
FT-S 5000

Service Manual

(for Power Macintosh Ver.1.2)

(for Windows NT Ver.1.1)

SCREEN



—————  Please keep the following premises and expectations in mind. —————

This service manual is only intended for engineers trained in service procedures and maintenance personnel trained by qualified engineers. Readers are therefore expected to already appreciate the potential hazards presented by this equipment and type of work, as well as understand all the basic operations needed for equipment maintenance.

————— When exporting the machine —————

International transfer of this equipment, any of its parts, components and/or software must be carried out in compliance with the relevant laws and ordinances of the country of export and the country of equipment end-use. We do not assume any responsibility or liability for equipment transferred without regard to proper export/import regulations or procedures.

————— Limits of responsibility —————

Please note that equipment specifications are subject to change without notice for updates and improvements. This may cause inconsistencies between the contents of this manual and the equipment you currently possess.

We shall not be held responsible for any damage caused by conditions beyond our control such as customer modification, disassembly or misuse of our products, programs or software, or their use in a defective or deficient environment.

Although great care has been taken in preparing this manual, if you find that certain points seem unclear or in error, please contact Dainippon Screen Mfg. Co., Ltd.

We assume no responsibility or liability for any damage or consequential and/or indirect losses resulting from any accident or malfunction that might occur during the operation of this equipment.

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WARNING

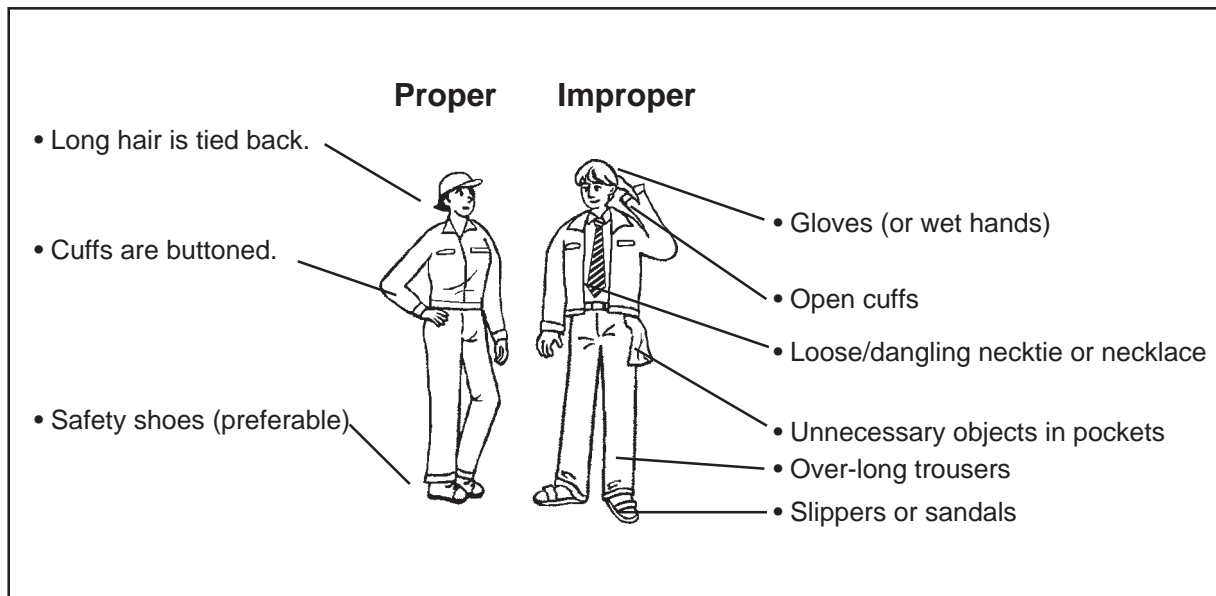
Be sure to follow the instructions below before or during maintenance:

1. Turn OFF the no-fuse breaker on the switch board except when supplying power for an operation required for maintenance.
2. Turn OFF the machine's power switch except when supplying power for an operation required for maintenance.
3. Before starting maintenance, turn OFF the power switch and wait for about five minutes.
4. To prevent electric shocks, always make sure the machine's earth wire is effectively grounded.

CAUTION

Note the following points when performing maintenance:

1. When using general tools, only select those that are specifically designed for the task at hand.
2. All operators must wear appropriate work clothing.



NOTE

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2. Please note that the contents of this manual are subject to change without notice.
3. Although this manual was created with the utmost care, if you discover any errors, omissions or unclear sections, please contact Manufacturing Department I, Dainippon Screen Mfg. Co., Ltd.
4. We assure no responsibility or liability for any damage or consequential and/or indirect losses resulting from any accident or malfunction that might occur during the operation of this equipment.
5. For your safety, this manual must be thoroughly read and understood by all persons charged with operating this machine before they attempt to use it.

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A. Installation

A. Installation

1. Installation conditions

Power supply capacity: 100 V: 2.0A, 0.2 kW 200 V: 1.0 A, 0.2 kW

Operational temperature: $23 \pm 5^{\circ}\text{C}$

Humidity: 50 to 70%

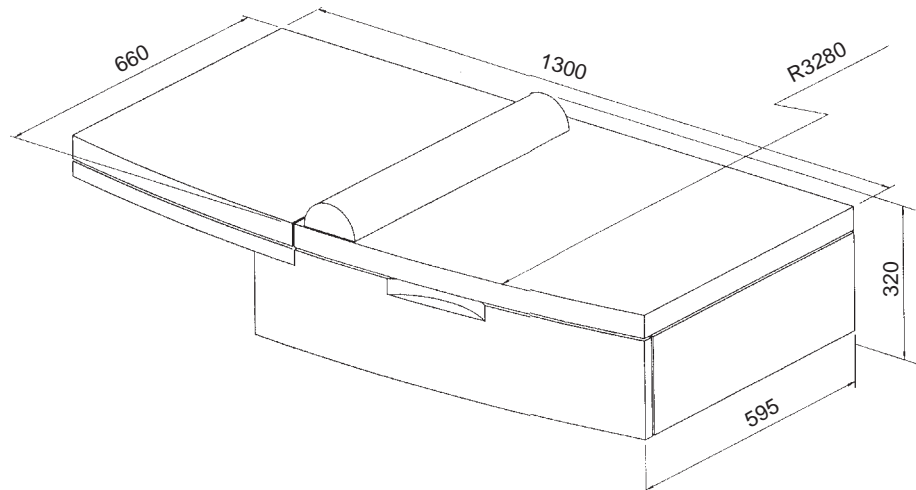
Vibration: 1 Gal or lower in both vertical and horizontal directions (DC ~ 20 Hz)

2. Installation space

- Dimensions of the main section

The dimensions of the main section are shown below.

An open space of 1000 mm is necessary to perform maintenance at the left, right, front and back of the equipment.



- Installation dimensions for the scanner's main section:
(W) 660 X (D) 1300 X (H) 320 mm
- Main section weight: 73 kg

3. Recommended Computer configuration

<Macintosh>

We recommend the following Macintosh environment for using the FT-S5000.

[Recommended configuration]

Computer type		Power Macintosh 9600/233 or higher
Operating system		Mac OS 7.6 or higher
Memory capacity	Plug-in	160 MB or more
	Server and client	256 MB or more
	Server	160 MB or more
	Client	128 MB or more
Empty hard disk space		3 GB or more More than five times that of the images being scanned
Display		21-inch full color display 16,700,000 full color display card

This system works also with the following devices although they are less ideal when compared with the above Macintosh with respect to processing speed and screen display.

Computer type		Power Macintosh 9500, 8500, 8600
Operating system		Mac OS 7.6 or higher
Memory capacity	Plug-in	80 MB or more
	Server and client	128 MB or more
	Server	80 MB or more
	Client	64 MB or more
Empty hard disk space		500 MB or more More than five times that of the images being scanned
Display		17-inch full color display 32768 full color display card

<Windows>

We recommend the following Windows environment for use with the FT-S5000.

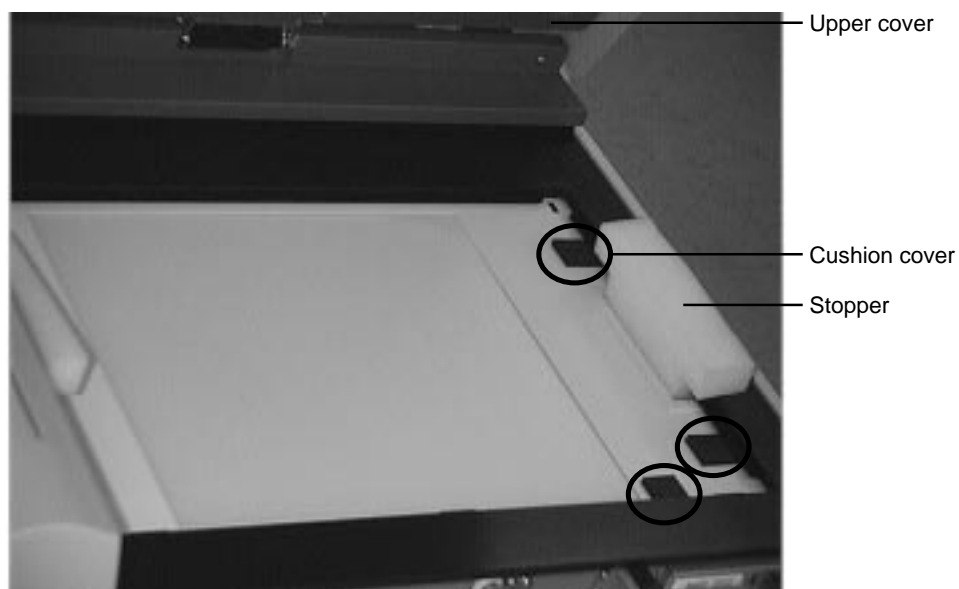
[Recommended configuration]

Computer type		Pentium II 266 MHz or higher
System software		Windows NT4.0 workstation (SP3)
Memory capacity	Server and client	192 MB or more
	Server	96 MB or more
	Client	96 MB or more
Empty hard disk space		3 GB or more More than five times than that of the images being scanned
Display		21-inch full color display Display card : VRAM8 MB or more
SCSI card		Adaptec's AHA-2940UW
Other software		Adaptec's EZ-SCSI Pro V4.5 or more

4. Installation procedure

4-1. Removing the fixing bracket

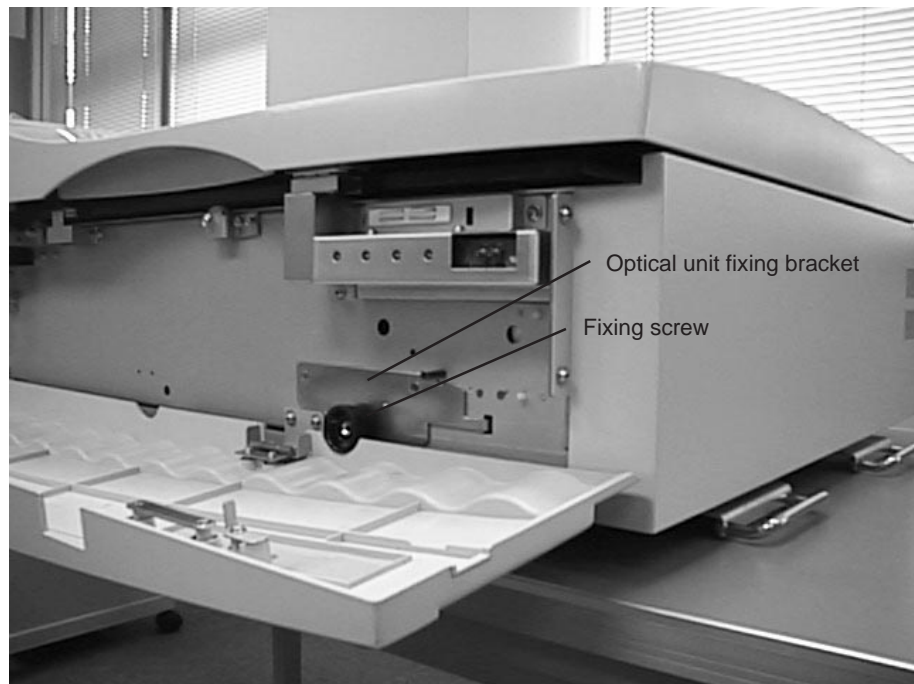
- (1) Open the upper cover and remove the cushion sheet, the tray table stopper and the cushion rubber.



- (2) Open the front cover.



- (3) Loosen the fixing screw to detach the optical unit fixing bracket.

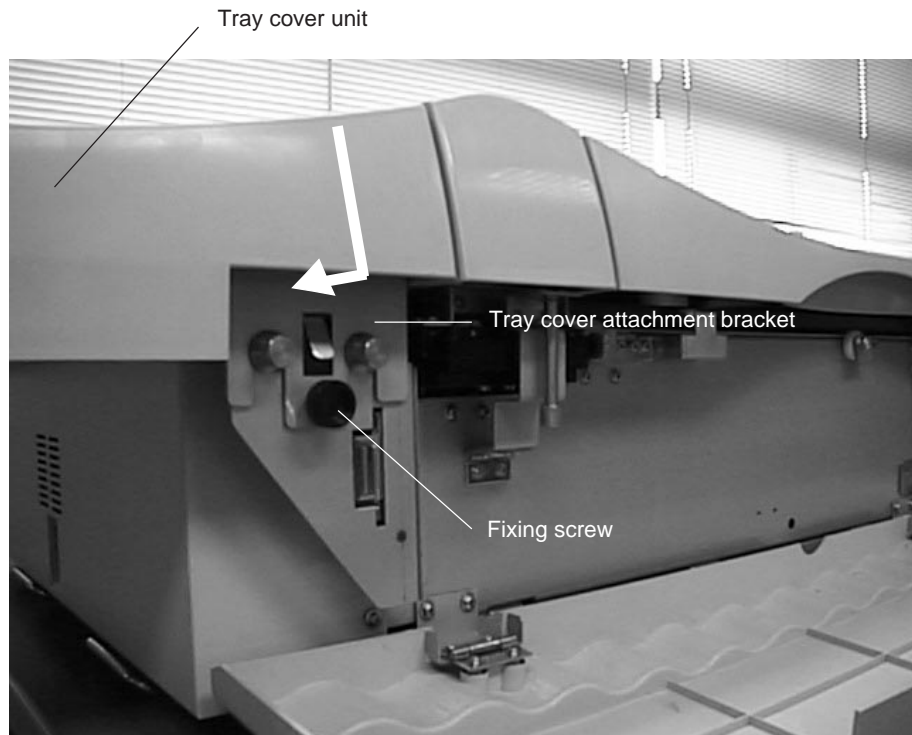


- (4) Invert the released bracket and attach it to the position above its previous position.
(Take care with the orientation of the fixing bracket.)



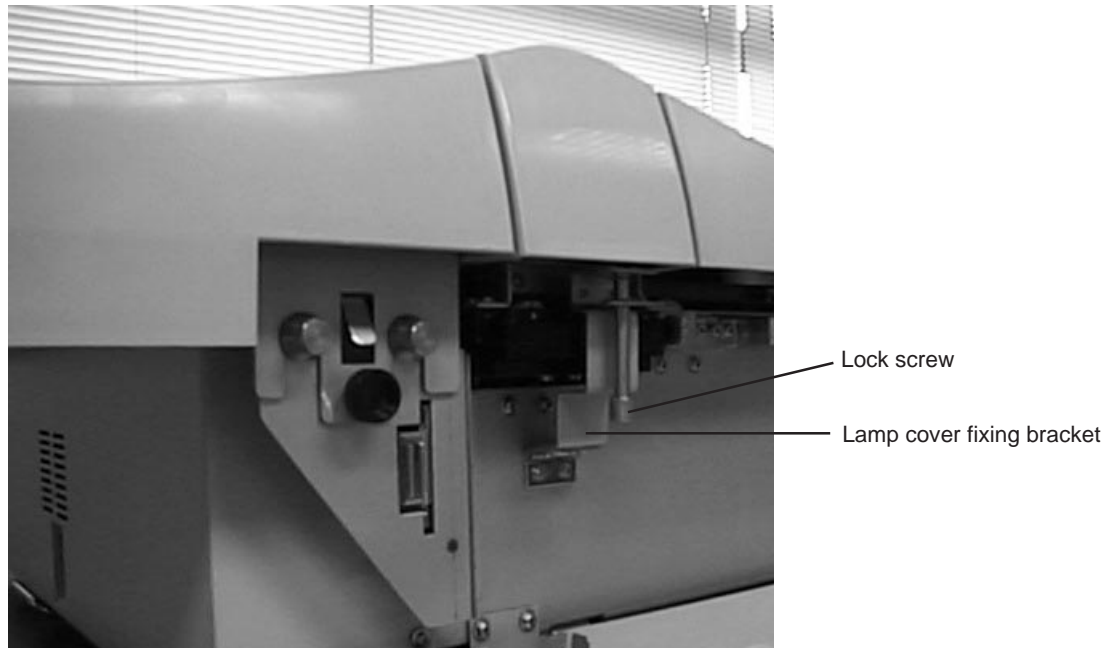
4-2. Attaching the tray cover

- (1) Attach the tray cover unit. Attach the tray cover to the FT-S5000 by slipping the cover attachment bracket over the narrow portions of the four pins on the front and rear of the FT-S5000 (two at each position). Then push the tray cover back so that the cover slips over the large portions of the pins. Insert and tighten the tray cover with the fixing screw.

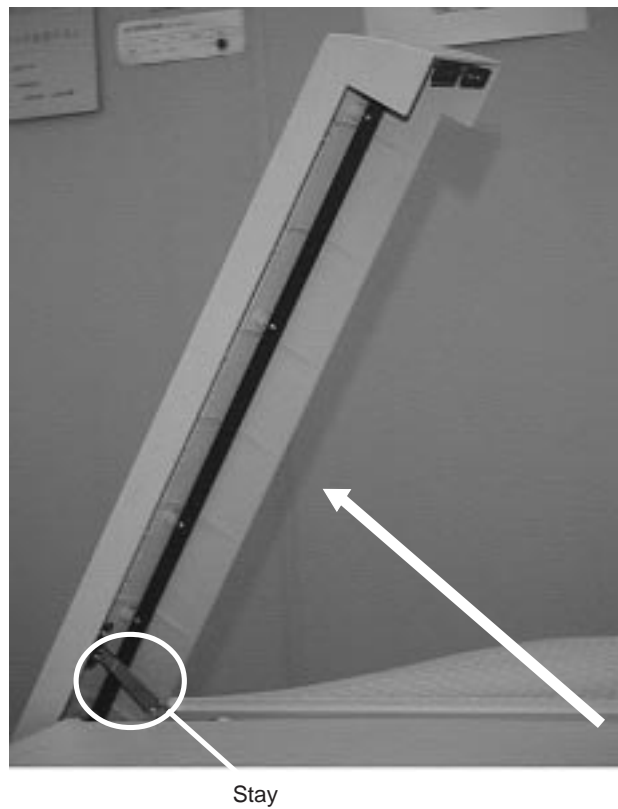


4-3. Installing the fluorescent light

- (1) Loosen the lock screw on the left side of the front frame, and release the lamp cover fixing bracket.

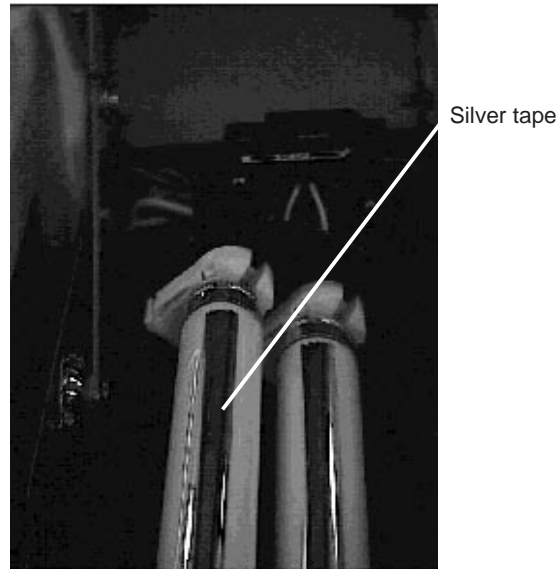


- (2) Open the transparent original lamp cover, and raise it to the position where the stay on the rear side of the main section is locked.

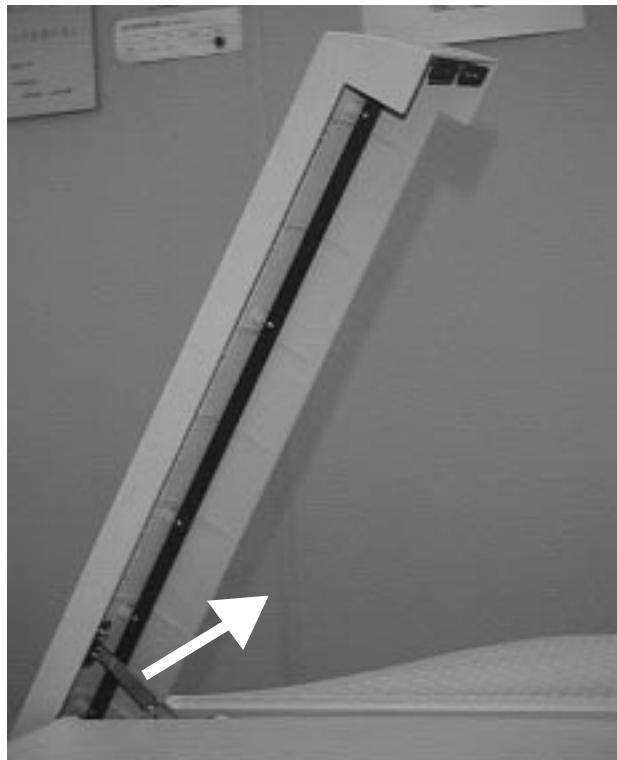


- (3) Mount one fluorescent light in the left socket so that the end with the “SCREEN” logo is positioned at the back, and rotate the fluorescent light clockwise until the silver tape comes to the top position (the position where it is locked).

Mount another fluorescent light in the right socket so that the end with the “SCREEN” logo is positioned at the front, and rotate the fluorescent light counterclockwise until the silver tape comes to the top position (the position where it is locked).



- (4) Release the stay supporting the transparent original lamp cover with your finger, and gently lower the cover.

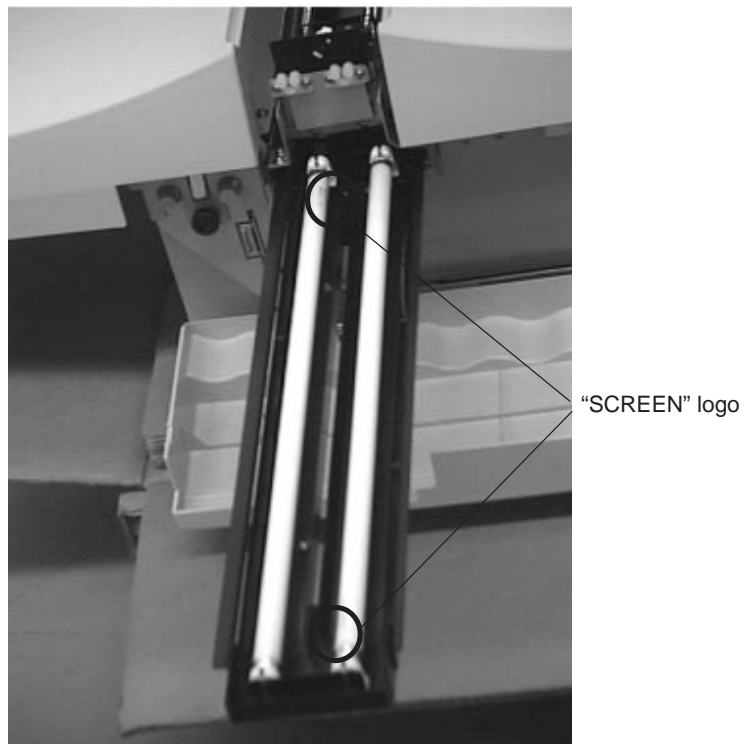


- (5) Pull out the reflection lamp unit until it comes into contact with the drop prevention stopper.



- (6) Mount one fluorescent light in the left socket so that the end with the “SCREEN” logo is positioned at the back. Rotate the fluorescent light clockwise until the logo faces the inside of the lamp unit (the position where it is locked).

Mount another fluorescent light in the right socket so that the end with the “SCREEN” logo is positioned at the front, and rotate the fluorescent light counterclockwise until the logo faces the inside of the lamp unit (the position where it is locked).



- (7) Push in the reflection lamp unit until it is securely inserted into the socket located at the rear of the main unit.



- (8) Raise the lamp cover fixing bracket, and securely fix it with the lock screw.

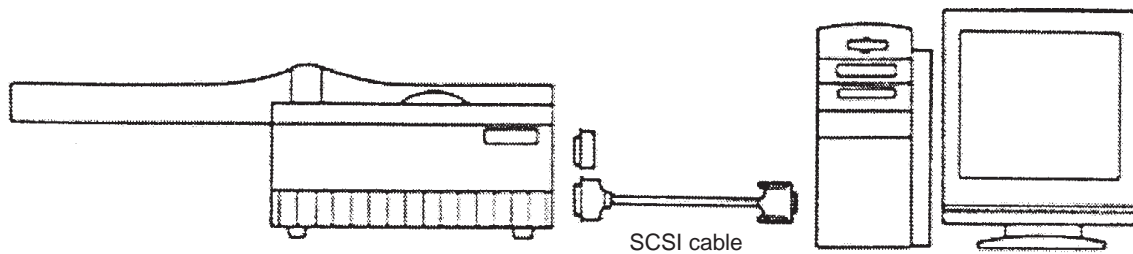


- (9) Close the front cover.



5. Connection with the host computer

After confirming that all the devices to be connected are turned OFF, connect the cables. The following shows the standard connection.



To connect the FT-S5000 to the host computer, be sure to use the provided SCSI cable or a high impedance cable that meets SCSI-2 standards.

Also, when a different peripheral device is connected to the SCSI, use a cable that satisfies SCSI-2 standards or an adapter.

- * Do not connect two or more SCSI terminators.
- * The total SCSI cable length should be 6m or shorter.

To use ColorScope under the client/server environment where two computers are used, the respective computers must be connected to the network with a cable. For the setup method, refer to Chapter 2 “Operation environmental settings” in ColorScope Pro Ver. 3.0 USERS MANUAL.

6. Software installation

<Macintosh>

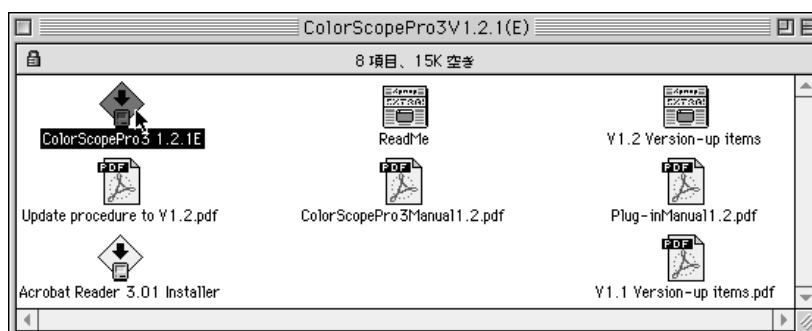
Before starting installation, confirm that the following environment is attained.

Macintosh model : Power Macintosh series
Recommended model : Power Macintosh 9600/233

OS : MAC OS 7.6 or higher
Memory : 160 MB or more
Hard disk free space : 3 GB or more
Display : 21 inch full-color display
 : 16,700,000 colors full-color display card

6-1. Installation procedure

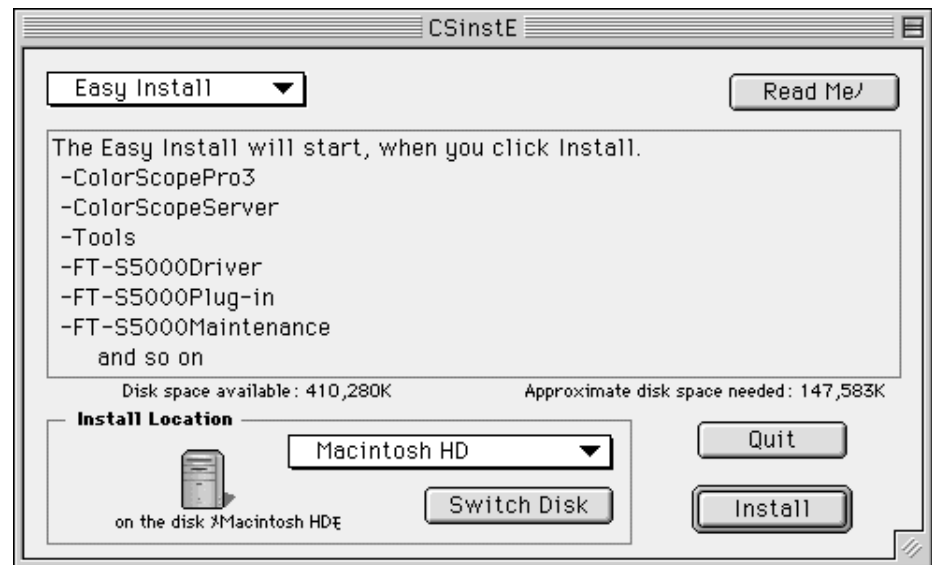
- (1) Insert the install disk (CD-ROM) in the CD-ROM drive. After the window as shown below appears, double-click the “Installer” icon.



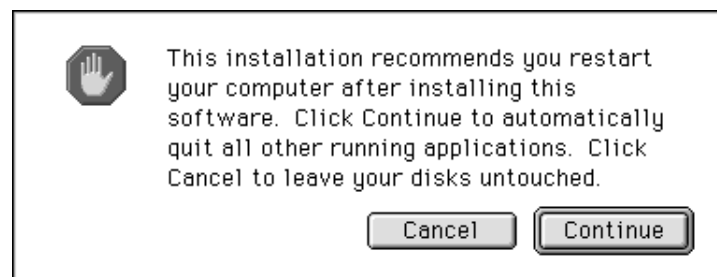
- (2) The “FT-S5000 Installer” window appears.



- (3) Click the “Continue” button. The “Dainippon Screen License Agreement” window appears.
- (4) Click the “Accept” button. The “Precautions and Restrictions Regarding FT-S5000” window appears.
- (5) Click the “Continue” button. The “CS instE” window appears.

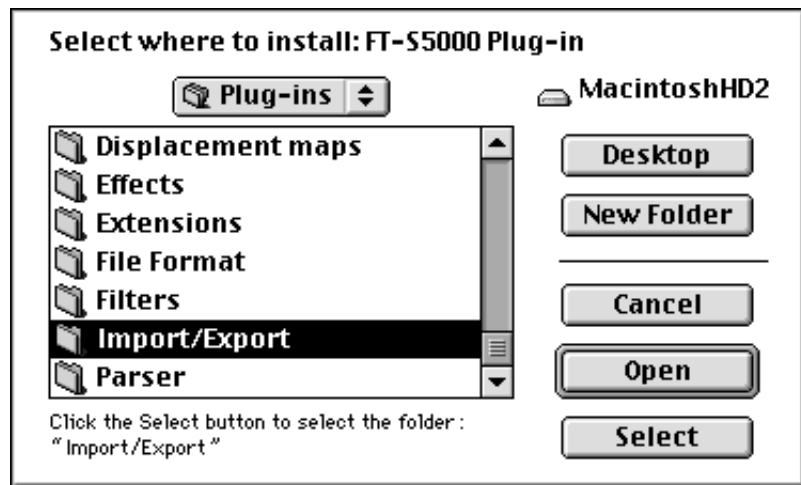


- (6) Drag down the FT-S5000 menu, and select “Easy Install”. Select the install location and click the “Install” button. The message shown below appears.



- (7) Click the “Continue” button.

The “Select where to install: FT-S5000 Plug-in” dialog box appears.

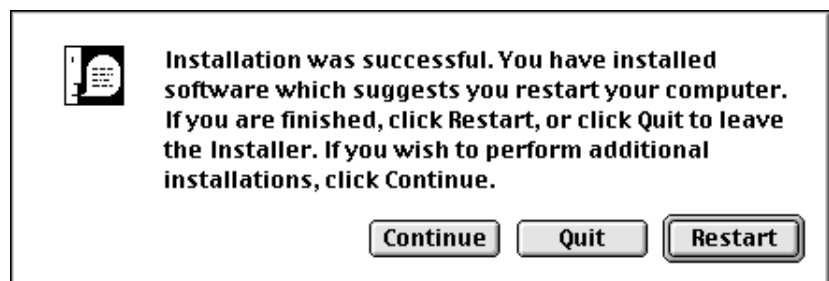


- (8) Select the folder in which you want to install the plug-in and click the “Select” button.

Installation begins and a dialog box which shows the progress of the installation appears.

If you click the “Cancel” button in the dialog box, the installation stops.

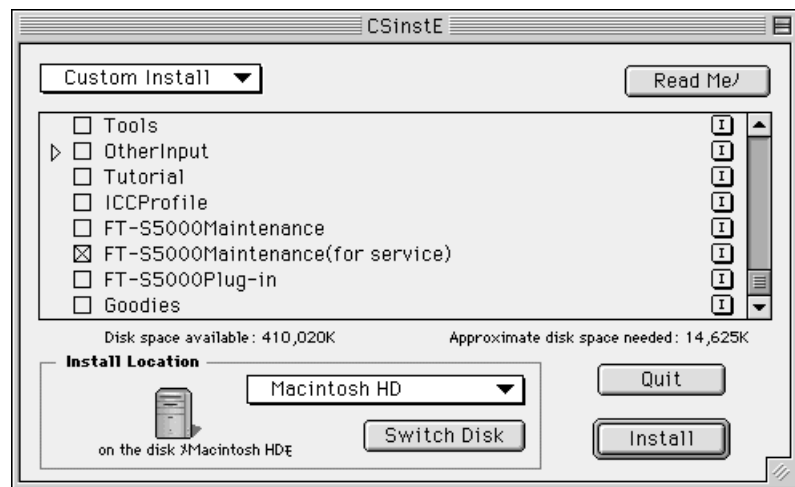
When the plug-in is successfully installed, the following dialog box appears.



- (9) Click the “Restart” button and restart the system.

The installation is completed and the plug-in can now be used.

- (10) If you wish to install the FT-S5000 Maintenance (for service) program, select “Custom Install” and “FT-S5000 Maintenance (for service)” in the “CSinstJ” window. Then click the “Install” button.



<Windows>

Before starting installation, confirm that the environment satisfies the following criteria.

Windows model : Pentium II 266 MHz or more

OS : Windows NT4.0 workstation (SP3)

Memory : Server and client /192 MB or more

Server /96 MB or more

Client /96 MB or more

Empty hard disk space : 3 GB or more (More than 5 times than that of the images being scanned)

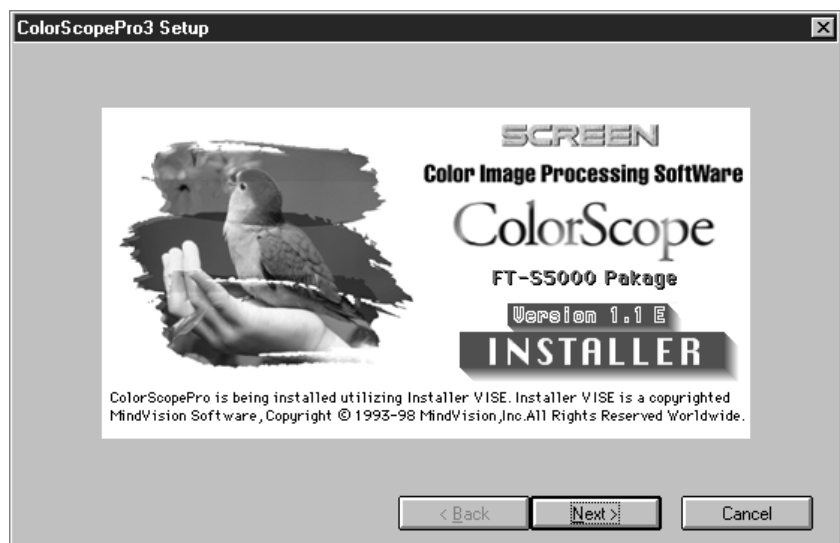
Display : 21-inch full color display

Display card (VRAM8 MB or more)

SCSI card : Adaptec's AHA-2940UW

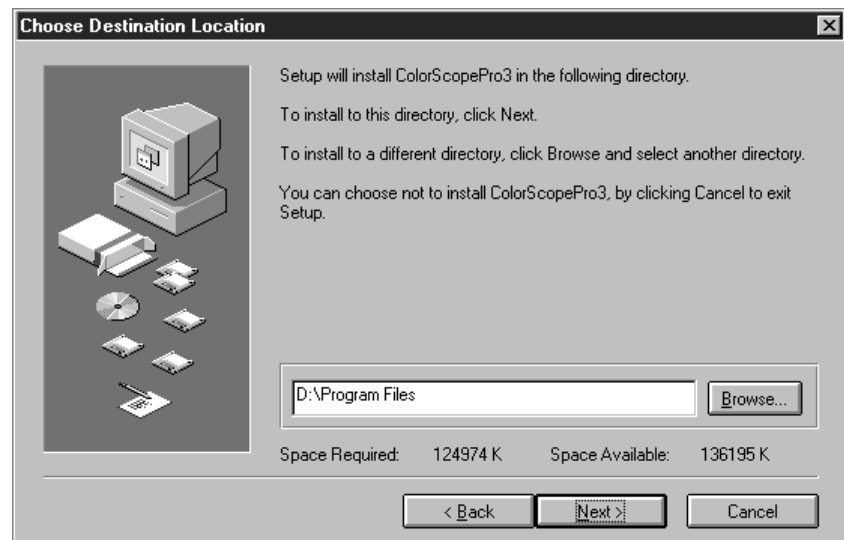
Other necessary software : Adaptec's EZ-SCSI Pro V4.5J or more

- (1) Insert the install disk (CD-ROM) in the CD-ROM drive. The initial "ColorScopeProInstaller" display appears.



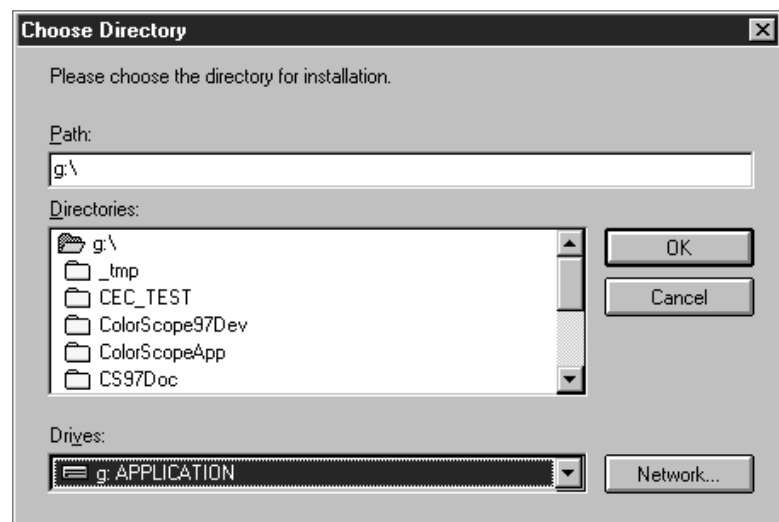
- (2) Click the "Next".button.
The "Welcome" window appears.
- (3) Click the "Next" button.
The "Important Notes" window appears.
- (4) Click the "Next" button.
The "Software License Agreement" window appears.

- (5) If you agree to the contract, click the “Yes” button.
The “Choose Destination Location” window appears.



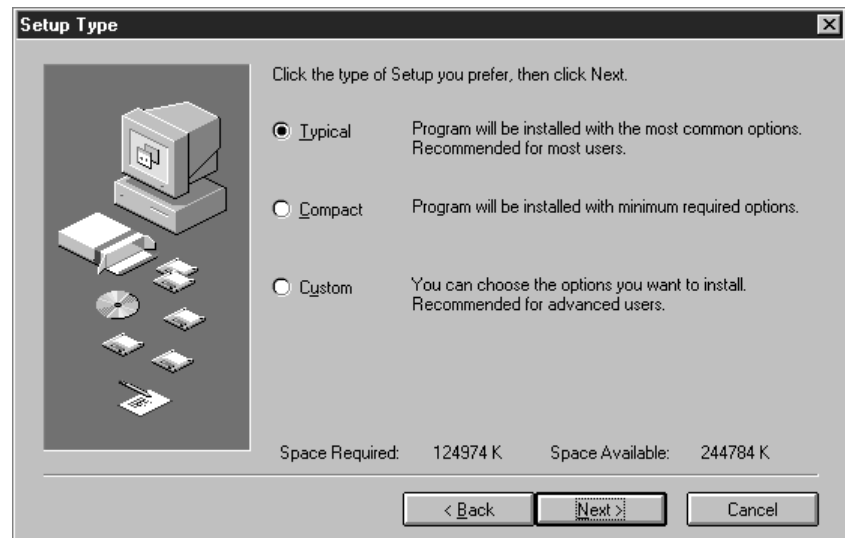
- (6) If you wish to install in the displayed directory, click the “Next” button.

If you do not wish to install in the displayed directory, click the “Browse” button. The “Choose Directory” window appears.



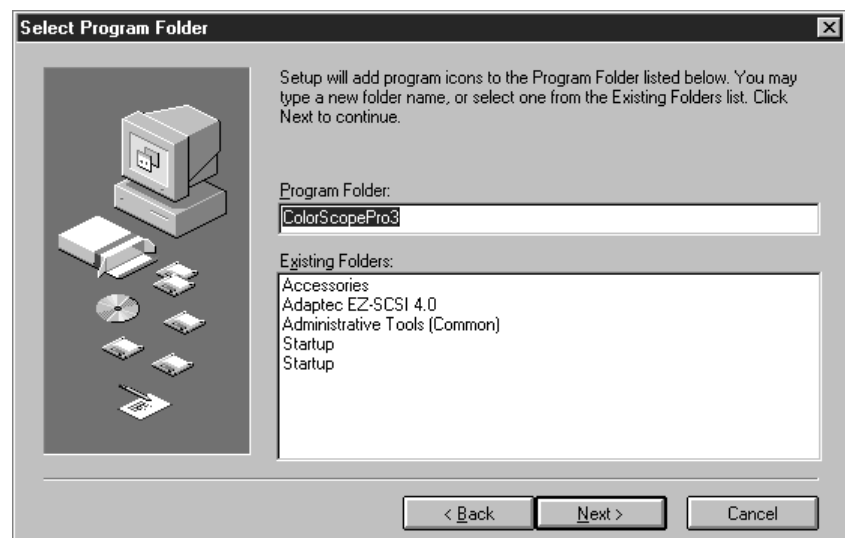
After selecting a directory, click the “OK” button. The “Choose Destination Location” window appears again. Click the “Next” button.

The “Setup Type” window appears.



- (7) Select “Typical” and click the “Next” button.

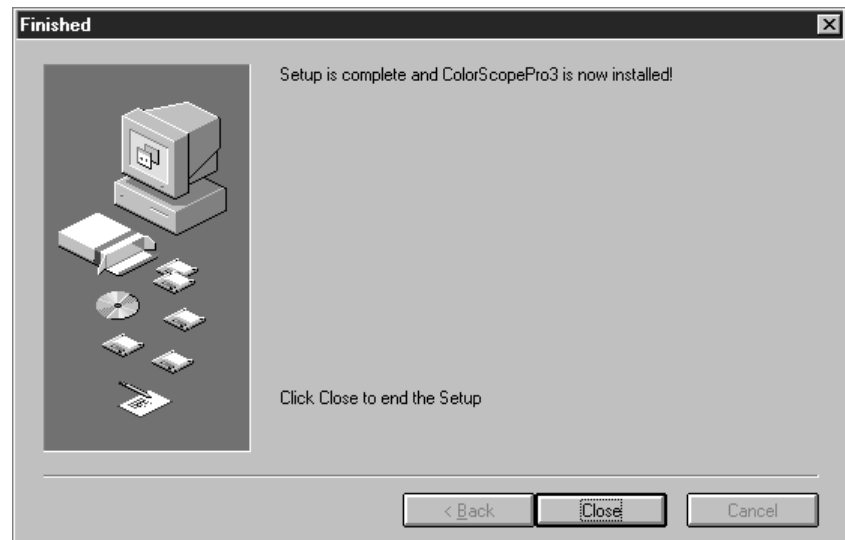
The “Select Program Folder” window appears.



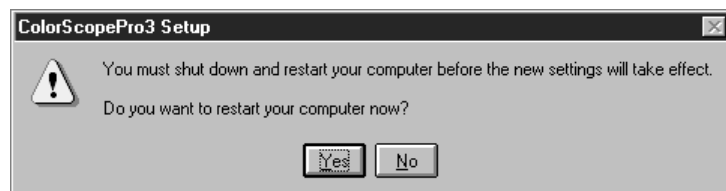
- (8) If you wish to use the displayed program folder, click the “Next” button.
A window which shows the progress of installation appears and installation begins.

If you wish to abort the installation, click the “Cancel” button in the window.

When the setup is completed successfully, the window shown below appears.

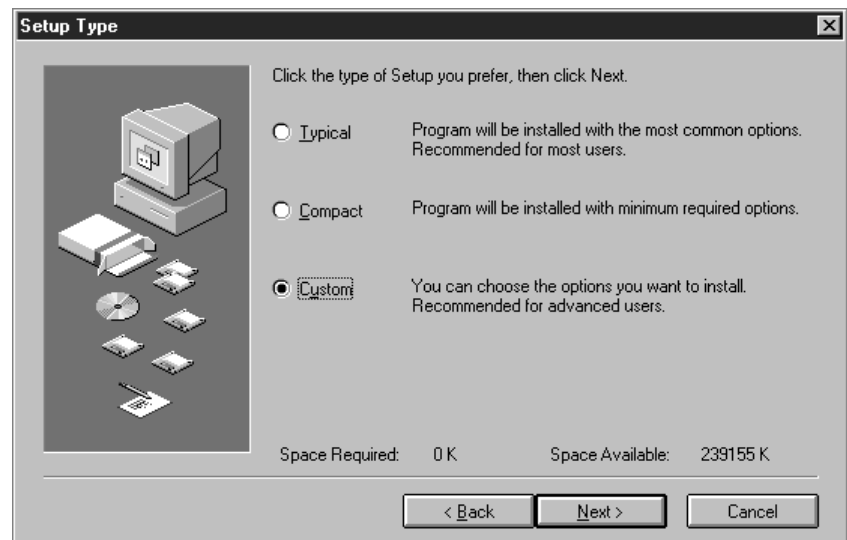


- (9) Click the “Close” button.
A message which asks you to restart the system appears in the window.

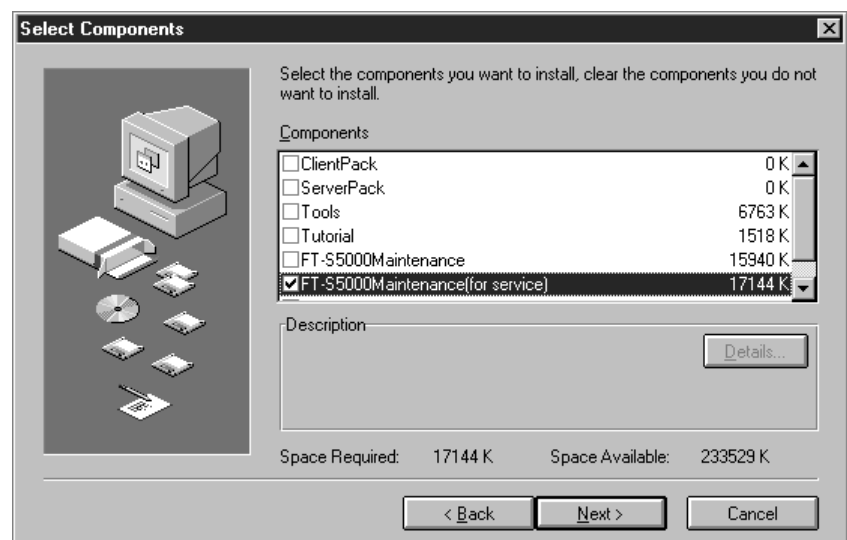


- (10) Click the “Yes” button and the system is restarted.
The installation is fully completed at this time.

- (11) If you wish to install the FT-S5000 Maintenance (for service) program, select “Custom” in the “Setup Type” window and click the “Next” button.



The “Select Components” window appears.



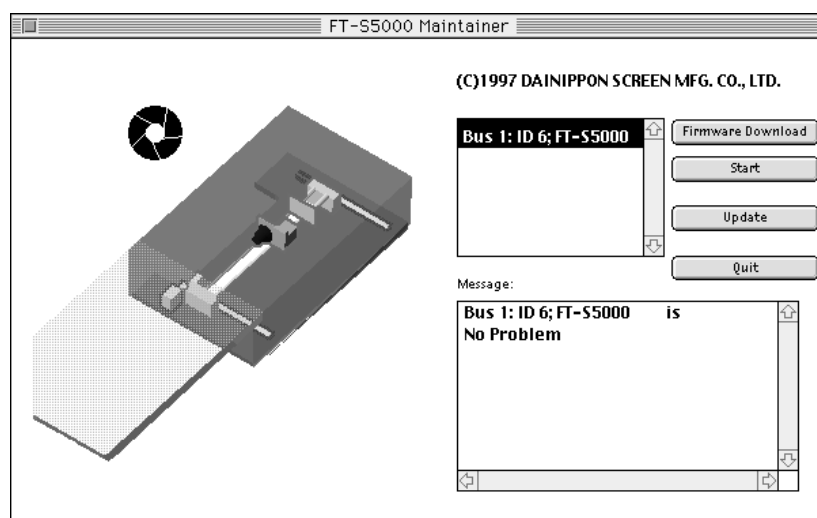
- (12) Select the “FT-S5000 Maintenance (for service)” and click the “Next” button. When the “Select Program Folder” window appears, proceed with the same procedures you used to perform a “Typical” installation.

7. Firmware download

The FT-S5000 firmware is downloaded with the FT-S5000 maintenance software. Due to various circumstances at the time of shipment, the firmware version loaded in the FT-S5000 may not conform to the firmware on the CD-ROM in the same package. Follow the procedures noted below and download the firmware again just to be sure.

(1) <Macintosh>

When you double-click “FT-S5000 maintainer” in the “FT-S5000 Maintenance” program, the following window appears.



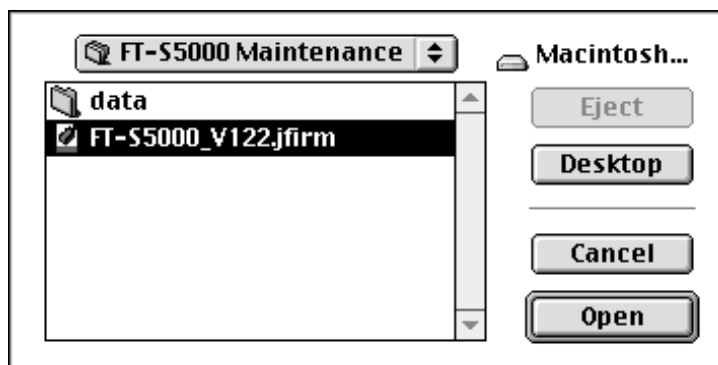
<Windows>

If you select the “FT-S5000 Maintainer” from the “ColorScopePro3” menu under the “Start” menu, the following window appears.

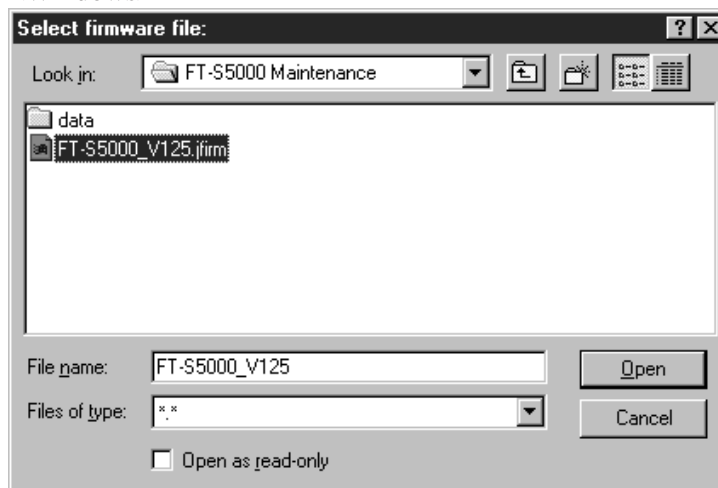


- (2) Click the “Firmware Download” button. The file selection dialog box opens.

<Macintosh>

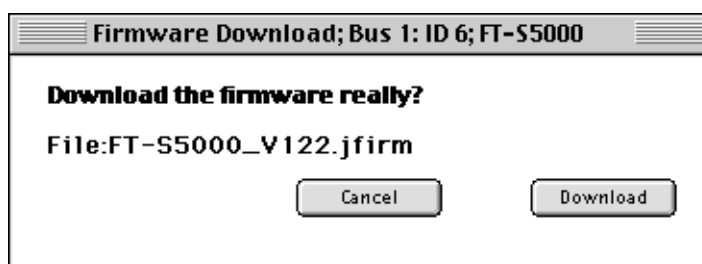


<Windows>

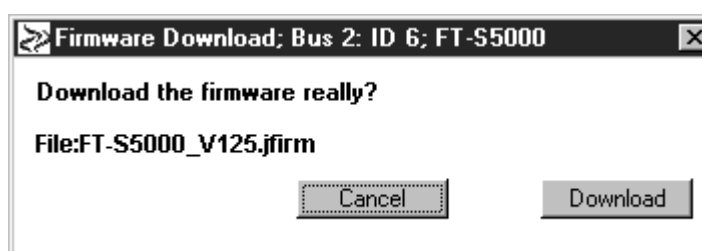


- (3) Select the file which you would like to download and click “Open”. A dialog box is displayed to confirm the download.

<Macintosh>



<Windows>

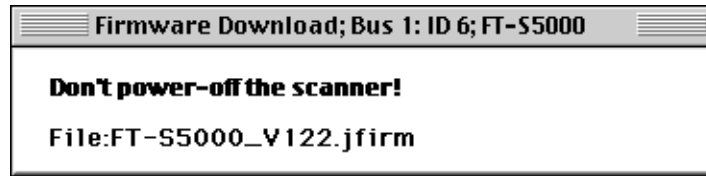


- (4) Click the “Download” button.

During the download, the following dialog box is displayed.

Do not turn OFF the power to the FT-S5000 while the following dialog box is displayed.

<Macintosh>



<Windows>

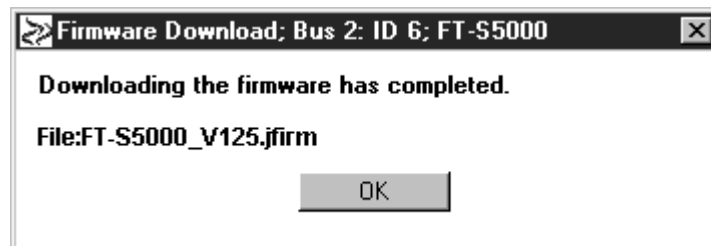


- (5) When the download is completed, the following window appears.

<Macintosh>



<Windows>



- (6) Click the “OK” button.

The download is completed successfully at this time.

8. Settings for network environment (Windows)

It is necessary to perform a TCP/IP network setup when the Windows version is installed. Refer to the Windows NT manual for information on the necessary TCP/IP settings.

Note Be sure to enter the TCP/IP settings whether ColorScope Pro3 Server and Client are run in a single personal computer or in separate PCs.

If a network card is not installed in the PC, it is impossible to run the ColorScope Pro3 Server and Client in separate computers.

If you run the ColorScope Pro3 Server and Client in one PC and it does not contain a network card, it helps to set “MS Loopback Adapter” in the Network Adapter window. Refer to the Windows NT manual for details on the settings.

9 EEPROM data backup

We need the EEPROM data when we replace the JCONT board or the EEPROM data is broken. So, we would like you to save the EEPROM data against a rainy day after you check the moving.

Refer to the “D. Maintenance software” “7.EEPROM backup/ restoration” as the procedure of the EEPROM backup is described there.

[Reference]

When the FT-S5000/5500 is connected to the MAC only for the first time after the installation, the EEPROM backup data: “xxxxxxxxx.rom” is created in the following location.

(xxxxxxxxxxx ; The machine serial number)

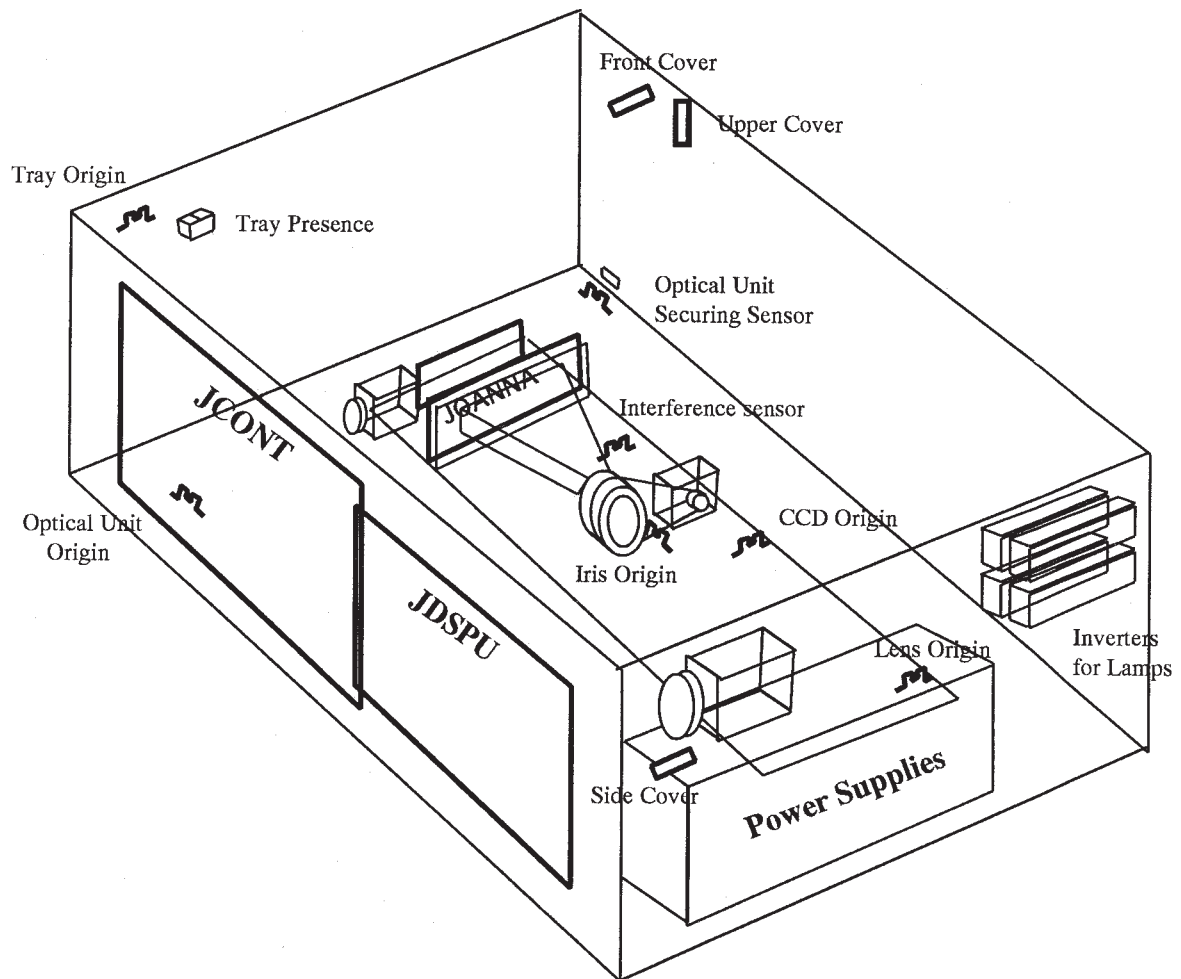
Location : HD / System folder / Preference / FT-S5000 (or FT-S5500) Prefs /xxxxxxxxx.rom

When the file that is backed up in the above procedure is broken in the some reason, we would like you to use this file.

B. Parts Replacement (Level 2)

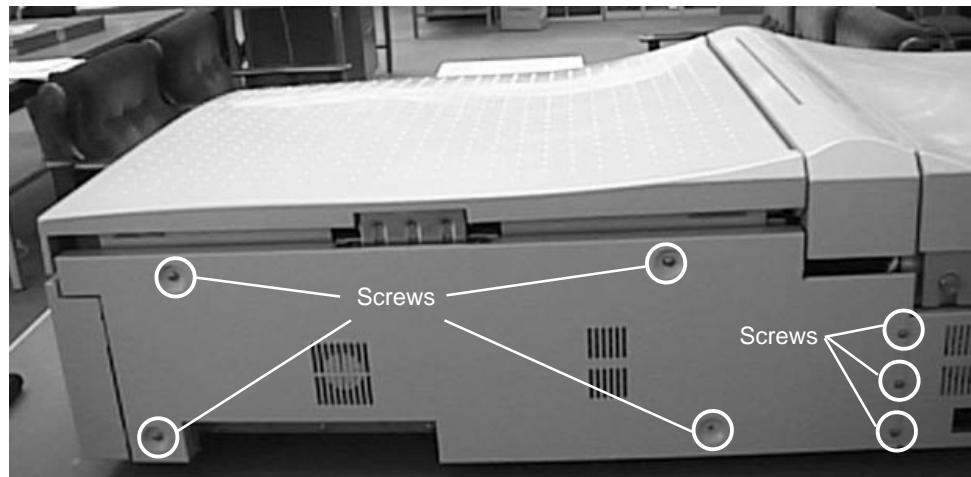
B. Parts replacement

1. Electrical system overall drawing



2. Replacing the JCONT (Controller board) and the JDSPU (Calculation processing board)

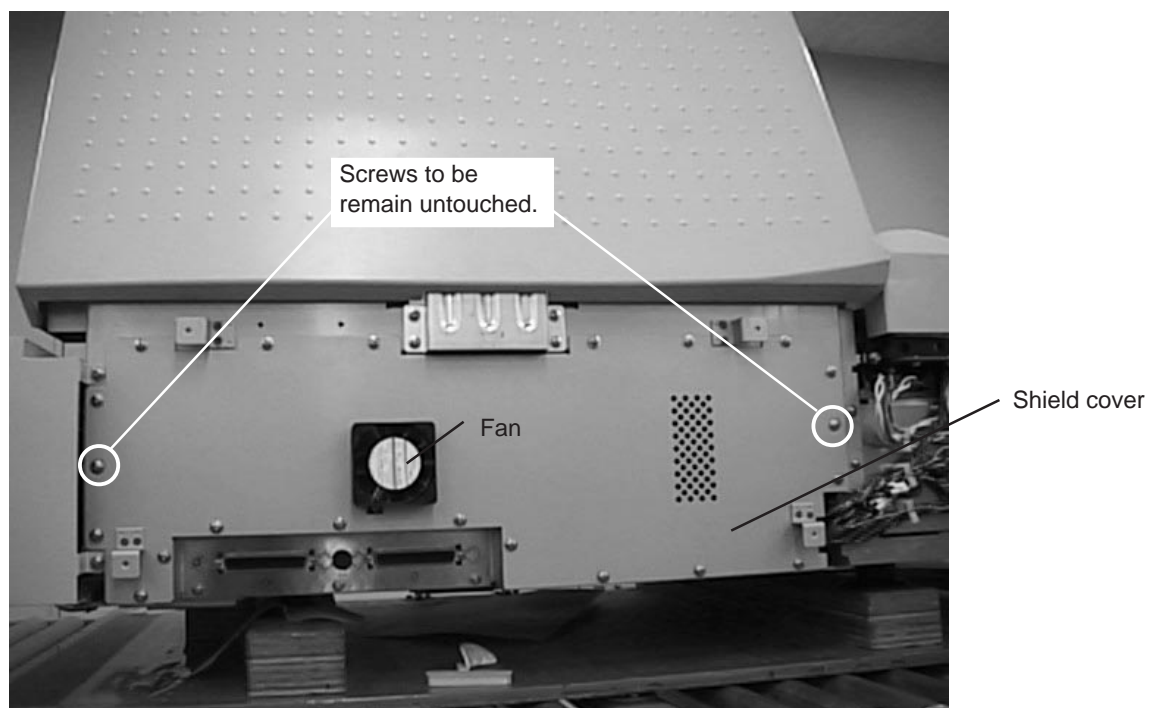
- (1) Remove the rear cover (seven screws).



- (2) Remove the shield cover (19 screws).

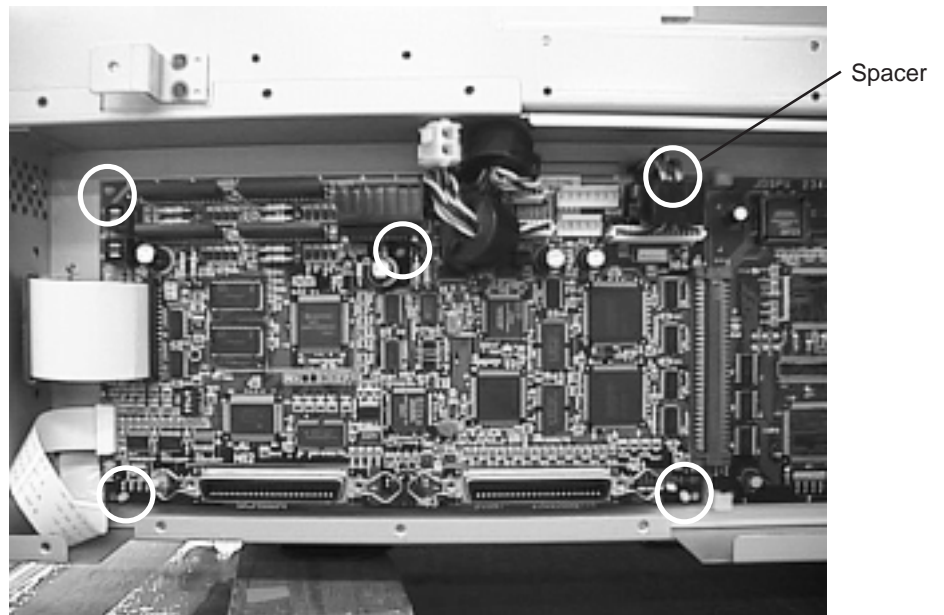
* Do not remove the two screws which are not securing the shield cover.

* Remove the fan connector.

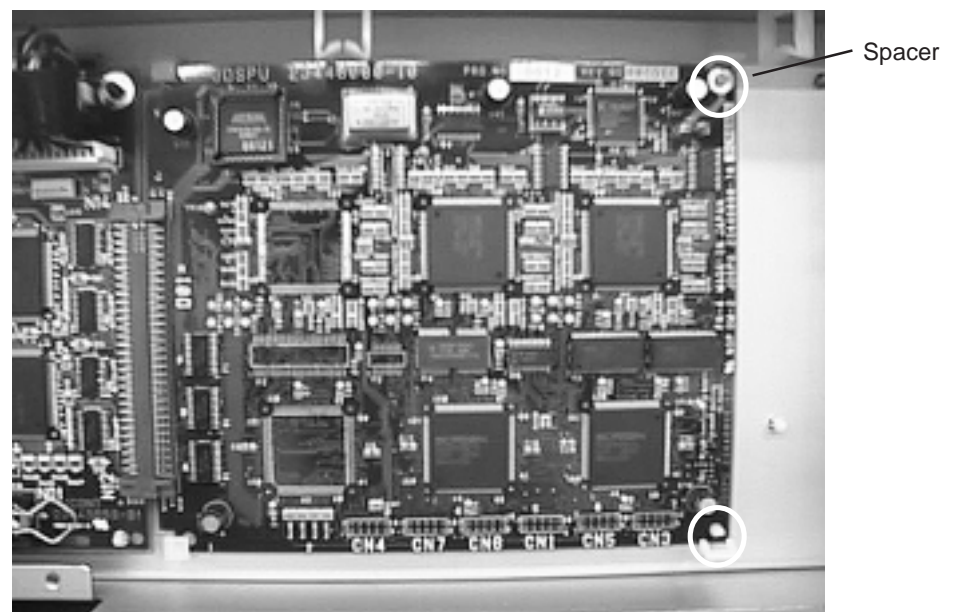


- (3) Remove the spacers securing the connector and the boards, and mount new JCONT and JDSPU boards.

JCONT



JDSPU



- (4) Re-mount each component following steps (1) to (3) in the reverse order.

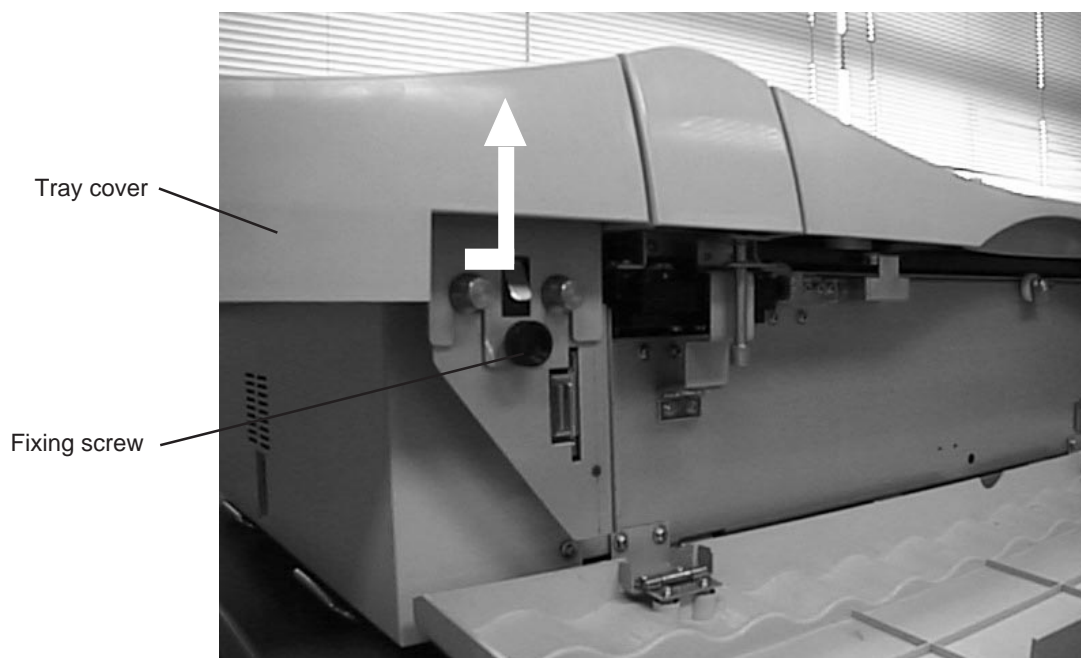
3. Replacement of power supply unit and lamp inverter unit

- (1) Open the front cover



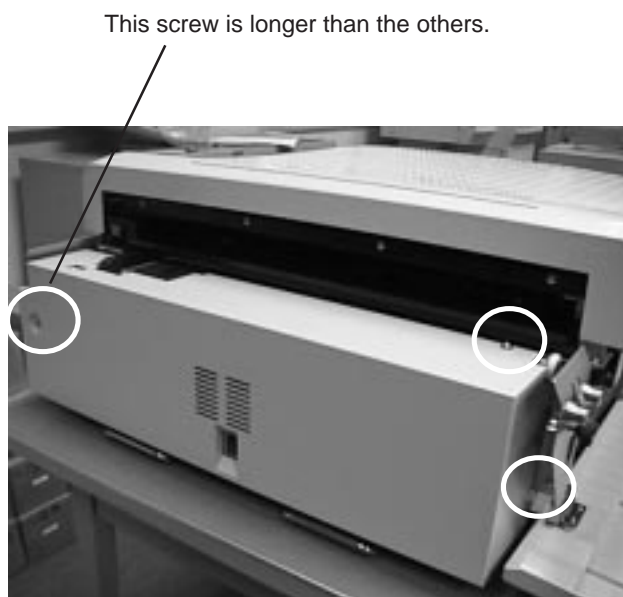
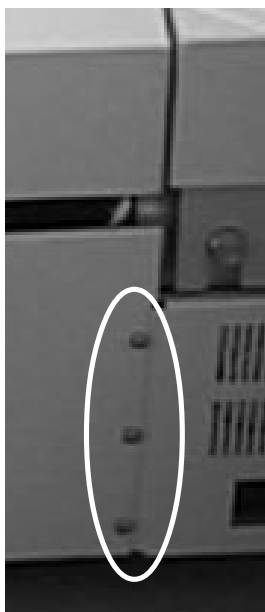
Front cover

- (2) Remove the tray cover from the main section.
(Remove the fixing screw, pull the tray cover front out and lift it up.)



- (3) Remove the left side cover (six screws).

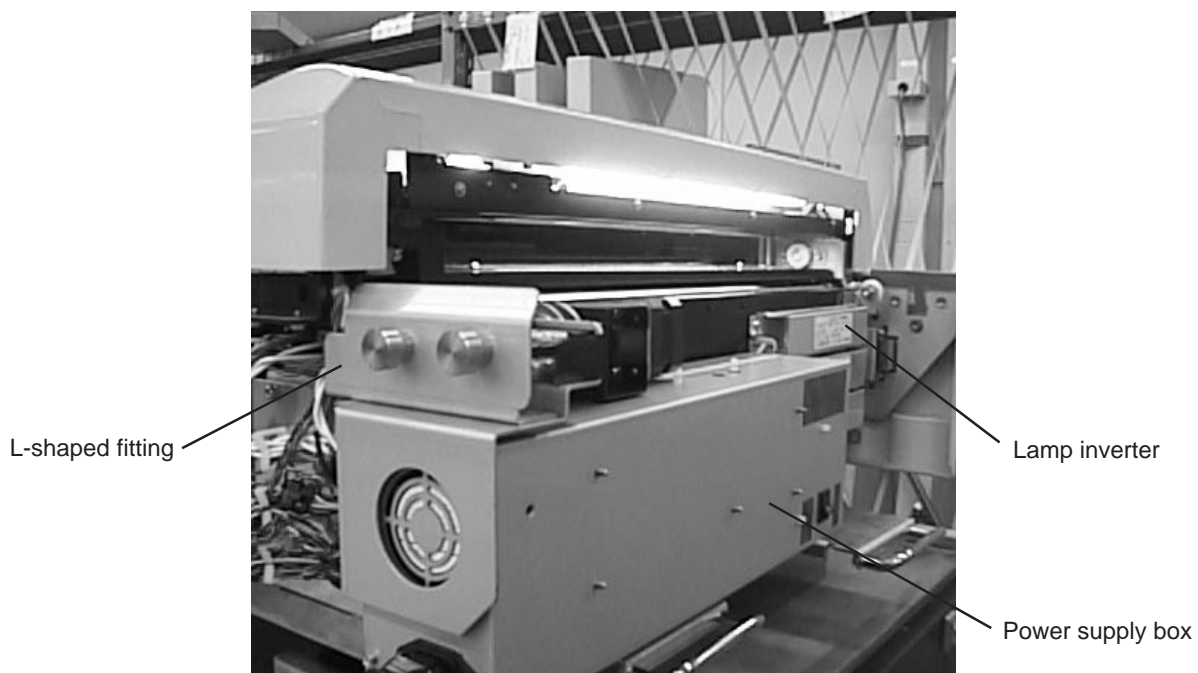
* The screw holding the left cover is longer than the other screws. Be sure to use the correct screw to fasten this cover.



- (4) Remove the connector and replace the power supply box and the lamp inverter.

* Do not remove the L-shaped fitting attached to the power supply box and tray cover.

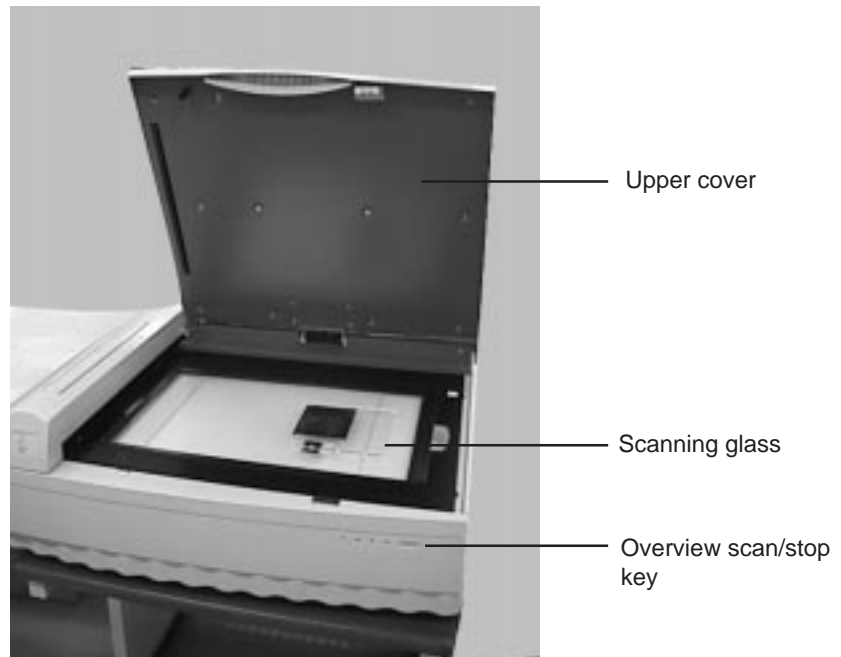
* If the lamp inverter is damaged, do not repair it. Replace it with a new one.



- (5) Re-attach each component following steps (1) to (4) in the reverse order.

4. Replacing the back light unit

- (1) Open the cover and remove the scanning glass.



- (2) Close the upper cover and turn ON the power supply to the FT-S5000 while pressing the overview scan/stop key. Release the switch when the buzzer sounds.

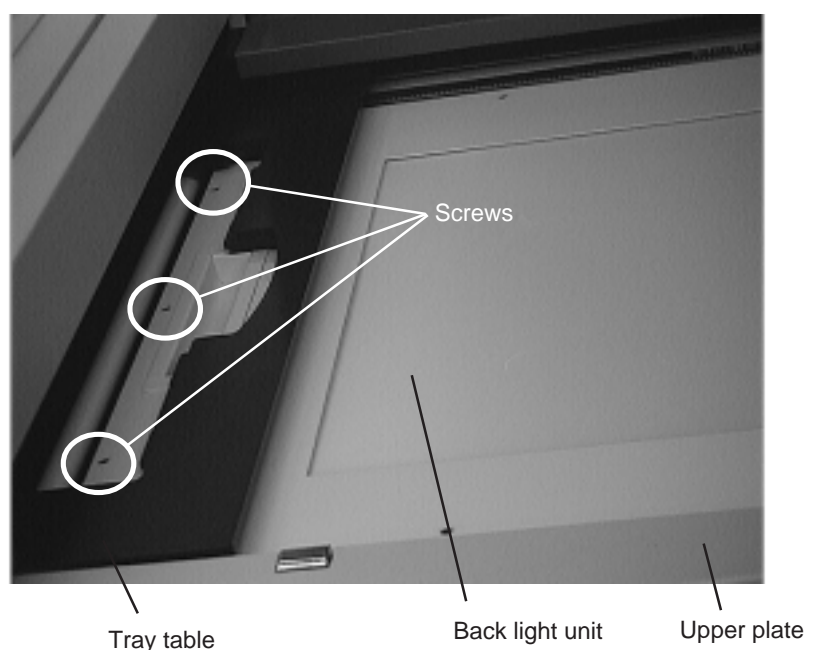
Each respective LED lights up in turn.

Press the overview scan/stop key when the busy indicator (orange lamp) is lit up.

The tray table then moves to a position where the 3 upper plate screws can be removed.

Open the upper cover and remove the 3 screws on the left of the upper plate.

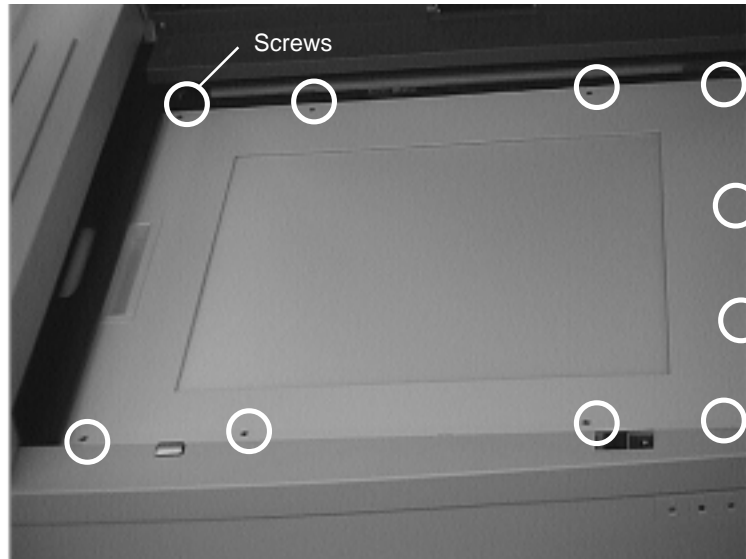
* Never push or apply pressure to the tray table to move it manually.



- (3) Close the upper cover. Press the overview scan/stop key when the home position indicator (green lamp) is lit up.

The tray table moves to a position where the 10 upper plate screws can be removed.

Open the upper cover and remove the upper plate (10 screws).



- (4) Pull out the back light connector and remove the back light itself.



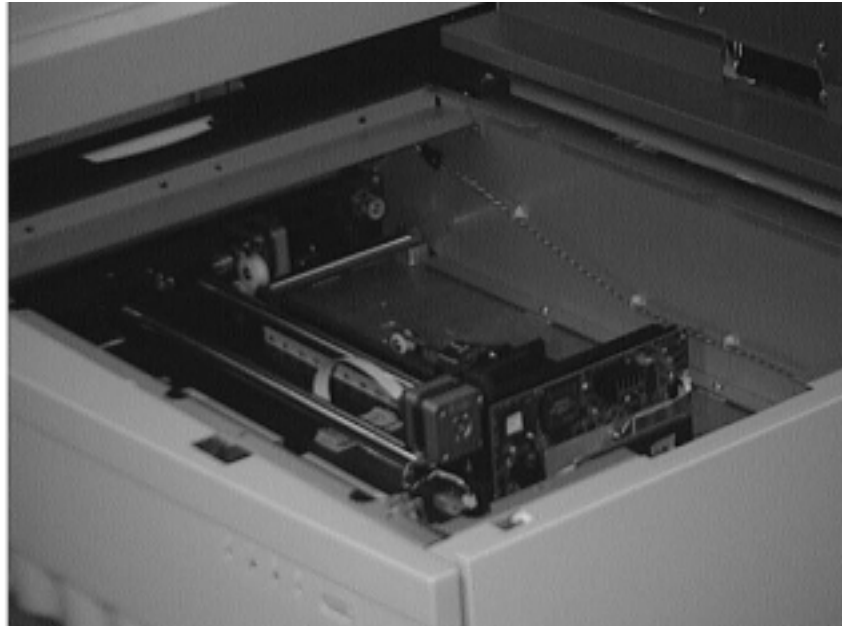
- (5) Turn the power supply OFF to the FT-S5000.
- (6) Re-attach the replaced back light to the main section reversing steps (1) to (5).

5. Replacing the JOANA (CCD board)

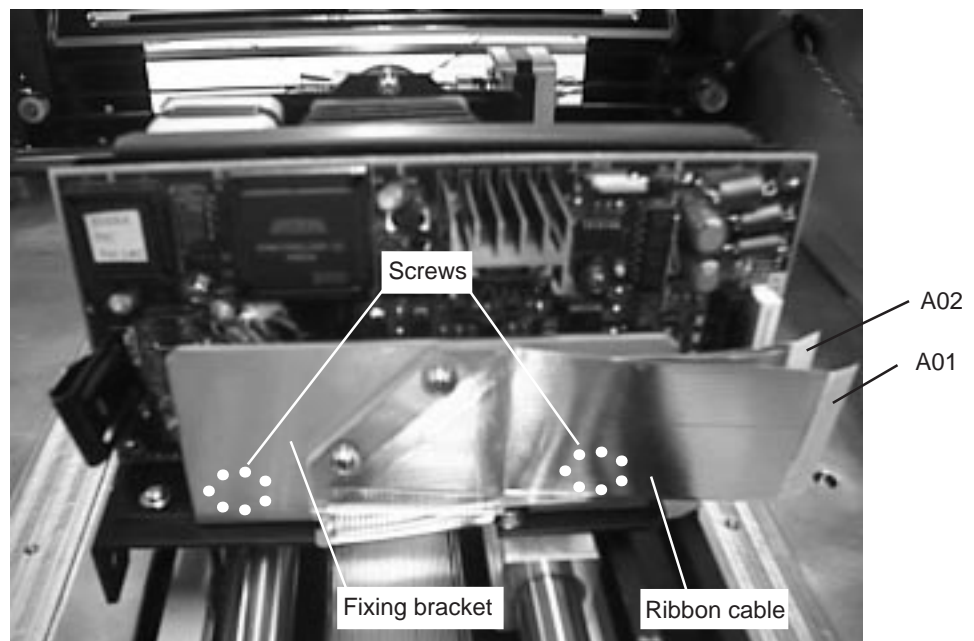
- (1) The upper plate and the back light unit must be removed at the time of replacement.

Replace the JOANA (CCD board) following steps (1) to (5) in “4. Replacing the back light unit”.

- (2) The optical unit appears.

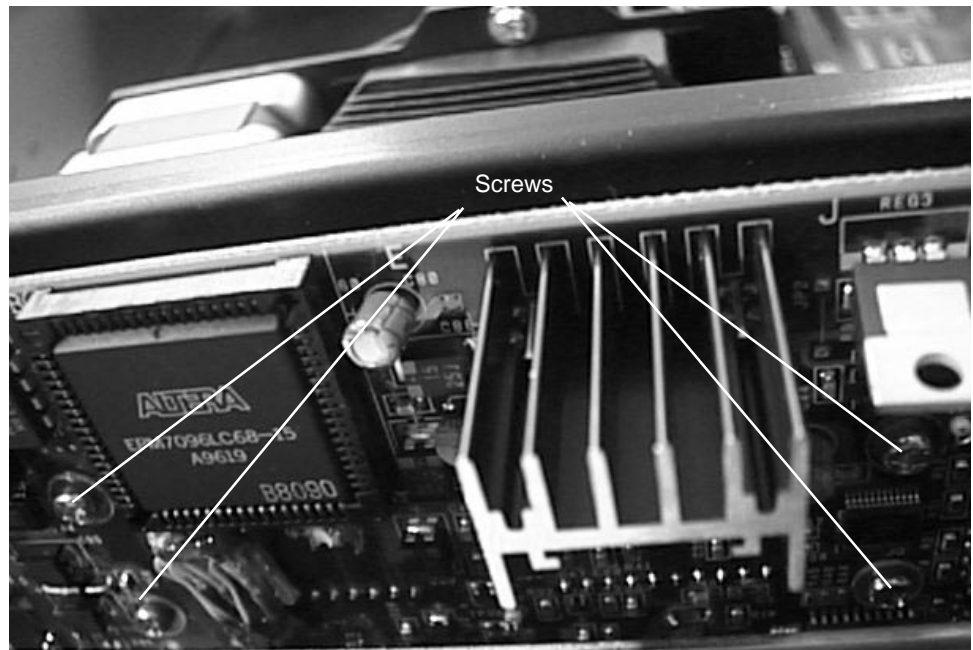


- (3) Disconnect the ribbon cable connectors (A01, A02) and remove the fixing bracket (two screws).



- (4) Replace the JOANA board (four screws).

* Careful handling is required when inserting and removing the screws.



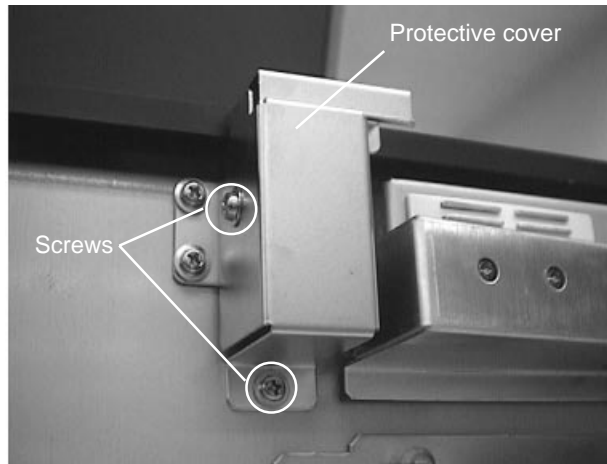
- (5) Re-attach the board to the main section following steps (1) to (4) in the reverse order.

* Though the JOANA board is an analog board, it does not need to be adjusted after the replacement.

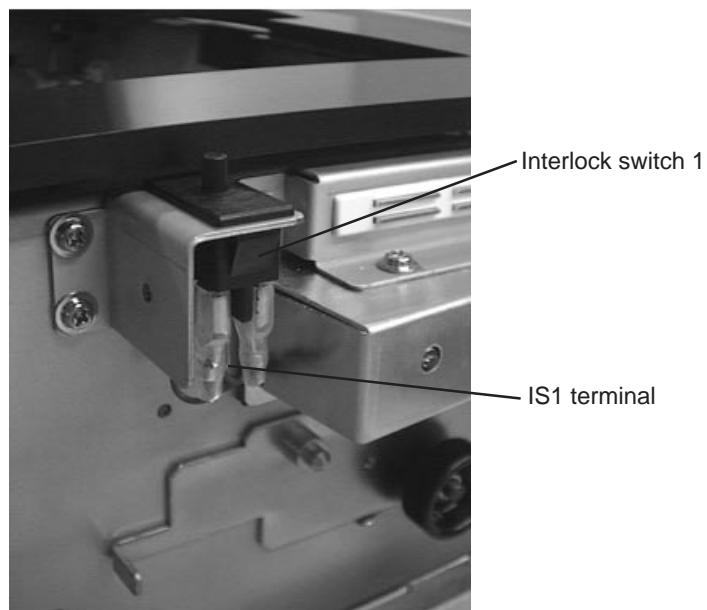
6. Replacing the interlock switch

6-1. Replacing interlock switch 1 (IS1)

- (1) Open the upper cover and the front cover, and then remove the protective cover (two screws).



- (2) Remove the IS1 terminal and replace interlock switch 1.
 - * The interlock switch is attached to the attachment plate with two hooks. Squeezing the two hooks together allows removal of the interlock switch.

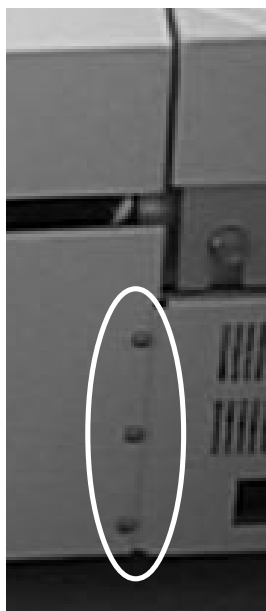


- (3) Re-attach following the same steps in reverse.
 - * Close the upper cover, and then re-attach the protective cover after checking that the interlock switch button has been pressed.
- (4) Turn the power supply ON and confirm that initialization is completed properly.

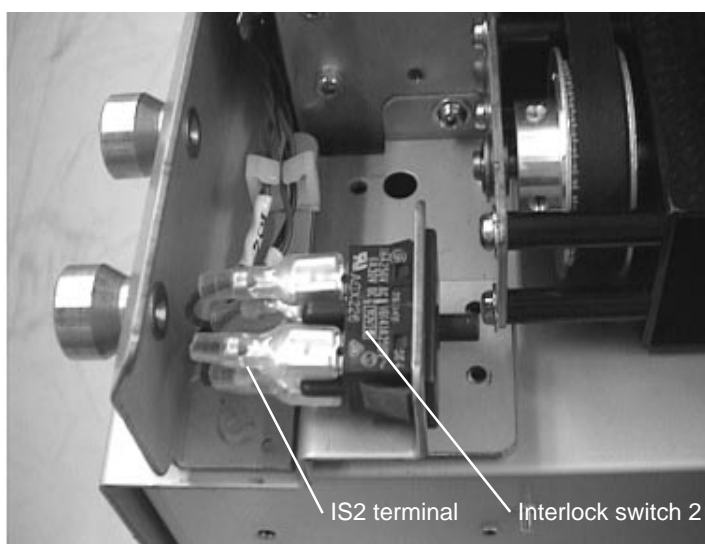
6-2. Replacing interlock switch 2 (IS2)

- (1) The front cover, tray cover and left cover must be removed at the time of replacement.

Perform steps (1) to (3) of “3. Replacement of power supply box and lamp inverter unit.”



- (2) Disconnect the IS2 terminal and replace interlock switch 2.
 - * The interlock switch is attached to the attachment plate with two hooks. Squeezing the two hooks together allows removal of the interlock switch.



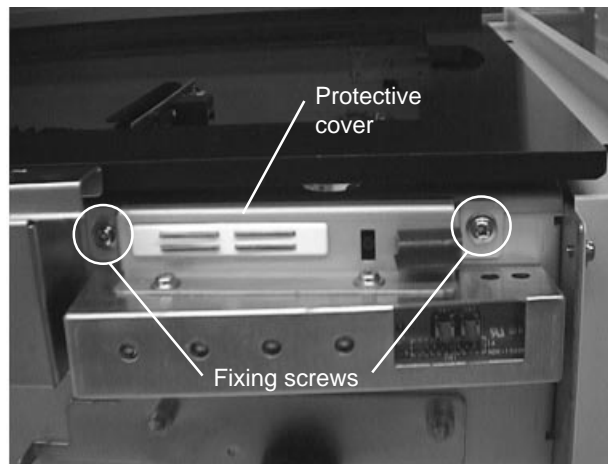
- (3) Re-attach following the same steps in reverse.
 - * Re-attach the tray cover, and then the left cover after confirming that the interlock switch 2 button has been pressed.
- (4) Turn the power supply ON and confirm that initialization is completed properly.

6-3. Replacing the interlock switch 3 (IS3)

- (1) The upper plate and the back light unit must be removed at the time of replacement.

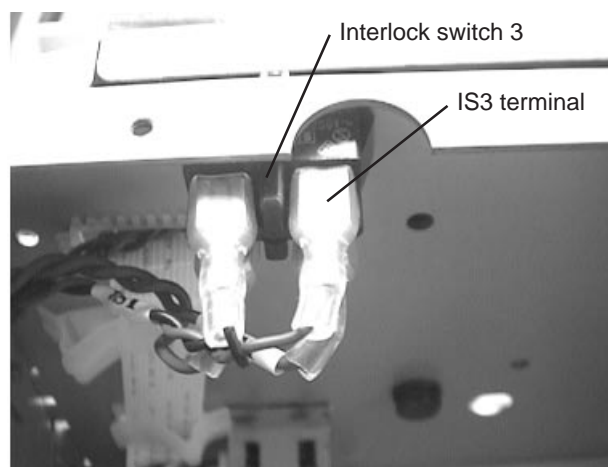
Replace it following steps (1) to (5) of “4. Replacing the back light unit.”

- (2) Remove the front cover and the protective cover (two screws).



- (3) Disconnect the IS3 terminal and replace interlock switch 3.

* The interlock switch is attached to the attachment plate with two hooks. Squeezing the two hooks together allows removal of the interlock switch.



- (4) Re-attach the switch to the main section following the same steps in reverse.
* Close the front cover, and then secure the protective cover after confirming the interlock switch 3 button has been pressed.
- (5) Turn the power supply ON and confirm that initialization is completed properly.

7. Replacing the relay board

- (1) The upper plate and the back light unit must be removed at the time of replacement.
Replace the board following steps (1) to (5) of “4. Replacing the back light unit.”
- (2) Remove all ribbon cables and connectors from the relay board.
- (3) Remove the spacers securing the board and attach a new board.



- (4) Re-attach the relay board following the same steps in reverse.

8. Replacing the ribbon cables

8-1. Replacing the ribbon cables connecting the optical unit to the relay board

- (1) The upper plate and the back light unit must be removed at the time of replacement.

Replace the ribbon cables following steps (1) to (5) of “4. Replacing the back light unit.”

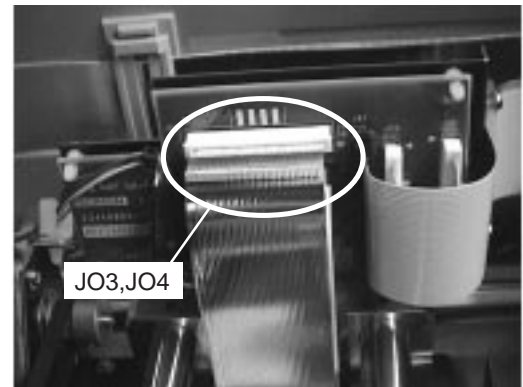
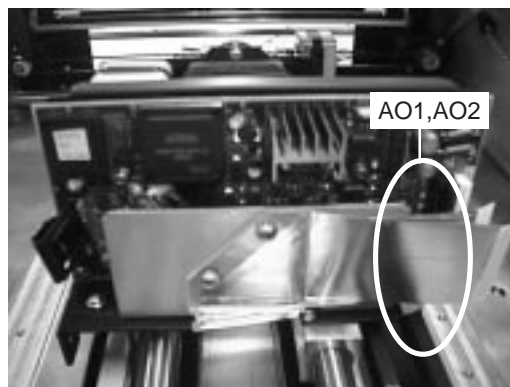
The parts codes of the ribbon cables are as follows.

JO3: 118585

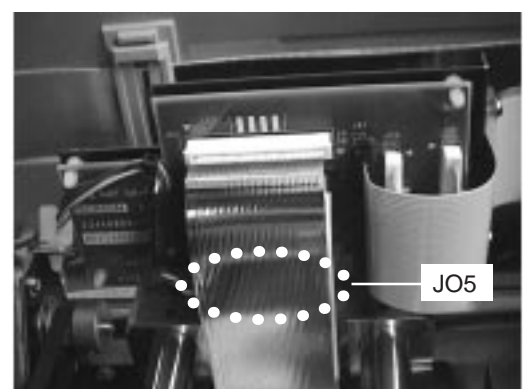
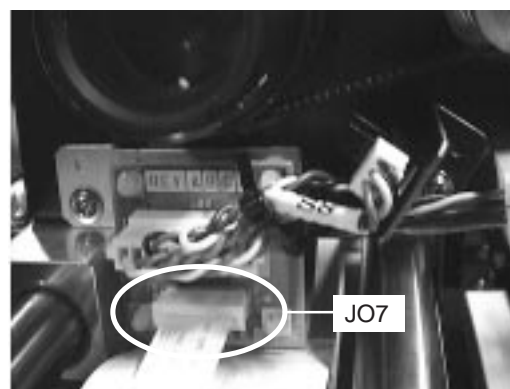
JO4: 118584

JO5: 118588

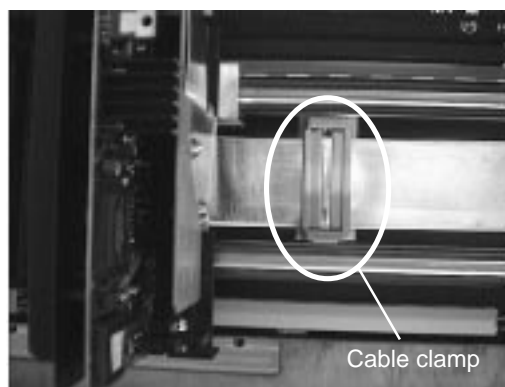
- (2) Disconnect the JOANA board connectors (AO1, AO2) and the relay board connectors (JO3, JO4).



- (3) Disconnect the lens board connector (JO7) and the relay board connector (JO5).



- (4) Remove the cable clamp and replace the ribbon cables.
- * Move the replaced ribbon cable unit in the secondary scanning direction and confirm that the ribbon cables are not interfering with other parts.



8-2. Replacing the ribbon cables connecting the JCONT board to the relay board

- (1) The upper plate and the back light unit must be replaced at the time of replacement.

Perform steps (1) to (5) of “4. Replacing the back light unit.”

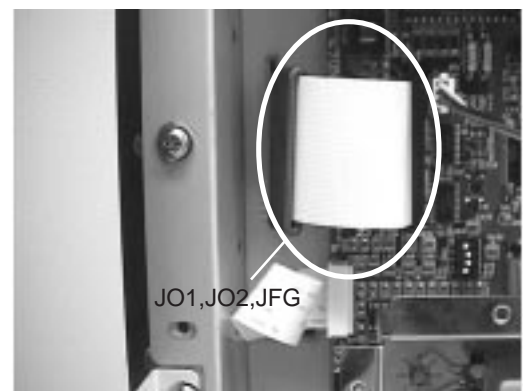
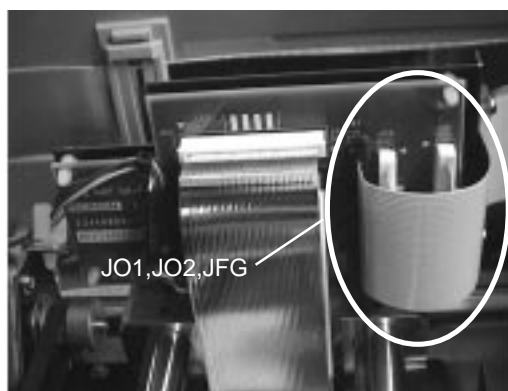
The parts codes of the ribbon cables are as follows.

JO1: 118734

JO2: 118735

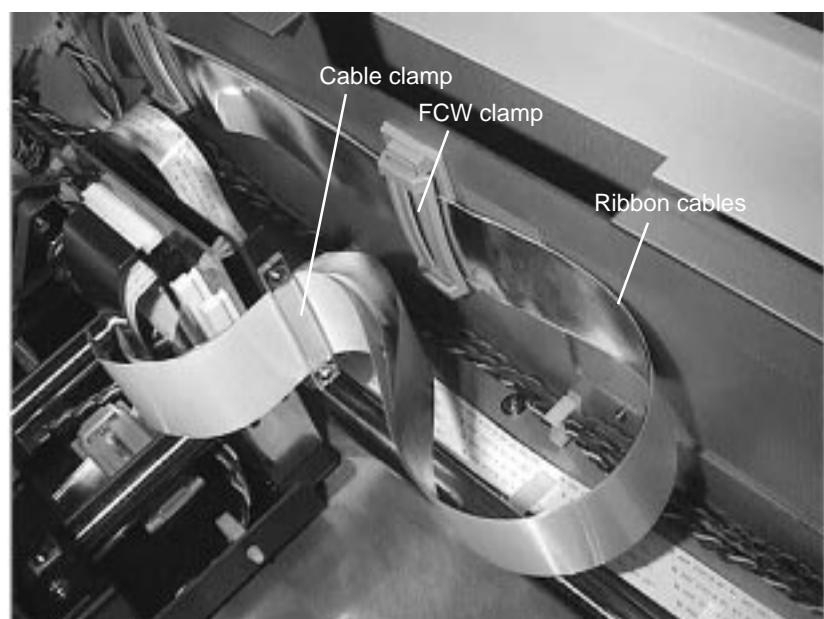
JFG: 118586

- (2) Disconnect the relay board connectors (JO1, JO2, JFG) and the JCONT board connectors (JO1, JO2, JFG).



- (3) Remove the cable clamp and the FCW clamp, draw the ribbon cables in toward the JCONT board and replace them.

* Move the optical base in the primary scanning direction and confirm that the ribbon cables are not interfering with other parts.

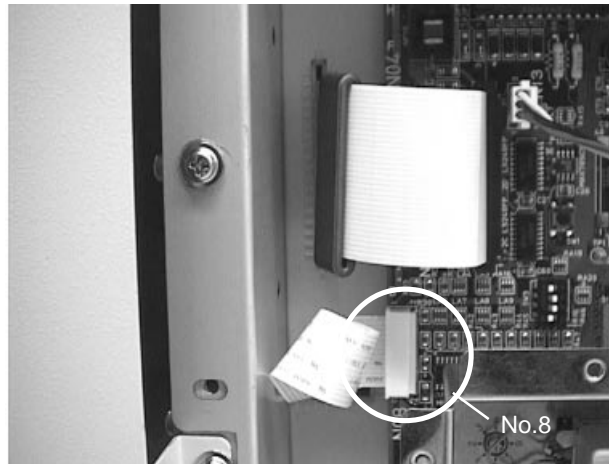


8-3. Replacing the ribbon cable connecting the display panel to the relay board

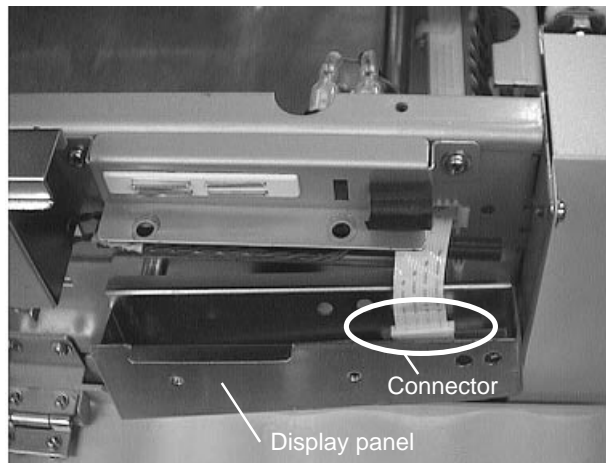
- (1) The upper plate and the back light unit must be removed at the time of replacement.

Perform steps (1) to (5) of “4. Replacing the back light unit.”

- (2) Disconnect the JCONT board connector (No.8).



- (3) Remove the display panel and disconnect the connector.



- (4) Replace the ribbon cable.

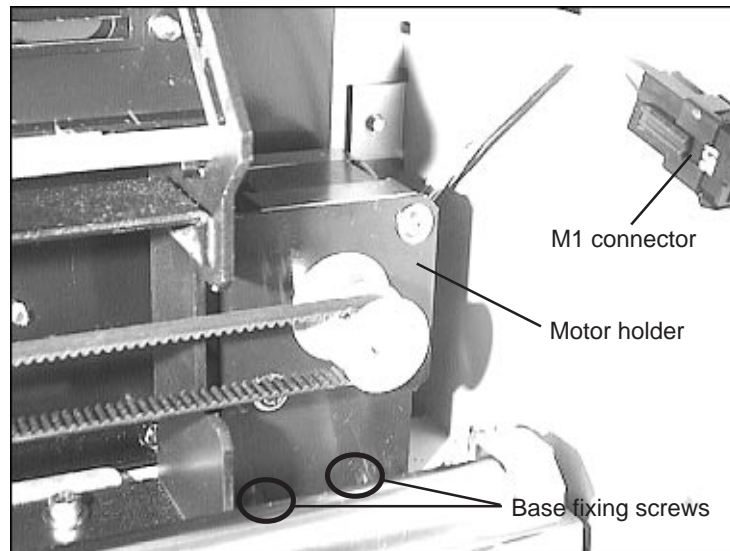
9. Replacing the motor

The upper plate and the back light unit must be removed when the motor is replaced.

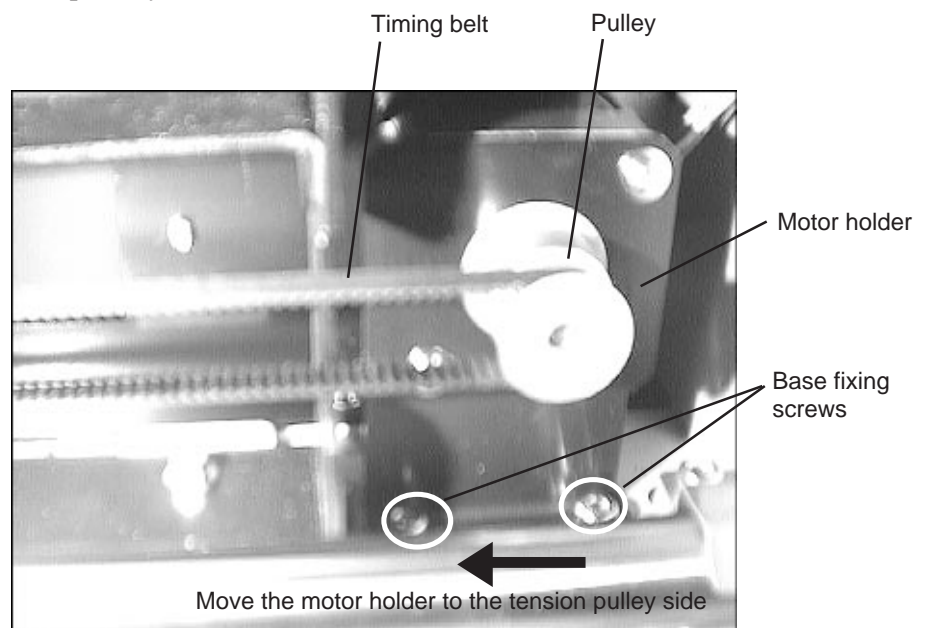
Replace the motor following steps (1) to (5) of “4. Replacing the back light unit.”

9-1. Replacing the primary scanning motor (M1)

- (1) Disconnect the M1 connector and the base fixing screws (two), and remove the M1 motor with its motor holder from the optical unit base.



- (2) Remove the pulley and the motor holder.
- (3) Attach the pulley and the motor holder to a new motor and put the timing belt on the pulley. Then fix the motor holder to the optical unit base temporarily.



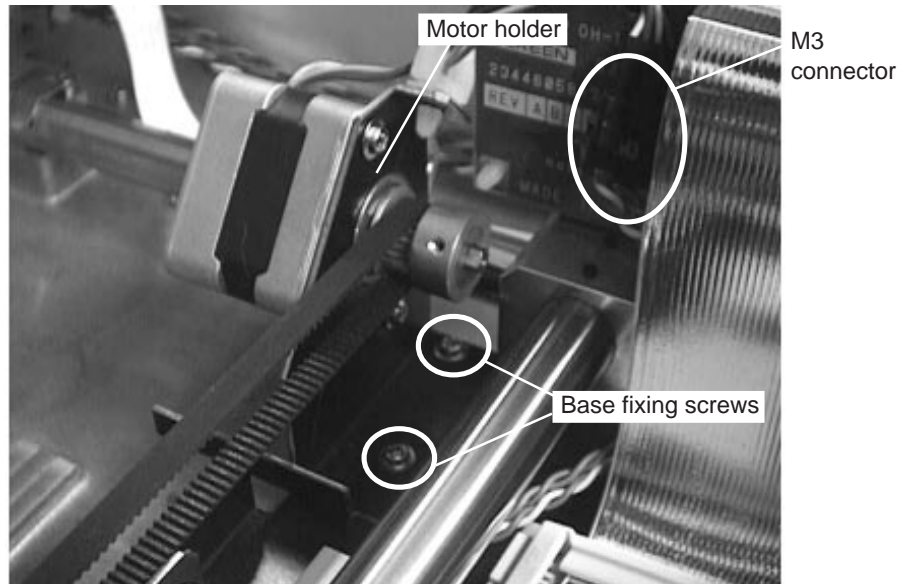
- (4) Fully fix the motor holder to the optical unit base after the motor holder is moved to the tension pulley side.

9-2. Replacing the secondary scanning motor (M2)

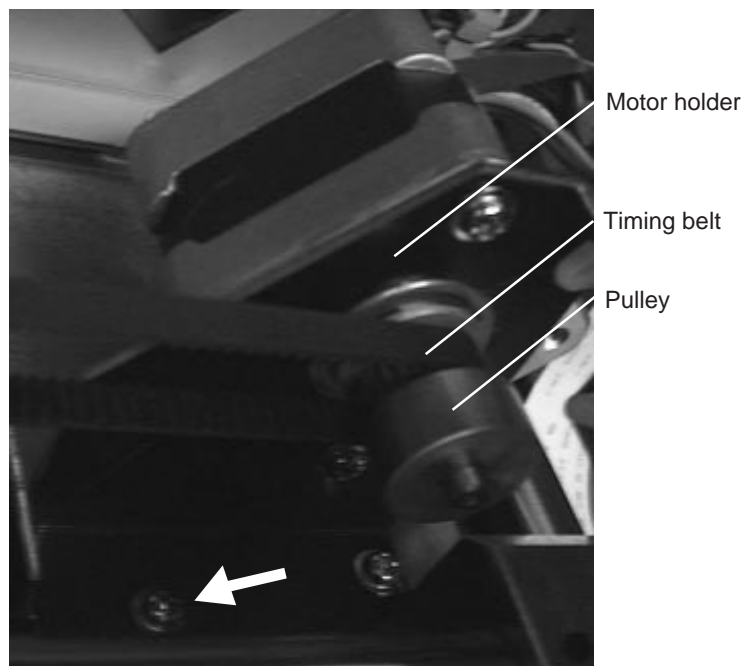
Refer to “C. Adjustment, 1. Secondary scanning motor replacement and automatic adjustment” for the secondary scanning motor replacement procedure.

9-3. Replacing the CCD motor (M3)

- (1) Remove the M3 connector and base fixing screws (two screws). Remove the M3 motor with its holder from the optical unit base.



- (2) Remove the pulley and the motor holder.
- (3) Re-attach the pulley and the motor holder to a new motor.
- (4) Put the timing belt on the pulley and fix the motor holder to the optical unit base temporarily.

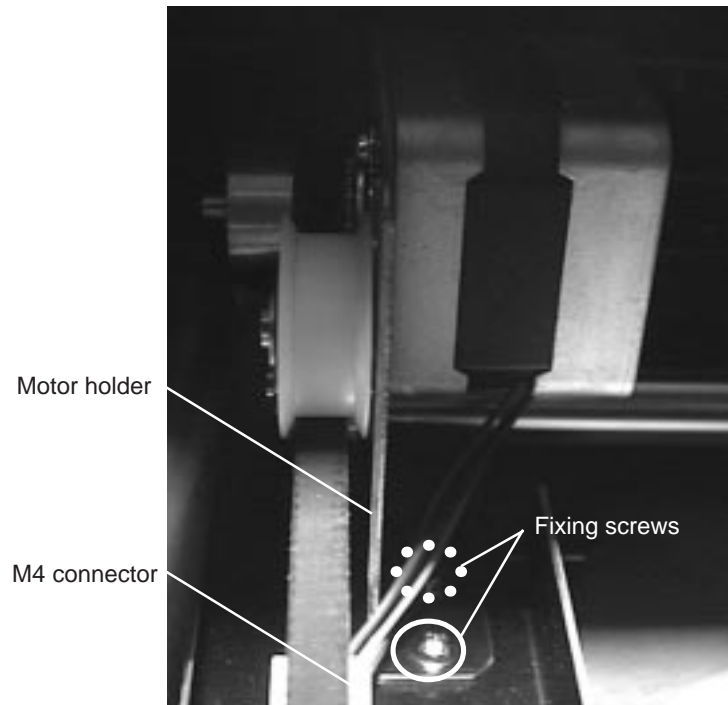


Move the motor holder to the tension pulley side.

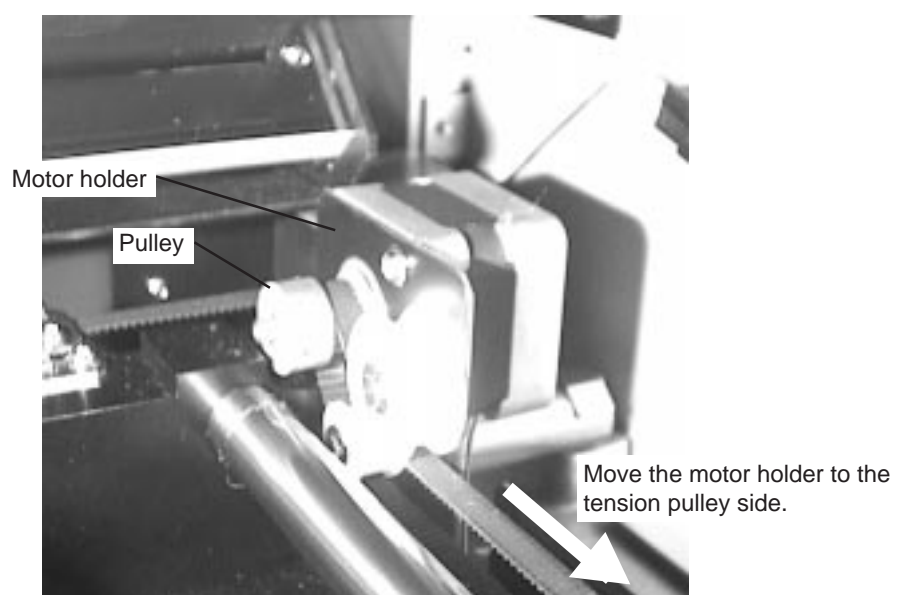
- (5) Firmly fix the motor holder after shifting it toward the tension pulley as far as the larger hole on the CCD motor holder will allow.

9-4. Replacing the lens motor (M4)

- (1) Disconnect the M4 connector and two fixing screws. Then remove the M4 motor with its motor holder from the optical unit base.



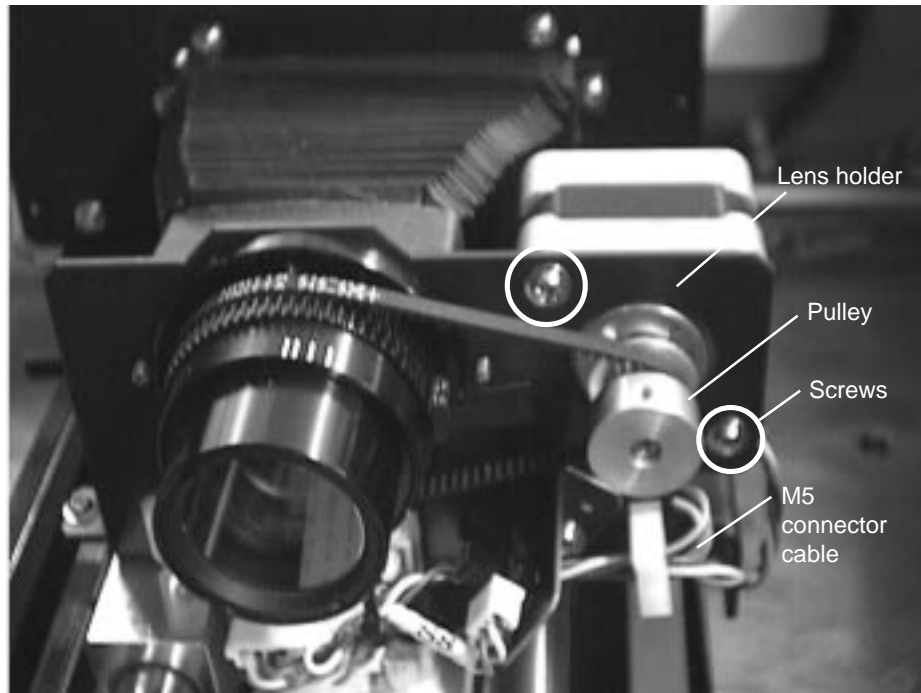
- (2) Remove the pulley and the motor holder.
- (3) Attach the pulley and the motor holder to a new motor.
- (4) Put the timing belt on the pulley and fix the motor holder to the optical unit base temporarily.



- (5) Firmly fix the motor holder after shifting it toward the tension pulley as far as the larger hole on the motor holder will allow.

9-5. Replacing the iris motor (M5)

- (1) Check the iris belt tension. When pressed slightly with your finger the belt should allow no more than 6 mm of elasticity.
- (2) Remove the M5 connector cable and two screws. Then remove the M5 motor with the pulley from the lens holder.



- (3) Attach the pulley to a new motor, put the timing belt on the pulley, and then attach them to the lens holder.
- (4) Check the iris belt tension. When slightly pressed with your finger the belt should allow no more than 6 mm of elasticity.

If the tension is changed after replacement, loosen the two screws securing the iris motor to change the motor position, and re-adjust the tension.

C. Adjustment (Level 3)

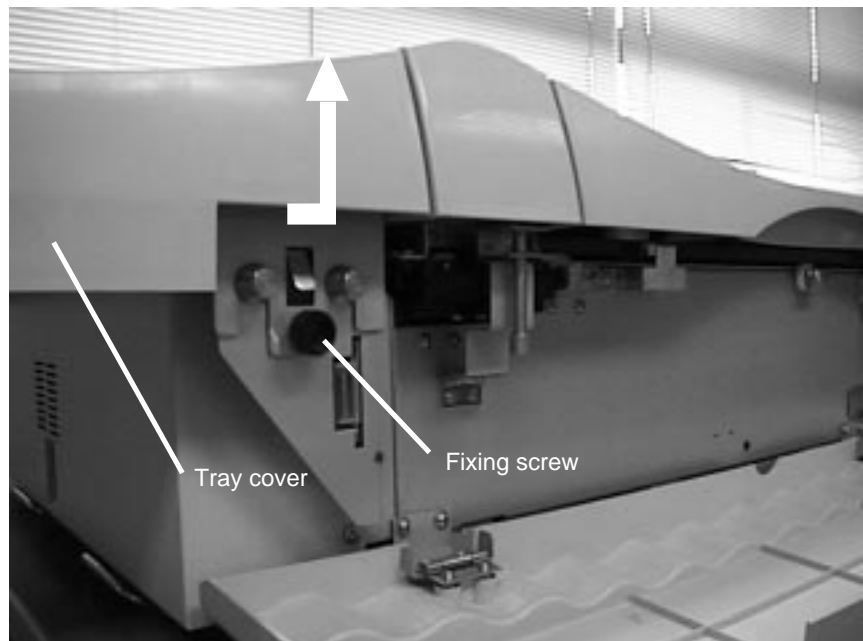
C. Adjustment

1. Secondary scanning motor (M2) replacement and automatic adjustment

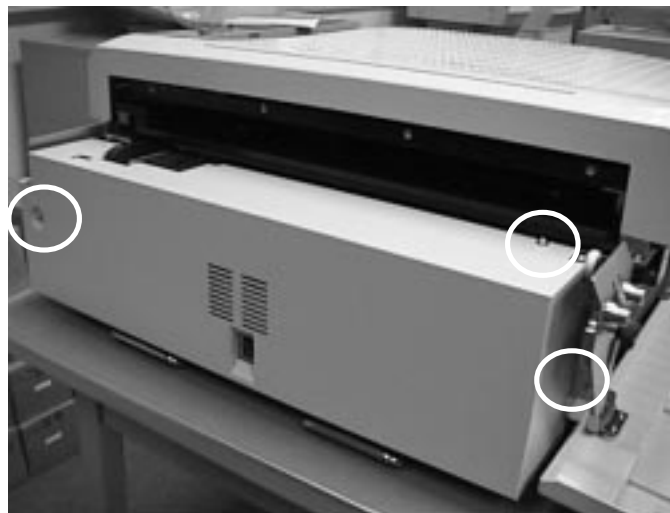
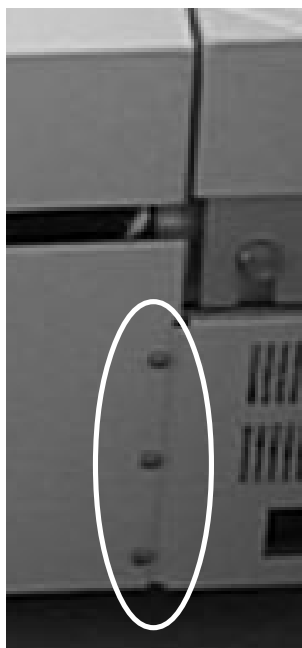
- (1) Open the front cover.



- (2) Remove the tray cover from the main section.
(After removing the fixing screw, pull the tray cover toward you and raise it up.)

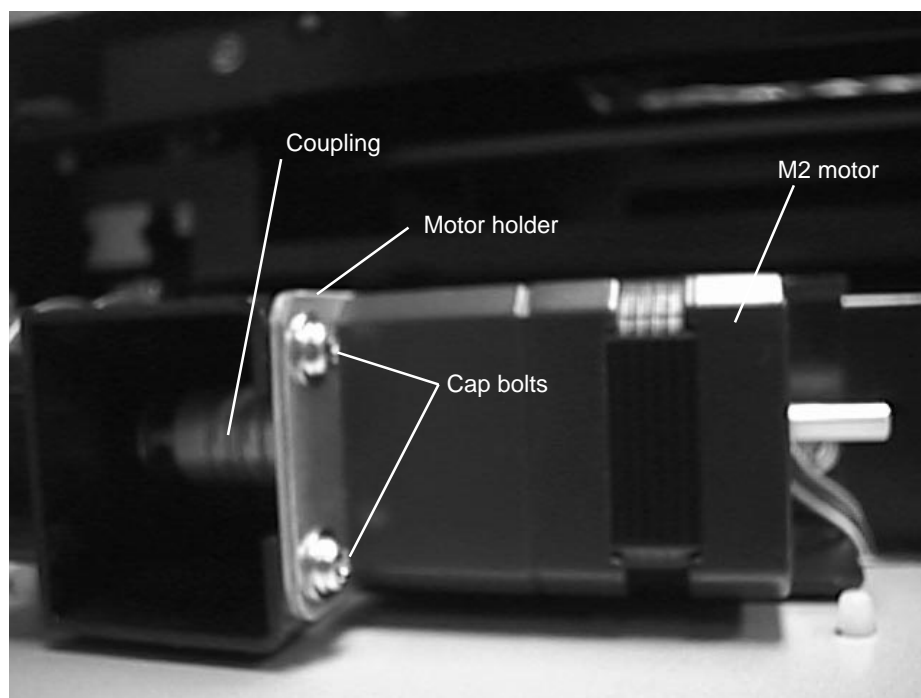


- (3) Remove the left side cover (6 screws).



- (4) Remove the power supply box and the connector attached to the M2 motor. After loosening the two set screws for the coupling, loosen the two cap bolts and remove the motor with its holder.

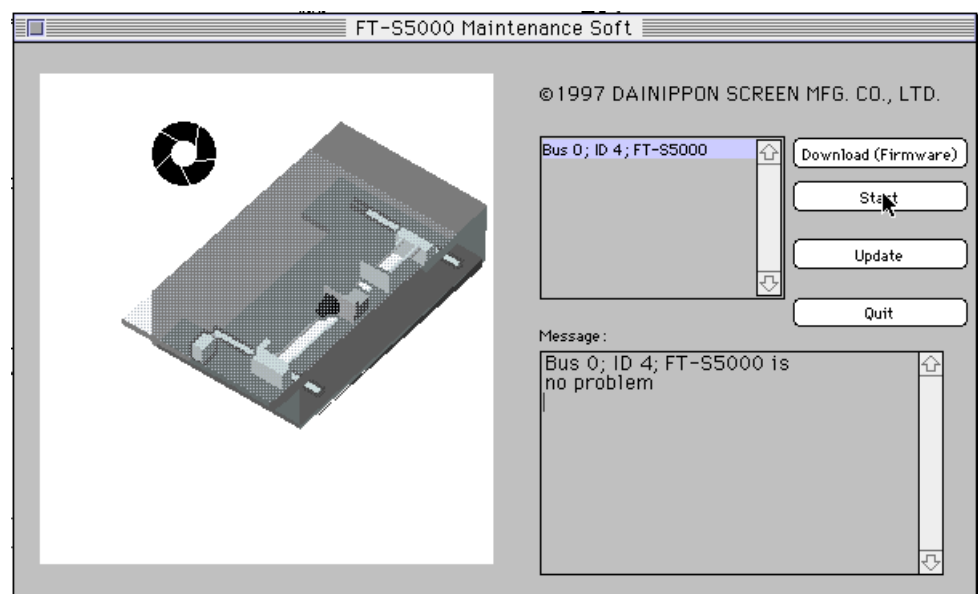
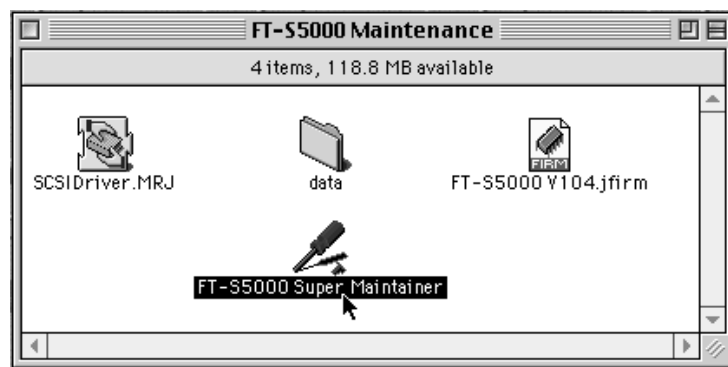
* Four set screws are attached to the coupling. Remove the two of them on the motor side. Pull the motor holder straight out to prevent the shaft from damaging the inside of the coupling.



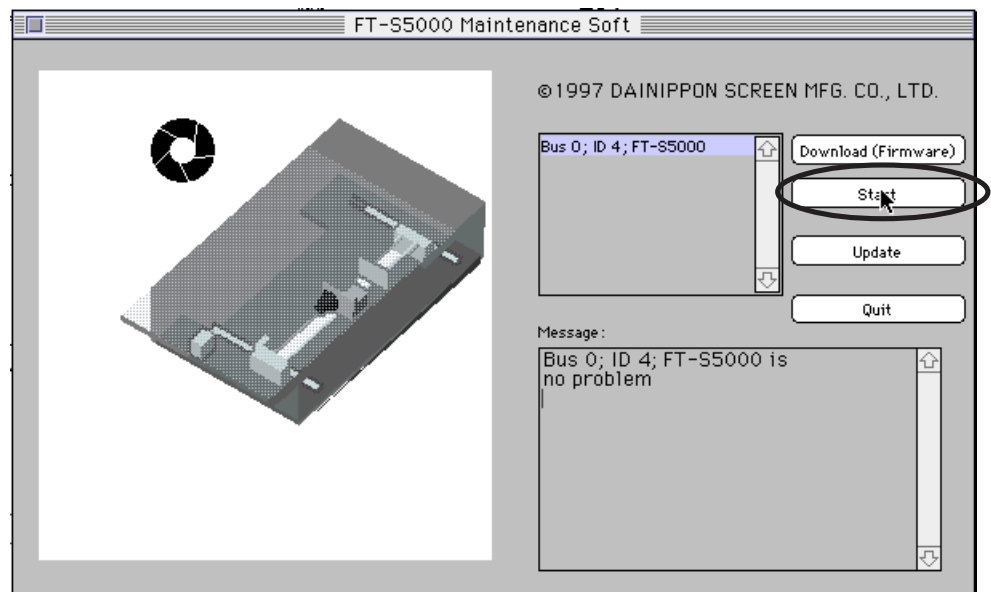
Power supply box

- (5) Attach a new motor to the motor holder and mount them to the main section with the same steps in reverse.
 - * Attach the motor to the motor holder so that the center of the motor shaft and the center of the hole for the motor holder are in the same place.
 - * Fix the cap bolts securely for the motor holder after loosening them once and determining the position where the motor shaft and the drive pulley shaft are aligned as precisely as possible (the widths of the gutters of the coupling should be identical).
 - * Tighten the two set screws for the coupling by turns after inverting the motor so that one of its D-shaped ends faces the operator side and the other faces up as seen from the left side of the main unit.
- (6) Place the adjustment glass on the original table and turn ON the power supply to the Macintosh and FT-S5000.

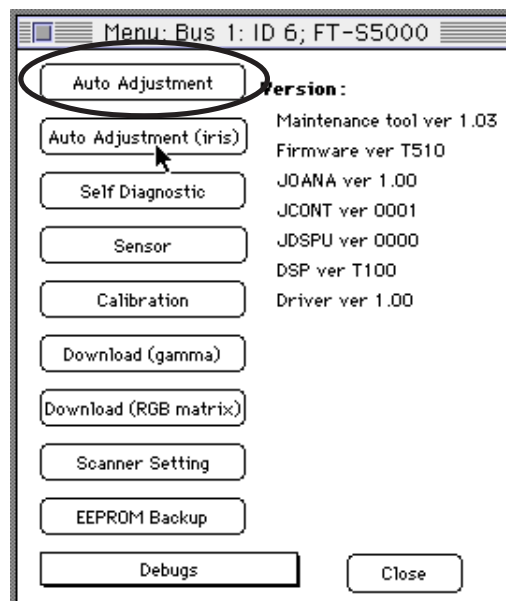
Double-click “FT-S5000 Super Maintainer” in the Class folder of FT-S5000 Maintenance to display the initial display dialog.



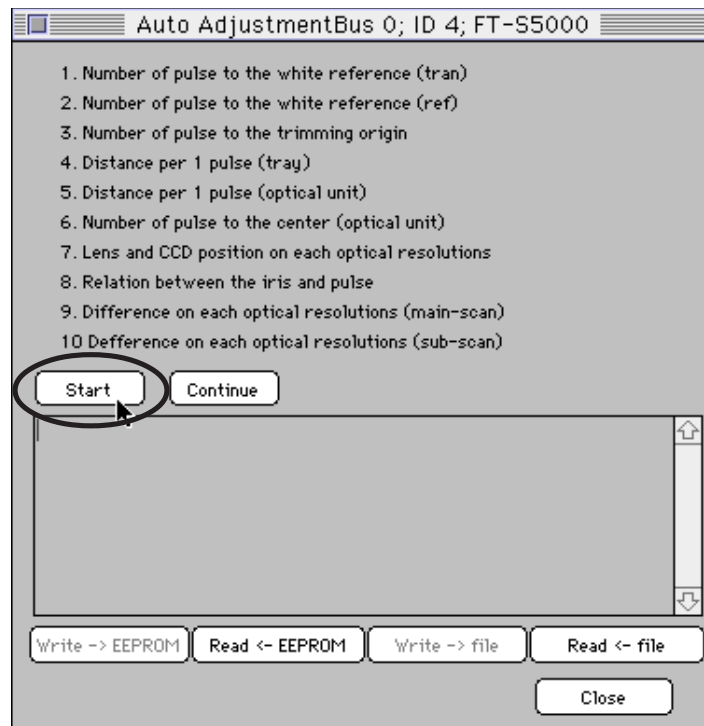
- (7) Click the Start button. The menu dialog appears.



- (8) Click the Auto Adjustment button. The automatic adjustment dialog appears.



- (9) Click the Start button. The automatic adjustment begins.



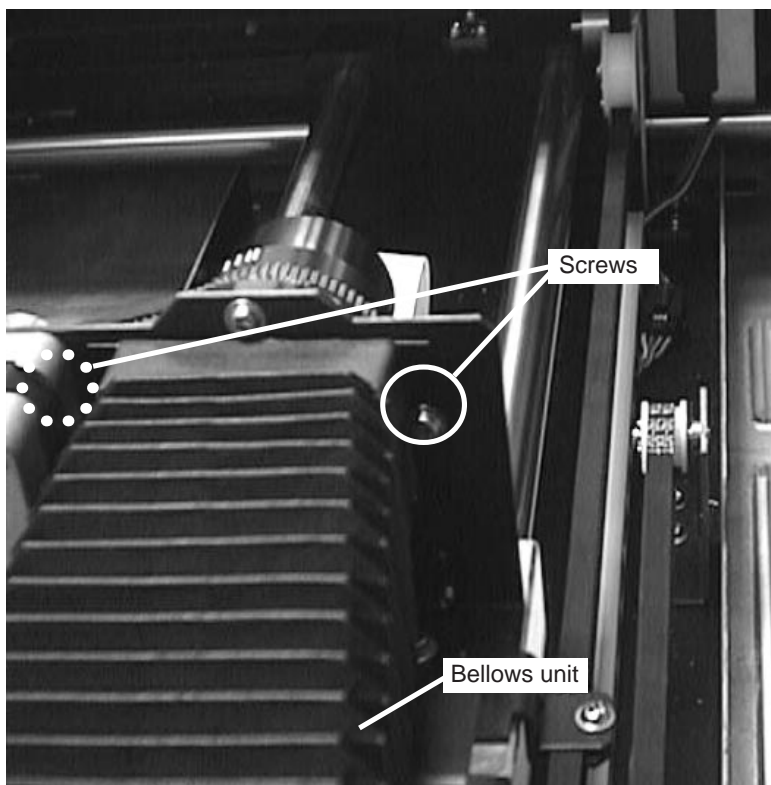
- (10) If items 1 to 10 are all OK, click "OK" after inputting the serial number. Press the "Write -> file" button to save the automatic adjustment data as a file. Then press the "Write -> EEPROM" button to write the data into the EEPROM.

2. Lens replacement automatic adjustment

- (1) The upper plate and back light unit must be removed when the lens is replaced.

Refer to steps (1) to (5) of “B. Parts Replacement, 4. Replacing the back light unit.”

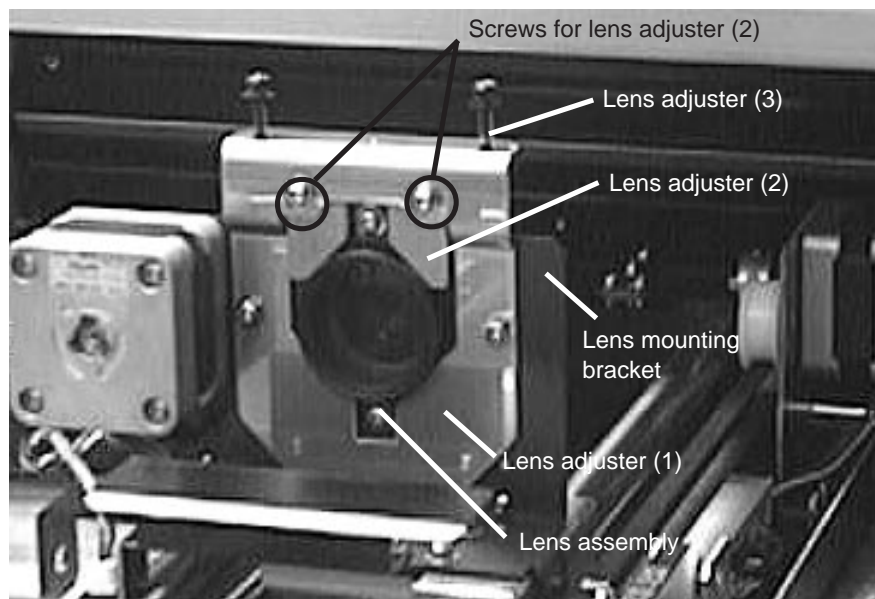
- (2) Remove the bellows unit on the lens unit side (two screws).



- (3) Attach the lens adjustment tool. The lens adjustment tool set consists of lens adjustment tools (1) (2), and (3).

Attach lens adjustment tool (1), whose V section is touching the lower part of the lens assembly, to the lens mounting bracket. Confirm that there is no interference between lens adjuster (2) and the upper part of the lens assembly. If there is any interference, loosen the screws for lens adjuster (2) and shift it to a safe position within the extended screw opening.

* Check the tension of the iris belt. When slightly pressed with your finger the belt should allow no more than 6 mm of elasticity. (Check the iris belt tension. When slightly pressed with your finger the belt should allow no more than 6 mm of elasticity.)



- (4) Remove the lens and attach the iris sensor plate attached to the old lens to the new one.

Attach the new lens and align the assembly section with lens adjuster (1).

* Check the iris belt tension. When slightly pressed with your finger the belt should allow no more than 6 mm of elasticity.

- (5) Re-attach the bellows unit after removing the lens positioning tools.

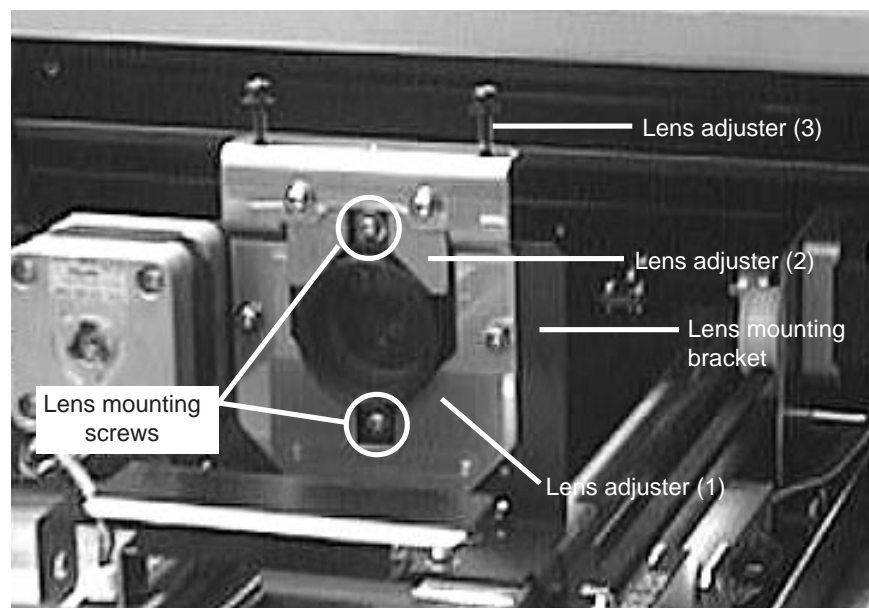
Close the upper cover and turn ON the power supply to the Macintosh and FT-S5000 after setting the graduated adjustment glass onto the tray table.

Start up "Lens Height adjustment" from the debug menu of the maintenance software.

- (6) Clicking “Check” displays the trimming start point displacement for secondary scanning.

(No problem will occur if the detected value is within ± 0.18 mm of the appropriate value. If the value is out of this range, a dialog appears to show in which direction and how far lens adjuster (3) should be rotated.)

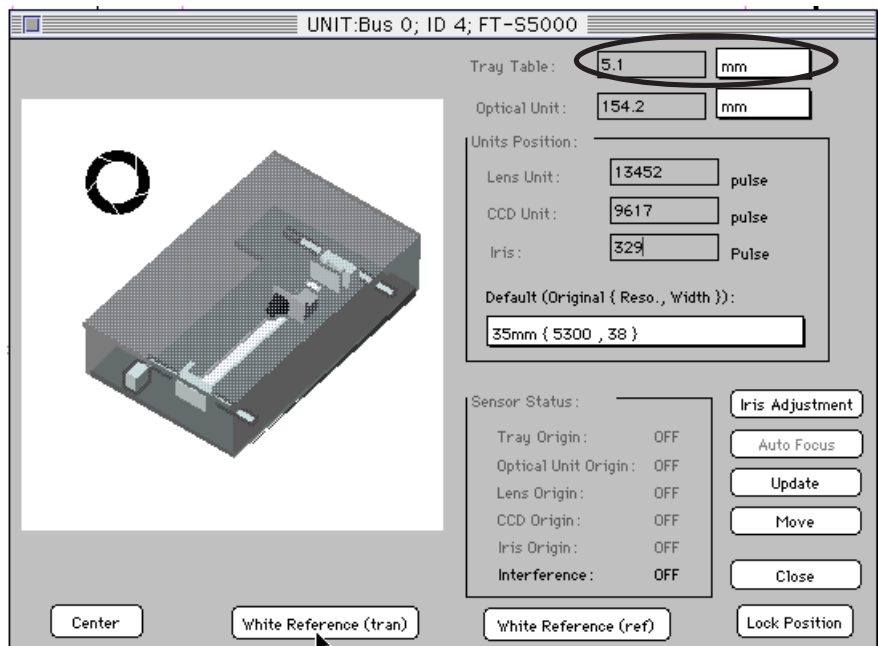
- * Be careful to always rotate the lens adjuster in the indicated direction. (CW: Clockwise, CCW: Counterclockwise)
- * When you make an adjustment using lens adjuster (3), first, you need to confirm that the lens does not rotate even if the screw securing the lens adjuster and the lens is loosened. If it does rotate, lens adjusters (1) and (2) are not holding or securing the lens. In this case, re-attach lens adjuster (2).
- * Also check that lens adjuster (3) touches the lens mounting bracket. If it does not, lightly hold down the screw heads of lens adjuster (3) to lower the lens adjustment tool and lens together until they touch. Also, when you rotate lens adjuster (3) counterclockwise, there must be a gap between adjuster (3) and the lens mounting bracket. Therefore, always press down on adjuster (3) when securing it.



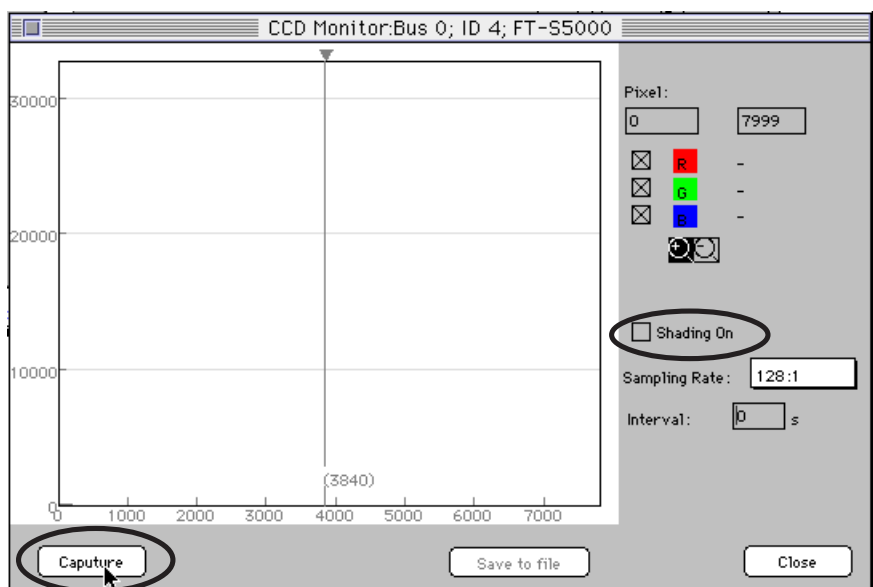
- (7) Repeat (5) and (6) until the lens is adjusted properly.
- (8) Perform “C. Adjustment, 3. Waveform check and slit position adjustment”.
- (9) Follow steps (6) to (10) of “C. Adjustment, 1. Secondary scanning motor (M2) replacement and automatic adjustment”.

3. Waveform check and slit position adjustment

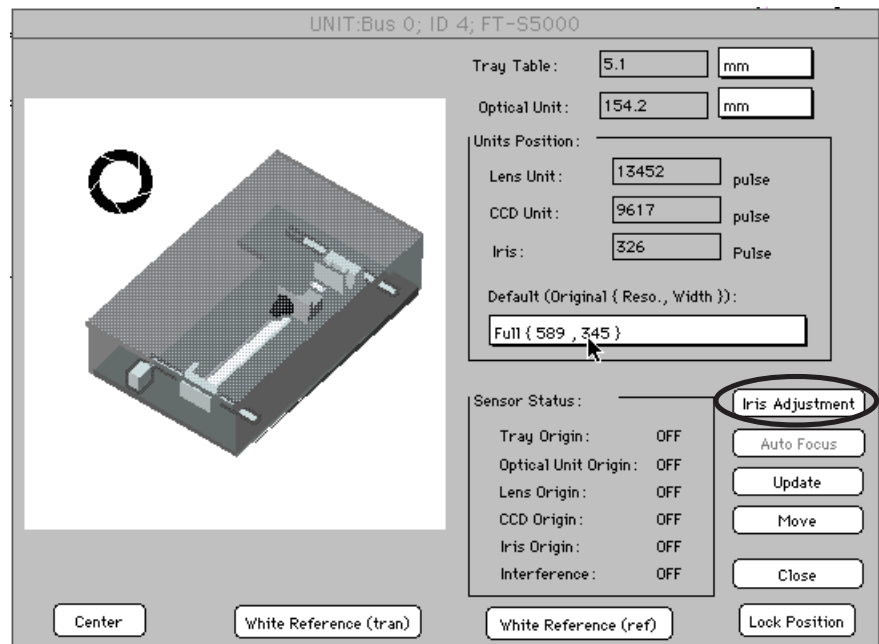
- (1) Click “Unit Control” in the maintenance software debug menu and move the tray table position to 85.2 mm.



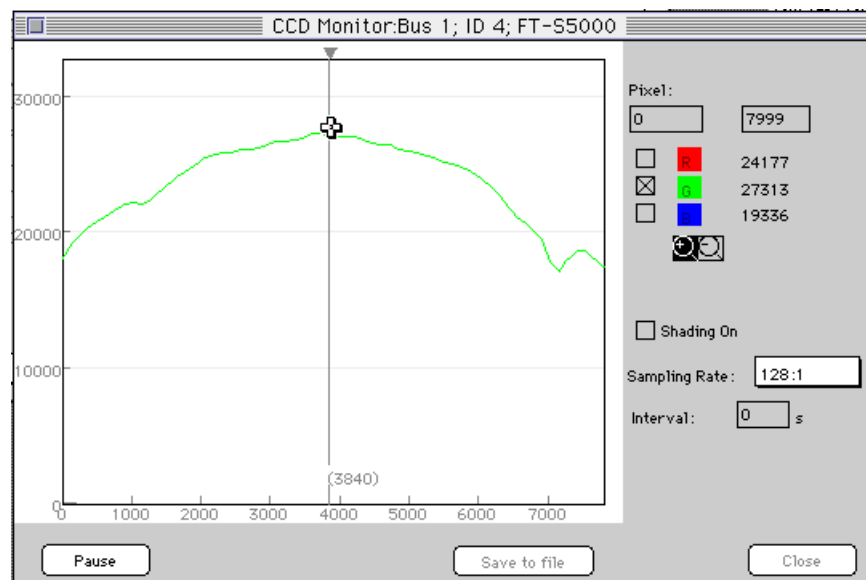
- (2) Start the CCD monitor in the maintenance software, set “Shading ON” to OFF, and click on “Capture”.



- (3) Click “Iris Adjustment” in the “Unit Control”.
- * Click “Iris Adjustment” after confirming that “Capture” is being displayed in the CCD monitor dialog.

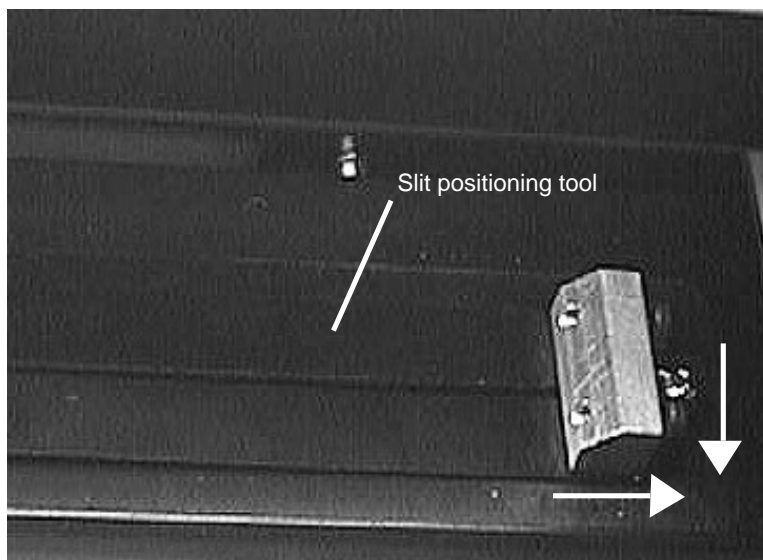


- (4) Click “Capture” on the CCD monitor.
- Repeat steps (3) and (4) so that the highest point of the G channel waveform does not reach the saturation (the maximum amplitude of the wave is approximately 30000).



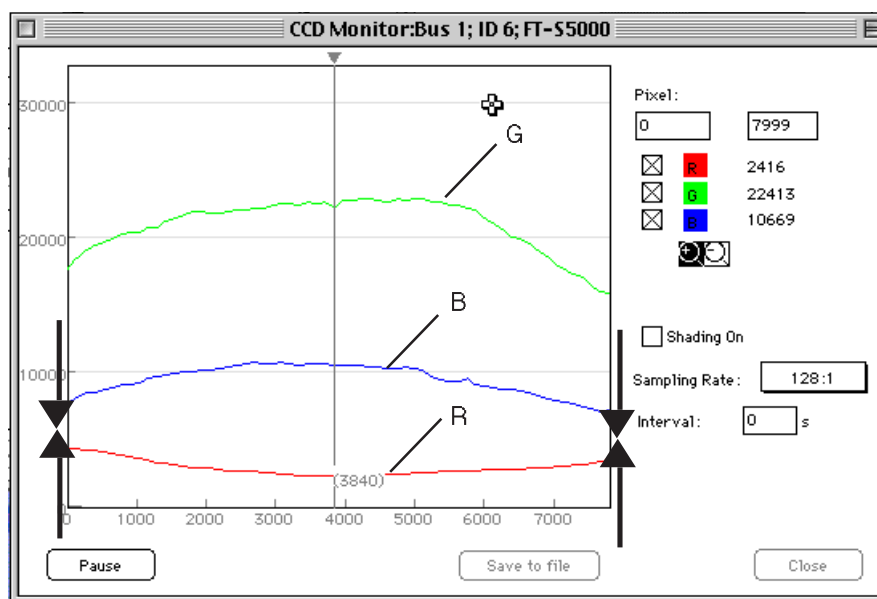
- (5) Insert the slit positioning tool between the tray table and the table frame. Position the slit positioning tool so that its pins all fit into the slit.

Note) You have to attach the slit adjustment tool in the proper direction. The marked side should be attached facing the operator. When the slit adjustment tool is inserted in the slit, it is unstable due to the difference between the size of its pins and slit width. The slit adjustment tool should be set flush against the front left side of the main unit.



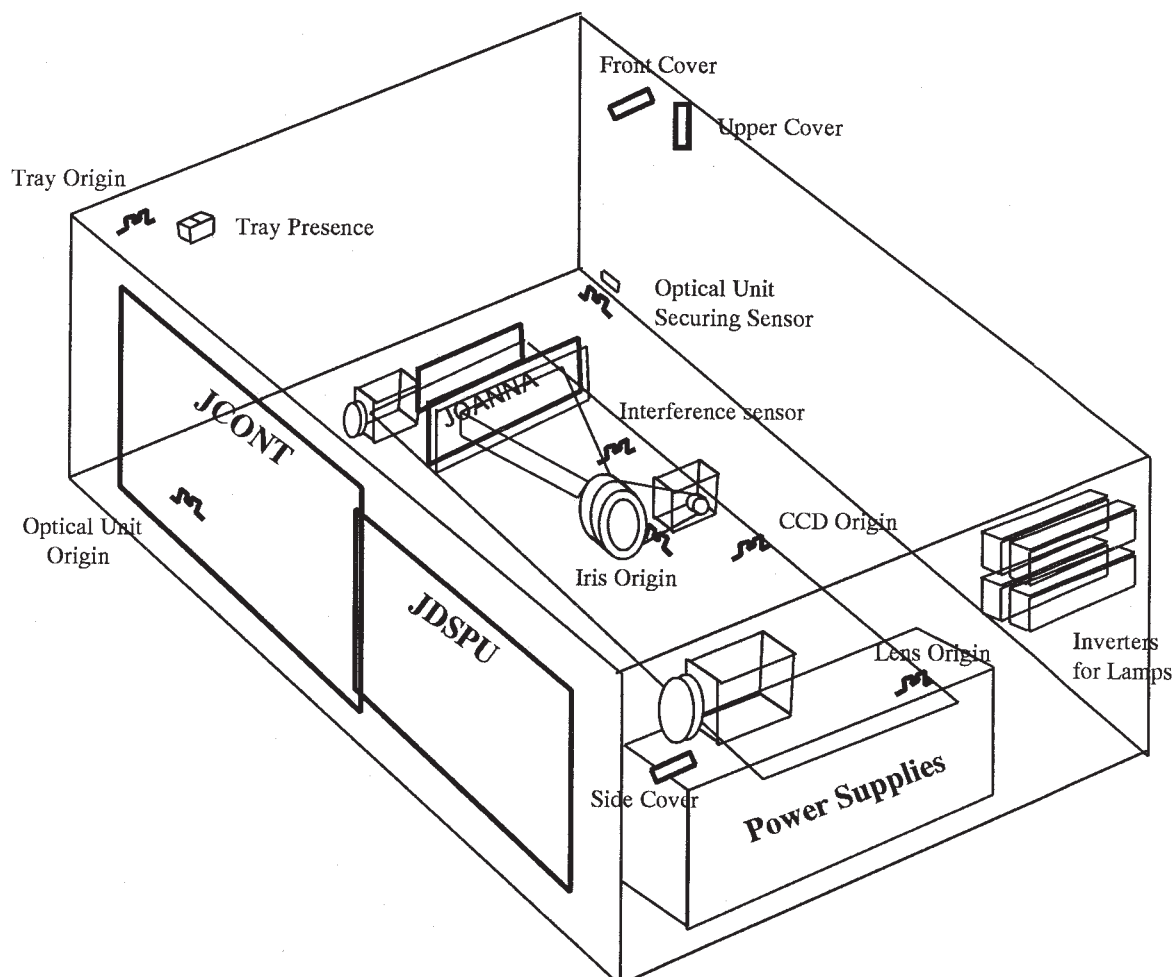
- (6) Click “Capture” on the CCD monitor.

While watching the wave shape on the CCD monitor, shift the slit positioning tool toward the front-left side and fix the screws of the slit at a position where the light intensity values of R and B are the same for Pixel 1 and 7999.



4. Sensor replacement and adjustment

The following shows the sensors names and sensor arrangement.



- S1: Optical Unit Securing Sensor
- S2: Tray Origin Sensor
- S3: Optical Unit Origin Sensor
- S4: Tray Presence Sensor
- S5: CCD Origin Sensor
- S6: Lens Origin Sensor
- S7: Interference Sensor
- S8: Iris Origin Sensor
- S9: Thickness Original Sensor

* S9: The Thickness Original Sensor is attached to the inner board of the upper cover. (Refer to C-17.)

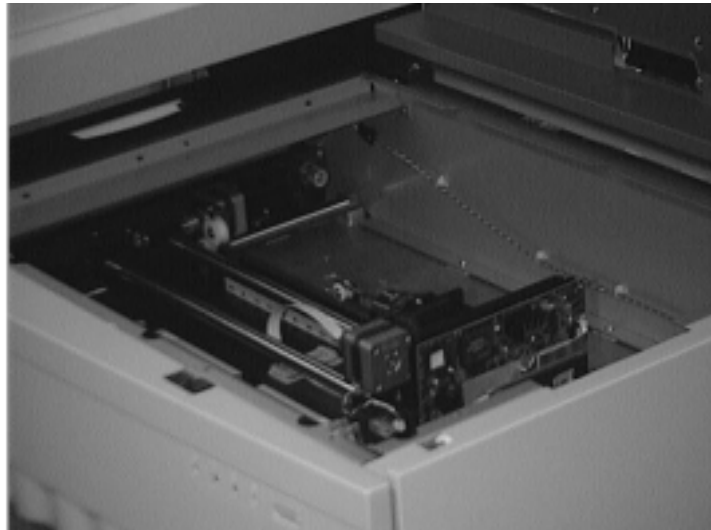
4-1. Basic replacement of sensors

Basically, the sensors can be replaced with the following steps.

- (1) The upper plate and back light unit must be removed at the time of replacement.

Follow steps (1) to (5) of “B. Parts Replacement, 4. Replacing the back light unit”.

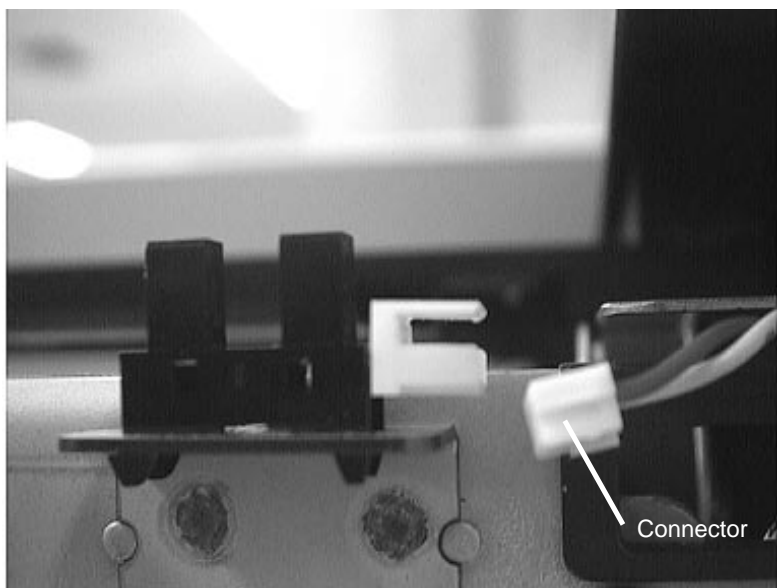
- (2) The optical unit appears.



- (3) Disconnect the connectors and replace each sensor.

The connectors are snapped into their flanges . They can be easily pulled out.

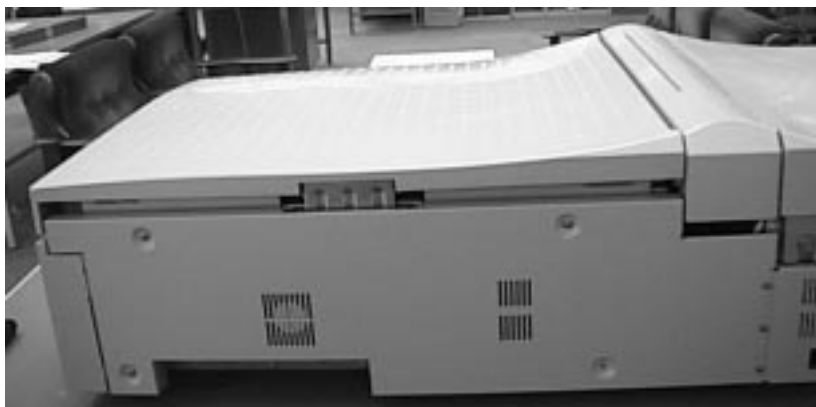
* Automatic adjustment using the graduated adjustment glass is required after replacing the Tray Origin Sensor (S2), CCD Origin Sensor (S5) and Lens Origin Sensor (S6). Follow steps (6) to (10) of “C. Adjustment, 1. Secondary scanning motor (M2) replacement and automatic adjustment”.



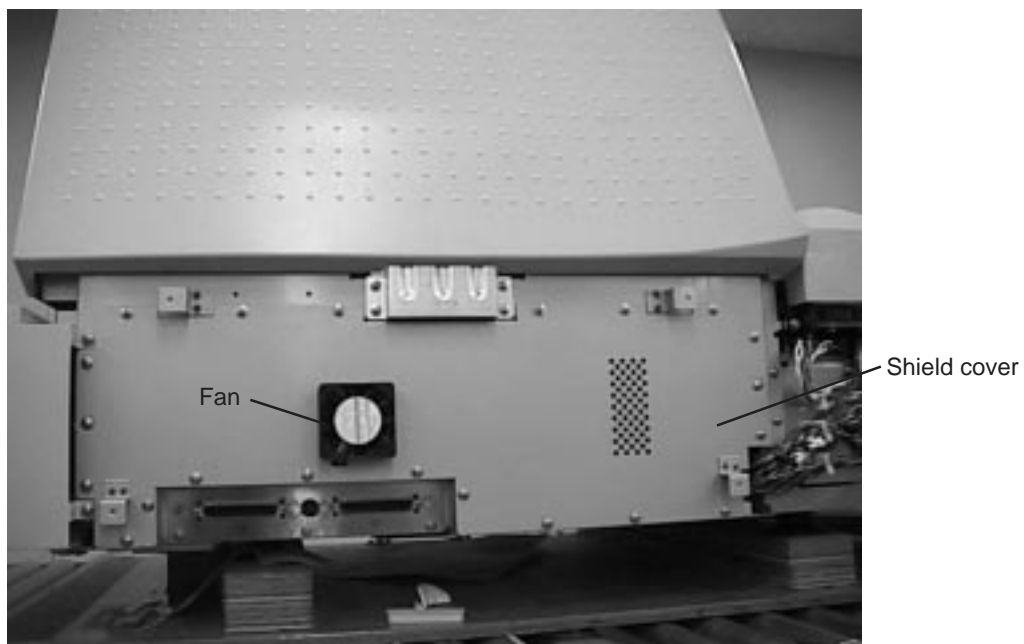
- (4) Turn ON the power supply and check that initialization is completed properly.

4-2. Replacing the Optical Unit Origin Sensor (S3)

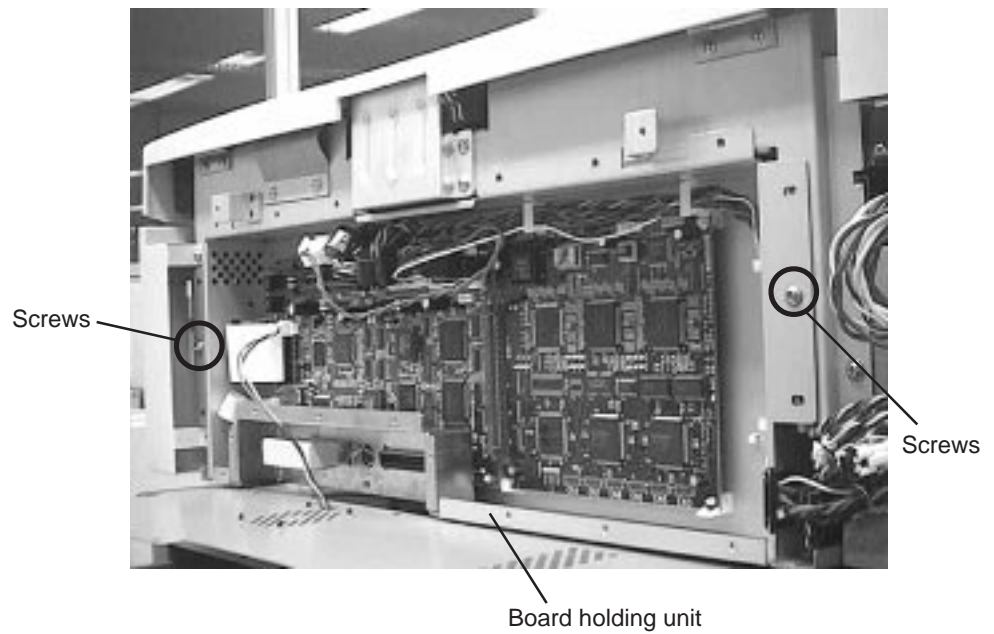
- (1) Remove the rear cover.



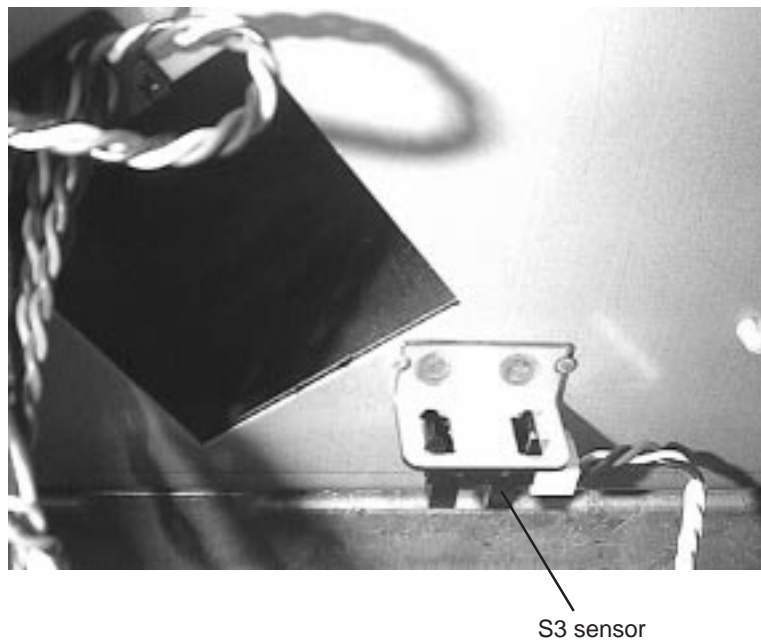
- (2) Remove the shield cover.
Disconnect the fan connector.



- (3) Remove the board holding unit (two screws).



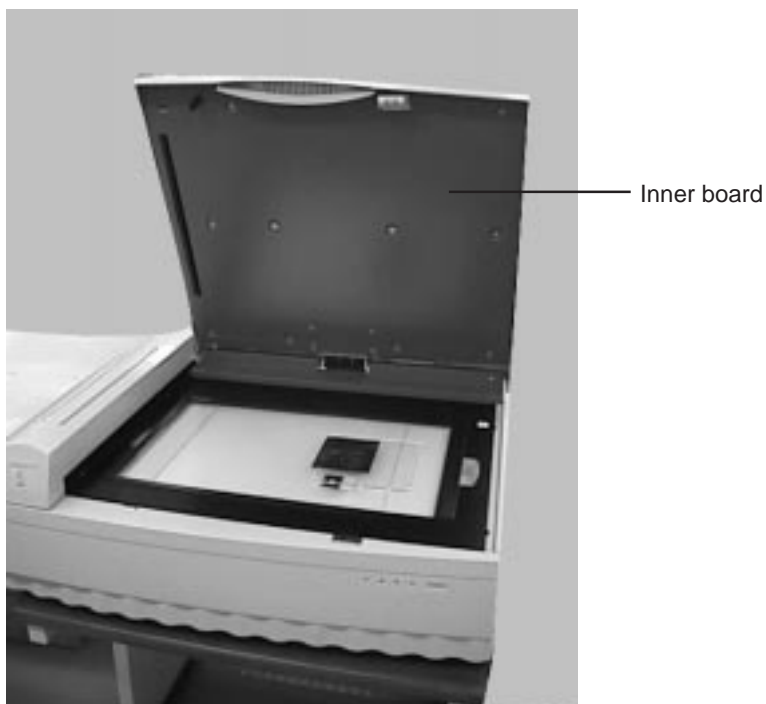
- (4) Replace the S3 sensor.



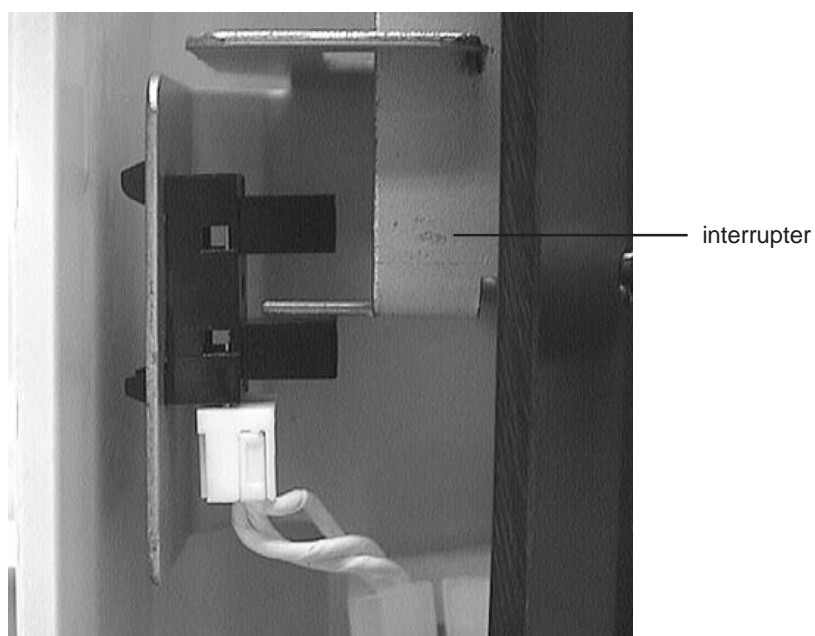
- (5) Turn ON the power supply and check that initialization is completed properly.

4-3. Replacing the Thickness Original Sensor (S9)

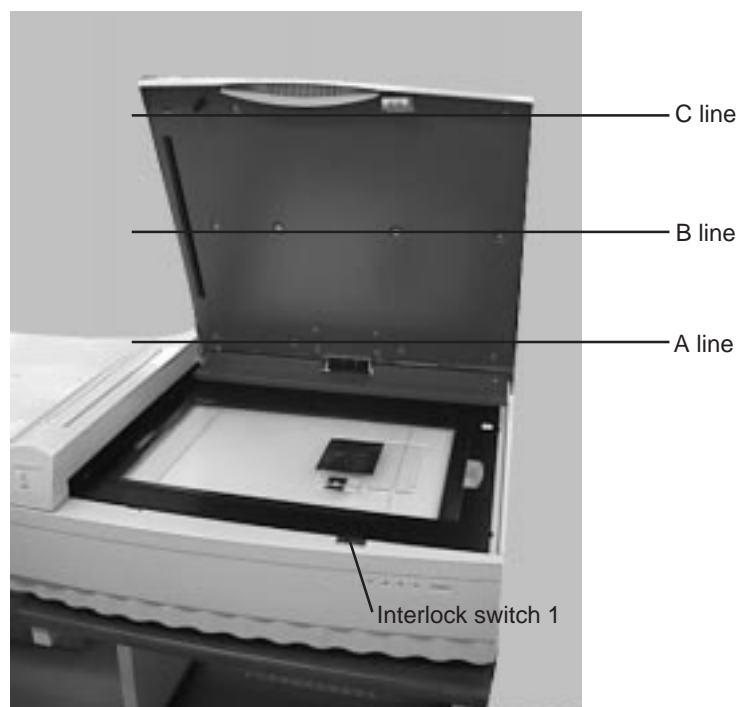
- (1) Open the upper cover and remove the inner board of the cover (13 screws).



- (2) Replace the S9 sensor after disconnecting the connector.
Confirm that the interrupter moves smoothly without touching the sensor.

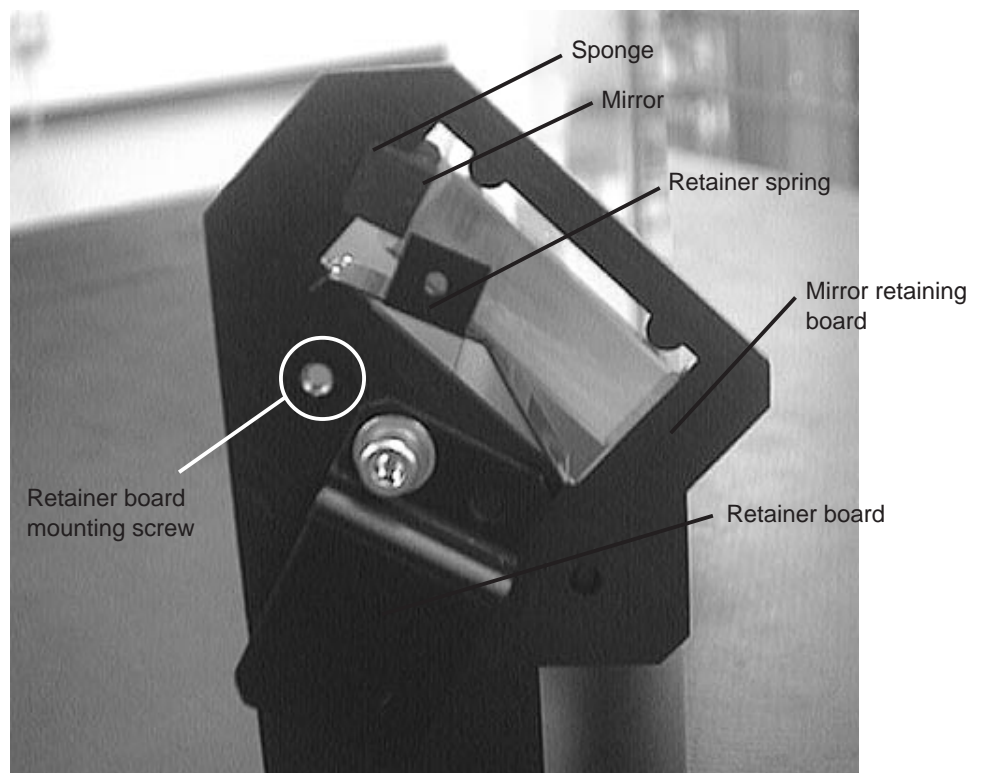


- (3) Firmly fix the inner board to the main section after fixing it temporarily.
Check the following items so that the right and left edges of the upper cover close simultaneously when fixing the inner board securely.
1. Check that the cover closes properly after firmly securing the screws on the A line.
 2. Check that the cover closes properly after firmly securing the screws on the B line.
 3. Check that the cover closes properly after firmly securing the screws on the C line.
 4. Check that interlock switch 1 button is securely pressed when closing the upper cover.



5. Mirror replacement and adjustment

- (1) The upper plate and back light unit must be removed when the mirror is replaced.
Refer to steps (1) to (5) of “B. Parts Replacement, 4. Replacing the back light unit”.
- (2) Remove one of the mirror retainer board mounting screws on the operator side.
- (3) Remove the sponges both on the operator side and far side, and then remove the retainer spring on the operator side leaving the one inside attached.
- (4) Press the mirror at the back lightly. Remove the mirror after sliding it toward the operator.



- (5) Insert the new mirror covered with paper onto the inside retainer spring. Raise up the mirror at the front lightly and insert the retainer spring from under the mirror.
- (6) Re-attach the mirror retainer board to its original position and secure it.
- (7) Insert the sponges on the operator side and on the far side so that the mirror is pushed down in the mirror retaining board.
* Do not remove the mirror retaining board. (We cannot guarantee the mirror's accuracy.)
- (8) Perform the steps of “C. Adjustment, 4. Waveform check and slit position adjustment”.

**D. Maintenance software
(Super Maintainer)**

D. Maintenance software (Super Maintainer)

The maintenance software is a tool for FT-S5000 maintenance from the host. Using this maintenance tool allows troubleshooting of specific problem areas, checking sensor operation, and calibrating the FT-S5000 from the host.

The following lists the functions of the maintenance tool:

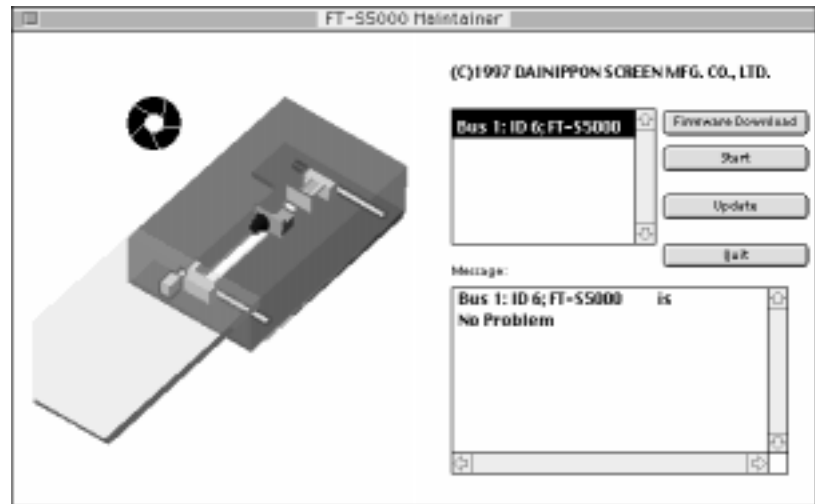
- Self diagnostic function
- Sensor operation check
- Calibration
- Scanner setting
- Movement of the tray table and optical unit
- Firmware downloading
- EEPROM backup and restoration
- Scanner log acquisition

1. Launching the maintenance tool

(1) <Macintosh>

If you install the maintenance tool with the installer, a folder titled “FT-S5000 Maintainer” is created under the folder you have designated as the installing destination. Double-click the file “FT-S5000 Maintainer” which is inside the “FT-S5000 Maintenance” folder.

The password input window opens. Enter “jupiter” and the following initial screen appears. This screen shows the list of all the FT-S5000s currently connected to the host.



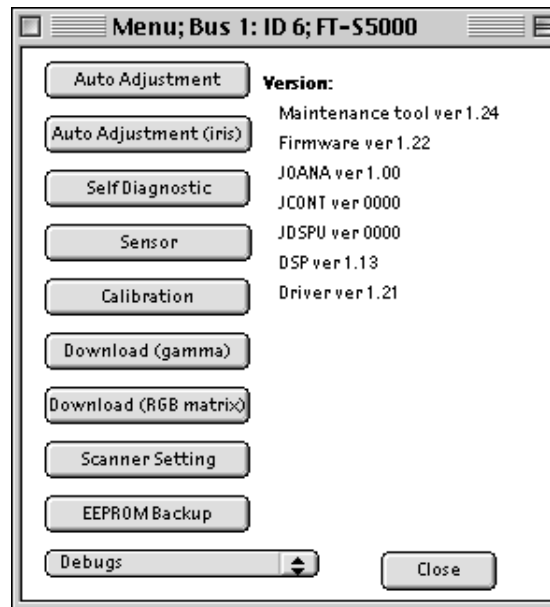
<Windows>

When you install the maintenance tool with the installer, the “FT-S5000 Super Maintainer” is added in the “ColorScope Pro3” menu, (under the “Start” menu). Select the “FT-S5000 Super maintainer”. When the password input window opens, enter “jupiter”. The following window appears. The initial window shows a list of all the FT-S5000s currently connected to the host.

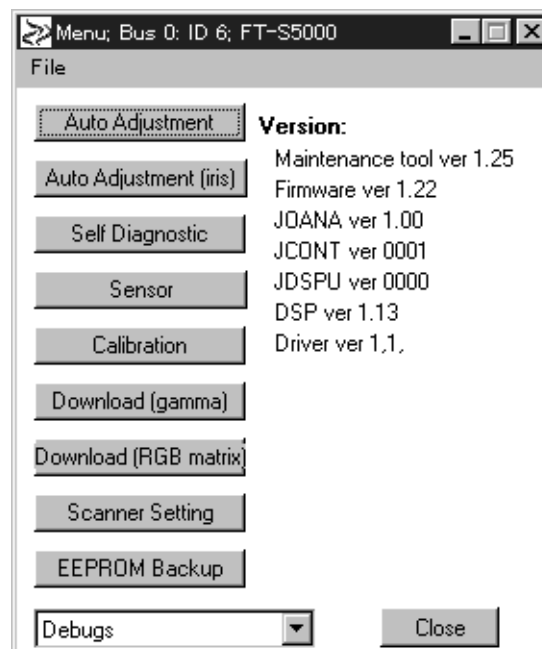


- (2) From the list, select the FT-S5000 for which you want to perform maintenance, and click the “Start” button. The menu window appears. The maintenance menu window displays all the available functions such as Self-adjustment, Self-diagnostic, Sensor Test and Calibration. These functions are explained below.

<Macintosh>



<Windows>

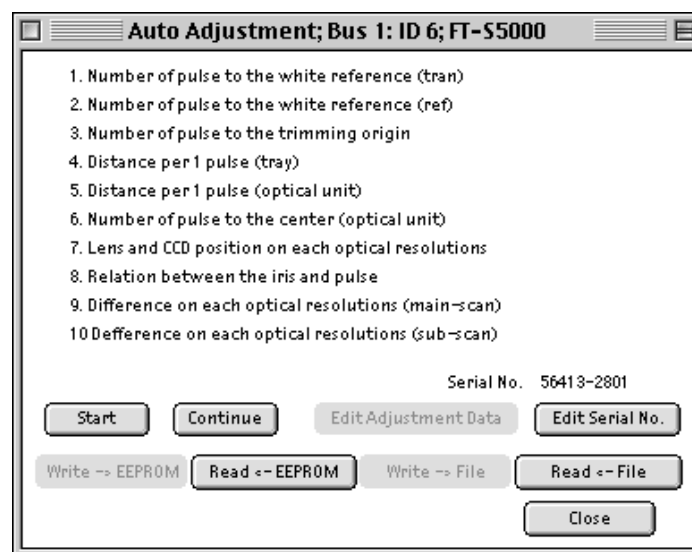


2. Auto adjustment

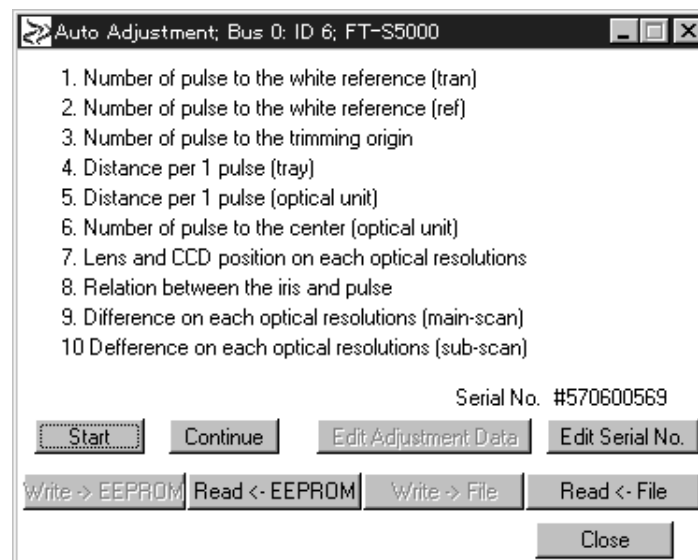
The FT-S5000 does not contain the chart for magnification measurement. The optical system moves in the primary scanning direction. Therefore, necessary parameters can be adjusted automatically using the following measurement function.

Refer to the previous chapter, "C. Adjustment" for details on automatic adjustment after parts replacement. The following explanations cover the edit function for automatic adjustment data, how to set the calibrated adjustment glass, different types of adjustment, adjustment procedures for Automatic Adjustment (Iris), and different types of automatic adjustment errors.

<Macintosh>



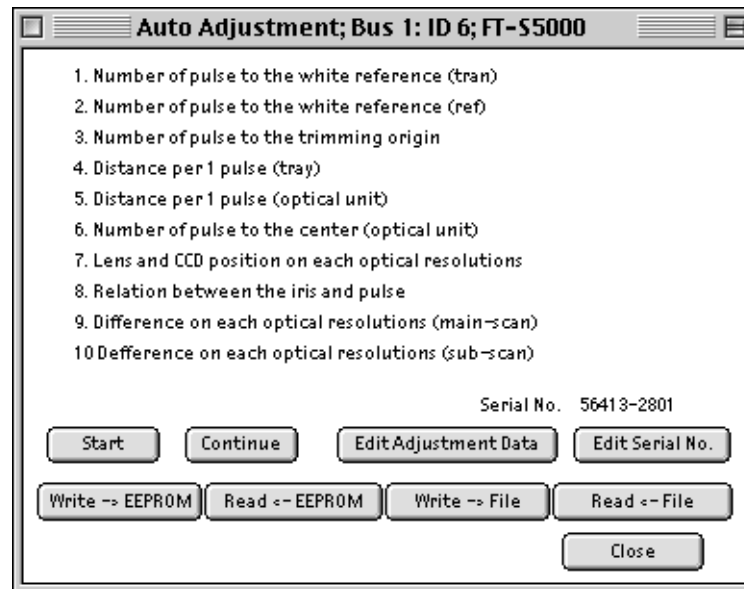
<Windows>



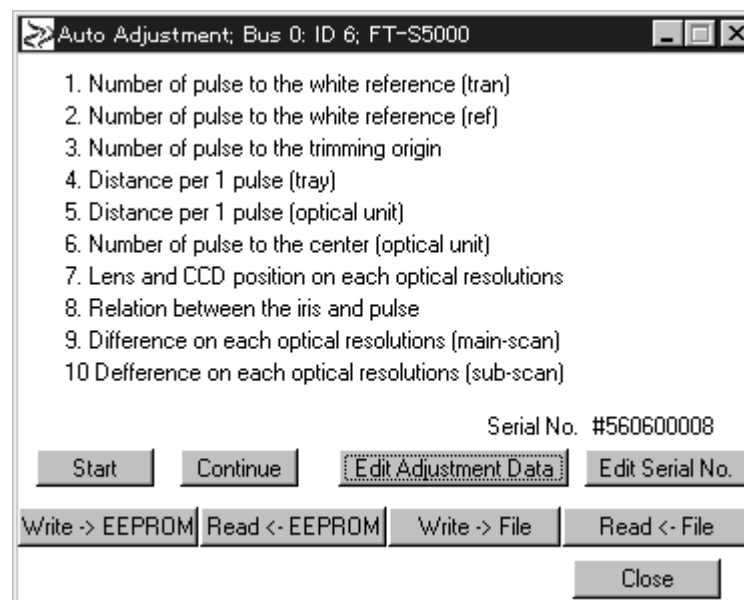
2-1.Edit function for automatic adjustment data

After installing the Super maintainer V 1.24 (in ColorScope Pro3 V1.21), it is possible to edit automatic adjustment data. After performing an automatic adjustment or loading data from the EEPROM or FILE, the “Edit Adjustment Data” button is activated.

<Macintosh>



<Windows>



When you click the “Edit Adjustment Data” button, the automatic adjustment data edit window appears as shown below.

<Macintosh>

Number of pulse to the white reference (tran) : 2614 pulse
 Number of pulse to the white reference (ref) : 12902 pulse
 Number of pulse to the trimming origin : 39094 pulse
 Distance per 1 pulse (tray) : 2293011 $\times 10^{-9}$ mm
 Distance per 1 pulse (optical unit) : 54980595 $\times 10^{-9}$ mm
 Number of pulse to the center (optical unit) : 2771 pulse
 Relation between the iris and pulse : 461 pulse

Lens and CCD position and these difference on each optical resolutions :

Reso	589.0	778.8	981.1	1200.4	1576.4	1999.8	2383.0	2741.7	3178.0	4004.0	5300.0	dpi
CCD	9642	6200	4085	2683	1348	631	348	261	303	643	1538	pulse
Lens	13522	9870	7528	5881	4130	2945	2239	1756	1316	745	210	pulse
Main-scan	0	-54	0	0	0	55	0	0	0	0	110	$\times 10^{-9}$ mm
Sub-scan	0	22	-32	50	18	-9	-22	-50	-132	-151	-192	$\times 10^{-9}$ mm

Revert Cancel O K

<Windows>

Number of pulse to the white reference (tran) : 2487 pulse
 Number of pulse to the white reference (ref) : 13466 pulse
 Number of pulse to the trimming origin : 38906 pulse
 Distance per 1 pulse (tray) : 2292688 $\times 10^{-9}$ mm
 Distance per 1 pulse (optical unit) : 55002165 $\times 10^{-9}$ mm
 Number of pulse to the center (optical unit) : 2765 pulse
 Relation between the iris and pulse : 504 pulse

Lens and CCD position and these difference on each optical resolutions :

Reso	589.2	779.2	981.1	1200	1575	2000	2382	2742	3178	4004	5300	dpi
CCD	9620	6179	4067	2666	1329	611	328	242	284	627	1522	pulse
Lens	13462	9813	7478	5833	4082	2892	2187	1703	1262	693	156	pulse
Main-scan	0	110	165	165	110	55	0	0	0	0	0	$\times 10^{-9}$ mm
Sub-scan	0	-169	-261	-307	-376	-431	-458	-481	-499	-527	-550	$\times 10^{-9}$ mm

Revert Cancel O K

Usually automatic adjustment is performed with a calibrated adjustment glass. However, even without the calibrated adjustment glass, it is possible to adjust the magnification and the trimming tolerance in the secondary scanning (sub-scan) direction by changing the data in the edit window.

It is possible to adjust the magnification in the secondary scanning (sub-scan) direction by changing the tray's movement distance per pulse.

Trimming offset can be adjusted by changing the offset values in the primary scanning (main scan) direction and the secondary scanning (sub-scan) direction for each resolution.

Data can only be changed for the three items shown above: Distance per pulse (tray), Main-scan and Sub-scan. Do not change any other items.

2-2. Graduated adjustment glass setting method

A graduated adjustment glass is required to measure the automatic adjustment items.

The magnification measurement lines are symmetrically drawn on the graduated adjustment glass for magnification measurement of the optical system with the primary scanning 1/2 line set as an axis of symmetry.

Magnification measurement can be performed effectively from the lower scanning magnifications.

A pattern with fine pitches is also provided for focus setting.

- (1) Take the graduated adjustment glass out of its packing.
- (2) Set it in the machine face up so that the “SCREEN FT-S5000” imprint can be clearly seen.
- (3) One side of the graduated adjustment glass has 2 positioning clips and the other side has 1.
- (4) Align the side with 2 positioning clips toward the back.
- (5) Put the graduated adjustment glass on the left edge of the tray table.
- (6) Press the 2 positioning clips at the back against the tray table frame and press the single positioning clip on the left against the tray table frame.
- (7) Insert a sponge or tape between the edge of the graduated glass (on the operator side) and the tray table frame to prevent the adjustment glass from wobbling.

* When handling the graduated adjustment glass, be careful not to get any fingerprints, dust, or other contaminants on it.

The metal fittings for the adjustment glass have already been adjusted, so be careful not to jolt or shock them. Also never hold the adjustment glass by just its metal fittings.

2-3. Adjustment type

There are 10 types of adjustments.

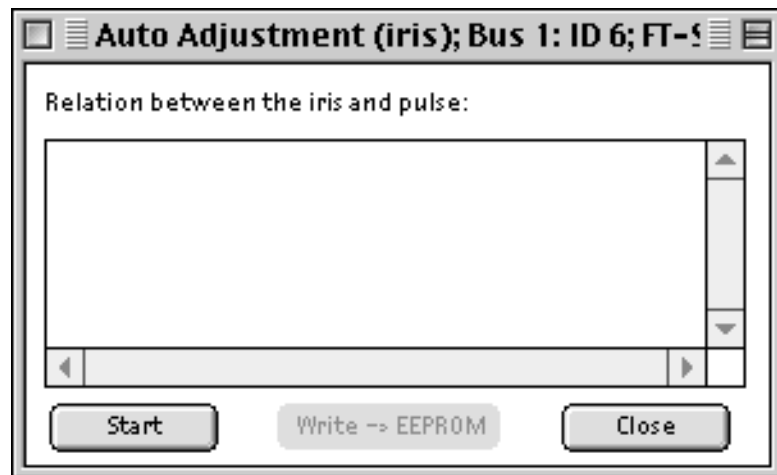
1. Number of pulse to the white reference (tran)
Finds the white reference position for transparencies.
2. Number of pulse to the white reference (ref)
Finds the white reference position for reflection originals.
3. Number of pulse to the trimming origin
Finds the approximate trimming start point in the secondary scanning direction.
4. Distance per 1 pulse (tray)
Determines the tray movement distance for each pulse.
5. Distance per 1 pulse (optical unit)
Determines the optical unit movement distance for each pulse.
6. Number of pulse to the center (optical unit)
Determines the approximate center position of the optical unit.
7. Lens and CCD position for each optical resolution
Adjusts the optical magnification.
8. Relation between the iris and pulse
Determines the position where the iris is most open.
9. Difference on each optical resolution (main-scan)
Determines the optical unit center position and its shift relative to the resolution.
10. Difference on each optical resolution (sub-scan)
Determines the trimming start point in the secondary scanning direction and its shift relative to the resolution.

2-4. Auto adjustment (Iris) adjustment procedure

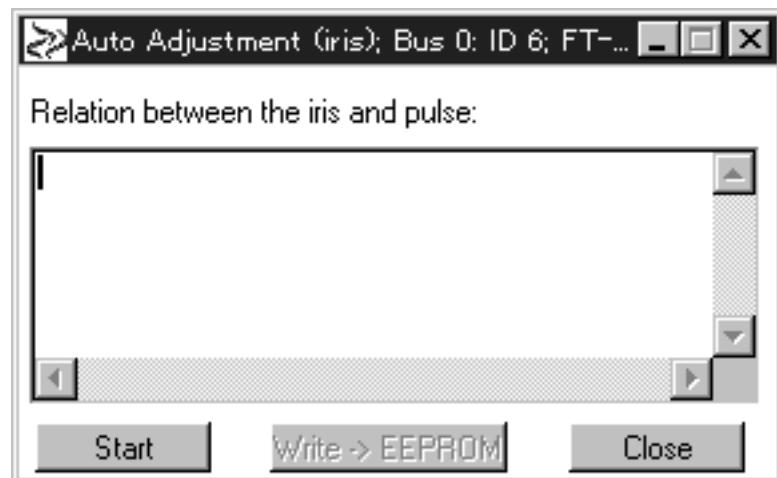
The CCD light intensity is measured as the number of iris pulses is changed, and the relationship between the iris and optical magnification is determined.

- (1) Click the “Auto adjustment (Iris)” button in the menu window. The “Auto adjustment (Iris)” window appears.

<Macintosh>



<Windows>



- (2) Click the “Start” button.

After the automatic adjustment is completed, write the data to the FT-S5000 EEPROM.

The following shows error dialogs displayed in the maintenance software and potential causes of the errors.
(Note that these passages are only excerpts from the full description.)

Auto-adjustment error

Auto-adjustment: Overlapped commands.

Multiple automatic adjustments were executed.

This error means that you attempted to perform an automatic adjustment while a previous automatic adjustment was still being executed.

A new automatic adjustment run can only be performed after the previous one is finished.

Auto-adjustment: Failed detecting line.

During automatic adjustment, the line cannot be detected or the width of the detected line differs completely from the specified expected one.

This error means that the specified line could not be detected or the detected line width was completely different from that of the line specified. (The relevant line could not be detected.)

The potential causes are:

- The graduated adjustment glass is set incorrectly.
- The graduated adjustment glass is dirty or dusty.
- There is something obstructing the optical path.
- The coupling section of the secondary scanning motor is loose.
- The transparency light source is not lighting up.

Auto-adjustment: Multiple lines detected.

During automatic adjustment, multiple lines are detected.

This error means that the number of lines detected on the graduated adjustment glass was more than the expected number.

The potential causes are:

- The graduated adjustment glass is not set correctly.
- The graduated adjustment glass is dirty or dusty.
- There is something obstructing the optical path.
- The coupling section of secondary scanning motor is loose.

Auto-adjustment: DSP command execution error.

During automatic adjustment, an error occurred when the DSP command was issued.

This error means that the FT-S5000 could not properly communicate with the DSP.

The potential cause is:

- The JDSPU board is not properly set.

Auto-adjustment: DSP data receive error.

During automatic adjustment, an error occurred during data reception from the DSP.

This error means that the FT-S5000 did not receive the expected (specified) number of bytes of data.

The potential causes are:

- The JDSPU board is not properly set.
- The wiring is not properly connected between the JOANA and JCONT boards.

Auto-adjustment: DSP command failed.

During automatic adjustment, a DSP command was terminated by an error.

A command executed in the DSP was not executed properly.

Auto-adjustment: JOANA command execution error.

During automatic adjustment, an error occurred while sending a JOANA command.

Auto-adjustment: JOANA report reception error.

During automatic adjustment, an error occurred while receiving a JOANA command.

Auto-adjustment: JOANA reported error.

During automatic adjustment, an error occurred in reply to a JOANA command.

This error means that the FT-S5000 could not properly communicate with the JOANA board.

The wiring may not be properly connected between the JOANA and JCONT boards.

Auto-adjustment: Iris adjustment error.

During automatic adjustment, an error occurred while adjusting the iris.

This error occurs during iris adjustment, and may be caused by the problematic connection between the DSP and JOANA boards mentioned above.

Auto-adjustment: Auto-focus error.

During automatic adjustment, an auto-focus error occurred.

This error occurs during execution of auto-focus, and may be caused by the problematic connection between the DSP and JOANA boards mentioned above.

Also, the DSP may not be able to finish data processing because it cannot keep up with the data flow from the auto focus calculations.

Auto-adjustment: Shading error.

During automatic adjustment, a shading error occurred.

This error occurs during execution of shading.

The previously mentioned problem with the DSP and JOANA may also cause this error.

Auto-adjustment: Retry error.

During automatic adjustment, adjustment could not be completed even after the set number of retries.

This error means that adjustment could not be successfully completed even though the operation was retried as many times as specified for this parameter.

The potential causes are:

- The machine's drive section is not running correctly.
- The graduated adjustment glass is not set properly.
- The graduated adjustment glass is dirty or dusty.
- Something is obstructing the optical path.

Auto-adjustment: Mechanical positioning out of bounds.

During automatic adjustment, the machine's moving range is abnormal.

This error means that if the machine had moved, it might have interfered with other parts, so automatic adjustment was terminated.

The potential causes are:

- The graduated adjustment glass is not set properly.
- The graduated adjustment glass is dirty or dusty.

Auto-adjustment: Failed setting motor origin.

During automatic adjustment, an error occurred when setting the motor origin.

This error means that setting of the motor origin failed during automatic adjustment.

Auto-adjustment: Tray cover opened.

The tray cover was opened before or during automatic adjustment.

This error means that automatic adjustment stopped because the tray cover was opened during the operation.

Auto-adjustment: Front cover opened.

The front cover was opened before or during automatic adjustment.

This error means that automatic adjustment stopped because the front cover was opened during the operation.

Auto-adjustment: Slide cover opened.

The left cover was opened before or during automatic adjustment.

This error means that automatic adjustment stopped because the left side cover was opened during the operation.

Auto-adjustment: Ref. lamp unit missing.

The reflection lamp unit could not be found when automatic adjustment was beginning.

This error means that reflective lamp unit might be missing or set incorrectly when automatic adjustment was attempted to start.

Auto-adjustment: Aborted by operator.

Automatic adjustment was canceled by the user.

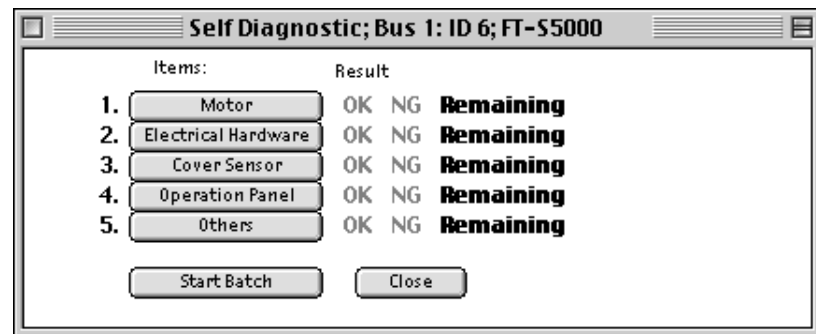
This error means that automatic adjustment was stopped due to a user operation.

3. Self diagnostic

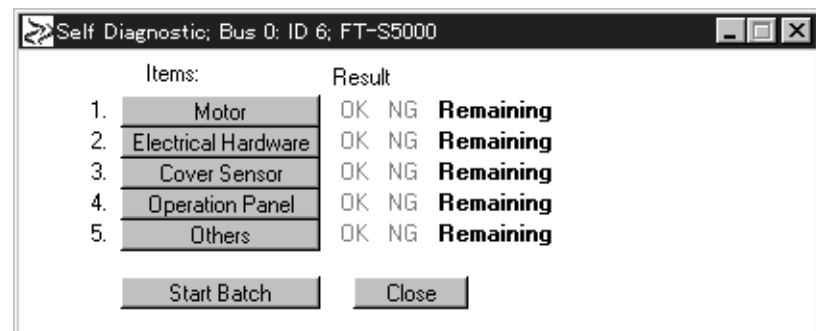
The self-diagnostic function can be used to detect problems in the FT-S5000 operations. The self-diagnostic procedures are described below.

- (1) Click the “Self-Diagnostic” button in the menu window. The self-diagnostic window appears as shown below.

<Macintosh>



<Windows>

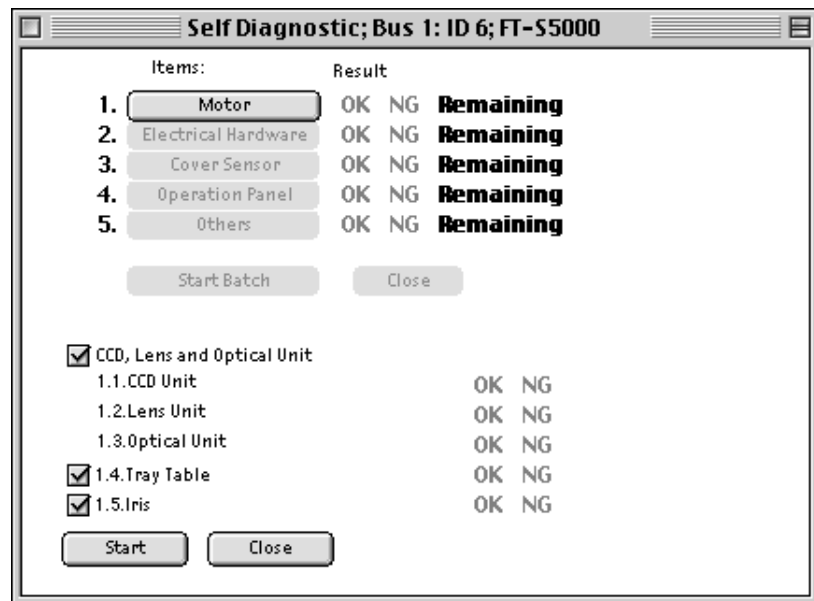


- (2) Select the desired self-diagnostic item. The various self-diagnostic items are categorized and buttons for the respective categories are displayed in the self-diagnostic window when it opens. Click on the button for the desired category and the list of the self-diagnostic items for that category appears.

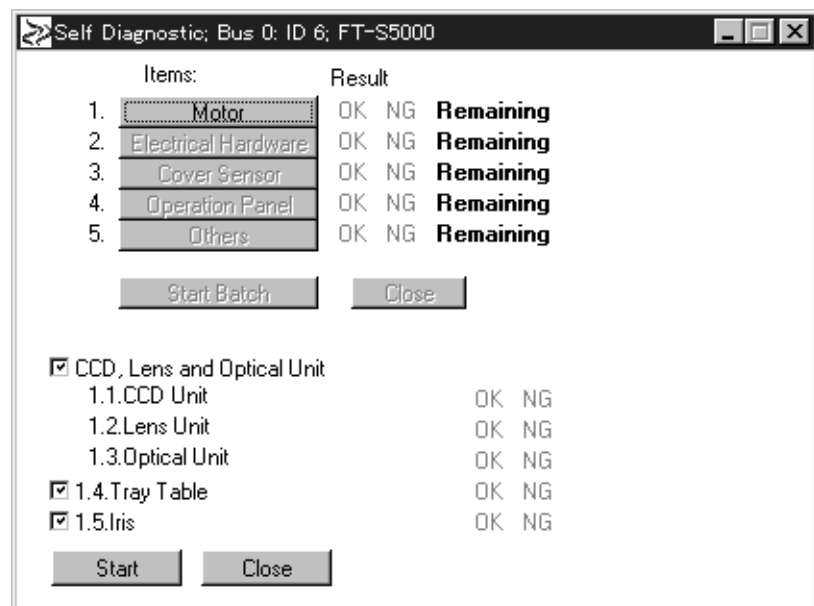
(List of diagnostic items)

1. Motor

<Macintosh>

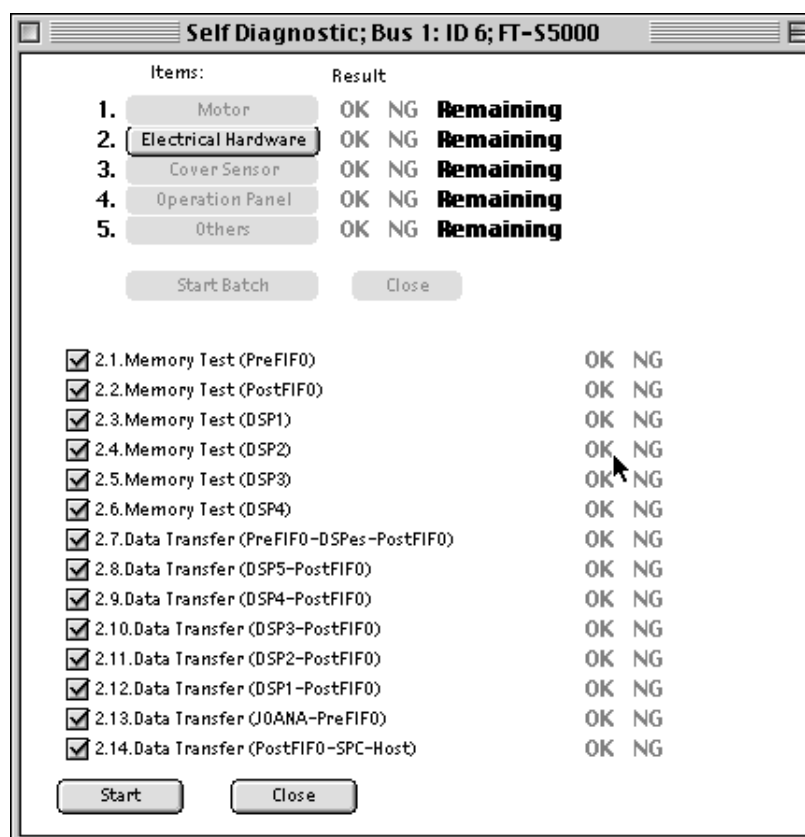


<Windows>

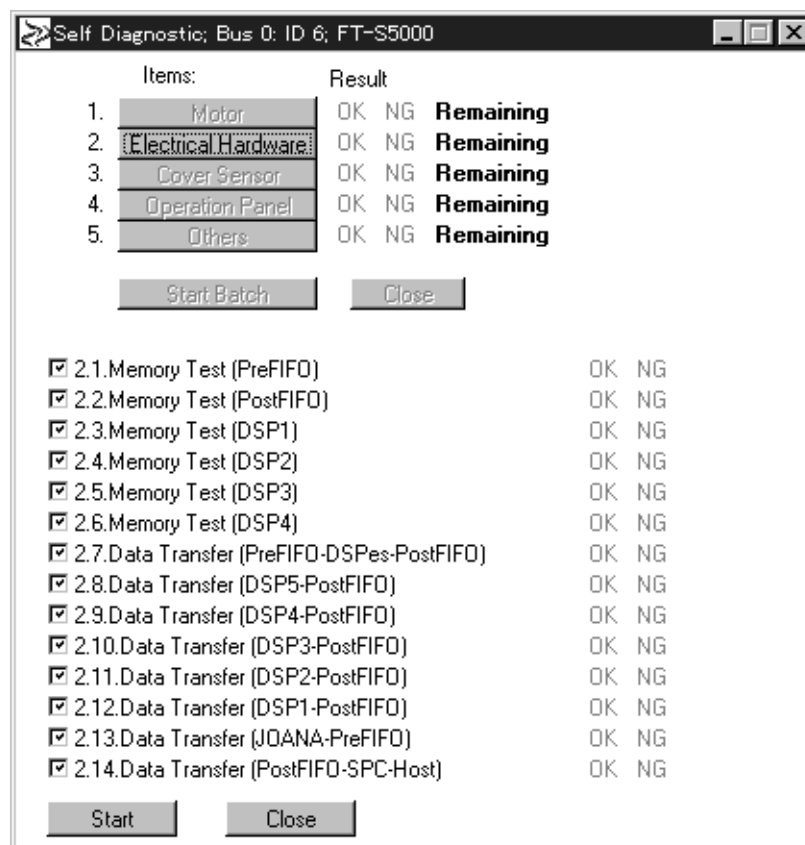


2. Electrical Hardware

<Macintosh>

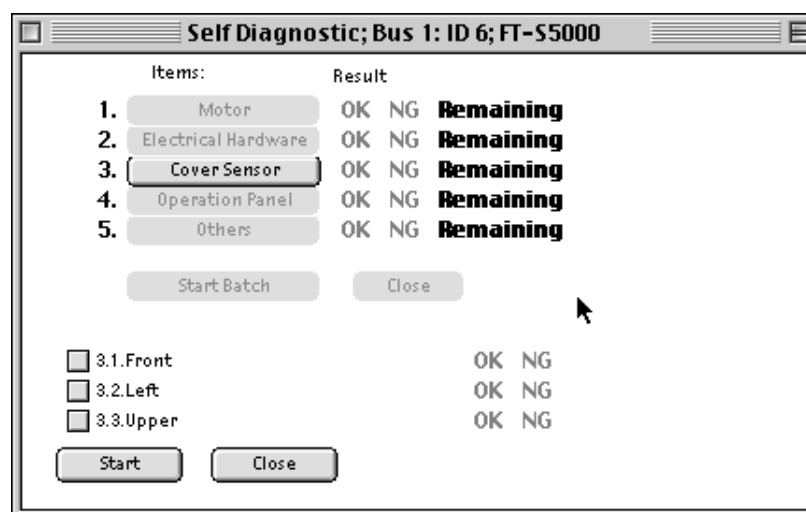


<Windows>

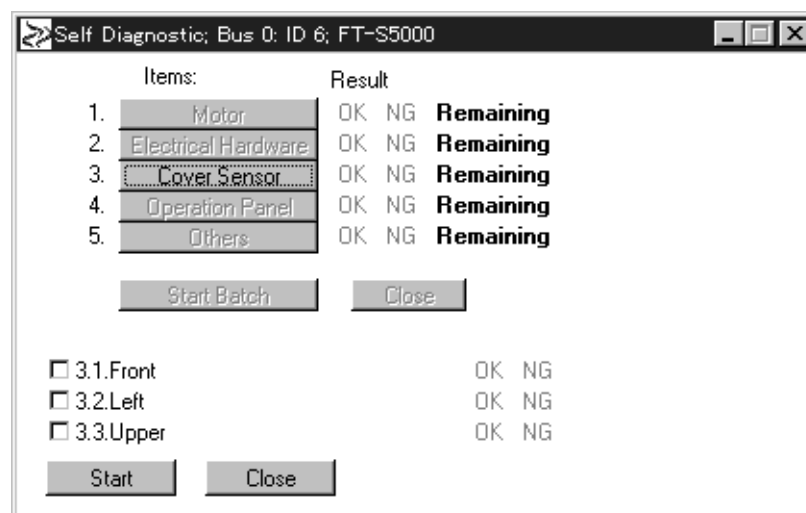


3. Cover Sensor

<Macintosh>

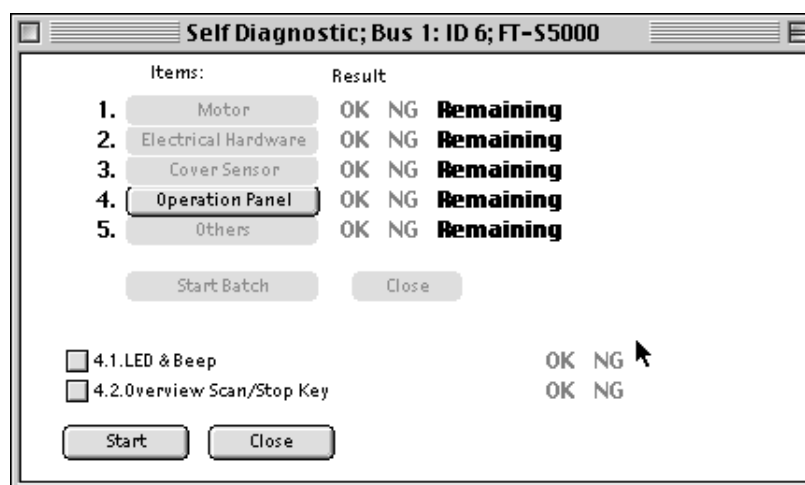


<Windows>

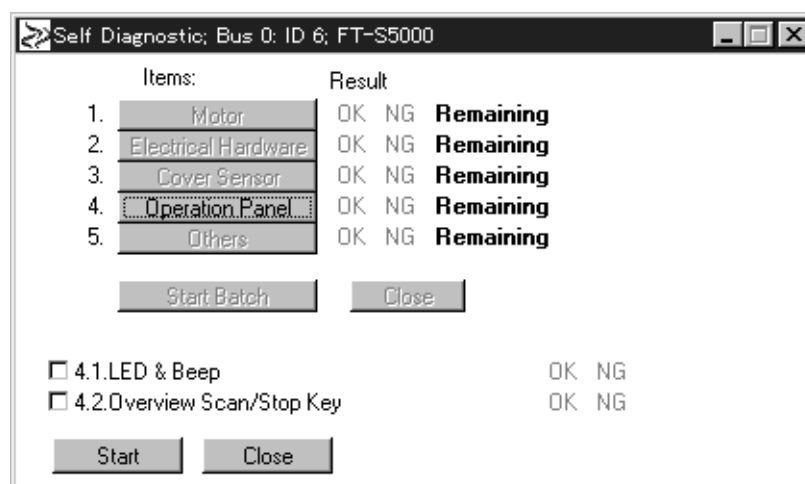


4. Operation Panel

<Macintosh>

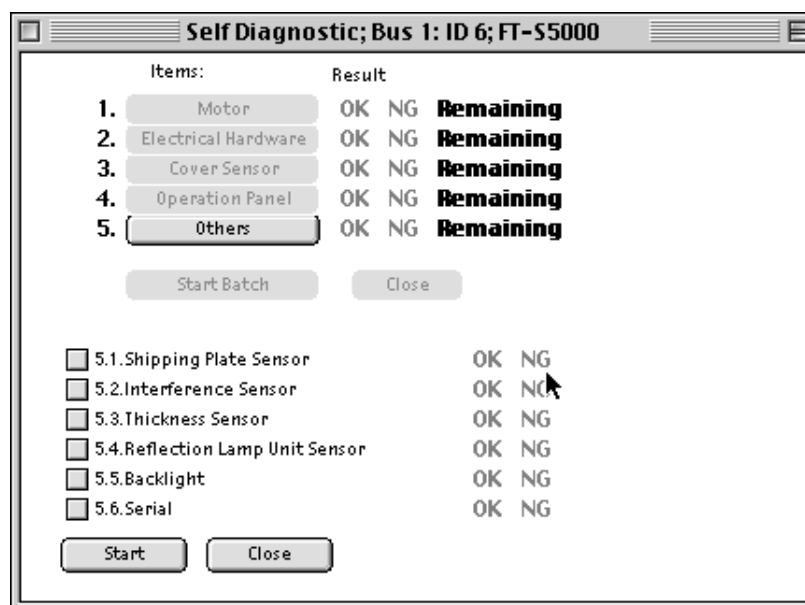


<Windows>

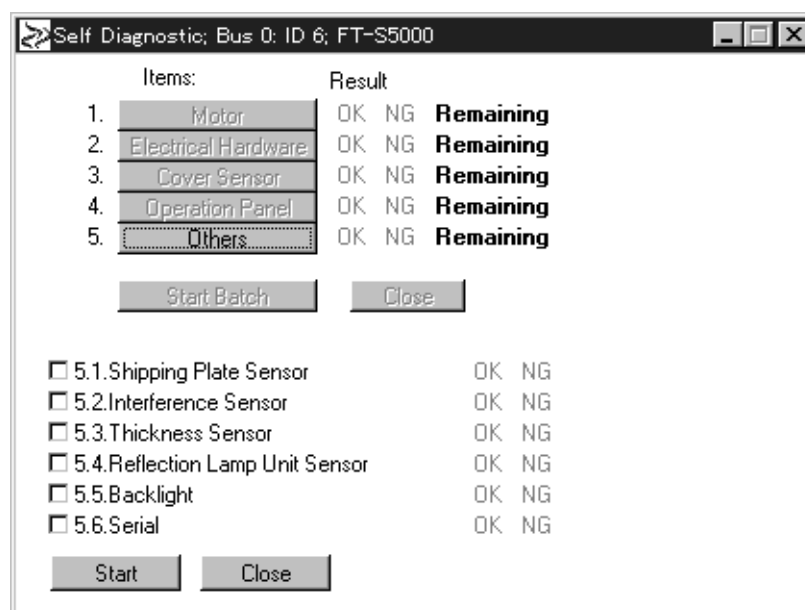


5. Others

<Macintosh>



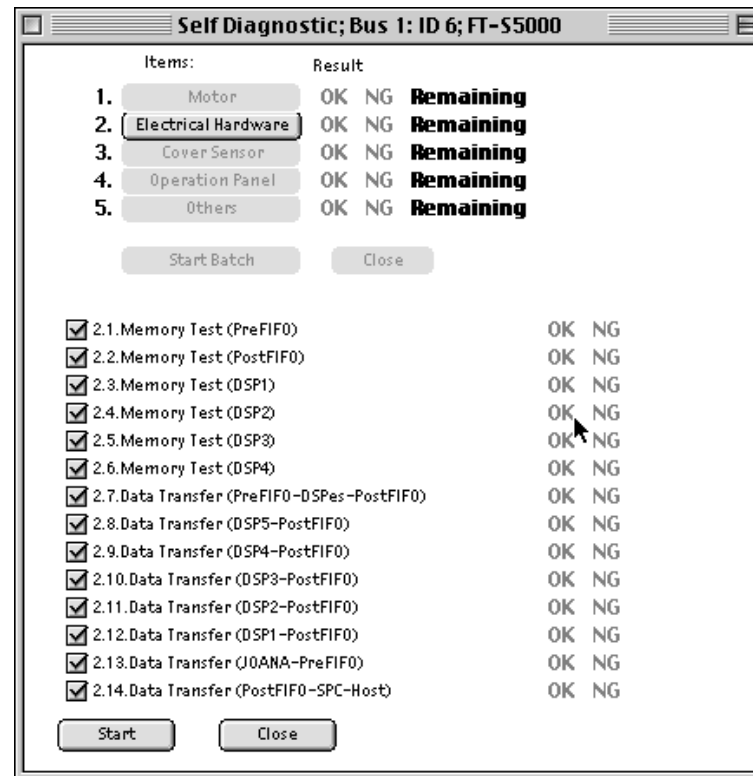
<Windows>



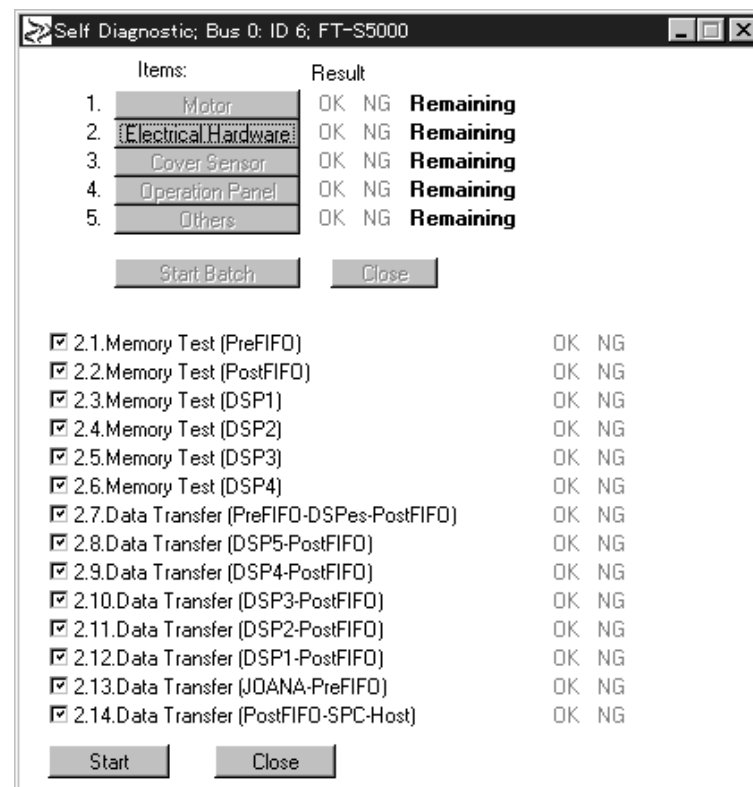
- (3) Select the desired self diagnostic item.

For example, to check on the FT-S5000's internal data transfer operations, click on the "Electrical Hardware" button. The window shown below appears displaying the "Memory Test" and "Data Transfer" items. Select the desired item and click the "Start" button.

<Macintosh>



<Windows>



There are numerous data transfer functions that can be checked depending on the section in which diagnosis is performed. If you want to check the data transfer between the third DSP and PostFIFO, then click on the item labeled “2.10. Data Transfer(DSP3-PostFIFO)”. A ☒ appears in the checkbox for the item that you selected.

Click the “Start” button to diagnose the checked items.

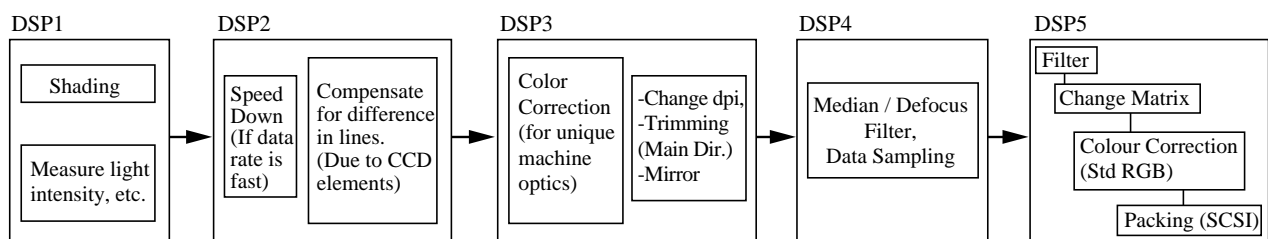
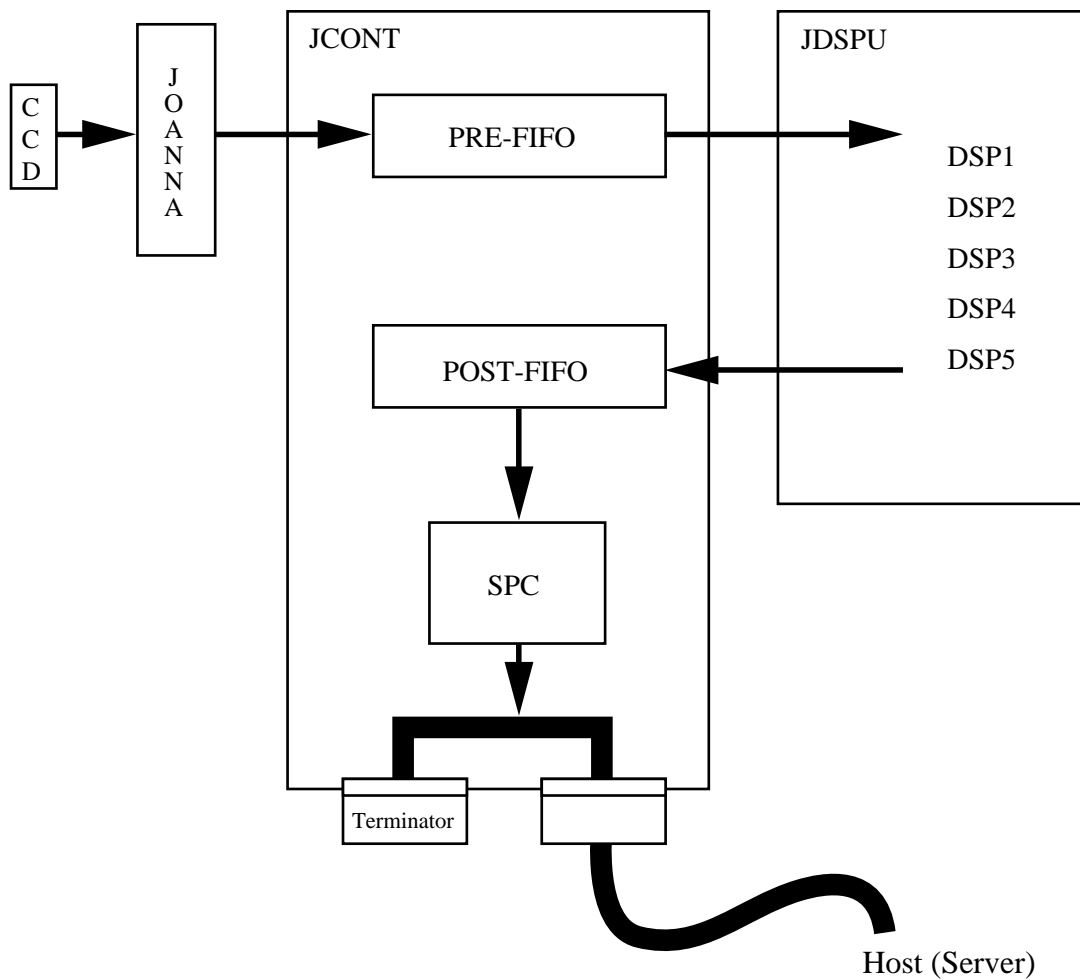
The result of the diagnostic testing is displayed on the right of the checked items as either a black “OK” or “NG” (for “No Good”).

If an “OK” is displayed next to a diagnostic category at the top of the window, it means that all items in that category are operating correctly. If an “NG” is displayed, it indicates that at least one fault has been detected. If “Remaining” is displayed in black, it indicates that at least one item in that category has still not been diagnosed.

Click on the “Close” button to close the self diagnostic window. If the “Close” button is checked after one of the self-diagnostic categories is checked, the item list for that category will close and the screen will immediately return to its original display.

* Refer to the next page for information on the data transfer process.

FT-S5000 Block Schematic

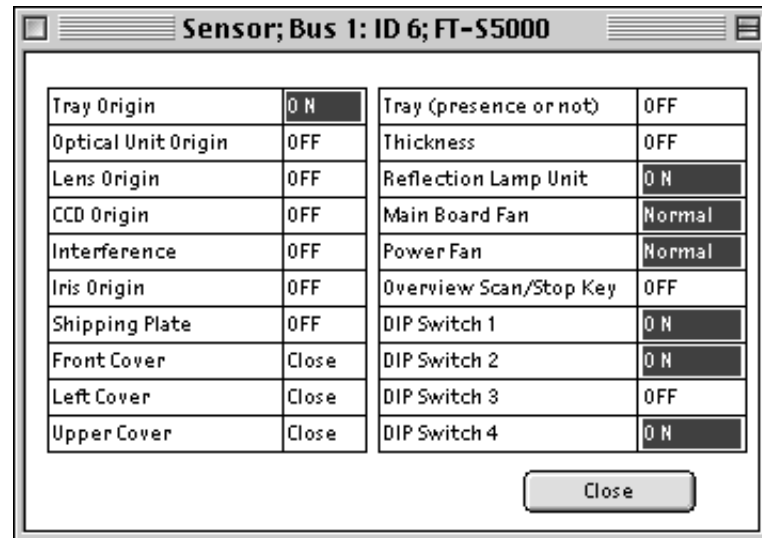


4. Sensor operation check

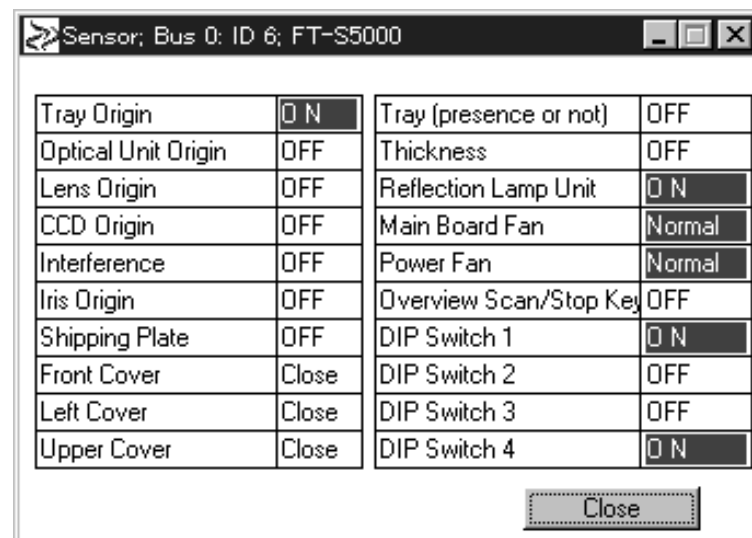
- (1) To call up the sensor operation check tool, click on the Sensor button in the menu window.

This window informs you, for example, if the upper cover is closed by displaying “Closed” or if it is open by displaying “Open”.

<Macintosh>



<Windows>



- * The DIP switches 1, 2, 3 and 4 show the SW3 setting display for the JCONT board.

5. Calibration

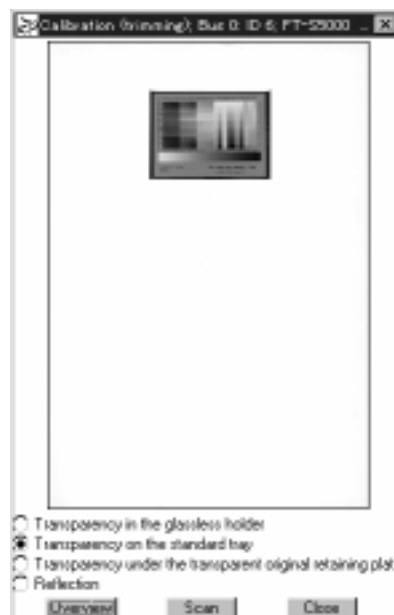
The FT-S5000 is calibrated using the calibration maintenance tool. The following shows the calibration procedure.

- (1) Set the calibration target sheet in the FT-S5000. The mounting procedure or the target sheet is different for transparent and reflection calibration. For transparent calibration, mount the target sheet following the procedure described in Chapter 5 “Operation” of FT-S5000 USERS MANUAL. For reflection calibration, secure the originals with tape properly while taking care that they are not slanted or separated.
- (2) Click the Calibration button in the menu window. The Trimming Setup window appears.

<Macintosh>



<Windows>

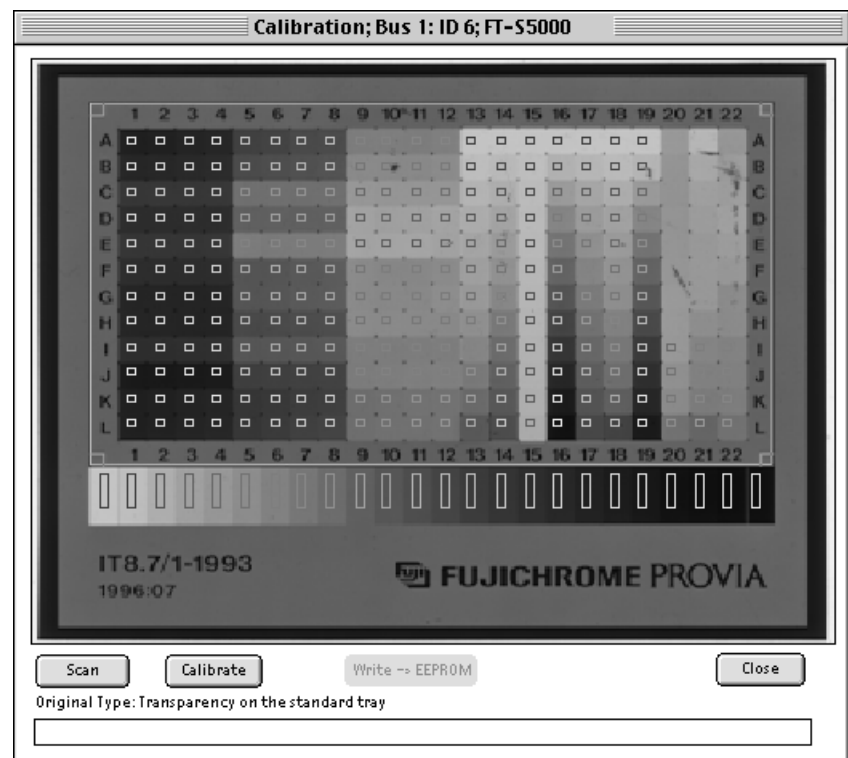


- (3) An overview of the target sheet image is shown in the trimming window. In the trimming window, the target sheet scanned first in the overview scanning mode is automatically trimmed. If this image is not trimmed as desired, use the computer mouse to edit the trimming frame to obtain the desired area. The trimming frame is correct if it matches the outline of the target sheet. When the trimming operation is completed, select the original type. When scanning a transparency original, notice that the original type selection is divided into three categories depending on how the original is set.
- When you use the non-glass holder, select “Transparency in the glassless holder”.
 - When you lay the original on the standard tray, select “Transparency on the standard tray”.
 - When you lay the original on the standard tray and secure it with the transparent original retaining plate, select “Transparency under the transparent original retaining plate”.

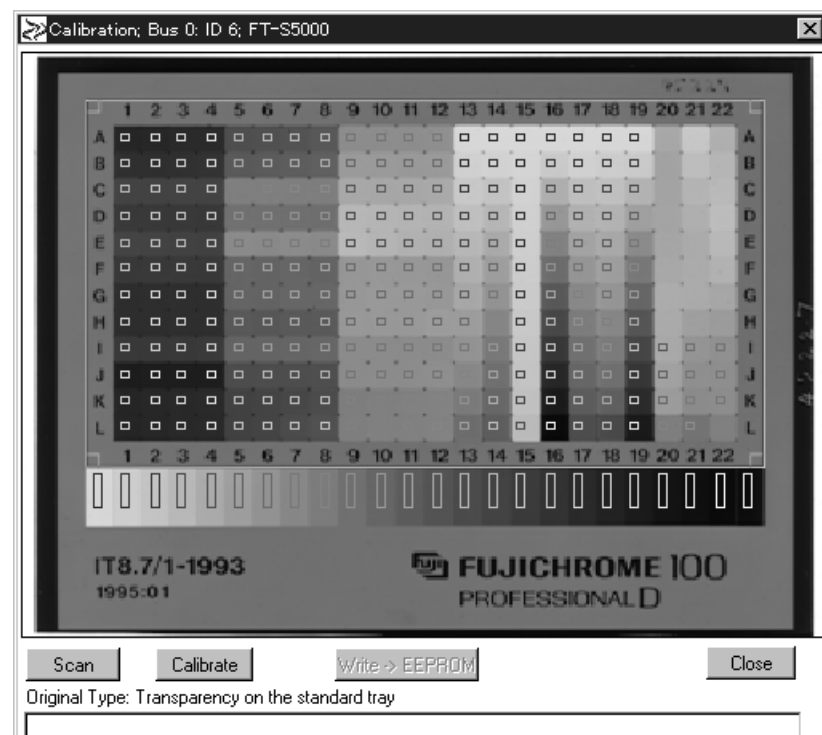
After the original type is selected, click the “Scan” button.

A file dialog box appears asking you to select a LAB calibration data file. After you select the data file, the scanned image will appear in the Calibration window. When completed, the register marks are automatically detected and the calibration frames are automatically set. If the register marks were not detected or the setting of the calibration frame is incorrect, set them with the computer mouse. As shown in the figure below, the correct calibration frame setting can be verified when the register marks at the upper left and lower right corners are overlapped by the calibration frame, and when each patch frame is not extending out of each image patch of the target sheet image.

<Macintosh>



<Windows>



- (4) Once the calibration frame setting is established, click on the Calibrate button to execute the calibration operation. During calibration, a dialog box appears for you to select the colorimetry data file. Select the data file for the target sheet being used for calibration.

When the calibration operation is completed, the compensation accuracy, which denotes the color difference (ΔE), will be displayed. A successful calibration is defined as when the color difference is less than 1.2 for transparent originals, and less than 1.7 for reflection originals.

- (5) Once the calibration is completed, write the data derived from the calibration into the EEPROM for the FT-S5000.
Click on the “Write -> EEPROM (tran)” .

6. Scanner setting

By setting the FT-S5000, you can select the operation for the default mode.

In the scanner setting window, you can set default values for the following operations.

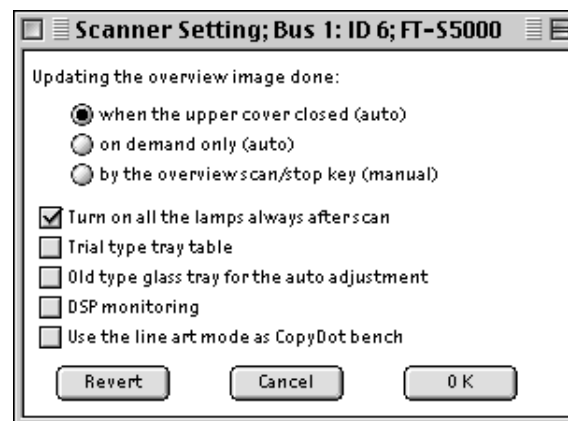
- Refresh timing for an overview image
- All lights ON/OFF after scanning
- DSP monitoring

Others settings are used for debugging in the factory.

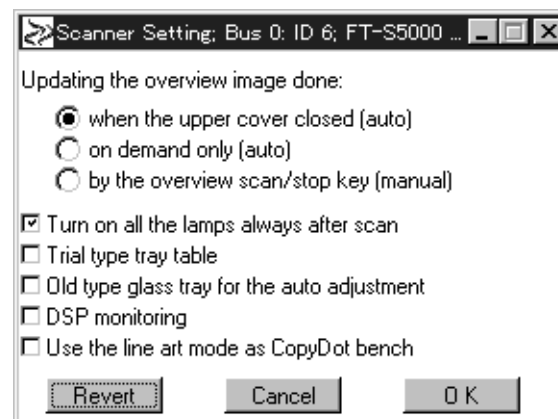
The scanner setting procedures are explained below.

- (1) Click “Scanner Setting” in the maintenance menu window. The window for scanner setting appears.

<Macintosh>



<Windows>



- (2) Select one of the radio buttons under “Updating the overview image done” to set the refresh timing for the overview image.

Selecting “when the upper cover closed(auto)” automatically refreshes the overview images wherever the upper cover is closed.

If you select “on demand only (auto)”, overview images will not be refreshed by simply closing the upper cover. They will only be refreshed when requested by the host computer software.

If you select “by the overview scan/stop key (manual), overview image

refreshing is not performed automatically, and must be carried out manually by pressing the overview scan/stop switch.

“When it is shipped from the factory, the FT-S5000 is set to “When the upper cover closed (auto)”.

To turn all the lights on after scanning, use the “Turn on all the lamps always after scan” check box. Checking this box always turns both the transmission and reflection lights ON after scanning. This setting can reduce the waiting time when switching between the transmission and reflection lights. This check box is checked at the factory.

- * Identification of the tray type, original holder and the original itself is performed based on the overview image. The timing for overview image scanning can be changed by switching “ScannerSetting” in the maintenance software. The overview image is automatically acquired only when “when the upper cover closed (auto)” or “on demand only (auto)” is selected. Therefore, when “ScannerSetting” is switched to “by the overview scan/stop key”, be sure to press the front panel’s scan/stop key after the tray is replaced to perform the required overview scanning operation beforehand.

<<For identifying compound tray>>

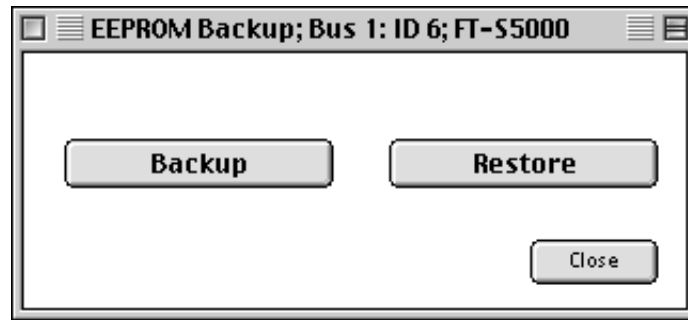
1. The compound tray can only be identified when the compound tray is installed in the tray table and the identification seal is attached on the left of its backside. The seal shows a black and white pattern with three white boxes printed on it. It should be positioned 38 mm (± 2 mm) from the top and 6 mm (± 2 mm) from the left on the backside of the compound tray.
2. The identification holes for the original holder you are placing in the compound tray should be on the left (on the origin position side) as viewed from the front of the scanner. If the identification holes are not in this position, the original holder can not be identified successfully.
3. To identify the compound tray, the “Trimming Assistant” utility should be installed in the “DS Drivers” folder (located in the System folder).

7. EEPROM backup/restoration

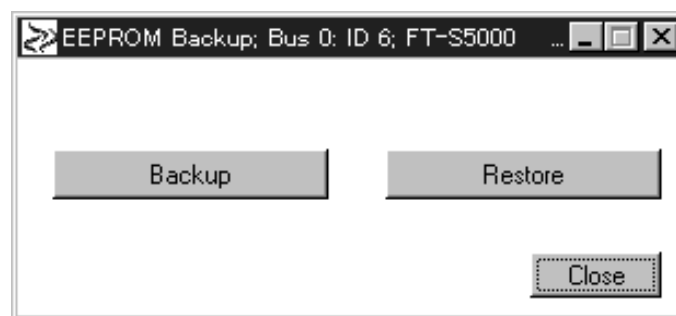
The correctional data which is applied to the gamma characteristics and unique information offset data in the FT-S5000 is held in the EEPROM. This data must be backed up before a circuit board is removed, and resorted to the FT-S5000 after the board is replaced. The following shows the procedure for backing up and restoring the EEPROM data.

- (1) First click “EEPROM Backup”. The window shown below appears.

<Macintosh>



<Windows>



- (2) Click the “Backup” button. The dialog box appears for you to set the file for saving the EEPROM data. The default file name is “EEPROM <the serial No.>” with the actual serial number of the FT-S5000 appearing within the brackets.

To restore the data back to the FT-S5000, click on the “Restore” button in the dialog box above. A dialog appears. Then select the file where the EEPROM data is saved.

8. Super Maintainer

The “Super Maintainer” for engineer maintenance requires a custom installation. When the Super Maintainer is started up, the password “jupiter” must be input.

1. Auto Adjustment

The FT-S5000 performs an auto adjustment with a jig glass correcting any deviation caused by differences in characteristics and assemblies of the parts to improve scanning accuracy especially in line art originals.

When the following parts are replaced, an auto adjustment must be performed.

- Secondary scanning motor
- Lens
- Mirror
- Photo interrupter

Clicking the “START” button starts the auto adjustment. The adjustment result, “OK” or “NG”, is displayed next to the part name. An “NG” result may be caused by dust or dirt on the jig glass. If so, clean it and re-execute the auto adjustment.

2. Auto Adjustment (Iris)

The auto adjustment (iris) calculates the number of pulses when the diaphragm (iris) is opened to its maximum (usually near 500). This function is independent of the “8. Relation between the iris and pulse” from the above “Auto Adjustment” and it is performed without a jig glass. The diaphragm value is calculated for each optical resolution position (11) with the maximum opening.

3. Self Diagnostic

The self diagnostic checks the motors, electrical system and sensors.

3-1. Motor

This menu allows you to check the (5 shafts) operation of the stepping motor.

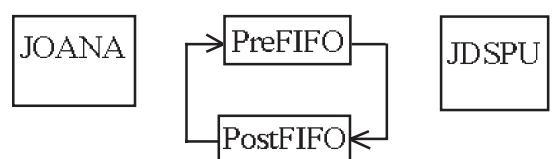
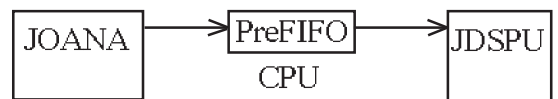
This menu performs “origin detection” for each stepping motor and evaluates the result as “OK” or “NG”.

3-2. Electrical Hardware

3-2-1. Memory Test PreFIFO

This menu allows you to check the DRAM of PreFIFO by verifying that the following procedure can be completed properly.

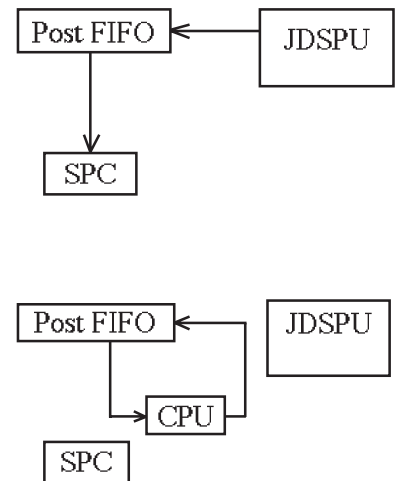
The current connected input port is switched from that of the PreFIFO to that of the CPU, and data is written. Then, the current connected output port is switched from that of the PreFIFO to that of the CPU, and data is read.



3-2-2. Memory Test PostFIFO

This menu allows you to check the DRAM of PostFIFO by verifying that the following procedure can be completed properly.

The current connected input port is switched from that of the PostFIFO to that of the CPU, and data is written stopping the SPC. Then, the current connected output port is switched from that of the PostFIFO to that of the CPU, and data is read.



3-2-3. Memory Test DSP 1 to 4

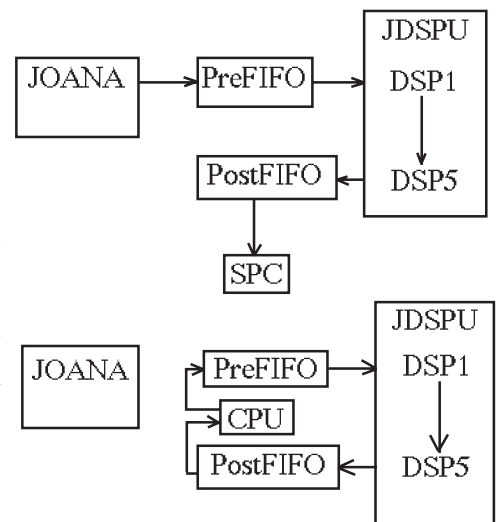
This menu sends the memory test command to each DSP and checks that it is completed properly.

In addition, communication between the CPU and each DSP is also checked.

3-2-4. Data Transfer PreFIFO - DSPes - PostFIFO

This menu tests whether data is transferred properly from the PreFIFO to the PostFIFO via the JDSPU board.

Test pattern data in PreFIFO which is written from the CPU is transferred to the PostFIFO via DSPes in which data passes without the application of any calculations. Then, the current connected output port is switched from that of the PostFIFO to that of the CPU.

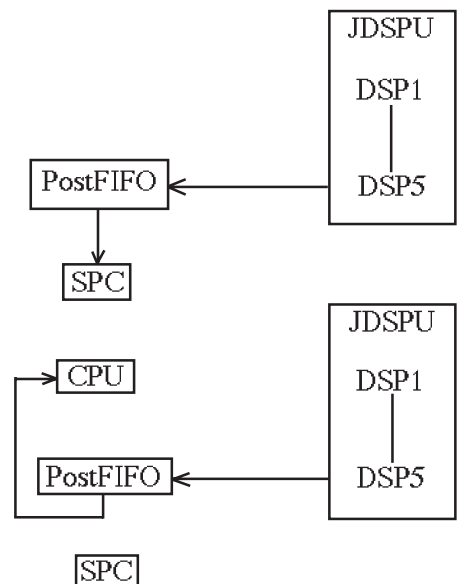


3-2-5. Data Transfer DSP(5 to 1) - PostFIFO

This menu tests whether data is transferred properly from each DSP on the JDSPU board to the PostFIFO.

Test pattern data is generated in the DSP5 and written to the PostFIFO. Then, the current connected output port is switched from that of the PostFIFO to that of the CPU and the data is read.

In addition, test pattern data is generated in the DSP4 and written to PostFIFO via DSP5 without the application of any calculations. The data is then read into the CPU. DSP 3, 2, and 1 are checked in the same way.

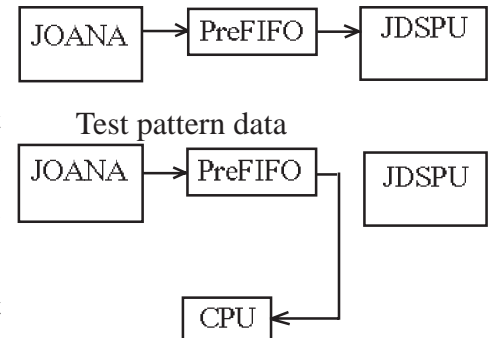


3-2-6. Data Transfer JOANA - PreFIFO

This menu allows you to check that output data from the JOANA is properly written to the PreFIFO.

A command which generates a test pattern is sent to the JOANA. The generated test pattern data in the JOANA is written to the PreFIFO.

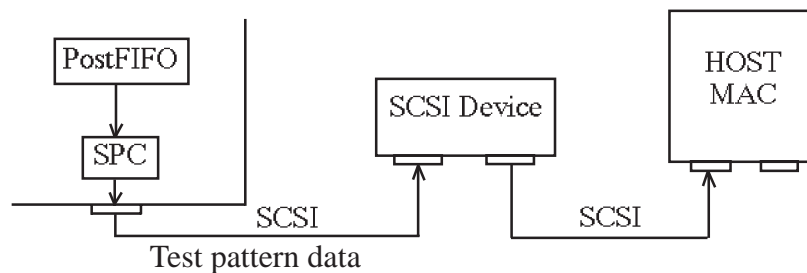
Then, the current connected output port is switched from that of the PreFIFO to that of the CPU and the data is read.



3-2-7. Data Transfer PostFIFO - SPC - Host

This checks that data is properly transferred from the PostFIFO to a host computer.

A test pattern is generated in the PostFIFO. This generated test pattern is transferred to a host computer via the SPC.



● When a test result is “NG”, the following countermeasure should be taken.

Memory Test PreFIFO	Replace the JCONT board.
Memory Test PostFIFO	Replace the JCONT board.
Memory Test DSP 1 to 4	Check the connection between the JCONT and JDSPU boards. (N12 connector) Replace the JDSPU board.
Data Transfer PreFIFO - DSPes - PostFIFO	Check the connection between the JCONT and JDSPU boards. (N12 connector) Replace the JDSPU board.
Data Transfer DSP 5 to 1 - PostFIFO	Check the connection between the JCONT and JDSPU boards. (N12 connector) Replace the JDSPU board.
Data Transfer JOANA - PreFIFO	Check the connection between the JOANA, JOINL and JCONT boards. (from connector A01 to J03 to J01 to N04) Replace the JOANA and JCONT boards.

Data Transfer PostFIFO - SPC - Host

Check the connection between the JCONT board, SCSI device and host computer.

Defect in the device on the SCSI line: Remove it.

Defect in the SCSI cable or terminator: Replace it.

Defect in the SCSI of the host computer: Replace the host computer.

Replace the JCONT board.

3-3. Cover Sensor

This menu allows you to check the interlock SWs of the upper cover, front cover and left cover.

Clicking the “START” button displays the instructions for opening and closing each cover. Follow the instructions.

Compare the SW status when opening and closing each cover with the display to evaluate whether the operation is “OK” or “NG”.

3-4. Operation Panel

This menu allows you to check the LED, SW and buzzer on the operation panel.

3-5. Others

3-5-1. Shipping Plate Sensor

This menu allows you to check the sensor for the shipping plate. Install the shipping plate following the instructions. The result, “OK” or “NG”, is determined by the sensor status after installing the shipping plate.

3-5-2. Interference Sensor

This menu allows you to check the sensor used for preventing interference of the lens and CCD. The lens and the CCD are brought closer than the specified distance and the sensor is checked.

3-5-3. Thickness Sensor

This menu allows you to check the thickness sensor. Press the thickness sensor of the upper cover following the instructions on the display. The result, “OK” or “NG”, is determined by the sensor status when it is pressed.

3-5-4. Reflection Lamp Sensor

This menu allows you to check the sensor for the reflection lamp unit. Pull out the reflection lamp unit following the instructions. The result, “OK” or “NG”, is determined by the sensor status when the reflection lamp unit is pulled out.

3-5-5. Backlight

This menu allows you to check the backlight unit. Clicking the “Start” button lights the backlight. The result, “OK” or “NG”, is determined by checking if the backlight lights up.

3-5-6. Serial

This menu allows you to check the serial port. Before executing this test, the FT-S5000 should be connected to a host computer with a serial cable.

4. Sensor

This menu displays the status of each sensor.

For the “Main Board Fan” and “Power Fan”, the condition of the fan alarm is displayed.

For the “DIP SW (1 to 4)”, the setting condition of the DIP SWs on the JCONT board is displayed.

5. Calibration

This menu performs the calibration for standard RGB output.

To perform the calibration, a color chart and its colorimetry data file for transparency or reflection must be prepared. (FUJI COLOR TARGET IT8.7/1, IT8.7/2)

For details of the calibration procedure, refer to the FT-S5000 Service Manual.

6. Download (gamma)

This menu is not usually used (it performs download of gamma data). To download data concerning the calibration, a restoration of the EEPROM data should be performed as described in the “EEPROM Backup” section on the following pages.

7. Download (RGB matrix)

This is not usually used (it performs download of the RGB matrix). To download data concerning the calibration, a restoration of the EEPROM data should be performed as described in the “EEPROM Backup” section on the following pages.

8. Scanner Setting

Updating the overview image done

The operation mode for overview scanning is selected here.

- ☐ when the upper cover closed : Whenever the upper cover is opened and closed, over view scanning is executed.
This mode is the default setting.
- ☐ on demand only : Overview scanning is executed only when it is requested from the host computer.
- ☐ by the overview scan/stop key : In the manual mode, overview scanning is executed only when the “overview scan/stop” switch on the panel is pressed.
- ☐ Trial type tray table : This is usually not used because it is for debugging in the factory.

- ☐ Old type glass tray for the auto adjustment : This is usually not used because it is for debugging in the factory.
- ☐ DSP monitoring : To log the communication with the DSP in the “scanner Log”, which is described on the following pages, check this box. Usually, communication with DSP is not logged (because of the quantity). When an problem is caused by a DSP calculation error (color or USM error), this log is sent to the factory to help determine the cause.
- ☐ Use the line art mode as CopyDot bench : This is usually not used because it is for debugging in the factory.

9. EEPROM Backup

The EEPROM on the JCONT board holds individual machine data, such as calibration data and auto adjustment mechanical parameter data with a jig glass. This menu executes backup or restore for all the data in EEPROM.

Before replacing the JCONT board, or as a precaution against data damage, EEPROM data should be backed up.

The backup data should be stored as “EEPROM + serial number” (for example, “EEPROM56060001”) in the maintenance folder and copied to a floppy disk.

Caution) After restoring the data in the EEPROM, reset the scanner.

Although calibration data is restored in the EEPROM, the preceding calibration data which was copied from the EEPROM to the RAM when the scanner was started up is used for scanning. To confirm that the restored calibration data is effective for scanning, the scanner should be reset. Turn OFF the scanner power and reboot it.

10. Debugs

10-1. Unit Control

This menu changes the tray table, optical unit, lens unit, CCD unit, and diaphragm (iris) positions with a value entered from the keyboard or by dragging a graphic with the mouse.

To set the value with the keyboard, input the value of the position in mms and click the “MOVE” button.

To drag a graphic, put the cursor on the unit you intend to move, click and drag the graphic when it becomes red. When the “MOVE” button is clicked, the unit position is actually moved.

- **Caution)** With either setting method, even impossible positioning alignments of the units are accepted, such as a reversal of the lens and the CCD front/rear positions or a position which separates the lens and the CCD so far that the bellows is damaged. Be careful not to set a positioning which might damage the unit.

10-1-1. Unit Position

This menu shows the positions of the lens, CCD unit, and diaphragm. When the position is set with the keyboard, clicking the “Move” button actually moves the unit to the specified position.

10-1-2. Optical Resolution

This menu sets the optical resolution position (11 steps) for the lens, CCD unit, and diaphragm. Input the optical resolution position. Clicking the “MOVE” button actually moves the unit.

10-1-3. Iris Adjustment

This menu chooses the diaphragm (iris) value most suitable for the current unit positions.

10-1-4. Auto Focus

This is not used.

10-1-5. Update

This menu updates the display value of the tray table, optical unit, lens, CCD unit, and diaphragm positions with the current actual position.

10-1-6. MOVE

This moves the unit to the specified position.

10-1-7. Close

This closes the menu.

10-1-8. Center

This moves the optical unit to the center position.

10-1-9. White Reference (tran)

This moves the tray table to the transparency white reference reading position.

10-1-10. White Reference (ref)

This moves the tray table to the reflection white reference reading position.

10-1-11. Lock Position

This moves the optical unit to the secured position for shipment.

10-1-12. All screws but 3

This moves the tray table so that the securing screws for the upper board and the back light unit can be removed. However, the 3 screws at the left edge cannot be removed while the tray table is in this position.

10-1-13. 3 screws (rest)

This moves the tray table so that the 3 screws at the left edge, which cannot be removed with the tray table position described above, can be removed.

10-1-14. Sensor status

This displays the sensor status.

- For origin detection, the unit is moved to the position where the origin sensor turns ON, and then moved back slowly. The position where the origin sensor turns OFF again is regarded as its origin. Therefore, when the unit is at its origin point, “OFF” may be displayed as the origin sensor status.

10-2. CCD Monitor

This menu monitors the CCD output. The output before or after shading correction can be selected. The storage time in the CCD is fixed to 20 msec. After monitoring starts, it continues until a pause command. In addition, the monitor frequency can be specified.

Clicking the “Capture” button starts the monitor. After monitoring starts, the “Capture” button changes to the “Pause” button. Clicking the “Pause” button stops the monitor.

The fields are explained below.

- ☐ Pixel: The range of CCD pixels is specified here. A range of 0 to 7999 is available, 0 is the first pixel and 7999 is the last pixel.
For example, when 2000 and 5999 are specified, monitoring is performed for the 2000th to 5999th pixel.
- ☐ Shading ON: When this is checked, the CCD output after shading correction is monitored. When this is not checked, the CCD output before shading correction is monitored.
- ☐ Sampling Rate: The skipping rate of the monitored CCD pixels is specified here. For example, when “16:1” is specified, the skipping rate is 1/16 for the range specified in the “Pixel” field.
- ☐ Interval: The monitoring frequency is specified here. Monitoring is executed at specified intervals until the “Pause” button is clicked. The value specified here is that interval. The range of the interval is 0 to 3600000 (1 hour) msec. For example, when “100” is specified here, the next monitoring is executed after a 0.1 second interval. When “0” is specified, the next monitoring is executed without any interval.
- ☐ Save → File: The current displayed monitoring result is stored to a CSV type text file.

The monitored channel is selected in the “R”, “G”, and “B” check boxes.

The number on the right side of the “R”, “G”, and “B” check boxes shows the pixel number of the position indicated by the triangle on the graph. This triangle can be moved by dragging.

Also, when trimming is applied to the graph, the trimmed area is enlarged mapped on the X and Y axes. Zoom-in can be executed two times. To zoom out to the preceding magnification, click on the zoom-out icon.

10-3. Pixel Monitor (Short range)

This menu monitors the CCD pixel output. For shading correction, the output before or after correction can be selected. The storage time in the CCD is fixed to 20 msec. The monitoring frequency is fixed without an interval.

Clicking the “Capture” button starts the monitoring, however, the “Capture” button does not change to the “Pause” button. After monitoring is executed at the specified times and the results are displayed, the monitoring operation is stopped. The fields are explained below.

- ☐ Pixel: The range of the CCD pixels is specified here. A range of 0 to 7999 is available, 0 is the first pixel and 7999 is the last pixel.
- ☐ Shading ON: When this is checked, the CCD output after shading correction is monitored. When this is not checked, the CCD output before shading correction is monitored.
- ☐ Line: The number of times monitoring is executed is specified here. The available range is from 2 to 100. This value also corresponds to the scale of the horizontal axis in the graph.
- ☐ Save → File: The current displayed monitoring result is stored to a CSV type text file.

The monitored channel is selected in the “R”, “G”, and “B” check boxes.

The number on the right side of the “R”, “G”, and “B” check boxes shows the pixel number of the position indicated by the triangle on the graph. This triangle can be moved by dragging.

Also, when trimming is applied to the graph, the trimmed area is enlarged mapped to the X and Y axes. Zoom-in can be executed two times. To zoom out to the preceding magnification, click the zoom-out icon.

10-4. Pixel Monitor (Long range)

This menu monitors the CCD pixel output. For shading correction, the output before or after correction can be selected. The stored time in the CCD is fixed to 20 msec. The monitoring frequency is fixed without an interval.

Clicking the “Capture” button starts the monitoring. After monitoring starts, the “Capture” button changes to the “Pause” button. Clicking the “Pause” button stops the monitoring.

The fields are explained below.

- ☐ Pixel: The range of the CCD pixels is specified here. A range of 0 to 7999 is available, 0 is the first pixel and 7999 is the last pixel.
- ☐ Shading ON: When this is checked, the CCD output after shading correction is monitored. When this is not checked, the CCD output before shading correction is monitored.

- Interval: The monitoring frequency is specified here. The monitor is executed at the specified intervals until the “Pause” button is clicked. The value specified here is that interval. The range of the interval is 0 to 3600000 (1 hour) msec. For example, when “100” is specified here, the next monitoring is executed after a 0.1 second interval. When “0” is specified, the next monitoring is executed without any interval.
- Line: The scale of the horizontal axis in the graph is specified here. The available range is 2 to 100. This value also corresponds to the number of times monitoring is executed. Even if monitoring is executed more than the specified number of times, monitoring continues and the latest monitoring result is displayed with the previous results being moved to the left of the display.
- Save → File: The current displayed monitoring result is stored to a CSV type text file.

The monitored channel is selected in the “R”, “G”, and “B” check boxes.

The number on the right side of the “R”, “G”, and “B” check boxes shows the pixel number of the position indicated by the triangle on the graph. This triangle can be moved by dragging.

Also, when trimming is applied to the graph, the trimmed area is enlarged mapped to the X and Y axes. Zoom-in can be executed two times. To zoom out to the preceding magnification, click the zoom-out icon in the tool box.

10-5. Shading

This menu executes shading correction.

Clicking the “Start” button executes shading correction.

The fields are explained below.

- Toggle Lamp (tran): This turns ON/OFF the transmission lamp. Since this is a toggle button, clicking this button when the lamp is ON turns the lamp OFF, and clicking this button when the lamp is OFF turns the lamp ON. The lamp’s ON/OFF can be confirmed by looking at the lamp figure on the button.
- Toggle Lamp (ref): This turns ON/OFF the reflection lamp. This works in the same way as the transmission lamp.
- Transparency: This should be checked when shading correction is executed for transparency scanning.
- Reflection: This should be checked when shading correction is executed for reflection scanning.

The results of shading correction are displayed with CSV type text in the text display area. Clicking the “Save → File” button stores these results to a file.

10-6. MTF Monitor

This menu is used to check the lens resolution, however, it is not used in the usual maintenance procedure since a special jig is necessary.

10-7. Lens Height Adjustment

This menu allows you to check the installation height of the lens. When the lens height is out of the permissible range (± 0.18), misalignment of secondary scanning trimming can not be corrected with auto adjustment. When the lens height is within the permissible range, it can be corrected. When checking the lens installation height with this menu, a jig glass is needed. For adjusting the lens height, a lens adjustment jig is needed.

Clicking the “Check” button when a jig glass is installed starts a check of the installation height of the lens. Whether it is within the permissible range and the misalignment value of the secondary scanning trimming are displayed in the text display area. When the misalignment value is out of the permissible range (beyond ± 0.18), a re-adjustment is necessary. The rotation direction and angle of the bolt of the lens adjustment jig, and how much the lens must be moved by the re-adjustment is displayed.

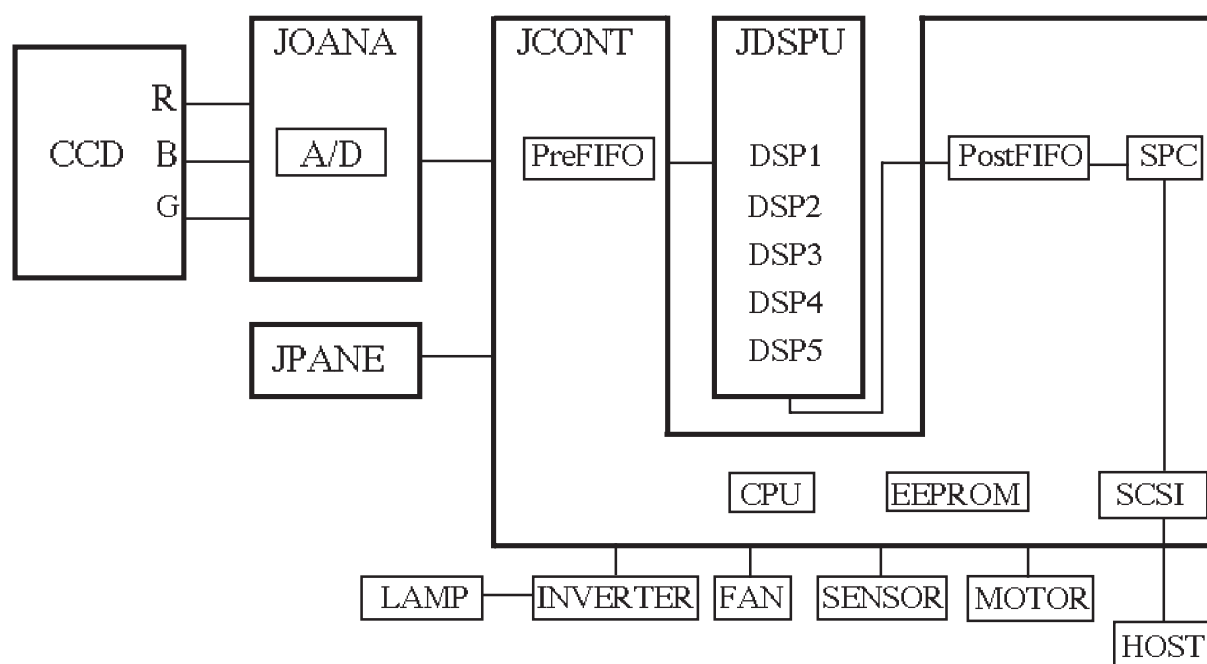
10-8. Scanner Log

This menu loads and saves the log information of the scanner which is written from the time when the scanner power is turned ON. The scanner log information storage area is 128 kb. When the log information capacity exceeds 128 kb, the oldest information is deleted one at a time.

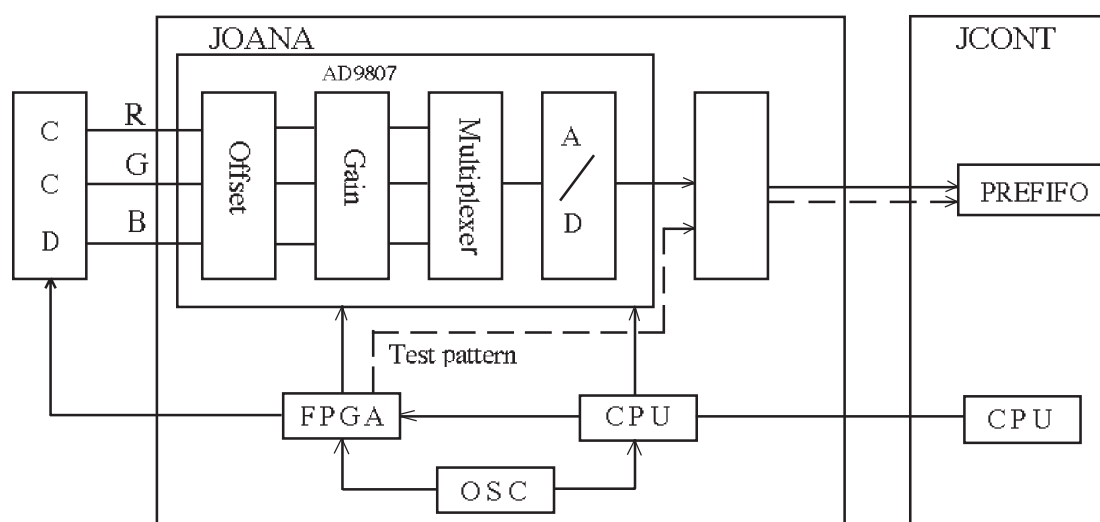
Clicking the “Get” button displays the log information in the text display area. 32 kbs of information can be displayed on one page, therefore, when the scanner holds more than 32 kbs of information, there is more than one page. For page up/down, click the “«” or “»” button.

Clicking the “Save” button stores the log information to a file.

BLOCK DIAGRAM



○ JOANA board



The JOANA board applies AD conversion to a RGB signal output from the CCD and outputs a 12 bit RGB data to the JCONT board with pixel interleave.

The FPGA generates clocks (CCD clock, A/D clock, and so on) and a test pattern for self testing.

The CPU performs the serial communication with the main CPU on the JCONT board and informs the FPGA which mode (line art, draft, or normal) is selected.

○ JCONT board

Output image data from the JOANA board is buffered in the PreFIFO and sent to the JDSPU board.

The image data is calculated in the JDSPU board, buffered in the PostFIFO, and output to the host computer via the SCSI interface.

The JCONT board includes the CPU and handles motor control, lamp drive, sensor I/F (also interlock SW), the fan, the fan alarm, communication with the JOANA board and output of line start signals.

The data or signals are sent to the optical block sharing the +24V, $\pm 15V$, or +5V power supply lines.

Also, the EEPROM on the JCONT board holds a number of data related to individual machines such as mechanical parameter data and firmware.

●Caution) Before replacing the JCONT board, this EEPROM data should be backed up with Super Maintainer. And the backup data should be downloaded to the EEPROM after replacing the JCONT board.

○ JDSPU board

The JDSPU board includes the five DSPs which execute various calculations with the image data.

The calculations differ depending on the type of original, color or line art, and each DSP performs a different procedure.

When a color original is scanned, each DSP procedure is as follows.

DSP1: Light intensity measurement, Shading correction

DSP2: Auto focus, Correction of misalignment line

DSP3: Pre-gamma correction

DSP4: Filter processing (Defocus, Smoothing)

DSP5: Matrix conversion, Out gamma correction

When a line art original is scanned, each DSP procedure is as follows.

DSP1: Light intensity measurement, Shading correction

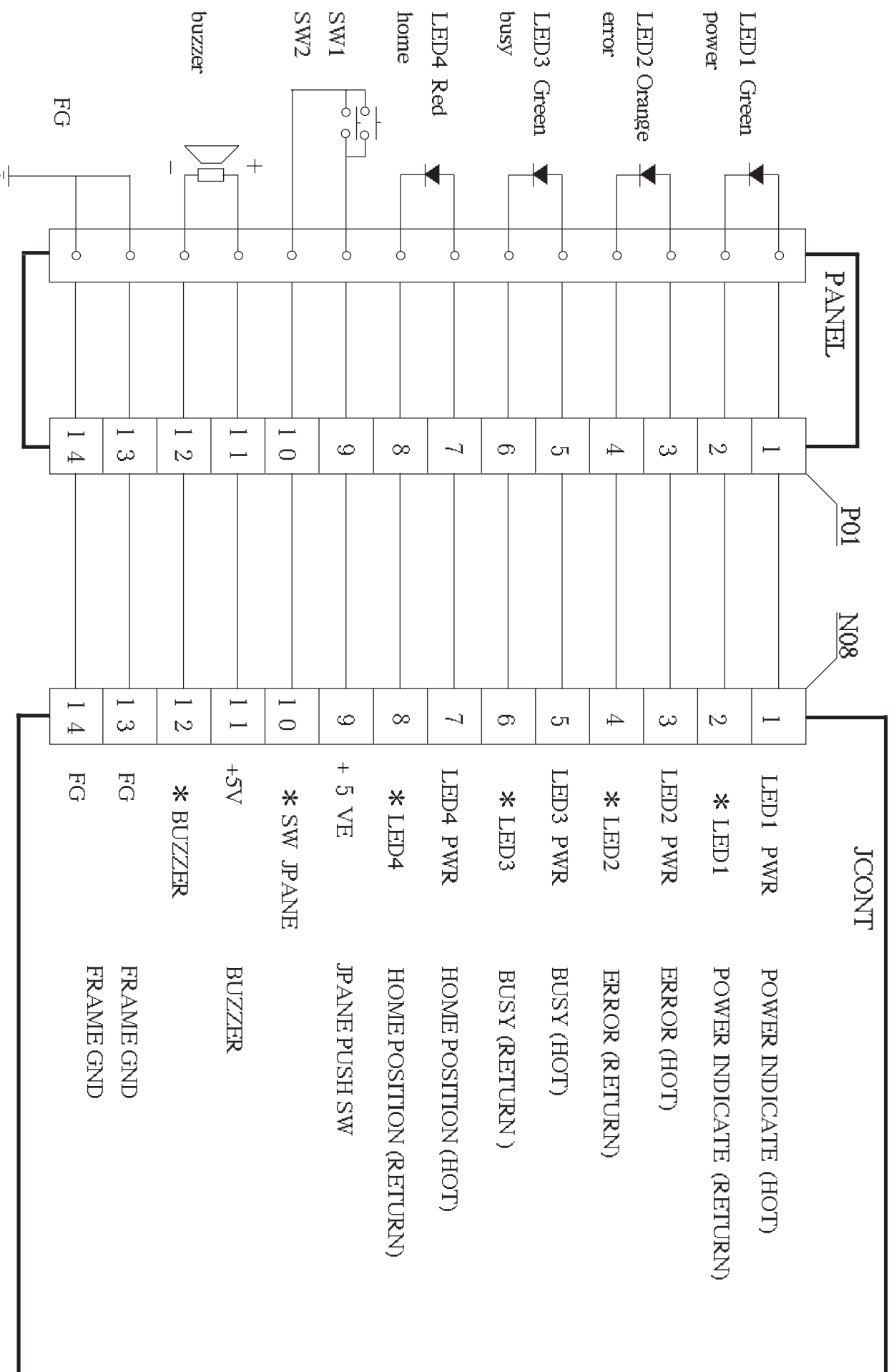
DSP2: Joining point correction

DSP3: Kernel coefficient setting of secondary scanning direction (USM)

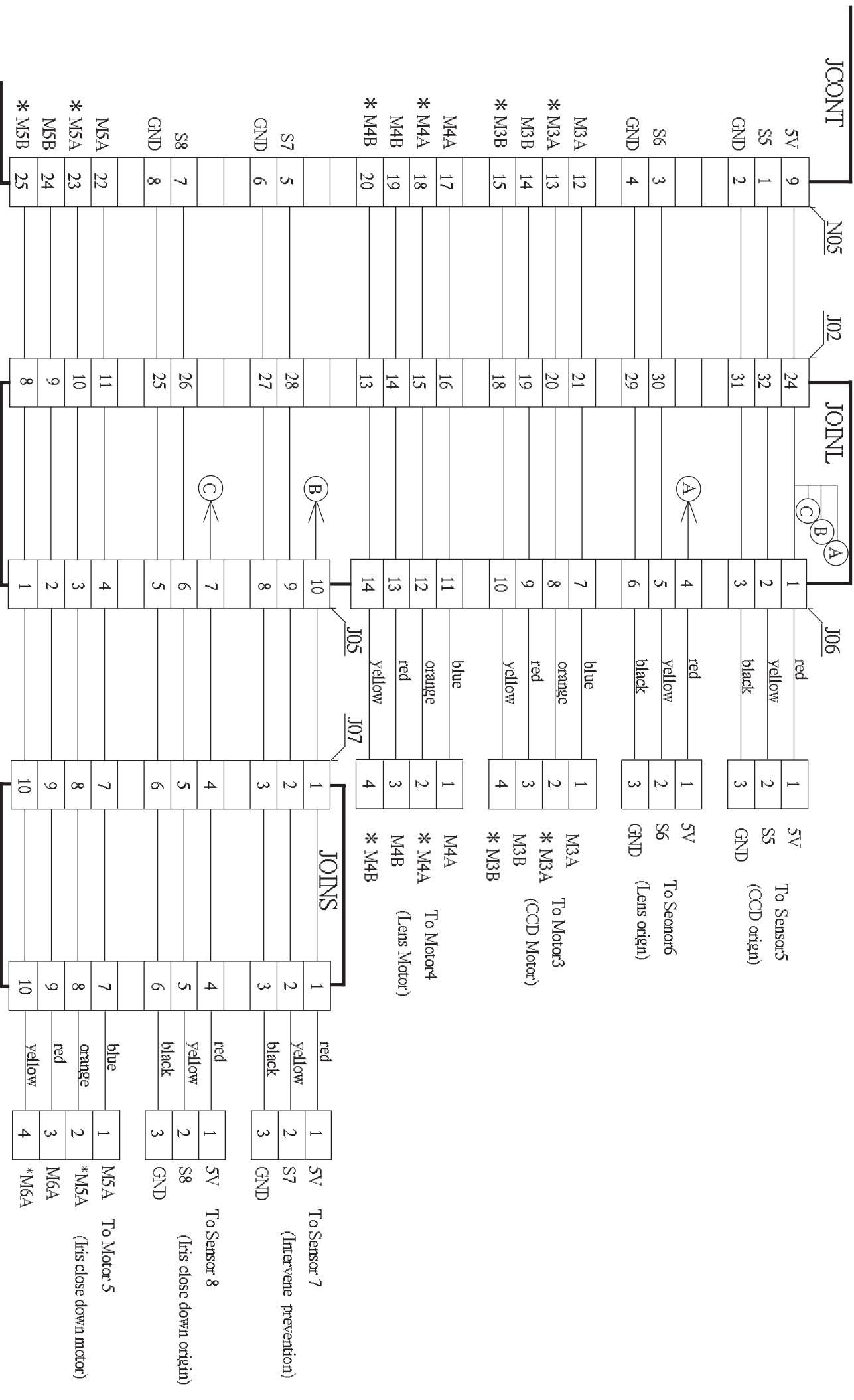
DSP4: Kernel coefficient setting of primary scanning direction (USM)

DSP5: Trimming, Correction of starting position misalignment, Binarizing

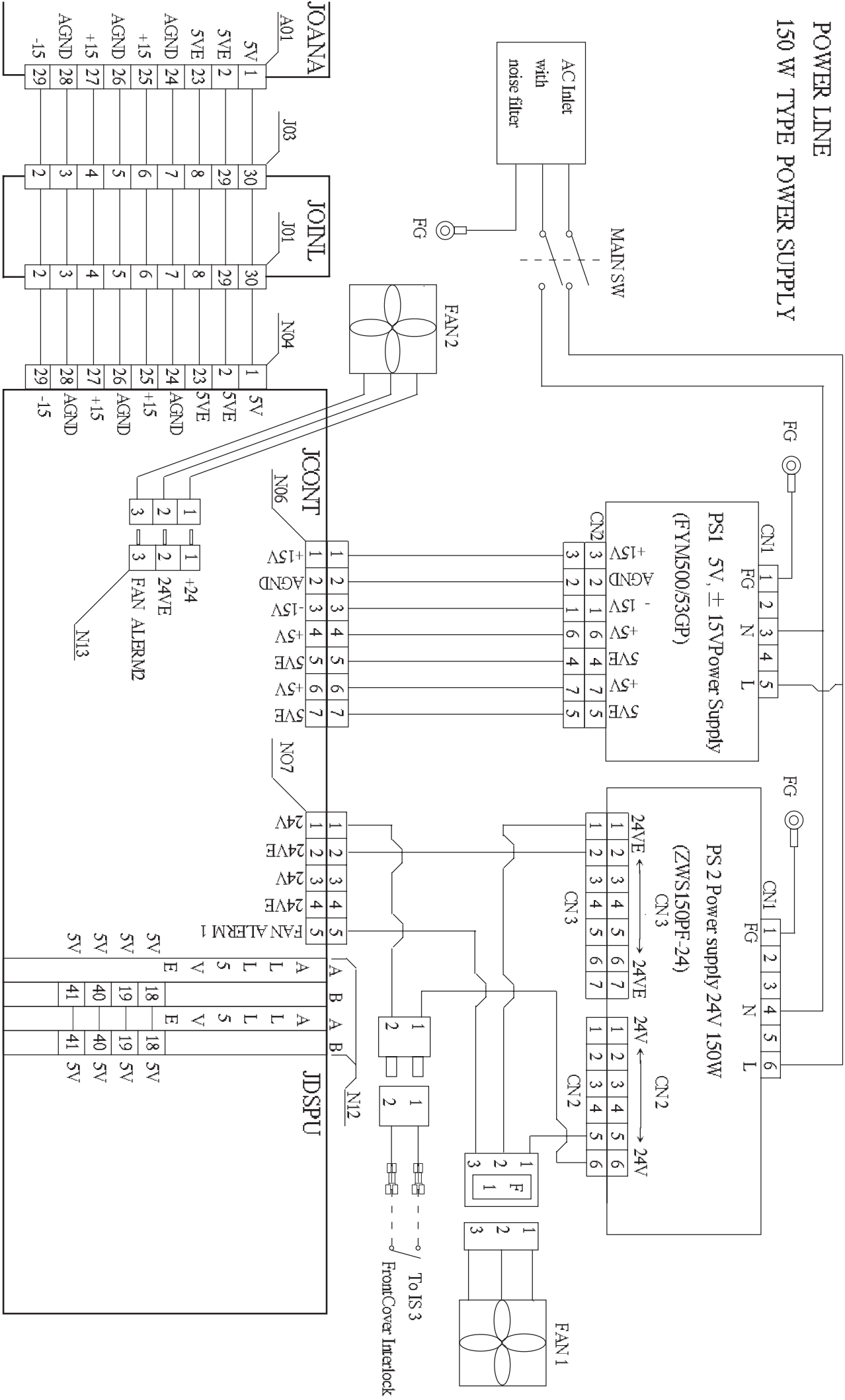
Most of the image processing set at the setup in ColorScopePro3 are calculated in the host computer, however, the filter processing, such as defocus and smoothing, are calculated in the JDSPU board.



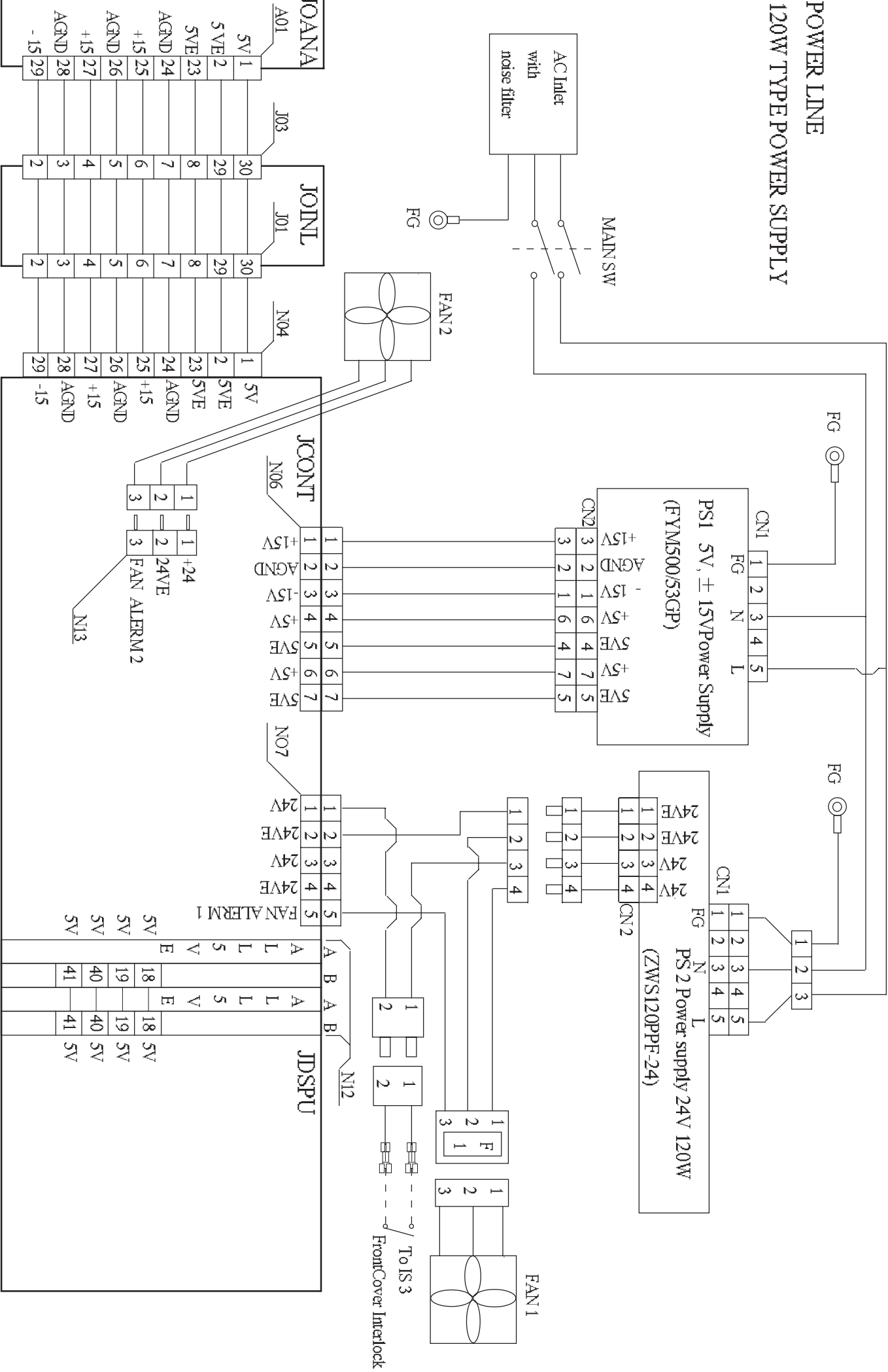
JOANA			JOINTL			JCONT		
A0L			J01			N04		
+5V	1	30		30	1	+5V	+5V For Digital	
+5VE	2	29		29	2	+5VE	Digital GND	
+ADOUT1	3	28		28	3	+ADOUT1	Image Data	
-ADOUT1	4	27		27	4	-ADOUT1		
+ADOUT2	5	26		26	5	+ADOUT2	Image Data	
-ADOUT2	6	25		25	6	-ADOUT2		
+ADOUT3	7	24		24	7	+ADOUT3	Image Data	
-ADOUT3	8	23		23	8	-ADOUT3		
+ADOUT4	9	22		22	9	+ADOUT4	Image Data	
-ADOUT4	10	21		21	10	-ADOUT4		
+ADOUT5	11	20		20	11	+ADOUT5	Image Data	
-ADOUT5	12	19		19	12	-ADOUT5		
+ADOUT6	13	18		18	13	+ADOUT6	Image Data	
-ADOUT6	14	17		17	14	-ADOUT6		
+ * ODS	15	16		16	15	+ * ODS	Odd Bit Strobe Signal	
- * ODS	16	15		15	16	- * ODS		
+ * EDS	17	14		14	17	+ * EDS	Even Bit Strobe Signal	
- * EDS	18	13		13	18	- * EDS		
* LSTRT	19	12		12	19	* LSTRT	Line Start	
TXD2	20	11		11	20	TXD2	Serial Transmit Data from JCONT	
RXD2	21	10		10	21	RXD2	Serial Recieve Data from JOANA	
SCLK	22	9		9	22	SCLK	Serial Clock	
SGND	23	8		8	23	SGND	Srial GND	
ANGND	24	7		7	24	ANGND	Analog GND	
+15V	25	6		6	25	+15V	+15V For Analog	
ANGND	26	5		5	26	ANGND	Analog GND	
+15V	27	4		4	27	+15V	+15V For Analog	
ANGND	28	3		3	28	ANGND	Analog GND	
-15V	29	2		2	29	-15V	-15V For Analog	
ANGND	30	1		1	30	ANGND	Analog GND	



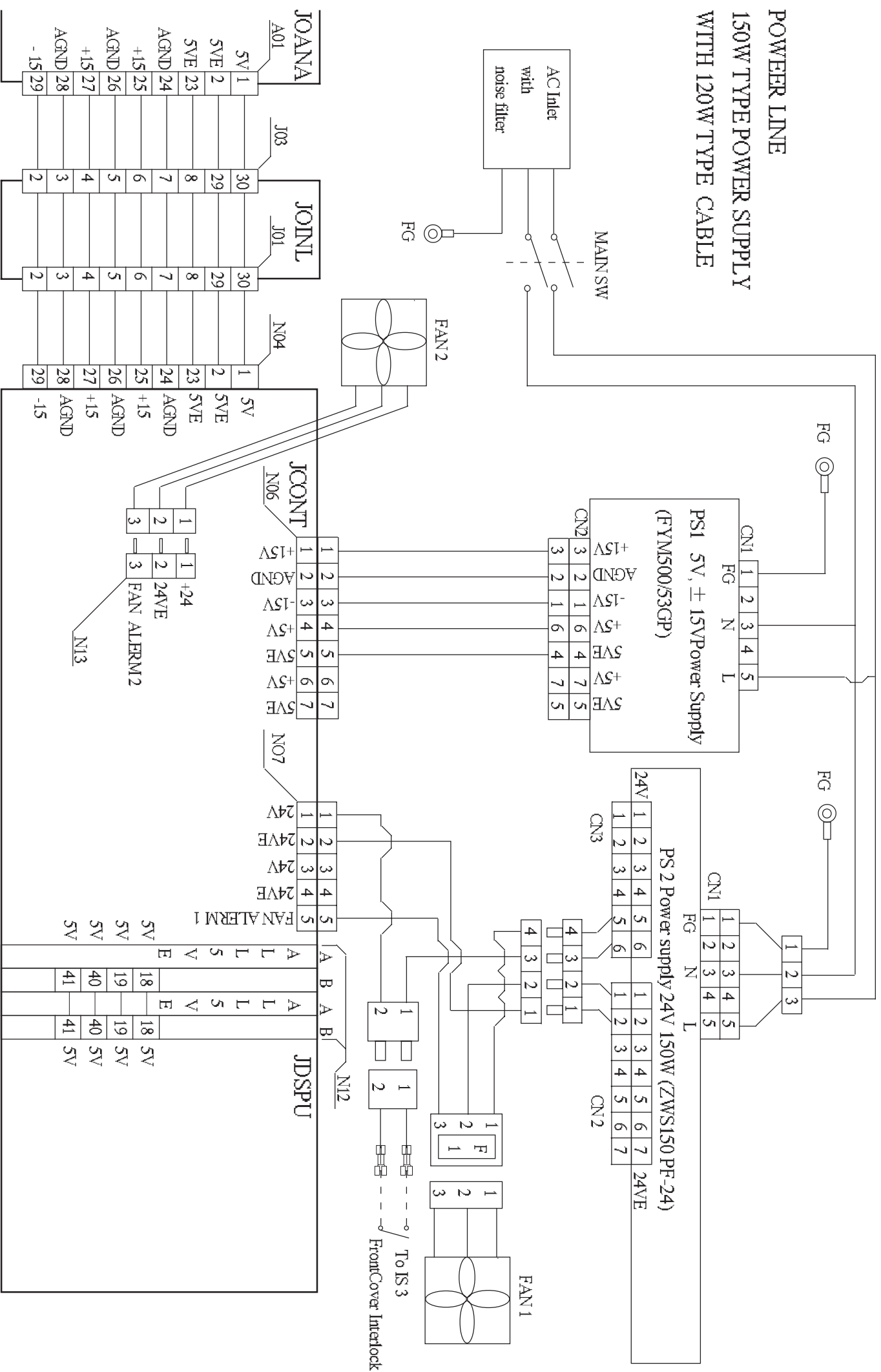
POWER LINE
150 W TYPE POWER SUPPLY

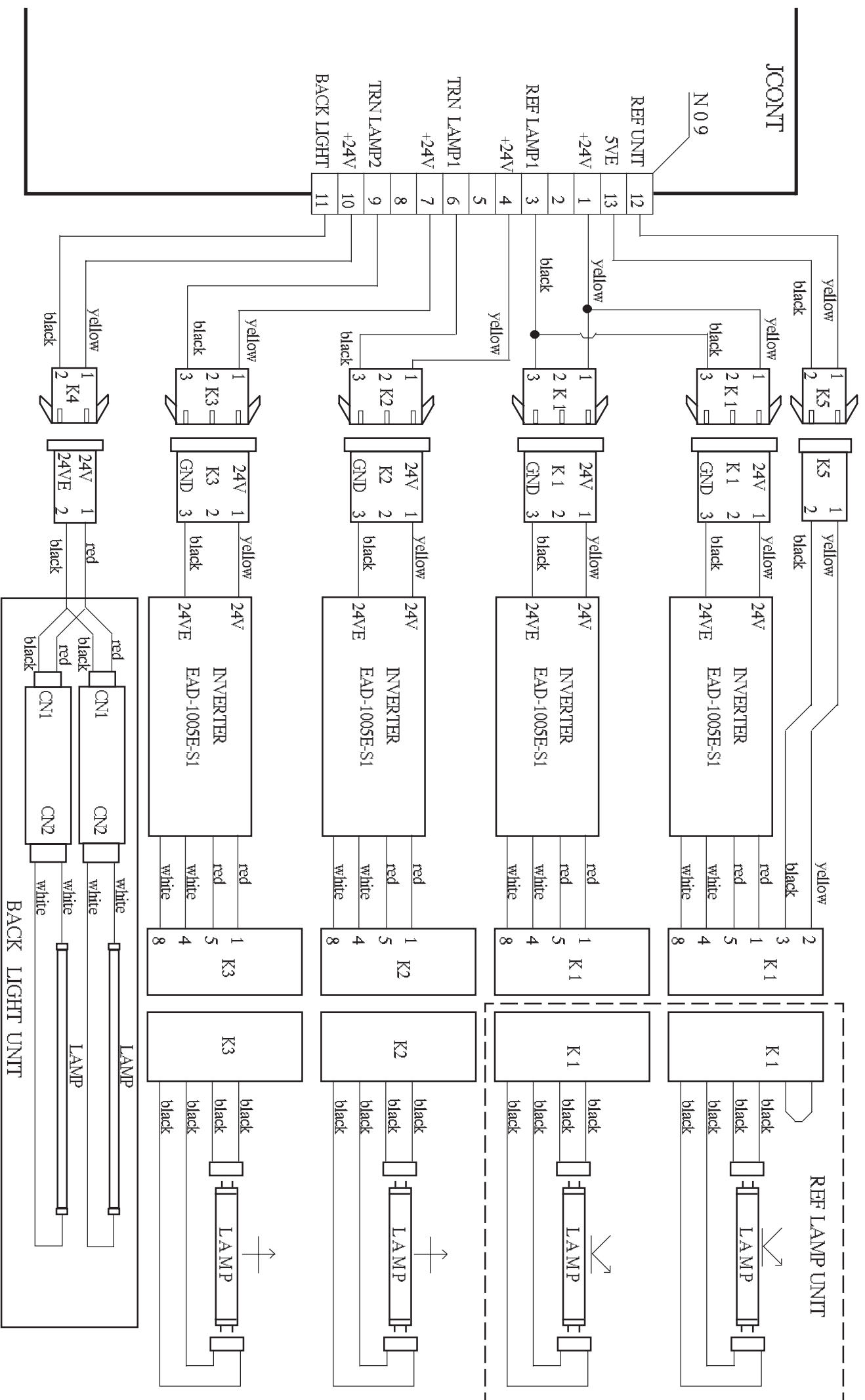


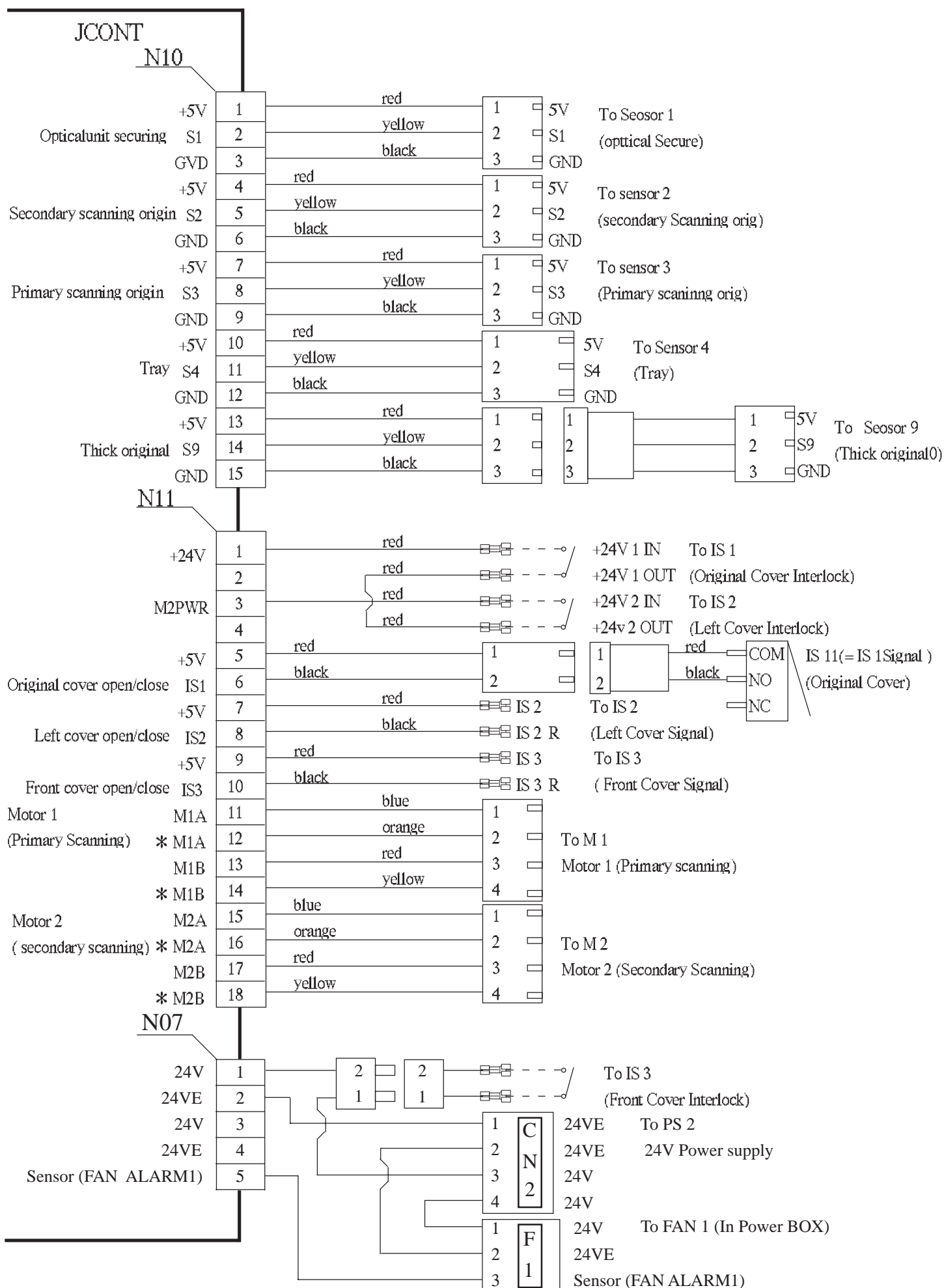
POWER LINE
120W TYPE POWER SUPPLY



POWER LINE
150W TYPE POWER SUPPLY
WITH 120W TYPE CABLE





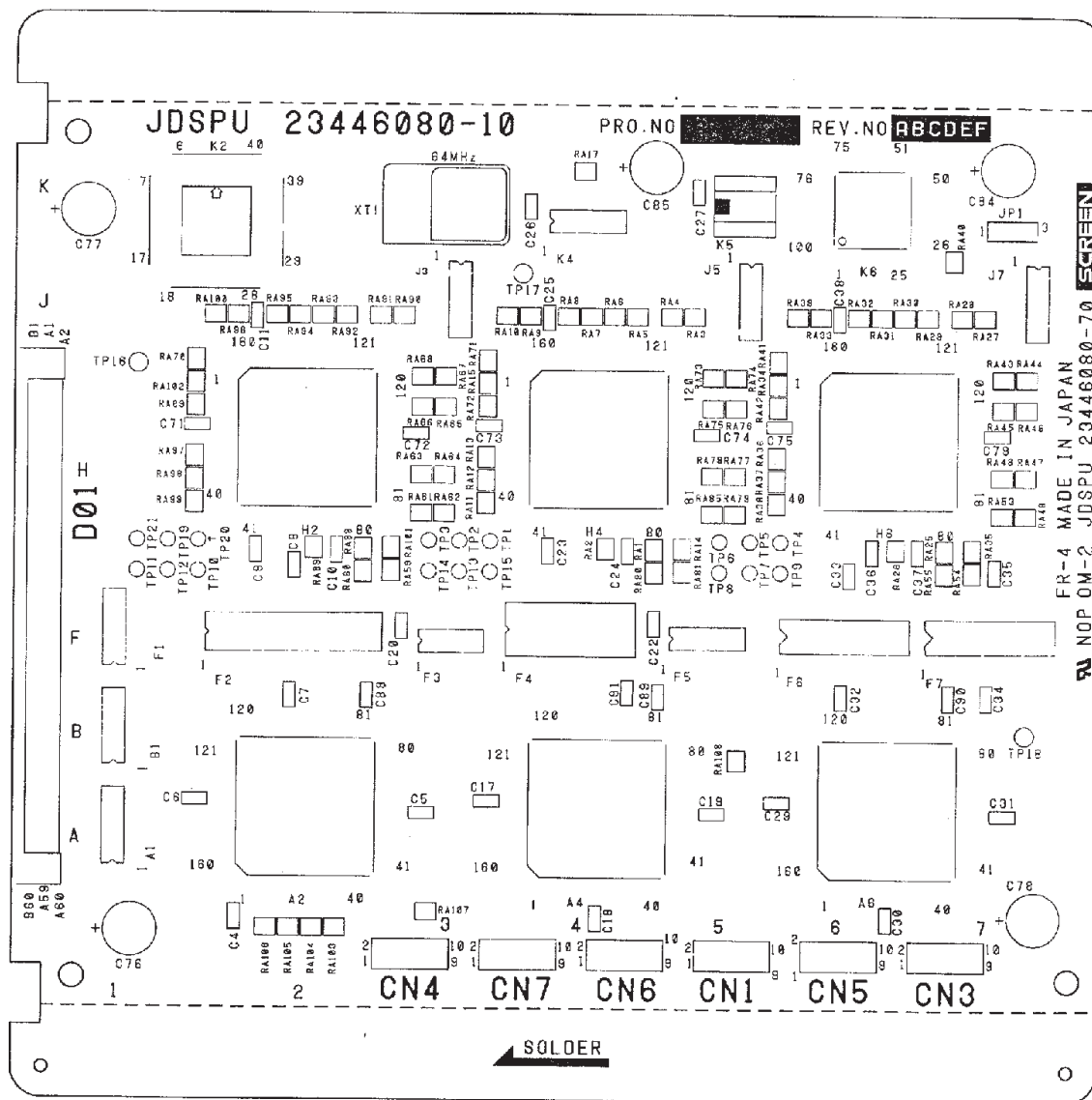


E. Reference

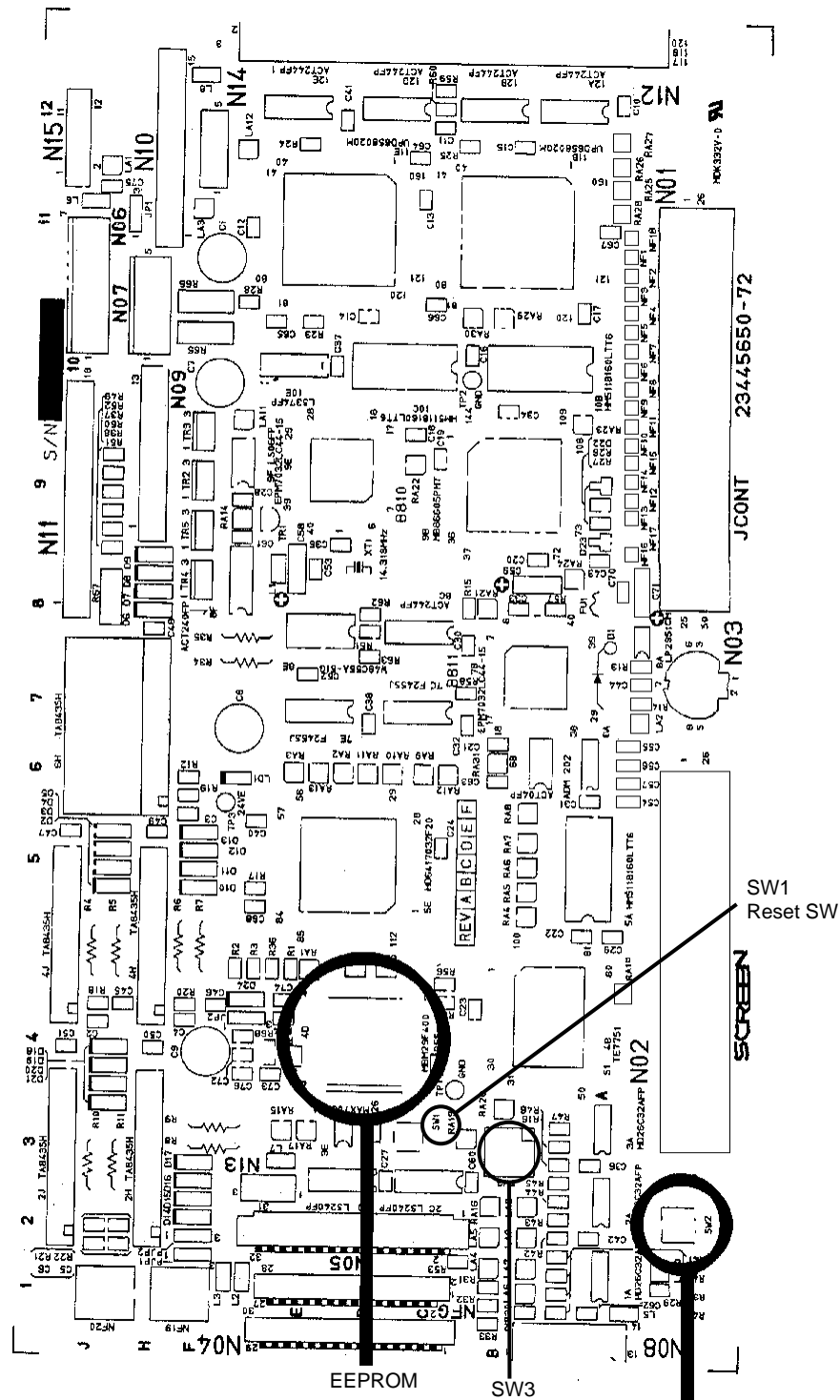
E. Reference

1. PCB board

1-1. JDSPU



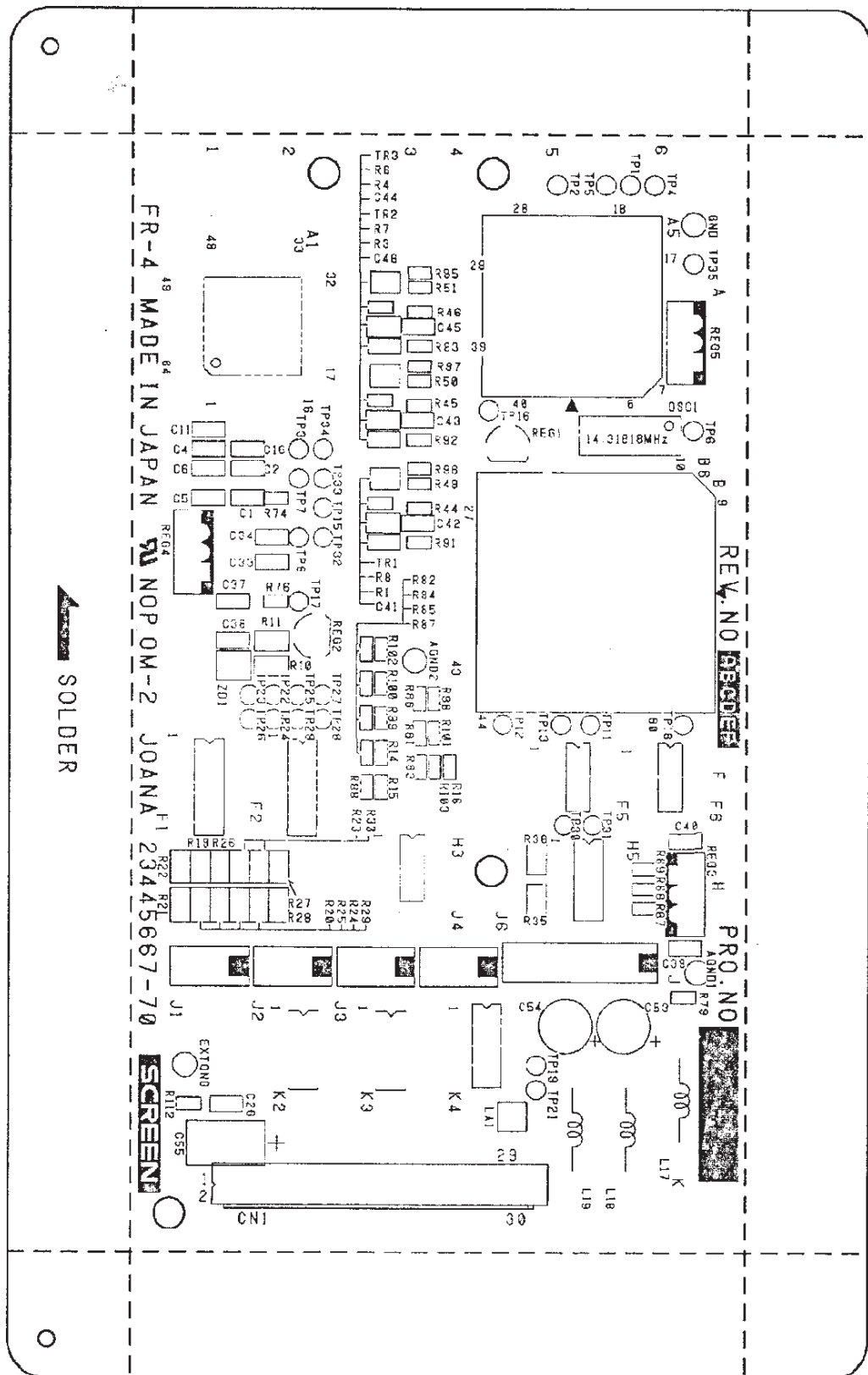
1-2. JCONT



SW3: Bit1: Forced download mode (on: Normal mode, off: Forced download mode)
 Bit2: Transparent lamp (on: 1 light, off: two lights)
 Bit3: Secondary scanning direction motor gear head type (on: 1/123, off: 1/36)
 Bit4: Unused

SW2
 SCSI-ID setting switch
 It is set to (6) when
 the FT-S5000 is shipped
 from the factory.

1-3. JOANA



2. Error Message List

2-1. FT-S5000 Error Code List

Error Nos. and messages listed by module are displayed in the following list.

■ Driver Errors

- 1001** Scanner is in use by another application.
Remedy: Quit the other application that is using the scanner. If the error still occurs, restart the Macintosh.
- 1002** Scanner not ready.
Remedy: Wait for the busy indicator LED on the scanner to turn off (or for the home position indicator LED to turn on) and try the operation again.
- 1003** Scanner not found. Check scanner and SCSI connections.
Remedy: Verify that the scanner is turned on and verify the condition of the SCSI cables.
- 1004-5** Unsupported firmware version.
Remedy: Upgrade the driver and firmware with the latest versions.
- 1006** Scanner is in error condition. <XXXX>
Remedy: Turn off the scanner and then turn it back on again. If the same problem occurs, take down the 4-digit code (<XXXX>) and contact a Dainippon Screen sales office or agency.
- 1006** Light intensity is low. Lamp replacement required.
Remedy: Replace the original lamp.
- 1006** Light intensity is low. Check the white reference unit and the original lamps.
Remedy: Verify the orientation of the white reference unit and original lamps. If the error still occurs, replace the original lamps.
- 1006** Scanning error: Could not detect line art reference line cut.
Remedy: Verify that the an original or dirt is not cutting the line art reference line.
- 1006** Scanner initialization error: Left cover is open.
Remedy: Close the left cover.
- 1006** Scanner error: The electrical board cooling fan stopped or a power supply failure was detected.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.

- 1006** Scanner error: Power cooling fan stopped.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1006** Scanner initialization error: Front cover is open.
Remedy: Close the front cover.
- 1006** Scanner error: Thickness sensor detected original.
Remedy: Remove the original.
- 1006** Scanner initialization error: Upper cover is open.
Remedy: Close the upper cover.
- 1006** Scanner error: Could not detect reflective lamp unit.
Remedy: Insert the reflective lamp unit.
- 1008** Can't run FT-S5000 Driver when virtual memory is enabled. Disable virtual memory in memory control panel and restart Macintosh.
Remedy: Turn off virtual memory.
- 1009** Scanner is in download mode. Scanning functions not available in this mode.
Remedy: Set the DIP switch No. 1 of the scanner to OFF and reset the scanner.
- 1010** Hardware interrupt detected. Process canceled by operator.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1011** Cannot start scanning while upper cover is open.
Remedy: Close the upper cover and restart.
- 1100** Scanner initialization error.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1101** Scanner initialization error: Upper cover is open.
Remedy: Close the upper cover and reset the scanner.
- 1102** Scanner initialization error: Left cover is open.
Remedy: Close the left cover and reset the scanner.
- 1103** Scanner initialization error: Front cover is open.
Remedy: Close the front cover and reset the scanner.
- 1104** Scanner initialization error: Optical unit lock sensor enabled.
Remedy: Remove the shipping plate and reset the scanner.
- 1105** Scanner initialization error: Controller board fan not moving.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.

- 1106** Scanner initialization error: Power source fan not moving.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1107** Scanner initialization error: Could not download program to DSP1.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1108** Scanner initialization error: Could not download program to DSP2.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1109** Scanner initialization error: Could not download program to DSP3.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1110** Scanner initialization error: Could not download program to DSP4.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1111** Scanner initialization error: Could not download program to DSP5.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1112** Scanner initialization error: DSP4 capability negotiation failed.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1113** Scanner initialization error: DSP5 capability negotiation failed.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1114** Scanner initialization error: DSP3 capability negotiation failed.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1115** Scanner initialization error: JOANA communication failed.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1116** Scanner initialization error: Could not write to Flash PROM.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1117** Scanner initialization error: Could not reset sub-scan motor.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.

- 1118** Scanner initialization error: Could not reset CCD, Lens motor.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1119** Scanner initialization error: Could not reset main-scan motor.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1120** Scanner initialization error: Could not reset iris motor.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1121** Scanner initialization error: Could not adjust iris for overview.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1122** Scanner initialization error: Could not execute DSP command (overview shading / dark level sampling).
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1123** Scanner initialization error: Could not verify DSP command (overview shading / dark level sampling).
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1124** Scanner initialization error: Could not execute DSP command (overview shading / white level sampling).
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1125** Scanner initialization error: Could not verify DSP command (overview shading / white level sampling).
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1126** Scanner initialization error: Could not calculate overview shading data.
Remedy: Turn off the scanner and then turn it back on again. If the problem persists, contact a Dainippon Screen sales office or agency.
- 1500** Driver error: Disk error.
Remedy: Verify that the FT-S5000 Prefs folder is in the Preferences folder of the Macintosh. If it is not, reinstall the software.
- 1501** Driver error: Disk error.
Remedy: Delete unnecessary files from the hard disk of the Macintosh.

■ Driver Warnings

- 9001** Tray cover was opened. Current preview is invalid if original layout was modified.
Remedy: If the position of the original has altered, cancel the scan and re-perform the prescanning.
- 9002** Could not select scanner at new SCSI ID. Old SCSI ID will be restored.
Remedy: Verify that the scanner for modifications is turned on and that the SCSI cables are properly connected.
- 9504** Invalid pre-gamma table. (Linear gamma applied.)
- 9505** Invalid out-gamma table. (Linear gamma applied.)
- 9506** Could not detect focus point. (Default focus applied.)
- 9507** Could not setup line art scanning. (Default parameters applied.)
Remedy: Verify that the an original or dirt is not cutting the line art reference line.
- 9601** Scanning without reflective lamp unit will cause flares in scanned image.
Remedy: Insert the reflective lamp unit.
- 9602** Light intensity is low. Transparent original lamps replacement recommended.
- 9603** Light intensity is low. Reflective original lamps replacement recommended.

■ Plug-in Errors

- 16002** An integer between XX and YY is required.
(Y-Y: The set value is displayed)
- 16003** A value between XX and YY is required. Closest value inserted.
(XX-YY: The set value is displayed)
- 16004** This plug-in requires Adobe Photoshop 3.0™ or later functionality.
Remedy: Install Adobe Photoshop 3.0.5 or later.
- 16005** This plug-in is incompatible with this version of the host program.
Remedy: Install Adobe Photoshop 3.0.5 or later.
- 16006** You will lose one or more setup information after closing this window.
- 16007** Closing this window will force this plug-in to quit.

- 16008** Failed loading scanner driver. Check scanner and SCSI connections.
Remedy: Verify that the scanner for modifications is turned on and that the SCSI cables are properly connected.
- 16009** You need MacOS 7 or later to run this plug-in.
Remedy: Install Mac OS 7.5.3 or later.
- 108** Not enough memory to execute this operation.
Remedy: Quit the application and increase its allocated memory in the [Preferred size] setting.
- 16012** This plug-in is incompatible with this version of the FT-S5000 Driver.
Remedy: Change the plug-in and driver with their newest versions.
- 16013** This plug-in requires FT-S5000 Driver ver. 1.0 or later functionality.
Remedy: Change the plug-in and driver with their newest versions.
- 16014** You will lose current setup information after you make this change.
- 16015** No trimming information!
Remedy: Specify the trimming.
- 16016** OpenTransportLib not found!
Remedy: Verify that the OpenTransport is installed.
- 16017** FT-S5000 Driver not found!
Remedy: Install the driver.
- 16018** Driver is in use by another application.
Remedy: Quit all applications other than the one operating the scanner.
- 16019** FT-S5000 Driver is incompatible with this version of the FT-S5000 Firmware.
Remedy: Upgrade the driver and firmware with the latest versions.
- 16020** Error detected at driver startup.
- 16022** This file is incompatible with this version of the FT-S5000Plug-in.
- 16023** This field is fixed when Line Art is selected. Click the 'More...' button to change this field.
Remedy: Change the resolution by clicking on the 'More...' button, changing the resolution setting of the line art tab, and clicking on the [Set] button.

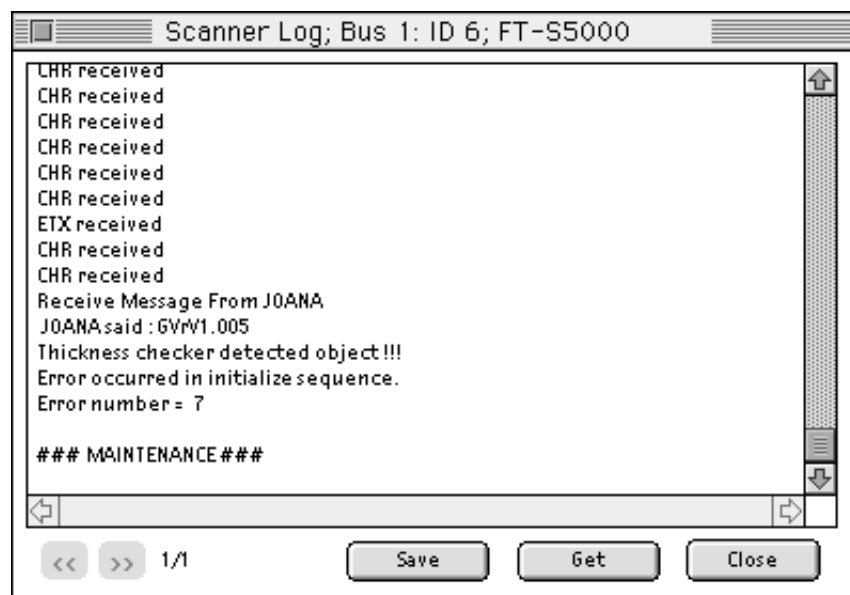
3. Error messages

3-1. Scanner Log

If detailed information is not displayed in the error message, start up the Maintainer program. The Scanner Log window appears and displays the details. In the following example, we see that an error occurred at startup, but we do not know any details.

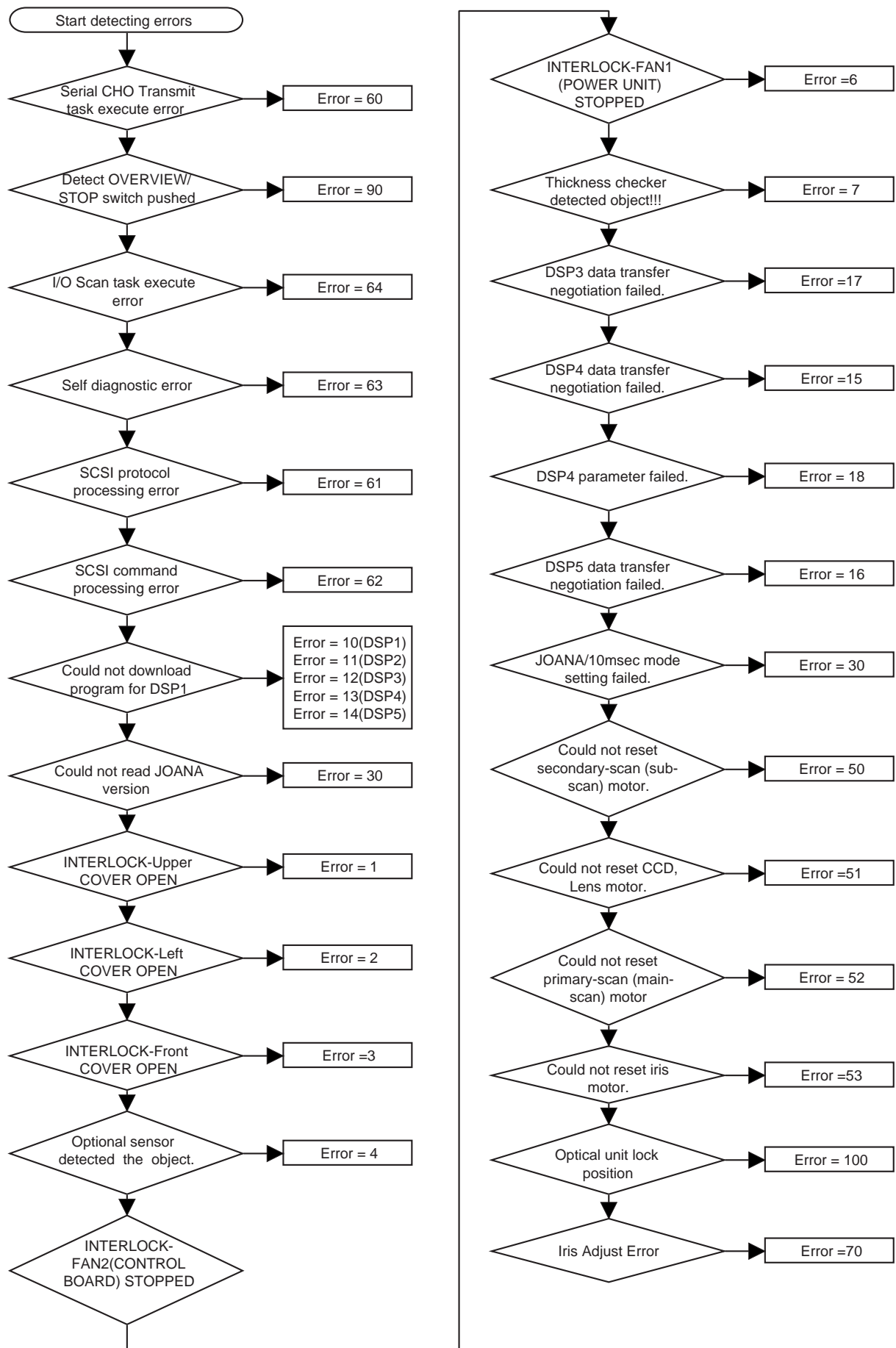


Open the Scanner Log window and click the "Get" button. The details are displayed in the window.



This window tells us that the thickness checker detected an object and the error number is 7.

3-2. Errors detected during initialization



4. Driver Log

■ Introduction

This section describes the FT-S5000 Drivers Log.

The FT-S5000 Driver Log is a text file which is created automatically when the FT-S5000 is activated and contains chronological data on whatever occurs on the driver and scanner sides.

■ Opening the FT-S5000 Driver Log file

The FT-S5000 Driver Log is created in the FT-S5000 Prefs folder (located under Preferences in the System folder). The log file is in text format and can be opened by simply dragging and dropping it on the text editor. However, the log file can not be opened if it is larger than the capacity of the SimpleText program.

Notice : If you have selected the setting in the FT-S5000 Options window which stops the creation of a log file, this file will not be created or updated.

By selecting all the contents of the log file in the text editor and then changing to a proportional font, you can make the contents easier to read. Since two-bytes characters are used for log files created in Japanese and Chinese operating systems, the characters become illegible if you select a one-byte character font, such as Monaco.

■ Title

The title shown below is displayed in the heading of each log file.

Example:

```
#####
FT-S5000 Driver LOG FILE:Created October 7,1997 (Tuesday) 2:42:08 PM
#####
```

The title gives the date and time the file is created. The log file is automatically updated until it reaches 100KB. When the contents exceed this size, however, the oldest entries are automatically cleared by the driver. (The driver clears the entire log file when it is started up. Even if a log file exceeds 100KB, it will not be cleared as long as the driver is not started up again.)

■ Information given during FT-S5000 Driver startup

The following comment is copied into the log file when the driver is started up.

Example. 2:42:18 PM...Starting FT-S5000 Driver...

+++SCSI Information+++

Apple Computer NCR 53c96 Unknown... scsiDoDisconnect
scsiDontDisconnect

1.6 SCREEN FT-S5000 6

Selecting device at 1.6 ver.1.05

S/N:53950-0005

UnitAttention received!

Device startup result:0

GetInitStatus[]: result =0, status =0

SetLock:1.6

2:42:09 PM...Photoshop Color Scope Server opened a new session with...

These log entries include information on the SCSI device and the functioning of the SCSI card which the FT-S5000 Driver detected, the version and the serial number of the FT-S5000 the driver is connected to, the result of the self diagnosis routine at scanner startup, and the application which launched the driver.

Check the following items if an error occurs which prevents successful loading of the driver when it is started up.

- The FT-S5000 name should exist in the SCSI device list.
 “Bus ID.SCSI ID, Vender name, Device name and Device type” are displayed in the list. (e.g., “1.6, SCREEN, FT-S5000 and 6” are displayed in the example shown above.) Device type 6 means the scanner.
- The results of the self diagnosis at scanner startup should be normal.
 The self diagnosis result is displayed as "Device startup result 0". The result is reported with a number shown at the right end of this line. "0" means normal and other numbers indicate an error.
- The lock file should open normally.
 The driver creates a lock file which prevents the scanner from being used by multiple applications. However, if an application other than the target application was previously using the same scanner and was still connected when the driver created the lock file, this file can not be subsequently opened. In such cases, the “SetLock failed with error No.1001” comment appears.

■ Information at the scanning

The following information is described in the log file by the driver when the scanning is performed.

Example. — — — — —

Window ID=2

Light Source	Reflective
Scan Mode	Fine (speed down)
Resolution	H:12000, V:12000 [0.1dpi]
Offset	H:0, V:0 [0.1 mm]
Size	H:7056, V:8800 [pixels]
Image Mode	Bitmap
Threshold	79
Noise	0
Channel	Green
Edge Comp.	512
Graininess	0

Kernel Coeffs.	Rx 1785 8002 13194 8002 1785
	Ry 1785 8002 13194 8002 1785
	Gx 1785 8002 13194 8002 1785
	Gy 1785 8002 13194 8002 1785
	Bx 1785 8002 13194 8002 1785
	By 1785 8002 13194 8002 1785

3:46:57 PM...SetScanParam succeeded.

3:49:06 PM...GetImageFinal succeeded.

The parameters set for the scanner at the time of scanning and the state after scanning are noted in the example above. When scanning is completed successfully, “GetImageFinal succeeded.” is written in the log file.

The parameters set for the scanner at the time of scanning are entered in so-called window data format and includes the information outlined below.

Parameter	Explanation
Window ID	This ID is used to identify different parameter sets (numbered from 1 to 99).
Light Source	This parameter determines which light source (Transmissive or Reflective) is to be used for scanning.
Scan Mode	This parameter determines which mode (Draft, Normal or Fine mode) is to be used for scanning.
Resolution	The resolution in the H (primary scanning) and V (secondary scanning) directions is shown in 0.1 dpi units.
Offset	The start point for scanning in the H (primary scanning) and V (secondary scanning) directions is shown in 0.1 mm units.
Size	The number of pixels is shown in the H (primary scanning) and V (secondary scanning) directions.
Image Mode	This parameter determines the scanning mode: e.g., Bitmap (binary), Grayscale (gray) or RGB mode (color).
Threshold	This parameter determines the threshold level for line art input.
Noise	This parameter determines the amount of noise added to remove moire when line art is input.
Channel	This parameter determines the color to read when line art is input.
Depth	This parameter determines the number of bits per pixel.
Gamma Table ID	This parameter determines the identification code of the gamma table to be used.
RGB Matrix ID	This parameter determines the identification codes for the RGB conversion table to be used.
Focus Offset	The focus adjustment position is shown in the H (primary scanning) direction and V (secondary scanning) directions in 0.1 mm units (when the trimming frame's top left corner is at the origin position).
Focus Width	This parameter determines the number of pixels used for focus adjustment.
Filter Mode	This parameter determines which filter is to be used (Median or Defocus).
Adaptable Proc.	This parameter determines whether or not adaptive processing (for contrast adjustment) is performed.
Mask Size	This parameter determines the mask size of the Median filter.
Gain	This parameter determines the amount of gain used for adaptive processing.
Neglect	This parameter determines the contrast level to be ignored during adaptive processing.
Kernel Coeffs.	This parameter determines the Kernel coefficients.

■ Errors and warnings

When the driver detects an error or warning state, it records the information shown below in the log file.

Example. WARNING : Warm up needed.

GetDriverMessage : <9511> you should wait 30 min. after launching
the scanner to acquire good quality line art
scans.

When the driver detects an error or warning state, the details are recorded in the log file, such as “WARNING: xxxx”, “xxxx failed with error No. xxxx” or “xxxx err=xxxx”. If the host application requests the driver for the character string displayed in the alert message, the string which the driver reports, such as “GetDriverMessage: xxxx”, is recorded.

When you find the section in which the error occurred, you can investigate the cause of the error in the log information the driver recorded before the error occurred.

5. Files and Modules

This section describes the files and modules used by the FT-S5000.

5-1. Outline

- ◆ In the System folder
 - Folder name: DS Drivers...Drivers for ColorScope Pro3 and the FT-S5000Plug-in
 - File name : FT-S5000 Driver... For FT-S5000 Driver's main software
 - FT-S5000 ControlPanel...Dedicated setting window for driver parameters
 - Trimming Assistant...Automatic trimming module
- ◆ In the Preferences folder
 - Folder name: FT-S5000 Prefs...Dedicated information folder for the FT-S5000
 - File name : FT-S5000 Driver Prefs...File for driver initialization
 - FT-S5000 Config...Text file for driver settings
 - FT-S5000 Plug-in Prefs...File for Plug-in initialization
 - FT-S5000 Plug-in UI Prefs...File for Plug-in initialization
 - FT-S5000 Lock...File for driver control
- ◆ In the StartUp Items folder
 - FT-S5000 StartUp...Startup file for the driver
- ◆ Plug-in
 - FT-S5000 Plug-in...Plug-in module

5-2. Content of files

- ◆ Files in the DS Drivers folder

These are the modules (DLL files) used by ColorScope Pro3 and the FT-S5000. Though these modules cannot be individually executed, they are needed to use ColorScope or other software. If one of these files is transferred or its name is changed, ColorScope or other software can not operate normally.
- ◆ Files in the FT-S5000 Prefs.
 - FT-S5000 Config

This file defines the driver's operation and is necessary when the driver software is launched. If this file is transferred or its name is changed, the driver can not operate normally.
 - FT-S5000 Lock

This driver file prevents multiple applications from using the same scanner simultaneously. This file is automatically created when the driver is launched, but it is not created when the driver is installed.

- Others

These are files in which the driver or Plug-in record the user's system environment. These files are automatically created when the driver or the Plug-in is launched. They are not created when the driver is installed.

- ◆ FT-S5000 StartUp

This application clears the FT-S5000 Lock file when the Macintosh is started up. When the application runs normally, the FT-S5000 Lock file is automatically cleared. It can not be cleared if unexpected trouble occurs. When the application starts up but does not clear the FT-S5000 Lock file, the FT-S5000 driver can not operate normally.

When an error message such as "Scanner is in use by another application." appears, start up the Macintosh again.

- ◆ FT-S5000 Plug-in

This is the Plug-in module for Photoshop. This module is necessary if you want to open Photoshop and look at an image scanned with the FT-S5000.

Appendix

1. Identifying trays

Identification of the tray type, original holder and the original itself is performed based on the overview image. The timing for overview image scanning can be changed by switching “ScannerSetting” in the maintenance software. The overview image is automatically acquired only when “when the upper cover closed (auto)” or “on demand only (auto)” is selected. Therefore, when “ScannerSetting” is switched to “by the overview scan/stop key (manual)”, be sure to press the front panel's scan/stop key after the tray is replaced to perform the required overview scanning operation beforehand.

<<<For identifying compound tray>>>

1. The compound tray can only be identified when it is installed in the tray table and the identification seal is attached on the left of its backside. The seal shows a black and white pattern with three white boxes printed on it. It should be positioned 38 mm (± 2 mm) from the top and 6 mm (± 2 mm) from the left on the backside of the tray.
2. The identification holes for the original holder you are placing in the compound tray should be on the left (on the origin position side) as viewed from the front of the scanner. When the identification holes are not on this position, the original holder can not be identified successfully.
3. To identify the compound tray, the “Trimming Assistant” utility should be installed in the “DS Drivers” folder (located in the System folder).

2. Tray type

■ Standard Tray

This is the standard tray for the FT-S5000. Using multiple standard trays and preparing one while another is being scanned will increase your scanning efficiency.

■ Compound Tray

This combination tray can hold any combination of up to six of the following holders: glassless (non-glass) holders for the FT-S5000, oil holders, or plastic resin holders. This set consists of one compound tray, four types of glassless (non-glass) holders (one for each type), one plastic resin holder, and three types of masking sheets for plastic resin holders (one for each type).

■ Glass Tray

The glass tray set is for line art originals. The upper surface of the line art glass tray and the surface of the tray table are flush to allow handling of the large sized originals. This set consist of one glass tray, one pin bar set, one pin bar (PB-370), and an original retaining sheet for line art.

3. Holders used in the compound tray

■ FT-S700 Holder

This is the non-glass holder for transparent originals and mounts on the compound tray. It can also be used with FT-S700. There are four different types of holders: for 4x5 inch, 6x7 cm, 35 mm, and 35 mm-slide originals.

■ 35-mm Oil Holder

This oil holder mounts on the compound tray and uses an oil envelope to hold 35-mm originals and protect their emulsion surfaces against scratching.

■ 6x7-cm Oil Holder

This oil holder mounts on the compound tray and uses an oil envelope to hold 6x7-cm originals and protect their emulsion surfaces against scratching.

■ Resin Holder

This 4x5 inch plastic resin sandwich-type original holder is used with the compound tray to prevent the originals from bucking during scanning. It comes with its own set of masking sheets.

■ Resin Holder Masking Sheets

This six-piece set consists of three different types of masking sheets to mask 35-mm, 4x5-inch, and 6x7-cm originals. Sheets are indexed with locating pins on the plastic resin holder. These sheets also prevent the diffusion of light around the image area.

G. Color Genius

G. Color Genius

Software Installation

Confirm as follows before installation

Computer: Power Macintosh 9600/233 or higher

System software: Mac OS 8.0 or higher

Hard disk: 3 GB, or five times of the scanned image (Minimum 500 MB)

Memory:

In case of client/server environment., recommended 256MB or more (Minimum requirement is 128 MB)

In case of server only, 160 MB or more is recommended. (Minimum requirement is 128 MB)

In case of client only, 128 MB or more is recommended. (Minimum requirement is 64 MB)

In case of Plug-in application only, 160 MB or more is recommended. (minimum requirement is 80 MB)

CD-ROM drive: Built-in, or peripheral.

Display: 21 inch full-color display

Display Card: A display card (supporting monitors 17 inches or larger) with full-color (at least 32768 colors) support.

ColorGenius incorporates a network software license protection function,

so it is not possible for multiple Macintosh computers on the network to simultaneously use a single copy of ColorGenius which has been registered with only one serial number.

Please purchase the desired number of ColorGenius software copies if you need to run more than one instance at the same time.

Installation Procedure

Be sure to close all applications, if any are open, before commencing the installation procedure.

- 1) Start up the computer.
- 2) Insert the ColorGenius CD into the CD-ROM drive.
- 3) Double click the "ColorGenius CD-ROM" icon.
- 4) Double click the "ColorGenius Installer" icon.



5) Click “Continue”.

Select the way
for installed.

Select the install
location.

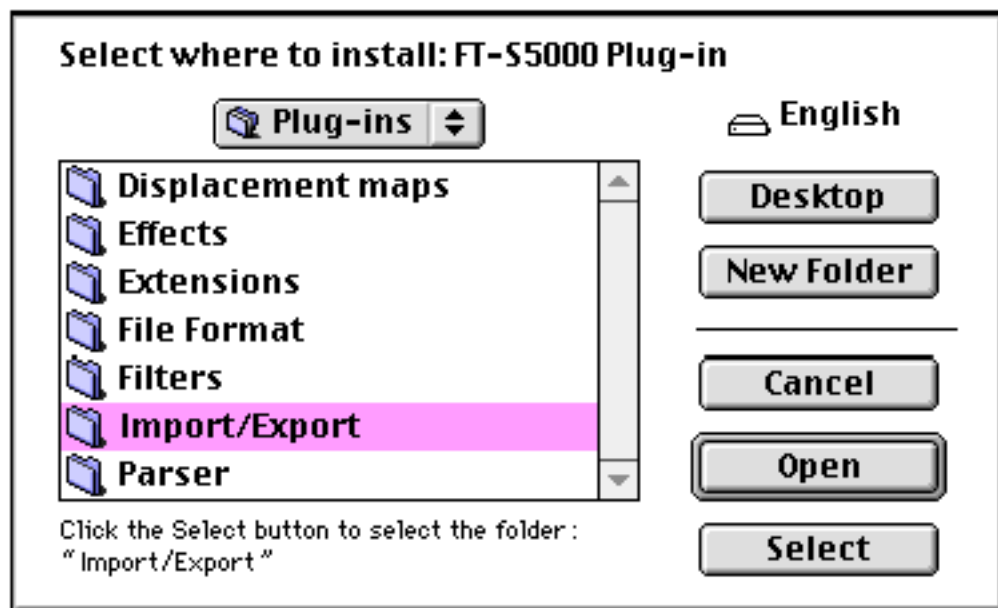


6) Click “Install” after you select the way for install and the install location.

The dialog box, in which you can specify where to install the “FT-S5000Plug-in” (module for inputting scanned images compatible with PhotoShop), appears.

7) Designate the “Import/Export” folder in the PhotoShop “Plug-ins” folder, and then click on “Select”.

A dialog box that indicates the download status is displayed on the screen.



8) After the installation process is completed, a confirmation dialog box is displayed on the screen.
Click “Restart” to re-launch the computer.

9) Double click the “ColorGenius” (client application) icon.
Enter the “Name”, “Organization” and “Serial No.” There is the serial number on the case of CD-ROM.



The image shows a registration dialog box with a light gray background and a dark border. The title bar is not visible. The main area has the text "Register your name and organization:" in bold. Below this, there are three labels: "Name:", "Organization:", and "Serial No:", each followed by a text input field. The "OK" button is highlighted with a thick border, and the "Cancel" button is to its left.

Register your name and organization:

Name:

Organization:

Serial No:

10) Double click the “ColorGenius Server” (server application) icon.
Enter the “Name”, “Organization” and “Serial No.” in the opened registration dialog.

Updating ColorScope Pro3 to ColorGenius

Thank you for choosing the Dainippon Screen ColorGenius.

This document explains how to upgrade ColorScope Pro3 to ColorGenius. Read this document along with the Users Manual before beginning the update.

For information concerning software updates, contact your local dealer or your nearest Dainippon Screen Sales Office.

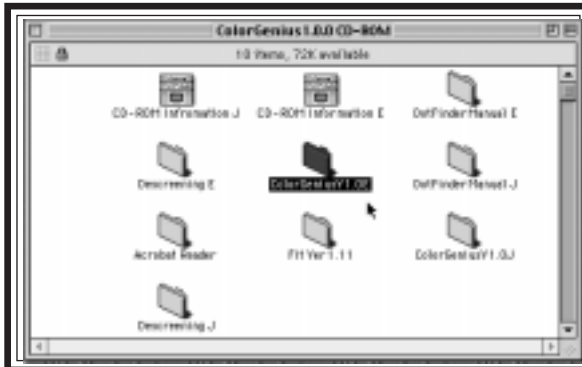
<Introduction>

- The ColorGenius update can be performed with the following steps.
 - 1 Installing ColorGenius
 - 2 Downloading the firmware
 - 3 Registering the serial number
 - 4 Setting up the operating environment
- Customized profiles, environmental setting parameters, tone curves and recipe files used in ColorScope Pro3 can be used in ColorGenius if they are converted with the file conversion tools.
- Note that ColorScope Pro3 and ColorGenius cannot be alternately used. Therefore, after ColorGenius has been installed, ColorScope Pro3 cannot be used. If ColorScope Pro3 is likely to be used after ColorGenius is installed, do not remove ColorScope Pro3 from your computer. If you have removed ColorScope Pro3 and you wish to use it, download the ColorScope Pro3 and firmware to install it again.
- The DotFinder option used with ColorScope Pro3 can also be used with ColorGenius.

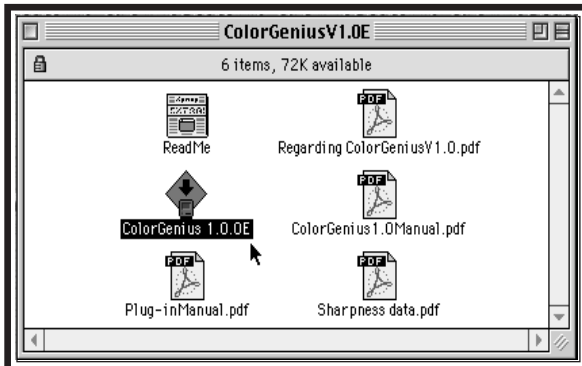
1 Installing ColorGenius	2 P
2 Downloading firmware	4 P
3 Entering a serial number	6 P
4 Setting up the operating environment	8 P
5 Procedure to revert to ColorScope Pro3	10 P
6 Concerning the DotFinder option	12 P
7 Converting various ColorScope Pro3 files to ColorGenius files	13 P



Insert the ColorGenius CD-ROM and then double-click the ColorGenius CD-ROM icon.



Double-click the ColorGeniusV1.0 folder.



Double-click the ColorGenius Installer.



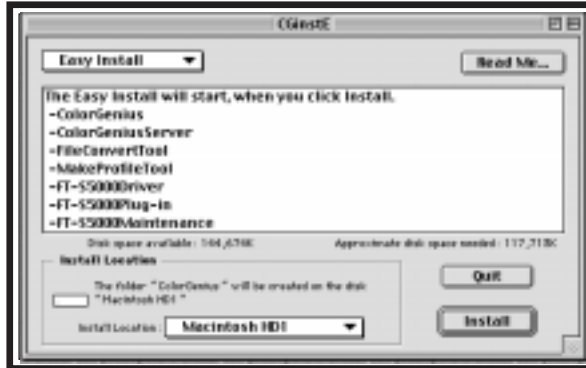
Click "Continue".



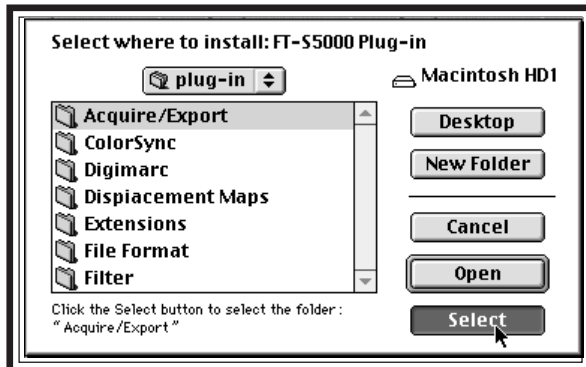
After reading the license agreement, click "Accept".



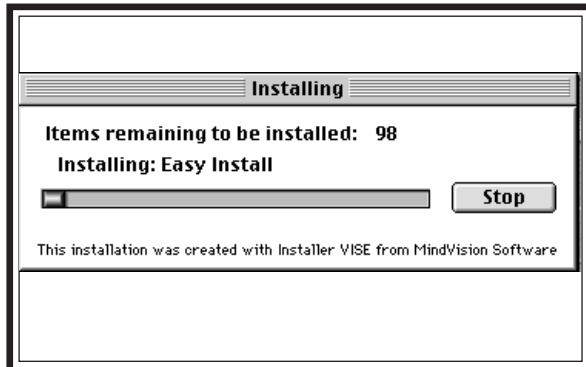
After reading "Using precautions for FT-S5000 and restrictions", click "Continue".



Specify the location where ColorGenius is to be installed and install it with "Easy Install". Click "Install".



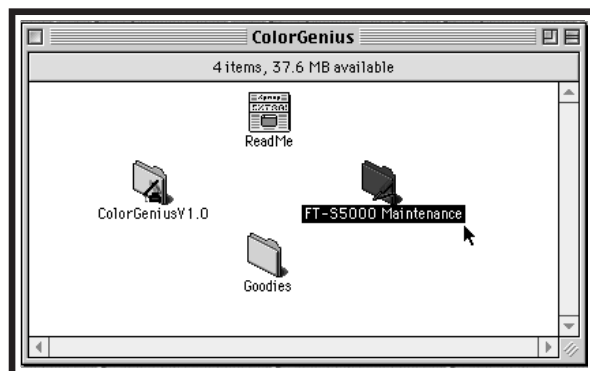
The dialog box where the FT-S5000 Plug-in installation location is specified opens. Specify the Photoshop plug-in folder "Acquire/Export" and then click "Select".



The installation is started.

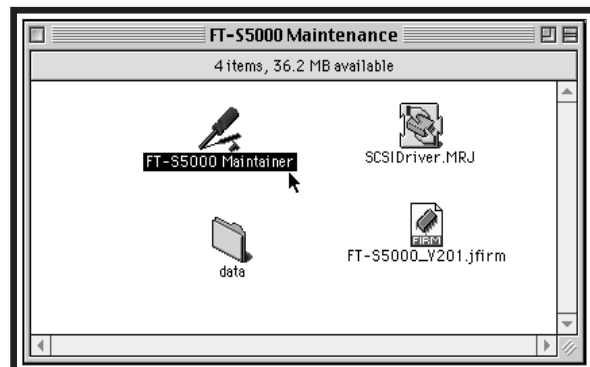
After the installation has been completed, reboot the computer.

If you use Macintosh computers for servers or clients independently, install the necessary software in all the Macintosh computers with "Easy Install".



The firmware is the software installed in the FT-S5000 main unit.

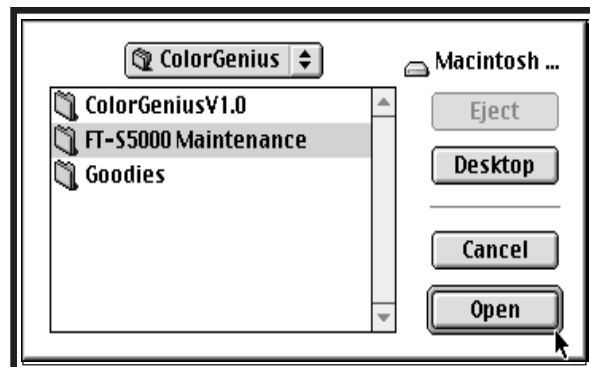
If you wish to use ColorGenius with the FT-S5000, the firmware for ColorGenius must be downloaded to the FT-S5000. Turn ON the FT-S5000 and double-click the "FT-S5000Maintenance" folder in the "ColorGenius" folder.



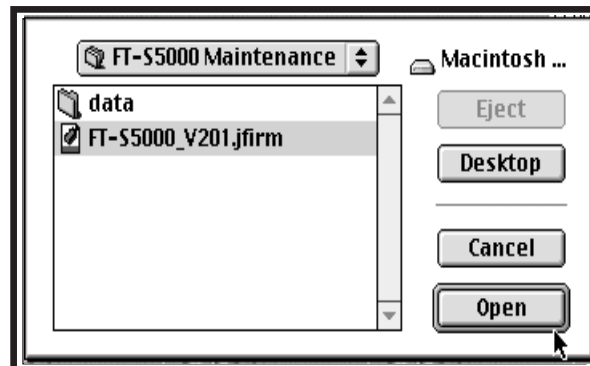
Double-click the "FT-S5000 Maintainer" folder.



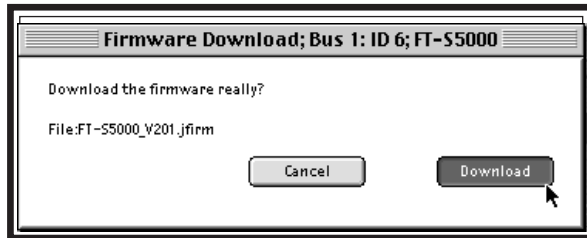
The FT-S5000 Maintainer is started.
Click the "FirmwareDownload" button.



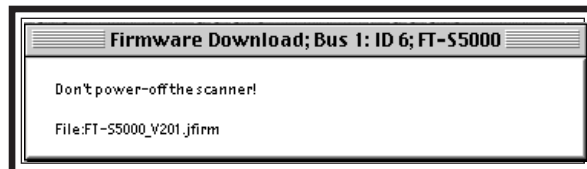
Select "FT-S5000Maintenance" in the "ColorGenius" folder and click "Open".



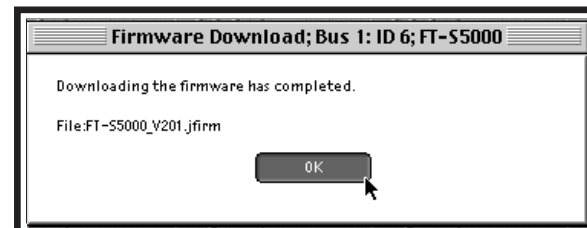
Select "FT-S5000_V201jfirm" in the "FT-S5000Maintenance" folder and then click "Open".



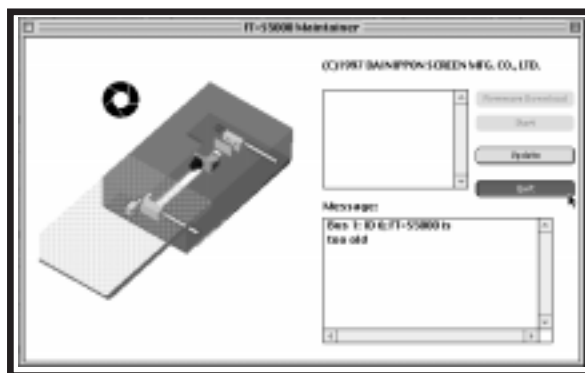
Double-click "Download".



The downloading starts.



The dialog box that indicates that the download is completed is displayed. Click "OK".



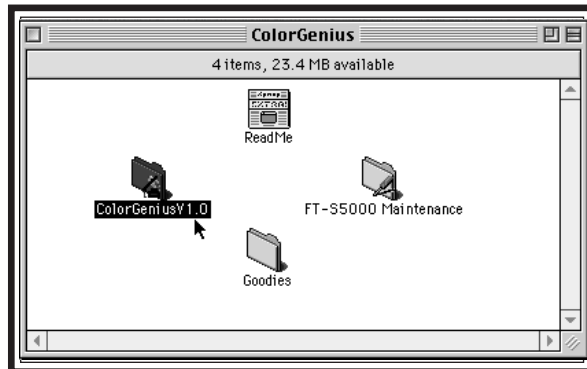
The FT-S5000Maintainer's initial screen appears. Click the "Quit" button to finish the FT-S5000Maintainer program.

This completes the downloading of the firmware.

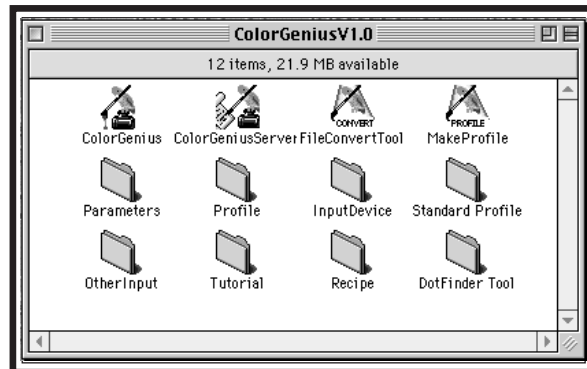
A serial number must be entered after ColorGenius is installed and started up for the first time.

The serial number is noted on the ColorGenius CD-ROM case.

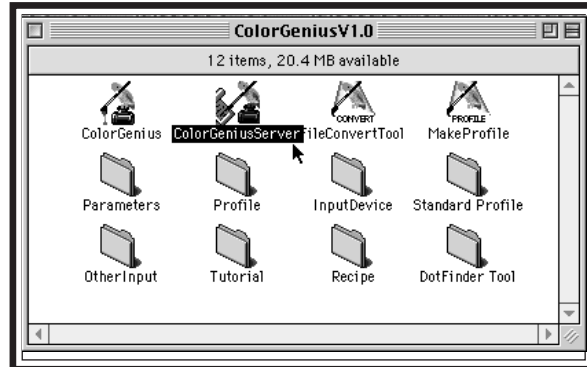
The serial number must be entered into both the server application and client application.



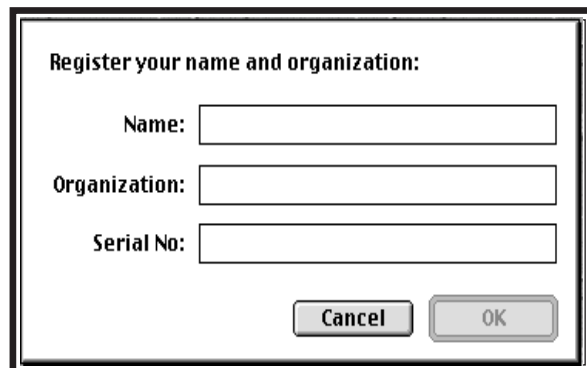
Double-click the ColorGeniusV1.0 folder.



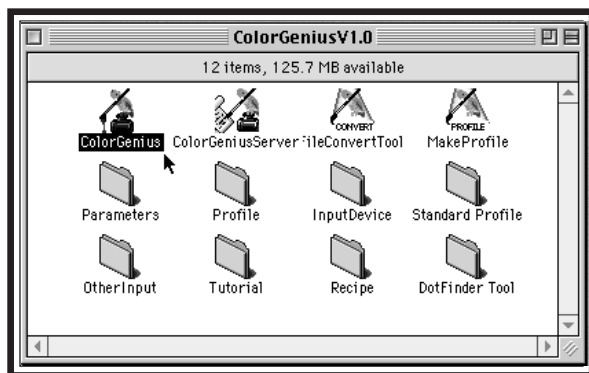
The ColorGeniusV1.0 folder opens.



Double-click ColorGeniusServer.



Fill in the "Name", "Organization" and "Serial No." fields in the registration window that appears. Then click "OK".



Double-click the ColorGenius icon.

In the same manner as above, fill in the "Name", "Organization", and "Serial No." fields in the registration window that appears. Click "OK".

If you have ever added clients to the system in the multi-client environment, enter the serial number for each client in the same manner as above. The serial number to be entered can be found on the CD-ROM case of the additional client package.

ColorGenius operates in the following environment.

- Foreground/background environment where both the server and client are installed in one computer.
- Client/server environment where two computers are used; one as a server and one as a client.
- Multi-client/server environment where multiple computers are used; one as a server and two or more as clients.
- Stand-alone environment

The settings necessary for operation are different depending on the operating environment shown above. In this document, only the settings necessary for the foreground/background environment where ColorGenius operates in only one computer are explained.

For more detailed information on the client/server environment, multi-client/server environment or stand-alone environment, refer to the Users Manual.

Foreground/background environment

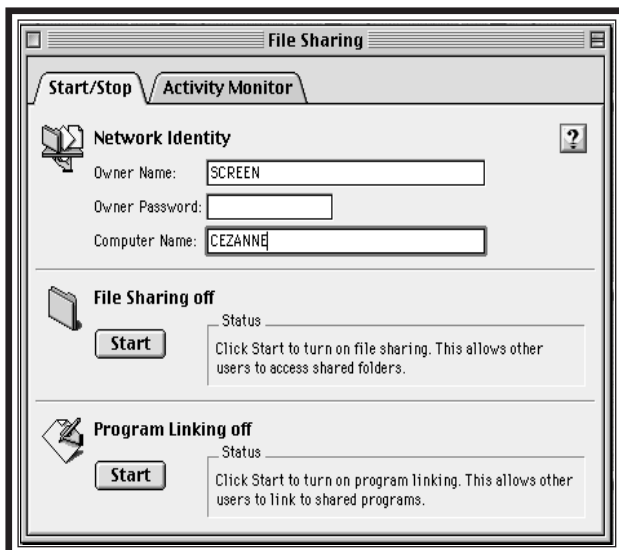
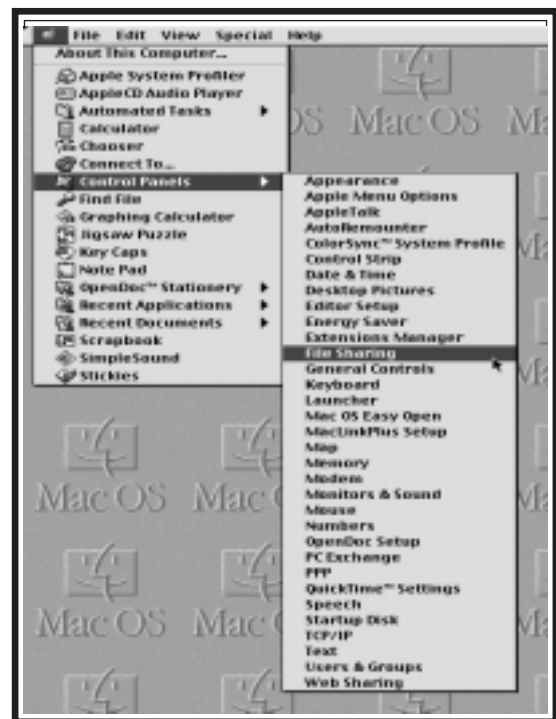
The following three settings must be defined in the foreground/background environment when ColorGenius operates in only one computer.

- 1 Setting the network identity
- 2 Specifying the scratch disk
- 3 Specifying the location where image files are saved

4-1 Setting the network identity

Set the network identity using the file sharing menu.

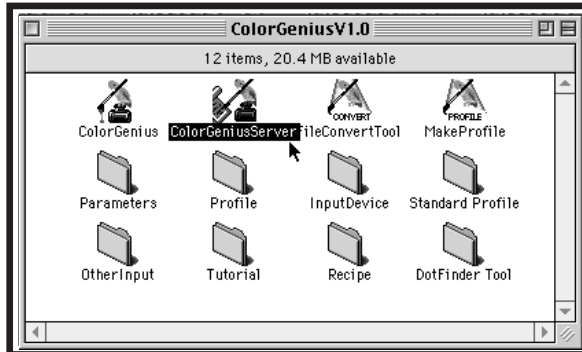
Select "File sharing" in the Apple menu Control Panel.



Fill in the "Owner Name" and "Computer Name" fields with the appropriate names. If these fields are not filled, the client and server applications are not linked together. Therefore, be sure to enter the correct names in these fields.

4-2 Setting scratch disks (No special modification should be made. Use the defaults.)

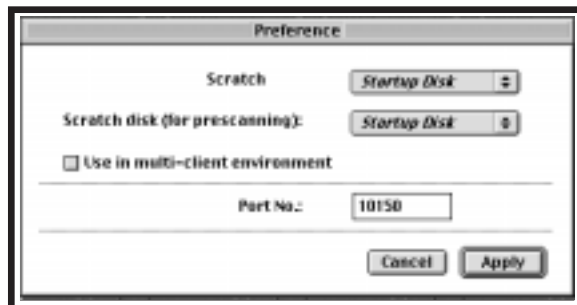
The server application converts images into files during prescanning or image processing and temporarily saves them to the disk. The disk where files are temporarily saved is called a "scratch disk". The scratch disks can be defined for image prescanning and for image processing separately. Ordinarily, the internal disk is used as a scratch disk.



Launch ColorGeniusServer

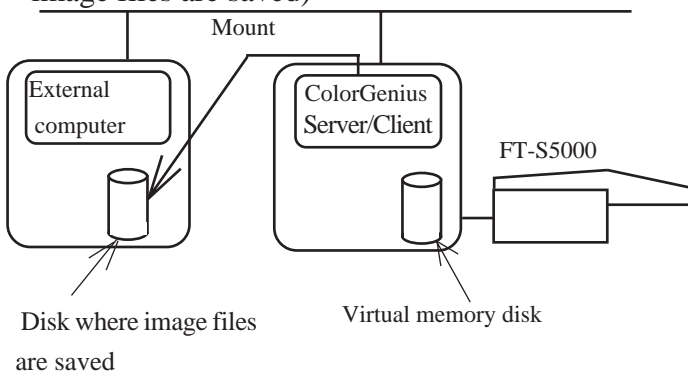


Select "Preference" in the "Preference..." menu.



Then the initial screen appears. "Startup disk" is used as a default. Ordinarily, this setting does not need to be changed. However, in cases where there is enough capacity left, you can define the RAM disk as a scratch disk for prescanning, thus accelerating the prescanned image display and transmission. For more detailed information, refer to the Users Manual.

4-3 Defining a location where image files are to be saved (Mounting a volume where image files are saved)



No particular settings are necessary when image files are saved in the internal volume.

However, if you wish to save image files in a volume in one of the other computers in the network, you must mount the volume on the server computer. (In other words, the volume's icon must appear on the server disk top.)

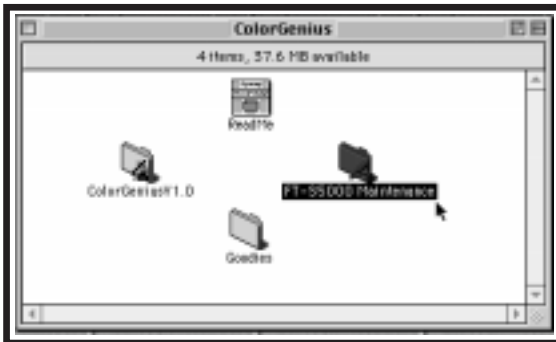
This completes the operational set-up in the foreground/background environment.

If you wish to use ColorScope Pro3 after installing ColorGenius, ColorScope Pro3 must be re-installed. Note that the applications cannot be used alternately.

This section describes how to revert to ColorScope Pro3 after ColorGenius has been installed.

5-1 Downloading firmware

The firmware for ColorScope Pro3 must be used.

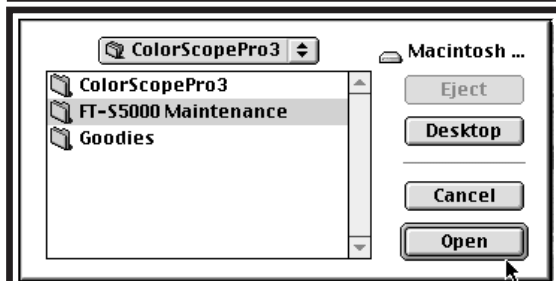


Launch the FT-S5000Maintainer in the "ColorGenius" folder.

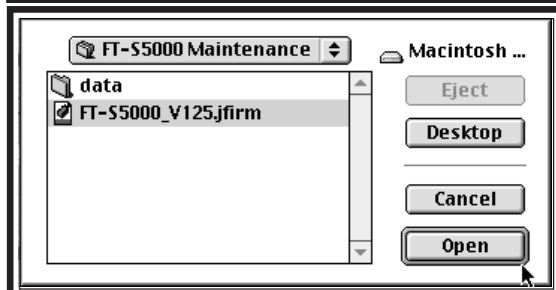
Note that the ColorScope Pro3's FT-S5000Maintainer cannot be used when the ColorGenius firmware has already been downloaded. Therefore, be sure to launch FT-S5000Maintainer in the "ColorGenius" folder.



Click the FirmwareDownload button.



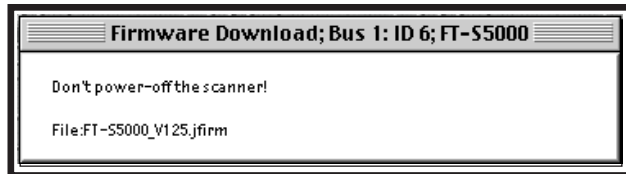
Select "FT-S5000Maintenance" in the "**ColorScope Pro3**" folder and then click "Open".



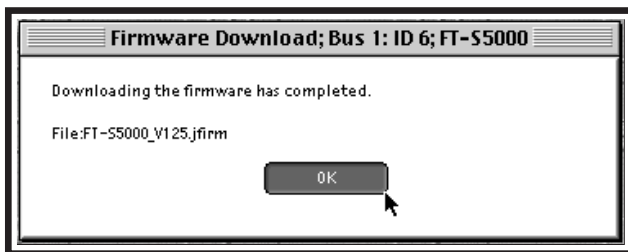
Select "Firmware" in the "FT-S5000Maintenance" folder and click the "Open" button.



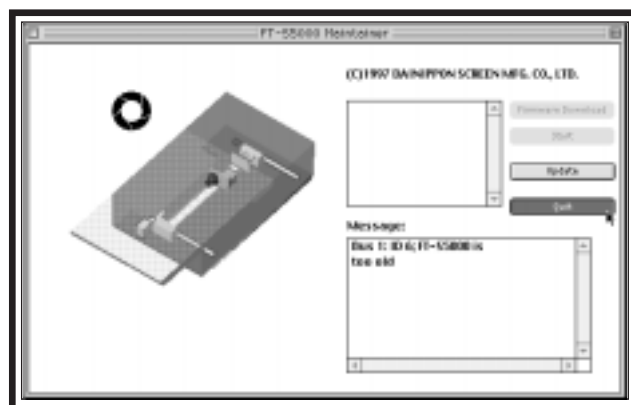
Click the "Download" button.



The downloading is started.



The dialog box that notifies the completion of downloading is displayed. Click the "OK" button.



The FT-S5000Maintainer's initial screen appears.

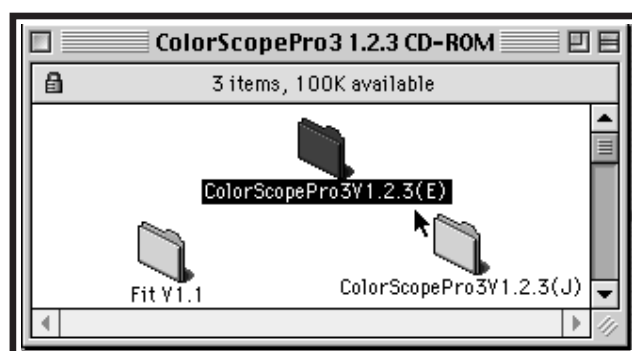
Click the "Quit" button to quit the FT-S5000Maintainer program.

This completes the downloading of the firmware.

5-2 Re-installing ColorScope Pro3



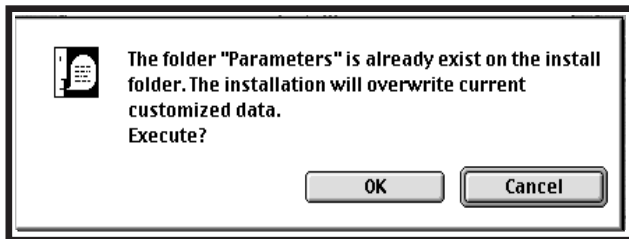
Insert the ColorScope CD-ROM into the computer. Double-click the ColorScope Pro3 CD-ROM icon.



Double-click the ColorScope Pro3 folder.



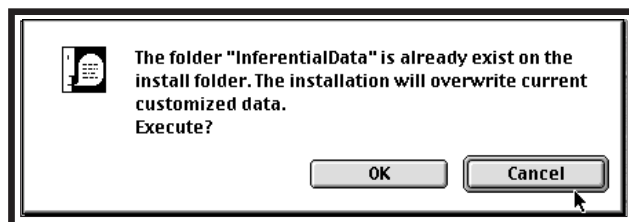
Double-click the Installer and then install ColorScopePro3 in the same manner as ColorGenius was installed with "Easy Install".



Click the "Cancel" button in the dialog box that appears during installation of ColorScopePro3.



Click the "Cancel" button in the dialog box that appears during installation of ColorScopepro3.



Click the "Cancel" button in the dialog box that appears during installation of ColorScopePro3.

This completes the re-installation of ColorScope Pro3.

To initialize the "Preference..." file, launch ColorScope Pro3 while holding down both the Command and Option keys at the same time.

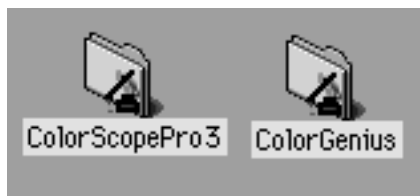
6 *Concerning DotFinder option*

The DotFinder option that has been used with ColorScope Pro3 can also be used with ColorGenius. You do not need to re-install the key file from the floppy disk. It is, therefore, important to note that re-installing the key file may change part of the program to that of ColorScope Pro3, preventing ColorGenius from operating properly.

If the key file has been installed for some reason, you must re-install ColorGenius. Re-installing ColorGenius necessitates the initialization of the "Preferences..." file. To initialize the file, launch ColorGenius while holding down both the Command and Option keys at the same time. When "Preference file is built again." is displayed, click "OK". The DotFinder option works more efficiently when it is used with ColorGenius. The de-screening function (that removes halftones in the separation film and captures images as continuous CMYK images) can also be used.

Various setting files used in ColorScope Pro3, i.e. AI negative setting files, environment parameter files, learn/dict files, profiles, recipes, templates and tones can be easily converted to ColorGenius

Conversion method



Confirm the locations of both the ColorScope Pro3 folder and the ColorGenius folder that has been newly installed.



Double-click the FileConvertTool.



Step 1

The figure on the left shows the initial screen. Click "Skip" on the bottom right.



Step 2

Change the following three settings to those for ColorGenius.

If these three settings were not used in ColorScope Pro3, click "Skip" to go to the next step.

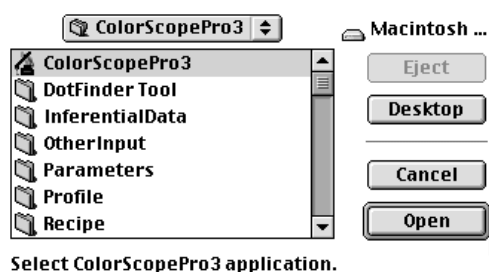
Negative AI film parameter: A negative original separation setting file created by a user with ColorScope
Environment parameter file: A sharpness setting file modified by a user with ColorScopeTool

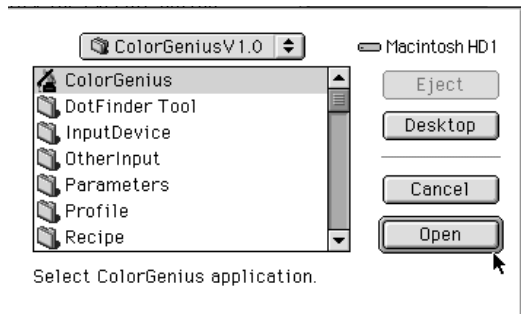
Learn/dict file: A dictionary file expanded with a learning function

Enter the new name to be used in ColorGenius and click "Execute".

Select "ColorScope Pro3" and then click "Open".

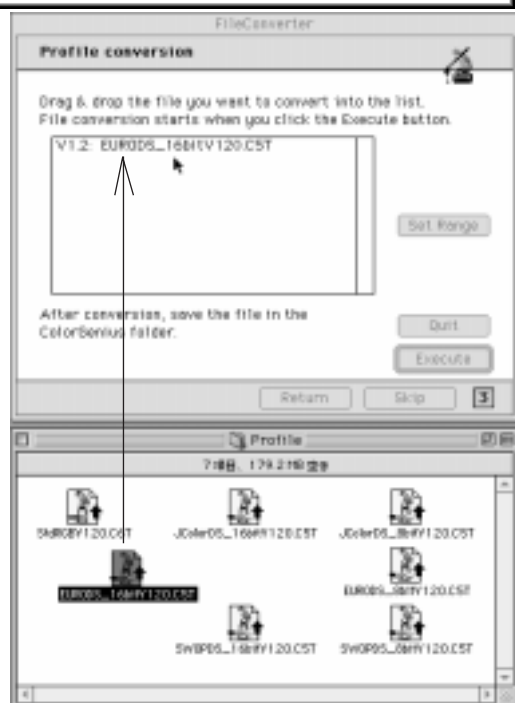
If you click "Skip" in Step 2, this window will not appear. A similar menu selection window will appear in the next step.





Select "ColorGenius" and then "Open".

If you click "Skip" in Step 2, the window on the left will not appear. A similar menu selection window will appear in the next step.

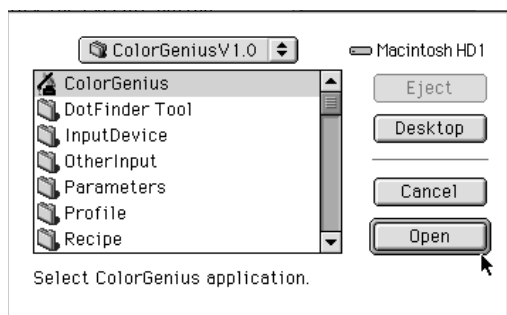


Step 3

Profiles created or modified by a user with ColorScope Pro3 are converted so that they can be used with ColorGenius.

Drag and drop the ColorScope Pro3 profiles to your desired location as shown on the left.

If there are no profiles newly created or modified with ColorScope Pro3, click "Skip" to go to the next step.



Select "ColorGenius" and then click "Open".

If you selected "ColorGenius" in the previous step, the window on the left will not appear.



Step 4

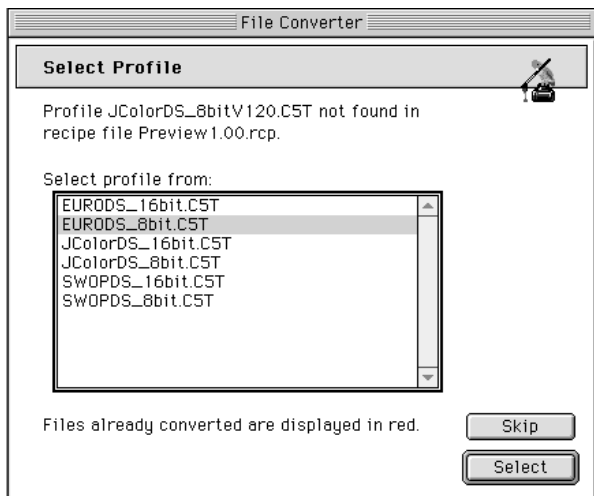
The recipe template files created with ColorScope Pro3 are converted so that they can be used with ColorGenius. Drag and drop the recipe templates you wish to modify to the window.

Caution:

The recipe templates are converted within the same folder. The previous files are given the extension code ".bk" and stored. Move the converted recipe templates to a folder (recipe folder) in ColorGenius as necessary.

ABC. tmpl.bk <- This file was used in ColorScope Pro3.

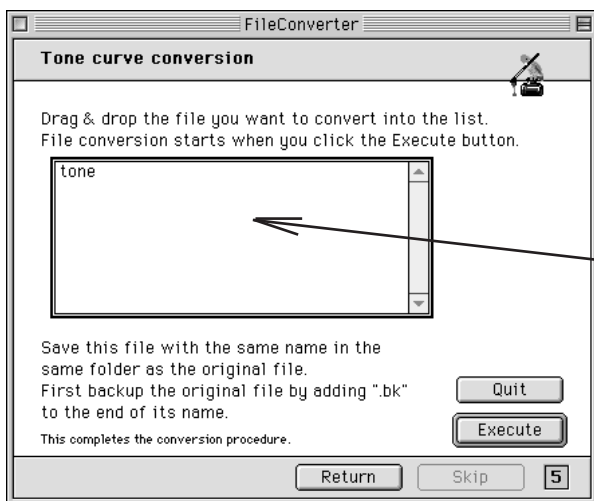
ABC. tmpl <- This file has been converted to a ColorGenius file.



Create a default profile with the converted recipe template. Use a default profile which is frequently used. If you click "Skip" in Step 4, the window on the left will not appear.

Caution:

The processing results of ColorGenius may occasionally be slightly different from those of ColorScope Pro3, even when the same recipe is used.



Step 5

Drag and drop the (manual setting) tone curves created in ColorScope Pro3 within the frame (shown on the left) to convert them to a ColorGenius compatible format.

Caution:

The tone curves are converted within the same folder. The previous files are given the extension code ".bk" and stored. Move the converted tone curves to a folder within ColorScope as necessary.

ABC.bk <- This file was used in ColorScope Pro3.
ABC <- This file has been converted to a ColorGenius file.

This completes the conversion of the various setting files.

Cautions concerning finished quality

We are continually striving to improve the color separation quality. Therefore, a slight quality difference can be observed between ColorScope Pro3 and ColorGenius. If you perform the following adjustment, nearly the same image quality can be obtained.

Positivefilm : CMY tones HS+1%, MS+1%, SS+1%

K tone HS+2%, MS+2%, SS+2%

Photographs: Increase the "Hden" of the AI function by "+1".

Negative film/printed material: No adjustment is necessary.

Water color: Quality has been further improved by modifying the AI parameters and profiles.

Desktop Flatbed Scanner

FT-S5000

Service Manual

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