SONY

MULTI PORT AV STORAGE UNIT

PWS-4500

INTERNAL MEMORY ARRAY (2TB)
PWSK-4401

INTERNAL MEMORY ARRAY (2TB)
PWSK-4501

SDI INTERFACE BOARD
PWSK-4504

BPU SHARE PLAY BOARD
PWSK-4505

NETWORKED MEDIA INTERFACE BOARD
PWSK-4506F

12G-SDI INTERFACE BOARD
PWSK-4508

ST 2110 INTERFACE BOARD
PWSK-4509

INSTALLATION MANUAL
1st Edition (Revised 5)
Serial No. 11001 and Higher: PWS-4500 (SY)
Serial No. 41001 and Higher: PWS-4500 (CE)

4585363060

⚠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ことがあります。
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 manual 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ーを以下のポートに接続しないでください。
: NETWORK 1 コネクター
: NETWORK 2 コネクター
: REMOTE 1/2 コネクター
: REMOTE 3/4 コネクター
: REMOTE 5/6 コネクター
: REMOTE 7/8 コネクター
: FILE SHARE 1 コネクター
: FILE SHARE 2 コネクター
: NMI MONITOR 1 コネクター
: NMI MONITOR 2 コネクター
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(s).
: NETWORK 1 connector
: NETWORK 2 connector
: REMOTE 1/2 connector
: REMOTE 3/4 connector
: REMOTE 5/6 connector
: REMOTE 7/8 connector
: FILE SHARE 1 connector
: FILE SHARE 2 connector
: NMI MONITOR 1 connector
: NMI MONITOR 2 connector
Follow the instructions for the above port(s).

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

本機をラックに設置するとき
熱の適切な排気・発散を得るために，ラックと本機の間には，以下の空間を確保してください。
• 左右両側面4 cm以上
• 後面40 cm以上

Attention-when the product is installed in Rack:

1. **Prevention against overloading of branch circuit**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. **Providing protective earth**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. **Internal air ambient temperature of the rack**
   When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. **Prevention against achieving hazardous condition due to uneven mechanical loading**
   When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5. **Install the equipment while taking the operating temperature of the equipment into consideration**
   For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

6. **When performing the installation, keep the following space away from walls in order to obtain proper exhaust and radiation of heat.**
   Right, Left: 4 cm (1.6 inches) or more
   Rear: 40 cm (15.8 inches) or more

設置時には，通気やサービス性を考慮して設置スペースを確保してください。
- ファンの排気部 (リアパネル面，右側面後ろ側) や通気孔（フロントパネル面，前面下部，前面両端部）をふさがない。
- 通気のために，セット周辺に空間をあける。
- 作業エリアを確保するため，セットの左側面および右側面は 4 cm 以上，セット後方は 40 cm 以上の空間をあける。

机上などの平面に設置する場合は，左側面および右側面は 4 cm 以上の空間をそれぞれ確保してください。ただし，セット上部はサービス性を考慮し 40 cm 以上の空間を確保することを推奨します。

When installing, the installation space must be secured in consideration of the ventilation and service operation.
- Do not block the fan exhaust areas (rear panel and rear part of the right side panel) and vents (front panel, front lower part, and front right and left ends) with objects.
- Leave a space around the unit for ventilation.
- Secure working spaces (at least 4 centimeters from the left panel and right panel and at least 40 centimeters from the rear panel of the unit).

When the unit is installed on the desk or the like, leave at least 4 centimeters of space in the left and right sides. Leaving 40 centimeters or more of space above the unit is recommended for service operation.

Table of Contents

Manual Structure

1. Installation

Appendix A Setting Check Sheet

Manual Structure

Purpose of this manual

This manual is the installation manual of Multi Port AV Storage Unit PWS-4500. This manual is intended for use by trained system engineers and service engineers, and describes information (operating environment, installation space, connection information, initial setting, etc.) on installing the PWS-4500.

Related manuals

Besides this Installation Manual, the following manuals are prepared for this unit.

- **Operation Manual (PDF) (Supplied with this unit. (CD-ROM))**
  This manual contains information required to operate and use the unit.

- **Service Manual (Available on request)**
  This manual describes service overview, error messages, periodic maintenance and inspection, replacement of main parts of the unit to provide information required for block-level service.

- **Factory Service Manual (Available on request)**
  Parts list, circuit diagram, and board layouts of the unit are included to provide information required for part-level service.

. **Protocol Manual of Remote (9-pin) Connector (Available on request)**
  This manual explains the protocol for controlling this unit via the RS-422A (9-pin serial remote).

- **Interface Manual of GPIO (25-pin) Connector (Available on request)**
  This manual explains the protocol for controlling this unit via the GPIO (25-pin).

- **Protocol Manual (VIDEO DISK COMMUNICATION PROTOCOL) (Available on request)**
  This manual explains the protocol for VDCP controlling this unit via the RS-422A (9-pin serial remote).

- **Protocol Manual (Odetics PROTOCOL) (Available on request)**
  This manual explains the protocol for Odetics controlling this unit via the RS-422A (9-pin serial remote).

Trademarks

System names and product names written in this manual are usually registered trademarks or trademarks of respective development manufacturers.

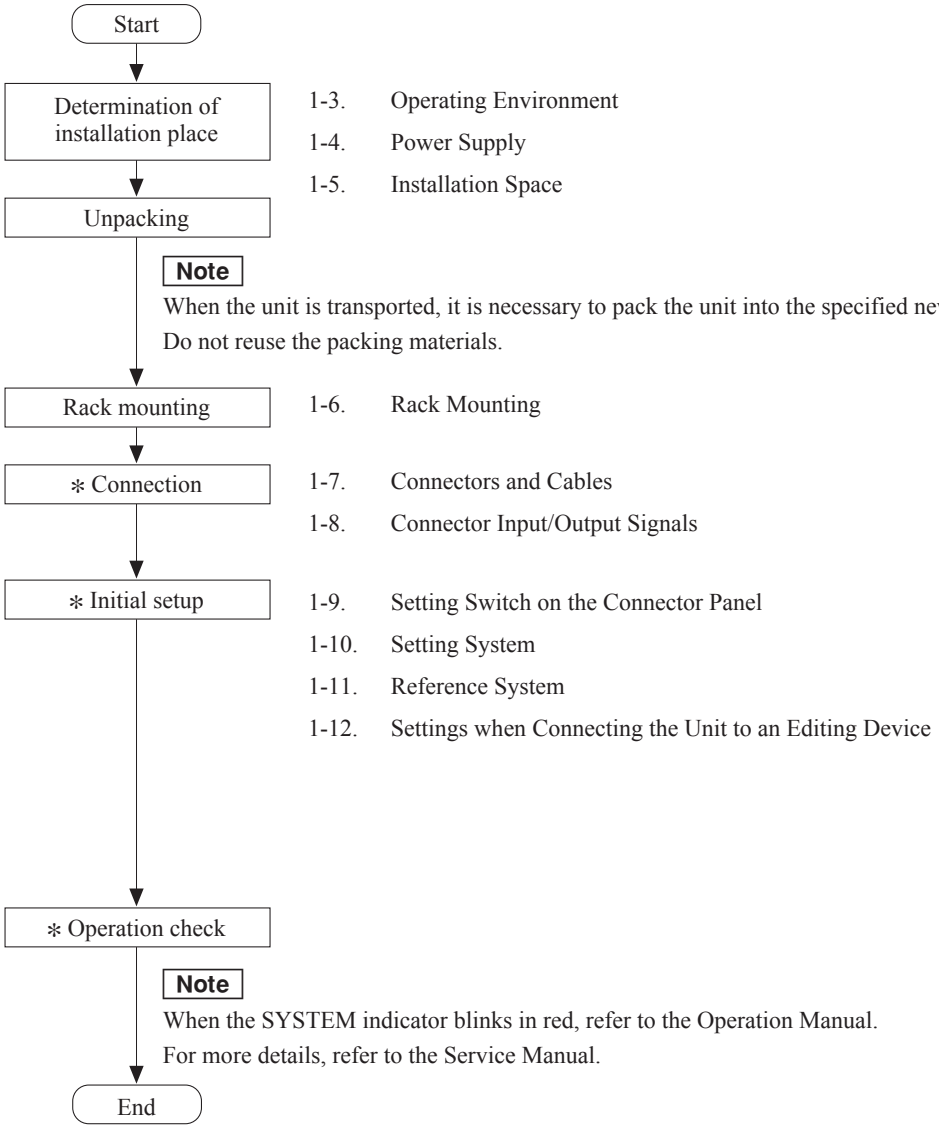
MDC-21, MDC-21A and MDC-21C Boards

In this manual, unless otherwise specified, without distinguishing between the MDC-21 board, MDC-21A board and MDC-21C board, it has been written to as a MDC-21 board.

Section 1
Installation

1-1. Installation Procedure

The following flowchart shows the installation procedure of the unit.
For details of each step, refer to the relevant section.
The Operation Manual is also required for the items marked with an asterisks (∗).



1-2. Accessories

- Operation Manual CD-ROM (PDF) (1)
- Installation Manual (this manual) (1)
- Operation Guide (1)
- RJ45-Dsub cable (4)

1-3. Operating Environment

Note

Do not block any air vents of the enclosure and exhaust vents for fans to reduce temperature rise in the unit. Furthermore, implement appropriate measures for cooling air to adequately flow in the unit.

Operating temperature: 5 to 40 °C
Operating humidity: 25 to 90 % (no condensation)
Storage temperature: −20 to 60 °C
Prohibited installation places:

- Places exposed to direct sunlight or intense light
- Places near a heat source
- Dusty places or places subject to constant vibration
- Places in strong magnetic field
- Places subject to much electrical noise
- Places where electrostatic noise is likely to be generated
- Places where specified installation space cannot be provided (Refer to “1-5. Installation Space”)
- Sealed places

Horizontal installation condition:

Allowable gradient of 30 degrees or less
Do not tilt the front or rear of the unit more than 30 degrees.

CAUTION

If the unit is used at a slant, secure it to prevent it from slipping down.

1-4. Power Supply

1-4-1. Power Supply Specifications

Power voltage: 100 to 127/200 to 240 VAC (nominal voltage)
Power frequency: 50 or 60 Hz
Power consumption: 480 W max. (including options)
Inrush current: 25 A at 100 VAC

Note

The AC power supply requires capacity including inrush current.
If the AC power capacity is insufficient, the circuit breaker of the AC power supply on the supply side may trip or the unit may malfunction.

1-4-2. Recommended Power Cord

This unit does not come with a power cord.
To get a power cord, please contact your local Sony Sales Office/Service Center.

WARNING

- Use the approved Power Cord (3-core mains lead)/Appliance Connector/Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
- Use the Power Cord (3-core mains lead)/Appliance Connector/Plug conforming to the proper ratings (Voltage, Ampere).
- Never use a damaged power cord.

1-5. Installation Space

When installing, the installation space must be secured in consideration of the ventilation and service operation.

- Do not block the ventilation slots at the left side and right side panels, and vents of the fans.
- Leave a space around the unit for ventilation.
- Leave more than 40 centimeters of space in the rear of the unit to secure the work area.

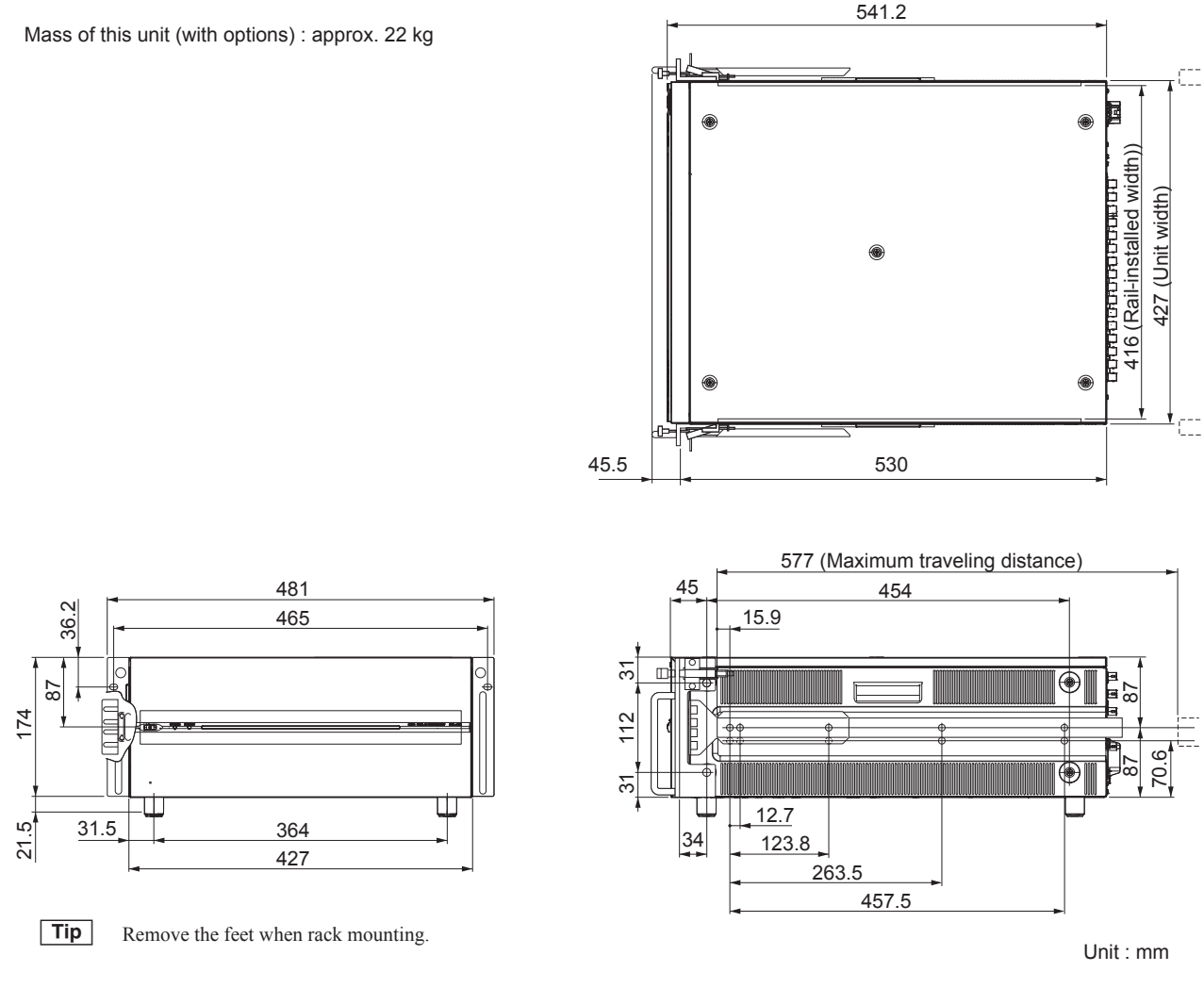
When the unit is installed on the desk or the like, leave at least four centimeters of space in the left and right sides. Leaving 40 centimeters or more of space above the unit is recommended for service operation.

Moreover, an air flow that is effective in cooling the unit is essential. If the ventilation is not enough, the unit may be damaged because of an increase of the internal temperature.

Note

This unit is air-cooled by the fans. The operation with the upper lid is removed affects the air cooling by the fans. Complete the work in a short time as possible when operating the unit for inspection with the upper lid removed.
In case of a work with the unit turned on for a long time, take an action, such as cooling by electric fan, to avoid rise in temperature.

Mass of this unit (with options) : approx. 22 kg



Tip Remove the feet when rack mounting.

Unit : mm

Dimensions when Rack-Mounting

1-6. Rack Mounting

This section describes the procedures for mounting this unit into a 19-inch standard rack.
Be sure to mount this unit into a rack accurately following the procedure and notes mentioned below.

WARNING

- To prevent toppling over the rack, fix it on the horizontal and firm floor securely with bolts, etc.

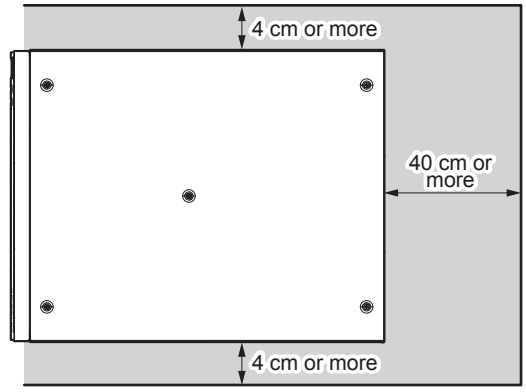
CAUTION

- Use the specified rack mount rail.
  The use of other rail of low strength may drop the unit and cause the risk of injury.
- Mount the unit into a rack with a steady posture.

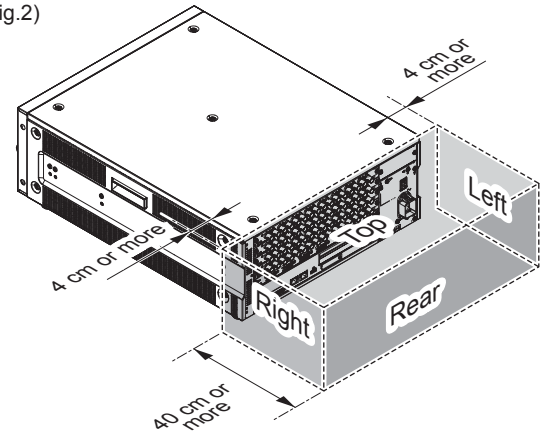
Note

- When other equipment with built-in hard disk drive is already mounted in the same rack for mounting this unit, turn off the power of the equipment before mounting this unit.
- Do not install the unit to the rack without exterior parts.
- Connect long enough cables on the connector panel, considering that the unit is pulled out from the rack.
- To suppress the internal temperature rise of the unit, reserve a space of 4 cm or more on both sides and 40 cm or more on the rear side between the rack and the unit. (Refer to Fig. 1)
  To ensure proper airflow, keep at least one of the four spaces (up, rear, right, and left) at the rear of the unit so as not to block airflow. (Refer to Fig. 2)
- Adjust the temperature inside the rack within the range of the unit's operating temperature.
  (Refer to Section 1-3)

(Fig.1)



(Fig.2)



Specified Rack Mount Kit

RMM-131 (Optional accessory)

The RMM-131 Rack Mount Kit is for mounting equipment in a standard EIA 19-inch rack.

Size limits on applicable equipment

- Maximum weight: 40 kg
- Maximum width: 427 mm
- Height: 4U (approximately 176 mm)

Applicable rack

Racks with a depth of 660 to 830 mm (22-inch rails).

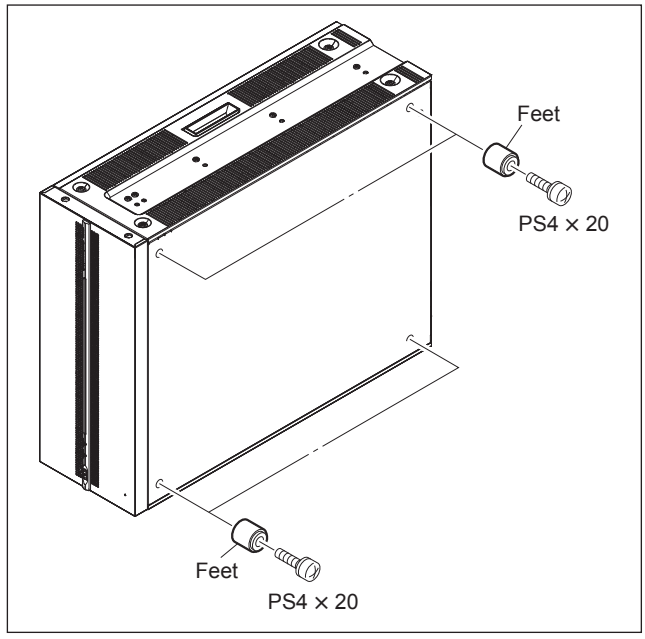
Parts Packed in RMM-131

- Guide rail : 2 pcs
- Rack angle (handle) : 2 pcs
- Bracket (rail brackets) : 4 pcs
- Plate nut (large) : 4 pcs
- Plate nut (small) : 4 pcs
- Screw (B4 × 8) : 8 pcs
- Hexagon socket head cap bolt (M5 × 14) : 8 pcs
- Flat washer (M4) : 8 pcs
- Screw (RK5 × 14) : 2 pcs
- Decorative washer (M5) : 2 pcs
- L-shaped hexagonal wrench : 1 pc

Rack Mounting Procedure

Removing feet

1. Place the unit with its side panel down.
2. Remove the four screws to detach the feet from the bottom plate of the unit.
3. Place the unit horizontally.

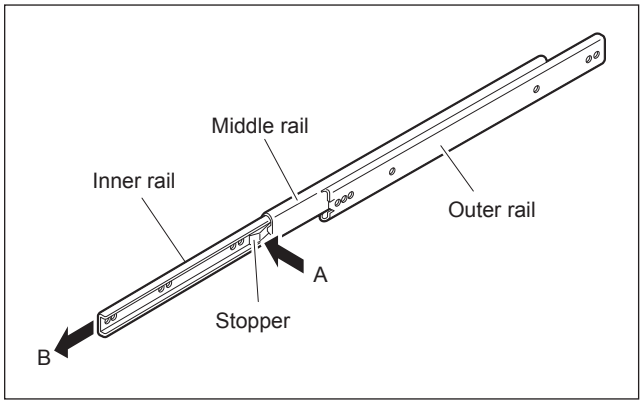


Note

Keep the removed screws and feet for future use.
When using this unit outside the rack, be sure to reattach the feet.
Tightening torque: 98×10^{-2} N • m {10 kgf • cm}

Attaching inner rails

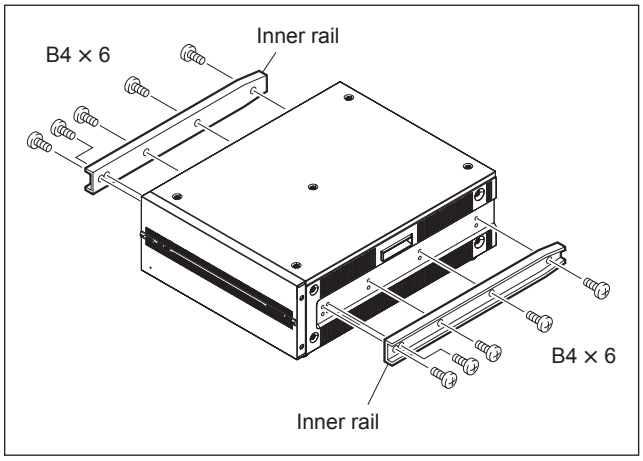
4. Pull the inner rails out of the middle rails.
5. Pull out the inner rails in the direction of arrow B while pressing the stoppers of the inner rails in the direction of arrow A.



6. Remove the 10 screws from the right and left side panels of the unit as shown in the figure below.
7. Attach two inner rails to the right and left side panels of the unit using the screws removed in step 6.
   Tightening torque: 120 × 10^{-2} N • m {12.2 kgf • cm}

Note

- Be sure to use B4 × 6 screws to secure the inner rails. Using other screws may cause operational problems to the unit.
- Do not install screws other than those for inner rail fixing screw holes that are used actually. If unnecessary screws are installed, the unit cannot be mounted on the rack.

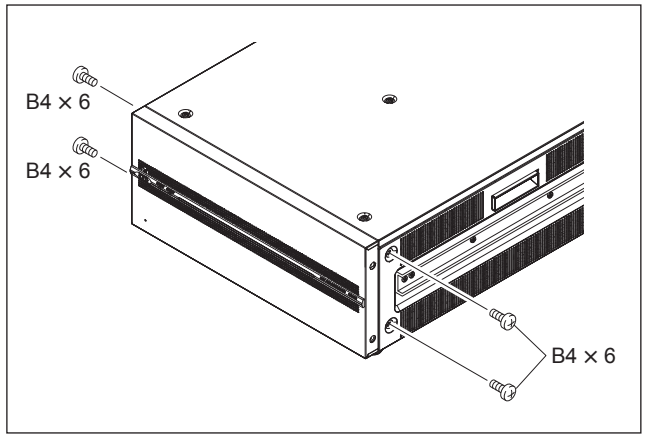


Tip

When replacing a Sony's 5U-size VTR with this unit in the rack, attach the inner rails at the lower part.
The bottom plate of this unit is at the same height of the bottom plate of the 5U-size VTR.

Attaching rack angles (handles)

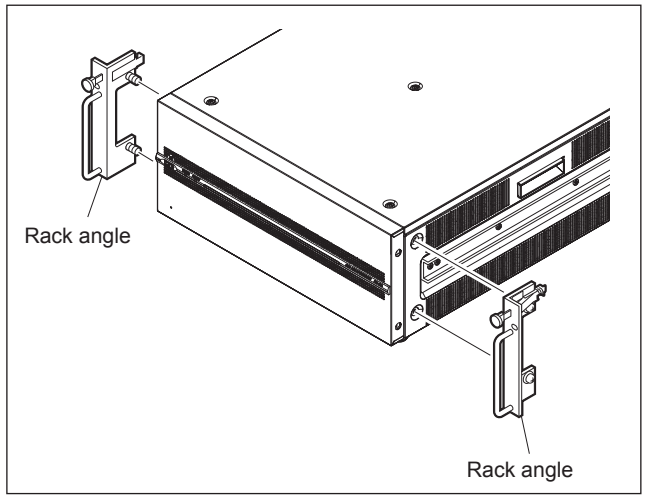
8. Remove the four screws from the right and left side panels of the unit.



Note

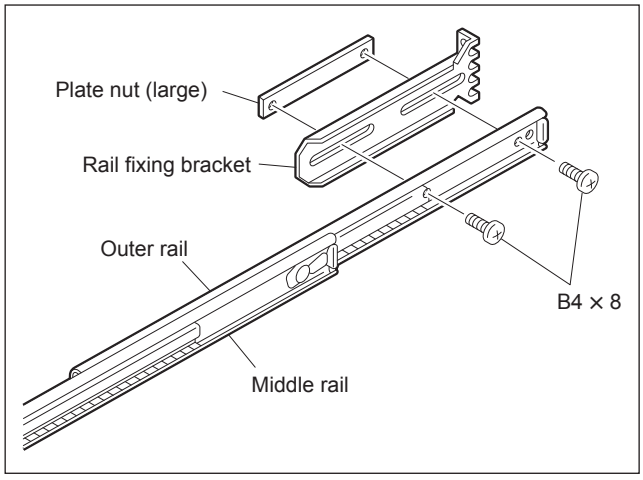
- Keep the removed screws (B4 × 6) for future use.
- When removing the rack angles and attaching the side panels directly with screws, be sure to use the screws (B4 × 6) removed in step 8. Using other screws may cause operational problems to the unit.

9. Attach the two rack angles to the right and left sides of the unit with the four rack angle fixing screws (with stopper) supplied with the rack angles.
   Tightening torque: 120 × 10^{-2} N • m {12.2 kgf • cm}

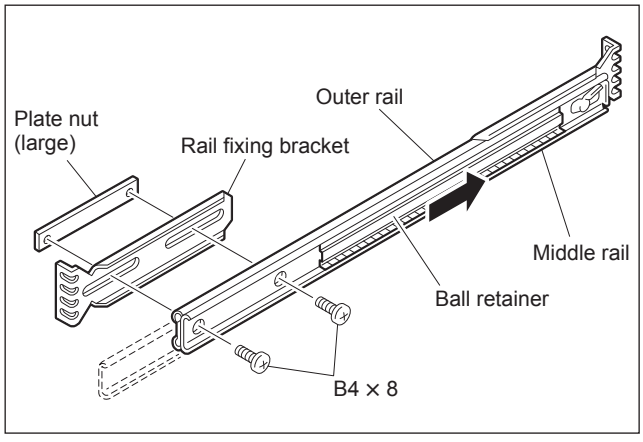


Attaching rail fixing brackets temporarily

10. Shift the middle rails as shown in the figure and attach the rail fixing brackets to the outer rails temporarily with the plate nuts (large) and four screws (two for each side).

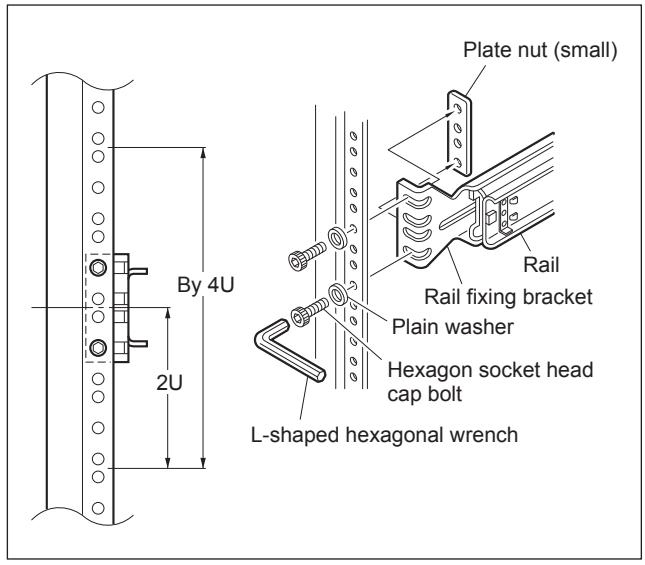


11. Shift the ball retainers in the arrow direction and attach the rail fixing brackets to the outer rails temporarily with the plate nuts (large) and four screws (two for each side).

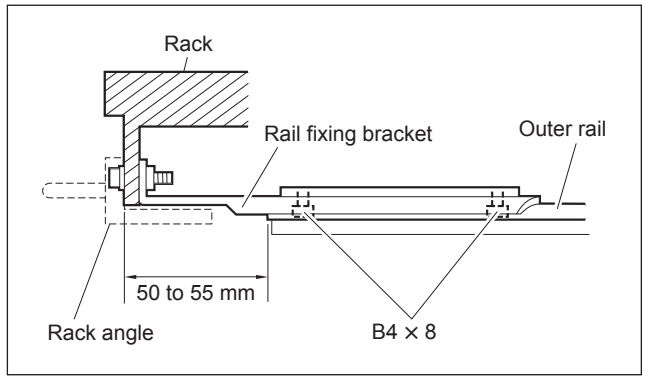


Attaching outer rails

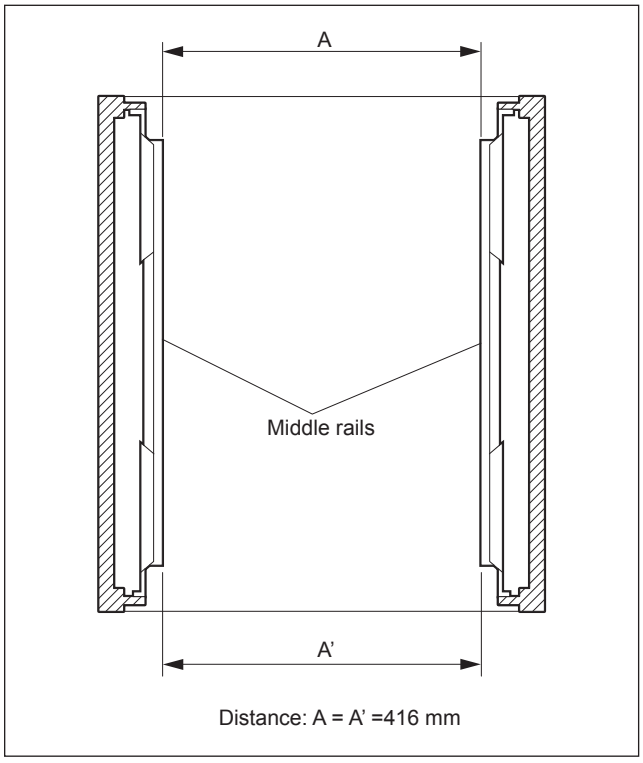
12. Attach the right and left outer rails temporarily to the rack at a height of 2U from the bottom in the 4U space with eight hexagon socket head cap bolts, eight plain washers, and four plate nuts (small) in total.



13. Adjust the right and left rail positions so that the distance from the rack angle installation surface of the rack to the end of the outer rail is 50 to 55 mm as shown in the figure below.
14. Tighten the eight screws to secure the four rail fixing brackets that are attached temporarily to the right and left outer rails.
    Tightening torque: 120×10^{-2} N • m {12.2 kgf • cm}



15. Check that the right and left middle rails are attached in parallel.



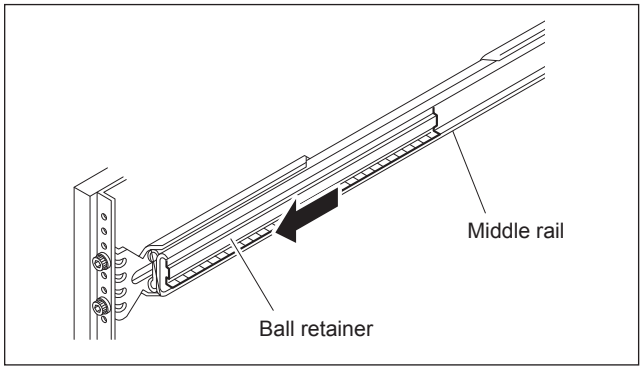
16. Tighten the eight hexagon cap screws with a hexagon wrench to secure the right and left rails that are attached temporarily to the rack in step 12.

Mounting the unit on the rack

CAUTION

Be sure to perform this mounting work with two or more persons.

17. Shift the ball retainers of the right and left middle rails in the arrow direction.

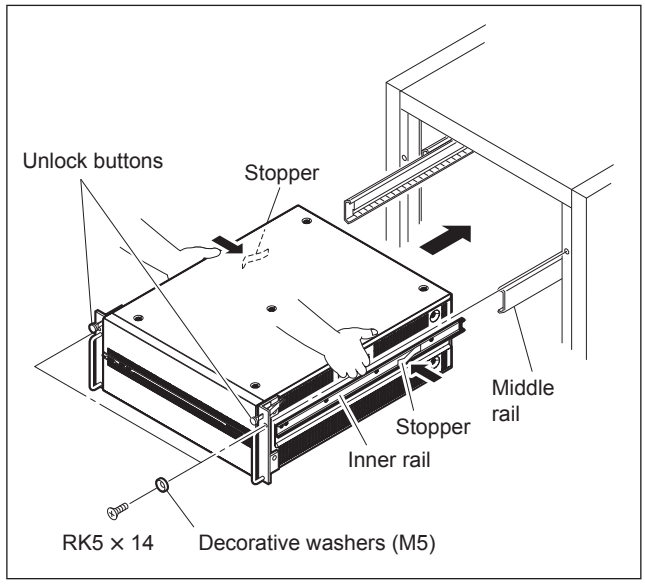


18. Extend the right and left middle rails to the same length.
19. Hold the handles and lift the unit and insert the inner rails slowly into the middle rails.
20. Push the unit slowly into the rack while pressing the right and left stoppers.

    CAUTION

    Be sure to perform this work with two or more persons.

21. Attach the two decorative washers (M5) with the two screws.



Tip

When drawing the unit, remove the screws on the rack and pull the unit out of the rack while pressing the unlock buttons on the rack angle.

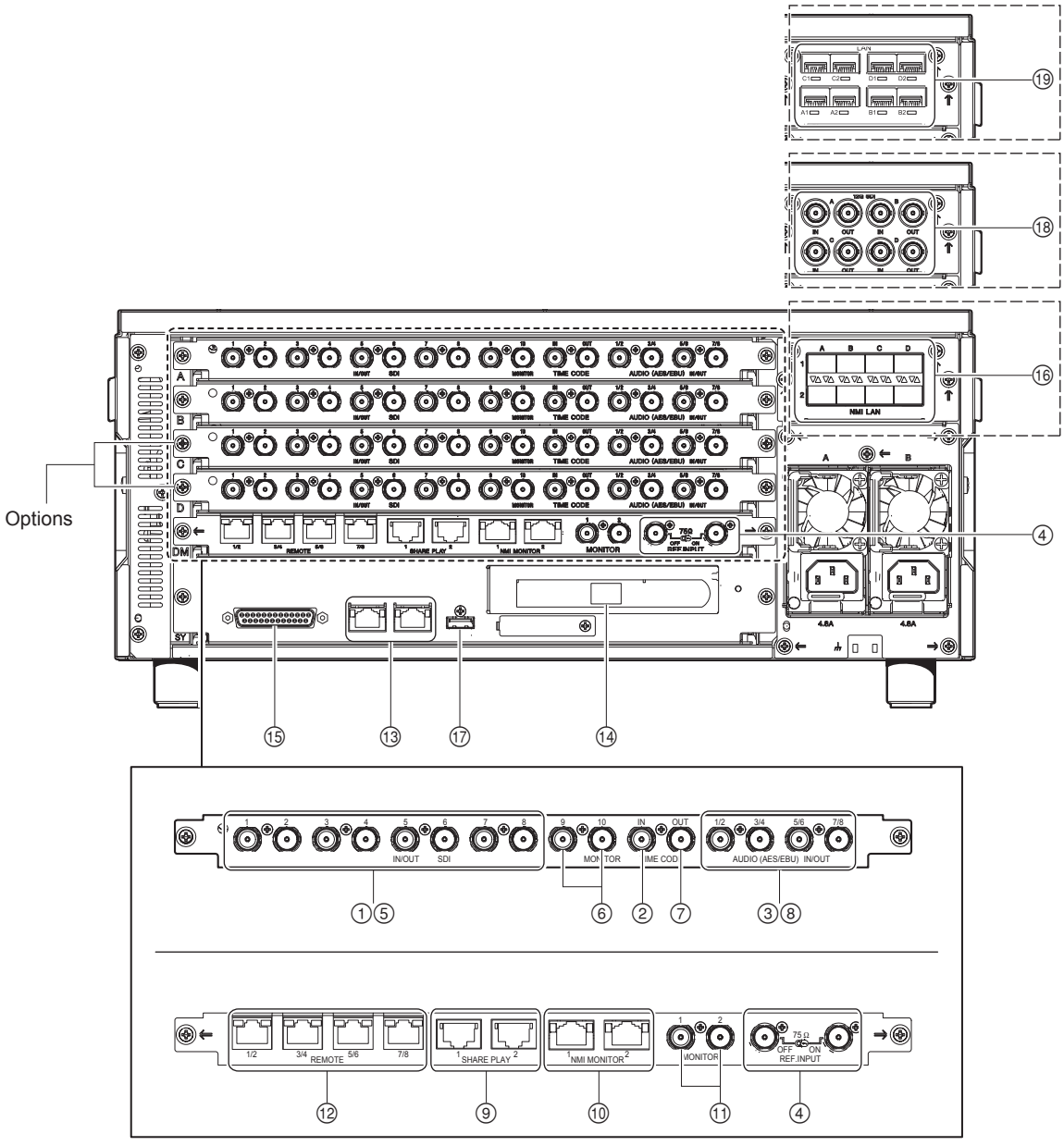
1-7. Connectors and Cables

Use the following connectors (or cables) or equivalents for cable connection.

Panel Indication	Applicable Connector (Cable)	Sony Part No.	Remarks
TIME CODE IN TIME CODE OUT	BNC 75 Ω, MALE	1-569-370-12	–
REF. INPUT	BNC 75 Ω, MALE (*1)	1-569-370-12	–
AUDIO INPUT 1/2 to 7/8 (AES/EBU) AUDIO OUTPUT 1/2 to 7/8 (AES/EBU)	BNC 75 Ω, MALE (*2)	1-569-370-12	–
GPIO (25P)	D-sub 25P, MALE and JUNCTION SHELL 25P	1-560-904-11 1-563-377-11	– –
SDI 1 to 10	BNC 75 Ω, MALE	1-569-370-12	–
NETWORK 1, 2	Network cable (commercially available) Category 5e or above	–	–
REMOTE 1/2 to 7/8	Use RJ-45 D-Sub Conversion cable supplied with this unit and following 9-pin cable. RJ-45 D-Sub Conversion cable (supplied with this unit) 9P remote control cable (RCC-G series), D-Sub 9P, MALE and JUNCTION SHELL 9P	⚠1-848-424-11 1-560-651-00 1-561-749-00	– – –
SHARE PLAY 1, 2	Network cable (commercially available) Category 7 or above	–	–
NMI MONITOR 1, 2	Network cable (commercially available) Category 5e or above	–	–
MONITOR 1, 2	BNC 75 Ω, MALE	1-569-370-12	–
NETWORK 3	SFP+ Transceiver Module 10GBASE-SR or 10GBASE-LR optical fiber cable (commercially available)	–	–
NMI LAN A1, A2 B1, B2 C1, C2 D1, D2	SFP+ Transceiver Module OTM-10GSR1 10GBASE-SR/SW 850 nm multi-mode Optical fiber (commercially available)		PWSK-4506F
SDI A to D	BNC 75 Ω, MALE (*3)	–	PWSK-4508
LAN A1, A2 B1, B2 C1, C2 D1, D2	SFP28 Transceiver Module OTM-25GSR1 or OTM-25GLR1 25GBASE-SR 850 nm multi-mode optical fiber cable (commercially available) or 25GBASE-LR 1310 nm single-mode optical fiber cable (commercially available)	–	PWSK-4509

*1: Fujikura's 5C-FB or equivalent is recommended for the coaxial cable.
*2: Maximum cable length: 300 m (Reference value of this unit)
Fujikura's 5C-2V or equivalent is recommended for the coaxial cable.
*3: Canare Electric's D5.5UHDC series or equivalent is recommended for the coaxial cable.

1-8. Connector Input/Output Signals



Input Connectors

Panel Indication	Remarks
① SDI 1 to 4	BNC × 4 Impedance: 75 Ω ±1 % Voltage: 0.8 V p-p HD SDI/Dual Link HD SDI (∗1) 3G SDI (∗1) /Dual Link 3G SDI (∗1) /Quad Link 3G SDI (∗1) (∗2)
② TIME CODE IN	BNC × 1 High impedance, unbalanced Voltage: 0.5 to 15 V p-p
③ AUDIO INPUT 1/2 to 7/8 (AES/EBU)	BNC × 4 (1 set: CH1/2, CH3/4, CH5/6, CH7/8) Impedance: 75 Ω ±1 % Voltage: 1.0 ±0.1 V p-p AES/EBU format, unbalanced (AES3id compliant)
④ REF. INPUT	BNC × 2 (Loop-through output × with 75 Ω terminating switch) External reference video signal • HD (Tri-level SYNC): 0.6 V p-p, 75 Ω • SD (Black burst or composite SYNC): NTSC: 0.286 V p-p, 75 Ω (terminated) PAL: 0.3 V p-p, 75 Ω (terminated)
⑱ SDI A to D	BNC × 4 Impedance: 75 Ω ±1 % Voltage: 0.8 V p-p 6G SDI/12G SDI

∗1: The 3G SDI signal format is Level A and Level B-DL.
∗2: In this manual, the Square Division signal is also written as “Quad Link 3G SDI” signal.

Output Connectors

Panel Indication	Remarks
① SDI 1 to 4	BNC × 4 Impedance: 75 Ω ±1 % Voltage: 0.8 V p-p HD SDI/Dual Link HD SDI (∗1) 3G SDI (∗1)/Dual Link 3G SDI (∗1)/Quad Link 3G SDI (∗1)(∗2)
⑤ SDI 5 to 8	BNC × 4 (also available as INPUT MONITOR) Impedance: 75 Ω ±1 % Voltage: 0.8 V p-p HD SDI (∗3)/Dual Link HD SDI (∗1) (∗3) 3G SDI (∗1) (∗3)/Dual Link 3G SDI (∗1) (∗3)/Quad Link 3G SDI (∗1) (∗2) (∗3)
⑥ SDI 9 SDI 10 (MONITOR)	BNC × 1 Impedance: 75 Ω ±1 % Voltage: 0.8 V p-p (with 75 Ω terminating resistance) HD SDI
⑦ TIME CODE OUT	BNC × 1 Impedance: 50 Ω Voltage: 1.5 V p-p ±3 dB
⑧ AUDIO OUTPUT 1/2 to 7/8 (AES/EBU)	BNC × 4 (1 set: CH1/2, CH3/4, CH5/6, CH7/8) Impedance: 75 Ω ±1 % Voltage: 1.0 ±0.1 V p-p AES/EBU format, unbalanced (AES3id compliant)
⑨ SHARE PLAY 1, 2	Network Interface 10G Copper
⑩ NMI MONITOR 1, 2	Network Interface 1G Copper
⑪ MONITOR 1, 2	BNC × 2 Impedance: 75 Ω ±1 % Voltage: 0.8 V p-p HD SDI
⑱ SDI A to D	BNC × 4 Impedance: 75 Ω ±1 % Voltage: 0.8 V p-p 6G SDI/12G SDI

Communication connectors

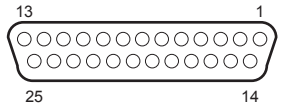
Panel Indication	Remarks
⑫ REMOTE 1/2 to 7/8	RJ-45 8 pin × 4 EIA RS-422A compatible RJ-45 - Dsub conversion cables (supplied with this unit) are required.
⑬ NETWORK 1/2	RJ-45 8 pin × 2 1000BASE-T
⑭ NETWORK 3	10GBASE-SR, or 10GBASE-LR (when an SFP+ module is installed (∗4)) Intel Ethernet Converged Network Adapter X520-DA1
⑮ GPIO (25P)	D-sub 25 pin × 1
⑯ NMI LAN (∗5)	PWSK-4506F (option) SFP+ slot × 8 10GBASE-SR (when SFP+ Transceiver Module OTM-10GSR1 is installed)
⑲ LAN (∗5)	PWSK-4509 (option) SFP28 slot × 8 25GBASE-SR (SFP28 Transceiver Module OTM-25GSR1 is installed) or 25GBASE-LR (SFP28 Transceiver Module OTM-25GLR1 is installed)

Others

Panel Indication	Remarks
⑰ MAINTENANCE	USB type × 1

∗1: The 3G SDI signal format is Level A and Level B-DL.
∗2: In this manual, the Square Division signal is also written as “Quad Link 3G SDI” signal.
∗3: Excluding the use as INPUT MONITOR.
∗4: Use the following SFP+ module
Product name: Intel Ethernet SFP+ SR Optic (Product code: E10GSFPSR)
Product name: Intel Ethernet SFP+ LR Optic (Product code: E10GSFPLR)
∗5: Signals output from NMI LAN or LAN are delayed by one frame on the receiver side after transmission. Note that there is a phase difference between audio signals and TC signals in systems that use a mix with SDI.

GPIO (25P): 25-pin (female)



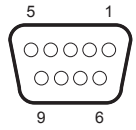
(External View)

Pin No.	I/O ∗1
1	I
2	I
3	I
4	I
5	I
6	I
7	I
8	I
9	I
10	I
11	I
12	–
13	O
14	O
15	O
16	O
17	O
18	O
19	O
20	O
21	O
22	O
23	O
24	O
25	–

∗1: Input ; 47 kΩ pull up to +5 V (close/open)
Output ; 10 kΩ pull up to +5 V (0 V or open)

REMOTE 1/2 to REMOTE 7/8: 9-pin (female)

The following figure shows the connector shape when the supplied RJ-45 D-sub conversion cable is used.



(External View)

Pin No.	Signal Name
1	GND
2	RM TX (–)
3	RM RX (+)
4	GND
5	NC
6	GND
7	RM TX (+)
8	RM RX (–)
9	GND

1-9. Setting Switch on the Connector Panel

Set the following switch on the connector panel when installing the unit.
For setting the switch, refer to the Operation Manual.

- 75 Ω terminating switch of reference input

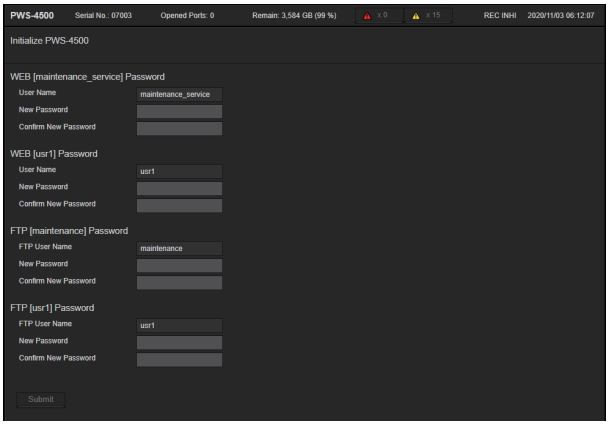
1-10. Setting System

1-10-1. Preparation

1. Connect a commercially available network cable between the NETWORK 1 connector on the rear of the unit and a personal computer (PC).
2. Change the TCP/IP setting for the LAN connector of the PC.
   Example of setting:
   IP Address (I): 192.168.0.100
   Subnet mask (U): 255.255.255.0
3. Connect the power cord.
4. Press the ON/Standby button (secondary power) on the front of the unit.
5. Start the web browser on the PC and enter "http://192.168.0.1" in the address field.
   A screen to set the password appears.

   Note

   When the unit is started for the first time, click the Logon button with the user ID and password field left blank.

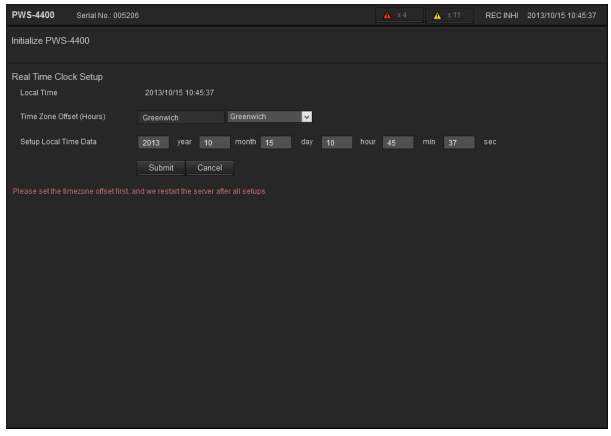


   - WEB [maintenance_service]: This user ID can use the Maintenance menu and the Control button on the Home screen, and can access all Web menus.
   - WEB [usr1]: This user ID can access the settings menu.
   - FTP [maintenance]: This user ID can get FTP (10GbE) logs.
   - FTP [usr1]: This user ID can be linked with peripheral applications such as control software (PWA-PRC1, PWA-RCT1).
6. Type the password for each user ID and click the Submit button.

   Note

   The following characters can be used for passwords.
   Include both alphabets and numeric characters in a password.
   Usable characters: Lowercase alphabet [a - z], uppercase alphabet [A - Z], number [0 - 9], symbols [+ − @ * _ (underscore)]
   Number of characters: 8 to 32 (valid 31 characters + null character)

   After about 30 seconds, the unit will restart automatically.
7. Start the web browser on the PC once again and enter "http://192.168.0.1" in the address field.
   A screen to enter the user name and password appears.
8. Enter the password typed in step 6 and click the Logon button.
   When the unit has started for the first time, the "Real Time Clock Setup" screen is displayed.

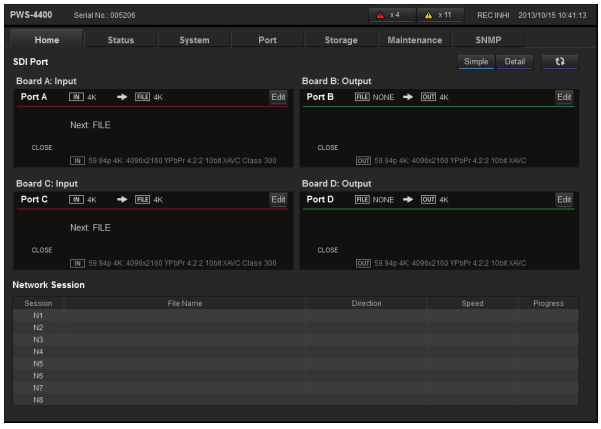


9. Set the local time of the area where the unit is used in items "Time Zone Offset (Hours)" and "Setup Local Time Data."

   Tip

   It is also possible to set or change area and local time of the area later.

10. Click the Submit button.
11. The confirmation message is displayed. Click the OK button.
    The web menu used to configure this unit is displayed.



1-10-2. Setting Software Option

1. Display the web menu.
2. Click the Maintenance tab.
3. Click the License tab.
4. Select an option from the pull-down menu of the "Select Product Name".
5. Enter the software install key.
6. Click the Submit button.

1-10-3. Setting Codec Boards

1. Display the web menu referring to "1-10-1. Preparation".
2. Click the System tab.
3. Click the Setting button.
   The "Step 1. System Frequency" window is displayed.
4. Select a radio button of desired system frequency.
5. Click the Next button.
   The "Step 2. Port Type" is displayed.
6. Select a radio button of desired input/output board configuration.
7. Click the Next button.
   The "Step 3. Port Codec" window is displayed.
8. Select a radio button of desired codec.
9. Click the Next button.
   The "Step 4. Port Configuration" window is displayed.
10. Select some radio buttons of desired video format and SDI type.
11. Click the Next button.
    The "Step 5. Remote" window is displayed.
12. Choose an option for simultaneous control of ports as necessary.
13. Click the Next button.
    The "Step 6. Send Form" window is displayed.
14. Check the settings of Step 1 to 5, and then click the Submit button.
    The unit restarts automatically.

1-10-4. Setting Port

1. Display the web menu referring to "1-10-1. Preparation".
2. Click the Port tab.
3. From the Port A to Port D tabs, click the tab for port setting.
4. Scroll the scroll bar on the right of the screen to display the Video menu section.
5. Select a radio button of desired signal format.
6. Click the Submit button.
7. The confirmation message is displayed. Click the OK button.

Note

- When the combination of the signal format selected in step 5 is not included in formats supported by this unit, the determination operation (clicking the Submit button) is disabled.
- The port setting information is stored in each plug-in board. When a plug-in board is replaced, information that has been set here is lost.

1-10-5. Setting Metadata

1. Display the web menu referring to "1-10-1. Preparation".
2. Click the Port tab.
3. From the Port A to Port D tabs, click the tab for meta data setting.
4. Scroll the scroll bar on the right of the screen to display the META Data Input menu section.

5. Select the set value of each line (META Line 1 to 3) from the list box.
6. Click the Submit button.
7. The confirmation message is displayed. Click the OK button.

1-11. Reference System

One of the following reference signals can be selected by the web menu setting.

- External reference video signal from the REF. INPUT connector.
- Input video signal from the SDI 1 connector of ports A to D

Note

When “external” is set with the menu, be sure to input the external reference video signal to the REF. INPUT connector.
If no signal is input, recording may not be made correctly.

1-12. Settings when Connecting the Unit to an Editing Device

1-12-1. Setting Constant Values for VTR of Editing Device

When an external editing device that requires settings of VTR constant values is connected, make settings according to table below.

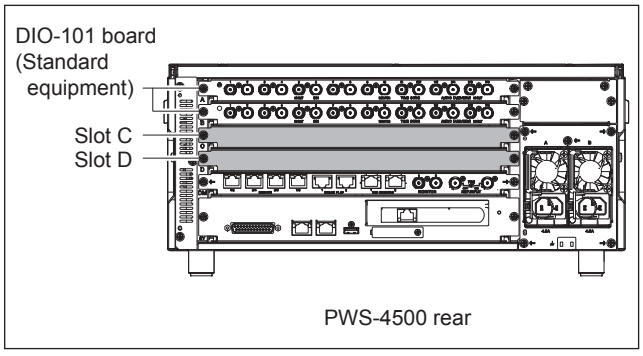
Settings of VTR Constant Values of Editing Device (Typical Hexadecimal Values)

Frame Rate	VTR CONSTANT 1								VTR CONSTANT 2							
	Data Number								Data Number							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
29.97PsF, 59.94i / 1080 59.94P / 720	90	41	00	96	07	07	03	82	0D	08	00	00	80	1E	FF	5A
25PsF / 50i / 1080	91	41	00	7D	07	07	03	82	0D	09	00	00	80	1E	FF	4B
23.98PsF, 24PsF / 1080	92	41	00	78	07	07	03	82	0D	09	00	00	80	1E	FF	48

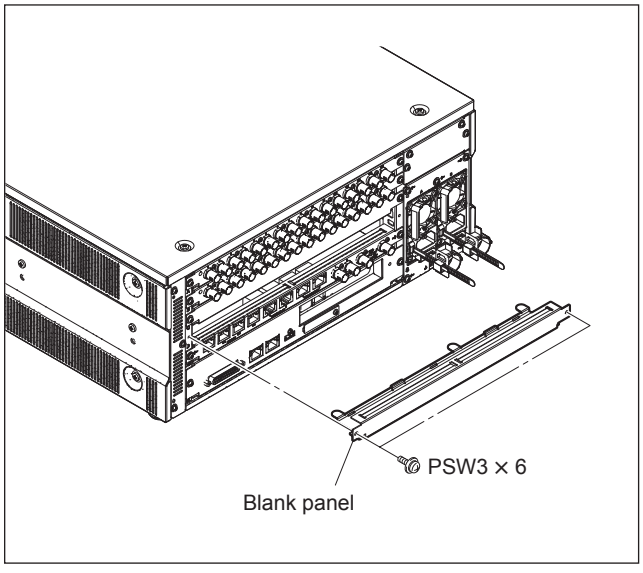
1-13. PWSK-4504 (DIO-101 Board) Installation Procedure

Note

- Before starting this work, unplug the power cord. Performing the installation work with the power turned on may cause electric shock or damage to the board.
- When inserting the DIO-101 board, do not push the connector.
- When installing the DIO-101 board, do not pinch the fan harness.
- Do not apply any impact to the fan assembly on the DIO-101 board.



1. Remove the two screws, then remove the blank panel.



2. Use the card board insert/remove tools and insert the DIO-101 board.

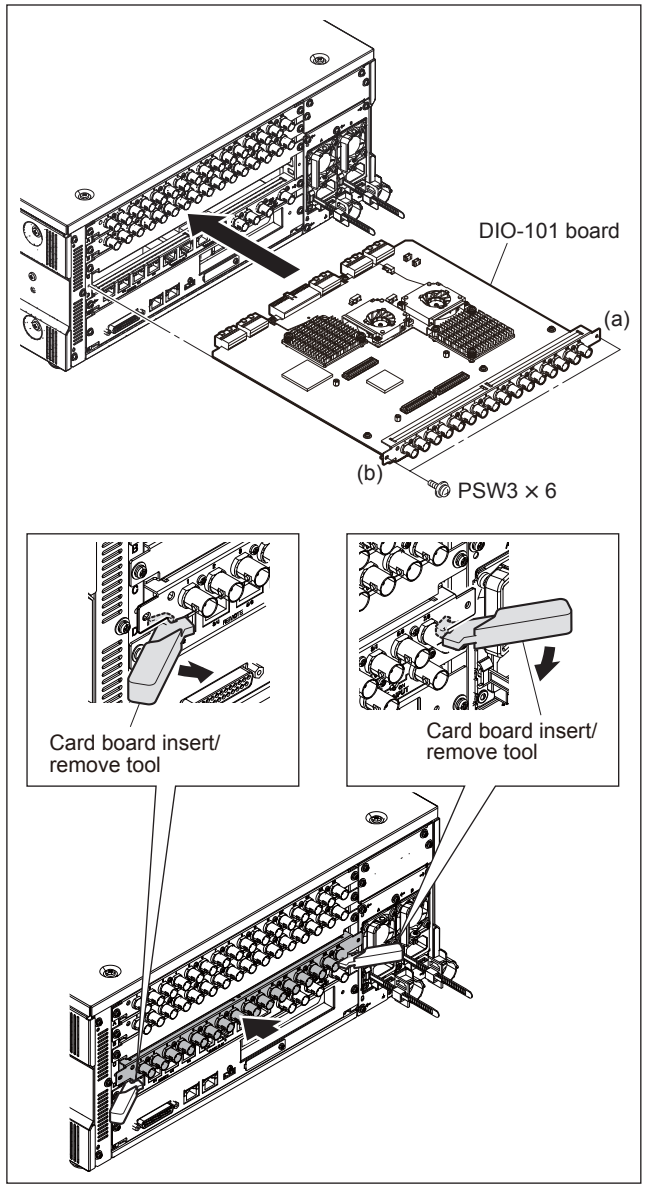
   Note

   If this board is not smoothly inserted, loosen the screws securing boards and blank panels mounted in other slots.

3. Attach the screw (a), then (b).

   Note

   If you loosened screws in step 2, tighten them as they were before.



1-13-1. Checking Recognition of the PWSK-4504 (DIO-101 Board) by the Unit

1. Open the Web menu referring to "1-10-1. Preparation."
2. Click the Maintenance tab.
3. Scroll the screen with the scroll bar on the right side of the screen, and show the DIO-101 Board C and D menu area.
4. Confirm that the information of the mounted board is shown in the DIO-101 Board C and D menu area.

1-14. PWSK-4505 (RD-41 Board) Installation Procedure

Note

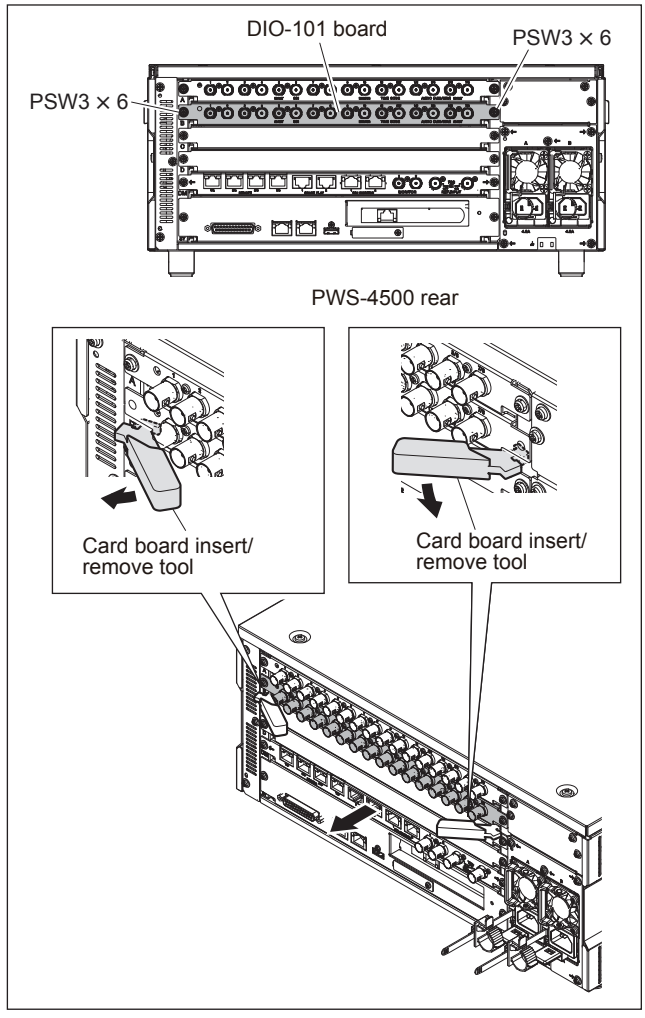
Before starting this work, unplug the power cord.
Performing the installation work with power turned on may cause electric shock or damage to the board.

Special tool
Card board insert/remove tool
Part No.: J-7120-800-A (including two pieces)

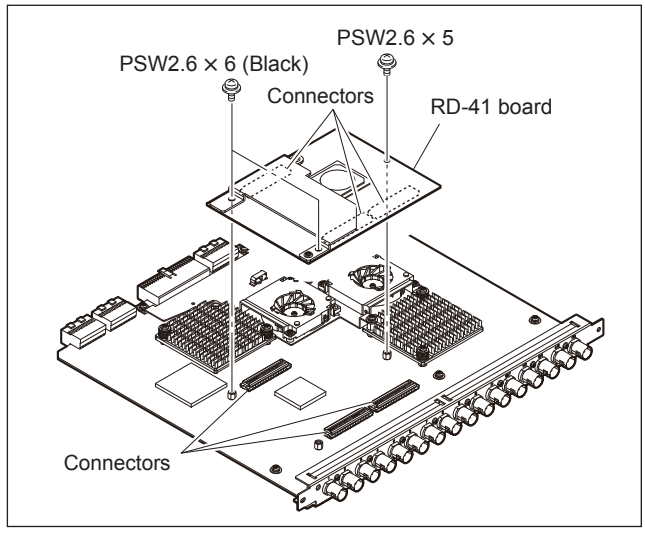
Parts supplied with PWSK-4505

Harness:	1 pc
Tape (13 × 50):	1 pc
Screw (PSW2.6 × 5):	1 pc
Screw (PSW2.6 × 6 (Black)):	2 pcs

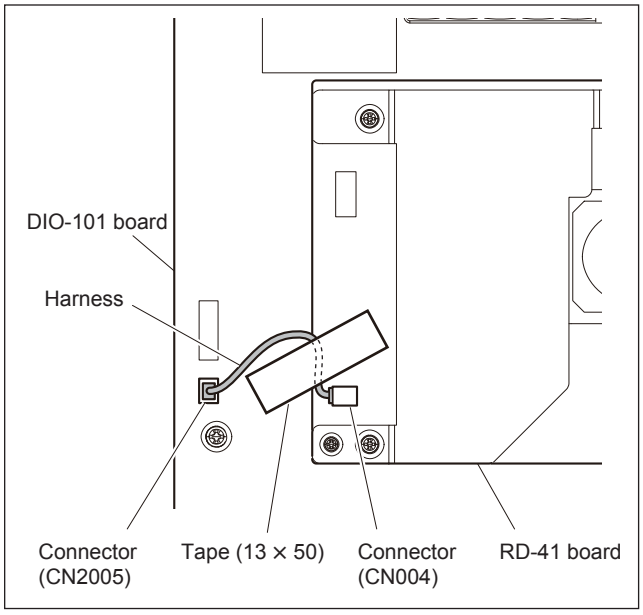
1. Remove the two screws.
2. Insert the card board insertion/removal tools to the left and right holes of the plug-in board.
3. Use the card board insert/remove tools and pull out the DIO-101 board.



4. Connect the three connectors on the RD-41 board to the three connectors on the DIO-101 board.
5. Attach the screw (PSW2.6 × 5) and two screws (PSW2.6 × 6 (Black)).



6. Connect the harness to the connector (CN004) on the RD-41 board and connector (CN2005) on the DIO-101 board.
7. Secure the harness with the tape (13 × 50).



8. Use the card board insert/remove tools and attach the DIO-101 board. (Refer to "1-13. PWSK-4504 (DIO-101 Board) Installation Procedure")

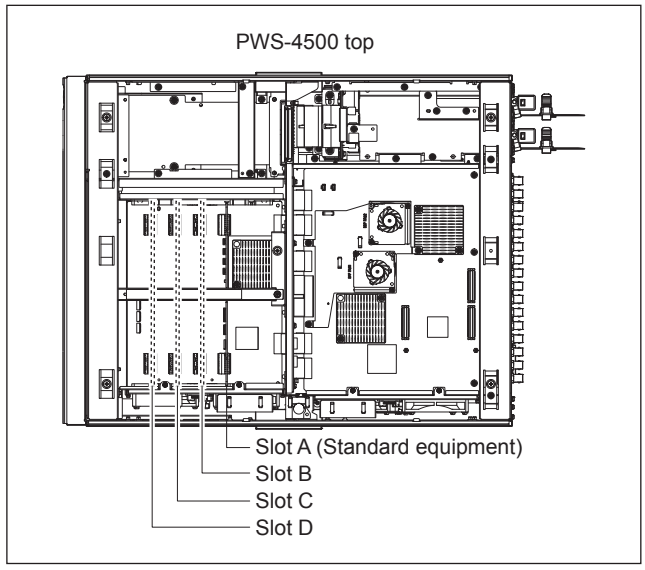
1-14-1. Checking Recognition of the PWSK-4505 (RD-41 Board) by the Unit

1. Open the Web menu referring to "1-10-1. Preparation."
2. Click the Maintenance tab.
3. Confirm that the information of version is shown in the FPGA4 and FPGA5 on the DIO-101 board.

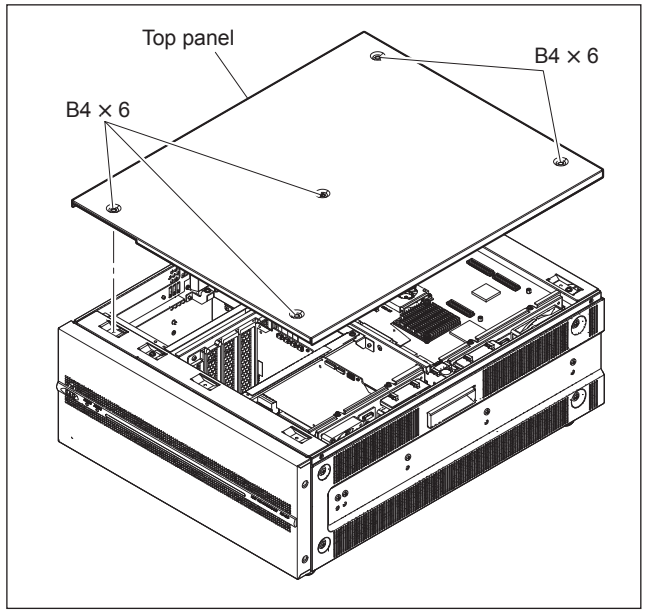
1-15. PWSK-4401 (MDC-21 Board) or PWSK-4501 (MDC-21A Board, MDC-21C Board) Installation Procedure

Note

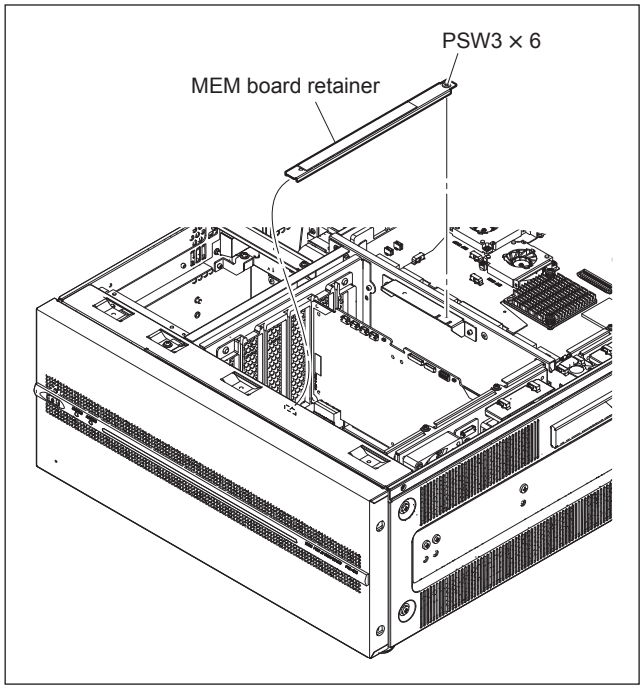
- Before starting this work, unplug the power cord. Performing the installation work with power turned on may cause electric shock or damage to the board.
- Install the MDC-21 boards in order from Slot A without any empty slots between the boards.



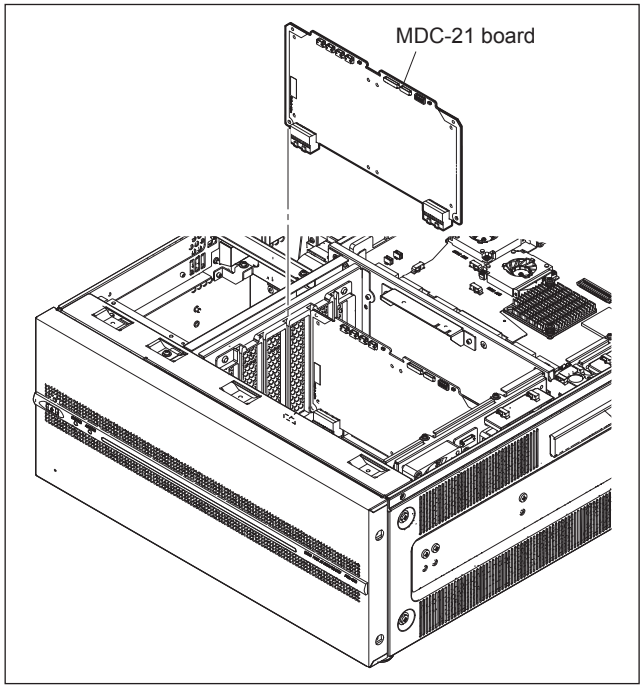
1. Loosen the five screws, then remove the top panel.



2. Loosen the screw, then remove the MEM board retainer.



3. Insert MDC-21 board along the guide rail.
4. Connect the MDC-21 board to the connector on the MEC-40 board.



5. Attach the MEM board retainer and the top panel. (Refer to steps 1, 2.)

1-15-1. Checking Recognition of the PWSK-4401 (MDC-21 Board) or PWSK-4501 (MDC-21A Board, MDC-21C Board) by the Unit

1. Open the Web menu referring to "1-10-1. Preparation."
2. Click the Maintenance tab.
3. Scroll the screen with the scroll bar on the right side of the screen, and show the MDC-21 Board A to D menu area.
4. Confirm that the information of the mounted board is shown in the MDC-21 Board A to D menu area.

1-16. PWSK-4506F (NET-23 Board) Installation Procedure

Note

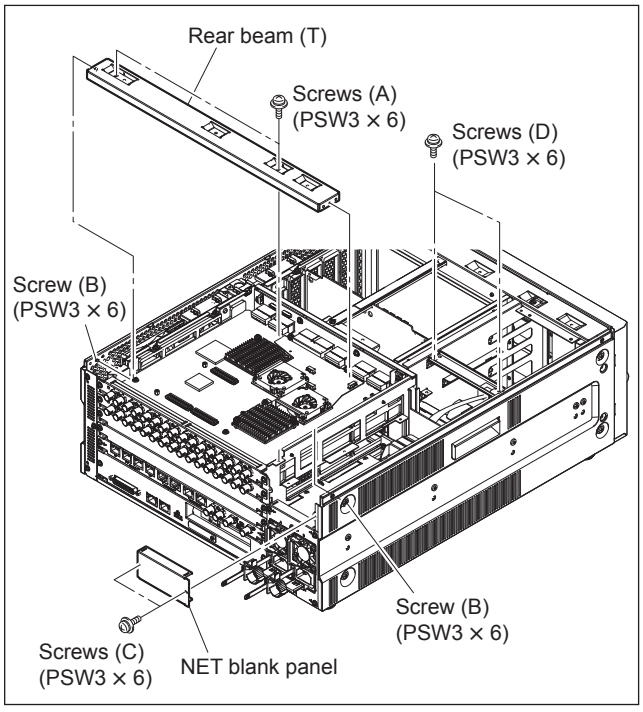
Before starting this work, unplug the power cord. Performing the installation work with power turned on may cause electric shock or damage to the board.

Preparation

1. Remove the top panel. (Refer to step 1 in Section 1-15.)

Procedure

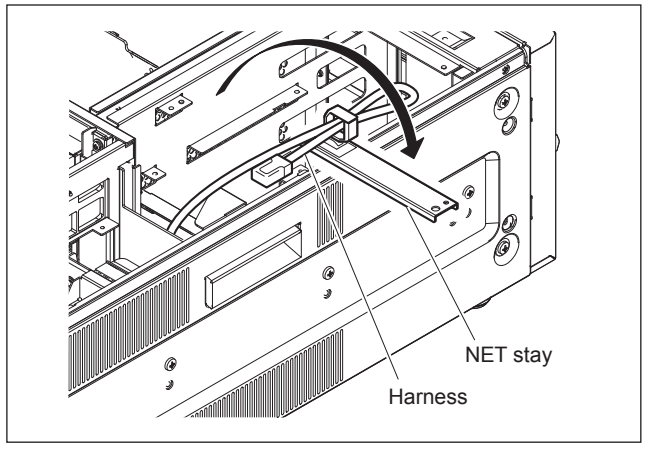
1. Remove the two screws (A).
2. Loosen the two screws (B), then remove the rear beam (T).
3. Remove the two screws (C), then remove the NET blank panel.
4. Remove the two screws (D).



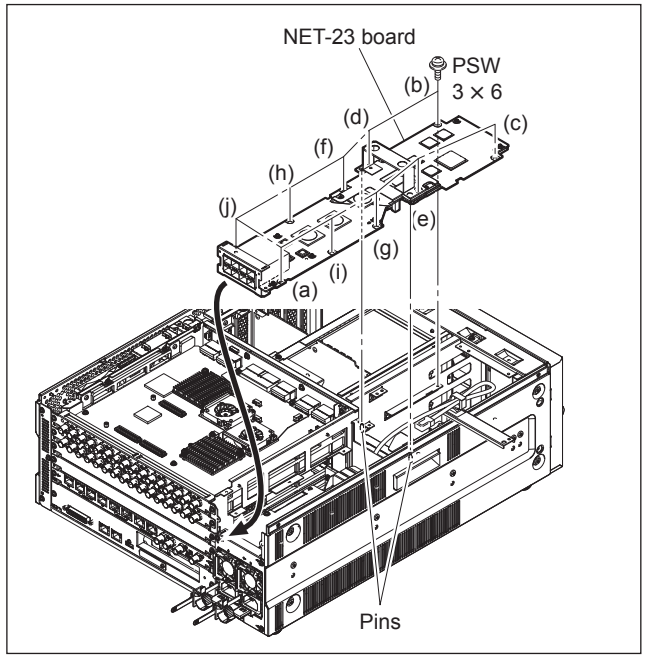
5. Reverse the NET stay.

Tip

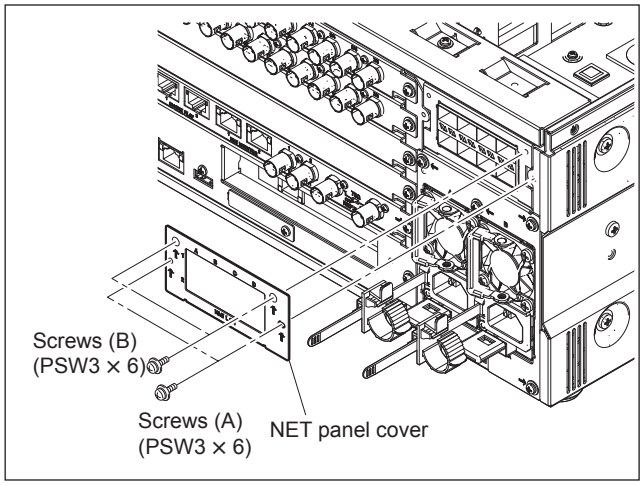
The harness attached to the NET stay is not used with the PWSK-4506F.



6. Insert the NET-23 board in the direction of arrow and align the hole of the board with the two pins.
7. Attach the ten screws (supplied with PWSK-4506F) in alphabetical order shown in the figure.



8. Attach the rear beam (T) and NET stay. (Refer to steps 1 to 5.)
9. Attach the NET panel cover with two screws (A).
10. Attach the two screws (B) supplied with PWSK-4506F.



11. Attach the top panel with the five screws.

1-16-1. Checking Recognition of the PWSK-4506F (NET-23 Board) by the Unit

1. Open the Web menu referring to "1-10-1. Preparation."
2. Click the Maintenance tab.
3. Scroll the screen with the scroll bar on the right side of the screen, and show the NET-23 Board menu area.
4. Confirm that the information of the mounted board is shown in the NET-23 Board menu area.

1-17. PWSK-4508 (DIF-260 Board, DIF-261 Board) Installation Procedure

Note

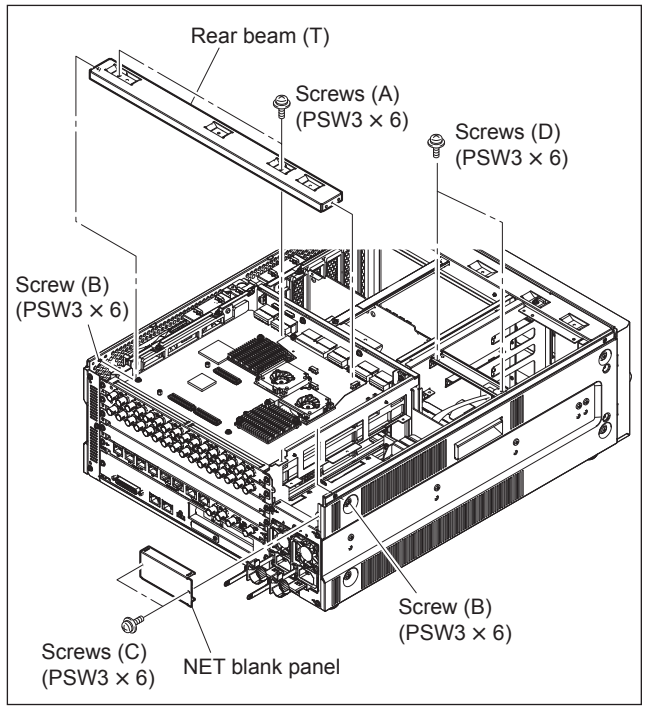
Before starting this work, unplug the power cord. Performing the installation work with power turned on may cause electric shock or damage to the board.

Preparation

1. Remove the top panel. (Refer to step 1 in Section 1-15.)

Procedure

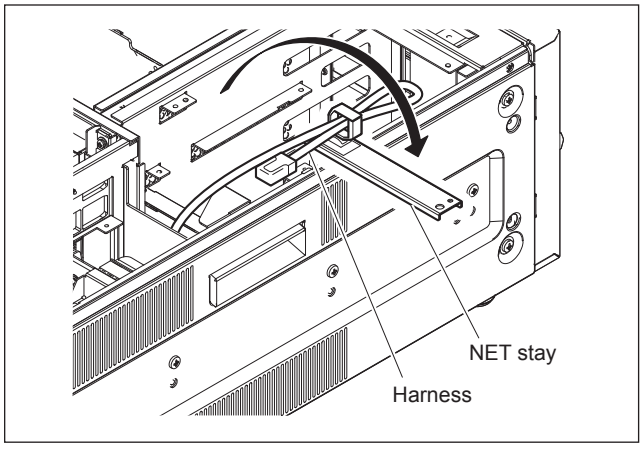
1. Remove the two screws (A).
2. Loosen the two screws (B), then remove the rear beam (T).
3. Remove the two screws (C), then remove the NET blank panel.
4. Remove the two screws (D).



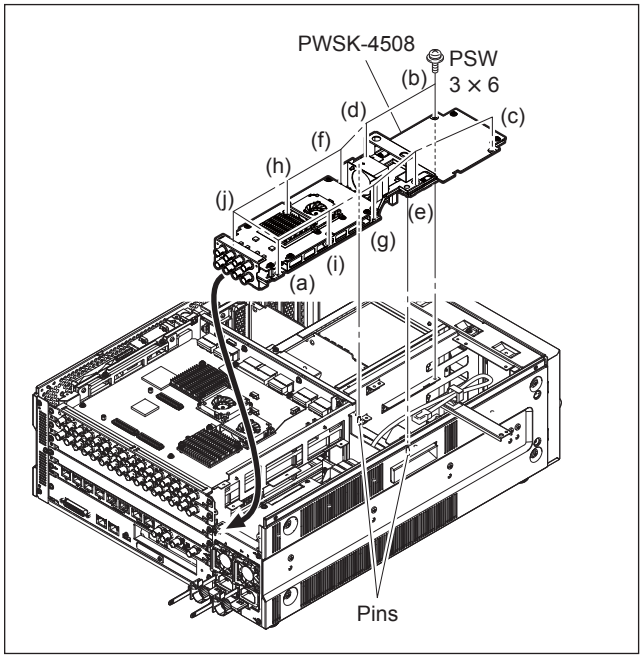
5. Reverse the NET stay.

Tip

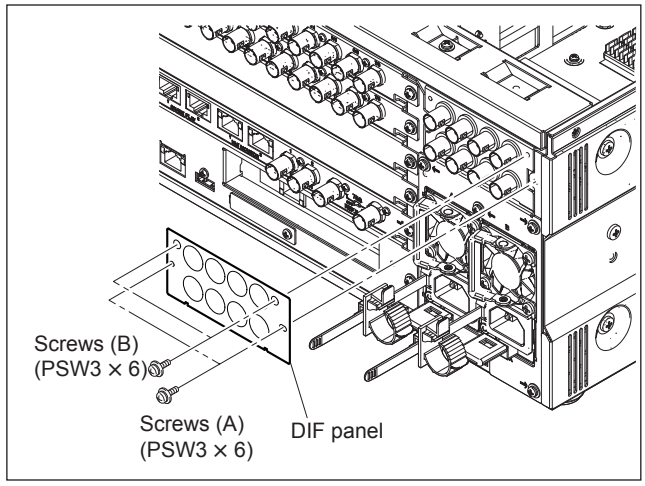
The harness attached to the NET stay is not used with the PWSK-4508.



6. Confirm that coaxial cable connectors are firmly connected to BNC connectors and each board at 16 locations.
7. Insert the PWSK-4508 in the direction of arrow and align the hole of the board with the two pins.
8. Attach the ten screws (supplied with PWSK-4508) in alphabetical order shown in the figure.



9. Attach the rear beam (T) and NET stay. (Refer to steps 1 to 5.)
10. Attach the DIF panel with two screws (A).
11. Attach the two screws (B) supplied with PWSK-4508.



12. Attach the top panel with the five screws.

1-17-1. Checking Recognition of the PWSK-4508 (DIF-260 Board, DIF-261 Board) by the Unit

1. Open the Web menu referring to “1-10-1. Preparation.”
2. Click the Maintenance tab.
3. Scroll the screen with the scroll bar on the right side of the screen, and show the DIF-260 & 261 (PWSK-4508) menu area.
4. Confirm that the information of the mounted board is shown in the DIF-260 & 261 (PWSK-4508) menu area.

1-18. PWSK-4509 (NET-40 Board) Installation Procedure

Note

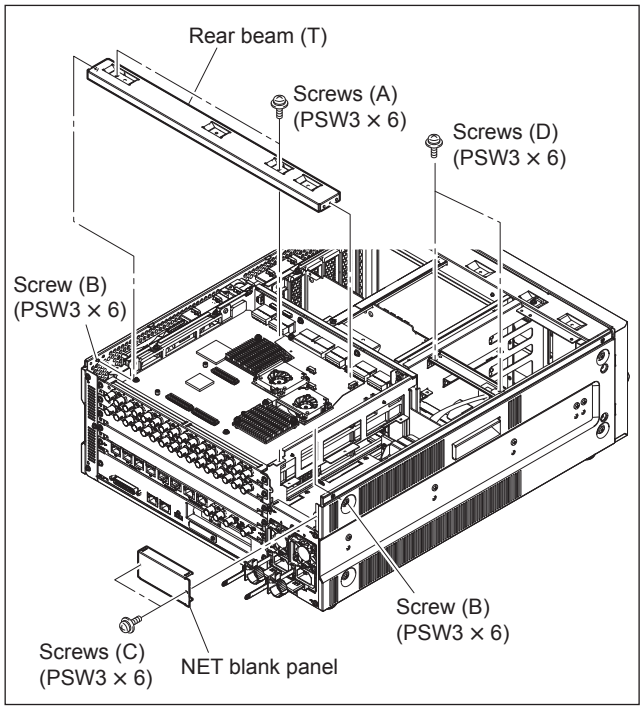
Before starting this work, unplug the power cord. Performing the installation work with power turned on may cause electric shock or damage to the board.

Preparation

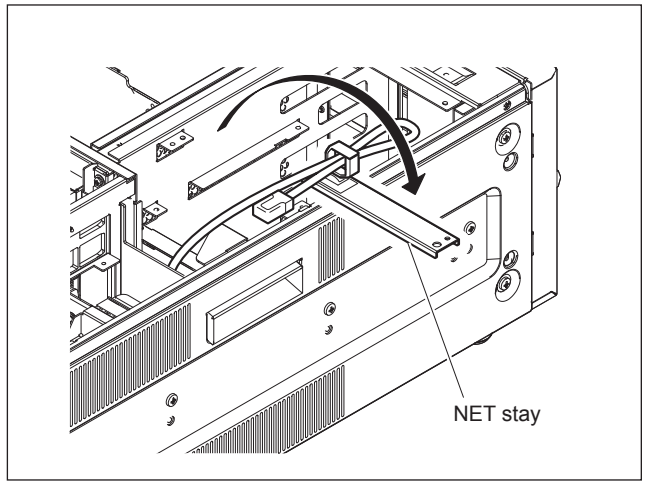
1. Remove the top panel. (Refer to step 1 in Section 1-15.)

Procedure

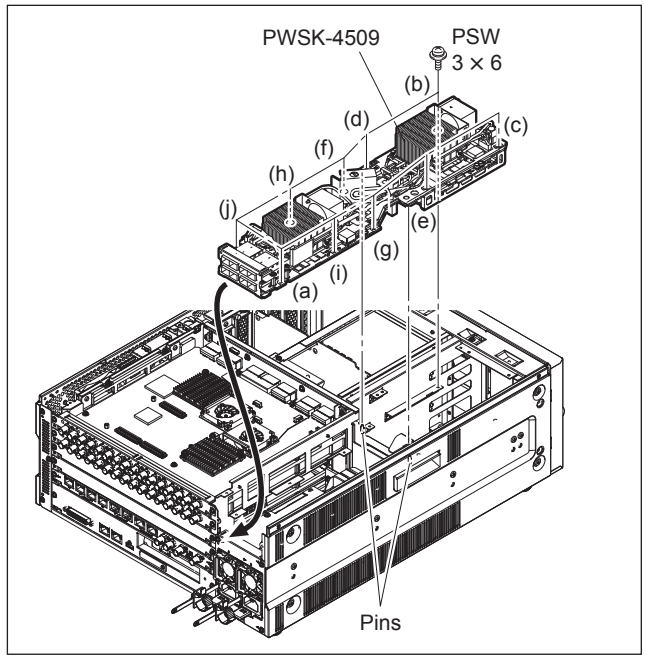
1. Remove the two screws (A).
2. Loosen the two screws (B), then remove the rear beam (T).
3. Remove the two screws (C), then remove the NET blank panel.
4. Remove the two screws (D).



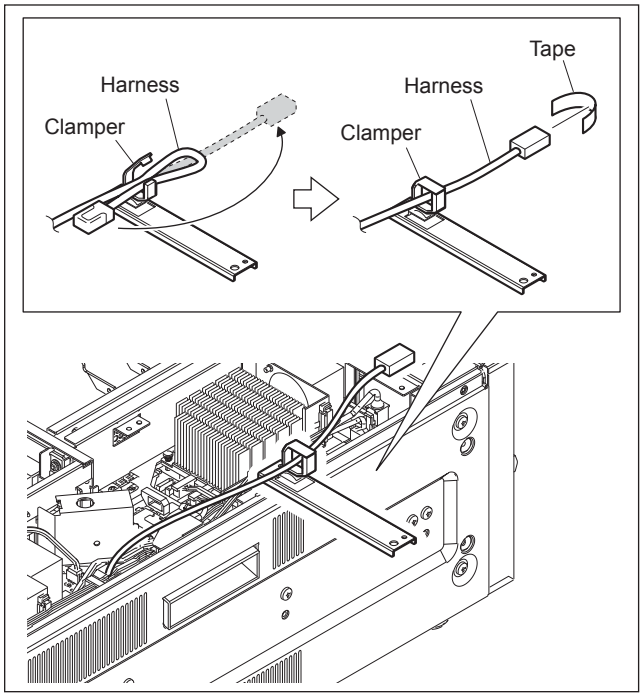
5. Reverse the NET stay.



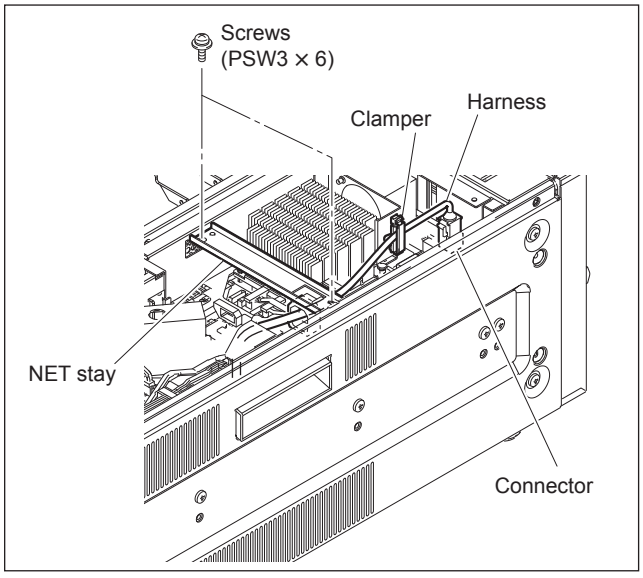
6. Insert the PWSK-4509 in the direction of arrow and align the hole of the board with the two pins.
7. Attach the ten screws (supplied with PWSK-4509) in alphabetical order shown in the figure.



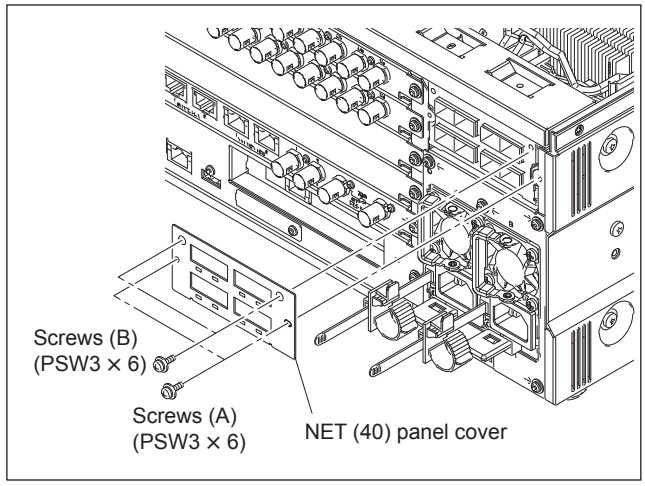
8. Open the clamper and extend the harness straight.
9. Fix the harness to the clamper.
10. Detach the tape from the harness.



11. Attach the NET stay.
12. Tighten the two screws.
13. Connect the harness to the connector.
14. Fix the harness to the clamper.



15. Attach the rear beam (T). (Refer to steps1, 2.)
16. Attach the NET (40) panel cover with two screws (A).
17. Attach the two screws (B) supplied with PWSK-4509.



18. Attach the top panel with the five screws.

1-18-1. Checking Recognition of the PWSK-4509 (NET-40 Board) by the Unit

1. Open the Web menu referring to “1-10-1. Preparation.”
2. Click the Maintenance tab.
3. Scroll the screen with the scroll bar on the right side of the screen, and show the NET-40 Board menu area.
4. Confirm that the information of the mounted board is shown in the NET-40 Board menu area.

Appendix A
Setting Check Sheet

It is recommended that you write down information such as switch settings according to the operating environment of the unit on the copy of this check sheet.
This makes it easy to restore the previous settings after settings are changed due to temporary change of the operating environment, for example.
When inspecting, servicing, and repairing the unit, in particular, it is recommended that recorded check sheets be attached to the unit.
With respect to the SETUP menu, store the set values before starting inspection, service, and repair. (Refer to the Operation Manual)
Furthermore, if system combinations are frequently changed in the use of the unit, it is useful if check sheets are created for each system combination to prevent incorrect setting change.

Model Name: _____ Serial Number: _____

- Firmware

  SYS1 SOFT version: _____
  SYS2 SOFT version: _____
  NW SOFT version: _____

- Hours Meters
  Write down hours meter values when inspecting, servicing, and repairing the unit.

Item	Date	Hours Meter Value
H01: OPERATION HOURS		

Installation Information of Option Board

Write down MDC-21 board (PWSK-4401) or MDC-21A board (PWSK-4501) installed in the memory slot.

Memory Slot	Serial Number
Slot A	
Slot B	
Slot C	
Slot D	

Tip

The MDC-21 board, MDC-21A board or MDC-21C board was installed in the Slot A when the unit was shipped. This board has no serial number.

Installation Information of Input/Output Ports

Check the mode of each DIO-101 board (PWSK-4504) and check if the option is installed on the board.

Port	Mode		RD-41 board (PWSK-4505)	
PORT A (Standard equipment)	ENC mode □	DEC mode □	Installed □	Not installed □
PORT B (Standard equipment)	ENC mode □	DEC mode □	Installed □	Not installed □
PORT C (Option)	ENC mode □	DEC mode □	Installed □	Not installed □
PORT D (Option)	ENC mode □	DEC mode □	Installed □	Not installed □

Write down the mode set to the NET-23 board (PWSK-4506F).

Port	Mode	
PORT A1, A2	ENC mode □	DEC mode □
PORT B1, B2	ENC mode □	DEC mode □
PORT C1, C2	ENC mode □	DEC mode □
PORT D1, D2	ENC mode □	DEC mode □

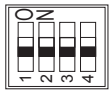
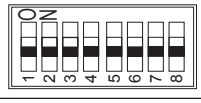
Connector Panel Setting

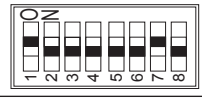
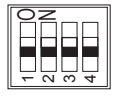
Switch	Factory Setting	Setting	
Reference video input 75 Ω	ON	ON □	OFF □

Onboard Switch Settings

Note

Do not change their settings when the factory is shipped about the following onboard switches.

Board	Switch No.	Factory Setting (■ : Knob position)
CPU-453	S300	
DIO-101	S2302 S2902 S3502 S5003	
HP-175	S002 S003	
MEC-40	S300 S550 S800	
MDC-21	S101	

Board	Switch No.	Factory Setting (■ : Knob position)
SY-422A	S601	
	S1501	
	S1601	
	S1703	

PWS-4500 (SY)
PWS-4500 (CE) J, E
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