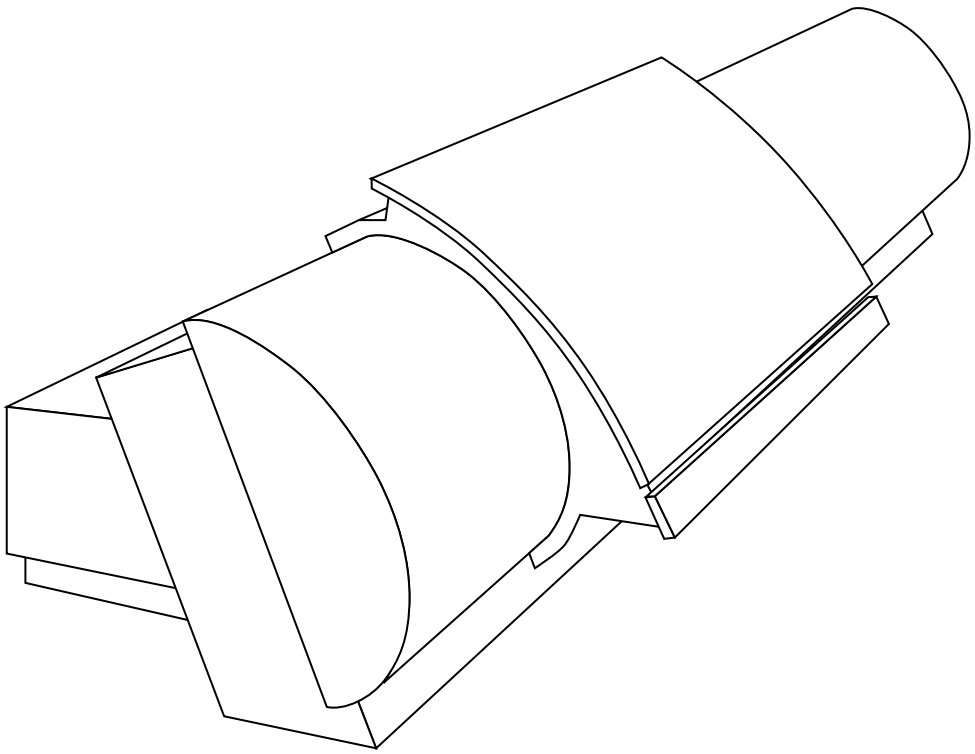
SCANVIEW

ScanMate 11000



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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment is supplied with a shielded cable. It must be operated with a shielded cable in order to meet FCC Class A emission limits.

This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference, to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.

Manual edition: 3 PN 732-25-008-03
Software versions:
Macintosh Plug-in: V 2.1.9
Mac MultiMate: V 3.0.2 with scanproc 3.2.4
Mac Drum Cleaning: V 2.0.7
PC Plug-ins: V 2.1.6
PC multiMate: V 3.0.3 with scanproc 3.2.1

TABLE OF CONTENTS

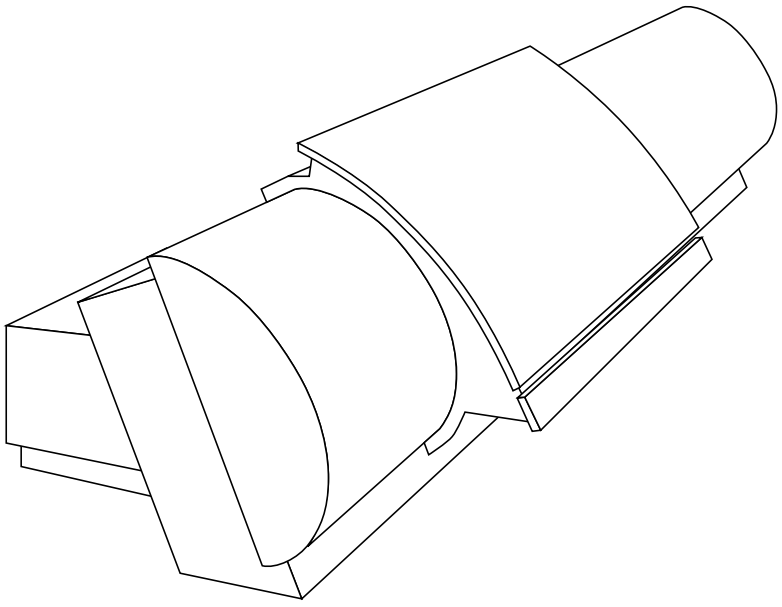
Contents

About the Service Manual

This manual serves as a technical service and maintenance manual for the ScanMate 11000. Its purpose, linked with the technical training courses provided by ScanView, aim to give the the service engineer the in-depth knowledge of the function and construction of the ScanMate 11000 and the skills necessary to perform repair and maintenance operations.

About the ScanMate 11000

The ScanMate 11000 is a single-pass, ultra high resolution scanner utilizing three PMT sensors. It can scan images up to 222 x 303mm in both A4 and B4 formats with a scanning resolution from 50 to 11,000 dpi which allows for enlarging originals to as much as 3600%.



Service Manual Revision System

Revisions to this manual will show the most recent revision number and date issued on the bottom of each page. Each section will show the latest revision of the contents of that section. A master revision list showing the revision status of each section is shown below

To assist in the identification of which part of the new section has been revised, a vertical line on the left hand side of the affected page or pages will define the area of revised text. Additionally, the cover letter sent with the manual revision will name the revised page or pages.

For ease of reference, Service Manuals will have their own edition number; a number which will be the number of the **latest** section edition.

Revision List

	Edition	Date
Section 1 • General Information	3	December 1996
Section 2 • Installation	1	September 1995
Section 3 • Service program	1	September 1995
Section 4 • Part replacement	3	December 1996
Section 5 • Adjustments and testing	2	February 1996
Section 6 • Cleaning and maintenance	1	September 1995
Section 7 • Diagrams and layouts	1	September 1995
Section 8 • Trouble shooting	1	September 1995
Section 9 • Not allocated		
Section 10 • Parts list and spare parts policy	3	September 1997

Physical Specifications

Data interface:	Standard SCSI to Macintosh or PC
Dimensions (WxHxD):	1000 x 300 x 500 (39 x 12 x 20)
Weight:	49 kg. (108 lbs)
Power consumption:	250 W
Power supply:	50 - 60 Hz, 100-240 V switching power supply
Fuse:	6.3 amp fast

General Cautions

Caution!

- Turn off power — **Before** connecting or disconnecting SCSI cables. **Before** carrying out service or adjustment operations.
- Do not turn on power if the Control board is fitted and the Driver board is not.
- When starting up, always turn on the SCSI units first (including the scanner) and the computer last.
- When handling, always lift the ScanMate 11000 by its base.
- Do not obstruct the ventilation intakes on the rear of the scanner.
- The drum must be handled with extreme care to avoid scratches. Use only non-abrasive repro wipes and graphic arts drum cleaner to clean the drum.
- The ScanMate 11000 is class 1 electrical equipment and must be connected to a single phase mains outlet with a protective ground (earth). Never connect the scanner to the mains without a protective ground. **Note:** the ScanMate 11000 automatically adjusts to the local voltage.
- Always test **White calibration** (section 5•5), **Focus calibration** section 5•4), **Register error** (section 5•11 and **Noise in shadow** (section 5•12) after every part replacement and service operation.
- When returning the exchange printed circuit board (PCB), please use the anti-static bag that your new PCB was packed in.

Thumb Wheel Definitions

The thumb wheel, located on the back panel of the ScanMate 11000, sets the SCSI ID number and enters the service mode. The addresses are defined as follow:

0 Service mode SCSI address 2
1 SCSI address 1
2 SCSI address 2
3 SCSI address 3
4 SCSI address 4
5 SCSI address 5
6 SCSI address 6
7 Service mode SCSI address 2
8 Service mode SCSI address 3
9 Service mode SCSI address 4

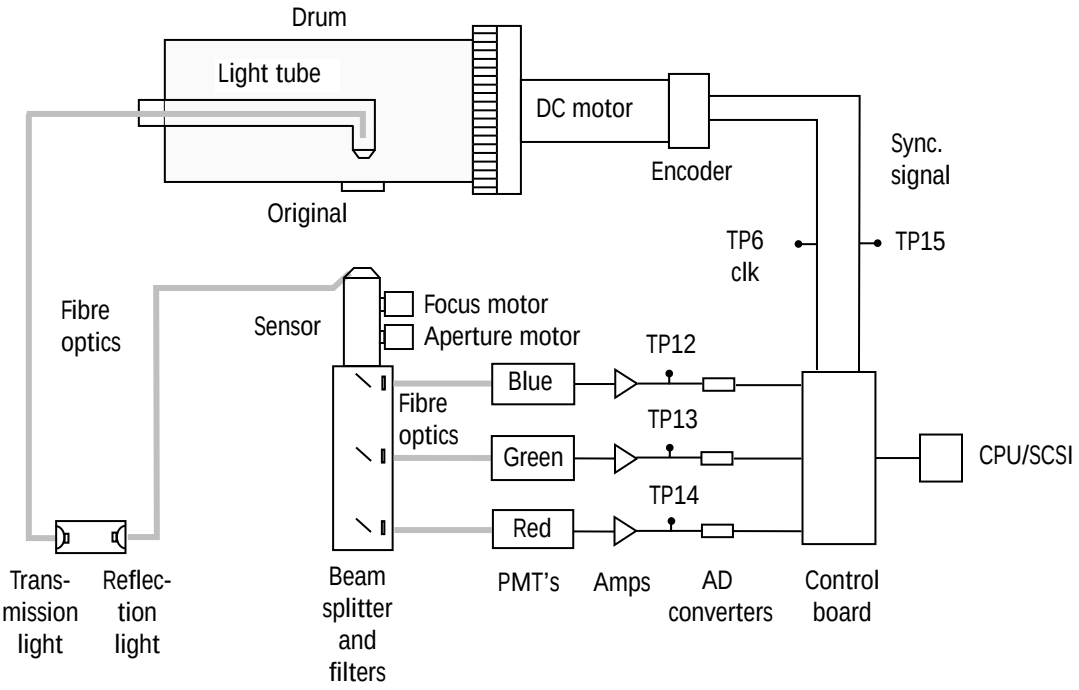
Fuse Values

Back plane		Voltage	Driver board	
Fuse	**Value**		**LED**	**Test point**
F2	1A	+15V	D8	TP19
F3	1A	- 15V	D11	TP20
F4	5A	+24V	D10	TP26
F5	3.15A	+ 5V	D7	
		+ 5V analogue	D9	TP18
		- 5V analogue	D12	TP17

Control board		Voltage
Fuse	**Value**	
F1	1A	+5V for SCSI controller

Refer to section 7•8 for location of the fuses on the back plane and 7•5 for location on the control board.

Optical System Block Diagram



Standard Equipment Required

Voltmeter
20 MHz oscilloscope, 2 channels, probes

Service Kit

1	C spanner for light tube adjustment
1	Allen key set
1	3 mm T-handle allen key
1	ScanView liquid drum polish including one cloth
1	ScanView anti-static cloth
2	ScanView grease for spindle (1 x 3g. tube)
1	ScanView grease for shaft (1 x 3 g. tube)
1	ScanView Monitor program. (3.5” 1.44 MB disc)
1	2 m. RS232 cable for PC to Scanner communication
1	2 m. RS232 cable for Mac to Scanner communication
1	9 to 25 pin converter
2	ScanView focus target, (focus adjust original)
1	UGRA offset test target
1	ScanView 11000 service manual
1	Extension board
1	White calibration target
1	Scanproc disc

Error Reporting

The aim of the Error Report is to give ScanView A/S a standard error reporting medium where all the necessary information is given to Scan-View’s Support Department to enable the assessment of defects to be made in a rational and effective way.

A master copy of this error report is shown on page 1•11 and should be used to take all the necessary copies.

Of particular importance, is the allocation of a CRN (Confirmation of Return Number). This number is obtained by contacting ScanView (Support departments hot-line, telefaxing or using the BBS) and **must** be included on all error reports. Exchange parts **must** be returned to

ScanView within 3 weeks of the invoice date.

In addition to the error report, we also ask for a Software Report for both scanner/Mac and scanner/PC to be completed. This will assist our support department in isolating software problems and speed up down time on your equipment. A copy of these reports can be found on pages 1•13 and 1•15 respectively and should be used to take all the necessary copies.

SCANMATE ERROR REPORT

ScanView dealer: _____

Contact person: _____ Date: _____

ScanMate Ser. no. _____ Hardware problem: ___ Software problem: ___

Module part no. _____ Spare part Ser. no. _____ SIF number _____

Hardware problem: Mechanical ___ Controller ____ Power supply _____ PMT ____ _____

Sensor unit _____ Light source _____ Communication _____ Other _____

Action taken to correct error.

White calibration succeeded? _____ If no, please attach calibration log with this report

Equipment exchanged to correct error? _____ What was changed _____

_____ Checked for loose cables? _____ Adjusted focus? _____

Adjusted light transmission? _____ Adjusted PMT? _____

Description of the error:

(If scanning is possible, please supply an RGB image indicating the problem - preferably on diskette)

ScanMate software version: _____ Calibrated when cold _____

System Configuration: _____

(This block for ScanView use)

Description:

Warranty ___ **Warranty exchange** ____ **Service** _____ **Service exchange** _____

CRN _____

SCANMATE SOFTWARE REPORT (SCANNER/MAC)

ScanView dealer: _____

Contact person: _____ Date: _____

Error description:

Last action taken before error.

Scanner serial number _____ Equipment - Mac type _____
Rocket card? Yes __ No __

Operating system: _____ Version _____

ScanView software: _____ Version _____
Version _____
Version _____
Version _____

Memory assigned: _____ System _____ MB
ScanProc _____ MB
SepProc _____ MB
ColorQuartet _____ MB
Photoshop _____ MB
Free _____ MB
Total available memory: _____ MB
Other devices on the same SCSI: _____

Is it possible to reproduce the error? _____ Resolution _____ dpi
Material supplied as documentation on: Film _____
SyQuest _____
Diskette _____
Proof _____
Other _____

Remarks:

SCANMATE SOFTWARE REPORT (SCANNER/ PC)

ScanView dealer: _____

Contact person: _____ Date: _____

Error description:

Last action taken before error.

Scanner ser. no. _____
Equipment - PC type: ISA ( ), EISA ( ), PCI ( ), or Vesa LB ( )
SCSI adaptor type: _____
RAM: _____ MB
Video card: _____ MB
Available hard diskspace: _____ MB

Operating system: _____ Version _____
Windows type: _____ Version _____
Apidriver _____ Version _____

ScanView software: _____ Version _____
Version _____
Other software: _____ Version _____
Network software: _____
Other devices on the same SCSI: _____

Windows memory: _____ MB
Windows resources (system) _____ %

Is it possible to reproduce the error? _____ Resolution _____ dpi
Material supplied as documentation on: Film _____
SyQuest _____
Diskette _____
Proof _____
Other _____

Remarks:

2 • INSTALLATION

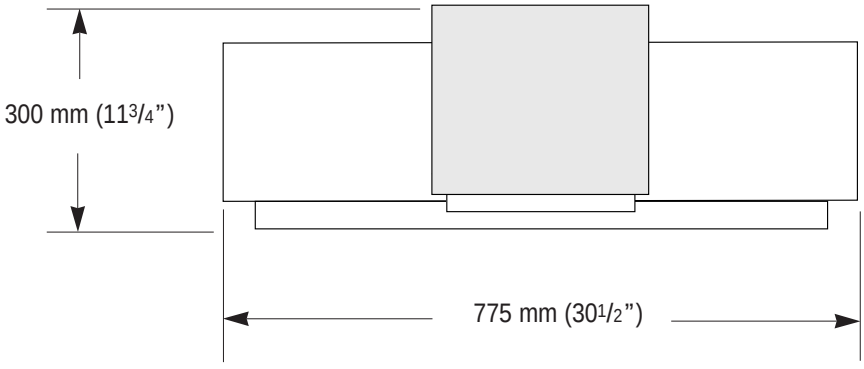
Pre-installation Requirements

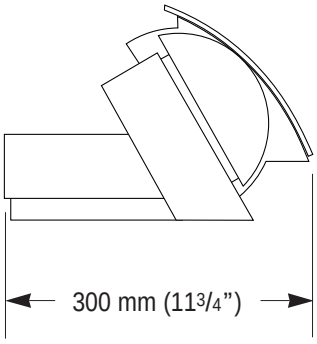
The following mains installations are required:

Electrical wall outlet: 100-240 VAC, 50-60 Hz

Caution! ☛ The ScanMate 11000 is Class 1 electrical equipment. For personal safety it must be connected to a single phase mains outlet with a protective ground, (earth) in accordance with national and local regulations.

ScanMate 11000 Dimensions





Unpacking and installation

Caution! ☛ Turn off power **before** connecting or disconnecting SCSI cables.

1 • Check the Tip-N-Tell and Shockwatch indicators on the container before unpacking.
Note: if the indicators show that the container has been subject to mishandling or has been tipped, note this on the Bill of Lading and contact your freight forwarder.

2 • Lift the Scanner out of its container by the base only.
Note: damage will occur to the scanner if it is lifted by the drum.

3 • Place on a firm surface (avoid obstructing the ventilation ducts at the rear of the scanner).

4 • Continue with hardware installation by refering to section 1 in the ScanMate 11000 Operators Manual.

5 • Perform a white calibration in transmission and reflection by refering to section 5•5.

6 • Perform a focus calibration by refering to section 5•4.

ScanMate 11000 monitor program

This section describes the use of the ScanMate monitor program which is used to service and trouble shoot the ScanMate 11000 and gives access to all the internal hardware without any further use of software.

Hardware requirements.

To use the ScanMate monitor program, the following are required:

- A Mac computer with a serial communication program (Quicklink or compatible software - refer to page 3•5 for set-up).
- An IBM-PC or 100% compatible computer, running MS-DOS version 2.11 or later and equipped with at least one free RS232 port.
- A disk with the ScanMate monitor program, normally supplied on 3.5” disks.
- A ScanMate monitor program cable for Mac and PC, (if the IBM PC is equiped with a 25 pole RS232 port, a 9 to 25 pole RS232 converter is required).

Although the ScanMate monitor program is a terminal program, receiving and transmitting characters on the RS232 interface without handshake, it is possible to use other communication programs to interface to the ScanView scanner, for example, Windows terminal .

The monitor program controls the RS232 hardware directly and therefore overrides the BIOS. The monitor program uses the interrupts to the RS232 interface. The program uses either COM1 or COM2 on the IBM-PC computer and are assumed to be located on I/O address:

COM1 I/O address: 03F8h and connected to IRQ 4
COM2 I/O address: 02F8h and connected to IRQ 3

Start-up

Turn off both the ScanMate 11000 and the IBM PC (or compatible) and set the thumb wheel to number 7, 8 or 9 (7 = SCSI address 2, 8 = SCSI address 3 and 9 = SCSI address 4). Turn on the IBM PC (or compatible) and insert the supplied disk with the ScanMate monitor program into the disk drive of the IBM PC (or compatible). The monitor program can

be copied to the hard disk by typing:

```
C:
CD\
MD SCANMATE
CD SCANMATE
COPY A:\SCANMATE.EXE
```

Now go to the appropriate directory:

```
C:
CD \SCANMATE
```

Run the monitor program by typing:

```
SCANMATE /5000
```

If COM2 is used, type:

```
SCANMATE /5000  /2
```

The following will now be shown on the screen:

```
*******************************************
*       9600 Baud communication utility     *
*       Version 1.0.2.                      *
*       <F3> for logfile                    *
*       <F10> for Exit                      *
*******************************************

COM 1 is used
```

`9600 Baud communication utility`: indicates that the program is actually just a communication utility showing the baud rate.
`Version 1.0.2`: is the version number of the monitor program.
`<F3> for logfile`: to create a logfile that contains a transcript of all communication between the scanner and the monitor program, press **F3**. The monitor program then asks for a file name for the log file. Enter a file name, for instance **scanmate.log** , and press **Enter**. All that is written to the screen is also written to the file. To stop the monitor program from logging data, press **F3** again.
`<F10> for exit`: quits the program. Press **F10** and the DOS prompt is shown again.
Note: always remember to terminate the log file mode before the monitor program is terminated, otherwise the content of the log file will not be correct.
To view the log file, press **F10** to exit the monitor program and use an ASCII editor (for instance EDIT) to examine the log file after a session.

Using the monitor program.

The protocol is 9600 baud, 8 data bits, 1 stop bit, and no parity.
Use a Mac or PC cable (depending on your equipment), which are supplied in the service kit.
Terminate the SCSI connector and check that the thumb wheel is set, for example to number 8 (SCSI address 3).
Note: DO NOT connect or disconnect SCSI with power on.
Start the Mac or the PC in communication mode and turn on the ScanMate 11000.

If you will start your PC monitor program from a disk, type:

```
Scanmate /5000.
```

The following will now scroll over the screen:

```
Hello World
Preboot area found
00FF
HW init requested
0B0B
EEPROM
Ram tests done, all is OK
Hello World.
Now we enter the main function.
The slave is reset
Getting the identity
PCB064 PowerCpu code version 1.0
Downloading 6443 bytes
Sending the program ......................
Done
Motherboard number is  : XXX
My ID is X
Prom version is XX.XX

This is a Scanmate 11000, with ID : Prom code for ScanView Scanner
ScanMate 11000 version 1.00

Commands available are :
1) Move the drum Z/P/L/.
2) Adjust PMT gain
3) Set focus position to zero
4) Choose aperture
5) Adjust gain constants
7) Check transmission focus
9) Calibrate apertures
0) Toggle lamps
C) Shield test
M) Adjust drum motor
```

```
K) Adjust drum zero position
S) Turn on SCSI
T) Rotate drum
D) Test the barcode circuit
F) Enter focus value manually
J) Check switches
Z) Find focus automatically
*) Show scanner options
?) Show this help menu
```

Move the drum - Z/P/L/. (1)

This command facility is used to adjust the speed, direction and to lock the drum.

Select **1** to choose **Z/P/L/.** and the following message will appear:

```
>> Which position is wanted (Z/P/L/.)
```

Z : sets the drum in the **Zero** position (fully right)
P : sets the drum in the **Park** position (fully left)
L : sets the drum to the lock position
. : further changes the drum position parameters. Key in and select from the following choices shown on the screen:

```
1 : stop drum.
2 : start drum.
3 : drum left.
4 : drum right.
5 : slow down drum.
6 : speed up drum.
7 : Current down.
8 : Current up.
0 : drum to park position.
9 : drum to zero position.
q : utility end.
```

Adjust PMT gain (2)

This command facility is used to adjust the PMT gain constants to a value suitable for software fine tuning.

Select **2** to enter the **Adjust PMT Gain** menu and the following will be shown:

```
>> Routine for set of PMT gain.
What aperture should be used <0..9>:
1 : gain  down
```

```
2 : gain up
q : done .
```

Selecting **1**, **gain down** or **2**, **gain up** will change the red, grey/green and blue gains individually.
Note 1: 0 = minimum gain and 255 = maximum gain.
Note 2: it will be necessary to press **q** after each gain adjustment before the next one is available.

The following will be shown with each selection:

```
Red gain:
Gain is now X
Gray/Green gain:
Gain is now X
Blue gain:
Gain is now X
```

After the blue gain has been set, press **q** and the following will be shown:

```
Programming voltage status : 0
It is programmed, with return code 0
```

Set focus position to zero (3)

This command facility is used to set the focus to zero.

Select **3** to enter the **set focus position to zero** and the focus will automatically set to zero.

Choose aperture (4)

This command facility is used to choose the aperture required. When selected the scanner will toggle between the transmission and reflection apertures.

Select **4** to enter the **Choose Aperture** menu and the following will be shown:

```
>> Which aperture should be selected <0-9)
Searching for aperture X
Seeking aperture X at position XXX
Done
Aperture X found
```

Adjust gain constants (5)

This command facility is used to adjust gain constants manually.
Select **5** to enter the **Adjust gain constants** menu and the following will be shown:

```
>> Routine for set of PMT gain.
What aperture should be used <0..9>:
1 : gain  down
2 : gain up
q : done
```

Selecting **1**, **gain down** or **2**, **gain up** will change the red, grey/green and blue gains individually.
Note 1: 0 = minimum gain and 255 = maximum gain.
Note 2: it will be necessary to press **q** after each gain adjustment before the next one is available.

The following will be shown with each selection:

```
Red gain:
Gain is now X
Gray/Green gain:
Gain is now X
Blue gain:
Gain is now X
```

After the blue gain has been set, press **q** and the following will be shown:

```
Programming voltage status : 0
It is programmed, with return code 0
```

Check transmission focus (7)

This command faclility is used to check the value of the transmission focus.

Select **7** to enter the **Check transmission focus** menu and the following will be shown:

```
Waiting for drum to spin up.
Seeking aperture 1 at position XX.
Done.
Got drum number XXX, and diameter XXX
Used trans. barcode index :   XX
Focus value : XXX (displacement : 0)
Press any key to terminate
```

Calibrate apertures (9)

This command faclility is used to calibrate the aperture.

Select **9** to enter the **calibrate apertures** menu and the following will be shown:

```
>> Now we find the aperture positions.
Waiting for drum to settle, with integrator enabled.
Drum speed is ok.
Focus value : XXXX (displacement : 0)
Filling palette 0
Filling palette 1
Filling palette 2
Filling palette 3
Waiting for focus
Focus position found.
Seeking aperture zero
Done
Now we calibrate the aperture position
.....................................................
.....................................................
Black level is X, search for XX
Aperture position calibrated to position XXX (F/S : XX, XXX).
Programming voltage status : 0
It is programmed, with return code 0
Apertures found ok
Disable PMT
Start drum
The drum is started
Lamp off
Stop drum rotation
Seeking aperture zero
Done
Seek park
Drum rotation off
Scan terminated
```

Toggle lamps (0)

This command faclility is used to toggle the transmission and reflection lamps and the fluorescent light tube.

Select **0** to enter the **toggle lamps** menu and the following will be shown:

```
>> Transmission lamp is set ON
```

Select **0** again and the following will be shown:

```
>> Reflection lamp is set ON
```

Select **0** again and the following will be shown:

```
>> Light tube is set ON
```

Select **0** again and the following will be shown:

```
>> Lamps are set OFF
```

Shield test (C)

This command faclility is used to check the operation of the motorized shield.

Select **C** to enter the **Shield test** menu and the following will be shown:

```
>> Testing the shield, press any key to terminate.
Done
```

Adjust drum motor (M)

This command facility is a software adjustment of the sync. pulse of the DC motor.

Select **M** to enter the **Adjust drum motor** menu and the following will be shown:

```
>> Waiting for the drum to settle, with integrator enabled.
Filling palette 0
Filling palette 1
Filling palette 2
Filling palette 3
Index line pos: XXX
Done.
```

Index line pos: must be between 225 and 275.

Adjust drum zero position (K)

This command facility is used to adjust the drum zero point.
Note: it is essential that the drum is clean and empty before this command is carried out.

Select **K** to enter the **Drum zero position** menu and the following will be shown:

```
Now we set the drum zero position.
Waiting for drum to settle, with integrator enabled.
Filling palette 0
Filling palette 1
Filling palette 2
Filling palette 3
Seeking aperture 2 at position 281
Done.
..............Index line detected.
The drum index offset found was 234
Now we set the spindle zero position.
Filling palette 0
Filling palette 1
Filling palette 2
Filling palette 3
.....Spindle line detected.
The spindle index offset found was 17120
It is programmed, with return code 0.
Disable PMT
Start Spindle
The spindle is started.
Lamp off
Stop drum
Seeking aperture zero
Done.
Seek park
Spindle rotation off
Scan terminated
```

Turn on SCSI (S)

This command faclility is used to turn on the SCSI interface and when activated, the scanner can be controlled from and scan into, the Macintosh or IBM PC through the interface.

When the command is executed, the only way to return to the monitor program mode is to turn the ScanMate 11000 off and then on again.

Select **S** to enter the **Turn on SCSI** menu and the following will be shown:

```
>> The scanner waits for a command
```

The scanner is now in the SCSI mode. To return to the service mode and main menu, turn off the scanner and turn on again.

Rotate drum (T)

This command faclility is used to select the required drum speed.

Select **T** to enter the **Rotate drum** menu and the following will be shown:

```
>> Enter required drum speed in rpm.
```

Press **Enter**.

To stop the drum after the drum speed has been entered, select **T**, then **0** and enter.

Test the barcode circuit (D)

This command facility is used to test the barcode reader.

Select **D** to enter the **Test the barcoded circuit** menu and the following will be shown:

```
>> Barcode identity: XXXX-XXXX version XX.X
Press any key to terminate
```

Enter focus value manually (F)

This command facility is used to allow the operator to manually enter the focus value.

Select **F** to enter the **Enter focus value manually** menu and the following will be shown:

```
>> Is it for transmission or reflection <T/R>:
```

In both sub-menus, **T** (transmission) and **R** (reflection) selection parameters are the same, therefore only **T** will be shown below.

Select **T** to enter the transmission menu and the following sub-menu will be shown:

```
What to change <B/D>:
```

Select **B** to enter the barcode index sub-menu and the following will be shown:

```
Which barcode index to change <0..9>:
Enter new focus value (0 for remove):
```

Press **Enter** and the following will appear:

```
It is programmed with return code 0
```

Select **D**, to enter the drum selection menu and the following sub-menu will be shown:

```
Which drum to change <0..9>:
Enter the new focus value:
```

Press **Enter** and the following will be shown:

```
Focus position for drum XX is set to 0
It is programmed with return code 0
```

Check switches (J)

This command facility is used to check the status of the switches and is for information purposes only.

Select **J** to enter the **Check switches** menu and the following menu will be shown:

```
Aperture switch is active.
Focus switch is inactive.
Cover switch is inactive.
Left switch is active.
Right switch is inactive.
Lock switch is active.
Lock button is inactive.
Cover button is inactive.
```

Find focus automatically (Z)

This command facility carries out a focus calibration and shows the step value for the focus step motor. Its purpose supplements the focus adjustment (section 5•3) and drum alignment adjustment (section 5•7).

Select **Z** to enter the **Find focus automatically** menu and the following menu will be shown:

```
>> Seeking aperture 1 at position 121
Done
Waiting for drum to settle, with integrator enabled.
```

```
Drum speed is ok.
Start data : 160
Filling palette 0
.............................
Mean, max : 1832.946655 3937.000000
Focus position found : 992
Seeking aperture zero
Done.
Scan terminated
Found focus position : 1984
```

Note: the values shown are an example.

Show scanner options (*)

This command facility is used to show the gain, aperture and focus constants .

Select ***** to enter the **Show scanner options** menu and all the constants will be shown:

```
Aperture no. 0
   Red   PMTGain        : 186
   Green PMTGain        : 190
   Blue  PMTGain        : 213
   Red   Gain           : 110
   Green Gain           : 114
   Blue  Gain           : 107
Aperture no. 1
   Red   PMTGain        : 167
   Green PMTGain        : 171
   Blue  PMTGain        : 191
   Red   Gain           : 111
   Green Gain           : 113
   Blue  Gain           : 104
Aperture no. 2
   Red   PMTGain        : 157
   Green PMTGain        : 160
   Blue  PMTGain        : 179
   Red   Gain           : 109
   Green Gain           : 114
   Blue  Gain           : 104
Aperture no. 3
   Red   PMTGain        : 131
   Green PMTGain        : 135
   Blue  PMTGain        : 149
   Red   Gain           : 109
   Green Gain           : 112
   Blue  Gain           : 104
Aperture no. 4
   Red   PMTGain        : 119
```

```
   Green PMTGain         : 123
   Blue  PMTGain         : 136
   Red   Gain            : 109
   Green Gain            : 110
   Blue  Gain            : 101
Aperture no. 5
   Red   PMTGain         : 105
   Green PMTGain         : 108
   Blue  PMTGain         : 119
   Red   Gain            : 108
   Green Gain            : 114
   Blue  Gain            : 102
Aperture no. 6
   Red   PMTGain         : 163
   Green PMTGain         : 165
   Blue  PMTGain         : 183
   Red   Gain            : 107
   Green Gain            : 109
   Blue  Gain            : 100
Aperture no. 7
   Red   PMTGain         : 144
   Green PMTGain         : 144
   Blue  PMTGain         : 158
   Red   Gain            : 105
   Green Gain            : 109
   Blue  Gain            : 99
Aperture no. 8
   Red   PMTGain         : 132
   Green PMTGain         : 132
   Blue  PMTGain         : 143
   Red   Gain            : 106
   Green Gain            : 108
   Blue  Gain            : 101
Aperture no. 9
   Red   PMTGain         : 124
   Green PMTGain         : 123
   Blue  PMTGain         : 133
   Red   Gain            : 106
   Green Gain            : 111
   Blue  Gain            : 101

Barcode transmission values :
Focus Index, DrumNumber, Dia, Value : 1 480 950 2248
Barcode reflection values :
Focus Index, DrumNumber, Dia, Value : 0 480 950 1400
Standard values :

   Focus Index, TransmissionValue ReflectionValue : 0 0 1500
   Focus Index, TransmissionValue ReflectionValue : 1 1500 1500
   Focus Index, TransmissionValue ReflectionValue : 2 1500 1500
   Focus Index, TransmissionValue ReflectionValue : 3 1500 1500
   Focus Index, TransmissionValue ReflectionValue : 4 1500 1500
```

```
   Focus Index, TransmissionValue ReflectionValue : 5 1500 1500
   Focus Index, TransmissionValue ReflectionValue : 6 1500 1500
   Focus Index, TransmissionValue ReflectionValue : 7 1500 1500
   Focus Index, TransmissionValue ReflectionValue : 8 1500 1500
   Focus Index, TransmissionValue ReflectionValue : 9 1500 1500
Index offset             : 238
SpindleDelta value       : 464504
SpindleOffset value      : 18080
Aperture no. 0 pos.      : 121
Aperture no. 1 pos.      : 281
Aperture no. 2 pos.      : 441
Aperture no. 3 pos.      : 601
Aperture no. 4 pos.      : 761
Aperture no. 5 pos.      : 921
Aperture no. 6 pos.      : 1081
Aperture no. 7 pos.      : 1241
Aperture no. 8 pos.      : 1401
Aperture no. 9 pos.      : 1561
My ID is X
Prom version is 10.01 (SCA04000.A5)
Motherboard number is : 32
```

Index offset: is the distance between the sync and zeroline on the drum.
SpindelDelta value: is the distance between the park and zero switch.
SpindelOffset value: is the distance between the zero switch and zero line.
Aperture no. X pos. : shows the positions of the apertures. The position of aperture no. 0 is between 90 and 200.
My ID is X: Is the SCSI ID.
Prom version is 10.01 (SCA01000.A11): is the Firmware version.
Motherboard number is : 32. is the Control board number.

General

Removal and Assembly

Access Panels

Covers and panels

A Lamp cover 670 270 0350
B Back cover
C Front cover new 960 280 0070 exc 960 281 0070
D Main cover

Tools required

3 mm allen key for front and back cover mounting screws
4 mm allen key for main cover mounting screws
5 mm allen key for power supply module mounting screw

Caution! ☞ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Access Panels

How to remove

1 • **Lamp panel A** is secured by two quick release fasteners which can be opened with a screwdriver, coin or other suitable tool.

2 • **Back cover B** is secured by three 4 mm allen screws along the back edge and held in place at the front by two lugs. First disconnect the SCSI connectors and then remove the three screws, loosen the 6 mm allen screw securing the rear of the power supply module and slide the module to the left (looking from the back of the ScanMate). Lift the cover up at the front so that the two lugs are clear of the frame and lift the cover away.
Note: the power supply module is moved to the left so that the cover does not catch on the main switch while it is being removed.

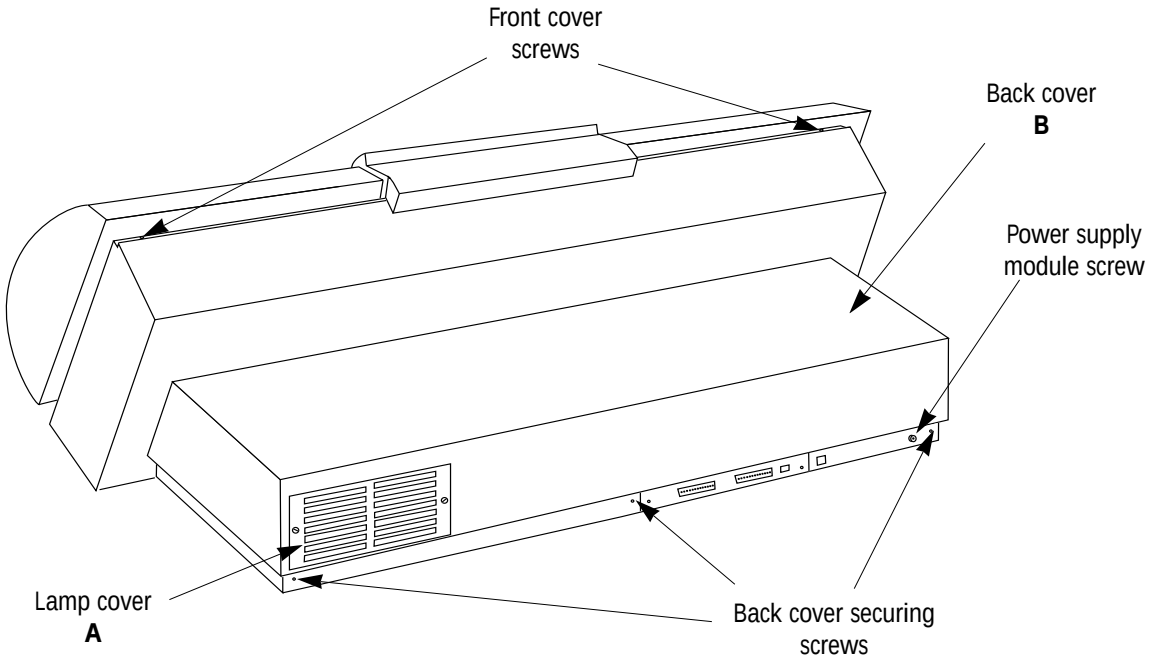
3 • **Front cover C** is secured by two 4 mm allen screws and 3 retaining studs. Remove the two allen screws, slide the cover to the left to clear the studs (looking from the front of the ScanMate), lift the cover partly away and disconnect the flat cable connector before completely removing the cover.

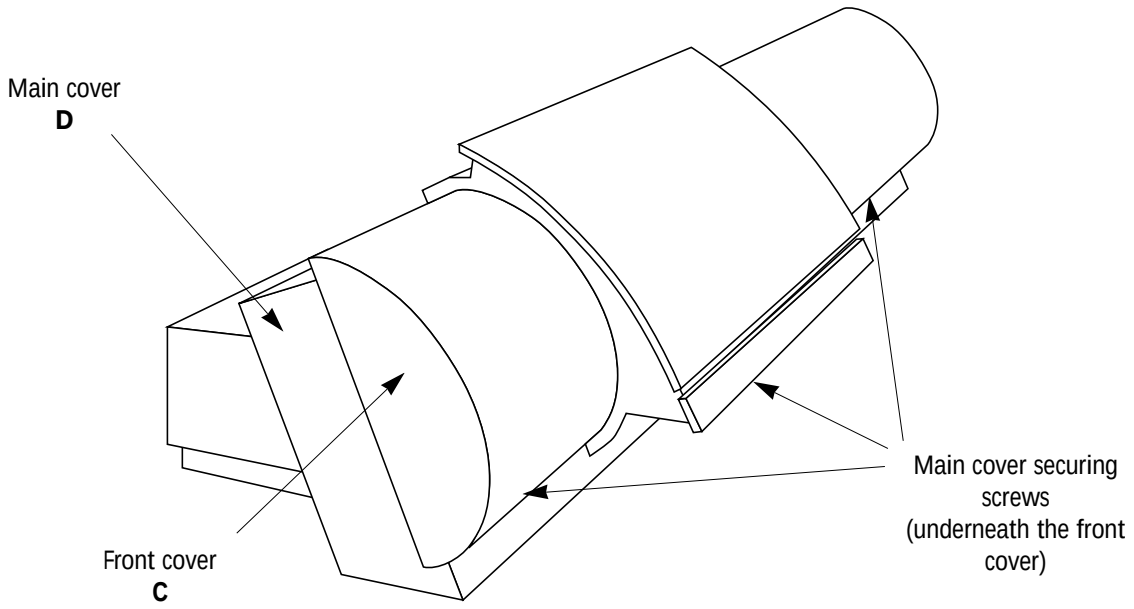
4 • **Main cover D** is secured by three 5 mm allen screws along the front lower edge of the main frame. First remove the front cover **C** (step 3) and then the fluorescent light assembly by sliding it to the left to clear two retaining studs and disconnect the four pin connector to the light. Remove the three 5 mm allen screws securing the main cover and carefully lift the cover up and away.

How to replace

5 • Refitment of the covers and panels are carried out in the reverse order to that of removal.
Note: remember to reposition the power supply module and tighten the 6 mm allen screw after fitment of the back cover **B**.

Access Panels





PN 920 20 000 50 Transmission and Reflection Lamps

Function

The transmission and reflection lamps are the source of light when scanning originals.

Light from the transmission lamp is transmitted through a fibre optics cable to the light tube.

Light from the reflection lamp is transmitted through a fibre optics cable to the sensor module.

Technical data

Halogen projector lamps 12V, 75W

Tools and materials required

Screwdriver, coin or other suitable tool for the access panel

Caution!

☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

☛ The lamps will be very hot if the scanner has been running, therefore take care when removing.

Transmission and Reflection Lamps

How to replace

Removal

1 • Remove the lamp cover **A** by releasing the two quick release screws.
2 • The lamp holder is retained in place by the lamp cover **A** and can be lifted out of its compartment by gently pulling to the rear.
Note: when lifting the holder away, be careful not to disconnect any leads.
3 • Release the clip on the lamp to be replaced and lift it away from its connection.
Note: the transmission lamp is on the left, viewed from the back of the scanner and the reflection lamp on the right.

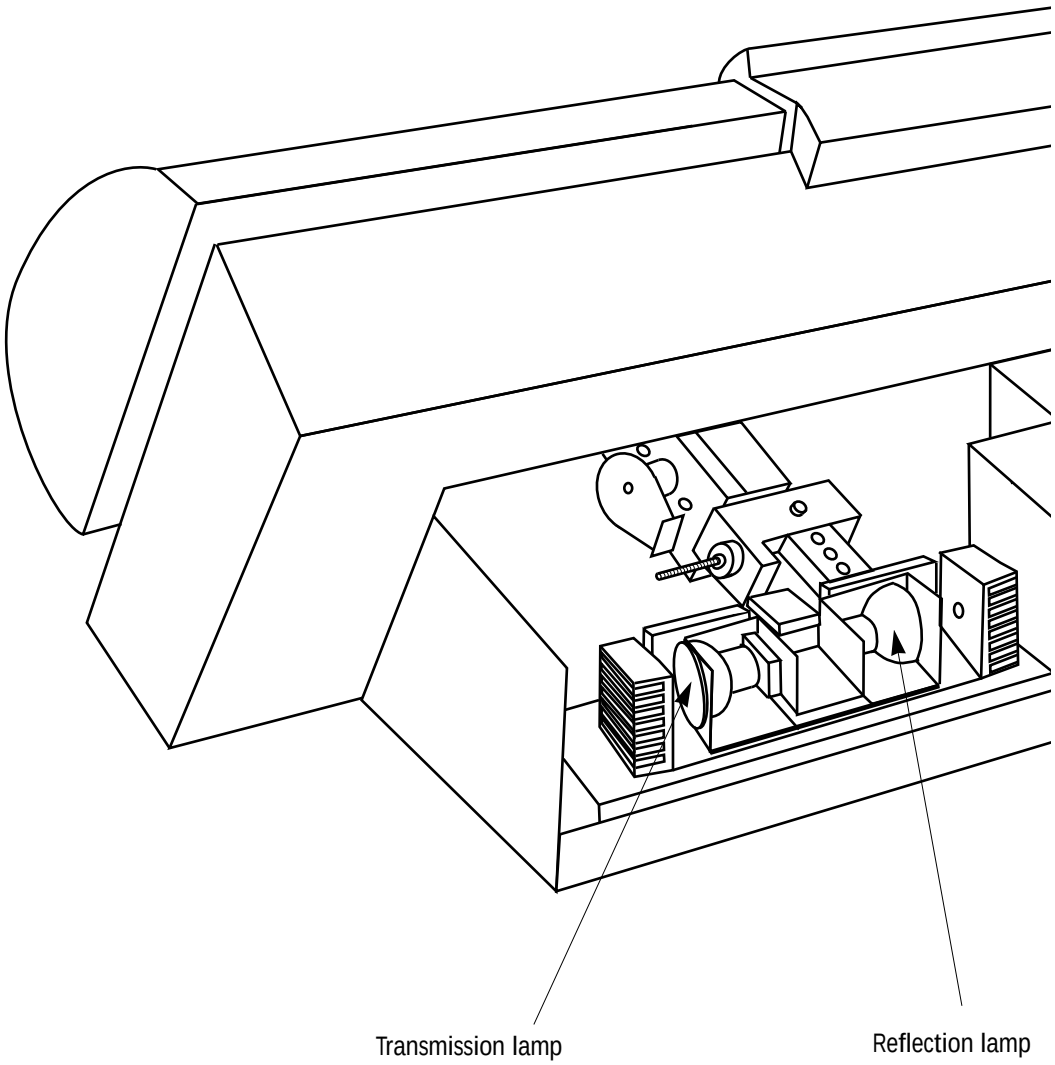
Assembly

4 • Insert a new lamp, or lamps and clip the lamp retaining clip back into place.
5 • Push the lamp holder back into its compartment ensuring that the leads are not trapped and are away from the bulbs.
6 • Carry out the adjustment operations specified below.
7 • Refit the lamp cover **A** and secure the two quick release screws.

Adjustments and tests required

White calibration in transmission and reflection (section 5•5).

Transmission and Reflection Lamps



Sensor Module

PN 960 28 000 10 New
PN 960 28 100 10 Exchange

Function

Transforms light from the scans and separates the beam into RGB light.

Technical data

Tools and materials required

1.5 mm allen key for fibre optic cables set screws
2.5 mm allen key for access panels
3 mm allen key for beam splitter mounting screw and back/front covers
3 mm allen key for sensor mounting bracket screws

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Sensor Module

How to replace

Removal

1 • Remove the back cover **B** and front cover **C** (section 4•2 steps 2 and 3).
2 • Loosen the 3 mm set screw **A** retaining the reflection optics holder over the lens of the sensor and remove the holder.
3 • Disconnect the following connectors:
8 pin connector to the focus motor
6 pin to the aperture motor
2 pin to the focus zero switch
2 pin to the aperture zero switch
4 • Loosen the 4 mm allen screw **B** securing the beam splitter to the sensor and rotate the beam splitter counter-clockwise until there is access to the three 3 mm set screws securing the three RGB fibre optic cables to the beam splitter. Loosen the set screws and remove the three cables.
Note: mark the cables as necessary to ensure correct refitment.
5 • Slide the beam splitter towards the rear and carefully lift it away.
6 • Remove the four 4 mm allen screws **C** securing the sensor to the main-frame of the scanner and carefully remove the sensor module.

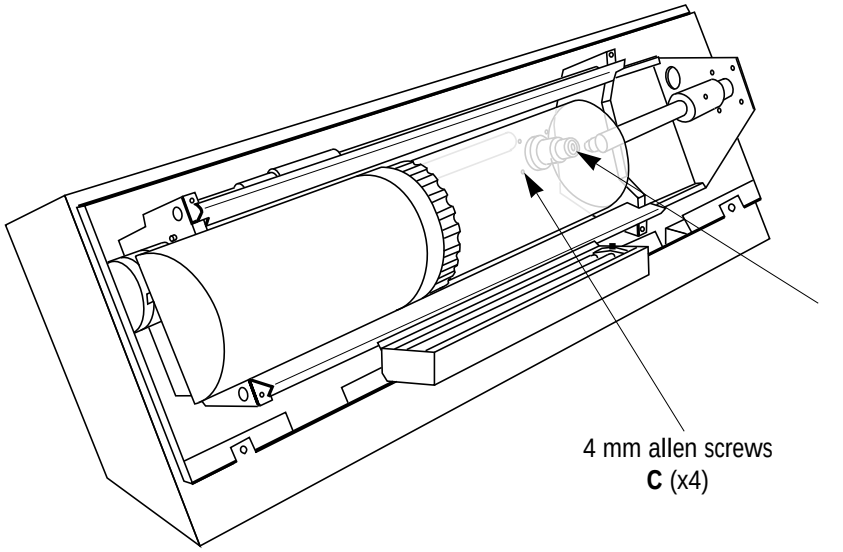
Assembly

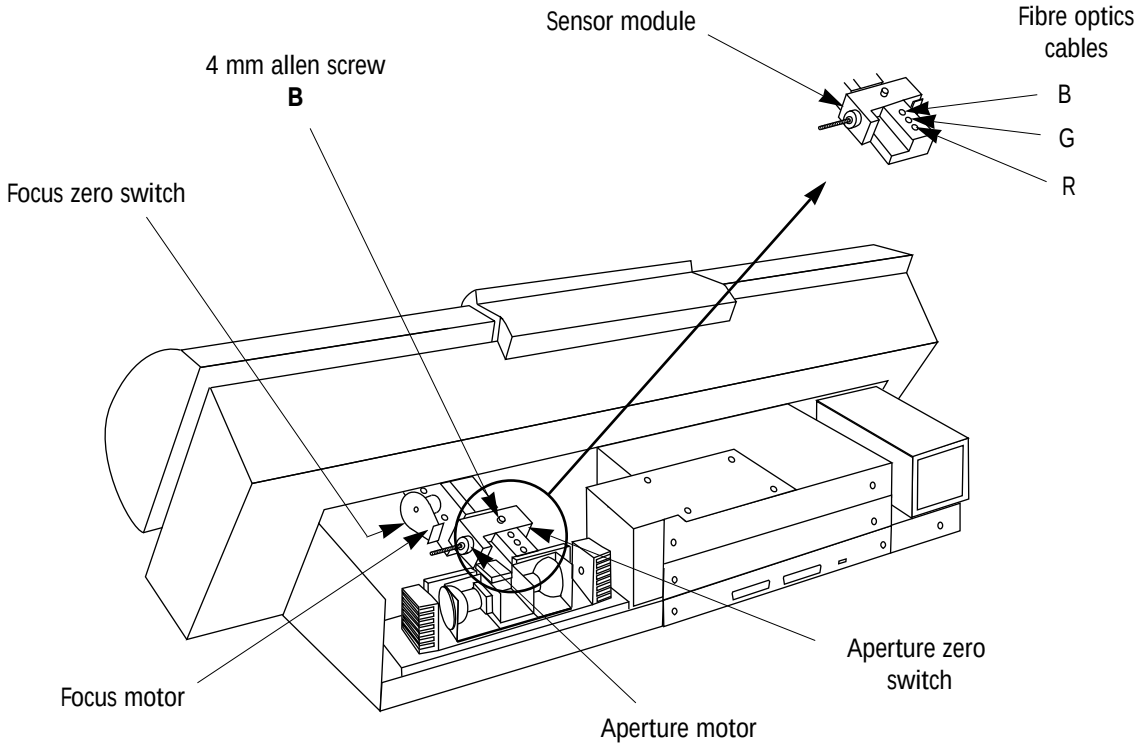
7 • Remove the beam splitter from the new sensor module, mount the module and refit the four 4 mm allen screws **C**.
8 • Refit the beam splitter to the sensor, fit the three RGB fibre optic cables as marked in step 4, and tighten the three 3 mm set screws. Tighten the 4 mm allen screw **B**.
Note: Do not bend the fibre optics cables excessively.
9 • Refit the optics holder to the sensor lens and tighten the 3 mm set screw **A**.
10 • Reconnect the two 2 pin, 6 pin and 8 pin connectors to the aperture and focus zero switches, aperture motor and focus motor respectively.
11 • Turn on the Mac, access the service program main menu, (section 3•6), ensure that the drum is clean and empty and select **K**, (**Drum zero position**).
12 • Carry out the adjustment and test operations specified below.
13 • If no further replacement operations are required, refit the front panel **C**, and the back panel **B** in accordance with section 4•2.

Adjustments and tests required

Focus (section 5•3) and Light tube (section 5•2).
White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4) and Focus sharpness (section 5•10).
Register error (section 5•11) and stripes in shadow (section 5•12).

Sensor Module





PN 960 85 000 40

Fluorescent Light Tube

Function

The fluorescent light tube gives background light to the drum.

Technical data

6W, 24VDC fluorescent tube

Tools and materials required

3 mm allen key for front cover mounting screws

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Fluorescent Light Tube

How to replace

Removal

1 • Remove the front panel **C** (Section 4•2 step 3).
2 • Press the red locking button **A** on the tube end fitting and carefully pull the tube up and away from the fitting and the clip on the left hand side.

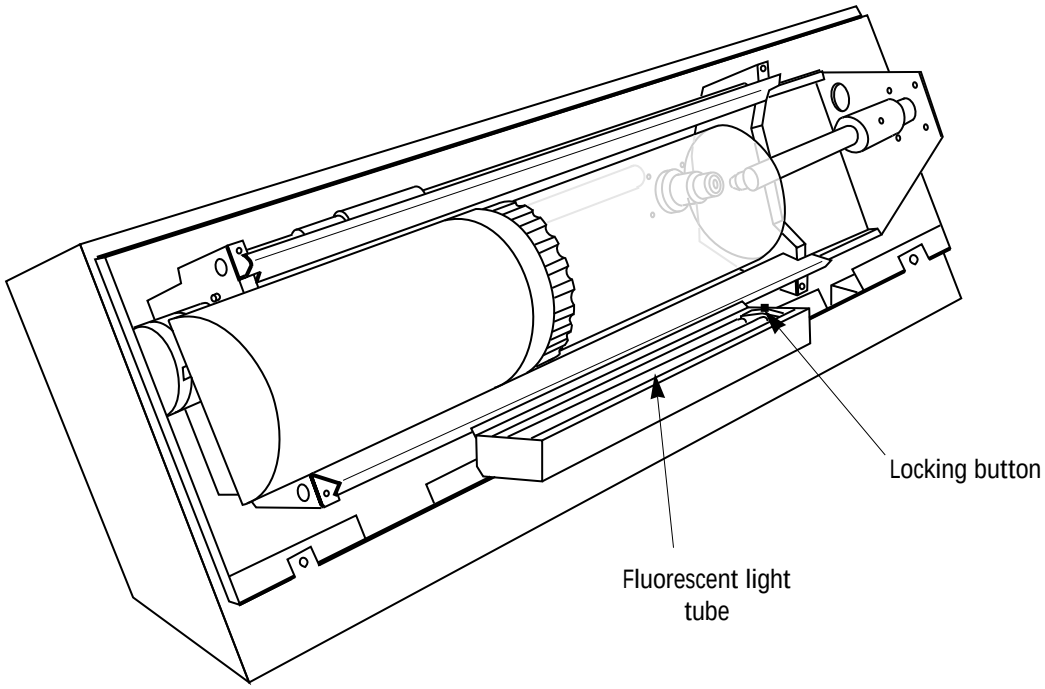
Assembly

3 • Mount a new tube and carefully position it into the clip.
4 • Push the right hand end of the tube into the fitting until the red locking buton **A** button engages.
Note: ensure that the tube fits up flush against the fitting otherwise correct contact is not made.
5 • If no further replacement operations are required, refit the front panel **C.**

Adjustments required

No adjustments are required.

Fluorescent Light Tube



Control Board

PN 960 28 000 20 New
PN 960 28 100 20 Exchange

Function

The control board contains control circuits for the DC motor, spindle step motor, sample control, color look-up table, A/D converter and holds the SCSI and RS 232 interfaces, CPU, memory and firmware.

Technical data

Tools and materials required

2.5 mm allen key for the back cover and control board

Caution!

☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

☛ Do not turn on power if the control board is fitted and the driver board is not.

☛ When returning the exchange printed circuit board (PCB), please use the anti-static bag that your new PCB was packed in.

Control Board

How to replace

Removal

1 • Remove the back cover **B** in accordance with section 4•2 step 2.
2 • Remove the two 3 mm allen screws securing the control board (together with the SCSI connectors), to the hardware unit and remove the board by carefully sliding it out of its tray.

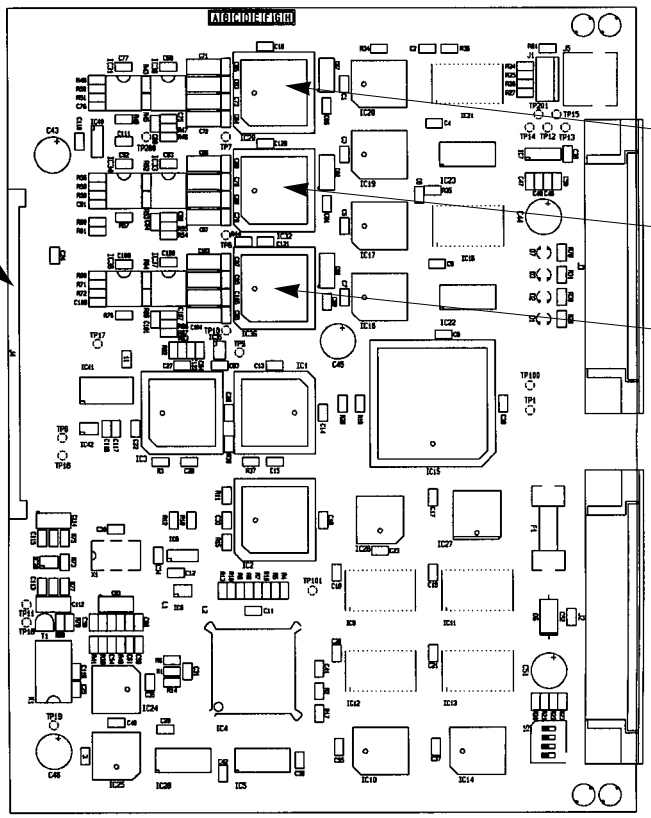
Assembly

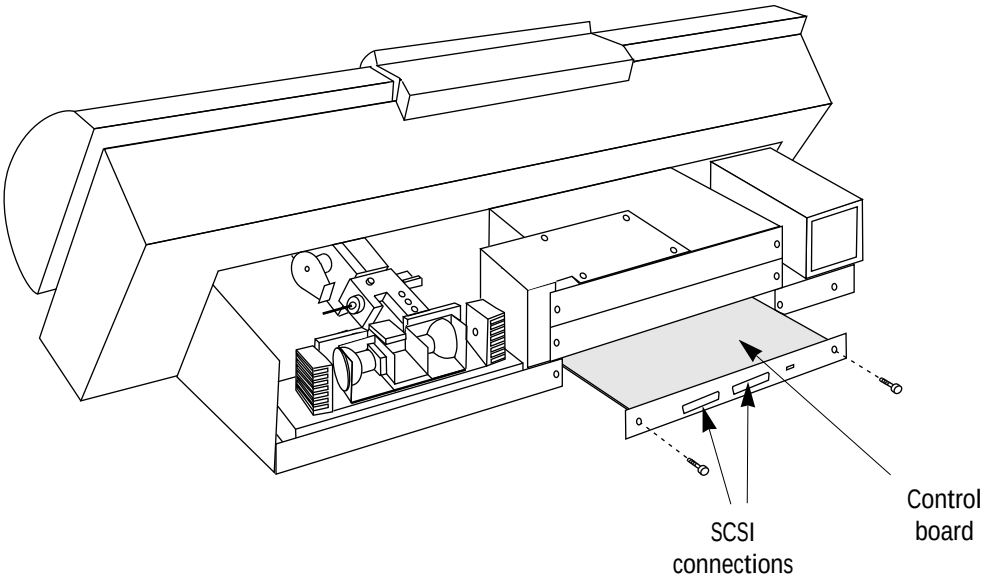
3 • Fit a new control board by positioning the board onto its tray and carefully pushing in until the male and female connectors are mated.
4 • Fit the two 3 mm allen screws securing the board in place.
5 • Carry out the adjustment and test operations specified below.
6 • If no further replacement operations are required, refit the back cover **B** in accordance with section 4•2.

Adjustments and tests required

Drum zero position (service program, **K** menu, section 3)
White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11).
Stripes in shadow (section 5•12).

Control Board





PN 960 28 001 20

A/D Converter

Function

The A/D converters (red, green and blue) convert analogue signals to digital.

Technical data

14 bit, Only removable on old boards

Tools and materials required

2.5 mm allen key for the back cover and control board
PLCC removal tool for A/D converter

Caution!

- ☛ Turn off power
  - **Before** connecting or disconnecting cables.
  - **Before** carrying out service operations.
- ☛ Do not turn on power if the control board is fitted and the driver board is not.
- ☛ Use only the correct PLCC removal tool to remove the A/D converter. (An example is shown on page 4•7c fig. 2).

A/D Converter

How to replace

Note: the three converters (red, blue and green), are identical and can be changed with each other in order to isolate the fault.

Removal

1 • Remove the back cover **B** in accordance with section 4•2 step 2.
2 • Remove the two 3 mm allen screws securing the control board (together with the SCSI connectors), to the hardware unit and remove the board by carefully sliding it out of its tray, (fig. 3).
3 • Using a PLCC removal tool, carefully remove the relevant A/D converter, (fig. 1).

Assembly

4 • Carefully fit a new A/D converter(s).
5 • Refit the control board by positioning the board onto its tray and carefully pushing in until the male and female connectors are mated.
6 • Fit the two 3 mm allen screws securing the board in place.
7 • Carry out the adjustment and test operations specified below.
8 • If no further replacement operations are required, refit the back cover **B** in accordance with section 4•2.

Adjustments and tests required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11).
Stripes in shadow (section 5•12).

A/D Converter

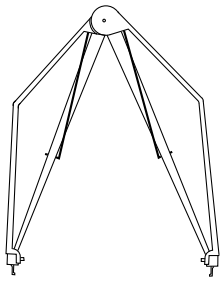


Fig. 1

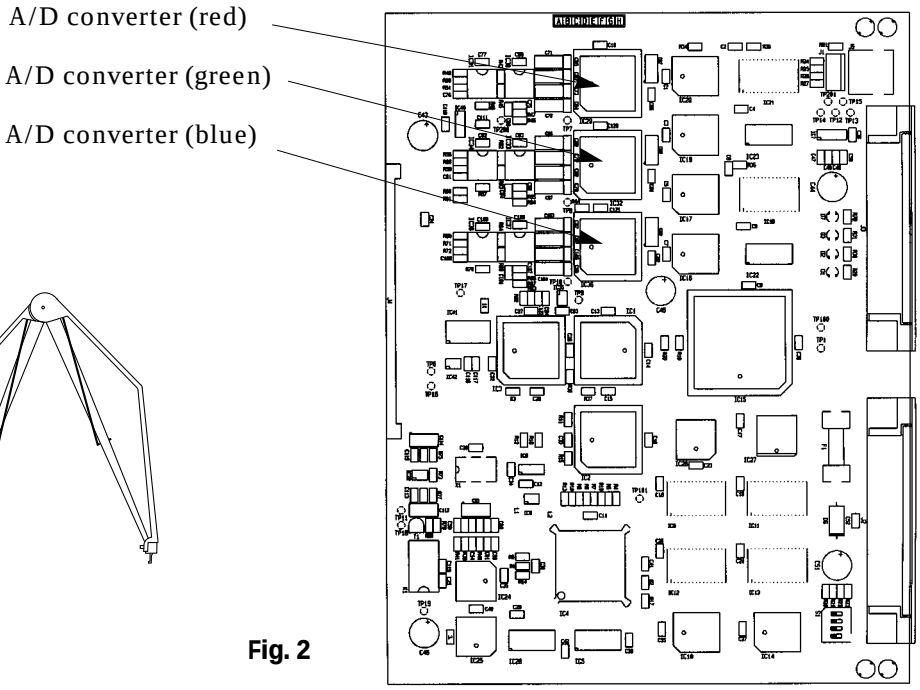


Fig. 2

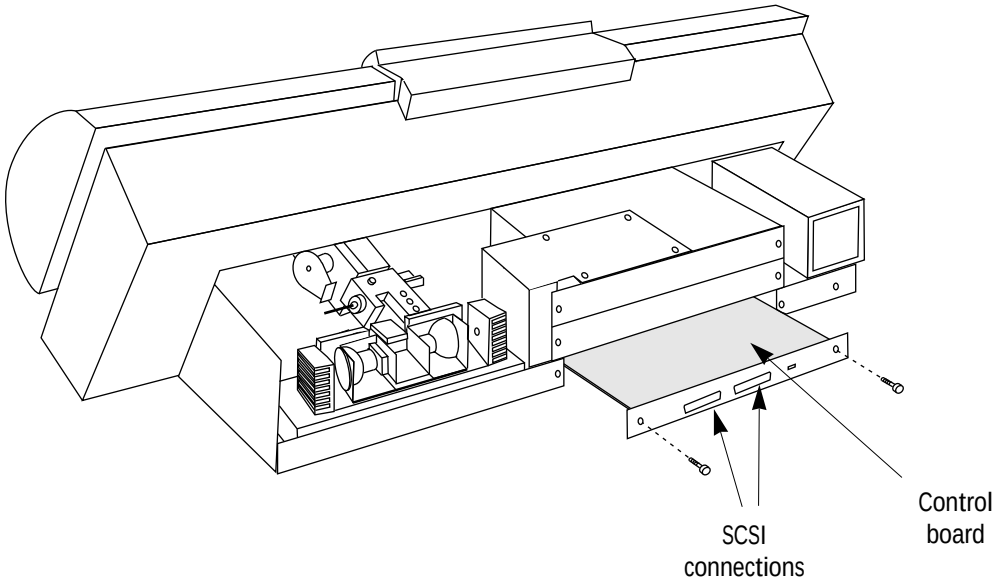


Fig. 3

PN 960 28 000 30 New
PN 960 28 100 30 Exchange

Driver Board

Function

The driver board contains the power supply to all analog and digital circuits and contains the motor driver and lamp driver circuits.

Technical data

ScanMate 11000 models up to serial number 0270-0199 have a back plate integral with the driver board.

ScanMate 11000 models from serial number 0270-0200 have a revised back panel securing the driver board (and PMT module).

All new driver boards will be sent with an integral back plate, (see step 8 on the following page).

Tools and materials required

2.5 mm allen key for back covers and driver board

Caution!

☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

☛ Do not turn on power if the control board is fitted and the driver board is not.

☛ When returning the exchange printed circuit board (PCB), please use the anti-static bag that your new PCB was packed in.

Driver Board

How to replace

Removal

1 • Remove the back cover **B** in accordance with section 4•2 step 2.
2 • For ScanMate 11000 models **up to** SN 0270-0199, remove the two 3 mm allen screws **C** securing the driver board to the hardware unit and remove the board by carefully sliding it out of its tray, (fig. 2).
3 • For ScanMate 11000 models **from** SN 0270-2000, remove the four 3 mm allen screws securing the back panel **D** to the hardware unit, (fig. 4) and carefully slide the driver board out of its tray.

Assembly - ScanMate 11000 models up to SN 0270-0199

4 • Fit a new driver board by positioning the board onto its tray and carefully pushing in until the male and female connectors are mated.
5 • Fit the two 3 mm allen screws **C** securing the board in place, (fig. 3).
6 • Carry out the adjustment and test operations specified below.
7 • If no further replacement operations are required, refit the back cover **B** in accordance with section 4•2.

Assembly - ScanMate 11000 models from SN 0270-2000

8 • Remove the four 3 mm screws and nuts **E** securing the back plate **F** to the driver board and remove the back plate, (fig. 5).
Note: If you have not yet returned your exchange driver board to ScanView, please include the removed plate when it is eventually returned.
9 • Position the driver board onto its tray and carefully push in until the male and female connectors are mated.
10 • Refit the back panel **D** using the four 3 mm allen screws, (fig. 4).
11 • Carry out the adjustment and test operations specified below.
12 • If no further replacement operations are required, refit the back cover **B** in accordance with section 4•2.

Adjustments required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11)
Stripes in shadow (section 5•12).

Driver Board

Enlarged drawing of driver board in section 7•6

Connector J1 to Backplane

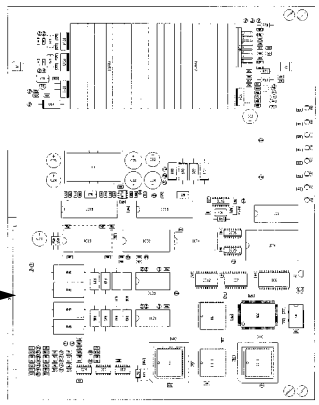
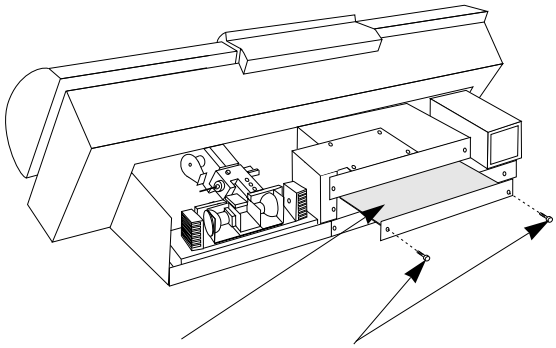


Fig. 1

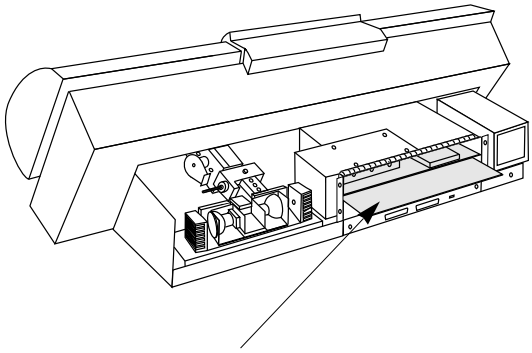
Model **up to** SN 0270-0199



Driver board Screws **C**

Fig. 2

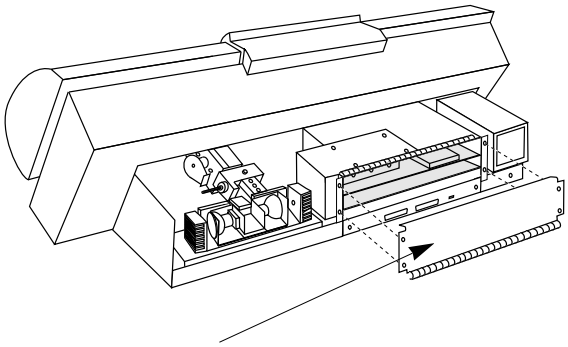
Model **after** SN 0270-0200



Driver board

Fig. 3

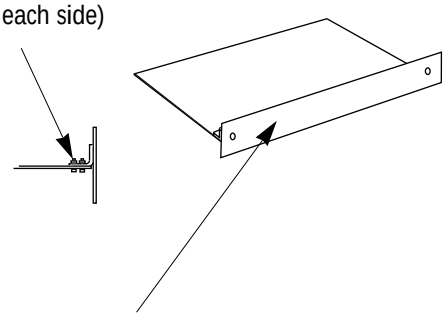
Model **after** SN 0270-0200



Back panel **D**

Fig. 4

4 screws and nuts **E** (2 each side)



Back plate **F**

Fig. 5

PMT Module

PN 960 28 000 50 New
PN 960 28 100 50 Exchange

Function

The PMT module contains three photo multiplier tubes which convert the light to electronic signals. The signal is then transmitted to the control board.

Technical data

Three PMT's, one each for each color channel
Three high voltage converters, one for each channel

ScanMate 11000 models up to serial number 0270-0199 have a back plate integral with the PMT module.

ScanMate 11000 models from serial number 0270-0200 have a revised back panel securing the PMT module (and driver board).

All new PMT modules will be sent with an integral back plate, (see step 13 on the following page).

Tools and materials required

2.5 mm allen key for back covers, fibre optics access panel and PMT module

Caution!

- Turn off power
  - **Before** connecting or disconnecting cables.
  - **Before** carrying out service operations.
- Avoid excessive bending or otherwise damaging the fibre optics cables.
- When returning the exchange printed circuit board (PCB), please use the anti-static bag that your new PCB was packed in.

PMT Module

How to replace

Removal

1 • Remove the back cover **B** in accordance with section 4•2 step 2.
2 • Remove the four 3 mm allen screws securing the fibre optics access cover.
3 • For ScanMate 11000 models **up to** SN 0270-0199, remove the two 3 mm allen screws **C** securing the PMT module to the hardware unit, (fig. 2).
4 • For ScanMate 11000 models **from** SN 0270-2000, remove the four 3 mm allen screws securing the back panel **D** to the hardware unit, (fig. 4).
5 • Loosen the 3 mm set screws **A**, (fig. 2) retaining the fibre optics cables to the PMT module and carefully pull out the cables, (by the metal sleeves).
Note: mark the RGB cables as necessary to ensure correct refitment.
6 • Remove the PMT module by carefully sliding it out of its tray.

Assembly - ScanMate 11000 models up to SN 0270-0199

7 • Fit a new PMT module by positioning the board onto its tray and carefully pushing in until the male and female connectors are mated, (fig. 2).
8 • Fit the three fibre optics cables (as marked in step 5) into the PMT module and tighten the 3 mm set screws **A**.
Note: Do not bend the fibre optics cables excessively when fitting.
9 • Refit the two 3 mm allen screws **C** securing the module in place.
10 • Refit the fibre optics access cover with the four 3 mm allen screws.
11 • Carry out the adjustment and test operations specified below.
12 • Refit the back cover **B** in accordance with section 4•2.

Assembly - ScanMate 11000 models from SN 0270-2000

13 • Remove the four 3 mm screws and nuts **E** securing the back plate **F** to the PMT module and remove the back plate, (fig. 5).
Note: If you have not yet returned your exchange PMT module to Scan-View, please include the removed plate when it is eventually returned.
14 • Position the PMT module onto its tray and carefully push in until the male and female connectors are mated, (fig. 3).
15 • Fit the three fibre optics cables (as marked in step 5) to the PMT module, tighten the 3 mm set screws **A** and refit the fibre optics access cover.
Note: Do not bend the fibre optics cables excessively when fitting.
16 • Refit the back panel **D** using the four 3 mm allen screws, (fig. 4).
17 • Carry out the adjustment and test operations specified below.
18 • Refit the back cover **B** in accordance with section 4•2.

Adjustments required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11) and stripes in shadow (section 5•12).

PMT Module

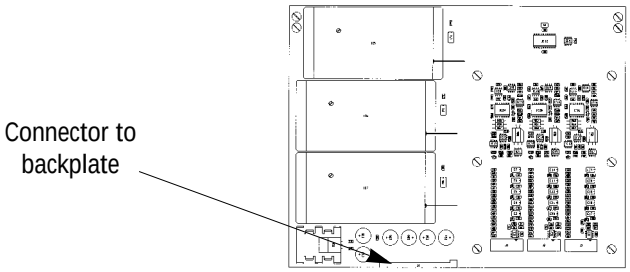


Fig. 1

Model **up to** SN 0270-0199

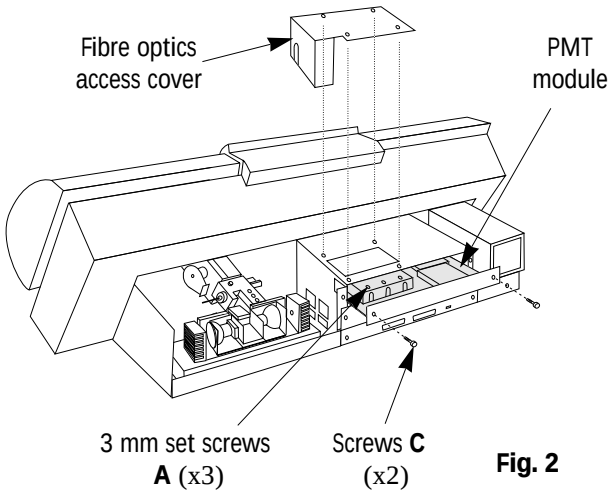


Fig. 2

Model **after** SN 0270-0200

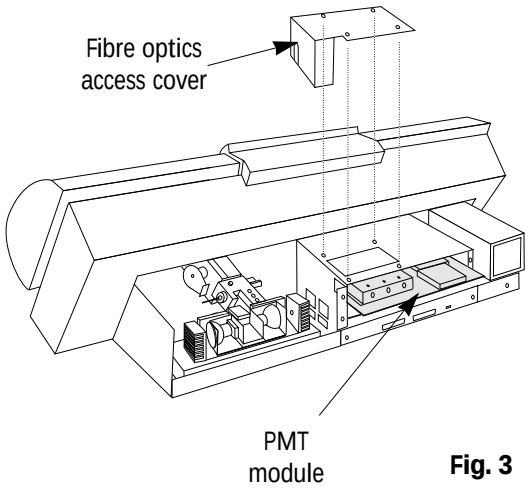


Fig. 3

Model **after** SN 0270-0200

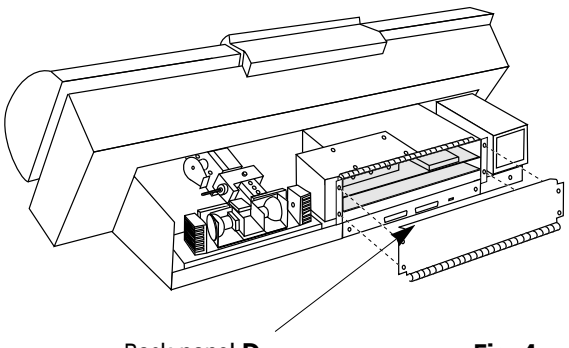


Fig. 4

4 screws and nuts **E**
(2 each side)

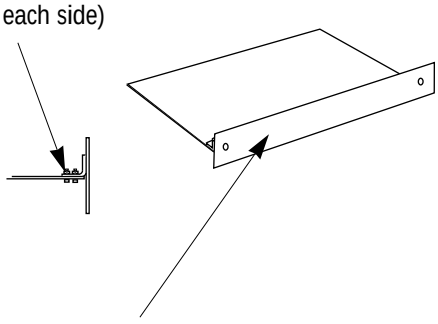


Fig. 5

Backplane

PN 960 28 000 40 New
PN 960 28 100 40 Exchange

Function

The backplane is located on the back plate of the hardware unit and interfaces the cabling and PCB's etc.

Technical data

Fuses on the backplane:

Fuse 1	T-1A
Fuse 2	T-1A
Fuse 3	T 5A
Fuse 4	T-3.15A

Tools and materials required

2.5 mm allen key for back covers, fibre optics access cover, PMT module, hardware unit and back plane mounting screws.

Caution!

☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

☛ Do not turn on power if the driver board is fitted and the control board is not.

☛ When returning the exchange printed circuit board (PCB), please use the anti-static bag that your new PCB was packed in.

Backplane

How to replace

Note: ScanMate 11000 models **up to** serial number 0270-0199 have a back plate integral with the PMT module and driver board, (see fig. 2).

ScanMate 11000 models **from** serial number 0270-0200 have a revised back panel securing the PMT module and driver board, (see fig. 3).

Removal

1 • Remove the back cover **B** in accordance with section 4•2 step 2.
2 • Remove the PMT module and fibre optics access cover, (section 4•9, steps 2-6).
3 • Remove the cable tie wrap securing the fibre optics cable to the sidewall of the hardware unit.
4 • Remove the driver board, (section 4•8, steps 2 and 3).
5 • Remove the two 3 mm allen screws from the control board and pull it out of its tray.
6 • Disconnect the large connector J10 from the power supply module.
7 • Remove the two 3 mm allen screws **B** securing the left hand side of the hardware unit to the base, (viewed from the back of the scanner).
8 • Loosen the two 3 mm allen screws **C** securing the right hand side of the hardware unit to the base.
9 • Slide the hardware unit to the left and lift up and away from the scanner, just enough to gain access to the cables on the backplane.
10 • Disconnect connectors J1, J2, J4, J5, J6, J8, J9, J10, J12 and J13.
11 • Remove the backplane by removing the five 3 mm allen screws.

Assembly

12 • Fit a new backplane to the hardware unit and secure with the five 3 mm screws.
13 • Position the hardware unit so that connectors J1, J2, J4, J5, J6, J8, J9, J10, J12 and J13 can be connected.
14 • Refit the hardware unit, fit the two 3 mm allen screws **B** and tighten the two 3 mm allen screws **C**.
15 • Fit a new cable tie wrap to secure the cables to the sidewall of the hardware unit.
16 • Reconnect the large connector J10 to the power supply module.
17 • Slide the control board into its tray and secure with the two 3 mm allen screws.
18 • Refit the PMT module, (section 4•9, steps 7-10 **or** 14 and 15).
19 • Refit the fibre optics access cover.
20 • Refit the driver board, (section 4•8, steps 4 and 5 **or** 9 and 10).
21 • Carry out the adjustment and test operations specified below.
22 • Refit the back cover **B** in accordance with section 4•2 .

Adjustments and tests required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11) and stripes in shadow (section 5•12).

Backplane

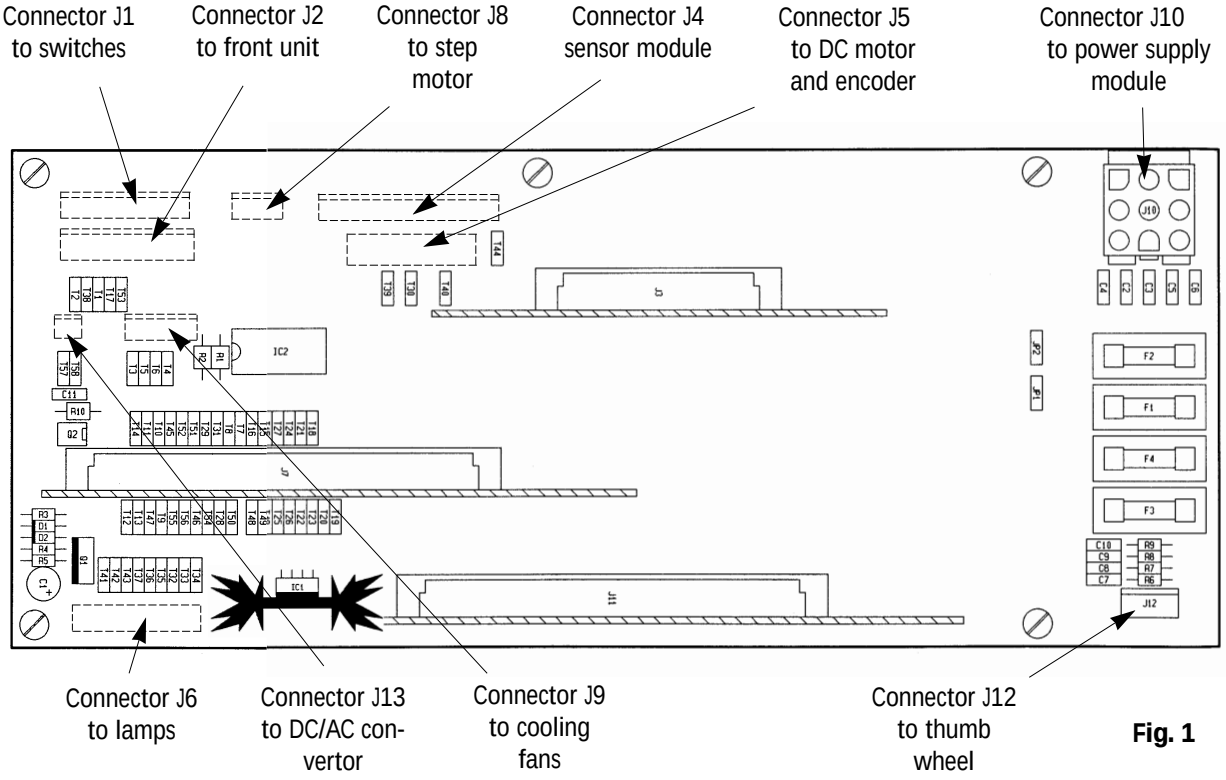


Fig. 1

Model **up to** SN 0270-0199

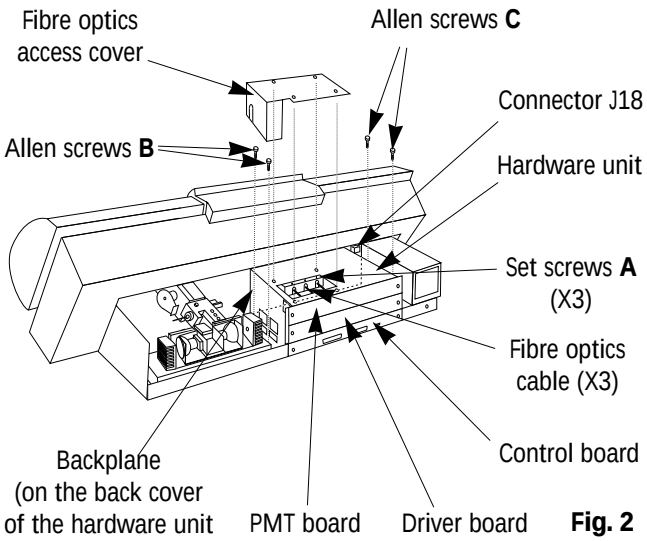


Fig. 2

Model **after** SN 0270-0200

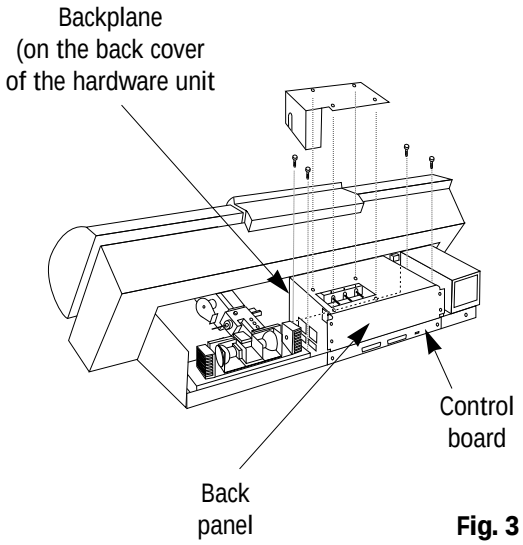


Fig. 3

Power Supply Module

PN 960 87 000 20 New
PN 960 87 100 20 Exchange

Function

The power supply module supplies +5V, 12V, +/–15 V and 24V to the ScanMate 11000

Technical data

Switch mode
100-240V
F-6.3A
47-63Hz
Output max. 200W

Tools and materials required

2.5 mm allen key for access panels
5 mm allen key for the mounting screws

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Power Supply Module

Now to replace

Removal

1 • Remove the following panels:
Back cover **B** and front cover **C** (section 4•2 steps 2 and 3).
2 • Remove the large connector **A** (J18) to the power supply module.
3 • Remove the 6 mm allen screw **B** on the rear frame of the scanner.
4 • If an early production model, remove the 5 mm allen screw **C** securing the front of the power supply module to the base.
Note: Access is very limited for this screw.
5 • Current models have the front allen screw **C** located underneath the scanner. Very carefully gain access to the underneath of the scanner and remove the countersunk allen screw.
6 • Lift up the power supply module at the rear to clear the frame and then lift away.
7 • Remove the four 4 mm allen screws from the baseplate of the power supply module.

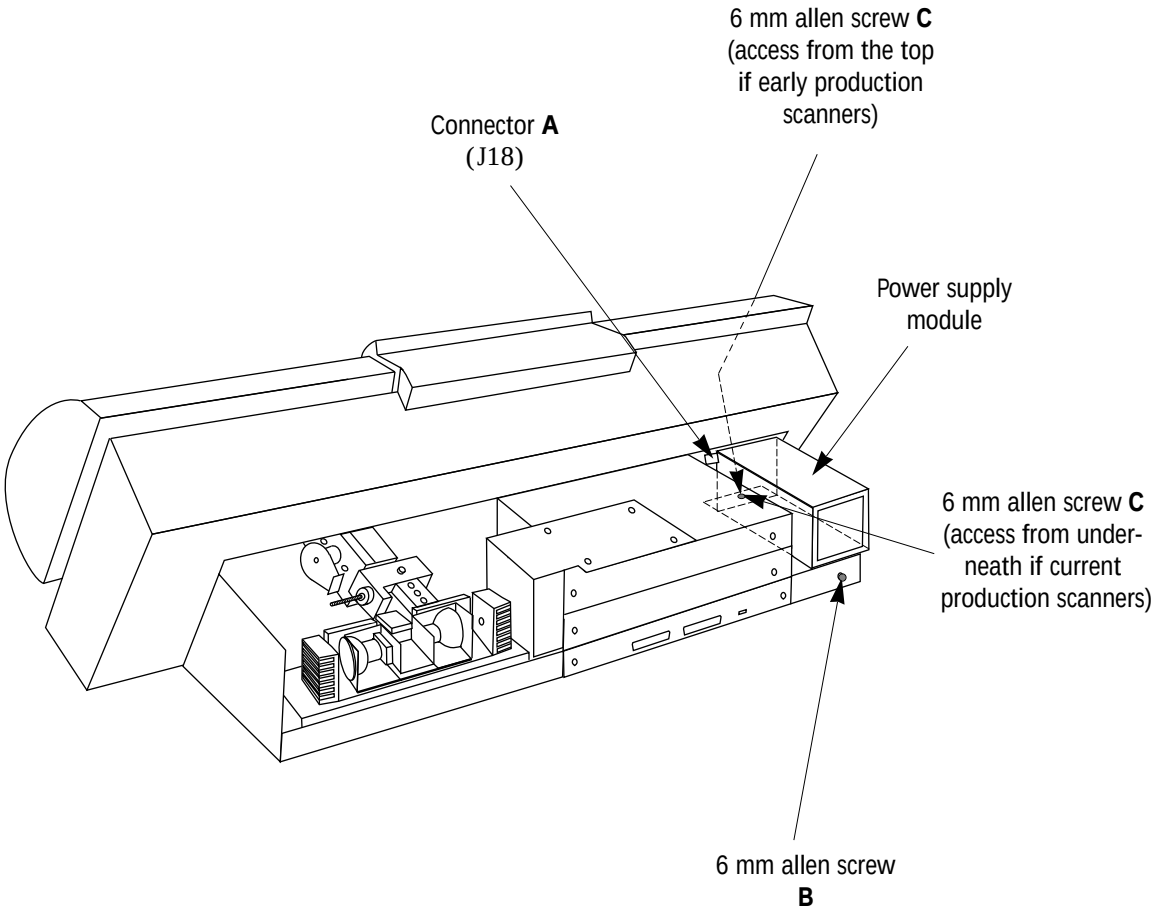
Assembly

8 • Fit the baseplate to the new power supply module using the four 4 mm allen screws.
9 • Mount the power supply module and fit the front 5 mm allen screw **C**, (see steps 5 and 6 above to determine the position of the screw).
10 • Fit the rear 6 mm allen screw **B.**
11 • Reconnect the large connector **A** (J18) to the power supply module.
12 • Carry out the following adjustment and test operations
13 • If no further replacement operations are required, refit the front cover **C** and the back cover **B** in accordance with section 4•2.

Adjustments required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11).
Stripes in shadow (section 5•12).

Power Supply Module



PN 960 20 001 60

SCSI Controller

Function

The SCSI chip controls the SCSI communication between the scanner and host.

Technical data

1 IC chip with 84 pins located on on the control board.

Tools and materials required

2.5 mm allen key for the back cover and electronics cover
Special PLCC removal tool for SCSI controller

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

SCSI Controller

How to replace

Removal

1 • Remove the back cover **B** in accordance with section 4•2 step 2.
2 • Remove the two 3 mm allen screws securing the control board to the hardware unit and carefully slide the board out of its tray.
3 • Using a special PLCC removal tool, remove SCSI controller from IC 15.
Note: only use the special PLCC removal tool for IC15. **Do not** use other tools, otherwise the chip socket will be damaged.

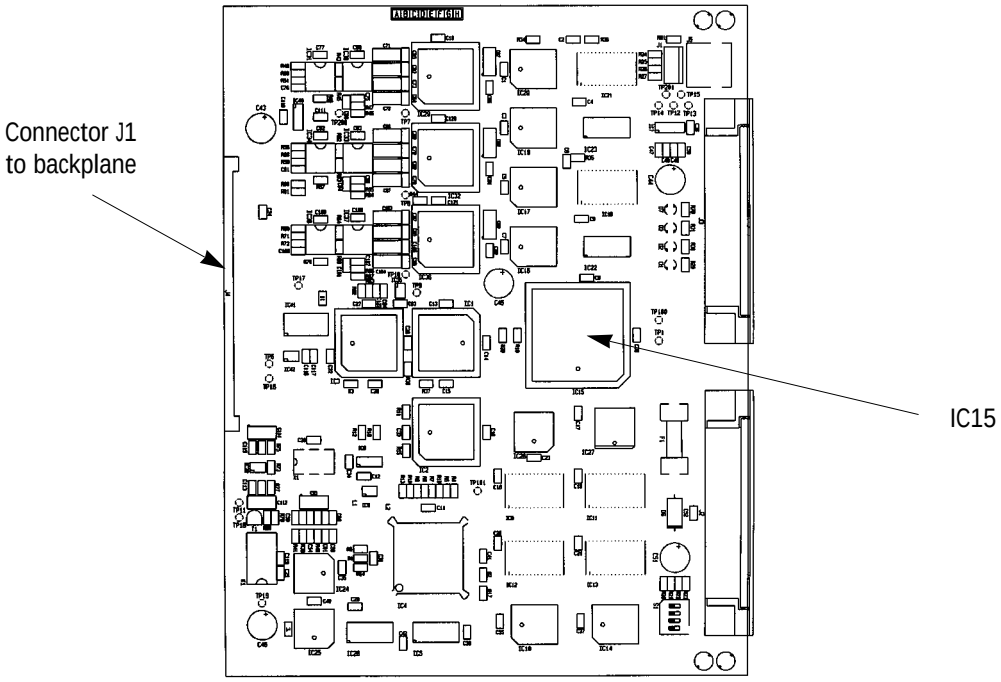
Assembly

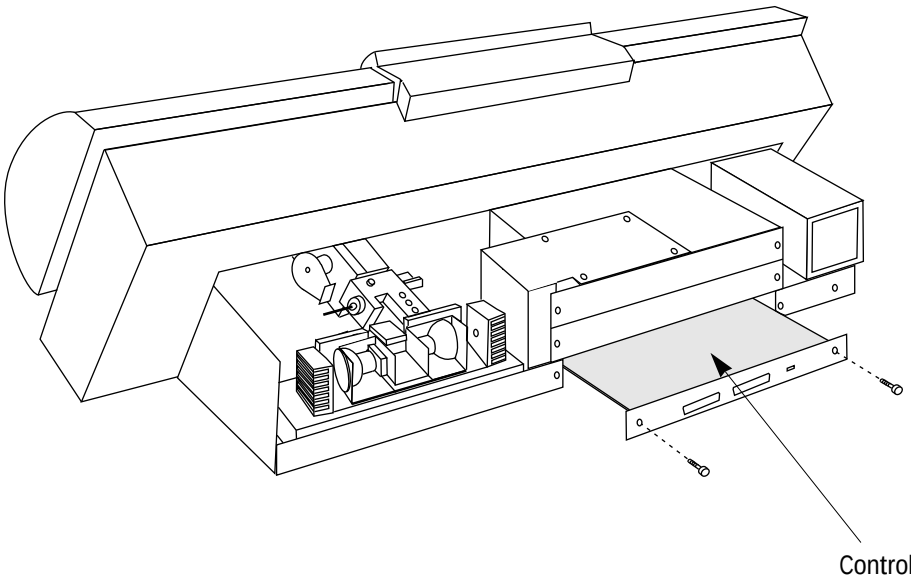
4 • Fit a new SCSI controller into IC 15 onto the control board.
5 • Refit the control board by positioning the board onto its tray and carefully pushing in until the male and female connectors are mated.
6 • Fit the two 3 mm allen screws securing the board in place.
7 • Carry out the adjustment and test operations specified below.
8 • If no further replacement operations are required, refit the back cover **B** in accordance with section 4•2.

Adjustments required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11).
Stripes in shadow (section 5•12).

SCSI Controller





PN 960 28 001 10

Transformer

Function

The transformer increases the voltage to the fluorescent lamp.

Technical data

12V input

Tools and materials required

2.5 mm allen key for transformer and main connector mounting screws
3 mm allen key for main cover mounting screws
Small screwdriver for cable connections

Caution! ☛ Turn off power

- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Transformer

How to replace

Removal - earlier model transformers, (fig. 1)

1 • Remove the front cover **C** and main cover **D** (section 4•2 steps 3 and 4).
2 • Remove the two 3 mm allen screws from the main connector, (see fig. 3).
3 • Remove screw **A** and washer on the left hand side and screw **B** and washer on the right hand side of the transformer.
4 • Lift the transformer away and rotate it so that the left hand side faces the rear of the scanner in order to give access for removal of the red and black leads.
5 • Using a small screwdriver, remove the red and black leads and lift the transformer away from the scanner.

Removal - later model transformers, (fig. 2)

1 • Remove the front cover **C** and main cover **D** (section 4•2 steps 3 and 4).
2 • Remove the two 3 mm allen screws from the main connector, (see fig. 3).
3 • Using a small screwdriver, remove the red and black cables from the connector on the top of the transformer.
4 • Loosen attachment screw **A** on the left hand side and remove attachment screw and washer **B** on the right hand side of the transformer.
5 • Slide the transformer to the right, away from screw **A** and lift it away from the scanner.

Assembly

Note: replacement will be with the later model transformer.
6 • Position the transformer and using the new washers supplied, fit screw **A** and screw **B** ensuring that the washers are on **top** of the transformer brackets.
Note: screw **A** and washer are still in place if a later model transformer was removed.
7 • Using a small screwdriver, reconnect the red and black leads to the connector on the top of the transformer.
8 • Using the two 3 mm allen screws, fit the main connector bracket to the base of the scanner.
9 • If no further replacement operations are required, refit the main cover **D** and front cover **C** in accordance with section 4•2.

Adjustments required

No adjustments are required.

Transformer

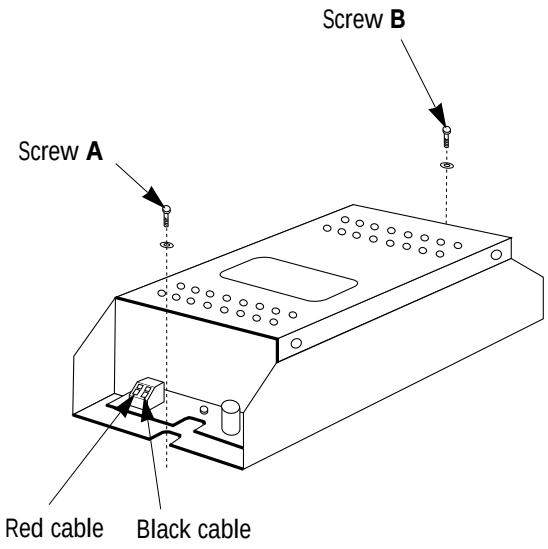


Fig. 1 Transformer on earlier model scanners

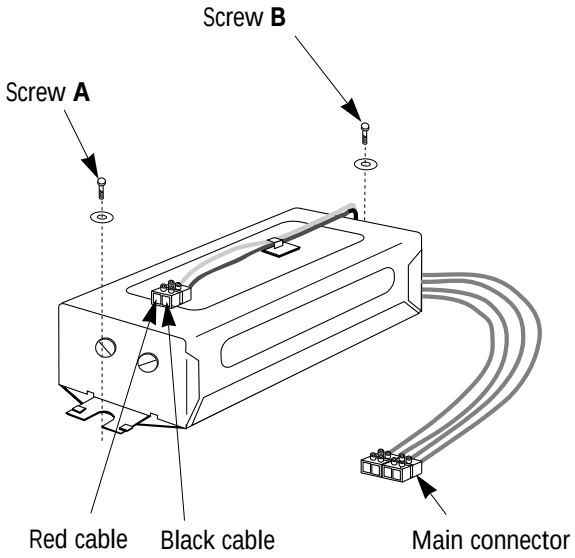


Fig. 2 Transformer on later model scanners

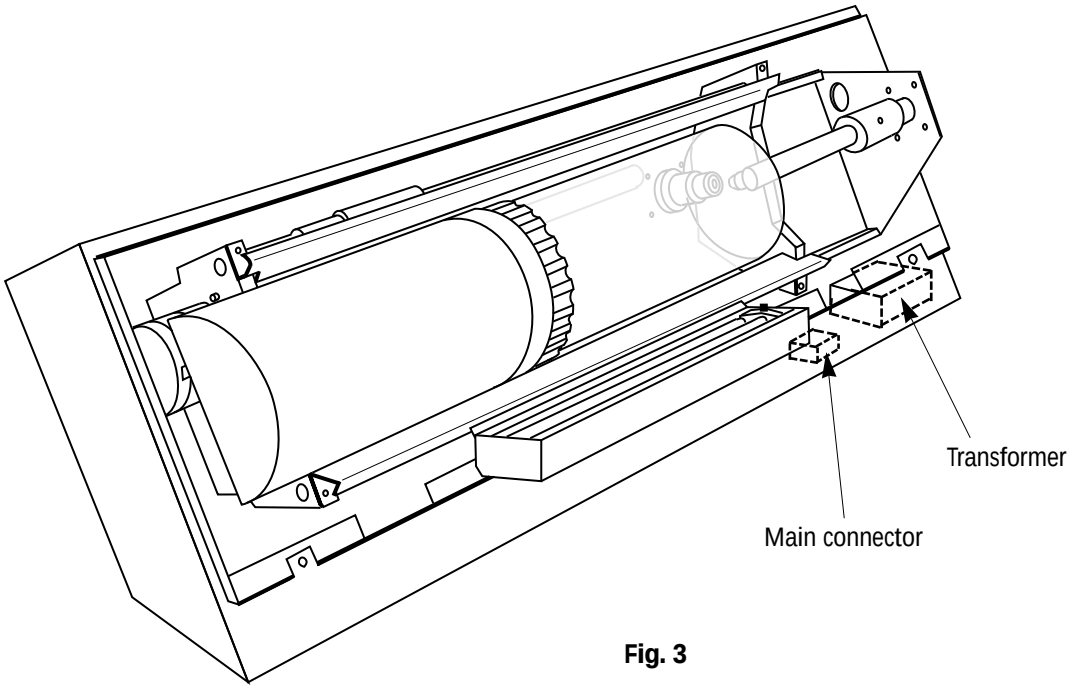


Fig. 3

PN 960 28 000 60

Acrylic Cover

Function

The smoked transparent acrylic cover allows the drum to be visible when the cover is closed. It is an integral part of the cover, but can be replaced separately.

Technical data

Tools and materials required

4 mm allen screws for front cover mounting screws

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Acrylic Cover

How to replace

Removal

1 • Switch on power and open the cover by pressing the ScanFlow symbol on the left hand side of the strip, below the acrylic cover.
2 • Hold the acrylic cover, unscrew the two thumb screws located on the inside of the cover, securing it to the cover assembly and lift it away.

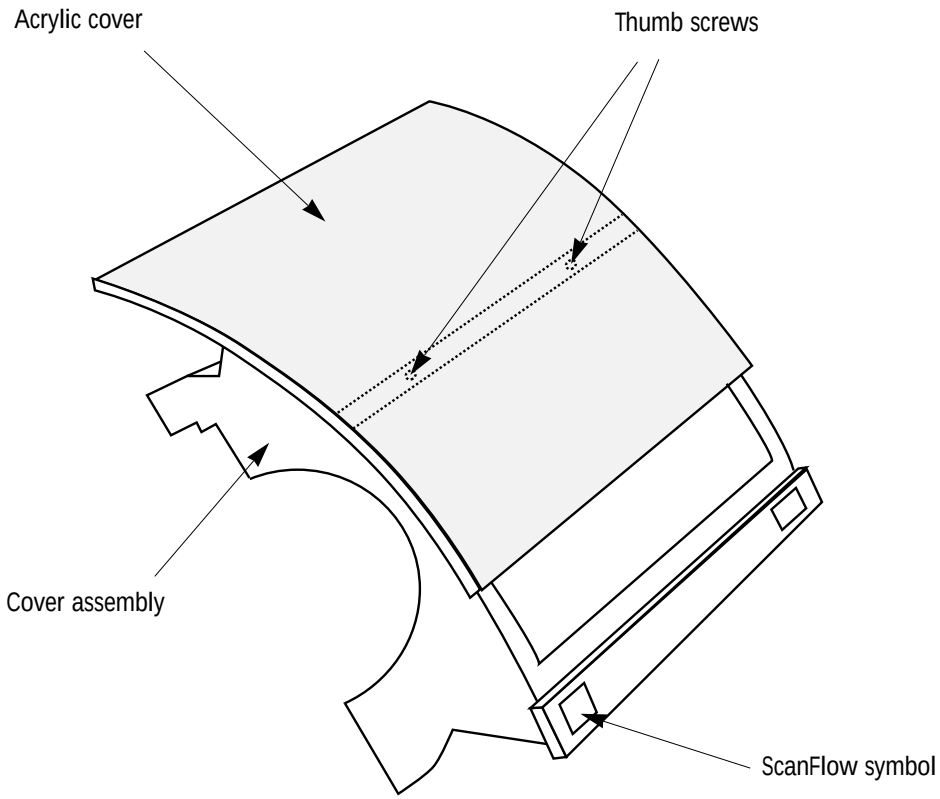
Assembly

3 • Mount a new cover and refit the two thumb screws.
4 • Carry out adjustments to the position pin on the cover, (section 5•7).
5 • Clean the cover using ScanView liquid drum polish (as supplied in the service kit), or non-abrasive repro wipes and graphics arts drum cleaner.

Adjustments required

Cover-locked pin adjustment (section 5•8).

Acrylic Cover



Cover Assembly

PN 960 28 000 70 New
PN 960 28 100 70 Exchange

Function

The cover assembly is motorized and can be opened and closed by means of a touch-switch mounted on a strip underneath the acrylic cover.

Technical data

Cover assembly operated by a Dunker 12 V DC motor with a rated output of 5.7W

Tools and materials required

3 mm allen key for front cover mounting screws
7 spanner or socket for cover mounting nuts

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Cover Assembly

How to replace

Removal

1 • Remove the front cover **C** (Section 4•2 step 3).
2 • Remove the four 5 mm nuts **A** securing the cover assembly to the left hand end cover and remove the cover.
3 • Remove the four 5 mm nuts **B** securing the cover assembly to the right hand end cover and remove the cover.
4 • Remove the two thumb screws on the inside of the acrylic cover and remove the cover.

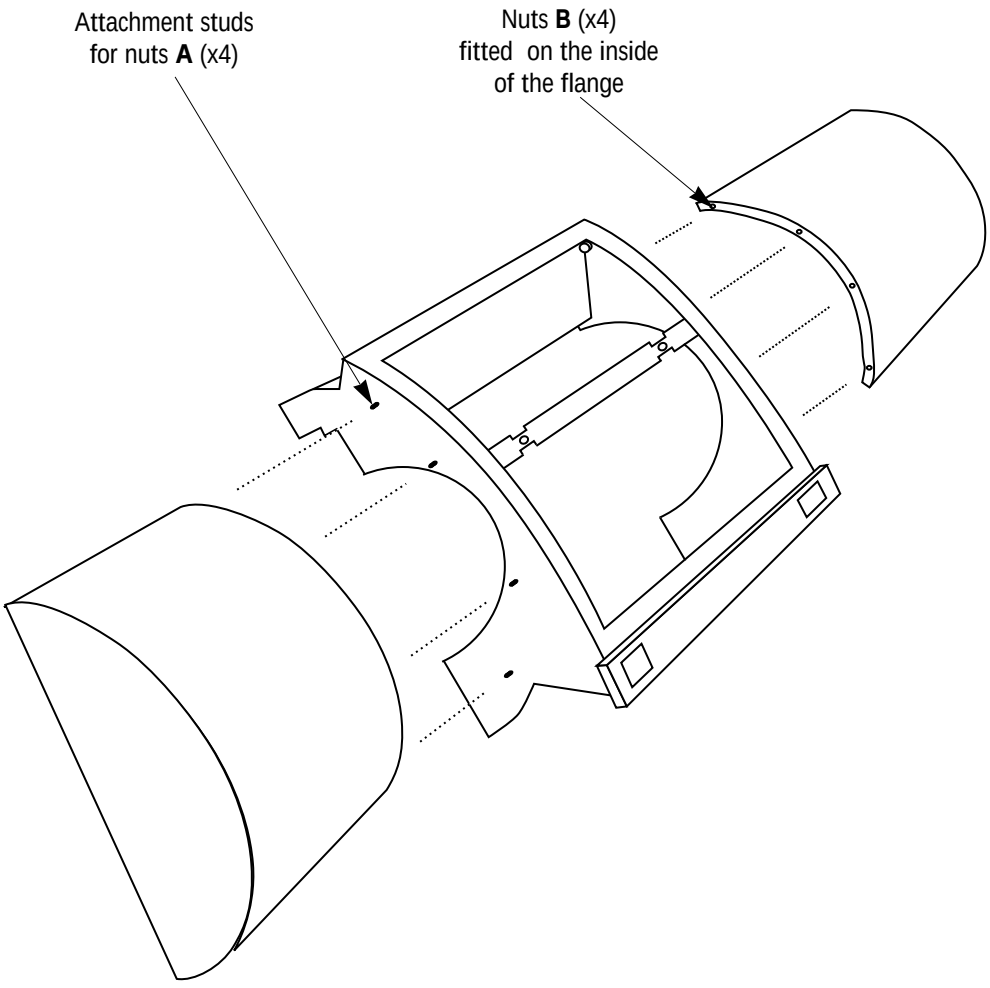
Assembly

5 • Fit the acrylic cover to the new cover assembly and secure it with the two thumb screws.
6 • Fit the right hand end cover to the cover asembly with the four 5 mm nuts.
7 • Fit the left hand end cover to the cover asembly with the four 5mm nuts.
8 • Carry out an adjustment to the cover-locked pin, (section 5•7).
9 • If no further replacement operations are required, refit the front cover **C** in accordance with section 4•2.

Adjustments required

Cover-locked pin adjustment (section 5•8).

Cover Assembly



PN 960 87 000 50

Spindle Step Motor

Function

The spindle step motor rotates the spindle which moves the drum to its left (park) and right (zero) positions. The speed of spindle rotation is dependent on the resolution of the actual scan.

Technical data

VEXTA single shaft PH265 step motor.
6 V, 0.85 current per phase.

Tools and materials required

2.5 mm allen key for access panels and step motor shaft set screw
4 mm allen key for mounting screws

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Spindle Step Motor

How to replace

Removal

1 • Remove the following panels:
Back cover **B,** front cover **C** and main cover **D** (Section 4•2 steps 2-4).
2 • Disconnect the connector to the step motor and remove the cable tie wrap securing the cable to the motor.
3 • Manually rotate the spindle until the head of the 4 mm dome head allen screw **A** securing the step motor to the spindle is accessible and remove the screw.
4 • Remove the four 5 mm allen screws **B** retaining the step motor to its mounting bracket and lift the motor away.

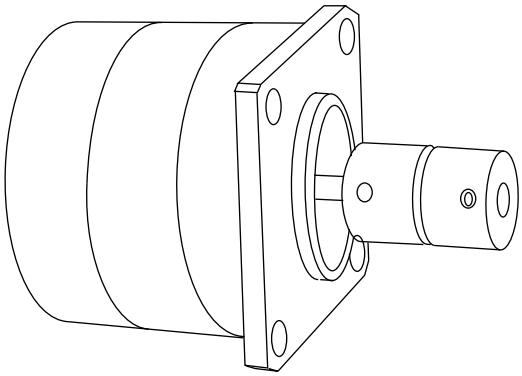
Assembly

5 • Mount a new step motor and refit the four 5 mm allen screws.
6 • Align the holes in the step motor shaft and spindle and refit the 4 mm dome head allen screw.
7 • Reconnect the connector to the step motor and secure the cable to the motor with a new cable tie wrap
8 • Carry out the adjustment and test operations specified below.
9 • If no further replacement operations are required, refit covers **D**, **C** and **B** in accordance with section 4•2.

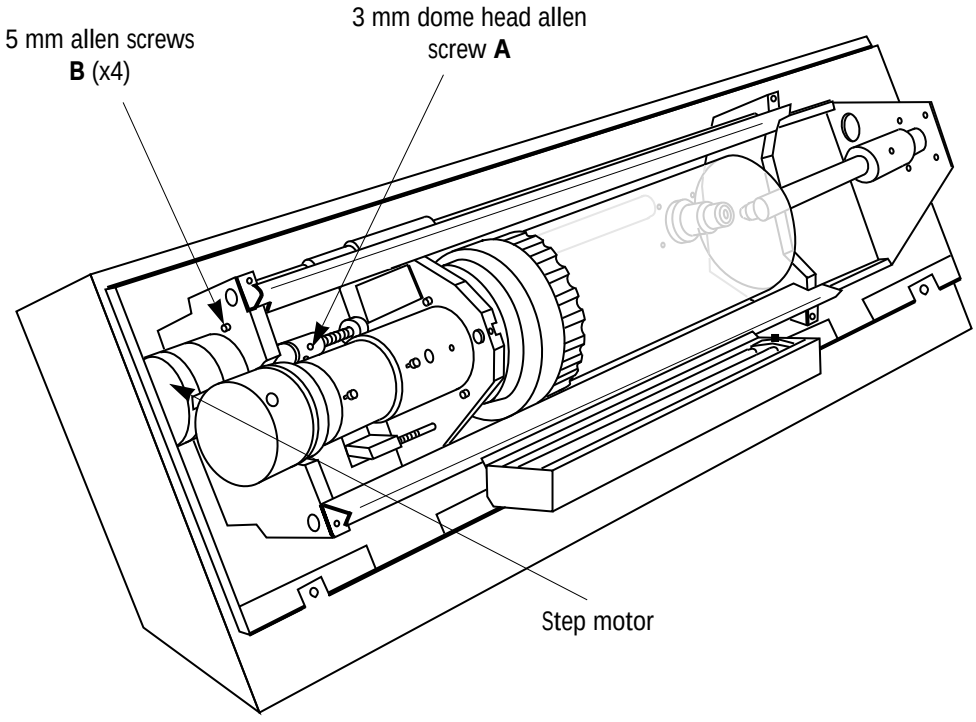
Adjustments required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).
Register error (section 5•11).
Stripes in shadow (section 5•12).

Spindle Step Motor



Step motor



PN 960 20 000 80

DC Motor

Function

The DC motor rotates the drum at between 400 and 1600 rpm and feeds position data back to the control circuits.

Technical data

24V Maxon DC motor, with Stegmann encoder giving 1 sync pulse/rev. and 5000 clock pulses/rev.

Tools and materials required

4 mm set screws (2)
2.5 mm allen key for access panels and DC motor cover
3 mm allen key for mounting screws
Loctite 243 or equivalent for set screws
Tape for sealing set screw access hole

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

DC Motor

How to replace

Removal

1 • Remove the front cover **C** and main cover **D** (section 4•2 steps 3 and 4).
Note: removal of the main cover **D** gives better access.
2 • Motor the drum to the locked position and remove the two 3 mm allen screws from the motor cover and remove the cover.
3 • Disconnect the DC motor and encoder connectors from the connector PCB and remove the tape securing the leads to the motor.
4 • Remove the tape over the access hole to the shaft attachment set screws **A**.
5 • Manually rotate the drum until one of the two 4 mm set screws **A** retaining the motor shaft to the drum is accessible.
6 • Remove and discard the set screw, rotate the drum 180 degrees and remove and discard the second 3 mm set screw.
7 • Remove the two 4 mm allen screws **B** attaching the motor to the drum sleeve and remove the motor.

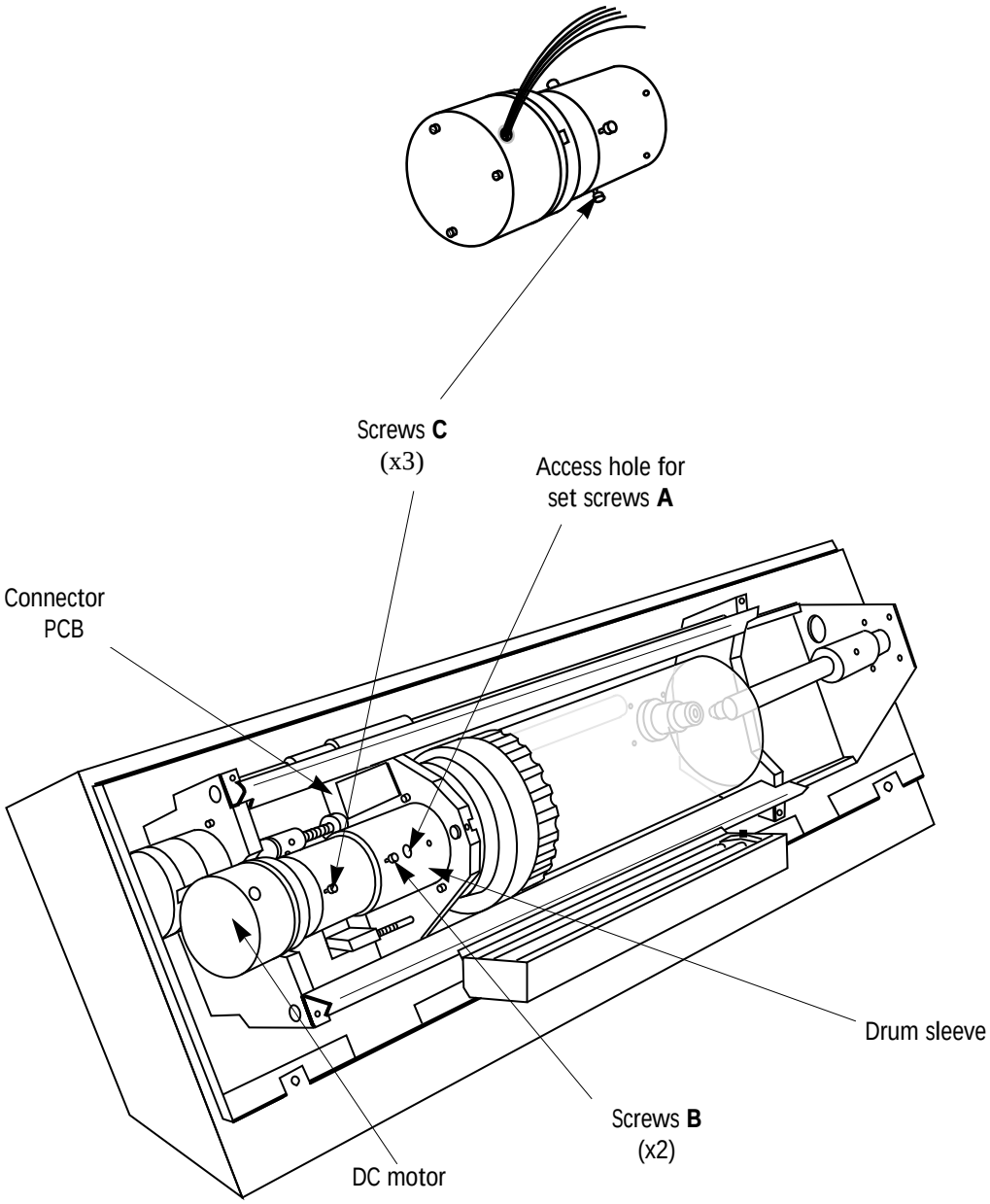
Assembly

Note: The two set screws locate on the flat faces of the motor shaft, therefore before fitting the new DC motor, rotate the shaft so that one of the flat faces will be visible in the access hole when the motor is fitted.
8 • Loosen the three 4 mm allen screws **C** securing the outer sleeve of the new motor, mount the motor and push it firmly against the drum sleeve.
9 • Check that the flat face on the motor shaft is positioned correctly in the access hole and using loctite 243, fit a **new** 4 mm set screw **A**.
10 • Manually rotate the drum 180 degrees and using loctite 243, fit the second **new** 4 mm set screw **A**.
11 • Push the outer sleeve of the motor up against the drum sleeve and tighten the three 4 mm allen screws **C**.
12 • Fit the two 4 mm allen screws **B.**
13 • Degrease the area around the access hole and seal with tape.
14 • Reconnect the connector to the motor, secure the leads to the body of the motor with tape and refit the motor cover using the two 3 mm allen screws.
15 • Turn on the Mac, access the service program main menu, (section 3•6) and carry out a zero point vertical, (serction 5•6).
16 • Carry out the adjustment and test operations specified below.
17 • If no further replacement operations are required, refit the main cover **D** and front cover **C** in accordance with section 4•2.

Adjustments required

Zero point vertical (section 5•6)
White calibration in transmission and reflection (sections 5•5).
Focus calibration (section 5•4).
Drum alignment (section 5•7), check and adjust if required.
Register error (section 5•11) and stripes in shadow (section 5•12).

DC Motor


Screws **C**
(x3)
Access hole for
set screws **A**
Connector
PCB
Drum sleeve
Screws **B**
(x2)
DC motor

PN 960 21 001 00 Drum

Function

The drum is of acrylic plastic construction on which is mounted originals to be scanned.

Technical data

Drum material: acrylic

Tools and materials required

No tools or materials required

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Drum

How to replace

Removal

Note: avoid touching the acrylic surface of the drum during removal and installation.

1 • Turn power on.
2 • To lock the drum, press the ScanFlow symbol on the left hand side of the strip below the acrylic cover.
3 • Wait until the lock lamp is lit.
4 • Slowly rotate the drum until a click is heard. The drum is now locked.
5 • Remove the drum by holding on the metal sleeve, rotating in a counter-clockwise direction (viewed from the right hand side), and lifting away.

Assembly

6 • Position the drum with the horizontal line uppermost (fig. 1).
7 • Mount the drum on the studs of the drum platform and turn clockwise.
8 • Repeat step 2 and wait for the lock lamp to stop flashing.

Adjustments and tests required

White calibration in transmission and reflection (section 5•5).
Focus calibration (section 5•4).

Drum

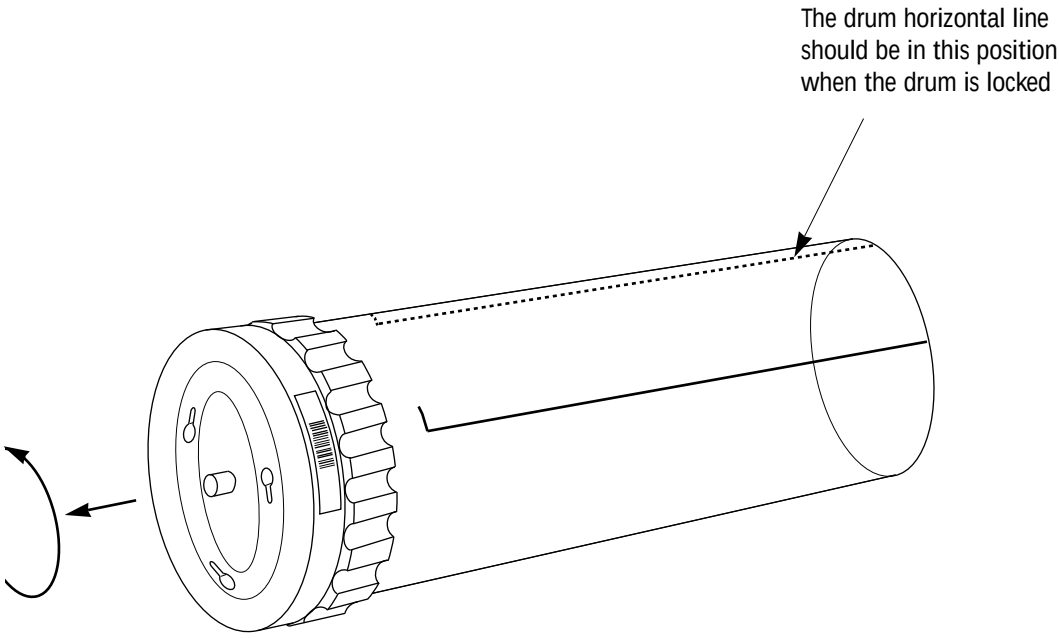

The drum horizontal line
should be in this position
when the drum is locked

Fig. 1

Light Tube

Function

Light tube adjustment sets the mechanical alignment of the optical system (light source and sensor).

Technical data

TP14	- test point
TP201	- ground

Tools and equipment required

Extension board (part of the service kit)
Voltmeter with probes
C spanner for light unit lock ring
3 mm allen key for back panel mounting screws
2.5 mm allen key for control board mounting screws

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Light Tube

How to adjust

1 • If access is not already available, remove the back cover **B** (section 4•2 step 2).
2 • Remove the two 3 mm allen screws from the control board and slide the board out of its tray.
3 • Fit an extension board to the control board connector on the backplate and slide the board in to mate with the extension board.
Note: support the board underneath so that it is parallel with its tray.
4 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC or Mac.
5 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
6 • Turn on the PC and access the service program main menu (section 3•5).
7 • Select **1** (**Move drum Z/P/L/.**), then **.**, ("dot" allows setting your own drum position parameters) and move the drum far enough to the left to give access to the light tube locking ring. (No further to the left than that shown in fig. 1). Finally select **q** (**utility end**).
8 • Select **0** (**Toggle lamps**) to turn on the transmission light.
9 • Check that the transmission light is centered as closely as possible on the sensor lens. If centering is required, loosen the light tube lock ring (fig. 1) enough so that the tube can be rotated or moved horizontally as necessary.
10 • Switch off the transmission light (press **0** three times).
11 • Select **9** (**Calibrate aperture**).
12 • Select **4**, (**Choose aperture**) and select **0** for aperture.
13 • Select **0** (**Toggle lamps**) to turn on the transmission light again.
14 • Connect a voltmeter to TP14 and TP201 (ground) on the control board (fig. 2), select **2** (**Adjust PMT gain**) and then **T** (**Transmission**) and adjust the gain value to approximately 3 volts. Select **q** (**done**) when complete.
15 • Loosen the light tube lock ring and adjust on the light tube until the maximum voltage on TP14 is reached.
Note: it may be necessary to return to step 13 and adjust the gain up or down as required.
16 • Tighten the lock ring, taking care not to move the light tube. As a precaution, it is recommended to double check that the maximum voltage reading has not changed.
17 • Carry out a white calibration in transmission and reflection (section 5•5).
18 • Remove the voltmeter, remove the control board and extension and refit the control board securing it with the two 3 mm allen screws.
19 • If no further adjustment or replacement operations are required, refit the back cover **B** (section 4•2).

Light Tube

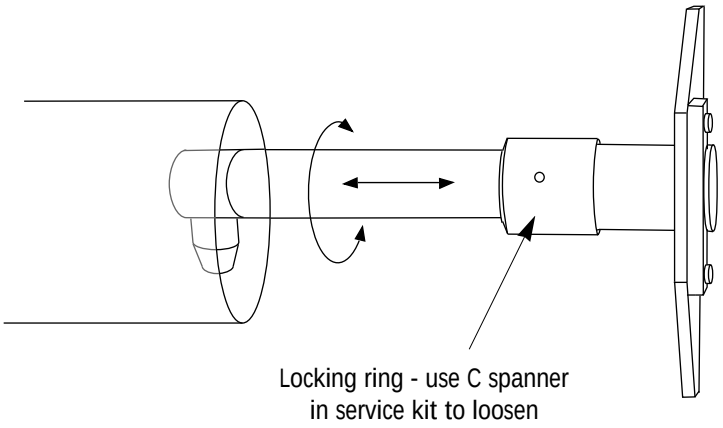


Fig. 1

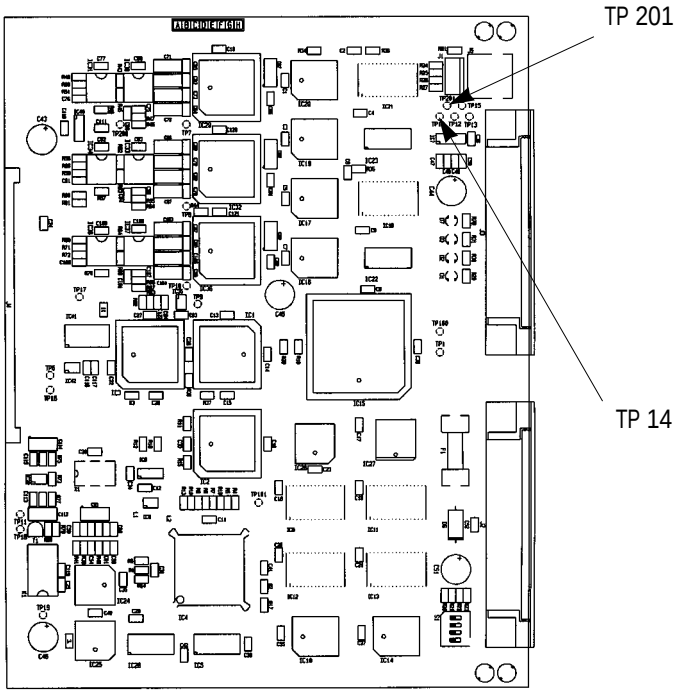


Fig. 2

Focus

Function

Focus adjustment ensures that the focus motor is adjusted to focus or defocus on all types and thicknesses of image.

Technical data

Tools and equipment required

Photoshop plug-in 2.1.7 or later versions
3 mm allen key for front and back cover mounting screws
2.5 mm allen key for focus motor mounting screws
Focus motor adjustment tool

Caution!

☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

☛ When using an extension board on the control board, support the control board underneath so that it is parallel with its tray.

Focus

How to adjust

1 • Remove the back cover **B** (section 4•2 step 2),
2 • Remove the two allen screws from the control board, slide it out of its tray, fit an extension board to the backplate and slide the control board in again.
3 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
4 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
5 • Turn on the PC and scanner and start up Photoshop plug-in.
6 • Carry out a white calibration in transmission (section 5•5).
7 • Access the service program main menu (section 3•6).
8 • Mount the ScanView focus adjust target firmly on the drum and position the target over the sensor lens by selecting **1** (**Move drum Z/P/L/.**) and then **.**, ("dot" - allows setting your own drum position parameters). Select **q** (**utility end**).
9 • Select **F** (**Enter focus value manually**), and the following will be shown:

`Is it Transmission or Reflection <T/R>:`	Select T
`What to change <B/D>:`	Select B
`Which barcode index to change <0..9>:`	Type in 0
`Enter new focus value (0 for remove):`	(see step 11)
`Enter new barcode:`	(is the SN, see step 10)
`Enter new diameter:`	(see step 10 and 11)
`It is programmed with return code 0.`	

10 • Identify the 13 numbers underneath the bar code on the drum, for example:
0 000001 24**930**9 = drum diameter of 9**9.30** mm
0 00000**1 24**9309 = drum serial number, 124 (new barcode)
11 • Refer to fig. 2 and, using the drum diameter, find the focus step value, (the middle line on the graph) and type in this value.
12 • Select **7**, **Check transmission focus**.
13 • Connect the oscilloscope signal probes to TP14 (channel 1), TP201 (ground) and TP15, (use channel 2 as trigger) on the control board.
14 • Select channel 1 on the oscilloscope.
15 • With reference to fig. 1, loosen the two 3 mm allen screws **A** securing the focus step motor to the sensor and adjust the step motor until the maximum focus is shown on the oscilloscope, (fig. 3). (Be careful not to let the sensor hit the drum).
Note: it is recommended that the time base on the oscilloscope is set to 0.1 mS.
16 • Retighten the two 3 mm allen screws **A** on the focus step motor, taking care not to alter the focus adjustment.
17 • Select **S** (**Turn on SCSI**).
18 • Make a focus calibration in Photoshop plug-in on the ScanView focus adjust target. (Focus elevation should now be between the top and bottom lines on the graph in fig. 2).
Note: the focus elevation can be found under **Focus TValue** in the service program by selecting ***** (**Show scanner options**).
19 • If out of limits, repeat steps 14 and 15 until correct.
20 • If no further adjustment operations are required, remove the oscilloscope, remove the extension board, refit the control board and refit the back cover.

Focus

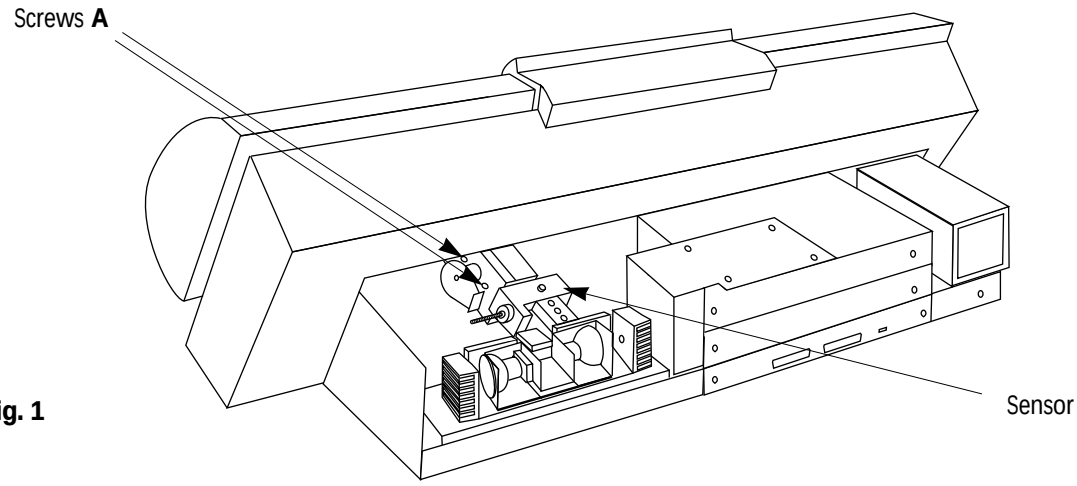


Fig. 1

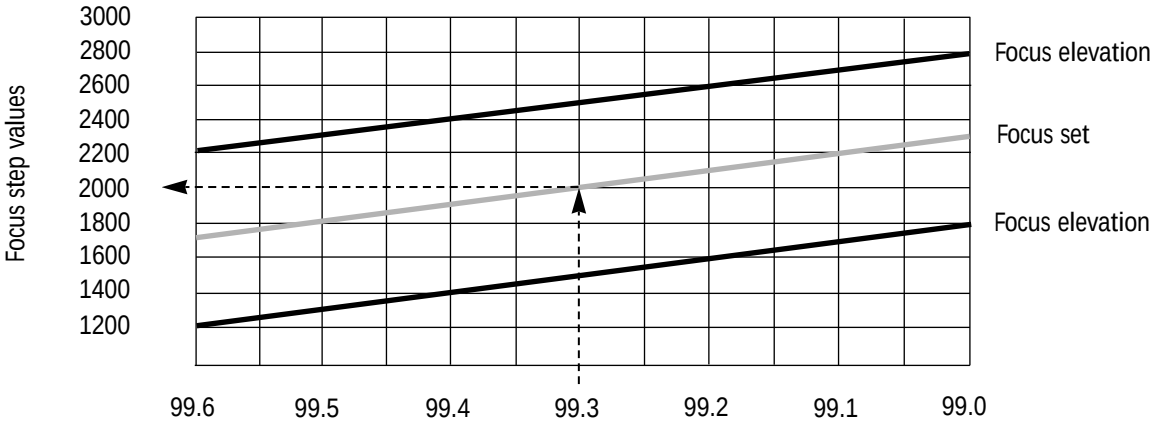


Fig. 2

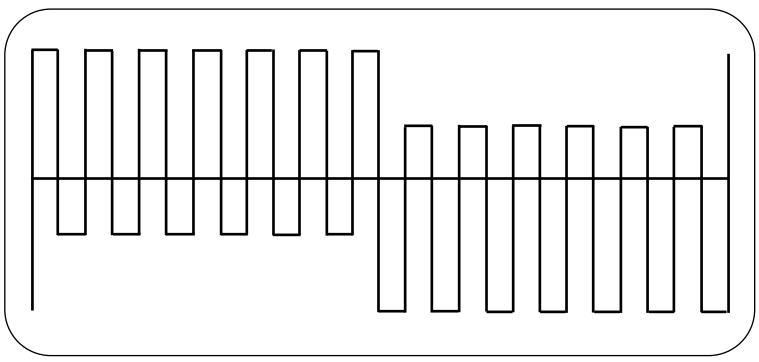


Fig. 3 Maximum focus as shown on oscilloscope

Focus Calibration

Function

Focus calibration is a calibration of the drum and should be carried out when the scanner is first installed and each time a different drum is mounted.

Technical data

Tools and materials required

Mac or PC (both if possible)
Photoshop plug-in 2.1.7or later versions

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

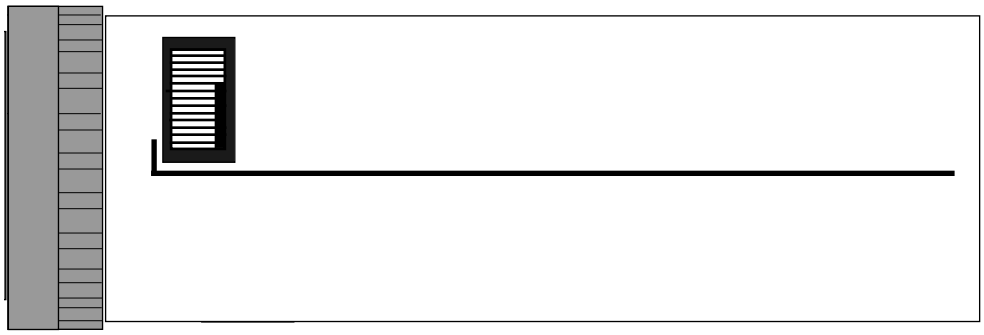
Focus Calibration

How to adjust

Note : Focus calibration should be performed **before** white point calibration.

1 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
2 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
3 • Turn on the Mac or PC and access the service program main menu (section 3•6).
4 • Select **S** (**Turn on SCSI**).
5 • Access Photoshop plug-in.
6 • Mount the auto focus adjustment target on the drum as follows:
For **Transmission** calibration, mount the target on a clear area of the drum.
For **Reflection** calibration, first mount the target on a piece of clean, white paper of about the same thickness and whiteness as the originals that are normally scanned and then mount the paper on the drum.
7 • Make a preview scan of the target, selecting transmission or reflection as applicable.
8 • Crop a square of approximately 20 x 20 mm (1" x 1") in the center of the target.
9 • If the drum is not bar-coded, click on **Options** to open the **Focus & Aperture** dialogue. Choose the desired drum number from the **Drum** menu and click on **OK**.
Note: this step is not necessary if the drum has a bar code.
10 • For Macintosh, hold down the command key so that the **Preview** button in the plug-in window changes to **Focus**, and click on **Focus**.
11 • For PC's, double-click on the **Calibrate** box in the plug-in window so that the **Preview** button changes to **Cal. Focus**. Click on **Cal. Focus** or press enter.
Note: the focus calibration will be stored permanently with the bar code number in the scanners memory.

Focus Calibration



White Calibration in Transmission and Reflection

Function

A white calibration is used for avoiding colour cast introduced from a scan.

Technical data

Tools and equipment required

Mac or PC (both if possible)
Photoshop plug-in 2.1.7or later versions

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

White Calibration in Transmission and Reflection

How to adjust

Note : ScanView recommends that these calibration procedures are carried out every 3 scanning hours and when the transmission or reflection bulbs have been changed.

1 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
2 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
3 • Turn on the Mac or PC and access the service program main menu (section 3•6).
4 • Select **S** (**Turn on SCSI**).
5 • Access Photoshop plug-in.

Transmission (Fig. 1)

6 • Select **Transmission**.
7 • Make a preview.
8 • Crop a square of approximately 20 x 20 mm (1" x 1") on a clean and clear area of the drum.
9 • Press the **alt** key to access calibrate.
10 • Click on **Calibrate** and the scanner will now calibrate for approximately 3 minutes.
Note: the calibration takes place on the top line of the cropped area.

Reflection (Fig. 2)

11 • Mount a piece of white paper onto the drum.
Note: The same type or whiter than the most frequently used originals.
12 • Select **Reflection.**
13 • Make a preview.
14 • Crop a square of approximately 20 x 20 mm (1" x 1") on the paper.
15 • Press the **alt** key to access calibrate.
16 • Click on **Calibrate** and the scanner will now calibrate for approximately 3 minutes..
Note: the calibration takes place on the top line of the cropped area.

White Calibration in Transmission and Reflection

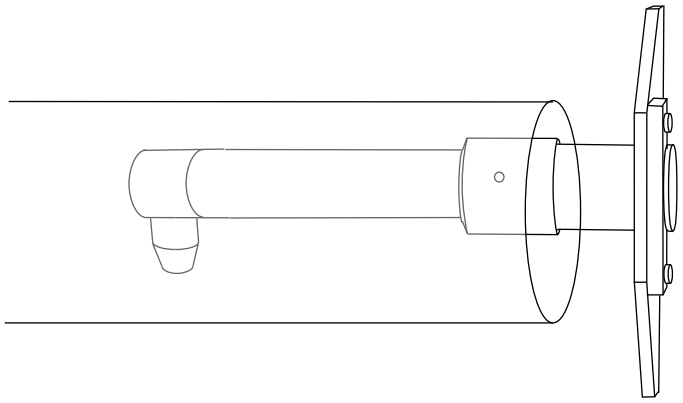


Fig. 1

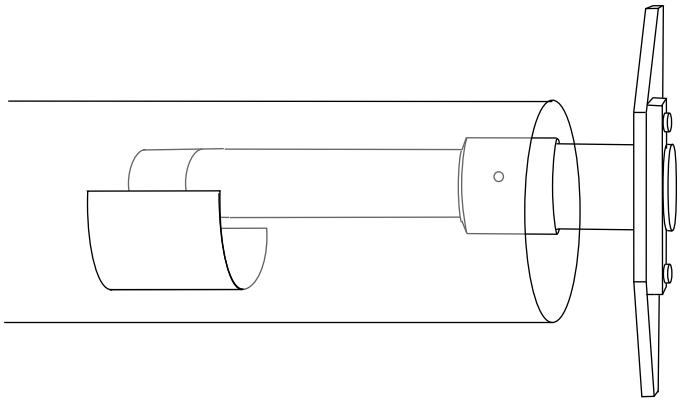


Fig. 2

Zero Point, Vertical

Function

The zero point vertical adjustment ensures that the starting point of the scanner is set correctly.

Technical data

Tools and materials required

3 mm allen key for DC motor and cover mounting screws

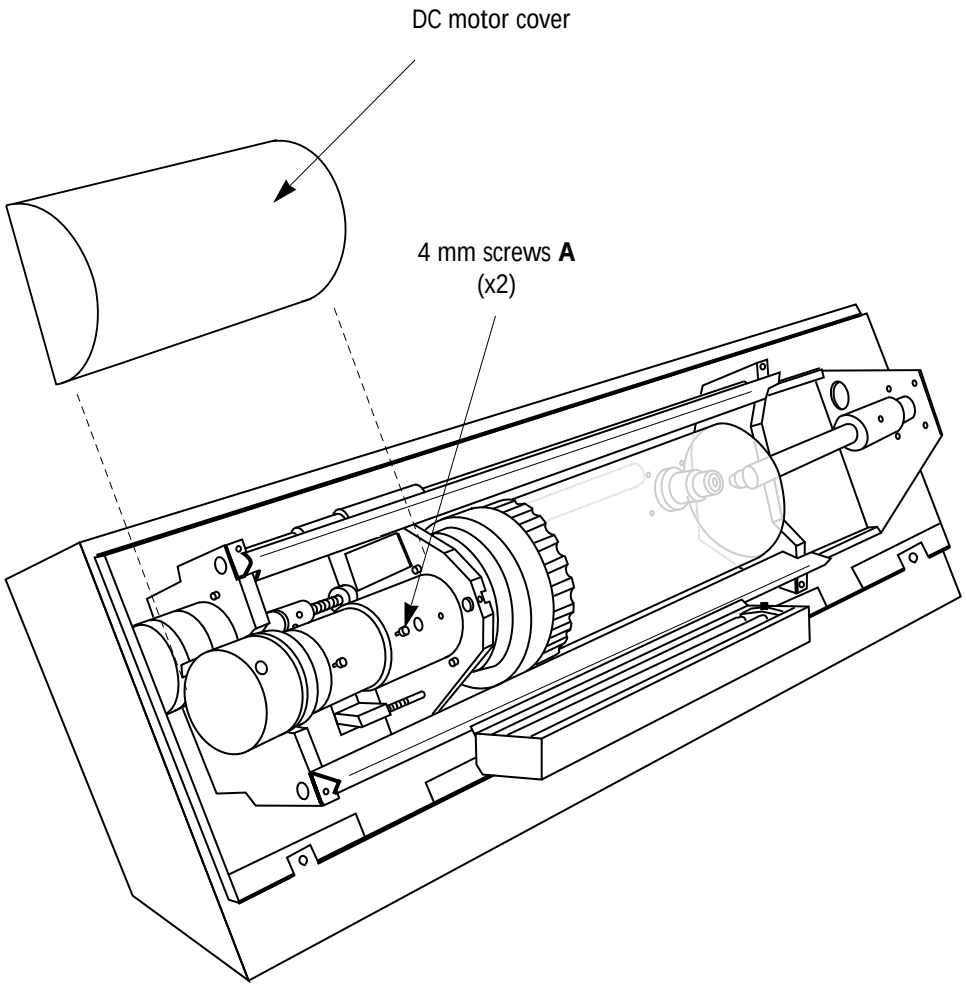
Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Zero Point, Vertical

How to adjust

1 • If access is not already available, remove the front cover **C**, (section 4•2 step 3).
2 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
3 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
4 • Turn on the PC and access the service program main menu, (section 3•5).
5 • Select **1**, (**Move drum Z/P/L/.**), then **L** to move the drum to the locked position.
6 • Remove the two 3 mm allen screws from the DC motor cover and remove the cover.
7 • Loosen the two 3 mm allen screws **A** securing the motor to the drum sleeve, enough to allow adjustment of the motor.
8 • Select **M**, (**Adjust drum motor**).
9 • Gently rotate the motor until a value between 225 and 275 is shown on the monitor.
10 • Tighten the two 3 mm allen screws **A** firmly, but not overtight, to secure the motor.
11 • Refit the DC motor cover using the two 3 mm screws.
12 • Ensure that the drum is clean and empty and select **K**, (**Drum zero position**).
13 • Carry out a white calibration in transmission, (section 5•5).
14 • If no further adjustment or replacement operations are required, refit the front cover **C**, (section 4•2).

Zero Point, Vertical



Drum Alignment

Function

To check the alignment of the drum after refitment and to adjust as necessary to give optimal focus sharpness.

Technical data

TP14
TP201
TP15 (trigger)

Tools and equipment required

1.5 mm allen key for drum bracket set screw
3 mm allen key for mounting adjustment screw
Loctite 243 or equivalent for set screw
Oscilloscope with test probes
Photoshop plug-in 2.1.7 or latest version
UGRA test target 1982 to measure the focus value
ScanView focus adjust targets

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Drum Alignment

How to test and adjust

1 • Fit a terminator to one SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
2 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
3 • Turn on the Mac and access the service program main menu (section 3•6).
4 • Perform a focus calibration (Section 5•4)).
5 • Mount the UGRA test target firmly onto the drum approximately 1 cm away from the zero point (position 1, fig. 1).
6 • Perform a focus sharpness test (section 5•10 steps 5-15).
7 • Move the UGRA test target to the opposite end of the drum approximately 16 cm away from the zero position (position 2, fig. 1) and repeat the focus sharpness test (section 5•15 steps 5-15).
8 • The drum is in alignment when the pixel spread at 6µ is considered to be the same in positions 1 and 2. If the pixel spread is incorrect, proceed with step 9 below.
9 • Mount a ScanView focus adjust target at each end of the drum as shown in Fig. 2 (the same dimensions away from the zero point as the UGRA test target).
10 • Perform a focus test on the left hand test target (section 5•9 steps 1-16) and note the overlap values.
Note: Double check that it is a focus test and not focus calibration.
11 • Perform a focus test on the right hand test target (again in accordance with section 5•9 steps 10-16) and compare the overlap values obtained in step 10 above. If the values are not the same, proceed with step 12.
12 • Remove the front cover **C** (section 4•2 step 3).
13 • Remove the set screw **B** and adjust the mounting/adjustment allen screw **A** (fig. 3) until the overlap values in step 11 are the same as those in step 10.
14 • Repeat step 10 to ensure that the overlap values are the same on both test targets. (After adjusting to the right hand target, it is likely that the left has changed slightly).
15 • It may be necessary to repeat the adjustment on both test targets several times until the overlap values are equal.
16 • If no further adjustment or replacement operations are required, refit the front cover **C** (section 4•2).

Drum Alignment

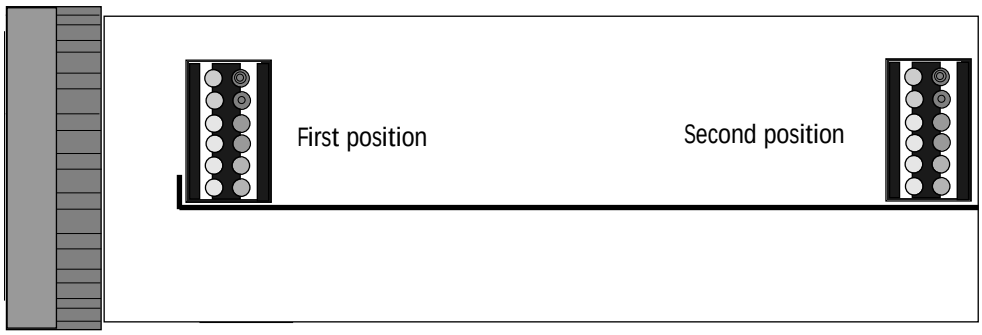


Fig. 1

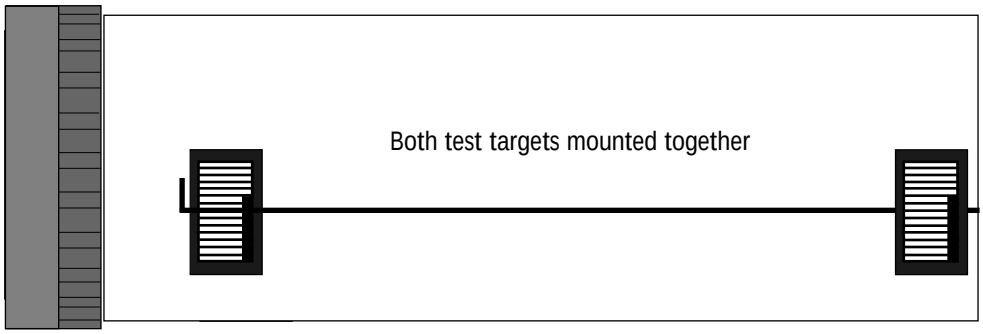


Fig. 2

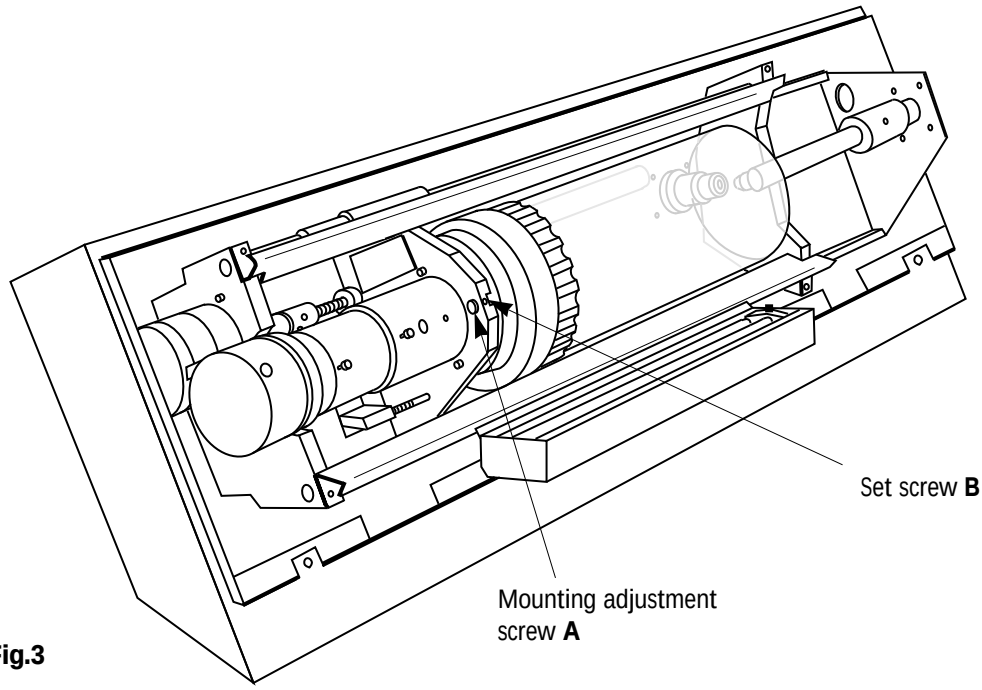


Fig.3

Cover-Locked Pin

Function

The cover locked pin informs the scanner of the position of the cover. If the pin is disengaged (ie. the cover is open), the scanner will not operate.

Technical data

Tools and materials required

1.5 mm allen screw for pin mounting/adjustment screws

Cover-Locked Pin

How to adjust

1 • Remove the acrylic cover by unscrewing the two thumb screws on the inside of the cover.

2 • Loosen the two 2 mm allen screws **A** securing the pin and move it fully up in its bracket.

3 • Move the cover frame manually down until it is in the closed position.

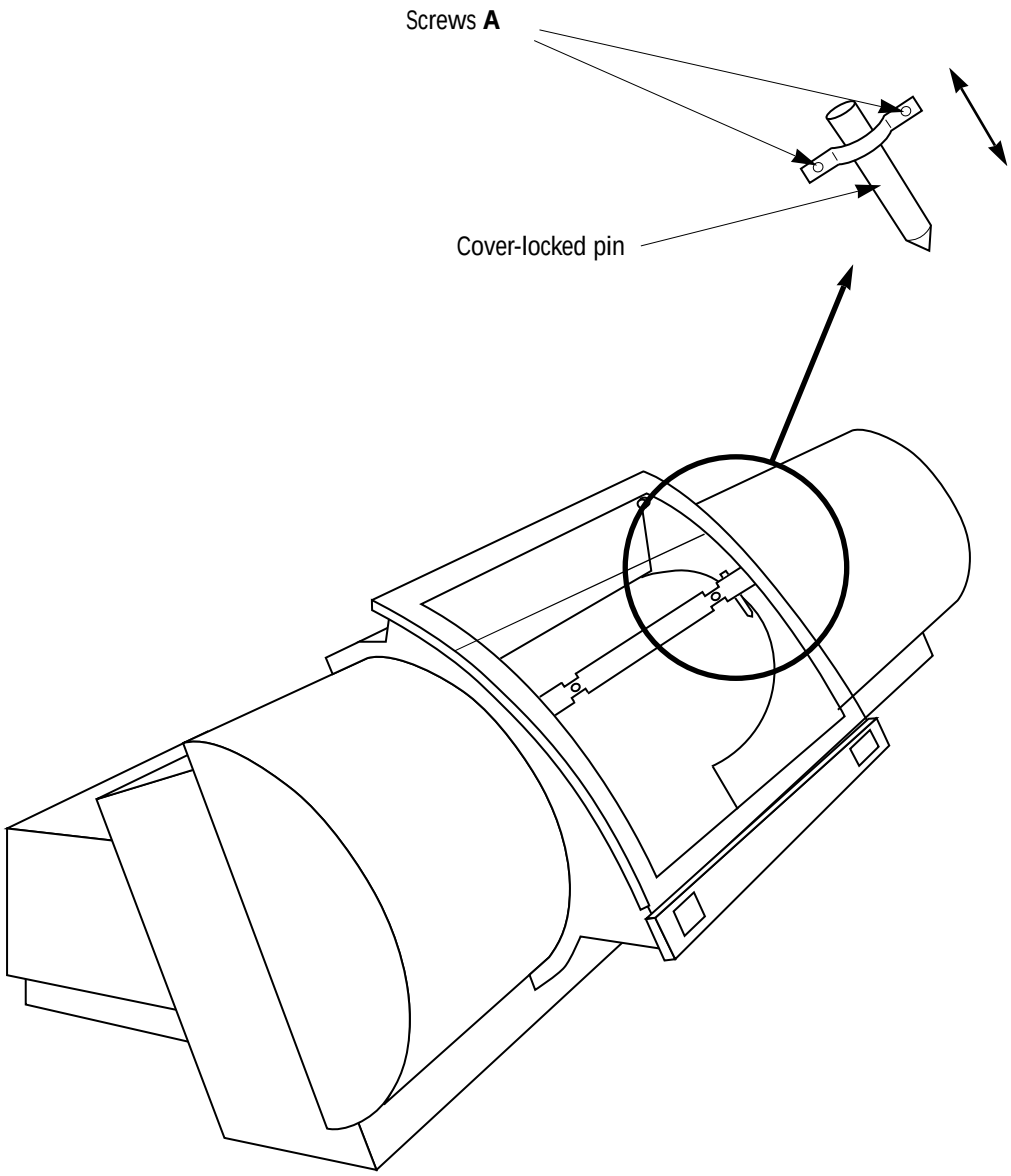
4 • Move the pin down until the microswitch trips and then tighten the two allen screws **A**.

5 • Refit the acrylic cover.

6 • Switch on the scanner and open and close the cover by pressing the ScanFlow symbol on the left hand side of the strip, below the acrylic cover.

Note: this is to ensure that the pin travels cleanly through the slot above the microswitch.

Cover-Locked Pin



Focus Test

Function

The testing of the focus sharpness checks the alignment of the drum.

Technical data

TP14
TP201
TP15 (trigger)

Tools and equipment required

Oscilliscope with test probes
ScanView focus adjust target
Photoshop plug-in 2.1.7 or latest version
2.5 mm allen key for focus step motor mounting screws

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Focus Test

How to adjust

1 • If access is not already available, remove the back cover **B** (section 4•2 step 2).
2 • Remove the two 3 mm allen screws from the control board and slide the control board out of its tray.
3 • Fit an extension board to the control board connector on the back-plate and and slide the control board in to mate with the extension board.
Note: support the board underneath so that it is parallel with its tray.
4 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
5 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
6 • Turn on the PC and scanner and start up Photoshop plug-in.
7 • Carry out a white calibration in transmission (section 5•5).
8 • Mount the ScanView focus adjust target firmly on the drum so that the middle of the target is approximately over the horizontal line, (fig. 1).
9 • Access the service program main menu (section 3•5).
10 • Position the target over the sensor lens by selecting **1** (**Move drum *Z/P//L/.***) and then **.**, ("dot" - allows setting your own drum position parameters). Finally select **q** (**utility end**).
11 • Connect the oscilloscope signal probes to TP14, (channel 1), TP201 (ground) and TP15, (use channel 2 as trigger).
12 • Select **0** (**Toggle lamps**) to turn on the transmission light.
13 • Select channel 1 on the oscilloscope.
14 • Select **4**, (**Choose aperture**) and choose aperture 0.
15 • The maximum focus is now shown on the oscilloscope, (fig. 1).
16 • If no further adjustment or replacement operations are required, remove the oscilloscope, remove the control board extension, refit the control board using the two 3 mm allen screws and refit the back cover **B**, (section 4•2).

Focus Test

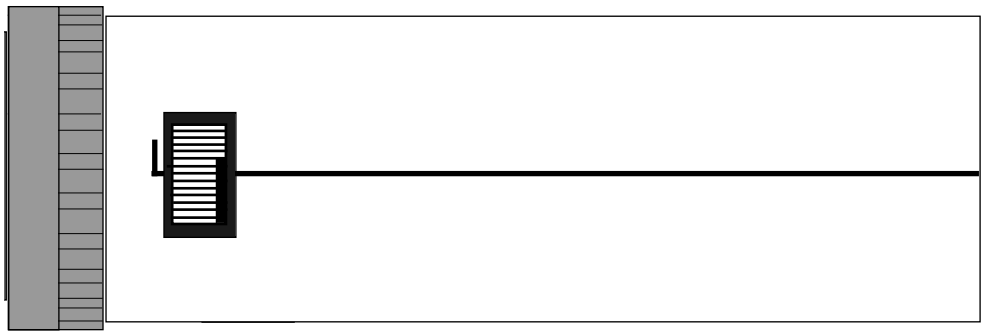


Fig. 1

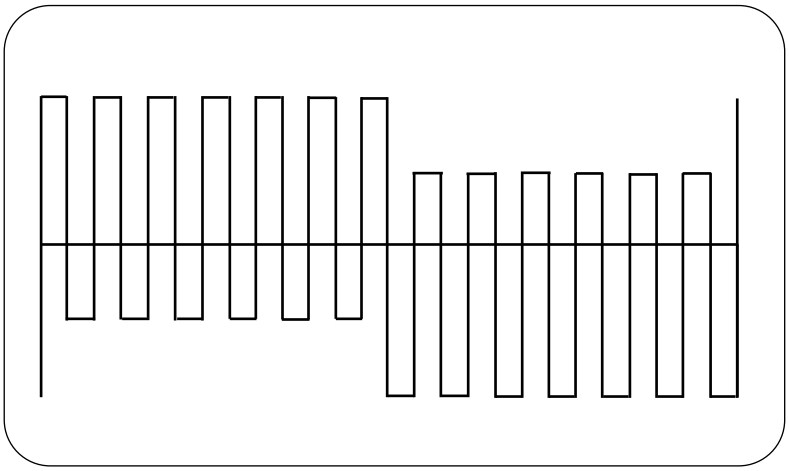


Fig. 2 Maximum focus as shown on oscilloscope

Focus Sharpness

Function

The testing of focus sharpness checks that maximum sharpness is obtained to ensure the best possible focus.

Technical data

Focus: < 6 micron

Tools and equipment required

Macintosh computer
Photoshop plug-in 2.1.7 or latest version
UGRA test target to measure the focus value.

Caution!

☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

☛ Ensure the UGRA test target is free of dust otherwise false indications are likely.

Focus Sharpness

How to test

1 • Fit a terminator to one SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
2 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
3 • Turn on the Mac and access the service program main menu (section 3•6).
4 • Mount the UGRA test target firmly onto the drum.
5 • Switch on the scanner and start up Photoshop plug-in.
6 • Make a preview of the UGRA test target.
7 • Perform a focus calibration on the target.
8 • Crop an area of the test target with the 12 circles as shown in fig. 1.
9 • Choose the following settings in Photoshop plug-in:
Aperture 1
Transmission gray scale.
Neutral gradation curve
Gamma 0.78
Resolution 600 dpi
White/black point: max. 255
min. 0
10 • Make a scan of the area.
11 • Select **Adjust levels** in Photoshop image menu.
12 • Define the background of the circles in the **Levels** window by clicking on the white marker **A** and moving it to the right peak of the histogram as shown in fig. 1.
Note: adjustment must be at least 250 for white point.
13 • Select **Map threshold** in Photoshop image menu.
14 • Click on the marker in the **Threshold** window and set a value of 128 (fig. 2).
15 • For correct sharpness of focus, a few pixels should be visible down to at least 6 microns.
Note: Interpretation of pixel saturation is difficult, however fig. 2 gives a guideline of how the spread should appear. Be aware that dust on the test target can give false indications.

Focus Sharpness

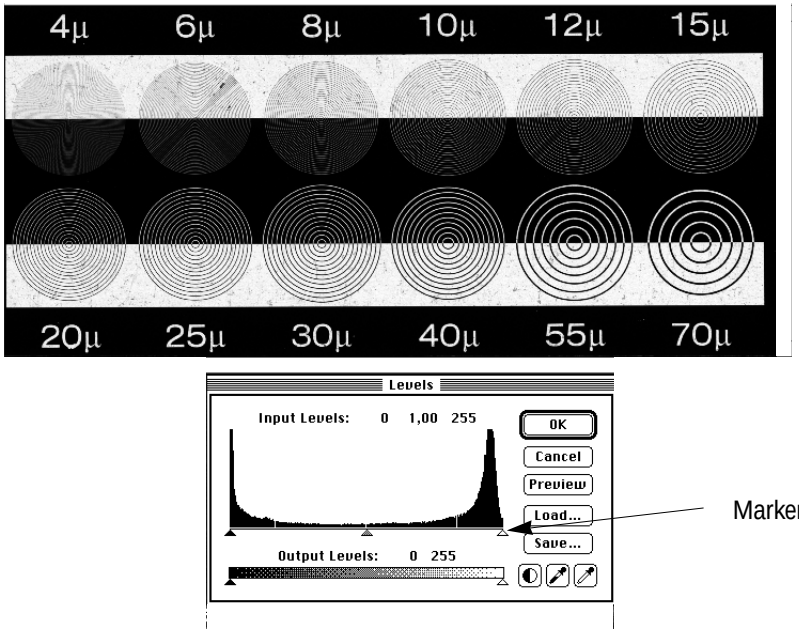


Fig. 1

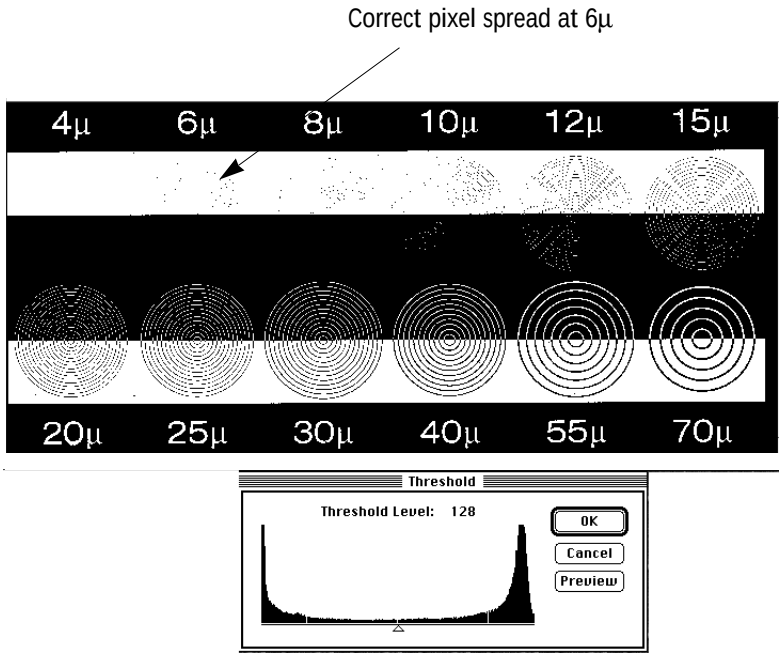


Fig. 2

Register Error

Function

The testing of register error is to check sample precision.

Technical data

Max. 1 pixel

Tools and equipment required

ScanView focus adjust target
Anti-static cloth
Photoshop plug-in 2.1.7 or latest version

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Register Error

How to test

1 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
2 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
3 • Turn on the PC and access the service program main menu (section 3•6).
4 • Switch on the scanner and start up Photoshop plug-in.
5 • Carry out a white calibration in transmission (section 5•5).
6 • Clean the drum with an anti-static cloth.
7 • Mount the ScanView focus adjust target firmly on the zero point of the drum, (the junction of the vertical and horizontal lines) so that the first of the thin black lines on the target is on the horizontal line of the drum (fig. 1). Ensure also that the target lines are horizontal with the horizontal line on the drum.
8 • Select the following settings in Photoshop:
Transmission gray scale
Gamma 1.4
Neutral gradation curve
Resolution 5000 dpi
9 • Select the standard area 24 x 36 mm and make a preview.
10 • Crop an area of 20 x 15 mm that starts approximately 5 mm from the first black line so that three black stripes can be seen (Fig. 2).
11 • Perform a scan and crop an area, **A**, as shown in fig. 2.
Note: the area should be approximately 1000 pixels on the y-axis and approximately 10 - 20 pixels on the x-axis.
12 • Select **image**, **effects** and then **scale**.
13 • Enlarge the area on the x-axis by a factor of 10 (fig. 3).
14 • Select **threshold** and make a threshold on the enlarged area (fig. 4).
15 • Choose what appears to be the worst area of irregularities in fig. 4.
16 • Zoom in 4:1 and make a crop of the area chosen.
17 • Choose the largest irregularity, select **show info.** and read the **W** value in the window (fig. 5).
18 • Divide this value by 10. The variation should be less than 1 pixel.
19 • If the variation is over 1 pixel, contact ScanViews's support department.

Register Error

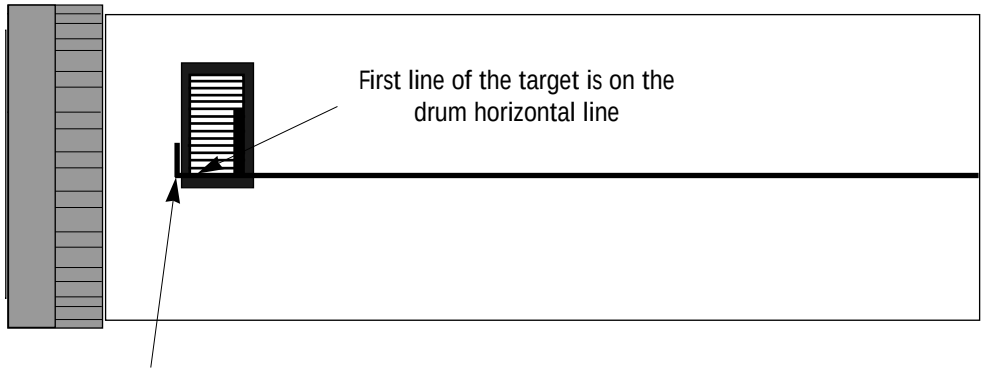


Fig. 1

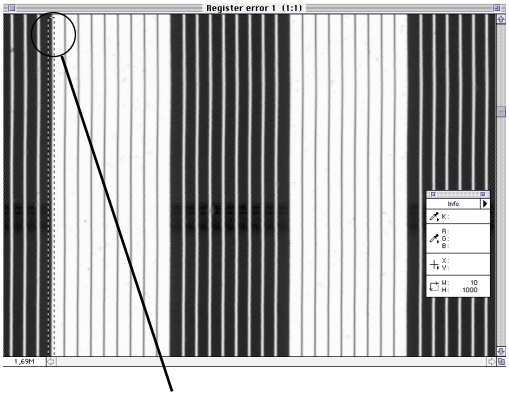


Fig. 2

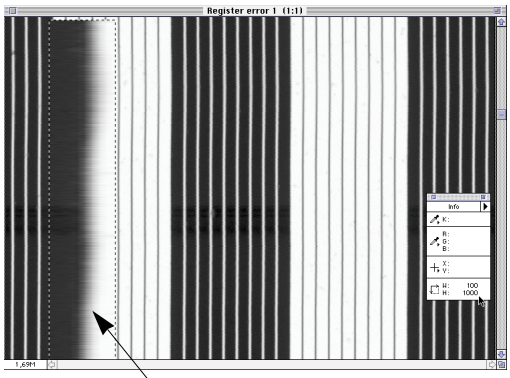


Fig. 3

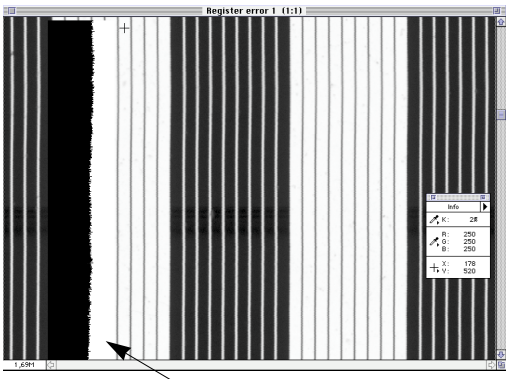


Fig. 4

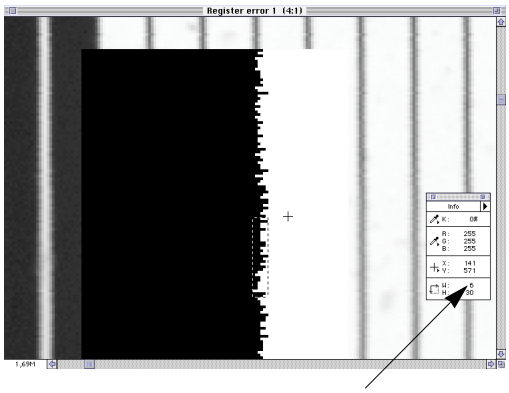


Fig. 5

Stripes in Shadow

Function

Testing for the presence of dots or stripes on a dark image.

Technical data

Max. 2 levels

Tools and equipment required

A piece of aluminium foil

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Stripes in Shadow

How to test

1 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
2 • Set the thumb wheel to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
3 • Turn on the PC and access the service program main menu (section 3•6).
4 • Switch on the scanner and start up Photoshop plug-in.
5 • Mount a piece of aluminium foil onto the drum.
6 • Select the following settings in Photoshop:
Transmission color
Gamma 1.4
Neutral gradation curve
Resolution 1200 dpi
Aperture number 1
White/black point: max. 255
min. 0
7 • Scan an area of approximately 20 x 20 mm in the middle of the aluminium foil, without making a preview first.
Note: if a preview is made, the white and black point will change, therefore readjust the values as in step 6.
8 • Select **adjust level** and move the left hand (black) marker to the right until level 2 is obtained (fig. 1).
9 • Now move the right hand (white) marker to the left until level 4 is obtained.
10 • Check the image and ensure that there are no stripes on the screen, (fig. 1).
11 • Fig. 2 shows an example of stripes in shadow when the black marker level is between 0 and 1. If there are stripes on the screen after steps 9 and 10, contact ScanView´s support department.

Stripes in Shadow

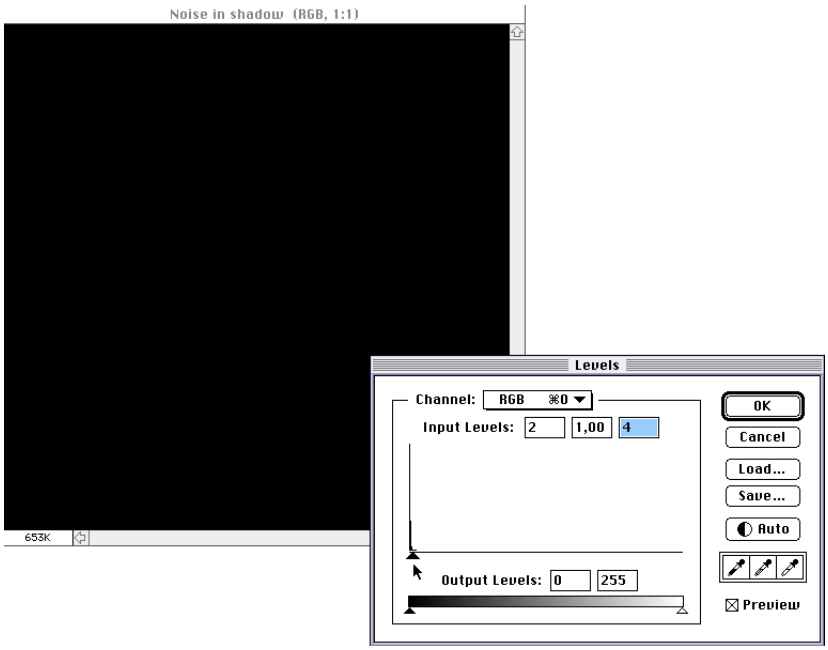


Fig. 1

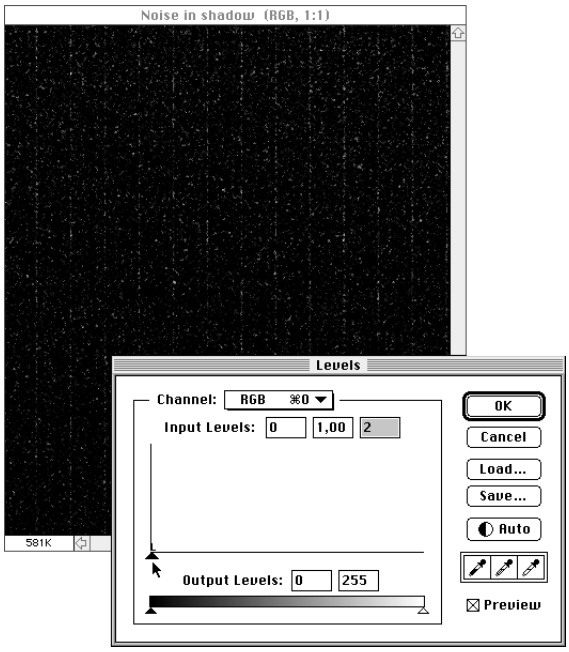


Fig. 2

Noise in Highlight

Function

Testing for the presence of dots or stripes on a white image.

Technical data

Max. standard deviation of 5

Tools and equipment required

Caution! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out service operations.

Noise in Highlight

How to adjust

1 • Fit a terminator to a SCSI connector on the scanner and SCSI cable to the scanner and PC.
2 • Switch on the scanner in the SCSI mode.
3 • Ensure that the drum is thoroughly clean at the end where the scan is to be performed.
4 • Start up Photoshop plug-in and select the following settings:
Transmission color
Gamma 0.78
Neutral gradation curve
600 dpi resolution
Aperture number 1
White/black point: max. 255
min. 0
5 • Scan an area of approximately 20 x 20 mm at the end of the drum, without making a preview first.
6 • Select **Image** and then **Histogram** and check that the standard deviation in gray, red, green and blue is not greater than 5 (fig. 1).
7 • If the standard deviation is greater than 5, contact ScanView´s support department.

Noise in Highlight

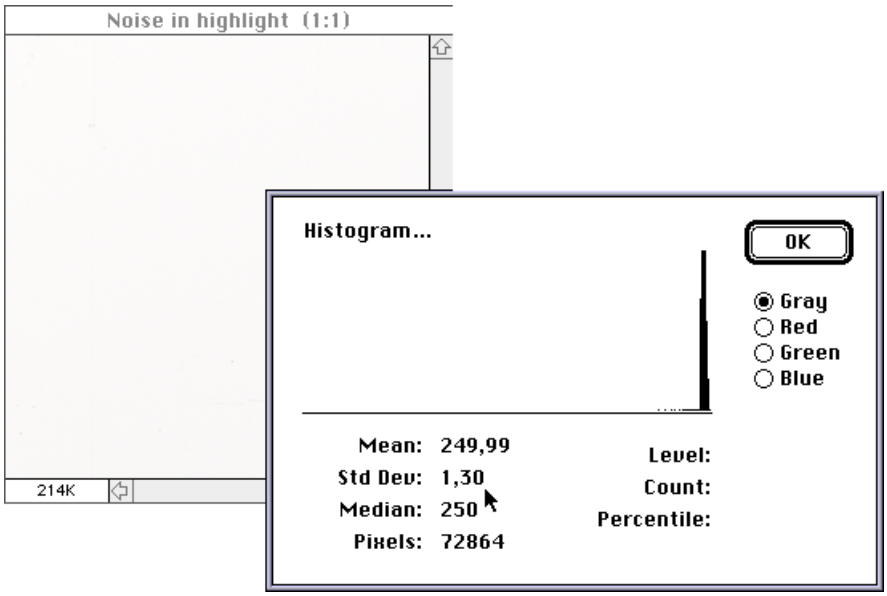


Fig. 1

Schedules

Frequency	Operation	Page Reference
As required	Drum cleaning	6•3
As required	Spindle lubrication	6•4
As required	Drum guides lubrication	6•4

Cautions ! ☛ Turn off power
- **Before** connecting or disconnecting cables.
- **Before** carrying out maintenance operations.

☛ **Do not** lubricate any bearings in the ScanMate 11000.

Drum cleaning

Tools and material required:

Liquid drum polish and cloth, (ScanView service kit)
Anti-static cloth, (ScanView service kit)

Operation:

Note: the drum must be handled with the extreme care to avoid scratches.

1 • Using the service program (section 3•6), position the drum in the park position.
2 • Using the drum polish and cloth supplied in the service kit (or non-abrasive repro wipes and graphic arts drum cleaner), carefully clean the outer surface of the drum.
Note: Do not use any chemicals or cleaning fluids that are not

specifically sold as scanner drum cleaners. Be careful when using anti-Newton spray or bottled air. **Do not** let the propellant get onto the drum surface as the extreme cold produced may damage the drum.

Spindle/drum guides lubrication

Tools and material required:

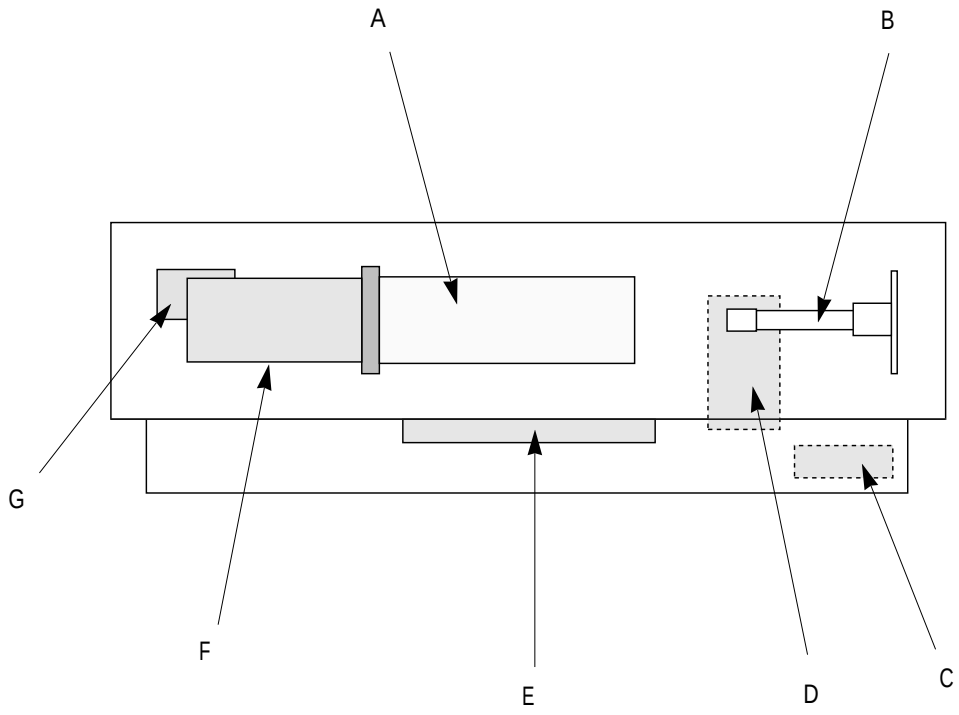
3 g. tube lubricating grease for spindle, (ScanView service kit)
3 g. lubricating grease for guides, (ScanView service kit)
Lint-free cloth

Operation:

1 • Remove the front cover **C**. (Section 4•2 steps 3).
2 • Fit a terminator to a SCSI connector on the scanner and SCSI cable and RS 232 service cable to the scanner and PC.
3 • Set the dip switch to 7, 8 or 9 (7=SCSI address 2, 8=SCSI address 3 and 9=SCSI address 4).
4 • Turn on the PC and access the service program (section 3•6).
5 • Switch on the scanner, select **1** (**Move drum Z/P/L/.**) and then **Z**, (the drum moves to the the zero position - this gives access to the full length of the spindle and the drum guides to enable cleaning and lubrication to carried out).
6 • Using a lint free cloth, clean the spindle before applying a thin film of spindle grease.
7 • Using a lint free cloth, clean the two drum guides before applying a thin film of drum guide grease.
Note: in order to avoid corrosion on the drum guides, do not touch with the bare hands.
8 • Select **q** (**utility end**) and if no further replacement operations are required, refit the front cover **C** in accordance with section 4•2.

7 • DIAGRAMS AND LAYOUTS

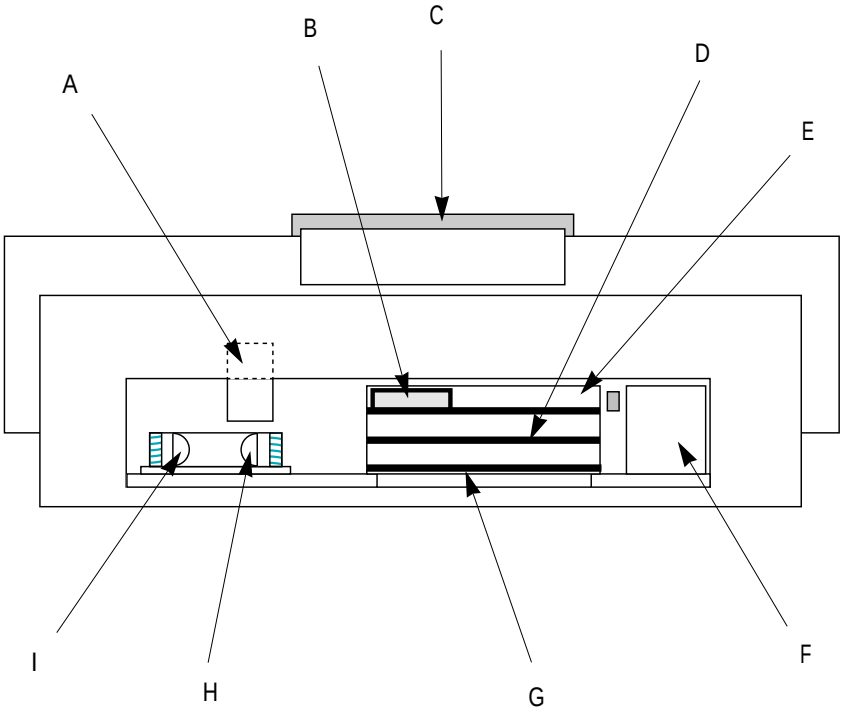
Component Placement Diagram, Front



Scanner viewed from the front

A	Drum
B	Light tube
C	Transformer
D	Sensor module
E	Fluorescent light
F	DC motor
G	Spindle step motor

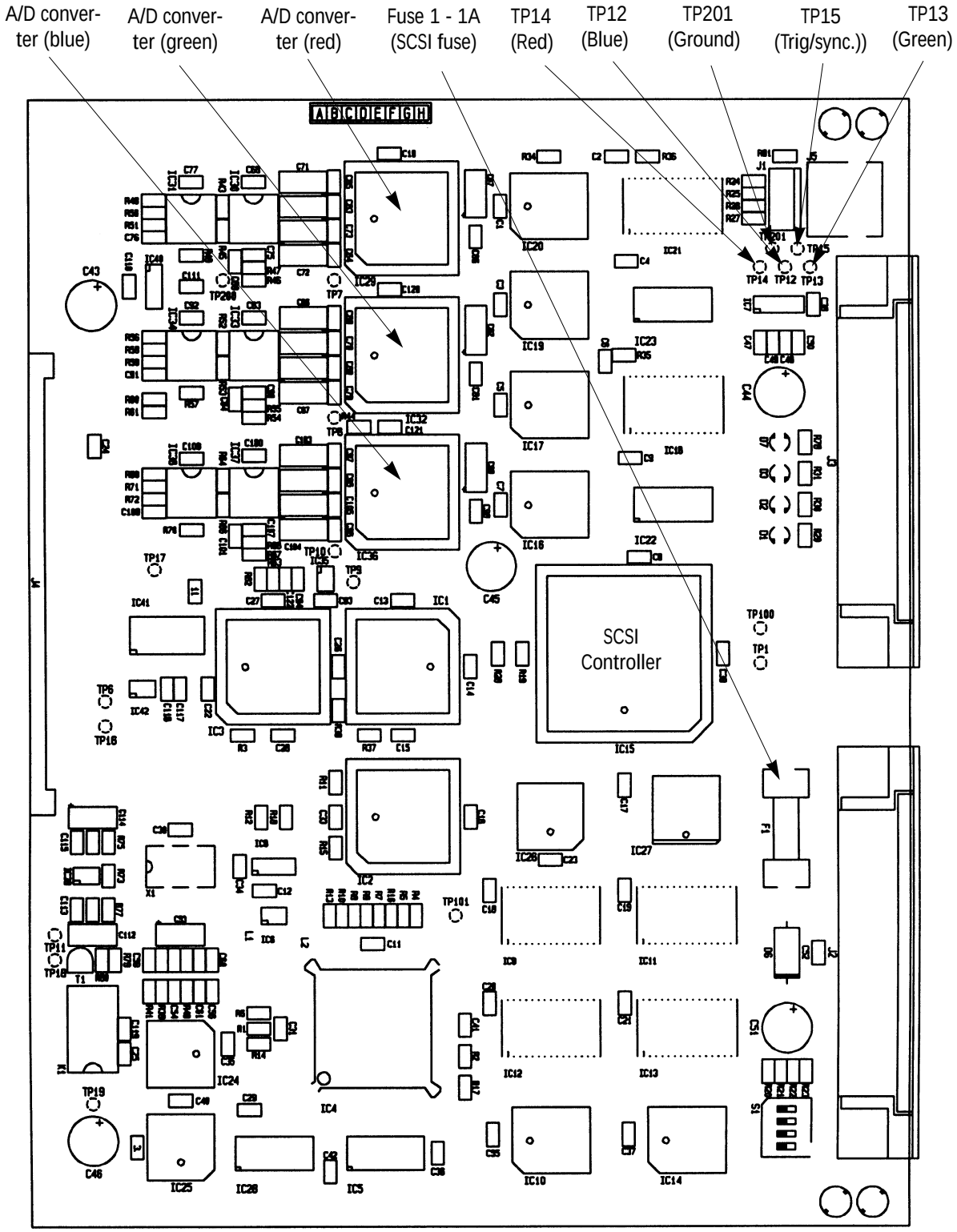
Component Placement Diagram, Back



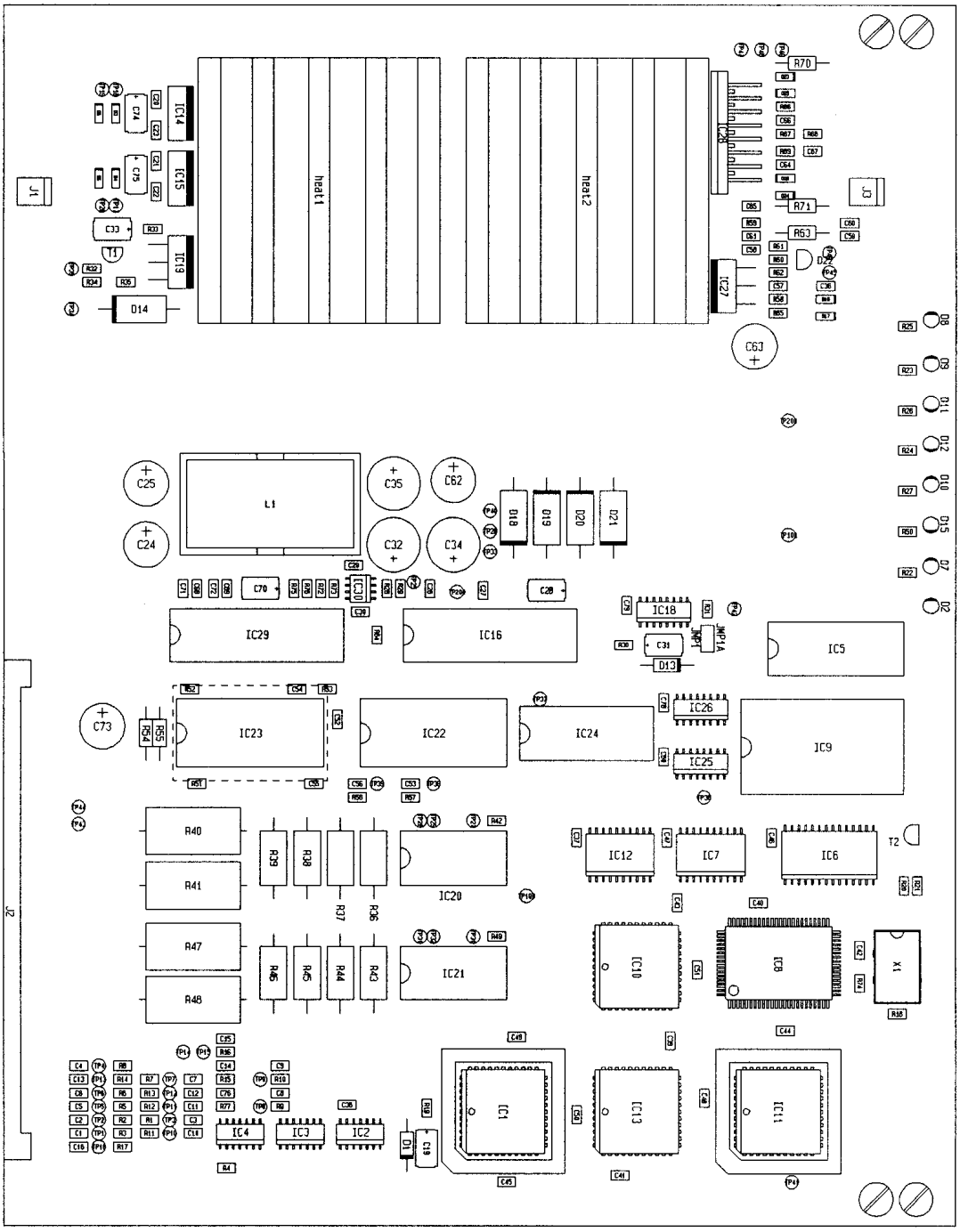
Scanner viewed from the back

A	Sensor module
B	PMT module
C	Acrylic cover
D	Driver board
E	Backplane
F	Power supply module
G	Control board
H	Reflection lamp
I	Transmission lamp

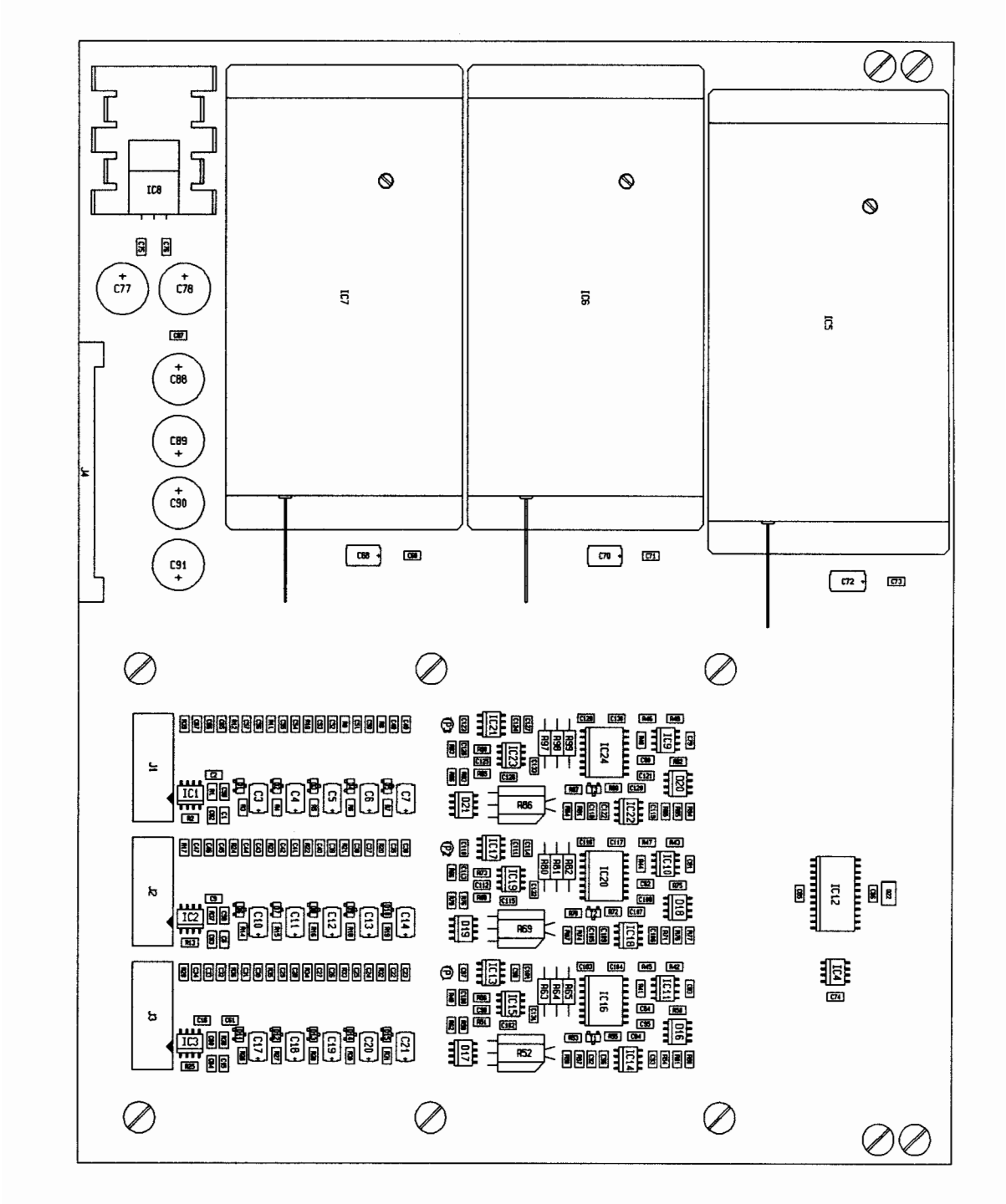
Control Board



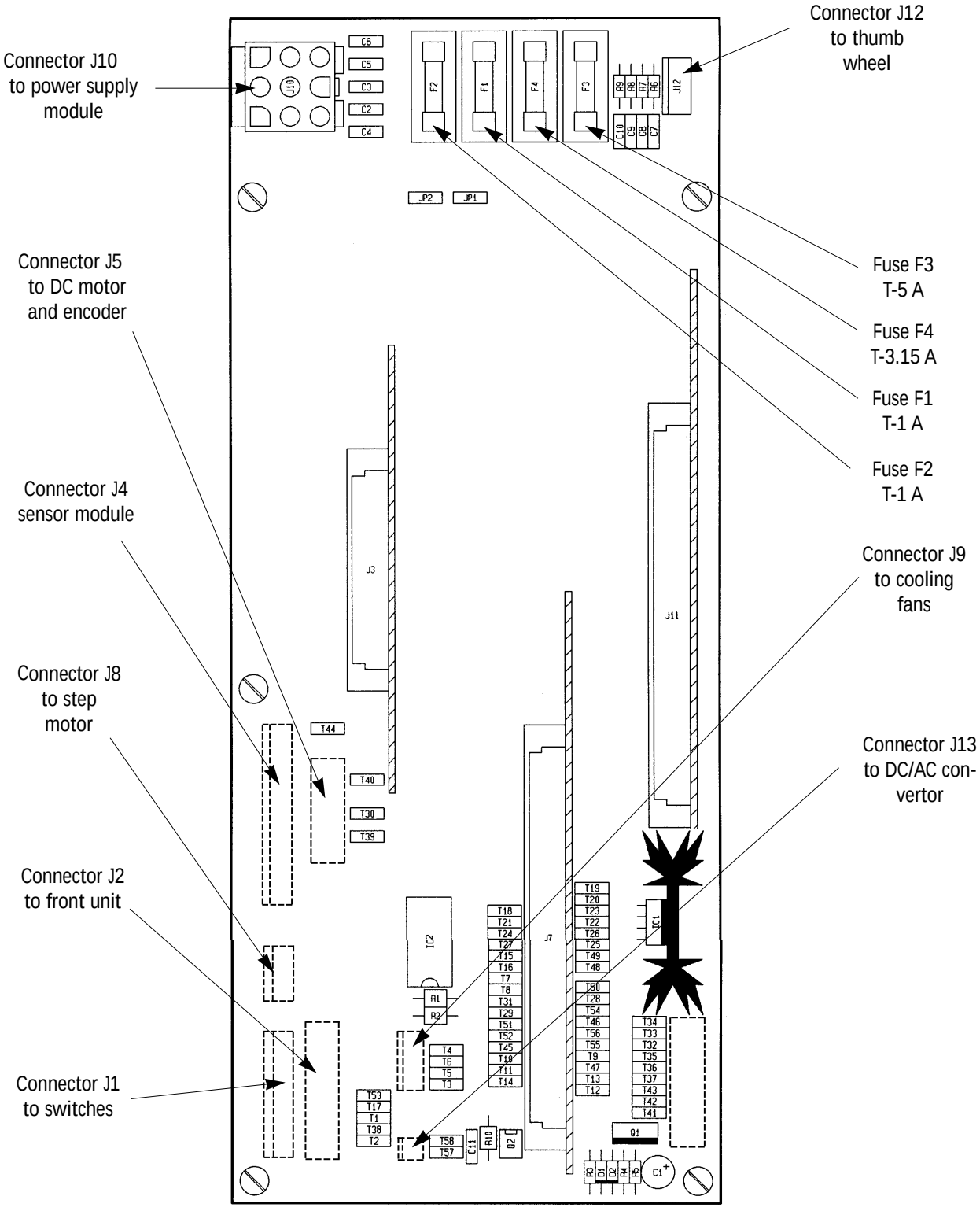
Driver Board



PMT Driver


IC8
C77
C78
C88
C89
C90
C91
IC7
IC6
IC5
C88
C89
C79
C71
C72
C73
J1
J2
J3
IC1
IC2
IC3
C3
C4
C5
C6
C7
C10
C11
C12
C13
C14
C17
C18
C19
C20
C21
IC24
IC23
IC22
IC21
R86
IC20
IC19
IC18
IC17
R69
IC16
IC15
IC14
IC13
R52
IC12
IC4
C74

Backplane


Connector J10
to power supply
module
Connector J12
to thumb
wheel
Connector J5
to DC motor
and encoder
Fuse F3
T-5 A
Fuse F4
T-3.15 A
Fuse F1
T-1 A
Fuse F2
T-1 A
Connector J4
sensor module
Connector J9
to cooling
fans
Connector J8
to step
motor
Connector J13
to DC/AC con-
vertor
Connector J2
to front unit
Connector J1
to switches

8 • TROUBLE SHOOTING

Problem	Possible Cause	Solution
Scanning problems		
White scan in transmission.	**1.** Transmission bulb blown. **2.** Scanner not white calibrated.	☛ Change bulb. ☛ Perform white calibration in transmission. ☛ Contact ScanView support
No light in reflection scan.	**1.** Relection bulb blown. **2.** Cables loose.	☛ Change bulb. ☛ Secure cables. ☛ Contact ScanView support
No light in transmission scan.	**1.** Transmission bulb blown. **2.** Cables loose.	☛ Change bulb. ☛ Secure cables. ☛ Contact ScanView support
Scan out of focus.	**1.** Focus adjustment required. **2.** Defective sensor or focus motor.	☛ Carry out a focus adjustment. ☛ Replace sensor module.
Color cast in scan.	**1.** Calibration required	☛ Carry out white calibration
Register error.	**1.** DC motor bearings noisy	☛ Replace DC motor.

Caution! ☛ Turn off power on both the scanner **and** computer before connecting or disconnecting the SCSI cable or Control board, otherwise the SCSI controller may be damaged.

Problem	Possible Cause	Solution
General		
Monitor program is not running	**1.** Thumb wheel settings incorrect.	☛ Set thumb wheel settings 7, 8 or 9.
Calibration fails	**1.** Aperture plate out of adjustment.	☛ Calibrate apertures (see section 3•8)
No ready light.	**1.** Defective park position switch.	☛ Replace switch ☛ Contact ScanView support
No lights on front panel.	**1.** Cable/connector faults. **2.** Defective power supply.	☛ Replace cable(s). ☛ Replace power supply. ☛ Contact ScanView support
Nothing is working.	**1.** Fuse in the scanner blown.	☛ Change the fuse. ☛ Contact ScanView support
SCSI.	**1.** Thumb wheel setting incorrect.	☛ Set thumb wheel to 1-6. ☛ Contact ScanView support

Caution! ☛ Turn off power on both the scanner **and** computer before connecting or disconnecting the SCSI cable or Control board, otherwise the SCSI controller may be damaged.