RC-210 SERVICE MANUAL

(Machine Code: G549)

TABLE OF CONTENTS

1. OVERALL MACHINE INFORMATION

1.1 BASIC SPECIFICATIONS

	RC-200	RC-210
Page Description Language:	IPDL-C (Intelligent Page Description Language for Color) RPS2 (RICOH-SCRIPT2)	
Printer Driver:	• IPDL-C: Windows 95/98/NT 4.0 • RPS2: Windows 95/98//NT 4.0, Macintosh (PPD for LaserWriter 8)	• IPDL-C: Windows 95/98/2000 NT 4.0 • RPS2: Windows 95/98/2000/NT 4.0, Macintosh (PPD for LaserWriter 8)
Resolution:	600 x 600 dpi	600 x 600 dpi Enhanced 4800 x 600 dpi with smoothing
Color Mode:	Color (2C or less/3C or more), B&W	
Gradation Mode:	2/4/16 gradation levels (1/2/4 bits/pixel) Default setting: 4 gradation levels	
Toner Saving:	On/Off (printer driver setting) Default Setting : Disabled	
Color Correction:	On/Off (printer driver setting) Default setting: Enabled	
Paper Size:	See next page	
Print Speed:	• Color: 4 ppm (A4 sideways) • B&W: 14 ppm (A258 model) 18 ppm (A259/A260 models)	• Color: 6 ppm (A4 sideways) • B&W: 25 ppm (B018 model) 31 ppm (B017 model)
Interface:	• Parallel port (IEEE1284B: Compatible / Nibble / ECP supported) • 100 BASE-TX, 10 BASE-T	
Fonts:	Ricoh-Script 2: 39 Roman fonts	
CPU:	R4310 176MHz	R5261 200MHz
RAM:	96MB (Standard and maximum)	64MB (Standard) - with optional memory - 128MB (additional 64MB) 192MB (additional 128MB)
ROM:	2MB Flash ROM	
Scanner Function:	Not supported	
Option:	None	• Controller Interface Type H • Memory Unit Type B (64 MB) • Memory Unit Type B (128 MB)

1.2 OTHER SPECIFICATIONS

	RC-200	RC-210
LAN Interface:	100 BASE-TX, 10 BASE-T	
Frame Type:	Ethernet II, IEEE802.2, IEEE802.3, SNAP	
Network Protocol:	TCP/IP, IPX/SPX, NetBEUI, AppleTalk (with RPS2)	
SNAP:	MIB-II, Printer MIB, Host Resource MIB, Ricoh Private MIB	

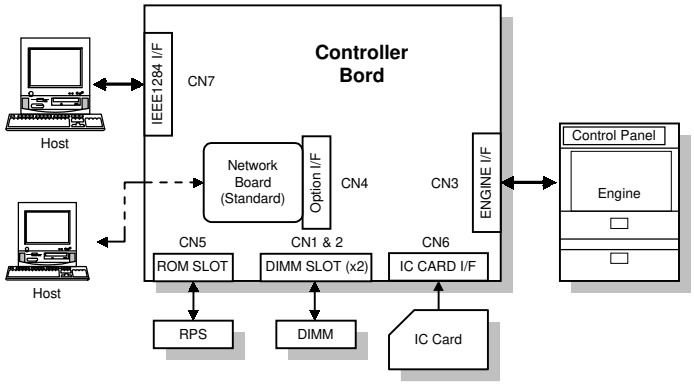
1.3 PAPER SIZE

The same as the base model (RC-200).

2. DETAILED DESCRIPTIONS

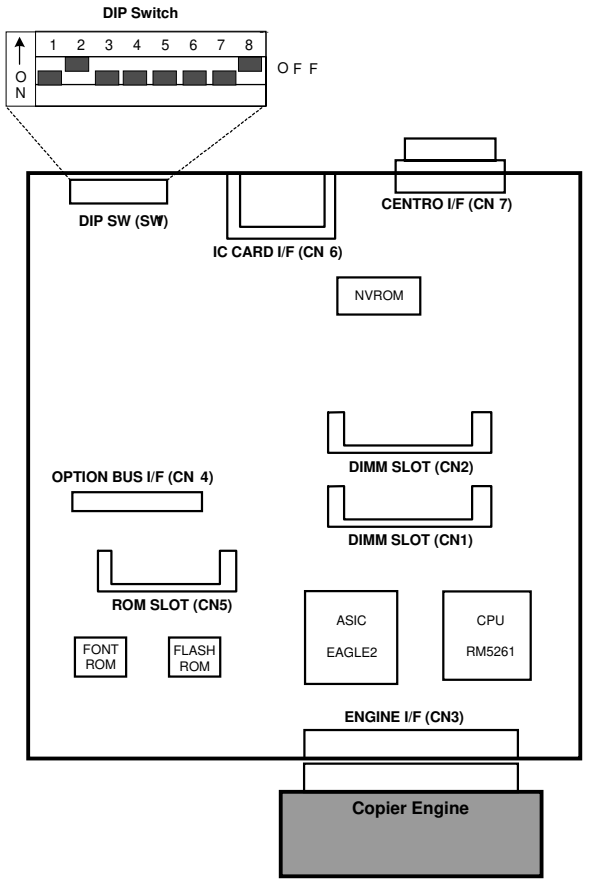
2.1 FUNCTIONAL OVERVIEW

2.1.1 SYSTEM LAYOUT



G549D501.WMF

2.1.2 CONTROLLER BOARD LAYOUT



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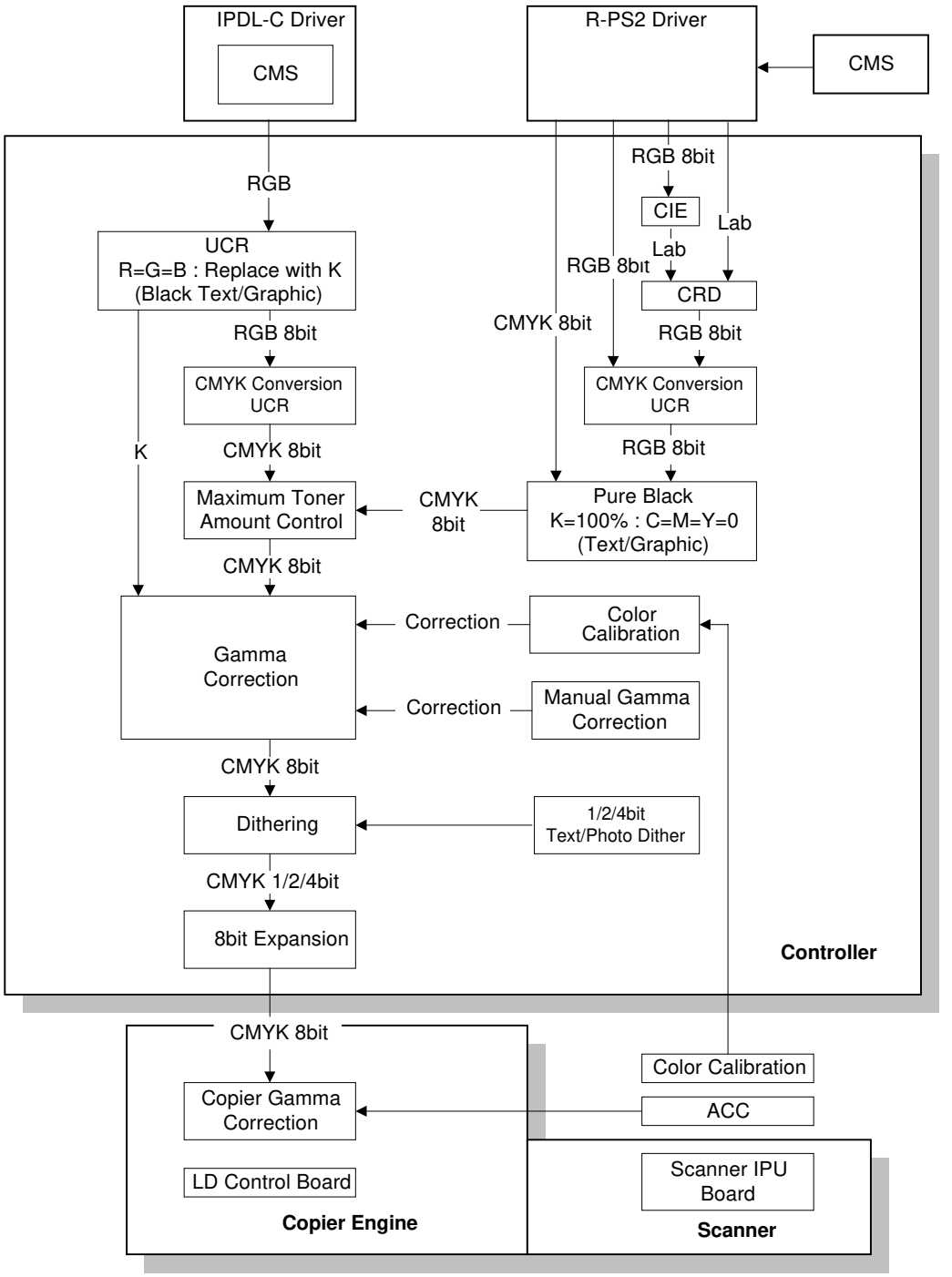
2.1.3 DEVICE FUNCTIONS

<table>
<tr><th>Device</th><th>Function</th></tr>
<tr><td>CPU</td><td>VR5261-200 (200MHz)</td></tr>
<tr><td>ASIC EAGLE 2</td><td>This ASIC controls the following:
• Memory mapping
• Rest
• DRAM
• Data received from the parallel
• Timer
• Parallel interface
• I/O Port
• Image data compression & decompression
• Engine interface serial communications control
• Interrupt
• Data through function
• Toner saving control</td></tr>
<tr><td>FLASH ROM</td><td>Stores program (2MB) The flash ROM is programmable via an IC card.</td></tr>
<tr><td>NVRAM</td><td>Stores the initial settings and printer parameters.
(8KB EEPROM)</td></tr>
<tr><td>FONT ROM</td><td>Stores internal printer fonts (Japanese fonts not used).
(One 64-Mbit mask ROMs)</td></tr>
<tr><td>DRAM</td><td>64MB DIMM standard memory. (96MB total)</td></tr>
<tr><td>DIP SW</td><td>DIP Switch
 

G549D512.WMF
<table>
<tr><th>SW No.</th><th>Setting</th><th>Content</th></tr>
<tr><td>1</td><td>OFF</td><td rowspan="4">Do not touch these switches in the field.</td></tr>
<tr><td>2</td><td>ON</td></tr>
<tr><td>3 - 7</td><td>OFF</td></tr>
<tr><td>8</td><td>ON</td></tr>
</table></td></tr>
<tr><td>ENGINE I/F (CN3)</td><td>• Embedded CIVIC interface</td></tr>
<tr><td>PARALLEL I/F (CN7)</td><td>• Provides an interface that connects to a local host (IEEE1284 compliant).</td></tr>
<tr><td>OPTION I/F (CN4)</td><td>Network interface</td></tr>
<tr><td>ROM SLOT (CN5)</td><td>• A 72-pin slot for accommodating the Ricoh-Script 2 emulation module.
• The emulation module is programmable by flash ROM.</td></tr>
<tr><td>DIMM SLOT (CN1 & 2)</td><td>Slots for accommodating the memory. Standard size is 64MB. The memory size can be increased to 128MB or 192MB maximum (with additional 64MB or 128MB memory).</td></tr>
<tr><td>IC CARD SLOT (CN8)</td><td>Accommodates an IC card to upgrade firmware.</td></tr>
</table>

2.2 PRINT DATA PROCESSING

2.2.1 IMAGE DATA PROCESSING FLOW



G549D506.WMF

2.2.2 UCR (IPD-C)

If the R/G/B data is equal (R=G=B), 100% UCR is applied only in the Black Text/Graphic mode. Even if gray color is processed with RGB data, gray color will be duplicated only with black toner if the RGB data is completely equal. This function gives faster productivity. (This function was adopted on the base model, RC-200.)

2.2.3 PURE BLACK FUNCTION (R-PS2)

For this new function, if the K value is 100% as a result of UCR (CMYK conversion) in Text/Graphic mode, all CMY values becomes zero. This avoids colored text.

2.2.4 R-PS2 COLOR MANAGEMENT SYSTEM

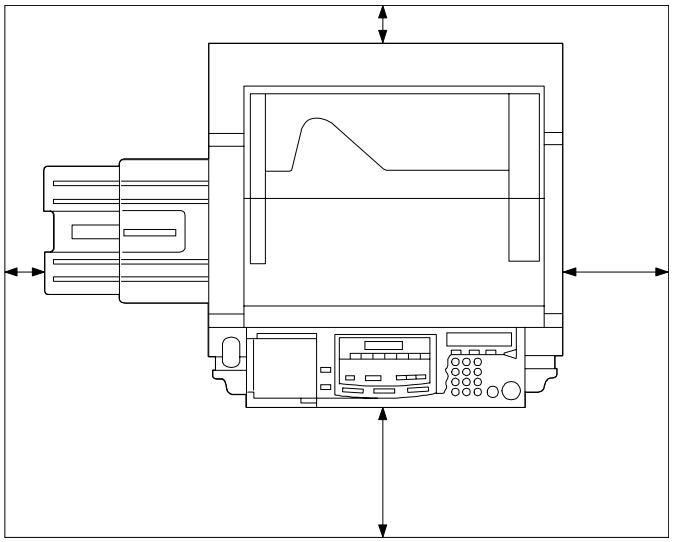
Depending on the color setting (Off / Vivid / Supper Vivid / **Fine** / Super Fine), image processing of color management differs as shown in diagram on the previous page. (This CMS is the same as the base mode, RC-200.)

Data Sent From Driver	Driver Color Setting	Image Processing In Controller
CMYK data	-	CMYK data passes through the CRD.
RGB	Off	RGB data passes through the CRD.
	Vivid, Supper Vivid	• RGB data is converted to CMYK with almost 100% UCR. • The difference between Vivid and Supper Vivid is the amount of CMY added to K to give depth to images.
	Fine, Supper Fine	• RGB data is converted to Lab data; then, the Lab color space is converted to a targeted color space by using an embedded CRD or CRD downloaded from an application. • The difference between Fine and Supper fine is the target color space.
Lab	-	• Lab data is converted to the targeted color space by using embedded CRD or CRD downloaded from application.

3. INSTALLATION PROCEDURE

3.1 MINIMUM SPACE REQUIREMENTS

Provide clearance for the copier, as shown below. If one or more options (such as the ADF or sorter stapler) are added to the copier, this clearance should be provided around the entire system. Please refer to the copier service manual for more details concerning space requirements for this copier.



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NOTE: A space of at least 10 cm (3.9") at the rear of the machine is important for machine ventilation.

3.2 CONTROLLER INSTALATION

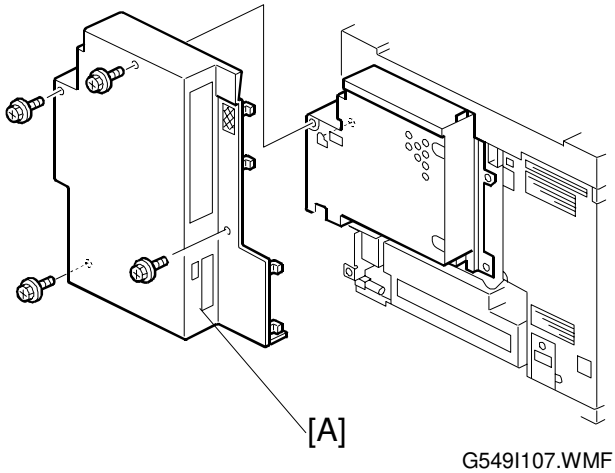
3.2.1 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box with the following list:

Description	Quantity
1. Controller	1
2. LCD Panel	1
3. CD ROM	1
4. Operating Instructions (G549-17) English	1
5. Operating Instructions (G549-27) English, German, French, Italian, Dutch	1
6. Installation Procedure (G549-17 only)	1
7. Screw M3x6	2
8. Screw M4x8	4

3.2.2 INSTALLATION PROCEDURE

NOTE: To install this option, the I/F kit (B381) is required.
The maximum output voltage from the controller is DC 5V.



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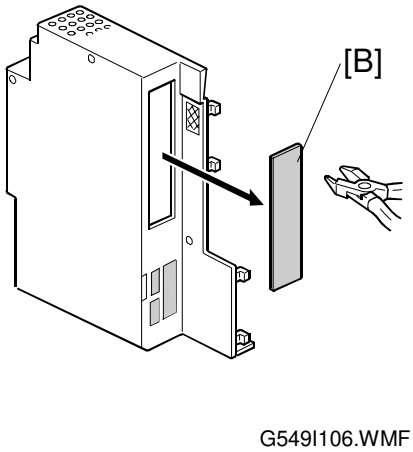

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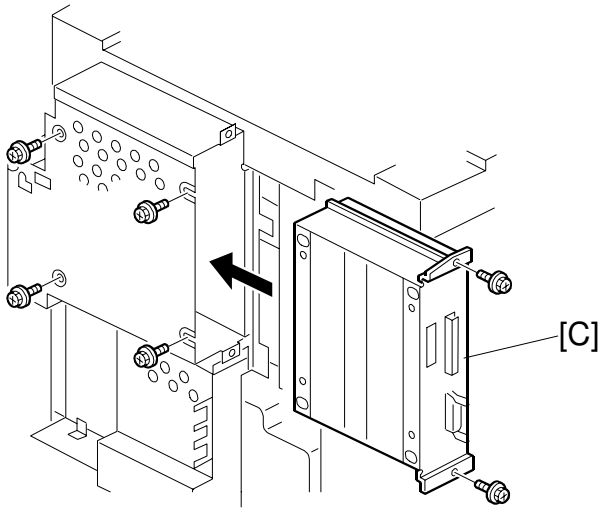

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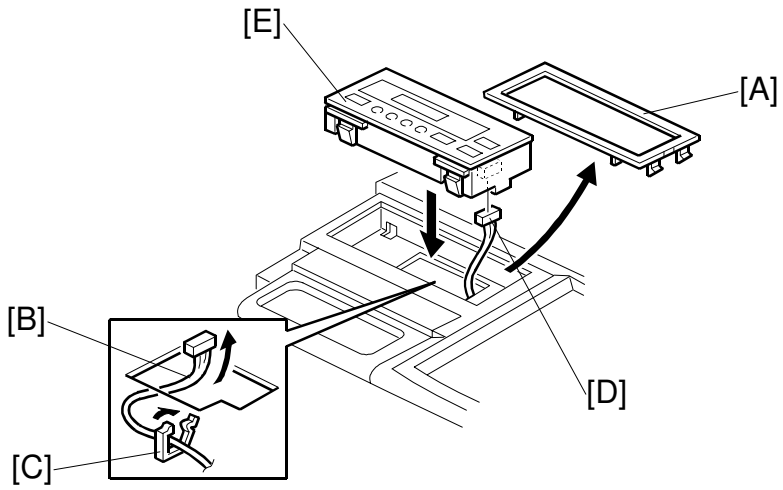
⚠CAUTION
Unplug the copier power cord before starting the following procedure.

1. Remove the I/F cover [A] (4 screws).
2. Cut off and remove the cap [B].
3. Slide the controller unit [C] into the I/F unit and secure the controller (6 screws).
4. Reinstall the I/F cover.



5. Remove the LCD cover [A].
6. Pull the LCD harness [B] out (1 clamp [C]).
7. Connect the connector [D] to the LCD panel and install the panel [E] in the operation panel.

3.2.3 INITIAL SETTING

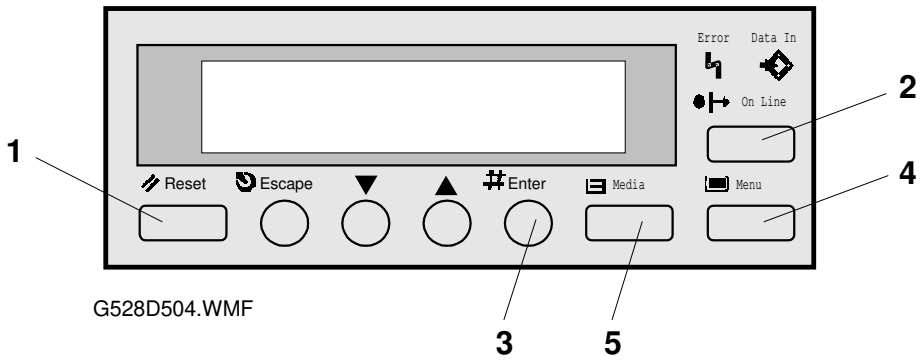
1. After the controller installation is completed, check if the printer function works properly by printing out the configuration page.
2. Perform ACC for printer mode on the copier.
3. Perform Color Calibration on the controller.

NOTE: When performing Color Calibration for the controller, first execute ACC for printer mode on the copier.

4. SERVICE TABLES

4.1 SERVICE PROGRAM (SP) MODES

4.1.1 HOW TO ENTER SP MODE



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First press the Reset, On Line, (the screen will display "Offline"), and then press the Enter key as shown.

When accessing SP mode, the SP mode menu is added to the “Job Timeout”, “Maintenance” and “Media” menu. To exit the controller from SP mode, follow the procedure for entering SP mode or turn the main switch off and on. (This returns the controller to normal mode.)

NOTE: When accessing SP mode, “SP” is displayed on the screen. Do not forget to exit SP mode after servicing, because users may change the settings or clear all the settings by accident.

4.1.2 SP MODE FUNCTIONS

Job Timeout Menu

The following menu is added to the Maintenance section.

Menu	Function
3. MinLineWidth [Minimum Line Width]	Prints lines with the dot (1 to 4 dots) selected. When a thin line is not clearly visible on output, this mode can change the thickness of the line. **NOTE:** • If the application does not support line command, this mode does not function. • If this mode is activated, this affects all kinds of line data and causes a side effect. Therefore, normally this mode should be off.

Maintenance Menu

The following menu is added to the Maintenance section. The part highlighted in gray is newly added for RC-210.

Menu	Function
S1. ColorChart [Color Chart]	Prints the color test chart stored in the controller. The dither mode can be selected by pressing the Media key. These color test charts are used for checking the image quality. Dither Modes: 1, 2 and 4 bit Photo and Text. • The color test chart can be printed on any supported paper size. • The pattern layout (size) differs depending on the selected paper size.
S2. ClearAllMem. [Clear All Memory]	Resets all parameters stored in the NVRAM and network board to their default values. The Menu Rest in the User menu only resets all the settings and data for the User menu. **NOTE:** When clearing the memory, if you do not want to clear the network settings, execute the Clear All Memory after removing the network board.
S3. Gamma.Calib. [Gamma Calibration]	Adjusts the gamma for highlight, middle, shadow, and ID max of CMYK independently. **NOTE:** When an image quality problem concerning the color balance or gradation occurs, check or perform maintenance on the copier first. Then, adjust the printer gamma when users require fine-tuning.
S4. Toner Level	Independently adjusts the ID level for CMYK.
S5. Printer ID	The printer ID is required to download fonts for RPS2 onto the HDD. However, this controller does not have an HDD. Therefore, the printer ID is not used.
S6. Toner Limiter	Sets the maximum toner amount for image development.

Media Menu

The following menu was added to the Media section.

Menu	Function
3. Summary	Displays the firmware version and memory size on the screen.

4.1.3 SP MODE TABLE

When accessing SP mode, the SP mode menus are added to the User menus. The menus consist of some steps depending on the menu. The following table shows the steps to access a menu and the selectable mode or data.

NOTE: 1) The bolded value or mode is the default setting.
2) Refer to the Operating Instructions for the detailed function of each User menu.
3) The bolded and Italic menus in step 2 are only accessible in SP mode.
4) The menus highlighted in gray are new or the menu specifications were changed from the base model (RC-200).

1. Menu Key

1st step	2nd step	3rd step
IPDL-C	1. Job Timeout	**000 (Off)** to 999 seconds
	2. I/O Timeout	000 (Off) to 999 seconds **300Sec**
	3. MinLineWidth	**1** to 4 Dots
	4. Toner Usage	**Off** / On
RPS2	1. Color Level	1 / 2 / 4 bit
	2. Color Mode	**Color** or B&W
	3. Color Set	Off / **Vivid** / Super Vivid / Fine / Super Fine
	4. Color Profile	Photograph / **Presentation** / Solid Color
	5. Smoothing	Off / **Auto**
	6. Toner Saving	**Off** / On
	7. Dithering	**Auto** / Photographic / Text
	8. Paper Type	**Plain Paper** / OHP / Thick Paper
	9. Auto Tray SW	**On** / Off
	A. Auto Duplex	**Off** / On
	B. Duplex Bind	**Short edge** / Long edge
	C. Collate / Stack	**Off** / Sort / Stack
	D. Face UP / Down	**Face Down** / Face Up
	E. Job Timeout	**000 (Off)** to 999 seconds
	F. I/O Timeout	000 (Off) to 999 seconds **300Sec**
	G. Feed Timeout	000 (Off) to 999 seconds **60Sec**
	H. Printer Error	**Off** / On
	I Ktalk Mode	Not effective
	J. Parallel IF1	**System Default** / ACK inside / ACK Outside
System System	1. Paper Tray	**Tray 1** / Tray 2 / Tray 3 / Tray 4 / Bypass
	2. I/O Buffer	16KB / 32KB / 64KB / **128KB** / 256KB / 512KB
	3. Transfer	**Hi-speed** / Normal
	4. PDL Sensing	**Auto** / Manual
	5. Image Memory	**Off** / On
	6. Parallel	ACK Inside / **ACK Outside** / STB Down
	7. Bi-direction	**Original Mode** / Standard
	8. OHP Slip	**On** / Off

1st step	2nd step	3rd step
System System	9. Printer Lang. [Printer Language]	**IPDL-C** / RPS
	10. Language	**English** / French / German / Italian / Dutch / Spanish / Japanese
	32. IP Address	**011.022.033.044**
	33. Subnet Mask	**000.000.000.000**
	34. Gateway Add [Gateway Address]	**000.000.000.000**
	35. Access CTL [Access Control]	**000.000.000.000**
	36. Access Mask	**000.000.000.000**
	37. Net Boot [Network Boot]	ARP+PING / ARP&RARP / ARP&BOOTP / ARP&RARP&BOOTP / **None** / RARP+TFTP / BOOTP / RARP&BOOTP / DHCP
	38. Frame NW [Frame Type NW]	**Auto Select** / Ethernet 802.3 / Ethernet 802.2 / Ethernet 2 / Ethernet SNAP
	39. Active PTL	**All Active** / None / TCP/IP Only / NetWare Only / TCP&NetWare / EtherTalk Only / TCP&EtherTalk / NetW&EtherTalk TCP&NW&EtherTK / NetBEUI Only / TCP&NetBEUI / NetW&NetBeui / TCP&NW&NB / ETalk&NetBeui / TCP&ETK&NB / NW&ETK&NB
Maintenance	1. Color Calib. [Color Calibration]	See the following table for details.
	2. Menu Reset	“Press # key”
	3. Menu Protect	**Off** / On (See **NOTE**.)
	4. Log Protect	**Off** / On (See **NOTE**.)
	5. Log Clear	“Press # key”
	6. Ethernet	**Auto** / 10Mbps / 100Mbps (See **NOTE**.)
	S1. ColorChart [Color Chart]	“Press # key”
	S2. ClearAllMem. [Clear All Memory]	“Press # key”
	S3. Gamma.Calib. [Gamma Calibration]	See the following table for details.
	S4. Toner Level	Cyan / Magenta / Yellow / Black
	S5. Printer ID	Not used
	S6. Toner Limiter	See the following table for details.
Print List	1. Config. Page	“Press # key”
	2. Job Log	“Press # key”
	3. Statistics	“Press # key”
Select PDL	IPDL-C	
	Option#1 RPS2	

NOTE: The menus, Menu Protect, Log Protect, and Ethernet are not displayed by pressing the **[Menu]** key. To access these menus, press the [Enter], [Escape], and [Menu] keys in sequence when the printer is on-line. This procedure was added for system/network administrators in order to avoid changing the settings by accident.

2. Media key

1st step	2nd step
1. Paper Tray	**Tray1** / Tray2 / Tray3 / Tray4 / Byps
2. By-pass Size	A3 (L) / B4(L) / A4(S) / A4(L) / B5 (S) / B5 (L) / A5(S) / A5 (L) / B6 (L) / A6(L) / 11x17(L) / 8.5x14(L) / 8.5x13(L) / 11x8.5(S) / 8.5x11 (L) / 8.5x5.5(S) / 5.5x8.5(L) / 8x13(L) / 8.25x13 (L)
3. Summary	RC-210 / RWC / RPS / EtherNET / Total Memory

3. Gamma Calibration & Toner Limiter & Toner Level

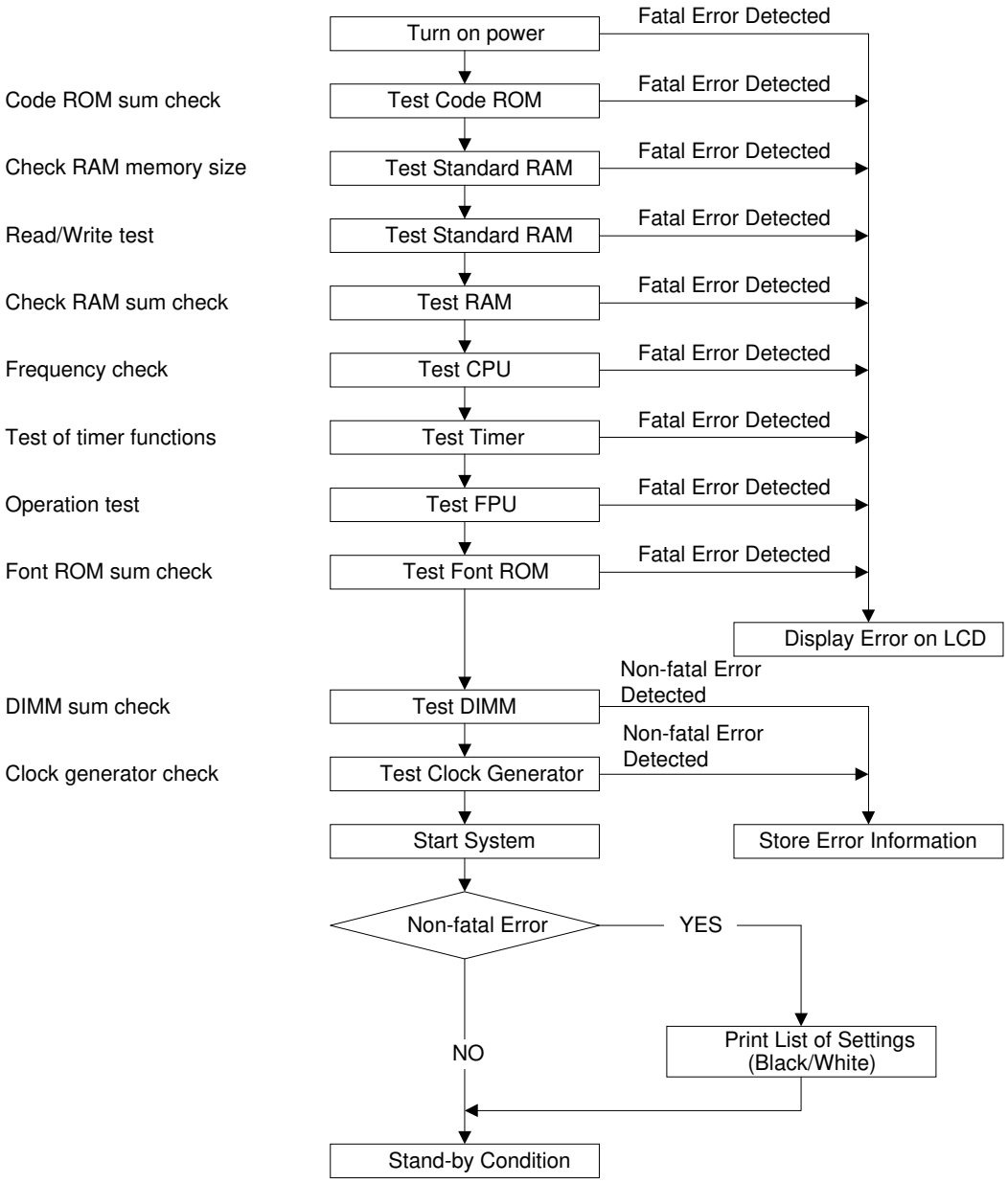
2nd step	3rd step	4th step	5th step	6th step
S3. Gamma Calib.	1. 2 bit 2. 4 bit 3. 1 bit	1. Test Pattern	"Press # key".	See **NOTE.**
		2. Correction	1 to 32 • Photo / K, C, M, Y / H, M, S, IDmax • Letter / K, C, M, Y / H, M, S, IDmax	0 to 30 **(15)**
		3. Restore	"Press # key"	
S4. Toner Level NOTE.	Cyan	- <-----+-----> +		
	Magenta			
	Yellow			
	Black			
S5. Toner Limiter	Text	Data: 100 to 400 (%) **(260)**		
	Photo	Data: 100 to 400 (%) **(260)**		

NOTE: For dither processing, 8-bit CMYK data is compressed to 1, 2, or 4 bits. The controller expands the data into 8 bits again for data processing of the engine. Changing the toner level setting in SP mode increases or decreases the data level in the 8-bit expansion process. This SP mode can adjust the ID level for output.

4. Color Calibration

2nd step	3rd step	4th step	5th step	6th step
1. Color Calib.	1. 2bit 2. 4 bit 3. 1 bit	1. Test Pattern	"Press # key"	
		2. Calibrate	"Set Pattern on Glass, Press #"	"Complete"
				"Error Press # to Retry"
		3. Restore	"Press # key"	

4.2 POWER-UP SELD-DAIGNOSTICS



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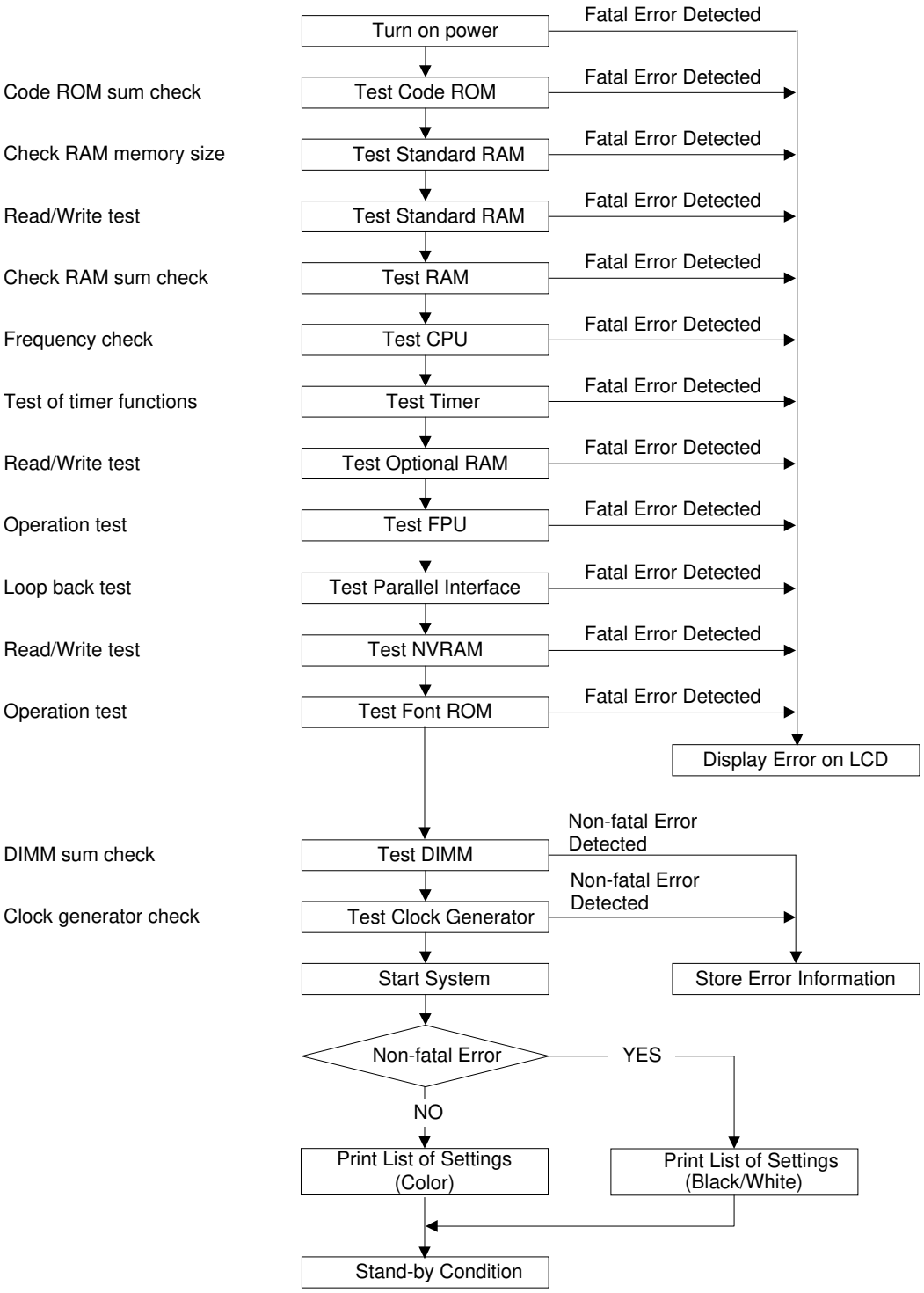
4.3 DETAILED SELF-DIAGNOSTICS



G549D712.WMF

Service Tables

5. REPLACEMENT AND ADJUSTMENT

5.1 GAMMA CORRECTION

Same as the base model (RC-200).

5.2 SOFTWARE UPGRADE PROCEDURE

The controller, Ricoh-Script 2, and network interface boards have a flash ROM for storing control software. This allows version upgrades using an IC card.

The engine firmware cannot be upgraded in this way. See the engine service manual for details on how to change this board.

NOTE: Before starting an upgrade procedure, make sure that the software in the IC card is newer than the software in the controller, Ricoh-Script 2, or network interface board.
To check, do one of the following:
- Print out a configuration page (user mode).
- Enter controller SP mode and execute “3. Summary” with the **[Media]** key. The software version is shown on the operation panel LCD.

Follow the procedure shown below to upgrade the software:

1. Turn off the machine, and then unplug all cables from parallel interface boards and network interface board, if connected.
2. Remove the handle of the controller (2 screws).
3. Install the IC card in the card slot.
4. Turn on the machine. The machine automatically copies the software from the IC card to the appropriate IC (controller, Ricoh-Script 2, or network interface board).

CAUTION: Do **NOT** turn off the machine while the software is being updated. Otherwise, the controller, NIB, or Ricoh-Script 2 module may be damaged.

For the controller or Ricoh-Script 2:

The LCD display on the operation panel changes as shown below as the rewrite procedure proceeds. ('MELT' is displayed during the software upgrade for Ricoh-Script 2 since it involves a decompression process.)

(MELT ->) ERASE -> WRITE -> VERIFY -> OK!!OK!!

The appearance of the message "OK!!OK!!" indicates that the controller has received the data from the IC card. However, note that it takes about 30 seconds to rewrite the data in the controller or Ricoh-Script 2 after this message is displayed.

The message NG!!NG!!" is displayed if an error occurs during the rewrite process. If this condition occurs, reinstall the IC card and turn the power off and on again.

For the network interface board:

The appearance of the message "DOWNLOAD OK." indicates that the controller has received the data from the IC card. However, note that it takes about 30 seconds to rewrite the data in the network interface board after this message is displayed.

DOWNLOAD -> ############ -> DOWNLOAD OK.

The message "DOWNLOAD NG." is displayed if an error occurs during the rewrite process. If this condition occurs, reinstall the IC card and turn the power off and on again.

1. When the rewrite ends, turn off the main switch, and remove the IC card.
2. Reinstall the handle of the controller.
3. Turn the power on again and print the configuration page.
4. Check the new software version and make sure that it matches the version on the IC card.

6. TROUBLESHOOTING

6.1 ERROR MESSAGE

6.1.1 OVERVIEW

The following types of status and error messages are shown in the table below. Each message type displays a different priority on the panel screen. When the controller detects different types of status or errors at the same time, it displays the message that has the higher priority. Then the Error indicator will light as shown in the table.

Type of message	Description	Error Indicator	Priority
Internal Error	Controller is out of control.	Light	HIGH
Self-diagnostics Error	Controller detects error during self-diagnostics.	Light	
Controller System Error	Controller cannot work due to a malfunction.	Light	
SC Code (Copier)	Copier cannot be used due to an SC code.	Light	
Warning Error (Copier)	Copier cannot be used due to status error. Controller stops ripping and cancel it depending on the time-out setting.	Light	
System Status	Displays the status message while the copier is warming up.	Not light	
Caution Status (Copier)	Copier can be still used	Light	
Controller Data Read Error	Controller detects that received data is wrong.	Not light	
Emulation Status	Displays the controller status, i.e. “Initializing”, “Waiting”, “Printing” so on.	Not light	LOW

6.1.2 DETAILED MESSAGES

1. Status Messages

Type	Message	Description	Location / Action
System Status	Warming Up	The copier is under the warm-up or process control self-check.	• Wait until the copier is in the ready condition.
	Please Wait	The controller under self-diagnostic mode.	• Wait until the controller is in the ready condition.
Emulation Status	Offline	Controller is offline status. The controller cannot accept or print data.	• Press the Online key to switch the status.
	Initializing	RPS-2 is initializing.	• Initialization of RPS-2 mode
	Ready	The controller is ready for printing job.	• The printer is in ready condition to print.
	Printing	Doing print job.	• Wait for a while. This message appears only in the RPS-2 mode.
	Processing	Print data is being processed.	• Wait for a while.
	Waiting	Controller is waiting for the next data to print.	• Wait for a while.
	Resetting	System is rebooted or print job is now being canceled.	• Wait for a while.
Caution Status	Load Paper	There is no paper in the by-pass table.	• Load the indicated paper in the by-pass table.
	Low on: xxx	Toner indicated (xxx) is almost empty (toner near end condition)	• Replenish indicated toner. • xxx is a color of toner or CMYK combination.
	Add Staples	The staples are almost empty.	• Replenish the staples.
Warning Status	Load YYY	There is no paper indicated (YYY) in the paper tray.	• Load the indicated paper in the paper tray.
	Add Toner xxx	Toner indicated (xxx) is empty (toner end condition).	• Replenish the indicated toner.
	Remove Paper From Duplex Tray	Paper is left in the duplex tray.	• Remove paper from the duplex unit.
	Remove Paper From Sorter	Paper is left in the sorter bins.	• Remove paper from the sorter bins.
	Reset Duplex Tray Correctly	The duplex tray is not installed correctly.	• Reinstall the duplex unit properly.
	Clear Misfeed(s)	Paper jam occurs in the copier.	• Remove the jammed paper according to the display on the copier.

Type	Message	Description	Location / Action
Warning Status	Close Door(s) / Cover(s)	Doors or covers are open.	• Close doors or covers.
	Power Off / On No: XXX	Internal error occurs.	• Turn the main switch off and on. Fix the problem if it still occurs.
	Add Fuser Oil	The oil tank is empty.	• Fix the problem.
	Waste Toner is Full	The used toner tank is full.	
	Call Service SC:99	SC code detected on the copier. Code number is fixed to "99" when the copier detects SC condition.	

2. Controller Error (System or Data Read Error)

Error codes highlighted in gray are newly added.

Type	Error Code	Description	Location / Action
System Error	A3: Error	Too much data for the I/O buffer to handle	• Check if the interface cable is inserted into the controller and your computer securely. • Check if the interface cable is damaged. • Increase the size of I/O buffer.
	A6: Error	Not enough memory to print one or more pages in the job	• Change the Color Level using the printer driver to set the image resolution to [Fast], or change the Color Level to [1 bit]. Turn on "Image Memory" using the printer's "System Menu".
	AB: Error	The controller is unable to process the data of job sent	• Reduce the amount of data being sent to the controller.
	B0: Error	Optional memory error	• Reinstall/replace optional memory.
	B1: Error	Error in the standard parallel interface	• Check the interface cable is inserted properly or damaged. • Check controller.
	B3: Error	Wrong printer setting	• Reset the controller using "Menu Reset"
	B4: Error	Error in the IC card slot	• Check the IC card or controller.
	B5: Error	Error in RPS2 module	• Reinsert or replace the RPS2 module.
	B7: Error	Error in the network interface board	• Reinsert or replace the network interface board.
	B9: Error	Error in clock generator	• Check or replace the controller board.
Data Read Error	85: Error	Error in standard memory	• Check or replace the controller board.
	86: Error	Wrong printer driver selected / Wrong interface cable used	• Check if the correct printer drive is used. • Check the setting on the driver.
	91: Error	Error in the standard memory	• Check or replace the controller board.
	94: Error	Error in the standard memory	• Check the total memory size setting on the driver.

3. Self-diagnostics error

When a controller self-diagnostic error occurs, the error code is displayed on the first line of the screen panel

The second line contains an 8-digit code that gives details of the error for designers to debug.

- For a memory error, the second line of the panel screen indicates the address in which the error occurred.
- For errors other than memory errors, the second line always reads “FFFFFFFF”.

Error codes highlighted in gray are newly added.

Error Code	Description	Location
00XX	Exception processing error	• Controller Board
01XX	Flash ROM sum check error	• Controller Board
0201	Standard memory read/write error	• Controller Board
0301/ 0401	Optional memory read/write error Non-fatal error (printed as B0 in the error log.)	• Controller Board
06XX	CPU exception self-diagnostics error	• Controller Board
0D0X	ASIC timer error	• Controller Board
0FXX	ASIC engine interface error	• Controller Board
110X	ASIC Centronics interface error Non-fatal error (printed as B1 in the error log.)	• Controller Board
1401	NVRAM error	• Controller Board
160X	Font ROM error	• Controller Board
1B0X	Optional Interface Error	• Controller Board
200X	Clock Generator Error	• Controller Board
250X	DIMM (emulation module) error Non-fatal error (printed as B5 in the error log): 2501 & 2507	• RPS2 module (DIMM) (See **NOTE**.) • Controller Board
400X	FPU error	• Controller Board

NOTE: If the DIMM is not properly set in the slot or is defective and if the controller detects it, the controller boots up in IPDL-C mode. In this case, the controller seems to be OK, however, print-jobs fail if customers use RPS2 for printing. It is necessary to check whether the DIMM is properly installed in the slot or defective.

4. INTERNAL ERRORS

When an internal error occurs, the message “Power Off / On” is displayed on the first line of the panel screen. The internal error code, “No. XXYY-ZZZZZZZZ) is displayed on the second line of the panel screen. (“XX” denotes a classification code, “YY” denotes a process number, and “ZZZZZZZZ” denotes the program address where the error occurred.)

The classification code portions “XX” and their description are as shown below. “YY” and “ZZZZZZZZ” portions are for designer use only (for debugging).

Code (Part of “XX”)	Description
00	Error in the TLB user area.
01	CPU TLB update exception
02	CPU mismatch exception (load or fetch)
03	CPU mismatch exception (store)
04	CPU address error exception (load or fetch)
05	CPU address error exception (store)
06	CPU bus error exception (load or fetch)
07	CPU bus error exception (store)
08	CPU system call exception
09	CPU break point exception
10	CPU reserved instruction exception
11	CPU coprocessor disabled exception
12	CPU operation overflow exception
13	CPU trap exception
14	Coherency (instruction) error
15	CPU floating-point operation exception
16	CPU timer interrupt
17	ROCKY level 4 interrupt (ART or Tim)
18	ROCKY level 3 interrupt (C)
19	ROCKY level 2 interrupt (XINT1 or XINT0)
20	ROCKY level 1 interrupt (CBE, DBE, Dtc0, EAGLE, EAGLEErr)
21	ROCKY level 0 interrupt (Debug)
22	Software interrupt
23	Software interrupt
24	Other CPU exceptions
25	Memory allocation error
26	Overflow error
27	Frame allocation error
28	Card eject error
29	Printer engine error
30	Option board error
31	Session-to-network interface board communication error

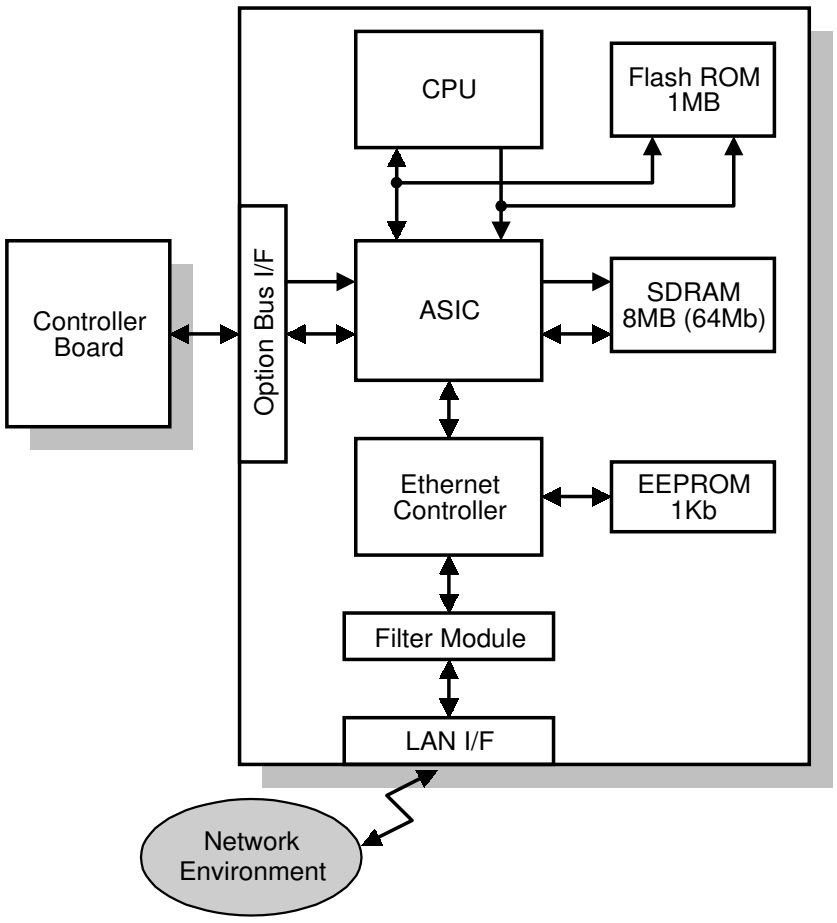
7. NETWORK INTERFACE BOARD (C4000 FERRET)

7.1 OVERVIEW

7.1.1 SPECIFICATIONS

Configuration:	Embedded
LAN Interface:	100BASE-TX/10BASE-T
Frame Type:	Ethernet II, IEEE802.3, IEEE802.2, SNAP
Protocol:	TCP/IP, AppleTalk, NetWare, NetBEUI
SNAP:	MIB-II, Printer MIB, Host Resource MIB, Ricoh Private MIB

7.1.2 BLOCK DIAGRAM

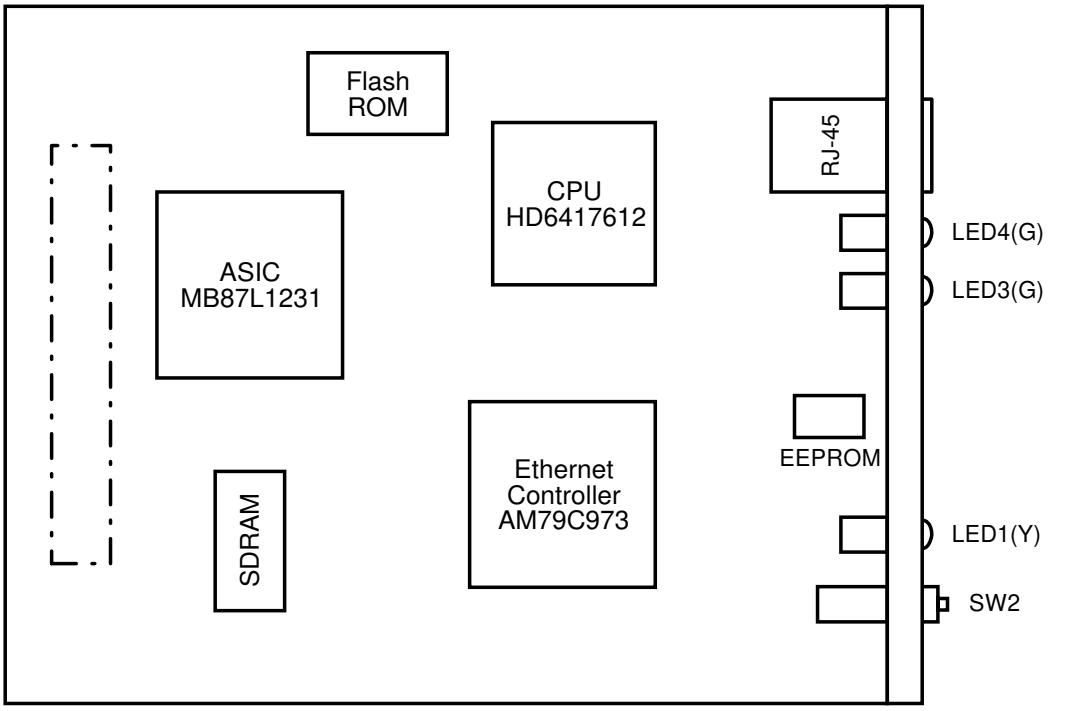


G549O501.WMF

Option

7.2 COMPONENT LAYOUT

7.2.1 NETWORK INTERFACE BOARD DIAGRAM



G549O500.WMF

7.2.2 DEVICES

Device	Description
CPU	HD6417612RF
ASIC	MB87L1231
Flash ROM	MBM29LV800BA-70PFTN (8 Mbit)
SDRAM	64Mbit: 100MHz
EEPROM	M93C46-WMN6 (1kbit)
Ethernet Controller	AM79C973KC/W

7.3 BASIC OPERATIONS

7.3.1 OVERVIEW

This network board can manage both 100BASE-TX and 10BASE-T. It has a maximum data transfer speed of 100Mbps.

The auto-negotiation function automatically switches the communication speed.

The controller board supplies the power source (+5V) and provides the reset signal. The controller board communicates with the network interface board through the option I/F connector.

The function of LED and SW is as follows;

	Functions
LED1	Displays the operating status. ON: Ready, OFF: Busy
LED2	Not used
LED3	Displays the LAN Type. ON: 100 BASE-TX, OFF: 10 BASE-T
LED4	Displays the link status. ON: Link safe, OFF: Link failure or Link disable
SW1	Resets the NVRAM on the network interface board. **NOTE:** This board has the hardware to execute a “Summary Printout”. However, it does not function on this printer due to the controller specifications.

7.3.2 SWITCH FUNCTION

SW1 resets the NVRAM on the network interface board.

NOTE: This board has the hardware to execute a "Summary Printout". However, it does not function on this printer due to controller specifications.

NVRAM Reset Procedure

This procedure resets all the network settings to the defaults.

- IP address, Subnet Mask, Default Gateway Address, Access Control Mask, Network Boot, Frame Type (NetWare), Active Protocol, and so on

1. Turn on the main switch while pressing SW1. Keep pressing SW1 for 15 seconds.
2. Release SW1 for 3 seconds, press it again for 3 seconds, and then release it.
   NOTE: There is a margin of less than 1 second for error. Use a watch to measure the time periods as accurately as possible.
3. Turn the main switch off/on to complete the NVRAM reset procedure.
4. Print out the configuration page, and then check the settings. If the procedure failed, the previous settings remain. Repeat the above procedure until the old settings have been cleared.