Model K-C2

PRINTER/SCANNER UNIT
(Machine Code: B622)

SERVICE MANUAL

December 1st, 2003
Subject to change

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TABLE OF CONTENTS

1. INSTALLATION

Please refer to section 1 of the main unit service manual.

2. TROUBLESHOOTING

2.1 CONTROLLER ERRORS

Refer to section 4. of the main unit service manual for descriptions on SC code information because the GW architecture includes controller SC codes in the main unit SC code table.

2.2 LEDS AND TEST POINTS

LEDs and test points are not used for this option except for the GW controller.

3. SERVICE TABLES

3.1 SERVICE PROGRAM MODE

⚠CAUTION

Before accessing the service menu, do the following:

Confirm that there is no print data in the printer buffer (the Data In LED must not be lit or blinking).
If there is some data in the buffer, wait until all data has been printed.

⚠CAUTION

Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation power switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.

The main power LED (☀) lights or flashes while the platen cover or ARDF is open, while the main unit is communicating with a facsimile or the network server, or while the machine is accessing the memory for reading or writing data.

3.1.1 ENABLING AND DISABLING SERVICE PROGRAM MODE

Entering the SP mode

	1. Press the Clear Mode key.
1 0 7	2. Use the keypad to enter “107”.
C/Stop	3. Hold down Clear/Stop for at least 3 seconds.
	4. Enter the Service Mode.
Printer SP	Select “Printer SP” to enter printer SP mode.
Scanner SP	Select “Scanner SP” to enter scanner SP mode.

Exiting the Service Mode

Press the cancel key to exit from the service mode.

3.2 PRINTER SERVICE MODE

3.2.1 SERVICE MODE TABLE

SP No.	Description	Function and Setting
1001	BitSw#1 Set	Adjusts bit switch settings. **Note:** Currently the bit switches are not being used.
1003	Clear Setting	Not used
1004	Print Summary	Prints the service summary sheet (An error log is printed in addition to the configuration page).
1005	Display Version	Displays the version of the controller firmware.

3.2.2 SP MODES RELATED TO PRINTER CONTROLLER

The following SP modes are located in the copier SP mode. Refer to section 5.1 of the main unit service manual.

SP No.	Description	Function and Setting
5104	A3/DLT Double Count	Specifies whether the counter is doubled for A3/DLT. 0: No, 1: Yes If ① is selected, the total counter and the current user code counter count up twice when A3 or DLT paper is used.
5801	Memory All Clear	Resets data for process control and all software counters, and returns all modes and adjustments to their defaults values. ☛ section 5.1.8 of the main unit manual for details.
5907	Plug & Play	Selects the brand name and the production name for Windows Plug & Play. This information is stored in NVRAM.
7832	Detailed Display of Self-Diagnostics	Displays the controller self-diagnostic result. ☛ section 3.6 of this manual for details.

3.3 SCANNER SERVICE MODE

3.3.1 SCANNER PROGRAM MODE TABLE

Service Table Key

Notation	What it means
[range / **default** / step]	Example: [-9 ~ +9 / **+3.0** / 0.1 mm step]. The setting can be adjusted in the range ±9, value reset to +3.0 after an NVRAM reset, and the value can be changed in 0.1 mm steps with each key press.
italics	Comments added for your reference.
*	This value is stored in NVRAM. After a RAM reset, the default value (factory setting) is restored.
DFU	Denotes “Design or Factory Use”. Do not change this value.

SP1	Mode Number		Function and [Setting]
1004*	1	Compression Type	Selects the compression type for binary picture processing. [1: MH, 2: MR, **3: MMR**]
1005*	1	Erase Margin	Creates an erase margin for all edges of the scanned image. *If the machine has scanned the edge of the original, create a margin.* [0 – 5 / **0mm** / 1mm step]

For the settings of the image quality, see the copier SP-mode table.

3.4 FIRMWARE UPDATE PROCEDURE

Firmware updating procedure is described in the copier service manual.

3.5 POWER-ON SELF TEST

The controller tests the following devices at power-on. If an error is detected, an error code is stored in the controller board.

- CPU, ASIC and clock
- Flash ROM
- Resident and optional SDRAM
- IEEE1394 interface (if installed)
- NVRAM
- PS fonts (if installed)

3.6 SELF DIAGNOSTIC TEST

In addition to the power-on self test, you can set the machine in a more detailed diagnostic mode to test other components and conditions.
It requires a loop-back connector (P/N: G0219350).

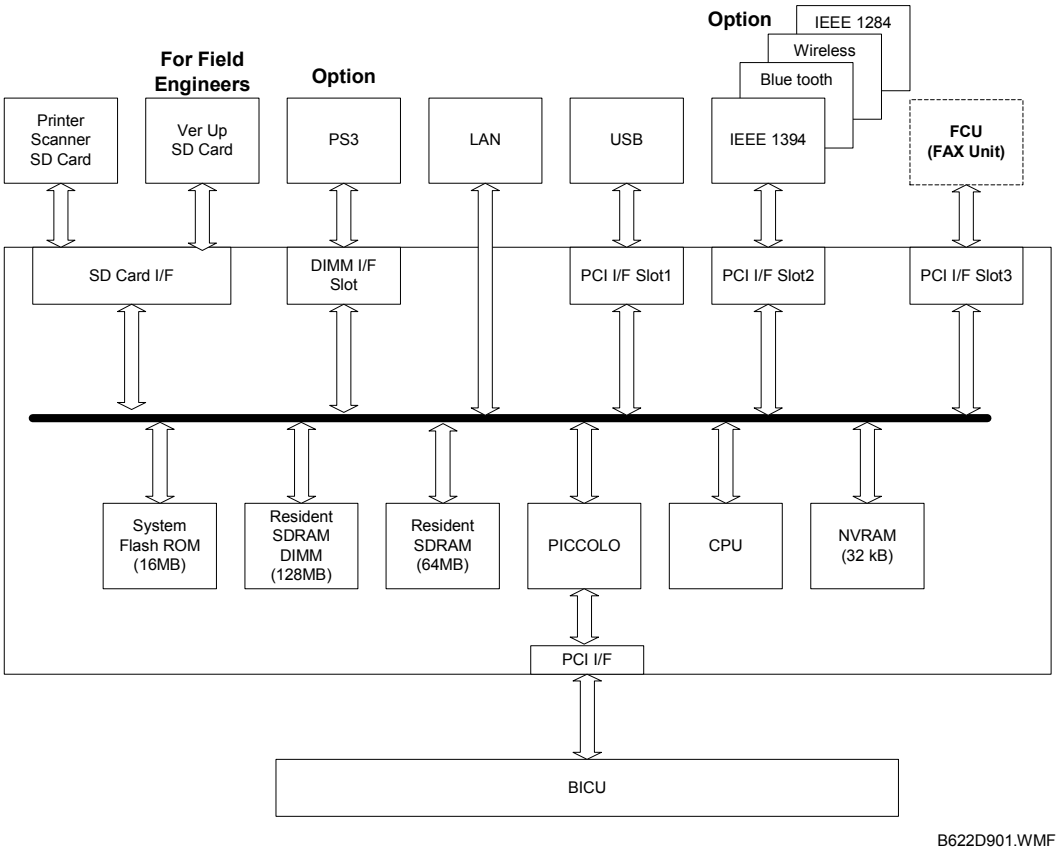
1. Turn off the machine and attach the loop-back connector to the parallel interface.
2. Turn on the machine while pressing the key and the # key together.
3. The machine prints the diagnostic report automatically.
   - Refer to the copier service manual for how to check the error codes (SP 7-832).

3.7 USER PROGRAM MODE

See the copier service manual.

4. DETAILED SECTION DESCRIPTIONS

4.1 OVERVIEW



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This machine uses the GW architecture. To enable the printer features, install the printer option SD Card on the controller.

Main components:

- CPU: TOSHIBA TMPR4955BFG-300
- PICCOLO: GW architecture ASIC. It controls all the functions of the controller board.
- Flash ROM: 16 MB Flash ROM for the system program
- SDRAM: On board 64 MB, DIMM 128 MB (resident)
- NVRAM: Stores the controller settings
- LAN interface
- USB 2.0 interface
- SD Card: Printer/Scanner program

Optional components:

- PostScript3 DIMM
- IEEE1394 interface
- Bluetooth interface
- Wireless LAN interface
- IEEE1284 interface

4.2 CONTROLLER FUNCTIONS

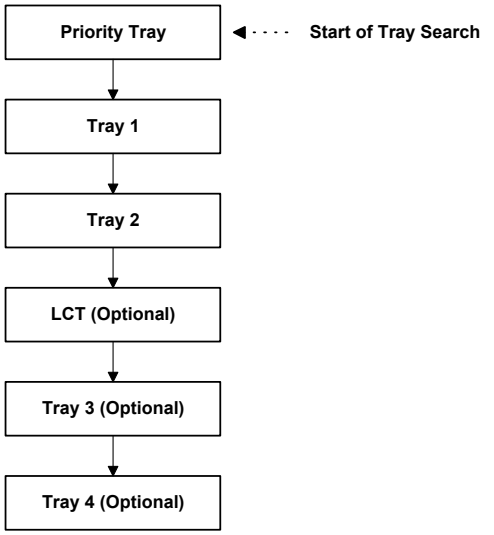
4.2.1 PAPER SOURCE SELECTION

Tray Priority (Auto Tray Select)

The Tray Priority setting determines the start of the tray search when the user selects "Auto Tray Select" with the driver.
The machine searches for a paper tray with the specified paper size and type.

When no tray contains paper that matches the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

The Tray Priority setting can be specified using the Paper Size Setting in the user tools. (User Tools/ System Settings/ Paper Size Settings)



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The by-pass tray is not part of the tray search.

Tray Lock

If Tray Lock is enabled for a tray, the controller skips the "locked" tray in the tray search process.

The Tray Lock setting can be specified by selecting "No" for the "Apply Auto Paper Select" setting in the Paper Size Setting screen in the user tools.
(User Tools/ System Settings/ Paper Size Settings)

The by-pass feeder cannot be locked.

Manual Tray Select

If the selected tray does not have the paper size and type specified by the driver, the controller stops printing until the user loads the correct paper.

4.2.2 AUTO CONTINUE

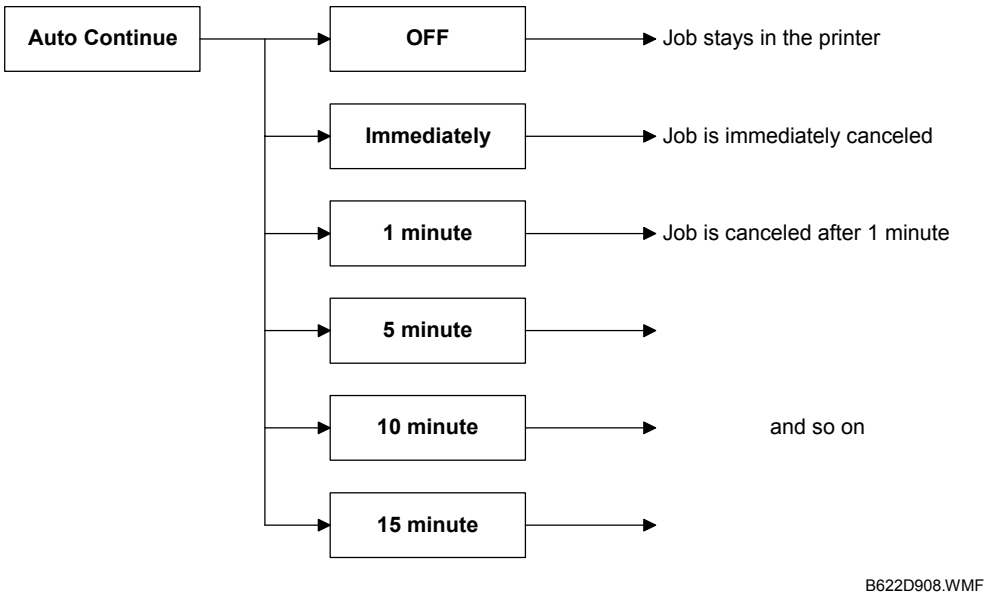
When this function is enabled, the machine stops printing and cancels the print job if there is no paper tray which matches the paper size and paper type specified by the driver.

If Auto Continue is enabled, the machine waits for a specified period (0, 1, 5, 10, 15 minutes) for the correct size paper to be set in the tray, then cancels the print job if the interval expires.

- The interval can set with the Printer Settings in the user tools.
  (User Tools/ Printer Settings/ System/ Auto Continue)

If Auto Continue is disabled, the machine will not print the job, but will not cancel it, so the job stays in the print queue.

If no paper tray matches the paper size and paper type specified by the driver:



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The default setting for Auto Continue is “Off.”

4.2.3 PAPER OUTPUT TRAY

The default paper output tray for each application (copy/fax/printer) can be selected using the System Settings menu in the user tools.
(User Tools/ System Settings/ General Features)

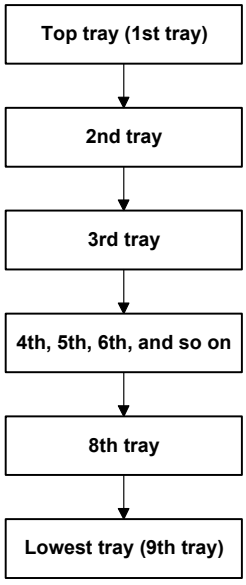
If a print job does not specify an output tray or if the driver specifies the default tray, the default paper output tray is used.

Output Tray Selected

- If an output tray is specified by the driver, it overrides the default tray setting in the user tools.
- If the machine cannot print to the selected output tray, it prints to the default paper output tray.
- If the mailbox unit is installed, paper larger than B4 cannot be printed to the standard (internal) tray.
- If paper overflow is detected at the selected output tray, the controller stops printing until the overflow detector goes off.

Sequential Stacking

When the nine-tray mailbox is selected as the output tray and "Printer Default" is specified as the output tray in the driver, the machine automatically sends the output to the top tray (1st tray). When that tray fills up, the machine sends the output to the next tray.
This feature is called "Sequential Stacking."



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- If a tray becomes full and paper is detected in the next tray, the machine displays an error and stops printing.
  When paper in the next tray is removed, the machine automatically resumes printing to the next tray.
- If all trays become full (overflow detected in all trays), the machine displays an error and stops printing. This time, all paper in all trays must be removed.

4.2.4 DUPLEX PRINTING

Duplex printing is available with all output bin options but not all paper sizes. If a job specifies duplex printing but the paper size to be used cannot be used by the duplex unit, the job will be printed single-sided.

- When the by-pass feeder is selected as the paper source, duplex printing is automatically disabled.

4.3 SCANNER FUNCTIONS

4.3.1 IMAGE PROCESSING FOR SCANNER MODE

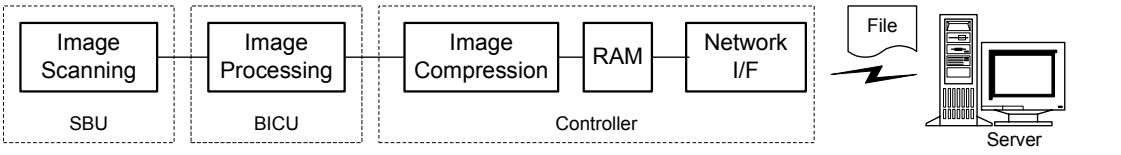
The image processing for scanner mode is done in the IPU chip on the BICU board. The IPU chip chooses the most suitable image processing methods (gamma tables, dither patterns, etc) depending on the settings made in the driver.

The image compression method can be selected with SP mode (MR/MH/MMR for binary picture processing).

Whether the user selects the image mode using the driver (TWAIN mode) or from the operation panel (Delivery mode), the IPU chip does the image processing using the appropriate image processing methods mentioned above.

Image Data Path

1. Image Store/Image Delivery Mode



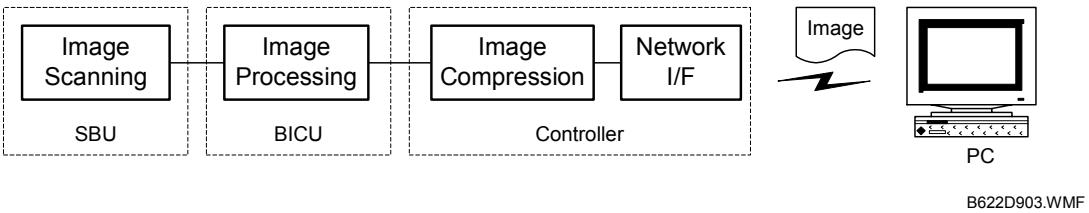
The user can select the following modes from the LCD.

1) Delivery only

After image processing and image compression, all image data for the job are stored in the printer controller RAM using TIFF file or PDF file format (binary picture processing). The type of TIFF or PDF format used depends on the user's scanner settings.

When delivery mode is selected, the controller creates a file which contains the destination and page information, then the controller sends the file to a server.

2. Twain Mode

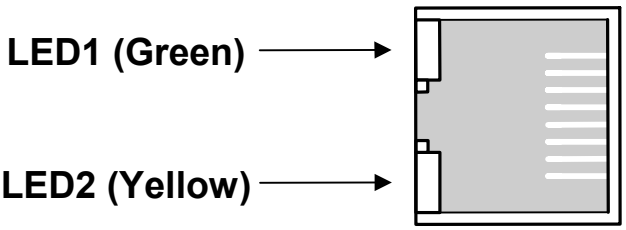


After image processing and image compression, the data (TIFF or PDF) is sent to the scanner Twain driver directory on the computer.

4.4 NETWORK INTERFACE

4.4.1 LED INDICATORS

The LED is on the optional controller box.



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Description	On	Off
LED1 (Green): Link status	Link success	Link failure
LED2 (Yellow): Data rate	100 Mbps	10 Mbps

4.5 IEEE1394 INTERFACE

4.5.1 SPECIFICATIONS

Hardware Specification

Interface: IEEE1394 (6 pins)
(no power supply, cable power repeated, IEEE1394a-2000 compliant)
Ports: 2 ports
Data rates: 400Mbps/200Mbps/100Mbps

System Requirements

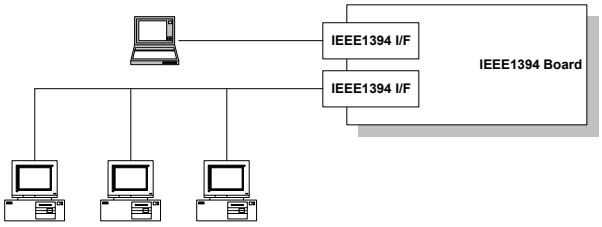
PC: Windows PC with IEEE1394 port
OS: Microsoft Windows 2000 upgraded with service pack 1
Cable length: 4.5m (15ft)

4.5.2 IEEE1394

IEEE1394, also known as FireWire (a name patented by Apple), is an easy-to-use peer-to-peer networking technology allowing speeds of up to 400 Mbps.

The current standard contains the following features, which are supported in most devices:

- Hot swapping (cables can be connected and disconnected while the computer and other devices are switched on)
- Peer-to-peer networking (no hub required)
- No terminator or device ID is required, unlike SCSI
- Automatic configuration of devices upon start-up, or “plug and play.”
- Real-time data transfer at 100, 200, and 400 Mbps
- Common connectors for different devices



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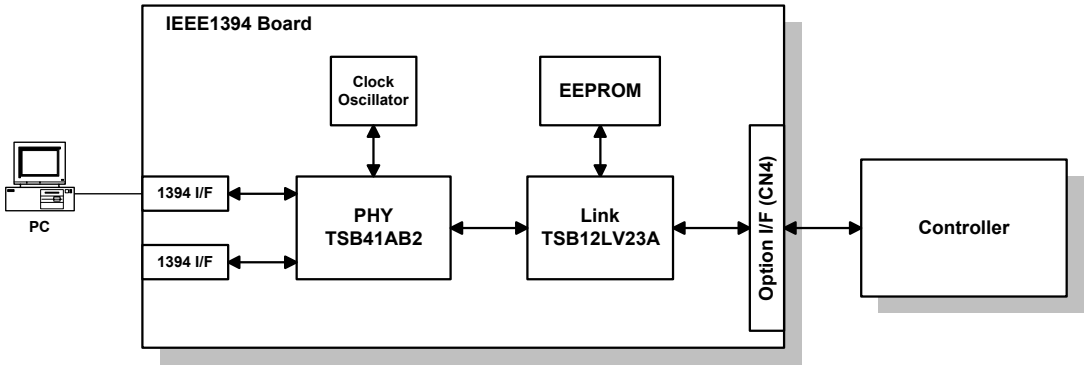
The cable length is limited to 4.5 m (15ft). However, up to 16 cables and 63 devices can be connected to an IEEE1394 network.

IEEE1394 cables can be either 4-pin (data only) or 6-pin (data and power). IEEE1394 allows either 6-pin or 4-pin connectors. However, this machine only uses the 6-pin connectors. The machine has two 6-pin ports.

4.5.3 BLOCK DIAGRAM



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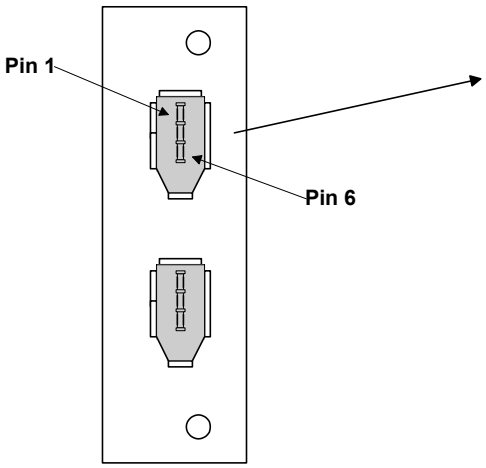
- PHY: Physical layer control device
- Link: Link layer control device
- EEPROM: 256-byte ROM

4.5.4 PIN ASSIGNMENT



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Pin assignment	
Pin 1	Pin 4
Pin 2	Pin 3
Pin 5	Pin 6

Pin No.	Signal Description
1	Cable Power
2	GND
3	Receive strobe
4	Transmit data
5	Receive data
6	Transmit strobe

4.5.5 REMARKS ABOUT THIS INTERFACE KIT

Note the following points about this unit.

- The machine does not print reports specifically for IEEE1394. Just print the Configuration Page at installation to check that the machine recognizes the card.
- There is no spooler or print queue. If a computer tries to print over the IEEE1394 while the printer is busy, the IEEE1394 interface card inside the printer will return a busy signal.
- After starting a job using IEEE1394, do not switch the printer off until the job has been completed. Even though the printer may appear to be dead, it may be in the middle of an IEEE1394 protocol exchange with the computer.
- When using IEEE1394, it is not possible to check the printer status from the computer with a utility such as Printer Manager for Client.

4.5.6 TROUBLESHOOTING NOTES

If there are problems printing using the IEEE1394 interface, check the following.

- Is the computer using Windows 2000 with service pack 1?
- Has the interface card been replaced recently? Each card has an individual address, similar to the MAC address in an Ethernet card. If the card was changed, the driver cannot find the old card. The new card is another device and a new printer appears in Windows Control panel, and this must be configured in the same way as the printer that was replaced (the old printer icon in Windows Control Panel should be deleted) has to be reconfigured.
- Is there a loop somewhere in the network? An IEEE1394 network must be a chain or a branched chain. There can be no loops.
- Try to find out where in the chain the problem is occurring. Test the machine one-to-one with the computer to determine if the printer is defective (when the printer's interface cable is plugged in, the computer should see 'Printer Ready'; when the cable is disconnected, the computer should see 'Offline').

4.6 IEEE 802.11B (WIRELESS LAN)

4.6.1 SPECIFICATIONS

The IEEE 802.11b wireless LAN interface card is available as an option for this machine.

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 transmission rates:	Speed	Distance
	11 Mbps	140 m (153 yd.)
	5.5 Mbps	200 m (219 yd.)
	2 Mbps	270 m (295 yd.)
	1 Mbps	400 m (437 yd.)
Network protocols:	TCP/IP, Apple Talk, NetBEUI, IPX/SPX	
Bandwidth:	2.4GHz (divided over 14 channels, 2400 to 2497 MHz for each channel)	

The wireless LAN cannot be active at the same time as the Ethernet LAN. The following user tool setting determines which LAN is active: System Settings – Interface Settings – Network - LAN Type.

LED Indicators

LED	Description	ON	OFF
LED 1 (Green)	Link Status	Linked	No Link
LED 2 (Orange)	Power Distribution	Power On	Power Off

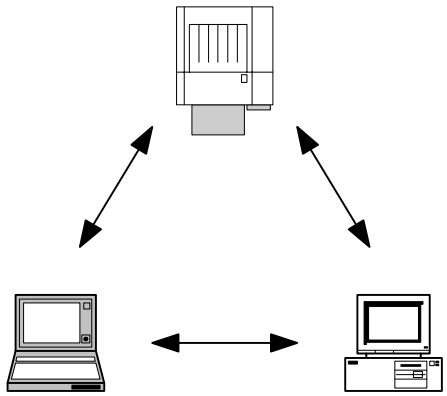
4.6.2 TRANSMISSION MODES

Wireless communication has two modes: 1) ad hoc mode, and 2) infrastructure mode.

Ad Hoc Mode

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



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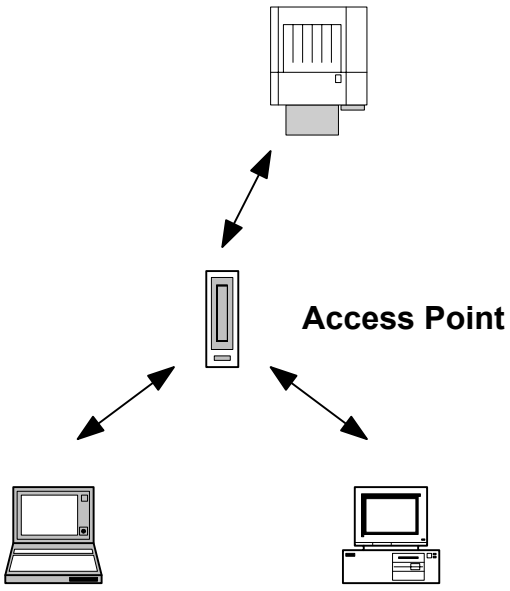
Infrastructure Mode

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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4.6.3 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.

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.

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.

4.6.4 WIRELESS LAN 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.

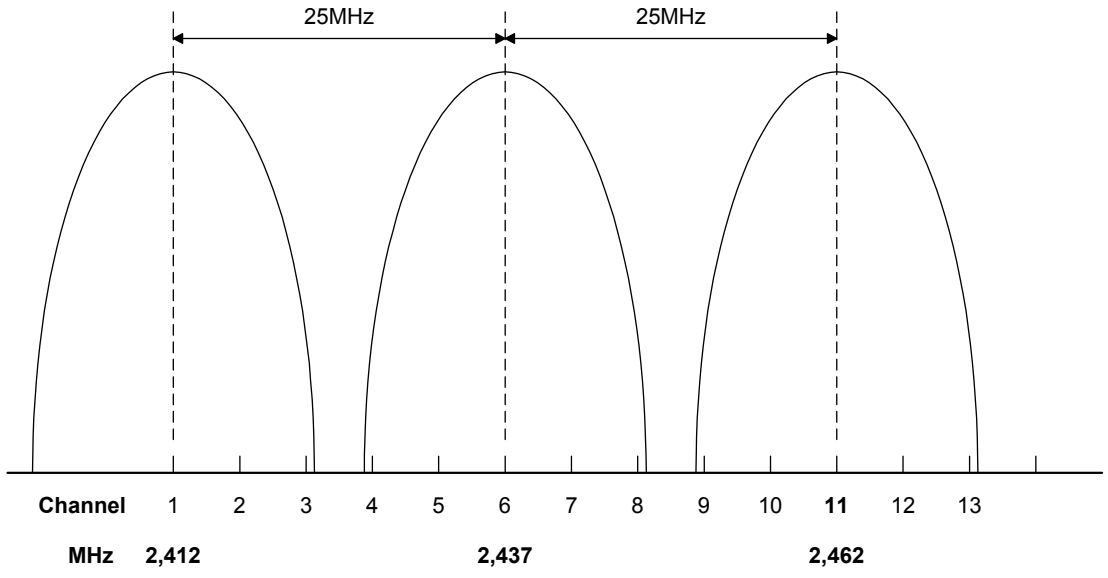
Status Display	Communication Status
Good	76 ~ 100
Fair	41 ~ 75
Poor	21 ~ 40
Unavailable	0 ~ 20

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.



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Troubleshooting Procedure

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 following user tool: Host Interface menu - Network Setup - LAN Type.
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.

4.7 BLUETOOTH

4.7.1 SPECIFICATIONS

Bluetooth wireless provides radio links between mobile computers, mobile phones and other portable handheld devices.

Bluetooth contains the following features.

- Cheaper compared to the IEEE802.11b wireless LAN.
- Many protocols for infrared transmission (IrDA) can be used with Bluetooth.
- A Bluetooth device can connect to other Bluetooth devices without any settings.

Standard applied:	Bluetooth 1.1 (Bluetooth Special Interest Group)
Data transfer rates:	1 Mbps
Bandwidth:	2.4GHz Frequency Hopping Spread Spectrum (FHSS)

Piconet:
Bluetooth devices communicate with each other device in the ad hoc mode. This network is called a "Piconet". A Piconet may contain a maximum of 8 Bluetooth devices.

There is one master device and seven slave devices in a Piconet. The master device controls the hopping frequency and timing, as well as storing the ID codes of the slave devices. The master and slave devices can be swapped. Once the master device leaves the Piconet, a slave device becomes the new master.

Machines with the Bluetooth option become potential slave devices to connect to the PC.

FHSS (Frequency Hopping Spread Spectrum):
The Bluetooth device divides 2402 to 2480 MHz into 79 channels of 1 MHz width, and changes the channel 1600 times per second. If other devices in the LAN are using the same radio band, Bluetooth can avoid interference from the other devices.

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4.7.2 BLUETOOTH PROFILES

A Bluetooth device will not operate if it is located to close another Bluetooth device. However, the Bluetooth device should support the protocols to communicate with each other. There are many types of Bluetooth and service protocols. These are listed below.

Here are 14 profiles for Bluetooth as follows.

- Generic Access Profile
- Service Discovery Profile
- Cordless Telephony Profile
- Intercom Profile
- Serial Port Profile
- Headset Profile
- Dial-up Networking Profile
- Fax Profile
- LAN Access Profile
- Generic Object Exchange Profile
- Object Push Profile
- File Transfer Profile
- Synchronization Profile
- Hardcopy Cable Replacement Profile

Serial Port Profile (SPP) and Hardcopy Cable Replacement Profile (HCRP) are used for the printer products.

SPP is used is place of the serial port, while HCRP is used in place of the parallel port.

4.7.3 BLUETOOTH SECURITY FEATURES

Public and Private Mode. The PC can browse Bluetooth devices. The machine's default is public mode. The PC cannot browse the machine if it has been changed to private mode.

PIN Code (Personal Identification Number). When the PIN code is used, the PC connects to the device that sent the PIN code. The PIN code is a 4 digit number. This machine uses the last four digits of the machine's serial number. It cannot be changed.

4.8 USB

4.8.1 SPECIFICATIONS

USB connectivity is provided as an option for this machine.

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.

4.8.2 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 provides the following features:

- Plug & Play. As soon as a new device is connected via USB, the operating system recognizes it, and the appropriate driver is installed for it automatically if the driver is available. If the driver is not available, a message prompts the user for the driver disk for immediate installation.
- 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
- Bi-directional data communication between device and host computer via a 4-byte header and DEVICE ID.

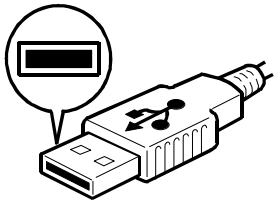
USB 2.0 is an evolution of the USB 1.1 specification. It uses the same cables, connectors, and software interfaces so the user will see no change. It provides an easy-to-use connection to a wide range of products with a maximum data rate of 480 Mbps (high speed).

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.

4.8.3 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.

Type “A” connector



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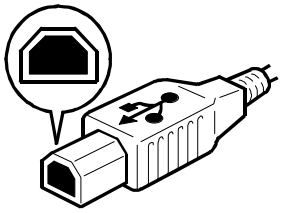
Type “A” connector



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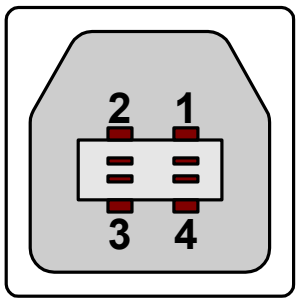
4.8.4 PIN ASSIGNMENT

The controller has a type “B” receptacle.

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



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4.8.5 REMARKS ABOUT USB

- 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 a 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.

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

1.1 PRINTER

Printing Speed:	Maximum 18 ppm (A4/LT LEF): B122/B123 model Maximum 15 ppm (A4/LT LEF): B121 model
Printer Languages:	PCL6/PCL5e PostScript 3 (option) RPCS (Refined Printing Command Stream) - an original Ricoh PDL)
Resolution:	600 dpi (PCL 6/PCL5e/PS3/RPCS) 300 dpi (PCL6 PCL5e/PS3) 200 dpi (RPCS)
Resident Fonts:	PCL: 35 Intellifonts 10 True Type fonts PS3: 136 fonts (24 Type 2 fonts, 112 Type 14 fonts)
Host Interfaces:	Ethernet (100 Base-TX/10 Base-T) (standard) Bi-directional IEEE1284 parallel x 1 (option) IEEE1394 (option)
Network Protocols:	TCP/IP
Memory:	128 MB
Supported Paper Size	See the copier service manual.

1.2 SCANNER

Standard Scanner Resolution:	Main scan/Sub scan 600 dpi
Available scanning Resolution Range:	Twain Mode: 100 ~ 600 dpi E-mail/Network Delivery Scanner: 100 dpi, 200 dpi, 300 dpi, 400 dpi, 600 dpi
Scanning Throughput:	25 spm for TWAIN 43 spm for Delivery mode (A4L, ADF mode)
Interface:	Ethernet (100 Base-TX/10 Base-T for TCP/IP), IEEE 1394, IEEE 802.11b (Wireless LAN)
Compression Method:	Binary: TIFF (MH, MR, MMR)

2. SOFTWARE ACCESSORIES

2.1 PRINTER

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

PRINTER DRIVERS

Printer Language	Windows 95/98/ME	Windows NT4.0	Windows 2000	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.

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)	A printer management utility for network administrators. NIB setup utilities are also available.
SmartNetMonitor for Client (Win 95/98/ME, NT4, 2000)	A printer management utility for client users. Peer-to-peer printing utility and parallel/recovery printing functions are included.
1394 Utility (Win 2000)	A utility for removal IEEE 1394 printers.
DeskTopBinder V2 Lite (Win 95/98/ME, NT4, 2000)	A utility for document management
LAN-Fax M1 (Win 95/98/ME, NT4, 2000)	PC LAN FAX driver
Address Book (Win 95/98/ME, NT4, 2000)	A utility for PC LAN FAX.
Printer Utility for Mac	This software provides several convenient functions for printing from Macintosh clients.

2.2 SCANNER

The scanner driver and utility software are provided on one CD-ROM.

SCANNER DRIVER

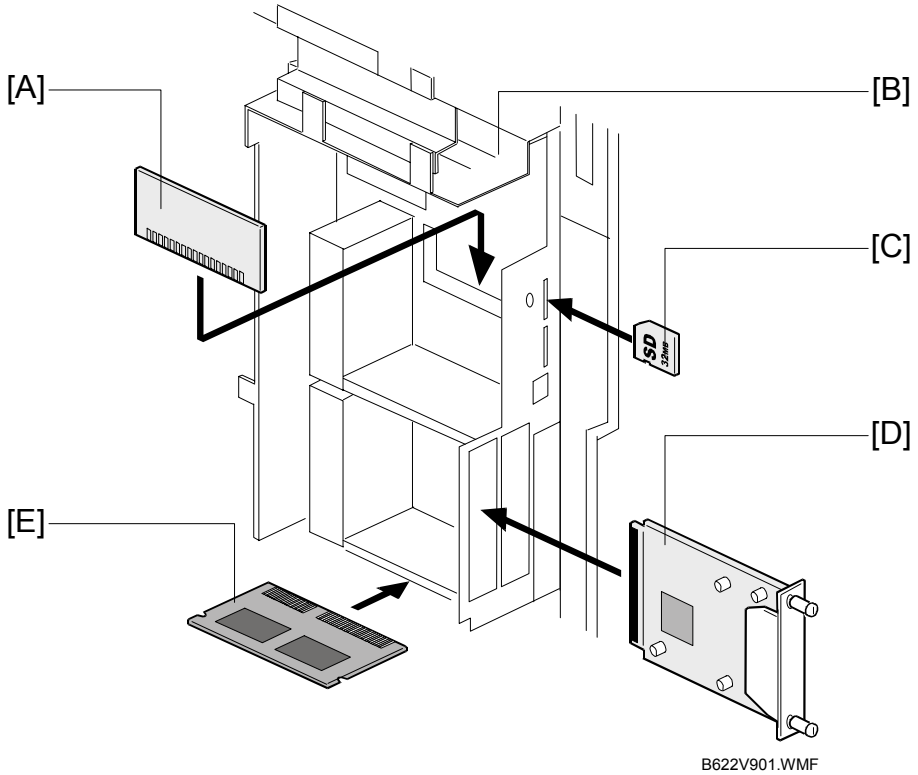
- Network Twain Driver for Win95/98/ME/NT3.51/NT4.0/2000

SCANNER UTILITIES

- Scan Router V2 Lite (Cherry-Lite) for Win95/98/ME/NT4.0/2000
- Desk Top Binder V2 Lite (Plumeria-Lite) for Win95/98/ME/NT4.0/2000

3. MACHINE CONFIGURATION

3.1 SYSTEM COMPONENTS



Item	Machine Code		Remarks
Controller Box	B658	[B]	Required to install the printer/scanner unit
Printer/Scanner unit	B622	[C]	
RAM DIMM	—	[E]	Distributed with the printer/scanner unit
PostScript 3	B681	[A]	
IEEE 1394	B581	[D]	One from the four
IEEE 1284	B679	[D]	
Wireless LAN	B682	[D]	
Bluetooth	G377	[D]	