Model K-P2 Series

(Machine Code: G073/G074)

SERVICE MANUAL

December 28th, 2001
Subject to change

⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the printer power cord is unplugged.

2. The wall outlet should be near the printer and easily accessible.

3. Note that some components of the printer and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.

4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.

5. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

The printer and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.

2. Dispose of used toner, developer, and organic photoconductors in accordance with local regulations. (These are non-toxic supplies.)

3. Dispose of replaced parts in accordance with local regulations.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

⚠**WARNING**

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

⚠**WARNING**

WARNING: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.
CAUTION MARKING:

CAUTION
VORSICHT

INVISIBLE LASER RADIATION WHEN OPEN.
AVOID EXPOSURE TO BEAM.
UNSICHTBARE LASERSTRAHLUNG
WENN ABDECKUNG GEÖFFNET.
NICHT DEM STRAHL AUSSETZEN.

>PS<

G058R500.WMF

TABLE OF CONTENTS

SPECIFICATIONS

1. INSTALLATION

Please refer to the base model (K-P1) service manual for information on installation requirements.

Please refer to the Setup Guide for machine installation procedures.

1.1 OPTIONAL UNIT INSTALLATION

The following options are available for this machine. Refer to the Setup Guide for how to install these options.

- Paper Tray Unit
- 4-bin Mailbox
- 1-bin Shift Tray
- Duplex Unit
- Envelope Feeder
- NIB (G074 only) - the NIB is a standard component for the G073
- Hard disk
- IEEE1394
- 64-MB DIMM
- Wireless LAN (New option for this model)

2.   PREVENTIVE MAINTENANCE

2.1   USER/SERVICE MAINTENANCE

All PM items are the same as the base model (K-P1). Please refer to the base model (K-P1) service manual for user/service maintenance.

Preventive Maintenance

3. REPLACEMENT AND ADJUSTMENT

All replacement and adjustment items are the same as the base model (K-P1), except for the item explained below. Please refer to the base model (K-P1) service manual for details about replacement and adjustment.

3.1 DIFFERENCES FROM THE MODEL K-P1

The following item has been changed from the model K-P1.

Please note that the position of the thermistor attached to the laser unit has been changed.

NOTE: The thermistor is included in the laser unit.

Replacement Adjustment

Removing the Laser Unit

Refer to the model K-P1 manual for removal steps for the following items.

Operation panel (☛ 3.2 Exterior Covers)

Upper cover (☛ 3.2 Exterior Covers)

Left cover (☛ 3.2 Exterior Covers)

[A]: **230V machine only:** Sheet (𝄃 x1)
[B]: Thermistor (▱ x1)
[C]: Clip
[D]: Laser unit (𝄃 x4, 1 flat cable, ▱ x2)

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3-1
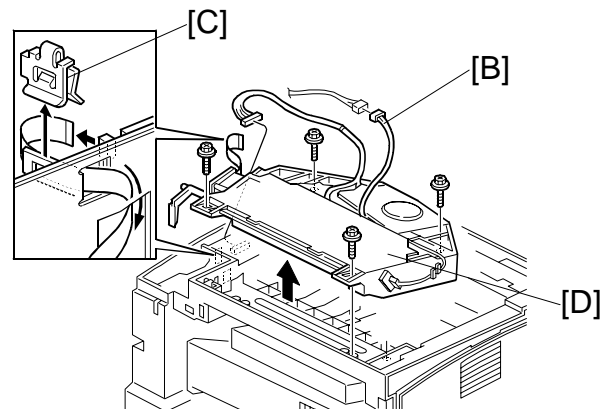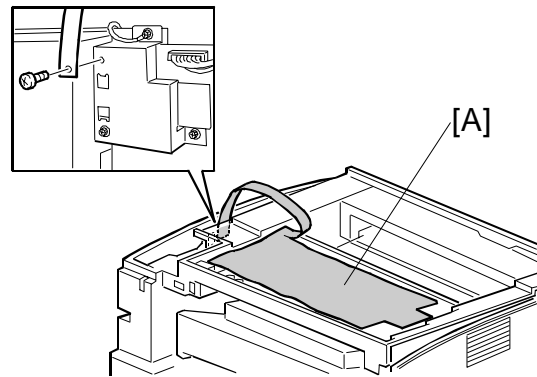
4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SUMMARY

There are two levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent the machine from being damaged, the SC can only be reset by a service representative (see the note below). The copier cannot be operated at all.	**Enter engine service mode (Fusing Error Clear) and press "Enter."**
B	The SC can be reset by turning the main power switch off and on.	Turn the main power switch off and on.

The new SC codes are shaded.

**Trouble-
shooting**

4.1.2 CONTROLLER SC CODE DESCRIPTIONS

The following table describes the controller error codes. These codes are displayed at power-on, or after the power-on self diagnostic test, if an error occurs.

Important: Always try turning the main switch off and on and check if the problem persists.

SC	Level	Symptom	Possible Cause/Required Action
640	B	Controller to engine communication error.	
		Checksum error detected between the controller and the engine board.	• Defective controller • Defective engine board 1. Check the connection between the controller and the engine board. 2. Replace the engine board if the error is frequent. 3. Replace the controller board if the error is frequent.
641	B	Controller to engine communication error.	
		The controller receives no response from the engine board.	• Defective controller • Defective engine board 1. Check the connection between the controller and the engine board. 2. Replace the engine board if the error is frequent. 3. Replace the controller board if the error is frequent.
670	B	Engine start-up error	
		The ready signal from the engine board is not detected.	• Defective engine board. Replace the engine board.
671	B	Engine board mismatch error	
		Engine board and controller mismatch detected.	• Wrong engine board installed. • Wrong controller board installed. Check the type of engine board and controller board.
800	B	Video data error	
			• Defective controller • Defective engine board 1. Check the connection between the controller and the engine board. 2. Replace the engine board if the error is frequent.
818	B	System timeout error	
		System program timeout error detected.	• Defective controller Replace the controller if it occurs frequently.
819	B	Kernel stop error	
		Unexpected CPU error by the ASIC/ RAM full detected.	• Defective controller Replace the controller if it occurs frequently.

SC	Level	Symptom	Possible Cause/Required Action
820	B	Self-diagnostic error - CPU	
		CPU error detected during self-diagnostic.	• Defective controller Replace the controller if the error is frequent.
821	B	Self-diagnostic error - ASIC/CPU	
		ASIC and CPU timer error detected during self-diagnostic.	• Defective controller 1. Replace the controller if the error is frequent.
822	B	Self-diagnostic error - HDD	
		HDD timeout error detected during self-diagnostic.	• Poor HDD connection • Defective HDD 1. Check the HDD connection. 2. Replace the HDD.
823	B	Self-diagnostic error - NIB	
		NIB error detected during self-diagnostic.	G073 model: Defective controller Replace the controller. G074 model: • Poor NIB connection • Defective NIB or controller 1. Check the connection between the NIB and the controller. 2. Replace the NIB.
824	B	Self-diagnostic error - NVRAM	
		NVRAM error detected during self-diagnostic.	• Poor NVRAM connection 1. Check if the NVRAM is properly installed. 2. Replace the NVRAM
827	B	Self-diagnostic error - standard SDRAM	
		Standard SDRAM (memory) error detected during self-diagnostic.	• Defective controller Replace the controller if the error is frequent.
828	B	Self-diagnostic error - Flash ROM	
		Flash ROM error detected during self-diagnostic.	• Defective controller Replace the controller if the error is frequent.
829	B	Self-diagnostic error - Optional RAM	
		Memory RAM error detected during self-diagnostic.	• Poor connection of the optional memory • Defective memory RAM 1. Check the connection of the optional memory. 2. Replace the memory DIMM.
835	B	Self-diagnostic error - Parallel interface	
		Parallel interface error detected during self-diagnostic.	• Defective controller Replace the controller.
836	B	Self-diagnostic error - Font ROM	
		Not used for this model.	
837	B	Self-diagnostic error - Optional font ROM	
		Not used for this model.	

Trouble-shooting

SC	Level	Symptom	Possible Cause/Required Action
838	B	Self-diagnostic error - Clock generator	
		Controller clock generator error detected during self-diagnostic.	• Defective controller Replace the controller.
850	B	NIB interface error	
		NIB interface error detected.	• Defective controller Replace the controller.
851	B	IEEE1394 interface error	
		IEEE1394 interface error detected.	• Defective controller Replace the controller.
853	B	IEEE802.11b error - card not detected (power-on)	
		Wireless LAN card not detected at power-on.	• Poor connection • Defective wireless LAN card • Defective controller 1. Check the wireless LAN card connection. 2. Replace the wireless LAN card.
854	B	IEEE802.11b error - card not detected (during operation)	
		Wireless LAN card not detected during operation.	• Poor connection • Defective wireless LAN card • Defective controller 1. Check the wireless LAN card connection. 2. Replace the wireless LAN card.
855	B	IEEE802.11b error	
		Wireless LAN card error detected.	• Poor connection • Defective wireless LAN card • Defective controller 1. Check the wireless LAN card connection. 2. Replace the wireless LAN card.
856	B	IEEE802.11b interface board error	
		Wireless LAN interface board error detected.	• Poor connection • Defective wireless LAN interface board 1. Check the wireless LAN interface board connection. 2. Replace the interface board.
857	B	USB I/F Error	
		USB interface error detected.	• Defective controller 1. Check the USB connections, make sure that they are securely connected. 2. Replace the controller board.
860	B	HDD start-up error	
		HDD initialization error detected.	• Defective HDD 1. Check the HDD connection. 2. Reformat the HDD. 3. Replace the HDD.

SC	Level	Symptom	Possible Cause/Required Action
863	B	HDD data unable to read	
		Data stored in the HDD cannot be properly read.	• Defective HDD 1. Check the HDD connection. 2. Reformat the HDD. 3. Replace the HDD.
864	B	HDD data access error	
		HDD access error detected.	• Defective HDD Replace the HDD.
865	B	HDD access error	
		An error detected during HDD operation.	• Defective HDD Replace the HDD.
990	B	Unexpected software error	
		Unexpected software error detected.	• Defective controller Replace the controller if the error is frequent.
991	B	Unexpected software error	
		Unexpected software error detected, which does not affect operation of the machine.	The machine does not stop and the SC code is not displayed. The machine automatically recovers. However, the SC code is logged in the engine summary sheet (SMC).
999	B	Software update error	
		Software updating failed.	Try downloading the controller firmware again.

Trouble-shooting

4.2 JAM LOCATIONS

The following codes are displayed on the SMC report to locate where the jam occurred in the machine.

For example, if the following is printed on the SMC report:

   020   0003260

This means that the jam occurred during registration (paper did not reach the registration sensor) when the print counter was 3260.

Jam Code	Description
017	PFU (tray 2) paper feed sensor not turned on
018	PFU (tray 3) paper feed sensor not turned on
019	Registration sensor not turned on - bypass feed
020	Registration sensor not turned on - tray 1
021	Registration sensor not turned on – paper feed unit
022	Registration sensor not turned on - duplex
023	Registration sensor not turned off
024	Paper exit sensor not turned on
025	Paper exit sensor not turned off
033	Paper exit sensor not turned on - shift tray or mailbox
034	Paper exit sensor not turned off - shift tray or mailbox
035	Vertical transport sensor not turned on - mailbox
036	Vertical transport sensor not turned off - mailbox
049	Duplex entrance sensor not turned on
050	Duplex entrance sensor not turned off
051	Duplex inverter sensor not turned on
052	Duplex inverter sensor not turned off
053	Duplex exit sensor not turned on
054	Duplex exit sensor not turned off

5.   SP MODE TABLES

Refer to section 5.1.1 of the manual for the base model (K-P1) for how to enable and disable service program mode.

5.1   PRINTER CONTROLLER SERVICE MODE

Service Table Key

Notation	What it means
[range / default / step]	Example: [-8.0 to +8.0 / 0 mm / 2 mm/step] The setting can be adjusted in the range ±8, reset to 0 after an NVRAM reset, and the value can be changed in 2 mm steps.
DFU	Denotes "Design or Factory Use". Do not change this value.

5.1.1   SERVICE MODE MENU ("1. SERVICE MENU")

Service Mode	Description	Function
Bit Switch	Bit switch settings	Adjusts bit switch settings. **Note:** Currently the bit switches are not being used.
Clear Setting	Initialize the system settings	Initializes settings in the "System" menu of the user mode.
Print Summary	Controller summary print	Prints the service summary sheet (a summary of all the controller settings).
Disp Version	Display controller	Displays the version of the controller.

Service Tables

5.1.2 BIT SWITCH PROGRAMMING

Refer to section 5.2.2 of the service manual for the base model (K-P1) for how to program bit switch settings.

Bit Switch 1 - Not used (do not change any of these settings)

Bit Switch 2		
No	**Description**	**Function**
0-3	Not used	Do not change the setting.
4	Treatment of the last page when printing a job with an odd number of pages using the duplex unit **0:** (default): Last page not fed through the duplex unit **1:** Last page fed through the duplex unit	**0:** The last page is not fed through the duplex unit, so the last page faces the opposite way from other pages in the job. **1:** The last page is fed through the duplex unit, so the last page faces the same way as other pages of the job. Set this switch to "1" when the customer wishes the last page to be facing the same way as the other pages.
5-7	Not used	Do not change the setting.

Bit Switch 03 - Not used (do not change any of these settings)
Bit Switch 04 - Not used (do not change any of these settings)

5.2 PRINTER ENGINE SERVICE MODE

5.2.1 SERVICE MODE TABLE ("2. ENGINE MAINTE")

The new SP modes added for this model are shaded.

Mode Name	Description	Function /[Setting]
Regist sag	Paper feed timing	Adjusts the paper feed clutch timing at registration. The paper feed clutch timing determines the amount of paper buckle at registration. (A larger setting leads to more buckling.) [-8.0 to +8.0 / 0 mm / 2 mm/step]
Fusing Control	Fusing power control	Selects whether the fusing power control is on/off or phase control. Use "Phase" control if the room lights flicker when the fusing lamp starts. [Normal (USA)**,** Phase (Europe/Asia)]
Fusing Temp	Fusing temperature adjustment	Adjusts the fusing temperature for printing. [100 to 200 / **170°C** / 10°C /step] **DFU**
Fusing T Disp	Fusing temperature display	Displays the fusing temperature.
OHP Clutch Rt	Bypass paper feed roller rotation for transparencies	Selects the number of rotations for the bypass feed roller when the paper type is set to "Transparencies." This is to avoid jams when transparencies are being used.
Fusing Start	Initial fusing setting	Roller turn: Warms up the fusing unit for 20 s at power on or when the machine warms up from the energy saver mode. Normal: There is no 20 s warm-up period. **Normally do not change the setting.**
Charge Rol Bias	Charge roller voltage adjustment	Adjusts the charge roller voltage. **DFU** [1000 to 2000 / **1700V /** 10 V/step]
Mainscan mag	Main scan magnification adjustment	Adjusts the main scan magnification. [-0.5 to +0.5 / **0 %** / 0.1 %/step]
Subscan mag	Sub scan magnification adjustment	Adjusts the sub scan magnification. [-0.5 to +0.5 / **0 %** / 0.1 %/step]
Developer Bias	Development Bias Adjustment	Adjusts the development bias for printing. **DFU** [-800 to –200 / **-700V** / 10 V/step]
Toner End Count	Number of prints after toner near-end is detected	Adjusts the number of prints the machine can print after it detects toner near-end. [50 to 200 / **200 sheets** / 50 sheets/step]

Service Tables

Mode Name	Description	Function /[Setting]
Transfer Set	Transfer correction current	Adjusts the correction current applied to the transfer roller. [0 - 2 / **0** / 1 step] 0: −2 μA **1: 0 μA** 2: +2 μA 3: +4 μA
Test Pattern	Test pattern selection	Use this to select and print a test pattern. This machine has the following patterns. **No pattern** Checkered pattern Cross stitch 2 dot argyle 1 dot argyle 2 dot trim 2 dot grid 1 dot grid Reset this to 0 after printing the test pattern, or the selected pattern will appear on every page printed by the user.
Thermistor adj	Thermistor adjustment	Charge roller voltage and transfer current automatic adjustment. The machine automatically adjusts these parameters in response to the temperature within the machine. **DFU** [**On**, Off]
Toner end clear	Toner end clear (engine)	Clears the toner end counter in the engine board. **Note:** This mode is not used in this machine.
Waste Toner Count	Waste toner count display	Displays the waste toner counter in the engine board.
Effective info	Cartridge ID chip features that are used	Selects which of the cartridge ID chip functions are enabled. **Normal mode:** Cartridge detection/Type ID/Version Cartridge dtct: Cartridge detection only Note used: All items ignored All used: All items used
Cartridge Lim	Number of prints for a single cartridge	Adjusts the number of prints the machine can make after a new cartridge is detected. **Do not use a higher value than 30 k.** 15k prints 20k prints 25k prints **30k prints** 35k prints 40k prints
Cartridge Stop	Action when toner end is detected	Determines whether the machine stops printing after the cartridge counter reaches the above limit. [**Stop printing** / Do not stop]
Toner end sensor	Toner near-end threshold	Threshold adjustment for the toner end sensor. **DFU** [200 to 1000 / **200 ms** / 100 ms/step]
Cartridge info	Toner cartridge information	Displays toner cartridge information.

Mode Name	Description	Function /[Setting]
mm/inch display	mm/inch display selection	Display units (mm or inch) for custom paper sizes. 0: mm (Europe/Asia) 1: inch (USA)
ROM Update Disp	User mode "ROM Update" display selection	Currently, user mode "ROM Update" is not used. 0: Display this user mode **1: Do not display this user mode** **Note: Do not change the setting.**
A3/11x17 Count	A3/DLT double count	Specifies whether the counter is doubled for A3/11" x 17" paper. If "Yes" is selected, the total counter counts up twice when A3/11" x 17" paper is used.
Auto Off set	Energy saver on/off	Switches the energy saver mode on/off. **0: Enable**, 1: Disable Note: This setting is the same as the user mode "Energy Saver" in the System menu.
Ulimit Auto Set	Automatically add user code in the Web Status Monitor	Determines whether the machine adds new user codes in the User Management Tool in Smart Net Monitor. **0: Automatically added** 1: Not added
Memory clr	Memory clear	Resets software counters and returns modes and settings to their defaults. Memory all clear: Clears all data Eng: Clears the printer engine settings SCS: Clears the systems settings PRT: Clears user mode system settings NCS: Clears the items listed in the "Host Interface" section of the Configuration page.
Free run	Free run	The machine performs a free run. Press [Enter] to start. Press [Enter] to stop. Please note that the machine will not stop immediately after the [Enter] key is pressed.
Input check	Input check mode	Displays signals received from sensors and switches. See the "Input Check" section for details.
Output check	Output check mode	Turns on electrical components individually for test purposes. See the "Output Check" section for details.
Fusing err clr	SC code reset	Resets a service call condition (for fusing unit errors).
Serial number	Serial Number Programming	Use to input the machine serial number. (This is normally done at the factory.)
Service TEL	Service station number programming	Program the service station number. The number is printed on the meter-charge counter report when the meter-charge mode is turned on.
Set Network	Job spool settings/ Interface selection for Ethernet and wireless LAN	
	HD Job Clear	Treatment of the job when a spooled job exists at power on. 0: Data is cleared **1: Automatically printed**

Service Tables

Mode Name	Description	Function /[Setting]
Set Network	Job spool (LPR)	Job spool on/off (LPR). 0: Job spool off **1: Job spool on**
	Job spool (IPP)	Job spool on/off (IPP). 0: Job spool off **1: Job spool on**
	Primary I/F	Interface selection for the Ethernet or wireless LAN when both interfaces are available. **0: Ethernet** 1: IEEE802.11b (wireless LAN) Note: This setting is same as the user mode setting "LAN Type" in the Network Setup of the Host Interface menu.
	Current I/F	Displays the current interface setting (Ethernet or wireless LAN).
HDD Init	Initializes the HDD	Initializes the hard disk. **Use this only if there is a hard disk error.**
Prog Checksum	---	**DFU**
IEEE1394		**DFU**
IEEE802.11b	Wireless LAN available channel setting	Sets the maximum and minimum value for the wireless LAN channel adjustment. **DFU** [0 to 14] Europe/Asia: 1 to 13 USA: 1 to 11 **Note:** Do not change the setting, or the machine may be out of compliance with local regulations.
USB	USB settings	
	Transfer Rate	Adjusts the USB transfer rate. **HS/FS: High speed/Full speed auto adjust** (480Mbps/12Mbps) FS Fixation: Full speed (12Mbps fixed) Do not change the setting unless there is a data transfer error using the USB high speed mode.
	Vendor ID	Displays the vendor ID. **DFU**
	Product ID	Displays the product ID. **DFU**
	Dev. Release Num	Displays the development release version number. **DFU**
Test Print	Engine test pattern print	Prints the test pattern that was selected in the "Test Pattern" mode.
Plug/Play	Plug & Play name selection	Select the plug & play name.

Mode Name	Description	Function /[Setting]
Meter charge	Meter-charge mode	Enable or disable meter-charge mode. **Important:** Turn the main switch off/on after changing this setting. Yes: Enabled **No: Disabled** **Meter charge mode enabled:** • "Replace Maintenance Kit" is <u>not</u> displayed on the operation panel when the PM counter runs out (the technician replaces the maintenance kit items) • The meter charge counter is shown immediately after the Menu key is pressed. • The technician must reset the PM counter after replacing the fusing unit. **Meter charge mode disabled:** • "Replace Maintenance Kit" <u>is</u> displayed on the operation panel when the PM counter runs out (the user replaces the maintenance kit items) • The meter charge counter is not shown when the Menu key is pressed. • The PM counter resets automatically after the user replaces the fusing unit.
Debug Serial	---	**DFU**
Service Report	Prints summary sheet.	
	SP Mode Print	Prints the engine summary sheet.
	NIB Summary	Prints the NIB summary sheet.
Operation time	Total engine rotation cycle	Displays the total number of engine rotation cycles made so far. **Note:** One cycle is calculated as 3.7 s of drum rotation. However, this counter also includes idle rotations. This counter is not reset at PM.
Total counter	Controller total counter display	Displays the controller total counter. This counter is used for meter charge, and it appears when the user presses the Menu key (if meter charge mode is enabled). It does not count up when certain items, such as service reports, are printed (see section 6.6.1. for a complete list of conditions).
Disp ROM ver	ROM version display	Displays the firmware version (system, engine, and duplex).
PM Counter	PM counter display	Displays the PM counter. This is not a page counter. It estimates the page count using the engine rotation cycle count. It counts up one page when the engine has made the average number of rotations that is required for one page of a three-page job.
PM Counter reset	Resets the PM counter	Resets the PM counter. **Important:** If a technician replaces the PM items, reset this counter after replacing these items.
Diag result	Diagnostic result display	Displays the controller self-diagnostic result.
Assert Info	---	**DFU**

Service Tables

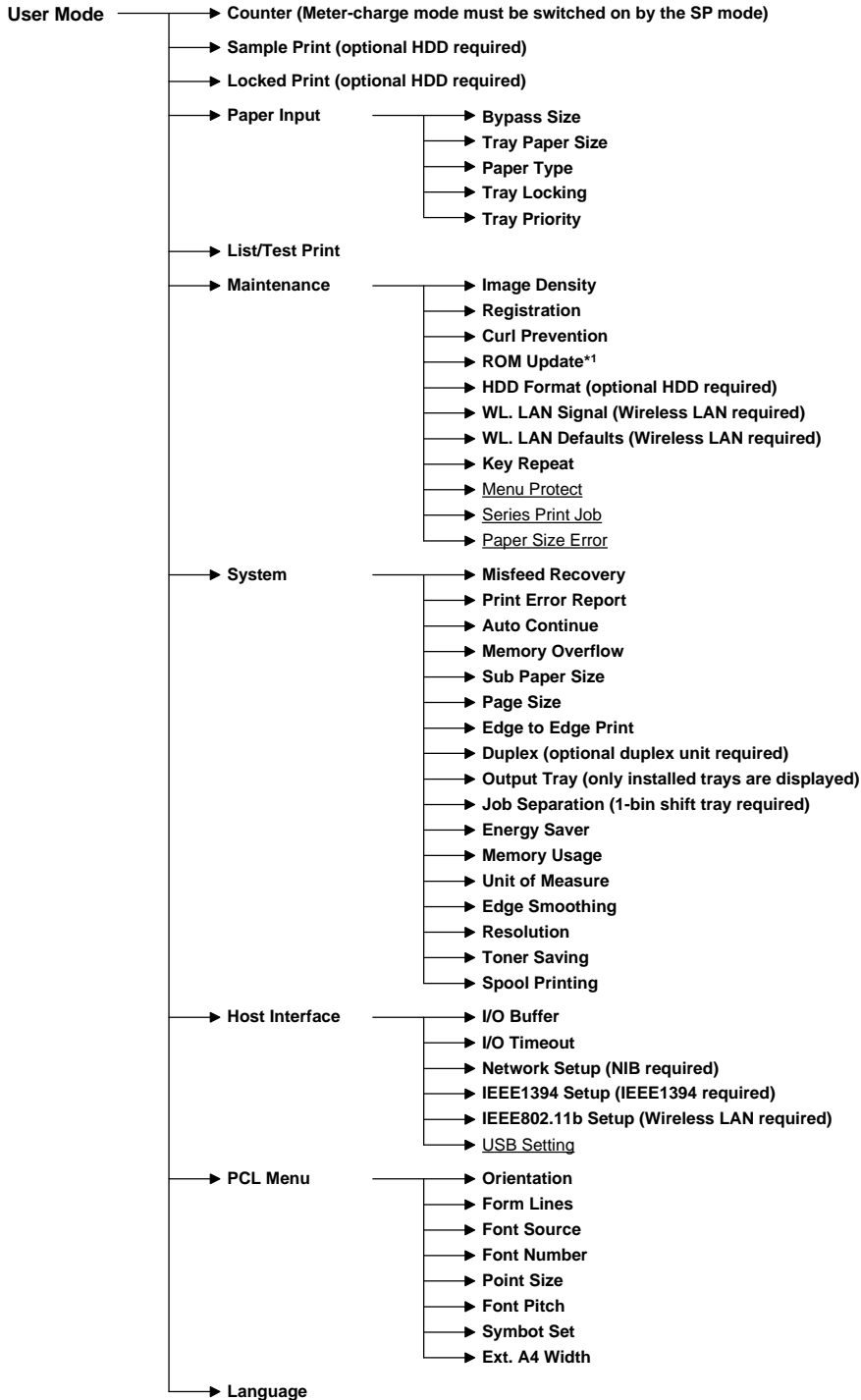| Mode Name	Description	Function /[Setting]
Usercode clr	User code clear	Clears the user code data from the controller board memory.
Total counter	Engine total counter display	Displays the engine total counter. It counts up for all prints, including service reports.

5.2.2 INPUT / OUTPUT CHECK TABLE

The input and output check tables are the same as the base model K-P1. Refer to section 5.3.2 and 5.3.3 of the K-P1 manual.

5.3　USER PROGRAM MODE

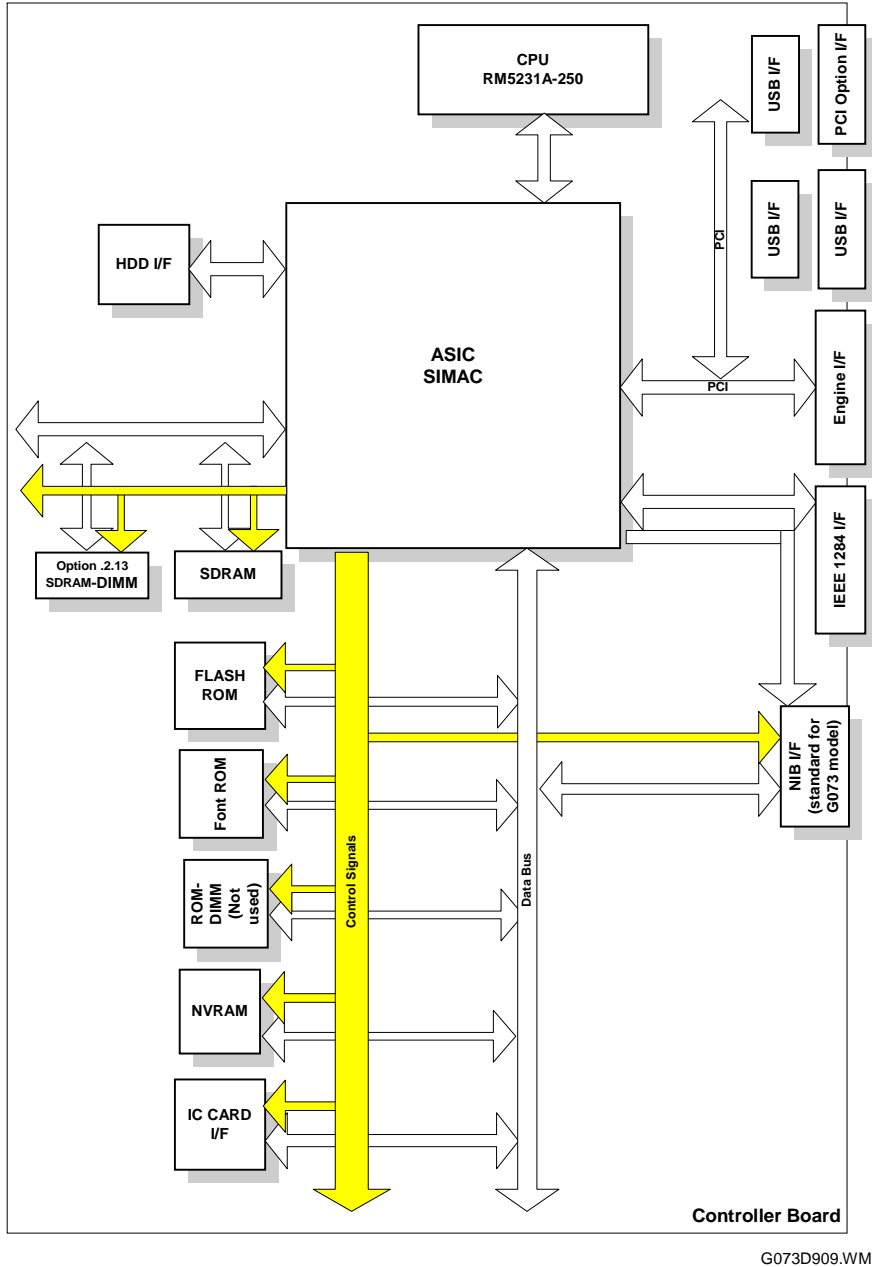The user menu list can be printed using "Menu List" in the "List/Test Print" user mode.

User Mode

→ **Counter (Meter-charge mode must be switched on by the SP mode)**

→ **Sample Print (optional HDD required)**

→ **Locked Print (optional HDD required)**

→ **Paper Input**
- → **Bypass Size**
- → **Tray Paper Size**
- → **Paper Type**
- → **Tray Locking**
- → **Tray Priority**

→ **List/Test Print**

→ **Maintenance**
- → **Image Density**
- → **Registration**
- → **Curl Prevention**
- → **ROM Update*1**
- → **HDD Format (optional HDD required)**
- → **WL. LAN Signal (Wireless LAN required)**
- → **WL. LAN Defaults (Wireless LAN required)**
- → **Key Repeat**
- → <u>Menu Protect</u>
- → <u>Series Print Job</u>
- → <u>Paper Size Error</u>

→ **System**
- → **Misfeed Recovery**
- → **Print Error Report**
- → **Auto Continue**
- → **Memory Overflow**
- → **Sub Paper Size**
- → **Page Size**
- → **Edge to Edge Print**
- → **Duplex (optional duplex unit required)**
- → **Output Tray (only installed trays are displayed)**
- → **Job Separation (1-bin shift tray required)**
- → **Energy Saver**
- → **Memory Usage**
- → **Unit of Measure**
- → **Edge Smoothing**
- → **Resolution**
- → **Toner Saving**
- → **Spool Printing**

→ **Host Interface**
- → **I/O Buffer**
- → **I/O Timeout**
- → **Network Setup (NIB required)**
- → **IEEE1394 Setup (IEEE1394 required)**
- → **IEEE802.11b Setup (Wireless LAN required)**
- → <u>USB Setting</u>

→ **PCL Menu**
- → **Orientation**
- → **Form Lines**
- → **Font Source**
- → **Font Number**
- → **Point Size**
- → **Font Pitch**
- → **Symbot Set**
- → **Ext. A4 Width**

→ **Language**

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Service Tables

NOTE: 1) Note 1: "ROM Update" is currently not used.
2) Press "Enter", "Escape", then "Menu" key to display the underlined user mode.

6.   DETAILED SECTION DESCRIPTIONS

6.1 CONTROLLER BOARD

The diagram shows the Controller Board block diagram with the following components: CPU RM5231A-250, ASIC SIMAC, HDD I/F, USB I/F (multiple), PCI Option I/F, Engine I/F, IEEE 1284 I/F, Option .2.13 SDRAM-DIMM, SDRAM, FLASH ROM, Font ROM, ROM-DIMM (Not used), NVRAM, IC CARD I/F, NIB I/F (standard for G073 model), connected via PCI, Control Signals, and Data Bus.

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SIMAC:	The same type of the ASIC is used with the model K-P1.
CPU:	32-bit CPU (RM5231A-250)
SDRAM:	32MB SDRAM
Flash ROM:	8MB Flash ROM
PCI Interface:	Options such as the wireless LAN and IEEE1394 are installed.
NIB Interface:	Standard interface for G073 model.

6.2 USB

6.2.1 SPECIFICATIONS

This model is equipped with standard USB.

Interface: USB 1.1, USB 2.0
Data rates: 480 Mbps (high speed), 12 Mbps (full speed), 1.5 Mbps (low speed)
            High speed mode is only supported by USB 2.0.

6.2.2 USB 1.1/2.0

USB (Universal Serial Bus) offers simple connectivity for computers, printers, keyboards, and other peripherals. In a USB environment, terminators, device IDs (like SCSI), and DIP switch settings are not necessary.

USB 1.1 contains the following features:

- Plug & Play
- Hot swapping (cables can be connected and disconnected while the computer and other devices are switched on)
- No terminator or device ID required
- Data rates of 12 Mbps (full speed), and 1.5 Mbps (low speed)
- Common connectors for different devices

USB 2.0 is an evolution of the USB 1.1 specification. It uses the same cables, connectors, and software interfaces so the user will see no change.
It provides an easy-to-use connection to a wide range of products with a maximum data rate of 480 Mbps (high speed).

Up to 127 devices can be connected and 6 cascade connections are allowed.
Power is supplied from the computer and the maximum cable length is 5 m.

6.2.3 USB CONNECTORS

USB is a serial protocol and a physical link, which transmits all data on a single pair of wires. Another pair provides power to downstream peripherals.
The USB standard specifies two types of connectors, type "A" connectors for upstream connection to the host system, and type "B" connectors for downstream connection to the USB device.
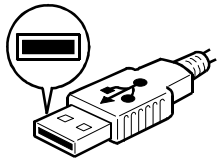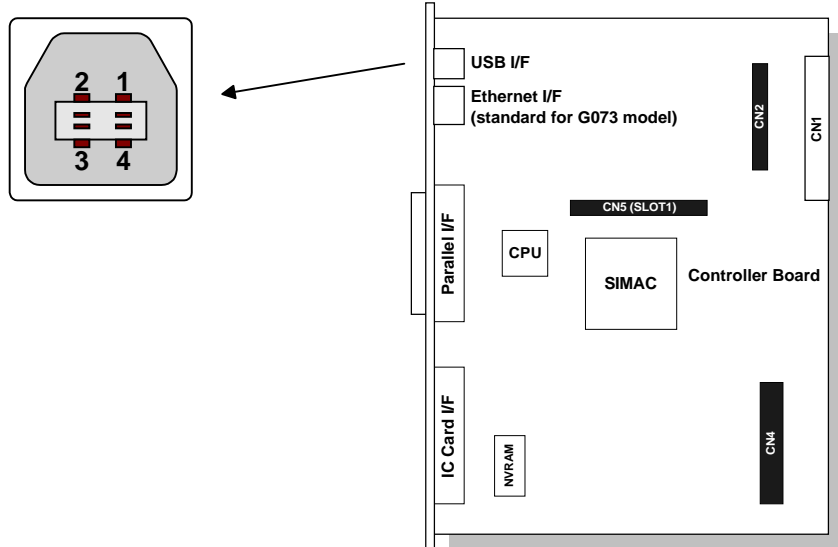

G073D904.WMF

Type "A" connector
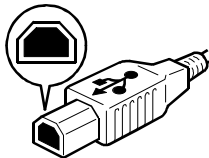
G073D905.WMF

Type "B" connector

6.2.4 PIN ASSIGNMENT

The controller has a type "B" receptacle (CN10).

G073D906.WMF

Detailed Descriptions

Pin No.	Signal Description	Wiring Assignment
1	Power	Red
2	Data –	White
3	Data +	Green
4	Power GND	White

6.2.5 REMARKS

- The machine does not print reports specifically for USB.
- Only one host computer is allowed for the USB connection.
- After starting a job using USB, do not switch the printer off until the job has been completed.
  When a user cancels a print job, if data transmitted to the printer has not been printed at the time of cancellation, the job will continue to print up to the page where the print job was cancelled
- When the controller board is replaced, the host computer will recognize the machine as different device.

Related SP Mode

"USB Settings" in the printer engine service mode. Data rates can be adjusted to full speed fixed (12 Mbps). This switch may be used for troubleshooting if there is a data transfer error using the high speed mode (480 Mbps).

Data rates can also be adjusted using the UP mode "USB Setting" in the Host Interface in the System menu.
This mode can be accessed only when the "Enter", "Escape", then "Menu" keys are pressed to enter the UP mode.

6.3 IEEE802.11B (WIRELESS LAN)

6.3.1 SPECIFICATIONS

A wireless LAN is a flexible data communication system used to extend or replace a wired LAN. Wireless LAN employs radio frequency technology to transmit and receive data over the air and minimize the need for wired connections.

- With wireless LANs, users can access information on a network without looking for a place to plug into the network.
- Network managers can set up or expand networks without installing or moving wires.
- Most wireless LANs can be integrated into existing wired networks. Once installed, the network treats wireless nodes like any other physically wired network component.
- Flexibility and mobility make wireless LANs both effective extensions of and attractive alternatives to wired networks.

Standard applied: IEEE802.11b
Data transfer rates: 11 Mbps/5.5 Mbps/2 Mbps/1 Mbps (auto sense)
Network protocols: TCP/IP, Apple Talk, NetBEUI, IPX/SPX
Bandwidth: 2.4GHz
             (divided over 14 channels, 2400 to 2497 MHz for each channel)

NOTE: The wireless LAN cannot be used together with the Ethernet. The "LAN Type" setting in the Host Interface menu determines the LAN interface to be used.
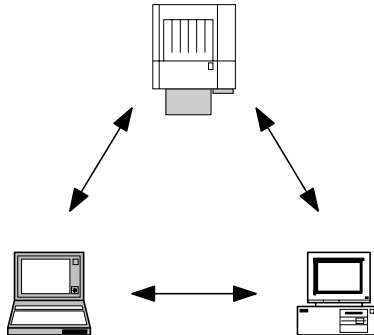
6.3.2 BLOCK DIAGRAM
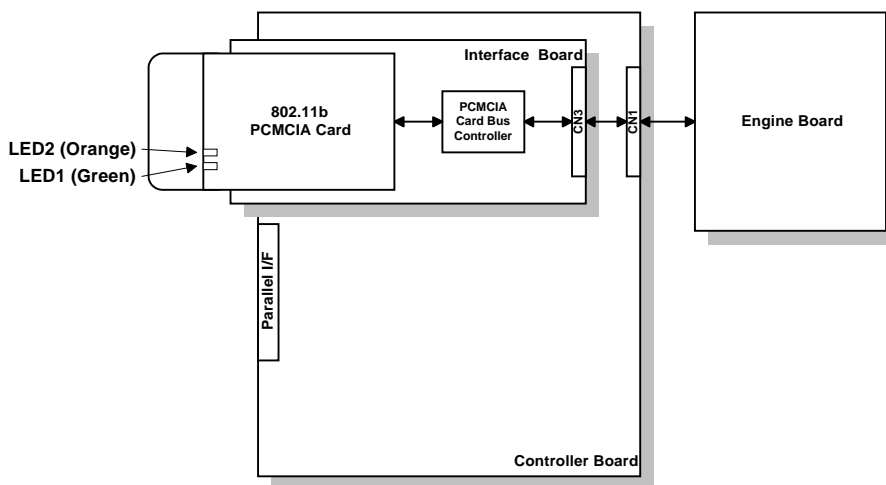
G073D900.WMF

LED Indicators

LED	DESCRIPTION	ON	OFF
LED1 (Green)	Link status	Link success	Link failure
LED2 (Orange)	Power distribution	Power on	Power off

6.3.3 TRANSMISSION MODE

The following transmission modes are provided for wireless communication.

Ad hoc Mode

G073D907.WMF

The ad hoc mode allows communication between each device (station) in a simple peer-to-peer network. In this mode, all devices must use the same channel to communicate.

In this machine, the default transmission mode is ad hoc mode and the default channel is 11. First, set up the machine in ad hoc mode and program the necessary settings, even if the machine will be used in the infrastructure mode.

To switch between ad hoc and infrastructure modes, use the following user tool: Host Interface Menu - IEEE802.11b - Comm Mode

Infrastructure Mode
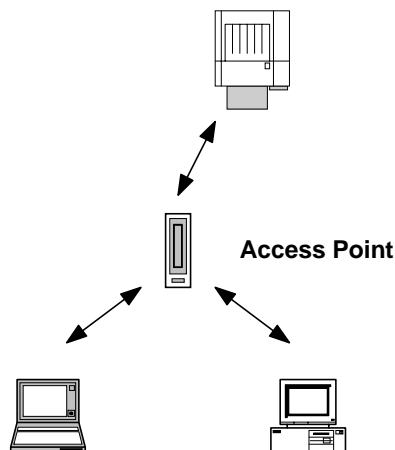
Access Point

G073D908.WMF

The infrastructure mode allows communication between each computer and the printer via an access point equipped with an antenna and wired into the network. This arrangement is used in more complex topologies.

- The wireless LAN client must use the same SSID (Service Set ID) as the access point in order to communicate.

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6.3.4 SECURITY FEATURES

SSID (Service Set ID)
The SSID is used by the access point to recognize the client and allow access to the network. Only clients that share the same SSID with the access point can access the network.

NOTE: 1) If the SSID is not set, clients connect to the nearest access point.
2) The SSID can be set using the web status monitor or telnet.

Using the SSID in Ad hoc mode

When the SSID is used in ad hoc mode and nothing is set, the machine automatically uses "ASSID" as the SSID. In such a case, "ASSID" must also be set at the client.

NOTE: SSID in ad hoc mode is sometimes called "Network Name."

Some devices automatically change from ad hoc mode to infrastructure mode when the same SSID is used in ad hoc mode and infrastructure mode. In such a case, to use the device in ad hoc mode, use a specified SSID in infrastructure mode and use "ASSID" in the ad hoc mode.

WEP (Wired Equivalent Privacy)
WEP is a coding system designed to protect wireless data transmission. In order to unlock encoded data, the same WEP key is required on the receiving side. There are 64 bit and 128 bit WEP keys. However, this machine supports only 64 bit WEP.

NOTE: The WEP key can be set using the web status monitor or telnet.

MAC Address
When the infrastructure mode is used, access to the network can also be limited at the access points using the MAC address. This setting may not be available with some types of access points.

Detailed Descriptions

6.3.5 TROUBLESHOOTING NOTES

Communication Status

Wireless LAN communication status can be checked with the UP mode "W.LAN Signal" in the Maintenance menu. This can also be checked using the Web Status Monitor or Telnet.
The status is described on a simple number scale.

STATUS DISPLAY	COMMUNICATION STATUS
Good	76~100
Fair	41~75
Poor	21~40
Unavailable	0~20

NOTE: Communication status can be measured only when the infrastructure mode is being used.

Channel Settings

If a communication error occurs because of electrical noise, interference with other electrical devices, etc., you may have to change the channel settings.

To avoid interference with neighboring channels, it is recommended to change by 3 channels. For example, if there are problems using channel 11 (default), try using channel 8.
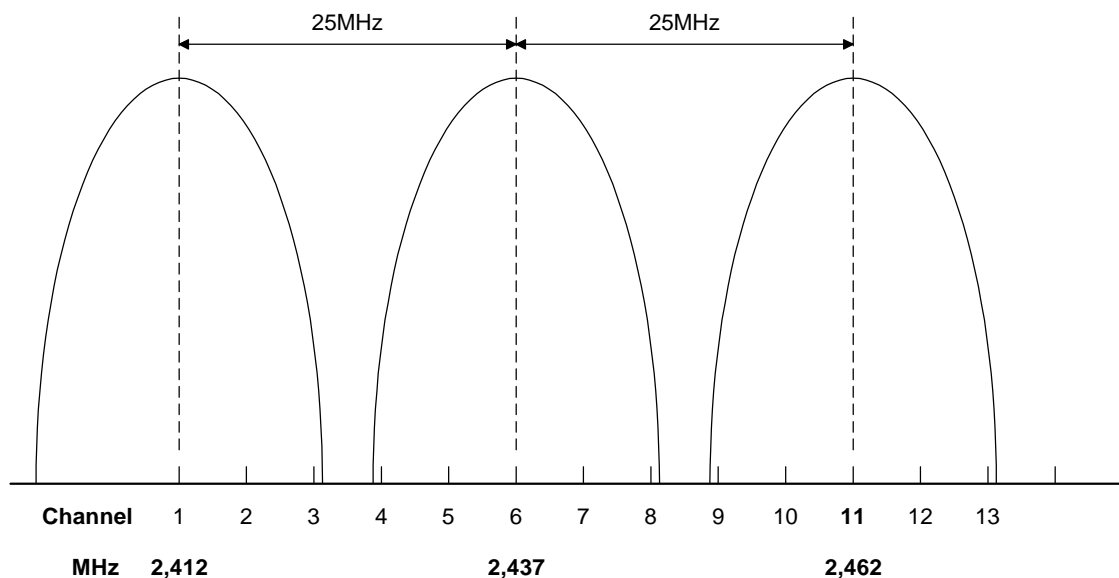
G073D901.WMF

Troubleshooting steps

If there are problems using the wireless LAN, check the following.

    1) Check the LED indicator on the wireless LAN card.
    2) Check if "IEEE802.11b" is selected in the UP mode LAN Type in Network Setup in the Host Interface menu.
    3) Check if the channel settings are correct.
    4) Check if the SSID and WEP are correctly set.

If infrastructure mode is being used,

    1) Check if the MAC address is properly set
    2) Check the communication status
       If the communication status is poor, bring the machine closer to the access point, or check for any obstructions between the machine and the access point.
       If the problem cannot be solved, try changing the channel setting.
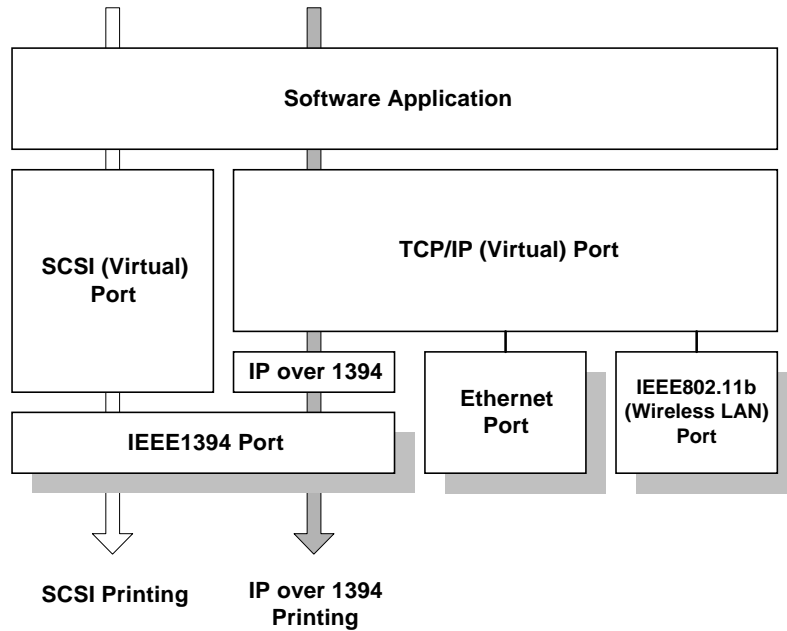
Detailed Descriptions

6.4 NEW FEATURES

6.4.1 IP OVER 1394

In addition to IEEE1394 printing, a feature supported in the model K-P1, this machine supports IEEE1394 printing by setting an IP address. This feature is called 'IP over 1394'.
The former IEEE1394 printing without IP address is known as 'SCSI printing'.

G073D902.WMF

NOTE: 1) Windows XP is the only OS which supports IP over 1394.
2) Windows XP and 2000 supports IEEE1394 SCSI printing.

6.4.2 JOB SPOOLING

Description

Print data can be spooled (stored) in the machine's HDD, and the machine starts to print when data transfer is complete. Since the machine stores all data first before printing, the host computer is freed up more quickly.

NOTE: 1) This feature is only available when an optional HDD is installed in the machine.
2) The supported print protocols are IPP and LPR.
3) The default setting for this feature is 'off'. The user must switch it on using UP mode to enable this feature.

- The size of the HDD partition for job spooling is 500 MB.
- The partition can hold up to 50 jobs.

Related SP Modes

Job spooling can be turned on and off using printer engine service mode "Set Network" menu separately for each protocol.

"Job spool (LPR)": Job spooling on/off for LPR.
"Job spool (IPP)": Job spooling on/off for IPP.

The machine does not spool jobs when job spooling is switched off with the SP mode, even when the customer switches it on with the user mode.

Detailed Descriptions

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

Printing Speed:

Maximum 26 pages per minute (A4/LT LEF)
(20 pages: duplex printing)

Printer Languages:

PCL6/PCL5e
PostScript 3
RPCS (Refined Printing Command Stream: an original Ricoh PDL)
TIFF (rev 6.0 compatible)

Resolution:

1200 dpi (PCL6/PS3/RPCS)
600 dpi (PCL 6/PCL5e/PS3/RPCS)
300 dpi (PCL 5e/PS3)

Resident Fonts:

PCL:
   35 Intellifonts
   10 True Type fonts
PS3:
   136 fonts (24 Type 2 fonts, 112 Type 14 fonts)

Host Interfaces:

Bi-directional IEEE1284 parallel x 1: Standard
USB 2.0/1.1
Ethernet (100 Base-TX/10 Base-T): Standard for G073
IEEE1394
IEEE802.11b (wireless LAN)

Network Protocols:

TCP/IP, IPX/SPX, NetBEUI, Apple Talk

First Print Speed:

6.5 s or less (A4/LT LEF, standard tray)

Warm-up Time

Less than 12 seconds
(Less than 19 seconds from power on)

Print Paper Capacity:

Standard tray: 250 sheets
Optional paper tray unit: 500 sheets
      (up to two paper tray units can be installed)
Optional by-pass tray: 100 sheets

Print Paper Size:

Maximum: A3/11" x 17"
Minimum:
   Standard tray: A5 LEF
   Optional paper tray: A5 LEF
   By-pass: A6/ 90 x 148 mm SEF

(Refer to "Supported Paper Sizes".)

Printing Paper Weight:

Standard tray:	60 to 105 g/m^2 (16 to 28 lb.)
Optional paper tray:	60 to 105 g/m^2 (16 to 28 lb.)
By-pass tray:	52 to 162 g/m^2 (14 to 43 lb.)

Spec.

Output Paper Capacity:	Standard output tray: 250 sheets
	Optional 1-bin shift tray: 250 sheets
	Optional 4-bin mailbox: 200 sheets total

Memory: Standard 32 MB, up to 96 MB with optional DIMM

Power Source: 120 V, 60 Hz: More than 10 A (for North America)
                               220 V - 240 V, 50/60 Hz: More than 6.0 A (for Europe)

Power Consumption:

	120V	**230V**
Maximum	940 W or less	940 W or less
Printing	650 W or less	650 W or less
Energy Saver	22 W or less	22 W or less

Noise Emission:

	Mainframe Only	**Full System**
Printing	64 dB or less	68 dB or less
Stand-by	40 dB or less	40 dB or less

NOTE: The above measurements were made in accordance with ISO 9296 at the operator position.

Dimensions (W x D x H): 478 x 437 x 305 mm

Weight: Approximately 18 kg (cartridge included)

1.1 SUPPORTED PAPER SIZES

Paper	Size (W x L)	Paper Trays Main Unit/Option		By-pass Tray	Env. Feeder	Duplex
		US	Eur/Asia			
A3	297 x 420 mm	$Y^{\#}$/Y	Y/Y	$Y^{\#}$	N	Y
B4	257 x 364 mm	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
A4 SEF	210 x 297 mm	$Y^{\#}$/Y	Y/Y	$Y^{\#}$	N	Y
A4 LEF	297 x 210 mm	Y/Y	Y/Y	$Y^{\#}$	Y	Y
B5 SEF	182 x 257 mm	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
B5 LEF	257 x 182 mm	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
A5 SEF	148 x 210 mm	N	N	$Y^{\#}$	N	N
A5 LEF	210 x 148 mm	$Y^{\#}$/$Y^{\#}$	Y/$Y^{\#}$	$Y^{\#}$	N	Y
A6 SEF	105 x 148 mm	N	N	Y^{C}	N	N
Ledger	11 x 17"	Y/Y	$Y^{\#}$/Y	$Y^{\#}$	N	Y
Legal	8.5 x 14"	Y/Y	$Y^{\#}$/Y	$Y^{\#}$	N	Y
Letter SEF	8.5 x 11"	Y/Y	Y/Y	$Y^{\#}$	N	Y
Letter LEF	11 x 8.5"	Y/Y	Y/Y	$Y^{\#}$	N	Y
Half Letter SEF	5.5 x 8.5"	N	N	$Y^{\#}$	N	N
Half Letter LEF	8.5 x 5.5"	N	N	N	N	N
Executive SEF	7.25 x 10.5"	N/$Y^{\#}$	N/$Y^{\#}$	$Y^{\#}$	N	N
Executive LEF	10.5 x 7.25"	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
F	8 x 13"	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
Foolscap	8.5 x 13"	Y/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
Folio	8.25 x 13"	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
Com10 Env.	4.125 x 9.5"	N	N	$Y^{\#}$	$Y^{\#}$	N
Monarch Env.	3.875 x 7.5"	N	N	$Y^{\#}$	$Y^{\#}$	N
C6 Env.	114 x 162 mm	N	N	$Y^{\#}$	$Y^{\#}$	N
C5 Env.	162 x 229 mm	N	N	$Y^{\#}$	$Y^{\#}$	N
DL Env.	110 x 220 mm	N	N	$Y^{\#}$	$Y^{\#}$	N
8K	267 x 390 mm	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
16K SEF	195 x 267 mm	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
16K LEF	267 x 195 mm	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$/$Y^{\#}$	$Y^{\#}$	N	Y
Custom	Minimum: 90 x 148 mm Maximum: 297 x 432 mm	N/Y^{C}	N/Y^{C}	Y^{C}	N	N

Spec.

Remarks:

Y	Supported. The paper size sensor detects the paper size.
$Y^{\#}$	Supported. The user has to select the correct paper size for the tray.
Y^{C}	Supported. The user has to enter the width and length of the paper.
N	Not supported.

2. SOFTWARE ACCESSORIES

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

2.1 PRINTER DRIVERS

| Printer Language	Windows 95/98/ME	Windows NT4.0	Windows 2000/XP	Macintosh
PCL 6	Yes	Yes	Yes	No
PCL 5e	Yes	Yes	Yes	No
PS3	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	No

NOTE: 1) The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
2) The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000, which uses Microsoft PS. A PPD file for each operating system is provided with the driver.
3) The PS3 driver for Macintosh supports Mac OS 8.1 or later versions.

2.2 UTILITY SOFTWARE

Software	Description
Agfa Font Manager (Win 95/98/Me, NT4, 2000)	A font management utility with screen fonts for the printer.
SmartNetMonitor for Admin (Win 95/98/Me, NT4, 2000, XP)	A printer management utility for network administrators. NIB setup utilities are also available.
SmartNetMonitor for Client (Win95/98/Me, NT4, 2000, XP)	A printer management utility for client users.
1394 Utility (rm1394pr.exe) (Win 2000, XP)	A 1394 utility removes all IEEE1394 port and printer information from the Windows registry.
Printer Utility for Mac (Mac OS 8.1 or later)	This software provides several convenient functions for printing from Macintosh clients.

3. MACHINE CONFIGURATION

3.1 SYSTEM COMPONENTS
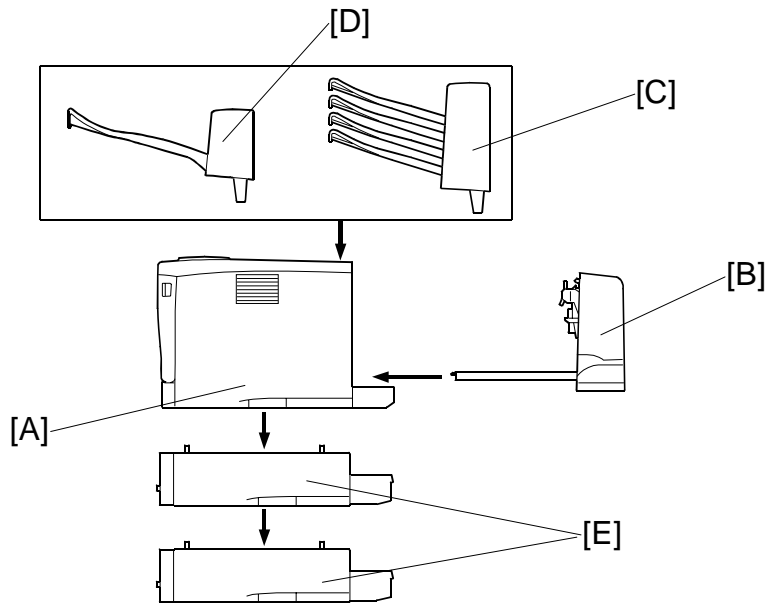
G073V107.WMF

Item	Machine Code	No.	Remarks
Main Unit	G073 G074	A	G073: Standard onboard NIB
Option			
Duplex Unit	G552	B	
4-bin Mailbox	G553	C	
1-bin Shift Tray	G554	D	
Paper Tray Unit	G555	E	Up to two tray units can be installed.
Envelope Feeder	G556	E	When two paper tray units are installed, it must be installed in the upper unit.
Others			
Maintenance Kit	G770		

NOTE: All the above items are user installable.

Spec.

3.2 INTERNAL OPTIONS
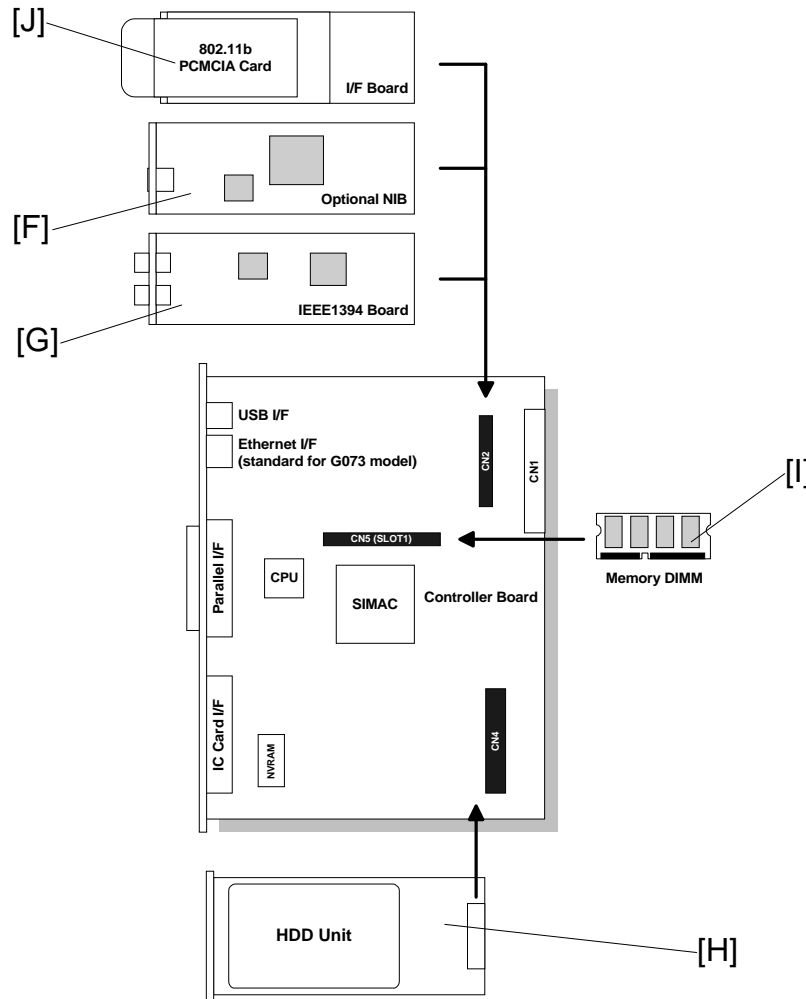
G073V900.WMF

Internal Options			
NIB	G646	F	New option for this model (for G074 only; G073 has one built-in)
IEEE1394	G336	G	New option for this model
HDD	G575	H	
Memory 64 MB	G579	I	
Wireless LAN (IEEE802.11b)	G628	J	New option for this model

Table of Available Interfaces

	Standard I/F	Optional I/F	Remarks
G073 Model	USB IEEE1284 Ethernet	IEEE1394 IEEE802.11b	Either optional interface can be installed.
G074 Model	USB IEEE1284	Ethernet IEEE1394 IEEE802.11b	One of these optional interfaces can be installed.

NOTE: The G073 model has an on-board Ethernet interface.

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4. OPTIONAL EQUIPMENT

All of the following options are also used with the base model (K-P1). Please refer to the base model service manual for specifications.

- Paper Tray Unit
- Envelope Feeder
- Duplex Unit
- Four-bin Mailbox
- One-bin Shift Tray

Spec.