clean with a <br> soft cloth. |  |
| 4 | SERVICE MODE <br> $\rightarrow$ ADJUST $\rightarrow$ <br> CIS MAIN REG- <br> IST or ADF MAIN <br> REGIST | The adjustment value for [CIS <br> MAIN REGIST] or [ADF MAIN <br> REGIST] falls within the specified <br> range. | NO | Readjust. |
| 5 |  | The problem has been eliminated <br> through the checks of steps up to 4. | NO | Change scanner unit. |

### 22.2.3 Scanner system: color spots

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Original | Original is damaged or dirty. | YES | Change original. |
| 2 | ADF | Original pad is dirty. | YES | Clean. |
| 3 | Original glass | Original glass is dirty. | YES | Wipe the surface clean with a <br> soft cloth. |
| 4 |  | The problem has been eliminated <br> through the checks of steps up to 3. | NO | Change scanner unit. <br> Change MFPB/1. |

### 22.2.4 Scanner system: fog

## A. Typical faulty images

| ABCD |  |
| :---: | :---: |
| ABCD |  |
| ABCD |  |
| ABCD |  |
| ABCD |  |
|  |  |

## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Original | Original is damaged or dirty. | YES | Change original. |
| 2 | ADF | Original pad is dirty. | YES | Clean. |
| 3 | ADF does not lie flat. | YES | Change ADF if it is deformed or <br> hinges are broken. |  |
| 4 | Original glass | Original glass is dirty. | Wipe the surface clean with a <br> soft cloth. |  |
| 5 | Basic screen <br> QUALITY/ <br> DENSITY | The problem is eliminated when the <br> image is produced in the manual <br> exposure setting. | NO | Try another exposure level in <br> manual. |
| 6 |  | The problem has been eliminated <br> through the checks of steps up to 5. | NO | Change scanner unit. <br> Change MFPB/1. |

### 22.2.5 Scanner system: blurred image, blotchy image

A. Typical faulty images

| ABCDE |
| :---: |
| ABCDE |
| ABCDE |
| ABCDE |
|  |

## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Original | Original does not lie flat. | YES | Change original. |
| 2 | ADF | ADF does not lie flat. | YES | Change ADF if it is deformed or <br> hinges are broken. |
| 3 | Original glass | Original glass tilts. | YES | Position original glass correctly. <br> Check original loading position. |
| 4 |  | The problem has been eliminated <br> through the checks of steps up to 3. | NO | Change scanner unit. |

### 22.2.6 Scanner system: incorrect color image registration, sync shift (lines in main scan direction)

## A. Typical faulty images


B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Original | Original does not lie flat. | YES | Change original. |
| 2 | ADF | ADF does not lie flat. | YES | Change ADF if it is deformed or <br> hinges are broken. |
| 3 |  | The problem has been eliminated <br> through the checks of steps up to 2. | NO | Change scanner unit. |

### 22.2.7 Scanner system: moire

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :---: |
| 1 | Original | Moire distortions recur even after <br> the orientation of original has been <br> changed. | NO | Change the original orientation. |
| 2 | Basic screen <br> QUALITY/MODE | Moire distortions recur even after <br> the original mode has been <br> changed. | YES | Select "TEXT" or "PHOTO". |
| 3 | Basic screen <br> ZOOM | The problem has been eliminated <br> through the checks of steps up to 2. | NO | Change the zoom ratio. |

### 22.2.8 Scanner system: skewed image

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Original | Original is skew. | YES | Reposition original. |
| 2 | Original glass | Original glass is in positive contact <br> with the flat spring without being tilt. | NO | Reinstall the glass. <br> Check the original loading posi- <br> tion. |
| 3 |  | The problem has been eliminated <br> through the checks of steps up to 2. | NO | Change scanner unit. |

### 22.2.9 Scanner system: distorted image

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :--- | :--- |
| 1 | Installation | Machine is installed on a level sur- <br> face. | NO | Reinstall. |
| 2 |  | The problem has been eliminated <br> through the checks of steps up to 1. | NO | Change scanner unit. |

22.2.10 Scanner system: low image density, rough image
A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Original glass | Original Glass is dirty. | YES | Wipe the surface clean with a <br> soft cloth. |
| 2 |  | The problem has been eliminated <br> through the checks of steps up to 1. | NO | Change scanner unit. <br> Change MFPB/1. |

### 22.2.11 Scanner system: blank copy, black copy

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Cable connecting <br> scanner and <br> printer | Connector P103 on MFPB/1 are <br> connected properly with no pins <br> bent. | NO | Reconnect. |
| 2 | MFP board/1 <br> (MFPB/1) | The problem is eliminated after <br> the I/F connection cable has been <br> changed. | NO | Change MFPB/1. <br> Change scanner unit. |

### 22.2.12 Printer monocolor: white lines, white bands, colored lines and colored bands in sub scan direction

## A. Typical faulty images

| White lines | White bands | Colored lines | Colored bands |
| :---: | :---: | :---: | :---: | :---: |

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Image check | A white line or black line in sub scan direction is sharp. | YES | Clean the electrostatic charger wire. |
| 2 |  | When printing thick paper, black lines appear. | YES | Select [SERVICE MODE] $\rightarrow$ [ADJUST] $\rightarrow$ [THICK MODE] and set [QUALITY MODE]. |
| 3 | Imaging unit | The surface of the PC drum is scratched. | YES | Change imaging unit. |
| 4 |  | Dirty on the outside. | YES | Clean. |
| 5 |  | Contact terminals make good connection between each imaging unit and machine. | NO | Clean contact terminals. |
| 6 |  | Developing bias contact terminal makes good connection. | NO | Clean contact terminal and check terminal position. |
| 7 | PH unit | The surface of the PH window is dirty. | YES | Clean with cleaning jig. |
| 8 |  | The problem has been eliminated through the checks of steps up to 7 . | NO | Change transfer belt unit. Change PH unit. |

### 22.2.13 Printer monocolor: white lines, white bands, colored lines and colored bands in main scan direction

## A. Typical faulty images

| White lines | White bands | Colored lines | Colored bands |
| :---: | :---: | :---: | :---: |
| $-\quad-\quad$ A02EF4C508DA |  |  |  |

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Image check | A white line or black line in main scan direction is sharp. | NO | Clean the electrostatic charger wire. |
| 2 | Imaging unit | The surface of the PC drum is scratched. | YES | Change imaging unit. |
| 3 |  | Dirty on the outside. | YES | Clean. |
| 4 |  | Contact terminals make good connection between each imaging unit and machine. | NO | Clean contact terminals. |
| 5 |  | Developing bias contact terminal makes good connection. | NO | Clean contact terminal and check terminal position. |
| 6 | PH unit | The surface of the PH window is dirty. | YES | Clean with cleaning jig. |
| 7 |  | The problem has been eliminated through the checks of steps up to 6 . | NO | Change transfer belt unit. Change PH unit. |

22.2.14 Printer monocolor: uneven density in sub scan direction
A. Typical faulty images

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Imaging unit | The surface of the PC drum is scratched. | YES | Change imaging unit. |
| 2 |  | Dirty on the outside. | YES | Clean. |
| 3 | PH unit | The surface of the PH window is dirty. | YES | Clean with cleaning jig. |
| 4 | Transfer roller unit | Transfer roller is installed properly. | NO | Reinstall. |
| 5 |  | Transfer roller is dirty or scratched. | YES | Change transfer roller unit. |
| 6 | Transfer belt unit | Is abnormality found in the cam gear? | YES | Change transfer belt unit. |
| 7 |  | The problem has been eliminated through the checks of steps up to 6 . | NO | Change PH unit. <br> Change High voltage unit. Printer control board. |

### 22.2.15 Printer monocolor: uneven density in main scan direction

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Imaging unit | The surface of the PC drum is scratched. | YES | Change imaging unit. |
| 2 |  | Dirty on the outside. | YES | Clean. |
| 3 | PH unit | The surface of the PH window is dirty. | YES | Clean with cleaning jig. |
| 4 | Transfer roller | Check that the spring does not come off during the pressure operation of the transfer roller. | NO | Correct. <br> Change transfer roller unit. |
| 5 | Transfer belt unit | Transfer belt unit makes positive contact with plates on rails. | NO | Check and correct contacts. |
| 6 |  | Is abnormality found in the cam gear? | YES | Change transfer belt unit. |
| 7 |  | The problem has been eliminated through the checks of steps up to 6 . | NO | Change PH unit. Change high voltage unit. |

### 22.2.16 Printer monocolor: low image density

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :--- | :--- |
| 1 | IDC sensor | The surface of the IDC sensor is <br> dirty. | YES | Clean. |
| 2 | PH unit | The surface of the PH window is <br> dirty. | YES | Clean with cleaning jig. |
| 3 | Transfer belt unit | Transfer belt unit makes positive <br> contact with plates on rails. | NO | Check and correct contacts. |
|  |  | Is abnormality found in the cam <br> gear? | YES | Change transfer belt unit. |
| 5 |  | The problem has been eliminated <br> through the checks of steps up to 4. | NO | Change imaging unit. <br> $\rightarrow$ Change IDC sensor. <br> $\rightarrow$ Change printer control <br> board. <br> $\rightarrow$ Change PH unit. <br> $\rightarrow$ Change high voltage unit. |

### 22.2.17 Printer monocolor: gradation reproduction failure

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Photo/density | Original type and screen pattern are <br> selected properly. | NO | Change screen pattern. |
| 2 | PH unit | The surface of the PH window is <br> dirty. | YES | Clean with cleaning jig. |
| 3 | IDC sensor | The surface of the IDC sensor is <br> dirty. | YES | Clean. |
| 4 |  | The problem has been eliminated <br> through the checks of steps up to 3. | NO | Change imaging unit. <br> $\rightarrow$ Change printer control board <br> $\rightarrow$ Change PH unit. <br> $\rightarrow$ Change high voltage unit. |

### 22.2.18 Printer monocolor: foggy background

## A. Typical faulty images

|  |  |
| :---: | :---: |
| ABCD |  |
| ABCD |  |
| ABCD |  |
| ABCD |  |
| ABCD |  |
|  |  |

## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | IDC sensor | The surface of the IDC sensor is <br> dirty. | YES | Clean. |
| 2 | Imaging unit | Dirty on the outside. | YES | Clean. |
| 3 | PH unit | The surface of the PH window is <br> dirty. | YES | Clean with cleaning jig. |
| 4 | Printer control <br> board (PRCB) | Check the connection of connectors, <br> harness, and flat cables between <br> PRCB and PH unit, and correct if <br> necessary. | NO | Change printer control board. |
| 5 |  | The problem has been eliminated <br> through the checks of steps up to 4. | NO | Change imaging unit. <br> (Change PH unit. <br> $\rightarrow$ Change high voltage unit. |

### 22.2.19 Printer monocolor: void areas, white spots

A. Typical faulty images

| Void areas | White spots |  |
| :---: | :---: | :---: |
| $\begin{aligned} & A^{\square} C D E \\ & A B C D E \\ & A B C D E \\ & A B C D E \\ & \text { A.3CDE } \end{aligned}$ |  |  |
| A02EF4C523DA |  |  |

## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :--- | :--- |
| 1 | Image Check | There are void areas at the front <br> side or high density section. | YES | See P.360 |
|  | There is void area at the rear side <br> section. | YES | Perform [TRANSFER POWER] <br> of [ADJUST] under SERVICE <br> MODE. |  |
| 3 | Imaging unit | The surface of the PC drum is <br> scratched. | YES | Change drum unit. |
| 4 | Toner cartridge | Foreign matter or caked toner in <br> the toner cartridge. | YES | Remove foreign matter. |
| 5 | Installation <br> environment | Is the atmospheric pressure at the <br> installation site low? | YES | Make the following adjustment: <br> [SERVICE MODE] $\rightarrow$ [ADJUST] <br> $\rightarrow$ [IMAGE ADJ PARAM]. |

### 22.2.20 Printer monocolor: colored spots

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Imaging unit | Developing bias contact terminal <br> makes good connection. | NO | Clean contact terminal and <br> check terminal position. |
| 2 |  | The surface of the PC drum is <br> scratched. | YES | Change imaging unit. |
|  |  | Yirty on the outside. | Clean. |  |

### 22.2.21 Printer monocolor: blurred image

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | PH unit | The surface of the PH window is <br> dirty. | YES | Clean with cleaning jig. |
| 2 | Imaging unit | Dirty on the outside. | YES | Clean. |
| 3 |  | The problem has been eliminated <br> through the checks of steps up to 2. | NO | Change imaging unit. <br> $\rightarrow$ Change PH unit. |

22.2.22 Printer monocolor: blank copy, black copy
A. Typical faulty images

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Image check | A blank copy occurs. | YES | Check PH unit connector for <br> proper connection. |
| 2 | Imaging unit | Coupling of drum unit drive mech- <br> anism is installed properly. | NO | Check and correct drive <br> transmitting coupling. <br> Change imaging unit. |
|  |  | The PC drum charge corona <br> voltage contact or PC drum <br> ground contact of the imaging unit <br> is connected properly. | NO | Check, clean, or correct the con- <br> tact. |
| 4 | High voltage unit | Connector is connected properly. | NO | Reconnect. |
| 5 |  | The problem has been eliminated <br> through the check of step 4. | NO | Change high voltage unit. <br> l Change printer control board <br> Change PH unit. <br> $\rightarrow$ Change MFP board/1. |

### 22.2.23 Printer monocolor: uneven image

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Toner cartridge | The toner cartridge of every color <br> is surely installed. | NO | Re-install it. |
| 2 | PH unit | The PH unit is surely installed. | NO | Re-install it. |
| 3 | Toner cartridge | There is any stain or breakage on <br> the drive section of the toner <br> cartridge. | YES | Clean/replace the toner cartridge. |
| 4 | Imaging unit | There is any stain, damage or <br> abrasion on the PC drum. | YES | Change the imaging unit. |
| 5 | Transer roller | There is any stain, damage, <br> deformation or abrasion on the <br> transfer roller. | YES | Change the transfer roller. |
| 6 | Fuser unit | There is any stain, damage, <br> deformation or abrasion on the <br> roller and drive section of the <br> fuser unit. | YES | Change the fuser unit. |
| 7 |  | The problem has been eliminated <br> through the check of step 6. | NO | Change the transfer belt unit. |

### 22.2.24 Printer 4-color: white lines, white bands, colored lines and colored bands in sub scan direction

## A. Typical faulty images

| White lines | White bands | Colored lines | Colored bands |
| :---: | :---: | :---: | :---: | :---: |

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Image check | A white line or colored line in sub scan direction. | YES | Clean the comb electrode. |
| 2 | Transfer belt unit | Fingerprints, oil, or other foreign matter is evident on the transfer belt. | YES | Clean with specified solvent. (See Maintenance.) |
| 3 |  | Transfer belt is dirty or scratched. | YES | Clean dirty belt with a soft cloth. Change transfer belt unit if belt is damaged. |
| 4 |  | Cleaning blade is not effective in removing toner completely. | YES | Change transfer belt unit. |
| 5 | Transfer roller unit | Transfer roller is dirty or scratched. | YES | Change transfer roller unit. |
| 6 | Paper path | There is foreign matter on paper path. | YES | Remove foreign matter. |
| 7 |  | Image transfer paper separator fingers are damaged or dirty. | YES | Clean or change. |
| 8 | Fuser unit | Fusing entrance guide plate is dirty or damaged. | YES | Clean. <br> Change fuser unit. |
| 9 |  | Fusing paper separator fingers are dirty. | YES | Clean. |
| 10 |  | The problem has been eliminated through the checks of steps up to 9 . | NO | Change printer control board |

### 22.2.25 Printer 4-color: white lines, white bands, colored lines and colored bands in main scan direction

## A. Typical faulty images



## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Transfer belt unit | Fingerprints, oil, or other foreign matter is evident on the transfer belt. | YES | Clean with specified solvent. (See Maintenance.) |
| 2 |  | Transfer belt is dirty or scratched. | YES | Clean dirty belt with a soft cloth. Change transfer belt unit if belt is damaged. |
| 3 | Transfer roller unit | Transfer roller is dirty or scratched. | YES | Change transfer roller unit. |
| 4 | Paper path | There is foreign matter on paper path. | YES | Remove foreign matter. |
| 5 |  | Image transfer paper separator fingers are damaged or dirty. | YES | Clean or change. |
| 6 | Fuser unit | Fusing entrance guide plate is dirty or damaged. | YES | Clean. Change fuser unit. |
| 7 |  | Fusing paper separator fingers are dirty. | YES | Clean. |
| 8 | Neutralizing brush | The resistance values between the neutralizing brush and the ground terminal is not $\infty$. | NO | Check the contact. Change neutralizing brush. |
| 9 |  | The problem has been eliminated through the checks of steps up to 8 . | NO | Change printer control board |

22.2.26 Printer 4-color: uneven density in sub scan direction
A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Transfer belt unit | Fingerprints, oil, or other foreign matter is evident on the transfer belt. | YES | Clean it with the tender cloth or paper which is dusted with the toner. |
| 2 |  | Transfer belt is dirty or scratched. | YES | Clean dirty belt with a soft cloth. Change transfer belt unit if belt is damaged. |
| 3 |  | Terminal is dirty. | YES | Clean. |
| 4 | Transfer roller unit | Transfer roller is installed properly. | NO | Reinstall. |
| 5 |  | Transfer roller is dirty or scratched. | YES | Change transfer roller unit. |
| 6 |  | The problem has been eliminated through the checks of steps up to 5 . | NO | Change transfer belt unit. |

### 22.2.27 Printer 4-color: uneven density in main scan direction

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Transfer belt unit | Fingerprints, oil, or other foreign matter is evident on the transfer belt. | YES | Clean it with the tender cloth or paper which is dusted with the toner. |
| 2 |  | Transfer belt is dirty or scratched. | YES | Clean dirty belt with a soft cloth. Change transfer belt unit if belt is damaged. |
| 3 |  | Terminal is dirty. | YES | Clean. |
| 4 | Transfer roller unit | Transfer roller is installed properly. | NO | Reinstall. |
| 5 |  | Transfer roller is dirty or scratched. | YES | Change transfer roller unit. |
| 6 |  | The problem has been eliminated through the checks of steps up to 5 . | NO | Change transfer belt unit. $\rightarrow$ Change high voltage unit. |

### 22.2.28 Printer 4-color: low image density

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Paper | Paper is damp. | YES | Change paper to one just <br> unwrapped from its package. |
| 2 | Transfer belt unit | Terminal is dirty. | YES | Clean. |
| 3 | Transfer roller | Transfer roller is installed properly. | NO | Reinstall. |
| 4 | unit | Charge neutralizing needle is not <br> separated and ground terminal is <br> connected properly. | NO | Correct or change. |
| 5 | IDC sensor | Sensor is dirty. | YES | Clean IDC sensor and execute <br> the calibration. |
| 6 |  | The problem has been eliminated <br> through the checks of steps up to 5. | NO | Change transfer belt unit. <br> $\rightarrow$ Change IDC sensor. <br> $\rightarrow$ Change printer control board. <br> ( Change high voltage unit. |

### 22.2.29 Printer 4-color: poor color reproduction

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :--- | :--- |
| 1 | Paper | Paper is damp. | YES | $\begin{array}{l}\text { Change paper to one just } \\ \text { unwrapped from its package. }\end{array}$ |
| 2 | Transfer belt unit | Terminal is dirty. | YES | Clean. |
| 3 | Transfer roller |  |  |  |
| 4 | unit | Transfer roller is installed properly. | NO | Reinstall. |
|  | $\begin{array}{l}\text { Charge neutralizing needle is not } \\ \text { separated and ground terminal is } \\ \text { connected properly. }\end{array}$ | NO | Correct or change. |  |
| 5 | IDC sensor | Sensor is dirty. | YES | $\begin{array}{l}\text { Clean IDC sensor and execute } \\ \text { the calibration. }\end{array}$ |
| 6 |  | $\begin{array}{l}\text { The problem has been eliminated } \\ \text { through the checks of steps up to } 5 .\end{array}$ | NO | $\begin{array}{l}\text { Change transfer belt unit. } \\ \rightarrow \text { Change printer control board. } \\ \rightarrow \text { Change high voltage unit. }\end{array}$ |
| $\rightarrow$ Change MFP board/2. |  |  |  |  |$]$|  |
| :--- |

22.2.30 Printer 4-color: incorrect color image registration
A. Typical faulty images
Prrr|
B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Machine condition | Vibration is given to the machine after main power switch has been turned ON. | YES | Turn off the main power switch and turn it on again more than 10 seconds after. |
| 2 | Transfer belt unit | Fingerprints, oil, or other foreign matter is evident on the transfer belt. | YES | Clean it with the tender cloth or paper which is dusted with the toner. |
| 3 |  | Transfer belt is dirty or scratched. | YES | Clean dirty belt with a soft cloth. Change transfer belt unit if belt is damaged. |
| 4 |  | Drive coupling to the machine is dirty. | YES | Clean. |
| 5 | Imaging unit | The surface of the PC drum is scratched. | YES | Change imaging unit. |
| 6 | Transfer roller | Transfer roller is installed properly. | NO | Reinstall. |
| 7 | unit | Transfer roller is dirty or scratched. | YES | Change transfer roller unit. |
| 8 |  | The problem has been eliminated through the checks of steps up to 7 . | NO | Change transfer belt unit. Change printer control board. Change MFP board/2. |

### 22.2.31 Printer 4-color: void areas, white spots

A. Typical faulty images

| Void areas | White spots |  |
| :---: | :---: | :---: |
| $\begin{aligned} & A^{m} C D E \\ & A B C D E \\ & A B C D E \\ & A B C D E \\ & \text { A3CDE } \end{aligned}$ |  |  |
|  |  | A02EF4C523DA |

## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Image check | There are void areas at the front side or high density section. | YES | See P. 373 |
| 2 |  | There are void areas in the trailing edge. | YES | Perform [TRANSFER POWER] of [ADJUST] under SERVICE MODE. |
| 3 | Transfer belt unit | Fingerprints, oil, or other foreign matter is evident on the transfer belt. | YES | Clean it with the tender cloth or paper which is dusted with the toner. |
| 4 |  | Transfer belt is dirty or scratched. | YES | Clean dirty belt with a soft cloth. Change transfer belt unit if belt is damaged. |
| 5 | Transfer roller unit | Transfer roller is dirty or scratched. | YES | Change transfer roller unit. |
| 6 |  | Charge neutralizing needle is not separated and ground terminal is connected properly. | NO | Correct or change. |
| 7 | Paper path | There is foreign matter on paper path. | YES | Remove foreign matter. |
| 8 |  | Pre-image transfer guide plate is damaged or dirty. | YES | Clean or change. |
| 9 |  | The problem has been eliminated through the checks of steps up to 8. | NO | Change transfer belt unit. |

### 22.2.32 Printer 4-color: colored spots

A. Typical faulty images

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Imaging unit | The surface of the PC drum is <br> scratched. | YES | Change imaging unit. |
| 2 | Transfer belt unit | Fingerprints, oil, or other foreign <br> matter is evident on the transfer <br> belt. | YES | Clean it with the tender cloth or <br> paper which is dusted with the <br> toner. |
| Transfer belt is dirty or scratched. YES Clean dirty belt with a soft cloth. <br> Change transfer belt unit if belt is <br> damaged.  <br> 4 Transfer roller <br> unit Transfer roller is dirty or scratched. YES Change transfer roller unit. |  |  |  |  |
| 5 | Paper path | There is foreign matter on paper <br> path. | YES | Remove foreign matter. |
| 6 | Fuser unit | Fusing belt is dirty or scratched. | YES | Change fuser unit. |
| 7 |  | The problem has been eliminated <br> through the checks of steps up to 6. | NO | Change transfer belt unit. |

### 22.2.33 Printer 4-color: poor fusing performance, offset

A. Typical faulty images
Poor fusing performance

## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Paper | Paper type does not match. | YES | Change the setting. |
| 2 | ADJUST $\rightarrow$ <br> TEMPERATURE <br> (SERVICE MODE) | Changing fusing temperature <br> eliminates the problem of poor <br> fusing performance and offset. | YES | Readjust fusing temperature. |
| 3 |  | The problem has been eliminated <br> through the checks of steps up to 2. | NO | Change fuser unit. |

22.2.34 Printer 4-color: brush effect, blurred image
A. Typical faulty images

| Brush effect | Blurred image |  |
| :---: | :---: | :---: |
|  | ABCDE <br> ABCDE <br> ABCDE <br> ABCDE |  |
| A02EF4C529DA |  |  |

## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Paper | Paper is damp. | YES | Change paper to one just unwrapped from its package. |
| 2 |  | Paper type does not match. | YES | Change the setting. |
| 3 | Fuser unit | Fuser unit is installed properly. | NO | Reinstall. |
| 4 |  | Fusing entrance guide plate is dirty. | YES | Clean. |
| 5 |  | Fusing belt is dirty or scratched. | YES | Change fuser unit. |

### 22.2.35 Printer 4-color: back marking

A. Typical faulty images


## B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :--- | :--- |
| 1 | Transfer roller unit | Transfer roller is scratched or dirty. | YES | Change transfer roller unit. |
| 2 | Paper path | There is foreign matter on paper <br> path. | YES | Remove foreign matter. |
| 3 | Fuser unit | Fusing entrance guide plate is <br> scratched or dirty. | YES | Clean or change. |
|  |  | Lower fusing roller is scratched or <br> dirty. | YES | Change fuser unit. |
| 5 | Transfer belt unit | Fingerprints, oil, or other foreign <br> matter is evident on the transfer <br> belt. | YES | Clean it with the tender cloth or <br> paper which is dusted with the <br> toner. |
| 6 |  | The problem has been eliminated <br> through the checks of steps up to 5. | NO | Change transfer belt unit. <br> $\rightarrow$ Change high voltage unit. |

### 22.2.36 Printer 4-color: uneven image

A. Typical faulty images

B. Troubleshooting procedure

| Step | Section | Check item | Result | Action |
| :---: | :--- | :--- | :---: | :--- |
| 1 | Toner cartridge | The toner cartridge of every color <br> is surely installed. | NO | Re-install it. |
| 2 | PH unit | The PH unit is surely installed. | NO | Re-install it. |
| 3 | Toner cartridge | There is any stain or breakage on <br> the drive section of the toner car- <br> tridge. | YES | Clean/replace the toner cartridge. |
| 4 | Imaging unit | There is any stain, damage or <br> abrasion on the PC drum. | YES | Change the imaging unit. |
| 5 | Transer roller unit | There is any stain, damage, <br> deformation or abrasion on the <br> transfer roller. | YES | Change the transfer roller unit. |
| 6 | Fuser unit | There is any stain, damage, <br> deformation or abrasion on the <br> roller and drive section of the <br> fuser unit. | YES | Change the fuser unit. |
| 7 |  | The problem has been eliminated <br> through the check of step 6. | NO | Change the transfer belt unit. |

## 23. IC protector

### 23.1 Outline

- To increase product safety, this MFP has an IC protector (ICP) installed in each board. ICP is a component that protects IC. If the amount of the current supplied to the electrical parts such as motor exceeds the set level, ICP trips to protect IC from over current. The following list contains ICP installed in each board, related devices, and symptoms that occur when ICP trips.


### 23.2 IC protector list

### 23.2.1 Main body

## A. Printer control board

| ICPNo. | Symbol | Target part name | When ICP trips |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Symptom in each load | Trouble code and others |
| F1 | - | SOS sensor | No function | 0310 |
|  | - | Laser diode |  |  |
| F2 | CL1 | Media feed clutch | No function | Misfeed at tray 3*1 |
|  | CL2 | Conveyance clutch |  |  |
|  | M1 | Media feed motor |  |  |
| ICP1 | FM10 | DC power supply fan motor | No function | 0045 *1 |
|  | FM11 | Cooling fan motor |  |  |
| ICP2 | CL1 | Tray 2 media feed clutch | No function | $\begin{aligned} & 0094{ }^{* 1} \\ & 0096 * 1 \end{aligned}$ |
|  | CL2 | Tray 1 media feed clutch |  |  |
|  | CL3 | Registration clutch |  |  |
|  | CL4 | Toner supply clutch/Y |  |  |
|  | CL5 | Toner supply clutch/M |  |  |
|  | CL6 | Toner supply clutch/C |  |  |
|  | CL7 | Toner supply clutch/K |  |  |
|  | CL8 | Loop detection clutch |  |  |
|  | CL11 | Switchback roller feed clutch |  |  |
|  | CL12 | Switchback roller reverse clutch |  |  |
|  | CL13 | Duplex conveyance roller clutch |  |  |
|  | SD1 | 1st transfer release solenoid |  |  |
|  | SD2 | 2nd transfer release solenoid |  |  |
|  | TCT | Total counter |  |  |
| ICP3 | HV | High voltage unit | No function | Process caution *1 |
| ICP4 | M5 | Polygon motor | No function | 0300 |
| ICP5 | - | On-board components | No function | Regardless of whether the door is open or closed, Door Open error is displayed. |

*1: This is an error that occurs when the power switch is turned ON. If the IC protector trips after the power switch is turned ON, another error may occur.
B. DC power supply

| ICP <br> No. | Symbol | Target part name |  | When ICP trips |  |
| :--- | :---: | :--- | :--- | :--- | :---: |
|  |  | Symptom in each load | Trouble code and others |  |  |
| FU101 | - | DC power supply circuit | DC power supply does not <br> supply power. | Power switch is not turned <br> ON. |  |
| FU191 | - | Heater circuit | The heater does not turn <br> ON. | $0500 * 1$ |  |

*1: This is an error that occurs when the power switch is turned ON. If the IC protector trips after the power switch is turned ON, another error may occur.

### 23.2.2 Lower feeder unit PF-P09

## A. PC control board

| ICP <br> No. | Symbol | Target part name | When ICP trips |  |
| :---: | :---: | :--- | :--- | :---: |
|  |  | Symptom in each load | Trouble code and others |  |
| ICP1 | CL1 | Media feed clutch | No function | Misfeed at tray 3 paper <br> feed section |
| ICP2 | CL2 | Conveyance clutch | No function | Misfeed at tray 3 vertical <br> conveyance section |

## APPENDIX

## 24. PARTS LAYOUT DRAWING

### 24.1 Main body


[1] Printer control board (PRCB)
[2] DC power supply (DCPU)
[3] FAX board (FAXB)
[4] MFP board/2 (MFPB/2)
[5] MFP board/1 (MFPB/1)
[6] High voltage unit (HV1)

[1] Switchback roller reverse clutch (CL12)
[2] Switchback roller feed clutch (CL11)
[3] Loop detection clutch (CL8)
[4] Main motor (M2)
[5] Registration clutch (CL3)
[6] 2nd transfer release solenoid (SD2)
[7] Duplex conveyance roller clutch (CL13)
[8] Toner supply clutch/K (CL7)
[9] Toner supply clutch/C (CL6)
[10] Toner supply clutch/M (CL5)
[11] Toner supply clutch/Y (CL4)
[12] Tray 1 media feed clutch (CL2)
[13] Tray 2 media feed clutch (CL1)
[14] Developing motor (M1)
[15] Color PC drum motor (M4)
[16] 1st transfer release solenoid (SD1)
[17] DC power supply fan motor (FM10)
[18] Scanner motor (M101)
[19] Cooling fan motor (FM11)

[1] 1st transfer release sensor (PS17)
[2] Temperature/ humidity sensor (TEM/HUMS)
[3] IDC sensor (IDC)
[4] Loop detection sensor (PS6)
[5] Duplex conveyance sensor (PS9)
[6] Media full sensor (PS7)
[7] Exit sensor (PS8)
[8] Tray1 media empty sensor (PS3)
[9] Right door switch (SW3)
[10] Right door sensor (PS11)
[11] Front door sensor (PS10)
[12] Front door switch (SW2)
[13] Toner level sensor/K (PS16)
[14] Toner level sensor/C (PS15)
[15] Waste toner near full sensor (PS12)
[16] Toner level sensor/M (PS14)
[17] Toner level sensor/Y (PS13)
[18] Tray2 media empty sensor (PS2)
[19] Registration sensor (PS5)
[20] Tray2 set sensor (PS1)
[21] Power switch (SW1)

### 24.2 ADF


[1] DF transport motor (M100)
[2] Relay board/1 (REYB/1)

### 24.3 Lower feeder unit (option)

[1] Conveyance clutch (CL2)
[2] Right door sensor (PS5)
[3] Media feed sensor (PS3)
[4] Media empty sensor (PS1)
[5] PC control board (PCCB)
[6] Media size switch (SW1)
[7] Media feed motor (M1)
[8] Media feed clutch (CL1)

## 25. CONNECTOR LAYOUT DRAWING

### 25.1 Printer control board (PRCB)



### 25.2 MFP board/1 (MFPB/1)



### 25.3 MFP board/2 (MFPB/2)



### 25.4 FAX board (FAXB)



## 26. CONNECTOR LAYOUT DRAWING




| No. | CN No. | Location | No. | CN No. | Location |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $[1]$ | CN22 | G-3 | $[10]$ | CN101 | G-5 |
| $[2]$ | CN20 | F-3 | $[11]$ | CN62 | G-5 |
| $[3]$ | CN23 | H-3 | $[12]$ | CN28 | I-3 |
| $[4]$ | CN35 | G-7 | $[13]$ | CN27 | I-3 |
| $[5]$ | CN34 | G-7 | $[14]$ | CN25 | C-7 |
| $[6]$ | CN33 | F-7 | $[15]$ | CN43 | E-6 |
| $[7]$ | CN32 | F-7 | $[16]$ | CN29 | I-3 |
| $[8]$ | CN18 | E-3 | $[17]$ | CN2 | C-7 |
| $[9]$ | CN16 | D-3 |  |  |  |

## 27. TIMING CHART

## A. Operating conditions

- Color, A4S or $8 \frac{1}{2} \times 11$ S
B. Timing chart


IKONICA MINOLTA

## SERVICE MANUAL

# Lower Feeder Unit PF-P09 

## 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 to the left of the revised section. A number within $\uparrow$ represents the number of times the revision has been made.
- To indicate clearly a section revised, show $\boldsymbol{1}$ 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.

| $2011 / 05$ | 1.1 | $\bigwedge$ | Error corrections |
| :---: | :---: | :---: | :--- |
| $2011 / 01$ | 1.0 | - | Issue of the first edition |
| Date | Service manual Ver. | Revision mark | Descriptions of revision |

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## OUTLINE

## 1. PRODUCT SPECIFICATIONS

## A. Type

| Name | Add-on 500-sheet media feed cassette |
| :--- | :--- |
| Type | Front-loading type |
| Installation | Desk type |
| Media feeding system | Media separation by a small-diameter roller with torque limiter |
| Document alignment | Center |

## B. Media type

| Media size | B5S(JIS)/Executive/LetterS/A4S/Letter Plus/G-Legal/Legal |
| :--- | :--- |
| Media type | - Plain paper: 60 to $90 \mathrm{~g} / \mathrm{m}^{2}(16$ to 24 lb$)$ <br> - Recycled paper: 60 to $90 \mathrm{~g} / \mathrm{m}^{2}(16$ to 24 lb$)$ |
| Capacity | 500 sheets |

## C. Machine specifications

| Power Requirements | DC $24 \mathrm{~V} \pm 10 \%$ (supplied from the main body) |
| :--- | :--- |
|  | DC $3.3 \mathrm{~V} \pm 5 \%$ |
| Max. Power Con- <br> sumption | 16 W or less |
| Dimensions | $444 \mathrm{~mm}(\mathrm{~W}) \times 528.3 \mathrm{~mm}(\mathrm{D}) \times 117 \mathrm{~mm}(\mathrm{H})$ <br> 17.5 inch $(\mathrm{W}) \times 20.8$ inch (D) $\times 4.6$ inch (H) |

## D. Operating environment

| Temperature | $10^{\circ}$ to $30^{\circ} \mathrm{C} / 50^{\circ}$ to $86^{\circ} \mathrm{F}$ (with a fluctuation of $10^{\circ} \mathrm{C} / \mathrm{h}\left(18^{\circ} \mathrm{F} / \mathrm{h}\right)$ ) |
| :--- | :--- |
| Humidity | $15 \%$ to $85 \%$ (with a fluctuation of $20 \% / \mathrm{h}$ ) |

## NOTE

These specifications are subject to change without notice.

Blank Page

## MAINTENANCE

## 2. PERIODICAL MAINTENANCE PROCEDURE

### 2.1 Feed section

2.1.1 Replacing the tray3 feed roller
A. Periodically replaced parts/cycle

- Tray3 feed roller: Every 300,000 counts
B. Procedure

1. Slide out tray3.

2. Lock the media lifting metal plate [1].
3. Remove two C-rings [2] and the bearing [3] at the front, and remove the tray3 feed roller [4].

## 3. OTHER MAINTENANCE ITEM

### 3.1 Items not allowed to be disassembled and adjusted

A. Paint-locked screws

## NOTE

- 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

## NOTE

- 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.
E. Precautions for disassembly
- When accessing a hard-to-view or narrow spot, be careful about sharp edges and burrs of the frame and parts.
They may injure your hands or fingers.
- If it is absolutely necessary to service the machine with the door open or external covers removed, always be attentive to the motion of the internal parts.
A normally protected part may cause unexpected hazards.
- When removing a part that secures a motor, gear, or other moving part, disassembling a unit, or reinstalling any of such parts and units, be careful about moving parts and use care not to drop any part or unit. During the service procedure, give sufficient support for any heavy unit.
You may be injured by a falling part or unit.
F. Precautions during setup or transportation
- Whenever mounting an option on the machine, be attentive to the motion of the fellow worker of the joint work.
The fellow worker may be injured with his or her finger or hand pinched between the machine and the option.
- When mounting an option on the machine, be careful about the clearance between the machine and the option.
You may be injured with your finger or hand pinched between the machine and the option.
- Do not leave the machine unattended during transportation, installation, and inspection of the machine. If it is to be unavoidably left unattended, face protrusions toward the wall or take other necessary risk reducing action. The user may stumble over a protrusion of the machine or be caught by a cable, falling to the floor or being injured.


### 3.2 Disassembly/reassembly parts list

| Section | Part name | Ref. page |
| :---: | :--- | :--- |
| Exterior parts | Rear cover | P. 6 |
|  | Rear right cover | P. 7 |
| Unit | Lower feeder unit | P. 7 |
| Board and etc | PC control board (PCCB) | P. 8 |
|  | Media feed motor (M1) | P.8 |
|  | Media feed clutch (CL1) | P. 9 |
|  | Conveyance clutch (CL2) | P. 11 |

### 3.3 Cleaning parts list

| Section | Part name | Ref. page |
| :---: | :--- | :--- |
| Rollers | Tray3 feed roller | P.13 |
|  | Conveyance roller | P.13 |

### 3.4 Disassembly/reassembly procedure

### 3.4.1 Rear cover

1. Remove the lower feeder unit from the machine.

See P. 7

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

### 3.4.2 Rear right cover

1. Remove the lower feeder unit from the machine. See P. 7

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

### 3.4.3 Lower feeder unit

NOTE

- Whenever removing or reinstalling the Lower Feeder Unit, be sure first to unplug the power cord of the printer from the power outlet.


1. Open the right door [1].
2. Lift the printer main body and then remove the Lower Feeder Unit [2] from the printer.

### 3.4.4 PC control board (PCCB)

1. Remove the lower feeder unit from the machine.

See P. 7
2. Remove the rear cover. See P. 6

3. Disconnect five connectors [1] from the PC control board.
4. Remove four screws [1], and remove the PC control board [2].

### 3.4.5 Media feed motor (M1)

1. Remove the rear cover.

See P. 6

2. Disconnect the connector [1].
3. Remove four screws [2], and remove the media feed motor [3].

### 3.4.6 Media feed clutch (CL1)

1. Remove the lower feeder unit from the machine.

## See P. 7

2. Remove the rear cover.

See P. 6
3. Remove the rear right cover.

See P. 7
4. Remove the media feed motor.

See P. 8
5. Open the right door.

6. Remove two screws [1], and remove the protect metal plate [2].
7. Remove the E-ring [1] and bushing [2].
8. Remove the harness from five edge covers [1].

9. Remove five screws [1], and remove the gear fixing metal plate [2].
10. Disconnect the connector [1], and remove the media feed clutch [2].

### 3.4.7 Conveyance clutch (CL2)

1. Remove the lower feeder unit from the machine.

## See P. 7

2. Remove the rear cover.

See P. 6
3. Remove the rear right cover.

See P. 7
4. Remove the media feed motor.

See P. 8
5. Open the right door.

6. Remove two screws [1], and remove the protect metal plate [2].
7. Remove the E-ring [1] and bushing [2].
8. Remove the harness from five edge covers [1].

9. Remove five screws [1], and remove the gear fixing metal plate [2].
10. Disconnect the connector [1].
11. Remove the C-ring [1] and the E-ring [2], and remove the conveyance clutch [3].

### 3.5 Cleaning point

NOTE

- The alcohol described in the cleaning procedure is isopropyl alcohol.


### 3.5.1 Tray3 media feed rollers

1. Slide out tray3.


### 3.5.2 Conveyance roller



1. Open the right door [1].
2. Wipe the conveyance roller [1] clean of dirt using a cleaning pad dampened with alcohol.

## 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 " ".


## Advance checks

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

- The power supply voltage meets the specifications.
- The power supply is properly grounded.
- 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).
- The installation site is environmentally appropriate: high temperature, high humidity, direct sunlight, ventilation, etc.; levelness of the installation site.
- The original has a problem that may cause a defective image.
- The density is properly selected.
- The original glass, slit glass, or related part is dirty.
- Correct paper is being used for printing.
- 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.
- Toner is not running out.


## CAUTION

- To unplug the power cord of the machine before starting the service job procedures.
- 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.
- Special care should be used when handling the fuser unit which can be extremely hot.
- The developing unit has a strong magnetic field. Keep watches and measuring instruments away from it.
- Take care not to damage the PC drum with a tool or similar device.
- Do not touch IC pins with bare hands.


## 5. MECHANICAL ADJUSTMENT

### 5.1 Registration adjustment

This adjustment must be made if:

- The printed image deviates in the main scan direction, and the following setting does not resolve a problem.
[SERVICE MODE] $\rightarrow$ [ADJUST] $\rightarrow$ [LEFT ADJUST]

1. Remove the tray. See P. 7

2. Loosen two screws [1].
3. Loosen two screws [1].
4. Watching the graduations [2] on the adjusting plate, move the edge guide plate [3] as necessary.
Adjustment range: $\pm \mathbf{2 . 0} \mathbf{~ m m}$
5. Tighten the four screws that have been loosened and mount the tray.

IKONICA MINOLTA
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Use of this manual should be strictly supervised to

