HOME

Konica

SERVICE MANUAL

Model
IP-011

FEBRUARY 2000

CSM-IP011

KONICA BUSINESS TECHNOLOGIES, INC.

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IP-011

SERVICE MANUAL

FEBRUARY 2000

Used on Konica Model 7020

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IMPORTANT NOTICE

Because of the possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Business Technologies strongly recommends that all servicing be performed by Konica-trained service technicians only.

Changes may have been made to this equipment to improve its performance after this service manual was printed. Accordingly, Konica Business Technologies, Inc., makes no representations or warranties, either expressed or implied, that the information contained in this service manual is complete or accurate. It is understood that the user of this manual must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service manual is intended.

Corporate Publications Department

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SAFETY PRECAUTIONS

Installation Environment

Safety considerations usually are directed toward machine design and the possibility of human error. In addition, the environment in which a machine is operated must not be overlooked as a potential safety hazard.

Most electrical equipment is safe when installed in a normal environment. However, if the environment is different from what most people consider to be normal, it is conceivable that the combination of the machine and the room air could present a hazardous combination. This is because heat (such as from fusing units) and electrical arcs (which can occur inside switches) have the ability to ignite flammable substances, including air.

When installing a machine, check to see if there is anything nearby which suggests that a potential hazard might exist. For example, a laboratory might use organic compounds which, when they evaporate, make the room air volatile. Potentially dangerous conditions might be seen or smelled. *The presence of substances such as cleaners, paint thinners, gasoline, alcohol, solvents, explosives, or similar items should be cause for concern.*

If conditions such as these exist, take appropriate action, such as one of the following suggestions.

- Determine that the environment is controlled (such as through the use of an exhaust hood) so that an offending substance or its fumes cannot reach the machine.
- Remove the offending substance.
- Install the machine in a different location.

The specific remedy will vary from site to site, but the principles remain the same. To avoid the risk of injury or damage, be alert for changes in the environment when performing subsequent service on any machine, and take appropriate action.

Unauthorized Modifications

Konica copiers have gained a reputation for being reliable products. This has been attained by a combination of outstanding design and a knowledgeable service force.

The design of the copier is extremely important. It is the design process that determines tolerances and *safety margins* for mechanical, electrical, and electronic aspects. It is not reasonable to expect individuals not involved in product engineering to know what effect may be caused by altering any aspect of the machine's design. Such changes have the potential of degrading product performance and reducing safety margins.

For these reasons, *installation of any modification not specifically authorized by Konica Business Machines U.S.A., Inc., is strictly prohibited.*

The following list of prohibited actions is not all-inclusive, but demonstrates the intent of this policy.

- Using an extension cord or any unauthorized power cord adapter.
- Installing any fuse whose rating and physical size differs from that originally installed.
- Using wire, paper clips, solder, etc., to replace or eliminate any fuse (including temperature fuses).
- Removing (except for replacement) any air filter.
- Defeating the operation of relays by any means (such as wedging paper between contacts).
- Causing the machine to operate in a fashion other than as it was designed.
- Making any change which might have a chance of defeating built-in safety features.
- Using any unspecified replacement parts.

General Safety Guidelines

This copier has been examined in accordance with the laws pertaining to various product safety regulations prior to leaving the manufacturing facility to protect the operators and service personnel from injury. However, as with any operating device, components will break down through the wear-and-tear of everyday use, as will additional safety discrepancies be discovered. For this reason, it is important that the technician periodically performs safety checks on the copier to maintain optimum reliability and safety.

The following checks, not all-inclusive, should be made during each service call:

CAUTION: Avoid injury. Ensure that the copier is disconnected from its power source before continuing.

- Look for sharp edges, burrs, and damage on all external covers and copier frame.
- Inspect all cover hinges for wear (loose or broken).
- Inspect cables for wear, frays, or pinched areas.

- Ensure that the power cord insulation is not damaged (no exposed electrical conductors).
- Ensure that the power cord is properly mounted to the frame by cord clamps.
- Check the continuity from the round lug (GND) of the power cord to the frame of the copier – ensure continuity. An improperly grounded machine can cause an electrically-charged machine frame.

Safeguards During Service Calls

Confirm that all screws, parts, and wiring which are removed during maintenance are installed in their original positions.

- When disconnecting connectors, do not pull the wiring, particularly on AC line wiring and high voltage parts.
- Do not route the power cord where it is likely to be stepped on or crushed.
- Carefully remove all toner and dirt adhering to any electrical units or electrodes.
- After part replacement or repair work, route the wiring in such a way that it does not contact any burrs or sharp edges.
- Do not make any adjustments outside of the specified range.

Applying Isopropyl Alcohol

Care should be exercised when using isopropyl alcohol, due to its flammability. When using alcohol to clean parts, observe the following precautions:

- Remove power from the equipment.
- Use alcohol in small quantities to avoid spillage or puddling. Any spillage should be cleaned up with rags and disposed of properly.
- Be sure that there is adequate ventilation.
- Allow a surface which has been in contact with alcohol to dry for a few minutes to ensure that the alcohol has evaporated completely before applying power or installing covers.

Summary

It is the responsibility of every technician to use professional skills when servicing Konica products. There are no short cuts to high-quality service. Each copier must be thoroughly inspected with respect to safety considerations as part of every routine service call. The operability of the copier, and more importantly, the safety of those who operate or service the copier, are directly dependent upon the conscientious effort of each and every technician.

Remember...when performing service calls, use good judgement (have a watchful eye) to identify safety hazards or potential safety hazards that may be present, and correct these problem areas as they are identified -- the safety of those who operate the copier as well as those who service the copier depend on it!

Overview

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■ Product specifications

● IP-011 printer controller

Type: Built in Konica 7020 series copy machine

Paper size: A3R, A4, A4R, A5R, B4R, B5, B5R, B6R, 11"X17", 8.5"x14"R, 8.5"x11", 8.5"x11"R, 5.5"x8.5"R

Paper feeding: Same as copier

Output stack capacity: Same as copier

Mode: Possible dual mode of copy machine/printer (up to 5 jobs)

Next job reservation: Next copy job can be reserved during print job.

Special printing features: Printing on both faces, choice of paper type, zoom function, choice of paper tray, choice of output tray, choice of print quality, Alternate function, sort/group function, staple function, layout function, front/back cover intersheet function, booklet function, smoothing function, page protection function, watermark function

Direction of printing: portrait, landscape

Resolution: 600 dpi

Gradation: 2

Number of output pages: 1-999

Warm-up: Same as copier

CPU: Power PC 401GF

Memory: 16MB (standard), expandable up to 80MB (option:MU-403/MU-404)

Cards: Controller board x1

PCI intermediate board x1

KN-304 network board (option)

Interface: Parallel port

Centronics (IEEE 1284)/Amphenol male 36pin connector

Network interface: (option)

KN-304 network board

Network: Ethernet (100BaseT/10BaseT)

Protocols: IPX/SPX (NetWare), LPD/LPR (TCP/IP),
peer-to-peer (TCP/IP)

Compliant OS:

Windows 95/98

Windows NT 4.0

Windows 2000 (to be supported)

Printer Language:

Destiny: WinStyler Nozomi Ver 2.0

Printer drivers:

Windows 95/98 printer driver

Windows NT printer driver

Host computer: A Windows based computer

Finisher: FS-107

Size: 240 mm(W) x 160 mm(H) x 37 mm(D)

Weight: Approx. 1.1 kg

Power source: 5 V, 2 A or less (supplied from copier)

Operating conditions:temperature: 5-55˚C,
humidity: 5-95%RH (condensation not allowed)

Restrictive Conditions:

- In the Printer mode, the ECK (Electric Key Counter) of the Konica 7020 series is not available.
- Although the Weekly Timer function of the Konica 7020 series is available in the Printer mode, the power is not turned Off until the data output is finished when print data remains in the E-RDH

Notice: Specifications are subject to change for improvements without notice.

■ Product overview

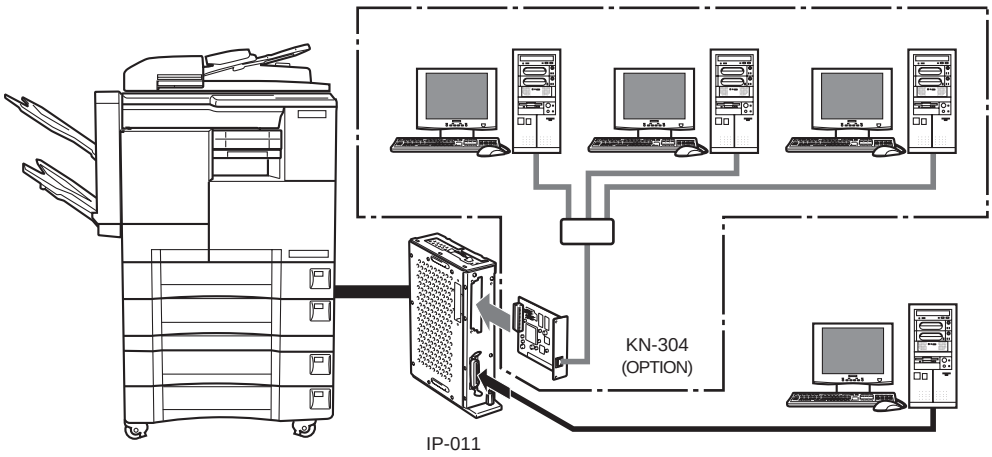
● Capabilities of the IP-011

The Konica IP-011 printer controller allows you to use the Konica 7020 series copying machine as a printer connected to computers and a network. It receives print jobs from computers and network and converts them into image data (video data) that the Konica 7020 series copying machine prints out.

The IP-011 printer controller is characterized as follows.

- Built in the Konica 7020 series copying machine.
- Host-base printer of Windows only.
- Printer status can be monitored and several settings can be changed from the status monitor/Control Panel through parallel line.
- The drivers interfacing with Windows 95/98 and NT allow use of the functions of the Konica 7020 series copying machine.
- The KN-304 network board allows use of the IP-011 as a network printer.
- Use of flash memory enables to upgrade the system software through the parallel port.

This Service Handbook describes hardware construction, disassembly and assembly procedures, troubleshooting, and appendixes (upgrading firmware, error messages, etc).



● Startup sequence of the 7020 series + IP-011 system

As the IP-011 is built in the 7020 series, supplying power to the IP-011 and its initialization starts as soon as you turn on the copier. The startup sequence is as follows.

1. You turn on the copier.

   Supplying power to start the IP-011 starts. Its CPU works to test the system memory and the system program starts running.

2. The IP-011 performs system check.

3. On completion of system check, the controller's icon appears on the copier LCD screen.

   If printer mode is selected, a message "Ready to print" appears.

● Data processing of the IP-011 (See data flow.)

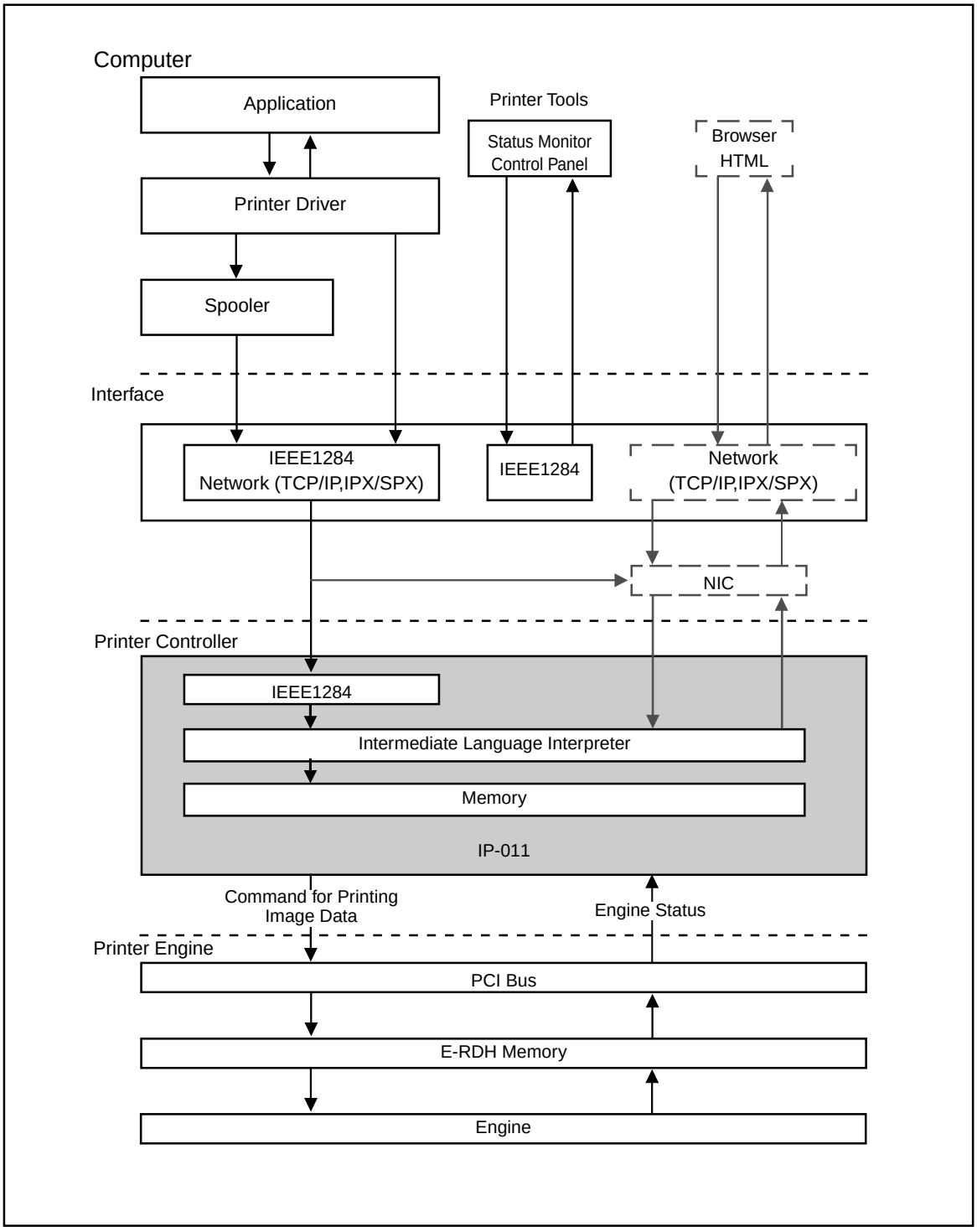
When you attempt to print a document data from a computer connected the IP-011, processing will be made as follows.

1. The print job comes from the computer (or network) to the parallel port (or Ethernet port if the KN-304 is used).

2. The CPU, mounted on IP-011, generates the bit map image of one page to another in the image memory.

3. The bit map image is transferred in the form of video signals from the image memory to the copier and printed.

● Data flow


Computer
Application
Printer Tools
Status Monitor
Control Panel
Browser
HTML
Printer Driver
Spooler
Interface
IEEE1284
Network (TCP/IP,IPX/SPX)
IEEE1284
Network
(TCP/IP,IPX/SPX)
NIC
Printer Controller
IEEE1284
Intermediate Language Interpreter
Memory
IP-011
Command for Printing
Image Data
Engine Status
Printer Engine
PCI Bus
E-RDH Memory
Engine

■ Option

● KN-304 network board

If the IP-011 is fitted with the KN-304 network board, the 7020 series can be used as a remote printer from any computer belonging to a network (NetWare/Windows).

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Assembly / Disassembly

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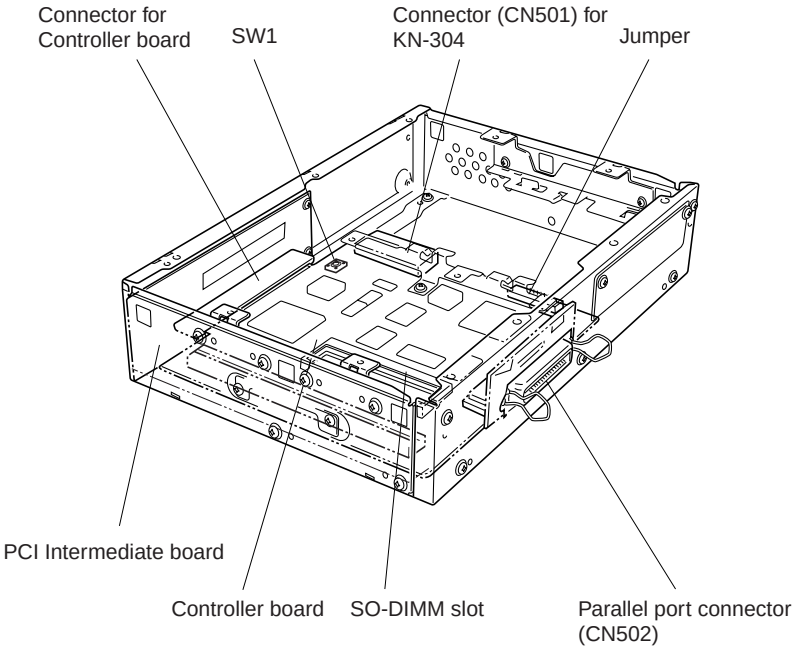
■ Construction



⚠Caution:

If grounding is not made securely, the cards can be damaged during work. Make sure to ground your body securely by using a wrist strap before starting to work.

Tool

- Use a phillips head screwdriver.

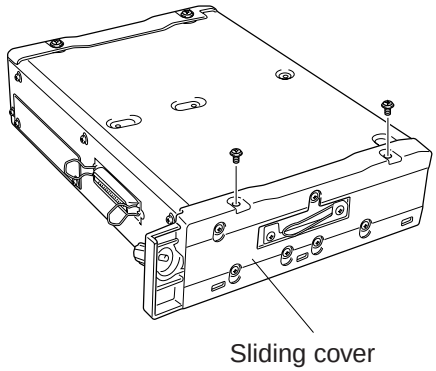
Reference information:

As the IP-011 is provided with a “flash memory”, no tool is needed to replace ROM for upgrading the firmware.

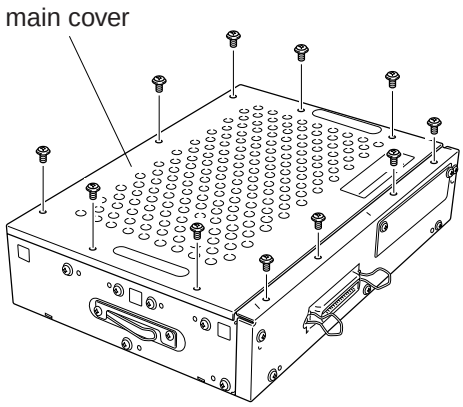
■ Disassembly/assembly procedures

● Removal/installation of boards

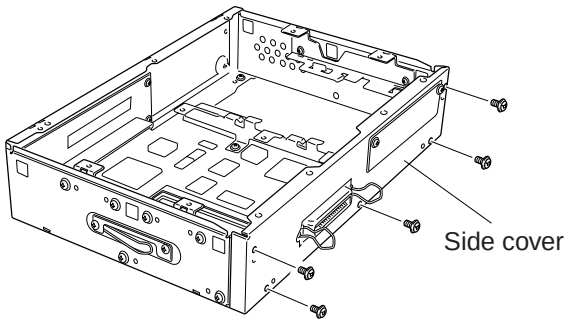
1. Remove the sliding cover. (2 screws)



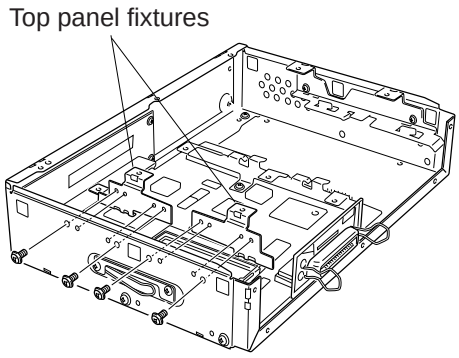
2. Remove the main cover. (11 screws)



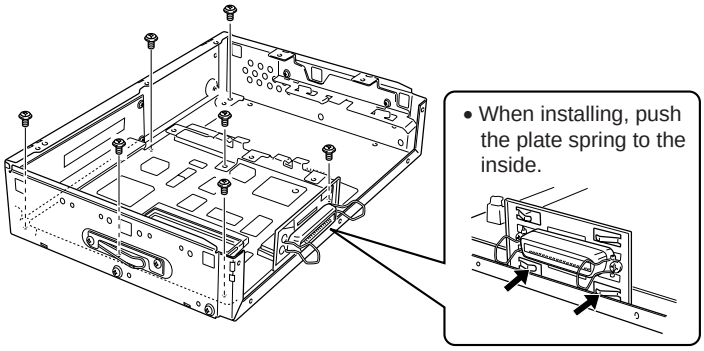
3. Remove the side cover of the parallel connector side. (5 screws)



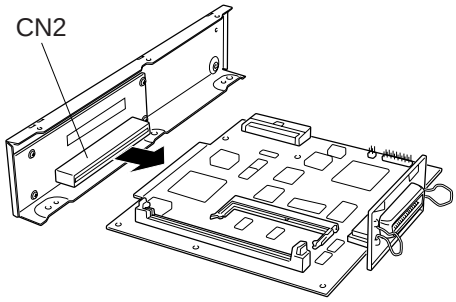
4. Remove the top panel fixtures. (4 screws)



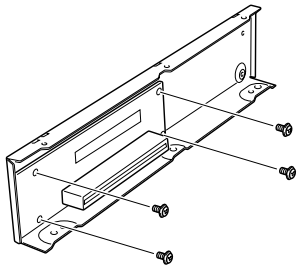
5. Remove the board unit and the side cover of the copying machine side all together. (7 screws)



6. Pull off the controller board at the connector (CN2) on the PCI Intermediate board fitted to the side cover.



7. Remove the PCI Intermediate board. (4 screws)



8. To install, reverse the removal procedure.

● Expanding the memory (MU-403/MU-404)

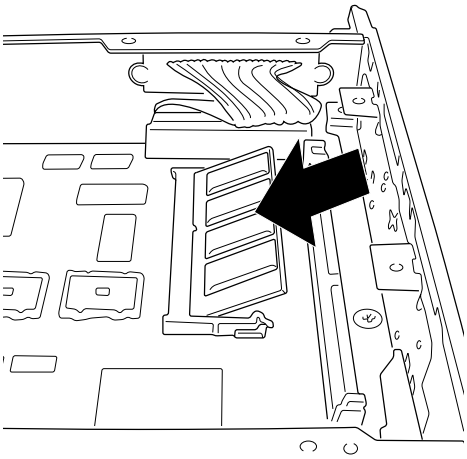
The IP-011 is provided with 16MB memory (standard specification). You can expand the memory capacity up to 80MB by installing a SO-DIMM card additionally into a slot on the controller board.

⚠Caution:

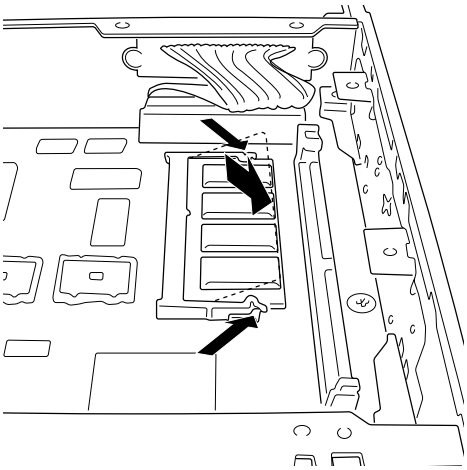
- With the memory expanded, the IP-011 can rasterise more pages during waiting previous print job than before expansion.
- If memory overflow occurs, expand the memory.
- When adding a DIMM card, they must be all of the same type, with or without parity.
- The memory card slot is prepared for expansion of 32MB or 64MB.

Installing DIMM

1. Insert the connector of DIMM obliquely.



2. Push the end of the DIMM and lock it with levers provided on both sides of the socket.



⚠Caution:

The DIMM card can fit into the socket only in such a direction that the notch provided on the bottom of DIMM matches with the one on the socket.

Removing DIMM

1. Release the lock levers provided on both sides of the socket. Take out the DIMM in the upper oblique direction.

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Troubleshooting

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■ Troubleshooting

This section offers a summary of information on troubleshooting that technicians could refer to easily and would minimize the time of interruption of work.

● Troubleshooting of the IP-011 and copier

Symptoms	Causes	Actions
The printer icon does not appear on the copier's display in about 2 minutes after power-on.	No power supply to IP-011.	Check if the IP-011 is connected with the copier properly.
"Warming up" does not disappear.	Copier is in trouble.	Locate the cause of trouble of the copier.
"Initialization " does not disappear on the copier screen.	The IP-011J has not started properly.	See the column of "IP-011 does not start".
Printout is defective, or nothing can be printed.	The controller board or some boards of the copier are defective.	Put the 7020 in 36 mode and perform test. If it operates properly, controller board may be failure.
IP-011 does not start.	The controller board is inactive.	Check the connector of the controller board. Replace the controller board as necessary.
	Software of the IP-011 is destroyed.	Reinstall the IP-011's firmware.
Test print can be produced but not from the parallel port.	The parallel port has something wrong or the cable is wrong or, the problem is on the computer side.	Check the cables (internal/external). Perform test using a data generator or a well-proven PC/I/O cable. Replace the controller board as necessary.

Symptom	Possible causes	Actions
Test print can be produced but not from the network port.	The network board is inactive or not installed properly.	Examine the network card. Check all connectors. Replace the network board as necessary.
Test print can be produced and all ports are good, but user jobs cannot be printed.	Some software error has happened.	IP-011's software or application program has something wrong. Save the file, which failed to be printed, in the disk and analyze the problem by suitable means.

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Appendices

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■ Rewriting the firmware

The IP-011 is equipped with flash ROM and the firmware can be upgraded via the parallel port.

● Preparation

- Connect the IP-011 through a parallel cable to the computer that is used to upgrade the firmware.
- Prepare the replacing firmware in the hard disk of the computer or in the form of CD-ROM.
- Turn on the copier's main and auxiliary powers.

● Procedure of rewriting the firmware

1. On the monitor screen of the computer, click the Start button. Click and select [MS-DOS Prompt] from [Program].

   The [MS-DOS prompt] appears.

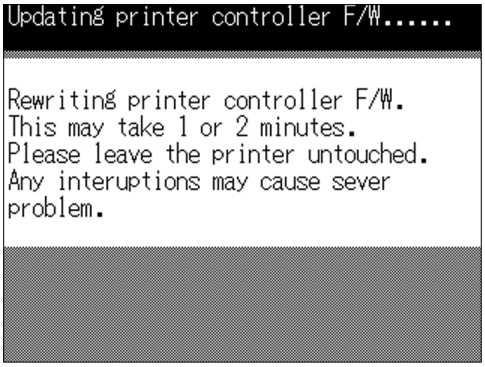
2. Responding to the [MS-DOS prompt], designate the folder where the firmware is held. Execute a COPY command and press the Enter key.

   <Example> C:\copy filename.xxx lpt1 /b

3. On completion of file transfer from the computer, a message indicating the completion of transfer appears on the copier LCD control panel. Press the OK button.

   Now rewriting the firmware starts.

A message indicates that the firmware is being rewritten.

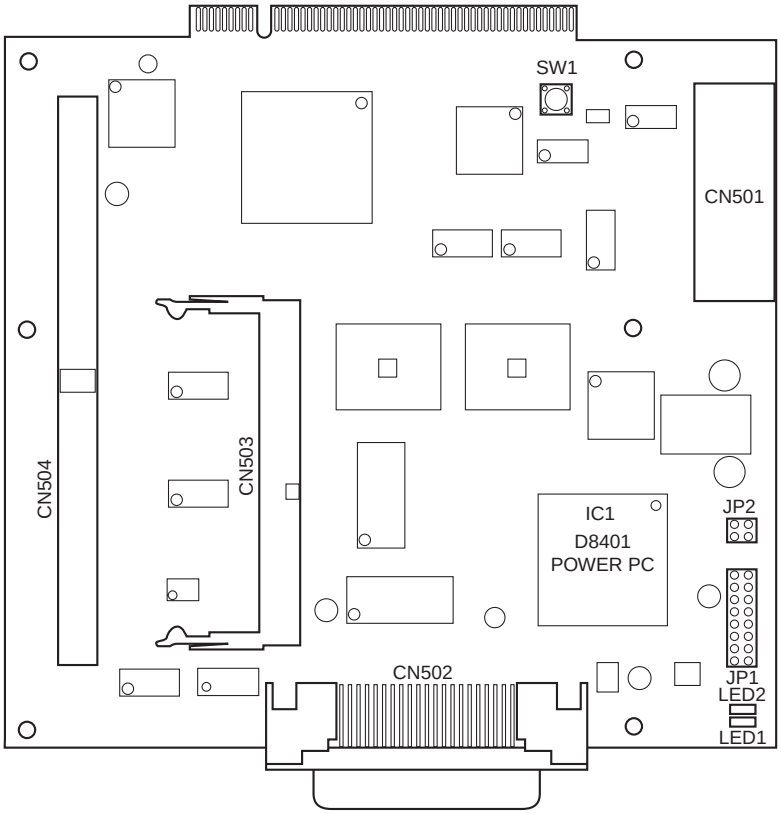


4. On completion of firmware renewal, a message indicating the completion appears. Then turn off and on the Main SW of the copier.

● In case of failure in rewriting the firmware

If rewriting the firmware fails for some reason, it may be possible to redo the rewriting procedure when the error happened in file transfer from the computer. Turn off and on the Main SW of the copier and try the procedure again.

■ Functions of parts mounted on boards



● LED indications and board status

The board status can be known from the indications of the LEDs mounted on the controller board.

LED1 (green) lights: Power is being supplied.

LED (red) lights: Ready for data transfer.

● Push switch

No need to operate the switch.

SW1: Resets system. (only for development purpose)

● Jumpers

No need to use the jumpers.

JP1: Not installed (no function)

JP2: For production purpose

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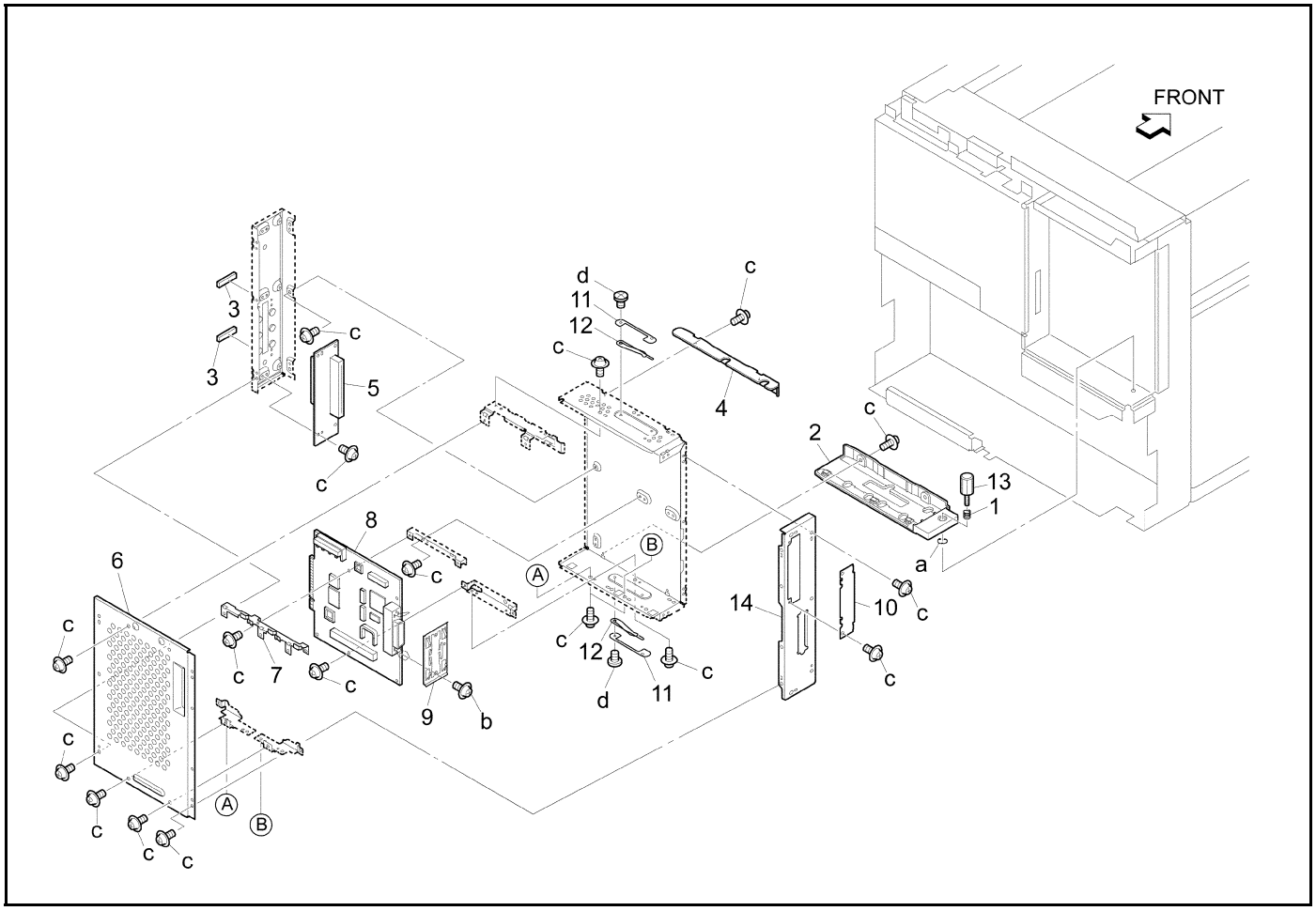
IP-011 PARTS



Ref. No.	Part No.	Description	Ref No.	Part No.	Description
1	13FM73191	Auxiliary spring	10	13FM73090	Cover plate/1
2	13FM73131	Slide part/lower	11	13FM73110	Spring hold plate
3	13FM73200	Electricity seal	12	13FM73170	Ground spring/2
4	13FM73140	Slide part/upper	13	450011270	Screw
5	13FM-9021	Printer relay board assembly/1	14	13FM73030	Board mount plate/C
6	13FM73040	Board cover plate/A	a	00Z670306	
7	13FM73100	Board support plate/E	b	00Z113065	
8	13FM-9011	Printer control board assembly	c	00Z193041	
9	13FM73180	Ground spring/3	d	00Z183042	

Konica

TECHNICAL BULLETIN

PRODUCT: **IP-011**
For 7020, 7030

NO.: **1**

DATE: **3/16/01**

SUBJECT: **INCOMPATIBILITY BETWEEN NVRAM AND FIRMWARE**

A new type of NVRAM chip (IC2) is being installed on the IP-011 control board and is only compatible with newer versions of firmware. New chips installed in IP units below a certain firmware level will render it impossible to change the default setting of the displayed language on the screen to anything other than English. For example, if attempting to change the screen language default setting to *French* using the Printer Setting ⇨ Language Selection function, the setting will default back to the factory setting (English) upon power down/power up of the IP unit.

To enable a language default other than English, firmware version 2.11 or above (except as note below) must be installed in IP units equipped with the new NVRAM.

The table below provides information concerning the compatibility/incompatibility of the NVRAM chips with respect to the firmware version installed.

Firmware Version	Old NVRAM (B)	New NVRAM (C)
2.10 and below	Compatible	Incompatible
2.11 and above*	Compatible	Compatible

* Firmware version 2.20 (Special ROM) is incompatible with the new NVRAM.

To determine which NVRAM is installed, refer to the letter designator on the chip. The old NVRAM chip is identified with the letter "B"; the new chip is identified with the letter "C". Refer to the illustration to locate the NVRAM designator. A magnify glass may be required.