

SONY®
DATA PROJECTOR
SRX-T420

INSTALLATION MANUAL
1st Edition

警告

このマニュアルは、サービス専用です。
お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。
危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

AVERTISSEMENT

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

安全のために、周辺機器を接続する際は、過大電圧を持つ可能性があるコネクタを以下のポートに接続しないでください。

: NETWORK コネクタ

上記のポートについては本書の指示に従ってください。

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to the following port.

: NETWORK connector

Follow the instructions for the above port.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

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Manual Structure

Purpose of this manual

This manual is the installation manual of Data Projector SRX-T420.

This manual is intended for use by trained system and service engineers, and describes the information for installation of the unit.

The DIF-188 board mounted on this unit as standard equipment is equivalent of LKRI-005.

For the service information on the DIF-188 board, refer to the LKRI-005 service manual.

Related manuals

The following manuals are prepared for this unit.

- **Operating Instructions (supplied with this unit)**

This manual describes the information required for the actual management and operation of this unit.

- **Service Manual (available on request)**

This manual describes the information for periodic maintenance and detailed service.

Trademarks

Trademarks and registered trademarks used in this manual are follows.

- Windows, Windows XP, and Windows Vista are registered trademarks of Microsoft Corporation in the United States and other countries.
- Intel and Pentium are registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
- Ethernet is a registered trademark of Xerox Corporation.

Other system names, product names, and company names appearing in this manual are trademarks or registered trademarks of their respective holders.

Section 1

Installation

Outline

The light source lamp bulb and projection lens are optionally available. You can incorporate them in the system as required. For selecting the light source lamp and projection lens, contact your local Sony Sales Office/Service Center.

Before turning on the power of the main unit, perform the following procedure as required. (For details, refer to the description of each section.)

For the removal of the cabinet panel required for each procedure, refer to Section 1-1.

Notes

- It is not required to perform steps 1 to 8 sequentially. However, do not perform the connection of power cord in step 9 before completing steps 1 to 8.
- Be sure to remove the lamp bulb when moving this unit.

1. Adjust the tilt angle. (Refer to Section 1-2.)
2. Install the duct. (Refer to Section 1-3.)
3. Install the projection lens. (Refer to Section 1-4.)
4. Install the lens cover. (Refer to Section 1-5.)
5. Install the lamp bulb. (Refer to Section 1-6.)
6. Install the optional board to INPUT A and INPUT B slot. (Refer to Section 1-7.)
7. Connect the interlock connector. (Refer to Section 1-8.)
8. Connect and wire the external device. (Refer to Section 1-9.)
9. Connect the power cord. (Refer to Section 1-10.)

1-1. Removing/Installing the Cabinet Panel

Note

The four (each two) keys of the panel (U7) block assembly and panel (U4) block assembly (420) described in this section are supplied with this unit.

1-1-1. Name of Cabinet Panel

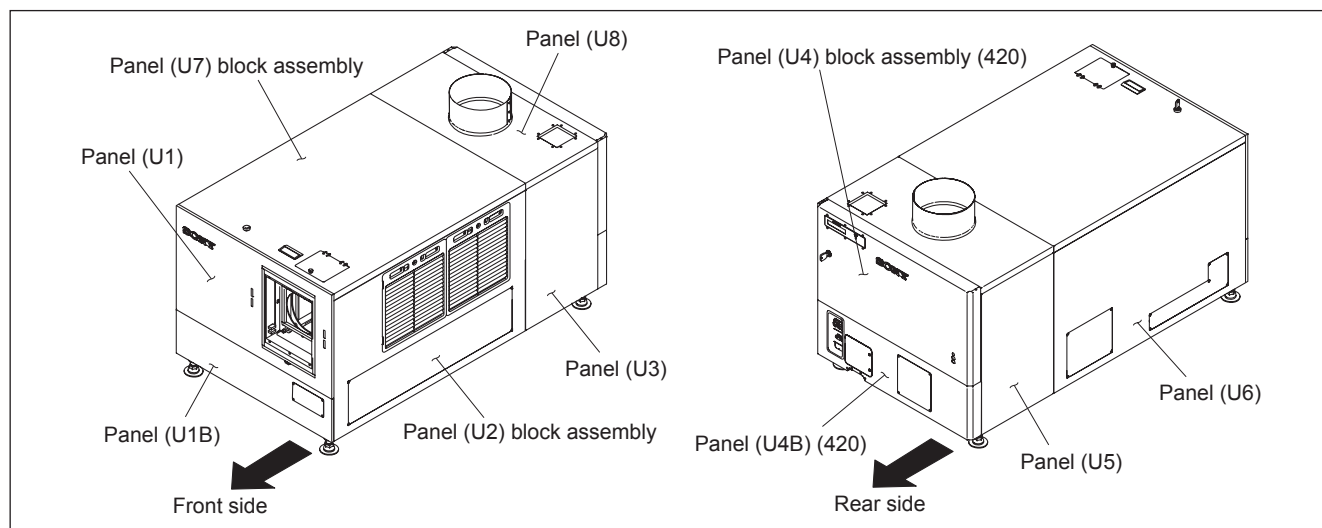


Fig. 1-1-1

1-1-2. Panel (U7) Block Assembly

1. Release the lock on the panel (U7) block assembly.
2. Remove the panel (U7) block assembly in the direction of the arrow with attention to the three hooks.
3. To install, reverse the removal procedure.

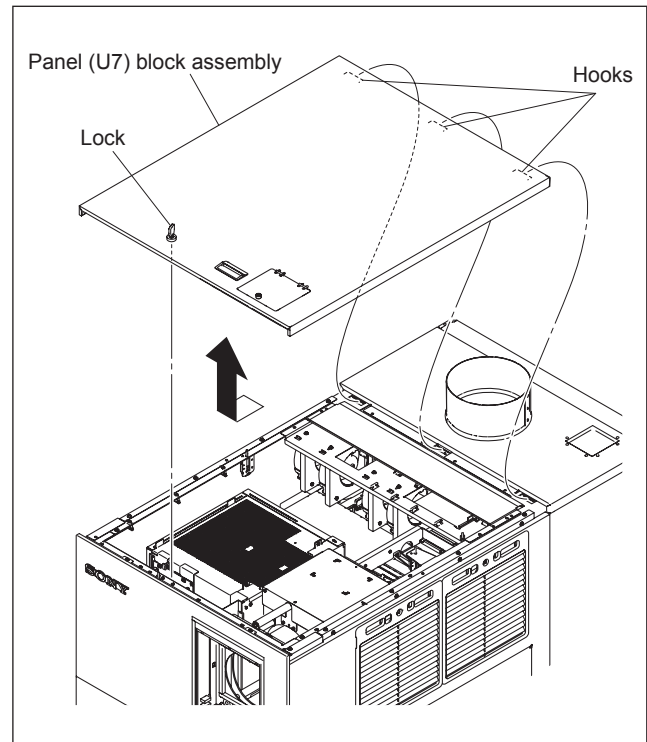


Fig. 1-1-2

1-1-3. Panel (U2) Block Assembly

1. Remove the panel (U7) block assembly.
(Refer to Section 1-1-2.)
2. Loosen the two screws (with drop-safe), then remove the two grilles.
3. Remove the five screws, then raise the panel (U2) block assembly in the direction of arrow ① with attention to the eight hooks.
4. Remove the panel (U2) block assembly in the direction of arrow ②.
5. To install, reverse the removal procedure.

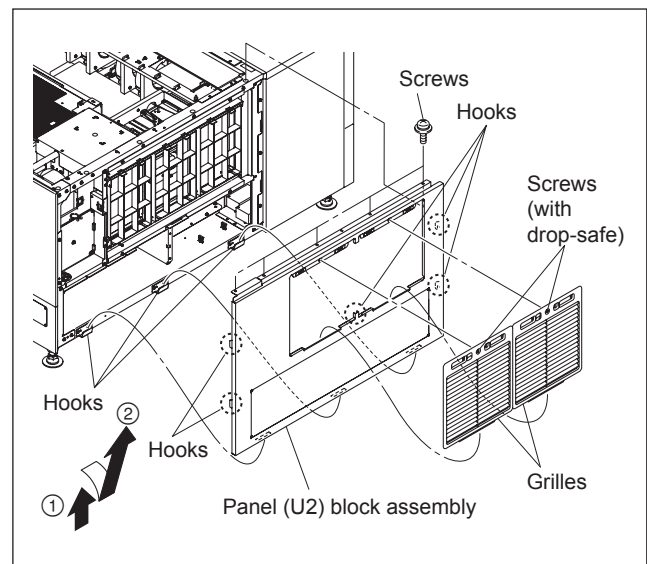


Fig. 1-1-3

1-1-4. Panel (U3)

1. Remove the panel (U7) block assembly. (Refer to Section 1-1-2.)
2. Remove the panel (U2) block assembly. (Refer to Section 1-1-3.)
3. Remove the three screws, then remove the panel (U3) in the direction of the arrow.
4. To install, reverse the removal procedure.

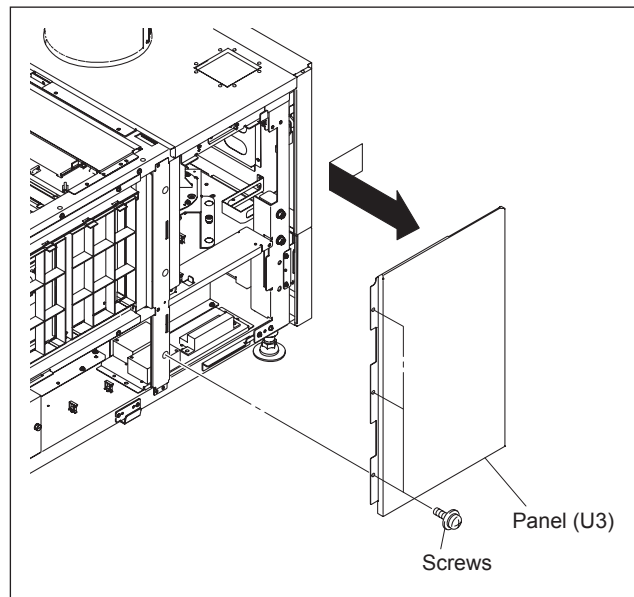


Fig. 1-1-4

1-1-5. Panel (U6)

1. Remove the panel (U7) block assembly. (Refer to Section 1-1-2.)
2. Remove the five screws, then raise the panel (U6) in the direction of arrow ① with attention to the seven hooks.
3. Remove the panel (U6) in the direction of arrow ②.
4. To install, reverse the removal procedure.

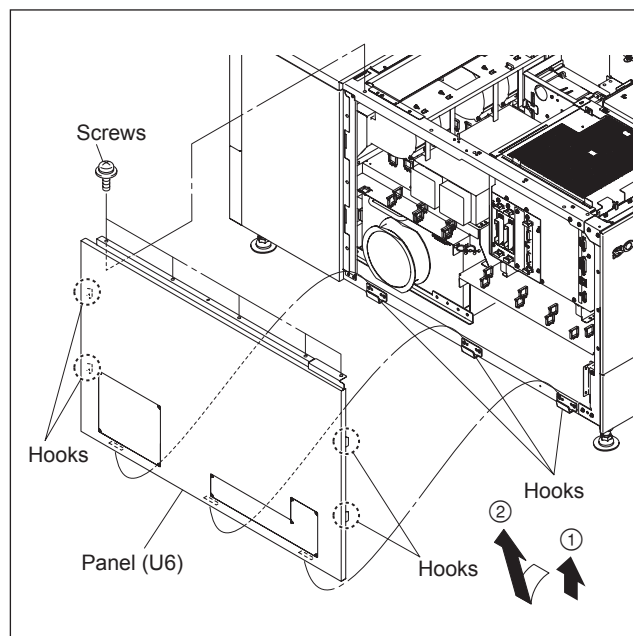


Fig. 1-1-5

1-1-6. Panel (U5)

1. Remove the panel (U7) block assembly. (Refer to Section 1-1-2.)
2. Remove the panel (U6). (Refer to Section 1-1-5.)
3. Remove the three screws, then remove the panel (U5) in the direction of arrow.
4. To install, reverse the removal procedure.

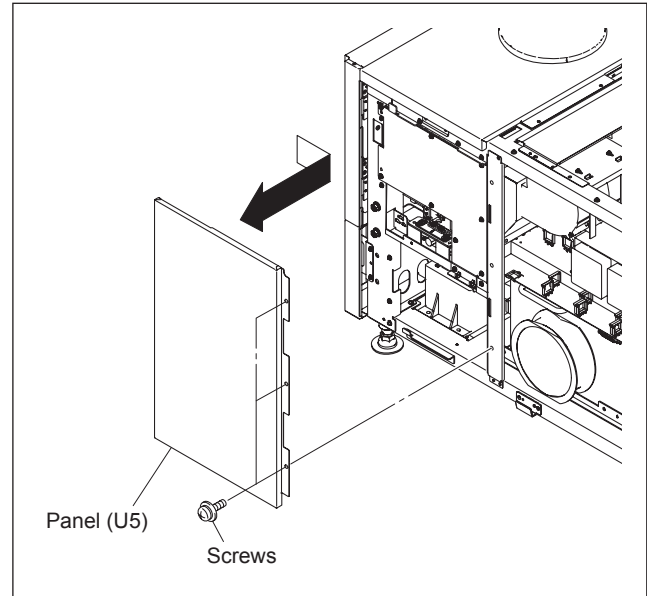


Fig. 1-1-6

1-1-7. Panel (U1B)

1. Remove the panel (U7) block assembly. (Refer to Section 1-1-2.)
2. Remove the panel (U2) block assembly. (Refer to Section 1-1-3.)
3. Remove the panel (U6). (Refer to Section 1-1-5.)
4. Remove the four screws, then remove the panel (U1B) in the direction of arrow.
5. To install, reverse the removal procedure.

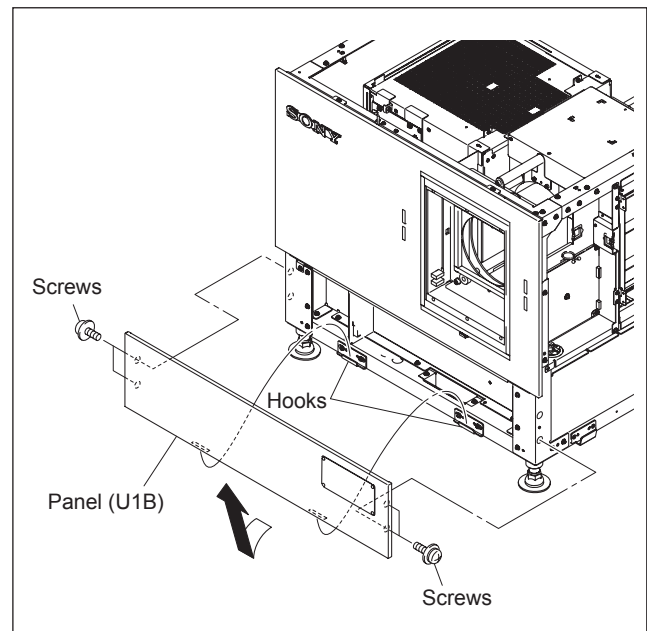


Fig. 1-1-7

1-1-8. Panel (U1)

1. Remove the panel (U7) block assembly. (Refer to Section 1-1-2.)
2. Remove the panel (U2) block assembly. (Refer to Section 1-1-3.)
3. Remove the panel (U6). (Refer to Section 1-1-5.)
4. Remove the panel (U1B). (Refer to Section 1-1-7.)
5. Remove the eight screws, then remove the panel (U1).
6. To install, reverse the removal procedure.

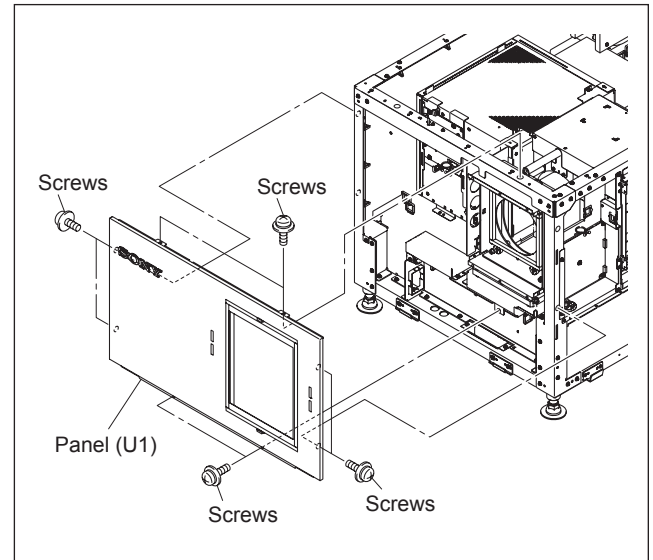


Fig. 1-1-8

1-2. Tilt Angle Adjustment

Note

For further adjustment, “2-6. Field Angle Adjustment” is required.

In the case of tilt angle under 5 degrees:

Adjust the tilt angle using the adjuster in the lower portion of this unit.

1. Loosen the nut.
2. Adjust the tilt angle by rotating the adjuster in the lower portion of this unit.
3. Secure the adjuster by tightening the nut to the adjuster pipe side.

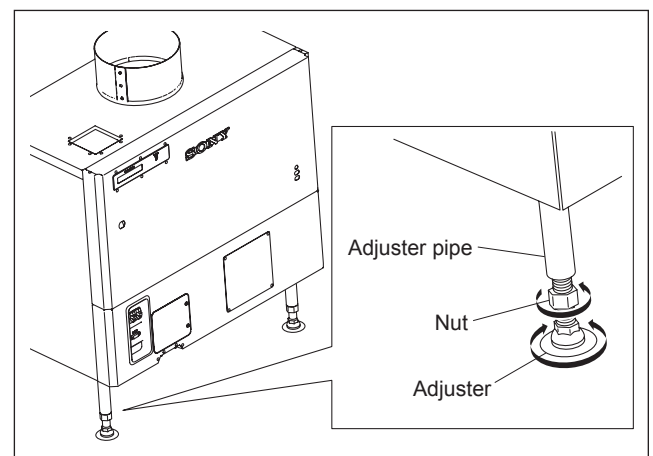


Fig. 1-2a

In the case of tilt angle from 5 to 10 degrees:

1. Remove the panel (U7) block assembly. (Refer to Section 1-1-2.)
2. Remove the panel (U2) block assembly. (Refer to Section 1-1-3.)
3. Remove the panel (U3). (Refer to Section 1-1-4.)
4. Remove the panel (U6). (Refer to Section 1-1-5.)
5. Remove the panel (U5). (Refer to Section 1-1-6.)

6. Set the tools such as jack at both sides of frame, then raise the rear portion of the main unit.
7. Remove the four M8 bolts.
8. Move the adjuster pipe assembly downward and insert the four M8 bolts into the four holes to secure it.
9. Lower the jack and attach the panel (U5), panel (U6), panel (U3), panel (U2) block assembly and panel (U7) block assembly.

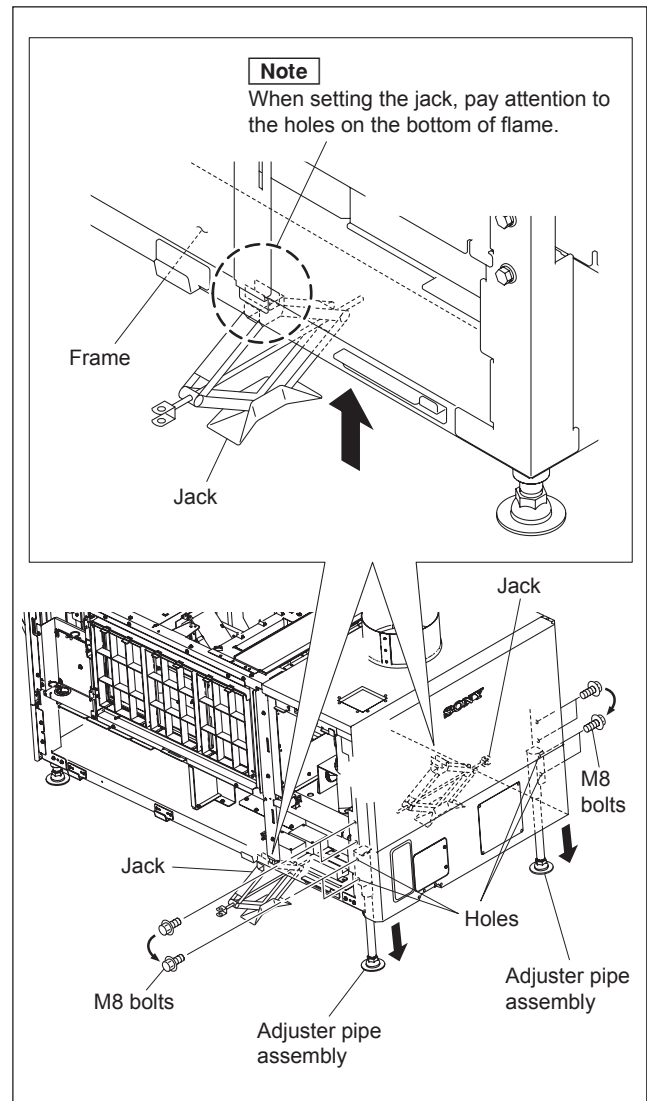


Fig. 1-2b

In the case of fixing this unit:

This unit can be fixed to the floor using the anchor BKT.
When fixing this unit, attach the anchor BKT to the adjuster as shown in the illustration.

Part name

Anchor BKT (optionally available): 3-294-224-01

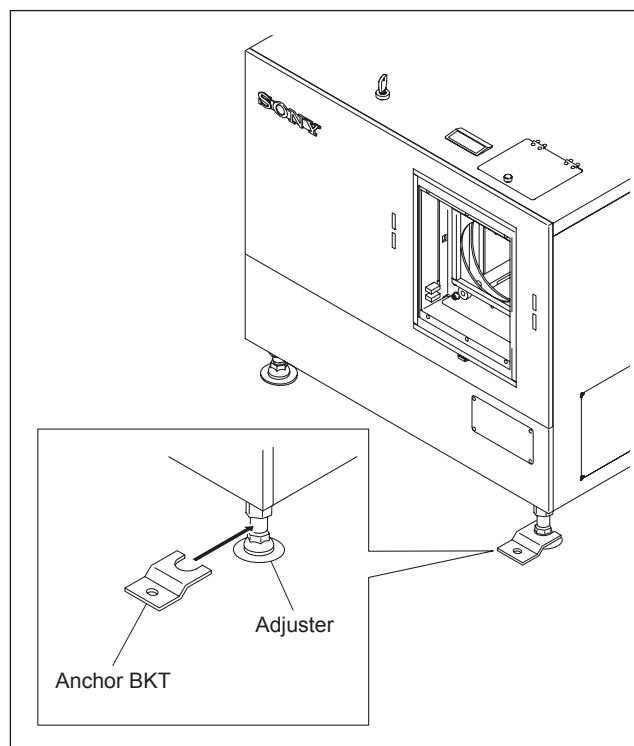


Fig. 1-2c

1-3. Installing the Duct

Attach the commercially available 8-inch duct to the duct connection of the panel (U8) of this unit.

Note

When attaching the duct, be careful not to bend it so that the exhaust air flows smoothly.

External fan (exhaust air) air volume specification

The following exhaust air volume is required for the 8-inch duct.

Exhaust air volume: 450 to 550 ft³/min
(12.7 to 15.6 m³/min)

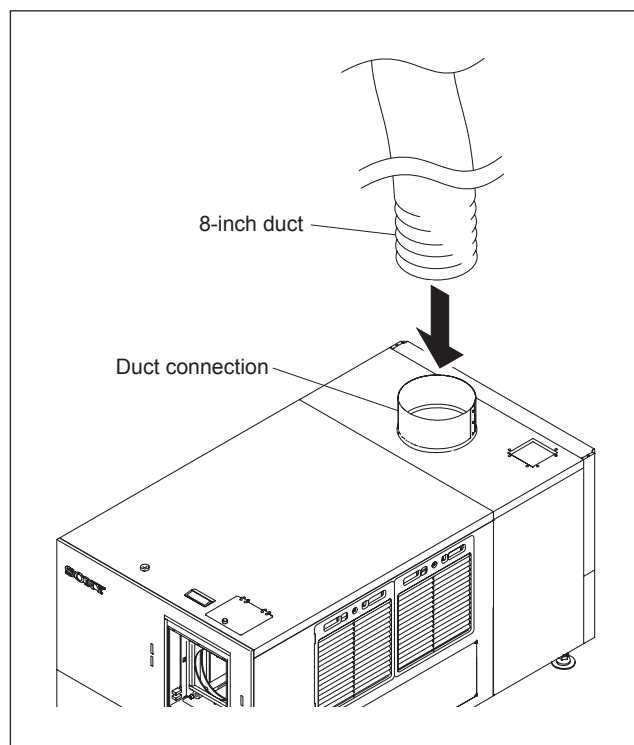


Fig. 1-3

1-4. Installing the Projection Lens

1. Attach the projection lens.
2. Align the notch of lens bracket with the line of projection lens and tighten the supplied four bolts in the order from ① to ④.
3. Connect the three cables (focus, zoom and POTENTIO).

Note

Do not attach the lens cover before completing the lens adjustment. (Refer to Section 2-3.)

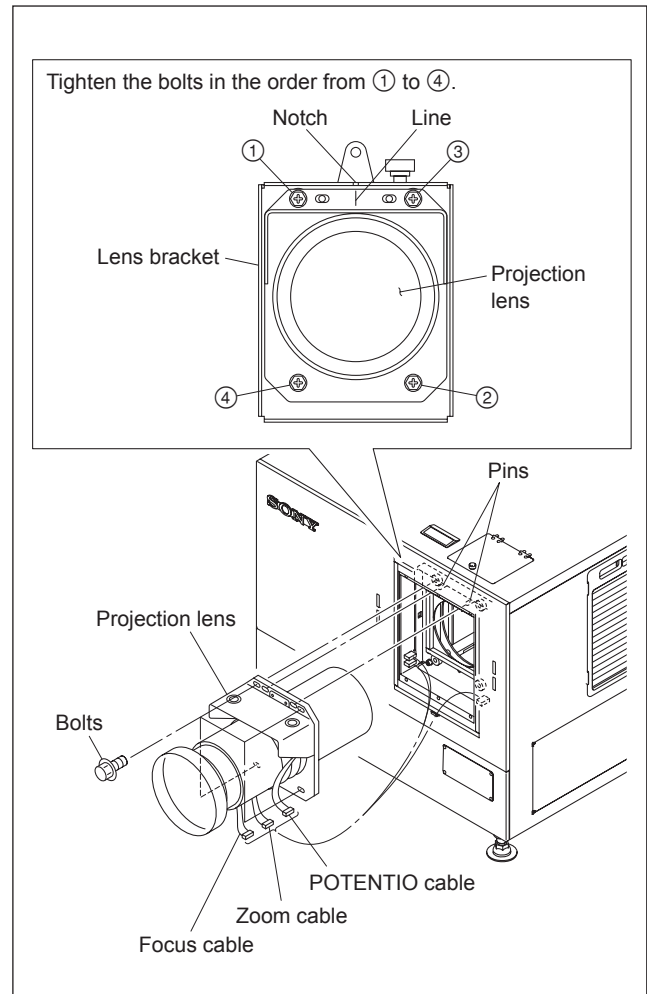


Fig. 1-4

1-5. Installing the Lens Cover

1. Attach the lens cover in the direction of arrow with attention to the three hooks.

Note

The lens covers are same parts, so they can be attached both upper and lower.

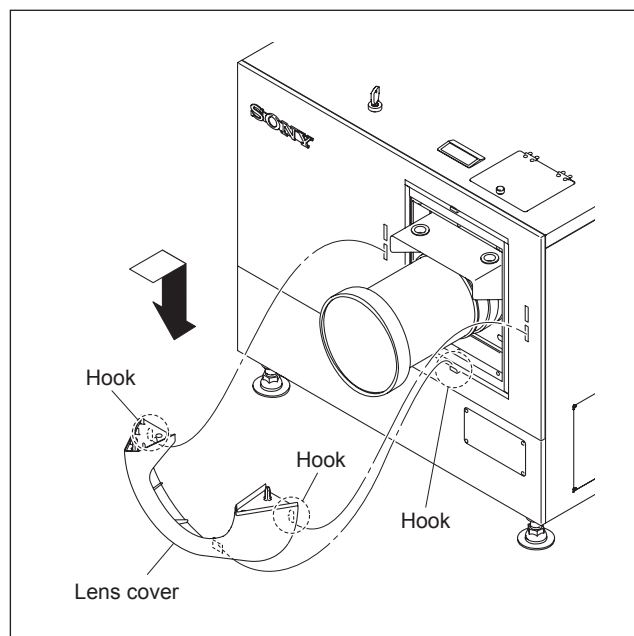


Fig. 1-5a

2. Attach the lens cover in the direction of arrow with attention to the three hooks.

Note

When attaching the lens cover, align the four convex portions with the four holes.

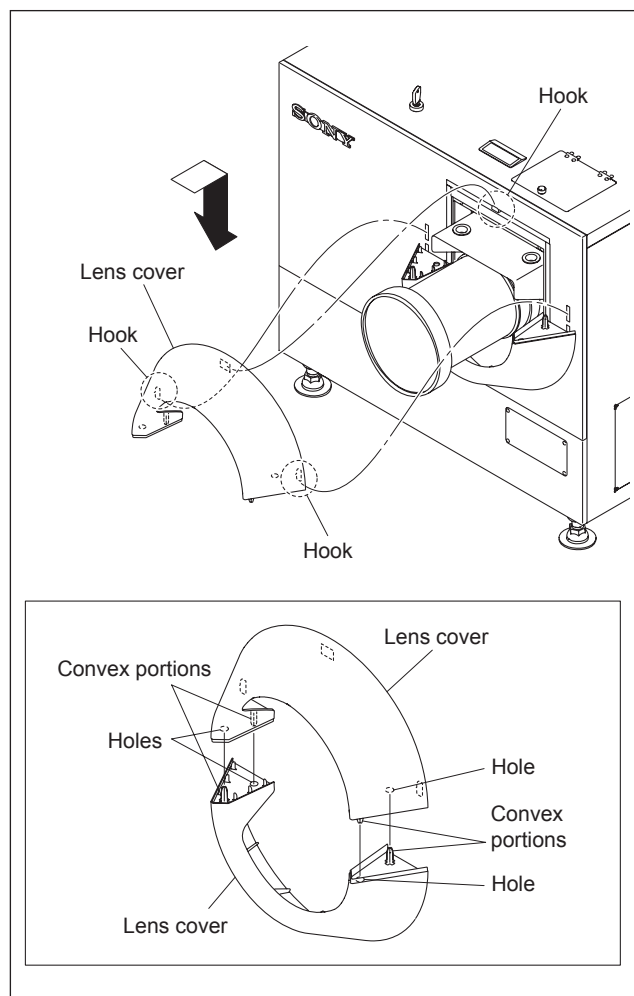


Fig. 1-5b

1-6. Installing the Lamp Bulb

WARNING

- Be sure to turn off the power of this unit before installing the lamp bulb.
- Be sure that only the qualified service personnel can install the lamp bulb. For the qualification, please contact your local Sony Sales Office/Service Center.
- When installing the lamp bulb, be sure to wear the protection suit kit (J-7120-330-A (M size), J-7120-340-A (L size), or J-7120-460-A (XL size)). Also, wear the shoes that cover the instep of the foot completely.
- Be extremely careful when handling the xenon lamp bulb because a high voltage is applied to it.
- Do not touch the lamp bulb with bare hands. Otherwise, it may break the lamp bulb.

Wearing of protection suit kit

1. Wear the jacket and trousers.
2. Wear the arm cover on both hands so that the wrists are completely covered.
3. Wear the hood and attach the face shield.
4. Adjust the face shield to the head size using the adjuster on the back of the face shield.
5. Wear the glove on both hands.

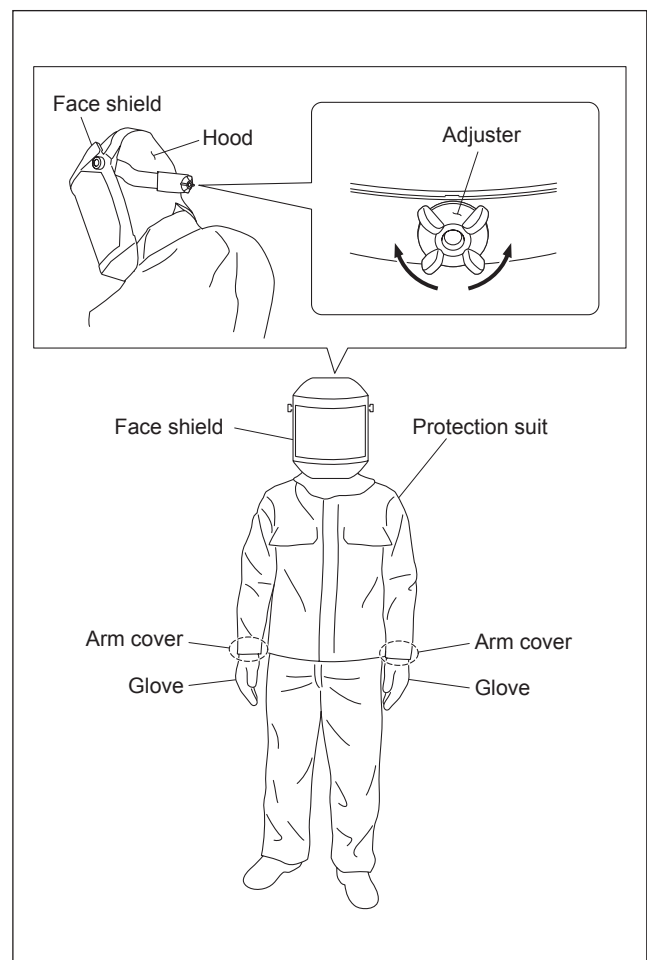


Fig. 1-6a

Procedure

Notes

- Keep the serial code label affixed on the Operating Instructions of the lamp bulb which is required for installation.
- Keep the materials such as packaging box, case, protection sheet because they are used when disposing of the used lamp bulb.

1. Loosen the screw and bend portion A of the anode harness.

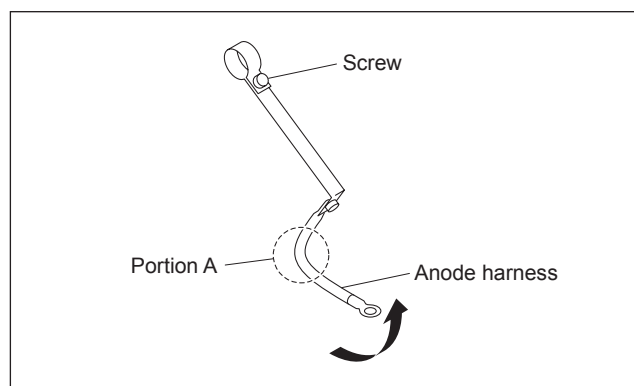


Fig. 1-6b

2. Attach the anode harness to the anode side of the lamp bulb, then tighten the screw.
(Tightening torque: 1.2 N•m)

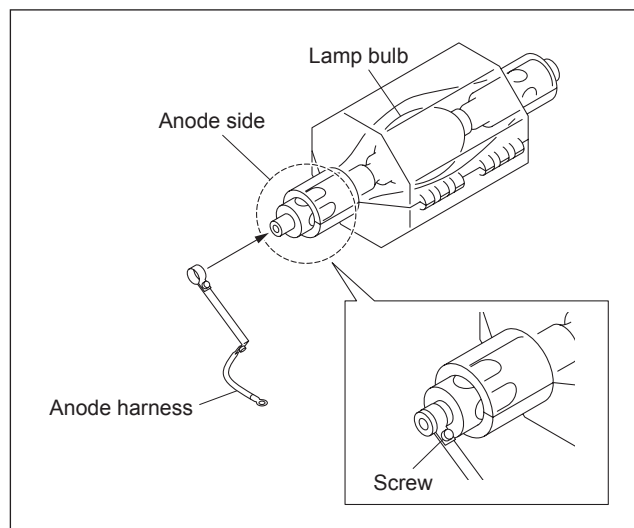


Fig. 1-6c

3. Release the lock, then open the panel (U4) block assembly (420).
4. Loosen the screw (with drop-safe), then rotate the cold mirror assembly in the direction of the arrow.
5. Loosen the five screws (with drop-safe), then remove the maintenance cover.

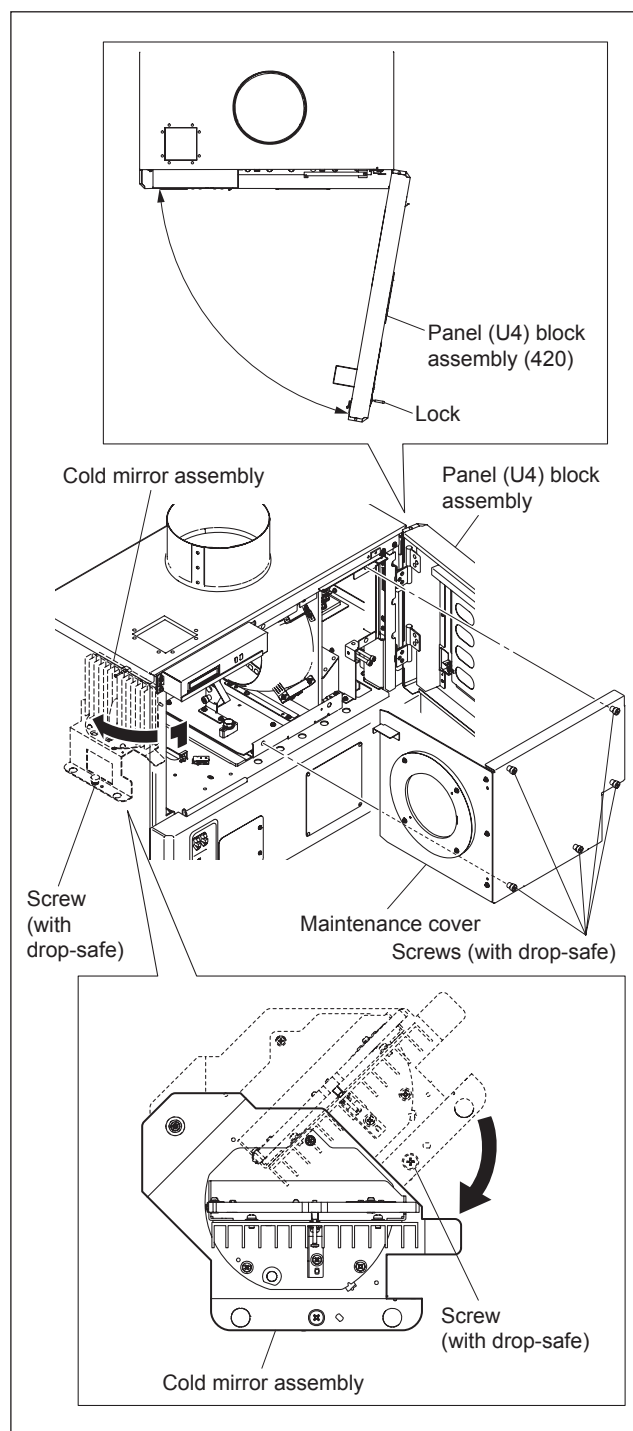


Fig. 1-6d

6. Remove the bolt from the anode terminal.
7. Loosen the hexagon socket set screw of the cathode terminal.

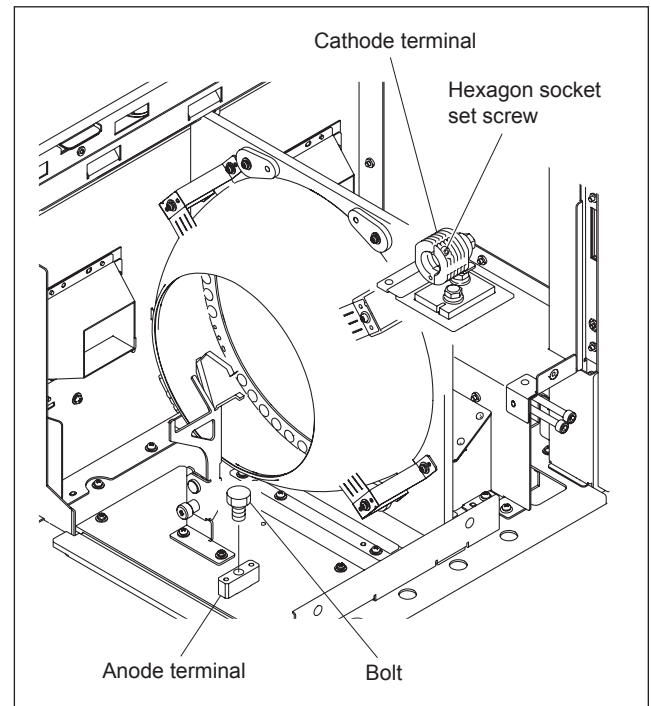


Fig. 1-6e

8. Remove the plastic cover from the lamp bulb.

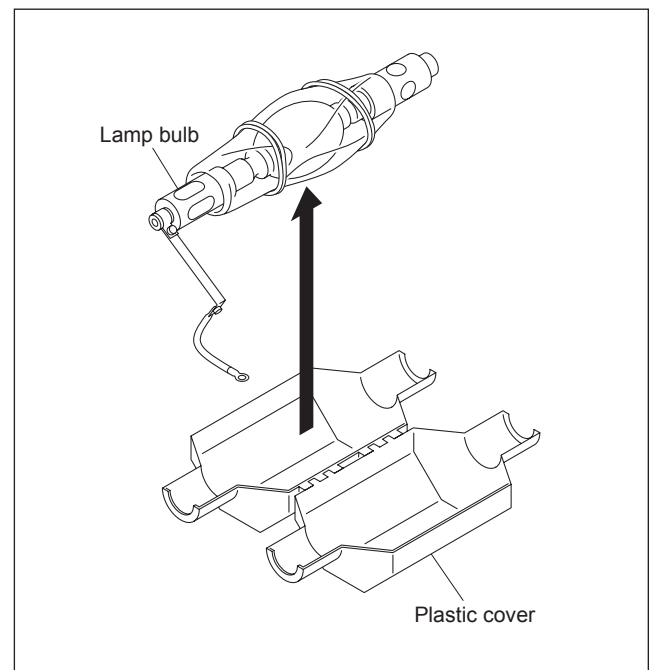


Fig. 1-6f

9. Remove the protection sheet from the lamp bulb.

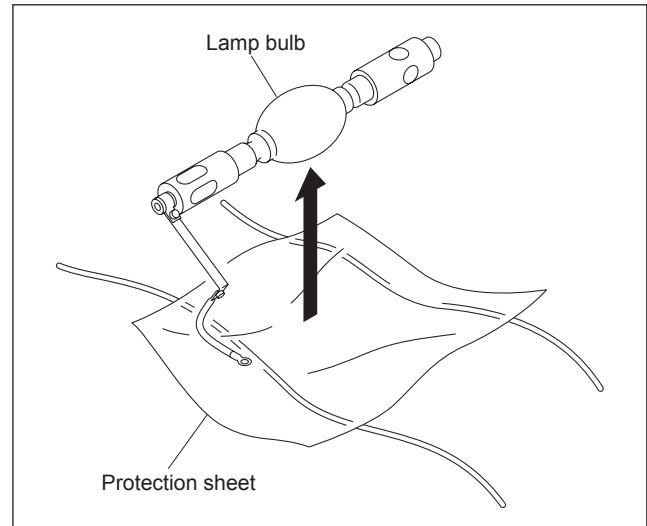


Fig. 1-6g

10. Loosen the knob, then move the anode holder in the direction of the arrow.
11. Insert portion A of the lamp into the cathode terminal.

Note

When attaching the lamp bulb, be careful not to damage the reflector portion. Also, be careful not to damage the glass of lamp bulb. Otherwise, it may break the lamp bulb.

12. Hold the cathode side of the lamp bulb firmly and raise the anode side. Then, return the anode holder to the original position and tighten the knob.

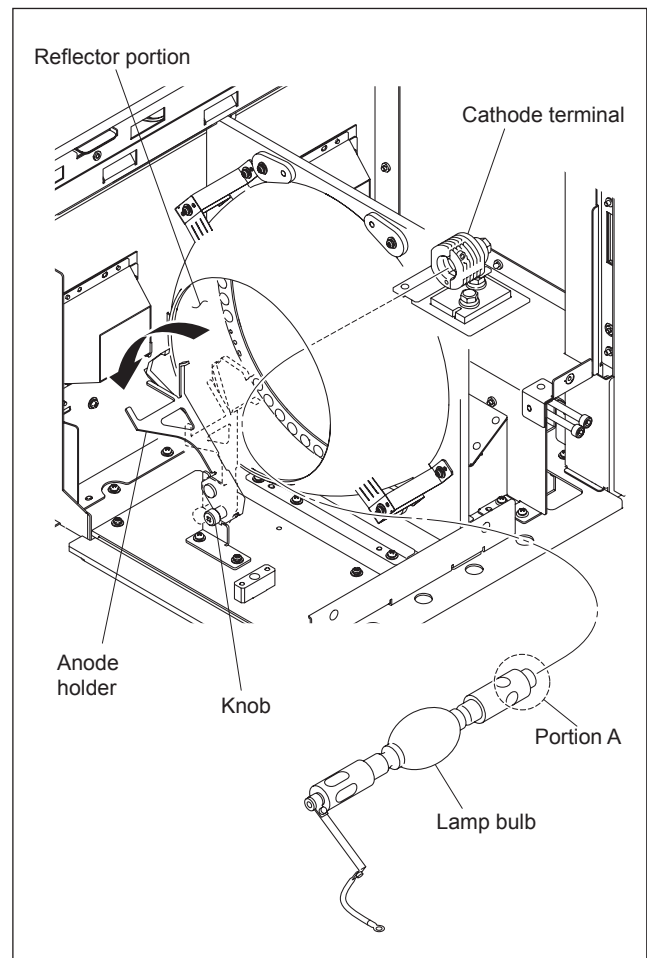


Fig. 1-6h

13. Place the anode side of the lamp bulb on the anode holder.
14. Attach the anode harness to the anode terminal, then tighten the bolt. (Tightening torque: 1.5 N•m).

Note

After installing the anode harness separated lamp bulb, if there is a clearance in portion A of the anode holder, adjust it by bending the anode harness so that there is no clearance between the anode holder and the lamp bulb.

15. Tighten the hexagon socket set screw of the cathode terminal.

(Tightening torque: 1.2 N•m)

Note

Be sure that there is no clearance between the end face of the cathode terminal and the surface C of the lamp bulb.

16. Attach the panel (U4) block assembly (420) in the reverse order of steps 3 to 5.

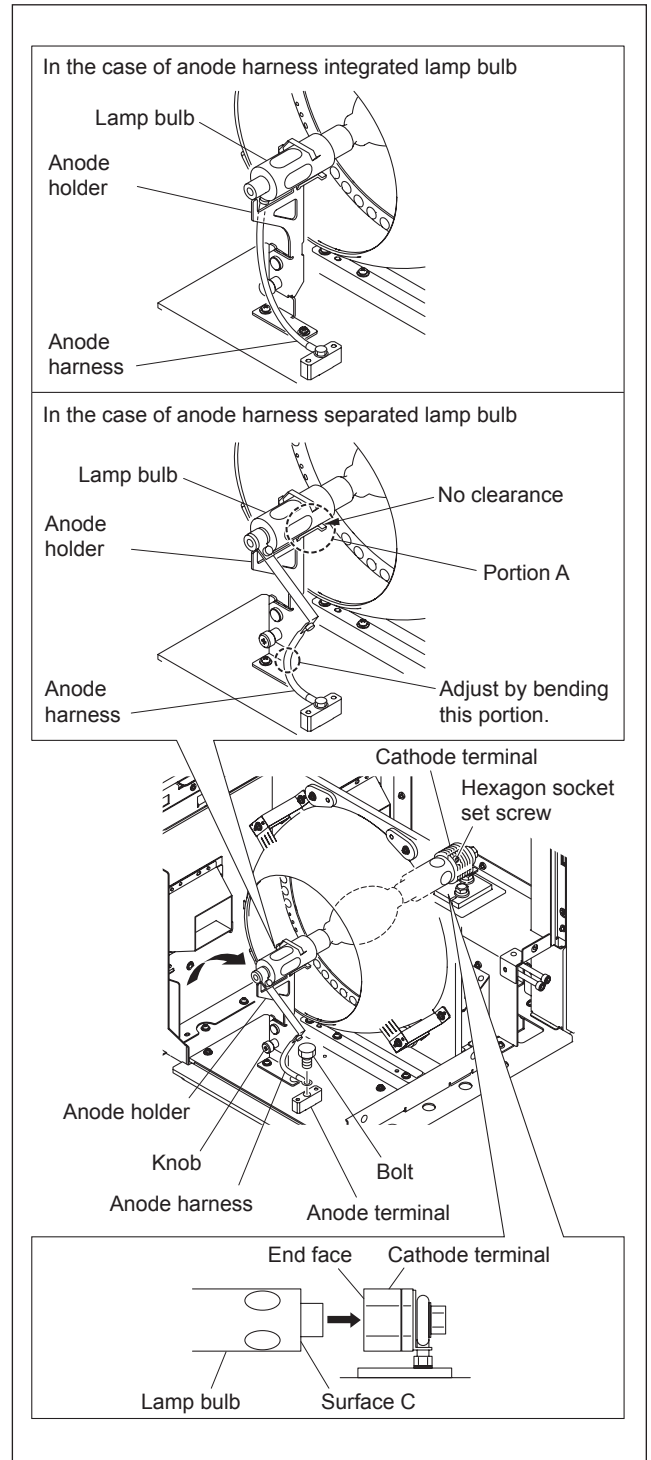


Fig. 1-6i

1-7. Installing the Optional Board to INPUT A, INPUT B, INPUT C and INPUT D

For any slots, the optional board, LKRI-003 or LKRI-005 can be installed.

The installing procedure for each slot is same.

Note

For INPUT A slot, LKRI-005 is installed before shipment. Replace it as necessary.

Parts information

- Fixed Plate (HIF) 320: 4-159-161-01 (For LKRI-003)
- Fixed Plate (DIF) 320: 4-159-162-01 (For LKRI-005)
- Handle: 3-172-089-01 (Using 2 pcs)

Procedure (LKRI-003)

1. Remove the six screws, then remove the panel (HIF-44) and finger holder (HIF).

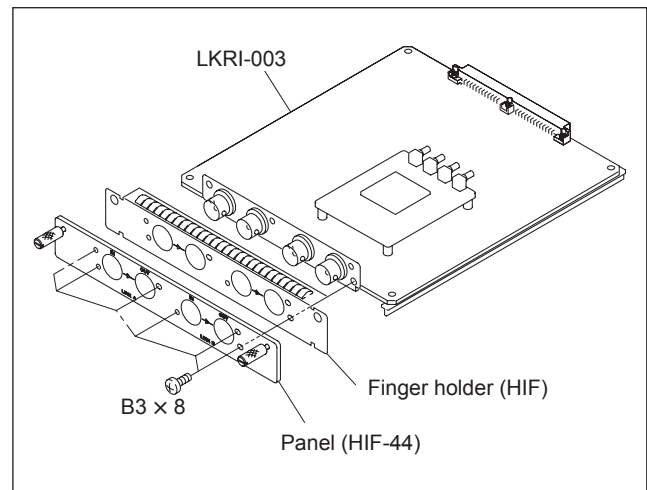


Fig. 1-7a

2. Attach the fixed plate (HIF) 320 using the six screws removed in step 1.
3. Attach the two handles to the fixed plate (HIF) 320.

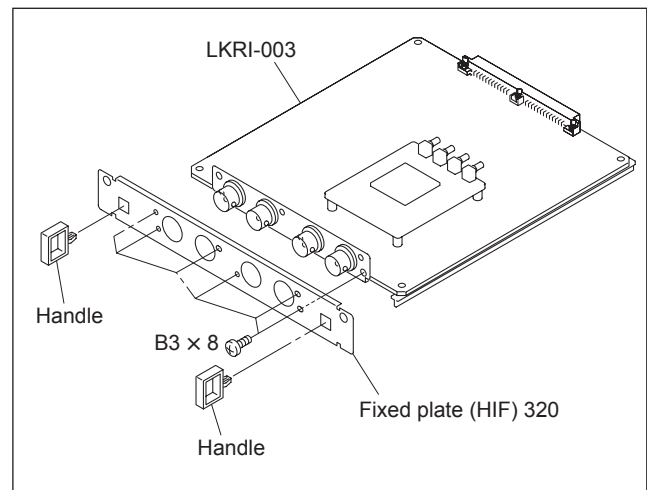


Fig. 1-7b

4. Remove the six screws, then remove the all blank panels.

Note

Store the removed blank panel.

5. Remove the six screws, then remove the panel cover (IF) 420.

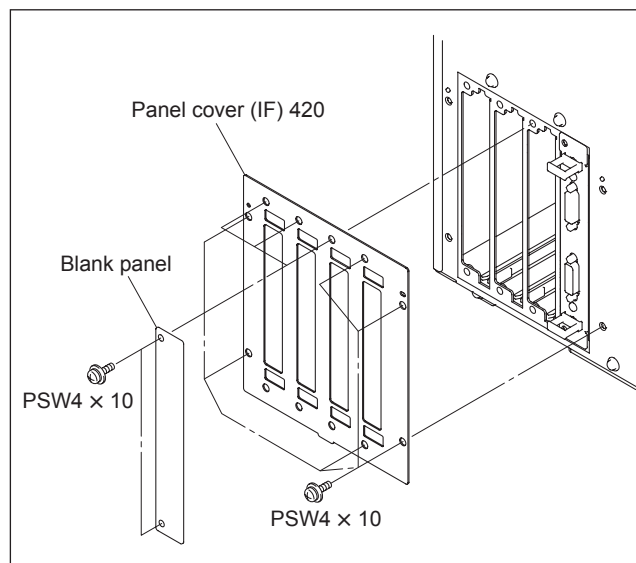


Fig. 1-7c

When attaching the LKRI-003 to INPUT B slot

6. Insert the LKRI-003 board into INPUT B slot, and connect it securely.
7. Attach the panel cover (IF) 420 using the twelve screws.

Note

Attach the blank panel to empty slot.

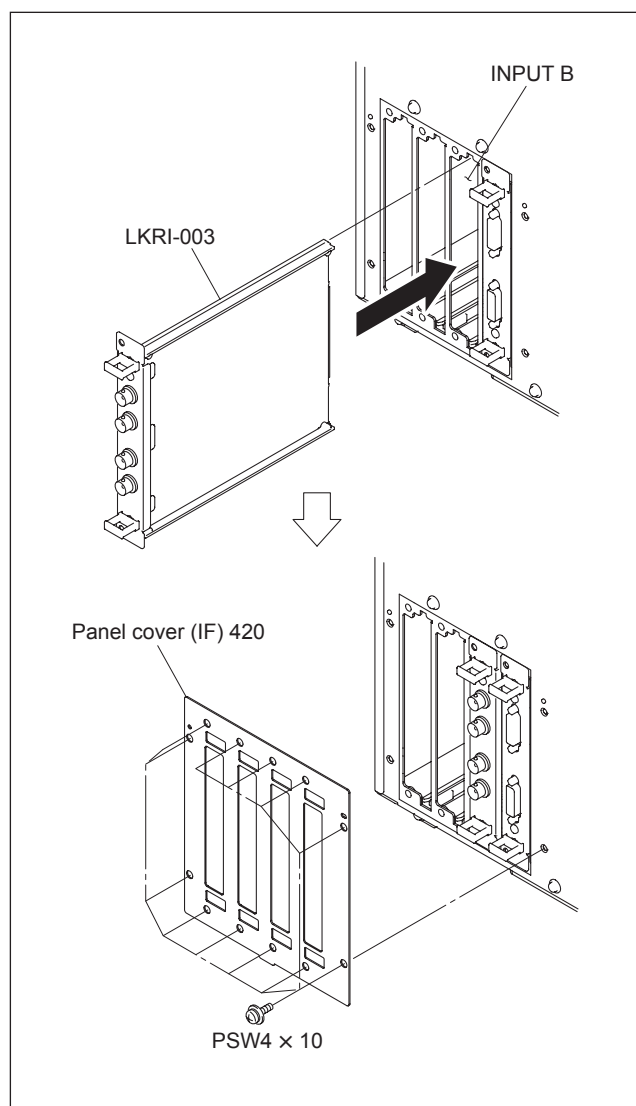


Fig. 1-7d

Procedure (LKRI-005)

1. Remove the two screws, then remove the panel (DIF-188) and finger holder (DIF).

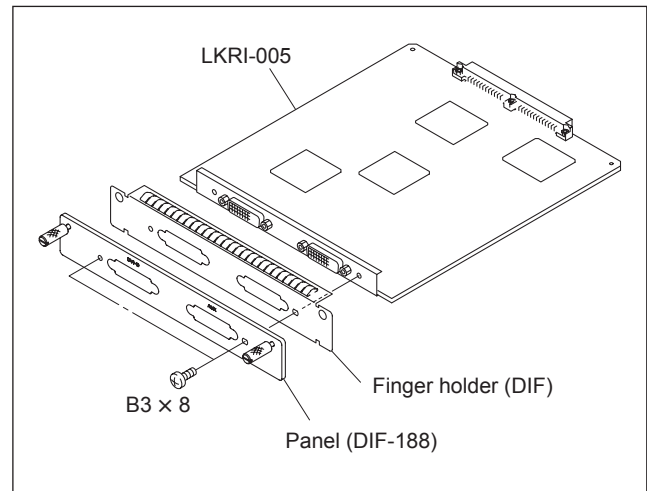


Fig. 1-7e

2. Attach the fixed plate (DIF) 320 using the two screws removed in step 1.
3. Attach the two handles to the fixed plate (DIF) 320.

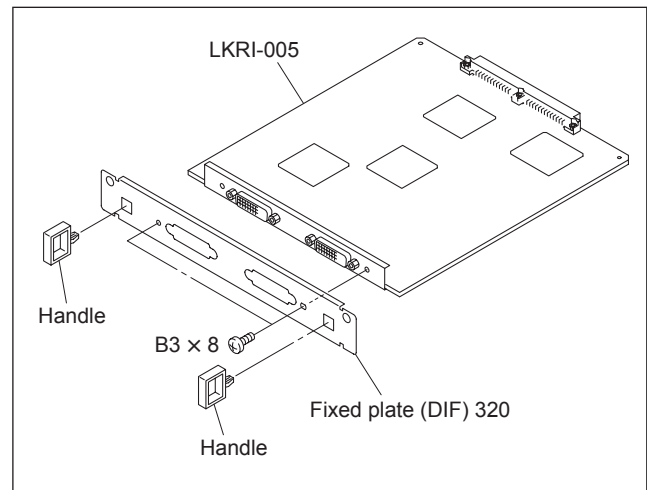


Fig. 1-7f

4. Remove the six screws, then remove the all blank panels.
- Note**
Store the removed blank panel.
5. Remove the six screws, then remove the panel cover (IF) 420.

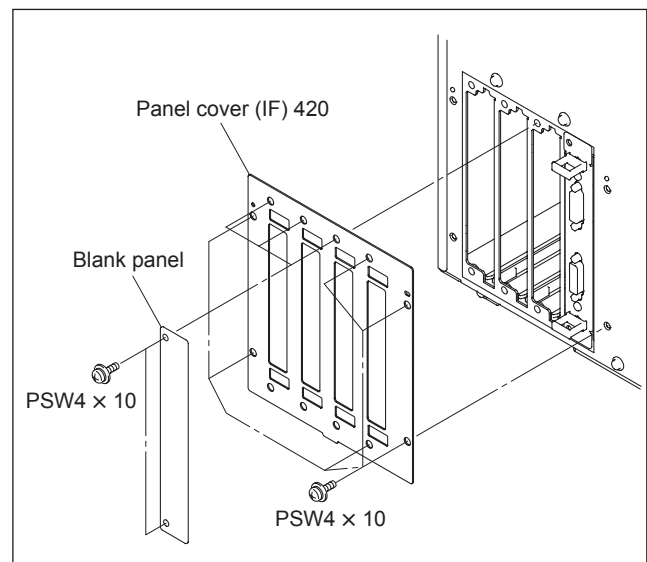


Fig. 1-7g

When attaching the LKRI-005 to INPUT B slot

6. Insert the LKRI-005 board into INPUT B slot, and connect it securely.
7. Attach the panel cover (IF) using the twelve screws.

Note

Attach the blank panel to empty slot.

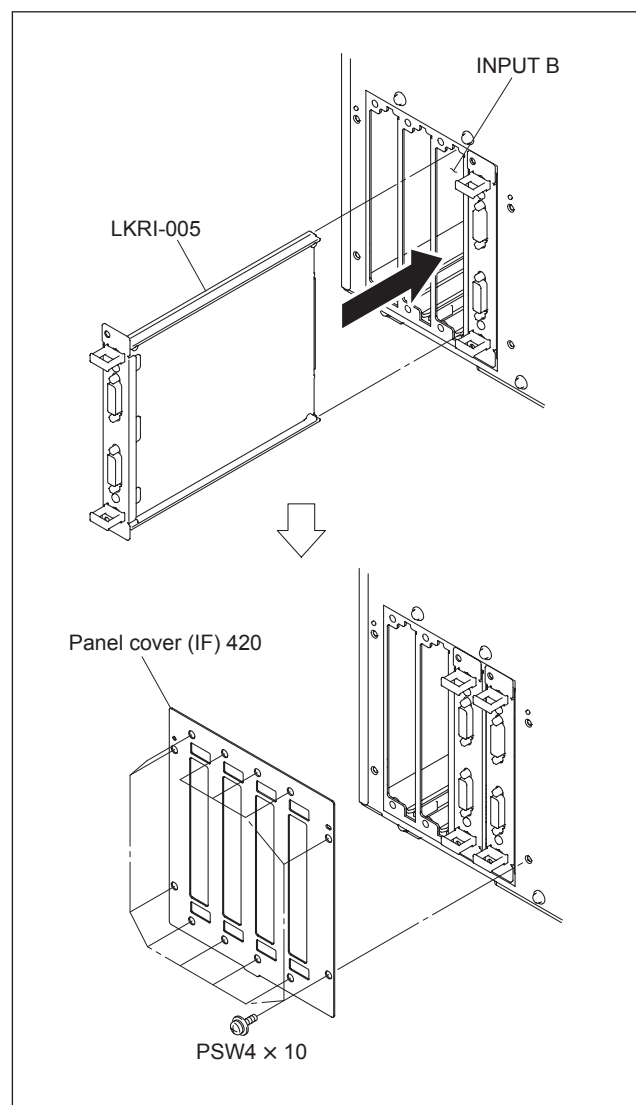


Fig. 1-7h

Connection with each equipment

Notes

- Connect each equipment with the power turned off state.
- Use the connecting cables applicable to each terminal.
- Insert the plug securely. Incomplete connection may cause an image trouble.
When disconnecting the plug, be sure to hold the plug with your hand.
- Refer to the Operating Instructions of the equipment to be connected.

In case of LKRI-003

Input

BNC type (2)

HD-SDI: Serial digital (1.485 Gbps)
Compliant to SMPTE-292M/ITU-R,
BT709/BTA-S004

Dual-link HD-SDI: Serial digital (1.485 Gbps)
Compliant to SMPTE-372M

DC-SDI: Serial digital (1.485 Gbps)
Compliant to 23.98 PsF, 24 PsF, 24P

Output

BNC type (2)

Loop-through output

Quantization characteristics

10 bits/sampling

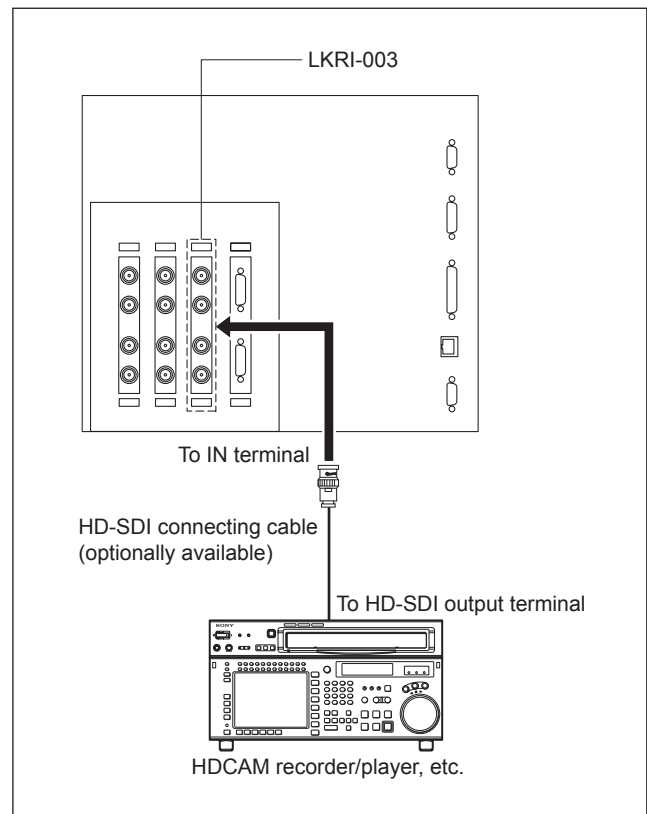


Fig. 1-7i

In case of LKRI-005

Notes

- For INPUT A slot, LKRI-005 is installed by default. However, LKRI-003 can be installed.
- When using a long cable, the image may not be displayed properly due to the signal attenuation.
- When the 10 bit single mode is selected, the DVI cable applicable to Dual-link is required.

1. Connect the commercially available DVI cable to the terminal according to the input signal.

Input signal	Used terminal
During normal operation DVI1.0 compliant Signal level: Full Range	DVI-D terminal
10 bit signal of its own specification During input (10 bit twin mode) Signal level: Full Range	DVI-D terminal and AUX terminal
10 bit signal of its own specification During input (10 bit single mode) Signal level: Full Range	DVI-D terminal
Used during signal input of DTV standard DVI1.0 compliant Signal level: Limited Range	DVI-D terminal
10 bit signal of its own specification During input (10 bit twin mode) Signal level: Limited Range	DVI-D terminal and AUX terminal
10 bit signal of its own specification During input (10 bit single mode) Signal level: Limited Range	DVI-D terminal

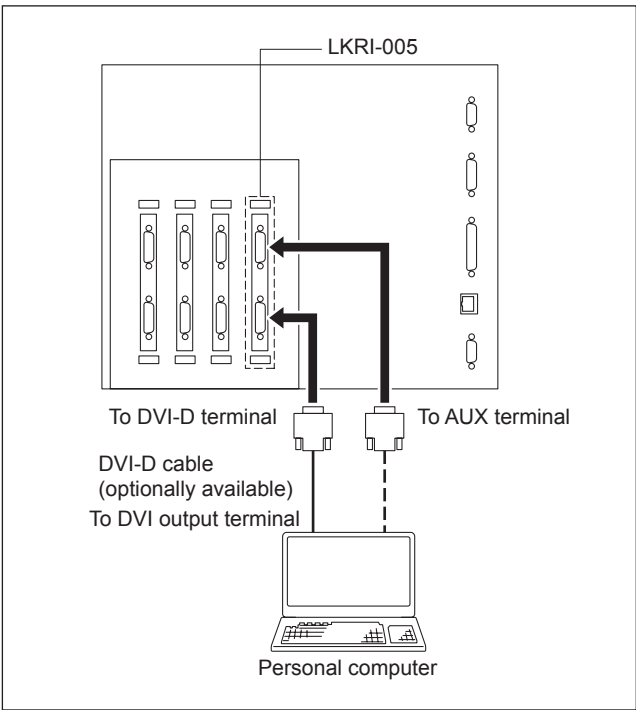
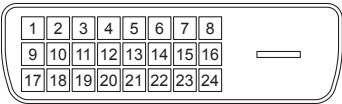


Fig. 1-7j

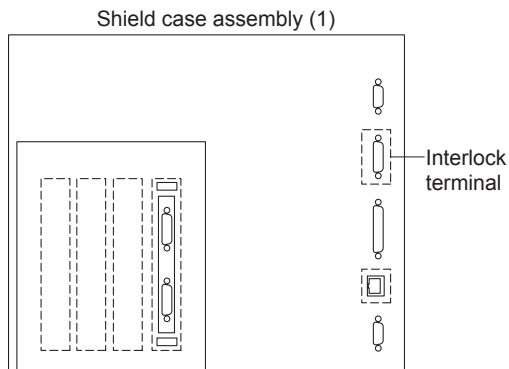
Pin location



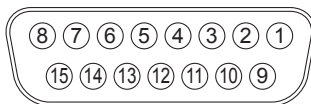
DVI-D terminal, AUX terminal

Pin No.	Signal name	Pin No.	Signal name
1	DATA2-	13	DATA3+
2	DATA2+	14	+5 V
3	GND	15	DDC_GND
4	DATA4-	16	HOTPLUG_DET
5	DATA4+	17	DATA0-
6	DDC_SCL	18	DATA0+
7	DDC_SDA	19	GND
8	NC	20	DATA5-
9	DATA1-	21	DATA5+
10	DATA1+	22	GND
11	GND	23	CLK+
12	DATA3-	24	CLK-

1-8. Interlock Terminal



Pin location



Interlock terminal

1. Interlock Function

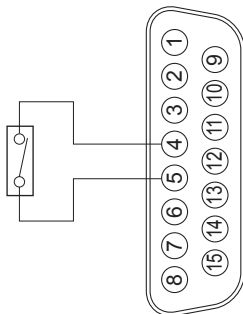
The SRX-T420 interlock function is enabled by making the two pins of the interlock terminal open or short. The following two patterns can be used for the interlock function in the applicable serial.

Pattern 1

Normal: Open

Interlock: Short

Open/short between pin 4 and pin 5

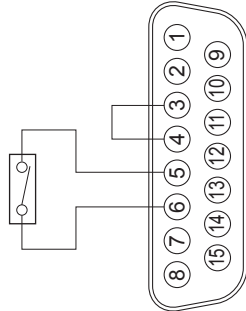


Pattern 2

Normal: Short

Interlock: Open

Open/short between pin 5 and pin 6 with the pin 3 and pin 4 shorted state



1-9. Connecting and Wiring of External Device

WARNING

Do not plug the power cord into the power supply when performing the following wiring operations.

Signal cable wiring

When connecting to external device to this unit, connect by routing the cable through the hole of the front side.

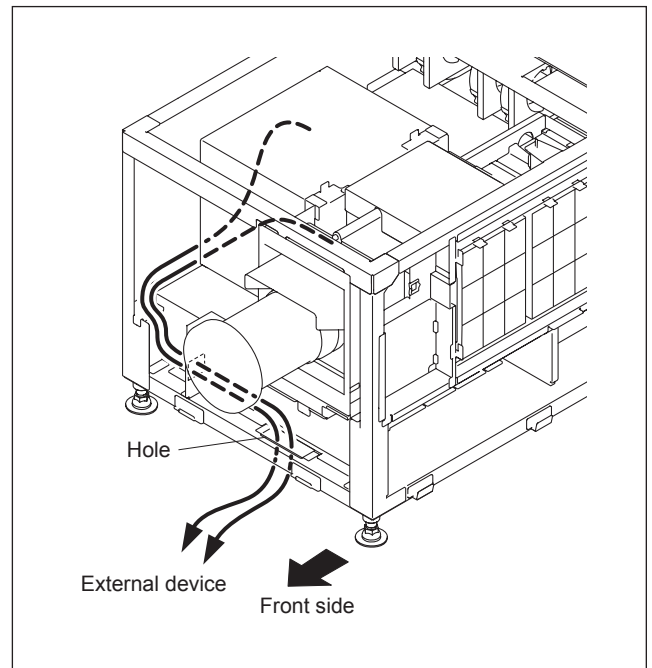


Fig. 1-9

1-10. Connecting the Power Cord

Use the 3-core power cord that satisfy AWG 8, 250 V rated and 40 A rated.

Connect the power cord to the AC IN terminal block on the rear side of this unit, referring the following procedure.

WARNING

- Connection of the main power and the electric wiring work should be done by qualified electricians only.
- Do not plug the power cord into the power supply before completing all of the following connecting operations.

1. Remove the two screws.
2. Remove the terminal block cover with attention to the two hooks.

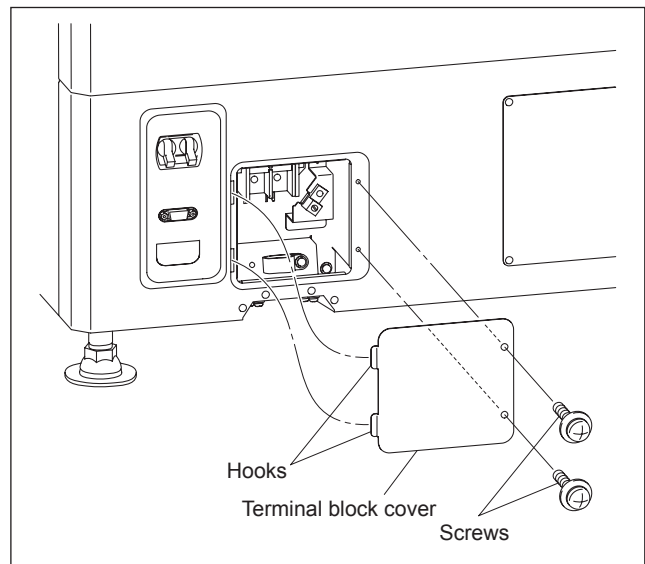


Fig. 1-10a

3. Remove the screw, then remove the cable clamp.
4. Remove the screw, then remove the ground terminal.

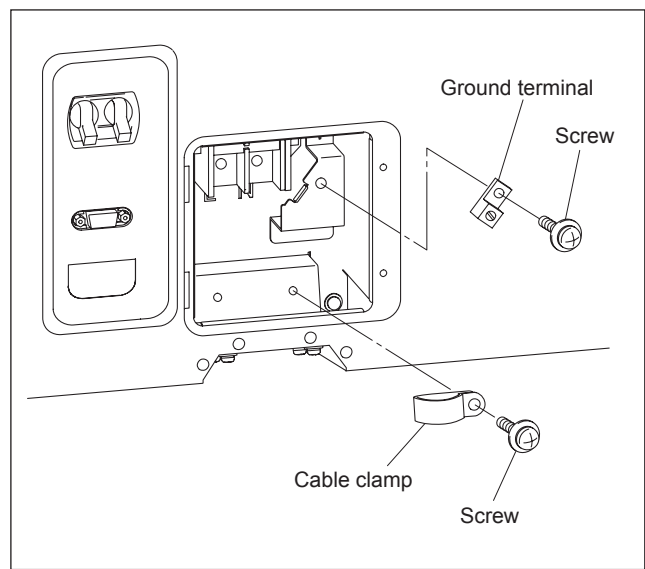


Fig. 1-10b

5. Pack by soldering the end of the ground wire.
6. Attach the ground terminal removed in step 4 to the ground wire, then fix it with the screw.

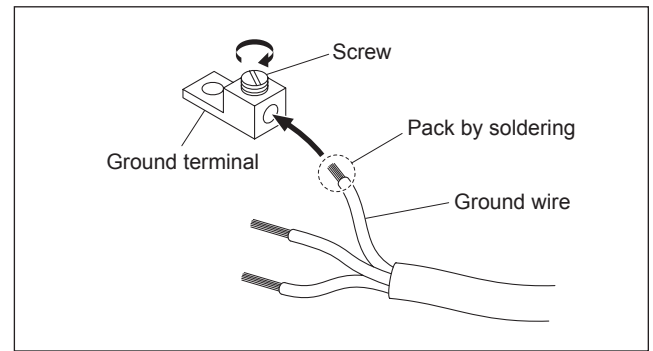


Fig. 1-10c

7. Route the cable through the lower hole of the terminal block, then fix each terminal by screw.
8. Fix the cable with the cable clamp and screw.
9. Attach the terminal block cover.

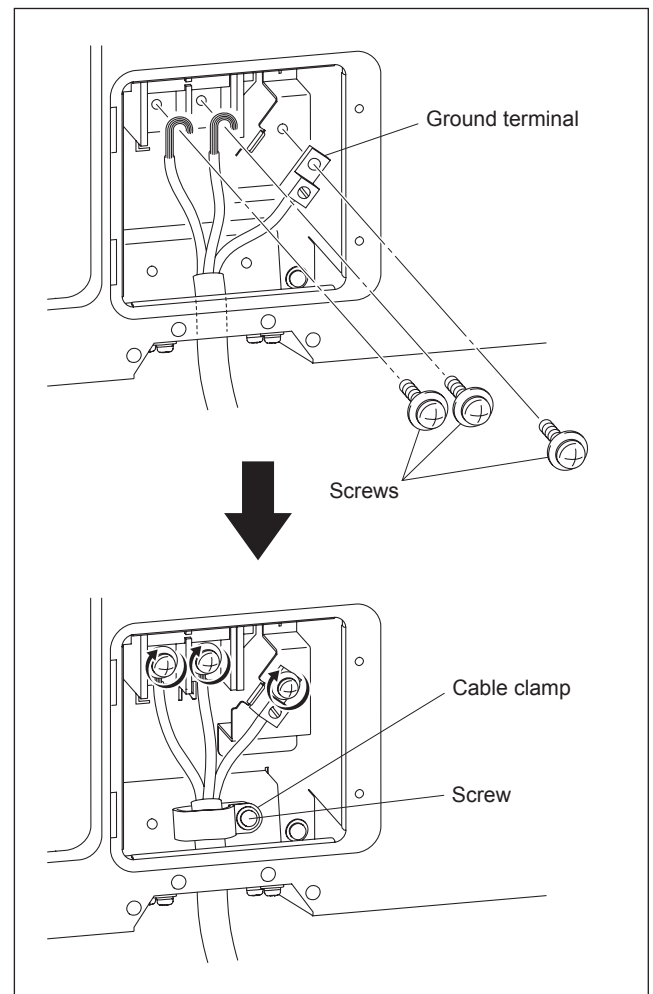


Fig. 1-10d

1-11. About the Optional Accessories

The projection lamps of this projector are provided as optional accessories. Install the lamp houses to the projector according to your model.

For versatile use of the projector, the optional accessories mentioned below can be used with the projector. Select to use them according to your system requirements.

- For details on optional accessories, refer to the relevant Operating Instructions.

Lamp

LKRX-2042A

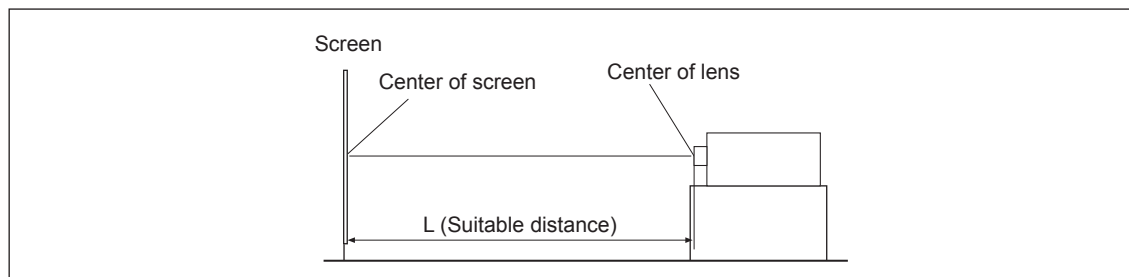
Projection lens

- LKRL-Z111C (with memory function)
- LKRL-Z114C (with memory function)
- LKRL-Z116C (with memory function)
- LKRL-Z117 (with memory function)
- LKRL-Z119 (with memory function)
- LKRL-Z122 (with memory function)
- LKRL-Z115
- LKRL-Z140
- LKRL-90 (fixed focus lens)

Input board

- LKRI-003 HD-SDI/DC-SDI (4:4:4) input board
- LKRI-005 HDCP DVI board

1-12. Projection Distance Charts



The alphabetical characters in this section indicate the following measurements:

W: Screen width (unit: mm)

D: Screen diagonal length (unit: inch)

L (min): Minimum distance between the center of lens and screen

L (max): Maximum distance between the center of lens and screen

H: Screen height (different from the aspect ratio of the projected image)

The distance between the lens and the screen varies depending on the attached lens, type of the input signal or size of the projected image. Choose the most suitable distance (L) depending on the screen size (W or D).

The formula for calculating the projection distance from the screen width (W, unit: mm) is as follows:

Type of lens	Projection distance calculation formula when inputting a 4K × 2K signal		Projection distance calculation formula when inputting a 16:9 signal		Projection distance calculation formula when inputting a 4:3 signal	
	L (min)	L (max)	L (min)	L (max)	L (min)	L (max)
LKRL-Z115	$1.48 \times W$	$1.8 \times W$	$1.58 \times W$	$1.92 \times W$	$2.1 \times W$	$2.56 \times W$
LKRL-Z117	$1.69 \times W$	$2.38 \times W$	$1.8 \times W$	$2.53 \times W$	$2.41 \times W$	$3.38 \times W$
LKRL-Z119	$1.78 \times W$	$2.93 \times W$	$1.89 \times W$	$3.13 \times W$	$2.53 \times W$	$4.16 \times W$
LKRL-Z122	$2.19 \times W$	$3.99 \times W$	$2.33 \times W$	$4.26 \times W$	$3.12 \times W$	$5.68 \times W$
LKRL-Z140	$3.75 \times W$	$7.07 \times W$	$4 \times W$	$7.54 \times W$	$5.34 \times W$	$10 \times W$
LKRL-Z111C	$1.07 \times W$	$1.71 \times W$	$1.14 \times W$	$1.82 \times W$	$1.52 \times W$	$2.43 \times W$
LKRL-Z114C	$1.35 \times W$	$1.98 \times W$	$1.44 \times W$	$2.12 \times W$	$1.93 \times W$	$2.82 \times W$
LKRL-Z116C	$1.51 \times W$	$2.3 \times W$	$1.61 \times W$	$2.45 \times W$	$2.15 \times W$	$3.27 \times W$
LKRL-90	$0.897 \times W$		$0.957 \times W$		$1.28 \times W$	

The formula for calculating the projection distance from the screen diagonal length (D, unit: inch) is as follows:

Type of lens	Projection distance calculation formula when inputting a 4K × 2K signal		Projection distance calculation formula when inputting a 16:9 signal		Projection distance calculation formula when inputting a 4:3 signal	
	L (min)	L (max)	L (min)	L (max)	L (min)	L (max)
LKRL-Z115	$1.31 \times D$	$1.59 \times D$	$1.37 \times D$	$1.67 \times D$	$1.68 \times D$	$2.05 \times D$
LKRL-Z117	$1.49 \times D$	$2.1 \times D$	$1.57 \times D$	$2.21 \times D$	$1.93 \times D$	$2.7 \times D$
LKRL-Z119	$1.57 \times D$	$2.59 \times D$	$1.65 \times D$	$2.72 \times D$	$2.03 \times D$	$3.33 \times D$
LKRL-Z122	$1.94 \times D$	$3.53 \times D$	$2.03 \times D$	$3.71 \times D$	$2.5 \times D$	$4.54 \times D$
LKRL-Z140	$3.31 \times D$	$6.25 \times D$	$3.48 \times D$	$6.57 \times D$	$4.27 \times D$	$8.03 \times D$
LKRL-Z111C	$0.942 \times D$	$1.51 \times D$	$0.99 \times D$	$1.59 \times D$	$1.22 \times D$	$1.94 \times D$
LKRL-Z114C	$1.2 \times D$	$1.75 \times D$	$1.26 \times D$	$1.84 \times D$	$1.54 \times D$	$2.26 \times D$
LKRL-Z116C	$1.34 \times D$	$2.03 \times D$	$1.41 \times D$	$2.14 \times D$	$1.72 \times D$	$2.62 \times D$
LKRL-90	$0.793 \times D$		$0.834 \times D$		$1.02 \times D$	

The projection distance (L) that is decided by the screen width (W) is as shown below.

For the projection distance charts of the optional lenses not mentioned below, refer to the mounting instructions supplied with each lens.

Using the LKRL-Z115 projection lens

When projecting a 4096-pixel (4K × 2K) image at the maximum horizontal picture element

Unit: mm (inches)

W	4500 (177 1/5)	5000 (196 6/7)	6000 (236 2/9)	7000 (275 3/5)	8000 (315)	9000 (354 1/3)	10000 (393 5/7)	12000 (472 4/9)	14000 (551 1/6)	16000 (630)
L (min)	6554 (258)	7295 (287 2/9)	8778 (345 3/5)	10261 (404)	11743 (462 1/3)	13226 (520 5/7)	14709 (579)	17674 (695 5/6)	20639 (812 4/7)	23605 (929 1/3)
L (max)	8056 (317 1/6)	8964 (353)	10780 (424 2/5)	12596 (496)	14412 (567 2/5)	16228 (638 8/9)	18044 (710 2/5)	21676 (853 2/5)	25308 (996 3/8)	28940 (1139 3/8)
H1 ^{a)}	2373 (93 3/7)	2637 (103 4/5)	3164 (124 4/7)	3691 (145 1/3)	4219 (166)	4746 (186 6/7)	5273 (207 5/8)	6328 (249 1/7)	7383 (290 2/3)	8438 (332 1/5)
H2 ^{b)}	1883 (74 1/8)	2092 (82 3/8)	2510 (98 5/6)	2929 (115 1/3)	3347 (131 7/9)	3766 (148 1/4)	4184 (164 3/4)	5021 (197 2/3)	5858 (230 5/8)	6695 (263 4/7)

mm:

$$L (\text{min}) = (W - 79.675) / 0.67446$$

$$H1 = W \times 0.52730$$

$$L (\text{max}) = (W - 63.762) / 0.55067$$

$$H2 = W \times 0.41840$$

inch:

$$L (\text{min}) = (W - 3.1368) / 0.67446$$

$$H1 = W \times 0.52730$$

$$L (\text{max}) = (W - 2.5103) / 0.55067$$

$$H2 = W \times 0.41840$$

a) Screen height when projecting a 4096 × 2160-pixel (4K single screen) image on the screen.

b) Screen height when projecting a 4096 × 1714-pixel (aspect ratio 2.39:1) image on the screen.

When projecting a 3840-pixel (aspect ratio 16:9) image at the maximum horizontal picture element

Unit: mm (inches)

W	4500 (177 1/6)	5000 (196 6/7)	6000 (236 2/9)	7000 (275 3/5)	8000 (315)	9000 (354 1/3)	10000 (393 5/7)	12000 (472 4/9)	14000 (551 1/6)	16000 (630)
L (min)	7001 (275 5/8)	7791 (306 3/4)	9373 (369)	10955 (431 2/7)	12537 (493 4/7)	14118 (555 5/6)	15700 (618 1/9)	18863 (742 2/3)	22027 (867 1/5)	25190 (991 3/4)
L (max)	8600 (338 4/7)	9568 (376 5/7)	11505 (453)	13442 (529 2/9)	15379 (605 1/2)	17316 (681 3/4)	19253 (758)	23127 (910 1/2)	27000 (1063)	30874 (1215 1/2)
H1 ^{a)}	2531 (99 2/3)	2813 (110 3/4)	3375 (132 7/8)	3938 (155)	4500 (177 1/6)	5063 (199 1/3)	5625 (221 1/2)	6750 (265 3/4)	7875 (310)	9000 (354 1/3)
H2 ^{b)}	2432 (95 3/4)	2703 (106 2/5)	3243 (127 2/3)	3784 (149)	4324 (170 1/4)	4865 (191 1/2)	5405 (212 4/5)	6486 (255 3/8)	7568 (298)	8649 (340 1/2)

mm:

$$L (\text{min}) = (W - 73.944) / 0.63223$$

$$H1 = W \times 0.56250$$

inch:

$$L (\text{min}) = (W - 2.9112) / 0.63223$$

$$H1 = W \times 0.56250$$

$$L (\text{max}) = (W - 59.873) / 0.51629$$

$$H2 = W \times 0.54050$$

$$L (\text{max}) = (W - 2.3572) / 0.51629$$

$$H2 = W \times 0.54050$$

a) Screen height when projecting a 3840 × 2160-pixel (aspect ratio 16:9) image.

b) Screen height when projecting a 3996 × 2160-pixel (aspect ratio 1.85:1) image.

When projecting a 2880-pixel (aspect ratio 4:3) image at the maximum horizontal picture element

Unit: mm (inches)

W	3500 (137 4/5)	4000 (157 1/2)	4500 (177 1/6)	5000 (196 6/7)	6000 (236 2/9)	7000 (275 3/5)	8000 (315)	9000 (354 1/3)	10000 (393 5/7)	12000 (472 4/9)
L (min)	7271 (286 1/4)	8326 (327 4/5)	9381 (369 1/3)	10436 (410 8/9)	12547 (494)	14657 (577)	16767 (660 1/8)	18878 (743 1/5)	20988 (826 2/7)	25208 (992 4/9)
L (max)	8922 (351 1/4)	10213 (402)	11504 (453)	12795 (503 3/4)	15377 (605 2/5)	17959 (707)	20541 (808 5/7)	23123 (910 1/3)	25705 (1012)	30869 (1215 1/3)
H ^{a)}	2625 (103 1/3)	3000 (118 1/9)	3375 (132 7/8)	3750 (147 2/3)	4500 (177 1/6)	5250 (206 2/3)	6000 (236 2/9)	6750 (265 3/4)	7500 (295 2/7)	9000 (354 1/3)

$$\text{mm: } L (\text{min}) = (W - 54.449) / 0.47387$$

$$L (\text{max}) = (W - 44.662) / 0.38729$$

$$H = W \times 0.75000$$

$$\text{inch: } L (\text{min}) = (W - 2.1436) / 0.47387$$

$$L (\text{max}) = (W - 1.7583) / 0.38729$$

$$H = W \times 0.75000$$

a) Screen height when projecting a 2880 × 2160-pixel (aspect ratio 4:3) image.

Using the LKRL-Z140 projection lens

When projecting a 4096-pixel (4K × 2K) image at the maximum horizontal picture element

Unit: mm (inches)

W	4500 (177 1/6)	5000 (196 6/7)	6000 (236 2/9)	7000 (275 3/5)	8000 (315)	9000 (354 1/3)	10000 (393 5/7)
L (min)	16937 (666 4/5)	18792 (739 5/6)	22502 (885 8/9)	26212 (1032)	29922 (1178)	33632 (1324)	37342 (1470 1/7)
L (max)	31943 (1257 3/5)	35466 (1396 2/7)	42512 (1673 2/3)	49558 (1951)	56604 (2228 1/2)	63649 (2505 7/8)	70695 (2783 2/7)
H1 ^{a)}	2373 (93 3/7)	2637 (103 4/5)	3164 (124 4/7)	3691 (145 1/3)	4219 (166)	4746 (186 6/7)	5273 (207 5/8)
H2 ^{b)}	1883 (74 1/8)	2092 (82 3/8)	2510 (98 5/6)	2929 (115 1/3)	3347 (131 7/9)	3766 (148 1/4)	4184 (164 3/4)

mm:

$$L(\text{min}) = (W + 65.304) / 0.26955$$

$$H1 = W \times 0.52730$$

$$L(\text{max}) = (W + 33.615) / 0.14193$$

$$H2 = W \times 0.41840$$

inch:

$$L(\text{min}) = (W + 2.5710) / 0.26955$$

$$H1 = W \times 0.52730$$

$$L(\text{max}) = (W + 1.3234) / 0.14193$$

$$H2 = W \times 0.41840$$

a) Screen height when projecting a 4096 × 2160-pixel (4K single screen) image.

b) Screen height when projecting a 4096 × 1714-pixel (aspect ratio 2.39:1) image.

When projecting a 3840-pixel (aspect ratio 16:9) image at the maximum horizontal picture element

Unit: mm (inches)

W	4500 (177 1/6)	5000 (196 6/7)	6000 (236 2/9)	7000 (275 3/5)	8000 (315)	9000 (354 1/3)	10000 (393 5/7)
L (min)	18062 (711)	20042 (789)	24002 (945)	27961 (1100 5/6)	31921 (1256 3/4)	35881 (1412 5/8)	39841 (1568 1/2)
L (max)	34047 (1340 3/7)	37803 (1488 1/3)	45317 (1784 1/8)	52830 (2080)	60343 (2375 3/4)	67857 (2671 1/2)	75370 (2967 1/3)
H1 ^{a)}	2531 (99 2/3)	2813 (110 3/4)	3375 (132 7/8)	3938 (155)	4500 (177 1/6)	5063 (199 1/3)	5625 (221 1/2)
H2 ^{b)}	2432 (95 3/4)	2703 (106 2/5)	3243 (127 2/3)	3784 (149)	4324 (170 1/4)	4865 (191 1/2)	5405 (212 4/5)

mm:

$$L(\text{min}) = (W + 61.345) / 0.25254$$

$$H1 = W \times 0.56250$$

$$L(\text{max}) = (W + 31.485) / 0.13310$$

$$H2 = W \times 0.54050$$

inch:

$$L(\text{min}) = (W + 2.4152) / 0.25254$$

$$H1 = W \times 0.56250$$

$$L(\text{max}) = (W + 1.2396) / 0.13310$$

$$H2 = W \times 0.54050$$

a) Screen height when projecting a 3840 × 2160-pixel (aspect ratio 16:9) image.

b) Screen height when projecting a 3996 × 2160-pixel (aspect ratio 1.85:1) image.

When projecting a 2880-pixel (aspect ratio 4:3) image at the maximum horizontal picture element
Unit: mm (inches)

W	3500 (137 4/5)	4000 (157 1/2)	4500 (177 1/6)	5000 (196 6/7)	6000 (236 2/9)	7000 (275 3/5)	8000 (315)
L (min)	18759 (738 1/2)	21404 (842 2/3)	24050 (946 5/6)	26695 (1051)	31986 (1259 1/3)	37277 (1467 3/5)	42568 (1676)
L (max)	35266 (1388 2/5)	40270 (1585 3/7)	45274 (1782 4/9)	50278 (1979 1/2)	60287 (2373 1/2)	70295 (2767 1/2)	80303 (3161 5/9)
H ^{a)}	2625 (103 1/3)	3000 (118 1/9)	3375 (132 7/8)	3750 (147 2/3)	4500 (177 1/6)	5250 (206 2/3)	6000 (236 2/9)

mm: L (min) = (W + 45.494) / 0.18900

L (max) = (W + 23.598) / 0.09992

H = W × 0.75000

inch: L (min) = (W + 1.7911) / 0.18900

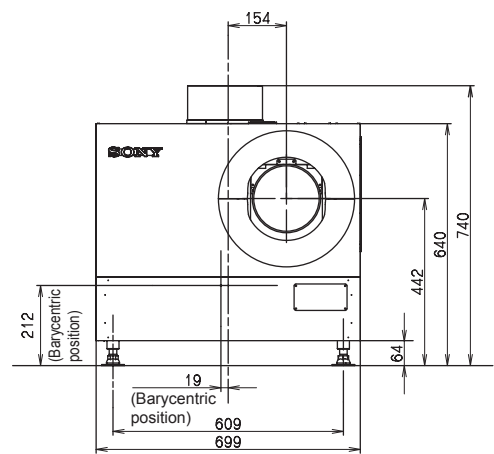
L (max) = (W + 0.92905) / 0.09992

H = W × 0.75000

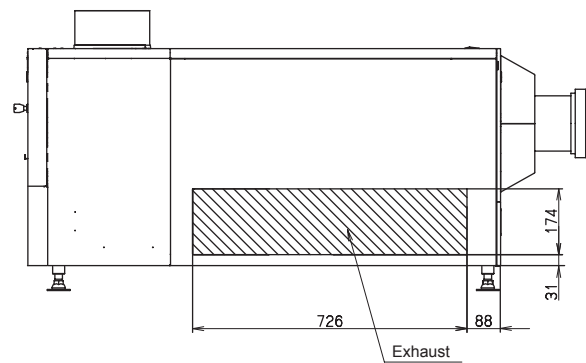
a) Screen height when projecting a 2880 × 2160-pixel (aspect ratio 4:3) image.

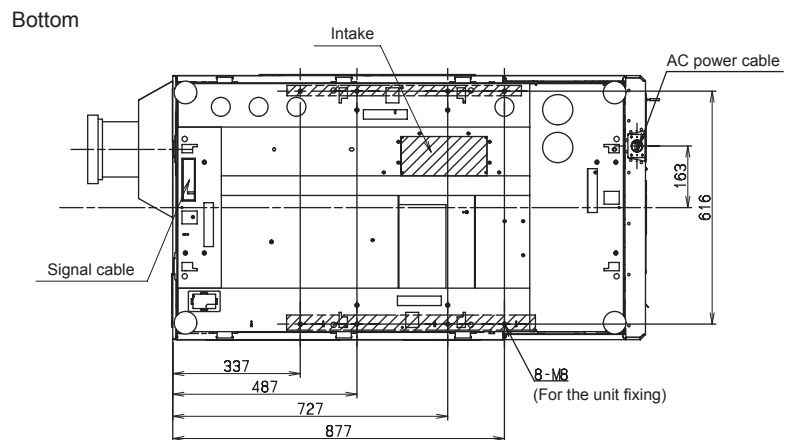
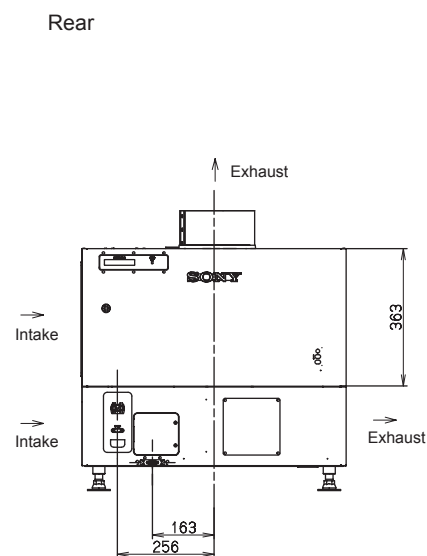
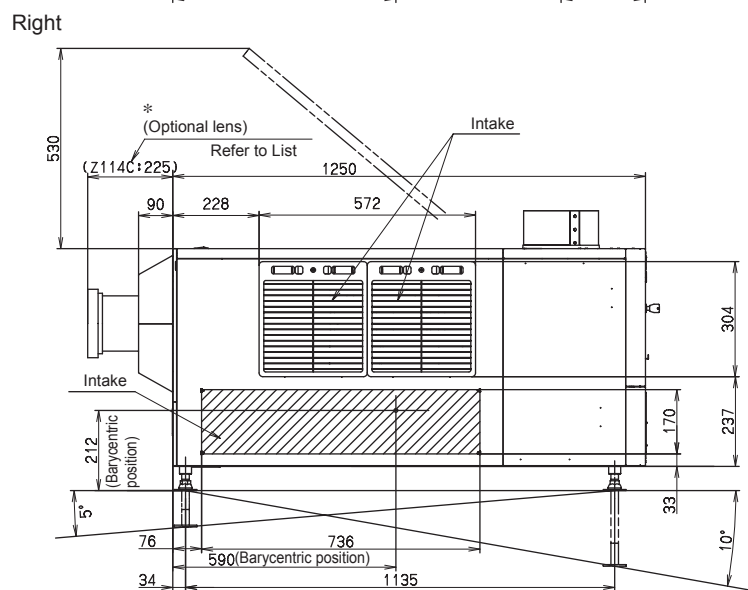
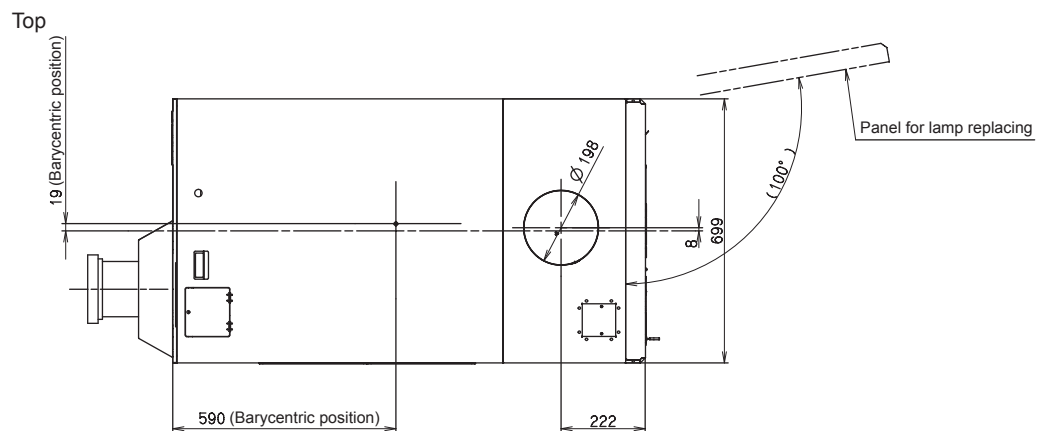
1-13. Dimensions

Front



Left





* LKRL LIST			
NO.	LKRL	LENGTH	REMARKS
1	Z111C	(225)	
2	Z114C	(225)	
3	Z116C	(207)	
4	Z117	(131)	
5	Z119	(158)	
6	Z122	(148)	
7	Z115	(165)	
8	Z140	(176)	
9	90	(155)	

Unit: mm

Section 2 Adjustment

Adjustment is performed using an SRX Controller. Refer to Section 2-7. for how to use an SRX Controller.
Perform adjustment in the procedure below.

1. Install an SRX Controller in an adjusting personal computer.
(Refer to Operating Instructions.)



2. Perform the projector setting.
(Refer to Section 2-2.)



3. Perform the optical axis adjustment of a lamp.
(Refer to Section 2-3.)



4. Adjust a lens.
(Refer to Section 2-4.)



5. Perform illumination range adjustment and registration adjustment.
(Perform these adjustments as required.)
(Refer to Section 2-5.)



6. Perform the γ adjustment and uniformity adjustment using the PJ COLOR ADJUSTMENT TOOL.
(Refer to Technical Manual of SRX-T110.)



7. Set the illuminance of a screen and perform color characteristic correction (CSC adjustment).
(Refer to Section 2-6.)

2-1. Installation of SRX Controller

This unit can be operated the adjustments and setting using the supplied SRX Controller.
For about installation of SRX Controller, refer to Operating Instructions.

2-1-1. Startup

Connection

Connecting via the Ethernet

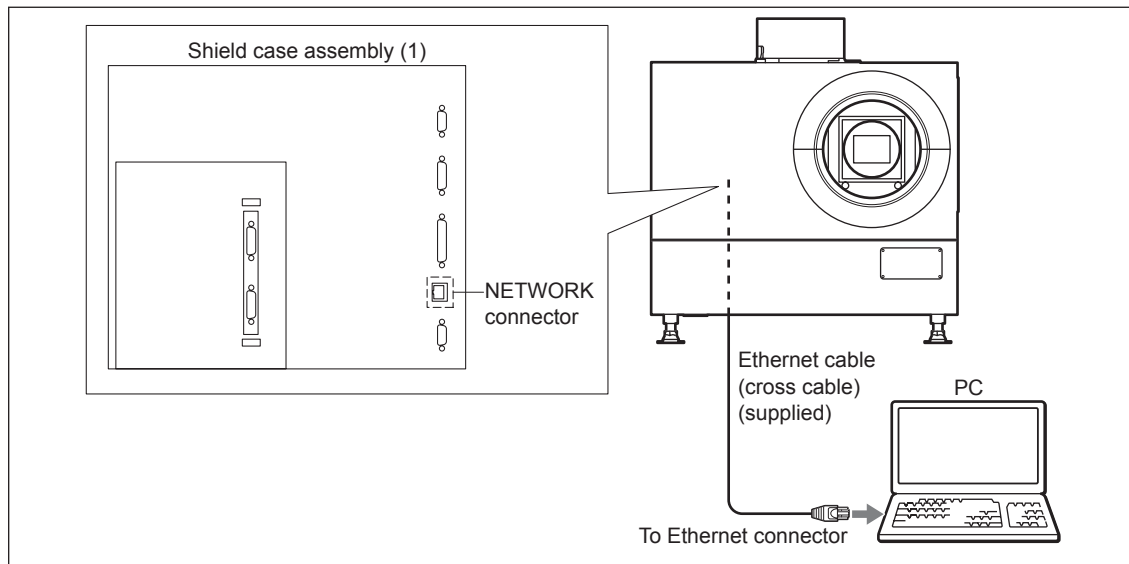


Fig. 2-1-1a

Note

Set the IP address of the connected computer to be assigned from DHCP.

Connecting via the RS-232C

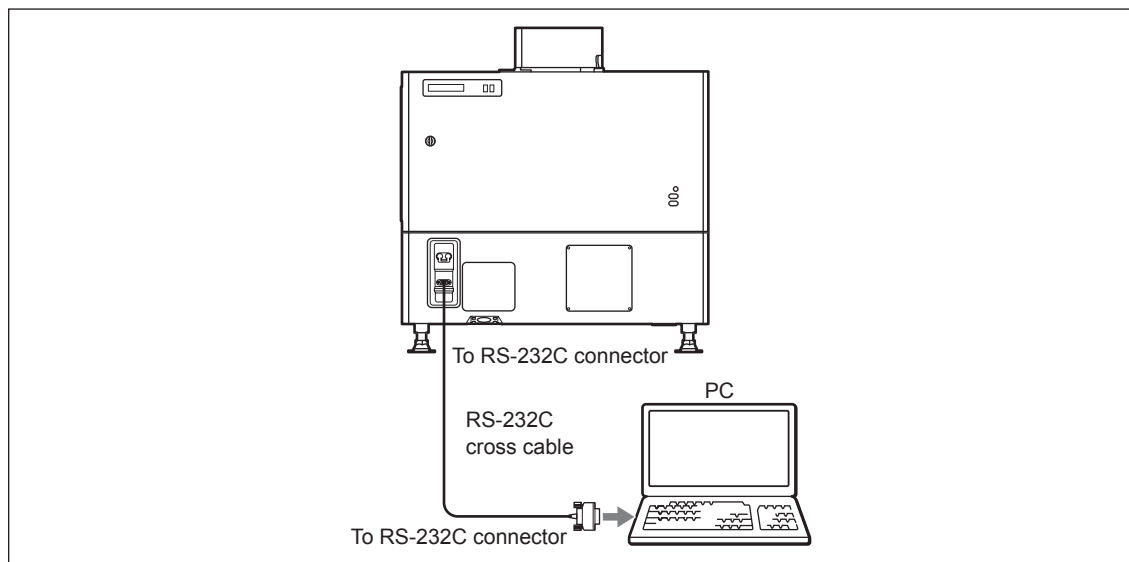


Fig. 2-1-1b

Required equipment

- PC
 - CPU: Intel Pentium M 1.6 GHz or more, and OS-recommended
 - RAM capacity: 256 MB or more, 512 MB or more recommended, and OS-recommended
 - Communication: LAN (10BASE-T/100BASE-T) or COM (RS-232C)
 - Graphics mode: XGA (1024 × 768) or higher
 - HDD: Built-in Drive, having an empty capacity of 15 MB or more
 - CD-ROM drive: Eight times normal speed or faster
- OS: Microsoft Windows XP Professional SP2 (English or Japanese version, except for ×64 Edition) or Windows Vista Business (English or Japanese version)
- Ethernet cable (supplied with this unit) or RS-232C cross cable

Procedure

1. Connect this unit with PC.
2. Double-click the SRX Controller icon on the desktop of PC.
The program launcher window is displayed.
3. Double-click the projector name that you want to operate.
The control window is displayed.

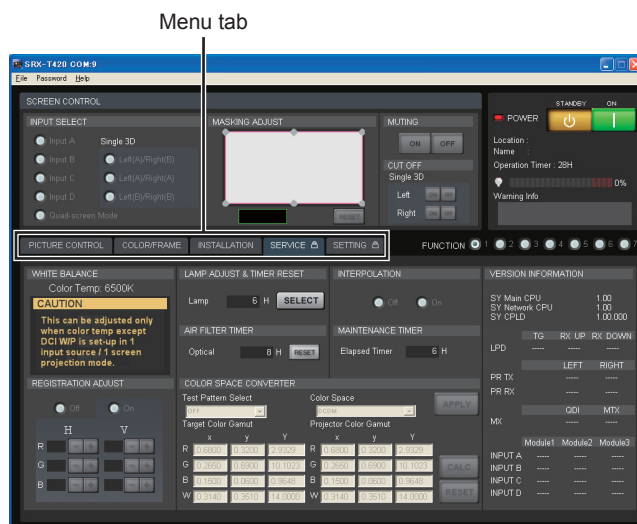


Fig. 2-1-1c

4. Click the menu tab to display the window that you want to open.
5. If you want to display the SERVICE window or the SETTING window, type the password in the password entering window and click the **OK** button.



Fig. 2-1-1d

Password (Initial setting)

- SERVICE window: service
- SETTING window: setting

Note

Type the password using the lowercase characters.

2-1-2. Function Memory

You can register the settings that have been adjusted in the control windows to FUNCTION 1 to 7. As the default setting, the settings are registered to FUNCTION 1. To register the settings to FUNCTION 2 to 7, click one of the FUNCTION 2 to 7 radio buttons, then adjust the items in each window.

You can recall the desired setting by clicking one of the FUNCTION radio buttons.

Note

When you click the FUNCTION button to switch to another FUNCTION setting, the picture will be cut off for up to about 10 seconds. The picture with the selected FUNCTION setting will then appear on the screen.

2-1-3. Log Function

If you select File → Save Log on the menu bar of the control window, the communication log between SRX controller and this unit (from the startup of SRX Controller to that point of time) can be stored up to 5 MB.

2-2. Setting of Projector

The status of this unit is set.

Operation procedure

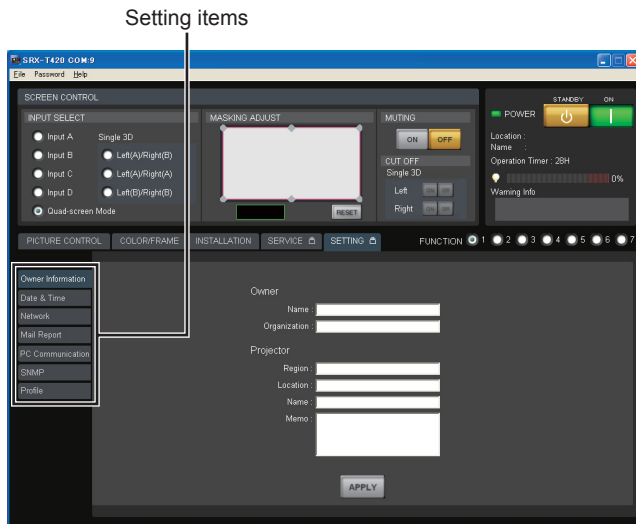


Fig. 2-2

1. Start SRX Controller and open the SETTING window. (Refer to Section 2-1-1.)
2. Click the setting item on the left side of the SETTING window to display the item that you want to set.
3. After setting the items, click the **APPLY** button in the lower area of the window.
The setting is registered.

2-2-1. Owner Information

The information about this unit is set.

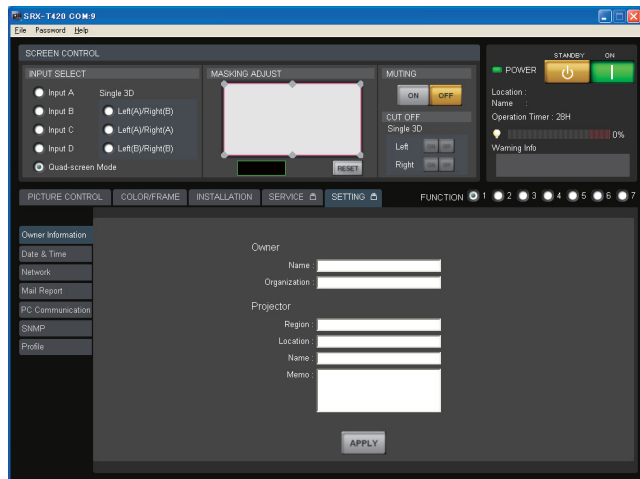


Fig. 2-2-1

Owner

Name: Type the name of owner.
Organization: Type the name of organization.

Projector

Region: Type the region that the unit is installed.
Location: Type the installation location.
Name: Type the arbitrary name.
Memo: Type memo.

2-2-2. Date & Time

The current time is set.

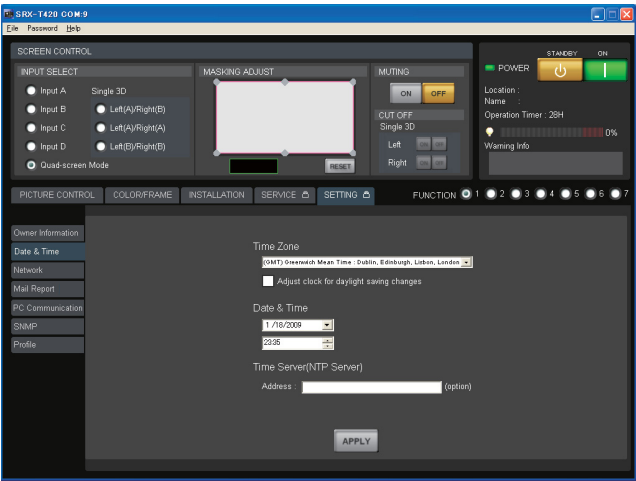




Fig. 2-2-2

Time Zone: Select the zone that the unit is installed.
Adjust clock for daylight saving changes: Place a check mark when adjusting clock for daylight saving.

Date & Time
Upper box: Click the  button to display the calendar, and select the date.
Lower box: Click the hour or minute, and set the time using the  button.

Time Server (NTP Server)
Address: Type the address of the network time server.

2-2-3. Network

The connection to the network is set.

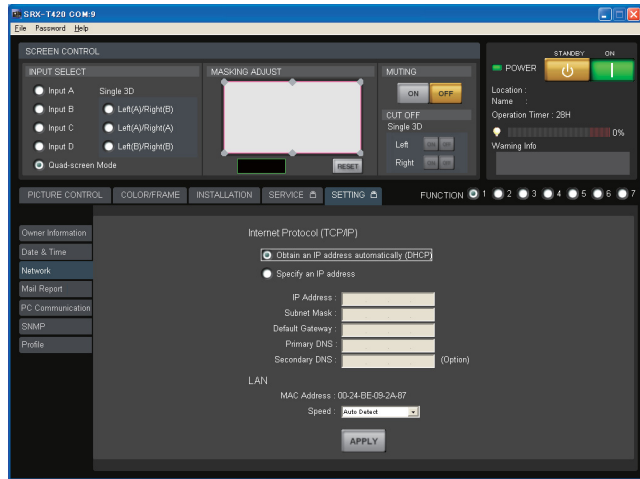


Fig. 2-2-3

Internet Protocol (TCP/IP): Select either one of the following.

- Obtain an IP address automatically (DHCP): Obtains the IP address automatically from DHCP.
- Specify an IP address: Sets the specified IP address.

When “Specify an IP address” is selected, perform the setting in the following boxes.

- IP Address: Type the IP address.
- Subnet Mask: Type the subnet mask.
- Default Gateway: Type the default gateway.
- Primary DNS: Type the IP address of primary DNS server.
- Secondary DNS: Type the IP address of secondary DNS server.

LAN

- MAC Address: Display the MAC address.
- Speed: Select the Ethernet link speed.

2-2-4. Mail Report

The sending of mail for the lamp bulb operating time and the maintenance information is set.

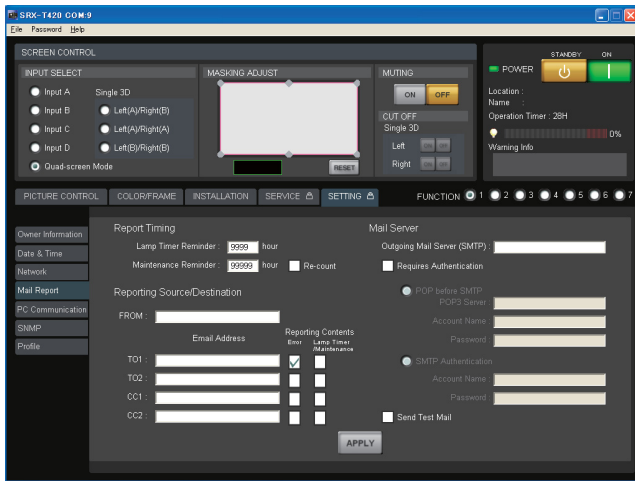


Fig. 2-2-4

Reporting Timing

- Lamp Timer Reminder: Set the lamp lighting-up time to send the lamp notification mail.
- Maintenance Reminder: Set the operating (power ON) time to send the maintenance notification mail.
- Re-count: Place a check mark to reset the operating (power ON) time of this unit after the maintenance notification mail is sent.

Reporting Source/Destination

- FROM: Type the address of the mail sender.
- Email Address: Type the address of the mail destination TO and CC.
- Reporting Contents: Place a check mark in the reporting contents to be sent.
- Error: The error mail is sent.
 - Lamp Timer/Maintenance: The lamp notification mail and the maintenance notification mail are sent.

Mail Server

- Outgoing Mail Server (SMTP): Type the server name or the IP address of SMTP (mail sending) server.
- Requires Authentication: Place a check mark when the authentication is required to send the mail. When you placed the check mark, select the following authentication method and perform the setting of authentication.
- POP before SMTP: Set the authentication of POP before SMTP.
 - POP3 Server: Type the server name or the IP address of the POP3 server.
 - Account Name: Type the login name of the POP3 server.
 - Password: Type the password of the POP3 server.
 - SMTP Authentication: Set the SMTP authentication.
 - Account Name: Type the login name of the SMTP server.
 - Password: Type the password of the SMTP server.
- Send Test Mail: Place a check mark when sending the test mail.

2-2-5. PC Communication

The communication between this unit and PC is set.

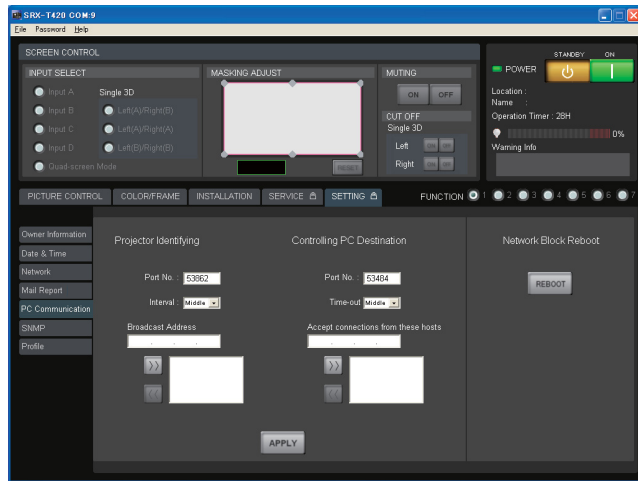


Fig. 2-2-5

Projector Identifying: Setting of this unit

Port No.: Type the UDP port number.

Interval: Select the packet transmission interval.

Broadcast Address: Type the broadcast address.

>> button: Add the address typed in Broadcast Address to the list.

<< button: Delete the address typed in Broadcast Address from the list.

(Registration list): Registration list of the broadcast address.

Controlling PC Destination: Setting of PC

Port No.: Type the TCP port number.

Time-out: Select the time of the communication time-out.

Accept connections from these hosts: Type the IP address of the host that you accept the access.

>> button: Add the typed IP address of the host to the list.

<< button: Delete the typed IP address of the host from the list.

(Registration list): Registration list of the IP address of the host that you accept the access.

Network Block Reboot

REBOOT button: Click this button to reboot the network CPU.

Note

After setting PC Communication, a reboot of the network CPU is required.

2-2-6. SNMP

SNMP (Simple Network Management Protocol) is set.

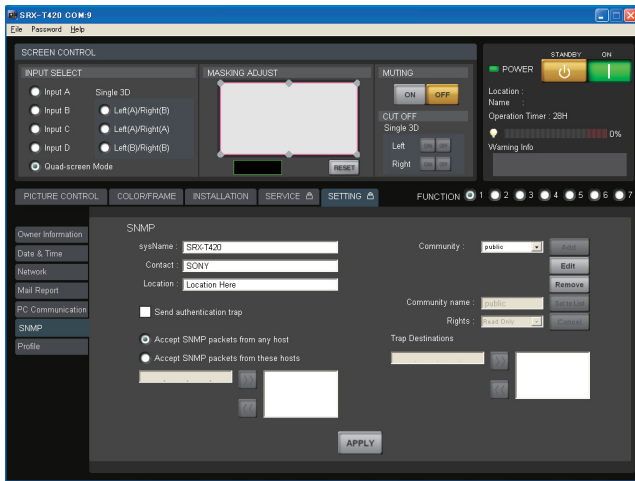


Fig. 2-2-6

SNMP

- sysName: Type the character string of standard MIB sysName.
- Contact: Type the character string of standard MIB sysContact.
- Location: Type the character string of standard MIB sysDescr.
- Send authentication trap: Place a check mark when accepting the sending of authentication trap.
- Accept SNMP packets from any host: Select this when accepting the access from any host.
- Accept SNMP packets from these hosts: Select this when accepting the access only from the specified host.
- (Address): Type the IP address of the host that you accept the access.
- >> button: Add the typed IP address of the host to the list.
- << button: Delete the typed IP address of the host from the list.
- (Registration list): Registration list of the IP address of the host that you accept the access.
- Community: Edit and select the community name.
- Add button: Add the community name.
- Edit button: Allow the selected community to enter the attribute edit mode.
- Remove button: Delete the selected community.
- Community name: When the Edit button is clicked, the community whose attribute is changed appears and the following items are enabled.
- Rights: Select the access authority.
- Set to List button: Attribute change is applied.
- Cancel button: Attribute change is cancelled.
- Trap Destinations: Type the IP address of the host of the trap destination.
- >> button: Add the typed IP address of the host to the list.
- << button: Delete the typed IP address of the host from the list.
- (Registration list): Registration list of the IP address of the host of the trap destination.

2-2-7. Profile

The setting value of this unit is stored in PC, or the setting value stored in PC is written in this unit.

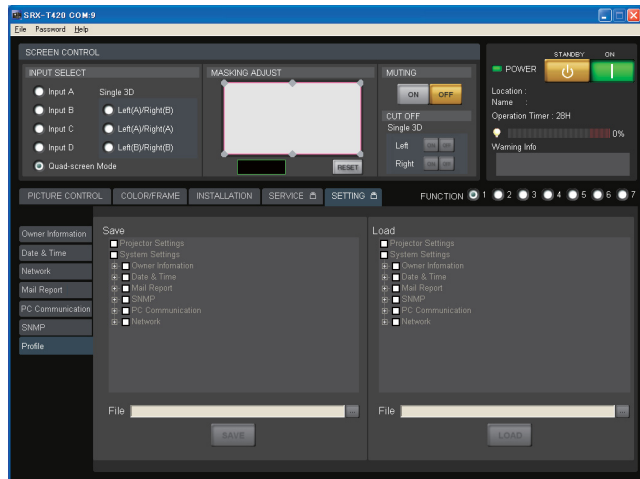


Fig. 2-2-7

Save: Place a check mark in the setting value to be stored in PC.

File: Edit and select the file name to be stored.

- button: Select the file.

SAVE button: Store the checked setting value in the specified file.

Load: Place a check mark in the setting value to be written in this unit from PC.

File: Edit and select the file name to be written.

- button: Select the file to be written.

LOAD button: Write the checked setting value in this unit from the specified file.

Note

In the case that PC and this unit are connected by Ethernet, a part of setting value cannot be written and its check box is disabled.

2-3. Optical Axis Adjustment of Lamp Bulb

Procedure

1. Be sure to click the “SERVICE” tab in the standby state.
The SERVICE window is displayed.



“LAMP ADJUST & TIMER RESET” menu

Fig. 2-3a

2. Click the **SELECT** button in a “LAMP ADJUST & TIMER RESET” menu.
LAMP INFORMATION window is displayed.

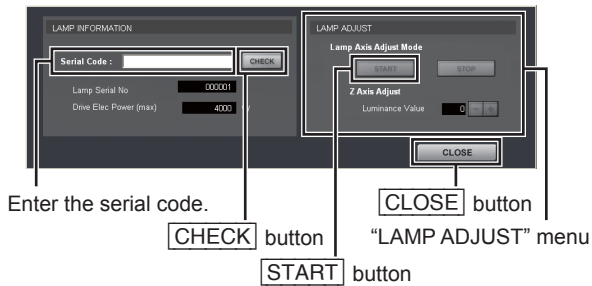


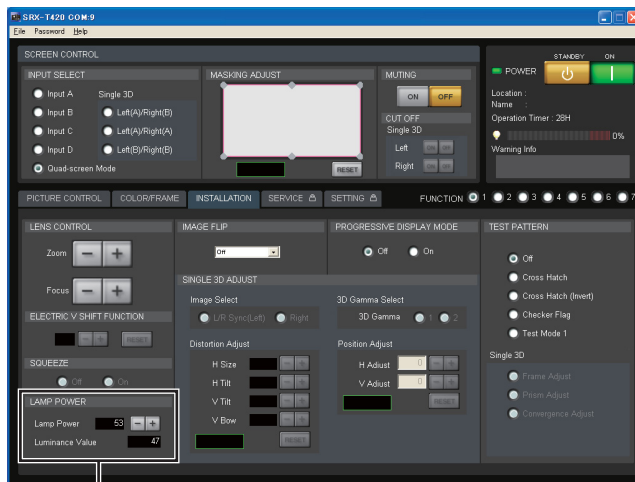
Fig. 2-3b

3. Enter the serial code described in the Operating Instructions of a lamp bulb in the “Serial Code” box and click the **CHECK** button.

Notes

- Be sure to perform in the standby state.
 - Enter the serial code with the space not put.
4. Click the **CLOSE** button and close the LAMP INFORMATION window.
 5. Click the **ON** button of POWER.

6. Click the “INSTALLATION” tab.
The INSTALLATION window is displayed.



“LAMP POWER” menu

Fig. 2-3c

7. Set the lamp power to 100% in the “LAMP POWER” menu to project an image in 100% black.
(No signal condition)
8. Display the LAMP INFORMATION window in the SERVICE window.

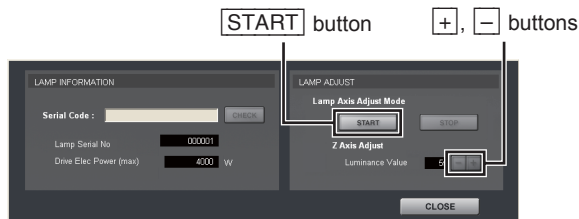


Fig. 2-3d

9. Click the **START** button in a “Lamp Adjust” menu.
The unit enters the lamp adjustment mode.
10. Wait for five minutes.
11. When the unit enters the lamp adjustment mode, the value of the internal luminance sensor is displayed on the status message display.
Adjust “Z Axis Adjust” using the **+**/**-** button so that the luminance value becomes maximum.

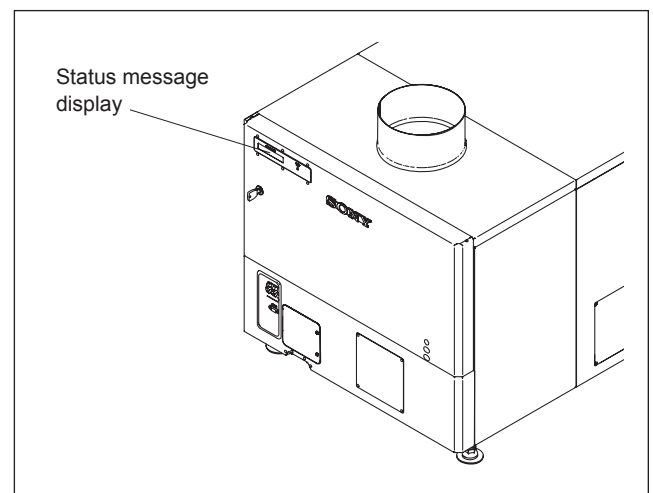


Fig. 2-3e

12. In the same way, adjust the X-axis and Y-axis direction adjusting screws so that the value of the internal luminance sensor becomes maximum.
13. Adjust “Z Axis Adjust” again using the $\boxed{+}$ / $\boxed{-}$ button so that the value of the internal luminance sensor becomes maximum.

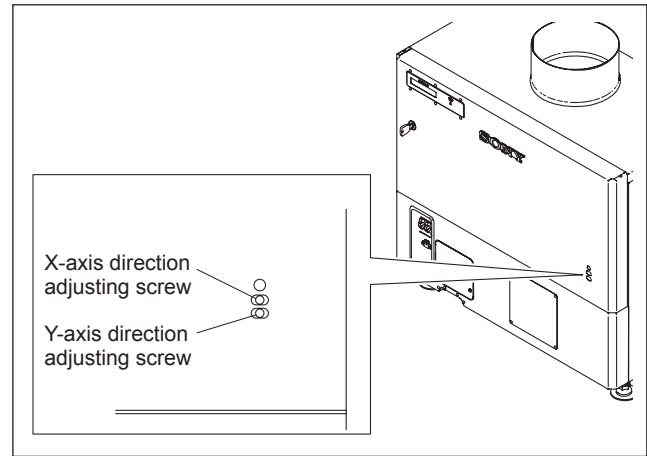


Fig. 2-3f

2-4. Lens Adjustment (H Shift, V Shift, Zoom, and Focus)

Procedure

1. Project a test pattern on the INSTALLATION window.
2. Loosen the four bolts securing the projection lens.
Insert the flat screwdriver between the lens bracket and the lens bracket shield and move the projection lens from side to side to adjust the horizontal position (H shift) of the image.
3. After H shift adjustment is completed, tighten the four screws loosened in step 2.

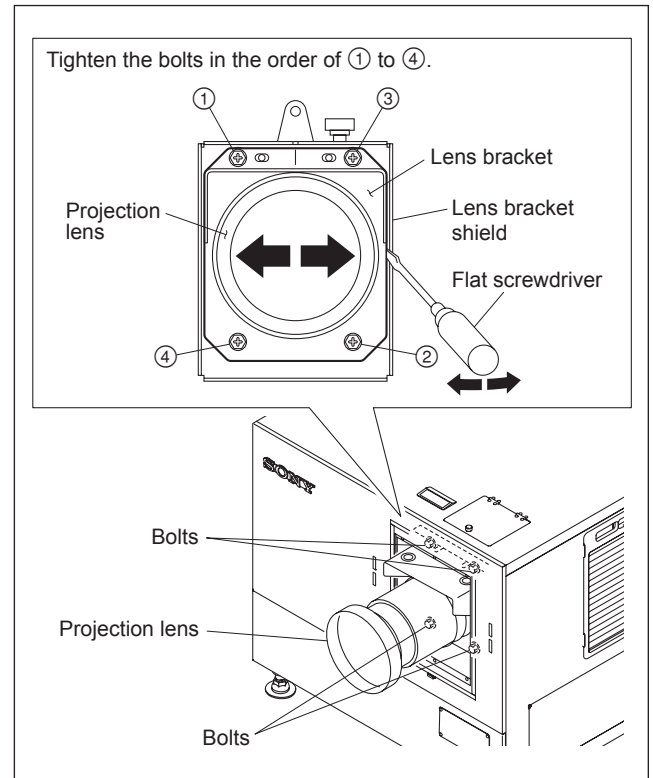


Fig. 2-4a

4. Open the adjustment lid.
5. Turn the control knob of this unit to move the lens up and down for adjusting the vertical position (V shift) of an image.
6. Adjust the zoom and focus using the $\boxed{+}$ and $\boxed{-}$ buttons in the "LENS CONTROL" menu.
(Refer to "2-7-2. INSTALLATION Window".)

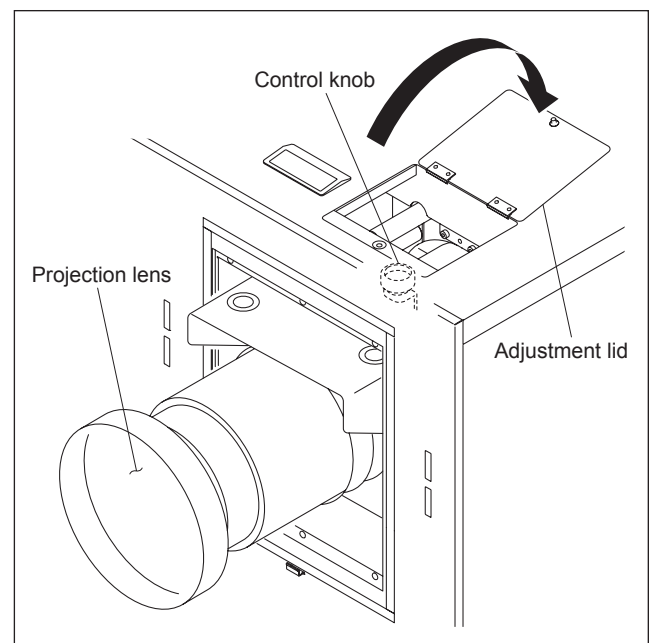


Fig. 2-4b

Note

Set the V shift amount within 1/2 screen. If it exceeds 1/2 screen, the zoom is changed, the image position may not be positioned at same place.

Check if the V shift amount exceeds 1/2 screen in the following procedure.
When the V shift amount exceeds 1/2 screen, perform the adjustment.

In the case that the V shift is lowered.**How to Check**

- When the image is expanded by zoom, the upper end of image position is lowered.

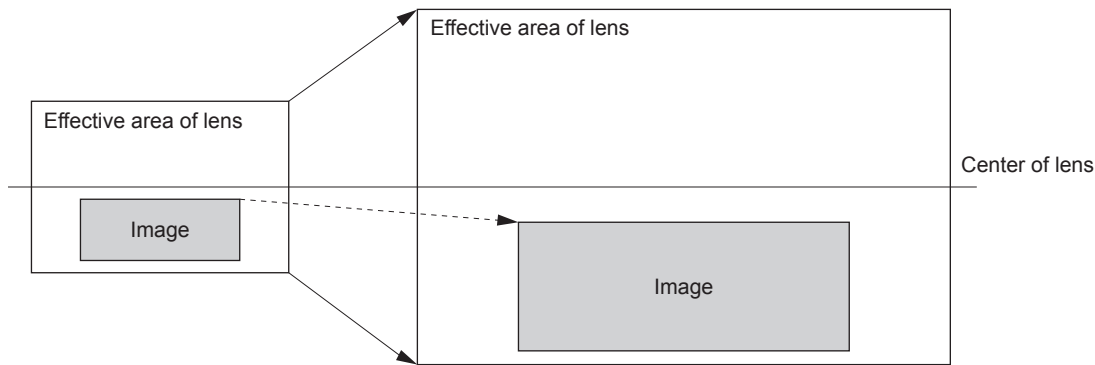


Fig. 2-4c

How to Adjust

- Adjust the V shift so that the upper end of image position remains unchanged when the image is expanded by zoom.

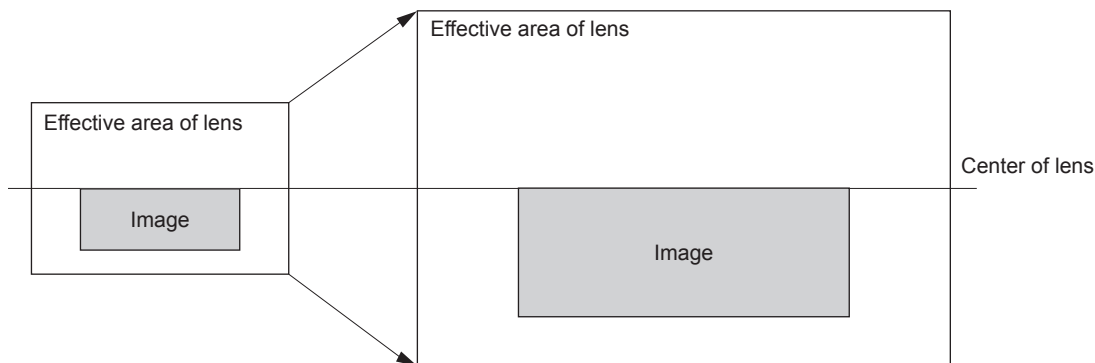


Fig. 2-4d

2-5. Illumination Area Adjustment and Registration Adjustment

2-5-1. Illumination Area Adjustment

If there is any deviation of illumination range when installing the unit, perform adjustment in the following procedure.

Note

The adjustment cannot be correctly performed with the filter cover open because the filter cover switch sensor function operates. Before starting the adjustment, be sure to close the filter cover after removing the panel duct covers.

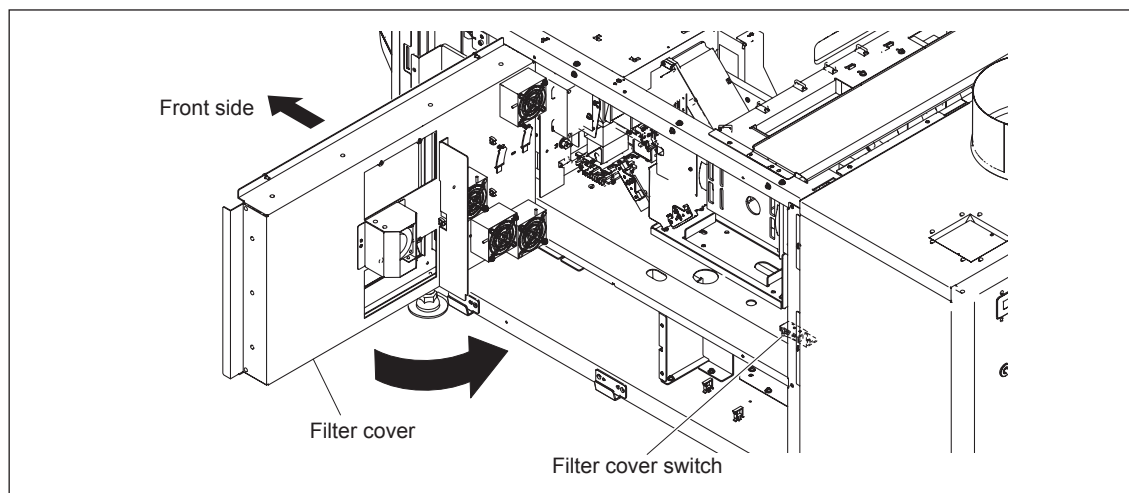


Fig. 2-5-1a

Procedure

1. Remove the panel (U7) block assembly. (Refer to Section 1-1-2.)
2. Remove the panel (U2) block assembly. (Refer to Section 1-1-3.)
3. Remove the filter.
4. Remove the five screws.

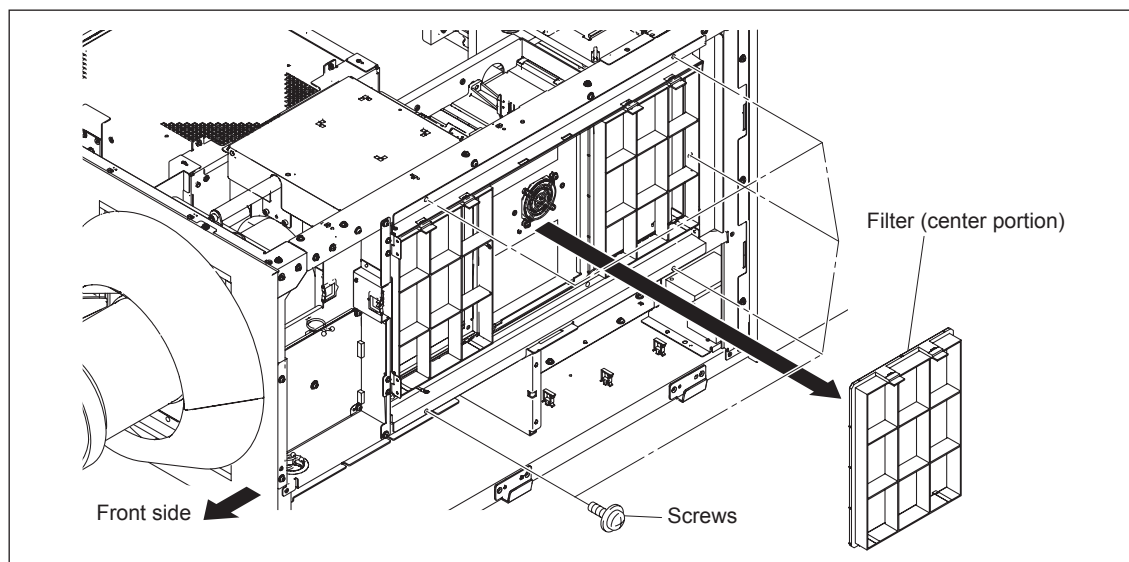


Fig. 2-5-1b

5. Open the panel duct in the direction of the arrow.
6. Remove the two screws, then remove the panel duct cover (upper).
7. Remove the two screws, then remove the panel duct cover (lower).
8. Close the filter cover, then secure it with the screw.

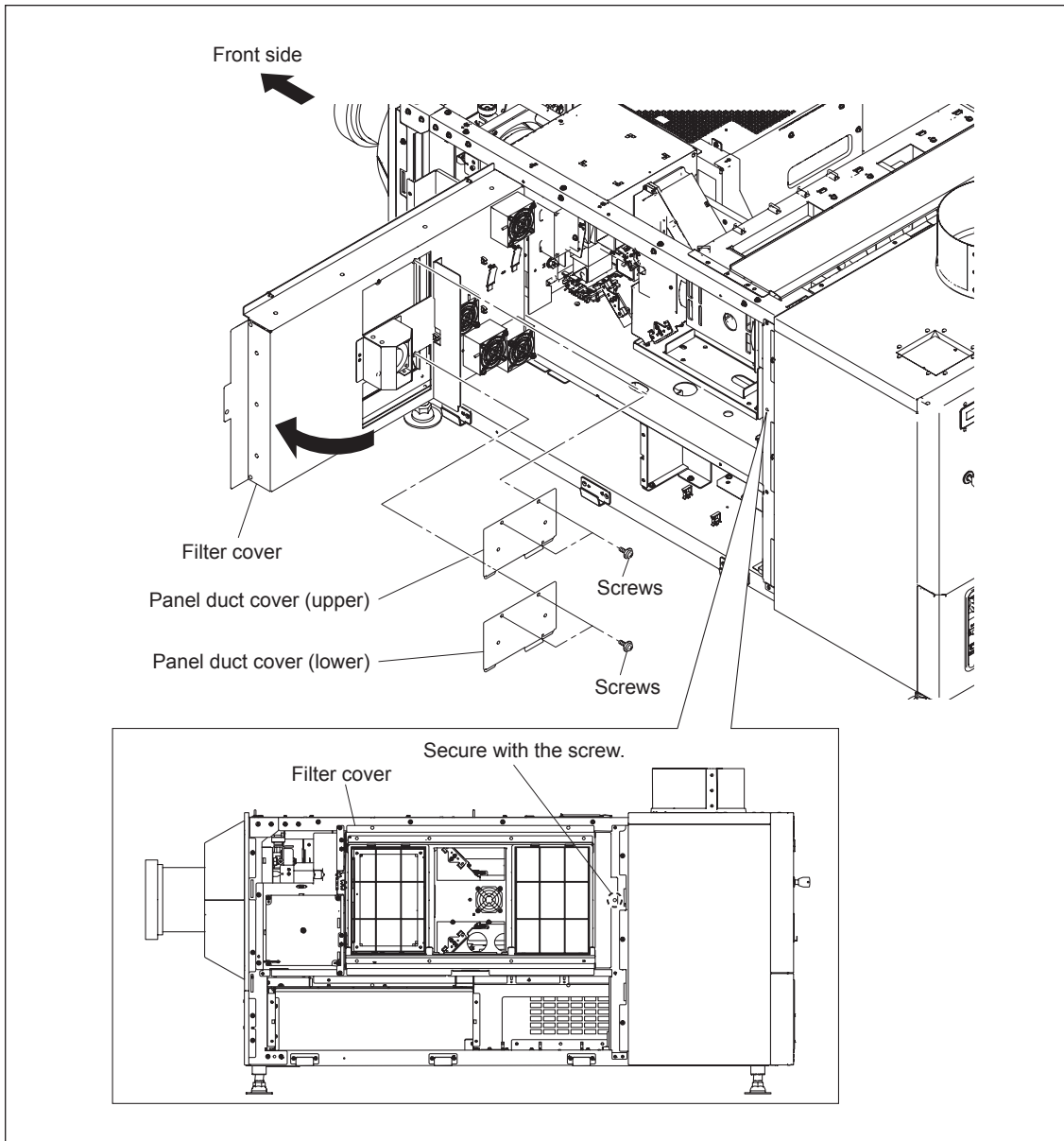


Fig. 2-5-1c

9. Set Lamp Power to 53% in the “LAMP POWER” menu on the INSTALLATION window of SRX Controller immediately after the lamp is lit.
10. Project the white image on the screen using “Test Mode 1” in the “TEST PATTERN” menu.

Note

If it is difficult to observe the left, right, top and bottom edges of the white image because it is interrupted by the black curtain and so on, reduce the white image size using the zoom so that its edges can be viewed clearly. Adjust the zoom in “LENS CONTROL”. In the case of out-of- focus, adjust it in the same way. (Refer to “2-7-2. INSTALLATION Window”.)

11. Perform steps 12 to 14 immediately after step 10 is finished.
12. Observe the left, right, top and bottom edges of the screen precisely.
13. Check the deviation of illumination range (colored area around the white image). If there is an area colored by cyan, loosen the adjusting plate fixing screws of portion A in the illustration, and tighten them after adjustment.
14. If there is an area colored by magenta/yellow, loosen the adjusting plate fixing screws of portion B in the illustration, and tighten them after adjustment.

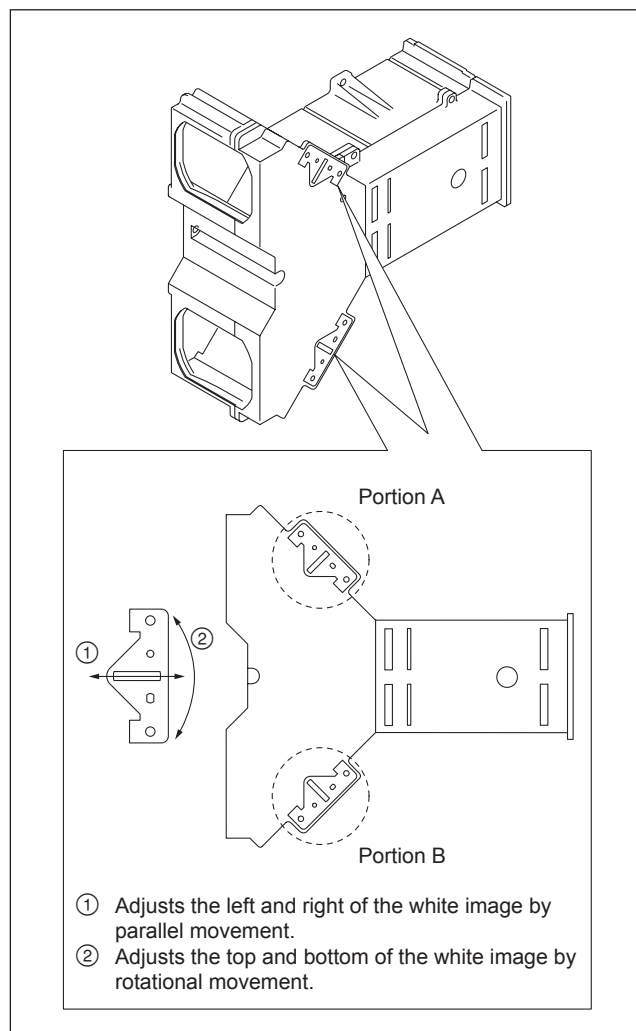


Fig. 2-5-1d

2-5-2. Registration Adjustment

Perform adjustment referring to “2-7-3. SERVICE Window” if registration is displaced.

2-6. Color Space Conversion (CSC Adjustment)

The color space of this unit can be corrected for each color reproduction range.

Note

The CSC adjustment cannot be correctly performed if γ is displaced.

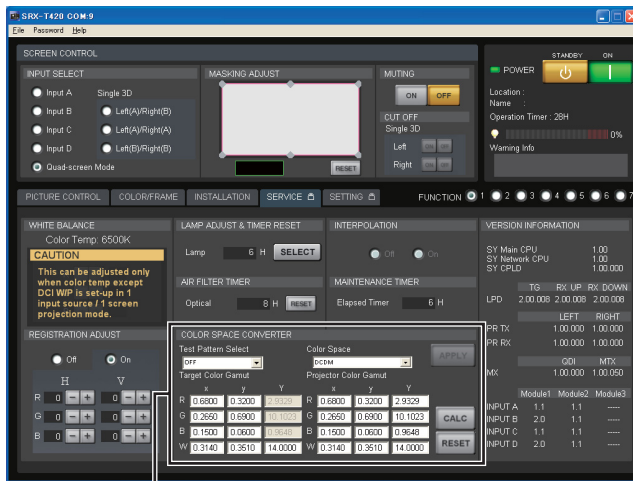
It is recommended to perform the γ adjustment and the uniformity adjustment first.

(Refer to SRX-T110 Technical Manual.)

2-6-1. Correcting the Color Space “sRGB (709)” or “Adobe RGB”

Procedure

1. Display the SERVICE window of SRX Controller.



“COLOR SPACE CONVERTER” menu

Fig. 2-6-1

2. Select “sRGB (709)” or “Adobe RGB” in Color Space of the “COLOR SPACE CONVERTER” menu.

Note

To select Color Space, it is required to input the video signal.

3. Click the **RESET** button.
4. Click the **APPLY** button.
- The color space function becomes OFF, and then the characteristics of this unit can be measured.
5. Connect PC for projection, and then project the 80% white signal.
6. Measure the value of x and y at the center of screen using the color meter.
7. Enter the measured value of x and y in the W box of “Projector Color Gamut”.
8. Project the 80% red signal, 80% green signal and 80% blue signal respectively from PC for projection, and then measure the value of x and y at the center of screen.
9. Enter the value measured in step 8 in the R, G, and B boxes of “Projector Color Gamut” respectively.
10. Click the **CALC** button.
11. Project the 80% red signal, 80% green signal and 80% blue signal respectively, and then measure the value of x and y at the center of screen again.

12. Check that the difference between the value measured in step 11 and the “Target Color Gamut” value is within the following margin of error.

80% green signal when Adobe RGB is selected: within ± 0.010

Other than the above: within ± 0.005

Note

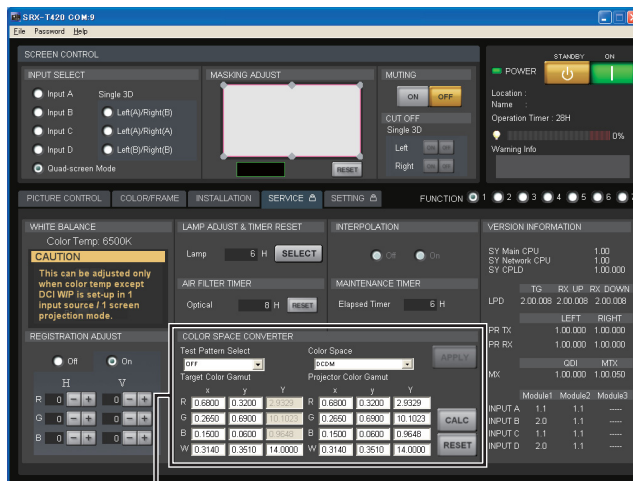
If the difference is not within the margin of error, repeat steps 5 to 11.

13. Click the **APPLY** button.

2-6-2. Correcting the Color Space “DCDM”

Procedure

1. Display the SERVICE window of SRX Controller.



“COLOR SPACE CONVERTER” menu

Fig. 2-6-2

2. Select “DCDM” in Color Space of the “COLOR SPACE CONVERTER” menu.

Note

To select Color Space, it is required to input the video signal.

3. Click the **RESET** button.
4. Click the **APPLY** button.

The color space function becomes OFF, and then the characteristics of this unit can be measured.

5. Select “Gray10” in “Test Pattern Select”.

The test pattern of Gray 10 is projected.

6. Measure the value of x and y at the center of screen using the color meter.
7. Enter the measured value of x and y in the W box of “Projector Color Gamut”.
8. Project “Red1”, “Green1” and “Blue1” in “Test Pattern Select” respectively, and then measure the value of x and y at the center of screen.
9. Enter the value measured in step 8 in the R, G, and B boxes of “Projector Color Gamut” respectively.
10. Click the **CALC** button.
11. Project “Gray 10”, “Red1”, “Green1” and “Blue1” respectively, and then measure the value of x and y at the center of screen again.

12. Check that the difference between the value measured in step 11 and the “Target Color Gamut” value is within the margin of error ± 0.005 .

Note

If the difference is not within the margin of error, repeat steps 5 to 11.

13. Click the **APPLY** button.

2-7. Functions of Each Window

This section describes the functions of SRX Controller required for the installation.

For about the PICTURE CONTROL window and COLOR/FRAME window, refer to the Operating Instructions.

2-7-1. Common Items



Fig. 2-7-1a

- ① SCREEN CONTROL
- ② POWER/Location/Name/Operation Timer/Warning Info

① SCREEN CONTROL

• INPUT SELECT

Selects the input signal to be output as video signal.

- Input A: Displays the signal from DVI board (default) or optional board.
- Input B to D: Displays the signal from optional board.
- Quad-screen Mode: Displays the four signals from Input A to D in a quad-screen.
- Single 3D: This item is for 3D lens. For detail, refer to the Installation and Service Manual of LKRL-A002/A003.

- MASKING ADJUST

Adjusts the image masking according to the screen shape by the six adjusting point respectively. And adjustment value is displayed by pointing the cursor at each adjusting point.

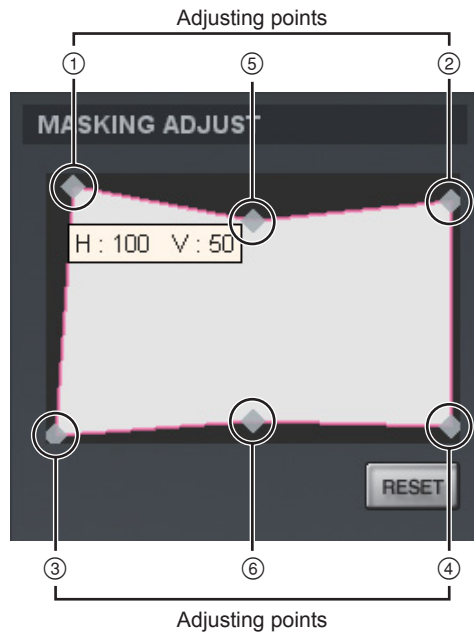


Fig. 2-7-1b

When an adjusting point is double-clicked, the adjustment window is displayed.



Fig. 2-7-1c

A setting value increases when you click the **+** button. A numeric value decreases when you click the **-** button. The numeric value can also be entered directly.

Each setting value is as follows:

① to ④: 0 to 950

⑤, ⑥: -500 to 500

Note

After the adjusting of adjusting point ① to ④ is completed, perform the adjusting of adjusting point ⑤ and ⑥.

All items in a MASKING ADJUST menu are returned to the factory setting when you click the **RESET** button.

- **MUTING**

Operates to close and open of the douser.

- **ON** button: Close the douser. (Muting condition)
- **OFF** button: Open the douser.

- **CUT OFF**

When a 3D lens is attached, switch the output of L image and R image.

For detail, refer to the Installation and Service Manual of LKRL-A002/A003.

② **POWER/Location/Name/Operation Timer/Warning Info**

- **POWER**

- **STANDBY**: Puts this unit into the standby state. (Canceled using an **ON** button.)
- **ON**: Turns on the power.

- **Location**: Displays the location.

- **Name**: Displays the owner name.

- **Operation Timer**: Displays the total operation time of this unit.

- **Lamp bulb**: Indicates the proportion of elapsed usage time (%) to the recommended time between replacements. Indicates in red as the recommended time approaches.

- **Warning Info**: Displays warning information.

2-7-2. INSTALLATION Window

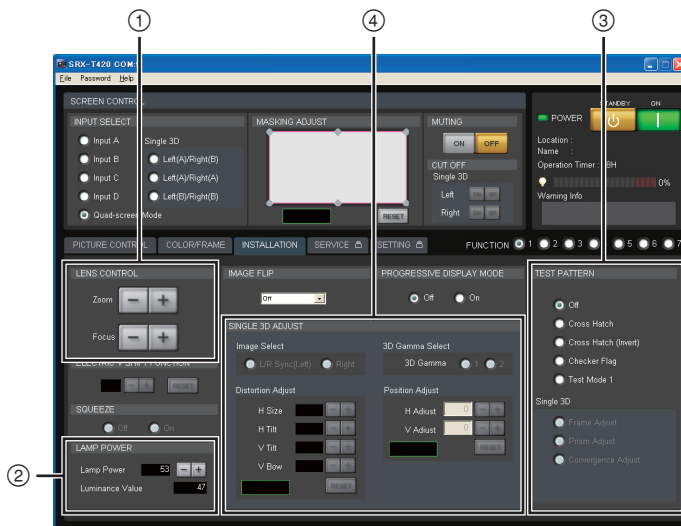


Fig. 2-7-2

① **LENS CONTROL**





② **LAMP POWER**

③ **TEST PATTERN**



④ **SINGLE 3D ADJUST**

① LENS CONTROL

Adjusts the image projected on the screen.

- Zoom: Adjusts the size of an image. An image is expanded when you click the  button. It is reduced when you click the  button.
- Focus: Adjusts a focus. A focus is adjusted to the distance place when you click the  button. It is adjusted to the nearby place when you click the  button.

② LAMP POWER

- Lamp Power: Can adjust the output of a light source lamp bulb in units of 1% between 53% and 100%. The screen becomes dark when a numeric value decreases. In this case, however, the power consumption decreases and the life of a lamp bulb becomes long. Clicking the  button, the numeric value increases. Clicking the  button, the numeric value decreases.
- Luminance Value: For axis adjustment after the lamp bulb is replaced.

③ TEST PATTERN

An image can be adjusted by projecting the test pattern, built in this unit, on the screen without inputting the signal from other equipment.

Each test pattern is as follows:

- Off: No test pattern
- Cross Hatch
- Cross Hatch (Invert)
- Checker Flag
- Test Mode 1
- Single 3D

The test patterns in Single 3D column are for 3D lens. For detail, refer to the Installation and Service Manual of LKRL-A002/A003.

④ SINGLE 3D ADJUST

This item is for 3D lens. For detail, refer to the Installation and Service Manual of LKRL-A002/A003.

2-7-3. SERVICE Window

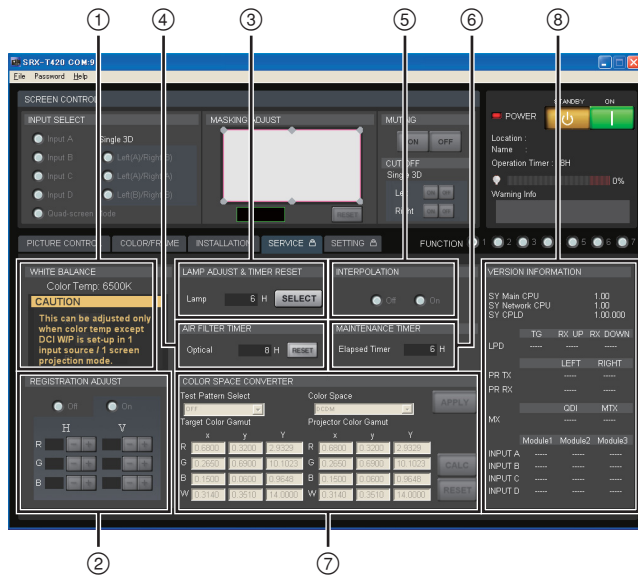


Fig. 2-7-3a

- ① WHITE BALANCE
- ② REGISTRATION ADJUST
- ③ LAMP ADJUST & TIMER RESET
- ④ AIR FILTER TIMER
- ⑤ INTERPOLATION
- ⑥ MAINTENANCE TIMER
- ⑦ COLOR SPACE CONVERTER
- ⑧ VERSION INFORMATION

① WHITE BALANCE

The adjustments of Gain R/G/B and Bias R/G/B are performed and the color temperature is set. It is used to adjust the subtle difference of color among the projectors when more than one projector is used. When adjusting only one projector, use Color Space Converter. (Refer to Section 2-6.)

Notes

- WHITE BALANCE can be adjusted only in the full-screen mode.
- The value adjusted here is reflected only on “Color Temp” of the input signal currently selected.

Adjustment when more than one projector is used

1. Perform the CSC adjustment for all projectors. (Refer to Section 2-6.)
2. Project the 80% white signal.
3. Select the projector as a reference and adjust the Gain value of other projectors to the Gain value of the reference projector.

② REGISTRATION ADJUST

Moves R (red), G (green), and B (blue) in the horizontal and vertical directions by two pixels (maximum) one pixel at a time so as to adjust registration.

- On: Selects when adjusting.
- Off: Selects when not adjusting.
- H: Pixels move in the horizontal direction.
 - R: Red pixels horizontally move by two pixels (maximum) one pixel at a time when you click the / button.
 - G: Green pixels horizontally move by two pixels (maximum) one pixel at a time when you click the / button.
 - B: Blue pixels horizontally move by two pixels (maximum) one pixel at a time when you click the / button.
- V: Pixels moves in the vertical direction.
 - R: Red pixels vertically moves by two pixels (maximum) one pixel at a time when you click the / button.
 - G: Green pixels vertically moves by two pixels (maximum) one pixel at a time when you click the / button.
 - B: Blue pixels vertically moves by two pixels (maximum) one pixel at a time when you click the / button.

③ LAMP ADJUST & TIMER RESET

Displays the operation time of a lamp bulb and resets the LAMP TIMER.

- Lamp: Displays the operation time of a lamp bulb.
- button: Clicking the button, displays the LAMP INFORMATION window.

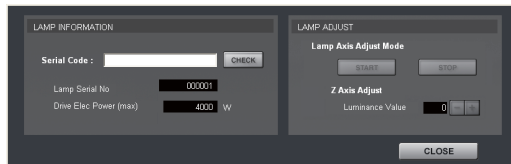


Fig. 2-7-3b

LAMP INFORMATION

- Serial Code: Enter the serial number of a lamp bulb.
- button: Clicking the button with the Serial Code box entered, resets LAMP TIMER.
 - Lamp Serial No.: Displays the serial code of a lamp bulb.
 - Drive Elec Power (max): Displays maximum driving power.

LAMP ADJUST

- Lamp Axis Adjust Mode
 - Switches the axis adjust mode of the lamp bulb.
 - button: Enables the axis adjustment.
 - button: Quits the axis adjustment.
- Z Axis Adjust
 - Luminance Value: Displays the value of the internal luminance meter.

④ AIR FILTER TIMER

Displays and resets the operation time of air filter.

- Optical: Displays the operation time of the air filter on the panel duct.
- button: Clicking the button, resets AIR FILTER TIMER.

⑤ INTERPOLATION

Switches the interpolation function during the projection of 2K-resolution image.

- On: Projects the high-resolution picture quality with a smooth image.
- Off: Projects the pixelated rough image.

⑥ MAINTENANCE TIMER

- Elapsed Timer

Displays the cumulative lighting time of lamp valve. (excluding cooling time)

Note

Other timer: Operation timer displays the cumulative operation time of the unit.

⑦ COLOR SPACE CONVERTER

Adjusts the CSC. (Refer to Section 2-6.)

⑧ VERSION INFORMATION

Displays the version of this unit.

2-7-4. SETTING Window

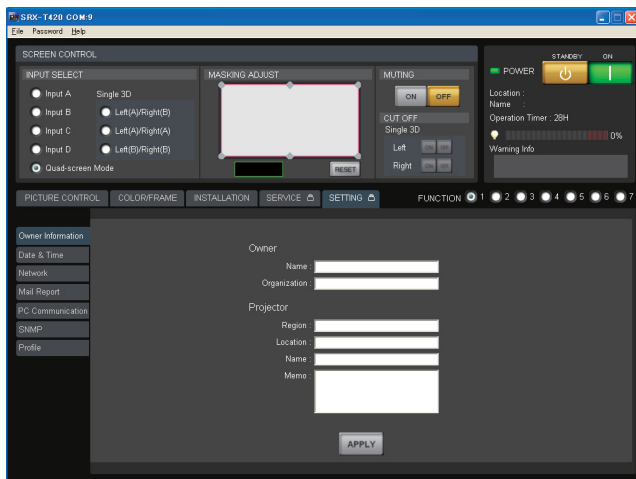


Fig. 2-7-4

Sets the various settings of the projector. (Refer to Section 2-2.)

Section 3

Error Message

The following messages are displayed in the status message display at the back of the main unit and the “Warning Info” of an SRX controller.

These messages are classified into ALERT (degree of risk: high), WARNING (degree of risk: middle), and FAILURE (degree of risk: low) according to the degree of risk.

Take proper measures according to the message number and the remedy.

Note

For WARNING (degree of risk: middle) and FAILURE (degree of risk: low), the power is not automatically turned off during operation of the main unit (during projection). However, take proper measures according to the remedy when the power is turned off next.

ALERT (Degree of risk: high)

Message No.	Error message	Trouble	Remedy
ALERT_01	BOARD ERROR	The power of IFA board is defective.	Check the IFA board. Replace the IFA board if it is damaged.
ALERT_02	BOARD ERROR	The power of IFB board is defective.	Check the IFB board. Replace the IFB board if it is damaged.
ALERT_03	BOARD ERROR	The power of IFC board is defective.	Check the IFC board. Replace the IFC board if it is damaged.
ALERT_04	BOARD ERROR	The power of IFD board is defective.	Check the IFD board. Replace the IFD board if it is damaged.
ALERT_05	BOARD ERROR	The power of the MX board is defective.	Check the MX board. Replace the MX board if it is damaged.
ALERT_06	BOARD ERROR	The power of the LPD board is defective.	Check the LPD board. Replace the LPD board if it is damaged.
ALERT_07	BOARD ERROR	The power of the CT board is defective.	Check the CT board. Replace the CT board if it is damaged.
ALERT_08	BOARD ERROR	The power of the DST board is defective.	Check the DST board. Replace the DST board if it is damaged.
ALERT_09	BOARD ERROR	The power of the PR1 board is defective.	Check the PR1 board. Replace the PR1 board if it is damaged.
ALERT_10	BOARD ERROR	The power of the PR2 board is defective.	Check the PR2 board. Replace the PR2 board if it is damaged.
ALERT_11	BOARD ERROR	The power of the SY board is defective.	Check the SY board. Replace the SY board if it is damaged.
ALERT_12	BOARD DETACHED	The CN board is disconnected.	Check the CN board.
ALERT_13	BOARD DETACHED	The MX board is disconnected.	Check the MX board.
ALERT_14	BOARD DETACHED	The LPD board is disconnected.	Check the LPD board.
ALERT_15	BOARD DETACHED	The CT board is disconnected.	Check the CT board.
ALERT_16	BOARD DETACHED	The DST board is disconnected.	Check the DST board.
ALERT_17	BOARD DETACHED	The PR1 board is disconnected.	Check the PR1 board.
ALERT_18	BOARD DETACHED	The PR2 board is disconnected.	Check the PR2 board.
ALERT_19	TEMPERATURE ERROR	The unit stops operation by temperature abnormality of the R panel.	Check the outside air temperature, and air supply and exhaust. Check the Peltier R. Replace the Peltier R if it is damaged.
ALERT_20	TEMPERATURE ERROR	The unit stops operation by temperature abnormality of the G panel.	Check the outside air temperature, and air supply and exhaust. Check the Peltier G. Replace the Peltier G if it is damaged.
ALERT_21	TEMPERATURE ERROR	The unit stops operation by temperature abnormality of the B panel.	Check the outside air temperature, and air supply and exhaust. Check the Peltier B. Replace the Peltier B if it is damaged.
ALERT_22	COVER DETACHED	The rear cabinet is detached and/or the cold mirror is out of position.	Check the panel (U4) block assembly and cold mirror position.
ALERT_27	FAN ERROR	The lamp fan A is defective.	Check the lamp fan A. Replace the fan if it is damaged.
ALERT_28	FAN ERROR	The lamp fan B is defective.	Check the lamp fan B. Replace the fan if it is damaged.
ALERT_29	FAN ERROR	The lamp fan C is defective.	Check the lamp fan C. Replace the fan if it is damaged.
ALERT_30	FAN ERROR	The lamp fan D is defective.	Check the lamp fan D. Replace the fan if it is damaged.
ALERT_32	BALLAST ERROR	The unit stops operation by temperature abnormality of the power unit for lamp.	Check the outside air temperature, air supply and exhaust, and power unit for lamp. Replace the power unit for lamp if it is damaged.

(Continued)

Message No.	Error message	Trouble	Remedy
ALERT_33	BALLAST ERROR	The power unit for lamp fan is abnormal.	Check the power unit for lamp fan. Replace the fan if it is damaged.
ALERT_34	BALLAST ERROR	The power unit for lamp is abnormal.	Check the cable between the power unit for lamp and lamp house. Check the power unit for lamp. Replace the power unit for lamp if it is damaged.
ALERT_35	LAMP ERROR	The lamp goes off.	Check the lamp. Replace lamp bulb if it is damaged. Check the power unit for lamp. Replace the power unit for lamp if it is damaged.
ALERT_36	BALLAST ERROR	The power unit for lamp is abnormal.	Check the cable between the power unit for lamp and lamp house. Check the power unit for lamp. Replace the power unit for lamp if it is damaged.
ALERT_37	COVER DETACHED	The maintenance cover assembly is out of position.	Check the maintenance cover assembly.
ALERT_38	BOARD ERROR	The power of the CN board is defective.	Check the CN board. Replace the board if it is damaged.
ALERT_39	TEMPERATURE ERROR	The unit stops operation by temperature abnormality of the 8-inch duct block.	Check the outside air temperature, the suction amount of a 8-inch duct, and the lamp fans A to D.
ALERT_41	COVER DETACHED	The unit stops operation by the filter cover detaching.	Check that the filter cover (door) is not open.

WARNING (Degree of risk: middle)

Message No.	Error message	Trouble	Remedy
WARN_01	FAN ERROR	The power fan 1 is abnormal.	Check the power fan 1. Replace the power fan 1 if it is damaged.
WARN_02	FAN ERROR	The power fan 2 is abnormal.	Check the power fan 2. Replace the power fan 2 if it is damaged.
WARN_05	FAN ERROR	The board fan 1 is abnormal.	Check the board fan 1. Replace the board fan 1 if it is damaged.
WARN_06	FAN ERROR	The board fan 2 is abnormal.	Check the board fan 2. Replace the board fan 2 if it is damaged.
WARN_12	FAN ERROR	The Peltier R fan is abnormal.	Check the Peltier R fan. Replace the Peltier R fan if it is damaged.
WARN_13	FAN ERROR	The Peltier G fan is abnormal.	Check the Peltier G fan. Replace the Peltier G fan if it is damaged.
WARN_14	FAN ERROR	The Peltier B fan is abnormal.	Check the Peltier B fan. Replace the Peltier B fan if it is damaged.
WARN_20	DEVICE ERROR	The Peltier R is out of control.	Check the outside air temperature, and air supply and exhaust. Check the Peltier R. Replace the Peltier R if it is damaged.
WARN_21	DEVICE ERROR	The Peltier G is out of control.	Check the outside air temperature, and air supply and exhaust. Check the Peltier G. Replace the Peltier G if it is damaged.
WARN_22	DEVICE ERROR	The Peltier B is out of control.	Check the outside air temperature, and air supply and exhaust. Check the Peltier B. Replace the Peltier B if it is damaged.
WARN_23	CONNECTOR DETACHED	The connector of a Peltier R is disconnected.	Check the connector of a Peltier R.
WARN_24	CONNECTOR DETACHED	The connector of a Peltier G is disconnected.	Check the connector of a Peltier G.
WARN_25	CONNECTOR DETACHED	The connector of a Peltier B is disconnected.	Check the connector of a Peltier B.

(Continued)

Message No.	Error message	Trouble	Remedy
WARN_26	DOUSER ERROR	DOUSER operation is failed.	Check the connector of a shift block. Check the shift block. Replace the shift block if it is damaged.
WARN_27	BALLAST ERROR	A power unit for lamp communication failed.	Check the cable between the power unit for lamp and lamp house. Check the power unit for lamp. Replace the power unit for lamp if it is damaged.
WARN_28	BALLAST ERROR	Lamp serial number setting is wrong.	Check the range setting of power unit for lamp and the serial information of a lamp.
WARN_30	COVER DETACHED	The filter cover is detached.	Check that the filter cover (door) is not opened.
WARN_31	FAN ERROR	PS converter fan 2 in abnormal.	Check the PS converter fan 2. Replace the PS converter fan 2 if it is damaged.
WARN_32	FAN ERROR	PS converter fan 1 in abnormal.	Check the PS converter fan 1. Replace the PS converter fan 1 if it is damaged.
WARN_33	FAN ERROR	PBS fan in abnormal.	Check the PBS fan. Replace the PBS fan if it is damaged.

FAILURE (Degree of risk: low)

Message No.	Error message	Trouble	Remedy
FAIL_02	TEMPERATURE ERROR	Warning for temperature abnormality of the 8-inch duct.	Check the outside air temperature, the suction amount of a 8-inch duct, and the lamp cooling fans.
FAIL_04	TEMPERATURE ERROR	Intake temperature is abnormal.	Check the outside air temperature.
FAIL_06	TEMPERATURE ERROR	The optical unit block temperature is abnormal.	Check the outside air temperature, and air supply and exhaust.
FAIL_10	TEMPERATURE ERROR	Warning for temperature abnormality of the R panel.	Check the outside air temperature, and air supply and exhaust. Check the Peltier R. Replace the Peltier R if it is damaged.
FAIL_11	TEMPERATURE ERROR	Warning for temperature abnormality of the G panel.	Check the outside air temperature, and air supply and exhaust. Check the Peltier G. Replace the Peltier G if it is damaged.
FAIL_12	TEMPERATURE ERROR	Warning for temperature abnormality of the B panel.	Check the outside air temperature, and air supply and exhaust. Check the Peltier B. Replace the Peltier B if it is damaged.
FAIL_15	TEMPERATURE ERROR	Warning for temperature abnormality of the power unit for lamp.	Check the outside air temperature. Check the power unit for lamp. Replace the power unit for lamp if it is damaged.
FAIL_16	LENS ERROR	Zoom does not reach the registered position.	Check the function operation, lens, and lens cable. Check the SY board. Replace the SY board if it is damaged.
FAIL_17	LENS ERROR	Focus does not reach the registered position.	Check the function operation, lens, and lens cable. Check the SY board. Replace the SY board if it is damaged.
FAIL_18	LENS ERROR	Zoom operation is failed.	Check the lens and lens cable. Check the SY board. Replace the SY board if it is damaged.

(Continued)

Message No.	Error message	Trouble	Remedy
FAIL_19	LENS ERROR	Focus operation is failed.	Check the lens and lens cable. Check the SY board. Replace the SY board if it is damaged.
FAIL_21	ADJUSTMENT ERROR	The Z-axis operation is failed.	Check the lamp house-supplied motor and harness. Replace the motor if it is damaged. Check the SY board. Replace the SY board if it is damaged.
FAIL_25	DEVICE ERROR	FPGA configuration fails.	Turn off the power once, then turn on it again.
FAIL_26	DEVICE ERROR	I ² C communication error.	Turn off the power once, then turn on it again.
FAIL_27	DEVICE ERROR	LVDS error	Turn off the power once, then turn on it again.
FAIL_28	DEVICE ERROR	PLL error	Turn off the power once, then turn on it again.
FAIL_29	DEVICE ERROR	Parity error	Turn off the power once, then turn on it again.
FAIL_30	BALLAST ERROR	The power unit for lamp is interlocked.	Turn off the power once, then turn on it again.
FAIL_36	DEVICE ERROR	Setting error of DVI.	Check the setting and set the operation again.

Note

Fan location

