SONY

CAMERA CONTROL UNIT

HDCU5000

12G-SDI EXTENSION KIT
HKCU-SDI50

SINGLE MODE FIBER CONNECTOR KIT
HKCU-SM50

ST 2110 INTERFACE KIT
HKCU-SFP50

RECORDING OPTION
HKCU-REC50

SERVICE MANUAL

1st Edition (Revised 1)

⚠ 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.

Model Name	Serial No.
HDCU5000/L (J): LEMO Optical Fiber Connector	30001 and Higher
HDCU5000/T (J): Tajimi Optical Fiber Connector	30001 and Higher
HDCU5000/L (UC): LEMO Optical Fiber Connector	10001 and Higher
HDCU5000/L (CE): LEMO Optical Fiber Connector	40001 and Higher
HDCU5000/L (CN): LEMO Optical Fiber Connector	50001 and Higher
HDCU5000/T (CN): Tajimi OpticalFiber Connector	50001 and Higher

注意

感電の危険があります。

本製品の一次回路のヒューズが，中性線側に接続される可能性があります。
修理時の感電を防ぐため，本機を主電源から切り離してください。

CAUTION

RISK OF ELECTRIC SHOCK

The fuse of the primary circuit of this product may be connected on the neutral wire side.
Disconnect the unit from the power supply to prevent electric shock when repairing.

ATTENTION

RISQUE D'ÉLECTROCUTION

Le fusible du circuit primaire de ce produit peut être connecté sur le côté de fil neutre.
Déconnectez l'appareil de l'alimentation pour éviter un choc électrique lors de la réparation.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CLASS 1 LASER PRODUCT
LASER KLASSE 1 PRODUKT
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

This Baseband Processor Unit is classified as a CLASS 1 LASER PRODUCT.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

注意

指定以外の電池に交換すると，破裂する危険があります。
必ず指定の電池に交換してください。
使用済みの電池は，国または地域の法令に従って処理してください。

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
When you dispose of the battery, you must obey the law in the relative area or country.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Lorsque vous mettez la batterie au rebut, vous devez respecter la législation en vigueur dans le pays ou la région où vous vous trouvez.

VORSICHT

Explosionsgefahr bei Verwendung falscher Batterien.
Batterien nur durch den vom Hersteller empfohlenen oder einen gleichwertigen Typ ersetzen.
Wenn Sie die Batterie entsorgen, müssen Sie die Gesetze der jeweiligen Region und des jeweiligen Landes befolgen.

FÖRSIKTIGHET!

Fara för explosion vid felaktigt placerat batteri.
Byt endast mot samma eller likvärdig typ av batteri, enligt tillverkarens rekommendationer.
När du kasserar batteriet ska du följa rådande lagar för regionen eller landet.

PAS PÅ

Fare for eksplosion, hvis batteriet ikke udskiftes korrekt.
Udskift kun med et batteri af samme eller tilsvarende type, som er anbefalet af fabrikanten.
Når du bortskaffer batteriet, skal du følge lovgivningen i det pågældende område eller land.

HUOMIO

Räjähdysvaara, jos akku vaihdetaan virheellisesti.
Vaihda vain samanlaiseen tai vastaavantyyppiseen, valmistajan suosittelemaan akkuun.
Noudata akun hävittämisessä oman maasi tai alueesi lakeja.

FORSIKTIG

Eksplosjonsfare hvis feil type batteri settes i.
Bytt ut kun med samme type eller tilsvarende anbefalt av produsenten.
Kasser batteriet i henhold til gjeldende avfallsregler.

注意

如果更换的电池不正确，就会有爆炸的危险。
只更换同一类型或制造商推荐的电池型号。
处理电池时，必须遵守相关地区或国家的法律。

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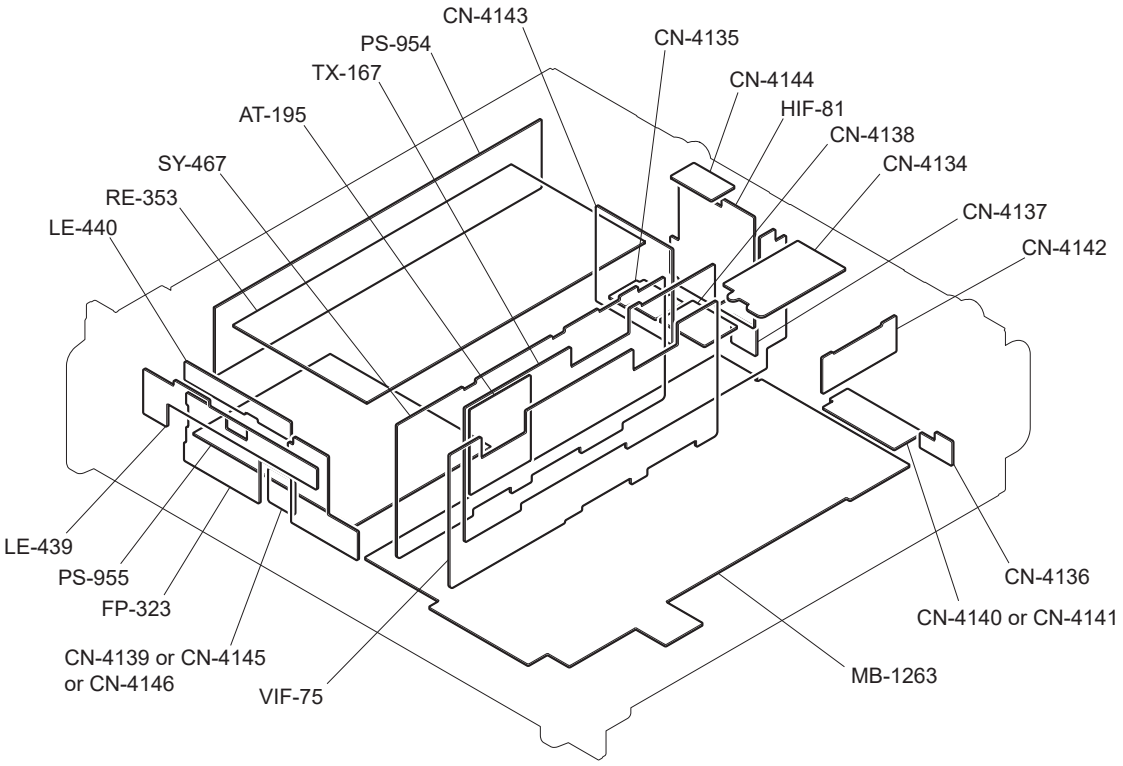
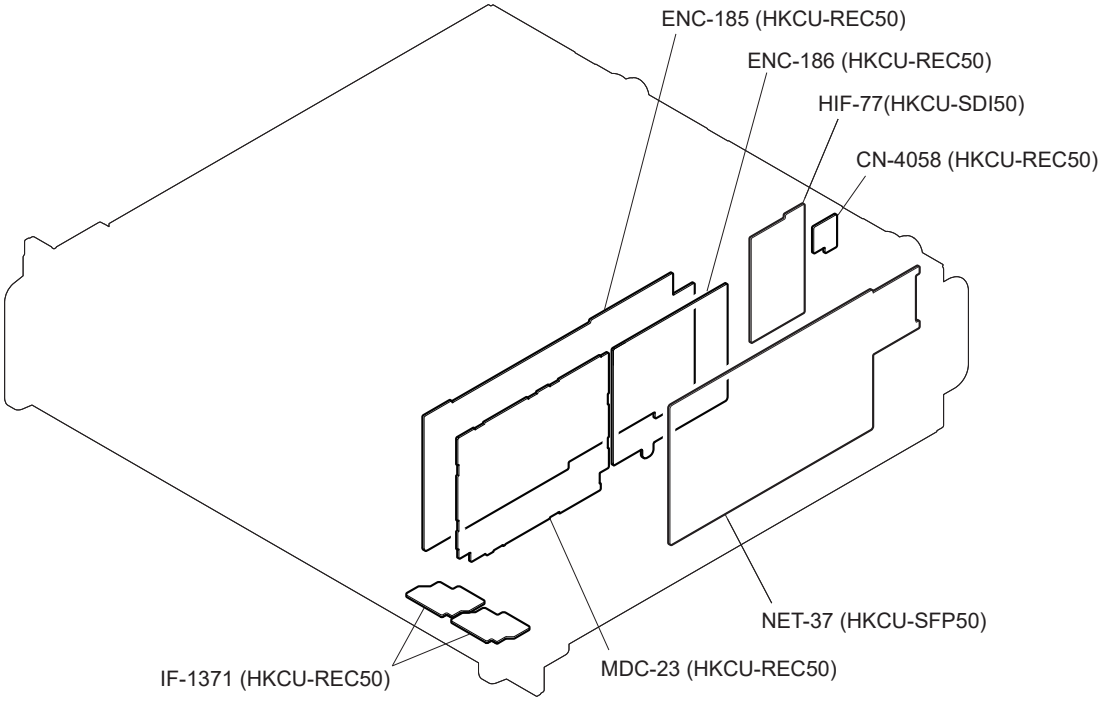
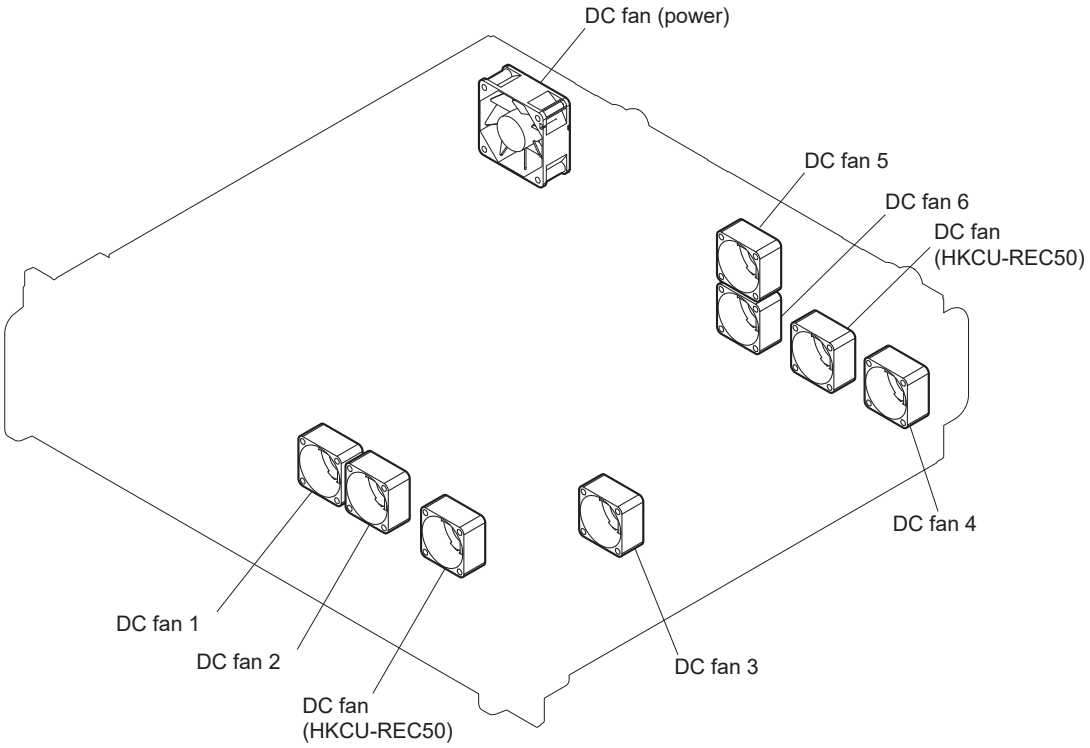
Service Overview

1-1. Location of Printed Wiring Boards and DC Fans

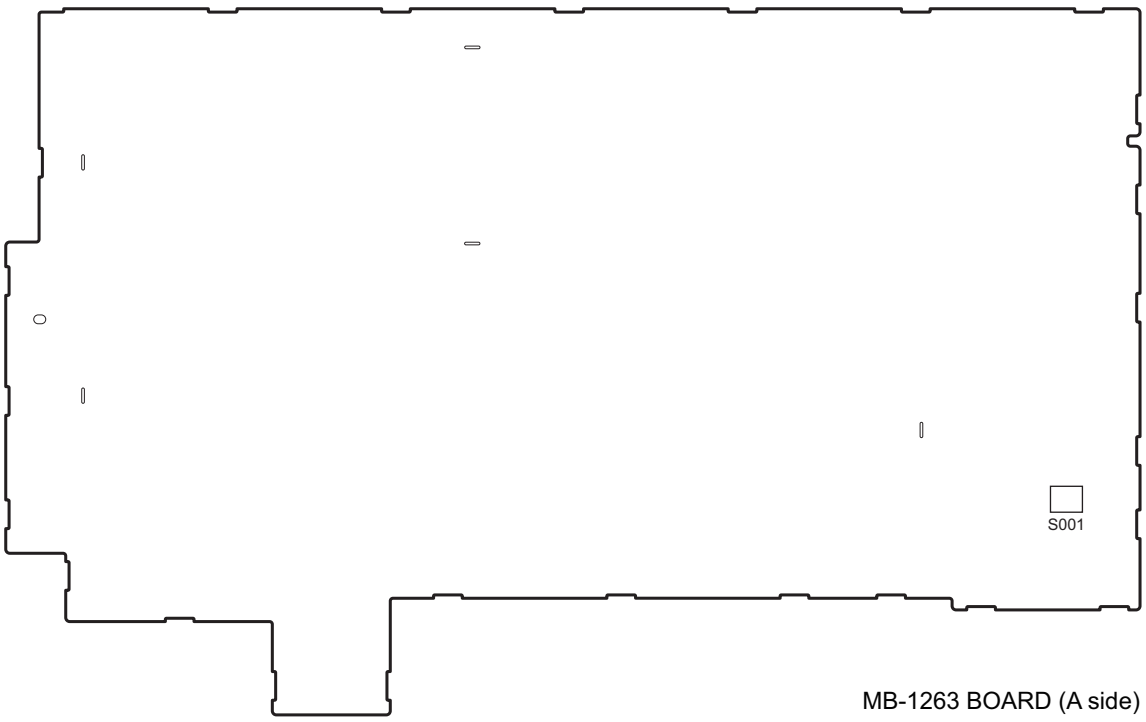





DC fan (power)
DC fan 5
DC fan 6
DC fan
(HKCU-REC50)
DC fan 4
DC fan 1
DC fan 2
DC fan
(HKCU-REC50)
DC fan 3

1-2. Functions of Onboard Switches and LED Indicators

1-2-1. MB-1263 Board



MB-1263 BOARD (A side)

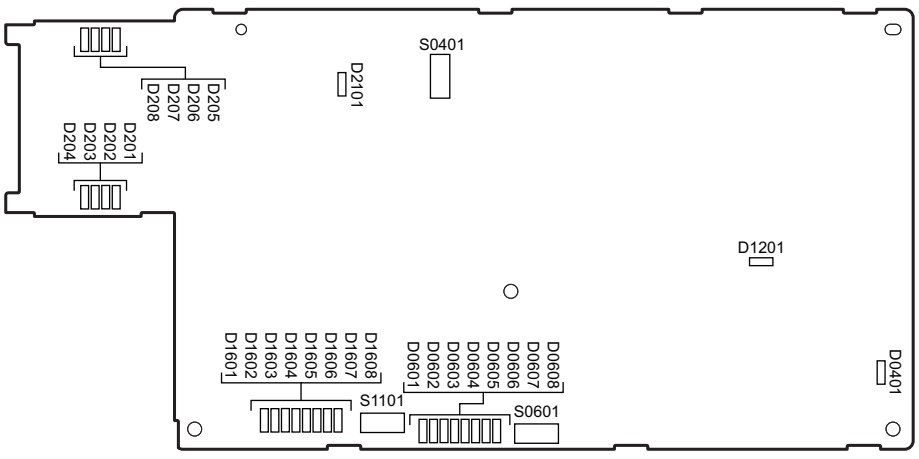
Switch

Note

Do not change the setting of “Factory use” switch.

Ref. No.	Bit	Function	Factory default setting
S001	1-4	Factory use	OFF (ALL)

1-2-2. NET-37 Board



NET-37 Board (A Side)

LED

Ref. No.	Name	Color	Description	Normal State (Power On)
D0201	TDIS_A	Red	Factory use	Inconstant
D0202	TFAULT_A	Red	Factory use	Inconstant
D0203	MOD ABS_A	Red	Factory use	Inconstant
D0204	RX_LOS_A	Red	Factory use	Inconstant
D0205	TDIS_B	Red	Factory use	Inconstant
D0206	TFAULT_B	Red	Factory use	Inconstant
D0207	MOD ABS_B	Red	Factory use	Inconstant
D0208	RX_LOS_B	Red	Factory use	Inconstant
D0401	PGOOD	Green	This LED lights when the power is supplied to the board.	On
D0601	BiBi-LED7	Green	Factory use	Inconstant
D0602	BiBi-LED6	Green	Factory use	Inconstant
D0603	BiBi-LED5	Green	Factory use	Inconstant
D0604	BiBi-LED4	Green	Factory use	Inconstant
D0605	BiBi-LED3	Green	Factory use	Inconstant
D0606	BiBi-LED2	Green	Factory use	Inconstant
D0607	BiBi-LED1	Green	Factory use	Inconstant
D0608	BiBi-LED0	Green	Factory use	Inconstant
D1201	NET2_CONF_DONE	Red	This LED goes out when NET2_FPGA (IC002) is normally completed configuration.	Off
D1601	NENE-LED7	Green	Factory use	Inconstant
D1602	NENE-LED6	Green	Factory use	Inconstant
D1603	NENE-LED5	Green	Factory use	Inconstant
D1604	NENE-LED4	Green	Factory use	Inconstant
D1605	NENE-LED3	Green	Factory use	Inconstant
D1606	NENE-LED2	Green	Factory use	Inconstant
D1607	NENE-LED1	Green	Factory use	Inconstant
D1608	NENE-LED0	Green	Factory use	Inconstant
D2101	NET1-CONF_DONE	Red	This LED goes out when NET1_FPGA (IC001) is normally completed configuration.	Off

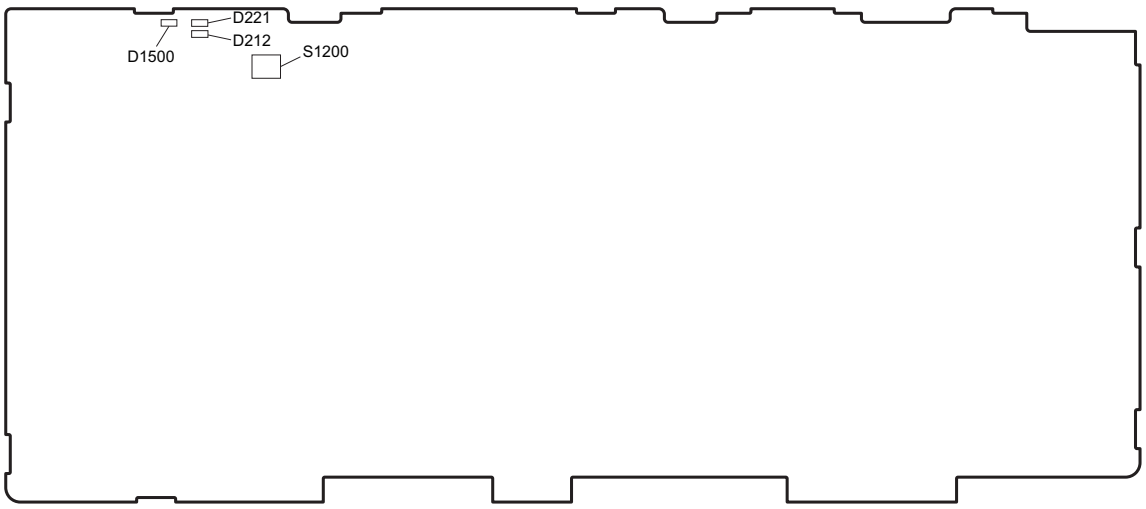
Switch

Note

Do not change the setting of “Factory use” switch.

Ref. No.	Bit	Function	Factory default setting
S0401	1	Factory use	OFF
S0601	1-4	Factory use	OFF (ALL)
S1101	1-4	Factory use	OFF (ALL)

1-2-3. SY-467 Board



SY-467 Board (A Side)

LED

Ref. No.	Name	Color	Description	Normal State (Power On)
D212	4CH-1	Red	The LED lights when the output voltage of IC004 is normally.	OFF
D221	2.5V	Red	The LED lights when the output voltage of IC007 is normally.	OFF
D1500	PLD-DONE	Red	This LED lights while configuration of the PLD	OFF

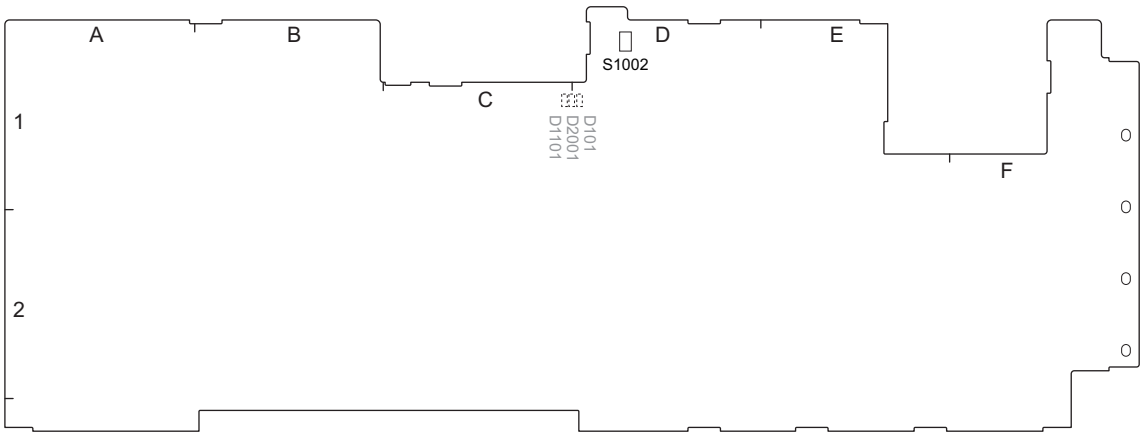
Switch

Note

Do not change the setting of “Factory use” switch.

Ref. No.	Bit	Function	Factory default setting
S1200	1-4	Factory use	OFF (ALL)

1-2-4. TX-167B Board



TX-167B BOARD (A side)
TX-167B BOARD (B side)

LED

Ref. No.	Name	Color	Description	Normal State (Power On)
D101	POWER	Red	Lit when the power to the TX-167B board is abnormal.	OFF
D2001	TX1_CONFDONE	Red	This LED goes out when TX1 PLD is normally completed configuration.	OFF
D1101	TX2_CONFDONE	Red	This LED goes out when TX2 PLD is normally completed configuration.	OFF

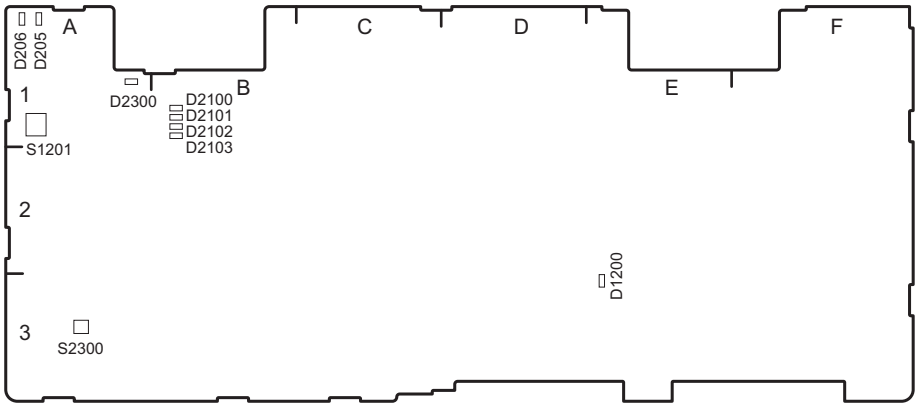
Switch

Note

Do not change the setting of "Factory use" switch.

Ref. No.	Bit	Function	Factory default setting
S1002	1, 2	Factory use	OFF (ALL)

1-2-5. VIF-75 Board



VIF-75 BOARD (A side)

LED

Ref. No.	Name	Color	Description	Normal State (Power On)
D205	4CH-2	Red	Lit when the output voltage to the IC003 is abnormal.	OFF
D206	SDI_PW	Red	Lit when the output voltage to the IC3001/IC3002 is abnormal.	OFF
D1200	EXT	Green	Lit when the reference input signal from the outside is detected.	—
D2100 to 2103	DebugLED	Green	Factory use	OFF
D2300	PLD2DONE	Red	This LED goes out when PLD2 IC (IC1700) is normally completed configuration.	OFF

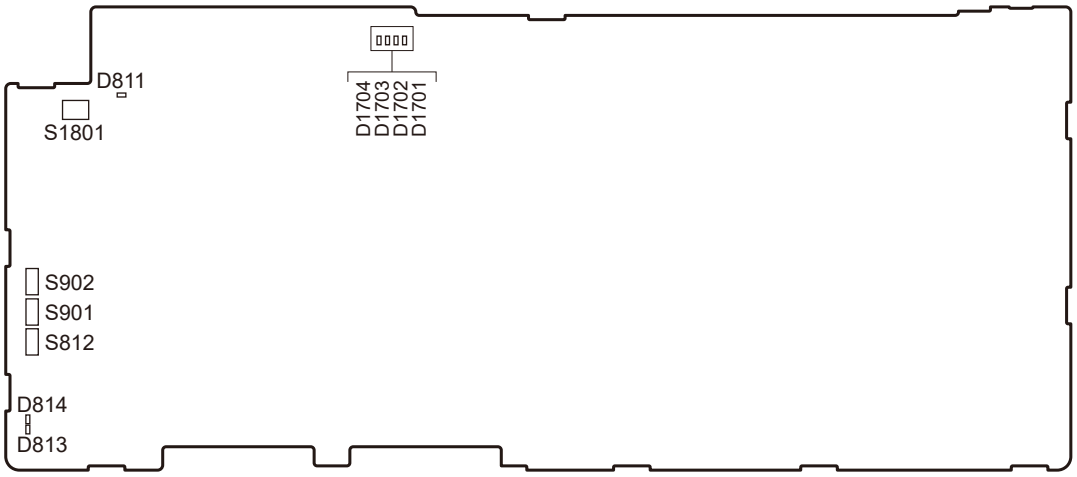
Switch

Note

Do not change the setting of "Factory use" switch.

Ref. No.	Bit	Function	Factory default setting
S2101	1-4	Factory use	OFF (ALL)
S2300	1	Factory use	OFF

1-2-6. ENC-185 Board



EMC-185 Board (B Side)

LED

Ref. No.	Name	Color	Description	Normal State (Power On)
D811	PS_DONE	Red	This LED goes out when ENC1_FPGA (IC001) is normally completed configuration.	OFF
D814	PS_ERRORSTATUS	Red	Factory use	Inconstant
D814	PS_ERROR_OUT	Red	Factory use	Inconstant
D1701	LED0	Green	Factory use	Inconstant
D1702	LED1	Green	Factory use	Inconstant
D1703	LED2	Green	Factory use	Inconstant
D1704	LED3	Green	Factory use	Inconstant

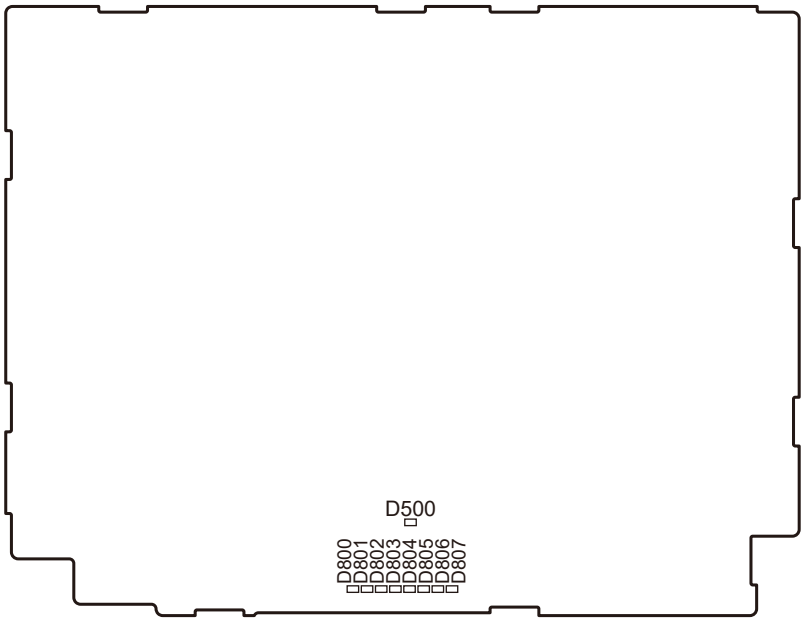
Switch

Note

Do not change the setting of “Factory use” switch.

Ref. No.	Bit	Function	Factory default setting
S812	1	Factory use	OFF
S901	1	Factory use	OFF
S902	1	Factory use	OFF
S1801	1-4	Factory use	OFF (ALL)

1-2-7. MDC-23A Board



MDC-23A Board (A Side)

LED

Ref. No.	Name	Color	Description	Normal State (Power On)
D800	AG3_LED0	Green	Factory use	Inconstant
D801	AG3_LED1	Green	Factory use	Inconstant
D802	AG3_LED2	Green	Factory use	Inconstant
D803	AG3_LED3	Green	Factory use	Inconstant
D804	AG3_LED4	Green	Factory use	Inconstant
D805	AG3_LED5	Green	Factory use	Inconstant
D806	AG3_LED6	Green	Factory use	Inconstant
D807	AG3_LED7	Green		Inconstant
D500	CON_ERR	Red	This LED goes out when ENC2_FPGA (IC401) is normally completed configuration.	OFF

1-3. Notes on Replacement of Circuit Board

1-3-1. AT-195 Board, VIF-75 Board and Power Unit (RE-353 Board)

AT-195 board, VIF-75 board, and RE-353 board store the important information including the model name and serial number.
After replacing the AT-195 board, VIF-75 board, and RE-353 board, perform RESTORE on the [04 <SERIAL NUMBER>] page of the SERVICE menu. (Refer to “4-2-2. Description of SERVICE Menu”.)

1-4. Cautions when Replacing the Lithium Battery

The lithium battery is installed on the SY-467 board. This lithium battery is used to back up the real-time clock (RTC). RTC stops operating when the battery life expires. Replace the battery and reset the DATE (M03) of the MAINTENANCE menu. (Refer to OPERATION MANUAL.)

Part No.	Name	Usage
⚠1-756-134-1X	Lithium Battery (ML621 (U))	For internal clock

CAUTION

Ensure that the battery is installed with + and – poles connected to the correct terminals. An incorrect connection may cause an explosion or leakage of fluid.

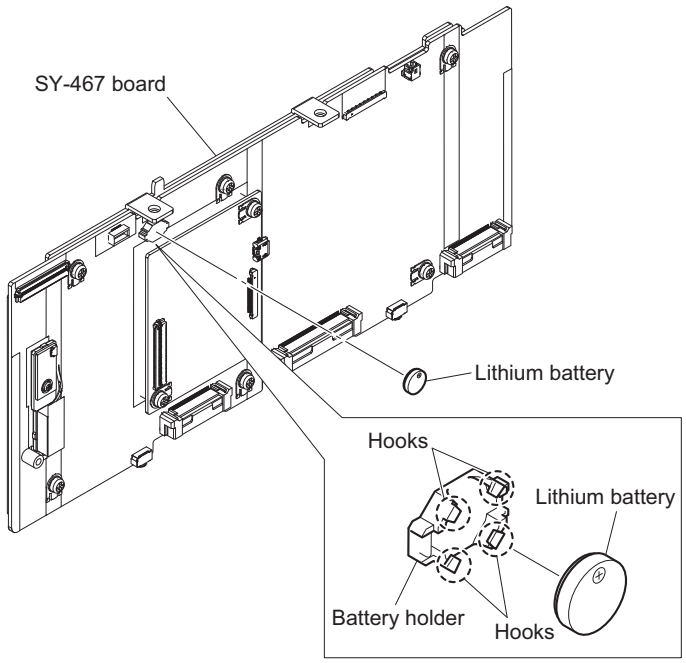
1-4-1. Replacing Procedure

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical cable. (Refer to "2-9. Optical Composite Cable".)
3. Remove the top chassis (R) and the top chassis (L). (Refer to "2-5. Top Chassis (R)" and "2-6. Top Chassis (L)".)
4. Remove the SY-467 board. (Refer to "2-10. SY-467 Board/AT-195 Board".)

Procedure

1. Replace the lithium battery on the SY-467 board.



Note

When installing the lithium battery, install it to the orientation shown in the figure.

2. Install the removed parts by reversing the steps of removal.

1-5. Cleaning of Connector/Cable

- Lit in two green indicators (right): Receive signal condition is very good.
- Lit in one green indicator (2nd from right): Receive signal condition is OK.
- Lit in one yellow indicator (2nd from left): Receive signal level is weak.
- Lit in one red indicator (left): Receive signal level is severely degraded.

When lit in red, be sure to clean the optical contact portions.
When lit in yellow, cleaning is recommended.
The attenuation of the photo-receptive level may cause transmission error. Clean optical contact portions proceeding as follows.
The optical contact portion exist in the optical connector on this unit or camera control, and in the optical/electrical cables.

1-5-1. When the Optical Connector Cleaner (Commercially Available) is Available

Fixtures

- Optical connector cleaner (commercially available)
  - Product name: CLETOP ®
  - 14100402 or 14100403 or equivalent (stick type)
  - 14100402: 2.0 mm
  - 14100403: 2.0/2.5 mm double ended

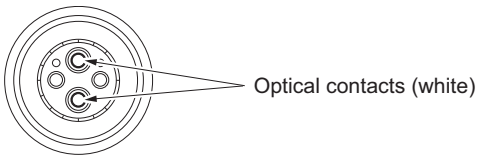
Tip

- Alcohol is not necessary during cleaning.
- Number of possible wipes is one cleaning per a piece. Do not reuse it.

Cleaning Procedure

Male connector

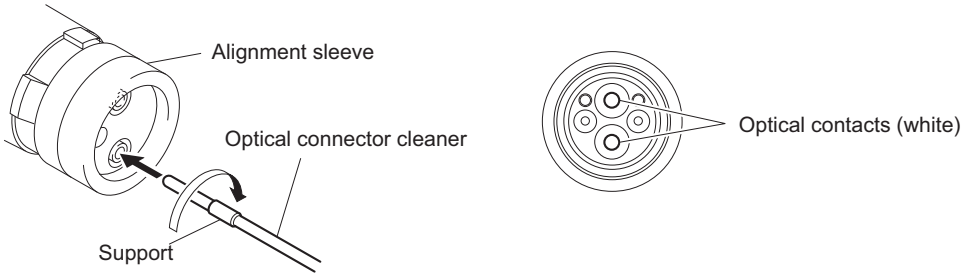
Clean the tip of the optical contacts (white) using the optical connector cleaner.



Female connector

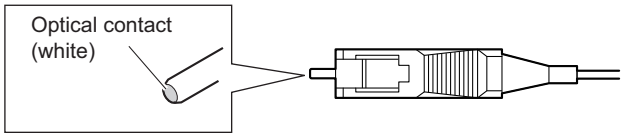
1. Insert the optical connector cleaner straight.
2. Apply sufficient pressure (approximately 600 g to 700 g) to ensure that the optical contact is a little depressed.

3. While pressing the optical connector cleaner against the tip of the optical contact, rotate the optical connector cleaner by 4 to 5 turns clockwise. Holding the optical connector cleaner at around its support facilitates to apply the pressure.



Connector

Clean the tip of the optical contacts (white) using the optical connector cleaner.



1-5-2. When the Optical Connector Cleaner (Commercially Available) is not Available (Connectors/Cables of LEMO)

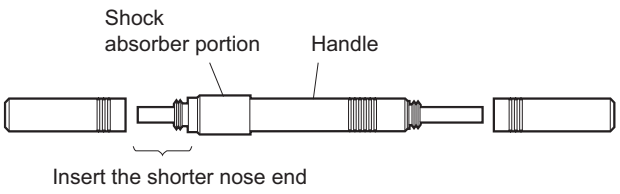
Clean the LEMO connectors and cables using the following procedure.

Fixtures

- Alignment sleeve remover HC-001 (for female connector)
  Sony Part No. : J-6480-010-A or DCC.91.312.5LA manufactured by LEMO, or equivalent

  Note

  Insert the shorter nose end when removing/installing the alignment sleeve. This fixture contains shock absorber portion. Grasp not the shock absorber portion of the remover but the handle in use.



- Alcohol (commercially available)
- Cotton swabs (commercially available)

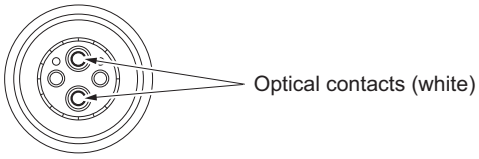
  Note

  Use a cotton swab whose diameter is about 4 mm. If a cotton swab whose diameter exceeds 5 mm is used, the cotton swab cannot be inserted into the end of the connector and the tip of the optical contact cannot be cleaned.

Cleaning Procedure

Male connector

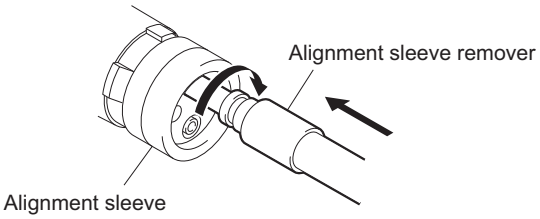
Clean the tip of the optical contacts (white) with a cotton swab moistened with alcohol.



Female connector

The optical contacts for female connector are in an unexposed state. In cleaning, it is necessary to be exposed by removing the alignment sleeve in advance. Proceed as follows.

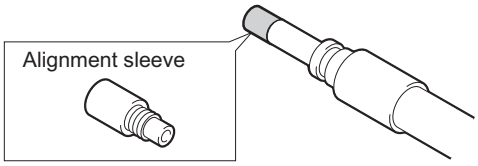
1. Insert the alignment sleeve remover into the alignment sleeve in the straight line and turn it clockwise.



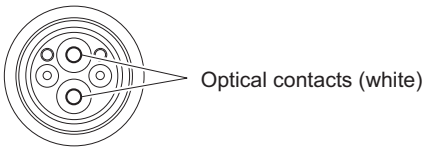
2. When the turn stops, pull out the remover in the straight line forcedly.

Note

The alignment sleeve can be removed/reinstalled with the sleeve itself attached to the tip of the remover. Great care should be taken so as not to lose or damage the alignment sleeve.
Alignment sleeve: Sony Part No. : 9-980-074-01



3. Clean the tip of the optical contacts (white) with a cotton swab moistened with alcohol.



4. Insert the remover with the alignment sleeve attached to its tip, and push it until it clicks.
5. Rotate the remover counterclockwise to install the alignment sleeve, and extract the remover.

1-5-3. When the Optical Connector Cleaner (Commercially Available) is not Available (Connector of Tajimi Electronics Co., Ltd./Cable)

Clean the connectors of Tajimi Electronics and cables using the following procedure.

Fixtures

- Alcohol (commercially available)

- Cotton swabs (commercially available)

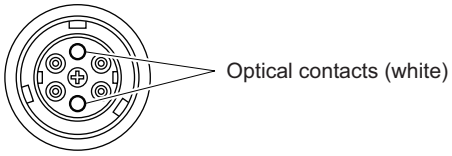
  Note

  Use a cotton swab whose diameter is about 4 mm. If a cotton swab whose diameter exceeds 5 mm is used, the cotton swab cannot be inserted into the end of the connector and the tip of the optical contact cannot be cleaned.

Cleaning Procedure

Male connector

Clean the tip of the optical contacts (white) with a cotton swab moistened with alcohol.



Female connector

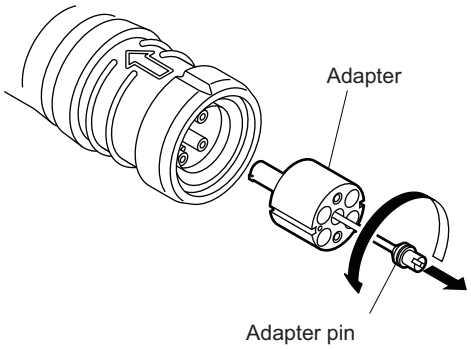
The optical contacts for female connector are in an unexposed state. In cleaning, it is necessary to be exposed by removing the adapter in the connector in advance. Proceed as follows.

1. Loosen the adapter pin at the center of the connector counterclockwise with a screwdriver.

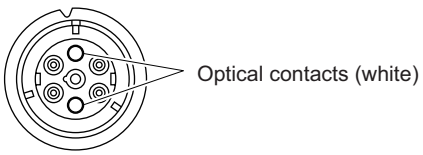
   Tip

   If there is no screwdriver, use the plate attached to the connector cap.

2. Pull the adapter pin out of the connector in the arrow direction. Remove the adapter from the connector.



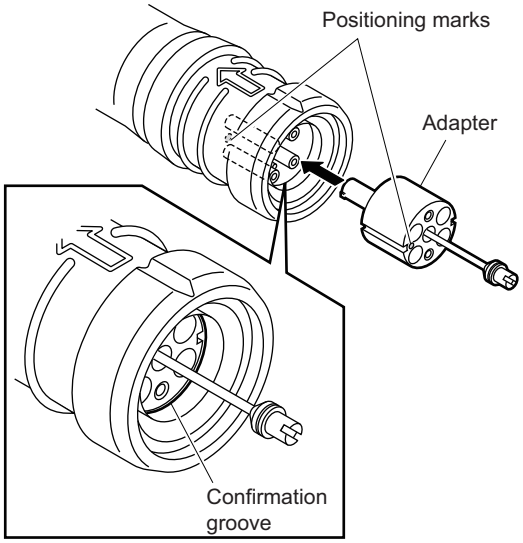
3. Clean the optical contacts (white) with a cotton swab moistened with alcohol.



4. Match the positioning marks of the adapter and the connector, and then push the adapter into the connector.

Note

Push the adapter until the confirmation groove comes in sight as shown in the figure.



5. Tighten the adapter pin clockwise until being lightly fixed.

Note

Do not fully tighten the adapter pin. (Extent where adapter pin is lightly fixed)

1-5-4. When the Optical Connector Cleaner (Commercially Available) is not Available (Connector)

Fixtures

- Alcohol (commercially available)
- Cotton swabs (commercially available)

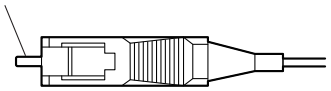
Note

Use a cotton swab whose diameter is about 4 mm. If a cotton swab whose diameter exceeds 5 mm is used, the cotton swab cannot be inserted into the end of the connector and the tip of the optical contact cannot be cleaned.

Connector

Clean the tip of the white optical contacts with a cotton swab moistened with alcohol.

Optical contact (white)



1-6. Service Tools/Measuring Equipment List

1-6-1. Service Fixtures

Part No.	Name	Usage/Note
J-6480-010-A	Alignment sleeve remover HC-001	For female optical connector (LEMO® DCC. 91.312.5LA or equivalent)
—	Cotton swab	Commercially available, for cleaning optical contact block (4 mm or less in diameter)

1-7. PLD

This unit uses the PLD (Programmable Logic Device) that supports USB drive to write and rewrite the internal data.
If the part listed below needs to be replaced or to be upgraded, contact your local Sony Sales Office/Service Center.

Note

The part number of PLD (or ROM for PLD) in which data is not written yet, is shown in “Spare Parts”.
Therefore, if part replacement is required, write the data by the following procedure.
In the case of the PLD type that runs on the program stored in external ROM, data needs not to be written only by replacing the part if the specific PLD only is defective.

Tip

The USB connector for connection to a USB drive is located to the right of the CALL button on the front panel. Detach the USB connector lid to connect the USB drive.

1-7-1. Corresponding PLDs

Board name	Ref. No.	File name
SY-467	IC1200	hdcu5000_sy.pkg
TX-167	IC1501	hdcu5000_tx1_high.pkg hdcu5000_tx1_ultra.pkg
	IC601	hdcu5000_tx2.pkg
VIF-75	IC1700	hdcu5000_vif.pkg
NET-37	IC001	hdcu5000_net1.pkg (HKCU-SFP50 is installed)
	IC001	hdcu5000_net2.pkg (HKCU-SFP50 is installed)
ENC-185	IC001	hdcu5000_enc1_xavc.pkg (HKCU-REC50 is installed)
MDC-23A	IC401	hdcu5000_enc2_rec50.pkg (HKCU-REC50 is installed)

1-7-2. Upgrading PLD Data

Equipment Required

- USB drive (commercially available)

  Tip

  For recommended USB drive, contact your local Sony Sales Office/Service Center.

Preparation

Copy the PLD update data to the USB drive using the following procedure.

Note

For how to obtain the data files for update, contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\HDCU5000
2. Copy the data files for PLD update to be updated to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Display the PLD PACKAGE page of the SERVICE menu.

   Tip

   For the SERVICE menu, refer to “4-2. SERVICE Menu”.

4. Select the PLD to be upgraded and then press the control knob.
5. A message “UPDATE OK?” appears. Select “YES.”
   The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.

1-8. Flexible Flat Cable and Coaxial Cable

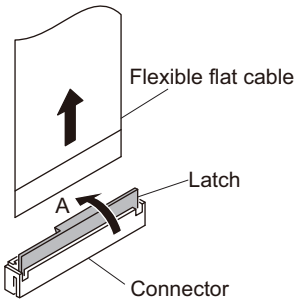
1-8-1. Disconnecting and Connecting Flexible Flat Cable

Note

- Be very careful not to fold flexible flat cables. Life of flexible flat cable will be significantly shortened if it is folded.
- Each flexible flat cable has conductive side and insulated side. If the flexible flat cable is connected in the wrong orientation of the conductive side and the insulated side, the circuit will not function.
- Insert the flexible flat cable straight.
- Check that the conductive side of the flexible flat cable is not contaminated.

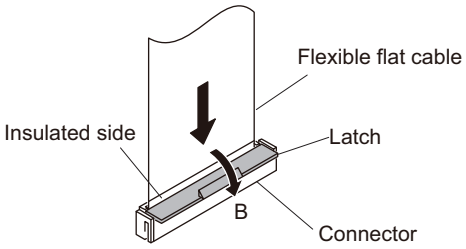
Type A

Disconnecting



1. Open the latch of the connector in the direction of arrow A to unlock.
2. Disconnect the flexible flat cable.

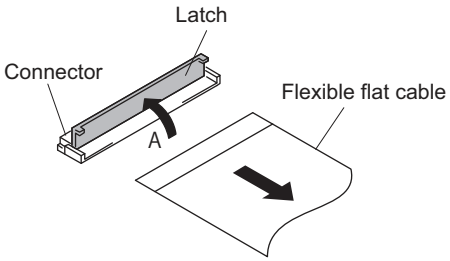
Connecting



1. Insert the flexible flat cable firmly as far as it will go with the insulating surface facing front.
2. Close the latch of the connector in the direction of arrow B to lock the flexible flat cable.

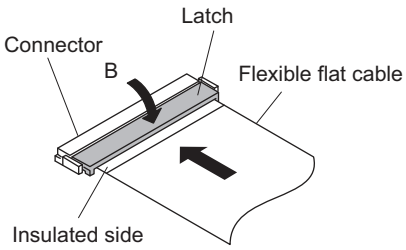
Type B

Disconnecting



1. Open the latch of the connector in the direction of arrow A to unlock.
2. Disconnect the flexible flat cable.

Connecting



1. Insert the flexible flat cable firmly as far as it will go with the insulated side up.
2. Close the latch of the connector in the direction of arrow B to lock the flexible flat cable.

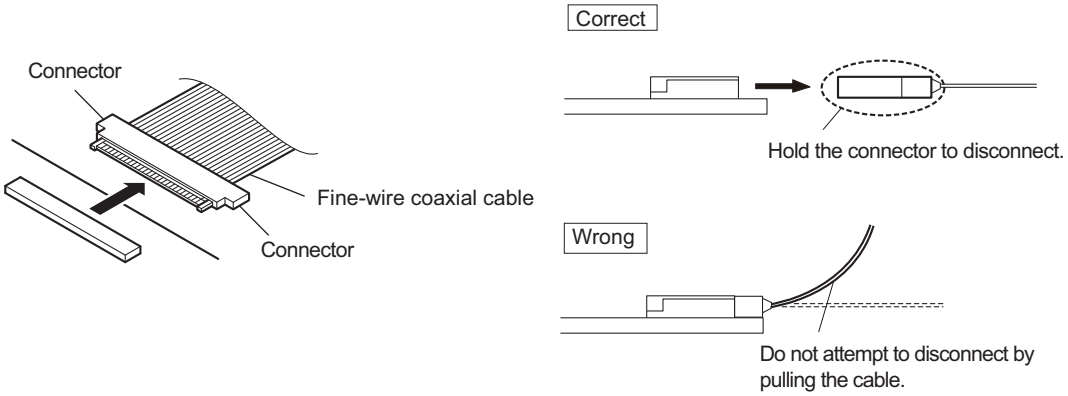
1-8-2. Disconnecting/Connecting Fine-Wire Coaxial Cable

Note

- Be very careful when handling the fine-wire coaxial cable so that fine wires are not disconnected.
- When disconnecting the fine-wire coaxial cable, be sure to hold the connector. Do not attempt to pull the cable.
- Check that the contact surface of the fine-wire coaxial cable connector is not contaminated.

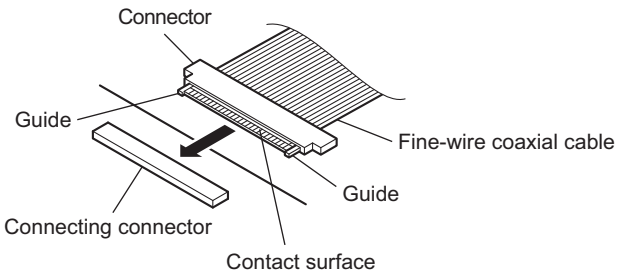
Type A

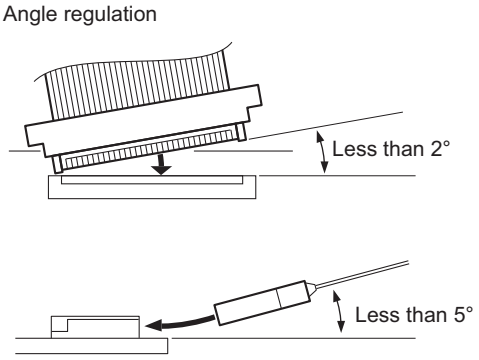
Disconnecting



1. Hold both sides of the fine-wire coaxial cable connector, and pull the connector straight to disconnect it.

Connecting





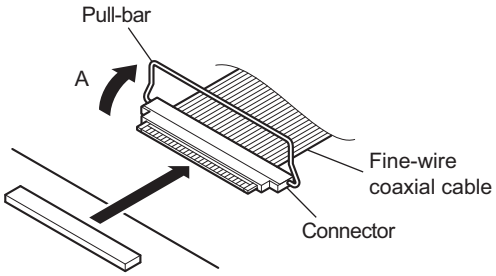
Note

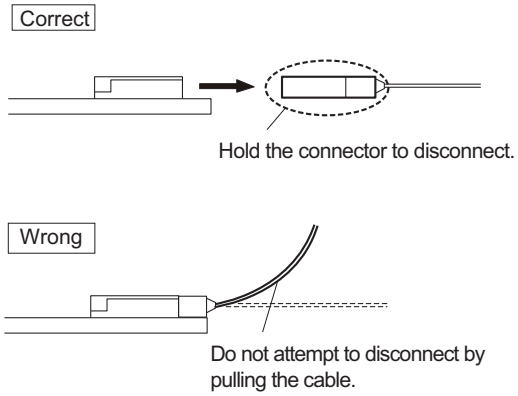
Insert the connector carefully so that the connector guides are not caught by the edge of the mating connector.

1. Hold both sides of the fine-wire coaxial cable connector with the contact surface facing up.
2. Insert the connector straight to meet the angle specified.

Type B

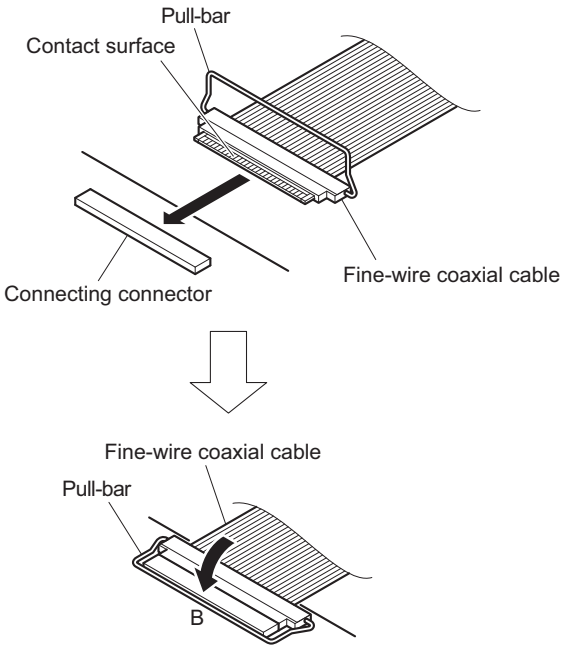
Disconnecting

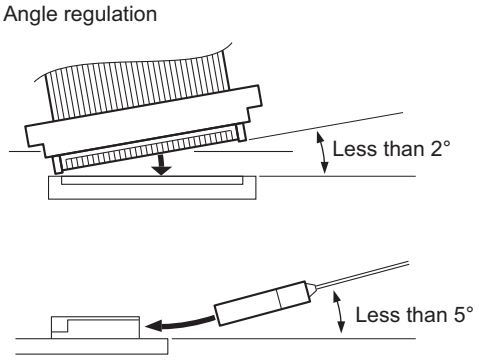




1. Raise the pull-bar in the direction of arrow A to unlock it.
2. Hold both sides of the fine-wire coaxial cable connector, and pull the connector straight to disconnect it.

Connecting





Note

Insert the connector carefully so that the connector guides are not caught by the edge of the mating connector.

1. Hold both sides of the fine-wire coaxial cable connector with the contact surface facing up.
2. Insert the connector straight to meet the angle specified.
3. Turn the pull-bar in the direction of arrow B and lock it.

1-9. Circuit Protective Devices

1-9-1. Fuse

WARNING

The fuse is critical parts to safe operation. Replace the components with Sony parts whose part number appear in the manual published by Sony. If the components are replaced by any parts other than the specified ones, this may cause a fire or electric shock.

CAUTION

If fuse is replaced while the main power is kept on, this may cause electric shock.
Before replacing fuse, not only turn off the POWER switch but also remove the power cable that is connected to the Optical/electrical connector and Triax connector.

Before replacing fuse, not only turn off the POWER switch but also remove the power cable that is connected to the Optical/electrical connector and Triax connector.

Board name	Ref. No.	Address	Destination	Name	Part No.
PS-954	F101	Side A	J	H.B.C fuse (6.3 A /250 V)	⚠ 1-576-233-51
			UC	H.B.C fuse (6.3 A /250 V)	⚠ 1-576-233-51
			CE	H.B.C fuse (6.3 A /250 V)	⚠ 1-576-233-51
			CN	H.B.C fuse (6.3 A /250 V)	⚠ 1-576-233-51
	F102	Side A	J	H.B.C fuse (8.0 A /250 V)	⚠ 1-576-300-51
			UC	H.B.C fuse (8.0 A /250 V)	⚠ 1-576-300-51
			CE	H.B.C fuse (6.3 A /250 V)	⚠ 1-576-233-51
			CN	H.B.C fuse (6.3 A /250 V)	⚠ 1-576-233-51
ENC-185	F010	Side B		Fuse (8 A/125 V)	⚠ 1-576-328-21
ENC-186	F010	Side B		Fuse (4 A/125 V)	⚠ 1-576-270-21
MDC-23A	F100	Side A		Fuse (4 A/125 V)	⚠ 1-576-270-21

1-9-2. Circuit Protection Element

This unit is equipped with positive-characteristic thermistors (power thermistors) as circuit protection elements.
The positive-characteristic thermistor limits the electric current flowing through the circuit as the internal resistance increases when an excessive current flows or when the ambient temperature increases.
If the positive-characteristic thermistor works, turn off the main power of the unit and inspect the internal circuit of the unit. After the cause of the fault is eliminated and the positive-characteristic thermistor is cooled down, turn on the main power again. The unit works normally. It takes about one minute to cool down the positive-characteristic thermistor after the main power is turned off.

Board name	Ref. No.	Name	Part No.
PS-954	TH101	POWER THERMISTOR (10D2-18L)	⚠ 1-811-559-31
	TH102	POWER THERMISTOR (10D2-18L)	⚠ 1-811-559-31
SY-467	TH300	THERMISTOR (POSITIVE)	⚠ 1-803-615-21
TX-167B	TH201	THERMISTOR (POSITIVE)	⚠1-805-762-11
	TH202	THERMISTOR (POSITIVE)	⚠1-805-762-11
	TH203	THERMISTOR (POSITIVE)	⚠1-805-762-11
	TH204	THERMISTOR (POSITIVE)	⚠1-805-762-11
ENC-185	TH401	THERMISTOR (POSITIVE)	⚠ 1-805-719-12
	TH402	THERMISTOR (POSITIVE)	⚠ 1-805-719-12

1-10. Lead-free Solder

All boards mounted in this unit use lead-free solder. Be sure to use lead-free solder when repairing the boards of this unit. A lead free mark (LF) indicating that the solder contains no lead is printed on each board. (Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

 : LEAD FREE MARK

Note

- The lead-free solder melts at a temperature about 40 °C higher than the ordinary solder, therefore, it is recommended to use the soldering iron having a temperature regulator.
- The ordinary soldering iron can be used but the iron tip has to be applied to the solder joint for a slightly longer time. The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful.

1-11. Notes on Using the Power Supply Unit

WARNING

The components marked ⚠ are critical to safe operation. If any of them is replaced with an unspecified part, it may result in a fire or electric shock.

CAUTION

When repairing or replacing the power supply block, set the voltage. Incorrect voltage setting may result in a fire or electric shock.

- When repairing or replacing the power assembly, set to the same power supply voltage as that of repair work bench.
- When delivering the unit to the user, adjust the power supply voltage to suit it to the user.

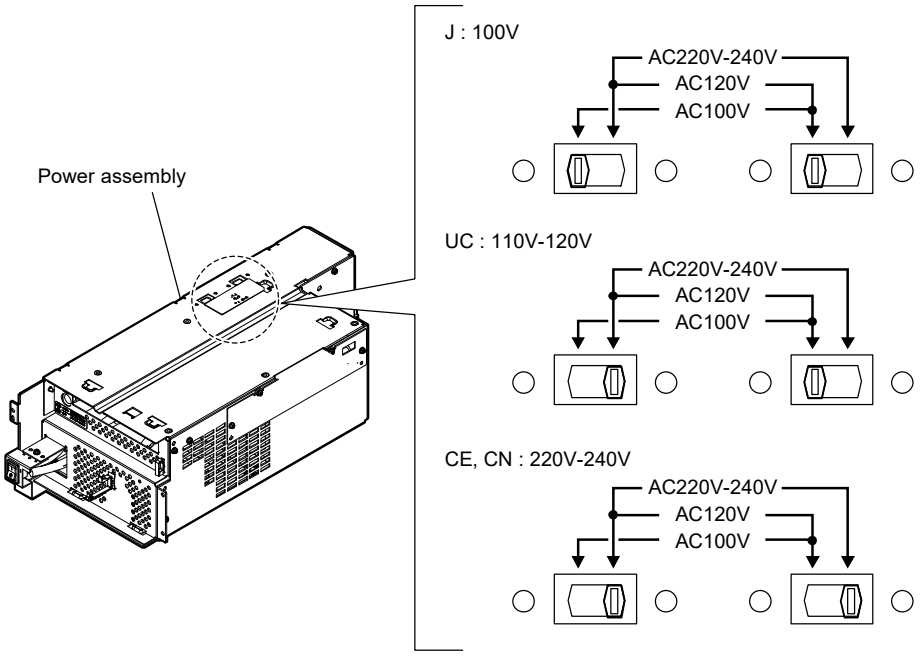
Gently remove or attach the power assembly holding it by hand. Otherwise, the power block assembly may fall, causing an injury.

1-11-1. Setting the Power Voltage

Set the voltage according to the power voltage.

Voltage setting is performed by combinations of the two switches of the power assembly.

Refer to “2-19-1. Power Assembly” for the procedure of removing the power assembly.



1-11-2. Replacing the Fuse

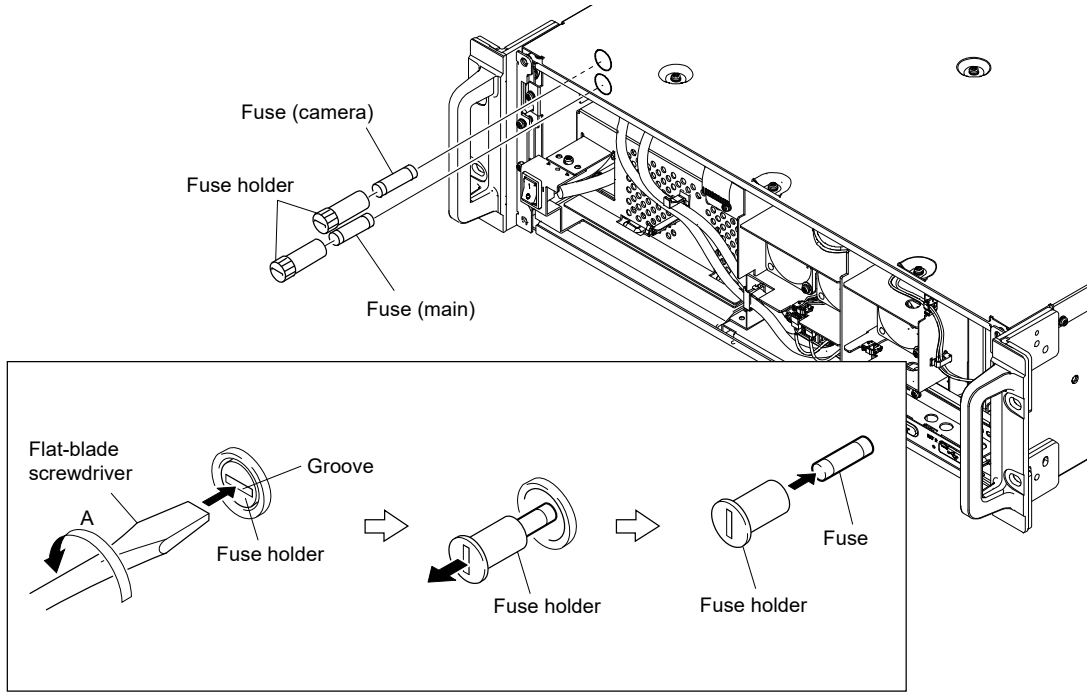
Check if the CAMERA fuse of the replacement power assembly adapts to the working power voltage. If not, replace it with the one adapting to the working power voltage.

Replacement Part

- MAIN fuse
  Part: ⚠ Fuse (6.3 A, 250 V)
- CAMERA Fuse
  For 100 to 120 V setting
  Part: ⚠ Fuse (8 A, 250 V)
  For 220 to 240 V setting
  Part: ⚠ Fuse (6.3 A, 250 V)

Procedure

1. Remove the PS panel assembly. (Refer to “2-4. Power Panel Assembly”)
2. Insert a flat-blade screwdriver into the groove of the fuse holder, and rotate it in the direction of arrow A (by about 90 degrees) to unlock it.
3. Remove the fuse holder with the fuse.



4. Install the fuse in the reverse order.

Section 2
Replacement of Main Parts

2-1. Replacement of Main Parts

Torque driver and screw tightening torque

General screws are used in this unit. Be sure to use a torque driver and tighten screws to the specified tightening torque.

Tightening Torque
B2.6 x 6: 0.53 ±0.07 N·m
B4 x 6: 1.40 ±0.20 N·m
P2.6 x 5: 0.53 ±0.07 N·m
P5 x 8: 1.40 ±0.20 N·m
PS4 x 8: 1.40 ±0.20 N·m
PSW3 x 8: 0.80 ±0.12 N·m
PSW3 x 10: 0.80 ±0.12 N·m
PSW3 x 25: 0.80 ±0.12 N·m
PSW3 x 30: 0.80 ±0.12 N·m
PSW4 x 8: 1.40 ±0.20 N·m
PWH4 x 10: 1.40 ±0.20 N·m
Hexagon screw: 0.53 ±0.05 N·m

Tip

- When using the torque driver with the notation of cN・m, interpret it as follows.
  Example: 0.8 N·m = 80 cN·m
- Since small screws are used in the unit, they may fall into the unit when they are removed and installed. To prevent screws from falling, it is recommended that the bit of each torque driver be magnetized to a degree that prevents screws from falling.

Connector

Unlock it before pulling out a locking connector. If not so, this causes damage.

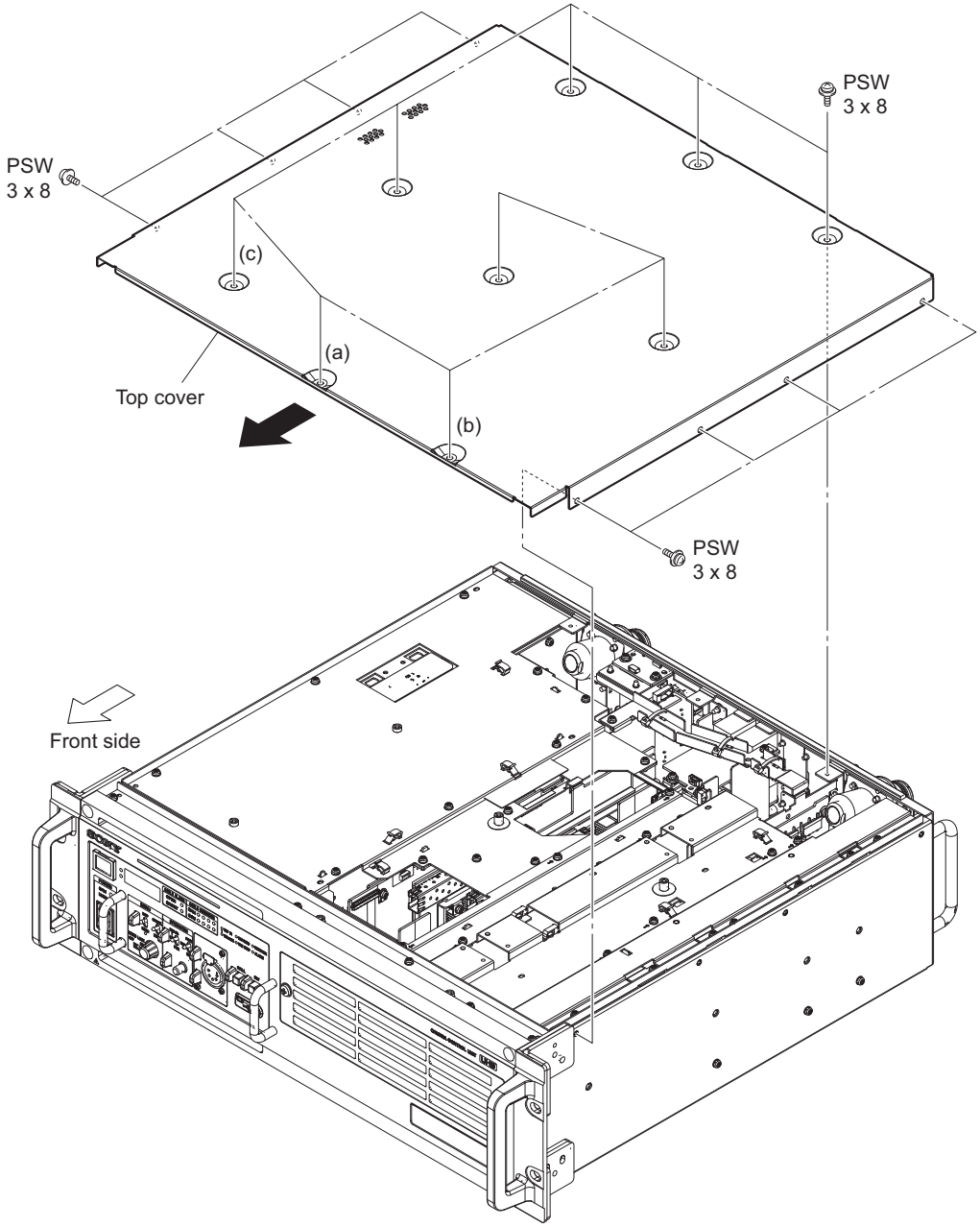
Screw

A New Truster (P2.6 x 5) screw cannot be reused. Prepare a new screw.

2-2. Top Cover

Procedure

1. Remove the seventeen screws, then remove the top cover.



Note

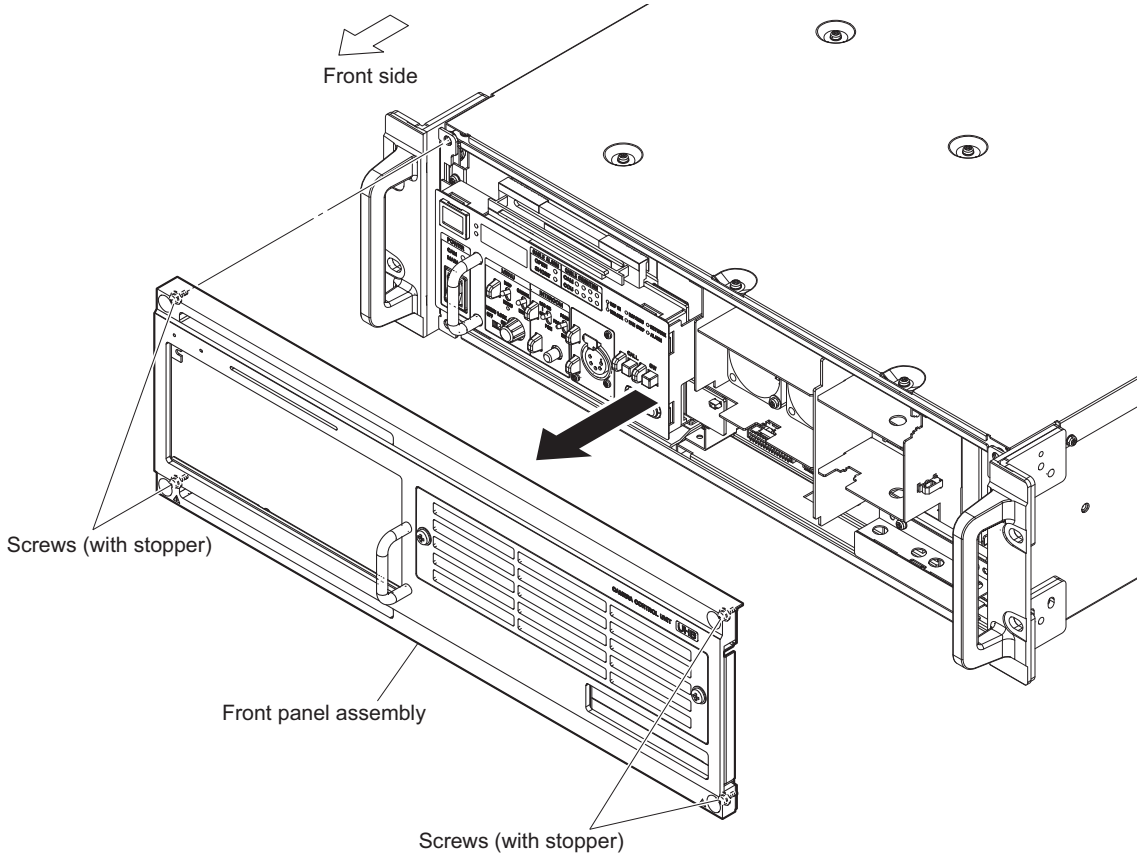
When attaching the top cover, push it in the direction of the arrow and tighten the screws in the order of (a) to (c), and other screws.

2. Install the removed parts by reversing the steps of removal.

2-3. Front Panel Assembly

Procedure

1. Loosen the four screws (with stopper), then remove the front panel assembly in the direction of the arrow.



2. Install the removed parts by reversing the steps of removal.

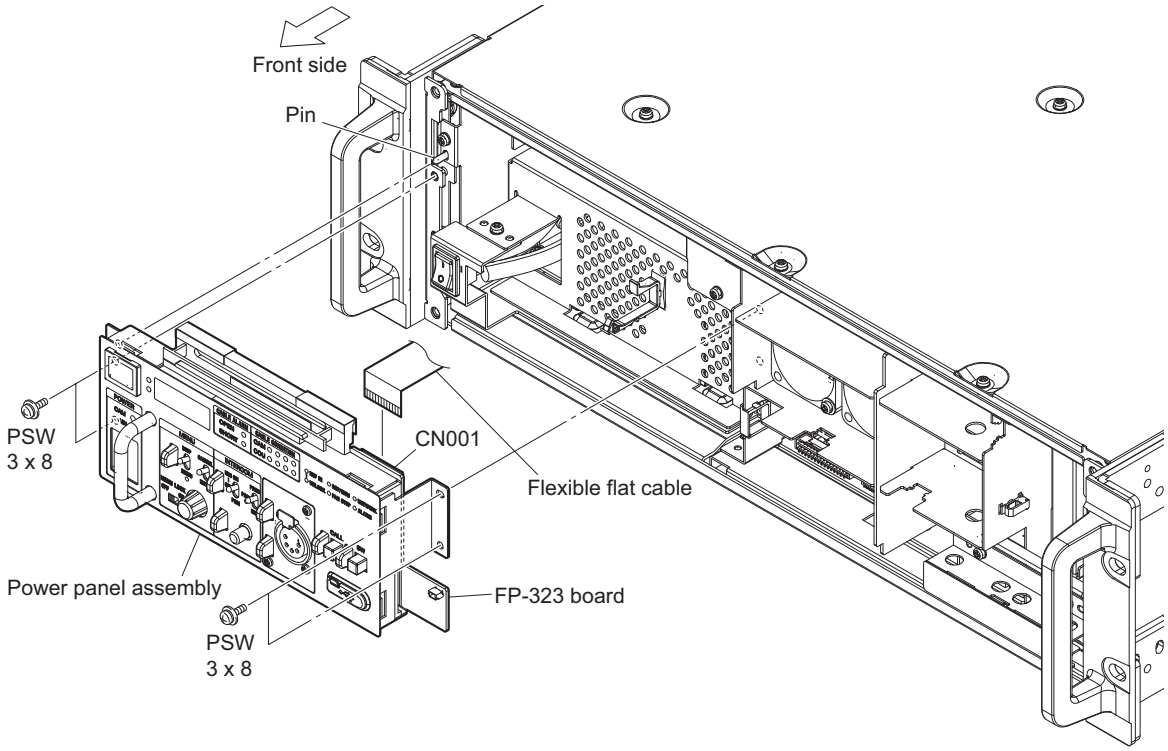
2-4. Power Panel Assembly

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")

Procedure

1. Remove the four screws, then remove the power panel assembly.
2. Disconnect the flexible flat cable from the connector (CN001) on the FP-323 board.



3. Install the removed parts by reversing the steps of removal.

2-4-1. LE-440 Board

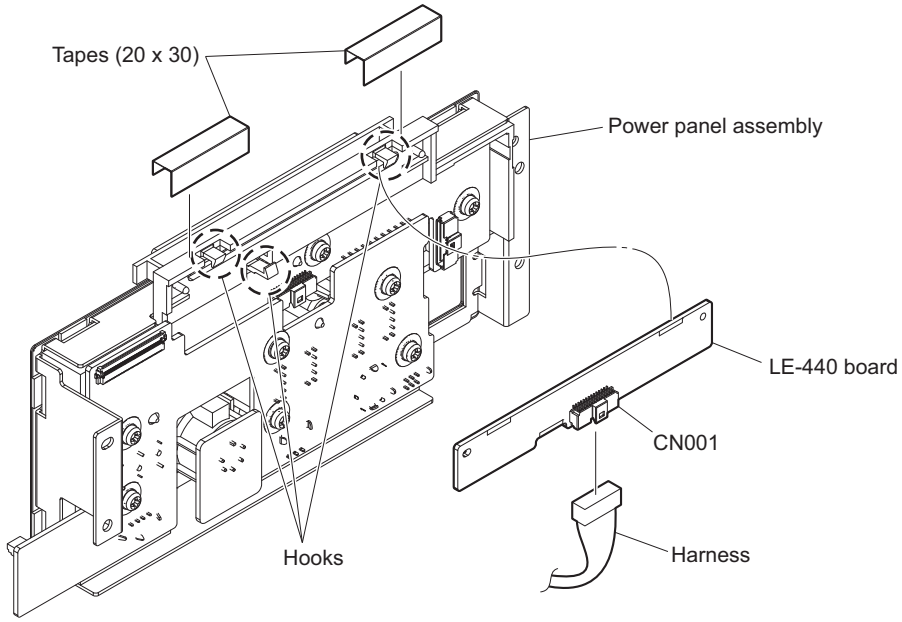
Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")

Procedure

1. Remove the two tapes (20 x 30).
2. Disconnect the harness from the connector (CN001) on the LE-440 board.

3. Remove the three hooks, then remove the LE-440 board.



4. Install the removed parts by reversing the steps of removal.

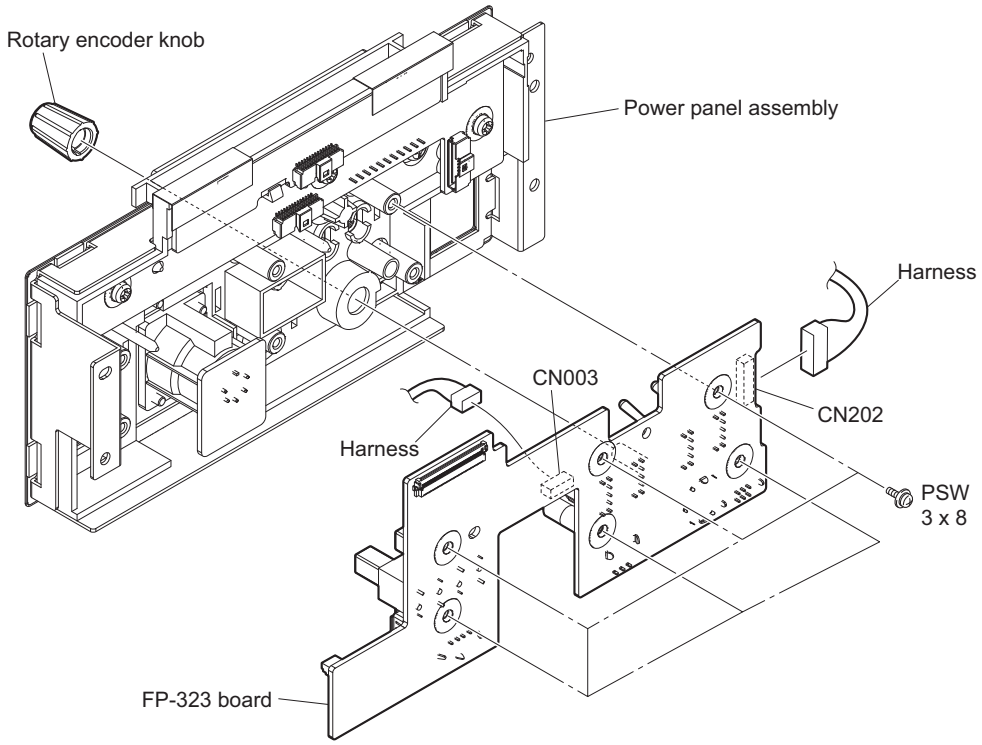
2-4-2. FP-323 Board

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")

Procedure

1. Remove the rotary encoder knob.
2. Remove the six screws, then remove the FP-323 board.
3. Disconnect the two harnesses from the connectors (CN003 and CN202) on the FP-323 board.



4. Install the removed parts by reversing the steps of removal.

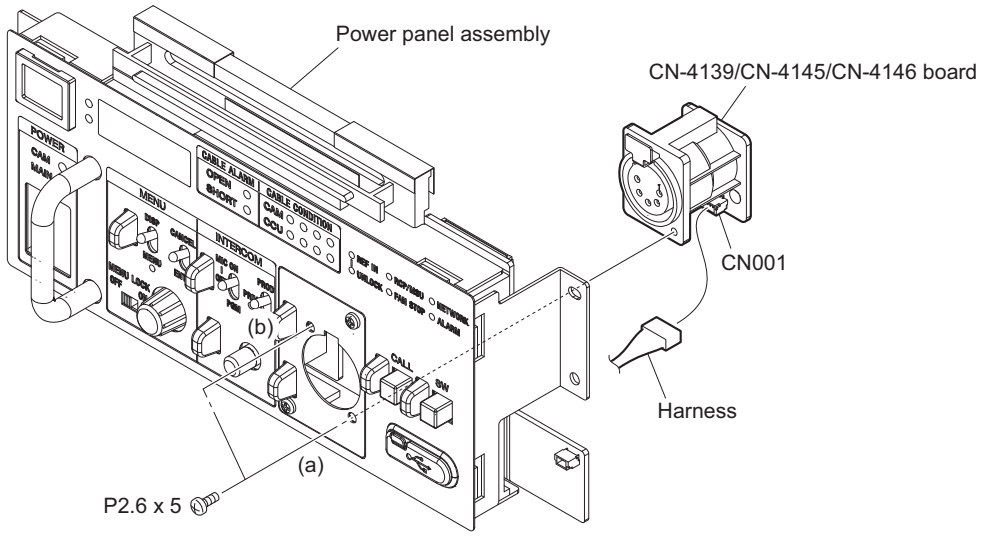
2-4-3. CN-4139/CN-4145/CN4146 Board

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")

Procedure

1. Remove the two screws, then remove the CN-4139/CN-4145/CN-4146 board.
2. Disconnect the harness from the connector (CN001) on the CN-4139/CN-4145/CN-4146 board.



Note

When installing the CN-4139/CN-4145/CN-4146 board, tighten the screws in the order of (a) and (b).

3. Install the removed parts by reversing the steps of removal.

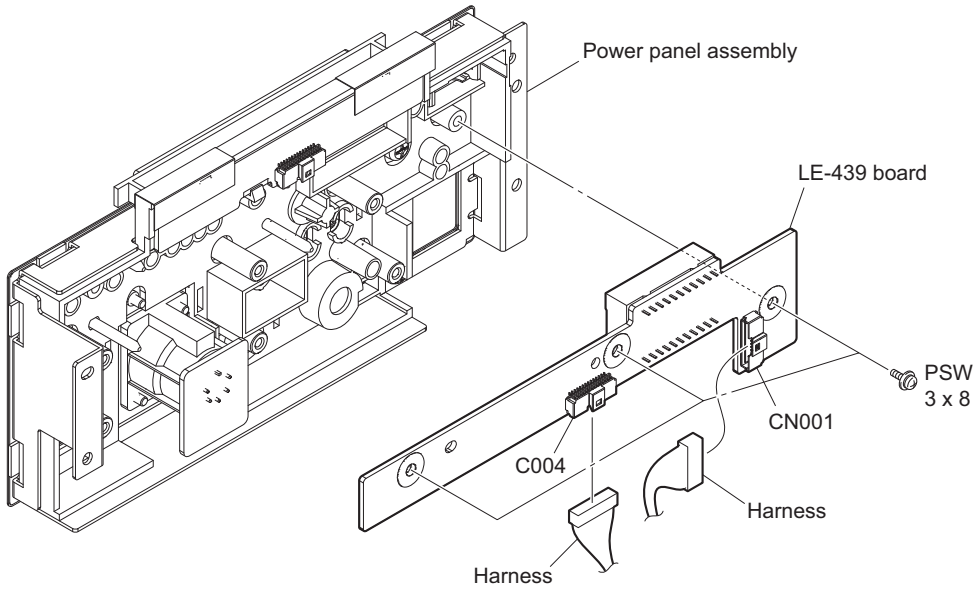
2-4-4. LE-439 Board

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")
3. Remove the FP-323 board. (Refer to "2-4-2. FP-323 Board")

Procedure

1. Disconnect the two harnesses from the connectors (CN001 and CN004) on the LE-439 board.
2. Remove the three screws, then remove the LE-439 board.



3. Install the removed parts by reversing the steps of removal.

2-5. Top Chassis (R)

Tip

The top chassis (R) is not available as service parts.

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")

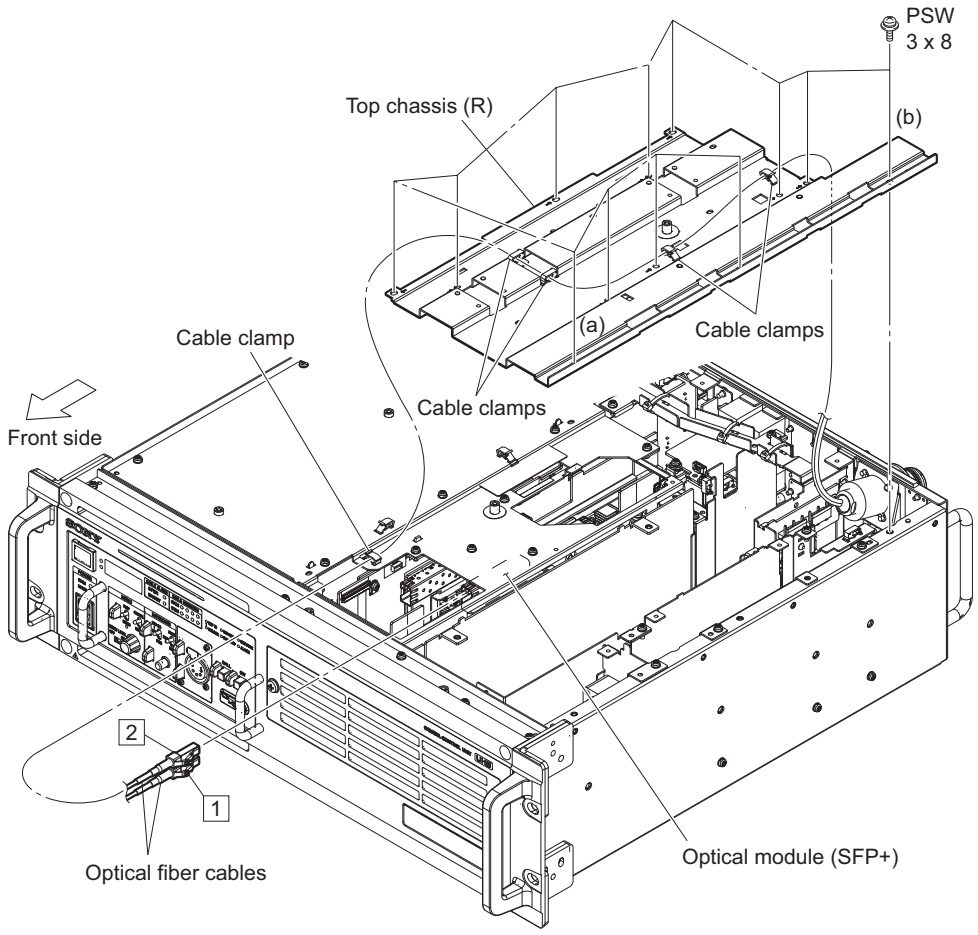
Procedure

1. Remove the two optical fiber cables from the five cable clamps.
2. Disconnect the two optical fiber cables from the optical module (SFP+).

   Note

   When connecting the optical fiber cables, refer to the number printed on the board.

3. Remove the 12 screws, then remove the top chassis (R).



   Tip

   When attaching the top chassis (R), tighten the screws in the order of (a), (b), and other screws.

4. Install the removed parts by reversing the steps of removal.

2-6. Top Chassis (L)

Tip

The top chassis (L) is not available as service parts.

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")

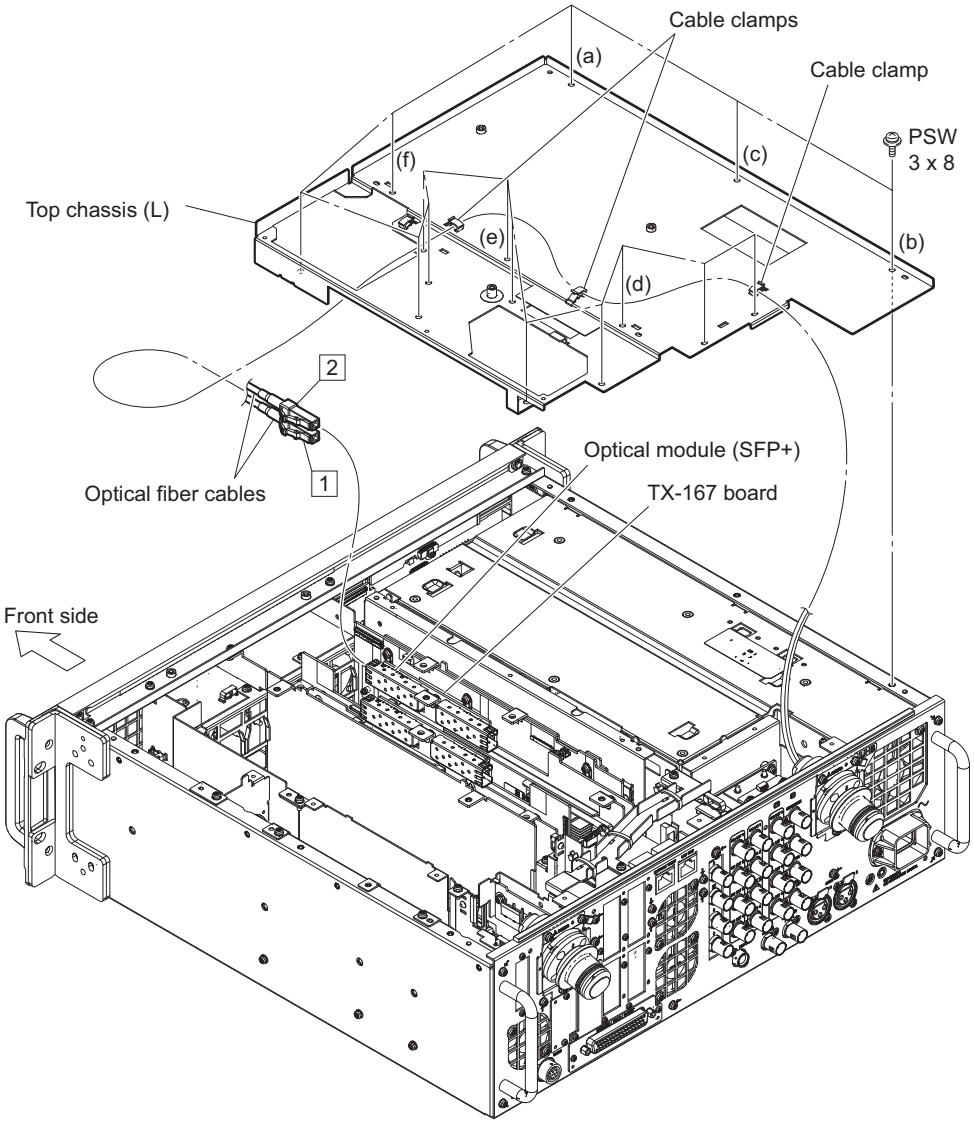
Procedure

1. Remove the two optical fiber cables from the three cable clamps.
2. Disconnect the two optical fiber cables from the optical module (SFP+).

   Note

   When connecting the optical fiber cables, refer to the number printed on the board.

3. Remove the 15 screws, then remove the top chassis (L).



   Tip

   When attaching the top chassis (L), tighten the screws in the order of (a) to (f), and other screws.

4. Install the removed parts by reversing the steps of removal.

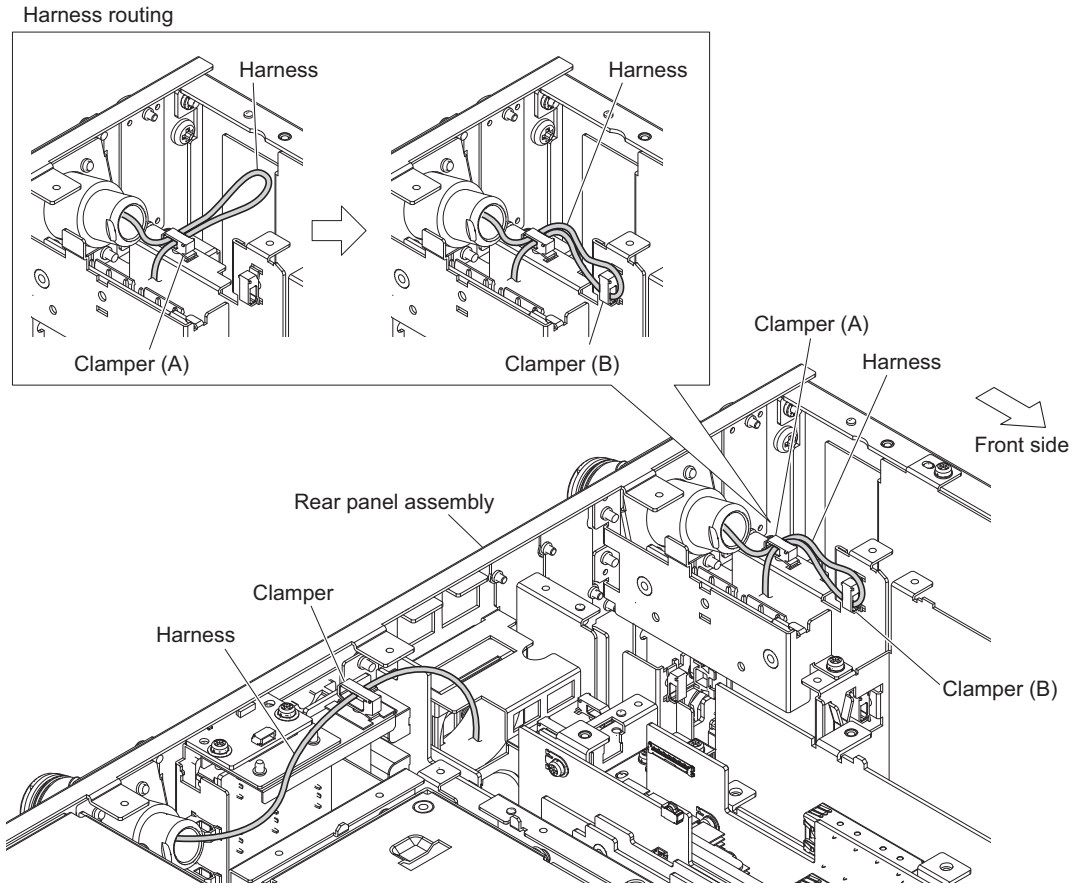
2-7. Rear Panel Assembly

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")

Procedure

1. Open the clamper, then remove the harness.

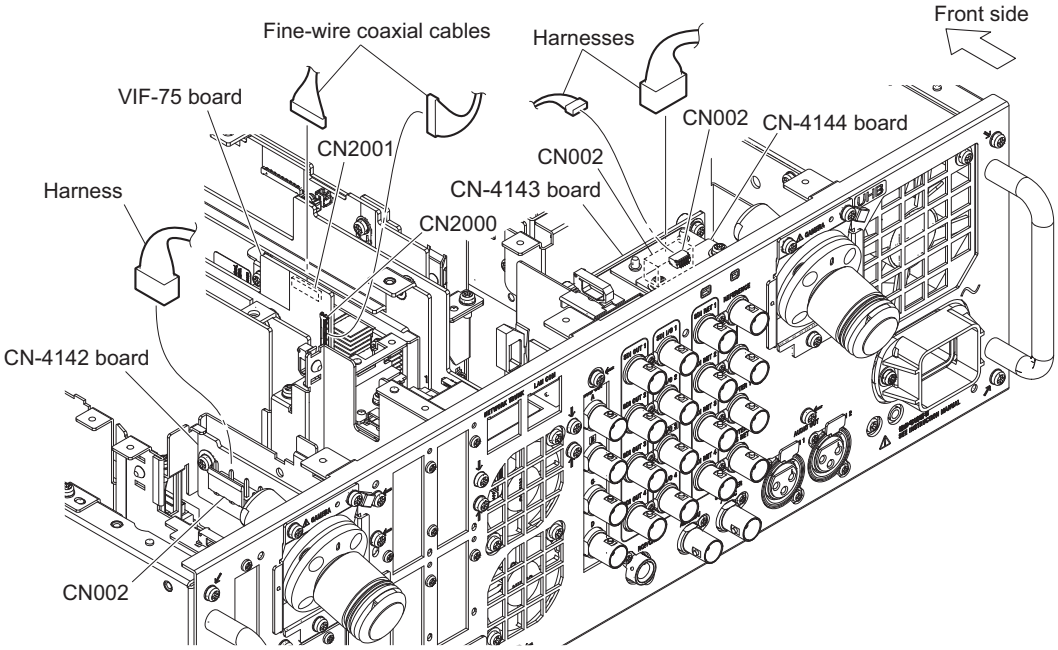


2. Open the two clampers (A) and (B), then remove the harness.

Tip

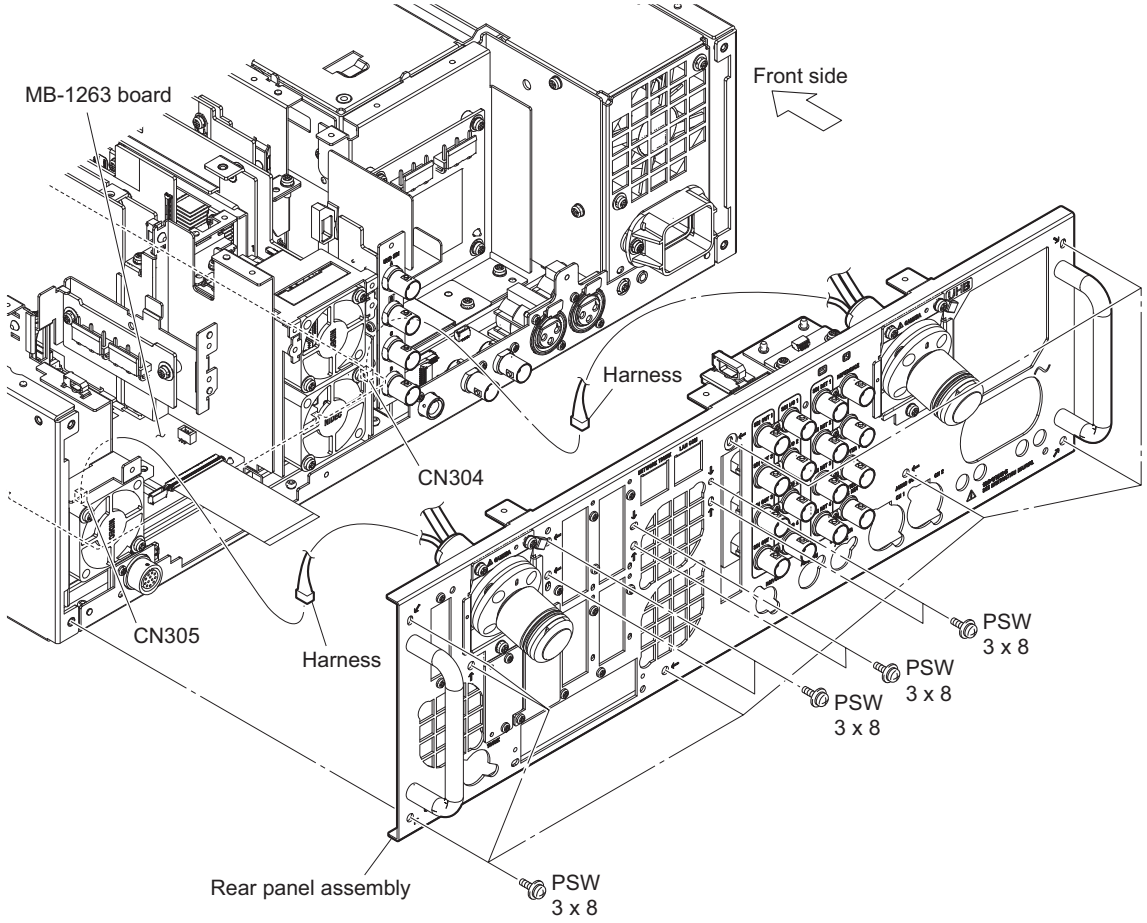
Secure the bundled harness with the clamper (A), then secure the looped extra length portion of the harness with the clamper (B) as shown in the illustration.

3. Disconnect the harnesses and fine-wire coaxial cables.
   (1) Disconnect the two fine-wire coaxial cables from the connectors (CN2000 and CN2001) on the VIF-75 board.
   (2) Disconnect the harness from the connector (CN002) on the CN-4143 board.
   (3) Disconnect the harness from the connector (CN002) on the CN-4142 board.
   (4) Disconnect the harness from the connector (CN002) on the CN-4144 board.



4. Remove the 14 screws, then remove the rear panel assembly.

5. Disconnect the two harnesses from the connectors (CN304 and CN305) on the MB-1263 board.



6. Install the removed parts by reversing the steps of removal.

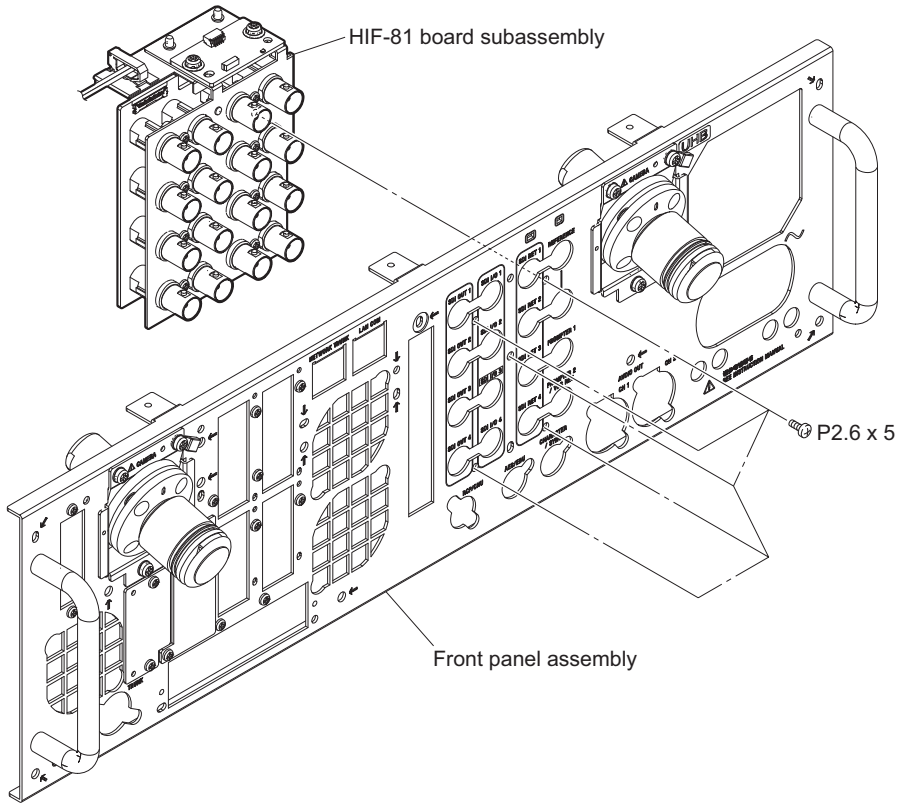
2-8. HIF-81 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

Procedure

1. Remove the five screws, then remove the HIF-81 board subassembly.

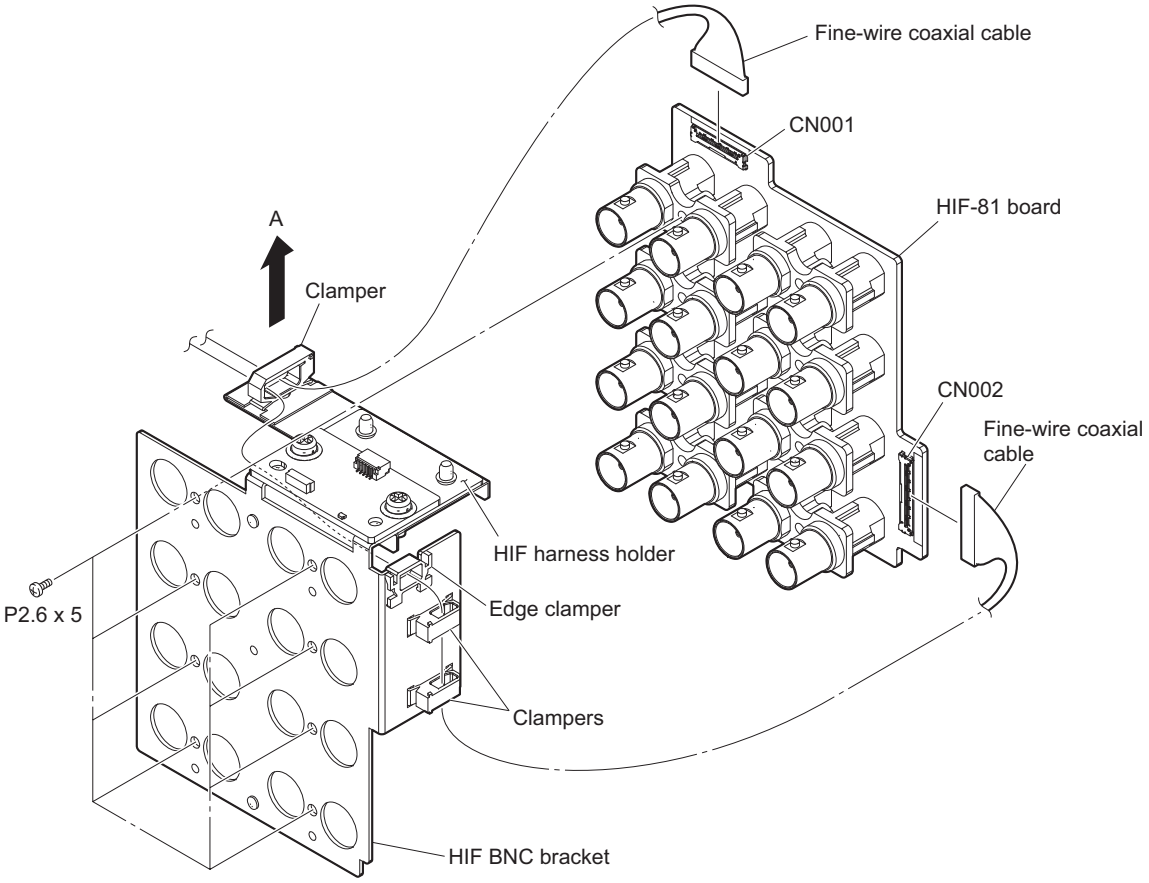


2. Open the three clampers and the edge clamper, then remove the two fine-wire coaxial cables.
3. Disconnect the two fine-wire coaxial cables from the connectors (CN001 and CN002) on the HIF-81 board.

4. Remove the eight screws, then remove the HIF-81 board.

Tip

It becomes easy to remove the HIF-81 board by lifting up the clamper side of the HIF harness holder in the direction of the arrow A being careful not to deform it.



Note

Route the fine-wire coaxial cable connected to the connector (CN002) on the HIF-81 board through the two clampers, the edge clamper, and under the HIF harness holder.

5. Install the removed parts by reversing the steps of removal.

2-9. Optical Composite Cable

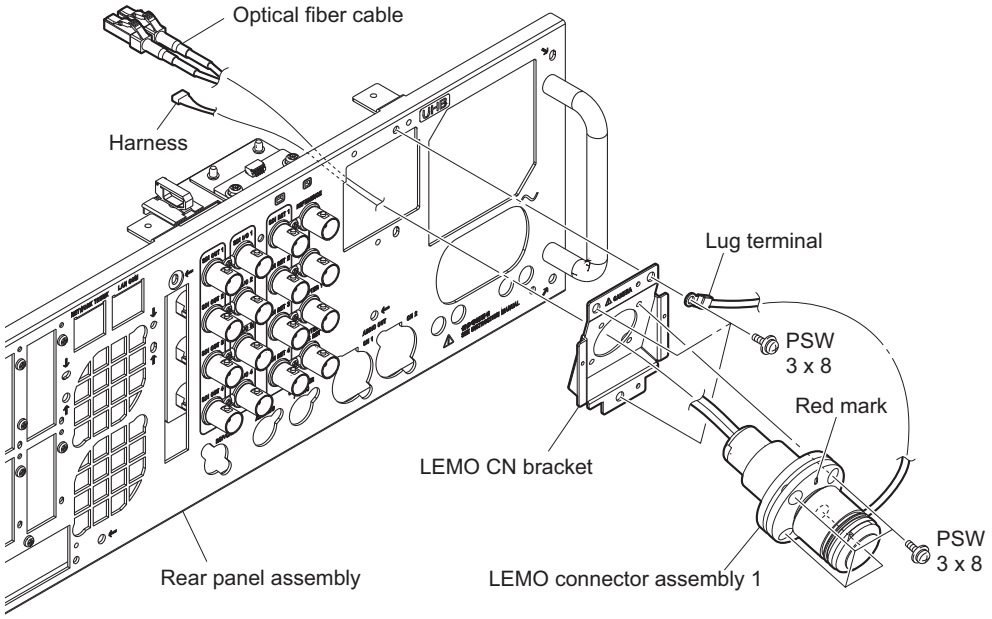
2-9-1. LEMO Connector Assembly 1

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

Procedure

1. Remove the LEMO connector assembly 1.
   (1) Remove the three screws, then remove the LEMO connector assembly 1.
   (2) Remove the four screws, then remove the lug terminal and LEMO CN bracket.



Note

- When attaching the LEMO connector assembly 1, attach it with the red mark facing upward.
- When attaching the LEMO connector assembly 1, tighten the four screws temporarily, then fully tighten them.

2. Install the removed parts by reversing the steps of removal.

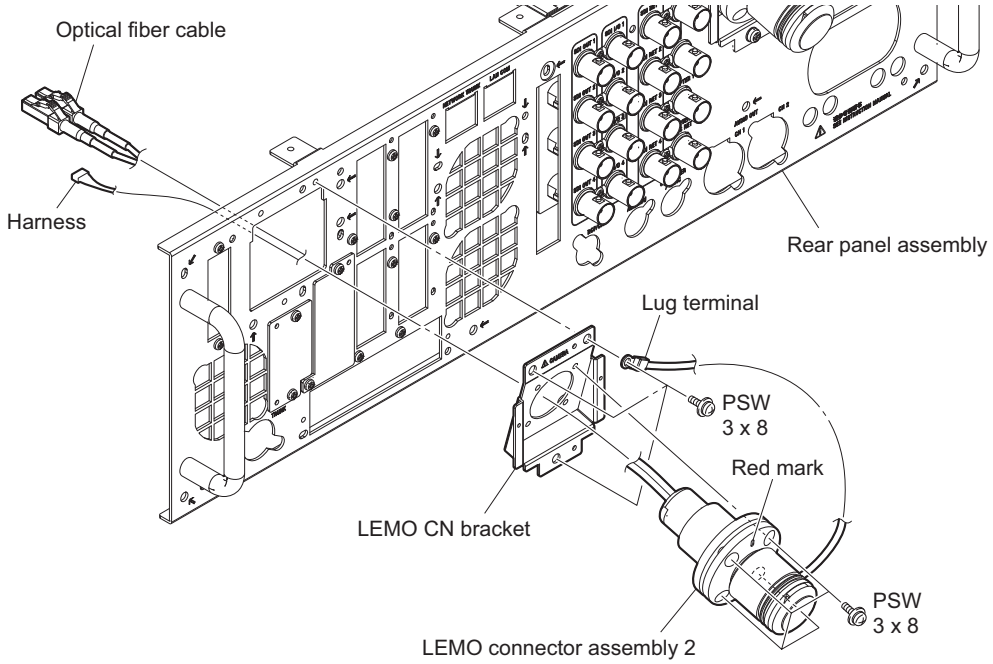
2-9-2. LEMO Connector Assembly 2

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

Procedure

1. Remove the LEMO connector assembly 2.
   (1) Remove the three screws, then remove the LEMO connector assembly 2.
   (2) Remove the four screws, then remove the lug terminal and LEMO CN bracket.



Note

- When attaching the LEMO connector assembly 2, attach it with the red mark facing upward.
- When attaching the LEMO connector assembly 2, tighten the four screws temporarily, then fully tighten them.

2. Install the removed parts by reversing the steps of removal.

2-9-3. TAJIMI Connector Assembly 1

Preparation

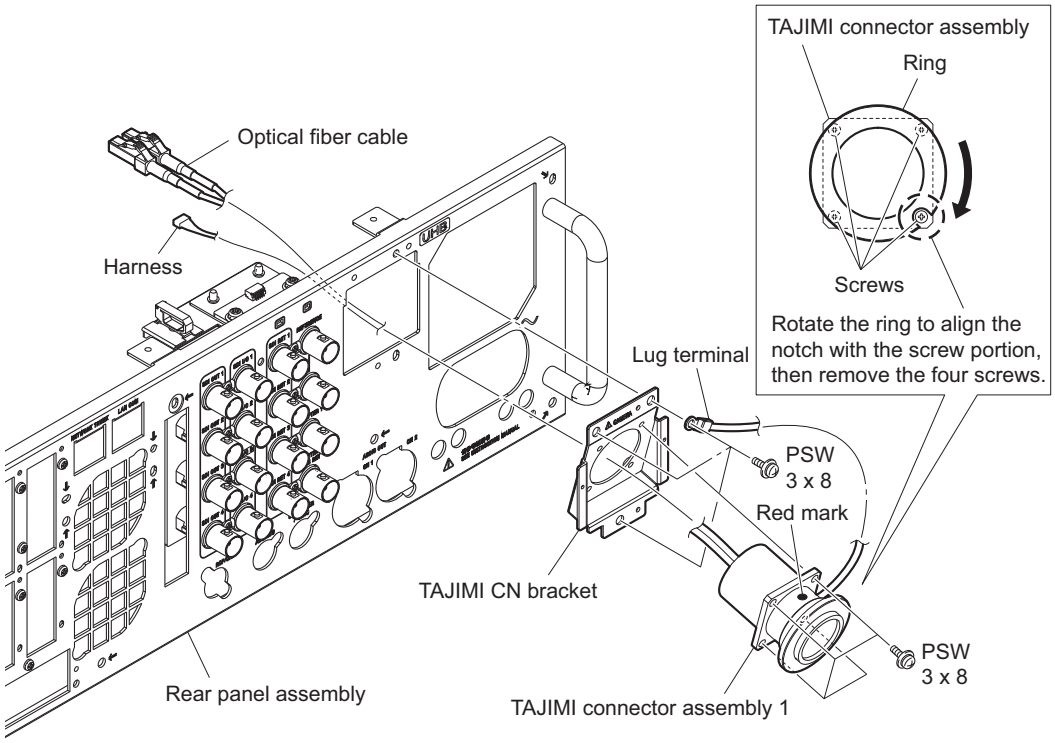
1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

Procedure

1. Remove the TAJIMI connector assembly 1.
   (1) Remove the three screws, then remove the TAJIMI connector assembly 1.
   (2) Remove the four screws, then remove the lug terminal and TAJIMI bracket.

   Tip

   Align the notch of the ring with the screw position, then remove the screws.



   Note

   - When attaching the TAJIMI connector assembly 1, attach it with the red mark facing upward.
   - When attaching the TAJIMI connector assembly 1, tighten the four screws temporarily, then fully tighten them.

2. Install the removed parts by reversing the steps of removal.

2-9-4. TAJIMI Connector Assembly 2

Preparation

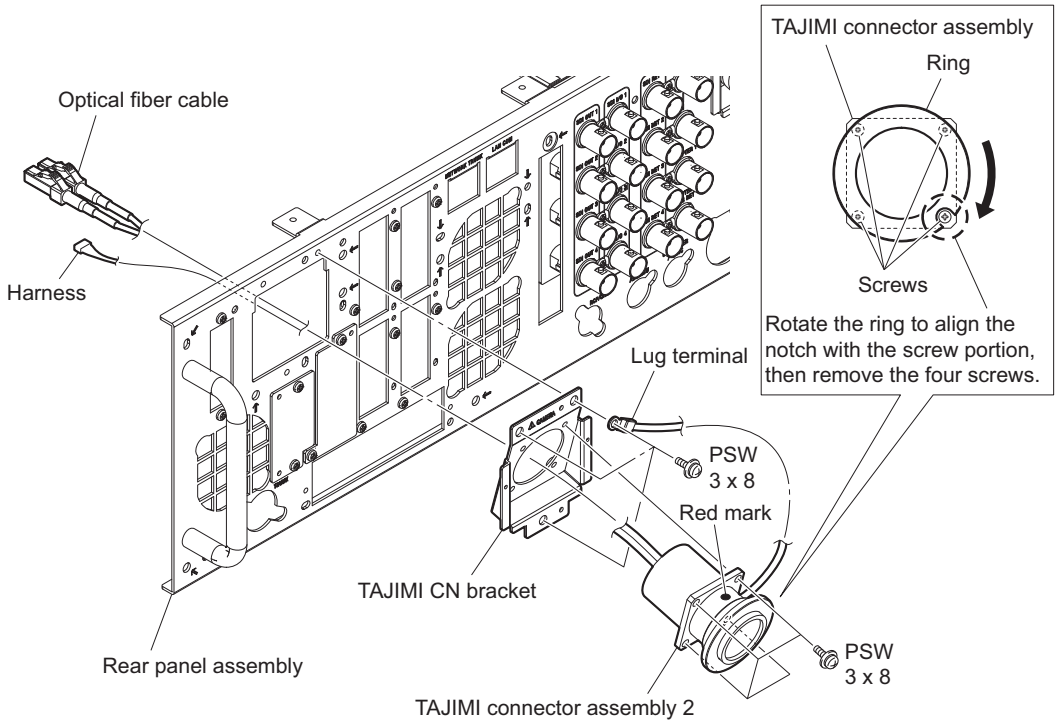
1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

Procedure

1. Remove the TAJIMI connector assembly 2.
   (1) Remove the three screws, then remove the TAJIMI connector assembly 2.
   (2) Remove the four screws, then remove the lug terminal and TAJIMI bracket.

   Tip

   Align the notch of the ring with the screw position, then remove the screws.



   Note

   - When attaching the TAJIMI connector assembly 2, attach it with the red mark facing upward.
   - When attaching the TAJIMI connector assembly 2, tighten the four screws temporarily, then fully tighten them.

2. Install the removed parts by reversing the steps of removal.

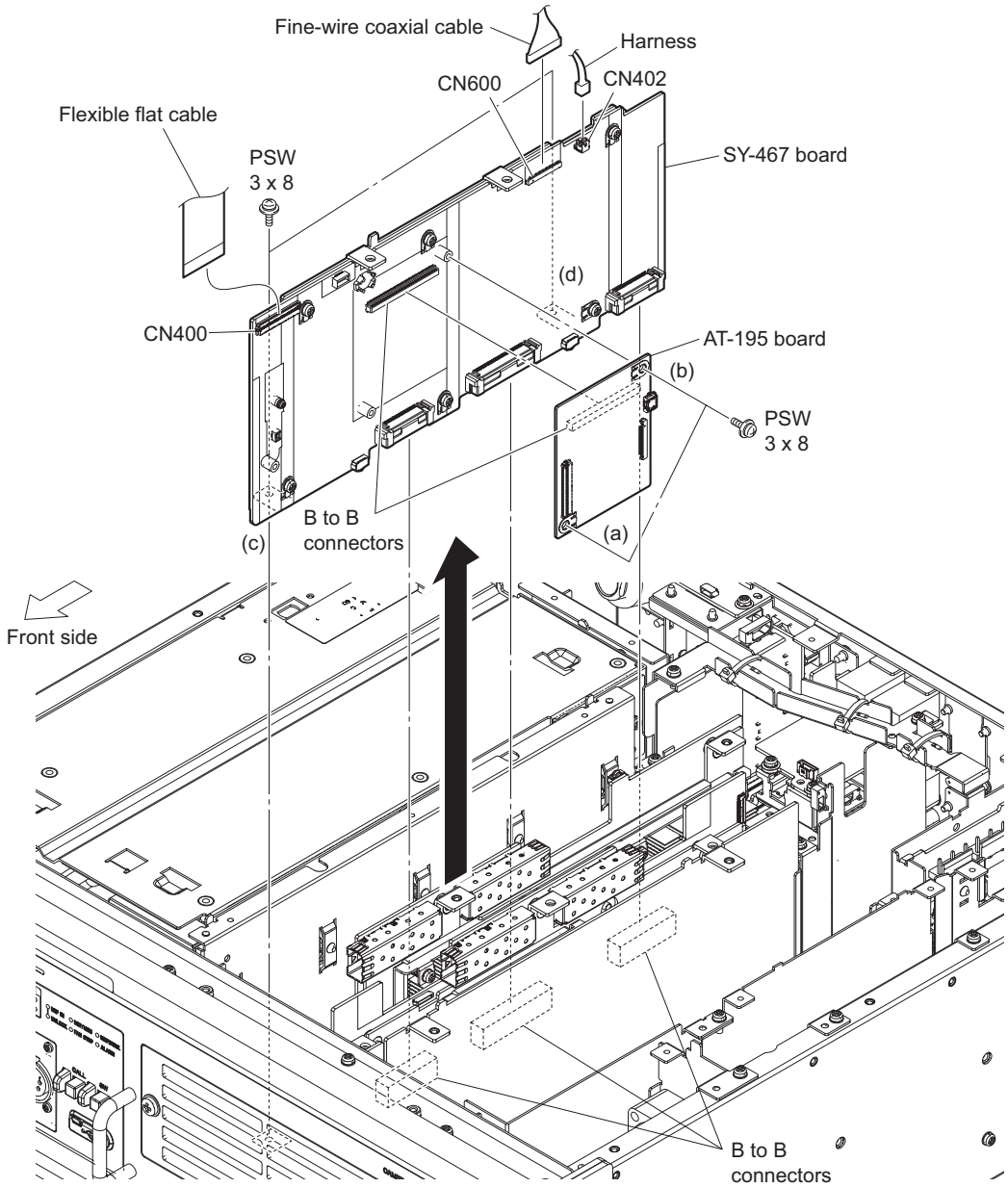
2-10. SY-467 Board/AT-195 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")

Procedure

1. Disconnect the flexible flat cable from the connector (CN400) on the SY-467 board.
2. Disconnect the fine-wire coaxial cable from the connector (CN600) on the SY-467 board.
3. Disconnect the harness from the connector (CN402) on the SY-467 board.
4. Remove the two screws, then remove the SY-467 board in the direction of the arrow.
5. Remove the two screws, then remove the AT-195 board.



Tip

- When installing the AT-195 board, tighten the screws in the order of (a) and (b).
- When installing the SY-467 board, tighten the screws in the order of (c) and (d).

6. Install the removed parts by reversing the steps of removal.

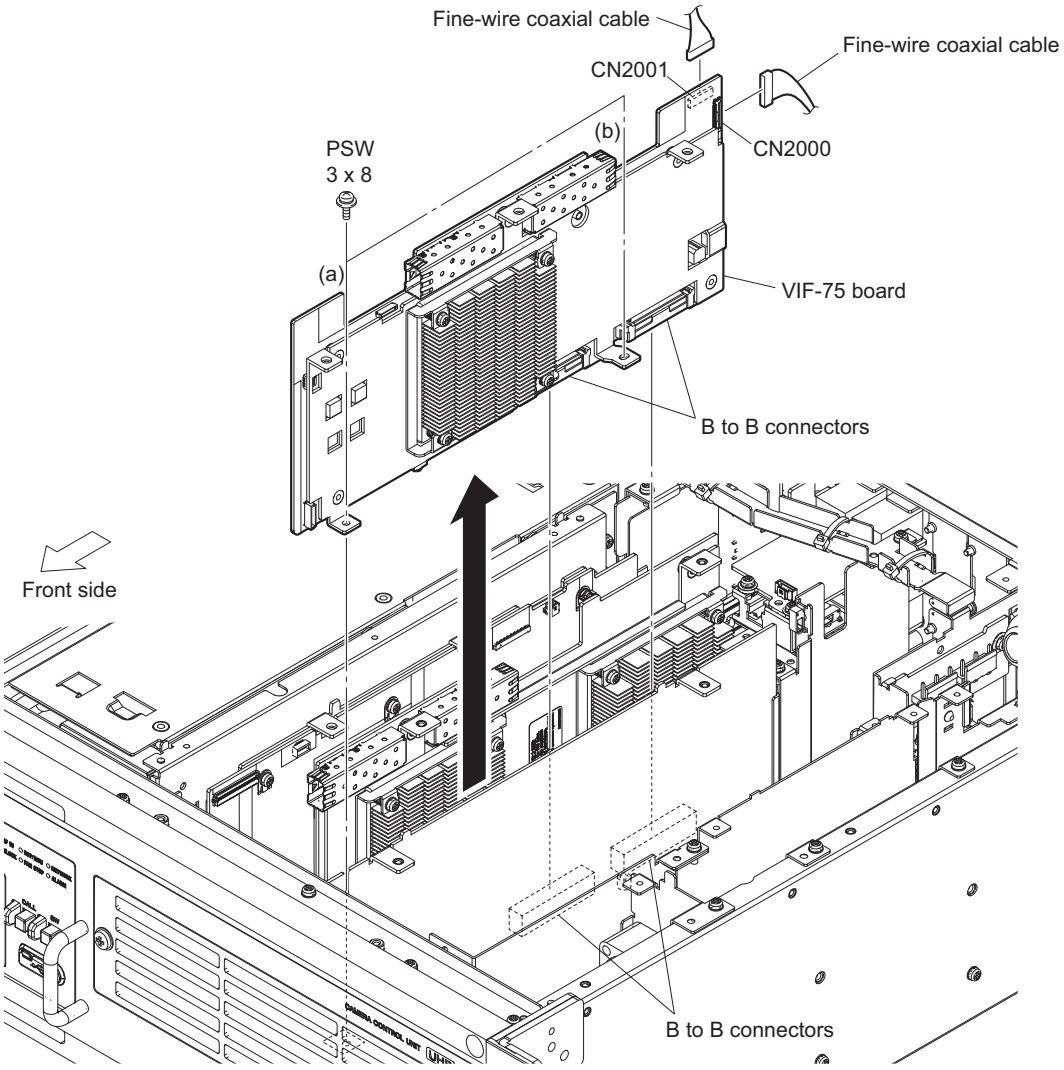
2-11. VIF-75 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")

Procedure

1. Disconnect the two fine-wire coaxial cables from the connectors (CN2000 and CN2001) on the VIF-75 board.
2. Remove the two screws, then remove the VIF-75 board in the direction of the arrow.



Tip

When installing the VIF-75 board, tighten the screws in the order of (a) and (b).

3. Install the removed parts by reversing the steps of removal.

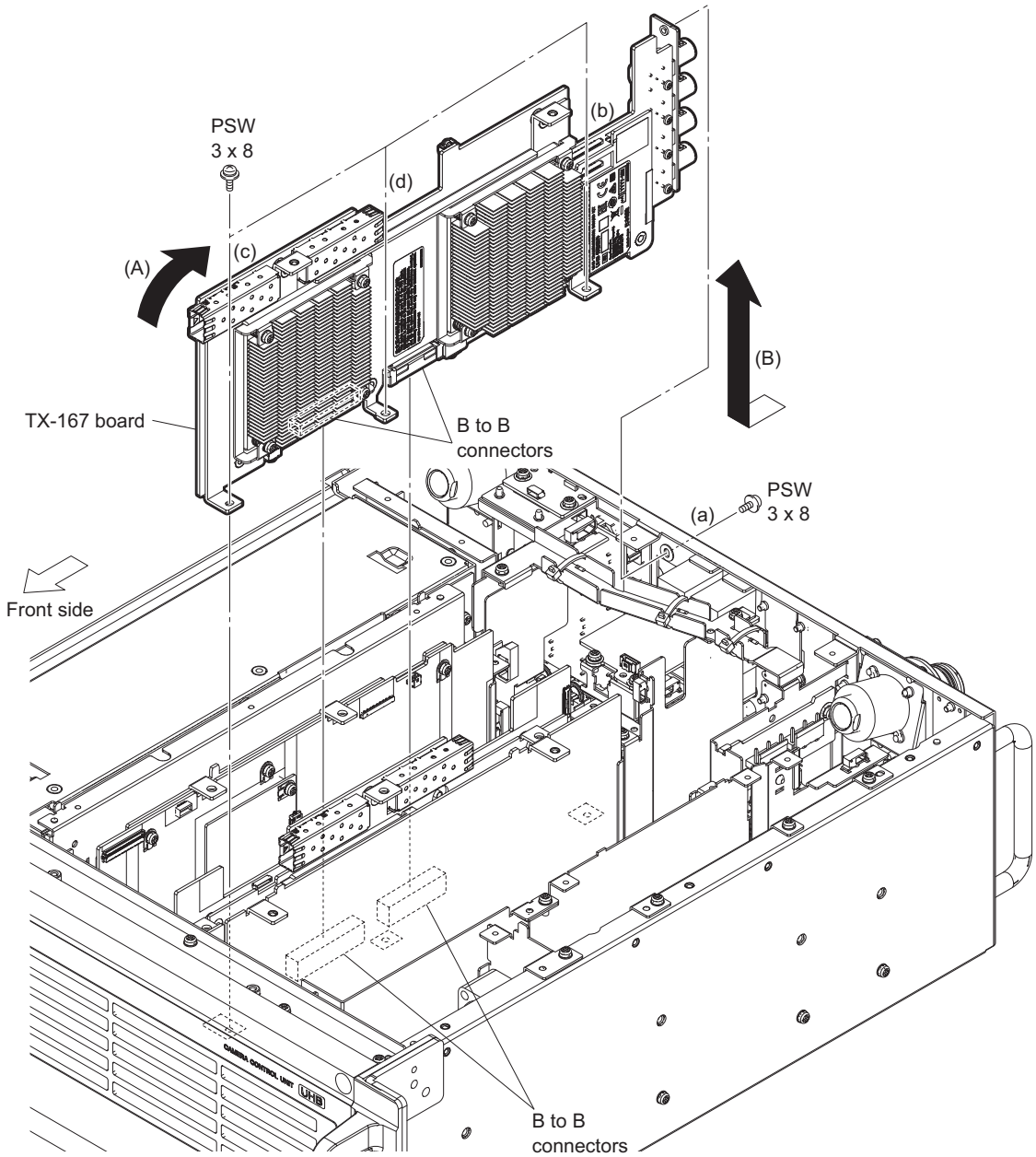
2-12. TX-167 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")

Procedure

1. Remove the four screws, then slightly pull up the front side of the TX-167 board in the direction of the arrow (A), then disconnect the B to B connectors.
2. Remove the TX-167 board in the direction of the arrow (B).



Tip

When installing the TX-167 board, tighten the screws in the order from (a) to (d).

3. Install the removed parts by reversing the steps of removal.

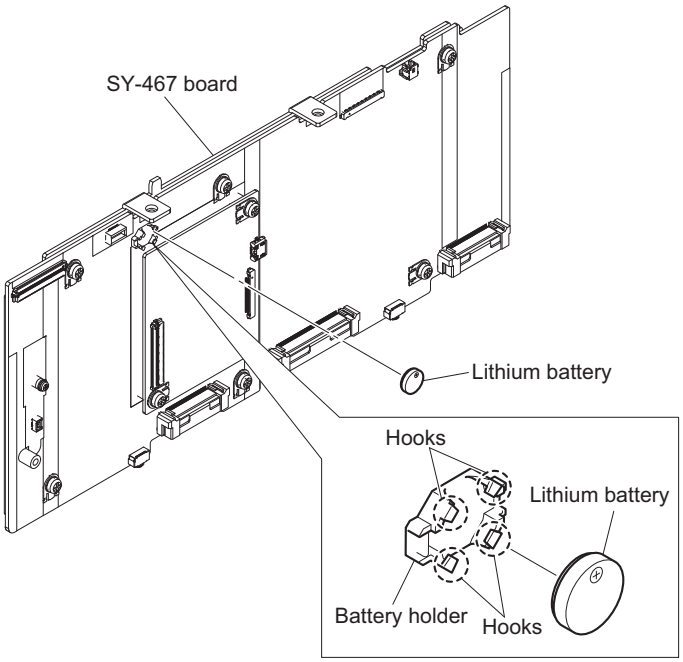
2-13. Lithium Battery

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the SY-467 board. (Refer to "2-10. SY-467 Board/AT-195 Board")

Procedure

1. Remove the lithium battery from the four hooks of the battery holder.



Note

When attaching the lithium battery, place it in the direction as shown in the illustration.

2. Install the removed parts by reversing the steps of removal.

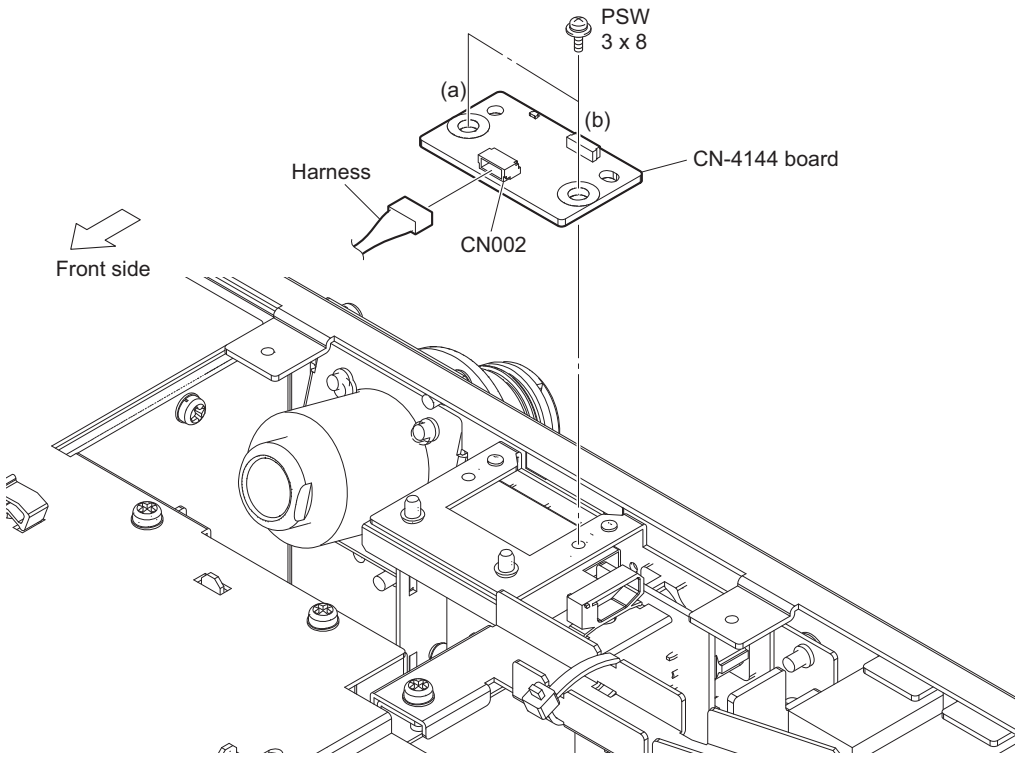
2-14. CN-4144 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”)

Procedure

1. Disconnect the harness from the connector (CN002) on the CN-4144 board.
2. Remove the two screws, then remove the CN-4144 board.



Tip

When installing the CN-4144 board, tighten the screws in the order of (a) and (b).

3. Install the removed parts by reversing the steps of removal.

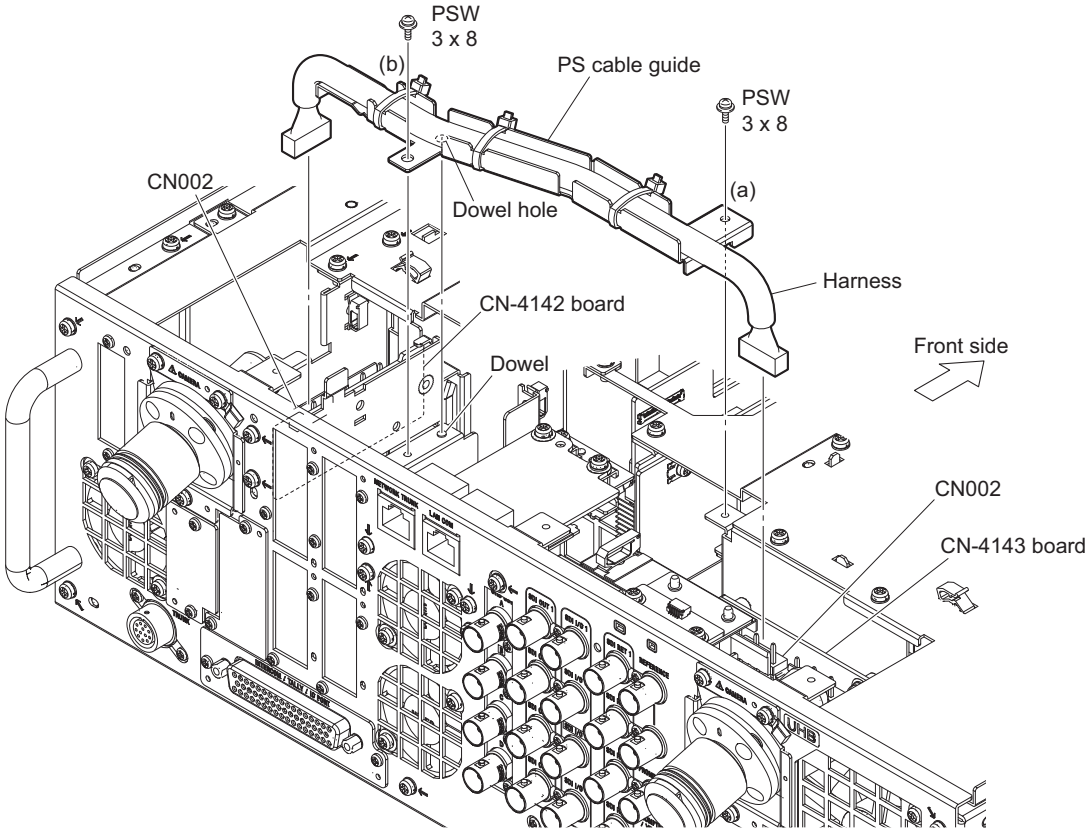
2-15. CN-4134 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”)

Procedure

1. Disconnect the harness from the connector (CN002) on the CN-4142 board.
2. Disconnect the harness from the connector (CN002) on the CN-4143 board.
3. Remove the two screws, then remove the PS cable guide.

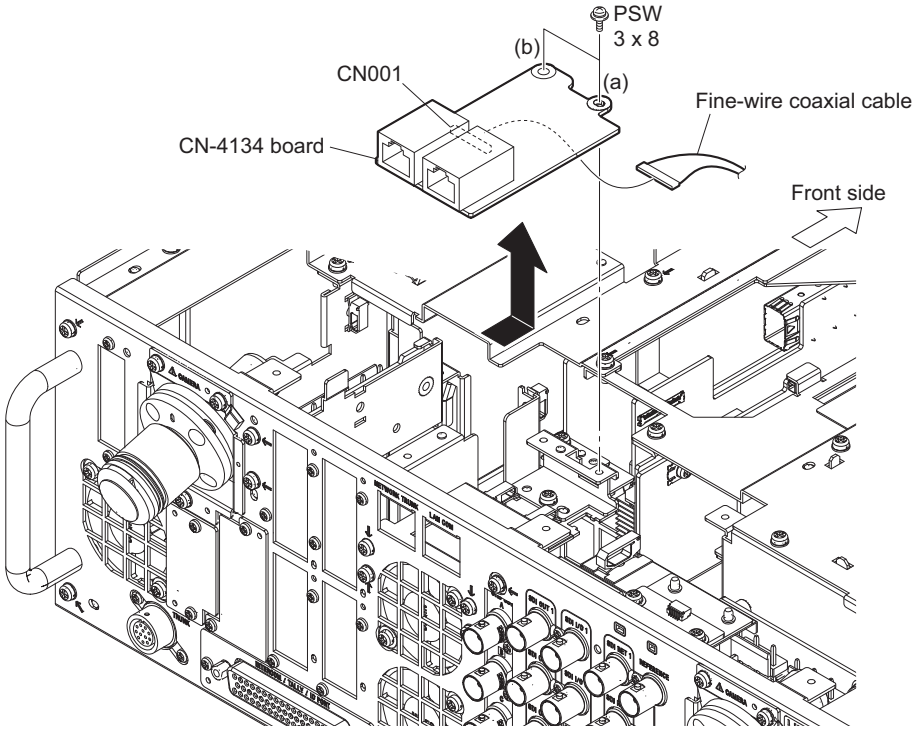


Tip

When attaching the PS cable guide, align the dowel hole, then tighten the screws in the order of (a) and (b).

4. Remove the two screws, then remove the CN-4134 board in the direction of the arrow.

5. Disconnect the fine-wire coaxial cable from the connector (CN001) on the CN-4134 board.



Tip

When installing the CN-4134 board, tighten the screws in the order of (a) and (b).

6. Install the removed parts by reversing the steps of removal.

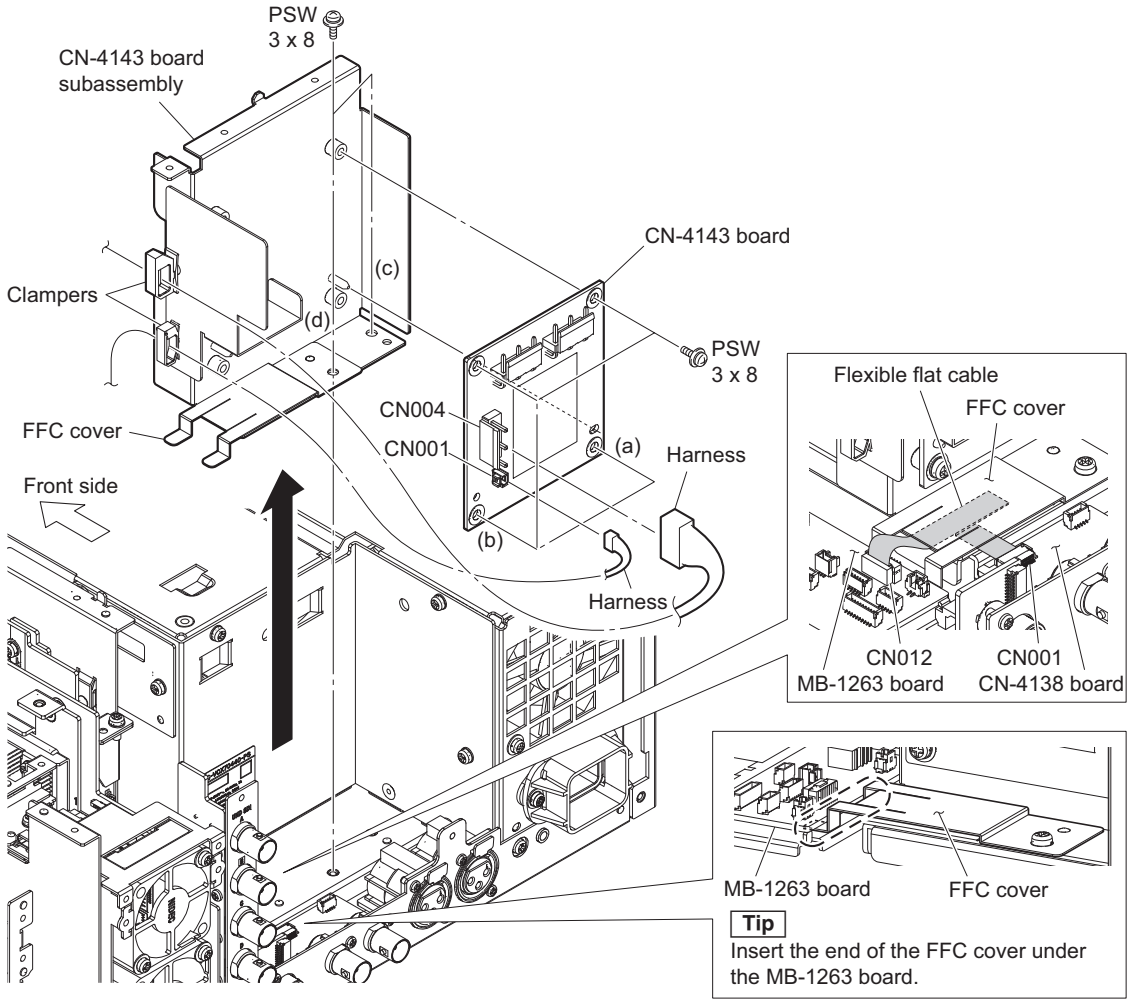
2-16. CN-4143 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

Procedure

1. Open the two clampers, then remove the two harnesses.
2. Disconnect the two harnesses from the connectors (CN001 and CN004) on the CN-4143 board.
3. Remove the two screws, then remove the CN-4143 board subassembly in the direction of the arrow.
4. Remove the four screws, then remove the CN-4143 board.



Tip

- When installing the CN-4143 board, tighten the screws in the order of (a), (b), and other screws.
- When installing the CN-4143 board subassembly, tighten the screw (c). Next, attach the FFC cover on the flexible flat cable, then tighten the screw (d).

5. Install the removed parts by reversing the steps of removal.

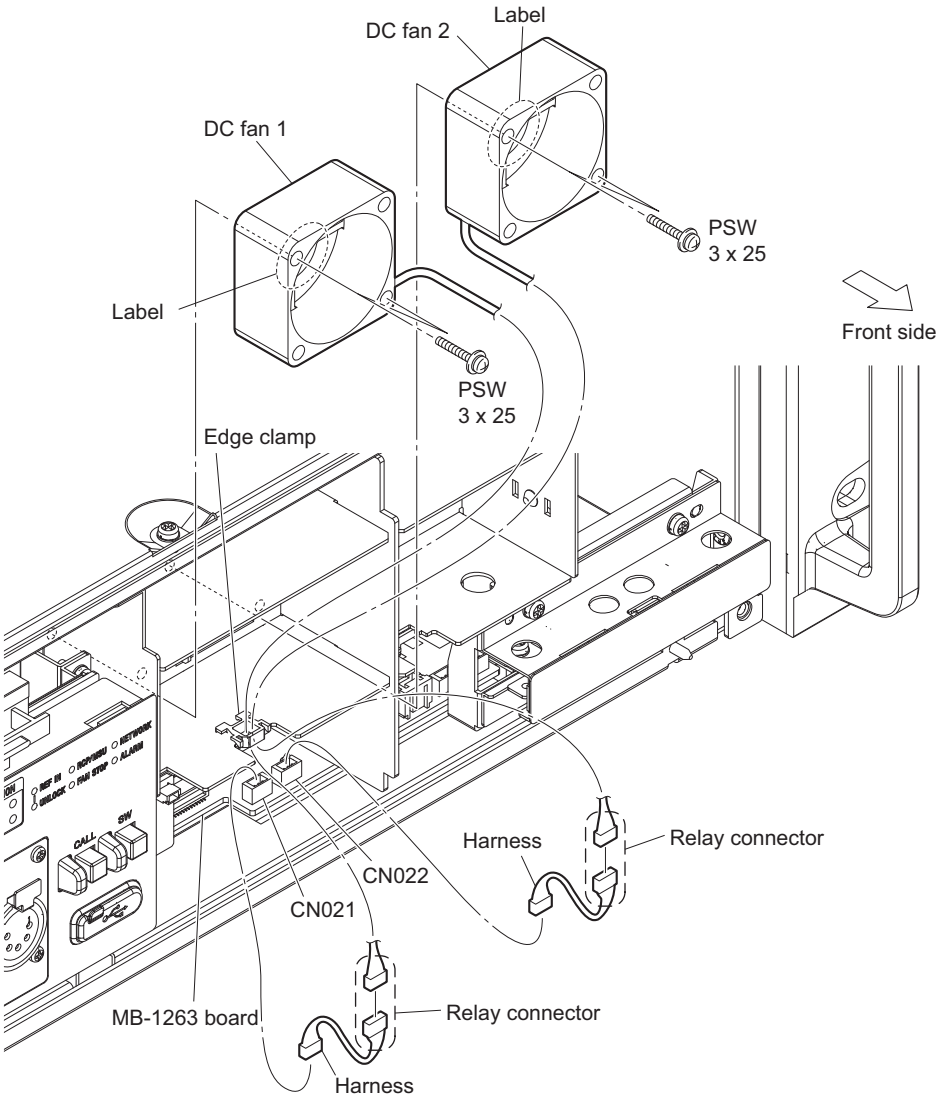
2-17. DC Fan 1 and DC Fan 2

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")

Procedure

1. Remove the two fan harnesses from the edge clamp.
2. Disconnect the two harnesses from the connectors (CN021 and CN022) on the MB-1263 board.
3. Remove the two screws, then remove the DC fan 1.
4. Disconnect the harness from the relay connector.
5. Remove the DC fan 2 in the same procedure as steps 3 and 4.



Note

- When attaching the DC fan, pay attention to the position of the label and harness.
- The harnesses of DC fan 1 and DC fan 2 can be connected to either of the connectors (CN021 and CN022) on the MB-1263 board.

6. Install the removed parts by reversing the steps of removal.

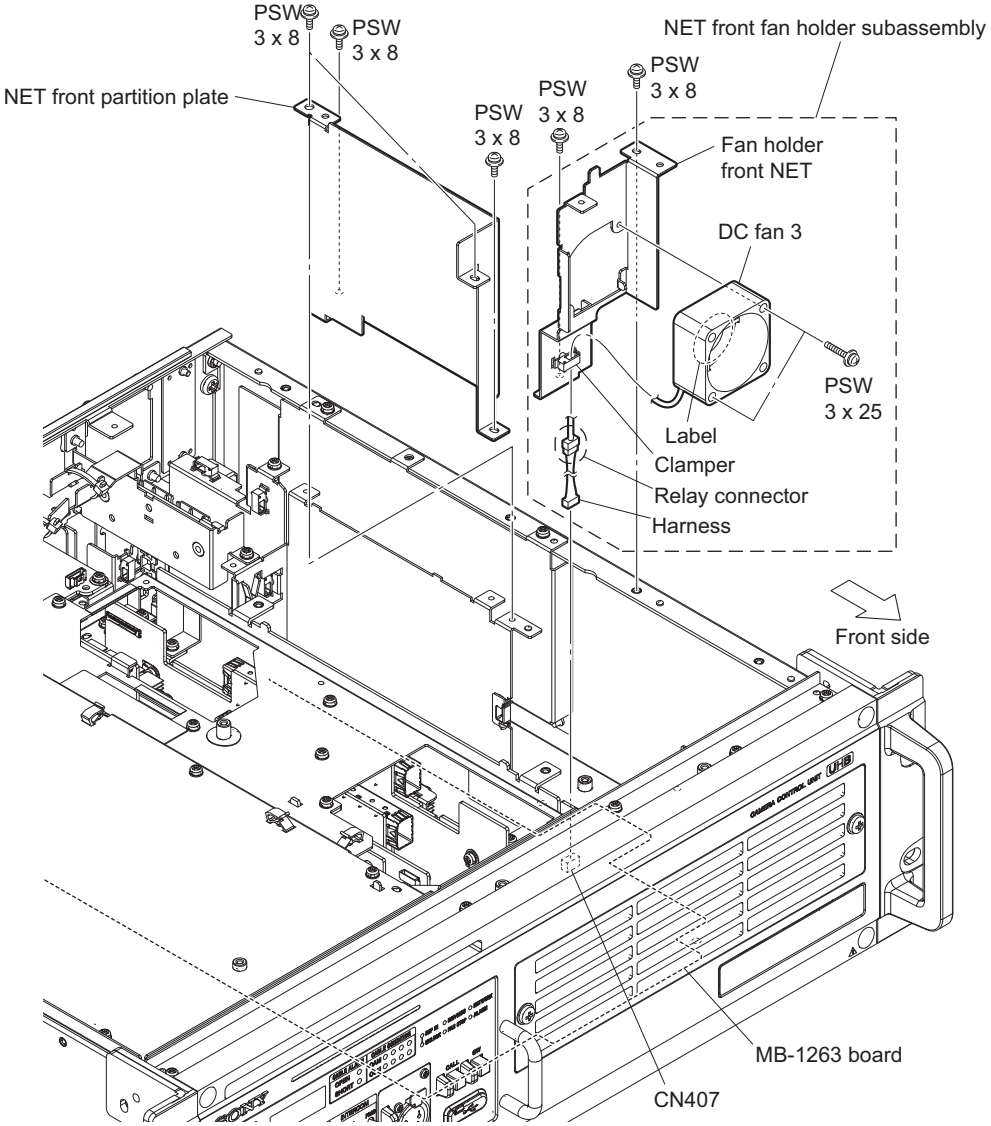
2-18. DC Fan 3

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")

Procedure

1. Remove the four screws, then remove the NET front partition plate.
2. Disconnect the harness from the connector (CN407) on the MB-1263 board.
3. Remove the two screws, then remove the NET front fan holder subassembly.
4. Open the clamper, then remove the harness.
5. Remove the two harnesses, then remove the DC fan 3.
6. Disconnect the harness from the relay connector.



Note

When attaching the DC fan, pay attention to the position of the label and harness.

7. Install the removed parts by reversing the steps of removal.

2-19. Power Block

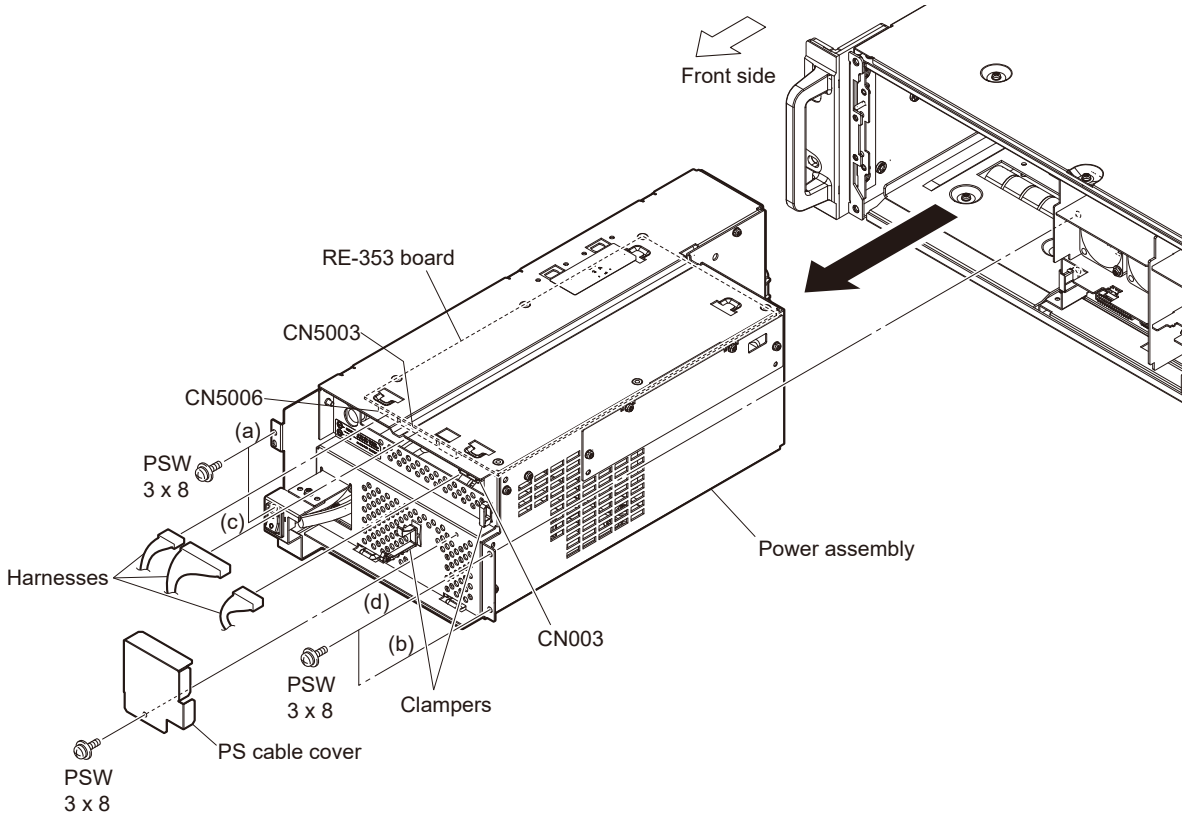
2-19-1. Power Assembly

Preparation

1. Remove the front panel assembly. (Refer to “2-3. Front Panel Assembly”.)
2. Remove the power panel assembly. (Refer to “2-4. Power Panel Assembly”.)

Procedure

1. Remove the screw, then remove the PS cable cover.
2. Open the two clampers, then remove the three harnesses.
3. Disconnect the three harnesses from the connectors (CN003, CN5003 and CN5006) on the RE-353 board.
4. Remove the four screws, then remove the power assembly in the direction of the arrow.



Tip

When attaching the power assembly, tighten the screws in the order from (a) to (d).

5. Set the two voltage selectors on the power assembly to the settings shown in the diagram.
   (Refer to “1-11-1. Setting the Power Voltage”.)
6. Check if the CAMERA fuse of the replacement power block assembly (A10) adapts to the working power voltage.
   If not, replace it with the one adapting to the working power voltage. (Refer to “1-11-2. Replacing the Fuse”.)
7. Install the power assembly in the reverse order.

2-19-2. RE-353 Board

Preparation

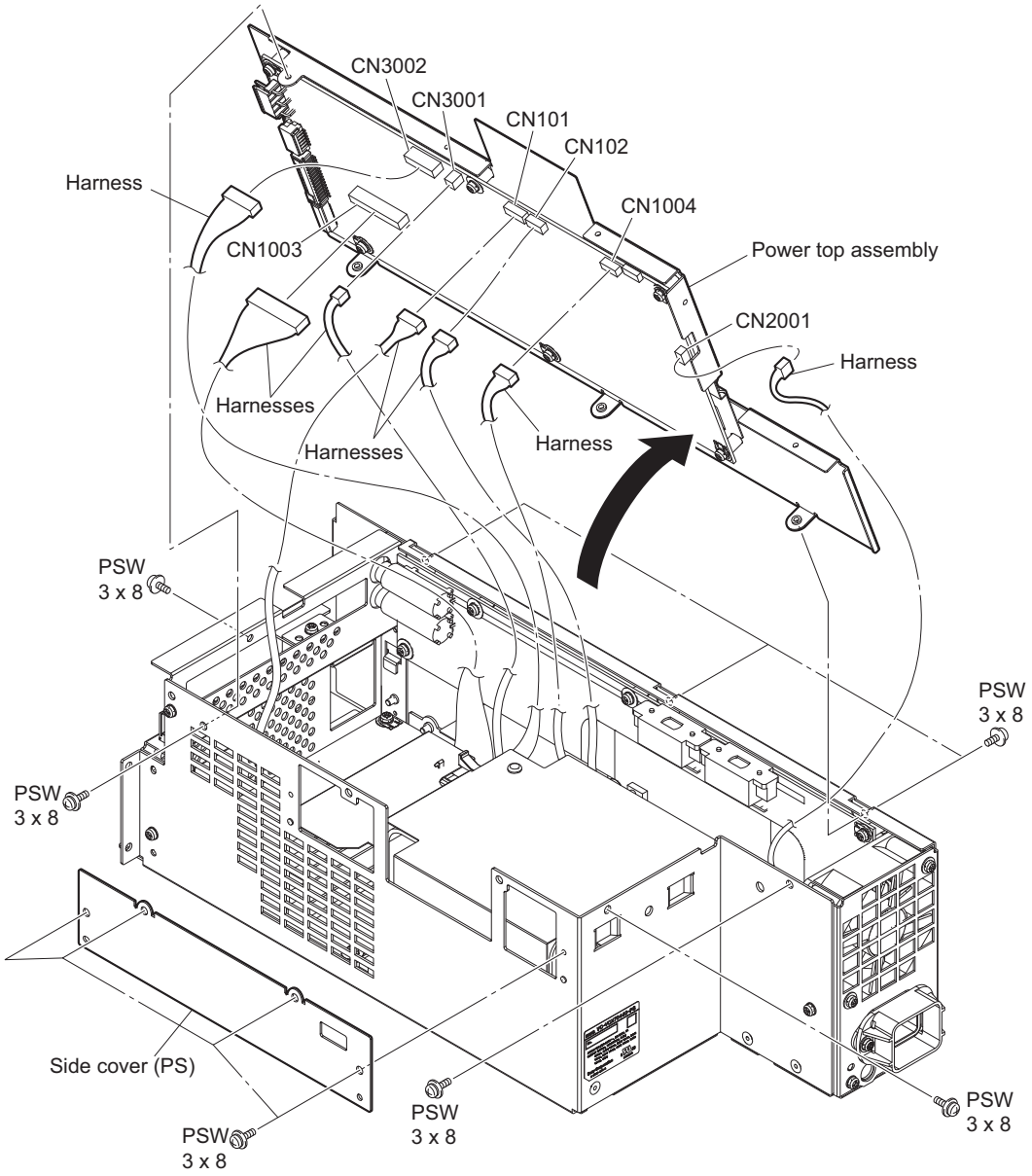
1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")
3. Remove the power assembly. (Refer to "2-19-1. Power Assembly")

Procedure

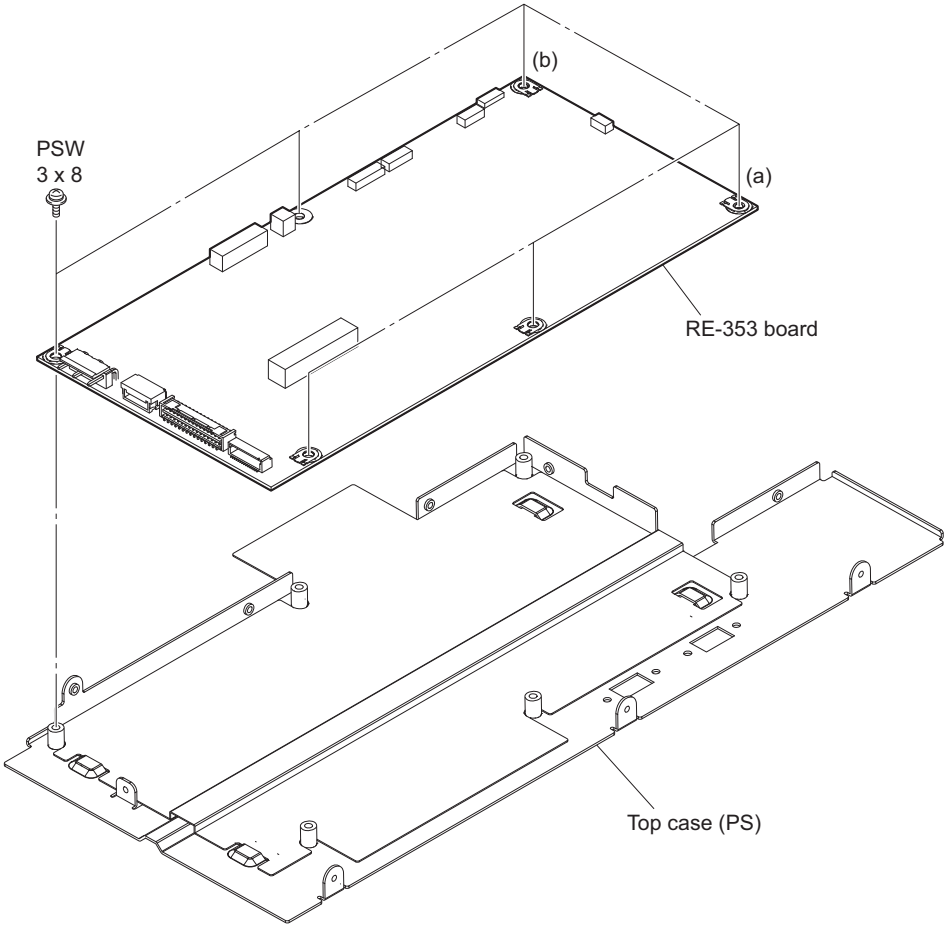
1. Remove the power top assembly.
   (1) Remove the four screws, then remove the side cover (PS).
   (2) Remove the seven screws, then remove the power top assembly in the direction of the arrow.
   (3) Disconnect the seven harnesses from the connectors (CN101, CN102, CN1003, CN1004, CN2001, CN3001 and CN3002) on the RE-353 board.

   Note

   When removing the power top assembly, be careful not to damage the harness connected to the RE-353 board.



2. Remove the six screws, then remove the RE-353 board.



Tip

When installing the RE-353 board, tighten the screws in the order of (a), (b), and other screws.

3. Install the removed parts by reversing the steps of removal.

2-19-3. PS-954 Board

Preparation

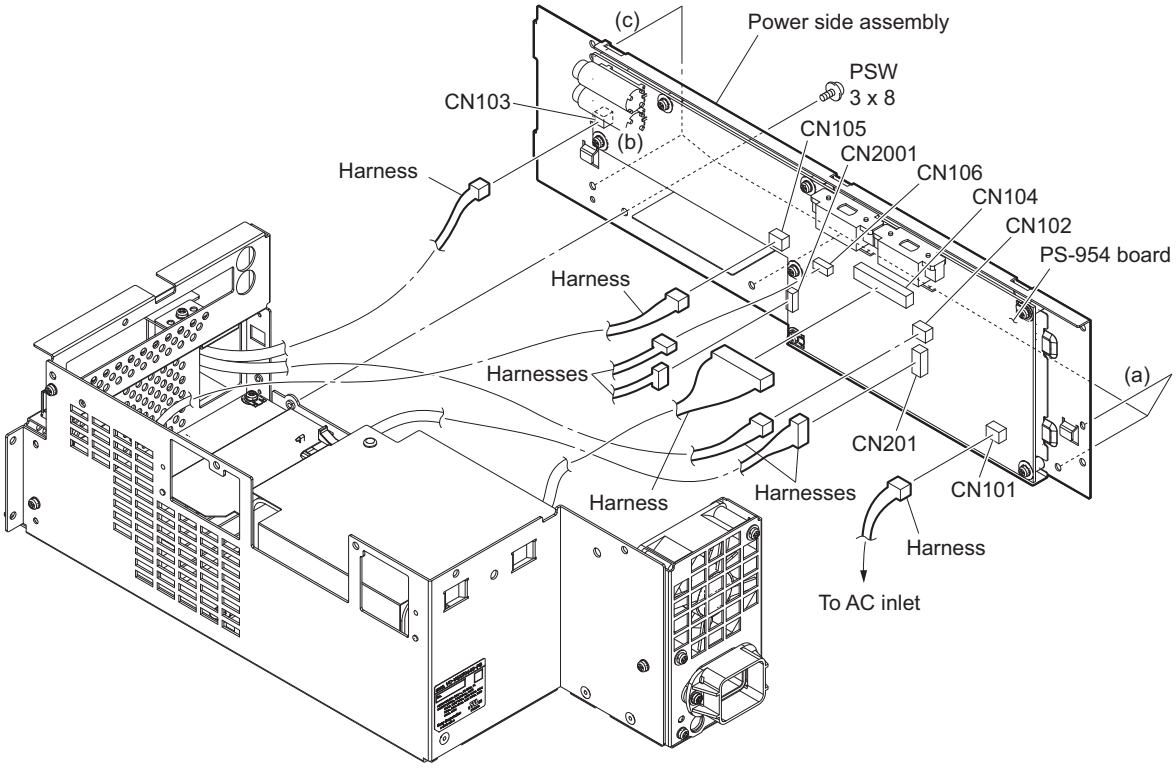
1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")
3. Remove the power assembly. (Refer to "2-19-1. Power Assembly")
4. Remove the power top assembly. (Refer to step 1 in "2-19-2. RE-353 Board")

Procedure

1. Remove the power side assembly.
   (1) Remove the six screws, then remove the power side assembly.
   (2) Disconnect the eight harnesses from the connectors (CN101 to CN106, CN201 and CN2001) on the PS-954 board.

Note

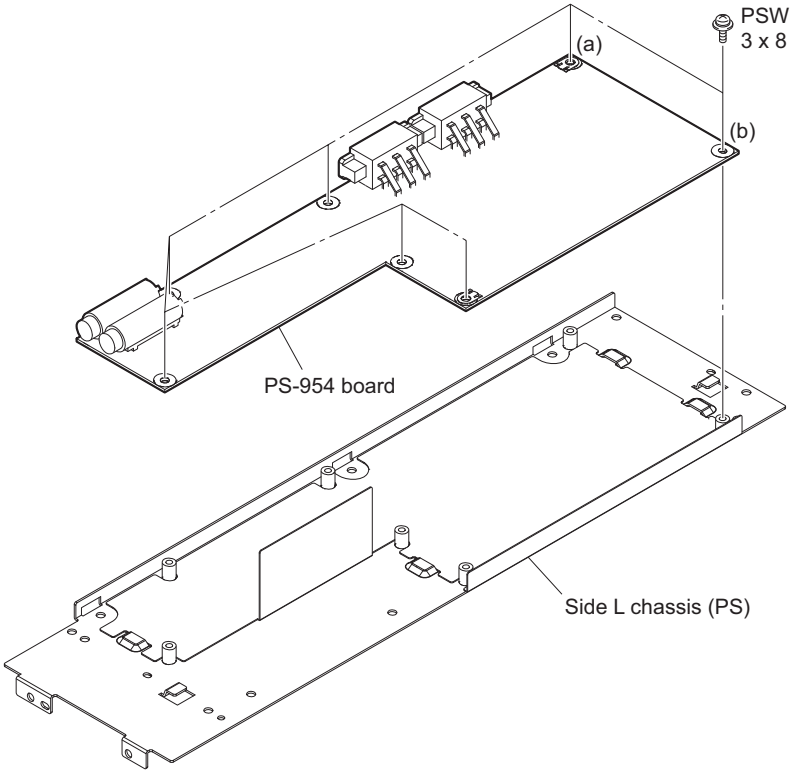
When removing the power side assembly, be careful not to damage the harness connected to the PS-954 board.



Tip

When attaching the power side assembly, tighten the screws in the order of (a), (b), (c), and other screws.

2. Remove the seven screws, then remove the PS-954 board.



Tip

When installing the PS-954 board, tighten the screws in the order of (a), (b), and other screws.

3. Install the removed parts by reversing the steps of removal.

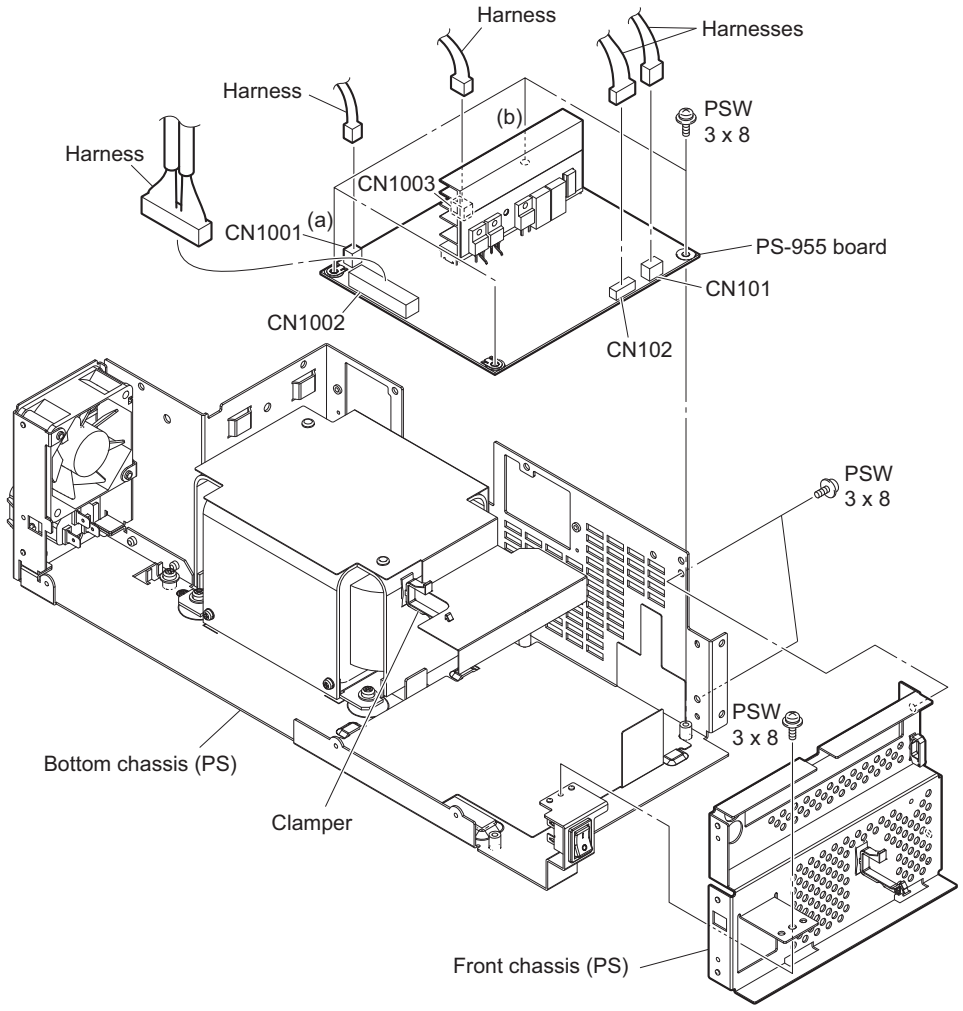
2-19-4. PS-955 Board

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")
3. Remove the power assembly. (Refer to "2-19-1. Power Assembly")
4. Remove the power top assembly. (Refer to step 1 in "2-19-2. RE-353 Board")
5. Remove the power side assembly. (Refer to step 1 in "2-19-3. PS-954 Board")

Procedure

1. Remove the three screws, then remove the front chassis (PS).
2. Open the clamper, then remove the harness.
3. Remove the four screws, then remove the PS-955 board.
4. Disconnect all harnesses connected to the connectors on the PS-955 board.



Tip

When installing the PS-955 board, tighten the screws in the order of (a), (b), and other screws.

5. Install the removed parts by reversing the steps of removal.

2-19-5. DC Fan (Power)

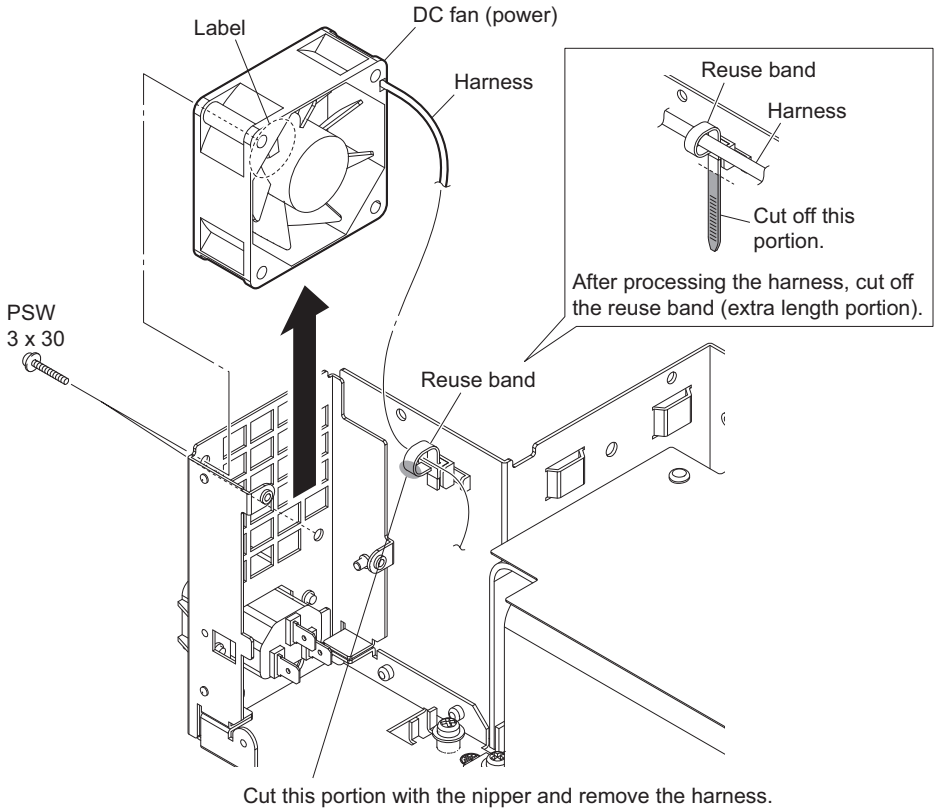
Required tool: Nipper

Preparation

1. Remove the front panel assembly. (Refer to “2-3. Front Panel Assembly”)
2. Remove the power panel assembly. (Refer to “2-4. Power Panel Assembly”)
3. Remove the power assembly. (Refer to “2-19-1. Power Assembly”)
4. Remove the power top assembly. (Refer to step 1 in “2-19-2. RE-353 Board”)
5. Remove the power side assembly. (Refer to step 1 in “2-19-3. PS-954 Board”)

Procedure

1. Cut the reuse band with the nipper and remove the harness.
2. Remove the two screws, then remove the DC fan (power) in the direction of the arrow.



3. Install the removed parts by reversing the steps of removal.

Note

- When attaching the DC fan, pay attention to the position of the label and harness.
- After processing the fan harness, cut off the extra length portion of the reuse band with the nipper.

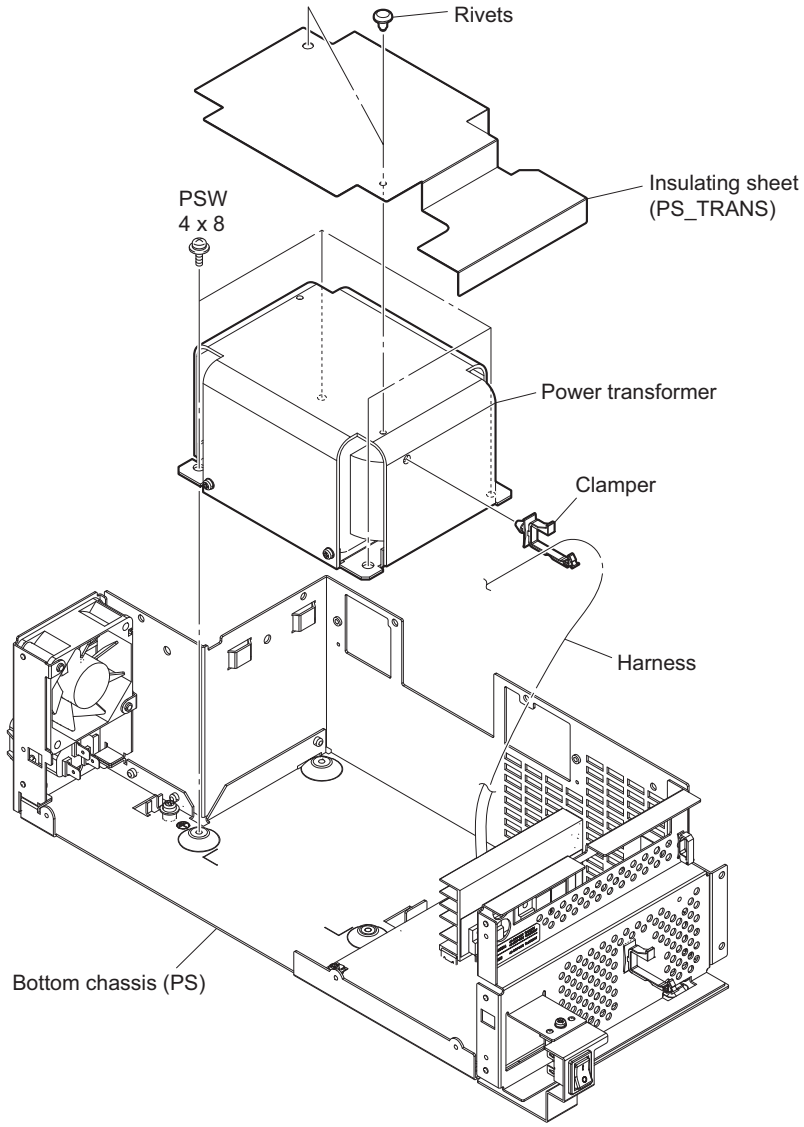
2-19-6. Power Transformer

Preparation

1. Remove the front panel assembly. (Refer to “2-3. Front Panel Assembly”)
2. Remove the power panel assembly. (Refer to “2-4. Power Panel Assembly”)
3. Remove the power assembly. (Refer to “2-19-1. Power Assembly”)
4. Remove the power top assembly. (Refer to step 1 in “2-19-2. RE-353 Board”)
5. Remove the power side assembly. (Refer to step 1 in “2-19-3. PS-954 Board”)

Procedure

1. Open the clamper, then remove the harness.
2. Remove the four screws, then remove the power transformer.
3. Remove the two rivets, then remove the insulating sheet (PS_TRANS).
4. Remove the clamper.



5. Install the removed parts by reversing the steps of removal.

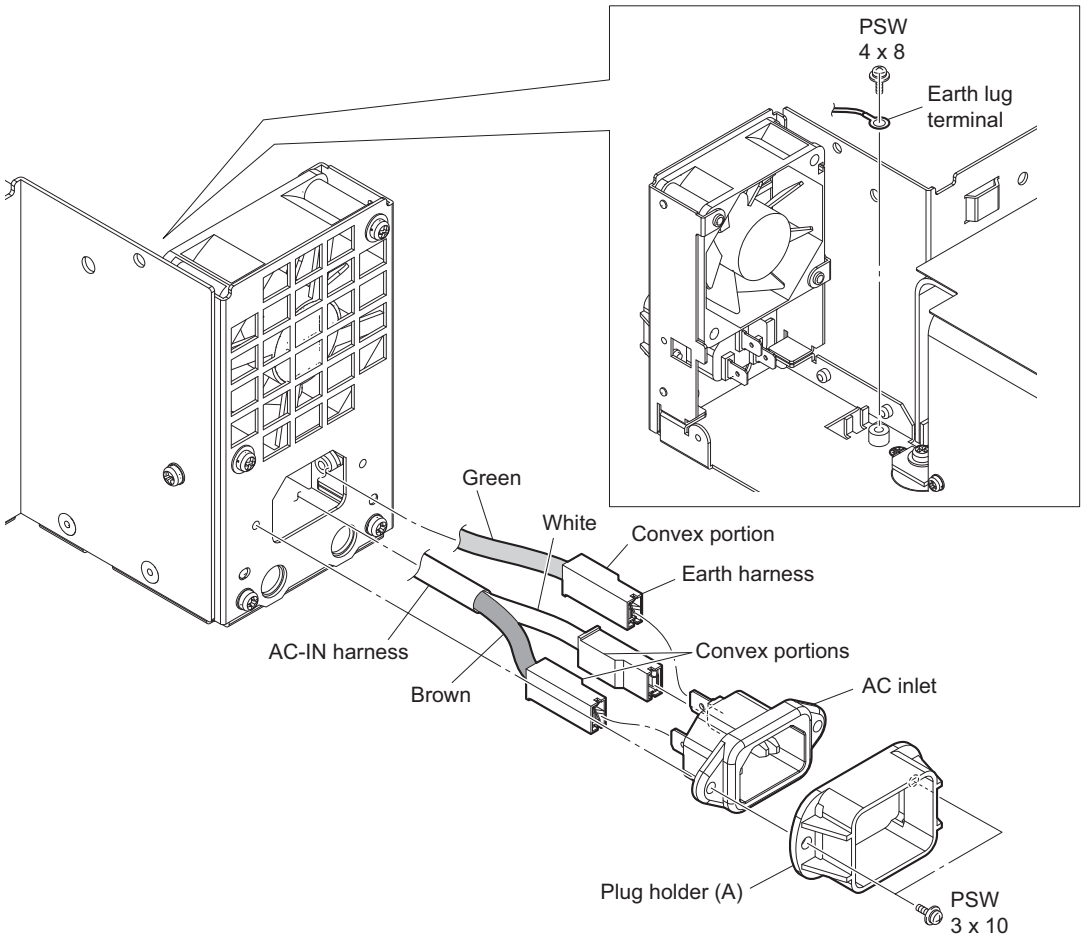
2-19-7. AC Inlet

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")
3. Remove the power assembly. (Refer to "2-19-1. Power Assembly")
4. Remove the power top assembly. (Refer to step 1 in "2-19-2. RE-353 Board")
5. Remove the power side assembly. (Refer to step 1 in "2-19-3. PS-954 Board")

Procedure

1. Remove the screw (PSW4 x 8), then remove the earth lug terminal.
2. Remove the two screws (PSW3 x 10), then remove the plug holder (A).
3. Pull out the AC inlet from the hole of the rear panel.
4. Disconnect the AC-IN harness and earth harness from the AC inlet.



Note

When connecting the harnesses to the AC inlet, pay attention to the following.

- Insert the three harness terminals into the AC inlet terminal so that the color of wires and the direction of convex portions are as shown in the illustration.
- Insert the harness terminals until they lock.

5. Install the removed parts by reversing the steps of removal.

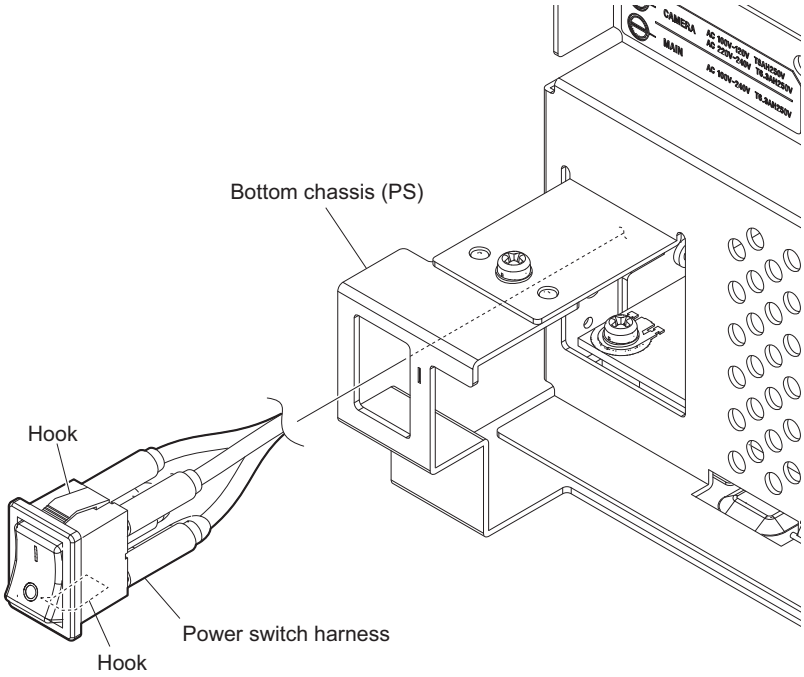
2-19-8. Power Switch Harness

Preparation

1. Remove the front panel assembly. (Refer to "2-3. Front Panel Assembly")
2. Remove the power panel assembly. (Refer to "2-4. Power Panel Assembly")
3. Remove the power assembly. (Refer to "2-19-1. Power Assembly")
4. Remove the power top assembly. (Refer to step 1 in "2-19-2. RE-353 Board")
5. Remove the power side assembly. (Refer to step 1 in "2-19-3. PS-954 Board")

Procedure

1. Remove the two hooks, then remove the power switch harness from the hole of the bottom chassis (PS).



Note

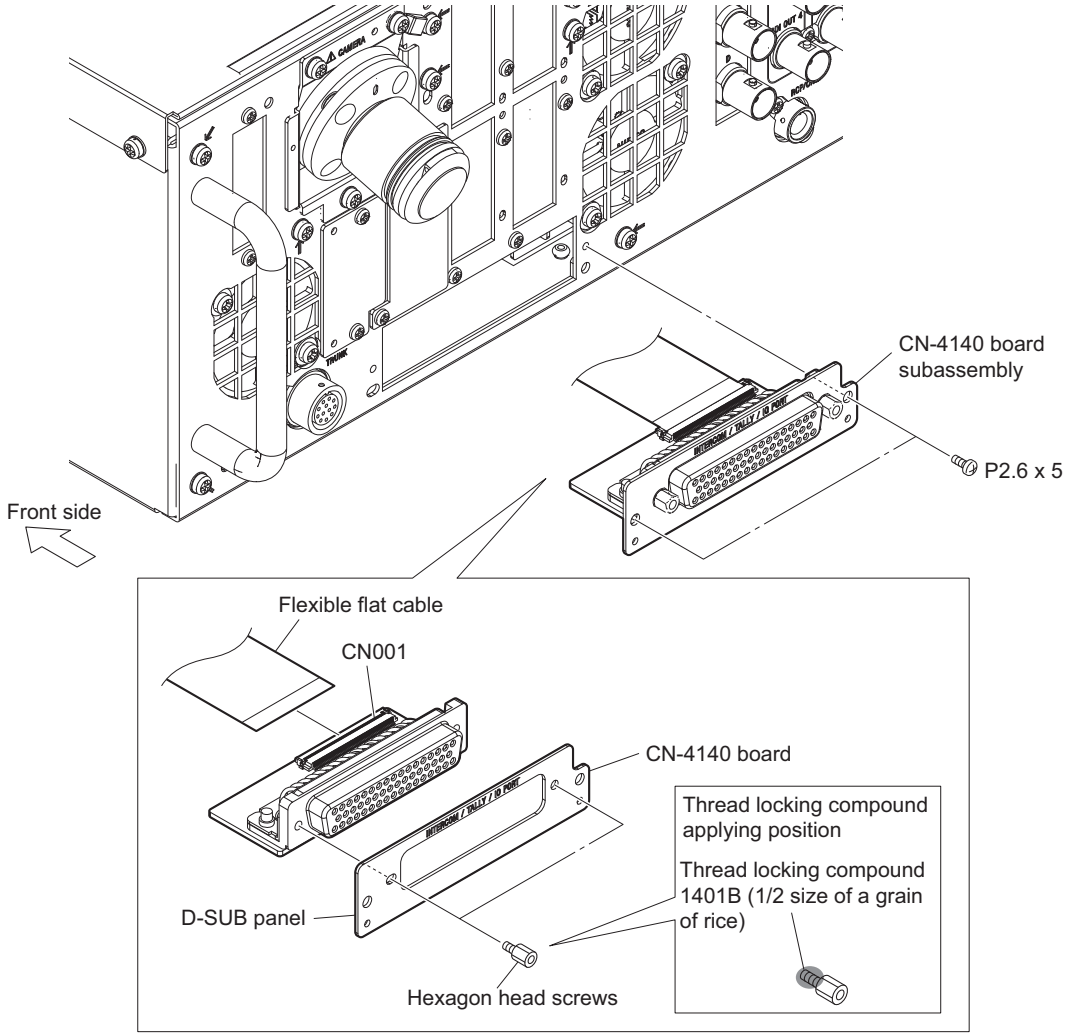
When attaching the switch portion to the hole of the bottom chassis (PS), attach the switch portion in the up and down direction correctly as shown in the illustration.

2. Install the removed parts by reversing the steps of removal.

2-20. CN-4140 Board (D-Sub 50P)

Procedure

1. Remove the two screws, then remove the CN-4140 board subassembly.
2. Disconnect the flexible flat cable from the connector (CN001) on the CN-4140 board.
3. Remove the two hexagon head screws, then remove the CN-4140 board.



Note

When attaching the hexagon head screws, apply thread locking compound as shown in the illustration.

4. Install the removed parts by reversing the steps of removal.

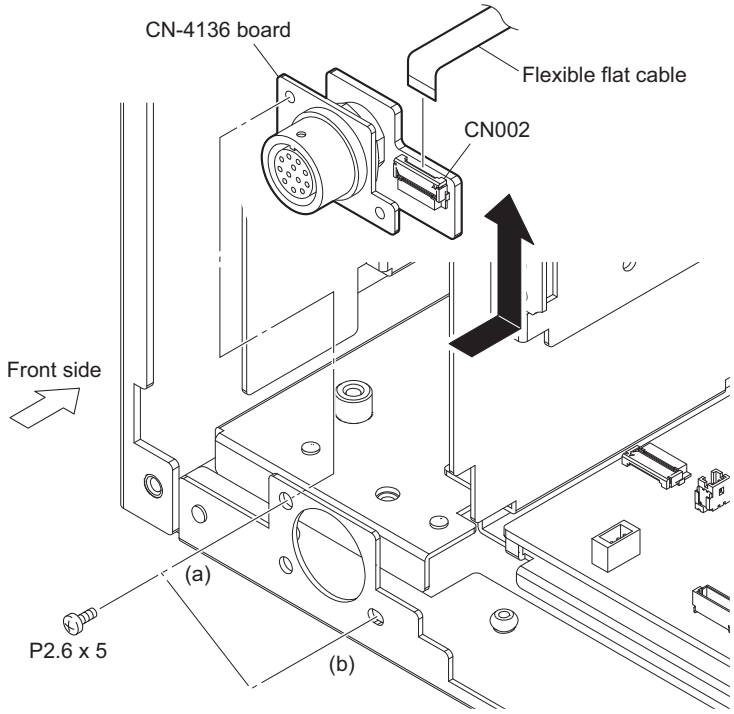
2-21. CN-4136 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")
7. Remove the DC fan 4 subassembly. (Refer to step 2 in "2-25. DC Fan 4")

Procedure

1. Disconnect the flexible flat cable from the connector (CN002) on the CN-4136 board.
2. Remove the two screws, then remove the CN-4136 board in the direction of the arrow.



Tip

When installing the CN-4136 board, tighten the screws in the order of (a) and (b).

3. Install the removed parts by reversing the steps of removal.

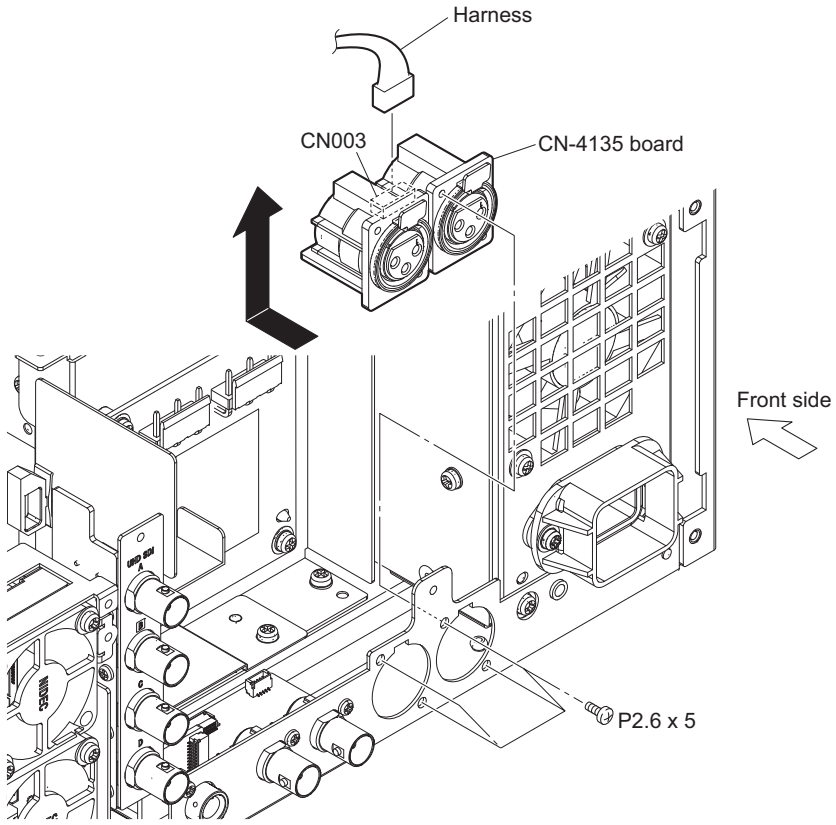
2-22. CN-4135 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”)
3. Remove the top chassis (L). (Refer to “2-6. Top Chassis (L)”)
4. Remove the CN-4134 board. (Refer to “2-15. CN-4134 Board”)
5. Remove the CN-4140 board. (Refer to “2-20. CN-4140 Board (D-Sub 50P)”)
6. Remove the rear panel assembly. (Refer to “2-7. Rear Panel Assembly”)

Procedure

1. Disconnect the harness from the connector (CN003) on the CN-4135 board.
2. Remove the four screws, then remove the CN-4135 board in the direction of the arrow.



3. Install the removed parts by reversing the steps of removal.

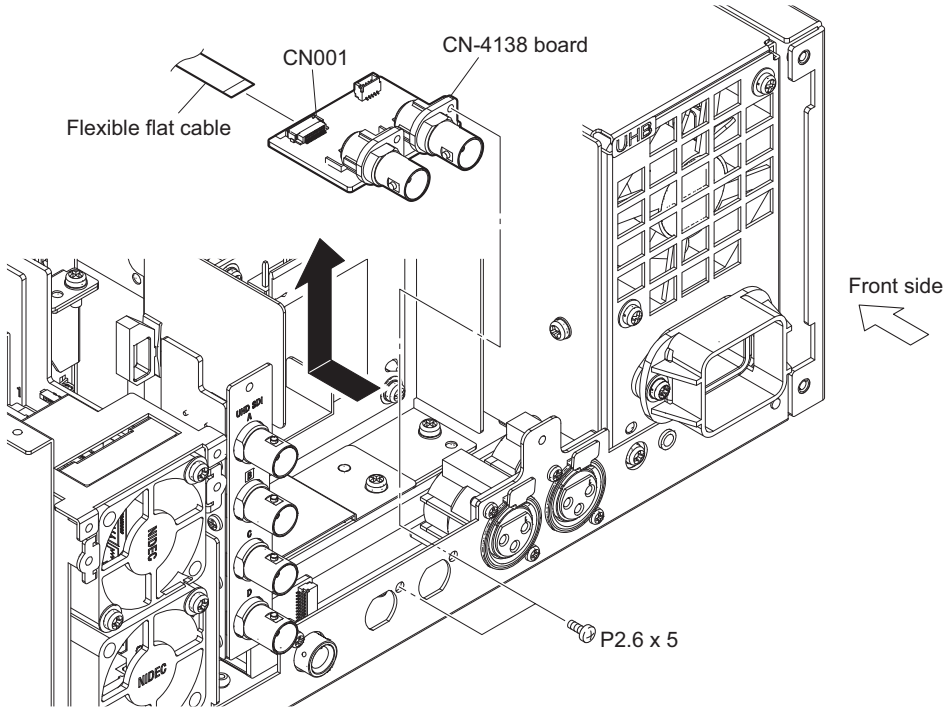
2-23. CN-4138 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”)
3. Remove the top chassis (L). (Refer to “2-6. Top Chassis (L)”)
4. Remove the CN-4134 board. (Refer to “2-15. CN-4134 Board”)
5. Remove the CN-4140 board. (Refer to “2-20. CN-4140 Board (D-Sub 50P)”)
6. Remove the rear panel assembly. (Refer to “2-7. Rear Panel Assembly”)

Procedure

1. Disconnect the flexible flat cable from the connector (CN001) on the CN-4138 board.
2. Remove the two screws, then remove the CN-4138 board in the direction of the arrow.



3. Install the removed parts by reversing the steps of removal.

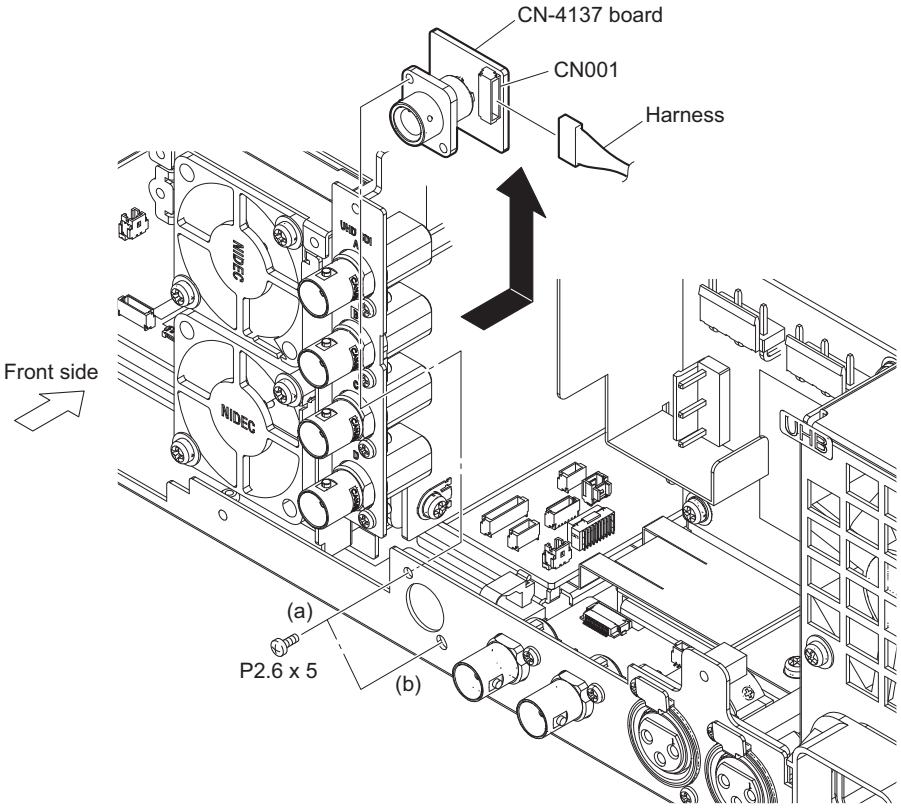
2-24. CN-4137 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”)
3. Remove the top chassis (L). (Refer to “2-6. Top Chassis (L)”)
4. Remove the CN-4134 board. (Refer to “2-15. CN-4134 Board”)
5. Remove the CN-4140 board. (Refer to “2-20. CN-4140 Board (D-Sub 50P)”)
6. Remove the rear panel assembly. (Refer to “2-7. Rear Panel Assembly”)

Procedure

1. Disconnect the harness from the connector (CN001) on the CN-4137 board.
2. Remove the two screws, then remove the CN-4137 board in the direction of the arrow.



Tip

When installing the CN-4137 board, tighten the screws in the order of (a) and (b).

3. Install the removed parts by reversing the steps of removal.

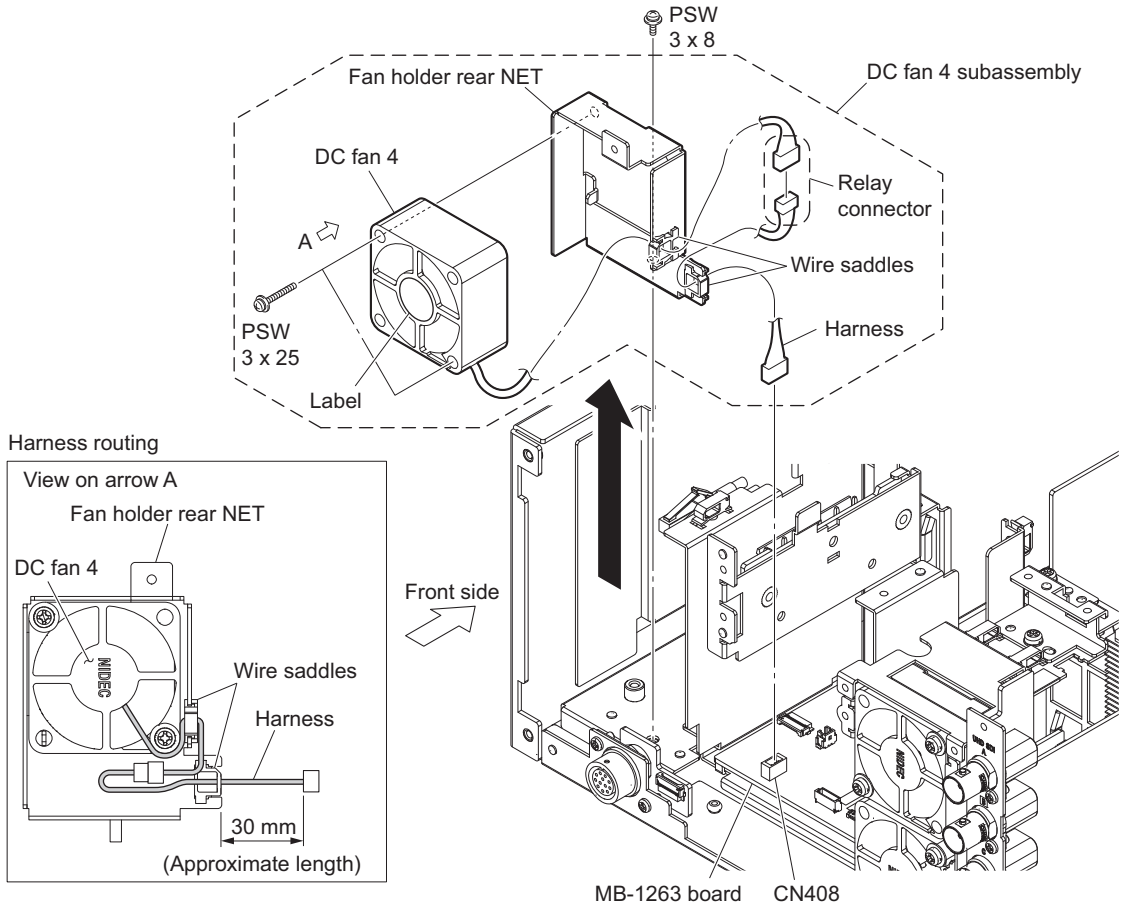
2-25. DC Fan 4

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

Procedure

1. Disconnect the harness from the connector (CN408) on the MB-1263 board.
2. Remove the screw, then remove the DC fan 4 subassembly in the direction of the arrow.
3. Open the two wire saddles, then remove the fan harness.
4. Disconnect the harness from the relay connector.
5. Remove the two screws, then remove the DC fan 4.



Note

When attaching the DC fan, pay attention to the position of the label and harness.

6. Install the removed parts by reversing the steps of removal.

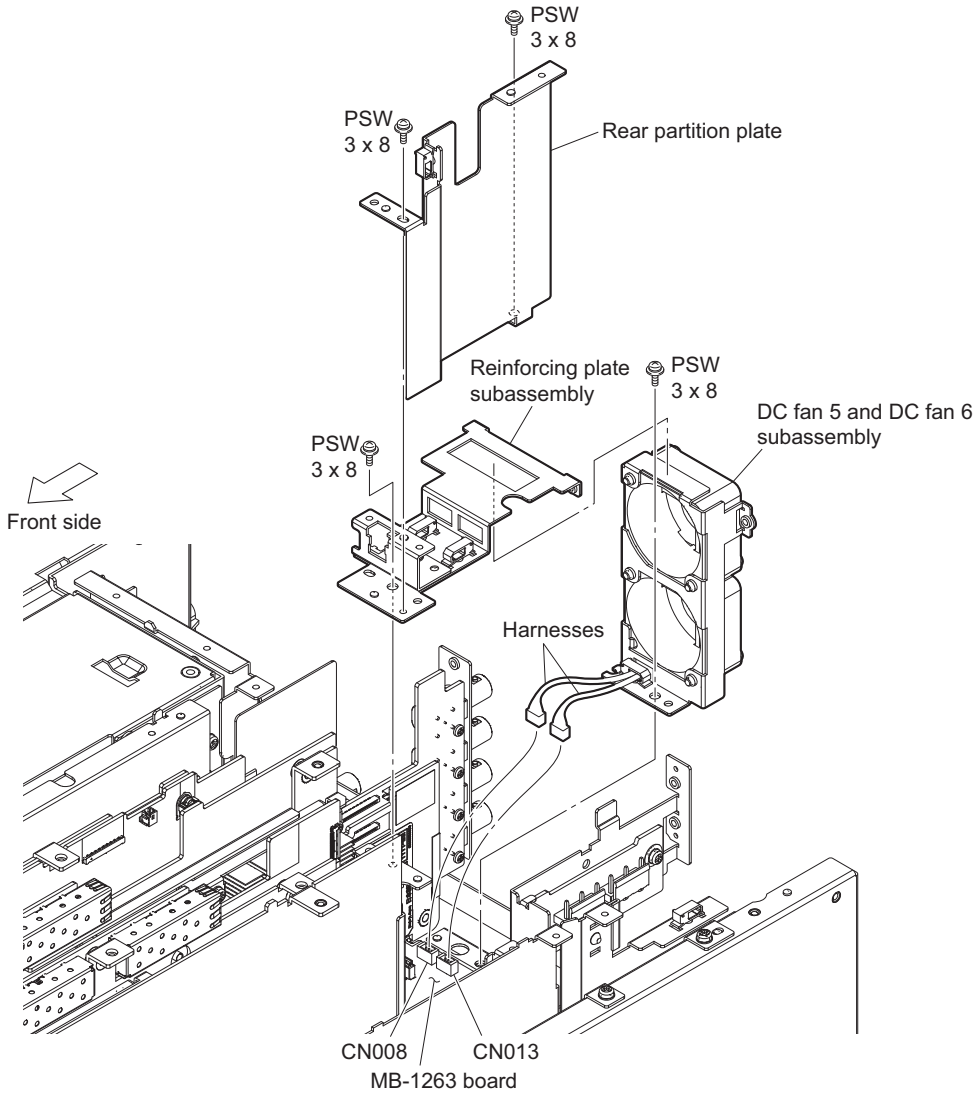
2-26. DC Fan 5 and DC Fan 6

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the top chassis (L). (Refer to "2-6. Top Chassis (L)")
4. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")
5. Remove the CN-4140 board. (Refer to "2-20. CN-4140 Board (D-Sub 50P)")
6. Remove the rear panel assembly. (Refer to "2-7. Rear Panel Assembly")

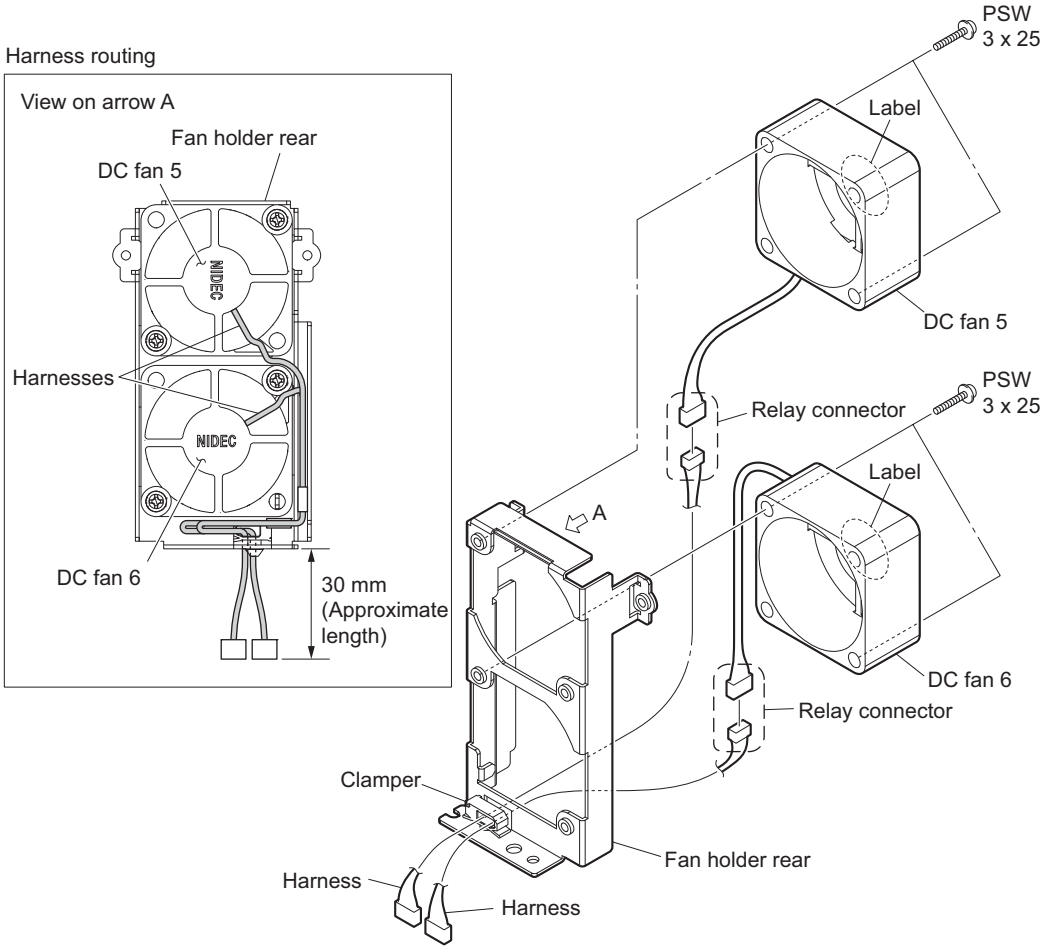
Procedure

1. Remove the two screws, then remove the rear partition plate.
2. Remove the screw, then remove the reinforcing plate subassembly.
3. Disconnect the two harnesses from the connectors (CN008 and CN013) on the MB-1263 board.
4. Remove the screw, then remove the DC fan 5 and DC fan 6 subassembly.



5. Disconnect the two harnesses from the two relay connectors.
6. Remove the two screws, then remove the DC fan 5.

7. Remove the two screws, then remove the DC fan 6.



Note

- When attaching the DC fan, pay attention to the position of the label and harness.
- The harnesses of DC fan 5 and DC fan 6 can be connected to either of the connectors (CN008 and CN013) on the MB-1263 board.

8. Install the removed parts by reversing the steps of removal.

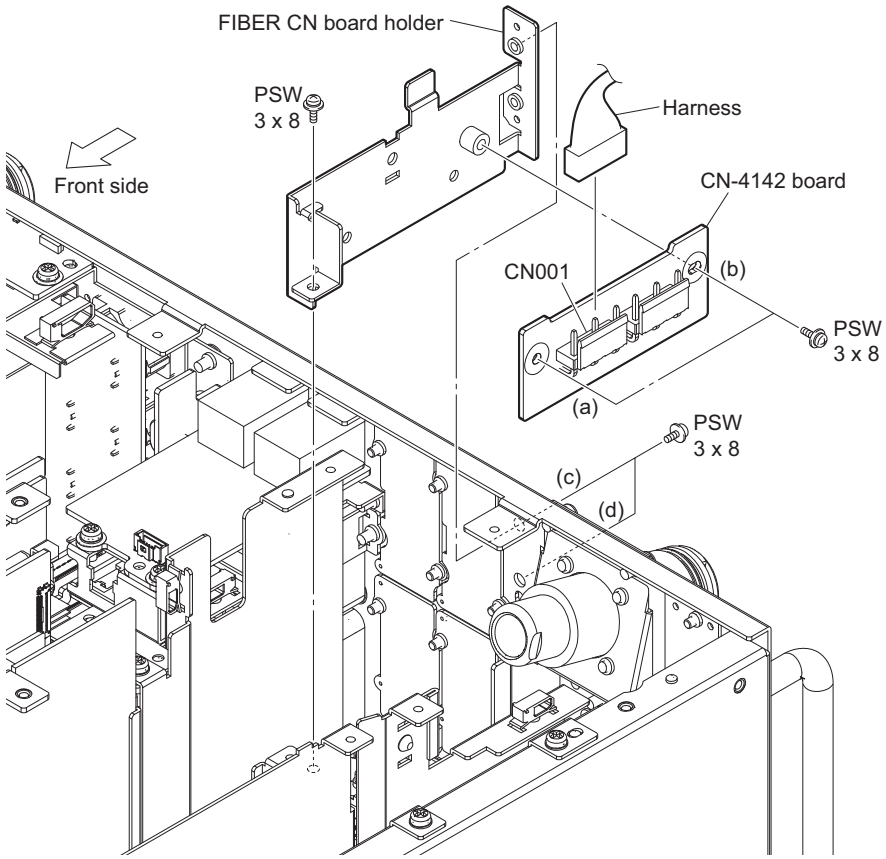
2-27. CN-4142 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the PS cable guide. (Refer to steps 1 to 3 in "2-15. CN-4134 Board")

Procedure

1. Disconnect the harness from the connector (CN001) on the CN-4142 board.
2. Remove the three screws, then remove the FIBER CN board holder.
3. Remove the two screws, then remove the CN-4142 board.



Tip

- When installing the CN-4142 board, tighten the screws in the order of (a) and (b).
- When installing the CN-4142 board subassembly, tighten the screws in the order of (c) and (d).

4. Install the removed parts by reversing the steps of removal.

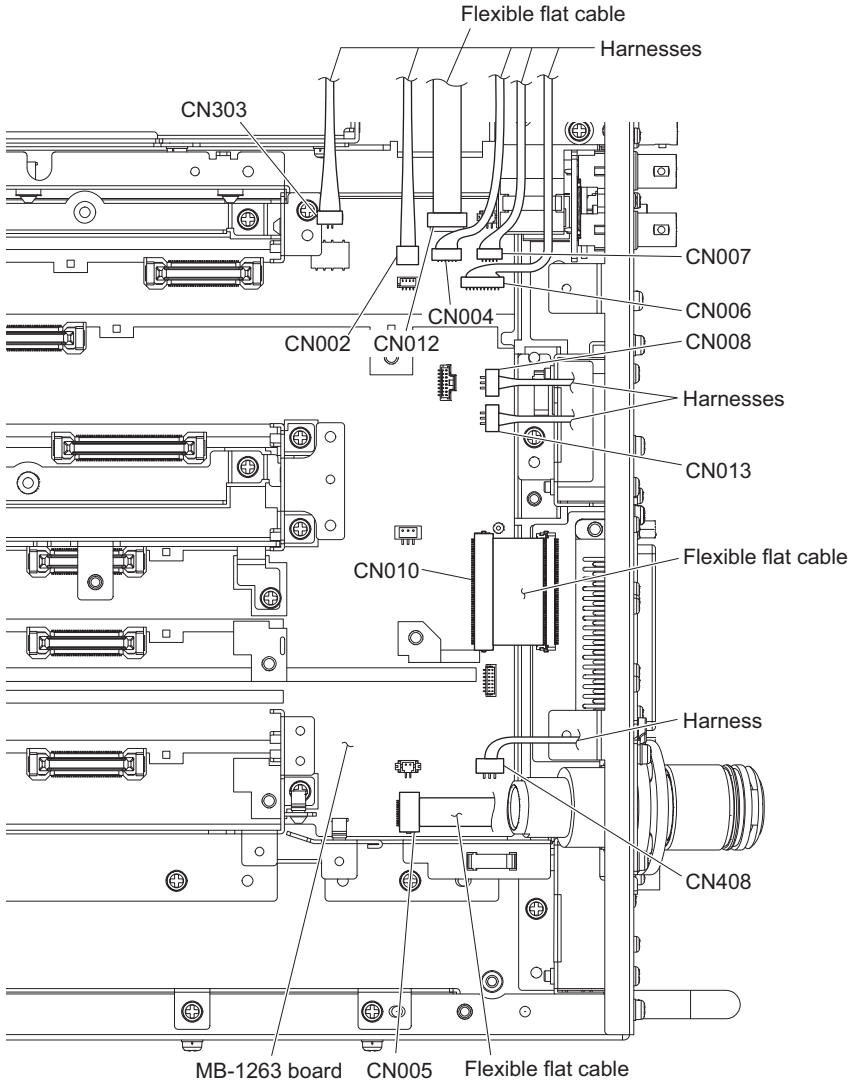
2-28. MB-1263 Board

Preparation

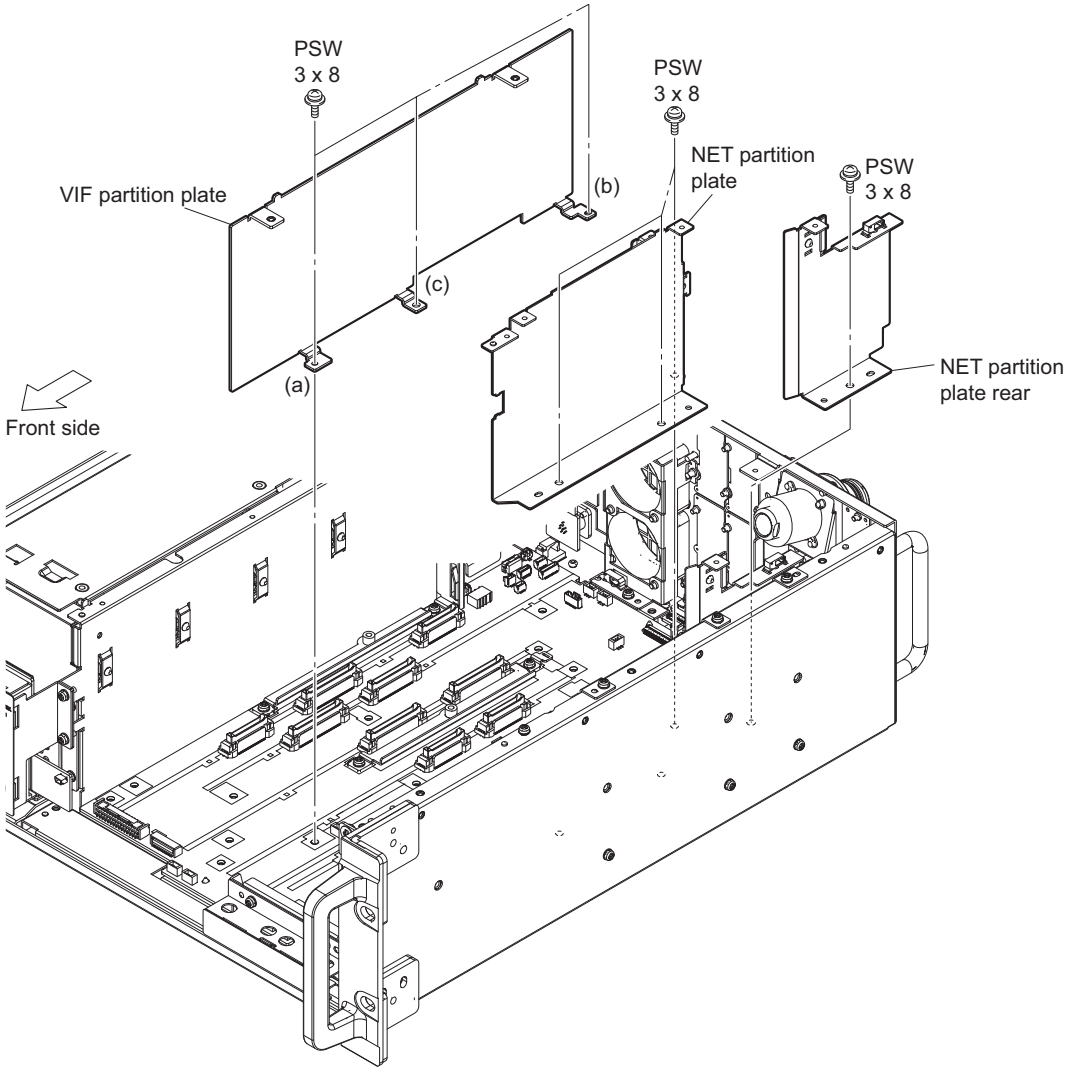
1. Remove the top cover. (Refer to “2-2. Top Cover”)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”)
3. Remove the top chassis (L). (Refer to “2-6. Top Chassis (L)”)
4. Remove the front panel assembly. (Refer to “2-3. Front Panel Assembly”)
5. Remove the CN-4134 board. (Refer to “2-15. CN-4134 Board”)
6. Remove the CN-4140 board. (Refer to “2-20. CN-4140 Board (D-Sub 50P)”)
7. Remove the rear partition plate and reinforcing plate subassembly. ("Refer to steps 1 and 2 in “2-26. DC Fan 5 and DC Fan 6”)
8. Remove the SY-467 board/AT-195 board. (Refer to “2-10. SY-467 Board/AT-195 Board”)
9. Remove the VIF-75 board. (Refer to “2-11. VIF-75 Board”)
10. Remove the TX-167 board. (Refer to “2-12. TX-167 Board”)
11. Remove the DC fan 3. (Refer to “2-18. DC Fan 3”)
12. Remove the CN-4142 board. (Refer to “2-27. CN-4142 Board”)

Procedure

1. Disconnect the harnesses and flexible flat cables.
   (1) Disconnect the five harnesses from the connectors (CN002, CN004, CN006, CN007 and CN303) on the MB-1263 board.
   (2) Disconnect the three flexible flat cables from the connectors (CN005, CN0101 and CN012) on the MB-1263 board.
   (3) Disconnect the three harnesses from the connectors (CN008, CN013 and CN408) on the MB-1263 board.



2. Remove the MB-1263 board.
   (1) Remove the three screws, then remove the VIF partition plate.
   (2) Remove the screw, then remove the NET partition plate rear.
   (3) Remove the three screws, then remove the NET partition plate.

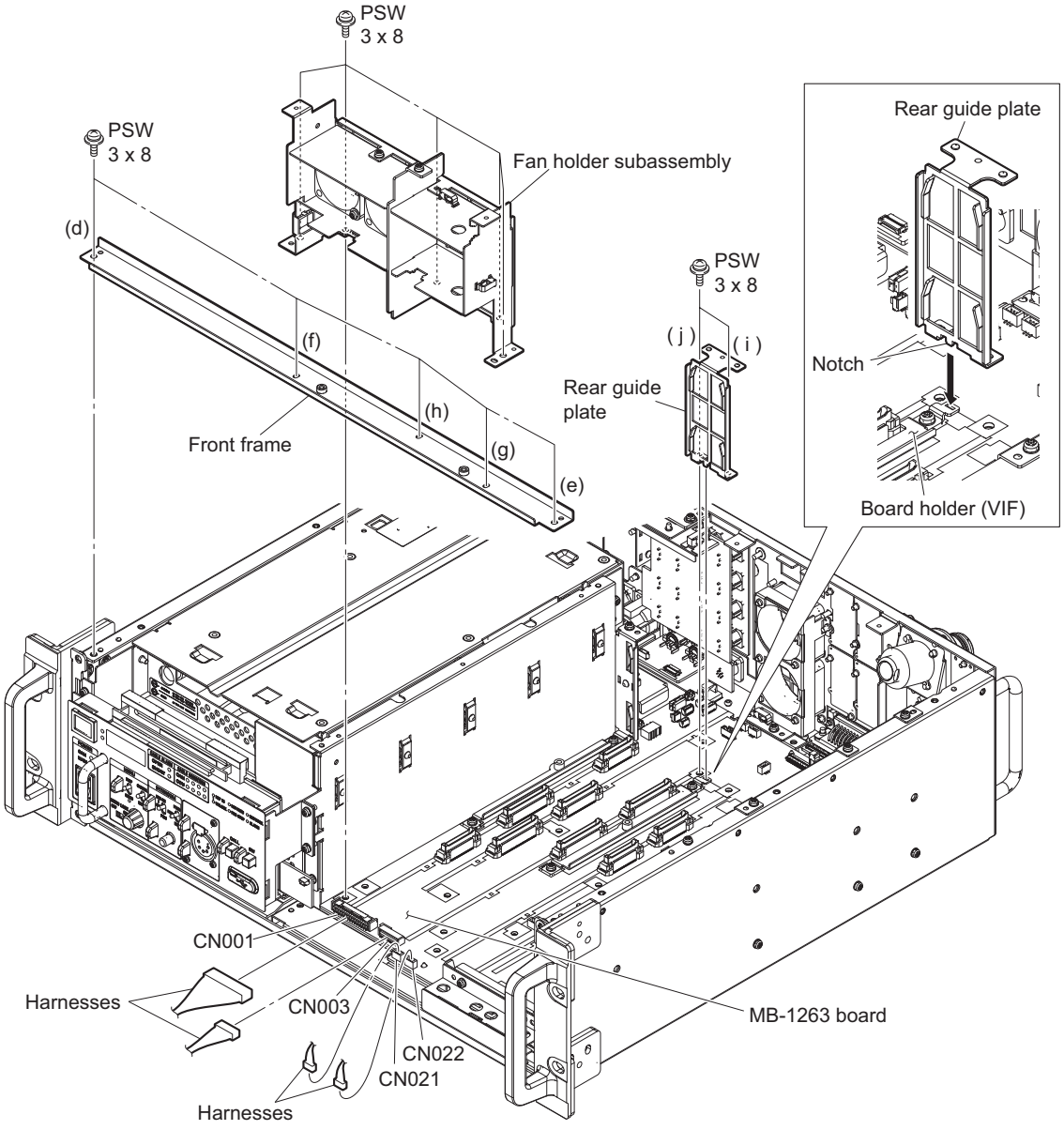


Note

When attaching the VIF partition plate, tighten the screws in the order from (a) to (c).

   (4) Remove the five screws, then remove the front frame.
   (5) Remove the five screws, then remove the fine holder subassembly.
   (6) Remove the two screws, then remove the rear guide plate.

(7) Disconnect the four harnesses from the connectors (CN001, CN003, CN021 and CN022) on the MB-1263 board.



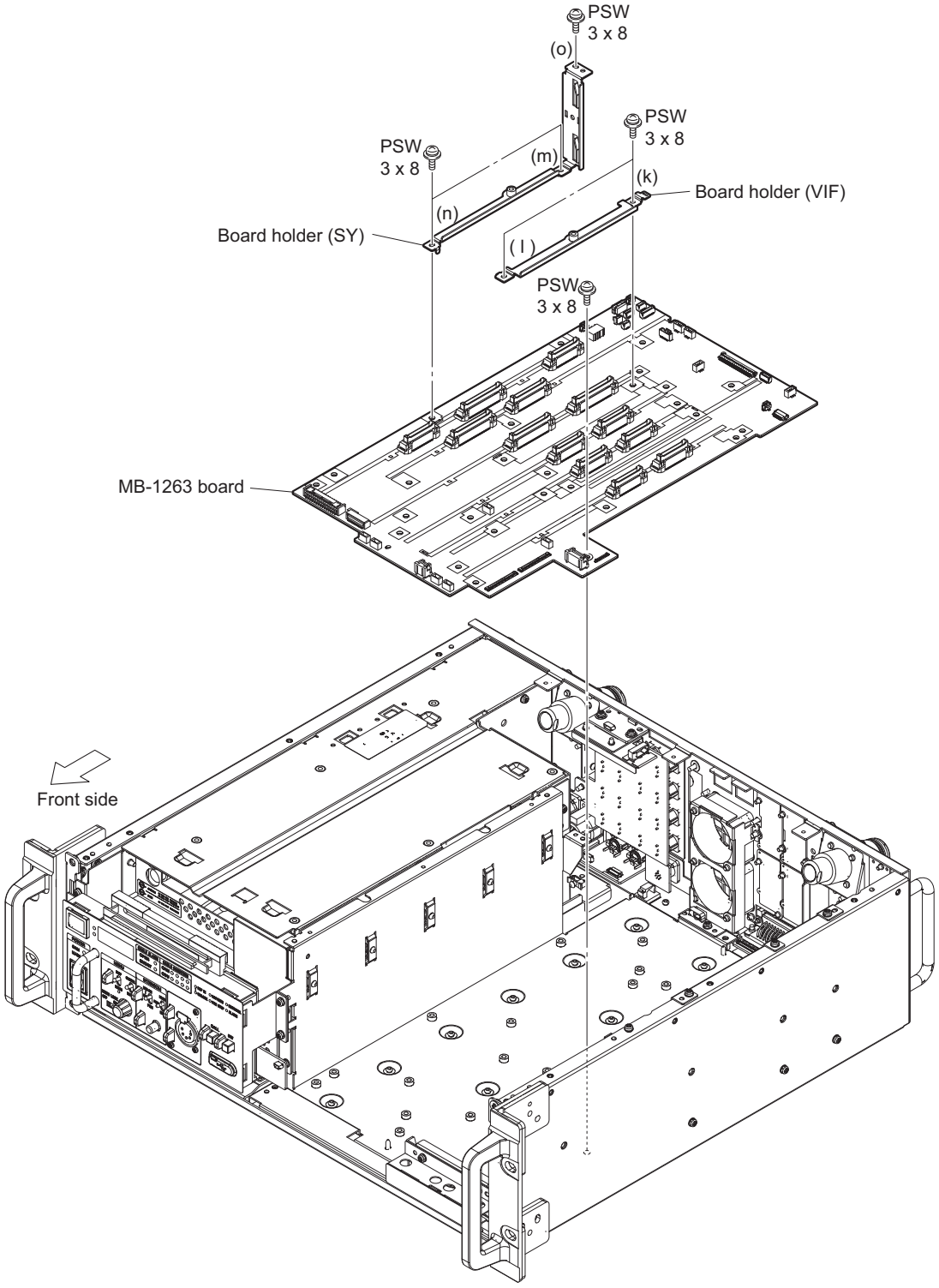
Note

- When attaching the front frame, tighten the screws in the order from (d) to (h).
- When attaching the rear guide plate, insert the notch into the slit of the board holder (VIF), then tighten the screws in the order of (i) and (j).

(8) Remove the three screws, then remove the board holder (SY).

(9) Remove the two screws, then remove the board holder (VIF).

(10) Remove the screw, then remove the MB-1263 board.



Note

- When attaching the board holder (VIF), tighten the screws in the order of (k) and (l).
- When attaching the board holder (SY), tighten the screws in the order of (m), (n) and (o).

3. Install the removed parts by reversing the steps of removal.

2-29. NET-37 Board (HKCU-SFP50)

Note

The removed screws cannot be reused. Use the supplied screws.

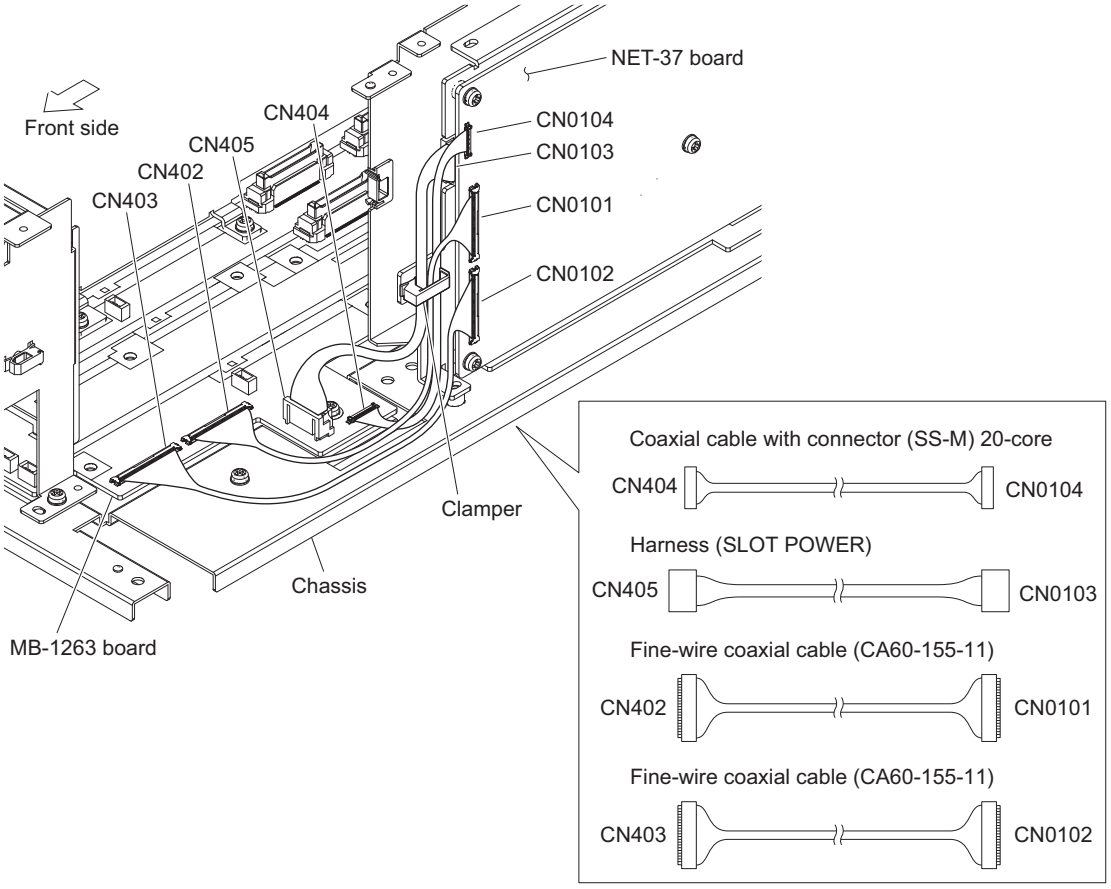
- Screw (P2.6 x 5): 2 pcs

Preparation

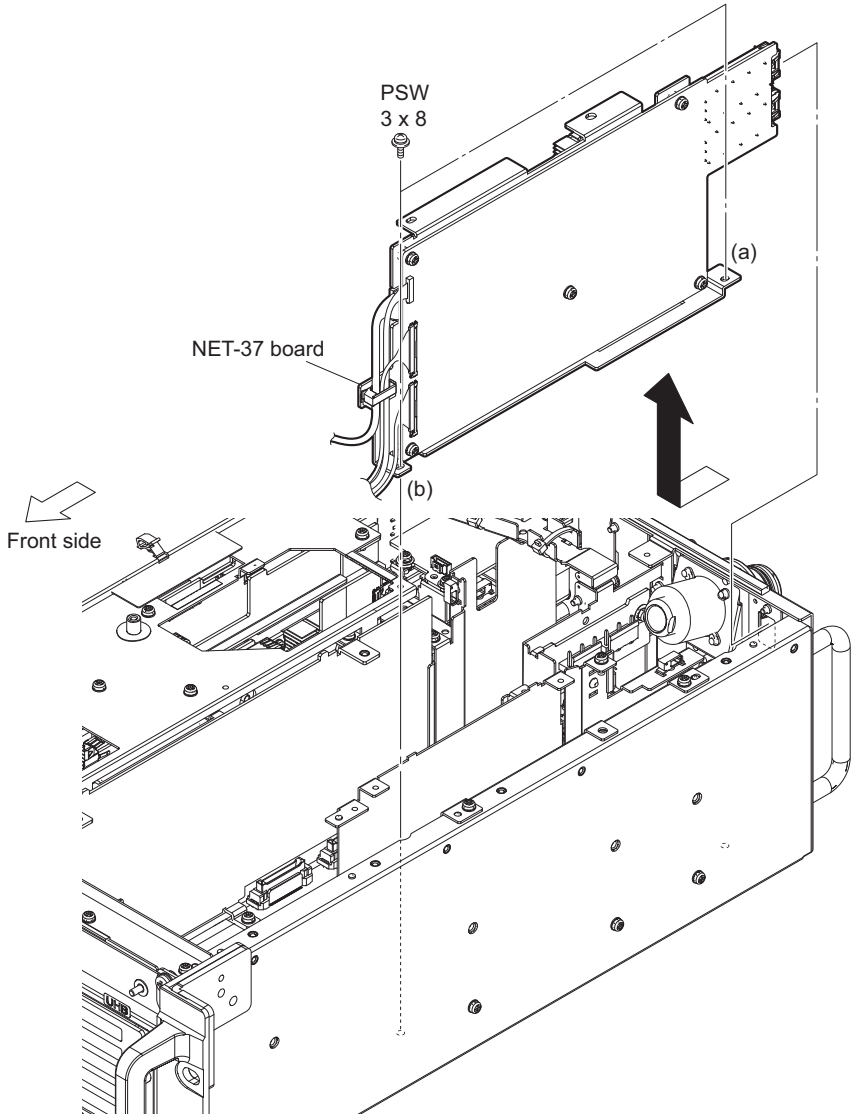
1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the top chassis (R). (Refer to "2-5. Top Chassis (R)")
3. Remove the DC fan 3. (Refer to "2-18. DC Fan 3")

Procedure

1. Disconnect the harnesses and cables.
   (1) Disconnect the coaxial cable with connector from the connector (CN404) on the MB-1263 board.
   (2) Disconnect the two fine-wire coaxial cables from the connectors (CN402 and CN403) on the MB-1263 board.
   (3) Disconnect the harness from the connector (CN405) on the MB-1263 board.



2. Remove the two screws, then remove the NET-37 board in the direction of the arrow.

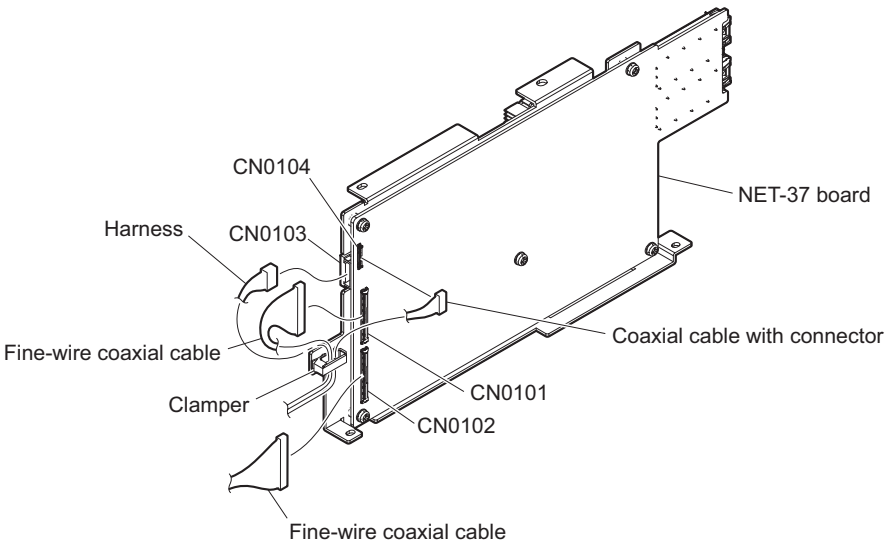


Note

When installing the NET-37 board, tighten the screws in the order of (a) and (b).

3. Open the clamper.

4. Disconnect the harnesses and cables.
   (1) Disconnect the coaxial cable with connector from the connector (CN0104) on the NET-37 board.
   (2) Disconnect the two fine-wire coaxial cables from the connectors (CN0101 and CN0102) on the NET-37 board.
   (3) Disconnect the harness from the connector (CN0103) on the NET-37 board.



5. Install the removed parts by reversing the steps of removal.

2-30. Optical Conversion Adaptor (HKCU-SM50)

Note

The removed screws cannot be reused. Use the supplied screws.

- Screw (P2.6 x 5): 2 pcs

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")

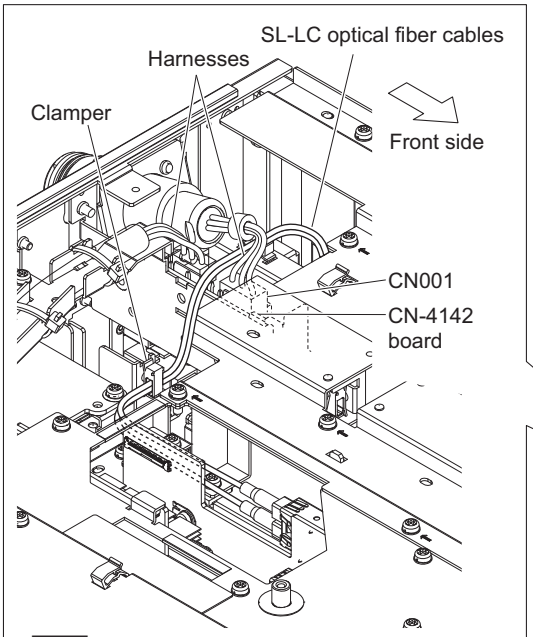
Procedure

1. Disconnect the SL-LC optical fiber cables from the optical module, then disconnect it from the connector (CN404) on the VIF-75 board.

   Note

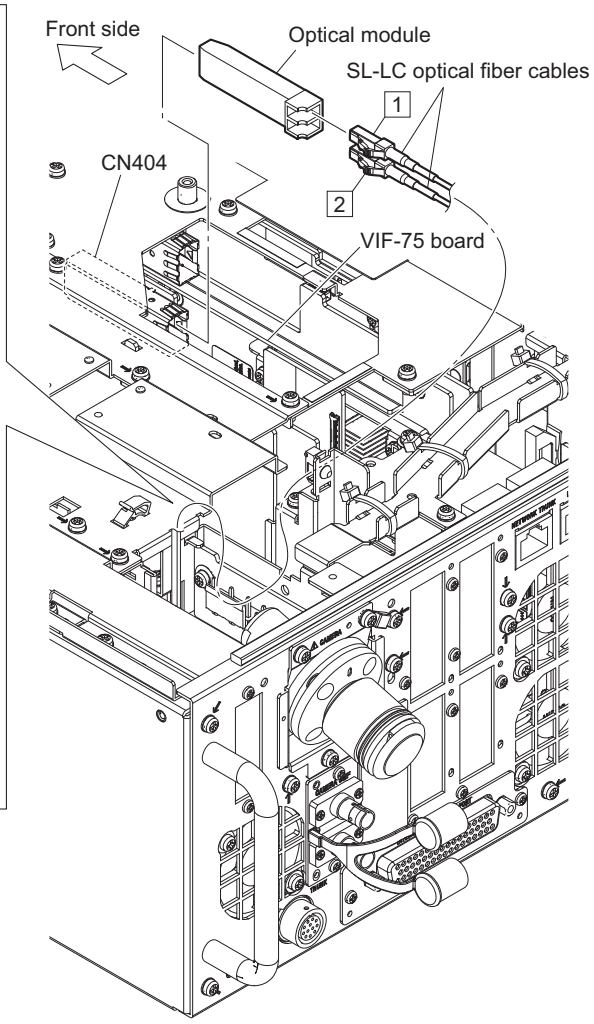
   When connecting the optical fiber cables, refer to the number printed on the board.

2. Open the clamper, then remove the SL-LC optical fiber cables.
3. Disconnect the harness from the connector (CN001) on the CN-4142 board.

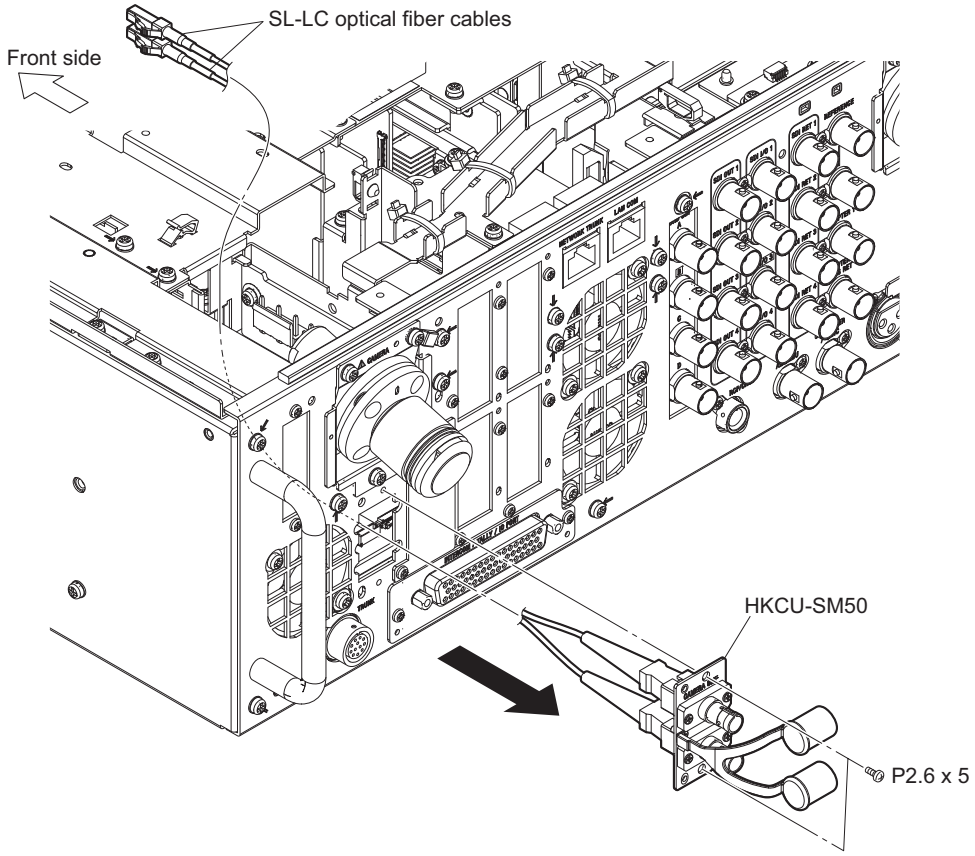


Tip

Process the extra length of the SC-LC optical fiber cables by passing them through between the two harnesses connected to the connectors on the CN-4142 board and also under the harness connected to the connector (CN001).



4. Remove the two screws, then remove the HKCU-SM50 in the direction of the arrow.



5. Install the removed parts by reversing the steps of removal.

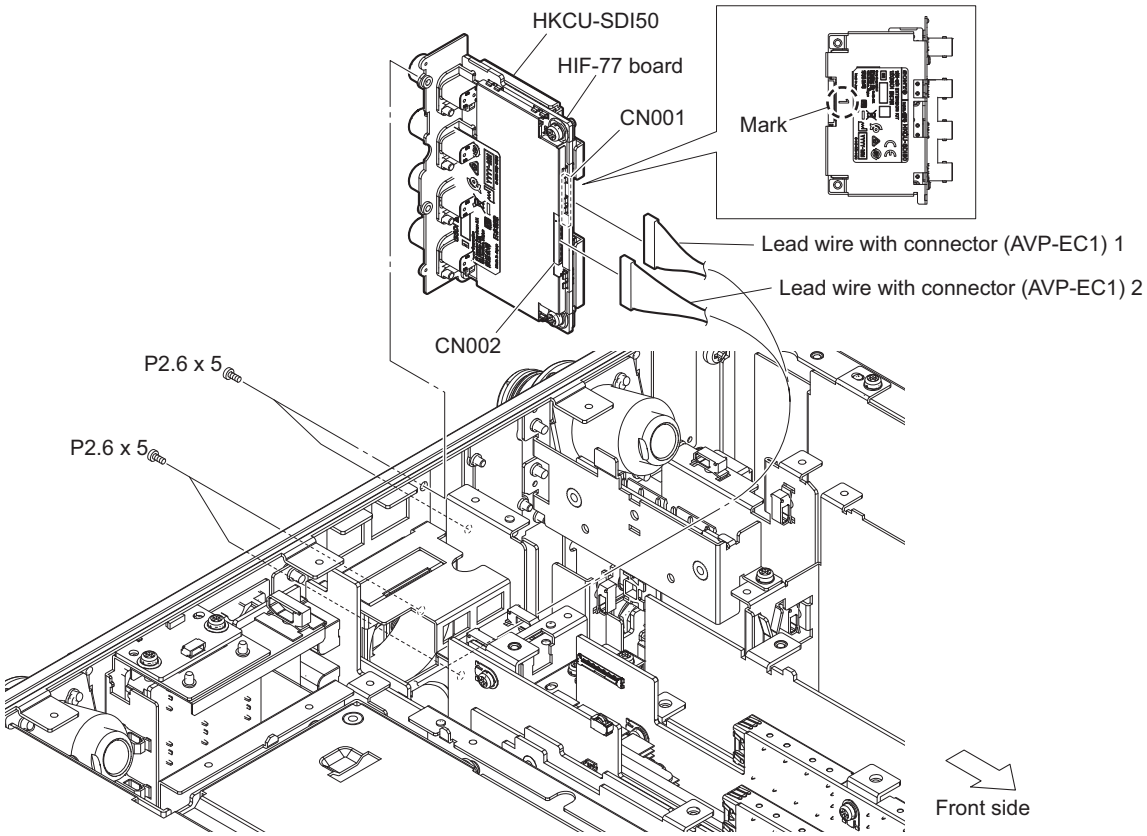
2-31. HIF-77 Board (HKCU-SDI50)

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the CN-4134 board. (Refer to "2-15. CN-4134 Board")

Procedure

1. Open the two clampers, then remove the two lead wires with connector (AVP-EC1).
2. Remove the four screws, then remove the HIF-77 board.
3. Disconnect the two lead wires with connector (AVP-EC1) from the connectors (CN001 and CN002) on the HIF-77 board

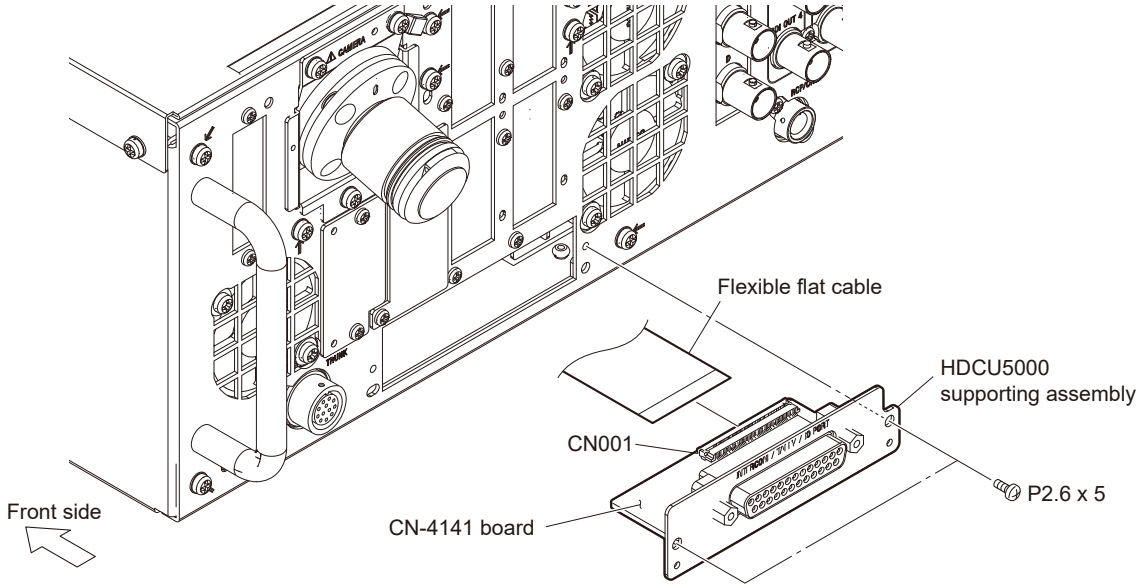


4. Install the removed parts by reversing the steps of removal.

2-32. CN-4141 Board (HDCU5000 Supporting Assembly)

Procedure

1. Remove the two screws, then remove the HDCU5000 supporting assembly.
2. Disconnect the flexible flat cable from the connector (CN001) on the CN-4141 board.



3. Install the removed parts by reversing the steps of removal.

2-33. HKCU-REC50

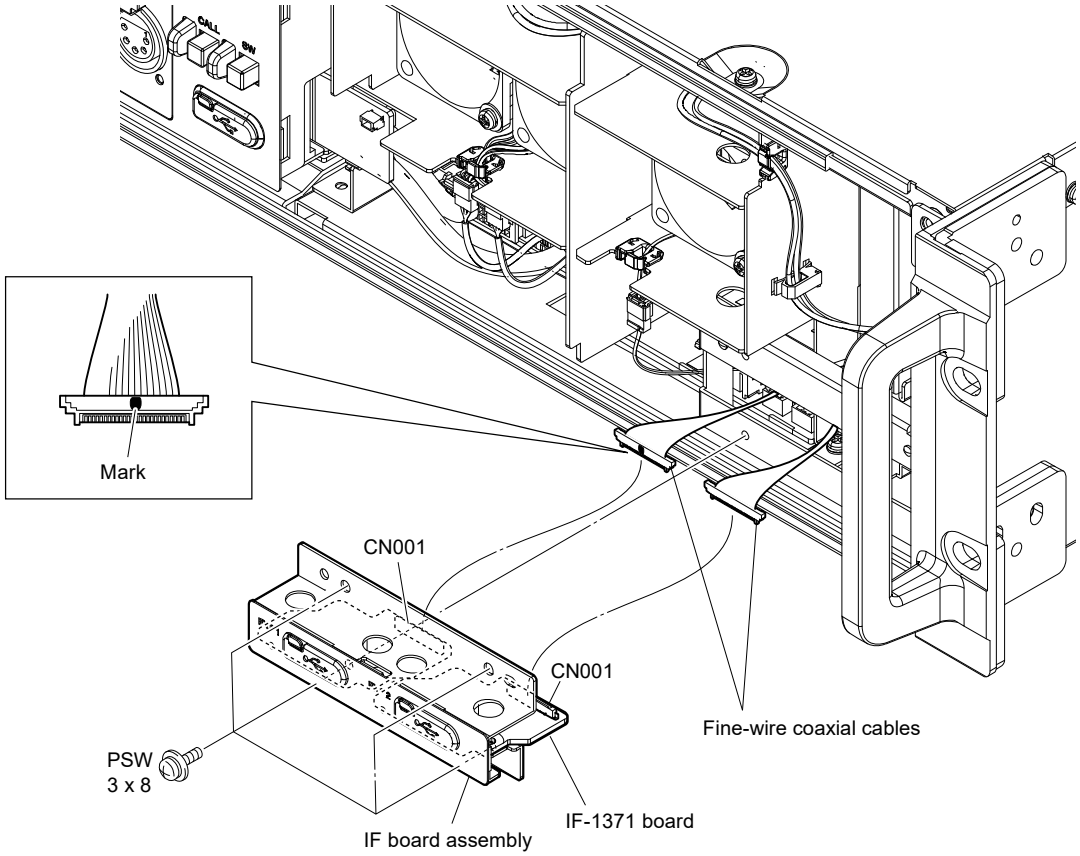
2-33-1. IF-1371 Board

Preparation

1. Remove the front panel assembly. (Refer to “2-3. Front Panel Assembly”.)

Procedure

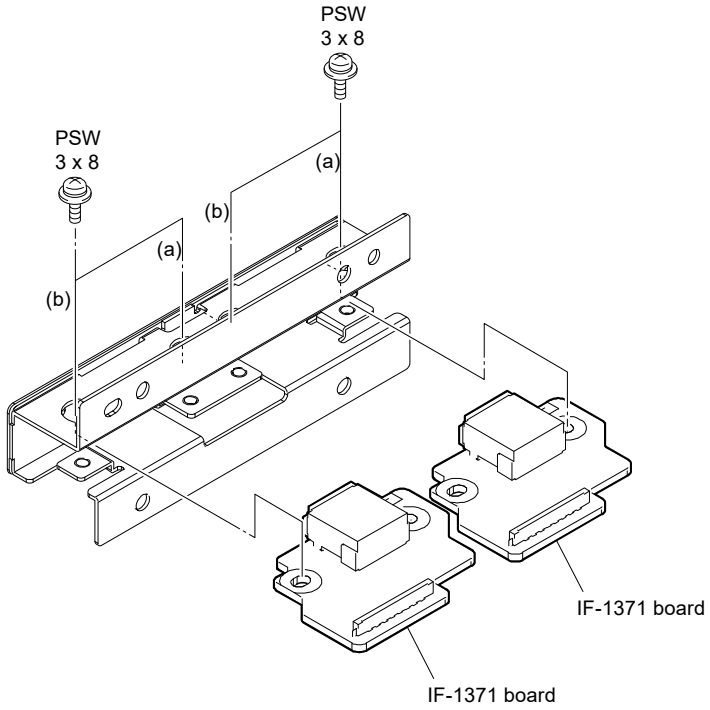
1. Remove the four screws, and then draw the IF board assembly.
2. Disconnect the two fine-wire coaxial cables from the connectors (CN001) on the IF-1371 board.



Note

- At the time of the installation, connect the marked fine-wire coaxial cable to the IF-1371 board on the left side of the IF board assembly.
- When installing the IF board assembly, push the redundant part of the fine-wire coaxial cables to the space on the rear side of the unit.

3. Remove the four screws, and then remove two IF-1371 boards.



Note

When installing the IF-1371 board, tighten the screws in the following sequence: (a), (b).

4. Install the removed parts by reversing the steps of removal.

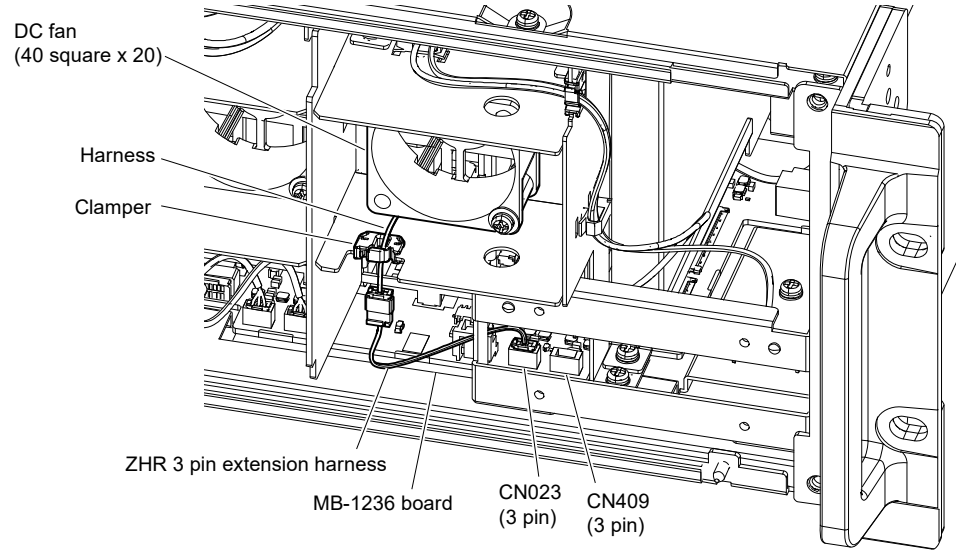
2-33-2. DC Fan (40 Square x 20) (Front)

Preparation

1. Remove the front panel assembly. (Refer to “2-3. Front Panel Assembly”.)
2. Remove the IF-1371 board assembly. (Refer to “2-33-1. IF-1371 Board”.)

Procedure

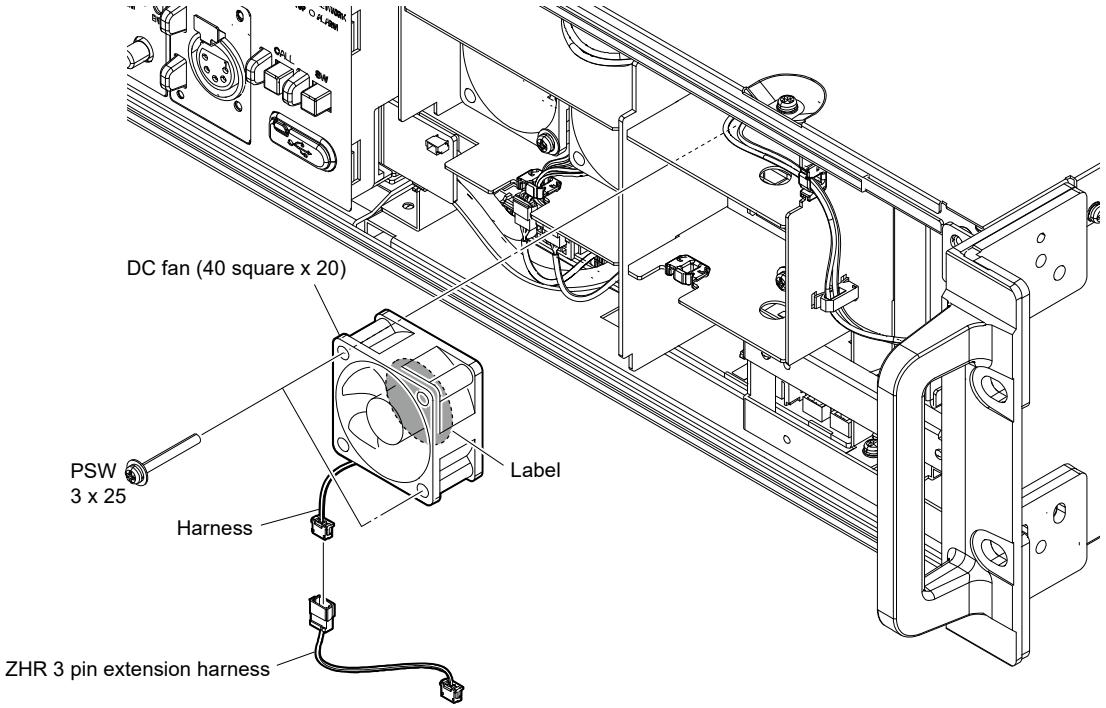
1. Release the harness of the DC fan (40 square x 20) from the clamper.
2. Disconnect the ZHR 3 pin extension harness from the connector (CN023) on the MB-1236 board.



Note

At the time of the installation, do not connect the ZHR 3 pin extension harness to the connector (CN409).

3. Remove the two screws, and then remove the DC fan (40 square x 20).
4. Disconnect the ZHR 3 pin extension harness from the harness of the DC fan (40 square x 20).



Note

Install the DC fan (40 square x 20) carefully paying attention to the label side and the harness position.

5. Install the removed parts by reversing the steps of removal.

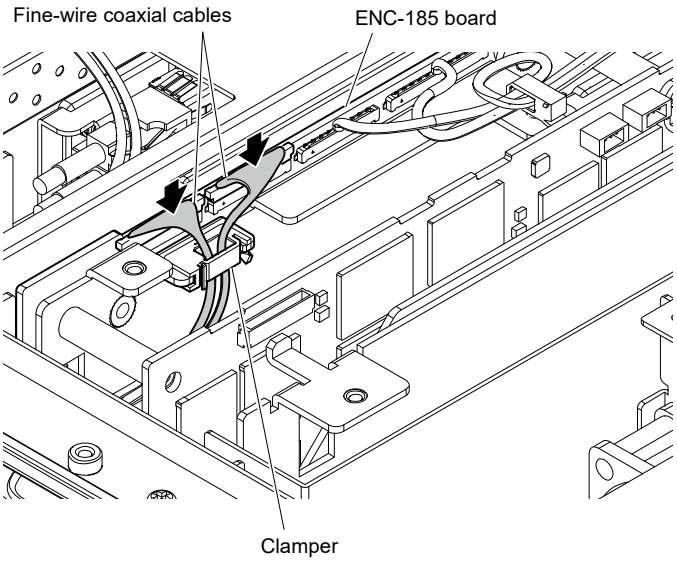
2-33-3. ENC Assembly

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”.)

Procedure

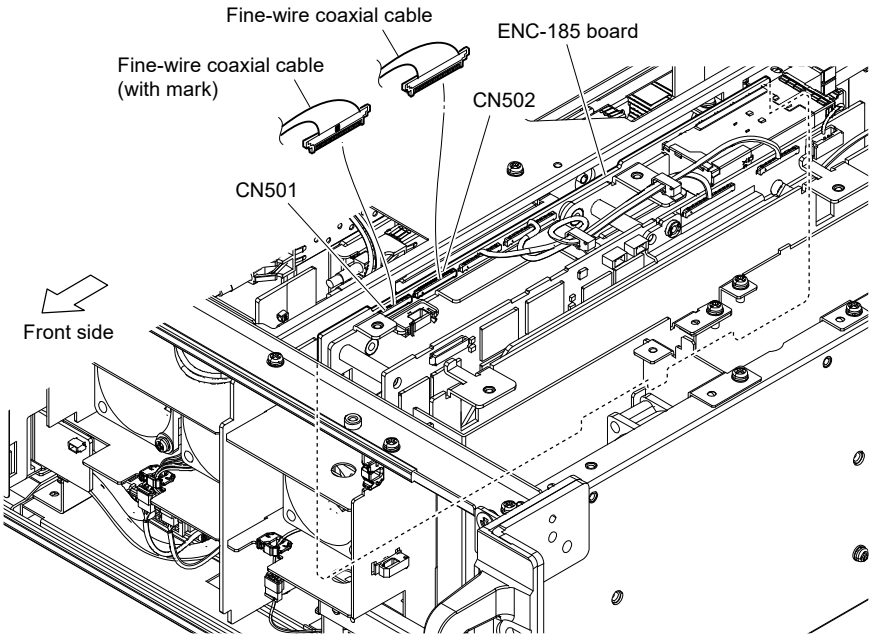
1. Release the two fine-wire coaxial cables from the clamper.



Note

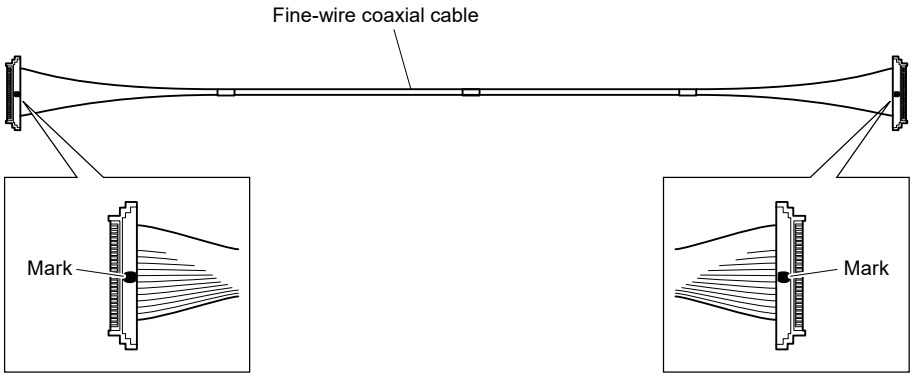
At the time of the installation, press the two fine-wire coaxial cables in the direction of the arrow, and then secure them with the clamper.

2. Disconnect the two fine-wire coaxial cables from the connectors (CN501, CN502) on the ENC-185 board, and then remove the two fine-wire coaxial cables.

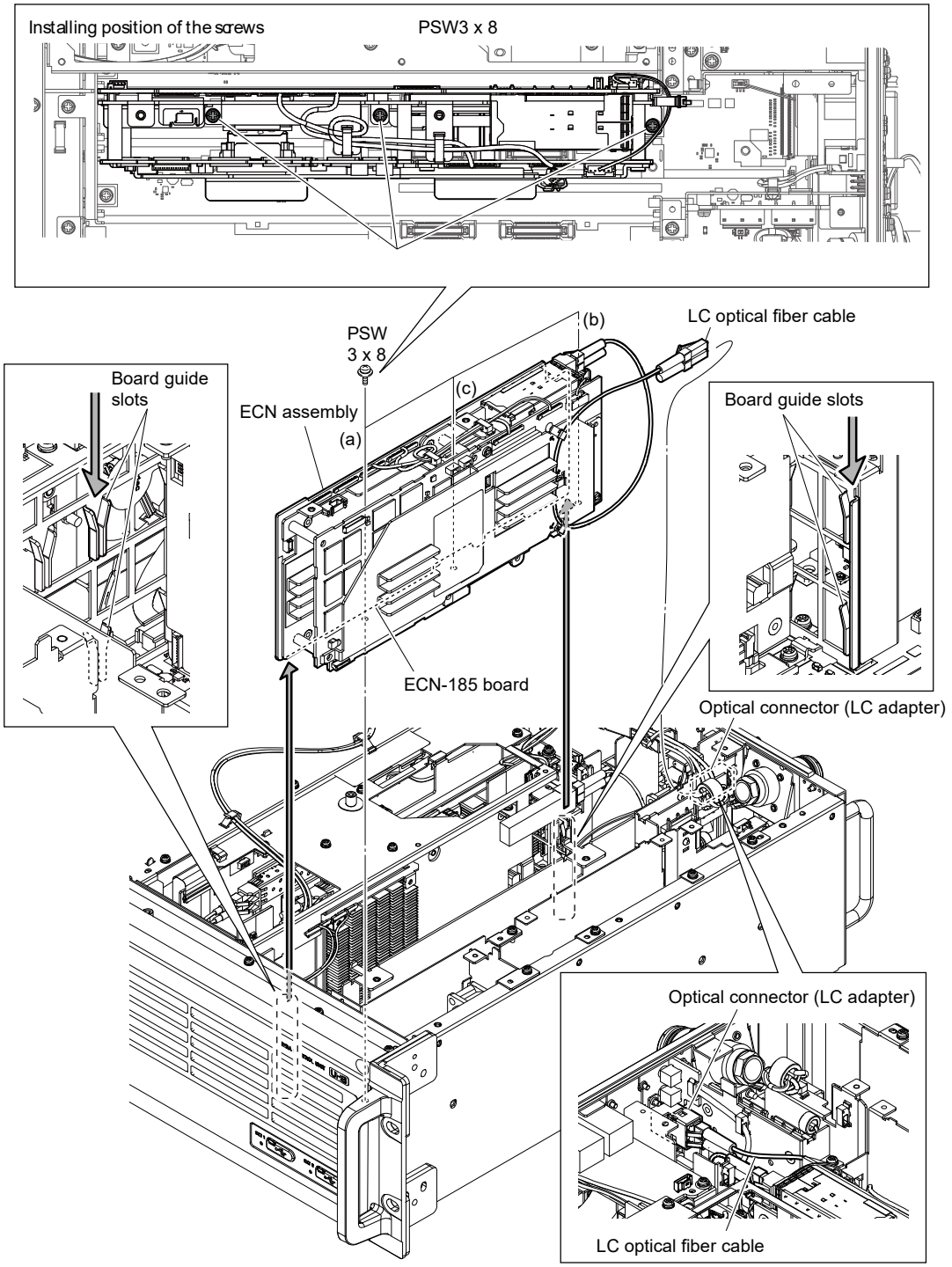


Note

- At the time of the installation, connect the marked fine-wire coaxial cable to the connector CN501.
- When replacing the marked fine-wire coaxial cable, mark the two connectors of the new fine-wire coaxial cable.



3. Disconnect the LC optical fiber cable from the optical connector (LC adapter).
4. Remove the three screws, and then remove the ENC assembly in the direction of the arrow.



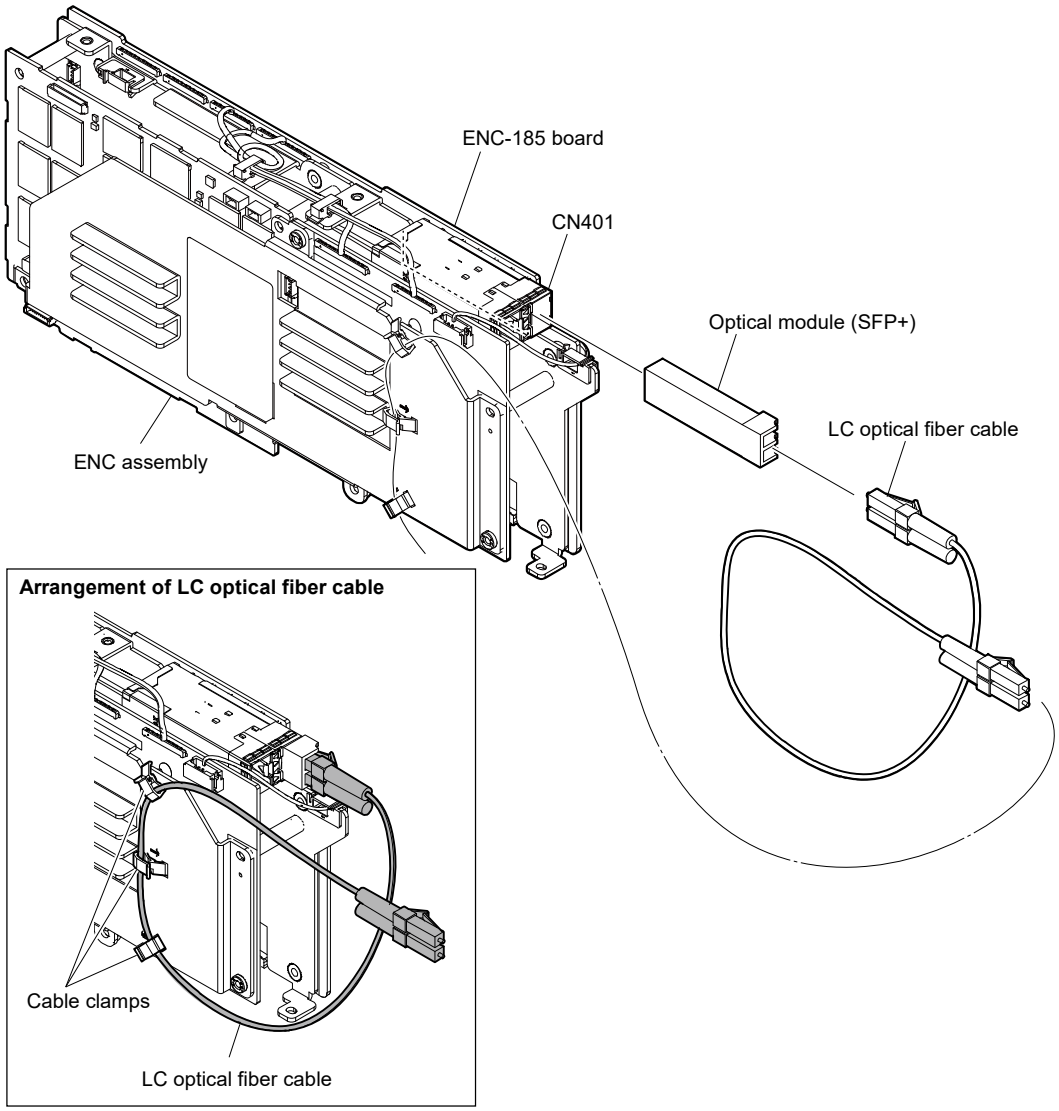
Note

When installing the ENC assembly, tighten the screws in the following sequence: (a), (b), (c).

Tip

At the time of the installation, insert the edges of the ENC-185 board into the two board guide slots.

5. Release the LC optical fiber cable from the three cable clamps.
6. Disconnect the LC optical fiber cable from the optical module (SFP+).
7. Remove the optical module (SFP+) from the connector (CN401) on the ENC-185 board.



Note

When attaching the optical module (SFP+), pay attention to the direction in which it is attached.

8. Install the removed parts by reversing the steps of removal.

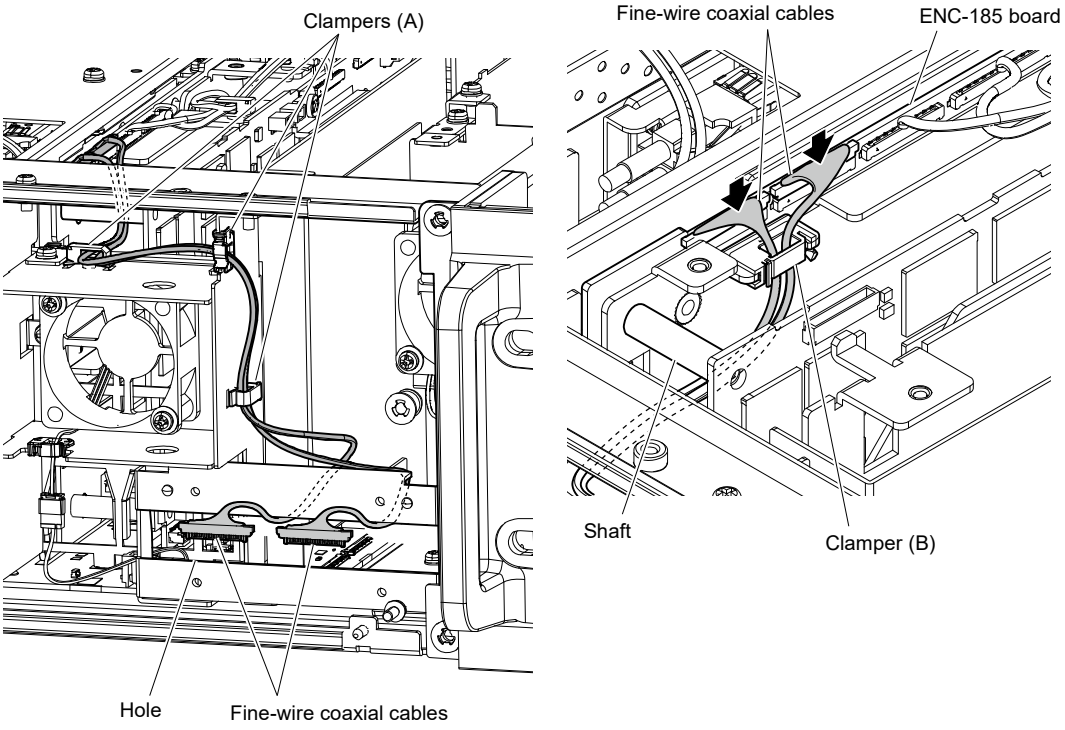
2-33-4. Fine-wire Coaxial Cable

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”.)
3. Remove the front panel assembly. (Refer to “2-3. Front Panel Assembly”.)
4. Remove the IF board assembly. (Refer to “2-33-1. IF-1371 Board”.)

Procedure

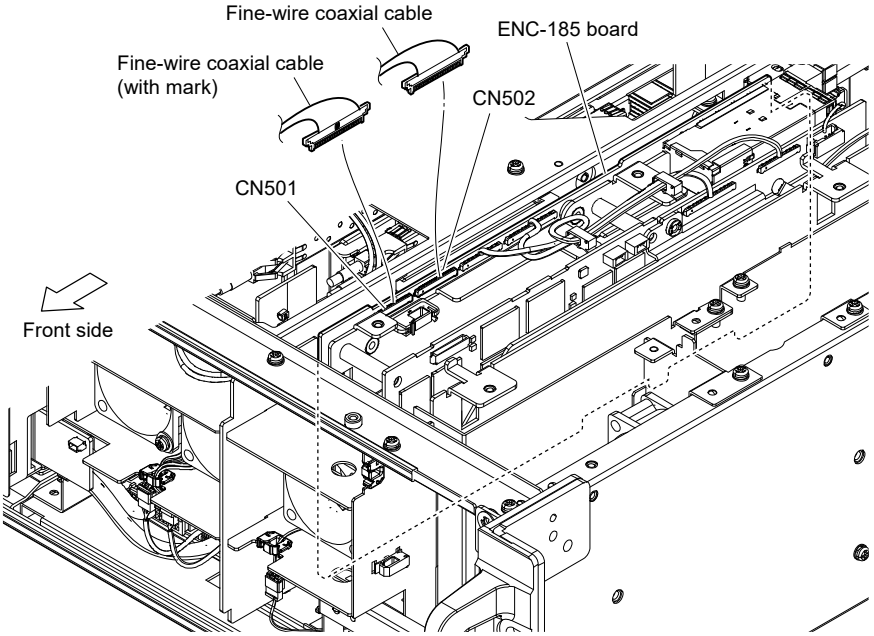
1. Pass two fine-wire coaxial cables through the hole toward the back of the main unit.
2. Release the two fine-wire coaxial cables from the clampers (A).
3. Release the two fine-wire coaxial cables from the clamper (B).



Note

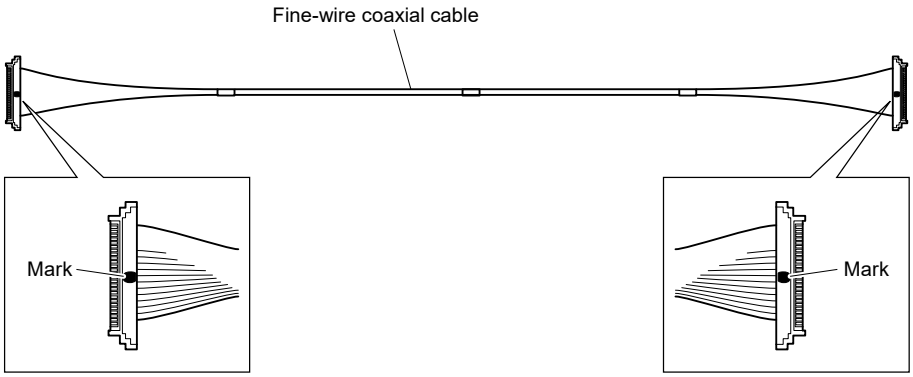
- At the time of the installation, press the two fine-wire coaxial cables in the direction of the arrow, and then secure them with the clamper (B).
- At the time of the installation, pass the two fine-wire coaxial cables under the shaft of the ENC assembly.

4. Disconnect the two fine-wire coaxial cables from the connectors (CN501, CN502) on the ENC-185 board, and then remove the two fine-wire coaxial cables.



Note

- At the time of the installation, connect the marked fine-wire coaxial cable to the connector CN501.
- When replacing the marked fine-wire coaxial cable, mark the two connectors of the new fine-wire coaxial cable.



5. Install the removed parts by reversing the steps of removal.

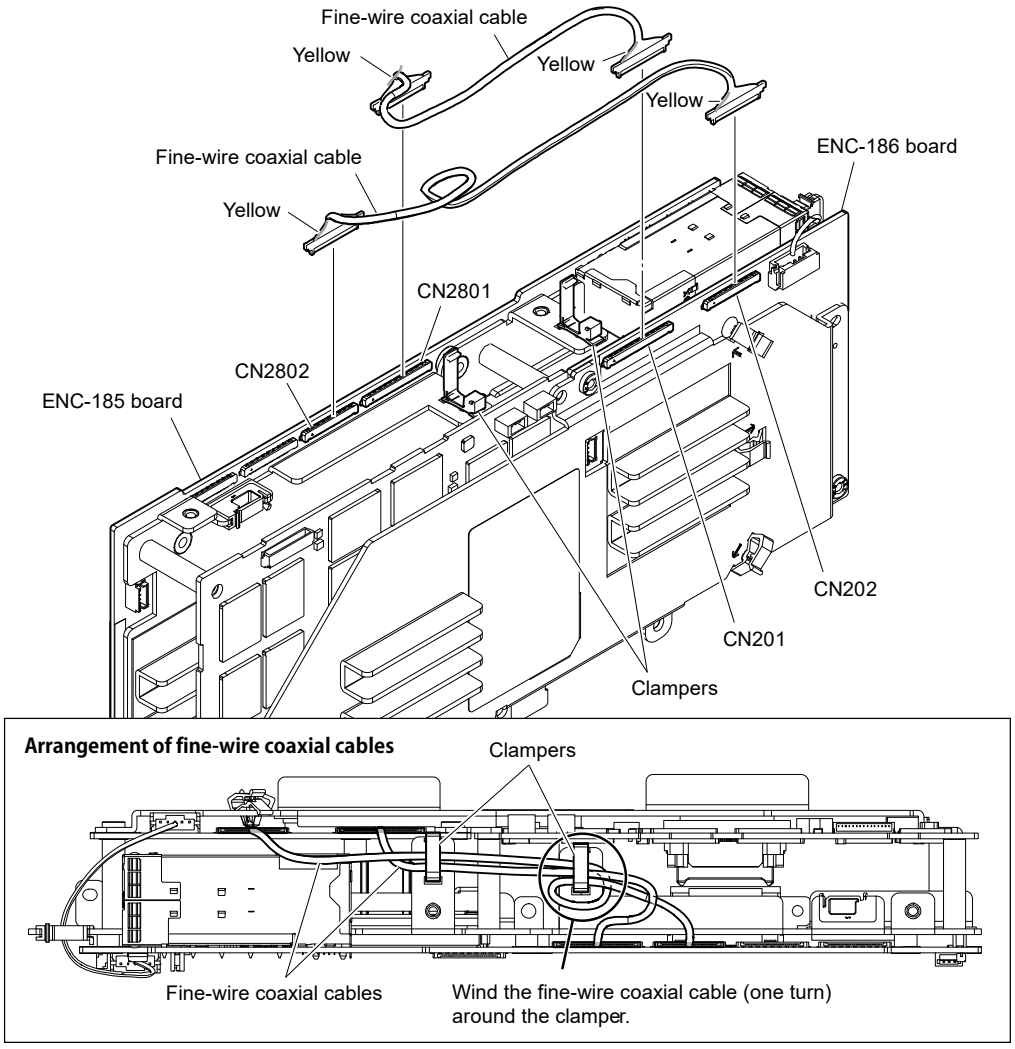
2-33-5. MDC-23 Board, ENC-186 Board, ENC-185 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”.)
3. Remove the ENC assembly. (Refer to “2-33-3. ENC Assembly”.)

Procedure

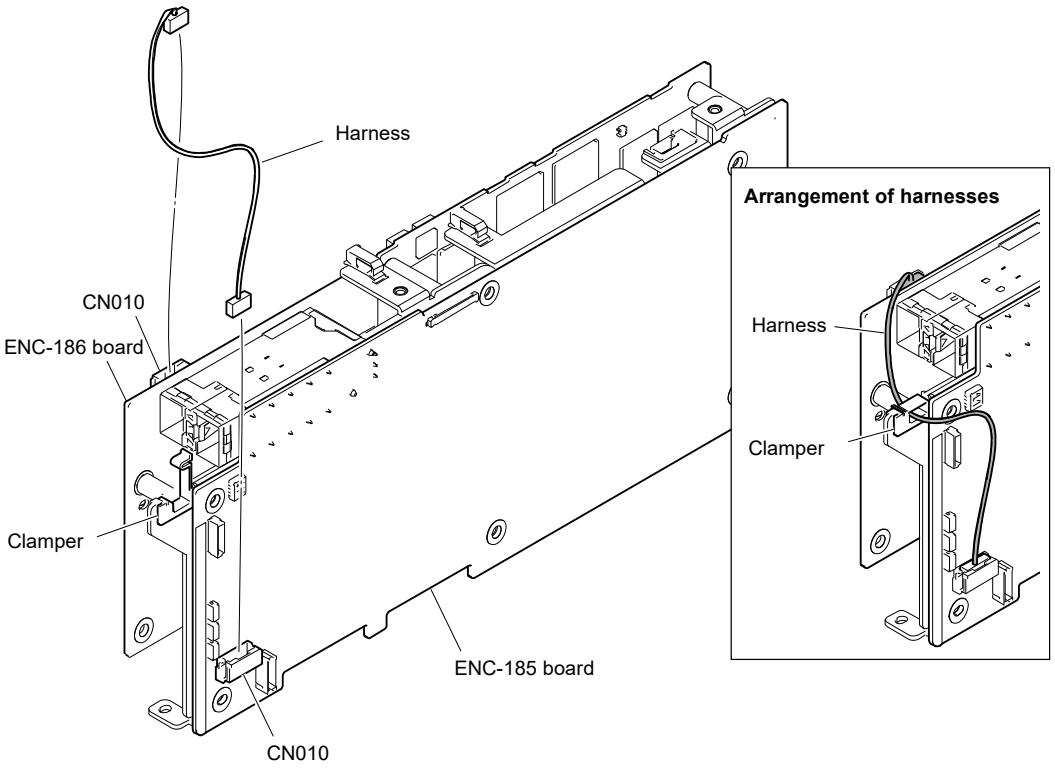
1. Release the two fine-wire coaxial cables from the clamper.
2. Disconnect the fine-wire coaxial cable from the connector (CN2801) on the ENC-185 board and the connector (CN201) on the ENC-186 board.
3. Disconnect the fine-wire coaxial cable from the connector (CN2802) on the ENC-185 board and the connector (CN202) on the ENC-186 board.



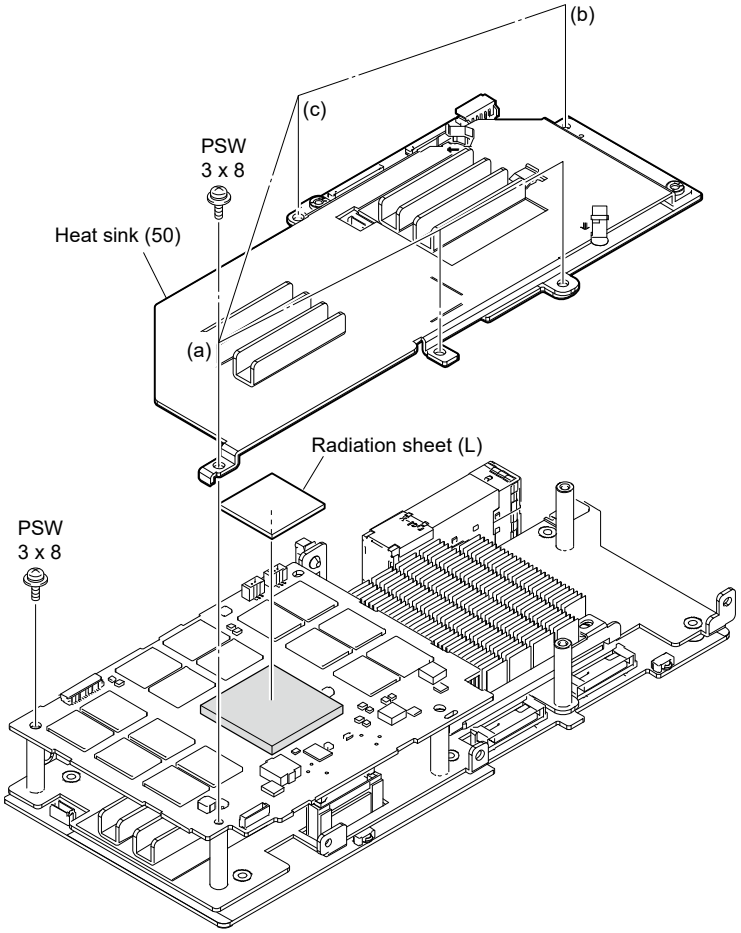
Note

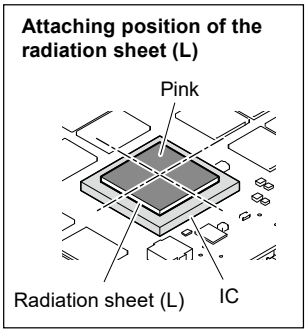
At the time of the installation, arrange the two fine-wire coaxial cables as shown in the figure.

4. Release the harness from the clamper.
5. Disconnect the harness from the connector (CN010) on the ENC-185 board and the connector (CN010) on the ENC-186 board.



6. Remove the six screws, and then remove the heat sink (50).
7. Remove the radiation sheet (L)

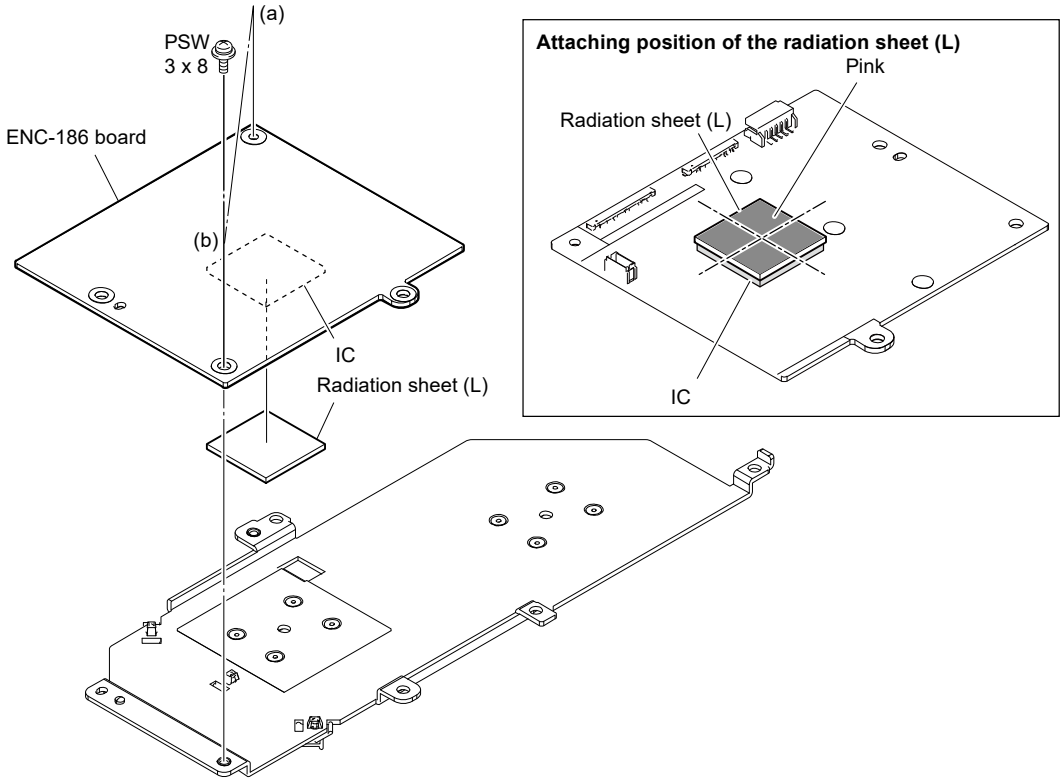




Note

- Attach the radiation sheet (L) with its pink surface facing up, putting its center at the center of the IC.
- At the time of the installation, tighten the screws in the following sequence: (a), (b), (c), others.

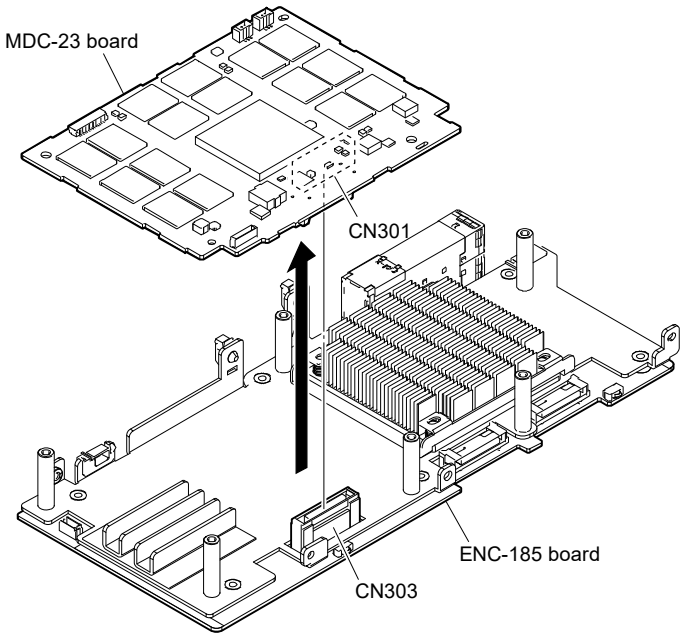
8. Remove the two screws, and then remove the ENC-186 board.
9. Remove the radiation sheet (L).



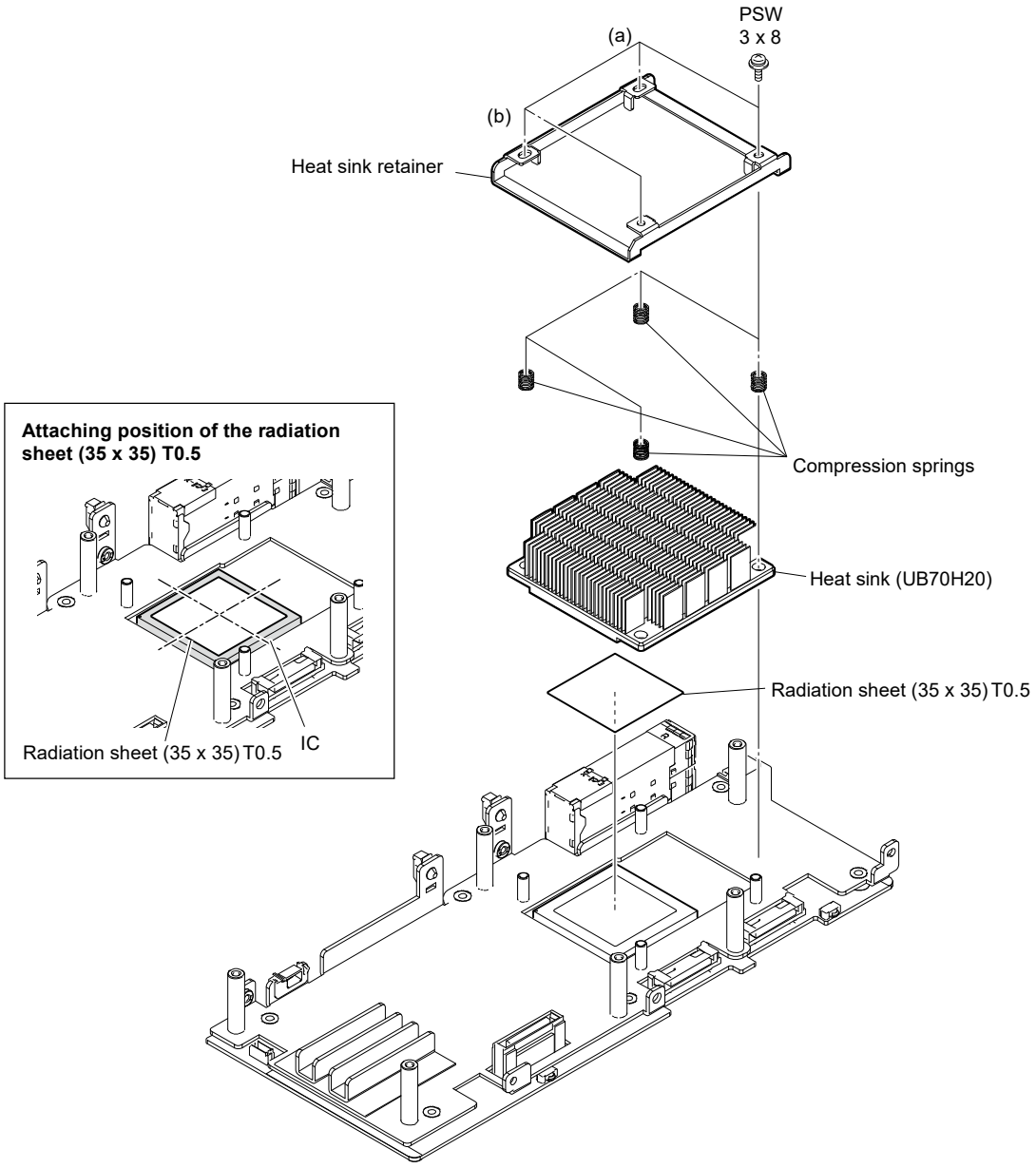
Note

- Attach the radiation sheet (L) with its pink surface facing up, putting its center at the center of the IC.
- At the time of the installation, tighten the screws in the following sequence: (a), (b).

10. Remove the MDC-23 board in the direction of the arrow.



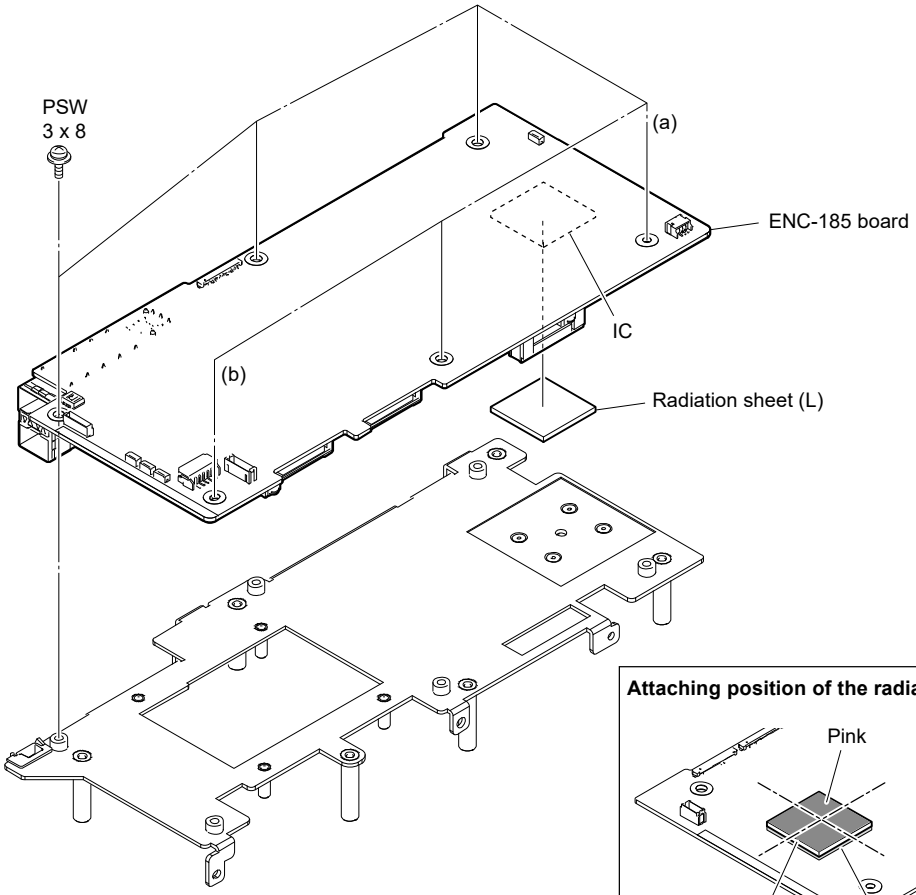
11. Remove the four screws, and then remove the heat sink retainer, four compression springs, heat sink (UB70H20), radiation sheet (35 x 35) T0.5.



Note

- It is recommended to replace the removed radiation sheet (35 x 35) T0.5 with a new one. Attach the radiation sheet (35 x 35) T0.5, putting its center at the center of the IC.
- At the time of the installation, tighten the screws in the following sequence: (a), (b), others.

12. Remove the six screws, and then remove the ENC-185 board.
13. Remove the radiation sheet (L).



Note

- Attach the radiation sheet (L) with its pink surface facing up, putting its center at the center of the IC.
- At the time of the installation, tighten the screws in the following sequence: (a), (b), others.

14. Install the removed parts by reversing the steps of removal.

2-33-6. CN-4058 Board, Optical Conversion Adaptor

Note

The removed screws cannot be reused. Use the supplied screws.

- Screw (P2.6 x 5): 6 pcs

Tip

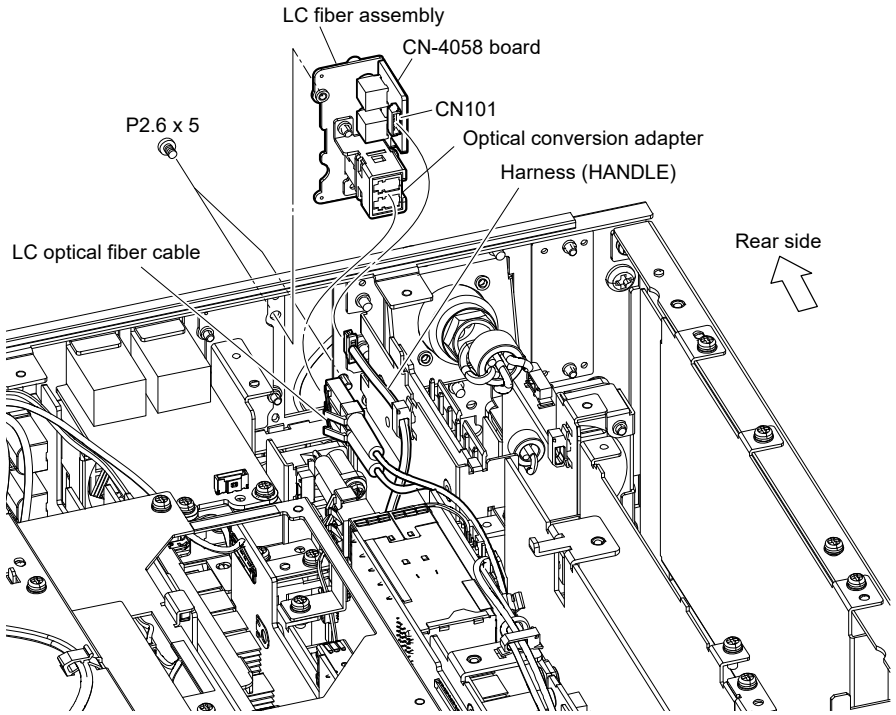
Required tool: Nut driver bit NDT-DIN/Canare Electric Co., Ltd. products

Preparation

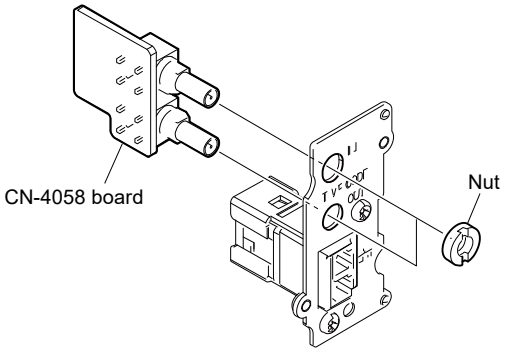
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”.)
3. Remove the PS cable guide assembly. (Refer to steps 1 to 3 in “2-15. CN-4134 Board”.)

Procedure

1. Disconnect the harness (HANDLE) from the connector (CN101) on the CN-4058 board.
2. Disconnect the LC optical fiber cable from the optical conversion adapter.
3. Remove the two screws, and then remove the LC fiber assembly.



4. Remove the two nuts, and then remove the CN-4058 board.

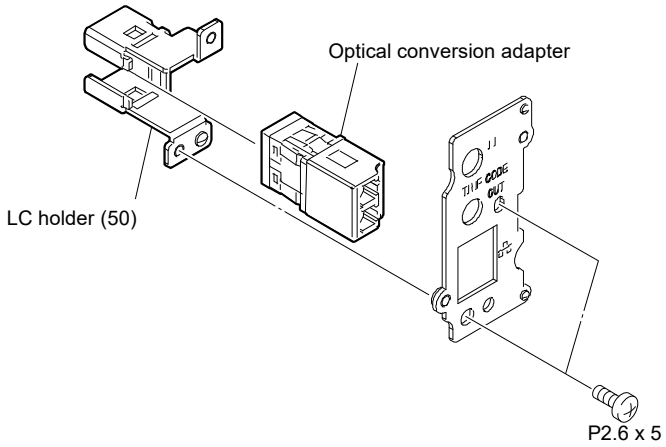


Note

At the time of the installation, tighten the each nuts with the torque below.

0.53±0.07 N·m

5. Remove the two screws, and then remove the LC holder (50) and the optical conversion adapter.



6. Install the removed parts by reversing the steps of removal.

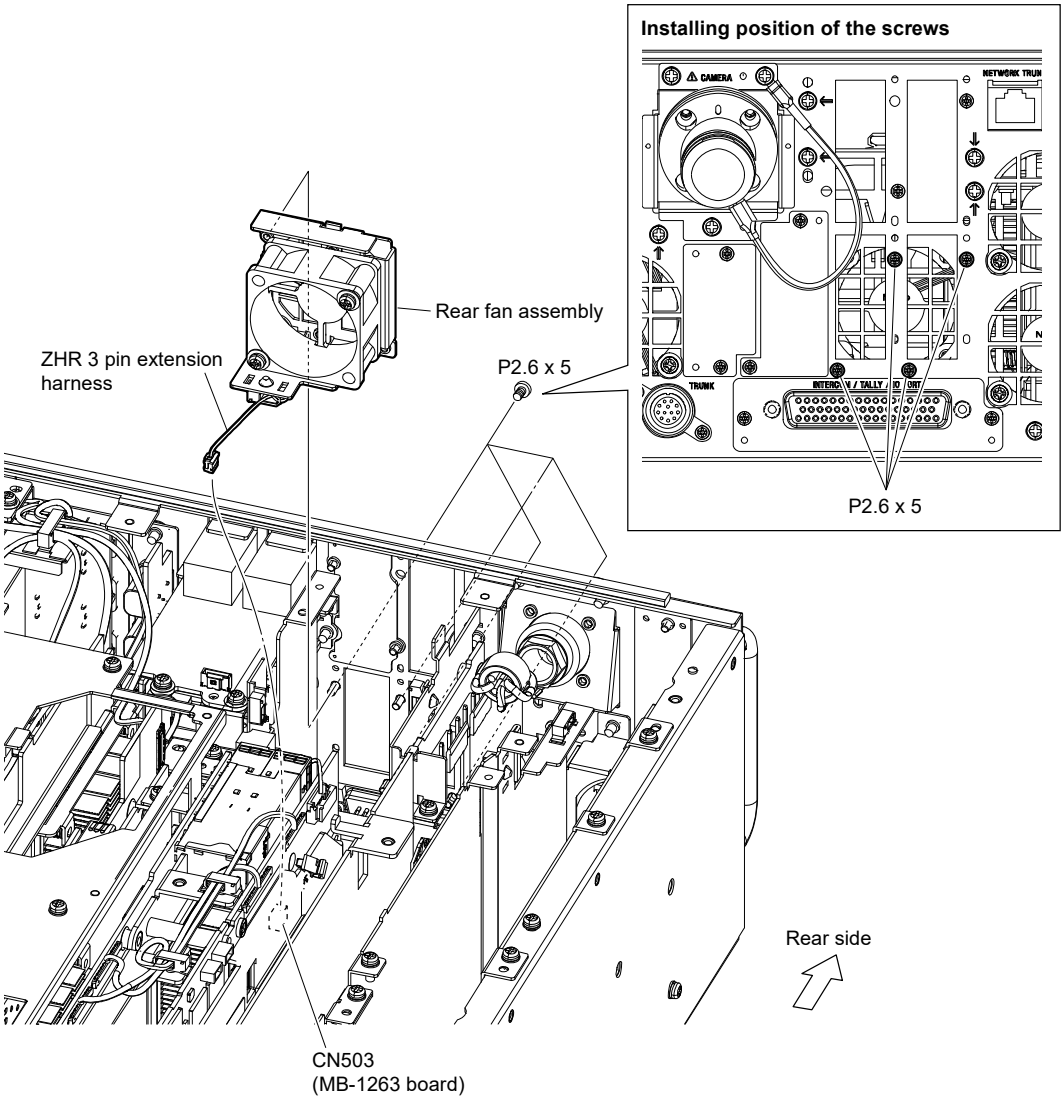
2-33-7. DC Fan (40 Square x 20) (Rear)

Preparation

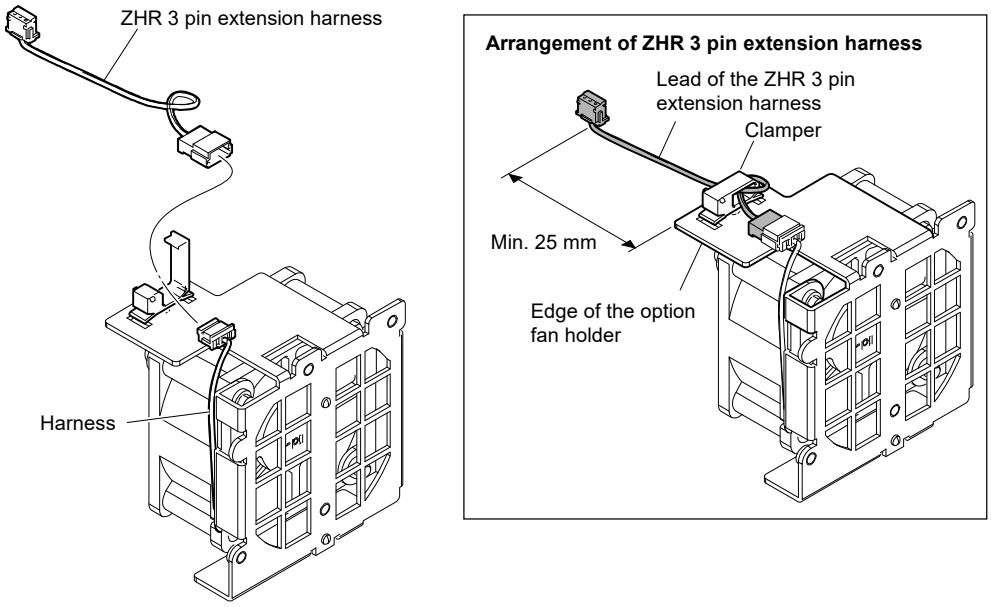
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the top chassis (R). (Refer to “2-5. Top Chassis (R)”.)
3. Remove the PS cable guide assembly. (Refer to steps 1 to 3 in “2-15. CN-4134 Board”.)
4. Remove the LC fiber assembly. (Refer to step “2-33-6. CN-4058 Board, Optical Conversion Adaptor”.)

Procedure

1. Remove the ZHR 3 pin extension harness from the connector (CN503) on the MB-1263 board.
2. Remove the four screws, and then remove the rear fan assembly.



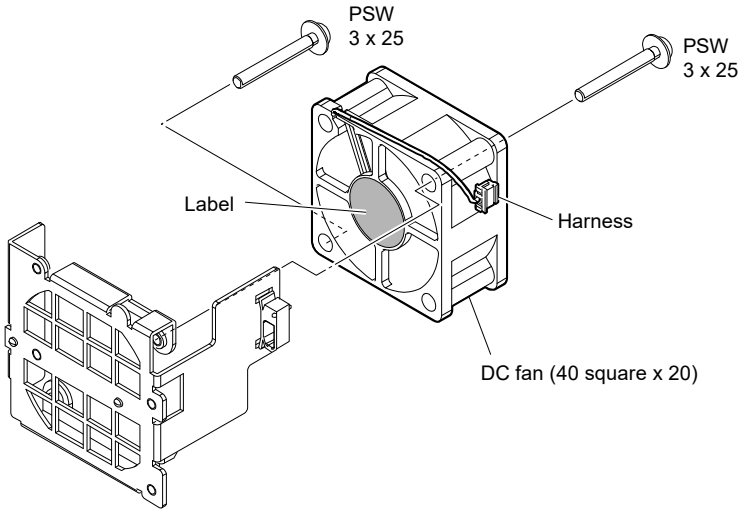
3. Release the ZHR 3 pin extension harness from the clamper.
4. Disconnect the ZHR 3 pin extension harness from the harness of the DC fan (40 square x 20).



Note

- Wind the ZHR 3 pin extension harness (one turn) around the clamper.
- Secure the lead of the ZHR 3 pin extension harness with the clamper, keeping a distance of at least 25 mm from the edge of the option fan holder.

5. Remove the two screws, and then remove the DC fan (40 square x 20).



Note

Install the DC fan (40 square x 20) carefully paying attention to the label side and the harness position.

6. Install the removed parts by reversing the steps of removal.

Section 3
Software Update

3-1. Upgrading Software Programs

Software programs stored in the ROM (IC401) on the AT-195 board is upgraded by using a USB drive. The software programs include application, operating system (OS), and update software programs which is independently upgraded. Use the following procedures to upgrade the software programs.

Tip

The USB connector for connection to a USB drive is located to the right of the CALL button on the front panel. Detach the USB connector lid to connect the USB drive.

3-1-1. Upgrading Application

Equipment Required

- USB drive (commercially available)

  Tip

  For recommended USB drive, contact your local Sony Sales Office/Service Center.

Preparation

Copy the camera application update data to the USB drive using the following procedure.

Note

For how to obtain the data file for update (hdcu5000_app.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\HDCU5000
2. Copy the data file for update “hdcu5000_app.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Open the [01<SOFTWARE PACKAGE>] page of the SERVICE menu. (Refer to “4-2-2. Description of SERVICE Menu”.)
4. Select “APPLICATION” and then press the control knob.
5. A message “UPDATE OK?” appears. Select “YES.”
   The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
6. Turn off and on the power of the unit and confirm that the version has been updated on the VERSION1 page of the DIAGNOSIS menu.

3-1-2. Upgrading OS

Equipment Required

- USB drive (commercially available)

  Tip

  For recommended USB drive, contact your local Sony Sales Office/Service Center.

Preparation

Copy the OS update data to the USB drive using the following procedure.

Note

For how to obtain the data file for update (hdcu5000_os.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\HDCU5000
2. Copy the data file for update “hdcu5000_os.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Open the [01<SOFTWARE PACKAGE>] page of the SERVICE menu. (Refer to “4-2-2. Description of SERVICE Menu”.)
4. Select “OS” and then press the control knob.
5. A message “UPDATE OK?” appears. Select “YES.”
   The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
6. Turn off and on the power of the unit and confirm that the version has been updated on the VERSION1 page of the DIAGNOSIS menu.

3-1-3. Upgrading Update Software

Equipment Required

- USB drive (commercially available)

  Tip

  For recommended USB drive, contact your local Sony Sales Office/Service Center.

Preparation

Copy the upgrading update software update data files to be updated to the directory created.

Note

For how to obtain the data file for update (hdcu5000_updater.pkg), contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\HDCU5000

2. Copy the data file for update “hdcu5000_updater.pkg” to the directory created.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. Turn on the power of the unit.
3. Open the [01<SOFTWARE PACKAGE>] page of the SERVICE menu. (Refer to “4-2-2. Description of SERVICE Menu”.)
4. Select “UPDATER” and then press the control knob.
5. A message “UPDATE OK?” appears. Select “YES.”
   The unit restarts automatically and the version update starts.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.
6. Turn off and on the power of the unit and confirm that the version has been updated on the VERSION1 page of the DIAGNOSIS menu.

3-1-4. Forced Version Update

If the version of program or data cannot be updated from the SOFTWARE PACKAGE page of the SERVICE menu, the software or PLD data version can be updated by the “forced version update.”

Tip

The USB connector for connection to a USB drive is located to the up of the CALL button on the front panel.

Forced Version Upgrade of Software or PLD Data

Equipment Required

- USB drive (commercially available)

  Tip

  For recommended USB drive, contact your local Sony Sales Office/Service Center.

Preparation

Copy the PLD update data to the USB drive using the following procedure.

Note

For how to obtain the data files for update, contact your local Sony Sales Office/Service Center.

1. Create the following directory in the USB drive.
   \MSSONY\PRO\CAMERA\HDCU5000
2. Copy the data file for update to be updated to the directory created.

   Note

   Do not copy software or PLD data that is not to be updated.

Procedure

1. Connect the USB drive that contains the program for update to the USB connector of this unit.
2. In the MENU control block on the front panel, turn the DISP/MENU lever to the MENU side, and turn the CANCEL/ENTER lever to the CANCEL side.

3. While pressing the control knob, turn on the power of the unit.
   Each data file for update copied in the USB drive is updated.
   Upon completion of the version update, a message “UPDATE SUCCEEDED” appears.

   Tip

   The version update progress status is displayed on the monitor.

4. Turn off and on the power of the unit and confirm that the version has been updated on the VERSION1, VERSION2 page of the DIAGNOSIS menu.

Section 4
Menu Settings

This unit can display the unit status and entire system status on the monitor connected to the SDI output connectors (SLOT2, SLOT3, CHARACTER) to check or change settings.

4-1. Preparations

4-1-1. Display/Hide the Status Screen

To display the status screen

Turn the DISP/MENU lever to the DISP side.

Tip

Turning the control knob changes the displayed page.

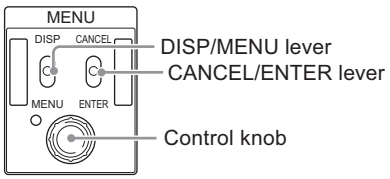
To exit the status screen display

In status screen display mode, set the DISP/MENU lever to the DISP position.

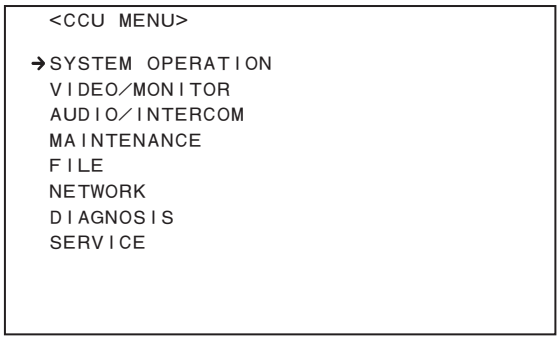
4-1-2. Starting and Exiting the SERVICE Menu

Starting

1. When the status screen or menu screen is displayed, hide the screen.
   - When the status screen is displayed, turn the DISP/MENU lever to the DISP side once.
   - When the menu screen is displayed, turn the DISP/MENU lever to the MENU side once.
2. While pressing the control knob, turn the CANCEL/ENTER lever quickly to the ENTER side twice.
3. Turn the DISP/MENU lever to the MENU side within two seconds.



4. Check that the following screen appears. If it does not appear, repeat steps 1 to 3.



5. Set the cursor to [SERVICE] and press the control knob.
   The SERVICE menu is displayed.

Exiting

1. When the status screen or menu screen is displayed, hide the screen.
2. Turn the CANCEL/ENTER lever quickly to the CANCEL side twice.

4-1-3. Changing Setting Values

To enter:

Press the control knob. Or turn the CANCEL/ENTER lever to the ENTER side.

To cancel:

Turn the CANCEL/ENTER lever to the CANCEL side before pressing the control knob. The setting of the selected item is restored.

To suspend:

Turn the DISP/MENU lever to the MENU. The menu disappears.

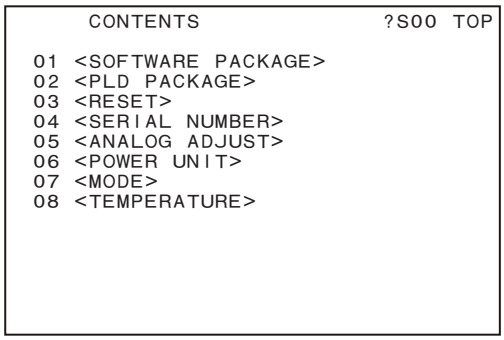
To restart the setting operation, turn the DISP/MENU lever again to the MENU side.

4-2. SERVICE Menu

This unit is provided with the SERVICE menu useful for maintenance.
For how to display the SERVICE menu, refer to "4-1-2. Starting and Exiting the SERVICE Menu".

4-2-1. SERVICE Menu List

Screen display



Description

Menu Page No.	Menu Page Name	Remarks
S01	SOFTWARE PACKAGE	Displaying and updating software version
S02	PLD PACKAGE	Displaying and updating PLD version
S03	RESET	Initializing setting values
S04	SERIAL NUMBER	Displaying serial number
S05	ANALOG ADJUST	Fine-adjusting PROMPTER input level and 27 MHz VCO flee-run
S06	POWER UNIT	Displaying power unit status
S07	MODE	Operation mode setting for connection terminal
S08	TEMPERTURE	Displaying temperature at each point

4-2-2. Description of SERVICE Menu

Tip

The display screen appearing in this section shows the indication example.

SOFTWARE PACKAGE

Screen display

```
<SOFTWARE PACKAGE>          ?S01 TOP

 APPLICATION  :   V1.01t001
 OS           :   V1.00
 UPDATER      :   V1.00









 ALL PACKAGES:   EXEC
```

Description

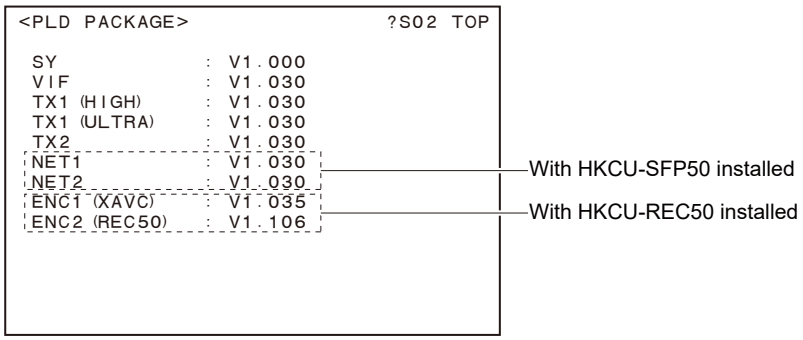
Item	Setting Value	Description
APPLICATION	—	Display the current software version. Place the cursor on the version to update the version.
OS	—	
UPDATER	—	
ALL PACKAGES	—	Move to the UPDATE ALL PACKAGES screen.

```
<UPDATE ALL PACKAGES>              RET

 UPDATE OK?  YES  NO

   APPLICATION :V1.30   V1.40
   OS          :V1.00 ►
  *UPDATER     :V1.00   V1.01
   SY          :V1.00 ►
   VIF         :V1.00
   TX1 (HIGH)  :V1.00   V1.01
   TX1 (ULTRA) :V1.00 ►
   TX2         :V1.00
```

Item	Setting Value	Description
UPDATE	—	Displays the current software, PLD version and the version name to be up-graded stored in the USB folder. Upgrade the target version in the “EXEC” on the TO BE UPDATE screen.
APPLICATION	—	
OS	—	
UPDATER	—	
SY	—	
VIF	—	
TX1 (HIGH)	—	
TX1 (ULTRA)	—	
TX2	—	

PLD PACKAGE

Screen display



Description

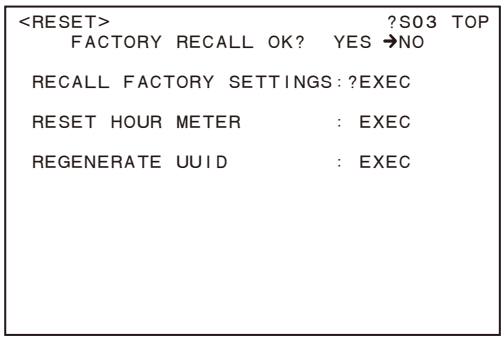
Item	Setting Value	Description
SY	—	Display the current PLD version. Place the cursor on the version to update the version.
VIF	—	
TX1 (HIGH)	—	
TX1 (ULTRA)	—	
TX2	—	
NET1	—	
NET2	—	
ENC1 (XAVC)	—	
ENC2 (REC50)	—	

Tip

- “NET1” and “NET2” are displayed only when the HKCU-SFP50 is installed.
- “ENC1 (XAVC)” and “ENC2 (REC50)” are displayed only when the HKCU-REC50 is installed.

RESET

Screen display



Description

Item	Setting Value	Description
RECALL FACTORY SETTINGS	—	Re-set all setting values except for the following to factory default values. • ANALOG ADJUST page PROMPTER1 LEVEL PROMPTER2 LEVEL 27 MHz Clock
RESET HOUR METER	—	Reset the cumulative power-on time.
REGENERATE UUID	—	Regenerate the UUID.

SERIAL NUMBER

Screen display

```
<SERIAL NUMBER>                ?S04 TOP

 MODEL NAME    : HDCU5000

 SERIAL NUMBER: 01234567




                              ?RESTORE
```

Description

Item	Setting Value	Description
MODEL NAME	**HDCUxxxx** **(x: Model name)**	Display the model name of the unit.
SERIAL NUMBER	**00000000** to 99999999	Display the serial number set in the unit.

ANALOG ADJUST

Screen display

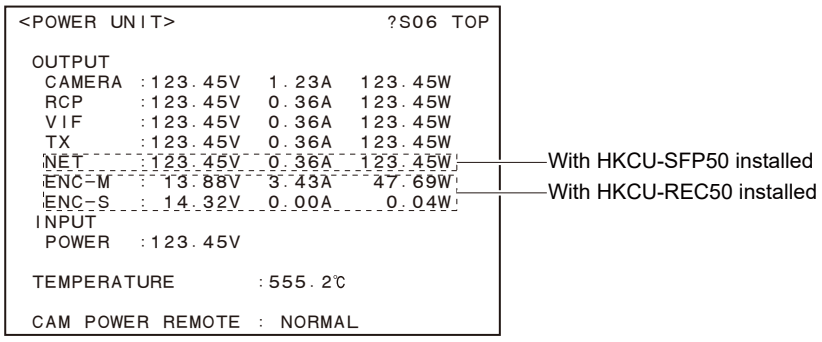
```
<ANALOG ADJUST>                ?S05 TOP

 PROMPTER1 LEVEL  : 0
 PROMPTER2 LEVEL  : 0
 27MHz CLOCK      : 137
```

Description

Item	Setting Value	Description
PROMPTER1 LEVEL	-127 to 128	Adjust the PORMPTER1 input signal level.
PROMPTER2 LEVEL	-127 to 128	Adjust the PORMPTER2 input signal level.
27MHz CLOCK	0 to 255	Adjust the 27 MHz oscillation frequency.

POWER UNIT

Screen display



Description

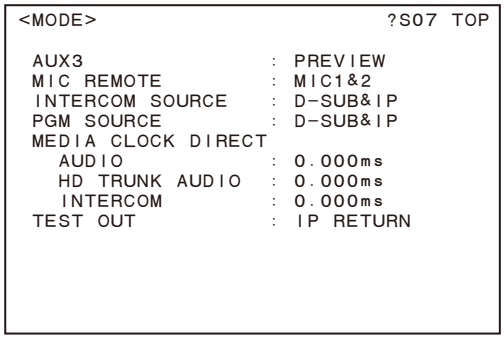
Item	Setting Value	Description
CAMERA	—	Display the camera power supply status, voltages, and current measurement values.
RCP	—	Display the RCP power supply status.
VIF	—	Display the VIF-75 board power supply status.
TX	—	Display the TX-167 board power supply status.
NET	—	Display the NET-37 board power supply status.
POWER	—	Display the power unit power supply status.
TEMPERATURE	—	Display the temperature of the power unit.
CAM POWER REMOTE	—	Controls the power supply status to the camera. NORMAL: When the power to the CCU is turned on, the power supply of the camera is forcibly turned on. BACKUP: When the CCU power is OFF, hold the command status from the panel.
ENC-M	—	Display the ENC-185 board power supply status. (main system)
ENC-S	—	Display the ENC-185 board power supply status. (sub system)

Tip

- “NET” is displayed only when the HKCU-SFP50 is installed.
- “ENC-M” and “ENC-S” are displayed only when the HKCU-REC50 is installed.

MODE

Screen display

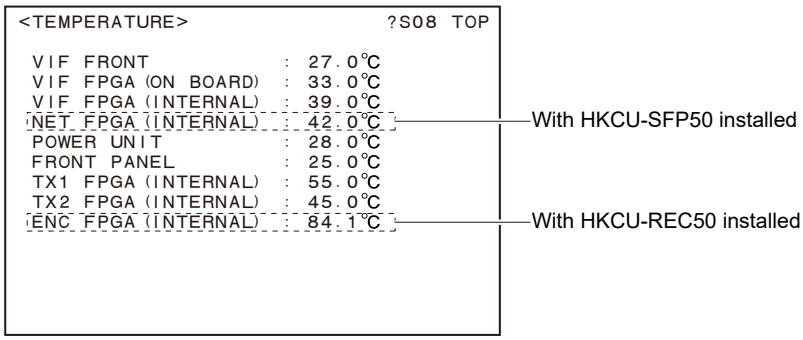


Description

Item		Setting Value	Description
AUX3		**PREVIEW**, FLAG, Y TALLY	Set the AUX 3 pin function of the INTERCOM/TALLY/PGM terminal. PREVIEW: Used as PREVIEW switching signal output pin. FLAG: Used as FLAG signal output pin. Y TALLY: Used as Y TALLY signal output pin.
MIC REMOTE		**MIC1&2,** MIC1,2, MIC+NETWORK	MIC1&2 • MIC 1 and 2 Amplifier gains are common MIC1,2 • MIC 1 and 2 amplifier gains are independent MIC+NETWORK: • MIC 1 and 2 Amplifier gains are common • 14 pin is forced LEGACY
INTERCOM SOURCE		**D-SUB&IP**, D-SUB, IP	Set the signal input source used as an intercom. D-SUB&IP: Both D-SUB connector input and IP stream input are used. D-SUB: Only D-SUB connector input is used. IP: Only IP stream input is used. D-SUB&IP and IP are selectable only when the NET board is mounted and IP Intercom stream is received. When the NET board is not mounted, D-SUB is fixed.
PGM SOURCE		**D-SUB&IP**, D-SUB, IP	Set the signal input source used as a PGM. D-SUB&IP: Both D-SUB connector input and IP stream input are used. D-SUB: Only D-SUB connector input is used. IP: Only IP stream input is used. D-SUB&IP and IP are selectable only when the NET board is mounted and IP Intercom stream is received. When the NET board is not mounted, D-SUB is fixed.
MEDIA CLOCK DIRECT		—	Set the Media Clock Direct value to be sent using the SAP protocol for each IP Audio stream. When a long-distance system is built, a network transmission delay is generated. Therefore, streams may be discarded due to delay restrictions depending on receivers of other vendors. (Example: 2 ms or less delay in the AES67 mode of Dante) To avoid this problem, adjust this setting value according to the transmission delay time.
	AUDIO	-682.666 to 682.645 [ms], **0.000**	Set the Media Clock Direct value of the IP Audio stream.
	HD TRUNK AUDIO	-682.666 to 682.645 [ms], **0.000**	Set the Media Clock Direct value of the IP HD Trunk Audio stream.
	INTERCOM	-682.666 to 682.645 [ms], **0.000**	Set the Media Clock Direct value of the IP Intercom stream.
TEST OUT		**OFF**, IP RETURN	Used to output the IP RETURN signal from the SDI connector for test. This is a simple check function used when the ST2110 system has been built. This function is reset by turning off and on to prevent incorrect operation. IP RETURN stream and output connector are in the following relationship. IP RET1 → SDI OUT1 IP RET2 → SDI OUT2 IP RET3 → SDI OUT3 IP RET4 → SDI IO1 (A down-converted (4K to HD) signal is output.)

TEMPERATURE

Screen display



Screen display

Item	Setting Value	Description
VIF FRONT VIF FPGA (ON BOARD) VIF FPGA (INTERNAL)	—	Display the temperature of VIF-75 board.
NET FPGA (INTERNAL)	—	Display the temperature of NET-37 board.
POWER UNIT	—	Display the temperature of power unit.
FRONT PANEL	—	Display the temperature of front panel.
TX1 FPGA (INTERNAL)	—	Display the temperature of TX1 FPGA.
TX2 FPGA (INTERNAL)	—	Display the temperature of TX2 FPGA.
ENC FPGA (INTERNAL)	—	Display the temperature of ENC-185 board.

Tip

- “NET FPGA (INTERNAL)” is displayed only when the HKCU-SFP50 is installed.
- “ENC FPGA (INTERNAL)” is displayed only when the HKCU-REC50 is installed.

Section 5
Web Maintenance Menu

5-1. Overview of Web Maintenance Menu

This unit equipped with HKCU-REC50 is provided with the web maintenance menu useful for maintenance and troubleshooting.
The web maintenance menu is displayed on the web browser of the PC connected to the unit.

Tip

Refer to the Operation Manual to display the web maintenance menu.

5-1-1. Hierarchy of Web Maintenance Menu

The Maintenance menu consists of the following items.

Menu Layer 1	Menu Layer 2	Usage	Reference
Version	—	ROM version display	"Version"
Warning	Warning Cancel	Deletion of items from the warning list	"Warning Cancel"
Log	Create Log File	Acquire the log list	"Create Log File"
	Download Log File	Downloading error log file	"Download Log File"
License	Optional Function	License install state display	"Optional Function"
Others	Change Password	Change the Web/FTP password	"Change Password"
	All Reset	Restore the factory default settings	"All Reset"

5-2. Maintenance Tab

5-2-1. Version Menu

Version

Program version numbers of onboard PLDs and FPGAs and the software version numbers are displayed.

5-2-2. Warning Menu

Warning Cancel

The selected warning message can be hidden.

Tip

When a warning message is hidden, any related errors are no longer detected.

- Checkboxes
  Check a box to hide a warning message.
- Description of items in the table
  - No.: Number
  - Type: Warning type
  - Code: Error code
  - Information: Error message

Tip

For details of warning messages, refer to “Troubleshooting” > “Warning Messages” in the Operation Manual.

5-2-3. Log Menu

Create Log File

This item is used to acquire the log list collected by the unit.

Download Log File

Log data collected by the unit is stored on the PC as a file.

- Text box
  Error log file acquired by [Create Log File] is displayed.
  Right-click a file name and save the target file.

5-2-4. License Menu

Optional Function

This item displays how the licenses are installed in the unit.

- Text box
  The conditions of the licenses installed in the unit are displayed.

5-2-5. Others Menu

Change Password

Change the Web / FTP password for this unit.

All Reset

Restore the settings of this unit to the factory default settings.

Section 6
Circuit Description

6-1. Circuit Description of Each Board

6-1-1. AT-195 Board

The AT-195 board consists of a system control microcomputer (IC001) and a peripheral circuit.

The main program is stored in the flash memory (IC401) on the AT-195 board.

This board is connected to the SY-467 board.

6-1-2. CN-4134 Board

The CN-4134 board contains the LAN-COM connector and the NETWORK TRUNK connector on the rear panel.

6-1-3. CN-4135 Board

The CN-4135 board contains the AUDIO OUT connector on the rear panel.

6-1-4. CN-4136 Board

The CN-4136 board contains the TRUNK connector on the rear panel.

6-1-5. CN-4137 Board

The CN-4137 board contains the RCP/CNU connector on the rear panel.

6-1-6. CN-4138 Board

The CN-4138 board contains the AES/EBU connector and the CHARACTER / SYNC connector on the rear panel.

6-1-7. CN-4139 Board

The CN-4139 board contains the INTERCOM connector (XLR 5 pins) on the front panel.

6-1-8. CN-4140 Board

The CN-4140 board contains the INTERCOM/TALLY/IO PORT connector (D-Sub 50 pins) on the rear panel.

6-1-9. CN-4141 Board

The CN-4141 board contains the INTERCOM/TALLY/IO PORT connector (D-Sub 25 pins) on the rear panel.

6-1-10.CN-4142 Board

The following connectors on this board are used to relay signals between CN-4143 board and CAMERA connector.

- CN002: CN-4143 board
- CN003: CAMERA connector

6-1-11. CN-4143 Board

The following connectors on this board are used to relay signals between boards.

- CN001: MB-1263 board
- CN003: CN-4142 board
- CN004: RE-353 board (power supply unit)

6-1-12. CN-4144 Board

The following LED on this board.

- CALL (D002)
- Red/green/yellow tally lamp (D001)

6-1-13. CN-4145/CN-4146 Board

The CN-4145/CN-4146 board contains the INTERCOM connector (XLR 4 pins) on the front panel.

6-1-14. FP-323 Board

The FP-323 board contains switches for setting menus, a USB connector, and an audio circuit for intercom on the front panel.

6-1-15. HIF-77 Board

The HIF-77 board contains the UHD SDI E, F output connector (BNC type) and UHD SDI G, H input/output connector on the rear panel.

6-1-16. LE-439 Board

The LE-439 board contains LEDs on the front panel, indicating the status of power supply to the unit and the camera, the camera number, optical signal receiving status, and various states.

6-1-17. LE-440 Board

The LE-440 board contains an LED bar that indicates the unit status.

6-1-18. MB-1263 Board

The MB-1263 board functions as an interface with the power module and each board.
This board contains a PCI Express hub, a clock distributor, and a fan control circuit.

6-1-19. NET-37 Board

The NET-37 board contains the LAN 1 connector (CN0201) and the LAN 2 connector (CN0202) for external communication.
The NET PLD1 (IC001) detects the SFP module connected to the LAN 1 or LAN 2 connector, and then informs the control microcomputer (AT-195 board) of the detected module through CN0104. In addition, this IC sends/receives IP routing information to/from the connected system controller (such as LSM) through the network, and then informs the control microcomputer (AT-195 board) of the IP routing information through CN0104. This IC also controls the network with commands sent from the control microcomputer (AT-195 board) through CN0104 to transmit IP streams.
The NET1 PLD performs PTP communication with the connected PTP master through the network, and outputs the generated video synchronization signal to the NET2 PLD (IC002). The NET2 PLD processes stream data using the video synchronization signal from the NET1 PLD, and outputs the video synchronization signal to the VIF-75 board through CN0101.
The NET2 PLD converts the SDI signal (sent from the TX-167 board through CN0102) to stream data, and then outputs the stream data to the NET1 PLD. This PLD also converts the stream data from the NET1 PLD to SDI data, and then outputs the converted data to the VIF-75 board through CN0102.
The NET1 PLD assembles stream data sent through the NET2 PLD as packet data for 10 G/25 G network communication.
This PLD also extracts stream data from received packets in network communication, and then outputs the extracted stream data to the NET2 PLD.

6-1-20. TX-167B Board

Data transmission between the TX-167B board and the camera

Data is transmitted from the Fiber connector through CN201.

Main-line video signals

The video data that is transmitted from the camera is send to the VIF-75 board.
The TX-167B board processes four SDI output signals and video data to be sent to the VIF-75 board and the NET-37 board. Four DDR3 SDRAM ICs (IC1201, IC1202, IC1301, and IC1302) are connected to the TX-167B board. This board is equipped with the 4K/HD HFR video processing function.
Four DDR4 SDRAM ICs (IC2101, IC2102, IC2201, and IC2202) are also connected to the FPGA (IC1501). This FPGA is equipped with the 4K/HD HFR video processing function, 720P conversion function, and P-to-i (Progressive to interlace) conversion function in addition to the timing adjustment function.
Furthermore, this FPGA can convert 4K video data from camera to 12G SDI, 6G SDI, 3G SDI (Level-A/B, 2SI, SQD), or HD SDI (2SI, SQD) data.

The TX-167B board contains output connectors UHD SDI A and UHD SD B (J301, J302) and input/output connectors UHD SDI C and UHD SDI D (J303, J304), enabling output of up to 4-channel SDI video signals.

UHD return video signals

UHD return video signals are input from the UHD SDI C and UHD SDI D connectors (J303, J304) on the TX-167B board. The 12G SDI and 6G SDI signals can be input. The input signal is sent to the camera through the VIF-75 board.

UHD TRUNK signal

The UHD SDI B connector (J301) on the TX-167B board can be used as a UHD TRUNK output connector.

UHD PROMPTER signal

The UHD SDI D connector (J303) on the TX-167B board can be used as a UHD PROMPTER input connector.
The UHD PROMPTER signal is sent to the camera through the FPGA (IC601) on the TX-167B board.

6-1-21. SY-467 Board

Audio signals

The PGM signal that is input to the D-sub connector is transferred to the A/D and D/A converter ICs (IC2614, IC2615) through the B to B connector (CN303) in which the signal is converted to a digital signal, and then the digital signal is input to the FPGA (IC1200). The System Intercom signal that is input to the D-sub connector is transferred to the A/D and D/A converter IC (IC2900) through the B to B connector (CN303) in which the signal is converted to a digital signal, and then the digital signal is input to the FPGA (IC1200).
The TALK signal of the front INTERCOM that is input from the FP-323 board to the CN400 connector is converted to a digital signal in the A/D and D/A converter IC (IC2513), and then the digital signal is input to the FPGA (IC1200).
The Stand-by Intercom signal that is input from the camera to the connector (CN402) is converted to a digital signal in the A/D and D/A converter IC (IC2615), and then the digital signal is input to the FPGA (IC1200).
The MIC signal processed in the SY-467 board is converted to an analog signal in the D/A converter IC (IC2500), and then the analog signal is output to the B to B connector (CN303). The System Intercom signal processed in the SY-467 board is converted to an analog signal in the A/D and D/A converter IC (IC2900), and then the analog signal is output to the B to B connector (CN303). The RCV/PGM signal of the front INTERCOM processed in the SY-467 board is converted to an analog signal in the A/D and D/A converter IC (IC2513), and then the analog signal is output to the connector (CN400). The Stand-by Intercom signal processed in the SY-467 board is converted to an analog signal in the A/D and D/A converter IC (IC2615), and then the analog signal is output to the connector (CN402).
The SY-467 board sends and receives the following signals.

- This board outputs the MIC signal and the AES/EBU signal (from the camera) to the AUDIO OUT connector on the CN-4135 board.
- This board sends the PGM signal (that is input to the B to B connector (CN303) from the D-sub connector) to the VIF-75 board.
- This board receives the Intercom signal (embedded in the signal from the camera) from the VIF-75 board, and then outputs the Intercom signal to the Front Intercom connector (CN400) and the System Intercom connector (CN303). At this time, the Front INTERCOM input signal, System Intercom input signal, and PGM signal can be mixed.

- This board mixes the Front INTERCOM input signal and the System Intercom input signal, and then sends the mixed signal to the VIF-75 board.
- This board outputs the Stand-by Intercom input signal (from the camera) to the Front INTERCOM connector (CN400) and the System Intercom connector (CN303).
- This board mixes the Front INTERCOM input signal and the System Intercom input signal, and then sends the mixed signal to the camera as a Stand-by Intercom signal (CN402).

TRUNK signal

The TRUNK signal from the TRUNK connector on the CN-4136 board is input to the SY-467 board. The audio signal (multiplexed with the audio channel of the return signal through the VIF-75board) is sent to the camera. The TRUNK signal from the camera is multiplexed with the audio channel of the serial digital video signal. In the SY-467 board, the TRUNK signal from the camera is extracted and is output to the TRUNK connector on the CN-4136 board.

LAN signal

The LAN signal can be input to and output from the LAN-COM connector on the CN-4134 board. The LAN signal is input to the FPGA (IC600) from the connector (CN600) on the SY-467 board. The signal format is converted, and then the signal is sent to the CPU (AT-195 board). The (AT-195) control signals from the CPU (AT-195 board) are input to the FPGA (IC600), and are then output from the LAN-COM connector on the CN-4134 board through the connector (CN600).

NETWORK TRUNK signal

The NETWORK TRUNK signal from the NETWORK TRUNK connector on the CN-4134 board is input to the FPGA (IC600) from the connector (CN600) on the SY-467 board. The signal format is converted, and then the signal is input to the FPGA (IC1200). Packet data that passes this connector (CN600) is embedded into the Link-B data of the serial digital video signal through the VIF-75 board for communication with the camera.

Power unit interface

The FPGA IC (IC1200) monitors and controls the power unit through the I2C interface. This IC is connected through the B to B connector (CN301).

Power IC interface

The FPGA IC (IC1200) monitors and controls the power ICs (IC001, IC002, IC003, IC004, and IC203) through the I2C interface.

Front panel interface

The SY-467 board relays control lines for the CPU (AT-195 board) to control the switches and LEDs on the front panel (FP-323 board). The value (F_INC_VR) of the potentiometer on the front panel is converted to digital data in the A/D converter IC (IC1105) so that it can be read by the CPU.

GPIO control signals

Eleven GPIO control signals (including PREVIEW OUT and AUX3) are assigned from the D-sub connector through the B to B connector (CN303). The FPGA IC (IC1200) controls the input/output direction of the GPIO control signals. In the signal output mode, pin values are set. In the signal input mode, pin values are monitored.

Tally control signals

Three channels of tally control input signals are assigned to the six signal lines from the D-sub connector through the B to B connector (CN303). Tally control input signals are input to the FPGA IC (IC1200) and can be read from the CPU. GPIO0, GPIO1, and GPIO2 out of 11 GPIO signals are assigned as tally control output signals. Tally control output signals are controlled by the FPGA IC (IC1200).

MIC Remote signal and WFM Remote signal

MIC Remote input or WFM Remote output signals are assigned to eight signal lines from the D-sub connector through the B to B connector (CN303). The MIC Remote signal and the WFM Remote signal operate exclusively. When the MIC Remote signal is assigned, signal values that are input to the FPGA IC (IC1200) can be read from the CPU. When the WFM Remote signal is assigned, setting values can be controlled from the FPGA IC (IC1200).

6-1-22. VIF-75 Board

The VIF-75 board mainly performs HD/SD video processing and synchronization processing.
When FIBER TRANSMIT RATE is set to HIGH, this board sends and receives main-line video signals and return video signals directly to/from the camera.
When FIBER TRANSMIT RATE is set to ULTRA, this board sends and receives HD signals through the TX-167 board.

HD main-line video signals

In addition to the timing adjustment function, the VIF-75 board has functions for PI (Progressive to interlace) conversion, 2-3 pull-down, down-conversion to SD data, superimposing audio data to output it as SDI data, conversion to VBS signal to output it, and output to the IP transmission board.

Return video signals

The VIF-75 board performs timing adjustment, frame synchronization for asynchronous signals, PI conversion and IP conversion, frame rate conversion, up-conversion (for SD-SDI or VBS data), and format conversion to a 1.5G HD signal (FIBER TRANSMIT RATE = HIGH) or to a 3G HD signal (FIBER TRANSMIT RATE = ULTRA) to send the signal to the camera.
At the same time, this board transmits the HD-Prompter, Network-Trunk, and HD-Trunk signals as well as sends, receives, and processes superimposed signals such as audio signals.

6-1-23. CN-4058 Board

The CN-4058 board mounted in the HKCU-REC50 contains a TIME CODE connector on the rear panel side.

6-1-24. ENC-185 Board

The ENC-185 board mounted in the HKCU-REC50 is a main processing board to control and process 4K/HD video and audio signals (for recording, transfer, and playback) sent from the camera.
The FPGA (IC001) has the following functions.

- Controls recording, playback, and transfer with the internal CPU.
- Functions as bank memory (main cache of audio and video data)
- Functions as a host of the MDC-23A board.
- Transfers recording data through the USB Host/10GbE network.
  The FPGA (IC001) is connected to eight DDR4 SDRAMs. IC1501 to IC1504 are used as bank memory. IC1001 to IC1004 are used as working memory for the CPU.

Control signals

The storage device communicates with the CPU in the FPGA (IC001) from the LAN-COM connector through the LANHUB (IC403) and is controlled by the CPU.
The CPU (AT-195 board) of the unit is connected to the CPU in the FPGA (IC001) through the CPU_BUS line to transfer camera settings and alarm information.

Recording processing

The 4K video and audio signals from the camera are input from the TX-167B boards. The HD and audio signals are input from the VIF-75 board to the FPGA (IC001).
The 4K video signals that are input to the FPGA (IC001) are encoded to 4K XAVC data in IC007. The HD signals are encoded to HD XAVC data in IC006. These encoded data are returned to the FPGA (IC001).
Encoded video and audio signals and meta data (including time code) are mapped in the FPGA (IC001) and are then sent to the MDC-23A board using the SATA Host function to be stored in the flash memory on the MDC-23A board.

Playback processing

Recording stream signals are sent from the MDC-23A board to the FPGA (IC001).
The 4K XAVC/HD XAVC and MPEG video signals in the recording stream signals are decoded in IC008 on the ENC-186 board. The decoded data are returned to the FPGA (IC001) on the ENC-185 board as baseband video signals.
In DNxHD, encoded signals are decoded in IC001 to baseband video signals.
The baseband video and audio signals are mapped to the SDI format in the FPGA (IC001), and are then sent to the TX-167B, and VIF-75 boards. Then these signals are output as SDI signals from the UHD-SDI B connector and the SDI I/O 3 connector.

Transfer processing

The recording stream signals sent to the FPGA (IC001) can be transferred to external devices from the USB connector on the IF-1371 board using the USB Host function (IC001).
In the same way, the recording stream signals can be transferred from the 10GbE network connector through the SFP+ module connected to the CN401 connector using the 10GbE network function of the FPGA (IC001).

6-1-25. ENC-186 Board

The ENC-186 board mounted in HKCU-REC50 contains a decoder for replaying recoded video data.

6-1-26. IF-1371 Board

The IF-1371 board mounted in the HKCU-REC50 contains a USB connector (for external storage devices) on the front panel side.

6-1-27. MDC-23A Board

The MDC-23A board mounted in the HKCU-REC50 is a memory board to store 4K/HD video and audio data (for recording and playback) sent from the camera. The ENC2_FPGA (IC401) controls the following flash memory ICs.

- IC900 to IC907
- IC1000 to IC1007
- IC1100 to IC1107
- IC1200 to IC1207

Section 7
Spare Parts

7-1. Note on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

Harnesses with no part number are not registered as spare parts.

1. 安全重要部品

⚠警告

⚠印のついた部品は安全性を維持するために重要な部品です。したがって，交換する時は必ず指定の部品を使ってください。

2. 部品の共通化

ソニーから供給する補修用部品は，セットに使われているものと異なることがあります。
これは部品の共通化，改良等によるものです。

3. 部品の在庫

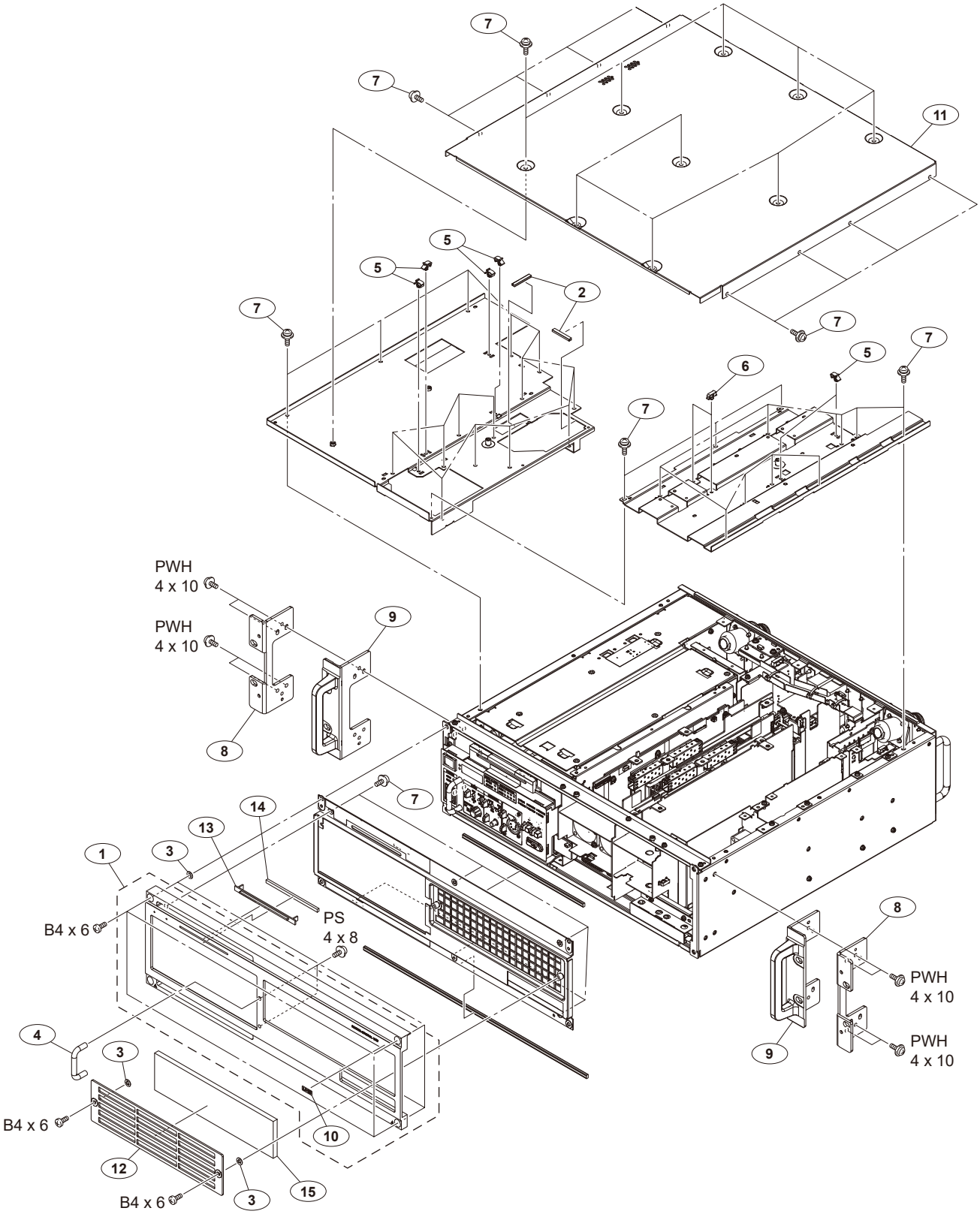
部品表の SP（Supply code）欄に “o” で示される部品は在庫していないことがあり，納期が長くなることがあります。

4. ハーネス

部品番号の記載されていないハーネスは，サービス部品として登録されていません。

7-2. Exploded Views

Front Side-1

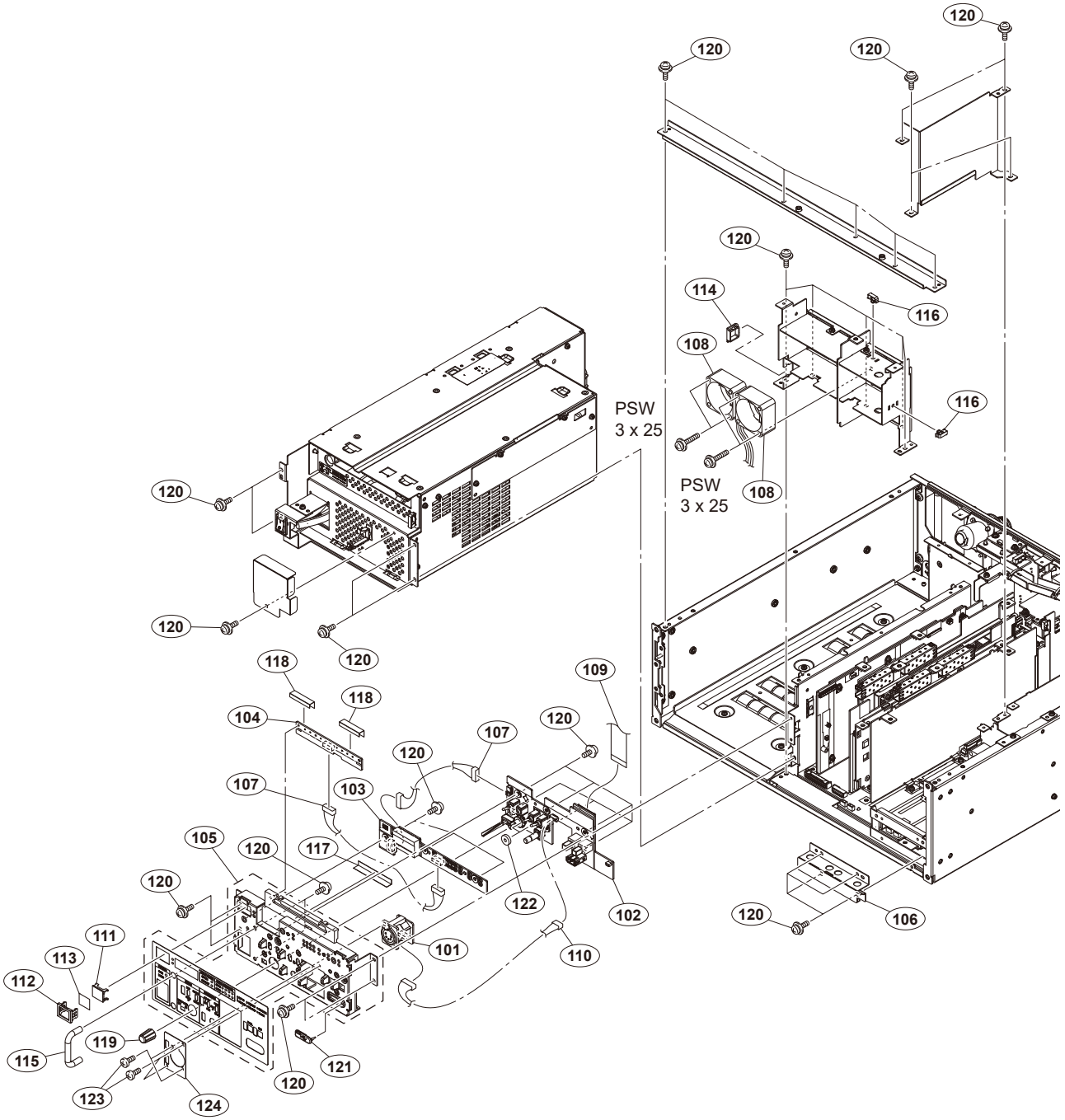


No.	Part No.	SP	Description	No.	Part No.	SP	Description
1	A-5015-135-A	s	ASSY, FRONT PANEL	5	3-955-834-01	s	CLAMP
2	3-079-115-01	s	TAPE AS				
3	3-650-537-01	s	WASHER	6	4-098-036-01	s	SADDLE WIRE (A)
4	3-723-762-01	o	HANDLE	7	4-382-854-01	s	SCREW (M3X8), P, SW (+)

Front Side-1

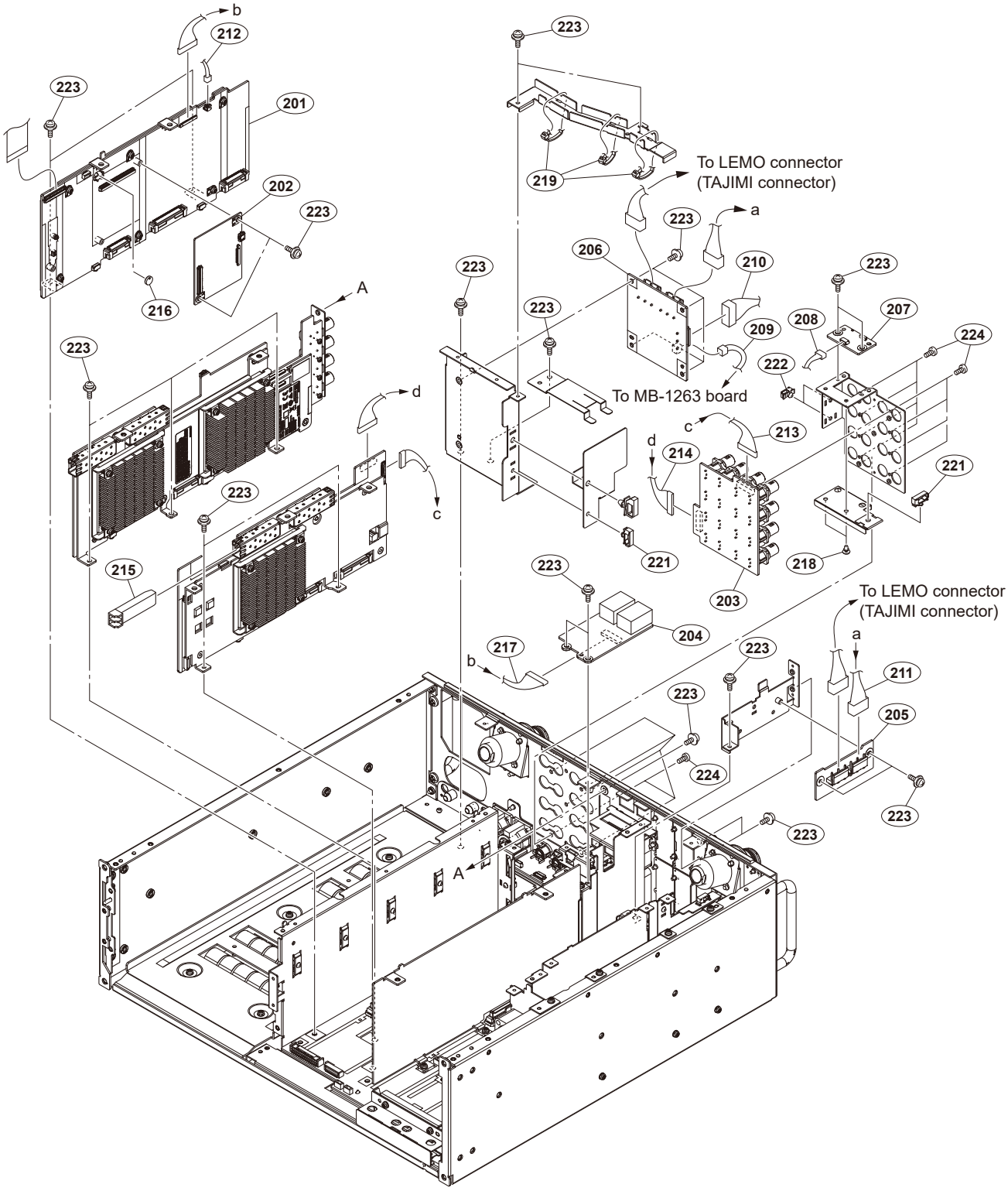
No.	Part No.	SP	Description
8	4-413-525-01	s	BRACKET, RACK (3U)
9	4-413-526-02	s	COVER, RACK BRACKET (3U)
10	5-004-742-01	s	LABEL UHB
11	5-012-163-01	s	COVER, TOP
12	5-013-037-01	s	COVER, FILTER
13	5-013-044-01	s	INDICATOR (LED)
14	5-013-048-01	s	CUSHION (POWER)
15	5-013-050-01	s	FILTER
	7-682-560-09	s	SCREW +B 4X6
	7-682-661-01	s	SCREW +PS 4X8
	7-682-904-21	s	SCREW +PWH 4X10

Front Side-2



No.	Part No.	SP	Description
101	A-5010-374-A	s	CN-4139 MOUNT
	A-5010-716-A	s	CN-4145 MOUNT(SERVICE)
	A-5010-717-A	s	CN-4146 MOUNT(SERVICE)
102	A-5010-376-A	s	FP-323 MOUNT
103	A-5010-378-A	s	LE-439 MOUNT
104	A-5010-379-A	s	LE-440 MOUNT
105	A-5015-137-A	s	ASSY, PANEL POWER
106	A-5015-138-A	s	ASSY, ISO-REC BLANK
107	1-001-671-11	s	SUB HARNESS(FP-LE)
108	⚠ 1-855-512-11	s	DC FAN (40 SQUARE)
109	1-912-708-21	s	CABLE, FLEXIBLE FLAT (45 CORE)
110	1-968-151-12	s	HARNESS, SUB (INCOM1)
111	2-139-192-01	s	FRAME, INDICATOR WINDOW
112	2-139-193-02	s	WINDOW, INDICATOR
113	2-249-353-01	s	COVER, LAMP
114	2-433-598-01	s	HOLDER (LT-11U), WIRE
115	3-723-762-01	o	HANDLE
116	4-098-036-01	s	SADDLE WIRE (A)
117	4-119-886-01	s	TAPE (13X50)
118	4-121-237-01	s	TAPE (20X30)
119	4-139-232-01	s	KNOB, ROTARY ENCODER
120	4-382-854-01	s	SCREW (M3X8), P, SW (+)
121	4-478-730-02	s	CAP, USB
122	4-486-742-01	s	CUSHION
123	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
124	5-013-041-01	s	PANEL (INCOM)
	7-682-954-01	s	SCREW +PSW 3X25

Boards

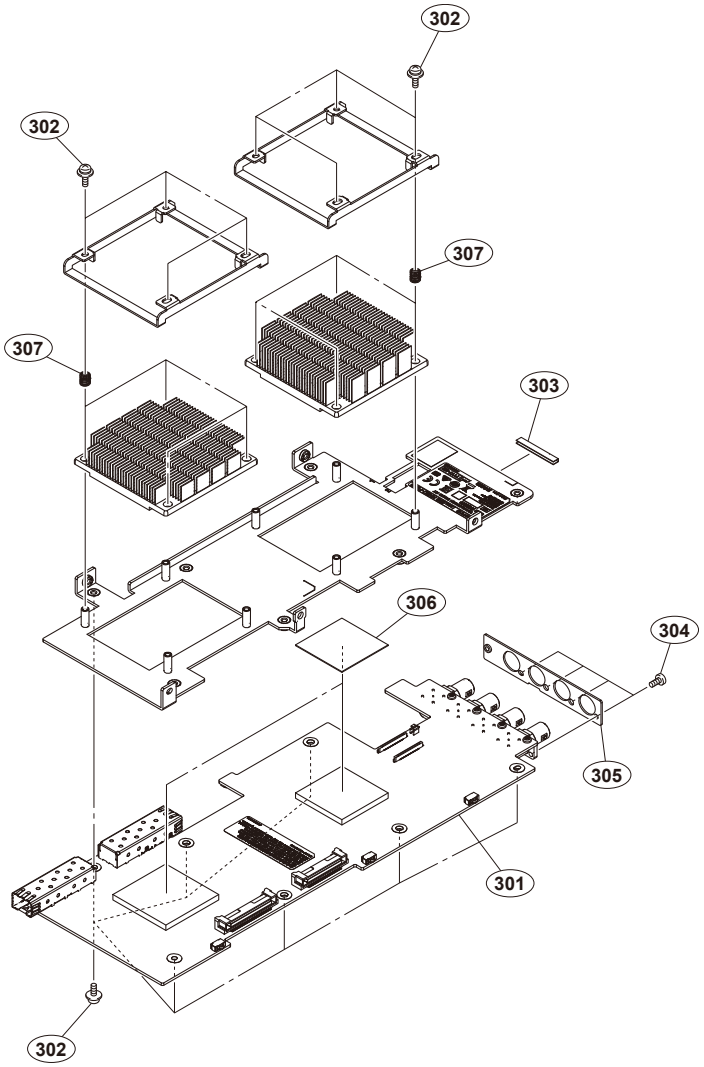


No.	Part No.	SP	Description
201	A-5001-897-A	s	SY-467 COMPL
202	A-5006-197-A	s	AT-195D COMPL
203	A-5009-156-A	s	HIF-81 MOUNT
204	A-5010-369-A	s	CN-4134 MOUNT
205	A-5010-381-A	s	CN-4142 MOUNT
206	A-5010-517-A	s	CN-4143 MOUNT
207	A-5010-518-A	s	CN-4144 MOUNT
208	1-005-928-11	s	SUB HARNESS MB-REAR-TALLY
209	1-005-931-11	s	SUB HARNESS PWR-RELAY
210	1-005-932-11	s	SUB HARNESS PWR-EX1(500)
211	1-005-933-11	s	SUB HARNESS PWR-EX2(300)
212	1-005-935-11	s	SUB HARNESS FIBER-CNT
213	1-005-936-11	s	MICRO COAXIAL CABLE CA30-160
214	1-006-880-11	s	MICRO COAXIAL CABLE CA40-290
215	⚠ 1-510-039-11	s	OPTICAL MODULE (1.8725/3.7G)
216	⚠ 1-756-134-18	s	BATTERY, LITHIUM (SECONDARY)
217	1-969-473-31	s	WIRE, CONNECTOR WITH LEAD (AVP

Boards

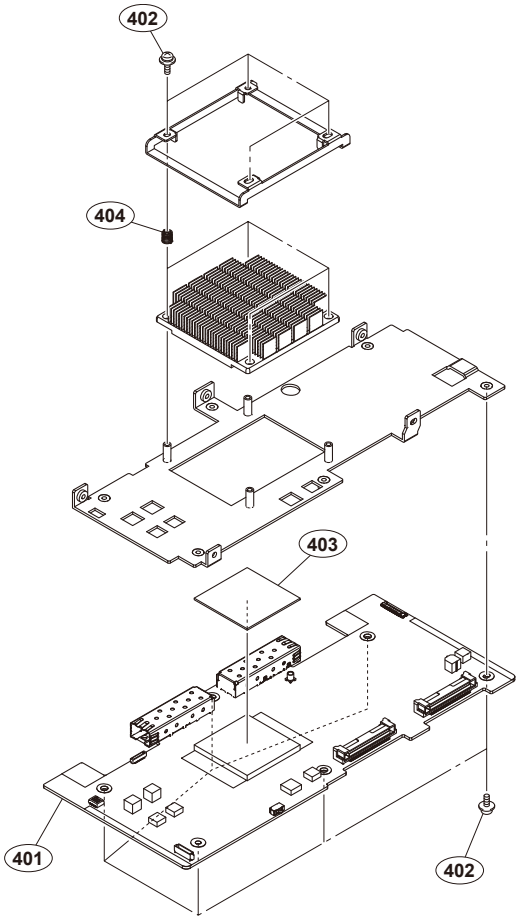
No.	Part No.	SP	Description
218	3-531-576-01	s	RIVET
219	3-655-653-01	s	BAND (TAITON), BINDING
221	4-098-033-01	s	SADDLE WIRE (C)
222	4-098-036-01	s	SADDLE WIRE (A)
223	4-382-854-01	s	SCREW (M3X8), P, SW (+)
224	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER

TX-167 Board



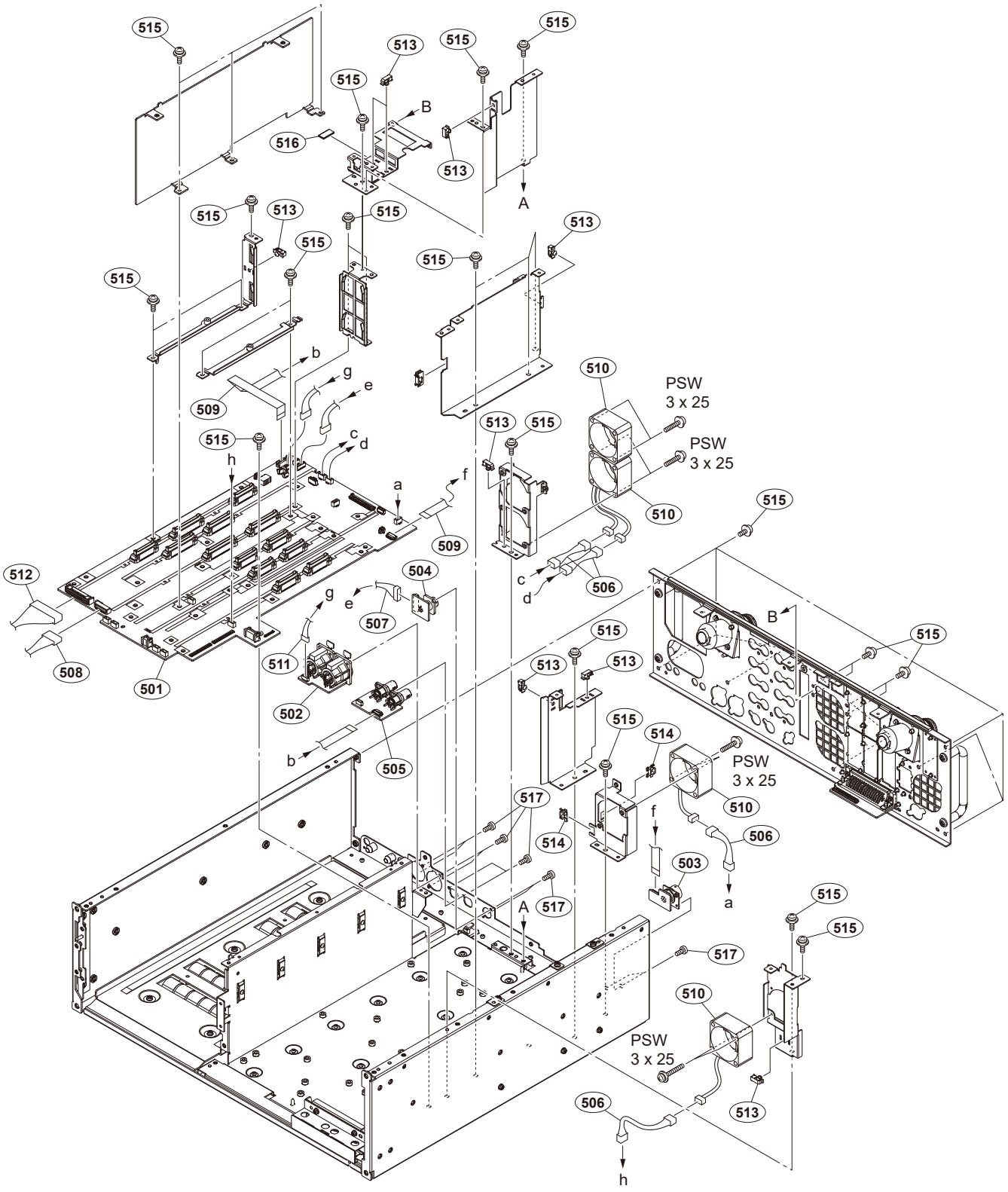
No.	Part No.	SP	Description
301	A-5001-895-A	s	TX-167B COMPL
302	4-382-854-01	s	SCREW (M3X8), P, SW (+)
303	4-431-734-01	s	TAPE AS
304	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
305	4-748-583-02	s	PANEL, SDI
306	4-748-822-02	s	SHEET, RADIATION (35X35) T0.5
307	5-004-264-01	s	SPRING, COMPRESSION

VIF-75 Board



No.	Part No.	SP	Description
401	A-5001-896-A	s	VIF-75 COMPL
402	4-382-854-01	s	SCREW (M3X8), P, SW (+)
403	5-004-102-01	s	SHEET, RADIATION(40X40) T1
404	5-004-264-01	s	SPRING, COMPRESSION

DC Fan and Boards

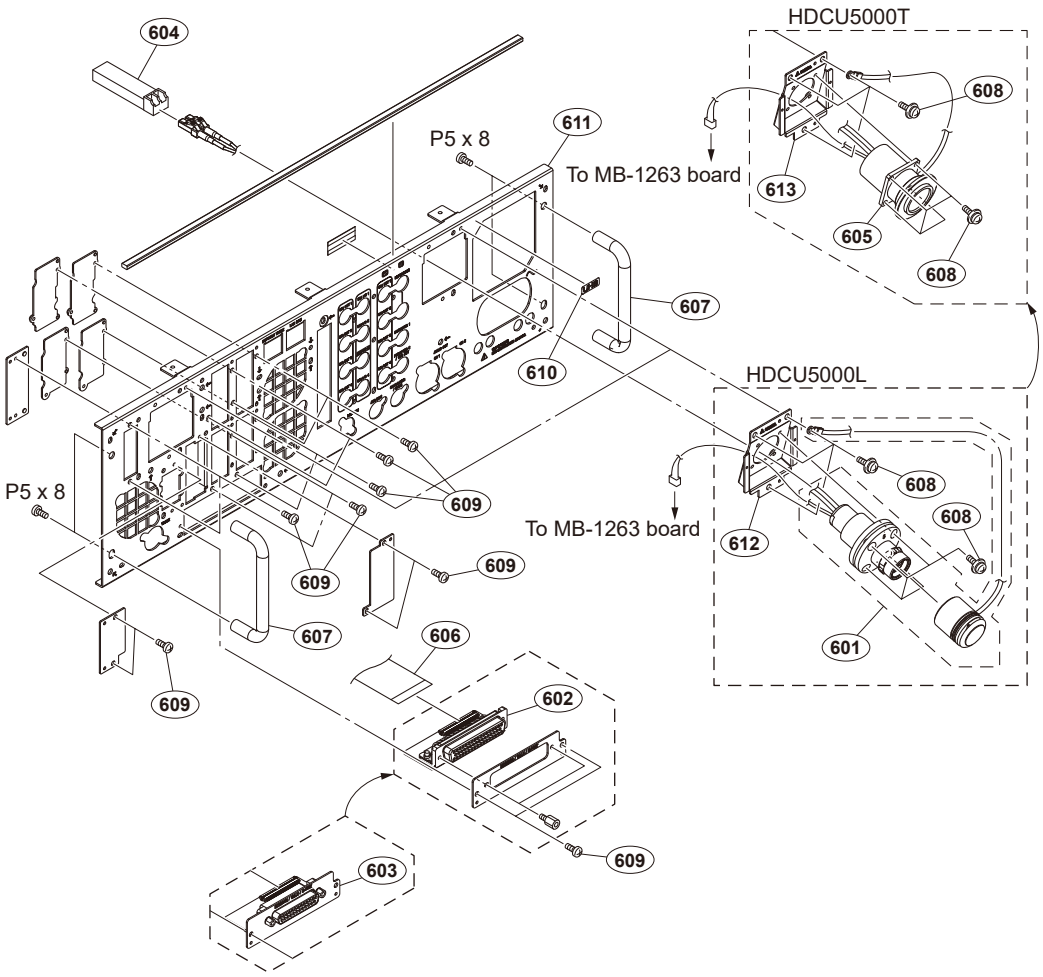


No.	Part No.	SP	Description
501	A-5009-157-A	s	MB-1263 MOUNT
502	A-5010-370-A	s	CN-4135 MOUNT
503	A-5010-371-A	s	CN-4136 MOUNT
504	A-5010-372-A	s	CN-4137 MOUNT
505	A-5010-373-A	s	CN-4138 MOUNT
506	1-005-726-11	s	ZHR 3PIN EXTENTION HARNESS
507	1-005-929-11	s	SUB HARNESS MB-RCP
508	1-005-930-11	s	SUB HARNESS PWR-30PIN-CNT
509	1-836-443-11	s	CABLE, FLEXIBLE FLAT (15 CORE)
510	⚠ 1-855-512-11	s	DC FAN (40 SQUARE)
511	1-969-450-11	s	HARNESS, SUB (RE-KY)
512	1-971-262-11	s	HARNESS, SUB (VIF POWER)
513	4-098-036-01	s	SADDLE WIRE (A)
514	4-137-926-01	s	SADDLE (LES-0505), EDGE

DC Fan and Boards

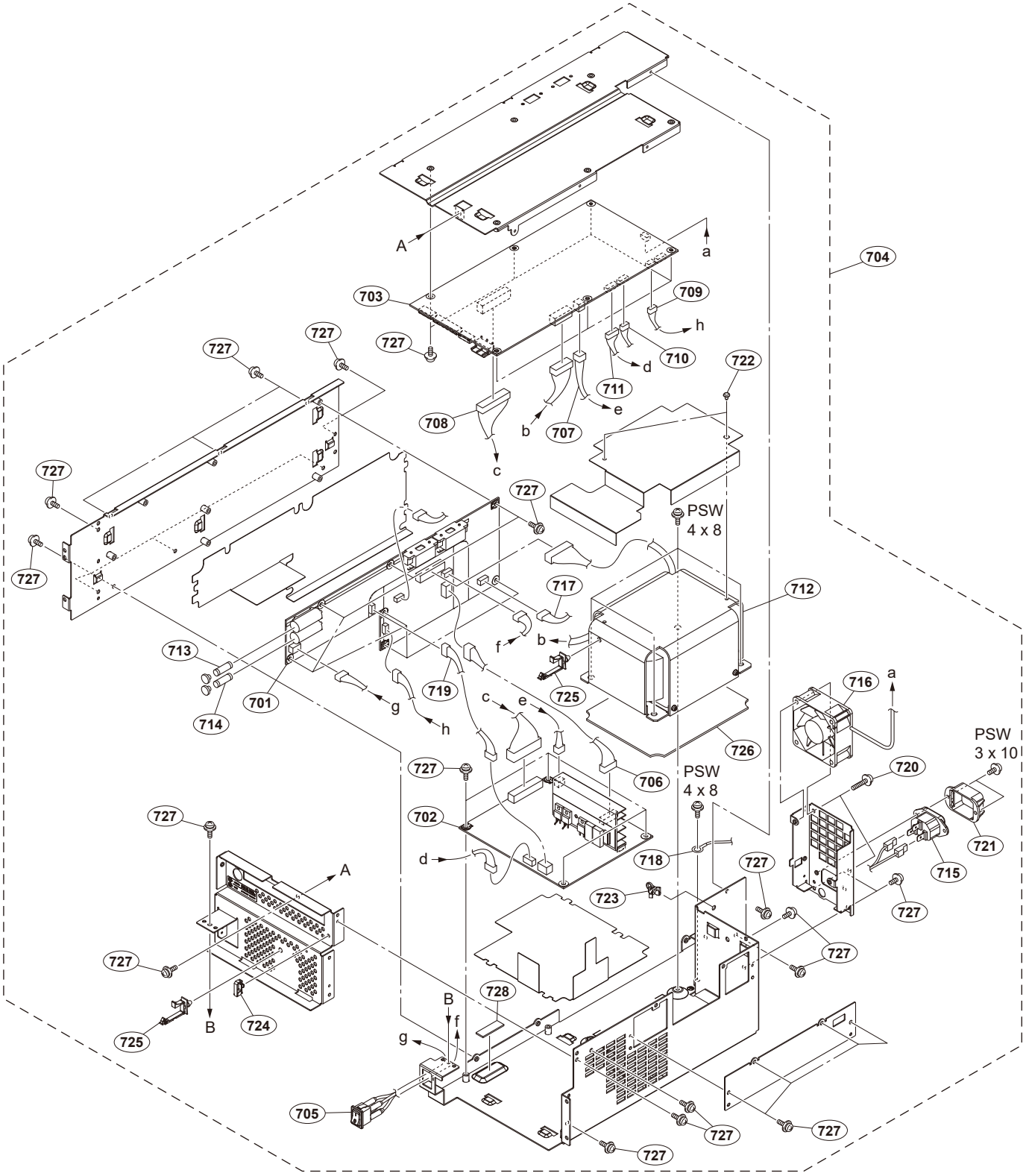
No.	Part No.	SP	Description
515	4-382-854-01	s	SCREW (M3X8), P, SW (+)
516	4-446-002-01	s	TAPE AS(1515)
517	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
	7-682-954-01	s	SCREW +PSW 3X25

Rear Panel



No.		Part No.	SP	Description
601	⚠	A-2189-823-A	s	LEMO CONNECTOR ASSY-D(FXW)EXP (For HDCU5000L)
602		A-5010-375-A	s	CN-4140 MOUNT
603		A-5016-337-A	s	HDCU5000 SUPPORTING ASSY
604	⚠	1-510-062-11	s	OPTICAL MODULE (SFP28)
605	⚠	1-849-370-11	s	OPTICAL MULTI CABLE ASSEMBLY (For HDCU5000T)
606		1-849-394-11	s	CABLE, FLEXIBLE FLAT (60 CORE)
607		2-378-801-01	s	HANDLE
608		4-382-854-01	s	SCREW (M3X8), P, SW (+)
609		4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
610		5-004-742-01	s	LABEL UHB
611		5-011-916-02	s	PANEL, REAR
612		5-011-949-01	s	BRACKET, LEMO CN (For HDCU5000L)
613		5-014-928-01	s	BRACKET, TAJIMI CN (For HDCU5000T)
		7-682-174-01	s	SCREW +P 5X8

Power Block

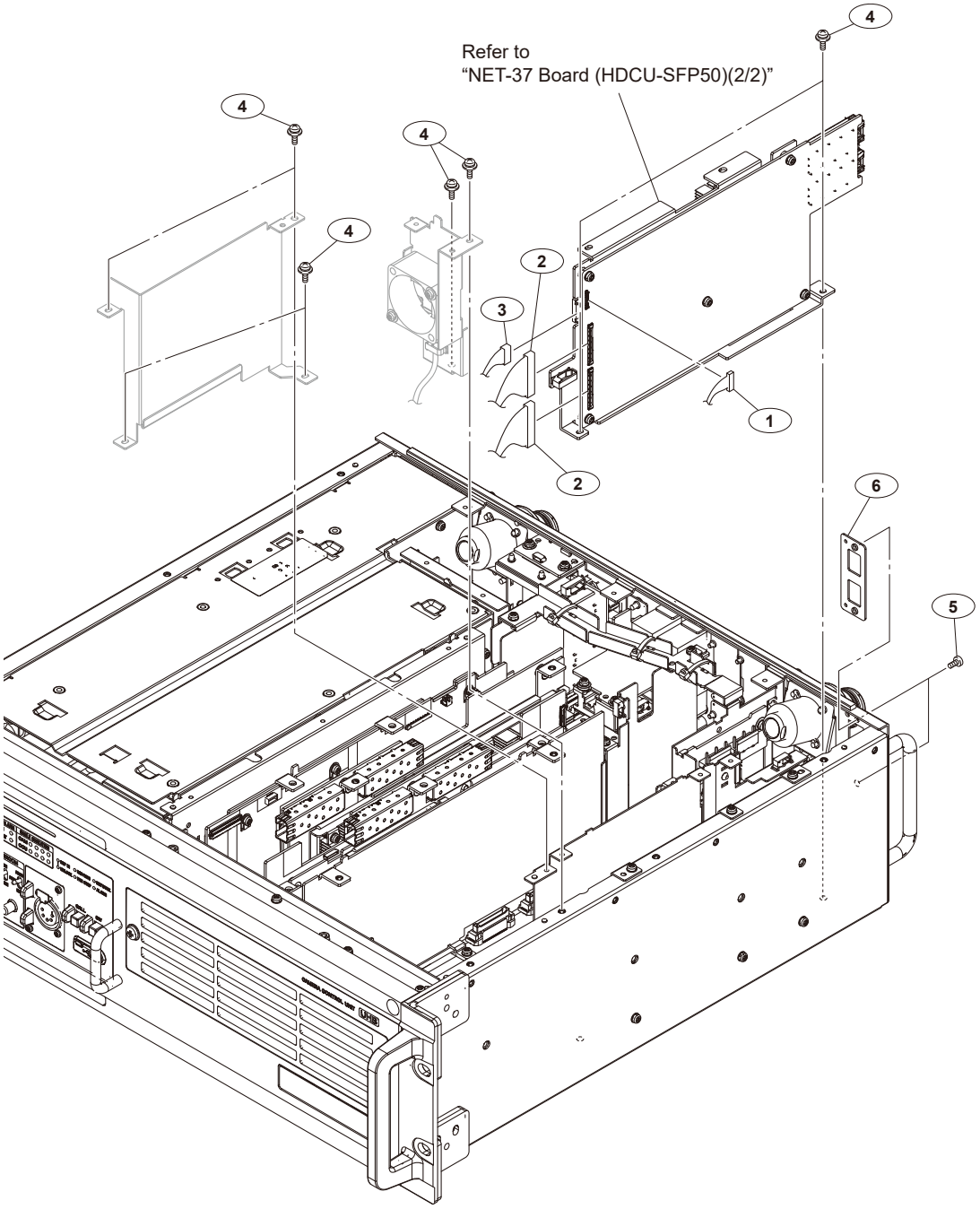


No.	Part No.	SP	Description
701	A-5005-575-A	s	PS-954 MOUNT
702	A-5005-576-A	s	PS-955 MOUNT
703	A-5013-741-A	s	RE-353 COMPL
704	A-5017-669-A	s	POWER UNIT (RP)
705	1-005-987-11	s	POWER SW HARNESS
706	1-005-988-11	s	PFC HARNESS
707	1-005-989-11	s	HV HARNESS
708	1-005-990-11	s	14V POWER HARNESS
709	1-005-991-11	s	SUB POWER HARNESS
710	1-005-992-11	s	INPUT SIGNAL HARNESS
711	1-005-993-11	s	MAIN SIGNAL HARNESS
712	⚠ 1-445-848-11	s	TRANSFORMER, DRIVE
713	⚠ 1-576-300-51	s	FUSE, H.B.C. (For UC, J Model)
	⚠ 1-576-233-51	s	FUSE (H.B.C.) (For CE, CN Model)

Power Block

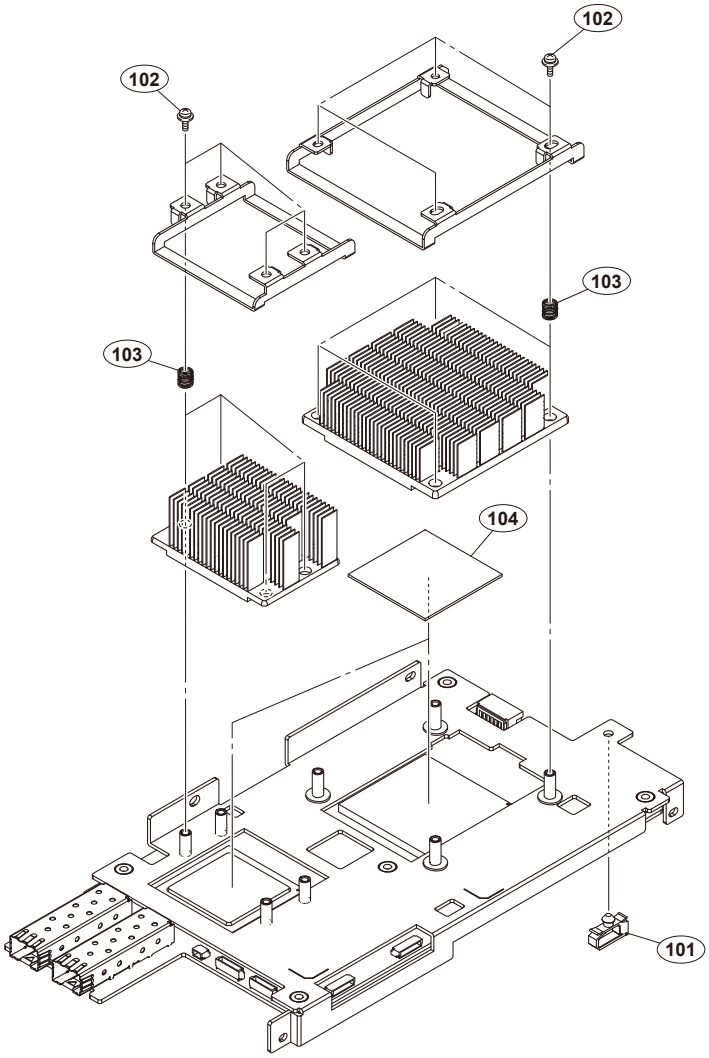
No.		Part No.	SP	Description
714	⚠	1-576-233-51	s	FUSE (H.B.C.)
715	⚠	1-842-404-11	s	AC INLET (SCREW) 3P FASTEN
716	⚠	1-855-432-11	s	FAN, DC (60 SQUARE)
717		1-972-258-13	s	HARNESS, SUB (AC IN)
718		1-972-259-12	s	HARNESS, SUB (EARTH)
719		1-972-266-12	s	SUB HARNESS AC
720		2-580-598-01	s	SCREW, +PSW M3X30
721		2-990-241-02	s	HOLDER (A), PLUG
722		3-531-576-01	s	RIVET
723		3-615-576-01	s	RE-USE BAND
724		4-098-033-01	s	SADDLE WIRE (C)
725		4-098-731-01	s	WIRE SADDLE LOCK (QH)
726		4-191-694-02	s	SHEET RADIATION,COIL(A10-T1.5)
727		4-382-854-01	s	SCREW (M3X8), P, SW (+)
728		4-427-952-02	s	RADIATION SHEET D
		7-682-949-01	s	SCREW +PSW 3X10
		7-682-961-01	s	SCREW +PSW 4X8

NET-37 Board (HKCU-SFP50) (1/2)



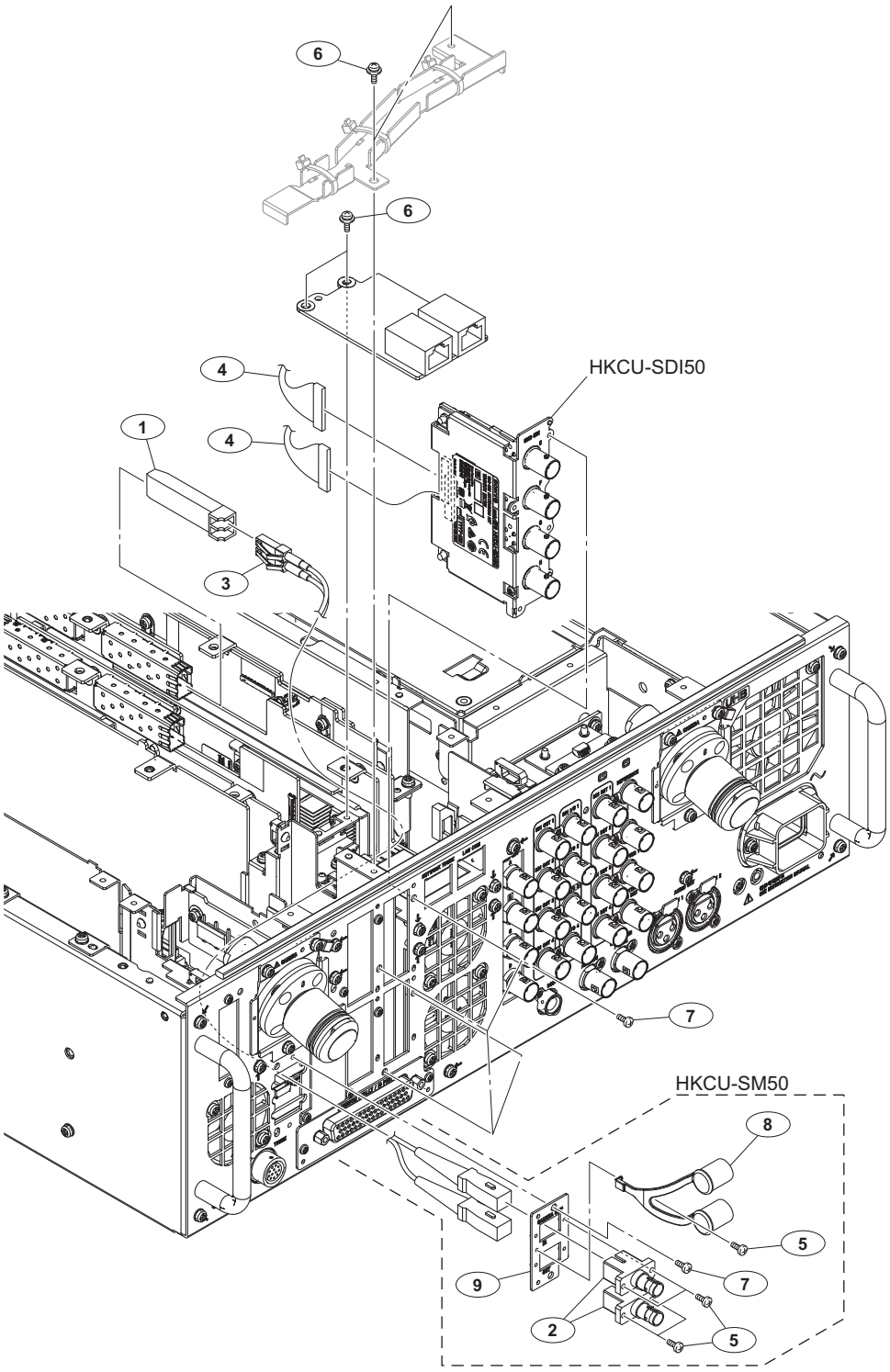
No.	Part No.	SP	Description
1	1-912-393-11	s	CONNECTION CABLE WITH COAXIAL
2	1-912-709-11	s	MICRO COAXIAL CABLE (CA60 155
3	1-972-575-11	s	SUB HARNESS (SLOT POWER)
4	4-382-854-01	s	SCREW (M3X8), P, SW (+)
5	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
6	4-729-417-11	s	BRACKET, NET

NET-37 Board (HKCU-SFP50) (2/2)



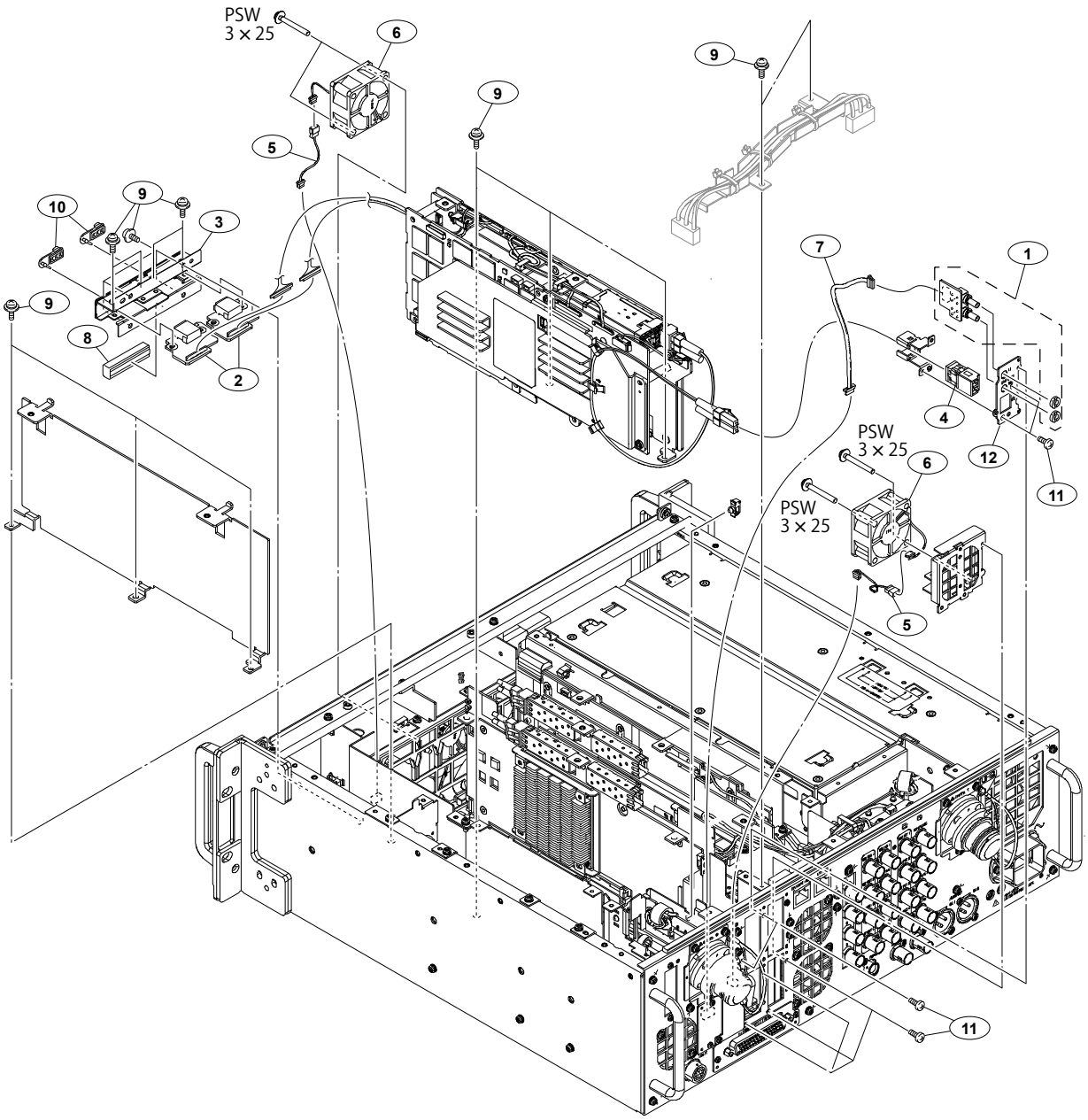
No.	Part No.	SP	Description
101	4-098-033-01	s	SADDLE WIRE (C)
102	4-382-854-01	s	SCREW (M3X8), P, SW (+)
103	5-004-264-01	s	SPRING, COMPRESSION
104	5-007-116-01	s	SHEET,RADIATION PT-V (40X40)T1

HKCU-SM50 and HKCU-SDI50



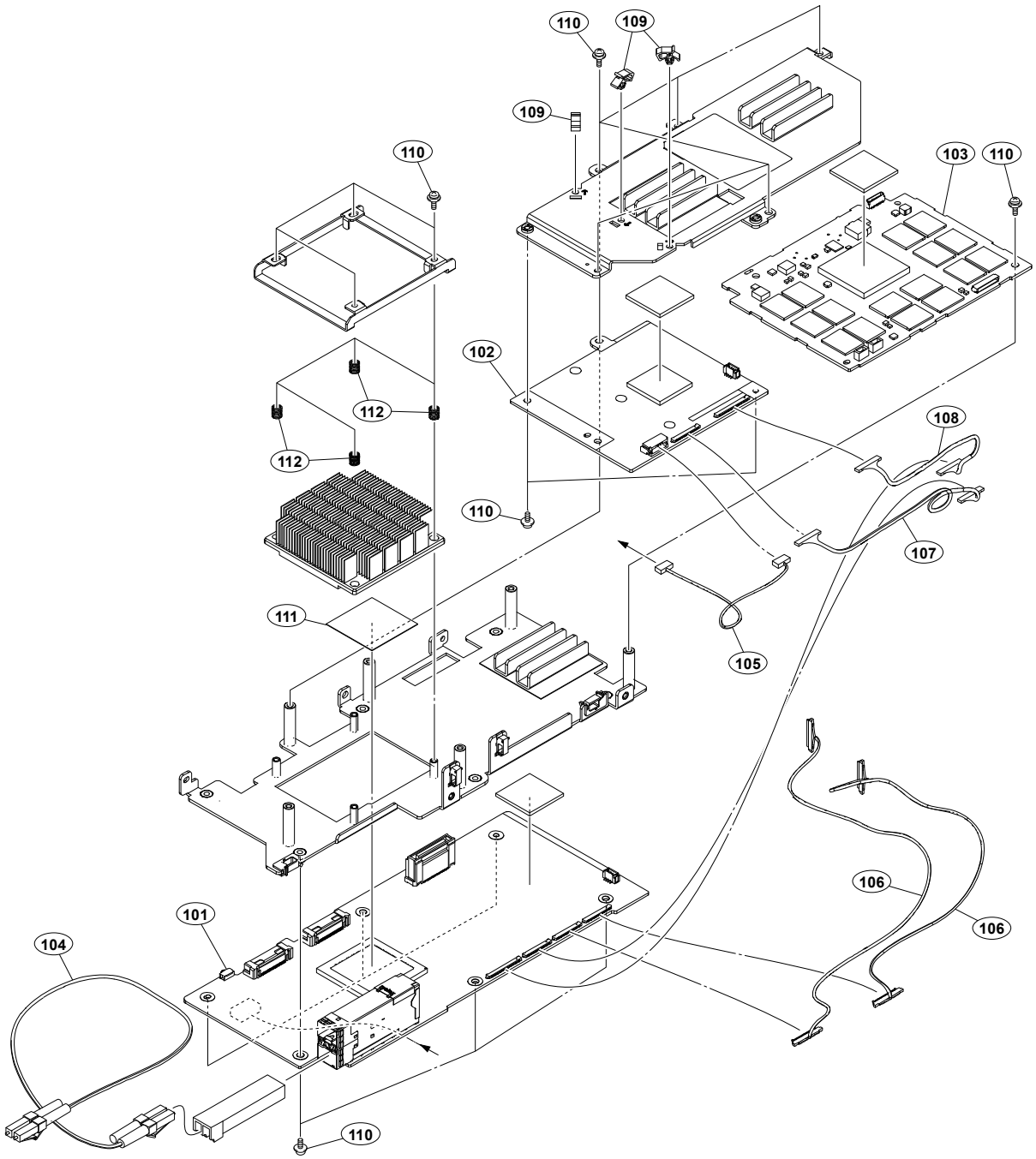
No.	Part No.	SP	Description
1	⚠ 1-510-039-11	s	OPTICAL MODULE (1.8725/3.7G)
2	1-843-839-21	s	SC-ST OPTICAL FIBER ADAPTOR (For HKCU-SM50)
3	1-849-778-11	s	SC-LC OPTICAL FIBER CABLE
4	1-969-477-31	s	WIRE, CONNECTOR WITH LEAD (AVP
5	3-719-381-22	s	SCREW (M2X6) (For HKCU-SM50)
6	4-382-854-01	s	SCREW (M3X8), P, SW (+)
7	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER (For HKCU-SM50)
8	4-579-333-01	s	CAP, ST CONNECTER (For HKCU-SM50)
9	5-004-992-01	s	PANEL, SMF (For HKCU-SM50)

ENC Assembly (HKCU-REC50) (1/2)



No.	Part No.	SP	Description
1	A-2225-971-A	s	CN-4058 MOUNT
2	A-2229-250-A	s	MOUNT, IF-1371
3	A-5025-556-A	s	ASSY, PANEL (ISO-REC OP)
4	1-005-666-11	s	OPTICAL CONNECTOR (LC ADAPTER)
5	1-005-726-11	s	ZHR 3PIN EXTENTION HARNESS
6	⚠ 1-855-512-11	s	DC FAN (40 SQUARE)
7	1-970-388-11	s	HARNESS, SUB(HANDLE)
8	4-000-489-02	s	FOAM (F-B), SHIELD
9	4-382-854-01	s	SCREW (M3X8), P, SW (+)
10	4-478-730-02	s	CAP, USB
11	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
12	5-019-690-01	s	PANEL, REAR (REC)
	7-682-954-01	s	SCREW +PSW 3X25

ENC Assembly (HKCU-REC50) (2/2)



No.	Part No.	SP	Description
101	A-5007-560-A	s	ENC-185 COMPL
102	A-5007-561-A	s	ENC-186 COMPL
103	A-5007-563-A	s	MDC-23A COMPL
104	1-005-667-11	s	OPTICAL FIBER CABLE (LC)
105	1-008-202-11	s	HNS_PHR-5_UL10368#24(140)1
106	1-968-193-31	s	HARNESS(COAXIAL CABLE)
107	1-969-481-21	s	WIRE, CONNECTOR WITH LEAD (HPR)
108	1-971-973-21	s	HARNESS (DPR-SDI)
109	3-955-834-01	s	CLAMP
110	4-382-854-01	s	SCREW (M3X8), P, SW (+)
111	4-748-822-02	s	SHEET, RADIATION (35X35) T0.5
112	5-004-264-01	s	SPRING, COMPRESSION

7-3. Supplied Accessories

HDCU5000

Q'ty	Part No.	SP	Description
1pc	A-8278-054-C	s	REMOTE INDICATOR ASSY
1pc	⚠ 1-576-233-51	s	FUSE (H.B.C.)
1pc	⚠ 1-576-300-51	s	FUSE, H.B.C.
1pc	⚠ 5-006-303-02	s	CD-ROM PACK

HKCU-SDI50

Q'ty	Part No.	SP	Description
2pcs	1-969-477-31	s	WIRE, CONNECTOR WITH LEAD (AVP
4pcs	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1pc	5-015-813-01	s	OPERATING INSTRUCTIONS
1pc	5-015-813-11	s	OPERATING INSTRUCTIONS

HKCU-SFP50

Q'ty	Part No.	SP	Description
1pc	1-912-393-11	s	CONNECTION CABLE WITH COAXIAL
2pcs	1-912-709-11	s	MICRO COAXIAL CABLE (CA60 155
1pc	1-972-575-11	s	SUB HARNESS (SLOT POWER)
3pcs	3-531-576-01	s	RIVET
1pc	3-655-653-01	s	BAND (TAITON), BINDING
1pc	3-704-046-31	s	BAG,PREVENTION,ELECTRIFICATION
6pcs	4-382-854-01	s	SCREW (M3X8), P, SW (+)
2pcs	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1pc	4-729-417-11	s	BRACKET, NET
1pc	4-818-403-01	s	RIVET, NYLON
2pcs	5-002-721-01	s	SHEET (FIBER), COVER
1pc	5-004-431-02	s	AIR DISTRIBUTOR F (NET)
1pc	5-006-307-01	s	OPERATING INSTRUCTIONS
1pc	5-006-307-11	s	OPERATING INSTRUCTIONS
1pc	5-006-307-21	s	OPERATING INSTRUCTIONS

HKCU-SM50

Q'ty	Part No.	SP	Description
1pc	⚠ 1-510-039-11	s	OPTICAL MODULE
1pc	1-849-778-11	s	SC-LC OPTICAL FIBER CABLE
1pc	4-382-854-01	s	SCREW (M3X8), P, SW (+)
2pcs	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1pc	5-002-721-01	s	SHEET (FIBER), COVER
1pc	5-006-308-02	s	OPERATING INSTRUCTIONS
1pc	5-006-308-12	s	OPERATING INSTRUCTIONS
1pc	5-014-262-01	s	PLATE, CONNECTOR SMF

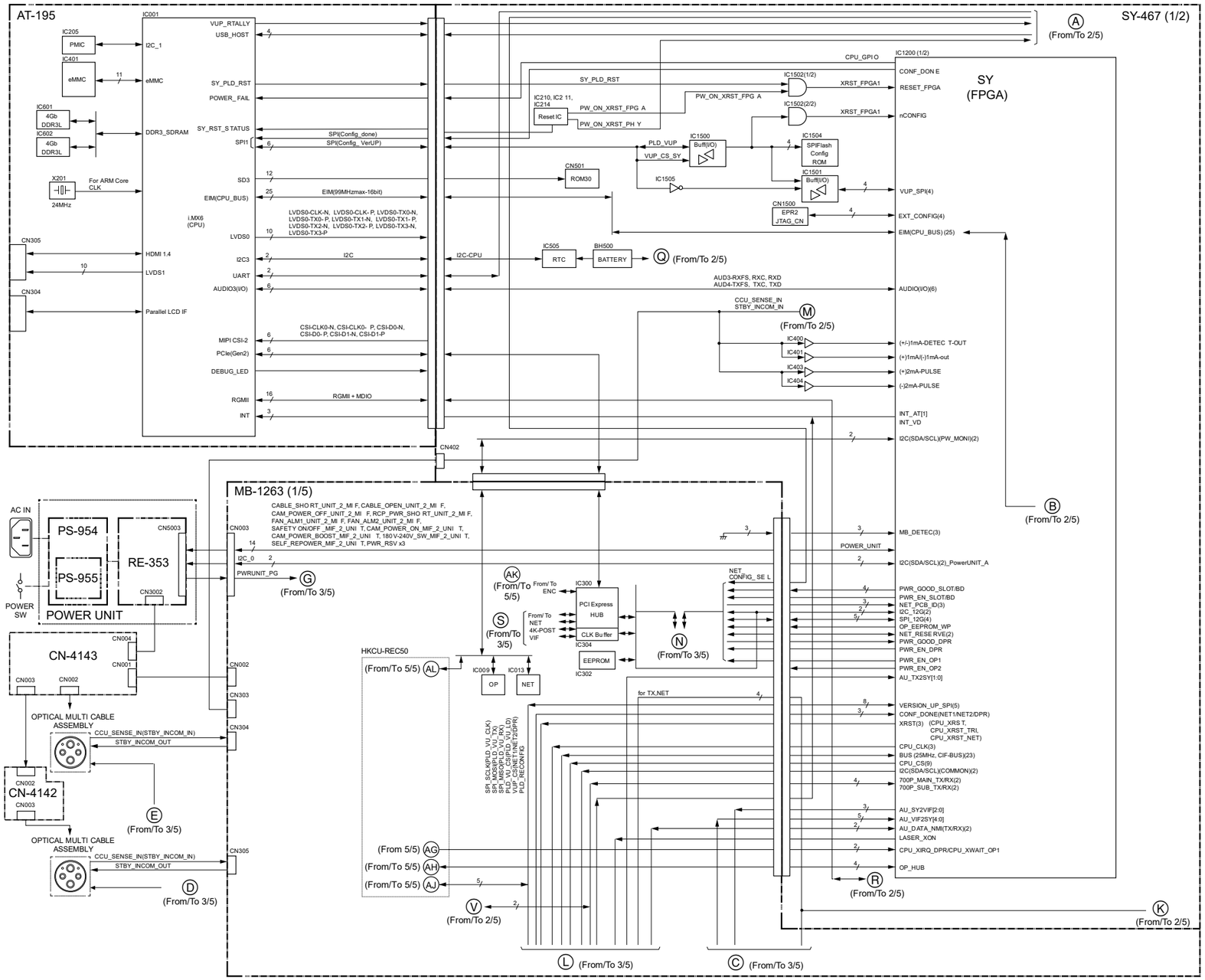
HKCU-REC50

Q'ty	Part No.	SP	Description
1pc	1-005-667-11	s	OPTICAL FIBER CABLE (LC) 2P
1pc	1-005-726-11	s	ZHR 3PIN EXTENTION HARNESS
1pc	1-695-595-21	s	HOUSING, TRANSLATION CONNECTOR
3pcs	1-695-596-11	s	PIN, CONTACT (ZM) 1P
1pc	⚠ 1-855-512-11	s	DC FAN (40 SQUARE)
2pcs	1-968-193-31	s	HARNESS(COAXIAL CABLE)
1pc	1-970-388-11	s	HARNESS, SUB(HANDLE)
15pcs	7-600-006-43	s	TAPE (NITTO NO.223S) 9X20M
10pcs	4-382-854-01	s	SCREW (M3X8), P, SW (+)
6pcs	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
2pcs	7-682-954-09	s	SCREW +PSW 3X25

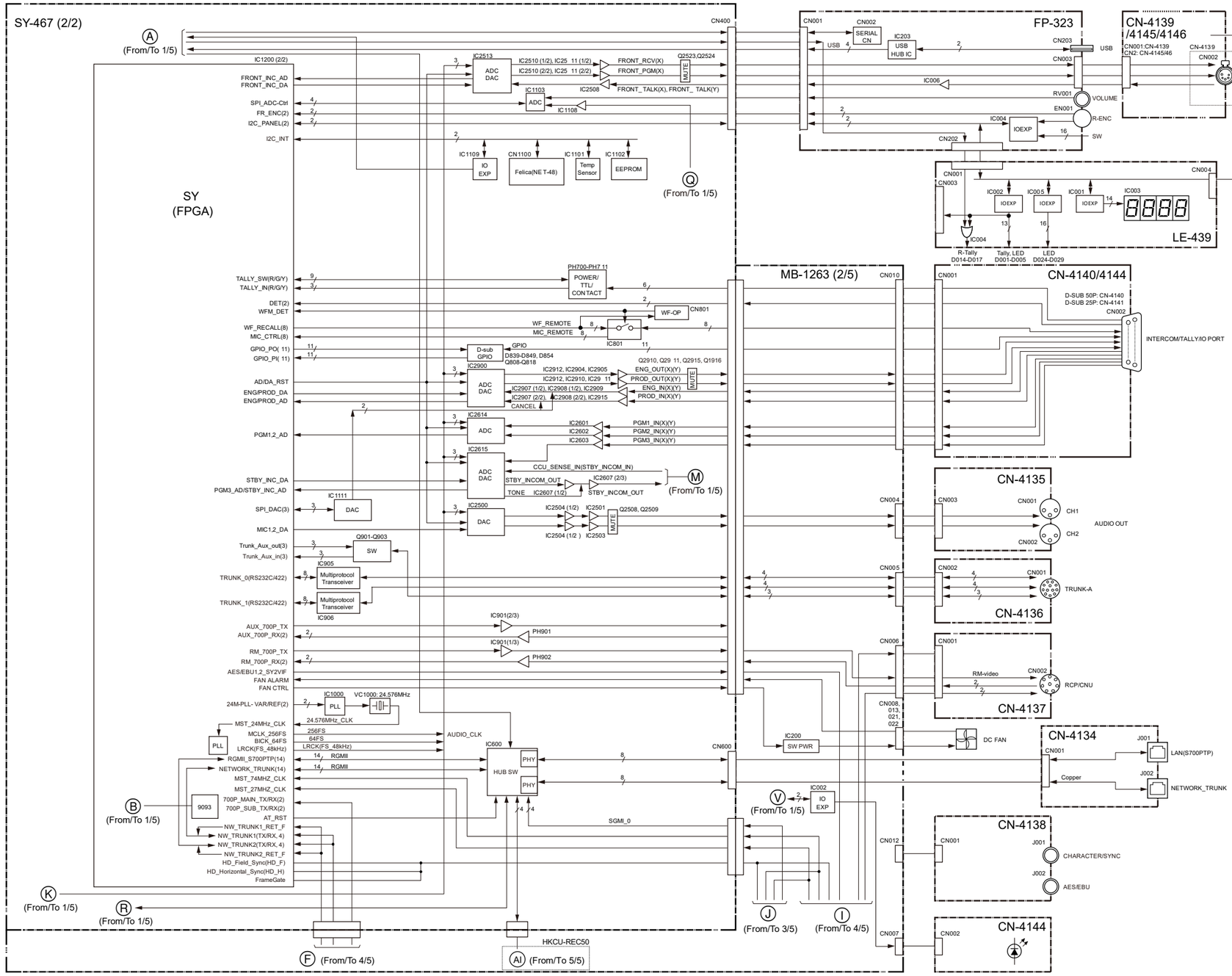
Section 8
Diagrams

Overall

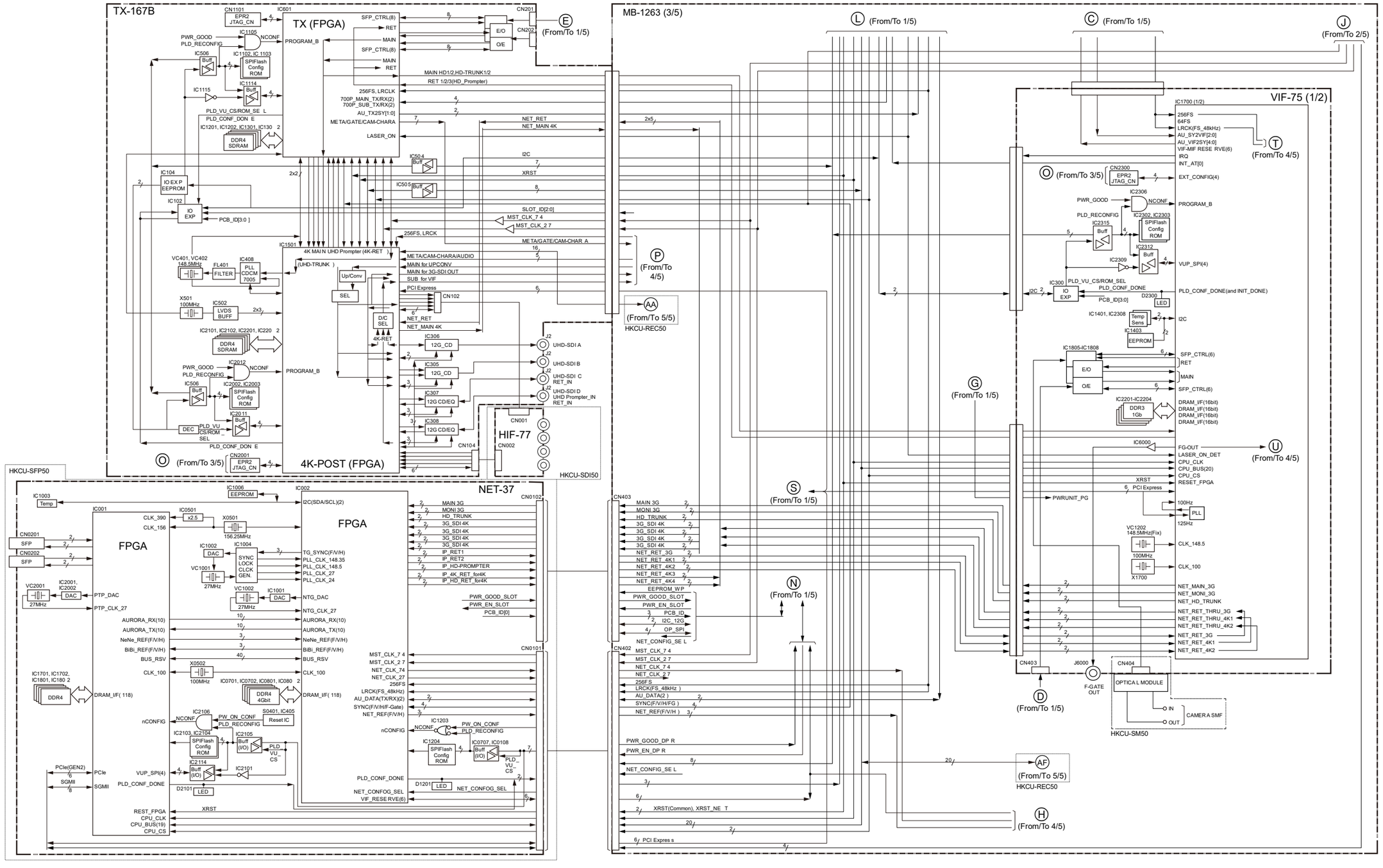
Overall (1/5)



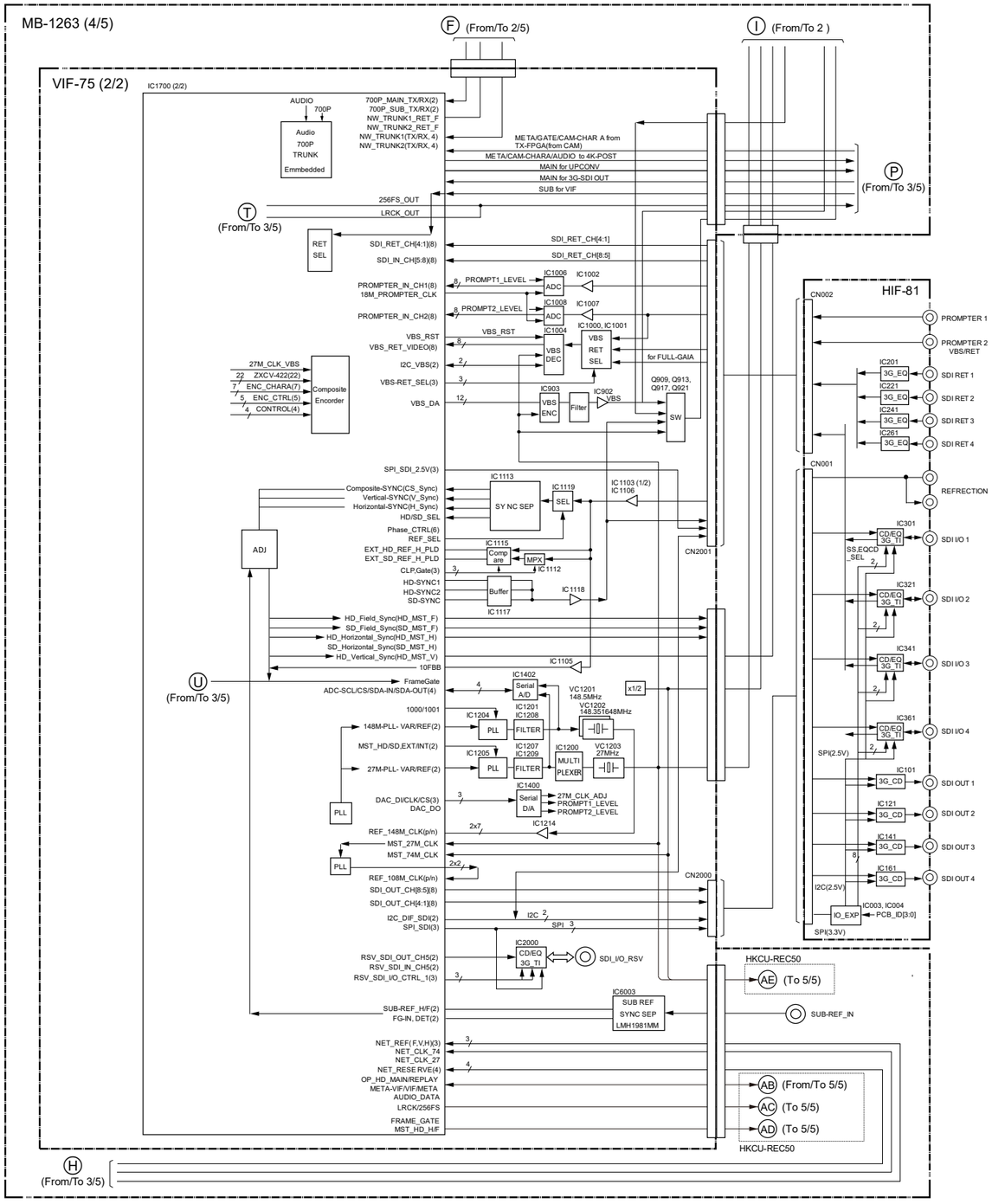
Overall (2/5)


SY-467 (2/2)
SY (FPGA)
MB-1263 (2/5)
FP-323
CN-4139 /4145/4146
CN-4140/4144
CN-4135
CN-4136
CN-4137
CN-4134
CN-4138
CN-4144
LE-440
LE-439
CN400
CN010
CN004
CN005
CN006
CN600
CN012
CN007
IC1200 (2/2)
IC2513
IC1103
IC1108
IC1109
CN1100
IC1101
IC1102
IC2900
IC2614
IC2615
IC1111
IC2500
IC905
IC906
IC1000
VC1000: 24.576MHz
PH700-PH7 11
WF-OP
CN801
IC801
D-sub GPIO
IC600
HUB SW
IC200
SW PWR
IC002
IO EXP
IC004
IOEXP
IC003
IC203
USB HUB IC
IC006
RV001
EN001
VOLUME
R-ENC
SW
CN202
CN203
CN003
INTERCOM
CN1
4P Male
4P Female
R-Tally D014-D017
Tally, LED D001-D005
LED D024-D029
STATUS LED D001-D010
D-SUB 50P: CN-4140
D-SUB 25P: CN-4141
INTERCOM/TALLY/IO PORT
AUDIO OUT
CH1
CH2
TRUNK-A
RM-video
RCP/CNU
DC FAN
LAN(S700PTP)
NETWORK_TRUNK
Copper
CHARACTER/SYNC
AES/EBU
HKCU-REC50
(From/To 1/5)
(From/To 3/5)
(From/To 4/5)
(From/To 5/5)

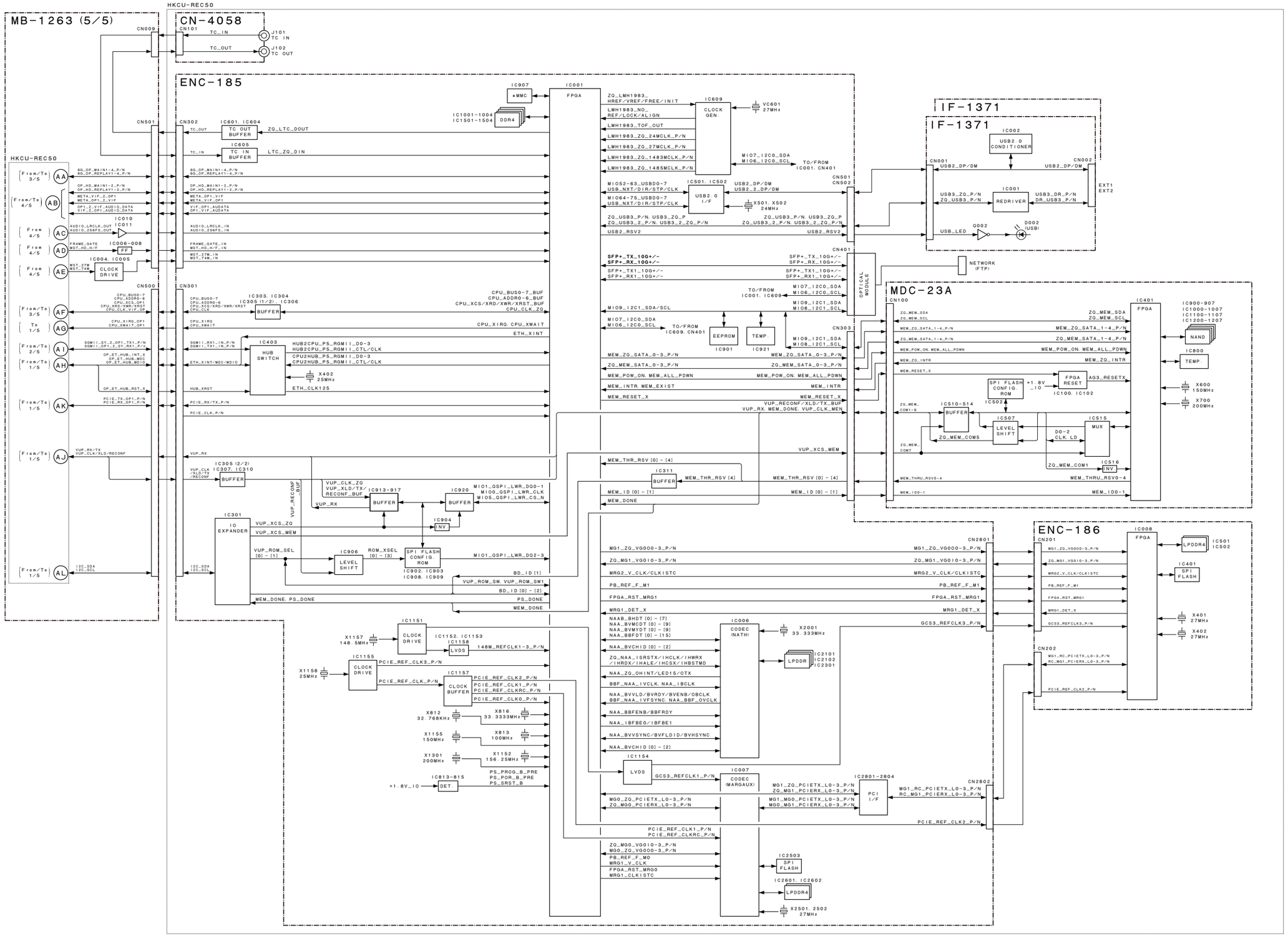
Overall (3/5)


TX-167B
TX (FPGA)
4K-POST (FPGA)
HIF-77
HKCU-SDI50
HKCU-SFP50
NET-37
FPGA
MB-1263 (3/5)
VIF-75 (1/2)
HKCU-REC50
HKCU-SM50
(From/To 1/5)
(From/To 2/5)
(From/To 3/5)
(From/To 4/5)
(From/To 5/5)
(From/To 4/5)
F-GATE OUT
OPTICA L MODULE
CAMER A SMF

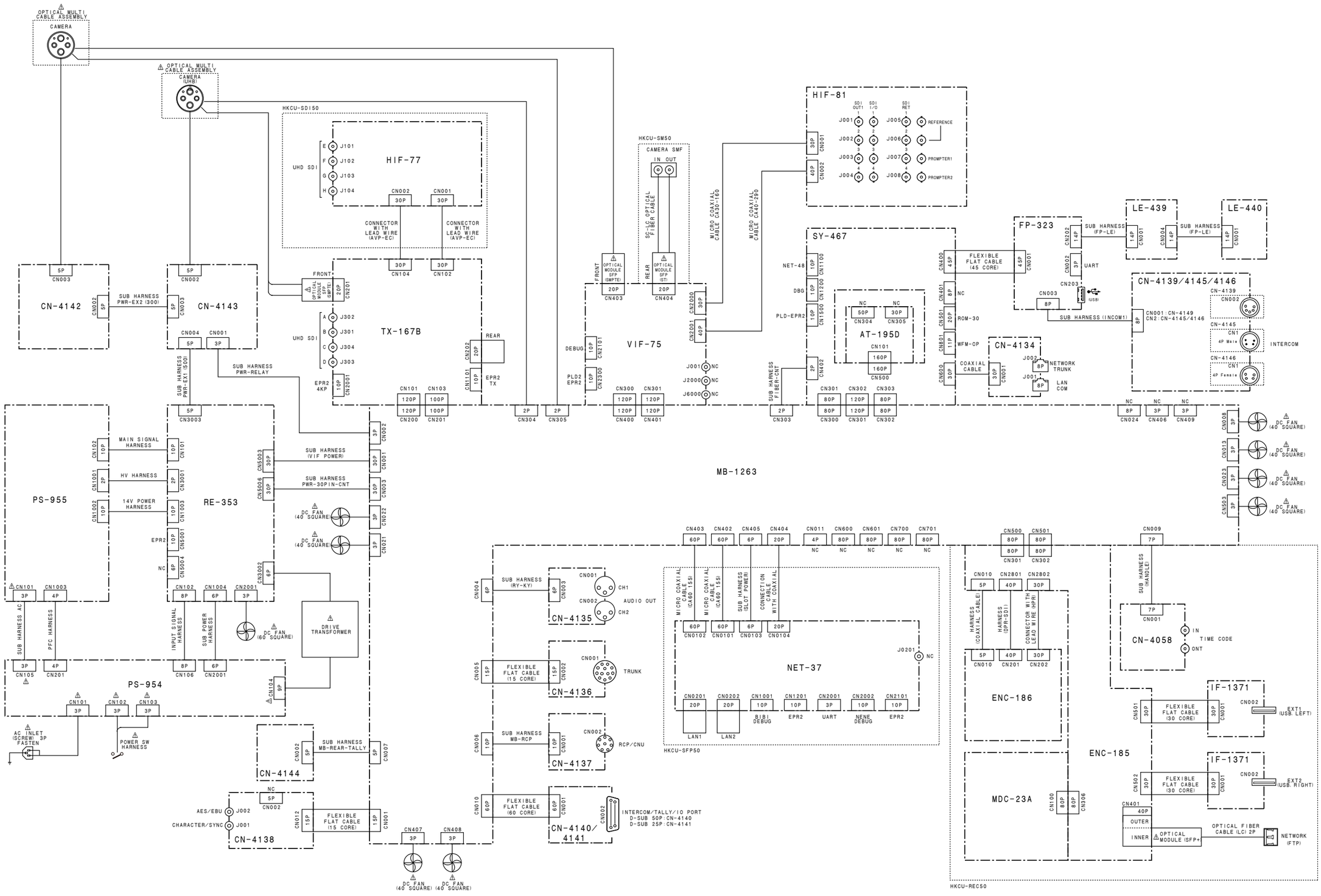
Overall (4/5)


MB-1263 (4/5)
VIF-75 (2/2)
IC1700 (2/2)
Ⓕ (From/To 2/5)
Ⓘ (From/To 2)
Ⓟ (From/To 3/5)
Ⓣ (From/To 3/5)
Ⓤ (From/To 3/5)
Ⓗ (From/To 3/5)
AUDIO
700P
Audio 700P TRUNK Embedded
700P_MAIN_TX/RX(2)
700P_SUB_TX/RX(2)
NW_TRUNK1_RET_F
NW_TRUNK2_RET_F
NW_TRUNK1(TX/RX, 4)
NW_TRUNK2(TX/RX, 4)
META/GATE/CAM-CHAR A from TX-FPGA(from CAM)
META/CAM-CHARA/AUDIO to 4K-POST
MAIN for UPCONV
MAIN for 3G-SDI OUT
SUB for VIF
256FS_OUT
LRCK_OUT
RET SEL
SDI_RET_CH[4:1](8)
SDI_IN_CH[5:8](8)
SDI_RET_CH[4:1]
SDI_RET_CH[8:5]
PROMPTER_IN_CH1(8)
18M_PROMPTER_CLK
PROMPTER_IN_CH2(8)
PROMPT1_LEVEL
PROMPT2_LEVEL
IC1006 ADC
IC1008 ADC
IC1002
IC1007
VBS_RST
VBS_RST
VBS_RET_VIDEO(8)
I2C_VBS(2)
VBS-RET_SEL(3)
VBS_DA
IC1004 VBS DEC
IC1000, IC1001 VBS RET SEL
for FULL-GAIA
IC903 VBS ENC
Filter
IC902 VBS
Q909, Q913, Q917, Q921
SW
27M_CLK_VBS
ZXCV-422(22)
ENC_CHARA(7)
ENC_CTRL(5)
CONTROL(4)
Composite Encorder
SPI_SDI_2.5V(3)
Composite-SYNC(CS_Sync)
Vertical-SYNC(V_Sync)
Horizontal-SYNC(H_Sync)
HD/SD_SEL
Phase_CTRL(6)
REF_SEL
IC1113 SY NC SEP
IC1119 SEL
IC1103 (1/2)
IC1106
ADJ
IC1115 Comp are
MPX
IC1112
EXT_HD_REF_H_PLD
EXT_SD_REF_H_PLD
CLP,Gate(3)
HD-SYNC1
HD-SYNC2
SD-SYNC
Buffer
IC1117
IC1118
CN2001
HD_Field_Sync(HD_MST_F)
SD_Field_Sync(SD_MST_F)
HD_Horizontal_Sync(HD_MST_H)
SD_Horizontal_Sync(SD_MST_H)
HD_Vertical_Sync(HD_MST_V)
10FBB
IC1105
FrameGate
ADC-SCL/CS/SDA-IN/SDA-OUT(4)
IC1402 Serial A/D
x1/2
VC1201 148.5MHz
VC1202 148.351648MHz
1000/1001
IC1204 PLL
IC1201 IC1208 FILTER
148M-PLL- VAR/REF(2)
MST_HD/SD,EXT/INT(2)
IC1205 PLL
IC1207 IC1209 FILTER
IC1200 MULTI PLEXER
VC1203 27MHz
27M-PLL- VAR/REF(2)
IC1400 Serial D/A
DAC_DI/CLK/CS(3)
DAC_DO
27M_CLK_ADJ
PROMPT1_LEVEL
PROMPT2_LEVEL
IC1214
PLL
REF_148M_CLK(p/n)
MST_27M_CLK
MST_74M_CLK
PLL
REF_108M_CLK(p/n)
SDI_OUT_CH[8:5](8)
SDI_OUT_CH[4:1](8)
I2C_DIF_SDI(2)
SPI_SDI(3)
CN2000
IC2000 CD/EQ 3G_TI
SDI_I/O_RSV
RSV_SDI_OUT_CH5(2)
RSV_SDI_IN_CH5(2)
RSV_SDI_I/O_CTRL_1(3)
IC6003 SUB REF SYNC SEP LMH1981MM
SUB-REF_H/F(2)
FG-IN, DET(2)
SUB-REF_IN
HKCU-REC50
AE (To 5/5)
NET_REF(F,V,H)(3)
NET_CLK_74
NET_CLK_27
NET_RESERVE(4)
OP_HD_MAIN/REPLAY
META-V/F/V/F/META
AUDIO_DATA
LRCK/256FS
FRAME_GATE
MST_HD_H/F
AB (From/To 5/5)
AC (To 5/5)
AD (To 5/5)
HKCU-REC50
HIF-81
CN002
CN001
PROMPTER 1
PROMPTER 2 VBS/RET
IC201 3G_EQ
IC221 3G_EQ
IC241 3G_EQ
IC261 3G_EQ
SDI RET 1
SDI RET 2
SDI RET 3
SDI RET 4
REFRECTION
IC301 CD/EQ 3G_TI
SS,EQCD _SEL
SDI I/O 1
IC321 CD/EQ 3G_TI
SDI I/O 2
IC341 CD/EQ 3G_TI
SDI I/O 3
IC361 CD/EQ 3G_TI
SDI I/O 4
SPI(2.5V)
IC101 3G_CD
IC121 3G_CD
IC141 3G_CD
IC161 3G_CD
SDI OUT 1
SDI OUT 2
SDI OUT 3
SDI OUT 4
I2C(2.5V)
IO_EXP
IC003, IC004 PCB_ID[3:0]
SPI(3.3V)

Overall (5/5)


MB-1263 (5/5)
HKCU-REC50
CN-4058
CN101
TC_IN
TC_OUT
J101 TC IN
J102 TC OUT
ENC-185
CN009
CN501
CN302
CN301
CN500
IC907 eMMC
IC1001-1004 IC1501-1504 DDR4
IC001 FPGA
IC601, IC604 TC OUT BUFFER
IC605 TC IN BUFFER
ZQ_LTC_DOUT
LTC_ZQ_DIN
IC609 CLOCK GEN.
VC601 27MHz
TO/FROM IC001, CN401
IC501, IC502 USB2.0 I/F
X501, X502 24MHz
IC010
IC011
IC006-008 FF
IC004, IC005 CLOCK DRIVE
IC303, IC304 IC305 (1/2), IC306 BUFFER
IC403 HUB SWITCH
X402 25MHz
ETH_CLK125
IC305 (2/2) IC307, IC310 BUFFER
IC913-917 BUFFER
IC920 BUFFER
IC904 INV
IC301 IO EXPANDER
IC906 LEVEL SHIFT
SPI FLASH CONFIG ROM
IC902, IC903 IC908, IC909
IC1151 CLOCK DRIVE
IC1152, IC1153 IC1158 LVDS
IC1155 CLOCK DRIVE
IC1157 CLOCK BUFFER
X1157 148.5MHz
X1158 25MHz
X812 32.768KHz
X816 33.3333MHz
X813 100MHz
X1155 150MHz
X1301 200MHz
X1152 156.25MHz
IC813-815 DET.
+1.8V_IO
IC006 CODEC (NATH)
X2001 33.333MHz
LPDDR IC2101 IC2102 IC2301
IC1154 LVDS
IC007 CODEC (MARGAUX)
IC2801-2804 PCI I/F
CN2801
CN2802
IF-1371
IF-1371
IC002 USB2.0 CONDITIONER
CN001
CN002
IC001 REDRIVER
EXT1 EXT2
USB_LED
Q002
D002 (USB)
CN501 CN502
CN401
OPTICAL MODULE
NETWORK (FTP)
MDC-23A
CN100
IC401 FPGA
IC900-907 IC1000-1007 IC1100-1107 IC1200-1207
NAND
IC800 TEMP.
X600 150MHz
X700 200MHz
IC901 EEPROM
IC921 TEMP.
CN303
SPI FLASH CONFIG. ROM
FPGA RESET
IC100, IC102
AG3_RESETX
IC510-514 BUFFER
IC507 LEVEL SHIFT
IC515 MUX
IC516 INV
IC502
ENC-186
CN201
CN202
IC008 FPGA
LPDDR4 IC501 IC502
IC401 SPI FLASH
X401 27MHz
X402 27MHz
IC2503 SPI FLASH
IC2601, IC2602 LPDDR4
X2501, 2502 27MHz
From/To 3/5 AA
From/To 4/5 AB
From 4/5 AC
From 4/5 AD
From 4/5 AE
From/To 3/5 AF
To 1/5 AG
From/To 2/5 AI
From/To 1/5 AH
From/To 1/5 AK
From/To 1/5 AJ
From/To 1/5 AL

Frame Wiring



Revision History

Date	History	Contents
2019. 12	1st Edition 9-932-728-01	—
2020. 9	Revised-1 9-932-728-02	Added the models: HKCU-REC50 • **Modifications:** 1-1. Location of Printed Wiring Boards and DC Fans, 1-7-1. Corresponding PLDs, 1-9-1. Fuse, 1-9-2. Circuit Protection Element, 2-19-1. Power Assembly, 2-32. CN-4141 Board (HDCU5000 Supporting Assembly), 4-2-2. Description of SERVICE Menu • **Additions:** 1-2-6. ENC-185 Board, 1-2-7. MDC-23A Board, 1-11. Notes on Using the Power Supply Unit, 2-33. HKCU-REC50, Section 5. Web Maintenance Menu, 6-1-23. CN-4058 Board, 6-1-24. ENC-185 Board, 6-1-25. ENC-186 Board, 6-1-26. IF-1371 Board, 6-1-27. MDC-23A Board • **Modifications of the exploded view:** Rear Panel • **Additions of the exploded view:** ENC Assembly (HKCU-REC50) (1/2), ENC Assembly (HKCU-REC50) (2/2) • **Additions of the supplied accessories:** HKCU-REC50 • **Modifications of the diagrams:** Overall (1/5), Overall (2/5), Overall (3/5), Overall (4/5), Frame Wiring • **Additions of the diagrams:** Overall (5/5)

HDCU5000 (UC)
HDCU5000 (CE)
HDCU5000 (CN)
HDCU5000 (J)　J, E
9-932-728-02

Sony Corporation

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