SONY

CAMERA CONTROL UNIT

HDCU3500
HDCU5500

UHB TRANSMISSION BOARD KIT
HKCU-FB50

SINGLE MODE FIBER EXTENSION KIT
HKCU-SM50

ST 2110 INTERFACE KIT
HKCU-SFP50

RECORDING OPTION
HKCU-REC55

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.
HDCU3500/L (SY): LEMO Optical Fiber Connector	10001and Higher
HDCU3500/T (SY): Tajimi Optical Fiber Connector	30001 and Higher
HDCU3500//UL (SY): LEMO Optical Fiber Connector	100001 and Higher
HDCU5500/L (SY): LEMO Optical Fiber Connector	10001and Higher
HDCU5500/T (SY): Tajimi OpticalFiber Connector	30001 and Higher
HDCU5500//UL (SY): LEMO Optical Fiber Connector	100001 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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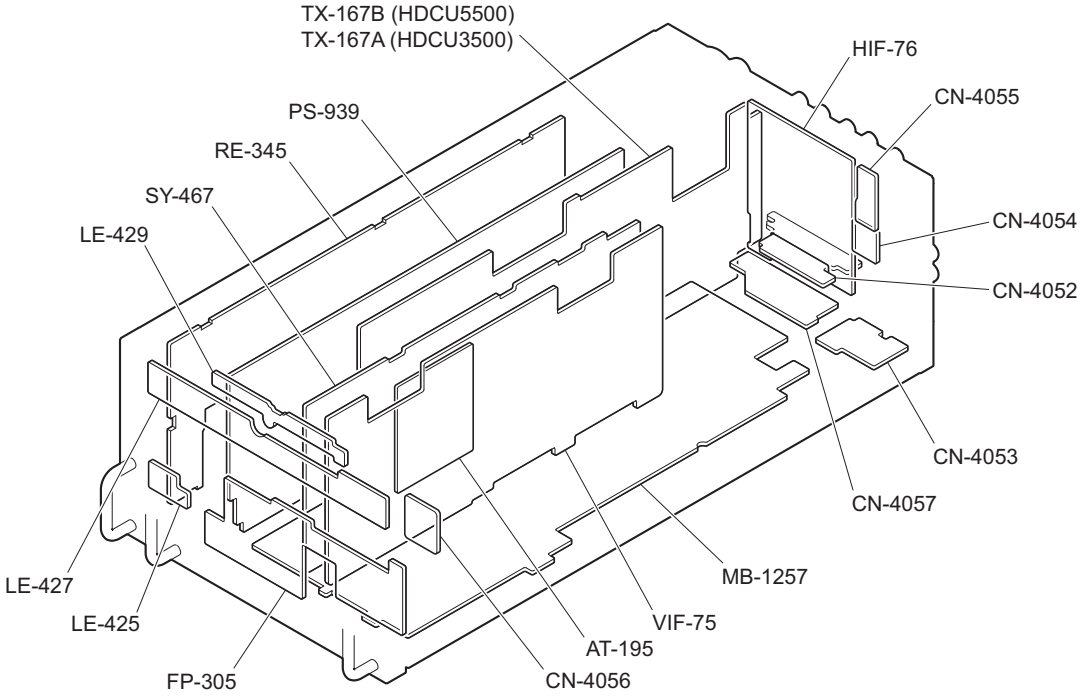
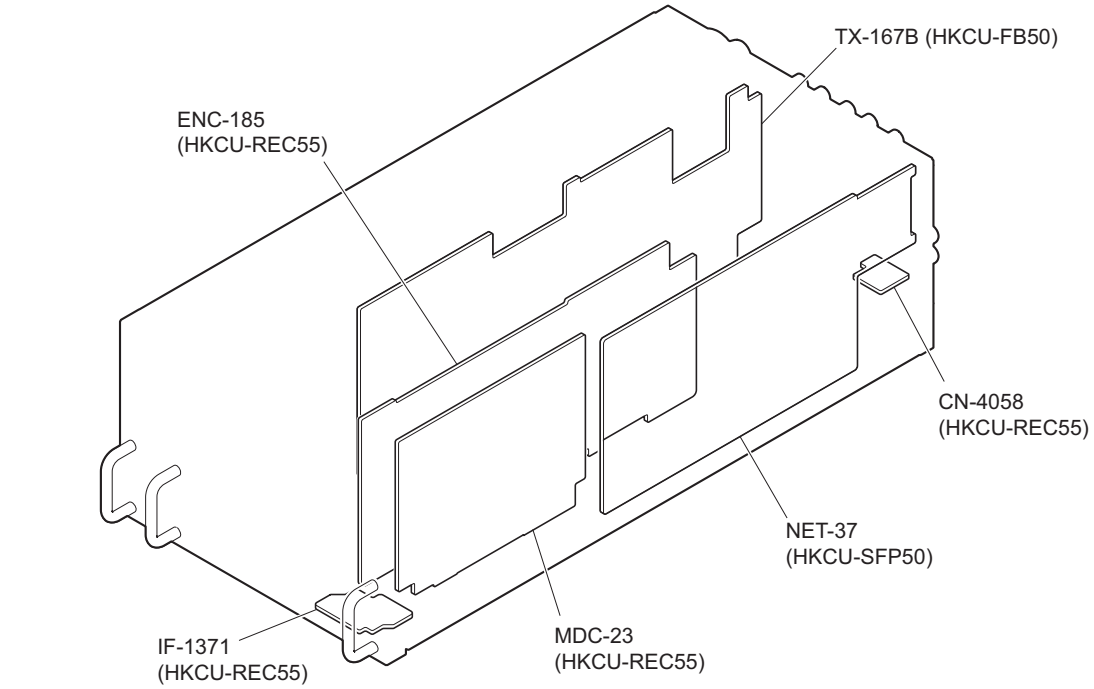
Revision History

Section 1
Service Overview

1-1. Location of Printed Wiring Boards





1-2. Functions of Onboard Switches and LED Indicators

1-2-1. MB-1257 Board

MB-1257 BOARD (A side)

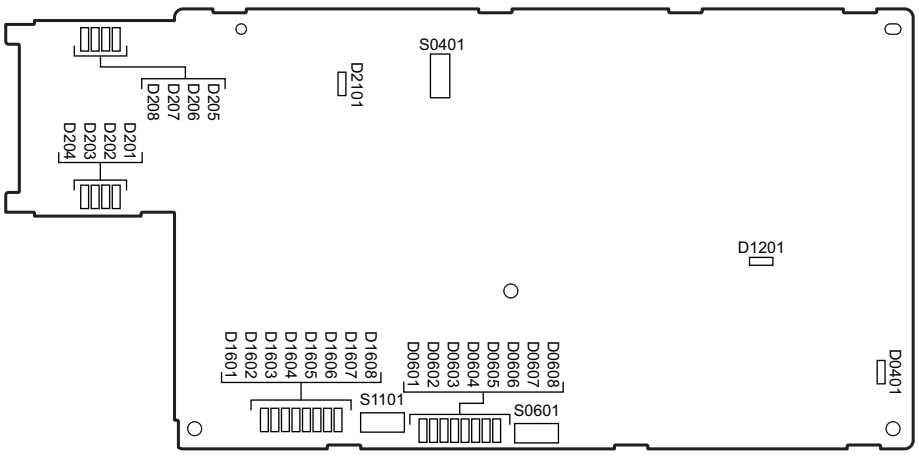
Switch

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

Continued

Ref. No.	Name	Color	Description	Normal State (Power On)
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

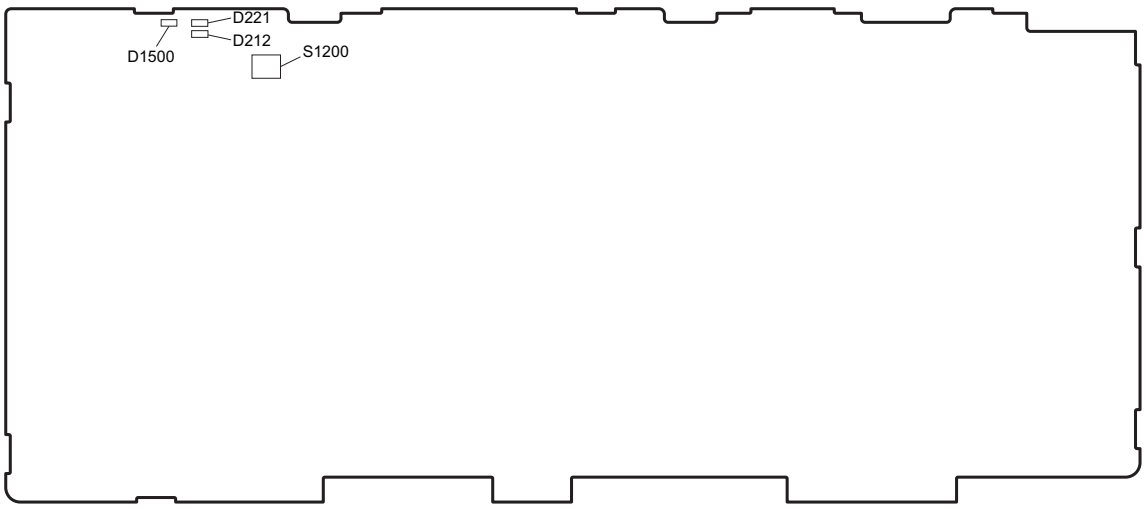
Switch

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

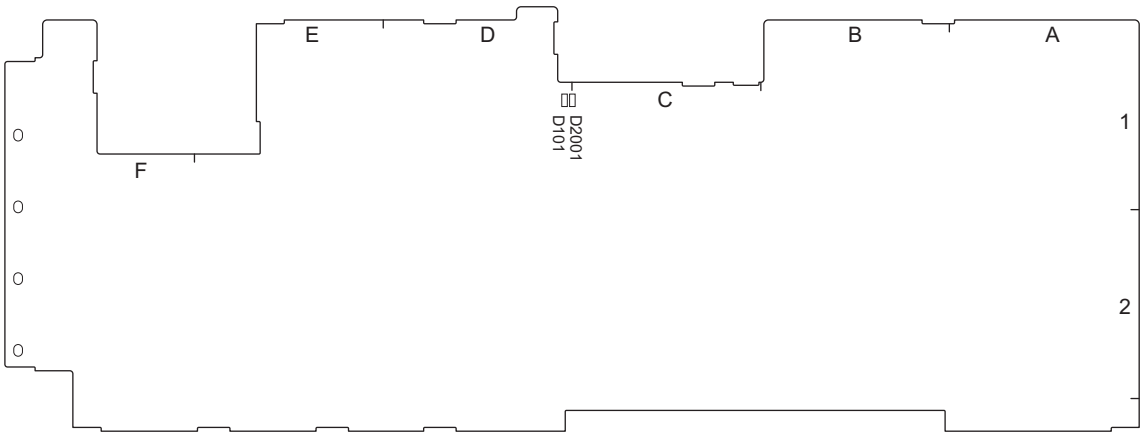
Switch

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-167A Board

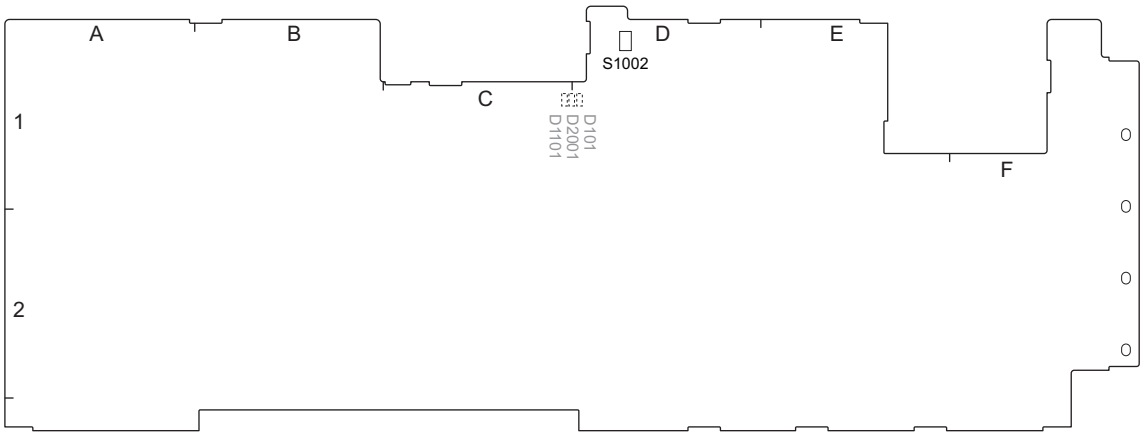


TX-167A BOARD (B side)

LED

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

1-2-5. 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

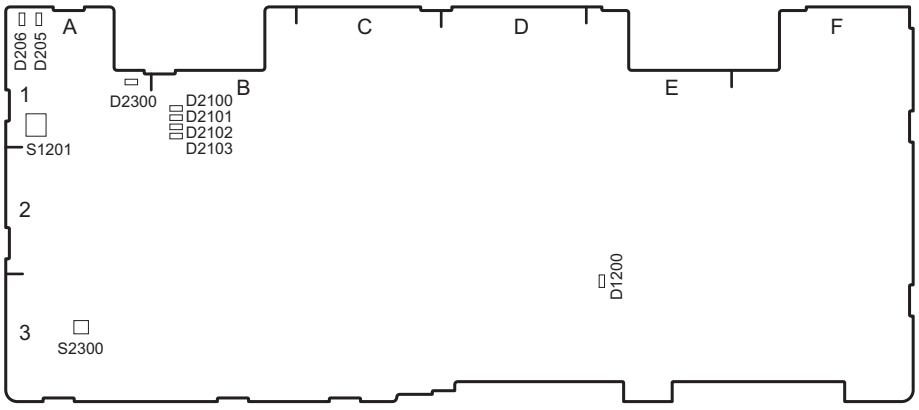
Switch

Note

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

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

1-2-6. 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

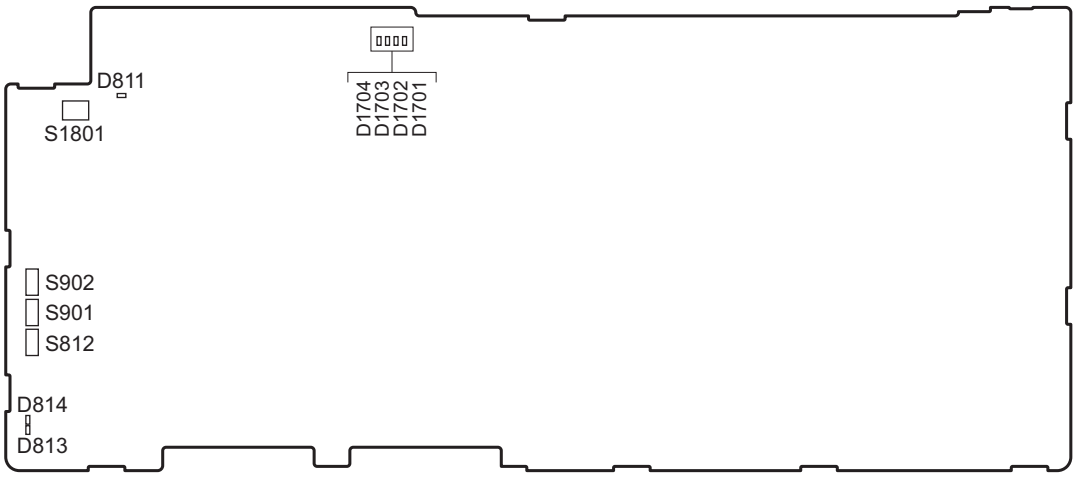
Switch

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

1-2-7. 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

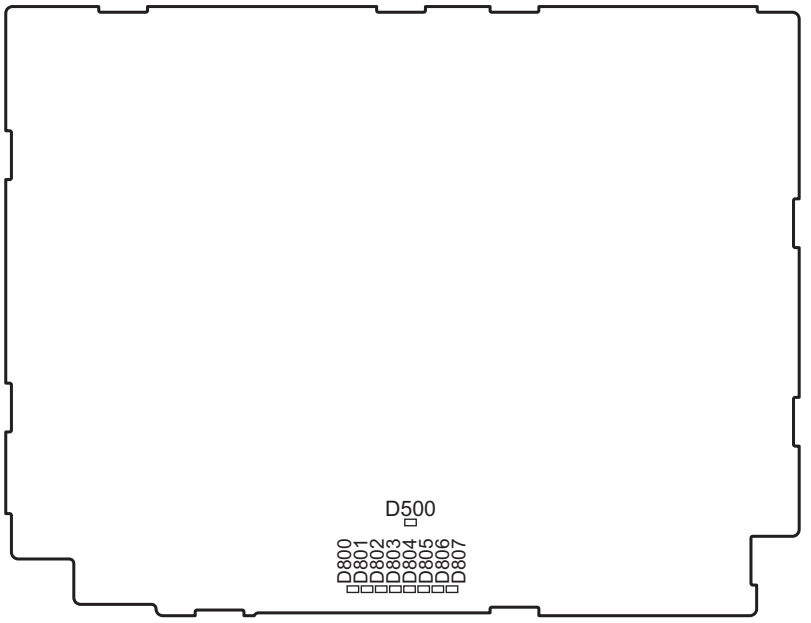
Do not change the setting of “Factory use” switch.

Ref. No.	Bit	Function	Factory default setting
S812	1	Factory use	OFF
S901	1	Factory use	OFF

Continued

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

1-2-8. MDC-23 Board



MDC-23 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-345 Board)

AT-195 board, VIF-75 board, and RE-345 board store the important information including the model name and serial number.
After replacing the AT-195 board, VIF-75 board, and RE-345 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.

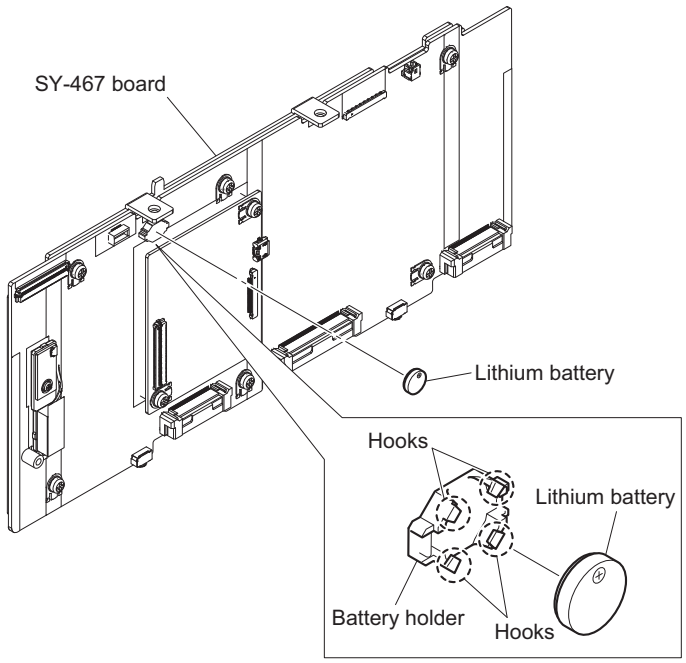
1-4-1. Replacing Procedure

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly".)
3. Remove the top chassis. (Refer to step 1 in "2-5. Top Chassis/Air Distributor Assembly".)
4. Remove the SY-467 board. (Refer to steps 1 and 2 in "2-7. 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

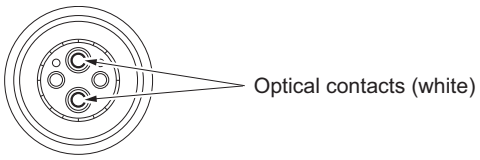
Tip

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

Cleaning Procedure

Male connector

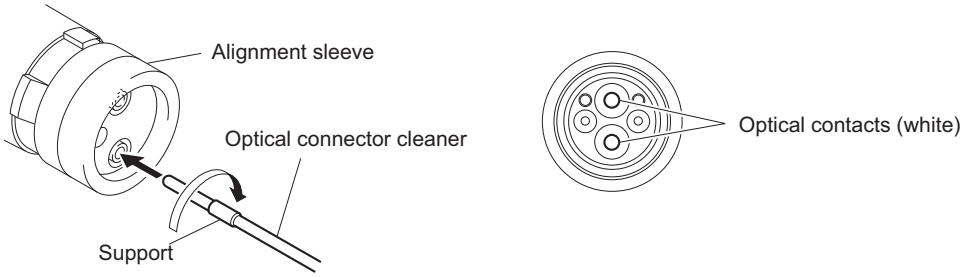
Clean the tip of the optical contacts (white) using the optical connector cleaner.



Female connector

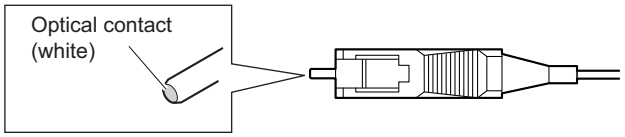
1. Insert the optical connector cleaner straight.
2. Apply sufficient pressure (approximately 600 g to 700 g) to ensure that the optical contact is a little depressed.

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)

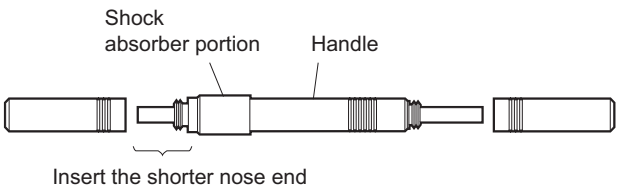
Clean the LEMO connectors and cables using the following procedure.

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)

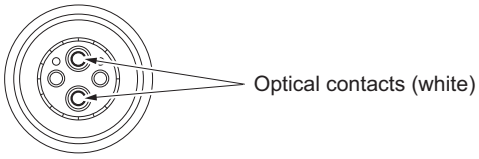
  Note

  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

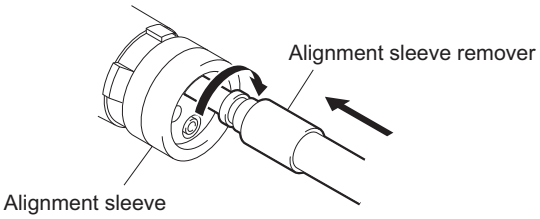
Clean the tip of the optical contacts (white) with a cotton swab moistened with alcohol.



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.

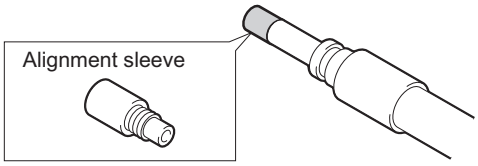
1. Insert the alignment sleeve remover into the alignment sleeve in the straight line and turn it clockwise.



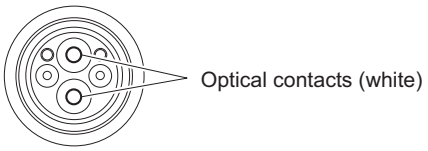
2. When the turn stops, pull out the remover in the straight line forcedly.

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)

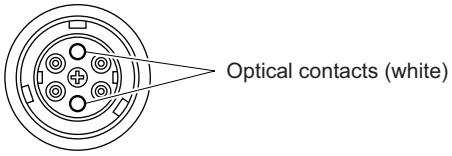
  Note

  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

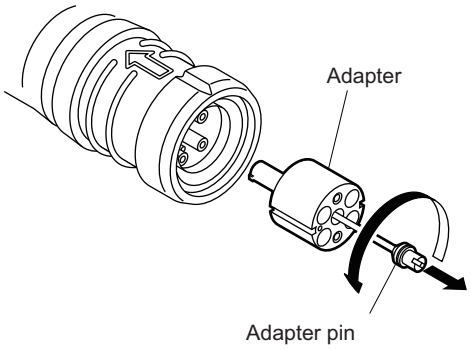
The optical contacts for female connector are in an unexposed state. In cleaning, it is necessary to be exposed by removing the adapter in the connector in advance. Proceed as follows.

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

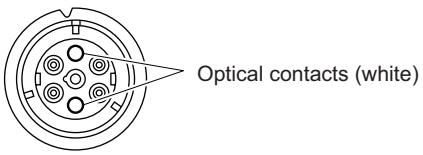
   Tip

   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.



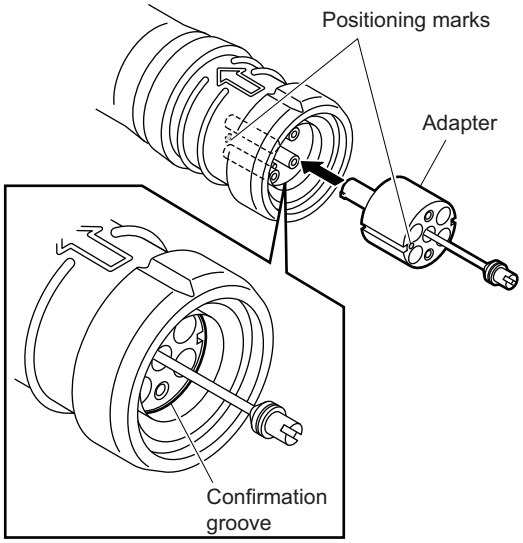
3. Clean the optical contacts (white) with a cotton swab moistened with alcohol.



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)

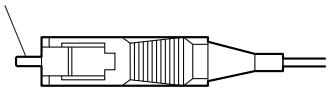
Note

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-REC55 is installed)
MDC-23	IC401	hdcu5000_enc2_rec55.pkg (HKCU-REC55 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

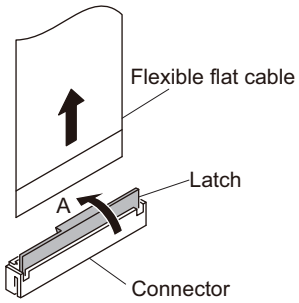
1-8-1. Disconnecting and Connecting Flexible Flat Cable

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.

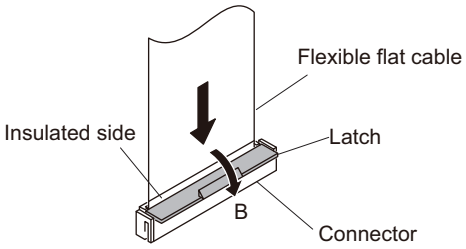
Type A

Disconnecting



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

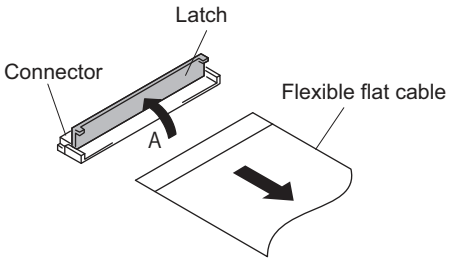
Connecting



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.

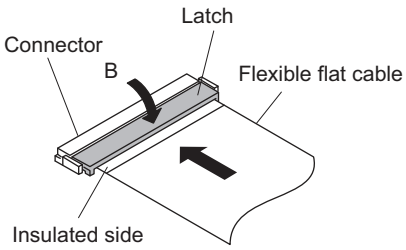
Type H

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.

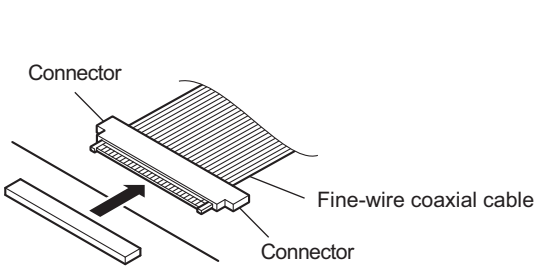
1-8-2. Disconnecting/Connecting Fine-Wire Coaxial Cable

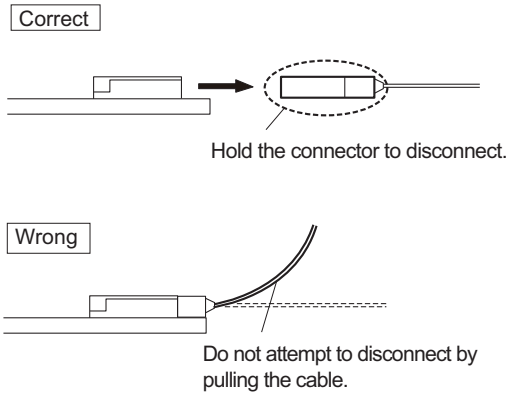
Note

- 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

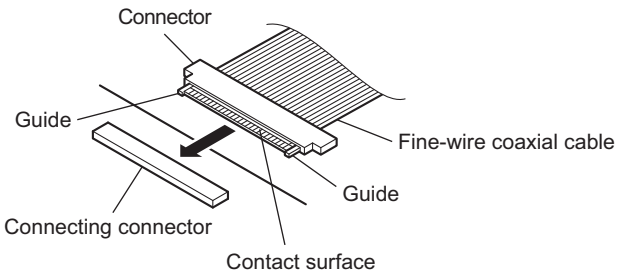
Disconnecting

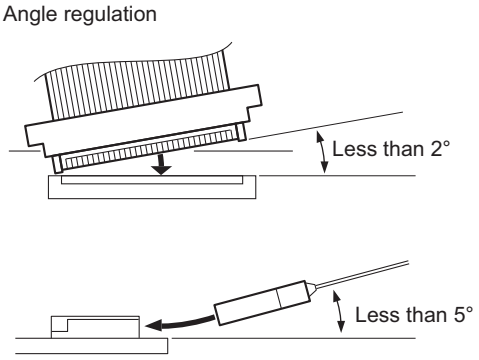




1. Hold both sides of the fine-wire coaxial cable connector, and pull the connector straight to disconnect it.

Connecting





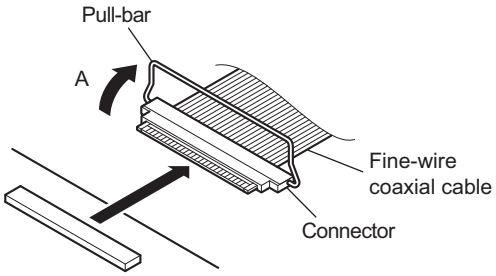
Note

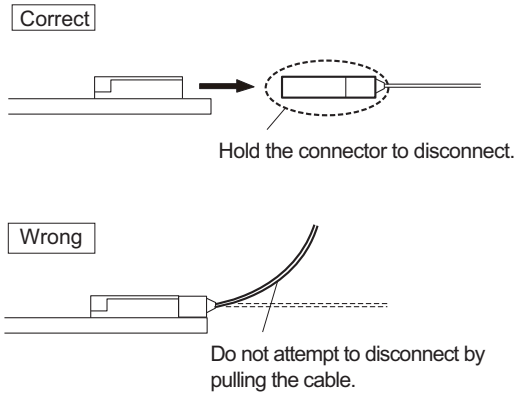
Insert the connector carefully so that the connector guides are not caught by the edge of the mating connector.

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

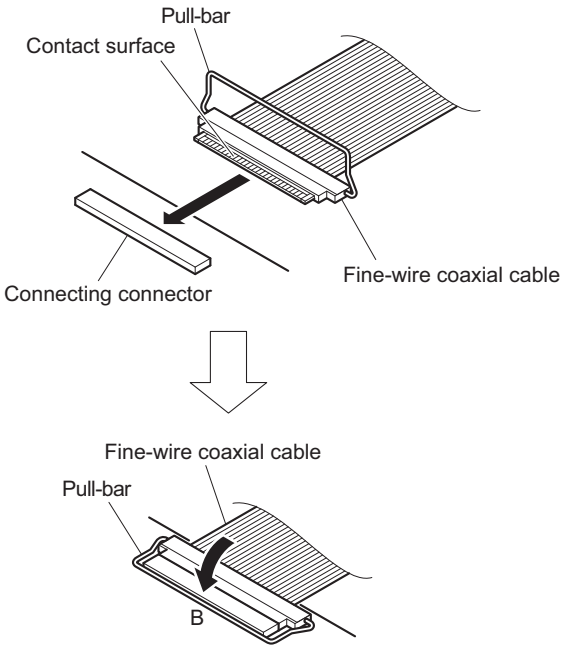
Disconnecting

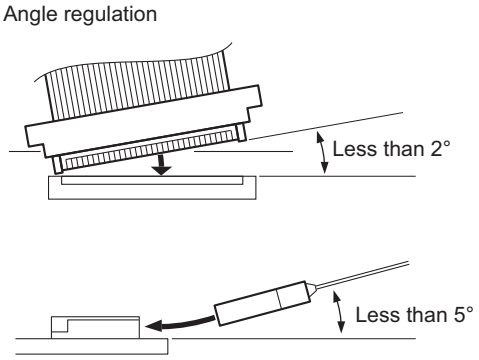




1. Raise the pull-bar in the direction of arrow A to unlock it.
2. Hold both sides of the fine-wire coaxial cable connector, and pull the connector straight to disconnect it.

Connecting





Note

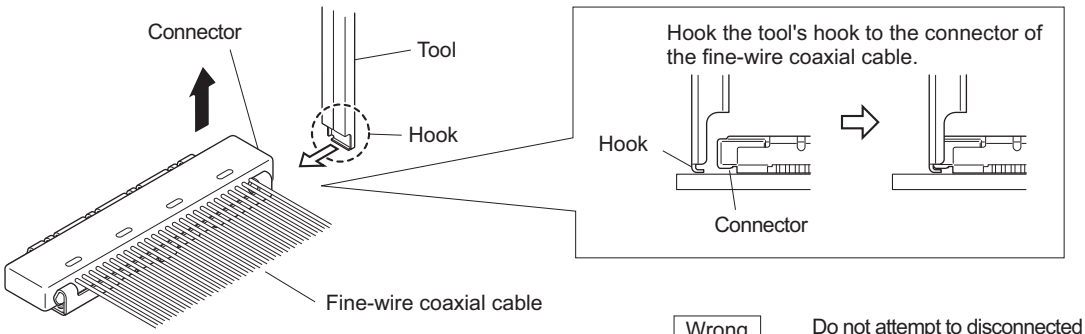
Insert the connector carefully so that the connector guides are not caught by the edge of the mating connector.

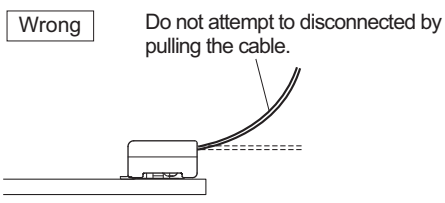
1. Hold both sides of the fine-wire coaxial cable connector with the contact surface facing up.
2. Insert the connector straight to meet the angle specified.
3. Turn the pull-bar in the direction of arrow B and lock it.

Type C

Disconnecting

1. Use a tool with a hook as shown above. Hook the tool's hook to the connector of the fine-wire coaxial cable.
2. Lift the tool straight in the arrow direction with the hook hooked to disconnect the connector of the fine-wire coaxial cable.



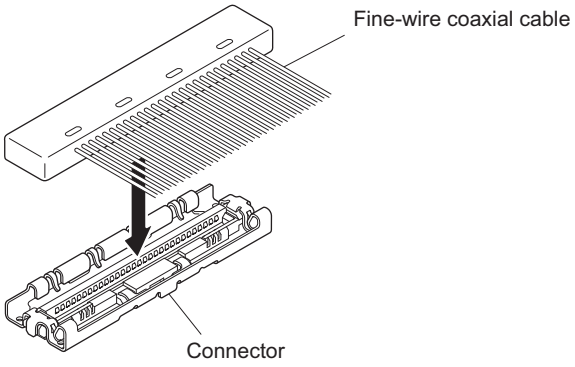


Connecting

1. Insert the connector of fine-wire coaxial cable in the arrow direction to connect it.

Note

Insert the connector firmly as far as it will go.



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.

This unit is equipped with fuse. Any an excessive current flow due to abnormality inside the equipment, the fuse blow. If a fuse blows, turn off the main power of the equipment once and inspect inside of the equipment and remove the cause of excessive current. After that, replace the fuse.

Board name	Ref. No.	Address	Name	Part No,
PS-939	F101	Side A	Fuse (10 A/250 V)	⚠ 1-576-395-51
ENC-185	F010	Side B	Fuse (8 A/125 V)	⚠ 1-576-328-21
MDC-23	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-939	TH101	POWER THERMISTOR (10D2-18LCS)	⚠ 1-811-559-31
	TH102	POWER THERMISTOR (10D2-18LCS)	⚠ 1-811-559-31
RE-345	TH103	THERMISTOR (POSITIVE) (PTFM04BC222Q***S)	⚠ 1-811-824-11
	TH3001	THERMISTOR (POSITIVE) (PTFM04BC222Q***S)	⚠ 1-811-824-11
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.

Section 2
Replacement of Main Parts

2-1. Notes on Replacing the 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
B3 x 5: 0.80 ±0.12 N·m
B4 x 6: 1.40 ±0.20 N·m
K2.6 x6: 0.53 ±0.07 N·m
P2 x 6: 0.16 ±0.02 N·m
P2.6 x 5: 0.53 ±0.07 N·m
P4 x 12: 1.40 ±0.20 N·m
PS4 x 6: 1.40 ±0.20 N·m
PSW3 x 6: 0.80 ±0.12 N·m
PSW3 x 8: 0.80 ±0.12 N·m
PSW3 x 10: 0.80 ±0.12 N·m
PSW3 x 40: 0.80 ±0.12 N·m
PSW4 x 8: 1.40 ±0.20 N·m
Hexagon screw: 0.53 ±0.05 N·m
DIN nut: 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.

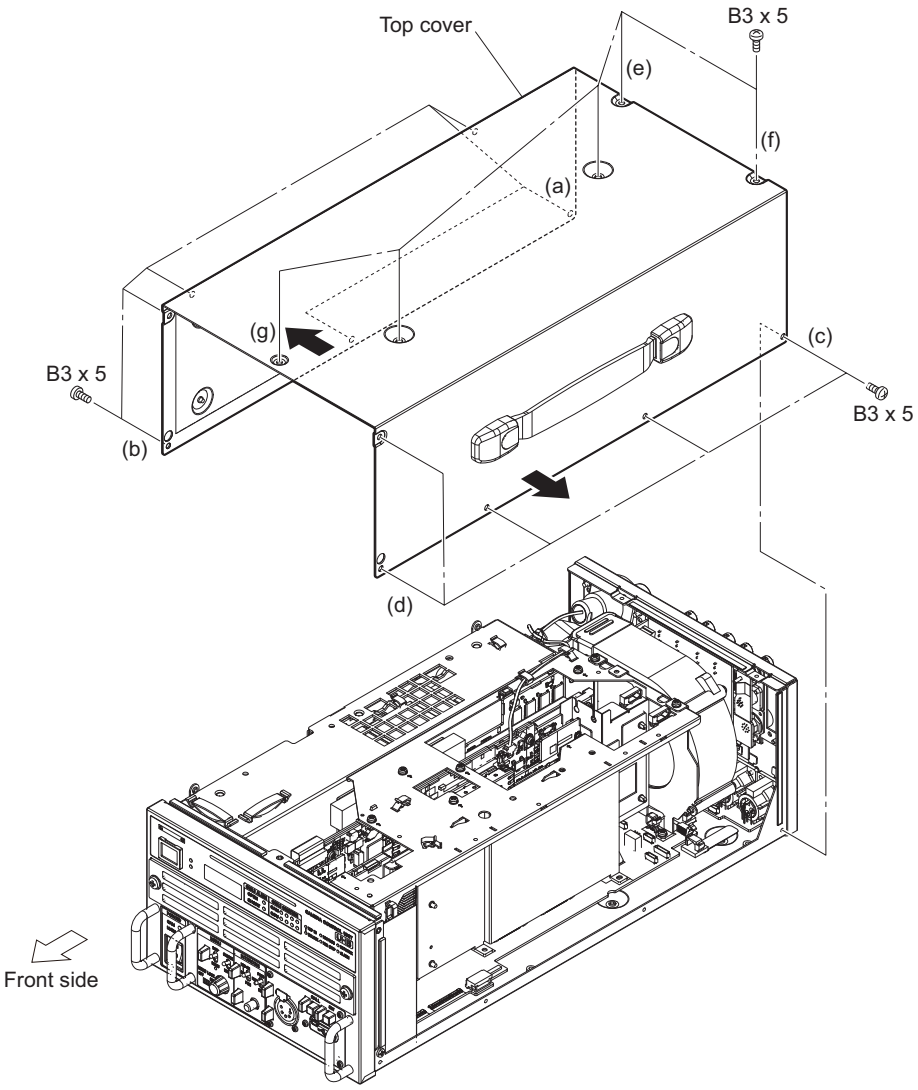
2-2. Top Cover

Procedure

1. Remove the 16 screws, and then remove the top cover.

   Tip

   When removing the top cover, slightly extend it in the directions of the arrows.



   Note

   When attaching the top cover, tighten the screws (a) to (g) sequentially in alphabetical order.

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

2-3. Front Panel

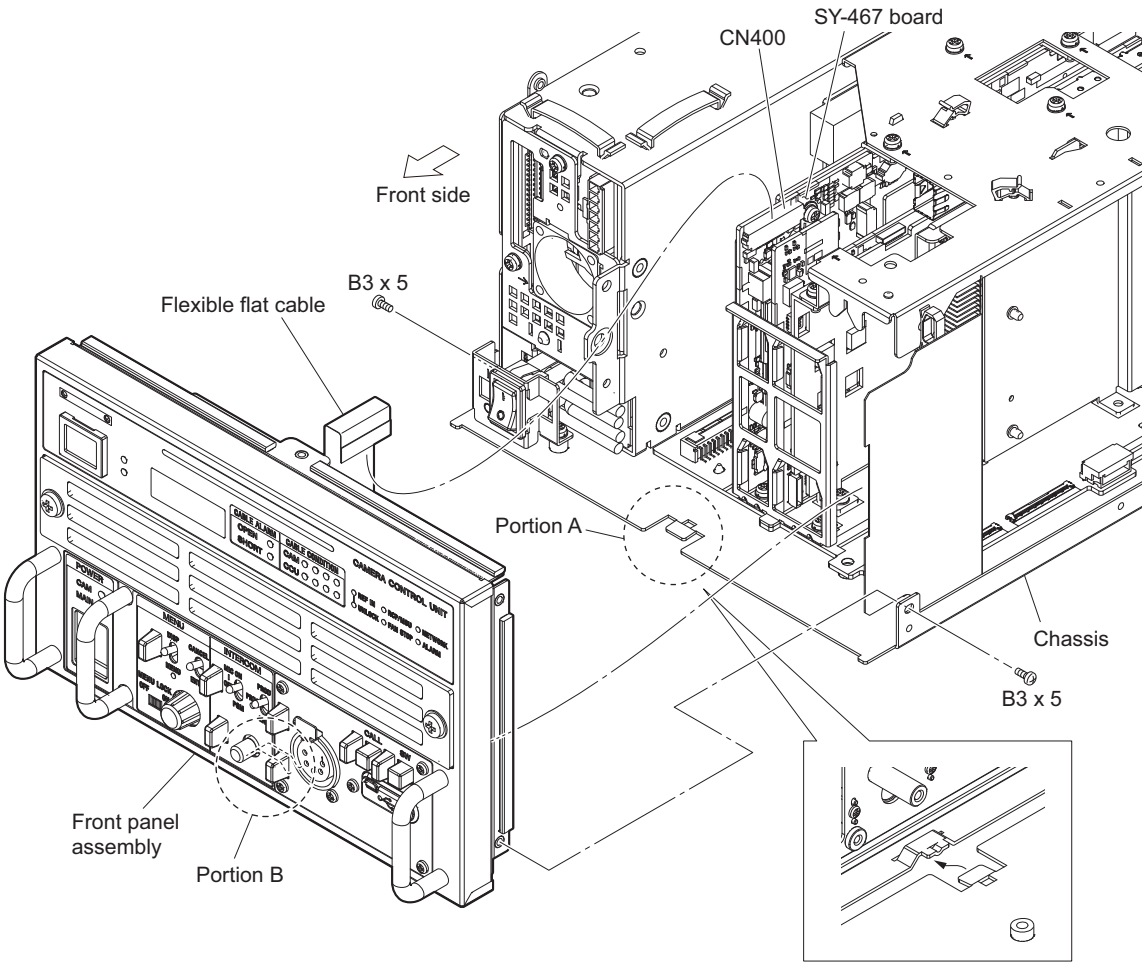
2-3-1. Front Panel Assembly

Preparation

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

Procedure

1. Disconnect the flexible flat cable from the connector (CN400) on the SY-467 board.
2. Remove the two screws, and then remove the front panel assembly.



Note

When attaching the front panel assembly, insert the portion A of the chassis into the portion B of the front panel assembly.

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

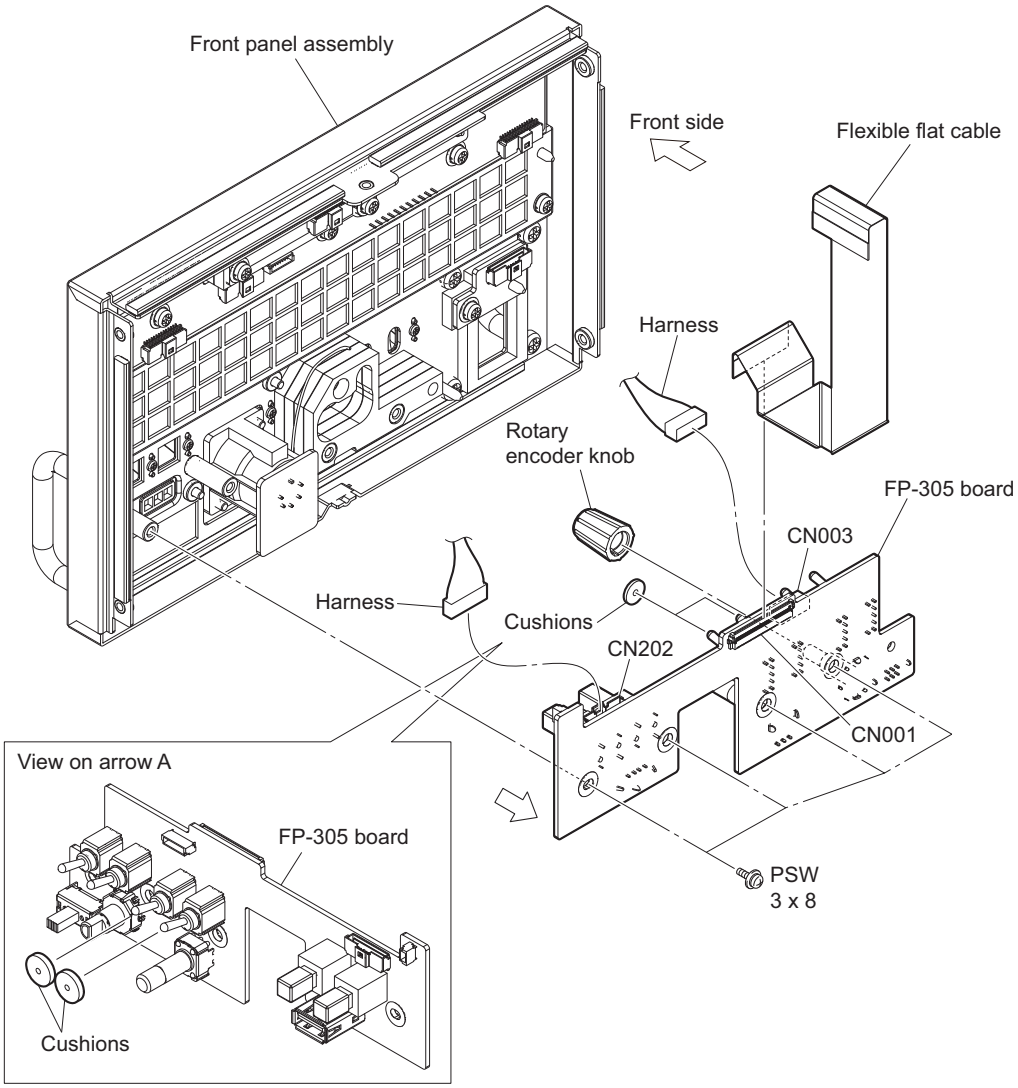
2-3-2. FP-305 Board

Preparation

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

Procedure

1. Disconnect the flexible flat cable from the connector (CN001) on the FP-305 board.
2. Disconnect the harness from the connector (CN202) on the FP-305 board.
3. Remove the four screws, and then remove the FP-305 board.
4. Disconnect the harness from the connector (CN003) on the FP-305 board.
5. Remove the rotary encoder knob and two cushions.



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

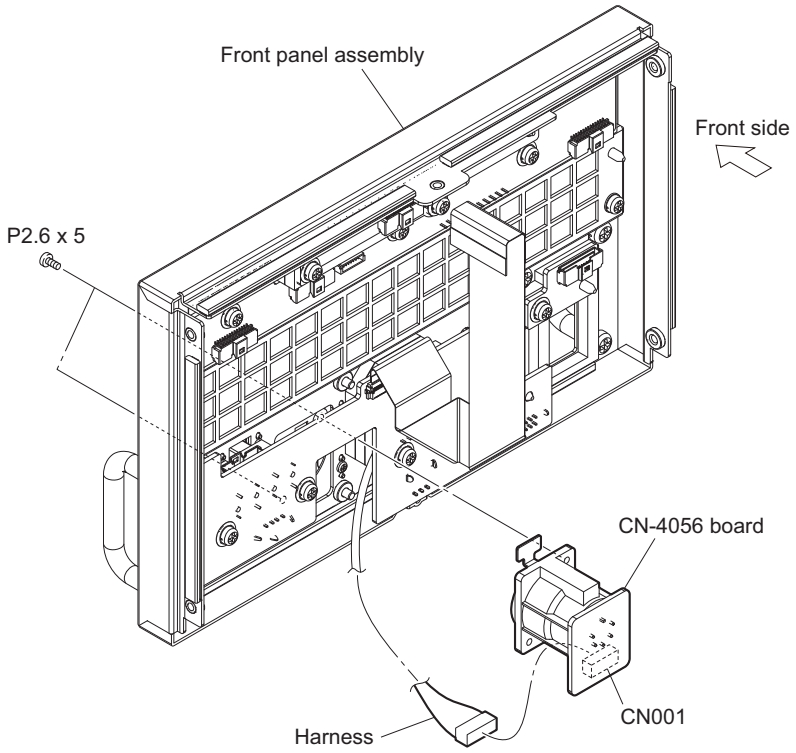
2-3-3. CN-4056 Board

Preparation

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

Procedure

1. Remove the two screws, and then remove the CN-4056 board.
2. Disconnect the harness from the connector (CN001) on the CN-4056 board.



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

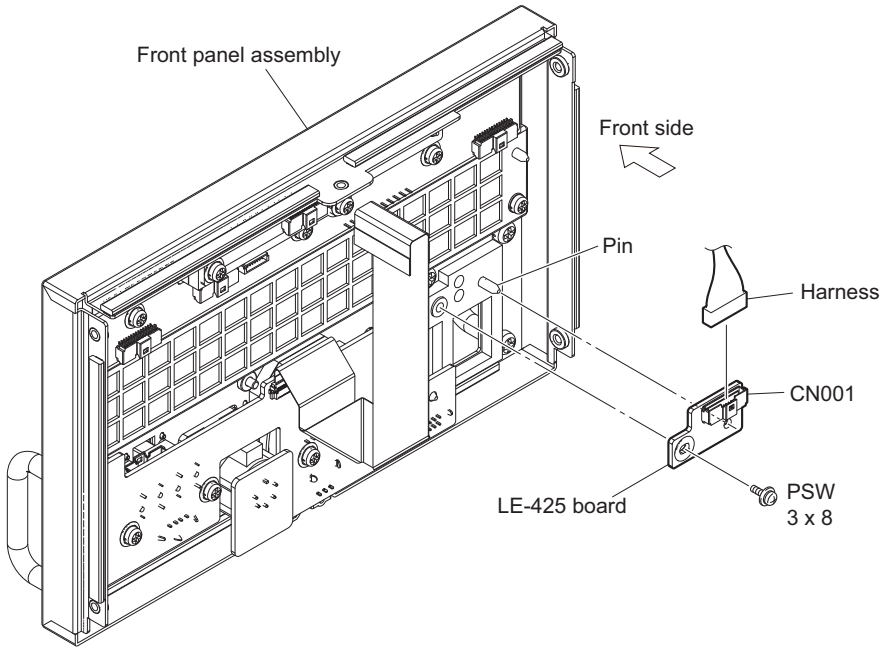
2-3-4. LE-425 Board

Preparation

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

Procedure

1. Disconnect the harness from the connector (CN001) on the LE-425 board.
2. Remove the screw, and then remove the LE-425 board.



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

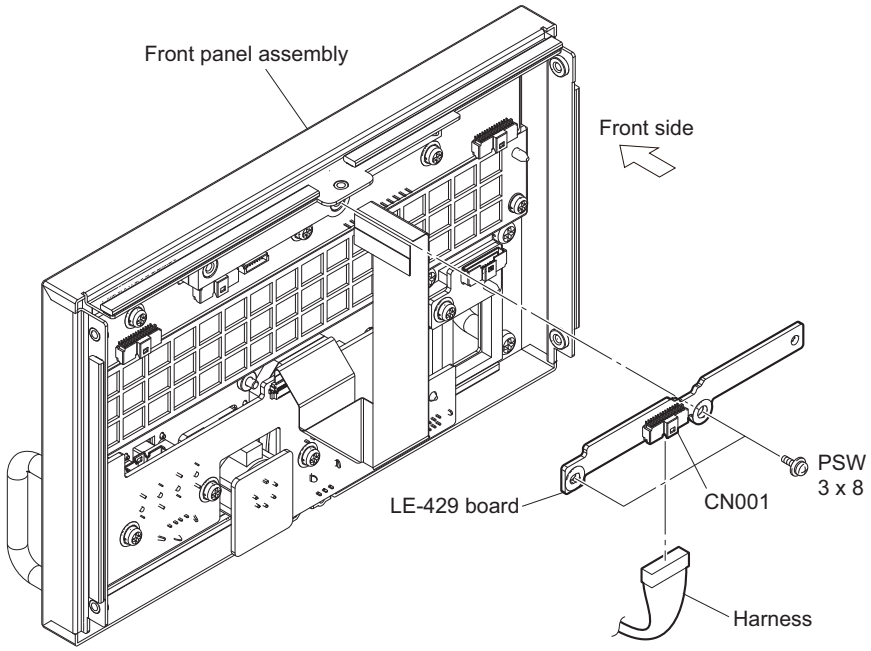
2-3-5. LE-429 Board

Preparation

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

Procedure

1. Disconnect the harness from the connector (CN001) on the LE-429 board.
2. Remove the two screws, and then remove the LE-429 board.



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

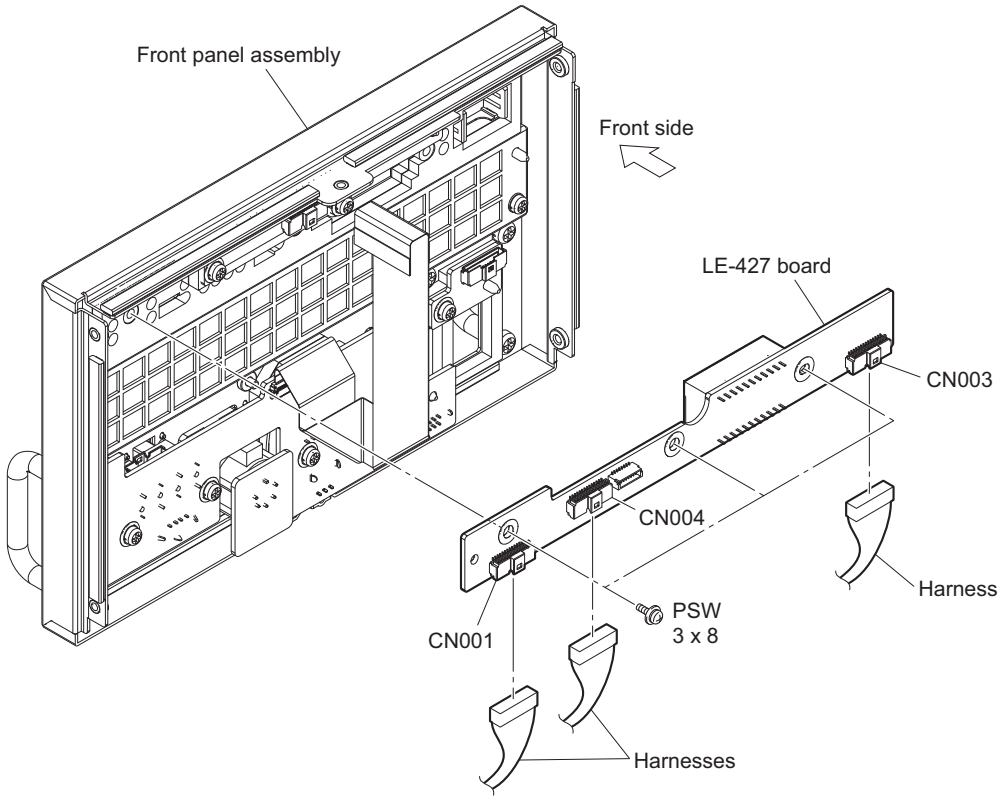
2-3-6. LE-427 Board

Preparation

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

Procedure

1. Disconnect the three harnesses from the connectors (CN001, CN003 and CN004) on the LE-427 board.
2. Remove the three screws, and then remove the LE-427 board.



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

2-4. Optical Multi Fiber Cable

2-4-1. LEMO Connector Assembly

Preparation

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

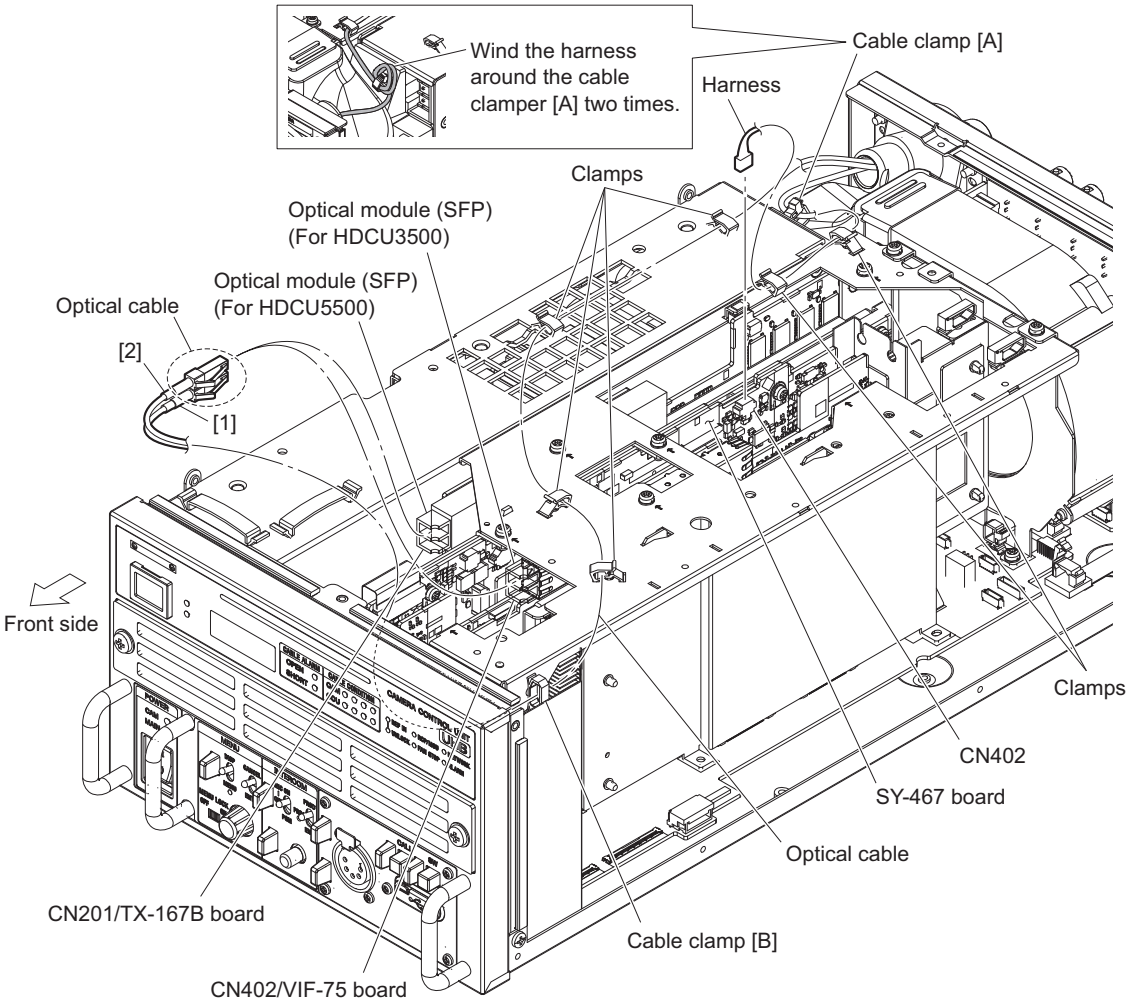
Procedure

1. Disconnect the optical cable.

Note

Do not pull the optical cables strongly or bend them so as not to damage them.

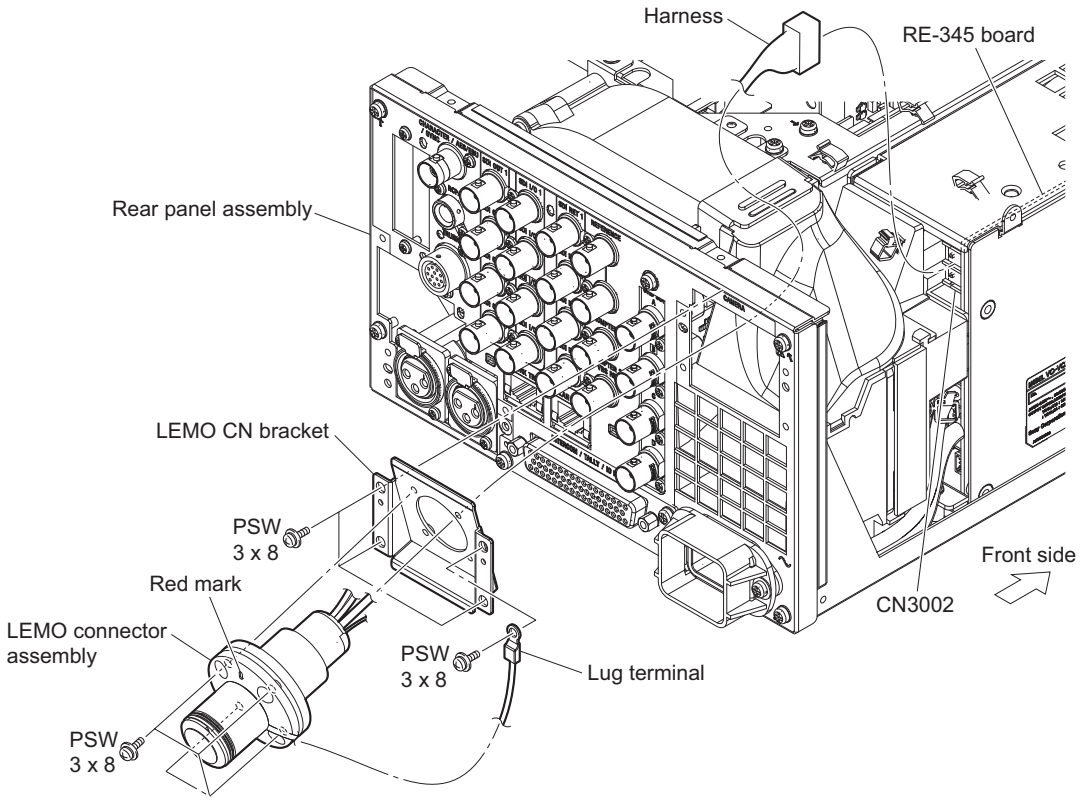
(1) Disconnect the harness from the connector (CN402) on the SY-467 board.
(2) Open the cable clamp [A], and then remove the harness from the two clamps.
(3) Open the cable clamp [B], and then remove the optical cable from the four clamps.
(4) Pull out the optical cable from the optical module (SFP).



Note

- When attaching the optical cable, be careful not to mistake the connector.
- The connection destination of HDCU3500 is different from that of HDCU5500. When connecting them, be careful not to connect to the wrong destination.
- When connecting the harness, wind the harness around the cable clamper [A] two times.

2. Remove the LEMO connector assembly.
   (1) Disconnect the harness from the connector (CN3002) on the RE-345 board.
   (2) Remove the four screws, and then remove the LEMO connector assembly.
   (3) Remove the four screws, and then remove the lug terminal and LEMO CN bracket.



Note

- When attaching the LEMO connector assembly, install it with the red mark up.
- When attaching the LEMO connector assembly, secure the connector assembly temporarily using the four screws, then fully tighten them.

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

2-4-2. TAJIMI Connector Assembly

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly".)

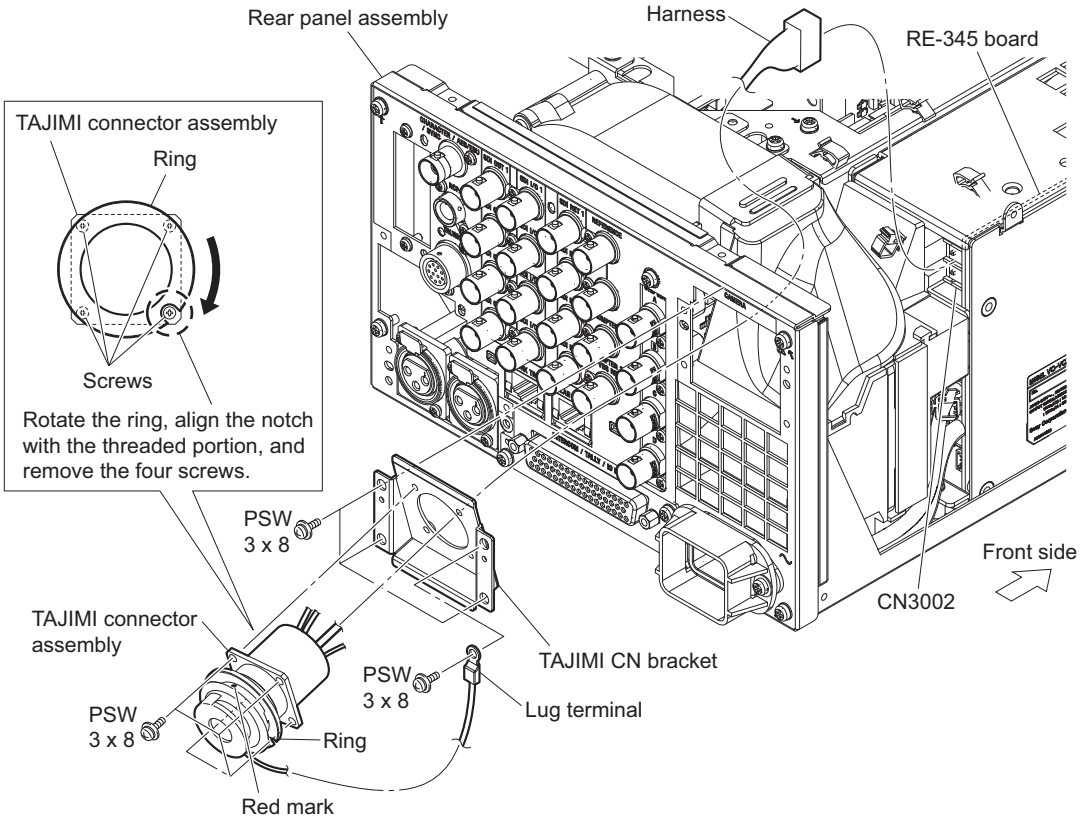
Procedure

1. Remove the TAJIMI connector assembly.
   (1) Disconnect the harness from the connector (CN3002) on the RE-345 board.
   (2) Remove the four screws, and then remove the TAJIMI connector assembly.

   Tip

   Align the notch of the ring with the screw position and remove the screws.

   (3) Remove the four screws, and then remove the lug terminal and TAJIMI CN bracket.



Note

- When attaching the LEMO connector assembly, install it with the red mark up.
- When attaching the TAJIMI connector assembly, secure the connector assembly temporarily using the four screws, then fully tighten them.

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

2-5. Top Chassis/Air Distributor Assembly

Tip

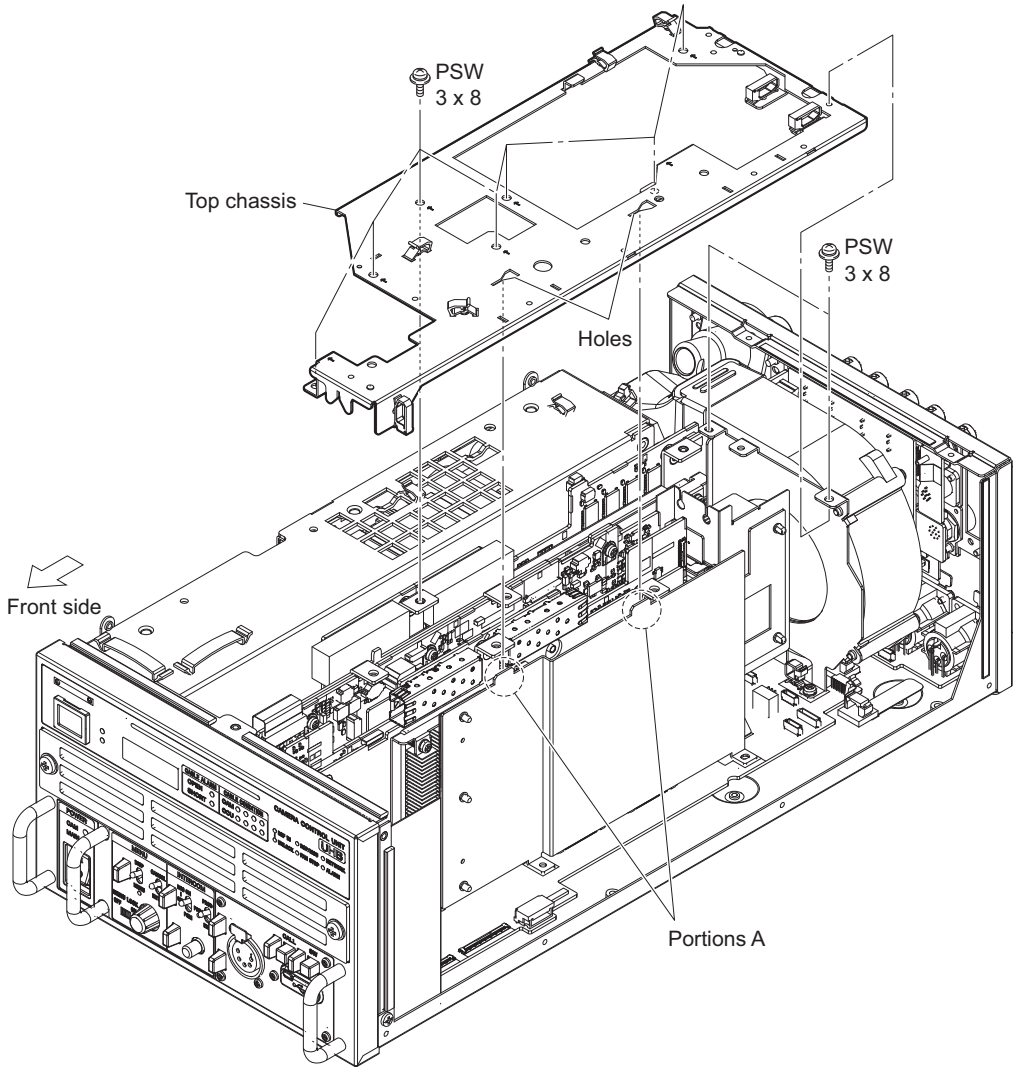
The top chassis and the air distributor assembly is not supported by service.

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly".)

Procedure

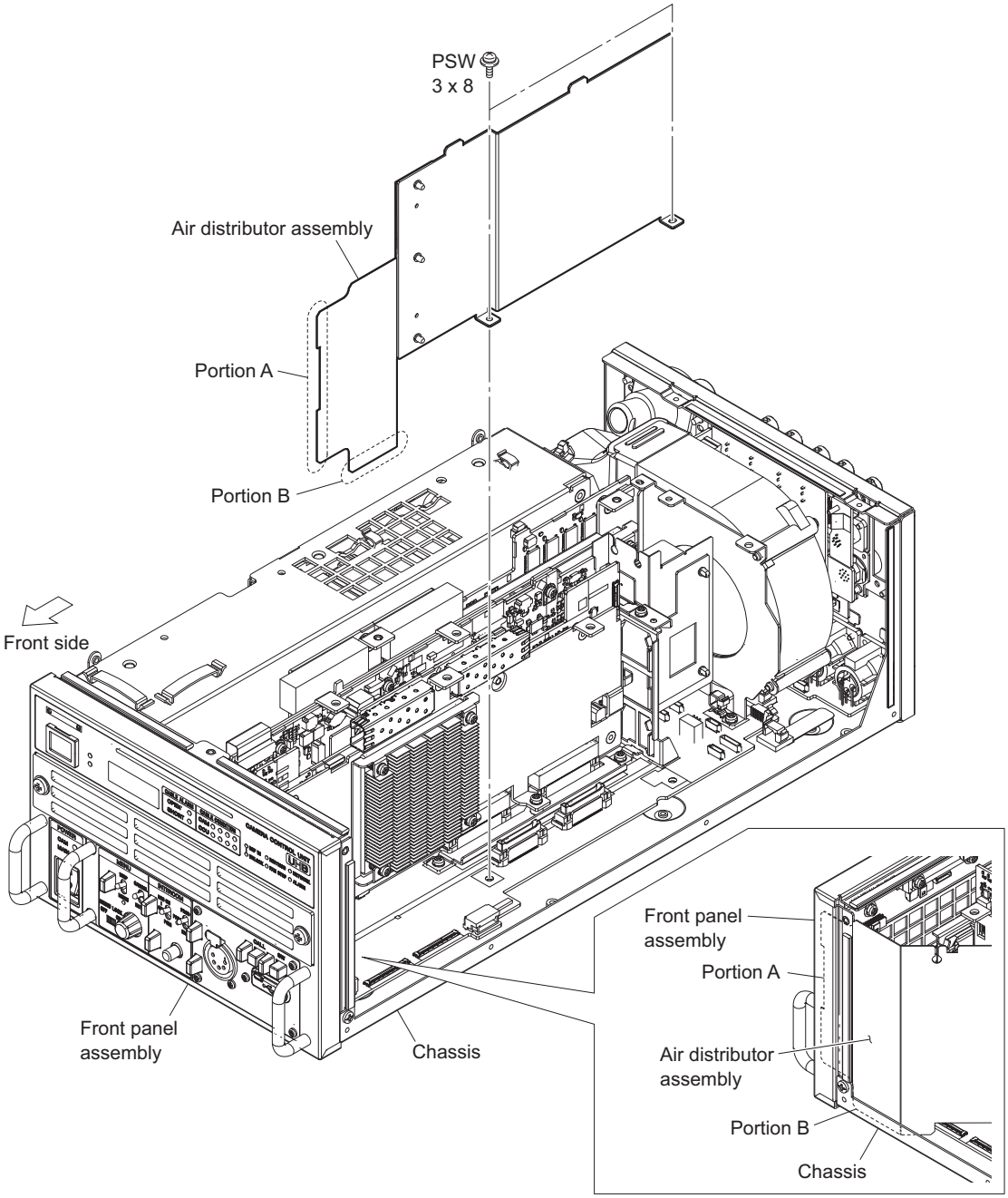
1. Remove the nine screws, and then remove the top chassis.



Note

When attaching the upper chassis, insert two portions A of the straightening plate assembly into the two holes of the upper chassis.

2. Remove the two screws, and then remove the air distributor assembly.



Note

When attaching the current plate assembly, insert portion A into the inside of the front panel assembly and insert portion B into the inside of the chassis.

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

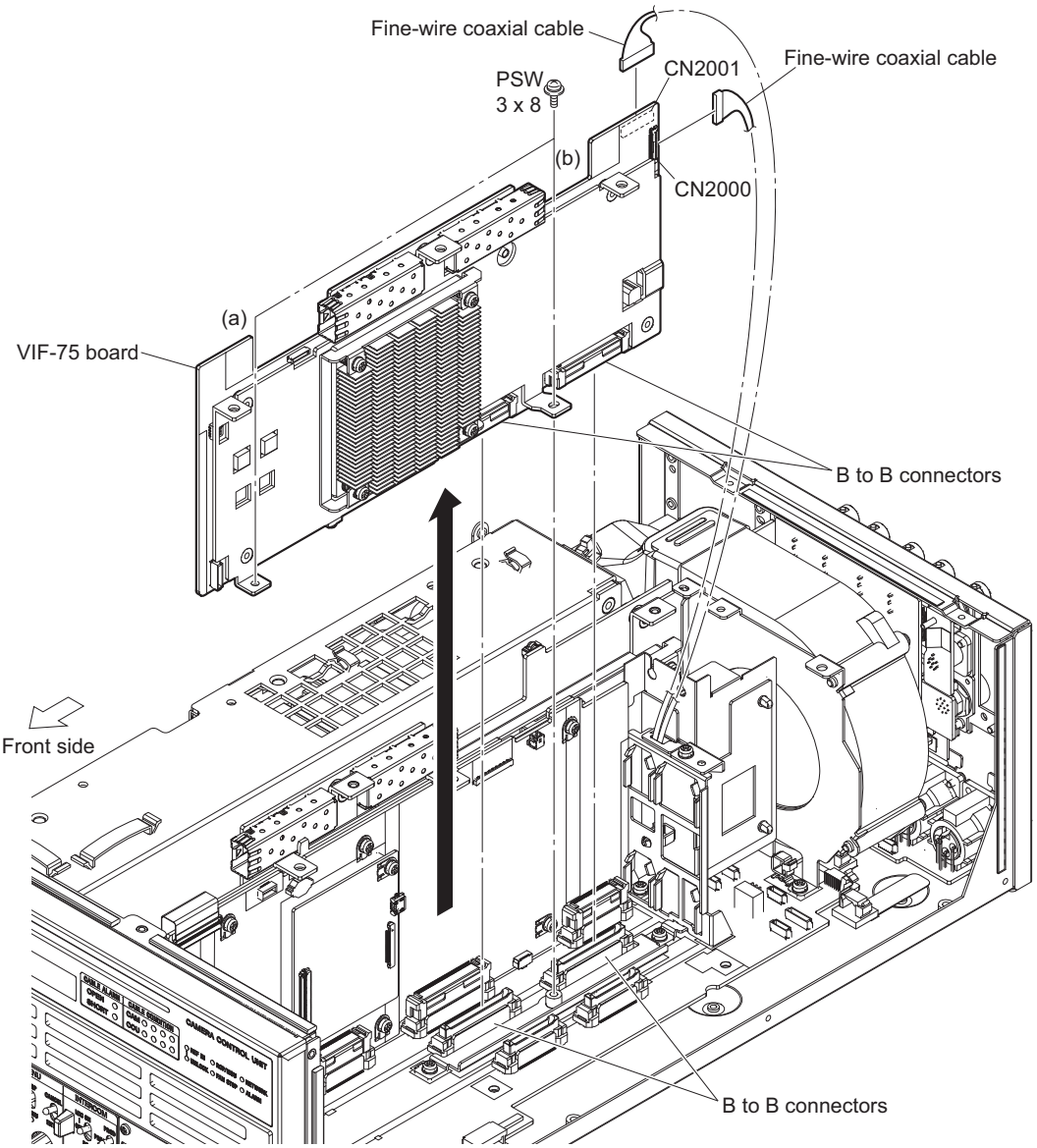
2-6. VIF-75 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly".)
3. Remove the top chassis and the air distributor assembly. (Refer to "2-5. Top Chassis/Air Distributor Assembly".)

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, and then remove the VIF-75 board in the direction of the arrow.

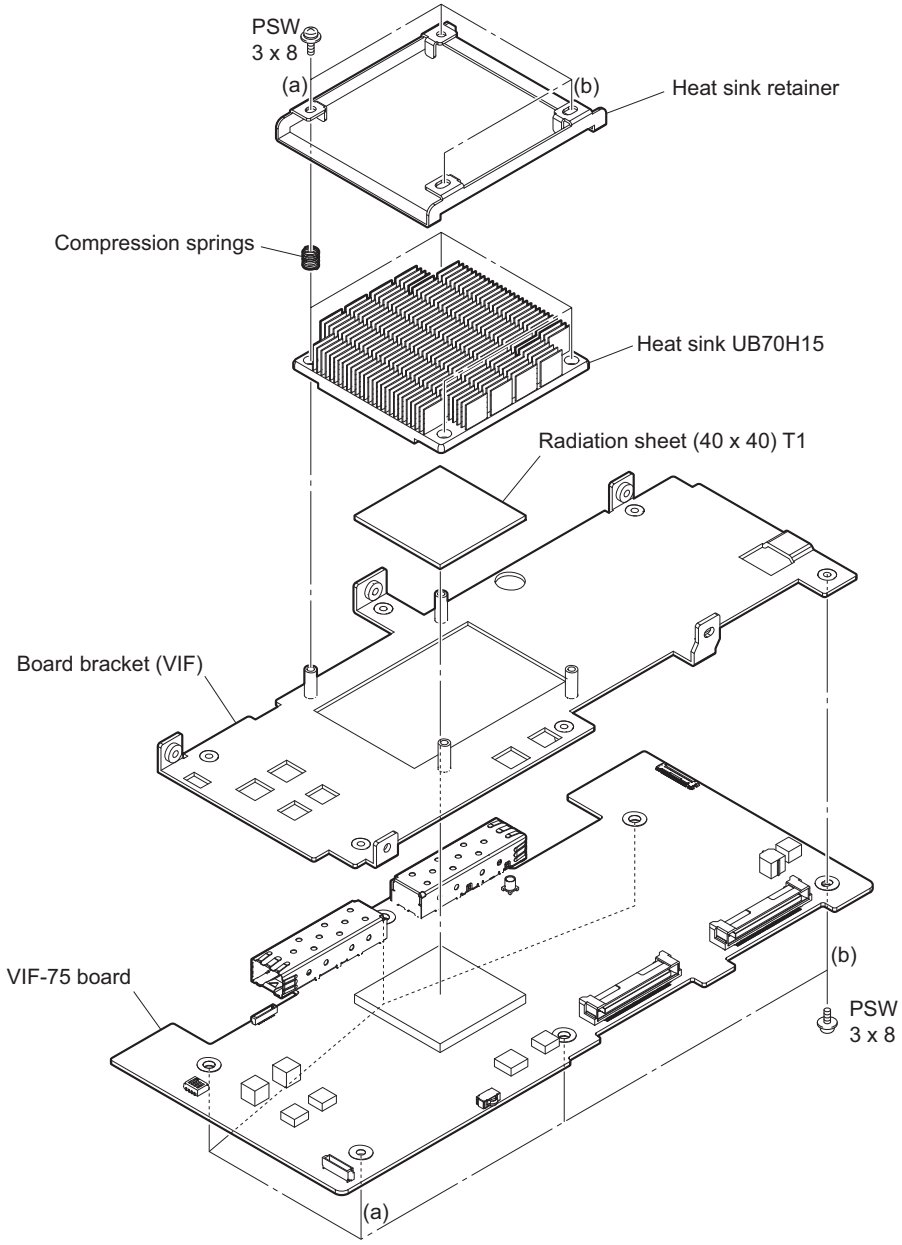


Note

When installing the VIF-75 board, tighten the screws in the following sequence: (a), (b).

3. Remove the four screws, then remove the heat sink retainer, four helical compression springs and heat sink UB70H15.
4. Remove the radiation sheet (40 x 40) T1.

5. Remove the six screws, then remove the VIF-75 board.



Note

- When attaching the heat sink retainer, tighten the screws in the following sequence: (a), (b) and others.
- When attaching the VIF-75 board, tighten the screws in the following sequence: (a), (b) and others.

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

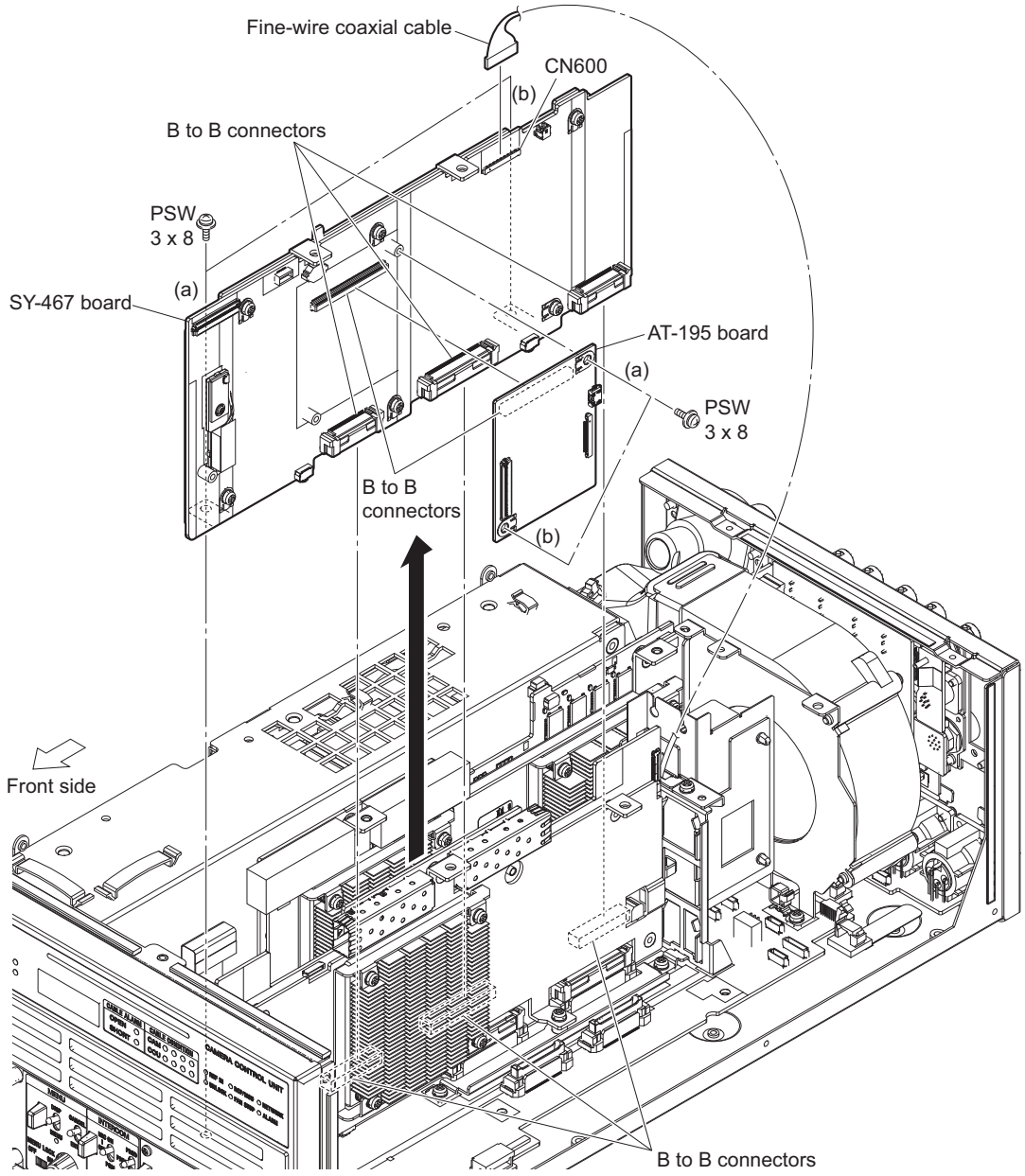
2-7. SY-467 Board/AT-195 Board

Preparation

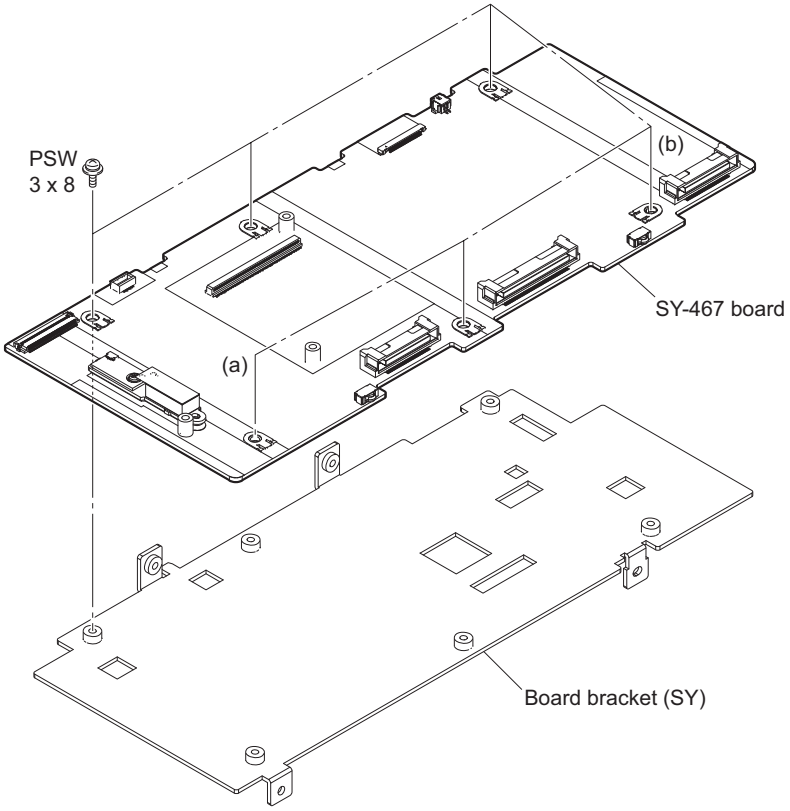
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the optical cable. (Refer to step 1 in “2-4-1. LEMO Connector Assembly”.)
3. Remove the top chassis. (Refer to step 1 in “2-5. Top Chassis/Air Distributor Assembly”.)

Procedure

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



4. Remove the six screws, then remove the SY-467 board.



Note

When attaching the SY-467 board, tighten the screws in the following sequence: (a), (b) and others.

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

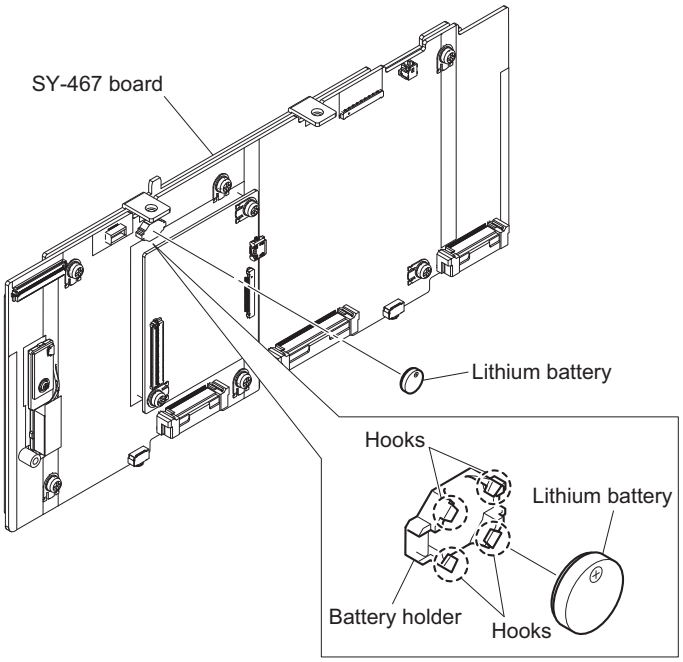
2-8. Lithium Battery

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the optical cable. (Refer to step 1 in “2-4-1. LEMO Connector Assembly”.
3. Remove the top chassis and the air distributor assembly. (Refer to “2-7. SY-467 Board/AT-195 Board”.)
4. Remove the SY-467 board. (Refer to steps 1 and 2 in “2-7. SY-467 Board/AT-195 Board”.)

Procedure

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



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.

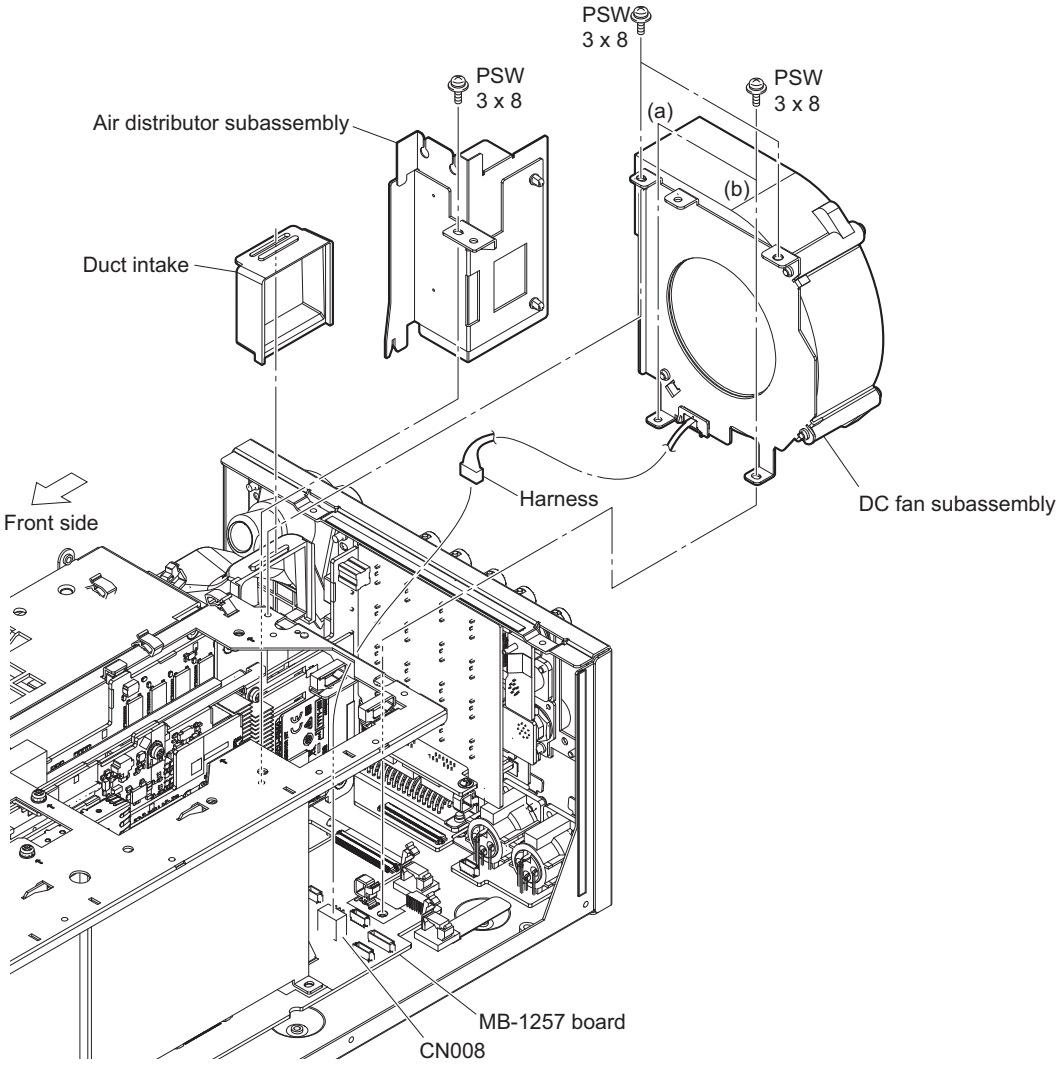
2-9. DC Fan

Preparation

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

Procedure

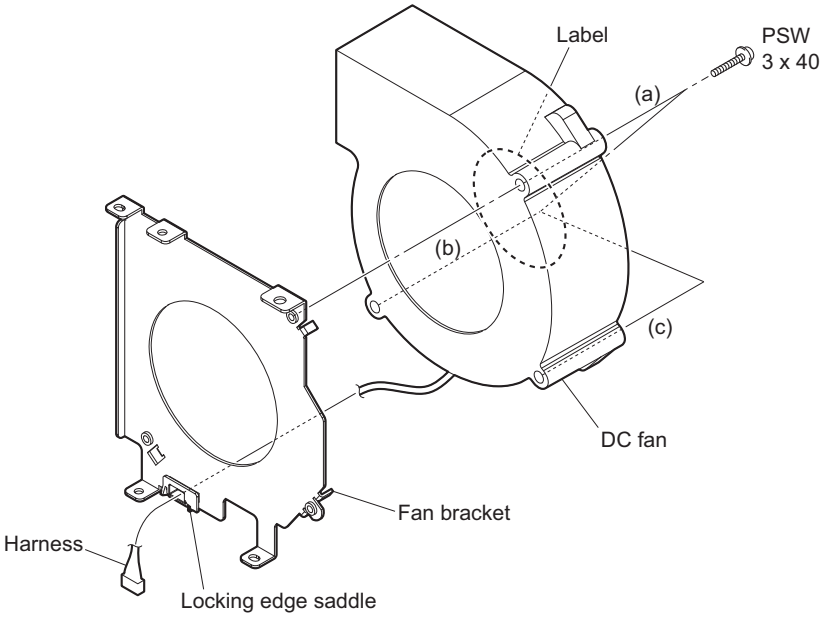
1. Remove the duct intake.
2. Remove the screw, and then remove the air distributor subassembly.
3. Disconnect the harness from the connector (CN008) on the MB-1257 board.
4. Remove the four screws, and then remove the DC fan subassembly.



Note

When attaching the DC fan subassembly, tighten the screws in the following sequence: (a), (b) and others.

5. Remove the DC fan.
   (1) Remove the harness from the locking edge saddle.
   (2) Remove the three screws, and then remove the DC fan.



Note

- When attaching the DC fan to the fan bracket, tighten the screws in the order of (a), (b), (c).
- When attaching the DC fan, pay attention to the position of label and harness.

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

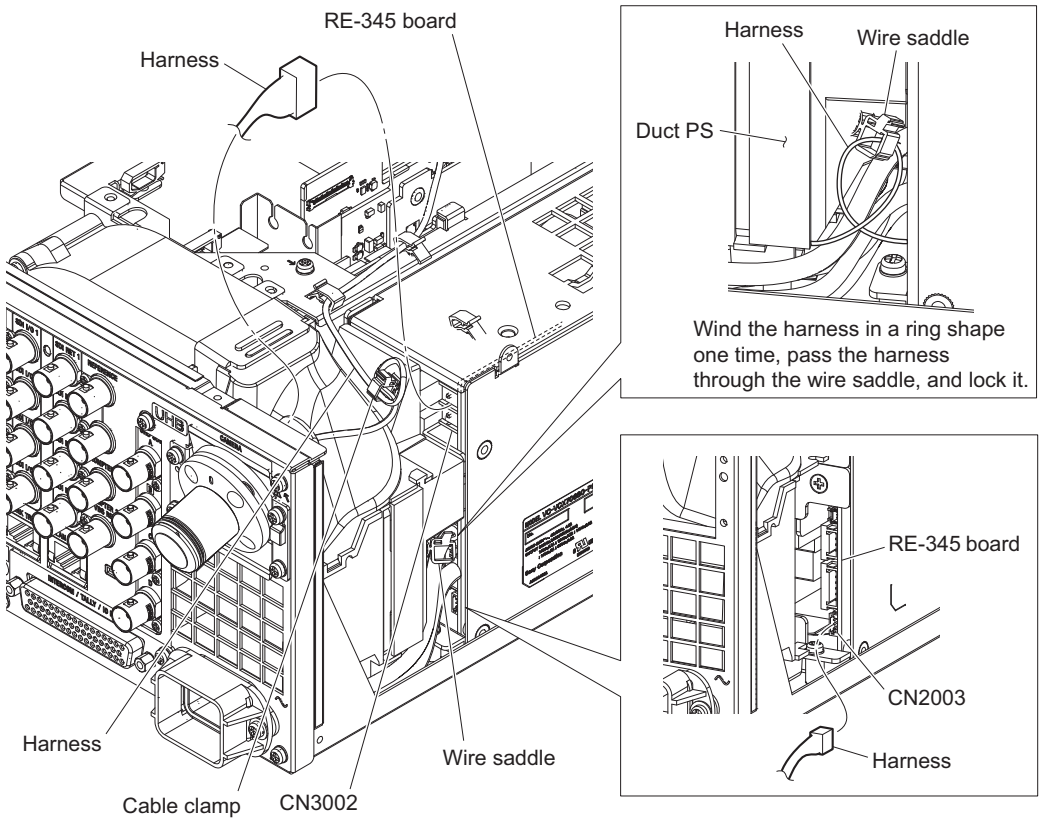
2-10. DC Fan (60 Square)

Preparation

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

Procedure

1. Open the cable clamp, and then remove the harness.
2. Disconnect the harness from the connector (CN2003) on the RE-345 board.
3. Open the wire saddle, and then remove the harness.



Note

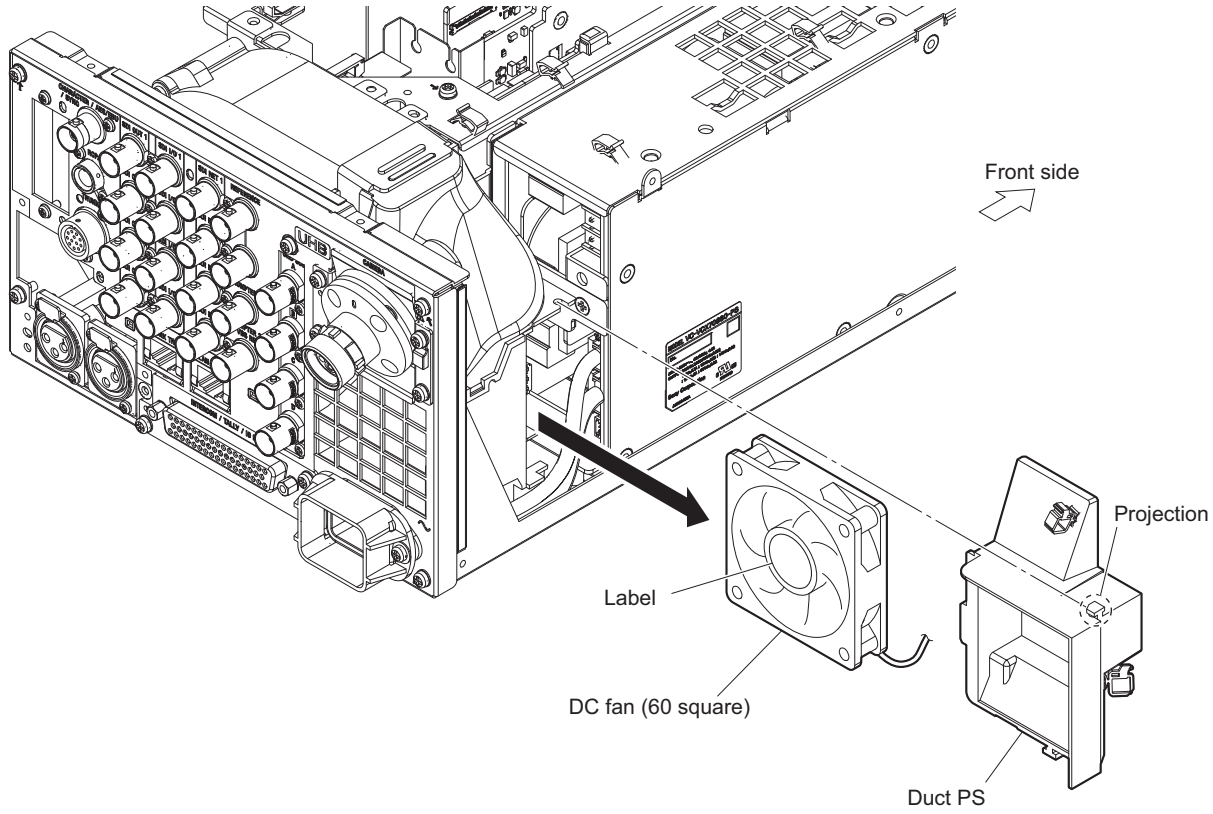
- When connecting the harness, wind the harness in a ring shape one time as shown in the figure, and then lock the wire saddle.
- Check that the harness of the DC fan (60 square) is not located outside of the duct PS.

4. Remove the DC fan (60 square).
   (1) Remove the duct PS in the direction of the arrow.

   Tip

   The duct PS is secured by the projection of the duct PS. Unhook the projection, then remove the duct PS.

   (2) Remove the DC fan (60 square) in the direction of the arrow.



   Note

   - When attaching the duct PS, be careful not to catch the harness.
   - When attaching the DC fan (60 square), pay attention to the position of label and harness.

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

2-11. TX-167B Board (HDCU5500/HKCU-FB50)/TX-167A Board (HDCU3500)

Tip

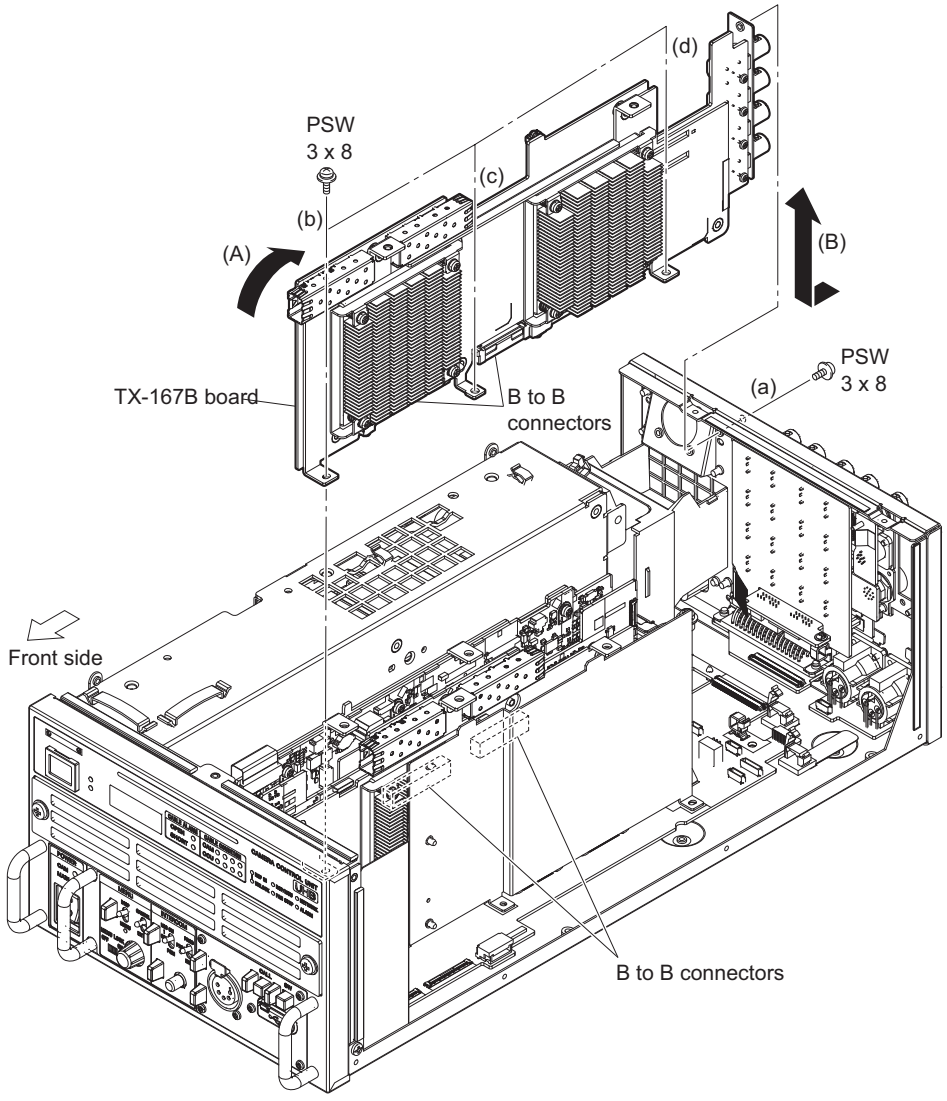
The TX-167A board is installed in HDCU3500. It can be removed in the same procedure as the TX-167B board.

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly".)
3. Remove the top chassis. (Refer to step 1 in "2-5. Top Chassis/Air Distributor Assembly".)
4. Remove the optical multi fiber cable. (Refer to "2-4. Optical Multi Fiber Cable".)
5. Remove the DC fan. (Refer to "2-9. DC Fan".)
6. Remove the duct top. (Refer to step 1 in "2-12-1. Power Assembly".)

Procedure

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

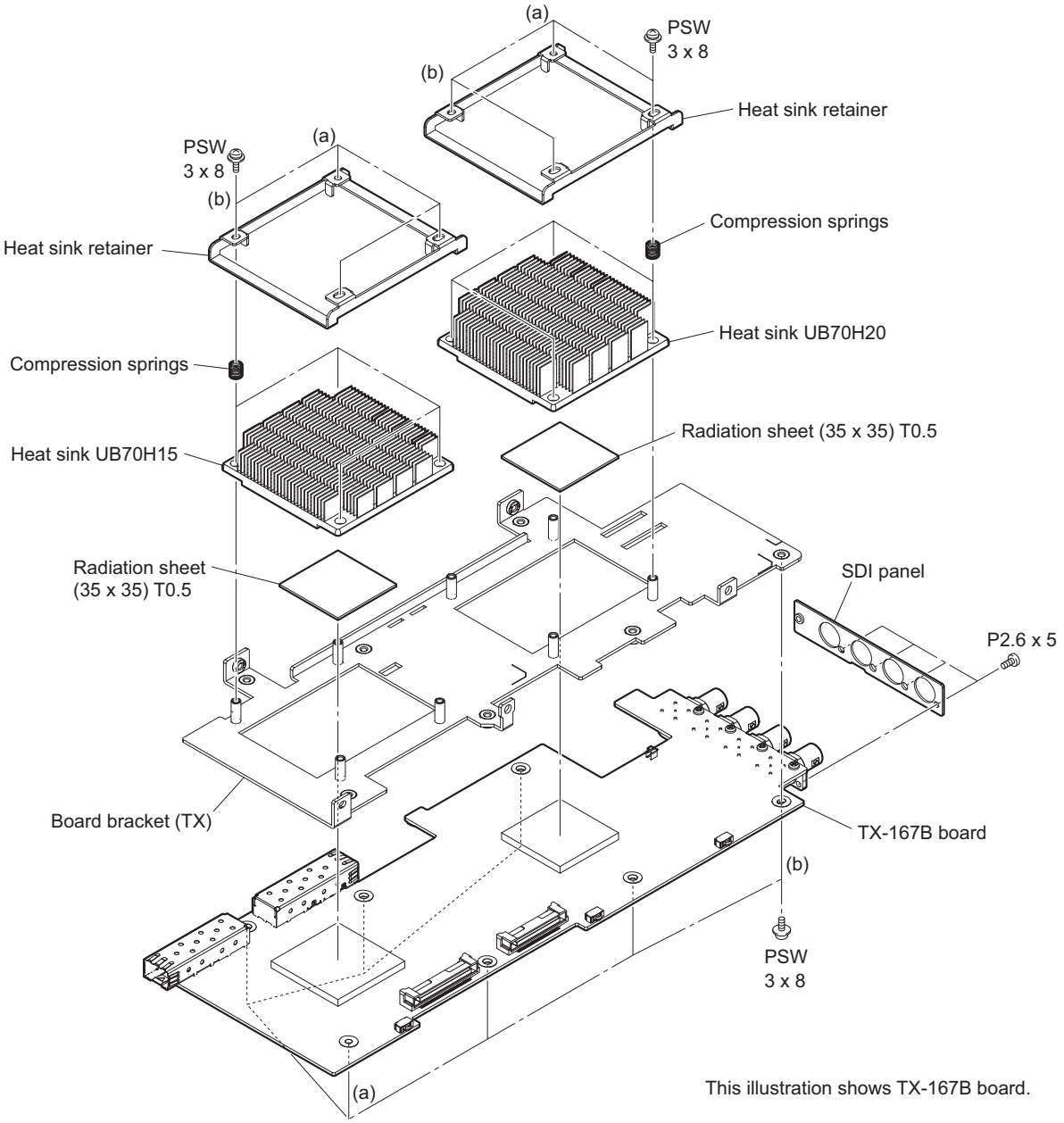


Note

When installing the TX-167B board, tighten the screws in the following sequence: (a), (b), (c), (d).

3. Remove the four screws (P2.6 x 5), then remove the SDI panel.
4. Remove the radiation sheet (35 x 35) T0.5.
   - TX-167B board:
     (1) Remove the four screws (PSW3 x 8), then remove the heat sink retainer, four helical compression springs and heat sink UB70H15.
     (2) Remove the four screws (PSW3 x 8), then remove the heat sink retainer and heat sink UB70H20.
     (3) Remove the two radiation sheets (35 x 35) T0.5.
   - TX-167A board:
     (1) Remove the four screws (PSW3 x 8), then remove the heat sink retainer, four helical compression springs and heat sink UB70H15.
     (2) Remove the radiation sheet (35 x 35) T0.5.

5. Remove the seven screws (PSW3 x 8), then remove the TX-167B board or TX-167A board.



Note

- When attaching the heat sink retainer, tighten the screws in the following sequence: (a), (b) and others.
- When attaching the TX-167B board or TX-167A board, tighten the screws in the following sequence: (a), (b) and others.

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

2-12. Power Block

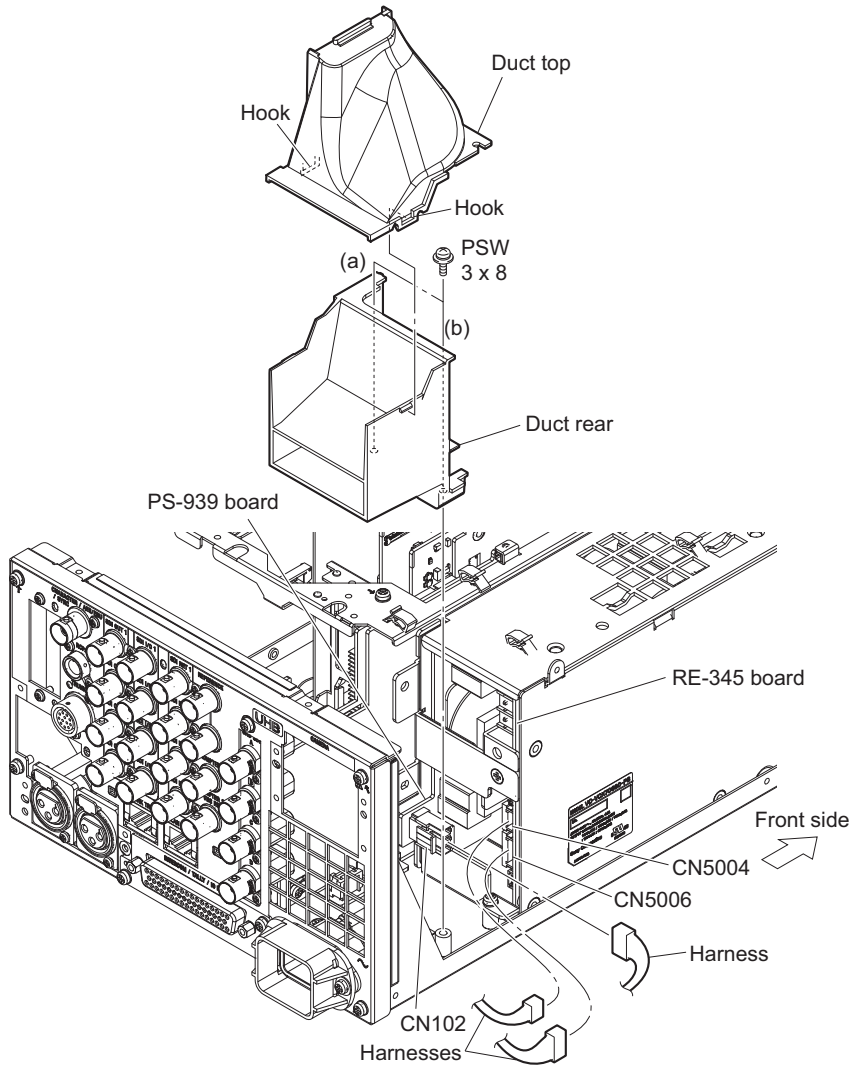
2-12-1. Power Assembly

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front panel assembly. (Refer to “2-3-1. Front Panel Assembly”.)
3. Remove the optical multi fiber cable. (Refer to “2-4. Optical Multi Fiber Cable”.)
4. Remove the DC fan (60 square). (Refer to “2-10. DC Fan (60 Square)”.)

Procedure

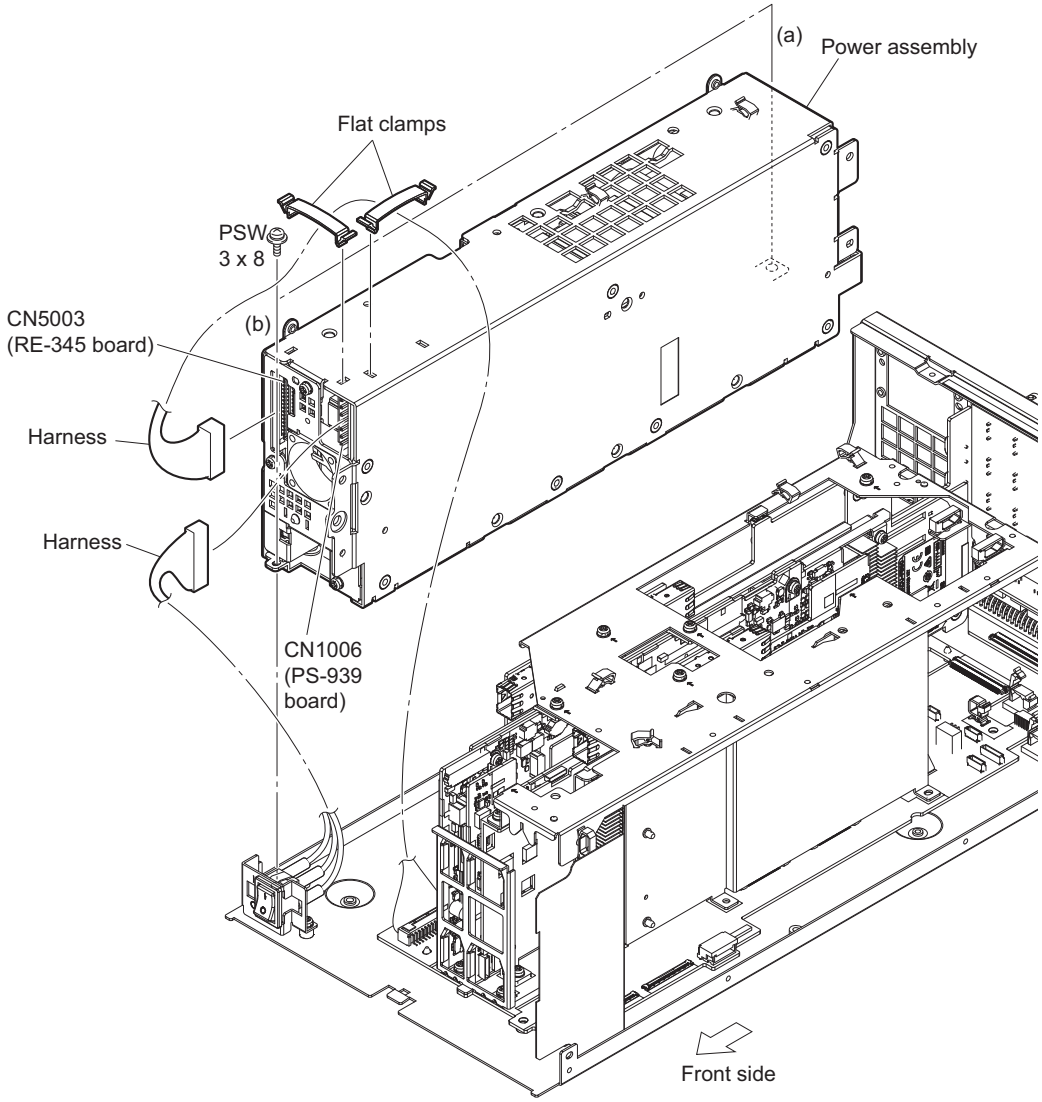
1. Remove the two hooks, and then remove the duct top.
2. Remove the two screws, and then remove the duct rear.
3. Disconnect the two harnesses from the connectors (CN5004 and CN5006) on the RE-345 board.
4. Disconnect the harness from the connector (CN102) on the PS-939 board.



Note

When attaching the duct rear, tighten the screws in the order of (a) and (b) while pushing it against the rear panel.

5. Remove the power assembly.
   (1) Remove the two flat clamps.
   (2) Disconnect the harness from the connector (CN5003) on the RE-345 board.
   (3) Disconnect the harness from the connector (CN1006) on the PS-939 board.
   (4) Remove the two screws, and then remove the power assembly.



Note

When attaching the power assembly, tighten the screws in the following sequence: (a), (b).

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

2-12-2. RE-345 Board

Preparation

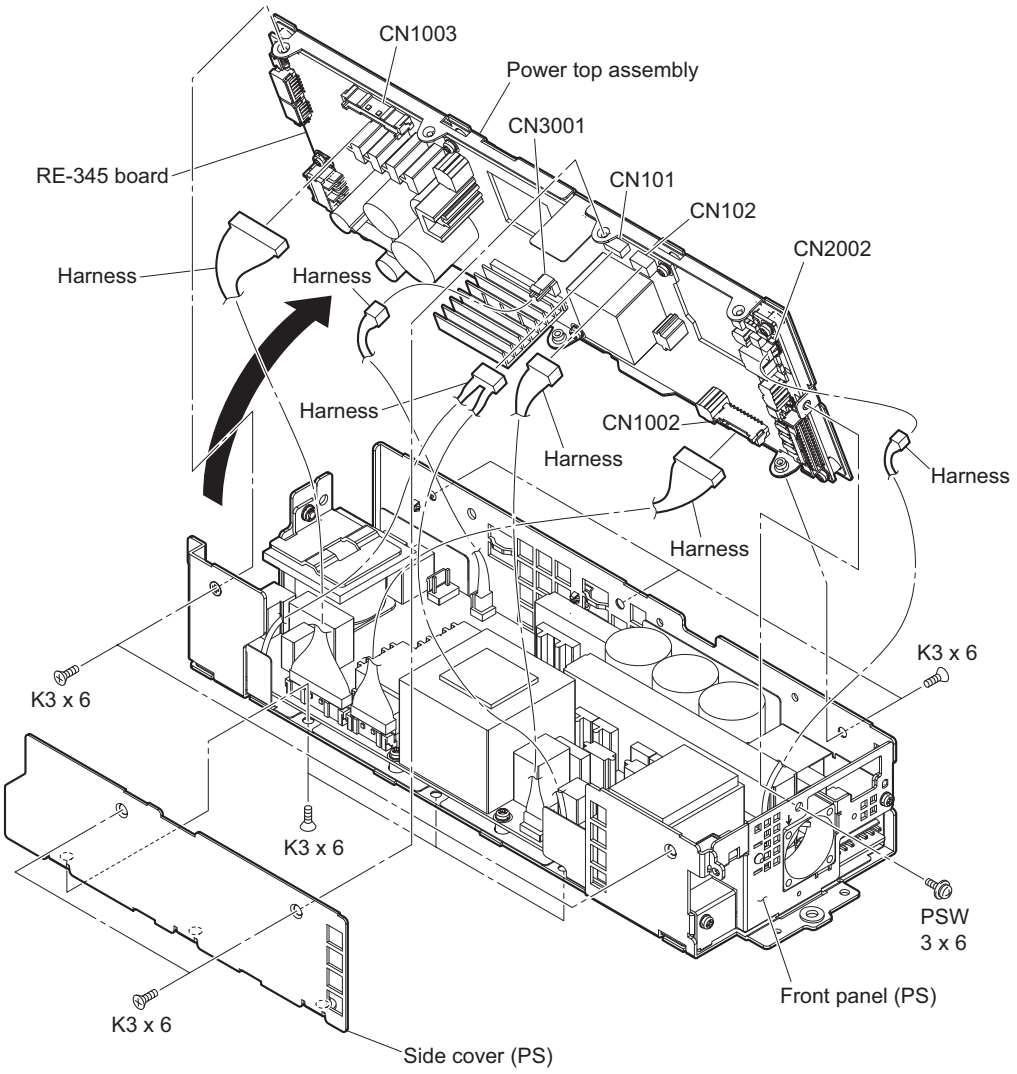
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the front panel assembly. (Refer to “2-3-1. Front Panel Assembly”.)
3. Remove the optical multi fiber cable. (Refer to “2-4. Optical Multi Fiber Cable”.)
4. Remove the DC fan. (Refer to “2-9. DC Fan”.)
5. Remove the DC fan (60 square). (Refer to “2-10. DC Fan (60 Square)”.)
6. Remove the power assembly. (Refer to “2-12-1. Power Assembly”.)

Procedure

1. Remove the power top assembly.
   (1) Remove the five screws (K3 x 6), then remove the side cover (PS).
   (2) Disconnect the three harnesses from the connectors (CN101, CN102 and CN1003) on the RE-345 board.
   (3) Remove the five screws (K3 x 6) and the screw (PSW3 x 6), then remove the power top assembly in the direction of the arrow.
   (4) Disconnect the three harnesses from the connectors (CN1002, CN2002 and CN3001) on the RE-345 board.

Note

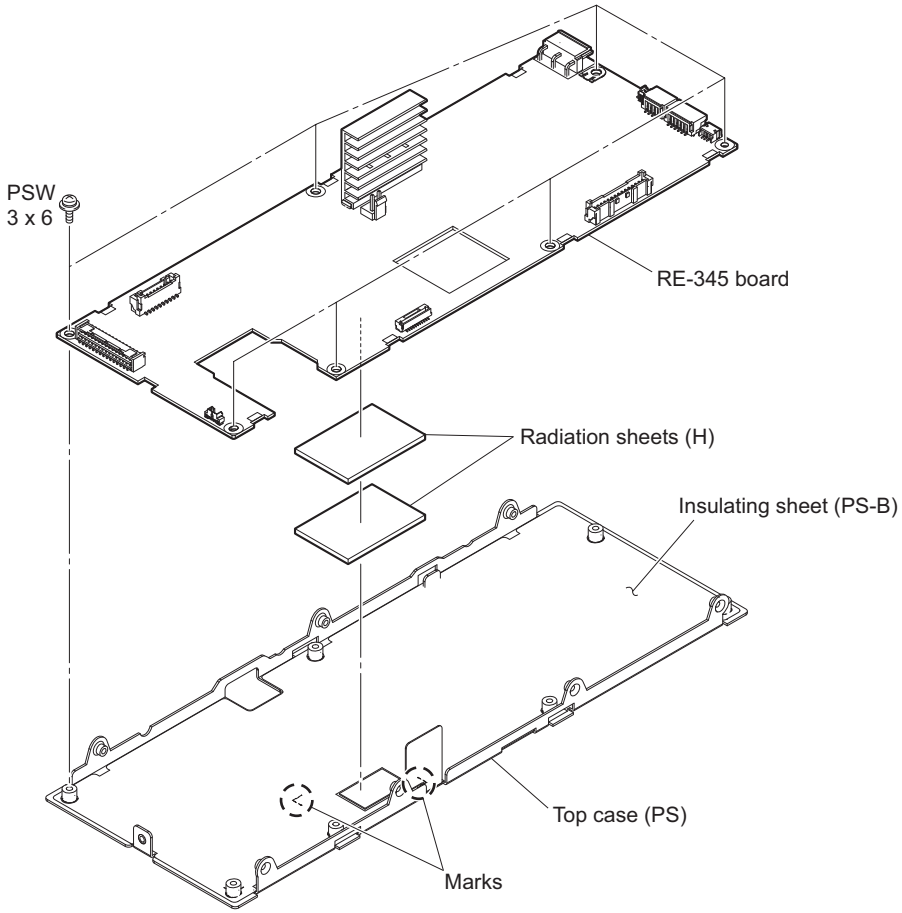
When removing the power top assembly, be careful not to damage the harness connected to the RE-345 board.



Note

When assembling, attach it with the harness connected to the connector (CN2002) on the RE-345 board brought near the front panel (PS) side.

2. Remove the seven screws, and then remove the RE-345 board.



Note

When replacing the radiation sheets (H), attach them on the insulating sheet (PS-B) according to the marks in the top case (PS).

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

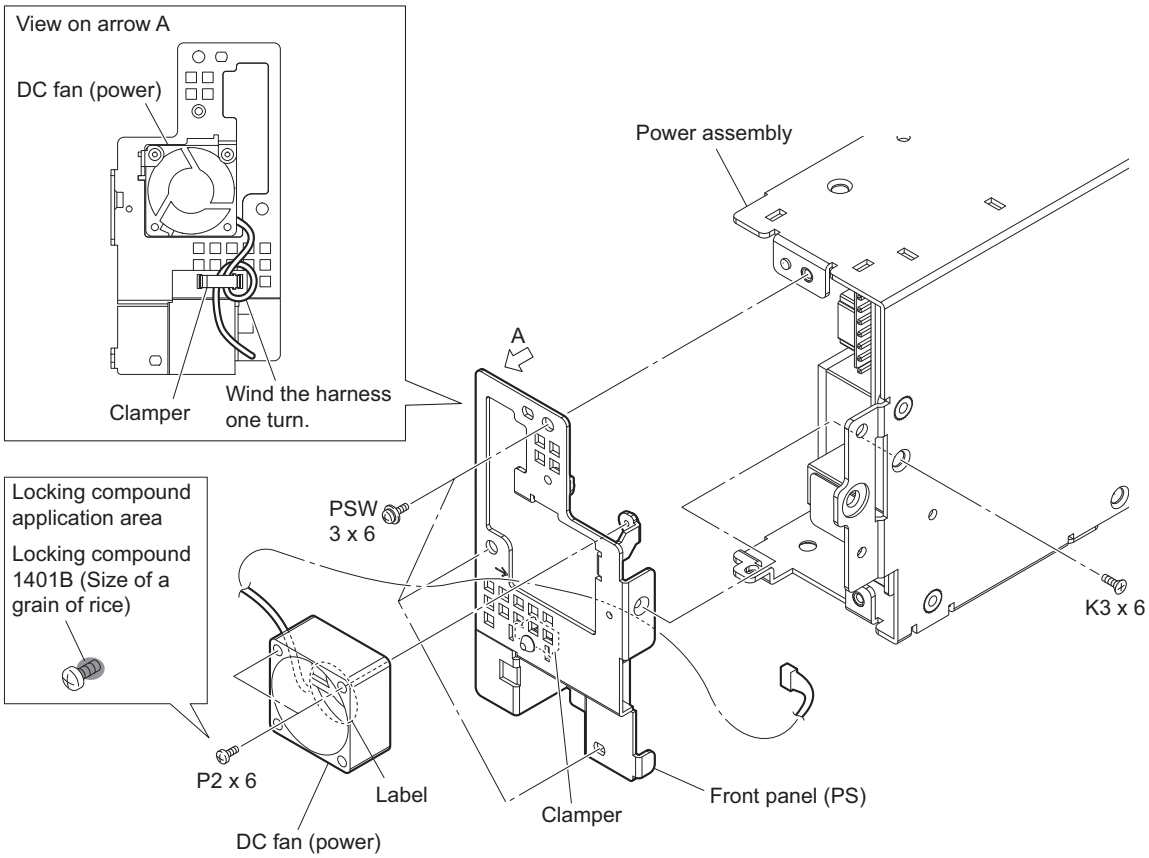
2-12-3. DC Fan (Power)

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the front panel assembly. (Refer to "2-3-1. Front Panel Assembly".)
3. Remove the optical multi fiber cable. (Refer to "2-4. Optical Multi Fiber Cable".)
4. Remove the DC fan. (Refer to "2-9. DC Fan".)
5. Remove the DC fan (60 square). (Refer to "2-10. DC Fan (60 Square)".)
6. Remove the power assembly. (Refer to "2-12-1. Power Assembly".)
7. Remove the power top assembly. (Refer to "2-12-2. RE-345 Board".)

Procedure

1. Remove the three screws (PSW3 x 6) and screw (K3 x 6), and then remove the front panel (PS).
2. Remove the two screws (P2 x 6), and then remove the DC fan (power).



Note

- When attaching the DC fan (power), pay attention to the position of label and harness.
- When attaching the DC fan (power), apply locking compound as shown in the figure.

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

2-12-4. PS-939 Board

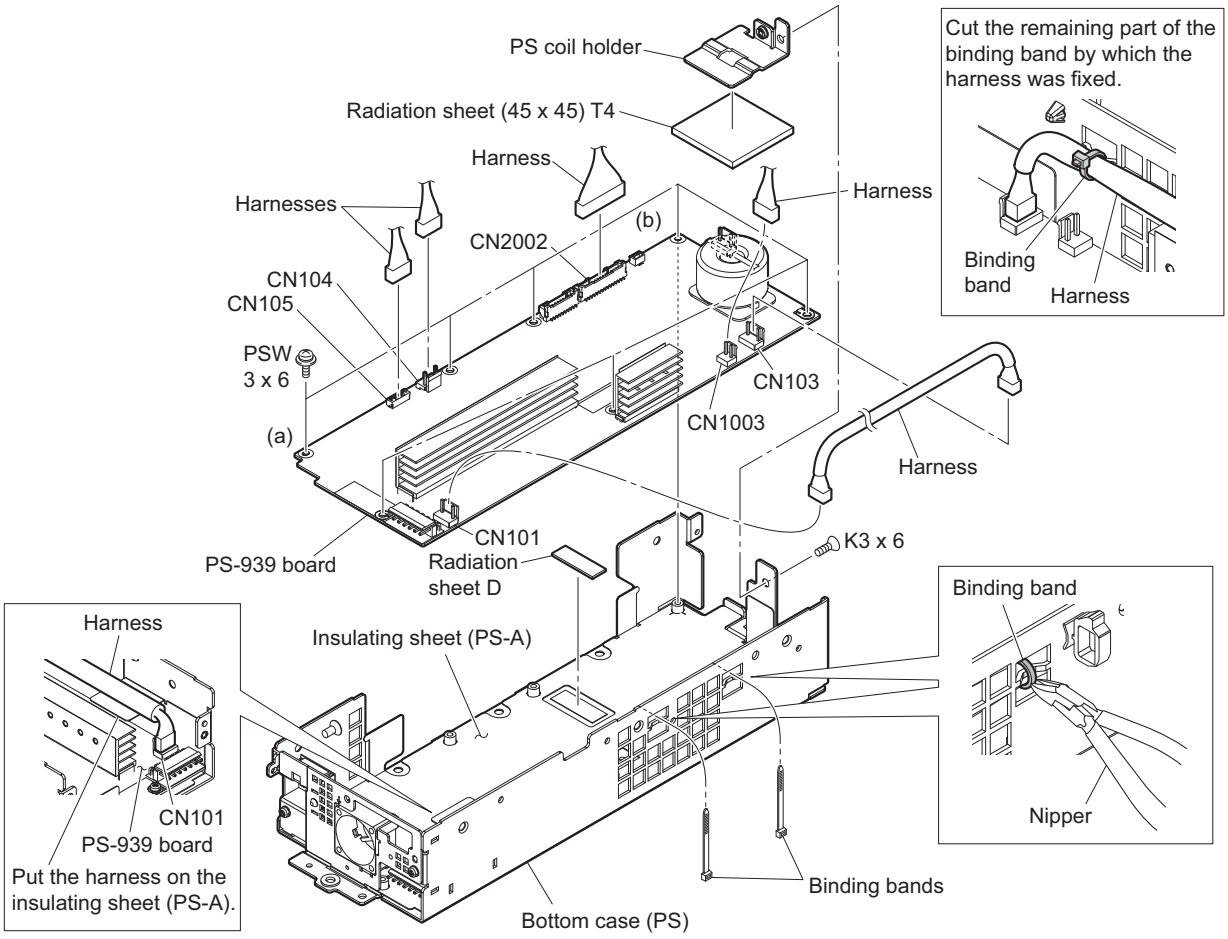
Required tool: Nipper

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the front panel assembly. (Refer to "2-3-1. Front Panel Assembly".)
3. Remove the optical multi fiber cable. (Refer to "2-4. Optical Multi Fiber Cable".)
4. Remove the DC fan. (Refer to "2-9. DC Fan".)
5. Remove the DC fan (60 square). (Refer to "2-10. DC Fan (60 Square)".)
6. Remove the power assembly. (Refer to "2-12-1. Power Assembly".)
7. Remove the power top assembly. (Refer to step 1 in "2-12-2. RE-345 Board".)

Procedure

1. Disconnect the four harnesses from the connectors (CN104, CN105, CN1003 and CN2002) on the PS-939 board.
2. Cut the two binding bands using the nipper.
3. Disconnect the harness from the connectors (CN101 and CN103) on the PS-939 board.
4. Remove the screw (K3 x 6), and then remove the PS coil holder.
5. Remove the radiation sheet (45 x 45) T4.
6. Remove the seven screws (PSW3 x 6), and then remove the PS-939 board.
7. Remove the radiation sheet D.



Note

When installing the PS-939 board, tighten the screws in the following sequence: (a), (b) and others.

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

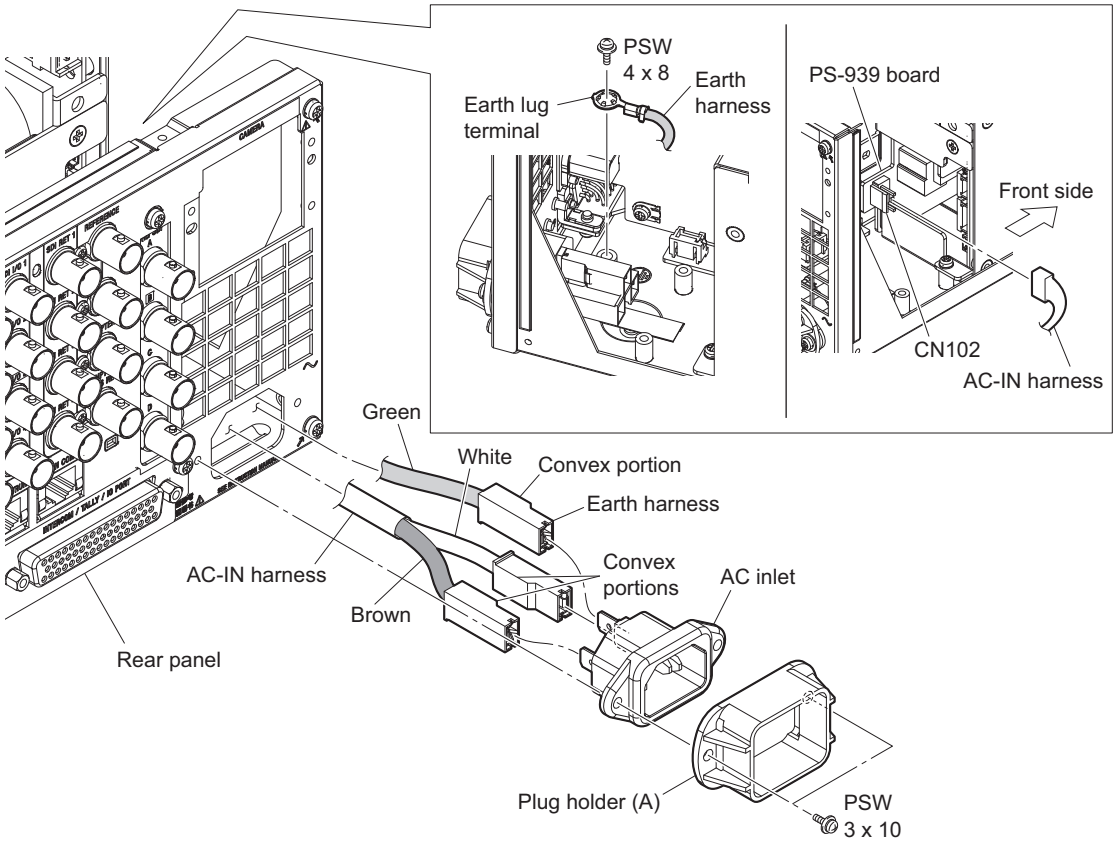
2-13. AC Inlet

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical multi fiber cable. (Refer to "2-4. Optical Multi Fiber Cable".)
3. Remove the DC fan (60 square). (Refer to "2-10. DC Fan (60 Square)".)
4. Remove the duct top and duct rear. (Refer to steps 1 and 2 in "2-12-1. Power Assembly".)

Procedure

1. Disconnect the AC-IN harness from the connector (CN102) on the PS-939 board.
2. Remove the screw (PSW4 x 8), and then remove the earth lug terminal.
3. Remove the two screws (PSW3 x 10), and then remove the plug holder (A).
4. Pull out the AC inlet from the hole of the rear panel.
5. Disconnect the AC harness and earth harness from the AC inlet.



Note

When installing harnesses in the AC inlet, pay attention to the following.

- Insert the three harness terminals into the AC inlet terminal with the wire color and convex part's direction shown in the figure.
- Insert until the harness terminals are locked.

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

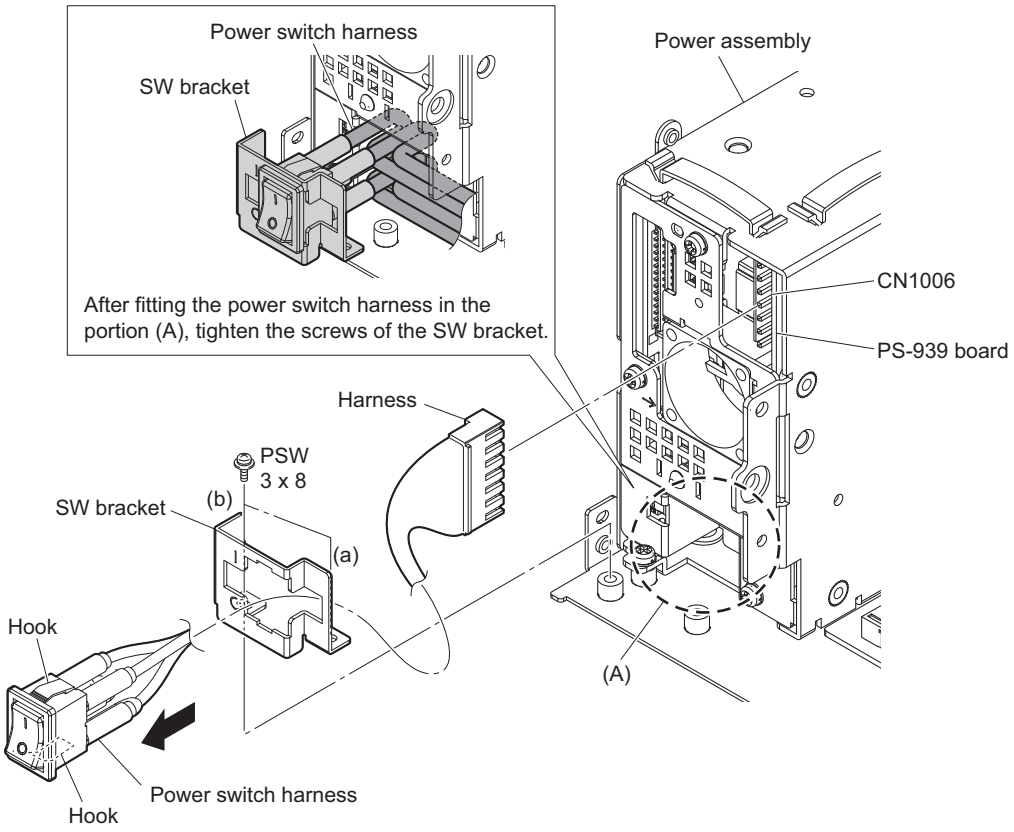
2-14. Power Switch Harness

Preparation

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

Procedure

1. Disconnect the harness from the connector (CN1006) on the PS-939 board.
2. Remove the two screws, and then remove the SW bracket.
3. Release the two hooks, and then pull the power switch harness from the hole of the SW bracket.



Note

- Carefully attach the switch part to the hole of the SW bracket in the correct top and bottom orientation of the switch part as shown in the figure.
- After fitting the excess portion of the power switch harness in the portion (A), tighten the screws of the SW bracket.
- When attaching the SW bracket, tighten the screws in the following sequence: (a), (b).

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

2-15. Rear Panel

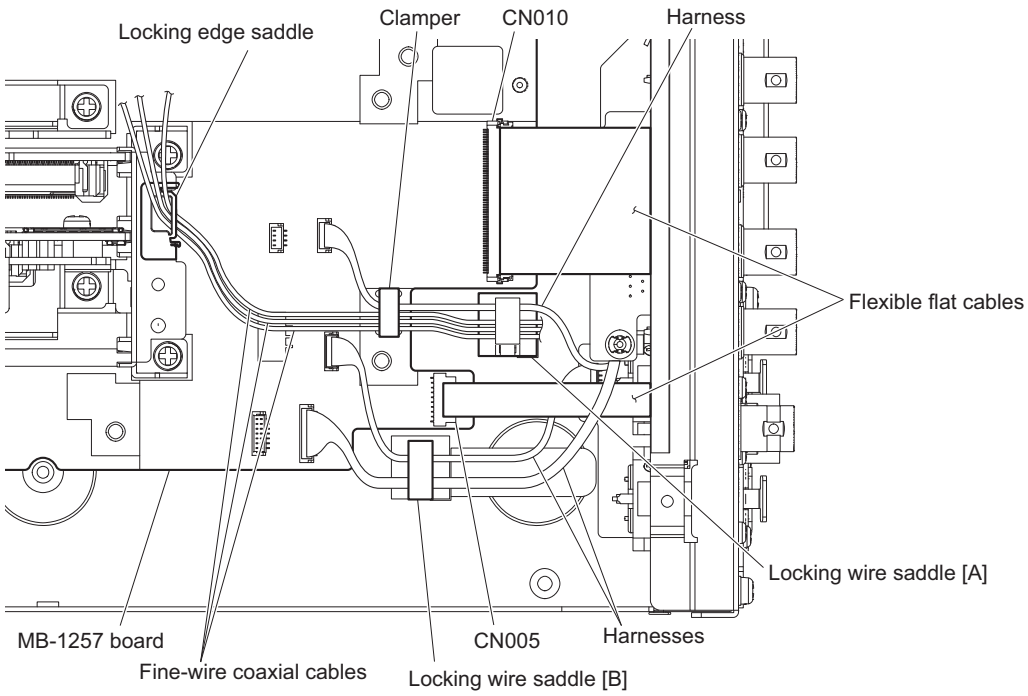
2-15-1. Rear Panel Assembly

Preparation

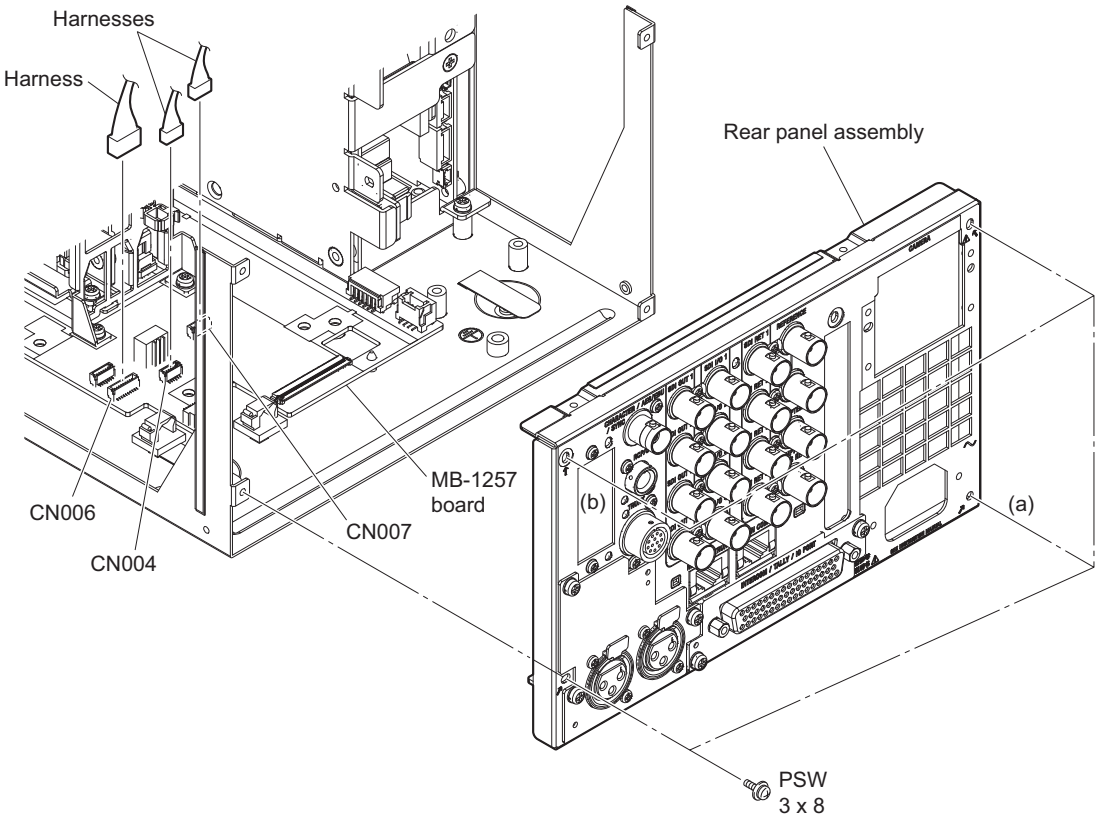
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DC fan. (Refer to “2-9. DC Fan”.)
3. Remove the AC inlet. (Refer to “2-13. AC Inlet”.)

Procedure

1. Disconnect the two fine-wire coaxial cables from the connectors (CN2000 and CN2001) on the VIF-75 board. (Refer to step 1 in “2-6. VIF-75 Board”.)
2. Disconnect the fine-wire coaxial cable from the connector (CN600) on the SY-467 board.(Refer to step 1 in “2-7. SY-467 Board/AT-195 Board”.)
3. Disconnect the flexible flat cable from the connector (CN010) on the MB-1257 board.
4. Disconnect the flexible flat cable from the connector (CN005) on the MB-1257 board.
5. Open the clamper and locking wire saddle [A], and then remove the harnesses and three fine-wire coaxial cables.
6. Remove the three fine-wire coaxial cables from the locking edge saddle.
7. Open the locking wire saddle [B], and then remove the two harnesses.



8. Remove the rear panel assembly.
   (1) Disconnect the three harnesses from the connectors (CN004, CN006 and CN007) on the MB-1257 board.
   (2) Remove the four screws, and then remove the rear panel assembly.



Note

When attaching the rear panel assembly, tighten the screws in the following sequence: (a), (b) and others.

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

2-15-2. HIF-76 Board

Tip

The following part cannot be reused. When replacing the fine-wire coaxial cable, use the new one.

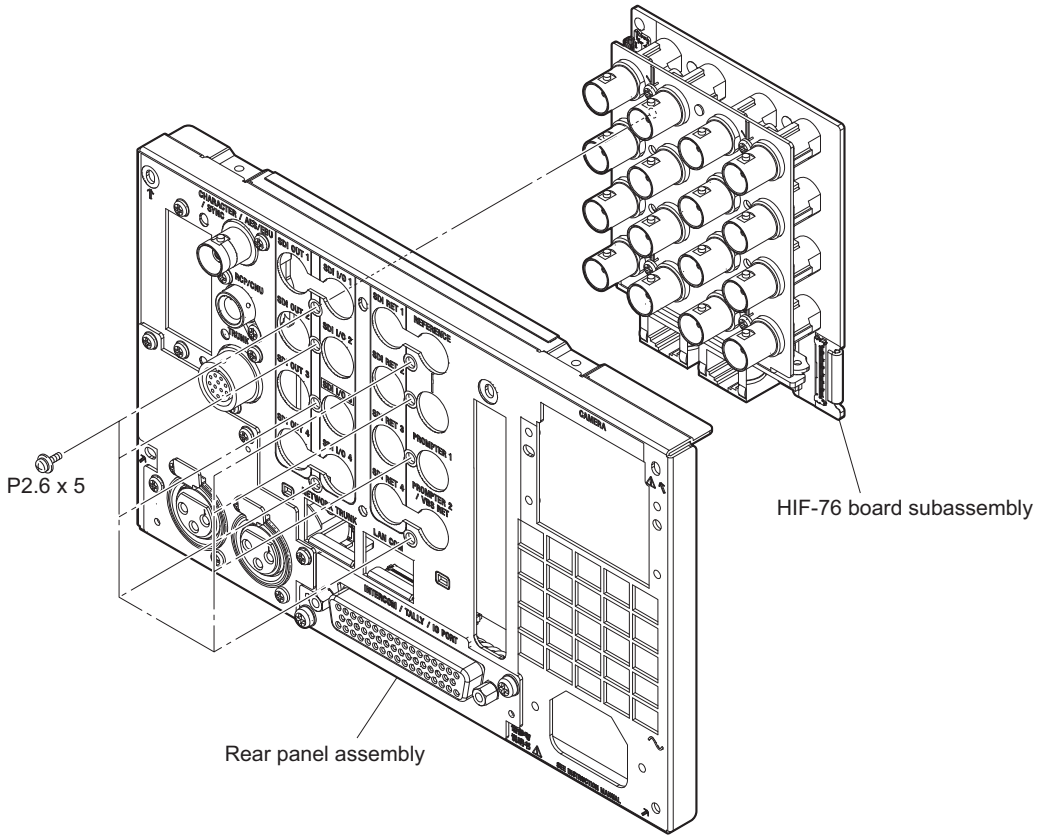
- Tape AS

Preparation

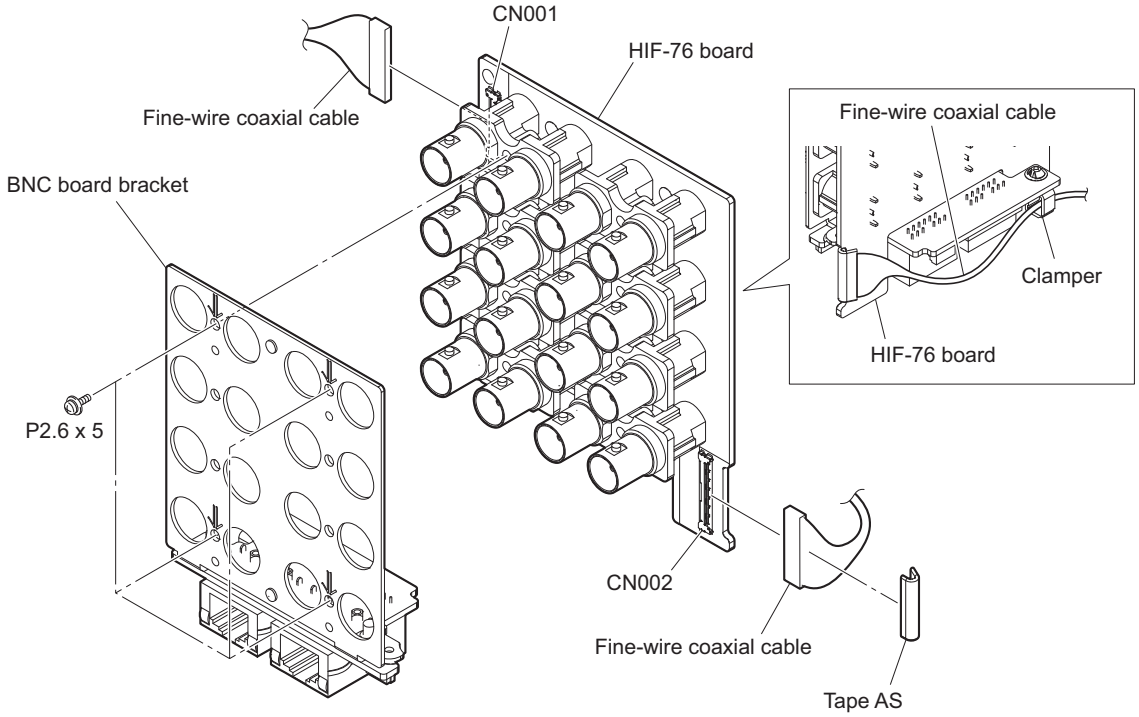
1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DC fan. (Refer to “2-9. DC Fan”.)
3. Remove the AC inlet. (Refer to “2-13. AC Inlet”.)
4. Remove the rear panel assembly. (Refer to “2-15-1. Rear Panel Assembly”.)

Procedure

1. Remove the eight screws, and then remove the HIF-76 board subassembly.



2. Remove the HIF-76 board.
   (1) Open the clamper, and then remove the fine-wire coaxial cable.
   (2) Disconnect the two fine-wire coaxial cables from the connectors (CN001 and CN002) on the HIF-76 board.
   (3) Remove the four screws, and then remove the HIF-76 board.



Tip

When replacing the fine-wire coaxial cable, attach the new tape AS to the same position.

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

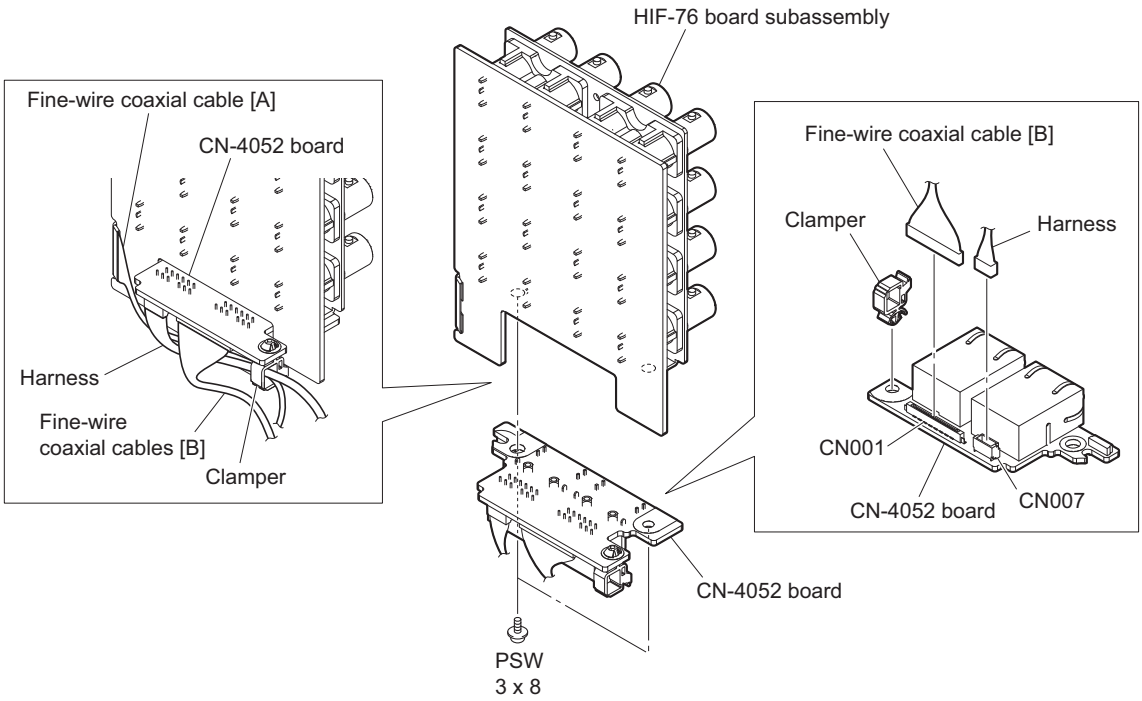
2-15-3. CN-4052 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DC fan. (Refer to “2-9. DC Fan”.)
3. Remove the AC inlet. (Refer to “2-13. AC Inlet”.)
4. Remove the rear panel assembly. (Refer to “2-15-1. Rear Panel Assembly”.)
5. Remove the HIF-76 board subassembly. (Refer to step 1 in “2-15-2. HIF-76 Board”.)

Procedure

1. Open the clamper, and then remove the fine-wire coaxial cable [A] and harness.
2. Remove the two screws, and then remove the CN-4052 board.
3. Disconnect the fine-wire coaxial cable [B] from the connector (CN001) on the CN-4052 board.
4. Disconnect the harness from the connector (CN007) on the CN-4052 board.
5. Remove the clamper.



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

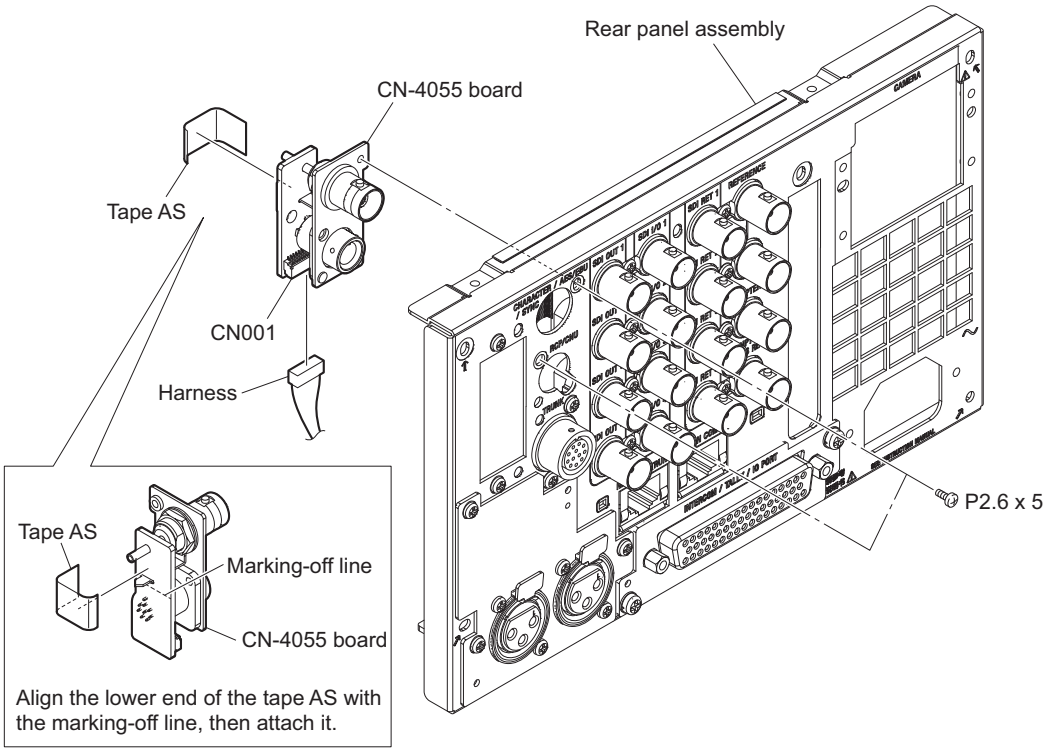
2-15-4. CN-4055 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DC fan. (Refer to “2-9. DC Fan”.)
3. Remove the AC inlet. (Refer to “2-13. AC Inlet”.)
4. Remove the rear panel assembly. (Refer to “2-15-1. Rear Panel Assembly”.)

Procedure

1. Remove the two screws, and then remove the CN-4055 board.
2. Disconnect the harness from the connector (CN001) on the CN-4055 board.
3. Remove the tape AS.



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

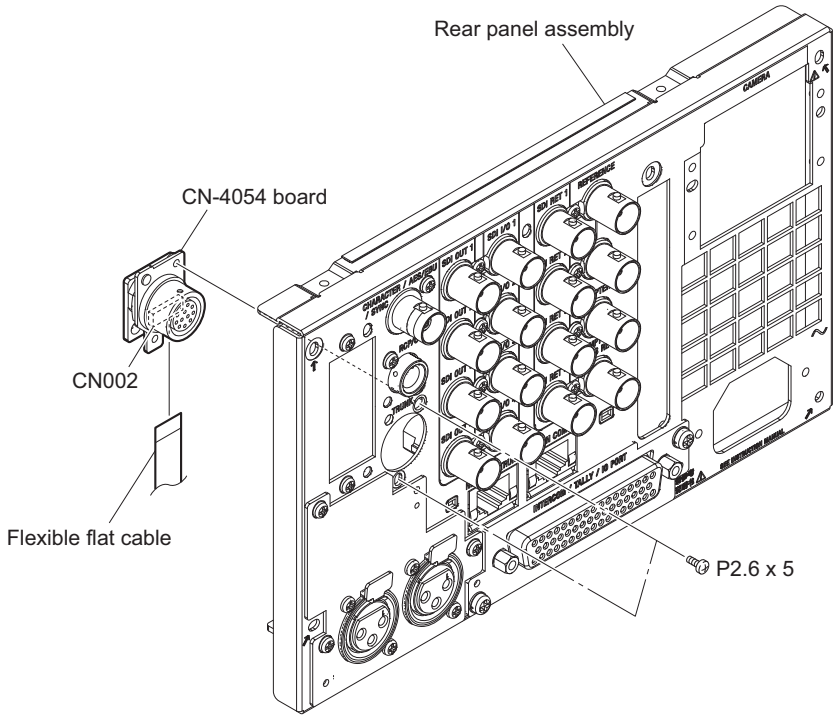
2-15-5. CN-4054 Board

Preparation

1. Remove the top cover. (Refer to “2-2. Top Cover”.)
2. Remove the DC fan. (Refer to “2-9. DC Fan”.)
3. Remove the AC inlet. (Refer to “2-13. AC Inlet”.)
4. Remove the rear panel assembly. (Refer to “2-15-1. Rear Panel Assembly”.)

Procedure

1. Remove the two screws, and then remove the CN-4054 board.
2. Disconnect the flexible flat cable from the connector (CN002) on the CN-4054 board.

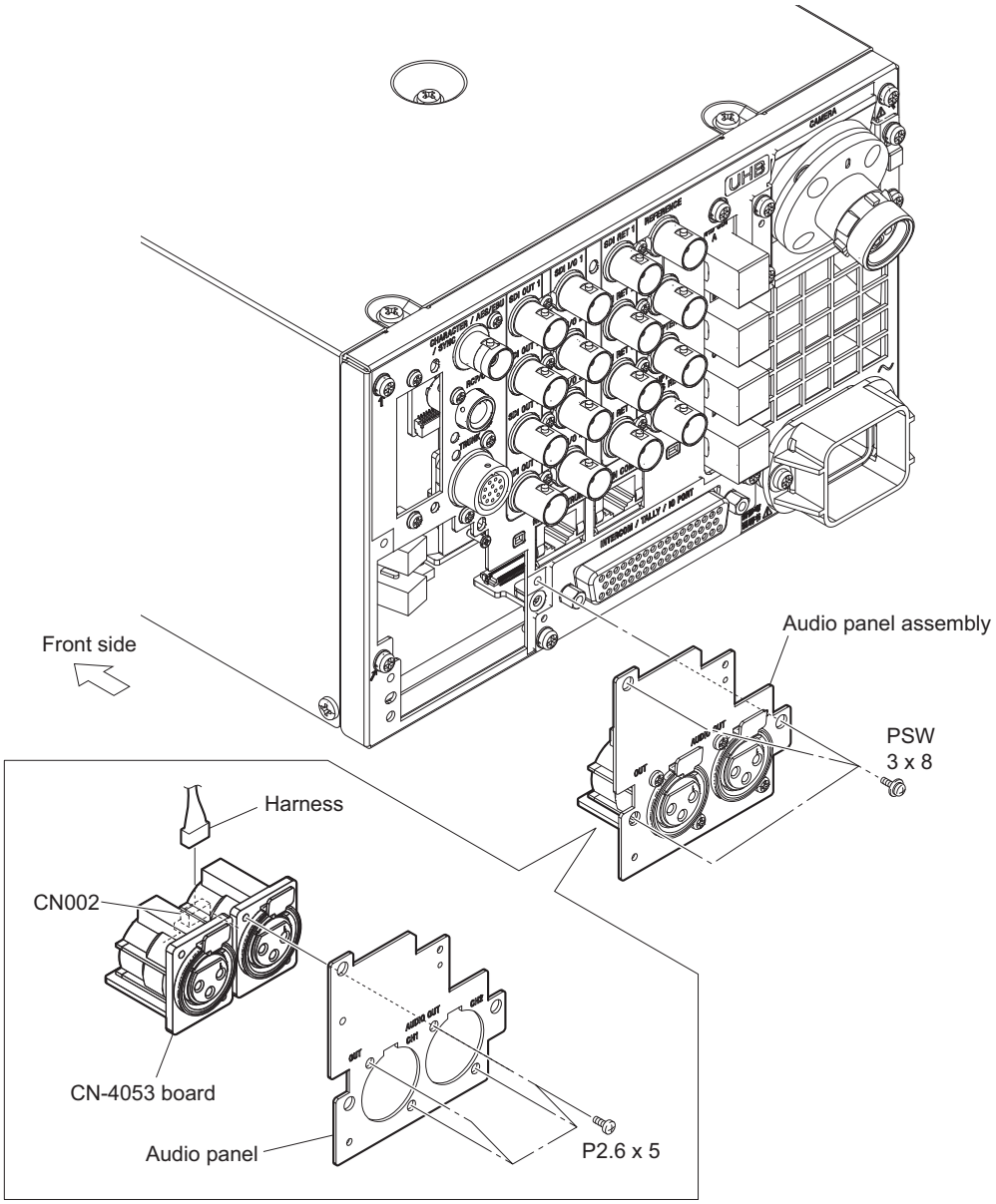


3. Install the removed parts by reversing the steps of removal.

2-15-6. CN-4053 Board

Procedure

1. Remove the three screws (PSW3 x 8), and then remove the audio panel assembly.
2. Remove the four screws (P2.6 x 5), and then remove the CN-4053 board.
3. Disconnect the harness from the connector (CN002) on the CN-4053 board.

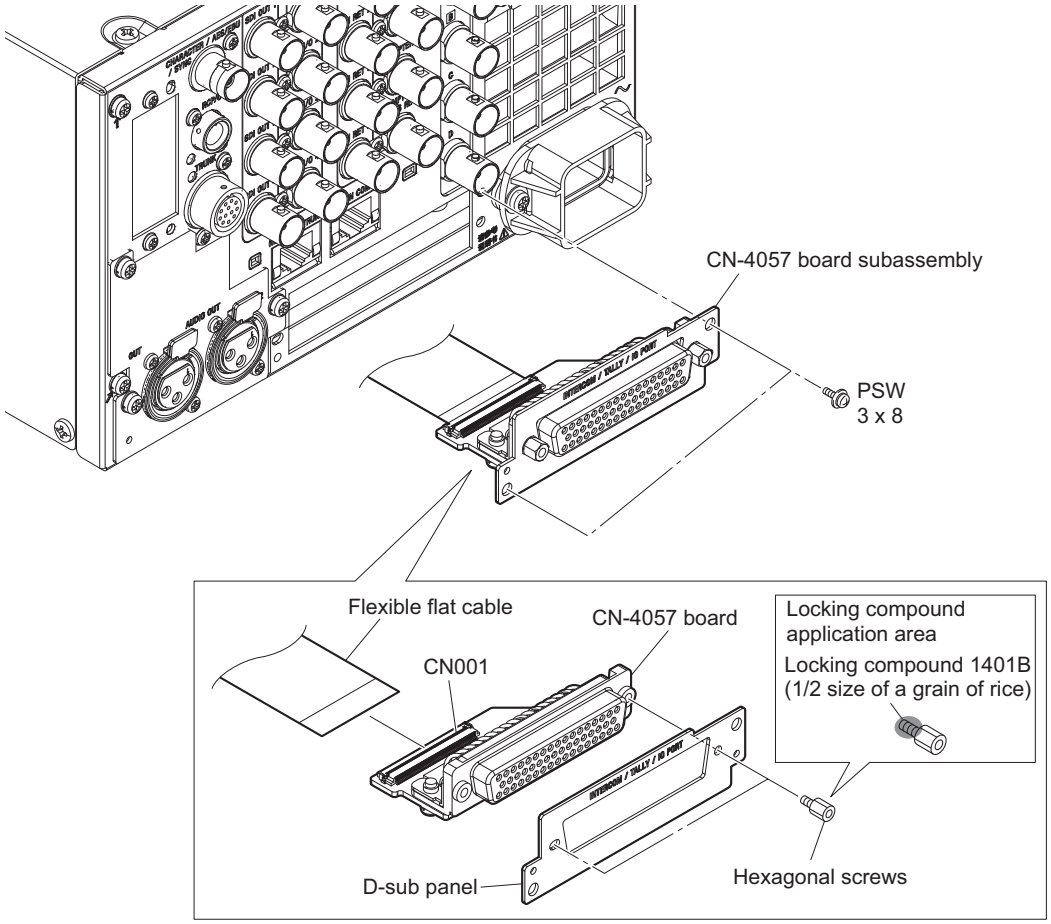


4. Install the removed parts by reversing the steps of removal.

2-15-7. CN-4057 Board

Procedure

1. Remove the two screws (PSW3 x 8), and then remove the CN-4057 board subassembly.
2. Disconnect the flexible flat cable from the connector (CN001) on the CN-4057 board.
3. Remove the two hexagon screws, and then remove the CN-4057 board.



Note

When attaching the hexagon screws, apply locking compound as shown in the figure.

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

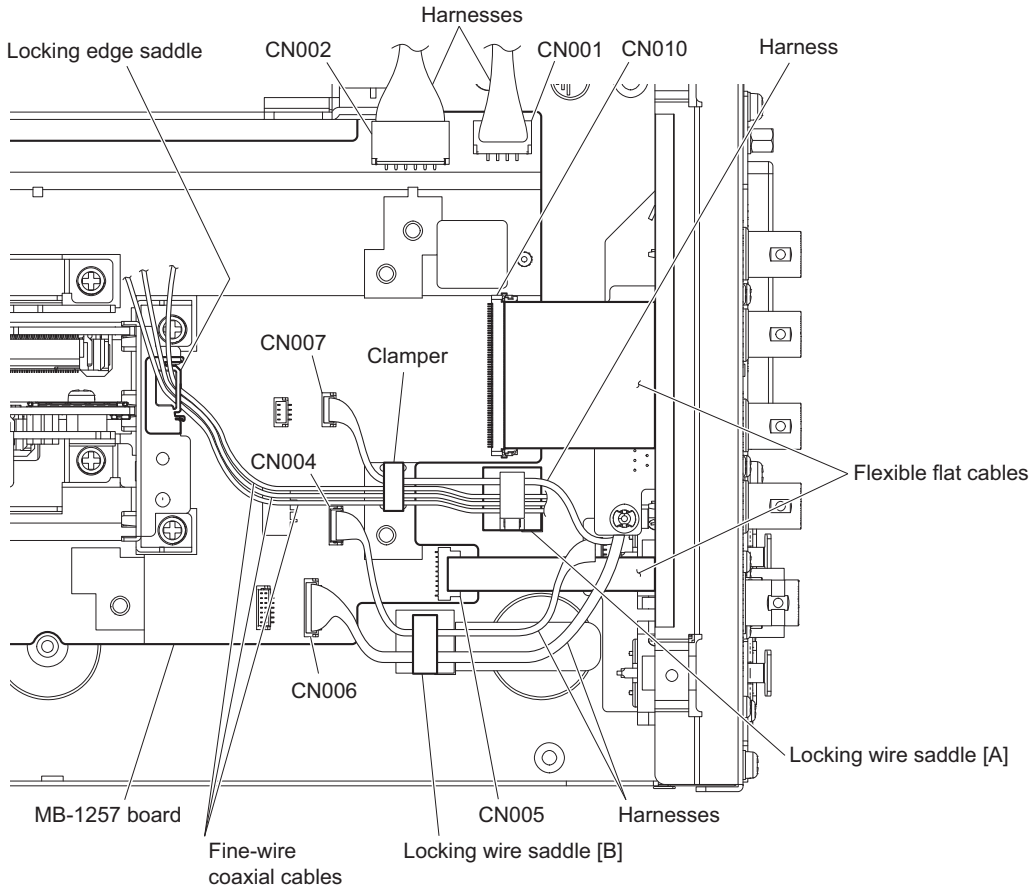
2-16. MB-1257 Board

Preparation

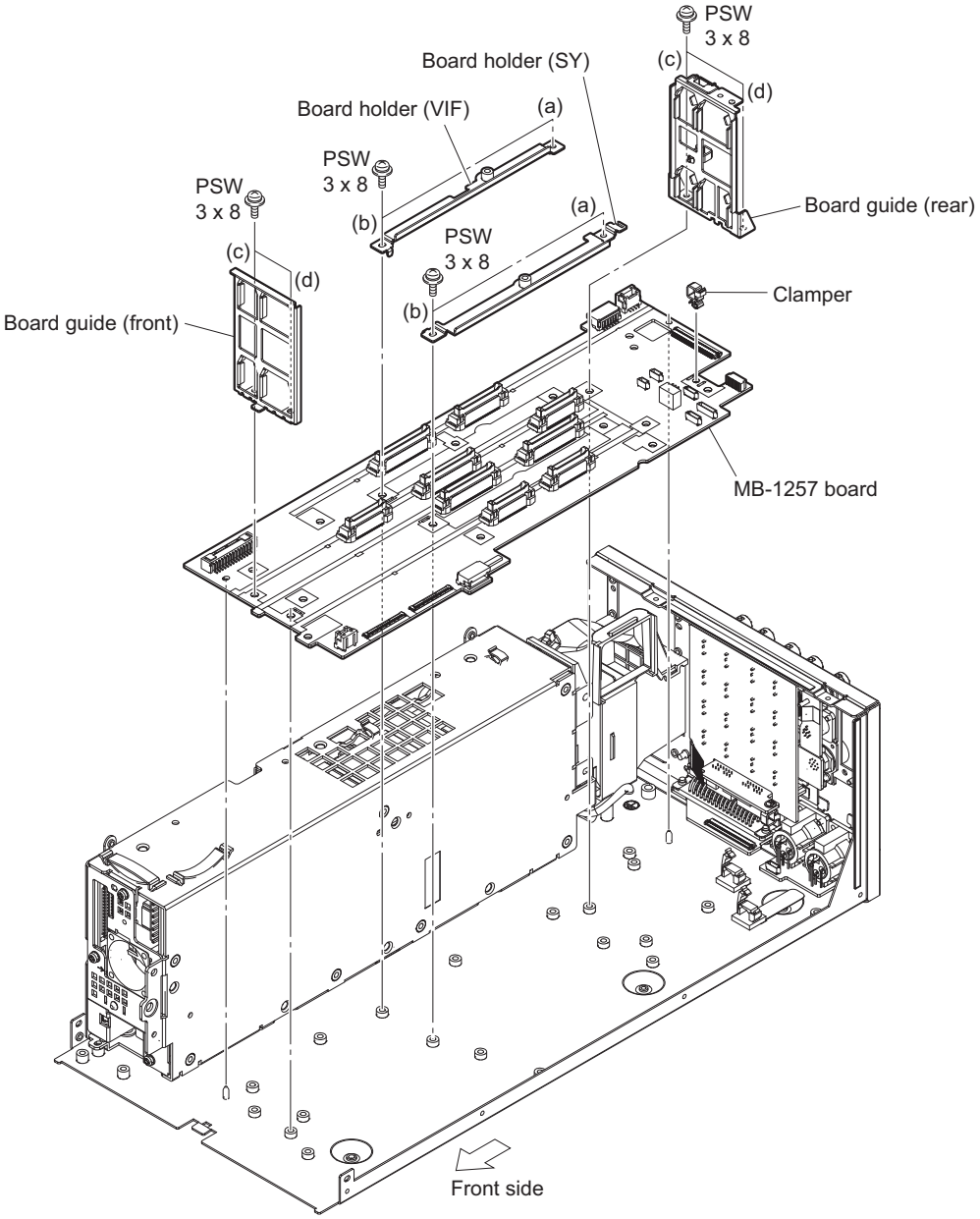
1. Remove the top cover. (Refer to "2-2. Top Cover".)
2. Remove the optical multi fiber cable. (Refer to "2-4. Optical Multi Fiber Cable".)
3. Remove the top chassis and the air distributor assembly. (Refer to "2-5. Top Chassis/Air Distributor Assembly".)
4. Remove the DC fan. (Refer to "2-9. DC Fan".)
5. Remove the VIF-75 board. (Refer to "2-6. VIF-75 Board".)
6. Remove the SY-467 board. (Refer to steps 1 and 2 in "2-7. SY-467 Board/AT-195 Board".)
7. Remove the TX-167B board or TX-167A board. (Refer to "2-11. TX-167B Board (HDCU5500/HKCU-FB50)/ TX-167A Board (HDCU3500)".)

Procedure

1. Disconnect the cables.
   (1) Disconnect the two harnesses from the connectors (CN001 and CN002) on the MB-1257 board.
   (2) Disconnect the two flexible flat cables from the connectors (CN005 and CN010) on the MB-1257 board.
   (3) Open the clamper and locking wire saddle [A], and then remove the harness and three fine-wire coaxial cables.
   (4) Remove the three fine-wire coaxial cables from the locking edge saddle.
   (5) Open the locking wire saddle [B], and then remove the two harnesses.
   (6) Disconnect the three harnesses from the connectors (CN004, CN006 and CN007) on the MB-1257 board.



2. Remove the MB-1257 board.
   (1) Remove the two screws, and then remove the board guide (rear).
   (2) Remove the two screws, and then remove the board guide (front).
   (3) Remove the two screws, and then remove the board holder (SY).
   (4) Remove the two screws, and then remove the board holder (VIF).
   (5) Remove the clamper.
   (6) Remove the MB-1257 board.



Note

- When attaching the board holder (SY) and board holder (VIF), tighten the screws in the following sequence: (a), (b).
- When attaching the board guide (front) and board guide (rear), tighten the screws in the following sequence: (c), (d).

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

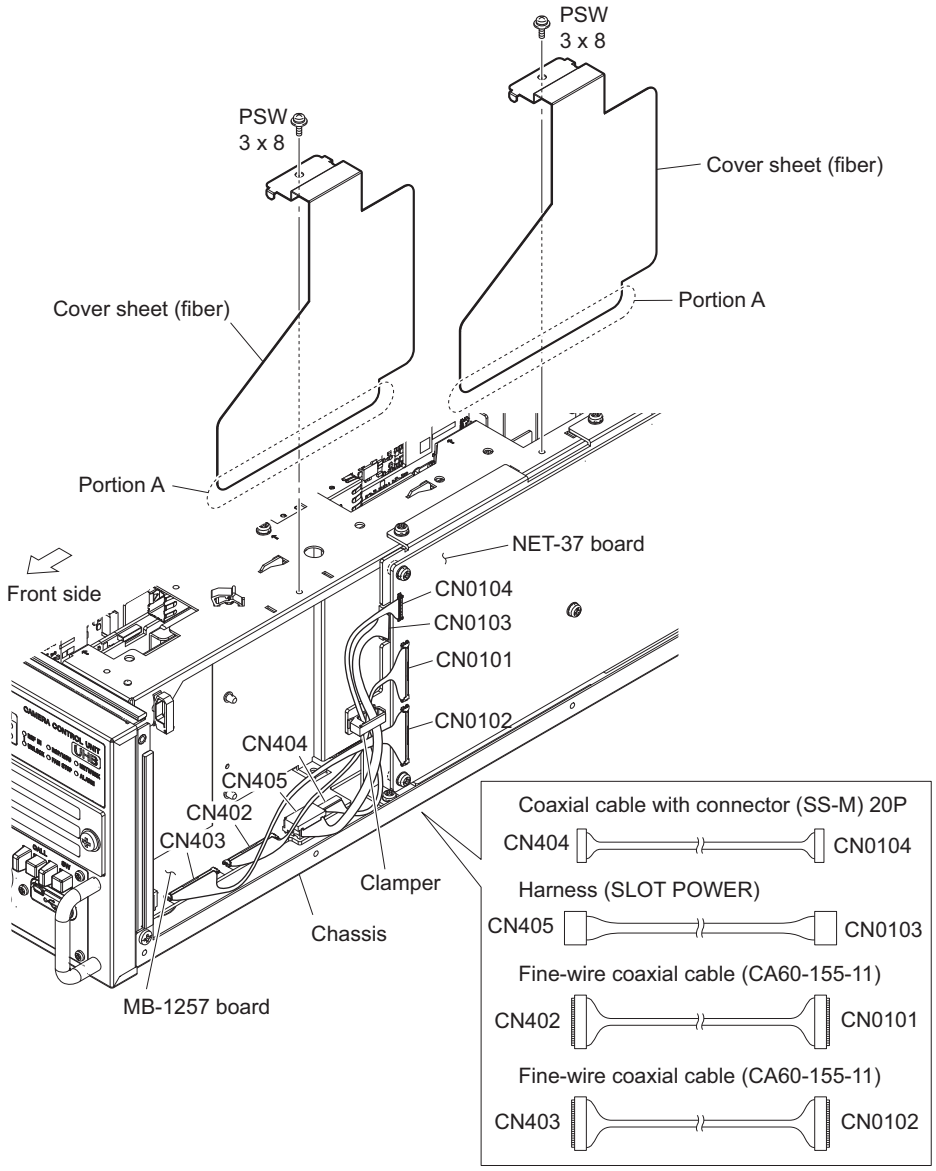
2-17. NET-37 Board (HKCU-SFP50)

Preparation

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

Procedure

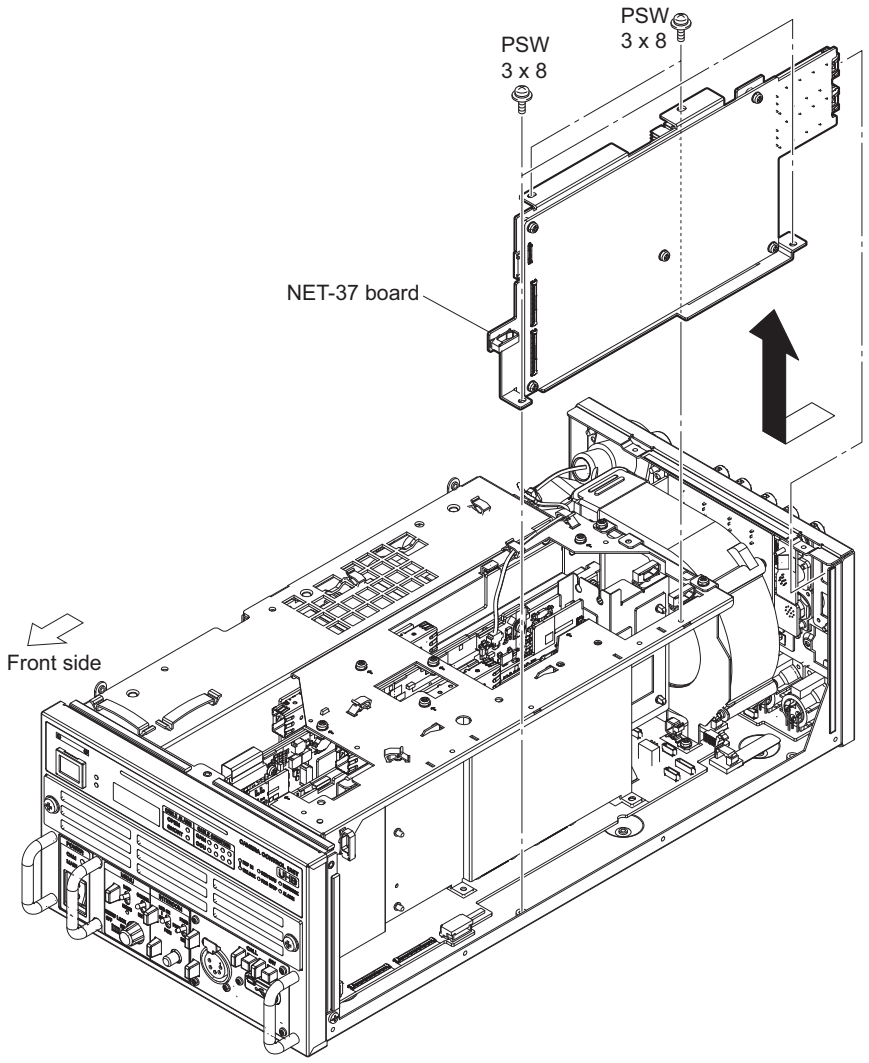
1. Remove the two screws, and then remove the two cover sheets (fiber).
2. Open the clamper, and then remove the coaxial cable with connector and two fine-wire coaxial cables (CA60-155-11).
3. Disconnect the coaxial cable with connector (SS-M) 20P from the connector (CN104) on the NET-37 board and connector (CN404) on the MB-1257 board.
4. Disconnect the two fine-wire coaxial cables (CA60-155-11) from the connectors (CN0101 and CN0102) on the NET-37 board and connectors (CN402 and CN403) on the MB-1257 board.
5. Disconnect the harness (SLOT POWER) from the connector (CN0103) on the NET-37 board and connector (CN405) on the MB-1257 board.



Note

When assembling, insert portions A of the cover sheets (fibers) into the inside of the chassis.

6. Remove the four screws, and then remove the NET-37 board in the direction of the arrow.



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

2-18. Optical Conversion Adaptor (HKCU-SM50)

Note

The removed screws cannot be reused. Use supplied screws.

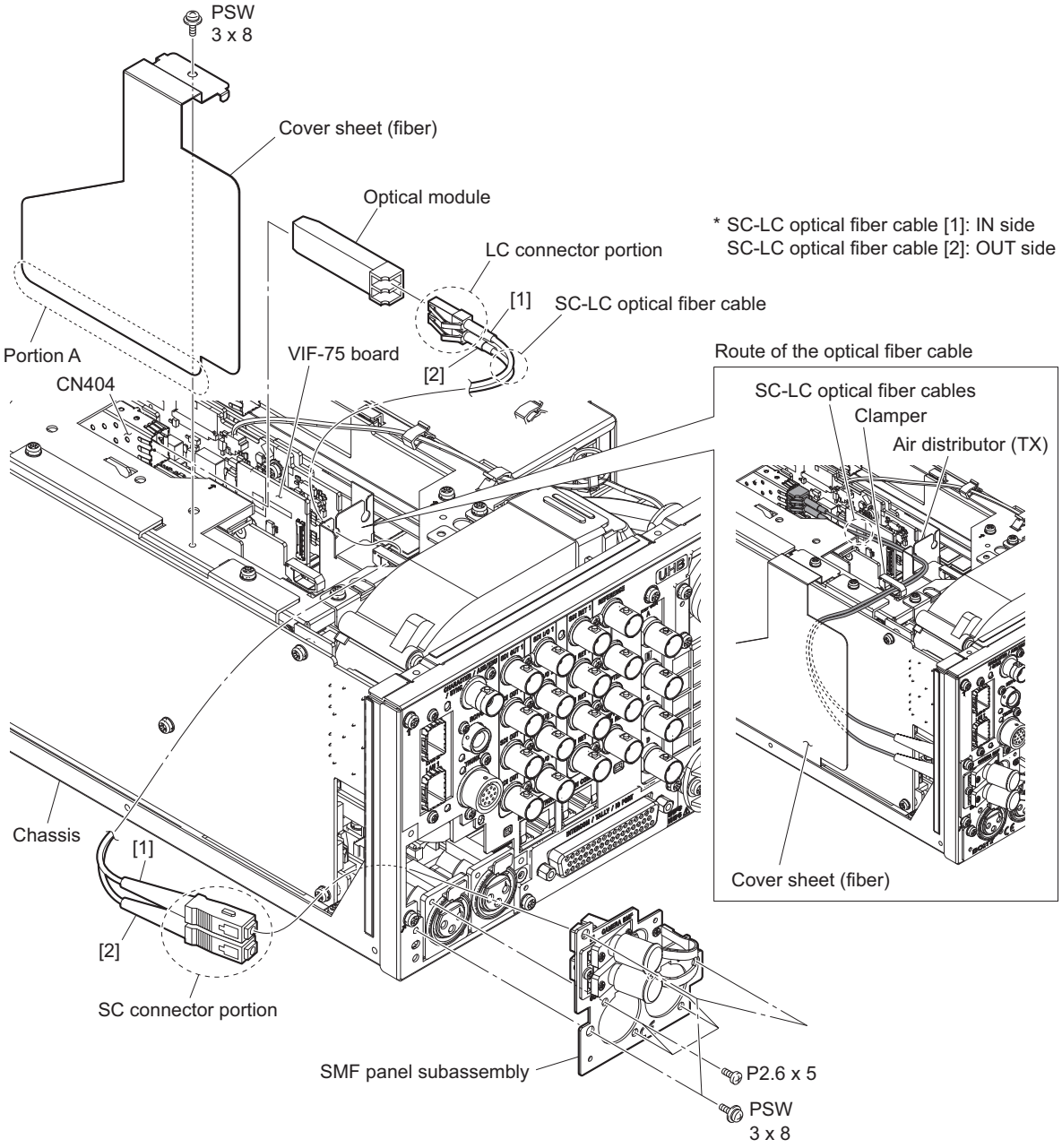
- Screw (M2 x 6): 5 pcs
- Screw (P2.6 x 5): 2 pcs

Preparation

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

Procedure

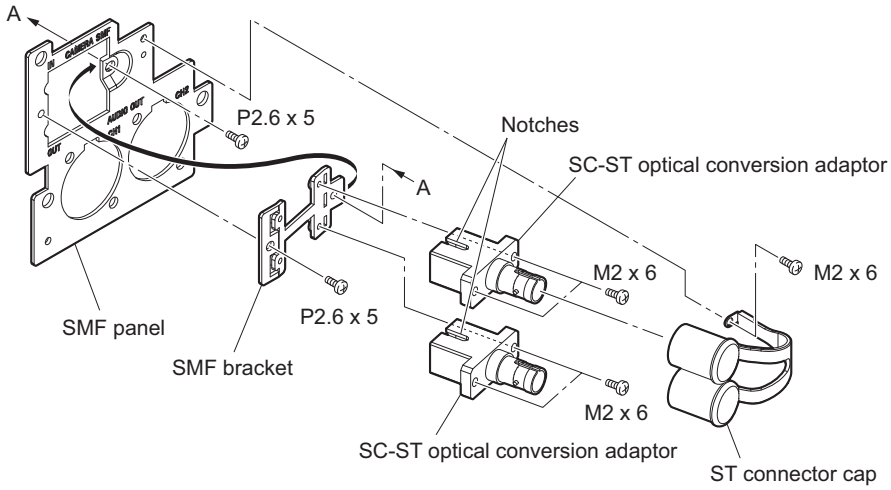
1. Remove the cover sheet (fiber) and SMF panel assembly.
   (1) Remove the screw (PSW3 x 8), and then remove the cover sheet (fiber).
   (2) Remove the SC-LC optical fiber cables from the optical module, and then disconnect it from the connector (CN404) on the VIF-75 board.
   (3) Disconnect the two SC-LC optical fiber cables from the SMF panel assembly.
   (4) Remove the three screws (PSW3 x 8) and four screws (P2.6 x 5), and then remove the SMF panel assembly.



Note

- When connecting the SC-LC optical fiber cables, refer to the number indicated on the board.
- Route the connected optical fiber cables as shown in the figure.
- Check that the connected optical fiber cable is located inside of the cover sheet (fiber).
- Insert portion A of the cover sheet (fibers) into the inside of the chassis.

2. Remove the SC-ST optical conversion adaptor.
   (1) Remove the screw (M2 x 6), and then remove the ST connector cap.
   (2) Remove the four screws (M2 x 6), and then remove the two SC-ST optical conversion adaptors.
   (3) Remove the two screws (P2.6 x 5), and then remove the SMF bracket from the SMF panel.



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

2-19. HKCU-REC55

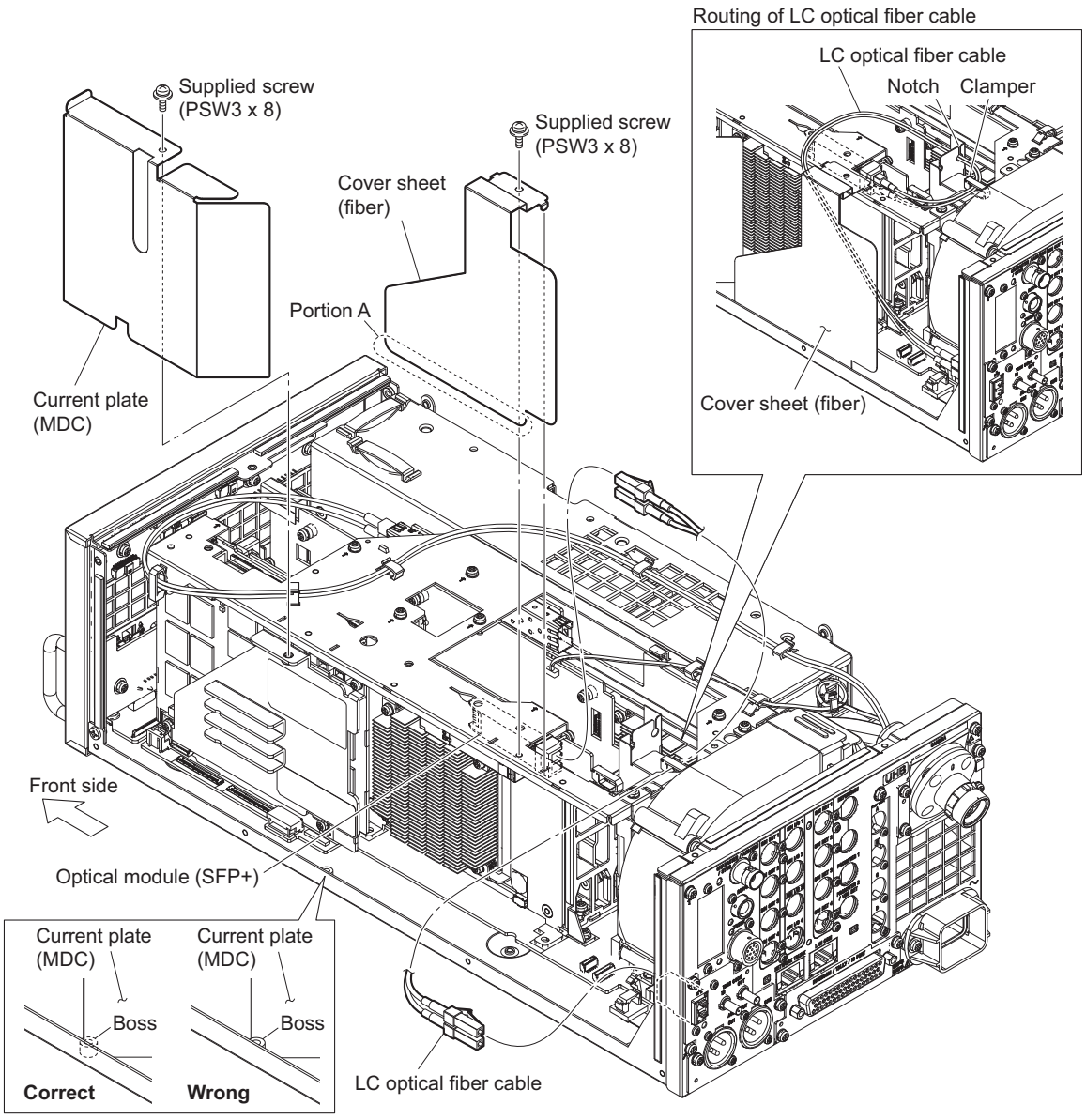
2-19-1. ENC Assembly

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly")

Procedure

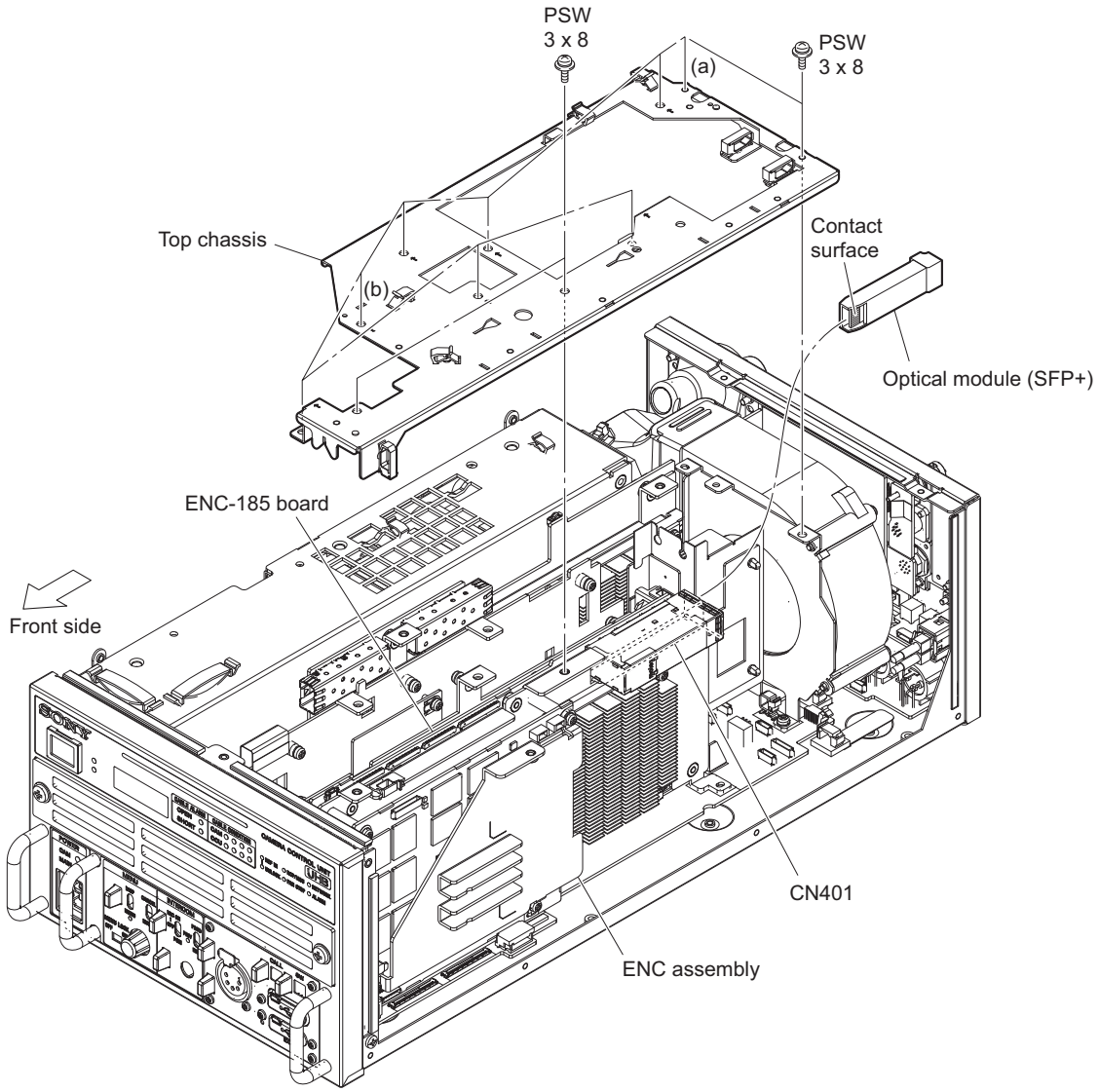
1. Remove the cover sheet (fiber) and current plate (MDC).
   (1) Open the clamper, then remove the LC optical fiber cable.
   (2) Remove the harness from the two cable clamps.
   (3) Disconnect the harness from the connector (CN402) on the SY-467 board.
   (4) Disconnect the LC optical fiber cable from the optical module (SFP+) on the ENC-185 board.
   (5) Remove the screw, then remove the cover sheet (fiber).
   (6) Remove the screw, then remove the current plate (MDC).



Note

Insert the portion A of the cover sheet (fiber) into the inside of the chassis.

2. Remove the top chassis.
   (1) Remove the nine screws, then remove the top chassis.
   (2) Disconnect the optical module (SFP+) from the connector (CN401) on the ENC-185 board.



Tip

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

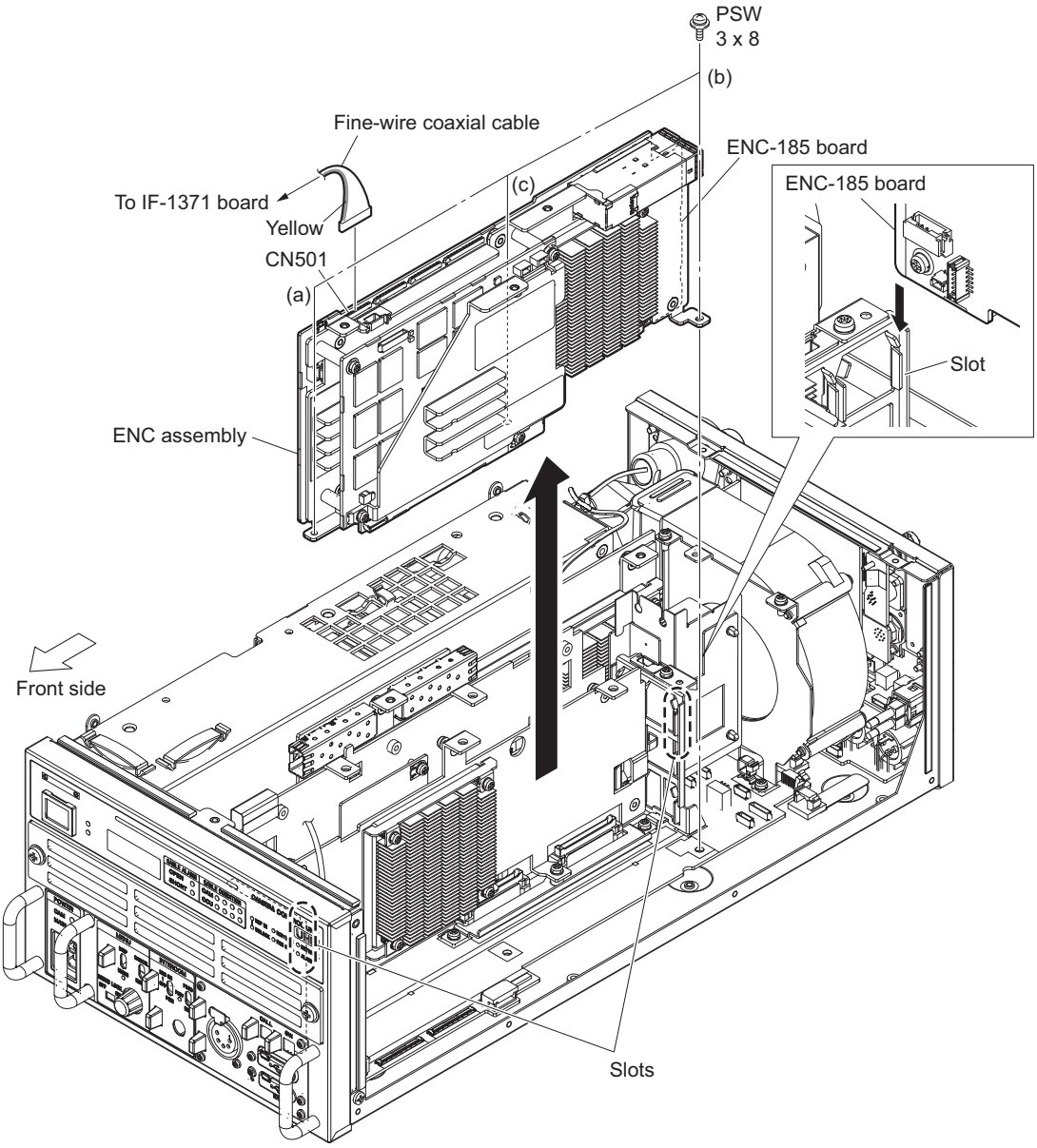
3. Remove the ENC assembly.
   (1) Disconnect the fine-wire coaxial cable from the connector (CN501) on the ENC-185 board.
   (2) Remove the three screws, then remove the ENC assembly in the direction of the arrow.

Note

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

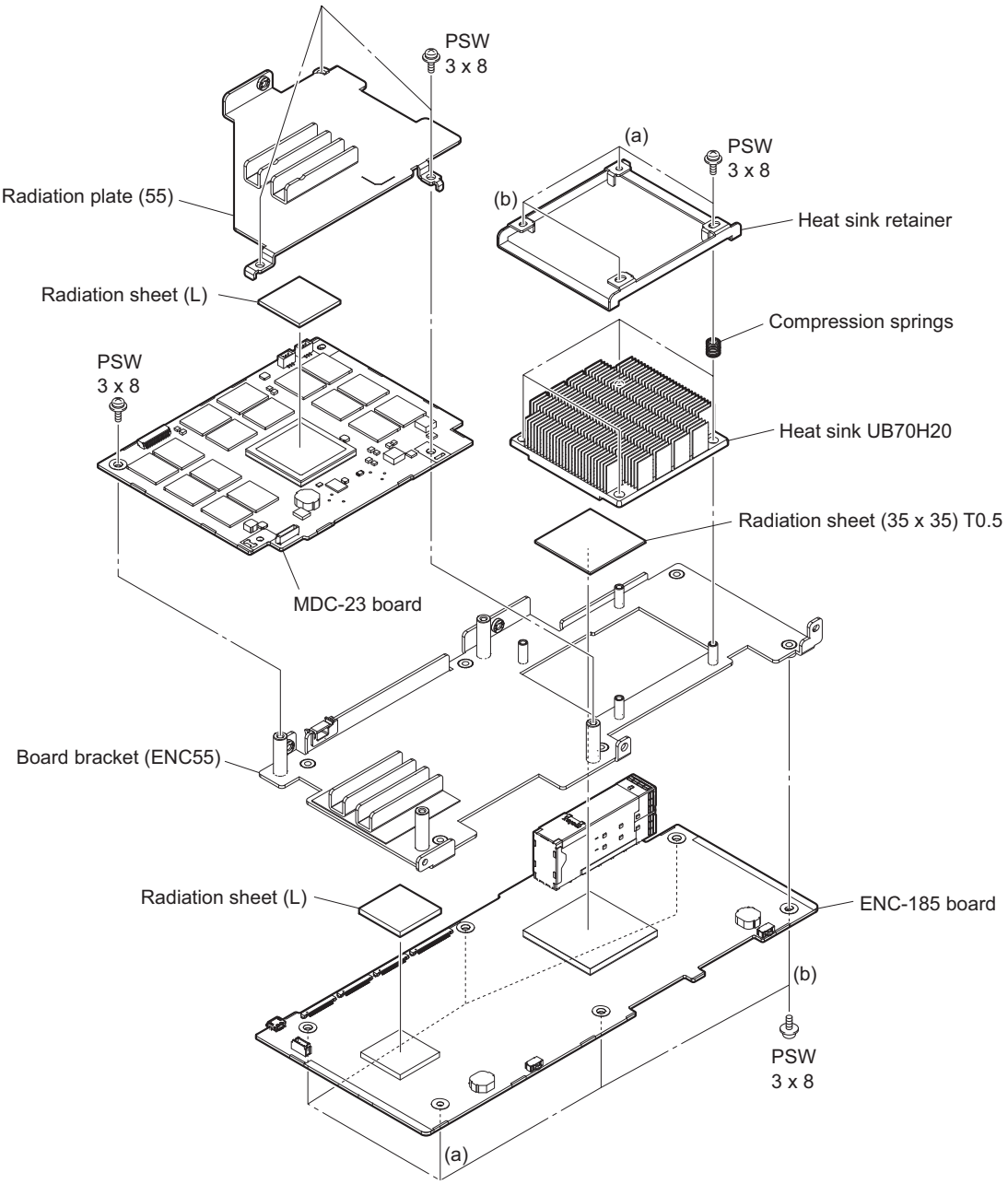
Tip

When attaching the ENC assembly, insert the edges of the ENC-185 board into the two slots of the board guide.



4. Remove the three screws, then remove the radiation plate (55).
5. Remove the screw, then remove the MDC-23 board.
6. Remove the radiation sheet (L) from the MDC-23 board.
7. Remove the four screws, then remove the heat sink retainer, four helical compression springs and heat sink UB70H20.
8. Remove the six screws, then remove the ENC-185 board.

9. Remove the radiation sheet (L) and radiation sheet (35 x 35) T0.5 from the ENC-185 board.



Note

- When attaching the heat sink retainer, tighten the screws in the following sequence: (a), (b) and others.
- When attaching the ENC-185 board, tighten the screws in the following sequence: (a), (b) and others.

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

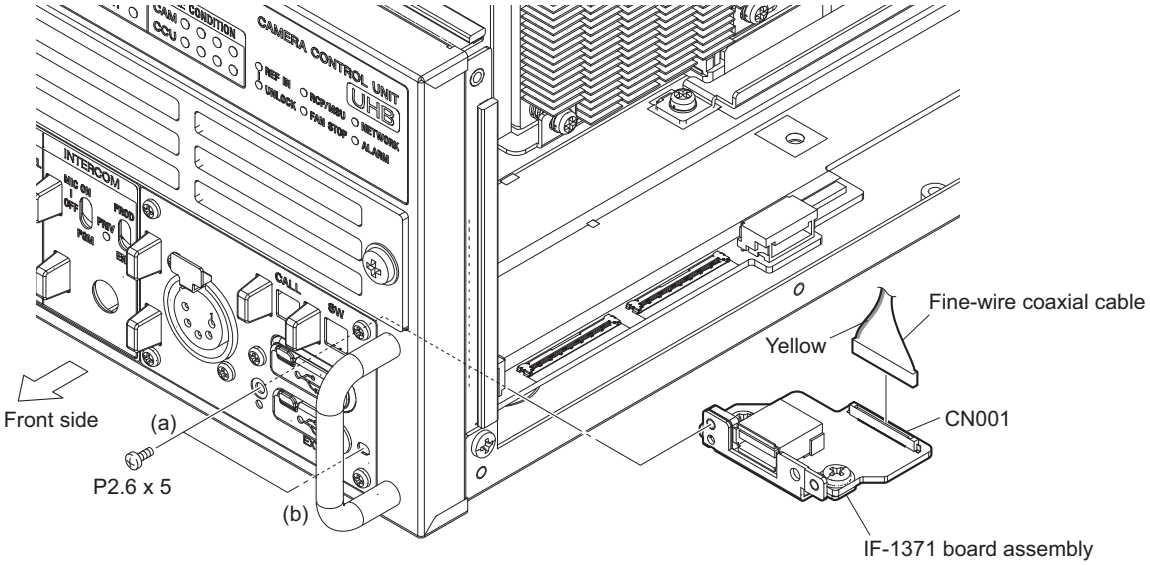
2-19-2. IF-1371 Board

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly")
3. Remove the ENC assembly. (Refer to "2-19-1. ENC Assembly")

Procedure

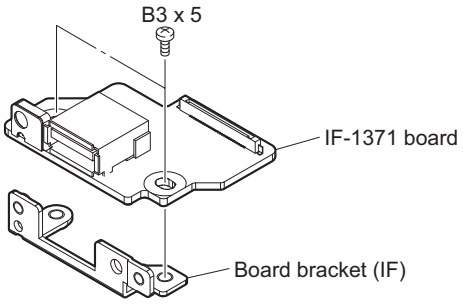
1. Remove the IF-1371 board.
   (1) Remove the two screws, then remove the IF-1371 board assembly.
   (2) Disconnect the fine-wire coaxial cable from the connector (CN001) on the IF-1371 board.



Note

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

2. Remove the two screws, then remove the IF-1371 board.



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

2-19-3. INCOM-REC Panel Assembly

Preparation

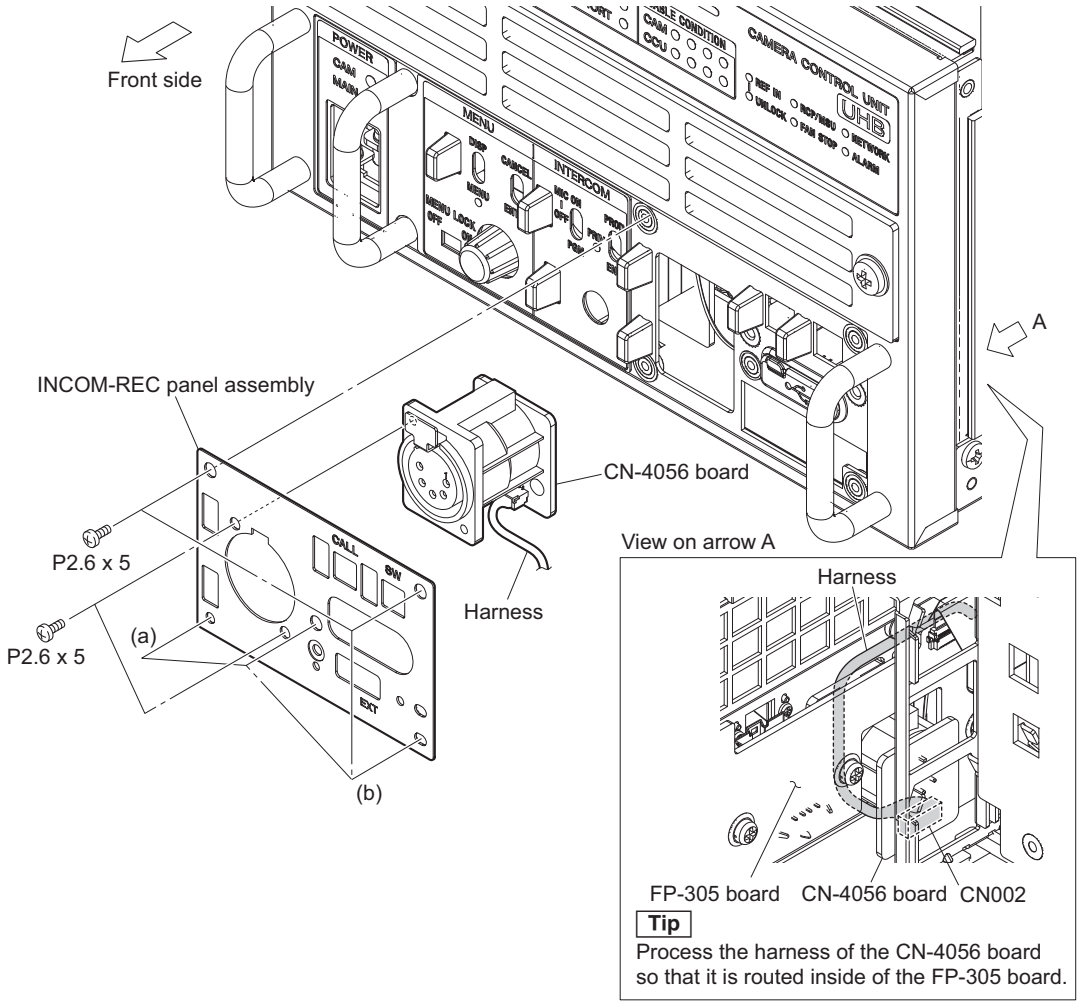
1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly")
3. Remove the ENC assembly. (Refer to "2-19-1. ENC Assembly")

Procedure

1. Remove the INCOM-REC panel assembly.
   (1) Remove the five screws, then remove the INCOM-REC panel assembly.
   (2) Remove the two screws, then remove the CN-4056 board.

   Note

   When attaching the INCOM-REC panel assembly, attach it so that the harness is routed inside of the FP-305 board.



   Note

   When attaching the INCOM-REC panel assembly, tighten the screws in the following sequence: (a), (b) and others.

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

2-19-4. Optical Conversion Adaptor

Preparation

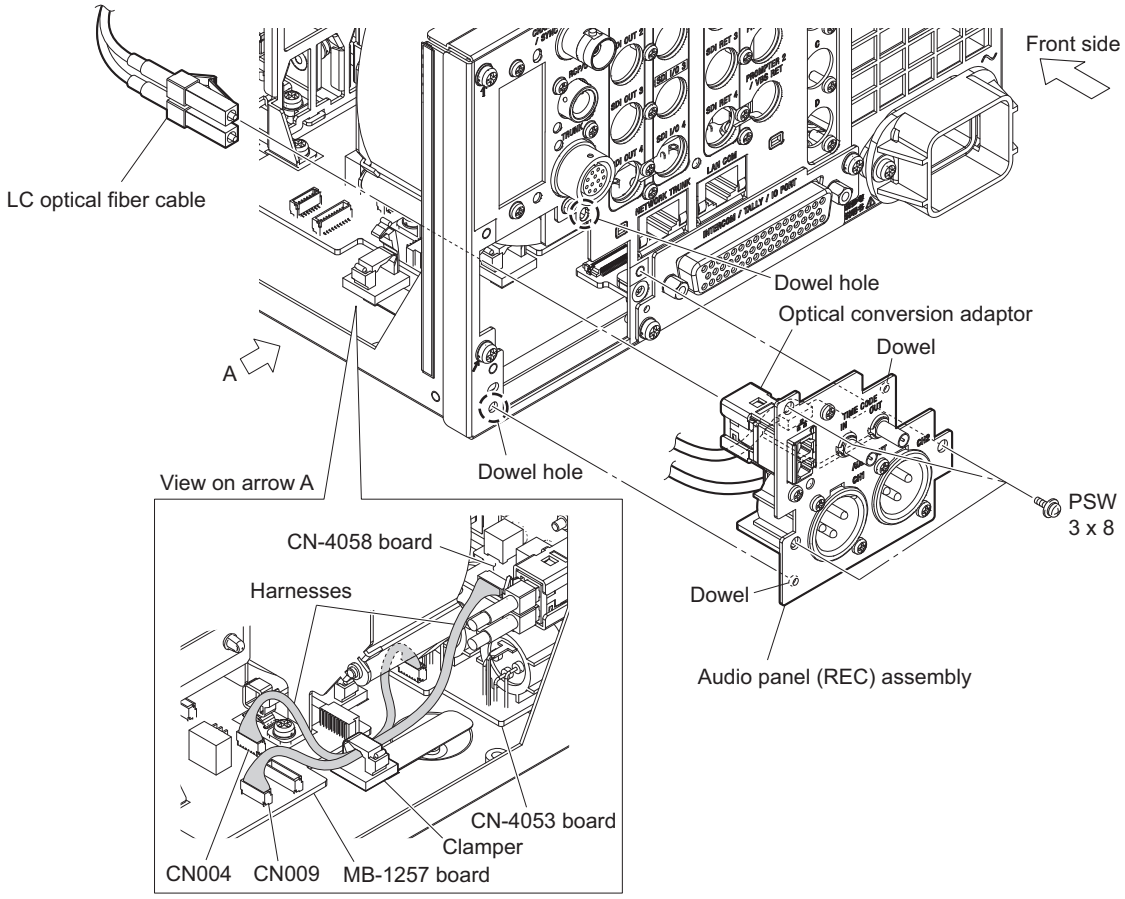
1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly")

Procedure

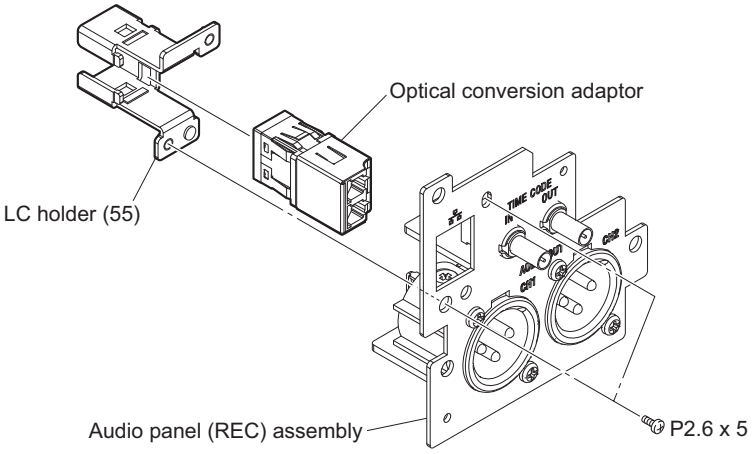
1. Disconnect the LC optical fiber cable from the optical conversion adaptor.
2. Remove the audio panel (REC) assembly.
   (1) Disconnect the two harnesses from the connectors (CN004 and CN009) on the MB-1257 board.
   (2) Open the clamper, then remove the two harnesses.
   (3) Remove the three screws, then remove the audio panel (REC) assembly.

   Note

   When attaching the audio panel (REC) assembly, align the two dowels.



3. Remove the two screws, then remove the optical conversion adaptor from the LC holder (55).



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

2-19-5. CN-4058 Board

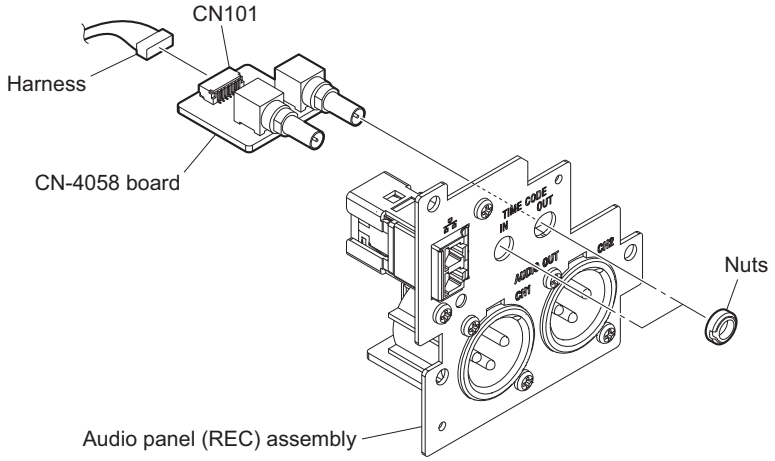
Required tool: Nut driver bit NDT-DIN/Canare Electric Co., Ltd. products

Preparation

1. Remove the top cover. (Refer to "2-2. Top Cover")
2. Remove the optical cable. (Refer to step 1 in "2-4-1. LEMO Connector Assembly")
3. Remove the audio panel (REC) assembly. (Refer to step 2 in "2-19-4. Optical Conversion Adaptor")

Procedure

1. Remove the CN-4058 board.
   (1) Disconnect the harness from the connector (CN101) on the CN-4058 board.
   (2) Remove the two nuts.
   (3) Remove the CN-4058 board from the audio panel (REC) assembly.



2. 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), update software programs, and NMI LSI firmwares 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.

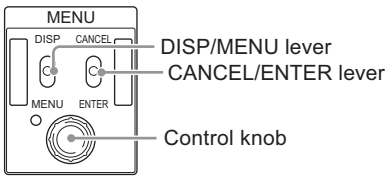
To exit the status screen display

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.

```
  <CCU MENU>

→SYSTEM OPERATION
 VIDEO/MONITOR
 AUDIO/INTERCOM
 MAINTENANCE
 FILE
 NETWORK
 DIAGNOSIS
 SERVICE
```

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

```
     CONTENTS                ?S00 TOP

 01 <SOFTWARE PACKAGE>
 02 <PLD PACKAGE>
 03 <RESET>
 04 <SERIAL NUMBER>
 05 <ANALOG ADJUST>
 06 <POWER UNIT>
 07 <MODE>
 08 <TEMPERATURE>
```

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

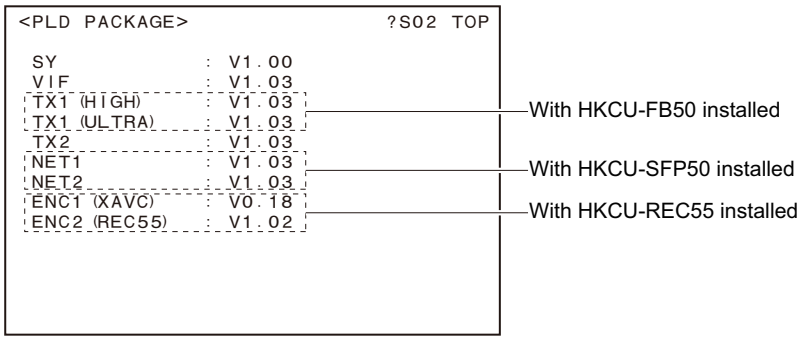
```
<SOFTWARE PACKAGE>          ?S01 TOP

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

Description

Item	Setting Value	Description
APPLICATION	—	Display the current software version. Place the cursor on the version to update the version.
OS	—	
UPDATER	—	

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 (REC55)	—	

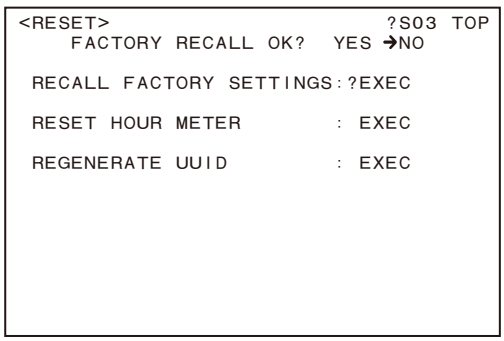
Tip

- “TX1 (ULTRA)” and “TX2” are displayed only when the HKCU-FB50 is installed.

- “NET1” and “NET2” are displayed only when the HKCU-SFP50 is installed.
- “ENC1 (XAVC)” and “ENC2 (REC55)” are displayed only when the HKCU-REC55 is installed.

RESET

Screen display

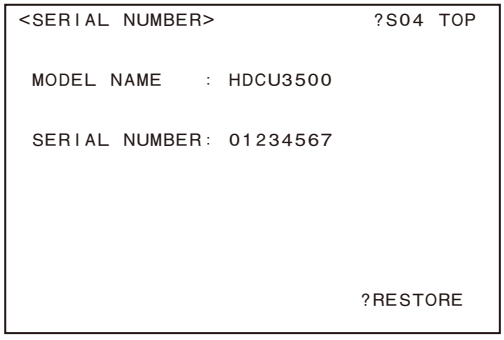


Description

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



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

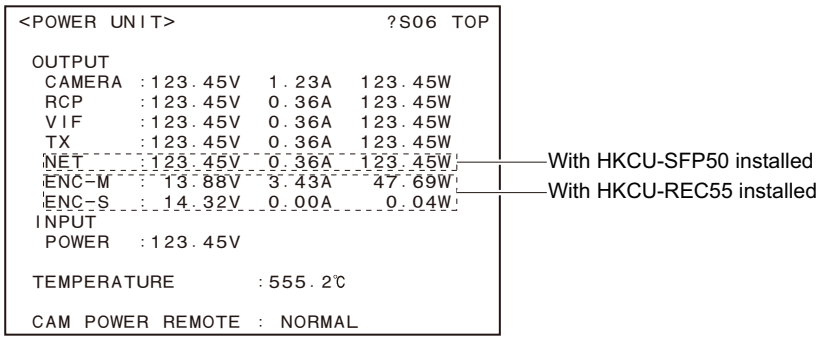
```
<ANALOG ADJUST>                ?S05 TOP

 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




```
<POWER UNIT>                   ?S06 TOP

 OUTPUT
  CAMERA  :123.45V  1.23A  123.45W
  RCP     :123.45V  0.36A  123.45W
  VIF     :123.45V  0.36A  123.45W
  TX      :123.45V  0.36A  123.45W
  NET     :123.45V  0.36A  123.45W
  ENC-M   : 13.88V  3.43A   47.69W
  ENC-S   : 14.32V  0.00A    0.04W
 INPUT
  POWER   :123.45V

 TEMPERATURE       :555.2℃

 CAM POWER REMOTE  : NORMAL
```

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.

Continued

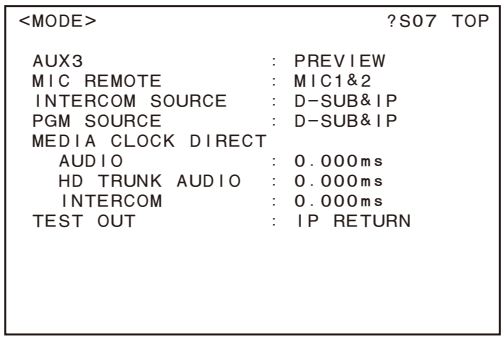
Item	Setting Value	Description
CAM POWER REMOTE	—	Controls the power supply status to the camera. NORMAL: When the power to the CCU is turned on, the power supply of the camera is forcibly turned on. BACKUP: When the CCU power is OFF, hold the command status from the panel.
ENC-M	—	Display the ENC-185 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-REC55 is installed.

MODE

Screen display



Description

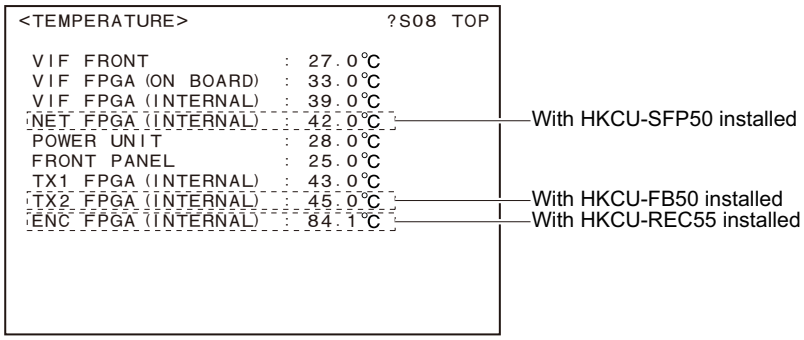
Item	Setting Value	Description
AUX3	**PREVIEW**, FLAG, Y TALLY	Set the AUX 3 pin function of the INTERCOM/TALLY/PGM terminal. PREVIEW: Used as PREVIEW switching signal output pin. FLAG: Used as FLAG signal output pin. Y TALLY: Used as Y TALLY signal output pin.
MIC REMOTE	**MIC1&2,** MIC1,2, MIC+NETWORK	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.

Continued

Item		Setting Value	Description
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.

Continued

Item	Setting Value	Description
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 TX-167A board.
TX2 FPGA (INTERNAL)	—	Display the temperature of TX-167B board.
ENC FPGA (INTERNAL)	—	Display the temperature of ENC-185 board.

- “NET FPGA (INTERNAL)” is displayed only when the HKCU-SFP50 is installed.
- “TX2 FPGA (INTERNAL)” is displayed only when the HKCU-FB50 is installed.
- “ENC FPGA (INTERNAL)” is displayed only when the HKCU-REC55 is installed.

Section 5
Web Maintenance Menu

5-1. Overview of Web Maintenance Menu

This unit equipped with HKCU-REC55 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-4052 Board

The CN-4052 board contains the LAN-COM connector and the NETWORK TRUNK connector on the rear panel.

6-1-3. CN-4053 Board

The CN-4053 board contains the AUDIO OUT connector on the rear panel.

6-1-4. CN-4054 Board

The CN-4054 board contains the TRUNK connector on the rear panel.

6-1-5. CN-4055 Board

The CN-4055 board contains the CHARACTER / AES/EBU connector and the RCP/CNU connector on the rear panel.

6-1-6. CN-4056 Board

The CN-4056 board contains the INTERCOM connector on the front panel.

6-1-7. CN-4057 Board

The CN-4057 board contains the INTERCOM/TALLY/IO PORT connector (D-Sub 50 pins) on the rear panel.

6-1-8. FP-305 Board

The FP-305 board contains switches for setting menus, a USB connector, and an audio circuit for intercom on the front panel.

6-1-9. HIF-76 Board

The HIF-76 board contains the SLOT1 OUT 1-4 output connector (BNC type), SDI RET 1-4 input connector (BNC type), SDI I/O 1-4 input/output connector (BNC type), REFARENCE IN/OUT connector (BNC type), and Prompter 1-2 input connector (BNC type) on the rear panel.

6-1-10. LE-425 Board

The LE-425 board contains LEDs that indicate the status of power supply to the unit and the camera.

6-1-11. LE-427 Board

The LE-427 board contains LEDs on the front panel, indicating the camera number, optical signal receiving status, and various states.

6-1-12. LE-429 Board

The LE-429 board contains an LED bar that indicates the unit status.

6-1-13. MB-1257 Board

The MB-1257 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.

6-1-14. 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.

6-1-15. TX-167A Board

The TX-167A board is mounted in HDCU3500.

Main-line video signals

The image capture data that is transmitted from the camera is input to the VIF-75 board. The image capture data is then sent to the TX-167A board through CN101 and CN103. The TX-167A board processes four SDI output signals and video data to be sent to the VIF-75 board and the NET-37 board. Four DDR4 SDRAM ICs (IC2101, IC2102, IC2201, and IC2202) are connected to the FPGA (IC1501) on the TX-167A board. This FPGA is equipped with the main-line video processing function in addition to the timing adjustment function. When the HZCU-UHD35 option is provided,

this FPGA also has the HD-to-4K up-conversion function. Furthermore, this FPGA can convert video data from camera to 3G SDI (Level-A/B) or HD SDI data, and when the HZCU-UHD35 option is installed, 4K video data can be output with 12G SDI or 3G SDI (2SI, SQD) in addition to the above. The TX-167A 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

This function is available only when the HZCU-UHD35 option is provided. UHD return video signals are input from the UHD SDI C and UHD SDI D connectors (J303, J304) on the TX-167A board. Only the 12G SDI signal can be input. This input signal is sent to the VIF-75 board. The frame synchronization function of the FPGA (IC1501) also supports asynchronous return signals. UHD return video signals are sent to the camera through the VIF-75 board.

6-1-16. TX-167B Board

The TX-167B board is mounted in HDCU5500 and HKCU-FB50.

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.

6-1-17. 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-305 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-4053 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-4054 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-4054 board.

LAN signal

The LAN signal can be input to and output from the LAN-COM connector on the CN-4052 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-4052 board through the connector (CN600).

NETWORK TRUNK signal

The NETWORK TRUNK signal from the NETWORK TRUNK connector on the CN-4052 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-305 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).

6-1-18. 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.

6-1-19. CN-4058 Board

The CN-4058 board mounted in the HKCU-REC55 contains a TIME CODE connector on the rear panel side.

6-1-20. IF-1371 Board

The IF-1371 board mounted in the HKCU-REC55 contains a USB connector (for external storage devices) on the front panel side.

6-1-21. MDC-23 Board

The MDC-23 board mounted in the HKCU-REC55 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 IC903
- IC1000 to IC1003
- IC1100 to IC1103
- IC1200 to IC1203

6-1-22. ENC-185 Board

The ENC-185 board mounted in the HKCU-REC55 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-23 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. C1001 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 LAN-HUB (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-167A and 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-23 board using the SATA Host function to be stored in the flash memory on the MDC-23 board.

Playback processing

Recording stream signals are sent from the MDC-23 board to the FPGA (IC001).
The 4K video signals in the recording stream signals are decoded in IC007. The HD signals are decoded in IC006. These decoded data are returned to the FPGA (IC001) as 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-167A, 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).

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

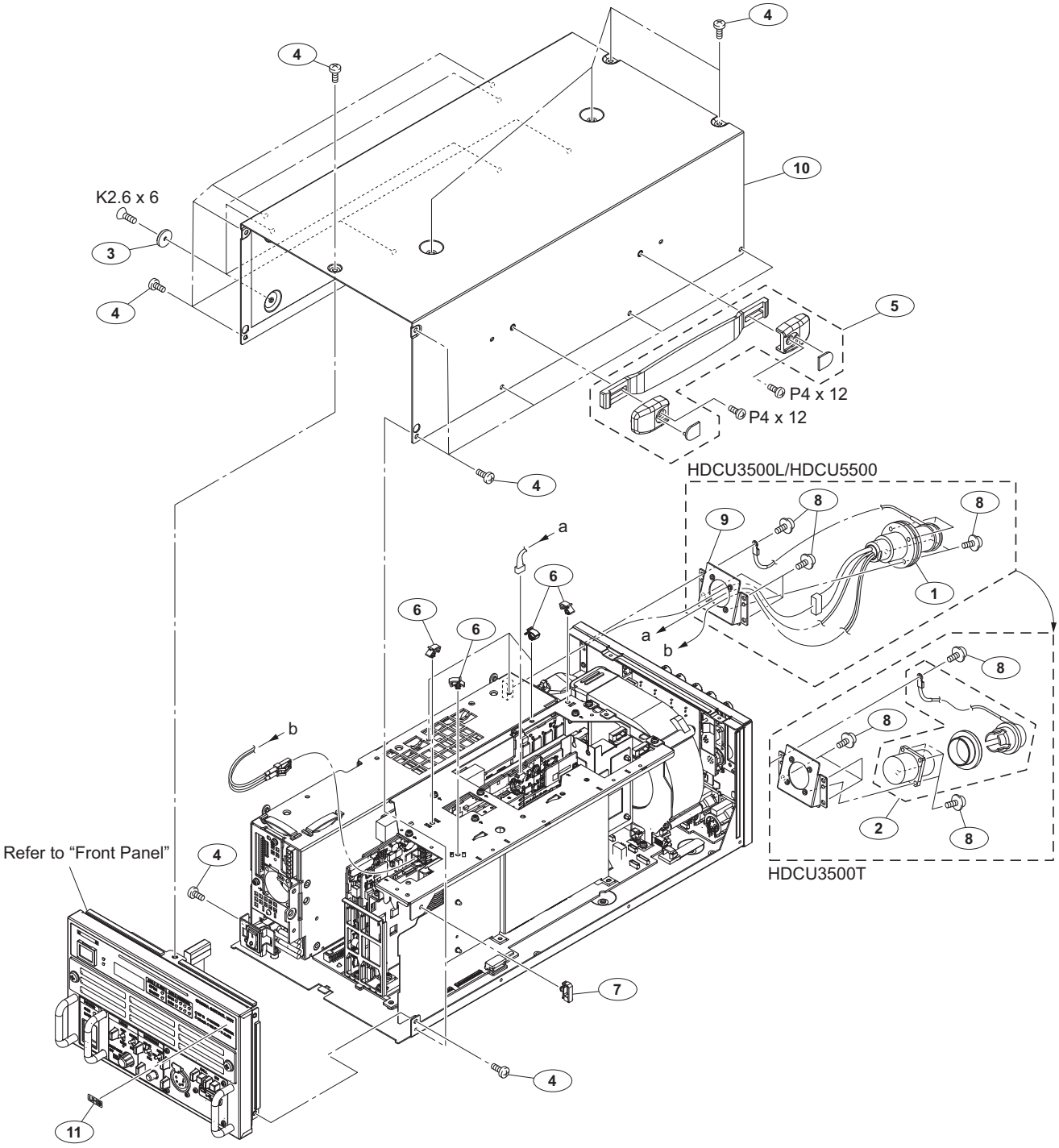
部品表の SP（Supply code）欄に "o" で示される部品は在庫していないことがあり，納期が長くなることがあります。

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。

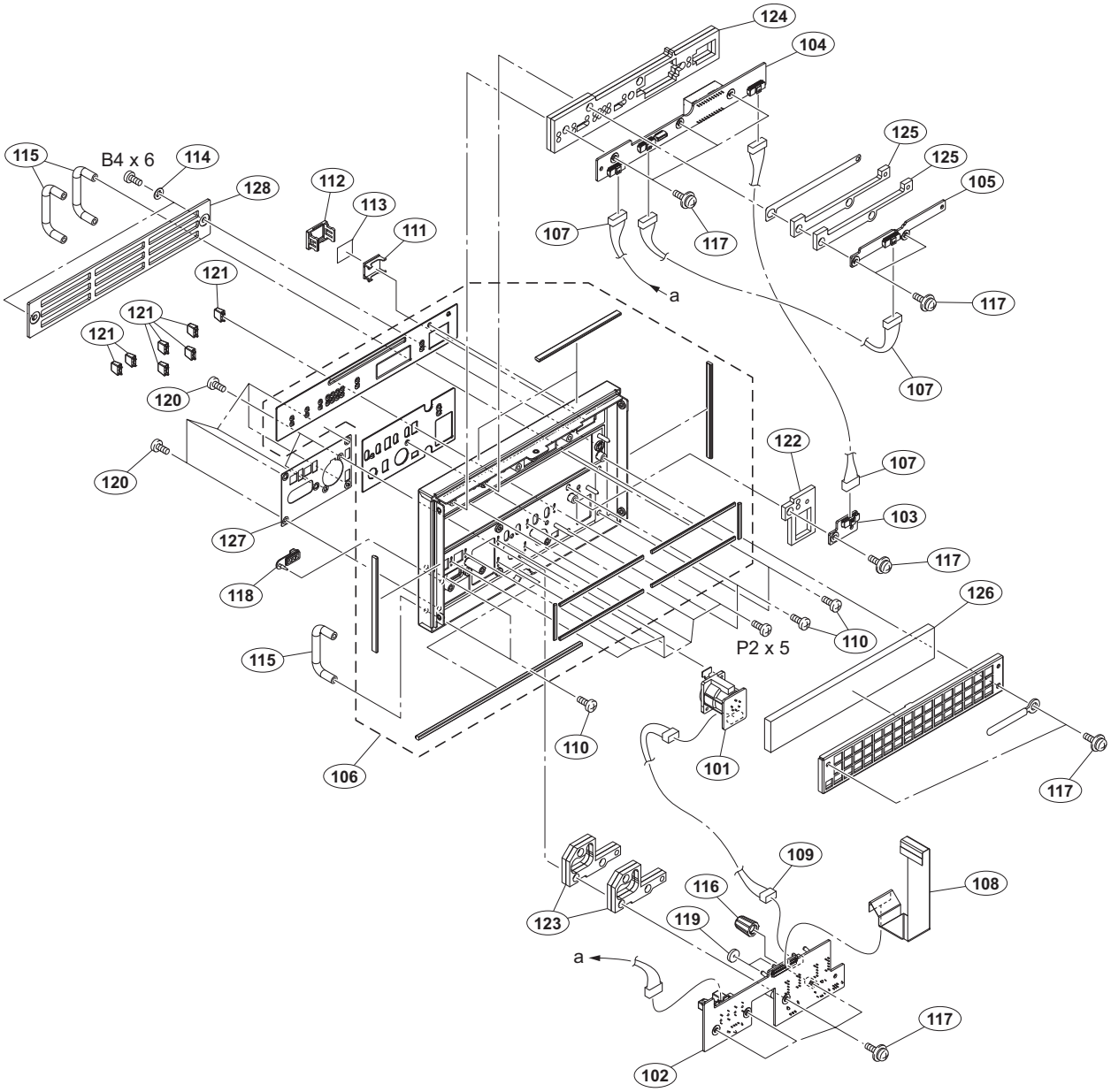
7-2. Exploded Views

Cover



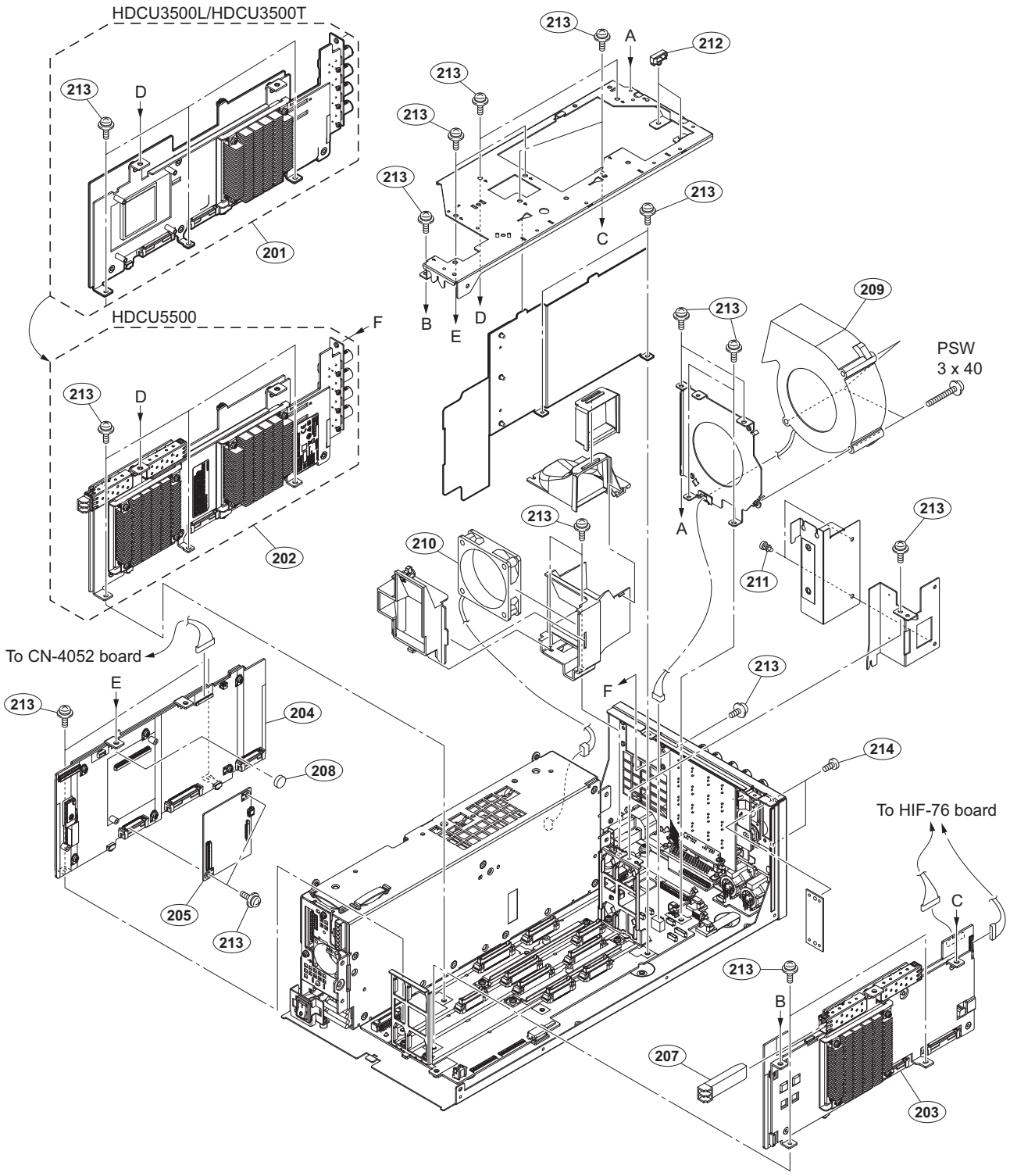
No.	Part No.	SP	Description
1	⚠ A-2189-823-A	s	LEMO CONNECTOR ASSY-D(FXW)EXP (For HDCU3500L/HDCU5500)
2	⚠ 1-849-370-11	s	OPTICAL MULTI CABLE ASSEMBLY (For HDCU3500T)
3	2-382-110-01	o	LEG
4	3-725-295-21	s	SCREW, (+) (B3)
5	3-815-708-01	s	HANDLE
6	3-955-834-01	s	CLAMP
7	4-098-033-01	s	SADDLE WIRE (C)
8	4-382-854-01	s	SCREW (M3X8), P, SW (+)
9	4-748-474-01	s	BRACKET, LEMO CN
10	4-748-478-01	s	COVER
11	5-004-742-01	s	LABEL UHB (For HDCU5500)
	7-621-592-00	s	SCREW +K 2.6X6
	7-682-163-01	s	SCREW +P 4X12

Front Panel



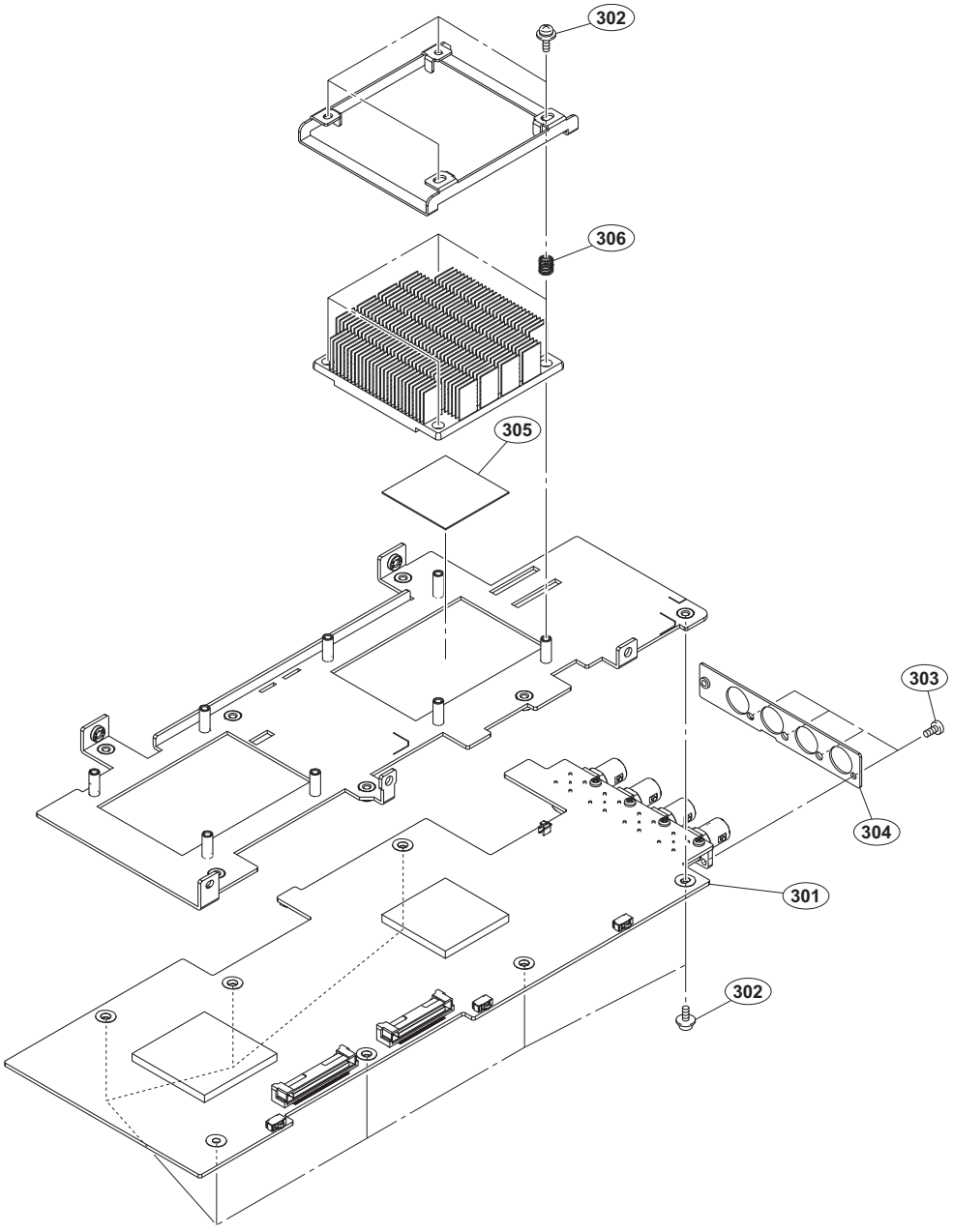
No.	Part No.	SP	Description
101	A-2225-963-A	s	CN-4056 MOUNT
102	A-2225-965-A	s	FP-305 MOUNT
103	A-2225-966-A	s	LE-425 MOUNT
104	A-2228-314-A	s	LE-427 MOUNT
105	A-5001-093-A	s	LE-429 MOUNT
106	A-5004-969-A	s	ASSY, FRONT PANEL
107	1-001-671-11	s	SUB HARNESS(FP-LE)
108	1-912-708-21	s	CABLE, FLEXIBLE FLAT (45 CORE)
109	1-970-225-11	s	SUB HARNESS(RM)
110	2-067-018-01	s	+PS4X6
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	3-650-537-01	s	WASHER
115	3-723-762-01	o	HANDLE
116	4-139-232-01	s	KNOB, ROTARY ENCODER
117	4-382-854-01	s	SCREW (M3X8), P, SW (+)
118	4-478-730-02	s	CAP, USB
119	4-486-742-01	s	CUSHION
120	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
121	4-595-089-01	s	GUARD, SWITCH S
122	5-001-703-01	s	CUSHION (SW)
123	5-001-704-01	s	CUSHION (LOWER)
124	5-001-705-01	s	CUSHION (UPPER)
125	5-001-706-01	s	CUSHION (BAR)
126	5-001-721-01	s	FILTER
127	5-001-739-01	s	PANEL, INCOM
128	5-001-741-01	s	COVER, FILTER
	7-682-560-09	s	SCREW +B 4X6
	7-685-103-19	s	SCREW +P 2X5 TYPE2 NON-SLIT

DC Fan and Boards



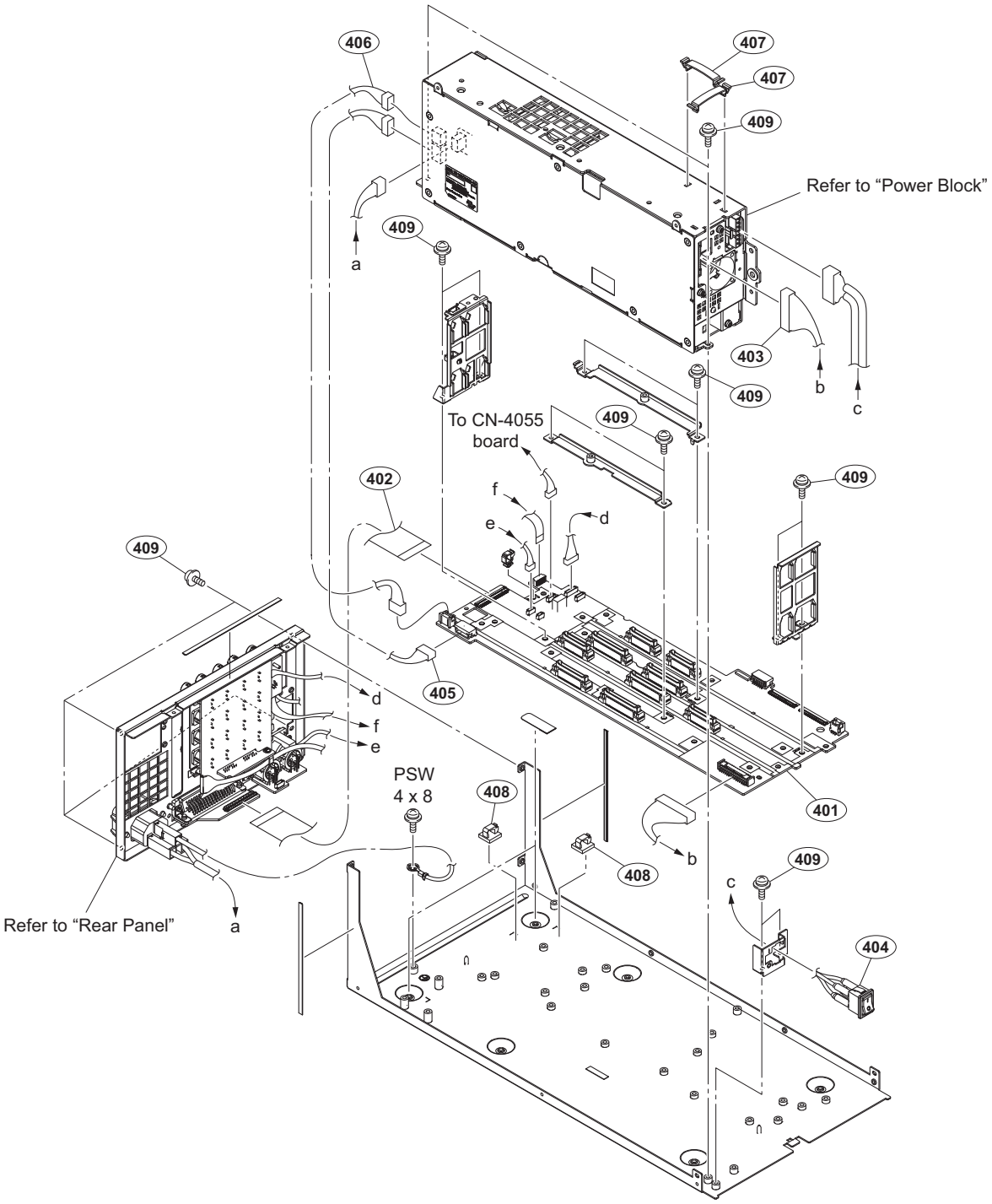
No.	Part No.	SP	Description
201	A-5001-894-A	s	TX-167A COMPL
202	A-5001-895-A	s	TX-167B COMPL
203	A-5001-896-A	s	VIF-75 COMPL
204	A-5001-897-A	s	SY-467 COMPL
205	A-5006-197-A	s	AT-195D COMPL (For HDCU3500/5500L)
207	⚠ 1-510-062-11	s	OPTICAL MODULE (SFP)
208	⚠ 1-756-134-18	s	BATTERY, LITHIUM (SECONDARY)
209	⚠ 1-855-126-21	s	DC FAN
210	⚠ 1-855-526-11	s	DC FAN (60 X15)
211	3-531-576-01	s	RIVET
212	4-098-033-01	s	SADDLE WIRE (C)
213	4-382-854-01	s	SCREW (M3X8), P, SW (+)
214	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
	7-682-957-01	s	SCREW +PSW 3X40

TX-167A Board



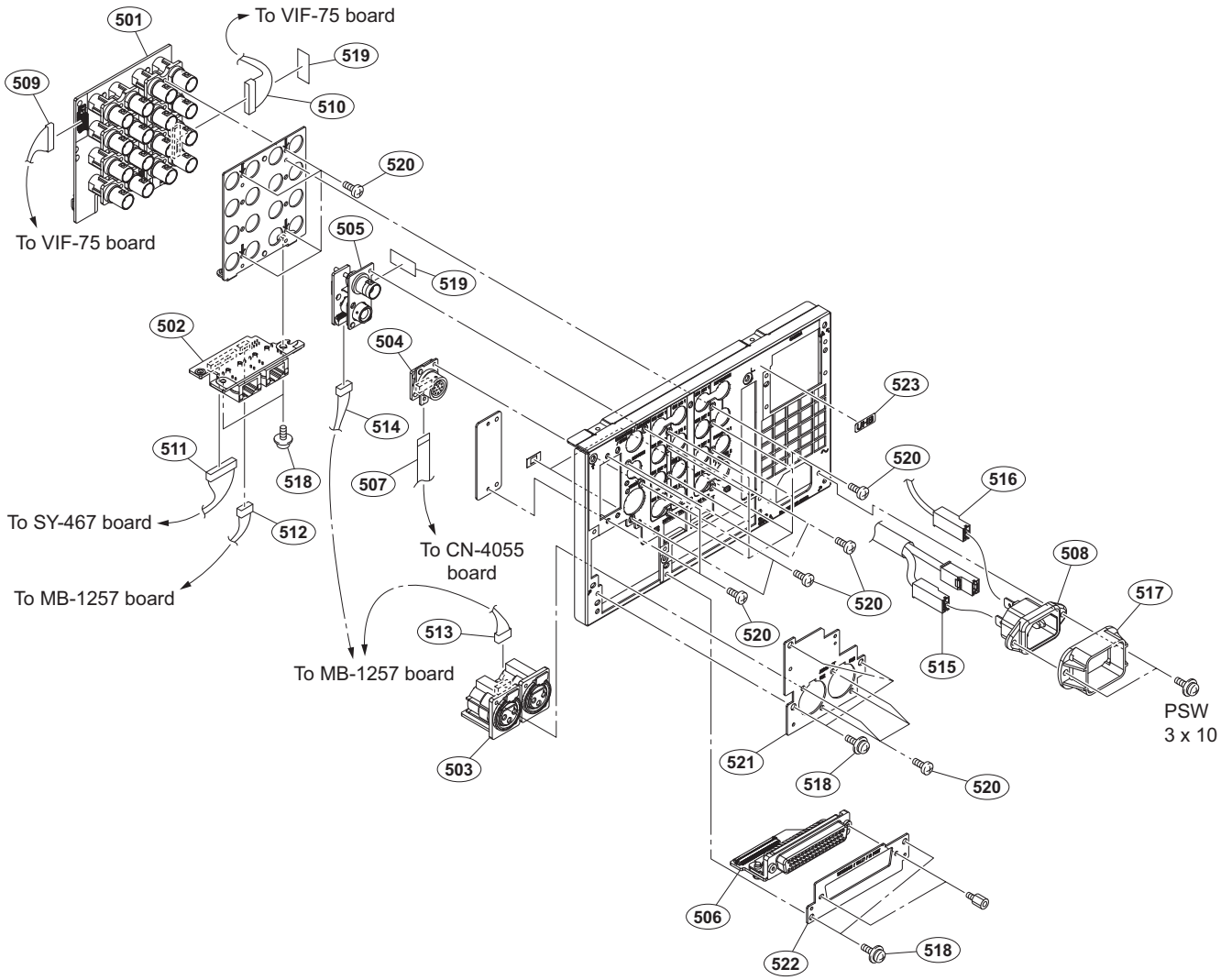
No.	Part No.	SP	Description
301	A-5001-894-A	s	TX-167A COMPL(PCD)
302	4-382-854-01	s	SCREW (M3X8), P, SW (+)
303	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
304	4-748-583-02	s	PANEL, SDI
305	4-748-822-01	s	SHEET, RADIATION (35X35) T0.5
306	5-004-264-01	s	SPRING, COMPRESSION

Chassis



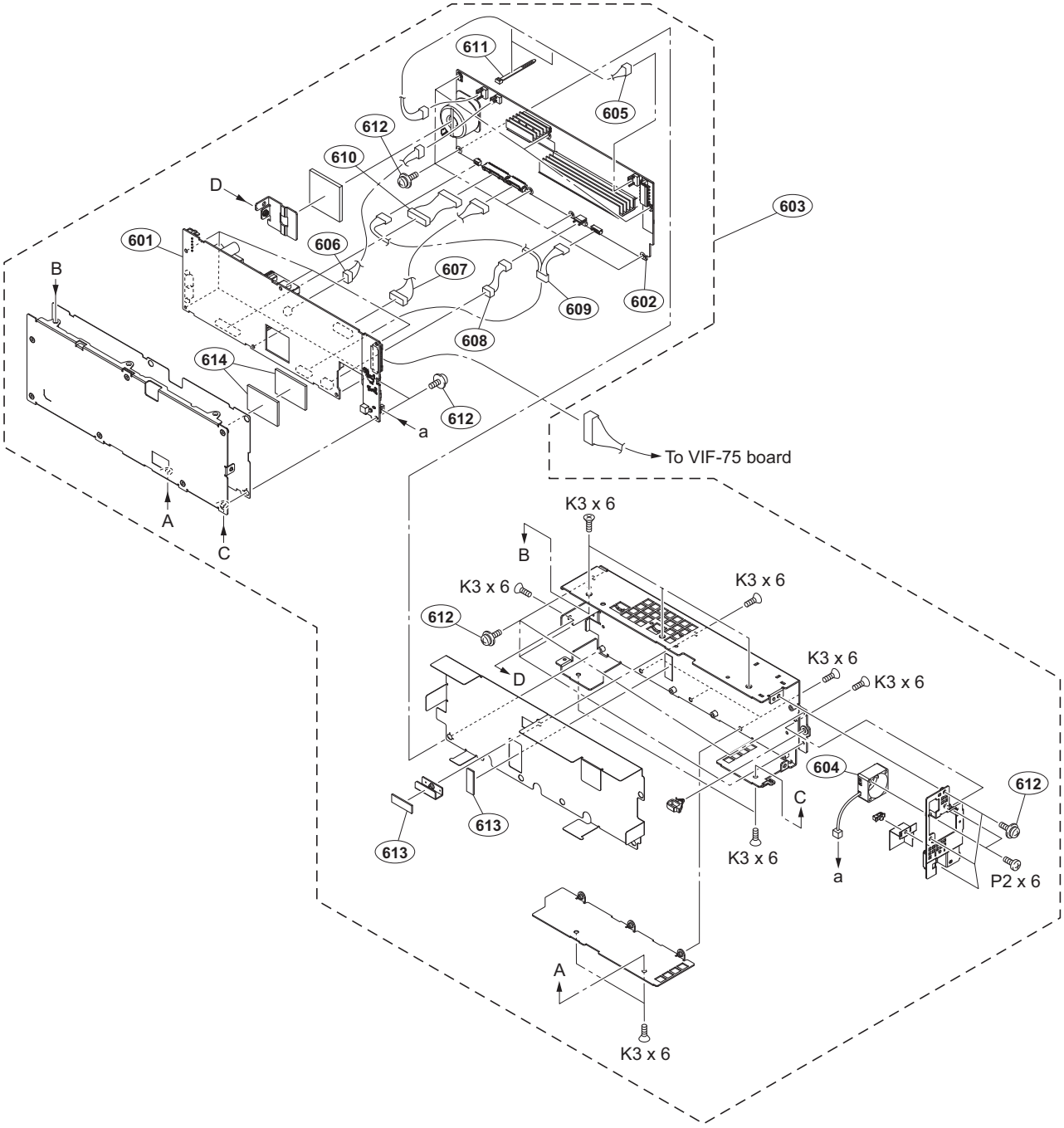
No.	Part No.	SP	Description
401	A-2225-948-A	s	MB-1257 MOUNT
402	1-849-394-11	s	CABLE, FLEXIBLE FLAT (60 CORE)
403	1-971-262-11	s	HARNESS, SUB (VIF POWER)
404	⚠ 1-972-256-11	s	HARNESS, SUB (POWER SW)
405	1-972-575-11	s	SUB HARNESS (SLOT POWER)
406	1-972-576-11	s	SUB HARNESS (DM POWER)170
407	4-077-459-01	s	CLAMP, FLAT (30)
408	4-198-668-01	s	SADDLE, LOCKING WIRE
409	4-382-854-01	s	SCREW (M3X8), P, SW (+)
	7-682-961-01	s	SCREW +PSW 4X8

Rear Panel



No.	Part No.	SP	Description
501	A-2225-949-A	s	HIF-76 MOUNT
502	A-2225-959-A	s	CN-4052 MOUNT
503	A-2225-960-A	s	CN-4053 MOUNT
504	A-2225-961-A	s	CN-4054 MOUNT
505	A-2225-962-A	s	CN-4055 MOUNT
506	A-2225-964-A	s	CN-4057 MOUNT
507	1-836-443-11	s	CABLE, FLEXIBLE FLAT (15 CORE)
508	⚠ 1-842-404-11	s	AC INLET (SCREW) 3P FASTEN
509	1-912-966-11	s	MICRO COAXIAL CABLE(CA30-300-1
510	1-912-967-11	s	MICRO COAXIAL CABLE(CA40-325-1
511	1-968-193-11	s	HARNESS(COAXIAL CABLE)
512	1-969-849-21	s	SUB HARNESS(HANDLE TALLY)
513	1-971-260-11	s	HARNESS, SUB (VIF-CN)
514	1-971-529-11	s	HARNESS, SUB (DPR2)
515	1-972-258-12	s	HARNESS, SUB (AC IN)
516	⚠ 1-972-259-11	s	HARNESS, SUB (EARTH)
517	2-990-241-02	s	HOLDER (A), PLUG
518	4-382-854-01	s	SCREW (M3X8), P, SW (+)
519	4-431-734-01	s	TAPE AS
520	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
521	4-748-471-01	s	PANEL, AUDIO
522	4-748-472-01	s	PANEL, D-SUB
523	5-004-742-01	s	LABEL UHB
	7-682-949-01	s	SCREW +PSW 3X10

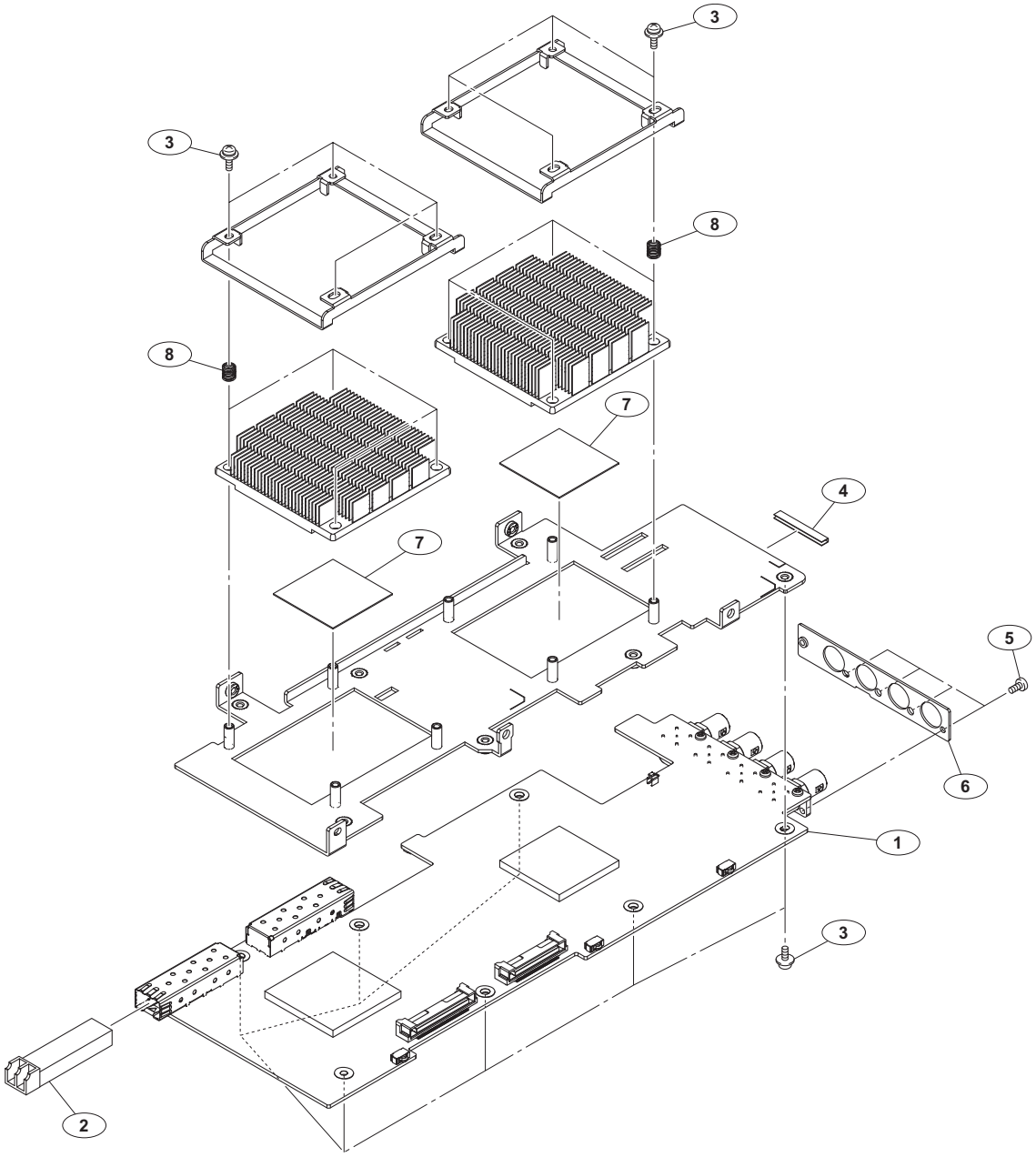
Power Block



No.	Part No.	SP	Description
601	A-2218-257-A	s	RE-345 COMPL
602	A-2218-360-A	s	PS-939 MOUNT
603	⚠ A-5003-492-A	s	POWER ASSY H
604	1-855-096-31	s	DC FAN
605	1-972-266-11	s	SUB HARNESS AC
606	1-972-267-11	s	SUB HARNESS HV
607	1-972-268-11	s	SUB HARNESS SECONDARY F
608	1-972-269-11	s	SUB HARNESS PFC
609	1-972-270-11	s	SUB HARNESS PRIMARY SIGNAL
610	1-972-271-11	s	SUB HARNESS SECONDARY R
611	3-655-653-01	s	BAND (TAITON), BINDING
612	4-382-854-51	s	SCREW (M3X6), P, SW (+)
613	4-427-952-02	s	RADIATION SHEET D
614	4-462-217-02	s	SHEET (H), RADIATION

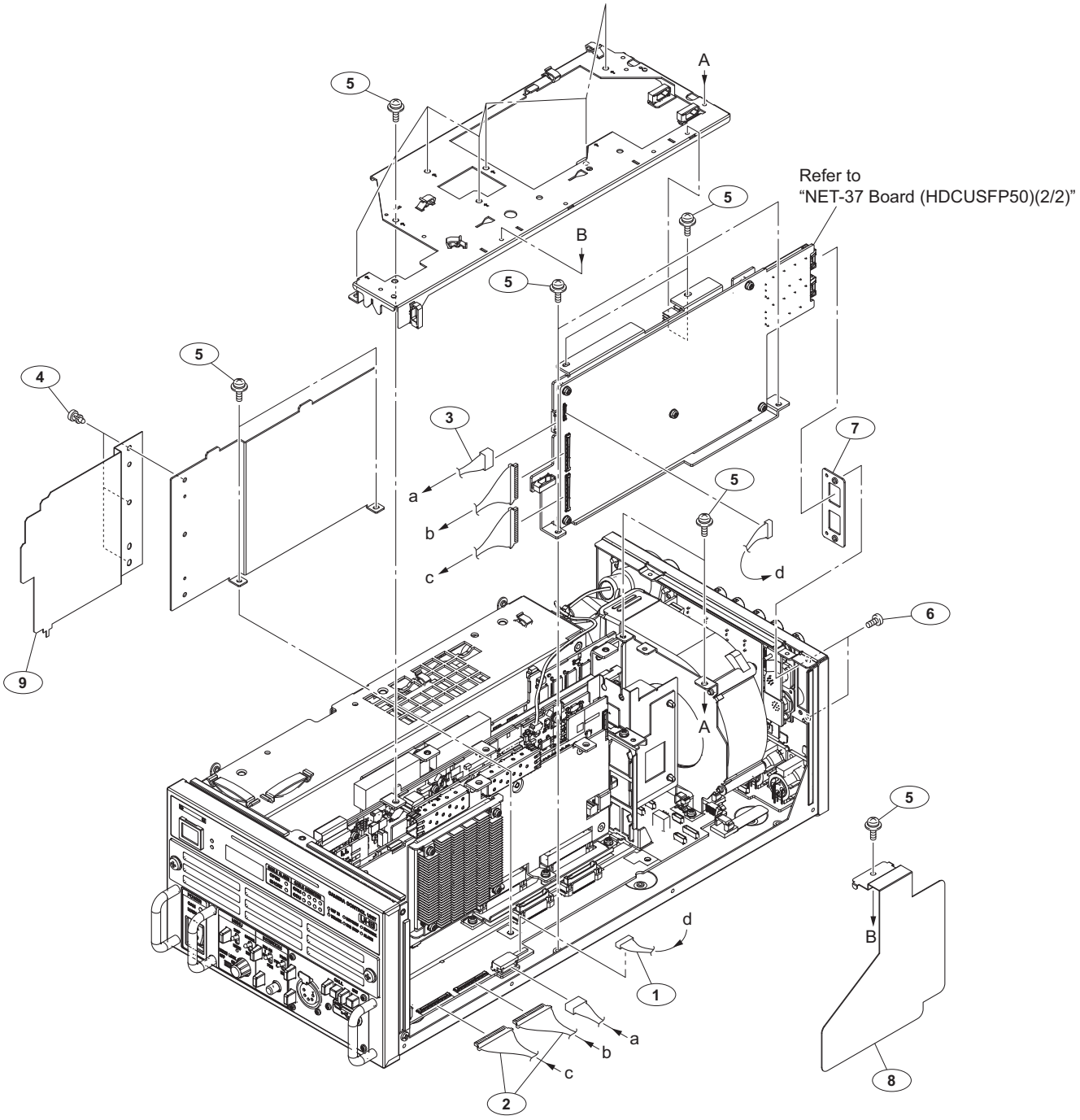
No.	Part No.	SP	Description
	7-627-554-27	s	SCREW, PRECITION +P 2X6 TYPE1
	7-682-247-04	s	SCREW +K 3X6

TX-167B Board (HKCU-FB50)



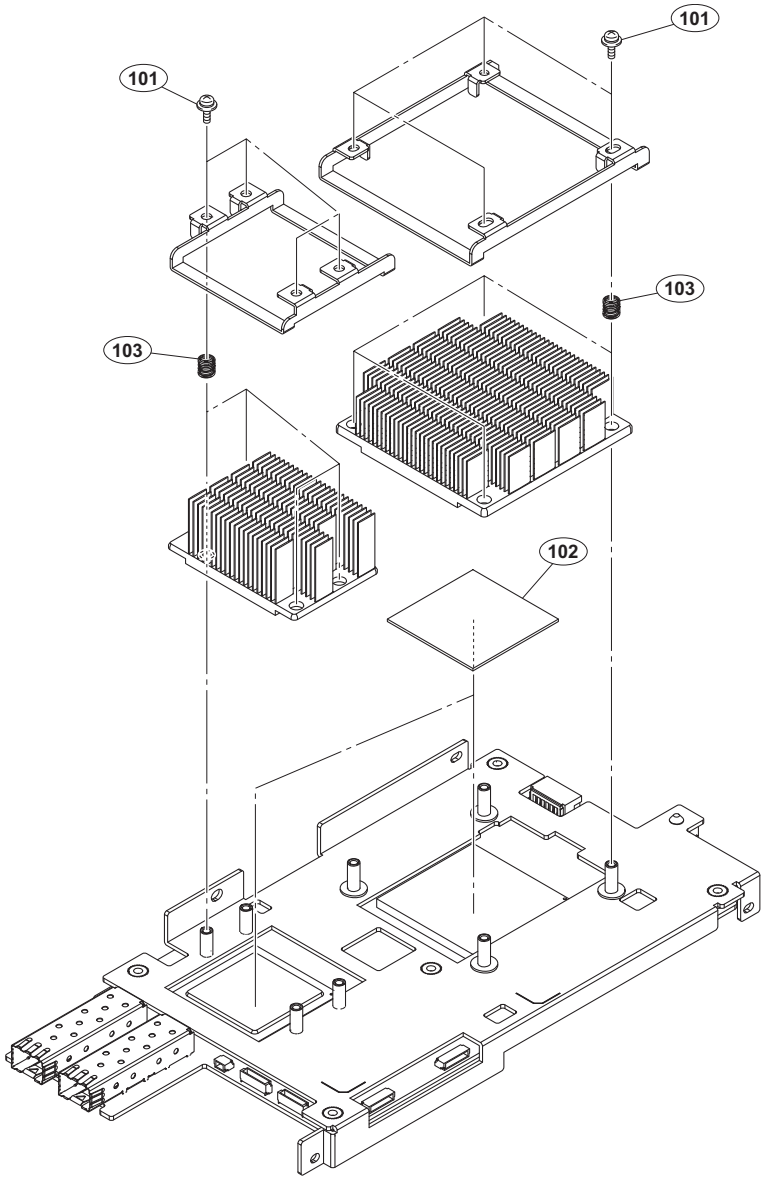
No.	Part No.	SP	Description
1	A-5001-895-A	s	TX-167B COMPL
2	⚠ 1-510-062-11	s	OPTICAL MODULE (SFP)
3	4-382-854-01	s	SCREW (M3X8), P, SW (+)
4	4-431-734-01	s	TAPE AS
5	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
6	4-748-583-02	s	PANEL, SDI
7	4-748-822-01	s	SHEET, RADIATION (35X35) T0.5
8	5-004-264-01	s	SPRING, COMPRESSION

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



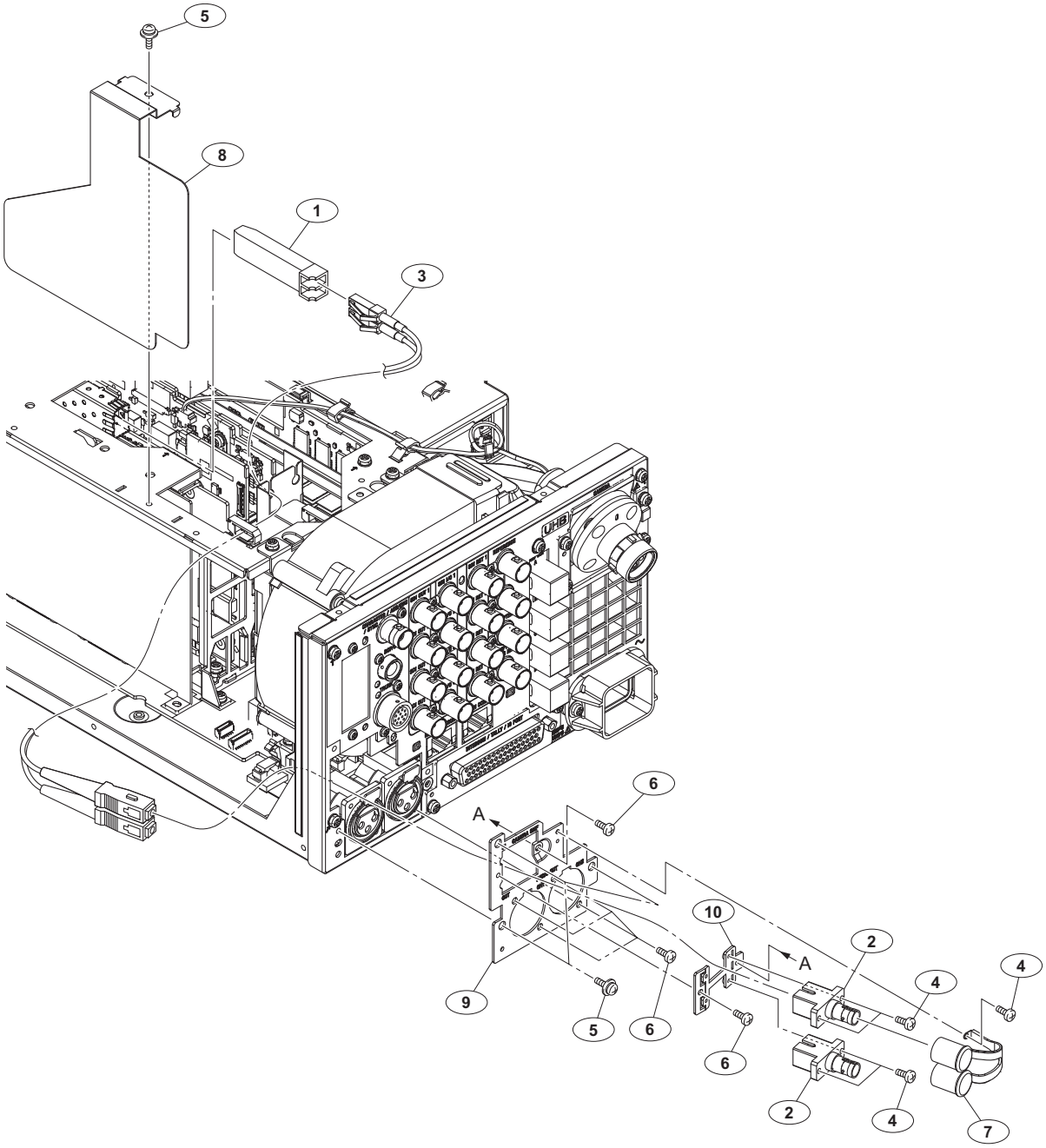
No.	Part No.	SP	Description
1	1-912-393-11	s	CONNECTION CABLE WITH COAXIAL
2	1-912-709-11	s	MICRO COAXIAL CABLE (CA60 155
3	1-972-575-11	s	SUB HARNESS (SLOT POWER)
4	3-531-576-01	s	RIVET
5	4-382-854-01	s	SCREW (M3X8), P, SW (+)
6	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
7	4-729-417-01	s	BRACKET, NET
8	5-002-721-01	s	SHEET (FIBER), COVER
9	5-004-431-01	s	AIR DISTRIBUTOR F (NET)

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



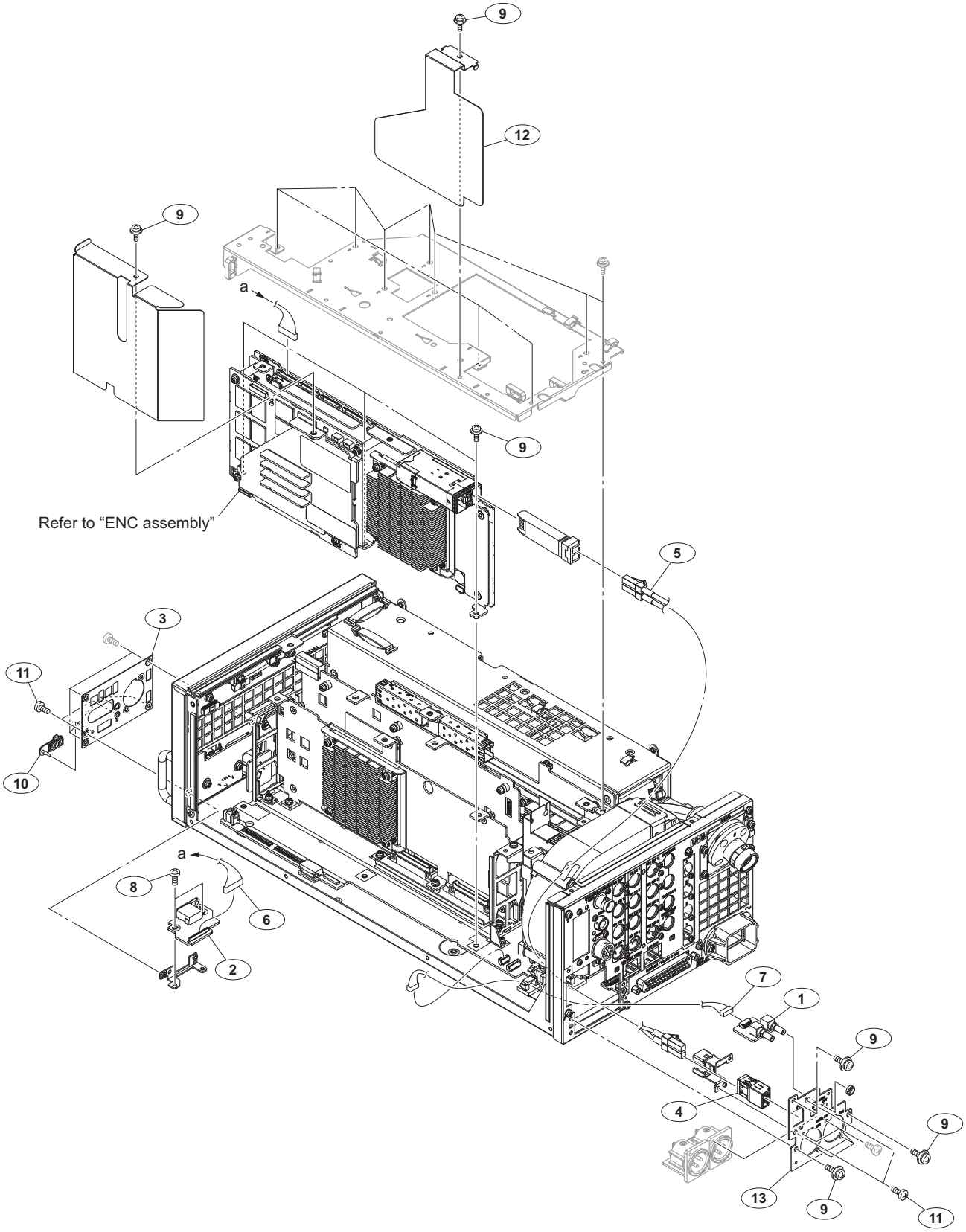
No.	Part No.	SP	Description
101	4-382-854-01	s	SCREW (M3X8), P, SW (+)
102	5-004-102-01	s	SHEET, RADIATION(40X40) T1
103	5-004-264-01	s	SPRING, COMPRESSION

HKCU-SM50



No.		Part No.	SP	Description
1	⚠	1-510-039-11	s	OPTICAL MODULE
2		1-843-839-11	s	SC-ST OPTICAL FIBER ADAPTOR
3		1-849-778-11	s	SC-LC OPTICAL FIBER CABLE
4		3-719-381-22	s	SCREW (M2X6)
5		4-382-854-01	s	SCREW (M3X8), P, SW (+)
6		4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
7		4-579-333-01	s	CAP, ST CONNECTER
8		5-002-721-01	s	SHEET (FIBER), COVER
9		5-004-992-01	s	PANEL, SMF
10		5-004-993-01	s	BRACKET, SMF

ENC Assembly (HKCU-REC55) (1/2)

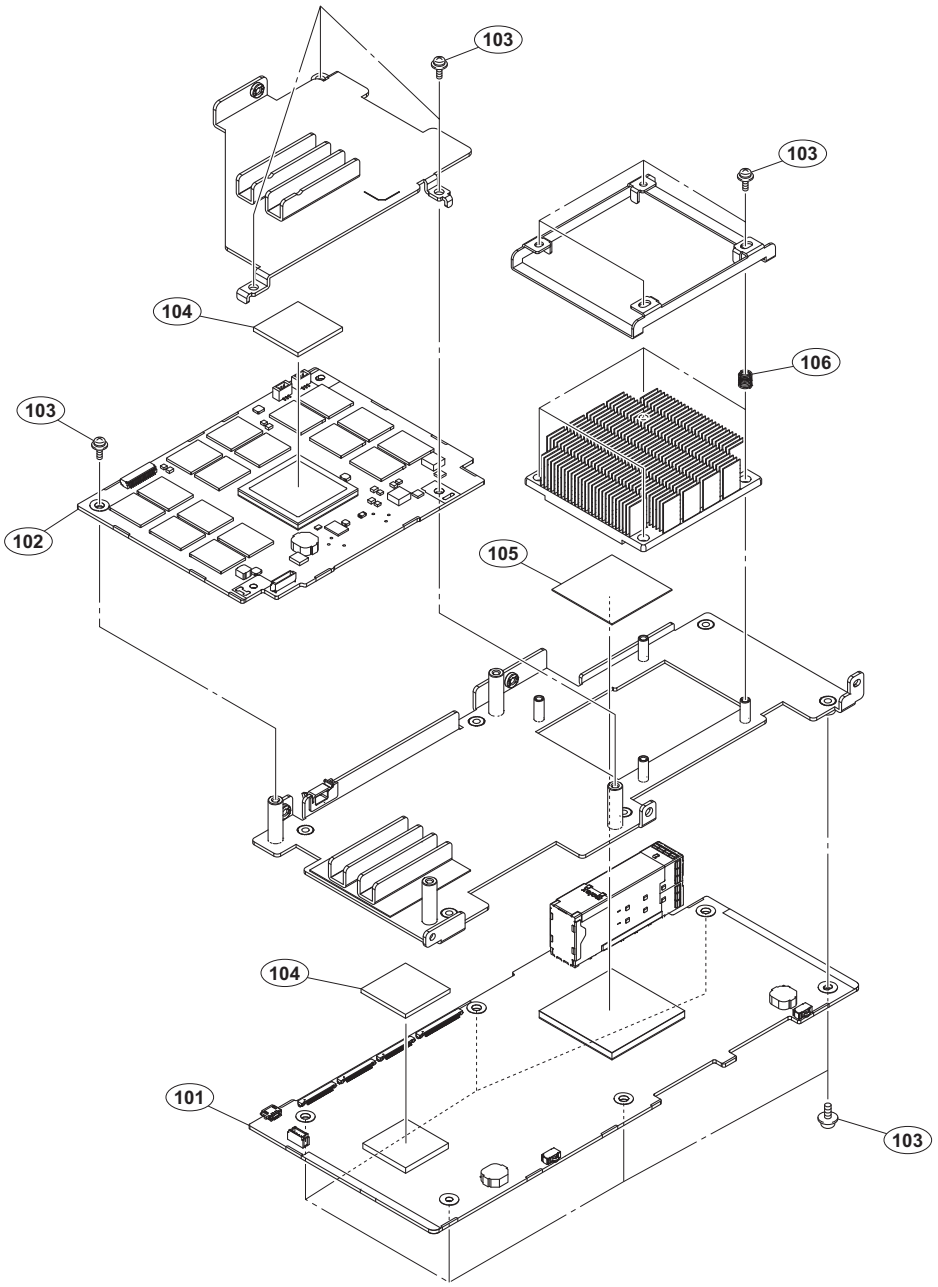


No.	Part No.	SP	Description
1	A-2225-971-A	s	CN-4058 MOUNT
2	A-2229-250-A	s	MOUNT, IF-1371
3	A-5017-530-A	s	ASSY, INCOM PANEL
4	1-005-666-11	s	OPTICAL CONNECTOR (LC ADAPTER)
5	1-005-667-11	s	OPTICAL FIBER CABLE (LC) 2P
6	1-969-481-21	s	WIRE, CONNECTOR WITH LEAD (HPR
7	1-970-388-11	s	HARNESS, SUB(HANDLE)
8	3-725-295-21	s	SCREW, (+) (B3)

ENC Assembly (HKCU-REC55) (1/2)

No.	Part No.	SP	Description
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	5-002-721-01	s	SHEET (FIBER), COVER
13	5-011-474-01	s	PANEL, AUDIO (REC)

ENC Assembly (HKCU-REC55) (2/2)



No.	Part No.	SP	Description
101	A-5007-560-A	s	ENC-185 COMPL
102	A-5007-562-A	s	MDC-23 COMPL
103	4-382-854-01	s	SCREW (M3X8), P, SW (+)
104	4-471-145-11	s	SHEET, RADIATION (L)
105	4-748-822-02	s	SHEET, RADIATION (35X35) T0.5
106	5-004-264-01	s	SPRING, COMPRESSION

7-3. Supplied Accessories

HDCU3500/5500

Q'ty	Part No.	SP	Description
1pc	A-8278-054-B	s	REMOTE INDICATOR ASSY
1pc	⚠ 5-006-303-01	s	CD-ROM PACK

HKCU-FB50

Q'ty	Part No.	SP	Description
1pc	3-704-046-31	s	BAG,PREVENTION,ELECTRIFICATION
2pcs	5-004-742-01	s	LABEL UHB
1pc	5-006-306-01	s	OPERATING INSTRUCTIONS
1pc	5-006-306-11	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
2pcs	5-002-721-01	s	SHEET (FIBER), COVER
1pc	5-004-431-01	s	AIR DISTRIBUTOR F (NET)
1pc	5-006-307-01	s	OPERATING INSTRUCTIONS
1pc	5-006-307-11	s	OPERATING INSTRUCTIONS

HKCU-SM50

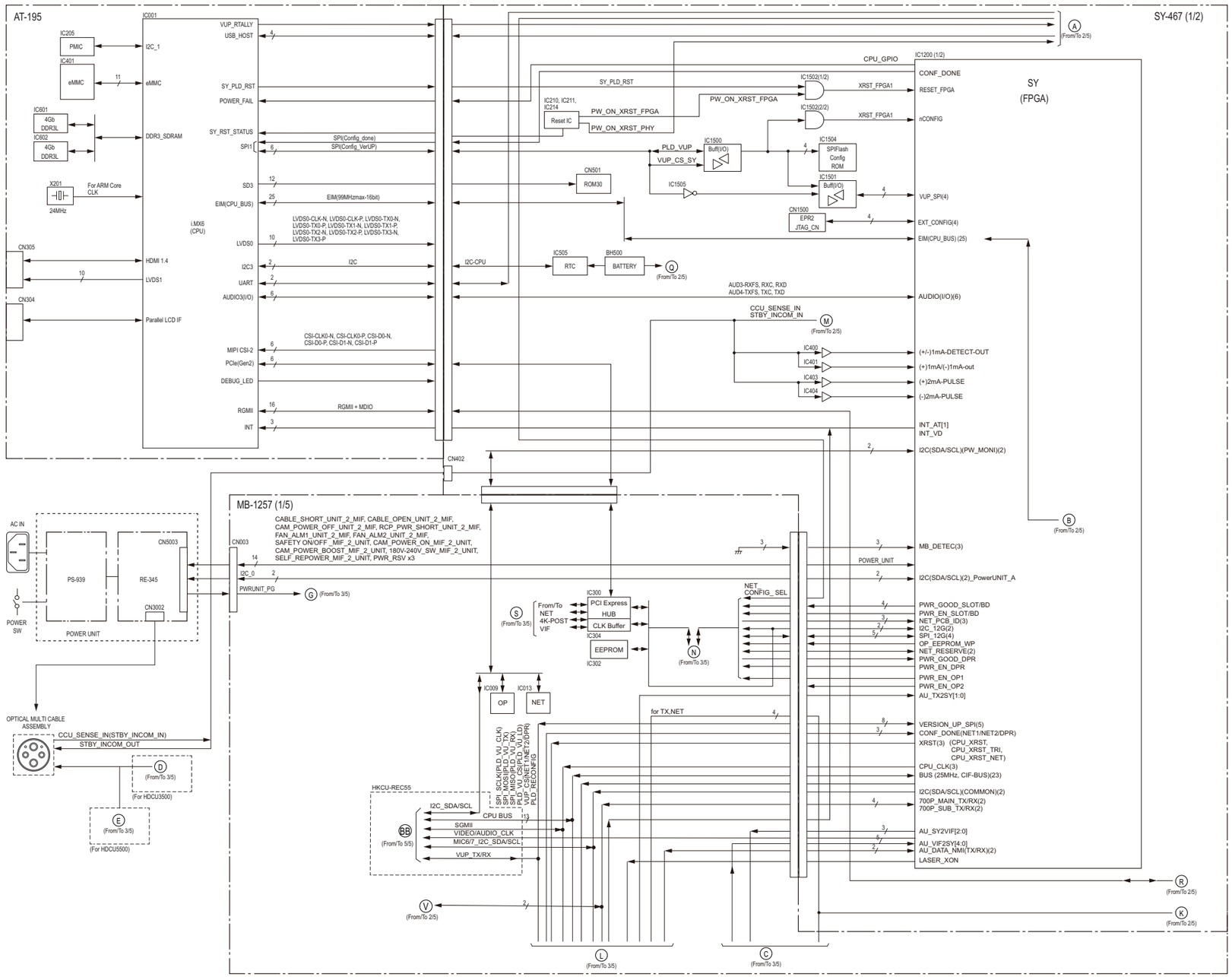
Q'ty	Part No.	SP	Description
1pc	⚠ 1-510-039-11	s	OPTICAL MODULE
1pc	1-849-778-11	s	SC-LC OPTICAL FIBER CABLE
1pc	4-382-854-01	s	SCREW (M3X8), P, SW (+)
1pc	5-002-721-01	s	SHEET (FIBER), COVER
1pc	5-006-308-01	s	OPERATING INSTRUCTIONS
1pc	5-006-308-11	s	OPERATING INSTRUCTIONS

HKCU-REC55

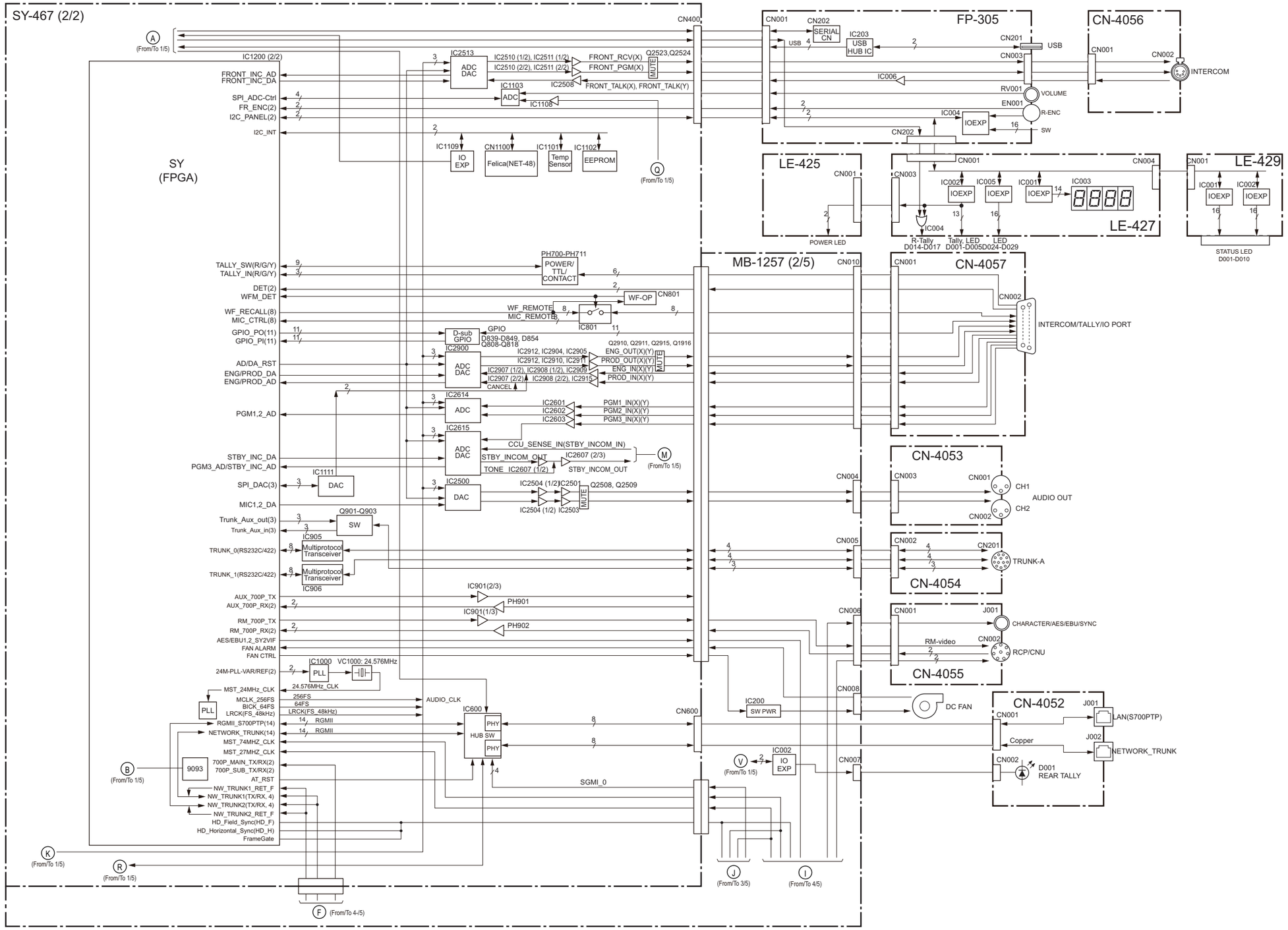
Q'ty	Part No.	SP	Description
1pc	1-005-667-11	s	OPTICAL FIBER CABLE (LC) 2P
1pc	1-969-481-21	s	WIRE, CONNECTOR WITH LEAD (HPR
1pc	1-970-388-11	s	HARNESS, SUB(HANDLE)
1pc	3-704-046-31	s	BAG,PREVENTION,ELECTRIFICATION
7pcs	4-382-854-01	s	SCREW (M3X8), P, SW (+)
2pcs	4-559-446-02	s	SCREW, +P2.6X5 NEW TRUSTER
1pc	5-002-721-01	s	SHEET (FIBER), COVER
15pcs	7-600-006-43	s	TAPE (NITTO NO.223S) 9X20M

Section 8
Diagrams

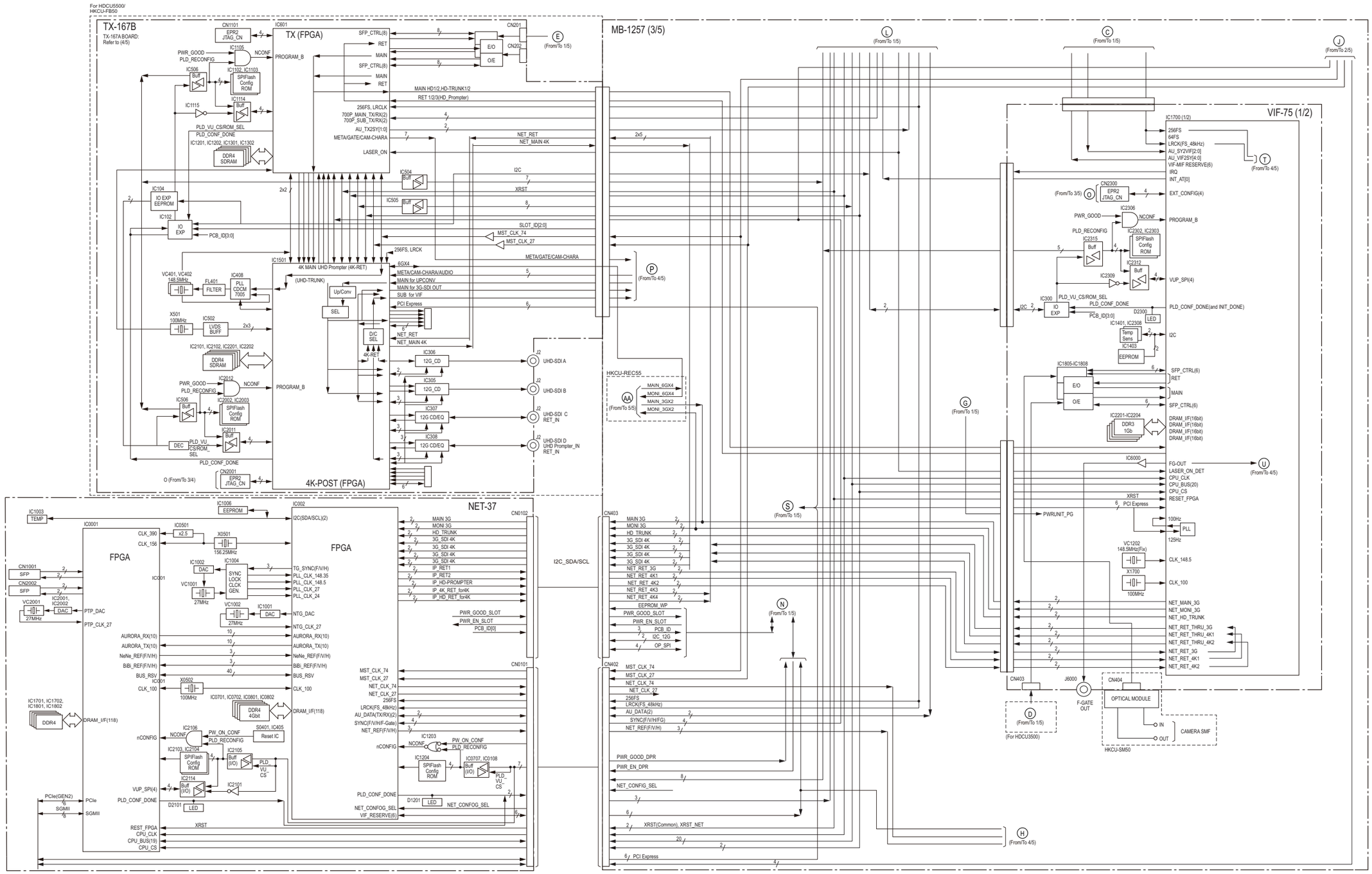
Overall
Overall (1/5)



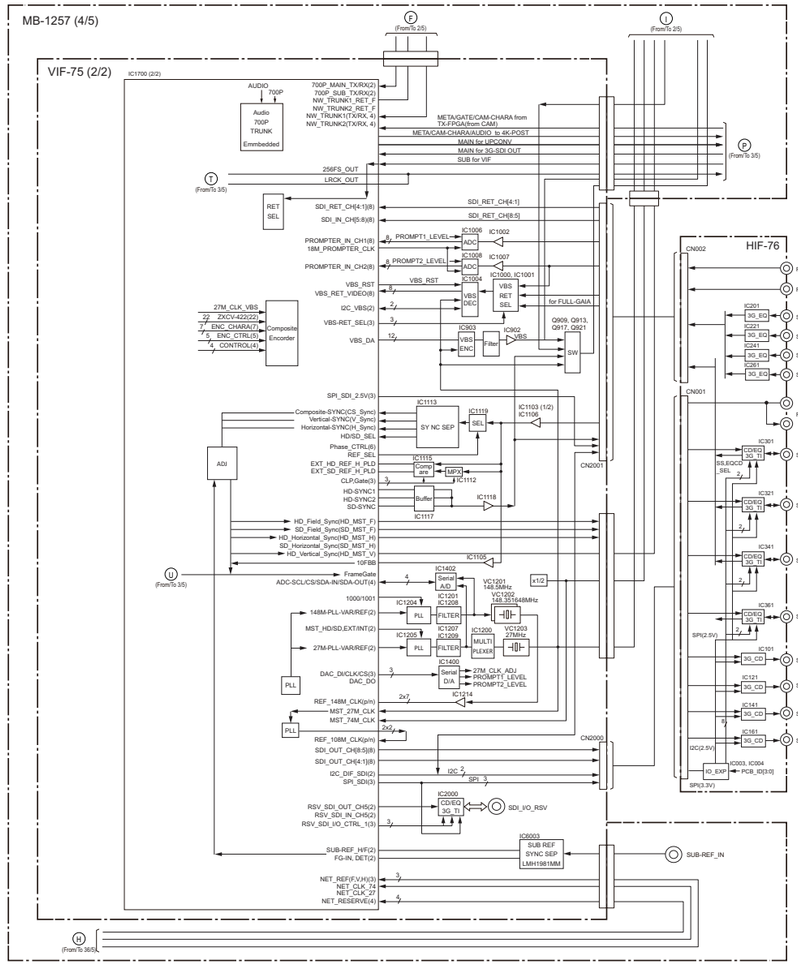
Overall (2/5)

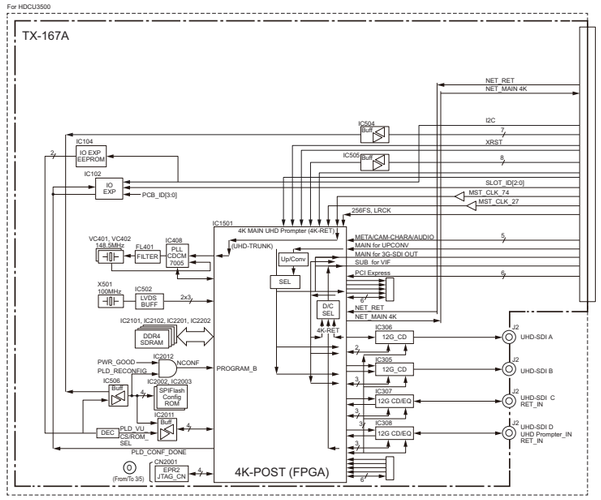

SY-467 (2/2)
SY
(FPGA)
IC1200 (2/2)
CN400
FP-305
CN-4056
LE-425
LE-427
LE-429
MB-1257 (2/5)
CN-4057
CN-4053
CN-4054
CN-4055
CN-4052
IC2513
ADC DAC
IC1103
ADC
IC1108
IC2508
IC1109
IO EXP
CN1100
Felica(NET-48)
IC1101
Temp Sensor
IC1102
EEPROM
IC2900
IC2614
IC2615
IC2500
DAC
IC1111
IC1000
PLL
VC1000: 24.576MHz
IC600
HUB SW
PHY
9093
IC905
IC906
Multiprotocol Transceiver
Q901-Q903
SW
PH700-PH711
POWER/ TTL/ CONTACT
CN801
WF-OP
IC801
D-sub GPIO
IC2607 (2/3)
IC2504 (1/2)
IC2501
IC2503
Q2508, Q2509
IC901(2/3)
IC901(1/3)
PH901
PH902
IC200
SW PWR
IC002
IO EXP
CN600
CN001
CN002
CN003
CN004
CN005
CN006
CN007
CN008
CN010
CN201
CN202
SERIAL CN
IC203
USB HUB IC
IC006
RV001
VOLUME
EN001
R-ENC
SW
IC004
IOEXP
IC001
IC002
IC003
IC005
R-Tally D014-D017
Tally, LED D001-D005D024-D029
LED D001-D010
POWER LED
STATUS LED D001-D010
INTERCOM
INTERCOM/TALLY/IO PORT
AUDIO OUT
CH1
CH2
TRUNK-A
CHARACTER/AES/EBU/SYNC
RCP/CNU
RM-video
DC FAN
LAN(S700PTP)
NETWORK_TRUNK
Copper
D001
REAR TALLY
J001
J002
Q2523,Q2524
Q2910, Q2911, Q2915, Q1916
Q2504 (1/2)
Q901-Q903
FRONT_INC_AD
FRONT_INC_DA
SPI_ADC-Ctrl
FR_ENC(2)
I2C_PANEL(2)
I2C_INT
IC2510 (1/2), IC2511 (1/2)
IC2510 (2/2), IC2511 (2/2)
FRONT_RCV(X)
FRONT_PGM(X)
FRONT_TALK(X), FRONT_TALK(Y)
MUTE
TALLY_SW(R/G/Y)
TALLY_IN(R/G/Y)
DET(2)
WFM_DET
WF_RECALL(8)
MIC_CTRL(8)
WF_REMOTE
MIC_REMOTE
GPIO_PO(11)
GPIO_PI(11)
GPIO
D839-D849, D854
Q808-Q818
AD/DA_RST
ENG/PROD_DA
ENG/PROD_AD
IC2912, IC2904, IC2905
IC2912, IC2910, IC2911
IC2907 (1/2), IC2908 (1/2), IC2909
IC2907 (2/2)
IC2908 (2/2), IC2915
CANCEL
ENG_OUT(X)(Y)
PROD_OUT(X)(Y)
ENG_IN(X)(Y)
PROD_IN(X)(Y)
PGM1,2_AD
IC2601
IC2602
IC2603
PGM1_IN(X)(Y)
PGM2_IN(X)(Y)
PGM3_IN(X)(Y)
STBY_INC_DA
PGM3_AD/STBY_INC_AD
CCU_SENSE_IN(STBY_INCOM_IN)
STBY_INCOM_OUT
TONE_IC2607 (1/2)
SPI_DAC(3)
MIC1,2_DA
Trunk_Aux_out(3)
Trunk_Aux_in(3)
TRUNK_0(RS232C/422)
TRUNK_1(RS232C/422)
AUX_700P_TX
AUX_700P_RX(2)
RM_700P_TX
RM_700P_RX(2)
AES/EBU1,2_SY2VIF
FAN ALARM
FAN CTRL
24M-PLL-VAR/REF(2)
MST_24MHz_CLK
MCLK_256FS
BICK_64FS
LRCK(FS_48kHz)
24.576MHz_CLK
256FS
64FS
AUDIO_CLK
RGMII_S700PTP(14)
NETWORK_TRUNK(14)
MST_74MHZ_CLK
MST_27MHZ_CLK
700P_MAIN_TX/RX(2)
700P_SUB_TX/RX(2)
AT_RST
NW_TRUNK1_RET_F
NW_TRUNK1(TX/RX, 4)
NW_TRUNK2(TX/RX, 4)
NW_TRUNK2_RET_F
HD_Field_Sync(HD_F)
HD_Horizontal_Sync(HD_H)
FrameGate
RGMII
SGMI_0
(From/To 1/5)
(From/To 3/5)
(From/To 4/5)
(From/To 4-/5)

Overall (3/5)

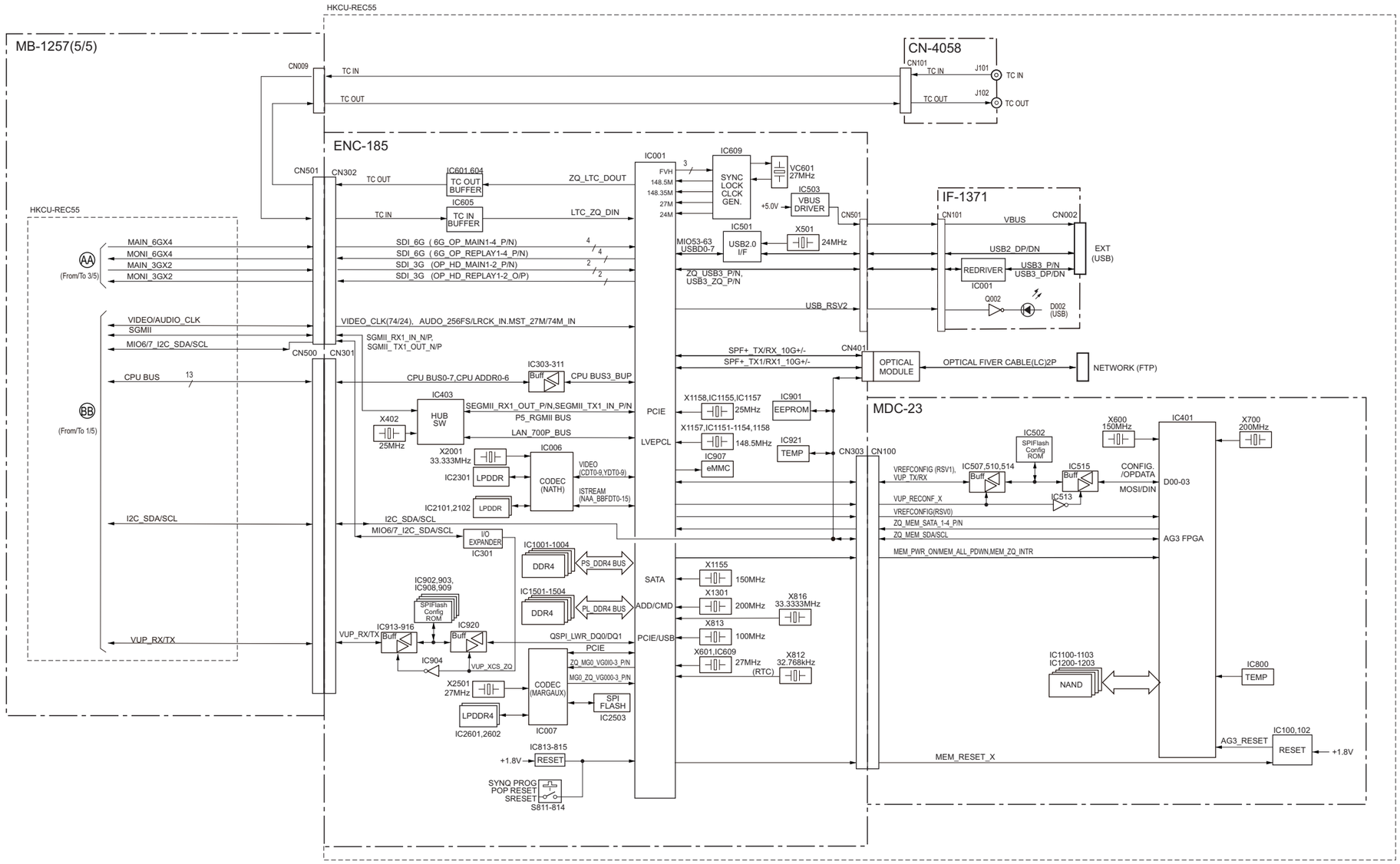

For HDCU5500/
HKCU-FB50
TX-167B
TX-167A BOARD:
Refer to (4/5)
TX (FPGA)
4K-POST (FPGA)
MB-1257 (3/5)
VIF-75 (1/2)
NET-37
FPGA
HKCU-REC55
OPTICAL MODULE
CAMERA SMF
HKCU-SM50
(For HDCU3500)
I2C_SDA/SCL
(From/To 1/5)
(From/To 2/5)
(From/To 3/5)
(From/To 4/5)
(From/To 5/5)
(For HDCU3500)

Overall (4/5)

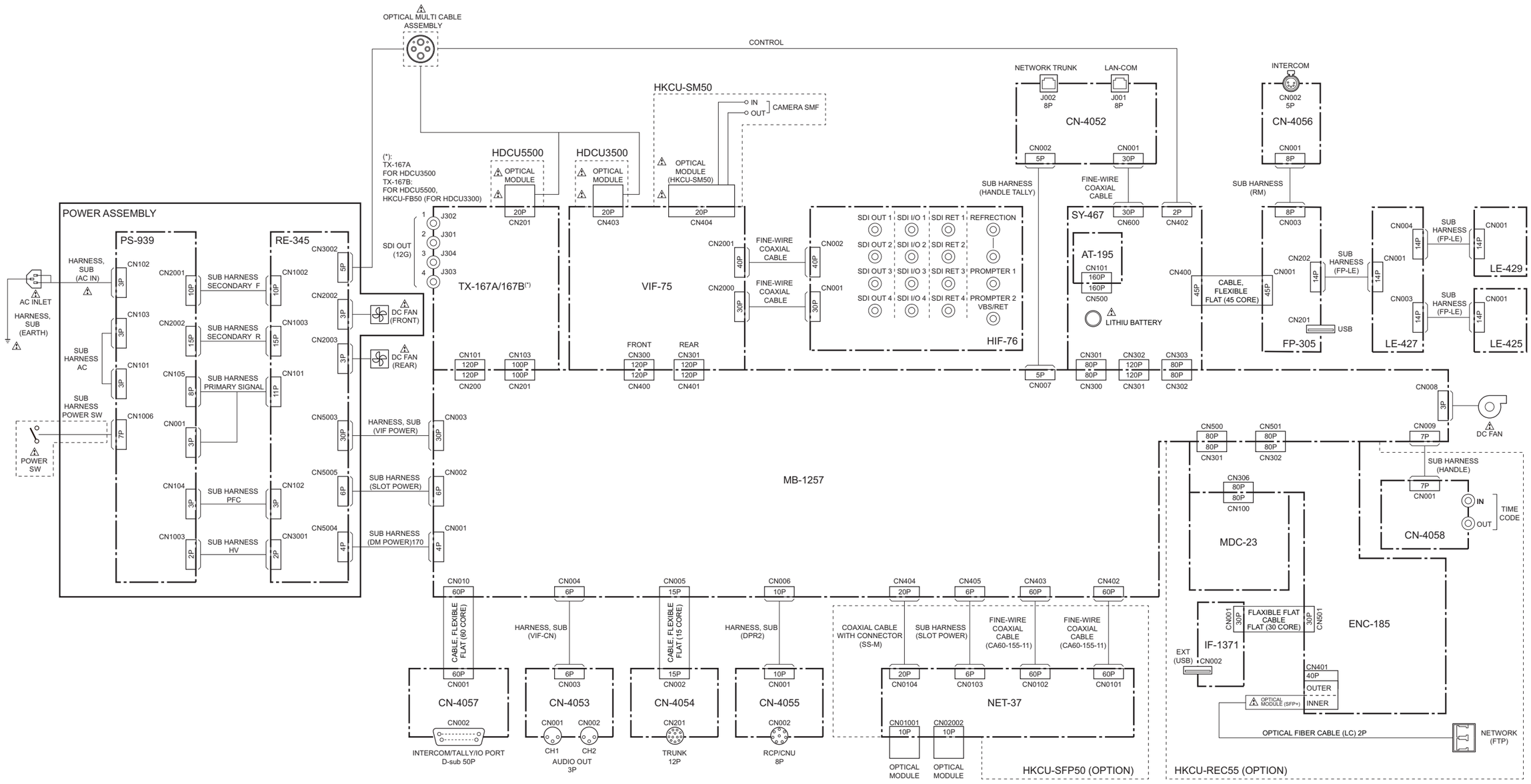

MB-1257 (4/5)
VIF-75 (2/2)
IC1700 (2/2)
HIF-76
AUDIO
700P
Audio 700P TRUNK Embmedded
700P_MAIN_TX/RX(2)
700P_SUB_TX/RX(2)
NW_TRUNK1_RET_F
NW_TRUNK2_RET_F
NW_TRUNK1(TX/RX, 4)
NW_TRUNK2(TX/RX, 4)
META/GATE/CAM-CHARA from TX-FPGA(from CAM)
META/CAM-CHARA/AUDIO to 4K-POST
MAIN for UPCONV
MAIN for 3G-SDI 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[8:5]
PROMPTER_IN_CH1(8)
18M_PROMPTER_CLK
PROMPTER_IN_CH2(8)
PROMPT1_LEVEL
PROMPT2_LEVEL
IC1006
IC1008
IC1004
IC1002
IC1007
IC1000, IC1001
VBS_RST
VBS_RET_VIDEO(8)
I2C_VBS(2)
VBS_RET_SEL(3)
VBS_DA
VBS DEC
VBS RET SEL
for FULL-GAIA
27M_CLK_VBS
ZXCV-422(22)
ENC_CHARA(7)
ENC_CTRL(5)
CONTROL(4)
Composite Encorder
IC1903
VBS ENC
Filter
IC1902
VBS
Q909, Q913, Q917, Q921
SW
PROMPTER 1
PROMPTER 2 VBS/RET
SDI RET 1
SDI RET 2
SDI RET 3
SDI RET 4
IC2301
IC2221
IC2241
IC2261
3G_EQ
CN002
CN001
CN2001
CN2000
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
EXT_HD_REF_H_PLD
EXT_SD_REF_H_PLD
CLP,Gate(3)
HD-SYNC1
HD-SYNC2
SD-SYNC
IC1113
SY NC SEP
IC1119
SEL
IC1103 (1/2)
IC1106
IC1115
Comp are
MP3
IC1112
Buffer
IC1118
IC1117
REFRECTION
ADI
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
FrameGate
ADC-SCL/CS/SDA-IN/SDA-OUT(4)
IC1105
IC1402
Serial A/D
VC1201 148.5MHz
VC1202 148.351648MHz
x1/2
1000/1001
148M-PLL-VAR/REF(2)
MST_HD/SD,EXT/INT(2)
27M-PLL-VAR/REF(2)
IC1204
IC1205
PLL
IC1201
IC1208
IC1207
IC1209
FILTER
IC1200
MULTI PLEXER
VC1203 27MHz
IC1400
Serial D/A
27M_CLK_ADJ
PROMPT1_LEVEL
PROMPT2_LEVEL
IC1214
DAC_DI/CLK/CS(3)
DAC_DO
REF_148M_CLK(p/n)
MST_27M_CLK
MST_74M_CLK
REF_108M_CLK(p/n)
SDI_OUT_CH[8:5]/8
SDI_OUT_CH[4:1]/8
I2C_DIF_SDI(2)
SPI_SDI(3)
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_IN
SUB-REF_H/F(2)
FG-IN, DET(2)
NET_REF(F,V,H)(3)
NET_CLK_74
NET_CLK_27
NET_RESERVE(4)
SDI I/O 1
SDI I/O 2
SDI I/O 3
SDI I/O 4
SDI OUT 1
SDI OUT 2
SDI OUT 3
SDI OUT 4
IC301
IC321
IC341
IC361
IC101
IC121
IC141
IC161
CD/EQ 3G_TI
3G_CD
SS,EQCD_SEL
SPI(2.5V)
I2C(2.5V)
SPI(3.3V)
IO_EXP
IC003, IC004
PCB_ID[3:0]
(From/To 2/5)
(From/To 3/5)
(From/To 36/5)


For HDCU3500
TX-167A
4K-POST (FPGA)
IC104
IO EXP EEPROM
IC102
IO EXP
PCB_ID[3:0]
IC504
IC505
I2C
XRST
SLOT_ID[2:0]
MST_CLK_74
MST_CLK_27
256FS, LRCK
IC1501
4K MAIN UHD Prompter (4K-RET)
(UHD-TRUNK)
VC401, VC402 148.5MHz
FI401
FILTER
IC408
PLL LDCN 7005
META/CAM-CHARA/AUDIO
MAIN for UPCONV
MAIN for 3G-SDI OUT
SUB_for VIF
PCI Express
X501 100MHz
IC502
LVDS BUFF
2x7
IC2101, IC2102, IC2201, IC2202
DDR4 SDRAM
NET_RET
NET_MAIN 4K
4K-RET
Up/Conv
SEL
D/C SEL
IC306
IC305
IC307
IC308
12G_CD
12G CD/EQ
UHD-SDI A
UHD-SDI B
UHD-SDI C RET_IN
UHD-SDI D UHD Prompter_IN RET_IN
PWR_GOOD
PLD_RECONFIG
IC2012
NCONFIG
PROGRAM_B
IC506
ROM
IC2002, IC2003
SPIFlash Config ROM
IC2011
Buff
DEC_PROM
PLD_VU_PROM_SEL
PLD_CONF_DONE
CN2001
EPR2 (JTAG_CN)
(From/To 3/5)

Overall (5/5)


HKCU-REC55
MB-1257(5/5)
CN009
TC IN
TC OUT
CN-4058
CN101
J101
J102
ENC-185
CN501
CN302
IC601,604
TC OUT BUFFER
ZQ_LTC_DOUT
IC605
TC IN BUFFER
LTC_ZQ_DIN
IC001
FVH
148.5M
148.35M
27M
24M
IC609
SYNC LOCK CLCK GEN.
VC601 27MHz
IC503
VBUS DRIVER
+5.0V
IF-1371
CN002
VBUS
USB2_DP/DN
USB3_P/N
USB3_DP/DN
EXT (USB)
REDRIVER
IC501
USB2.0 I/F
X501
24MHz
MIO53-63 USBD0-7
ZQ_USB3_P/N, USB3_ZQ_P/N
USB_RSV2
Q002
D002 (USB)
HKCU-REC55
MAIN_6GX4
MONI_6GX4
MAIN_3GX2
MONI_3GX2
(From/To 3/5)
SDI_6G_(6G_OP_MAIN1-4_P/N)
SDI_6G_(6G_OP_REPLAY1-4_P/N)
SDI_3G_(OP_HD_MAIN1-2_P/N)
SDI_3G_(OP_HD_REPLAY1-2_O/P)
VIDEO/AUDIO_CLK
SGMII
MIO6/7_I2C_SDA/SCL
VIDEO_CLK(74/24), AUDO_256FS/LRCK_IN.MST_27M/74M_IN
SGMII_RX1_IN_N/P,
SGMII_ TX1_OUT_N/P
CN500
CN301
CPU BUS
13
CPU BUS0-7,CPU ADDR0-6
IC303-311
Buff
CPU BUS3_BUP
SPF+_TX/RX_10G+/-
SPF+_TX1/RX1_10G+/-
CN401
OPTICAL MODULE
OPTICAL FIVER CABLE(LC)2P
NETWORK (FTP)
(From/To 1/5)
IC403
HUB SW
SEGMII_RX1_OUT_P/N,SEGMII_TX1_IN_P/N
P5_RGMII BUS
LAN_700P_BUS
X402
25MHz
X2001
33.333MHz
IC006
CODEC (NATH)
VIDEO (CDT0-9,YDT0-9)
ISTREAM (NAA_BBFDT0-15)
IC2301
LPDDR
IC2101,2102
LPDDR
PCIE
LVEPCLK
X1158,IC1155,IC1157
25MHz
IC901
EEPROM
X1157,IC1151-1154,1158
148.5MHz
IC921
TEMP
IC907
eMMC
CN303
CN100
MDC-23
IC502
SPIFlash Config ROM
X600
150MHz
IC401
X700
200MHz
VREFCONFIG (RSV1), VUP_TX/RX
IC507,510,514
Buff
IC515
CONFIG. /OPDATA
MOSI/DIN
D00-03
VUP_RECONF_X
IC513
VREFCONFIG(RSV0)
ZQ_MEM_SATA_1-4_P/N
ZQ_MEM_SDA/SCL
AG3 FPGA
MEM_PWR_ON/MEM_ALL_PDWN,MEM_ZQ_INTR
I2C_SDA/SCL
I2C_SDA/SCL
MIO6/7_I2C_SDA/SCL
I/O EXPANDER
IC301
IC1001-1004
DDR4
PS_DDR4 BUS
SATA
X1155
150MHz
IC902,903, IC908,909
SPIFlash Config ROM
IC1501-1504
DDR4
PL_DDR4 BUS
ADD/CMD
X1301
200MHz
X816
33.3333MHz
VUP_RX/TX
IC913-916
Buff
IC920
Buff
QSPI_LWR_DQ0/DQ1
PCIE
PCIE/USB
X813
100MHz
IC904
VUP_XCS_ZQ
X601,IC609
27MHz
(RTC)
X812
32.768kHz
ZQ_MG0_VG0I0-3_P/N
MG0_ZQ_VG000-3_P/N
X2501
27MHz
CODEC (MARGAUX)
SPI FLASH
IC2503
LPDDR4
IC2601,2602
IC007
IC1100-1103
IC1200-1203
NAND
IC800
TEMP
IC100,102
AG3_RESET
RESET
+1.8V
IC813-815
+1.8V
RESET
MEM_RESET_X
SYNQ PROG
POP RESET
SRESET
S811-814

Frame Wiring



Revision History

Date	History	Contents
2019. 5	1st Edition 9-932-690-01	—
2019. 12	Revised-1 9-932-690-02	Added the models: HKCU-REC55 • **Modifications:** 1-1. Location of Printed Wiring Boards, 1-7-1. Corresponding PLDs, 1-9-1. Fuse, 1-9-2. Circuit Protection Element, 2-1. Notes on Replacing the Parts, 2-6. VIF-75 Board, 2-7. SY-467 Board/AT-195 Board, TX-167B Board (HDCU5500/HKCU-FB50)/TX-167A Board (HDCU3500), 4-2-2. Description of SERVICE Menu • **Additions:** 1-2-7. ENC-185 Board, 1-2-8. MDC-23 Board, 2-19. HKCU-REC55, Section 5. Web Maintenance Menu, 6-1-19. CN-4058 Board, 6-1-20. IF-1371 Board, 6-1-21. MDC-23 Board, 6-1-22. ENC-185 Board • **Additions of the exploded view:** ENC Assembly (HKCU-REC55) (1/2), ENC Assembly (HKCU-REC55) (2/2) • **Additions of the supplied accessories:** HKCU-REC55 • **Modifications of the block diagrams and frame wiring:** Overall (1/5), Overall (2/5), Overall (3/5), Overall (4/5), Frame Wiring • **Additions of the block diagrams:** Overall (5/5)

HDCU3500 (SY)
HDCU5500 (SY) J, E
9-932-690-02

Sony Corporation

Printed in Japan
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