

Auto Lensmeter
SLM-5000 / SLM-4000
Maintenance Manual

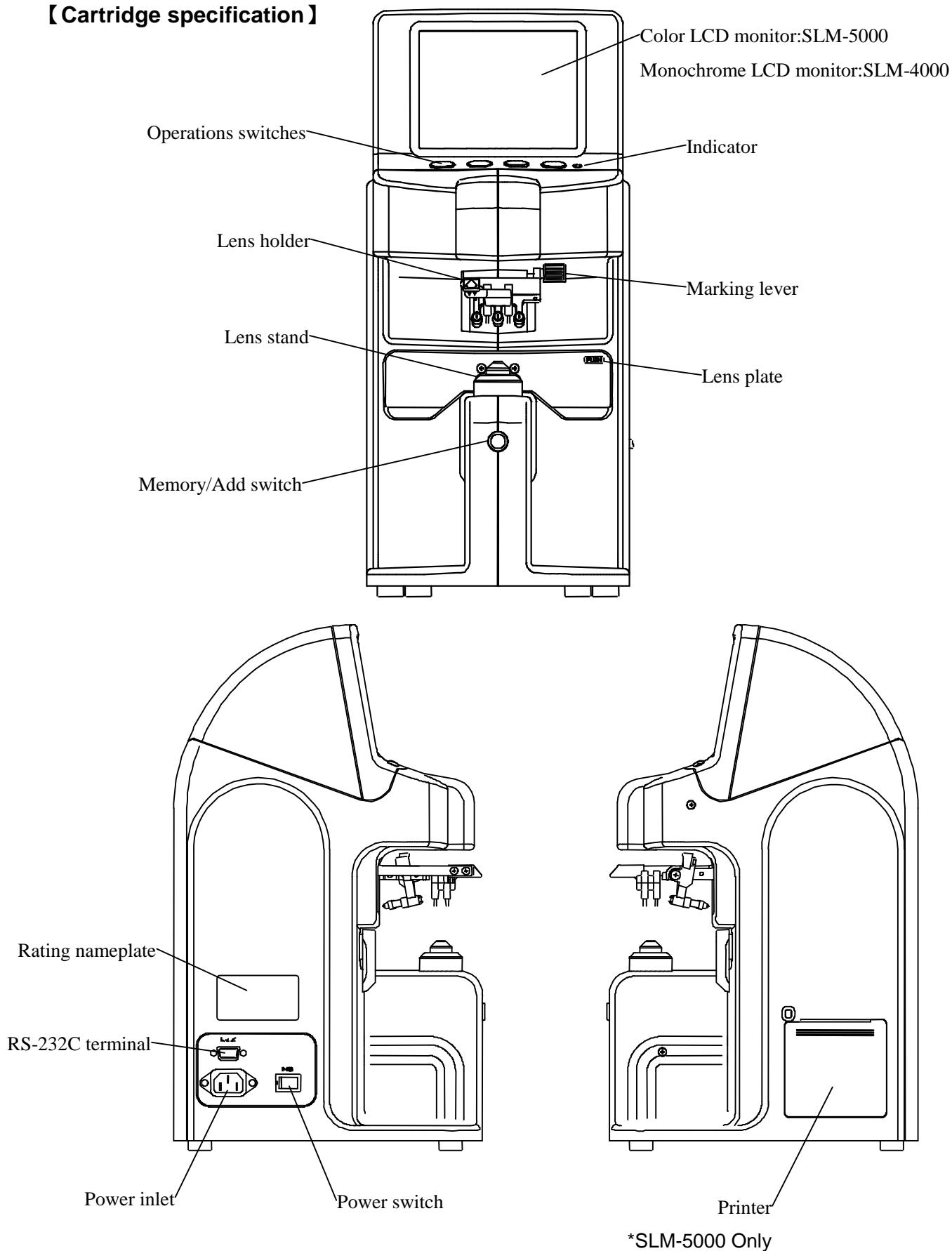
SHIN-NIPPON

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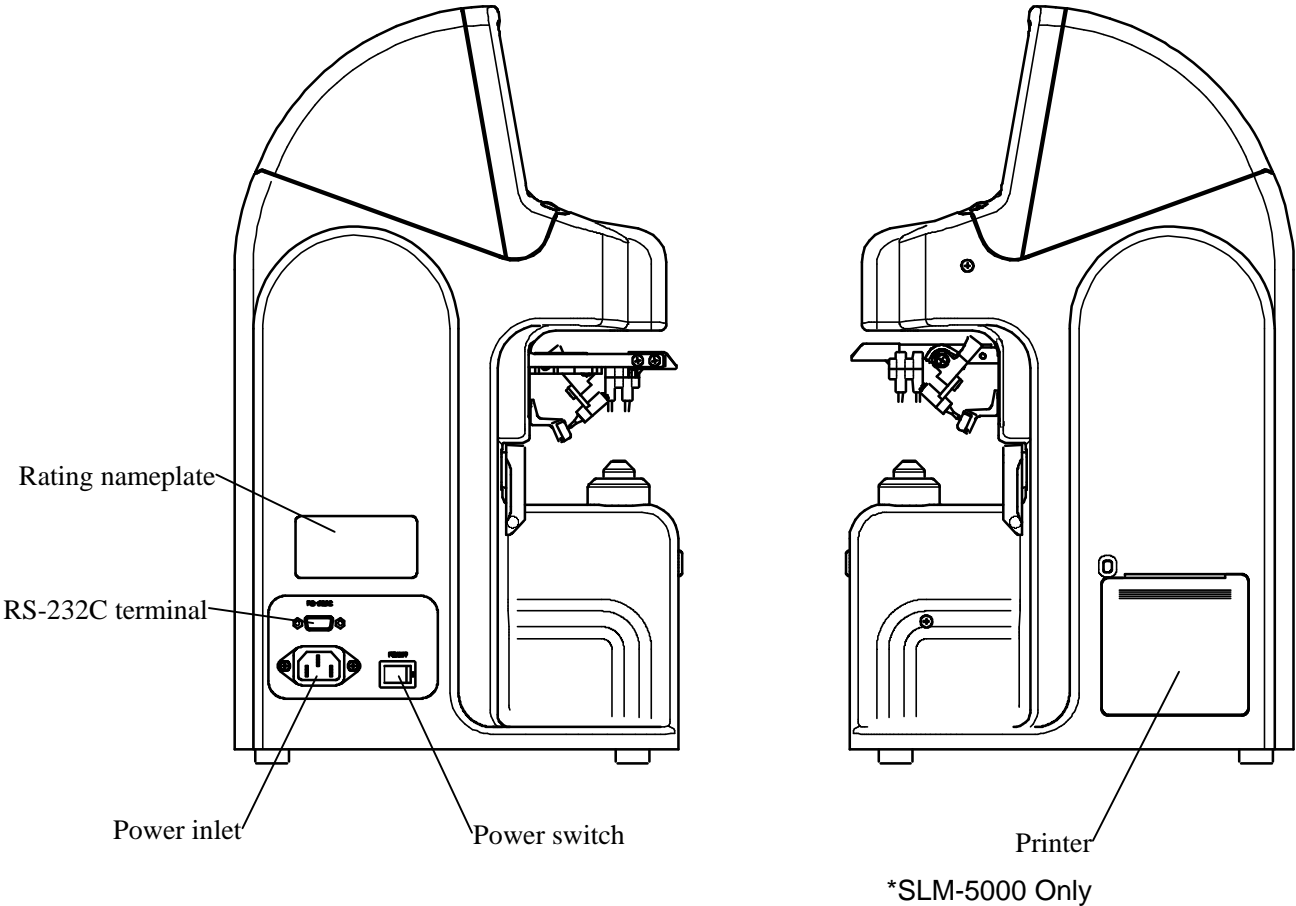
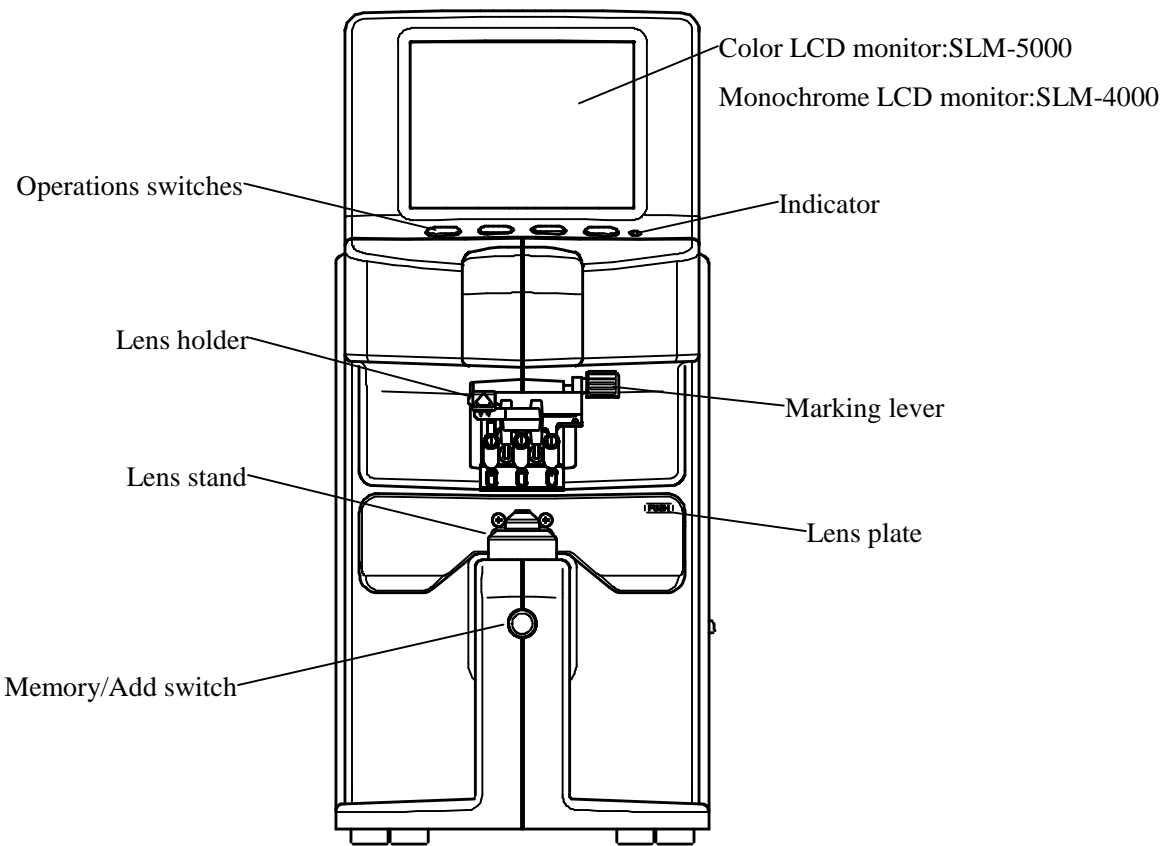
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1. External View

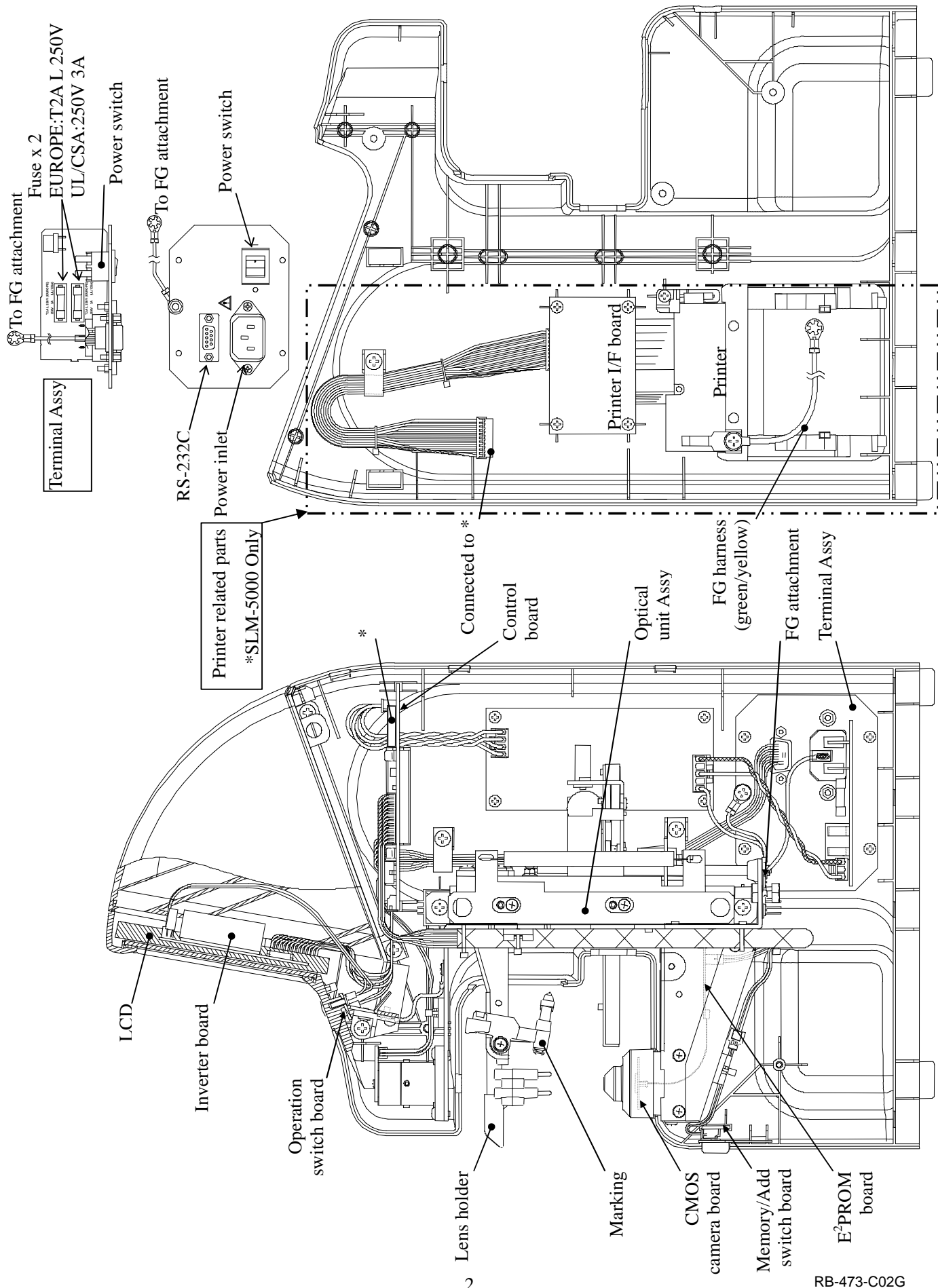
【 Cartridge specification 】



【Inkwell specification】



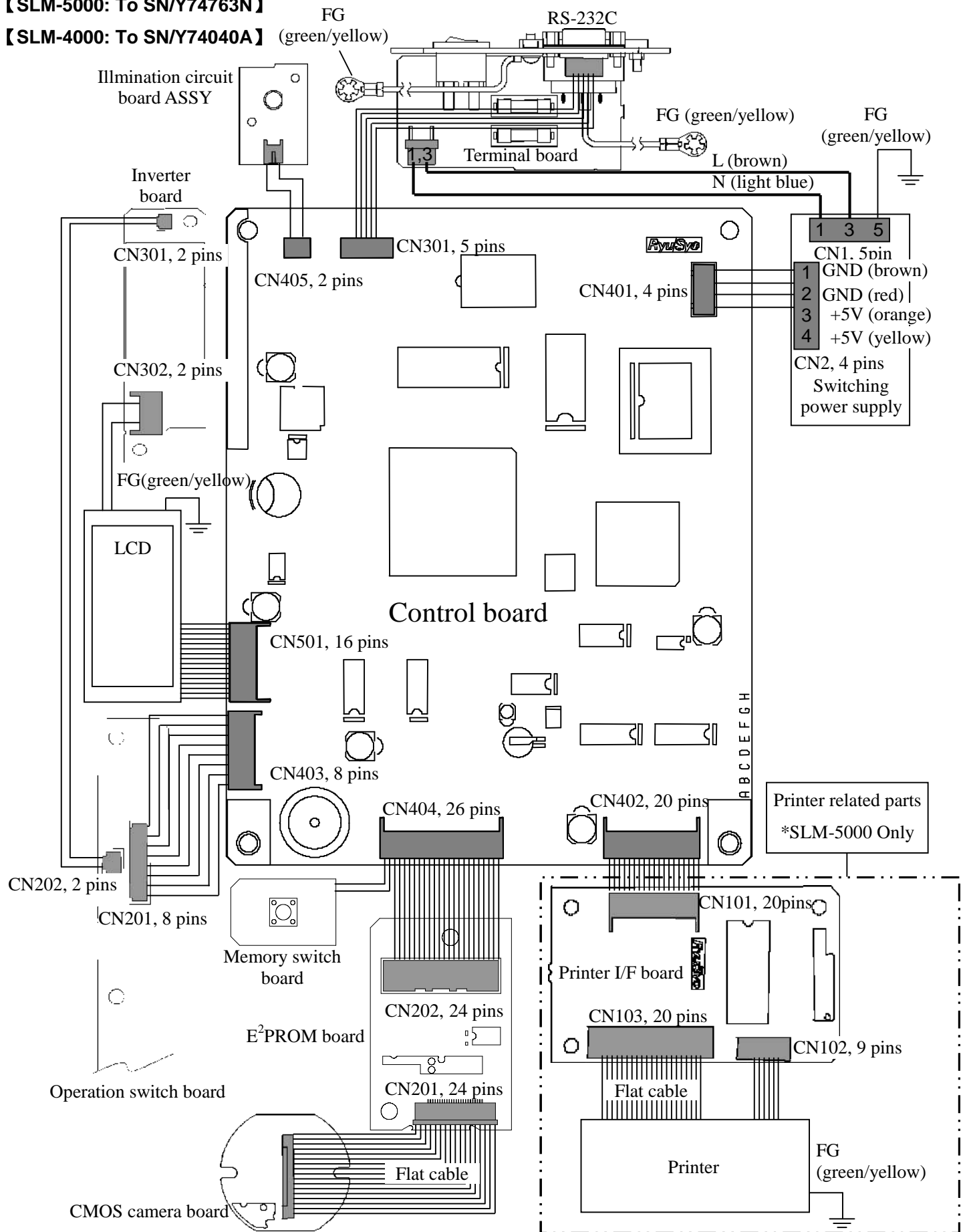
2. Exploded View



3. Wiring Diagram

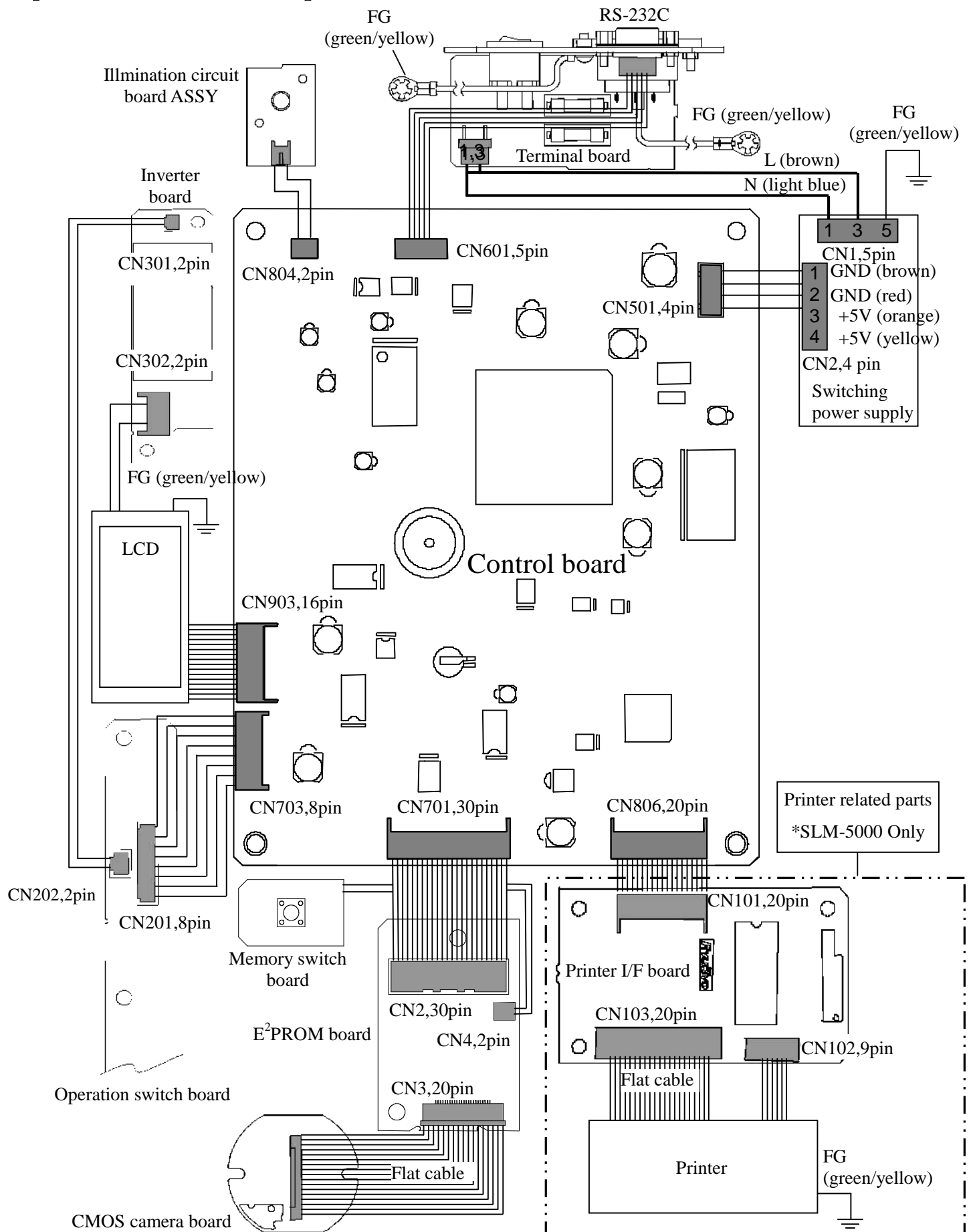
【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】



【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】



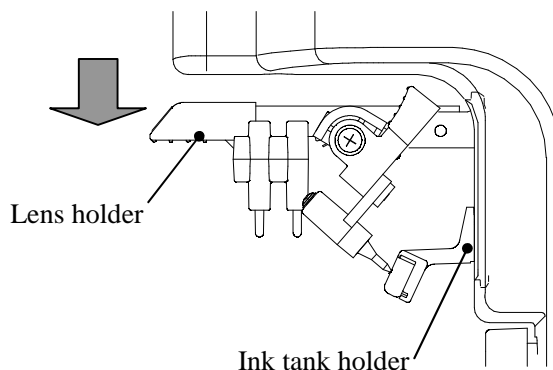
4. Assembly/disassembly of exterior features



Always cut the power and disconnect the power cord before disassembling the instrument.

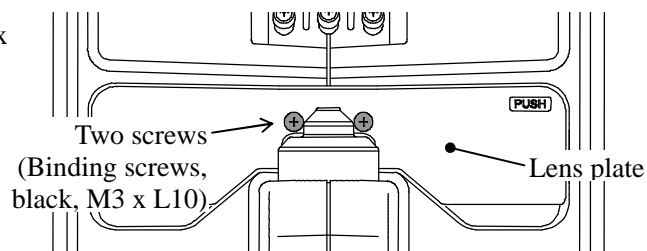
4.1. Ink tank holder (Inkwell specification only)

- Lower the lens holder. Unscrew the screw securing the ink tank holder from the front, and remove the ink tank holder.



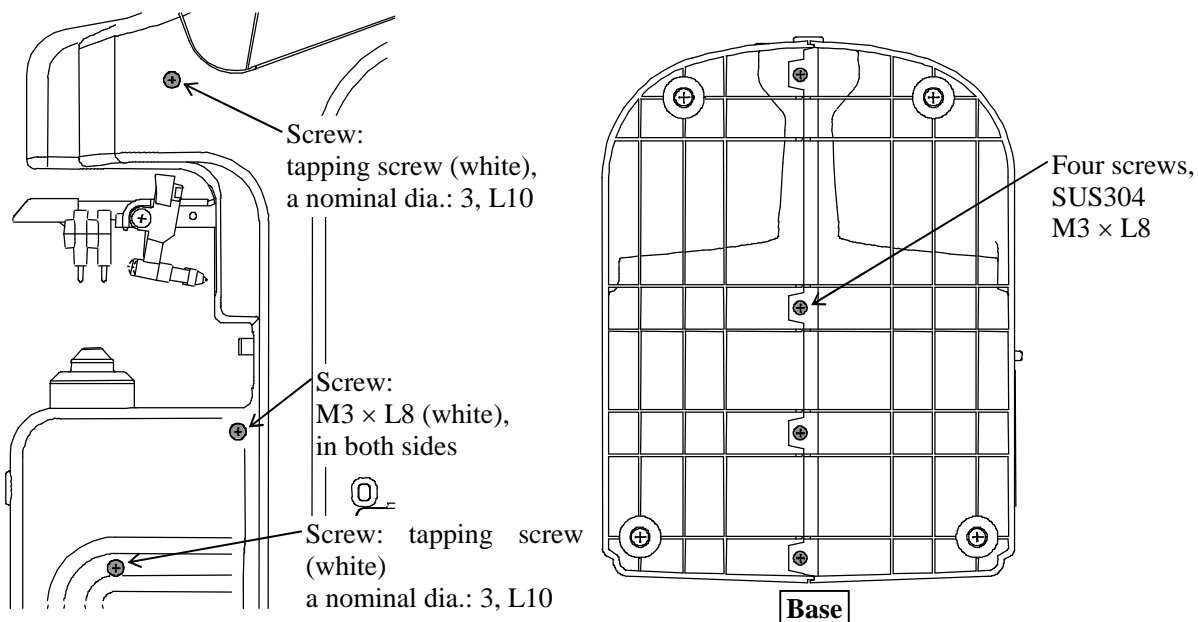
4.2. Lens plate

- Unscrew two screws securing the lens plate. (M3 x L10 binding screws, black)

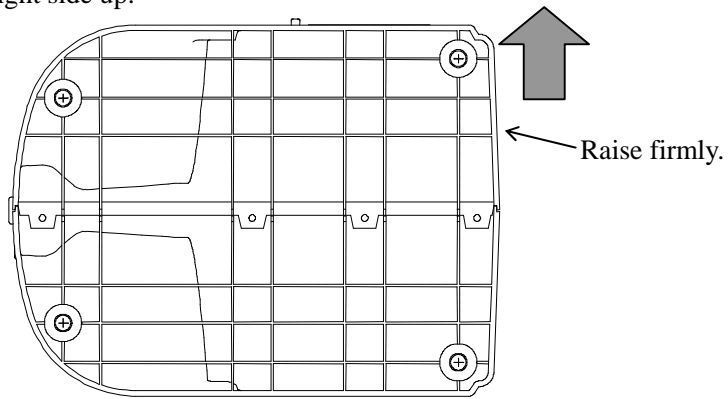


4.3. Cases

- Remove eight (7) screws securing right and left cases.



- Turn the instrument on its side so that the left side when viewed from the front becomes the bottom. Then, raise the right side up.



Do not lose the screws when disassembling the instrument since some screws are special types.

5. Part replacement

5.1. Control board

- 1) Remove the lens plate and cases. (See '4. Assembly/disassembly of exterior features'.)
- 2) Remove all connectors connected to the board. (See '2. Exploded View' and '3. Wiring Diagram'.)
- 3) Replace the board to the new one. Check that all connectors are appropriately connected, and then, reassemble the lens plate and cases.

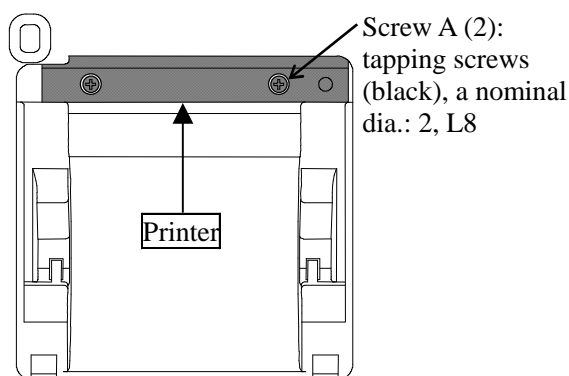


Do not pull the wires when you disconnect the connector. The wire may be cut or damaged.

5.2. Printer and printer I/F board

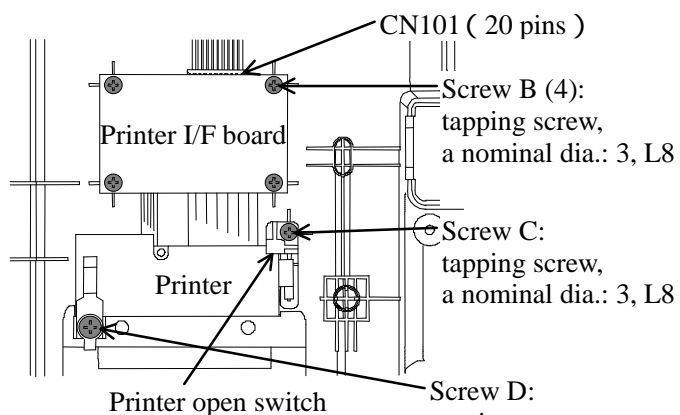
(*SLM-5000 Only)

- 1) Remove the lens plate and cases. (See 4. Assembly/disassembly of exterior features.)
- 2) Remove the connector connected to the printer I/F board. (CN 101 (20 pins))
- 3) Unscrew two (2) screws A securing the printer onto the right case of the main unit (outside).

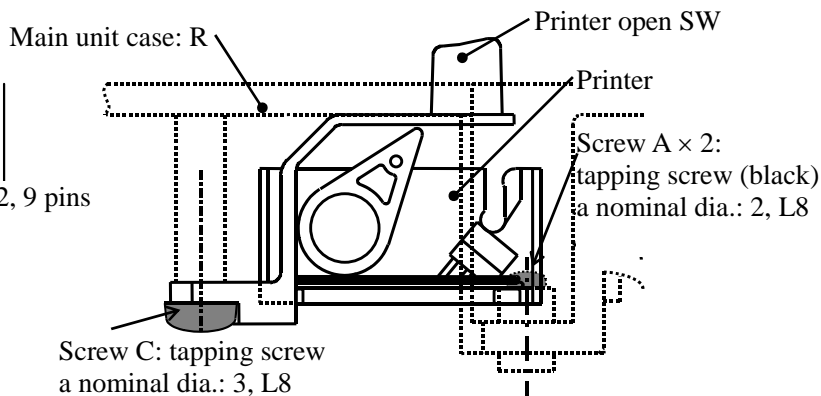
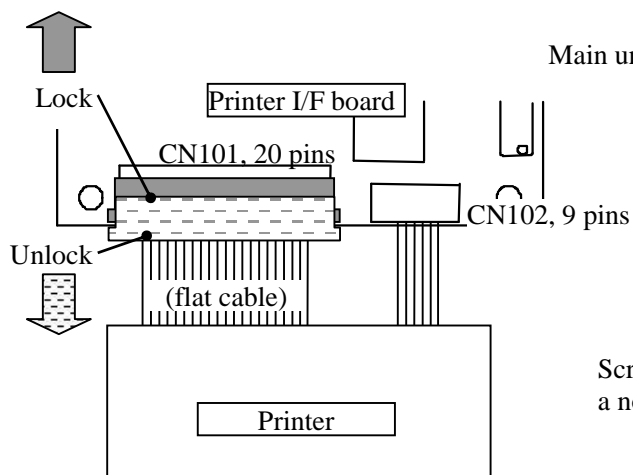


Main unit case: right (outside)

- 4) Unscrew six (6) screws securing the printer I/F board and printer onto the right case of the main unit (inside). Set screw C and a printer open switch are tightened together.
- 5) Remove the connectors from the printer I/F board. Since CN101 of the printer I/F board has a locking mechanism, unlock it, and then, remove the harnesses.



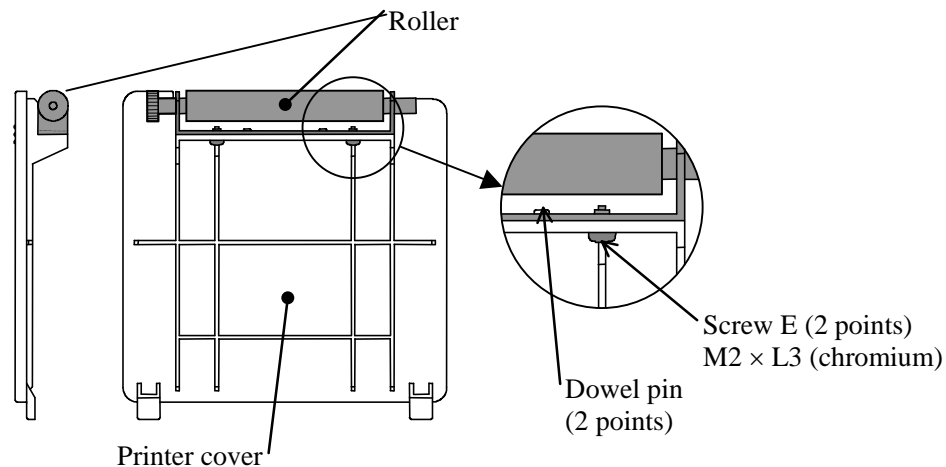
Main unit case: right (inside)



Sectional view: printer mounting part

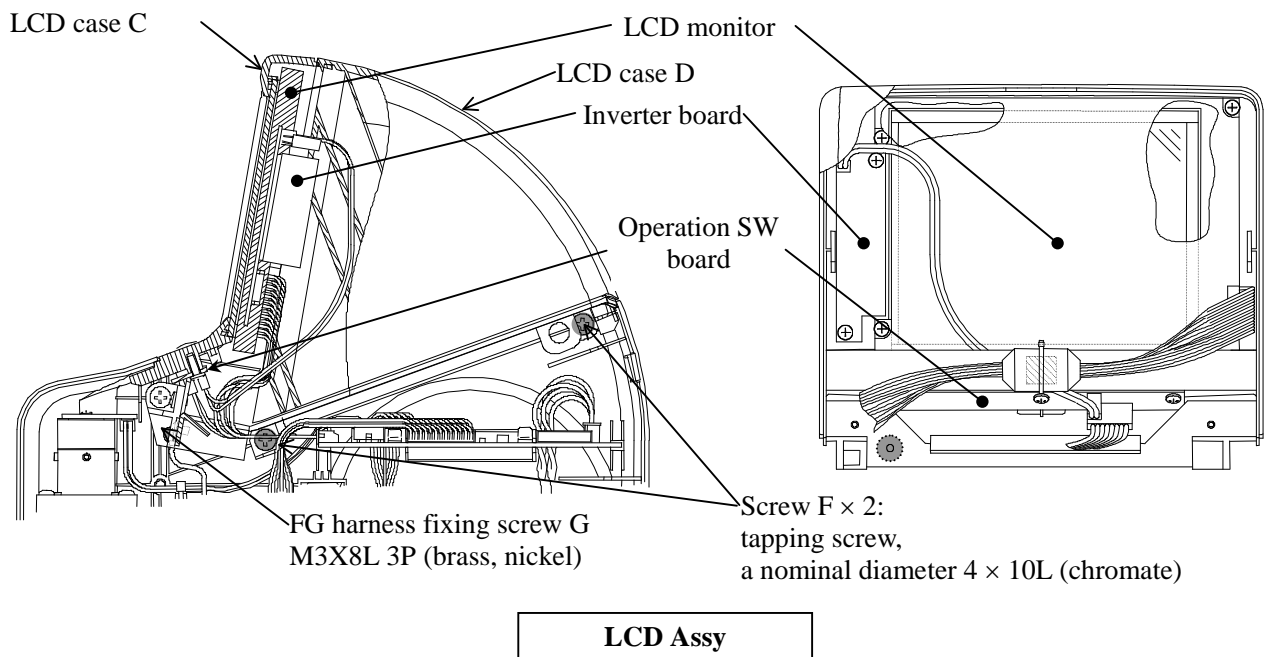
- 6) Replace the roller of the printer cover. Remove two screws E.

Avoid confusing left and right and secure them aligning with the dowel pins.

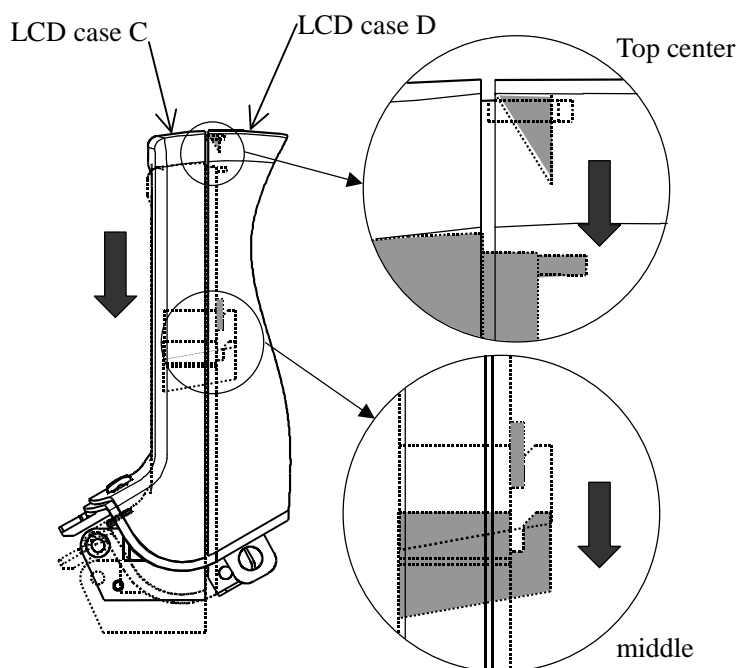


5.3. LCD monitor

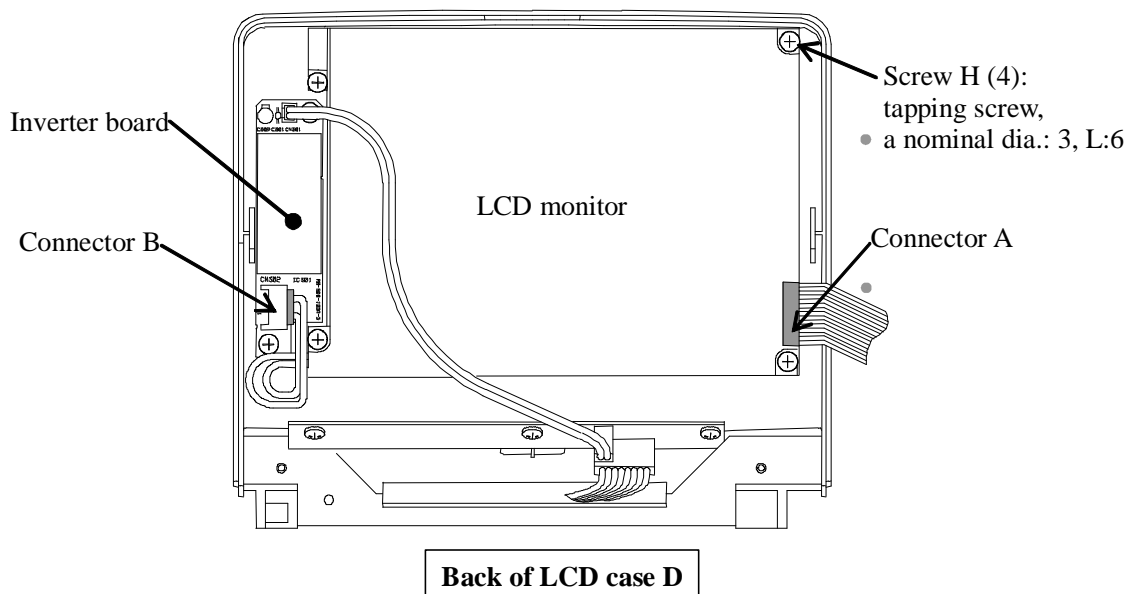
- 1) Remove the lens plate and cases. (See '4. Assembly/disassembly of exterior features'.)
- 2) Disconnect the harnesses and FG harness connecting from LCD ASSY to the control board.
 - LCD monitor ⇔ control board
 - Switch board ⇔ control board
 (See '2. Exploded View' and '3. Wiring Diagram'.)
- 3) Unscrew two screws F securing the LCD ASSY and the main unit case L, and remove the LCD ASSY from the case.



- 4) Slide the LCD case C down. The LCD case C and D fitted by three hooks will be unhooked and separated.



- 5) Remove the connector A connected to the LCD and the connector B connected the inverter board. Then, unscrew four screws securing the LCD monitor. The LCD monitor will be removed from the LCD case C.



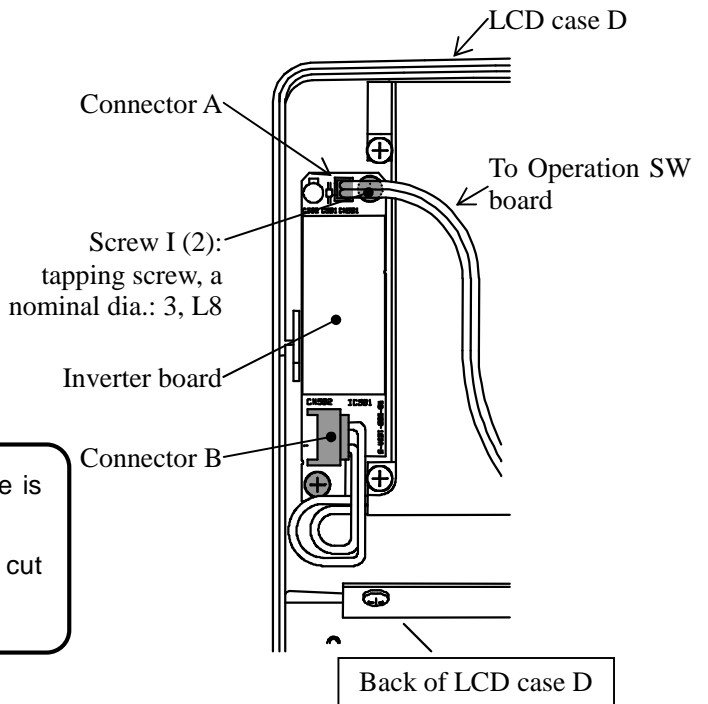
- 6) Follow the steps above in the reverse order for reassembling.

5.4. Inverter board

- 1) Disassemble the instrument following the same steps described in '5.3 LCD monitor'.
- 2) Disconnect the connector A and B from the inverter board.
- 3) Remove two screws I to remove the board from the LCD case D.
- 4) Follow the steps above in the reverse order to reassemble the instrument.

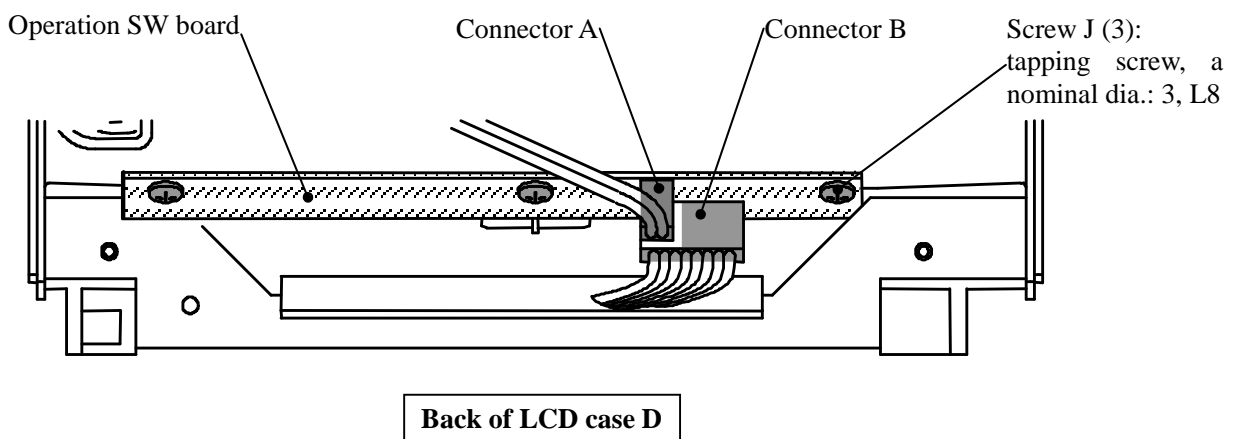


When the power is turned on, high voltage is generated from the connector B.
When replacing the inverter board, always cut the power and unplug the power cord.



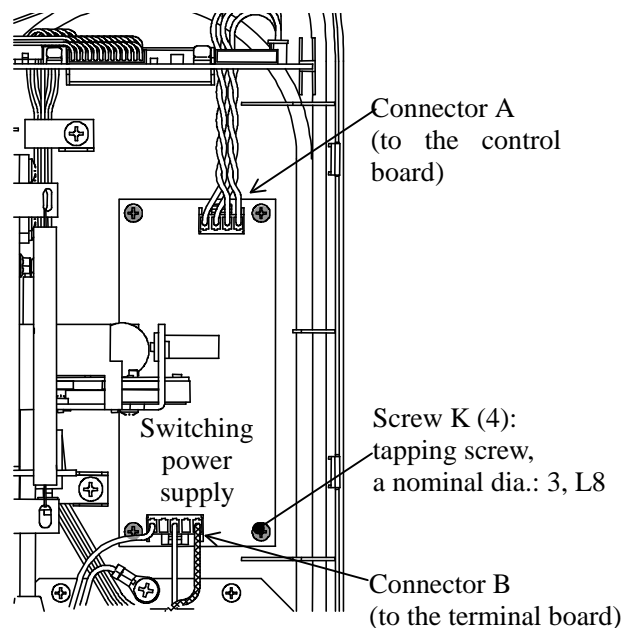
5.5. Operation switch board

- 1) Disassemble the instrument following the same steps described in '5.3 LCD monitor'.
- 2) Disconnect the connector A and B from the inverter board.
- 3) Unscrew three screws to remove the board from LCD case D.
- 4) Follow the steps above in the reverse order to reassemble the instrument.



5.6. Switching power supply

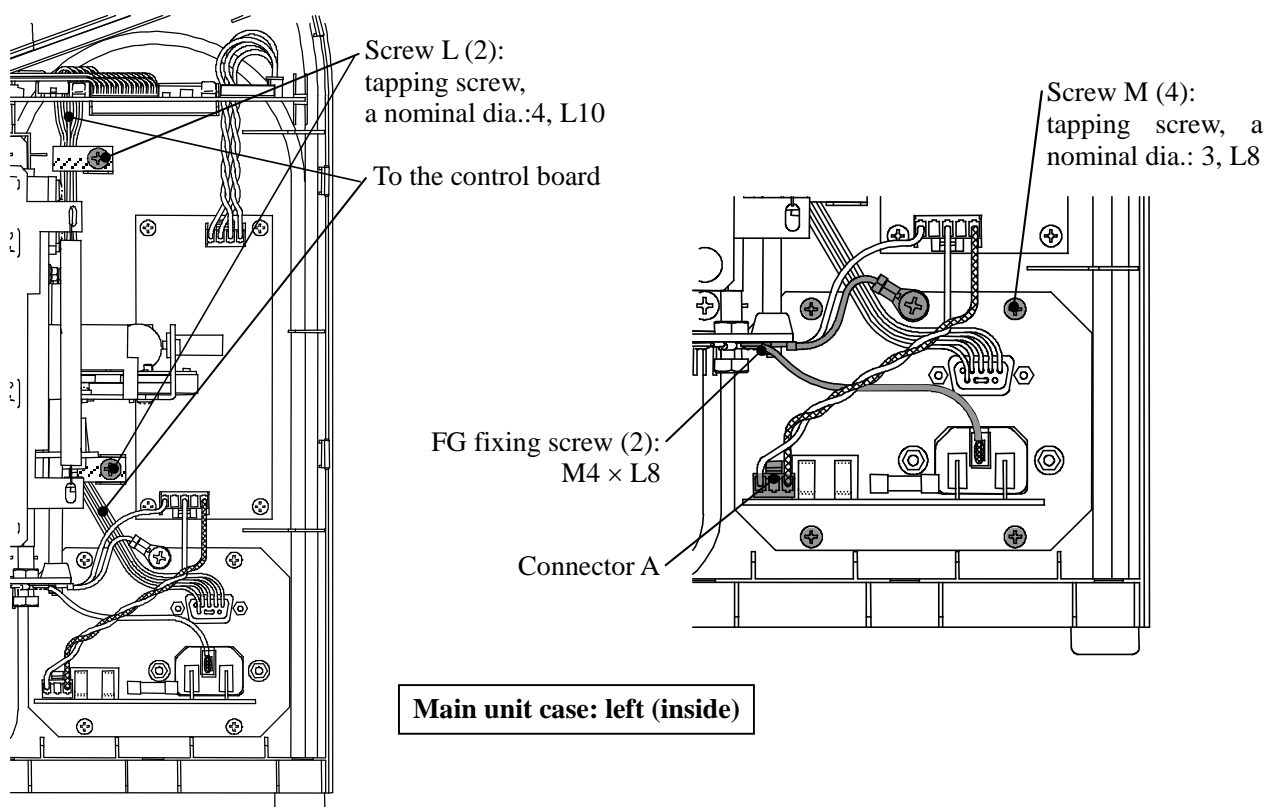
- 1) Remove the lens plate and cases.
(See '4. Assembly/disassembly of exterior features'.)
- 2) Disconnect Connector A and B from the switching power supply.
- 3) Unscrew four screws K to remove the switching power supply from the main unit case: left.
- 4) Follow the steps above in the reverse order to reassemble the instrument.



Main unit case: left (inside)

5.7. Terminal ASSY

- 1) Remove the lens plate and cases. (See '4. Assembly/disassembly of exterior features'.)
- 2) Unscrew two screws L fixing the clamps binding harness from RS-232C and remove the connector connected to the control board.
- 3) Remove FG harness in the Optical ASSY side (Two screws are at the end of green and yellow wires).
- 4) Disconnect the connector A from the terminal ASSY.
- 5) Unscrew four screws M to remove the terminal ASSY from the main unit case: left.
- 6) Follow the steps above in the reverse order to reassemble the instrument.



Main unit case: left (inside)

5.8. Marking ASSY

【Cartridge specification】

- 1) Affix the positioning tape for the marking ASSY on the marking arm. Refer to Figure 1 on the right for the tape position to be affixed.

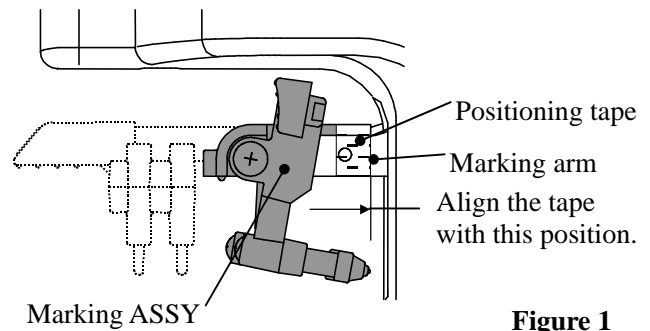


Figure 1

- 2) Lower the lens holder. (See Figure 2)
Rotate the marking ASSY until two screws N become visible. Remove the screws.
- 3) Mount the new marking ASSY and tighten the screws N aligning with the positioning tape.

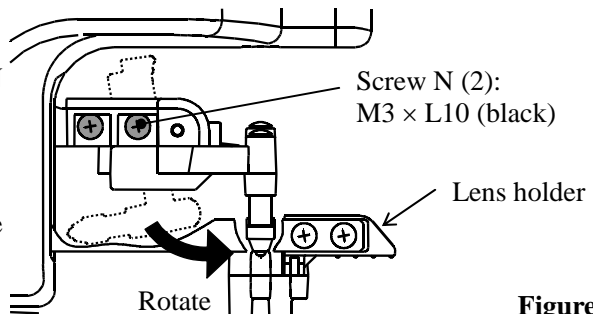


Figure 2

【Inkwell specification】

- 1) Rotate the marking ASSY. Affix the positioning tape for the marking ASSY on the marking arm. Refer to Figure 3 on the right for the tape position to be affixed.

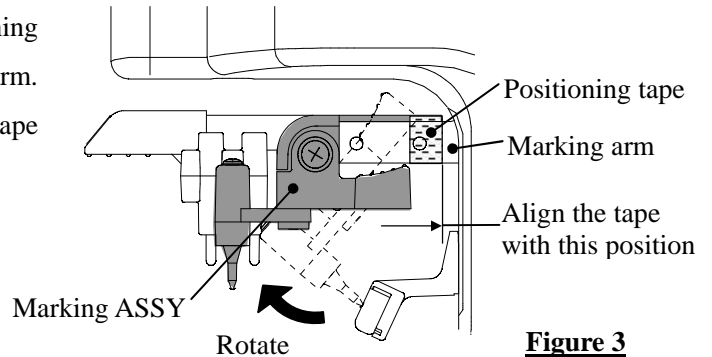


Figure 3

- 2) Lower the lens holder. Remove two screws N. (See Figure 4)
- 3) Mount the new marking ASSY and tighten the screws N aligning with the positioning tape.

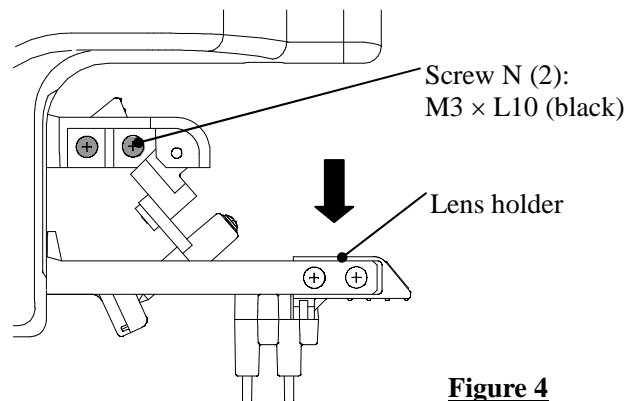
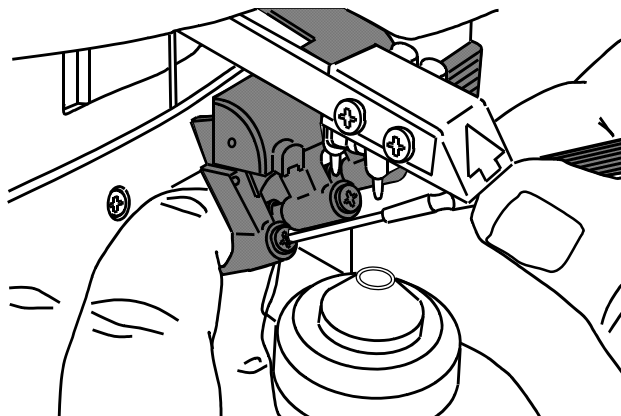


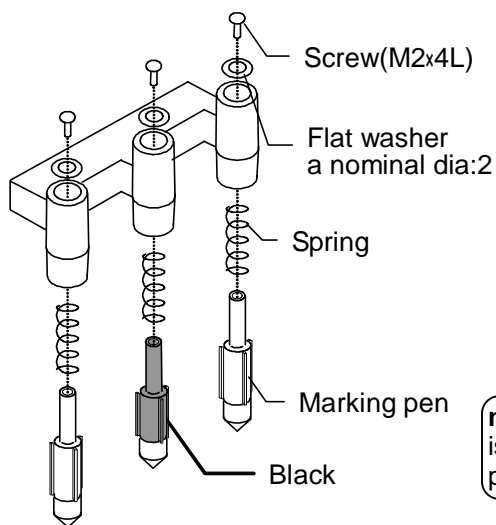
Figure 4

5.9. Marking pen (pin)

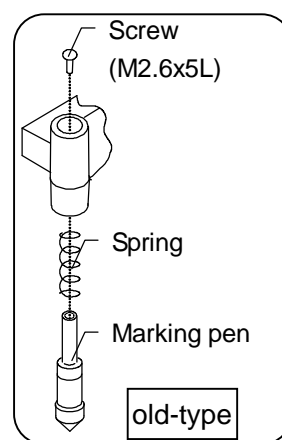
- 1) Hold the pen(pin) tip of the marking pen(pin) (the plastic part) and turn the screw to the left to remove.
- 2) Attach the spring to the new marking pen(pin) as shown in the figure below, and insert it into the f marking inger.
- 3) Keep holding the pen(pin) tip (the plastic part) and lightly fix it with the screw.



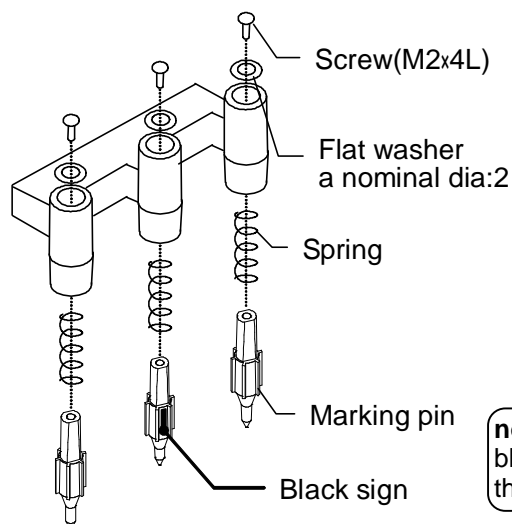
【 Cartridge specification 】



note : A central marking pen is black and is shorter than pens on both sides.



【 Inkwell specification 】



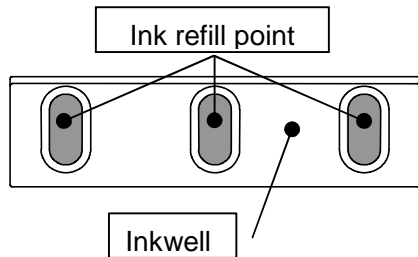
note : A central marking pen is black sign addition and is shorter than pens on both sides.



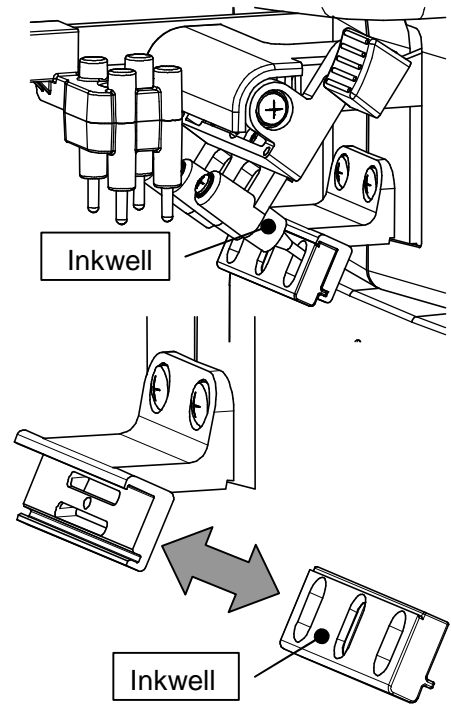
- Use the marking pen(pin) exclusively designed for SLM-5000/4000 only.
- Avoid touching the pen(pin) tip when replacing. The tip may be damage so that the marking can not be done.
- Do not fasten the screw too tightly when replacing. You may damage the part.
- The screw and spring are the part of the unit. Avoid losing them.

5.10. Inkwell (Inkwell specification only)

- 1) Slide the inkwell to the side to remove from the main unit.
- 2) Soak the specified ink into the sponge from the ink refill point.
- 3) Attach the inkwell to the main unit.

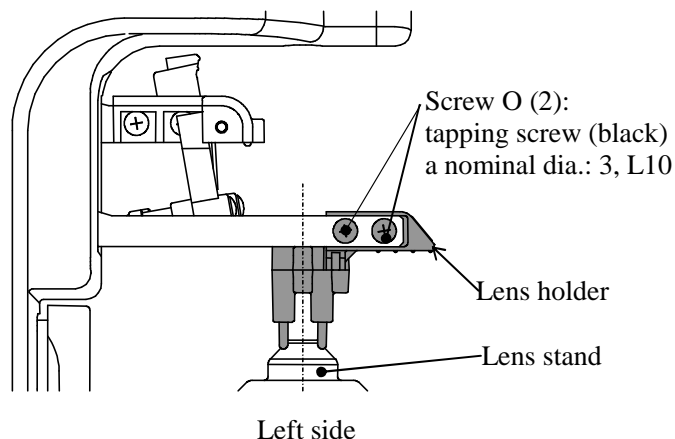


- Always use the specified ink for refill.
- Avoid touching the pen tip during refill.



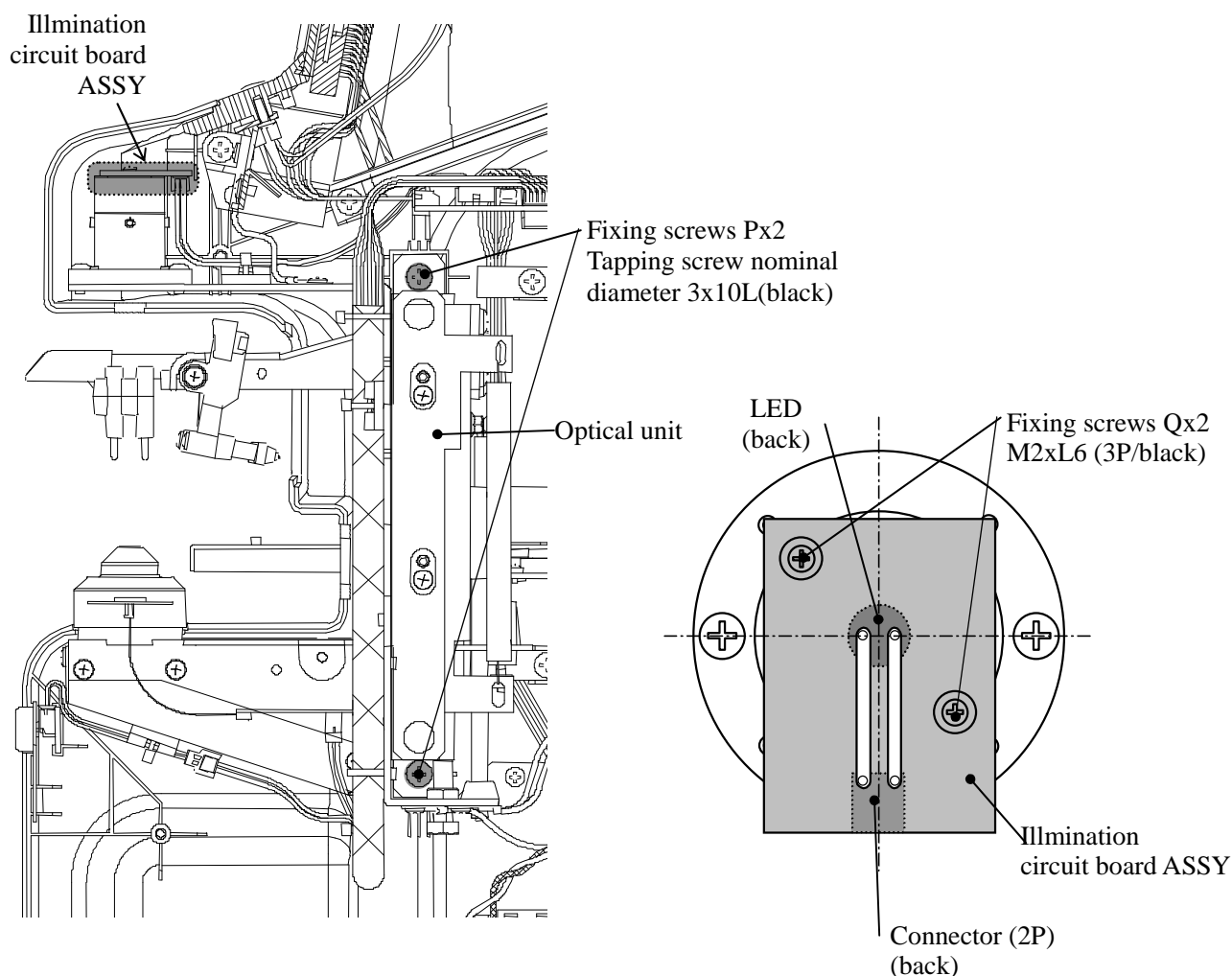
5.11. Lens holder ASSY

- 1) Unscrew two screws O.
- 2) Align the center of the lens stand with that of the lens holder for replacement as shown on the figure. Tighten the screws O to secure the lens holder.



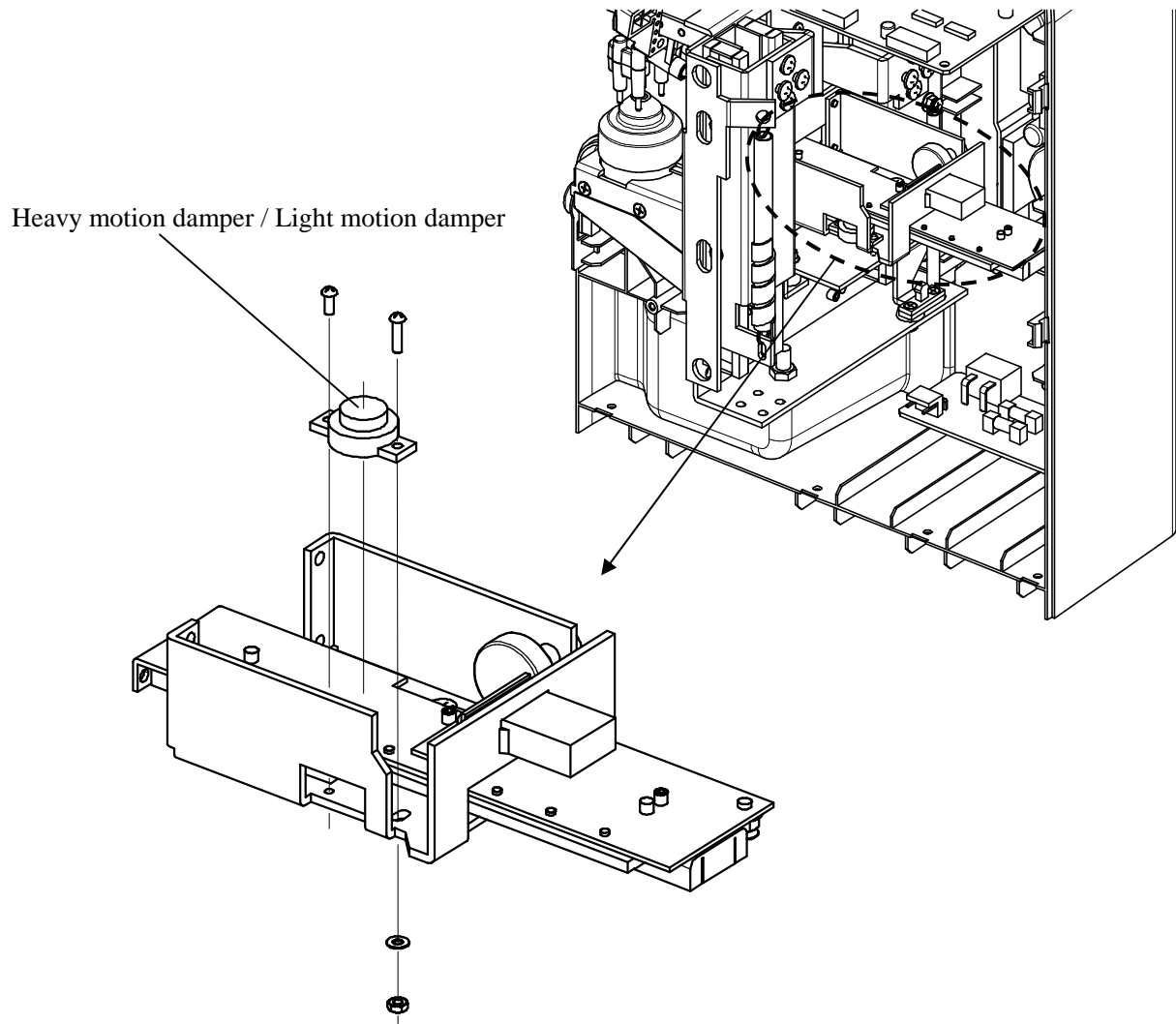
5.12. Illumination circuit board ASSY

- 1) Disassemble the outer covers. (See Assemble/Disassemble of Outer Cases).
- 2) Remove two screws P fixing the optical unit and lift the optical unit up slightly.
- 3) Disconnect the connector inserted into the illumination light PCB ASSY.
- 4) Remove two screws Q fixing the illumination light PCB ASSY and remove the PCB.
- 5) Center and fix the illumination light PCB ASSY for replacement with screws Q.
- 6) Carry out calibration after replacement. (See Calibration.)



5.13. Heavy motion damper / Light motion damper

- 1) Disassemble the outer covers. (See Assemble/Disassemble of Outer Cases).
- 2) Remove two screws fixing the heavy motion damper/Light motion damper and remove the heavy motion damper/Light motion damper.
- 3) Follow the steps above in the reverse order to reassemble the instrument.



6. Troubleshooting

【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】

Error message	Status	Description
Measure Error	Device abnormality	Abnormality of measurement value when the power is turned on.
Paper Empty*		No papers in the printer
Printer Cover Open*		The printer cover is open.
Printer Heat Over*		Abnormal temperature rise on the printer head
EEPROM Fault		Memory malfunction
DRAM Error		
SPH Over	Measurement abnormality	The measurement result exceeds the measurement range of SPH.
CYL Over		The measurement result exceeds the measurement range of CYL.
Prism Over		The measurement result exceeds the measurement range of prism.
ADD Over		The measurement result exceeds the measurement range of ADD.
Retry Error	Image processing abnormality	Unmeasurable due to dust, flaws or unnecessary light.
No target error		The light-receiving sensor fails to receive the measurement light.

note:* SLM-5000 Only

【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】

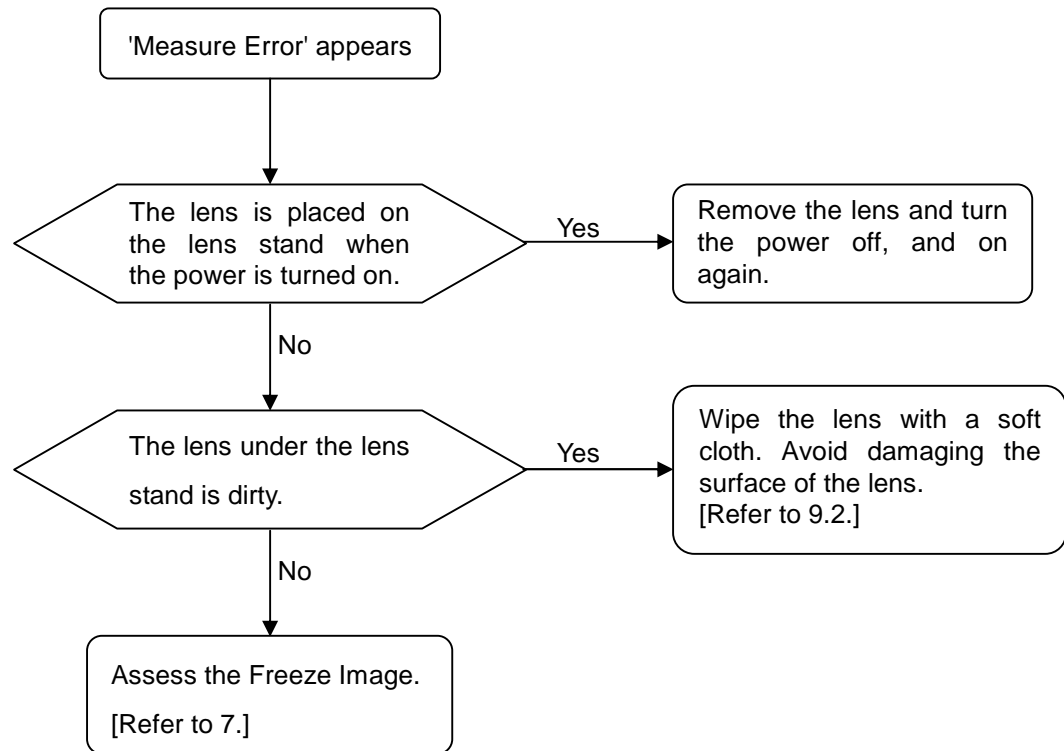
Message	Status	Description
Measure Error	Abnormality of the instrument	When the power is turned, values are not initialized (values are not zero (0)).
Paper Empty (SLM-5000 Only)		No papers are set in the printer.
Printer Cover Open (SLM-5000 Only)		The printer cover is open.
Printer Heat Over (SLM-5000 Only)		The printer is overheated.
EEPROM Fault		Abnormality of memory
Sensor Error		Abnormality of camera sensor
*Error *** (100 – 141)		Abnormality of electronic parts (on the 'Control circuit board')
SPH Over	Measurement abnormality	SPH value exceeds the measurement range.
CYL Over		CYL value exceeds the measurement range.
Prism Over		Prism value exceeds the measurement range.
ADD Over		ADD value exceeds the measurement range.
Retry Error	Abnormality of image processing	Measurement fails because of dust, flaws, unnecessary light, and so on.
Notarget Error		The measurement light does not enter into the receiving light sensor.

*Display with a three-digit code (number).

6.1. Measures against errors

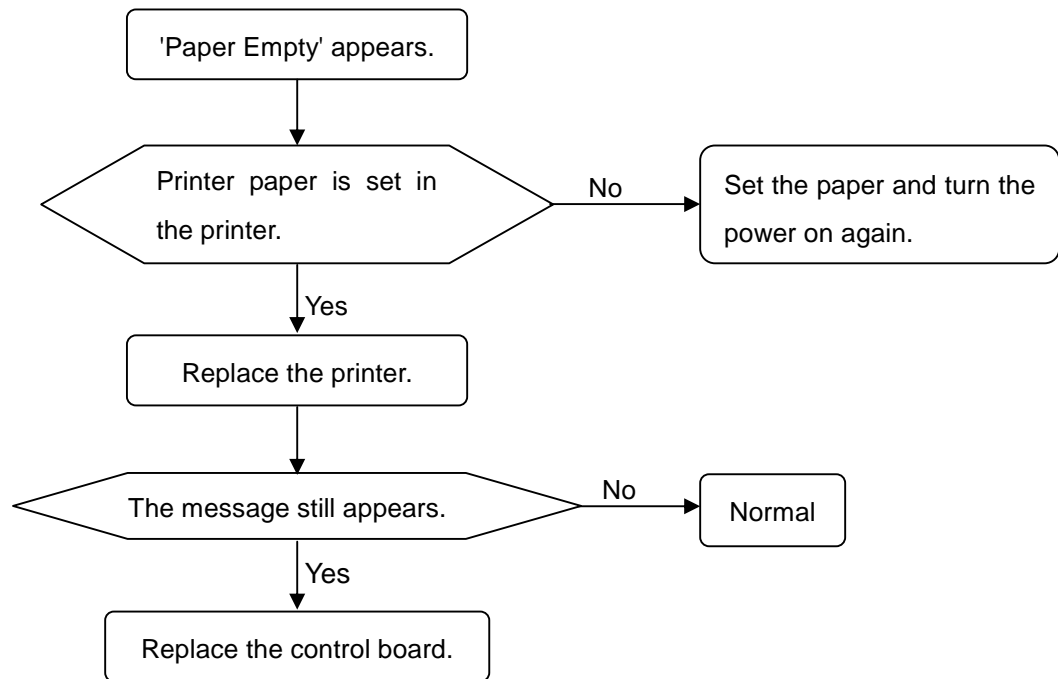
6.1.1. Measure Error

The lens is placed on the lens stand when the power is turned on or the lens under the lens stand is dirty.



6.1.2. Paper Empty(*SLM-5000 Only)

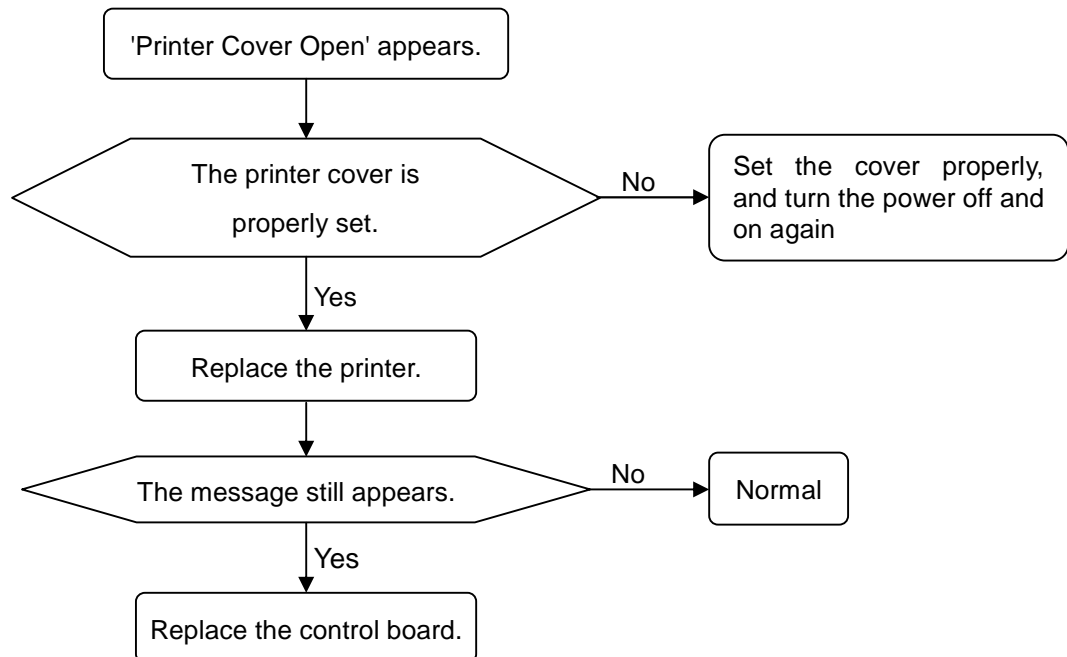
Papers are not set in the printer at all or appropriately.



Refer to '5.4.3 Setting and replacement of printer paper' of Operations Manual for how to set the printer paper.

6.1.3. Printer Cover Open(*SLM-5000 Only)

The printer cover is open.



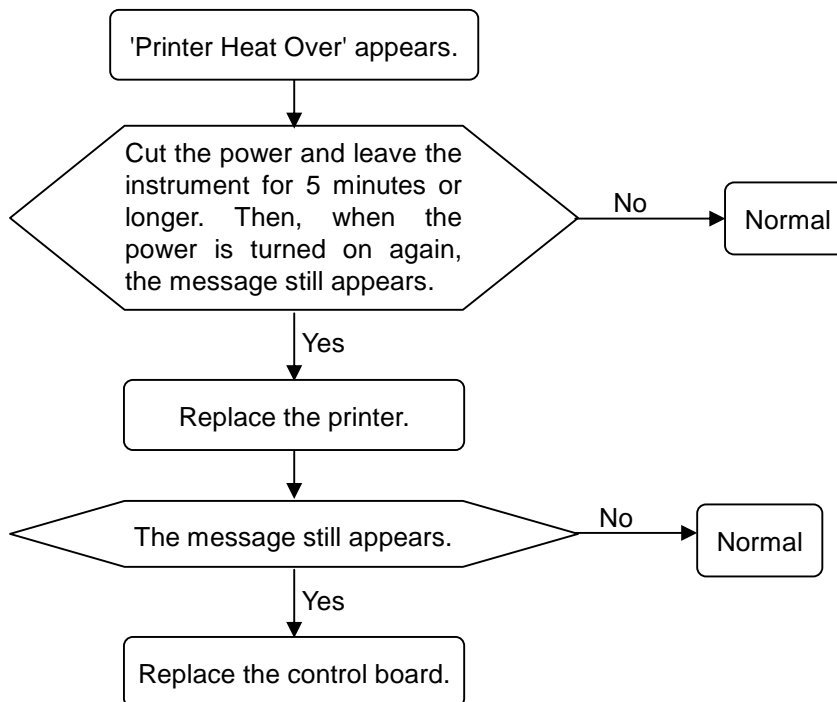
6.1.4. SPH/CYL/Prism/ADD Over

The lens exceeds the upper limit of the measurement range.

Measure the lens whose power does not exceed the measurement range. (Refer to 9. Specifications of Operations Manual.)

6.1.5. Printer Heat Over(*SLM-5000 Only)

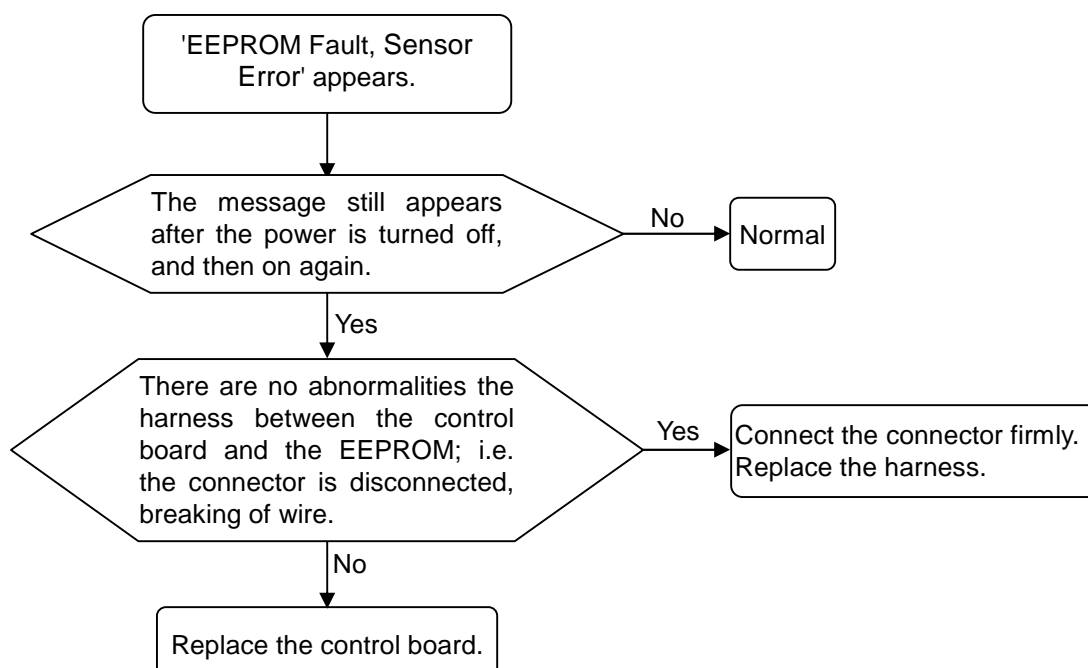
The printer head becomes excessively hot when the result is printed out.



6.1.6. EEPROM Fault, Sensor Error

(Sensor Error, 【SLM-5000: From SN/Z74764N】 , 【SLM-4000: From SN/Z74041A】 Only)

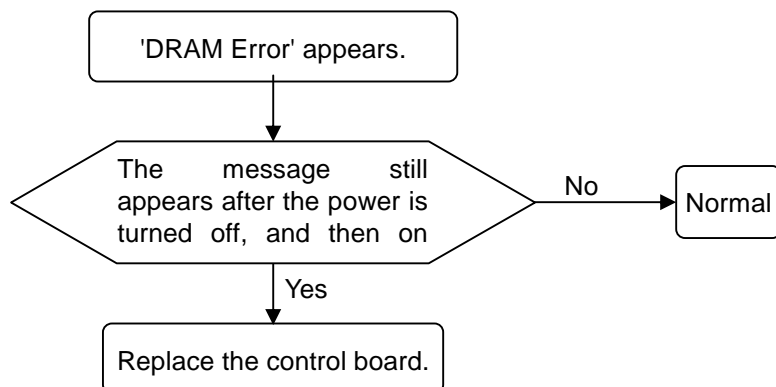
There may be some abnormalities in the control board, EEPROM board or the harnesses between them when the power is turned on.



6.1.7. DRAM Error

(【SLM-5000: To SN/Y74763N】 , 【SLM-4000: To SN/Y74040A】 Only)

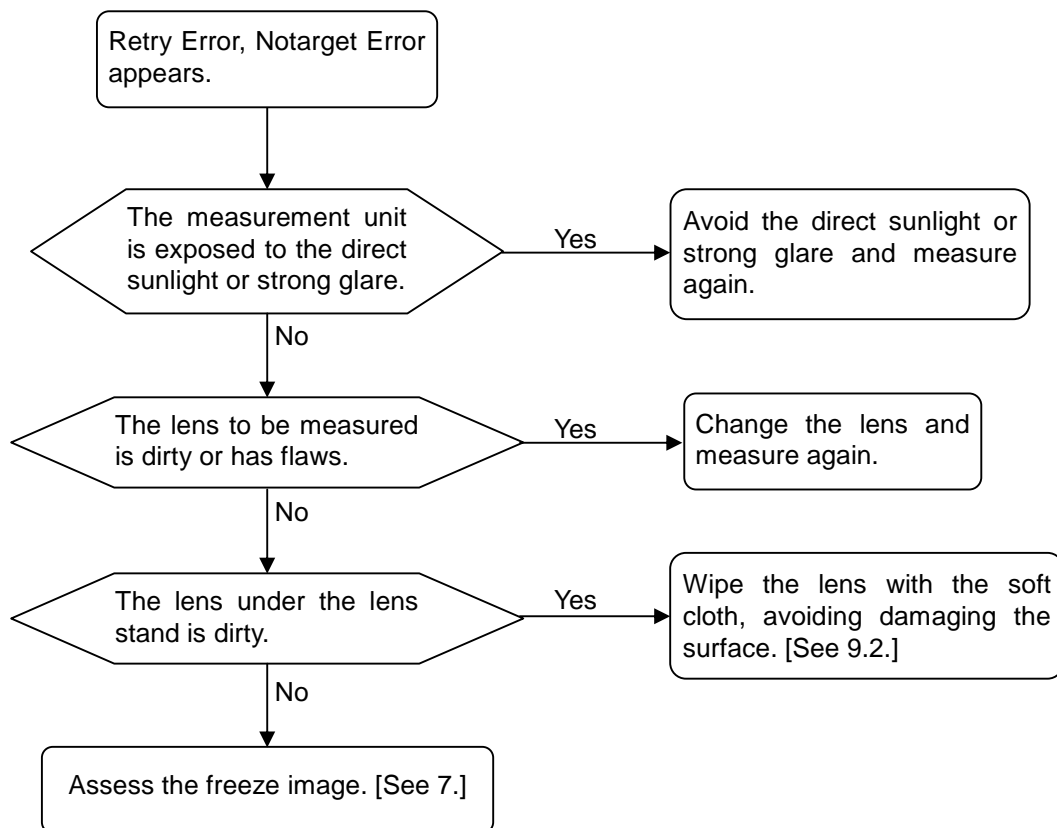
Some abnormality may be in the control board when the power is turn on.



6.1.8. Retry Error, Notarget Error

Direct sunlight or strong glare may be on the light-receiving part of the instrument, or the lens under the lens stand may be abnormally dirty or have flaws.

The message also appears when the lens to be measured is abnormally dirty or has deep flaws.



7. Image assessment

7.1. How to engage in Dealer Mode

- 1) Keep pressing Memory/Add switch and turn the power on.
- 2) When the comment below appears on the screen, Dealer Mode is called up.

【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】

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SP9043 Ver 2.02 2002/ 6/13

Dealer Mode Loading...



【SLM-5000: From SN/Z74764N】




【SLM-4000: From SN/Z74041A】

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SP9043 Ver 3.00 2008/ 1/ 7

Dealer Mode Loading...

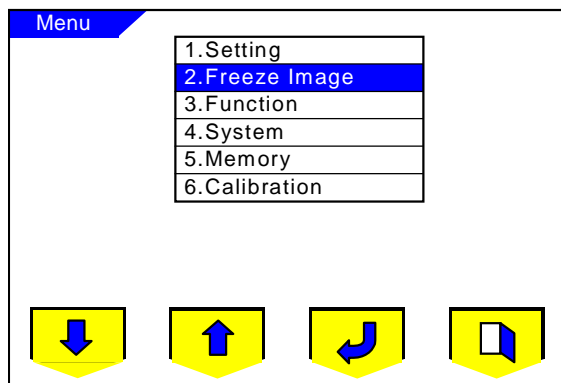


7.2. How to check images

- 1) In Dealer Mode, menu screen as shown on the right appears.
- 2) Use  or  switch to select '2. Freeze Image'. Press  switch, and the measurement image is shown on the screen.
- 3) To return to the menu screen, press the switch on the far right.

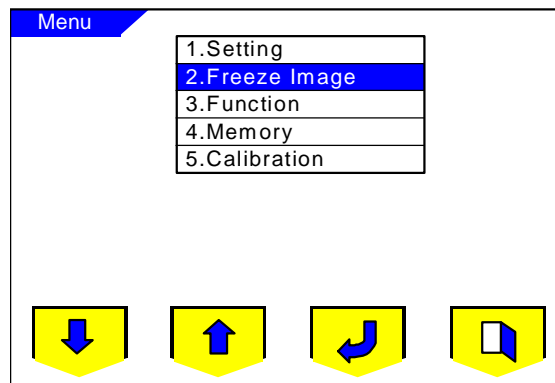
【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】



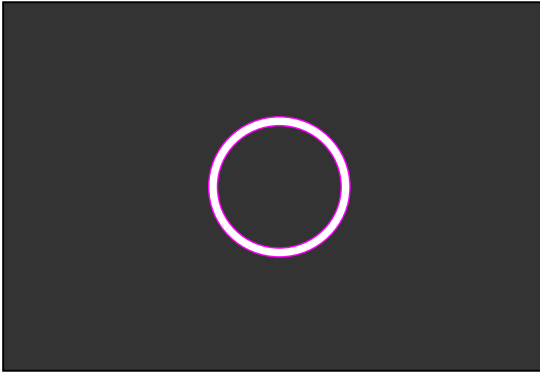
【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】



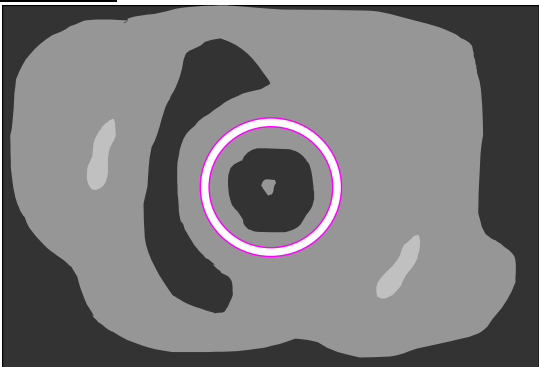
7.3. Image samples

Normal



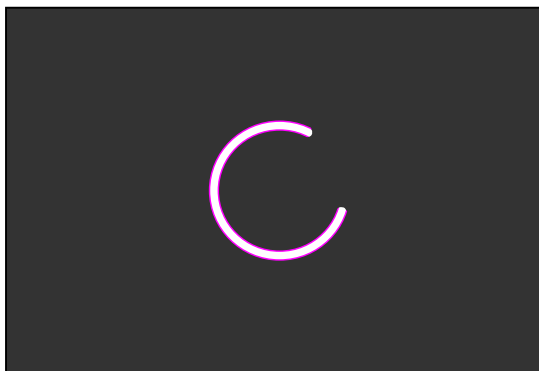
- No missing parts in the measurement ring shown.
- Nothing is shown in the background (all black).
- The measurement values are stable.

Abnormal



When unnecessary light exists:

- The background is uneven.
- The measurement values are unstable.
- 'Retry Error' may appear.



When the lens being measured is extremely dirty or has some flaws, and /or the lens under the lens stand is dirty:

- A part of the measurement ring is missing.
- The measurement values are unstable.
- When the missing part is large (75% or more of the whole ring), 'Retry Error' is indicated.

Note: SLM-4000 uses a black-white LCD with low resolution and the ring may seem chipped. When the ring misses some part, check as follows.

【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】

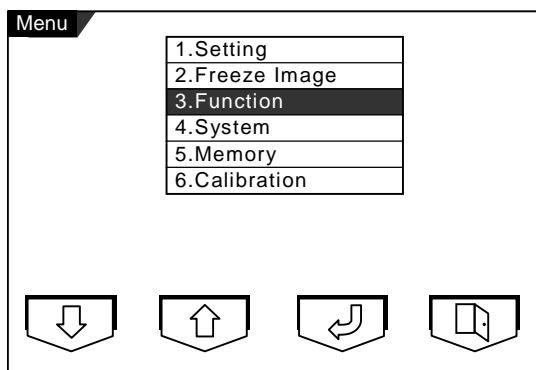


Figure 1

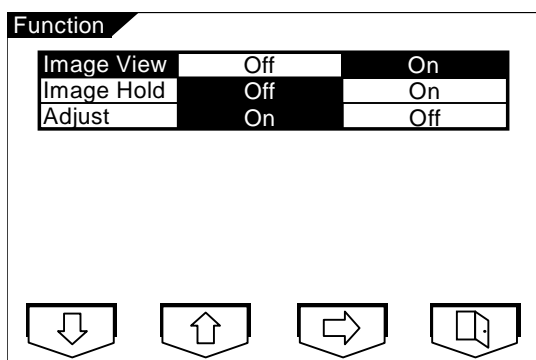


Figure 2

- 1) Press to enter the Menu screen.
- 2) Select '3. Function' with and press . (Figure 1)
- 3) Use and turn 'Image View' On(Figure 2)
- 4) After setting, press twice to return to the measurement screen.
- 5) Then, follow the same procedure for check of image to check the image. (See page 22.)(Figure 3)

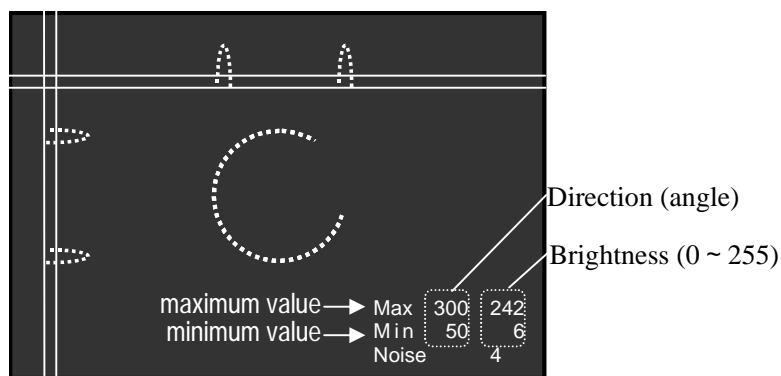


Figure 3

When the minimum value of brightness is in 0 to 30, the ring may seem chipped.

【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】

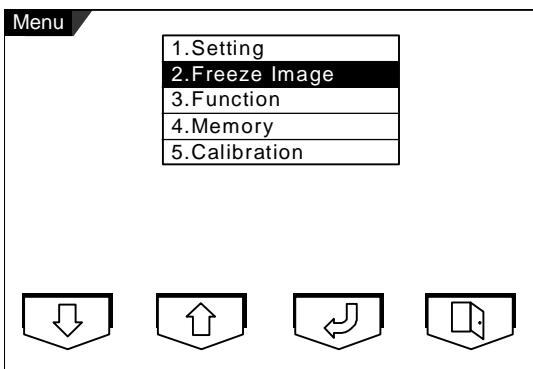


Figure 4

- 1) Press to enter the Menu screen.
- 2) Select '2.Freeze Image' with and press . (Figure 4)
- 3) Press 'Memory / Add'.
- 4) Press . (Figure 5)
- 5) Press and to return to the measurement screen after pressing 'Memory/Add'.
- 6) Then, follow the same procedure for check of image to check the image. (See page 22.) (Figure 3)

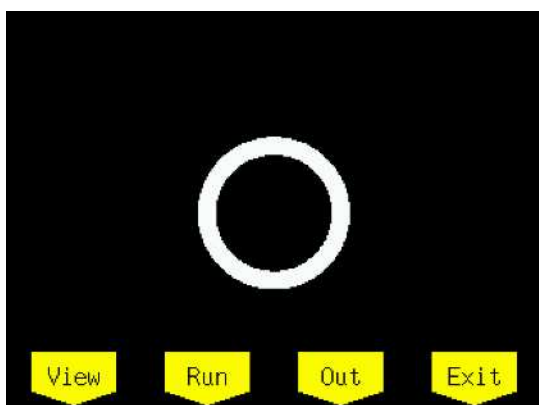


Figure 5



When the measurement optical path is blocked, and/or when the electrical control system such as the measurement LED and cameras malfunctions:

- No measurement ring.

8. Calibration



Use the specified maintenance lens set for calibration.

Calibration is performed in Dealer Mode.

8.1. How to engage in Dealer Mode

- 1) Keep pressing Memory/Add switch and turn the power on.
- 2) When the comment below appears on the screen, Dealer Mode is called up.

【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】

Copyright(C) 2002
RyuSyo Industrial Co.,LTD
SP9043 Ver 2.02 2002/ 6/13

Dealer Mode Loading...

【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】

(C) RyuSyo Industrial Co.,LTD 2001
SP9043 Ver 3.00 2008/ 1/ 7

Dealer Mode Loading...

Auto Lensmeter
SLM-5000

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RyuSyo Industrial Co.,LTD
SP9043 Ver 2.02 2002/ 6/13

Dealer Mode Loading...

Auto Lensmeter
SLM-5000

(C) RyuSyo Industrial Co.,LTD 2001
SP9043 Ver 3.00 2008/ 1/ 7




Dealer Mode Loading...

8.2. Device setting

【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】

Check the setting of '3. Function' and '4. System'.

To call up each setting screen, use  or  switch to select either '3. Function' or '4. System' and press  switch.

Check that each item is set as below.

Function			
Image View	Off	On	
Image Hold	Off	On	
Adjust	On	Off	




Menu	
1.Setting	
2.Freeze Image	
3.Function	
4.System	
5.Memory	
6.Calibration	

System			
Dealer Mode	Off	On	
Handshake	Off	On	
Measure Led	On	Off	
Gain Control	On	Off	
Error Check	On	Off	

【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】

Check the setting of '3. Function'.




To call up each setting screen, use  or  switch to select either '3. Function' and press  switch.

Check that each item is set as below.

Function			
Dealer Mode	Off	On	
Error Check	On	Off	
Adjust	On	Off	
Gain Control	On	Off	

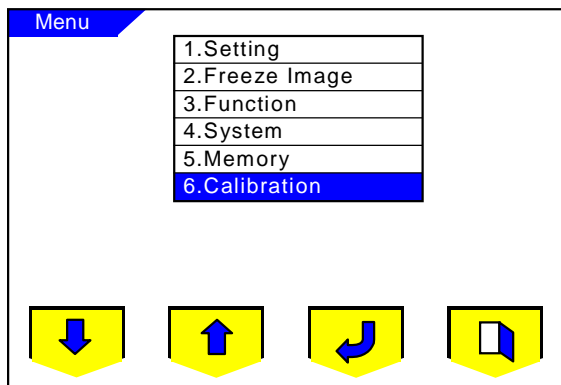
Menu	
1.Setting	
2.Freeze Image	
3.Function	
4.Memory	
5.Calibration	

8.3. How to engage in Calibration screen

- 1) Select '6. Calibration' (or '5. Calibration') with  or  switch. Press  switch, and the calibration screen is indicated.

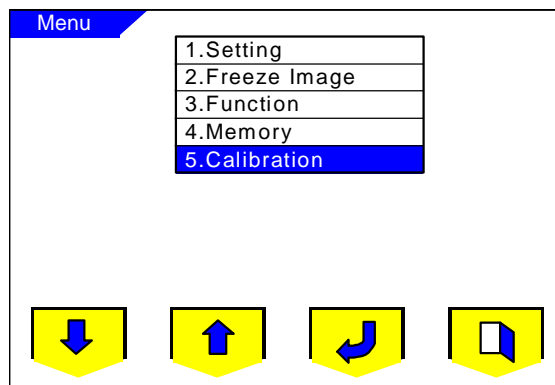
【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】



【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】




- 2) Press  switch to escape from the calibration screen.

8.4. Calibration procedure

Calibration parameter list


No.	Item	Setting value	Description
00	Start		Start
01	0D	0.00D	0D calibration
02	S -5D	- 5.000D	Calibration of spherical values at each setting value (automatic setting)
03	S -10D	-10.000D	
04	S -15D	-15.000D	
05	S -20D	-20.000D	
06	S -25D	-25.000D	
07	S +5D	+ 5.000D	
08	S +10D	+10.000D	
09	S +15D	+15.000D	
10	S +20D	+20.000D	
11	S +25D	+25.000D	
12	C +5D A90	+ 5.00DD	Overall calibration of spherical and cylindrical values and calibration of angle to the lens plate.
13	C +5D A180	+ 5.00D	
14	P 2	+ 2.00	Calibration of 2 prism powers.
15	P 5	+ 5.00	Calibration of 5 prism powers.
16	P 10	+10.00	Calibration of 10 prism powers.
17	Far point	0.12 (standard value)	Progressive lens: calibration of far point.
18	Near point	0.15 (standard value)	Progressive lens: calibration of near point.
19	Auto judge	0.18 (standard value)	Judgment value for progressive lens
20	Finished		End

For  part, the factory setting value is valid. If you change it, you may not be able to measure correctly.

In '6.Calibration' (or '5.Calibration'), each setting and taking in the calibration data are automatically done in order to facilitate the calibration procedure.

1) Start of calibration

Follow the instructions on the screen.

The screen shown on the right is the start screen of '6. Calibration' (or '5.Calibration'). Press  switch to call up the next screen.



Calibration	
00:Start	
Step 0.01	S 0.00
CYL -	C 0.00
Abbe 60	A 180
	Px 0 0.00
	Py D 0.00
Take the lens away and push - > key.	

2) 0D calibration

In about two seconds, all data are automatically calibrated to 0D.

Calibration	
01:0D	
0.00D	S 0.00
Step 0.01	C 0.00
CYL -	A 180
Abbe 60	Px 0 0.00
	Py D 0.00
Take the lens away and push - > key.	

3) Calibration of spherical lenses (-5D to +25D)

Input the value of the test lens using  and .


Place and align the corresponding test lens so that each of prism X direction and Y direction becomes 0.00.

When the prism value reach between 0.00 and 0.01 in both X and Y directions, the spherical value is automatically calibrated to the value of the test lens.



Calibration	
02: -5D	
-5.01D	S -5.00
Step 0.01	C 0.00
CYL -	A 180
Abbe 60	Px 0 0.00
	Py D 0.00
Place the S -5D lens.	
Marking OK	

Value of test lens

Prism value

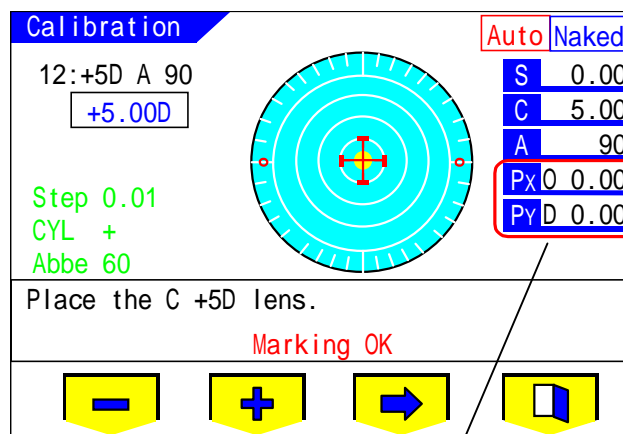
For spherical lenses, perform calibration to No. 02 to No. 05 only though six more items (No. 06 to No. 11) are included in the parameter list Skip No.06 to No. 11 with  switch.

4) Adjustment of AXIS



Input the value of the test lens using  and .

Place and align the cylindrical lens of +5D so that AXIS value becomes 90°.

When the prisms reach between 0.00 and 0.01 in both X and Y direction, CYL and AXIS are automatically calibrated to the value of the test lens.

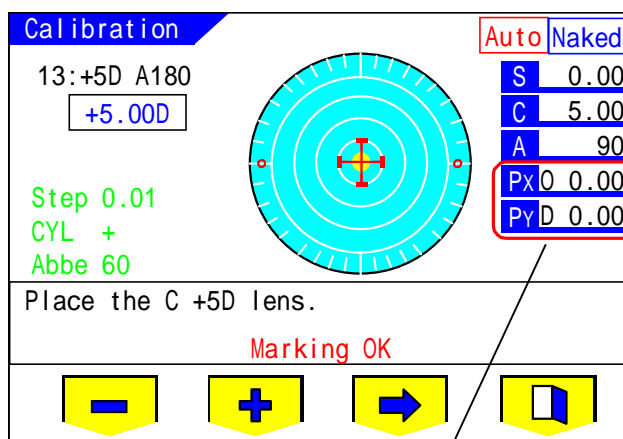


Prism value

Input the value of the test lens using  and .

Place and align the cylindrical lens of +5D so that AXIS value becomes 180°.

When the prisms reach between 0.00 and 0.01 in both X and Y direction, CYL and AXIS are automatically calibrated to the value of the test lens.





Prism value

5) Prism adjustment

- Adjustment of 2 and 5

Align the prism lens so that the base direction becomes 0°.

The prism value is automatically calibrated to the value of the calibration lens.

Use  and  to input the calibration value.

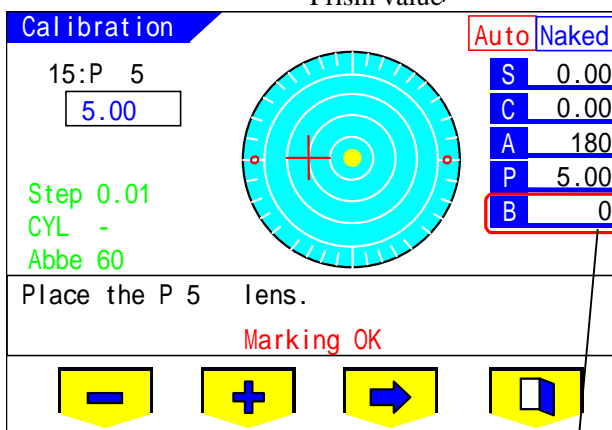
- Adjustment of 10

Align the calibration lens according to the indication of the base direction (Align B).

Base direction the measured value is taken in: 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°

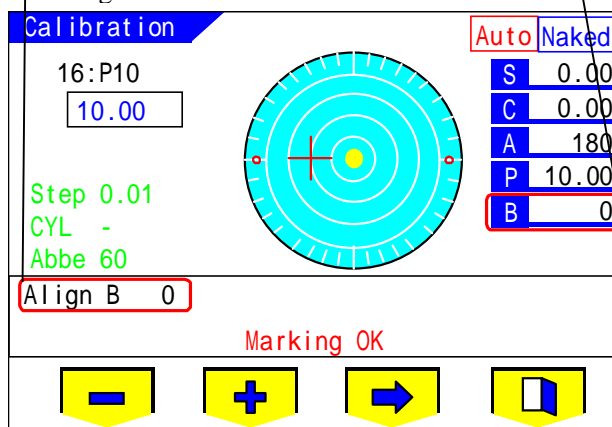
When the measured value of the indicated base direction is taken in, a beep sounds and the indication of the base direction changes.

When the measured value of the last alignment (base direction: 315°) is taken in, the beep sounds and calibration is automatically done.





Base direction indication of alignment

Base direction



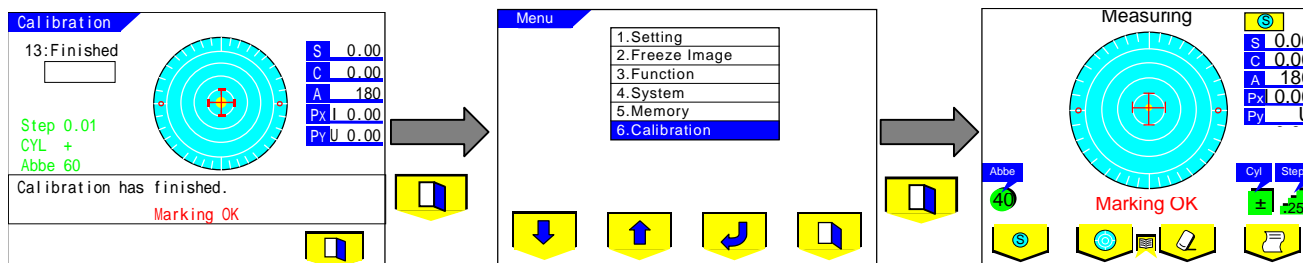
6) End of calibration

When you finish prism adjustment (step 5), jump to '20. Finished' using  switch.

Press  switch twice to call up the measurement screen. The calibration performed will be store in memory when the measurement screen is called up.

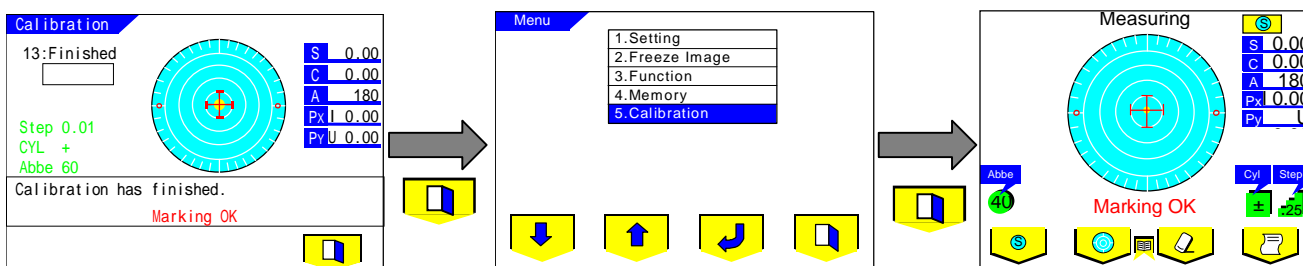
【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】



【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】



9. Cleaning

9.1. Main unit

When the main unit, LCD cover, and operation panel are dirty, wipe them with a dry cloth.

If there are stains hard to remove, moisten the soft cloth with a thinned neutral cleanser to wipe them.



Avoid using a solvent like thinner.

9.2. Optical unit



Avoid using a solvent like thinner for cleaning.
Clean carefully to avoid damaging the surface of optical parts. When the surface is damaged, measurement may not be carried out successfully.

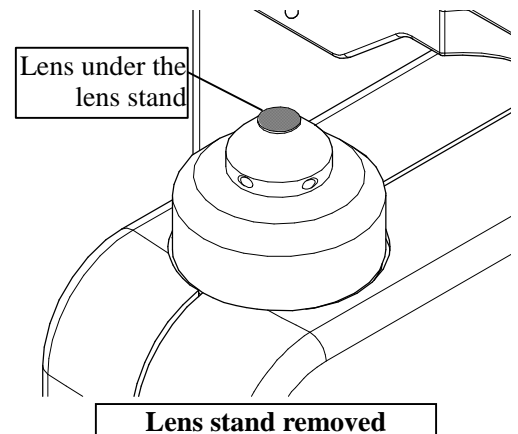
Clean the parts pointed in the illustration.

Check the condition, and blow the large dusts or particles first.

If it is still dirty, wipe it with a soft, dry cloth.

When it is hard to remove stains, wipe it lightly and evenly with the soft cloth moistened with a thinned alcohol.

Then, wipe with a soft, dry cloth.

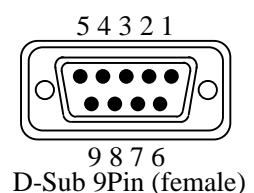
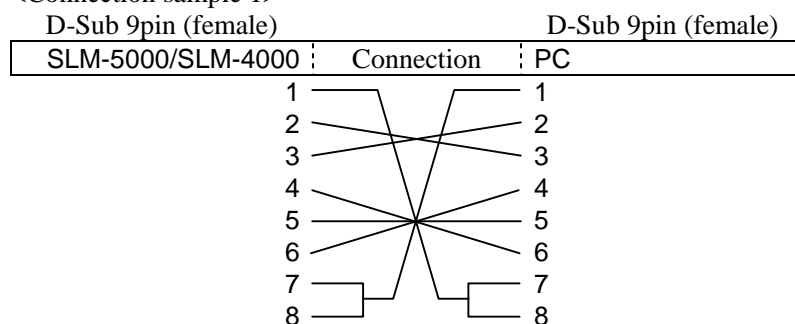


10. Software change - upgrading

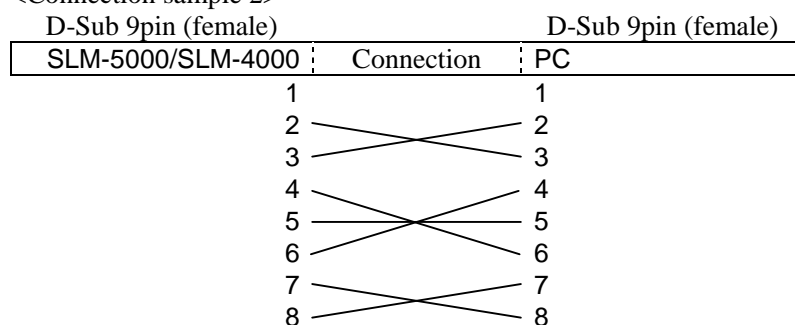
10.1. Preparation

PC (IBM compatible): OS: Windows 95 or 98 (English version)
RS232C communication cable (cross, reverse): connected as below.

<Connection sample 1>



<Connection sample 2>



10.2. Procedure

- Copy two files in the floppy disk to the desktop of PC.

Pwriter.exe

【SLM-5000: To SN/Y74763N】

【SLM-4000: To SN/Y74040A】

SLM-5000: SLM5000 V2 *.mot

SLM-4000: SLM4000 V2 *.mot

【SLM-5000: From SN/Z74764N】

【SLM-4000: From SN/Z74041A】

SLM-5000: SLM5000 V3 *.mot

SLM-4000: SLM4000 V3 *.mot

- Start up Pwriter.exe.

- A window that includes four keys below appears.

File Select **Data Output** **Com Setup** **Exit**

- Click **Com Setup**.

Set up the communication conditions as below. Then, return to the initial screen.

Port : COM1(Please follow the setting of PC.)

Boud Rate : 19200 or 38400 (needs to be matched to the main unit)

Flow Control : None

Stop Bit : 1

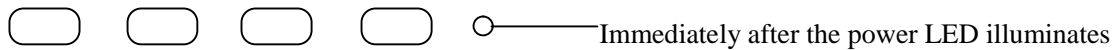
Parity : None

- Click **File Select** and select SLM-5000.mot. / SLM4000.mot.
- The screen return to the initial screen.

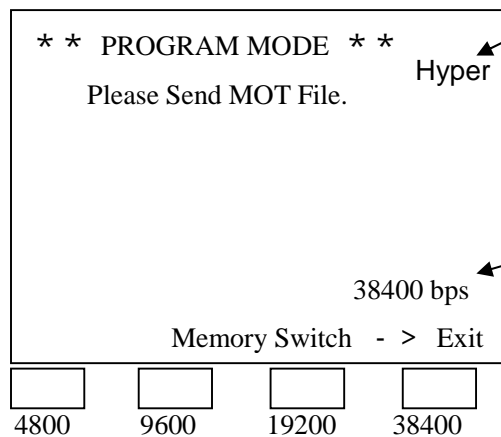
3) Start up SLM-5000/SLM-4000 with PROGRAM MODE.

SLM-5000 : Press five switches **quickly** in the following order immediately after the power LED illuminates.

SLM-4000 : Press five switches **quickly** in the following order immediately after the power LED illuminates. However, press switch longer than 1 second.



The screen shown below appears.



Delete "Hyper" in red. You can delete it by pressing the switch corresponding to the bps you set.

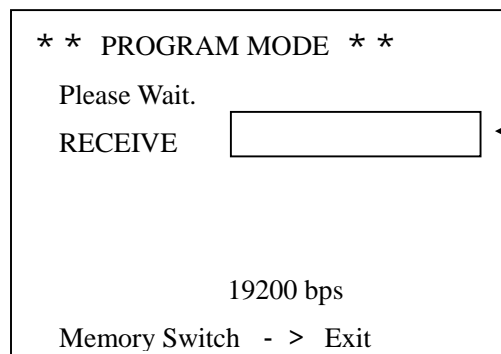
Match the bps setting to that of PC. You can change the setting by pressing the panel keys. The bps corresponds with each switch is as shown on the left.

4) Connect the cable between SLM-5000 and PC, and click **Data Output** on the PC screen.

Leave the equipment until the data output completes. It may take about ten minutes to transmit the data but it depends on the bps setting. (Three green belts on the SLM-5000 / SLM-4000 screen indicate the end of transmission.)

Note) When ERR appears on the screen of SLM-5000 / SLM-4000, the bps setting may not be matched or Hyper is still indicated on the screen.

When the upgrading completes, the message appears on the SLM-5000 / SLM-4000 screen. Press Memory/Add switch to reactivate the SLM-5000 / SLM-4000. At this time, CS:xxxx(4-dizit numbers) is indicated on the screen. Please write this number down and keep it.



Three belts like this appear.

5) Click **Exit** on the PC screen to complete the whole procedure.

NOTE

When you use this program, please pay attention to the followings.

- 1) This upgrading program is a prototype.
We do not guarantee that the program (Pwriter.exe) works with every PC and on OS.
- 2) Contact us when you wish to upgrade your program with this program. Please note that SLM-5000 may be malfunctioned if upgrading does not performed appropriately.
- 3) The upgrading program (mot File) may not be reproduced or used in any form or by any means.

11. Input/output of adjustment data

11.1. Input/output of adjustment data

Adjustment data of SLM-5000 /SLM-4000, which is stored in the EEPROM on the camera board, is paired with the optical unit of the same instrument. For this reason, when the camera sub board is replaced, the adjustment data needs to be output from the original board and input to the new board. Input and output the data through a personal computer.

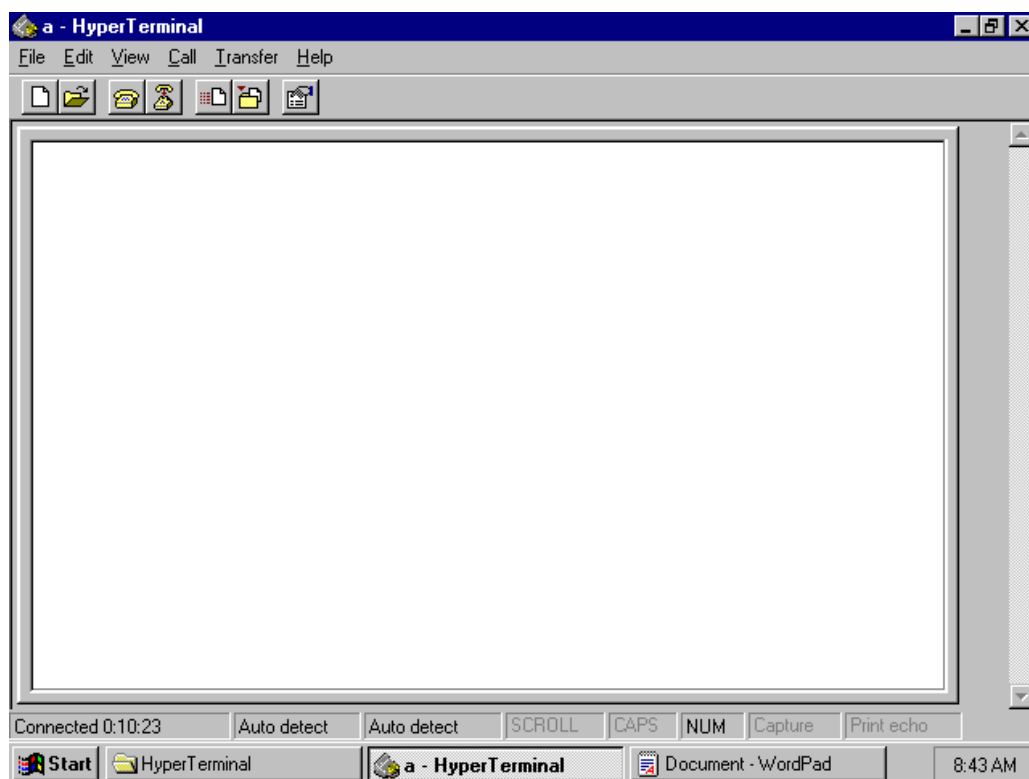
11.2. General-purpose equipment used

A personal computer

RS-232C cross cable

Communication software (such as Hyper Terminal which sending/receiving data is available)

The following is the communication procedure using Hyper Terminal of Windows95 (English version).

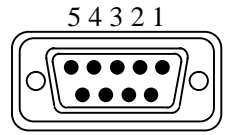
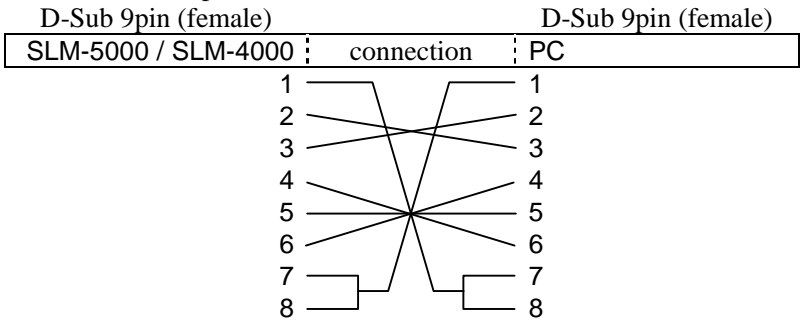


Main screen of Hyper Terminal

11.3. Preparation

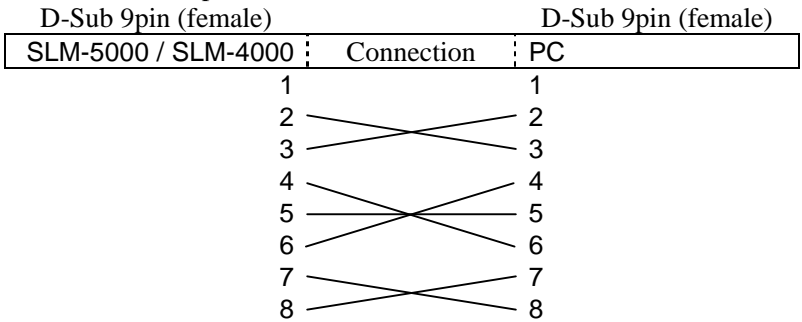
1) Connect SLM-5000 / SLM-4000 to a PC terminal.

<Connection sample 1>

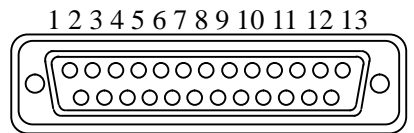
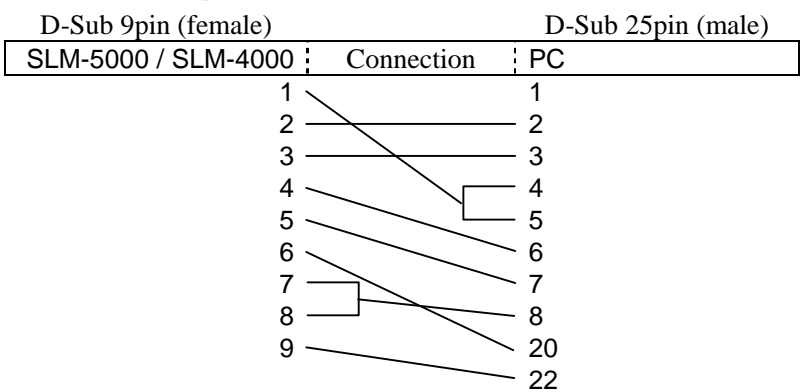


D-Sub 9Pin (female)

<Connection sample 2>



<Connection sample 3>

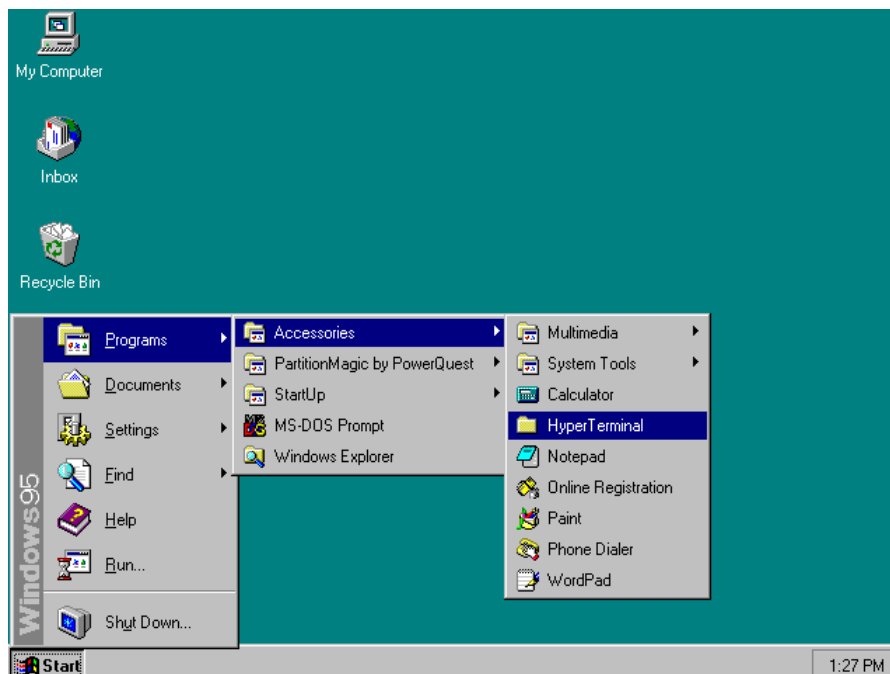


D-Sub 25Pin (male)

2) Start up SLM-5000 / SLM-4000 with Dealer Mode. Refer to '7. Image Assessment'.

3) Call up Hyper Terminal. (**C** indicates a click and **DC** a double click.)

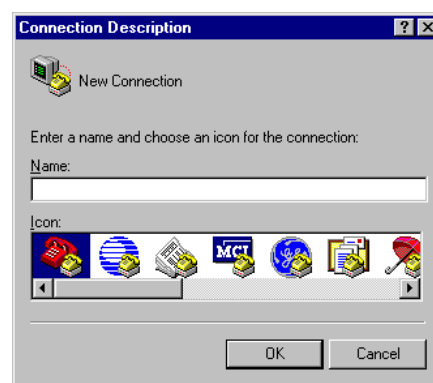
Start **C** Programs ► Accessories ► Hyper Terminal **C**



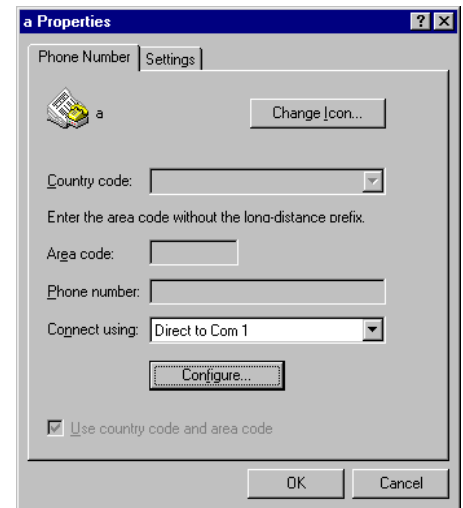
Hypertrm **DC**



- 4) Enter a connection name and select the icon. Click 'OK'.
(You can enter anything you would like as a connection name.)



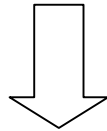
- 5) Input a country name and area code. Select 'Direct to Com 1' and click 'OK'.



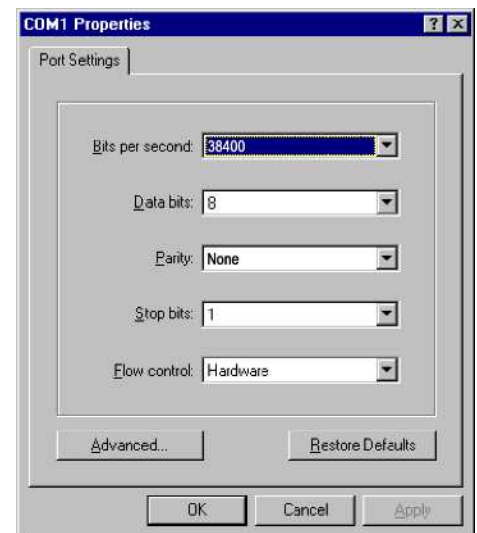
- 6) Set each setting shown on the right as below.

Bits per second	38400
Data Bits	8
Parity	None
Stop bit	1
Flow control	Hardware

Click 'OK' when the setting completes.



Start communication



7) Set the communication parameters.

SLM-5000 / SLM-4000

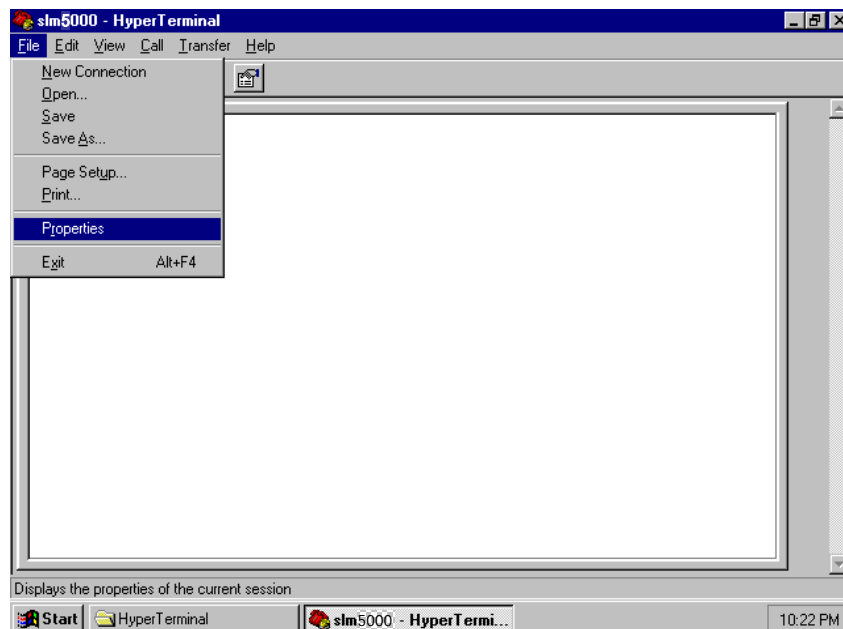
Engage in Menu screen using MENU switch. Select 'RS-232C' in the second page of '1. Setting' and set each parameter as follows.

BaudRate	38400
Character	8
Parity	None
Stop bit	1

PC

File ☐ Properties ☐ A window shown in 5) appears.

Configure... ☐ A window shown in 6) appears. set

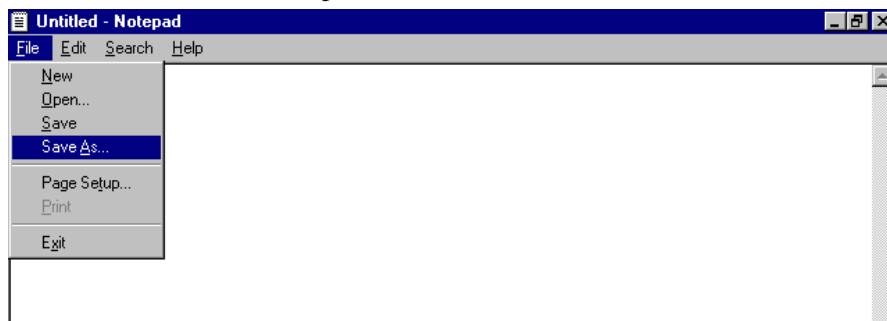


* After the setting above completes , cut the power once and turn the power on again to make the setting effective.

11.4. Output of adjustment data

- 1) Start receiving the data.

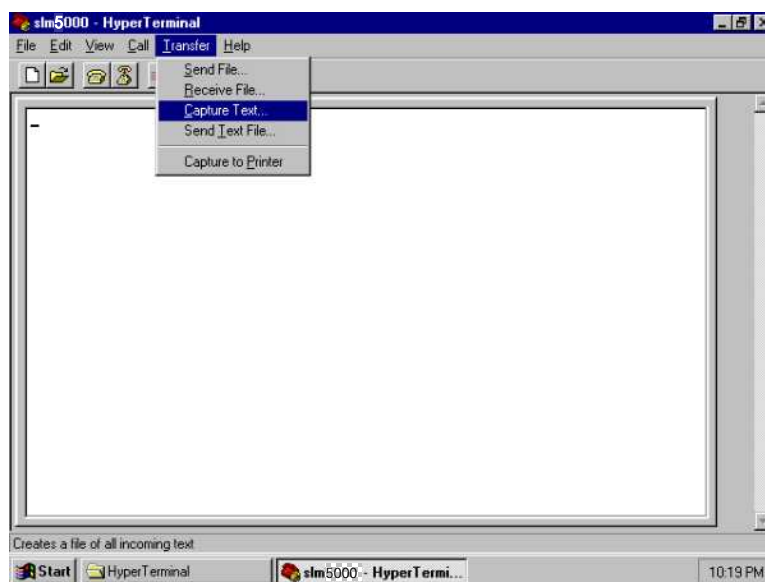
Create a text file (*.txt) with Notepad.



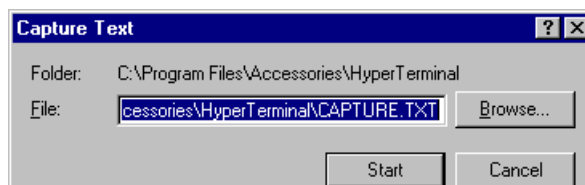
Transfer



Capture Text...



- 2) Store the adjustment data. Input the file name created in 1) and click Start.



- 3) Start sending the data.

Press MENU switch and call up the menu. Select '2. Output Memory' in '5. Memory' (or '4. Memory').



- 4) When the buzzer sounds, sending data completes.

- 5) Completes receiving the data.

Transfer  Capture Text...  Stop 

11.5. Input of adjustment data

- 1) Start receiving the data.

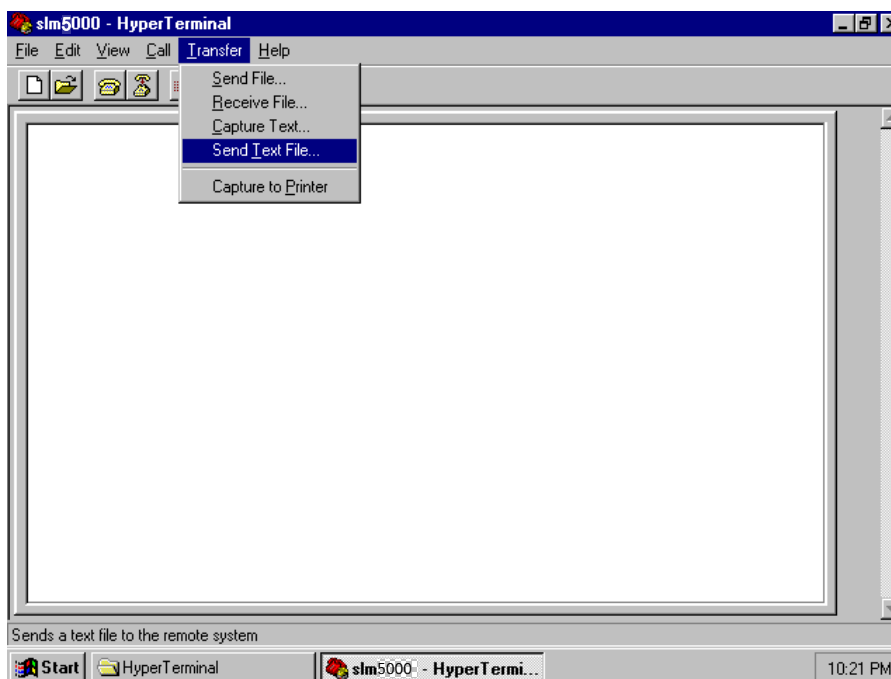
Press Menu switch to call up the menu screen. Select '3. Input Memory' in '5. Memory' (or '4. Memory').

The message 'Please Send Data 100' appears on the bottom of the screen and the number decreases. While the number decreases, SLM-5000 is waiting for receiving the data. Perform the step 2) at this time. When the number reaches zero (0), SLM-5000 is no longer in the waiting state.

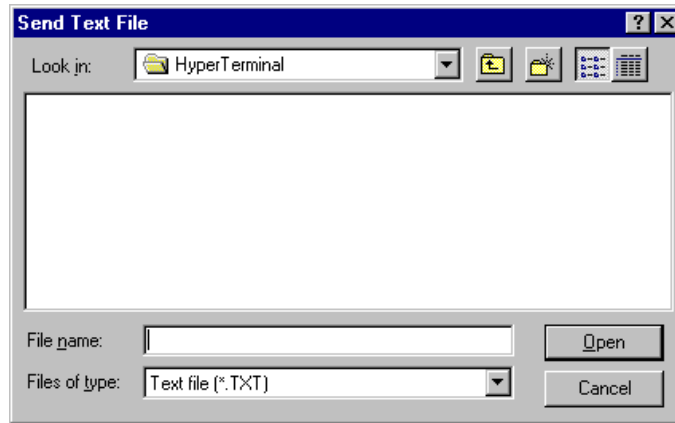


- 2) Start sending the data.

Transfer **C** Send Text File... **C**



- 3) Select the file storing the adjustment data and click Start.



The message 'Writing EEPROM' appears on the bottom of the screen of SLM-5000 / SLM-4000. When this message disappears with a long buzzer, sending data completes.

If this message disappears with beep tones and 'Error!' appears on Hyper Terminal, the file may be corrupted. Check the file name and repeat the procedure from 11.5 1).

Cut the power of SLM-5000, and turn it on again.

Note

Before communication

Use the cable with appropriate specification.

Match the setting of communication parameters between a PC and SLM-5000 / SLM-4000.

During communication

Pay attention not to accidentally cut the power of a PC or SLM-5000 / SLM-4000.

Connect the cable firmly.

If SLM-5000 / SLM-4000 stops...

Cut the power and repeat the procedure from 3. Preparation.